

翰默大样本

DELIVERY PROGRAM

翰默

HAIMER®

## 以质取胜。

### 我们的公司理念

尊敬的客户和潜在的客户

我们很高兴向您提供新的翰默公司总样本。在本汇编中，我们汇集了所有HAIMER翰默样本，并将不断推出新产品和服务。

作为机床领域的系统合作伙伴，为您的各种刀具和加工需求提供整体的解决方案是我们的首要任务。

HAIMER翰默于1977年以一个机加工车间起家。从一开始，翰默就被认为是一个优质的供应商，并一直坚持“以质取胜”的企业理念。

即使今天我们在全球拥有800多名员工，质量仍然定义着我们的行动。

为了我们的客户，我们始终如一地追求高精度，这是我们公司理念的中心：

- 通过双重100%检验确保质量 – 微米级精度
- 创新来自于每年8%的研发比
- 快速和充满活力
- 通过高效的沟通确保灵活性
- 可靠性-高库存确保了交付能力
- 很好的性价比

我们很高兴以我们对精确和创新的热情继续支持您，维护我们作为行业标杆的地位，忠实于我们的企业理念：

### 以质取胜。



Franz Haimer

公司创始人兼 Haimer GmbH首席执行官  
(CEO)  
Company Founder and  
CEO Haimer GmbH



Claudia Haimer

公司创始人兼 Haimer GmbH首席执行官  
(CEO)  
Company Founder and  
CEO Haimer GmbH



Andreas Haimer

Haimer GmbH 总经理和翰默集团总裁  
Managing Director Haimer GmbH and  
President Haimer Group

## QUALITY WINS.

### Our corporate company philosophy

Dear customers and prospective customers,

We are very pleased to present you the new HAIMER general catalog. In this compilation, we bundled all HAIMER catalogs and it will be continuously updated with new products and services.

As a system partner all around the machine tool, it is our top priority to provide you with consistent solutions for all of your tooling and machining needs.

HAIMER started as a job shop in 1977. From the very beginning HAIMER has been known as a quality supplier and has lived up to the corporate company philosophy "Quality wins" ever since.

Even today with over 800 employees worldwide, quality still defines our actions.

For our customers we consistently strive for the highest precision which is at the center of our company philosophy:

- Quality – micron precise through double 100% inspection
- Innovation through 8% R&D-ratio
- Fast and dynamic
- Flexibility through short paths of communication
- Reliability – Delivery performance due to high stock availability
- Best price-performance ratio

We are pleased to continuously support you with our passion for precision and innovation, expanding our position as the market leader, true to our corporate philosophy:

### Quality wins.

## 发展与挑战。 迎接新机遇。

## GROWING WITH CHALLENGES. OPEN FOR NEW POSSIBILITIES.

翰默公司的成功故事始于1977年的个人创业。翰默公司首先作为航空航天和汽车工业的供应商生产高精度零件。即使在那个时候，它也是力求达到尽可能高的质量标准。特殊的技能结合典型的翰默创新热情，是翰默开发第一个自有产品的理想基础：

1988年，HAIMER翰默公司推出了其第一个3D寻边器，这是一个里程碑，此后，从刀柄、热缩机和平衡机技术到整体硬质合金立铣刀，许多创新技术都紧随其后。

HAIMER翰默公司最新的产品线扩展集成了HAIMER Microset刀具预置技术（对刀技术）。今天，翰默公司被认为是刀具行业的全球系统供应商，是欧洲市场上刀柄技术的领导者

同时，翰默的伊根豪森Igenhausen生产基地拥有先进的机械设备 并且高度的自动化程度得到了不断的发展。

此外，翰默在全球各大金属加工市场都拥有自己的销售和服务子公司。在比勒菲尔德的第二个生产基地，高精度的刀具预调仪（对刀仪）已经生产了50多年。

The HAIMER success story started as a one-man-business in 1977. HAIMER first produced high-precision parts as a supplier for the aerospace and automotive industry. Even back then it was about achieving the highest quality standards. Acquired special skills in conjunction with the typical HAIMER passion for innovation proved to be an ideal base for first in-house product developments:

In 1988, HAIMER presented its first 3D-sensor, a milestone which has since been followed by many more: From tool holders, shrinking and balancing technology to solid carbide end mills.

HAIMER's latest product line expansion is the integration of the HAIMER Microset tool presetting technology. Today, HAIMER is considered a global system supplier in the tooling industry and is the European market leader in tool holding technology.

Simultaneously, the Igenhausen production site with state-of-the-art machinery and a high degree of automatisisation has been consistently further developed.

In addition, HAIMER has expanded globally with its own sales and service subsidiaries in the largest metal working markets. At the second production site in Bielefeld high-precision tool presetters have been produced for over 50 years.



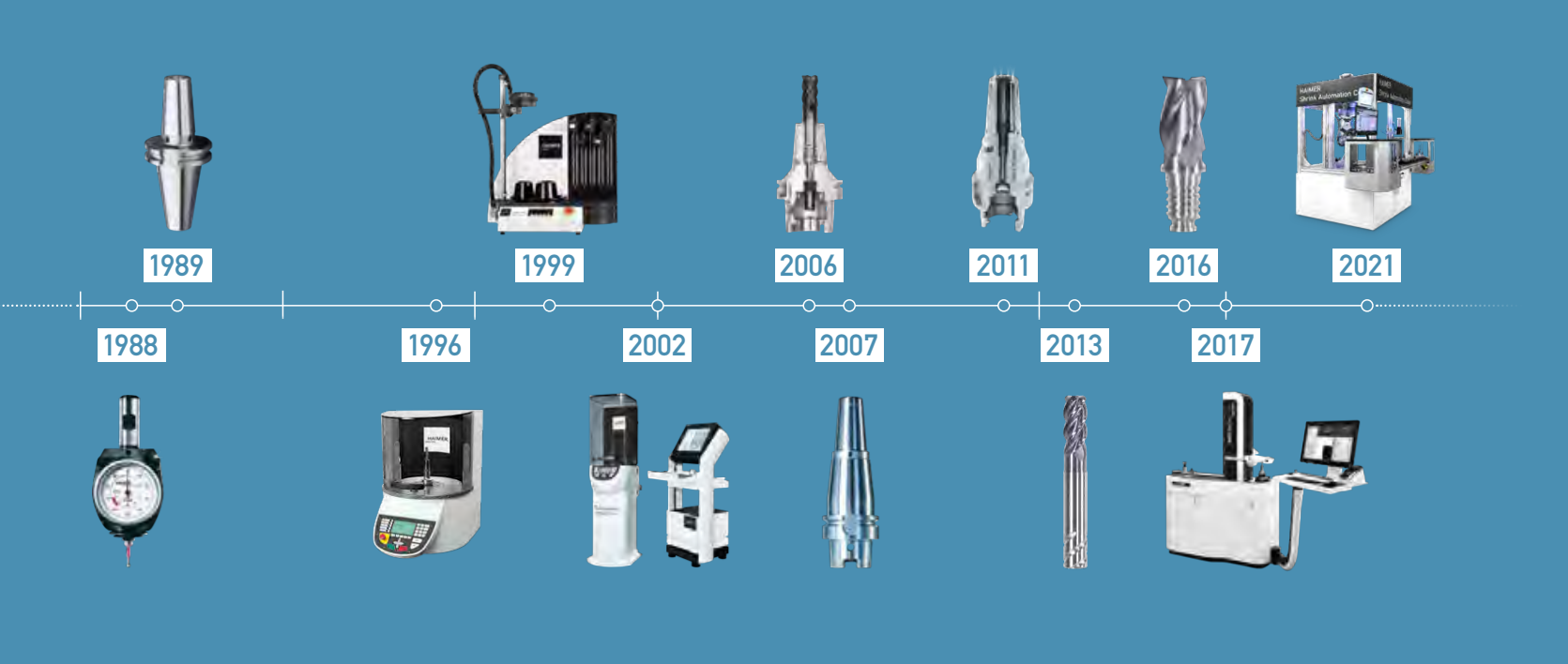
1977



# >500

HAIMER翰默公司800多名员工中有500多人在奥格斯堡附近的伊根豪森Igenhausen的工厂工作。他们为严格遵守我们的企业理念而工作：**以质取胜。**

More than 500 of over 800 HAIMER employees are working at the production site in Igenhausen, near Augsburg. They are working for the strict compliance of our corporate philosophy: **Quality wins.**



## 质量从产品开始。 以服务完成。

### QUALITY STARTS WITH THE PRODUCT. SERVICE COMPLETES IT.

我们的子公司遍布全球，我们保证高质量的服务。我们随时为您服务：我们的本地专家可以根据您的具体要求，在您的业务活动中亲自为您提供支持。

从具体的产品建议到个性化的客户服务支持，翰默全球子公司在整个销售过程中帮助您，甚至在产品交付完成后。

在没有直接销售和服务子公司的国家，我们训练有素的分销商和有能力的合作伙伴能够在当地支持我们的终端客户。因此，我们能够出口我们的产品到全球100多个国家。

With our subsidiaries across the globe we guarantee the highest possible quality of service. We are always at your service: Our local specialists are available to personally support you in your respective business activities and based on your specific requirements.

From specific product advice to individual customer service support, the global HAIMER subsidiaries help you throughout the entire sales process and even after the delivery is completed.

In countries without direct HAIMER sales and service subsidiaries, we trust our trained distribution and competence partners to locally support our end customers. Thus we are able to export our products to over 100 countries worldwide.

[www.haimer.cn](http://www.haimer.cn)

HAIMER 翰默美国

HAIMER  
翰默墨西哥

HAIMER 翰默巴西



翰默中国  
Haimer (Shanghai) Trading Co.,Ltd.

# 16

这是我们全球子公司的数量。以一流的服务和全面的支持，在全球贯彻我们的企业理念：**以质取胜**。

This is the number of our subsidiaries worldwide. For first-class service, competent consultation and the global implementation of our corporate philosophy: **Quality wins.**



# 质量在于过程。 HAIMER翰默是您的系统合作伙伴。 QUALITY LIES WITHIN THE PROCESS. HAIMER IS YOUR SYSTEM PARTNER.

我们为整个金属切削加工过程提供突破性的解决方案! 从高效和专业的热缩刀柄夹持刀具, 到动平衡机和对刀技术或加工本身-技术先进的刀柄和整体硬质合金立铣刀。

翰默提供的各种解决方案都可以无缝地相互协作。这减少了非生产时间, 并允许您提高效率和生产率。当然, 翰默的质量承诺对翰默的各种产品都有效。

综上所述: 拥有HAIMER翰默, 您不仅购买了产品, 而且购买了完整和一致的解决方案。

We are offering groundbreaking solutions for the entire machining process! From efficient and professional tool handling through shrinking, balancing and presetting technology or machining itself – with technologically advanced tool holders and solid carbide end mills.

All of the solutions provided work seamlessly together with one another. This reduces non-productive times and allows you to increase your efficiency and productivity. Of course, the HAIMER quality promise is valid for the entire product offering.

In summary: With HAIMER, you are not only purchasing a product but a full and consistent solution.

## 刀具管理

### 完整的刀具存储和管理的解决方案

满足功能性和符合人体工程学的工作空间。HAIMER DAC翰默刀具管理系统软件提供了一个刀具管理系统来连接机床周围的所有工艺步骤。

## 测量技术

### 3D寻边器和对中仪

快速和精确的定位和测量您的工件和夹具系统。

## MEASURING TECHNOLOGY

### 3D-sensors and centering devices

Fast and precise positioning and measuring of work pieces and clamping systems.

# 13.660

为了提高您的效率和生产率, 我们将多品种的产品分为六大类。  
**以质取胜。**

A high variety of products in six product segments is at your disposal: In order to increase your efficiency and productivity. **Quality wins.**

## TOOL MANAGEMENT

### Entire solution for tool storage and management

For functional and ergonomic workspaces. The HAIMER DAC offers a Tool Management system to connect all process steps around the machine tool.

## 刀具技术

刀柄和整体硬质合金立铣刀  
高端刀具技术大幅度地提高  
切削性能和精度。

## TOOLING TECHNOLOGY

### Tool holders and solid carbide end mills

High-end tooling technology for maximum cutting performance and precision.

## 热缩机技术

### 感应式热缩机

在数秒内更换刀具，很大的夹紧力和精确的刀具夹持。

## SHRINKING TECHNOLOGY

### Inductive shrink fit machines

Tool change within seconds with maximum clamping forces and most precise tool holding.

## 动平衡机技术

动平衡机适用于刀柄、砂轮和其他回转体。

通过减少生产中的不平衡量，提高生产效率，延长刀具寿命和工艺安全性。

## BALANCING TECHNOLOGY

Balancing machines for tool holders, grinding wheels and other rotors.

More productivity, longer tool life and process security through less imbalance in production.

## 对刀技术

对刀仪用于精确地测量刀具

在对刀过程中提高生产率和过程安全性-直接将数据传输到机床。

## PRESETTING TECHNOLOGY

Tool Presetters for precise measuring of tools

More productivity and process security in tool presetting – direct data transfer to the machine tool.





## 质量的一致性。 QUALITY NEEDS CONSISTENCY.

对翰默来说，质量不仅仅是一种承诺，它是我们行动的中心，是过程和最终结果的关键因素。

我们信赖质量的客户遍布世界各地。我们的抱负是开发解决方案，帮助伟大的公司实现他们的目标，增加他们的竞争优势，并协助他们长期地扩大成功的市场。

这需要有经验、有技能、有高度积极性和合格的员工。需要使用大多数现代技术，以及整合来自不同行业的需求的能力。

特别是在每一个过程步骤中不断做到最好的意愿是一个关键因素。这就是翰默-了解我们的公司和我们能为您做什么。

**For us at HAIMER quality is not just a promise. It is at the center of our actions and a key factor for both the journey as well as the end result.**

Our customers around the world rely on quality. It is our ambition to develop solutions that help great companies to achieve their targets, increase their competitive advantage and expand their successful market position in the long run.

This requires experienced, skilled and highly motivated and qualified employees. The use of most modern technologies is demanded, as well as the ability to completely incorporate requests from various industries.

Particularly the continued willingness to do the very best again and again in every single process step is a key factor. This is HAIMER – discover our company and what we can do for you.

# 200%

始终雄心勃勃: 除了现有的DIN标准, HAIMER翰默还定义了自己的更高的标准。我们的双重100%检验确保了品质。「以质取胜」

Consistently ambitious: Besides the existing DIN-standards, HAIMER has defined its own considerably higher standards. Our double 100% inspection ensures the compliance. **Quality wins.**

我们绝不碰运气。  
我们彻底检验。  
从原材料选择到交货。  
翰默质量管理体系。

We leave nothing to chance.  
We inspect thoroughly.  
From raw material selection to delivery.  
The HAIMER Quality Management.

## 持续前进。 KEEP GOING ON AND ON.

2018年，HAIMER翰默公司在Motzenhofen设立了另一个新的生产基地，制定了新的标准。自那时起，翰默在超过4400平方米的生产车间内，利用现代化和自动化的机床，车削和铣削高精度旋转刀柄。

在位于Motzenhofen的HAIMER翰默工厂，我们每天可以生产4000个刀柄，是一个大型的旋转刀柄生产工厂。

不用说，HAIMER翰默使用自己的刀柄、切削刀具、热缩机、动平衡机和对刀技术，以及我们自己的刀具管理系统。

原材料的检验、质量测量室和一个大的刀具室提供了很好的条件来保证一致的品质——从第一个刀柄到最后一个。

In 2018 HAIMER set new standards with the new and additional production site in Motzenhofen. Since then HAIMER is turning and milling high precision rotating tool holders on a production space of more than 4,400 m<sup>2</sup> with the help of the most modern and automated machine tools.

With a maximum capacity of 4,000 tool holders per day, the HAIMER plant in Motzenhofen is the biggest production facility for rotating tool holders worldwide.

Needless to say, HAIMER is using its own tool holders, cutting tools, shrinking, balancing and presetting technology, as well as our own Tool Management Systems.

The raw material inspection, a quality measuring room and a large tool room provide the best conditions to produce consistent quality – from the first holder to the last.



# 4.000...

每天的刀柄产量是一个挑战，而我们面临的更大的挑战是为每个刀柄提供一致的μm级精度  
「以质取胜」。

...Tool holders per day is our maximum capacity. The challenge for us is to deliver each and every tool holder in consistent μm-precise accuracy.  
**Quality wins.**



## 精准达到目标。 在许多行业。

## PRECISION REACHES ITS TARGET. IN MANY INDUSTRIES.

航空航天、重型机械结构件、通用机械工程、模具、汽车行业、医疗行业、手表行业、消费类电子产品对机械加工有许多不同的要求：从医疗行业的微型机械加工到航空航天行业的重型切削，翰默在不同的行业都有自己的专长。

然而，所有行业都有一个共同点：当金属切削的精度和生产率是目标时，HAIMER翰默技术就在您的车间中使用。

无论哪一个结果是在价值链的末端，最大的工艺可靠性是每个公司的决定性的成功因素。而这正是创新的HAIMER翰默解决方案所提供的。

总而言之，翰默公司的客户正在以更精确、更安全、更高效的解决方案进行加工——同时减少刀具和机床的磨损。

Aerospace. Heavy duty machine construction. General mechanical engineering. Die and mold. Automotive industry. Medical industry. Watchmaking industry. Consumer electronics. HAIMER is present in various industries with many different requirements for machining: From micro-machining in the electronic and medical industry to heavy-duty cutting in the aerospace industry.

However, all industries have one thing in common: Wherever maximum precision and productivity in metal cutting is the target, HAIMER technology is often used on the shopfloor.

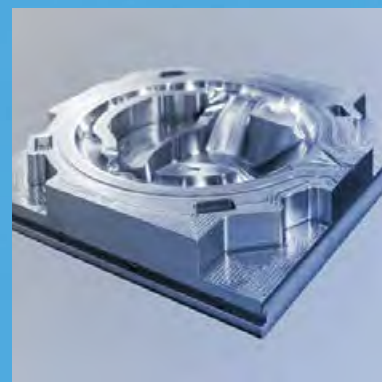
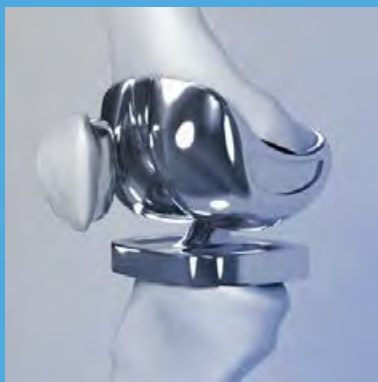
No matter what result is at the end of the value chain, every company depends on maximum process reliability for their success. And this is exactly what innovative HAIMER solutions provide.

All in all, HAIMER customers are machining with more precision and with a safer, more productive solution – reducing the wear of tools and machine tools at the same time.

# 37.359

许多快速发展的令人兴奋的公司都依赖于HAIMER翰默技术。这个数字每天都在增加「以质取胜」

This many exciting companies from dynamic industries are depending on HAIMER technology. And this number increases everyday. **Quality wins.**



喷气发动机、结构零件、植入物、汽车和火车的发动机和底盘零件以及通用工程的复杂零件只是HAIMER翰默产品应用领域的一小部分。

Jet engines, structural parts, implants, engine and chassis components for cars and trains as well as complex parts for consumer electronics and general engineering are only a few of the application areas HAIMER products are used for.

## 官方翰默服务。 随时为您服务。 HAIMER CARE. WAYS AT YOUR SERVICE.

翰默公司的机器以其高质量和长寿命而闻名。对于翰默来说，质量不仅是产品，而是通过翰默员工提供的优质服务来持续。

HAIMER翰默技术人员快速到达现场，您将受益于：

- 早期磨损检测
- 维护设备的状态
- 全能的HAIMER翰默专家
- 一致的质量水平
- 获得ISO 9001认证的先决条件

The HAIMER machines are known for their high quality and longevity. For HAIMER, quality does not end with the products, but continues through the quality of service HAIMER employees provide.

The HAIMER technicians are quickly on site and you benefit from:

- Early wear detection
- Maintaining the condition of the equipment
- High availability of HAIMER specialists
- Consistent quality level
- Prerequisite for certification according to ISO 9001



想要了解更多关于HAIMER翰默的服务项目，请联系您的联系人或访问：

[www.haimer.cn/services](http://www.haimer.cn/services)

Learn more about the HAIMER service program from your contact person or by visiting:

[www.haimer.biz/services](http://www.haimer.biz/services)

# 演示车 Demo Van

## 在您的车间提供个性化建议。

我们的演示车在全球进行国际旅行，车上有我们最新的解决方案，并现场展示艺术级的热缩机和热缩刀柄、刀具动平衡机、对刀仪。我们为您的完成装配的刀具提供免费的动平衡检测，通过这些现场测试，我们经常能够发现您主轴损坏和振动的原因！

请咨询我们，并从我们专家的经验中受益！我们将来到您的车间！

## Individual advice at your shop.

We travel internationally with our Demo Vans. On board we have our latest solutions and demonstrate state-of-the-art shrink fit, balancing and presetting of tools LIVE. We provide a free balancing check of your tool assemblies on site – through these tests, we often discover the reasons for spindle damage and vibrations!

Ask us and benefit from the experience of our experts! We will come to your facility!





## HAIMER 翰默 360° 应用中心

### HAIMER APPLICATION CENTER 360°

HAIMER 翰默邀请您参观 HAIMER 翰默全球最大的应用中心——在虚拟世界中 360° 地游览翰默展厅。

在过去的几年里，位于伊根豪森 Igenhausen 的翰默 HAIMER 应用中心已经成为全球金属切削行业客户的中心会议场所，现在我们在“翰默 360° 应用中心”提供全方位的游览，是物理应用中心的虚拟化成果。从现在开始，来自世界各地的用户都可以免费获得数字 3D 的体验。复杂的 360° 照片和视频的组合与现代视频通信技术真正使这成为一个独特的体验。

在应用中心 360° 的游览中，访客会发现很多可点击的信息，比如产品视频、网页链接和 40 多台机器和展柜上的样本。所有交互元素都有德语版本和英语版本。在 360 度应用中心的欢迎页面，游客可以选择开始一个自助游，在那里他们将自助地游览整个展厅，或选择一个翰默 HAIMER 专家作为导游，后者提供了将访问与个性化问题结合的机会，通过网络摄像头进行视频咨询和个人交流。每台机器也可以通过放大和单击交互元素来查看详细信息。这就是访问者和翰默 HAIMER 专家讨论解决方案的方式，将访客的应用问题直接呈现在机器面前，对不同的机器型号进行比较。

HAIMER invites customers to visit the Application Center – the largest HAIMER showroom worldwide in a virtual 360° tour.

Over the past few years, the HAIMER Application Center in Igenhausen has been a central meeting place for customers in the metal cutting industry from all over the world. Now HAIMER offers 360° tours in the “Application Center 360°”, a virtual twin of the physical Application Center. From now on, visitors from all over the world have free access to a digital 3D-experience with many fascinating features. The combination of sophisticated 360° photos and videos with modern video communication technology truly makes this a unique experience.

During a tour in the Application Center 360°, visitors will discover clickable information such as product videos, web links and brochures at over 40 machines and tool displays. All interactive elements are available in the German and English language. On the welcome page of the Application Center 360°, visitors can either decide to start a self-guided tour, where they will navigate through the room independently, or choose a guided tour with a HAIMER expert. The latter offers the opportunity to combine the visit with a personalized video consultation and individual communication via webcams. Every machine can also be viewed in detail by zooming in and clicking the interactive elements. That is how visitors and the HAIMER expert can discuss solutions for the visitors' application problems directly in front of the machine and present different machine models to compare.





在这里开始体验HAIMER翰默360°应用中心：  
[www.haimer.biz/applicationcenter360](http://www.haimer.biz/applicationcenter360)  
Start your own tour in the Application Center 360° here:  
[www.haimer.biz/applicationcenter360](http://www.haimer.biz/applicationcenter360)



## 保持联系 STAY CONNECTED.



如今, HAIMER翰默集团活跃于以下的社交媒体: WeChat微信、YouTube、LinkedIn、Xing、Facebook、Instagram和Twitter。

我们在翰默微信公众号上提供:

- 产品及应用视频
- 专题报告
- 客户的成功案例

Today, the social media presence of the HAIMER group comprises followers on YouTube, LinkedIn, Xing, Facebook, Instagram and Twitter.

On our WeChat official account we offer:

- Product and application videos
- Tutorials
- Customer success stories



请关注翰默微信公众号, 您将能够轻松地将翰默的产品信息和成功案例分享给朋友们!

Please follow up HAIMER WeChat official account, you could share HAIMER product information and success stories to your friends easily!

## 下载DXF和STP文件 DOWNLOAD OF DXF AND STP FILES

对于我们的客户, 翰默提供免费的图纸下载, 以便顺利地进行轮廓干扰分析并集成到CAD/CAM系统中。所有HAIMER翰默刀柄和刀具, 都可以下载2D和3D图纸, 如: DXF和STP。

只要在我们公司的网站上注册就可以访问。下载超过7000个刀柄、刀具及附件的图纸。超过34000名用户已经在使用这项服务。

For our customers, HAIMER offers free drawings to download for a smooth interference contour analysis and integration into the CAD/CAM system. For all HAIMER tool holders and tools, there are 2D and 3D files as DXF and STP available.

Simply register on our corporate HAIMER website to get access. Overall drawings for more than 7.000 tool holders, cutting tools and accessories are available for download. More than 34.000 users are already taking advantage of this service.



[www.haimer.cn/registrierung](http://www.haimer.cn/registrierung)  
[www.haimer.biz/registration](http://www.haimer.biz/registration)



# 翰默——精密工程加持自动化

## HAIMER – PRECISION ENGINEERING MEETS DIGITIZATION



## HAIMER 翰默信息/Info

保持与HAIMER翰默通讯的联系。  
HAIMER翰默通讯让您了解最新的翰默集团的信息。

注册的好处:

- 活动和会议的免费门票
- 邀请函(例如:开放日)
- 应用提示和来自其他客户的案例
- 关于翰默产品的重要信息

Keep in touch with the HAIMER newsletter. The HAIMER newsletter keeps you informed about the latest HAIMER Group updates.

**Benefits of registering:**

- **Free tickets** for events & conventions
- **Invitations** (e. g. for open house)
- **Application tips and stories** from other customers
- **Important information** about HAIMER products













在此注册翰默通讯:  
[www.haimer.biz/nc/news/newsletter-subscription](http://www.haimer.biz/nc/news/newsletter-subscription)  
Sign up for the newsletter here:  
[www.haimer.biz/nc/news/newsletter-subscription](http://www.haimer.biz/nc/news/newsletter-subscription)



以质取胜。

QUALITY WINS.

	刃具技术/Tooling Technology	22
	刀柄/Tool Holders	226
	砂轮杆/Grinding Wheel Adapters	474
	热缩机技术/Shrinking Technology	516
	动平衡机技术/Balancing Technology	596
	对刀技术/Presetting Technology	650
	测量技术/Measuring Technology	682
	刀具管理/Tool Management	706
	刀柄附件/Accessories for Tool Holders	730
	订货号索引/Article Code Index	780

刀具技术

TOOLING TECHNOLOGY

## HAIMER MILL 翰默立铣刀 Power Series

HAIMER MILL Power Series 硬质合金立铣刀 – 特征及优势/ HAIMER MILL Power Series Solid Carbide End Mills – Unique Advantages	24
公式 – 铣削基础/Formulas – Milling Basics	27

## HAIMER 翰默安全锁 Safe-Lock

Safe-Lock 防掉刀技术/Safe-Lock Pull Out Protection	28
---	----

## HAIMER VHM 翰默硬质合金立铣刀/Solid Carbide End Mills

硬质合金立铣刀一览表/Overview Solid Carbide End Mills	32
图标、订货号和材料表的介绍/Explanation of Icons, Article Code, Material List	38
硬质合金立铣刀/Solid Carbide End Mills	41

## HAIMER Duo-Lock 翰默模块式铣刀头/Duo-Lock Milling Heads

特点和优势/Characteristics and Advantages	90
Duo-Lock 模块式铣刀头一览表/Overview Duo-Lock	92
图标、订货号和材料表的介绍/Explanation of Icons, Article Code, Material List	100
Duo-Lock 铣刀头/Duo-Lock Milling Heads	103

## Duo-Lock 附件/Duo-Lock Accessories

Duo-Lock 棒料/Duo-Lock Blanks	178
Duo-Lock 延长杆/Duo-Lock Extensions	190
Duo-Lock 减径杆/Duo-Lock Reductions	199
Duo-Lock 模块式筒夹/Duo-Lock Collets	200
Duo-Lock 一体式刀柄/Duo-Lock Monoblock Holders	201
Duo-Lock 模块式模具专用刀柄/Duo-Lock Die and Mold Chucks	206
Duo-Lock 刀长调整工具/Duo-Lock Length Presetting Tool	208
Duo-Lock 扭力扳手/Duo-Lock Torque Master	209
Duo-Lock 扭力扳手的插件/Duo-Lock Inserts for Torque Master	210
Duo-Lock 滚针轴承扳手/Duo-Lock Roller Bearing Wrench	211
Duo-Lock 扳手/Duo-Lock Hand Wrench	212
Duo-Lock 模块式筒夹的锁刀座/Duo-Lock Collet Clamping Device	212
扭力扳手/Torque Wrench	213

## 非标定制/Special Requests

非标定制表/Form Special Requests	216
-----------------------------	-----

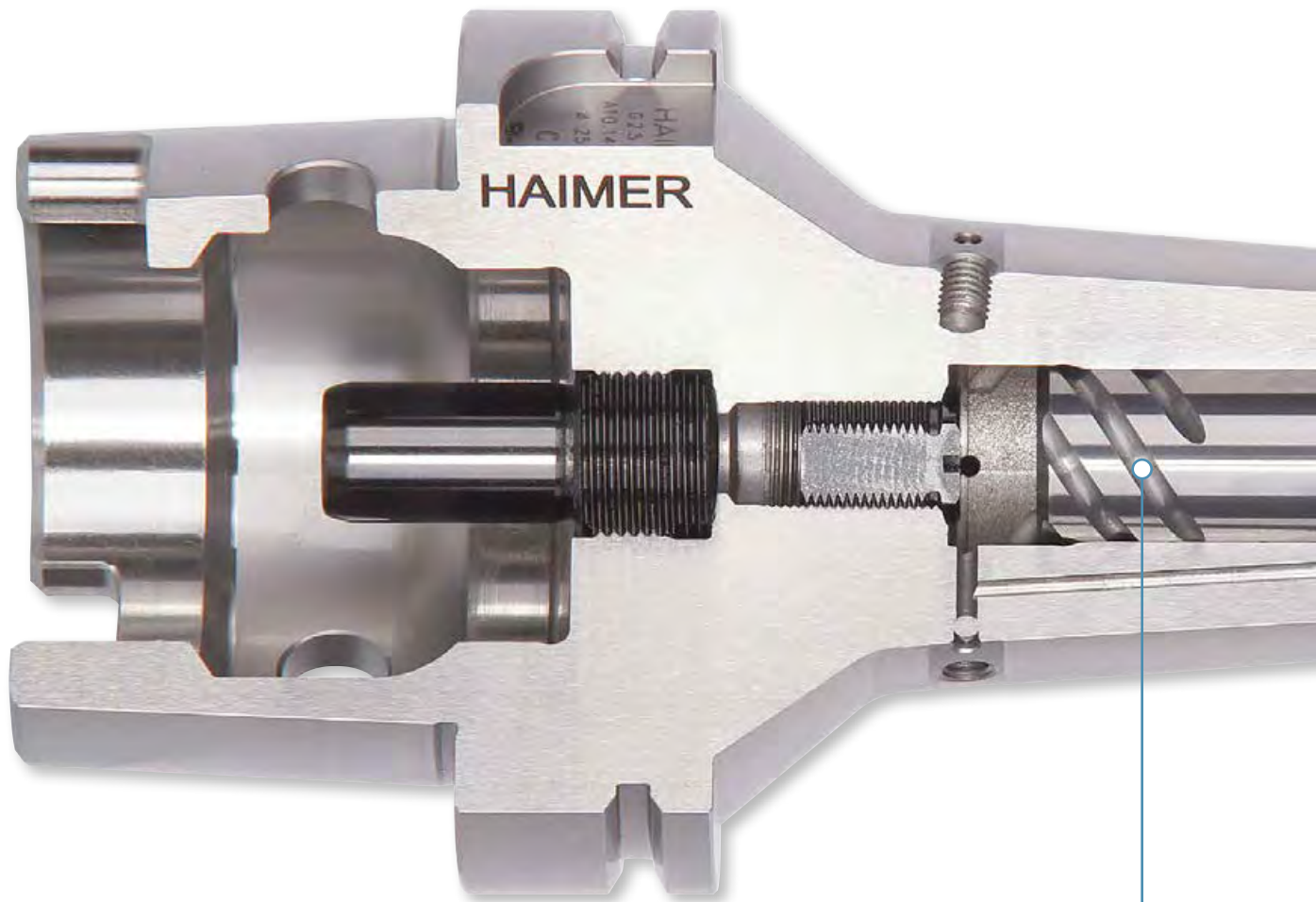
备注：本样本中有3种ER筒夹，分别是：  
ER弹簧筒夹、热缩筒夹和模块式筒夹，他们的夹持原理不同。本文中的弹簧筒夹即ER弹簧筒夹。



# HAIMER MILL Power Series

## 硬质合金立铣刀 – 独特的优势

### Solid Carbide End Mills – Unique Advantages



#### HAIMER 品质 – 100% 保证:

- 持续的切削性能
- 很高的工艺稳定性

#### HAIMER Quality – 100% guarantee:

- Consistent cutting tool performance
- Maximized process reliability

#### Safe-Lock 柄部

- 很强的防掉刀保护
- 很好的跳动精度
- 很大的金属去除率
- 即使刀柄不带安全锁结构也能够保证持续的夹持力和扭矩

#### Safe-Lock shank

- Maximum pull-out protection
- Best run-out accuracy
- Maximum cutting volume
- Even at tool holders without Safe-Lock consistent clamping forces and torques

**缩小的颈部**

- 更大的切深能力 (ap)
- 扩展的应用范围

**Recessed Neck**

- Greater reach capability (ap)
- Expanded application range

**精确调整动平衡精度 < 1gmm**

- 平稳和无振动的旋转
- 保护主轴的轴承

**Fine-balanced to < 1gmm**

- Smooth vibration-free rotation
- Spindle Bearing Protection

**最大的跳动误差为 5 μm**

- 优化的重复定位精度
- 更好的加工质量
- 减少振刀
- 刀具磨损均匀, 提升刀具寿命

**Max. 5 μm run-out accuracy**

- Optimized repeatability
- Better machining quality
- Reduced chatter
- Increased tool life thanks to equal tool wear

**高精度的切削刃口钝化**

- 减少崩刃的倾向
- 扩大应用范围

**High precision rounding of cutting edges**

- Less prone to chipping
- Wide application range

**抛光的表面**

- 优化排屑性能
- 提升刀具寿命

**Polished Surfaces**

- Optimized chip removal
- Increased tool life

**防振的包装**

- 很高品质的运输

**Shock-resistant packaging**

- Top quality at each delivery





# HAIMER MILL Power Series

更好的切削性能和刀具寿命

For maximum cutting performance and tool life

# 公式 – 铣削基础

## FORMULAS – MILLING BASICS

### 切削速度，走刀速度和铣削

#### Cutting speed, Feed and Milling

描述 Description	公式 Formula	符号 Legend
转速 RPM	$n = \frac{v_c \cdot 1000}{D \cdot \pi}$	$a_e$ = 径向切宽 [mm] / Radial cutting width [mm] $a_p$ = 轴向切深 [mm] / Axial cutting depth [mm] D = 直径 [mm] / Diameter [mm]
切削速度 Cutting speed	$v_c = \frac{D \cdot \pi \cdot n}{1000}$	$f_n$ = 每转走刀量 [mm/U] / Feed per rotation [mm/r] $f_z$ = 每齿走刀量 [mm/Z] / Feed per tooth [mm/Z]
每齿走刀量 Feed per tooth	$f_z = \frac{f_n}{z} \quad f_z = \frac{v_f}{z \cdot n}$	$h_m$ = 平均切屑厚度 [mm] / Average chip thickness [mm] $k_c$ = 特定的切削力 [N/mm <sup>2</sup> ] / Specific cutting force [N/mm <sup>2</sup> ] l = 铣削的长度 [mm] / Length of cut [mm]
每转走刀量 Feed per rotation	$f_n = f_z \cdot z \quad f_n = \frac{v_f}{n}$	n = 每分钟转速 [U/min] / Rounds per minute [rpm] $P_a$ = 驱动功率 [kW] / Drive power [kW]
走刀速度 Feed rate	$v_f = f_z \cdot z \cdot n$	Q = 金属去除率 [cm <sup>3</sup> /min] / Material removal rate [cm <sup>3</sup> /min] $T_c$ = 切削时间 [min] / Cutting time [min]
金属去除率 Material removal rate	$Q = \frac{a_p \cdot a_e \cdot v_f}{1000}$	$v_c$ = 切削速度 [m/min] / Cutting speed [m/min] $v_f$ = 走刀速度 [mm/min] / Feed rate [mm/min]
驱动功率 Drive power	$P_a = \frac{a_p \cdot a_e \cdot v_f \cdot k_c}{60 \cdot 10^6 \cdot \eta_{mt}}$	z = 齿数 / Number of teeth $\pi = 3,14\dots$ $\eta_{mt}$ = 有效比例 / Efficiency rate
切削时间 Cutting time	$T_c = \frac{l}{v_f} = \text{min}$	
平均切屑厚度 Average chip thickness	$h_m = f_z \cdot \sqrt{\frac{a_e}{D}}$	

# SAFE-LOCK® 防拔出保护——翰默安全锁系统

## SAFE-LOCK® PULL OUT PROTECTION – THE SYSTEM



无Safe-Lock结构，刀具被拔出，工件报废  
No pull out of the tool with Safe-Lock

### SAFE-LOCK® – 为刀具而设的安全带

在高效切削(HPC)中，刀具有可能会从刀柄中被拔出，主轴的高转速和高切削阻力是刀具被缓慢拔出的原因。甚至有非常大的夹持力的刀柄也不能避免这种情况，结果高品质工件将会报废。**Safe-lock®**翰默安全锁系统解决了这个问题。

刀柄中的锁销搭配刀具柄部的沟槽，为刀柄提供了额外的轴向的摩擦夹持力和轴向锁紧连接。刀具在使用中牢牢地被夹持，有效的防止了刀具被缓慢拉出，整个刀具的使用更加安全。

### SAFE-LOCK® – The safety belt for your tools

In high performance cutting (HPC), it is possible for the cutting tool to be pulled out of the chuck. The reason is a slow micro-creeping motion. It happens when cutting at high speeds and with high pull out forces. Even chucks with extremely high clamping force cannot prevent micro-creeping. High-quality work pieces become scrap as a result. **The Safe-lock® system offers a solution.**

The revolutionary system secures the cutting tool via the high accuracy frictional clamping in conjunction with a positive locking form fit connection.

This is accomplished by means of grooves in the cutting tools and the corresponding form fit in the tool holder. Resulting in a connection in which all potential movements of the cutting tool are prevented.

### 您使用SAFE-LOCK®安全锁系统的优势:

- 适合高效率切削
- 应用在高精度的热缩和筒夹夹持技术中
- 封闭式圆周夹持产生高扭矩
- 刀具不会被拉出，因此工件和机床无损伤（看左边的图片）
- 刀具不会打滑
- 专利授权：可授权生产(发明专利号码：CN 105057722 B\*)

➔ 达到很大的金属切削量的同时  
加工过程安全可靠

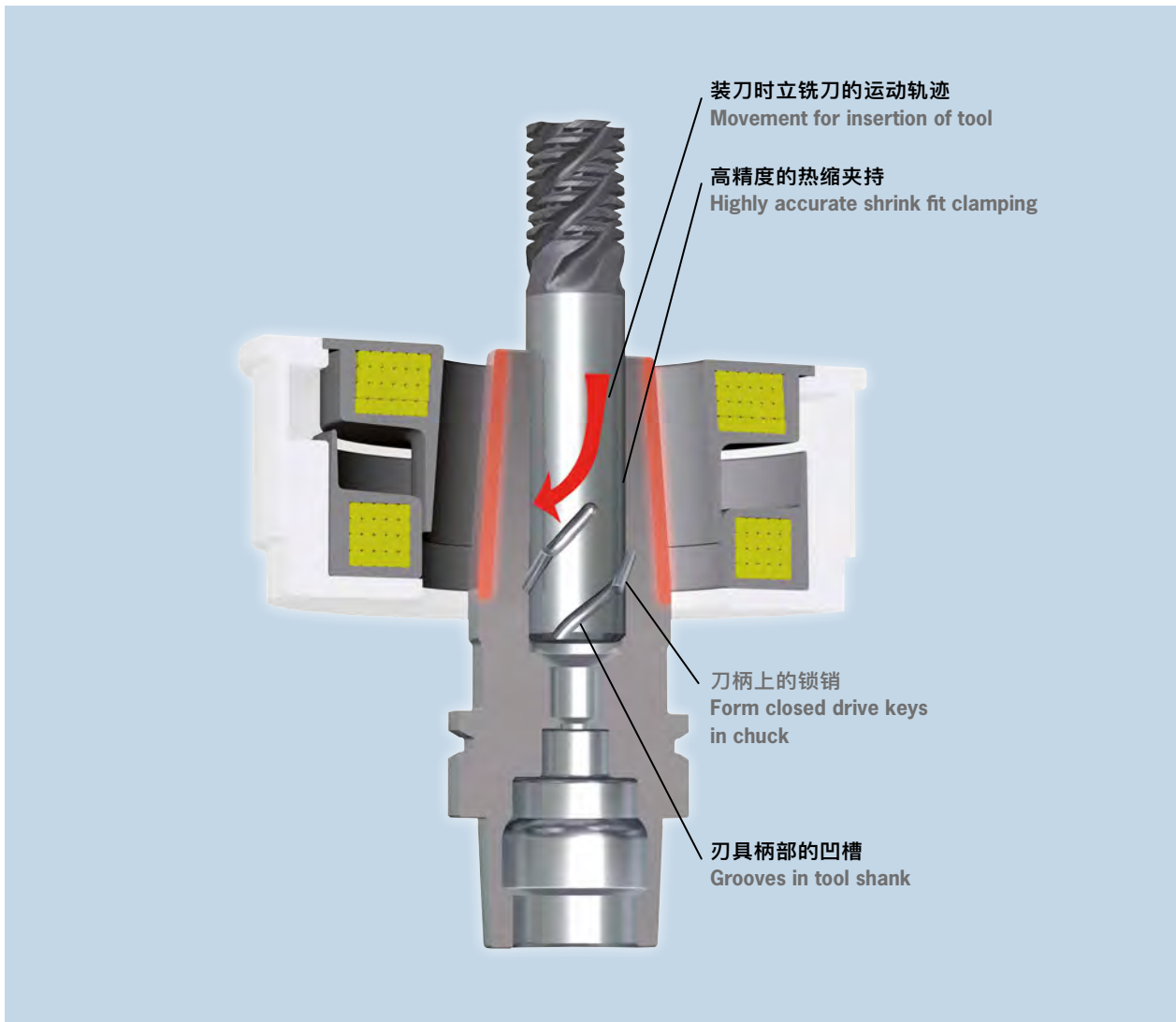
\*如需更多关于翰默专利的信息，请联系翰默（上海）贸易有限责任公司。

### Your advantages On the safe side with SAFE-LOCK®:

- For High Performance Cutting
- Highly accurate clamping due to shrink fit or collet chuck technology
- High torque due to form closed clamping
- No tool pull out (see image on the left)
- No twisting
- Patent granted: licensing possible

➔ Maximum metal removal rate  
with absolute process reliability

# SAFE-LOCK® 安全锁防拔出保护-功能 SAFE-LOCK® PULL OUT PROTECTION – FUNCTIONALITY



## 带SAFE-LOCK的强力热缩刀柄 POWER SHRINK CHUCK WITH SAFE-LOCK



## 带SAFE-LOCK的强力筒夹刀柄 POWER COLLET CHUCK WITH SAFE-LOCK



## SAFE-LOCK® 常见问题解答 SAFE-LOCK® FAQ

**问题:**  
带有 **Safe-Lock**结构的刀具是否可以夹持在没有安全锁结构的刀柄上?

**回答:**  
可以, 带有 Safe-Lock结构的刀具能够装在任何利用摩擦力原理夹持刀具的刀柄上。

**QUESTION:**  
*Can an end mill with Safe-Lock shank also be clamped into a tool holder without Safe-Lock pins?*

**ANSWER:**  
Yes, tools with Safe-Lock shank can be clamped in every frictional tool holder.

**问题:**  
带有 **Safe-Lock**结构的刀具是否可以调节长度?

**回答:**  
可以, 带有防拔出安全锁结构的刀具可以自由的在 Safe-Lock 的凹槽范围内移动。这样 Z 轴方向的长度可以快速简单的调节。

**QUESTION:**  
*Is the length of tools with Safe-Lock shank adjustable?*

**ANSWER:**  
Yes, the pull out protection Safe-Lock allows shifting the tool within the Safe-Lock groove without any problems.

**问题:**  
如何在带有 **Safe-Lock**安全锁结构的热缩刀柄上安装刀具?

**回答:**  
与直柄刀具安装相似, 带 Safe-Lock结构的柄部推入已加热的刀柄中, 旋转后夹紧。

**QUESTION:**  
*How can I shrink in tools with Safe-Lock shank?*

**ANSWER:**  
Tools with Safe-Lock shank are put in the heated tool holder and are then shrunk in with a twisting movement.

**问题:**  
如何将带 **Safe-Lock**结构的断刀从带安全锁的刀柄中取出?

**回答:**  
尽管有 Safe-Lock安全锁的凹槽, HAIMER 翰默的断刀取出装置 (订货号: 80.126.00) 可以毫无困难的将断刀取出。

**QUESTION:**  
*How can I get out broken tools with Safe-Lock shank from a Safe-Lock tool holder?*

**ANSWER:**  
The HAIMER shrink out device (Order No. 80.126.00) helps to get out broken tools despite the spiral-shaped Safe-Lock grooves without any problems.

**问题:**  
**Safe-Lock**的夹持系统和传统的侧固式夹持系统相比, 有什么优点?

**回答:**  
在侧固的夹持方式中, 立铣刀是被偏心夹持的, 这样刀具的跳动精度会降低, 通常不会低于 0.05mm, 而且会导致工件的表面光洁度和刀具的寿命降低。相比较而言, HAIMER 翰默的 Safe-Lock安全锁结构, 不仅能够防止立铣刀被拔出, 而且能够达到小于 0.003mm 的优良的跳动精度。因此只有 Safe-Lock安全锁结构才能将超大的金属去除率、很好的工艺安全性和夹持精度组合在一起。

**QUESTION:**  
*What advantages does the Safe-Lock system offer compared to the well-tried Weldon-clamping system?*

**ANSWER:**  
Due to the side clamping of the Weldon system, the tool is pushed off center, which causes poor runout accuracy of up to 0,05 mm, and therefore insufficient surface finish and poor tool life. In comparison, HAIMER Safe-Lock provides, in addition to the pull out protection, a very high runout accuracy of < 0,003 mm. Only Safe-Lock allows a maximum metal removal rate combined with absolute process reliability and precision!

## SAFE-LOCK® 应用实例

### SAFE-LOCK® APPLICATION EXAMPLES

#### 带Safe-Lock安全锁的强力筒夹刀柄

金属去除率很大和工件表面质量很好，没有刀具被拔出的风险

应用:	铣槽
工件:	钛合金
材料:	Ti6Al4V
刀柄:	带Safe-Lock安全锁的强力筒夹刀柄
机床:	DMG MORI, DMU 80 P duoBLOCK®
主轴:	HSK-A 100
冷却液/压力:	乳化液/100 bar
刀具:	带Safe-Lock安全锁的硬质合金立铣刀, Z4, Ø 20mm
切削参数:	ae: 20 mm ap: 20/32,5/35/37,5 mm fz: 0,07 mm vc: 60 m/min

#### Power Collet Chuck with Safe-Lock

Maximum metal removal rate and best surface finish without risk of pullout

Application:	Slot milling
Work piece:	Titanium block
Material:	Ti6Al4V
Tool Holder:	Power Collet Chuck with Safe-Lock
Machine:	DMG MORI, DMU 80 P duoBLOCK®
Interface tool:	HSK-A 100
Cooling / pressure:	Emulsion/100 bar
Tool:	Safe-Lock solid carbide end mill, Z4, Ø20mm
Cutting data:	ae: 20 mm ap: 20/32,5/35/37,5 mm fz: 0,07 mm vc: 60 m/min

#### 带Safe-Lock安全锁的强力热缩刀柄

带Safe-Lock的刀柄和侧固式刀柄相比，提升刀具寿命66%

应用:	铣型腔
工件:	模具
材料:	1.2312/40CrMnMoS 8-6, 40 HRC
刀柄:	带Safe-Lock安全锁的强力热缩刀柄
机床:	Mazak FH7800
主轴:	HSK-A 100
冷却液:	空气
刀具:	带Safe-Lock安全锁的硬质合金立铣刀, Z4, Ø 20mm
切削参数:	ae: 2 mm ap: 35 mm fz: 0,25 mm vc: 180 m/min

#### Power Shrink Chuck with Safe-Lock

66 % more tool life with Safe-Lock compared to Weldon

Application:	Pocket milling
Work piece:	Mould
Material:	1.2312/40CrMnMoS 8-6, 40 HRC
Tool Holder:	Power Shrink Chuck with Safe-Lock
Machine:	Mazak FH7800
Interface tool:	HSK-A 100
Cooling:	Air
Tool:	Safe-Lock solid carbide end mill, Z4, Ø20mm
Cutting data:	ae: 2 mm ap: 35 mm fz: 0,25 mm vc: 180 m/min



# 总览硬质合金立铣刀

## OVERVIEW SOLID CARBIDE END MILLS

产品/Products	Ø D1	页数/Page	特征/Characteristics
E1012NN/E1012NL – HAIMER MILL 多功能的立铣刀/MULTIFUNCTION END MILL 	Ø 4 – Ø 10	41	  
E1014UN – HAIMER MILL 外圆角立铣刀/QUADRANT END MILL 	Ø 6 – Ø 10	43	 
E1014UN/E1016UN – HAIMER MILL 倒角立铣刀/CHAMFERING END MILL 	Ø 4 – Ø 10	45	  
F1003NN – HAIMER MILL Power Series 	Ø 2 – Ø 20	47	   
F1004NN – HAIMER MILL Power Series 	Ø 2 – Ø 20	49	   
F1004NN – HAIMER MILL Power Series 	Ø 2 – Ø 20	51 – 53	   
F1005LL – HAIMER MILL Power Series 	Ø 6 – Ø 20	55	   
F1005NN – HAIMER MILL Power Series 	Ø 10 – Ø 32	57	   
F1104NN – HAIMER MILL Power Series 断屑槽/CHIP BREAKER 	Ø 6 – Ø 20	59	   
F1105LL – HAIMER MILL Power Series 断屑槽/CHIP BREAKER 	Ø 6 – Ø 20	61	   

柄/Shank	应用/Application	材料/Material
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>
		主应用 Main Material <b>P</b> 次应用 also suitable for <b>K S N</b> <b>M H</b>

# 总览硬质合金立铣刀

## OVERVIEW SOLID CARBIDE END MILLS

产品/Products	∅ D1	页数/Page	特征/Characteristics
<b>F1304NN – HAIMER MILL Power Series</b> 粗加工/ROUGHING 	∅ 6 – ∅ 20	63	   
<b>F2004NN – HAIMER MILL</b> 	∅ 2 – ∅ 20	65	   
<b>F2004NN – HAIMER MILL</b> 直径偏小/UNDERSIZE 	∅ 5.7 – ∅ 19.5	66	   
<b>F2004NN – HAIMER MILL</b> 	∅ 2 – ∅ 20	67	   
<b>F2004NN – HAIMER MILL</b> 	∅ 2 – ∅ 20	68 – 70	   
<b>F2004LL – HAIMER MILL</b> 	∅ 6 – ∅ 20	71	   
<b>F2014KK – HAIMER MILL</b> 	∅ 2 – ∅ 20	73	   
<b>F4002NN – HAIMER MILL Alu Series</b> 	∅ 2 – ∅ 20	75	   
<b>F4002NN – HAIMER MILL Alu Series</b> 	∅ 2 – ∅ 20	77	   
<b>F4003NN – HAIMER MILL Alu Series</b> 	∅ 2 – ∅ 20	79	   

柄/Shank

应用/Application

材料/Material



主应用  
Main Material

P

次应用  
also suitable for

K S N  
M

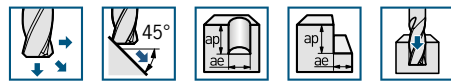


主应用  
Main Material

P M

次应用  
also suitable for

K S  
N H

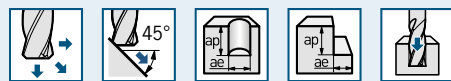


主应用  
Main Material

P M

次应用  
also suitable for

K S  
N H



主应用  
Main Material

P M

次应用  
also suitable for

K S  
N H

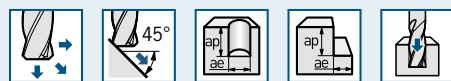


主应用  
Main Material

P M

次应用  
also suitable for

K S  
N H



主应用  
Main Material

P M

次应用  
also suitable for

K S  
N H



主应用  
Main Material

P M

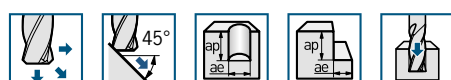
次应用  
also suitable for

K S  
N H



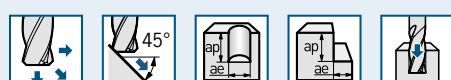
主应用  
Main Material

N



主应用  
Main Material

N



主应用  
Main Material

N

# 总览硬质合金立铣刀 OVERVIEW SOLID CARBIDE END MILLS

产品/Products	Ø D1	页数/Page	特征/Characteristics
<p><b>F4003NN – HAIMER MILL Alu Series</b></p> 	Ø 2 – Ø 20	81	   
<p><b>H2004KN – HAIMER MILL HF SERIES</b> 内冷高进给型/HIGH FEED KZ</p> 	Ø 6 – Ø 10	83	   
<p><b>V1002NN – HAIMER MILL Power Series</b></p> 	Ø 2 – Ø 20	85	   
<p><b>V4002NN – HAIMER MILL Alu Series</b></p> 	Ø 2 – Ø 20	87	   
<p><b>V4002NN – HAIMER MILL Alu Series</b></p> 	Ø 2 – Ø 20	89	   

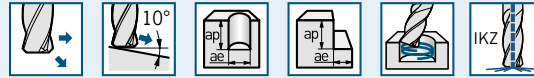
柄/Shank

应用/Application

材料/Material



主应用  
Main Material  
**N**



主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**N**



主应用  
Main Material  
**N**

# 图标的解释/订货号的解释/材料表

## EXPLANATION ICONS/ARTICLE CODE/MATERIAL LIST

### 图标的解释/Explanation Icons

#### 特征/Characteristics

刃长 Cutting length	类似 DIN Similar DIN	螺旋角 Helix angle	刀尖尖角 Sharp cutting edge	刀尖倒角 Corner chamfer	刀尖圆角 Corner radius	球头 Ball Nose	定心 Spot	外圆角 Edge radius
2刃 Teeth 2	3刃 Teeth 3	4刃 Teeth 4	5刃 Teeth 5	6刃 Teeth 6	Safe-lock® Safe-lock®	直柄 Straight shank	Weldon 柄部 Weldon shank	全部三种柄 All three shanks

#### 应用/Application

走刀方向 Feed direction	走刀方向 Feed direction	走刀方向 Feed direction	坡铣 Ramping	开槽 Slotting	侧铣 Side milling	倒圆角 Rounding	倒角 Chamfering
钻孔 Drilling	仿型铣 3D Milling	V-开槽 V-slotting	铣轮廓 Contouring	倒角 Chamfering	侧铣 Side milling		

#### 冷却液/Coolant

乳化液 Emulsion	气冷 Cold air	干切 Dry machining	微量润滑 Minimal lubrication	中心内冷 Central inner cooling

#### 订货号的解释/Explanation article code

F	1	0	0	2	M	N	L
刀具类型 Tool type	分组 Group	类型 Type	改制 Modification	刃数 No. of teeth	刃长 Length of cut	总长 Overall length	柄部类型 Shank type
F- 圆柱立铣刀 Cylindrical end mill	1- 通用型 Universal	0- 直刃 Plain cutter	0- 带缩颈 With neck	2- Z2	N- DIN (1.75-2.5xD)	N- DIN6527	L- Safe-Lock
E- 倒角立铣刀 Chamfering end mill	2- 钢 Steel < 52HRC	1- 带断屑槽 Chip breaker	1- 不带缩颈 No Neck	3- Z3	L- 2.6-3.5xD	L- 长 Long	H- 直柄 Straight
V- 球头立铣刀 Ball nose end mill	4- 铝 Alu	3- 粗加工 Rough		4- Z4	M- 1.5xD	K- 短 Short	B- 侧固 Weldon
H- 高进给立铣刀 HighFeed end mill	6- 钛合金/高温合金 Titan/Inconel			5- Z5	U- 0.75xD	U- 超短 Ultra short	
				6- Z6			
				8- Z8			
				0- Z10			

## 材料表/Material list

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information			
		德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/Hardness
P1 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	
P2 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	
M1 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		
M2 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		
K1 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		
K2 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		
S1 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			
S2 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		
N1 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	
N2 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	
H1 硬化钢 Hardened steels				45 – 55 HRC	
H2 硬化钢 Hardened steels				> 55 HRC	

1000

R

1.00

A

A

0001

KR

直径  
Diameter刀尖几何形状  
Cutting edge transition刀尖过渡尺寸  
Size transition材料  
Material涂层  
Coating特殊号码  
Special number冷却液  
Cooling1200- 公制  
Metric  
1/2Z- 英制  
InchS- 刀尖尖角  
Sharp cutting edge  
C- 倒角  
Chamfer  
R- 圆角  
Radius  
W- 倒角度  
Chamfer angle1.00- 公制  
Metric  
.03- 英制  
Inch  
90- 倒角度  
Chamfer angle  
60- 倒角度  
Chamfer angle  
120- 倒角度  
Chamfer angleA- HF10 h5  
D- HF10 h6A- 翰默通用型  
HAIMER-UNI  
C- 翰默铝合金  
专用型  
HAIMER-ALU  
T- 翰默超硬型  
HAIMER-HARD  
- 无  
none

0000 - 9999

KR- 径向内冷  
Cooling radial  
KZ- 轴向内冷  
Cooling central  
KS- 特殊冷却方  
式  
Cooling special



# E1012NN/E1012NL – HAIMER MILL

## 多功能的立铣刀/MULTIFUNCTION END MILL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

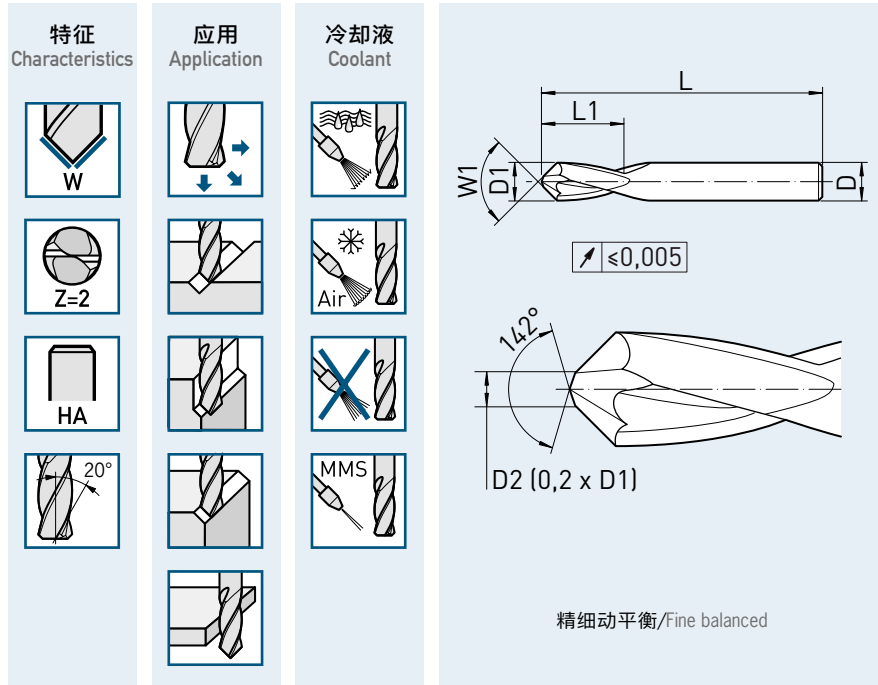
每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 4	ø 6	ø 8	ø 10
fz	0,01 – 0,04	0,015 – 0,06	0,02 – 0,08	0,03 – 0,10

# E1012NN/E1012NL – HAIMER MILL

## 多功能的立铣刀/MULTIFUNCTION END MILL

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 锥度 60/90/120/142°
- 定心
- 多功能的刀具
- 工件周边的倒角

- Cone angle 60/90/120/142°
- Center spot
- Multi functional tool
- Circumference cutting

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	倒角立铣刀 Chamfer	W1 W1	L1 max. L1 max. [mm]	L L [mm]	D (h6) D (h6) [mm]	柄部 Shank
E1012NNH0400W60..	DA	4,00	W	60°	11	51	4,00	HA
E1012NNH0400W90..	DA	4,00	W	90°	11	51	4,00	HA
E1012NNH0400W120..	DA	4,00	W	120°	11	51	4,00	HA
E1012NNH0400W142..	DA	4,00	W	142°	11	51	4,00	HA
E1012NLH0600W60..	DA	6,00	W	60°	13	66	6,00	HA
E1012NLH0600W90..	DA	6,00	W	90°	13	66	6,00	HA
E1012NLH0600W120..	DA	6,00	W	120°	13	66	6,00	HA
E1012NLH0600W142..	DA	6,00	W	142°	13	66	6,00	HA
E1012NLH0800W60..	DA	8,00	W	60°	19	79	8,00	HA
E1012NLH0800W90..	DA	8,00	W	90°	19	79	8,00	HA
E1012NLH0800W120..	DA	8,00	W	120°	19	79	8,00	HA
E1012NLH0800W142..	DA	8,00	W	142°	19	79	8,00	HA
E1012NLH1000W60..	DA	10,00	W	60°	22	89	10,00	HA
E1012NLH1000W90..	DA	10,00	W	90°	22	89	10,00	HA
E1012NLH1000W120..	DA	10,00	W	120°	22	89	10,00	HA
E1012NLH1000W142..	DA	10,00	W	142°	22	89	10,00	HA

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# E1014UN – HAIMER MILL

## 外圆角立铣刀/QUADRANT END MILL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 6	ø 8	ø 10
fz	0,015 – 0,06	0,02 – 0,08	0,03 – 0,10

# E1014UN – HAIMER MILL

## 外圆角立铣刀/QUADRANT END MILL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
 R	 ap, ae	 Air
 Z=4		 Air
 HA		 MMS

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting  
Weldon侧固柄的刀具除外/Except Weldon shank

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 用于轮廓倒圆角
- 5° 切向后角
- 正前角，不破坏轮廓形状

- For contour rounding
- 5° tangential release
- Positive rake angle without profile displacement

物料号 Article-Code	材料 Quality	D1 D1 [mm]	刃口处理 Cutting edge	外圆角 Edge radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D (h6) D (h6) [mm]	柄部 Shank
E1014UNH0600R0.25..	DA	5,0	R	0,25	0,50	58	6	HA
E1014UNH0600R0.50..	DA	4,5	R	0,50	0,75	58	6	HA
E1014UNH0800R0.75..	DA	6,0	R	0,75	1,00	64	8	HA
E1014UNH0800R1.00..	DA	5,0	R	1,00	1,50	64	8	HA
E1014UNH1000R1.50..	DA	6,0	R	1,50	2,00	73	10	HA
E1014UNH1000R2.00..	DA	5,0	R	2,00	2,50	73	10	HA

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# E1014UN/E1016UN – HAIMER MILL 倒角立铣刀/CHAMFERING END MILL

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 4	ø 6	ø 8	ø 10
fz	0,01 – 0,04	0,015 – 0,06	0,02 – 0,08	0,03 – 0,10

# E1014UN/E1016UN – HAIMER MILL

## 倒角立铣刀/CHAMFERING END MILL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
W		
Z=4		Air
Z=6		
HA		MMS

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting  
Weldon侧固柄的刀具除外/Except Weldon shank

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 锥度 60/90/120°
- 刀具端面磨平
- 多功能的刀具
- 直刃

- Cone angle 60/90/120°
- Honed tip plan
- Multi functional tool
- Straight fluted

物料号 Article-Code	材料 Quality	D1 (h6) D1 (h6) [mm]	倒角立铣刀 Chamfer	角 W1 Angle W1	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	柄部 Shank
E1014UNH0400W60..	DA	4,00	W	60°	2,8	51	0,8	HA
E1014UNH0400W90..	DA	4,00	W	90°	1,6	51	0,8	HA
E1014UNH0400W120..	DA	4,00	W	120°	0,9	51	0,8	HA
E1016UNH0600W60..	DA	6,00	W	60°	4,2	51	0,8	HA
E1016UNH0600W90..	DA	6,00	W	90°	2,4	58	1,2	HA
E1016UNH0600W120..	DA	6,00	W	120°	1,3	58	1,2	HA
E1016UNH0800W60..	DA	8,00	W	60°	5,5	64	1,6	HA
E1016UNH0800W90..	DA	8,00	W	90°	3,2	64	1,6	HA
E1016UNH0800W120..	DA	8,00	W	120°	1,8	64	1,6	HA
E1016UNH1000W60..	DA	10,00	W	60°	6,9	73	2,0	HA
E1016UNH1000W90..	DA	10,00	W	90°	4	73	2,0	HA
E1016UNH1000W120..	DA	10,00	W	120°	2,3	73	2,0	HA

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1003NN – HAIMER MILL Power Series


## 刀尖尖角/SHARP CUTTING EDGE

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width		
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.
德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		–	–	40 – 50
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae												
ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,012	0,018	0,024	0,030	0,036	0,048	0,060	0,072	0,084	0,096	0,108	0,120
100% ø	0,010	0,015	0,020	0,025	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F1003NN – HAIMER MILL Power Series

## 刀尖尖角/SHARP CUTTING EDGE

### 技术参数和产品特征/Technical data and Product characteristics

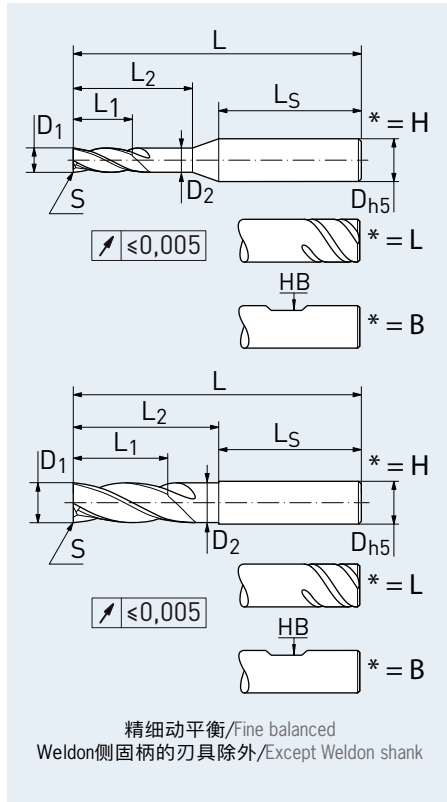


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB



特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1003NN*0200S..	AA	2,00	S	7	58	9	1,9	6	44,3	HA/S-λ/HB
F1003NN*0300S..	AA	3,00	S	8	58	10	2,9	6	44,0	HA/S-λ/HB
F1003NN*0400S..	AA	4,00	S	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1003NN*0500S..	AA	5,00	S	13	58	18	4,8	6	37,875	HA/S-λ/HB
F1003NN*0600S..	AA	6,00	S	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1003NN*0800S..	AA	8,00	S	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1003NN*1000S..	AA	10,00	S	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1003NN*1200S..	AA	12,00	S	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1003NN*1400S..	AA	14,00	S	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1003NN*1600S..	AA	16,00	S	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1003NN*1800S..	AA	18,00	S	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1003NN*2000S..	AA	20,00	S	38	105	52	19	20	50,5	HA/S-λ/HB




\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



# F1004NN – HAIMER MILL Power Series


## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1.5 x D1	 ae = 25% D1 ap = L1 max.	
		德标 DIN			切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	170 – 200	210 – 240	250 – 270
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	90 – 110	110 – 130	130 – 150
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		–	–	40 – 50
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae												
ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,012	0,018	0,024	0,030	0,036	0,048	0,060	0,072	0,084	0,096	0,108	0,120
100% ø	0,010	0,015	0,020	0,025	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F1004NN – HAIMER MILL Power Series 刀尖倒角/CHAMFER

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

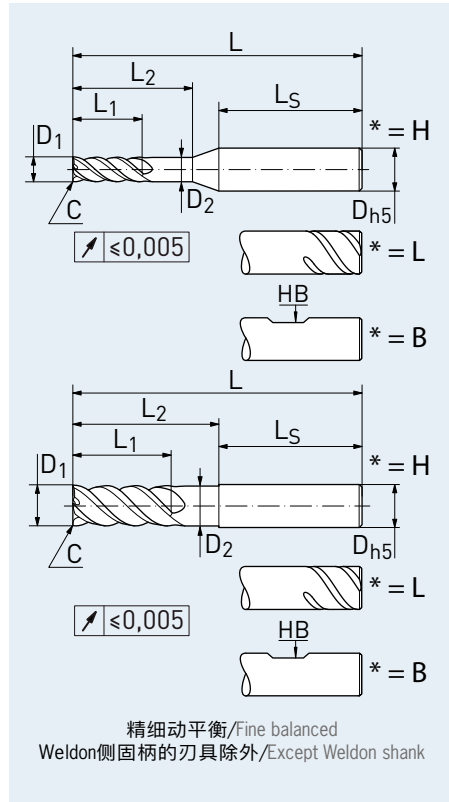


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1004NN*0200C..	AA	2,00	C	0,10	7	58	9	1,9	6	44,3	HA/S-λ/HB
F1004NN*0300C..	AA	3,00	C	0,10	8	58	10	2,9	6	44,0	HA/S-λ/HB
F1004NN*0400C..	AA	4,00	C	0,15	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1004NN*0500C..	AA	5,00	C	0,20	13	58	18	4,8	6	37,875	HA/S-λ/HB
F1004NN*0600C..	AA	6,00	C	0,20	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1004NN*0800C..	AA	8,00	C	0,20	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*1000C..	AA	10,00	C	0,30	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1004NN*1200C..	AA	12,00	C	0,30	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1400C..	AA	14,00	C	0,40	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1004NN*1600C..	AA	16,00	C	0,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1800C..	AA	18,00	C	0,50	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1004NN*2000C..	AA	20,00	C	0,60	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1004NN – HAIMER MILL Power Series


## 刀尖圆角/CORNER RADIUS

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width		
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.
德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		–	–	40 – 50
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae												
ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,012	0,018	0,024	0,030	0,036	0,048	0,060	0,072	0,084	0,096	0,108	0,120
100% ø	0,010	0,015	0,020	0,025	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F1004NN – HAIMER MILL Power Series 刀尖圆角/CORNER RADIUS

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

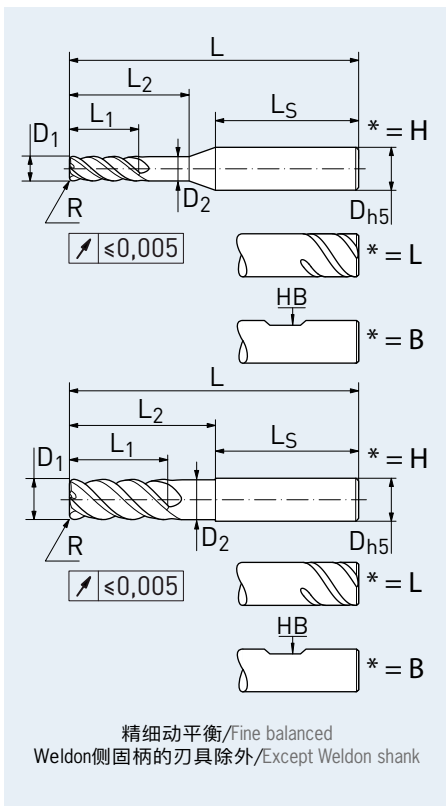


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



## 材料 – 特征/Material – characteristics

<p>主应用 Main Material</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; background-color: #0070c0; color: white; font-weight: bold; font-size: 24px; width: 40px; height: 40px; text-align: center; line-height: 40px;">P</div>	<p>次应用 also suitable for</p> <div style="display: flex; flex-wrap: wrap; gap: 5px;"> <div style="background-color: #c00000; color: white; padding: 2px 5px; font-weight: bold;">K</div> <div style="background-color: #ff8c00; color: white; padding: 2px 5px; font-weight: bold;">S</div> <div style="background-color: #008000; color: white; padding: 2px 5px; font-weight: bold;">N</div> <div style="background-color: #ffff00; color: black; padding: 2px 5px; font-weight: bold;">M</div> <div style="background-color: #808080; color: white; padding: 2px 5px; font-weight: bold;">H</div> </div>	<ul style="list-style-type: none"> <li>■ 颈部有助于更大的切深</li> <li>■ 端刃过中心</li> <li>■ 不等螺旋角</li> <li>■ 排屑槽和后刀面经抛光处理</li> </ul>	<ul style="list-style-type: none"> <li>■ Neck for higher cutting depth</li> <li>■ Center cutting</li> <li>■ Unequal cutting edge</li> <li>■ Polished flute and relief</li> </ul>
--	--	--	--

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1004NN*0200R0.20..	AA	2,00	R	0,20	7	58	9	1,9	6	44,3	HA/S-λ/HB
F1004NN*0300R0.20..	AA	3,00	R	0,20	8	58	10	2,9	6	44,0	HA/S-λ/HB
F1004NN*0300R0.30..	AA	3,00	R	0,30	8	58	10	2,9	6	44,0	HA/S-λ/HB
F1004NN*0400R0.20..	AA	4,00	R	0,20	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1004NN*0400R0.30..	AA	4,00	R	0,30	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1004NN*0400R0.40..	AA	4,00	R	0,40	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1004NN*0400R0.50..	AA	4,00	R	0,50	11	58	15	3,8	6	40,0	HA/S-λ/HB
F1004NN*0500R0.30..	AA	5,00	R	0,30	13	58	18	4,8	6	37,875	HA/S-λ/HB
F1004NN*0500R0.50..	AA	5,00	R	0,50	13	58	18	4,8	6	37,875	HA/S-λ/HB
F1004NN*0500R1.00..	AA	5,00	R	1,00	13	58	18	4,8	6	37,875	HA/S-λ/HB
F1004NN*0600R0.20..	AA	6,00	R	0,20	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1004NN*0600R0.30..	AA	6,00	R	0,30	13	58	20	5,7	6	36,5	HA/S-λ/HB


➡ 更多的产品请参考下一页/Turn page for more articles

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1004NN – HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

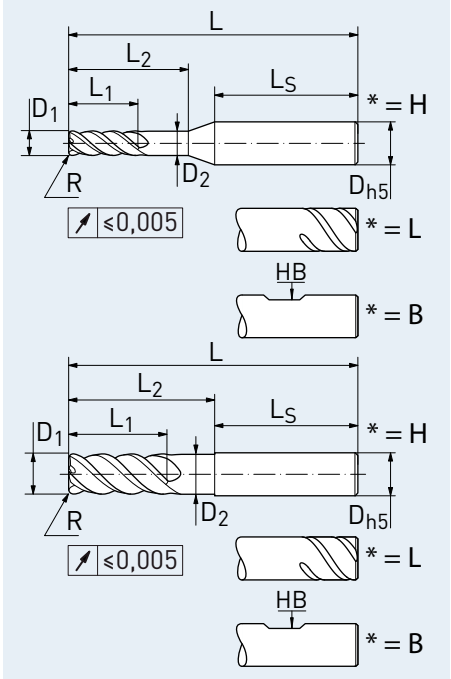
### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

特征 Characteristics	应用 Application	冷却液 Coolant



精细动平衡/Fine balanced  
Weldon侧固柄的刀具除外/Except Weldon shank

### 材料 – 特征/Material – characteristics

<p>主应用 Main Material</p> <div style="background-color: #0070C0; color: white; text-align: center; padding: 10px; font-size: 24px; font-weight: bold;">P</div>	<p>次应用 also suitable for</p> <div style="display: flex; gap: 5px;"> <div style="background-color: #C00000; color: white; text-align: center; padding: 5px; font-weight: bold;">K</div> <div style="background-color: #FFA500; color: white; text-align: center; padding: 5px; font-weight: bold;">S</div> <div style="background-color: #008000; color: white; text-align: center; padding: 5px; font-weight: bold;">N</div> </div> <div style="display: flex; gap: 5px; margin-top: 5px;"> <div style="background-color: #FFD700; color: black; text-align: center; padding: 5px; font-weight: bold;">M</div> <div style="background-color: #808080; color: black; text-align: center; padding: 5px; font-weight: bold;">H</div> </div>	<ul style="list-style-type: none"> <li>■ 颈部有助于更大的切深</li> <li>■ 端刃过中心</li> <li>■ 不等螺旋角</li> <li>■ 排屑槽和后刀面经抛光处理</li> </ul>	<ul style="list-style-type: none"> <li>■ Neck for higher cutting depth</li> <li>■ Center cutting</li> <li>■ Unequal cutting edge</li> <li>■ Polished flute and relief</li> </ul>
---	--	--	--

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1004NN*0600R0.50..	AA	6,00	R	0,50	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1004NN*0600R1.00..	AA	6,00	R	1,00	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1004NN*0600R1.50..	AA	6,00	R	1,50	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1004NN*0800R0.20..	AA	8,00	R	0,20	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*0800R0.30..	AA	8,00	R	0,30	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*0800R0.50..	AA	8,00	R	0,50	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*0800R1.00..	AA	8,00	R	1,00	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*0800R1.50..	AA	8,00	R	1,50	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*0800R2.00..	AA	8,00	R	2,00	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1004NN*1000R0.30..	AA	10,00	R	0,30	22	73	30,5	9,5	10	40,5	HA/S-λ/HB

⇒ 更多的产品请参考下一页/Turn page for more articles

\* = L - SafeLock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - SafeLock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

## F1004NN – HAIMER MILL Power Series

### 刀尖圆角/CORNER RADIUS

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1004NN*1000R0.50..	AA	10,00	R	0,50	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1004NN*1000R1.00..	AA	10,00	R	1,00	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1004NN*1000R1.50..	AA	10,00	R	1,50	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1004NN*1000R2.00..	AA	10,00	R	2,00	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1004NN*1200R0.30..	AA	12,00	R	0,30	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R0.50..	AA	12,00	R	0,50	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R1.00..	AA	12,00	R	1,00	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R1.50..	AA	12,00	R	1,50	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R2.00..	AA	12,00	R	2,00	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R3.00..	AA	12,00	R	3,00	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1200R4.00..	AA	12,00	R	4,00	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1004NN*1400R0.50..	AA	14,00	R	0,50	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1004NN*1400R1.00..	AA	14,00	R	1,00	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1004NN*1400R2.00..	AA	14,00	R	2,00	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1004NN*1600R0.30..	AA	16,00	R	0,30	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R0.50..	AA	16,00	R	0,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R0.80..	AA	16,00	R	0,80	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R1.00..	AA	16,00	R	1,00	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R1.50..	AA	16,00	R	1,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R2.00..	AA	16,00	R	2,00	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R3.00..	AA	16,00	R	3,00	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1600R4.00..	AA	16,00	R	4,00	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1004NN*1800R0.50..	AA	18,00	R	0,50	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1004NN*1800R1.00..	AA	18,00	R	1,00	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1004NN*1800R2.00..	AA	18,00	R	2,00	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1004NN*2000R0.30..	AA	20,00	R	0,30	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R0.50..	AA	20,00	R	0,50	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R0.80..	AA	20,00	R	0,80	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R1.00..	AA	20,00	R	1,00	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R1.50..	AA	20,00	R	1,50	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R2.00..	AA	20,00	R	2,00	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R3.00..	AA	20,00	R	3,00	38	105	52	19	20	50,5	HA/S-λ/HB
F1004NN*2000R4.00..	AA	20,00	R	4,00	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1005LL – HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		55 – 65
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		40 – 50
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 5% ø	0,051	0,068	0,085	0,102	0,119	0,136	0,153	0,170

# F1005LL – HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

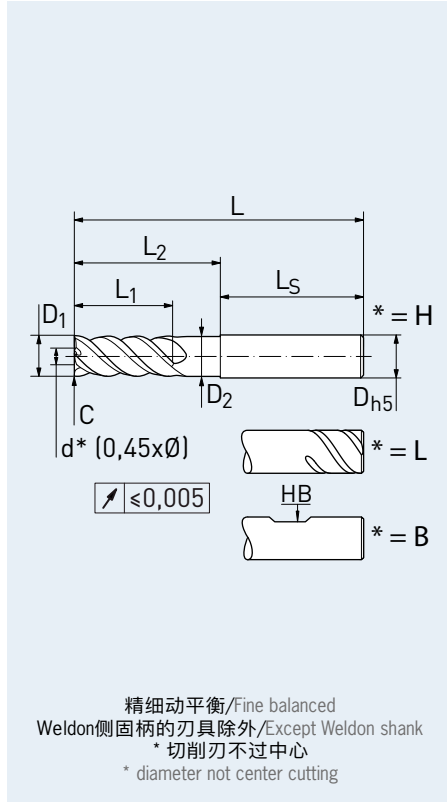


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 不等螺旋角
- 刃长: 长
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Unequal cutting edge
- Length of cutting edge: long
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1005LL*0600C..	AA	6,00	C	0,20	18	62	24	5,7	6	36,5	HA/S-λ/HB
F1005LL*0800C..	AA	8,00	C	0,20	24	70	32	7,6	8	36,5	HA/S-λ/HB
F1005LL*1000C..	AA	10,00	C	0,30	30	82	40	9,5	10	40,5	HA/S-λ/HB
F1005LL*1200C..	AA	12,00	C	0,30	36	95	48	11,4	12	45,5	HA/S-λ/HB
F1005LL*1400C..	AA	14,00	C	0,40	42	105	56	13,3	14	46,5	HA/S-λ/HB
F1005LL*1600C..	AA	16,00	C	0,50	48	115	64	15,2	16	48,5	HA/S-λ/HB
F1005LL*1800C..	AA	18,00	C	0,50	54	123	72	17,1	18	48	HA/S-λ/HB
F1005LL*2000C..	AA	20,00	C	0,60	60	133	80	19,0	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



# F1005NN – HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width		
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.
德标 DIN	材料号 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		–	–	40 – 50
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系 / Feed per tooth (mm/tooth) in relation with D1 and cutting width ae								
ae	∅ 10	∅ 12	∅ 14	∅ 16	∅ 18	∅ 20	∅ 25	∅ 32
高达/to 50% ∅	0,060	0,072	0,084	0,096	0,108	0,120	0,15	0,2
100% ∅	0,050	0,060	0,060	0,070	0,080	0,090	0,125	0,16

# F1005NN – HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

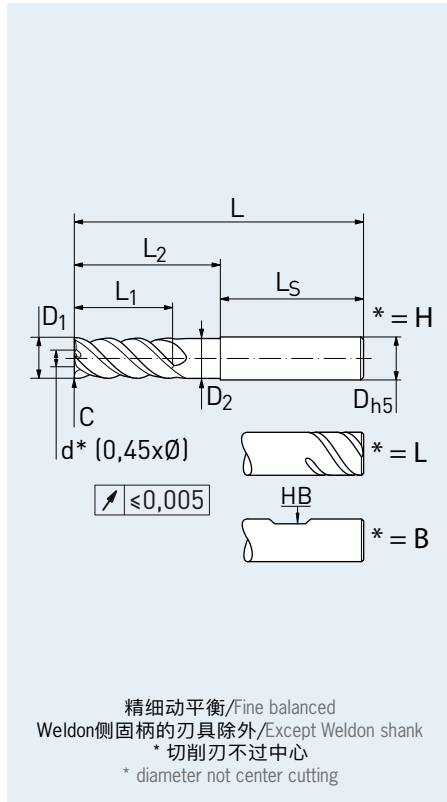


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 不等螺旋角
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Unequal cutting edge
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1005NN*1000C..	AA	10,00	C	0,30	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1005NN*1200C..	AA	12,00	C	0,30	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1005NN*1400C..	AA	14,00	C	0,40	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1005NN*1600C..	AA	16,00	C	0,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1005NN*1800C..	AA	18,00	C	0,50	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1005NN*2000C..	AA	20,00	C	0,60	38	105	52	19	20	50,5	HA/S-λ/HB
F1005NN*2500C..	AA	25,00	C	0,70	45	122	61	24	25	57,0	HA/S-λ/HB
F1005NN*3200C..	AA	32,00	C	0,70	50	130	65	31	32	61,0	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1104NN – HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness				
		德标 DIN			切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	170 – 200	210 – 240	250 – 270
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	90 – 110	110 – 130	130 – 150
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80


切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae								
ae	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,036	0,048	0,060	0,072	0,084	0,096	0,108	0,120
100% ø	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100
	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F1104NN – HAIMER MILL Power Series 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

\* = H      \* = L      \* = B

**特征**  
Characteristics

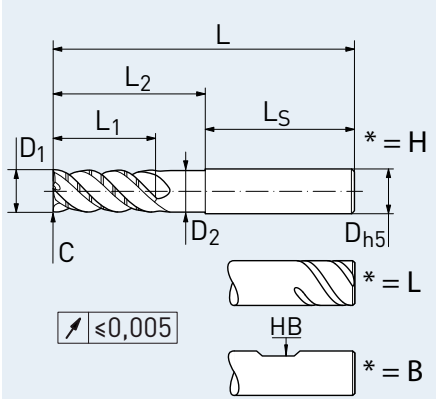
- DIN 6527 L
- 45°
- Z=4
- 41° / 43°

**应用**  
Application

- 3-5°
- ap, ae
- ap, ae

**冷却液**  
Coolant

- Air
- MMS



精细动平衡/Fine balanced  
Weldon侧固柄的刀具除外/Except Weldon shank

### 材料 – 特征/Material – characteristics

**主应用** Main Material: P

**次应用** also suitable for: K S N  
M H

- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1104NN*0600C..	AA	6,00	C	0,20	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1104NN*0800C..	AA	8,00	C	0,20	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1104NN*1000C..	AA	10,00	C	0,30	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1104NN*1200C..	AA	12,00	C	0,30	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1104NN*1400C..	AA	14,00	C	0,40	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1104NN*1600C..	AA	16,00	C	0,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1104NN*1800C..	AA	18,00	C	0,50	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1104NN*2000C..	AA	20,00	C	0,60	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
 \* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1105LL – HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width  ae = 5% D1 ap = L1 max.
			拉伸强度 Tensile strength	硬度 Content/ Hardness	
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		55 – 65
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 5% ø	0,051	0,068	0,085	0,102	0,119	0,136	0,153	0,170

# F1105LL – HAIMER MILL Power Series 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

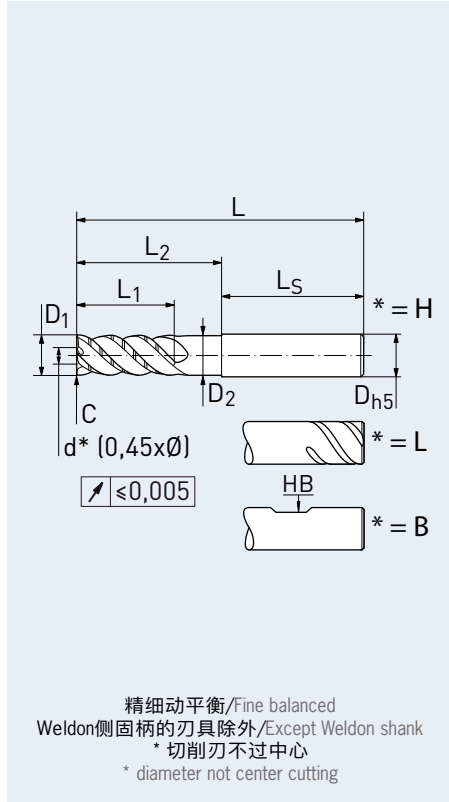
## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 不等螺旋角
- 刃长: 长
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Unequal cutting edge
- Length of cutting edge: long
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1105LL*0600C..	AA	6,00	C	0,20	18	62	24	5,7	6	36,5	HA/S-λ/HB
F1105LL*0800C..	AA	8,00	C	0,20	24	70	32	7,6	8	36,5	HA/S-λ/HB
F1105LL*1000C..	AA	10,00	C	0,30	30	82	40	9,5	10	40,5	HA/S-λ/HB
F1105LL*1200C..	AA	12,00	C	0,30	36	95	48	11,4	12	45,5	HA/S-λ/HB
F1105LL*1400C..	AA	14,00	C	0,40	42	105	56	13,3	14	46,5	HA/S-λ/HB
F1105LL*1600C..	AA	16,00	C	0,50	48	115	64	15,2	16	48,5	HA/S-λ/HB
F1105LL*1800C..	AA	18,00	C	0,50	54	123	72	17,1	18	48	HA/S-λ/HB
F1105LL*2000C..	AA	20,00	C	0,60	60	133	80	19,0	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F1304NN – HAIMER MILL Power Series

## 刀尖倒角粗加工/CHAMFER ROUGHING

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	170 – 200	210 – 240	250 – 270
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	90 – 110	110 – 130	130 – 150
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		–	–	55 – 65
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	130 – 150	200 – 220
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	110 – 130	160 – 180
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80	60 – 80
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae								
ae	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,036	0,048	0,060	0,072	0,084	0,096	0,108	0,120
100% ø	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100

# F1304NN – HAIMER MILL Power Series 刀尖倒角粗加工/CHAMFER ROUGHING

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

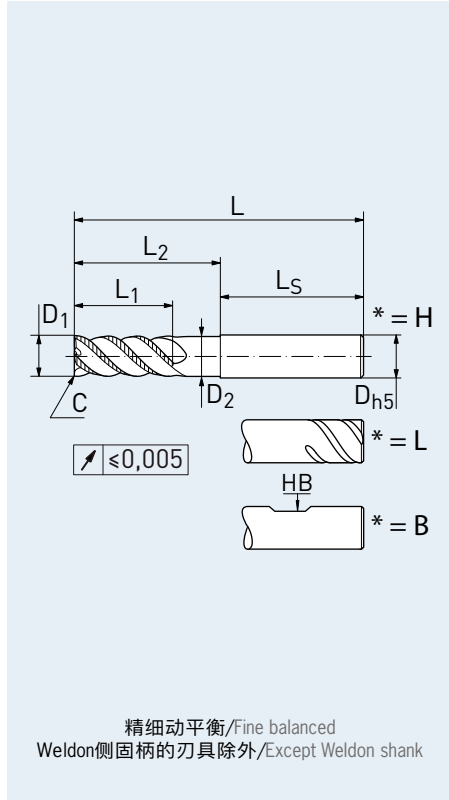


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F1304NN*0600C..	AA	6,00	C	0,20	13	58	20	5,7	6	36,5	HA/S-λ/HB
F1304NN*0800C..	AA	8,00	C	0,20	19	64	26	7,6	8	36,5	HA/S-λ/HB
F1304NN*1000C..	AA	10,00	C	0,30	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F1304NN*1200C..	AA	12,00	C	0,30	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F1304NN*1400C..	AA	14,00	C	0,40	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F1304NN*1600C..	AA	16,00	C	0,50	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F1304NN*1800C..	AA	18,00	C	0,50	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F1304NN*2000C..	AA	20,00	C	0,60	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



# F2004NN – HAIMER MILL

## 刀尖尖角/SHARP CUTTING EDGE

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	切宽 Cutting width					
			拉伸强度 Tensile strength	硬度 Content/ Hardness	坡铣 Ramping	切削线速度 Vc (m/min) Cutting speed Vc (m/min)		
德标 DIN	材料号码 Material no.	硬度 Content/ Hardness	坡铣 Ramping	ae = 100% D1 ap = 1 x D1	ae = 15% D1 ap = L1 max.	ae = 5% D1 ap = L1 max.		
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	45°	255 – 275	320 – 340	400 – 420
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	30°	190 – 210	220 – 240	290 – 310
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10°	95 – 110	115 – 135	150 – 170
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		5°	75 – 90	95 – 105	110 – 130
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		45°	160 – 180	180 – 200	210 – 230
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20°	130 – 150	150 – 170	180 – 200
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10°	50 – 60	60 – 80	80 – 90
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		5°	30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	30°	470 – 490	600 – 630	780 – 820
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	30°	340 – 360	420 – 440	540 – 580
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	10°	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

由于排屑困难，钻孔深度最大至0.5–1xD。

Cutting data are reference values and need to be adjusted according to the application area.

Chip removal recommended for drilling depth 0,5 – 1 x D.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae


ae		ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø		0,013	0,020	0,026	0,033	0,039	0,052	0,065	0,078	0,091	0,104	0,117	0,13
100% ø		0,011	0,017	0,022*	0,028*	0,033*	0,044*	0,055*	0,066*	0,077*	0,088*	0,099*	0,11*
	<b>P</b>	0,009	0,014	0,018	0,023	0,027	0,036	0,045	0,054	0,063	0,072	0,081	0,09
	<b>M</b>	0,005	0,008	0,01	0,013	0,015	0,020	0,025	0,030	0,035	0,040	0,045	0,05
	<b>K</b>	0,008	0,012	0,016	0,020	0,024	0,032	0,040	0,048	0,056	0,064	0,072	0,08
	<b>S</b>	0,004	0,006	0,008	0,010	0,012	0,016	0,020	0,024	0,028	0,032	0,036	0,04
	<b>N</b>	0,009	0,014	0,018	0,023	0,027	0,036	0,045	0,054	0,063	0,072	0,081	0,09

\*铣槽 (100% ø) 加工 M1, M2, S1 和 S2 材料组中的材料时，每齿走刀量 fz 需要减少30%。

\*For Slotting (100% ø) in material M1, M2, S1 and S2 reduce fz by 30%.

# F2004NN – HAIMER MILL 刀尖尖角/SHARP CUTTING EDGE

## 技术参数和产品特征/Technical data and Product characteristics

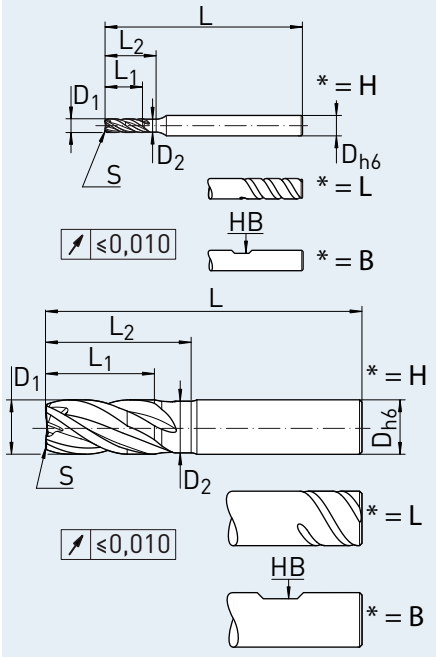


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

\* = H      \* = L      \* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for

- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge


物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank h6
F2004NN*0200S..	DA	2,00	S	7	58	9	1,9	6	HA/S-λ/HB
F2004NN*0300S..	DA	3,00	S	8	58	10	2,9	6	HA/S-λ/HB
F2004NN*0400S..	DA	4,00	S	11	58	15	3,8	6	HA/S-λ/HB
F2004NN*0500S..	DA	5,00	S	13	58	18	4,8	6	HA/S-λ/HB
F2004NN*0600S..	DA	6,00	S	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0800S..	DA	8,00	S	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*1000S..	DA	10,00	S	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1200S..	DA	12,00	S	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1400S..	DA	14,00	S	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1600S..	DA	16,00	S	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1800S..	DA	18,00	S	32	93	42,5	17,1	18	HA/S-λ/HB
F2004NN*2000S..	DA	20,00	S	38	105	52	19	20	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F2004NN – HAIMER MILL

## 直径偏小且刀尖倒角/CHAMFER UNDERSIZE

### 技术参数和产品特征/Technical data and Product characteristics

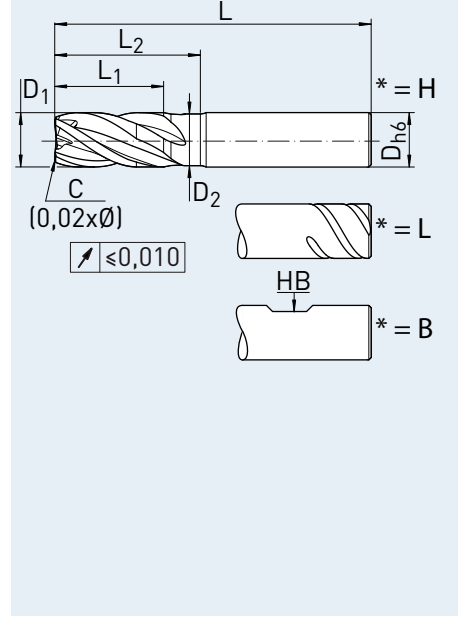


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

\* = H      \* = L      \* = B

特征 Characteristics	应用 Application	冷却液 Coolant



\* = H  
\* = L  
\* = B

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



#### 次应用

also suitable for

- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge

为了获得更好的刀具寿命和更高的金属去除率, 我们建议使用冷却喷孔、环绕冷却和强力系列刀柄。  
Cooling with Cool Jet or Cool Flash and using Power Chucks is recommended for higher tool life and high removal rate.


物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank
F2004NN*0570C..	DA	5,70	C	0,12	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0770C..	DA	7,70	C	0,16	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0970C..	DA	9,70	C	0,20	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1170C..	DA	11,70	C	0,24	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1370C..	DA	13,70	C	0,28	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1560C..	DA	15,60	C	0,32	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1950C..	DA	19,50	C	0,40	38	105	52	19	20	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F2004NN – HAIMER MILL 刀尖倒角/CHAMFER

## 技术参数和产品特征/Technical data and Product characteristics

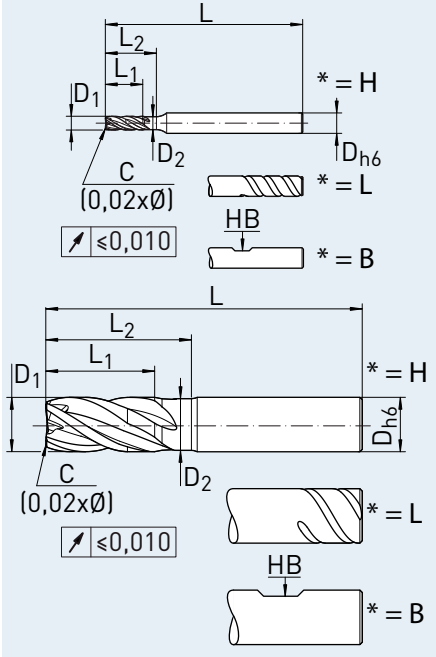


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

\* = H      \* = L      \* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for

- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge


物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank h6
F2004NN*0200C..	DA	2,00	C	0,04	7	58	9	1,9	6	HA/S-λ/HB
F2004NN*0300C..	DA	3,00	C	0,06	8	58	10	2,9	6	HA/S-λ/HB
F2004NN*0400C..	DA	4,00	C	0,08	11	58	15	3,8	6	HA/S-λ/HB
F2004NN*0500C..	DA	5,00	C	0,10	13	58	18	4,8	6	HA/S-λ/HB
F2004NN*0600C..	DA	6,00	C	0,12	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0800C..	DA	8,00	C	0,16	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*1000C..	DA	10,00	C	0,20	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1200C..	DA	12,00	C	0,24	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1400C..	DA	14,00	C	0,28	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1600C..	DA	16,00	C	0,32	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1800C..	DA	18,00	C	0,36	32	93	42,5	17,1	18	HA/S-λ/HB
F2004NN*2000C..	DA	20,00	C	0,40	38	105	52	19	20	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F2004NN – HAIMER MILL 刀尖圆角/CORNER RADIUS








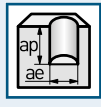

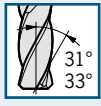

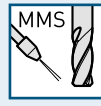

## 技术参数和产品特征/Technical data and Product characteristics

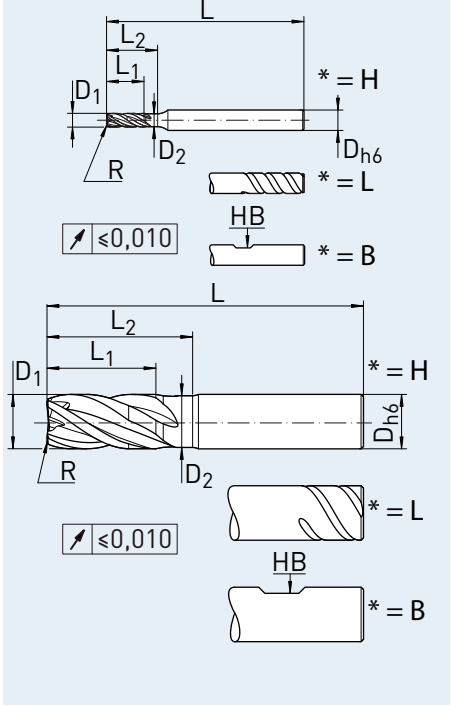


\* = H      \* = L      \* = B

可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

特征 Characteristics	应用 Application	冷却液 Coolant
 DIN 6527 L		
 R	 45°	 Air
 Z=4	 ap ae	
 31° 33°	 ap ae	 MMS
		



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge

物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank
F2004NN*0200R0.20..	DA	2,00	R	0,20	7	58	9	1,9	6	HA/S-λ/HB
F2004NN*0300R0.30..	DA	3,00	R	0,30	8	58	10	2,9	6	HA/S-λ/HB
F2004NN*0400R0.30..	DA	4,00	R	0,30	11	58	15	3,8	6	HA/S-λ/HB
F2004NN*0400R0.40..	DA	4,00	R	0,40	11	58	15	3,8	6	HA/S-λ/HB
F2004NN*0400R0.50..	DA	4,00	R	0,50	11	58	15	3,8	6	HA/S-λ/HB
F2004NN*0500R0.30..	DA	5,00	R	0,30	13	58	18	4,8	6	HA/S-λ/HB
F2004NN*0500R0.50..	DA	5,00	R	0,50	13	58	18	4,8	6	HA/S-λ/HB
F2004NN*0500R1.00..	DA	5,00	R	1,00	13	58	18	4,8	6	HA/S-λ/HB
F2004NN*0600R0.30..	DA	6,00	R	0,30	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0600R0.50..	DA	6,00	R	0,50	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0600R0.80..	DA	6,00	R	0,80	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0600R1.00..	DA	6,00	R	1,00	13	58	20	5,7	6	HA/S-λ/HB

⇒ 更多的产品请参考下一页/Turn page for more articles

## F2004NN – HAIMER MILL

### 刀尖圆角/CORNER RADIUS


物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank
F2004NN*0600R1.50..	DA	6,00	R	1,50	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0600R2.00..	DA	6,00	R	2,00	13	58	20	5,7	6	HA/S-λ/HB
F2004NN*0800R0.30..	DA	8,00	R	0,30	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0800R0.50..	DA	8,00	R	0,50	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0800R0.80..	DA	8,00	R	0,80	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0800R1.00..	DA	8,00	R	1,00	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0800R1.50..	DA	8,00	R	1,50	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*0800R2.00..	DA	8,00	R	2,00	19	64	26	7,6	8	HA/S-λ/HB
F2004NN*1000R0.30..	DA	10,00	R	0,30	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R0.50..	DA	10,00	R	0,50	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R0.80..	DA	10,00	R	0,80	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R1.00..	DA	10,00	R	1,00	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R1.50..	DA	10,00	R	1,50	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R2.00..	DA	10,00	R	2,00	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1000R2.50..	DA	10,00	R	2,50	22	73	30,5	9,5	10	HA/S-λ/HB
F2004NN*1200R0.30..	DA	12,00	R	0,30	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R0.50..	DA	12,00	R	0,50	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R0.80..	DA	12,00	R	0,80	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R1.00..	DA	12,00	R	1,00	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R1.50..	DA	12,00	R	1,50	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R2.00..	DA	12,00	R	2,00	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R2.50..	DA	12,00	R	2,50	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R3.00..	DA	12,00	R	3,00	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1200R4.00..	DA	12,00	R	4,00	26	84	36,5	11,4	12	HA/S-λ/HB
F2004NN*1400R0.50..	DA	14,00	R	0,50	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1400R1.00..	DA	14,00	R	1,00	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1400R2.00..	DA	14,00	R	2,00	26	84	36,5	13,3	14	HA/S-λ/HB
F2004NN*1600R0.30..	DA	16,00	R	0,30	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R0.50..	DA	16,00	R	0,50	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R0.80..	DA	16,00	R	0,80	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R1.00..	DA	16,00	R	1,00	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R1.50..	DA	16,00	R	1,50	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R2.00..	DA	16,00	R	2,00	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R3.00..	DA	16,00	R	3,00	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1600R4.00..	DA	16,00	R	4,00	32	93	42,5	15,2	16	HA/S-λ/HB
F2004NN*1800R0.50..	DA	18,00	R	0,50	32	93	42,5	17,1	18	HA/S-λ/HB
F2004NN*1800R1.00..	DA	18,00	R	1,00	32	93	42,5	17,1	18	HA/S-λ/HB
F2004NN*1800R2.00..	DA	18,00	R	2,00	32	93	42,5	17,1	18	HA/S-λ/HB

⇒ 更多的产品请参考下一页/Turn page for more articles

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F2004NN – HAIMER MILL 刀尖圆角/CORNER RADIUS

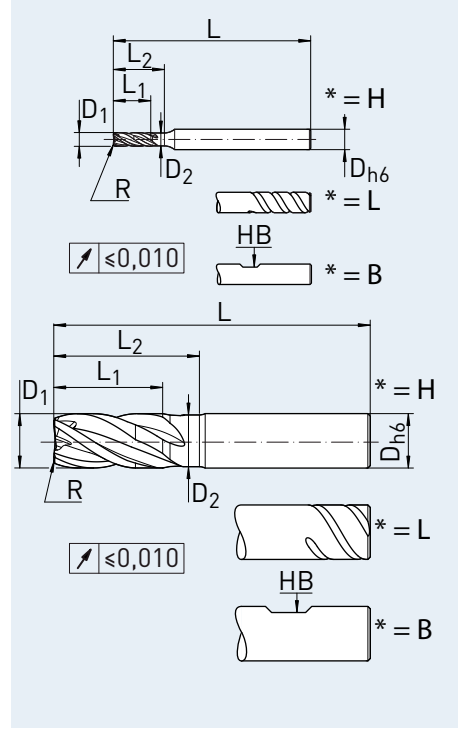
## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

特征 Characteristics	应用 Application	冷却液 Coolant



## 材料 – 特征/Material – characteristics

### 主应用

Main Material



### 次应用

also suitable for



- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge

物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank
F2004NN*2000R0.30..	DA	20,00	R	0,30	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R0.50..	DA	20,00	R	0,50	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R0.80..	DA	20,00	R	0,80	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R1.00..	DA	20,00	R	1,00	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R1.50..	DA	20,00	R	1,50	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R2.00..	DA	20,00	R	2,00	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R3.00..	DA	20,00	R	3,00	38	105	52	19	20	HA/S-λ/HB
F2004NN*2000R4.00..	DA	20,00	R	4,00	38	105	52	19	20	HA/S-λ/HB

\* = L - SafeLock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - SafeLock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F2004LL – HAIMER MILL 刀尖倒角/CHAMFER

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB



\* = H

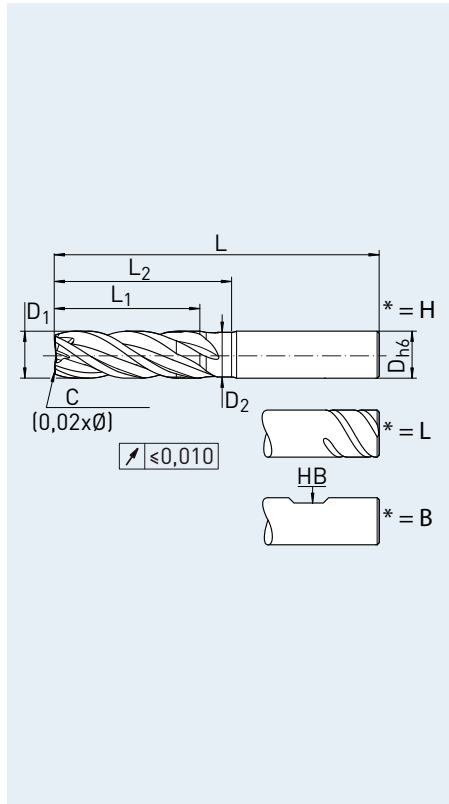


\* = L

**特征**  
Characteristics

**应用**  
Application

**冷却液**  
Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for

- 颈部有助于更大的切深
- 端刃过中心
- 不等螺旋角

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge

物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h6) D (h6) [mm]	柄部 Shank
F2004LL*0600C..	DA	6,00	C	0,12	18	62	24	5,7	6	HA/S-λ/HB
F2004LL*0800C..	DA	8,00	C	0,16	24	70	32	7,6	8	HA/S-λ/HB
F2004LL*1000C..	DA	10,00	C	0,20	30	82	40	9,5	10	HA/S-λ/HB
F2004LL*1200C..	DA	12,00	C	0,24	36	95	48	11,4	12	HA/S-λ/HB
F2004LL*1400C..	DA	14,00	C	0,28	42	105	56	13,3	14	HA/S-λ/HB
F2004LL*1600C..	DA	16,00	C	0,32	48	115	64	15,2	16	HA/S-λ/HB
F2004LL*1800C..	DA	18,00	C	0,36	54	123	72	14,1	18	HA/S-λ/HB
F2004LL*2000C..	DA	20,00	C	0,40	60	133	80	19,0	20	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



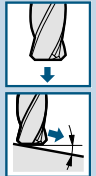
# F2014KK – HAIMER MILL 刀尖倒角/CHAMFER

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		硬度 Content/ Hardness	坡铣 Ramping	切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness			切削线速度 Vc (m/min) Cutting speed Vc (m/min)	ap = 100% D1 ap = 1 x D1	ap = 15% D1 ap = L1 max.	ap = 5% D1 ap = L1 max.
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC		45°	255 – 275	320 – 340	400 – 420	
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC		30°	190 – 210	220 – 240	290 – 310	
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>			10°	95 – 110	115 – 135	150 – 170	
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>			5°	75 – 90	95 – 105	110 – 130	
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN- GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>			45°	160 – 180	180 – 200	210 – 230	
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60) EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>			20°	130 – 150	150 – 170	180 – 200	
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165				10°	50 – 60	60 – 80	80 – 90	
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>			5°	30 – 40	30 – 40	30 – 40	
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%		30°	470 – 490	600 – 630	780 – 820	
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%		30°	340 – 360	420 – 440	540 – 580	
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC		10°	40 – 60	60 – 80	60 – 80	

切削参数仅供参考，需要根据实际情况调整。  
由于排屑困难，钻孔深度最大至 0.5–1xD。

Cutting data are reference values and need to be adjusted according to the application area.  
Chip removal recommended for drilling depth 0,5 – 1 x D.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae													
ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20	
高达/to 50% ø	0,013	0,020	0,026	0,033	0,039	0,052	0,065	0,078	0,091	0,104	0,117	0,13	
100% ø	0,011	0,017	0,022*	0,028*	0,033*	0,044*	0,055*	0,066*	0,077*	0,088*	0,099*	0,11*	
	<b>P</b>	0,009	0,014	0,018	0,023	0,027	0,036	0,045	0,054	0,063	0,072	0,081	0,09
	<b>M</b>	0,005	0,008	0,01	0,013	0,015	0,020	0,025	0,030	0,035	0,040	0,045	0,05
	<b>K</b>	0,008	0,012	0,016	0,020	0,024	0,032	0,040	0,048	0,056	0,064	0,072	0,08
	<b>S</b>	0,004	0,006	0,008	0,010	0,012	0,016	0,020	0,024	0,028	0,032	0,036	0,04
	<b>N</b>	0,009	0,014	0,018	0,023	0,027	0,036	0,045	0,054	0,063	0,072	0,081	0,09

\*铣槽 (100% ø) 加工 M1, M2, S1 和 S2 材料组中的材料时，每齿走刀量 fz 需要减少 30%。

\*For Slotting (100% ø) in material M1, M2, S1 and S2 reduce fz by 30%.

# F2014KK – HAIMER MILL 刀尖倒角/CHAMFER

## 技术参数和产品特征/Technical data and Product characteristics

可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

\* = H      \* = B

特征 Characteristics	应用 Application	冷却液 Coolant

### 材料 – 特征/Material – characteristics

<p>主应用 Main Material</p> <div style="display: flex; gap: 10px;"> <div style="background-color: #0070C0; color: white; padding: 10px; font-weight: bold; font-size: 24px;">P</div> <div style="background-color: #FFD700; color: white; padding: 10px; font-weight: bold; font-size: 24px;">M</div> </div>	<p>次应用 also suitable for</p> <div style="display: flex; gap: 10px;"> <div style="background-color: #DC143C; color: white; padding: 10px; font-weight: bold; font-size: 24px;">K</div> <div style="background-color: #FF8C00; color: white; padding: 10px; font-weight: bold; font-size: 24px;">S</div> <div style="background-color: #32CD32; color: white; padding: 10px; font-weight: bold; font-size: 24px;">N</div> <div style="background-color: #696969; color: white; padding: 10px; font-weight: bold; font-size: 24px;">H</div> </div>	<ul style="list-style-type: none"> <li>■ 端刃过中心</li> <li>■ 不等螺旋角</li> <li>■ 刃长 L1 max 1.25 x D1</li> <li>■ 无缩颈</li> <li>■ 非常受欢迎的硬质合金柄部形状</li> </ul>	<ul style="list-style-type: none"> <li>■ Center cutting</li> <li>■ Unequal cutting edge</li> <li>■ Cutting length L1 max. 1.25 x D1</li> <li>■ No neck</li> <li>■ Very economical solid carbide shank shape</li> </ul>
---	---	--	--

物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D (h6) D (h6) [mm]	柄部 Shank h6
F2014KK*0200C..	DA	2,00	C	0,04	2,50	38	6	HA/HB
F2014KK*0300C..	DA	3,00	C	0,06	3,75	38	6	HA/HB
F2014KK*0400C..	DA	4,00	C	0,08	5,00	38	6	HA/HB
F2014KK*0500C..	DA	5,00	C	0,10	6,25	38	6	HA/HB
F2014KK*0600C..	DA	6,00	C	0,12	7,50	38	6	HA/HB
F2014KK*0800C..	DA	8,00	C	0,16	10,00	42	8	HA/HB
F2014KK*1000C..	DA	10,00	C	0,20	12,50	50	10	HA/HB
F2014KK*1200C..	DA	12,00	C	0,24	15,00	55	12	HA/HB
F2014KK*1400C..	DA	14,00	C	0,28	17,50	58	14	HA/HB
F2014KK*1600C..	DA	16,00	C	0,32	20,00	63	16	HA/HB
F2014KK*1800C..	DA	18,00	C	0,36	22,50	70	18	HA/HB
F2014KK*2000C..	DA	20,00	C	0,40	25,00	75	20	HA/HB

\* = H-直柄 / B-Weldon 柄部。订货号 = 物料号 + 材料。  
\* = H- Straight shank / B- Weldon shank. Order No. = Article Code + Quality.

# F4002NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER


### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1.5 x D1	 ae = 25% D1 ap = L1 max.	
					切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F4002NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

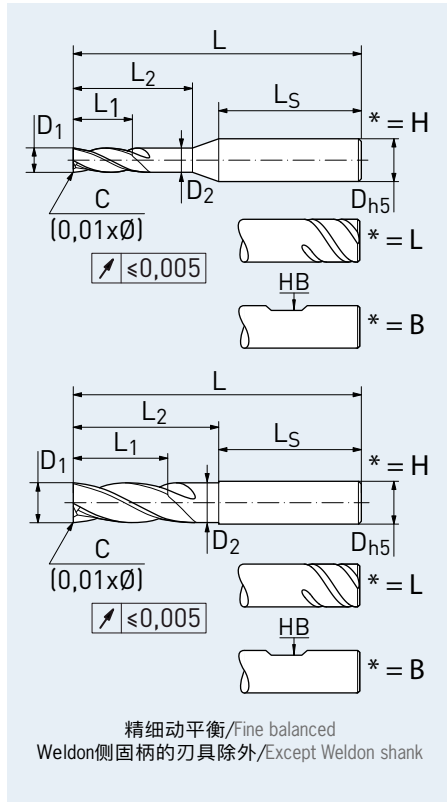


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
45°	45°	Air
Z=2		
41° 43°		MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F4002NN*0200C..	A-	2,00	C	0,02	7	58	9	1,9	6	44,3	HA/S-λ/HB
F4002NN*0300C..	A-	3,00	C	0,03	8	58	10	2,9	6	44,0	HA/S-λ/HB
F4002NN*0400C..	A-	4,00	C	0,04	11	58	15	3,8	6	40,0	HA/S-λ/HB
F4002NN*0500C..	A-	5,00	C	0,05	13	58	18	4,8	6	37,875	HA/S-λ/HB
F4002NN*0600C..	A-	6,00	C	0,06	13	58	20	5,7	6	36,5	HA/S-λ/HB
F4002NN*0800C..	A-	8,00	C	0,08	19	64	26	7,6	8	36,5	HA/S-λ/HB
F4002NN*1000C..	A-	10,00	C	0,10	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F4002NN*1200C..	A-	12,00	C	0,12	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F4002NN*1400C..	A-	14,00	C	0,14	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F4002NN*1600C..	A-	16,00	C	0,16	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F4002NN*1800C..	A-	18,00	C	0,18	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F4002NN*2000C..	A-	20,00	C	0,20	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F4002NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER


### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1.5 x D1	 ae = 25% D1 ap = L1 max.	
切削线速度 Vc (m/min) Cutting speed Vc (m/min)								
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F4002NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-LOCK shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

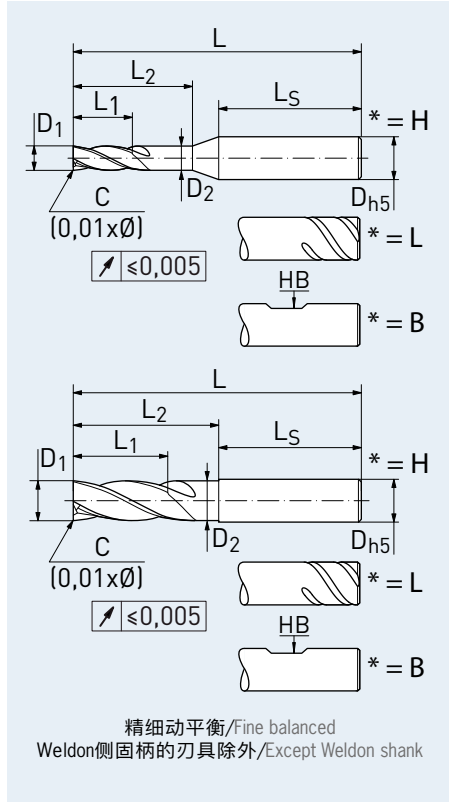


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
45°	45°	Air
Z=2		
41° 43°		MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 适用于磨蚀性材料的涂层
- 颈部有助于更大的切深
- 端刃过中心
- 排屑槽和后刀面经抛光处理
- Coating for abrasive materials
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F4002NN*0200C..	AC	2,00	C	0,02	7	58	9	1,9	6	44,3	HA/S-λ/HB
F4002NN*0300C..	AC	3,00	C	0,03	8	58	10	2,9	6	44,0	HA/S-λ/HB
F4002NN*0400C..	AC	4,00	C	0,04	11	58	15	3,8	6	40,0	HA/S-λ/HB
F4002NN*0500C..	AC	5,00	C	0,05	13	58	18	4,8	6	37,875	HA/S-λ/HB
F4002NN*0600C..	AC	6,00	C	0,06	13	58	20	5,7	6	36,5	HA/S-λ/HB
F4002NN*0800C..	AC	8,00	C	0,08	19	64	26	7,6	8	36,5	HA/S-λ/HB
F4002NN*1000C..	AC	10,00	C	0,10	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F4002NN*1200C..	AC	12,00	C	0,12	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F4002NN*1400C..	AC	14,00	C	0,14	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F4002NN*1600C..	AC	16,00	C	0,16	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F4002NN*1800C..	AC	18,00	C	0,18	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F4002NN*2000C..	AC	20,00	C	0,20	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# F4003NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER


### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1.5 x D1	 ae = 25% D1 ap = L1 max.	
切削线速度 Vc (m/min) Cutting speed Vc (m/min)								
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F4003NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

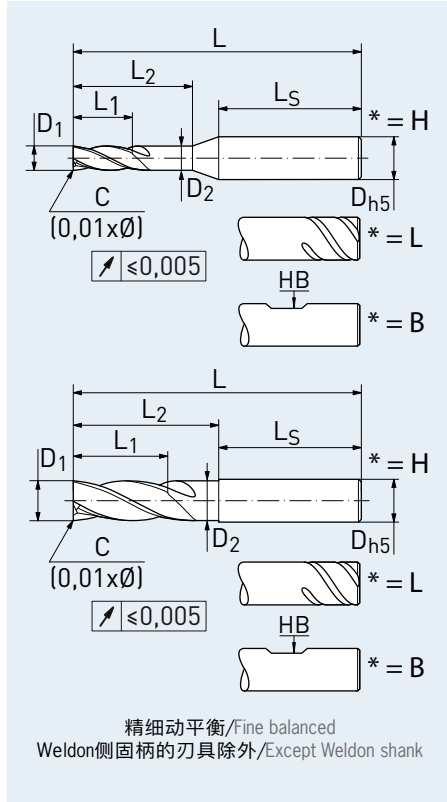


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
45°	45°	Air
Z=3		
41° 42° 43°		MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 颈部有助于更大的切深
- 端刃过中心
- 排屑槽和后刀面经抛光处理
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F4003NN*0200C..	A-	2,00	C	0,02	7	58	9	1,9	6	44,3	HA/S-λ/HB
F4003NN*0300C..	A-	3,00	C	0,03	8	58	10	2,9	6	44,0	HA/S-λ/HB
F4003NN*0400C..	A-	4,00	C	0,04	11	58	15	3,8	6	40,0	HA/S-λ/HB
F4003NN*0500C..	A-	5,00	C	0,05	13	58	18	4,8	6	37,875	HA/S-λ/HB
F4003NN*0600C..	A-	6,00	C	0,06	13	58	20	5,7	6	36,5	HA/S-λ/HB
F4003NN*0800C..	A-	8,00	C	0,08	19	64	26	7,6	8	36,5	HA/S-λ/HB
F4003NN*1000C..	A-	10,00	C	0,10	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F4003NN*1200C..	A-	12,00	C	0,12	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F4003NN*1400C..	A-	14,00	C	0,14	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F4003NN*1600C..	A-	16,00	C	0,16	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F4003NN*1800C..	A-	18,00	C	0,18	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F4003NN*2000C..	A-	20,00	C	0,20	41	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



# F4003NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER


### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1.5 x D1	 ae = 25% D1 ap = L1 max.	
					切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# F4003NN – HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB

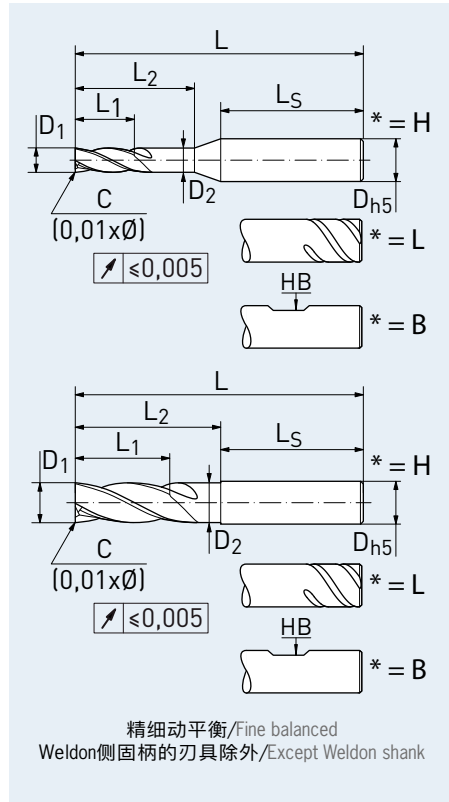


\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 适用于磨蚀性材料的涂层
- 颈部有助于更大的切深
- 端刃过中心
- 排屑槽和后刀面经抛光处理
- Coating for abrasive materials
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
F4003NN*0200C..	AC	2,00	C	0,02	7	58	9	1,9	6	44,3	HA/S-λ/HB
F4003NN*0300C..	AC	3,00	C	0,03	8	58	10	2,9	6	44,0	HA/S-λ/HB
F4003NN*0400C..	AC	4,00	C	0,04	11	58	15	3,8	6	40,0	HA/S-λ/HB
F4003NN*0500C..	AC	5,00	C	0,05	13	58	18	4,8	6	37,875	HA/S-λ/HB
F4003NN*0600C..	AC	6,00	C	0,06	13	58	20	5,7	6	36,5	HA/S-λ/HB
F4003NN*0800C..	AC	8,00	C	0,08	19	64	26	7,6	8	36,5	HA/S-λ/HB
F4003NN*1000C..	AC	10,00	C	0,10	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
F4003NN*1200C..	AC	12,00	C	0,12	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
F4003NN*1400C..	AC	14,00	C	0,14	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
F4003NN*1600C..	AC	16,00	C	0,16	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
F4003NN*1800C..	AC	18,00	C	0,18	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
F4003NN*2000C..	AC	20,00	C	0,20	41	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

## H2004KN – HAIMER MILL HF Series 内冷高进给型/HIGH FEED KZ

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			拉伸强度 Tensile strength	硬度 Content/ Hardness			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>250 – 320</b>	<b>340 – 420</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>190 – 220</b>	<b>240 – 310</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		95 – 115	135 – 170
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		75 – 95	105 – 130
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		160 – 180	200 – 230
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		130 – 150	170 – 200
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	80 – 90
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae			
	∅ 6	∅ 8	∅ 10
fz	0,06 – 0,18	0,08 – 0,24	0,1 – 0,3
ap HFC	0,45	0,6	0,75

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

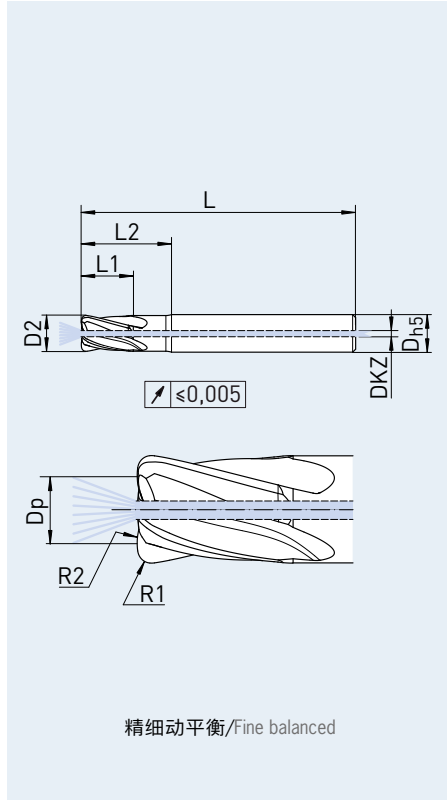
# H2004KN – HAIMER MILL HF Series

## 内冷高进给型/HIGH FEED KZ

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.25 × Ø	Chamfered end	Coolant spray
R	10°	Air
Z=4	ap, ae	MMS
20°	ap, ae	IKZ
HA	Milling operation	



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 中心内冷
- 颈部有助于更大的切深

- Central inner cooling
- Neck for higher cutting depth

物料号 Article-Code	材料 Quality	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R1 R1 [mm]	R2 R2 [mm]	Dp Dp [mm]	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	DKZ DKZ [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	柄部 Shank
H2004KNH0600R..	DAKZ	6,00	R	0,9	3,00	1,80	7,50	58	15	1,0	5,7	6	HA
H2004KNH0800R..	DAKZ	8,00	R	1,2	4,00	4,80	10,00	64	19,5	1,3	7,6	8	HA
H2004KNH1000R..	DAKZ	10,00	R	1,5	5,00	6,00	12,50	73	24	2,0	9,5	10	HA

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# V1002NN – HAIMER MILL Power Series 球头/BALL NOSE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups		典型的材料牌号 Example material		材料的信息 Material information			
		德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>180 – 220</b>	<b>280 – 320</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>170 – 190</b>	<b>270 – 290</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		110 – 130	170 – 190
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		70 – 90	120 – 140
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		190 – 210	290 – 310
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		140 – 160	220 – 240
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			60 – 80	60 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae												
ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# V1002NN – HAIMER MILL Power Series 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics

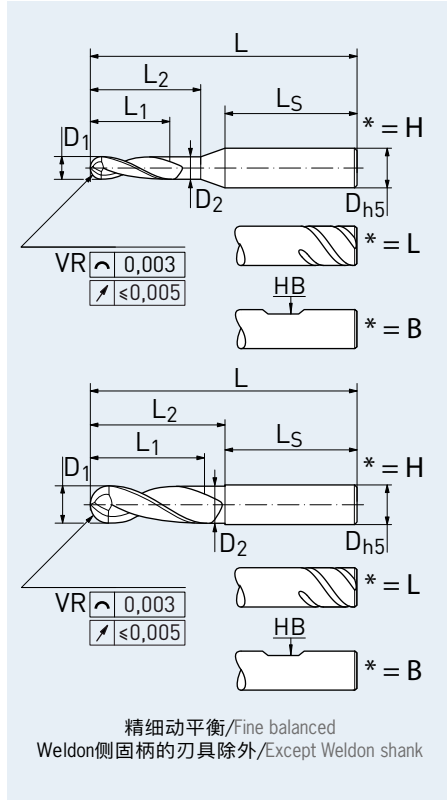


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB



特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
VR	45°	Air
Z=2		
32° 34°		MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 球头
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Ball Nose
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 D1 [mm]	VR VR ± 0,005 mm	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank
V1002NN*0200R..	AA	2 $\begin{matrix} -0,005 \\ -0,025 \end{matrix}$	0,9925	7	58	9	1,9	6	44,3	HA/S-λ/HB
V1002NN*0300R..	AA	3 $\begin{matrix} -0,005 \\ -0,025 \end{matrix}$	1,4925	8	58	10	2,9	6	44,0	HA/S-λ/HB
V1002NN*0400R..	AA	4 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	1,99	11	58	15	3,8	6	40,0	HA/S-λ/HB
V1002NN*0500R..	AA	5 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	2,49	13	58	18	4,8	6	37,875	HA/S-λ/HB
V1002NN*0600R..	AA	6 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	2,99	13	58	20	5,7	6	36,5	HA/S-λ/HB
V1002NN*0800R..	AA	8 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	3,99	19	64	26	7,6	8	36,5	HA/S-λ/HB
V1002NN*1000R..	AA	10 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	4,99	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
V1002NN*1200R..	AA	12 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	5,99	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
V1002NN*1400R..	AA	14 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	6,99	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
V1002NN*1600R..	AA	16 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	7,99	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
V1002NN*1800R..	AA	18 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	8,99	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
V1002NN*2000R..	AA	20 $\begin{matrix} -0,010 \\ -0,030 \end{matrix}$	9,99	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# V4002NN – HAIMER MILL Alu Series

## 球头/BALL NOSE

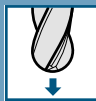
### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1,5 x D1	 ae = 25% D1 ap = L1 max.	
					切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# V4002NN – HAIMER MILL Alu Series 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics

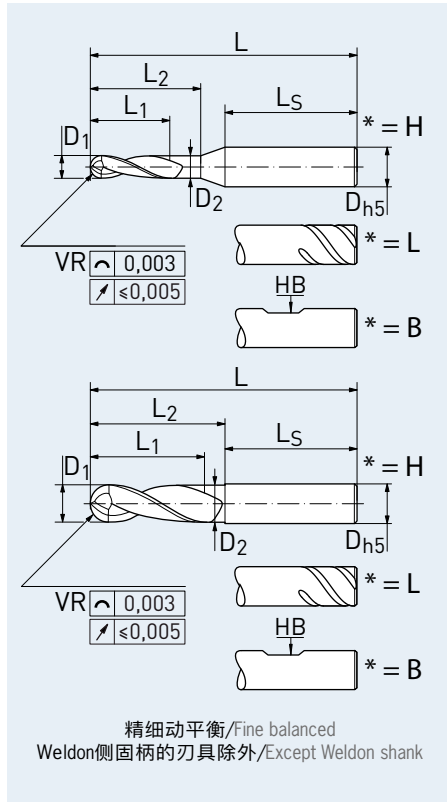


可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB



特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
VR	45°	Air
Z=2		
32° 34°		MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- |                |                                 |
|----------------|---------------------------------|
| ■ 颈部有助于更大的切深   | ■ Neck for higher cutting depth |
| ■ 球头           | ■ Ball Nose                     |
| ■ 排屑槽和后刀面经抛光处理 | ■ Polished flute and relief     |

物料号 Article-Code	材料 Quality	D1 D1 [mm]	VR VR ± 0,005 mm	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank	
V4002NN*0200R..	A-	2	-0,005 -0,025	0,9925	7	58	9	1,9	6	44,3	HA/S-λ/HB
V4002NN*0300R..	A-	3	-0,005 -0,025	1,4925	8	58	10	2,9	6	44,0	HA/S-λ/HB
V4002NN*0400R..	A-	4	-0,010 -0,030	1,99	11	58	15	3,8	6	40,0	HA/S-λ/HB
V4002NN*0500R..	A-	5	-0,010 -0,030	2,49	13	58	18	4,8	6	37,875	HA/S-λ/HB
V4002NN*0600R..	A-	6	-0,010 -0,030	2,99	13	58	20	5,7	6	36,5	HA/S-λ/HB
V4002NN*0800R..	A-	8	-0,010 -0,030	3,99	19	64	26	7,6	8	36,5	HA/S-λ/HB
V4002NN*1000R..	A-	10	-0,010 -0,030	4,99	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
V4002NN*1200R..	A-	12	-0,010 -0,030	5,99	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
V4002NN*1400R..	A-	14	-0,010 -0,030	6,99	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
V4002NN*1600R..	A-	16	-0,010 -0,030	7,99	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
V4002NN*1800R..	A-	18	-0,010 -0,030	8,99	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
V4002NN*2000R..	A-	20	-0,010 -0,030	9,99	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。  
\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.



# V4002NN – HAIMER MILL Alu Series

## 球头/BALL NOSE

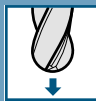
### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		切宽 Cutting width			
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	 ae = 100% D1 ap = 1 x D1	 ae = 50% D1 ap = 1,5 x D1	 ae = 25% D1 ap = L1 max.	
					切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>	<b>500 – 600</b>
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14	ø 16	ø 18	ø 20
高达/to 50% ø	0,02	0,03	0,04	0,05	0,06	0,08	0,1	0,12	0,14	0,16	0,18	0,2
100% ø	0,01	0,015	0,02	0,025	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020

# V4002NN – HAIMER MILL Alu Series 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics



可选的 / Optional:

- 直柄 德标 6535-HA / Straight shank DIN 6535-HA
- Safe-Lock 柄部 (S-λ) / Safe-Lock shank (S-λ)
- Weldon 侧固柄, 类似德标 6535-HB / Weldon shank similar DIN 6535-HB



\* = H

\* = L

\* = B

特征 Characteristics	应用 Application	冷却液 Coolant
DIN 6527 L		
VR	45°	Air
Z=2		
32° 34°		MMS

精细动平衡/Fine balanced  
Weldon侧固柄的刀具除外/Except Weldon shank

### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 适用于磨蚀性材料的涂层
- 颈部有助于更大的切深
- 球头
- 排屑槽和后刀面经抛光处理
- Coating for abrasive materials
- Neck for higher cutting depth
- Ball Nose
- Polished flute and relief

物料号 Article-Code	材料 Quality	D1 D1 [mm]	VR VR ± 0,005 mm	L1 max. L1 max. [mm]	L L [mm]	L2 L2 [mm]	D2 D2 [mm]	D (h5) D (h5) [mm]	LS LS [mm]	柄部 Shank	
V4002NN*0200R..	AC	2	-0,005 -0,025	0,9925	7	58	9	1,9	6	44,3	HA/S-λ/HB
V4002NN*0300R..	AC	3	-0,005 -0,025	1,4925	8	58	10	2,9	6	44,0	HA/S-λ/HB
V4002NN*0400R..	AC	4	-0,010 -0,030	1,99	11	58	15	3,8	6	40,0	HA/S-λ/HB
V4002NN*0500R..	AC	5	-0,010 -0,030	2,49	13	58	18	4,8	6	37,875	HA/S-λ/HB
V4002NN*0600R..	AC	6	-0,010 -0,030	2,99	13	58	20	5,7	6	36,5	HA/S-λ/HB
V4002NN*0800R..	AC	8	-0,010 -0,030	3,99	19	64	26	7,6	8	36,5	HA/S-λ/HB
V4002NN*1000R..	AC	10	-0,010 -0,030	4,99	22	73	30,5	9,5	10	40,5	HA/S-λ/HB
V4002NN*1200R..	AC	12	-0,010 -0,030	5,99	26	84	36,5	11,4	12	45,5	HA/S-λ/HB
V4002NN*1400R..	AC	14	-0,010 -0,030	6,99	26	84	36,5	13,3	14	45,5	HA/S-λ/HB
V4002NN*1600R..	AC	16	-0,010 -0,030	7,99	32	93	42,5	15,2	16	48,5	HA/S-λ/HB
V4002NN*1800R..	AC	18	-0,010 -0,030	8,99	32	93	42,5	17,1	18	48,5	HA/S-λ/HB
V4002NN*2000R..	AC	20	-0,010 -0,030	9,99	38	105	52	19	20	50,5	HA/S-λ/HB

\* = L - Safe-Lock / H - 直柄 / B - Weldon 柄部。订货号 = 物料号 + 材料。

\* = L - Safe-Lock / H - Straight shank / B - Weldon shank. Order No. = Article Code + Quality.

# DUO-LOCK®

**先进的材料需要先进的制造工艺  
Advanced Materials Require Advanced Manufacturing.**

很多行业的设备制造者们，例如：航空航天业；军工业；能源业和交通运输业，都在急切的寻找正在持续发展的高强度和轻重量的材料，例如：钛合金；高温合金和新型铝合金。这些新材料本身就显著代表着机加工的挑战。增加竞争力和找到先进的机加工方案成为他们的首要的任务。

The continuing development of high-strength, light-weight materials such as titanium alloys, Inconel, and new aluminum alloys are eagerly sought by manufacturers in many industries, including aerospace and defense, energy, and transportation. These new materials present significant machining challenges in themselves. Add the competitive pressures in these global industries, and finding advanced manufacturing solutions becomes a top priority.

## DUO-LOCK®

Duo-Lock 模块式铣刀技术就是针对日益上涨的硬质合金成本而开发的模块式刀具系统。通过其专有的双圆锥螺纹技术，Duo-Lock 模块式铣刀可以承受很大的负载并获得很好的稳定性。这种连接方式的结果是无与伦比的，它可以应对大多数的应用需求而不会断裂。

## DUO-LOCK®

The Duo-Lock technology addresses the issue of the increasing cost of carbide by delivering a modular interface for cutting tool heads. Duo-Lock provides maximum stability and load capacity through a proprietary thread design with a double cone bond. The results are unmatched precision and productivity, with a connection that is virtually unbreakable in the most demanding applications.

## SAFE-LOCK®

Safe-Lock 安全锁防掉刀技术可以用于 Duo-Lock 模块式铣刀的延长杆上，从而实现大悬伸和高效铣削。

## SAFE-LOCK®

The Safe-Lock anti-pullout interface will be also available with modular Duo-Lock extensions to take advantage of long reach and aggressive cuts.



这是模块式铣削系统第一次能够实现和最新的整硬铣刀一样的高性能铣削。

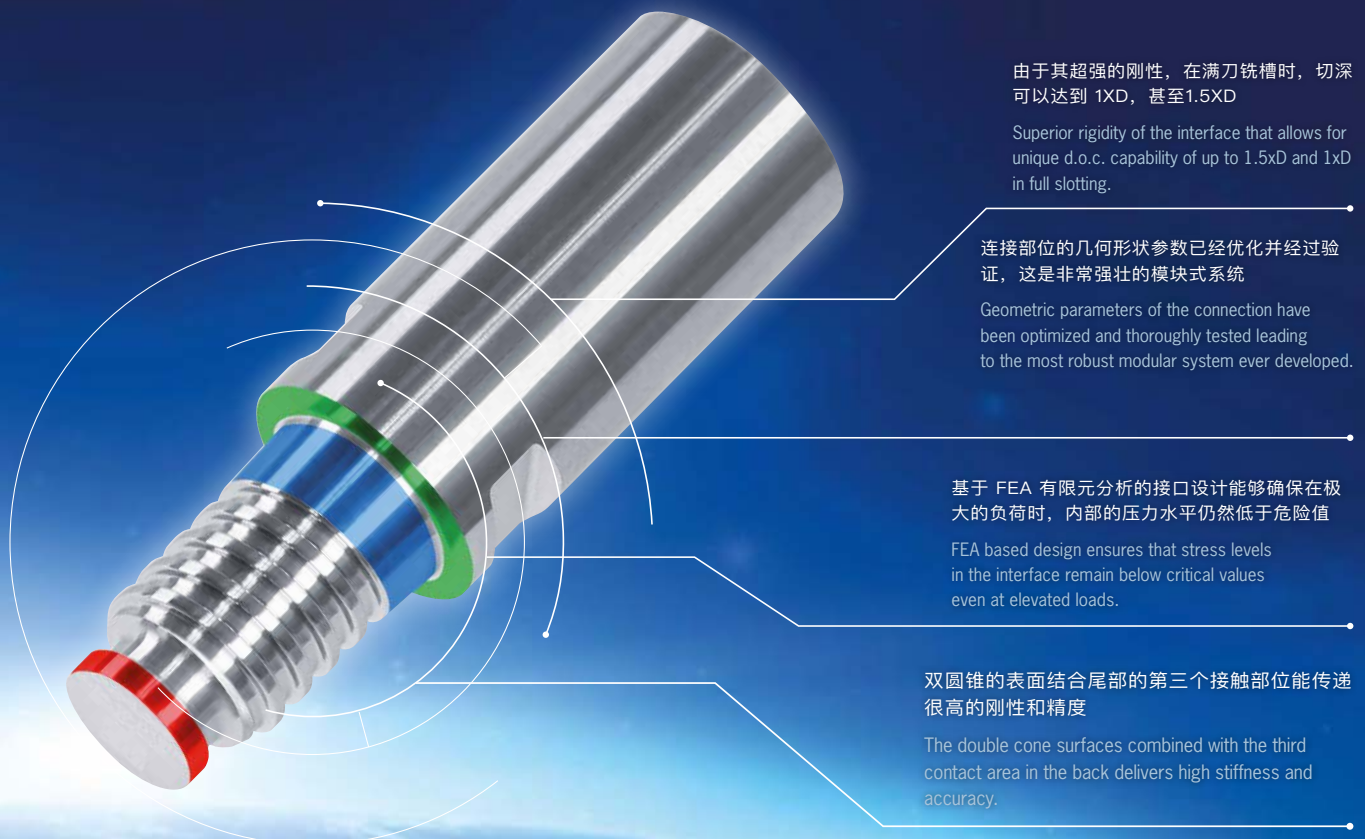
Duo-Lock 模块式铣刀融合了两个世界级的刀具制造商 — 翰默和肯纳的创新经验，带来了前所未有的开创性的接口技术。

Duo-Lock 模块式铣刀在粗加工和精加工时，能够发挥硬质合金刀具的潜能，以实现生产效率的提升。在粗加工时，它可以提供很大的负载能力和刚性。结合高性能的刀具，Duo-Lock 模块式铣刀可以在普通的铣削应用中提高一倍的金属去除率。

For the first time, a modular milling system can achieve the similar high performance of the latest generation solid carbide end mill.

To deliver groundbreaking joint technology, Duo-Lock combines the innovative histories of two leaders in the world of manufacturing – Kennametal and HAIMER.

Duo-Lock maximizes a carbide tool's full potential with productivity gains in both roughing and finishing. It provides high load capacity and rigidity when machining at high metal removal rates. When combined with high-performance cutting tools, Duo-Lock provides more than double the metal removal rate in common milling applications.



由于其超强的刚性，在满刀铣槽时，切深可以达到 1XD，甚至 1.5XD

Superior rigidity of the interface that allows for unique d.o.c. capability of up to 1.5xD and 1xD in full slotting.

连接部位的几何形状参数已经优化并经过验证，这是非常强壮的模块式系统

Geometric parameters of the connection have been optimized and thoroughly tested leading to the most robust modular system ever developed.

基于 FEA 有限元分析的接口设计能够确保在极大的负荷时，内部的压力水平仍然低于危险值

FEA based design ensures that stress levels in the interface remain below critical values even at elevated loads.

双圆锥的表面结合尾部的第三个接触部位能传递很高的刚性和精度

The double cone surfaces combined with the third contact area in the back delivers high stiffness and accuracy.

# 总览 DUO-LOCK®

## OVERVIEW DUO-LOCK®

产品/Products	ø D1	页数/Page	特征/Characteristics
<b>E1002KK – HAIMER MILL</b> 多功能的立铣刀/MULTIFUNCTION END MILL 	ø 10 – ø 20	103	  
<b>E1014UK – HAIMER MILL</b> 外圆角立铣刀/QUADRANT END MILL 	ø 10 – ø 20	105	 
<b>E1016/18 – HAIMER MILL</b> 倒角立铣刀/CHAMFERING END MILL 	ø 10 – ø 20	107	  
<b>F1004MN – HAIMER MILL Power Series</b> 	ø 10 – ø 32	109	   
<b>F1004MN – HAIMER MILL Power Series</b> 径向冷却/COOLING RADIAL 	ø 10 – ø 32	111	   
<b>F1004MN – HAIMER MILL Power Series</b> 	ø 10 – ø 32	113	   
<b>F1004MN – HAIMER MILL Power Series</b> 径向冷却/COOLING RADIAL 	ø 10 – ø 32	115	   
<b>F1004MN – HAIMER MILL Power Series</b> 	ø 10 – ø 20	117	   
<b>F1004MN – HAIMER MILL Power Series</b> 	ø 10 – ø 20	121	   
<b>F1105LL – HAIMER MILL Power Series</b> 断屑槽/CHIP BREAKER 	ø 10 – ø 32	125	   

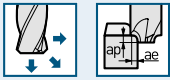
应用/Application

材料/Material



主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



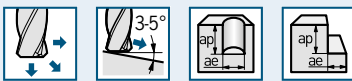
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



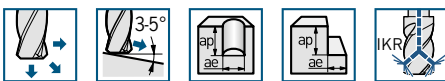
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



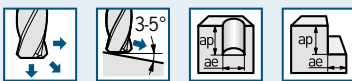
主应用  
Main Material  
**N**

次应用  
also suitable for  
**K S**  
**M P**



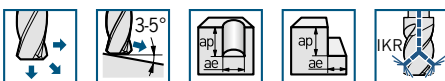
主应用  
Main Material  
**N**

次应用  
also suitable for  
**K S**  
**M P**



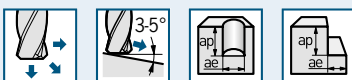
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



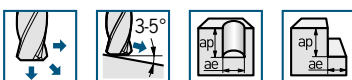
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**N**

次应用  
also suitable for  
**K S**  
**M P**



主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**P**

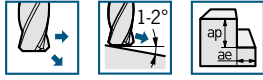
次应用  
also suitable for  
**K S N**  
**M H**

# 总览 DUO-LOCK® OVERVIEW DUO-LOCK®

产品/Products	ø D1	页数/Page	特征/Characteristics
<b>F1105MN – HAIMER MILL Power Series</b> 断屑槽/CHIP BREAKER 	ø 10 – ø 32	127	   
<b>F2003MN – HAIMER MILL</b> 	ø 2 – ø 20	129	   
<b>F2003UK – HAIMER MILL</b> 	ø 10 – ø 20	131	   
<b>F2004MN – HAIMER MILL</b> 	ø 2 – ø 32	133	   
<b>F2004MN – HAIMER MILL</b> 	ø 10 – ø 20	135	   
<b>F2004UK – HAIMER MILL</b> 	ø 10 – ø 32	139	   
<b>F2006/08/00MN – HAIMER MILL</b> 精加工/FINISHING 	ø 10 – ø 20	141	   
<b>F2006/08/00MN – HAIMER MILL</b> 精加工/FINISHING 	ø 10 – ø 20	143	   
<b>F2006/08/00UK – HAIMER MILL</b> 精加工/FINISHING 	ø 10 – ø 20	145	   
<b>F2304MN – HAIMER MILL</b> 粗加工/ROUGHING 	ø 10 – ø 20	147	   

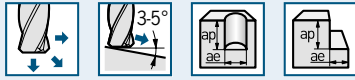
应用/Application

材料/Material



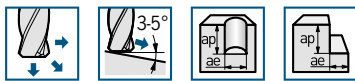
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



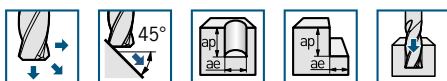
主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**



主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**



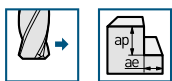
主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**



主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**



主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**



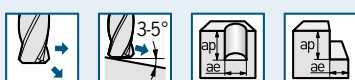
主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**



主应用  
Main Material  
**P M**

次应用  
also suitable for  
**K S**  
**N H**




































主应用  
Main Material  
**P**

次应用  
also suitable for  
**K S N**  
**M H**

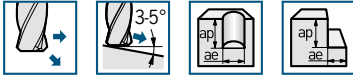


# 总览 DUO-LOCK® OVERVIEW DUO-LOCK®

产品/Products	ø D1	页数/Page	特征/Characteristics
<b>F2304UK – HAIMER MILL</b> <b>粗加工/ROUGHING</b> 	ø 10 – ø 20	149	   
<b>F4002MN – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	151	   
<b>F4002MN – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	153	   
<b>F4003MN – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	155	   
<b>F4003MN – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	157	   
<b>H2004UK – HAIMER MILL HF Series</b> <b>内冷高进给型/HIGH FEED KZ</b> 	ø 10 – ø 20	159	   
<b>H2006UK – HAIMER MILL HF Series</b> <b>内冷高进给型/HIGH FEED KZ</b> 	ø 10 – ø 20	161	   

应用/Application

材料/Material



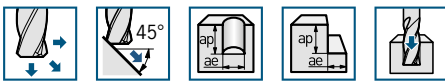
主应用  
Main Material



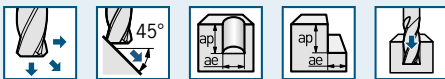
次应用  
also suitable for



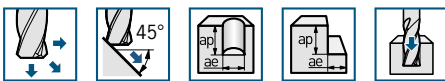
主应用  
Main Material



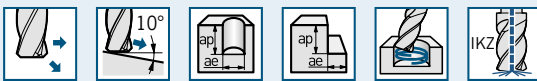
主应用  
Main Material



主应用  
Main Material



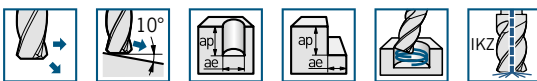
主应用  
Main Material



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



# 总览 DUO-LOCK® OVERVIEW DUO-LOCK®

产品/Products	ø D1	页数/Page	特征/Characteristics
<b>V2002MN – HAIMER MILL</b> 	ø 2 – ø 10	163	   
<b>V2002UK – HAIMER MILL</b> 	ø 10 – ø 20	165	   
<b>V2002UK – HAIMER MILL</b> 径向冷却/COOLING RADIAL 	ø 10 – ø 20	167	   
<b>V2004MN – HAIMER MILL</b> 	ø 2 – ø 10	169	   
<b>V2004UK – HAIMER MILL</b> 	ø 10 – ø 20	171	   
<b>V2004UK – HAIMER MILL</b> 径向冷却/COOLING RADIAL 	ø 10 – ø 20	173	   
<b>V4002UK – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	175	   
<b>V4002UK – HAIMER MILL Alu Series</b> 	ø 10 – ø 20	177	   

应用/Application

材料/Material



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



次应用  
also suitable for



主应用  
Main Material



主应用  
Main Material



# 图标的解释/订货号的解释/材料表 DUO-LOCK® EXPLANATION ICONS/ARTICLE CODE/MATERIAL LIST DUO-LOCK®

## 图标的解释/Explanation Icons

### 特征/Characteristics

刃长 Cutting length	刀尖尖角 Sharp cutting edge	刀尖倒角 Corner chamfer	刀尖圆角 Corner radius	球头 Ball Nose	定心 Spot	外圆角 Edge radius	
2刃 Teeth 2	3刃 Teeth 3	4刃 Teeth 4	5刃 Teeth 5	6刃 Teeth 6	8刃 Teeth 8	10刃 Teeth 10	螺旋角 Helix angle

### 应用/Application

走刀方向 Feed direction	走刀方向 Feed direction	走刀方向 Feed direction	坡铣 Ramping	开槽 Slotting	侧铣 Side milling	倒圆角 Rounding	倒角 Chamfering
钻孔 Drilling	仿型铣 3D Milling	V-开槽 V-slotting	铣轮廓 Contouring	倒角 Chamfering	侧铣 Side milling	螺旋插补铣 Helical drilling	

### 冷却液/Coolant

乳化液 Emulsion	气冷 Cold air	干切 Dry machining	微量润滑 Minimal lubrication	中心内冷 Central inner cooling	径向内冷 Radial inner cooling

### 订货号的解释/Explanation article code

DL12	F	1	0	0	2	M	N
接口 Interface	刀具类型 Tool type	分组 Group	类型 Type	改制 Modification	刃数 No. of teeth	刃长 Length of cut	总长 Overall length
DL10	F- 圆柱立铣刀 Cylindrical end mill	1- 通用型 Universal	0- 直刃 Plain cutter	0- 带缩颈 With neck	2- Z2	L- 2.6-3.5xD	N- 2xD
DL12					3- Z3	M- 1.5xD	L- 3.5xD
DL16	E- 倒角立铣刀 Chamfering end mill	2- 钢 / Steel < 52HRC	1- 带断屑槽 Chip breaker	1- 不带缩颈 No Neck	4- Z4	K- 1.25xD	K- 1.25xD
DL20		4- 铝 / Alu	3- 粗加工 Rough		5- Z5	U- 0.75xD	
DL25	V- 球头立铣刀 Ball nose end mill	6- 钛合金 / 高温合金 Titan / Inconel			6- Z6		
DL32	H- 高进给立铣刀 HighFeed end mill				8- Z8		
					0- Z10		

## 材料表/Material list

HAIMER 翰默的材料组 HAIMER Material groups		典型的材料牌号 Example material		材料的信息 Material information	
		德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>	
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>	
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>	
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>	
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165		
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>	
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%
H1	硬化钢 Hardened steels				45 – 55 HRC
H2	硬化钢 Hardened steels				> 55 HRC

1000

R

1.00

A

A

0001

KR

直径  
Diameter刀尖几何尺寸  
Cutting edge transition刀尖过渡尺寸  
Size transition材料  
Material涂层  
Coating特殊号码  
Special number冷却液  
Cooling1200- 公制  
Metric  
1/2Z- 英制  
InchS- 刀尖尖角  
Sharp cutting edge  
C- 倒角  
Chamfer  
R- 圆角  
Radius  
W- 倒角度  
Chamfer angle1.00- 公制  
Metric  
.03- 英制  
Inch  
90- 倒角度  
Chamfer angle  
60- 倒角度  
Chamfer angle  
120- 倒角度  
Chamfer angleA- HF10 h5  
D- HF10 h6A- HAIMER-  
UNI  
C- HAIMER-  
ALU  
P- HAIMER-P  
  
- 无  
none

0000 - 9999

KR- 径向内冷  
Cooling radial  
KZ- 轴向内冷  
Cooling central  
KS- 特殊冷却方  
式  
Cooling special

# E1002KK – DUO-LOCK® HAIMER MILL

## 多功能的立铣刀/MULTIFUNCTION END MILL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			拉伸强度 Tensile strength	硬度 Content/ Hardness			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

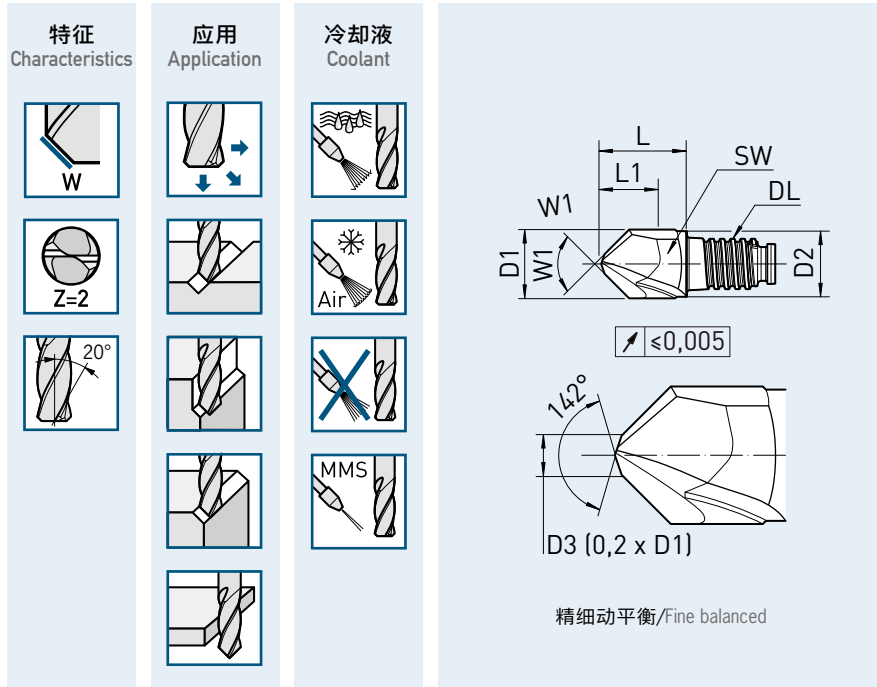
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# E1002KK – DUO-LOCK® HAIMER MILL

## 多功能的立铣刀/MULTIFUNCTION END MILL

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 锥度 60/90/120/142°
- 定心
- 多功能的刀具
- 周边倒角刀
- 很好的长度重复精度

- Cone angle 60/90/120°/142°
- Center spot
- Multifunctional tool
- Circumference cutter
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	Z	D1 (f9) D1 (f9) [mm]	倒角立铣刀 Chamfer	W1	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10E1002KK1000W60..	DA	DL10	2	10,00	W	60°	10	12,5	9,6	SW8	20
DL10E1002KK1000W90..	DA	DL10	2	10,00	W	90°	10	12,5	9,6	SW8	20
DL10E1002KK1000W120..	DA	DL10	2	10,00	W	120°	10	12,5	9,6	SW8	20
DL10E1002KK1000W142..	DA	DL10	2	10,00	W	142°	10	12,5	9,6	SW8	20
DL12E1002KK1200W60..	DA	DL12	2	12,00	W	60°	12	15	11,5	SW9,5	30
DL12E1002KK1200W90..	DA	DL12	2	12,00	W	90°	12	15	11,5	SW9,5	30
DL12E1002KK1200W120..	DA	DL12	2	12,00	W	120°	12	15	11,5	SW9,5	30
DL12E1002KK1200W142..	DA	DL12	2	12,00	W	142°	12	15	11,5	SW9,5	30
DL16E1002KK1600W60..	DA	DL16	2	16,00	W	60°	16	20	15,5	SW13	60
DL16E1002KK1600W90..	DA	DL16	2	16,00	W	90°	16	20	15,5	SW13	60
DL16E1002KK1600W120..	DA	DL16	2	16,00	W	120°	16	20	15,5	SW13	60
DL16E1002KK1600W142..	DA	DL16	2	16,00	W	142°	16	20	15,5	SW13	60
DL20E1002KK2000W60..	DA	DL20	2	20,00	W	60°	20	25	19,3	SW16	80
DL20E1002KK2000W90..	DA	DL20	2	20,00	W	90°	20	25	19,3	SW16	80
DL20E1002KK2000W120..	DA	DL20	2	20,00	W	120°	20	25	19,3	SW16	80
DL20E1002KK2000W142..	DA	DL20	2	20,00	W	142°	20	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



# E1014UK – DUO-LOCK® HAIMER MILL 外圆角立铣刀/QUADRANT END MILL

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

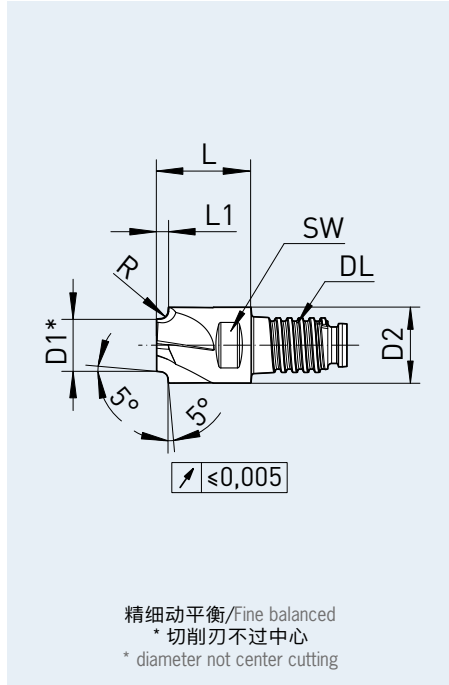
Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# E1014UK – DUO-LOCK® HAIMER MILL 外圆角立铣刀/QUADRANT END MILL

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
 R		
 Z=4		



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 用于轮廓倒圆角
- 5° 切向角
- 正前角，不破坏轮廓形状
- 很好的长度重复精度

- For contour rounding
- 5° tangential release
- Positive rake angle without profile displacement
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10E1014UK1000R1.00..	DA	DL10	7	R	1,00	1,50	12.5	10	SW8	20
DL10E1014UK1000R1.50..	DA	DL10	6	R	1,50	2,00	12.5	10	SW8	20
DL10E1014UK1000R2.00..	DA	DL10	5	R	2,00	2,50	12.5	10	SW8	20
DL12E1014UK1200R2.50..	DA	DL12	6	R	2,50	3,00	15.0	12	SW9,5	30
DL12E1014UK1200R3.00..	DA	DL12	5	R	3,00	3,50	15.0	12	SW9,5	30
DL16E1014UK1600R3.50..	DA	DL16	8	R	3,50	4,00	20.0	16	SW13	60
DL16E1014UK1600R4.00..	DA	DL16	7	R	4,00	4,50	20.0	16	SW13	60
DL16E1014UK1600R4.50..	DA	DL16	6	R	4,50	5,00	20.0	16	SW13	60
DL20E1014UK2000R5.00..	DA	DL20	8	R	5,00	6,00	25.0	20	SW16	80
DL20E1014UK2000R6.00..	DA	DL20	6	R	6,00	7,00	25.0	20	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# E1016UK/E1018UK – DUO-LOCK® HAIMER MILL 倒角立铣刀/CHAMFERING END MILL

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# E1016UK/E1018UK – DUO-LOCK® HAIMER MILL 倒角立铣刀/CHAMFERING END MILL

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
W		
Z=6		Air
Z=8		MMS

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 锥度 60/90/120°
- 刀具端面磨平
- 多功能的刀具
- 很好的长度重复精度
- 直刃

- Cone angle 60/90/120°
- Honed tip plan
- Multifunctional tool
- Best length repeatability
- Straight fluted

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	Z	D1 (h6) D1 (h6) [mm]	倒角 立铣刀 Chamfer	W1	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10E1016UK1000W60..	DA	DL10	6	10,00	W	60°	6,9	12,5	2,0	SW8	20
DL10E1016UK1000W90..	DA	DL10	6	10,00	W	90°	4	12,5	2,0	SW8	20
DL10E1016UK1000W120..	DA	DL10	6	10,00	W	120°	2,3	12,5	2,0	SW8	20
DL12E1016UK1200W60..	DA	DL12	6	12,00	W	60°	8,3	15	2,4	SW9,5	30
DL12E1016UK1200W90..	DA	DL12	6	12,00	W	90°	4,8	15	2,4	SW9,5	30
DL12E1016UK1200W120..	DA	DL12	6	12,00	W	120°	2,7	15	2,4	SW9,5	30
DL16E1018UK1600W60..	DA	DL16	8	16,00	W	60°	11	20	3,2	SW13	60
DL16E1018UK1600W90..	DA	DL16	8	16,00	W	90°	6,4	20	3,2	SW13	60
DL16E1018UK1600W120..	DA	DL16	8	16,00	W	120°	3,6	20	3,2	SW13	60
DL20E1018UK2000W60..	DA	DL20	8	20,00	W	60°	13,9	25	4	SW16	80
DL20E1018UK2000W90..	DA	DL20	8	20,00	W	90°	8	25	4	SW16	80
DL20E1018UK2000W120..	DA	DL20	8	20,00	W	120°	4,6	25	4	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.	
德标 DIN		材料号 Material no.		拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)		
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	20	30	40
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	20	30	40
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10	10	20
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		10	10	20
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	300 – 400	300 – 400	400 – 500
N2	铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	300 – 400	300 – 400	400 – 500

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。





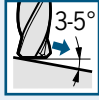




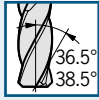
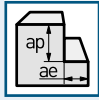

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

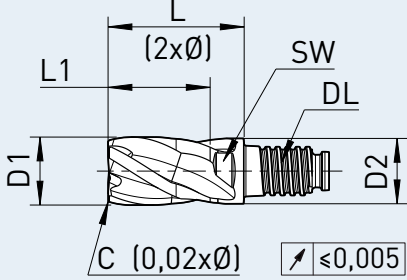
# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
		
		 Air
		
		 MMS



精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000C..	D-	DL10	10,00	C	0,20	15	20	9,6	SW8	20
DL12F1004MN1200C..	D-	DL12	12,00	C	0,24	18	24	11,5	SW9,5	30
DL16F1004MN1600C..	D-	DL16	16,00	C	0,32	24	32	15,5	SW13	60
DL20F1004MN2000C..	D-	DL20	20,00	C	0,40	30	40	19,3	SW16	80
DL25F1004MN2500C..	D-	DL25	25,00	C	0,50	37,5	50	24,0	SW21	100
DL32F1004MN3200C..	D-	DL32	32,00	C	0,64	48	64	31,0	SW28	130

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角径向冷却/CHAMFER COOLING RADIAL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	20	30	40
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	20	30	40
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10	10	20
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		10	10	20
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>300 – 400</b>	<b>400 – 500</b>
N2	铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	<b>300 – 400</b>	<b>300 – 400</b>	<b>400 – 500</b>

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae				
	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角径向冷却/CHAMFER COOLING RADIAL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

4 个冷却液出口  
4 cooling outlets

C (0,02xØ)    ↗ ≤0,005

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 径向内冷
- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Inner cooling radial
- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000C..	D-	KR	DL10	10,00	C	0,20	15	20	9,6	SW8	20
DL12F1004MN1200C..	D-	KR	DL12	12,00	C	0,24	18	24	11,5	SW9,5	30
DL16F1004MN1600C..	D-	KR	DL16	16,00	C	0,32	24	32	15,5	SW13	60
DL20F1004MN2000C..	D-	KR	DL20	20,00	C	0,40	30	40	19,3	SW16	80
DL25F1004MN2500C..	D-	KR	DL25	25,00	C	0,50	37,5	50	24,0	SW21	100
DL32F1004MN3200C..	D-	KR	DL32	32,00	C	0,64	48	64	31,0	SW28	130

订货号 – 物料号 + 材料 + 冷却。

Order No. = Article Code + Quality + Cooling.



# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width		
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.
德标 DIN	材料号 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		40 – 80	40 – 80	40 – 80
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		30 – 60	30 – 60	30 – 60
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	140 – 180	200 – 220
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	120 – 150	160 – 180
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	60 – 80	80 – 90
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.5 × Ø	Center cutting	Coolant application
45°	3-5°	Air
Z=4	ap, ae	MMS
36.5° 38.5°	ap, ae	MMS

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000C..	DA	DL10	10,00	C	0,20	15	20	9,6	SW8	20
DL12F1004MN1200C..	DA	DL12	12,00	C	0,24	18	24	11,5	SW9,5	30
DL16F1004MN1600C..	DA	DL16	16,00	C	0,32	24	32	15,5	SW13	60
DL20F1004MN2000C..	DA	DL20	20,00	C	0,40	30	40	19,3	SW16	80
DL25F1004MN2500C..	DA	DL25	25,00	C	0,50	37,5	50	24,0	SW21	100
DL32F1004MN3200C..	DA	DL32	32,00	C	0,64	48	64	31,0	SW28	130

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角径向冷却/CHAMFER COOLING RADIAL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b>	<b>普通结构钢</b> General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b>	<b>热处理后的钢</b> Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b>	<b>不锈钢</b> Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		40 – 80	40 – 80	40 – 80
<b>M2</b>	<b>不锈钢</b> Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		30 – 60	30 – 60	30 – 60
<b>K1</b>	<b>铸铁</b> Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	140 – 180	200 – 220
<b>K2</b>	<b>铸铁</b> Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	120 – 150	160 – 180
<b>S1</b>	<b>钛合金</b> Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	60 – 80	80 – 90
<b>S2</b>	<b>高温合金</b> High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b>	<b>硬化钢</b> Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角径向冷却/CHAMFER COOLING RADIAL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

4 个冷却液出口  
4 cooling outlets

C (0,02xØ)    ↗ ≤0,005

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 径向内冷
- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Inner cooling radial
- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000C..	DA	KR	DL10	10,00	C	0,20	15	20	9,6	SW8	20
DL12F1004MN1200C..	DA	KR	DL12	12,00	C	0,24	18	24	11,5	SW9,5	30
DL16F1004MN1600C..	DA	KR	DL16	16,00	C	0,32	24	32	15,5	SW13	60
DL20F1004MN2000C..	DA	KR	DL20	20,00	C	0,40	30	40	19,3	SW16	80
DL25F1004MN2500C..	DA	KR	DL25	25,00	C	0,50	37,5	50	24,0	SW21	100
DL32F1004MN3200C..	DA	KR	DL32	32,00	C	0,64	48	64	31,0	SW28	130

订货号 – 物料号 + 材料 + 冷却。

Order No. = Article Code + Quality + Cooling.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.	
德标 DIN		材料号 Material no.		拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)		
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	20	30	40
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	20	30	40
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10	10	20
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		10	10	20
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	300 – 400	300 – 400	400 – 500
N2	铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	300 – 400	300 – 400	400 – 500

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

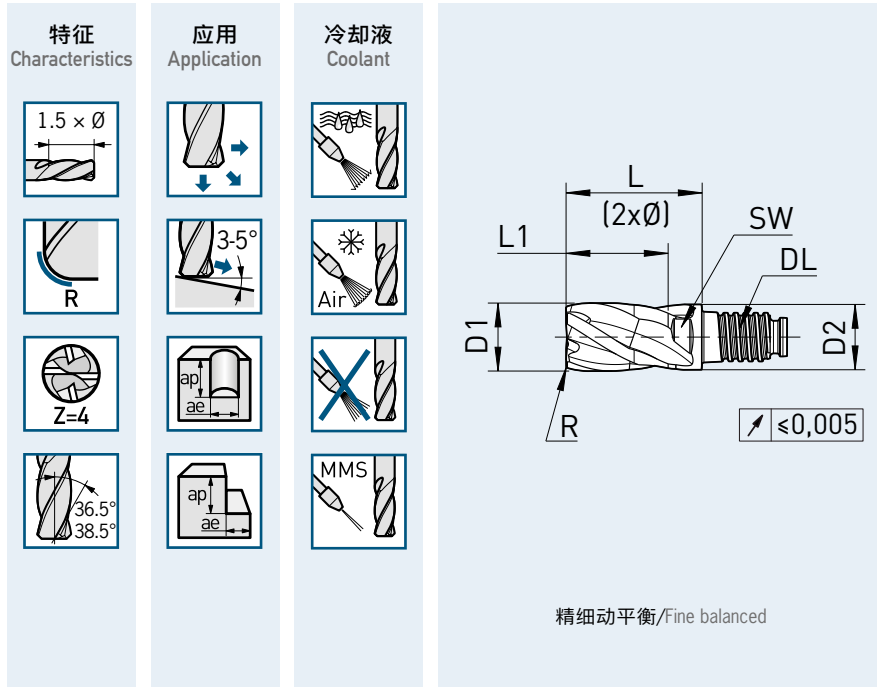
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R R [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000R0.30..	D-	DL10	10,00	R	0,3	15	20	9,6	SW8	20
DL10F1004MN1000R0.50..	D-	DL10	10,00	R	0,5	15	20	9,6	SW8	20
DL10F1004MN1000R0.80..	D-	DL10	10,00	R	0,8	15	20	9,6	SW8	20
DL10F1004MN1000R1.00..	D-	DL10	10,00	R	1,0	15	20	9,6	SW8	20
DL10F1004MN1000R1.50..	D-	DL10	10,00	R	1,5	15	20	9,6	SW8	20
DL10F1004MN1000R2.00..	D-	DL10	10,00	R	2,0	15	20	9,6	SW8	20
DL10F1004MN1000R2.50..	D-	DL10	10,00	R	2,5	15	20	9,6	SW8	20
DL12F1004MN1200R0.50..	D-	DL12	12,00	R	0,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R0.80..	D-	DL12	12,00	R	0,8	18	24	11,5	SW9,5	30
DL12F1004MN1200R1.00..	D-	DL12	12,00	R	1,0	18	24	11,5	SW9,5	30
DL12F1004MN1200R1.50..	D-	DL12	12,00	R	1,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R2.00..	D-	DL12	12,00	R	2,0	18	24	11,5	SW9,5	30
DL12F1004MN1200R2.50..	D-	DL12	12,00	R	2,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R3.00..	D-	DL12	12,00	R	3,0	18	24	11,5	SW9,5	30

⇒ 更多的产品请参考下一页 / Turn page for more articles

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	20	30	40
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	20	30	40
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		10 – 20	10 – 20	10 – 20
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20 – 30	20 – 30	20 – 30
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10	10	20
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		10	10	20
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	300 – 400	300 – 400	400 – 500
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	300 – 400	300 – 400	400 – 500

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae				
	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

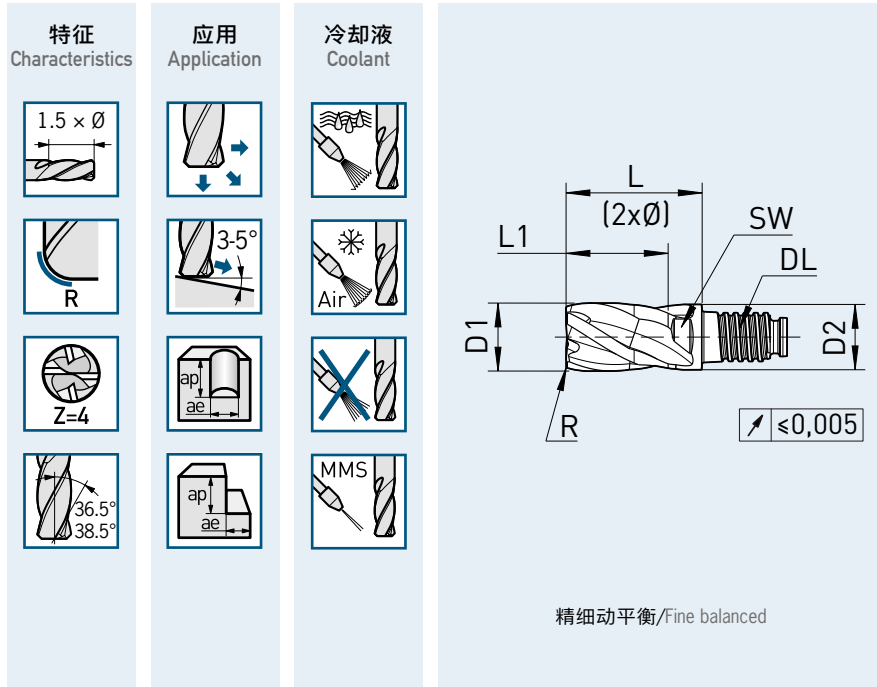
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R R [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL12F1004MN1200R4.00..	D-	DL12	12,00	R	4,0	18	24	11,5	SW9,5	30
DL16F1004MN1600R0.50..	D-	DL16	16,00	R	0,5	24	32	15,5	SW13	60
DL16F1004MN1600R0.80..	D-	DL16	16,00	R	0,8	24	32	15,5	SW13	60
DL16F1004MN1600R1.00..	D-	DL16	16,00	R	1,0	24	32	15,5	SW13	60
DL16F1004MN1600R2.00..	D-	DL16	16,00	R	2,0	24	32	15,5	SW13	60
DL16F1004MN1600R2.50..	D-	DL16	16,00	R	2,5	24	32	15,5	SW13	60
DL16F1004MN1600R3.00..	D-	DL16	16,00	R	3,0	24	32	15,5	SW13	60
DL16F1004MN1600R4.00..	D-	DL16	16,00	R	4,0	24	32	15,5	SW13	60
DL20F1004MN2000R0.50..	D-	DL20	20,00	R	0,5	30	40	19,3	SW16	80
DL20F1004MN2000R0.80..	D-	DL20	20,00	R	0,8	30	40	19,3	SW16	80
DL20F1004MN2000R1.00..	D-	DL20	20,00	R	1,0	30	40	19,3	SW16	80
DL20F1004MN2000R2.00..	D-	DL20	20,00	R	2,0	30	40	19,3	SW16	80
DL20F1004MN2000R2.50..	D-	DL20	20,00	R	2,5	30	40	19,3	SW16	80
DL20F1004MN2000R3.00..	D-	DL20	20,00	R	3,0	30	40	19,3	SW16	80
DL20F1004MN2000R4.00..	D-	DL20	20,00	R	4,0	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	170 – 200	210 – 240	250 – 270
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	90 – 110	110 – 130	130 – 150
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		40 – 80	40 – 80	40 – 80
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		30 – 60	30 – 60	30 – 60
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	140 – 180	200 – 220
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	120 – 150	160 – 180
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	60 – 80	80 – 90
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
N2	铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

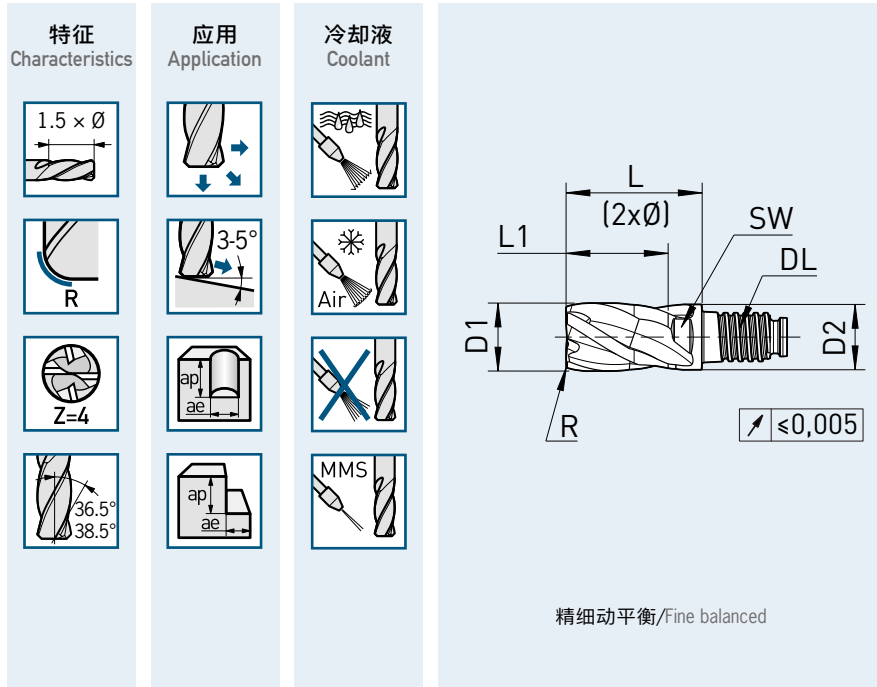
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R R [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1004MN1000R0.30..	DA	DL10	10,00	R	0,3	15	20	9,6	SW8	20
DL10F1004MN1000R0.50..	DA	DL10	10,00	R	0,5	15	20	9,6	SW8	20
DL10F1004MN1000R0.80..	DA	DL10	10,00	R	0,8	15	20	9,6	SW8	20
DL10F1004MN1000R1.00..	DA	DL10	10,00	R	1,0	15	20	9,6	SW8	20
DL10F1004MN1000R1.50..	DA	DL10	10,00	R	1,5	15	20	9,6	SW8	20
DL10F1004MN1000R2.00..	DA	DL10	10,00	R	2,0	15	20	9,6	SW8	20
DL10F1004MN1000R2.50..	DA	DL10	10,00	R	2,5	15	20	9,6	SW8	20
DL12F1004MN1200R0.50..	DA	DL12	12,00	R	0,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R0.80..	DA	DL12	12,00	R	0,8	18	24	11,5	SW9,5	30
DL12F1004MN1200R1.00..	DA	DL12	12,00	R	1,0	18	24	11,5	SW9,5	30
DL12F1004MN1200R1.50..	DA	DL12	12,00	R	1,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R2.00..	DA	DL12	12,00	R	2,0	18	24	11,5	SW9,5	30
DL12F1004MN1200R2.50..	DA	DL12	12,00	R	2,5	18	24	11,5	SW9,5	30
DL12F1004MN1200R3.00..	DA	DL12	12,00	R	3,0	18	24	11,5	SW9,5	30

⇨ 更多的产品请参考下一页/Turn page for more articles

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		切宽 Cutting width			
			拉伸强度 Tensile strength	硬度 Content/ Hardness	ae = 100% D1 ap = 1 x D1	ae = 50% D1 ap = 1.5 x D1	ae = 25% D1 ap = L1 max.	
德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)				
<b>P1</b>	<b>普通结构钢</b> General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>170 – 200</b>	<b>210 – 240</b>	<b>250 – 270</b>
<b>P2</b>	<b>热处理后的钢</b> Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>90 – 110</b>	<b>110 – 130</b>	<b>130 – 150</b>
<b>M1</b>	<b>不锈钢</b> Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		40 – 80	40 – 80	40 – 80
<b>M2</b>	<b>不锈钢</b> Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		30 – 60	30 – 60	30 – 60
<b>K1</b>	<b>铸铁</b> Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		110 – 130	140 – 180	200 – 220
<b>K2</b>	<b>铸铁</b> Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		90 – 110	120 – 150	160 – 180
<b>S1</b>	<b>钛合金</b> Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	60 – 80	80 – 90
<b>S2</b>	<b>高温合金</b> High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40	30 – 40
<b>N1</b>	<b>锻造铝合金</b> Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	120 – 240	120 – 240	120 – 240
<b>N2</b>	<b>铸造铝合金</b> Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 240	120 – 240	120 – 240
<b>H1</b>	<b>硬化钢</b> Hardened steels				45 – 55 HRC	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

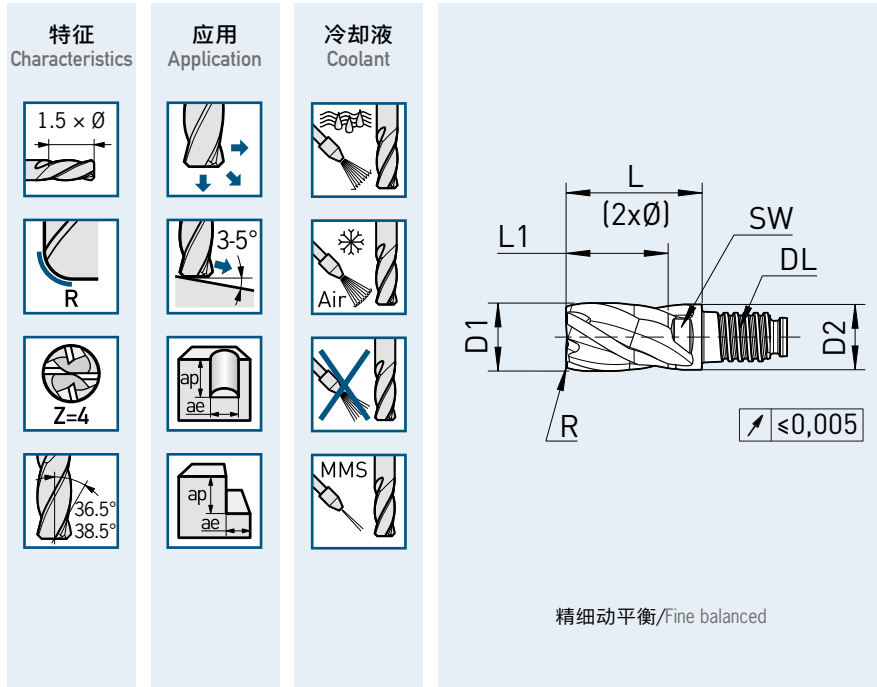
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1004MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

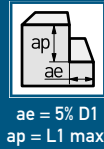
物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R R [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL12F1004MN1200R4.00..	DA	DL12	12,00	R	4,0	18	24	11,5	SW9,5	30
DL16F1004MN1600R0.50..	DA	DL16	16,00	R	0,5	24	32	15,5	SW13	60
DL16F1004MN1600R0.80..	DA	DL16	16,00	R	0,8	24	32	15,5	SW13	60
DL16F1004MN1600R1.00..	DA	DL16	16,00	R	1,0	24	32	15,5	SW13	60
DL16F1004MN1600R2.00..	DA	DL16	16,00	R	2,0	24	32	15,5	SW13	60
DL16F1004MN1600R2.50..	DA	DL16	16,00	R	2,5	24	32	15,5	SW13	60
DL16F1004MN1600R3.00..	DA	DL16	16,00	R	3,0	24	32	15,5	SW13	60
DL16F1004MN1600R4.00..	DA	DL16	16,00	R	4,0	24	32	15,5	SW13	60
DL20F1004MN2000R0.50..	DA	DL20	20,00	R	0,5	30	40	19,3	SW16	80
DL20F1004MN2000R0.80..	DA	DL20	20,00	R	0,8	30	40	19,3	SW16	80
DL20F1004MN2000R1.00..	DA	DL20	20,00	R	1,0	30	40	19,3	SW16	80
DL20F1004MN2000R2.00..	DA	DL20	20,00	R	2,0	30	40	19,3	SW16	80
DL20F1004MN2000R2.50..	DA	DL20	20,00	R	2,5	30	40	19,3	SW16	80
DL20F1004MN2000R3.00..	DA	DL20	20,00	R	3,0	30	40	19,3	SW16	80
DL20F1004MN2000R4.00..	DA	DL20	20,00	R	4,0	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1105LL – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		 ae = 5% D1 ap = L1 max.	
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

#### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系 / Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae 5%	ø 16	ø 20	ø 25	ø 32
fz	0,04 – 0,12	0,05 – 0,13	0,06 – 0,17	0,07 – 0,20


切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

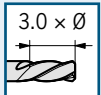



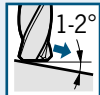


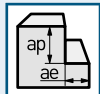

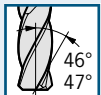

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

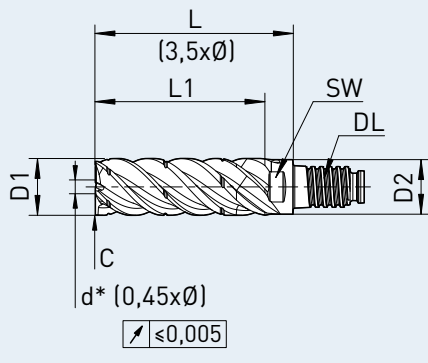
# F1105LL – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
 3.0 × Ø		
 45°	 1-2°	 Air
 Z=5		
 46° 47°		 MMS



精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

主应用  
Main Material

P

次应用  
also suitable for

K S N  
M H

- 颈部有助于更大的切深
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL16F1105LL1600C..	DA	DL16	16,00	C	0,50	48	56	15,5	SW13	60
DL20F1105LL2000C..	DA	DL20	20,00	C	0,60	60	70	19,3	SW16	80
DL25F1105LL2500C..	DA	DL25	25,00	C	0,60	75	87,5	24,0	SW21	100
DL32F1105LL3200C..	DA	DL32	32,00	C	0,70	96	112	31,0	SW28	130

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F1105MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	德标 DIN	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
				拉伸强度 Tensile strength	硬度 Content/ Hardness		
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系 / Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	∅ 10	∅ 12	∅ 16	∅ 20	∅ 25	∅ 32
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13	0,06 – 0,17	0,07 – 0,20

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F1105MN – DUO-LOCK® HAIMER MILL Power Series

## 刀尖倒角断屑槽/CHAMFER CHIP BREAKER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.5 × Ø		
45°	1-2°	Air
Z=5		
46° 47°		

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 不等分的切削刃
- 很好的长度重复精度
- 排屑槽和后刀面经抛光处理

- Neck for higher cutting depth
- Unequal cutting edge
- Best length repeatability
- Polished flute and relief

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F1105MN1000C..	DA	DL10	10,00	C	0,30	15	20	9,6	SW8	20
DL12F1105MN1200C..	DA	DL12	12,00	C	0,30	18	24	11,5	SW9,5	30
DL16F1105MN1600C..	DA	DL16	16,00	C	0,50	24	32	15,5	SW13	60
DL20F1105MN2000C..	DA	DL20	20,00	C	0,60	30	40	19,3	SW16	80
DL25F1105MN2500C..	DA	DL25	25,00	C	0,60	37,5	50	24,0	SW21	100
DL32F1105MN3200C..	DA	DL32	32,00	C	0,70	48	64	31,0	SW28	130

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



# F2003MN – DUO-LOCK® HAIMER MILL 刀尖尖角/SHARP CUTTING EDGE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10	ø 12	ø 16	ø 20
fz	0,006 – 0,018	0,009 – 0,027	0,012 – 0,036	0,015 – 0,045	0,018 – 0,054	0,024 – 0,072	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

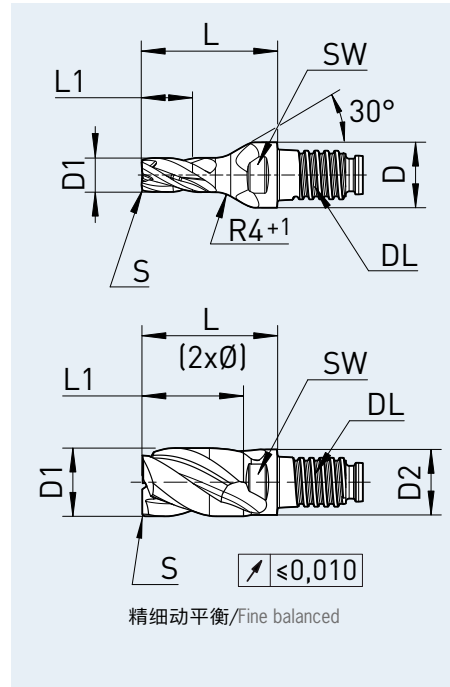
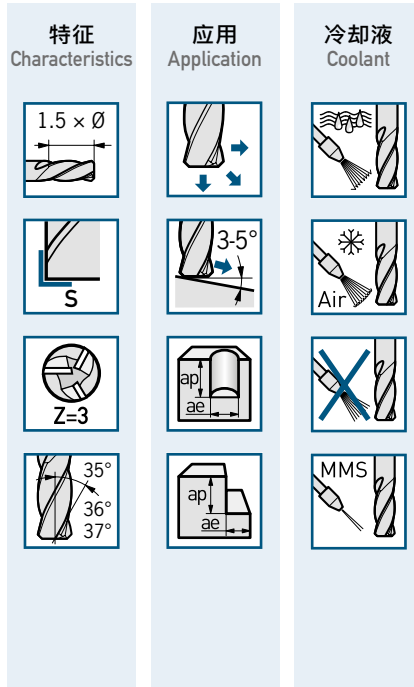
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2003MN – DUO-LOCK® HAIMER MILL

## 刀尖尖角/SHARP CUTTING EDGE

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- $\varnothing 2 - \varnothing 8$  mm为通用型立铣刀，接口是DL10（无缩颈）

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- $\varnothing 2 - \varnothing 8$  mm for universal use with DL10 interface (without neck)

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	L1 max. L1 max. [mm]	L L [mm]	D D [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2003MN0200S..	DA	DL10	2,00	S	3,0	20	9,6	SW8	20
DL10F2003MN0300S..	DA	DL10	3,00	S	4,5	20	9,6	SW8	20
DL10F2003MN0400S..	DA	DL10	4,00	S	6,0	20	9,6	SW8	20
DL10F2003MN0500S..	DA	DL10	5,00	S	7,5	20	9,6	SW8	20
DL10F2003MN0600S..	DA	DL10	6,00	S	9,0	20	9,6	SW8	20
DL10F2003MN0800S..	DA	DL10	8,00	S	12,0	20	9,6	SW8	20
DL10F2003MN1000S..	DA	DL10	10,00	S	15	20	9,6	SW8	20
DL12F2003MN1200S..	DA	DL12	12,00	S	18	24	11,5	SW9,5	30
DL16F2003MN1600S..	DA	DL16	16,00	S	24	32	15,5	SW13	60
DL20F2003MN2000S..	DA	DL20	20,00	S	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

**F2003UK – DUO-LOCK® HAIMER MILL**  
**刀尖尖角/SHARP CUTTING EDGE**
**切削参数/Cutting data**

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
<b>P1</b>	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
<b>P2</b>	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
<b>M1</b>	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
<b>M2</b>	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
<b>K1</b>	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
<b>K2</b>	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
<b>S1</b>	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
<b>S2</b>	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
<b>N1</b>	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
<b>N2</b>	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
<b>H1</b>	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿)  $f_z$  和刀具直径  $D1$  及切宽  $ae$  的关系/Feed per tooth (mm/tooth) in relation with  $D1$  and cutting width  $ae$

	∅ 10	∅ 12	∅ 16	∅ 20
$f_z$	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2003UK – DUO-LOCK® HAIMER MILL

## 刀尖尖角/SHARP CUTTING EDGE

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2003UK1000S..	DA	DL10	10,00	S	7,5	12,5	9,6	SW8	20
DL12F2003UK1200S..	DA	DL12	12,00	S	9	15	11,5	SW9,5	30
DL16F2003UK1600S..	DA	DL16	16,00	S	12	20	15,5	SW13	60
DL20F2003UK2000S..	DA	DL20	20,00	S	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

F2004MN – DUO-LOCK® HAIMER MILL  
刀尖倒角/CHAMFER

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	拉伸强度 Tensile strength	硬度 Content/ Hardness	坡铣 Ramping	切宽 Cutting width			
						切削线速度 Vc (m/min) Cutting speed Vc (m/min)	ae = 100% D1 ap = 1 x D1	ae = 15% D1 ap = L1 max.	ae = 5% D1 ap = L1 max.
德标 DIN	材料号码 Material no.								
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm²	高达 25 HRC up to 25 HRC	45°	255 – 275	320 – 340	400 – 420	
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm²	高达 45 HRC up to 45 HRC	30°	190 – 210	220 – 240	290 – 310	
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm²		10°	95 – 110	115 – 135	150 – 170	
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm²		5°	75 – 90	95 – 105	110 – 130	
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm²		45°	160 – 180	180 – 200	210 – 230	
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm²		20°	130 – 150	150 – 170	180 – 200	
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10°	50 – 60	60 – 80	80 – 90	
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm²		5°	30 – 40	30 – 40	30 – 40	
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	30°	470 – 490	600 – 630	780 – 820	
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-ALsi12	3.2581		Si > 9%	30°	340 – 360	420 – 440	540 – 580	
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	10°	40 – 60	60 – 80	60 – 80	

切削参数仅供参考，需要根据实际应用情况调整。

由于排屑困难，钻孔深度最大至0.5-1XD。

Cutting data are reference values and need to be adjusted according to the application area.

Chip removal recommended for drilling depth 0,5 – 1 x D.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系 / Feed per tooth (mm/tooth) in relation with D1 and cutting width ae						
	ø 2	ø 3	ø 4	ø 5	ø 6	ø 8
fz	0,006 – 0,018	0,009 – 0,027	0,012 – 0,036	0,015 – 0,045	0,018 – 0,054	0,024 – 0,072
	ø 10	ø 12	ø 16	ø 20	ø 25	ø 32
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13	0,06 – 0,17	0,07 – 0,20

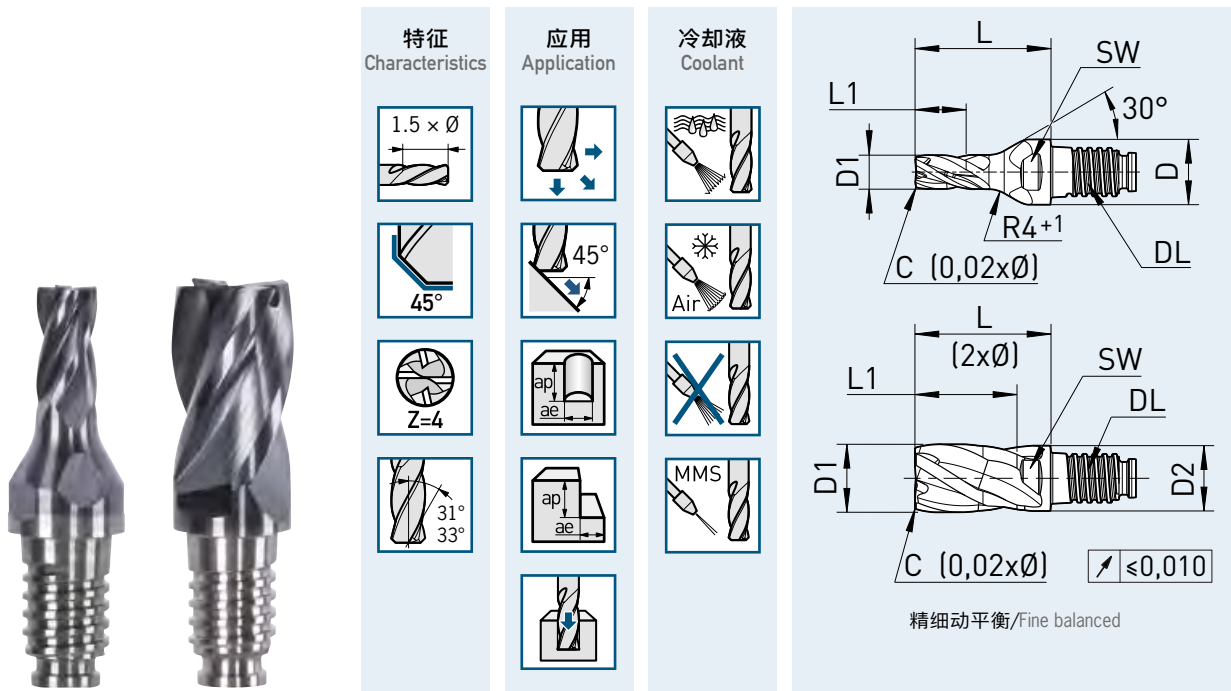
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2004MN – DUO-LOCK® HAIMER MILL

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度
- $\varnothing 2 - \varnothing 8$  mm为通用型立铣刀，接口是DL10（无缩颈）

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability
- $\varnothing 2 - \varnothing 8$  for universal use with DL10 interface (without neck)

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D D [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2004MN0200C..	DA	DL10	2,00	C	0,04	3,0	20	9,6	SW8	20
DL10F2004MN0300C..	DA	DL10	3,00	C	0,06	4,5	20	9,6	SW8	20
DL10F2004MN0400C..	DA	DL10	4,00	C	0,08	6,0	20	9,6	SW8	20
DL10F2004MN0500C..	DA	DL10	5,00	C	0,10	7,5	20	9,6	SW8	20
DL10F2004MN0570C..	DA	DL10	5,70	C	0,11	8,5	20	9,6	SW8	20
DL10F2004MN0600C..	DA	DL10	6,00	C	0,12	9,0	20	9,6	SW8	20
DL10F2004MN0770C..	DA	DL10	7,70	C	0,15	11,5	20	9,6	SW8	20
DL10F2004MN0800C..	DA	DL10	8,00	C	0,16	12,0	20	9,6	SW8	20
DL10F2004MN0970C..	DA	DL10	9,70	C	0,19	14,5	20	9,6	SW8	20
DL10F2004MN1000C..	DA	DL10	10,00	C	0,20	15	20	9,6	SW8	20
DL12F2004MN1170C..	DA	DL12	11,70	C	0,23	17,5	24	11,5	SW9,5	30
DL12F2004MN1200C..	DA	DL12	12,00	C	0,24	18	24	11,5	SW9,5	30
DL16F2004MN1600C..	DA	DL16	16,00	C	0,32	24	32	15,5	SW13	60
DL20F2004MN2000C..	DA	DL20	20,00	C	0,40	30	40	19,3	SW16	80
DL25F2004MN2500C..	DA	DL25	25,00	C	0,50	37,5	50	24,0	SW21	100
DL32F2004MN3200C..	DA	DL32	32,00	C	0,64	48	64	31,0	SW28	130

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

F2004MN – DUO-LOCK® HAIMER MILL  
刀尖圆角/CORNER RADIUS

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	切宽 Cutting width					
			ap = 100% D1 ap = 1 x D1	ap = 15% D1 ap = L1 max.	ap = 5% D1 ap = L1 max.			
德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	坡铣 Ramping	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	45°	255 – 275	320 – 340	400 – 420
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	30°	190 – 210	220 – 240	290 – 310
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10°	95 – 110	115 – 135	150 – 170
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		5°	75 – 90	95 – 105	110 – 130
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN- GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		45°	160 – 180	180 – 200	210 – 230
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60) EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20°	130 – 150	150 – 170	180 – 200
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10°	50 – 60	60 – 80	80 – 90
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		5°	30 – 40	30 – 40	30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	30°	470 – 490	600 – 630	780 – 820
<b>N2</b> 铸造铝合金 Aluminum cast alloys	GAlSi12	3.2581		Si > 9%	30°	340 – 360	420 – 440	540 – 580
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	10°	40 – 60	60 – 80	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

由于排屑困难，钻孔深度最大至0.5-1xD。

Cutting data are reference values and need to be adjusted according to the application area.

Chip removal recommended for drilling depth 0,5 – 1 x D.

## 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2004MN – DUO-LOCK® HAIMER MILL

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.5 × Ø	Application	Coolant
R	45°	Air
Z=4	ap ae	MMS
31° 33°	ap ae	

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



#### 次应用

also suitable for

- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R R [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2004MN1000R0.30..	DA	DL10	10,00	R	0,3	15	20	9,6	SW8	20
DL10F2004MN1000R0.50..	DA	DL10	10,00	R	0,5	15	20	9,6	SW8	20
DL10F2004MN1000R0.80..	DA	DL10	10,00	R	0,8	15	20	9,6	SW8	20
DL10F2004MN1000R1.00..	DA	DL10	10,00	R	1,0	15	20	9,6	SW8	20
DL10F2004MN1000R1.50..	DA	DL10	10,00	R	1,5	15	20	9,6	SW8	20
DL10F2004MN1000R2.00..	DA	DL10	10,00	R	2,0	15	20	9,6	SW8	20
DL10F2004MN1000R2.50..	DA	DL10	10,00	R	2,5	15	20	9,6	SW8	20
DL12F2004MN1200R0.50..	DA	DL12	12,00	R	0,5	18	24	11,5	SW9,5	30
DL12F2004MN1200R0.80..	DA	DL12	12,00	R	0,8	18	24	11,5	SW9,5	30
DL12F2004MN1200R1.00..	DA	DL12	12,00	R	1,0	18	24	11,5	SW9,5	30
DL12F2004MN1200R2.00..	DA	DL12	12,00	R	2,0	18	24	11,5	SW9,5	30
DL12F2004MN1200R2.50..	DA	DL12	12,00	R	2,5	18	24	11,5	SW9,5	30
DL12F2004MN1200R3.00..	DA	DL12	12,00	R	3,0	18	24	11,5	SW9,5	30
DL12F2004MN1200R4.00..	DA	DL12	12,00	R	4,0	18	24	11,5	SW9,5	30

⇒ 更多的产品请参考下一页/Turn page for more articles

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



**F2004MN – DUO-LOCK® HAIMER MILL**  
**刀尖圆角/CORNER RADIUS**
**切削参数/Cutting data**

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	拉伸强度 Tensile strength	硬度 Content/ Hardness	坡铣 Ramping	切宽 Cutting width			
						ap = 100% D1 ap = 1 x D1	ap = 15% D1 ap = L1 max.	ap = 5% D1 ap = L1 max.	切削线速度 Vc (m/min) Cutting speed Vc (m/min)
德标 DIN	材料号码 Material no.								
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	45°	255 – 275	320 – 340	400 – 420	
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	30°	190 – 210	220 – 240	290 – 310	
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		10°	95 – 110	115 – 135	150 – 170	
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		5°	75 – 90	95 – 105	110 – 130	
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN- GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		45°	160 – 180	180 – 200	210 – 230	
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60) EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		20°	130 – 150	150 – 170	180 – 200	
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10°	50 – 60	60 – 80	80 – 90	
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		5°	30 – 40	30 – 40	30 – 40	
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	30°	470 – 490	600 – 630	780 – 820	
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-ALsi12	3.2581		Si > 9%	30°	340 – 360	420 – 440	540 – 580	
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	10°	40 – 60	60 – 80	60 – 80	

切削参数仅供参考，需要根据实际应用情况调整。

由于排屑困难，钻孔深度最大至0.5-1xD。

Cutting data are reference values and need to be adjusted according to the application area.

Chip removal recommended for drilling depth 0,5 – 1 x D.

**每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae**

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

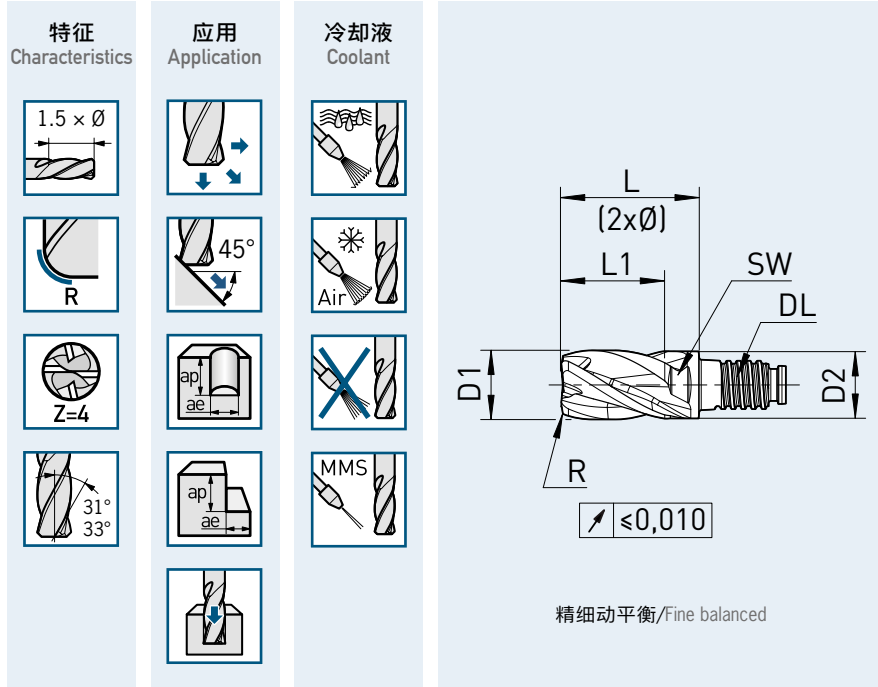
切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2004MN – DUO-LOCK® HAIMER MILL

## 刀尖圆角/CORNER RADIUS

### 技术参数和产品特征/Technical data and Product characteristics



### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL16F2004MN1600R0.50..	DA	DL16	16,00	R	0,5	24	32	15,5	SW13	60
DL16F2004MN1600R0.80..	DA	DL16	16,00	R	0,8	24	32	15,5	SW13	60
DL16F2004MN1600R1.00..	DA	DL16	16,00	R	1,0	24	32	15,5	SW13	60
DL16F2004MN1600R2.00..	DA	DL16	16,00	R	2,0	24	32	15,5	SW13	60
DL16F2004MN1600R2.50..	DA	DL16	16,00	R	2,5	24	32	15,5	SW13	60
DL16F2004MN1600R3.00..	DA	DL16	16,00	R	3,0	24	32	15,5	SW13	60
DL16F2004MN1600R4.00..	DA	DL16	16,00	R	4,0	24	32	15,5	SW13	60
DL20F2004MN2000R0.50..	DA	DL20	20,00	R	0,5	30	40	19,3	SW16	80
DL20F2004MN2000R0.80..	DA	DL20	20,00	R	0,8	30	40	19,3	SW16	80
DL20F2004MN2000R2.00..	DA	DL20	20,00	R	2,0	30	40	19,3	SW16	80
DL20F2004MN2000R2.50..	DA	DL20	20,00	R	2,5	30	40	19,3	SW16	80
DL20F2004MN2000R3.00..	DA	DL20	20,00	R	3,0	30	40	19,3	SW16	80
DL20F2004MN2000R4.00..	DA	DL20	20,00	R	4,0	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

F2004UK – DUO-LOCK® HAIMER MILL  
刀尖倒角/CHAMFER

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	拉伸强度 Tensile strength	硬度 Content/ Hardness	切宽 Cutting width	切削线速度 Vc (m/min) Cutting speed Vc (m/min)			
						坡铣 Ramping	ae = 100% D1 ap = 1 x D1	ae = 15% D1 ap = L1 max.	ae = 5% D1 ap = L1 max.
德标 DIN	材料号码 Material no.								
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm²	高达 25 HRC up to 25 HRC	45°	255 – 275	320 – 340	400 – 420	
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm²	高达 45 HRC up to 45 HRC	30°	190 – 210	220 – 240	290 – 310	
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm²		10°	95 – 110	115 – 135	150 – 170	
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm²		5°	75 – 90	95 – 105	110 – 130	
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm²		45°	160 – 180	180 – 200	210 – 230	
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm²		20°	130 – 150	150 – 170	180 – 200	
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			10°	50 – 60	60 – 80	80 – 90	
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm²		5°	30 – 40	30 – 40	30 – 40	
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	30°	470 – 490	600 – 630	780 – 820	
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	30°	340 – 360	420 – 440	540 – 580	
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	10°	40 – 60	60 – 80	60 – 80	

切削参数仅供参考，需要根据实际情况调整。

由于排屑困难，钻孔深度最大至0.5-1xD。

Cutting data are reference values and need to be adjusted according to the application area.

Chip removal recommended for drilling depth 0,5 – 1 x D.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系 / Feed per tooth (mm/tooth) in relation with D1 and cutting width ae						
	ø 10	ø 12	ø 16	ø 20	ø 25	ø 32
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13	0,06 – 0,17	0,07 – 0,20

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2004UK – DUO-LOCK® HAIMER MILL

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



#### 次应用

also suitable for

- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

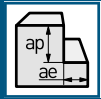
物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2004UK1000C..	DA	DL10	10,00	C	0,20	7,5	12,5	9,6	SW8	20
DL12F2004UK1200C..	DA	DL12	12,00	C	0,24	9	15	11,5	SW9,5	30
DL16F2004UK1600C..	DA	DL16	16,00	C	0,32	12	20	15,5	SW13	60
DL20F2004UK2000C..	DA	DL20	20,00	C	0,40	15	25	19,3	SW16	80
DL25F2004UK2500C..	DA	DL25	25,00	C	0,50	18,75	31,25	24,0	SW21	100
DL32F2004UK3200C..	DA	DL32	32,00	C	0,64	24	40	31,0	SW28	130

订货号 = 物料号 + 材料。

Order No. = Article Code + Quality.

# F2006/08/00MN – DUO-LOCK® HAIMER MILL 刀尖倒角精加工/CHAMFER FINISHING

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	切宽 Cutting width		
			拉仲强度 Tensile strength	硬度 Content/ Hardness	
德标 DIN	材料号码 Material no.	切削线速度 Vc (m/min) Cutting speed Vc (m/min)	 ae = 5% D1 ap = L1 max.		
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>220 – 280</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>160 – 200</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		<b>120 – 160</b>
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		<b>90 – 120</b>
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		180 – 240
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		160 – 220
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae 5%	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2006/08/00MN – DUO-LOCK® HAIMER MILL

## 刀尖倒角精加工/CHAMFER FINISHING

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.5 × Ø	→	→
45°	ap, ae	Air
Z=6/8/10		MMS
35°		

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



#### 次应用

also suitable for

- 颈部有助于更大的切深
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	刃 No. teeth	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2006MN1000C..	DA	DL10	10,00	C	6	0,2	15	20	9,6	SW8	20
DL12F2006MN1200C..	DA	DL12	12,00	C	6	0,24	18	24	11,5	SW9,5	30
DL16F2008MN1600C..	DA	DL16	16,00	C	8	0,32	24	32	15,5	SW13	60
DL20F2000MN2000C..	DA	DL20	20,00	C	10	0,4	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。

Order No. = Article Code + Quality.

# F2006/08/00MN – DUO-LOCK® HAIMER MILL

## 刀尖圆角 精加工/CORNER RADIUS FINISHING

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	切宽 Cutting width		
				德标 DIN	材料号码 Material no.
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>220 – 280</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>160 – 200</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		<b>120 – 160</b>
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		<b>90 – 120</b>
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		180 – 240
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		160 – 220
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae 5%	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2006/08/00MN – DUO-LOCK® HAIMER MILL

## 刀尖圆角 精加工/CORNER RADIUS FINISHING

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
1.5 × Ø		
R		
Z=6/8/10		
35°		

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for

- 颈部有助于更大的切深
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	刃 No. teeth	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2006MN1000R0.50..	DA	DL10	10,00	R	6	0,50	15	20	9,6	SW8	20
DL10F2006MN1000R1.00..	DA	DL10	10,00	R	6	1,00	15	20	9,6	SW8	20
DL10F2006MN1000R1.50..	DA	DL10	10,00	R	6	1,50	15	20	9,6	SW8	20
DL10F2006MN1000R2.00..	DA	DL10	10,00	R	6	2,00	15	20	9,6	SW8	20
DL12F2006MN1200R0.50..	DA	DL12	12,00	R	6	0,50	18	24	11,5	SW9,5	30
DL12F2006MN1200R1.00..	DA	DL12	12,00	R	6	1,00	18	24	11,5	SW9,5	30
DL12F2006MN1200R2.00..	DA	DL12	12,00	R	6	2,00	18	24	11,5	SW9,5	30
DL16F2008MN1600R0.50..	DA	DL16	16,00	R	8	0,50	24	32	15,5	SW13	60
DL16F2008MN1600R1.00..	DA	DL16	16,00	R	8	1,00	24	32	15,5	SW13	60
DL16F2008MN1600R2.00..	DA	DL16	16,00	R	8	2,00	24	32	15,5	SW13	60
DL16F2008MN1600R4.00..	DA	DL16	16,00	R	8	4,00	24	32	15,5	SW13	60
DL20F2000MN2000R0.50..	DA	DL20	20,00	R	10	0,50	30	40	19,3	SW16	80
DL20F2000MN2000R2.00..	DA	DL20	20,00	R	10	2,00	30	40	19,3	SW16	80
DL20F2000MN2000R4.00..	DA	DL20	20,00	R	10	4,00	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



F2006/08/00UK – DUO-LOCK® HAIMER MILL  
刀尖倒角精加工/CHAMFER FINISHING

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料的信息 Material information	切宽 Cutting width		
			ap	ae	
德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness	切削线速度 Vc (m/min) Cutting speed Vc (m/min)	
<b>P1</b> 普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>220 – 280</b>
<b>P2</b> 热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>160 – 200</b>
<b>M1</b> 不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		<b>120 – 160</b>
<b>M2</b> 不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		<b>90 – 120</b>
<b>K1</b> 铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		180 – 240
<b>K2</b> 铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		160 – 220
<b>S1</b> 钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80
<b>S2</b> 高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350
<b>H1</b> 硬化钢 Hardened steels				45 – 55 HRC	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

## 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

ae 5%	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2006/08/00UK – DUO-LOCK® HAIMER MILL 刀尖倒角精加工/CHAMFER FINISHING

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced  
\* 切削刃不过中心  
\* diameter not center cutting

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for

- 颈部有助于更大的切深
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	刃 No. teeth	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2006UK1000C..	DA	DL10	10,00	C	6	0,2	7,5	12,5	9,6	SW8	20
DL12F2006UK1200C..	DA	DL12	12,00	C	6	0,24	9	15	11,5	SW9,5	30
DL16F2008UK1600C..	DA	DL16	16,00	C	8	0,32	12	20	15,5	SW13	60
DL20F2000UK2000C..	DA	DL20	20,00	C	10	0,4	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F2304MN – DUO-LOCK® HAIMER MILL

## 刀尖倒角粗加工/CHAMFER ROUGHING

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2304MN – DUO-LOCK® HAIMER MILL

## 刀尖倒角粗加工/CHAMFER ROUGHING

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2304MN1000C..	DA	DL10	10,00	C	0,30	15	20	9,6	SW8	20
DL12F2304MN1200C..	DA	DL12	12,00	C	0,30	18	24	11,5	SW9,5	30
DL16F2304MN1600C..	DA	DL16	16,00	C	0,50	24	32	15,5	SW13	60
DL20F2304MN2000C..	DA	DL20	20,00	C	0,60	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F2304UK – DUO-LOCK® HAIMER MILL

## 刀尖倒角粗加工/CHAMFER ROUGHING

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
<b>P1</b>	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
<b>P2</b>	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
<b>M1</b>	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
<b>K1</b>	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
<b>K2</b>	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
<b>S1</b>	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
<b>N1</b>	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
<b>N2</b>	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F2304UK – DUO-LOCK® HAIMER MILL

## 刀尖倒角粗加工/CHAMFER ROUGHING

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 端刀过中心
- 不等分的切削刃
- 很好的长度重复精度

- Neck for higher cutting depth
- Center cutting
- Unequal cutting edge
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F2304UK1000C..	DA	DL10	10,00	C	0,30	7,5	12,5	9,6	SW8	20
DL12F2304UK1200C..	DA	DL12	12,00	C	0,30	9	15	11,5	SW9,5	30
DL16F2304UK1600C..	DA	DL16	16,00	C	0,50	12	20	15,5	SW13	60
DL20F2304UK2000C..	DA	DL20	20,00	C	0,60	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F4002MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%		

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。













Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

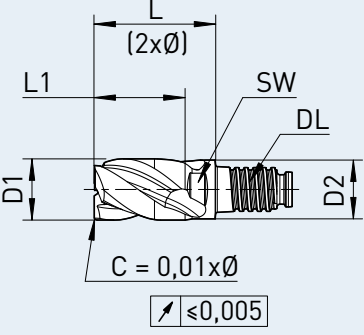
# F4002MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
		
		
		
		



精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- 很好的长度重复精度
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F4002MN1000C..	D-	DL10	10,00	C	0,1	15	20	9,6	SW8	20
DL12F4002MN1200C..	D-	DL12	12,00	C	0,12	18	24	11,5	SW9,5	30
DL16F4002MN1600C..	D-	DL16	16,00	C	0,16	24	32	15,5	SW13	60
DL20F4002MN2000C..	D-	DL20	20,00	C	0,2	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



# F4002MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%		

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。










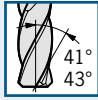
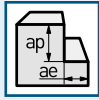


Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

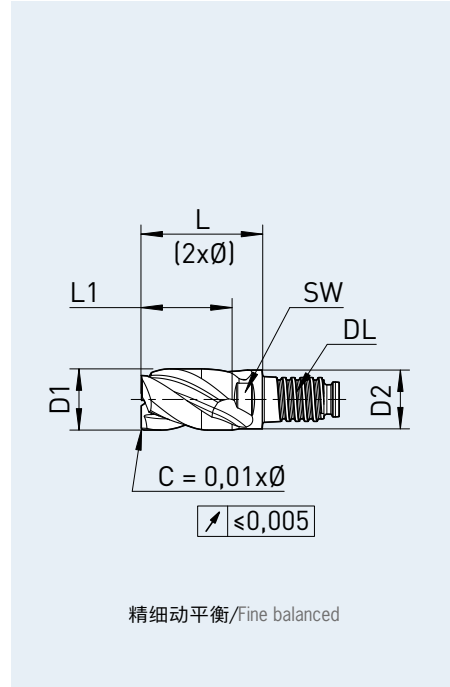
# F4002MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
		
		
		
		
		



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 适用于磨蚀性材料的涂层
- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- 很好的长度重复精度
- Coating for abrasive materials
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F4002MN1000C..	DC	DL10	10,00	C	0,1	15	20	9,6	SW8	20
DL12F4002MN1200C..	DC	DL12	12,00	C	0,12	18	24	11,5	SW9,5	30
DL16F4002MN1600C..	DC	DL16	16,00	C	0,16	24	32	15,5	SW13	60
DL20F4002MN2000C..	DC	DL20	20,00	C	0,2	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# F4003MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b>	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b>	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581			

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# F4003MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- 很好的长度重复精度
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F4003MN1000C..	D-	DL10	10,00	C	0,1	15	20	9,6	SW8	20
DL12F4003MN1200C..	D-	DL12	12,00	C	0,12	18	24	11,5	SW9,5	30
DL16F4003MN1600C..	D-	DL16	16,00	C	0,16	24	32	15,5	SW13	60
DL20F4003MN2000C..	D-	DL20	20,00	C	0,2	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。

Order No. = Article Code + Quality.

# F4003MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%		

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。














Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

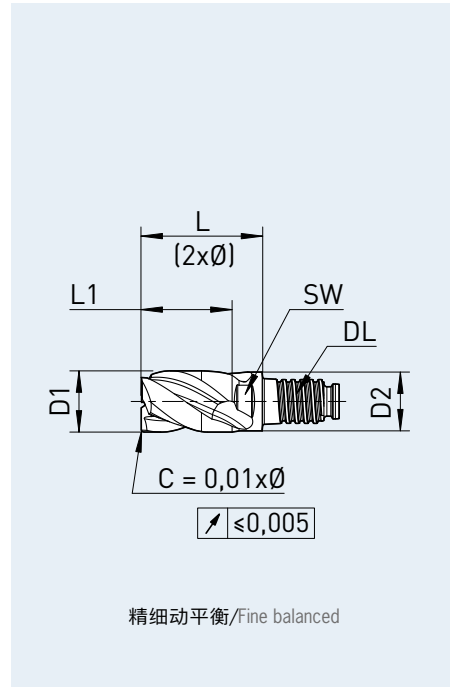
# F4003MN – DUO-LOCK® HAIMER MILL Alu Series

## 刀尖倒角/CHAMFER

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
		
		
		
		
		



### 材料 – 特征/Material – characteristics

主应用  
Main Material



- 适用于磨蚀性材料的涂层
- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- 很好的长度重复精度
- Coating for abrasive materials
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10F4003MN1000C..	DC	DL10	10,00	C	0,1	15	20	9,6	SW8	20
DL12F4003MN1200C..	DC	DL12	12,00	C	0,12	18	24	11,5	SW9,5	30
DL16F4003MN1600C..	DC	DL16	16,00	C	0,16	24	32	15,5	SW13	60
DL20F4003MN2000C..	DC	DL20	20,00	C	0,2	30	40	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

## H2004UK – DUO-LOCK® HAIMER MILL HF Series 内冷高进给型/HIGH FEED KZ

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	250 – 320	340 – 420
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	190 – 220	240 – 310
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		95 – 115	135 – 170
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		75 – 95	105 – 130
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		160 – 180	200 – 230
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		130 – 150	170 – 200
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	80 – 90
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae				
	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,1–0,3	0,12–0,36	0,16–0,48	0,2–0,6
ap HFC	0,75	0,9	1,2	1,5

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# H2004UK – DUO-LOCK® HAIMER MILL HF Series 内冷高进给型/HIGH FEED KZ

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
 0.75 × Ø	 ↔	 ↔
 R	 10°	 Air
 Z=4	 ap ae	 MMS
 30°	 ap ae	 IKZ

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 中心内冷
- 颈部有助于更大的切深
- 很好的长度重复精度
- Central inner cooling
- Neck for higher cutting depth
- Best length repeatability

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R1 R1 [mm]	R2 R2 [mm]	Dp Dp [mm]	L1 max. L1 max. [mm]	L L [mm]	DKZ DKZ [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10H2004UK1000R..	DA	KZ	DL10	10,00	R	1,5	5	6	7,5	12,5	2	9,6	SW8	20
DL12H2004UK1200R..	DA	KZ	DL12	12,00	R	1,8	6	7,2	9	15	2	11,5	SW9,5	30
DL16H2004UK1600R..	DA	KZ	DL16	16,00	R	2,4	8	9,6	12	20	2	15,5	SW13	60
DL20H2004UK2000R..	DA	KZ	DL20	20,00	R	3	10	12	15	25	3	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



## H2006UK – DUO-LOCK® HAIMER MILL HF Series 内冷高进给型/HIGH FEED KZ

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	250 – 320	340 – 420
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	190 – 220	240 – 310
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		95 – 115	135 – 170
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		75 – 95	105 – 130
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		160 – 180	200 – 230
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		130 – 150	170 – 200
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			50 – 60	80 – 90
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae				
	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,1–0,3	0,12–0,36	0,16–0,48	0,2–0,6
ap HFC	0,75	0,9	1,2	1,5

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# H2006UK – DUO-LOCK® HAIMER MILL HF Series

## 内冷高进给型/HIGH FEED KZ

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 中心内冷
- 颈部有助于更大的切深
- 很好的长度重复精度

- Central inner cooling
- Neck for higher cutting depth
- Best length repeatability

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	R1 R1 [mm]	R2 R2 [mm]	Dp Dp [mm]	L1 max. L1 max. [mm]	L L [mm]	DKZ DKZ [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10H2006UK1000R..	DP	KZ	DL10	10,00	R	1,5	5	6	7,5	12,5	2	9,6	SW8	20
DL12H2006UK1200R..	DP	KZ	DL12	12,00	R	1,8	6	7,2	9	15	2	11,5	SW9,5	30
DL16H2006UK1600R..	DP	KZ	DL16	16,00	R	2,4	8	9,6	12	20	2	15,5	SW13	60
DL20H2006UK2000R..	DP	KZ	DL20	20,00	R	3	10	12	15	25	3	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# V2002MN – DUO-LOCK® HAIMER MILL 球头/BALL NOSE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN- GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-AlSi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	∅ 2	∅ 2.5	∅ 3	∅ 4	∅ 5	∅ 6	∅ 8	∅ 10
fz	0,006 – 0,018	0,008 – 0,023	0,009 – 0,027	0,012 – 0,036	0,015 – 0,045	0,018 – 0,054	0,024 – 0,072	0,03 – 0,09

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2002MN – DUO-LOCK® HAIMER MILL 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度
- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2002MN0200R..	DA	DL10	2,00	R	1,00	3,0	20	9,6	SW8	20
DL10V2002MN0250R..	DA	DL10	2,50	R	1,25	3,75	20	9,6	SW8	20
DL10V2002MN0300R..	DA	DL10	3,00	R	1,50	4,5	20	9,6	SW8	20
DL10V2002MN0400R..	DA	DL10	4,00	R	2,00	6,0	20	9,6	SW8	20
DL10V2002MN0500R..	DA	DL10	5,00	R	2,50	7,5	20	9,6	SW8	20
DL10V2002MN0600R..	DA	DL10	6,00	R	3,00	9,0	20	9,6	SW8	20
DL10V2002MN0800R..	DA	DL10	8,00	R	4,00	12	20	9,6	SW8	20
DL10V2002MN1000R..	DA	DL10	10,00	R	5,00	15	20	9,6	SW8	20

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# V2002UK – DUO-LOCK® HAIMER MILL 球头/BALL NOSE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
			德标 DIN	拉伸强度 Tensile strength			硬度 Content/ Hardness
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	<b>160 – 220</b>	<b>220 – 280</b>
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	<b>120 – 160</b>	<b>160 – 200</b>
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN- GJLZ (GG40), EN- GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	∅ 10	∅ 12	∅ 16	∅ 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2002UK – DUO-LOCK® HAIMER MILL

## 球头/BALL NOSE

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 × Ø		
VR	45°	Air
Z=2	ap ae	
10°	ap ae	

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度

- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2002UK1000R..	DA	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V2002UK1200R..	DA	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V2002UK1600R..	DA	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V2002UK2000R..	DA	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# V2002UK – DUO-LOCK® HAIMER MILL

## 球头径向冷却/BALL NOSE COOLING RADIAL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿)  $f_z$  和刀具直径  $D1$  及切宽  $ae$  的关系/Feed per tooth (mm/tooth) in relation with  $D1$  and cutting width  $ae$

	∅ 10	∅ 12	∅ 16	∅ 20
$f_z$	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2002UK – DUO-LOCK® HAIMER MILL

## 球头径向冷却/BALL NOSE COOLING RADIAL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 × Ø		
VR	45°	Air
Z=2	ap ae	
10°	ap ae	

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 径向内冷
- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度

- Inner cooling radial
- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2002UK1000R..	DA	KR	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V2002UK1200R..	DA	KR	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V2002UK1600R..	DA	KR	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V2002UK2000R..	DA	KR	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 – 物料号 + 材料 + 冷却。

Order No. = Article Code + Quality + Cooling.



V2004MN – DUO-LOCK® HAIMER MILL  
球头/BALL NOSE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae								
	ø 2	ø 2.5	ø 3	ø 4	ø 5	ø 6	ø 8	ø 10
fz	0,006 – 0,018	0,008 – 0,023	0,009 – 0,027	0,012 – 0,036	0,015 – 0,045	0,018 – 0,054	0,024 – 0,072	0,03 – 0,09

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2004MN – DUO-LOCK® HAIMER MILL 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度
- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2004MNO200R..	DA	DL10	2,00	R	1,00	3,0	20	9,6	SW8	20
DL10V2004MNO250R..	DA	DL10	2,50	R	1,25	3,75	20	9,6	SW8	20
DL10V2004MNO300R..	DA	DL10	3,00	R	1,50	4,5	20	9,6	SW8	20
DL10V2004MNO400R..	DA	DL10	4,00	R	2,00	6,0	20	9,6	SW8	20
DL10V2004MNO500R..	DA	DL10	5,00	R	2,50	7,5	20	9,6	SW8	20
DL10V2004MNO600R..	DA	DL10	6,00	R	3,00	9,0	20	9,6	SW8	20
DL10V2004MNO800R..	DA	DL10	8,00	R	4,00	12	20	9,6	SW8	20
DL10V2004MNO1000R..	DA	DL10	10,00	R	5,00	15	20	9,6	SW8	20

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

V2004UK – DUO-LOCK® HAIMER MILL  
球头/BALL NOSE

## 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号码 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2004UK – DUO-LOCK® HAIMER MILL 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 × Ø		
VR	45°	Air
Z=4		
32° 34°		

从15°的位置开始的刃口为4刃  
from 15° cutting all 4 teeth

⚡ ≤0,010

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度

- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2004UK1000R..	DA	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V2004UK1200R..	DA	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V2004UK1600R..	DA	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V2004UK2000R..	DA	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

# V2004UK – DUO-LOCK® HAIMER MILL

## 球头径向冷却/BALL NOSE COOLING RADIAL

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material	材料号 Material no.	材料的信息 Material information				
			拉伸强度 Tensile strength	硬度 Content/ Hardness	粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)	
P1	普通结构钢 General construction steels	S235JR (RST37-2), E295 (St 50-2), C45	1.0038, 1.0050, 1.0503	≤ 800 N/mm <sup>2</sup>	高达 25 HRC up to 25 HRC	160 – 220	220 – 280
P2	热处理后的钢 Heat treated steels	X38CrMoV5-3, X153CrMoV12, X100CrMoV5, 42CrMo4	1.2367, 1.2379, 1.2363, 1.7225	> 800 N/mm <sup>2</sup>	高达 45 HRC up to 45 HRC	120 – 160	160 – 200
M1	不锈钢 Stainless steels	X8CrNiS18-9, X5CrNi18-10, X46Cr13	1.4305, 1.4301, 1.4034	≤ 650 N/mm <sup>2</sup>		80 – 120	120 – 160
M2	不锈钢 Stainless steels	X6CrNiMoTi17-12-2, X2CrNiMo17-12-2, X4CrNiMo16-5-1	1.4571, 1.4404, 1.4418	> 650 N/mm <sup>2</sup>		60 – 90	90 – 120
K1	铸铁 Cast iron	EN-GJL200 (GG20), EN-GJLZ (GG40), EN-GJS-400-15 (GGG40)	0.6020, 0.6040, 0.7040	≤ 450 N/mm <sup>2</sup>		120 – 180	180 – 240
K2	铸铁 Cast iron	EN-GJS-600-3 (GGG60), EN-GJS-700-2 (GGG70)	0.7060, 0.7070	> 450 N/mm <sup>2</sup>		80 – 160	160 – 220
S1	钛合金 Titanium & titanium alloys	TiAl6V4	3.7165			40 – 80	40 – 80
S2	高温合金 High Temp alloys	Inconel; NIMONIC		800 – 1700 N/mm <sup>2</sup>		30 – 40	30 – 40
N1	锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	500 – 900	500 – 900
N2	铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%	120 – 350	120 – 350
H1	硬化钢 Hardened steels				45 – 55 HRC	40 – 60	60 – 80

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V2004UK – DUO-LOCK® HAIMER MILL

## 球头径向冷却/BALL NOSE COOLING RADIAL

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 x Ø		
VR	45°	Air
Z=4		
32° 34°		

从15°的位置开始的刃口为4刃  
from 15° cutting all 4 teeth

$\leq 0,010$

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

主应用  
Main Material



次应用  
also suitable for



- 径向内冷
- 颈部有助于更大的切深
- 球头
- 很好的长度重复精度

- Inner cooling radial
- Neck for higher cutting depth
- Ball Nose
- Best length repeatability

物料号 Article-Code	材料 Quality	冷却 Cooling	Duo-Lock 尺寸 Size	D1 (f9) D1 (f9) [mm]	刃口处理 Cutting edge	圆角 Radius [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V2004UK1000R..	DA	KR	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V2004UK1200R..	DA	KR	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V2004UK1600R..	DA	KR	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V2004UK2000R..	DA	KR	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 – 物料号 + 材料 + 冷却。

Order No. = Article Code + Quality + Cooling.

# V4002UK – DUO-LOCK® HAIMER MILL Alu Series

## 球头/BALL NOSE

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%		

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V4002UK – DUO-LOCK® HAIMER MILL Alu Series

## 球头/BALL NOSE

### 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 × Ø		
VR	45°	Air
Z=2		
10°		

精细动平衡/Fine balanced

### 材料 – 特征/Material – characteristics

#### 主应用

Main Material



- 颈部有助于更大的切深
- 端刀过中心
- 排屑槽和后刀面经抛光处理
- 很好的长度重复精度
- Neck for higher cutting depth
- Center cutting
- Polished flute and relief
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V4002UK1000R..	D-	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V4002UK1200R..	D-	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V4002UK1600R..	D-	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V4002UK2000R..	D-	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.



# V4002UK – DUO-LOCK® HAIMER MILL Alu Series

## 球头/BALL NOSE

### 切削参数/Cutting data

HAIMER 翰默的材料组 HAIMER Material groups	典型的材料牌号 Example material		材料的信息 Material information		粗加工 Vc (m/min) Roughing Vc (m/min)	精加工 Vc (m/min) Finishing Vc (m/min)
	德标 DIN	材料号码 Material no.	拉伸强度 Tensile strength	硬度 Content/ Hardness		
<b>N1</b> 锻造铝合金 Wrought aluminum alloys	AlMg1	3.3315		Si < 9%	<b>300 – 400</b>	<b>400 – 500</b>
<b>N2</b> 铸造铝合金 Aluminum cast alloys	G-Alsi12	3.2581		Si > 9%		

切削参数仅供参考，需要根据实际应用情况调整。

Cutting data are reference values and need to be adjusted according to the application area.

### 每齿走刀量 (毫米/齿) fz 和刀具直径 D1 及切宽 ae 的关系/Feed per tooth (mm/tooth) in relation with D1 and cutting width ae

	ø 10	ø 12	ø 16	ø 20
fz	0,03 – 0,09	0,03 – 0,10	0,04 – 0,12	0,05 – 0,13

切削参数是基于配合短型直柄延长杆应用的，如果使用悬伸更长，切削参数需要调整。

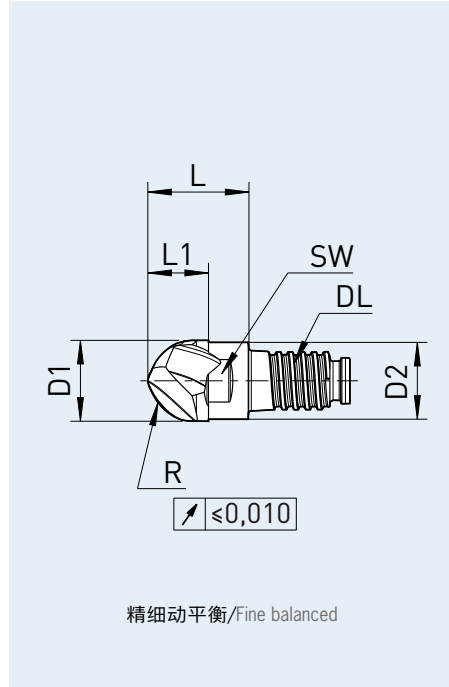
Cutting data is based on cylindrical extensions short, cutting data for long overhang need to be adjusted.

# V4002UK – DUO-LOCK® HAIMER MILL Alu Series 球头/BALL NOSE

## 技术参数和产品特征/Technical data and Product characteristics



特征 Characteristics	应用 Application	冷却液 Coolant
0.75 × Ø		
VR	45°	Air
Z=2	ap, ae	
10°	ap, ae	MMS



### 材料 – 特征/Material – characteristics

主应用  
Main Material

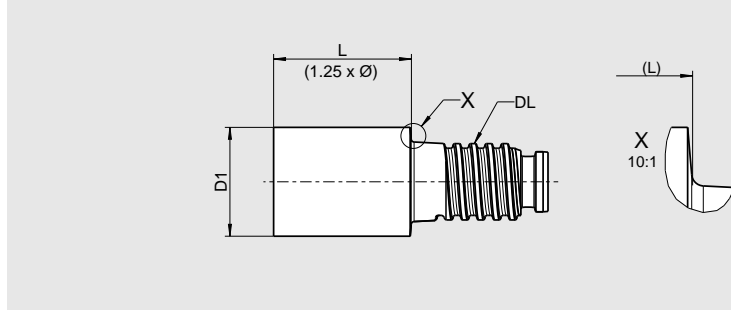


- 适用于磨蚀性材料的涂层
- Coating for abrasive materials
- 颈部有助于更大的切深
- Neck for higher cutting depth
- 端刀过中心
- Center cutting
- 排屑槽和后刀面经抛光处理
- Polished flute and relief
- 很好的长度重复精度
- Best length repeatability

物料号 Article-Code	材料 Quality	Duo-Lock 尺寸 Size	D1 (h9) D1 (h9) [mm]	刃口处理 Cutting edge	尺寸 Size [mm]	L1 max. L1 max. [mm]	L L [mm]	D2 D2 [mm]	SW AF [mm]	扭矩 Torque [N/m]
DL10V4002UK1000R..	DC	DL10	10,00	R	5,00	7,5	12,5	9,6	SW8	20
DL12V4002UK1200R..	DC	DL12	12,00	R	6,00	9	15	11,5	SW9,5	30
DL16V4002UK1600R..	DC	DL16	16,00	R	8,00	12	20	15,5	SW13	60
DL20V4002UK2000R..	DC	DL20	20,00	R	10,00	15	25	19,3	SW16	80

订货号 = 物料号 + 材料。  
Order No. = Article Code + Quality.

## DUO-LOCK® 棒料 – 无扳手夹持平面 DUO-LOCK® BLANK – WITHOUT ACROSS FLATS



### 短型，无扳手夹持平面

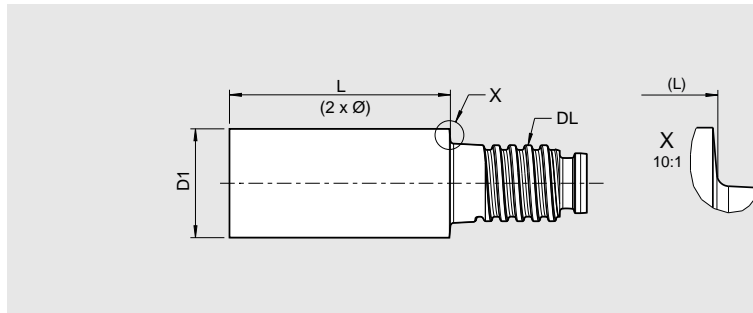
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金

### Version: short, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0001	10	12,5	DL10	20	8	HF10
RODL12-D12HA0150-0001	12	15	DL12	30	9,5	HF10
RODL16-D16HA0200-0001	16	20	DL16	60	13	HF10
RODL20-D20HA0250-0001	20	25	DL20	80	16	HF10
RODL25-D25HA0313-0001	25	31,25	DL25	100	21	HF10
RODL32-D32HA0400-0001	32	40	DL32	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金

### Version: normal, without across flats

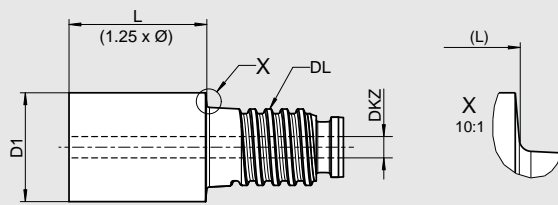
- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0001	10	20	DL10	20	8	HF10
RODL12-D12HA0240-0001	12	24	DL12	30	9,5	HF10
RODL16-D16HA0320-0001	16	32	DL16	60	13	HF10
RODL20-D20HA0400-0001	20	40	DL20	80	16	HF10
RODL25-D25HA0500-0001	25	50	DL25	100	21	HF10
RODL32-D32HA0640-0001	32	64	DL32	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

注意扳手夹持平面的尺寸。必须配合 Duo-Lock 扭力扳手使用。保证扳手夹持平面的最小长度(参见 第189页)  
Pay attention to across flats overview. Use only with Duo-Lock Torque Master. Keep minimum length to plain surface (See page 189)

## DUO-LOCK® 带中心内冷孔的棒料 – 无扳手夹持平面 DUO-LOCK® BLANK COOLING BORE CENTRAL – WITHOUT ACROSS FLATS



### 短型，无扳手夹持平面

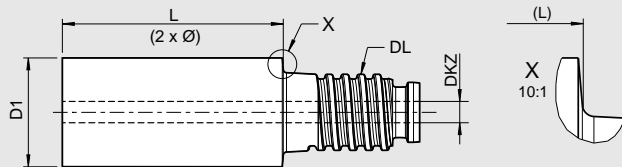
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 中心内冷

### Version: short, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0001KZ	10	12,5	DL10	2	20	8	HF10
RODL12-D12HA0150-0001KZ	12	15	DL12	2	30	9,5	HF10
RODL16-D16HA0200-0001KZ	16	20	DL16	2	60	13	HF10
RODL20-D20HA0250-0001KZ	20	25	DL20	3	80	16	HF10
RODL25-D25HA0313-0001KZ	25	31,25	DL25	4	100	21	HF10
RODL32-D32HA0400-0001KZ	32	40	DL32	5	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 中心内冷

### Version: normal, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0001KZ	10	20	DL10	2	20	8	HF10
RODL12-D12HA0240-0001KZ	12	24	DL12	2	30	9,5	HF10
RODL16-D16HA0320-0001KZ	16	32	DL16	2	60	13	HF10
RODL20-D20HA0400-0001KZ	20	40	DL20	3	80	16	HF10
RODL25-D25HA0500-0001KZ	25	50	DL25	4	100	21	HF10
RODL32-D32HA0640-0001KZ	32	64	DL32	5	130	28	HF10

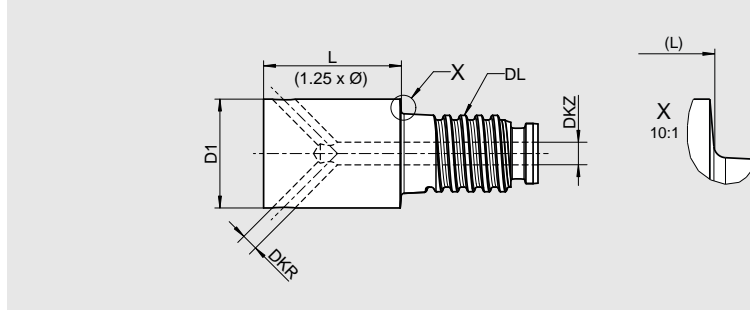
可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

注意扳手夹持平面的尺寸。必须配合 Duo-Lock 扭力扳手使用。保证扳手夹持平面的最小长度(参见 第189页)

Pay attention to across flats overview. Use only with Duo-Lock Torque Master. Keep minimum length to plain surface (See page 189)

## DUO-LOCK® 径向冷却2X棒料 – 无扳手夹持平面

### DUO-LOCK® BLANK COOLING BORE RADIAL 2X – WITHOUT ACROSS FLATS



#### 短型，无扳手夹持平面

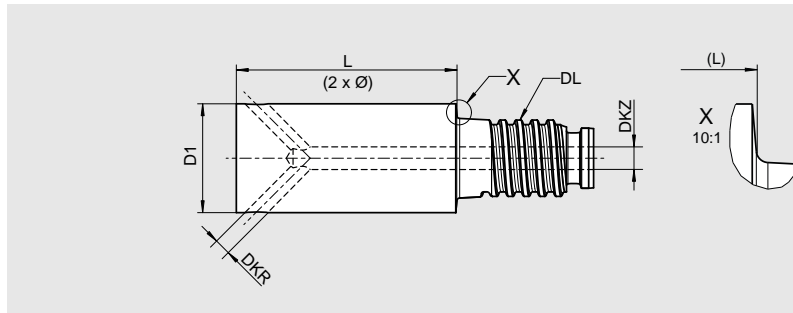
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，两个冷却液出口

#### Version: short, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 2 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0001KR02	10	12,5	DL10	2	1,4	2	20	8	HF10
RODL12-D12HA0150-0001KR02	12	15	DL12	2,5	1,75	2	30	9,5	HF10
RODL16-D16HA0200-0001KR02	16	20	DL16	3	2,1	2	60	13	HF10
RODL20-D20HA0250-0001KR02	20	25	DL20	3,5	2,45	2	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



#### 标准型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，两个冷却液出口

#### Version: normal, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 2 cooling outlets

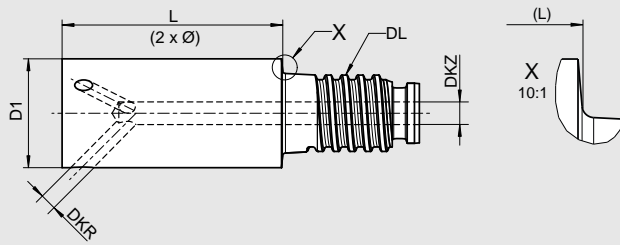
物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0001KR02	10	20	DL10	2	1,4	2	20	8	HF10
RODL12-D12HA0240-0001KR02	12	24	DL12	2,5	1,75	2	30	9,5	HF10
RODL16-D16HA0320-0001KR02	16	32	DL16	3	2,1	2	60	13	HF10
RODL20-D20HA0400-0001KR02	20	40	DL20	3,5	2,45	2	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

注意扳手夹持平面的尺寸。必须配合 Duo-Lock 扭力扳手使用。保证扳手夹持平面的最小长度(参见 第189页)  
Pay attention to across flats overview. Use only with Duo-Lock Torque Master. Keep minimum length to plain surface (See page 189)

## DUO-LOCK® 径向冷却3X棒料 – 无扳手夹持平面

### DUO-LOCK® BLANK COOLING BORE RADIAL 3X – WITHOUT ACROSS FLATS



#### 短型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，3个冷却液出口

#### Version: short, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 3 cooling outlets

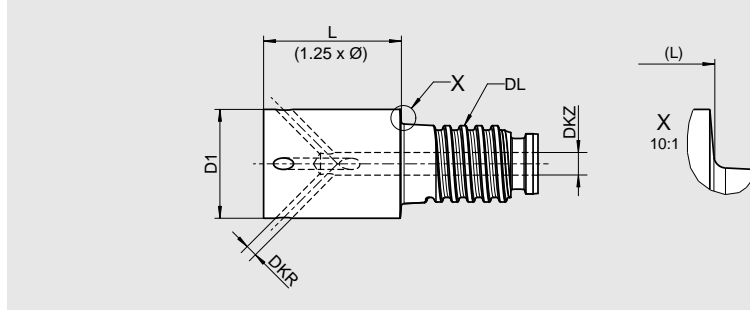
物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0001KR03	10	20	DL10	2	1,15	3	20	8	HF10
RODL12-D12HA0240-0001KR03	12	24	DL12	2,5	1,4	3	30	9,5	HF10
RODL16-D16HA0320-0001KR03	16	32	DL16	3	1,7	3	60	13	HF10
RODL20-D20HA0400-0001KR03	20	40	DL20	3,5	2,0	3	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

注意扳手夹持平面的尺寸。必须配合 Duo-Lock 扭力扳手使用。保证扳手夹持平面的最小长度(参见 第189页)

Pay attention to across flats overview. Use only with Duo-Lock Torque Master. Keep minimum length to plain surface (See page 189)

## DUO-LOCK® 径向冷却4X棒料 – 无扳手夹持平面 DUO-LOCK® BLANK COOLING BORE RADIAL 4X – WITHOUT ACROSS FLATS



### 短型，无扳手夹持平面

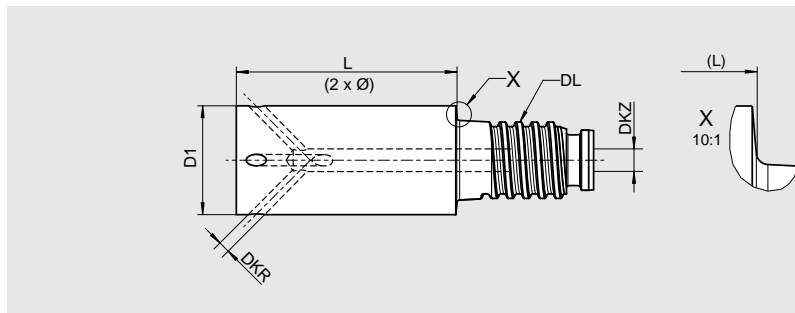
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，4个冷却液出口

### Version: short, without across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 4 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0001KR04	10	12,5	DL10	2	1,0	4	20	8	HF10
RODL12-D12HA0150-0001KR04	12	15	DL12	2,5	1,25	4	30	9,5	HF10
RODL16-D16HA0200-0001KR04	16	20	DL16	3	1,5	4	60	13	HF10
RODL20-D20HA0250-0001KR04	20	25	DL20	3,5	1,75	4	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，4个冷却液出口

### Version: normal, without across flats

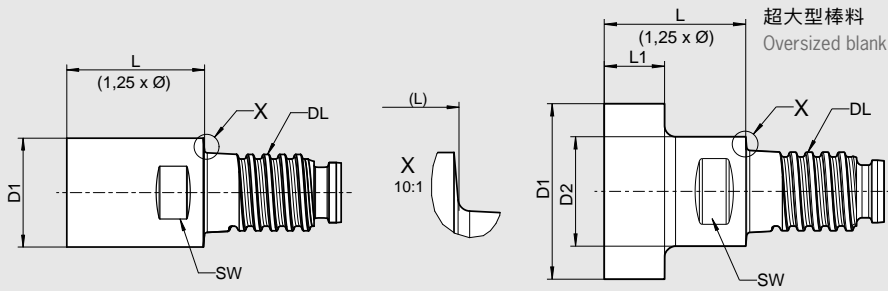
- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 4 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0001KR04	10	20	DL10	2	1,0	4	20	8	HF10
RODL12-D12HA0240-0001KR04	12	24	DL12	2,5	1,25	4	30	9,5	HF10
RODL16-D16HA0320-0001KR04	16	32	DL16	3	1,5	4	60	13	HF10
RODL20-D20HA0400-0001KR04	20	40	DL20	3,5	1,75	4	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

注意扳手夹持平面的尺寸。必须配合 Duo-Lock 扭力扳手使用。保证扳手夹持平面的最小长度(参见 第189页)  
Pay attention to across flats overview. Use only with Duo-Lock Torque Master. Keep minimum length to plain surface (See page 189)

## DUO-LOCK® 短棒料 – 带扳手夹持平面 DUO-LOCK® BLANK SHORT – WITH ACROSS FLATS



### 短型，带扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 可以按需提供中心内冷

### Version: short, with across flats

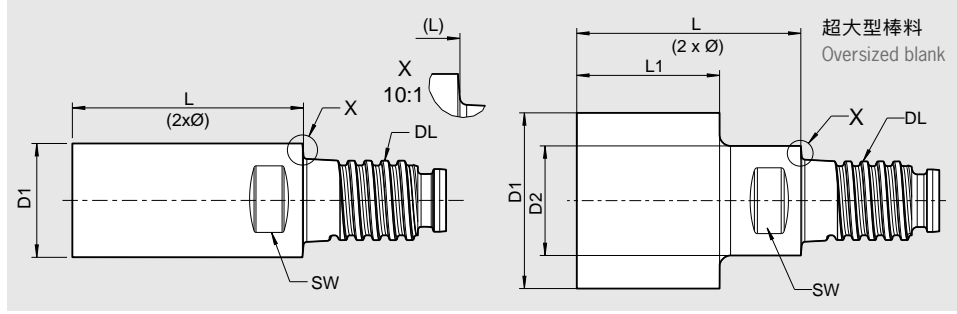
- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling available upon request

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	D2 (-0.1) D2 (-0.1) [mm]	L (+1) L (+1) [mm]	L1 (+1) L1 (+1) [mm]	接口 Interface	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0002	10	-	12,5	-	DL10	20	8	HF10
RODL10-D12HA0125-0002	12	9,60	12,5	5,0	DL10	20	8	HF10
RODL10-D1270HA0125-0002	12,7	9,60	12,5	5	DL10	20	8	HF10
RODL10-D16HA0125-0002	16	9,60	12,5	5,0	DL10	20	8	HF10
RODL10-D20HA0125-0002	20	9,60	12,5	5,0	DL10	20	8	HF10
RODL12-D12HA0150-0002	12	-	15	-	DL12	30	9,5	HF10
RODL12-D1270HA0150-0002	12,7	-	15	-	DL12	30	9,5	HF10
RODL12-D16HA0150-0002	16	11,50	15	6,0	DL12	30	9,5	HF10
RODL12-D18HA0150-0002	18	11,50	15	6,0	DL12	30	9,5	HF10
RODL12-D20HA0150-0002	20	11,50	15	6,0	DL12	30	9,5	HF10
RODL12-D25HA0150-0002	25	11,50	15	6,0	DL12	30	9,5	HF10
RODL12-D2540HA0150-0002	25,4	11,50	15	6	DL12	30	9,5	HF10
RODL16-D16HA0200-0002	16	-	20	-	DL16	60	13	HF10
RODL16-D18HA0200-0002	18	15,50	20	8,0	DL16	60	13	HF10
RODL16-D20HA0200-0002	20	15,50	20	8,0	DL16	60	13	HF10
RODL16-D25HA0200-0002	25	15,50	20	8,0	DL16	60	13	HF10
RODL16-D2540HA0200-0002	25,4	15,50	20	8	DL16	60	13	HF10
RODL16-D32HA0200-0002	32	15,50	20	8,0	DL16	60	13	HF10
RODL20-D20HA0250-0002	20	-	25	-	DL20	80	16	HF10
RODL20-D25HA0250-0002	25	19,30	25	10,0	DL20	80	16	HF10
RODL20-D2540HA0250-0002	25,4	19,30	25	10	DL20	80	16	HF10
RODL20-D32HA0250-0002	32	19,30	25	10,0	DL20	80	16	HF10
RODL20-D36HA0250-0002	36	19,30	25	10,0	DL20	80	16	HF10
RODL20-D40HA0250-0002	40	19,30	25	10,0	DL20	80	16	HF10
RODL25-D25HA0313-0002	25	-	31,25	-	DL25	100	21	HF10
RODL25-D2540HA0313-0002	25,4	-	31,25	-	DL25	100	21	HF10
RODL32-D32HA0400-0002	32	-	40	-	DL32	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



## DUO-LOCK® 标准长度的棒料 – 带扳手夹持平面 DUO-LOCK® BLANK NORMAL – WITH ACROSS FLATS



### 标准型，带扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 可以按需提供中心内冷

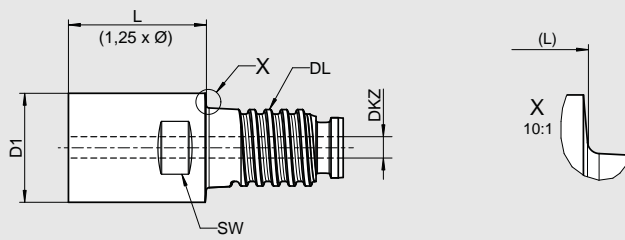
### Version: normal, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling available upon request

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	D2 (-0.1) D2 (-0.1) [mm]	L (+ 1) L (+ 1) [mm]	L1 (+ 1) L1 (+ 1) [mm]	接口 Interface	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D06HA0200-0002	6	9,60	20	16,0	DL10	20	8	HF10
RODL10-D0635HA0200-0002	6,35	9,60	20	16,0	DL10	20	8	HF10
RODL10-D08HA0200-0002	8	9,60	20	16,0	DL10	20	8	HF10
RODL10-D10HA0200-0002	10	-	20	-	DL10	20	8	HF10
RODL10-D12HA0200-0002	12	9,60	20	12,5	DL10	20	8	HF10
RODL10-D1270HA0200-0002	12,7	9,60	20	12,5	DL10	20	8	HF10
RODL10-D16HA0200-0002	16	9,60	20	12,5	DL10	20	8	HF10
RODL10-D20HA0200-0002	20	9,60	20	12,5	DL10	20	8	HF10
RODL12-D12HA0240-0002	12	-	24	-	DL12	30	9,5	HF10
RODL12-D1270HA0240-0002	12,7	-	24	-	DL12	30	9,5	HF10
RODL12-D16HA0240-0002	16	11,50	24	15,0	DL12	30	9,5	HF10
RODL12-D18HA0240-0002	18	11,50	24	15,0	DL12	30	9,5	HF10
RODL12-D20HA0240-0002	20	11,50	24	15,0	DL12	30	9,5	HF10
RODL12-D25HA0240-0002	25	11,50	24	15,0	DL12	30	9,5	HF10
RODL12-D2540HA0240-0002	25,4	11,50	24	15,0	DL12	30	9	HF10
RODL16-D16HA0320-0002	16	-	32	-	DL16	60	13	HF10
RODL16-D18HA0320-0002	18	15,50	32	20,0	DL16	60	13	HF10
RODL16-D20HA0320-0002	20	15,50	32	20,0	DL16	60	13	HF10
RODL16-D25HA0320-0002	25	15,50	32	20,0	DL16	60	13	HF10
RODL16-D2540HA0320-0002	25,4	15,50	32	20,0	DL16	60	13	HF10
RODL16-D32HA0320-0002	32	15,50	32	20,0	DL16	60	13	HF10
RODL20-D20HA0400-0002	20	-	40	-	DL20	80	16	HF10
RODL20-D25HA0400-0002	25	19,30	40	25,0	DL20	80	16	HF10
RODL20-D2540HA0400-0002	25,4	19,30	40	25,0	DL20	80	16	HF10
RODL20-D32HA0400-0002	32	19,30	40	25,0	DL20	80	16	HF10
RODL20-D36HA0400-0002	36	19,30	40	25,0	DL20	80	16	HF10
RODL20-D40HA0400-0002	40	19,30	40	25,0	DL20	80	16	HF10
RODL25-D25HA0500-0002	25	-	50	-	DL25	100	21	HF10
RODL25-D2540HA0500-0002	25,4	-	50	-	DL25	100	21	HF10
RODL32-D32HA0640-0002	32	-	64	-	DL32	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

## DUO-LOCK® 带中心内冷孔的棒料 – 带扳手夹持平面 DUO-LOCK® BLANK COOLING BORE CENTRAL – WITH ACROSS FLATS



### 短型，带扳手夹持平面

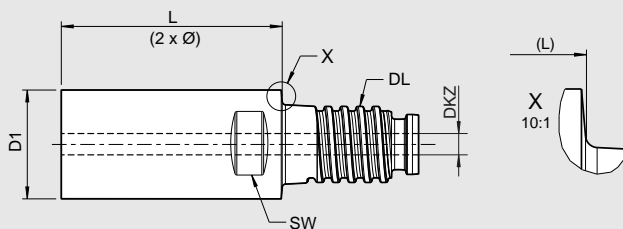
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 中心内冷

### Version: short, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0002KZ	10	12,5	DL10	2	20	8	HF10
RODL12-D12HA0150-0002KZ	12	15	DL12	2	30	9,5	HF10
RODL16-D16HA0200-0002KZ	16	20	DL16	2	60	13	HF10
RODL20-D20HA0250-0002KZ	20	25	DL20	3	80	16	HF10
RODL25-D25HA0313-0002KZ	25	31,25	DL25	4	100	21	HF10
RODL32-D32HA0400-0002KZ	32	40	DL32	5	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，带扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 中心内冷

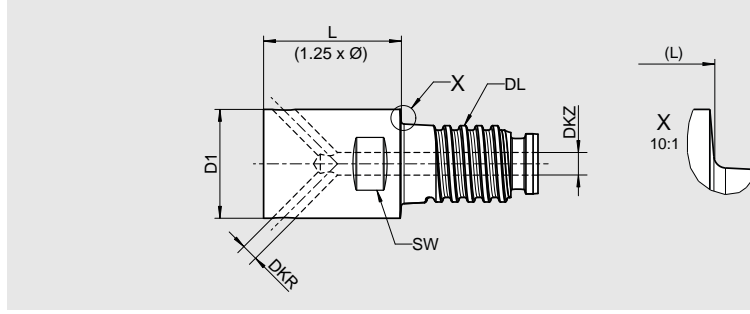
### Version: normal, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Central cooling

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0002KZ	10	20	DL10	2	20	8	HF10
RODL12-D12HA0240-0002KZ	12	24	DL12	2	30	9,5	HF10
RODL16-D16HA0320-0002KZ	16	32	DL16	2	60	13	HF10
RODL20-D20HA0400-0002KZ	20	40	DL20	3	80	16	HF10
RODL25-D25HA0500-0002KZ	25	50	DL25	4	100	21	HF10
RODL32-D32HA0640-0002KZ	32	64	DL32	5	130	28	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

## DUO-LOCK® 径向冷却2X棒料 – 带扳手夹持平面 DUO-LOCK® BLANK COOLING BORE RADIAL 2X – WITH ACROSS FLATS



### 短型，带扳手夹持平面

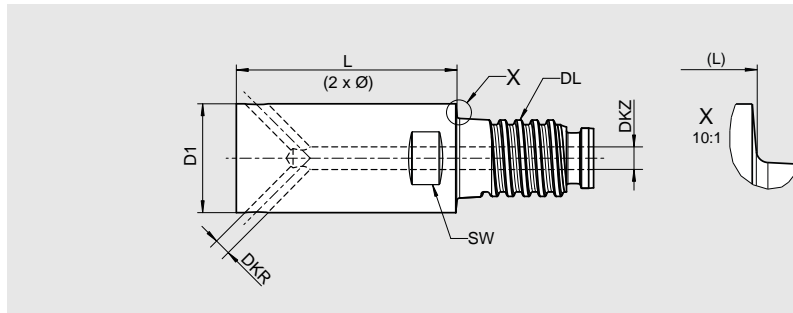
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，两个冷却液出口

### Version: short, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 2 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0002KR02	10	12,5	DL10	2	1,4	2	20	8	HF10
RODL12-D12HA0150-0002KR02	12	15	DL12	2,5	1,75	2	30	9,5	HF10
RODL16-D16HA0200-0002KR02	16	20	DL16	3	2,1	2	60	13	HF10
RODL20-D20HA0250-0002KR02	20	25	DL20	3,5	2,45	2	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，带扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，两个冷却液出口

### Version: normal, with across flats

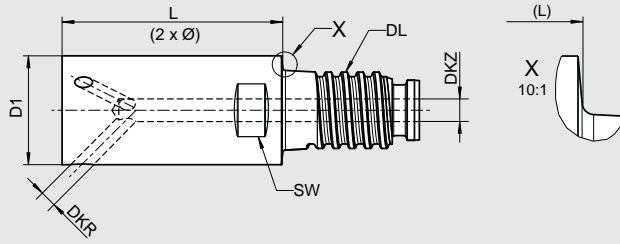
- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 2 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0002KR02	10	20	DL10	2	1,4	2	20	8	HF10
RODL12-D12HA0240-0002KR02	12	24	DL12	2,5	1,75	2	30	9,5	HF10
RODL16-D16HA0320-0002KR02	16	32	DL16	3	2,1	2	60	13	HF10
RODL20-D20HA0400-0002KR02	20	40	DL20	3,5	2,45	2	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

## DUO-LOCK® 径向冷却3X棒料 – 带扳手夹持平面

### DUO-LOCK® BLANK COOLING BORE RADIAL 3X – WITH ACROSS FLATS



#### 短型，无扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，3个冷却液出口

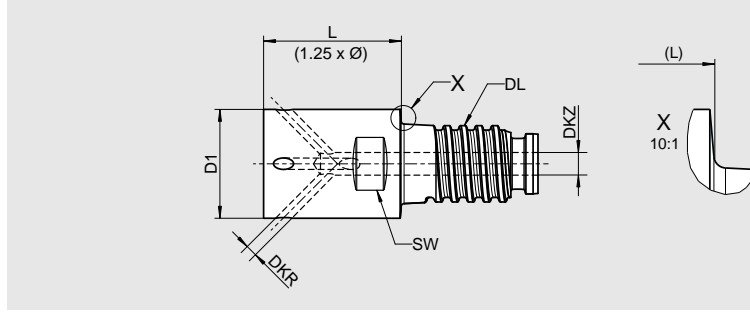
#### Version: short, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 3 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0002KR03	10	20	DL10	2	1,15	3	20	8	HF10
RODL12-D12HA0240-0002KR03	12	24	DL12	2,5	1,4	3	30	9,5	HF10
RODL16-D16HA0320-0002KR03	16	32	DL16	3	1,7	3	60	13	HF10
RODL20-D20HA0400-0002KR03	20	40	DL20	3,5	2,0	3	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

## DUO-LOCK® 径向冷却4X棒料 – 带扳手夹持平面 DUO-LOCK® BLANK COOLING BORE RADIAL 4X – WITH ACROSS FLATS



### 短型，带扳手夹持平面

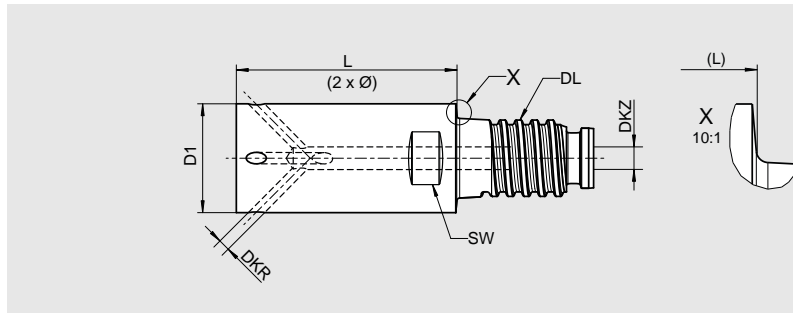
- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，4个冷却液出口

### Version: short, with across flats

- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 4 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0125-0002KR04	10	12,5	DL10	2	1,0	4	20	8	HF10
RODL12-D12HA0150-0002KR04	12	15	DL12	2,5	1,25	4	30	9,5	HF10
RODL16-D16HA0200-0002KR04	16	20	DL16	3	1,5	4	60	13	HF10
RODL20-D20HA0250-0002KR04	20	25	DL20	3,5	1,75	4	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request



### 标准型，带扳手夹持平面

- 很好的长度重复精度
- 含 10% 钴的细晶粒硬质合金
- 径向冷却，4个冷却液出口

### Version: normal, with across flats

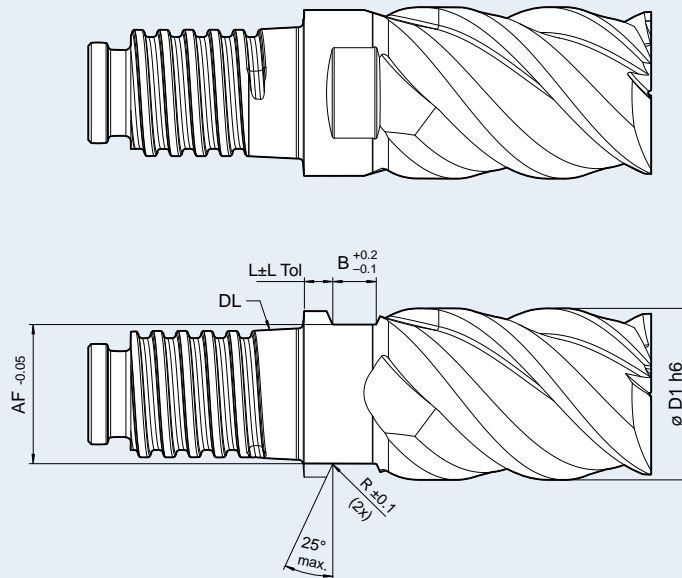
- Best length repeatability
- HF10: Fine grain carbide, 10% cobalt
- Radial cooling, 4 cooling outlets

物料号 Article-Code	D1 (h6) D1 (h6) [mm]	L (+ 1) L (+ 1) [mm]	接口 Interface	DKZ DKZ [mm]	DKR DKR [mm]	冷却液出口 的数量 Cooling outlets	夹紧扭矩 Tightening torque [Nm]	SW AF [mm]	材料 Material
RODL10-D10HA0200-0002KR04	10	20	DL10	2	1,0	4	20	8	HF10
RODL12-D12HA0240-0002KR04	12	24	DL12	2,5	1,25	4	30	9,5	HF10
RODL16-D16HA0320-0002KR04	16	32	DL16	3	1,5	4	60	13	HF10
RODL20-D20HA0400-0002KR04	20	40	DL20	3,5	1,75	4	80	16	HF10

可根据要求提供其他长度和测量装置/Further lengths and measuring devices available on request

## DUO-LOCK® 扳手夹持平面的规格

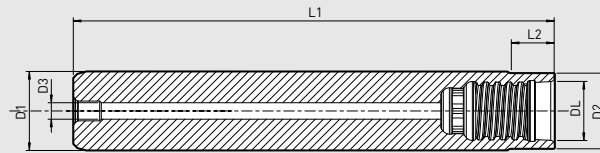
### DUO-LOCK® BLANK – ACROSS FLATS SPECIFICATIONS



接口 Interface	SW AF [mm]	L L [mm]	L 公差 ± L Tol. ± [mm]	B B [mm]	ø D1 ø D1 [mm]	R R [mm]
DL10	8	1,7	± 0,15	2,5	10	0,3
DL12	9,5	2	± 0,15	3	12	0,3
DL16	13	2,5	± 0,2	4	16	0,3
DL20	16	3,1	± 0,2	4,8	20	0,3
DL25	21	3,5	± 0,2	7	25	0,6
DL32	28	4	± 0,2	9	32	0,6

# DUO-LOCK® 延长杆 – 直柄 – 短型 – 钢

## DUO-LOCK® EXTENSIONS – CYLINDRICAL – SHORT – STEEL



### 类型：直柄，短

- 柄径公差: h6
- 带内冷孔
- Safe-Lock 是选项

可以提供:

带涂层的延长杆——用于重载加工，确保顺利的热缩装拆

### Version: cylindrical, short

- Shank tolerance: h6
- With inner coolant bore
- Optional with Safe-Lock

Also available:

Extensions with coating – for perfect shrinking in and out even at high forces during machining

### Duo-Lock 直柄延长杆：短型/Duo-Lock extensions cylindrical: short

接口 Interface DL	订货号 Order No.	带涂层的延长杆的订货号 Order No. with Coating	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	颈部直径 $\varnothing$ Neck $\varnothing$ D2 [mm]	颈部长度 Neck length L2 [mm]	内孔直径 $\varnothing$ / Internal bore $\varnothing$ D3 [mm]
DL12	75.120.DL12	75.120.DL12.1	12	60	11,5	6	2,5
DL16	75.160.DL16	75.160.DL16.1	16	65	15,5	8	3
DL20	75.200.DL20	75.200.DL20.1	20	70	19,3	10	3
DL25	75.250.DL25	75.250.DL25.1	25	80	24	12,5	5
DL32	75.320.DL32	75.320.DL32.1	32	90	31	16	5

### Duo-Lock 直柄延长杆：短型带Safe-Lock安全锁/Duo-Lock extensions cylindrical: short with Safe-Lock

接口 Interface DL	订货号 Order No.	带涂层的延长杆的订货号 Order No. with Coating	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	颈部直径 $\varnothing$ Neck $\varnothing$ D2 [mm]	颈部长度 Neck length L2 [mm]	内孔直径 $\varnothing$ / Internal bore $\varnothing$ D3 [mm]
DL10	75.100.DL10	75.100.DL10.1	10	55	9,6	5	2,5
DL12	75.121.DL12	75.121.DL12.1	12	65	11,5	6	2,5
DL16	75.161.DL16	75.161.DL16.1	16	70	15,5	8	3
DL20	75.201.DL20	75.201.DL20.1	20	80	19,3	10	3
DL25	75.251.DL25	75.251.DL25.1	25	90	24	12,5	5
DL32	75.321.DL32	75.321.DL32.1	32	105	31	16	5

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

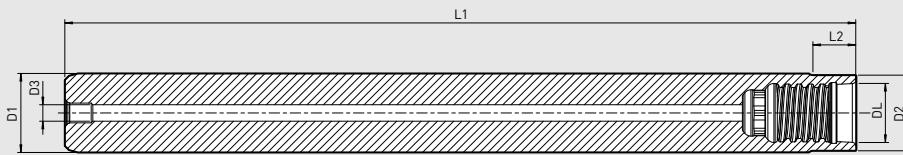
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 延长杆 – 直柄 – 长型 – 钢

## DUO-LOCK® EXTENSIONS – CYLINDRICAL – LONG – STEEL



### 类型：直柄，长型

- 柄径公差: h6
- 带内冷孔
- 可以提供抗振结构改制
- Safe-Lock 安全锁机构为选项
- 可以提供截短服务

可以提供：

带涂层的延长杆——用于重载加工，确保顺利的热缩装拆

### Version: cylindrical, long

- Shank tolerance: h6
- With inner coolant bore
- Vibration dampening on request
- Safe-Lock for an extra charge
- Cutting to length possible for an extra charge

Also available:

Extensions with coating – for perfect shrinking in and out even at high forces during machining

### Duo-Lock 直柄延长杆：长型/Duo-Lock extensions cylindrical: long

接口 Interface DL	订货号 Order No.	带涂层的延长杆的订货号 Order No. with Coating	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	颈部直径 $\varnothing$ Neck $\varnothing$ D2 [mm]	颈部长度 Neck length L2 [mm]	内孔直径 $\varnothing$ / Internal bore $\varnothing$ D3 [mm]
DL10	75.102.DL10	75.102.DL10.1	10	100	9,6	5	2,5
DL12	75.122.DL12	75.122.DL12.1	12	120	11,5	6	2,5
DL16	75.162.DL16	75.162.DL16.1	16	160	15,5	8	3
DL20	75.202.DL20	75.202.DL20.1	20	200	19,3	10	3
DL25	75.252.DL25	75.252.DL25.1	25	250	24	12,5	5
DL32	75.322.DL32	75.322.DL32.1	32	250	31	16	5

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

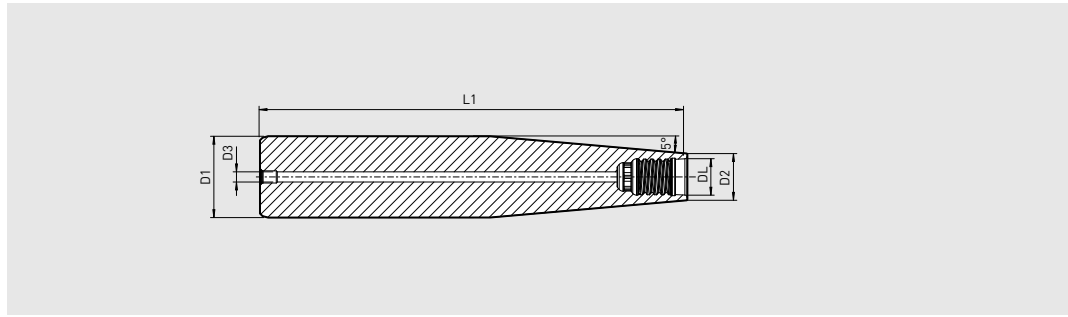
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required



# DUO-LOCK® 延长杆 – 圆锥 – 短型 – 钢

## DUO-LOCK® EXTENSIONS – CONICAL – SHORT – STEEL



### 类型：圆锥，短

- 柄径公差: h6
- 带内冷孔
- Safe-Lock 安全锁是标配

可以提供:

带涂层的延长杆——用于重载加工，确保顺利的热缩装拆

### Version: conical, short

- Shank tolerance: h6
- With inner coolant bore
- With Safe-Lock as standard

Also available:

Extensions with coating – for perfect shrinking in and out even at high forces during machining

### Duo-Lock 模块式锥度延长杆：短型，带安全锁机构/Duo-Lock extensions conical: short with Safe-Lock

接口 Interface DL	订货号 Order No.	带涂层的延长杆的订货号 Order No. with coating	柄径 Ø Clamping Ø D1 [mm]	长度 Length L1 [mm]	外径 Ø Outer Ø D2 [mm]	内孔直径 Ø Internal bore Ø D3 [mm]
DL10	75.120.DL10	75.120.DL10.1	12	65	9,6	2,5
DL10	75.160.DL10	75.160.DL10.1	16	90	9,6	2,5
DL10	75.200.DL10	75.200.DL10.1	20	115	9,6	2,5
DL12	75.160.DL12	75.160.DL12.1	16	80	11,5	2,5
DL12	75.200.DL12	75.200.DL12.1	20	105	11,5	2,5
DL16	75.200.DL16	75.200.DL16.1	20	80	15,5	3
DL16	75.250.DL16	75.250.DL16.1	25	115	15,5	3
DL20	75.250.DL20	75.250.DL20.1	25	95	19,3	3
DL25	75.320.DL25	75.320.DL25.1	32	105	24	5
DL32	75.400.DL32	75.400.DL32.1	40	140	31	5
DL32	75.500.DL32	75.500.DL32.1	50	200	31	5

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

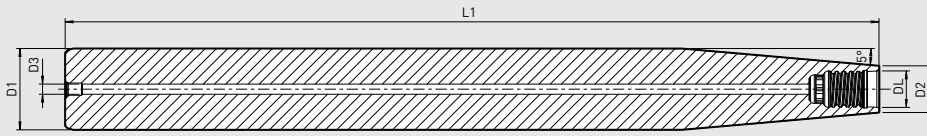
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

## DUO-LOCK® 延长杆 – 圆锥 – 长型 – 钢

### DUO-LOCK® EXTENSIONS – CONICAL – LONG – STEEL



#### 类型：圆锥，长型

- 柄径公差: h6
- 带内冷孔
- 可以提供抗振结构改制
- Safe-Lock 安全锁需要额外的费用
- 可以提供截短服务

可以提供:

带涂层的延长杆——用于重载加工，确保顺利的热缩装拆

#### Version: conical, long

- Shank tolerance: h6
- With inner coolant bore
- Vibration dampening on request
- Safe-Lock for an extra charge
- Cutting to length possible for an extra charge

Also available:

Extensions with coating – for perfect shrinking in and out even at high forces during machining

#### Duo-Lock 延长杆圆锥: 长型/Duo-Lock extensions conical: long

接口 Interface DL	订货号 Order No.	带涂层的延长杆的订货号 Order No. with coating	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	外径 $\varnothing$ Outer $\varnothing$ D2 [mm]	内孔直径 $\varnothing$ Internal bore $\varnothing$ D3 [mm]
DL10	75.122.DL10	75.122.DL10.1	12	120	9,6	2,5
DL10	75.162.DL10	75.162.DL10.1	16	160	9,6	2,5
DL10	75.202.DL10	75.202.DL10.1	20	200	9,6	2,5
DL12	75.162.DL12	75.162.DL12.1	16	160	11,5	2,5
DL12	75.202.DL12	75.202.DL12.1	20	200	11,5	2,5
DL16	75.202.DL16	75.202.DL16.1	20	200	15,5	3
DL16	75.252.DL16	75.252.DL16.1	25	250	15,5	3
DL20	75.252.DL20	75.252.DL20.1	25	250	19,3	3
DL25	75.322.DL25	75.322.DL25.1	32	250	24	5
DL32	75.402.DL32	75.402.DL32.1	40	250	31	5
DL32	75.502.DL32	75.502.DL32.1	50	250	31	5

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

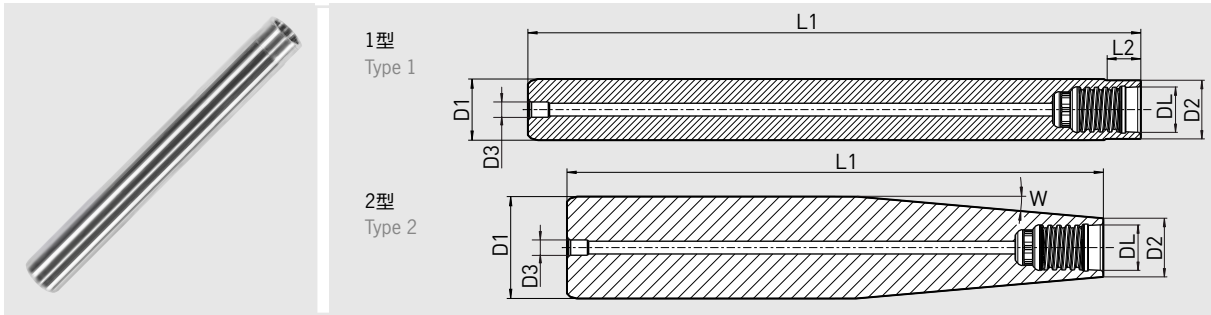
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 重金属延长杆

## DUO-LOCK® EXTENSIONS HEAVY METAL



### 类型：重金属

- L1、L2和角度 W 可以自由选择
- 柄径公差: h6
- 带内冷孔
- Safe-Lock 是选项

### Version: Heavy metal

- Free choice of L1, L2 and angle W
- Shank tolerance: h6
- With inner coolant bore
- Optional with Safe-Lock

接口 Interface DL	订货号 Order No.	柄径 Ø Clamping Ø D1 [mm]	长度 max. Length max. L1 [mm]	内孔直径 Ø Internal bore D3 [mm]
DL10	75.109.DL10.4.XXX.XXX	10	150	2,5
DL10 - DL12	75.129.DLXX.4.XXX.XXX	12	180	2,5
DL10 - DL16	75.169.DLXX.4.XXX.XXX	16	240	3
DL10 - DL20	75.209.DLXX.4.XXX.XXX	20	260	3
DL10 - DL25	75.259.DLXX.4.XXX.XXX	25	260	3
DL10 - DL32	75.329.DLXX.4.XXX.XXX	32	260	5
DL10 - DL32	75.409.DLXX.4.XXX.XXX	40	260	5
DL10 - DL32	75.509.DLXX.4.XXX.XXX	50	260	5

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	15	25	40	60	90	130

注意： 按照规定的方法和扭矩使用以获得较长的系统寿命。  
扭矩值已经标注在延长杆上。

Attention: For long-life cycle of the system, compliance with the torque is required.  
The torque specification is given on the extension.

接口 Interface DL	固定的 Ø Fix Ø D2 [mm]	标准 Standard L2 [mm]
DL10	9,6	5
DL12	11,5	6
DL16	15,5	8
DL20	19,3	10
DL25	24	12,5
DL32	31	16

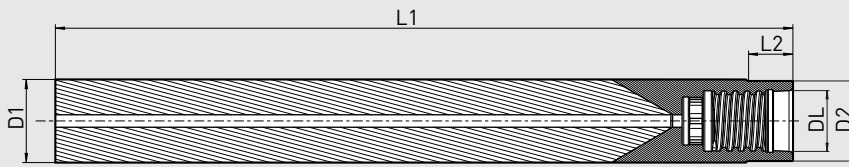
### 订货号说明 / Legend Order No.:

**75.XX9.DLXX.4.XXX.XXX**

- 1型的L2长度 / Length L2 at type 1
- 总长L1 / Total length L1
- 重金属型 / Type heavy metal
- Duo-Lock 尺寸 / Duo-Lock size
- 柄径 / Diameter shank
- Duo-Lock 组 / Duo-Lock group

# DUO-LOCK® 硬质合金延长杆

## DUO-LOCK® EXTENSIONS CARBIDE



### 类型: 硬质合金

- 柄径公差: h6
- 带内冷孔
- Safe-Lock 是选项
- 定制的: L1和L2可以自由选择

### Version: Carbide

- Shank tolerance: h6
- With inner coolant bore
- Optional with Safe-Lock
- Customized: Free choice of L1, L2

### Duo-Lock 硬质合金延长杆: 标准/Duo-Lock extension solid carbide: standard

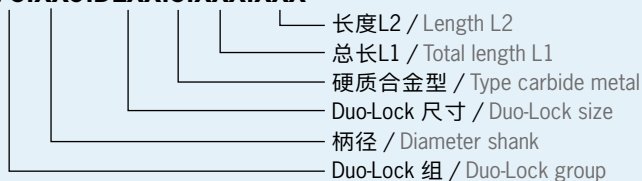
接口 Interface DL	订货号 Order No.	柄径 Ø Clamping Ø D1 [mm]	长度 max. Length max. L1 [mm]	固定的 Ø Fix Ø D2 [mm]	标准 Standard L2 [mm]
DL10	75.109.DL10.5.0775.0375	10	77,5	9,6	37,5
DL10	75.109.DL10.5.150.005	10	150	9,6	5
DL12	75.129.DL12.5.070.030	12	70	11,5	30
DL12	75.129.DL12.5.093.045	12	93	11,5	45
DL12	75.129.DL12.5.180.006	12	180	11,5	6
DL16	75.169.DL16.5.090.042	16	90	15,5	42
DL16	75.169.DL16.5.108.060	16	108	15,5	60
DL16	75.169.DL16.5.240.008	16	240	15,5	8
DL20	75.209.DL20.5.090.045	20	90	19,3	45
DL20	75.209.DL20.5.125.075	20	125	19,3	75
DL20	75.209.DL20.5.260.010	20	260	19,3	10
DL25	75.259.DL25.5.120.050	25	120	24	50
DL25	75.259.DL25.5.165.09375	25	165	24	93,75
DL25	75.259.DL25.5.260.0125	25	260	24	12,5
DL32	75.329.DL32.5.130.070	32	130	31	70
DL32	75.329.DL32.5.180.120	32	180	31	120
DL32	75.329.DL32.5.260.016	32	260	31	16

### Duo-Lock 硬质合金延长杆: 定制的/Duo-Lock extension solid carbide: customized

接口 Interface DL	订货号 Order No.	柄径 Ø Clamping Ø D1 [mm]	长度 max. Length max. L1 [mm]	固定的 Ø Fix Ø D2 [mm]	标准 Standard L2 [mm]
DL10	75.109.DL10.5.XXX.XXX	10	150	9,6	5
DL12	75.129.DL12.5.XXX.XXX	12	180	11,5	6
DL16	75.169.DL16.5.XXX.XXX	16	240	15,5	8
DL20	75.209.DL20.5.XXX.XXX	20	260	19,3	10
DL25	75.259.DL25.5.XXX.XXX	25	260	24	12,5
DL32	75.329.DL32.5.XXX.XXX	32	260	31	16

### 订货号说明 / Legend Order No.:

#### 75.XX9.DLXX.5.XXX.XXX



### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

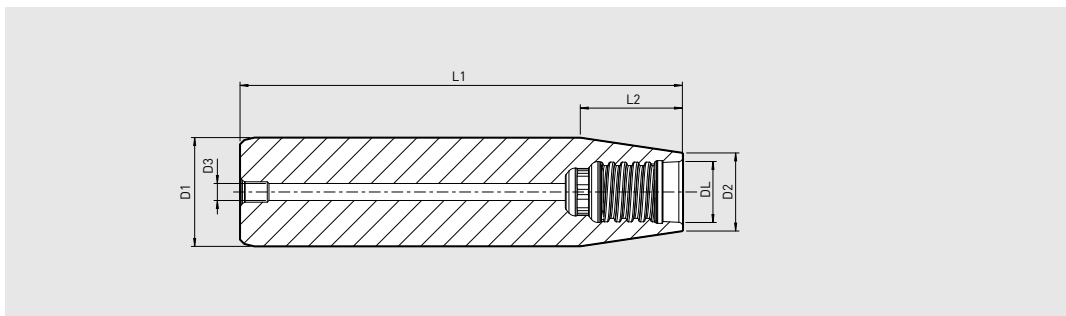
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意: 按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 重载型延长杆—钢

## DUO-LOCK® EXTENSIONS HEAVY DUTY – STEEL



### 类型：重型

- 柄径公差: h6
- 带内冷孔
- Safe-Lock 安全锁是标配

可以提供:

带涂层的延长杆—用于重载加工，确保顺利的热缩装拆

### Version: Heavy Duty

- Shank tolerance: h6
- With inner coolant bore
- With Safe-Lock as standard

Also available:

Extension with coating – for perfect shrinking in and out even at high forces during machining

### Duo-Lock 带Safe-Lock安全锁的重型延长杆/Duo-Lock extensions Heavy Duty with Safe-Lock

接口 Interface DL	订货号 Order No.	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	长度 Length L2 [mm]	外径 $\varnothing$ Outer $\varnothing$ D2 [mm]	内孔直径 $\varnothing$ Internal bore $\varnothing$ D3 [mm]
DL10	75.160.DL10.9	16	62,5	12,5	9,6	2,5
DL12	75.160.DL12.9	16	65	15	11,5	2,5
DL16	75.200.DL16.9	20	72	20	15,5	3
DL20	75.250.DL20.9	25	82	24	19,3	3

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

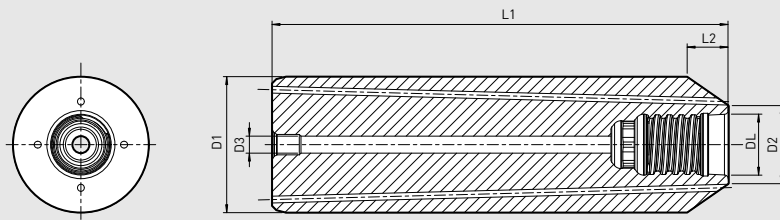
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 模块式带冷却喷孔的重型延长杆——钢

## DUO-LOCK® EXTENSIONS HEAVY DUTY WITH COOL JET – STEEL



### 类型：带冷却喷孔的重型延长杆

- 柄径公差: h6
- 带冷却喷孔
- Safe-Lock 安全锁是标配

可以提供:

带涂层的延长杆—用于重载加工，确保顺利的热缩装拆

### Version: Heavy Duty with Cool Jet

- Shank tolerance: h6
- With Cool Jet
- With Safe-Lock as standard

Also available:

Extension with coating – for perfect shrinking in and out even at high forces during machining

### Duo-Lock 带冷却喷孔的重型延长杆/Duo-Lock extensions Heavy Duty with Cool Jet

接口 Interface DL	订货号 Order No.	柄径 $\varnothing$ Clamping $\varnothing$ D1 [mm]	长度 Length L1 [mm]	长度 Length L2 [mm]	外径 $\varnothing$ Outer $\varnothing$ D2 [mm]	内孔直径 $\varnothing$ Internal bore $\varnothing$ D3 [mm]
DL10	75.160.DL10.82	16	62,5	6	9,6	2,5
DL12	75.200.DL12.82	20	67	6	11,5	2,5
DL16	75.250.DL16.82	25	78	6	15,5	3
DL20	75.320.DL20.82	32	82	6	19,3	3

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

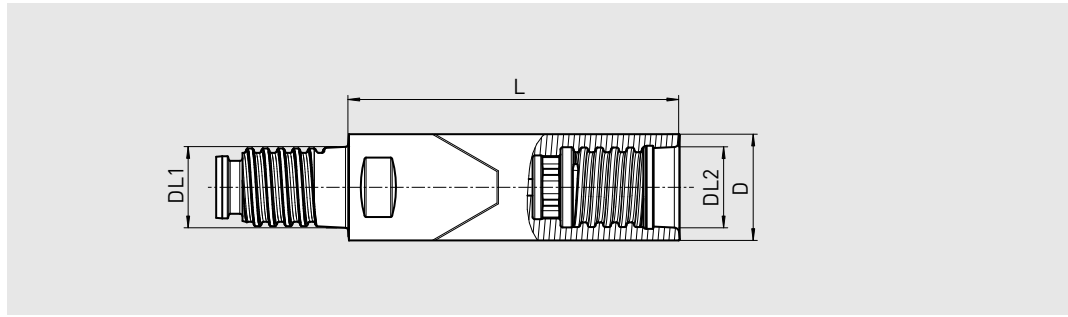
	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

## DUO-LOCK® 硬质合金/钢的延长杆

### DUO-LOCK® CARBIDE/STEEL EXTENSION



直柄硬质合金/钢的延长杆用于快速和高效地接近型腔。

Cylindrical carbide / steel Duo-Lock extension for fast and effective reaching of cavities.

– 带内冷孔

– With inner coolant bore

#### Duo-Lock 延长杆的延长杆/Duo-Lock extension for extension

接口 DL1 Interface DL1	订货号 Order No.	接口 DL2 Interface DL2	外径 $\varnothing D$ [mm] Outer $\varnothing D$ [mm]	长度 L [mm] Length L [mm]
DL10	75.DL10.DL10.030	DL10	9,6	30
DL12	75.DL12.DL12.040	DL12	11,5	40
DL16	75.DL16.DL16.050	DL16	15,5	50
DL20	75.DL20.DL20.060	DL20	19,3	60

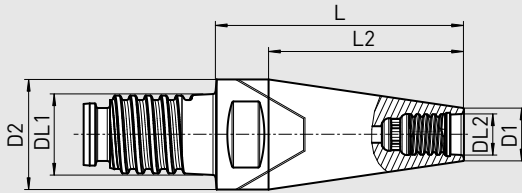
#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20
<b>Nm</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>80</b>

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

## DUO-LOCK® 硬质合金/钢制减径杆 DUO-LOCK® CARBIDE/STEEL REDUCTION



直柄硬质合金/钢的减径杆用于快速和高效地接近型腔。

- 带内冷孔
- 外形尺寸L2可以按需调整，需要额外的费用

Cylindrical carbide / steel Duo-Lock reduction for fast and effective reaching of cavities.

- With inner coolant bore
- External contour adaptation (L2) possible for an extra charge (special request)

### Duo-Lock 减径杆/Duo-Lock reduction for extension

接口 DL1 Interface DL1	订货号 Order No.	接口 DL2 Interface DL2	外径 $\varnothing$ D1 [mm] Outer $\varnothing$ D1 [mm]	外径 $\varnothing$ D2 [mm] Outer $\varnothing$ D2 [mm]	长度 L [mm] Length L [mm]
DL12	75.DL12.DL10.030	DL10	9,6	11,5	30
DL16	75.DL16.DL10.035	DL10	9,6	15,5	35
DL16	75.DL16.DL12.035	DL12	11,5	15,5	35
DL20	75.DL20.DL10.045	DL10	9,6	19,3	45
DL20	75.DL20.DL12.045	DL12	11,5	19,3	45
DL20	75.DL20.DL16.045	DL16	15,5	19,3	45

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20
Nm	20	30	60	80

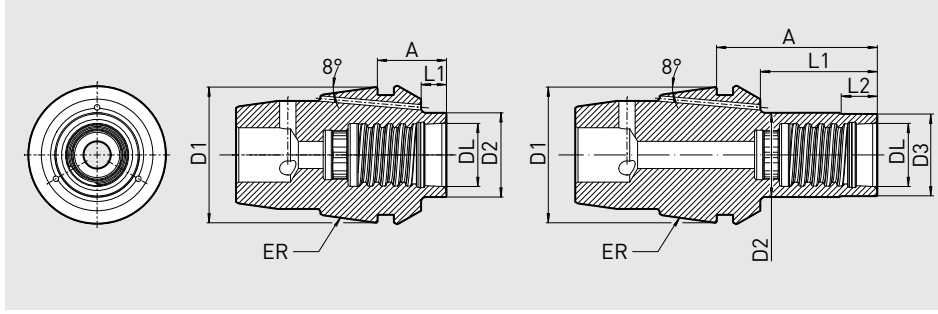
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required



# DUO-LOCK® 模块式筒夹

## DUO-LOCK® COLLETS



- 适用于DL10 – DL25的Duo-Lock模块式刀头
- 兼容现有的ER系统
- 可以选配3个或者6个冷却喷孔
- 附件参见第212页

- Useable for Duo-Lock milling heads from DL10 – DL25
- Compatible with all established ER systems
- Optional with Cool Jet 3 or 6 bores
- Accessories see page 212

### Duo-Lock 模块式筒夹/Duo-Lock collets

订货号 Order No.	ER 尺寸 ER Size	名义 Ø Nominal Ø D1 [mm]	长度 Length A [mm]	长度 Length L1 [mm]	长度 Length L2 [mm]	外径 Ø Outer Ø D2 [mm]	颈部直径 Ø Neck Ø D3 [mm]	Duo-Lock 尺寸 Duo-Lock Size DL
81.160.0120.DL10	ER16	16	12	5,3	-	9,6	-	DL10
81.200.0130.DL10	ER20	20	13	5,48	-	9,6	-	DL10
81.200.0140.DL12	ER20	20	14	6,48	-	11,5	-	DL12
81.250.0135.DL10	ER25	25	13,5	5,5	-	9,6	-	DL10
81.250.0145.DL12	ER25	25	14,5	6,5	-	11,5	-	DL12
81.250.0135.DL16	ER25	25	13,5	5,5	-	15,5	-	DL16
81.320.0140.DL10	ER32	32	14	5	-	9,6	-	DL10
81.320.0355.DL10	ER32	32	35,5	26,5	5	10	9,6	DL10
81.320.0150.DL12	ER32	32	15	6	-	11,5	-	DL12
81.320.0365.DL12	ER32	32	36,5	27,5	6	12	11,5	DL12
81.320.0170.DL16	ER32	32	17	8	-	15,5	-	DL16
81.320.0355.DL16	ER32	32	35,5	26,5	8	16	15,5	DL16
81.320.0190.DL20	ER32	32	19	10	-	19,3	-	DL20
81.320.0355.DL20	ER32	32	35,5	26,5	10	20	19,3	DL20
81.320.0215.DL25	ER32	32	21,5	12,5	-	24	-	DL25
81.320.0407.DL25	ER32	32	40,75	31,75	-	24	-	DL25

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

### 配件/Accessories

带3个冷却喷孔/Cool Jet with 3 coolant bores

订货号/Order No. **91.100.25**

带6个冷却喷孔/Cool Jet with 6 coolant bores

订货号/Order No. **91.100.31**



在动力刀座上同样可以使用我们的热缩筒夹。

附件参见第736页。

Alternatively we recommend to use our shrink fit collets in driven tools.

See accessories from page 736.

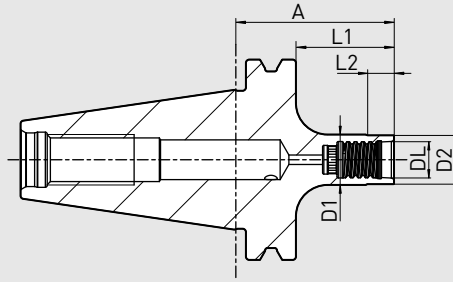
# DUO-LOCK® 整体式刀柄

## DUO-LOCK® MONOBLOCK HOLDER

### DIN 69871 · SK40

#### 质量证书

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced
- G2.5 25.000 1/min
- 或/or U<1 gmm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 锥度公差 AT3
- ✓ Taper tolerance AT3
- ✓ 切削液供给采用AD/AF型
- ✓ Coolant supply form AD/AF



Duo-Lock 整体式刀柄可以直接安装刀头。  
非常适合短悬伸的铣削应用。

Duo-Lock Monoblock holder for direct clamping.  
Perfectly suitable for milling with short overhang.

DIN ISO 7388-1(旧标准 DIN 69871) SK40 AD/AF型冷却方式的锥柄刀柄

With taper SK40 form AD/AF DIN ISO 7388-1 (previously DIN 69871).

AD/AF型：中心冷却或可密封的法兰冷却

Form AD/AF means: central coolant supply and coolant channels on the collar which can be sealed again.

- 所有的刀柄带内冷通道
- 硬度为 HRC 54-2

- All holders incl. inner coolant
- Hardened 54-2 HRC

#### SK40

接口/Interface	DL10	DL12	DL16	DL20	DL25	DL32	
∅ D1 [mm]	10	12	16	20	25	32	
∅ D2 [mm]	9,6	11,5	15,5	19,3	24	31	
L1 [mm]	21,9	21,9	30,9	30,9	36,9	45,9	
L2 [mm]	5	6	8	10	12,5	16	
长度/Length A [mm]	短/short	41	41	50	50	56	65
订货号/Order No.	40.490.DL...	10	12	16	20	25	32

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

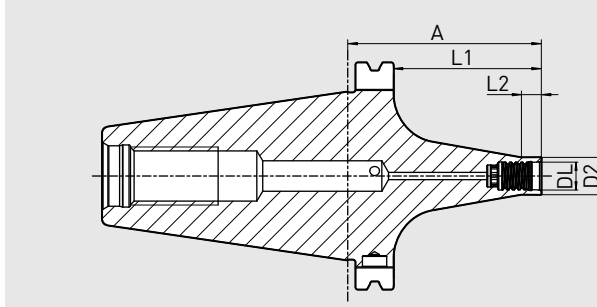
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 整体式刀柄

## DUO-LOCK® MONOBLOCK HOLDER

### DIN 69871 · SK50



#### CERTIFICATE OF QUALITY

- ✓ 刀柄精动平衡  
Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ✓ 所有功能面精细加工  
All functional surfaces fine machined
- ✓ 锥度公差 AT3  
Taper tolerance AT3
- ✓ 切削液供给采用AD/AF型  
Coolant supply form AD/AF

Duo-Lock 整体式刀柄可以直接安装刀头。  
非常适合铣削应用和磨削 DUO-LOCK 模块式铣刀的刀头。

Duo-Lock Monoblock holder for direct clamping.  
Perfectly suitable for milling and also for grinding Duo-Lock blanks.

DIN ISO 7388-1(旧标准 DIN 69871) SK50 AD/AF型冷却方式的锥柄刀柄

With taper SK50 form AD/AF DIN ISO 7388-1 (previously DIN 69871).

AD/AF型：中心冷却或可密封的法兰冷却

Form AD/AF means: central coolant supply and coolant channels through the flange which can be sealed again.

- 所有的刀柄带内冷通道
- 硬度为 HRC 54-2
- 增强的外形
- 包含磨制的感应器平面并标注修正值

- All holders incl. inner coolant
- Hardened 54-2 HRC
- Reinforced geometry
- Incl. ground sensor surface and labeled correction value

#### SK50

接口/Interface	DL10	DL12	DL16	DL20	DL25	DL32
∅ D2 [mm]	9,6	11,5	15,5	19,3	24	31
L1 [mm]	60,9	60,9	60,9	60,9	60,9	60,9
L2 [mm]	5	6	8	10	12,5	16
长度/Length A [mm]	短/short	80	80	80	80	80
订货号/Order No.	50.490.DL...	10	12	16	20	25

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

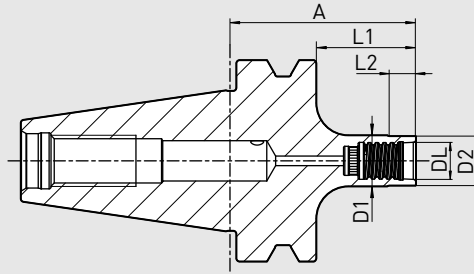
# DUO-LOCK® 整体式刀柄

## DUO-LOCK® MONOBLOCK HOLDER

### JIS B 6339 · BT40

#### 质量证书

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 锥度公差 AT3
- ✓ Taper tolerance AT3
- ✓ 切削液供给采用JD/JF型
- ✓ Coolant supply form JD/JF



Duo-Lock 整体式刀柄可以直接安装刀头。  
非常适合短悬伸的铣削应用。

Duo-Lock Monoblock holder for direct clamping.  
Perfectly suitable for milling with short overhang.

JD/JF型 JIS B 6339-2 BT40 锥柄

With steep taper BT40 Form JIS B 6339.

JD/JF型：中心冷却或可密封的法兰冷却

Form JD/JF means: central coolant supply and coolant channels on the collar which can be sealed again.

- 所有的刀柄带内冷通道
- 硬度为 HRC 54-2

- All holders incl. inner coolant
- Hardened 54-2 HRC

#### BT40

接口/Interface		DL10	DL12	DL16	DL20	DL25	DL32
∅ D1 [mm]		10	12	16	20	25	32
∅ D2 [mm]		9,6	11,5	15,5	19,3	24	31
L1 [mm]		22	22	31	31	33	41
L2 [mm]		5	6	8	10	12,5	16
长度/Length A [mm]	短/short	49	49	58	58	60	68
订货号/Order No.	40.690.DL...	10	12	16	20	25	32

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
<b>Nm</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>130</b>

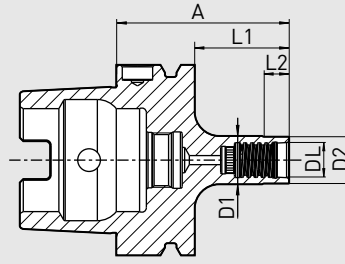
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 整体式刀柄

## DUO-LOCK® MONOBLOCK HOLDER

### DIN 69893-1 · HSK-A63



#### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡  
✓ Chuck body fine balanced  
G2.5 25,000 1/min  
或/or U<1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN

Duo-Lock 整体式刀柄可以直接安装刀头。  
非常适合短悬伸的铣削应用。

- 所有的刀柄带内冷通道
- 硬度为 HRC 54-2

Duo-Lock Monoblock holder for direct clamping.  
Perfectly suitable for milling with short overhang.

- All holders incl. inner coolant
- Hardened 54-2 HRC

#### HSK-A63

接口/Interface	DL10	DL12	DL16	DL20	DL25	DL32	
∅ D1 [mm]	10	12	16	20	25	32	
∅ D2 [mm]	9,6	11,5	15,5	19,3	24	31	
L1 [mm]	22	26	31	31	35	46	
L2 [mm]	5	6	8	10	12,5	16	
长度/Length A [mm]	短/short	48	52	57	57	61	72
订货号/Order No.	A63.190.DL...	10	12	16	20	25	32

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。  
Attention: For long-life cycle of the system, compliance with the torque is required

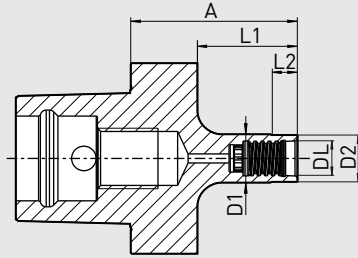
# DUO-LOCK® 整体式刀柄

## DUO-LOCK® MONOBLOCK HOLDER

### ISO 26623-1 · PSC 63

#### 质量证书

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced  
G2.5 25,000 1/min  
或/or U<1 gmm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN



Duo-Lock 整体式刀柄可以直接安装刀头。  
非常适合短悬伸的铣削应用。

- 所有的刀柄带内冷通道
- 硬度为 HRC 54-2

Duo-Lock Monoblock holder for direct clamping.  
Perfectly suitable for milling with short overhang.

- All holders incl. inner coolant
- Hardened 54-2 HRC

#### PSC 63

接口/Interface		DL10	DL12	DL16	DL20	DL25	DL32
∅ D1 [mm]		10	12	16	20	25	32
∅ D2 [mm]		9,6	11,5	15,5	19,3	24	31
L1 [mm]		28	28	33	33	38	46
L2 [mm]		5	6	8	10	12,5	16
长度/Length A [mm]	短/short	50	50	55	55	60	68
订货号/Order No.	CC6.190.DL...	10	12	16	20	25	32

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20	DL25	DL32
Nm	20	30	60	80	100	130

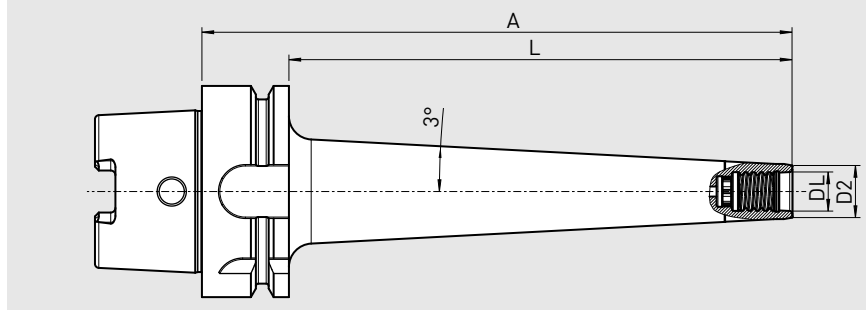
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 模块式模具专用刀柄

## DUO-LOCK® DIE AND MOLD CHUCK

### DIN 69893-1 · HSK-A63



Duo-Lock 模块式模具专用刀柄可以直接安装模块式铣刀头

Duo-Lock Die and Mold Chuck for direct Duo-Lock clamping.

- 带内冷孔
- 稳定性良好的3° 避空角度适用于斜面的铣削
- 硬质合金的芯部有助于加长型刀柄的抗振性
- 维修需要额外费用（立铣刀头断在接口内）

- With inner coolant bore
- Stable 3° slant for perfect milling on inclined forms
- Including carbide core for vibration-damped milling with long overhang lengths
- Repair possible for an extra charge (end mill break in interface)

#### HSK-A63

接口 DL Interface DL	订货号 Order No.	外径 Ø D2 [mm] Outer Ø D2 [mm]	长度 L [mm] Length L [mm]	长度 A [mm] Length A [mm]
DL10	A63.180.DL10.100	9,6	100	126
DL10	A63.180.DL10.125	9,6	125	151
DL10	A63.180.DL10.150	9,6	150	176
DL12	A63.180.DL12.100	11,5	100	126
DL12	A63.180.DL12.125	11,5	125	151
DL12	A63.180.DL12.150	11,5	150	176
DL16	A63.180.DL16.100	15,5	100	126
DL16	A63.180.DL16.125	15,5	125	151
DL16	A63.180.DL16.150	15,5	150	176
DL16	A63.180.DL16.175	15,5	175	201
DL16	A63.180.DL16.200	15,5	200	226
DL16	A63.180.DL16.250	15,5	250	276
DL20	A63.180.DL20.100	19,3	100	126
DL20	A63.180.DL20.125	19,3	125	151
DL20	A63.180.DL20.150	19,3	150	176
DL20	A63.180.DL20.175	19,3	175	201
DL20	A63.180.DL20.200	19,3	200	226
DL20	A63.180.DL20.250	19,3	250	276

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20
Nm	20	30	60	80

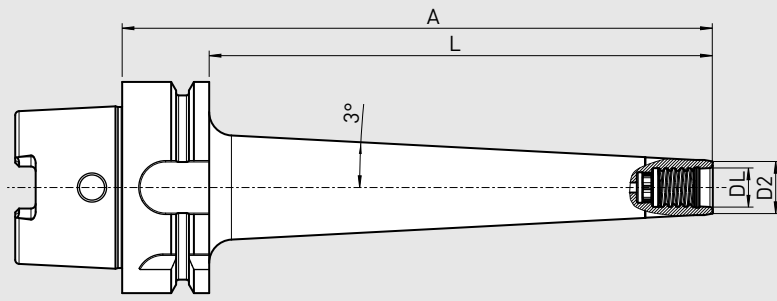
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required

# DUO-LOCK® 模块式模具专用刀柄

## DUO-LOCK® DIE AND MOLD CHUCK

### DIN 69893-1 · HSK-A100



Duo-Lock 模块式模具专用刀柄可以直接安装模块式铣刀头

- 带内冷孔
- 稳定性良好的3° 避空角度适用于斜面的铣削
- 硬质合金的芯部有助于加长型刀柄的抗振性
- 维修需要额外费用（立铣刀头断在接口内）

Duo-Lock Die and Mold Chuck for direct Duo-Lock clamping.

- With inner coolant bore
- Stable 3° slant for perfect milling on inclined forms
- Including carbide core for vibration-damped milling with long overhang lengths
- Repair possible for an extra charge (end mill break in interface)

#### HSK-A100

接口 DL Interface DL	订货号 Order No.	外径 $\varnothing$ D2 [mm] Outer $\varnothing$ D2 [mm]	长度 L [mm] Length L [mm]	长度 A [mm] Length A [mm]
DL10	A10.180.DL10.100	9,6	100	129
DL10	A10.180.DL10.150	9,6	150	179
DL12	A10.180.DL12.100	11,5	100	129
DL12	A10.180.DL12.150	11,5	150	179
DL12	A10.180.DL12.200	11,5	200	229
DL12	A10.180.DL12.250	11,5	250	279
DL16	A10.180.DL16.100	15,5	100	129
DL16	A10.180.DL16.150	15,5	150	179
DL16	A10.180.DL16.200	15,5	200	229
DL16	A10.180.DL16.250	15,5	250	279
DL20	A10.180.DL20.100	19,3	100	129
DL20	A10.180.DL20.150	19,3	150	179
DL20	A10.180.DL20.200	19,3	200	229
DL20	A10.180.DL20.250	19,3	250	279

#### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20
Nm	20	30	60	80

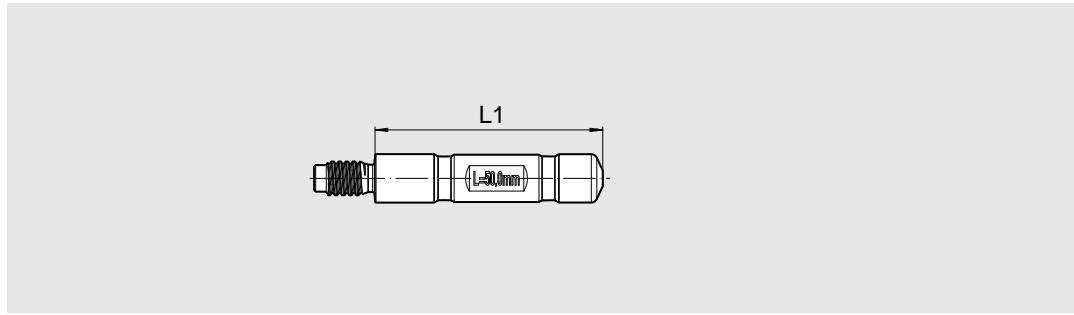
注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

Attention: For long-life cycle of the system, compliance with the torque is required



# DUO-LOCK® 刀长调整工具

## DUO-LOCK® LENGTH PRESETTING TOOL

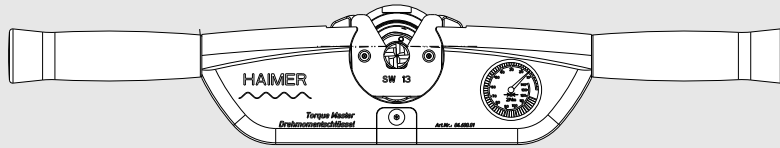


- 热缩装拆时的辅具
- 用于长度的预调

- Shrinking assistance
- Length presetting

Duo-Lock 刀长调整工具/Duo-Lock length presetting tool	
订货号/Order No.	尺寸/Size
75.000.DL10	DL10
75.000.DL12	DL12
75.000.DL16	DL16
75.000.DL20	DL20
75.000.DL25	DL25
75.000.DL32	DL32

## DUO-LOCK® 扭力扳手 DUO-LOCK® TORQUE MASTER



### Duo-Lock 扭力扳手采用双臂操作

- 跳动精度更高，避免单臂操作的问题
- 持续施力的方式优化了能量的传递
- 由于采用表盘显示，该扭力扳手的夹持精度和重复精度很高
- 实现很大的扭矩，达到很高的夹持力
- 对小直径刀头的夹持不会过载
- 通过更换插件，可以用于标准ER锁紧螺母
- D16-32接口使用长手柄

### Two-armed torque wrench for Duo-Lock

- For highest runout accuracy, avoids one-sided clamping
- Optimal power transmission by constant force application
- Torque wrench for highest clamping accuracy and repeatability with dial gauge
- Maximum torque for highest clamping force
- No overloading of smaller clamping diameters
- Changeable inserts, useable also for standard ER-Nuts
- Extended grips for DL16 – DL32

### Duo-Lock 模块式刀具的扭力扳手/Torque wrench for Duo-Lock

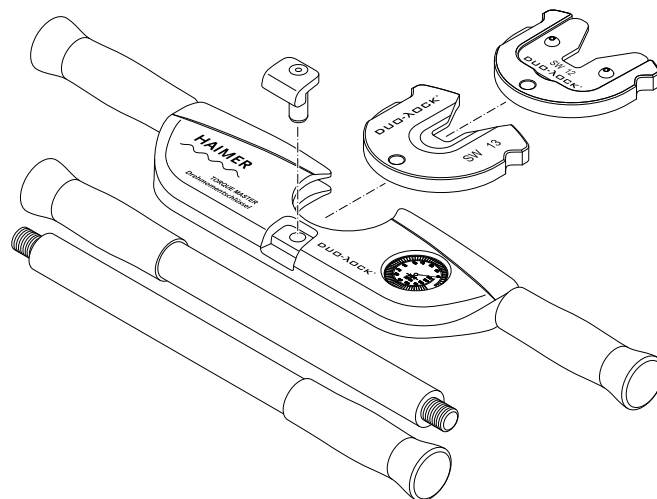
<b>Duo-Lock 扭力扳手套装含包装盒，6个插件和长手柄</b> Torque Master Set Duo-Lock with case, 6 inserts and grip sets, long	<b>84.600.20.AK</b>
<b>Duo-Lock 扭力扳手（包含长手柄，不含插件）</b> Torque Master Duo-Lock incl. grip set long (without inserts)	<b>84.600.20</b>
<b>Duo-Lock 用于扭力扳手的长手柄</b> Grip set long for Torque Master Duo-Lock	<b>84.600.10.1</b>

### Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

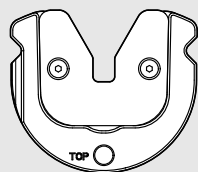
	DL10	DL12	DL16	DL20	DL25	DL32
<b>Nm</b>	<b>20</b>	<b>30</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>130</b>

注意：按照规定的方法和扭矩使用以获得较长的系统寿命。

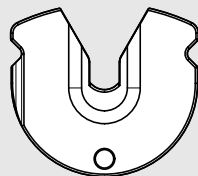
Attention: For long-life cycle of the system, compliance with the torque is required



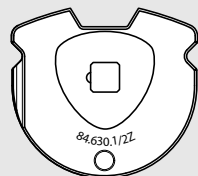
## DUO-LOCK® 扭力扳手的插件 INSERTS FOR DUO-LOCK® TORQUE MASTER



DL10 – DL12: 带磨损后可更换的插片  
DL10 – DL12: with Wear insert



DL16 – DL32: 整体式插件  
DL16 – DL32: Made of a single piece



适用于各种常见的带1/2"方孔的套筒扳手的插件  
To insert all common square socket wrenches with 1/2"



- Duo-Lock 扭力扳手用的可换式插件
- 适用于 Duo-Lock 铣刀刀头

- Exchangeable inserts for Duo-Lock Torque Master
- Suitable for Duo-Lock milling heads

插件/Inserts		
订货号/Order No.	尺寸/Size	SW/AF [mm]
84.640.10	DL10	8
84.640.12	DL12	9,5
84.640.16	DL16	13
84.640.20	DL20	16
84.640.25	DL25	21
84.640.32	DL32	28
84.630.1/2Z	适用于各种常见的带1/2"方孔的套筒扳手的插件 To insert all common square socket wrenches with 1/2"	

### 配件/Accessories

#### 磨损后可更换的插片/Wear insert

尺寸/Size	DL10	DL12
订货号/Order No. 84.640...	 .10.1	 .12.1

# 用于夹紧 DUO-LOCK® 模块式铣刀头棒料的滚针轴承套筒扳手 ROLLER BEARING WRENCH FOR CLAMPING DUO-LOCK® BLANKS

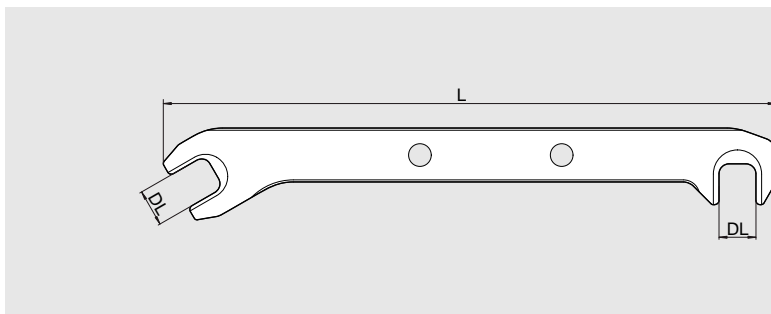


- 适用于DL10 - DL20接口的Duo-Lock模块式铣刀头的棒料
- 适用于带1/2"方孔的套筒式棘轮扳手
- Useable for Duo-Lock blanks from DL10 - DL20
- For square socket ratchet with 1/2"

## 滚针轴承扳手/Roller Bearing Wrench

订货号/Order No.	尺寸/Size
84.645.DL10	DL10
84.645.DL12	DL12
84.645.DL16	DL16
84.645.DL20	DL20

## DUO-LOCK® 扳手 DUO-LOCK® HAND WRENCH

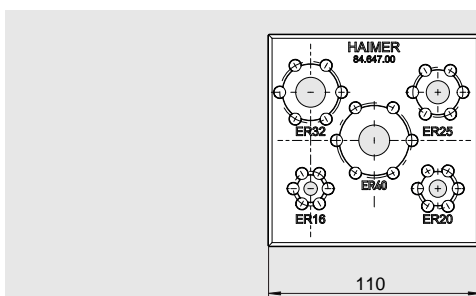
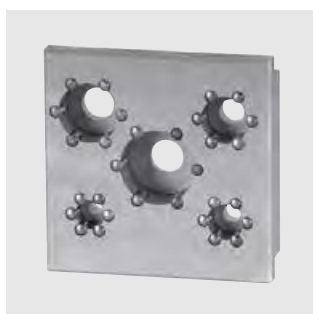


- 适用于DL10 – DL20接口的Duo-Lock模块式铣刀头
- 适用于直接在车床内更换Duo-Lock模块式铣刀头

- Useable for Duo-Lock tool heads from DL10 – DL20
- For replacing Duo-Lock tool heads directly in the lathe

Duo-Lock 扳手/Duo-Lock Hand wrench		
订货号/Order No.	尺寸/Size	总长度 L/Overall length L [mm]
84.647.DL10	DL10	196
84.647.DL12	DL12	199
84.647.DL16	DL16	217
84.647.DL20	DL20	236

## DUO-LOCK® 模块式筒夹的锁刀座 DUO-LOCK® COLLETS CLAMPING DEVICE



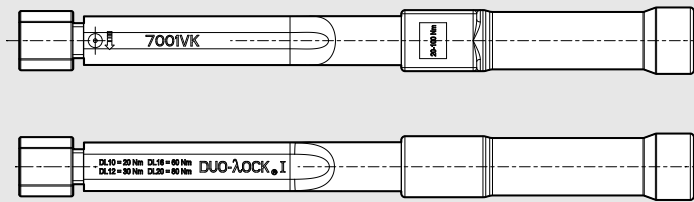
- 适用于 Duo-Lock 模块式筒夹 ER16, ER20, ER25, ER32, ER40
- 专用的夹持面方便使用虎钳夹持

- Useable for Duo-Lock collets from ER16, ER20, ER25, ER32, ER40
- Clamping surfaces for the tension in the vice

Duo-Lock 模块式筒夹的锁刀座/Duo-Lock collets clamping device	
订货号/Order No.	尺寸/Size
84.647.00	ER16, ER20, ER25, ER32, ER40

## 7001 扭力扳手 DL10 – DL20

### 7001 TORQUE WRENCH DL10 – DL20



- 7001 带转换棘轮的扭力扳手
  - 用于在车床上更换 Duo-Lock 铣刀刀头
  - 扭矩：20 – 100Nm
  - 用于 DL10 – DL20的 Duo-Lock 铣刀刀头
  - 联接部位的尺寸是 9X12 mm
  - 应用：顺时针或者逆时针旋转可调
- 7001 torque wrench with changeover ratchet
  - For changing Duo-Lock tool heads directly in the lathe
  - Torque: 20 – 100 Nm
  - Useable for Duo-Lock milling heads from DL10 – DL20
  - Connecting size 9 x 12 mm
  - Changeable to clockwise and counter clockwise

扭力扳手，用于 Duo-Lock/Torque wrench for Duo-Lock

订货号/Order No.

7001 扭力扳手 9 x 12 mm

7001 Torque wrench 9 x 12 mm

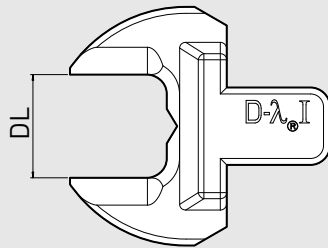
82.587.00

Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL10	DL12	DL16	DL20
Nm	20	30	60	80

## DUO-LOCK® 用于 7001 扭力扳手的插件

### DUO-LOCK® INSERTS FOR 7001 TORQUE WRENCH



- 用于在车床上更换 Duo-Lock 铣刀刀头
  - 用于7001 扭力扳手的可换式插件
  - 用于 DL10– DL20 的 Duo-Lock 铣刀刀头
  - 联接部位的尺寸是 9X12mm
- For changing Duo-Lock tool heads directly in the lathe
  - Changeable inserts for 7001 torque wrench
  - Useable for Duo-Lock milling heads from DL10 – DL20
  - Connecting size 9 x 12 mm

插件/Insert

订货号/Order No.

尺寸/Size

82.587.DL10

DL10

82.587.DL12

DL12

82.587.DL16

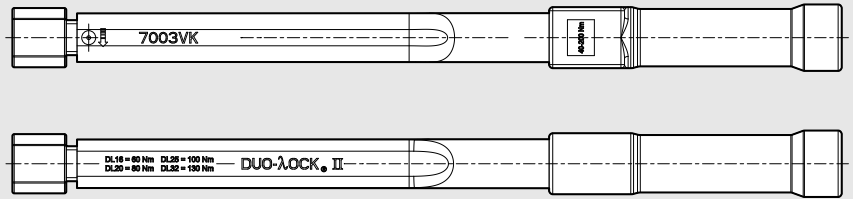
DL16

82.587.DL20

DL20

## 7003 扭力扳手 DL16 – DL32

### 7003 TORQUE WRENCH DL16 – DL32



- 7003 带转换棘轮的扭力扳手
- 用于在车床上更换 Duo-Lock 铣刀刀头
- 扭矩 40 – 200 Nm
- 用于 DL16 – DL32 的 Duo-Lock 铣刀刀头
- 联接部位的尺寸是 14 x 18 mm
- 应用：顺时针或者逆时针旋转可调

- 7003 torque wrench with changeover ratchet
- For changing Duo-Lock tool heads directly in the lathe
- Torque: 40 – 200 Nm
- Useable for Duo-Lock milling heads from DL16 – DL32
- Connecting size 14 x 18 mm
- Changeable to clockwise and counter clockwise

扭力扳手，用于 Duo-Lock/Torque wrench for Duo-Lock

订货号/Order No.

7003 带转换棘轮的扭力扳手 14 x 18 mm  
7003 Torque wrench 14 x 18 mm

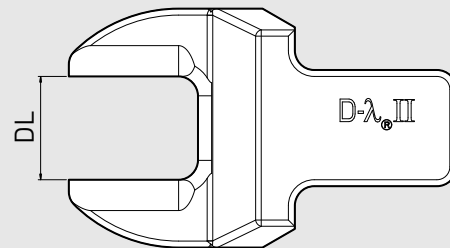
82.588.00

Duo-Lock 接口相应的扭矩/Torque of Duo-Lock interface

	DL16	DL20	DL25	DL32
Nm	60	80	100	130

## DUO-LOCK® 用于 7003 扭力扳手的插件

### DUO-LOCK® INSERTS FOR 7003 TORQUE WRENCH



- 用于在车床上更换 Duo-Lock 铣刀刀头
- 用于 7003 扭力扳手的可换式插件
- 用于 DL16– DL32 的 Duo-Lock 铣刀刀头
- 联接部位的尺寸是 14 x 18 mm

- For changing Duo-Lock tool heads directly in the lathe
- Changeable inserts for 7003 torque wrench
- Useable for Duo-Lock milling heads from DL16 – DL32
- Connecting size 14 x 18 mm

插件/Insert

订货号/Order No.	尺寸/Size
82.588.DL16	DL16
82.588.DL20	DL20
82.588.DL25	DL25
82.588.DL32	DL32



# HAIMER DUO-LOCK®

在车铣复合加工机床上的换刀速度  
更快和加工性能更好

For fastest tool change and highest performance  
in turning and milling applications



# 非标定制表 硬质合金立铣刀

非标询价号

日期

公司	客户号
地址	联系人
邮政编码	电话
省	邮箱

应用工程师
销售工程师
内勤

## 产品组

<input type="checkbox"/> E1012 - Z2	<input type="checkbox"/> F1005 - Z5 Power Series	<input type="checkbox"/> F4002 - Z2 Alu Series
<input type="checkbox"/> E1014 - Z4	<input type="checkbox"/> F1104 - Z4 Power Series	<input type="checkbox"/> F4003 - Z3 Alu Series
<input type="checkbox"/> E1016 - Z6	<input type="checkbox"/> F1105 - Z5 Power Series	<input type="checkbox"/> V1002 - Z2 Power Series
<input type="checkbox"/> F1003 - Z3 Power Series	<input type="checkbox"/> F1304 - Z4 Power Series	<input type="checkbox"/> V4002 - Z2 Alu Series
<input type="checkbox"/> F1004 - Z4 Power Series	<input type="checkbox"/> F2004 - Z4	

## 标准订货号

## 端刃过中心

是  否

## 带断屑槽

是  否

## 柄部

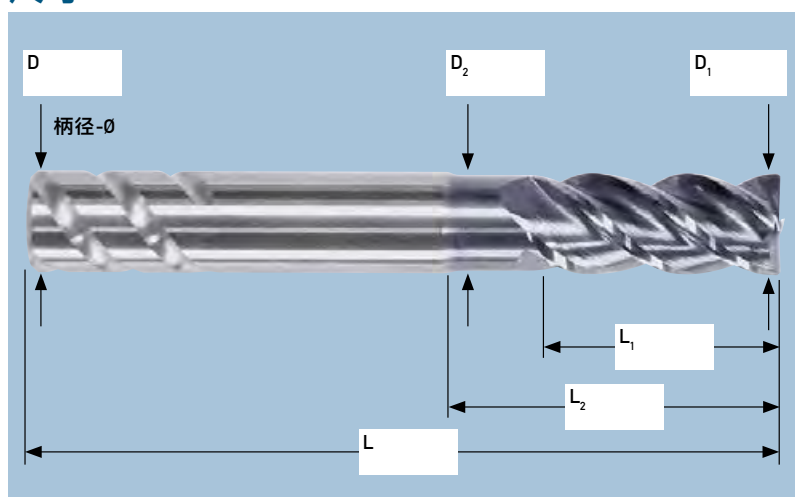
## 尺寸

所有的直径和长度尺寸的单位为 mm

HA 直柄

HB Weldon侧固柄部

Safe-Lock 安全锁柄部



## 刃口几何形状

尖角 (S)

圆角 R

倒角 C

45°

## 涂层

是  否

## 应用领域

材料 (材料号码)	切削深度 $a_p$ mm	切削线速度 $V_c$ m/min
硬度和抗拉强度	切削宽度 $a_e$ mm	每齿走刀量 $F_z$ mm

## 冷却系统

干切

MMS

风冷

冷却液:

## 计算

客户年度销售额	数量	价格	数量	价格
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
客户每年立铣刀销售额	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## 竞争者

客户当前正在使用的

刀具成本

## 备注/应用描述

# FORM SPECIAL REQUEST SOLID CARBIDE END MILL

Special Request Number

Date

Company	Customer-No.
Street	Contact Person
City/Zip Code	Phone
State/Country	Email

Applications Engineer
External Sales Representative
Internal Sales Representative

## Product Groups

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> E1012 – Z2              | <input type="checkbox"/> F1005 – Z5 Power Series | <input type="checkbox"/> F4002 – Z2 Alu Series   |
| <input type="checkbox"/> E1014 – Z4              | <input type="checkbox"/> F1104 – Z4 Power Series | <input type="checkbox"/> F4003 – Z3 Alu Series   |
| <input type="checkbox"/> E1016 – Z6              | <input type="checkbox"/> F1105 – Z5 Power Series | <input type="checkbox"/> V1002 – Z2 Power Series |
| <input type="checkbox"/> F1003 – Z3 Power Series | <input type="checkbox"/> F1304 – Z4 Power Series | <input type="checkbox"/> V4002 – Z2 Alu Series   |
| <input type="checkbox"/> F1004 – Z4 Power Series | <input type="checkbox"/> F2004 – Z4              |  |

## Standard Article No.

## Center Cutting




- Yes  No

## Chip breaker

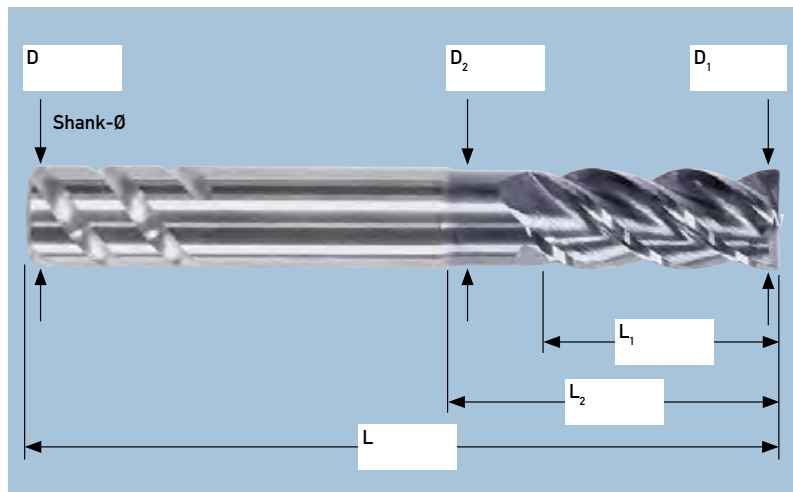
- Yes  No

## Shank




All diameters and lengths in mm

- HA Straight Shank 
- HB Weldon Shank 
- Safe-Lock Shank 

## Dimensions




## Face Geometry

- Sharp Corner (S) 
- Radius R 
- Chamfer C 

## Coating

- Yes  No

## Areas of Application

材料 (材料 Number)	Cutting Depth $a_p$ in mm	Cutting Speed $V_c$ in m/min
Hardness/Tensile Strength	Cutting Width $a_e$ in mm 	Feed per Tooth $F_z$ in mm

## Cooling

- Dry
- MQL
- Air
- Lubricant:

## Calculation

Customer Annual Sales	Quantity	Price	Quantity	Price
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Customer Mills Annual Sales	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Competitor

Customer is currently working with

Cost of the tool

## Comments / Description of Application

# 非标定制表 DUO-LOCK®

非标询价号

日期

公司	客户号
地址	联系人
邮政编码	电话
省	邮箱

应用工程师
销售工程师
内勤

## 产品组

<input type="checkbox"/> E1012 - Z2 Power Series	<input type="checkbox"/> F2003 - Z3	<input type="checkbox"/> H2004 - HF Series
<input type="checkbox"/> E1014 - Z4 Power Series	<input type="checkbox"/> F2004 - Z4	<input type="checkbox"/> H2006 - HF Series
<input type="checkbox"/> E1016/18 - Z6/8 Power Series	<input type="checkbox"/> F2006/08/00 - Z6/8/10	<input type="checkbox"/> V2002 - Z2
<input type="checkbox"/> F1004 - Z4 Power Series	<input type="checkbox"/> F2304 - Z4	<input type="checkbox"/> V2004 - Z4
<input type="checkbox"/> F1105 - Z5 Power Series	<input type="checkbox"/> F4002 - Z2 Alu Series	<input type="checkbox"/> V4002 - Z2 Alu Series
	<input type="checkbox"/> F4003 - Z3 Alu Series	

## 标准订货号

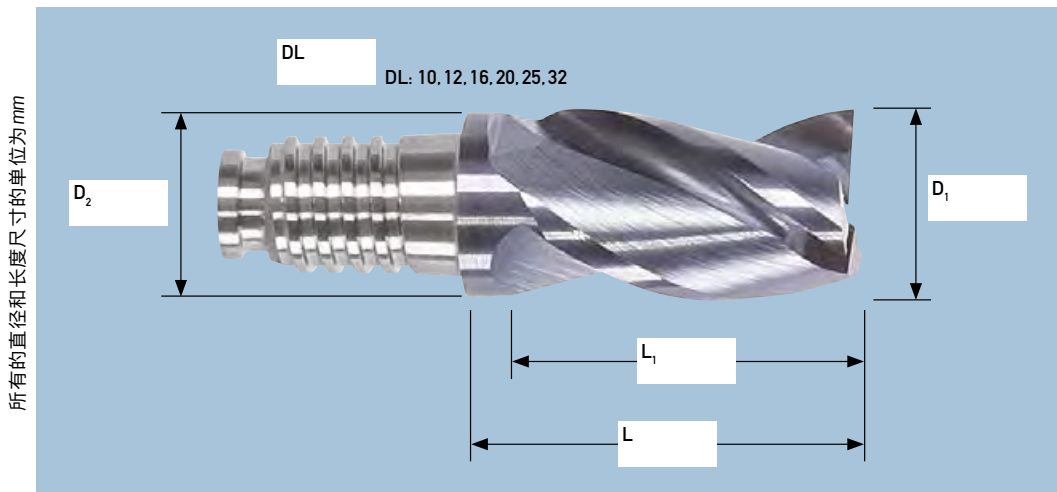
## 端刃过中心

 是  否

## 带断屑槽

 是  否

## 尺寸



## 刃口几何形状

<input type="checkbox"/> 尖角 (S)	
<input type="checkbox"/> 圆角 R	
<input type="checkbox"/> 倒角 C	

## 涂层

 是  否

## 应用领域

材料 (材料号码)	切削深度 $a_p$ mm	切削线速度 $V_c$ m/min
硬度和抗拉强度	切削宽度 $a_e$ mm	每齿走刀量 $F_z$ mm

## 冷却液

<input type="checkbox"/> 干切
<input type="checkbox"/> MMS
<input type="checkbox"/> 风冷
<input type="checkbox"/> 冷却液:

## 计算

客户年度销售额	数量	价格	数量	价格
客户每年立铣刀销售额				

## 竞争者

客户当前正在使用的
刀具成本

## 备注/应用描述

# FORM SPECIAL REQUEST DUO-LOCK®

Special Request Number

Date

Company	Customer-No.
Street	Contact Person
City/Zip Code	Phone
State/Country	Email

Applications Engineer

External Sales Representative

Internal Sales Representative

## Product Groups

<input type="checkbox"/> E1012 – Z2 Power Series	<input type="checkbox"/> F2003 – Z3	<input type="checkbox"/> H2004 – HF Series
<input type="checkbox"/> E1014 – Z4 Power Series	<input type="checkbox"/> F2004 – Z4	<input type="checkbox"/> H2006 – HF Series
<input type="checkbox"/> E1016/18 – Z6/8 Power Series	<input type="checkbox"/> F2006/08/00 – Z6/8/10	<input type="checkbox"/> V2002 – Z2
<input type="checkbox"/> F1004 – Z4 Power Series	<input type="checkbox"/> F2304 – Z4	<input type="checkbox"/> V2004 – Z4
<input type="checkbox"/> F1105 – Z5 Power Series	<input type="checkbox"/> F4002 – Z2 Alu Series	<input type="checkbox"/> V4002 – Z2 Alu Series
	<input type="checkbox"/> F4003 – Z3 Alu Series	

## Standard Article No.

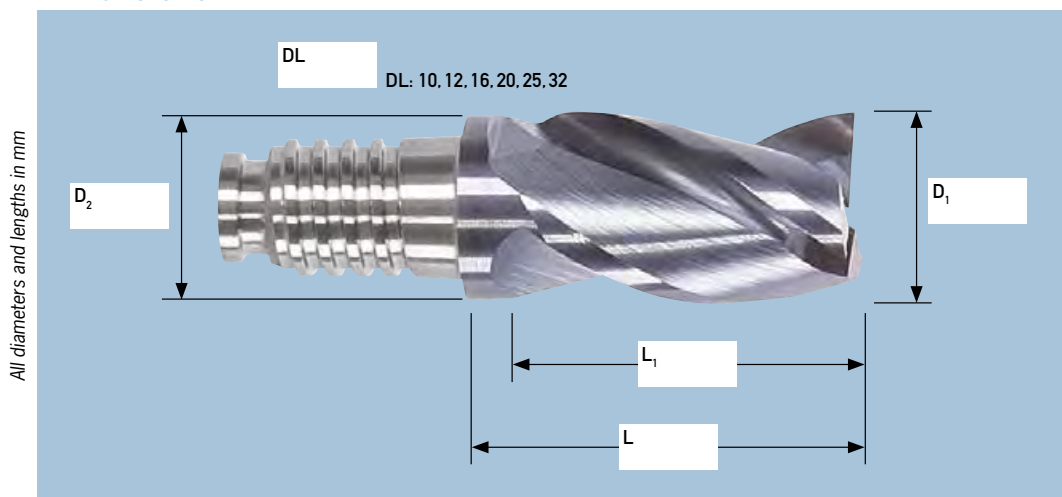
## Center Cutting

Yes  No

## Chip breaker

Yes  No

## Dimensions



## Face Geometry

Sharp Corner (S)

Radius R

Chamfer C

$\neq$

## Coating

Yes  No

## Areas of Application

材料 (材料 Number)	Cutting Depth $a_p$ in mm	Cutting Speed $V_c$ in m/min
Hardness/Tensile Strength	Cutting Width $a_e$ in mm	Feed per Tooth $F_z$ in mm

## Cooling

Dry

MQL

Air

Lubricant:

## Calculation

Customer Annual Sales	Quantity	Price	Quantity	Price
Customer Mills Annual Sales				

## Competitor

Customer is currently working with

Cost of the tool

## Comments / Description of Application

# 非标定制表 带缩颈的立铣刀

非标询价号

---

日期

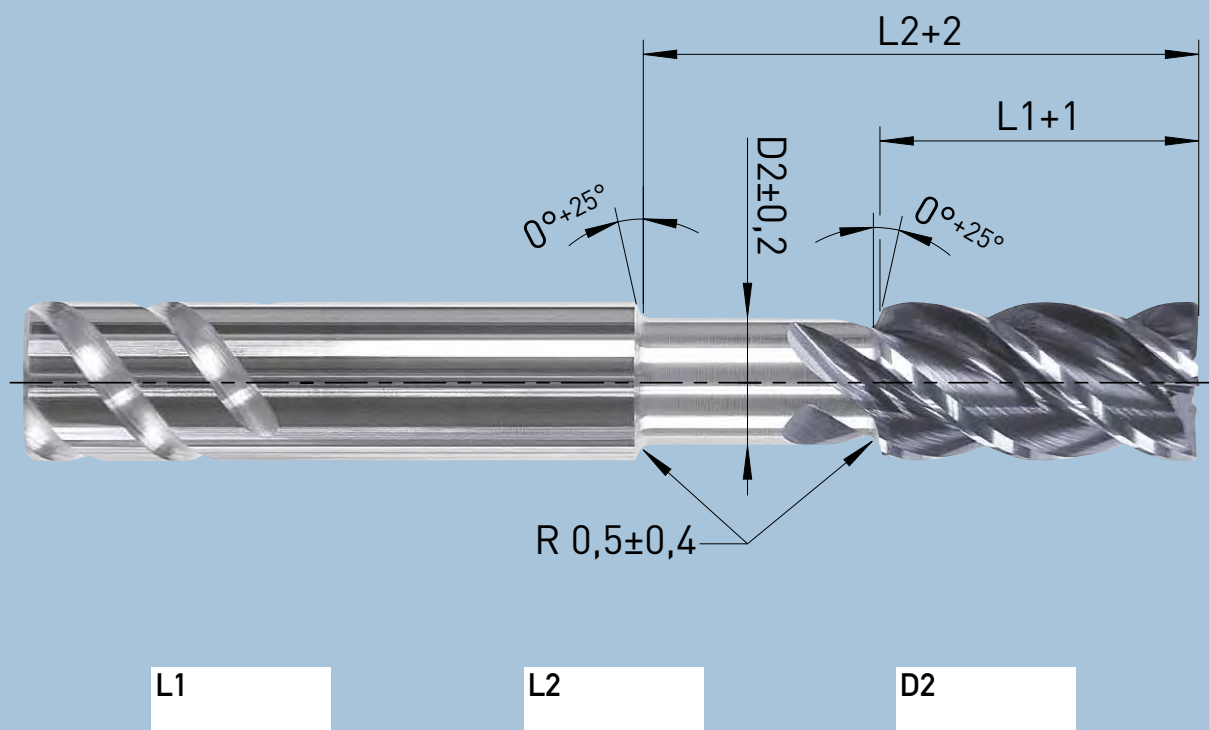
公司	客户号
地址	联系人
邮政编码	电话
省	邮箱

应用工程师
销售工程师
内勤

## 标准订货号

## 尺寸

所有的直径和长度尺寸的单位为mm



## 计算

客户年度销售额	数量	价格	数量	价格
客户每年立铣刀销售额				

## 备注

根据客户的需求增加的缩颈可能影响立铣刀的性能。

## 备注/应用描述

# FORM SPECIAL REQUEST NECK RELEASE END MILL

Special Request Number
Date

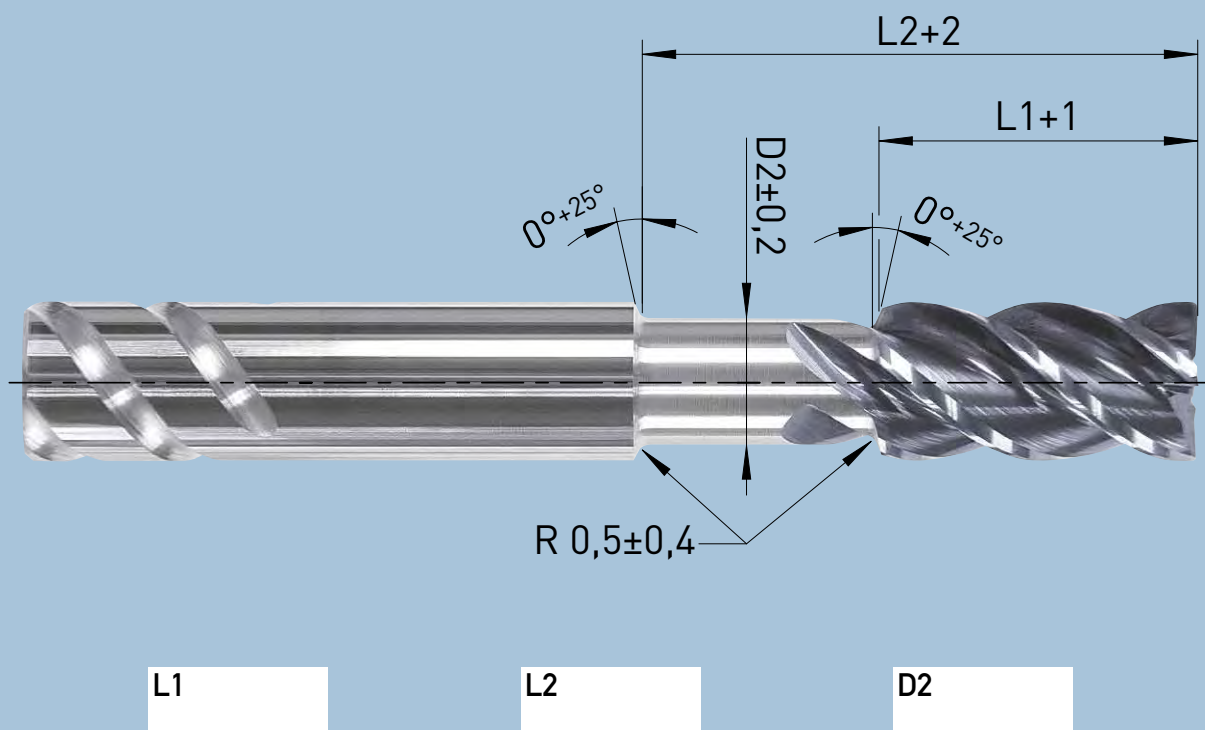
Company	Customer-No.
Street	Contact Person
City/Zip Code	Phone
State/Country	Email

Applications Engineer
External Sales Representative
Internal Sales Representative

## Standard Article No.

## Dimensions

All diameters and lengths in mm



## Calculation

Customer Annual Sales	Quantity	Price	Quantity	Price
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Customer Mills Annual Sales	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Note

A neck release according to the customer's wishes can affect the performance of the end mill.

## Comments / Description of Application

# 非标定制表 DUO-LOCK® 棒料

非标询价号

日期

公司	客户号
地址	联系人
邮政编码	电话
省	邮箱

应用工程师

销售工程师

内勤

## 扳手的夹持平面

- 是  
 否

## 头部直径大于接口尺寸的棒料

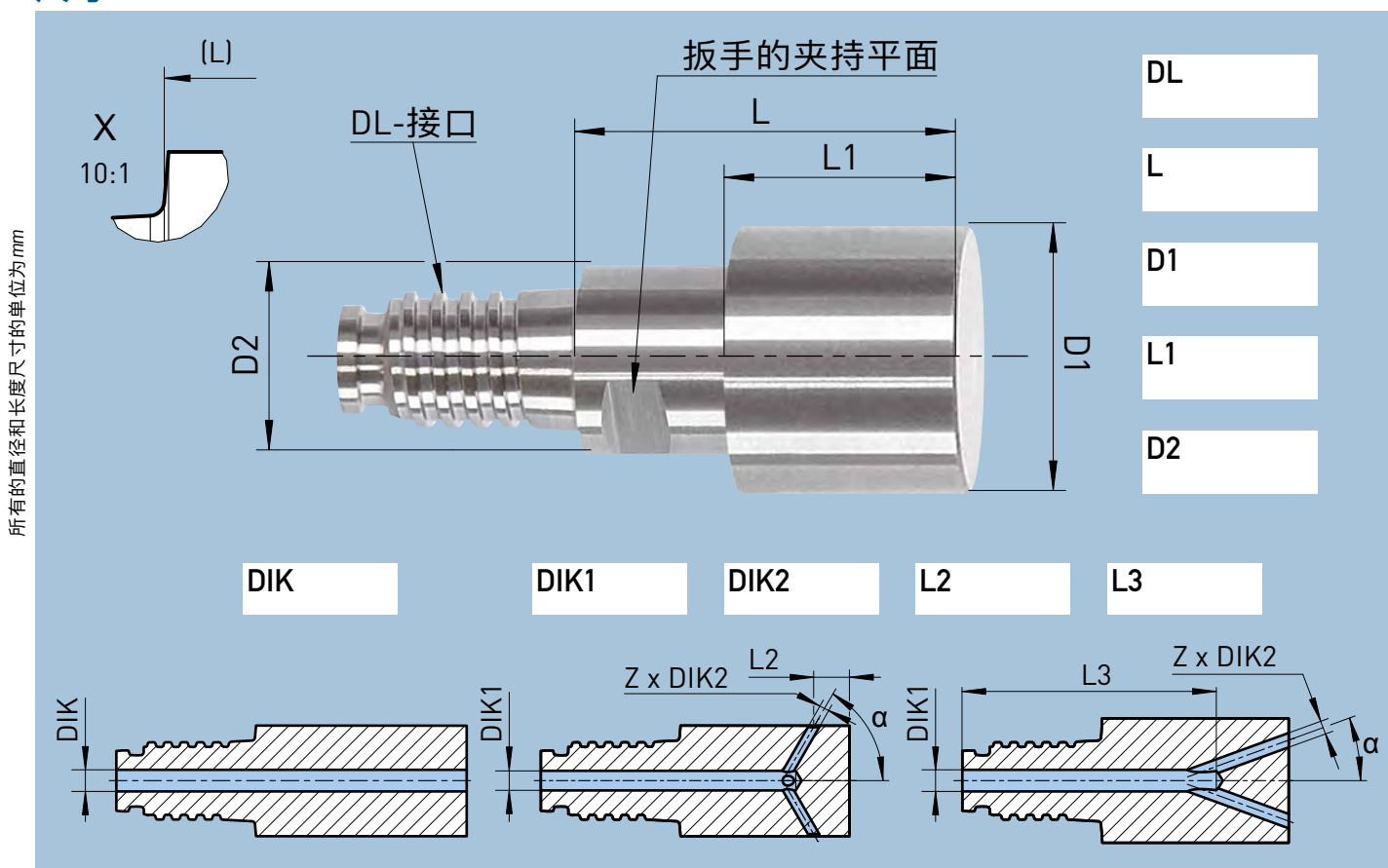
- 是  
 否

## 内冷

- 否  
 中心内冷  
 径向内冷

## 标准订货号

## 尺寸



## 计算

客户年度销售额	数量	价格	数量	价格
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
客户每年立铣刀销售额	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Y径向内冷孔的角度

$\alpha$

## 径向内冷孔的数量

Z

## 备注

# FORM SPECIAL REQUEST DUO-LOCK® BLANK

Special Request Number

Date

Company	Customer-No.
Street	Contact Person
City/Zip Code	Phone
State/Country	Email

Applications Engineer

External Sales Representative

Internal Sales Representative

### Across flats

Yes

No

### Oversize

Yes

No

### Inner Cooling

No

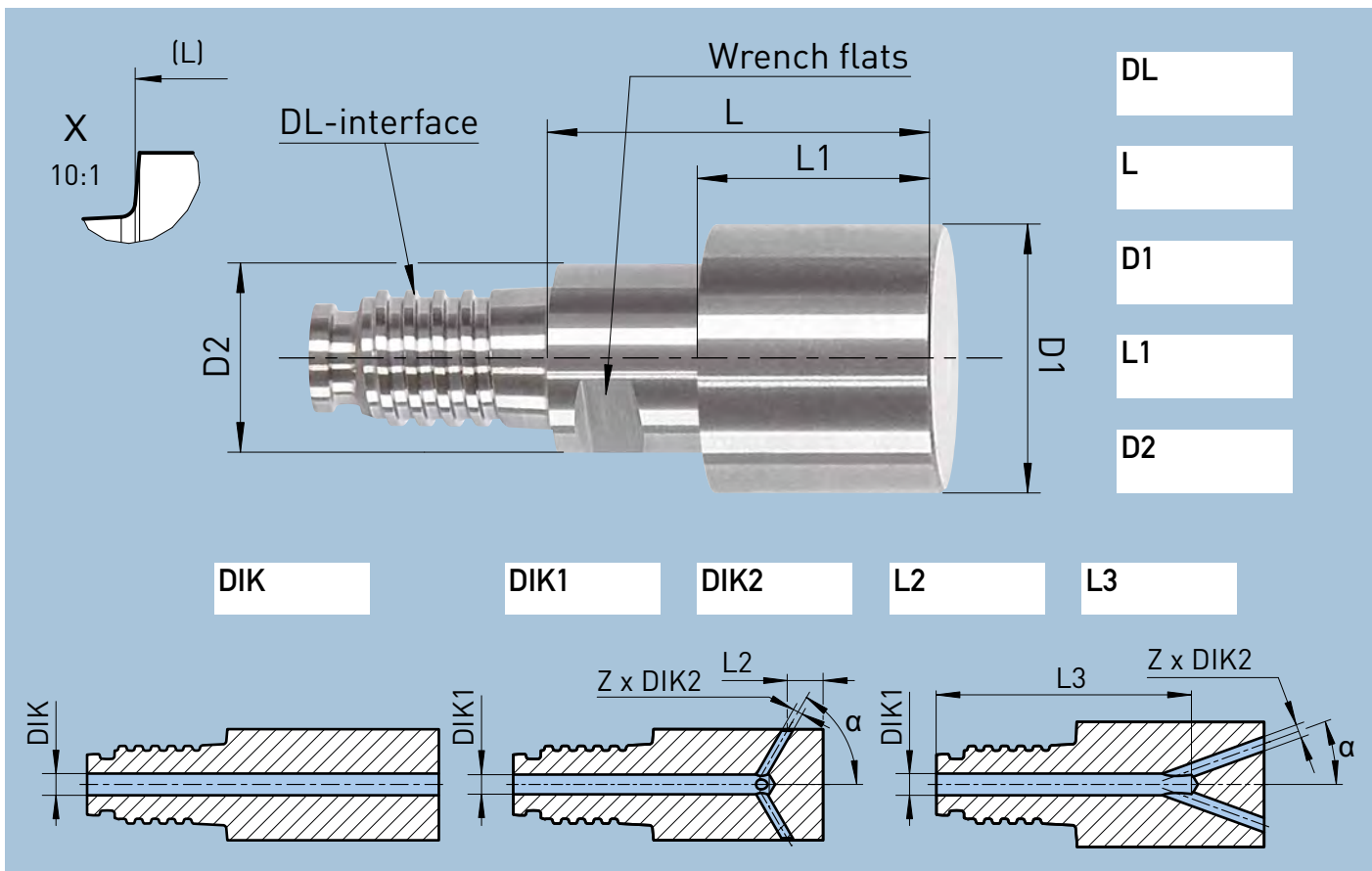
Central Cooling

Y Cooling

### Standard Article No.

### Dimensions

All diameters and lengths in mm



### Calculation

Customer Annual Sales	Quantity	Price	Quantity	Price
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Customer Mills Annual Sales	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Y-Cooling Angle

$\alpha$

Y-Cooling Number

Z

### Comments



# 非标定制表 带缩颈的 DUO-LOCK® 延长杆

非标询价号

日期

公司	客户号
地址	联系人
邮政编码	电话
省	邮箱

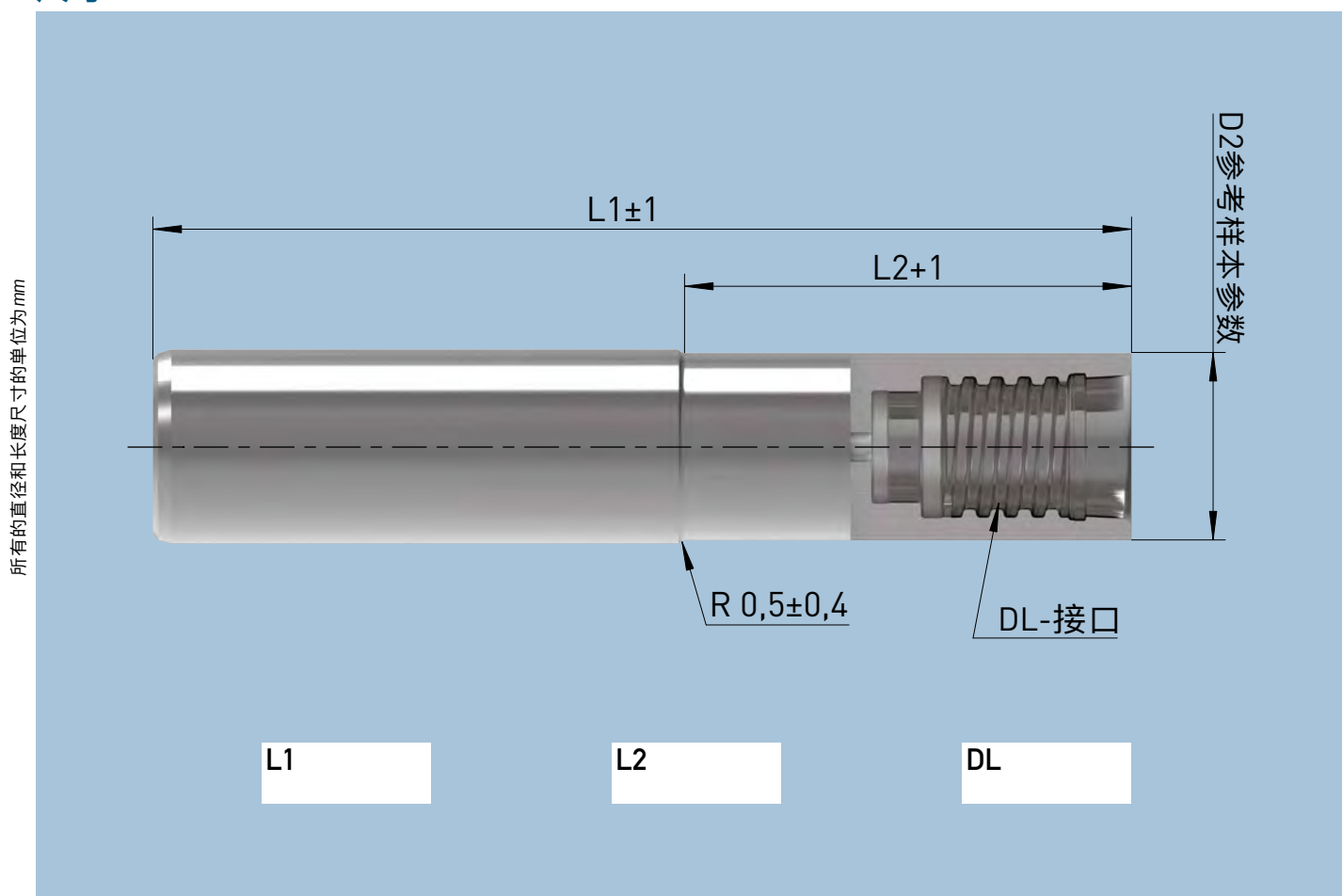
应用工程师

销售工程师

内勤

## 标准订货号

## 尺寸



L1

L2

DL

## 计算

客户年度销售额	数量	价格	数量	价格
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
客户每年立铣刀销售额	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## 备注

根据客户的需求增加的缩颈可能影响DUO-LOCK®-延长杆的稳定性。

## 备注/应用描述

# FORM SPECIAL REQUEST RELIEF DUO-ΛOCK® EXTENSION

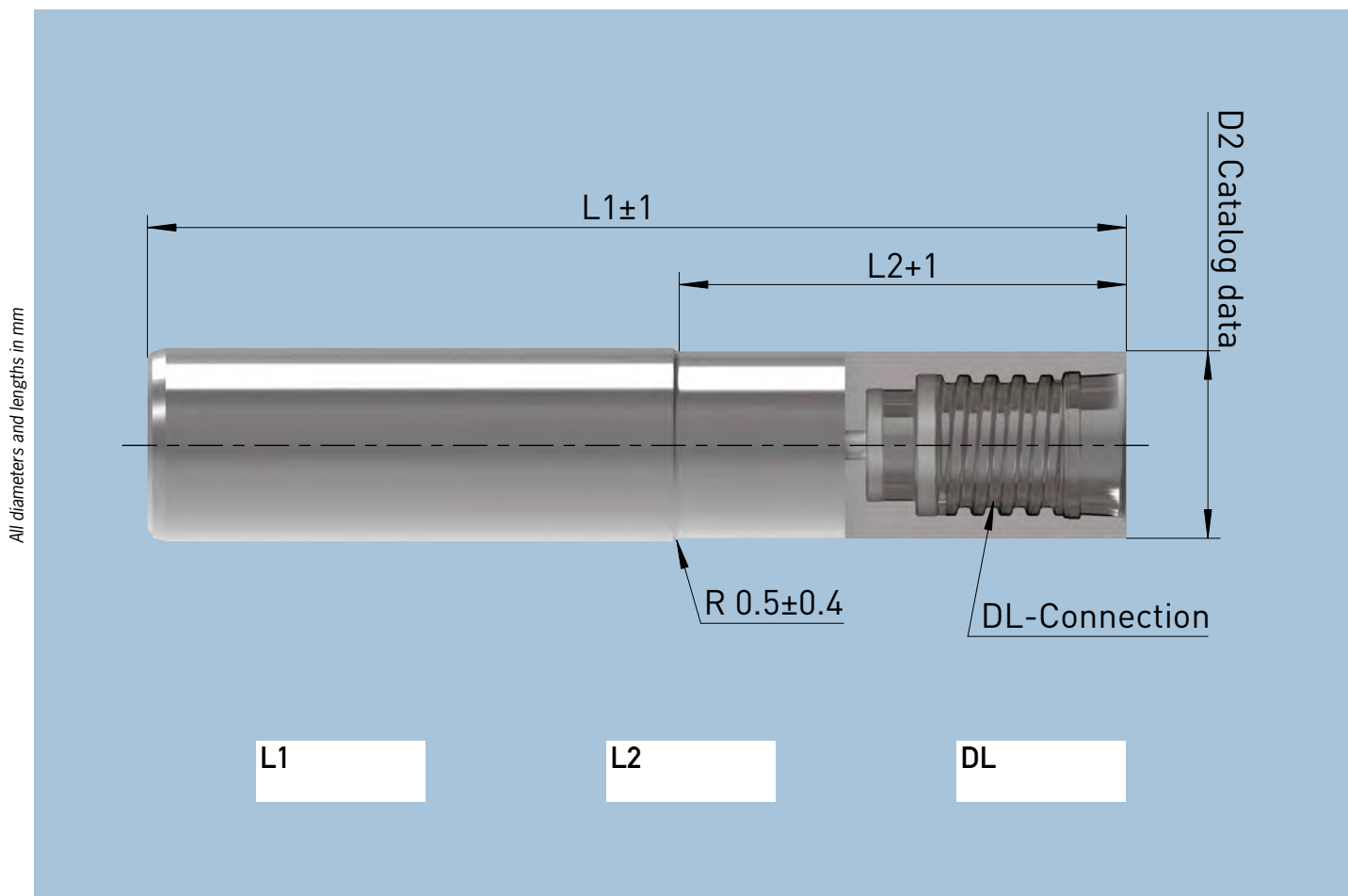
Special Request Number
Date

Company	Customer-No.
Street	Contact Person
City/Zip Code	Phone
State/Country	Email

Applications Engineer
External Sales Representative
Internal Sales Representative

## Standard Article No.

## Dimensions



## Calculation

Customer Annual Sales	Quantity	Price	Quantity	Price
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Customer Mills Annual Sales	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Note

A relief according to the customer's wishes can affect the stability of the DUO-ΛOCK® extension.

## Comments / Description of Application

刀柄

TOOL HOLDERS

<b>翰默刀柄技术概论 / Overview HAIMER Tool Holders</b>	<b>228</b>
应用区域、夹持系统、订货号系统和革新技术的介绍 Application Areas, Clamping Systems, Article Code System, Innovations	
<b>DIN ISO 7388-1 (旧/previously DIN 69871) · SK</b>	<b>241</b>
接口的技术细节 / Technical Details of Interface	242
SK30	246
SK40	247
SK50	268
<b>JIS B 6339-2 · BT</b>	<b>291</b>
接口的技术细节 / Technical Details of Interface	292
BT30	296
BT40	304
BT50	318
<b>类似JIS B6339-2的端面接触的BT刀柄 / Similar JIS B 6339-2 · BT with Face Contact</b>	<b>333</b>
接口的技术细节 / Technical Details of Interface	334
端面接触的BT30刀柄 / BT30 with Face Contact	336
端面接触的BT40刀柄 / BT40 with Face Contact	340
端面接触的BT50刀柄 / BT50 with Face Contact	345
<b>DIN 69893 · HSK-A/HSK-E/HSK-F</b>	<b>347</b>
接口的技术细节 / Technical Details of Interface	348
HSK-A32	352
HSK-A40	357
HSK-A50	364
HSK-A63	371
HSK-A63/80	392
HSK-A80	398
HSK-A100	403
HSK-A125	420
HSK-E25	424
HSK-E32	428
HSK-E40	433
HSK-E50	438
HSK-F63	445
HSK-F80M	448
<b>ISO 26623-1 · PSC 63</b>	<b>451</b>
接口的技术细节 / Technical Details of Interface	452
PSC 63	454
<b>带有防拔出安全锁结构的刀柄 / Safe-Lock Pull Out Protection</b>	<b>461</b>
<b>选项和附件 / Options and Accessories</b>	<b>465</b>
Data-Lock - 机械式数据芯片锁系统 / Data-Lock Mechanical Data Carrier System	465
环绕冷却和冷却喷孔 / Cool Flash & Cool Jet	466
超高精密热缩刀柄 / Ultra-Precision Shrink Fit Chucks	469
扭力扳手和插件 / Torque Master Torque Wrench and Inserts	470
用于高精度筒夹刀柄的滚针轴承扳手 / Roller Bearing Wrench for High Precision Collet Chucks	471
用于高精度筒夹刀柄的圆形锁紧螺母 / Smooth Locknuts for High Precision Collet Chucks	471
强力筒夹 / Power Collets	472

## 适用于各种应用加工技术

从高速的铝加工到钛合金的重型加工，每一个行业对于刀柄都有自己的需求。

为了每个有特殊加工需求的行业，翰默 HAIMER 提供了很优良的夹持技术。针对每个行业，请选择最适合加工需求的产品。在本目录中，将用相应的图标标示出每种产品的适用行业，以便选择。

### 图标/Icon

### 行业/Industry

### 对刀柄的要求



#### 模具和医疗机械

Die and mold, electronics  
and medical engineering

- 高速切削
- 细长型刀具
- 深腔加工
- 高速下的轻切削
- 低振动
- 用于5轴加工中心
- 可以灵活夹持刃具
- 热缩延长杆模块化搭配



#### 汽车行业

Automotive engineering

- 大批量加工中的可靠性
- 加工深孔
- 防拔出的安全锁结构
- 定期采购备件保持高品质



#### 通用机械行业

General mechanical  
engineering

- 灵活夹持刃具
- 通用型刀柄
- 加工时无振动
- 热缩延长杆模块化搭配



#### 航空航天工业

Aerospace industry

- 高速, 低振动的铝合金加工
- 高效切削 (HPC)
- 钛合金加工时保持高刚性和夹持力
- 防拔出的安全锁结构



#### 重工业

Heavy machinery industry

- 大型钢件和铸件的加工, 如齿轮箱
- 低速或者中速的高阻力切削
- 高刚性, 即使在悬升很长位置

## FOR ALL KIND OF MACHINING APPLICATIONS THE SUITABLE CLAMPING TECHNIQUE

Every industry has its specific requirements for tool holding. The range of applications lasts from high speed cutting of aluminum to heavy machining of titanium.

For each industry with its typical machining applications HAIMER offers the right clamping technology. To find the suitable product for your specific application, please choose your industry.

### Requirements to tool holding

### 适用刀柄/Suitable tool holder

- High Speed Cutting (HSC)
- Slim tooling
- Long protruding lengths for deep cavities
- Mostly low cutting forces at high rpm
- Vibration dampening features
- 5-axis-machining
- High flexibility in tool clamping
- Modular system with shrink fit extensions

- 迷你型刀柄/Mini Shrink
- 强力迷你型热缩刀柄/Power Mini Shrink Chuck
- 标准型热缩刀柄和延长杆/  
Shrink Fit Chuck standard and extensions
- 强力筒夹式刀柄/Power Collet Chuck
- 高精度筒夹刀柄/High Precision Collet Chuck
- 后拉式精密刀柄/High-Precision Chuck
- ER筒夹式刀柄/Collet Chuck ER
- 模块式模具专用刀柄/Duo-Lock Die and Mold Chuck

- Process reliability in the series production
- Machining of deep bores
- Pull out protection for cutting tools with Safe-Lock
- Constant high quality in the procurement of spare parts

- 标准型热缩刀柄和延长杆/  
Shrink Fit Chuck standard and extensions
- 强力热缩型刀柄/Power Shrink Chuck
- ER筒夹式刀柄/Collet Chuck ER

- High flexibility of tool clamping
- Tool holders for universal usage
- Vibration-free machining
- Modular system with shrink fit extensions

- 标准型热缩刀柄和延长杆/  
Shrink Fit Chuck standard and extensions
- 强力热缩型刀柄/Power Shrink Chuck
- ER筒夹式刀柄/Collet Chuck ER
- 后拉式精密刀柄和延长杆/  
High-Precision Chuck and extensions
- 强力筒夹刀柄/Power Collet Chuck
- 高精度筒夹刀柄/High Precision Collet Chuck

- Low vibrations at high speed for aluminum cutting
- High cutting capacity (High Performance Cutting, HPC)
- Extreme rigidity and clamping force for titanium machining
- Pull out protection for cutting tools with Safe-Lock




















- 标准型热缩刀柄和延长杆/  
Shrink Fit Chuck standard and extensions
- 强力热缩型刀柄/Power Shrink Chuck
- 重型热缩刀柄和延长杆/Heavy Duty Chuck and extensions
- 强力筒夹刀柄/Power Collet Chuck
- 高精度筒夹刀柄/High Precision Collet Chuck
- 后拉式精密刀柄和延长杆/High-Precision Chuck and extensions
- ER筒夹式刀柄/Collet Chuck ER

- Machining of large steel and cast parts, e.g. gear housings
- High cutting forces at low to medium rpm
- High rigidity, even at long protruding lengths

- 标准型热缩刀柄/Shrink Fit Chuck standard
- 强力热缩型刀柄/Power Shrink Chuck
- 重型热缩刀柄和延长杆/Heavy Duty Chuck and extensions
- ER筒夹式刀柄/Collet Chuck ER
- 强力筒夹刀柄/Power Collet Chuck
- 高精度筒夹刀柄/High Precision Collet Chuck

# 刀柄技术概论

## 直柄类切削刀具适用的刀柄系统

应用区	热缩技术					机械式刀柄
	标准热缩刀柄	强力热缩刀柄	重型热缩刀柄	强力迷你热缩刀柄	迷你热缩刀柄	ER筒夹刀柄
						
应用范围	 	  	 	 	 	 
钻孔	●	●		●	●	●
精加工	●	●		●	●	●
高速切削	●	●	●	●	●	
粗加工		●	●			
夹持范围 [mm]	3-32	6-32	16-50	3-16	3-12	0.5-25
径跳精度(3×D) [mm]	0.003 mm	0.003 mm	0.003 mm	0.003 mm	0.003 mm	0.02 mm
最高转速(RPM)	50,000	50,000	50,000	80,000	80,000	15,000
动平衡等级	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM
外形轮廓	纤细	根部加强	夹持部分和根部加强	顶端纤细, 根部加强	非常纤细	中等
换刀时间	60 s	60 s	120 s	60 s	60 s	180 s
防拔出	安全锁	安全锁	安全锁			
维护/注意事项	无须/除油	无须/除油	无须/除油	无须/除油	无须/除油	筒夹检测/清洁

● 适用    ● 有限范围内适用

## 翰默HAIMER刀柄系统

种类	SK			BT			BT (端面接触)			HSK											PSC				
	30	40	50	30	40	50	30	40	50	A32	A40	A50	A63	A63/80	A80	A100	A125	E25	E32	E40	E50	F63	F80M	63	
标准热缩刀柄	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●
超细标准热缩刀柄		●	●										●												
强力热缩刀柄		●	●		●	●		●					●	●	●	●	●								●
重型热缩刀柄			●			●							●			●	●								
强力迷你型热缩刀柄		●	●	●	●		●	●					●	●											
迷你型热缩刀柄													●					●	●	●	●				
ER筒夹刀柄		●	●	●	●	●				●	●	●	●		●	●		●	●	●	●	●	●	●	●
强力筒夹刀柄		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●
高精度筒夹刀柄		●	●	●	●	●	●	●	●	●	●	●	●			●		●	●	●	●				●
后拉式高精度刀柄		●	●		●	●							●			●									
侧固刀柄		●	●		●	●				●	●	●	●		●	●						●			●
斜孔侧固刀柄		●	●										●			●									
面铣刀的刀柄		●	●	●	●	●					●	●	●	●		●	●					●	●		●
壳铣刀的刀柄		●	●		●	●					●	●	●			●									
标准型液压刀柄		●	●	●	●	●							●			●									
强力型液压刀柄		●	●	●	●	●							●			●									

强力筒夹刀柄	高精度筒夹刀柄	后拉式高精度刀柄	侧固刀柄	斜孔侧固刀柄	液压刀柄 <sup>1)</sup>	强力铣刀柄 <sup>2)</sup>
•	•	•			•	
•	•	•			•	
•	•	•				
•	•	•	•	•		•
2-20	2-20	2-20	6-40	6-40	3-32	6-50
0.003 mm	0.003 mm	0.003 mm	0.03 mm	0.03 mm	0.003 mm	0.01 mm
25,000	40,000	50,000	15,000	15,000	40,000	15,000
*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 22,000 RPM	*6.3 @ 8,000 RPM	*2.5 @ 25,000 RPM	部分经精细动平衡
根部加强	根部加强	中等	中等	中等	非常巨大, 易干涉	外形巨大, 易干涉
180 s	180 s	60 s	60 s	120 s	60 s	120 s
安全锁	安全锁		•	•		
筒夹检测/清洁	筒夹检测/清洁	筒夹检测/清洁	夹紧螺丝检测/除油	夹紧螺丝检测/除油	每年油压检测/日常测试	必须完全地、细致地清洁

\* 翰默标准 <sup>1)</sup> 为翰默制造 <sup>2)</sup> 不在翰默 HAIMER 可提供的范围内




















## 主轴接口形式

	锥柄 SK, BT, CAT 端面接触的锥柄 SK, BT, CAT	HSK-A/E/F	PSC 多边形接口
标准	DIN ISO 7388-1, JIS B6339, ASME B5.50	DIN 69893-1, DIN 69893-5	ISO 26623-1
图纸			
细节	<p><b>锥柄:</b>传统铣床主轴的接口,非常牢固,也适合于重型加工的机床。通过拉钉拉紧。由锥面定心,端面不接触,因此最高适用转速为12,000RPM。</p> <p><b>端面接触的锥柄:</b>由于主轴和锥柄的端面接触,提升了Z轴方向的定位精度和粗加工时的刚性。</p>	<p><b>HSK-A:</b> 新型加工中心主轴的标准接口。锥度和端面贴紧保证了高精度的同轴度和位置度,依靠锥柄上的键槽传递扭力。最高适用转速为35,000RPM</p> <p><b>HSK-E:</b> 对称设计,无键槽,主要适合高速加工。</p> <p><b>HSK-F:</b> 类似HSK-E,但是法兰外径更大,适用于更高的转速和进给量。</p>	<p>广泛使用在复合型机床上(车铣中心),多面体的锥柄保证了扭矩传导和同轴度。端面接触保证了位置度,非常好的静态刚性。</p>
品质	<p>翰默 HAIMER:3,000个测量点保证锥柄精度高于AT3,例如:所有面的公差范围在1.5μm以内(适用于SK40)。</p> <p>来自翰默 HAIMER高精生产车间的拉钉选用特殊的耐冲击钢,表面硬化处理,提高抗断裂性能和工艺安全性。</p>	<p>翰默 HAIMER:所有的功能面(夹紧靠面,驱动键槽面等)硬化后精密研磨。</p> <p>保证轴向拉力均衡、优良的跳动精度和刚性。</p>	<p>为了达到最佳的夹紧状态和定心精度,锥柄内部完全研磨成型。</p>



# OVERVIEW OF TOOL HOLDER TECHNOLOGY

## TOOL HOLDING SYSTEMS FOR CYLINDRICAL SHANK CUTTING TOOLS















APPLICATION AREAS	SHRINK FIT TECHNOLOGY					MECHANICAL
	Shrink Fit Chuck Standard	Power Shrink Chuck	Heavy Duty Shrink Chuck	Power Mini Shrink Chuck	Mini Shrink Chuck	ER Collet Chuck
						
Application	 	  	 	 	 	 
Drilling	•	•		•	•	•
Finishing	•	•		•	•	•
High Speed Cutting	•	•	•	•	•	
Roughing		•	•			
Clamping Range [mm]	3–32	6–32	16–50	3–16	3–12	0,5–25
Runout [mm] at 3 × D	0.003 mm	0.003 mm	0.003 mm	0.003 mm	0.003 mm	0.02 mm
Max. RPM	up to 50,000	up to 50,000	up to 50,000	up to 80,000	up to 80,000	up to 15,000
Balancing Grade G	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM
Outer Contour	slim	shank reinforced	clamping area and shank reinforced	very slim, shank reinforced	very slim	medium
Tool Changing Time	60 s	60 s	120 s	60 s	60 s	180 s
Pullout Protection	Safe-lock®	Safe-lock®	Safe-lock®			
Maintenance/Care	none / remove oil	none / remove oil	none / remove oil	none / remove oil	none / remove oil	check collet / cleaning

• applicable    • applicable to limited extent

## HAIMER TOOL HOLDER PROGRAM

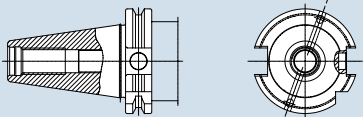
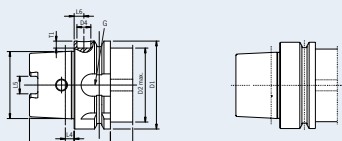
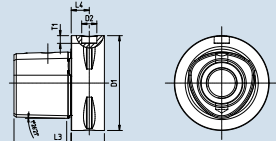
Program Diversity	SK			BT			BT with Face Contact			HSK											PSC				
	30	40	50	30	40	50	30	40	50	A32	A40	A50	A63	A63/80	A80	A100	A125	E25	E32	E40	E50	F63	F80M	63	
Shrink Fit Chuck Standard	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•
Shrink Fit Chuck Standard extra slim		•	•										•												
Power Shrink Chuck		•	•		•	•		•					•	•	•	•	•								•
Heavy Duty Shrink Chuck			•			•							•			•	•								
Power Mini Shrink Chuck		•	•	•	•		•	•					•	•											
Mini Shrink Chuck													•					•	•	•	•				
ER Collet Chuck		•	•	•	•	•				•	•	•	•		•	•		•	•	•	•	•	•	•	•
Power Collet Chuck		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•
High Precision Collet Chuck		•	•	•	•	•	•	•	•	•	•	•	•			•		•	•	•	•	•			•
HG-Chuck		•	•		•	•							•			•									
Weldon Chuck		•	•		•	•				•	•	•	•		•	•						•			•
Whistle-Notch		•	•										•			•									
Face Mill Arbor		•	•	•	•	•					•	•	•	•		•	•					•	•		•
Combi Shell Endmill Arbor		•	•		•	•					•	•	•			•									
Hydraulic Chuck Standard		•	•	•	•	•							•			•									
Power Hydraulic Chuck		•	•	•	•	•							•			•									

TOOL HOLDERS

Power Collet Chuck	High Precision Collet Chuck	HG-Chuck	Weldon Chuck	Whistle-Notch	Hydraulic Chuck <sup>1)</sup>	Milling Chuck <sup>2)</sup>
						
						
•	•	•			•	
•	•	•			•	
•	•	•				
•	•	•	•	•		•
2-20	2-20	2-20	6-40	6-40	3-32	6-50
0.003 mm	0.003 mm	0.003 mm	0.03 mm	0.03 mm	0.003 mm	0.01 mm
up to 25,000	up to 40,000	up to 50,000	up to 15,000	up to 15,000	up to 40,000	up to 15,000
*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 25,000 RPM	*2.5 @ 22,000 RPM	*6.3 @ 8,000 RPM	*2.5 @ 25,000 RPM	partially fine balanced
shank reinforced	shank reinforced	medium	medium	medium	medium	large interference contour
180 s	180 s	60 s	60 s	120 s	60 s	120 s
Safe-lock®	Safe-lock®		•	•		
check collet / cleaning	check collet / cleaning	check collet / cleaning	check clamping screw / remove oil	check clamping screw / remove oil	daily check for leaks and clamping force	accurate and sensitive cleaning necessary

\*HAIMER Standard <sup>1)</sup> Made for HAIMER <sup>2)</sup> not in the HAIMER delivery program

INTERFACES

	Steep taper SK, BT, CAT Steep taper with Face Contact SK, BT, CAT	HSK-A/E/F	PSC Polygon Shank Coupling
Standard	DIN ISO 7388-1, JIS B6339, ASME B5.50	DIN 69893-1, DIN 69893-5	ISO 26623-1
Drawing			
Info	<p><b>Steep taper:</b> Traditional interface for milling spindles. Very robust. Also applicable for heavy duty machining. Clamping always with additional pull stud. Centering only via taper surface, without face contact. Therefore limited accuracy. For applications up to 12,000 rpm.</p> <p><b>Steep taper with Face Contact:</b> Face contact for increased accuracy in Z axis and higher rigidity in roughing operations due to direct contact between spindle and holder.</p>	<p><b>HSK-A:</b> Standard for new machining centers. High precision centering and positioning by taper with face contact. Torque transmission by taper drive keys. For applications up to 35,000 rpm.</p> <p><b>HSK-E:</b> No drive keys but symmetrical design. Mainly used for high speed machining.</p> <p><b>HSK-F:</b> Like HSK-E but with bigger flange diameter for higher speeds and feeds.</p>	<p>Widespread at multitask (mill-turn centers) machines. Torque transmission and centering due to polygon taper. Exact positioning by face contact. Very high static stiffness.</p>
Quality	<p>HAIMER: 3,000 measuring points guarantee highest taper tolerance of AT3, i. e. all surface tolerances are within 1.5 µm (applies for SK 40).</p> <p>HAIMER pull studs from highly precise in-house production made of impact-resistant steel are specially case hardened, for highest breakage and process security.</p>	<p>HAIMER: All functional surfaces at and in the taper (clamping shoulder, wings of drive keys etc.) fine finished after hardening.</p> <p>For equal axial pull-in, highest runout accuracy and max. rigidity.</p>	<p>Complete ground inner taper for optimal clamping and centering accuracy.</p>

# 刀柄的订货号系统

## TOOL HOLDERS ARTICLE NUMBER SYSTEM

### 订货号的说明/Explanation article code

订货号范例：  
Example of article:

锥柄尺寸/锥柄类型  
Taper size/Type of taper

40.

SK40

夹持系统  
Clamping system

44

热缩刀柄  
Shrink fit chuck

40.		44						
锥柄尺寸/锥柄类型 Taper size and type of taper		夹持系统的关键数字 Clamping system – Key number						
30	SK/BT	SK	BT	CAT	HSK	PSC 63	夹持系统/Clamping system	
30P	BT (端面接触)/Face Contact	30	50	70	00	00	侧固刀柄/Weldon	
40	SK/BT/CAT	32	52	72	02	02	ER筒夹刀柄/ER Collet Chuck	
40P	BT (端面接触)/Face Contact	33	53		03		斜孔侧固刀柄/Whistle Notch	
50	SK/BT/CAT	34	54	74	04		壳铣刀的刀柄/ Combination Shell Endmill Arbor	
50P	BT (端面接触)/Face Contact	35	55	75	05	05	面铣刀的刀柄/Face Mill Arbor	
A32	HSK-A32	37	57		07		快换攻丝刀柄/ Quick Change Tapping Chuck	
A40	HSK-A40	38	58		08		用于带扁尾的莫氏锥度刀具的刀柄/ Adapter for Morse Taper with Tang	
A50	HSK-A50	39	59		09		毛坯刀柄/Blank Adapter	
A63	HSK-A63	42	62	82	12		后拉式高精度刀柄/HG Chuck	
A63/80	HSK-A63/80	43	63		13		带螺纹的莫氏锥度刀柄/ Adapter for Morse Taper with Thread	
A80	HSK-A80	44	64	84	14	14	热缩刀柄/Shrink Fit Chuck	
A10	HSK-A100	47	67		17		超细迷你型热缩刀柄/ Mini Shrink Chuck extra slim	
A125	HSK-A125	48	68		18		标准迷你型热缩刀柄/Mini Shrink standard	
E25	HSK-E25	4H1	6H1	8H1	1H1		液压刀柄/Hydraulic Chuck	
E32	HSK-E32							
E40	HSK-E40							
E50	HSK-E50							
F63	HSK-F63							
F80M	HSK-F80M							
CC6	PSC 63							

长度 Length	尺寸/夹持直径 Size/Clamping diameter	类型 Version
0.	06	.2
短 short	6 mm	带冷却喷孔 with Cool Jet

	0.	06	.2
长度 Length	尺寸/夹持直径 Size/Clamping diameter	类型 Version	
0. 短/short	.02 Ø 2 mm	.1 可套叠, 无冷却细缝 Telescope, without slits	
1. 长/long	.03 Ø 3 mm	.2 带冷却喷孔/with Cool Jet	
2. 超长/oversize	.04 Ø 4 mm	.26 带环绕冷却/with Cool Flash	
4. ZG130 (长度130mm/long)	.05 Ø 5 mm	.3 强力刀柄/Power Chuck	
5. 超短/ultra short	.06 Ø 6 mm	.36 带环绕冷却/with Cool Flash	
6. ZG200 (长度200mm/long)	.07 Ø 7 mm	.37 带安全锁的强力刀柄/with Safe-Lock	
7. ZG120 (长度120mm/long)	.08 Ø 8 mm	.38 带安全锁和环绕冷却的强力刀柄/ Power Chuck with Safe-Lock & Cool Flash	
	.10 Ø 10 mm	.3.HP 高精度筒夹刀柄/ High Precision Collet Chuck	
	.12 Ø 12 mm	.6 重型热缩刀柄/Heavy Duty Chuck	
	.14 Ø 14 mm	.66 带环绕冷却的重型热缩刀柄/ Heavy Duty Chuck with Cool Flash	
	.16 Ø 16 mm	.67 带安全锁的重型热缩刀柄/ Heavy Duty Chuck with Safe-Lock	
	.18 Ø 18 mm	.68 带安全锁和环绕冷却的重型热缩刀柄 / Heavy Duty Chuck with Safe-Lock & Cool Flash	
	.20 Ø 20 mm	.7 安全锁/Safe-Lock	
	.25 Ø 25 mm	.8 强力热缩迷你型刀柄/Power Mini Shrink	
	.32 Ø 32 mm	.KKB 带冷却液喷孔/with Coolant Exit bores	
	.40 Ø 40 mm	.10 超细型热缩刀柄/Shrink Fit Chuck extra slim	
	.50 Ø 50 mm		

## 热缩刀柄的革新

### THE EVOLUTION OF SHRINK FIT TECHNOLOGY

随着标准型热缩刀柄的广泛应用，我们与航天行业客户紧密合作又发展了强力热缩刀柄。

由于达到增加金属去除量和延长刀具寿命的目的，例如铝合金加工，因此随着热缩技术的应用，强力热缩刀柄也被扩展使用到粗加工上。（由于外形加固，抗振性能更强，跳动精度继续保证小于0,003mm）。

具有高刚性外形尺寸和加强夹持壁厚的重型热缩刀柄可以在很高要求的加工中也游刃有余。例如：在航空航天业的钛合金加工和重工业中得到广泛应用。

强力热缩刀柄和重型热缩刀柄都可以从直径 $\varnothing$ 6mm开始附加安全锁结构，并且从直径 $\varnothing$ 6mm到 $\varnothing$ 25mm可增加环绕冷却（选项）。

Starting with the **Standard Shrink Fit Chuck** which is suitable for a broad range of applications, the close cooperation with customers of the aerospace industry has led to the development of the **Power Shrink Chuck**.

Thus a much higher metal removal rate and significant tool life increase e.g. at aluminium machining could be achieved. With the Power Shrink Chucks the area of applications for shrinking technology is extended to roughing (still with a runout accuracy of  $< 0,003$  mm and vibration resistance due to optimised outer geometry).

The extremely rigid outer geometry and the reinforced wall thickness at the clamping bore make the **Heavy Duty Chuck** a profitable chuck for highest performances e. g. for titanium machining in the aerospace and heavy industry.

Power Shrink and Heavy Duty Shrink Chucks can be equipped with Safe-Lock from diam. 6 mm and with the cooling system Cool Flash from diam. 6 mm to 25 mm (on option).

#### 翰默标准型热缩刀柄

#### STANDARD SHRINK CHUCK



#### 翰默强力热缩刀柄

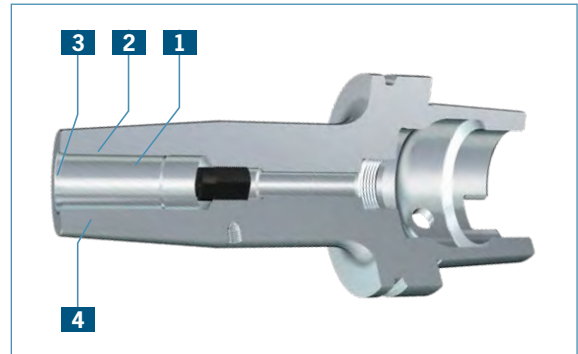
#### POWER SHRINK CHUCK



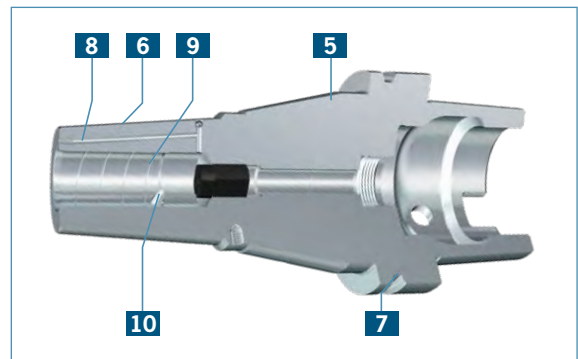
**主要特征 | The most important features**

- 1** 优良的跳动精度 | High runout accuracy
- 2** 超大扭矩 | Extreme clamping torque
- 3** 短的导引角 | Short chamfer
- 4** 可增加冷却喷孔 | Cool Jet on request
- 5** 提高抗振性能 | Low tendency towards vibrations
- 6** 顶端纤细 | Slim design at the top
- 7** 柄部高刚性 | Very rigid shank
- 8** 冷却喷孔标准配备/可选环绕冷却  
Standard with Cool Jet/Cool Flash optional
- 9** 内壁含容屑槽 | Oil groove in the clamping bore
- 10** 可以增加安全锁结构  
Mounting of Safe-Lock possible
- 11** 加强的夹持壁厚 | Reinforced wall thickness
- 12** 更加强壮的外形 | Extremely rigid outer geometry
- 13** 刚性更强 | High rigidity
- 14** 内壁含膨胀槽  
Expansion grooves in the clamping bore

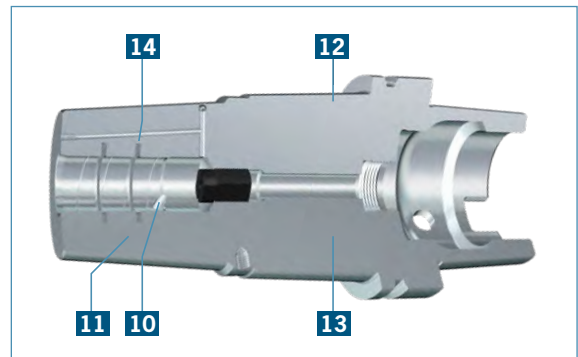
## 重型热缩刀柄 HEAVY DUTY CHUCK



翰默标准型热缩刀柄  
HAIMER Standard Shrink Chuck



翰默强力热缩刀柄  
HAIMER Power Shrink Chuck



翰默重型热缩刀柄  
HAIMER Heavy Duty Shrink Chuck

# 筒夹刀柄的革新

## THE EVOLUTION OF COLLET CHUCK TECHNOLOGY

翰默 HAIMER对筒夹刀柄的现有技术进行了进一步的发展。

强力筒夹刀柄是为高速切削 (HSC) 而设计的。是强力系列中强力热缩刀柄很好的替代产品。强力筒夹刀柄具有加强的壁厚, 刚性加强的外形。因此更加稳定和增加抗振性。当和翰默 HAIMER 特制的高精度筒夹搭配使用时, 刀柄可发挥最大的性能, 跳动精度甚至小于0,003mm, 切削能力可以大幅提高。

强力筒夹可以加装安全锁结构和冷却喷孔。

随着翰默高精度筒夹刀柄在精密微型加工行业中的推广使用, 一种新的标准建立了。可保证跳动精度小于0,003mm, 从而在高速加工时获得很好的工件表面粗糙度。

带特殊涂层的圆形锁紧螺母(精细动平衡至< 1 gmm), 确保在高速加工时减少振动和噪音, 例如: 在仪表行业和医疗行业。

HAIMER has developed the existing technology of Collet Chucks further.

The Power Collet Chucks are Collet Chucks designed for high speed cutting (HSC) – an alternative to the reinforced shrink fit chucks of the Power Series. **Power Collet Chucks** offer a reinforced wall thickness and extra rigid outer contour and are therefore stable and resistant to vibrations. The chucks achieve maximum performance with even more precision of < 0,003 mm runout accuracy and higher cutting capacity when using the specifically developed HAIMER high-precision collets.

The Power Collets can optionally be equipped with Safe-Lock and Cool Jet.

With the **High Precision Collet Chuck** especially for micro and fine machining a new standard has been set. It is featured by highest runout accuracy of less than 0,003 mm providing best surface finish at high rpm.

The specially coated locknuts (fine balanced to < 1 gmm) guarantee for vibration dampening and noise-reducing features in high speed cutting, e.g. in the watchmaking or medical industry.

### 标准筒夹刀柄

#### Standard Collet Chuck



### 翰默强力筒夹刀柄

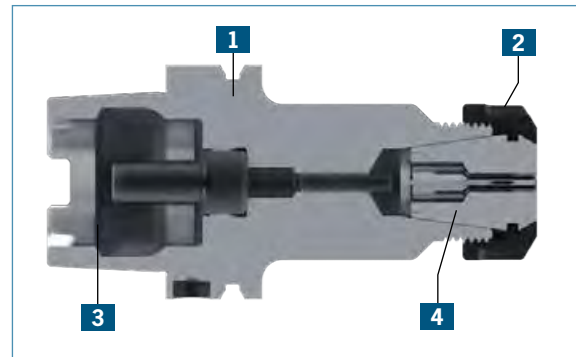
#### Power Collet Chuck



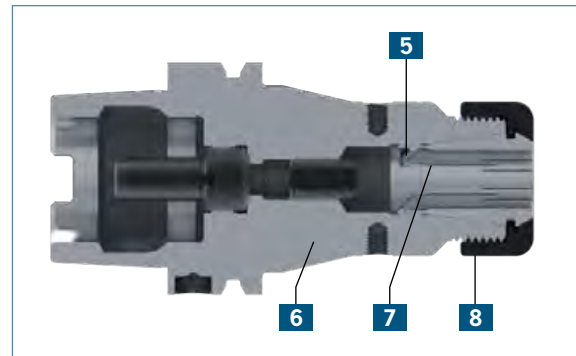
**主要特征 | The most important features**

- 1** 25.000rpm G 2.5精细动平衡  
Fine balanced at G 2.5 at 25.000 rpm
- 2** 经过精细动平衡的锁紧螺母 | Fine balanced clamping nut
- 3** 所有功能面研磨处理  
All functional surfaces grinded
- 4** 优良的跳动精度 ( $< 0,003$  mm)  
High runout accuracy ( $< 0,003$  mm)
- 5** 高精度筒夹可搭配安全锁结构 (选项)  
Safe-Lock in the high precision collet (on option)
- 6** 外形强壮, 低振动  
Low tendency towards vibrations by a rigid shank
- 7** 高精度筒夹 | High precision collet
- 8** 经过精细动平衡的强力筒夹锁紧螺母  
Fine balanced Power Collet clamping nut
- 9** 带冷却喷孔的高精度筒夹 (选项)  
High precision collet with Cool Jet bores (on option)
- 10** 刀柄精细动平衡G2.5 30.000rpm 或者  $U < 1$  gmm  
Chuck body fine balanced to G 2.5 at 30.000 rpm or  $U < 1$  gmm
- 11** 用于动平衡螺钉安装的螺纹孔  
Thread for balancing screws
- 12** 带特殊涂层的锁紧螺母, 精细动平衡至 $< 1$  gmm  
With specially coated locknut fine balanced  $< 1$  gmm

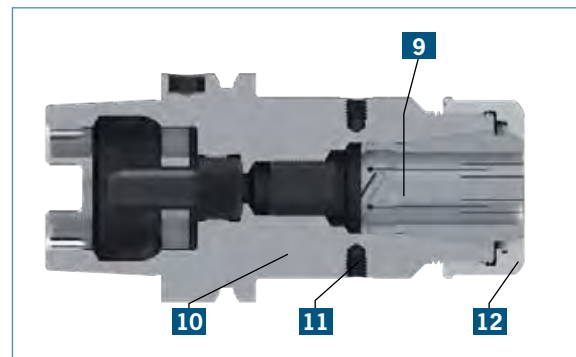
## 翰默高精度筒夹刀柄 High Precision Collet Chuck



翰默标准筒夹刀柄  
HAIMER Standard Collet Chuck



翰默强力筒夹刀柄  
HAIMER Power Collet Chuck



翰默重型筒夹刀柄  
HAIMER Heavy Duty Collet Chuck



## 完善的质量体系 PRECISION REQUIRES PERFECTION

高标准不为妥协留有任何余地。这意味着：当您购买了翰默HAIMER产品时，您将获得翰默HAIMER的高品质。我们首先考虑的就是产品的质量。我们用高标准的质量体系规范生产。因为我们知道长期经营必须以质取胜！

High targets leave no space for compromises. This means: When you buy HAIMER you really get HAIMER. When quality is concerned we first of all trust in ourselves. Not only that we produce all our products by ourselves. Also the fixtures and vices on our machines are made by HAIMER. Because we know that on the long run only **Quality wins.**



# 质量证书

100%德国制造	<ul style="list-style-type: none"> <li>■ 100%自己工厂生产, 保持稳定的高品质</li> <li>■ 在加工过程中保证非常高的工艺可靠性</li> </ul>
刀柄精细动平衡 (G2.5 25000RPM)	<ul style="list-style-type: none"> <li>■ 主轴振动低</li> <li>■ 更好的加工表面光洁度</li> <li>■ 延长刀具寿命</li> <li>■ 延长主轴寿命</li> </ul>
锥柄精度保持AT3 (形状公差: 1,5 µm)	<ul style="list-style-type: none"> <li>■ 机床和刀具紧密连接</li> <li>■ 在加工过程中保证非常高工艺可靠性</li> <li>■ 重型加工中保证安全夹持</li> </ul>
特殊钢材制成的高韧性和高精度的拉钉	<ul style="list-style-type: none"> <li>■ 避免拉断的危险</li> <li>■ 安全性高, 避免事故</li> <li>■ 高精度的刀具夹持</li> </ul>
所有功能面精细加工	<ul style="list-style-type: none"> <li>■ 保证 HSK 夹持面受力均衡</li> <li>■ HSK 驱动槽精密加工</li> <li>■ 超过 DIN 精度标准</li> </ul>

# CERTIFICATE OF QUALITY

100 % Made in Germany	<ul style="list-style-type: none"> <li>■ Constant high quality due to 100 % control in own factory</li> <li>■ Highest process reliability during machining</li> </ul>
Tool holders fine balanced (G2.5 at 25,000 RPM)	<ul style="list-style-type: none"> <li>■ Low vibration on spindle</li> <li>■ Better surfaces</li> <li>■ Maximum tool life</li> <li>■ Long lifetime of spindle</li> </ul>
Steep taper really AT3: (1.5 µm shape tolerance)	<ul style="list-style-type: none"> <li>■ Optimum connection between machine and tool</li> <li>■ Highest process reliability during fine machining</li> <li>■ Secure clamping during heavy milling</li> </ul>
High precision pull studs made of special steel with high toughness	<ul style="list-style-type: none"> <li>■ No danger of breakage</li> <li>■ Highest security against accidents</li> <li>■ Precise tool clamping</li> </ul>
All functional surfaces fine machined	<ul style="list-style-type: none"> <li>■ Symmetric force transmission to clamping shoulder of HSK</li> <li>■ Precise drive slots on the HSK</li> <li>■ More accurate than DIN</li> </ul>



## DIN ISO 7388-1 (旧标准/previously DIN 69871) SK30/SK40/SK50

### 章节/Article 页数/Page

DIN ISO 7388-1 SK30	242
热缩刀柄 Shrink Fit Chuck	246
DIN ISO 7388-1 SK40	247
热缩刀柄 Shrink Fit Chuck	247
超细型热缩刀柄 Shrink Fit Chuck extra slim	248
强力热缩刀柄 / Power Shrink Chuck	249
迷你型热缩刀柄 / Mini Shrink Chuck	250
强力迷你型热缩刀柄 / Power Mini Shrink Chuck	251
ER 筒夹刀柄 Collet Chuck ER	252
强力筒夹刀柄 Power Collet Chuck	253
高精度筒夹刀柄 High Precision Collet Chuck	254
后拉式高精度刀柄 High-Precision Chuck	255
侧固刀柄 Weldon Holder	256
标准型液压刀柄 / Standard Hydraulic Chuck	257
强力型液压刀柄 / Power Hydraulic Chuck	258
面铣刀的刀柄 / Face Mill Arbor	259
壳铣刀的刀柄 Combination Shell End Mill Adapter	260
斜孔侧固刀柄 Whistle Notch Tool Holder	261
莫氏锥度刀柄 / Adapter for Morse Taper	262
毛坯刀柄 / Blank Adapter	264
快换攻丝刀柄 Quick Change Tapping Chuck	265
短钻夹头刀柄 / Short Drill Chuck	266
钻夹头转换刀柄 / Drill Chuck Adapter	267

DIN ISO 7388-1 SK50	268
热缩刀柄 Shrink Fit Chuck	268
超细型热缩刀柄 Shrink Fit Chuck extra slim	269
强力热缩刀柄 / Power Shrink Chuck	270
重型热缩刀柄 / Heavy Duty Shrink Chuck	271
强力迷你型热缩刀柄 / Power Mini Shrink Chuck	272
ER 筒夹刀柄 Collet Chuck ER	273
强力筒夹刀柄 Power Collet Chuck	274
高精度筒夹刀柄 High Precision Collet Chuck	275
后拉式高精度刀柄 High-Precision Chuck	276
侧固刀柄 Weldon Holder	277
标准型液压刀柄 / Standard Hydraulic Chuck	278
强力型液压刀柄 / Power Hydraulic Chuck	279
面铣刀的刀柄 / Face Mill Arbor	280
壳铣刀的刀柄 Combination Shell End Mill Adapter	281
斜孔侧固刀柄 Whistle Notch Tool Holder	282
莫氏锥度刀柄 / Adapter for Morse Taper	283
毛坯刀柄 / Blank Adapter	285
快换攻丝刀柄 Quick Change Tapping Chuck	286
钻夹头刀柄 / Short Drill Chuck	287
转换刀柄 / Adapter	288
钻夹头转换刀柄 Drill Chuck Adapter	289

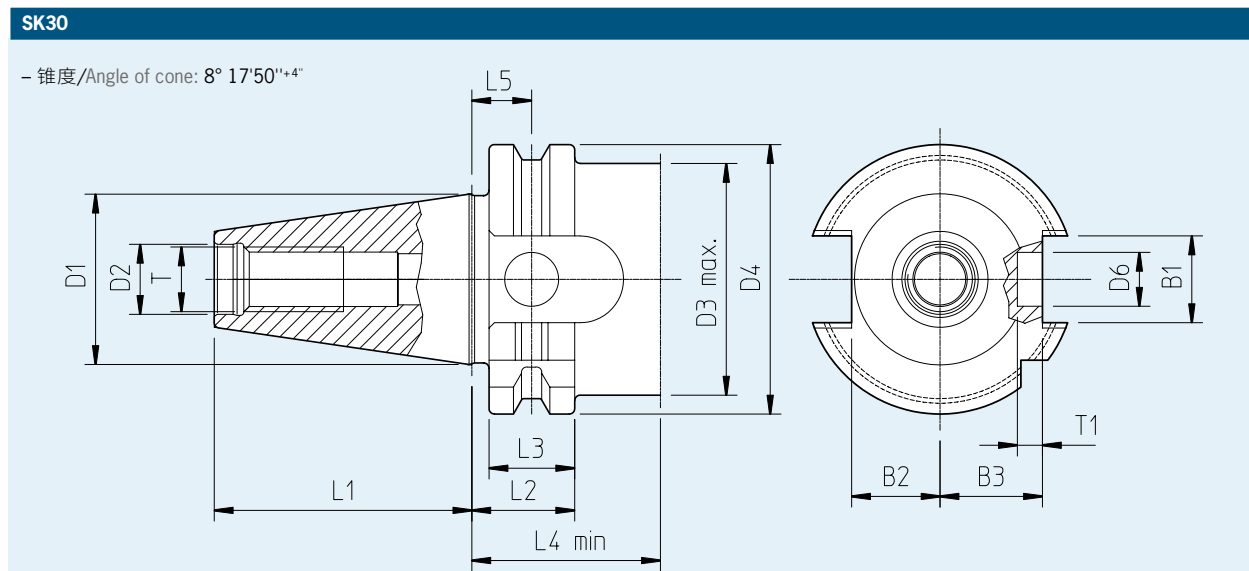
# 锥柄/STEEP TAPER DIN ISO 7388-1 · SK30/SK40 (旧标准/PREVIOUSLY DIN 69871)

**设计:**

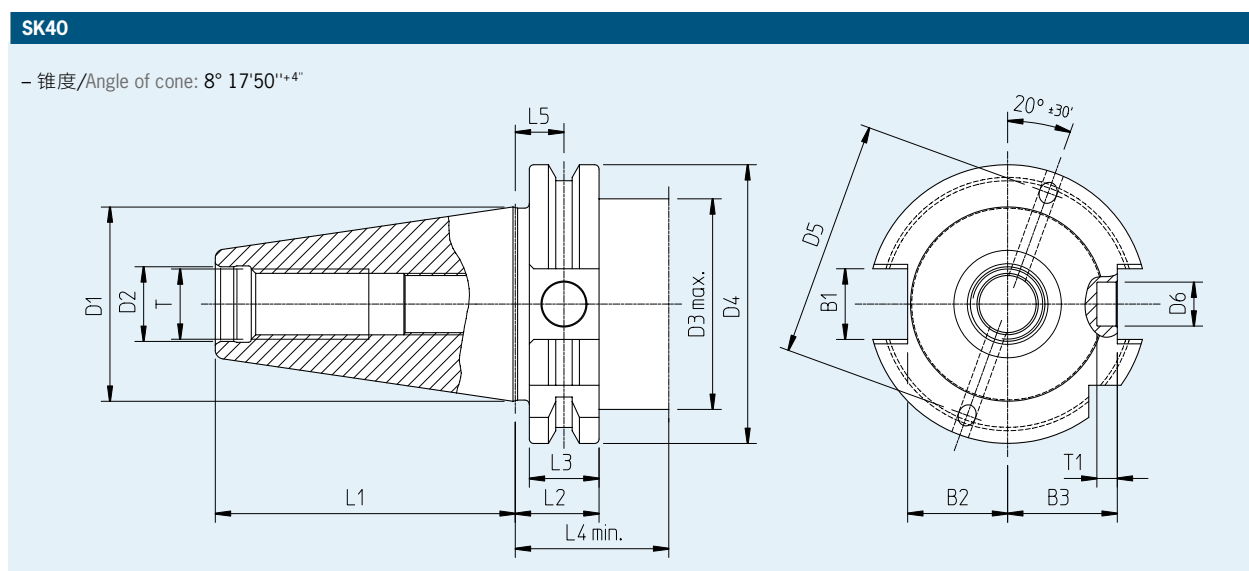
- 刀柄表面硬度60-2 HRC
- 芯部的抗拉强度不小于 950 N/mm<sup>2</sup>
- 锥度公差等级AT3
- AD/AF型: 中心内冷(AD 型)和法兰内冷(AF 型) (参见第231页)
- 含Ø 10 mm数据芯片孔

**Design:**

- Tool holders case-hardened 60-2 HRC
- Tensile strength in the core at least 950 N/mm<sup>2</sup>
- Taper in tolerance quality AT3
- Form AD/AF: interior coolant supply through centre (form AD) and through the collar (form AF), see page 231
- Incl. bore for data chip Ø 10 mm



SK/ISO30	D1	D2	D3 max.	D4	D5	D6	L1	L2	L3	L4 min.	L5	T	T1	B1	B2	B3
[mm]	31,75	13	43	50	—	10	47,8	19,1	15,9	35	11,1	M12	4,65	16,1	16,4	19



SK/ISO40	D1	D2	D3 max.	D4	D5	D6	L1	L2	L3	L4 min.	L5	T	T1	B1	B2	B3
[mm]	44,45	17	48	63,55	54	10	68,4	19,1	15,9	35	11,1	M16	4,65	16,1	22,8	25

# 锥柄/STEEP TAPER DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)

**设计:**

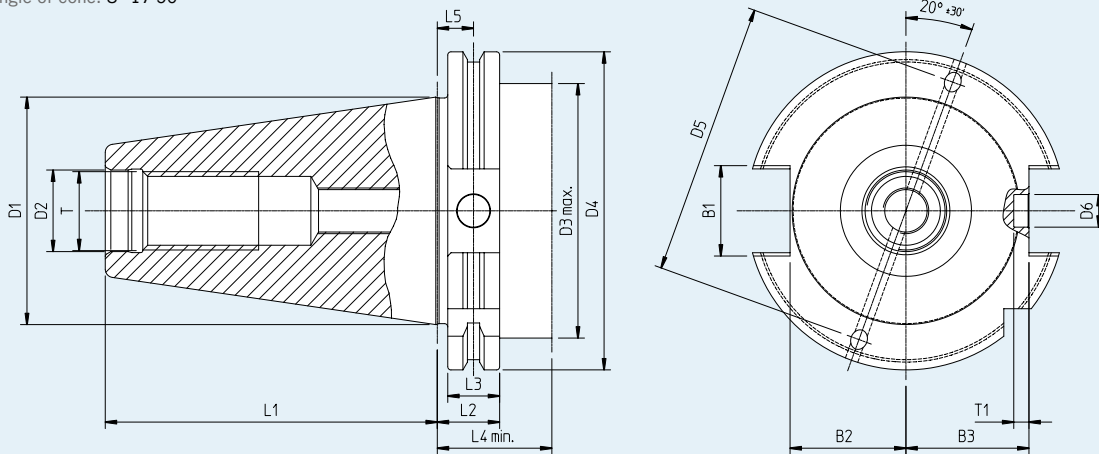
- 刀柄表面硬度60-2 HRC
- 芯部的抗拉强度不小于 950 N/mm<sup>2</sup>
- 锥度公差等级AT3
- AD/AF型:中心内冷(AD 型)和法兰内冷(AF 型) (参见第231页)
- 含Ø 10 mm数据芯片孔

**Design:**

- Tool holders case-hardened 60-2 HRC
- Tensile strength in the core at least 950 N/mm<sup>2</sup>
- Taper in tolerance quality AT3
- Form AD/AF: interior coolant supply through centre (form AD) and through the collar (form AF), see page 231
- Incl. bore for data chip Ø 10mm

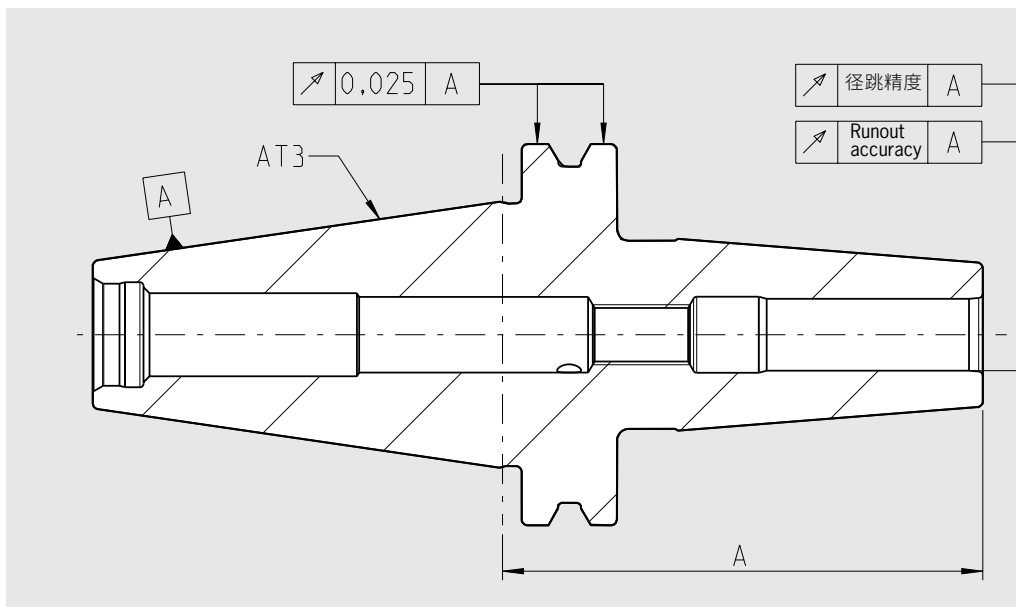
**SK50**

- 锥度/Angle of cone:  $8^{\circ} 17'50''^{+4''}$



SK/ISO50	D1	D2	D3 max.	D4	D5	D6	L1	L2	L3	L4 min.	L5	T	T1	B1	B2	B3
[mm]	69,85	25	78	97,5	84	10	101,75	19,1	15,9	35	11,1	M24	4,65	25,7	35,5	37,7

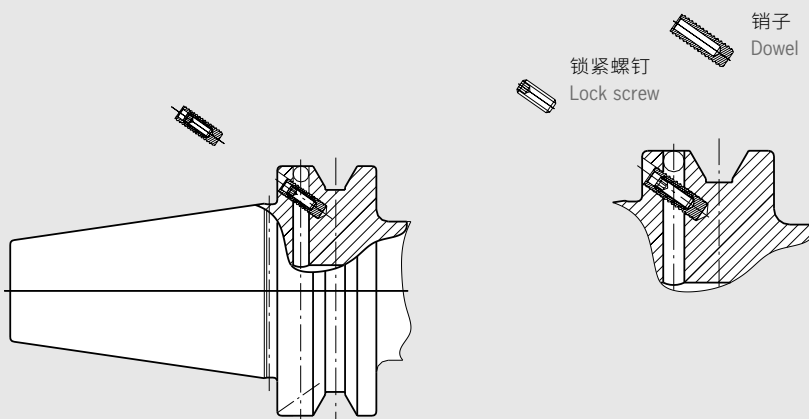
# 径跳精度/RUNOUT ACCURACY DIN ISO 7388-1 (旧标准/PREVIOUSLY DIN 69871)



刀柄长度/Gage length	A < 160	A ≥ 160
径向跳动的公差, 单位为mm/max. runout tolerance in mm		
热缩刀柄/Shrink Fit Chuck	0,003	0,004
ER 弹簧筒夹刀柄/Collet Chuck ER	0,003	0,004
强力筒夹刀柄/Power Collet Chuck	0,003	0,004
后拉式高精度刀柄/High Precision Chuck	0,003	0,003
侧固刀柄/Weldon Tool Holder	0,003	0,004
液压刀柄/Hydraulic Chuck	0,003	—
面铣刀的刀柄/Face Mill Arbor	0,006	0,006
壳铣刀的刀柄/Combination Shell End Mill Arbor	0,006	0,006
斜孔侧固刀柄/Whistle Notch Tool Holder	0,003	0,004
莫氏锥度刀柄/Adapter for Morse Taper	0,008	—
转换刀柄/Adapter SK40/SK50	0,005	—
钻夹头转换刀柄/Drill Chuck Adapter	0,005	—

# 冷却/COOLANT DIN ISO 7388-1 (旧标准/PREVIOUSLY DIN 69871)

注：销子为一次性使用的！  
Attention: Each dowel for single use only!



根据DIN ISO 7388-1 的规定,有3种冷却方式:

- **A型**: 无内冷
- **AD型**: 通过拉钉的中心孔进行冷却
- **AF型**: 经过法兰的侧边的内冷预留孔进行冷却

除特别注明外,符合DIN ISO 7388-1 标准的翰默HAIMER锥柄刀柄按照AD/AF形式生产。

AD/AF型:如无其他规定,刀柄设置有AD型和AF型的内孔,以AD型的形式交货。法兰上用于AF型的孔被带有锁紧螺钉的塑料销子可靠地密封。

如变为AF型,法兰上的孔必须打开,需要将锁紧螺钉旋出一半,用钳子将锁紧螺钉同销子一同拔出。该孔还可以被重新密封。转换包内包含销子和锁紧螺钉(参考附件部分)

#### - 备件 转换包

订货号: 85.600.40 (SK40)  
订货号: 85.600.50 (SK50)  
(包含50个)

According to DIN ISO 7388-1, 3 possibilities of inner coolant supply are available:

- **Form A**: no inner coolant supply
- **Form AD**: central coolant supply through retention knob.  
A retention knob with centralized bore is required.
- **Form AF**: lateral coolant supply via the collar.  
A sealed retention knob is required.

HAIMER clamping devices with taper according to DIN ISO 7388-1 are produced in form AD/AF unless otherwise noted.

Form AD/AF means: the clamping devices are equipped with bores for form AD as well as for form AF. Unless otherwise requested, the tool holders are delivered in form AD. The bores on the flange for form AF are then sealed with plastic-dowels and secured with lock screws.

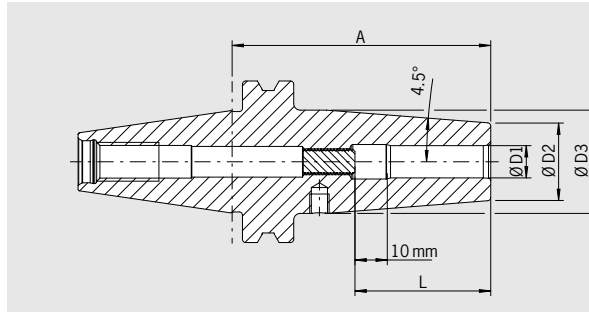
For changing to form AF, the bores on the flange must be opened by unscrewing the lock screw halfway. Removal of screws together with the dowels are done by using pliers.

The bores also can be sealed again. A conversion kit consisting of dowels and lock screws is available (please refer to accessories).

#### - Spare part Dowel

Order No. 85.600.40 (SK40)  
Order No. 85.600.50 (SK50)  
(incl. 50 pcs)

# 热缩刀柄/SHRINK FIT CHUCK DIN ISO 7388-1 · SK30 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
☑	刀柄精细动平衡
☑	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U<1 gmm
☑	所有功能面精细加工
☑	All functional surfaces fine machined
☑	锥度精度 AT3
☑	Taper tolerance AT3

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN ISO 7388-1(旧标准 DIN 69871) SK30 AD型冷却方式符合DIN 69882-8的热缩刀柄
- 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 含用于调整动平衡的螺钉孔
  - 发货包含: 支撑螺钉
  - 冷却喷孔需要额外费用(参见第468页)
  - 环绕冷却需要额外费用(参见第466/467页)

- With taper **SK30 Form AD** DIN ISO 7388-1 (previously DIN 69871) and shrink holder DIN 69882-8.
- Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with back-up screw
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16
	Ø D2 [mm]	10	10	10	21	21	24	24	27
	Ø D3 [mm]	—	—	—	27	27	32	32	34
	L [mm]	09	12	15	36	36	42	47	50
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	80	80	80
订货号/Order No.	<b>30.440...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.16</b>

超短型/Ultra short version

夹持/Clamping	Ø D1 [mm]	03	04	06	08	10	12	16	20
	Ø D2 [mm]	10	10	23	23	27	27	30	35,5
	Ø D3 [mm]	—	—	—	—	—	—	—	40,5
	L [mm]	09	12	36	36	42	47	50	52
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	65 <sup>2)</sup>	70 <sup>2)</sup>
订货号/Order No.	<b>30.445...</b>	<b>.03</b>	<b>.04</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.16</b>	<b>.20</b>

- |  |  |  |
|--|--|--|
| 附件/Accessories   |  |  |
| 热缩延长杆/Shrink fit extensions  |  | 参见第732页/See page 732   |
| 平衡螺钉/Balance screws  |  | 参见第767页/See page 767   |
| 拉钉/Pull studs  |  | 参见第757页/See page 757   |
| 减径套/Reduction sleeves  |  | 参见第763页/See page 763   |
| 支撑螺钉/Back-up screws  |  | 参见第768页/See page 768   |
| 冷却喷孔/Cool Jet bores  |  | 参见第468页/See page 468   |
| 从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash<br>从不带冷却喷孔的热缩刀柄升级为环绕冷却/<br>Cool Flash incl. Cool Jet |  | 订货号/Order No. <b>91.100.40</b><br>订货号/Order No. <b>91.100.41</b><br>参见第466页/See page 466<br>参见第466页/See page 466 |

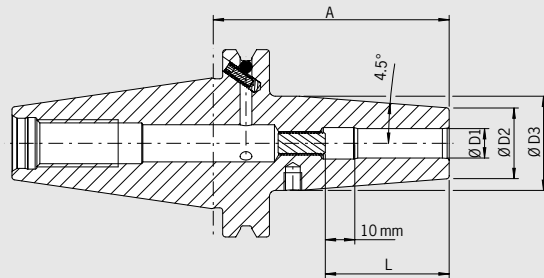
1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without thread for balancing screws, with slits along the clamping bore for cooling from outside  
2) 无动平衡螺钉孔/Without thread for balancing screws

# 热缩刀柄/SHRINK FIT CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
✓ G2.5 25.000 rpm 或/Or <1 gmm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用AD/AF型	✓ Coolant supply form AD/AF



**用途:**

适用于所有热缩机

DIN ISO 7388-1(旧标准 DIN 69871) SK40 AD/AF型冷却方式符合DIN 69882-8的热缩刀柄

AD/AF型: 中心冷却和可密封的法兰冷却

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 含用于调整动平衡的螺钉孔
- 发货包含: 支撑螺钉
- 冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

**Use:**

Suitable for all shrinking units.

With taper **SK40 form AD/AF** DIN ISO 7388-1 (previously DIN 69871) and shrink holder DIN 69882-8.

Form AD/AF means: central coolant supply and coolant channels through the flange which can be sealed again.

- Heat resistant hot-working steel
- Hardened 54 – 2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
L [mm]		09	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	80	80	80	80	80	80	100	100
订货号/Order No.	40.440...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>	120 <sup>1)</sup>	120	120	120	120	120	120	120	120	120	120
订货号/Order No.	40.447...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	40.444...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	超长/oversize	—	—	—	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	—
订货号/Order No.	40.442...	—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	—
长度/Length A [mm]	ZG200	—	—	—	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	—
订货号/Order No.	40.446...	—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	—

标准型, 含冷却喷孔(Ø 3 – 5 mm 为细缝冷却)/Standard version, with Cool Jet (Ø 3–5 mm cooling with slits)

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
L [mm]		09	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>2)</sup>	80 <sup>2)</sup>	80 <sup>2)</sup>	80	80	80	80	80	80	80	80	100	100
订货号/Order No.	40.440...	.03	.04	.05	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.18.2	.20.2	.25.2	.32.2

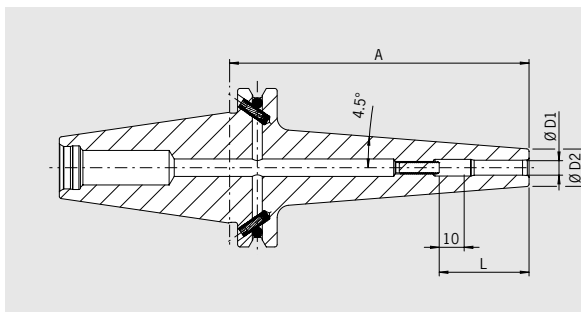
标准型, 含安全锁防拔出结构/Standard version, with Safe-Lock pull out protection

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		27	27	32	32	34	34	42	42	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	80 <sup>3)</sup>	100 <sup>3)</sup>	100 <sup>3)</sup>
订货号/Order No.	40.440...	.06.7	.08.7	.10.7	.12.7	.14.7	.16.7	.18.7	.20.7	.25.7	.32.7

- 1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上没有细缝, 内冷却液不能沿刀具的柄部喷出, 不适用于高速钢刀具  
Without back-up screw, without thread for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools
- 2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出。  
Without back-up screw, without thread for balancing screws, with slits along the clamping bore for cooling from outside
- 3) 含支撑弹簧/With tension spring
- 4) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file)



# 超细型热缩刀柄/SHRINK FIT CHUCK EXTRA SLIM DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**  
适用于所有热缩机  
超细型热缩刀柄的D2更小, 4.5°。

**Use:**  
Suitable for all shrinking units.  
Extra slim version with smaller diameter D2, 4.5°.

DIN ISO 7388-1(旧标准 DIN 69871) SK40 AD/AF型冷却方式符合DIN 69882-8的热缩刀柄  
AD/AF型: 中心冷却和可密封的法兰冷却  
- 耐热钢材质  
- 硬度54-2 HRC  
- 用于硬质合金刀具  
- 要求刀具柄部精度为h6  
- 发货时包含:带支撑螺钉的热缩刀柄(Ø6-12mm)  
- 可以选配冷却细缝  
- 需要额外的冷却转换套, 参考下面的内容

With taper **SK40 form AD/AF** DIN ISO 7388-1 (previously DIN 69871) and shrink holder DIN 69882-8.  
Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again.  
- Heat resistant hot-working steel  
- Hardened 54-2 HRC  
- For solid carbide tools with shank tolerance h6  
- Shank tolerance h6  
- Included in delivery: Shrink fit chuck with back-up screw (Ø 6-12 mm)  
- Cooling with slits for an extra charge  
- Additional Cooling adapter required (see below)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12
	Ø D2 [mm]	09	09	09	15	15	18	18
	L [mm]	—	—	—	36	36	42	47
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120
订货号/Order No.	40.447...	.03.10	.04.10	.05.10	.06.10	.08.10	.10.10	.12.10

附件/Accessories	
热缩延长杆/Shrink fit extensions	参见第732页/See page 732
减径套/Reduction sleeves	参见第763页/See page 763
支撑螺钉/Back-up screws	参见第768页/See page 768
冷却转换套/Cooling adapter	Ø 3-5 mm    Ø 6-12 mm
订货号/Order No.	80.105.14.1.3    80.105.14.1.2

# 强力热缩刀柄/POWER SHRINK CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- ☑ G2.5 25.000 rpm
- ☑ 或/or U<1 gmm

---

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined

---

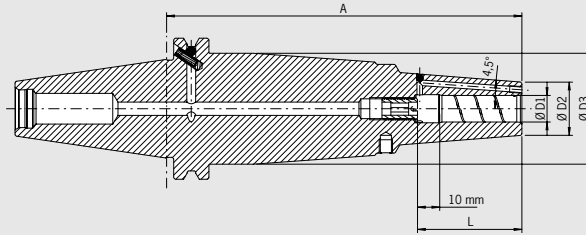
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3

---

- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF

---

- ☑ 冷却喷孔, 可密闭
- ☑ Cool Jet, can be sealed



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含侧壁冷却喷孔, 可封闭
- 环绕冷却需要额外费用 (参见第466/467页)

加长型(A=130 或者160)结构紧凑, 使用灵活。

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

The long versions (A=130 and 160) with slim tips are especially versatile to use.

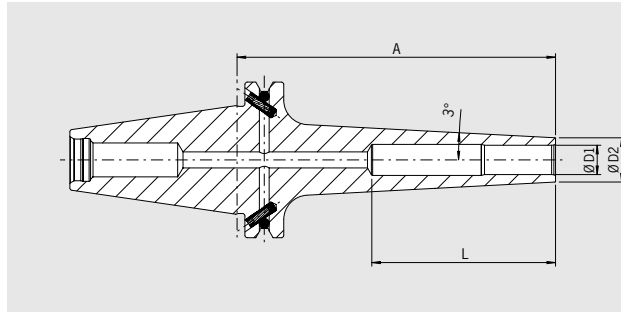
- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45,5	45,5
L [mm] 超短/ultra short		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	超短/ultra short	65	65	65	65	65	65	65	65	75	80
订货号/Order No.	40.445...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		50	50	50	50	50	50	50	50	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	40.444...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160	160	160	160	160
订货号/Order No.	40.442...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3

### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45,5	45,5
L [mm] 超短/ultra short		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	超短/ultra short	65	65	65	65	65	65	65	65	75	80
订货号/Order No.	40.445...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		50	50	50	50	50	50	50	50	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	40.444...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160	160	160	160	160
订货号/Order No.	40.442...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37

# 迷你型热缩刀柄/MINI SHRINK DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
	或/or U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

- 减少干涉
- 跳动精度: 3 μm
- 一体型的设计确保了精度
- 可以进入原本难以进入的位置加工
- 优化了刚性
- 最好配合使用翰默 HAIMER 的热缩机
- 适用于柄径公差为h6的所有硬质合金刀具
- 耐热钢材质
- 硬度54-2 HRC
- 3°的斜角适用于模具行业
- **超细型**: 特别纤细的外形适用于精加工和难以进入的位置
- **标准型**: 较大的夹持力

- No disturbing edges
- Highest runout accuracy: 3 μm
- Precision from a single piece
- Also jobs difficult to access can be reached
- Optimum rigidity
- Ideal to shrink with the HAIMER Power Clamp
- For all solid carbide tools with shank tolerance h6
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- With 3° angle for die and mold
- **Extra slim version**: extremely slim for fine machining and for jobs very difficult to reach
- **Standard version**: with high clamping force

**注意:** 在大多数热缩机上加热和冷却迷你型热缩刀柄时, 您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄, 则无需使用安装冷却套。另外, 这些热缩机都可以配置自动线圈和扫码枪。

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16
	Ø D2 超细/extra slim [mm]	06	07	08	09	11	13	15	—
	Ø D2 标准型/standard [mm]	09	10	11	12	14	16	18	24
	L [mm]	—	—	—	—	—	—	—	75
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120
订货号/Order No.	超细/extra slim 40.477...	.03	.04	.05	.06	.08	.10	.12	—
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120
订货号/Order No.	标准型/standard 40.487...	.03	.04	.05	.06	.08	.10	.12	.16



- 针对迷你型热缩刀柄的安装冷却套**
- 保护迷你型热缩刀柄, 避免过热
  - 延长热缩刀柄的寿命
  - 方便安全的操作
  - 使用标准的冷却水套来冷却

- Mini Shrink shrink and cooling sleeve**
- Protect Mini Shrink chucks from overheating
  - Extend lifetime of shrink fit chucks
  - Secure and user friendly handling
  - Cooling with standard cooling body

针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks									订货号/Order No.
<b>超细/Extra slim</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	
订货号/Order No.	80.105.14.2...	.01	.02	.03	.04	.05	.06	.07	
<b>标准型/Standard</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	Ø 16
订货号/Order No.	80.105.14.2...	.04	.08	.05	.09	.10	.11	.12	.16
<b>底座/Base</b>									<b>80.105.14.2.99</b>
带基座的套装安装冷却套(12件)/Set with base (12 pcs., Ø 3-12 mm)									<b>80.105.14.2.00</b>

# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)

**CERTIFICATE OF QUALITY**

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- G2.5 25.000 rpm
- 或/or U<1 gmm

---

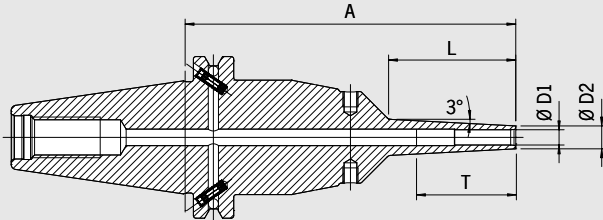
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined

---

- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3

---

- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF



强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄，后端为加厚结构，因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

- 2种型号：标准型(3mm壁厚)和超细型(1.5mm壁厚)
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具

**注意：**在大多数热缩机上加热和冷却迷你型热缩刀柄时，您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄，则无需使用安装冷却套。另外，这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- 2 types: Standard (3 mm wall thickness) and extra slim (1.5 mm wall thickness)
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

**CERTIFICATE OF QUALITY**

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- G2.5 25.000 rpm
- 或/or U<1 gmm

---

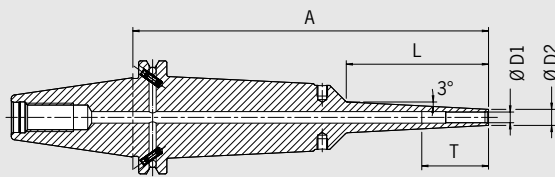
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined

---

- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3

---

- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF



夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	16
	Ø D2 [mm] 标准型/standard		09	10	11	12	14	16	18	24
	Ø D2 [mm] 超细/extra slim		06	07	08	09	11	13	15	—
	T [mm]		—	—	—	—	—	68	75	75
	L [mm] ZG130		50	50	50	50	50	50	50	50
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130	130 <sup>1)</sup>
订货号/Order No.	标准型/standard	40.484...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.474...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
	L [mm]		80	80	80	80	80	80	80	80
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160	160 <sup>1)</sup>
订货号/Order No.	标准型/standard	40.482...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.472...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
长度/Length A [mm]	ZG200		200	200	200	200	200	200	200	200 <sup>1)</sup>
订货号/Order No.	标准型/standard	40.486...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.476...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—

附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

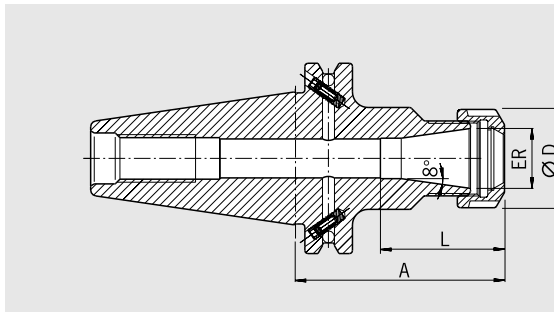
参见第587页/See page 587

1) 4mm壁厚/4 mm wall thickness

# ER 筒夹刀柄 / COLLET CHUCK ER

## DIN ISO 7388-1 · SK40

(旧标准 / PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 22.000 rpm
	或 / or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 发货中包含: 锁紧螺母(已做动平衡, 防滑涂层提高夹持力)
- 可以选配HS型高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力)
- 可按照要求加大尺寸L(需要额外费用)

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

With taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER		16	20	25	32	40
Ø D [mm]		28	34	42	50	63
夹持范围/Clamping range [mm]		0,5-10,0	1,5-13,0	1,0-16,0	1,5-20,0	2,5-26,0
L [mm]		2) <sup>1)</sup>	41,5	62	64	73
长度/Length A [mm]	短/short	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	70	70
订货号/Order No.	40.320...	.16	.20	.25	.32	.40
L [mm]		2) <sup>1)</sup>	41,5	57	64	73
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100	100
订货号/Order No.	40.321...	.16	.20	.25	.32	.40
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	—	160 <sup>1)</sup>	160	160
订货号/Order No.	40.322...	.16	—	.25	.32	.40
长度/Length A [mm]	ZG200	200 <sup>1)</sup>	—	200 <sup>1)</sup>	200	—
订货号/Order No.	40.326...	.16	—	.25	.32	—

附件/Accessories						
ER筒夹/Collets ER			参见第742页/See page 742			
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737			
锁紧螺母(已做动平衡)/Locknut (pre-balanced)						
尺寸/Size		ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	83.912...	.16	.20	.25	.32	.40
高速锁紧螺母(精细动平衡)/Locknut HS (fine-balanced)						
尺寸/Size		ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	83.912...	.16.HS	.20.HS	.25.HS	.32.HS	.40.HS
锁紧扳手/Fork wrench						
尺寸/Size		ER 16	ER 20	—	—	—
订货号/Order No.	84.200...	.16	.20	—	—	—
锁紧扳手/Clamping wrench						
尺寸/Size		—	—	ER 25	ER 32	ER 40
订货号/Order No.	84.200...	—	—	.25	.32	.40
动平衡环/Balancing index rings						
尺寸/Size		ER 16	ER 20	—	—	—
订货号/Order No.	79.350...	.28	.34	—	—	—
尺寸/Size	长/超长/ZG200	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	79.350...	.28	.34	.42	.48	.50
拉钉/Pull studs			参见第757页/See page 757			
热缩延长杆/Shrink fit extensions			参见第732页/See page 732			

1) 适用于ANSI-CAT/Also suitable for ANSI-CAT  
2) 通孔/Drilled through

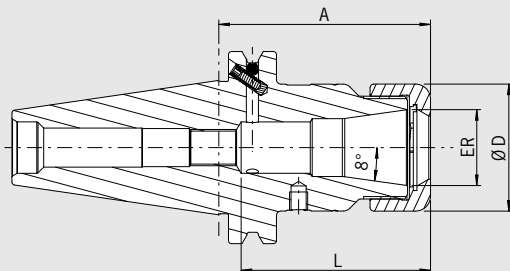
# 强力筒夹刀柄/POWER COLLET CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced  
G2.5 25.000 rpm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 锥度精度 AT3
- ✓ Taper tolerance AT3
- ✓ 切削液供给采用AD/AF型
- ✓ Coolant supply form AD/AF



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能,更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄,也可与标准ER筒夹搭配使用。

- 跳动精度高:配合翰默 HAIMER 强力筒夹使用时,在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意:当使用标准ER筒夹时,尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅,更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度,大大增加机床的切削能力
- 缩短加工时间,提高加工精度,增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项:强力筒夹上可增加冷却喷嘴
- 强力筒夹系列(参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	61,5	62
长度/Length A [mm]	短/short	70	70
订货号/Order No.	40.320...	.16.3	.25.3
			.32.3
L [mm]	43	51	53
长度/Length A [mm]	长/long	100	100
订货号/Order No.	40.321...	.16.3	.25.3
			.32.3
长度/Length A [mm]	超长/oversize	160	160
订货号/Order No.	40.322...	.16.3	.25.3
			.32.3

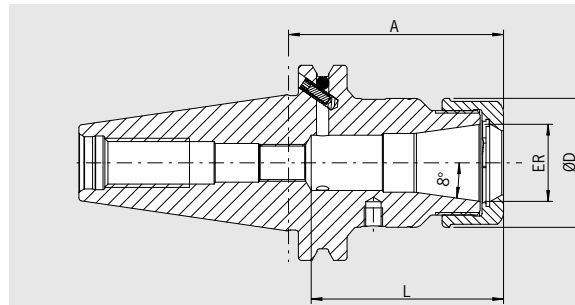
### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No. 83.914...		.16	.25
ER32			.32
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No. 84.650...		.16	.25
ER32			.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No. 84.600.00			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷嘴/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)



### 质量证书

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- ☑ G2.5 30.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	61,5	62
长度/Length A [mm]	短/short	70	70
订货号/Order No.	40.320...	.16.3.HP	.25.3.HP
L [mm]	43	51	53
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	40.321...	.16.3.HP	.25.3.HP
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	40.322...	.16.3.HP	.25.3.HP

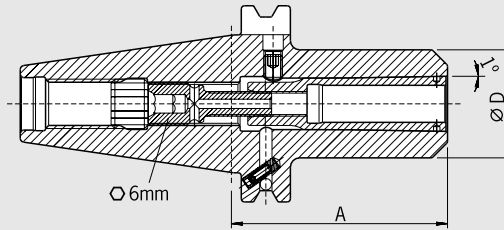
### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)				参见第752页/See page 752
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/Roller bearing wrench				参见第752页/See page 752
订货号/Order No.	84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				参见第737页/See page 737
强力筒夹/Power Collets				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				参见第749页/See page 749
订货号/Order No.	91.100.27			

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3  
☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型  
☑ Coolant supply form AD/AF



#### 用途:

为了夹持高精度的圆柱柄刀具所设计的刀柄, 同样适用于带侧固平面的圆柱柄刀具。非常适用于高速加工。

**AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 发货包含: 夹持螺钉和筒夹拉钩
- 要求刃具柄部精度为h6

#### Use:

For highly precise clamping of tools with cylindrical shank with special collets. Also for shanks with clamping flats. Very useful for high-speed machining.

With taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: high-precision chuck with clamping screw and pull-out hook without collet
- Shank tolerance h6

HG		01						02			03		
Ø D [mm]		30						35			48		
夹持部位的直径 Ø/Clamping diameter		2	3	4	5	6	8	10	12	14	16	18	20
长度/Length A [mm]	短/short	65 <sup>1)</sup>						70 <sup>1)</sup>			75		
订货号/Order No.	40.420...	.01						.02			.03		
长度/Length A [mm]	长/long	100 <sup>1,2)</sup>						100 <sup>1,2)</sup>			100 <sup>2)</sup>		
订货号/Order No.	40.421...	.01						.02			.03		
长度/Length A [mm]	超长/oversize	160 <sup>1,2)</sup>						160 <sup>1,2)</sup>			160 <sup>2)</sup>		
订货号/Order No.	40.422...	.01						.02			.03		

#### 附件/Accessories

夹持螺钉/Clamping screw		参见第773页/See page 773												
<b>HG后拉式筒夹/Collets HG</b>												参见第754页/See page 754		
HG 01		Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	—	
订货号/Order No.	82.510...	.02	.03	.04	.05	.06	.08	—	—	—	—	—	—	
HG 02		—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	—	
订货号/Order No.	82.520...	—	—	—	—	—	—	.10	.12	.14	—	—	—	
HG 03		—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20	
订货号/Order No.	82.530...	—	—	—	—	—	—	—	—	—	.16	.18	.20	
<b>筒夹拉钩/Pull-out hook</b>														
HG		HG 01					HG 02			HG 03				
订货号/Order No.	82.570...	.00					.00			.00				
<b>动平衡环/Balancing index rings</b>														
HG		HG 01					HG 02			HG 03				
订货号/Order No.	79.350...	.30					.35			.48				
拉钉/Pull studs		参见第757页/See page 757												
<b>热缩延长杆/Shrink fit extensions</b>														
参见第732页/See page 732														
<b>冷却喷孔/Cool Jet bores</b>														
订货号/Order No.	91.100.24	参见第468页/See page 468												

1) 适用于ANSI-CAT/Also suitable for ANSI-CAT

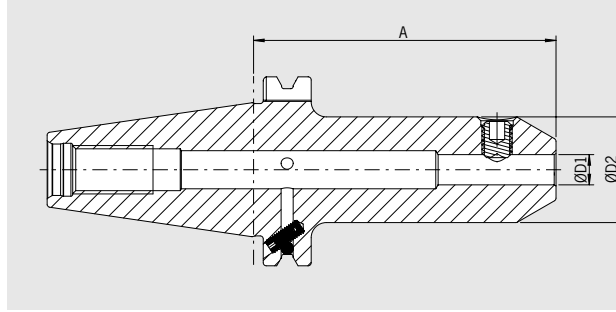
2) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))



# 侧固刀柄/WELDON TOOL HOLDER

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced G2.5 22.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**  
用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

类似DIN 6359-2, **AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 发货: 带有夹持螺钉
- 超短型刀柄为AD型
- 冷却喷孔需要额外费用

**Use:**  
For clamping cutters with cylindrical shank and Weldon flat similar to DIN 1835-B and DIN 6535-HB.

Similar to DIN 6359-2 with taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Delivery: with clamping screw
- Extra short design only available in form AD
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	42	48	48	52	65	72
长度/Length A [mm]	超短/ultrashort	—	—	—	—	—	35	—	40	60	70
订货号/Order No.	40.305...						.16		.20	.25	.32
长度/Length A [mm]	短/short	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	63	63	63	100	100
订货号/Order No.	40.300...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100	100	100	—	—
订货号/Order No.	40.301...	.06	.08	.10	.12	.14	.16	.18	.20		
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160	160	160	160	—
订货号/Order No.	40.302...	.06	.08	.10	.12	.14	.16	.18	.20	.25	

标准型, 含冷却喷孔/Standard version, with Cool Jet

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	20	25
	Ø D2 [mm]	25	28	35	42	42	48	52	65
长度/Length A [mm]	短/short	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	63	63	100
订货号/Order No.	40.300...	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.20.2	.25.2

附件/Accessories

<b>夹持螺钉/Clamping screw</b>												
夹持范围 Ø/Clamping Ø		06	08	10	12	14	16	18	20	25	32	
订货号/Order No.	85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20	
<b>动平衡环/Balancing index rings</b>												
夹持范围 Ø/Clamping Ø 长/ZG130/超长/ZG200		06	08	10	12	14	16	18	20	25	32	
订货号/Order No.	79.350...	.25	.28	.35	.42	.42	.48	.48	.52	.65	.72	
<b>拉钉/Pull studs</b>												
参见第757页/See page 757												
<b>Ø 6mm – Ø 20mm 冷却喷孔/Cool Jet bores from Ø 6 mm – Ø 20 mm</b>												
订货号/Order No.	91.100.24							参见第468页/See page 468				
<b>Ø 25mm – Ø 32mm 冷却喷孔/Cool Jet bores from Ø 25 mm – Ø 32 mm</b>												
订货号/Order No.	91.100.26							参见第468页/See page 468				

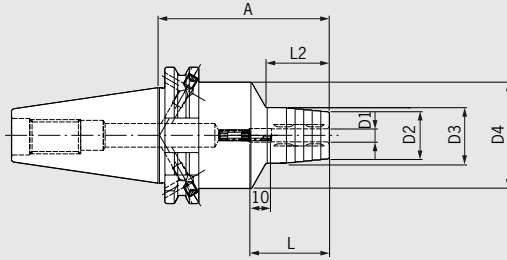
# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

### AD/AF型 DIN ISO 7388-1 SK40 锥柄

AD/AF型: 中心冷却和可密封的法兰冷却

- 发货包含: 用于长度调节的支撑螺钉

### Use:

Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

### Taper DIN ISO 7388-1 SK40 Form AD/AF

Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again

- Included in delivery: With length adjustment screw

标准型, 和 DIN 69882-7 相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	51	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	55	63
	Ø D4 [mm]	49,5	49,5	49,5	49,5	49,5	49,5	49,5	49,5	63	70
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm]	29,5	30	35	40	40	45	46	47	28	20
长度/Length A [mm]	短/short	80,5	80,5	80,5	80,5	80,5	80,5	80,5	80,5	80,5	80,5
订货号/Order No.	40.4H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32



### 附件/Accessories

拉钉/Pull studs



参见第757页/See page 757

减径套/Reduction sleeves



参见第763页/See page 763

支撑螺钉/Back-up screws

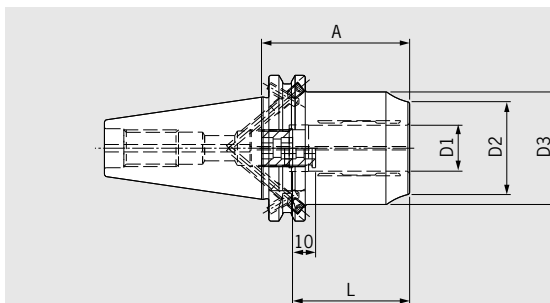


参见第768页/See page 768

# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)



### 质量证书

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced G2.5 22.000 rpm 或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm

#### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

#### AD/AF型 DIN ISO 7388-1 SK40 锥柄

AD/AF型: 中心冷却和可密封的法兰冷却

- 发货包含: 用于长度调节的支撑螺钉

#### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

#### Taper DIN ISO 7388-1 SK40 Form AD/AF

Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again

- Included in delivery: With length adjustment screw

夹持/Clamping	Ø D1 [mm]	20	32
	Ø D2 [mm]	38	57
	Ø D3 [mm]	49	63
	L [mm]	51	61
长度/Length A [mm]	短/short	64,5	81 <sup>1)</sup>
订货号/Order No.	40.4H10...	.20.3	.32.3

#### 附件/Accessories

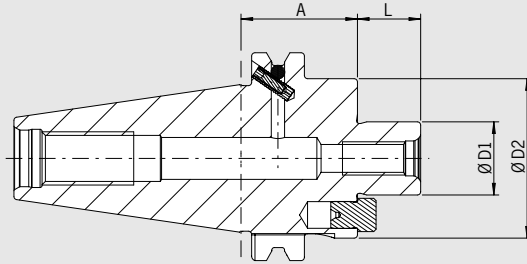
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
带安全锁的减径套/Reduction sleeves with Safe-Lock		参见第765页/See page 765
支撑螺钉/Back-up screws		参见第768页/See page 768

# 面铣刀的刀柄/FACE MILL ARBOR

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
	G2.5 22.000 rpm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用AD/AF型	✓ Coolant supply form AD/AF



**用途:**

用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

依据DIN 6357, **AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉. 订货号中含16.1的刀柄, 承靠面直径减小
- 冷却孔在端面, 可与带中心冷却的铣刀盘搭配使用

**Use:**

For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

According to DIN 6357 with taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt, size 16.1 with reduced contact diameter
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm] 短/short	32	48	48	78	87
	L [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	35	35	35	50	50
订货号/Order No.	<b>40.350...</b>	<b>.16.1.KKB</b>	<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	<b>.40.KKB</b>
	Ø D2 [mm]	36	48	60	78	
长度/Length A [mm]	长/long	100	100	100	100	—
订货号/Order No.	<b>40.351...</b>	<b>.16.KKB</b>	<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	
长度/Length A [mm]	超长/oversize	—	160	160	160	—
订货号/Order No.	<b>40.352...</b>		<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	

**附件/Accessories**

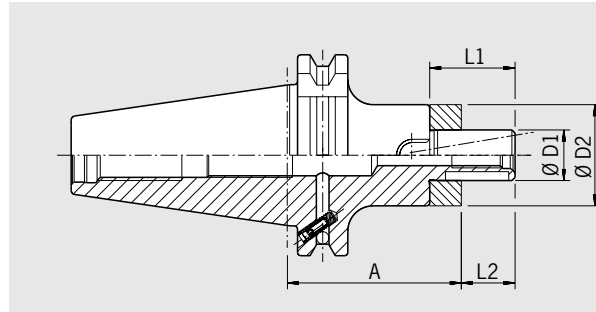
<b>拉紧螺钉/Tightening bolt</b>						
尺寸/Size D1		—	22	27	32	40
订货号/Order No.	<b>85.300...</b>		<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>锁紧扳手/Wrench</b>						
尺寸/Size D1		—	22	27	32	40
订货号/Order No.	<b>84.400...</b>		<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>动平衡环/Balancing index rings</b>						
尺寸/Size D1	短/short	—	22	27	—	—
订货号/Order No.	<b>79.350...</b>		<b>.48</b>	<b>.48</b>		
尺寸/Size D1	长/超长/long/oversize	16	22	27	32	—
订货号/Order No.	<b>79.350...</b>	<b>.36</b>	<b>.48</b>	<b>.60</b>	<b>.78</b>	
<b>拉钉/Pull studs</b>						

参见第757页/See page 757

# 壳铣刀的刀柄/COMBINATION SHELL END MILL ARBOR

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)



### 质量证书

<input checked="" type="checkbox"/> 刀柄精细动平衡
<input checked="" type="checkbox"/> Chuck body fine balanced
<input checked="" type="checkbox"/> G2.5 22,000 rpm
<input checked="" type="checkbox"/> 所有功能面精细加工
<input checked="" type="checkbox"/> All functional surfaces fine machined
<input checked="" type="checkbox"/> 锥度精度 AT3
<input checked="" type="checkbox"/> Taper tolerance AT3
<input checked="" type="checkbox"/> 切削液供给采用AD/AF型
<input checked="" type="checkbox"/> Coolant supply form AD/AF

### 用途:

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合DIN842的角度铣刀和符合 DIN 1830 的刀具。

依据 DIN 6538, **AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉、传动环和滑键
- 前端冷却喷孔需要额外费用

### Use:

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

According to DIN 6538 with taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt, driving ring and feather key
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	32	40	48	58	70
	L1 [mm]	27	31	33	38	41
	L2 [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	55 <sup>1)</sup>	55 <sup>1)</sup>	55	60	60
订货号/Order No.	<b>40.340...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100	100	100
订货号/Order No.	<b>40.341...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	—
订货号/Order No.	<b>40.344...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	—
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160	160	—
订货号/Order No.	<b>40.342...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	—
长度/Length A [mm]	ZG200	200 <sup>1)</sup>	200 <sup>1)</sup>	200	—	—
订货号/Order No.	<b>40.346...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	—	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.300...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>84.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

#### 滑键/Feather key

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

#### 传动环/Driving ring

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.200...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

#### 动平衡环/Balancing index rings

尺寸/Size D1	长/超长/long/oversize	16	22	27	32	40
订货号/Order No.	<b>79.350...</b>	<b>.32</b>	<b>.40</b>	<b>.48</b>	<b>.58</b>	<b>.70</b>

#### 拉钉/Pull studs



参见第757页/See page 757

#### 冷却喷孔/Coolant bores

订货号/Order No. **91.100.03**



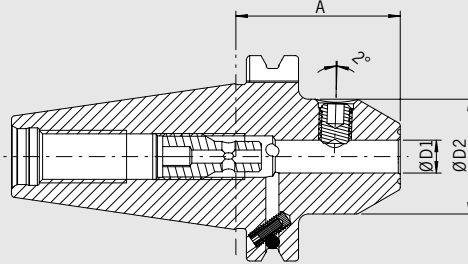
# 斜孔侧固刀柄/WHISTLE NOTCH TOOL HOLDER

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

**CERTIFICATE OF QUALITY**

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF

**用途:**

夹持具有类似DIN 1835-E和 DIN 6535-HE的倾斜的紧固平面的圆柱直柄刀具。

依据 DIN 6359-2, **AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

交货时含: 夹持螺钉和支撑螺钉  
- 精密动平衡需要额外费用  
- 冷却喷孔需要额外费用

**Use:**

For clamping cutters with cylindrical shank and inclined flat similar to DIN 1835-E and DIN 6535-HE.

DIN 6359-2 with taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Delivery: with clamping screw and adjusting screw  
- Fine-balancing for an extra charge  
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	42	48	48	52	65	72
长度/Length A [mm]	短/short	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	50 <sup>1)</sup>	63	63	63	100	100
订货号/Order No.	40.330...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

**附件/Accessories**

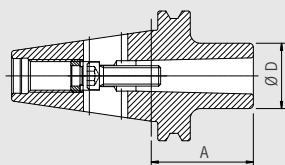
<b>夹持螺钉/Clamping screw</b>											
夹持范围 Ø/Clamping Ø		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20
<b>支撑螺钉/Adjusting screw</b>											
尺寸/Size D1	短/short	06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.150...	.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
尺寸/Size D1	长/long	06	08	10	12	14	16	18	20	—	—
订货号/Order No.	85.150...	.04	.04	.04	.04	.04	.04	.04	.04	—	—
尺寸/Size D1	ZG130	06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.150...	.05	.05	.05	.05	.05	.05	.05	.05	.08	.08
尺寸/Size D1	超长/oversize	06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.150...	.07	.07	.07	.06	.06	.07	.07	.07	.06	.06
<b>动平衡环/Balancing index rings</b>											
夹持范围 Ø/Clamping Ø	长/超长/long/oversize/ZG130	06	08	10	12	14	16	18	20	25	32
订货号/Order No.	79.350...	.25	.28	.35	.42	.42	.48	.48	.52	.65	.72
<b>拉钉/Pull studs</b>											
		参见第757页/See page 757									
<b>冷却喷孔/Cool Jet bores</b>											
订货号/Order No.	91.100.24	参见第468页/See page 468									

1) 适用于ANSI-CAT/Also suitable for ANSI-CAT

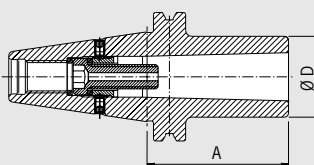
# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)



Typ 1



Typ 2



**质量证书**

- ✓ 刀柄精细动平衡
- ✓ Chuck body balanced  
G6.3 8.000 rpm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 锥度精度 AT3
- ✓ Taper tolerance AT3

**用途:**

用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具

类似 DIN 6383 **A型 SK40** 锥柄符合 DIN ISO 7388-1

- 交货时含: 紧固螺栓
- 精密动平衡需要额外费用

莫式3和4刀柄无扁尾孔, AD型

**Use:**

For clamping tools with Morse taper with drawbar thread according to DIN 228-1 form A.

Similar to DIN 6383 with taper **SK40 form A** DIN ISO 7388-1.

- Included in delivery: tightening bolt
- Fine-balancing for an extra charge

MK3 and MK4 without bore for tang form AD

类型/Type		1	2	2
莫式/MK		02	03	04
Ø D [mm]		32	40	48
长度/Length A [mm]	短/short	50 <sup>1)</sup>	70 <sup>1)</sup>	95
订货号/Order No.	40.430...	.02	.03	.04



**附件/Accessories**

动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



02

.32

03

.40

04

.48

拉钉/Pull studs

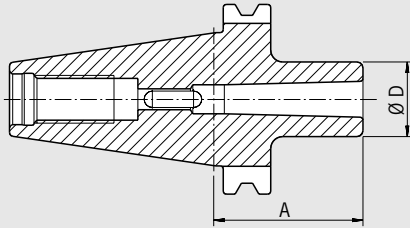


参见第757页/See page 757

# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)

**CERTIFICATE OF QUALITY**

- ☑ 刀柄动平衡  
Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工  
All functional surfaces fine machined
- ☑ 锥度精度 AT3  
Taper tolerance AT3



**用途:**

适用于 DIN 228-1 B型带扁尾莫氏锥柄工具

类似 DIN 6383 **AD型 SK40** 锥柄符合 DIN ISO 7388-1

- 精密动平衡需要额外费用

**Use:**

For holding tools with Morse tapers and tang according to DIN 228-1 form B.

Similar to DIN 6383 with taper **SK40 form AD** DIN ISO 7388-1.

- Fine-balancing for an extra charge

莫式/MK		01	02	03	04
Ø D [mm]		25	32	40	48
长度/Length A [mm]	短/short	50 <sup>1)</sup>	50 <sup>1)</sup>	70 <sup>1)</sup>	95
订货号/Order No.	40.380...	.01	.02	.03	.04



**附件/Accessories**

**动平衡环/Balancing index rings**

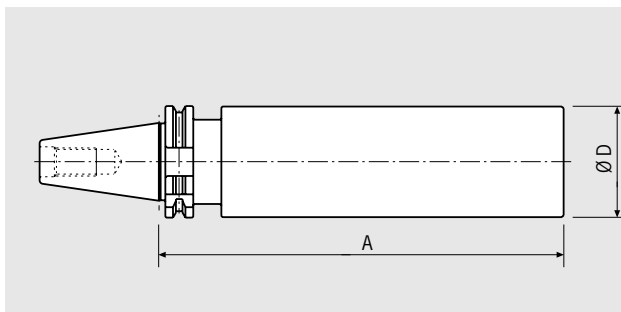
莫式/MK		01	02	03	04
订货号/Order No.	79.350...	.25	.32	.40	.48
拉钉/Pull studs					参见第757页/See page 757



1) 同样适用于ANSI-CAT/Also suitable for ANSI-CAT



# 毛坯刀柄/BLANK ADAPTER DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	所有功能面精细加工 All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3 Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型 Coolant supply form AD/AF

**用途:**  
用于制造特殊刀具  
适用于ANSI-CAT。

**设计:**  
锥柄和法兰槽硬化并精磨, 圆柱部分未硬化

**AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1.  
AD/AF型: 中心冷却和可密封的法兰冷却

**Use:**  
For manufacturing special tools in your factory.  
Also suitable for ANSI-CAT.

**Design:**  
Taper and groove are hardened and ground, the cylindrical part is soft.

With taper **SK40 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

	Ø D [mm]		63
长度/Length A [mm]	ZG100		100
订货号/Order No.	40.395...		.63
长度/Length A [mm]	ZG230		230
订货号/Order No.	40.390...		.63

附件/Accessories  
拉钉/Pull studs



参见第757页/See page 757

# 快换攻丝刀柄

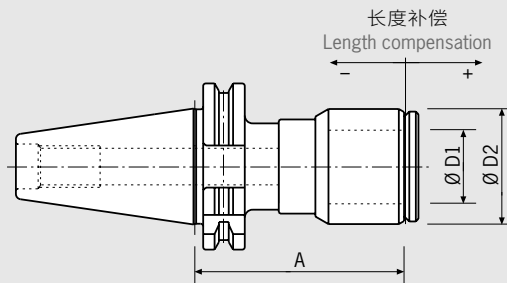
## QUICK CHANGE TAPPING CHUCKS

### DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

#### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 可以承受高达50bar的内冷压力
- ☑ Interior high-pressure cooling up to 50 bar



#### 用途:

非常适合于数控铣床。通过拉伸和压紧进行轴向长度补偿。同样适用于ANSI-CAT。

**AD/AF型 SK40** 锥柄符合 DIN ISO 7388-1

AD/AF型: 中心冷却和可密封的法兰冷却

优点: 特别研发的系统, 可以承受高达50bar的内冷压力, 高对中精度。高压夹持系统 (高压冷却下的安全夹紧), 利于所有的丝锥的快速换刀 (不适用于BILZ系统)

- 精密动平衡需要额外费用

#### Use:

For tapping preferably on NC milling machines. Axial length compensation on tension and pressure. Also suitable for ANSI-CAT.

With steep taper **SK40 form AD/AF** DIN ISO 7388-1.

Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Advantages: Specially developed system, interior coolant supply up to 50 bar, high centering precision, high-pressure clamping system (safe clamping for high-pressure cooling) and advantageous quick change inserts for all available taps (not compatible for system BILZ)

- Fine-balancing for an extra charge

尺寸/Size	01	03
$\varnothing D1$ [mm]	20	28
$\varnothing D2$ [mm]	36	44
长度/Length A [mm]	71	80
订货号/Order No. <b>40.370...</b>	<b>.01</b>	<b>.03</b>
用于丝锥/for taps	M3-M14	M4,5-M24
长度补偿/Length compensation	$\pm 3$	$\pm 3$

#### 附件/Accessories

拉钉/Pull studs



参见第757页/See page 757

快换插件/Quick change inserts



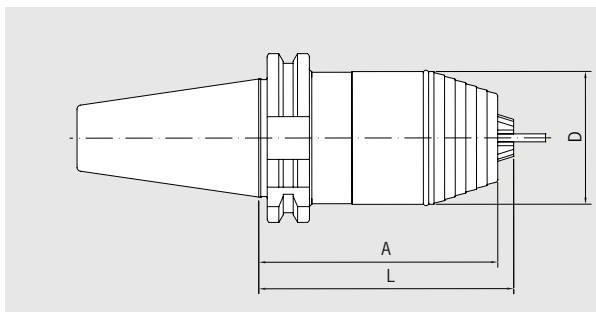
参见第774页/See page 774

夹持螺钉/Clamping screw



订货号/Order No. **140/11.00.020402**

# 短钻夹头刀柄/SHORT DRILL CHUCK DIN ISO 7388-1 · SK40 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 22.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**  
用于左右旋转夹持圆柱柄刀具, 用内六角扳手锁紧及拆卸

SK40锥柄 AD/AF型 DIN ISO 7388-1

**Use:**  
For clamping tools with cylindrical shank, for left and right hand turn, clamping and loosening with a hexagon socket wrench.

With taper **SK40 form AD/AF** DIN ISO 7388-1

夹持范围/Clamping range		0,5-13
Ø D [mm]		50
L [mm]		96
长度/Length A [mm]		90
订货号/Order No.	40.411...	.13

附件/Accessories  
拉钉/Pull studs



参见第757页/See page 757

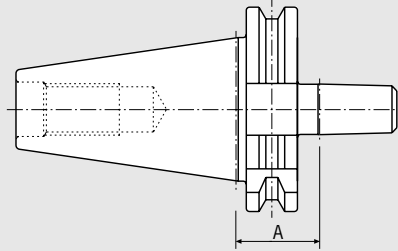
# 钻夹头转换刀柄/DRILL CHUCK ADAPTER

## DIN ISO 7388-1 · SK40

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3



### 用途:

用于符合 DIN 6349 标准的三爪卡盘刀柄。  
适用于ANSI-CAT。

根据 DIN 238 标准,符合 SK40 锥柄 DIN ISO 7388-1标准A型。


- 精密动平衡需要额外费用

### Use:

For holding chucks with three jaws e.g. according to DIN 6349.  
Also suitable for ANSI-CAT

According to DIN 238 with taper **SK40 form A** DIN ISO 7388-1.

- Fine-balancing for an extra charge

夹持刀柄/Holding chuck			B16
长度/Length A [mm]			26
订货号/Order No.	40.400...		.16

### 附件/Accessories

拉钉/Pull studs



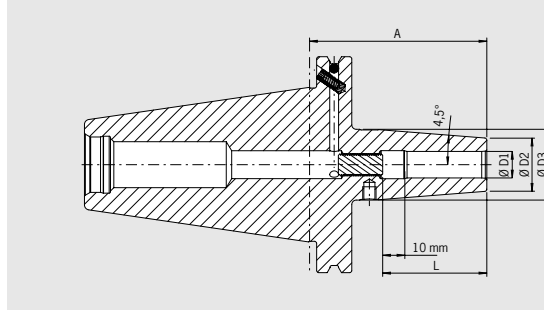
参见第757页/See page 757

# 热缩刀柄/SHRINK FIT CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

刀柄  
Tool Holders



质量证书	
☑	刀柄精细动平衡
☑	Chuck body fine balanced
	G2.5 25.000 rpm
☑	所有功能面精细加工
☑	All functional surfaces fine machined
☑	锥度精度 AT3
☑	Taper tolerance AT3
☑	切削液供给采用AD/AF型
☑	Coolant supply form AD/AF






**用途:**  
适用于所有热缩机

DIN ISO 7388-1(旧标准 DIN 69871) SK50 AD/AF型冷却方式符合DIN 69882-8 的热缩刀柄  
AD/AF型: 中心冷却和可密封的法兰冷却  
- 耐热钢材质  
- 硬度54-2 HRC  
- 用于高速钢和硬质合金刀具  
- 要求刀具柄部精度为h6  
- 含用于调整动平衡的螺钉孔  
- 发货包含: 支撑螺钉  
- 冷却喷孔需要额外费用(参见第468页)  
- 环绕冷却需要额外费用(参见第466/467页)


**Use:**  
Suitable for all shrinking units.

With taper **SK50 form AD/AF** DIN ISO 7388-1 (previously DIN 69871) and shrink holder DIN 69882-8.  
Form AD/AF means: central coolant supply and coolant channels through the flange which can be sealed again.  
- Heat resistant hot-working steel  
- Hardened 54-2 HRC  
- For HSS and solid carbide tools  
- Shank tolerance h6  
- With threaded holes in order to balance with balancing screws  
- Included in delivery: Shrink fit chuck with back-up screw  
- Cooling with Cool Jet for an extra charge (See page 468)  
- Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

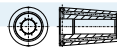
夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]		27	27	32	32	34	34	42	42	53	53
	L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short		80	80	80	80	80	80	80	80	100	100
订货号/Order No.	<b>50.440...</b>		.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120		120	120	120	120	120	120	120	120	120	120
订货号/Order No.	<b>50.447...</b>		.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130	130	130	130
订货号/Order No.	<b>50.444...</b>		.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	超长/oversize		160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	<b>50.442...</b>		.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG200		200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>
订货号/Order No.	<b>50.446...</b>		.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

标准型, 含冷却喷孔/Standard version, with Cool Jet

夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]		27	27	32	32	34	34	42	42	53	53
	L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short		80	80	80	80	80	80	80	80	100	100
订货号/Order No.	<b>50.440...</b>		.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.18.2	.20.2	.25.2	.32.2

附件/Accessories

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash  
从不带冷却喷孔的热缩刀柄升级为环绕冷却/  
Cool Flash incl. Cool Jet



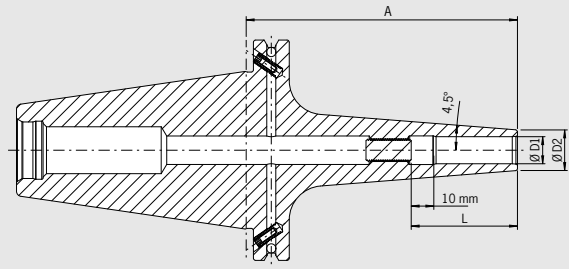
订货号/Order No. **91.100.40**  
订货号/Order No. **91.100.41**

参见第466页/See page 466  
参见第466页/See page 466

1) 柄径D3向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D3 is changing towards flange (check dxf or stp file))

# 超细型热缩刀柄/SHRINK FIT CHUCK EXTRA SLIM DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U<1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 锥度精度 AT3	☑ Taper tolerance AT3
☑ 切削液供给采用AD/AF型	☑ Coolant supply form AD/AF



**用途:**

适用于所有热缩机  
超细型热缩刀柄的D2更小, 4.5°。

- DIN ISO 7388-1(旧标准 DIN 69871) SK50 AD/AF型冷却方式符合DIN 69882-8的热缩刀柄  
AD/AF型: 中心冷却和可密封的法兰冷却
- 耐热钢材质
  - 硬度54-2 HRC
  - 用于硬质合金刀具
  - 要求刀具柄部精度为h6
  - 发货时包含: 带支撑螺钉的热缩刀柄(Ø6-12mm)
  - 可以选配冷却细缝
  - 无需使用安装冷却套

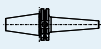
**Use:**

Suitable for all shrinking units.  
Extra slim version with smaller diameter D2, 4,5°.

- With taper DIN ISO 7388-1 **SK50 form AD/AF** (previously DIN 69871) and shrink holder DIN 69882-8.  
Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again.
- Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For solid carbide tools with shank tolerance h6
  - Shank tolerance h6
  - Included in delivery: Shrink fit chuck with back-up screw (Ø 6-12 mm)
  - Cooling with slits for an extra charge
  - Shrinking without shrink and cooling sleeves possible

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12
	Ø D2 [mm]	09	09	09	15	15	18	18
	L [mm]	—	—	—	36	36	42	47
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>	120 <sup>1)</sup>	120	120	120	120
订货号/Order No.	50.447...	.03.10	.04.10	.05.10	.06.10	.08.10	.10.10	.12.10

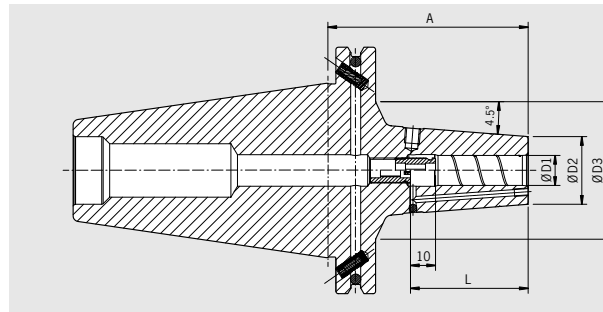


附件/Accessories

热缩延长杆/Shrink fit extensions		参见第732页/See page 732	
拉钉/Pull studs		参见第757页/See page 757	
减径套/Reduction sleeves		参见第763页/See page 763	
支撑螺钉/Back-up screws		参见第768页/See page 768	
冷却转换套/Cooling adapter		Ø 3-5 mm 80.105.14.1.3	Ø 6-12 mm 80.105.14.1.2

1) 无支撑螺钉/without back-up screw

## 强力热缩刀柄/POWER SHRINK CHUCK DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



### 质量证书

<input checked="" type="checkbox"/> 刀柄精细动平衡 <input checked="" type="checkbox"/> Chuck body fine balanced G2.5 25.000 rpm
<input checked="" type="checkbox"/> 所有功能面精细加工 <input checked="" type="checkbox"/> All functional surfaces fine machined
<input checked="" type="checkbox"/> 锥度精度 AT3 <input checked="" type="checkbox"/> Taper tolerance AT3
<input checked="" type="checkbox"/> 切削液供给采用AD/AF型 <input checked="" type="checkbox"/> Coolant supply form AD/AF
<input checked="" type="checkbox"/> 冷却喷嘴, 可密封 <input checked="" type="checkbox"/> Cool Jet, can be sealed

强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含侧壁冷却喷孔, 可封闭
- 环绕冷却需要额外费用 (参见第466/467页)

**加长型(A=160 或者200)结构紧凑, 使用灵活**

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

**The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.**

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

**The long versions (A=160 and 200) with slim tips are especially versatile to use.**

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25
Ø D2 [mm] 短/short		21	21	27	27	33,3	33,3	44,7	44,7	44
Ø D3 [mm] 短/short		70	70	55	55	—	—	—	—	78
L [mm]		36	36	42	47	47	50	50	52	58
长度/Length A [mm] 短/short		80	80	80	80	80	80	80	80	100
订货号/Order No.	50.440...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
Ø D2 [mm]		21	21	27	27	33	33	44	44	44
Ø D3 [mm]		78	78	78	78	78	78	78	78	78
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	50.442...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
长度/Length A [mm] ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	50.446...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3

含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25
Ø D2 [mm] 短/short		21	21	27	27	33,3	33,3	44,7	44,7	44
Ø D3 [mm] 短/short		70	70	55	55	—	—	—	—	78
L [mm]		36	36	42	47	47	50	50	52	58
长度/Length A [mm] 短/short		80	80	80	80	80	80	80	80	100
订货号/Order No.	50.440...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
Ø D2 [mm]		21	21	27	27	33	33	44	44	44
Ø D3 [mm]		78	78	78	78	78	78	78	78	78
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	50.442...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
长度/Length A [mm] ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	50.446...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37

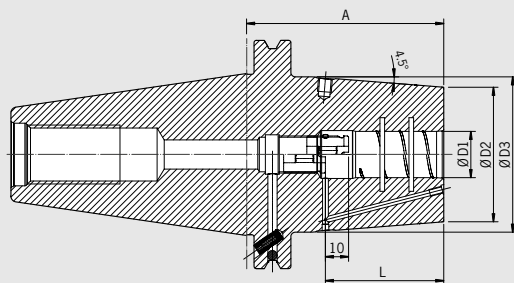
# 重型热缩刀柄/HEAVY DUTY CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

**CERTIFICATE OF QUALITY**

- 刀柄精细动平衡  
*Chuck body fine balanced*  
G2.5 25.000 rpm
- 所有功能面精细加工  
*All functional surfaces fine machined*
- 锥度精度 AT3  
*Taper tolerance AT3*
- 切削液供给采用AD/AF型  
*Coolant supply form AD/AF*
- 冷却喷孔, 可密闭  
*Cool Jet, can be sealed*






应用于重型机械加工中, 并将最终替代侧固刀柄。  
重型热缩刀柄采用了热缩装夹方式, 因此具有更高的刚性和夹持力。




- 顺畅地拆装刀具
- 热缩装夹后, 刀具柄部不会变形
- 3 $\mu$ m的跳动精度
- 外形加强
- 可用翰默HAIMER 13kW HD重型线圈加热或用高性能的强力型热缩机 (20kW)
- 夹持孔内有容屑槽和膨胀槽
- 含用于调整动平衡的螺钉孔
- 含可密闭的冷却喷孔
- 环绕冷却需要额外费用 (参见第466/467页)

For heavy machining applications it is now possible to replace the Weldon tool holders finally. Heavy Duty Chuck is the shrink fit chuck for extreme cases. The contour is optimised for highest rigidity and clamping force.


- Smooth clamping of the tool shank
- No deformation at the tool shank after shrink process
- High runout accuracy: 3  $\mu$ m
- Reinforced outer contour
- To shrink with 13kW HD-Coil or with high performance shrink fit unit HAIMER Power Clamp Profi Plus (20 kW)
- With internal groove in the clamping bore
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

夹持/Clamping	$\varnothing$ D1 [mm]	16	20	25	32	40	50	
	$\varnothing$ D2 [mm]	51	58	63	70	82	82	
	$\varnothing$ D3 [mm] 短/short	—	67	72	78	90	94	
	$\varnothing$ D3 [mm]	78	78	78	85	94	94	
	L [mm]	50	52	58	61	88	88	
长度/Length A [mm] 短/short		80	85	90	90	100	140	
订货号/Order No.	50.450...		.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	
订货号/Order No.	50.452...		.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm] ZG200		200	200	200	200	200	200	
订货号/Order No.	50.456...		.16.6	.20.6	.25.6	.32.6	.40.6	.50.6

**含安全锁的重型热缩刀柄/Heavy Duty Chuck with Safe-Lock**

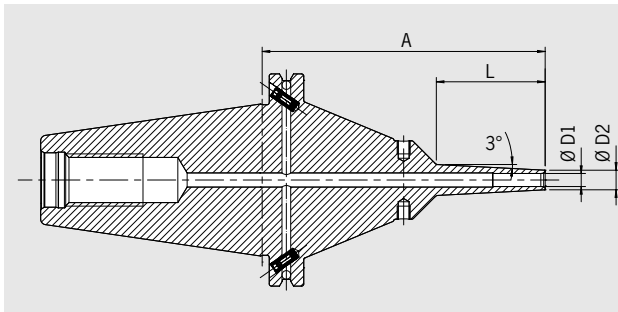
夹持/Clamping	$\varnothing$ D1 [mm]	16	20	25	32	40	50	
	$\varnothing$ D2 [mm]	51	58	63	70	82	82	
	$\varnothing$ D3 [mm] 短/short	—	67	72	78	90	94	
	$\varnothing$ D3 [mm]	78	78	78	85	94	94	
	L [mm]	50	52	58	61	88	88	
长度/Length A [mm] 短/short		80	85	90	90	100	140	
订货号/Order No.	50.450...		.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	
订货号/Order No.	50.452...		.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm] ZG200		200	200	200	200	200	200	
订货号/Order No.	50.456...		.16.67	.20.67	.25.67	.32.67	.40.67	.50.67

**适合于 13 KW 热缩机用的重型热缩刀柄/For 13 kW shrink fit machine**

夹持/Clamping	$\varnothing$ D1 [mm]	16	
	$\varnothing$ D2 [mm]	46	
	L [mm]	50	
长度/Length A [mm] 短/short		80	
订货号/Order No. 标准型/standard	50.440...		.16.6
订货号/Order No. 含安全锁/Safe-Lock	50.440...		.16.67



# 强力迷你型热缩刀柄 / POWER MINI SHRINK CHUCK DIN ISO 7388-1 · SK50 (旧标准 / PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄，后端为加厚结构，因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

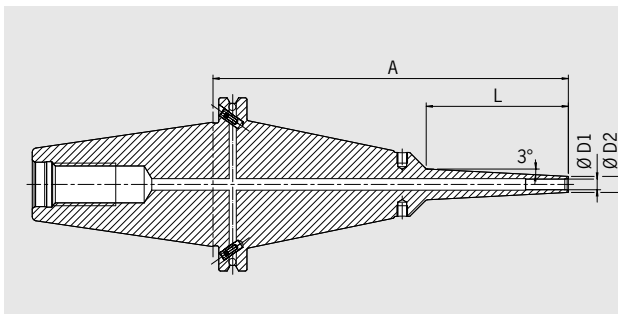
- 2种型号：标准型(3mm壁厚)和超细型(1.5mm壁厚)
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具

**注意：**在大多数热缩机上加热和冷却迷你型热缩刀柄时，您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄，则无需使用安装冷却套。另外，这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- 2 types: Standard (3 mm wall thickness) and extra slim (1.5 mm wall thickness)
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

夹持/Clamping	Ø D1 [mm]	06	08
	Ø D2 [mm] 标准型/standard	12	14
	Ø D2 [mm] 超细/extra slim	09	11
	L [mm] ZG130	50	50
长度/Length A [mm]	ZG130	130	130
订货号/Order No.	标准型/standard	50.484...	.06.8
订货号/Order No.	超细/extra slim	50.474...	.06.8
	L [mm]	80	80
长度/Length A [mm]	超长/oversize	160	160
订货号/Order No.	标准型/standard	50.482...	.06.8
订货号/Order No.	超细/extra slim	50.472...	.06.8
长度/Length A [mm]	ZG200	200	200
订货号/Order No.	标准型/standard	50.486...	.06.8
订货号/Order No.	超细/extra slim	50.476...	.06.8

附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

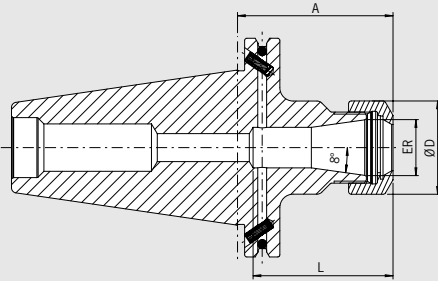
参见第587页/See page 587

# ER 筒夹刀柄/COLLET CHUCK ER

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 22.000 rpm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 锥度精度 AT3	☑ Taper tolerance AT3
☑ 切削液供给采用AD/AF型	☑ Coolant supply form AD/AF



**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

DIN ISO 7388-1 SK50 (AD/AF型冷却方式)  
AD/AF型: 中心冷却和可密封的法兰冷却

- 发货中包含: 锁紧螺母(已做动平衡, 防滑涂层提高夹持力)
- 高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力)需要额外费用
- 可按照要求加大尺寸L(需要额外费用)

**Use:**


For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).


With taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER		16	20	25	32	40
Ø D [mm]		28	34	42	50	63
夹持范围/Clamping range [mm]		0,5–10,0	1,5–13,0	1,0–16,0	1,5–20,0	2,5–26,0
L [mm]		2)	41,5	62	64	73
长度/Length A [mm]	短/short	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>
订货号/Order No.	50.320...	.16	.20	.25	.32	.40
L [mm]		2)	41,5	57	64	73
长度/Length A [mm]	长/long	100 <sup>1,3)</sup>	100 <sup>1,3)</sup>	100 <sup>1,3)</sup>	100 <sup>1,3)</sup>	100 <sup>1,3)</sup>
订货号/Order No.	50.321...	.16	.20	.25	.32	.40
长度/Length A [mm]	超长/oversize	160 <sup>1,3)</sup>	—	160 <sup>1,3)</sup>	160 <sup>1,3)</sup>	160 <sup>3)</sup>
订货号/Order No.	50.322...	.16	—	.25	.32	.40
长度/Length A [mm]	ZG200	200 <sup>1,3)</sup>	—	200 <sup>1,3)</sup>	200 <sup>1,3)</sup>	200 <sup>3)</sup>
订货号/Order No.	50.326...	.16	—	.25	.32	.40

附件/Accessories

ER筒夹/Collets ER  参见第742页/See page 742

热缩筒夹/Shrink Fit Collets  参见第737页/See page 737

锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size ER 16 ER 20 ER 25 ER 32 ER 40  
订货号/Order No. 83.912... .16 .20 .25 .32 .40

高速锁紧螺母(精细动平衡)/Locknut HS (fine-balanced)

尺寸/Size ER 16 ER 20 ER 25 ER 32 ER 40  
订货号/Order No. 83.912... .16.HS .20.HS .25.HS .32.HS .40.HS

锁紧扳手/Fork wrench

尺寸/Size ER 16 ER 20 — — —  
订货号/Order No. 84.200... .16 .20

锁紧扳手/Clamping wrench

尺寸/Size — — ER 25 ER 32 ER 40  
订货号/Order No. 84.200... .25 .32 .40

动平衡环/Balancing index rings

尺寸/Size 短/short ER 16 ER 20 — — —  
订货号/Order No. 79.350... .28 .34

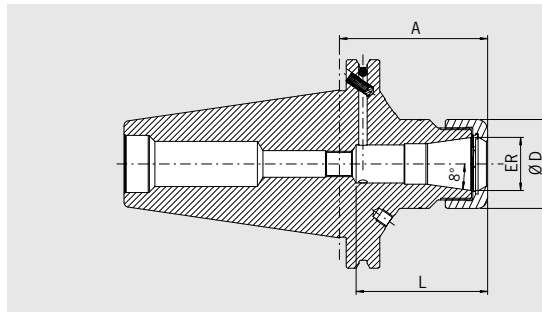
尺寸/Size 长/超长/long/oversize/ZG200 ER 16 ER 20 ER 25 ER 32 ER 40  
订货号/Order No. 79.350... .28 .34 .42 .48 .50

拉钉/Pull studs  参见第757页/See page 757

热缩延长杆/Shrink fit extensions  参见第732页/See page 732

1) 适用于ANSI-CAT/Also suitable for ANSI-CAT  
2) 通孔/Drilled through  
3) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 强力筒夹刀柄/POWER COLLET CHUCK DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
☑	刀柄精细动平衡 Chuck body fine balanced G2.5 25.000 rpm
☑	所有功能面精细加工 All functional surfaces fine machined
☑	锥度精度 AT3 Taper tolerance AT3
☑	切削液供给采用AD/AF型 Coolant supply form AD/AF

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意: 当使用标准ER筒夹时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹系列 (参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	62	62,5
长度/Length A [mm] 短/short	70	70	70
订货号/Order No.	50.320... .16.3	.25.3	.32.3
L [mm]	43	51	53
长度/Length A [mm] 长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	50.321... .16.3	.25.3	.32.3
长度/Length A [mm] ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	50.324... .16.3	.25.3	.32.3
长度/Length A [mm] 超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	50.322... .16.3	.25.3	.32.3

附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No.	83.914... .16	.25	.32
锁紧扳手/Clamping wrench	ER 16	ER 25	参见第751页/See page 751
订货号/Order No.	84.650... .16	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No.	91.100.27		

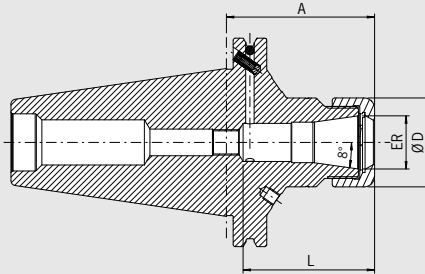
1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
G2.5 25.000 rpm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用AD/AF型	✓ Coolant supply form AD/AF



翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷嘴
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is the collet chuck for highest metal removal rates. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

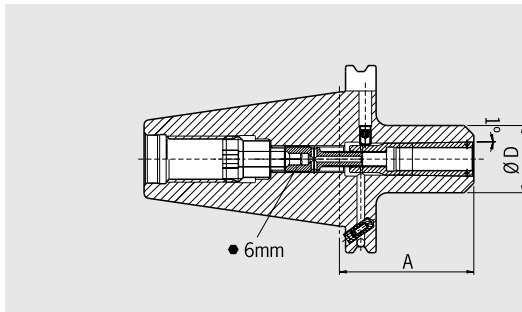
ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	62	62,5
长度/Length A [mm] 短/short	70	70	70
订货号/Order No.	50.320... .16.3.HP	.25.3.HP	.32.HP
L [mm]	43	51	53
长度/Length A [mm] 长/long	100	100	100
订货号/Order No.	50.321... .16.3.HP	.25.3.HP	.32.HP
长度/Length A [mm] ZG130	130	130	130
订货号/Order No.	50.324... .16.3.HP	.25.3.HP	.32.HP
长度/Length A [mm] 超长/oversize	160	160	160
订货号/Order No.	50.322... .16.3.HP	.25.3.HP	.32.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)			参见第752页/See page 752
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/ Roller bearing wrench			参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷嘴/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp文件/D is changing towards flange (check dxf or stp file))

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡 Chuck fine balanced G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工 All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3 Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型 Coolant supply form AD/AF

**用途:**  
为了夹持高精度的圆柱柄刀具所设计的刀柄, 同样适用于带侧固平面的圆柱柄刀具。非常适用于高速加工。  
适用于ANSI-CAT

**Use:**  
For highly precise clamping of tools with cylindrical shank with special collets. Very useful for high-speed machining.  
Also suitable for ANSI-CAT.

AD/AF型 SK50 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

With taper SK50 form AD/AF DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- 发货包含: 夹持螺钉和筒夹拉钩
- 要求刀具柄部精度为h6

- Included in delivery: high-precision chuck with clamping screw and pull-out hook without collet
- Shank tolerance h6

HG	Ø D [mm]	夹持范围 Ø//Clamping diameter	01						02			03		
			2	3	4	5	6	8	10	12	14	16	18	20
长度/Length A [mm]	短/short		65						70			75		
订货号/Order No.	50.420...		.01						.02			.03		
长度/Length A [mm]	长/long		100 <sup>1)</sup>						100 <sup>1)</sup>			100 <sup>1)</sup>		
订货号/Order No.	50.421...		.01						.02			.03		
长度/Length A [mm]	超长/oversize		160 <sup>1)</sup>						160 <sup>1)</sup>			160 <sup>1)</sup>		
订货号/Order No.	50.422...		.01						.02			.03		

附件/Accessories		参见第773页/See page 773												
夹持螺钉/Clamping screw														
后拉式筒夹/HG Collets		参见第754页/See page 754												
HG 01			Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	—
订货号/Order No.		82.510...	.02	.03	.04	.05	.06	.08						
HG 02			—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	—
订货号/Order No.		82.520...							.10	.12	.14			
HG 03			—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20
订货号/Order No.		82.530...										.16	.18	.20
筒夹拉钩/Pull-out hook														
HG			HG 01						HG 02			HG 03		
订货号/Order No.		82.570...	.00						.00			.00		
动平衡环/Balancing index rings														
HG			HG 01						HG 02			HG 03		
订货号/Order No.		79.350...	.30						.35			.48		
拉钉/Pull studs														
热缩延长杆/Shrink fit extensions														
冷却喷孔/Cool Jet bores			参见第468页/See page 468											
订货号/Order No.		91.100.24												

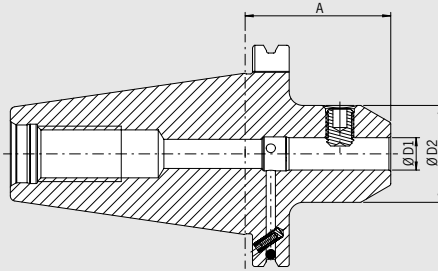
1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 侧固刀柄/WELDON TOOL HOLDER

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck fine balanced
	G2.5 22.000 rpm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 锥度精度 AT3	☑ Taper tolerance AT3
☑ 切削液供给采用AD/AF型	☑ Coolant supply form AD/AF



**用途:**

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

类似DIN 6359-2, **AD/AF型 SK50** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

发货: 带有夹持螺钉  
- 冷却喷孔需要额外费用

**Use:**

For clamping cutters with cylindrical shank and Weldon flat similar to DIN 1835-B and DIN 6535-HB.

Similar to DIN 6359-2 with taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Delivery: with clamping screw  
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25	32	40
	Ø D2 [mm]		25	28	35	42	42	48	48	52	65	72	78
长度/Length A [mm]	短/short		63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	80 <sup>1)</sup>	100	100
订货号/Order No.	<b>50.300...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	长/long		100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	—	—
订货号/Order No.	<b>50.301...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.25</b>	—	—
长度/Length A [mm]	ZG130		130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130
订货号/Order No.	<b>50.304...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	超长/oversize		160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No.	<b>50.302...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	ZG200		200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	—	—
订货号/Order No.	<b>50.306...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	—	—	—

**标准型, 含冷却喷孔/Standard version, with Cool Jet**

夹持/Clamping	Ø D1 [mm]		10	12	16	20
	Ø D2 [mm]		35	42	48	52
长度/Length A [mm]	短/short		63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>
订货号/Order No.	<b>50.300...</b>		<b>.10.2</b>	<b>.12.2</b>	<b>.16.2</b>	<b>.20.2</b>

**附件/Accessories**

**夹持螺钉/Clamping screw**

夹持范围 Ø/Clamping Ø		06	08	10	12	14	16	18	20	25	32	40	
订货号/Order No.	<b>85.100...</b>		<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.12</b>	<b>.14</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.20</b>

**动平衡环/Balancing index rings**

夹持范围 Ø/Clamping Ø 长/ZG130/超长/ZG200		06	08	10	12	14	16	18	20	25	32	—	
订货号/Order No.	<b>79.350...</b>		<b>.25</b>	<b>.28</b>	<b>.35</b>	<b>.42</b>	<b>.42</b>	<b>.48</b>	<b>.48</b>	<b>.52</b>	<b>.65</b>	<b>.72</b>	—

**拉钉/Pull studs**



参见第757页/See page 757

**Ø 6mm – Ø 20mm 冷却喷孔/Cool Jet bores from Ø 6 mm – Ø 20mm**

订货号/Order No.	<b>91.100.24</b>		参见第468页/See page 468
---------------	------------------	--	----------------------

**Ø 25mm – Ø 32mm 冷却喷孔/Cool Jet bores from Ø 25 mm – Ø 32mm**

订货号/Order No.	<b>91.100.26</b>		参见第468页/See page 468
---------------	------------------	--	----------------------

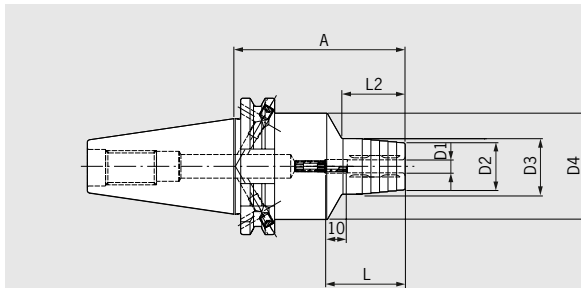
1) 适用于ANSI-CAT/Also suitable for ANSI-CAT

2) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D2 is changing towards flange (check dxf or stp file))

# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 1/min
	或/or U<1 gmm
<input checked="" type="checkbox"/>	径跳精度 < 3 μm
<input checked="" type="checkbox"/>	Runout accuracy < 3 μm

**用途:**  
用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

**AD/AF型 DIN ISO 7388-1 SK50 锥柄**

AD/AF型: 中心冷却和可密封的法兰冷却  
- 发货包含: 用于长度调节的支撑螺钉

**Use:**  
Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

**Taper DIN ISO 7388-1 SK50 Form AD/AF**

Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again  
- Included in delivery: With length adjustment screw

标准型, 和 DIN 69882-7 相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	51	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	55	63
	Ø D4 [mm]	49,5	49,5	49,5	49,5	49,5	49,5	49,5	49,5	63	70
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm]	29,5	30	35	40	40	45	46	42	48	61
长度/Length A [mm]	短/short	80,5	80,5	80,5	80,5	80,5	80,5	80,5	80,5	100	100
订货号/Order No.	50.4H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

附件/Accessories		
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

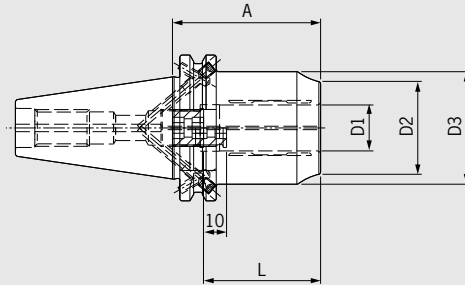
# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

### AD/AF型 DIN ISO 7388-1 SK50 锥柄

AD/AF型: 中心冷却和可密封的法兰冷却

- 发货包含: 用于长度调节的支撑螺钉

### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment





### Taper DIN ISO 7388-1 SK50 Form AD/AF

Form AD/AF means central coolant supply and coolant channels through the flange which can be sealed again

- Included in delivery: With length adjustment screw

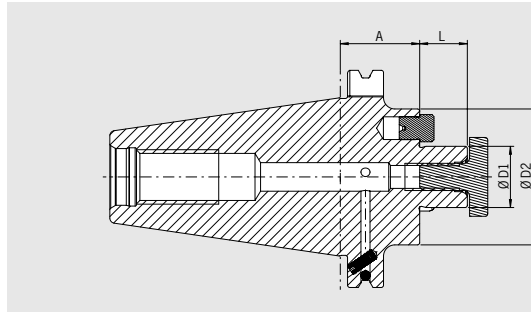
夹持/Clamping	Ø D1 [mm]	20	32
	Ø D2 [mm]	38	57
	Ø D3 [mm]	49	68
	L [mm]	51	61
长度/Length A [mm]	短/short	64,5	81
订货号/Order No.	50.4H10...	.20.3	.32.3

### 附件/Accessories

拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
带安全锁的减径套/Reduction sleeves with Safe-Lock		参见第765页/See page 765
支撑螺钉/Back-up screws		参见第768页/See page 768



# 面铣刀的刀柄/FACE MILL ARBOR DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 22,000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**  
用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

依据DIN 6357, **AD/AF型 SK50** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉
- 冷却孔在端面, 可与带中心冷却的铣刀盘搭配使用

**Use:**  
For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

According to DIN 6357 with taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]		22	27	32	40	50	60
	Ø D2 [mm]		48	60	78	89	120	127
	L [mm]		19	21	24	27	30	40
长度/Length A [mm]	短/short		35 <sup>1)</sup>	35 <sup>1)</sup>	35	50	70	70
订货号/Order No.	<b>50.350...</b>		<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	<b>.40.KKB</b>	<b>.50.KKB</b>	<b>.60.KKB</b>
长度/Length A [mm]	长/long		100 <sup>1)</sup>	100 <sup>1)</sup>	100	100	—	—
订货号/Order No.	<b>50.351...</b>		<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	<b>.40.KKB</b>		
长度/Length A [mm]	超长/oversize		160 <sup>1)</sup>	160 <sup>1)</sup>	160	160	—	—
订货号/Order No.	<b>50.352...</b>		<b>.22.KKB</b>	<b>.27.KKB</b>	<b>.32.KKB</b>	<b>.40.KKB</b>		

附件/Accessories			22	27	32	40	50	60
拉紧螺钉/Tightening bolt								
尺寸/Size D1			22	27	32	40	50	60
订货号/Order No.	<b>85.300...</b>		<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>
锁紧扳手/Wrench								
尺寸/Size D1			22	27	32	40	50	60
订货号/Order No.	<b>84.400...</b>		<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>
动平衡环/Balancing index rings								
尺寸/Size D1	短/short		22	27	—	—	—	—
订货号/Order No.	<b>79.350...</b>		<b>.48</b>	<b>.60</b>				
尺寸/Size D1	长/超长/long/oversize		22	27	32	40	—	—
订货号/Order No.	<b>79.350...</b>		<b>.48</b>	<b>.60</b>	<b>.78</b>	<b>.89</b>		
拉钉/Pull studs								

参见第757页/See page 757

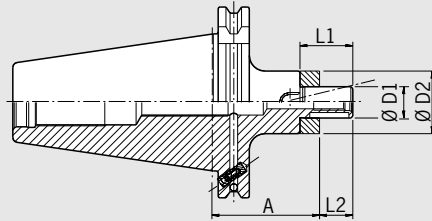
# 壳铣刀的刀柄/COMBINATION SHELL END MILL ARBOR

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 22.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF



### 用途:

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合 DIN 842 的角度铣刀和符合 DIN 1830 的刀具。

依据 DIN 6538, **AD/AF型 SK50** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉、传动环和滑键
- 前端冷却喷孔需要额外费用

### Use:

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

According to DIN 6538 with taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt, driving ring and feather key
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40	50
	Ø D2 [mm]	32	40	48	58	70	90
	L1 [mm]	27	31	33	38	41	46
	L2 [mm]	17	19	21	24	27	30
长度/Length A [mm]	短/short	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>	70
订货号/Order No.	<b>50.340...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100
订货号/Order No.	<b>50.341...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130
订货号/Order No.	<b>50.344...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>
长度/Length A [mm]	超长/oversize	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>1,2)</sup>	160 <sup>2)</sup>
订货号/Order No.	<b>50.342...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>
长度/Length A [mm]	ZG200	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>1,2)</sup>	200 <sup>2)</sup>
订货号/Order No.	<b>50.346...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1

订货号/Order No. **85.300...**



16

.16

22

.22

27

.27

32

.32

40

.40

50

.50

#### 锁紧扳手/Wrench

尺寸/Size D1

订货号/Order No. **84.400...**



16

.16

22

.22

27

.27

32

.32

40

.40

50

.50

#### 滑键/Feather key

尺寸/Size D1

订货号/Order No. **85.400...**



16

.16

22

.22

27

.27

32

.32

40

.40

50

.50

#### 传动环/Driving ring

尺寸/Size D1

订货号/Order No. **85.200...**



16

.16

22

.22

27

.27

32

.32

40

.40

50

.50

#### 动平衡环/Balancing index rings

尺寸/Size D1 长/超长/long/oversize

订货号/Order No. **79.350...**



16

.32

22

.40

27

.48

32

.58

40

.70

50

.90

#### 拉钉/Pull studs



参见第757页/See page 757

#### 冷却喷孔/Coolant bores

订货号/Order No. **91.100.03**



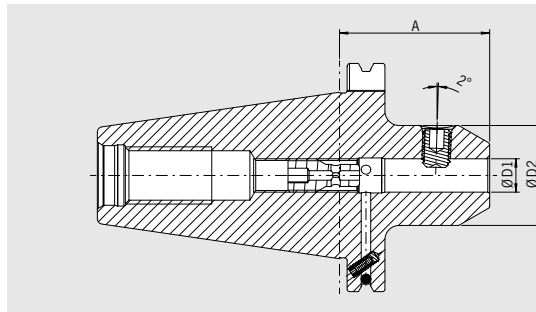
1) 适用于ANSI-CAT/Also suitable for ANSI-CAT

2) 柄径D2向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D2 is changing towards flange (check dxf or stp file))

# 斜孔侧固刀柄/WHISTLE NOTCH TOOL HOLDER

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄动平衡
<input checked="" type="checkbox"/>	Chuck balanced
	G6.3 8.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用AD/AF型
<input checked="" type="checkbox"/>	Coolant supply form AD/AF

**用途:**  
夹持具有类似DIN 1835-E和DIN 6535-HE的倾斜的紧固平面的圆柱直柄刀具。

依据 DIN 6359-2, **AD/AF型 SK50** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

交货时含: 夹持螺钉和支撑螺钉  
- 精密动平衡需要额外费用  
- 冷却喷孔需要额外费用

**Use:**  
For clamping cutters with cylindrical shank and inclined flat similar to DIN 1835-E and DIN 6535-HE.

DIN 6359-2 with taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Delivery: with clamping screw and adjusting screw  
- Fine-balancing for an extra charge  
- Cooling with Cool Jet for an extra charge

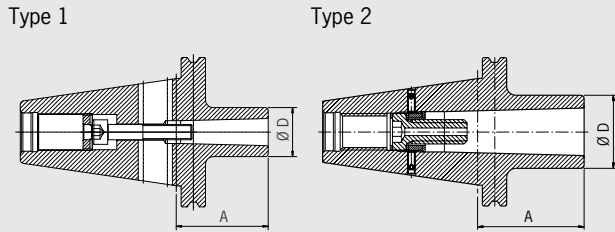
夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32	40
Ø D2 [mm]		25	28	35	42	42	48	48	52	65	72	78
长度/Length A [mm]	短/short	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	63 <sup>1)</sup>	80 <sup>1)</sup>	100	100
订货号/Order No.	50.330...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32	.40

附件/Accessories			06	08	10	12	14	16	18	20	25	32	40
<b>夹持螺钉/Clamping screw</b>													
夹持范围 Ø/Clamping Ø			06	08	10	12	14	16	18	20	25	32	40
订货号/Order No.	85.100...		.06	.08	.10	.12	.12	.14	.14	.16	.18	.20	.20
<b>支撑螺钉/Adjusting screw</b>													
尺寸/Size D1	短/short		06	08	10	12	14	16	18	20	25	32	40
订货号/Order No.	85.150...		.03	.03	.03	.01	.01	.01	.01	.01	.02	.03	.02
尺寸/Size D1	长/long		06	08	10	12	14	16	18	20	25	—	—
订货号/Order No.	85.150...		.04	.04	.04	.04	.04	.04	.04	.04	.03		
尺寸/Size D1	ZG130		06	08	10	12	14	16	18	20	25	32	40
订货号/Order No.	85.150...		.05	.05	.05	.05	.05	.05	.05	.05	.08	.08	.08
尺寸/Size D1	超长/oversize		06	08	10	12	14	16	18	20	25	32	40
订货号/Order No.	85.150...		.07	.07	.07	.07	.07	.06	.06	.06	.06	.06	.05
<b>动平衡环/Balancing index rings</b>													
夹持范围 Ø/Clamping Ø	长/超长/long/oversize/ZG130		06	08	10	12	14	16	18	20	25	32	40
订货号/Order No.	79.350...		.25	.28	.35	.42	.42	.48	.48	.52	.65	.72	.78
<b>拉钉/Pull studs</b>			参见第757页/See page 757										
<b>冷却喷孔/Cool Jet bores</b>			参见第468页/See page 468										
订货号/Order No.	91.100.24												

1) 适用于ANSI-CAT/Also suitable for ANSI-CAT

# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body balanced
	G6.3 8.000 rpm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 锥度精度 AT3	☑ Taper tolerance AT3



**用途:**

用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具  
同样适用于ANSI-CAT

类似 DIN 6383 **A型 SK50** 锥柄符合 DIN 7388-1

- 交货时含: 紧固螺栓
- 精密动平衡需要额外费用

莫式4刀柄无扁尾孔, AD型

**Use:**

For clamping tools with Morse taper with drawbar thread according to DIN 228-1 form A. Also suitable for ANSI-CAT.

Similar to DIN 6383 with taper **SK50 form A** DIN ISO 7388-1.

- Included in delivery: tightening bolt
- Fine-balancing for an extra charge

MK4 without bore for tang form AD

类型/Type	1	1	2
莫式/MK	02	03	04
Ø D [mm]	32	40	48
长度/Length A [mm]	60	65	70
订货号/Order No.	50.430...	.02	.03

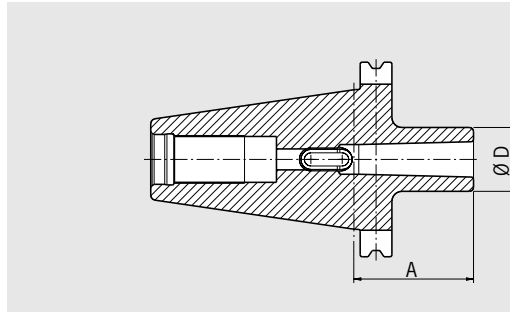


**附件/Accessories**

动平衡环/Balancing index rings				
莫式/MK		02	03	04
订货号/Order No.	79.350...	.32	.40	.48
拉钉/Pull studs				参见第757页/See page 757



# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



质量证书	
<input checked="" type="checkbox"/>	刀柄动平衡
<input checked="" type="checkbox"/>	Chuck balanced G6.3 8.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3

**用途:**  
适用于夹持 DIN 228-1 B型带扁尾的莫氏锥柄刀具  
同样适用于ANSI-CAT

类似 DIN 6383 **AD型 SK50** 锥柄符合 DIN ISO 7388-1

- 精密动平衡需要额外费用

**Use:**  
For holding tools with Morse tapers and tang according to  
DIN 228-1 form B. Also suitable for ANSI-CAT.

Similar to DIN 6383 with taper **SK50 form AD** DIN ISO 7388-1.

- Fine-balancing for an extra charge

莫式/MK	02	03	04
Ø D [mm]	32	40	48
长度/Length A [mm]	60	65	70
订货号/Order No.	50.380... .02	.03	.04



附件/Accessories

动平衡环/Balancing index rings

莫式/MK	02	03	04
订货号/Order No.	79.350... .32	.40	.48



拉钉/Pull studs



参见第757页/See page 757

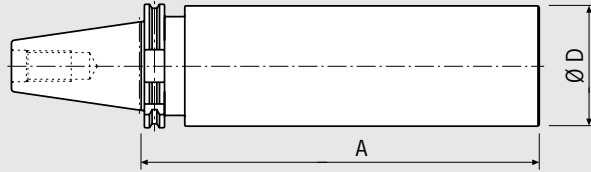
# 毛坯刀柄/BLANK ADAPTER

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF



### 用途:

用于制造特殊刀具  
同样适用于ANSI-CAT

### 设计:

锥柄和法兰槽硬化并精磨, 圆柱部分未硬化

**AD/AF型 SK50** 锥柄符合 DIN ISO 7388-1  
AD/AF型: 中心冷却和可密封的法兰冷却

### Use:

For manufacturing special tools in your factory.  
Also suitable for ANSI-CAT.

### Design:

Taper and groove are hardened and ground, the cylindrical part is soft.

With taper **SK50 form AD/AF** DIN ISO 7388-1.  
Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

	Ø D [mm]		95
长度/Length A [mm]	ZG315		315
订货号/Order No.	50.390...		.95

附件/Accessories  
拉钉/Pull studs



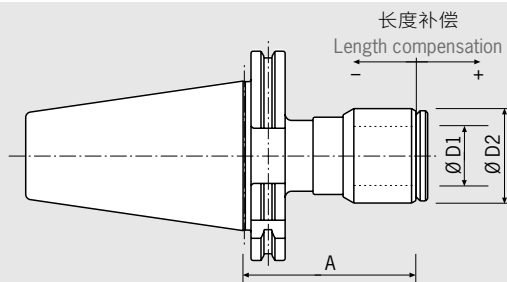
参见第757页/See page 757

# 快换攻丝刀柄

## QUICK CHANGE TAPPING CHUCKS

### DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)



#### 质量证书

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 可以承受高达50bar的内冷压力
- ☑ Interior high-pressure cooling up to 50 bar

#### 用途:

非常适合于数控铣床。通过拉伸和压紧进行轴向长度补偿。同样适用于ANSI-CAT。

AD/AF型 SK50 锥柄符合 DIN ISO 7388-1

AD/AF型: 中心冷却和可密封的法兰冷却

优点: 特别研发的系统, 可以承受高达50bar的内冷压力, 高对中精度。高压夹持系统(高压冷却下的安全夹紧), 利于各种的丝锥的快速换刀(不适用于BILZ系统)

- 精密动平衡需要额外费用

#### Use:

For tapping preferably on NC milling machines. Axial length compensation on tension and pressure. Also suitable for ANSI-CAT.

With steep taper SK50 form AD/AF DIN ISO 7388-1.

Form AD/AF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Advantages: Specially developed system, interior coolant supply up to 50 bar, high centering precision, high-pressure clamping system (safe clamping for high-pressure cooling) and advantageous quick change inserts for all available taps (not compatible for system BILZ)

- Fine-balancing for an extra charge

尺寸/Size		03
Ø D1 [mm]		28
Ø D2 [mm]		44
长度/Length A [mm]		80
订货号/Order No.	50.370...	.03
用于丝锥/for taps		M4,5-M24
长度补偿/Length compensation		±3

#### 附件/Accessories

拉钉/Pull studs



参见第757页/See page 757

快换插件/Quick change inserts



参见第774页/See page 774

夹持螺钉/Clamping screw



订货号/Order No. 140/11.00.020402

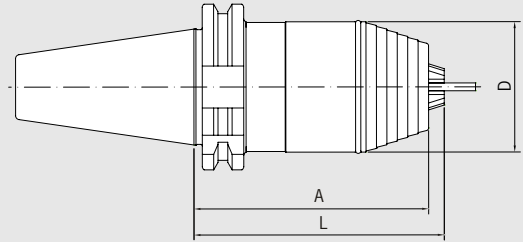
# 短钻夹头刀柄/SHORT DRILL CHUCK

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck fine balanced  
G2.5 22.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用AD/AF型
- ☑ Coolant supply form AD/AF



### 用途:

用于左右旋转夹持圆柱柄刀具, 用内六角扳手锁紧及拆卸。

SK50锥柄 AD/AF型 DIN ISO 7388-1

### Use:

For clamping tools with cylindrical shank, for left and right hand turn, clamping and loosening with a hexagon socket wrench.

With taper **SK50 form AD/AF** DIN ISO 7388-1 AD/AF.

夹持范围/Clamping range [mm]	0,5-13
Ø D [mm]	50
L [mm]	106
长度/Length A [mm]	112
订货号/Order No. <b>50.411...</b>	<b>.13</b>



### 附件/Accessories

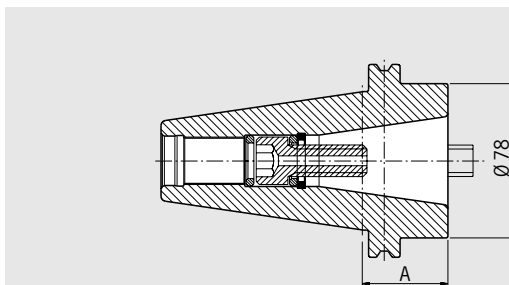
拉钉/Pull studs



参见第757页/See page 757



## 转换刀柄/ADAPTER DIN ISO 7388-1 · SK50 (旧标准/PREVIOUSLY DIN 69871)



### 质量证书

- 刀柄精细动平衡
- Chuck body balanced
- G6.3 8.000 rpm
- 所有功能面精细加工
- All functional surfaces fine machined
- 锥度精度 AT3
- Taper tolerance AT3

#### 用途:

用于夹持符合 DIN 69871 AD SK40 和 JIS B 6339 BT40 的锥柄

AD型 SK50 锥柄符合 DIN ISO 7388-1

- 交货时含: 紧固螺栓
- 精密动平衡需要额外费用

#### Use:

For holding tapers according to DIN ISO 7388-1 AD SK40 and JIS B 6339-2 BT40.

With taper **SK50 form AD** DIN ISO 7388-1.

- Included in delivery: mounted tightening bolt
- Fine-balancing for an extra charge

SK刀柄/Holding Taper SK		40
长度/Length A [mm]	短/short	43
订货号/Order No.	50.360...	.40



#### 附件/Accessories

拉钉/Pull studs



参见第757页/See page 757

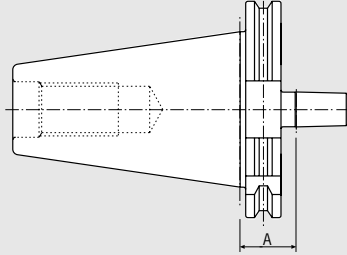
# 钻夹头转换刀柄/DRILL CHUCK ADAPTER

## DIN ISO 7388-1 · SK50

(旧标准/PREVIOUSLY DIN 69871)

### CERTIFICATE OF QUALITY

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3



### 用途:

用于符合 DIN 6349 标准的三爪卡盘刀柄。  
同样适用于ANSI-CAT

根据 DIN 238 标准,符合 **SK50** 锥柄 DIN ISO 7388-1标准A型


- 精密动平衡需要额外费用

### Use:

For holding chucks with three jaws e.g. according to DIN 6349.  
Also suitable for ANSI-CAT.

According to DIN 238 with taper **SK50 form A** DIN ISO 7388-1.

- Fine-balancing for an extra charge

夹持刀柄/Holding chuck			B16
长度/Length A [mm]			26
订货号/Order No.	50.400...		.16

### 附件/Accessories

拉钉/Pull studs



参见第757页/See page 757

## 使用翰默刀柄的十大理由

## TOP 10 REASONS TO USE HAIMER TOOL HOLDERS

翰默刀柄将帮助您的公司保持长期的竞争优势。

HAIMER Tool Holders can give you the edge that will allow you to sustain a long-term competitive advantage for your company.

1

**刚性**

得益于从主轴到刀尖的稳定性的提升，翰默刀柄协助您实现更好的切削性能。高精度的刀柄功能面确保了对称的夹持力，从而保证了完美的能量传递和更长的设备寿命。

**Rigidity**

Thanks to optimized stabilization from the spindle to the cutting edge, HAIMER delivers a higher level of cutting performance. The symmetrical clamping force ensures perfect power distribution and longevity of your equipment due to the highest precision of the functional surfaces.

2

**径跳精度**

各个刀尖受到均匀的压力将使您获得更高的工件尺寸精度、工件表面质量、稳定性和刀具寿命。翰默的热缩刀柄、强力筒夹刀柄、高精度筒夹刀柄和后拉式高精度刀柄确保您的刀具在3XD的悬升长度处的径跳小于3μm。

**Runout accuracy**

Uniform pressure on the cutting edges leads to, among other things, better dimensional accuracy, surface finish, smoothness and tool life: HAIMER guarantees a runout accuracy of <3 μm at 3xD for Shrink Fit Chucks, Power Collet Chucks, High Precision Collet Chucks and HG Chucks.

3

**动平衡精度**

大多数的翰默刀柄都经精细动平衡至G2.5\_25.000 rpm 或不平衡残余量<1 gmm。因此，机床主轴运转时的声音更轻，工件的表面质量更好。您的刀具和主轴的寿命均得以延长。多数情况下，动平衡的刀柄及刀具系统将显著地提升您的生产效率。

**Balancing quality**

All HAIMER tool holders are fine balanced to G2.5 at 25.000 rpm or <1 gmm residual unbalance. Therefore, the spindle runs quieter and achieves better surface finish on the work piece. The tool life is maximized and the lifetime of your spindle is extended. Many times balanced tool holders and assemblies enable a significant increase in productivity.

4

**锥柄接口和HSK接口的刀柄**

翰默的锥柄刀柄 (SK、ISO、CAT、BT、端面接触的BT)，其锥柄精度一直优于AT3，因此机床和刀具的连接效果更加优化了。锥柄的圆度和直线度是在测量了3,000个不同位置的点后得出的。HSK刀柄的问世为加工中心设立了新的标准，尤其在高速加工领域。我们的HSK刀柄的所有功能面都是精磨加工的，并且达到超过DIN标准的精度。

**Steep taper & HSK holders**

The steep taper tool holders (SK, ISO, CAT, BT, BT with face contact) at HAIMER are consistently better than AT3. This results in an optimal connection between the machine and tool. The roundness and straightness of the cone are inspected at 3,000 different points. The HSK holder has developed into the new standard for machining centers, especially at high speeds. Our HSK tool holders are fine grinded on all functional surfaces and have tighter tolerances than the DIN norm.

5

**100% 翰默制造**

100%德国制造——得益于我们的双100%检测，翰默持续地保证高品质。无论您何时购买的翰默刀柄，它都是由翰默制造的。

**100 % made by HAIMER**

Everything made 100% in Germany – Thanks to our double 100% inspection, HAIMER consistently guarantees high quality, no matter when the tool holder is purchased. Whenever it says HAIMER, it means it is made by HAIMER.

6

**高品质材料**

翰默使用特殊的原材料制造刀柄，它们是按照翰默的标准定制的，每一根原料钢棒都100%地经过光谱分析检测。这种材料的强度和韧性俱佳，非常适用于热缩技术——因此您可以得心应手地使用翰默热缩刀柄装拆刀具。翰默热缩刀柄理论上是可以无限次地使用的。

**High quality material**

HAIMER uses special raw materials, according to its own standard for the tool holders, and this is 100% checked by detailed spectral analysis. The material offers high strength, high toughness and is perfect for the requirements of shrinking technology – so that you can shrink in and out with repeatable accuracy as often as you like. There is no limit when using HAIMER shrink fit and tool holders.

7

**品种丰富**

我们有各种长度和几何形状的刀柄，品种丰富。无论是纤细的（迷你型）还是粗壮的（强力型和重载型）刀柄，您总是能够找到应对各种金属切削加工挑战的各种外形的翰默刀柄。除了热缩刀柄，翰默还提供标准ER筒夹刀柄、强力筒夹刀柄、高精度筒夹刀柄、后拉式高精度刀柄、侧固式刀柄、面铣刀的刀柄和其他类型的夹持系统。

**Variety of sizes**

Our variety of lengths and geometries is unbeatable. Regardless of whether it is slim (Mini Shrink) or extremely stiff (Power or Heavy Duty) versions, HAIMER has the right outer geometry in their program for every machining challenge. In addition to shrinking technology, HAIMER also offers high-precision ER collet chucks, Power Collet Chucks and High Precision Collet Chucks, HG Chucks, Weldon, face mill arbors and other clamping systems.

8

**对应各种主轴接口的丰富的刀柄系列**

为了实现对主轴的精确连接并且传递转速和扭矩，翰默提供各种接口的刀柄。您可以找到常用接口的刀柄，例如：SK、CAT、BT、端面接触的BT、HSK或PSC，也能够找到适用于一些机床制造商特有的接口的刀柄。翰默可以提供各种接口的刀柄。

**Program for all spindle interfaces**

For a precise connection to the machine spindle and for the transmission of the speed and torque, HAIMER offers tool holders in a wide range of interfaces. You will find common interfaces like SK, CAT, BT (with face contact), HSK or PSC, but also exclusive interfaces depending on the machine tool manufacturer. No one else offers this kind of variety.

9

**各种改制和全面的服务**

除了标准的翰默刀柄，您还可以获得带各种改制选项的刀柄。例如：冷却喷孔和环绕冷却——提供持续冷却的创新解决方案；带防拔出保护的安全锁专利系统（发明专利号码：CN 105057722 B\*）；在此仅列举一二。翰默的数据芯片锁技术能够为您提供机械式RFID芯片防脱落保护，我们可以提供带芯片并且精细动平衡的刀柄，还可以选配其他个性化的解决方案，提供全面的服务。

**Upgrade possibilities & full service**

Besides the standard versions, you can get a tool holder with many optional upgrades. Innovative solutions for consistent cooling such as Cool Jet and Cool Flash or the patented Safe-Lock pull-out protection, just to name a few. With Data-Lock, HAIMER also offers a mechanical RFID chip protection and we can supply all equipped with a chip, including fine balancing, as a full service. Further individual solutions are available.

10

**工业4.0**

工业4.0的精髓就是收集各种信息并快速地自动交换，以优化加工流程。现代化工厂需要能够接收和传送这些数据的技术。在RFID芯片和QR二维码的帮助下，刀具的数据能被直接传输到数控机床。翰默能够提供整个系统：客户能够从一个供应商那里得到带二维码的刀柄和相关的设备。

**Industry 4.0**

Industry 4.0 revolves around the collection and automatic, real-time evaluation of data to optimize the machining process. Modern manufacturing requires technologies that can receive and send data. With the help of RFID chips or QR codes, tool data can be transmitted to the machine tool. With HAIMER, everything is in one system: The customer gets the tool holder, including data-matrix code and the machine from a single source.



## JIS B 6339-2 (MAS 403) BT30/BT40/BT50

章节/Article 页数/Page

章节/Article	页数/Page
<b>JIS B 6339-2 BT30</b>	<b>292</b>
热缩刀柄 Shrink Fit Chuck	296
强力迷你型热缩刀柄 Power Mini Shrink Chuck	297
ER 筒夹刀柄 Collet Chuck ER	298
强力筒夹刀柄 Power Collet Chuck	299
高精度筒夹刀柄 / High Precision Collet Chuck	300
面铣刀的刀柄 Face Mill Arbor	301
标准型液压刀柄 / Standard Hydraulic Chuck	302
强力型液压刀柄 / Power Hydraulic Chuck	303
<b>JIS B 6339-2 BT40</b>	<b>304</b>
热缩刀柄 Shrink Fit Chuck	304
强力热缩刀柄 Power Shrink Chuck	305
强力迷你型热缩刀柄 Power Mini Shrink Chuck	306
ER 筒夹刀柄 Collet Chuck ER	307
强力筒夹刀柄 Power Collet Chuck	308
高精度筒夹刀柄 / High Precision Collet Chuck	309
后拉式高精度刀柄 High-Precision Chuck	310
侧固刀柄 / Weldon Holder	311
标准型液压刀柄 / Standard Hydraulic Chuck	312
强力型液压刀柄 / Power Hydraulic Chuck	313

面铣刀的刀柄 Face Mill Arbor	314
壳铣刀的刀柄 Combination Shell End Mill Adapter	315
莫氏锥度刀柄 Adapter for Morse Taper	316
<b>JIS B 6339-2 BT50</b>	<b>318</b>
热缩刀柄 Shrink Fit Chuck	318
强力热缩刀柄 Power Shrink Chuck	319
重型热缩刀柄 Heavy Duty Shrink Chuck	320
ER 筒夹刀柄 Collet Chuck ER	321
强力筒夹刀柄 Power Collet Chuck	322
高精度筒夹刀柄 / High Precision Collet Chuck	323
后拉式高精度刀柄 High-Precision Chuck	324
侧固刀柄 Weldon Holder	325
面铣刀的刀柄 Face Mill Arbor	326
标准型液压刀柄 / Standard Hydraulic Chuck	327
强力型液压刀柄 / Power Hydraulic Chuck	328
壳铣刀的刀柄 Combination Shell End Mill Adapter	329
莫氏锥度刀柄 Adapter for Morse Taper	330
毛坯刀柄 Blank Adapter	332

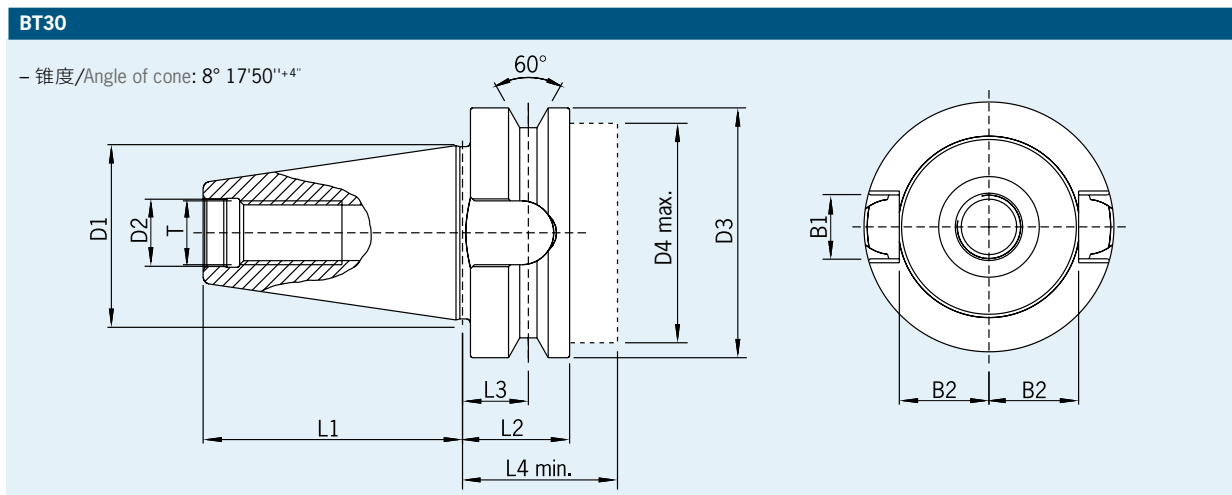
# 锥柄/STEEP TAPER JIS B 6339-2 · BT30/BT40

**设计:**

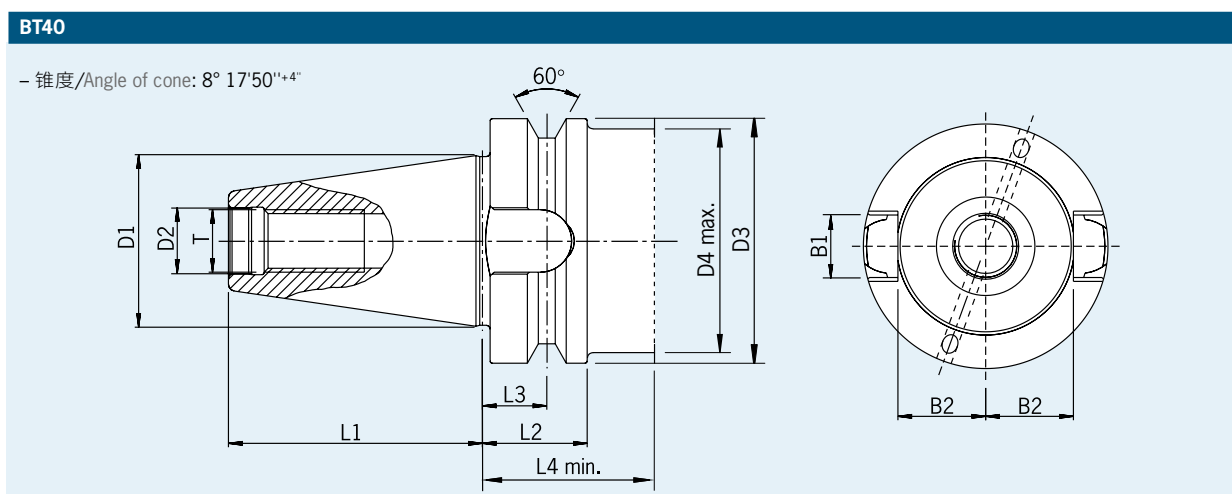
- 刀柄表面的硬度为 60-2 HRC
- 芯部的抗拉强度不小于 950 N/mm<sup>2</sup>
- 锥柄公差等级AT3
- JD/JF型: 中心内冷 (JD型) 和法兰内冷 (JF型), 参见第295页
- 无数据芯片孔

**Design:**

- Tool holders case-hardened 60-2 HRC
- Tensile strength in the core at least 950 N/mm<sup>2</sup>
- Taper in tolerance quality AT3
- Form JD/JF: interior coolant supply through centre (form JD) and through the collar (form JF), see page 295
- Without bore for data chip



[mm]	D1	D2	D3	D4	L1	L2	L3	L4	T	B1	B2
<b>BT30</b>	31,75	12,5	46	42	48,4	22	13,6	34,5	M12	16,1	16,3



[mm]	D1	D2	D3	D4	L1	L2	L3	L4	T	B1	B2
<b>BT40</b>	44,45	17	63	59	65,4	27	16,6	45	M16	16,1	22,6

# 锥柄/STEEP TAPER JIS B 6339-2 · BT50

## 设计:

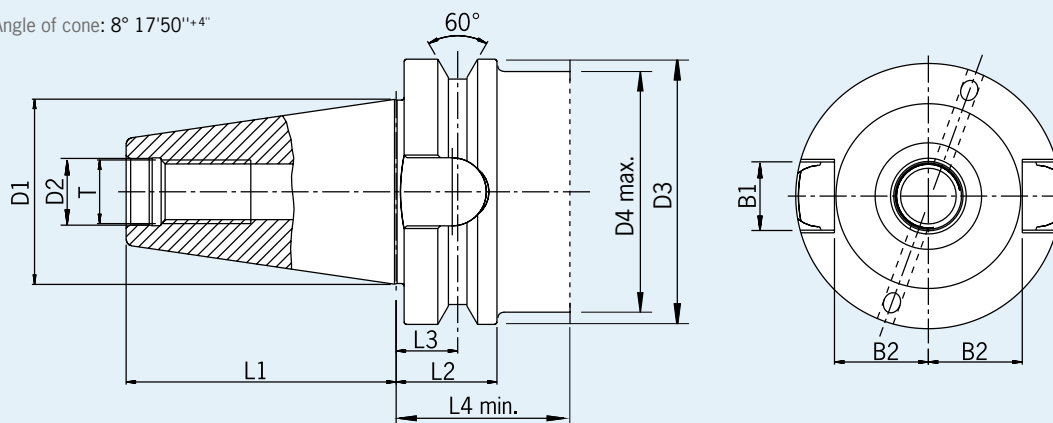
- 刀柄表面的硬度为 60-2 HRC
- 芯部的抗拉强度不小于 950 N/mm<sup>2</sup>
- 锥柄公差等级AT3
- JD/JF型:中心内冷(JD型)和法兰内冷(JF型), 参见第295页
- 无数据芯片孔

## Design:

- Tool holders case-hardened 60-2 HRC
- Tensile strength in the core at least 950 N/mm<sup>2</sup>
- Taper in tolerance quality AT3
- Form JD/JF: interior coolant supply through centre (form JD) and through the collar (form JF), see page 295
- Without bore for data chip

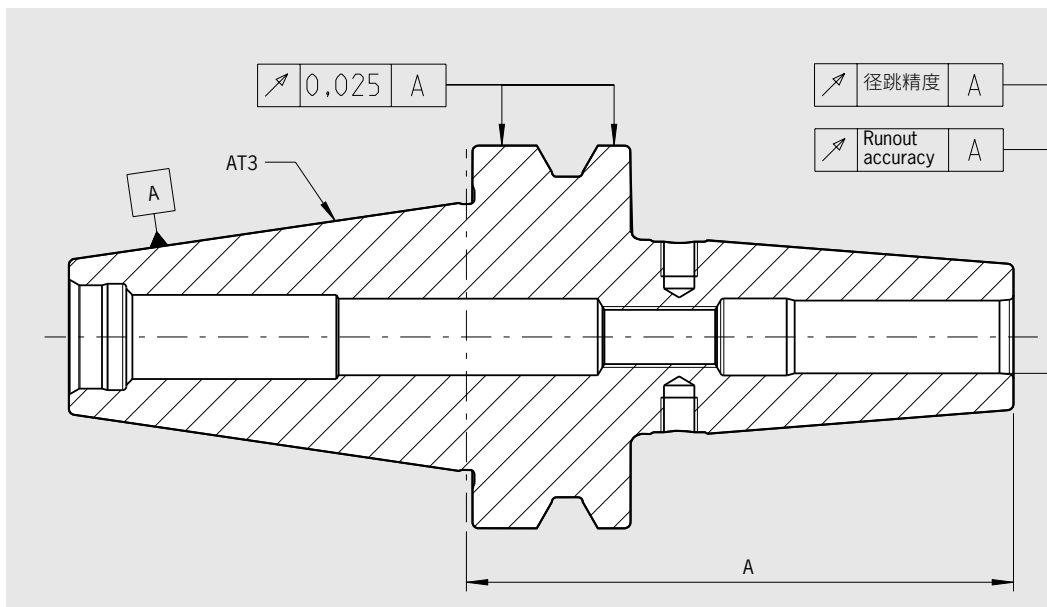
## BT50

- 锥度/Angle of cone:  $8^{\circ} 17'50''^{+4''}$



[mm]	D1	D2	D3	D4	L1	L2	L3	L4	T	B1	B2
BT50	69,85	25	100	95,5	101,8	38	23,2	51	M24	25,7	35,4

# 径跳精度 / RUNOUT ACCURACY JIS B 6339-2

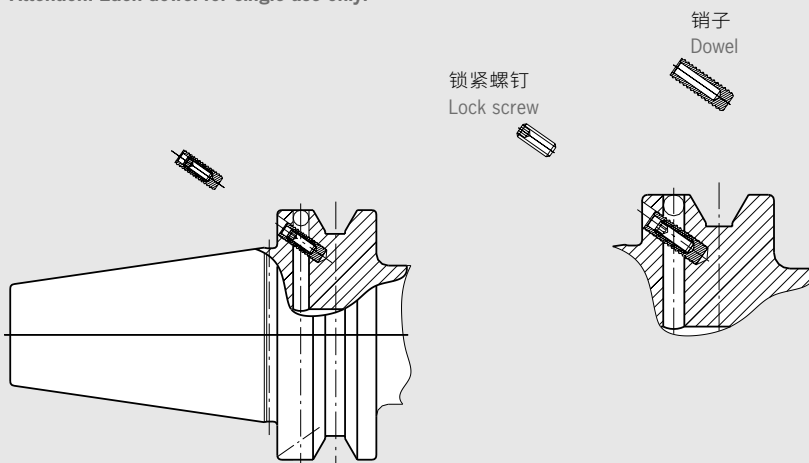


刀柄长度 (A)/Gage length	A < 160	A ≥ 160
径向跳动的公差, 单位为mm/max. runout tolerance in mm		
热缩刀柄/Shrink fit chuck	0,003	0,004
ER 筒夹刀柄/Collet chuck ER	0,003	0,004
强力筒夹刀柄/Power Collet Chuck	0,003	0,004
高精度筒夹刀柄/High Precision Collet Chuck	0,003	0,003
后拉式高精度刀柄/High precision chuck	0,003	0,003
侧固刀柄/Weldon tool holder	0,003	0,004
液压刀柄/Hydraulic Chuck	0,003	—
面铣刀的刀柄/Face mill arbor	0,006	0,006
壳铣刀的刀柄/Combination shell end mill arbor	0,006	0,006
斜孔侧固刀柄/Whistle Notch tool holder	0,003	0,004
莫氏锥度刀柄/Adapter for Morse taper	0,008	—

## 冷却/COOLANT JIS B 6339-2

注：销子为一次性使用的！

Attention: Each dowel for single use only!



### 3 种内冷方式

- **J型**： 无内冷
- **JD型**： 通过拉钉中心的内冷孔提供中心内冷
- **JF型**： 通过法兰端面的内冷孔供应冷却液，需要一个密封的拉钉

除特别注明外，符合JIS B 6339-2标准的翰默 HAIMER锥柄刀柄按照JD/JF形式生产。

JD/JF型：如无其他规定，翰默刀柄设置有JD型和JF型的内孔，以JD型的形式交货。法兰上用于JF型的孔由带有锁紧螺钉的塑料销子可靠地密封。

如要改变成JF型，法兰上的孔必须打开，需要将锁紧螺钉旋出一半，用钳子将锁紧螺钉同销子一同拔出。

孔还可以被重新密封。转换包内包含销子和紧锁螺钉。

(参考附件部分)

#### - 备件

##### 销子

订货号：85.600.40 (BT40)

订货号：85.600.50 (BT50)

(包含50个)

### 3 possibilities of inner coolant supply are available:

- **Form J**: no inner coolant supply
- **Form JD**: central coolant supply through retention knob. A retention knob with centralized bore is required.
- **Form JF**: lateral coolant supply via the collar. A sealed retention knob is required.

HAIMER clamping devices with taper according to JIS B 6339-2 are produced in form JD/JF unless otherwise noted.

Form JD/JF means: the clamping devices are equipped with bores for form JD as well as for form JF. Unless otherwise requested, the tool holders are delivered in form JD. The bores on the flange for form JF are then sealed with plastic-dowels and secured with lock screws.

For changing to form JF, the bores on the flange must be opened by unscrewing the lock screw halfway. Removal of screws together with the dowels are done by using pliers.

The bores also can be sealed again. A conversion kit consisting of dowels and lock screws is available (please refer to accessories).

#### - Spare part

##### Dowel

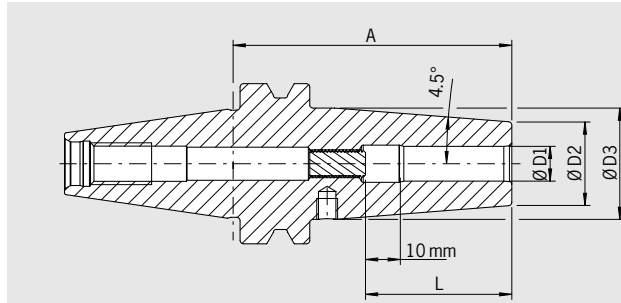
Order No. 85.600.40 (BT40)

Order No. 85.600.50 (BT50)

(incl. 50 pcs)



# 热缩刀柄/SHRINK FIT CHUCK JIS B 6339-2 · BT30



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3

**用途:**  
适用于所有热缩机

- JIS B 6339-2 BT30 (切削液供给采用JD型)**
- 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 发货包含: 支撑螺钉
  - 含用于调整动平衡的螺钉孔
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

**Use:**  
Suitable for all inductive, contact and hotair shrink fit units.

- JIS B 6339-2 BT30 form JD**
- Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Included in delivery: with back-up screw
  - With threaded holes in order to balance with balancing screws
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20
	Ø D2 [mm]	10	10	10	21	21	24	24	27	27	33	33
	Ø D3 [mm]	—	—	—	27	27	32	32	34	34	40,5	40,5
	L [mm]	09	12	15	36	36	42	47	47	50	50	52
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	80	80	80	80	90	90
订货号/Order No.	30.640...	.03	.04	.05	.06	.08	.10	.12	.14	.16	.18	.20

超短型/Ultra short version

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20
	Ø D2 [mm]	10	10	10	23	23	27	27	30	30	35,5	35,5
	Ø D3 [mm]	—	—	—	—	—	—	—	—	—	40,5	40,5
	L [mm]	09	12	15	36	36	42	47	47	50	50	52
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	65 <sup>2)</sup>	65 <sup>2)</sup>	70 <sup>2)</sup>	70 <sup>2)</sup>
订货号/Order No.	30.645...	.03	.04	.05	.06	.08	.10	.12	.14	.16	.18	.20

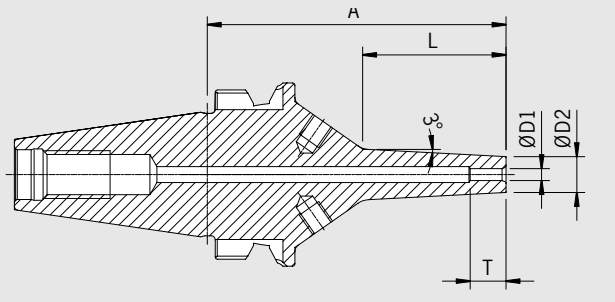
附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41
		参见第466页/See page 466
		参见第466页/See page 466

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出。  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 有支撑螺钉, 无动平衡螺钉孔/With back-up screw, without threads for balancing screws

# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK JIS B 6339-2 · BT30

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
U<1 gmm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD



强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄,后端为加厚结构,因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具

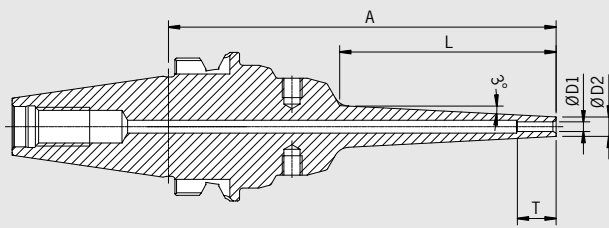
**注意:**在大多数热缩机上加热和冷却迷你型热缩刀柄时,您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄,则无需使用安装冷却套。另外,这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
U<1 gmm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD



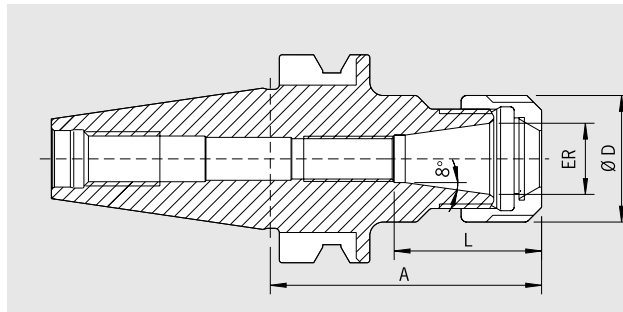
夹持/Clamping	Ø D1 [mm]	03	04	06	08	10	12
T [mm]		—	—	—	—	68	75
Ø D2 [mm] 短/short		09	10	12	14	16	18
L [mm] 短/short		36	36	36	36	36	36
长度/Length A [mm]	短/short	75	75	75	75	75	75
订货号/Order No.	30.680...	.03.8	.04.8	.06.8	.08.8	.10.8	.12.8
Ø D2 [mm] ZG95		06	07	09			
L [mm] ZG95		42	42	42			
长度/Length A [mm]	ZG95	95	95	95			
订货号/Order No.	30.671...	.03.8	.04.8	.06.8			
Ø D2 [mm] ZG120		06	07	09			
L [mm] ZG120		67	67	67			
长度/Length A [mm]	ZG120	120	120	120			
订货号/Order No.	30.677...	.03.8	.04.8	.06.8			

附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

参见第587页/See page 587

# ER 筒夹刀柄/COLLET CHUCK ER JIS B 6339-2 · BT30



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3

**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**JIS B 6339-2 BT30 (切削液供给采用JD型)**

- 发货中包含: HS高速锁紧螺母 (精细的动平衡, 防滑涂层提高夹持力)

**JIS B 6339-2 BT30 form JD**

- Included in delivery: locknut type HS (fine balanced, with slide coating for higher clamping forces)

ER	11	16	20	25	32	
Ø D [mm]	19	28	34	42	50	
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,5-13,0	1,0-16,0	1,5-20	
L [mm]	26,5	32,5	38,5	41	52	
长度/Length A [mm]	超短/ultra short	50	50	50	—	60
订货号/Order No.	30.525...	.11	.16	.20	—	.32
长度/Length A [mm]	短/short	60	60	60	60	—
订货号/Order No.	30.520...	.11	.16	.20	.25	—
长度/Length A [mm]	ZG80	—	80	80	80	—
订货号/Order No.	30.523...	—	.16	.20	.25	—
长度/Length A [mm]	ZG90	—	90	90	90	—
订货号/Order No.	30.528...	—	.16	.20	.25	—
长度/Length A [mm]	长/long	100	100	100	100	—
订货号/Order No.	30.521...	.11	.16	.20	.25	—

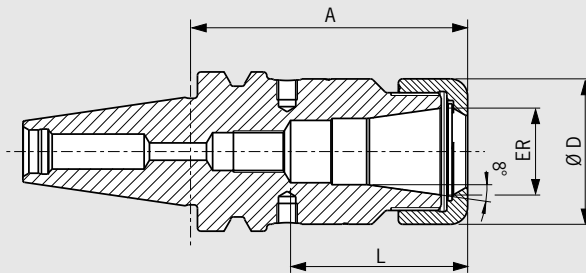
<b>附件/Accessories</b>						
ER筒夹/Collets						参见第742页/See page 742
热缩筒夹/Shrink Fit Collets						参见第736页/See page 736
<b>锁紧螺母(已做动平衡)/Locknut (pre-balanced)</b>						
尺寸/Size		ER 11	ER 16	ER 20	ER 25	ER 32
订货号/Order No.	83.912...	.11	.16	.20	.25	.32
<b>高速锁紧螺母(精细动平衡)/Locknut HS (fine-balanced)</b>						
尺寸/Size		—	ER 16	ER 20	ER 25	ER 32
订货号/Order No.	83.912...	—	.16.HS	.20.HS	.25.HS	.32.HS
<b>锁紧扳手/Fork wrench</b>						
尺寸/Size		ER 11	ER 16	ER 20	—	—
订货号/Order No.	84.200...	.11	.16	.20	—	—
<b>锁紧扳手/Clamping wrench</b>						
尺寸/Size		—	—	—	ER 25	ER 32
订货号/Order No.	84.200...	—	—	—	.25	.32
<b>动平衡环/Balancing index rings</b>						
尺寸/Size	长/超长/long/oversize	ER 11	ER 16	ER 20	ER 25	ER 32
订货号/Order No.	79.350...	.19	.28	.34	.42	.48
拉钉/Pull studs						参见第757页/See page 757
热缩延长杆/Shrink fit extensions						参见第732页/See page 732

# 强力筒夹刀柄/POWER COLLET CHUCK

## JIS B 6339-2 · BT30

### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡  
✓ Chuck body fine balanced  
U<1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 锥度精度 AT3  
✓ Taper tolerance AT3
- ✓ 切削液供给采用JD型  
✓ Coolant supply form JD



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高:配合翰默 HAIMER 强力筒夹使用时,在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意:当使用标准ER筒夹时,尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅,更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度,大大增加机床的切削能力
- 缩短加工时间,提高加工精度,增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项:强力筒夹上可增加冷却喷孔
- 强力筒夹系列(参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

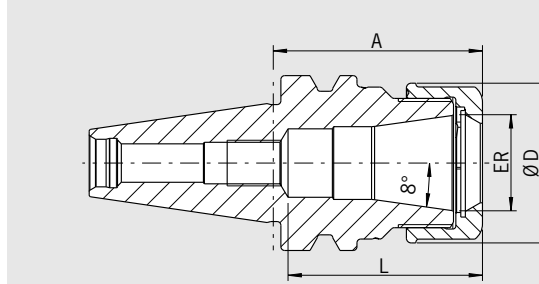
ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	超短/ultra short	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>
订货号/Order No.	30.525...	.16.3	.25.3	.32.3
长度/Length A [mm]	短/short	80	80	80
订货号/Order No.	30.520...	.16.3	.25.3	.32.3

### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench		ER 16	ER 25	参见第751页/See page 751
订货号/Order No.	84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench				参见第750页/See page 750
订货号/Order No.	84.600.00			
ER筒夹/Collets ER				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				参见第737页/See page 737
强力筒夹/Power Collets				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				参见第749页/See page 749
订货号/Order No.	91.100.27			

1) 不含用于调整动平衡的螺钉孔  
Without threaded holes in order to balance with balancing screws

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK JIS B 6339-2 · BT30



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用JD型
<input checked="" type="checkbox"/>	Coolant supply form JD

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)

- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意：当使用标准ER筒夹时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹系列(参见第748/749页)

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	超短/ultra short	55 <sup>1)</sup>	55 <sup>1)</sup>
订货号/Order No.	30.525...	.16.3.HP	.25.3.HP
长度/Length A [mm]	短/short	80	80
订货号/Order No.	30.520...	.16.3.HP	.25.3.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

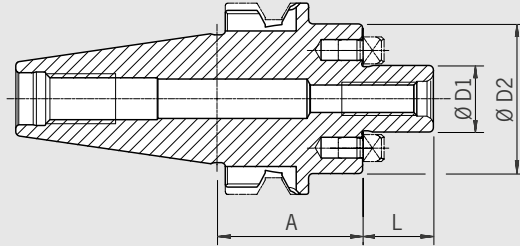
1) 不含用于调整动平衡的螺钉孔  
Without threaded holes in order to balance with balancing screws

# 面铣刀的刀柄/FACE MILL ARBOR

## JIS B 6339-2 · BT30

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3



### 用途:

用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具

JD型 JIS B 6339-2 BT30 类似于 DIN 6357

- 交货时含: 拉紧螺钉
- 冷却孔在端面, 可与带中心冷却的铣刀盘搭配使用

### Use:

For holding face mill cutters and milling cutters with radial driving slot DIN 1880.

Similar to DIN 6357 with taper **JIS B 6339-2 BT30 form JD**.

- Included in delivery: complete with tightening bolt
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27
	Ø D2 [mm]	36	42	42
	L [mm]	17	19	21
长度/Length A [mm]	短/short	35	35	35
订货号/Order No.	30.550...	.16.KKB	.22.KKB	.27.KKB



### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1 16 22 27  
订货号/Order No. 85.300... .16 .22 .27



#### 锁紧扳手/Wrench

尺寸/Size D1 16 22 27  
订货号/Order No. 84.400... .16 .22 .27

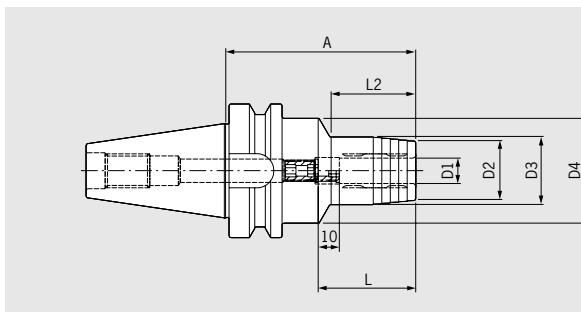


#### 拉钉/Pull studs



参见第757页/See page 757

# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK JIS B 6339-2 · BT30



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 1/min
	或/or U<1 gmm
<input checked="" type="checkbox"/>	径跳精度 < 3 μm
<input checked="" type="checkbox"/>	Runout accuracy < 3 μm

**用途:**  
用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

**JIS B 6339 BT30 (切削液供给采用JD型)**

- JD型意味着可以提供中心内冷
- 发货包含: 用于长度调节的支撑螺钉
  - 仅提供JD型

**Use:**  
Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

**Taper JIS B 6339 BT30 Form JD**

- Form JD means central coolant supply
- Included in delivery: With length adjustment screw
  - Only available as Form JD

标准型, 和 DIN 69882-7 相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20
	Ø D2 [mm]	23	25	27	29	30	34	36	38
	Ø D3 [mm]	26	28	30	32	34	38	40	42
	Ø D4 [mm]	45	45	45	45	45	45	45	45
	L [mm]	37	37	41	46	46	49	49	51
	L2 [mm]	12,3	12,5	13	14	45	50	50	50
长度/Length A [mm]	短/short	50,8	50,8	50,8	50,8	90	90	90	90
订货号/Order No.	30.6H10...	.06	.08	.10	.12	.14	.16	.18	.20

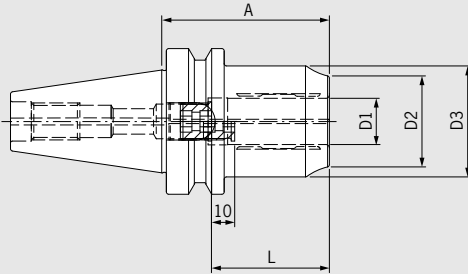
附件/Accessories		
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## JIS B 6339-2 · BT30

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

### JIS B 6339 BT30 (切削液供给采用JD型)

JD型意味着可以提供中心内冷

- 发货包含: 用于长度调节的支撑螺钉
- 仅提供JD型

### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

### Taper JIS B 6339 BT30 Form JD




Form JD means central coolant supply

- Included in delivery: With length adjustment screw
- Only available as Form JD

夹持/Clamping	Ø D1 [mm]	20
	Ø D2 [mm]	38
	Ø D3 [mm]	42
	L [mm]	51
长度/Length A [mm]	短/short	72,5 <sup>1)</sup>
订货号/Order No.	30.6H10...	.20.3



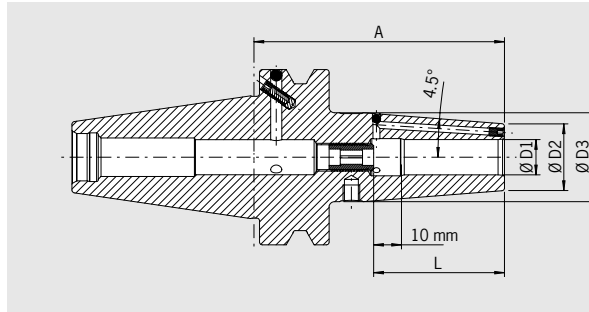
### 附件/Accessories

拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

1) 最大外径 = 57 mm/Largest Outer diameter = 57 mm



# 热缩刀柄/SHRINK FIT CHUCK JIS B 6339-2 · BT40



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

**JD/JF型 JIS B 6339-2 BT40 锥柄**

JD/JF型: 中心冷却和可密封的法兰冷却

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 发货包含: 支撑螺钉
- 含用于调整动平衡的螺钉孔
- 冷却喷孔需要额外费用(参见第468页)
- 环绕冷却需要额外费用(参见第466/467页)

**JIS B 6339-2 BT40 form JD/JF**

Form JD/JF means: central coolant supply and coolant channels through the flange which can be sealed again.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Included in delivery: Shrink fit chuck with back-up screw
- With threaded holes in order to balance with balancing screws
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
	L [mm]		9	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short		90 <sup>1)</sup>	90 <sup>1)</sup>	90 <sup>1)</sup>	90	90	90	90	90	90	90	90	100	100
订货号/Order No.	40.640...		.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120		120 <sup>1)</sup>	120 <sup>1)</sup>	120 <sup>1)</sup>	120	120	120	120	120	120	120	120	120	120
订货号/Order No.	40.647...		.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG130		130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130	130	130	130	130	130	130	—
订货号/Order No.	40.644...		.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	—
长度/Length A [mm]	超长/oversize		—	—	—	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	—
订货号/Order No.	40.642...		—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	—
长度/Length A [mm]	ZG200		—	—	—	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	—
订货号/Order No.	40.646...		—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	—

标准型, 含冷却喷孔(Ø 3-5 mm 为细缝冷却)/Standard version, with Cool Jet (Ø 3-5 mm cooling with slits)

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	14	16	20	25
	Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	44
	Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	53
	L [mm]		9	12	15	36	36	42	47	47	50	52	58
长度/Length A [mm]	短/short		90 <sup>2)</sup>	90 <sup>2)</sup>	90 <sup>2)</sup>	90	90	90	90	90	90	90	100
订货号/Order No.	40.640...		.03	.04	.05	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.20.2	.25.2

标准型, 含安全锁防拔出结构/Standard version, with Safe-Lock pull out protection

夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]		27	27	32	32	34	34	42	42	53	53
	L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short		90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	100 <sup>3)</sup>	100 <sup>3)</sup>
订货号/Order No.	40.640...		.06.7	.08.7	.10.7	.12.7	.14.7	.16.7	.18.7	.20.7	.25.7	.32.7

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上没有细缝, 内冷却液不能沿刀具的柄部喷出, 不适用于高速钢刀具/  
Without back-up screw, without thread for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

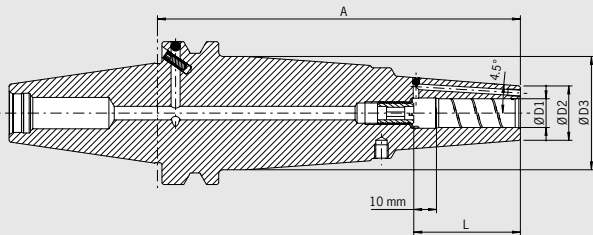
3) 含支撑弹簧/With tension spring

4) 柄径D3向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file))

# 强力热缩刀柄/POWER SHRINK CHUCK JIS B 6339-2 · BT40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U < 1 grmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3  
☑ Taper tolerance AT3
- ☑ 切削液供给方式采用 JD/JF型  
☑ Coolant supply form JD/JF
- ☑ 冷却喷孔, 可密闭  
☑ Cool Jet, can be sealed



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含侧壁冷却喷孔, 可封闭
- 环绕冷却需要额外费用 (参见第466/467页)

加长型(A=130 或者160)结构紧凑, 使用灵活。

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

The long versions (A=130 and 160) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

### BT40

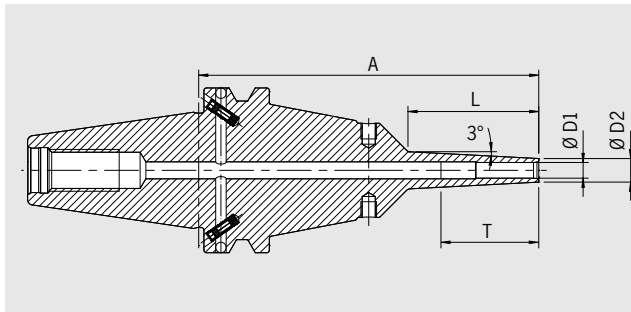
夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm] 超短/ultra short	22	22	26,5	26,5	29,5	29,5	35,5	35,5	45,5	45,5
	L [mm] 超短/ultra short	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	超短/ultra short		70	70	70	70	75	75	75	85	85
订货号/Order No.	40.645...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
	Ø D2 [mm]	21	21	24	24	27	27	33	33		
	Ø D3 [mm]	50	50	50	50	50	50	50	50		
	L [mm]	36	36	42	47	47	50	50	52		
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130		
订货号/Order No.	40.644...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3		
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160		
订货号/Order No.	40.642...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3		

### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm] 超短/ultra short	22	22	26,5	26,5	29,5	29,5	35,5	35,5	45,5	45,5
	L [mm] 超短/ultra short	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	超短/ultra short		70	70	70	70	75	75	75	85	85
订货号/Order No.	40.645...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37
	Ø D2 [mm]	21	21	24	24	27	27	33	33		
	Ø D3 [mm]	50	50	50	50	50	50	50	50		
	L [mm]	36	36	42	47	47	50	50	52		
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130		
订货号/Order No.	40.644...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37		
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160		
订货号/Order No.	40.642...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37		

# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK JIS B 6339-2 · BT40

刀柄  
Tool Holders



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄,后端为加厚结构,因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

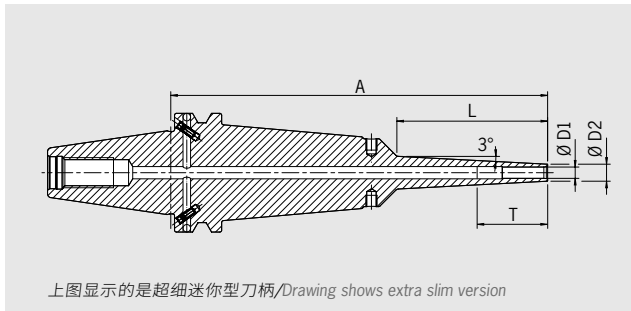
- 2种型号:标准型(3mm壁厚)和超细型(1.5mm壁厚)
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具

**注意:**在大多数热缩机上加热和冷却迷你型热缩刀柄时,您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄,则无需使用安装冷却套。另外,这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- 2 types: Standard (3 mm wall thickness) and extra slim (1,5 mm wall thickness)
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.



上图显示的是超细迷你型刀柄/Drawing shows extra slim version

质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

### BT40

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16	
	Ø D2 [mm] 标准型/standard	09	10	11	12	14	16	18	24	
	Ø D2 [mm] 超细/extra slim	06	07	08	09	11	13	15	—	
	T [mm]	—	—	—	—	—	68	75	75	
	L [mm] ZG130	50	50	50	50	50	50	50	50	
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130 <sup>1)</sup>	
订货号/Order No.	标准型/standard	40.684...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.674...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
	L [mm]	80	80	80	80	80	80	80	80	
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160 <sup>1)</sup>	
订货号/Order No.	标准型/standard	40.682...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.672...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
长度/Length A [mm]	ZG200		200	200	200	200	200	200	200 <sup>1)</sup>	
订货号/Order No.	标准型/standard	40.686...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40.676...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—

#### 附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

参见第587页/See page 587

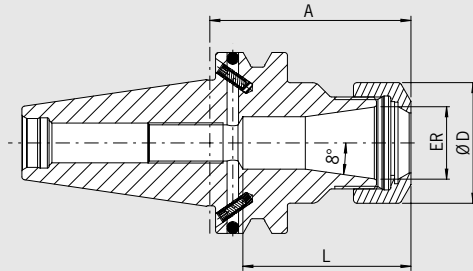
1) 4 mm壁厚/4 mm wall thickness

# ER 筒夹刀柄/COLLET CHUCK ER

## JIS B 6339-2 · BT40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 22,000 rpm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3  
☑ Taper tolerance AT3
- ☑ 切削液供给方式采用 JD/JF型  
☑ Coolant supply form JD/JF



### 用途:

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

### JD/JF型 JIS B 6339-2 BT40 锥柄

JD/JF型: 中心冷却和可密封的法兰冷却

- 发货中包含: 锁紧螺母(已做动平衡, 防滑涂层提高夹持力)
- 高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 可按照要求加大尺寸L(需要额外费用)

### Use:

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

With taper **JIS B 6339-2 BT40 form JD/JF**.

Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER	16	20	25	32	40
Ø D [mm]	28	34	42	50	63
夹持范围/Clamping range [mm]	0,5-10,0	1,5-13,0	1,0-16,0	1,5-20,0	2,5-26,0
L [mm]	<sup>1)</sup>	41,5	57	64	73
长度/Length A [mm]	短/short	70	70	70	70
订货号/Order No.	40.520...	.16	.20	.25	.32
长度/Length A [mm]	长/long	100	100	100	100
订货号/Order No.	40.521...	.16	.20	.25	.32
长度/Length A [mm]	超长/oversize	160	160	160	160
订货号/Order No.	40.522...	.16	.20	.25	.32

### 附件/Accessories

#### ER筒夹/Collets



参见第742页/See page 742

#### 热缩筒夹/Shrink Fit Collets



参见第737页/See page 737

#### 锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size

订货号/Order No. 83.912...



ER 16

.16

ER 20

.20

ER 25

.25

ER 32

.32

ER 40

.40

#### 高速锁紧螺母(精细动平衡)/Locknut HS (fine-balanced)

尺寸/Size

订货号/Order No. 83.912...



ER 16

.16.HS

ER 20

.20.HS

ER 25

.25.HS

ER 32

.32.HS

ER 40

.40.HS

#### 锁紧扳手/Fork wrench

尺寸/Size

订货号/Order No. 84.200...



ER 16

.16

ER 20

.20

—

—

—

#### 锁紧扳手/Clamping wrench

尺寸/Size

订货号/Order No. 84.200...



—

—

ER 25

.25

ER 32

.32

ER 40

.40

#### 动平衡环/Balancing index rings

尺寸/Size

订货号/Order No. 79.350...



ER 16

.28

ER 20

.34

ER 25

.42

ER 32

.48

ER 40

.52

#### 拉钉/Pull studs



参见第757页/See page 757

#### 热缩延长杆/Shrink fit extensions



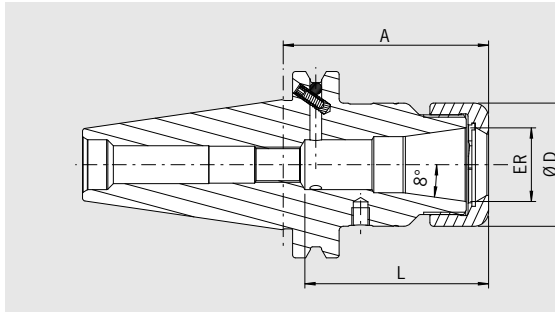
参见第732页/See page 732

1) 通孔/Drilled through

2) 长度 L = 72 mm/Length L = 72 mm

# 强力筒夹刀柄/POWER COLLET CHUCK JIS B 6339-2 · BT40

刀柄  
Tool Holders



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意: 当使用标准ER筒夹时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹系列 (参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3 × D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	短/short	70	70	70 (L=64mm)
订货号/Order No.	40.520...	.16.3	.25.3	.32.3
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	40.521...	.16.3	.25.3	.32.3
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	40.522...	.16.3	.25.3	.32.3

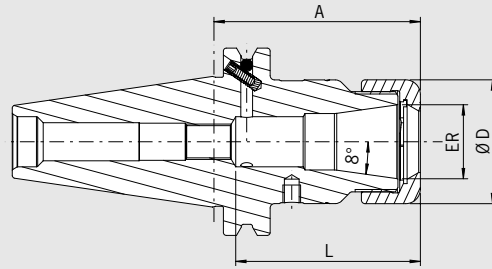
### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench				
订货号/Order No.	84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench				
订货号/Order No.	84.600.00			
ER筒夹/Collets ER				
				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				
				参见第737页/See page 737
强力筒夹/Power Collets				
				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				
				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				
订货号/Order No.	91.100.27			参见第749页/See page 749

1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK JIS B 6339-2 · BT40

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
G2.5 30.000 rpm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给方式采用 JD/JF型	✓ Coolant supply form JD/JF



翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性,为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母,精细动平衡至< 1 gmm
- 跳动精度高:配合翰默 HAIMER 强力筒夹使用时,在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时,尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅,更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度,大大增加机床的切削能力
- 缩短加工时间,提高加工精度,增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项:强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	短/short	70	70	70 (L=64mm)
订货号/Order No.	40.520...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	40.521...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	40.522...	.16.3.HP	.25.3.HP	.32.3.HP

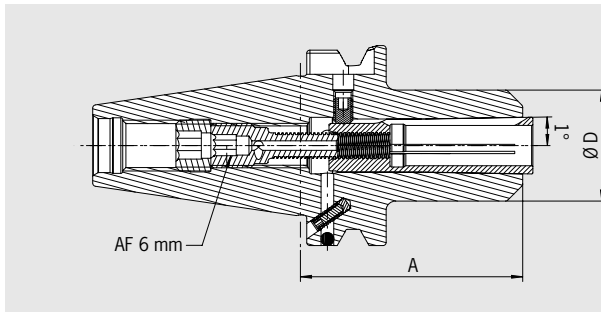
### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		ER 16	ER 25	ER 32	参见第752页/See page 752
尺寸/Size		.16.1	.25.1	.32.1	
订货号/Order No. 83.914...					
滚针轴承扳手/Roller bearing wrench					参见第752页/See page 752
订货号/Order No. 84.650...		.16.1	.25.1	.32.1	
ER筒夹/Collets ER					参见第742页/See page 742
热缩筒夹/Shrink Fit Collets					参见第737页/See page 737
强力筒夹/Power Collets					参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock					参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets					参见第749页/See page 749
订货号/Order No. 91.100.27					

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D is changing towards flange (check dxf or stp file))

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK JIS B 6339-2 · BT40

刀柄  
Tool Holders



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF 型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

**用途:**  
为了夹持高精度的圆柱柄刀具所设计的刀柄,同样适用于带侧固平面的圆柱柄刀具。非常适用于高速加工。

**Use:**  
For highly precise clamping of tools with cylindrical shank with special collets. Also for shanks with clamping flats. Very useful for high-speed machining.








**JD/JF型 JIS B 6339-2 BT40 锥柄**  
JD/JF型:中心冷却和可密封的法兰冷却

With taper **JIS B 6339-2 BT40 form JD/JF.**  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- 发货包含:夹持螺钉和筒夹拉钩
- 要求刀具柄部精度为h6
- 可选:从Ø 6mm开始,筒夹可增加冷却喷孔

- Included in delivery: high-precision chuck with clamping screw and pull-out hook without collet
- Shank tolerance h6
- Optional: Cool Jet bores on HG Collets from Ø 6 mm

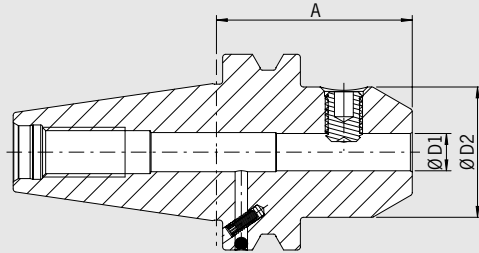
HG		01						02			03		
Ø D [mm]		30						35			48		
夹持范围 Ø/Clamping diameter		2	3	4	5	6	8	10	12	14	16	18	20
长度/Length A [mm]	短/short	65						70			75		
订货号/Order No.	40.620...	.01						.02			.03		
长度/Length A [mm]	长/long	100						100			100		
订货号/Order No.	40.621...	.01						.02			.03		

附件/Accessories													
夹持螺钉/Clamping screw													
		参见第773页/See page 773											
后拉式筒夹/Collets													
		参见第754页/See page 754											
HG 01		Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	—
订货号/Order No.	82.510...	.02	.03	.04	.05	.06	.08	—	—	—	—	—	—
HG 02		—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	—
订货号/Order No.	82.520...	—	—	—	—	—	—	.10	.12	.14	—	—	—
HG 03		—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20
订货号/Order No.	82.530...	—	—	—	—	—	—	—	—	—	.16	.18	.20
筒夹拉钩/Pull-out hook													
HG		HG 01						HG 02			HG 03		
订货号/Order No.	82.570...	.00						.00			.00		
动平衡环/Balancing index rings													
HG		HG 01						HG 02			HG 03		
订货号/Order No.	79.350...	.30						.35			.48		
拉钉/Pull studs													
		参见第757页/See page 757											
热缩延长杆/Shrink fit extensions													
		参见第732页/See page 732											
冷却喷孔/Cool Jet bores													
订货号/Order No.	91.100.24	参见第468页/See page 468											

# 侧固刀柄/WELDON TOOL HOLDER

## JIS B 6339-2 · BT40

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck fine balanced
G2.5 22.000 rpm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给方式采用 JD/JF型	✓ Coolant supply form JD/JF



**用途:**

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

根据DIN6359标准的 **JIS B 6339-2 BT40** 型锥柄  
JD/JF型:中心冷却和可密封的法兰冷却

- 冷却喷孔需要额外费用(参见第468页)
- 发货:带有夹持螺钉
- 超短型的刀柄只带JD型切削液供给方式

**Use:**

For clamping cutters with cylindrical shank and Weldon flat similar to DIN 1835-B and DIN 6535-HB.

Similar to DIN 6359 with taper **JIS B 6339-2 BT40 form JD/JF**.  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Cooling with Cool Jet for an extra charge (See page 468)
- Delivery: with clamping screw
- Extra short design only available in form JD

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	44	48	50	52	59	72
长度/Length A [mm]	短/short	50	50	63	63	63	63	63	63	90	100
订货号/Order No.	40.500...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	长/long	100	100	100	100	—	100	—	100	—	—
订货号/Order No.	40.501...	.06	.08	.10	.12	—	.16	—	.20	—	—
长度/Length A [mm]	超长/oversize	160	160	160	160	—	160	—	160	160	160
订货号/Order No.	40.502...	.06	.08	.10	.12	—	.16	—	.20	.25	.32

**超短型/Ultra short version**

夹持/Clamping	Ø D1 [mm]	16	18	20	25	32
	Ø D2 [mm]	48	50	52	59	59
长度/Length A [mm]	超短/ultra short	35	35	35	60	65
订货号/Order No.	40.505...	.16	.18	.20	.25	.32

**附件/Accessories**

**夹持螺钉/Clamping screw**

夹持范围 Ø/Clamping Ø

订货号/Order No. **85.100...**



06	08	10	12	14	16	18	20	25	32
.06	.08	.10	.12	.12	.14	.14	.16	.18	.20

**动平衡环/Balancing index rings**

夹持范围 Ø/Clamping Ø 长/ZG130/超长/ZG200

订货号/Order No. **79.350...**



06	08	10	12	14	16	18	20	25	32
.25	.28	.35	.42	.44	.48	.50	.52	.65	.72

**拉钉/Pull studs**



参见第757页/See page 757

Ø 6mm – Ø 20mm 冷却喷孔/Cool Jet bores from Ø 6 mm – Ø 20mm

订货号/Order No. **91.100.24**



参见第468页/See page 468

Ø 25mm – Ø 32mm 冷却喷孔/Cool Jet bores from Ø 25 mm – Ø 32mm

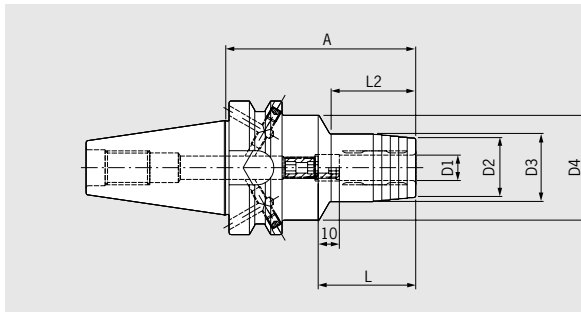
订货号/Order No. **91.100.26**



参见第468页/See page 468



# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK JIS B 6339-2 · BT40



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 1/min
	或/or U<1 gmm
<input checked="" type="checkbox"/>	径跳精度 < 3 μm
<input checked="" type="checkbox"/>	Runout accuracy < 3 μm

**用途:**  
用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

**JD/JF型 JIS B 6339 BT40 锥柄**

JD/JF型: 中心冷却和可密封的法兰冷却  
- 发货包含: 用于长度调节的支撑螺钉

**Use:**  
Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

**Taper JIS B 6339 BT40 Form JD/JF**

Form JD/JF means central coolant supply and coolant channels through the flange which can be sealed again  
- Included in delivery: With length adjustment screw

标准型, 和DIN 69882-7相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	51	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	55	63
	Ø D4 [mm]	49,5	49,5	49,5	49,5	49,5	49,5	49,5	49,5	52	62
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm]	29	30	35	40	40	45	46	47	50	48
长度/Length A [mm]	短/short	90	90	90	90	90	90	90	90	90	90
订货号/Order No.	40.6H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

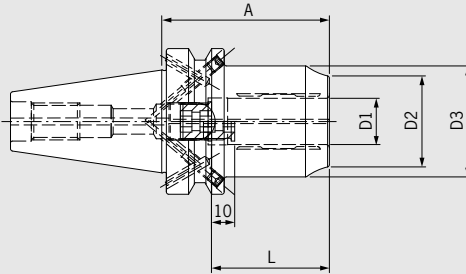
附件/Accessories		
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## JIS B 6339-2 · BT40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

### JD/JF型 JIS B 6339 BT40 锥柄

JD/JF型: 中心冷却和可密封的法兰冷却

- 发货包含: 用于长度调节的支撑螺钉

### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

### Taper JIS B 6339 BT40 Form JD/JF




Form JD/JF means central coolant supply and coolant channels through the flange which can be sealed again

- Included in delivery: With length adjustment screw

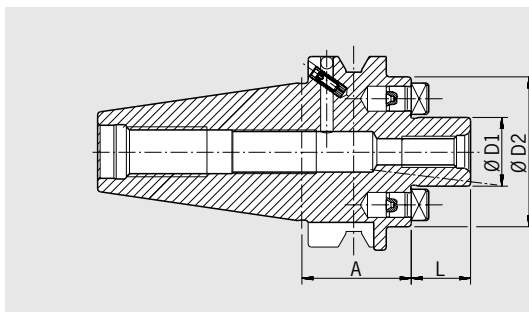
夹持/Clamping	Ø D1 [mm]	20
	Ø D2 [mm]	38
	Ø D3 [mm]	49
	L [mm]	51
长度/Length A [mm]	短/short	72,5
订货号/Order No.	40.6H10...	.20.3



### 附件/Accessories

拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第765页/See page 765
支撑螺钉/Back-up screws		参见第768页/See page 768

## 面铣刀的刀柄/FACE MILL ARBOR JIS B 6339-2 · BT40



### 质量证书

- 刀柄精细动平衡
- Chuck body fine balanced  
G2.5 22.000 rpm
- 所有功能面精细加工
- All functional surfaces fine machined
- 锥度精度 AT3
- Taper tolerance AT3
- 切削液供给方式采用 JD/JF 型
- Coolant supply form JD/JF

### 用途:

用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具, 也可夹持符合 DIN 2079 直径超过 40mm 的刀盘(4个附加的螺孔)

### JD/JF型 JIS B 6339-2 BT40 类似于 DIN 6357

JD/JF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉
- 冷却孔在端面, 可与带中心冷却的铣刀盘搭配使用

### Use:

For holding face mill cutters and milling cutters with radial driving slot DIN 1880 and exceeding  $\varnothing 40$  clamping according to DIN 2079 (4 additional thread holes).

Similar to DIN 6357 with taper **JIS B 6339-2 BT40 form JD/JF**.

Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: complete with tightening bolt
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	$\varnothing D1$ [mm]	16	22	27	32	40
	$\varnothing D2$ [mm]	36	48	59	78	87
	L [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	35	35	35 <sup>1)</sup>	65	70
订货号/Order No.	40.550...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	长/long	—	100	100	—	—
订货号/Order No.	40.551...	—	.22.KKB	.27.KKB	—	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.300...	.16	.22	.27	.32	.40

#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	84.400...	.16	.22	.27	.32	.40

#### 动平衡环/Balancing index rings

尺寸/Size D1	短/short	—	—	—	32	40
订货号/Order No.	79.350...	—	—	—	.78	.87

#### 拉钉/Pull studs

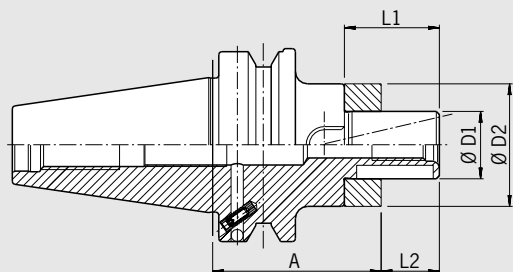


参见第757页/See page 757

# 壳铣刀的刀柄/COMBINATION SHELL END MILL ARBOR JIS B 6339-2 · BT40

## CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced  
G2.5 22,000 rpm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 锥度精度 AT3
- ✓ Taper tolerance AT3
- ✓ 切削液供给方式采用 JD/JF型
- ✓ Coolant supply form JD/JF



### 用途:

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合 DIN 842 的角度铣刀和符合 DIN 1830 的刀具。

JD/JF型 JIS B 6339-2 BT40 类似于 DIN 6358

JD/JF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉、传动环和滑键
- 前端冷却喷孔需要额外费用

### Use:

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

According to DIN 6358 with taper JIS B 6339-2 BT40 form JD/JF.

Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt, driving ring and feather key
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	32	40	48	58	70
	L1 [mm]	27	31	33	38	41
	L2 [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	55	55	55	60	70
订货号/Order No.	40.540...	.16	.22	.27	.32	.40
长度/Length A [mm]	长/long	100	100	100	100	—
订货号/Order No.	40.541...	.16	.22	.27	.32	—
长度/Length A [mm]	超长/oversize	160	160	160	—	—
订货号/Order No.	40.542...	.16	.22	.27	—	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.300...	.16	.22	.27	.32	.40

#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	84.400...	.16	.22	.27	.32	.40

#### 滑键/Feather key

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.400...	.16	.22	.27	.32	.40

#### 传动环/Driving ring

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.200...	.16	.22	.27	.32	.40

#### 动平衡环/Balancing index rings

尺寸/Size D1	长/超长/long/oversize	16	22	27	32	40
订货号/Order No.	79.350...	.32	.40	.48	.58	.70

#### 拉钉/Pull studs



参见第757页/See page 757

#### 冷却喷孔/Coolant bores

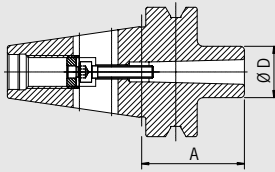
订货号/Order No.	91.100.03
---------------	-----------



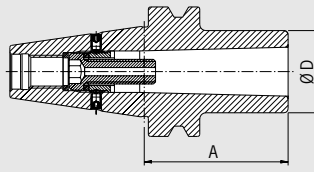
# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD JIS B 6339-2 · BT40



Type 1



Type 2



**质量证书**

- 刀柄精细动平衡
- Chuck body balanced  
G6.3 8.000 rpm
- 所有功能面精细加工
- All functional surfaces fine machined
- 锥度精度 AT3
- Taper tolerance AT3

**用途:**

用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具

**J型** JIS B 6339-2 BT40 类似于 DIN 6383

- 交货时含: 紧固螺栓
- 精密动平衡需要额外费用

莫式3和莫式4刀柄无扁尾孔, JD型

**Use:**

For clamping tools with Morse taper and thread according to DIN 228-1 form A.

Similar to DIN 6383 with taper **JIS B 6339-2 BT40 form J**.

- Included in delivery: tightening bolt
- Fine-balancing for an extra charge

MK3 and MK4 without bore for tang Form JD

类型/Type		1	1	2	2
莫式/MK		01	02	03	04
Ø D [mm]		25	32	40	48
长度/Length A [mm]	短/short	50	50	70	95
订货号/Order No.	40.630...	.01	.02	.03	.04

**附件/Accessories**

动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...

拉钉/Pull studs



01

.25

02

.32

03

.40

04

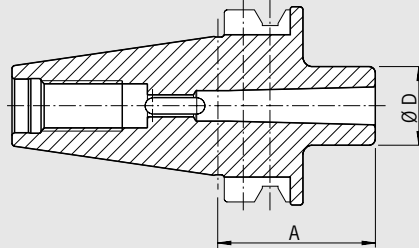
.48

参见第757页/See page 757

# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG JIS B 6339-2 · BT40

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3



### 用途:

适用于夹持符合 DIN 228-1 B型带扁尾的莫氏锥柄刀具

JD型 JIS B 6339-2 BT40 类似于 DIN 6383

– 精密动平衡需要额外费用

### Use:

For holding tools with Morse tapers and tang according to DIN 228-1 form B.

Similar to DIN 6383 with taper JIS B 6339-2 BT40 form JD.

– Fine-balancing for an extra charge

莫式/MK		01	02	03	04
	Ø D [mm]	25	32	40	48
长度/Length A [mm]	短/short	50	50	70	95
订货号/Order No.	40.580...	.01	.02	.03	.04



### 附件/Accessories

#### 动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



01

.25

02

.32

03

.40

04

.48

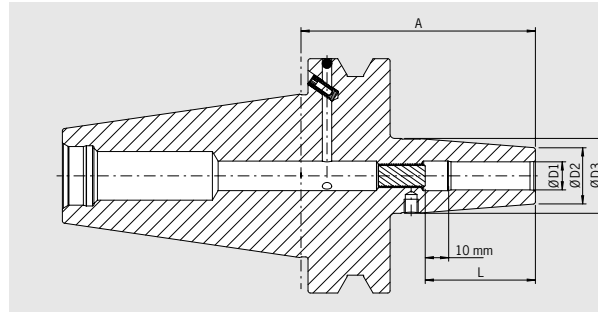
拉钉/Pull studs



参见第757页/See page 757

# 热缩刀柄/SHRINK FIT CHUCK

## JIS B 6339-2 · BT50



### 质量证书

- 刀柄精细动平衡
- Chuck body fine balanced
- G2.5 25.000 rpm
- 所有功能面精细加工
- All functional surfaces fine machined
- 锥度精度 AT3
- Taper tolerance AT3
- 切削液供给方式采用 JD/JF型
- Coolant supply form JD/JF

**用途:**  
适用于所有热缩机

#### JIS B 6339-2 BT50 (切削液供给方式采用 JD/JF型)

JD/JF型: 中心冷却和可密封的法兰冷却

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 发货包含: 支撑螺钉
- 含用于调整动平衡的螺钉孔
- 冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

**Use:**  
Suitable for all shrinking units.

#### JIS B 6339-2 BT50 form JD/JF






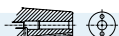
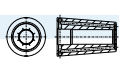
Form JD/JF means: central coolant supply and coolant channels through the flange which can be sealed again.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Included in delivery: Shrink fit chuck with back-up screw
- With threaded holes in order to balance with balancing screws
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (See pages 466/467)

#### 标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]	27	27	32	32	34	34	42	42	53	53
	L [mm]	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	100	100	100	100	100	100	100	100	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	50.640...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120	120	120
订货号/Order No.	50.647...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	50.644...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	加长/extralong	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No.	50.642...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG200	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>	200 <sup>2)</sup>
订货号/Order No.	50.646...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

#### 附件/Accessories

热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash 从不带冷却喷孔的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet		订货号/Order No. <b>91.100.40</b> 订货号/Order No. <b>91.100.41</b> 参见第466页/See page 466 参见第466页/See page 466

1) 夹持部位的外径 D2=45mm/Clamping diameter D2 = 45 mm

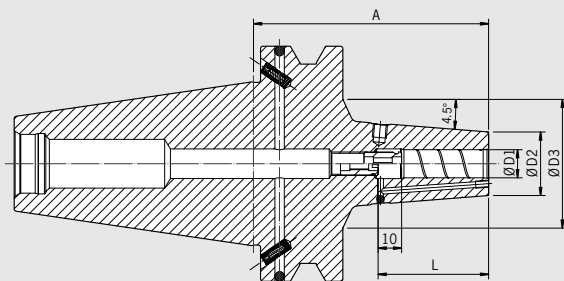
2) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file))

# 强力热缩刀柄/POWER SHRINK CHUCK

## JIS B 6339-2 · BT50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给方式采用 JD/JF型
- ☑ Coolant supply form JD/JF
- ☑ 冷却喷孔, 可密闭
- ☑ Cool Jet, can be sealed



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含侧壁冷却喷孔, 可封闭
- 环绕冷却需要额外费用 (参见第466/467页)

**加长型(A=160 或者200)结构紧凑, 使用灵活**

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

**The long versions (A=160 and 200) with slim tips are especially versatile to use.**

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

### BT50

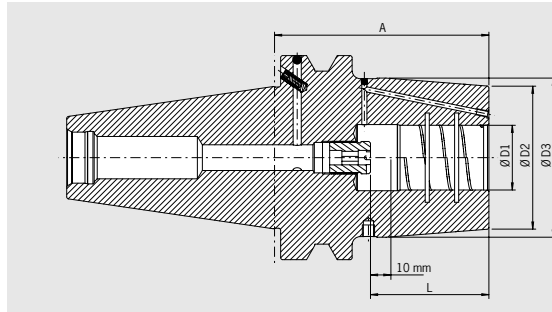
夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25
Ø D2 [mm] 短/short			21	21	27	27	33,3	33,3	44,7	44,7	44,7
Ø D3 [mm] 短/short			70	70	55	55	—	—	—	—	—
L [mm]			36	36	42	47	47	50	50	52	58
长度/Length A [mm]	短/short		100	100	100	100	100	100	100	100	100
订货号/Order No.	50.640...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
Ø D2 [mm]			21	21	27	27	33	33	44	44	44
Ø D3 [mm]			83	83	83	83	83	83	83	83	83
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	50.642...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
长度/Length A [mm]	ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	50.646...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3

### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25
Ø D2 [mm] 短/short			21	21	27	27	33,3	33,3	44,7	44,7	44,7
Ø D3 [mm] 短/short			70	70	55	55	—	—	—	—	—
L [mm]			36	36	42	47	47	50	50	52	58
长度/Length A [mm]	短/short		100	100	100	100	100	100	100	100	100
订货号/Order No.	50.640...		.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
Ø D2 [mm]			21	21	27	27	33	33	44	44	44
Ø D3 [mm]			83	83	83	83	83	83	83	83	83
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	50.642...		.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
长度/Length A [mm]	ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	50.646...		.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37



# 重型热缩刀柄/HEAVY DUTY CHUCK JIS B 6339-2 · BT50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF 型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF
<input checked="" type="checkbox"/>	冷却喷孔, 可密闭
<input checked="" type="checkbox"/>	Cool Jet, can be sealed

应用于重型机械加工中, 并将最终替代侧固刀柄。重型热缩刀柄采用了热缩装夹方式, 因此具有更高的刚性和夹持力。

- 顺畅地装拆刀具
- 热缩装夹后, 刀具柄部不会变形
- 3µm的跳动精度
- 外形加强
- 可用翰默HAIMER 13kW HD重型线圈加热或用高性能的强力型热缩机 (20kW)
- 夹持孔内有容屑槽和膨胀槽
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密闭
- 环绕冷却需要额外费用 (参见第466/467页)

For heavy machining applications it is now possible to replace the Weldon tool holders finally. Heavy Duty Chuck is the shrink fit chuck for extreme cases. The contour is optimised for highest rigidity and clamping force.

- Smooth clamping of the tool shank
- No deformation at the tool shank after shrink process
- High runout accuracy: 3 µm
- Reinforced outer contour
- To shrink with 13kW HD-Coil or with high performance shrink fit unit HAIMER Power Clamp Profi Plus (20 kW)
- With internal groove in the clamping bore
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

## BT50

夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50	
	Ø D2 [mm]	51	58	63	70	82	82	
	Ø D3 [mm] 短/short	—	67	72	78	—	—	
	L [mm]	50	52	58	61	88	88	
长度/Length A [mm]	短/short		100	100	105	105	115	120
订货号/Order No.	50.650...	.16.6	.20.6	.25.6	.32.6	.40.6 <sup>1)</sup>	.50.6	
	Ø D3 [mm]	85	85	85	85	94	94	
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160
订货号/Order No.	50.652...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6	
长度/Length A [mm]	ZG200		200	200	200	200	200	200
订货号/Order No.	50.656...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6	

## 含安全锁的重型热缩刀柄/Heavy Duty Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50	
	Ø D2 [mm]	51	58	63	70	82	82	
	Ø D3 [mm] 短/short	—	67	72	78	—	—	
	L [mm]	50	52	58	61	88	88	
长度/Length A [mm]	短/short		100	100	105	105	115	120
订货号/Order No.	50.650...	.16.67	.20.67	.25.67	.32.67	.40.67 <sup>1)</sup>	.50.67	
	Ø D3 [mm]	85	85	85	85	94	94	
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160
订货号/Order No.	50.652...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67	
长度/Length A [mm]	ZG200		200	200	200	200	200	200
订货号/Order No.	50.656...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67	

## 适合于 13 KW 热缩机用的重型热缩刀柄/Heavy Duty Chuck for 13 kW shrink fit machine

夹持/Clamping	Ø D1 [mm]	16
	Ø D2 [mm]	46
	L [mm]	50
长度/Length A [mm]	短/short	100
订货号/Order No.	标准型/standard	50.640... .16.6
订货号/Order No.	安全锁/Safe-Lock	50.640... .16.67

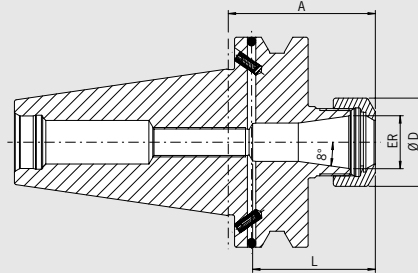
1) 夹持部位 D2 = 82.3 mm/Clamping diameter D2 = 82,3 mm

# ER 筒夹刀柄/COLLET CHUCK ER

## JIS B 6339-2 · BT50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 22.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给方式采用 JD/JF型
- ☑ Coolant supply form JD/JF



### 用途:

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

### JD/JF型 JIS B 6339-2 BT50 锥柄

JD/JF型: 中心冷却和可密封的法兰冷却

- 发货中包含: 锁紧螺母(已做动平衡, 防滑涂层提高夹持力)
- 高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 可按照要求加大尺寸L(需要额外费用)

### Use:

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).


With taper **JIS B 6339-2 BT50 form JD/JF**.


Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request


ER	16	20	25	32	40
Ø D [mm]	28	34	42	50	63
夹持范围/Clamping range [mm]	0,5–10,0	1,5–13,0	1,0–16,0	1,5–20,0	2,5–26,0
L [mm]	<sup>1)</sup>	41,5	57	64	73
长度/Length A [mm] 短/short	70	70	70	70	80
订货号/Order No. 50.520...	.16	.20	.25	.32	.40
长度/Length A [mm] 长/long	100 <sup>2)</sup>	100 <sup>2)</sup>	100 <sup>2)</sup>	100 <sup>2)</sup>	100 <sup>2)</sup>
订货号/Order No. 50.521...	.16	.20	.25	.32	.40
长度/Length A [mm] 超长/oversize	160 <sup>2)</sup>	—	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No. 50.522...	.16	—	.25	.32	.40

### 附件/Accessories


ER筒夹/Collets ER  参见第742页/See page 742

热缩筒夹/Shrink Fit Collets  参见第737页/See page 737


### 锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size ER 16 ER 20 ER 25 ER 32 ER 40  
订货号/Order No. 83.912...  .16 .20 .25 .32 .40


### 高速锁紧螺母(精细动平衡)/Locknut HS (fine-balanced)

尺寸/Size ER 16 ER 20 ER 25 ER 32 ER 40  
订货号/Order No. 83.912...  .16.HS .20.HS .25.HS .32.HS .40.HS


### 锁紧扳手/Fork wrench


尺寸/Size ER 16 ER 20 — — —  
订货号/Order No. 84.200...  .16 .20


### 锁紧扳手/Clamping wrench

尺寸/Size — — ER 25 ER 32 ER 40  
订货号/Order No. 84.200...  .25 .32 .40

### 动平衡环/Balancing index rings

尺寸/Size 长/超长/long/oversize ER 16 ER 20 ER 25 ER 32<sup>3)</sup> ER 40  
订货号/Order No. 79.350...  .28 .34 .42 .48 .63

拉钉/Pull studs  参见第757页/See page 757

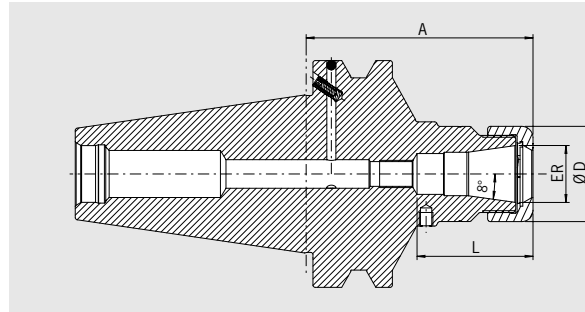
热缩延长杆/Shrink fit extensions  参见第732页/See page 732

1) 通孔/Drilled through

2) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

3) 只用于超长型/Oversize only

# 强力筒夹刀柄/POWER COLLET CHUCK JIS B 6339-2 · BT50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意: 当使用标准ER筒夹时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹系列 (参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

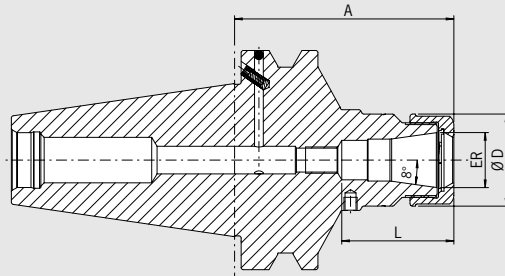
ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	短/short	100	100	100
订货号/Order No.	50.520...	.16.3	.25.3	.32.3
长度/Length A [mm]	ZG130	130	130	130
订货号/Order No.	50.524...	.16.3	.25.3	.32.3
长度/Length A [mm]	超长/oversize	160	160	160
订货号/Order No.	50.522...	.16.3	.25.3	.32.3

附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench				
订货号/Order No.	84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench				
订货号/Order No.	84.600.00			
ER筒夹/Collets ER				
				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				
				参见第737页/See page 737
强力筒夹/Power Collets				
				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				
				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				
订货号/Order No.	91.100.27			参见第749页/See page 749

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK JIS B 6339-2 · BT50

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
	G2.5 25.000 rpm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给方式采用 JD/JF型	✓ Coolant supply form JD/JF



翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处
- 跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加了机床的切削能力
- 缩短加工时间，提高加工精度
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

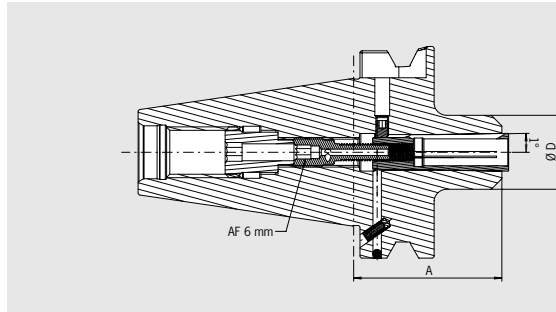
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	短/short	100	100	100
订货号/Order No.	50.520...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	ZG130	130	130	130
订货号/Order No.	50.524...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	超长/oversize	160	160	160
订货号/Order No.	50.522...	.16.3.HP	.25.3.HP	.32.3.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		ER 16	ER 25	ER 32	参见第752页/See page 752
尺寸/Size		.16.1	.25.1	.32.1	
订货号/Order No. 83.914...					
滚针轴承扳手/ Roller bearing wrench					参见第752页/See page 752
订货号/Order No. 84.650...		.16.1	.25.1	.32.1	
ER筒夹/Collets ER					参见第742页/See page 742
热缩筒夹/Shrink Fit Collets					参见第737页/See page 737
强力筒夹/Power Collets					参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock					参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets					参见第749页/See page 749
订货号/Order No. 91.100.27					

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK JIS B 6339-2 · BT50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

**用途:**  
为了夹持高精度的圆柱直柄刀具所设计的刀柄。  
非常适用于高速加工。

**JD/JF型 JIS B 6339-2 BT50 锥柄**  
JD/JF型: 中心冷却和可密封的法兰冷却

- 发货包含: 夹持螺钉和筒夹拉钩
- 要求刀具柄部精度为h6

**Use:**  
For highly precise clamping of tools with cylindrical shank with special collets.  
Very useful for high-speed machining.

With taper **JIS B 6339-2 BT50 Form JD/JF**.  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: high-precision chuck with clamping screw and pull-out hook without collet
- Shank tolerance h6

HG	Ø D [mm]	01	02	03
	夹持范围 Ø/Clamping diameter	2 3 4 5 6 8	10 12 14	16 18 20
长度/Length A [mm]	短/short	—	70	75
订货号/Order No.	50.620...		.02	.03
长度/Length A [mm]	长/long	—	100	—
订货号/Order No.	50.621...		.02	—
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	—
订货号/Order No.	50.622...	.01	.02	—

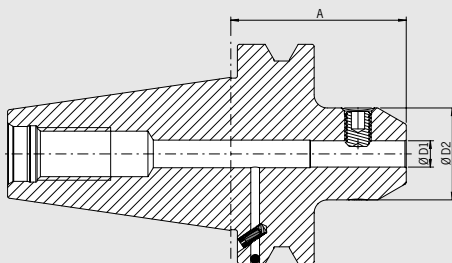
附件/Accessories														
夹持螺钉/Clamping screw		参见第773页/See page 773												
后拉式筒夹/Collets		参见第754页/See page 754												
HG 01		Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	—	
订货号/Order No.	82.510...	.02	.03	.04	.05	.06	.08							
HG 02		—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	—	
订货号/Order No.	82.520...							.10	.12	.14				
HG 03		—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20	
订货号/Order No.	82.530...										.16	.18	.20	
筒夹拉钩/Pull-out hook														
HG		HG 01							HG 02	HG 03				
订货号/Order No.	82.570...	.00							.00	.00				
动平衡环/Balancing index rings														
HG		HG 01							HG 02	HG 03				
订货号/Order No.	79.350...	.30							.35	.48				
拉钉/Pull studs		参见第757页/See page 757												
热缩延长杆/Shrink fit extensions		参见第732页/See page 732												
冷却喷孔/Cool Jet bores		参见第468页/See page 468												
订货号/Order No.	91.100.24													

1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 侧固刀柄/WELDON TOOL HOLDER

## JIS B 6339-2 · BT50

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck fine balanced
	G2.5 22,000 rpm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给方式采用 JD/JF型	✓ Coolant supply form JD/JF



**用途:**

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

根据 DIN 6359-2 标准的 **JIS B 6339 BT 50** 锥柄  
JD/JF型: 中心冷却和可密封的法兰冷却

- 冷却喷孔外费用 (参见第468页)
- 发货: 带有夹持螺钉

**Use:**

For clamping cutters with cylindrical shank and Weldon flat similar to DIN 1835-B and DIN 6535-HB.

According to DIN 6359-2 with taper **JIS B 6339-2 BT50 Form JD/JF**.  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Cooling with Cool Jet for an extra charge (See page 468)
- Delivery: with clamping screw

夹持/Clamping	Ø D1 [mm]	06	08	10	12	16	20	25	32	40
	Ø D2 [mm]	25	28	35	42	48	52	65	72	78
长度/Length A [mm] 短/short	订货号/Order No. <b>50.500...</b>	63	63	70	80	80	80	100	105	115
		.06	.08	.10	.12	.16	.20	.25	.32	.40
长度/Length A [mm] 长/long	订货号/Order No. <b>50.501...</b>	—	—	100	100	100	100	—	—	—
				.10	.12	.16	.20			
长度/Length A [mm] 超长/oversize	订货号/Order No. <b>50.502...</b>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	—
		.06	.08	.10	.12	.16	.20	.25	.32	

**附件/Accessories**

**夹持螺钉/Clamping screw**

夹持范围 Ø/Clamping Ø

订货号/Order No. **85.100...**



06	08	10	12	16	20	25	32	40
.06	.08	.10	.12	.14	.16	.18	.20	.20

**动平衡环/Balancing index rings**

夹持范围 Ø/Clamping Ø 长/ZG130/超长/ZG200

订货号/Order No. **79.350...**



06	08	10	12	16	20	25	32
.25	.28	.35	.42	.48	.52	.65	.72

**拉钉/Pull studs**



参见第757页/See page 757

Ø 6mm – Ø 20mm 冷却喷孔/Cool Jet bores from Ø 6 mm – Ø 20mm

订货号/Order No. **91.100.24**



参见第468页/See page 468

Ø 25mm – Ø 32mm 冷却喷孔/Cool Jet bores from Ø 25 mm – Ø 32mm

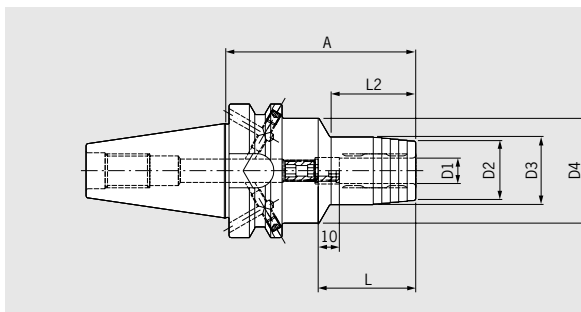
订货号/Order No. **91.100.26**



参见第468页/See page 468

1) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D2 is changing towards flange (check dxf or stp file))

# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK JIS B 6339-2 · BT50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 1/min
	或/or U<1 gmm
<input checked="" type="checkbox"/>	径跳精度 < 3 μm
<input checked="" type="checkbox"/>	Runout accuracy < 3 μm

**用途:**  
用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

**JD/JF型 JIS B 6339 BT50 锥柄**  
JD/JF型: 中心冷却和可密封的法兰冷却  
- 发货包含: 用于长度调节的支撑螺钉

**Use:**  
Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

**Taper JIS B 6339 BT50 Form JD/JF**  
Form JD/JF means central coolant supply and coolant channels through the flange which can be sealed again  
- Included in delivery: With length adjustment screw

标准型, 和DIN 69882-7相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	51	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	55	63
	Ø D4 [mm]	49,5	49,5	49,5	49,5	49,5	49,5	49,5	49,5	63	70
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm]	29	30	34	34	35	35	35	35	48	50
长度/Length A [mm]	短/short	90	90	90	90	90	90	90	90	110	110
订货号/Order No.	50.6H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

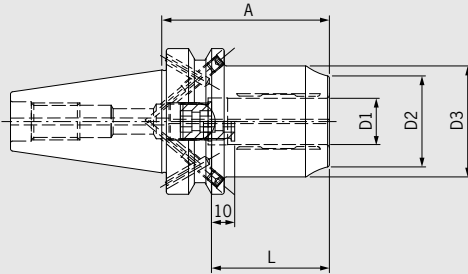
附件/Accessories		
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## JIS B 6339-2 · BT50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

### JD/JF型 JIS B 6339 BT50 锥柄

JD/JF型: 中心冷却和可密封的法兰冷却

- 发货包含: 用于长度调节的支撑螺钉

### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

### Taper JIS B 6339 BT50 Form JD/JF





Form JD/JF means central coolant supply and coolant channels through the flange which can be sealed again

- Included in delivery: With length adjustment screw

夹持/Clamping	Ø D1 [mm]	20	32
	Ø D2 [mm]	38	57
	Ø D3 [mm]	49	68
	L [mm]	51	61
长度/Length A [mm]	短/short	83,5	90 <sup>1)</sup>
订货号/Order No.	50.6H10...	.20.3	.32.3

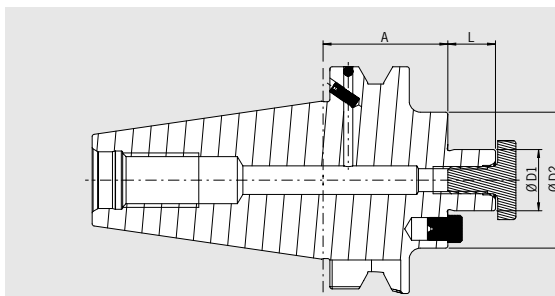


### 附件/Accessories

拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
带安全锁的减径套/Reduction sleeves with Safe-Lock		参见第765页/See page 765
支撑螺钉/Back-up screws		参见第768页/See page 768



# 面铣刀的刀柄 FACE MILL ARBOR JIS B 6339-2 · BT50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 22,000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给方式采用 JD/JF 型
<input checked="" type="checkbox"/>	Coolant supply form JD/JF

**用途:**

用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具, 也可夹持符合 DIN 2079 直径超过 40mm 的刀盘(4个附加的螺孔)

**JD/JF型 JIS B 6339-2 BT50** 类似于 DIN 6357

JD/JF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉
- 冷却孔在端面, 可与带中心冷却的铣刀盘搭配使用

**Use:**

For holding face mill cutters and milling cutters with radial driving slot DIN 1880 and exceeding Ø 40 clamping according to DIN 2079 (4 additional thread holes).

Similar to DIN 6357 with taper **JIS B 6339-2 BT50 form JD/JF**.

Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: complete with tightening bolt
- With coolant exit bores on the end face for milling cutters with central cooling

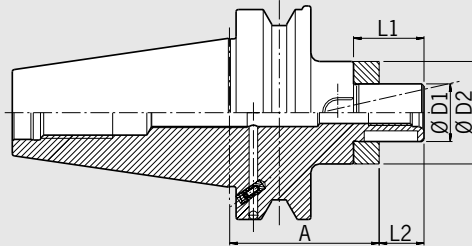
夹持/Clamping	Ø D1 [mm]		22	27	32	40
	Ø D2 [mm]		48	60	78	89
	L [mm]		19	21	24	27
长度/Length A [mm]	短/short		55	55	55	55
订货号/Order No.	50.550...		.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	长/long		100	100	100	—
订货号/Order No.	50.551...		.22.KKB	.27.KKB	.32.KKB	—

附件/Accessories						
<b>拉紧螺钉/Tightening bolt</b>						
尺寸/Size D1			22	27	32	40
订货号/Order No.	85.300...		.22	.27	.32	.40
<b>锁紧扳手/Wrench</b>						
尺寸/Size D1			22	27	32	40
订货号/Order No.	84.400...		.22	.27	.32	.40
<b>动平衡环/Balancing index rings</b>						
尺寸/Size D1	短/short		—	—	32	40
订货号/Order No.	79.350...				.78	.89
尺寸/Size D1	长/long		22	27	32	40
订货号/Order No.	79.350...		.48	.60	.78	.89
<b>拉钉/Pull studs</b>						
						参见第757页/See page 757

# 壳铣刀的刀柄 COMBINATION SHELL END MILL ARBOR JIS B 6339-2 · BT50

**CERTIFICATE OF QUALITY**

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 22,000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给方式采用 JD/JF型
- ☑ Coolant supply form JD/JF



**用途:**

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合 DIN 842 的角度铣刀和符合 DIN 1830 的刀具。

**JD/JF型 JIS B 6339-2 BT50** 类似于 DIN 6358  
JD/JF型: 中心冷却和可密封的法兰冷却

- 交货时含: 拉紧螺钉、传动环和滑键
- 前端冷却喷孔需要额外费用

**Use:**

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

According to DIN 6358 with taper **JIS B 6339-2 BT50 form JD/JF**.  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

- Included in delivery: tightening bolt, driving ring and feather key
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	32	40	48	58	70
	L1 [mm]	27	31	33	38	41
	L2 [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	70	70	70	70	70
订货号/Order No.	<b>50.540...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	<b>50.541...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	<b>50.542...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**附件/Accessories**

**拉紧螺钉/Tightening bolt**

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.300...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**锁紧扳手/Wrench**

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>84.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**滑键/Feather key**

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**传动环/Driving ring**

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.200...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**动平衡环/Balancing index rings**

尺寸/Size D1	长/超长/long/oversize	16	22	27	32	40
订货号/Order No.	<b>79.350...</b>	<b>.32</b>	<b>.40</b>	<b>.48</b>	<b>.58</b>	<b>.70</b>

**拉钉/Pull studs**



参见第757页/See page 757

**冷却喷孔/Coolant bores**

订货号/Order No. **91.100.03**

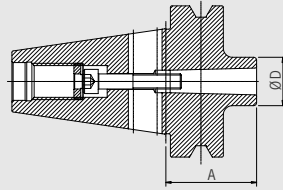


1) 柄径D2向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp 文件/D2 is changing towards flange (check dxf or stp file))

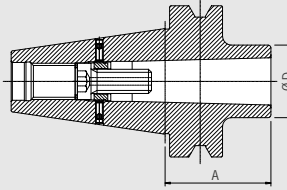
# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD JIS B 6339-2 · BT50



Type 1



Type 2



### 质量证书

- 刀柄精细动平衡
- Chuck body balanced
- G6.3 8.000 rpm
- 所有功能面精细加工
- All functional surfaces fine machined
- 锥度精度 AT3
- Taper tolerance AT3

**用途:**

用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具

**J型** JIS B 6339-2 BT50 类似于 DIN 6383

- 交货时含: 紧固螺栓
- 精密动平衡需要额外费用

莫式3和4刀柄无扁尾孔, JD型

**Use:**

For clamping tools with Morse taper with drawbar thread according to DIN 228-1 form A.

Similar to DIN 6383 with taper **JIS B 6339-2 BT50 form J**.

- Included in delivery: tightening bolt
- Fine-balancing for an extra charge

MK3 and MK4 without bore for tang form JD

类型/Type		1	1	2
莫式/MK		02	03	04
	Ø D [mm]	32	40	48
长度/Length A [mm]	短/short	60	65	70
订货号/Order No.	50.630...	.02	.03	.04

**附件/Accessories**

动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



02

.32

03

.40

04

.48

拉钉/Pull studs

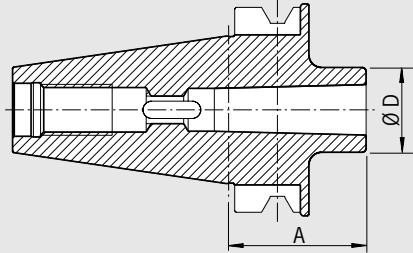


参见第757页/See page 757

# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG JIS B 6339-2 · BT50

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck balanced
- ☑ G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3



### 用途:

适用于夹持符合 DIN 228-1 B型带扁尾的莫氏锥柄刀具

JD型 JIS B 6339-2 BT50 类似于 DIN 6383

– 精密动平衡需要额外费用

### Use:

For holding tools with Morse tapers and tang according to DIN 228-1 form B.

Similar to DIN 6383 with taper JIS B 6339-2 BT50 Form JD.

– Fine-balancing for an extra charge

莫式/MK		02	03	04
Ø D [mm]		32	40	48
长度/Length A [mm]		60	65	95
订货号/Order No.	50.580...	.02	.03	.04



### 附件/Accessories

#### 动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



02

.32

03

.40

04

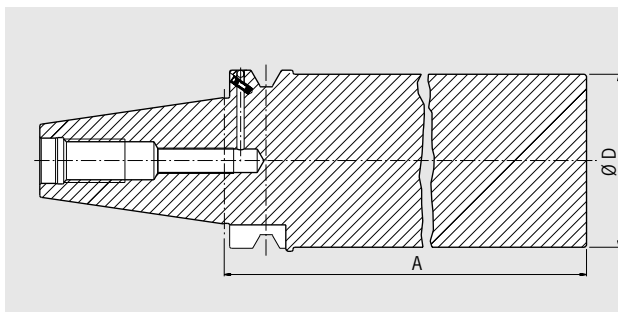
.48

拉钉/Pull studs



参见第757页/See page 757

# 毛坯刀柄 BLANK ADAPTER JIS B 6339-2 · BT50



### 质量证书

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3

**用途:**  
用于制造特殊刀具

**设计:**  
锥柄和法兰槽硬化并精磨, 圆柱部分未硬化

**JD/JF型 JIS B 6339-2 BT50 锥柄**  
JD/JF型: 中心冷却和可密封的法兰冷却

**Use:**  
For manufacturing special tools in your factory.

**Design:**  
Taper and groove are hardened and ground, the cylindrical part is soft.

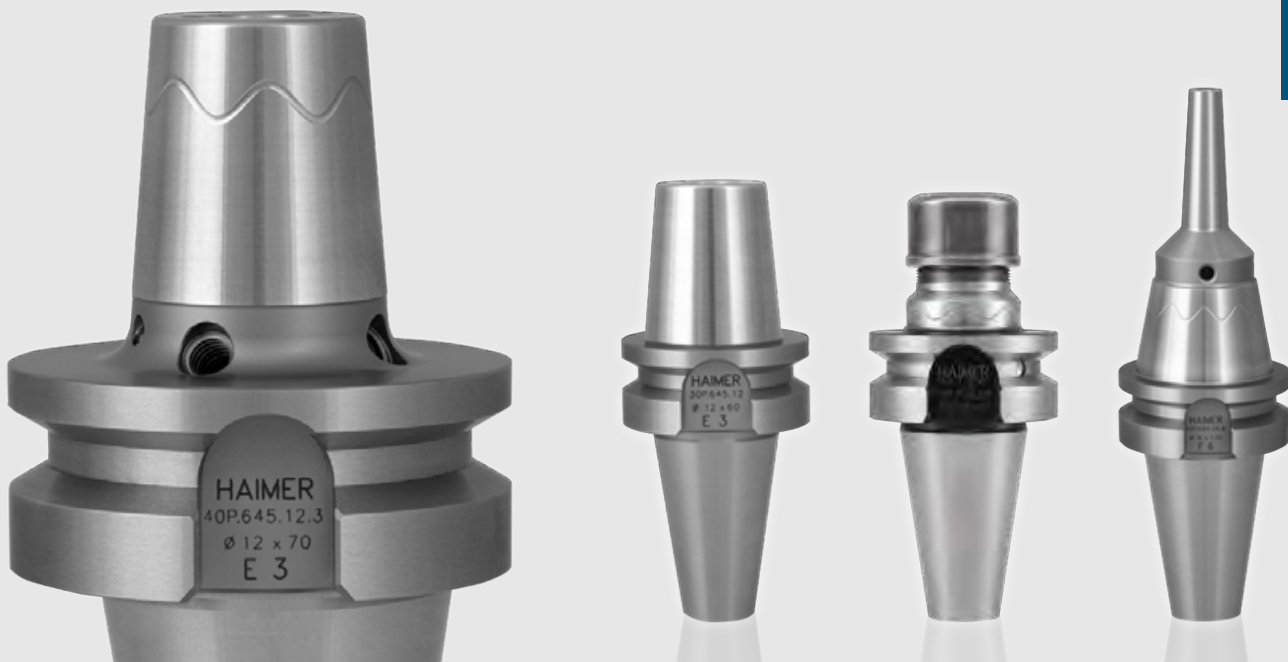
With taper **JIS B 6339-2 BT50 Form JD/JF**.  
Form JD/JF means: central coolant supply and coolant channels on the collar, which can be sealed again.

Ø D [mm]	95,5
长度/Length A [mm]	315
订货号/Order No. <b>50.590...</b>	<b>.95</b>

附件/Accessories  
拉钉/Pull studs



参见第757页/See page 757



## 类似JIS B6339-2的端面接触的BT刀柄 Similar JIS B 6339-2 BT with Face Contact

章节/Article	页数/Page
<b>BT30 端面接触 / BT30 with Face Contact</b>	<b>334</b>
热缩刀柄 Shrink Fit Chuck	336
强力迷你型热缩刀柄 Power Mini Shrink Chuck	337
强力筒夹刀柄 Power Collet Chuck	338
高精度筒夹刀柄 High Precision Collet Chuck	339
<b>BT40 端面接触 / BT40 with Face Contact</b>	<b>340</b>
热缩刀柄 Shrink Fit Chuck	340
强力热缩刀柄 Power Shrink Chuck	341
强力迷你型热缩刀柄 Power Mini Shrink Chuck	342
强力筒夹刀柄 Power Collet Chuck	343
高精度筒夹刀柄 High Precision Collet Chuck	344
<b>BT50 端面接触 / BT50 with Face Contact</b>	<b>345</b>
强力筒夹刀柄 Power Collet Chuck	345
高精度筒夹刀柄 High Precision Collet Chuck	346

## 锥柄/STEEP TAPER

### 类似JIS B6339-2的端面接触的BT刀柄

### SIMILAR JIS B 6339-2 · BT WITH FACE CONTACT

#### 设计:

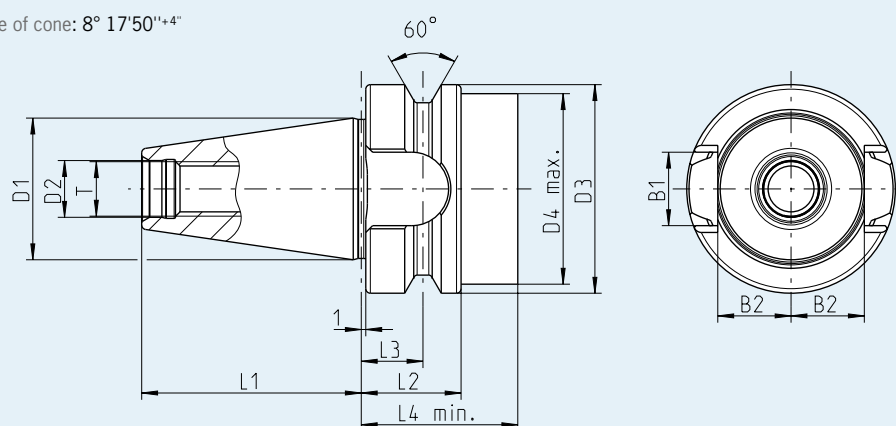
- 刀柄的法兰面和主轴端面接触, 提高了刚性
- 刀柄表面的硬度为 60-2 HRC
- 芯部的抗拉强度不小于 950 N/mm<sup>2</sup>
- 锥柄公差等级AT3
- 切削液供给采用JD型: 中心内冷
- 无数据芯片孔
- 兼容BIG-PLUS\*的主轴

#### Design:

- Additional support on the flange surface for more rigidity
- Tool holders case-hardened 60-2 HRC
- Tensile strength in the core at least 950 N/mm<sup>2</sup>
- Taper in tolerance quality AT3
- Form JD: interior coolant supply through centre
- Without bore for data chip
- Compatible with Big-Plus\* spindles

#### BT30 端面接触/BT30 with face contact

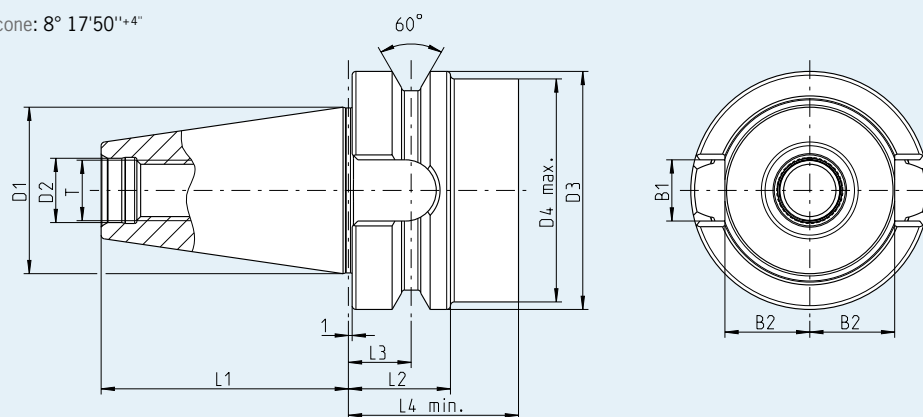
- 锥度/Angle of cone:  $8^{\circ} 17'50''+4''$



[mm]	D1	D2	D3	D4	L1	L2	L3	L4	T	B1	B2
BT30 端面接触/BT30 with face contact	31,75	12,5	46	42	48,4	22	13,6	34,5	M12	16,1	16,3

#### BT40 端面接触/BT40 with face contact

- 锥度/Angle of cone:  $8^{\circ} 17'50''+4''$



[mm]	D1	D2	D3	D4	L1	L2	L3	L4	T	B1	B2
BT40 端面接触/BT40 with face contact	44,45	17	63	59	65,4	27	16,6	45	M16	16,1	22,6

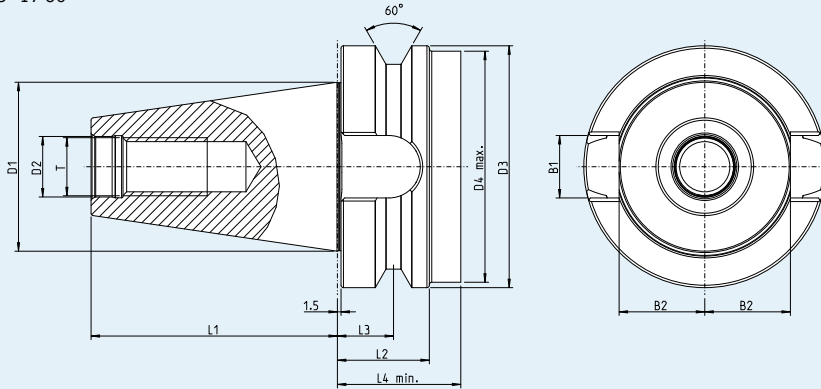
# 锥柄/STEEP TAPER

## 类似JIS B6339-2的端面接触的BT刀柄

### SIMILAR JIS B 6339-2 · BT WITH FACE CONTACT

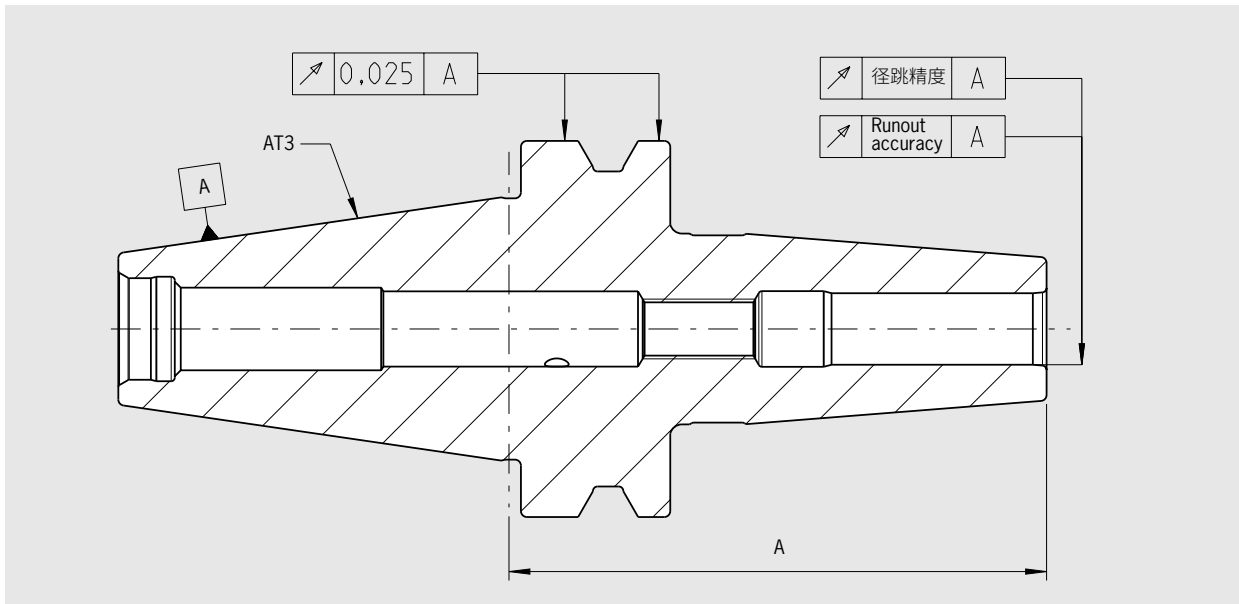
BT50 端面接触/BT50 with face contact

- 锥度/Angle of cone: 8° 17'50"±4"



[mm]	D1	D2	D3	D4	L1	L2	L3	T	B1	B2
BT50 端面接触/BT50 with face contact	69,85	25	100	95,5	101,8	38	23,2	M24	25,7	35,4

## 径跳精度/RUNOUT ACCURACY



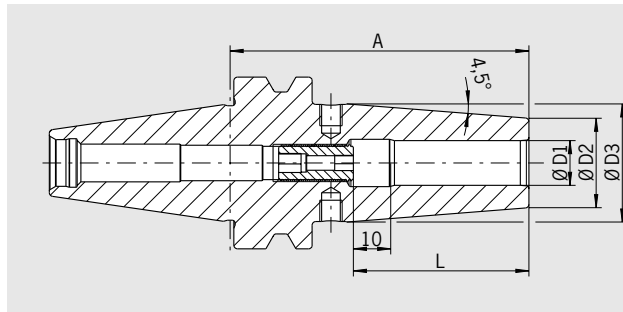
刀柄长度 (A)/Gage length A	A < 160	A ≥ 160
径向跳动的公差, 单位为mm/max. runout tolerance in mm		
热缩刀柄/Shrink Fit Chuck	0,003	0,004
强力热缩刀柄/Power Shrink Chuck	0,003	0,004
强力迷你型热缩刀柄/Power Mini Shrink Chuck	0,003	0,004
强力筒夹刀柄/Power Collet Chuck	0,003	0,004
高精度筒夹刀柄/High Precision Collet Chck	0,003	0,004



# 热缩刀柄/SHRINK FIT CHUCK

## 类似JIS B 6339-2的端面接触的BT30刀柄

### SIMILAR JIS B 6339-2 · BT30 WITH FACE CONTACT



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用JD型
<input checked="" type="checkbox"/>	Coolant supply form JD

**用途:**  
适用于所有热缩机  
刀柄的法兰面和主轴端面接触,提高了刚性

**Use:**  
Suitable for all inductive, contact and hot air shrink fit units.  
Additional support on the flange surface for more rigidity

**类似JIS B6339-2的端面接触的BT30刀柄切削液供给采用JD型)**

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 发货包含:支撑螺钉
- 含用于调整动平衡的螺钉孔
- 冷却喷孔需要额外费用(参见第468页)
- 环绕冷却需要额外费用(参见第466/467页)
- 兼容BIG-PLUS\*的主轴

**Similar JIS B 6339-2 BT30 with face contact form JD**

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Included in delivery: with back-up screw
- With threaded holes in order to balance with balancing screws
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (see pages 466/467)
- Compatible with Big-Plus\* spindles

**标准型,和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8**

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16	18	20
	Ø D2 [mm]	10	10	10	21	21	24	24	27	27	33
	Ø D3 [mm]	—	—	—	27	27	32	32	34	34	40,5
	L [mm]	09	12	15	36	36	42	47	50	50	52
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	80	80	80	90	90
订货号/Order No.	30P.640...	.03	.04	.05	.06	.08	.10	.12	.16	.18	.20

**超短型/Ultra short version**

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16	18	20
	Ø D2 [mm]	10	10	10	23	23	27	27	30	30	35,5
	Ø D3 [mm]	—	—	—	—	—	—	—	—	—	40,5
	L [mm]	09	12	15	36	36	42	47	50	50	52
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>2)</sup>	65 <sup>2)</sup>	65 <sup>2)</sup>	70 <sup>2)</sup>
订货号/Order No.	30P.645...	.03	.04	.05	.06	.08	.10	.12	.16	.18	.20

附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41

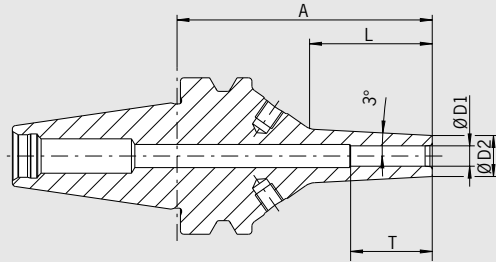
1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 有支撑螺钉, 无动平衡螺钉孔/With back-up screw, without threads for balancing screws

\* BIG-PLUS®是大昭和精机株式会社的注册商标。  
BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK 类似JIS B 6339-2的端面接触的BT30刀柄 SIMILAR JIS B 6339-2 · BT30 WITH FACE CONTACT

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
U < 1 gmm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD



强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄，后端为加厚结构，因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具
- 兼容BIG-PLUS\*的主轴

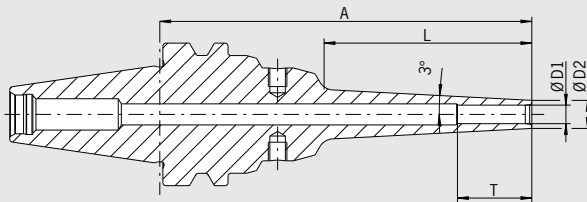
**注意：**在大多数热缩机上加热和冷却迷你型热缩刀柄时，您需要使用安装冷却套（参考刀柄附件）。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄，则无需使用安装冷却套。另外，这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- Additional support on the flange surface for more rigidity
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6
- Compatible with Big-Plus\* spindles

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
U < 1 gmm	
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD



夹持/Clamping	Ø D1 [mm]	03	04	06	08	10	12
T [mm]		—	—	—	—	68	75
Ø D2 [mm] 短/short		09	10	12	14	16	18
L [mm] 短/short		36	36	36	36	36	36
长度/Length A [mm]	短/short	75	75	75	75	75	75
订货号/Order No.	30P.680...	.03.8	.04.8	.06.8	.08.8	.10.8	.12.8
	Ø D2 [mm] ZG95	06	07	09			
	L [mm] ZG95	42	42	42			
长度/Length A [mm]	ZG95	95	95	95			
订货号/Order No.	30P.671...	.03.8	.04.8	.06.8			
	Ø D2 [mm] ZG120	06	07	09			
	L [mm] ZG120	67	67	67			
长度/Length A [mm]	ZG120	120	120	120			
订货号/Order No.	30P.677...	.03.8	.04.8	.06.8			

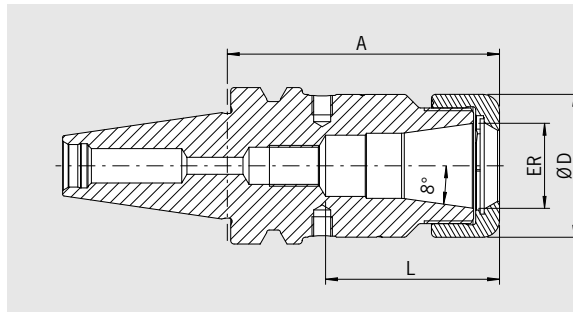
附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

参见第587页/See page 587

\* BIG-PLUS\* 是大昭和精机株式会社的注册商标。  
BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

# 强力筒夹刀柄/POWER COLLET CHUCK 类似JIS B 6339-2的端面接触的BT30刀柄 SIMILAR JIS B 6339-2 · BT30 WITH FACE CONTACT



质量证书	
☑	刀柄精细动平衡
☑	Chuck body fine balanced
	G2.5 25,000 rpm
	或/或 U<1 gmm
☑	所有功能面精细加工
☑	All functional surfaces fine machined
☑	精度高于DIN标准
☑	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能,更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄,也可与标准ER筒夹搭配使用。

- 刀柄的法兰面和主轴端面接触,提高了刚性
- 跳动精度高:配合翰默 HAIMER 强力筒夹使用时,在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时,尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅,更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度,大大增加机床的切削能力
- 缩短加工时间,提高加工精度,增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项:强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\*的主轴

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- Additional support on the flange surface for more rigidity
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	超短/ultra short	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>
订货号/Order No.	30P.525...	.16.3	.25.3	.32.3
长度/Length A [mm]	ZG60	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>
订货号/Order No.	30P.529...	.16.3.060	.25.3.060	.32.3.060
长度/Length A [mm]	ZG75	75	75	75
订货号/Order No.	30P.529...	.16.3.075	.25.3.075	.32.3.075
长度/Length A [mm]	短/short	80	80	80
订货号/Order No.	30P.520...	.16.3	.25.3	.32.3
长度/Length A [mm]	ZG105	105	105	105
订货号/Order No.	30P.529...	.16.3.105	.25.3.105	.32.3.105
长度/Length A [mm]	ZG120	120	120	120
订货号/Order No.	30P.527...	.16.3	.25.3	.32.3

附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench		ER 16	ER 25	参见第751页/See page 751
订货号/Order No.	84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench				参见第750页/See page 750
订货号/Order No.	84.600.00			
ER筒夹/Collets ER				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				参见第737页/See page 737
强力筒夹/Power Collets				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				参见第749页/See page 749
订货号/Order No.	91.100.27			

1) 无动平衡螺钉孔/Without thread for balancing screws

\* BIG-PLUS\* 是大昭和精机株式会社的注册商标./BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

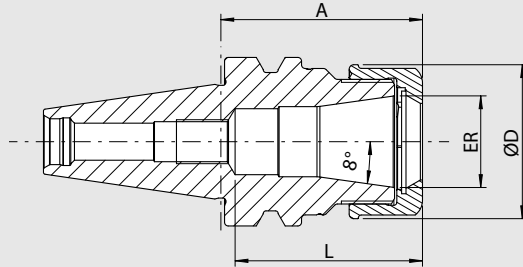
# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK

## 类似JIS B 6339-2的端面接触的BT30刀柄

### SIMILAR JIS B 6339-2 · BT30 WITH FACE CONTACT

#### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡
- ✓ Chuck body fine balanced  
G2.5 30,000 rpm  
或/or U<1 gmm
- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN



翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\*的主轴

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimized design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- Additional support on the flange surface for more rigidity
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER		16	25	32
Ø D [mm]		28	42	50
夹持范围/Clamping range [mm]		2,0-10,0	2,0-16,0	2,0-20,0
L [mm]		43	51	53
长度/Length A [mm]	超短/ultra short	55 <sup>1)</sup>	55 <sup>1)</sup>	55 <sup>1)</sup>
订货号/Order No.	30P.525...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	ZG60	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>
订货号/Order No.	30P.529...	.16.3.060.HP	.25.3.060.HP	.32.3.060.HP
长度/Length A [mm]	ZG75	75	75	75
订货号/Order No.	30P.529...	.16.3.075.HP	.25.3.075.HP	.32.3.075.HP
长度/Length A [mm]	短/short	80	80	80
订货号/Order No.	30P.520...	.16.3.HP	.25.3.HP	.32.3.HP
长度/Length A [mm]	ZG105	105 <sup>2)</sup>	105 <sup>2)</sup>	105 <sup>2)</sup>
订货号/Order No.	30P.529...	.16.3.105.HP	.25.3.105.HP	.32.3.105.HP
长度/Length A [mm]	ZG120	120 <sup>2)</sup>	120 <sup>2)</sup>	120 <sup>2)</sup>
订货号/Order No.	30P.527...	.16.3.HP	.25.3.HP	.32.3.HP

#### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748

1) 无动平衡螺钉孔/Without thread for balancing screws

2) 柄径D向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件)/D is changing towards flange (check dxf or stp file)

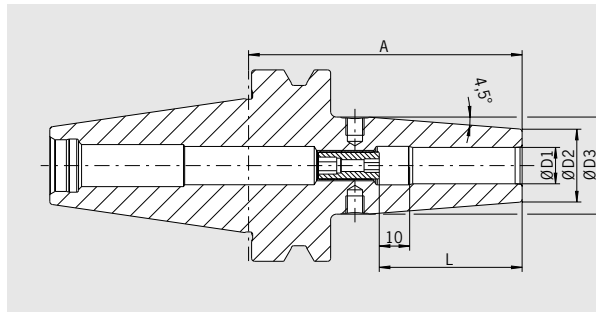
\* BIG-PLUS\* 是大昭和精机株式会社的注册商标。

BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

# 热缩刀柄/SHRINK FIT CHUCK

## 类似JIS B 6339-2的端面接触的BT40刀柄

### SIMILAR JIS B 6339-2 · BT40 WITH FACE CONTACT



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	锥度精度 AT3
<input checked="" type="checkbox"/>	Taper tolerance AT3
<input checked="" type="checkbox"/>	切削液供给采用JD型
<input checked="" type="checkbox"/>	Coolant supply form JD

**用途:**  
适用于所有热缩机  
刀柄的法兰面和主轴端面接触,提高了刚性.

**Use:**  
Suitable for all shrinking units.  
Additional support on the flange surface for more rigidity.

**类似JIS B6339-2的端面接触的BT40刀柄(切削液供给采用JD型)**

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 含用于调整动平衡的螺钉孔
- 发货包含:支撑螺钉
- 冷却喷孔需要额外费用(参见第468页)
- 环绕冷却需要额外费用(参见第466/467页)
- 兼容BIG-PLUS\*的主轴

**Similar JIS B 6339-2 BT40 with face contact form JD**

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (see pages 466/467)
- Compatible with Big-Plus\* spindles

**标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8**

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	16	20	25	32
	Ø D2 [mm]		10	10	10	21	21	24	24	27	33	44	44
	Ø D3 [mm]		—	—	—	27	27	32	32	34	42	53	53
	L [mm]		9	12	15	36	36	42	47	50	52	58	58
长度/Length A [mm]	短/short		90 <sup>1)</sup>	90 <sup>1)</sup>	90 <sup>1)</sup>	90	90	90	90	90	90	100	100
订货号/Order No.	40P.640...		.03.1	.04.1	.05.1	.06	.08	.10	.12	.16	.20	.25	.32
长度/Length A [mm]	ZG130		—	—	—	130	130	130	130	130	130	130	—
订货号/Order No.	40P.644...		—	—	—	.06	.08	.10	.12	.16	.20	.25	—
长度/Length A [mm]	超长/extralong		—	—	—	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	—
订货号/Order No.	40P.642...		—	—	—	.06	.08	.10	.12	.16	.20	.25	—

**标准型, 含冷却喷孔(Ø 3 – 5 mm 为细缝冷却)/Standard version, with Cool Jet (Ø 3–5 mm cooling with slits)**

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	14	16	20	25
	Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	44
	Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	53
	L [mm]		9	12	15	36	36	42	47	47	50	52	58
长度/Length A [mm]	短/short		90 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	90	90	90	90	90	90	90	100
订货号/Order No.	40P.640...		.03	.04	.05	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.20.2	.25.2

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上没有细缝, 内冷却液不能沿刀具的柄部喷出, 不适用于高速钢刀具  
Without back-up screw, without thread for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

2) 柄径D3向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D3 is changing towards flange (check dxf or stp file))

3) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without thread for balancing screws, with slits along the clamping bore for cooling from outside

\* BIG-PLUS®是大昭和精机株式会社的注册商标。  
BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

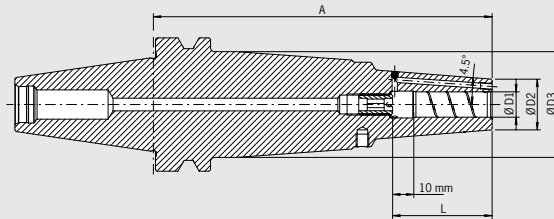
# 强力热缩刀柄/POWER SHRINK CHUCK

## 类似JIS B6339-2的端面接触的BT40刀柄

### SIMILAR JIS B 6339-2 · BT40 WITH FACE CONTACT

#### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- ☑ G2.5 25.000 rpm
- ☑ 或/或 U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 锥度精度 AT3
- ☑ Taper tolerance AT3
- ☑ 切削液供给采用JD型
- ☑ Coolant supply form JD
- ☑ 冷却喷孔, 可密闭
- ☑ Cool Jet, can be sealed



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 刀柄的法兰面和主轴端面接触, 提高了刚性
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴寿命
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密封
- 环绕冷却需要额外费用 (参见第466/467页)

加长型(A=130 或者160)结构紧凑, 使用灵活。

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小
- 兼容BIG-PLUS\*的主轴

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Additional support on the flange surface for more rigidity
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (see pages 466/467)

The long versions (A=130 and 160) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine
- Compatible with Big-Plus\* spindles

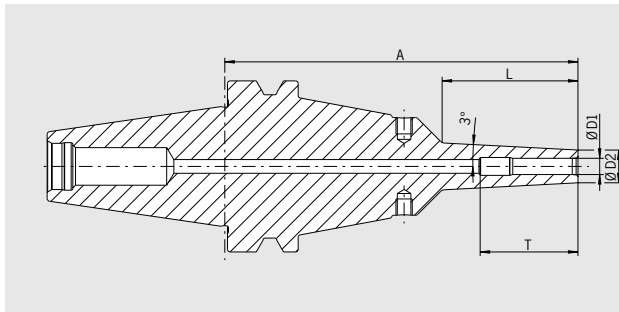
夹持/Clamping	Ø D1 [mm]		06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45,5	45,5
	L [mm] 超短/ultra short		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	超短/ultra short		70	70	70	70	75	75	75	75	85	85
订货号/Order No.	40P.645...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
	Ø D2 [mm]		21	21	24	24	27	27	33	33		
	Ø D3 [mm]		50	50	50	50	50	50	50	50		
	L [mm]		36	36	42	47	47	50	50	52		
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130	130		
订货号/Order No.	40P.644...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3		
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160	160		
订货号/Order No.	40P.642...		.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3		

#### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]		12	16	20	25	32
	Ø D2 [mm] 超短/ultra short		26,5	29,5	35,5	45,5	45,5
	L [mm] 超短/ultra short		47	50	52	58	58
长度/Length A [mm]	超短/ultra short		70	75	75	85	85
订货号/Order No.	40P.645...		.12.37	.16.37	.20.37	.25.37	.32.37
	Ø D2 [mm]		24	27	33		
	Ø D3 [mm]		50	50	50		
	L [mm]		47	50	52		
长度/Length A [mm]	ZG130		130	130	130		
订货号/Order No.	40P.644...		.12.37	.16.37	.20.37		
长度/Length A [mm]	超长/oversize		160	160	160		
订货号/Order No.	40P.642...		.12.37	.16.37	.20.37		

\* BIG-PLUS\* 是大昭和精机株式会社的注册商标。  
BIG-PLUS\* is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK 类似JIS B 6339-2的端面接触的BT40刀柄 SIMILAR JIS B 6339-2 · BT40 WITH FACE CONTACT



质量证书	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
	G2.5 25.000 rpm 或/or U<1 gmm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD

强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄，后端为加厚结构，因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

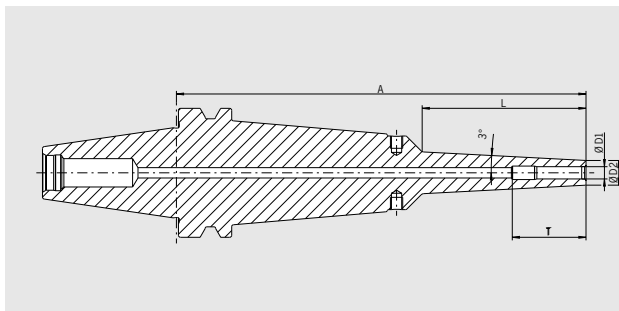
- 刀柄的法兰面和主轴端面接触，提高了刚性
- 2种型号：标准型(3mm壁厚)和超细型(1.5mm壁厚)
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 适用于柄径公差为h6的所有硬质合金刀具
- 兼容BIG-PLUS\*的主轴

**注意：**在大多数热缩机上加热和冷却迷你型热缩刀柄时，您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄，则无需使用安装冷却套。另外，这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- Additional support on the flange surface for more rigidity
- 2 types: Standard (3 mm wall thickness) and extra slim (1,5 mm wall thickness)
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6
- Compatible with Big-Plus\* spindles

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.



质量证书	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
	G2.5 25.000 rpm 或/or U<1 gmm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 锥度精度 AT3	✓ Taper tolerance AT3
✓ 切削液供给采用JD型	✓ Coolant supply form JD

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12	16
	Ø D2 [mm] 标准型/standard		09	10	11	12	14	16	18	24
	Ø D2 [mm] 超细/extra slim		06	07	08	09	11	13	15	—
	T [mm]		—	—	—	—	—	68	75	75
	L [mm] ZG130		50	50	50	50	50	50	50	50
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130	130 <sup>1)</sup>
订货号/Order No.	标准型/standard	40P.684...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40P.674...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
	L [mm]		80	80	80	80	80	80	80	80
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160	160 <sup>1)</sup>
订货号/Order No.	标准型/standard	40P.682...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	40P.672...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—

附件/Accessories

用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

参见第587页/See page 587

1) 4mm壁厚/4 mm wall thickness  
\* BIG-PLUS® 是大昭和精机株式会社的注册商标。  
BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

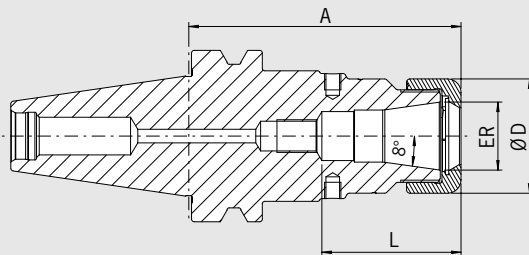
# 强力筒夹刀柄/POWER COLLET CHUCK

## 类似JIS B 6339-2的端面接触的BT40刀柄

### SIMILAR JIS B 6339-2 · BT40 WITH FACE CONTACT

#### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25,000 rpm  
或/或 U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加了机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\*的主轴

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- Additional support on the flange surface for more rigidity
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	短/short	70	70
订货号/Order No.	40P.520...	.16.3	.25.3
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	40P.521...	.16.3	.25.3
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>
订货号/Order No.	40P.527...	.16.3	.25.3
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	40P.522...	.16.3	.25.3

#### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16	.25	.32
锁紧扳手/Clamping wrench	ER 16	ER 25	参见第751页/See page 751
订货号/Order No. 84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No. 84.600.00			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

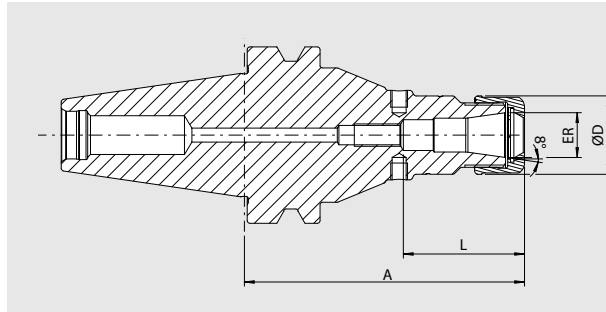
1) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

\* BIG-PLUS® 是大昭和精机株式会社的注册商标。

BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.



# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK 类似JIS B 6339-2的端面接触的BT40刀柄 SIMILAR JIS B 6339-2 · BT40 WITH FACE CONTACT



质量证书	
✓	刀柄精细动平衡
✓	Chuck body fine balanced
	G2.5 30.000 rpm
	或/or U<1 gmm
✓	所有功能面精细加工
✓	All functional surfaces fine machined
✓	精度高于DIN标准
✓	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\* 的主轴

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimized design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- Additional support on the flange surface for more rigidity
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	短/short	70	70
订货号/Order No.	40P.520...	.16.3.HP	.25.3.HP
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	40P.521...	.16.3.HP	.25.3.HP
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>
订货号/Order No.	40P.527...	.16.3.HP	.25.3.HP
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	40P.522...	.16.3.HP	.25.3.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)			参见第752页/See page 752
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/Roller bearing wrench			参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp文件/D is changing towards flange (check dxf or stp file)  
 \* BIG-PLUS® 是大昭和精机株式会社的注册商标。  
 BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

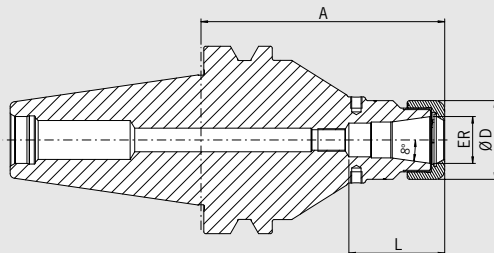
# 强力筒夹刀柄/POWER COLLET CHUCK

## 类似JIS B 6339-2的端面接触的BT50刀柄

### SIMILAR JIS B 6339-2 · BT50 WITH FACE CONTACT

#### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 25,000 rpm  
或/或 U<1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\*的主轴

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- Additional support on the flange surface for more rigidity
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	短/short	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	50P.520...	.16.3	.25.3
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	50P.524...	.16.3	.25.3
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	50P.522...	.16.3	.25.3

#### 附件/Accessories

##### 高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)

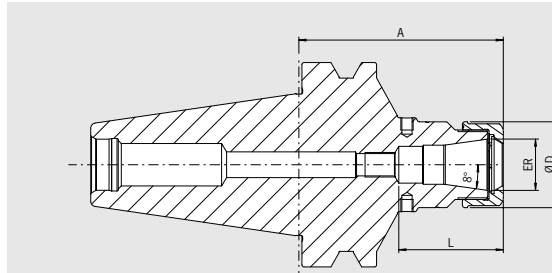
尺寸/Size	ER 16	ER 25	ER32
订货号/Order No. 83.914...	.16	.25	.32
锁紧扳手/Clamping wrench	ER 16	ER 25	参见第751页/See page 751
订货号/Order No. 84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No. 84.600.00			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D is changing towards flange (check dxf or stp file))

\* BIG-PLUS® 是大昭和精机株式会社的注册商标。

BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK 类似JIS B 6339-2的端面接触的BT50刀柄 SIMILAR JIS B 6339-2 · BT50 WITH FACE CONTACT



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 30,000 rpm
	或/or U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 刀柄的法兰面和主轴端面接触，提高了刚性
- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加了机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748
- 兼容BIG-PLUS\*的主轴

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimized design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- Additional support on the flange surface for more rigidity
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748
- Compatible with Big-Plus\* spindles

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	短/short	100	100
订货号/Order No.	50P.520...	.16.3.HP	.25.3.HP
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	50P.524...	.16.3.HP	.25.3.HP
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	50P.522...	.16.3.HP	.25.3.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp文件/D is changing towards flange (check dxf or stp file)  
\* BIG-PLUS® 是大昭和精机株式会社的注册商标。  
BIG-PLUS® is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.



# DIN 69893

## HSK-A/HSK-E/HSK-F

### 章节/Article

### 页数/Page

<b>DIN 69893 HSK-A32</b>	<b>348</b>	筒夹刀柄/Collet Chuck	406
热缩刀柄/Shrink Fit Chuck	352	后拉式高精度刀柄/High-Precision Chuck	409
筒夹刀柄/Collet Chuck	353	侧固刀柄/Weldon Holder	410
侧固刀柄/Weldon Holder	356	标准型液压刀柄/Standard Hydraulic Chuck	411
<b>DIN 69893 HSK-A40</b>	<b>357</b>	强力型液压刀柄/Power Hydraulic Chuck	412
热缩刀柄/Shrink Fit Chuck	357	面铣刀的刀柄/Face Mill Arbor	413
筒夹刀柄/Collet Chuck	358	壳铣刀的刀柄/Combination Shell End Mill Adapter	414
侧固刀柄/Weldon Holder	361	斜孔侧固刀柄/Whistle Notch Tool Holder	415
面铣刀的刀柄/Face Mill Arbor	362	莫氏锥度刀柄/Adapter for Morse Taper	416
壳铣刀的刀柄/Combination Shell End Mill Adapter	363	毛坯刀柄/Blank Adapter	418
<b>DIN 69893 HSK-A50</b>	<b>364</b>	短钻夹头刀柄/Short Drill Chuck	419
热缩刀柄/Shrink Fit Chuck	364	<b>DIN 69893 HSK-A125</b>	<b>420</b>
筒夹刀柄/Collet Chuck	365	热缩刀柄/Shrink Fit Chuck	420
侧固刀柄/Weldon Holder	368	筒夹刀柄/Collet Chuck	422
面铣刀的刀柄/Face Mill Arbor	369	面铣刀的刀柄/Face Mill Arbor	423
壳铣刀的刀柄/Combination Shell End Mill Adapter	370	<b>DIN 69893 HSK-E25</b>	<b>424</b>
<b>DIN 69893 HSK-A63</b>	<b>371</b>	热缩刀柄/Shrink Fit Chuck	424
热缩刀柄/Shrink Fit Chuck	371	筒夹刀柄/Collet Chuck	425
筒夹刀柄/Collet Chuck	377	<b>DIN 69893 HSK-E32</b>	<b>428</b>
后拉式高精度刀柄/High-Precision Chuck	380	热缩刀柄/Shrink Fit Chuck	428
侧固刀柄/Weldon Holder	381	筒夹刀柄/Collet Chuck	430
标准型液压刀柄/Standard Hydraulic Chuck	382	<b>DIN 69893 HSK-E40</b>	<b>433</b>
强力型液压刀柄/Power Hydraulic Chuck	383	热缩刀柄/Shrink Fit Chuck	433
面铣刀的刀柄/Face Mill Arbor	384	筒夹刀柄/Collet Chuck	435
壳铣刀的刀柄/Combination Shell End Mill Adapter	385	<b>DIN 69893 HSK-E50</b>	<b>438</b>
斜孔侧固刀柄/Whistle Notch Tool Holder	386	热缩刀柄/Shrink Fit Chuck	438
莫氏锥度刀柄/Adapter for Morse Taper	387	筒夹刀柄/Collet Chuck	440
毛坯刀柄/Blank Adapter	389	侧固刀柄/Weldon Holder	443
快换攻丝刀柄/Quick Change Tapping Chuck	390	面铣刀的刀柄/Face Mill Arbor	444
短钻夹头刀柄/Short Drill Chuck	391	<b>DIN 69893 HSK-F63</b>	<b>445</b>
<b>DIN 69893 HSK-A63/80</b>	<b>392</b>	热缩刀柄/Shrink Fit Chuck	445
热缩刀柄/Shrink Fit Chuck	392	筒夹刀柄/Collet Chuck	446
筒夹刀柄/Collet Chuck	396	面铣刀的刀柄/Face Mill Arbor	447
面铣刀的刀柄/Face Mill Arbor	397	<b>DIN 69893-6 HSK-F80M</b>	<b>448</b>
<b>DIN 69893 HSK-A80</b>	<b>398</b>	热缩刀柄/Shrink Fit Chuck	448
热缩刀柄/Shrink Fit Chuck	398	筒夹刀柄/Collet Chuck	449
筒夹刀柄/Collet Chuck	400		
侧固刀柄/Weldon Holder	402		
<b>DIN 69893 HSK-A100</b>	<b>403</b>		
热缩刀柄/Shrink Fit Chuck	403		

# HSK-A/HSK-E/HSK-F DIN 69893

比较普通锥柄，HSK有以下优势：

- 夹持刀具到主轴时具有更高重复精度
- 通过锥柄和端面定位
- 适用于高速切削
- 无需拉钉
- 包括：数据芯片孔 (仅限HSK-A)

材质：

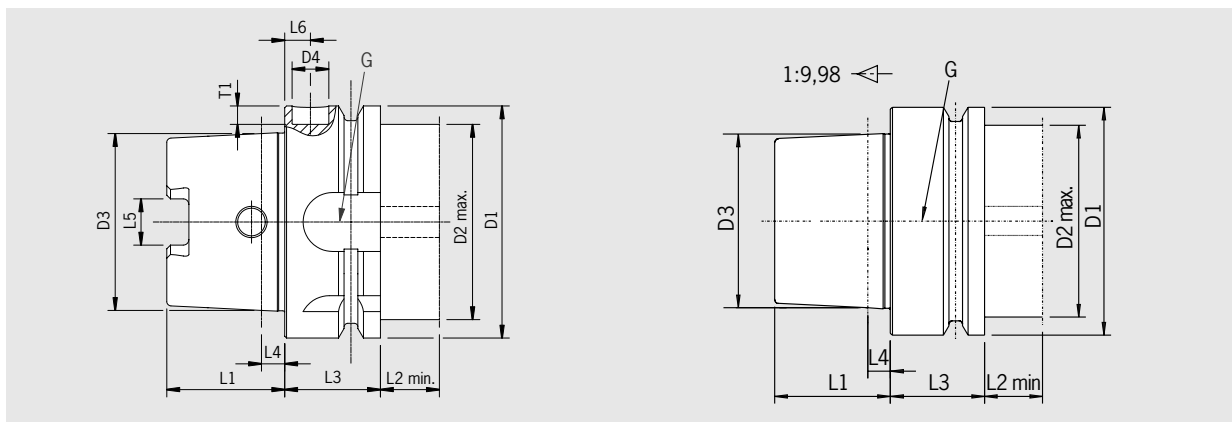
- 特殊的表面硬化钢保证工作面的高强度
- 表面硬度：58-2 HRC
- 芯部的抗拉强度不小于1000N/mm<sup>2</sup>

Compared to the steep taper the HSK has the following advantages:

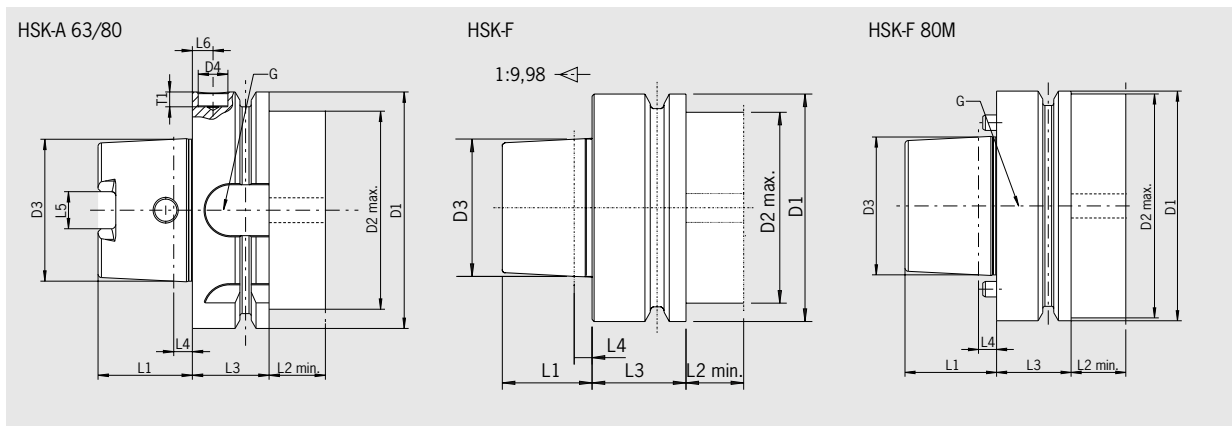
- High repetition accuracy when clamping tools into spindle
- Fixed axial positioning with flat contact surface
- Suitable for high speed cutting
- No pull stud necessary
- Incl. bore for data chip (only HSK-A)

Material:

- Special case-hardening steel for highly stressed parts
- Surface hardness: 58-2 HRC
- Tensile strength in core min. 1000 N/mm<sup>2</sup>

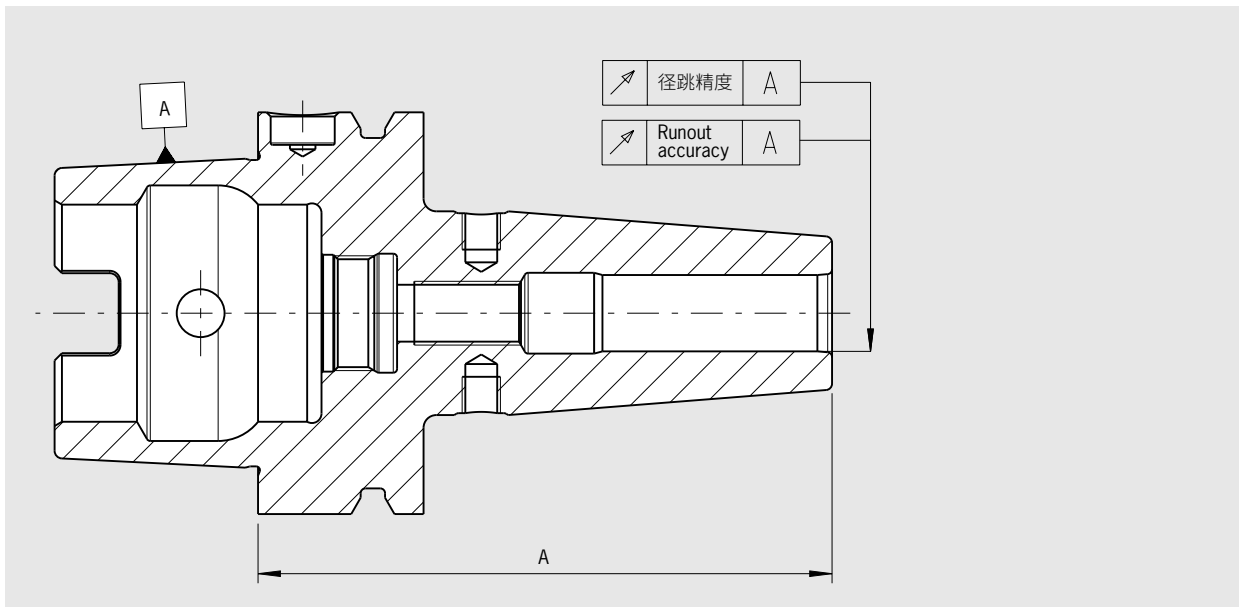


长度/Length [mm]	D1	D2 max.	D3	D4	L1	L2 min.	L3	L4	L5	L6	G	T1
HSK-E 25	25	20	19,006	-/-	13	10	10	2,5	—	—	M8x1	-/-
HSK-A/E 32	32	26	24,007	10/-	16	15	20	3,2	7,05/-	7/-	M10x1	5,4/-
HSK-A/E 40	40	34	30,007	10/-	20	15	20	4	8,05/-	7/-	M12x1	5,3/-
HSK-A/E 50	50	42	38,009	10/-	25	16	26	5	10,54/-	7/-	M16x1	5,2/-
HSK-A/E 63	63	53	48,010	10/-	32	16	26	6,3	12,54/-	7/-	M18x1	5/-
HSK-A/E 80	80	67	60,012	10/-	40	16	26	8	16,04/-	7/-	M20x1,5	5/-
HSK-A/E 100	100	85	75,013	10/-	50	16	29	10	20,02/-	7/-	M24x1,5	4,9/-
HSK-A/E 125	125	111	95,016	10/-	63	16	29	12,5	25,02/-	7/-	M30x1,5	4,8/-



长度/Length [mm]	D1	D2 max.	D3	D4	L1	L2 min.	L3	L4	L5	L6	G	T1
HSK-A 63/80	80	67	48,010	10	32	16	26	6,3	12,54	7	M18x1	5
HSK-F 63	63	53	38,009	—	25	16	26	5	—	—	—	—
HSK-F 80M	80	78	48,010	—	32	16	26	6,3	—	—	M18x1	—

## 径跳精度 / RUNOUT ACCURACY DIN 69893



刀柄长度 (A)/Gage length	A < 160	A ≥ 160
径向跳动的公差, 单位为 mm/max. runout tolerance in mm		
热缩刀柄/Shrink Fit Chuck	0,003	0,004
迷你热缩/Mini Shrink	0,003	0,004
ER 筒夹刀柄/Collet Chuck ER	0,003	0,004
强力筒夹刀柄/Power Collet Chuck	0,003	0,004
高精度筒夹刀柄/High Precision Collet Chuck	0,003	0,003
后拉式高精度刀柄/High Precision Chuck	0,003	0,003
侧固刀柄/Weldon Tool Holder	0,003	0,004
液压刀柄/Hydraulic Chuck	0,003	—
面铣刀刀柄/Face Mill Arbor	0,006	0,006
壳铣刀刀柄/Combination Shell End Mill Arbor	0,006	0,006
斜孔侧固刀柄/Whistle Notch Tool Holder	0,003	0,004
莫氏锥度刀柄/Adapter for Morse Taper	0,008	—

## 您准备好提升生产效率了吗？

你是否在正确的方面节省加工成本？

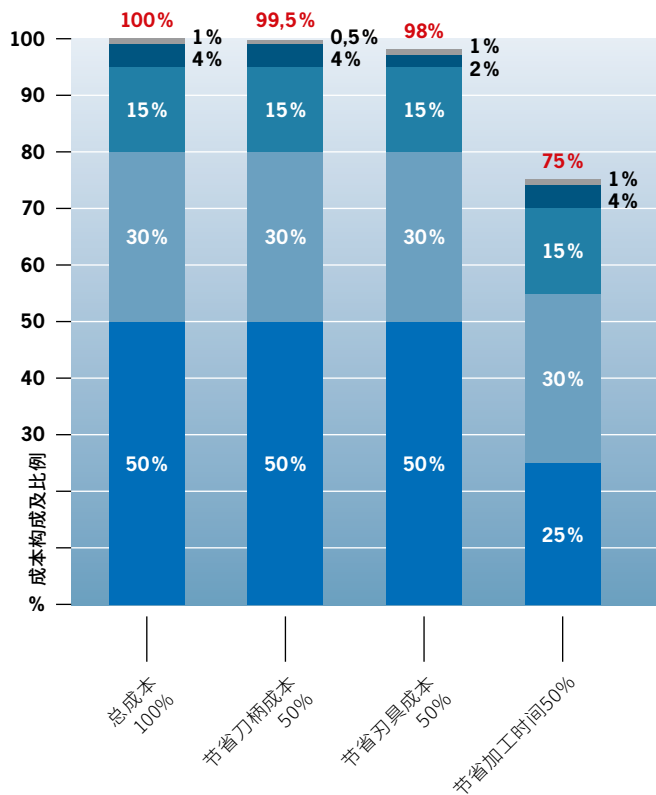
对于提高生产力的花费是必不可少的。但节约生产成本的潜力在哪里？

一个工件的加工成本组成大概如下：

机床成本 (加工时间和闲置时间)	约 50%
一般费用	约 30%
材料费用	约 15%
刃具费用	约 4%
刀柄费用	约 1%

假如您节省50%刀柄成本、刃具成本或者加工时间。

节约成本的潜力变化如下：

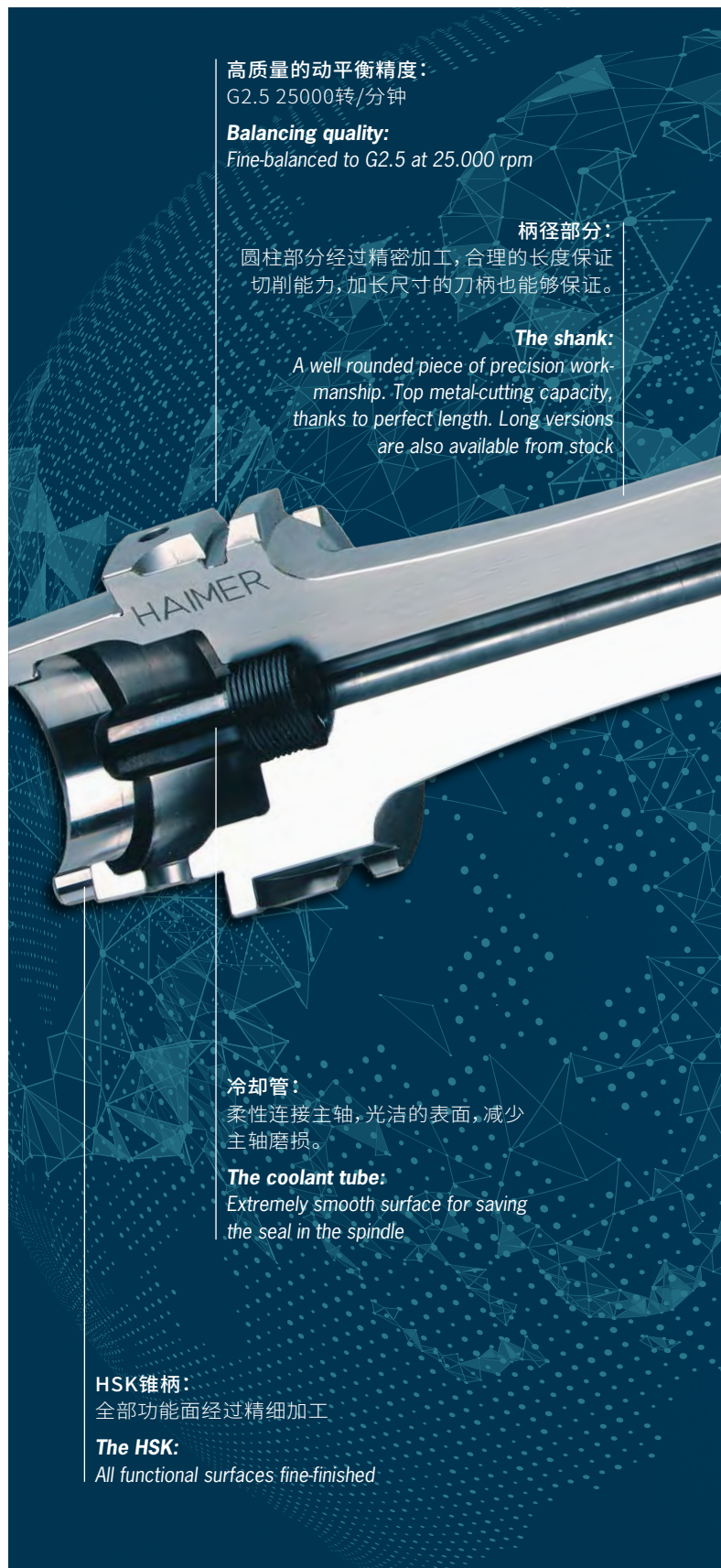


结论是：即使节约50%的刃具成本和刀柄成本，对于总成本仍无较大改变。

因此节约成本主要通过节省加工时间达到。当切削过程合理优化后就可大量节省加工时间。

在高速加工中，HAIMER翰默为你提供高效率的刀柄：

- 更高的切削能力
- 延长刀具寿命
- 缩短加工时间
- 高夹持精度
- 更高表面加工精度
- 更为可靠的稳定性



高质量的动平衡精度：  
G2.5 25000转/分钟

**Balancing quality:**  
Fine-balanced to G2.5 at 25.000 rpm

**柄径部分：**  
圆柱部分经过精密加工，合理的长度保证切削能力，加长尺寸的刀柄也能够保证。

**The shank:**  
A well rounded piece of precision workmanship. Top metal-cutting capacity, thanks to perfect length. Long versions are also available from stock

**冷却管：**  
柔性连接主轴，光洁的表面，减少主轴磨损。

**The coolant tube:**  
Extremely smooth surface for saving the seal in the spindle

**HSK锥柄：**  
全部功能面经过精细加工

**The HSK:**  
All functional surfaces fine-finished

## ARE YOU READY FOR GENERATION EFFICIENCY?



**切削液喷孔:**  
切削液直接顺畅地作用到刀具切削刃, 保证充分冷却和完美的排屑。

**Thought right through:**  
Coolant supply all the way to the cutting edge. Cool Jet for perfect chip removal

**跳动精度:**  
顶级的跳动精度, 即使加长尺寸的刀柄也能够保证

**Runout accuracy:**  
Top standards, even at long versions

**刀具更换:**  
通过支撑螺钉或者弹簧进行精确的长度定位。

**Length adjustment:**  
With back-up screw or tension spring for precision length presetting

**刀具更换后进行精细的动平衡修正:**  
用于动平衡螺钉的标准螺纹孔

**Fine balancing after tool change:**  
Standard threads for balancing screws

**刀柄内部:**  
所有的刀柄的中心有用于内冷的通孔

**The inside:**  
All holders are drilled through for internal cooling

### Are you saving costs at the right place?

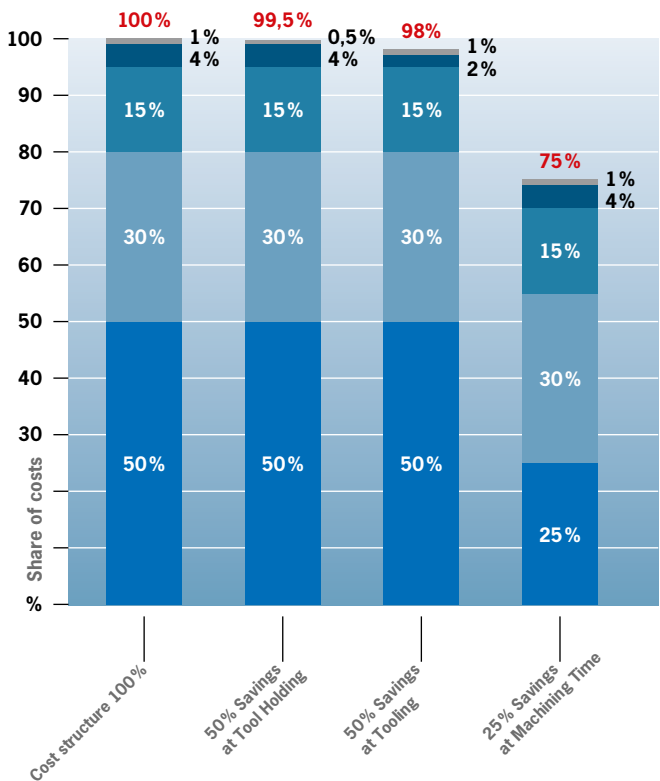
For machining efficiently all potentials for savings must be exploited. But where are these potentials?

Roughly, the costs of a work piece are composed as following:

Machine costs with operator (machining time and idle time)	approx. 50%
General costs	approx. 30%
Raw material	approx. 15%
Tooling	approx. 4%
Tool holder	approx. 1%

Assumed you could save 50% at tool holders, tooling and machining time.

### As a result the potentials for savings are:



The result: The costs for tooling and tool holders are nearly meaningless. Even by savings of 50% the total costs remain nearly the same.

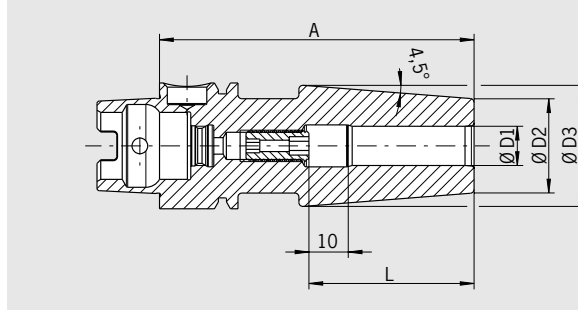
Essential savings can be reached by minimising the machining time. This potential only can be exploited when the cutting process is optimised and the productivity is increased.

### Tool holders from HAIMER for more efficiency at high speed machining:

- Higher cutting capacity
- Extended tool life
- Shorter machining times
- High runout accuracy
- Better surface
- High reliability of the whole process



# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-1 · HSK-A32



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN 69893-1**
- 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

- DIN 69893-1**
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10
	Ø D2 [mm]	10	10	10	21	21	24
	Ø D3 [mm]	—	—	—	27	27	32
	L [mm]	09	12	15	36	36	42
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	70 <sup>2)</sup>	70 <sup>2)</sup>	80 <sup>2)</sup>
订货号/Order No.	A32.140...	.03	.04	.05	.06	.08	.10

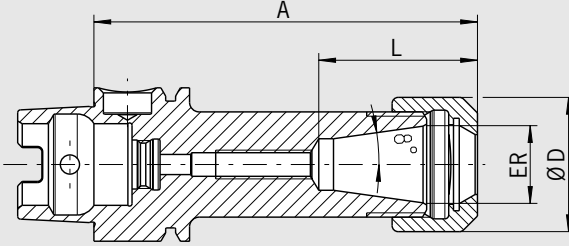
附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
冷却水管/Coolant tube		订货号/Order No. 85.700.32
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
从不带冷却喷孔的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside  
2) 无动平衡螺钉孔/Without threads for balancing screws

# ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-1 · HSK-A32

**CERTIFICATE OF QUALITY**

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**

- 硬度54-2 HRC
- 发货时包含:
- 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力)
- 如果加大尺寸L需要额外费用

**DIN 69882-6**

- Hardened 54-2 HRC
- Included in delivery:
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces)
- Enlarging of size L upon request

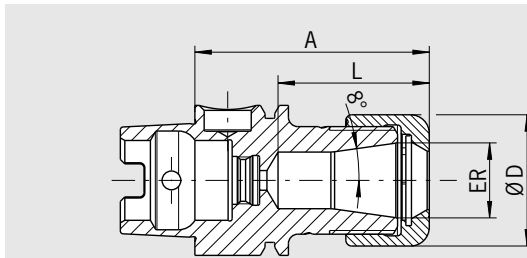
ER	16	25
Ø D [mm]	28	42
夹持范围/Clamping range [mm]	0,5-10,0	1,0-16,0
L [mm]	32,5	41
长度/Length A [mm]	超短/ultra short	55 <sup>1)</sup>
订货号/Order No.	A32.025...	.16
长度/Length A [mm]	短/short	80
订货号/Order No.	A32.020...	.25

附件/Accessories

ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
锁紧螺母(已做动平衡)/Locknut (pre-balanced)		
尺寸/Size	ER 16	ER 25
订货号/Order No.	83.912... .16	.25
高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)		
尺寸/Size	ER 16	ER 25
订货号/Order No.	83.912... .16.HS	.25.HS
锁紧扳手/Fork wrench		
尺寸/Size	ER 16	—
订货号/Order No.	84.200... .16	
锁紧扳手/Clamping wrench		
尺寸/Size	—	ER 25
订货号/Order No.	84.200... .25	
动平衡环/Balancing index rings		
尺寸/Size	长/超长/long/oversize	ER 16
订货号/Order No.	79.350... .22	.32
支撑螺钉/Adjusting screw		
尺寸/Size	ER 16	ER 25
订货号/Order No.	85.800... .34	.34
冷却水管/Coolant Tube		
订货号/Order No.	85.700.32	
热缩延长杆/Shrink fit extensions		参见第732页/See page 732

1) 无用于支持螺钉的螺纹孔/Without thread for back-up screw

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-1 · HSK-A32




质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。



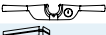





- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54–2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER	16	25
Ø D [mm]	28	42
夹持范围/Clamping range [mm]	2,0–10,0	2,0–16,0
L [mm]	32	39
长度/Length A [mm]	超短/ultra short	
订货号/Order No.	A32.025...	
		
	.16.3	.25.3

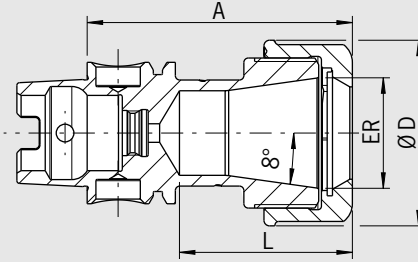
附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No.	83.914...	.16	.25
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No.	84.650...	.16	.25
扭力扳手/Torque Master torque wrench			
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			
			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			
			参见第737页/See page 737
强力筒夹/Power Collets			
			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			
			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			
订货号/Order No.	91.100.27		
			参见第749页/See page 749

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-1 · HSK-A32

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN




翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)








- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

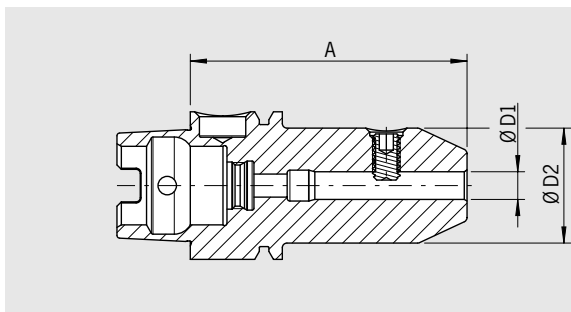
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54–2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25
Ø D [mm]	28	42
夹持范围/Clamping range [mm]	2,0–10,0	2,0–16,0
L [mm]	32	39
长度/Length A [mm]	超短/ultra short	
订货号/Order No.	A32.025...	
		
	50	60
	.16.3.HP	.25.3.HP

### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)			参见第752页/See page 752
尺寸/Size	ER 16	ER 25	
订货号/Order No. 83.914...	 .16.1	.25.1	
滚针轴承扳手/ Roller bearing wrench			参见第752页/See page 752
订货号/Order No. 84.650...	 .16.1	.25.1	
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A32



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刃具。



**Use:**  
For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

**DIN 69882-4**  
- 硬度54-2 HRC  
- 发货时含: 夹持螺钉, 不含冷却管  
- 冷却喷孔需要额外费用

**DIN 69882-4**  
- Hardened 54-2 HRC  
- Delivery: with clamping screw, without coolant tube  
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10
	Ø D2 [mm]	25	28	35
长度/Length A [mm]	短/short	60	60	65
订货号/Order No.	A32.000...	.06	.08	.10

**附件/Accessories**

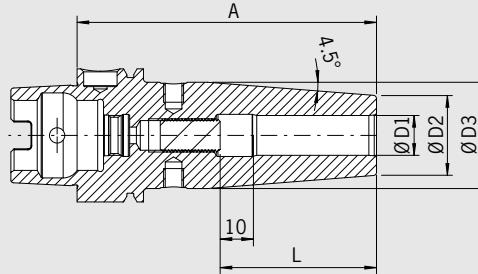
夹持螺钉/Clamping screw					参见第773页/See page 773
夹持范围 Ø/Clamping Ø		06	08	10	
订货号/Order No. 85.100...		.06	.08	.10	
冷却喷孔/Cool Jet bores					参见第468页/See page 468
订货号/Order No. 91.100.24					

# 热缩刀柄/SHRINK FIT CHUCK

## DIN 69893-1 · HSK-A40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 25,000 rpm  
或/或 U<1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

适用于所有热缩机

### Use:

Suitable for all shrinking units.

### DIN 69893-1

- 含用于调整动平衡的螺钉孔
- 交货时含有支撑螺钉, 无冷却管
- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

### DIN 69893-1

- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16
Ø D2 [mm]		10	10	10	21	21	24	24	27	27
Ø D3 [mm]		—	—	—	27	27	32	32	34	34
L [mm]		09	12	15	36	36	42	47	47	50
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	80	80	80	90	90	90
订货号/Order No.	A40.140...	.03	.04	.05	.06	.08	.10	.12	.14	.16
长度/Length A [mm]	ZG120	120 <sup>2)</sup>	120 <sup>2)</sup>	120 <sup>2)</sup>	120	120	120	120	—	—
订货号/Order No.	A40.147...	.03.1	.04.1	.05.1	.06	.08	.10	.12	—	—
长度/Length A [mm]	ZG130	130 <sup>2)</sup>	130 <sup>2)</sup>	130 <sup>2)</sup>	130	130	130	130	—	—
订货号/Order No.	A40.144...	.03.1	.04.1	.05.1	.06	.08	.10	.12	—	—

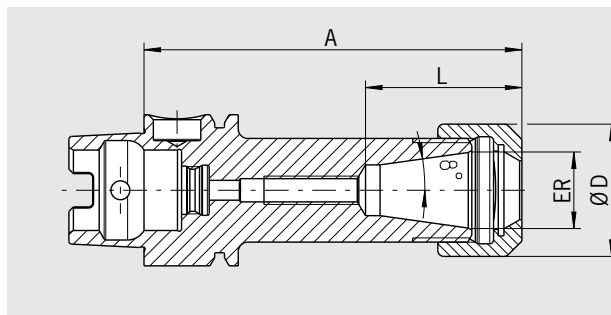
### 附件/Accessories

热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
冷却水管/Coolant tube	订货号/Order No. <b>85.700.40</b>	
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash 从不带冷却喷孔的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet	订货号/Order No. <b>91.100.40</b> 订货号/Order No. <b>91.100.41</b>	参见第466页/See page 466 参见第466页/See page 466

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上没有细缝, 内冷却液不能沿刀具的柄部喷出, 不适用于高速钢刀具/  
Without back-up screw, without threads for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

# ER 筒夹刀柄 / COLLET CHUCK ER DIN 69893-1 · HSK-A40



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**

硬度54-2 HRC

发货时包含:

- 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力)
- 如果加大尺寸L需要额外费用

**DIN 69882-6**

- Hardened 54-2 HRC

Included in delivery:

- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces)
- Enlarging of size L upon request

ER	11	16	25	32
Ø D [mm]	19	28	42	50
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,0-16,0	1,5-20,0
L [mm]	23,5	32,5	41	47
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>
订货号/Order No.	A40.025...	.11	.16	.25
长度/Length A [mm]	短/short	—	80	80
订货号/Order No.	A40.020...	—	.16	.25

附件/Accessories					
ER筒夹/Collets ER					参见第742页/See page 742
热缩筒夹/Shrink Fit Collets					参见第736页/See page 736
锁紧螺母(已做动平衡)/Locknut (pre-balanced)					
尺寸/Size		ER 11	ER 16	ER 25	ER 32
订货号/Order No.	83.912...	.11	.16	.25	.32
高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)					
尺寸/Size		—	ER 16	ER 25	ER 32
订货号/Order No.	83.912...	—	.16.HS	.25.HS	.32.HS
锁紧扳手/Fork wrench					
尺寸/Size		ER 11	ER 16	—	—
订货号/Order No.	84.200...	.11	.16	—	—
锁紧扳手/Clamping wrench					
尺寸/Size		—	—	ER 25	ER 32
订货号/Order No.	84.200...	—	—	.25	.32
动平衡环/Balancing index rings					
尺寸/Size	长/超长/long/oversize	—	ER 16	ER 25	ER 32
订货号/Order No.	79.350...	—	.19	.28	.32
支撑螺钉/Adjusting screw					
尺寸/Size		—	ER 16	ER 25	ER 32
订货号/Order No.	85.800...	—	.34	.34	.35
冷却水管/Coolant Tube					
订货号/Order No.	85.700.40				
热缩延长杆/Shrink fit extensions					
					参见第732页/See page 732

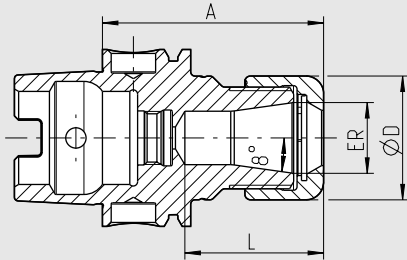
1) 通孔/Drilled through

# 强力筒夹刀柄/POWER COLLET CHUCK

## DIN 69893-1 · HSK-A40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。









- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54–2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

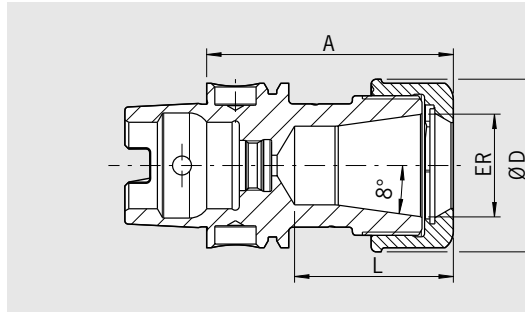
ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	31	38,5	47
长度/Length A [mm]	超短/ultra short	50	60
订货号/Order No.	A40.025...	.16.3	.25.3
L [mm]	43	51	53
长度/Length A [mm]	短/short	80	80
订货号/Order No.	A40.020...	.16.3	.25.3

### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No.	83.914...	.16	.25
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No.	84.650...	.16	.25
扭力扳手/Torque Master torque wrench			
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			
热缩筒夹/Shrink Fit Collets			
强力筒夹/Power Collets			
带安全锁的强力筒夹/Power Collets with Safe-Lock			
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			



# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-1 · HSK-A40





质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)






- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54-2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	31	38,5	47
长度/Length A [mm]	超短/ultra short	50	60
订货号/Order No.	A40.025... 	.16.3.HP	.25.3.HP
	L [mm]	43	51
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>
订货号/Order No.	A40.020... 	.16.3.HP	.25.3.HP
			.32.3.HP

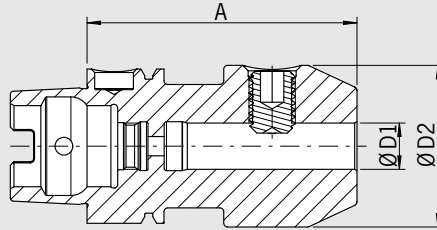
附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

### Use:

For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

### DIN 69882-4

- 硬度54-2 HRC
- 发货时含: 夹持螺钉, 不含冷却管
- 冷却喷孔需要额外费用

### DIN 69882-4

- Hardened 54-2 HRC
- Delivery: with clamping screw, without coolant tube
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16
	Ø D2 [mm]	25	28	35	42	44	48
长度/Length A [mm]	短/short	60	60	60	70	75	75
订货号/Order No.	A40.000...	.06	.08	.10	.12	.14	.16

### 附件/Accessories

#### 夹持螺钉/Clamping screw

夹持范围 Ø/Clamping Ø

订货号/Order No. **85.100...**



06	08	10	12	14	16
.06	.08	.10	.12	.12	.14

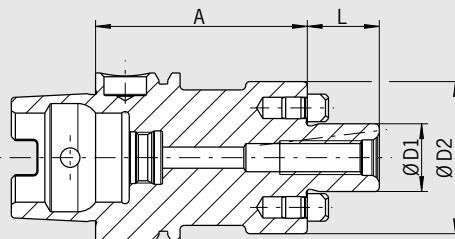
#### 冷却喷孔/Cool Jet bores

订货号/Order No. **91.100.24**



参见第468页/See page 468

## 面铣刀的刀柄/FACE MILL ARBOR DIN 69893-1 · HSK-A40



### 质量证书

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN

#### 用途:

用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具

#### Use:

For holding face mill cutters and cutters with radial driving slot DIN 1880.

#### DIN 69882-3

- 硬度54-2 HRC
- 交货时含: 拉紧螺钉, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

#### DIN 69882-3

- Hardened 54-2 HRC
- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22
	Ø D2 [mm]	36	48
	L [mm]	17	19
长度/Length A [mm]	短/short	50	60
订货号/Order No.	A40.050...	.16.KKB	.22.KKB

#### 附件/Accessories

##### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22
订货号/Order No.	85.300...	.16	.22

##### 锁紧扳手/Wrench

尺寸/Size D1		16	22
订货号/Order No.	84.400...	.16	.22

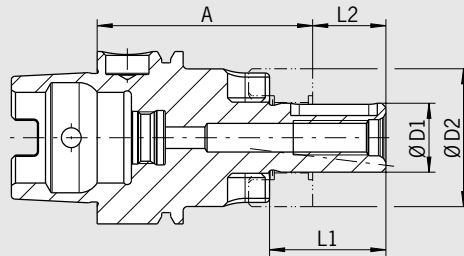
##### 动平衡环/Balancing index rings

尺寸/Size D1		16	22
订货号/Order No.	79.350...	.36	.48

# 壳铣刀的刀柄/COMBINATION SHELL END MILL ADAPTER DIN 69893-1 · HSK-A40

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合 DIN842 的角度铣刀和符合 DIN 1830 的刃具。

### Use:

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

### DIN 69882-2

- 硬度54-2 HRC
- 交货时含: 拉紧螺钉、传动环和滑键, 不含冷却管
- 前端冷却喷孔需要额外费用

### DIN 69882-2

- Hardened 54-2 HRC
- Included in delivery: tightening bolt, driving ring and feather key, without coolant tube
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22
	Ø D2 [mm]	32	40
	L1 [mm]	27	31
	L2 [mm]	17	19
长度/Length A [mm]	短/short	50	50
订货号/Order No.	A40.040...	.16	.22

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1 16 22  
订货号/Order No. 85.300... .16 .22

#### 锁紧扳手/Wrench

尺寸/Size D1 16 22  
订货号/Order No. 84.400... .16 .22

#### 滑键/Feather key

尺寸/Size D1 16 22  
订货号/Order No. 85.400... .16 .22

#### 传动环/Driving ring

尺寸/Size D1 16 22  
订货号/Order No. 85.200... .16 .22

#### 动平衡环/Balancing index rings

尺寸/Size D1 长/超长/long/oversize 16 22  
订货号/Order No. 79.350... .32 .40

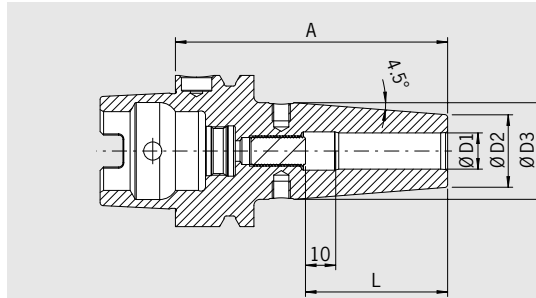
#### 冷却水管/Coolant tube

订货号/Order No. 85.700.40

#### 冷却喷孔/Coolant bores

订货号/Order No. 91.100.03

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-1 · HSK-A50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN 69893-1**
- 含用于调整动平衡的螺钉孔
  - 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

- DIN 69893-1**
- With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16
Ø D2 [mm]		10	10	10	21	21	24	24	27	27
Ø D3 [mm]		—	—	—	27	27	32	32	34	34
L [mm]		09	12	15	36	36	42	47	47	50
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	80	80	85	90	90	95
订货号/Order No.	A50.140...	.03	.04	.05	.06	.08	.10	.12	.14	.16
长度/Length A [mm]	ZG120	120 <sup>2)</sup>	120 <sup>2)</sup>	120 <sup>2)</sup>	120	120	120	120	—	120
订货号/Order No.	A50.147...	.03.1	.04.1	.05.1	.06	.08	.10	.12	—	.16
长度/Length A [mm]	ZG130	130 <sup>2)</sup>	130 <sup>2)</sup>	130 <sup>2)</sup>	130	130	130	130	—	130
订货号/Order No.	A50.144...	.03.1	.04.1	.05.1	.06	.08	.10	.12	—	.16

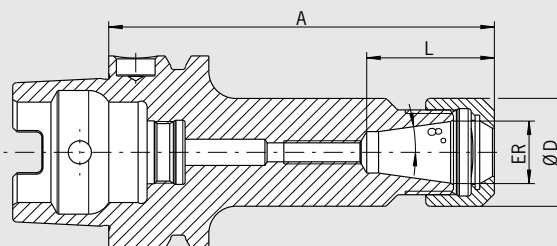
附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
冷却水管/Coolant tube		订货号/Order No. 85.700.50
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上没有细缝, 内冷却液不能沿刀具的柄部喷出, 不适用于高速钢刀具/  
Without back-up screw, without threads for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

# ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-1 · HSK-A50

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN



**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**

- 硬度54-2 HRC
- 发货时包含:
  - 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力)
  - 如果加大尺寸L需要额外费用

**DIN 69882-6**

- Hardened 54-2 HRC
- Included in delivery:
  - Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces)
  - Enlarging of size L upon request

ER	11	16	25	32	40
Ø D [mm]	19	28	42	50	63
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,0-16,0	1,5-20,0	2,5-26,0
L [mm]	26,5	32,5	41	47	53
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	60 <sup>1)</sup>	70 <sup>1)</sup>	80 <sup>1)</sup>
订货号/Order No.	A50.025...	.11	.16	.25	.32
长度/Length A [mm]	短/short	—	100 <sup>2)</sup>	100	100
订货号/Order No.	A50.020...	—	.16	.25	.32

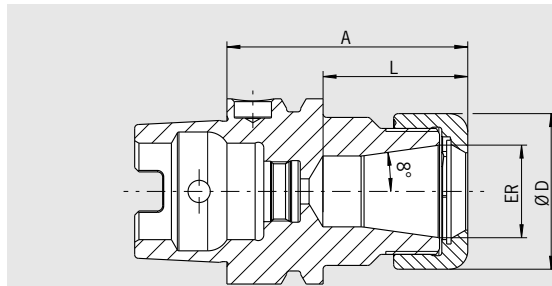
附件/Accessories

ER筒夹/Collets ER		参见第742页/See page 742			
热缩筒夹/Shrink Fit Collets		参见第736页/See page 736			
锁紧螺母(已做动平衡)/Locknut (pre-balanced)					
尺寸/Size		ER11	ER 16	ER 25	ER 32
订货号/Order No.	83.912...	.11	.16	.25	.32
高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)					
尺寸/Size			ER 16	ER 25	ER 32
订货号/Order No.	83.912...		.16.HS	.25.HS	.32.HS
锁紧扳手/Fork wrench					
尺寸/Size			ER 16	—	—
订货号/Order No.	84.200...		.16		
锁紧扳手/Clamping wrench					
尺寸/Size			—	ER 25	ER 32
订货号/Order No.	84.200...			.25	.32
动平衡环/Balancing index rings					
尺寸/Size	长/超长/long/oversize	ER11	ER 16	ER 25	ER 32
订货号/Order No.	79.350...	.19	.22	.32	.40
支撑螺钉/Adjusting screw					
尺寸/Size			ER 16	ER 25	ER 32
订货号/Order No.	85.800...		.34	.34	.35
冷却水管/Coolant Tube					
订货号/Order No.	85.700.50				
热缩延长杆/Shrink fit extensions		参见第732页/See page 732			

1) 通孔/Drilled through

2) 合适的动平衡环的订货号/Suitable balancing index rings Order No. 79.350.28

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-1 · HSK-A50




质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。









- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时, 尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅, 更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3 × D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54–2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0–10,0	2,0–16,0	2,0–20,0
L [mm]	32	39	48
长度/Length A [mm]	超短/ultra short		
订货号/Order No.	A50.025...		
			
	.16.3	.25.3	.32.3

附件/Accessories

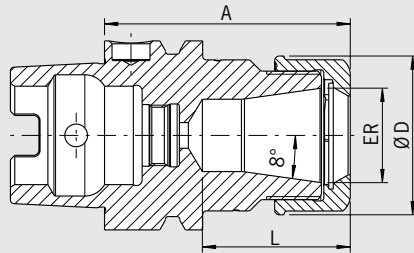
高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No. 83.914...		.16	.25
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No. 84.650...		.16	.25
扭力扳手/Torque Master torque wrench			
订货号/Order No. 84.600.00			
ER筒夹/Collets ER			
			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			
			参见第737页/See page 737
强力筒夹/Power Collets			
			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			
			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			
订货号/Order No. 91.100.27			参见第749页/See page 749

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK

## DIN 69893-1 · HSK-A50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN




翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)








- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 硬度54-2 HRC
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Hardened 54-2 HRC
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

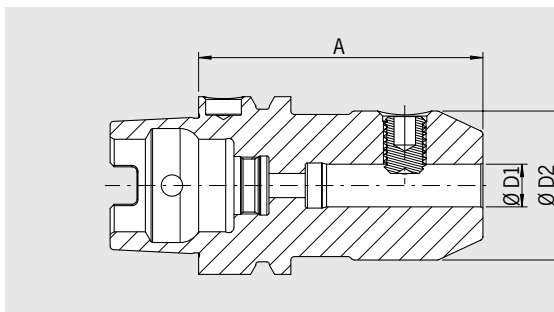
ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	32	39	48
长度/Length A [mm]	60	65	75
订货号/Order No.	超短/ultra short A50.025... 	.16.3.HP	.25.3.HP
		.25.3.HP	.32.3.HP

### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	 .16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	 .16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		



# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced G2.5 25.000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

**Use:**  
For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

**DIN 69882-4**  
- 硬度54-2 HRC  
- 发货时含: 夹持螺钉, 不含冷却管  
- 冷却喷孔需要额外费用

**DIN 69882-4**  
- Hardened 54-2 HRC  
- Delivery: with clamping screw, without coolant tube  
- Cooling with Cool Jet for an extra charge

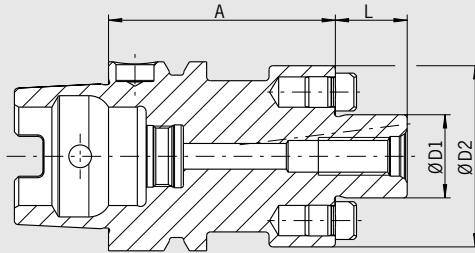
夹持/Clamping	Ø D1 [mm]	06	08	10	12	16	20
	Ø D2 [mm]	25	28	35	42	48	52
长度/Length A [mm]	短/short	65	65	65	80	80	80
订货号/Order No.	A50.000...	.06	.08	.10	.12	.16	.20

附件/Accessories								
<b>夹持螺钉/Clamping screw</b>								
夹持范围 Ø/Clamping Ø		06	08	10	12	16	20	
订货号/Order No.	85.100...	.06	.08	.10	.12	.14	.16	
Ø 6mm - Ø 20mm冷却喷孔/Cool Jet bores from Ø 6mm - Ø 20mm								参见第468页/See page 468
订货号/Order No.	91.100.24							

## 面铣刀的刀柄/FACE MILL ARBOR DIN 69893-1 · HSK-A50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

### Use:

For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

### DIN 69882-3

- 硬度54-2 HRC
- 交货时含: 拉紧螺钉, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### DIN 69882-3

- Hardened 54-2 HRC
- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27
	Ø D2 [mm]	36	48	60
	L [mm]	17	19	21
长度/Length A [mm]	短/short	50	60	60
订货号/Order No.	A50.050...	.16.KKB	.22.KKB	.27.KKB
长度/Length A [mm]	长/long	100	100	100
订货号/Order No.	A50.051...	.16.KKB	.22.KKB	.27.KKB
长度/Length A [mm]	超长/oversize	160	—	—
订货号/Order No.	A50.052...	.16.KKB	—	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27
订货号/Order No.	85.300...	.16	.22	.27

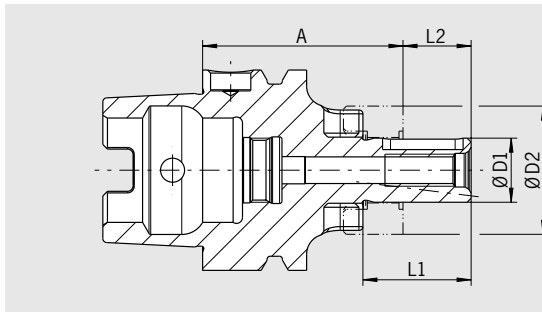
#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27
订货号/Order No.	84.400...	.16	.22	.27

#### 动平衡环/Balancing index rings

尺寸/Size D1		16	22	27
订货号/Order No.	79.350...	.36	.48	.60

# 壳铣刀的刀柄/COMBINATION SHELL END MILL ADAPTER DIN 69893-1 · HSK-A50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced G2.5 25.000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合DIN842的角度铣刀和符合 DIN 1830 的刃具。

**Use:**  
For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

- DIN 69882-2**
- 硬度54-2 HRC
  - 交货时含: 拉紧螺钉、传动环和滑键, 不含冷却管
  - 前端冷却喷孔需要额外费用

- DIN 69882-2**
- Hardened 54-2 HRC
  - Included in delivery: tightening bolt, driving ring and feather key, without coolant tube
  - Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22
	Ø D2 [mm]	32	40
	L1 [mm]	27	31
	L2 [mm]	17	19
长度/Length A [mm]	短/short	50	50
订货号/Order No.	A50.040...	.16	.22

**附件/Accessories**

**拉紧螺钉/Tightening bolt**

尺寸/Size D1		16	22
订货号/Order No.	85.300...	.16	.22

**锁紧扳手/Wrench**

尺寸/Size D1		16	22
订货号/Order No.	84.400...	.16	.22

**滑键/Feather key**

尺寸/Size D1		16	22
订货号/Order No.	85.400...	.16	.22

**传动环/Driving ring**

尺寸/Size D1		16	22
订货号/Order No.	85.200...	.16	.22

**动平衡环/Balancing index rings**

尺寸/Size D1	长/超长/long/oversize	16	22
订货号/Order No.	79.350...	.32	.40

**冷却水管/Coolant tube**

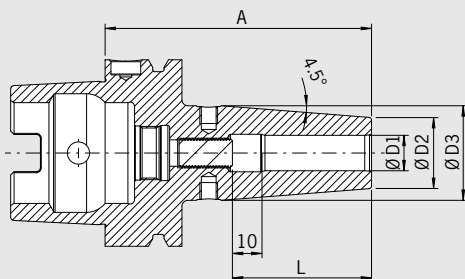
订货号/Order No.	85.700.50
---------------	-----------

**冷却喷孔/Coolant bores**

订货号/Order No.	91.100.03
---------------	-----------

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-1 · HSK-A63

CERTIFICATE OF QUALITY	
刀柄精细动平衡	Chuck body fine balanced
G2.5 25,000 rpm	或/or U<1 gmm
所有功能面精细加工	All functional surfaces fine machined
精度高于DIN标准	More accurate than DIN



**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN 69893-1**
- 含用于调整动平衡的螺钉孔
  - 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

- DIN 69893-1**
- With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
L [mm]		09	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	85	90	90	95	95	100	115	120
订货号/Order No.	A63.140...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>	120 <sup>1)</sup>	120	120	120	120	120	120	120	120	—	—
订货号/Order No.	A63.147...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	—	—
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130	130	130	130	130	130	130	—
订货号/Order No.	A63.144...	.03.1	.04.1	.05.1	.06	.08	.10	.12	.14	.16	.18	.20	.25	—
长度/Length A [mm]	超长/oversize	—	—	—	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>	160 <sup>4)</sup>
订货号/Order No.	A63.142...	—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG200	—	—	—	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>	200 <sup>4)</sup>
订货号/Order No.	A63.146...	—	—	—	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

标准型, 含冷却喷孔(Ø 3-5 mm 为细缝冷却)/Standard version, with Cool Jet (Ø 3-5 mm cooling with slits)

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
L [mm]		09	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>2)</sup>	80 <sup>2)</sup>	80 <sup>2)</sup>	80	80	85	90	90	95	95	100	115	120
订货号/Order No.	A63.140...	.03	.04	.05	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.18.2	.20.2	.25.2	.32.2
长度/Length A [mm]	ZG130	—	—	—	130	130	130	130	130	130	130	130	130	—
订货号/Order No.	A63.144...	—	—	—	.06.2	.08.2	.10.2	.12.2	.14.2	.16.2	.18.2	.20.2	.25.2	—

标准型, 含安全锁防拔出结构/Standard version, with Safe-Lock pull out protection

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		27	27	32	32	34	34	42	42	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>3)</sup>	80 <sup>3)</sup>	85 <sup>3)</sup>	90 <sup>3)</sup>	90 <sup>3)</sup>	95 <sup>3)</sup>	95 <sup>3)</sup>	100 <sup>3)</sup>	115 <sup>3)</sup>	120 <sup>3)</sup>
订货号/Order No.	A63.140...	.06.7	.08.7	.10.7	.12.7	.14.7	.16.7	.18.7	.20.7	.25.7	.32.7

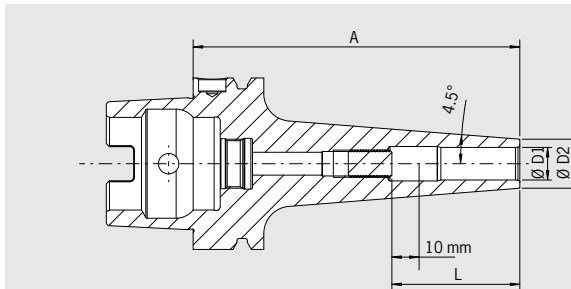
1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上无细缝, 不适用于高速钢刀具/  
Without back-up screw, without threads for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

3) 含支撑弹簧/With tension spring

4) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件)/D3 is changing towards flange (check dxf or stp file)

## 超细型热缩刀柄 SHRINK FIT CHUCK – EXTRA SLIM DIN 69893-1 · HSK-A63



### 质量证书

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- G2.5 25,000 rpm
- 或/or U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN

### 用途:

适用于所有热缩机  
超细型热缩刀柄的D2更小, 4.5°。

- 耐热钢材质
- 硬度54-2 HRC
- 顺畅地装拆刀具
- 要求刀具柄部精度为h6
- 交货时含有支撑螺钉, 无冷却管
- 可以选配冷却细缝
- 无需使用安装冷却套
- 需要额外的冷却转换套, 参考下面的内容

### Use:






Shrink fit chuck suitable for use with all available shrink fit units.  
Extra slim version with smaller diameter D2, 4,5°.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For solid carbide tools with shank tolerance h6
- Shank tolerance h6
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
- Cooling with slits for an extra charge
- Shrinking without shrink and cooling sleeves possible
- Additional Cooling adapter required (see below)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

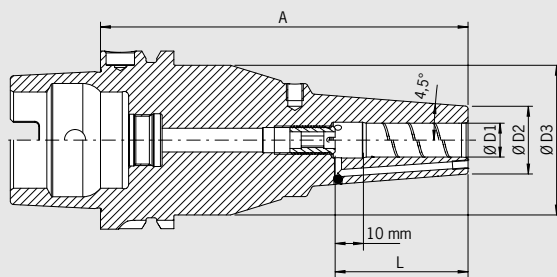
夹持/Clamping	Ø D1 [mm]	06	08	10	12
	Ø D2 [mm]	15	15	18	18
	L [mm]	36	36	42	47
长度/Length A [mm]	ZG120	120	120	120	120
订货号/Order No.	A63.147...	.06.10	.08.10	.10.10	.12.10

### 附件/Accessories

热缩延长杆/Shrink fit extensions		参见第732页/See page 732
冷却水管/Coolant tube	 订货号/Order No. <b>85.700.63</b>	
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却转换套/Cooling adapter 订货号/Order No.	 <b>Ø 6–12 mm</b> <b>80.105.14.1.2</b>	

# 强力热缩刀柄/POWER SHRINK CHUCK DIN 69893-1 · HSK-A63

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
✓ G2.5 25,000 rpm	或/或 U < 1 gmm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 精度高于DIN标准	✓ More accurate than DIN
✓ 冷却喷孔, 可密封	✓ Cool Jet, can be sealed



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 耐热钢材质
- 硬度54-2 HRC
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含侧壁冷却喷孔, 可封闭
- 环绕冷却需要额外费用 (参见第466/467页)

加长型(A=120, 130 或者160)结构紧凑, 使用灵活

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (see pages 466/467)

The long versions (A=120, 130 and 160) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

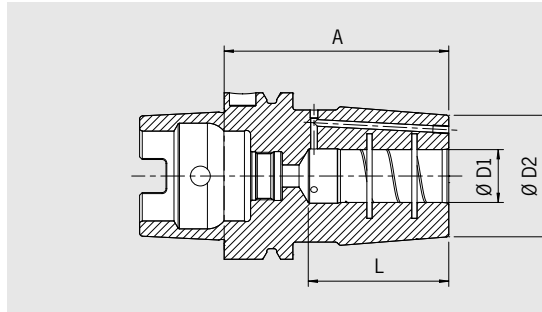
夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45	45
Ø D3 [mm] 超短/ultra short		—	—	—	—	—	—	—	—	51	51
L [mm] 超短/ultra short		38	38	43	46	48	49	49	49	57	59
长度/Length A [mm]	超短/ultra short	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	85 <sup>1)</sup>	85 <sup>1)</sup>
订货号/Order No.	A63.145...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		53	53	53	53	53	53	53	53	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120	120	120
订货号/Order No.	A63.147...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	A63.144...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160	160	160	160	160
订货号/Order No.	A63.142...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3

## 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45	45
Ø D3 [mm] 超短/ultra short		—	—	—	—	—	—	—	—	51	51
L [mm] 超短/ultra short		38	38	43	46	48	49	49	49	57	59
长度/Length A [mm]	超短/ultra short	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	85 <sup>1)</sup>	85 <sup>1)</sup>
订货号/Order No.	A63.145...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37
Ø D2 [mm]		21	21	24	24	27	27	33	33	44	44
Ø D3 [mm]		53	53	53	53	53	53	53	53	53	53
L [mm]		36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120	120	—
订货号/Order No.	A63.147...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	—
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	A63.144...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160	160	160	160	160
订货号/Order No.	A63.142...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37	.32.37

1) 无支撑螺钉/Without back-up screw

# 重型热缩刀柄/HEAVY DUTY CHUCK DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN
<input checked="" type="checkbox"/>	冷却喷孔, 可密闭
<input checked="" type="checkbox"/>	Cool Jet, can be sealed

应用于重型机械加工中, 并将最终替代侧固刀柄。重型热缩刀柄采用了热缩装夹方式, 因此具有更高的刚性和夹持力。

- 耐热钢材质
- 硬度54-2 HRC
- 顺畅地装拆刀具
- 热缩装夹后, 刀具柄部不会变形
- 3µm的跳动精度
- 外形加强
- 装刀具时用翰默 HAIMER 13KW 热缩机
- 夹持孔内有容屑槽和膨胀槽
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密封
- 环绕冷却需要额外费用 (参见第466/467页)
- 无支撑螺钉

For heavy machining applications it is now possible to replace the Weldon tool holders finally. Heavy Duty Chuck is the shrink fit chuck for extreme cases. The contour is optimised for highest rigidity and clamping force.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Smooth clamping of the tool shank
- No deformation at the tool shank after shrink process
- High runout accuracy: 3 µm
- Reinforced outer contour
- To shrink with HAIMER Power Clamp 13 kW shrink fit machine
- With internal groove in the clamping bore
- With threaded holes in order to balance with screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)
- Without back-up screw

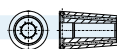
夹持/Clamping	Ø D1 [mm]	16	20
	Ø D2 [mm]	46	46
	L [mm]	51	53
长度/Length A [mm]	超短/ultra short	80	80
订货号/Order No.	A63.145...	.16.6	.20.6
长度/Length A [mm]	短/short	85	85
订货号/Order No.	A63.140...	.16.6	.20.6

### 含安全锁的重型热缩刀柄/Heavy Duty Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	16	20
	Ø D2 [mm]	46	46
	L [mm]	51	53
长度/Length A [mm]	超短/ultra short	80	80
订货号/Order No.	A63.145...	.16.67	.20.67
长度/Length A [mm]	短/short	85	85
订货号/Order No.	A63.140...	.16.67	.20.67

### 附件/Accessories

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash

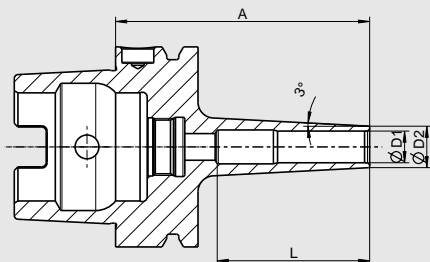


订货号/Order No. 91.100.40

参见第466页/See page 466

# 迷你型热缩刀柄/MINI SHRINK DIN 69893-1 · HSK-A63

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN



- 减少干涉
- 跳动精度: 3 µm
- 一体型的设计确保了精度
- 可以进入原本难以进入的位置加工
- 优化了刚性
- 最好配合使用翰默 HAIMER 的热缩机
- 适用于柄径公差为h6的所有硬质合金刀具
- 耐热钢材质
- 硬度54-2 HRC
- 3°的斜角适用于模具行业
- **超细型**: 特别纤细的外形适用于精加工和难以进入的位置
- **标准型**: 较大的夹持力
- 经精细的动平衡
- 发货时不含冷却管

- No disturbing edges
- Highest runout accuracy: 3 µm
- Precision from a single piece
- Also jobs difficult to access can be reached
- Optimum rigidity
- Ideal to shrink with the HAIMER Power Clamp
- For all solid carbide tools with shank tolerance h6
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- With 3° angle for die and mold
- **Extra slim version**: extremely slim for fine machining and for jobs very difficult to reach
- **Standard version**: with high clamping force
- Tool holders fine balanced
- Delivery without coolant tube

**注意:** 在大多数热缩机上加热和冷却迷你型热缩刀柄时, 您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄, 则无需使用安装冷却套。另外, 这些热缩机都可以配置自动线圈和扫码枪。

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16
	Ø D2 [mm] 超细/extra slim	06	07	08	09	11	13	15	—
	L [mm] 超细/extra slim	—	—	—	—	—	48	48	—
长度/Length A [mm]	ZG80				80	80	80	80	
订货号/Order No.	超细/extra slim A63.173...	—	—	—	.06	.08	.10	.12	—
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	
订货号/Order No.	超细/extra slim A63.177...	.03	.04	.05	.06	.08	.10	.12	—
	Ø D2 [mm] 标准型/standard	09	10	11	12	14	16	18	24
	L [mm] 标准型/standard	—	—	—	—	—	68	75	75
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120 <sup>1)</sup>
订货号/Order No.	标准型/standard A63.187...	.03	.04	.05	.06	.08	.10	.12	.16

- 针对迷你型热缩刀柄的安装冷却套**
- 保护迷你型热缩刀柄, 避免过热
  - 延长热缩刀柄的寿命
  - 方便安全的操作
  - 使用标准的冷却水套来冷却

- Mini Shrink shrink and cooling sleeve**
- Protect Mini Shrink chucks from overheating
  - Extend lifetime of shrink fit chucks
  - Secure and user friendly handling
  - Cooling with standard cooling body

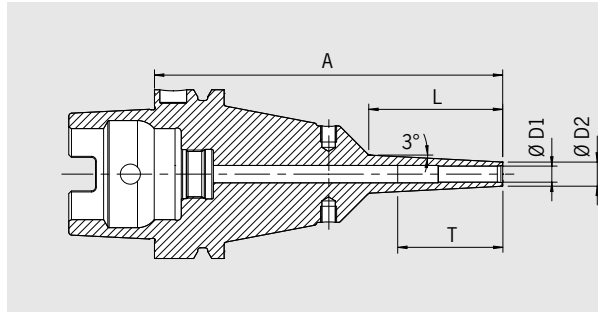


针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks									订货号/Order No.
<b>超细/Extra slim</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	
订货号/Order No.	80.105.14.2...	.01	.02	.03	.04	.05	.06	.07	
<b>标准型/Standard</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	Ø 16
订货号/Order No.	80.105.14.2...	.04	.08	.05	.09	.10	.11	.12	.16
底座/Base									80.105.14.2.99
带基座的套装安装冷却套(12件)/Set with base (12 pcs., Ø 3-12 mm)									80.105.14.2.00

1) 4mm壁厚/4 mm wall thickness



# 强力迷你型热缩刀柄/POWER MINI SHRINK CHUCK DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄, 后端为加厚结构, 因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

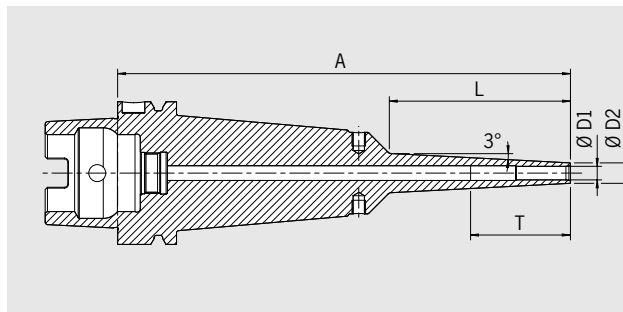
- 2种型号: 标准型(3mm壁厚)和超细型(1.5mm壁厚)
- 顶端斜度为3°
- 适用于柄径公差为h6的所有硬质合金刀具
- 含用于调整动平衡的螺钉孔
- 硬度54-2 HRC
- 耐热钢材质

**注意:** 在大多数热缩机上加热和冷却迷你型热缩刀柄时, 您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄, 则无需使用安装冷却套。另外, 这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining in the die & mold and in the medical industry. Very slim at the top like the HAIMER Mini Shrink Chuck, the Power Mini Shrink is reinforced at the base. Therefore efficient milling is possible with an angled tool even at long protruding lengths.

- 2 types: Standard (3 mm wall thickness) and extra slim (1.5 mm wall thickness)
- 3° angle at the top
- For solid carbide tools with shank tolerance h6
- With threaded holes in order to balance with balancing screws
- Hardened 54-2 HRC
- Heat resistant hot-working steel

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16	
Ø D2 [mm] 标准/standard		09	10	11	12	14	16	18	24	
Ø D2 [mm] 超细/extra slim		06	07	08	09	11	13	15	—	
T [mm]		—	—	—	—	—	68	75	75	
L [mm] ZG130		50	50	50	50	50	50	50	50	
长度/Length A [mm]	ZG130		130	130	130	130	130	130	130 <sup>1)</sup>	
订货号/Order No.	标准/standard	A63.184...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	A63.174...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
L [mm]		80	80	80	80	80	80	80	80	
长度/Length A [mm]	超长/oversize		160	160	160	160	160	160	160 <sup>1)</sup>	
订货号/Order No.	标准/standard	A63.182...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	A63.172...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—
长度/Length A [mm]	ZG200		200	200	200	200	200	200	200 <sup>1)</sup>	
订货号/Order No.	标准/standard	A63.186...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	.16.8
订货号/Order No.	超细/extra slim	A63.176...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8	—

附件/Accessories

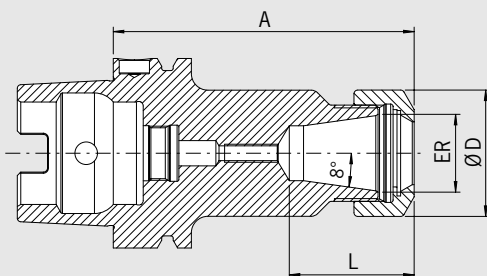
用于迷你型热缩刀柄的安装冷却套/Shrink and cooling adapter for Mini Shrink

参见第587页/See page 587

1) 4mm壁厚/4 mm wall thickness

## ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-1 · HSK-A63

CERTIFICATE OF QUALITY	
<input checked="" type="checkbox"/>	刀柄精细动平衡 Chuck body fine balanced G2.5 25,000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工 All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准 More accurate than DIN



### 用途:

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

### DIN 69882-6

发货时包含:

- 锁紧螺母 (已做动平衡, 防滑涂层提高夹持力), 不带冷却水管
- 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 如果加大尺寸L需要额外费用

### Use:

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

### DIN 69882-6

Included in delivery:

- Locknut (balanced, with slide coating for higher clamping forces); without coolant tube
- Locknut Type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER	11	16	25	32	40
Ø D [mm]	19	28	42	50	63
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,0-16,0	1,5-20,0	2,5-26,0
L [mm]	26,5	46,5	48	47	53
长度/Length A [mm]	超短/ultra short	75 <sup>2)</sup>	75 <sup>2)</sup>	75 <sup>2)</sup>	85 <sup>2)</sup>
订货号/Order No.	A63.025...	.11	.16	.25	.32
L [mm]	1)	32,5	41	47	53
长度/Length A [mm]	短/short	100	100	100	120
订货号/Order No.	A63.020...	.11	.16	.25	.32
长度/Length A [mm]	超长/oversize	—	160	160	160
订货号/Order No.	A63.022...	—	.16	.25	.32

### 附件/Accessories

ER筒夹/Collets ER



参见第742页/See page 742

热缩筒夹/Shrink Fit Collets



参见第736页/See page 736

锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size

订货号/Order No. 83.912...



ER 11

ER 16

ER 25

ER 32

ER 40

订货号/Order No. 83.912...



.11

.16

.25

.32

.40

高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)

尺寸/Size

订货号/Order No. 83.912...



—

ER 16

ER 25

ER 32

ER 40

订货号/Order No. 83.912...



.16.HS

.25.HS

.32.HS

.40.HS

锁紧扳手/Fork wrench

尺寸/Size

订货号/Order No. 84.200...



ER 11

ER 16

—

—

—

订货号/Order No. 84.200...



.11

.16

ER 25

ER 32

ER 40

动平衡环/Balancing index rings

尺寸/Size

订货号/Order No. 79.350...



—

ER 16

ER 25

ER 32

ER 40

订货号/Order No. 79.350...



.28

.42

.48

.50

支撑螺钉/Adjusting screw

尺寸/Size

订货号/Order No. 85.800...



—

ER 16

ER 25

ER 32

ER 40

订货号/Order No. 85.800...



.34

.34

.35

.35

冷却水管/Coolant Tube

订货号/Order No. 85.700.63



热缩延长杆/Shrink fit extensions

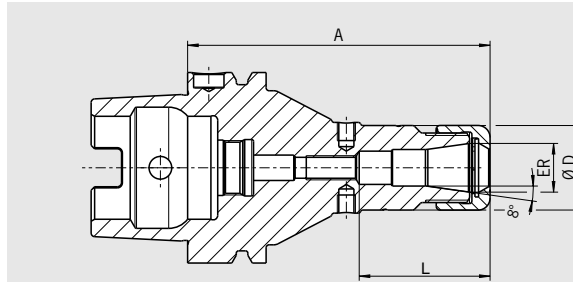


参见第732页/See page 732

1) 通孔/Drilled through

2) 无用于支持螺钉的螺纹孔/Without thread for back-up screw

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced G2.5 25,000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意：当使用标准ER筒夹时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹系列 (参见第748/749页)

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	50	47,5
长度/Length A [mm]	超短/ultra short	75 <sup>1)</sup>	75 <sup>1)</sup>
订货号/Order No.	A63.025...	.16.3	.25.3
L [mm]	43	51	53
长度/Length A [mm]	短/short	100	100
订货号/Order No.	A63.020...	.16.3	.25.3
长度/Length A [mm]	超长/oversize	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No.	A63.022...	.16.3	.25.3

附件/Accessories

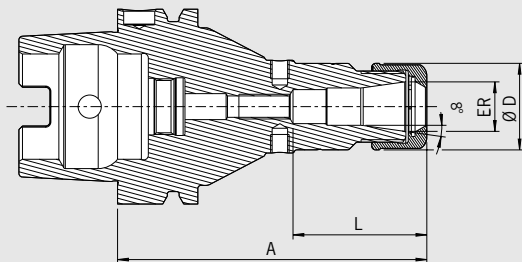
高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No.	83.914...	.16	.25
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No.	84.650...	.16	.25
扭力扳手/Torque Master torque wrench			
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No.	91.100.27		

1) 发货包含：支撑螺钉/With back-up screw  
2) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡  
✓ Chuck body fine balanced  
G2.5 30.000 rpm  
或/or U < 1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN



翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

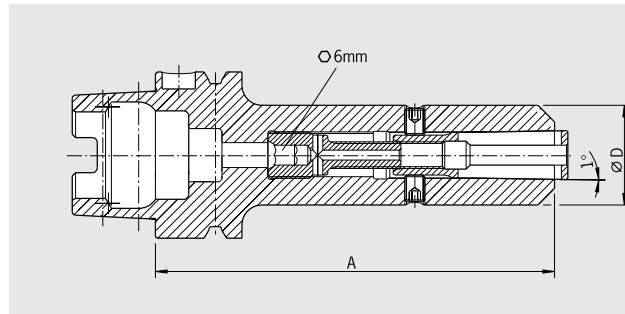
ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	28,5	36	42
长度/Length A [mm]	超短/ultra short	75 <sup>1)</sup>	75 <sup>1)</sup>
订货号/Order No.	A63.025...	.16.3.HP	.25.3.HP
L [mm]	43	51	53
长度/Length A [mm]	短/short	100	100
订货号/Order No.	A63.020...	.16.3.HP	.25.3.HP
长度/Length A [mm]	超长/oversize	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No.	A63.022...	.16.3.HP	.25.3.HP

### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

1) 发货包含：支撑螺钉/With back-up screw  
2) 柄径D向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D is changing towards flange (check dxf or stp file))

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**

为了夹持高精度的圆柱柄刀具所设计的刀柄, 同样适用于带侧固平面的圆柱柄刀具。非常适用于高速加工。

- 发货包含: 锁紧螺钉, 筒夹的拉钩, 不含筒夹和冷却管
- 要求刃具柄部精度为h6
- 选项: 从直径Ø 6 mm开始, 筒夹上可增加冷却喷孔
- 可夹持延长杆

**Use:**

For highly precise clamping of tools with cylindrical shank, also with clamping flats. Very useful for high-speed machining.

- Included in delivery: high-precision chuck with clamping screw and pull-out hook, without collet, without coolant tube
- Shank tolerance h6
- Optional: Cool Jet bores on HG Collets from diam. 6 mm
- Extensions for High-Precision Chuck available

HG		01						02			03		
Ø D [mm]		30						35			48		
夹持范围 Ø/Clamping diameter		2	3	4	5	6	8	10	12	14	16	18	20
长度/Length A [mm]	短/short	120						120			120		
订货号/Order No.	A63.120...	.01						.02			.03		
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>						160 <sup>1)</sup>			160 <sup>1)</sup>		
订货号/Order No.	A63.122...	.01						.02			.03		

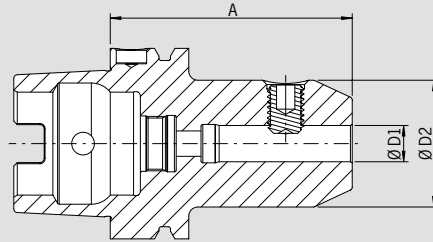
附件/Accessories													
夹持螺钉/Clamping screw		参见第773页/See page 773											
后拉式筒夹/Collets HG		参见第754页/See page 754											
HG 01		Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	—
订货号/Order No.	82.510...	.02	.03	.04	.05	.06	.08						
HG 02		—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	—
订货号/Order No.	82.520...							.10	.12	.14			
HG 03		—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20
订货号/Order No.	82.530...										.16	.18	.20
筒夹拉钩/Pull-out hook													
HG		HG 01						HG 02			HG 03		
订货号/Order No.	82.570...	.00						.00			.00		
冷却水管/Coolant tube													
HG													
订货号/Order No.	85.700.63												
动平衡环/Balancing index rings													
HG		HG 01						HG 02			HG 03		
订货号/Order No.	79.350...	.30						.35			.48		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732											
冷却喷孔/Cool Jet bores		参见第468页/See page 468											
订货号/Order No.	91.100.24												

1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

### Use:

For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

### DIN 69882-4

- 发货时含: 夹持螺钉, 不含冷却管
- 冷却喷孔需要额外费用

### DIN 69882-4

- Delivery: with clamping screw, without coolant tube
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	44	48	50	52	65	72
长度/Length A [mm]	短/short	65	65	65	80	80	80	80	80	110	110
订货号/Order No.	A63.000...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	—	100 <sup>1)</sup>	—	100 <sup>1)</sup>	—	—
订货号/Order No.	A63.001...	.06	.08	.10	.12	—	.16	—	.20	—	—
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120	—	—
订货号/Order No.	A63.007...	.06	.08	.10	.12	.14	.16	.18	.20	—	—
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A63.002...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

### 标准型, 含冷却喷孔/Standard version, with Cool Jet

夹持/Clamping	Ø D1 [mm]	06	08	10	12	16	20
	Ø D2 [mm]	25	28	35	42	48	52
长度/Length A [mm]	短/short	65	65	65	80	80	80
订货号/Order No.	A63.000...	.06.2	.08.2	.10.2	.12.2	.16.2	.20.2

### 附件/Accessories

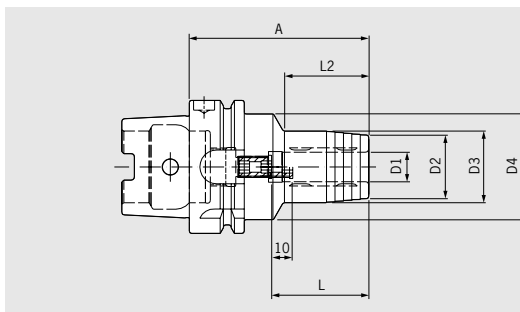
#### 夹持螺钉/Clamping screw

夹持范围 Ø/Clamping Ø

订货号/Order No.	06	08	10	12	14	16	18	20	25	32	
85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20	
Ø 6mm - Ø 20mm冷却喷孔/Cool Jet bores from Ø 6 mm - Ø 20mm							参见第468页/See page 468				
订货号/Order No. 91.100.24							参见第468页/See page 468				
Ø 25mm - Ø 32mm冷却喷孔/Cool Jet bores from Ø 25 mm - Ø 32mm							参见第468页/See page 468				
订货号/Order No. 91.100.26							参见第468页/See page 468				

1) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考dxf 或 stp文件/D2 is changing towards flange (check dxf or stp file))

# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 1/min
	或/or U<1 gmm
<input checked="" type="checkbox"/>	径跳精度 < 3 μm
<input checked="" type="checkbox"/>	Runout accuracy < 3 μm

**用途:**  
用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

**符合DIN 69893-1标准的HSK-A接口**  
- 发货包含: 用于长度调节的支撑螺钉, 不带冷却水管

**Use:**  
Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

**Shank HSK-A according to DIN 69893-1**  
- Included in delivery: With length adjustment screw, without coolant tube

标准型, 和 DIN 69882-7 相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	53	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	57	63
	Ø D4 [mm]	50	50	50	50	50	50	50	50	52,5	59
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm] 短/short	24	25	35	40	40	46	47	48	63	61
长度/Length A [mm]	短/short	70	70	80	85	85	90	90	90	120	125
订货号/Order No.	A63.1H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
	L2 [mm] 短/short	73	74	74	75	75	76	77	78		
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120		
订货号/Order No.	A63.1H17...	.06	.08	.10	.12	.14	.16	.18	.20		

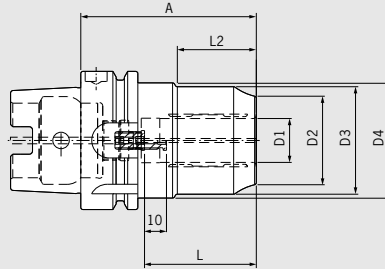
附件/Accessories		
冷却管/Coolant tube		订货号/Order No. 85.700.63
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768

# 强力型液压刀柄/POWER HYDRAULIC CHUCK

## DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 1/min  
或/or U<1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

### 符合 DIN 69893-1 标准的 HSK-A 接口

- 发货包含: 用于长度调节的支撑螺钉, 不带冷却水管

### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

### Shank HSK-A according to DIN 69893-1

- Included in delivery: with back-up screw, without coolant tube

夹持/Clamping	Ø D1 [mm]	20	32
	Ø D2 [mm]	38	54
	Ø D3 [mm]	49	63
	Ø D4 [mm]	52,5	52,5
	L [mm]	51	61
	L2 [mm]	36	55
长度/Length A [mm]	短/short	80	105
订货号/Order No.	A63.1H10...	.20.3	.32.3

### 附件/Accessories

冷却管/Coolant tube



订货号/Order No. **85.700.63**

减径套/Reduction sleeves



参见第763页/See page 763

带安全锁的减径套/Reduction sleeves with Safe-Lock



参见第765页/See page 765

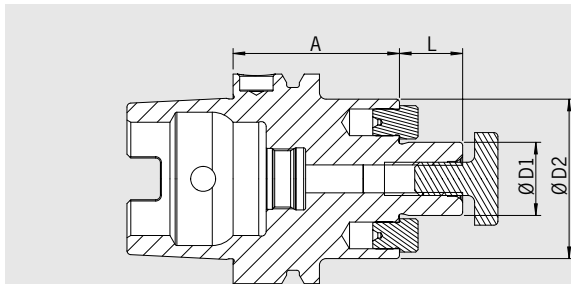
支撑螺钉/Back-up screws



参见第768页/See page 768



# 面铣刀的刀柄 / FACE MILL ARBOR DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced G2.5 25,000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

**Use:**  
For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

### DIN 69882-3

- 交货时含: 锁紧螺栓, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### DIN 69882-3

- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	36	48	60	78	87
	L [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	50	50	60	60	60
订货号/Order No.	A63.050...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	长/long	—	100	100	100	100
订货号/Order No.	A63.051...	—	.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	超长/oversize	—	160	160	160	—
订货号/Order No.	A63.052...	—	.22.KKB	.27.KKB	.32.KKB	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.300...	.16	.22	.27	.32	.40

#### 锁紧扳手/Wrench

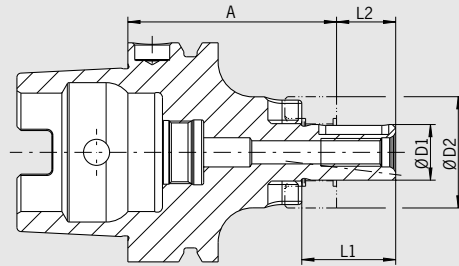
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	84.400...	.16	.22	.27	.32	.40

#### 动平衡环/Balancing index rings

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	79.350...	.36	.48	.60	.78	.87

# 壳铣刀的刀柄/COMBINATION SHELL END MILL ADAPTER DIN 69893-1 · HSK-A63

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN



**用途:**

用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合DIN842的角度铣刀和符合 DIN 1830 的刀具。

**Use:**

For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

**DIN 69882-2**

- 交货时含: 拉紧螺钉、传动环和滑键, 不含冷却管
- 前端冷却喷孔需要额外费用

**DIN 69882-2**

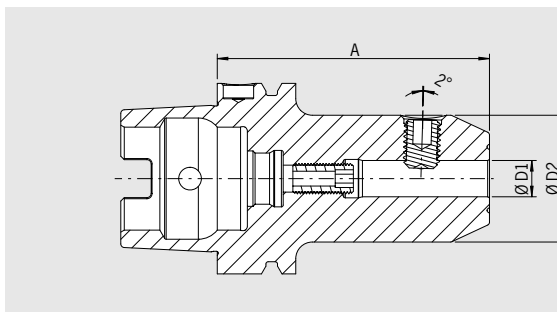
- Included in delivery: tightening bolt, driving ring and feather key, without coolant tube
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	32	40	48	58	70
	L1 [mm]	27	31	33	38	41
	L2 [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	60	60	60	60	70
订货号/Order No.	<b>A63.040...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	长/long	100	100	100	100	100
订货号/Order No.	<b>A63.041...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	超长/oversize	160	160	160	160	160
订货号/Order No.	<b>A63.042...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

**附件/Accessories**

<b>拉紧螺钉/Tightening bolt</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.300...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>锁紧扳手/Wrench</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>84.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>滑键/Feather key</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>传动环/Driving ring</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.200...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>动平衡环/Balancing index rings</b>						
尺寸/Size D1	长/超长/long/oversize	16	22	27	32	40
订货号/Order No.	<b>79.350...</b>	<b>.32</b>	<b>.40</b>	<b>.48</b>	<b>.58</b>	<b>.70</b>
<b>冷却水管/Coolant tube</b>						
订货号/Order No.	<b>85.700.63</b>					
<b>冷却喷孔/Coolant bores</b>						
订货号/Order No.	<b>91.100.03</b>					

# 斜孔侧固刀柄 WHISTLE NOTCH TOOL HOLDER DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄动平衡
<input checked="" type="checkbox"/>	Chuck balanced G6.3 8.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
夹持具有类似DIN 1835-E和DIN 6535-HE的倾斜的紧固平面的圆柱直柄刀具。

**Use:**  
For clamping cutters with cylindrical shank and inclined flat according to DIN 1835-E and DIN 6535-HE.

**DIN 69882-5**

- 发货包含: 夹持螺钉和支撑螺钉, 不含冷却管
- 精密动平衡需要额外费用
- 冷却喷孔需要额外费用

**DIN 69882-5**

- Delivery: with clamping screw and adjusting screw, without coolant tube
- Fine-balancing for an extra charge
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	44	48	50	52	64	72
长度/Length A [mm]	短/short	80	80	80	90	90	100	100	100	110	110
订货号/Order No.	A63.030...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

附件/Accessories

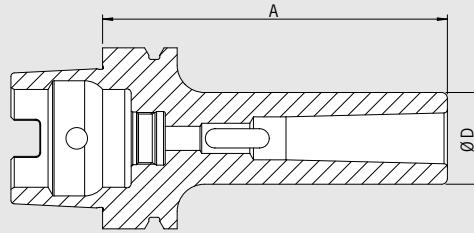
<b>夹持螺钉/Clamping screw</b>											
夹持范围 Ø/Clamping Ø		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20
<b>支撑螺钉/Adjusting screw</b>											
订货号/Order No.	85.810...	.12.1	.15.1	.18.2	.24.2	.24.2	.46.2	.46.2	.38.2	.38.2	.38.2
<b>动平衡环/Balancing index rings</b>											
夹持范围 Ø/Clamping Ø 长/超长/long/oversize		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	79.350...	.25	.28	.35	.42	.44	.48	.50	.52	.64	.72
<b>冷却水管/Coolant tube</b>											
订货号/Order No.	85.700.63										
<b>冷却喷孔/Cool Jet bores</b>											
订货号/Order No.	91.100.24										

参见第468页/See page 468

# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG DIN 69893-1 · HSK-A63

## CERTIFICATE OF QUALITY

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

适用于 DIN 228-1 B型带扁尾式莫氏锥柄工具

- 精密动平衡需要额外费用

### Use:

For holding tools with morse taper and tang according to DIN 228-1 form B.

- Fine-balancing for an extra charge

莫式/MK		01	02	03	04
Ø D [mm]		25	32	40	48
长度/Length A [mm]	短/short	100	120	140	160
订货号/Order No.	A63.080...	.01	.02	.03	.04

### 附件/Accessories

#### 动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



01

.25

02

.32

03

.40

04

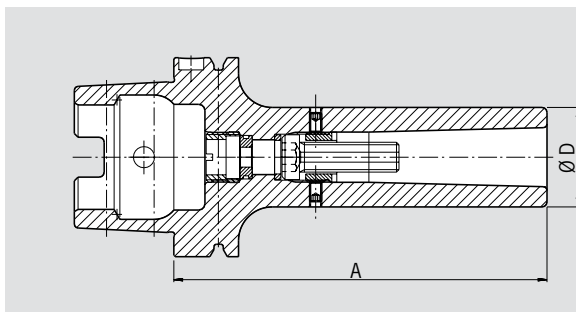
.48

冷却水管/Coolant tube

订货号/Order No. 85.700.63



# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD DIN 69893-1 · HSK-A63



质量证书	
<input checked="" type="checkbox"/>	刀柄动平衡
<input checked="" type="checkbox"/>	Chuck balanced G6.3 8.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具

- 精密动平衡需要额外费用
- 交货时包含紧固螺栓, 不含冷却管

**Use:**  
For holding tools with morse taper with thread according to DIN 228-1 form A.

- Fine-balancing for an extra charge
- Delivery with tightening bolt without coolant tube

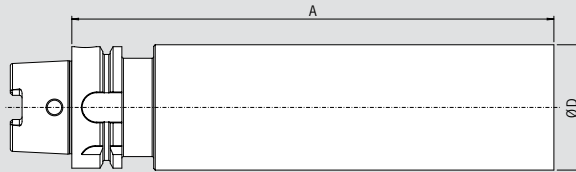
莫式/MK		02	03	04
Ø D [mm]		32	40	48
长度/Length A [mm]	短/short	120	140	160
订货号/Order No.	A63.130...	.02	.03	.04

附件/Accessories				
动平衡环/Balancing index rings				
莫式/MK		02	03	04
订货号/Order No.	79.350...	.32	.40	.48
冷却水管/Coolant tube				
订货号/Order No.	85.700.63			

## 毛坯刀柄/BLANK ADAPTER DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



#### 用途:

用于制造特殊刀具

#### Use:

For manufacturing special tools in your own factory.

#### 设计:

锥柄和法兰槽硬化并精磨, 圆柱部分未硬化

#### Design:

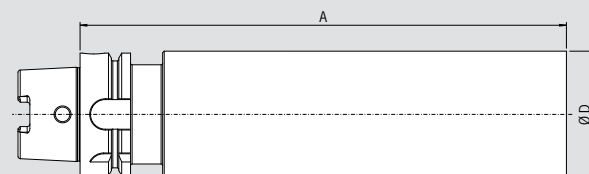
HSK is hardened and ground, the cylindrical part is soft.

	Ø D [mm]		64
长度/Length A [mm]	ZG250		250
订货号/Order No.	A63.090...		.64

## 整体硬化的毛坯刀柄/BLANK ADAPTER – HARDENED DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



#### 用途:

用于制造特殊刀具

#### Use:

For manufacturing special tools in your own factory.

#### 设计:

- 锥柄和法兰槽硬化并精磨
- 圆柱部分硬化至52+2 HRC

#### Version:

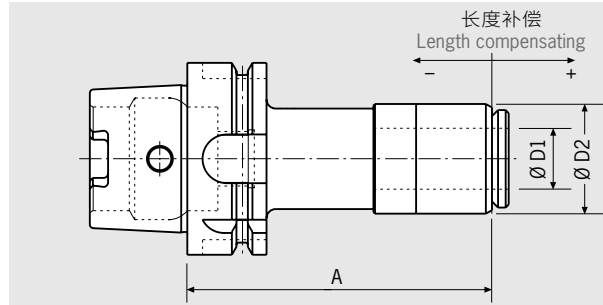
- HSK hardened and ground
- Cylindrical part hardened to 52+2 HRC

	Ø D [mm]		65
长度/Length A [mm]	ZG100		100
订货号/Order No.	RA63.096.0650...		.0100
长度/Length A [mm]	ZG250		250
订货号/Order No.	RA63.096.0650...		.0250

# 快换攻丝刀柄

## QUICK CHANGE TAPPING CHUCK

### DIN 69893-1 · HSK-A63



#### 质量证书

- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN
- ☑ 可以承受高达50bar的内冷压力
- ☑ Interior high-pressure cooling up to 50 bar

#### 用途:

非常适于数控铣床攻丝

#### 利点:

- 可进行轴向长度补偿
- 可以承受高达50bar的内冷压力
- 新开发的实现高压内冷下的安全夹持的刀柄
- 高对中精度
- 不适用于BILZ系统
- 精密动平衡需要额外费用
- 发货时不含冷却管

#### Use:

For tapping preferably an NC-milling machines.

#### Advantages:

- Axial length compensation
- Interior high-pressure cooling up to 50 bar
- Newly developed adapter for high clamping security with interior cooling
- High centering precision
- Not compatible with system BILZ!
- Fine-balancing for an extra charge
- Delivery without coolant tube

尺寸/Size	01	03
Ø D1 [mm]	20	28
Ø D2 [mm]	36	44
丝锥类型/Taps	M3-M14	M4,5-M24
长度补偿/Length compensation [mm]	±3	±3
长度/Length A [mm] 短/short	100	109
订货号/Order No. <b>A63.070...</b>	<b>.01</b>	<b>.03</b>

#### 附件/Accessories

##### 冷却水管/Coolant tube

尺寸/Size

订货号/Order No. **85.700...**



01

.63

03

.63

##### 快换插件

Quick Change Inserts

##### 夹持螺钉/Clamping screw

订货号/Order No. **140/11.00.020402**

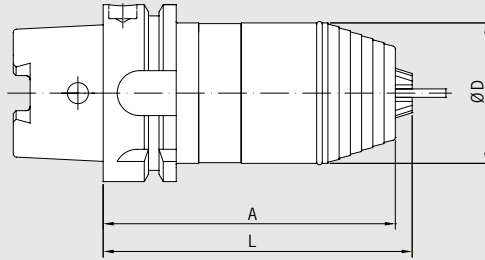


参见第774页/See page 774

## 短钻夹头刀柄/SHORT DRILL CHUCK DIN 69893-1 · HSK-A63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G6.3 22.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN




### 用途:

用于左右旋转夹持圆柱柄刀具, 用内六角扳手锁紧及拆卸。

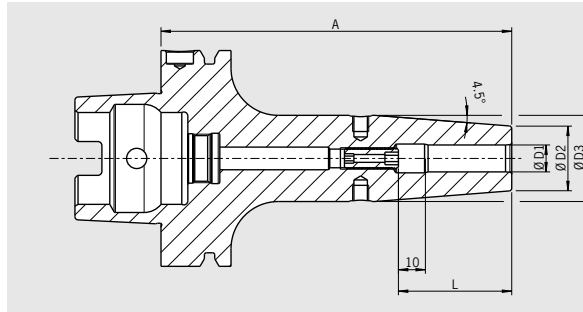
### Use:

For clamping tools with cylindrical shank, for left and right hand turn, clamping and loosening with a hexagon socket wrench.

夹持范围/Clamping range	0,5-13
Ø D [mm]	50
L [mm]	104
长度/Length A [mm]	110
订货号/Order No. <b>A63.111...</b> 	<b>.13</b>



# 热缩刀柄HSK-A63/80(锥柄为HSK-A63/法兰外径为80MM) STANDARD SHRINK FIT CHUCK HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 33.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于所有热缩机

- DIN 69893-1**
- 含用于调整动平衡的螺钉孔
  - 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 刀具柄径公差h6
  - 包含数据芯片孔
  - 可以根据需求增加冷却喷嘴或环绕冷却

**Use:**  
Suitable for all shrinking units.

- DIN 69893-1**
- With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with backup screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Incl. pocket for data chip
  - Cooling Systems Cool Jet and Cool Flash available on request

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18
	Ø D2 [mm]	21	21	24	24	27	27	33
	Ø D3 [mm]	27	27	32	32	34	34	42
	L [mm]	36	36	42	47	47	50	50
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130
订货号/Order No.	A63/80.144...	.06	.08	.10	.12	.14	.16	.18

附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		订货号/Order No. 80.203.00 参见第767页/See page 767
冷却喷嘴/Cool Jet bores		订货号/Order No. 91.100.24
从不带冷却喷嘴的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41
巴鲁夫芯片BIS-C-122-04/L/Balluf-Chip BIS-C-122-04/L		订货号/Order No. 909009-0002
Data-Lock 机械式数据芯片锁系统/ Data-Lock mechanical data carrier locking system		订货号/Order No. 91.100.06 参见第437页/See page 437
冷却水管/Coolant tube		订货号/Order No. 85.700.63
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
可以增加冷却槽/Cooling grooves on request		

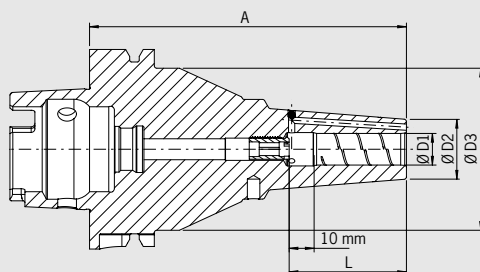
# 强力热缩刀柄/POWER SHRINK CHUCK

## HSK-A63/80 (锥柄为HSK-A63/法兰外径为80 MM)

## HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 33.000 rpm  
或/或 U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力热缩刀柄是用于高速加工，提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性，为机床、主轴和刀具提供更多保护。

- 通过更高的主轴转速、走刀速度和更大的切深来提升加工能力
- 缩短加工时间和提高加工的精度
- 耐热钢材质
- 硬度54-2 HRC

#### 发货包含:

- 带冷却喷孔 (已封闭)
- 含用于调整动平衡的螺钉孔
- 包含数据芯片孔
- 带用于安装冷却水管的螺纹孔

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Heat resistant hot-working steel
- Hardened 54 – 2 HRC

#### Delivery includes:

- With Cool Jet bores (sealed)
- With threaded holes in order to balance with balancing screws
- Incl. pocket for data chip
- With thread for coolant tube

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	06	08	10	12	16	20	25	32
Ø D2 [mm] 超超短型/uk-uk		22	22	27	26,5	29,5	35,5	46	—
L [mm] 超超短型/uk-uk		—	—	41	—	—	43,5	47	—
长度/Length A [mm]	超超短型/uk-uk			65			70 <sup>2)</sup>	70 <sup>3)</sup>	
订货号/Order No.	A63/80.145...			.10.5			.20.5	.25.5	
Ø D2 [mm]		22	22	26,5	26,5	29,5	35,5	45	45
L [mm]		38	38	43	46	49	49	57	59
长度/Length A [mm]	超短/ultra short			70	70	75	75	80 <sup>3)</sup>	
订货号/Order No.	A63/80.145...			.06.3	.08.3	.10.3	.12.3	.16.3	.20.3
长度/Length A [mm]	短/short							90	90
订货号/Order No.	A63/80.140...							.25.3	.32.3

长度A = ZG130/Length A = ZG130


夹持/Clamping	Ø D1 [mm]	06	08	10	12	16
Ø D2 [mm]		21	21	24	24	27
Ø D3 [mm]		65	65	65	65	65
L [mm]		36	36	42	47	50
长度/Length A [mm]	ZG130	130	130	130	130	130
订货号/Order No.	A63/80.144...	.06.3 <sup>1)</sup>	.08.3 <sup>1)</sup>	.10.3 <sup>1)</sup>	.12.3 <sup>1)</sup>	.16.3 <sup>1)</sup>

#### 附件/Accessories

热缩延长杆/Shrink fit extensions  参见第732页/See page 732

平衡螺钉/Balance screws  参见第767页/See page 767


从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash  订货号/Order No. 91.100.40

巴鲁夫芯片BIS-C-122-04/L/Balluf-Chip BIS-C-122-04/L  订货号/Order No. 909009-0002

Data-Lock 机械式数据芯片锁系统/  
Data-Lock mechanical data carrier locking system 订货号/Order No. 91.100.06 参见第437页/See page 437

冷却水管/Coolant tube  订货号/Order No. 85.700.63

用于超超短型/uk-uk刀柄的冷却转换套/Cooling adapters for uk-uk holders

尺寸/Size  <sup>2)</sup>Ø 20 <sup>3)</sup>Ø 25  
订货号/Order No. 80.105...  
.16.0045 .18.0011

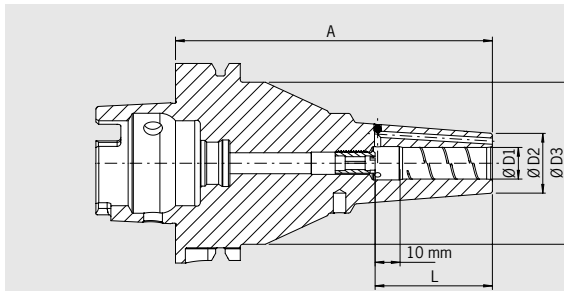
可以增加冷却槽/Cooling grooves on request

1) 带支撑螺钉/With back-up screw

2) 用于Ø 20 mm刀柄的冷却转换套/Cooling adapter for Ø 20 mm

3) 用于Ø 25 mm刀柄的冷却转换套/Cooling adapter for Ø 25 mm

# SAFE-LOCK®带安全锁的强力热缩刀柄 POWER SHRINK CHUCK WITH SAFE-LOCK® HSK-A63/80 (锥柄为HSK-A63/法兰外径为80 MM) HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)



质量证书	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
G2.5 33.000 rpm 或/or U < 1 gmm	
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN

强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多保护。

- 通过更高的主轴转速、走刀速度和更大的切深来提升加工能力
- 缩短加工时间和提高加工的精度
- 耐热钢材质
- 硬度54-2 HRC

**发货包含:**

- 带防拔出保护的Safe-Lock安全锁机构
- 带冷却喷孔 (已封闭)
- 含用于调整动平衡的螺钉孔
- 包含数据芯片孔
- 带用于安装冷却水管的螺纹孔

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Heat resistant hot-working steel
- Hardened 54 – 2 HRC

**Delivery includes:**

- With Safe-Lock pull-out protection
- With Cool Jet bores (sealed)
- With threaded holes in order to balance with balancing screws
- Incl. pocket for data chip
- With thread for coolant tube

标准型, 和DIN 69882-8相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	08	10	12	16	20	25
	Ø D2 [mm] 超超短型/uk-uk	—	—	—	—	35,5	46
	L [mm] 超超短型/uk-uk	—	—	—	—	43,5	47
长度/Length A [mm]	超超短型/uk-uk					70 <sup>2)</sup>	70 <sup>3)</sup>
订货号/Order No.	A63/80.145...					.20.57	.25.57
	Ø D2 [mm]	22	26,5	26,5	29,5	35,5	45
	L [mm]	38	43	46	49	49	57
长度/Length A [mm]	超短/ultra short	70	70	70	75	75	80 <sup>3)</sup>
订货号/Order No.	A63/80.145...	.08.37	.10.37	.12.37	.16.37	.20.37	.25.37
长度/Length A [mm]	短/short						90
订货号/Order No.	A63/80.140...						.25.37

长度A = ZG130/Length A = ZG130

夹持/Clamping	Ø D1 [mm]	12	16
	Ø D2 [mm]	24	27
	Ø D3 [mm]	65	65
	L [mm]	47	50
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	A63/80.144...	.12.37	.16.37

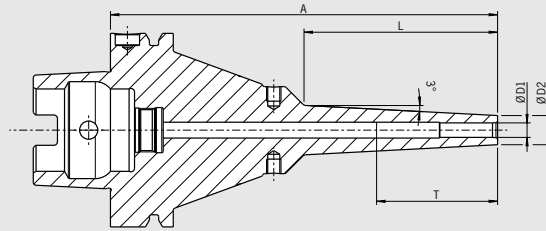
附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
巴鲁夫芯片BIS-C-122-04/L/Balluf-Chip BIS-C-122-04/L		订货号/Order No. 909009-0002
Data-Lock 机械式数据芯片锁系统/ Data-Lock mechanical data carrier locking system		订货号/Order No. 91.100.06 参见第437页/See page 437
冷却水管/Coolant tube		订货号/Order No. 85.700.63
用于超超短型/uk-uk刀柄的冷却转换套/Cooling adapters for uk-uk holders		
尺寸/Size		<sup>2)</sup> Ø 20 <sup>3)</sup> Ø 25
订货号/Order No. 80.105...		.16.0045      .18.0011
可以增加冷却槽/Cooling grooves on request		

1) 带支撑螺钉/With back-up screw  
2) 用于Ø 20 mm刀柄的冷却转换套/Cooling adapter for Ø 20 mm  
3) 用于Ø 25 mm刀柄的冷却转换套/Cooling adapter for Ø 25 mm

# 强力迷你型热缩刀柄/POWER MINI SHRINK HSK-A63/80 (锥柄为HSK-A63/法兰外径为80 MM) HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 33.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力迷你型热缩刀柄在模具和医疗工业中的五轴加工有着出色的表现。强力迷你型热缩刀柄的前端壁厚很薄，后端为加厚结构，因此可在大悬伸长度的情况下夹持锥度刀具实现高效铣削。

- 壁厚3mm
- 顶端斜度为3°
- 含用于调整动平衡的螺钉孔
- 用于柄径公差为h6的硬质合金刀具
- 耐热钢材质
- 硬度54-2 HRC
- 包含数据芯片孔

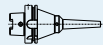
**注意：**在大多数热缩机上加热和冷却迷你型热缩刀柄时，您需要使用安装冷却套（参考刀柄附件）。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄，则无需使用安装冷却套。另外，这些热缩机都可以配置自动线圈和扫码枪。

Power Mini Shrink Chuck is perfect for 5-axis-machining of parts, that are difficult to access. Very slim at the top like the HAIMER Mini Shrink Chucks, the Power Mini Shrink is reinforced at the base. Thereby efficient milling is possible with an angled tool even at long protruding lengths.

- 3 mm wall thickness
- 3° angle at the top
- With threaded holes in order to balance with balancing screws
- For solid carbide tools with shank tolerance h6
- Heat resistant hot-working steel
- Hardened 54 – 2 HRC
- Incl. pocket for data chip

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12
	Ø D2 [mm]	09	10	11	12	14	16	18
	T [mm]	—	—	—	—	—	68	75
	L [mm]	80	80	80	80	80	80	80
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160	160
订货号/Order No.	A63/80.182...	.03.8	.04.8	.05.8	.06.8	.08.8	.10.8	.12.8



### 针对迷你型热缩刀柄的安装冷却套

- 保护迷你型热缩刀柄，避免过热
- 延长热缩刀柄的寿命
- 方便安全的操作
- 使用标准的冷却水套来冷却

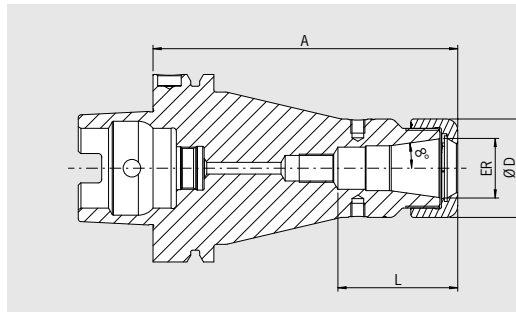
### Mini Shrink shrink and cooling sleeve

- Protect Mini Shrink chucks from overheating
- Extend lifetime of shrink fit chucks
- Secure and user friendly handling
- Cooling with standard cooling body



针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks						订货号/Order No.	
尺寸/Size [mm]		Ø 03	Ø 06	Ø 08	Ø 10	Ø 12	
订货号/Order No.	80.105.14.2...	.04	.09	.10	.11	.12	
底座/Base							80.105.14.2.99
带底座的套装安装冷却套(12 件)/Set with base (12 pcs., Ø 3–12 mm)							80.105.14.2.00

# 强力筒夹刀柄/POWER COLLET CHUCK HSK-A63/80 (锥柄为HSK-A63/法兰外径为80 MM) HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 33.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动 0,003 mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意: 当使用标准ER筒夹时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好地保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度、增加夹持力
- 同样适用于高速和动态切削
- 含用于调整平衡的螺钉孔
- 包含数据芯片孔
- ER25, Ø 6 mm以上的筒夹的选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Incl. pocket for data chip
- Optional: Cool Jet bores on Power Collets from ER 25, Ø 6 mm
- Program of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20
L [mm]	43	50	47,5
长度/Length A [mm]	超短/ultra short	75	75
订货号/Order No.	A63/80.025...	.16.3	.25.3
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	A63/80.024...	.16.3	.25.3

附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No.	83.914...	.16	.25
锁紧扳手/Clamping wrench		ER 16	ER 25
订货号/Order No.	84.650...	.16	.25
扭力扳手/Torque Master torque wrench			
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No.	91.100.27		

1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

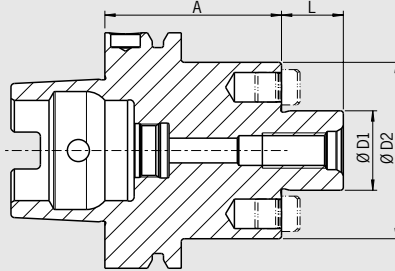
## 面铣刀的刀柄/FACE MILL ARBOR

### HSK-A63/80 (锥柄为HSK-A63/法兰外径为80 MM)

### HSK-A63/80 (TAPER HSK-A63/FLANGE 80 MM)

#### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 33,000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



#### 用途:

用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘(4个附加的螺孔)。

#### DIN 69882-3

- 交货时含: 拉紧螺钉, 不含冷却管
- 可以按需增加内冷孔

#### Use:

For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

#### DIN 69882-3

- Included in delivery: tightening bolt, pocket for data chip, without coolant tube
- Coolant exit bores on option

夹持/Clamping	Ø D1 [mm]	22	27
	Ø D2 [mm]	48	60
	L [mm]	19	21
长度/Length A [mm]	短/short	50	60
订货号/Order No.	A63/80.050...	.22	.27

#### 附件/Accessories

##### 拉紧螺钉/Tightening bolt

尺寸/Size D1 22 27  
订货号/Order No. 85.300... .22 .27

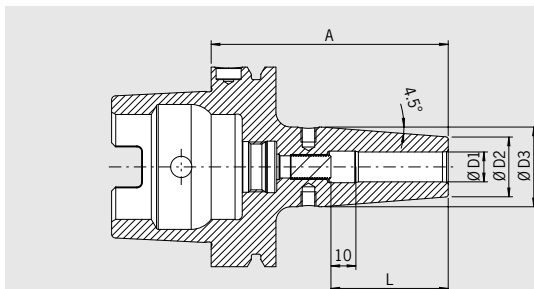
##### 锁紧扳手/Wrench

尺寸/Size D1 22 27  
订货号/Order No. 84.400... .22 .27

##### 动平衡环/Balancing index rings

尺寸/Size D1 22 27  
订货号/Order No. 79.350... .48 .60

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-1 · HSK-A80



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN 69893-1**
- 含用于调整动平衡的螺钉孔
  - 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

- DIN 69893-1**
- With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (See pages 466/467)

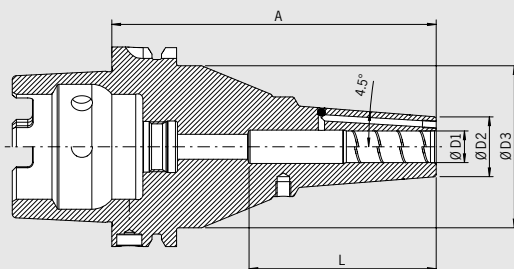
标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]	27	27	32	32	34	34	42	42	53	53
	L [mm]	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	85	85	90	95	95	100	100	105	115	120
订货号/Order No.	A80.140...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

附件/Accessories		
热缩延长杆/Shrink fit extensions		参见第732页/See page 732
平衡螺钉/Balance screws		参见第767页/See page 767
冷却水管/Coolant tube	订货号/Order No. <b>85.700.80</b>	
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. <b>91.100.40</b> 参见第466页/See page 466
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. <b>91.100.41</b> 参见第466页/See page 466

# 强力热缩刀柄/POWER SHRINK CHUCK DIN 69893-1 · HSK-A80

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	✓ Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
✓ 所有功能面精细加工	✓ All functional surfaces fine machined
✓ 精度高于DIN标准	✓ More accurate than DIN



强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 不带支撑螺钉, 以获得最大的刀具夹持长度
- 优化的外形尤其适用于叶盘和叶片加工
- 耐热钢材质
- 硬度54-2 HRC
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 为机床、主轴和刀具提供更多的保护
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密封
- 环绕冷却需要额外费用 (参见第466/467页)

加长型(A=130 或者160)结构紧凑, 使用灵活

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.


- Without back-up screw for max. tool clamping depth
- Optimised outer geometry and therefore perfect for blisk and blade machining
- Heat resistant hot-working steel
- Hardened 54 – 2 HRC
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (See pages 466/467)

The long versions (A=130 and 160) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	08	10	12	16	20
	Ø D2 [mm]	21	24	24	27	33
	Ø D3 [mm] 短/short	66	66	66	66	66
	L [mm] 短/short	—	68	71	70	69
长度/Length A [mm]	短/short	100	100	100	100	100
订货号/Order No.	A80.149...	.08.3.2140	.10.3.2140	.12.3.2140	.16.3.2140	.20.3.2140
	Ø D3 [mm] ZG130	65	65	65	65	65
	L [mm] ZG130	—	70	75	75	96
长度/Length A [mm]	ZG130	130	130	130	130	130
订货号/Order No.	A80.149...	.08.3.2144	.10.3.2144	.12.3.2144	.16.3.2144	.20.3.2144
	Ø D3 [mm] 超长/oversize	65	65	65	65	65
	L [mm] 超长/oversize	—	70	75	75	101
长度/Length A [mm]	超长/oversize	160	160	160	160	160
订货号/Order No.	A80.149...	.08.3.2142	.10.3.2142	.12.3.2142	.16.3.2142	.20.3.2142

### 附件/Accessories

热缩延长杆/Shrink fit extensions  参见第732页/See page 732

平衡螺钉/Balance screws  参见第767页/See page 767

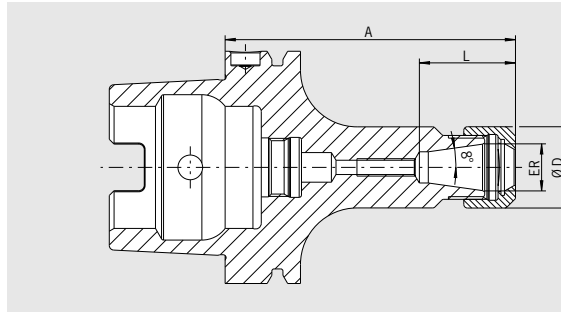
减径套/Reduction sleeves  参见第763页/See page 763

支撑螺钉/Back-up screws  参见第768页/See page 768

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash  Order No. 91.100.40 参见第466页/See page 466



# ER 筒夹刀柄 / COLLET CHUCK ER DIN 69893-1 · HSK-A80




质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN




**用途:**  
搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**  
For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**  
发货时包含:  
- 锁紧螺母 (已做动平衡, 防滑涂层提高夹持力), 不带冷却水管  
- 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用  
- 如果加大尺寸L需要额外费用

**DIN 69882-6**  
Included in delivery:  
- Locknut (balanced, with slide coating for higher clamping forces); without coolant tube  
- Locknut Type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge  
- Enlarging of size L upon request

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	0,5-10,0	1,0-16,0	1,5-20,0
L [mm]	32,5	41	47
长度/Length A [mm]	短/short	100	100
订货号/Order No.	A80.020...	.16	.25
			
		.32	

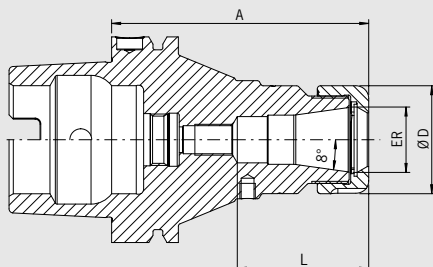
附件/Accessories				
ER筒夹/Collets ER		参见第742页/See page 742		
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737		
<b>锁紧螺母 (已做动平衡)/Locknut (pre-balanced)</b>				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.912...	.16	.25	.32
<b>高速锁紧螺母 (精细动平衡)/Chuck nut HS (fine-balanced)</b>				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.912...	.16.HS	.25.HS	.32.HS
<b>锁紧扳手/Fork wrench</b>				
尺寸/Size		ER 16	—	—
订货号/Order No.	84.200...	.16		
<b>锁紧扳手/Clamping wrench</b>				
尺寸/Size		—	ER 25	ER 32
订货号/Order No.	84.200...		.25	.32
<b>动平衡环/Balancing index rings</b>				
尺寸/Size	长/超长/long/oversize	ER 16	ER 25	ER 32
订货号/Order No.	79.350...	.28	.42	.48
<b>支撑螺钉/Adjusting screw</b>				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	85.800...	.34	.34	.35
<b>冷却水管/Coolant Tube</b>				
订货号/Order No.	85.700.80			
<b>热缩延长杆/Shrink fit extensions</b>				
		参见第732页/See page 732		

# 强力筒夹刀柄/POWER COLLET CHUCK

## DIN 69893-1 · HSK-A80

### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡  
✓ Chuck body fine balanced  
G2.5 25,000 rpm  
或/or U < 1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 不带支撑螺钉，以获得最大的刀具夹持长度
- 优化的外形尤其适用于叶盘和叶片加工
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

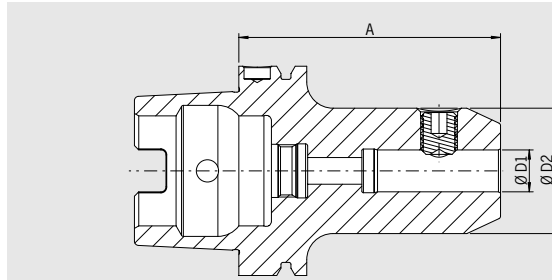
- Without back-up screw for max. tool clamping depth
- Optimised outer geometry and therefore perfect for blisk and blade machining
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	25	32
Ø D [mm]	42	50
夹持范围/Clamping range [mm]	2,0-16,0	2,0-20,0
L [mm] 短/short	70	69
长度/Length A [mm]	短/short	100
订货号/Order No.	A80.029...	.25.3.2021
		.32.3.2021
L [mm] ZG130	82,5	90
长度/Length A [mm]	ZG130	130
订货号/Order No.	A80.029...	.25.3.2024
		.32.3.2024
L [mm] 超长/oversize	82,5	98
长度/Length A [mm]	超长/oversize	160
订货号/Order No.	A80.029...	.25.3.2022
		.32.3.2022

### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 25	ER 32
订货号/Order No.	83.914...	.25	.32
锁紧扳手/Clamping wrench		ER 25	ER 32
订货号/Order No.	84.650...	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No.	91.100.27		

# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A80



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刃具。

**Use:**  
For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

**DIN 69882-4**  
- 发货时含: 夹持螺钉, 不含冷却管  
- 冷却喷孔需要额外费用

**DIN 69882-4**  
- Delivery: with clamping screw, without coolant tube  
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	10	16	20	25	32
	Ø D2 [mm]	25	35	48	52	65	72
长度/Length A [mm]	短/short	80	80	100	100	100	110
订货号/Order No.	A80.000...	.06	.10	.16	.20	.25	.32

附件/Accessories

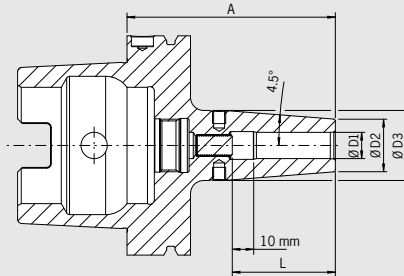
夹持螺钉/Clamping screw		06	10	16	20	25	32
夹持范围 Ø/Clamping Ø		.06	.10	.14	.16	.18	.20
订货号/Order No.	85.100...						
Ø 6mm - Ø 20mm冷却喷孔/Cool Jet bores from Ø 6 mm - Ø 20mm							
订货号/Order No.	91.100.24						
Ø 25mm - Ø 32mm冷却喷孔/Cool Jet bores from Ø 25 mm - Ø 32mm							
订货号/Order No.	91.100.26						

# 热缩刀柄/SHRINK FIT CHUCK

## DIN 69893-1 · HSK-A100

### CERTIFICATE OF QUALITY

- ☑ 刀柄精动平衡  
☑ Chuck body fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

适用于所有热缩机

### Use:

Suitable for all shrinking units.

### DIN 69893-1

- 含用于调整动平衡的螺钉孔
- 交货时含有支撑螺钉, 无冷却管
- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 增加冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

### DIN 69893-1

- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Cooling with Cool Jet for an extra charge (see page 468)
- Cooling with Cool Flash for an extra charge (see pages 466/467)

### 标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	21	21	24	24	27	27	33	33	44	44
	Ø D3 [mm]	27	27	32	32	34	34	42	42	53	53
	L [mm]	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	85	85	90	95	95	100	100	105	115	120
订货号/Order No.	A10.140...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG120	120	120	120	120	120	120	120	120	120	120
订货号/Order No.	A10.147...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG130	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	A10.144...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.142...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	ZG200	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>	200 <sup>1)</sup>
订货号/Order No.	A10.146...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

### 附件/Accessories

#### 热缩延长杆/Shrink fit extensions



参见第732页/See page 732

#### 平衡螺钉/Balance screws



参见第767页/See page 767

#### 冷却水管/Coolant tube



订货号/Order No. 85.700.10

#### 减径套/Reduction sleeves



参见第763页/See page 763

#### 支撑螺钉/Back-up screws



参见第768页/See page 768

#### 冷却喷孔/Cool Jet bores



参见第468页/See page 468

#### 从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash



订货号/Order No. 91.100.40

参见第466页/See page 466

#### 从不带冷却喷孔的热缩刀柄升级为环绕冷却/

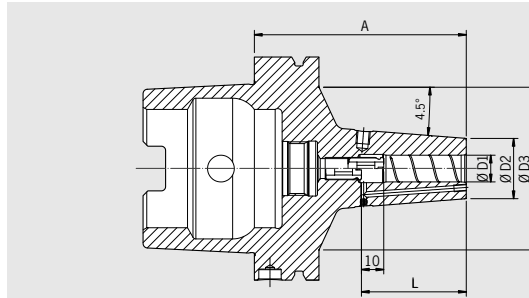
订货号/Order No. 91.100.41

参见第466页/See page 466

#### Cool Flash incl. Cool Jet

1) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file))

# 强力热缩刀柄/POWER SHRINK CHUCK DIN 69893-1 · HSK-A100



### 质量证书

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN
- ☑ 冷却喷孔, 可密封
- ☑ Cool Jet, can be sealed

强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 耐热钢材质
- 硬度54-2 HRC
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密封
- 环绕冷却需要额外费用(参见第466/467页)

加长型(A=160 或者200)结构紧凑, 使用灵活

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (see pages 466/467)

The long versions (A=160 and 200) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25
Ø D2 [mm]		21	21	27	27	33	33	44	44	44
Ø D3 [mm] 短/short		60	60	53	73	60	78	76	85	85
Ø D3 [mm]		83	83	83	83	83	83	83	83	83
L [mm]		36	36	42	47	47	50	50	52	58
长度/Length A [mm] 短/short		85	85	90	95	95	100	100	105	115
订货号/Order No.	A10.140...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	A10.142...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3
长度/Length A [mm] ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	A10.146...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3

### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25
Ø D2 [mm]		21	21	27	27	33	33	44	44	44
Ø D3 [mm] 短/short		60	60	53	73	60	78	76	85	85
Ø D3 [mm]		83	83	83	83	83	83	83	83	83
L [mm]		36	36	42	47	47	50	50	52	58
长度/Length A [mm] 短/short		85	85	90	95	95	100	100	105	115
订货号/Order No.	A10.140...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
长度/Length A [mm] 超长/oversize		160	160	160	160	160	160	160	160	160
订货号/Order No.	A10.142...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37
长度/Length A [mm] ZG200		200	200	200	200	200	200	200	200	200
订货号/Order No.	A10.146...	.06.37	.08.37	.10.37	.12.37	.14.37	.16.37	.18.37	.20.37	.25.37

### 附件/Accessories

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash



订货号/Order No. 91.100.40

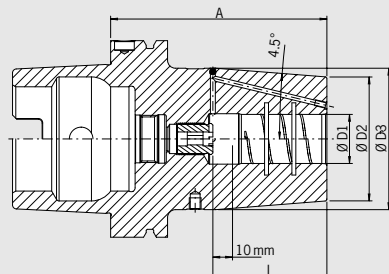
参见第466页/See page 466

# 重型热缩刀柄/HEAVY DUTY CHUCK

## DIN 69893-1 · HSK-A100

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced
- ☑ G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN
- ☑ 冷却喷孔, 可密闭
- ☑ Cool Jet, can be sealed



应用于重型机械加工中, 并将最终替代侧固刀柄。  
重型热缩刀柄采用了热缩装夹方式, 因此具有更高的刚性和夹持力。

- 耐热钢材质
- 硬度54-2 HRC
- 顺畅地装拆刃具
- 热缩装夹后, 刃具柄部不会变形
- 3µm的跳动精度
- 外形加强
- 可用翰默HAIMER 13kW HD重型线圈加热或用高性能的强力型热缩机(20kW)
- 夹持孔内有容屑槽和膨胀槽
- 含用于调整动平衡的螺钉孔
- 含冷却喷孔, 可密闭
- 环绕冷却需要额外费用(参见第466/467页)

For heavy machining applications it is now possible to replace the Weldon tool holders finally. Heavy Duty Chuck is the shrink fit chuck for extreme cases. The contour is optimised for highest rigidity and clamping force.

- Heat resistant hot-working steel
- Hardened 54 – 2 HRC
- Smooth clamping of the tool shank
- No deformation at the tool shank after shrink process
- High runout accuracy: 3 µm
- Reinforced outer contour
- To shrink with 13kW HD-Coil or with high performance shrink fit unit HAIMER Power Clamp Profi Plus (20 kW)
- With internal groove in the clamping bore
- With threaded holes in order to balance with screws
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (see pages 466/467)

夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50
	Ø D2 [mm]	51	58	63	70	82	82
	Ø D3 [mm] 短/short	—	67	72	78	94	94
	Ø D3 [mm]	85	85	85	85	94	94
	L [mm]	50	52	58	61	88	88
长度/Length A [mm]	短/short	100	100	110	110	140	140
订货号/Order No.	A10.150...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160
订货号/Order No.	A10.152...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm]	ZG200	200	200	200	200	200	200
订货号/Order No.	A10.156...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6

### 含安全锁的重型热缩刀柄/Heavy Duty Chuck with Safe-Lock

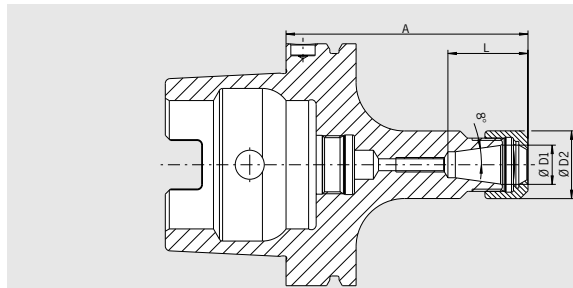
夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50
	Ø D2 [mm]	51	58	63	70	82	82
	Ø D3 [mm] 短/short	—	67	72	78	94	94
	Ø D3 [mm]	85	85	85	85	94	94
	L [mm]	50	52	58	61	88	88
长度/Length A [mm]	短/short	100	100	110	110	140	140
订货号/Order No.	A10.150...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160
订货号/Order No.	A10.152...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm]	ZG200	200	200	200	200	200	200
订货号/Order No.	A10.156...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67

### 适合于 13 KW 热缩机用的重型热缩刀柄/For 13 kW shrink fit machine

夹持/Clamping	Ø D1 [mm]	16	20
	Ø D2 [mm]	46	46
	L [mm]	51	53
长度/Length A [mm]	短/short	100	100 <sup>1)</sup>
订货号/Order No.	标准/Standard A10.140...	.16.6	.20.6
订货号/Order No.	安全锁/Safe-Lock A10.140...	.16.67	.20.67

1) 无支撑螺钉/without back-up screw

# ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-1 · HSK-A100



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**

发货时包含:

- 锁紧螺母 (已做动平衡, 防滑涂层提高夹持力), 不带冷却水管
- 高速锁紧螺母HS (高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 如果加大尺寸L需要额外费用

**DIN 69882-6**

Included in delivery:

- Locknut (balanced, with slide coating for higher clamping forces); without coolant tube
- Locknut Type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER		16	25	32	40
Ø D [mm]		28	42	50	63
夹持范围/Clamping range [mm]		0,5-10,0	1,0-16,0	1,5-20,0	2,5-26,0
L [mm]		32,5	41	47	53
长度/Length A [mm]	短/short	100	100	100	120
订货号/Order No.	A10.020...	.16	.25	.32	.40
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.022...	.16	.25	.32	.40

附件/Accessories					
ER筒夹/Collets ER		参见第742页/See page 742			
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737			
锁紧螺母 (已做动平衡)/Locknut (pre-balanced)					
尺寸/Size		ER 16	ER 25	ER 32	ER 40
订货号/Order No.	83.912...	.16	.25	.32	.40
高速锁紧螺母 (精细动平衡)/Chuck nut HS (fine-balanced)					
尺寸/Size		ER 16	ER 25	ER 32	ER 40
订货号/Order No.	83.912...	.16.HS	.25.HS	.32.HS	.40.HS
锁紧扳手/Fork wrench					
尺寸/Size		ER 16	—	—	—
订货号/Order No.	84.200...	.16			
锁紧扳手/Clamping wrench					
尺寸/Size		—	ER 25	ER 32	ER 40
订货号/Order No.	84.200...		.25	.32	.40
动平衡环/Balancing index rings					
尺寸/Size	长/超长/long/oversize	ER 16	ER 25	ER 32	ER 40
订货号/Order No.	79.350...	.28	.42	.48	.60
支撑螺钉/Adjusting screw					
尺寸/Size		ER 16	ER 25	ER 32	ER 40
订货号/Order No.	85.800...	.34	.34	.35	.35
冷却水管/Coolant Tube					
订货号/Order No.	85.700.10				
热缩延长杆/Shrink fit extensions					
参见第732页/See page 732					

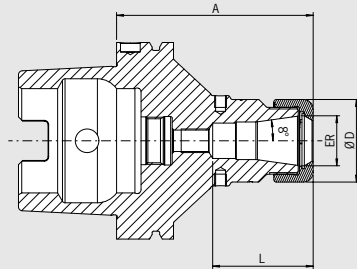
1) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file))

# 强力筒夹刀柄/POWER COLLET CHUCK

## DIN 69893-1 · HSK-A100

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32	
Ø D [mm]	28	42	50	
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0	
L [mm]	43	51	53	
长度/Length A [mm]	超短/extra short	85	85	85
订货号/Order No.	A10.025...	.16.3	.25.3	.32.3
长度/Length A [mm]	短/short	100	100	100
订货号/Order No.	A10.020...	.16.3	.25.3	.32.3
长度/Length A [mm]	长/long	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	A10.024...	.16.3	.25.3	.32.3
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.022...	.16.3	.25.3	.32.3

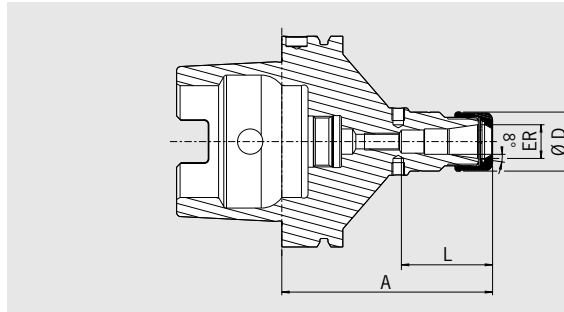
### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench				
订货号/Order No.	84.650...	.16	.25	参见第751页/See page 751
扭力扳手/Torque Master torque wrench				
订货号/Order No.	84.600.00			参见第750页/See page 750
ER筒夹/Collets ER				
				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				
				参见第737页/See page 737
强力筒夹/Power Collets				
				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				
				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				
订货号/Order No.	91.100.27			参见第749页/See page 749

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考dxf或stp文件/D is changing towards flange (check dxf or stp file))



# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-1 · HSK-A100



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm] 订货号/Order No.	超短/extra short A10.025...	85 .16.3.HP	85 .25.3.HP
长度/Length A [mm] 订货号/Order No.	短/short A10.020...	100 .16.3.HP	100 .25.3.HP
长度/Length A [mm] 订货号/Order No.	长/long A10.024...	130 <sup>1)</sup> .16.3.HP	130 <sup>1)</sup> .25.3.HP
长度/Length A [mm] 订货号/Order No.	超长/oversize A10.022...	160 <sup>1)</sup> .16.3.HP	160 <sup>1)</sup> .25.3.HP

附件/Accessories

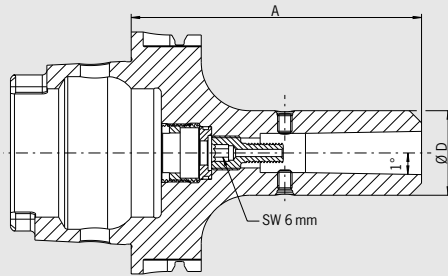
高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)			参见第752页/See page 752
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/ Roller bearing wrench			参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

1) 柄径D向刀柄法兰面方向逐渐加粗(请参考 dxf 或 stp文件/D is changing towards flange (check dxf or stp file))

# 后拉式高精度刀柄/HIGH-PRECISION CHUCK DIN 69893-1 · HSK-A100

**CERTIFICATE OF QUALITY**

- ☑ 刀柄精细动平衡
- ☑ Chuck fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



**用途:**

为了夹持高精度的圆柱柄刀具所设计的刀柄,同样适用于带侧圆平面的圆柱柄刀具。非常适用于高速加工。

- 发货包含: 锁紧螺钉, 筒夹的拉钩, 不含筒夹和冷却管
- 要求刃具柄部精度为h6
- 选项: 从直径Ø 6 mm开始, 筒夹上可增加冷却喷孔
- 可夹持延长杆

**Use:**

For highly precise clamping of tools with cylindrical shank, also with clamping flats. Very useful for high-speed machining.

- Included in delivery: high-precision chuck with clamping screw and pull-out hook, without collet, without coolant tube
- Shank tolerance h6
- Optional: Cool Jet bores on HG Collets from diam. 6 mm
- Extensions for High-Precision Chuck available

HG	Ø D [mm]	01	02	03
	夹持范围 Ø//Clamping diameter	30	35	48
		2 3 4 5 6 8	10 12 14	16 18 20
长度/Length A [mm]	短/short	120	120	130
订货号/Order No.	A10.120...	.01	.02	.03
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.122...	.01	.02	.03

**附件/Accessories**

**夹持螺钉/Clamping screw**



**后拉式筒夹/Collets HG**

参见第754页/See page 754

HG 01	Ø 02	Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	—	—	—	—	—	
订货号/Order No.	82.510...	.02	.03	.04	.05	.06	.08					
HG 02	—	—	—	—	—	—	Ø 10	Ø 12	Ø 14	—	—	
订货号/Order No.	82.520...						.10	.12	.14			
HG 03	—	—	—	—	—	—	—	—	—	Ø 16	Ø 18	Ø 20
订货号/Order No.	82.530...									.16	.18	.20

**筒夹拉钩/Pull-out hook**

HG	HG 01	HG 02	HG 03	
订货号/Order No.	82.570...	.00	.00	.00

**冷却水管/Coolant tube**

HG	85.700.10
订货号/Order No.	85.700.10

**动平衡环/Balancing index rings**

HG	HG 01	HG 02	HG 03	
订货号/Order No.	79.350...	.30	.35	.48

**热缩延长杆/Shrink fit extensions**



参见第732页/See page 732

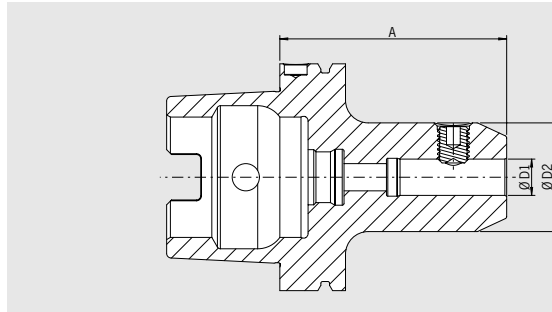
**冷却喷孔/Cool Jet bores**

订货号/Order No.	91.100.24
---------------	-----------

参见第468页/See page 468

1) 柄径D向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D is changing towards flange (check dxf or stp file))

# 侧固刀柄/WELDON TOOL HOLDER DIN 69893-1 · HSK-A100



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

**Use:**  
For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

**DIN 69882-4**  
- 发货时含: 夹持螺钉, 不含冷却管  
- 冷却喷孔需要额外费用

**DIN 69882-4**  
- Delivery: with clamping screw, without coolant tube  
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	44	48	50	52	65	72
长度/Length A [mm]	短/short	80	80	80	80	80	100	100	100	100	100
订货号/Order No.	A10.000...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.002...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

**附件/Accessories**

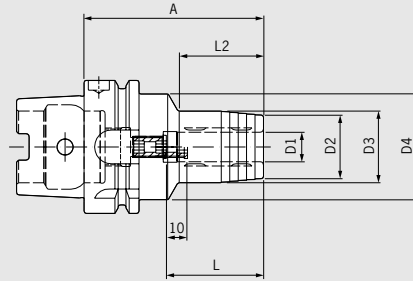
夹持螺钉/Clamping screw		06	08	10	12	14	16	18	20	25	32
夹持范围 Ø/Clamping Ø											
订货号/Order No.	85.100...	.06	.08	.10	.12	.14	.14	.16	.18	.20	.20
Ø 6mm - Ø 20mm冷却喷孔/Cool Jet bores from Ø 6 mm - Ø 20mm											参见第468页/See page 468
订货号/Order No.	91.100.24										
Ø 25mm - Ø 32mm冷却喷孔/Cool Jet bores from Ø 25 mm - Ø 32mm											参见第468页/See page 468
订货号/Order No.	91.100.26										

1) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考dxf 或 stp文件/D2 is changing towards flange (check dxf or stp file))

# 标准型液压刀柄/STANDARD HYDRAULIC CHUCK DIN 69893-1 · HSK-A100

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ☑ 径跳精度 < 3 μm
- ☑ Runout accuracy < 3 μm



### 用途:

用于钻孔、铰孔和精加工的液压刀柄。

- 适用于符合DIN 6535 HA和HB型的柄径公差为h6的圆柱直柄刀具
- 非常高的刀具径跳精度和重复装夹精度有助于提升刀具寿命
- 无需辅助设备, 只需几秒钟即可更换刀具
- 杰出的抗振性

### Use:

Hydraulic chuck for drilling, reaming and finishing.

- Suitable for cylindrical shanks according to DIN 6535 Form HA as well as shanks according to DIN 6535 Form HB with shank tolerance h6
- Increased tool life due to highest runout accuracy and repeatability
- Tool changes in seconds without peripheral equipment
- Excellent vibration dampening

### 符合DIN 69893-1标准的HSK-A接口

- 发货包含: 用于长度调节的支撑螺钉, 不带冷却水管

### Shank HSK-A according to DIN 69893-1

- Included in delivery: With length adjustment screw, without coolant tube

### 标准型, 和 DIN 69882-7 相似/Standard version, similar to DIN 69882-7

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	22	24	26	28	30	34	36	38	53	59
	Ø D3 [mm]	26	28	30	32	34	38	40	42	57	63
	Ø D4 [mm]	50	50	50	50	50	50	50	50	63	67
	L [mm]	37	37	41	46	46	49	49	51	57	61
	L2 [mm]	26	26	42	47	47	53	53	59	62	62
长度/Length A [mm]	短/short	75	75	90	95	95	100	100	105	110	110
订货号/Order No.	A10.1H10...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

### 附件/Accessories

冷却管/Coolant tube



订货号/Order No. 85.700.10

减径套/Reduction sleeves



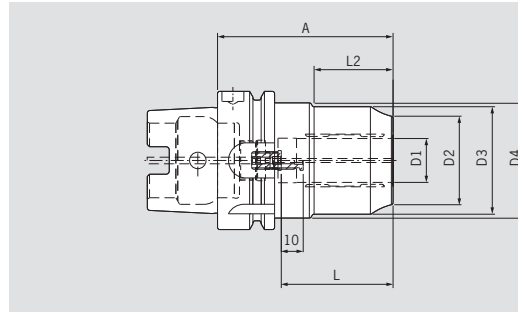
参见第763页/See page 763

支撑螺钉/Back-up screws



参见第768页/See page 768

## 强力型液压刀柄/POWER HYDRAULIC CHUCK DIN 69893-1 · HSK-A100



### 质量证书

- 刀柄精细动平衡
- Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- 径跳精度 < 3 μm
- Runout accuracy < 3 μm

#### 用途:

特别适用于铣削加工的液压刀柄。

- 紧凑的设计和高刚性
- 能够传递大扭矩
- 得益于高刚性和耐高温性 (最高达 170 °C), 该刀柄尤其适用于铣削加工
- 杰出的抗振性
- 无需辅助设备, 只需几秒钟即可更换刀具

#### 符合 DIN 69893-1 标准的 HSK-A 接口

- 发货包含: 用于长度调节的支撑螺钉, 不带冷却水管

#### Use:

Hydraulic chuck especially suitable for milling operations.

- Compact design and high rigidity
- High torque transmission
- Perfectly suitable for milling operations, thanks to radial rigidity and temperature resistance (up to 170 °C)
- Excellent vibration dampening
- Tool changes in seconds without peripheral equipment

#### Shank HSK-A according to DIN 69893-1

- Included in delivery: with back-up screw, without coolant tube

夹持/Clamping	Ø D1 [mm]	20	32
	Ø D2 [mm]	38	57
	Ø D3 [mm]	49	68
	Ø D4 [mm]	52,5	72
	L [mm]	51	61
	L2 [mm]	36	42
长度/Length A [mm]	短/short	85	100
订货号/Order No.	A10.1H10...	.20.3	.32.3

#### 附件/Accessories

冷却管/Coolant tube



订货号/Order No. **85.700.10**

减径套/Reduction sleeves



参见第763页/See page 763

带安全锁的减径套/Reduction sleeves with Safe-Lock

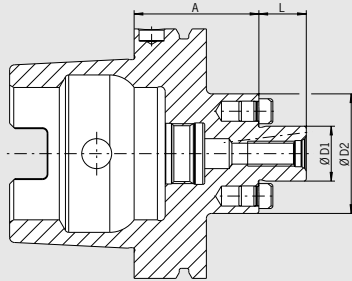


参见第765页/See page 765

# 面铣刀的刀柄/FACE MILL ARBOR DIN 69893-1 · HSK-A100

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25,000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

### Use:

For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

### DIN 69882-3

- 交货时含: 锁紧螺栓, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### DIN 69882-3

- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	36	48	60	78	87
	L [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	50	50	50	50	60
订货号/Order No.	A10.050...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	A10.051...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	A10.052...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.300...	.16	.22	.27	.32	.40

#### 锁紧扳手/Wrench

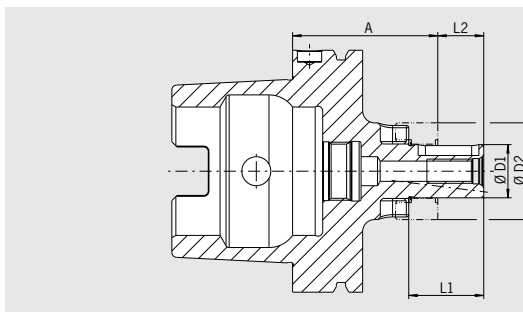
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	84.400...	.16	.22	.27	.32	.40

#### 动平衡环/Balancing index rings

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	79.350...	.36	.48	.60	.78	.87

1) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考dxf 或 stp文件/D2 is changing towards flange (check dxf or stp file))

# 壳铣刀的刀柄 COMBINATION SHELL END MILL ADAPTER DIN 69893-1 · HSK-A100



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于符合 DIN 841 和 DIN 1880 标准的壳铣刀、符合DIN842的角度铣刀和符合 DIN 1830 的刃具。

**Use:**  
For clamping shell end mills DIN 841 and DIN 1880 as well as angular milling cutters DIN 842 and cutters DIN 1830.

**DIN 69882-2**

- 交货时含: 拉紧螺钉、传动环和滑键, 不含冷却管
- 前端冷却喷孔需要额外费用

**DIN 69882-2**

- Included in delivery: tightening bolt, driving ring and feather key, without coolant tube
- Coolant bores on front side for an extra charge

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	32	40	48	58	70
	L1 [mm]	27	31	33	38	41
	L2 [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	60	60	60	60	70
订货号/Order No.	<b>A10.040...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	长/long	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>	100 <sup>1)</sup>
订货号/Order No.	<b>A10.041...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>	160 <sup>1)</sup>
订货号/Order No.	<b>A10.042...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>

附件/Accessories

<b>拉紧螺钉/Tightening bolt</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.300...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>锁紧扳手/Wrench</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>84.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>滑键/Feather key</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.400...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>传动环/Driving ring</b>						
尺寸/Size D1		16	22	27	32	40
订货号/Order No.	<b>85.200...</b>	<b>.16</b>	<b>.22</b>	<b>.27</b>	<b>.32</b>	<b>.40</b>
<b>动平衡环/Balancing index rings</b>						
尺寸/Size D1	长/超长/long/oversize	16	22	27	32	40
订货号/Order No.	<b>79.350...</b>	<b>.32</b>	<b>.40</b>	<b>.48</b>	<b>.58</b>	<b>.70</b>
<b>冷却水管/Coolant tube</b>						
订货号/Order No.	<b>85.700.10</b>					
<b>冷却喷孔/Coolant bores</b>						
订货号/Order No.	<b>91.100.03</b>					

1) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考dxf 或 stp文件/D2 is changing towards flange (check dxf or stp file))

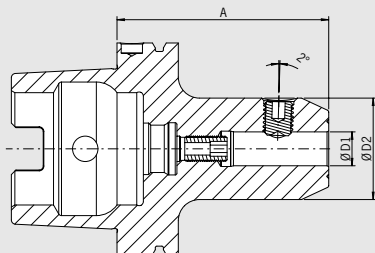
# 斜孔侧固刀柄

## WHISTLE NOTCH TOOL HOLDER

### DIN 69893-1 · HSK-A100

#### CERTIFICATE OF QUALITY

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



#### 用途:

夹持具有类似DIN 1835-E和DIN 6535-HE的倾斜的紧固平面的圆柱直柄刀具。

#### Use:

For clamping cutters with cylindrical shank and inclined flat according to DIN 1835-E and DIN 6535-HE.

#### DIN 69882-5

- 发货包含: 夹持螺钉和支撑螺钉, 不含冷却管
- 精密动平衡需要额外费用
- 冷却喷孔需要额外费用

#### DIN 69882-5

- Delivery: with clamping screw and adjusting screw, without coolant tube
- Fine-balancing for an extra charge
- Cooling with Cool Jet for an extra charge

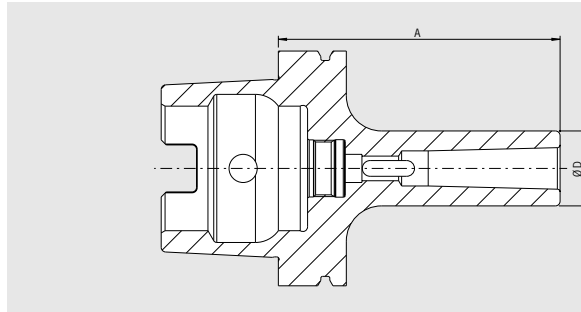
夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
	Ø D2 [mm]	25	28	35	42	44	48	50	52	65	72
长度/Length A [mm]	短/short	90	90	90	100	100	100	100	110	120	120
订货号/Order No.	A10.030...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

#### 附件/Accessories

<b>夹持螺钉/Clamping screw</b>											
夹持范围 Ø/Clamping Ø		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20
<b>支撑螺钉/Adjusting screw</b>											
短/short		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	85.810...	.12.1	.15.1	.18.2	.24.2	.24.2	.46.2	.46.2	.38.2	.38.2	.38.2
<b>动平衡环/Balancing index rings</b>											
夹持范围 Ø/Clamping Ø 长/超长/long/oversize		06	08	10	12	14	16	18	20	25	32
订货号/Order No.	79.350...	.25	.28	.35	.42	.44	.48	.50	.52	.65	.72
<b>冷却水管/Coolant tube</b>											
订货号/Order No.	85.700.10										
<b>冷却喷孔/Cool Jet bores</b>											
订货号/Order No.	91.100.24	参见第468页/See page 468									



# 用于带扁尾的莫氏锥度刀具的刀柄 ADAPTER FOR MORSE TAPER WITH TANG DIN 69893-1 · HSK-A100



质量证书	
<input checked="" type="checkbox"/>	刀柄动平衡
<input checked="" type="checkbox"/>	Chuck balanced G6.3 8.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于 DIN 228-1 B型带扁尾式莫氏锥柄工具  
- 精密动平衡需要额外费用

**Use:**  
For holding tools with morse taper and tang  
according to DIN 228-1 form B.  
- Fine-balancing for an extra charge

莫式/MK		01	02	03	04
	Ø D [mm]	25	32	40	48
长度/Length A [mm]	短/short	110	120	150	170
订货号/Order No.	A10.080...	.01	.02	.03	.04

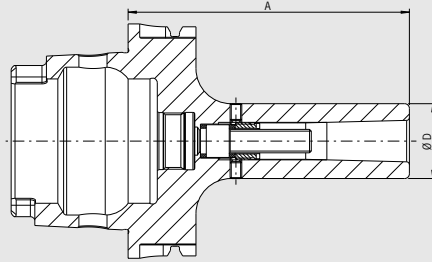
附件/Accessories

动平衡环/Balancing index rings		01	02	03	04
莫式/MK					
订货号/Order No.	79.350...	.25	.32	.40	.48
冷却水管/Coolant tube					
订货号/Order No.	85.700.10				

# 带螺栓的莫氏锥度刀柄 ADAPTER FOR MORSE TAPER WITH THREAD DIN 69893-1 · HSK-A100

## CERTIFICATE OF QUALITY

- ☑ 刀柄动平衡
- ☑ Chuck balanced  
G6.3 8.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于夹持 DIN 228-1 A型锁牙式莫氏锥柄刀具

- 精密动平衡需要额外费用
- 交货时包含紧固螺栓, 不含冷却管

### Use:

For holding tools with morse taper with thread according to DIN 228-1 form A.

- Fine-balancing for an extra charge
- Delivery with tightening bolt without coolant tube

莫式/MK		01	02	03	04
	Ø D [mm]	25	32	40	48
长度/Length A [mm]	短/short	110	120	150	170
订货号/Order No.	A10.130...	.01	.02	.03	.04

### 附件/Accessories

#### 动平衡环/Balancing index rings

莫式/MK

订货号/Order No. 79.350...



01

.25

02

.32

03

.40

04

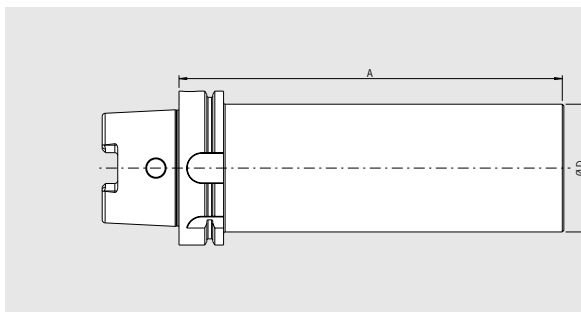
.48

#### 冷却水管/Coolant tube

订货号/Order No. 85.700.10



## 毛坯刀柄/BLANK ADAPTER DIN 69893-1 · HSK-A100



### 质量证书

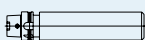
- 所有功能面精细加工
- All functional surfaces fine machined
- 精度高于DIN标准
- More accurate than DIN

**用途:**  
用于制造特殊刀具

**设计:**  
锥柄和法兰槽硬化并精磨, 圆柱部分未硬化

**Use:**  
For manufacturing special tools in your own factory.

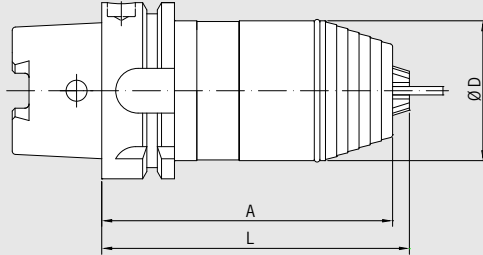
**Design:**  
HSK is hardened and ground, the cylindrical part is soft.

	<b>Ø D [mm]</b>		<b>83</b>
长度/Length A [mm]	ZG250		250
订货号/Order No.	<b>A10.090...</b>		<b>.83</b>

## 短钻夹头刀柄/SHORT DRILL CHUCK DIN 69893-A · HSK-A100

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G6.3 22.000 rpm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN




### 用途:

用于左右旋转夹持圆柱柄刀具, 用内六角扳手锁紧及拆卸。

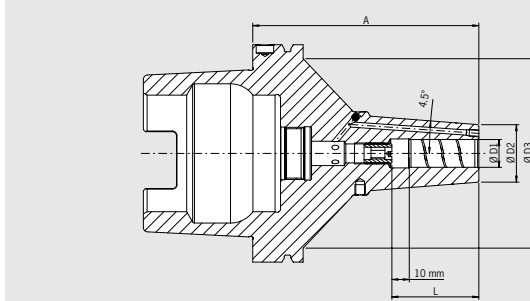
### Use:

For clamping tools with cylindrical shank, for left and right hand turn, clamping and loosening with a hexagon socket wrench.

夹持范围/Clamping range	0,5-13	2,5-16
Ø D [mm]	50	57
L [mm]	117	122
长度/Length A [mm]	111	116
订货号/Order No. <b>A10.111...</b>	 <b>.13</b>	<b>.16</b>

# 强力热缩刀柄/POWER SHRINK CHUCK DIN 69893-1 · HSK-A125

刀柄  
Tool Holders



质量证书	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
☑ G2.5 25.000 rpm	
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN
☑ 冷却喷孔, 可密闭	☑ Cool Jet, can be sealed

强力热缩刀柄是用于高速加工, 提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性, 为机床、主轴和刀具提供更多的保护。

- 耐热钢材质
- 硬度54-2 HRC
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加了机床的切削能力
- 缩短加工时间, 提高加工精度
- 静音运行, 提高工件表面光洁度, 延长刀具和机床主轴的寿命
- 含6个可密闭的冷却喷孔(孔口螺纹为M4)
- 带夹持中心带有内槽
- 优化的冷却喷孔, 使冷却更加有效
- 含用于调整动平衡的螺钉孔
- 环绕冷却需要额外费用(参见第466/467页)

加长型(A=160 或者200)结构紧凑, 使用灵活

- 高刚性, 顶端纤细, 减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍, 所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With Cool Jet bores that can be sealed (Thread M4) and 6 bores
- With internal groove in the clamping bore
- Higher coolant flow rate due to optimised coolant bores
- With threaded holes in order to balance with balancing screws
- Cooling with Cool Flash for an extra charge (see pages 466/467)

The long versions (A=160 and 200) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	10	12	16	20	25
	Ø D2 [mm]	27	27	33	44	44
	Ø D3 [mm]	109	109	109	109	109
	L [mm]	42	47	50	52	58
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130
订货号/Order No.	A125.140...	.10.3	.12.3	.16.3	.20.3	.25.3
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160	160	160
订货号/Order No.	A125.142...	.10.3	.12.3	.16.3	.20.3	.25.3
长度/Length A [mm]	ZG200	200 <sup>1)</sup>	200 <sup>1)</sup>	200	200	200
订货号/Order No.	A125.146...	.10.3	.12.3	.16.3	.20.3	.25.3

含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	10	12	16	20	25
	Ø D2 [mm]	27	27	33	44	44
	Ø D3 [mm]	109	109	109	109	109
	L [mm]	42	47	50	52	58
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130
订货号/Order No.	A125.140...	.10.37	.12.37	.16.37	.20.37	.25.37
长度/Length A [mm]	超长/oversize	160 <sup>1)</sup>	160 <sup>1)</sup>	160	160	160
订货号/Order No.	A125.142...	.10.37	.12.37	.16.37	.20.37	.25.37
长度/Length A [mm]	ZG200	200 <sup>1)</sup>	200 <sup>1)</sup>	200	200	200
订货号/Order No.	A125.146...	.10.37	.12.37	.16.37	.20.37	.25.37

附件/Accessories

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash



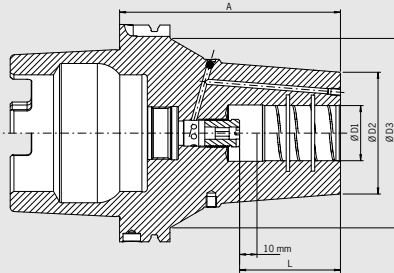
订货号/Order No. 91.100.40

参见第466页/See page 466

1) 2个M3的螺纹孔/Thread M3, 2 bores

# 重型热缩刀柄/HEAVY DUTY CHUCK DIN 69893-1 · HSK-A125

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 25.000 rpm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN
☑ 冷却喷孔,可密闭	☑ Cool Jet, can be sealed



应用于重型机械加工中,并将最终替代侧固刀柄。重型热缩刀柄采用了热缩装夹方式,因此具有更高的刚性和夹持力。

- 耐热钢材质
- 硬度54-2 HRC
- 热缩装夹后,刀具柄部不会变形
- 3µm的跳动精度
- 外形加强
- 可用翰默HAIMER 13kW HD重型线圈加热或用高性能的强力型热缩机(20kW)
- 夹持孔内有容屑槽和膨胀槽
- 含6个可密闭的冷却喷孔(孔口螺纹为M4)
- 优化的冷却喷孔,使冷却更加有效
- 含用于调整动平衡的螺钉孔
- 环绕冷却需要额外费用(参见第466/467页)

For heavy machining applications it is now possible to replace the Weldon tool holders finally. The Heavy Duty Chuck is the shrink fit chuck for extreme cases. The contour is optimised for highest rigidity and clamping force.

- Heat resistant hot-working steel
- Hardened 54 – 2 HRC
- No deformation at the tool shank after shrink process
- High runout accuracy: 3 µm
- Reinforced outer contour
- To shrink with 13kW HD-Coil or with high performance shrink fit unit HAIMER Power Clamp Profi Plus (20 kW)
- With internal groove in the clamping bore
- With Cool Jet bores that can be sealed (Thread M4) and 6 bores
- Higher coolant flow rate due to optimised coolant bores
- With threaded holes in order to balance with balancing screws
- Cooling with Cool Flash for an extra charge (see pages 466/467)

夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50
	Ø D2 [mm]	51	58	63	70	82	82
	Ø D3 [mm]	109	109	109	109	109	109
	L [mm]	50	52	58	61	88	88
长度/Length A [mm]	ZG130	130	130	130	130	130 <sup>1)2)</sup>	130 <sup>1)</sup>
订货号/Order No.	A125.150...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160
订货号/Order No.	A125.152...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6
长度/Length A [mm]	ZG200	200	200	200	200	200	200
订货号/Order No.	A125.156...	.16.6	.20.6	.25.6	.32.6	.40.6	.50.6

### 含安全锁的重型热缩刀柄/Heavy Duty Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	16	20	25	32	40	50
	Ø D2 [mm]	51	58	63	70	82	82
	Ø D3 [mm]	109	109	109	109	109	109
	L [mm]	50	52	58	61	88	88
长度/Length A [mm]	ZG130	130	130	130	130	130 <sup>1)2)</sup>	130 <sup>1)</sup>
订货号/Order No.	A125.150...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm]	超长/oversize	160	160	160	160	160	160
订货号/Order No.	A125.152...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67
长度/Length A [mm]	ZG200	200	200	200	200	200	200
订货号/Order No.	A125.156...	.16.67	.20.67	.25.67	.32.67	.40.67	.50.67

#### 附件/Accessories

冷却水管/Coolant tube



订货号/Order No. 85.700.125

支撑螺钉/Back-up screws



参见第768页/See page 768

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash

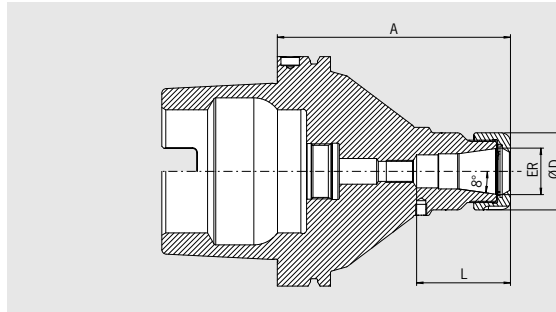


订货号/Order No. 91.100.40

参见第466页/See page 466

1) 无支撑螺钉/without back-up screws  
2) 长度L=87.5mm/Length L = 87,5 mm

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-1 · HSK-A125



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets on page 748

ER	25	32
Ø D [mm]	42	50
夹持范围/Clamping range [mm]	2,0-16,0	2,0-20,0
L [mm]	51	53
长度/Length A [mm]	短/short	100
订货号/Order No.	A125.020...	.25.3
长度/Length A [mm]	ZG130	130
订货号/Order No.	A125.024...	.25.3
长度/Length A [mm]	超长/oversize	160
订货号/Order No.	A125.022...	.25.3
长度/Length A [mm]	ZG200	200
订货号/Order No.	A125.026...	.25.3

附件/Accessories

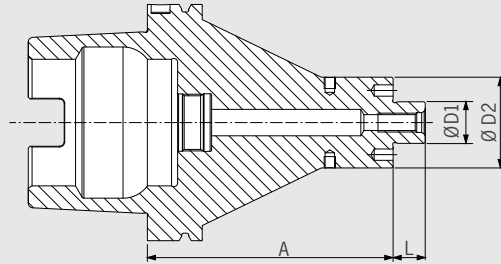
高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size		ER 25	ER 32
订货号/Order No.	83.914...	.25	.32
锁紧扳手/Clamping wrench		ER 25	ER 32
订货号/Order No.	84.650...	..25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No.	84.600.00		
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No.	91.100.27		

# 面铣刀的刀柄/FACE MILL ARBOR

## DIN 69893-1 · HSK-A125

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具

### Use:





For holding face mill cutters and cutters with radial driving slot DIN 1880.

### DIN 69882-3




- 外形加强
- 发货包括: 拉紧螺钉, 动平衡螺钉, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### DIN 69882-3

- Reinforced outer contour
- Included in delivery: tightening bolt, balancing thread, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

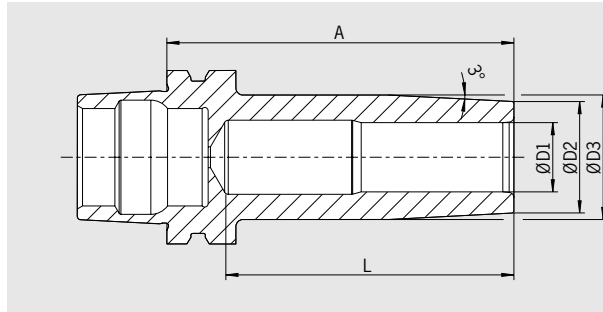
夹持范围/Clamping	Ø D1 [mm]		22	27
	Ø D2 [mm]		48	60
	L [mm]		19	21
长度/Length A [mm]	短/short		100	100
订货号/Order No.	A125.050...		.22.3.KKB	.27.3.KKB
长度/Length A [mm]	ZG130		130	130
订货号/Order No.	A125.054...		.22.3.KKB	.27.3.KKB
长度/Length A [mm]	超长/oversize		160	160
订货号/Order No.	A125.052...		.22.3.KKB	.27.3.KKB
长度/Length A [mm]	ZG200		200	200
订货号/Order No.	A125.056...		.22.3.KKB	.27.3.KKB

### 附件/Accessories

拉紧螺钉/Tightening bolt				
尺寸/Size D1			22	27
订货号/Order No.	85.300...		.22	.27
锁紧扳手/Wrench				
尺寸/Size D1			22	27
订货号/Order No.	84.400...		.22	.27
动平衡环/Balancing index rings				
尺寸/Size D1			22	27
订货号/Order No.	79.350...		.48	.60



# 迷你型热缩刀柄/MINI SHRINK DIN 69893-5 · HSK-E25



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

微型加工行业(模具、医疗、微型机械)普遍需要高速加工和小切削阻力。和翰默知名的迷你型热缩刀柄一样,翰默的HSK-E25系列刀柄非常短小和纤细,尤其适用于微型加工。

- 减少干涉,可以到达深腔的底部
- 很高的径跳精度: < 0,003 mm
- 配合翰默Power Clamp Nano纳米型热缩机的热缩效果更好
- 耐热钢材质
- 硬度54-2 HRC

**注意:**在大多数热缩机上加热和冷却迷你型热缩刀柄时,您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄,则无需使用安装冷却套。另外,这些热缩机都可以配置自动线圈和扫码枪。

Low cutting forces at highest rpm are typical in micro machining (die & mold, medical engineering, micro mechanical engineering). The slim and short design of all HSK-E25 series from HAIMER – which is well known from the HAIMER Mini Shrink tool holders – is perfectly suitable for the requirements of micro machining.

- No disturbing edges, also jobs difficult to access can be reached
- Highest runout accuracy: < 0,003 mm
- Ideal to shrink with the HAIMER Power Clamp Nano
- Heat resistant hot-working steel
- Hardened 54 – 2 HRC

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]	03	04	05	06	06	06	08	10	10	10	12
Ø D2 [mm]		09	10	11	12	12	12	14	16	16	16	18
Ø D3 [mm]		—	—	—	—	—	—	—	18	18	18	20
L [mm] 超短/ultra short		15	18	23	27,5	—	—	27	26,5	—	—	26
L [mm] 标准型/standard		15	18	28	37,5	32,5	37,5	27	41,5	36,5	41,5	35,5
长度/Length A [mm]	超短/ultra short	35 <sup>2)</sup>	35 <sup>2)</sup>	35 <sup>2)</sup>	40 <sup>2)</sup>	—	—	40 <sup>2)</sup>	40 <sup>2)</sup>	—	—	40 <sup>2)</sup>
订货号/Order No.	E25.185....	.03	.04	.05	.06			.08	.10			.12
长度/Length A [mm]	标准型/standard	45	45	45	45	45	50	50	50	50	55	50
订货号/Order No.	E25.180...	.03	.04	.05	.06 <sup>1)</sup>	.06.V2	.06.V3	.08	.10 <sup>1)</sup>	.10.V2	.10.V3	.12

1) 不带用于安装冷却水管的螺纹孔/Without thread for coolant tube  
2) 必须配合翰默Power Clamp Nano纳米型热缩机使用/Only shrinkable with Power Clamp Nano



### 针对迷你型热缩刀柄的安装冷却套

- 保护迷你型热缩刀柄,避免过热
- 延长热缩刀柄的寿命
- 方便安全的操作
- 使用标准的冷却水套来冷却

### Mini Shrink shrink and cooling sleeve

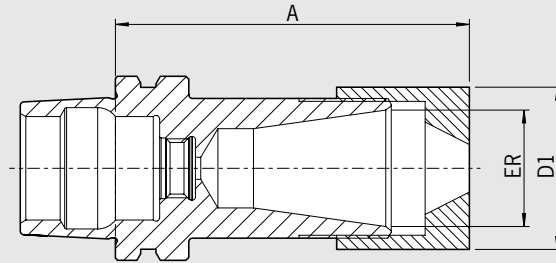
- Protect Mini Shrink chucks from overheating
- Extend lifetime of shrink fit chucks
- Secure and user friendly handling
- Cooling with standard cooling body

针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks								订货号/Order No.
<b>超细型/Extra slim</b>								
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12
订货号/Order No.	80.105.14.2...	.01	.02	.03	.04	.05	.06	.07
<b>标准型/Standard</b>								
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12
订货号/Order No.	80.105.14.2...	.04	.08	.05	.09	.10	.11	.12
<b>底座/Base</b>								80.105.14.2.99
带基座的套装安装冷却套(12件)/Set with base (12 pcs., Ø 3–12 mm)								80.105.14.2.00

## 迷你型ER筒夹刀柄/COLLET CHUCK MINI ER DIN 69893-5 · HSK-E25

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



微型加工行业(模具、医疗、微型机械)普遍需要高速加工和小切削阻力。和翰默知名的迷你型热缩刀柄一样,翰默的HSK-E25系列刀柄非常短小和纤细,尤其适用于微型加工。

- 发货时包含: 锁紧螺母

可用:

- 迷你 ER 筒夹刀柄 (迷你-ER 16) 有两种长度



Low cutting forces at highest rpm are typical in micro machining (die & mold, medical engineering, micro mechanical engineering). The slim and short design of the HSK-E25 series from HAIMER – which is well known from the HAIMER Mini Shrink tool holders – is perfectly suitable for the requirements of micro machining.

- Included in delivery: locknut

Available as:

- Mini-ER collet chuck (Mini-ER 16) in two different lengths


标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

Mini-ER			16
Ø D [mm]			22
夹持范围/Clamping range [mm]			0,5–10,0
L [mm]			34
长度/Length A [mm]	超短/ultra short		43
订货号/Order No.	E25.025...		.16.7 <sup>1)</sup>
长度/Length A [mm]	短/short		48
订货号/Order No.	E25.020...		.16.7

### 附件/Accessories

#### 锁紧螺母/Clamping nut

尺寸/Size

订货号/Order No. **915010-**  Mini ER 16 **.0002**

#### 用于强力筒夹刀柄的扭力扳手/Torque wrench for Power Collet Chucks

订货号/Order No. **84.600.00**

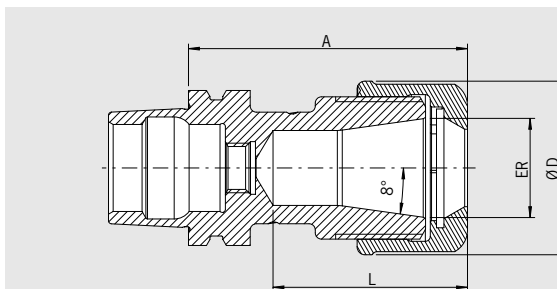
扭力扳手用插件/Insert torque wrench Mini ER 16

订货号/Order No. **84.620...**

**.16.1**

1) 不含可以安装冷却水管的螺纹/Without thread for coolant tube

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-5 · HSK-E25



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN



微型加工行业(模具、医疗、微型机械)普遍需要高速加工和小切削阻力。和翰默知名的迷你型热缩刀柄一样,翰默的HSK-E25系列刀柄非常短小和纤细,尤其适用于微型加工。

- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时,尺寸“A”更长)
- 发货时包含:锁紧螺母

Low cutting forces at highest rpm are typical in micro machining (die & mold, medical engineering, micro mechanical engineering). The slim and short design of the HSK-E25 series from HAIMER – which is well known from the HAIMER Mini Shrink tool holders – is perfectly suitable for the requirements of micro machining.

- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- Included in delivery: locknut

### 强力筒夹刀柄的径跳精度更高/Power Collet Chuck for highest runout accuracy

ER	16
Ø D [mm]	28
夹持范围/Clamping range [mm]	2,0-10,0
L [mm]	31
长度/Length A [mm]	超短/ultra short
订货号/Order No.	E25.025... 
	45 .16.3
L [mm]	36
长度/Length A [mm]	短/short
订货号/Order No.	E25.020... 
	48 .16

#### 附件/Accessories

##### 强力筒夹/Power Collets

##### ER 16 (2,0-10,0)

夹持范围 Ø/Clamping Ø

订货号/Order No. 81.163...



02 03 04 05 06 08 10  
.02 .03 .04 .05 .06 .08 .10

##### ER筒夹/Collets ER



参见第742页/See page 742

##### 热缩筒夹/Shrink Fit Collets



参见第737页/See page 737

##### 高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)

尺寸/Size

订货号/Order No. 83.914...



ER 16  
.16

##### 锁紧扳手/Clamping wrench

尺寸/Size

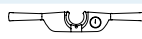
订货号/Order No. 84.650...



ER 16  
.16

##### 用于强力筒夹刀柄的扭力扳手/Torque wrench for Power Collet Chucks

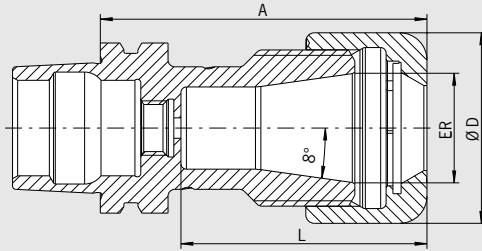
订货号/Order No. 84.600.00



# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-5 · HSK-E25

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN




翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)








- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

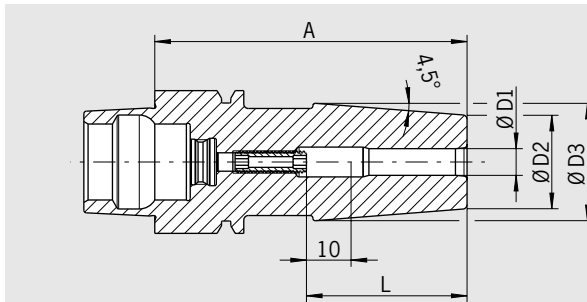
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16
Ø D [mm]	28
夹持范围/Clamping range [mm]	2,0–10,0
L [mm]	31
长度/Length A [mm]	超短/ ultra short 45
订货号/Order No.	E25.025...  .16.3.HP

#### 附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	
订货号/Order No.	83.914... 	.16.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No.	84.650... 	.16.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No.	91.100.27	

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-5 · HSK-E32



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

- DIN 69893-5**
- 含用于调整动平衡的螺钉孔
  - 交货时含有支撑螺钉, 无冷却管
  - 耐热钢材质
  - 硬度54-2 HRC
  - 用于高速钢和硬质合金刀具
  - 要求刀具柄部精度为h6
  - 冷却喷孔需要额外费用 (参见第468页)
  - 环绕冷却需要额外费用 (参见第466/467页)

- DIN 69893-5**
- With threaded holes in order to balance with balancing screws
  - Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
  - Heat resistant hot-working steel
  - Hardened 54-2 HRC
  - For HSS and solid carbide tools
  - Shank tolerance h6
  - Cooling with Cool Jet for an extra charge (See page 468)
  - Cooling with Cool Flash for an extra charge (see pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10
	Ø D2 [mm]	10	10	10	21	21	24
	Ø D3 [mm]	—	—	—	27	27	32
	L [mm]	09	12	15	36	36	42
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	70 <sup>2)</sup>	70 <sup>2)</sup>	80 <sup>2)</sup>
订货号/Order No.	E32.140...	.03	.04	.05	.06	.08	.10

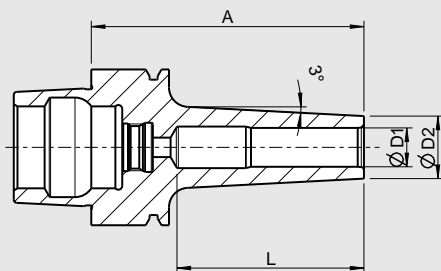
附件/Accessories		
平衡螺钉/Balance screws		参见第767页/See page 767
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41

1) 无支撑螺钉, 无平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 无平衡螺钉孔/Without thread for balancing screws

# 迷你型热缩刀柄/MINI SHRINK DIN 69893-5 · HSK-E32

CERTIFICATE OF QUALITY	
☑ 刀柄精细动平衡	☑ Chuck fine balanced
	U < 1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN



- 非常纤细的设计
- 减少干涉
- 跳动精度: 3 µm
- 可以进入原本难以进入的位置加工
- 优化了刚性
- 耐热钢材质
- 硬度54-2 HRC
- 最好配合使用翰默 HAIMER 的热缩机
- 适用于柄径公差为h6的所有硬质合金刀具
- 3°的斜角适用于模具行业
- **标准型**: 较大的夹持力
- 刀柄精细动平衡
- 发货时不含冷却管

- Extreme slim design
- No disturbing edges
- Highest runout accuracy: 3 µm
- Also jobs difficult to access can be reached
- Optimum rigidity
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Ideal to shrink with the HAIMER Power Clamp
- For all solid carbide tools with shank tolerance h6
- With 3° angle for die and mold
- **Standard version**: with high clamping force
- Tool holders fine balanced
- Delivery without coolant tube

**注意:** 在大多数热缩机上加热和冷却迷你型热缩刀柄时, 您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄, 则无需使用安装冷却套。另外, 这些热缩机都可以配置自动线圈和扫码枪。

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12
	Ø D2 标准型/Standard [mm]		09	10	11	12	14	16	18
长度/Length A [mm]	超短/ultra short		60	60	60	60	60	60	60
长度/Length L [mm]			46	43	43	43	38	42	41,5
订货号/Order No.	E32.185...		.03	.04	.05	.06	.08	.10	.12
长度/Length A [mm]	ZG80		80	80	80	80	80	80	80
长度/Length L [mm]			66	63	63	63	38	48	48
订货号/Order No.	E32.183...		.03	.04	.05	.06	.08	.10	.12



### 针对迷你型热缩刀柄的安装冷却套

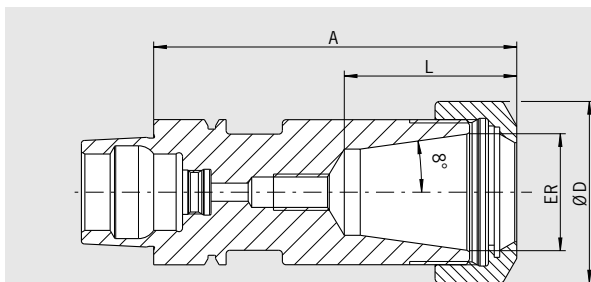
- 保护迷你型热缩刀柄, 避免过热
- 延长热缩刀柄的寿命
- 方便安全的操作
- 使用标准的冷却水套来冷却

### Mini Shrink shrink and cooling sleeve

- Protect Mini Shrink chucks from overheating
- Extend lifetime of shrink fit chucks
- Secure and user friendly handling
- Cooling with standard cooling body

针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks								订货号/Order No.
<b>超细型/Extra slim</b>								
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12
订货号/Order No.	80.105.14.2...	.01	.02	.03	.04	.05	.06	.07
<b>标准型/Standard</b>								
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12
订货号/Order No.	80.105.14.2...	.04	.08	.05	.09	.10	.11	.12
<b>底座/Base</b>								80.105.14.2.99
<b>带基座的套装安装冷却套(12 件)/Set with base (12 pcs., Ø 3-12 mm)</b>								80.105.14.2.00

# ER 筒夹刀柄 / COLLET CHUCK ER DIN 69893-5 · HSK-E32



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
使用ER筒夹来夹持圆柱柄的刀具

- 交货时包含: 高速锁紧螺母HS (精细动平衡, 防滑涂层提高夹持力)

**Use:**  
For clamping tools with cylindrical shank in ER collets.

- Included in delivery: locknut type HS (balanced, with slide coating for higher clamping forces)

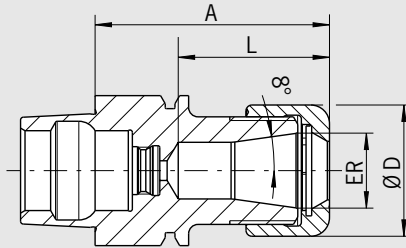
ER	16	25
Ø D [mm]	28	42
夹持范围/Clamping range [mm]	0,5-10,0	1,0-16,0
L [mm]	32,5	41
长度/Length A [mm] 短/short	80	80
订货号/Order No. E32.020...	.16	.25
长度/Length A [mm] 长/long	100	—
订货号/Order No. E32.021...	.16	—

附件/Accessories			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)			
尺寸/Size		ER 16	ER 25
订货号/Order No. 83.912...		.16.HS	.25.HS
锁紧扳手/Fork wrench			
尺寸/Size		ER 16	—
订货号/Order No. 84.200...		.16	—
锁紧扳手/Clamping wrench			
尺寸/Size		—	ER 25
订货号/Order No. 84.200...		—	.25
动平衡环/Balancing index rings			
尺寸/Size	超长/oversize	ER 16	ER 25
订货号/Order No. 79.350...		.22	.32
支撑螺钉/Adjusting screw			
尺寸/Size		ER 16	ER 25
订货号/Order No. 85.800...		.34	.34
冷却水管/Coolant Tube			
订货号/Order No. 85.700.32			
热缩延长杆/Shrink fit extensions			参见第732页/See page 732

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-5 · HSK-E32

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	
Ø D [mm]	28	42	
夹持范围/Clamping range [mm]	2,0–10,0	2,0–16,0	
L [mm]	32	39	
长度/Length A [mm]	超短/ultra short	50	60
订货号/Order No.	E32.025...	.16.3	.25.3

## 附件/Accessories

### 高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)

尺寸/Size

订货号/Order No. **83.914...**  ER 16 ER 25

订货号/Order No. **84.650...**



ER 16 ER 25

参见第751页/See page 751

订货号/Order No. **84.650...**

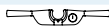


.16 .25

参见第750页/See page 750

### 扭力扳手/Torque Master torque wrench

订货号/Order No. **84.600.00**



参见第750页/See page 750

### ER筒夹/Collets ER



参见第742页/See page 742

### 热缩筒夹/Shrink Fit Collets



参见第737页/See page 737

### 强力筒夹/Power Collets



参见第748页/See page 748

### 带安全锁的强力筒夹/Power Collets with Safe-Lock



参见第749页/See page 749

### 强力筒夹用冷却喷孔/Cool Jet bores for Power Collets

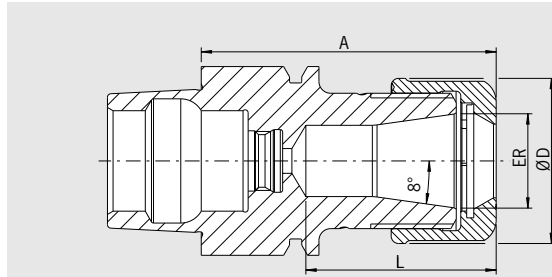


参见第749页/See page 749

订货号/Order No. **91.100.27**



# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-5 · HSK-E32




质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)






- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25
Ø D [mm]	28	42
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0
L [mm]	32	39
长度/Length A [mm]	超短/ultra short	
订货号/Order No.	E32.025...	
		
	50	60
	.16.3.HP	.25.3.HP

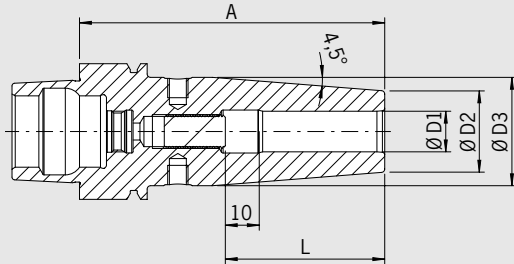
附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-5 · HSK-E40

### CERTIFICATE OF QUALITY

- ✓ 刀柄精动平衡  
✓ Chuck body fine balanced  
U<1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN



### 用途:

适用于所有热缩机

### Use:

Suitable for all shrinking units.

### DIN 69893-5

- 含用于调整动平衡的螺钉孔
- 交货时含有支撑螺钉, 无冷却管
- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

### DIN 69893-5

- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (see pages 466/467)

### 标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16
Ø D2 [mm]		10	10	10	21	21	24	24	27	27
Ø D3 [mm]		—	—	—	27	27	32	32	34	34
Ø D2 [mm] E40.145...		—	—	—	22,5	22,5	26,5	26,5	30	30
Ø D3 [mm] E40.145...		—	—	—	28,7	28,7	32	32	33	33
L [mm]		09	12	15	36	36	42	47	47	50
长度/Length A [mm]	超短/ultra short				60 <sup>2)</sup>	60 <sup>2)</sup>	60 <sup>3)</sup>	60 <sup>3)</sup>	60 <sup>3)</sup>	60 <sup>3)</sup>
订货号/Order No.	E40.145...				.06	.08	.10	.12	.14	.16
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	80	80	80	90	90	90
订货号/Order No.	E40.140...	.03	.04	.05	.06	.08	.10	.12	.14	.16

### 附件/Accessories

平衡螺钉/Balance screws  参见第767页/See page 767

支撑螺钉/Back-up screws  参见第768页/See page 768

冷却喷孔/Cool Jet bores  参见第468页/See page 468

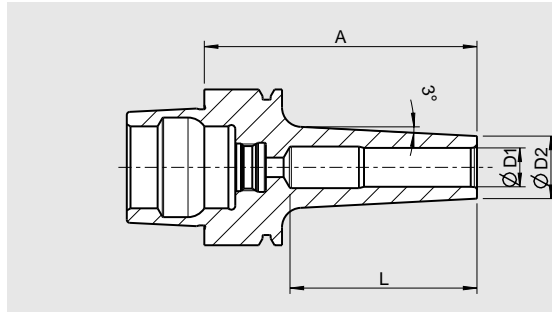
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash  
从不带冷却喷孔的热缩刀柄升级为环绕冷却/  
Cool Flash incl. Cool Jet  订货号/Order No. 91.100.40  
订货号/Order No. 91.100.41 参见第466页/See page 466  
参见第466页/See page 466

1) 无支撑螺钉, 无平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 无支撑螺钉, 无平衡螺钉孔/Without back-up screw, without threads for balancing screws

3) 无支撑螺钉, 无平衡螺钉孔, 无用于安装冷却水管的螺纹孔  
Without back-up screw, without threads for balancing screws and without thread for coolant tube

# 迷你型热缩刀柄/MINI SHRINK DIN 69893-5 · HSK-E40



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck fine balanced
	U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

- 非常纤细的设计
- 减少干涉
- 跳动精度: 3 μm
- 可以进入原本难以进入的位置加工
- 优化了刚性
- 耐热钢材质
- 硬度54-2 HRC
- 最好配合使用翰默 HAIMER 的热缩机
- 适用于柄径公差为h6的所有硬质合金刀具
- 3°的斜角适用于模具行业
- **标准型**: 较大的夹持力
- **超细型**: 特别纤细的外形适用于精加工和难以进入的位置
- 刀柄精细动平衡
- 发货时不含冷却管

- Extreme slim design
- No disturbing edges
- Highest runout accuracy: 3 μm
- Also jobs difficult to access can be reached
- Optimum rigidity
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- Ideal to shrink with the HAIMER Power Clamp
- For all solid carbide tools with shank tolerance h6
- With 3° angle for die and mold
- **Standard version**: with high clamping force
- **Extra slim version**: extremely slim for fine machining and for jobs very difficult to reach
- Tool holders fine balanced
- Delivery without coolant tube

**注意:** 在大多数热缩机上加热和冷却迷你型热缩刀柄时, 您需要使用安装冷却套(参考刀柄附件)。如果您使用工业4.0系列的全能型、气冷型和纳米型热缩机加热和冷却迷你型热缩刀柄, 则无需使用安装冷却套。另外, 这些热缩机都可以配置自动线圈和扫码枪。

**Attention:** Heating and cooling sleeves are needed when shrinking on most shrink fit machines (see accessories). However, when using the Power Clamp i4.0 Sprint/Air or Nano machines with the motorised coil and scanner, sleeves are not necessary.

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12
	Ø D2 标准型/Standard [mm]		09	10	11	12	14	16	18
	Ø D2 超细/extra slim [mm]		06	07	08	09	11	13	15
长度/Length A [mm]	超短/ultra short		60	60	60	60	60	60	60
长度/Length L [mm]			—	—	—	41	41	42	41,5
订货号/Order No.	标准型/standard	<b>E40.185...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E40.175...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
长度/Length A [mm]	短/short		70	70	70	70	70	70	70
长度/Length L [mm]			—	—	—	51	51	48	48
订货号/Order No.	标准型/standard	<b>E40.180...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E40.170...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
长度/Length A [mm]	ZG80		80	80	80	80	80	80	80
长度/Length L [mm]			—	—	—	61	61	48	48
订货号/Order No.	标准型/standard	<b>E40.183...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E40.173...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>



- 针对迷你型热缩刀柄的安装冷却套**
- 保护迷你型热缩刀柄, 避免过热
  - 延长热缩刀柄的寿命
  - 方便安全的操作
  - 使用标准的冷却水套来冷却

- Mini Shrink shrink and cooling sleeve**
- Protect Mini Shrink chucks from overheating
  - Extend lifetime of shrink fit chucks
  - Secure and user friendly handling
  - Cooling with standard cooling body

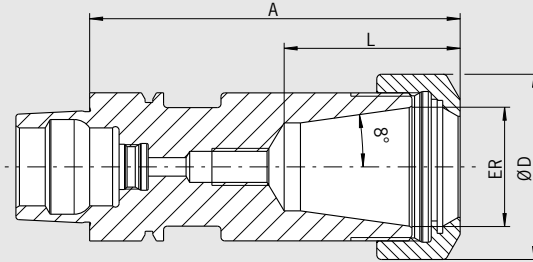
针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks									订货号/Order No.
<b>超细型/Extra slim</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	
订货号/Order No.	<b>80.105.14.2...</b>	<b>.01</b>	<b>.02</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.07</b>	
<b>标准型/Standard</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	Ø 16
订货号/Order No.	<b>80.105.14.2...</b>	<b>.04</b>	<b>.08</b>	<b>.05</b>	<b>.09</b>	<b>.10</b>	<b>.11</b>	<b>.12</b>	<b>.16</b>
<b>底座/Base</b>									<b>80.105.14.2.99</b>
<b>带基座的套装安装冷却套(12件)/Set with base (12 pcs., Ø 3-12 mm)</b>									<b>80.105.14.2.00</b>

# ER 筒夹刀柄/COLLET CHUCK ER

## DIN 69893-5 · HSK-E40

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

使用ER筒夹来夹持圆柱柄的刀具

- 发货时包含: 高速锁紧螺母HS (精细动平衡, 防滑涂层提高夹持力)

### Use:

For clamping tools with cylindrical shank in ER collets.

- Included in delivery: locknut type HS (balanced, with slide coating for higher clamping forces)

ER	11	16	25	32
Ø D [mm]	19	28	42	50
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,0-16,0	1,5-20,0
L [mm]	26,5	32,5	41	47
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>
订货号/Order No.	E40.025...	.11	.16	.25
长度/Length A [mm]	短/short	—	80	80
订货号/Order No.	E40.020...	—	.16	.25

### 附件/Accessories

ER筒夹/Collets ER  参见第742页/See page 742

热缩筒夹/Shrink Fit Collets  参见第736页/See page 736

### 锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size ER11 ER 16 ER 25 ER 32  
订货号/Order No. 83.912... .11 .16 .25 .32

### 高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)

尺寸/Size — ER 16 ER 25 ER 32  
订货号/Order No. 83.912... .16.HS .25.HS .32.HS

### 锁紧扳手/Fork wrench

尺寸/Size ER 11 ER 16 — —  
订货号/Order No. 84.200... .11 .16

### 锁紧扳手/Clamping wrench

尺寸/Size — — ER 25 ER 32  
订货号/Order No. 84.200... .25 .32

### 动平衡环/Balancing index rings


尺寸/Size 超长/oversize ER 11 ER 16 ER 25 ER 32  
订货号/Order No. 79.350... .19 .28 .32 .40

### 支撑螺钉/Adjusting screw

尺寸/Size — ER 16 ER 25 ER 32  
订货号/Order No. 85.800... .34 .34 .35

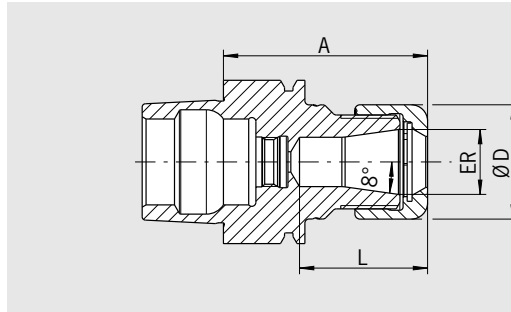
### 冷却水管/Coolant Tube

订货号/Order No. 85.700.40

热缩延长杆/Shrink fit extensions  参见第732页/See page 732

1) 无用于支持螺钉的螺纹孔/Without thread for back-up screw  
2) 锁紧螺母(已做动平衡)/Locknut (pre-balanced)

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-5 · HSK-E40



### 质量证书



- 刀柄精细动平衡  
 Chuck body fine balanced  
U<1 gmm
- 所有功能面精细加工  
 All functional surfaces fine machined
- 精度高于DIN标准  
 More accurate than DIN

强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748



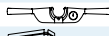





The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32	
Ø D [mm]	28	42	50	
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0	
L [mm]	31	38,5	47	
长度/Length A [mm] 订货号/Order No.	超短/ultra short E40.025... 	50 .16.3	60 .25.3	70 .32.3
L [mm]	43	51	53	
长度/Length A [mm] 订货号/Order No.	短/short E40.020... 	80 .16.3	80 .25.3	80 .32.3

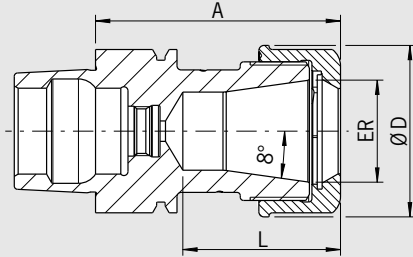
### 附件/Accessories

#### 高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)

尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. <b>83.914...</b>	 .16	.25	.32
锁紧扳手/Clamping wrench	ER 16	ER 25	参见第751页/See page 751
订货号/Order No. <b>84.650...</b>	 .16	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No. <b>84.600.00</b>			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. <b>91.100.27</b>			

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-5 · HSK-E40

CERTIFICATE OF QUALITY	
✓ 刀柄精细动平衡	Chuck body fine balanced
U < 1 gmm	
✓ 所有功能面精细加工	All functional surfaces fine machined
✓ 精度高于DIN标准	More accurate than DIN





翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)






- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

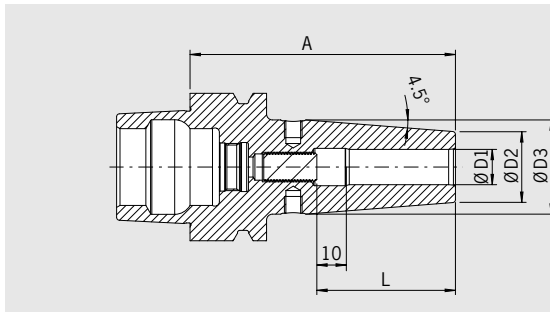
- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	31	38,5	47
长度/Length A [mm]	超短/ultra short	50	60
订货号/Order No.	E40.025... 	.16.3.HP	.25.3.HP
L [mm]	43	51	53
长度/Length A [mm]	短/short	80	80
订货号/Order No.	E40.020... 	.16.3.HP	.25.3.HP
			.32.3.HP

附件/Accessories

高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752
尺寸/Size	ER 16	ER 25
订货号/Order No. 83.914...	.16.1	.25.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1
ER筒夹/Collets ER		参见第742页/See page 742
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737
强力筒夹/Power Collets		参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749
订货号/Order No. 91.100.27		

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-5 · HSK-E50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡 Chuck body fine balanced
U < 1 gmm	
<input checked="" type="checkbox"/>	所有功能面精细加工 All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准 More accurate than DIN

**用途:**  
适用于所有热缩机

**Use:**  
Suitable for all shrinking units.

**DIN 69893-5**

- 含用于调整动平衡的螺钉孔
- 交货时含有支撑螺钉, 无冷却管
- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 冷却喷孔需要额外费用 (参见第468页)
- 环绕冷却需要额外费用 (参见第466/467页)

**DIN 69893-5**

- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw, without coolant tube
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- Cooling with Cool Jet for an extra charge (See page 468)
- Cooling with Cool Flash for an extra charge (see pages 466/467)

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	14	16
	Ø D2 [mm]	10	10	10	21	21	24	24	27	27
	Ø D3 [mm]	—	—	—	27	27	32	32	34	34
	L [mm]	09	12	15	36	36	42	47	47	50
长度/Length A [mm]	短/short	60 <sup>1)</sup>	60 <sup>1)</sup>	60 <sup>1)</sup>	80	80	85	90	90	95
订货号/Order No.	E50.140...	.03	.04	.05	.06	.08	.10	.12	.14	.16
长度/Length A [mm]	ZG130	—	—	—	130	130	130	130	130	130
订货号/Order No.	E50.144...	—	—	—	.06	.08	.10	.12	.14	.16

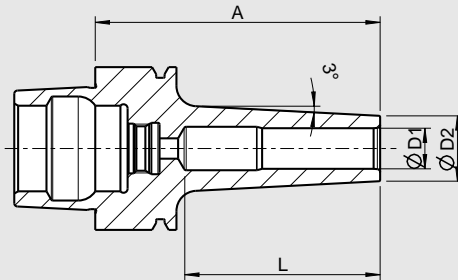
附件/Accessories		
平衡螺钉/Balance screws		参见第767页/See page 767
支撑螺钉/Back-up screws		参见第768页/See page 768
冷却喷孔/Cool Jet bores		参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash 从不带冷却喷孔的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet		订货号/Order No. <b>91.100.40</b> 订货号/Order No. <b>91.100.41</b> 参见第466页/See page 466 参见第466页/See page 466

1) 无支撑螺钉, 无平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

# 迷你型热缩刀柄/MINI SHRINK DIN 69893-5 · HSK-E50

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
U < 1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



## HSK-E50

夹持/Clamping	Ø D1 [mm]		03	04	05	06	08	10	12
	Ø D2 标准型/Standard [mm]		09	10	11	12	14	16	18
	Ø D2 超细/extra slim [mm]		06	07	08	09	11	13	15
长度/Length A [mm]	短/short		70	70	70	70	70	70	70
长度/Length L [mm]			—	—	—	—	—	48	48
订货号/Order No.	标准型/standard	<b>E50.180...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E50.170...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
长度/Length A [mm]	ZG80		80	80	80	80	80	80	80
长度/Length L [mm]			—	—	—	—	—	48	48
订货号/Order No.	标准型/standard	<b>E50.183...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E50.173...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
长度/Length A [mm]	ZG100		—	—	100	100	100	100	100
长度/Length L [mm]			—	—	—	—	—	48	48
订货号/Order No.	标准型/standard	<b>E50.181...</b>			<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>
订货号/Order No.	超细/extra slim	<b>E50.171...</b>			<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>

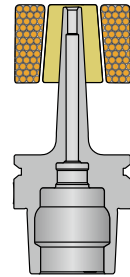
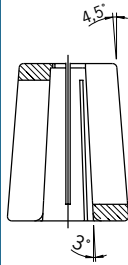
### 针对迷你型热缩刀柄的安装冷却套

- 保护迷你型热缩刀柄，避免过热
- 延长热缩刀柄的寿命
- 方便安全的操作
- 使用标准的冷却水套来冷却

### Mini Shrink shrink and cooling sleeve

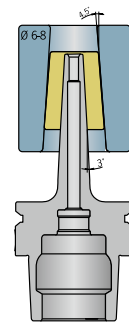
- Protect Mini Shrink chucks from overheating
- Extend lifetime of shrink fit chucks
- Secure and user friendly handling
- Cooling with standard cooling body

### 功能/Function



**加热**  
使用安全冷却套

**Heat up**  
With shrink and cooling sleeve



**冷却**  
使用安装冷却套和  
(Ø 6-8 mm)冷却水套

**Cool down**  
With shrink and cooling sleeve  
and cooling body Ø 6-8 mm



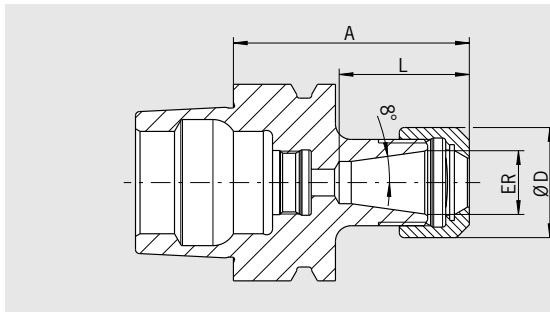
### 针对迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks

订货号/Order No.

<b>超细型/Extra slim</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	
订货号/Order No.	<b>80.105.14.2...</b>	<b>.01</b>	<b>.02</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.07</b>	
<b>标准型/Standard</b>									
尺寸/Size [mm]		Ø 03	Ø 04	Ø 05	Ø 06	Ø 08	Ø 10	Ø 12	Ø 16
订货号/Order No.	<b>80.105.14.2...</b>	<b>.04</b>	<b>.08</b>	<b>.05</b>	<b>.09</b>	<b>.10</b>	<b>.11</b>	<b>.12</b>	<b>.16</b>
<b>底座/Base</b>									<b>80.105.14.2.99</b>
<b>带底座的套装安装冷却套(12 件)/Set with base (12 pcs., Ø 3-12 mm)</b>									<b>80.105.14.2.00</b>



# ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-5 · HSK-E50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
使用ER筒夹来夹持圆柱柄的刀具

- 发货时包含: 高速锁紧螺母HS (精细动平衡, 防滑涂层提高夹持力)

**Use:**  
For clamping tools with cylindrical shank in ER collets.

- Included in delivery: locknut type HS (balanced, with slide coating for higher clamping forces)

ER		11	16	20	25	32
Ø D [mm]		19	28	34	42	50
夹持范围/Clamping range [mm]		0,5-7,0	0,5-10,0	1,5-13,0	1,0-16,0	1,5-20,0
L [mm]		26,5	32,5	44	41	47
长度/Length A [mm]	超短/ultra short	60 <sup>1)</sup>	60 <sup>1)</sup>	70 <sup>1)</sup>	70 <sup>1)</sup>	80 <sup>1)</sup>
订货号/Order No.	E50.025...	.11	.16	.20	.25	.32
长度/Length A [mm]	短/short	—	100 <sup>2)</sup>	—	100	100
订货号/Order No.	E50.020...	—	.16	—	.25	.32

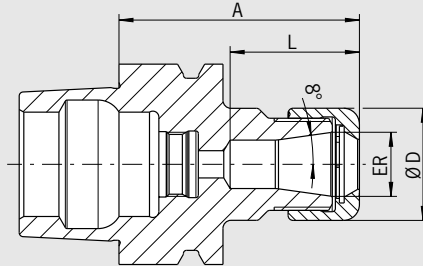
附件/Accessories							
ER筒夹/Collets ER		参见第742页/See page 742					
热缩筒夹/Shrink Fit Collets		参见第736页/See page 736					
高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)							
尺寸/Size		ER 11	ER 16	ER 20	ER 25	ER 32	
订货号/Order No.	83.912...	.11	.16.HS	.20.HS	.25.HS	.32.HS	
锁紧扳手/Fork wrench							
尺寸/Size		ER 11	ER 16	ER 20	—	—	
订货号/Order No.	84.200...	.11	.16	.20	—	—	
锁紧扳手/Clamping wrench							
尺寸/Size		—	—	—	ER 25	ER 32	
订货号/Order No.	84.200...	—	—	—	.25	.32	
动平衡环/Balancing index rings							
尺寸/Size	超长/oversize	ER 11	ER 16	ER 20	ER 25	ER 32	
订货号/Order No.	79.350...	.19	.22	.34	.32	.40	
支撑螺钉/Adjusting screw							
尺寸/Size		—	ER 16	—	ER 25	ER 32	
订货号/Order No.	85.800...	—	.34	—	.34	.35	
冷却水管/Coolant Tube							
订货号/Order No.	85.700.50						
热缩延长杆/Shrink fit extensions		参见第732页/See page 732					

1) 无用于支持螺钉的螺纹孔/Without thread for back-up screw  
2) 合适的动平衡环的订货号/Suitable balancing index rings Order No. 79.350.28

# 强力筒夹刀柄/POWER COLLET CHUCK DIN 69893-5 · HSK-E50

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

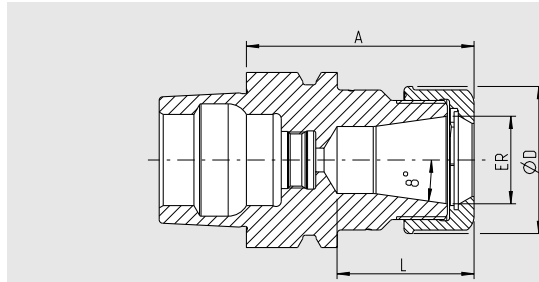
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32	
Ø D [mm]	28	42	50	
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0	
L [mm]	32	39	48	
长度/Length A [mm]	超短/ultra short	60	65	75
订货号/Order No.	E50.025...	.16.3	.25.3	.32.3

## 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)				
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16	.25	.32
锁紧扳手/Clamping wrench		ER 16	ER 25	参见第751页/See page 751
订货号/Order No.	84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench				参见第750页/See page 750
订货号/Order No.	84.600.00			
ER筒夹/Collets ER				参见第742页/See page 742
热缩筒夹/Shrink Fit Collets				参见第737页/See page 737
强力筒夹/Power Collets				参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock				参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets				参见第749页/See page 749
订货号/Order No.	91.100.27			

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK DIN 69893-5 · HSK-E50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	U<1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。(例如：医疗和仪表行业)

- 带特殊涂层的圆形锁紧螺母，精细动平衡至< 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools. The chuck is especially suitable for micro and fine machining (e.g. in the medical or watchmaking industry).

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3 x D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	32	39	48
长度/Length A [mm]	超短/ultra short		
订货号/Order No.	E50.025...		
	60	65	75
	.16.3.HP	.25.3.HP	.32.3.HP

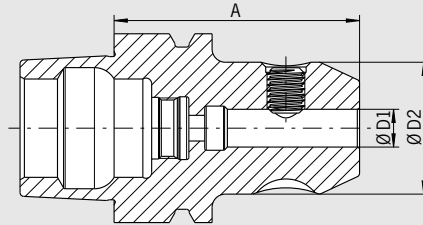
附件/Accessories				
高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)		参见第752页/See page 752		
尺寸/Size		ER 16	ER 25	ER 32
订货号/Order No.	83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/ Roller bearing wrench		参见第752页/See page 752		
订货号/Order No.	84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER		参见第742页/See page 742		
热缩筒夹/Shrink Fit Collets		参见第737页/See page 737		
强力筒夹/Power Collets		参见第748页/See page 748		
带安全锁的强力筒夹/Power Collets with Safe-Lock		参见第749页/See page 749		
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets		参见第749页/See page 749		
订货号/Order No.	91.100.27			

# 侧固刀柄/WELDON TOOL HOLDER

## DIN 69893-5 · HSK-E50

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

用于夹持具有符合DIN 1835-B和DIN 6535-HB的紧固平面的圆柱直柄刀具。

### DIN 69882-4

- 发货时含: 夹持螺钉, 不含冷却管
- 冷却喷孔需要额外费用

### Use:

For clamping cutters with cylindrical shank and Weldon flat according to DIN 1835-B and DIN 6535-HB.

### DIN 69882-4

- Delivery: with clamping screw, without coolant tube
- Cooling with Cool Jet for an extra charge

夹持/Clamping	Ø D1 [mm]	06	08	10	12	16	20
	Ø D2 [mm]	25	28	35	42	48	52
长度/Length A [mm]	短/short	65	65	65	80	80	80
订货号/Order No.	E50.000...	.06	.08	.10	.12	.16	.20



### 附件/Accessories

#### 夹持螺钉/Clamping screw

夹持范围 Ø/Clamping Ø

订货号/Order No. 85.100...



06	08	10	12	16	20
.06	.08	.10	.12	.14	.16

#### 动平衡环/Balancing index rings

夹持范围 Ø/Clamping Ø 长/超长/long/oversize

订货号/Order No. 79.350...



06	08	10	12	16	20
.25	.28	.35	.42	.48	.52

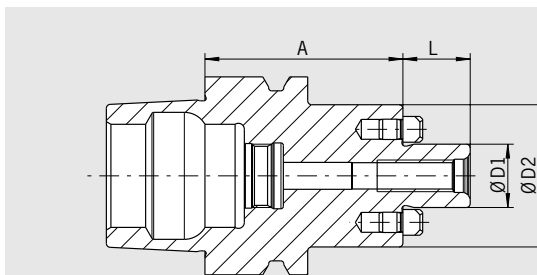
#### 冷却喷孔/Cool Jet bores

订货号/Order No. 91.100.24



参见第468页/See page 468

# 面铣刀的刀柄/FACE MILL ARBOR DIN 69893-5 · HSK-E50



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

**Use:**  
For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

### DIN 69882-3

- 交货时含: 拉紧螺钉, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### DIN 69882-3

- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27	32
	Ø D2 [mm]	36	48	60	78
	L [mm]	17	19	21	24
长度/Length A [mm]	短/short	50	60	60	60
订货号/Order No.	E50.050...	.16.KKB	.22.KKB	.27.KKB	.32.KKB
长度/Length A [mm]	长/long	100	100	100	100
订货号/Order No.	E50.051...	.16.KKB	.22.KKB	.27.KKB	.32.KKB
长度/Length A [mm]	超长/oversize	—	160	—	—
订货号/Order No.	E50.052...	—	.22.KKB	—	—

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32
订货号/Order No.	85.300...	.16	.22	.27	.32

#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27	32
订货号/Order No.	84.400...	.16	.22	.27	.32

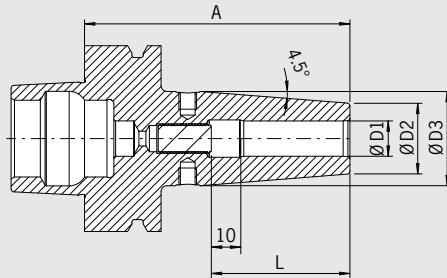
#### 动平衡环/Balancing index rings

尺寸/Size D1		16	22	27	32
订货号/Order No.	79.350...	.36	.48	.60	.78

# 热缩刀柄/SHRINK FIT CHUCK DIN 69893-6 · HSK-F63

## CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck fine balanced  
G2.5 25.000 rpm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



### 用途:

适用于所有热缩机

- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 含用于调整动平衡的螺钉孔
- 发货包含: 支撑螺钉

### Use:

Suitable for all shrinking units.

- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- With threaded holes in order to balance with balancing screws
- Included in delivery: Shrink fit chuck with back-up screw

标准型, 和 DIN 69882-8 相似/Standard version, similar to DIN 69882-8

夹持/Clamping	Ø D1 [mm]	03	04	05	06	08	10	12	16	20	25
	Ø D2 [mm]	10	10	10	21	21	24	24	27	33	44
	Ø D3 [mm]	—	—	—	27	27	32	32	34	42	53
	L [mm]	09	12	15	36	36	42	47	50	52	58
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	85	90	95	100	115
订货号/Order No.	<b>F63.140...</b>	<b>.03</b>	<b>.04</b>	<b>.05</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.16</b>	<b>.20</b>	<b>.25</b>
长度/Length A [mm]	短/short	—	80 <sup>2)</sup>	—	—	—	—	—	—	—	—
订货号/Order No.	<b>F63.140...</b>	—	<b>.04.1</b>	—	—	—	—	—	—	—	—
长度/Length A [mm]	ZG120	120 <sup>2)</sup>	120 <sup>2)</sup>	120 <sup>2)</sup>	120	120	120	120	120	120	120
订货号/Order No.	<b>F63.147...</b>	<b>.03.1</b>	<b>.04.1</b>	<b>.05.1</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.16</b>	<b>.20</b>	<b>.25</b>
长度/Length A [mm]	ZG130	—	—	—	130	130	130	130	130	130	130
订货号/Order No.	<b>F63.144...</b>	—	—	—	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.16</b>	<b>.20</b>	<b>.25</b>

### 附件/Accessories

热缩延长杆/Shrink fit extensions



参见第732页/See page 732

平衡螺钉/Balance screws



参见第767页/See page 767

支撑螺钉/Back-up screws

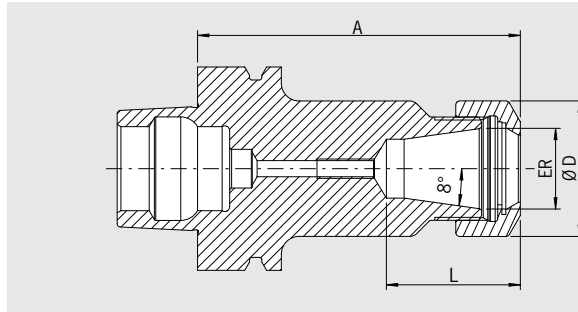


参见第768页/See page 768

1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上无细缝, 不适用于高速钢刀具/  
Without back-up screw, without threads for balancing screws, without slits along the clamping bore for cooling from outside, not suitable for HSS tools

# ER 筒夹刀柄/COLLET CHUCK ER DIN 69893-6 · HSK-F63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

**Use:**  
For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

**DIN 69882-6**

- 发货中包含: 锁紧螺母(已做动平衡, 防滑涂层提高夹持力)
- 高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 可按照要求加大尺寸L(需要额外费用)


**DIN 69882-6**

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- Enlarging of size L upon request

ER	11	16	20	25	32	40	
Ø D [mm]	19	28	34	42	50	63	
夹持范围/Clamping range [mm]	0,5-7,0	0,5-10,0	1,5-13,0	1,0-16,0	1,5-20,0	2,5-26,0	
L [mm]	49	49	49	48	49	53	
长度/Length A [mm]	超短/ultra short	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	75 <sup>1)</sup>	
订货号/Order No.	F63.025...	.11	.16	.20	.25	.32	.40
L [mm]		23,5	32,5	38,5	41	47	53
长度/Length A [mm]	短/short	100 <sup>1)</sup>	100	100	100	100	120
订货号/Order No.	F63.020...	.11	.16	.20	.25	.32	.40

附件/Accessories

ER筒夹/Collets ER  参见第742页/See page 742

热缩筒夹/Shrink Fit Collets  参见第736页/See page 736

锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size		ER 11	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	83.912...	.11	.16	.20	.25	.32	.40

高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)

尺寸/Size		—	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	83.912...		.16.HS	.20.HS	.25.HS	.32.HS	.40.HS

动平衡环/Balancing index rings

尺寸/Size	短/超长/short/oversize	ER 11	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	79.350...	.19	.28	.34	.42	.48	.50

支撑螺钉/Adjusting screw

尺寸/Size		—	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.	85.800...		.34	.34	.34	.35	.35

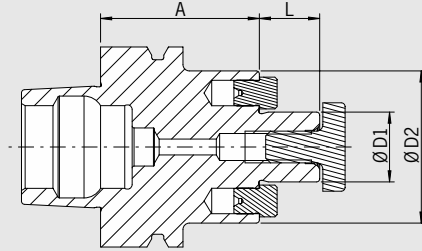
1) 无用于支持螺钉的螺纹孔/Without thread for back-up screw

# 面铣刀的刀柄/FACE MILL ARBOR

## DIN 69893-6 · HSK-F63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

用于夹持符合 DIN 1880 的面铣刀和带有径向驱动槽的刀具, 也可夹持符合 DIN 2079 直径超过40 mm的刀盘 (4个附加的螺孔)

### DIN 69882

- 交货时含: 拉紧螺钉, 不含冷却管
- 端面冷却喷孔适用于中心出水刀盘

### Use:

For holding face mill cutters and cutters with radial driving slot DIN 1880 and exceeding clamping diameter 40 clamping according to DIN 2079 is possible, too (4 additional tapping holes).

### DIN 69882

- Included in delivery: tightening bolt, without coolant tube
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	22	27
	Ø D2 [mm]	48	60
	L [mm]	19	21
长度/Length A [mm]	短/short	50	60
订货号/Order No.	F63.050...	.22.KKB	.27.KKB



### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		22	27
订货号/Order No.	85.300...	.22	.27



#### 锁紧扳手/Wrench

尺寸/Size D1		22	27
订货号/Order No.	84.400...	.22	.27



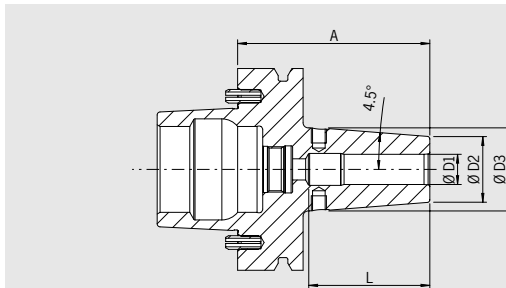
#### 动平衡环/Balancing index rings

尺寸/Size D1		22	27
订货号/Order No.	79.350...	.48	.60





# 热缩刀柄/SHRINK FIT CHUCK HSK-F80M



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 33,000 rpm 或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	含用于调整动平衡的螺钉孔
<input checked="" type="checkbox"/>	Balanceable via screws M6
<input checked="" type="checkbox"/>	带用于安装冷却水管的螺纹孔
<input checked="" type="checkbox"/>	With thread for coolant tube

翰默Makino HSK-F80M热缩刀柄是针对高速和高性能加工而设计的,它具有更好的刚性和防振功能,能够更好地保护机床、主轴和刀具。

- 精细动平衡至G2.5 33.000 rpm或U < 1gmm
- 可以用动平衡螺钉调整平衡的精度
- 根据机床商的要求缩短了悬伸长度
- 抗振性好,夹持力大
- 同样适用于高速和动态切削
- 提升主轴速度、更高的进给量和更大的切削深度,大大增加了机床的切削能力
- 缩短加工时间,提高加工精度
- 静音运行,提高工件表面光洁度,延长刀具和机床主轴的寿命
- 耐热钢材质
- 硬度54-2 HRC
- 用于高速钢和硬质合金刀具
- 要求刀具柄部精度为h6
- 带用于安装冷却水管的螺纹孔

The HAIMER Makino Shrink fit Chucks provide the highest machining capacity in high-speed manufacturing. The optimised design combines high rigidity with vibration dampening, therefore giving more protection to machines, spindles and cutting tools.

- All pre-balanced to G2.5@ 33.000 rpm or U < 1gmm
- All standard balanceable via set screws
- Short gage length per machine builders recommendation
- Dampen vibrations, high clamping force
- Equally suited to High Speed and dynamic machining
- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, therefore better surface quality and protection of cutting tools, machine spindles and machines
- Heat resistant hot-working steel
- Hardened 54-2 HRC
- For HSS and solid carbide tools
- Shank tolerance h6
- With thread for coolant tube

夹持/Clamping	Ø D1 [mm]	6	8	10	12	14	16	20	25
	Ø D2 [mm]	21	21	26	26	29	29	35,5	46,5
	Ø D3 [mm]	27	27	32	33	36	36	41	52
	L [mm]	36	36	43	48	48	51	50,5	49
长度/Length A [mm]	超短/ultra short	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2
订货号/Order No.	F80M.145...	.06 <sup>1)</sup>	.08 <sup>1)</sup>	.10	.12	.14	.16	.20	.25

### 超超短型/uk-uk/Ultrashort uk-uk Version

夹持/Clamping	Ø D1 [mm]	6	8	10	12	16	20	25
	Ø D2 [mm]	22	22	26,5	26,5	29,5	35,5	46
	Ø D3 [mm]	—	—	—	—	—	—	—
	L [mm]	38	38	43	36	44,5	43,5	47
长度/Length A [mm]	超超短型/uk-uk	70	70	70	70	70	70	70
订货号/Order No.	F80M.145...	06.5	08.5	10.5	12.5	16.5	20.5	25.5
合适的冷却转换套/Suitable Cooling adapter	80.105...	—	—	—	—	—	.16.0045	.18.0011

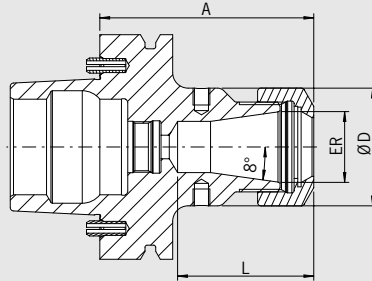
### 附件/Accessories

热缩延长杆/Shrink fit extensions		参见第732页/See page 732
拉钉/Pull studs		参见第757页/See page 757
减径套/Reduction sleeves		参见第763页/See page 763
支撑螺钉/Back-up screws		参见第768页/See page 768
动平衡螺钉套装/Set of balancing screws		订货号/Order No. 80.203.00
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash 从不带冷却喷孔的热缩刀柄升级为环绕冷却/ Cool Flash incl. Cool Jet		订货号/Order No. 91.100.40 订货号/Order No. 91.100.41 参见第466页/See page 466 参见第466页/See page 466

# ER 筒夹刀柄/COLLET CHUCK ER HSK-F80M

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 33.000 rpm  
或/or U < 1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 含用于调整动平衡的螺钉孔
- ☑ Balanceable via screws M6
- ☑ 带用于安装冷却水管的螺纹孔
- ☑ With thread for coolant tube



翰默Makino HSK-F80M ER筒夹刀柄为高速加工提供了一个通用的夹持方案, 优化的设计确保它成为一个高精度的通用刀具夹持系统。

- 精细动平衡至G2.5 33.000 rpm或U < 1gmm
- 可以用动平衡螺钉调整平衡的精度
- 根据机床商的要求缩短了悬伸长度
- 锁紧螺母经精细的动平衡, 防滑涂层提高夹持力
- 特别适用于钻头
- 很大的夹持力
- 提高加工的精度

#### 用途:

搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹适用于夹持圆柱形直柄刀具

- 发货包含: 锁紧螺母(动平衡的, 防滑涂层提高夹持力)
- 高速锁紧螺母(高速, 精细的动平衡, 防滑涂层提高夹持力) 需要额外费用
- 含用于调整动平衡的螺钉孔

The HAIMER HSK-F80 Makino ER collet chucks provide a universal clamping solution for high-speed manufacturing. The optimised design combines a highly accurate universal clamping system for cutting tools.

- All pre-balanced to G2.5@ 33.000 rpm or U < 1gmm
- All standard balanceable via set screws
- Short gage length per machine builders recommendation
- Balanced nuts with special slide coating for low friction and high clamping forces
- Great for drilling
- Good clamping force
- Higher machining accuracy

#### Use:

For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499).

- Included in delivery: locknut (balanced, with slide coating for higher clamping forces)
- Locknut type HS (High-Speed, fine balanced, with slide coating for higher clamping forces) for an extra charge
- With threaded holes in order to balance with balancing screws

ER	11	16	20	25	32	40
夹持范围/Clamping range [mm]	0,5-7	0,5-10	1,5-13	1-16	1,5-20	2,5-26
Ø D [mm]	27	28	40	42	50	60
L [mm]	27	33	38.5	48	47	53
长度/Length A [mm]	超短/ultra short	76,2	76,2	76,2	76,2	76,2
订货号/Order No.	F80M.025...	.11	.16	.20	.25	.32




#### 附件/Accessories


ER筒夹/Collets ER  参见第742页/See page 742


热缩筒夹/Shrink Fit Collets  参见第736页/See page 736

#### 锁紧螺母(已做动平衡)/Locknut (pre-balanced)

尺寸/Size ER11 ER16 ER20 ER25 ER32 ER40  
 订货号/Order No. 83.912...  .11 .16 .20 .25 .32 .40

#### 高速锁紧螺母(精细动平衡)/Chuck nut HS (fine-balanced)

尺寸/Size ER11 ER16 ER20 ER25 ER32 ER40  
 订货号/Order No. 83.912...  .11.HS .16.HS .20.HS .25.HS .32.HS .40.HS

动平衡螺钉套装/Set of balancing screws   
 订货号/Order No. 80.203.00

HAIMER.

刀柄  
Tool Holders



# 翰默强力系列 HAIMER Power Serie

助您在铣削应用中获得更高的精度和  
生产效率

For highest precision and maximum  
productivity in milling applications



# ISO 26623-1

## PSC 63

章节/Article	页数/Page
<b>ISO 26623 PSC 63</b>	<b>452</b>
热缩刀柄 Shrink Fit Chuck	454
强力热缩刀柄 Power Shrink Chuck	455
ER 筒夹刀柄 Collet Chuck ER	456
强力筒夹刀柄 Power Collet Chuck	457
高精度筒夹刀柄 High Precision Collet Chuck	458
侧固刀柄 Weldon Holder	459
面铣刀的刀柄 Face Mill Arbor	460

## 翰默多边形刀柄接口/POLYGON SHANK COUPLING PSC 63 ISO 26623

和传统的锥柄刀柄相比, PSC 63 有以下优点:

- 刀柄在主轴上的安装有良好的重复精度
- 法兰面承靠定位解决轴向定位
- 适合高速切削
- 不需要拉钉
- 桃型多面体与法兰面双面贴合
- 良好的跳动精度、扭矩和刚性
- 高精度的创新模块化工具系统
- 适用于车铣复合中心
- 含直径 $\varnothing 10\text{mm}$ 的数据芯片孔

### 材料:

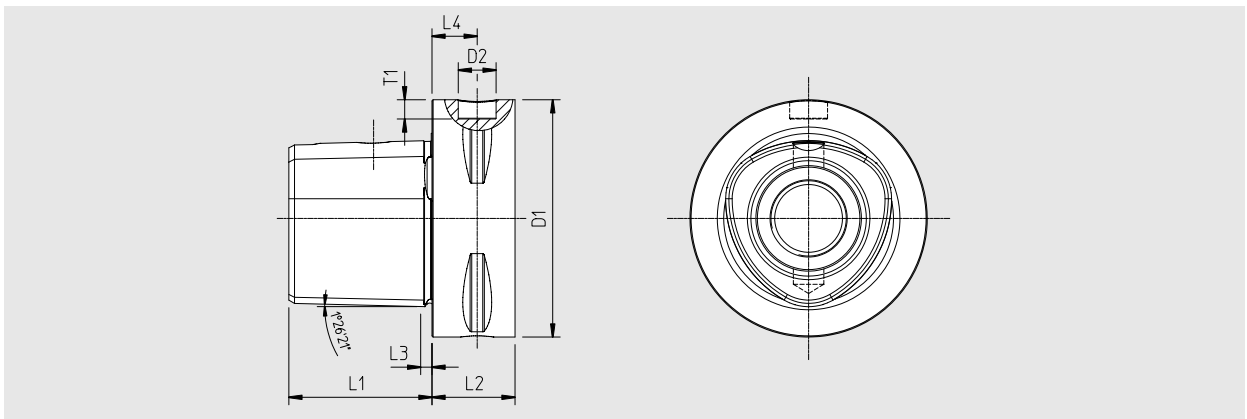
- 特殊的表面淬火处理
- 表面硬度 60-2 HRC
- 芯部的抗拉强度不小于:  $950\text{N/mm}^2$

Compared to the steep taper the PSC has the following advantages:

- High repetition accuracy when clamping tools into spindle
- Fixed axial positioning with flat contact surface
- Suitable for high speed cutting
- No pull stud necessary
- Interface with a unique tapered polygon and flange face contact
- Exact positioning in the circumferential direction
- Highest runout accuracy, torque and rigidity
- Innovative modular tool system with highest precision
- Suitable for both turning and milling centres
- Incl. bore for data chip  $\varnothing 10\text{mm}$

### Material:

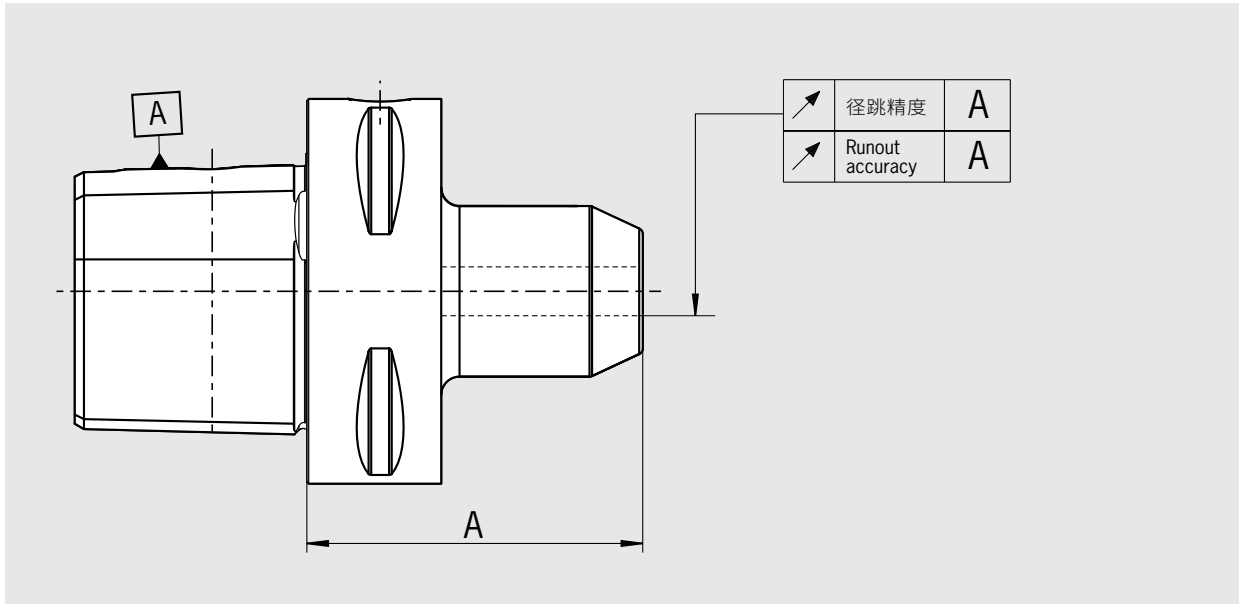
- Special case-hardening steel for highly stressed parts
- Surface hardness: 60-2 HRC
- Tensile strength in core min.  $950\text{N/mm}^2$



长度/Length [mm]	D1	D2	L1	L2	L3	L4	T1
PSC 63	63	10	38	22	3	12	5

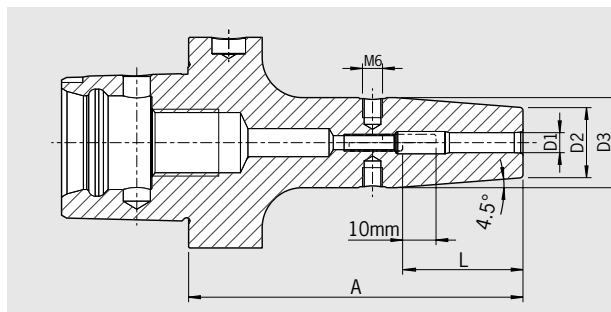
# 径跳精度 / RUNOUT ACCURACY

## ISO 26623



标准长度/Gage length	A < 160	A ≥ 160
径向跳动的公差, 单位为mm/max. runout tolerance in mm		
热缩刀柄/Shrink fit chuck	0,003	0,004
ER 弹簧筒夹刀柄/Collet chuck ER	0,003	0,004
强力筒夹刀柄/Power Collet Chuck	0,003	0,004
高精度筒夹刀柄/High Precision Collet Chuck	0,003	0,003
侧固刀柄/Weldon tool holder	0,003	0,004
面铣刀的刀柄/Face mill arbor	0,006	0,006

# 热缩刀柄/SHRINK FIT CHUCK ISO 26623-1 · PSC 63



质量证书	
☑ 刀柄精细动平衡	☑ Chuck body fine balanced
	G2.5 25,000 rpm 或/or U < 1 gmm
☑ 所有功能面精细加工	☑ All functional surfaces fine machined
☑ 精度高于DIN标准	☑ More accurate than DIN

**用途:**

- 适合所有热缩机, 可夹持柄径为  $\varnothing 3 - \varnothing 32$  的刀具
- 桃型多面体与法兰双面贴合
  - 圆周方向准确定位, 同心度更佳
  - 良好的跳动精度、扭力和刚性
  - 高精度的创新模块化工具系统
  - 适合于车铣复合中心
  - 含用于调整动平衡的螺钉孔
  - 前端冷却喷孔或者环绕冷却需要额外费用

**ISO 26623**

- 发货包含: 支撑螺钉

**Use:**

- Shrink Fit chuck suitable to all kind of shrink fit units.  
Available from  $\varnothing 3$  to  $\varnothing 32$ .
- Interface with a unique tapered polygon and flange location face
  - Exact positioning in the circumferential direction
  - Highest runout accuracy, torque and rigidity
  - Innovative modular tool system with highest precision
  - Suitable for both turning and milling centres
  - With threaded holes in order to balance with balancing screws
  - Cooling with Cool Jet or Cool Flash (for an extra charge)

**ISO 26623**

- Delivery: With back-up screw

夹持/Clamping	$\varnothing D1$ [mm]	03	04	05	06	08	10	12	14	16	18	20	25	32
$\varnothing D2$ [mm]		10	10	10	21	21	24	24	27	27	33	33	44	44
$\varnothing D3$ [mm]		—	—	—	27	27	32	32	34	34	42	42	53	53
L [mm]		09	12	15	36	36	42	47	47	50	50	52	58	58
长度/Length A [mm]	短/short	80 <sup>1)</sup>	80 <sup>1)</sup>	80 <sup>1)</sup>	80	80	80	80	85	85	85	85	90	95
订货号/Order No.	CC6.140...	.03	.04	.05	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	长/long	—	—	—	100	100	100	100	100	100	100	100	—	—
订货号/Order No.	CC6.141...				.06	.08	.10	.12	.14	.16	.18	.20		
长度/Length A [mm]	ZG120	120 <sup>1)</sup>	120 <sup>1)</sup>	120 <sup>1)</sup>	120	120	120	120	120	120	—	120	120	—
订货号/Order No.	CC6.147...	.03	.04	.05	.06	.08	.10	.12	.14	.16		.20	.25	
长度/Length A [mm]	ZG130	130 <sup>1)</sup>	130 <sup>1)</sup>	130 <sup>1)</sup>	130	130	130	130	130	130	130	130	130	130
订货号/Order No.	CC6.144...	.03	.04	.05	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
长度/Length A [mm]	超长/oversize	—	—	—	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>	160 <sup>2)</sup>
订货号/Order No.	CC6.142...				.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

附件/Accessories			
热缩延长杆/Shrink fit extensions			参见第732页/See page 732
平衡螺钉/Balance screws			参见第767页/See page 767
减径套/Reduction sleeves			参见第763页/See page 763
支撑螺钉/Back-up screws			参见第768页/See page 768
冷却喷孔/Cool Jet bores		订货号/Order No. 91.100.24	参见第468页/See page 468
从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash		订货号/Order No. 91.100.40	参见第466页/See page 466
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet		订货号/Order No. 91.100.41	参见第466页/See page 466

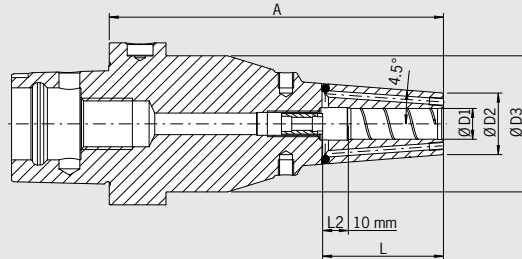
1) 无支撑螺钉, 无动平衡螺钉孔, 刀柄的夹持孔的内壁上有细缝, 内冷却液沿刀具的柄部喷出/  
Without back-up screw, without threads for balancing screws, with slits along the clamping bore for cooling from outside

2) 柄径D3向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D3 is changing towards flange (check dxf or stp file)

# 强力热缩刀柄/POWER SHRINK CHUCK ISO 26623-1 · PSC 63

### CERTIFICATE OF QUALITY

- ✓ 刀柄精细动平衡  
✓ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U < 1 gmm
- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN



强力热缩刀柄是用于高速加工，提供很大切削能力的刀柄。优化的设计减缓振动并保持高刚性，为机床、主轴和刀具提供更多的保护。

- 提升主轴速度、更高的进给量和更大的切削深度，大大增加了机床的切削能力
- 缩短加工时间，提高加工精度
- 静音运行，提高工件表面光洁度，延长刀具和机床主轴的寿命
- 含用于调整动平衡的螺钉孔
- 发货包含：支撑螺钉
- 含冷却喷孔，可密封
- 环绕冷却需要额外费用（参见第466/467页）

加长型(A=130)结构紧凑，使用灵活

- 高刚性，顶端纤细，减缓振动
- 高夹持力
- 可用于高速加工和动态切削
- 使用普遍，所占刀库空间小

The Power Shrink Chuck is the shrink fit chuck for highest cutting performance in high-speed manufacturing. The optimised design combines high rigidity with dampening vibrations, therefore giving more protection to machines, spindles and tools.

- Increased machining capacity due to higher spindle speed, higher feed and larger cutting depth
- Shorter cycle times, higher machining accuracy
- Quieter running, yielding better surface finish and increased tool, spindle and machine protection
- With threaded holes in order to balance with balancing screws
- With back-up screw
- Cool Jet bores that can be sealed included
- Cooling with Cool Flash for an extra charge (see pages 466/467)

The long versions (A=130) with slim tips are especially versatile to use.

- High rigidity, slim at the tip, dampen vibrations
- High clamping force
- Equally suited to High Speed and dynamic machining
- Universal usage, saves space in tool magazine

夹持/Clamping	Ø D1 [mm]	06	08	10	12	14	16	18	20	25	32
Ø D2 [mm] 超短/ultra short		22	22	26,5	26,5	29,5	29,5	35,5	35,5	45	45
Ø D3 [mm] 超短/ultra short		—	—	—	—	—	—	—	—	—	—
L [mm] 超短/ultra short		36	36	42	47	47	50	50	52	58	60
长度/Length A [mm]	超短/ultra short	65	65	65 <sup>1)</sup>	65	70	70	70	70	80	80
订货号/Order No.	CC6.145...	.06.3	.08.3	.10.3	.12.3	.14.3	.16.3	.18.3	.20.3	.25.3	.32.3
Ø D2 [mm] ZG130		21	21	24	24	—	27	—	33		
Ø D3 [mm] ZG130		53	53	53	53	—	53	—	53		
L [mm] ZG130		36	36	42	47	—	50	—	52		
长度/Length A [mm]	ZG130	130	130	130	130	—	130	—	130		
订货号/Order No.	CC6.144...	.06.3	.08.3	.10.3	.12.3	—	.16.3	—	.20.3		

### 含安全锁的强力热缩刀柄/Power Shrink Chuck with Safe-Lock

夹持/Clamping	Ø D1 [mm]	10	12	16	20
Ø D2 [mm] 超短/ultra short		26,5	26,5	29,5	35,5
Ø D3 [mm] 超短/ultra short		—	—	—	—
L [mm] 超短/ultra short		42	47	50	52
长度/Length A [mm]	超短/ultra short	65 <sup>1)</sup>	65	70	70
订货号/Order No.	CC6.145...	.10.37	.12.37	.16.37	.20.37
Ø D2 [mm] ZG130		24	24	27	33
Ø D3 [mm] ZG130		53	53	53	53
L [mm] ZG130		42	47	50	52
长度/Length A [mm]	ZG130	130	130	130	130
订货号/Order No.	CC6.144...	.10.37	.12.37	.16.37	.20.37

### 附件/Accessories

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash



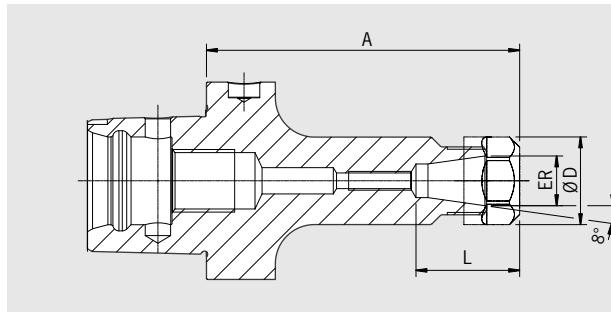
订货号/Order No. 91.100.40

参见第466页/See page 466

1) L2 = 5 mm



# ER 筒夹刀柄/COLLET CHUCK ER ISO 26623-1 · PSC 63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25.000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

**用途:**  
 搭配符合 ISO 15488标准 (原标准 DIN 6499) 的弹簧筒夹, 适用于夹持圆柱形直柄刀具。  
 可夹持范围为 ER 16 至 ER 40

**Use:**  
 For clamping tools with cylindrical shank in collets according to ISO 15488 (previously DIN 6499). Available from ER 16 to 40.

**ISO 26623**  
 - 发货含锁紧螺母 (已做动平衡, 防滑涂层提高夹持力)  
 - 标准 ER 筒夹刀柄有四种不同长度可供选择, 另外 MINI 型 ER 11 和 ER 16 筒夹刀柄有两种长度可供选择

**ISO 26623**  
 - Included in delivery: With locknut (balanced, with slide coating for higher clamping forces)  
 - In four different lengths available, additionally Mini-ER 11 and Mini-ER 16 in two lengths

ER	16	20	25	32	40	
Ø D [mm]	28	34	42	50	63	
夹持范围/Clamping range [mm]	0,5-10,0	1,5-13,0	1,0-16,0	1,5-20,0	2,5-26,0	
L [mm] 超短/ultra short	2)	2)	48,5	47,5	53,5	
L [mm]	33	39	41,5	47,5	53,5	
长度/Length A [mm]	超短/ultra short	60	60	60	60	65
订货号/Order No.	CC6.025...	.16 <sup>1)</sup>	.20 <sup>1)</sup>	.25 <sup>1)</sup>	.32 <sup>1)</sup>	.40 <sup>1)</sup>
长度/Length A [mm]	长/long	100	100	100	100	100
订货号/Order No.	CC6.021...	.16	.20	.25	.32	.40
长度/Length A [mm]	ZG130	130	130	130	130	130
订货号/Order No.	CC6.024...	.16	.20	.25	.32	.40
长度/Length A [mm]	超长/oversize	160	160	160	160	160
订货号/Order No.	CC6.022...	.16	.20	.25	.32	.40

迷你ER筒夹刀柄/Collet Chuck Mini-ER		11	16
Ø D [mm]		16	22
L [mm]		25,5	39,5
长度/Length A [mm]	长/long	100	100
订货号/Order No.	CC6.021...	.11.7 <sup>1)</sup>	.16.7 <sup>1)</sup>
长度/Length A [mm]	超长/oversize	160	160
订货号/Order No.	CC6.022...	.11.7 <sup>1,3)</sup>	.16.7 <sup>1,3)</sup>

**附件/Accessories**

ER筒夹/Collets ER 参见第742页/See page 742

热缩筒夹/Shrink Fit Collets 参见第737页/See page 737

**锁紧螺母 (已做动平衡)/Locknut (pre-balanced)**

尺寸/Size	ER 16	ER 20	ER 25	ER 32	ER 40	
订货号/Order No.	83.912...	.16	.20	.25	.32	.40

**高速锁紧螺母 (精细动平衡)/Chuck nut HS (fine-balanced)**

尺寸/Size	ER 16	ER 20	ER 25	ER 32	ER 40	
订货号/Order No.	83.912...	.16.HS	.20.HS	.25.HS	.32.HS	.40.HS

**锁紧扳手/Fork wrench**

尺寸/Size	ER 16	ER 20	
订货号/Order No.	84.200...	.16	.20

**锁紧扳手/Clamping wrench**

尺寸/Size	—	—	ER 25	ER 32	ER 40
订货号/Order No.	84.200...	—	.25	.32	.40

**动平衡环/Balancing index rings**

尺寸/Size	长/超长/oversize	ER 16	ER 20	ER 25	ER 32	ER 40
订货号/Order No.		.28	.34	.42	.48	.50

**支撑螺钉/Adjusting screw**

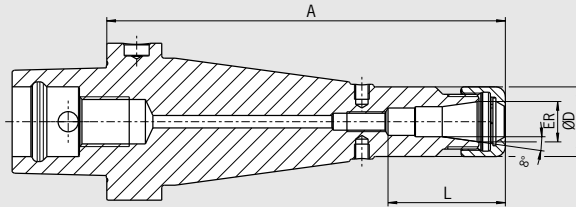
尺寸/Size	ER 16	ER 20	ER 25	ER 32	ER 40	
订货号/Order No.	85.800...	.34	.34	.34	.35	.35

1) 无用于支持螺钉的螺纹孔/Without thread for back-up screw  
 2) 通孔/Drilled through  
 3) 柄径D2向刀柄法兰面方向逐渐加粗 (请参考 dxf 或 stp 文件/D2 is changing towards flange (check dxf or stp file))

# 强力筒夹刀柄/POWER COLLET CHUCK ISO 26623-1 · PSC 63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡  
☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN



强力筒夹刀柄是针对高速加工而设计的。强力筒夹刀柄具有更好的切削性能、防振功能，更好地保护机床、主轴和刀具。通用的强力筒夹刀柄是独特的高性能刀柄，也可与标准ER筒夹搭配使用。

- 跳动精度高: 配合翰默 HAIMER 强力筒夹使用时, 在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时, 尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅, 更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度, 大大增加机床的切削能力
- 缩短加工时间, 提高加工精度, 增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项: 强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The Power Collet Chuck is the collet chuck for the highest machining capacity in high-speed manufacturing. The optimised design with better construction combines high rigidity with vibration dampening features, giving more protection to machines, spindles and tools. The universal Power Collet Chuck is a unique high performance chuck that can also be used with standard collets.

- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

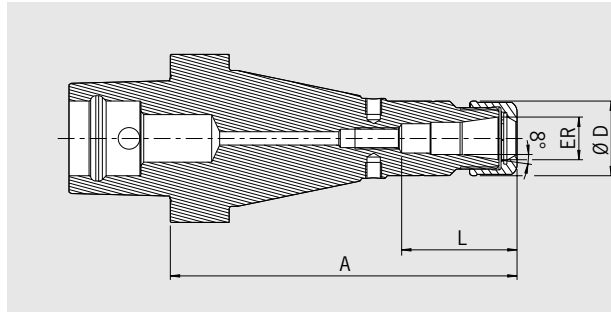
ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	超长/oversize	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	CC6.024...	.16.3	.25.3

### 附件/Accessories

高速锁紧螺母(精细动平衡)/Locknut (fine-balanced)			
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16	.25	.32
锁紧扳手/Clamping wrench	ER 16	ER 25	参见第751页/See page 751
订货号/Order No. 84.650...	.16	.25	.32
扭力扳手/Torque Master torque wrench			参见第750页/See page 750
订货号/Order No. 84.600.00			
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

1) 带支撑螺钉/With back-up screw

# 高精度筒夹刀柄/HIGH PRECISION COLLET CHUCK ISO 26623-1 · PSC 63



质量证书	
<input checked="" type="checkbox"/>	刀柄精细动平衡
<input checked="" type="checkbox"/>	Chuck body fine balanced
	G2.5 25,000 rpm
	或/or U < 1 gmm
<input checked="" type="checkbox"/>	所有功能面精细加工
<input checked="" type="checkbox"/>	All functional surfaces fine machined
<input checked="" type="checkbox"/>	精度高于DIN标准
<input checked="" type="checkbox"/>	More accurate than DIN

翰默高精度筒夹刀柄是用于高速加工的高性能筒夹刀柄。其优化的结构设计和带特殊涂层的圆形锁紧螺母保证了很好的刚性、抗振性和降噪特性，为机床、主轴和刀具提供更好的保护。

- 带特殊涂层的圆形锁紧螺母，精细动平衡至 < 1 gmm
- 跳动精度高：配合翰默 HAIMER 强力筒夹使用时，在3D直径处跳动0,003mm
- 也可与 ISO 15488 标准的标准ER筒夹搭配使用(注意与标准ER筒夹搭配使用时，尺寸“A”更长)
- 高刚性
- 防振功能使切削更加顺畅，更好的表面光洁度和保护机床、主轴和刀具
- 提升主轴速度、更高的进给量和更大的切削深度，大大增加机床的切削能力
- 缩短加工时间，提高加工精度，增加夹持力
- 同样适用于高速和动态切削
- 含用于调整动平衡的螺钉孔
- 选项：强力筒夹上可增加冷却喷孔
- 强力筒夹的产品范围请参考P748

The High Precision Collet Chuck is designed for the highest cutting performance in High Speed machining. The optimised design with better construction and a special coated smooth locknut combines high rigidity with vibration dampening and noise-reducing features, giving more protection to machines, spindles and tools.

- With a specially coated smooth locknut, balanced at < 1 gmm
- High runout accuracy: 0,003 mm at 3×D with HAIMER Power Collets
- Also for standard collets ER according to ISO 15488 (Attention: By using standard collet ER, length A will increase)
- High rigidity
- Smoother running thanks to vibration absorbing geometry, yielding better surface finish and increased tool, spindle and machine protection
- Increased machining capacity due to higher spindle speeds, higher feed rates and larger cutting depths
- Shorter cycle times, higher machining accuracy, high clamping force
- Equally suited to High Speed and dynamic machining
- With threaded holes in order to balance with balancing screws
- Optional: Cool Jet bores on Power Collets
- Product range of Power Collets see page 748

ER	16	25	32
Ø D [mm]	28	42	50
夹持范围/Clamping range [mm]	2,0-10,0	2,0-16,0	2,0-20,0
L [mm]	43	51	53
长度/Length A [mm]	超长/oversize	130 <sup>1)</sup>	130 <sup>1)</sup>
订货号/Order No.	CC6.024...	.16.3.HP	.25.3.HP

附件/Accessories

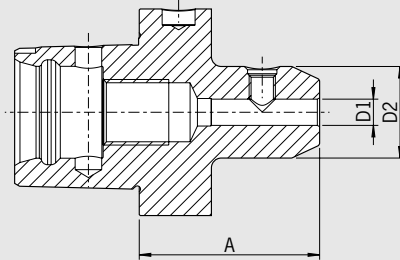
高精度圆形锁紧螺母(精细动平衡)/High Precision Smooth Locknut (fine-balanced)			参见第752页/See page 752
尺寸/Size	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16.1	.25.1	.32.1
滚针轴承扳手/ Roller bearing wrench			参见第752页/See page 752
订货号/Order No. 84.650...	.16.1	.25.1	.32.1
ER筒夹/Collets ER			参见第742页/See page 742
热缩筒夹/Shrink Fit Collets			参见第737页/See page 737
强力筒夹/Power Collets			参见第748页/See page 748
带安全锁的强力筒夹/Power Collets with Safe-Lock			参见第749页/See page 749
强力筒夹用冷却喷孔/Cool Jet bores for Power Collets			参见第749页/See page 749
订货号/Order No. 91.100.27			

# 侧固刀柄/WELDON TOOL HOLDER

## ISO 26623-1 · PSC 63

### CERTIFICATE OF QUALITY

- ☑ 刀柄精细动平衡
- ☑ Chuck body fine balanced  
G2.5 25.000 rpm  
或/or U<1 gmm
- ☑ 所有功能面精细加工
- ☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准
- ☑ More accurate than DIN



### 用途:

夹持符合 DIN 1835-B 和 DIN 6535-HB 的圆柱直柄且有紧固平面的刀具。

- 从  $\varnothing 6\text{mm}$  到  $\varnothing 40\text{mm}$ , 短型可用
- 桃型多面体与法兰双面贴合
- 圆周方向准确定位, 同心度更佳
- 良好的跳动精度, 扭力和刚性
- 高精度的创新模块化工具系统
- 适合于车铣复合中心

### ISO 26623

- 发货含: 夹持螺钉

### Use:

For clamping cutters with cylindrical shanks and Weldon flat according to DIN 1835-B and DIN 6935-HB.

- From  $\varnothing 6$  to  $\varnothing 40$  mm. Short version available.
- Interface with a unique tapered polygon and flange location face
- Exact positioning in the circumferential direction
- Highest runout accuracy, torque and rigidity
- Innovative modular tool system with highest precision
- Suitable for both turning and milling centres

### ISO 26623

- Delivery: with clamping screw

夹持/Clamping	$\varnothing D1$ [mm]	06	08	10	12	14	16	18	20	25	32	40
	$\varnothing D2$ [mm]	25	28	35	42	44	48	50	52	64	72	80
长度/Length A [mm]	短/short	55	55	60	60	60	65	65	65	80	90	100
订货号/Order No.	CC6.000...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32	.40

### 附件/Accessories

#### 夹持螺钉/Clamping screw

夹持范围 $\varnothing$ /Clamping $\varnothing$	06	08	10	12	14	16	18	20	25	32	40
订货号/Order No. 85.100...	.06	.08	.10	.12	.12	.14	.14	.16	.18	.20	.25

#### 动平衡环/Balancing index rings

夹持范围 $\varnothing$ /Clamping $\varnothing$ 长/超长	06	08	10	12	14	16	18	20	25	32	40
订货号/Order No. 79.350...	.25	.28	.35	.42	.44	.48	.50	.52	.64	.72	.80

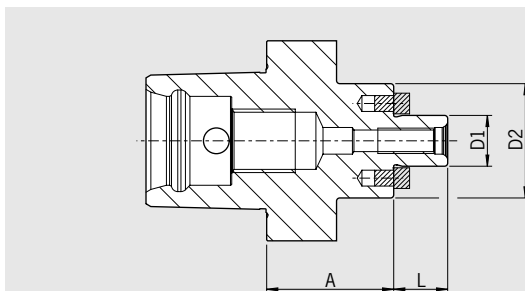
$\varnothing 6\text{mm} - \varnothing 20\text{mm}$  冷却喷孔/Cool Jet bores from  $\varnothing 6\text{mm} - \varnothing 20\text{mm}$  参见第468页/See page 468

订货号/Order No. 91.100.24

$\varnothing 25\text{mm} - \varnothing 32\text{mm}$  冷却喷孔/Cool Jet bores from  $\varnothing 25\text{mm} - \varnothing 40\text{mm}$  参见第468页/See page 468

订货号/Order No. 91.100.26

## 面铣刀的刀柄/FACE MILL ARBOR ISO 26623-1 · PSC 63



### 质量证书

- 刀柄精细动平衡
- Chuck body fine balanced
- G2.5 25,000 rpm
- 或/or U < 1 gmm
- 所有功能面精细加工
- All functional surfaces fine machined
- 精度高于DIN标准
- More accurate than DIN

### 用途:

- 用于夹持符合 DIN 1880 标准的面铣刀和带有径向驱动键槽的刀具
- 桃型多面体与法兰双面贴合
  - 圆周方向准确定位, 同心度更佳
  - 良好的跳动精度, 扭力和刚性
  - 高精度的创新模块化工具系统
  - 适合于车铣复合中心

### ISO 26623

- 交货时含: 拉紧螺钉
- 端面冷却喷孔适用于中心出水刀盘

### Use:

- For clamping face mill cutters and cutters with radial driving slot DIN 1880.
- Interface with a unique tapered polygon and flange location face
  - Exact positioning in the circumferential direction
  - Highest runout accuracy, torque and rigidity
  - Innovative modular tool system with highest precision
  - Suitable for both turning and milling centres

### ISO 26623

- Included in delivery: tightening bolt
- With coolant exit bores on the end face for milling cutters with central cooling

夹持/Clamping	Ø D1 [mm]	16	22	27	32	40
	Ø D2 [mm]	36	48	60	63	70
	L [mm]	17	19	21	24	27
长度/Length A [mm]	短/short	40	25	25	25	40
订货号/Order No.	CC6.050...	.16.KKB	.22.KKB	.27.KKB	.32.KKB	.40.KKB

### 附件/Accessories

#### 拉紧螺钉/Tightening bolt

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	85.300...	.16	.22	.27	.32	.40

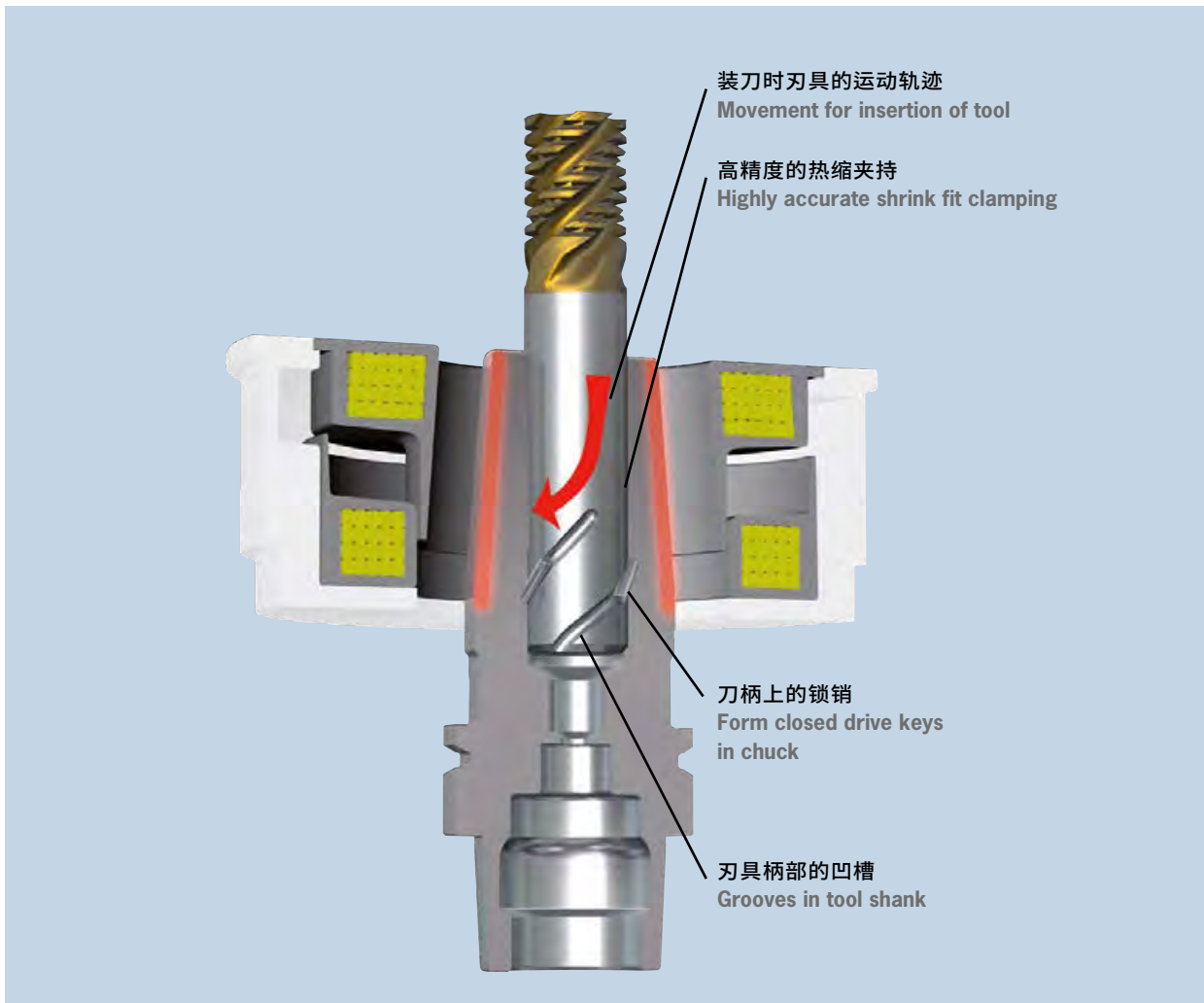
#### 锁紧扳手/Wrench

尺寸/Size D1		16	22	27	32	40
订货号/Order No.	84.400...	.16	.22	.27	.32	.40

#### 动平衡环/Balancing index rings

尺寸/Size D1		16	—	—	—	40
订货号/Order No.	79.350...	.36				.70

# 翰默HAIMER安全锁防拔出保护-功能 SAFE-LOCK® PULL OUT PROTECTION – FUNCTIONALITY



以下的刃具制造商得到翰默HAIMER官方授权  
可以生产柄部含有安全锁凹槽结构的标准刃具

The following tool manufacturers are licensed by HAIMER officially  
and offer their shank cutting tools with Safe-Lock grooves in the  
tool shank as a standard.



## 翰默 HAIMER 安全锁应用实例 SAFE-LOCK® APPLICATION EXAMPLES



安全锁：在机械行业粗加工中的应用

Safe-Lock: Roughing application in the packing machine industry

### 问题

- 只有单刃磨损 (刃具破损)
- 只能使用侧固式刀柄

### Problem:

- High tool wear on one flute (tool breakout)
- Only Weldon holders could be used

### 目标

- 延长刀具寿命
- 代替侧固式刀柄

### Target:

- Increase of tool life
- Usage of high precision tool holding instead of Weldon

### 应用：外形铣削

材料： 钢件

切削刀具：HPC 硬质合金多刃立铣刀  
Ø=20 mm, Z=4

### 加工参数：

径向切削宽度 (ae) = 10 mm  
轴向切削深度 (ap) = 0,75xD  
切削速度 (vc) = 180 m/min  
每刃进给量 (fz) = 0,07 mm

### Application: Contour milling

Material workpiece: Steel

Cutting tool: HPC solid carbide cutter with variable flutes  
Ø = 20 mm, Z = 4

### Application parameters:

Cutting depth radial (ae) = 10 mm  
Cutting depth axial (ap) = 0,75xD  
Cutting speed (vc) = 180m/min  
Feed rate/flute (fz) = 0,07 mm



### 结果

图片对比了不同加工时间后刀具的磨损情况, 请注意: 即使延长了一倍的加工时间, 带安全锁的刀具的磨损情况也小于侧固式刀具, 并且 100% 防止刀具的拔出。

### Result

This comparison shows the wear characteristics of the cutting tools at various machining times. Of note is that, in the case of Safe-Lock, even at double the machining time, wear is less prevalent and more controlled than for Weldon – with 100% protection against pull-out.

## 翰默 HAIMER 安全锁应用实例 SAFE-LOCK® APPLICATION EXAMPLES



安全锁：在美国航空工业大型飞机工厂中的应用

Safe-Lock: Application in the aerospace industry at a large aircraft manufacturer in the USA

### 问题

- 金属去除率低 (尤其在粗加工中)
- 刀具寿命低
- 加工钛合金和铝合金时, 导致昂贵零件的报废
- 各种不同方式的高夹持力的刀柄的测试全部失败了: 强力铣刀柄、冷压刀柄、液压刀柄和强力热缩刀柄, 都不能防止刀具被拔出
- 因此客户只能使用侧固式刀柄

### Problem:

- Low metal removal rate (especially for roughing)
- Low cutting tool life
- Expensive scrap at titanium and aluminium workpieces
- All tests with different systems failed: Milling Chucks, Press-Fit Chucks, Hydraulic Chucks or reinforced shrink fit chucks could not prevent cutting tool pull-out, despite high clamping forces
- As a result they only used Whistle Notch / Weldon

### 目标

- 需要增加金属去除率——尤其针对粗加工
- 需要延长刀具寿命
- 需要提高成品率, 避免报废

### Target:

- Needed to increase metal removal rate – especially for roughing
- Wanted to increase cutting tool life
- Increase of process reliability to avoid expensive scrap

### 应用实例: 钛合金粗加工

工件: 材料为 Ti6Al4V 的钛合金飞机组件  
机床: 立式加工中心  
主轴接口: HSK-A100  
使用刀柄: 直径 Ø 32 mm, 长度 120 mm,  
含安全锁的翰默 HAIMER 热缩刀柄  
粗加工,  
精加工: 具有相同涂层的同一种硬质合金刀具  
有效切深 83 mm

### Application: Roughing Titanium

Workpiece: critical airplane component made of Ti6Al4V, a titanium alloy  
Machine: Vertical portal milling machine  
Machine tool: HSK-A100  
Tool holder: Shrink Fit Chuck HAIMER Safe-Lock, Ø 32 mm, length 120 mm  
Roughing,  
Fine machining: one and the same coated solid carbide tool, effective cutting length of 83 mm

### 结果

- 所有测试品中均有安全锁结构, 各个加工过程中刀具在刀柄中没有任何移动
- 刀具没有任何从刀柄中拉出的危险
- 刀具寿命可延长两倍, 甚至更多
- 在粗加工和最后的精加工过程中, 加工面无振痕, 光洁度高, 侧固式刀柄无法达到类似效果
- 通过增加 30% 的金属去除率, 使加工效率得到大幅提高

### Result:

- Cutting tool was securely held due to Safe-Lock in all tests, no movement in the chuck during the entire machining process
- No danger of the tool being pulled out of the chuck
- Tool life more than doubled
- During roughing and finishing operations no vibrations, and consequently no chatter marks – unlike the Weldon chuck
- Significant productivity increases through the increase in material removal rates of **30%**

刀具寿命增加 100%

100% MORE TOOL LIFE WITH

# SAFE-LOCK®



## 翰默 HAIMER 安全锁应用实例

### SAFE-LOCK® APPLICATION EXAMPLES



安全锁：在工业密封技术领导企业中的应用

Safe-Lock: Application at a leading provider in the industrial sealing technology

#### 问题

- 刀具从高精度刀柄中被拔出
- 只能使用侧固式刀柄

#### Problem:

- Tool pull-out at high precision tool holder
- Only Weldon holders could be used

#### 目标

- 在加工中使用高精度刀柄并确保工艺可靠性

#### Target:

- Process reliability in machining with highly precise tool holding

#### 粗加工不锈钢

工件： 垫片环  
 材料： 1.4571 (VA)  
 机床： Mazak  
 接口： SK 40  
 刀具： Ø 16 mm 的硬质合金多刃立铣刀

#### Application: Roughing VA Steel

Workpiece: Gasket ring  
 Material: 1.4571 (VA)  
 Machine: Mazak  
 Interface: SK 40  
 Tool: Solid carbide, variable flute end mill, Ø 16 mm

#### 加工参数：

切削深度： 轴向切深 (ap) 19.8 mm  
 径向切宽 (ae) 槽 29.8 mm  
 转速： 1194 rpm  
 切削线速度 (vc): 60 m/min  
 每转进给 (fz): 0.2 mm/r

#### Application parameters:

Cutting Depth: axial (ap) 19,8 mm  
 radial (ae) Slot 29,8 mm  
 RPM: 1194 rpm  
 Cutting speed (vc): 60 m/min  
 Feed rate/flute (fz): 0,2 mm/r

#### 结果

- 用侧固刀柄, 每一把刀具可切削 50-70 件
- 用含安全锁的刀柄, 每一把刀具可切削 150 件
- 加工过程非常流畅并且无振动

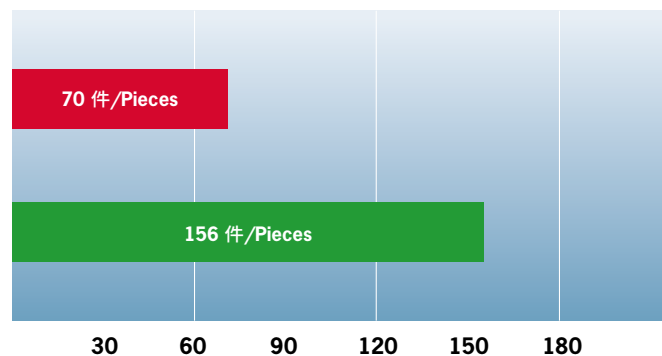
#### Result:

- With Weldon holder and tooling 50-70 parts per cutter
- With Safe-Lock 150 parts per cutter and no pull-out issue
- Machine runs much smoother with less vibrations

#### 测试/Test:

侧固刀柄/Weldon Holder  
 Ø 16 mm, 长度/Length A = 80 mm

翰默HAIMER带安全锁的强力热缩刀柄/  
 HAIMER Safe-Lock Power Shrink Chuck 40.445.16.37,  
 长度/Length A = 65 mm



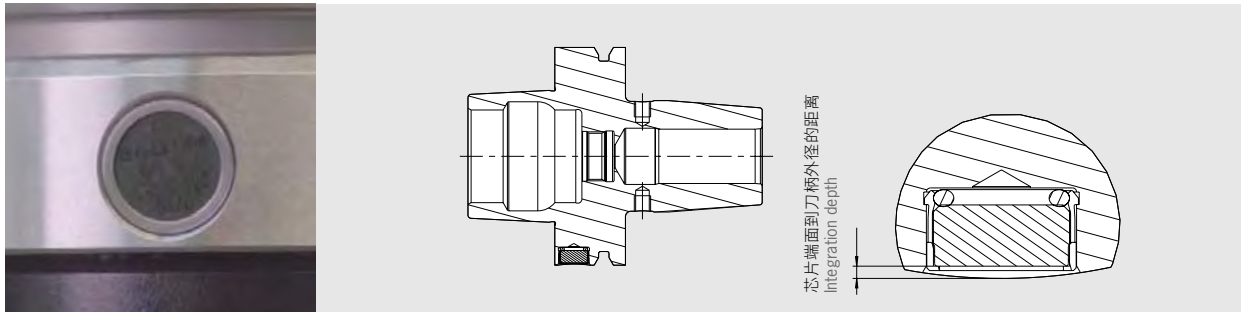
测试结果：刀具寿命延长了86件, 增长率超过122%

Test result: In same time 86 pieces higher output i.e. increase by 122%

## DATA-LOCK

### 翰默HAIMER机械式数据芯片锁系统

## MECHANICAL DATA CARRIER LOCKING SYSTEM



Data-Lock机械式数据芯片锁系统将芯片压入并固定在刀柄上。特别在高速加工领域,该新系统的工艺安全性更高。

#### 优势:

- 得益于机械式锁紧原理,即使在6-12万转的高速加工时,工艺安全性也能够保证
- 芯片装入刀柄后,端面到刀柄外径的距离比其它的机械式锁紧系统小
- 由于芯片端面到刀柄外径的距离比较小,读写芯片中的数据时的稳定性较好
- 芯片装入刀柄后,整个刀柄经精细动平衡
- 即装即用
- 非翰默品牌的刀柄也可以使用该系统
- 专利申请中(发明专利号码:JP 6726756 B2\*)

#### 发货包含:

- 刀柄上增加芯片孔
- 芯片的衬套
- 密封圈
- 安装芯片
- 精细动平衡

The mechanical data carrier locking system locks the data carrier by a form and press fit into the tool holder. Especially for higher rpm ranges the new system provides high process reliability.

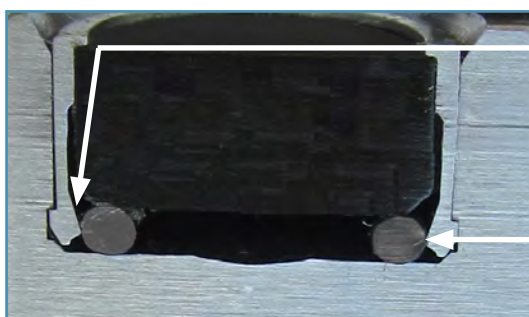
#### Advantages:

- Process reliability even at high rotations thanks to mechanical locking (60.000 – 120.000 rpm)
- Less integration depth than comparable mechanical locking systems
- Process reliability at the reading/writing process thanks to the reduced integration depth
- Fine balanced tool holder after data carrier assembly
- Immediately ready to use
- Possible also for non-HAIMER holders
- Patent pending

#### Delivery includes:

- Modification of the data carrier bore
- Sleeve for the data carrier
- Seal ring
- Mounting of data carrier
- Fine balancing

### 机械式数据芯片锁固定着芯片/The mechanical data carrier locking system locks the data carrier



衬套通过变形和回弹,固定在刀柄中  
Sleeve is clamped by form and press fit into the tool holder

密封圈将芯片固定在衬套中  
Seal ring locks data carrier in the sleeve



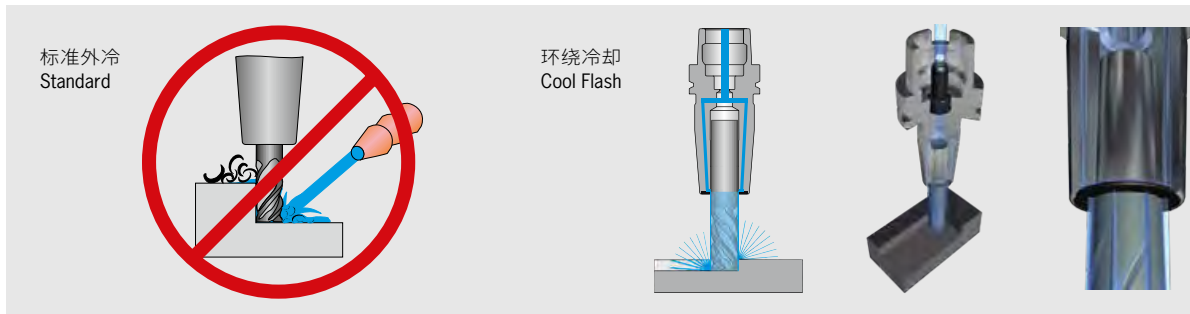
Data-Lock芯片锁的剖面模型  
Detail Data-Lock cut-away model

订货号/Order No.

Data-Lock (在翰默刀柄上安装芯片锁并精细动平衡)/Mounting on HAIMER holders incl. fine balancing)	91.100.06
Data-Lock (在其它品牌的刀柄上安装芯片锁并精细动平衡)/Mounting on different holders incl. fine balancing)	91.100.07

\*如需更多关于翰默专利的信息,请联系翰默(上海)贸易有限责任公司。

# 翰默 HAIMER 环绕冷却系统—刀尖上的冷却 COOLING SYSTEM COOL FLASH – COOLANT TAKEN TO THE TOP



翰默 HAIMER 会将每件事情做得优秀甚至更完美, 因此除了冷却喷孔外, 还特别研制了了端面环绕冷却方式。冷却液从每一个细缝中喷出, 围绕着立铣刀并且直达切削刃。

- 冷却液直达切削刃
- 延长立铣刀寿命可达 100%
- 有效清除立铣刀上的残留的切屑
- 尤其适合高速
- 优良的跳动精度, 没有附加的不平衡量, 不会增加干涉
- 适用于柄径 6mm 至 50 mm 的立铣刀

True to the slogan “make good things even better” HAIMER has developed the Cool Flash system out of the existing Cool Jet system. The coolant is pressed out by several slots, floats around the shank via the chip flute and cools up to the cutting edge!

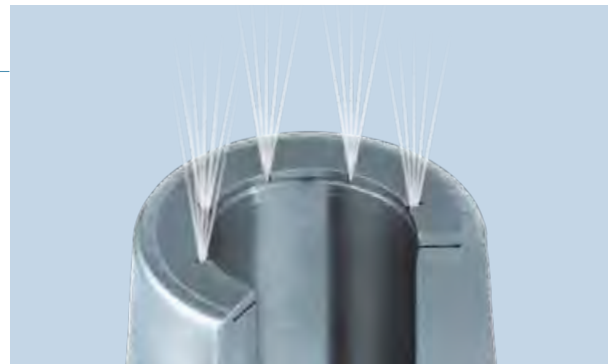
- Coolant directly to the cutting edge
- Extended tool life up to 100 %
- Eliminates balls of chips on the cutting tool
- Also for high rpm
- Optimised runout accuracy! No additional unbalance! No disturbing clearance!
- For tools from diam. 6 mm up to 50 mm

### 环绕冷却/Cool Flash

从带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash  
从不带冷却喷孔的热缩刀柄升级为环绕冷却/Cool Flash incl. Cool Jet



订货号/Order No. **91.100.40**  
订货号/Order No. **91.100.41**



冷却液通过细缝喷出, 更加优化的冷却方式  
翰默 HAIMER 环绕冷却  
Optimised coolant bores with coolant outlet through slots  
Cool Flash by HAIMER

环绕冷却+外冷立铣刀和内冷立铣刀的对比/Cool Flash vs. internal tool cooling		
	环绕冷却+外冷立铣刀 Cool Flash	内冷立铣刀 internal tool cooling
刀尖冷却范围 Cooling range at the cutting edge	✓ 100%	✗ 最多30-40% max. 30-40%
刀具的稳定性 Tool stability	✓ 最大 maximum	✗ 减小 reduced
应用范围 Application range	✓ 广泛 variable	✗ 取决于立铣刀的结构 per cutting tool
直径范围 Diameter area	✓ 从 Ø 6 mm 开始 from 6 mm	✗ 从 Ø 12 mm 开始 from 12 mm
所需成本 Acquisition cost	✓ 更换一个刀柄, 费用小 per tool holder	✗ 每把立铣刀必须有冷却孔, 费用高 per cutting tool

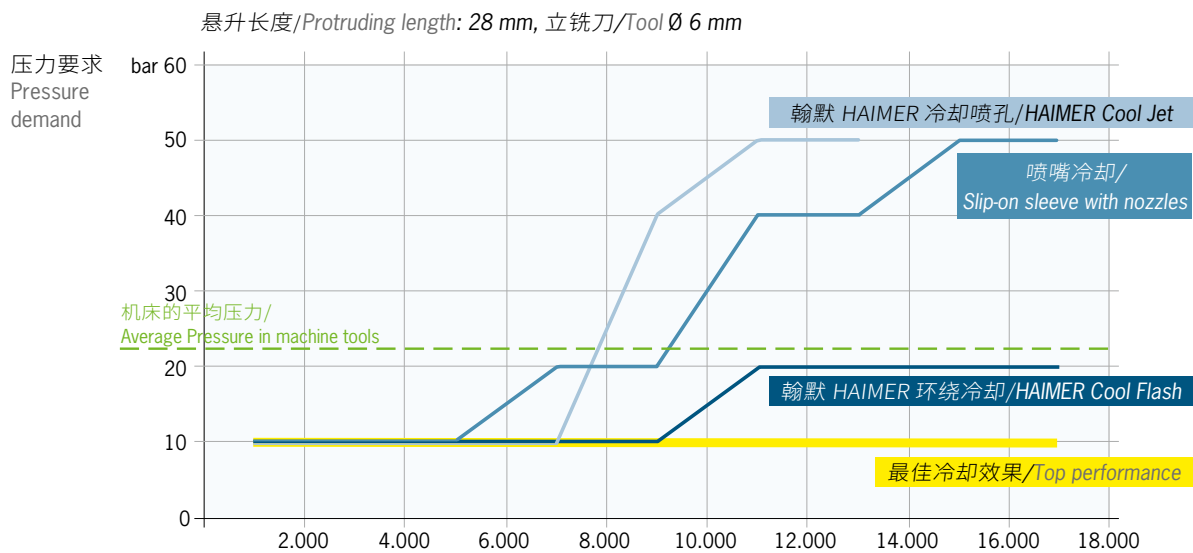
## 翰默 HAIMER 环绕冷却系统—模拟实验 COOLING SYSTEM COOL FLASH – SIMULATION

发展环绕冷却的目标是为了冷却液可直达立铣刀的切削刃，即使现有压力仅在20bar的机床也可使用，环绕冷却可以提供可靠而准确的冷却，而不需要更改机床任何的冷却系统。

图表显示了随着机床转速的增加，能够达到切削刃的最佳冷却性能和机床水压的依赖关系。环绕冷却系统即使在低压高速的情况下也可保证精准的冷却。而使用其它的冷却系统时，高转速需要高水压才能达到有效的冷却。

The goal of the development of the Cool Flash system was to transport the coolant directly to the cutting edges. Even for existing machine tools with an average pressure of approx. 20 bar, Cool Flash allows for reliable and precise cooling without any changes to the cooling system of the machine tool.

The graphic shows the optimised coolant supply to the cutting edges for different systems by comparing dependence of pressure and rpm. Even at low pressure and high rpm Cool Flash assures precise cooling. On competitive systems, higher rpm require higher pressure to generate effective cooling.



### 环绕冷却和其他冷却系统的对比

#### 测试效果

刀具：立铣刀 (2刃)  
立铣刀直径：20 mm  
悬深长度：50 mm  
水压：20 bar  
转速：12,000 rpm



环绕冷却-直达刃口的有效冷却  
Cool Flash – effective cooling at the cutting edges

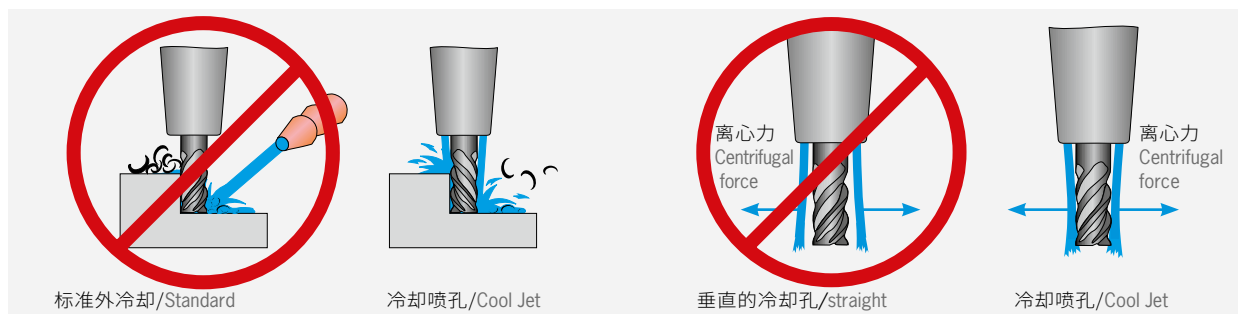
#### Test Results

Tool: Endmill (two flutes)  
Tool diameter: 20 mm  
Protruding length: 50 mm  
Pressure: 20 bar  
RPM: 12,000



喷嘴冷却-无效冷却，冷却液不能到达切削刃  
Slip-on sleeve with nozzles – ineffective cooling, coolant does not reach the cutting edges

# 翰默 HAIMER 冷却喷孔 —— 清除切屑 COOL JET – CUT THE CHIP ONLY ONCE!



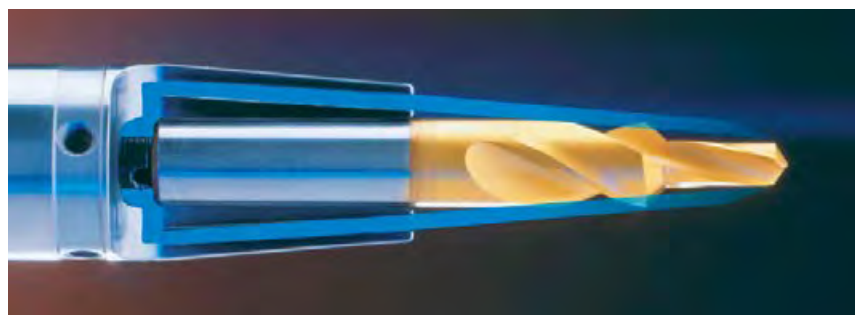
- 标准外冷却/Standard
- 冷却液直达切削刃
  - 延长刀具寿命100%
  - 更高的切削加工稳定性
  - 减少刃口上的积屑瘤

- 冷却喷孔/Cool Jet
- Coolant directly to the cutting edge
  - Extended tool life up to 100%
  - Higher reliability of cutting process
  - No more balls of chips on tool

- 主轴高速旋转时的效果
- 以前的冷却孔:  
笔直
- 优化的冷却孔:  
对准中心

- Function at high spindle speed
- Previous coolant bores:  
straight
- Optimised coolant bores:  
aimed at center

冷却喷孔/Cool Jet	订货号/Order No.
含2个冷却喷孔, 适用于热缩刀柄(Ø 6 – 14 mm), 侧固刀柄(Ø 6 – 20 mm)和HG筒夹 Cool Jet with 2 Coolant bores for Shrink fit chucks (Ø 6–14 mm), Weldon (Ø 6–20 mm) and HG Collets	91.100.24
含3个冷却喷孔, 适用于热缩刀柄(Ø 16 – 32 mm) Cool Jet with 3 Coolant bores (Shrink fit chuck Ø 16 mm–32 mm)	91.100.25
含4个冷却喷孔, 适用于侧固刀柄(Ø 25– 40 mm) Cool Jet with 4 Coolant bores for Weldon (Ø 25–40 mm) and Whistle Notch (Ø 25–40 mm)	91.100.26

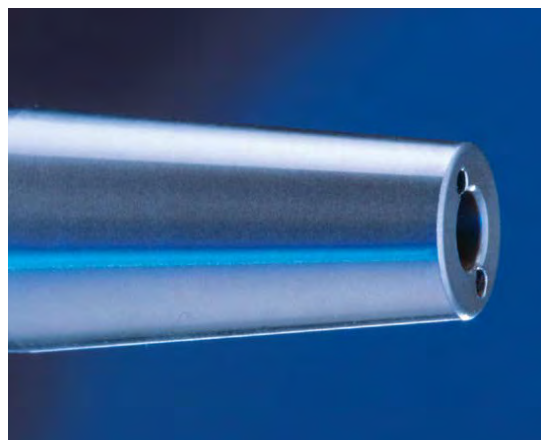


- 范例
- 用于:
- 热缩刀柄
  - HG筒夹
  - 面铣刀刀柄
  - 侧固刀柄

- Examples
- For use in:
- Shrink fit chuck
  - HG chuck
  - Face mill holder
  - Weldon



热缩刀柄  
Shrink fit chuck



冷却喷孔对准中心  
翰默HAIMER的冷却喷孔  
Coolant bores aimed at center  
Cool Jet by HAIMER



侧固刀柄  
Weldon

## 翰默HAIMER超高精密热缩刀柄(径跳精度 < 0.001MM) ULTRA-PRECISION SHRINK FIT CHUCK WITH RUNOUT < 0.001MM



HAIMER翰默提供径跳<1 $\mu$ m的超高精度热缩刀柄。该超高精密热缩刀柄经过超精细动平衡,特别适用于转速和精度特别高的加工中心机床,可以获得更好的工件表面质量。

### 优势:

- 刀具不会出现异常磨损
- 更高的精度
- 更好的工件表面质量
- 更大的切削参数
- 振动更小,加工更顺畅
- 各种翰默热缩刀柄均提供该选项
- 经超精密动平衡修正(G2.5, 33.000rpm或U<0.5gmm)

HAIMER offers the opportunity to supply Ultra-Precision Shrink Fit Chucks with a runout accuracy < 1  $\mu$ m.

The Ultra-Precision Shrink Fit Chucks with additional ultra fine balancing are ideal for ultra high speed and high precision machining centers to reach even better surface finish.

Your advantages are:

- No abortive wear of the tool
- Higher accuracy
- Better surface
- Higher cutting volume
- Smooth running, low vibration
- Optional available for all shrink chucks
- With additional ultra fine balancing G2,5 33.000 rpm or U < 0,5 gmm

订货号/Order No.

超高精密热缩刀柄/Ultra-Precision Shrink Fit Chuck

91.100.45

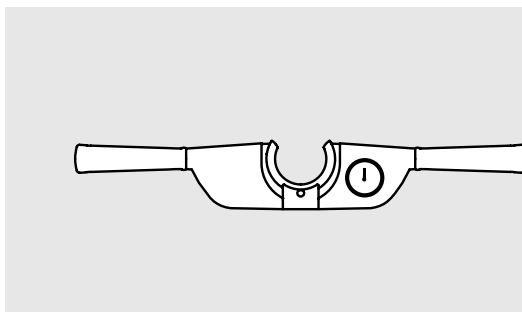


新产品:超高精密热缩刀柄(径跳精度<0.001mm)

Now available: Ultra-Precision Shrink Fit Chuck  
with runout accuracy < 1  $\mu$ m



## 翰默 HAIMER 强力筒夹刀柄和标准ER筒夹刀柄用扭力扳手 TORQUE MASTER TORQUE WRENCH FOR HAIMER POWER COLLET CHUCK AND STANDARD ER CHUCKS



用于强力筒夹和标准ER筒夹刀柄的双手操作的扭力扳手

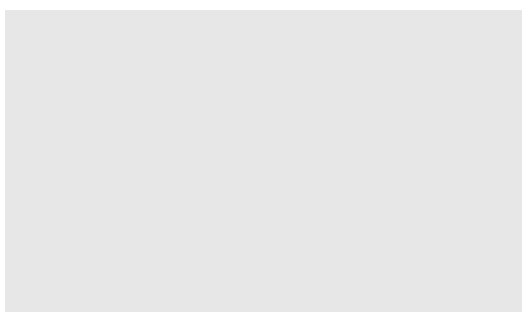
- 获得很高的跳动精度, 不是单边受力
- 优化力的传输
- 扭力扳手的表盘上可精确显示扭力
- 对应大夹持力的大扭力
- 不会超过额定负荷
- 更换扳手插件, 即可适用于各种ER筒夹刀柄

Two-armed torque wrench for Power Collet Chucks:

- For highest runout accuracy, no one-sided clamping
- Optimal power transmission by constant force application
- Torque wrench for highest clamping accuracy and repeatability with dial gauge
- Maximum torque for highest clamping force
- No overloading of smaller clamping diameters
- Changeable inserts, useable also for standard ER-Collets

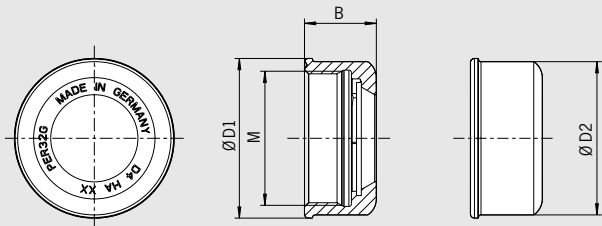
扭力扳手/Torque wrench	订货号/Order No.
带包装盒/with suitcase	84.600.00
不带包装盒/without suitcase	84.600.00.S
包含扭力扳手、包装盒和3个标准ER16/25/32插件的套装 Torque Master torque wrench set with suitcase and 3 inserts for Standard ER Chucks in ER16, ER25, ER32	84.600.00.AK

## 扭力扳手的插件 INSERTS FOR TORQUE MASTER TORQUE WRENCH



扭力扳手的插件/Inserts for Torque Master wrench		
用于强力筒夹刀柄/ for Power Collet Chucks	尺寸/Size	
订货号/Order No.		
84.610.16	ER 16	
84.610.25	ER 25	
84.610.32	ER 32	
用于标准ER筒夹刀柄/for Standard ER Chucks	尺寸/Size	扳手尺寸 SW/Wrench size SW
84.620.11	ER 11	SW17
84.620.16	ER 16	SW25
84.620.20	ER 20	SW30
84.620.25	ER 25	
84.620.32	ER 32	
标准迷你型ER刀柄用插件/for Standard ER Chucks ER Mini	尺寸/Size	扳手尺寸 SW/Wrench size SW
84.620.16.1	ER 16 Mini	

## 用于高精度筒夹刀柄的圆形锁紧螺母 SMOOTH LOCKNUTS FOR HIGH PRECISION COLLET CHUCKS



### 高精度圆形锁紧螺母ER:

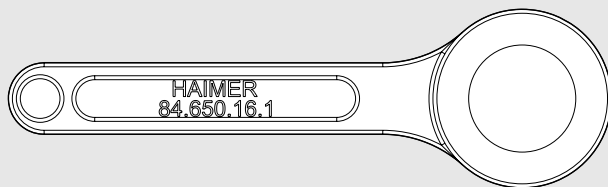
- 非常高的跳动精度
- 耐磨损和很高的夹紧力, 均得益于特殊的涂层
- 出厂前的预平衡有助于减少振动
- 减少噪音

### High Precision Smooth Locknuts ER:

- Highest runout accuracy
- No wear and high clamping force due to special slide coating
- Less vibrations due to pre-balancing
- Noise reducing

ER	ER 16	ER 25	ER 32
订货号/Order No. <b>83.914...</b>	<b>.16.1</b>	<b>.25.1</b>	<b>.32.1</b>
<b>Ø D1</b>	28	42	50
<b>Ø D2</b>	27	40	48
<b>M</b>	M 23 x 1,5	M 34 x 1,5	M 42 x 1,5
<b>B</b>	17,8	20	22,5

## 用于高精度筒夹刀柄的滚针轴承扳手 ROLLER BEARING WRENCH FOR HIGH PRECISION COLLET CHUCKS



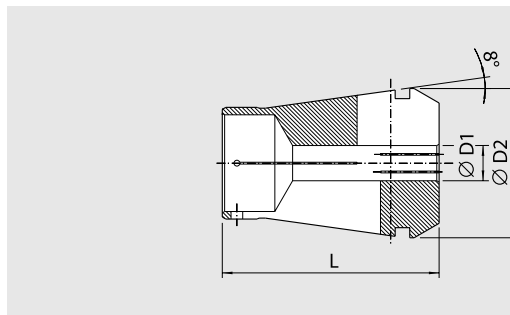
用于高精度筒夹刀柄的锁紧螺母的滚针轴承扳手

Roller bearing wrench for clamping of locknuts for High Precision Collet Chucks.

ER16/25/32用滚针轴承扳手/Roller bearing wrench for ER 16, ER 25 and ER 32			
ER	ER 16	ER 25	ER 32
订货号/Order No. <b>84.650...</b>	<b>.16.1</b>	<b>.25.1</b>	<b>.32.1</b>



## 翰默 HAIMER 强力筒夹 POWER COLLET FOR HAIMER POWER COLLET CHUCK



- 非常高的跳动精度：在3XD的悬升长度内小于0,003mm
- 高夹持力
- 适用于翰默强力筒夹刀柄和高精度筒夹刀柄
- 适用于柄部公差优于 h10的刃具
- 选项：可以在自密封的强力筒夹上增加内冷喷孔

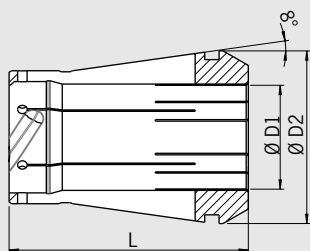
- High runout accuracy: 0,003 mm at 3×D
- Superior clamping strength
- Fits HAIMER Power Collet Chucks and High Precision Collet Chucks
- For cylindrical shanks with tolerance h10
- Optional: Cool Jet bores at self-sealing collets

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.163.02	ER16	2 <sup>1)</sup>	16,45	30
81.163.03	ER16	3	16,45	30
81.163.04	ER16	4 <sup>1)</sup>	16,45	30
81.163.045	ER16	4,5 <sup>1)</sup>	16,45	30
81.163.05	ER16	5 <sup>1)</sup>	16,45	30
81.163.06	ER16	6 <sup>1)</sup>	16,45	30
81.163.08	ER16	8 <sup>1)</sup>	16,45	30
81.163.10	ER16	10 <sup>1)</sup>	16,45	30
81.163.00	ER16	强力筒夹套装, 含8个 Ø 2 - 10 mm的强力筒夹 Set of Power Collets (includes 8 pcs., Ø 2-10 mm)		

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.253.02	ER25	2 <sup>1)</sup>	25,45	37
81.253.03	ER25	3	25,45	37
81.253.04	ER25	4	25,45	37
81.253.05	ER25	5 <sup>1)</sup>	25,45	37
81.253.06	ER25	6 <sup>1)</sup>	25,45	37
81.253.08	ER25	8 <sup>1)</sup>	25,45	37
81.253.10	ER25	10 <sup>1)</sup>	25,45	37
81.253.12	ER25	12 <sup>1)</sup>	25,45	37
81.253.14	ER25	14 <sup>1)</sup>	25,45	37
81.253.16	ER25	16 <sup>1)</sup>	25,45	37
81.253.00	ER25	强力筒夹套装, 含10个 Ø 2 - 16 mm的强力筒夹 Set of Power Collets (includes 10 pcs., Ø 2-16 mm)		

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.323.02	ER32	2 <sup>1)</sup>	32,48	45
81.323.03	ER32	3	32,48	45
81.323.04	ER32	4	32,48	45
81.323.05	ER32	5 <sup>1)</sup>	32,48	45
81.323.06	ER32	6 <sup>1)</sup>	32,48	45
81.323.08	ER32	8 <sup>1)</sup>	32,48	45
81.323.10	ER32	10 <sup>1)</sup>	32,48	45
81.323.12	ER32	12 <sup>1)</sup>	32,48	45
81.323.14	ER32	14 <sup>1)</sup>	32,48	45
81.323.16	ER32	16 <sup>1)</sup>	32,48	45
81.323.18	ER32	18 <sup>1)</sup>	32,48	45
81.323.20	ER32	20 <sup>1)</sup>	32,48	45
81.323.00	ER32	强力筒夹套装, 含12个 Ø 2 - 20 mm的强力筒夹 Set of Power Collets (includes 12 pcs., Ø 2-20 mm)		

## 翰默 HAIMER 带安全锁结构的强力筒夹 POWER COLLET WITH SAFE-LOCK®



- 由于翰默的高精度强力筒夹的尾部增加了导柱，同心度和稳定性都获得提高
- 由于夹持部位的接触面加大，因此可以传递更大的扭矩
- 刀具不会被拔出或者在刀柄中转动
- 刀具柄部的沟槽将刀具向刀柄方向引导（取决于刀具的旋转方向）
- 自密封功能，适用于内冷
- 选项：可以在自密封的强力筒夹上增加内冷喷孔

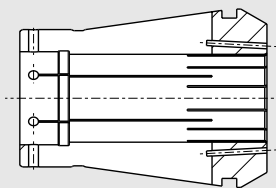
- High-precision Power Collets with stabilisation and concentration trough pilot of collet
- High torque due to form closed clamping
- No pull out and no spinning of the tool
- Groove on tool shank is directed so that the tool will be pulled into the chuck (depending on direction of rotation)
- Sealed for internal coolant
- Optional: Cool Jet bores

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.163.06.7	ER16	6	16,45	30
81.163.08.7	ER16	8	16,45	30
81.163.10.7	ER16	10	16,45	30

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.253.06.7	ER25	6	25,45	37
81.253.08.7	ER25	8	25,45	37
81.253.10.7	ER25	10	25,45	37
81.253.12.7	ER25	12	25,45	37
81.253.14.7	ER25	14	25,45	37
81.253.16.7	ER25	16	25,45	37

订货号/ Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.323.06.7	ER32	6	32,48	45
81.323.08.7	ER32	8	32,48	45
81.323.10.7	ER32	10	32,48	45
81.323.12.7	ER32	12	32,48	45
81.323.14.7	ER32	14	32,48	45
81.323.16.7	ER32	16	32,48	45
81.323.18.7	ER32	18	32,48	45
81.323.20.7	ER32	20	32,48	45

## 用于翰默 HAIMER 强力筒夹的冷却喷孔 COOL JET BORES FOR POWER COLLETS



### 选项：强力筒夹的冷却喷孔

- 优化的冷却液喷孔，指向筒夹的中心
- 冷却液可以直接到达切削刃
- 最高可以提升刀具寿命达100%
- 切削过程更稳定
- 刃口不再出现粘屑现象
- 适用于自密封功能的强力筒夹

### Optional: Cool Jet for Power Collets

- Optimized coolant bores, aimed at center in the collet
- Coolant directly to the cutting edge
- Extended tool life up to 100%
- Higher reliability of cutting process
- No more balls of chips on tools
- Available for self-sealing Power Collets

强力筒夹的冷却喷孔 / Cool Jet bores for Power Collets

订货号 / Order No. **91.100.27**

砂轮杆

GRINDING WHEEL ADAPTERS

# 目录

## CONTENT

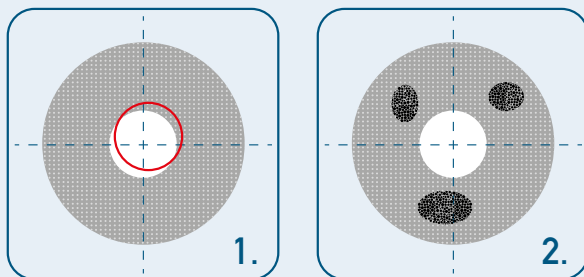
<b>概述/General</b>	
为什么砂轮杆需要动平衡?/Why balance grinding wheels?	476
如何正确地平衡您的砂轮!/How to balance your grinding wheels correctly!	477
<b>用于工具磨床的砂轮杆/Grinding Wheel Adapters for cutting tool grinding machines</b>	
HSK-F50 (以前的/previous Deckel/ISOG)	478
UWS (Reinecker)	479
Rollomatic	480
Walter	481–482
Saacke/Vollmer	483
Schütte	484–485
<b>用于多任务机床的砂轮杆/Grinding Wheel Adapters for Multitask-Machines</b>	
一体式砂轮杆概述/Overview Monoblock	486–487
HSK-A63 一体式砂轮杆/Monoblock	488
HSK-A100 一体式砂轮杆/Monoblock	489
带一个锁紧螺丝的分体式砂轮杆概述/Overview Multi-part with one clamping screw	490–491
HSK-A63 带一个锁紧螺丝的分体式砂轮杆/Multi-part with one clamping screw	492
HSK-A100 带一个锁紧螺丝的分体式砂轮杆/Multi-part with one clamping screw	493
PSC 63 带一个锁紧螺丝的分体式砂轮杆/Multi-part with one clamping screw	494
带4个锁紧螺丝的分体式砂轮杆概述/Overview Multi-part with four clamping screws	496–497
HSK-A63 带4个锁紧螺丝的分体式砂轮杆/Multi-part with four clamping screws	498
HSK-A100 带4-6个锁紧螺丝的分体式砂轮杆/Multi-part with four to six clamping screws	499
PSC 63 带4个锁紧螺丝的分体式砂轮杆/Multi-part with four clamping screws	500
特殊的砂轮杆转换套/Special Grinding Wheel Adapters	501–503
<b>转换套适用于/Adapter for</b>	
用于工具磨床、砂轮修整机床、对刀仪、动平衡机/ Grinding machines, dressing machines, tool presetters, balancing machines	504–505
<b>附件/Accessories</b>	
用于砂轮杆/For Grinding Wheel Adapters	506
套装动平衡螺钉和重金属动平衡螺钉/Set of Balancing Screws and Heavy Metal Balancing Screws	507
动平衡环/Balancing Rings	508
砂轮的配重块/Grinding wheel weight	509
扭力扳手/Torque Wrench	510
棘轮扭力扳手/Click-Torque torque wrench	511–512
高精度夹紧大师/High Precision Clamp Master	513–514
HAIMER翰默高精度筒夹/HAIMER High Precision Collet	515

## 为什么砂轮杆需要动平衡？ WHY BALANCE GRINDING WHEELS?

### 为什么砂轮杆需要动平衡？ Why balance grinding wheels?

#### 砂轮修整 ≠ 动平衡

尽管需要对砂轮进行修整，但砂轮的动平衡更为至关重要！  
导致砂轮不平衡的原因：

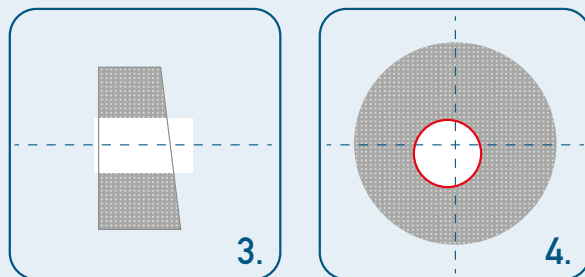


1. 砂轮中心孔的孔径公差
2. 砂轮的均匀性
3. 砂轮的平行度
4. 砂轮的同心度

- 砂轮杆的公差
- 砂轮的修整
- 砂轮的磨损
- 砂轮的外形

#### Dressing ≠ Balancing

Balancing of grinding wheels is essential in spite of dressing them!  
Causes of unbalance on a grinding wheel:



1. Tolerance of the grinding wheel bore
2. Homogeneity of the grinding wheel
3. Parallelism of the grinding wheel
4. Concentricity of the grinding wheel

- Tolerance of the grinding wheel arbor
- Dressing of the grinding wheel
- Wear of the grinding wheel
- Profiling of the grinding wheel

#### 不平衡的影响

1. 工件表面质量下降 → 振纹
2. 工件的尺寸精度下降 →  
砂轮修整的成本增加
3. 砂轮磨损极快 → 刀具寿命减少
4. 主轴磨损加快 → 宕机的风险  
→ 不必要的维修 → 高昂的检测费

最终导致磨削参数的降低和生产效率的下降。

#### Consequences of unbalance

1. Reduced surface quality → Chatter marks
2. Reduced dimensional accuracy on the work piece →  
Increased costs for wheels dressing
3. Extremely high grinding wheel wear → Reduced tool life
4. Spindle head wear out → Danger of machine down time →  
Unnecessary repairs → Expensive inspections

As a result, the grinding parameters are reduced and productivity is decreased

# 如何正确地平衡您的砂轮!

## HOW TO BALANCE YOUR GRINDING WHEELS CORRECTLY!

### 为一套砂轮初次做动平衡时的指导

Guideline for initial balancing of a new grinding wheel pack

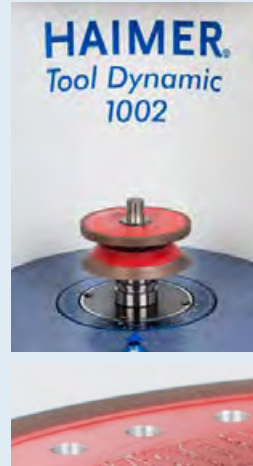
#### 第一步/Step 1



1. 在砂轮杆上安装第一个砂轮
2. 安装间隔环
3. 紧固锁紧螺母
4. 测量不平衡量
5. 修正不平衡量  
(例如:通过轴向钻孔)

1. Add first grinding wheel on arbor
2. Add distance disc
3. Tighten nut
4. Measure unbalance
5. Correct unbalance  
(e.g. by axial drilling)

#### 第二步/Step 2



1. 在砂轮杆上安装第二个砂轮
2. 在两个砂轮上做定位的记号
3. 紧固锁紧螺母
4. 测量不平衡量
5. 修正不平衡量  
(例如:通过轴向钻孔)

1. Add 2nd grinding wheel to arbor
2. Add position reference marking on both grinding wheels
3. Tighten nut
4. Measure unbalance
5. Correct unbalance  
(e.g. by axial drilling)

#### 第三步/Step 3



1. 在砂轮杆上安装第三个砂轮
  2. 在所有的三个砂轮上做定位的记号
  3. 紧固锁紧螺母
  4. 测量不平衡量
  5. 修正不平衡量  
(例如:通过轴向钻孔)
- 初步的动平衡完成了

1. Add 3rd grinding wheel to arbor
  2. Add position reference marking on all three grinding wheels
  3. Tighten nut
  4. Measure unbalance
  5. Correct unbalance (e.g. by axial drilling)
- Prebalancing finished

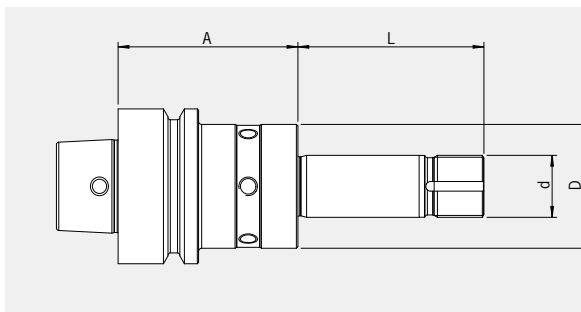
#### 第四步/Step 4



1. 修整整个砂轮
  2. 测量不平衡量
  3. 修正不平衡量  
(例如:使用动平衡螺钉)
- 精细动平衡完成了

1. Dressing of complete grinding wheel
  2. Measure unbalance
  3. Correct unbalance  
(e.g. by balancing screws)
- Fine-balancing finished

# 以前的DECKEL/ISOG砂轮杆, 接口为HSK-F50 配套使用带Ø 20MM 中心孔的Ø 40MM 间隔环 GRINDING WHEEL ADAPTER HSK-F50 (PREVIOUS DECKEL / ISOG) (WITH ACCESS HOLE) Ø 20 MM FOR SPACERS Ø 40 MM



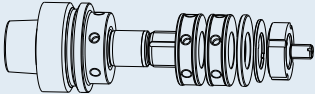
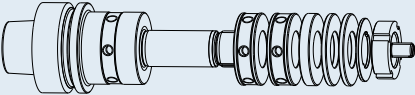
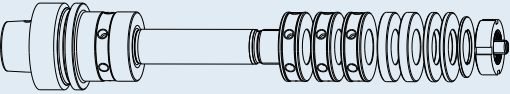
质量证书	
✓	所有功能面精细加工
✓	All functional surfaces fine machined
✓	精度高于DIN标准
✓	More accurate than DIN
✓	砂轮杆上包含用于调整平衡的螺纹孔
✓	Body with balancing threads
✓	精密动平衡
✓	Balanced






**用途:**  
 HSK-F50砂轮杆适用于ISOG/Deckel工具磨床, 配套使用带Ø20mm中心孔的Ø40mm间隔环

**Use:**  
 Grinding wheel adapter HSK-F50 (with access hole) / Ø 20 mm suitable for ISOG/Deckel tool grinding machines for spacers Ø 40 mm

**发货时含:**  
 间隔环包、锁紧螺母、密封螺钉、定位垫片

**Delivery:**  
 Spacer pack, clamping nut, sealing pin, lock plate

夹持/Clamping	Ø d [mm]	20	
长度/Length A [mm]		38	
订货号/Order No.	Ø D [mm]	40	
	L [mm]	50	
	F50.160.20.3		包含间隔环包和一个密封螺钉/ incl. spacers + 1 sealing pin (2x L=12, 1x L=3 [mm])
长度/Length A [mm]		58	
订货号/Order No.	Ø D [mm]	40	
	L [mm]	60	
	F50.163.20.3		包含间隔环包和一个密封螺钉/ incl. spacers + 1 sealing pin (2x L=12, 1x L=6, 2x L=3 [mm])
长度/Length A [mm]		58	
订货号/Order No.	Ø D [mm]	40	
	L [mm]	90	
	F50.161.20.3		包含间隔环包和一个密封螺钉/ incl. spacers + 1 sealing pin (3x L=12, 2x L=6, 2x L=3 [mm])

附件/Accessories			
间隔环/Spacers Ø 40 mm			
长度/Length L [mm]		3	
订货号/Order No.	999001-1135	*1	
长度/Length L [mm]		6	
订货号/Order No.	999001-1136	*1	
长度/Length L [mm]		12	
订货号/Order No.	999001-1137	*2	
定位垫片/Lock plate			
长度/Length		35x20x1,5	
订货号/Order No.	999001-1134		
锁紧螺母/Clamping nut			
螺纹/Thread		M20x1	
订货号/Order No.	915005-0004		
动平衡螺钉套装/Set of balancing screws			
订货号/Order No.	80.203.00		
密封螺钉 - POM/白/Sealing pin - POM/white			
订货号/Order No.	900052-0007	M8	

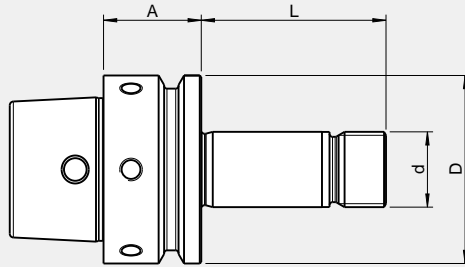
\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1 = without balancing thread \*2= with balancing thread

更多的间隔环请参见506页/See page 506 for further spacers

# UWS (REINECKER) 砂轮杆HSK-E50 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环 UWS (REINECKER) GRINDING WHEEL ADAPTER HSK-E50 (WITH ACCESS HOLE) Ø 20 MM FOR SPACERS Ø 50 MM

**CERTIFICATE OF QUALITY**

- ✓ 所有功能面精细加工  
All functional surfaces fine machined
- ✓ 精度高于DIN标准  
More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
Body with balancing threads
- ✓ 精密动平衡  
Balanced



**用途:**

HSK-E50砂轮杆适用于Reinecker工具磨床, 配套使用带Ø20mm中心孔的Ø50mm间隔环

**Use:**

Grinding wheel adapter HSK-E50 (with access hole) / Ø 20 mm suitable for Reinecker tool grinding machines for spacers Ø 50 mm

**发货时含:**

间隔环包、锁紧螺母

**Delivery:**

Spacer pack, clamping nut

夹持/Clamping	Ø d [mm]	20	
长度/Length A [mm]		26	
订货号/Order No.	Ø D [mm] L [mm] <b>E50.160.20.2</b> 包含间隔环/incl. spacers (2x L=12, 2x L=3 [mm])	50 49	
长度/Length A [mm]		26	
订货号/Order No.	Ø D [mm] L [mm] <b>E50.163.20.2</b> 包含间隔环/incl. spacers (3x L=12, 2x L=6, 2x L=3 [mm])	50 74	
长度/Length A [mm]		26	
订货号/Order No.	Ø D [mm] L [mm] <b>E50.161.20.2</b> 包含间隔环/incl. spacers (4x L=12, 3x L=6, 2x L=3 [mm])	50 109	

附件/Accessories		
间隔环/Spacers Ø 50 mm		
长度/Length L [mm]		3
订货号/Order No.	<b>999001-1139</b>	*1
长度/Length L [mm]		6
订货号/Order No.	<b>999001-1140</b>	*1
长度/Length L [mm]		12
订货号/Order No.	<b>999001-1138</b>	*2
锁紧螺母/Clamping nut		
螺纹/Thread		M20x1,5
订货号/Order No.	<b>915005-0001</b>	
动平衡螺钉套装/Set of balancing screws		
订货号/Order No.	<b>80.203.00</b>	

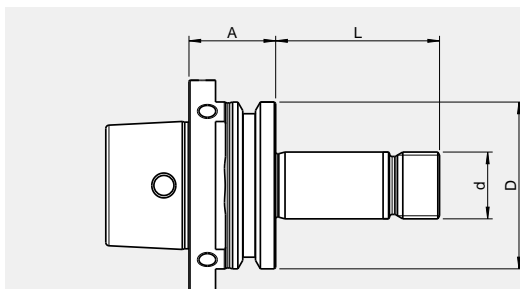


\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1 = without balancing thread \*2= with balancing thread

更多的间隔环请参见506页/See page 506 for further spacers



# ROLLOMATIC砂轮杆 HSK-E50 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环 ROLLOMATIC GRINDING WHEEL ADAPTER HSK-E50 (Ø 20 MM WITH ACCESS HOLE) FOR SPACERS Ø 50 MM



质量证书	
✓	所有功能面精细加工
✓	All functional surfaces fine machined
✓	精度高于DIN标准
✓	More accurate than DIN
✓	砂轮杆上包含用于调整平衡的螺纹孔
✓	Body with balancing threads
✓	精密动平衡
✓	Balanced

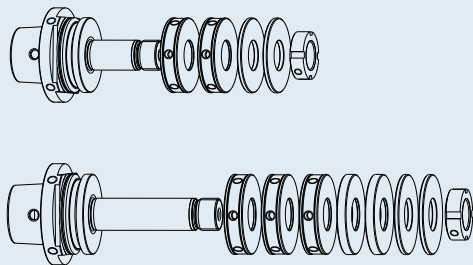
**用途:**  
HSK-E50砂轮杆适用于Rollomatic工具磨床, 配套使用带Ø20mm中心孔的Ø50mm间隔环

**Use:**  
Grinding wheel adapter HSK-E50 (with access hole) / Ø 20 mm suitable for Rollomatic tool grinding machines for spacers Ø 50 mm

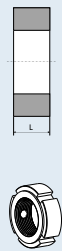
**发货时含:**  
间隔环包、锁紧螺母

**Delivery:**  
Spacer pack, clamping nut

夹持/Clamping	Ø d [mm]	20
长度/Length A [mm]		26
订货号/Order No.	Ø D [mm]	50
	L [mm]	49
包含间隔环/incl. spacers (2x L=12, 2x L=3 [mm])		
长度/Length A [mm]		26
订货号/Order No.	Ø D [mm]	50
	L [mm]	81
包含间隔环/incl. spacers (3x L=12, 2x L=6, 2x L=3 [mm])		



附件/Accessories		
间隔环/Spacers Ø 50 mm		
长度/Length L [mm]		3
订货号/Order No.	999001-1139	*1
长度/Length L [mm]		6
订货号/Order No.	999001-1140	*1
长度/Length L [mm]		12
订货号/Order No.	999001-1138	*2
锁紧螺母/Clamping nut		
螺纹/Thread		M20x1,5
订货号/Order No.	915005-0001	
动平衡螺钉套装/Set of balancing screws		
订货号/Order No.	80.203.00	

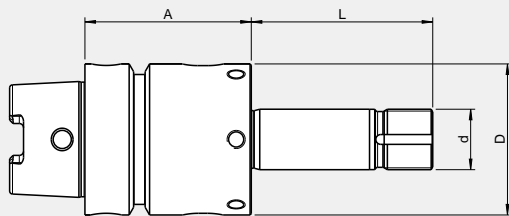


\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread  
更多的间隔环请参见506页/See page 506 for further spacers

# WALTER砂轮杆 HSK-C50 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环 WALTER GRINDING WHEEL ADAPTER HSK-C50 Ø 20 MM FOR SPACERS Ø 50 MM

**CERTIFICATE OF QUALITY**

- ✓ 所有功能面精细加工  
All functional surfaces fine machined
- ✓ 精度高于DIN标准  
More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
Body with balancing threads
- ✓ 精密动平衡  
Balanced



**用途:**

HSK-C50砂轮杆适用于Walter工具磨床, 配套使用带Ø20mm中心孔的Ø50mm间隔环

**发货时含:**

间隔环包、锁紧螺母、定位垫片

**Use:**

Grinding wheel adapter HSK-C50 / Ø 20 mm suitable for Walter tool grinding machines for spacers Ø 50 mm

**Delivery:**

Spacer pack, clamping nut, lock plate

夹持/Clamping	Ø d [mm]	20	
长度/Length A [mm]		55	
订货号/Order No.	Ø D [mm]	50	
包含间隔环/incl. spacers	L [mm]	40	
长度/Length A [mm]		55	
订货号/Order No.	Ø D [mm]	50	
包含间隔环/incl. spacers	L [mm]	60	
长度/Length A [mm]		55	
订货号/Order No.	Ø D [mm]	50	
包含间隔环/incl. spacers	L [mm]	85	
长度/Length A [mm]		55	
订货号/Order No.	Ø D [mm]	50	
包含间隔环/incl. spacers	L [mm]	100	
长度/Length A [mm]		55	
订货号/Order No.	Ø D [mm]	50	
包含间隔环/incl. spacers	L [mm]	120	

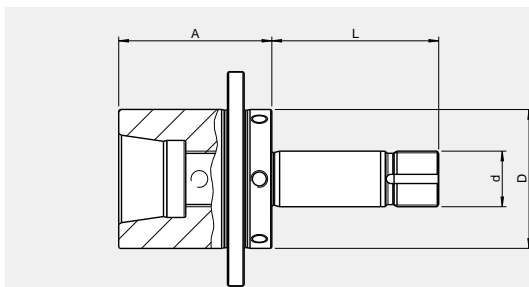
附件/Accessories		
<b>间隔环/Spacers Ø 50 mm</b>		
长度/Length L [mm]		3
订货号/Order No.	999001-1139	*1
长度/Length L [mm]		6
订货号/Order No.	999001-1140	*1
长度/Length L [mm]		12
订货号/Order No.	999001-1138	*2
<b>定位垫片/Lock plate</b>		
长度/Length L [mm]		35x20x1,5
订货号/Order No.	999001-1134	
<b>锁紧螺母/Clamping nut</b>		
螺纹/Thread		M20x1
订货号/Order No.	915005-0004	
<b>动平衡螺钉套装/Set of balancing screws</b>		
订货号/Order No.	80.203.00	



\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread

更多的间隔环请参见506页/See page 506 for further spacers

# WALTER砂轮杆 Z50 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环 WALTER GRINDING WHEEL ADAPTER Z50 Ø 20 MM FOR SPACERS Ø 50 MM



质量证书	
✓	所有功能面精细加工
✓	All functional surfaces fine machined
✓	砂轮杆上包含用于调整动平衡的螺纹孔
✓	Body with balancing threads
✓	精密动平衡
✓	Balanced

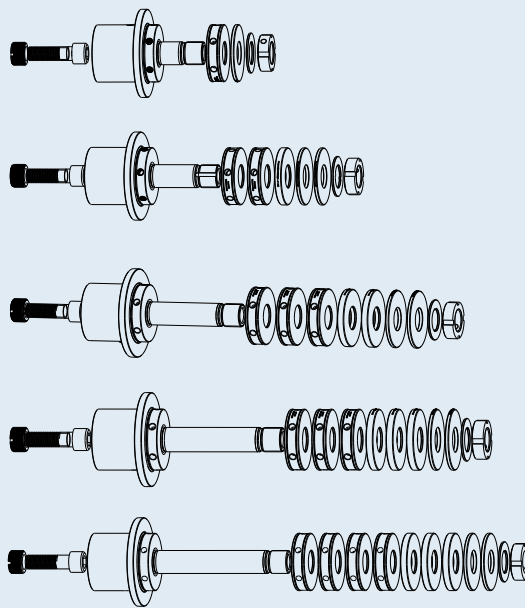
**用途:**  
HSK-Z50砂轮杆适用于Walter工具磨床, 配套使用带Ø20mm中心孔的Ø50mm间隔环

**发货时含:**  
间隔环包、锁紧螺母、定位垫片、螺母、沉头螺钉、螺纹销

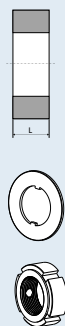
**Use:**  
Grinding wheel adapter Z50 / Ø 20 mm suitable for Walter tool grinding machines for spacers Ø 50 mm

**Delivery:**  
Spacer pack, clamping nut, lock plate, thread piece, cylinder screw, thread pin

夹持/Clamping	Ø d [mm]	20
长度/Length A [mm]		55
	Ø D [mm]	50
	L [mm]	40
订货号/Order No.	<b>Z50.165.20.5</b>	
包含间隔环/incl. spacers	(1x L=12, 1x L=3 [mm])	
长度/Length A [mm]		55
	Ø D [mm]	50
	L [mm]	60
订货号/Order No.	<b>Z50.160.20.5</b>	
包含间隔环/incl. spacers	(2x L=12, 1x L=6, 2x L=3 [mm])	
长度/Length A [mm]		55
	Ø D [mm]	50
	L [mm]	85
订货号/Order No.	<b>Z50.163.20.5</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	
长度/Length A [mm]		55
	Ø D [mm]	50
	L [mm]	100
订货号/Order No.	<b>Z50.161.20.5</b>	
包含间隔环/incl. spacers	(3x L=12, 3x L=6, 2x L=3 [mm])	
长度/Length A [mm]		55
	Ø D [mm]	50
	L [mm]	120
订货号/Order No.	<b>Z50.167.20.5</b>	
包含间隔环/incl. spacers	(4x L=12, 3x L=6, 2x L=3 [mm])	



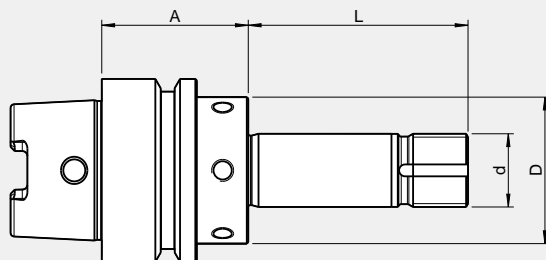
附件/Accessories		
间隔环/Spacers Ø 50 mm		
长度/Length L [mm]		3
订货号/Order No.	<b>999001-1139</b>	*1
长度/Length L [mm]		6
订货号/Order No.	<b>999001-1140</b>	*1
长度/Length L [mm]		12
订货号/Order No.	<b>999001-1138</b>	*2
定位垫片/Lock plate		
长度/Length L [mm]		35x20x1,5
订货号/Order No.	<b>999001-1134</b>	
锁紧螺母/Clamping nut		
螺纹/Thread		M20x1
订货号/Order No.	<b>915005-0004</b>	
动平衡螺钉套装/Set of balancing screws		
订货号/Order No.	<b>80.203.00</b>	



\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread  
更多的间隔环请参见506页/See page 506 for further spacers

# SAACKE / VOLLMER砂轮杆HSK-C50 (含HSK-E50的机械手夹持槽) 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环 SAACKE/VOLLMER GRINDING WHEEL ADAPTER HSK-C50 (WITH GROOVES FOR TOOL CHANGER) Ø 20 MM FOR SPACERS Ø 50 MM

CERTIFICATE OF QUALITY	
✓ 所有功能面精细加工	All functional surfaces fine machined
✓ 精度高于DIN标准	More accurate than DIN
✓ 砂轮杆上包含用于调整动平衡的螺纹孔	Body with balancing threads
✓ 精密动平衡	Balanced



**用途:**

HSK-C50砂轮杆(含HSK-E50的机械手夹持槽)适用于Saacke和Vollmer工具磨床, 配套使用带Ø20mm中心孔的Ø50mm间隔环

**发货时含:**

间隔环包、锁紧螺母、定位垫片

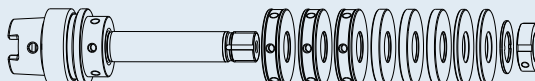
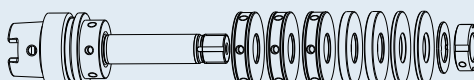
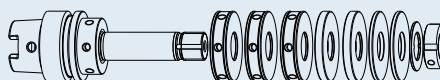
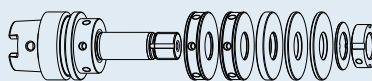
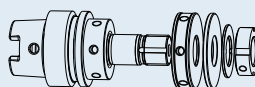
**Use:**

Grinding wheel adapter HSK-C50 (with gripper groove for tool changer) / Ø 20 mm suitable for Saacke and Vollmer tool grinding machines for spacers Ø 50 mm

**Delivery:**

Spacer pack, clamping nut, lock plate

夹持/Clamping	Ø d [mm]	20
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	40
订货号/Order No.	<b>C50.165.20.6</b>	
包含间隔环/incl. spacers	(1x L=12, 1x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	60
订货号/Order No.	<b>C50.160.20.6</b>	
包含间隔环/incl. spacers	(2x L=12, 1x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	75
订货号/Order No.	<b>C50.168.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	85
订货号/Order No.	<b>C50.163.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	100
订货号/Order No.	<b>C50.161.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 3x L=6, 2x L=3 [mm])	
附件/Accessories		
间隔环/Spacers Ø 50 mm		
长度/Length L [mm]		3
订货号/Order No.	<b>999001-1139</b>	*1
长度/Length L [mm]		6
订货号/Order No.	<b>999001-1140</b>	*1
长度/Length L [mm]		12
订货号/Order No.	<b>999001-1138</b>	*2
定位垫片/Lock plate		
长度/Length L [mm]		35x20x1,5
订货号/Order No.	<b>999001-1134</b>	
锁紧螺母/Clamping nut		
螺纹/Thread		M20x1
订货号/Order No.	<b>915005-0004</b>	
动平衡螺钉套装/Set of balancing screws		
订货号/Order No.	<b>80.203.00</b>	

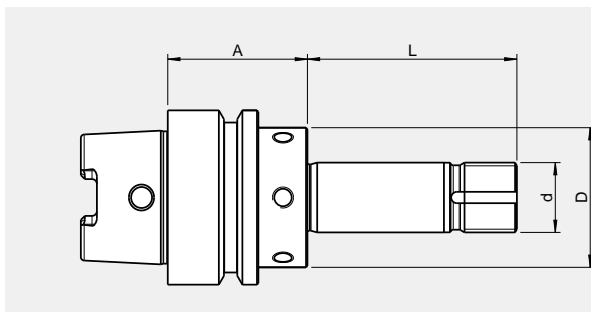


\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread

更多的间隔环请参见506页/See page 506 for further spacers

# HSK-C50砂轮杆(含HSK-E50的机械手夹持槽)适用于SCHÜTTE工具磨床, 配套使用带Ø20MM中心孔的Ø50MM间隔环

## SCHÜTTE GRINDING WHEEL ADAPTER HSK-C50 (WITH GRIPPER GROOVE HSK-E50) Ø 20 MM FOR SPACERS Ø 50 MM



质量证书	
✓ 所有功能面精细加工	All functional surfaces fine machined
✓ 精度高于DIN标准	More accurate than DIN
✓ 砂轮杆上包含用于调整动平衡的螺纹孔	Body with balancing threads
✓ 精密动平衡	Balanced

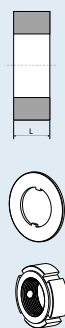
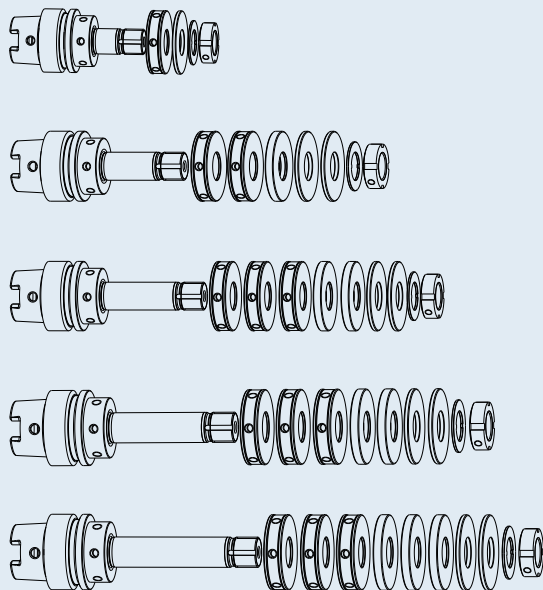
**用途:**  
HSK-C50砂轮杆(含HSK-E50的机械手夹持槽)适用于Schütte工具磨床(205系列), 配套使用带Ø20mm中心孔的Ø50mm间隔环

**Use:**  
Grinding wheel adapter HSK-C50 (with gripper groove HSK-E50) / Ø 20 mm suitable for Schütte tool grinding machines (205 series) for spacers Ø 50 mm

**发货时含:**  
间隔环、锁紧螺母、定位垫片

**Delivery:**  
Spacer pack, clamping nut, lock plate

夹持/Clamping	Ø d [mm]	20
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	40
订货号/Order No.	<b>C50.165.20.6</b>	
包含间隔环/incl. spacers	(1x L=12, 1x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	60
订货号/Order No.	<b>C50.160.20.6</b>	
包含间隔环/incl. spacers	(2x L=12, 1x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	75
订货号/Order No.	<b>C50.168.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	85
订货号/Order No.	<b>C50.163.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	
长度/Length A [mm]		40
	Ø D [mm]	40
	L [mm]	100
订货号/Order No.	<b>C50.161.20.6</b>	
包含间隔环/incl. spacers	(3x L=12, 3x L=6, 2x L=3 [mm])	
<b>附件/Accessories</b>		
<b>间隔环/Spacers Ø 50 mm</b>		
长度/Length L [mm]		3
订货号/Order No.	<b>999001-1139</b>	*1
长度/Length L [mm]		6
订货号/Order No.	<b>999001-1140</b>	*1
长度/Length L [mm]		12
订货号/Order No.	<b>999001-1138</b>	*2
<b>定位垫片/Lock plate</b>		
长度/Length L [mm]		35x20x1,5
订货号/Order No.	<b>999001-1134</b>	
<b>锁紧螺母/Clamping nut</b>		
螺纹/Thread		M20x1
订货号/Order No.	<b>915005-0004</b>	
<b>动平衡螺钉套装/Set of balancing screws</b>		
订货号/Order No.	<b>80.203.00</b>	



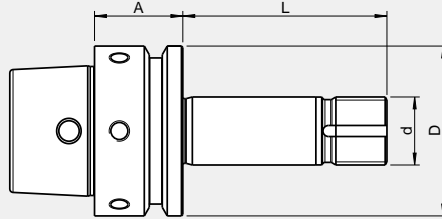
\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread  
更多的间隔环请参见506页/See page 506 for further spacers

# SCHÜTTE砂轮杆 HSK-E50 配套使用带Ø 20MM 中心孔的Ø 50MM 间隔环

## SCHÜTTE GRINDING WHEEL ADAPTER HSK-E50 (WITH ACCESS BORE) Ø 20 MM FOR SPACERS Ø 50 MM

**CERTIFICATE OF QUALITY**

- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
✓ Body with balancing threads
- ✓ 精密动平衡  
✓ Balanced

**用途:**

HSK-E50砂轮杆适用于Schütte工具磨床(305系列), 配套使用带Ø20mm中心孔的Ø50mm间隔环

**发货时含:**

间隔环包、锁紧螺母、定位垫片

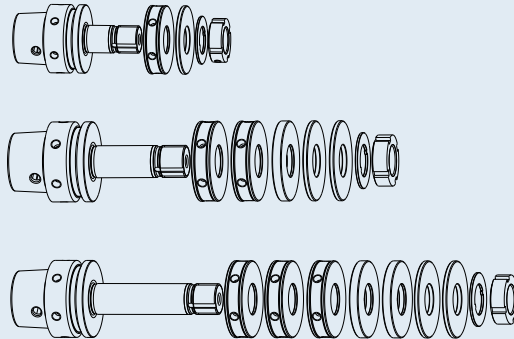
**Use:**

Grinding wheel adapter HSK-E50 (with access bore) / Ø 20 mm suitable for Schütte tool grinding machines (305 series) for spacers Ø 50 mm

**Delivery:**

Spacer pack, clamping nut, lock plate

夹持/Clamping	Ø d [mm]	20
长度/Length A [mm]		26
	Ø D [mm]	50
	L [mm]	40
订货号/Order No.	<b>E50.165.20.8</b>	
包含间隔环/incl. spacers	(1x L=12, 1x L=3 [mm])	
长度/Length A [mm]		26
	Ø D [mm]	50
	L [mm]	55
订货号/Order No.	<b>E50.160.20.8</b>	
包含间隔环/incl. spacers	(2x L=12, 1x L=6, 2x L=3 [mm])	
长度/Length A [mm]		26
	Ø D [mm]	50
	L [mm]	85
订货号/Order No.	<b>E50.163.20.8</b>	
包含间隔环/incl. spacers	(3x L=12, 2x L=6, 2x L=3 [mm])	

**附件/Accessories**

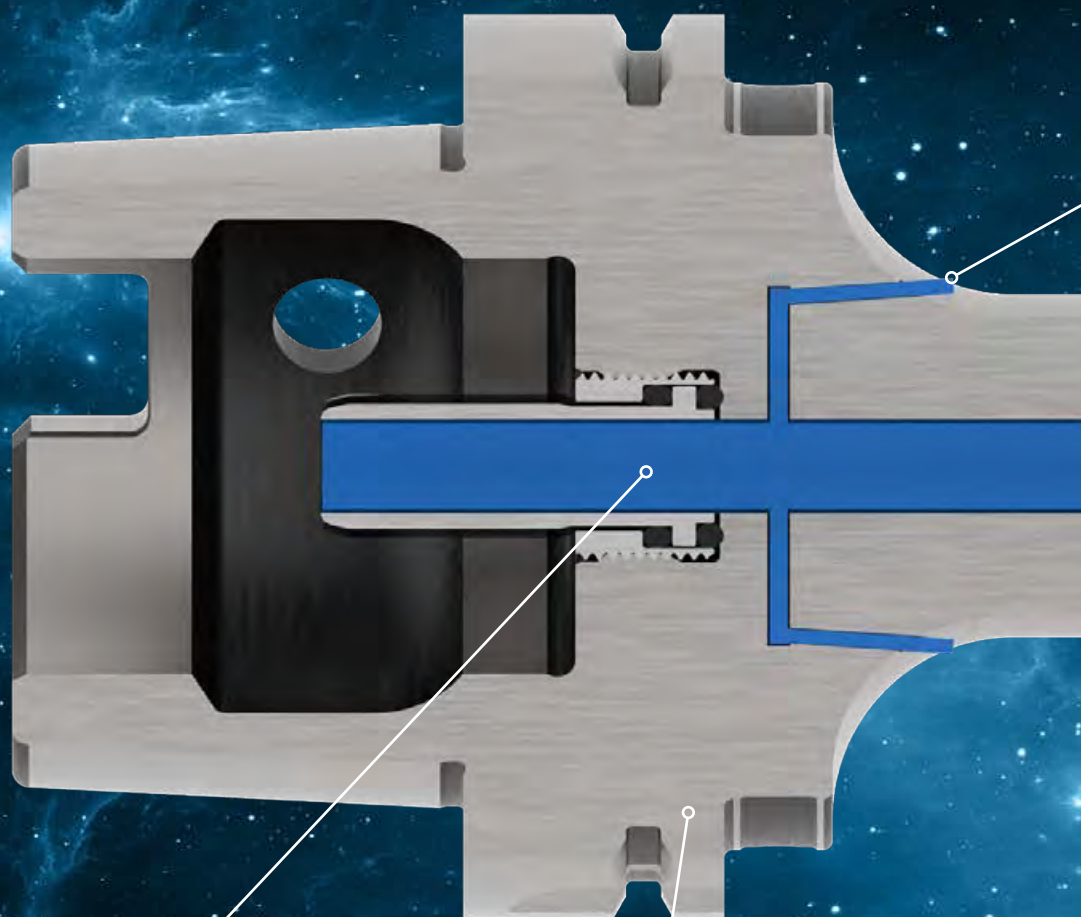
间隔环/Spacers Ø 50 mm		
长度/Length L [mm]		3
订货号/Order No.	<b>999001-1139</b>	*1
长度/Length L [mm]		6
订货号/Order No.	<b>999001-1140</b>	*1
长度/Length L [mm]		12
订货号/Order No.	<b>999001-1138</b>	*2
定位垫片/Lock plate		
长度/Length L [mm]		35x20x1,5
订货号/Order No.	<b>999001-1134</b>	
锁紧螺母/Clamping nut		
螺纹/Thread		M20x1
订货号/Order No.	<b>915005-0004</b>	
动平衡螺钉套装/Set of balancing screws		
订货号/Order No.	<b>80.203.00</b>	



\*1= 不含动平衡螺纹孔 \*2= 含动平衡螺纹孔/\*1= without balancing thread \*2= with balancing thread

更多的间隔环请参见506页/See page 506 for further spacers

# 整体式砂轮杆 GRINDING WHEEL ADAPTER MONOBLOCK



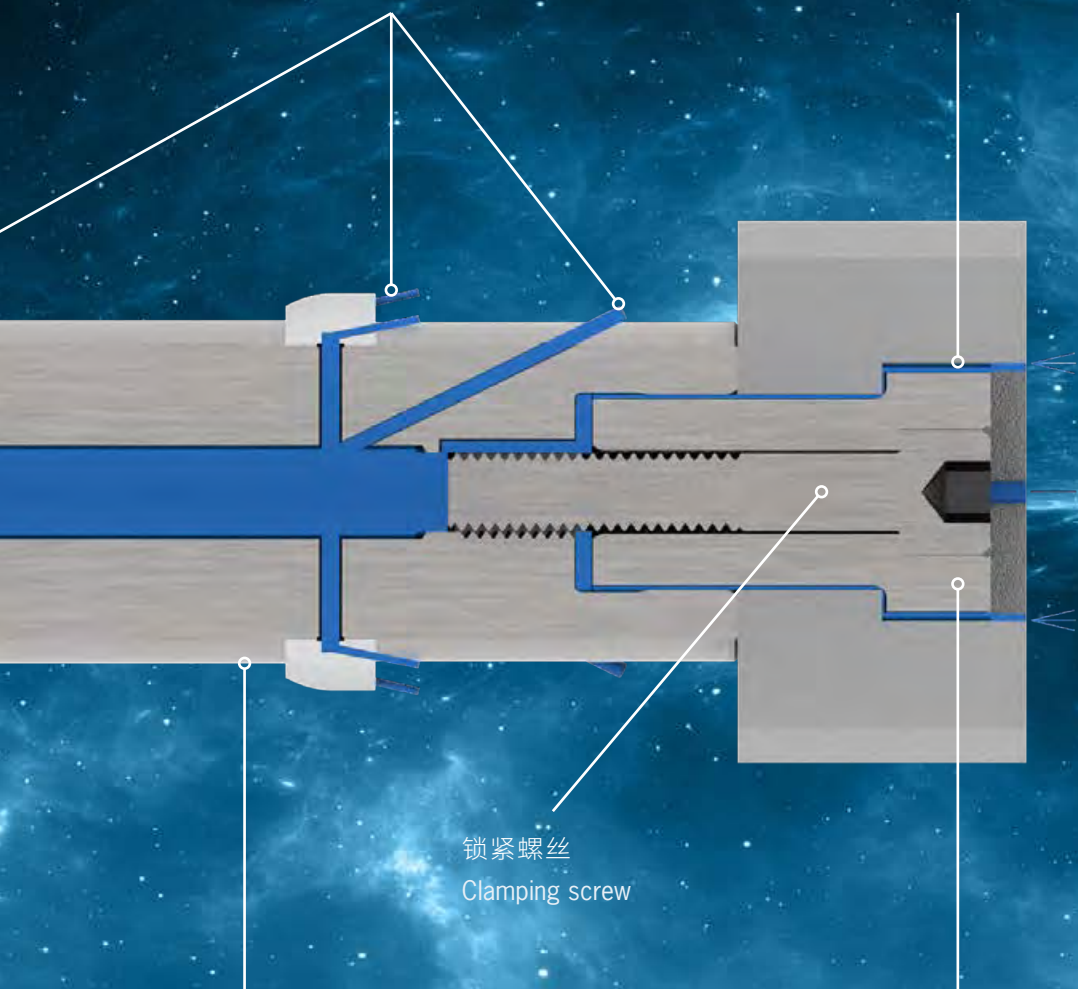
主轴中心内冷  
Coolant supply through the spindle

砂轮杆已经预平衡且包含用于精细  
动平衡的螺纹孔

Basic taper pre-balanced-incl. threads  
for fine balancing

可以根据砂轮来定制冷却喷孔(选配)  
Coolant bores (Cool Jet) customized on grinding wheel (optional)

标准冷却方式(端面)  
Standard cooling (face side)



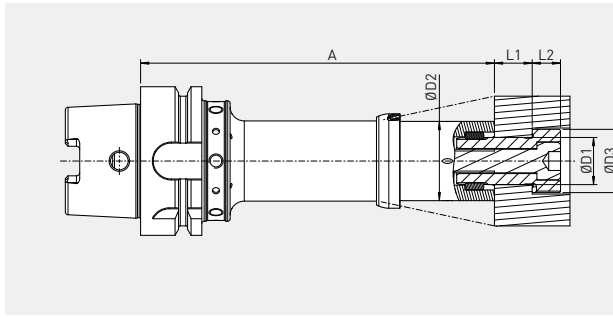
锁紧螺丝  
Clamping screw

纤细的设计  
Slim design

防止螺丝扭曲的法兰套  
Anti-twist clamping flange



## HSK-A63 整体式砂轮杆 GRINDING WHEEL ADAPTER HSK-A63 – MONOBLOCK



### 质量证书

- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔
- ✓ Body with balancing threads
- ✓ 精密动平衡
- ✓ Balanced

### HSK-A63 整体式砂轮杆

- 砂轮杆 (不合法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括端面的冷却方式
- 可选配外部冷却(根据砂轮单独调整)
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔

### HSK-A63 grinding wheel adapter Monoblock

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. cooling on the face side
- Optional external cooling (individually modifiable according to the grinding wheel)
- Standard clamping height (see table) special clamping height possible on request
- Incl. balancing threads for fine balancing

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A63.160.10.075.001.HA		10	25	75	15-20	9	17
A63.160.10.100.001.HA		10	25	100	15-20	9	17
A63.160.10.150.001.HA		10	25	150	15-20	9	17
A63.160.10.200.001.HA		10	25	200	15-20	9	17
A63.160.16.075.001.HA		16	30	75	15-20	9	23
A63.160.16.100.001.HA		16	30	100	15-20	9	23
A63.160.16.150.001.HA		16	30	150	15-20	9	23
A63.160.16.200.001.HA		16	30	200	15-20	9	23
A63.160.20.075.001.HA		20	32	75	15-20	12	27
A63.160.20.100.001.HA		20	32	100	15-20	12	27
A63.160.20.150.001.HA		20	32	150	15-20	12	27
A63.160.20.200.001.HA		20	32	200	15-20	12	27
A63.160.25.075.001.HA		25	38	75	15-20	12	32
A63.160.25.100.001.HA		25	38	100	15-20	12	32
A63.160.25.150.001.HA		25	38	150	15-20	12	32
A63.160.25.200.001.HA		25	38	200	15-20	12	32
A63.160.32.075.001.HA		32	54	75	15-20	11	55
A63.160.32.100.001.HA		32	54	100	15-20	11	55
A63.160.32.150.001.HA		32	54	150	15-20	11	55
A63.160.32.200.001.HA		32	54	200	15-20	11	55

其他接口、长度和夹持直径的砂轮杆可以定制

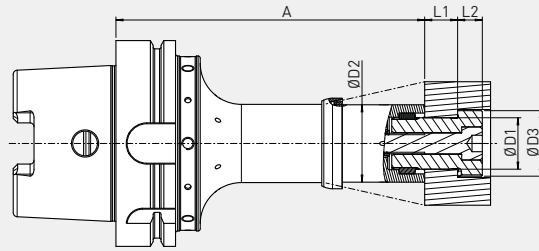
Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

# HSK-A100 整体式砂轮杆

## GRINDING WHEEL ADAPTER HSK-A100 – MONOBLOCK

### CERTIFICATE OF QUALITY

- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔
- ✓ Body with balancing threads
- ✓ 精密动平衡
- ✓ Balanced



### HSK-A100 整体式砂轮杆

- 砂轮杆 (不含法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括端面的冷却方式
- 可选配外部冷却(根据砂轮单独调整)
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔

### HSK-A100 grinding wheel adapter Monoblock

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. cooling on the face side
- Optional external cooling (individually modifiable according to the grinding wheel)
- Standard clamping height (see table)  
special clamping height possible on request
- Incl. balancing threads for fine balancing

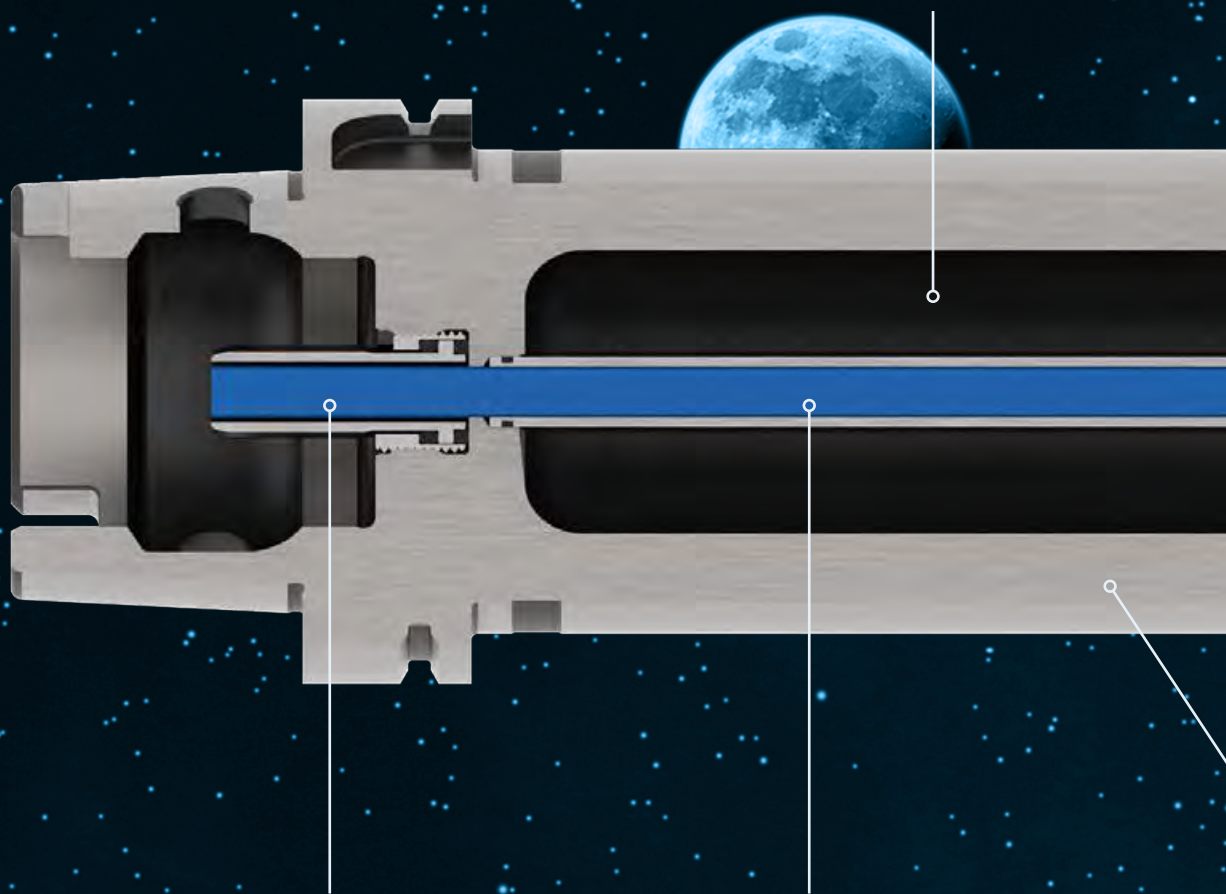
订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A10.160.10.075.001.HA		10	25	75	15-20	9	17
A10.160.10.100.001.HA		10	25	100	15-20	9	17
A10.160.10.150.001.HA		10	25	150	15-20	9	17
A10.160.10.200.001.HA		10	25	200	15-20	9	17
A10.160.16.075.001.HA		16	30	75	15-20	9	23
A10.160.16.100.001.HA		16	30	100	15-20	9	23
A10.160.16.150.001.HA		16	30	150	15-20	9	23
A10.160.16.200.001.HA		16	30	200	15-20	9	23
A10.160.20.075.001.HA		20	32	75	15-20	12	27
A10.160.20.100.001.HA		20	32	100	15-20	12	27
A10.160.20.150.001.HA		20	32	150	15-20	12	27
A10.160.20.200.001.HA		20	32	200	15-20	12	27
A10.160.25.075.001.HA		25	38	75	15-20	12	32
A10.160.25.100.001.HA		25	38	100	15-20	12	32
A10.160.25.150.001.HA		25	38	150	15-20	12	32
A10.160.25.200.001.HA		25	38	200	15-20	12	32
A10.160.32.075.001.HA		32	54	75	15-20	11	55
A10.160.32.100.001.HA		32	54	100	15-20	11	55
A10.160.32.150.001.HA		32	54	150	15-20	11	55
A10.160.32.200.001.HA		32	54	200	15-20	11	55

其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

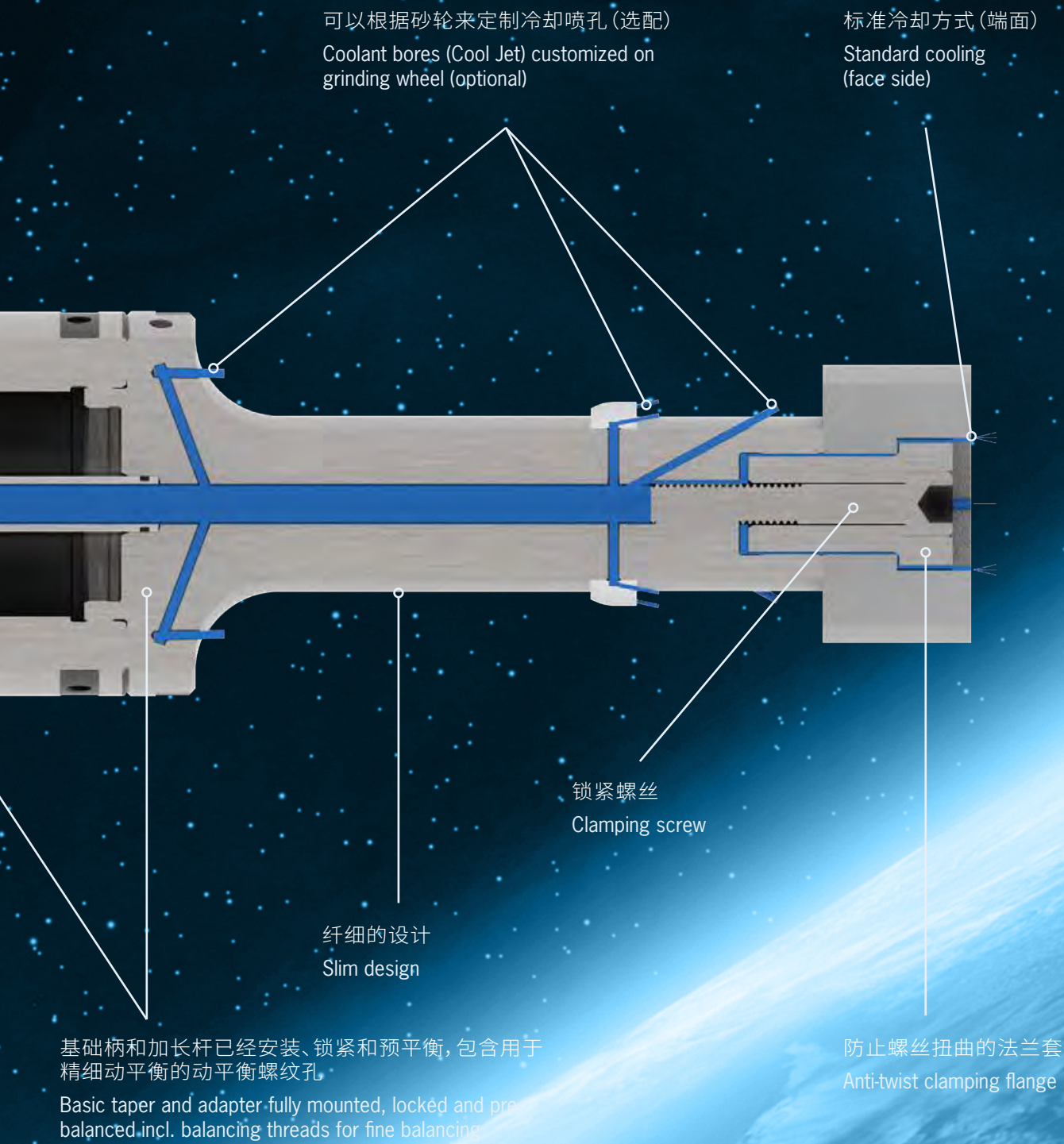
# 带一个锁紧螺丝的分体式砂轮杆 GRINDING WHEEL ADAPTER MULTI-PART WITH ONE CLAMPING SCREW

优化的设计有助于减重  
Optimized design for total weight reduction

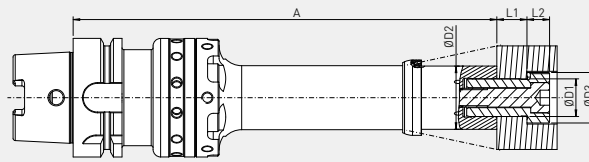


主轴中心内冷  
Coolant supply through the spindle

直达目标的冷却液供应  
Targeted coolant supply



# 带一个锁紧螺丝的分体式HSK-A63砂轮杆 GRINDING WHEEL ADAPTER HSK-A63 – MULTI-PART WITH ONE CLAMPING SCREW



### 质量证书

- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
✓ Body with balancing threads
- ✓ 精密动平衡  
✓ Balanced

### 带一个锁紧螺丝的分体式HSK-A63砂轮杆

- 砂轮杆 (不含法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括端面的冷却方式
- 可选配外部冷却(根据砂轮单独调整)
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 优化的设计有助于减重

### HSK-A63 grinding wheel adapter Multi-part with one clamping screw

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. cooling on the face side
- Optional external cooling (individually modifiable according to the grinding wheel)
- Standard clamping height (see table)  
special clamping height possible on request
- Incl. balancing threads for fine balancing
- Optimized design for total weight reduction

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A63.160.10.115.002.HA		10	25	115	15-20	9	17
A63.160.10.175.002.HA		10	25	175	15-20	9	17
A63.160.10.225.002.HA		10	25	225	15-20	9	17
A63.160.10.240.002.HA		10	25	240	15-20	9	17
A63.160.10.300.002.HA		10	25	300	15-20	9	17
A63.160.10.350.002.HA		10	25	350	15-20	9	17
A63.160.12.115.002.HA		12	25	115	15-20	9	18
A63.160.12.175.002.HA		12	25	175	15-20	9	18
A63.160.12.225.002.HA		12	25	225	15-20	9	18
A63.160.12.240.002.HA		12	25	240	15-20	9	18
A63.160.12.300.002.HA		12	25	300	15-20	9	18
A63.160.12.350.002.HA		12	25	350	15-20	9	18
A63.160.16.115.002.HA		16	30	115	15-20	9	23
A63.160.16.175.002.HA		16	30	175	15-20	9	23
A63.160.16.225.002.HA		16	30	225	15-20	9	23
A63.160.16.240.002.HA		16	30	240	15-20	9	23
A63.160.16.300.002.HA		16	30	300	15-20	9	23
A63.160.16.350.002.HA		16	30	350	15-20	9	23
A63.160.20.125.002.HA		20	32	125	15-20	12	27
A63.160.20.175.002.HA		20	32	175	15-20	12	27
A63.160.20.225.002.HA		20	32	225	15-20	12	27
A63.160.20.250.002.HA		20	32	250	15-20	12	27
A63.160.20.300.002.HA		20	32	300	15-20	12	27
A63.160.20.350.002.HA		20	32	350	15-20	12	27
A63.160.25.125.002.HA		25	38	125	15-20	12	32
A63.160.25.175.002.HA		25	38	175	15-20	12	32
A63.160.25.225.002.HA		25	38	225	15-20	12	32
A63.160.25.250.002.HA		25	38	250	15-20	12	32
A63.160.25.300.002.HA		25	38	300	15-20	12	32
A63.160.25.350.002.HA		25	38	350	15-20	12	32
A63.160.32.125.002.HA		32	54	125	15-20	11	55
A63.160.32.175.002.HA		32	54	175	15-20	11	55
A63.160.32.225.002.HA		32	54	225	15-20	11	55
A63.160.32.250.002.HA		32	54	250	15-20	11	55
A63.160.32.300.002.HA		32	54	300	15-20	11	55
A63.160.32.350.002.HA		32	54	350	15-20	11	55

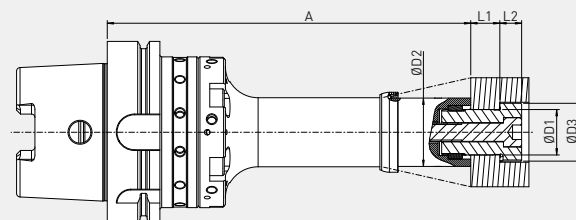
其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

## 带一个锁紧螺丝的分体式HSK-A100砂轮杆 GRINDING WHEEL ADAPTER HSK-A100 – MULTI-PART WITH ONE CLAMPING SCREW

### CERTIFICATE OF QUALITY

- ✓ 所有功能面精细加工  
All functional surfaces fine machined
- ✓ 精度高于DIN标准  
More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
Body with balancing threads
- ✓ 精密动平衡  
Balanced



### 带一个锁紧螺丝的分体式HSK-A100砂轮杆

- 砂轮杆 (不含法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括端面的冷却方式
- 可选配外部冷却(根据砂轮单独调整)
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 优化的设计有助于减重

### HSK-A100 grinding wheel adapter Multi-part with one clamping screw

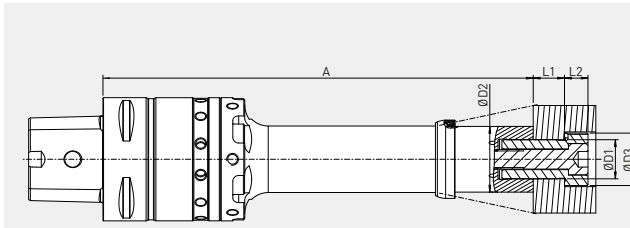
- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. cooling on the face side
- Optional external cooling (individually modifiable according to the grinding wheel)
- Standard clamping height (see table)  
special clamping height possible on request
- Incl. balancing threads for fine balancing
- Optimized design for total weight reduction

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A10.160.10.100.002.HA		10	25	100	15-20	9	17
A10.160.10.150.002.HA		10	25	150	15-20	9	17
A10.160.10.200.002.HA		10	25	200	15-20	9	17
A10.160.10.250.002.HA		10	25	250	15-20	9	17
A10.160.10.300.002.HA		10	25	300	15-20	9	17
A10.160.10.350.002.HA		10	25	350	15-20	9	17
A10.160.12.100.002.HA		12	25	100	15-20	9	18
A10.160.12.150.002.HA		12	25	150	15-20	9	18
A10.160.12.200.002.HA		12	25	200	15-20	9	18
A10.160.12.250.002.HA		12	25	250	15-20	9	18
A10.160.12.300.002.HA		12	25	300	15-20	9	18
A10.160.12.350.002.HA		12	25	350	15-20	9	18
A10.160.16.100.002.HA		16	30	100	15-20	9	23
A10.160.16.150.002.HA		16	30	150	15-20	9	23
A10.160.16.200.002.HA		16	30	200	15-20	9	23
A10.160.16.250.002.HA		16	30	250	15-20	9	23
A10.160.16.300.002.HA		16	30	300	15-20	9	23
A10.160.16.350.002.HA		16	30	350	15-20	9	23
A10.160.20.105.002.HA		20	32	105	15-20	12	27
A10.160.20.150.002.HA		20	32	150	15-20	12	27
A10.160.20.200.002.HA		20	32	200	15-20	12	27
A10.160.20.255.002.HA		20	32	255	15-20	12	27
A10.160.20.300.002.HA		20	32	300	15-20	12	27
A10.160.20.350.002.HA		20	32	350	15-20	12	27
A10.160.25.105.002.HA		25	38	105	15-20	12	32
A10.160.25.150.002.HA		25	38	150	15-20	12	32
A10.160.25.200.002.HA		25	38	200	15-20	12	32
A10.160.25.255.002.HA		25	38	255	15-20	12	32
A10.160.25.300.002.HA		25	38	300	15-20	12	32
A10.160.25.350.002.HA		25	38	350	15-20	12	32
A10.160.32.110.002.HA		32	54	110	15-20	11	55
A10.160.32.150.002.HA		32	54	150	15-20	11	55
A10.160.32.200.002.HA		32	54	200	15-20	11	55
A10.160.32.260.002.HA		32	54	260	15-20	11	55
A10.160.32.300.002.HA		32	54	300	15-20	11	55
A10.160.32.350.002.HA		32	54	350	15-20	11	55

其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

# 带一个锁紧螺丝的分体式PSC 63砂轮杆 GRINDING WHEEL ADAPTER PSC 63 – MULTI-PART WITH ONE CLAMPING SCREW



### 质量证书

- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔  
✓ Body with balancing threads
- ✓ 精密动平衡  
✓ Balanced

### 带一个锁紧螺丝的分体式PSC 63砂轮杆

- 砂轮杆 (不合法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括端面的冷却方式
- 可选配外部冷却(根据砂轮单独调整)
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 优化的设计有助于减重

### Polygon shank PSC 63 grinding wheel adapter Multi-part with one clamping screw

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. cooling on the face side
- Optional external cooling (individually modifiable according to the grinding wheel)
- Standard clamping height (see table)  
special clamping height possible on request
- Incl. balancing threads for fine balancing
- Optimized design for total weight reduction

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
CC6.160.10.110.002.HA		10	25	110	15-20	9	17
CC6.160.10.170.002.HA		10	25	170	15-20	9	17
CC6.160.10.220.002.HA		10	25	220	15-20	9	17
CC6.160.10.240.002.HA		10	25	240	15-20	9	17
CC6.160.10.300.002.HA		10	25	300	15-20	9	17
CC6.160.10.350.002.HA		10	25	350	15-20	9	17
CC6.160.12.110.002.HA		12	25	110	15-20	9	18
CC6.160.12.170.002.HA		12	25	170	15-20	9	18
CC6.160.12.220.002.HA		12	25	220	15-20	9	18
CC6.160.12.240.002.HA		12	25	240	15-20	9	18
CC6.160.12.300.002.HA		12	25	300	15-20	9	18
CC6.160.12.350.002.HA		12	25	350	15-20	9	18
CC6.160.16.110.002.HA		16	30	110	15-20	9	23
CC6.160.16.170.002.HA		16	30	170	15-20	9	23
CC6.160.16.220.002.HA		16	30	220	15-20	9	23
CC6.160.16.240.002.HA		16	30	240	15-20	9	23
CC6.160.16.300.002.HA		16	30	300	15-20	9	23
CC6.160.16.350.002.HA		16	30	350	15-20	9	23
CC6.160.20.120.002.HA		20	32	120	15-20	12	27
CC6.160.20.170.002.HA		20	32	170	15-20	12	27
CC6.160.20.220.002.HA		20	32	220	15-20	12	27
CC6.160.20.250.002.HA		20	32	250	15-20	12	27
CC6.160.20.300.002.HA		20	32	300	15-20	12	27
CC6.160.20.350.002.HA		20	32	350	15-20	12	27
CC6.160.25.120.002.HA		25	38	120	15-20	12	32
CC6.160.25.170.002.HA		25	38	170	15-20	12	32
CC6.160.25.220.002.HA		25	38	220	15-20	12	32
CC6.160.25.250.002.HA		25	38	250	15-20	12	32
CC6.160.25.300.002.HA		25	38	300	15-20	12	32
CC6.160.25.350.002.HA		25	38	350	15-20	12	32
CC6.160.32.120.002.HA		32	54	120	15-20	11	55
CC6.160.32.170.002.HA		32	54	170	15-20	11	55
CC6.160.32.220.002.HA		32	54	220	15-20	11	55
CC6.160.32.250.002.HA		32	54	250	15-20	11	55
CC6.160.32.300.002.HA		32	54	300	15-20	11	55
CC6.160.32.350.002.HA		32	54	350	15-20	11	55

其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

应用案例  
APPLICATION EXAMPLE

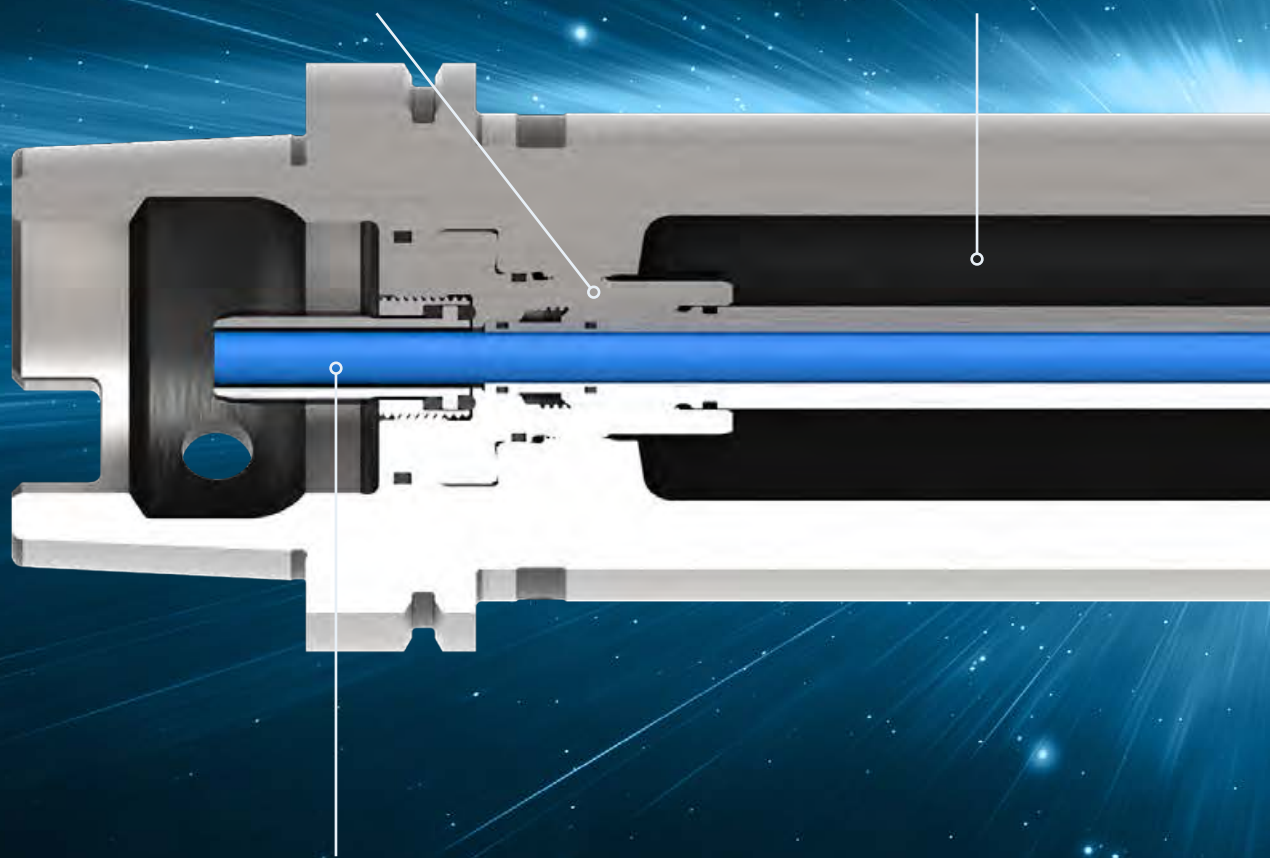




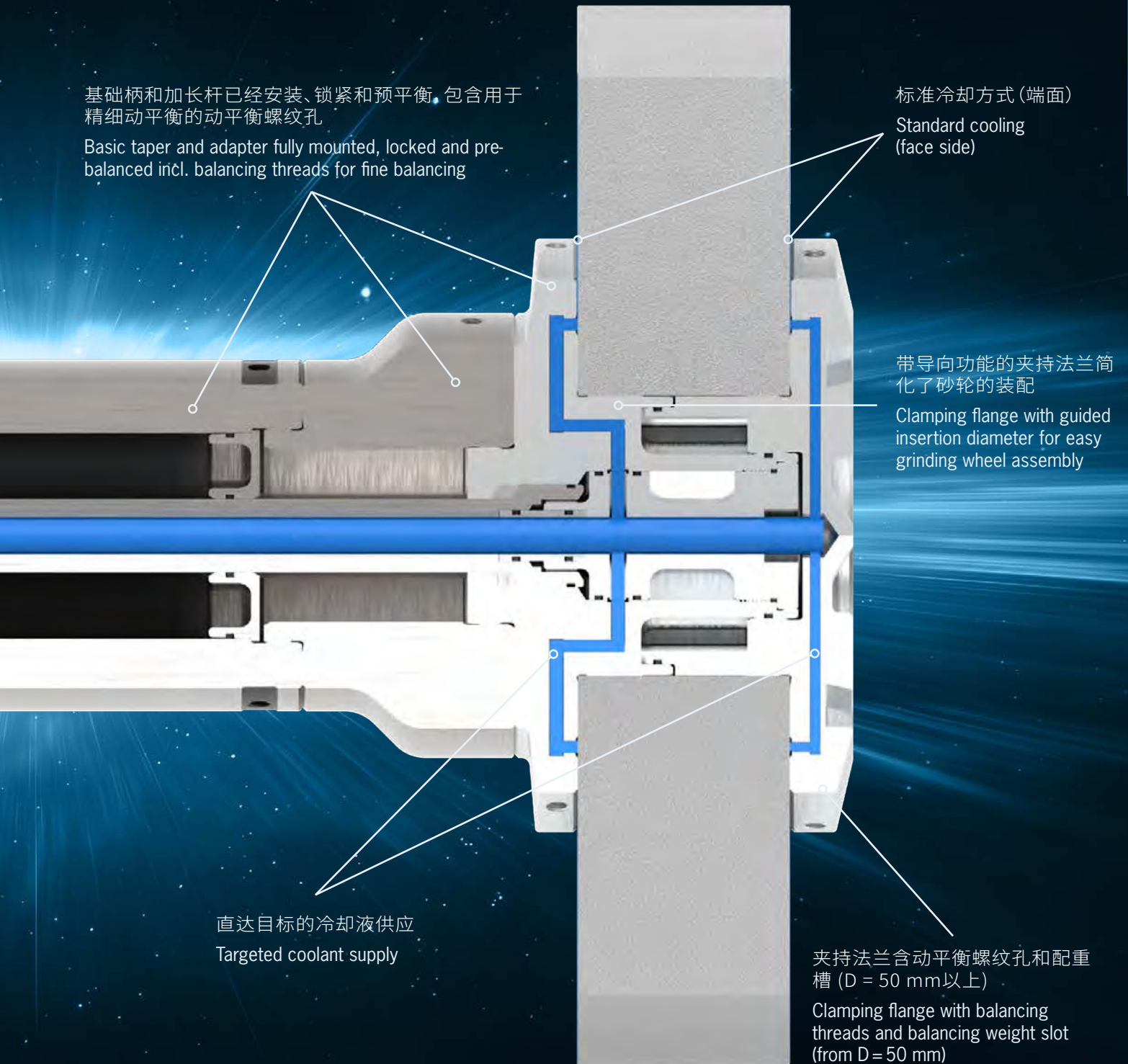
# 带几个锁紧螺丝的分体式的砂轮杆 GRINDING WHEEL ADAPTER MULTI-PART WITH SEVERAL CLAMPING SCREWS

中心夹持系统非常牢固和稳定  
Extremely stiff and stable thanks  
to central clamping system

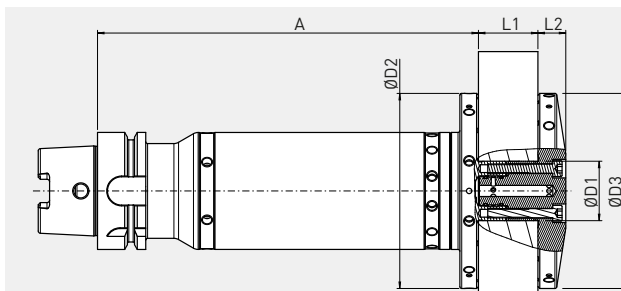
优化的设计有助于减重。  
Optimized design for total weight  
reduction



主轴中心内冷  
Coolant supply through the spindle



## 带四个锁紧螺丝的分体式HSK-A63砂轮杆 GRINDING WHEEL ADAPTER HSK-A63 – MULTI-PART WITH 4 CLAMPING SCREWS



### 质量证书

- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔
- ✓ Body with balancing threads
- ✓ 精密动平衡
- ✓ Balanced

### 带四个锁紧螺丝的分体式HSK-A63砂轮杆

- 砂轮杆 (不合法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括外部冷却
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 优化的设计有助于减重
- 根据客户的特殊要求(必须单独检查)提供的单独冷却(通过砂轮)可能额外收费

### HSK-A63 grinding wheel adapter Multi-part with 4 clamping screws

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. external cooling
- Standard clamping height (see table) special clamping height possible on request
- Incl. balancing threads for fine balancing
- Optimized design for total weight reduction
- Individual cooling (through the grinding wheel) possible for an extra charge and by special request (must be checked individually)

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A63.160.32.080.003.HA		32	105	80	20	15	105
A63.160.32.205.003.HA		32	105	205	20	15	105
A63.160.32.300.003.HA		32	105	300	20	15	105

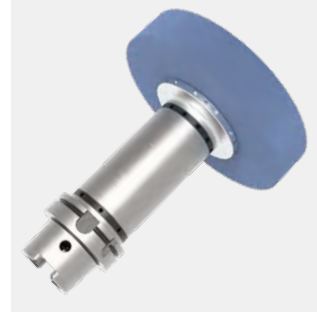
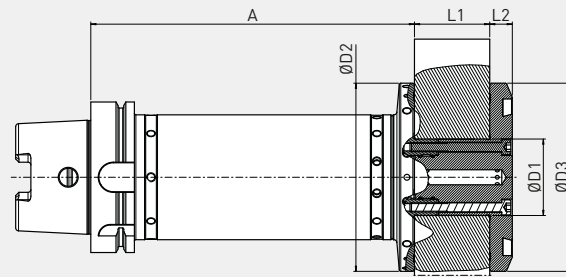
其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

## 带4-6个锁紧螺丝的分体式HSK-A100砂轮杆 GRINDING WHEEL ADAPTER HSK-A100 – MULTI-PART WITH 4 TO 6 CLAMPING SCREWS

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN
- ☑ 砂轮杆上包含用于调整动平衡的螺纹孔  
☑ Body with balancing threads
- ☑ 精密动平衡  
☑ Balanced



### 带4-6个锁紧螺丝的分体式HSK-A100砂轮杆

- 砂轮杆 (不含法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括外部冷却
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 可以选择抗振设计, 需要另外收费
- 根据客户的特殊要求(必须单独检查)提供的单独冷却(通过砂轮)可能额外收费
- 从Ø 50.8mm (2")开始的砂轮杆包含配重槽
- 优化的设计有助于减重

### HSK-A100 grinding wheel adapter Multi-part with 4 bis 6 clamping screws

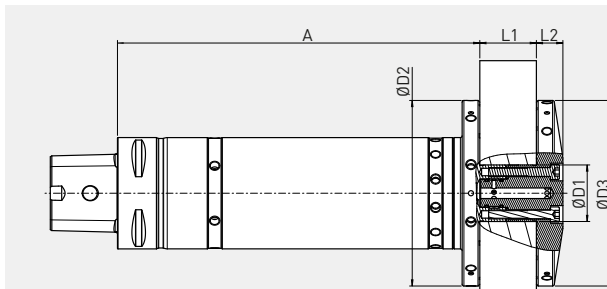
- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. external cooling
- Standard clamping height (see table) special clamping height possible on request
- Incl. balancing threads for fine balancing
- Vibration dampening possible at extra charge
- Individual cooling (through the grinding wheel) possible for an extra charge and by special request (must be checked individually)
- From Ø 50.8 (2") incl. balancing weight slot
- Optimized design for total weight reduction

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
A10.160.32.065.003.HA		32	105	65	20	15	105
A10.160.32.100.003.HA		32	105	100	20	15	105
A10.160.32.215.003.HA		32	105	215	20	15	105
A10.160.32.300.003.HA		32	105	300	20	15	105
A10.160.32.400.003.HA		32	105	400	20	15	105
A10.160.2z.065.003.HA		50,8	125	65	20	15	125
A10.160.2z.100.003.HA		50,8	125	100	20	15	125
A10.160.2z.215.003.HA		50,8	125	215	20	15	125
A10.160.2z.300.003.HA		50,8	125	300	20	15	125
A10.160.2z.400.003.HA		50,8	125	400	20	15	125
A10.160.3z.115.003.HA		76,2	140	115	40	15	140
A10.160.3z.150.003.HA		76,2	140	150	40	15	140
A10.160.3z.200.003.HA		76,2	140	200	40	15	140
A10.160.3z.300.003.HA		76,2	140	300	40	15	140
A10.160.3z.400.003.HA		76,2	140	400	40	15	140
A10.160.5z.115.003.HA		127	175	115	40	15	175
A10.160.5z.150.003.HA		127	175	150	40	15	175
A10.160.5z.200.003.HA		127	175	200	40	15	175
A10.160.5z.300.003.HA		127	175	300	40	15	175
A10.160.5z.400.003.HA		127	175	400	40	15	175

其他接口、长度和夹持直径的砂轮杆可以定制

Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

## 带四个锁紧螺丝的分体式PSC 63砂轮杆 GRINDING WHEEL ADAPTER PSC 63 – MULTI-PART WITH 4 CLAMPING SCREWS



### 质量证书

- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN
- ✓ 砂轮杆上包含用于调整动平衡的螺纹孔
- ✓ Body with balancing threads
- ✓ 精密动平衡
- ✓ Balanced

### 带四个锁紧螺丝的分体式PSC 63砂轮杆

- 砂轮杆 (不含法兰套) 精细动平衡至G2.5 25.000 rpm
- 包括外部冷却
- 标准夹紧高度(见下表), 特殊夹紧高度可根据客户要求定制
- 包括用于精细动平衡的动平衡螺纹孔
- 优化的设计有助于减重
- 根据客户的特殊要求(必须单独检查)提供的单独冷却(通过砂轮)可能额外收费

### Polygen shank PSC 63 grinding wheel adapter Multi-part with 4 clamping screws

- Fine balanced (without clamping flange) at G2.5 at 25,000 rpm
- Incl. external cooling
- Standard clamping height (see table) special clamping height possible on request
- Incl. balancing threads for fine balancing
- Optimized design for total weight reduction
- Individual cooling (through the grinding wheel) possible for an extra charge and by special request (must be checked individually)

订货号 Order No.		Ø D1 [mm]	Ø D2 [mm]	A-长度 [mm] A dimension [mm]	L1 [mm]	L2 [mm]	Ø D3 [mm]
CC6.160.32.075.003.HA		32	105	75	20	15	105
CC6.160.32.205.003.HA		32	105	205	20	15	105

其他接口、长度和夹持直径的砂轮杆可以定制

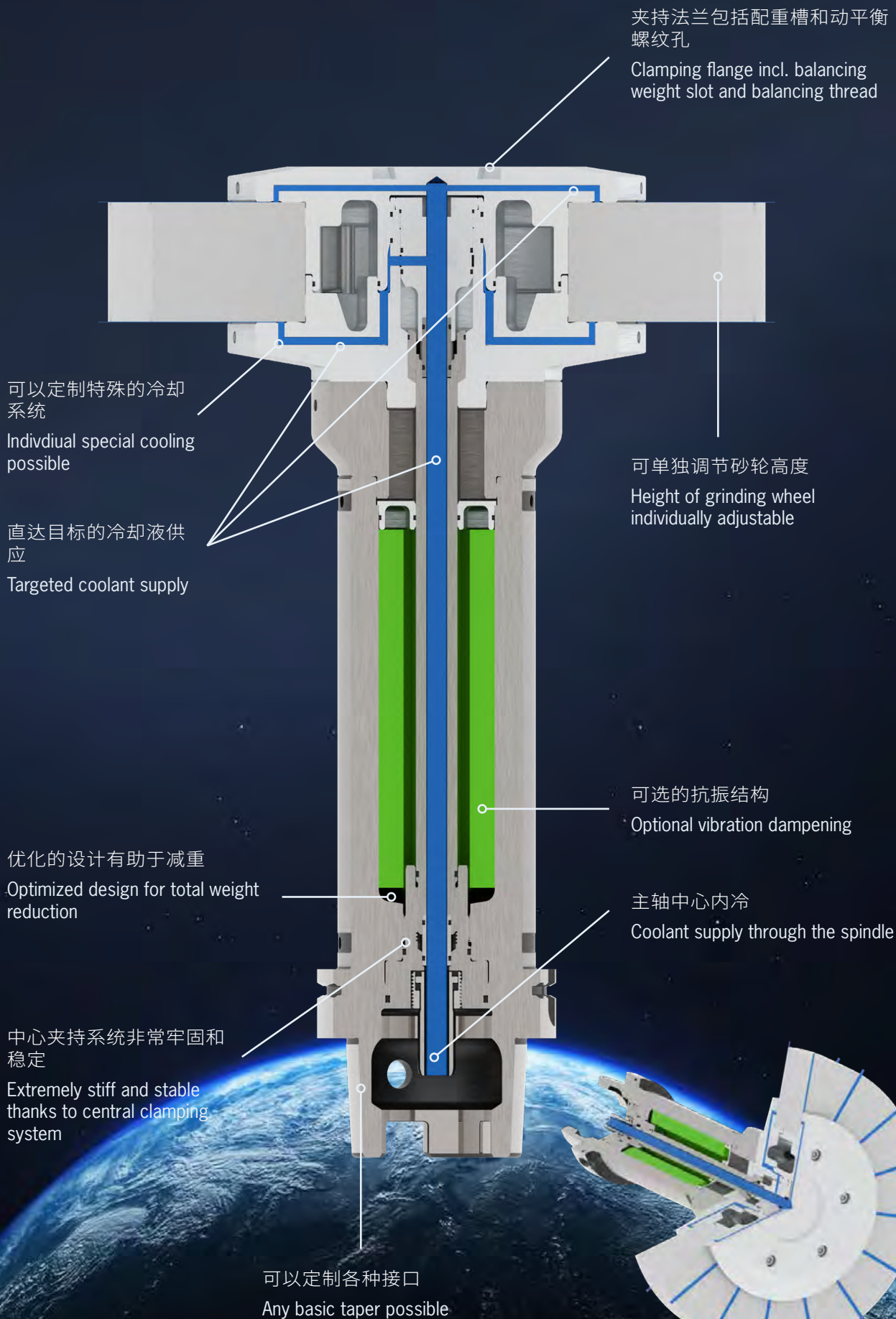
Other basic tapers possible on request, longer A dimensions possible on request, any clamping diameter possible on request

HAIMER 翰默砂轮杆  
HAIMER GRINDING WHEEL ADAPTERS



# 特殊砂轮杆 SPECIAL GRINDING WHEEL ADAPTERS

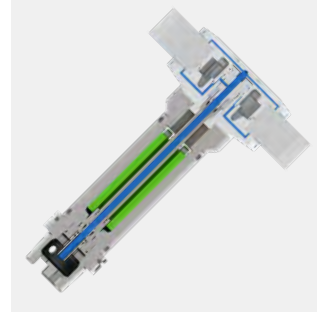
磨削技术  
Grinding Technology



## 特殊砂轮杆 SPECIAL GRINDING WHEEL ADAPTERS

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN
- ☑ 砂轮杆上包含用于调整动平衡的螺纹孔  
☑ Body with balancing threads
- ☑ 精密动平衡  
☑ Balanced



### 翰默HAIMER特殊砂轮杆

- 可以定制各种标准接口, 从HSK-E25 — HSK-A125 / SK / BT 30 – 50 / CAT40 – 50(也可以选择端面接触型)
- 可以定制非标接口, 例如: HSK-A63 / 80; HSK-B80; HSK-F80; HSK-A160等
- 任何可能的夹持直径, 例如: 从 $\varnothing 6$  mm –  $\varnothing 280$  mm
- 每一个可能的A长度
- 单独的冷却取决于砂轮
- 可选抗振结构

### Special grinding wheel adapters

- Version for every standard base taper possible from HSK-E25–HSK-A125/SK/BT 30–50/CAT40–50 (also possible as face-contact)
- Version for special base taper possible e. g. HSK-A63/80; HSK-B80; HSK-F80; HSK-A160 etc.
- Any clamping diameter possible, e. g. from  $\varnothing 6$  –  $\varnothing 280$  mm
- Every A-dimension possible
- Individual cooling depending on the grinding wheel
- Vibration dampening possible

如果客户订购了翰默的砂轮杆并提供砂轮, 我们可以提供砂轮安装、修整、整体精细动平衡和包装的收费服务

Complete assembly and dressing of the wheel incl. fine balancing and packaging possible against surcharge in case of grinding wheel supply by customer (applies only for HAIMER grinding wheels adapters)

100 % 根据您的需求定制。尽享我们广泛的产品。

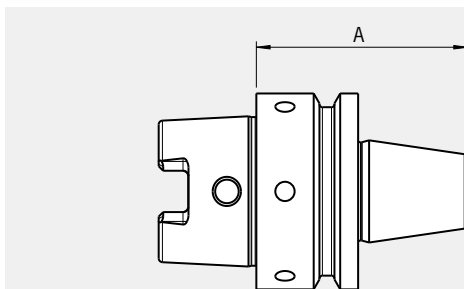
100 % tailored to your individual needs.  
Take advantage of our wide product offering!





## 用于工具磨床、砂轮修整机床、对刀仪、动平衡机的HSK-40和HSK-50转换套

### ADAPTER HSK-40 AND HSK-50 FOR TOOL GRINDING MACHINES, DRESSING MACHINES, TOOL PRESETTERS, BALANCING MACHINES



#### 质量证书

- ✓ 所有功能面精细加工
- ✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准
- ✓ More accurate than DIN
- ✓ 本体上包含用于调整动平衡的螺纹孔
- ✓ Body with balancing threads
- ✓ 精密动平衡
- ✓ Balanced

**用途:**  
用于工具磨床、砂轮修整机床、对刀仪、动平衡机的HSK-40和HSK-50转换套

**Use:**  
Adapter HSK40/50 for tool grinding machines, dressing machines, tool presetters, balancing machines

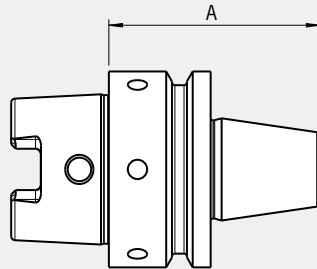
转换套/Adapter				
长度/Length A [mm]		42		
Walter, Haas 订货号/Order No.	螺纹/Thread A50.165.Z50.5	M12×1,25		
长度/Length A [mm]		66		
Saacke 订货号/Order No.	螺纹/Thread A50.165.Z50.7	M20×1,5		
长度/Length A [mm]		54		
Strausak Promat 订货号/Order No.	螺纹/Thread A50.165.Z50.9	M8		
长度/Length A [mm]		75		
Strausak Fleximat 订货号/Order No.	螺纹/Thread A50.165.Z50.10	M10		
长度/Length A [mm]		54		
Anca 订货号/Order No.	螺纹/Thread A50.165.Z50.11	M8		
长度/Length A [mm]		60		
Rollomatic Perfect Arbor 订货号/Order No.	螺纹/Thread A50.165.Z50.12	M10		

# 用于工具磨床、砂轮修整机床、对刀仪、动平衡机的HSK-40和HSK-50转换套

## ADAPTER HSK-40 AND HSK-50 FOR TOOL GRINDING MACHINES, DRESSING MACHINES, TOOL PRESETTERS, BALANCING MACHINES

### CERTIFICATE OF QUALITY

- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN
- ✓ 本体上包含用于调整平衡的螺纹孔  
✓ Body with balancing threads
- ✓ 精密动平衡  
✓ Balanced



### 用途:

用于工具磨床、砂轮修整机床、对刀仪、动平衡机的HSK-40和HSK-50转换套

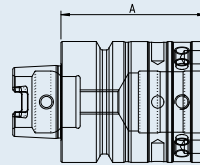
### Use:

Adapter HSK-40/50 for tool grinding machines, dressing machines, tool presetters, balancing machines

### 转换套/Adapter

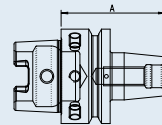
长度 / Length A [mm] 60

**Perfect Arbor** 螺纹 / Thread M10  
订货号 / Order No. **A40.169.Z50.12.1001**



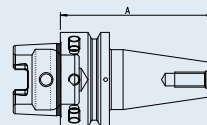
长度 / Length A [mm] 55

**TTB** 螺纹 / Thread M10×1  
订货号 / Order No. **A50.169.Z50.11.1002**



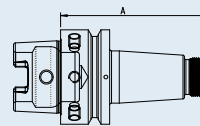
长度 / Length A [mm] 81

**Makino Seiki** 螺纹 / Thread M8  
订货号 / Order No. **A50.169.Z50.11.1001**

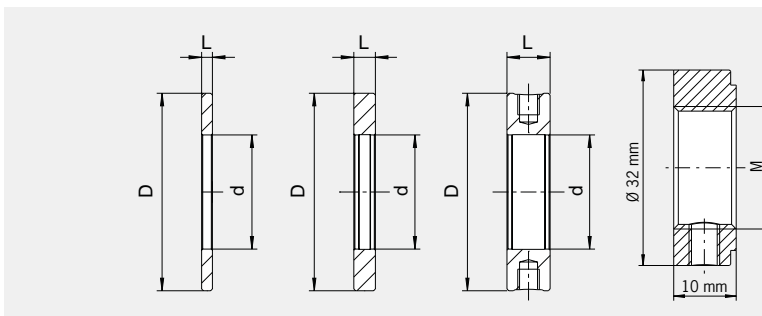


长度 / Length A [mm] 65,5

**GMN TSAV80** 螺纹 / Thread M20×1  
订货号 / Order No. **A50.169.Z50.999.1001**



# 砂轮杆的附件 ACCESSORIES FOR GRINDING WHEEL ADAPTERS



HAIMER翰默砂轮杆附件的汇总  
Summary of the accessories for HAIMER grinding wheel adapters

附件 / Accessories		
<b>间隔环 / Spacers Ø D 35 mm/d 20 mm</b> L [mm]		
订货号 / Order No.		
999001-1155	不含动平衡螺纹孔 / without balancing thread	3
999001-1156	不含动平衡螺纹孔 / without balancing thread	6
999001-1157	含动平衡螺纹孔 / with balancing thread	12
<b>间隔环 / Spacers Ø D 40 mm/d 20 mm</b> L [mm]		
订货号 / Order No.		
999001-1135	不含动平衡螺纹孔 / without balancing thread	3
999001-1136	不含动平衡螺纹孔 / without balancing thread	6
999001-1137	含动平衡螺纹孔 / with balancing thread	12
<b>间隔环 / Spacers Ø D 50 mm/d 20 mm</b> L [mm]		
订货号 / Order No.		
999001-1139	不含动平衡螺纹孔 / without balancing thread	3
999001-1140	不含动平衡螺纹孔 / without balancing thread	6
999001-1138	含动平衡螺纹孔 / with balancing thread	12
<b>间隔环 / Spacers Ø D 40 mm/d ¾"</b> L [mm]		
订货号 / Order No.		
999001-1149	不含动平衡螺纹孔 / without balancing thread	3
999001-1150	不含动平衡螺纹孔 / without balancing thread	6
999001-1151	含动平衡螺纹孔 / with balancing thread	12
<b>间隔环 / Spacers Ø D 55 mm/d 1¼"</b> L [mm]		
订货号 / Order No.		
999001-1153	不含动平衡螺纹孔 / without balancing thread	3
999001-1154	不含动平衡螺纹孔 / without balancing thread	6
999001-1152	含动平衡螺纹孔 / with balancing thread	12
<b>间隔环 / Spacers Ø D 60 mm/d 32 mm</b> L [mm]		
订货号 / Order No.		
999001-1145	不含动平衡螺纹孔 / without balancing thread	3
999001-1144	不含动平衡螺纹孔 / without balancing thread	6
999001-1143	含动平衡螺纹孔 / with balancing thread	12
<b>定位垫片 / Lock plate</b>		
订货号 / Order No.		
999001-1134	Ø35×Ø20×1,5	
999001-1146	Ø45×Ø30×1,5	
<b>锁紧螺母 / Clamping nut</b>		
订货号 / Order No. 螺纹 / Thread		
915005-0004		M20×1
915005-0001	(只用于 / only Rollomatic+Reinecker)	M20×1,5
915005-0007		M30×1,5
<b>白色密封螺钉 POM / Sealing pin POM white</b>		
订货号 / Order No.		
900052-0007		M8



## 套装动平衡螺钉和重金属动平衡螺钉

### SET OF BALANCING SCREWS AND HEAVY METAL BALANCING SCREWS



#### 用途

M6动平衡螺钉用于带间隔环的砂轮的精细动平衡  
(订货号: 80.203.00)

螺钉的重量经过精确校准。将之通过螺纹旋入刀具系统的平衡螺孔中, 这样可以补偿整个刀具系统的不平衡量。

- 每套包括11种不同尺寸和重量的螺钉
- 螺钉旋入螺纹孔的底部, 不需要其它附加螺钉固定
- 快速、精确平衡
- 对刀具系统没有损伤
- 根据需要可重复进行
- 适合各种品牌的刀具系统
- 由动平衡机来计算需要螺钉的重量(例如: 翰默HAIMER 动平衡机)

#### 发货时包含:

盒子中装有 11x10 个动平衡螺钉、螺丝扳手

#### Use

For fine-balancing of grinding wheel adapter and spacers with balancing threads M6. (Order No. 80.203.00)

The screws have different weights in fine increments. They are screwed into the balancing threads of the tool holder so that their weight compensates the unbalance of the tool holder.

- Set consisting of screws of 11 different sizes and weights
- The screws are tightened to the bottom of the thread. No additional fixing of screws necessary
- Balancing quickly and precisely
- No damage of tool holders
- Can be repeated as often as necessary
- Suitable for tool holders of all brands
- The balancing machine calculates the necessary weight of the screws (e.g. HAIMER Tool Dynamic)

#### Delivery:

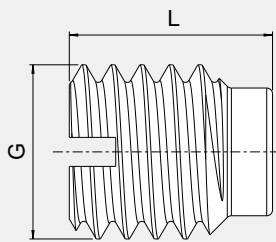
Case with 11 x 10 balancing screws, screwdriver

#### 平衡螺钉套装/Set of balancing screws

订货号/Order No. 80.203.00

## 重金属的动平衡螺钉

### HEAVY METAL BALANCING SCREWS

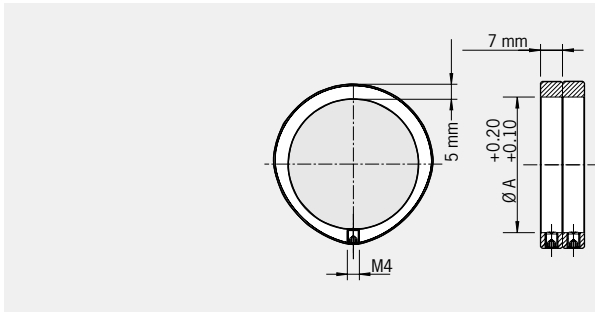


重金属的动平衡螺钉 (M6) 用于整个刀具系统的手动动平衡修正

Heavy metal balancing screws (thread M6) for manual balancing of tool holders.

长度/Length L [mm]	07	07	08	08	10	10	14
尺寸/Size G [mm]	M6×7	M6×7 (5个/5 pcs.)	M6×8	M6×8 (5个/5 pcs.)	M6×10	M6×10 (5个/5 pcs.)	M8×14
质量/Mass	大约/ca. 2,3g	大约/ca. 2,3g	大约/ca. 2,7g	大约/ca. 2,7g	大约/ca. 3,5g	大约/ca. 3,5g	大约/ca. 9g
订货号/Order No.	85.502...	.70	.80	.80.SET	.10.0	.10.0.SET	.14.0
订货号/Order No.	85.504...						

## 动平衡环 BALANCING INDEX RINGS



适用于带有圆柱外径(直径A)的刀具系统做精细动平衡。

动平衡环有一个自身设定的不平衡量,通过固定到不同角度来补偿整个刀具系统的不平衡量。必须用 2 个平衡环来调节一个平衡面。

- 快速精确地进行平衡
- 对刀具系统没有损伤
- 根据需要可进行重复操作
- 可简便地通过支紧螺钉进行固定
- 适用于各种品牌的刀具系统
- 动平衡机指定环的位置

#### 发货时包含:

2个动平衡环,含支紧螺钉,不包含内六角扳手

For fine-balancing of all tool holders with cylindrical outer diameter ( $\varnothing A$ )

The balancing index rings have a defined unbalance in themselves. They are turned in such a position that the unbalance of the tool holder will be compensated. There are always 2 rings needed per balancing plane.

- Balancing quickly and precisely
- No damage of tool holder
- Can be repeated as often as necessary
- Simply fixed by clamping screw
- Suitable for tool holders of all brands
- The balancing machine determines the position of the rings

#### Delivery:

2 balancing rings with clamping screws without hex wrench

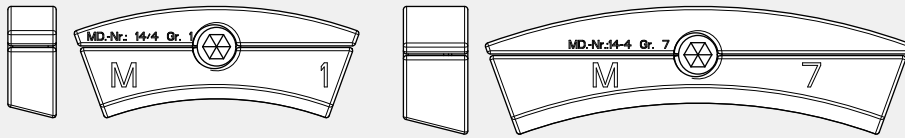
订货号/Order No.	$\varnothing A$ [mm]	不平衡量 <sup>1)</sup> unbalance	最大转速 rpm [1/min]
79.350.15	15	14 g·mm	max. 55.000
79.350.16	16	14 g·mm	max. 55.000
79.350.17	17	16 g·mm	max. 55.000
79.350.18	18	17 g·mm	max. 55.000
79.350.19	19	19 g·mm	max. 55.000
79.350.20	20	21 g·mm	max. 55.000
79.350.22	22	23 g·mm	max. 55.000
79.350.23	23	25 g·mm	max. 55.000
79.350.24	24	27 g·mm	max. 55.000
79.350.25	25	28 g·mm	max. 55.000
79.350.26	26	32 g·mm	max. 50.000
79.350.27	27	32,5 g·mm	max. 50.000
79.350.28	28	34 g·mm	max. 50.000
79.350.30	30	37 g·mm	max. 45.000
79.350.32	32	43 g·mm	max. 45.000
79.350.34	34	46 g·mm	max. 40.000
79.350.35	35	48 g·mm	max. 40.000
79.350.36	36	51 g·mm	max. 40.000
79.350.38	38	56 g·mm	max. 35.000
79.350.40	40	60 g·mm	max. 35.000
79.350.42	42	65 g·mm	max. 35.000
79.350.43	43	69 g·mm	max. 35.000
79.350.44	44	72 g·mm	max. 35.000
79.350.46	46	80 g·mm	max. 35.000
79.350.48	48	85 g·mm	max. 30.000
79.350.50	50	90 g·mm	max. 30.000
79.350.52	52	100 g·mm	max. 30.000
79.350.53	53	100 g·mm	max. 30.000
79.350.54	54	103 g·mm	max. 30.000

订货号/Order No.	$\varnothing A$ [mm]	不平衡量 <sup>1)</sup> unbalance	最大转速 rpm [1/min]
79.350.55	55	105 g·mm	max. 30.000
79.350.56	56	110 g·mm	max. 30.000
79.350.58	58	120 g·mm	max. 30.000
79.350.60	60	128 g·mm	max. 25.000
79.350.62	62	132 g·mm	max. 25.000
79.350.63	63	135 g·mm	max. 25.000
79.350.64	64	147 g·mm	max. 25.000
79.350.65	65	147 g·mm	max. 25.000
79.350.66	66	145 g·mm	max. 25.000
79.350.68	68	161 g·mm	max. 25.000
79.350.70	70	165 g·mm	max. 25.000
79.350.72	72	170 g·mm	max. 25.000
79.350.74	74	184 g·mm	max. 25.000
79.350.76	76	186 g·mm	max. 20.000
79.350.78	78	206 g·mm	max. 20.000
79.350.80	80	215 g·mm	max. 20.000
79.350.82	82	213 g·mm	max. 20.000
79.350.84	84	229 g·mm	max. 20.000
79.350.86	86	249 g·mm	max. 20.000
79.350.87	87	256 g·mm	max. 20.000
79.350.88	88	251 g·mm	max. 20.000
79.350.89	89	260 g·mm	max. 20.000
79.350.90	90	265 g·mm	max. 20.000
79.350.92	92	275 g·mm	max. 20.000
79.350.94	94	286 g·mm	max. 20.000
79.350.96	96	300 g·mm	max. 20.000
79.350.98	98	305 g·mm	max. 20.000
79.350.100	100	320 g·mm	max. 15.000
79.350.125	125	500 g·mm	max. 15.000

1) 不平衡量的数值为参考值,误差非常小

Unbalance g·mm are reference values, little variances possible

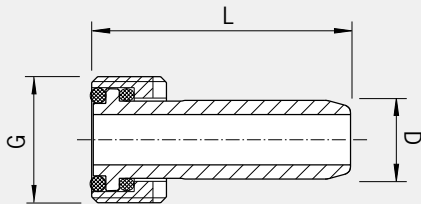
## 符合DIN6375-C标准的砂轮配重块 GRINDING WHEEL WEIGHT DIN6375-C



符合DIN6375-C标准的砂轮配重块/Grinding wheel weight DIN6375-C

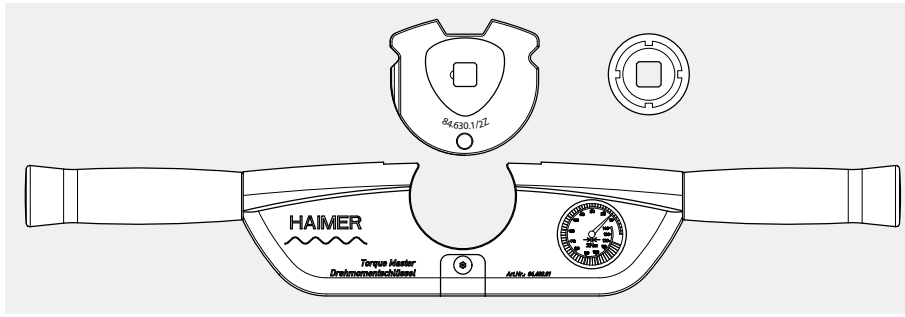
订货号/Order No.	尺寸/Size	重量大约/Weight approx. [g]
85.505.001	1	12,4
85.505.002	7	26,7

## 冷却水管 / COOLANT TUBE



含两个O型环的冷却管/Coolant tube with 2 o-rings	HSK-A63	HSK-A100
订货号/Order No. 85.700...	.63	.10
螺纹/Thread G [mm]	M18×1	M25×1,5
直径/Diameter D [mm]	12	16
长度/Length L [mm]	36,5	44
扳手/Wrench for	HSK-A63	HSK-A100
订货号/Order No. 84.500...	.63	.10
将冷却管装入HSK刀柄/Assembly of coolant tube in HSK holder		
订货号/Order No. 91.100.23		

## 用于HAIMER 翰默砂轮杆的扭力扳手 TORQUE WRENCH FOR HAIMER GRINDING WHEEL ADAPTERS



### 用途

- 达到很高的径跳精度 (不是单边受力的夹持)
- 优化力的传递 (均匀地用力)
- 扭力扳手的表盘上, 可精确显示扭力
- 对应大夹持力的大扭力
- 可更换的扳手插件

### Use:

- For highest runout accuracy (no one-side clamping)
- Optimal power transmission (consistent force application)
- For highest clamping accuracy and repeatability with dial gauge
- Maximum torque for highest clamping force
- Changeable inserts

### 带扩展插件和套筒的扭力扳手 / Torque wrench with extension and box nut extension

#### 扭力扳手 / Torque wrench

订货号 / Order No. **84.600.01**

#### 扩展插件 / Extension

适用于各种标准的1/2"方孔扳手  
To accommodate all standard square socket wrench inserts 1/2"  
订货号 / Order No. **84.630.1/2z**

#### 4-KM4套筒 / Box nut 4-KM4

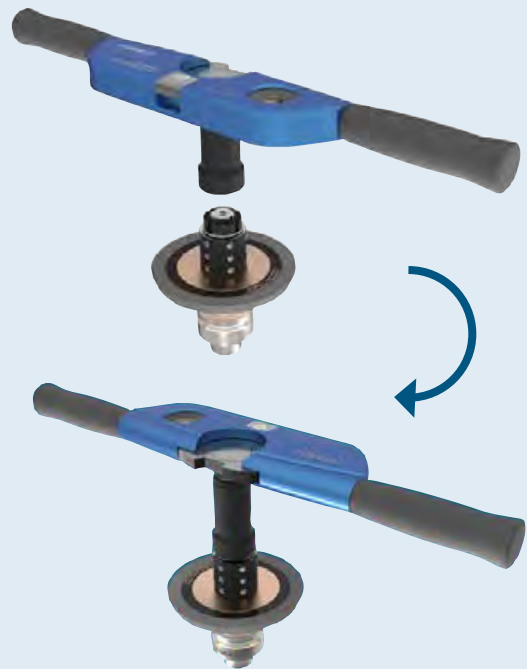
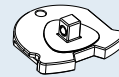
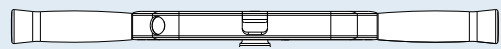
订货号 / Order No. **915005-0005**

用于锁紧螺母 / for clamping nut M20 × 1,5  
订货号 / Order No. **915005-0004**

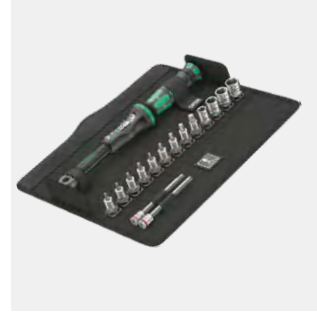
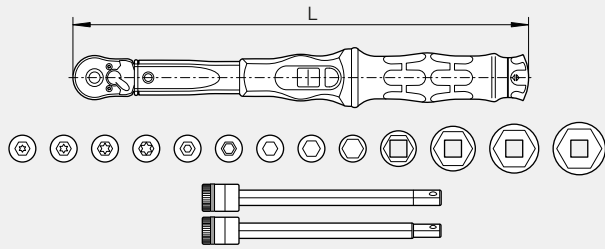
#### 4-KM6套筒 / Box nut 4-KM6

订货号 / Order No. **915005-0007**

用于锁紧螺母 / for clamping nut M30 × 1,5  
订货号 / Order No. **915005-0006**



## 1/4" 的棘轮扭力扳手 CLICK-TORQUE TORQUE WRENCH SET 1/4"



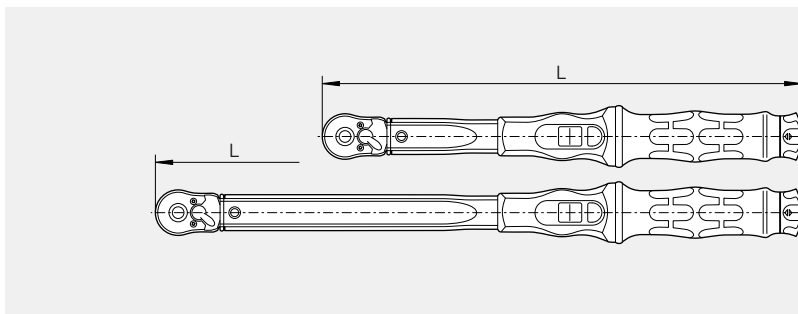
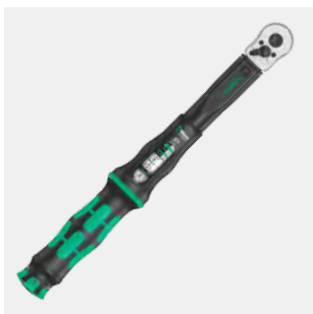
- 16件的棘轮扭力扳手套装, 扭矩范围: 2,5 – 25 Nm, 通过棘轮调节
- 联接部位尺寸: 1/4"
- 含 4 × 套筒式插件, 4 × TORX® 梅花插件, 7 × 外六角形插件, 使用颜色标记系统, 方便找到所需的工具
- 坚固、表面光滑的织物盒, 带Velcro尼龙搭扣
- 当达到目标的扭矩值时, 通过声音和触觉可以简单设置和保存您期望的扭矩值(第一声咔嗒声)
- 安全的扭力值: 当达到设定值时, 扭力扳手会发出声响和触发卸载(第二声咔嗒声)
- 根据DIN EN ISO 6789-1:2017-07标准, 扭力的精度为± 4 %
- 顺时针方向为拧紧
- 16-piece set with Click-Torque torque wrench, 2.5–25 Nm with changeover ratchet
- Connection 1/4"
- With 4 × socket wrench insert, 4 × TORX® bit nut, 7 × hexagon socket bit nut with holding function, color coding to easy find the required tool
- Robust, surface-friendly textile box with Velcro fastener
- Simple setting and saving of the desired torque value with an audible and tactile click when the scale values are reached (click 1)
- Safely dosed force: when the set value is reached, the torque wrench triggers audibly and tangibly (click 2)
- The precision is ± 4 % according to DIN EN ISO 6789-1:2017-07
- Application for clockwise tightening

棘轮扭力扳手/Click-Torque torque wrench set						
订货号 Order No.	类型 Type	接口 Connection	扭矩 Torque [Nm]	增量 Increment [Nm]	长度 Length L [mm]	柄部长度 Handle [mm]
82.586.1/4z.A5.SET	A 5	1/4"	2,5–25		290	121
内容/Contents						
1 × 棘轮扭力扳手 /Click-Torque torque wrench						
4 × 梅花插件 /bit nut: TX 10×28, TX 20×28, TX 25×28, TX 30×28 [mm]						
7 × 外六角形插件 /hexagon socket bit nut: 3×28, 4×28, 5×28, 6×28, 8×28 和 /and 5×100, 6×100 [mm]						
4 × 套筒式插件 /socket wrench insert: 10×23, 13×23, 14×23, 15×23 [mm]						





## 3/8" 的棘轮扭力扳手 CLICK-TORQUE TORQUE WRENCH 3/8"



- 棘轮扭力扳手, 通过棘轮调节
- 联接部位的尺寸: 3/8"
- 当达到目标的扭矩值时, 通过声音和触觉可以简单设置和保存您期望的扭矩值 (第一声咔嗒声)
- 安全的扭力值: 当达到设定值时, 扭力扳手会发出声响和触发卸载 (第二声咔嗒声)
- 根据DIN EN ISO 6789-1:2017-07标准, 扭力的精度为± 3 %
- 适用于顺时针和逆时针拧紧

- Click-Torque torque wrench, with changeover ratchet
- Connection 3/8"
- Simple setting and saving of the desired torque value with an audible and tactile click when the scale values are reached (click 1)
- Safely dosed force: when the set value is reached, the torque wrench triggers audibly and tangibly (click 2)
- The precision is ± 3% according to DIN EN ISO 6789-1:2017-07
- Application for clockwise and counter clockwise tightening

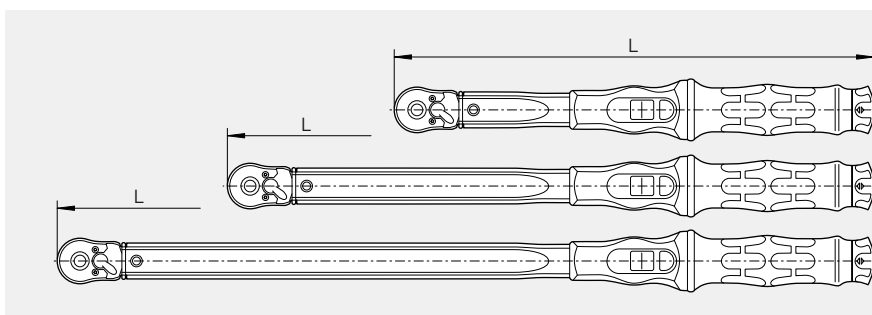
### 棘轮扭力扳手 / Click-Torque torque wrench

订货号 Order No.	类型 Type	接口 Connection	扭矩 Torque [Nm]	增量 Increment [Nm]	长度 Length L [mm]	柄部长度 Handle [mm]
82.586.3/8z.B1	B 1	3/8"	10-50	2,5	300	140
82.586.3/8z.B2	B 2	3/8"	20-100	5,0	405	140

### 3/8" 的外六角插件套装 / In-hex bit socket set 3/8" drive

82.586.3/8z.Set	SW3/4/5/6/7/8/9/10	
-----------------	--------------------	--

## 1/2" 的棘轮扭力扳手 CLICK-TORQUE TORQUE WRENCH 1/2"



- 棘轮扭力扳手, 通过棘轮调节
- 联接部位的尺寸: 1/2"
- 当达到目标的扭矩值时, 通过声音和触觉可以简单设置和保存您期望的扭矩值 (第一声咔嗒声)
- 安全的扭力值: 当达到设定值时, 扭力扳手会发出声响和触发卸载 (第二声咔嗒声)
- 根据DIN EN ISO 6789-1:2017-07标准, 扭力的精度为± 3 %
- 适用于顺时针和逆时针拧紧

- Click-Torque torque wrench, with changeover ratchet
- Connection 1/2"
- Simple setting and saving of the desired torque value with an audible and tactile click when the scale values are reached (click 1)
- Safely dosed force: when the set value is reached, the torque wrench triggers audibly and tangibly (click 2)
- The precision is ± 3% according to DIN EN ISO 6789-1:2017-07
- Application for clockwise and counter clockwise tightening

### 棘轮扭力扳手 / Click-Torque torque wrench

订货号 Order No.	类型 Type	接口 Connection	扭矩 Torque [Nm]	增量 Increment [Nm]	长度 Length L [mm]	柄部长度 Handle [mm]
82.586.1/2z.C1	C 1	1/2"	10-50	2,5	300	140
82.586.1/2z.C2	C 2	1/2"	20-100	5,0	405	140
82.586.1/2z.C3	C 3	1/2"	40-200	5,0	510	140

### 1/2" 的外六角插件套装 / In-hex bit socket set 1/2" drive

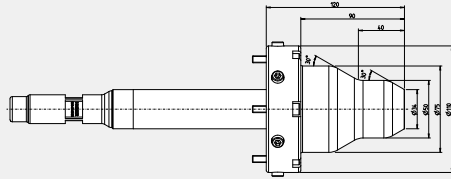
82.586.1/2z.Set	SW4/5/6/7/8/10/12/14/17	
-----------------	-------------------------	--

# HAIMER翰默高精度夹紧大师

## HAIMER HIGH PRECISION CLAMP MASTER

### CERTIFICATE OF QUALITY

- ✓ 所有功能面精细加工  
✓ All functional surfaces fine machined
- ✓ 精度高于DIN标准  
✓ More accurate than DIN
- ✓ 本体上包含用于调整动平衡的螺纹孔  
✓ Body with balancing threads
- ✓ 精密动平衡  
✓ Balanced



高精度夹紧大师，全新翰默HAIMER高精度夹紧系统用于夹持圆柄刀具，可用于各种常见的带拉杆夹紧系统的工具磨床。

它的特点是非常高的精度。跳动和摆动精度可以在工具磨床上调整。更换筒夹时，重复跳动精度保证 $< 0.002\text{mm}$ ，不需要耗时的调整。

这种灵活的系统非常适合于坯料的自动更换，对于小批量的自动装夹尤其有用。您的机床随时可以投入使用，确保了很高的生产效率。

High Precision Clamp Master, the new **HAIMER high precision clamping system** for round shanks, can be used on many common tool grinding machines with drawbar clamping.

It is characterized by highest accuracy. Runout and wobble can be adjusted in the machine. When changing collets, highest runout repeatability  $< 0.002\text{ mm}$  is guaranteed, no time-consuming adjustments for runout are necessary.

This flexible system is perfectly suitable for automated changes of blanks and especially helpful for smaller batches with automatic loading. The machine is ready to be used again quickly, which ensures maximum productivity.

### HAIMER翰默高精度夹紧大师特有的优点

- 磨损小的系统，通过更换筒夹可以夹持各种公制和英制柄径的刀具
- 得益于专利申请中的筒夹自锁功能实现筒夹的快速更换
- 特殊的几何形状设计的筒夹确保更换筒夹后的跳动精度 $< 0.002\text{ mm}$
- 更换筒夹时节省大量时间
- 防止干涉的优化的夹持系统
- 行程限制的设计，因此不可能损坏系统
- 无限可调锁紧力
- 很小的夹持区域，同样适用于短柄和长柄的刀具
- 适用所有普通工具磨床
- 由于筒夹有较大的夹紧行程，无加载故障

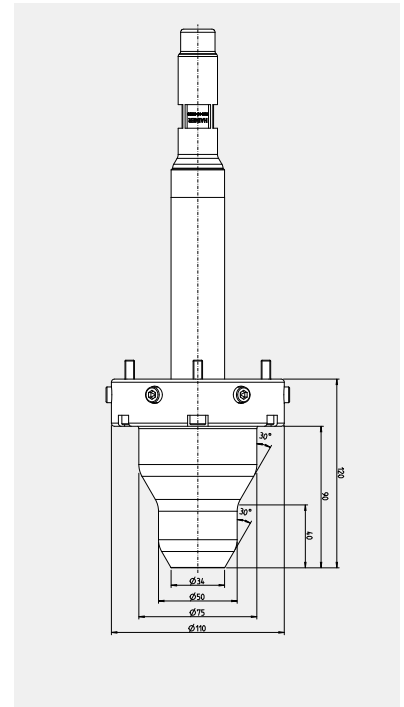
### Special advantages of the HAIMER High Precision Clamp Master

- Low-wear system with variable clamping range through collets, metric and inch
- Faster change of collets thanks to the patent-pending self-locking feature on the collet
- The special geometric design of the collet enables a very high runout accuracy of  $< 0.002\text{ mm}$  after changing the collet
- Great time savings when changing collets
- Optimal clamping due to low interference contour
- Stroke limit design, therefore no damage of the system is possible
- Infinitely adjustable clamping force
- Minimal clamping area, therefore equally suitable for short and long shanks
- Versions for all common tool grinding machines are possible
- Trouble-free loading due to larger clamping stroke of the collet

## HAIMER翰默高精度夹紧大师 HAIMER HIGH PRECISION CLAMP MASTER



例如：用于 UWS WZS 700 Reinecker 的HAIMER翰默高精度夹紧大师  
Example: HAIMER High Precision Clamp Master für UWS WZS 700 Reinecker



HAIMER翰默高精度夹紧大师可与Vollmer、Walter、Rollomatic、Haas、Anca、Schneeberger、Ulmer Werkzeugschleiftechnik、Schütte等配合使用。

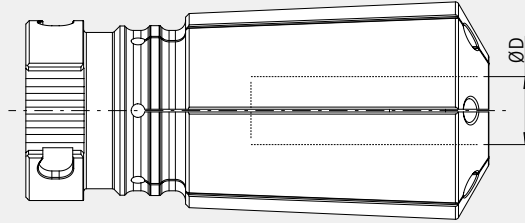
The **HAIMER high precision clamping system High Precision Clamp Master** is compatible with common tool grinding machines like Vollmer, Walter, Rollomatic, Haas, Anca, Schneeberger, Ulmer Werkzeugschleiftechnik, Schütte etc.



## 用于翰默高精度夹紧大师的翰默高精度筒夹 HAIMER HIGH PRECISION COLLET FOR HIGH PRECISION CLAMP MASTER

### 质量证书

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN
- ☑ 本体上包含用于调整动平衡的螺纹孔  
☑ Body with balancing threads
- ☑ 精密动平衡  
☑ Balanced



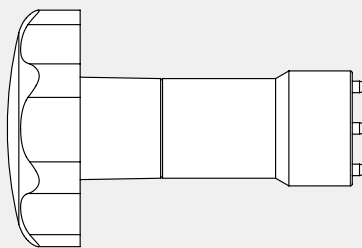
订货号 Order No.	描述 Description	Ø D [mm] Ø D [mm]
<b>公制筒夹/Collet metric</b>		
70.121.0300	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 3
70.121.0400	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 4
70.121.0500	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 5
70.121.0600	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 6
70.121.0800	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 8
70.121.1000	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 10
70.121.1200	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 12
70.121.1400	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 14
70.121.1600	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 16
70.121.1800	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 18
70.121.2000	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 20
<b>英制筒夹/Collet inch</b>		
70.121.1/4z	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 1/4"
70.121.3/8z	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 3/8"
70.121.1/2z	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 1/2"
70.121.5/8z	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 5/8"
70.121.3/4z	用于翰默高精度夹紧大师的翰默高精度筒夹 20 / HAIMER High Precision collet 20	Ø 3/4"

可以提供中间尺寸的筒夹/Collets also available in intermediate sizes

## 用于HAIMER翰默夹紧大师的筒夹安装的扳手 HAIMER COLLET INSERTION KEY FOR HIGH PRECISION CLAMP MASTER

### CERTIFICATE OF QUALITY

- ☑ 所有功能面精细加工  
☑ All functional surfaces fine machined
- ☑ 精度高于DIN标准  
☑ More accurate than DIN
- ☑ 本体上包含用于调整动平衡的螺纹孔  
☑ Body with balancing threads
- ☑ 精密动平衡  
☑ Balanced



订货号 Order No.	描述 Description	尺寸 Size
70.129.001	安装筒夹的扳手/Collet insertion key	Gr. 02

# 热缩机技术

# SHRINKING TECHNOLOGY

# 目录

## CONTENTS

<b>热缩机系统 / The Power Clamp System</b>	
使用 HAIMER 翰默热缩机技术的十大理由/Top 10 Reasons to Use HAIMER Shrink Fit Technology	519
接触式冷却/The Contact Cooling	520
线圈科技/The Coil Technology	521
HAIMER 翰默热缩机的优势/Amortisation HAIMER Power Clamp	525
基本系列、增强系列和工业 4.0 系列热缩机的区别/Differentiation Basic Line/Profi Line/i4.0 Line	526
设备特征/Equipment Features	528
<b>基本系列热缩机 / Power Clamp Basic Line</b>	
Nano 纳米型热缩机/Power Clamp Nano	530
Smart 智能型热缩机/Power Clamp Smart	532
基本型热缩机/Power Clamp Basic	534
<b>增强系列热缩机 / Power Clamp Profi Line</b>	
模块化系统/The Modular System	536
增强系列热缩机的产品线/Power Clamp Profi Line Program	538
翰默新一代热缩机/HAIMER Power Clamp New Generation	540
经济型/NG 经济型热缩机/Power Clamp Economic/Economic NG	542
经济增强型/NG 经济增强型热缩机/Power Clamp Economic Plus/Economic Plus NG	544
特殊配置经济增强型热缩机 /Power Clamp Economic Plus Special Edition	546
舒适型/NG 舒适型热缩机/Power Clamp Comfort/Comfort NG	548
NG 强力型热缩机/Power Clamp Profi Plus NG	550
NG 测量型热缩机/Power Clamp Preset NG	552
超级增强型热缩机/Power Clamp Premium Plus	554
<b>工业 4.0 系列热缩机 / Power Clamp i4.0 Line</b>	
工业 4.0 热缩机技术就绪/Shrink Fit Technology Industry 4.0-ready	556
工业 4.0 系列热缩机的亮点/Power Clamp i4.0 Line Highlights	558
工业 4.0 系列热缩机的冷却系统/Power Clamp i4.0 Line Cooling	559
工业 4.0 纳米型NG热缩机/Power Clamp Nano NG i4.0	560
工业4.0 气冷经济型热缩机/Power Clamp Air i4.0 Eco	562
工业4.0 气冷舒适型热缩机/Power Clamp Air i4.0 Comfort	564
工业 4.0 舒适型热缩机/Power Clamp Comfort i4.0	566
工业 4.0 测量型热缩机/Power Clamp Preset i4.0	568
工业 4.0 超级型热缩机/Power Clamp Premium i4.0	570
工业 4.0 全能型热缩机/Power Clamp Sprint i4.0	572
<b>附件 / Accessories</b>	
工具车和插件/Carts and Inserts	574
支撑座/Base Holder	575
支撑盘/Chuck Support	577
精密支撑盘/Precision Chuck Support	579
旋转支撑盘/Chuck Support for Rotary Table	581
ER 热缩筒夹用支撑盘/Chuck Support for ER Shrink Fit Collets	582
简易长度预调装置/Easy Set Simple Presetting	584
快速长度预调装置/Quick Set Length Presetting	585
冷却转换套和冷却转换套毛坯/Cooling Adapter and Cooling Adapter Blanks	586
迷你型热缩刀柄用安装冷却保护套/Mini Shrink Shrink and Cooling Sleeves	587
带温控的冷却系统/TME Cooling System with Temperature Control	588
热缩刀柄调节长度用支撑弹簧/Tension Springs for Length Presetting for Shrink Fit Chucks	589
断刀取出装置/Shrink-out device	590
热缩刀柄用清洁毛刷/Shrink Fit Brush	591
热缩刀柄用减径套/Reduction Sleeves for Shrink Fit Chucks	592
废气吸收装置/Auxiliary Fume Extraction Unit	593
13 kW HD 重型线圈升级套装/Upgrade Kit 13 kW HD Coil	594
止动盘/Stop disks	595



**HAIMER** Power Clamp  
Premium i4.0

## 使用 HAIMER 翰默热缩机技术的十大理由

## Top 10 Reasons to Use HAIMER Shrink Fit Technology

1

### 很高的夹持精度

我们保证在 3 倍径的悬升长度处的径跳  $< 0.003\text{mm}$ ，无论谁来操作，这个精度都是稳定且可重复的。

2

### 苗条的外形——尤其适用于五轴机床

翰默热缩刀柄的外形很苗条。为了防止在使用中和工件干涉，它们甚至可以改制为直壁结构。

3

### 夹持力

我们的热缩刀柄在  $360^\circ$  的方向上夹紧刀具柄部，能够传递很大的扭矩，防止其在粗加工和精加工中的振动。

4

### 装配的一致性

翰默热缩刀柄的一个独特的优势是它消除了换刀过程中的各种变量。消除这些变量意味着无论谁来操作以及他们的技术水平如何，您都将获得可重复的刀具安装和一致的结果。

5

### 延长悬升长度

热缩延长杆可以提供很多长度的选择。例如：在加工深腔时，您可以将热缩延长杆装入标准热缩刀柄中，在保证很小的径跳的同时，获得很长的悬升长度。

6

### 动平衡精度和重复精度

我们的热缩刀柄出厂时的动平衡精度为  $G2,5@25,000\text{ rpm}$ 。由于热缩刀柄没有运动部件，它的动平衡重复精度远超市场上的其他夹持系统。

7

### 减少换刀时间和附件的库存量

配合我们的强力热缩机，我们的热缩刀柄的换刀时间很短，可以在 5 秒内完成换刀。

8

### 清洁的夹持孔

刀柄的夹持孔在使用时会沾染一些污染物，从而导致刀具的径跳误差加大。而热缩夹持系统是设计为封闭的，将污染物的影响尽可能的减小了。

9

### 冷却液传输方式的选择

我们的热缩刀柄有很多冷却方式的选择，包括我们的冷却喷孔和环绕冷却技术，可以将冷却液直接输送至刀刃。这将有助于排屑并获得更好的工件表面质量。

10

### 充足的库存

我们大多数的产品都有库存，包括热缩机及各种接口和型号的刀柄。根据您的要求改制的刀柄也可以在几周内交货。

### Unsurpassed machining accuracy

We guarantee  $< 3\mu\text{m}$  run-out at  $3xD$ . This degree of accuracy is consistently repeatable for any number of operators from shift to shift.

### Slim profiles – perfect for 5-axis machining

HAIMER Shrink Fit tool holders have very slim profiles. They can also be modified to a straight-walled design if needed in order to prevent tool holder collision with the workpiece.

### Gripping torque

Our shrink fit chucks grip the cutting tool  $360^\circ$  around the shank on multiple planes, delivering very high gripping torque that prevents chatter during roughing or finishing operations.

### Consistency of setup

A unique benefit of HAIMER shrink fit is that it eliminates any variation between tool changes. Removing these variables means regardless of the operator and their experience level, you will get repeatable uniformity in tooling setup and equally consistent results.

### Extended reach options

Shrink fit extensions provide many options. For example, when machining deep cavities, you can place shrink fit extensions into standard shrink fit chucks, getting unsurpassed gage lengths with minimal run-out.

### Balance accuracy and repeatability

We hold our shrink fit holders to the highest balance accuracy standards ( $G2.5@ 25,000\text{ RPM}$ ). Since shrink fit holders have no moving parts, it offers the best balance repeatability of any tool holding system on the market.

### Reduction of tool changing time & less tool holder accessory inventory

Nothing beats the tool change time of our shrink fit chucks when combined with the HAIMER Power Clamp shrink fit machines. Tool changes can be done in less than 5 seconds.

### Clean bores

Run-out accuracy is often compromised if contaminants are introduced to the bore of a tool holder during machining. A shrink fit chuck is a sealed system by design. This minimizes the introduction of contaminants.

### Coolant options

Our shrink fit chucks are available with a variety of coolant options, including our Cool Jet and Cool Flash technology, which delivers coolant down to the cutting edge of the tool. This helps clean out chips and can aid in providing better part finishes.

### Availability

Bestseller machines are available and stocked locally. All other configurations and modifications are available per order within just a couple of weeks. Shrink fit holders are available on stock in a big variety of lengths in the most common spindle interfaces.



## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 接触式冷却 The Contact Cooling

翰默专利的冷却系统 (发明专利号码: EP 2 346 642 B1\*), 快速且清洁的冷却方式。每个刀柄都有适合的冷却套, 冷却套安放在刀柄上与外表面接触, 将热量带走。冷却水在冷却套内循环流动。

整个冷却过程温和且均衡, 刀柄无任何变形, 跳动精度被保证。刀柄不会与冷却水接触, 保证干燥不会生锈, 工作环境干净整洁。

The patented cooling system from HAIMER is the quickest and cleanest method of cooling shrink fit chucks. There is a suitable cooling body for every chuck. The cooling body has full surface contact with the shrink fit chuck and extracts the heat smoothly. A water cycle cools the cooling body.

The cooling procedure takes place evenly and gently. There is no deformation of the chuck. The runout accuracy is preserved. The chucks do not come into contact with the water. They remain dry and do not rust. The work place also remains clean and dry.



#### 快速冷却的冷却套

- 冷却时间: 大约 30s
- 刀柄保持干燥
- 防止生锈
- 无需花费时间烘干刀柄
- 刀柄冷却后, 径跳精度也保持不变
- 加热的部分总是被覆盖, 无烫伤危险
- 操作时无需接触高温部件
- 过程温和安全, 不会发生意外
- 冷却套不会发热, 即使冷却了很多热缩刀具, 热量全部被冷却水循环带走, 冷却套不会发热
- 5个冷却套适合各种标准刀柄
- 冷却水不会渗漏, 工作环境干净整洁

#### Cooling body for rapid cooling

- Cooling in record time: approx. 30 s
- Tool holders remain dry
- No build-up of rust
- No time lost through drying process
- Even cooling, runout accuracy is maintained
- Hot points are always covered, no risk of injury
- Hot parts need not be touched
- Gentle handling of chuck, no shocking
- No heating of cooling body, even after lots of shrink fit procedures: heat is removed with water cycle
- 5 cooling bodies for all standardized chucks
- No messy water, always a clean work space

## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 线圈技术 The Coil Technology

感应线圈是感应式热缩技术的核心。

翰默HAIMER 一直是感应式热缩技术的领导者。我们在感应线圈技术方面拥有的多项专利 (发明专利号码:CN 101189915 B\*), 是我们创新和进步的显著证明。

#### 电力科技

构成热缩技术的第二个要素是电力电子元件。它提供线圈电力, 精确地控制频率和电流大小。加热只需要几秒钟, 从而避免刀柄过热。翰默HAIMER 能提供从 10 KW 到 33 KW 功率的热缩机。

#### 操作

投资成功的决定性因素是能被员工接受, 如果一台机器能被频繁并愉快地使用, 即能在短时间内收回投资。翰默 HAIMER 的热缩设备能符合用户的各种需求, 客户可以购买单一的热缩机, 或者购买整套热缩设备, 包括接触式冷却器和可旋转的支撑盘以及工具车。



**The induction coil is the core of inductive shrink fit technology.** HAIMER has been the leading developer of inductive shrink fit technology for tool holders for years. A number of patents, predominantly in the field of induction coils, is the visible proof of our innovation and advancement.

#### Power electronics

The second component of shrink fit technology is power electronics. It supplies the coil with power. Frequency and current must be exactly coordinated with one another to do this. Heating must take place within seconds, without overheating the chuck. A specially developed procedure for power regulation makes sure this is the case, independent of the main voltage. HAIMER offers shrink fit equipment with an output of 10 to 33 kW.

#### Operation

Equally decisive for the success of an investment is its acceptance among your employees. A machine, which is used happily and frequently, pays for itself within a short period of time. HAIMER shrink fit equipment can be equipped for any purpose and need. From a simple device with one shrink fit station and no cooling, up to fully equipped machines with rotary table, integrated contact cooling and system cart.

翰默线圈产品图示/Examples of HAIMER coils:

- 1) 标准线圈V2008/Standard coil V2008
- 2) 带废气吸收装置的自动NG线圈
- 3) 13 kW HD 重型线圈/13 kW HD coil

\*如需更多关于翰默专利的信息, 请联系翰默(上海)贸易有限责任公司。

## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 标准线圈 The Standard Coils

带可更换止动盘的标准线圈已应用许多年, 夹持孔直径从  $\varnothing 3-32\text{mm}$  的热缩刀柄可以通过一个线圈加热以装拆。直径从最小到最大, 只需要五个止动盘就能适用于各种热缩刀柄。

**The standard coils have been proven for years** with interchangeable stop disks. All shrink fit chucks with a diameter of 3 to 32 mm can be heated with a single coil. Just 5 stop disks are enough to adapt the coil to each chuck, from the smallest to the largest.

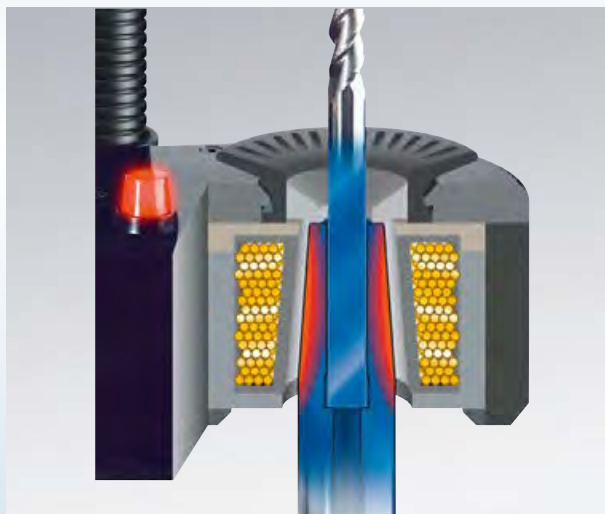


#### 标准线圈

依托超过20年的热缩机感应线圈制造经验, 翰默的标准线圈已经发展成为热缩机设备上一个稳定且高效的组成单元。通过智能控制, 线圈仅加热选定的感应加热区域, 可以更高效的加热刀柄, 同时延长刀柄的使用寿命。

#### The standard coil

With over 20 years of experience in making inductive shrink fit machine coils, HAIMER has evolved our standard coil to be a very solid and efficient component on our machines. Through our intelligent control, the coil only activates the inductive zones that will most effectively heat up the shrink fit chuck in order to give long lasting tool holder life.



## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### NG线圈 The New Generation (NG) Coils

智能 NG 型线圈使用特别灵活、舒适和方便。

NG线圈是可调的,用户可以转动线圈,调节线圈的厚度和内径,来适应刀柄的直径和长度。这意味着只加热需要加热的部分。这意味着只加热需要加热的部分,对于特殊尺寸的刀柄也适用。NG 型线圈不再需要使用止动盘。

**The intelligent NG coils are particularly flexible, comfortable and adjustable.** With one turn, you can set the coil to the size of the shrink fit chucks, both in length and diameter. Stop disks are no longer necessary. This means the chuck is only heated where it is intended, even with special sizes.

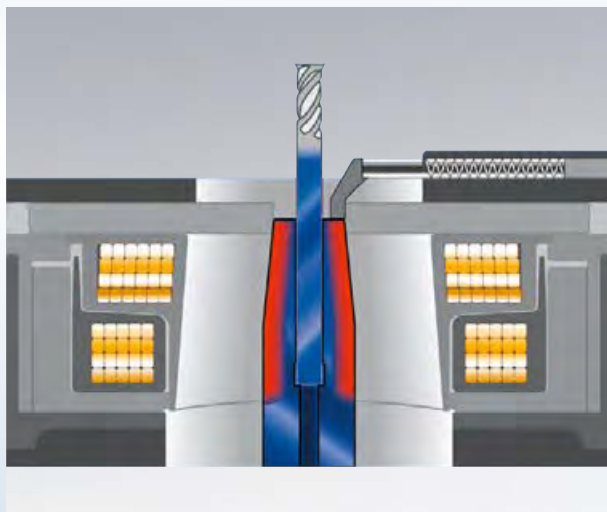


#### NG线圈具有两个感应加热区域

在努力使加热过程更优化的探索中,翰默创新地设计出了含双层感应加热区域的智能NG线圈。这使得对热缩刀柄夹持部分的加热更有效率及保护性,更好的延长了热缩刀柄的寿命。同时,针对使用超短型刀柄的客户来说,该智能线圈不需要增加其他附件以加热超短型刀柄。

#### The NG Coils have two heating zones

In an effort to maximize the efficiency of the heating process, HAIMER has a revolutionary two heating zone design in their NG (New Generation) intelligent coils. This allows for even and efficient heating across the nose of the shrink fit chuck – leading to longer tool holder life. These coils also can adapt themselves to ultra-short shrink fit chucks easily and ultra-short shrink fit chucks can often provide a benefit in the machining process.



## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 自动NG线圈 The motorised New Generation (NG) Coils

为了提供更便利和自动化的热缩过程, 在翰默的工业4.0型热缩机上使用自动NG线圈时, 强烈建议配置一把手持式扫码枪。

自动NG智能线圈可以通过电机自动调整线圈的加热直径以及高度来加热所需求的热缩刀柄/热缩筒夹。只需要扫描一下刀柄或热缩筒夹上的二维码, 线圈会自动旋转到正确的加热位置。

将自动NG智能线圈放置在热缩刀柄/热缩筒夹的感应加热区域, 通过启动按钮进行感应加热。

整个加热过程平滑、连贯和迅速。

For the most convenient and automated shrinking process the motorised NG coil on a HAIMER i4.0 shrink machine is highly recommended in conjunction with a hand scanner.

The intelligent, motorised NG coil adjusts automatically to the correct tool diameter and length for heating up the tool holder / shrink fit collet with the right parameters.

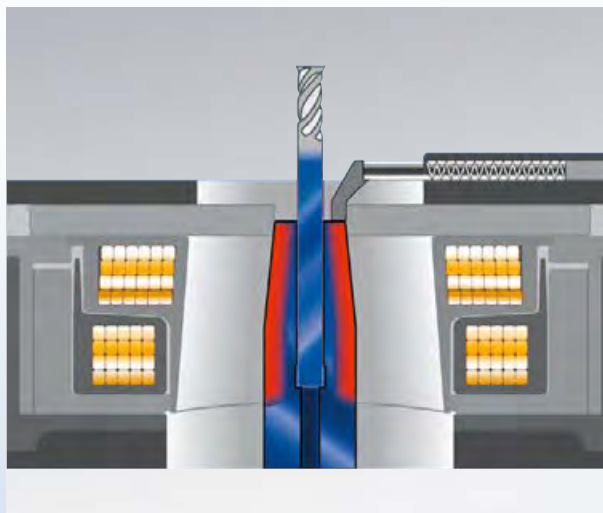
Just scan the tool holder or shrink fit collet's data-matrix code and the coil's motor starts to move the coil to the right position.

Place the motorised NG coil on the shrink fit chuck / collet and start inductive heating at the push of a button.

This leads to a very smooth, consistent and operator independent shrinking process.



图片显示的是为带废气吸收装置的自动线圈 (选配)  
Picture shows motorised coil with auxiliary fume extraction unit (optional)



#### NG线圈具有两个感应加热区域

在努力使加热过程更优化的探索中, 翰默创新地设计出了含双层感应加热区域的智能NG线圈。这使得对热缩刀柄夹持部分的加热更有效率及保护性, 更好的延长了热缩刀柄的寿命。同时, 针对使用超短型刀柄的客户来说, 该智能线圈不需要增加其他附件以加热超短型刀柄。

#### The NG Coils have two heating zones

In an effort to maximize the efficiency of the heating process, HAIMER has a revolutionary two heating zone design in their NG (New Generation) intelligent coils. This allows for even and efficient heating across the nose of the shrink fit chuck – leading to longer tool holder life. These coils also can adapt themselves to ultra-short shrink fit chucks easily and ultra-short shrink fit chucks can often provide a benefit in the machining process.

## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 翰默 HAIMER热缩机的成本摊销期 Amortisation HAIMER Power Clamp

#### 购买价格

带冷却器的 NG型热缩机的成本摊销期取决于每天的使用次数。

节约的时间: 5分钟/每次  
成本设置: 50 €/小时

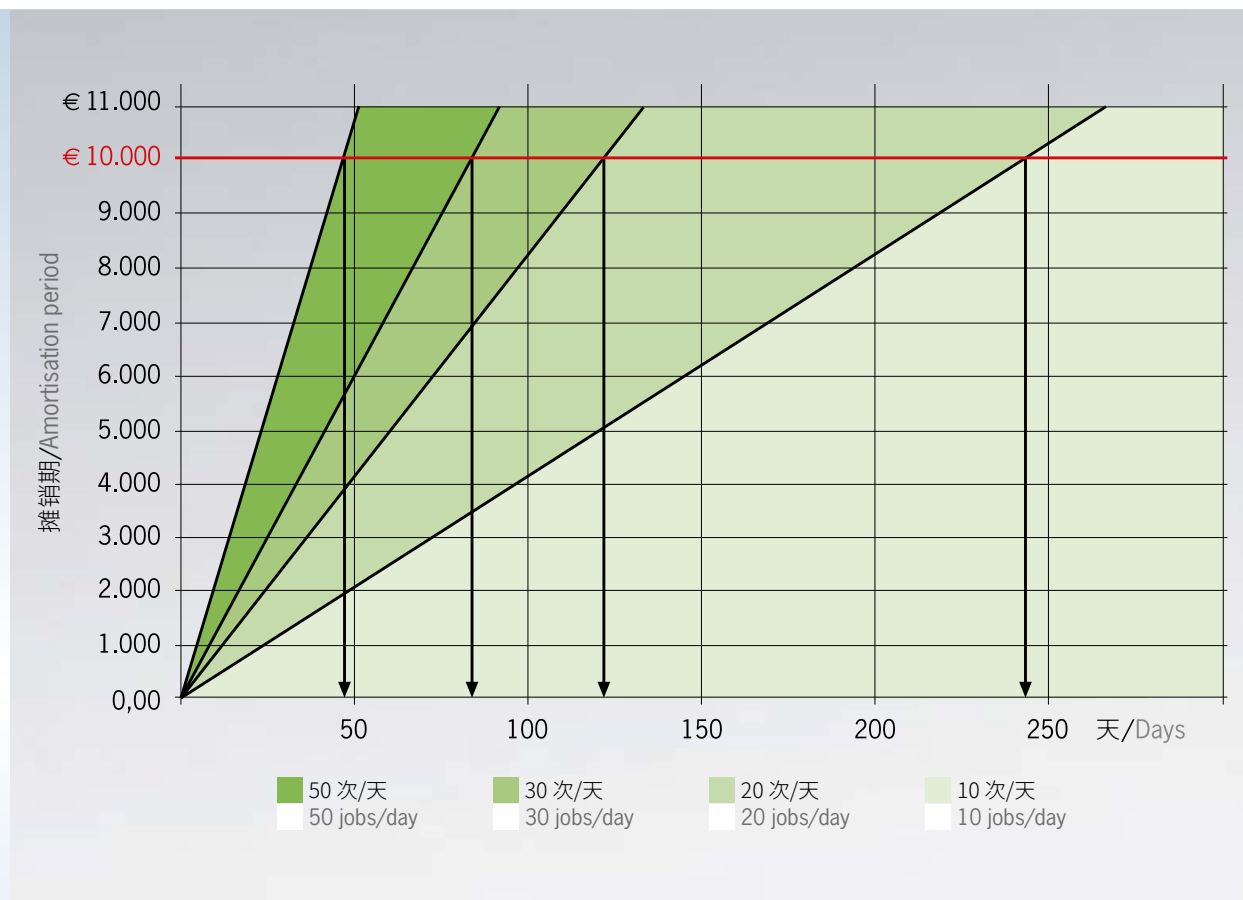
#### Purchase price

Amortisation Power Clamp with Speed Cooler dependent on the number of shrink cycles per day.

Saving of time: 5 min. per cycle  
Cost set: 50 €/h

下图显示了热缩机的成本摊销期很短

The following diagram shows the short amortisation periods.



## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM

### 基本系列/ 增强系列/ 工业 4.0 系列 Basic Line / Profi Line / i4.0 Line

翰默 HAIMER 的热缩机技术能够满足各种需求。  
有众多的机型和线圈可供选择。

**HAIMER has the right shrink fit technology for any need.** Take advantage of the largest range of shrink fit equipment and coils in the world.



### 基本系列：关注基本应用

基本系列热缩机是感应热缩技术的入门级系列产品。其电力电子元件确保稳定的加热性能。而另一方面，该设备的机械结构也确保了其功能性和简易性。该设备仅支持单支撑座方案。

基本系列设备是为标准型线圈特别设计的，不能升级。基本系列热缩机是预算有限且每天仅装拆几支刀具的客户的首选。

该系列中的 NANO 纳米型热缩机是适用于微型刀具的卧式机型。它使微型刀具的装拆变得简单和快速。

### Basic Line: Concentrating on the basics.

The Basic Line is the economical entrance into inductive shrink fit technology. The power electronics enables problem free shrinking. The mechanical construction of the equipment has, on the other hand, been kept deliberately simple and functional. There are just single chuck solutions.

The Basic Line equipment is exclusively designed for operation with standard coils. It is not possible to upgrade.

The Basic Line is ideal for the price-conscious user, who only wants to shrink a few tools on a daily basis.

For micro machining purposes the special horizontal shrink fit machine Power Clamp Nano is part of the program. It combines perfectly easy tool handling of small diameters and fast tool exchange.

## 翰默 HAIMER热缩机系统 THE POWER CLAMP SYSTEM



### 增强系列：模块化的全能选手

增强系列热缩机能够满足各种功能和效率的需求。高性能线圈、冷却水套和旋转工作台确保了创纪录的同步加热和冷却。每一个客户的需求都得到了满足。

增强系列热缩机可以配置标准线圈或者智能且舒适的NG线圈。当然，我们的设备可以自动识别每一个线圈并选择正确的加热程序。

增强系列热缩机是一个模块化的系统。起步机型例如：经济型热缩机可以逐步升级至高端机型：NG舒适型热缩机。

#### Profi Line: Modular Versatility.

The Profi Line offers the full range of performance and is unbeatable in efficiency. High performance coils, contact cooling and a rotary table guarantees simultaneous shrinking and cooling in record time. No wishes remain unfulfilled.

The machines of the Profi Line work with both the standard coils and the intelligent, comfortable NG coils. Of course, the equipment recognizes each coil and chooses the correct shrink fit parameters automatically.

The shrink fit machines of the Profi Line form a modular system. The start-up Power Clamp Economic machine can gradually be upgraded to the high-end Power Clamp Comfort NG.

### 工业 4.0 系列：网络兼容性好且便于沟通

除了知名的基本系列和增强系列热缩机，我们还开发了全新的网络兼容性好的工业 4.0 系列，该系列有超级型、全能型、测量型、气冷型、舒适型和纳米型热缩机。

这些设备配置了更适合在车间使用的 7" 触摸屏和新型且直观的软件，用户操作时戴着和不带手套都更简便。根据用户的需求，工业4.0 系列热缩机可以配置手持式扫码枪，因而可以读取二维码中的热缩参数。这使得自动化的加热操作比以往更简便了。

这些符合人体工程学的新型热缩机都有时尚和高品质的设计。由于他们配置了翰默专利 (发明专利号码: CN 101189915 B\*)的 NG 线圈，适用于柄径为 3 至 32mm 的硬质合金和高速钢刀具。

#### i4.0 Line: Network-compatible and communicative.

In addition to the well-known machines of the Basic and Profi line, the all-new Industry 4.0-ready and network-compatible series was developed with its Power Clamp Premium i4.0, Sprint i4.0, Preset i4.0, Air i4.0, Comfort i4.0 and Nano i4.0 models.

The machines are equipped with a workshop friendly 7" touch display and new intuitive software, which makes machine operation with or without gloves even easier. Upon request, the Power Clamp i4.0 devices can also be equipped with a hand-held scanner that is able to read the shrinking parameters of Data-Matrix codes. This way automated shrinking is easier than ever before.

The new and ergonomic shrinking stations have a modern and high-quality design. Due to their patented NG coil, they are suited for both solid carbide and HSS tools with diameters from 3 to 32 mm.



# 设备特征 EQUIPMENT FEATURES

系列/Line		基本系列 / Basic Line			增强系列 / Profi Line				
符号/ Symbol	内容/Feature	纳米型 Nano	智能型 Smart	基本型 Basic	经济型 Economic	NG 经济型 Economic NG	经济增强型 Eco Plus	NG 经济增 强型 Eco Plus NG	特殊配置经 济增强型 Special Edition
	单支撑座型 Single chuck version	●	●	●	●	●	●	●	●
	同步加热和冷却型 Cooling and Shrinking simultaneously	—	—	—	○	○	○	○	○
	旋转盘 Rotary table	—	—	—	○	○	○	○	—
	冷却系统 Cooling	○	—	—	○	○	●	●	●
	带冷却控制器的快速冷却器 Speed Cooler with Cooling Manager	—	—	—	○	○	●	●	●
	温度监控系统 TME Cooling system	—	—	—	—	—	○	○	—
	模块化系统 Modular system	—	—	—	●	●	●	●	—
	标准线圈 Standard coil	—	●	●	●	○	●	○	●
	多种 NG 线圈 Variable NG coil	—	—	—	○	●	○	●	○
	自动NG线圈 Intelligent motor coil	—	—	—	○	○	○	○	○
	13 kW 重型线圈 13 kW HD coil	—	—	—	○	○	○	○	○
	20 kW 线圈 20 kW coil	—	—	—	—	—	—	—	—
	5 键薄膜键盘 5 keys membrane keypad	●	●	●	●	●	●	●	●
	工业 4.0 配置 Industry 4.0 ready	—	—	—	—	—	—	—	—
	7" 触摸屏 7" Touchscreen	—	—	—	—	—	—	—	—
	手持式扫码枪 Hand-held scanner	—	—	—	—	—	—	—	—
	长度预调 Length presetting	○	—	—	○*	○*	○*	○*	—
	工具车 System cart	○	○	○	○	○	○	○	○
	废气吸收装置 Auxiliary fume extraction unit	—	—	○	○	○	○	○	○

					工业 4.0 系列 / i4.0 Line							
舒适型 Comfort	NG 舒适型 Comfort NG	NG 强力型 Profi Plus NG	NG 测量型 Preset NG	超级增强型 Premium Plus	工业4.0 纳米型 Nano NG i4.0	工业4.0 气冷经济型 Air i4.0 Eco	工业4.0 气冷舒适型 Air i4.0 Comfort	工业4.0 舒适型 Comfort i4.0	工业4.0 测量型 Preset i4.0	工业4.0 超级型 Premium i4.0	工业4.0 全能型 Sprint i4.0	
—	—	—	—	—	●	●	●	—	—	—	—	
●	●	●	●	●	—	●	●	●	●	●	●	
●	●	●	—	—	—	—	—	●	—	—	—	
●	●	●	●	●	●	●	●	●	●	●	●	
●	●	●	●	●	—	●	●	●	●	●	—	
○	○	○	○	●	—	●	●	○	○	●	●	
●	●	●	●	—	—	●	●	○	○	—	—	
●	○	○	○	○	—	○	○	○	○	○	○	
○	●	●	●	○	—	●	○	●	●	●	●	
○	○	○	○	●	●	○	●	○	○	○	○	
○	○	○	○	○	—	○	○	○	○	○	○	
—	—	○	—	●	—	—	—	—	—	—	—	
●	●	●	●	●	—	—	—	—	—	—	—	
—	—	—	—	—	●	●	●	●	●	●	●	
—	—	—	—	—	●	●	●	●	●	●	●	
—	—	—	—	—	●	○	●	○	○	○	○	
○*	○*	○*	●	●	○	○	○	○	●	○	○	
○	○	○	○	—	○	○	○	○	○	—	—	
○	○	○	○	○	—	○	○	○	○	○	○	

# NANO 纳米型热缩机

## Power Clamp Nano

针对小直径刀具的卧式热缩机  
Horizontal shrink fit machine for small tools.



**气冷 (选配)**  
使用压缩空气冷却，  
无需考虑刀具的外  
形，小型刀具安装和  
调整非常安全。

**Air cooling (optional)**  
Cooling by compressed air,  
regardless of contour and  
safest handling for small  
tool holders



止动盘  
Stop disk



包含刀柄夹持系统的  
支撑盘  
Chuck support for  
tool holders with  
bajonet clamping

**长度设定 (可选)**  
水平长度设定单元  
精度:0.05mm  
**Length presetting (optional)**  
Horizontal length presetting unit  
Tolerance 0,05 mm

## 基本系列热缩机/POWER CLAMP BASIC LINE NANO 纳米型热缩机/POWER CLAMP NANO

### NANO 纳米型热缩机

- 功率: 13 kW
- 主电源: 3x400 – 480 V, 16A
- 刀具: 柄径为  $\varnothing 3 - \varnothing 16$ mm 的硬质合金和高速钢刀具
- 卧式结构易于操作

### Power Clamp Nano

- Power: 13 kW
- Mains voltage: 3x400–480V, 16 A
- Tools: solid carbide and HSS from  $\varnothing 3-16$  mm
- Easy tool handling by horizontal shrinking

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–16 mm
- 最长刀具总长度/ Maximum length of shrink fit chuck with tool	230 mm
- 尺寸 长x宽x高/Dimensions WxDxH	715x600x630 mm
- 重量/Weight	75 kg
- 订货号/Order No.	<b>PC106-I04-C00-EU*</b>

### 附件/Accessories

### 订货号/Order No.

- Nano 纳米型热缩机用刀柄支撑盘/Chuck support for Power Clamp Nano	参见第 577 页/see page 577
- Nano 纳米型热缩机用空气冷却装置/Power Clamp Nano Air Cooling	80.164.00
- 适用于夹持孔径为 $\varnothing 3 - 12$ mm 的迷你型刀柄的冷却喷嘴/Cooling nozzle for Mini Shrink $\varnothing 3-12$ mm	80.164.02
- 长度设定单元/Length presetting	80.165.00.3
- Nano 纳米型热缩机的校准转换套/Calibration adapter Nano	80.165.01
- 长度设定用的刀具夹/Clips for tools for length presetting	
- $\varnothing 3$ mm	80.166.03
- $\varnothing 4$ mm	80.166.04
- $\varnothing 5$ mm	80.166.05
- $\varnothing 6$ mm	80.166.06
- $\varnothing 8$ mm	80.166.08
- $\varnothing 10$ mm	80.166.10
- $\varnothing 12$ mm	80.166.12
- 包含底座的刀具夹套装/Set of clips incl. plate	80.166.00



#### 长度设定的校准转换套 (可选)

适用于测量设备的预设

#### Calibration adapter for length presetting (optional)

For resetting of the measuring device



#### 刀具夹 (可选)

用于安全并精确地夹持高品质硬质合金刀具——特别适合小直径刀具

#### Clips for tools (optional)

For safest and precise handling of high quality carbide tools, especially with smaller diameters

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系销售代表以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# Power Clamp Smart

智能型热缩机——不带冷却系统的入门级热缩机

# Power Clamp Smart

Entry-level shrink fit machine without cooling.



## 基本系列热缩机/POWER CLAMP BASIC LINE 智能型热缩机/POWER CLAMP SMART

### 智能型热缩机

- 标准线圈
- 单支撑座型
- 没有冷却系统
- 含一个支撑座
- 含一个支撑盘
- 功率:10 kW
- 主电源:3x400 – 480 V, 16A
- 刀具:柄径 Ø3 – Ø16 mm 的硬质合金和高速钢

### Power Clamp Smart

- With standard coil
- Single chuck version
- Without cooling
- With 1 base holder
- With 1 chuck support
- Power: 10kW
- Mains voltage: 3 x 400–480 V, 16A
- Tools: solid carbide and HSS from Ø3–16 mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 10 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–16 mm
- 最长刀具总长度/Maximum total length	300 mm
- 尺寸 长x宽x高/Dimensions WxDxH	650x900x600 mm
- 重量/Weight	45 kg
- 订货号/Order No.	<b>PC104-I01-C00-EU*</b>

### 附件/Accessories

### 订货号/Order No.

- 单支撑盘/ Chuck support for single-chuck system	参见第 578 页/see page 578
--	------------------------

# Power Clamp Basic

基本型热缩机——不带冷却系统的热缩机

# Power Clamp Basic

Entry-level shrink fit machine without cooling.



## 基本系列热缩机/POWER CLAMP BASIC LINE

### 基本型热缩机/POWER CLAMP BASIC

#### 基本型热缩机

- 标准线圈
- 单支撑座型
- 没有冷却系统
- 含一个支撑座
- 含一个支撑盘
- 功率:10 KW
- 主电源:3x400 – 480 V, 16A
- 刀具:柄径 Ø3 – Ø32 mm 的硬质合金和高速钢

#### Power Clamp Basic

- With standard coil
- Single chuck version
- Without cooling
- With 1 base holder
- With 1 chuck support
- Power: 10kW
- Mains voltage: 3 x 400–480 V, 16A
- Tools: solid carbide and HSS from Ø3–32 mm

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 10 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀具总长度/Maximum total length	350 mm
- 尺寸 长x宽x高/Dimensions WxDxH	650x900x600 mm
- 重量/Weight	45 kg
- 订货号/Order No.	<b>PC105-I01-C00-EU</b>

#### 附件/Accessories

#### 订货号/Order No.

- 单支撑盘/ Chuck support for single-chuck system	参见第 578 页/see page 578
--	------------------------



## 增强系列热缩机 POWER CLAMP PROFI LINE

### 增强系列热缩机/Power Clamp Profi Line: 模块化系统/The modular system

#### 一步步递进式热缩科技

基本设备可以连接上两块不同的背板和工作台面。可旋转的刀柄支撑盘可以根据需要订购。

#### Step by Step more shrink fit technology

Basic unit can be combined with two rear walls and two base plates. The chuck support for the rotary table will be supplied as requested.

#### 附件/Accessories

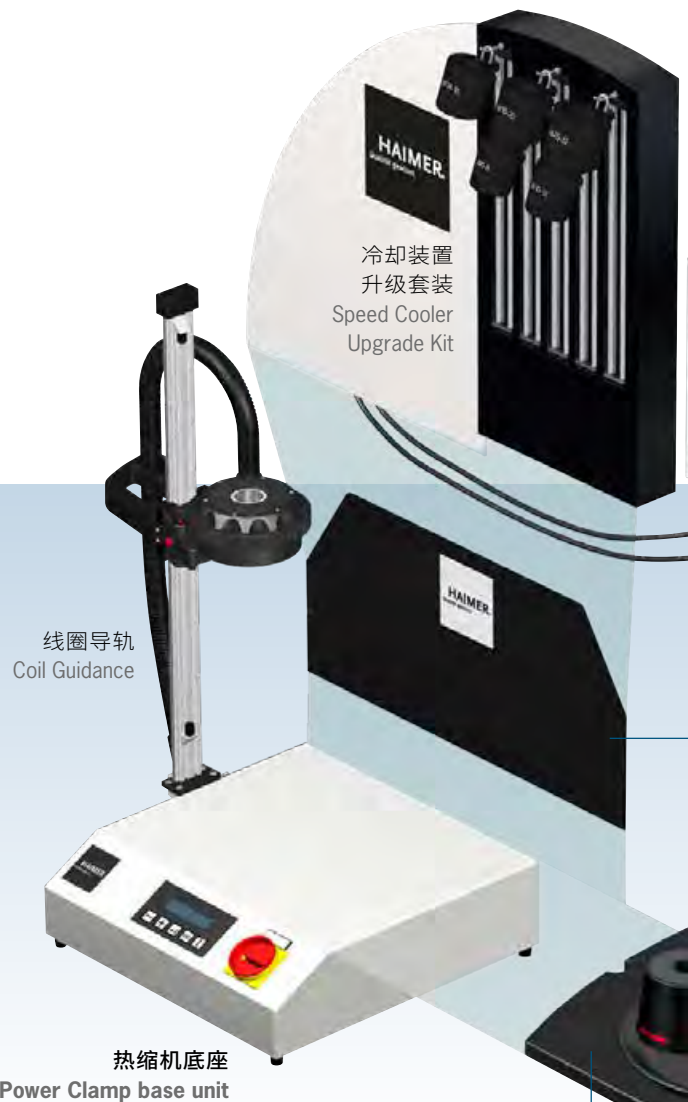
- 冷却系统升级套装/  
**Speed-Cooler Upgrade Kit**  
带背板和 5 个冷却套的冷却机系统/  
Speed-Cooler with rear wall incl. 5 cooling bodies  
订货号/Order No. 80.115.00

---

- 旋转支撑盘升级套装 (= 舒适型热缩机)/**Rotary table Upgrade Kit (= Power Clamp Comfort)**  
带储物盒和可以放三个刀柄的旋转盘的台面/  
Base plate with rotary table for 3 chucks  
incl. craning boxes  
订货号/Order No. 80.116.00

---

- 测量系统升级套装/**Preset Upgrade Kit**  
含 2 个精密支撑盘, 储物盒, 带高度尺的测量台面/  
Measuring plate, height gage,  
2 precision base holder incl. craning boxes  
订货号/Order No. 80.117.00



带旋转盘, 带储物盒, 能储放刀具的铝制台面  
Base plate Standard made of aluminum with rotary table,  
integrated tool tray and craning boxes

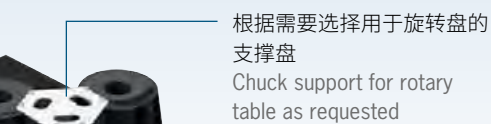
## 增强系列热缩机 POWER CLAMP PROFI LINE



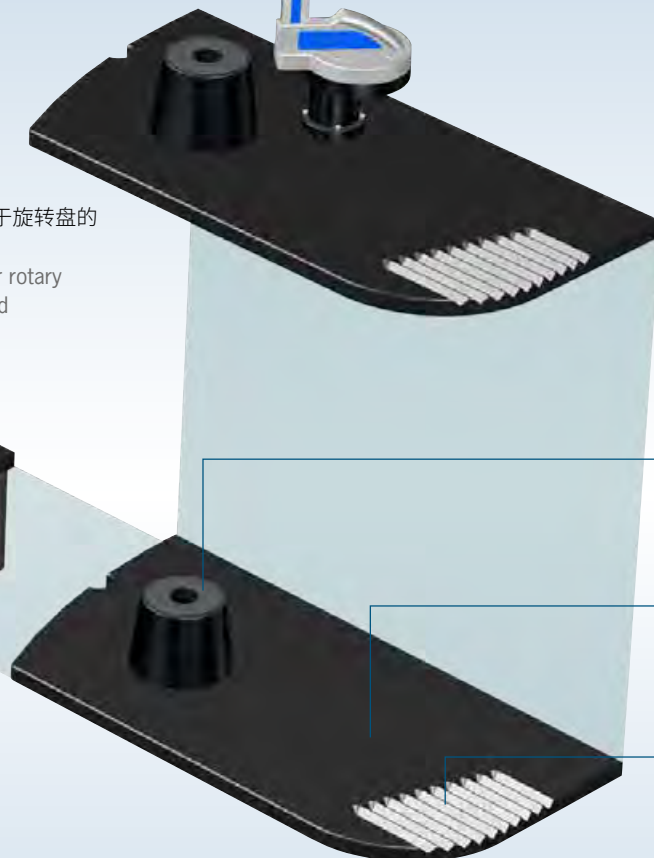
经济型背板  
Rear wall Economic



刀具预调升级套装  
Preset Upgrade Kit



根据需求选择用于旋转盘的  
支撑盘  
Chuck support for rotary  
table as requested



单刀柄支撑座系统  
Base holder/Chuck support for single-chuck  
system

经济型和经济增强型用, 带刀具储放盘的  
台面  
Base plate Economic and Economic Plus  
with integrated tool tray

刀具储放盘  
Tool tray for storage of tools

## 增强系列热缩机 POWER CLAMP PROFI LINE

# 增强系列热缩机 Power Clamp Profi Line Program

从一个有效的配置的基本配置的机型开始 — 有力的补充：  
面向未来

现代热缩技术的开端：成本非常低的先进的线圈技术。因此问题不在于：是否能够投资在热缩技术上？而是“什么时候我将要投资在热缩技术上”。现在是时候投资在这个未来技术上了。

我们模块化系统提供了理想的启动方案。

**Start with the essential, then upgrade as needed:  
Keep an eye on the future.**

An entrance into modern shrink fit technology: State-of-the-art coil technology at low costs. The question is not "Should I invest in shrink fit technology" but rather "When will I invest in shrink fit technology". It is now time to invest in the technology of the future.

**Our modular system offers the ideal  
start-up solution.**

NG 经济型热缩机不带冷却，不带旋转盘，带刀具储放盘  
Power Clamp Economic NG  
without cooling, without rotary table, with integrated tool tray



## 增强系列热缩机 POWER CLAMP PROFI LINE

### 技术参数/Technical details

- 舒适型的底座/ <b>Basic unit Comfort</b>	3x400-480 V, 16A, 13 kW
- 最大的热缩刀柄的长度(可根据需求加长) Maximum lenght of shrink fit chuck (longer chucks upon request)	510 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x970 mm
- 重量/Weight	70 kg
- 冷却单元/ <b>Speed-Cooler unit</b>	230 Volt/50 Hz, 1 kW
- 尺寸 长x宽x高/Dimensions WxDxH	565x450x400 mm
- 重量/Weight	45 kg



#### NG 经济增强型热缩机

含冷却系统, 不含旋转盘, 含单支撑座, 刀具储放盘。

#### Power Clamp Economic Plus NG

with cooling, without rotary table, incl. 1 base holder and 1 chuck support, with integrated tool tray



#### NG 舒适型热缩机

含冷却系统, 旋转盘和支撑盘, 刀具储放盘和储物盒

#### Power Clamp Comfort NG

with cooling, rotary table, 1 chuck support, integrated tool tray and craning boxes



#### NG 强力型热缩机

- 加热时的功率: 20 kW
- 可装拆柄径为 3 - 50 mm 的刀具
- 适合装拆硬质合金和高速钢刀具
- 可选择大的线圈 Ø40 - 50 mm (选配)
- 含旋转盘和支撑盘
- 含刀具储放盘
- 含储物盒

#### Power Clamp Profi Plus NG High powered shrink fit machine

- Heating power 20 kW
- For shrinking of tools from Ø 3-50 mm
- For HSS- and solid carbide tools
- Big coil for Ø 40-50 mm (optional)
- Incl. rotary table and chuck support
- Incl. tool tray
- With craning boxes for accessories

# 增强系列热缩机/POWER CLAMP PROFI LINE

## 翰默新一代热缩机

### HAIMER POWER CLAMP NEW GENERATION

#### 1 单手操作

- 线圈定位和加热仅需一只手即可完成

#### Single hand operation

- Positioning of coil and starting of shrink process with one hand

#### 2 适用于快速冷却的冷却套

- 刀柄保持干燥
- 不会生锈
- 加热部分被覆盖
- 不会触及加热部分

#### Cooling bodies for rapid cooling

- Chucks remain dry
- No rust
- Hot spots always covered, no danger of injury
- Hot parts need not to be taken into the hand

#### 3 旋转盘

- 工作迅速且有效
- 加热和冷却可同时在3个工作位置开展
- 节约时间

#### The turning table

- Work fast and efficient
- Heating and cooling at the same time on 3 stations
- No idle periods



支撑盘  
Chuck support

#### 4 三支撑盘

- 适合各种的锥度形式
- 不同锥度的支撑盘可以任意组合

#### Chuck support for 3 chucks

- For all actual tapers
- Also different tapers combined possible



图片显示的是 NG 舒适型热缩机、附件及系统工具车

Picture shows Power Clamp Comfort NG with accessories and system cart

#### 5 刀具储放盘

- 适合储放刀具
- 集成在底板上

#### The tool tray

- For laying down cutting tools
- Integrated in base plate

#### 6 储物盒

- 适合存放附件
- 方便拿取

#### The craning boxes

- For accessories
- Everything close at hand

#### 7 显示屏

- 人性化操作面板
- 清晰、紧凑且容易操作

#### The display

- User-friendly operating panel
- Clear, compact and easy to handle

#### 8 系统工具车

- 布局合理且符合人体工程学的工具车

#### The system cart

- For a clearly arranged and ergonomic work place

#### 9 抽屉

- 适合各种附件的插件
- 各种附件各司其位

#### The drawer

- Profiled inserts for accessories
- Everything in its place

## 增强系列热缩机/POWER CLAMP PROFI LINE

### 翰默新一代热缩机

### HAIMER POWER CLAMP NEW GENERATION



#### 安全, 无冷却水溢出, 快速的冷却

- 高效率: 在一支刀柄冷却的同时可以进行另一支刀柄的加热
- 水套冷却
- 接触式冷却, 提高冷却效果
- 整体冷却, 不会引起金属材料变形

#### Safe, dry, fast cooling

- Efficient: Shrink one holder while cooling another
- Water-cooled cooling bodies
- Concentrated cooling efficiency due to contact cooling
- Even cooling: No material deformation

#### 智能线圈专利技术

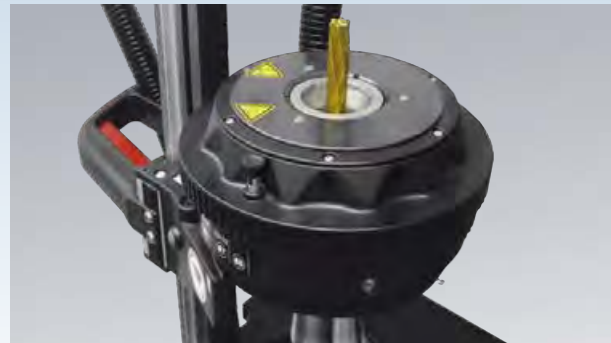
(发明专利号码: CN 101189915 B\*)

线圈可以根据刀柄自行调整高度和直径, 因此只有夹持刃具的区域被加热-其他位置不会。加热和冷却更迅速。



#### Intelligent patented coil technology:

The coil adjusts itself to the chuck in length and diameter. Therefore only the shrinking area of the chuck will be warmed – nothing else. Shrinking and cooling will be much faster.

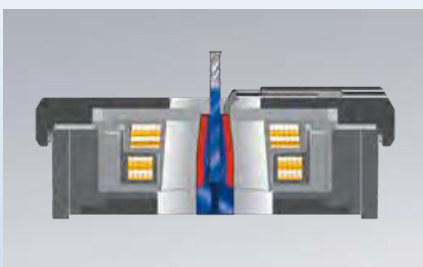


#### 更有效, 更灵活, 操作更简单

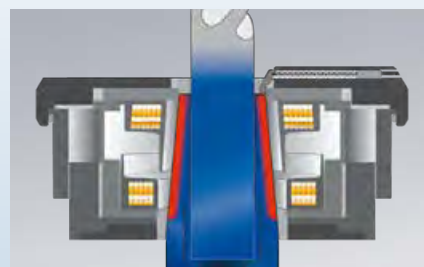
- 线圈根据刀柄自行调整
- 由于线圈高度可以调整, 磁场分布完美
- 由于线圈高度可以调整, 热量分布更佳
- 加热后刀柄的温度更低
- 缩短加热时间
- 缩短冷却时间
- 操作简单
- 不需要止动盘
- 适合T型槽铣刀
- 适合超短刀柄
- 适合特殊形状的刀柄。

#### Even more efficiency, more flexibility, easier handling.

- Coil adjusts itself to the chuck
- Perfect magnetic flow due to length adjustment of the coil
- Optimal heat distribution due to length adjustment of the coil
- Lower chuck warming
- Shorter shrinking time
- Shorter cooling time
- Simple operation
- Contact disks are no longer necessary
- Suitable for T-shaped groove milling cutters
- Suitable for ultra-short chucks
- Suitable for special shape



小直径刃具  
Small tool



大直径刃具  
Big tool

\*如需更多关于翰默专利的信息, 请联系翰默(上海)贸易有限责任公司。

# 经济型热缩机/NG 经济型热缩机

入门级的不带冷却系统的增强系列热缩机

## Power Clamp Economic/ Power Clamp Economic NG

Profi Line entry-level shrink fit machine without cooling.



经济型热缩机/Power Clamp Economic

NG 经济型热缩机/Power Clamp Economic NG

## 增强系列热缩机/POWER CLAMP PROFI LINE 经济型热缩机/POWER CLAMP ECONOMIC NG 经济型热缩机/POWER CLAMP ECONOMIC NG

### 经济型热缩机

- 标准线圈
- 单支撑座型
- 没有冷却系统
- 含一个支撑座
- 含一个支撑盘
- 功率:13 KW
- 主电源:3 x 400 – 480 V, 16 A
- 刀具:柄径为  $\varnothing 3 - \varnothing 32$  mm 的硬质合金和高速钢

### Power Clamp Economic

- With standard coil
- Single chuck version
- Without cooling
- With 1 base holder
- With 1 chuck support
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### NG 经济型热缩机

- 智能 NG 线圈
- 单支撑座型
- 没有冷却系统
- 含一个支撑座
- 含一个支撑盘
- 功率:13 KW
- 主电源:3x400 – 480 V, 16 A
- 刀具:柄径为  $\varnothing 3 - \varnothing 32$  mm 的硬质合金和高速钢

### Power Clamp Economic NG

- With intelligent NG coil
- Single chuck version
- Without cooling
- With 1 base holder
- With 1 chuck support
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀柄长度 Maximum length of shrink fit chuck	经济型: 510mm/NG经济型: 570 mm Economic: 510 mm/Economic NG: 570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x970 mm
- 重量/Weight	60 kg
- 经济型热缩机的/Power Clamp Economic 订货号/Order No.	<b>PC101-I01-C00-EU*</b>
- NG 经济型热缩机/Power Clamp Economic NG 订货号/Order No.	<b>PC101-I21-C00-EU*</b>

### 附件/Accessories

### 订货号/Order No.

- 储物盒/Cranning boxes	80.134.00NG
- 单支撑盘/Chuck support for single-chuck system	参见第 578 页/see page 578

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.



# 经济增强型热缩机/ NG经济增强型热缩机

带冷却系统的高级增强系列热缩机

Power Clamp Economic Plus/  
Power Clamp Economic Plus NG  
Advanced Profi Line shrink fit machine with cooling.



NG 经济增强型热缩机  
Power Clamp Economic Plus NG



经济增强型热缩机  
Power Clamp Economic Plus

## 增强系列热缩机/POWER CLAMP PROFI LINE 经济增强型热缩机/POWER CLAMP ECONOMIC PLUS NG经济增强型热缩机/POWER CLAMP ECONOMIC PLUS NG

### 经济增强型热缩机

- 标准线圈
- 单支撑座型
- 带接触式冷却系统
- 含一个支撑座
- 含一个支撑盘
- 含冷却控制器
- 功率:13 KW
- 主电源:3 x 400 – 480 V, 16 A
- 刀具:柄径为  $\varnothing 3 - \varnothing 32$ mm 的硬质合金和高速钢  
刀具

### Power Clamp Economic Plus

- With standard coil
- Single chuck version
- With integrated contact cooling
- With 1 base holder
- With 1 chuck support
- Incl. Cooling Manager
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### NG 经济增强型热缩机

- 可以升级到 HD 重型线圈以加热柄径至  $\varnothing 50$  mm 的重型热缩刀柄 (选配)
- 智能 NG 线圈
  - 单支撑座型
  - 带接触式冷却
  - 含一个支撑座
  - 含一个支撑盘
  - 含冷却控制器
  - 功率:13 KW
  - 主电源:3x400 – 480 V, 16 A
  - 刀具:柄径为  $\varnothing 3 - \varnothing 32$ mm 的硬质合金和高速钢  
刀具

### Power Clamp Economic Plus NG

- Upgrade possible with HD coil for shrinking of Heavy Duty Shrink Chucks up to  $\varnothing 50$  mm (on option)
- With intelligent NG coil
  - Single chuck version
  - With integrated contact cooling
  - With 1 base holder
  - With 1 chuck support
  - Incl. Cooling Manager
  - Power: 13 kW
  - Mains voltage: 3x400–480V, 16A
  - Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀柄长度 Maximum length of shrink fit chuck	经济增强型热缩机: 510 mm/NG 经济增强型热缩机: 570 mm Economic Plus: 510 mm/Economic Plus NG: 570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x970 mm
- 重量/Weight	110 kg
- 经济增强型热缩机 订货号/Economic Plus Order No.	<b>PC102-I01-C10-EU*</b>
- NG 经济增强型热缩机 订货号/Economic Plus NG Order No.	<b>PC102-I21-C10-EU*</b>

### 附件/Accessories

### 订货号/Order No.

- 储物盒/Cranning boxes	80.134.00NG
- 单支撑盘/Chuck support for single-chuck system	参见第 578 页/see page 578
- NG 经济增强型热缩机升级用13KW HD 重型线圈套装 Upgrade Kit 13 kW HD coil for Economic Plus NG	80.151.30.10

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系客服人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# 特殊配置经济增强型热缩机

带冷却系统的高级增强系列热缩机

## Power Clamp Economic Plus Special Edition

Special designed advanced shrink fit machine with cooling.



## 增强系列热缩机/POWER CLAMP PROFI LINE

### 特殊配置经济增强型热缩机

### POWER CLAMP ECONOMIC PLUS SPECIAL EDITION

#### 特殊配置经济增强型热缩机

- 标准线圈
- 单支撑座型
- 带接触式冷却系统
- 含一个支撑座
- 含一个支撑盘
- 含冷却控制器
- 功率:13 KW
- 主电源:3 x 400 – 480 V, 16 A
- 刀具:柄径为 Ø 3 – Ø 32mm 的硬质合金和高速钢  
刀具
- 特殊配置, 无法升级

#### Power Clamp Economic Plus Special Edition

- With standard coil
- Single chuck version
- With integrated contact cooling
- With 1 base holder
- With 1 chuck support
- Incl. Cooling Manager
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from Ø 3–32 mm
- Special Edition machine, not available for upgrade

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀具总长度/ Maximum length of shrink fit chuck	510 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x970 mm
- 重量/Weight	132 kg
- 特殊配置经济增强型热缩机 订货号/Economic Plus Special Edition Order No.	<b>PC102-I01-C10-EU-SE*</b>

#### 附件/Accessories

#### 订货号/Order No.

- |  |                        |
|--|------------------------|
| - 单支撑盘/Chuck support for single-chuck system | 参见第 578 页/see page 578 |
|--|------------------------|

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# 舒适型热缩机/ NG 舒适型热缩机

带 3 工位和冷却系统的高性能增强系列热缩机

## Power Clamp Comfort/ Power Clamp Comfort NG

Profi Line high performance shrink fit machine for ambitious with 3 stations and cooling.



NG 舒适型热缩机  
Power Clamp Comfort NG



舒适型热缩机  
Power Clamp Comfort

## 增强系列热缩机/POWER CLAMP PROFI LINE 舒适型热缩机/POWER CLAMP COMFORT NG 舒适型热缩机/POWER CLAMP COMFORT NG

### 舒适型热缩机

- 标准线圈
- 三工位旋转盘
- 带接触式冷却
- 含冷却控制器
- 含一组用于旋转盘的支撑盘
- 不含储物盒
- 功率: 13 kW
- 主电源: 3 x 400 – 480 V, 16 A
- 刀具: 柄径为  $\varnothing 3 - \varnothing 32$  mm 的硬质合金和高速钢刀具

### Power Clamp Comfort

- With standard coil
- Rotary table with 3 stations
- With integrated contact cooling
- Incl. Cooling Manager
- With 1 chuck support for rotary table
- Without craning boxes
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### NG 舒适型热缩机

- 可以升级到 HD 线圈以加热柄径至  $\varnothing 50$  mm 的重型热缩刀柄 (选配)
- 智能 NG 线圈
  - 三工位旋转盘
  - 带接触式冷却
  - 含冷却控制器
  - 含一组用于旋转盘的支撑盘
  - 含储物盒
  - 功率: 13 kW
  - 主电源: 3 x 400 – 480 V, 16 A
  - 刀具: 柄径为  $\varnothing 3 - \varnothing 32$  mm 的硬质合金和高速钢刀具

### Power Clamp Comfort NG

- Upgrade possible with HD coil for shrinking of Heavy Duty Shrink Chucks up to  $\varnothing 50$  mm (on option)
- With intelligent NG coil
  - Rotary table with 3 stations
  - With integrated contact cooling
  - Incl. Cooling Manager
  - With 1 chuck support for rotary table
  - With craning boxes
  - Power: 13 kW
  - Mains voltage: 3x400–480V, 16A
  - Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀柄长度 Maximum length of shrink fit chuck	舒适型热缩机: 510 mm/NG 舒适型热缩机: 570 mm Power Clamp Comfort: 510 mm/Comfort NG: 570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x970 mm
- 重量/Weight	115 kg
- 舒适型热缩机订货号/Power Clamp Comfort Order No.	<b>PC100-I01-C10-EU</b>
- NG 舒适型热缩机订货号/Power Clamp Comfort NG Order No.	<b>PC100-I21-C10-EU</b>

### 附件/Accessories

### 订货号/Order No.

- 储物盒/Craning boxes for Power Clamp Comfort	80.134.00NG
- 旋转支撑盘/Chuck support for rotary table	参见第 581 页/See page 581
- NG 舒适型热缩机升级用13KW HD 重型线圈套装 Upgrade Kit 13 kW HD coil for Power Clamp Comfort NG	80.151.30.10

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系销售人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

## NG 强力型热缩机

带冷却系统的专业级高性能热缩机, 适用于最大柄径为 $\varnothing 50\text{mm}$ 的刃具

### Power Clamp Profi Plus NG

High performance shrink fit machine for professionals up to  $\varnothing 50\text{ mm}$  and with cooling.



## 增强系列热缩机/POWER CLAMP PROFI LINE NG 强力型热缩机/POWER CLAMP PROFI PLUS NG

### NG 强力型热缩机

- 智能 NG 线圈
- 三工位旋转盘
- 带接触式冷却
- 含冷却控制器
- 可以选择加热柄径为  $\varnothing 40 - \varnothing 50$  mm 的刀具的第二个线圈
- 含一组用于旋转盘的支撑盘
- 含储物盒
- 功率: 20 kW
- 主电源: 3 x 400 - 480 V, 32 A
- 刀具: 柄径为  $\varnothing 3 - \varnothing 50$  mm 的硬质合金和高速钢刀具

### Power Clamp Profi Plus NG

- With intelligent NG coil
- Rotary table with 3 stations
- With integrated contact cooling
- Incl. Cooling Manager
- Optional with second coil for  $\varnothing 40 - 50$  mm
- With 1 chuck support for rotary table
- With craning boxes
- Power: 20 kW
- Mains voltage: 3 x 400 - 480 V, 32 A
- Tools: solid carbide and HSS from  $\varnothing 3 - 50$  mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400-480 V, 32 A, 20 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3-32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	1000x600x970 mm
- 重量/Weight	128 kg
- NG 强力型热缩机订货号/Power Clamp Profi Plus NG Order No.	<b>PC120-I21-C10-EU*</b>

### 附件/Accessories

### 订货号/Order No.

- 旋转支撑盘/Chuck support for rotary table	参见第 581 页/See page 581
- 升级至 20KW HD 重型线圈的套装/Upgrade Kit 20 kW HD coil	80.151.40

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.



## NG 测量型热缩机

带刀长预调装置和冷却系统的专业级高性能热缩机

## Power Clamp Preset NG

High performance shrink fit machine for professionals with length presetting and cooling.



## 增强系列热缩机/POWER CLAMP PROFI LINE NG 测量型热缩机/POWER CLAMP PRESET NG

### NG 测量型热缩机

可以升级到 HD 重型线圈以加热夹持直径至  $\varnothing 50$  mm 的重型热缩刀柄 (选配)

- 带测量尺
- 智能 NG 线圈
- 单支撑座型
- 带接触式冷却
- 含冷却控制器
- 含 2 个精密支撑座
- 含 2 个精密支撑盘
- 含储物盒
- 功率: 13 kW
- 主电源: 3 x 400 – 480 V, 16 A
- 刀具: 柄径为  $\varnothing 3 - \varnothing 32$ mm 的硬质合金和高速钢刀具

### Power Clamp Preset NG

Upgrade possible with HD coil for shrinking of Heavy Duty Shrink Chucks up to  $\varnothing 50$  mm (on option)

- With vertical stop for length presetting
- With intelligent NG coil
- Single chuck version
- With integrated contact cooling
- Incl. Cooling Manager
- With 2 precision base holders
- With 2 precision chuck supports
- With craning boxes
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing 3-32$  mm

### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	840x600x1110 mm
- 重量/Weight	110 kg
- NG 测量型热缩机订货号/Power Clamp Preset NG Order No.	PC103-I21-C10-EU*

### 附件/Accessories

### 订货号/Order No.

- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 升级至 13KW HD 重型线圈的套装/Upgrade Kit 13 kW HD coil	80.151.30.10

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# 超级增强型热缩机

拥有很高工艺可靠性的高端热缩机

## Power Clamp Premium Plus

High-end shrink fit machine for absolute process reliability.



## 增强系列热缩机/POWER CLAMP PROFI LINE 超级增强型热缩机/POWER CLAMP PREMIUM PLUS

拥有很高工艺可靠性的高端热缩机,有两个独立的电气单元和线圈

- 含智能 VS 32m 线圈和 20 KW 线圈
- 含温度控制的智能冷却系统
- 冷却结束后,冷却套自动升起(温度 - 时间可以控制)
- 含六个接触式的冷却套
- 冷却套沿线性导轨滑动
- 不会损坏切削刀具的刃口
- 含冷却控制器
- 含两个带高度止动块的长度预调单元
- 含 2 个精密支撑座和 2 个精密支撑盘
- 含三个集成式抽屉
- 功率:33 KW
- 主电源:3 x 400 V, 63 A
- 刀具:柄径为  $\varnothing 3 - \varnothing 50\text{mm}$  的硬质合金和高速钢刀具

High-end shrink fit machine with two separate electronic units and two coils

- With intelligent motor coil VS32m and 20kW coil
- TME Intelligent Cooling System with temperature control
- Automatic move-up of the cooling bodies after the termination of the cooling process (temperature-time controlled)
- Integrated contact cooling with six cooling bodies
- Linear guided cooling bodies
- No damage at the edges of the cutting tool
- Incl. Cooling Manager
- Two length presetting units with height stop
- Incl. 2 precision base holders and 2 precision chuck supports
- 3 integrated drawers
- Power: 33kW
- Mains voltage: 3x400V, 63A
- Tools: solid carbide and HSS from  $\varnothing 3-50\text{ mm}$

### 技术参数/Technical details

- 主电源/Mains voltage	3x400V, 63A, 33kW
- 压缩空气/Compressed Air	6 bar
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3-50 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	535 mm
- 尺寸 长x宽x高/Dimensions WxDxH	1601 x 890 x 2300 mm
- 重量/Weight	760 kg
- 超级增强型热缩机订货号/Power Clamp Premium Plus Order No.	PC107-I41-I03-C11-EU*

### 附件/Accessories

### 订货号/Order No.

- 精密支撑盘/Precision chuck support	参见第 580 页/See page 580
- 精密支撑座/Precision base holder for chuck support	80.131.01

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置,请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.



工业4.0纳米型NG热缩机  
Power Clamp Nano NG i4.0



工业4.0气冷经济型/舒适型热缩机  
Power Clamp Air i4.0 Eco/Comfort



工业4.0舒适型热缩机  
Power Clamp Comfort i4.0



工业4.0测量型热缩机  
Power Clamp Preset i4.0

## POWER CLAMP i4.0 Line:

### 工业4.0级的热缩机技术—准备就绪 Shrinking Technology Industry 4.0-ready

通过新的工业4.0级的热缩机翰默  
HAIMER正在制定刀具和机床数字化通  
信与连接的新标准

With the new Power Clamp i4.0 series  
HAIMER is setting new standards regard-  
ing digital connectivity and communi-  
cation of tools and machines in the  
world of manufacturing.



工业4.0超级型热缩机  
Power Clamp Premium i4.0



工业4.0全能型热缩机  
Power Clamp Sprint i4.0

## 工业 4.0 系列热缩机 POWER CLAMP i4.0 LINE

# 工业 4.0 级翰默热缩机的亮点 Power Clamp i4.0 Line Highlights

通过新的工业 4.0 级的热缩机，翰默HAIMER正在制定刀具和机床数字化通信与连接的新标准。

所有工业 4.0 级翰默热缩机都具备以下特征：

- 7 英寸的触摸屏和全新的直观的软件，简单易用
- 网络兼容和工业 4.0 - 随时准备在信息系统内沟通
- 用于从刀柄上的二维码中读取热缩参数的扫码枪（选配）
- 用于柄径为 3 - 32 毫米的刀具的专利 NG 线圈（发明专利号码：CN 101189915 B\*）

**With the new Power Clamp i4.0 series HAIMER is setting new standards regarding digital connectivity and communication of tools and machines in the world of manufacturing.**

All Power Clamp i4.0 shrink fit machines are equipped with the following features:

- 7"-Touch-Display and new intuitive software for simplified usability
- Network-compatible and industry 4.0-ready for communication in the shopfloor
- Scanner to readout shrinking parameters from Data-Matrix codes (optional)
- Patented NG-coil for tool diameters from 3 – 32 mm



### 触控显示屏

- 7 英寸的触摸屏和全新的直观的软件
- 用户友好的界面
- 说明功能
- 清晰的符号，大字体
- 稳定的彩色显示屏
- 防水、耐刮擦、耐冲击

### Touch-Display

- 7" Touch-Display and new intuitive software
- User-friendly Interface
- Illustrated functions
- Clear symbols, large font
- Robust color display
- Water, scratch and impact resistant



### 手持式扫码枪

扫码枪从刀柄上的二维码中读取热缩参数，实现简单的自动读取热缩参数（选配）

### Hand scanner

Scanner to readout shrinking parameters from Data-Matrix codes for easiest automatic shrinking (optional)

## 工业 4.0 系列热缩机 POWER CLAMP i4.0 LINE

### 工业 4.0 级的冷却系统 Cooling i4.0



#### 工业 4.0 超级型热缩机

##### 带冷却状态显示功能的接触式冷却系统

- 实现快速冷却的冷却水套
- 自动显示当前的冷却状态, 简易快速安全的冷却系统
- 冷却时间: 大约 30 秒
- 刀柄保持干燥, 不易生锈
- 刀柄的冷却过程非常温和和均匀; 跳动精度保持不变
- 加热部分被覆盖, 无烫伤危险

#### POWER CLAMP PREMIUM i4.0

##### Contact cooling with signaling of the right cooling station

- Cooling body for rapid cooling
- Automatic signaling of the right cooling station for easy, fast and safe cooling
- Cooling in record time: approx. 30 s
- Tool holders remain dry, no build-up of rust
- Gentle handling of chuck by even cooling; runout accuracy is maintained
- Hot points are always covered, no risk of injury

#### 工业 4.0 全能型热缩机

##### 冷却时无需考虑刀具的外部轮廓

- 适用于各种刀具的冷却, 不需要选择冷却水套
- 安全、流畅、清洁的冷却流程, 无污垢、无水渍
- 具有温度控制的智能冷却系统

#### POWER CLAMP SPRINT i4.0

##### Cooling regardless of the outside contour

- One size fits all – cooling for all kinds of cutting tools, no more selecting of cooling bodies
- Safe, smooth and clean cooling without dirt and water residue
- Intelligent cooling system with temperature control



# 工业4.0纳米型NG热缩机

适用于小型刀具及热缩筒夹的卧式热缩机

## Power Clamp Nano NG i4.0

Horizontal i4.0 shrink fit machine for tool holders and shrink fit collets.

热缩机技术  
Shrinking Technology



自动线圈  
Intelligent  
motor coil

气冷装置  
Air cooling



针对不同接口的刀柄  
的支撑座

Chuck support for  
tool holders with  
bajonet clamping

手持式扫描仪  
Hand-held scanner

长度预调装置 (选配)  
水平方向的长度预调单元, 预调精度  
为0.05mm

Length presetting (optional)  
Horizontal length presetting unit  
Tolerance 0,05 mm



刀具夹 (选配)  
安全, 精密的夹持高品质的硬质合金  
刀具-尤其适合超小直径的刀具

Clips for tools (optional)  
For safest and precise handling of high  
quality carbide tools – especially with  
smaller diameters



长度预调专用校正转换套 (选配)  
用于重置测量装置

Calibration adapter for length presetting  
(optional)  
For resetting the measuring device

## 工业 4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业4.0纳米型NG热缩机/POWER CLAMP NANO NG i4.0

工业4.0纳米型NG热缩机是专门为高速主轴使用的小直径热缩刀柄以及热缩筒夹设计的热缩机。最大的热缩刀柄接口为SK40/HSK-A63。

- 卧式热缩, 简易装夹
- 配置自动NG线圈
- 用于从刀柄上的二维码中读取热缩参数的扫码枪
- 气冷, 冷却范围 $\varnothing$  3 – 32 mm
- 7英寸的触摸屏和全新的直观的软件
- 扫码枪连接, 工业4.0就绪
- 功率: 13 kW
- 主电源: 3 x 400-480V, 16A
- 刀具:  $\varnothing$  3-32 mm的硬质合金及高速钢

**Power Clamp Nano NG i4.0 is especially suitable for small tool holders in high frequency spindles, for shrink fit collets and for shrink fit chucks up to SK40/HSK-A63.**

- Easy tool handling by horizontal shrinking
- With intelligent motor coil
- With scanner to readout shrinking parameters from tool holders (Data-Matrix code)
- With air cooling for tools from  $\varnothing$  3–32 mm
- With 7"-Touch-Display and new intuitive software
- Industry 4.0-ready due to scanner connection
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from  $\varnothing$  3–32 mm

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 压缩空气/Compressed Air	6 bar
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 最长刀具总长度/Maximum length of shrink fit chuck with tool	250 mm
- 尺寸 长x宽x高/Dimensions WxDxH	800x860x670 mm
- 重量/Weight	94 kg
- 工业4.0纳米型NG热缩机 订货号/Power Clamp Nano NG i4.0 Order No.	<b>PC406-I42-C20-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 工业4.0纳米型NG热缩机用刀柄支撑盘/ Chuck support for Power Clamp Nano NG i4.0	参见第 577 页/see page 577
- 长度预调单元/Length presetting	80.165.20.3
- Nano校准转换套/Calibration adapter Nano	80.165.01
- 刀具夹套装/Set of clips incl. plate	80.166.00
- 系统工具车/System Cart	80.124.00.8
- 系统工具车用插件/Insert for System Cart	80.124.07

#### 应用举例/Application example



##### 热缩筒夹

工业4.0纳米型NG热缩机可以完美地加热及冷却热缩筒夹。关于热缩筒夹的产品系列, 请参考第690–695页

##### Shrink Fit Collets

Power Clamp Nano NG i4.0 is perfectly suitable for process reliable shrinking and cooling of shrink fit collets. See pages 690–695 to find the shrink fit collet program.

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系销售代表以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

## 工业4.0气冷经济型热缩机

适用于热缩刀柄及热缩筒夹的工业4.0气冷经济型热缩机

### Power Clamp Air i4.0 Eco

Economic i4.0 shrink fit machine for tool holders and shrink fit collets.



## 工业 4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业4.0气冷经济型热缩机/POWER CLAMP AIR i4.0 ECO

工业4.0气冷经济型热缩机是一款配置了可冷却各种刀具(硬质合金及高速钢)的独立气冷装置的高性能的热缩机。

它可以完美地加热及冷却各种类型的热缩刀柄及热缩筒夹。

通过压缩空气对各种类型的刀柄进行流畅及干净的冷却-不残留任何污垢及冷却液。

- 带温度控制的独立气冷装置
- 带触摸释放功能的冷却罩
- 自动结束的冷却进程
- 7英寸的触摸屏和全新的直观的软件
- 扫码枪连接, 工业4.0就绪
- 智能NG线圈
- 单支撑座型
- 含两个精密支撑座及两个精密支撑盘
- 带储物盒
- 含一个冷却控制器

Power Clamp Air i4.0 Eco is a high performance shrink fit machine with integrated cooling for all tools (solid carbide and HSS).

It is perfectly suitable for process reliable shrinking and cooling of shrink fit collets and tool holders.

Smooth and clean cooling of all kinds of tool holders by air – without dirt and water residue.

- Contour independent air cooling with temperature control
- Pneumatic brake of cooling hood with release-by-touch
- Cooling process finishes automatically
- With 7"-Touch-Display and new intuitive software
- Industry 4.0-ready due to scanner connection
- With intelligent NG coil
- Single chuck version
- With 2 precision base holders and 2 precision chuck supports
- With craning boxes
- Incl. Cooling Manager

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 压缩空气/Compressed Air	6 bar
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 可加热的最长热缩刀柄的长度/Maximum length of shrink fit chuck (shrinking)	570 mm
- 可冷却的最长刀具的总长度/Maximum total length of assembled tool (cooling)	260 mm
- 尺寸 长x宽x高/Dimensions WxDxH	880x750x1100 mm
- 重量/Weight	105 kg
- 工业4.0气冷经济型热缩机 订货号/Power Clamp Air i4.0 Eco Order No.	PC409-I21-C21-EU*

#### 附件/Accessories

#### 订货号/Order No.

- 用于从二维码中读取热缩参数的扫码枪 Scanner to readout shrinking parameters from Data-Matrix codes	80.185.01
- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 长度预调装置/Length presetting	80.188.40
- 智能自动线圈/Intelligent motor coil	80.101.03NG
- 废气收集装置/Auxiliary Fume Extraction Unit	80.101.02NG.01
- 系统工具车/System Cart	80.124.00.8
- 系统工具车专用插件/Insert for System Cart	80.124.06

#### 应用举例/Application example



##### 热缩筒夹

工业4.0气冷经济型热缩机可以完美加热及冷却热缩筒夹。关于热缩筒夹的产品系列, 请参考第690–695页

##### Shrink Fit Collets

Power Clamp Air i4.0 Eco is perfectly suitable for process reliable shrinking and cooling of shrink fit collets. See pages 690–695 to find the shrink fit collet program.

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系销售人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

## 工业4.0气冷舒适型热缩机

适用于热缩刀柄及热缩筒夹的工业4.0气冷舒适型热缩机

### Power Clamp Air i4.0 Comfort

Comfort i4.0 shrink fit machine for tool holders and shrink fit collets.



图片显示的是带长度预调装置(选配)的PC409-I41-C21-EU热缩机  
Picture shows PC409-I41-C21-EU with length presetting (optional)

## 工业 4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业4.0气冷舒适型热缩机/POWER CLAMP AIR i4.0 COMFORT

工业4.0气冷舒适型热缩机是一款配置了可冷却各种刀具(硬质合金及高速钢)的独立气冷装置的高性能的热缩机。

它可以完美加热及冷却所有类型的热缩刀柄及热缩筒夹。

通过压缩空气对各种类型的刀柄进行顺畅及干净的冷却-不残留任何污垢及冷却液。

- 带温度控制的独立气冷装置
- 带触摸释放功能的冷却罩
- 自动结束冷却进程
- 7英寸的触摸屏和全新的直观的软件
- 扫码枪连接, 工业4.0就绪
- 用于从刀柄上的二维码中读取热缩参数的扫码枪
- 自动NG线圈
- 单支撑座型
- 含两个精密支撑座及两个精密支撑盘
- 含储物盒
- 含冷却控制器

Power Clamp Air i4.0 Comfort is a high performance shrink fit machine with integrated cooling for all tools (solid carbide and HSS).

It is perfectly suitable for process reliable shrinking and cooling of shrink fit collets and tool holders.

Smooth and clean cooling of all kinds of tool holders by air – without dirt and water residue.

- Contour independent air cooling with temperature control
- Pneumatic brake of cooling hood with release-by-touch
- Cooling process finishes automatically
- With 7"-Touch-Display and new intuitive software
- Industry 4.0-ready due to scanner connection
- With scanner to readout shrinking parameters from tool holders (Data-Matrix code)
- With intelligent motor coil
- Single chuck version
- With 2 precision base holders and 2 precision chuck supports
- With craning boxes
- Incl. Cooling Manager

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480 V, 16 A, 13 kW
- 压缩空气/Compressed Air	6 bar
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3–32 mm
- 可加热的最长热缩刀柄的长度/Maximum length of shrink fit chuck (shrinking)	570 mm
- 可冷却的最长刀具的总长度/Maximum total length of assembled tool (cooling)	260 mm
- 尺寸 长x宽x高/Dimensions WxDxH	880x750x1100 mm
- 重量/Weight	105 kg
- 工业4.0气冷舒适型热缩机 订货号/Power Clamp Air i4.0 Comfort Order No.	<b>PC409-I41-C21-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 长度预调装置/Length presetting	80.188.40
- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 废气收集装置/Auxiliary Fume Extraction Unit	80.101.02NG.01
- 系统工具车/System Cart	80.124.00.8
- 系统工具车专用插件/Insert for System Cart	80.124.06

#### 应用举 /Application example



##### 热缩筒夹

工业4.0纳米型NG热缩机可以完美加热及冷却热缩筒夹。关于热缩筒夹的产品系列, 请参考第690–695页

##### Shrink Fit Collets

Power Clamp Air i4.0 Comfort is perfectly suitable for process reliable shrinking and cooling of shrink fit collets. See pages 690–695 to find the shrink fit collet program.

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置, 请联系销售人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# 工业 4.0 舒适型热缩机

助您实现雄心壮志的工业 4.0 级热缩机

## Power Clamp Comfort i4.0

i4.0 shrink fit machine for ambitious.



## 工业 4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业4.0 舒适型热缩机/POWER CLAMP COMFORT i4.0

通过新的工业 4.0 级的热缩机,翰默 HAIMER 正在制定热缩技术的数字化连接和通信的新标准。

7 英寸的触摸屏和全新的直观的软件,简单易用。

可以升级至 HD 重型线圈,用于夹持柄径达 Ø 50mm 的重型热缩刀柄。(选配)

- 扫码枪连接,工业4.0就绪
- 7 英寸的触摸屏和全新的直观的软件
- 带智能 NG 线圈
- 3 工位旋转盘
- 带接触式冷却系统
- 含冷却控制器
- 带一组用于旋转盘的支撑盘
- 带储物盒
- 功率:13KW
- 主电压:3×400-480V,16A
- 刀具:柄径为 Ø 3 – Ø 32mm 的硬质合金和高速钢刀具
- 用于从刀柄上的二维码中读取热缩参数的扫码枪(选配)
- TME 温控系统(选配)

With the new Power Clamp i4.0 series HAIMER is setting new standards regarding digital connectivity and communication in the world of shrink technology.

A 7"-Touch-Display and a new intuitive software provide simplified usability.

**Upgrade possible with HD coil for shrinking of Heavy Duty Shrink Chucks up to Ø 50 mm (optional)**

- Industry 4.0-ready due to scanner connection
- With 7"-Touch-Display and new intuitive software
- With intelligent NG coil
- Rotary table with 3 stations
- With integrated contact cooling
- Incl. Cooling Manager
- With 1 chuck support for rotary table
- With craning boxes
- Power: 13 kW
- Mains voltage: 3x400-480V, 16A
- Tools: solid carbide and HSS from Ø 3-32 mm
- Scanner to readout shrinking parameters from tool holders (Data-Matrix code) optional
- TME Cooling System (optional)

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400-480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3-32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	850x660x970 mm
- 重量/Weight	115 kg
- 工业4.0 舒适型热缩机 订货号/Power Clamp Comfort i4.0 Order No.	<b>PC400-I21-C10-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 用于从二维码中读取热缩参数的扫码枪 Scanner to readout shrinking parameters from Data-Matrix codes	80.185.01
- 用于旋转盘的支撑盘/Chuck support for rotary table	参见第 581 页/See page 581
- 工业 4.0 舒适型热缩机升级用13KW 重型线圈套装/ Upgrade Kit 13 kW HD coil for Power Clamp Comfort i4.0	80.151.30.10
- 废气收集装置/Auxiliary Fume Extraction Unit	80.101.02NG.01
- 系统工具车/System Cart	80.124.00.8
- 用于 13KW 热缩机的 TME 温控系统(选配) TME Cooling System for 13 kW machines (optional)	按需提供 on request

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置,请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.



# 工业 4.0 测量型热缩机

带强大的刀长预调装置的工业 4.0 级热缩机

## Power Clamp Preset i4.0

i4.0 shrink fit machine for the ambitious with length presetting.



## 工业 4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业 4.0 测量型热缩机/POWER CLAMP PRESET i4.0

通过新的工业 4.0 级的热缩机，翰默 HAIMER 正在制定热缩技术的数字化连接和通信的新标准。

7 英寸的触摸屏和全新的直观的软件，简单易用。

可以升级至 HD 重型线圈，用于夹持柄径达 Ø 50mm 的重型热缩刀柄。(选配)

- 扫码枪连接，工业4.0就绪
- 7 英寸的触摸屏和全新的直观的软件
- 带立式高度尺
- 带智能 NG 线圈
- 单支撑座型
- 带接触式冷却系统
- 含冷却控制器
- 含 2 个精密支撑座和 2 个精密支撑盘
- 带储物盒
- 功率:13KW
- 主电压:3×400-480V,16A
- 刀具:柄径从Φ3-Φ32mm 的硬质合金和高速钢刀具
- 用于从刀柄上二维码中读取热缩参数的扫码枪(选配)
- TME 温控系统(选配)

With the new Power Clamp i4.0 series HAIMER is setting new standards regarding digital connectivity and communication in the world of shrink technology. A 7"-Touch-Display and a new intuitive software provide simplified usability.

**Upgrade possible with HD coil for shrinking of Heavy Duty Shrink Chucks up to Ø 50 mm (optional)**

- Industry 4.0-ready due to scanner connection
- With 7"-Touch-Display and new intuitive software
- With vertical stop for length presetting
- With intelligent NG coil
- Single chuck version
- With integrated contact cooling
- Incl. Cooling Manager
- With 2 precision base holders and 2 precision chuck supports
- With craning boxes
- Power: 13 kW
- Mains voltage: 3x400-480V, 16 A
- Tools: solid carbide and HSS from Ø 3-32 mm
- Scanner to readout shrinking parameters from tool holders (Data-Matrix code) optional
- TME Cooling System (optional)

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400-480 V, 16 A, 13 kW
- 刀具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刀具柄径/Tool diameter	3-32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	570 mm
- 尺寸 长x宽x高/Dimensions WxDxH	860x660x970 mm
- 重量/Weight	115 kg
- 工业 4.0 测量型热缩机 订货号/Power Clamp Preset i4.0 Order No.	<b>PC403-I21-C10-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 用于从二维码中读取热缩参数的扫码枪 Scanner to readout shrinking parameters from Data-Matrix codes	80.185.01
- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 工业 4.0 测量型热缩机升级用13KW 重型线圈套装 Upgrade Kit 13 kW HD coil for Power Clamp Preset i4.0	80.151.30.10
- 废气收集装置/Auxiliary Fume Extraction Unit	80.101.02NG.01
- 系统工具车/System Cart	80.124.00.8
- 用于 13KW 热缩机的 TME 温控系统(选配) TME Cooling System for 13 kW machines (optional)	按需提供 on request

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置，请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

# 工业4.0 超级型热缩机

符合人体工程学的高端热缩机

## Power Clamp Premium i4.0

Ergonomic i4.0 high-end shrink station.



图片所示为配置长度预调单元及扫描枪 (选配) 的 PC407-I22-C11-EU 机型  
Picture shows PC407-I22-C11-EU with length presetting and scanner (optional)

## 工业4.0 系列热缩机/POWER CLAMP i4.0 LINE

### 工业4.0 超级型热缩机/POWER CLAMP PREMIUM i4.0

新设计的符合人体工程学的热缩机,适用于各种刃具(硬质合金和高速钢),配置了最多可以同时使用5个冷却工位的接触式冷却装置。它制定了热缩技术数字化通信以及连接的新标准。

- 7英寸的触摸屏和全新的直观的软件
- 扫码枪连接,工业4.0就绪
- 功率:13 KW
- 主电压:3 × 400 – 480 V,16A
- 刃具:柄径为 Ø 3 – Ø 32mm的硬质合金和高速钢刃具
- 配置 NG 线圈
- 带温控的智能冷却系统
- 带接触式冷却的5个冷却套
- 线性导向的冷却套机构,可以自动显示当前的冷却状态,简易、快速、安全的冷却系统
- 不会破坏切削刃
- 包含一个快速冷却机及冷却控制器
- 包含2个精密支撑座及2个精密支撑盘
- 含一个集成在工具柜中的抽屉
- 用于从刀柄上的二维码中读取热缩参数的扫码枪(选配)
- 长度预调单元(选配)

**Ergonomic high-end shrink station in new, premium quality industry design with integrated contact cooling for all cutting tools (solid carbide and HSS) and for perfect handling and simultaneous cool-down at max. five cooling stations.**

- With 7"-Touch-Display and new intuitive software
- Industry 4.0-ready due to scanner connection
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from Ø 3–32 mm
- With NG coil
- TME Intelligent Cooling System with temperature control
- Integrated contact cooling with five cooling bodies
- Linear guided cooling bodies with automatic signaling of the right cooling station for easy, fast and safe cooling
- No damage at the edges of the cutting tool
- Incl. Speed Cooler and Cooling Manager
- Incl. 2 precision base holders and 2 precision chuck supports
- Integrated drawer in base cabinet
- Scanner to readout shrinking parameters from tool holders (Data-Matrix code) optional
- Length presetting (optional)

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480V, 16A, 13kW
- 刃具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刃具柄径/Tool diameter	3–32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	535 mm
- 尺寸 长x宽x高/Dimensions WxDxH	1340x914x1816 mm
- 重量/Weight	535 kg 包含工具柜/535 kg incl. base cabinet
- 工业4.0 超级型热缩机 订货号/Power Clamp Premium i4.0 Order No.	<b>PC407-I22-C11-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 用于从二维码中读取热缩参数的扫码枪 Scanner to readout shrinking parameters from Data-Matrix codes	80.185.00
- 工业 4.0 级超级型热缩机升级用 13 KW HD 重型线圈套装 Upgrade Kit 13 kW HD coil for Power Clamp Premium i4.0	80.151.30.10S
- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 精密支撑座/Precision base holder for chuck support	80.131.01
- 长度预调单元/Length presetting	80.188.00
- 废气收集装置/Auxiliary Fume Extraction Unit	80.101.02NG.03

\* 该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置,请联系销售代表以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

## 工业 4.0 全能型热缩机

适用于冷却各种几何形状刀具的  
符合人体工程学的工业 4.0 级热缩机

### Power Clamp Sprint i4.0

Ergonomic i4.0 shrink station for cooling of all geometries.



图片显示为配置长度预调单元及扫描枪 (选配) 的 PC408-I22-C21-EU 热缩机  
Picture shows PC408-I22-C21-EU with length presetting and scanner (optional)

## 工业 4.0 级翰默热缩机/POWER CLAMP i4.0 LINE

### 工业 4.0 全能型热缩机/POWER CLAMP SPRINT i4.0

全新设计的符合人体工程学和带冷却系统的高端热缩机,适用于各类刀柄、刃具(硬质合金和高速钢)以及热缩筒夹。

- 7 英寸的触摸屏和全新的直观的软件
- 扫码枪连接,工业4.0就绪
- 功率:13 KW
- 主电压:3 × 400 – 480 V,16A
- 刃具:柄径为Ø 3 – Ø 32mm的硬质合金和高速钢刃具
- 配置 NG 线圈
- 通过冷却装置的喷嘴喷出的气雾能够对各种类型的热缩刀柄及热缩筒夹进行流畅和清洁的冷却,无需考虑其外形。并且由于采用了气化喷雾的冷却方式,将不会有污垢及水残留
- 通过温度控制优化了冷却时间,实现了对各种外形的热缩刀柄和热缩筒夹的安全和快速的冷却
- 不会损坏切削刃具
- 包含 2 个精密支撑座及 2 个精密支撑盘
- 含一个集成在工具柜中的抽屉
- 用于从刀柄上的二维码中读取热缩参数的扫码枪(选配)
- 长度预调单元(选配)

**Ergonomic shrink station in new, premium quality industry design with integrated cooling for all kind of cutting tools (solid carbide and HSS) and shrink fit collets in record time.**

- With 7"-Touch-Display and new intuitive software
- Industry 4.0-ready due to scanner connection
- Power: 13 kW
- Mains voltage: 3x400–480V, 16A
- Tools: solid carbide and HSS from Ø 3–32 mm
- With NG coil
- Smooth and clean cooling of all kind of shrink fit chucks and shrink fit collets regardless of the outside contour by air nozzles and drizzle – without dirt and water residue
- Optimised cooling times with temperature control for safe and fast cooling of tool holders and shrink fit collets of different outer geometry
- No damage at the edges of the cutting tool
- Incl. 2 precision base holders and 2 precision chuck supports
- Integrated drawer in base cabinet
- Scanner to readout shrinking parameters from tool holders (Data-Matrix code) optional
- Length presetting (optional)

#### 技术参数/Technical details

- 主电源/Mains voltage	3x400–480V, 16A, 13kW
- 压缩空气/Compressed Air	6 bar
- 刃具/Tools	硬质合金和高速钢/solid carbide and HSS
- 刃具柄径/Tool diameter	3–32 mm
- 最长刀柄长度/Maximum length of shrink fit chuck	535 mm
- 尺寸 长x宽x高/Dimensions WxDxH	1340x962x2560 mm (工作时的最大高度/max. work height) 1340x962x1960 mm (运输时的高度/transportation height)
- 重量/Weight	550 kg 包含工具柜/550 kg incl. base cabinet
- 工业 4.0 全能型热缩机 订货号/Power Clamp Sprint i4.0 Order No.	<b>PC408-I22-C21-EU*</b>

#### 附件/Accessories

#### 订货号/Order No.

- 用于从二维码中读取热缩参数的扫码枪 Scanner to readout shrinking parameters from Data-Matrix codes	80.185.00
- 工业 4.0 级全能型热缩机升级用 13 KW HD 重型线圈套装 Upgrade Kit 13 kW HD coil for Power Clamp Sprint i4.0	80.151.30S
- 精密支撑盘/Precision chuck support	参见第 579 页/See page 579
- 精密支撑座/Precision base holder for chuck support	80.131.01
- 长度预调单元/Length presetting	80.188.00
- 废气吸收装置/Auxiliary Fume Extraction Unit	80.101.02NG.03



#### 热缩筒夹

工业4.0纳米型NG热缩机可以完美加热及冷却热缩筒夹。关于热缩筒夹的产品系列,请参考第690–695页

#### Shrink Fit Collets

Power Clamp Sprint i4.0 is perfectly suitable for process reliable shrinking and cooling of shrink fit collets. See pages 690–695 to find the shrink fit collet program.

\*该设备的订货号和上述的设备配置相匹配。如果您需要不同的设备配置,请联系翰默人员以获得正确的订货号。  
This order number matches the machine configuration as above. In case you like a different configuration, please contact your HAIMER representative for the right order number.

## 工具车和插件 CARTS AND INSERTS

### 附件/Accessories



**系统工具车抽屉插件**  
(不包含附件)

**Drawer insert for system cart**  
(does not include accessories)

#### 技术参数/Technical details

- 订货号/ Drawer Order No.	80.124.04
----------------------------	-----------



#### 系统工具车

- 储放热缩机和附件
- 使工作环境整洁
- 高度符合人体工程学
- 方便取用
- 选项: 可存储附件的抽屉插件

#### System cart

- Cart for shrinking machine and accessories
- For a clear and tidy work space
- Ergonomic work height
- Everything at hand
- Optional: Drawers with inserts to store accessories

#### 技术参数/Technical details

- 系统工具车/ <b>System cart</b>	
尺寸/Dimensions	1000x620x840 mm
订货号/Order No.	80.124.00.8



#### 简易工具车/Cart for shrink fit machine

#### 技术参数/Technical details

- 订货号/Cart Order No.	80.106.00.3
----------------------	-------------

## 支撑座 BASE HOLDER



用于各种尺寸的刀柄支撑盘的定位。

两种形式可供选择：

To hold chuck supports of all sizes.

Available in two versions:

适用于智能型/基本型/经济型/经济增强型/特殊配置经济增强型热缩机的支撑座

**Base holder for Power Clamp Smart/Basic/  
Economic/Economic Plus/Special Edition**



适用于测量型/超级增强型/工业4.0测量型/工业4.0超级型/工业4.0全能型/工业4.0气冷经济型/工业4.0气冷舒适型热缩机的精密支撑座

为了达到最佳精度，精密支撑座的每个功能面都被精磨处理过。

**Precision base holder for Power Clamp Preset/  
Premium Plus/Air i4.0/Preset i4.0/Premium i4.0/  
Sprint i4.0**

High precision version with fine machined functional surfaces for maximum precision at length presetting.

### 订货号/Order No.

- 适用于智能型/基本型/经济型/经济增强型/特殊配置经济增强型热缩机的支撑座 Base holder for Power Clamp Smart/Basic/Economic/Economic Plus/Special Edition	80.155.01
- 适用于测量型/超级增强型/工业4.0测量型/工业4.0超级型/工业4.0全能型/ 工业4.0气冷经济型/工业4.0气冷舒适型热缩机的精密支撑座 Precision base holder for Power Clamp Preset/Premium Plus/Air i4.0/Preset i4.0/Premium i4.0/Sprint i4.0	80.131.01



## 支撑座 BASE HOLDER



### 适用于翰默 ER 热缩筒夹的精密支撑座

为了达到最佳精度,精密支撑座的每个功能面都被精磨处理过。中空的底座设计便于调节刀具的长度。

### Precision base holder for HAIMER ER shrink fit collets.

High precision version with fine machined functional surfaces for maximum precision at length presetting. Open base design for optimal access to adjust the length.

### 适用于翰默 ER 热缩筒夹的精密支撑座

#### Precision base holder for HAIMER ER shrink fit collets

#### 订货号/Order No.

– 适用于翰默 ER 热缩筒夹的精密支撑座  
Precision base holder for HAIMER ER shrink fit collets

80.131.02

## NANO纳米型热缩机的支撑盘 CHUCK SUPPORT FOR POWER CLAMP NANO



### NANO 纳米型卧式热缩机使用的支撑盘

适用于锥柄尺寸 SK30 – SK40, BT30 – BT40, JBS T15, HSK-25 – HSK-63, PSC40 – PSC63, ER11 – ER32

### Chuck support for horizontal shrink fit machine Power Clamp Nano.

Available in taper sizes SK30 – SK40, BT30 – BT40, JBS T15, HSK-25 – HSK-63, PSC40 – PSC63, ER11 – ER32

### NANO 纳米型和工业4.0纳米型卧式热缩机使用的精密支撑盘 Precision chuck support for Power Clamp Nano/Nano NG i4.0

锥柄尺寸/For taper size	订货号/Order No.
– SK/BT 30, 拉钉标准DIN 69872/MAS403(也可用于面接触型刀柄) SK/BT30 with pull stud DIN 69872/MAS 403 (also for version with Face Contact)	80.162.30
– SK30/BT30, 不带拉钉, 带 M12螺纹孔(也可用于面接触型刀柄) SK30 without pull stud with thread M12 (also for version with Face Contact)	80.162.30.01
– SK40/BT40, 不带拉钉, 带M16螺纹孔(也可用于面接触型刀柄) SK40 without pull stud with thread M16 (also for version with Face Contact)	80.162.40.01
– SK40/BT40, 带DIN 69872标准的拉钉(也可用于面接触型刀柄) SK40 with pull stud DIN 69872 (also for version with Face Contact)	80.162.40.02
– SK/BT 40, 带ISO 7388-B标准的拉钉(也可用于面接触型刀柄) SK40 with pull stud ISO 7388-B (also for version with Face Contact)	80.162.40.04
– SK/BT 40, 带MAS 403标准的拉钉(也可用于面接触型刀柄) BT40 with pull stud MAS 403 (also for version with Face Contact)	80.162.40.06
– JBS T15, 带JBS R15-45标准的拉钉/JBS T15 with pull stud JBS R15-45	80.162.T15
– HSK-25	80.163.25
– HSK-32	80.163.32
– HSK-40	80.163.40
– HSK-50	80.163.50
– HSK-63	80.163.63
– PSC 40	80.167.C4
– PSC 50	80.167.C5
– PSC 63	80.167.C6
– ER11	80.168.ER11
– ER16	80.168.ER16
– ER20	80.168.ER20
– ER25	80.168.ER25
– ER32	80.168.ER32

## 支撑盘 CHUCK SUPPORT



### 适用于单支撑座的支撑盘

可适用于锥柄尺寸：SK30 – SK50, BT30 – BT50, HSK-25 – HSK-125, KM4X63\*, KM4X100\*, PSC 32 – PSC 80, Makino F63, Makino F80

### Chuck support for single-chuck system.

Available in taper sizes SK30 – SK50, BT30 – BT50, HSK-25 – HSK-125, KM4X63\*, KM4X100\*, PSC 32 – PSC 80, HSK-F63 Makino, HSK-F80 Makino

适用于智能型/基本型/经济型/ NG 经济型/ 经济增强型/NG 经济增强型 / 特殊配置经济增强型热缩机的支撑盘  
Precision chuck support for Power Clamp Smart, Basic, Economic/NG, Economic Plus/NG, Special Edition

锥柄尺寸/For taper size	订货号/Order No.
– SK/BT30用 (也可用于面接触型刀柄/also for version with Face Contact)	80.112.30
– SK/BT40用 (也可用于面接触型刀柄/also for version with Face Contact)	80.112.40
– SK/BT45用 (也可用于面接触型刀柄/also for version with Face Contact)	80.112.45
– SK/BT50用 (也可用于面接触型刀柄/also for version with Face Contact)	80.112.50
– HSK-25	80.113.25
– HSK-32	80.113.32
– HSK-40	80.113.40
– HSK-50/HSK-63F	80.113.50
– HSK-63/KM4X63*	80.113.63
– HSK-80	80.113.80
– HSK-100/KM4X100*	80.113.10
– HSK-125	80.113.125
– HSK-F63 Makino	80.113.F63M
– HSK-F80 Makino	80.113.F80M
– PSC 32	80.114.30
– PSC 40	80.114.40
– PSC 50	80.114.50
– PSC 63	80.114.60
– PSC 80	80.114.80
– KM63	80.114.KM63

## 精密支撑盘 PRECISION CHUCK SUPPORT



### 单刀柄用精密支撑盘

– 每个功能面都精磨处理

适用于锥度尺寸：SK30 – SK50, HSK-25 – HSK-125, KM4X63\*, KM4X100\*, PSC 32 – PSC 80, Makino F63, Makino F80

### Precision chuck support for single-chuck system.

– Fine machined functional surfaces

Available in taper sizes SK30 – SK50, HSK-25 – HSK-125, KM4X63\*, KM4X100\*, PSC 32 – PSC 80, HSK-F63 Makino, HSK-F80 Makino

适用于NG 测量型/超级增强型/工业 4.0气冷经济型/工业 4.0气冷舒适型/工业 4.0 测量型/工业 4.0 超级型/工业 4.0 全能型热缩机的精密支撑盘

Precision chuck support for Power Clamp Preset NG/Power Clamp Premium Plus/Power Clamp Air i4.0 Eco/Comfort/Power Clamp Preset i4.0/Power Clamp Premium i4.0/Power Clamp Sprint i4.0

锥柄尺寸/For taper size	订货号/Order No.
– SK/BT30用 (也可用于面接触型刀柄/also for version with Face Contact)	80.132.30
– SK/BT40用 (也可用于面接触型刀柄/also for version with Face Contact)	80.132.40
– SK/BT50用 (也可用于面接触型刀柄/also for version with Face Contact)	80.132.50
– HSK-25	80.133.25
– HSK-32	80.133.32
– HSK-40	80.133.40
– HSK-50/HSK-63F	80.133.50
– HSK-63/KM4X63*	80.133.63
– HSK-80	80.133.80
– HSK-100/KM4X100*	80.133.10
– HSK-125	80.133.125
– HSK-F63 Makino	80.133.F63M
– HSK-F80 Makino	80.133.F80M
– PSC 32	80.134.30
– PSC 40	80.134.40
– PSC 50	80.134.50
– PSC 63	80.134.60
– PSC 80	80.134.80

\* KM4X是肯纳公司的注册商标/商标名  
KM4X is a registered trademark/tradename of Kennametal Inc.

## 超级增强型热缩机用精密支撑盘 PRECISION CHUCK SUPPORT FOR POWER CLAMP PREMIUM PLUS



### 超级增强型热缩机用精密支撑盘

– 每个功能面都精磨处理

– 含刀柄保护销

适用锥度尺寸：SK30 – SK50, BT30 – BT50, HSK-25 – HSK-125, HSK-F63M – HSK-F80M, PSC32 – PSC80

### Precision chuck support for Power Clamp Premium Plus.

– Fine machined functional surfaces

– With pin for protection of the chuck

Available in taper sizes SK30 – SK50, BT30 – BT50, HSK-25 – HSK-125, HSK-F63 Makino, HSK-F80 Makino, PSC 32 – PSC 80

### 适用于超级增强型热缩机的精密支撑盘

#### Precision chuck support for Power Clamp Premium Plus

锥柄尺寸/For taper size	订货号/Order No.
– SK30	80.172.30
– SK40	80.172.40
– SK45	80.172.45
– SK50	80.172.50
– BT30	80.175.30
– BT40	80.175.40
– BT45	80.175.45
– BT50	80.175.50
– HSK-25	80.173.25
– HSK-32	80.173.32
– HSK-40	80.173.40
– HSK-50	80.173.50
– HSK-63	80.173.63
– HSK-80	80.173.80
– HSK-100	80.173.10
– HSK-125	80.173.125
– HSK-F63 Makino	80.173.F63M
– HSK-F80 Makino	80.173.F80M
– PSC 32	80.174.30
– PSC 40	80.174.40
– PSC 50	80.174.50
– PSC 63	80.174.60
– PSC 80	80.174.80

## 适用于旋转盘的支撑盘 CHUCK SUPPORT FOR ROTARY TABLE



### 旋转支撑盘

适合锥度尺寸：SK30 – SK50, BT30 – BT50,  
HSK-25 – HSK-100, PSC32 – PSC80

### Chuck support for rotary table.

Available in taper sizes SK30 – SK50,  
BT30 – BT50, HSK-25 – HSK-100,  
PSC 32 – PSC 80

支撑盘适用于：NG 强力型/舒适型/ NG 舒适型/工业 4.0 舒适型热缩机

Chuck support for Power Clamp Profi Plus/Profi Plus NG/Comfort/Comfort NG/Comfort i4.0

锥柄尺寸/For taper size	订货号/Order No.
– SK/BT30用 (也可用于面接触型刀柄/also for version with Face Contact)	80.102.30
– SK/BT40用 (也可用于面接触型刀柄/also for version with Face Contact)	80.102.40
– SK/BT45用 (也可用于面接触型刀柄/also for version with Face Contact)	80.102.45
– SK/BT50用 (也可用于面接触型刀柄/also for version with Face Contact)	80.102.50
– 任意尺寸/various sizes	80.103.00
– HSK-25	80.103.25
– HSK-32	80.103.32
– HSK-40	80.103.40
– HSK-50	80.103.50
– HSK-63	80.103.63
– HSK-80	80.103.80
– HSK-100	80.103.10
– PSC 32	80.104.30
– PSC 40	80.104.40
– PSC 50	80.104.50
– PSC 63	80.104.60
– PSC 80	80.104.80

## ER 热缩筒夹用支撑盘 CHUCK SUPPORT FOR ER SHRINK FIT COLLETS



### ER 热缩筒夹用,带长度调整的支撑盘

- 高精度夹持
- 含快速可重复调整长度的止动杆
- 利用定位螺钉和反面的锁紧螺母来调节
- 集成在支撑盘上,节省空间
- 只需旋转螺钉和螺母,操作简单
- 尤其适合于多轴机床,可保证姊妹刀具的长度一致性

### Chuck support for ER shrink fit collets with integrated length presetting.

- Precise clamping of the collet
- Fast and repeatable length adjustment with stop pin
- Adjustment with set screw and counter nut
- Integrated in chuck support, thus very space-saving
- Easy handling by turning of set screw and counter nut
- Application suitable also at multi-spindle machines for repeatable length presetting of twin tools

#### 支撑盘/Chuck support for

#### 订货号/Order No.

- ER11	80.135.11
- ER16	80.135.16
- ER20	80.135.20
- ER25	80.135.25
- ER32	80.135.32
- 适用于智能型/基本型/经济型/NG 经济型/经济增强型/NG 经济增强型/ 特殊配置经济增强型热缩机的支撑座 Base holder for Power Clamp Smart/Basic/Economic/Economic Plus/Special Edition	80.155.01

## 适用于翰默 ER 热缩筒夹的精密支撑座 CHUCK SUPPORT FOR HAIMER ER SHRINK FIT COLLETS



### 适用于翰默 ER 热缩筒夹的带内置式长度预调装置的精密支撑盘

- 轻轻一拧，筒夹就固定在该夹具上了
- 筒夹不会移动，工艺稳定性高
- 带止动杆的长度预调装置，快速且重复精度高
- 利用定位螺钉和反面的螺母来调节
- 内置于支撑座中，非常节约空间
- 通过旋转螺钉和螺母操作，非常简便
- 尤其适用于多轴机床，可保证姊妹刀具的长度一致性

### Chuck support for HAIMER ER shrink fit collets with integrated length presetting.

- Fixture of collet by screwing on chuck support.
- High process stability, no movement of collet possible
- Fast and repeatable length adjustment with stop pin
- Adjustment with set screw and counter nut
- Integrated in chuck support, thus very space-saving
- Easy handling by turning of set screw and counter nut
- Application suitable also at multi-spindle machines for repeatable length presetting of twin tools

#### 支撑盘/Chuck support for

#### 订货号/Order No.

- ER11	80.137.ER11
- ER16	80.137.ER16
- ER20	80.137.ER20
- ER25	80.137.ER25
- ER32	80.137.ER32
- 适用于翰默 ER 热缩筒夹的精密支撑座 Precision base holder for HAIMER ER shrink fit collets	80.131.02



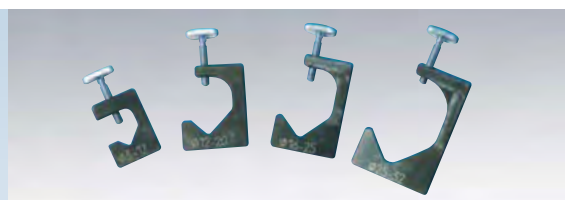
## EASY SET 简易长度预调装置/SIMPLE PRESETTING

### 简单预调

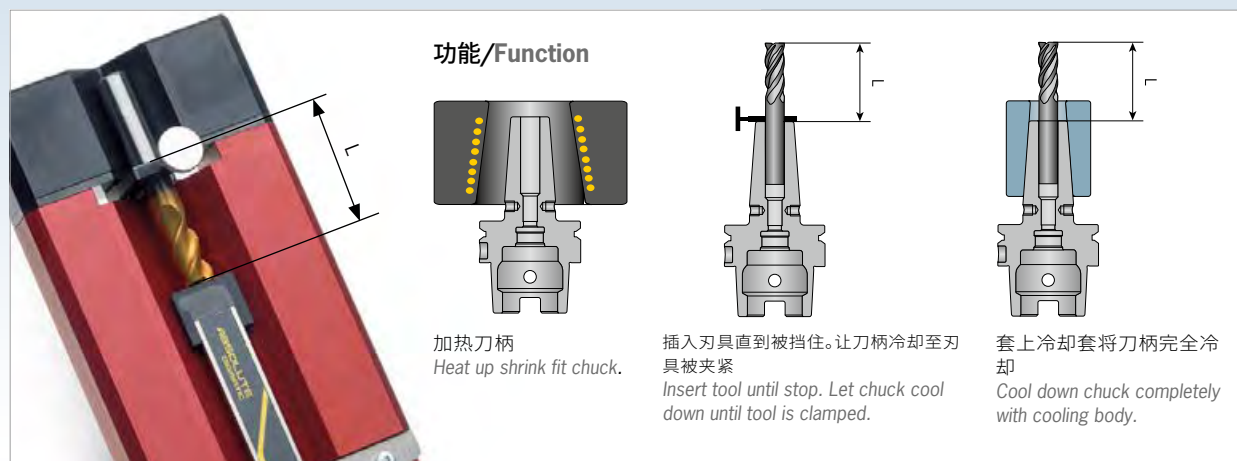
- 快速简单的调节刀具的悬长
- 最大悬升长度:150 mm
- 精度:±0.05 mm
- 适用于各种热缩刀柄和热缩机(火焰,热风,接触式,感应式)
- 节省空间
- 性价比高
- 选配灵活
- 发货含:3个止动片(Ø 3-12, Ø 12-20, Ø 16-25 mm)
- 选项:Ø 25-32 mm

### Simple presetting

- Quick and simple presetting tool overhang
- Maximum overhang length: 150 mm
- Accuracy: ±0.05 mm
- Suitable for all shrink fit chucks and machines (flame, hot air, contact, induction)
- Space-saving
- Excellent relationship between price and efficiency
- Can be added at any time
- Included in delivery: 3 stop clips (Ø 3-12, Ø 12-20, Ø 16-25 mm),
- Optional: Ø 25-32 mm



止动片/  
Stop clips



### 简易长度预调装置/Easy Set

### 订货号/Order No.

- 悬伸长度:100mm/100 mm protruding length	80.123.00
- 悬伸长度:150mm/150 mm protruding length	80.125.00
- Ø3-12 mm 止动片的夹持柄径/Stop clip for clamping Ø 3-12 mm	80.123.01
- Ø12-20 mm 止动片的夹持柄径/Stop clip for clamping Ø 12-20 mm	80.123.02
- Ø16-25 mm 止动片的夹持柄径/Stop clip for clamping Ø 16-25 mm	80.123.03
- Ø25-32 mm 止动片的夹持柄径/Stop clip for clamping Ø 25-32 mm	80.123.04

## QUICK SET 快速长度预调装置/LENGTH PRESETTING

适用于无支撑螺钉的刀柄(例如:迷你型刀柄)的刀具长度预调

- 利用止动杆可以重复而快速的调节刀具长度
- 利用止动螺钉和反面的螺母来调节
- 内置于支撑盘中, 节省空间
- 操作方便, 只需调节螺钉和螺母
- 尤其适用于多轴机床, 可保证姊妹刀具的长度一致性

**Length adjustment for shrink fit chucks without back-up screw, e. g. Mini Shrink**

- Fast, repeatable length adjustment of the total tool assembly with stop pin
- Adjustment with set screw and counter nut
- Integrated in chuck support, thus very space-saving
- Easy handling by turning of set screw and counter nut
- Application suitable also at multi-spindle machines for repeatable length presetting of twin tools



图片显示: 快速长度预调装置和支撑座搭配使用 (发货时不含支撑座)

Picture shows: Quick Set with base holder (Base holder not included in delivery)



### 锥柄尺寸/Length Presetting Quick Set for

### 订货号/Order No.

- SK/BT40	80.136.240
- HSK-E25	80.136.325
- HSK-E32	80.136.332
- HSK-E40	80.136.340
- HSK-E50	80.136.350
- HSK-A63	80.136.363
- HSK-A100	80.136.310
- PSC 40	80.136.440
- PSC 50	80.136.450
- 适合于基本型/经济型/ 经济增强型热缩机的支撑座/Base holder for Power Clamp Basic/Economic/Economic Plus	80.155.01
- 止动杆/Pin L = 125 mm	80.136.003
- 止动杆/Pin L = 150 mm	80.136.001
- 止动杆/Pin L = 175 mm	80.136.004
- 止动杆/Pin L = 200 mm	80.136.002
- 止动杆/Pin L = 270 mm	80.136.007
- 止动杆/Pin L = 310 mm	80.136.006

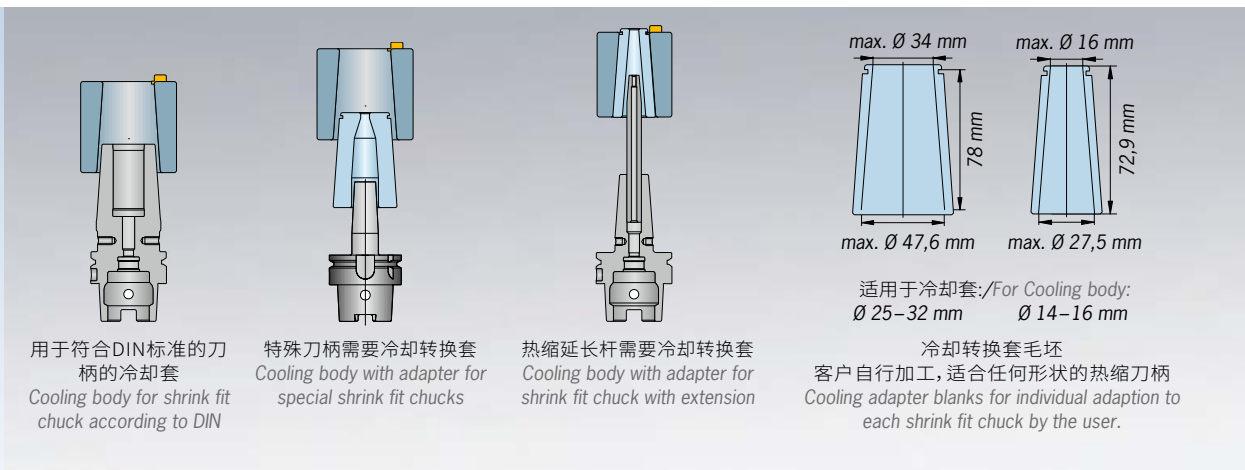
## 冷却转换套和冷却转换套毛坯 COOLING ADAPTER AND COOLING ADAPTER BLANKS



通过使用冷却转换套, 各种形状的热缩刀柄都能被冷却。转换套插入冷却套内并锁紧, 一起放置在热缩刀柄上。  
- 与尺寸为  $\varnothing 14-16$  mm, 和  $\varnothing 25-32$  mm 带锁紧装置的冷却套搭配使用。

Cooling adapters fit and cool an expanded selection of shrink fit chucks and extensions. The adapter is inserted into the cooling body and locked. Then it can be placed onto the shrink fit chuck.

- Cooling bodies for  $\varnothing 14-16$  mm and  $\varnothing 25-32$  mm with side lock



用于符合DIN标准的刀柄的冷却套  
Cooling body for shrink fit chuck according to DIN

特殊刀柄需要冷却转换套  
Cooling body with adapter for special shrink fit chucks

热缩延长杆需要冷却转换套  
Cooling body with adapter for shrink fit chuck with extension

冷却转换套毛坯  
客户自行加工, 适合任何形状的热缩刀柄  
Cooling adapter blanks for individual adaption to each shrink fit chuck by the user.

### 附件/Accessories

### 订货号/Order No.

- 搭配 $\varnothing 14-16$ mm 冷却套的转换套毛坯 Cooling adapter blanks for cooling body $\varnothing 14-16$ mm	80.105.14.0
- 搭配 $\varnothing 25-32$ mm 冷却套的转换套毛坯 Cooling adapter blanks for cooling body $\varnothing 25-32$ mm	80.105.16.0
- 搭配 $\varnothing 40-50$ mm 冷却套的转换套毛坯 Cooling adapter blanks for cooling body $\varnothing 40-50$ mm	80.105.19.3.0
- $\varnothing 12$ mm/ $\varnothing 16$ mm 延长杆用冷却转换套/Cooling adapter for extensions $\varnothing 12$ mm/ $\varnothing 16$ mm	80.105.14.1.1
- $\varnothing 20$ mm 延长杆用冷却转换套/Cooling adapter for extensions $\varnothing 20$ mm	80.105.14.1.2
- 直径 $\varnothing 3-5$ mm 的热缩刀柄用冷却转换套/Cooling adapter for shrink fit chucks $\varnothing 3-5$ mm	80.105.14.1.3
- 搭配冷却套 80.105.19.1, 用于 $\varnothing 16$ mm 重型热缩刀柄的转换套 Cooling adapter Heavy Duty $\varnothing 16$ mm for cooling body 80.105.19.1	80.105.19.3.1
- 搭配冷却套 80.105.19.1, 用于 $\varnothing 20$ mm 重型热缩刀柄的转换套 Cooling adapter Heavy Duty $\varnothing 20$ mm for cooling body 80.105.19.1	80.105.19.3.2
- 搭配冷却套 80.105.19.1, 用于 $\varnothing 25$ mm 重型热缩刀柄的转换套 Cooling adapter Heavy Duty $\varnothing 25$ mm for cooling body 80.105.19.1	80.105.19.3.3
- 搭配冷却套 80.105.19.1, 用于 $\varnothing 32$ mm 重型热缩刀柄的转换套 Cooling adapter Heavy Duty $\varnothing 32$ mm for cooling body 80.105.19.1	80.105.19.3.4
- 冷却转换套底座/Base for cooling adapters	80.105.14.1.99

## 迷你型热缩刀柄安装冷却套 MINI SHRINK SHRINK AND COOLING SLEEVES

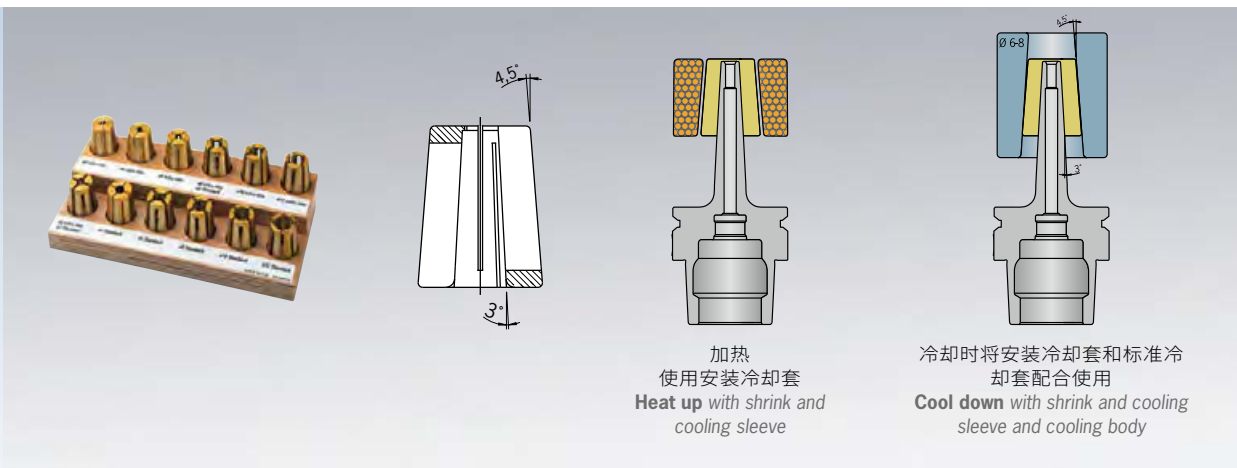


迷你型热缩刀柄的安装冷却套

- 防止迷你型热缩刀柄过热
- 延长刀柄使用寿命
- 方便安全的操作
- 冷却时配合  $\varnothing 6 - 8$  mm 标准冷却套使用

For shrinking and cooling of Mini Shrink chucks.

- Protect Mini Shrink chucks from overheating
- Extend lifetime of shrink fit chucks
- Secure and user-friendly handling
- Cooling with standard cooling body  $\varnothing 6-8$  mm

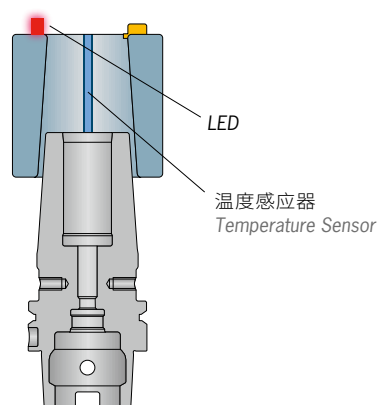


### 迷你型热缩刀柄的安装冷却套/Fitting sleeves for Mini Shrink chucks

订货号/Order No.

- 超细型/Extra slim									
尺寸/Size [mm]	$\varnothing 03$	$\varnothing 04$	$\varnothing 05$	$\varnothing 06$	$\varnothing 08$	$\varnothing 10$	$\varnothing 12$		
订货号/Order No. 80.105.14...	.2.01	.2.02	.2.03	.2.04	.2.05	.2.06	.2.07		
- 标准型/Standard									
尺寸/Size [mm]	$\varnothing 03$	$\varnothing 04$	$\varnothing 05$	$\varnothing 06$	$\varnothing 08$	$\varnothing 10$	$\varnothing 12$	$\varnothing 16$	
订货号/Order No. 80.105.14...	.2.04	.2.08	.2.05	.2.09	.2.10	.2.11	.2.12	.2.16	
- 基座/Base								80.105.14.2.99	
- 套装的安装冷却套, 带基座 (12个, 直径3-12mm) Set with base (12 pcs., diameter 3-12 mm)								80.105.14.2.00	

## 带温控的智能冷却系统 TME COOLING SYSTEM WITH TEMPERATURE CONTROL



为了安全操作,热缩刀柄整个冷却过程中均有温度监控

- 铝合金本体内的传感器测量温度
- 正在冷却:红灯
- 冷却结束:绿灯
- 最大程度地减少烫伤的危害
- 专利的温控系统  
(发明专利号码:EP 2 346 642 B1\*)

**Temperature control of the shrink fit chuck during the cooling process for a safe handling**

- Sensor in aluminium body measures temperature
- If temperature is too high: red light
- If temperature is at right level: green light
- Minimises danger of injury due to hot chucks
- Patented temperature control

### TME冷却系统/TME Cooling System

### 订货号/Order No.

- |  |                 |
|--|-----------------|
| - 13 kW 热缩机用温度控制冷却系统/TME Intelligent Cooling System for 13 kW machines | 按需提供/on request |
| - 20 kW 热缩机用温度控制冷却系统/TME Intelligent Cooling System for 20 kW machines | 按需提供/on request |

## 热缩刀柄长度预调用支撑弹簧 TENSION SPRINGS FOR LENGTH PRESETTING FOR SHRINK FIT CHUCKS



长度调整用支撑弹簧  
Tension spring for length presetting

- 放置在刀柄夹持孔内
  - 刀具被弹簧支撑到止动位
  - 刀柄内支撑螺钉可保留
  - 适合于各种常规的热缩刀柄
- Spring is set into clamping bore
  - Spring presses tool against stop disk
  - Back-up screw can remain in chuck
  - Fits all common shrink fit chucks

### 支撑弹簧/Tension Springs

### 订货号/Order No.

- 支撑弹簧/Tension spring	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	Ø 32	
订货号/Order No.	85.830...	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32
- 支撑弹簧套装 (每个尺寸10件), 包含抓取的工具 Tension spring set (10 pcs. of each size) incl. pull-out gripper										85.830.00	

## 断刀取出装置 SHRINK-OUT DEVICE



### 断刀取出装置

- 套装含1个底座和6根顶杆(两种长度各3种直径), 不含钳子
- 橡胶底托保护刀柄
- 连同托盘可放入储物盒
- 适用于各种的热缩机

### Shrink-out device for broken tools.

- Set includes 1 base plate and 6 pins (3 diameters in 2 lengths each), without pliers
- Rubber plate for saving the chuck
- Drawer insert for craning box
- Suitable for all Power Clamp shrink fit machines

#### 订货号/Order No.

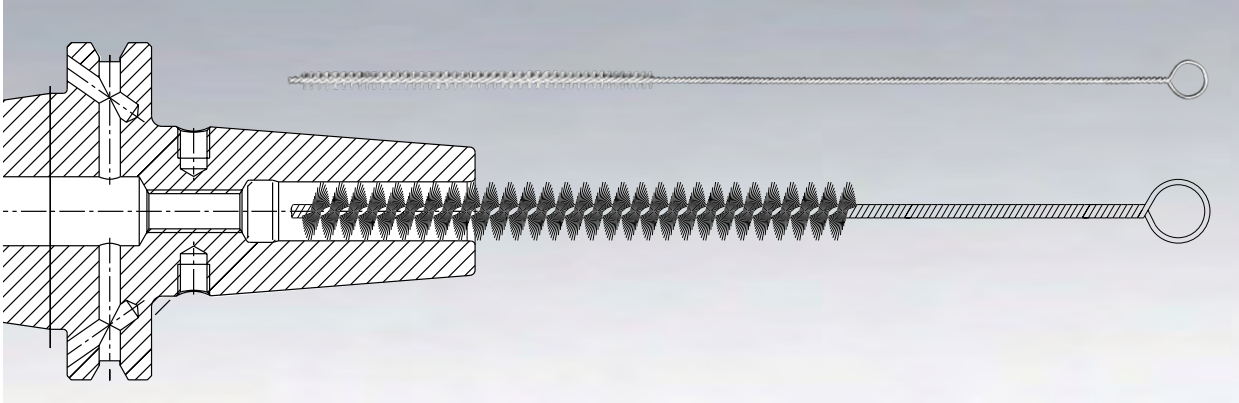
- 断刀取出装置/Shrink-out device	80.126.00
- 钳子/Combination pliers	80.107.00

#### 附件/Accessories

#### 订货号/Order No.

- 顶杆/Pin 160 mm x 2,3 mm	113027-0004
- 顶杆/Pin 160 mm x 4,7 mm	113027-0005
- 顶杆/Pin 160 mm x 6,0 mm	113027-0006
- 顶杆/Pin 275 mm x 2,3 mm	113027-0007
- 顶杆/Pin 275 mm x 4,7 mm	113027-0008
- 顶杆/Pin 275 mm x 6,0 mm	113027-0009

## 热缩刀柄用清洁毛刷 SHRINK FIT BRUSH



为了达到最好的热缩夹紧效果，清理热缩刀柄夹持孔的内部是必要的。这个清洁毛刷专门针对热缩刀柄设计，方便、快捷、有效地清洁热缩刀柄的夹持孔，可以和冷的溶剂一起应用（例如：制动器清洁剂），从而使刀柄一直处于高精度的工作状态下。

In order to achieve the best possible shrink fit connection, a grease-free socket and shank is necessary. The cleaning can be done by a dry solvent (e.g. brake cleaner). An appropriate cleaning brush is necessary to clean the socket of the Shrink Fit Chuck.

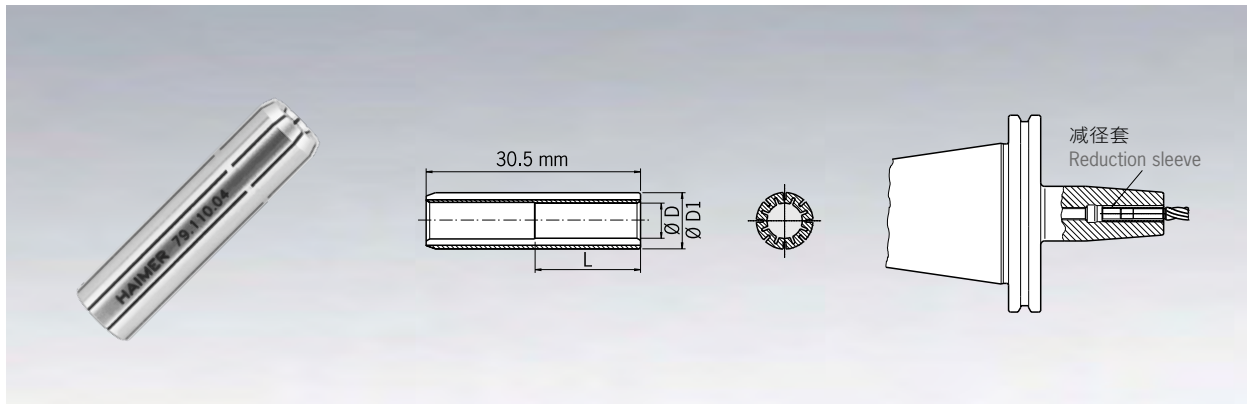
### 热缩刀柄用清洁毛刷/Shrink Fit Brush

### 订货号/Order No.

- Ø [mm] 3	86.200.01
- Ø [mm] 3,5 / 4 / 4,5 / 5	86.200.02
- Ø [mm] 6 / 8	86.200.03
- Ø [mm] 10 / 12	86.200.04
- Ø [mm] 14 / 16	86.200.06
- Ø [mm] 18 / 20	86.200.07
- Ø [mm] 25	86.200.08



## 热缩刀柄用减径套 REDUCTION SLEEVES FOR SHRINK FIT CHUCKS



### 使用:

用于内孔为  $\varnothing 8$  mm 的热缩刀柄, 夹持小柄径刀具

第一步: 热装减径套入刀柄

第二步: 热装刀具入减径套

– 柄径 h6 公差范围的刀具

### Use:

For clamping small shanks in chucks with 8 mm ID's.

First step: shrink sleeve into bore of chuck.

Second step: shrink tool shank in reduction sleeve.

– Shank tolerance h6

夹持范围/Clamping	$\varnothing D$	$\varnothing D1$	L	订货号/Order No.
– 夹持范围/Clamping $\varnothing$	2,5 mm	8 mm	7,5 mm	79.110.2.5
– 夹持范围/Clamping $\varnothing$	3,0 mm	8 mm	9,0 mm	79.110.03
– 夹持范围/Clamping $\varnothing$	3,5 mm	8 mm	10,5 mm	79.110.3.5
– 夹持范围/Clamping $\varnothing$	4,0 mm	8 mm	12,0 mm	79.110.04
– 夹持范围/Clamping $\varnothing$	4,5 mm	8 mm	13,5 mm	79.110.4.5
– 夹持范围/Clamping $\varnothing$	5,0 mm	8 mm	15,0 mm	79.110.05
– 夹持范围/Clamping $\varnothing$	5,5 mm	8 mm	16,5 mm	79.110.5.5

## 废气吸收装置 AUXILIARY FUME EXTRACTION UNIT



废气吸收装置用来吸收和过滤加热过程中产生的气体。

为了提高装刀过程的可靠性，我们建议使用翰默的系统工具车，并在上面安装废气吸收装置。

Auxiliary fume extraction unit to remove and filter vapours, which are produced during the shrink process.

For process reliable functionality we recommend the assembly of the extraction unit directly at a HAIMER system cart.

废气吸收装置/ Auxiliary fume extraction unit	热缩机机型/ Shrink fit machine Power Clamp	订货号/ Order No.
<b>适用于线圈/for coil</b>		
- VS32-H/M	Comfort (i4.0)/Comfort NG/Air i4.0 (Eco/Comfort)/Preset (NG/i4.0)/Profi Plus NG	80.101.02NG.01
- VS32-H	Premium Plus	80.101.02NG.02
- VS32-M	Premium Plus	80.101.03NG.02
- VS32-S	Premium i4.0/Sprint i4.0	80.101.03NG.03
- V2008	Economic/Economic Plus/Special Edition/Comfort (i4.0)	80.151.00.01
- 13 kW HD/20 kW	Economic Plus NG/Comfort NG/Preset NG (i4.0)	80.151.10.01

\*废气吸收装置的型号取决于热缩机和线圈的类型。有的热缩机可以选配2种线圈，例如：NG舒适型热缩机Comfort NG可选配V S32-H/M和13 K W HD 重型线圈分别用于柄径3-32mm的刀具和柄径大于32mm的刀具，那么对应的废气吸收装置也是不同的。订货前请和翰默公司人员确认。

## 13 KW HD 重型线圈升级套装 UPGRADE KIT 13 KW HD COIL



适用于直径达 $\Phi$  50mm的重型热缩刀柄

For shrinking of Heavy Duty Shrink Chucks up to  $\Phi$  50 mm.

### 用途:

适用于直径达  $\Phi$  50 mm 的重型热缩刀柄

发货时包含:

- 13kw HD 重型线圈
- 线圈底座
- 止动盘套装
- 新的软件
- $\Phi$  40-50 mm 的 HD 重型冷却套
- 冷却管套装
- 各种冷却管接头
- 选项: 冷却转换套

仅适用于 2012 年 1 月以后生产的经济型/ NG 经济型/ 经济增强型/NG 经济增强型 / 特殊配置经济增强型/舒适型/NG舒适型/NG强力型/NG测量型/超级增强型/工业 4.0气冷经济型/工业 4.0气冷舒适型/工业 4.0舒适型/工业 4.0 测量型/工业 4.0 超级型/工业 4.0 全能型热缩机

### Use:

For shrinking of Heavy Duty Shrink Chucks up to  $\Phi$  50 mm.

Delivery includes:

- 13 kW HD coil
- Coil base
- Set of stop disks
- Latest software
- HD cooling body  $\Phi$  40-50 mm
- Hose set for HD cooling body
- Coolant Manifold Connection
- Optional: cooling adapter for HD cooling body

Upgrade only possible for existing shrink fit machine Power Clamp Economic/Economic NG/Economic Plus/Economic Plus NG/Special Edition/Comfort/Comfort NG/Profi Plus NG/Preset NG/Premium Plus/Comfort i4.0/Preset i4.0/Premium i4.0/Sprint i4.0/Air i4.0 Eco/Air i4.0 Comfort that were **produced after 01/2012.**

订货号/Order No.

- 13 kW HD 重型线圈升级套装/Upgrade Kit 13 kW HD coil

80.151.30.10

## 止动盘 STOP DISKS

夹持范围/Clamping Ø D [mm] 止动盘/Stop disks		订货号/Order No.
<b>N29 线圈用(NANO 纳米型热缩机)/for coil N29 (Power Clamp Nano)</b>		
- 3 – 5 mm		80.162.03
- 6 – 8 mm		80.162.06
- 10 – 16 mm		80.162.10
- 10 – 12 mm		80.162.10.2
-	N29 线圈用止动盘套装/Stop disc set N29	80.162.00
- 3 – 5 mm	开裂式止动盘/stop disc splitted	80.162.03.1
- 6 – 8 mm	开裂式止动盘/stop disc splitted	80.162.06.1
- 10 – 16 mm	开裂式止动盘/stop disc splitted	80.162.10.1
- 10 – 12 mm	开裂式止动盘/stop disc splitted	80.162.10.2.1
<b>13 kW V2008 标准线圈用/for 13 kW coil V2008</b>		
- 3 – 5 mm		80.152.03
- 6 – 12 mm		80.152.06
- 14 – 16 mm		80.152.14
- 18 – 20 mm		80.152.18
- 25 – 32 mm		80.152.25
-	13 kW V2008 标准线圈用止动盘套装/Set of stop disks 13 kW V2008	80.152.00
- 3 – 5 mm	开裂式止动盘/stop disc splitted	80.152.03.1
- 6 – 12 mm	开裂式止动盘/stop disc splitted	80.152.06.1
- 14 – 16 mm	开裂式止动盘/stop disc splitted	80.152.14.1
- 18 – 20 mm	开裂式止动盘/stop disc splitted	80.152.18.1
- 25 – 32 mm	开裂式止动盘/stop disc splitted	80.152.25.1
-	13 kW V2008 标准线圈用止动盘套装(开裂式)/ Set of stop disks 13 kW V2008 (splitted)	80.152.00.1
- 6 – 12 mm	超短标准型和超短强力型热缩刀柄用止动盘/ Stop disc for ultra short shrink fit chucks and ultra short Power Shrink Chucks	80.152.06.2
- 14 – 20 mm	超短标准型和超短强力型热缩刀柄用止动盘/ Stop disc for ultra short shrink fit chucks and ultra short Power Shrink Chucks	80.152.14.2
- 25 – 32 mm	超短标准型和超短强力型热缩刀柄用止动盘/ Stop disc for ultra short shrink fit chucks and ultra short Power Shrink Chucks	80.152.25.2
<b>20 kW 和 13 kW HD 重型线圈用/for 20 kW coil and 13 kW HD coil</b>		
- 16 – 20 mm		80.151.10.42
- 20 – 32 mm		80.151.10.41
- 40 – 50 mm		80.151.40.40
- 16 – 20 mm	20 kW/13 kW HD 开裂式止动盘/ stop disc 20 kW/13 kW splitted	80.151.10.42.1
- 25 – 32 mm	20 kW/13 kW HD 开裂式止动盘/ stop disc 20 kW/13 kW splitted	80.151.10.41.1
- 40 – 50 mm	20 kW/13 kW HD 开裂式止动盘/ stop disc 20 kW/13 kW splitted	80.151.40.40.1



### 用途:

可换式止动盘将线圈准确定位在刀柄的上方



### Use:

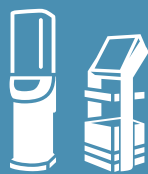
Changeable stop disks for positioning the coil above the chuck.

# 翰默动平衡机技术

## BALANCING TECHNOLOGY



<b>模块化动平衡系统 / Modular Balancing System</b>	
使用 HAIMER 翰默动平衡机的十大理由 / Top 10 Reasons to use HAIMER Balancing Technology	599
基本型刀具动平衡机 / Tool Dynamic TD 1002	600
经济型刀具动平衡机 / Tool Dynamic TD Economic	602
经济增强型刀具动平衡机 / Tool Dynamic TD Economic Plus	604
舒适型刀具动平衡机 / Tool Dynamic TD Comfort	606
舒适增强型刀具动平衡机 / Tool Dynamic TD Comfort Plus	608
工业 4.0 级舒适增强型刀具动平衡机 / Tool Dynamic TD Comfort Plus i4.0	610
<b>可选配置 / Optional Configurations</b> 612	
<b>动平衡机软件 TDC 4.0 / Tool Control and Tool Dynamic TD Software 4.0</b>	
刀具动平衡机的控制终端 / Tool Dynamic Tool Control	616
刀具动平衡机 TDC4.0 软件 / Tool Dynamic TD Software 4.0	617
<b>刀具平衡与测量 / Tool Balancing and Presetting</b>	
刀具预调与动平衡一体机 / Tool Dynamic TD Preset Microset	618
<b>特殊的动平衡机 / Special Balancing Machine</b>	
TD 800 刀具动平衡机 / Tool Dynamic TD 800	622
<b>全自动刀具动平衡机 / Automatic Balancing Technology</b>	
自动刀具动平衡机 / Tool Dynamic TD Automatic	624
<b>应用案例 / Application Examples</b> 628	
<b>动平衡转换套 / Balancing Adapters</b>	
SK/BT/CAT/BBT/PSC/KM/KM4X 接口的动平衡转换套 / Balancing Adapter SK/BT/CAT/BBT/PSC/KM/KM4X	631
HSK 接口的动平衡转换套 / Balancing Adapter HSK	632
Rollomatic 接口的动平衡转换套 / Balancing Adapter Rollomatic	634
HSM 动平衡转换套 (手动型) / HSM Balancing Adapter (manual)	635
HSA 动平衡转换套 (自动型) / HSA Balancing Adapter (automatic)	639
SDA 动平衡转换套 (自动型) / SDA Balancing Adapter (automatic)	642
SAB 动平衡转换套 (自动型) / SAB Balancing Adapter (automatic)	644
SAS 动平衡转换套 (自动型) / SAS Balancing Adapter (automatic)	645
HG 动平衡转换套 / HG Balancing Adapter	646
<b>附件 / Accessories</b>	
动平衡芯轴 / Balancing Arbors	647
动平衡环 / Balancing Rings	648
动平衡螺钉 / Balancing Screws	649



HAIMER  
G 2.5 25000  
A63.144.25.3  
∅ 25 x 130  
A 6

## 使用 HAIMER 翰默 动平衡机的十大理由

1

### 更高的转速

加工时的振动声音大通常是您无法提高刀具转速的原因。动平衡后的刀具系统允许您提高 10-15% 以上的转速，并且振动的声音和刀具的寿命不会恶化。

2

### 延长刀具的寿命

如果整个刀具系统做了动平衡，整体式圆柄刀具和刀片式刀具的寿命可以延长 20% 以上。取决于不平衡量的大小，刀具的寿命可能会提升更多。

3

### 稳定的刀具性能

振动的消除将大幅度地减少振纹和崩刃的现象，从而稳定刀具的性能，使高速加工成为可能。

4

### 延长主轴的寿命

不平衡的刀具系统将产生很大的离心力，从而损坏主轴的轴承。这些损伤降低了主轴的寿命，并且导致昂贵的非计划停机。

5

### 更好的工件表面质量

不平衡将产生过大的振动，并导致工件表面出现振纹和质量下降，为了获得更好的工件表面质量，请对整个刀具系统做动平衡。

6

### 提高精度

在高转速下，不平衡将导致刀具径跳误差比静态下的测量值更大。如果不做平衡，解决方案是降低转速和效率。

7

### 减少换刀次数

当刀具寿命提高 20% - 100% 时，换刀次数就减少了。

8

### 精确的测量

坚固的混凝土基座，离心力感应测量器，和数控机床的夹刀方式相同的专利主轴，简单可靠的校准过程。

9

### 应用简便

简易的软件和清晰的补偿选项（去重和配重），使动平衡的操作快速且简单。

10

### 工业 4.0 的成功

工业 4.0 的精髓就是收集各种信息并快速的自动交换，以优化加工流程。不做动平衡，优化的加工流程将被迫降低速度以解决问题，从而降低了生产效率。

## Top 10 Reasons to Use HAIMER Balancing Technology

### Faster Speed and Higher Productivity

Vibration is often the reason higher speeds and feeds are not realized. Balanced assemblies permit 10~15% faster spindle speeds and higher productivity without degradation of sound or tool life.

### Longer Tool Life

On average, balanced tools (tools, inserts and grinding wheels) last 20% longer when the entire tooling assembly is balanced. Depending on the amount of unbalance, the tool life increase can be much greater.

### Repeatable Tool Performance

The elimination of vibration dramatically reduces problems like chatter and tool chipping, thereby stabilizing tool performance and making lights out machining possible.

### Longer Spindle Life

Unbalance in a tool assembly creates excessive centrifugal forces that can damage spindle bearings. Such damage reduces spindle life and can lead to costly unplanned downtime.

### Better Surface Finishes

Unbalance creates excessive vibration that can be translated to the finished part in the form of chatter and poorer finishes. To achieve the best finish, balance the full assembly.

### Improved Accuracy

At higher speeds, unbalance can actually induce runout during rotation where none was measured statically. Without balance, the result is slower speeds, less productivity and lower accuracy.

### Fewer Tool Changes

When tool life increases 20% to 100%, tool changing time is reduced. This means less time needed for tool changes in the tool room and less set up times of the machine.

### Accurate Process

A solid concrete base construction, centrifugal force sensors for measuring, patented spindle that clamps the tools identical to the machine tool, and a simple/reliable machine calibration process.

### Ease of use

Simple software and clear compensation options (removing, adding or displacing weight) make the balancing process fast and simple for all users..

### Industry 4.0 Success

Industry 4.0 is all about using gathered data to automate changes on the fly that optimise the machining process. Without balance, the optimal machining logic will ultimately require a reduction of speeds until the problem is resolved, thereby reducing productivity.



## 基本型刀具动平衡机：用于基础动平衡 Tool Dynamic TD 1002: For minimalists



图片显示为TD1002带可选配的径跳精度测量装置(订货号 80.254.00.3 可参见第612开始的可选项目表)  
Picture shows TD1002 with optional runout measuring device (Order No. 80.254.00.3, see optional configurations from p.612)

## TOOL DYNAMIC TD 1002 模块化动平衡系统/MODULAR BALANCING SYSTEM

### 可对刀具、刀柄和砂轮进行单平面和双平面(选配)的动平衡修正

- 带底座, 使用离心力原理测量不平衡量的设备
- 砂轮平衡的优选方案
- 适用于小批量的标准刀具系统和砂轮检测, 简单应用
- 自动夹持的转换套

### Balancing Machine to balance tools, tool holders and grinding wheels on 1 and 2 planes (optional).

- Force measuring table and complementary machine
- Optimised for balancing of grinding wheels
- For small batch lots, single application, standard chucks and grinding wheel packages
- Adapter with automatic clamping system

### 特点

- 基础操作界面—集成用户界面和显示界面
- 自动锁紧的安全罩
- 采用专业级高精度的主轴轴承

### Features

- Menu-based handling – via integrated user interface and display
- Safety hood with automated door lock
- Special high precision spindle bearings

特点/Characteristics			
	防振底座 Vibration optimised base	可调底座可减小振动	Adapted table for optimised base
	用户界面 User interface	集成操作界面便于操作	Integrated user interface for easy handling of the machine
	光学指引帮助 Optical indexing help	显示精确的主轴角度位置	Indication of the exact spindle angle position on display
	激光标记 Laser marking	用激光标示不平衡位置和改正位置	Indicates the position of unbalance and correction with a laser
	径向钻孔去重标示软件 Drilling radial	通过径向钻孔调整平衡	Balancing by drilling radially
	动平衡环配重标示软件 Software for compensation with balancing rings	用平衡环或者其它配重方式调平衡	Balancing by rings or other movable weights
	精确测量 Index balancing	测试过程中的误差补偿(2次测量, 旋转 180° 精确测量)	Compensation of measuring errors by index balancing (2 measuring runs, indexing angle 180°)
	主轴补偿平衡测量功能 Balancing with spindle compensation	快速、精确地批量测量相同的工件(简单测量运行时)	Quick and precise measurement of repetition parts (single measuring run)
	单平面动平衡测量功能 Balancing in 1 plane	在单平面测量和补偿不平衡量(静态)	Measuring and compensation of unbalance in 1 plane (static)
	德语/英语/法语/西班牙语/意大利语/ Deutsch/English/Français/Italiano/Español	操作界面的语言	Languages for user interface
	附件和特殊装置 Accessories and special equipment	从 612 页开始介绍	Please check the table from page 612

技术参数/Technical details			
台式刀具动平衡机 TD1002/Tool Dynamic TD 1002			
尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	500×680×820	功率/Power usage [kW]	0,4
重量/Weight [kg]	200	气源/Compressed air [bar]	6
主轴转速 [rpm]/Spindle speed [rpm]	400–1100	最大刀具长度/max. tool length [mm]	360
测量精度/Measuring accuracy [gmm]	< 1	最大刀具直径/max. tool diameter [mm]	340
电源需求/Power requirements [V/Hz]	230/50–60	最大刀具重量/max. tool weight [kg]	15
		订货号/Order No.	TD105-H06-EU

## 经济型刀具动平衡机: 针对初级使用者 Tool Dynamic TD Economic: For beginners



## TOOL DYNAMIC TD ECONOMIC 模块化动平衡系统/MODULAR BALANCING SYSTEM

您开始进入模块化的动平衡机系统。

Tool Dynamic 经济型动平衡机能单平面测量和补偿不平衡量(静态)。因此非常适用于短的和双面不平衡量较小的刀具系统。集成的键盘和显示屏使操作十分简单。

Your start into the modular balancing system Tool Dynamic TD. The Tool Dynamic TD Economic measures and compensates the unbalance in one plane (static). Therefore TD Economic is perfect for balancing short tool holders and tools because of the couple unbalance being very low. Easy handling with integrated keyboard and screen.

特点/Characteristics			
	特殊材料的底座 Base made of polymer concrete	高精度的测量必须建立在稳固的底座基础上	Highest measuring accuracy due to heavy base
	用户界面 User interface	集成操作界面便于操作	Integrated user interface for easy handling of the machine
	光学指引帮助 Optical indexing help	显示精确的主轴角度位置	Indication of the exact spindle angle position on display
	激光标记 Laser marking	用激光标示不平衡位置和改正位置	Indicates the position of unbalance and correction with a laser
	径向钻孔去重标示软件 Drilling radial	通过径向钻孔调整平衡	Balancing by drilling radially
	动平衡环配重标示软件 Software for compensation with balancing rings	用平衡环或者其它移动方式调平衡	Balancing by rings or other movable weights
	精确测量 Index balancing	测试过程中的误差补偿(2次测量, 旋转 180° 精确测量)	Compensation of measuring errors by index balancing (2 measuring runs, indexing angle 180°)
	主轴补偿平衡测量功能 Balancing with spindle compensation	快速、精确地批量测量相同的工件(简单测量运行时)	Quick and precise measurement of repetition parts (single measuring run)
	单平面动平衡测量功能 Balancing in 1 plane	在单平面测量和补偿不平衡量(静态)	Measuring and compensation of unbalance in 1 plane (static)
	德语/英语/法语/西班牙语/意大利语 Deutsch/English/Français/Italiano/Español	操作界面的语言	Languages for user interface
	附件和特殊装置 Accessories and special equipment	从 612 页开始介绍	Please check the table from page 612

技术参数/Technical details			
经济型刀具动平衡机/Tool Dynamic TD Economic			
尺寸(长×高×宽)/Dimensions (W×H×D) [mm]	500×1500×820	气源/Compressed air [bar]	6
重量/Weight [kg]	450	最大刀具长度/max. tool length [mm]	400
主轴转速 [rpm]/Spindle speed [rpm]	300–1100	选项/optional	700
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	380
电源需求/Power requirements [V/Hz]	230/50–60	选项/optional [mm]	400/425
功率/Power usage [kW]	1,0	最大刀具重量/max. tool weight [kg]	30
		订货号/Order No.	TD101-H01-EU

# 经济增强型刀具动平衡机: 针对有更高要求的用户 Tool Dynamic TD Economic Plus: For the advanced



## TOOL DYNAMIC TD ECONOMIC PLUS 模块化动平衡系统/MODULAR BALANCING SYSTEM

新款 TD 经济增强型动平衡机对于双平面测量(动态)来说是十分完美的。长的刀具系统必需要双平面动平衡检测来校正不平衡量。机器附件可以整齐地排列在内置的抽屉里面。通过激光标记,工作快速并准确,光学指引帮助自动找寻主轴角度。并且可以使用平衡螺钉来调整刀具系统的动平衡。

The new TD Economic Plus is perfect to measure unbalance in two planes (dynamic). Long tools have to be balanced in two planes to correct also the couple or dynamic unbalance.

Accessories can be clearly arranged in the built in drawers. Work quickly and error free with laser marking, optical indexing help and automatic indexing of the spindle.

The "fixed components" allow to balance with screws at rotors with threaded bores.






如下的功能和经济型刀具动平衡机一样

The following characteristics are identical to Tool Dynamic TD Economic:

特点/Characteristics					
	特殊材料的底座 Base made of polymer concrete		径向钻孔去重标示软件 Drilling radial		精确测量 Index balancing
	用户界面 User interface		动平衡环配重标示软件 Software for compensation with balancing rings		主轴补偿平衡测量功能 Balancing with spindle compensation
	光学指引帮助 Optical indexing help				单平面动平衡测量功能 Balancing in 1 plane
	激光标记 Laser marking				德语/英语/法语/西班牙语/意大利语/Deutsch/English/Français/Italiano/Español

下面的功能是TD 经济增强型动平衡机的标准配置

The following characteristics are standard inclusive for Tool Dynamic TD Economic Plus:

特点/Characteristics			
	双平面动平衡测量功能 Balancing in 2 planes	在双平面测量和补偿动平衡(动态)	Measuring and compensation of unbalance in 2 planes (dynamic unbalance)
	固定位置调平衡 Fixed components	在预定位置调节平衡,例如: 使用动平衡螺钉	Enables balancing at predefined positions, e.g. with balancing screws
	自动定位 Automatic indexing	主轴能自动旋转到选定角度位置	Turns the spindle on the selected angle position and simplifies exact positioning of spindle
	附件架 Rack for accessories	附件架带两个集成的抽屉可以储存转换套或者其它附件	Storage rack with two integrated drawers for balancing adapters and further accessories
	附件和特殊装置 Accessories and special equipment	从 612 页开始介绍	Please check the table from page 612

### 技术参数/Technical details

#### 经济增强型刀具动平衡机/Tool Dynamic TD Economic Plus

尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	500×1500×820	气源/Compressed air [bar]	6
重量/Weight [kg]	450	最大刀具长度/max. tool length [mm]	400
主轴转速 [rpm]/Spindle speed [rpm]	300–1100	选项/optional [mm]	700
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	380
电源需求/Power requirements [V/Hz]	230/50–60	选项/optional [mm]	400/425
功率/Power usage [kW]	1,0	最大刀具重量/max. tool weight [kg]	30
		订货号/Order No.	TD102-H01-EU

# 舒适型刀具动平衡机: 针对有远见的用户 Tool Dynamic TD Comfort: For the ambitious



## TOOL DYNAMIC TD COMFORT 模块化动平衡系统/MODULAR BALANCING SYSTEM

如果您经常使用动平衡机并希望缩短调节时间,那么舒适型动平衡机就能满足您的要求。它带有电脑、键盘、鼠标和显示器,大屏幕让您能快速的输入数据,并且使用的是图形界面,让您的平衡调节更快。除此之外提供铣削功能来调节平衡,这项功能在去除大的不平衡量的应用中是非常有效的。

If you want to use the Tool Dynamic frequently and keep the balancing time as short as possible, you should decide on the TD Comfort machine. It's equipped with a PC, keyboard, mouse and monitor. The big screen enables you a fast input of tool data and all the comfort of a graphical user interface – you just balance faster! In addition the software of the machine offers the possibility to correct the unbalance with the help of a milling program what is very common in practice to correct the unbalance.







如下的功能和经济增强型动平衡机一样

The following characteristics are identical to Tool Dynamic TD Economic Plus:

特点/Characteristics		
 特殊材料的底座 Base made of polymer concrete	 动平衡环配重标示软件 Software for compensation with balancing rings	 双平面动平衡测量功能 Balancing in 2 planes
 用户界面 User interface		 固定位置调平衡 Fixed components
 光学指引帮助 Optical indexing help	 精确测量 Index balancing	 自动定位 Automatic indexing
 激光标记 Laser marking	 主轴补偿平衡测量功能 Balancing with spindle compensation	 附件架 Rack for accessories
 径向钻孔去重标示软件 Drilling radial	 单平面动平衡测量功能 Balancing in 1 plane	 德语/英语/法语/西班牙语/意大利语/ Deutsch/English/Français/Italiano/Español

下面的功能是舒适型动平衡机的标准配置

The following characteristics are standard inclusive for Tool Dynamic TD Comfort:

特点/Characteristics		
 标签打印软件 Print label	可与标签打印机连接, 打印测量结果	Print balancing result on label
 铣削去重标示软件 Milling program	用铣削方式来调节不平衡量	Milling program allows correction of unbalance via milling
 动平衡 TDC 4.0 软件 Balancing software TDC 4.0	新的软件, 使用方便, 图像集成显示并可以通过选配的触摸屏控制	New software with user-friendly graphical interface and touchscreen-control
 屏幕托盘 Screen holder	舒适的托盘放置电脑屏幕和键盘	Comfortable tray to place PC-screen and keyboard
 TFT 屏幕 TFT screen	舒适型的配置(包含电脑、液晶屏幕、键盘、鼠标)	Package for comfortable usage via keyboard for integrated (includes TFT screen, keyboard, mouse)
 附件和特殊装置 Accessories and special equipment	从 612 页开始介绍	Please check the table from page 612

### 技术参数/Technical details

#### 舒适型刀具动平衡机/Tool Dynamic TD Comfort

尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	1100×1500×820	气源/Compressed air [bar]	6
重量/Weight [kg]	452	最大刀具长度/max. tool length [mm]	400
主轴转速 [rpm]/Spindle speed [rpm]	300–1100	选项/optional	700
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	380
电源需求/Power requirements [V/Hz]	230/50–60	选项/optional [mm]	400/425
功率/Power usage [kW]	1,0	最大刀具重量/max. tool weight [kg]	30
		订货号/Order No.	TD100-H01-EU



## 舒适增强型刀具动平衡机: 针对追求完美的用户 Tool Dynamic TD Comfort Plus: For perfectionists



图片显示的是特殊选配: 针对最大长度到 700mm 刀具系统的类型 3 安全罩 (可参见第 612 开始的可选项目表)  
Picture shows special equipment: Safety hood type 3 for tools with length up to 700 mm (see optional configurations from p. 612)

# TOOL DYNAMIC TD COMFORT PLUS

## 模块化动平衡系统/MODULAR BALANCING SYSTEM

舒适增强型刀具动平衡机提供了更大的便利性和舒适性。在使用时，您不会感到无所适从。不需要成为专家，您就能快速、高效的进行刀具平衡。优化的触摸屏、集成电脑、舒适的附件抽屉等使平衡过程更快捷、便利并且容易，这也是您毫不犹豫地选择TD 舒适增强型动平衡机的原因。

The Tool Dynamic TD Comfort Plus offers maximum usability and comfort. By using the TD Comfort Plus, you will never lose sight of your goal during the balancing process. Would you like to balance your tools efficiently, quickly and without being an expert? Then choose Tool Dynamic TD Comfort Plus – optimised touchscreen usage, integrated PC, comfortable storage for your balancing accessories and maximum equipment to make balancing fast, convenient and easy.



下面的功能和舒适型动平衡机一样

The following characteristics are identical to Tool Dynamic TD Comfort:

特点/Characteristics		
 特殊材料的底座 Base made of polymer concrete	 动平衡环配重标示软件 Software for compensation with balancing rings	 固定位置调平衡 Fixed components
 用户界面 User interface		 自动定位 Automatic indexing
 光学指引帮助 Optical indexing help	 精确测量 Index balancing	 附件架 Rack for accessories
 激光标记 Laser marking	 主轴补偿平衡测量功能 Balancing with spindle compensation	 铣削去重标示软件 Milling program
 标签打印软件 Print label	 单平面动平衡测量功能 Balancing in 1 plane	 动平衡 TDC 4.0 软件 Balancing software TDC 4.0
 径向钻孔去重标示软件 Drilling radial	 双平面动平衡测量功能 Balancing in 2 planes	 德语/英语/法语/西班牙语/意大利语/Deutsch/English/Français/Italiano/Español

下面的功能是舒适增强型动平衡机的标准配置

The following characteristics are standard inclusive for Tool Dynamic TD Comfort Plus:

特点/Characteristics		
 包含触摸屏的动平衡控制终端 Tool Control incl. touchscreen	柜架用来存放触摸屏、键盘、鼠标、打印机和其它附件(包括与 TDC 4.0 软件相关的附件)	Console for storage of touchscreen, keyboard, mouse, printer, and further accessories (only together with Balancing software TDC 4.0)
 附件和特殊装置 Accessories and special equipment	从 612 页开始介绍	Please check the table from page 612

### 技术参数/Technical details

舒适增强型刀具动平衡机 / Tool Dynamic TD Comfort Plus			
尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	1100x1500x820	气源/Compressed air [bar]	6
重量/Weight [kg]	534	最大刀具长度/max. tool length [mm]	400
主轴转速 [rpm]/Spindle speed [rpm]	300-1100	选项/optional [mm]	700
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	380
电源需求/Power requirements [V/Hz]	230/50-60	选项/optional [mm]	400/425
功率/Power usage [kW]	1,0	最大刀具重量/max. tool weight [kg]	30
		订货号/Order No.	TD103-H01-EU

工业 4.0 级舒适增强型动平衡机：  
工业 4.0 级动平衡机确保您的生产流程的高  
稳定性

Tool Dynamic TD Comfort Plus i4.0:  
Industry 4.0 balancing machine for maximum  
process reliability in production.



图片显示的是特殊配置的设备，参考从612页开始的选项表  
Picture shows special equipment: (see optional configurations p. 612)

## TOOL DYNAMIC TD COMFORT PLUS i4.0 模块化动平衡系统/MODULAR BALANCING SYSTEM

新的翰默工业 4.0 级舒适增强型动平衡机使您的工作更高效和更舒适。该产品的亮点有：工业 4.0 级的网络兼容性、数据传输至数控机床、独立的控制终端包含优化的 27" 触摸屏。

工业 4.0 级舒适增强型动平衡机可以选配巴鲁夫 RFID 芯片读写系统和 DAC 链接。

工业 4.0 级舒适增强型动平衡机经个性化的调试后，可以将刀具数据传输至数控机床的控制器中。

The new Tool Dynamic TD Comfort Plus i4.0 offers a maximum of usability and comfort. Highlights are the possibility of digital data transfer to the machine, network compatibilities (i4.0 ready) and an optimised 27" multi-touchscreen usage via separate control terminal. The Tool Dynamic TD Comfort Plus i4.0 is optional extendable with Balluff RFID and DAC connection.

The TD Comfort Plus i4.0 allows for sending tool data to the machine tool control. Individual customised adaptations are necessary.






该设备的下列功能和舒适增强型动平衡机是完全相同的：

The following characteristics are identical to Tool Dynamic TD Comfort Plus:

特点/Characteristics					
	特殊材料的底座 Base made of polymer concrete		动平衡环配重标示软件 Software for compensation with balancing rings		固定位置调平衡 Fixed components
	用户界面 User interface		精确测量 Index balancing		自动定位 Automatic indexing
	光学指引帮助 Optical indexing help		主轴补偿平衡测量功能 Balancing with spindle compensation		附件架 Rack for accessories
	激光标记 Laser marking		单平面动平衡测量功能 Balancing in 1 plane		铣削去重标示软件 Milling program
	标签打印软件 Print label		双平面动平衡测量功能 Balancing in 2 planes		动平衡 TDC 4.0 软件 Balancing software TDC 4.0
	径向钻孔去重标示软件 Drilling radial				德语/英语/法语/西班牙语/意大利语/Deutsch/English/Français/Italiano/Español

下列配置是工业 4.0 级舒适增强型动平衡机的标配

The following characteristics are included standard for Tool Dynamic TD Comfort Plus i4.0:

特点/Characteristics			
	工业 4.0 级的控制终端包含触摸屏 Control terminal i4.0 incl. touchscreen	高品质的 27" 触摸屏带硬化的玻璃表面，易于操控。控制终端带抽屉，用于储存动平衡转换套和刀具，还有放置打印机的空间。	High quality 27" touchscreen with hardened glass surface for easiest control. Control terminal with drawer for balancing adapter and tools and storing facility for printers
	工业 4.0 就绪 i4.0 ready	通过 LAN 网络或者优盘将数据传输到数控机床的控制器中，可以选配通过巴鲁夫芯片传输数据的系统和 DAC 链接	Digital data transfer to machine via LAN or USB, optional data transfer with Balluff chip and DAC connectivity
	通过 27" 触摸屏操作软件 Software via 27" multi-touchscreen	使用 27" 触摸屏、鼠标和键盘使软件的操作更简捷	Software via 27" multi-touchscreen or mouse and keyboard for maximum usability
	Windows 10	基于 Windows 10 操作系统的软件	Software based on operation system Windows 10
	附件和特殊装置 Accessories and special equipment	请参考 P612-615 的表格	Please check the table on pages 612-615

### 技术参数/Technical details

#### 工业 4.0 级舒适增强型动平衡机 / Tool Dynamic TD Comfort Plus i4.0

尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	1100x1500x820	气源/Compressed air [bar]	6
重量/Weight [kg]	544	最大刀具长度/max. tool length [mm]	400
主轴转速 [rpm]/Spindle speed [rpm]	300-1100	选项/optional [mm]	700
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	380
电源需求/Power requirements [V/Hz]	230/50-60	选项/optional [mm]	425
功率/Power usage [kW]	1,0	最大刀具重量/max. tool weight [kg]	30
		订货号/Order No.	TD403-H01-EU



















## 可选项目 OPTIONAL CONFIGURATIONS

图标 Symbol	订货号 Order No.	项目名称 Article name	描述 Description	Description	TD 1002	TD 经济型 Economic	经济增强型 Eco Plus	舒适型 Comfort	舒适增强型	工业4.0 舒适增强型	对刀动平衡一体机 Microset	TD 800
	—	防振底座 Vibration optimised base	可调底座以减小振动	Adapted table for optimised base	●	—	—	—	—	—	—	—
	—	特殊材料的底座 Base made of polymer concrete	高精度的测量必须建立在稳重的底座基础上	Highest measuring accuracy due to heavy base	—	●	●	●	●	●	●	●
	—	用户界面 User interface	集成操作界面便于操作	Integrated user interface for easy handling of the machine	●	●	●	●	●	●	●	●
	—	光学指引帮助 Optical indexing help	显示精确的主轴角度	Indication of the exact spindle angle position on display	●	●	●	●	●	●	●	●
	—	激光标记 Laser marking	用激光标示不平衡位置和改进位置	Indicates the position of unbalance and correction with a laser	●	●	●	●	●	●	●	●
	—	标签打印软件 Print label	可与标签打印机连接, 在标签上打印结果	Print balancing result on label	—	—	—	●	●	●	●	●
	—	径向钻孔去重标示软件 Drilling radial	通过径向钻孔调整平衡	Correction of unbalance by drilling radially	●	●	●	●	●	●	●	●
	—	动平衡环配重标示软件 Software for compensation with balancing rings	用平衡环或者其它配重方式调平衡	Correction of unbalance by rings or other movable weights	●	●	●	●	●	●	●	●
	—	精确测量 Index balancing	测试过程中的误差补偿(2次测量, 旋转 180° 精确测量)	Compensation of measuring errors by index balancing (2 measuring runs, indexing angle 180°)	●	●	●	●	●	●	●	●
	—	主轴补偿平衡测量功能 Balancing with spindle compensation	快速、精确地批量测量相同的工件(简单测量运行时)	Quick and precise measurement of repetition parts (single measuring run)	●	●	●	●	●	●	●	●
	—	单平面动平衡测量功能 Balancing in 1 plane	在单平面测量和补偿不平衡量(静态)	Measuring and compensation of unbalance in 1 plane (static)	●	●	●	●	●	●	●	●
	80.252.01	双平面动平衡测量功能 Balancing in 2 planes	在双平面测量和补偿不平衡量(动态)	Measuring and compensation of unbalance in 2 planes (dynamic unbalance)	○	○	●	●	●	●	●	●
	80.202.00	固定位置调平衡 Fixed components	在预定位置调节平衡比如: 使用动平衡螺钉	Enables balancing at predefined positions, e.g. with balancing screws	○	○	●	●	●	●	○	●
	80.217.00	自动定位 Automatic indexing	主轴能自动旋转到选定角度位置	Turns the spindle on the selected angle position and simplifies exact positioning of spindle	○	○	●	●	●	●	●	●

图标 Symbol	订货号 Order No.	项目名称 Article name	描述	Description	TD 1002	TD 经济型 Economic	经济增强型 Eco Plus	舒适型 Comfort	舒适增 强型	工业4.0 舒适增强型	对刀动平 衡一体机 Microset	TD 800
												
	80.227.00	附件架 Rack for accessories	附件架带两个集成的抽屉可以储存转换套或者其它附件	Storage rack with two integrated drawers for balancing adapters and further accessories	—	○	●	●	●	●	●	●
	80.212.00	铣削去重标示软件 Milling program	用铣削方式来调节不平衡量	Correction of unbalance via milling	○	○	○	●	●	●	○	●
	80.245.06	动平衡 TDC 4.0软件 Balancing software TDC 4.0	新的软件使用方便, 图像集成显示并且可通过触摸屏控制	New software with user-friendly graphical interface and touchscreen control	—	○	○	●	●	●	●	●
	80.228.03.3	屏幕托盘 Screen holder	舒适的托盘放置电脑屏幕和键盘	Comfortable tray to place PC-screen, keyboard and mouse	—	○	○	●	—	—	—	—
	80.228.02.01.3	打印机用支架 Printer desk	为打印机选配 (需要屏幕托盘)	Optional desk for printer (Requires screen holder)	—	○	○	○	—	—	—	—
	80.228.02.02.3	电脑支架 PC holder	为外置式电脑选配 (需要屏幕托盘)	Optional holder for external PC (Requires screen holder)	—	○	○	○	—	—	—	—
	80.228.02.04.3	刀具称重支撑臂 Support arm for tool scale	可选称重台 (需要屏幕托盘)	Optional desk for tool scale (Requires screen holder)	—	○	○	○	—	—	—	—
	80.233.00.4	包含触摸屏的动平衡控制终端 Control terminal incl. touchscreen	用来存放触摸屏、键盘、鼠标、打印机等附件的柜架终端	Terminal for storage of touchscreen, keyboard, mouse, printer, and further accessories	—	○	○	○	●	—	—	●
	80.233.09	包含触摸屏的工业4.0级控制终端 Control terminal i4.0 incl. touchscreen	集成了 27" 触摸屏和基于视窗系统的电脑的控制终端	Control terminal with 27" touchscreen and integrated PC (Windows based)	—	—	—	—	○	●	●	○
	80.233.01.3	标签打印机支撑臂 Support arm for label printer	可选标签打印机托盘 (需要工业4.0级控制终端)	Optional desk for label printer (Requires Tool Control i4.0)	—	—	—	—	○	○	○	○
	80.233.02.3	刀具秤用支撑台 Desk for tool scale	刀具秤及刀具的选配支撑台 (需要配置工业4.0级控制终端)	Optional desk for tool scale or tools (Requires Tool Control i4.0)	—	—	—	—	○	○	○	○
	80.229.03.1	触摸屏 Touchscreen	带触摸屏的 TFT 显示器 (可用于舒适型动平衡机的升级)	TFT monitor with touchscreen (Upgrade for TD Comfort)	—	—	—	○	●	●	●	●
	80.229.02	TFT 液晶屏幕 TFT screen	舒适型的配置 (包含液晶屏幕、键盘、鼠标)	Comfortable usage via keyboard for integrated PC	—	○	○	●	—	—	—	—
	80.229.04	触摸屏 Touchscreen	带触摸屏的 TFT 显示器 (可用于经济型和经济增强型动平衡机的升级)	TFT monitor with touchscreen for TD Economic and TD Economic Plus	—	○	○	—	●	●	●	●

## 可选项目 OPTIONAL CONFIGURATIONS

图标 Symbol	订货号 Order No.	项目名称 Article name	描述 Description	Description	TD 1002	TD 经济型 Economic	经济增强型 Eco Plus	舒适型 Comfort	舒适增强型	工业4.0 舒适增强型	对刀动平衡一体机 Microset	TD 800
	80.209.00	特殊密度功能 Specific weight function	针对特殊钢材或者其它材料, 可使用此功能	Enables specification of the specific weight of the rotor to be balanced, if different from steel	○	○	○	○	○	○	○	—
	80.213.01	轴向钻孔去重标示功能 Drilling axial	通过轴向钻孔达到平衡	Correction of unbalance by axial drilling, e.g. for grinding wheels	○	○	○	○	○	○	○	○
	80.218.00	使用任意的索引角精密测量 Index balancing with free indexing angle	分度测量不能被180°分度的回转体 (例如: PSC 63 刀柄)	Index balancing of rotors which can not be indexed 180° (e.g. PSC 63 chucks)	○	○	○	○	○	○	○	○
	80.214.00	打印功能软件 Software for printout of report	打印完整测试报告 (动平衡证书)	Printout of a detailed measuring protocol (balancing certificate)	○	○	○	○	○	○	○	○
	—	德语/英语/法语/西班牙语/意大利语	主机操作界面的语言)	Languages for user interface for internal display	●	●	●	●	●	●	●	●
	80.245.12	使用者账户管理 User account administration	不同用户有不同权限	User administration with individual allocation of user rights	—	—	—	○	○	○	○	○
	80.245.09	禁止区域 Forbidden areas	预先设定的不可进行平衡调节的区域	Defined areas that are not allowed for the compensation of the unbalance	—	—	—	○	○	○	○	○
	80.245.10	可选择补偿区域 Alternative compensation positions	当补偿位置不可以操作时计算替换位置	Calculation of alternative positions, when proposed position not possible	—	—	—	○	○	○	○	○
	80.245.11	优化测量时间 Optimised measuring time	更短的测量时间, 保证有效测量精度	Shortened measuring run, if measuring accuracy is sufficient	—	—	—	○	○	○	○	○
	80.245.14	偏心平衡 Eccentric Balancing	在外表面去除偏心量改善平衡	Correction of unbalance by eccentric material removal at peripheral surface	—	○	○	○	○	○	○	○
	80.232.01.3	保护罩类型3 Safety hood type 3	针对加长刀具的保护罩, 最大高度700mm 最大直径400mm	Safety hood for extra long toolholders with max. 700 mm length and max. 400 mm diam. (incl. second laser marking from top)	—	○	○	○	○	○	—	—
	80.232.02.3	保护罩类型4 Safety hood type 4	针对加长刀具的保护罩, 最大高度700mm 最大直径425mm	Safety hood for extra long toolholders with max. 700 mm length and max. 425 mm diam. (incl. second laser marking from top)	—	○	○	○	○	—	—	—

图标 Symbol	订货号 Order No.	项目名称 Article name	描述	Description	TD 1002	TD 经济型 Economic	经济增强型 Eco Plus	舒适型 Comfort	舒适增强型	工业4.0 舒适增强型	对刀动平衡一体机 Microset	TD 800
												
	80.254.00.3	跳动精度测量装置 Runout measuring device	简单和可靠地检测砂轮的径向和轴向跳动	Easy and reliable check of grinding wheel's runout and axial runout	○	—	—	—	—	—	—	—
	80.203.00	动平衡螺钉组 Balancing screw set	11×10组螺钉(M6)适用于刀具系统的精细动平衡(例如 HAIMER 的热缩刀柄)(见 649 页)	Set consisting of 11×10 special screws for fine-balancing of tool holders with balancing threads m6 (p. 649)	○	○	○	○	○	○	○	○
	79.350.xx	动平衡环 Balancing rings	适用于有圆柱外径的刀具系统的精细动平衡(见 648 页)	For fine-balancing of all tool holders with cylindrical outer diameter (see p. 648)	○	○	○	○	○	○	○	○
	80.207.01	精密电子秤 Precision scale	精密地测量重量	For highly precise weighing of balancing weights	○	○	○	○	○	○	○	○
	80.207.12	电子秤集成软件 Software scale integration	从电子秤自动传输转子重量	Automatic transfer of rotor weight from scale	—	—	—	○	○	○	○	○
	80.207.10	刀具秤 Tool scale	测试刀具重量, 可选择电子秤集成软件直接传输重量到平衡软件(见可选项 80.207.12)	Measures the weight of the tool holder, optional direct transfer into the balancing software (see option 80.207.12)	○	○	○	○	○	○	○	○
	80.215.02	打印动平衡报告的激光打印机 Laser printer for balancing reports	打印详细动平衡报告的激光打印机(必须和 80.214.00选项搭配使用)	Laser printer with Ethernet port to print out a detailed balancing report (together with option 80.214.00)	○	○	○	○	○	○	○	○
	80.206.00	校正磁铁 Set of calibration magnets	用于测试和培训目的	Calibration magnets for testing, training, and demonstration purposes	○	○	○	○	○	○	○	○
	91.101.2x.00	产品培训 Training	技术培训是在质保期内获得保修的必要条件	The training is obligatory for future warranty claims	○	○	○	○	○	○	○	○
	80.243.01	砂轮的寻边器 Grinding wheel edge finder	砂轮边缘的快速测量	Easy edge measurement for grinding wheels	—	—	—	—	—	—	○	—
	80.230.00	校准工具 Calibration tube	为了机器精密运行并减少误差的校准和检测工具	For the calibration and testing of every balancing machine with the help of a defined mass	○	○	○	○	○	○	○	○
	80.215.05	Dymo的标签打印机 Label printer "Dymo"	测量结果用标签形式打印(短报告), USB接口	Printout of a label with the measuring results (short report); USB interface	—	—	—	○	○	○	○	○
	80.245.13	输出测量结果 Export measuring results	输出测量结果软件	Software to export measuring results	—	—	—	○	○	○	○	○



# 刀具动平衡机控制终端: 操作更舒适

## Tool Dynamic Tool Control: For more operating comfort

带有硬质玻璃的高质量触摸屏  
High quality touchscreen with hardened glass surface for easiest control

抽拉式键盘鼠标抽屉  
Traditional input with keyboard and mouse possible

附件抽屉  
Drawer for accessories

打印机储放架  
Storing Facility for Printers

工具和动平衡转换套储存架  
Storage for balancing adapter and tools

附加抽屉  
Additional drawer



## 动平衡软件 TDC 4.0

### TOOL DYNAMIC SOFTWARE TDC 4.0

#### 智能化动平衡软件

动平衡现在变得更容易和人性化。用户界面图形显示，按钮符号代替了文字输入。通过点击鼠标或者触摸屏，使用功能键进行操作。

旧版本的界面依然被保留。无论是谁，以前使用过老的界面，现在使用新界面时也不会出现问题。

#### 除此之外，增加了新的功能

用户管理系统设定不同的进入权限。比如，一个用户建立出新的刀具资料并确定了刀具系统的平衡精度，另一个用户只可以把存在的数据调用出来进行平衡操作。

- 用户友好界面
- 触摸屏操作 (可选)
- 根据实际加工时的情况确定允许的 不平衡量
- 刀具管理数据库
- 刀具数据管理文件夹
- 与其它系统可简地进行数据交换如：刀具数据管理

#### 更多选项

- 在不能进行不平衡补偿的地方定义禁止区域
- 对可选择区域进行计算
- 带有访问权限的用户管理
- 可联接外部电子称
- 优化测量运行
- 测量结果输出

#### Intelligent balancing software

Balancing is now even easier and more user-friendly. The user interface is completely made up of graphics. Buttons with symbols replace the text fields in most locations. Selection can take place using function buttons, by clicking the mouse or by touching the screen.

The proven simple design of the old interface has been kept. Anyone who already knows the Tool Dynamic can work with the new software without any problems.

#### In addition, there is a series of further functions

User management makes it possible to assign different access rights. For example, one user can create new tool data and determine balance tolerances while another may only call up the existing data and carry out the balancing procedure.

- User-friendly design
- Operation with touchscreen (optional)
- Allocation of balance tolerances by machine type
- Tool management with database
- Tool data management in folder structure
- Simple data exchange with other systems, e.g. tool data management

#### Further options

- Definition of forbidden areas where the compensation of the unbalance is not possible
- Calculation of alternative balancing positions
- User management with access rights
- Connection to external scales possible
- Optimised measuring run
- Export of measuring results



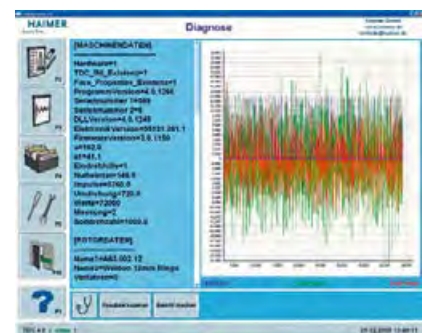
简洁明了的用户界面  
Clearly arranged graphical user interface



图形帮助功能  
Intuitive user guidance



功能：禁止区域  
Feature: Forbidden areas



先进的诊断功能  
Advanced diagnostic modes

# 刀具预调与动平衡一体机： Tool Dynamic TD Preset Microset: For balancing and presetting in one step



图片显示的是翰默的刀具预调和动平衡一体机及附件 (参考 P612 - 615 页开始的选配表)  
Picture shows TD Preset Microset with accessories (see optional configurations on pages 612 - 615)

## TOOL DYNAMIC PRESET MICROSET: 刀具预调和动平衡一体机/BALANCING AND PRESETTING

### 两种经典的系统 – 一个趋势性的创新设备

翰默的刀具预调和动平衡一体机是翰默的动平衡机技术和对刀仪技术的完美结合。刀具通过翰默经典的动平衡机转换套系统夹持在高精度的动平衡机主轴上。由于刀具无需再次装夹，因此可以节省时间和金钱，提高精度。

- 突破性的艺术级科技：舒适增强型动平衡机和翰默高级对刀仪
- 通过两个工序的结合获得更高的效率并节省时间
- 由于翰默高精度动平衡转换套系统的应用，获得了很高的测量精度
- 占用的空间更小
- 通过27英寸的触摸屏和HAIMER TDC 4.0 and Microvision UNO软件实现简单和有逻辑的操作
- 提供各种接口的转换套
- 大幅度地简化了测量工作



### 预调

通过高分辨率的相机和电子成像工艺

### Presetting

Measuring system with high resolution camera and digital photo processing

### Two proven systems – a trendsetting innovation

The Tool Dynamic Preset Microset is a perfect combination of HAIMER's balancing and HAIMER Microset's presetting technology.

The tool is clamped in the high precision balancing spindle fitted with HAIMER's proven adapter system. This saves time, money and increases accuracy because the tool does not have to be re-clamped.

- Breakthrough state-of-the-art technology: Tool Dynamic Comfort Plus and Microset UNO Premium
- Highest efficiency and time saving by combining two production stages
- Utmost accuracy due to high precision clamping in HAIMER's balancing adapters
- Needs little space
- Simple and logical operation with HAIMER TDC 4.0 and Microvision UNO with 27" multi-touchscreen
- Adapter for all interfaces
- Highest possible measuring convenience



### 专业的软件

各种测量和动平衡的选项清晰的列在操作目录中，可以自动在动平衡和预调软件之间进行切换

### Software for professionals

Various options for measuring and balancing clearly arranged in menus with automatic switch between balancing and presetting software

### 技术参数/Technical details

#### 刀具预调与动平衡一体机/Tool Dynamic TD Preset Microset

尺寸(长x高x宽)/Dimensions [WxHxD] [mm]	2000×1800×850	视觉的分辨率/Visual Indicator [mm]	0,001
重量/Weight [kg]	823	气源/Compressed air [bar]	5–6
主轴转速 [rpm]/Spindle speed [rpm]	300–1100	可以测量动平衡的最大刀具长度/ max. tool length balancing [mm]	700
测量精度/Measuring accuracy [gmm]	< 0,5	可以测量和预调的最大刀具长度 max. tool length measuring and presetting [mm]	400
电源需求/Power requirements [V/Hz]	230/50–60	最大刀具直径/max. tool diameter [mm]	400
功率/Power usage [kW]	1,5	最大刀具重量/max. tool weight [kg]	30
重复精度/Repeatability [mm]	± 0,002	订货号/Order No.	<b>TD104-H02-EU</b>

## TOOL DYNAMIC TD PRESET MICROSET 刀具预调和动平衡一体机的产品特征/PRODUCT FEATURES

### 您所获得的利益

- 直观的对话框简化了操作
- 通过操作测量臂来自动切换两种软件
- 通过高分辨率的相机和电子成像工艺实现非接触的测量，Microvision 测量软件包含各种重要的测量功能，还有各种新式且不断升级的预调装置
- 通过电脑和 27 英寸的触摸屏简化操作
- 高大的保护罩用于最大长度为 700mm 的刀具。可以进行单平面（静态）和双平面（动态）动平衡检测
- 各种测量和动平衡方式
- 选配的砂轮快速寻边器：测量组合砂轮的好帮手，再通过动平衡获得更好的磨削效果
- 应用 RFID 系统（巴鲁夫芯片等）可以读写动平衡等级和允许的最高转速
- 可以使用扫码枪
- 可以使用翰默数据分析和控制系统 DAC
- 内置的柜子可以储存附件

### Your benefits at a glance

- Simple operation through photorealistic input dialog
- Automatic software switch by positioning the measuring arm
- Non-contact measurement with a high-resolution camera and digital image processing, incl. measuring software „Microvision“ with all important measuring functions of a modern and up-to-date presetting device
- Convenient operation, menu-driven via PC and 27" touchscreen
- Large hood for tool holders with max. 700 mm length. Balancing in 1 plane (static) and 2 planes (dynamic)
- Various measuring and balancing methods
- Optional grinding wheel edge finder: ideal for measuring grinding wheel packages and subsequently balancing for best grinding results
- RFID ready (Balluff etc.) to read and write balance grade and max. rotation
- Ready for barcode scanner
- HAIMER DAC (Data Analyzer & Controller) ready
- Built-in drawer cabinet for storing accessories



通过高分辨率的相机和电子成像工艺实现非接触的测量，包含 Microvision 测量软件

Non-contact measurement with a high-resolution camera and digital image processing, incl. measuring software „Microvision“



选配：用于测量砂轮的快速寻边器

轻松的测量砂轮

测针消除砂轮顶端的模糊影像并获得清晰的分界点

**Optional: Grinding wheel edge finder for grinding wheels**

Easy edge measurement for grinding wheels

The measuring pin eliminates the blur on the surface and creates a clear point of intersection. (Order No. 80.243.01)

## TOOL DYNAMIC TD PRESET MICROSET 刀具预调和动平衡一体机的产品特征/FEATURES

### 机器和控制系统/Machine & Tool Control

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>- 稳固和寿命长的铸铁结构</li> <li>- 特制的混凝土基座</li> <li>- 优化的热稳定性很好的材料提高了测量的稳定性</li> <li>- USB / LAN 通过优盘和网络输出数据</li> <li>- Windows 10</li> <li>- 主机内储物架上有两个抽屉</li> <li>- 控制器的储物抽屉可以储存动平衡转换套和附件</li> <li>- 通过27 英寸的触摸屏或者鼠标和键盘可以轻松操作的软件</li> <li>- 标签打印机 (选配)</li> </ul> | <ul style="list-style-type: none"> <li>- Robust, long-life cast iron construction</li> <li>- Base made of polymer concrete</li> <li>- Thermally optimised material combination for improved repeatability</li> <li>- USB / LAN data output</li> <li>- Windows 10</li> <li>- Storage rack with two integrated drawers</li> <li>- Storage drawers for balancing adapters and tool accessories in the Tool Control</li> <li>- Software via 27" multi-touchscreen or mouse &amp; keyboard for maximum usability</li> <li>- Label printer (on option)</li> </ul> |
|---|---|

### 刀具预调/Tool Presetting

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>- 技术包: 检测光, 寻边器, 触摸释放</li> <li>- Sigma 功能</li> <li>- 重复测量精度 <math>\pm 2 \mu\text{m}</math></li> <li>- 手动微调</li> <li>- 储存 1000 个零点和刀具的内存</li> <li>- 简易和直观的测量软件</li> <li>- 手动 RFID 系统 (选配)</li> <li>- 双向接口 (选配)</li> <li>- 后处理软件 (选配)</li> </ul> | <ul style="list-style-type: none"> <li>- Technology package: incident light, edgfinder, release-by-touch</li> <li>- Sigma function</li> <li>- <math>\pm 2 \mu\text{m}</math> repeatability</li> <li>- Manual fine adjustment</li> <li>- Memory for 1.000 zero points and tools</li> <li>- Easy and intuitive Microvision measuring software</li> <li>- Manual RFID system (on option)</li> <li>- Bi-directional interface (on option)</li> <li>- Post processor (on option)</li> </ul> |
|---|--|

### 动平衡/Balancing

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>- 集成的用户界面, 易于操作</li> <li>- 光学的辅助分度</li> <li>- 激光标识</li> <li>- 第二激光源 (从上方)</li> <li>- 精确测量</li> <li>- 径向钻孔</li> <li>- 带主轴补偿的动平衡测量</li> <li>- 使用动平衡环补偿的软件</li> <li>- 单平面或者双平面的动平衡检测</li> <li>- 动平衡测量软件 TDC 4.0</li> </ul> | <ul style="list-style-type: none"> <li>- Integrated user interface for easy handling of the machine</li> <li>- Optical indexing help</li> <li>- Laser marking</li> <li>- 2nd. laser (from above)</li> <li>- Index balancing</li> <li>- Radial drilling</li> <li>- Balancing with spindle compensation</li> <li>- Software for compensation with balancing rings</li> <li>- Balancing in 1 and 2 planes</li> <li>- Balancing software TDC 4.0</li> </ul> |
|--|---|

# TD 800 刀具动平衡机: 针对特殊要求

## Tool Dynamic TD 800: For specialists



图片显示的是特殊装置: 包含跳动精度测量支架  
Picture shows special equipment: Runout measuring console

## TOOL DYNAMIC TD 800 特殊的动平衡机/SPECIAL BALANCING MACHINES

对于直径接近800mm的大型旋转件——这是您的解决方案  
基于成熟动平衡技术的TD800型动平衡机允许对更大的旋转件进行测量,如轴承环,砂轮和涡轮。选用定制的夹持转换套可以让您快速方便地调节平衡。

**Your solution for big rotors up to diam. 800 mm**  
Based on the proven Tool Dynamic balancing technology the Tool Dynamic TD 800 allows balancing big rotors of all kind. Bearing rings, grinding wheels and turbine wheels. With hand tailored clamping adapters you can balance your rotors as easy and quick as usual.



保护罩从中间分开,因此转子可以轻松放入,沉重的工件可以用吊装工具吊入。  
*The safety hood is segmented and opens to the side. Thus the rotor is accessible from above. Heavy parts can be handled by a crane.*

技术参数/Technical details			
<b>TD800 刀具动平衡机 /Tool Dynamic TD 800</b>			
尺寸(长x高x宽)/Dimensions (WxHxD) [mm]	2000×1950×1020	气源/Compressed air [bar]	5-6
重量/Weight [kg]	674	耗气量/Air consumption [l/h]	30
主轴转速 [rpm]/Spindle speed [rpm]	200-1100	最大刀具长度/max. tool length [mm]	750
测量精度/Measuring accuracy [gmm]	< 0,5	最大刀具直径/max. tool diameter [mm]	800
电源需求/Power requirements [V/Hz]	230/50-60	最大刀具重量/max. tool weight [kg]	110
功率/Power usage [kW]	1,0	订货号/Order No.	<b>TD107-H04-EU</b>



# 自动刀具动平衡机: 针对专业需求 Tool Dynamic TD Automatic: For professionals



# TOOL DYNAMIC TD AUTOMATIC 自动刀具动平衡机 AUTOMATIC BALANCING TECHNOLOGY

**我们将动平衡推向更高标准：  
更快，更好，更高效**

## 新的TD 自动调节型动平衡机

新的TD 自动调节型动平衡机是真正的数控自动调节不平衡量的综合型动平衡机。它能够通过钻孔和铣削的方式，自动修正单平面或双平面的动平衡，并能垂直或者水平地工作。

这款动平衡机集成了19寸的触摸屏。数控系统是西门子840DSL。这个系统能和动平衡软件同时使用。

## 自动调节平衡——这就是它的工作

在测量结束后，机器能自动计算为了达到平衡需要钻孔的深度，以及铣切、磨削的量。然后动平衡机的主轴自动转到正确的位置，集成的数控装置就能自动去除不平衡量。

动平衡不仅仅更快和更容易，因为失误而导致刀具系统不能正确调节平衡也将不复存在。

- 测量和补偿动平衡在一个步骤完成
- 快速，简单和经济
- 不会出现误操作
- 可以集成在自动化生产线中
- 专门的软件对于特殊的平衡要求

TD 自动型动平衡机-带立式加工中心的平衡机：  
**操作更舒适、工艺可靠性更高、效率和精度更高**

订货号. TD106-H07-EU

**提高您的效率：更快的平衡  
Improve your efficiency: balancing in record time!**

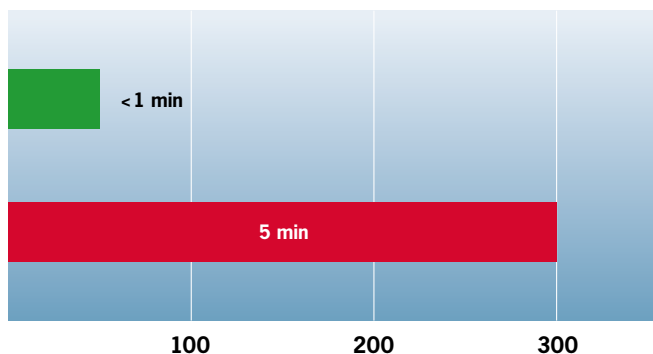
**平衡过程：**  
简单测量，补偿和检查

**Balancing process:**  
Simple measuring run,  
compensation and check

TD 自动刀具动平衡机  
Tool Dynamic  
TD Automatic

标准的动平衡系统  
standard balancing system

时间/Time [s]



**We take balancing to the next level:  
faster, better, more efficient!**

## The Tool Dynamic TD Automatic

The Tool Dynamic TD Automatic is a truly universal CNC-based balancing machine with automated correction of the unbalance. It automatically compensates the unbalance in one or two planes by drilling, milling or grinding. The machine can work vertically and horizontally.

The balancing machine is controlled by an integrated 19" touchscreen. The numerical control is a Siemens 840DSL, which can be accessed simultaneously with the balancing software.

## Automatic Balancing – that's how it works

After measuring the unbalance the software calculates how deep the machine must drill, mill or grind in order to compensate the unbalance. The balancing spindle turns into the correct position. The integrated CNC unit moves to the pre-selected balancing plane and automatically removes the appropriate amount of material. Done.

Balancing could not be any quicker or easier. Errors, such as those caused by incorrect marking on the tool holder or through inadvertently incorrect drilling depths are no longer an issue.

- Measures and compensates unbalance in one step
- Rapid, easy and economic
- No incorrect drilling on the rotor
- Integration into automatic production lines is possible
- Specific software for particular methods of balancing available

Tool Dynamic TD Automatic – automatic vertical CNC based balancing machine: **Maximum of comfort, maximum of process reliability with highest efficiency and precision.**

Order No. TD106-H07-EU

## 自动刀具动平衡机：产品特征 TOOL DYNAMIC TD AUTOMATIC: PRODUCT FEATURES

### 您所获得的利益

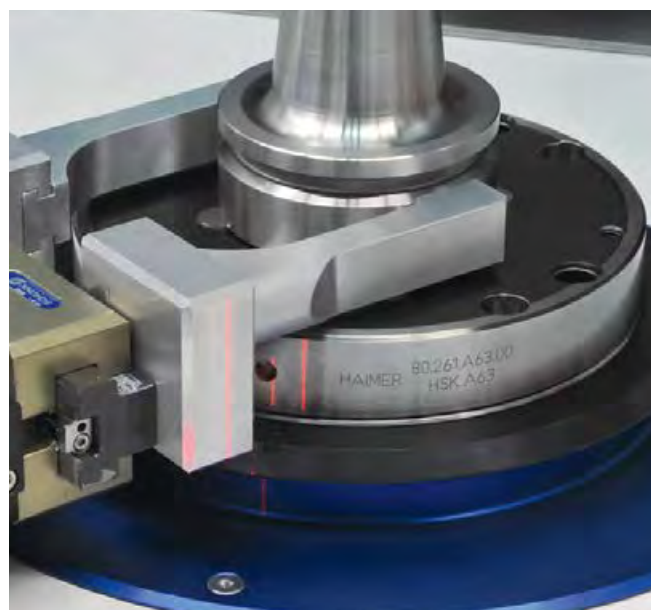
- 通过集成的四轴数控装置，可以通过钻孔和铣削方式调节不平衡量
- 动平衡转换套可替换，并保持高精度。标准的转换套能满足客户全面的需求，而且可以针对客户的特殊情况提供非标方案。
- 机械手用于被测量的回转体的自动翻面，无需任何额外工具，它能和动平衡转换套一起更换
- 铁屑由抽气装置排出
- 中央润滑免维护，实现三班轮流使用
- 动平衡主轴和控制箱有冷却系统
- 能缩短时间的动平衡测量方式 — 更快的测量和调节
- 简单测量模式：测量、钻孔和检测在一分钟内完成
- 可以与机器人单元集成——使您的动平衡机在生产线上使用
- 智能软件能让已调节的旋转体再次进行有效快速的精细平衡

### Your benefits at a glance

- Correction of unbalance is fully automated by drilling, milling or grinding in one or two planes with the help of an integrated simultaneous 4 Axis CNC machine tool
- Integrated and exchangeable balancing adapters clamp rotors with highest precision. There are standard adapters for all common interfaces and customized solutions for special purposes
- Gripper for automated indexing (optional). It can be mounted without any additional tools and changed together with the balancing adapter
- Chips are removed by exhaust (suction) equipment
- Central lubrication enables a nearly maintenance free 3 shift use
- Balancing spindle and control box are cooled
- Dynamic measuring mode enables shortest measuring times – balance and control your rotors in record time!
- Simple measuring mode: Measuring, drilling and checking in less than **1 minute!**
- Integration of robot unit is possible – embody your balancing machine in your production line!
- Intelligent software allows the fast and efficient re-balancing of already balanced rotors



数控加工单元自动补偿不平衡量  
Automated compensation of unbalance via CNC machining unit



集成式动平衡转换套和机械手完成自动化的精确测量  
Integrated balancing adapter and gripper for automatic index measuring

## 自动刀具动平衡机：产品特征

### TOOL DYNAMIC TD AUTOMATIC: PRODUCT FEATURES

技术参数/Technical data		
<b>测量精度/Measuring accuracy</b>		
测量精度/Measuring accuracy	<0,5 gmm	
<b>转子范围/Limitation of the rotor</b>		
最大直径/Max. diameter	400 mm	
最大长度/Max. length	600 mm	
最大重量/Max. weight	50 kg	
<b>工作范围/Operational range</b>		
X-轴/X-axis	155 mm	
Y-轴/Y-axis	395 mm	
Z-轴/Z-axis	205 mm	
B-轴/B-axis	360°	
快速模式/Rapid mode	20 m/min	所有轴/on all axis
<b>动平衡主轴/Balancing spindle</b>		
最高转速/Max. RPM	1400 rpm	
最大力矩/Max. torque	35 Nm	
<b>数控单元/CNC unit</b>		
刀柄接口/Interface	VDI 30	
最高转速/Max. engine speed	6000 转/分//rpm	可调/adjustable
最大力矩/Max. torque	15 Nm	在/at S3-25%
最大钻孔直径/Max. drilling capacity	Ø 10 mm	淬火钢硬度为HRC60/in hardened steel with HRC 60
<b>水平方向转子的的工作范围/Operational range of rotor in horizontal mode</b>		
最大直径/Max. diameter	400 mm	
最大长度/Max. height	250 mm	
<b>垂直方向转子的的工作范围/Operational range of rotor in vertical mode</b>		
最大直径/Max. diameter	400 mm	
最大长度/Max. height	280 mm	



集成控制和平衡软件  
Integrated control and balancing software

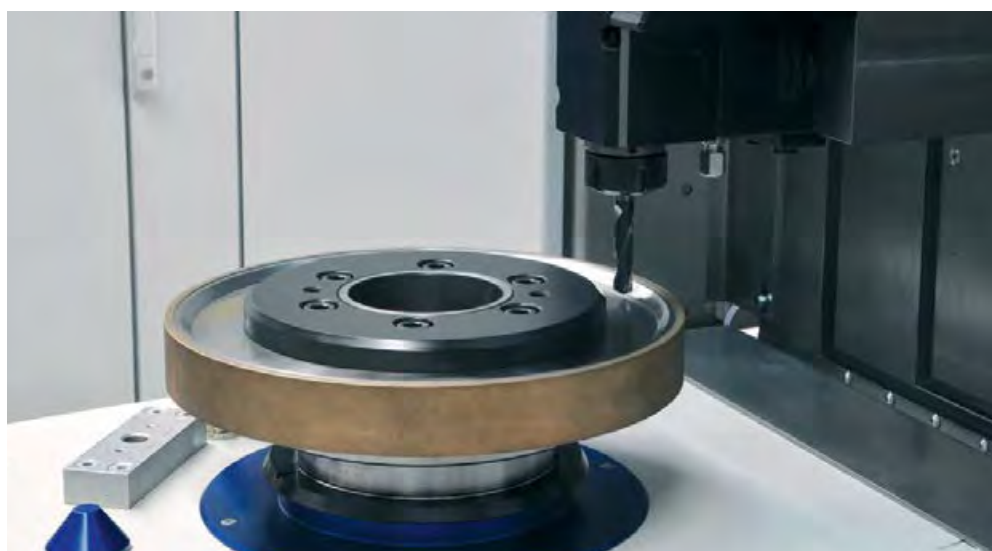
## 应用案例 APPLICATION EXAMPLES



涡轮增压器的压缩机叶轮  
通过铣削达到动平衡

### Compressor wheel for turbocharger

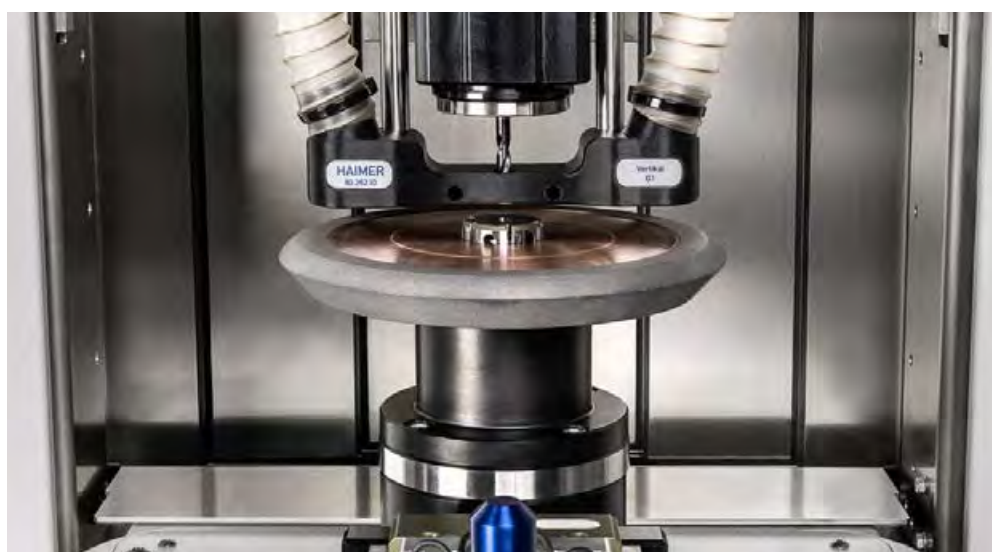
Balancing by peripheral milling  
axial.



轴向钻削调节砂轮动平衡  
平衡过的砂轮可以提高工件表面  
光洁度和工件精度。

### Balancing of grinding wheels by axial drilling

Balanced grinding wheels reduce  
the surface roughness of the work  
piece what leads to a remarkable  
increase of the process perfor-  
mance and to a higher precision  
of the end product.



轴向钻削调节砂轮动平衡

### Balancing of grinding wheels by axial drilling

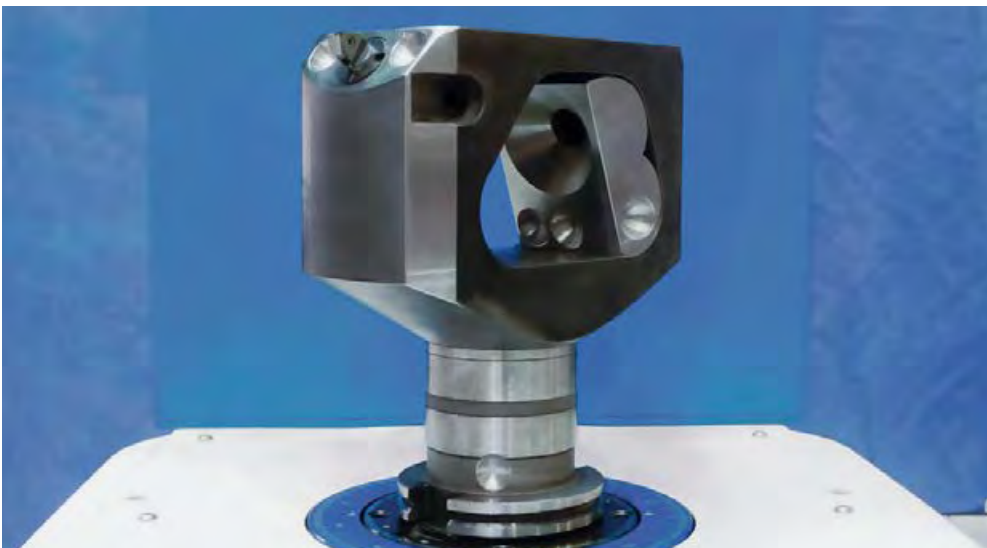


#### 木工刀具

平衡让刀刃避免震动并使它在加工家具时拥有高精度。这会提高您的生产力，达到更高的切削能力。

#### Tools for woodworking

Balancing avoids breaking of cutting edges and vibrations and enables the highest accuracy at the edges of the piece of furniture. Thus you raise your productivity and you can realize a higher cutting capacity.

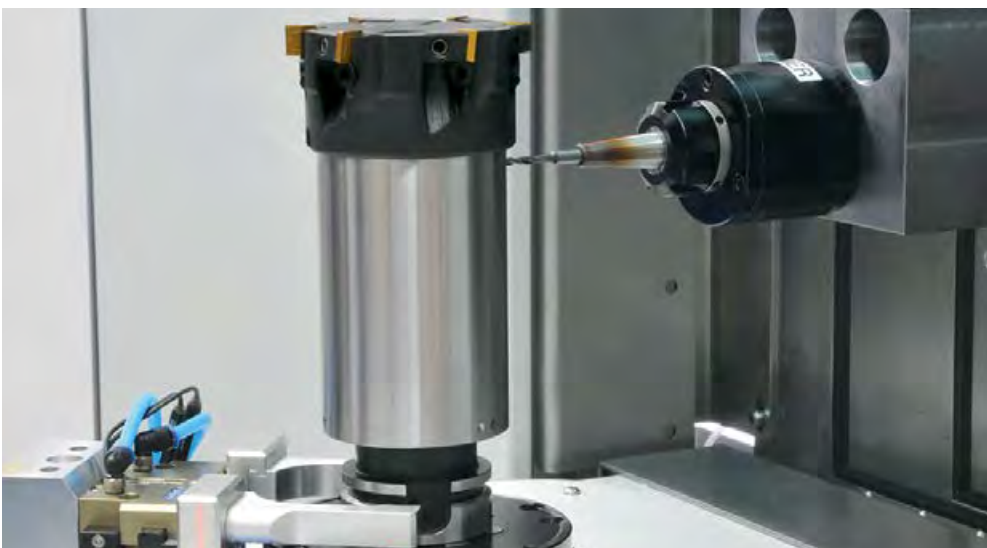


#### 平衡镗刀

获得更好的公差和圆度。切削能力将提升300%。

#### Balancing of fine boring heads

Get better tolerance grades and better roundness. The cutting capacity can be raised up to 300%.



#### 双平面平衡铣刀盘

长的刀具必须在双平面做动平衡，以消除不平衡量(动平衡)。达到更高的切削能力和更好的表面加工质量。

#### Milling head, balancing in two planes

Long projecting tools must be balanced in two planes in order to eliminate the couple unbalance (dynamic balancing). At longer tools that leads to a higher cutting capacity and a better surface finish.

## 应用案例 APPLICATION EXAMPLES

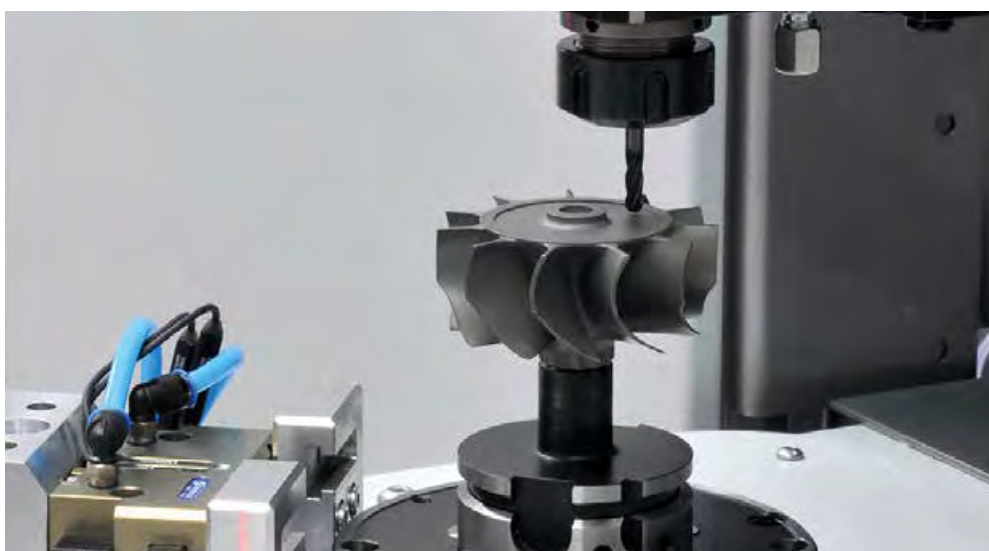


### HG后拉式动平衡转换套平衡直柄刀具

如果需要更多的资料查看 646 页。

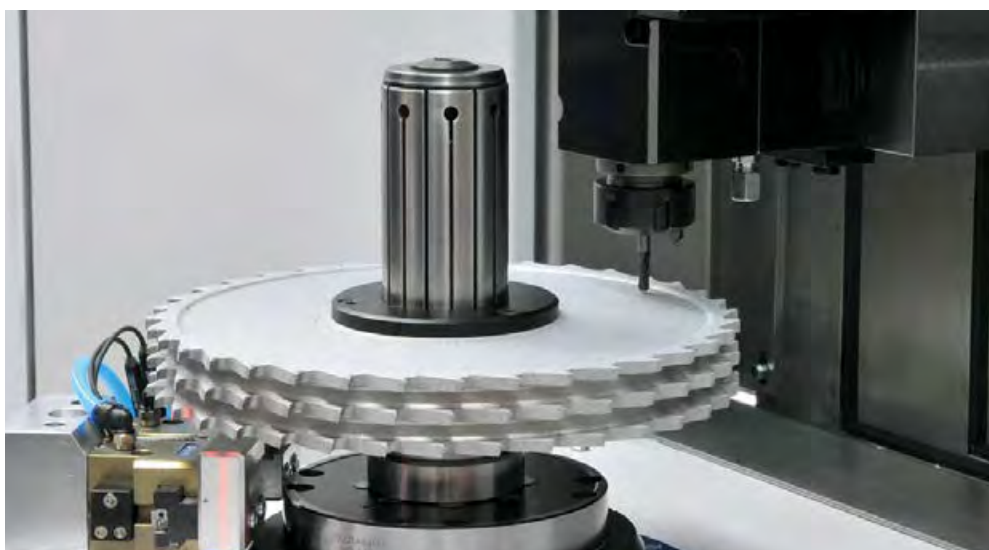
### Balancing of tools with a HG balancing adapter for tools with shank

For further information please go to p. 646.



### 压缩机涡轮 轴向钻孔

### Compressor wheel for turbo charger Axial drilling.



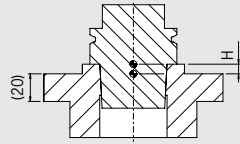
### 焊接PCD刀具动平衡调整

木工刀具调整动平衡, 减少了加工中的振动。此外, 在加工时将噪音降到更低。

### Balancing of PCD jointing cutters for laminate

Balancing enables the best edge quality for the piece of furniture by vibration-free tool run. In addition the noise while machining is reduced to a minimum.

## SK/BT/CAT/BBT\*/PSC/KM\*/KM4X\* 接口动平衡转换套 BALANCING ADAPTER SK/BT/CAT/BBT\*/PSC/KM\*/KM4X\*



- $\mu\text{m}$  级的高测量精度和重复夹持精度
- 紧密的设计缔造简单和快速

注意：转换套仅适用于翰默 HAIMER 的动平衡机

- $\mu\text{m}$  precise clamping for highest measuring accuracy and repeatability
- Easy and quickest changing due to compact design

Attention: Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

### SK/BT/CAT/BBT接口动平衡转换套自动夹持系统 SK/BT/CAT/BBT\* balancing adapter with automatic clamping system

订货号/Order No.	锥度尺寸/for taper size	拉钉/for pull stud	高度 H/Height H
80.201.330.01	SK30/BT30/BBT30 <sup>1)</sup>	螺纹/thread M12	0 mm
80.201.330.01.IN	CAT30	螺纹/thread 1/2"-13	0 mm
80.201.330.02	SK30	DIN 69872; ISO 7388-3, Form AF/AD/AC	0 mm
80.201.330.02	BT30/BBT30 <sup>1)</sup>	MAS 30°/45°/90°; ISO 7388-3, Form JD/JF	0 mm
80.201.330.04	SK30	ISO 7388-3, Form UF/UD/UC	0 mm
80.201.140.01	SK40	DIN 2080 螺纹/thread M16	0 mm
80.201.340.01	SK40/BT40/BBT40 <sup>1)</sup>	螺纹/thread M16	0 mm
80.201.340.01.IN	CAT40	螺纹/thread 5/8"-11	0 mm
80.201.340.02	CAT40/SK40	DIN 69872; ISO 7388-3, Form AF/AD/AC	0 mm
80.201.340.02	BT40/BBT40 <sup>1)</sup>	JIS B6339	0 mm
80.201.340.04	CAT40/SK40	ISO 7388-3, Form UF/UD/UC	0 mm
80.201.340.06	CAT40	类似/Similar ISO 7388-3 Form JF/JD/MORI-SEIKI 90° (L3 =0.99°)	0 mm
80.201.340.06	BT40	MAS 30°/45°/90°; ISO 7388-3, Form JD/JF	0 mm
80.201.150.01	SK50	DIN 2080 螺纹/thread M24	0 mm
80.201.350.01	SK50/BT50/BBT50 <sup>1)</sup>	螺纹/thread M24	0 mm
80.201.350.01.IN	CAT50	螺纹/thread 1"-8	0 mm
80.201.350.02	CAT50/SK50	DIN 69872; ISO 7388-3, Form AF/AD/AC	0 mm
80.201.350.02	BT50/BBT50 <sup>1)</sup>	JIS B6339	0 mm
80.201.350.04	CAT50/SK50	ISO 7388-3, Form UF/UD/UC	0 mm
80.201.350.06	CAT50	类似/Similar ISO 7388-3 Form JF/JD/MORI-SEIKI 90° (L3 =1.39°)	0 mm
80.201.350.06	BT50/BBT50 <sup>1)</sup>	MAS 30°/45°/90°; ISO 7388-3, Form JD/ JF	0 mm

### PSC 接口动平衡转换套自动夹持系统/Balancing adapter PSC with automatic clamping system

订货号/Order No.	锥度尺寸/for taper size	高度 H/Height H
80.201.C3.00	PSC 32	7 mm
80.201.C4.00	PSC 40	7 mm
80.201.C5.00	PSC 50	7 mm
80.201.C6.00	PSC 63	7 mm
80.201.C8.00	PSC 80	7 mm
80.201.C10.00	PSC 100	7 mm

### KM接口动平衡转换套自动夹持系统/Balancing adapter KM\* with automatic clamping system

订货号/Order No.	锥度尺寸/for taper size	高度 H/Height H
80.201.KM32.01	KM32	7 mm
80.201.KM40.01	KM40	7 mm
80.201.KM50.01	KM50	7 mm
80.201.KM63.01	KM63	7 mm
80.201.KM80.01	KM80	7 mm
80.201.KM100.01	KM100	30 mm
80.201.KM125.00	KM125 (按需求定作/upon request)	

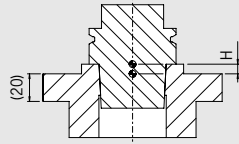
### KM4X接口动平衡转换套自动夹持系统/Balancing adapter KM4X\* with automatic clamping system

订货号/Order No.	锥度尺寸/for taper size	高度 H/Height H
80.201.KM63.4X	KM4X 63	7 mm
80.201.KM100.4X	KM4X 100	30 mm

\* BBT: 也适合 BIG (大昭和) 的 BBT 系列的刀柄/also suitable for BIG-Plus BBT和 BIG-PLUS 是大昭和公司的注册商标/tradenames of Big Daishowa Co., Ltd. KM/KM4X是肯纳公司的注册商标/tradenames of Kennametal Inc. 可按客户需求定做/Further adapter available on request



## HSK接口动平衡转换套 BALANCING ADAPTER HSK



- $\mu\text{m}$  级的高测量精度和重复夹持精度
- 紧密的设计缔造简单和快速

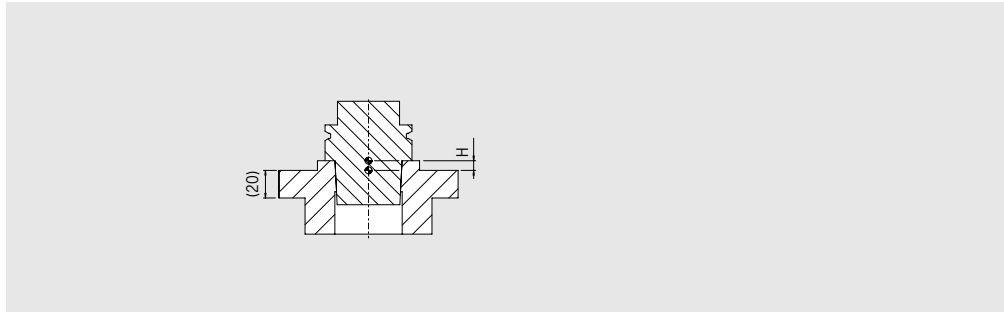
注意：转换套仅适用于翰默 HAIMER 的动平衡机

- $\mu\text{m}$  precise clamping for highest measuring accuracy and repeatability
- Easy and quickest changing due to compact design

Attention: Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

HSK 动平衡转换套自动夹持系统/HSK balancing adapter with automatic clamping system				
HSK接口 HSK interface	转换套订货编号 Adapter Order No.	通用 Analogy	描述 Description	高度 H Height H
<b>HSK 25</b>				
E	80.201.E25.00		针对 HSK-E25 的夹持系统/Adapter for HSK-E25 with clamping system	0 mm
<b>HSK 32</b>				
A	80.201.A32.00		针对 HSK-A32 的夹持系统/Adapter for HSK-A32 with clamping system	0 mm
B	80.201.E25.00	B32=E25	针对 HSK-E25 的夹持系统/Adapter for HSK-E25 with clamping system	0 mm
C	80.201.A32.00	C32=A32	针对 HSK-A32 的夹持系统/Adapter for HSK-A32 with clamping system	0 mm
D	80.201.E25.00	D32=E25	针对 HSK-E25 的夹持系统/Adapter for HSK-E25 with clamping system	0 mm
E	80.201.E32.00		针对 HSK-E32 的夹持系统/Adapter for HSK-E32 with clamping system	0 mm
F	80.201.E25.00	F32=E25	针对 HSK-E25 的夹持系统/Adapter for HSK-E25 with clamping system	0 mm
<b>HSK 40</b>				
A	80.201.A40.00		针对 HSK-A40 的夹持系统/Adapter for HSK-A40 with clamping system	0 mm
B	80.201.E32.00	B40=E32	针对 HSK-E32 的夹持系统/Adapter for HSK-E32 with clamping system	0 mm
C	80.201.A40.00	C40=A40	针对 HSK-A40 的夹持系统/Adapter for HSK-A40 with clamping system	0 mm
D	80.201.E32.00	D40=E32	针对 HSK-E32 的夹持系统/Adapter for HSK-E32 with clamping system	0 mm
E	80.201.E40.00		针对 HSK-E40 的夹持系统/Adapter for HSK-E40 with clamping system	0 mm
F	80.201.E32.00	F40=E32	针对 HSK-E32 的夹持系统/Adapter for HSK-E32 with clamping system	0 mm
<b>HSK 50</b>				
A	80.201.A50.00		针对 HSK-A50 的夹持系统/Adapter for HSK-A50 with clamping system	0 mm
B	80.201.E40.00	B50=E40	针对 HSK-E40 的夹持系统/Adapter for HSK-E40 with clamping system	0 mm
C	80.201.A50.00	C50=A50	针对 HSK-A50 的夹持系统/Adapter for HSK-A50 with clamping system	0 mm
D	80.201.E40.00	D50=E40	针对 HSK-E40 的夹持系统/Adapter for HSK-E40 with clamping system	0 mm
E	80.201.E50.00		针对 HSK-E50 的夹持系统/Adapter for HSK-E50 with clamping system	0 mm
F	80.201.E40.00	F50=E40	针对 HSK-E40 的夹持系统/Adapter for HSK-E40 with clamping system	0 mm
<b>HSK 63</b>				
A	80.201.A63.00		针对 HSK-A63 的夹持系统/Adapter for HSK-A63 with clamping system	0 mm
B	80.201.E50.00	B63=E50	针对 HSK-E50 的夹持系统/Adapter for HSK-E50 with clamping system	0 mm
C	80.201.A63.00	C63=A63	针对 HSK-A63 的夹持系统/Adapter for HSK-A63 with clamping system	0 mm
D	80.201.E50.00	D63=E50	针对 HSK-E50 的夹持系统/Adapter for HSK-E50 with clamping system	0 mm
E	80.201.E63.00		针对 HSK-E63 的夹持系统/Adapter for HSK-E63 with clamping system	0 mm
F	80.201.E50.00	F63=E50	针对 HSK-E50 的夹持系统/Adapter for HSK-E50 with clamping system	0 mm
<b>Weinig</b>				
Weinig	80.201.W63.00		针对威力刀柄的转换套/Adapter for Weing tool holder	0 mm
<b>Makino</b>				
Makino	80.201.F63.00.M	Makino F63	针对 Makino F63 的夹持系统/Adapter for Makino F63 tool holder	0 mm
Makino	80.201.F80.00.M	Makino F80	针对 Makino F80 的夹持系统/Adapter for Makino F80 tool holder	0 mm
<b>HSK 80</b>				
A	80.201.A80.00		针对 HSK-A80 的夹持系统/Adapter for HSK-A80 with clamping system	0 mm
B	80.201.E63.00	B80=E63	针对 HSK-E63 的夹持系统/Adapter for HSK-E63 with clamping system	0 mm
C	80.201.A80.00	C80=A80	针对 HSK-A80 的夹持系统/Adapter for HSK-A80 with clamping system	0 mm
D	80.201.E63.00	D80=E63	针对 HSK-E63 的夹持系统/Adapter for HSK-E63 with clamping system	0 mm
E	80.201.E80.00		针对 HSK-E80 的夹持系统/Adapter for HSK-E80 with clamping system	0 mm
F	80.201.E63.00	F80=E63	针对 HSK-E63 的夹持系统/Adapter for HSK-E63 with clamping system	0 mm
<b>HSK 100</b>				
A	80.201.A100.00		针对 HSK-A100 的夹持系统/Adapter for HSK-A100 with clamping system	0 mm
B	80.201.E80.00	B100=E80	针对 HSK-E80 的夹持系统/Adapter for HSK-E80 with clamping system	0 mm
C	80.201.A100.00	C100=A100	针对 HSK-A100 的夹持系统/Adapter for HSK-A100 with clamping system	0 mm
D	80.201.E80.00	D100=E80	针对 HSK-E80 的夹持系统/Adapter for HSK-E80 with clamping system	0 mm
E	80.201.E100.00		针对 HSK-E100 的夹持系统/Adapter for HSK-E100 with clamping system	0 mm
F	80.201.E80.00	F100=E80	针对 HSK-E80 的夹持系统/Adapter for HSK-E80 with clamping system	0 mm
<b>HSK 125</b>				
A	80.201.A125.00		针对 HSK-A125 的夹持系统/Adapter for HSK-A125 with clamping system	61 mm

## HSK接口的动平衡转换套-增高复合型 BALANCING ADAPTER HSK – INCREASED OFFSET



- 提高可操控性
- $\mu\text{m}$  级的高测量精度和重复夹持精度
- 紧密的设计缔造简单和快速

### 注意：

转换套仅适用于翰默 HAIMER 的动平衡机

- Increased offset for better accessibility
- $\mu\text{m}$  precise clamping for highest measuring accuracy and repeatability
- Easy and quickest changing due to compact design

### Attention:

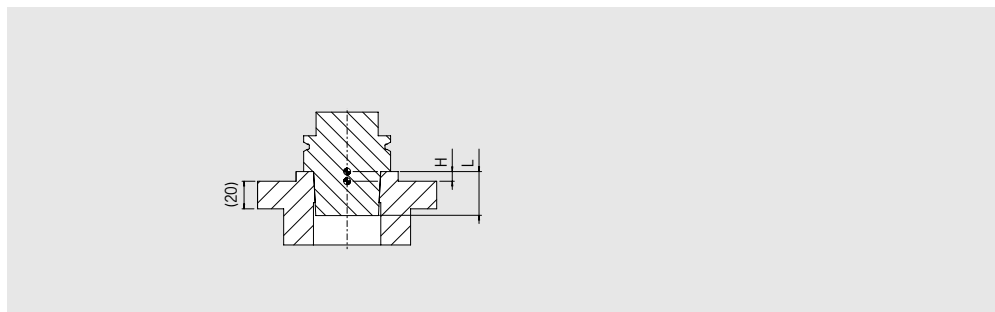
Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

### 带自动夹持系统的HSK动平衡转换套—增高复合型 HSK balancing adapter with automatic clamping system – increased offset

订货号/Order No.	锥度尺寸/for taper size	高度 H/Height H
<b>80.201.E32.02</b>	HSK-A/C/E 32; HSK-B/D/F 40	57 mm
<b>80.201.E40.02</b>	HSK-A/C/E 40; HSK-B/D/F 50	57 mm
<b>80.201.E50.02</b>	HSK-A/C/E 50; HSK-B/D/F 63	57 mm
<b>80.201.E63.02</b>	HSK-A/C/E 63; HSK-B/D/F 80	57 mm

可按客户需求定做/Further adapter available on request

## ROLLOMATIC 接口的动平衡转换套 BALANCING ADAPTER ROLLOMATIC



- 提高可操控性
- $\mu\text{m}$  级的高测量精度和重复夹持精度
- 紧密的设计缔造简单和快速

### 注意:

转换套仅适用于翰默 HAIMER 的动平衡机

- Increased offset for better accessibility
- $\mu\text{m}$  precise clamping for highest measuring accuracy and repeatability
- Easy and quickest changing due to compact design

### Attention:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

### 带自动夹持系统的动平衡转换套 Balancing adapter Rollomatic PerfectArbor with automatic clamping system

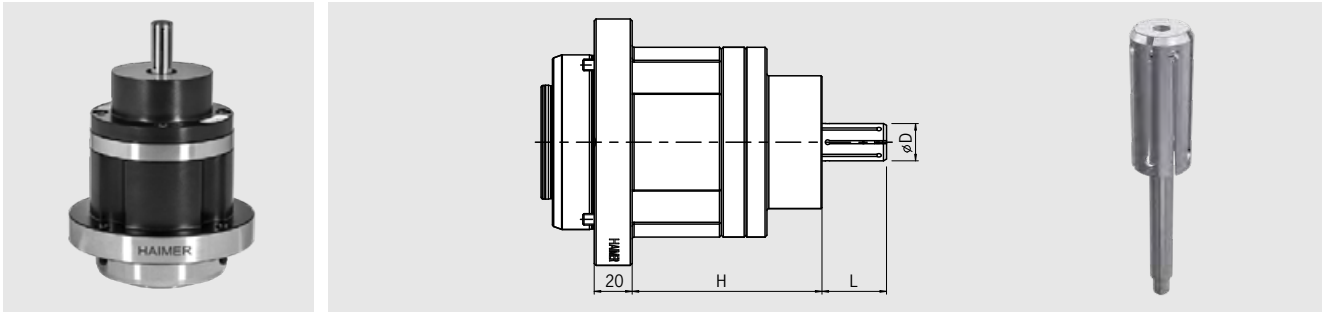
订货号/Order No.	锥度尺寸/for taper size	长度 L/Length L	高度 H/Height H
<b>80.201.R025.00</b>	R025 - 20	20 mm	57 mm
<b>80.201.R025.01</b>	R025 - 25	25 mm	57 mm

可按客户需求定做/Further adapter available on request

# HSM 动平衡转换套(手动型)

## HSM BALANCING ADAPTER (MANUAL)

### HSM 00 – HSM 01



用于夹持内孔为  $\varnothing 15$  至  $\varnothing 100$  mm 的回转体的带芯轴的  
手动动平衡转换套

- 夹持范围 - 0,3 / + 0,5 mm
- 精确的同心夹持获得更高的重复精度
- 精确动平衡至  $< 1 \text{ g} \cdot \text{mm}$
- 单独使用

#### 注意：

转换套仅适用于翰默 HAIMER 的动平衡机

Manual balancing adapter with cartridge mandrel for inner diameter with bore of  $\varnothing 15$  up to  $\varnothing 100$  mm

- Clamping range - 0,3 / + 0,5 mm
- Precise center clamping for highest repeatability
- Fine balanced to  $< 1 \text{ g} \cdot \text{mm}$
- Can be used individually

#### Note:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

翰默带手动夹持系统的动平衡转换套 HSM balancing adapter with manual clamping system	夹套 Clamping set	内孔直径 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 / + 0,5 mm		
<b>HSM 00, 夹持范围/Clamping range 15-20 mm</b>				
<b>80.201.HSM00.00</b>	<b>80.201.HSZ00.15</b>	$\varnothing 15,0$	34	100 mm
	<b>80.201.HSZ00.15.5</b>	$\varnothing 15,5$	34	100 mm
	<b>80.201.HSZ00.16</b>	$\varnothing 16,0$	34	100 mm
	<b>80.201.HSZ00.16.5</b>	$\varnothing 16,5$	34	100 mm
	<b>80.201.HSZ00.17</b>	$\varnothing 17,0$	34	100 mm
	<b>80.201.HSZ00.17.5</b>	$\varnothing 17,5$	34	100 mm
	<b>80.201.HSZ00.18</b>	$\varnothing 18,0$	34	100 mm
	<b>80.201.HSZ00.18.5</b>	$\varnothing 18,5$	34	100 mm
	<b>80.201.HSZ00.19</b>	$\varnothing 19,0$	34	100 mm
	<b>80.201.HSZ00.19.5</b>	$\varnothing 19,5$	34	100 mm
	<b>80.201.HSZ00.20</b>	$\varnothing 20,0$	34	100 mm
<b>HSM 01, 夹持范围/Clamping range 20-25 mm</b>				
<b>80.201.HSM01.00</b>	<b>80.201.HSZ01.20</b>	$\varnothing 20,0$	39	100 mm
	<b>80.201.HSZ01.20.5</b>	$\varnothing 20,5$	39	100 mm
	<b>80.201.HSZ01.21</b>	$\varnothing 21,0$	39	100 mm
	<b>80.201.HSZ01.21.5</b>	$\varnothing 21,5$	39	100 mm
	<b>80.201.HSZ01.22</b>	$\varnothing 22,0$	39	100 mm
	<b>80.201.HSZ01.22.5</b>	$\varnothing 22,5$	39	100 mm
	<b>80.201.HSZ01.23</b>	$\varnothing 23,0$	39	100 mm
	<b>80.201.HSZ01.23.5</b>	$\varnothing 23,5$	39	100 mm
	<b>80.201.HSZ01.24</b>	$\varnothing 24,0$	39	100 mm
	<b>80.201.HSZ01.24.5</b>	$\varnothing 24,5$	39	100 mm
	<b>80.201.HSZ01.25</b>	$\varnothing 25,0$	39	100 mm

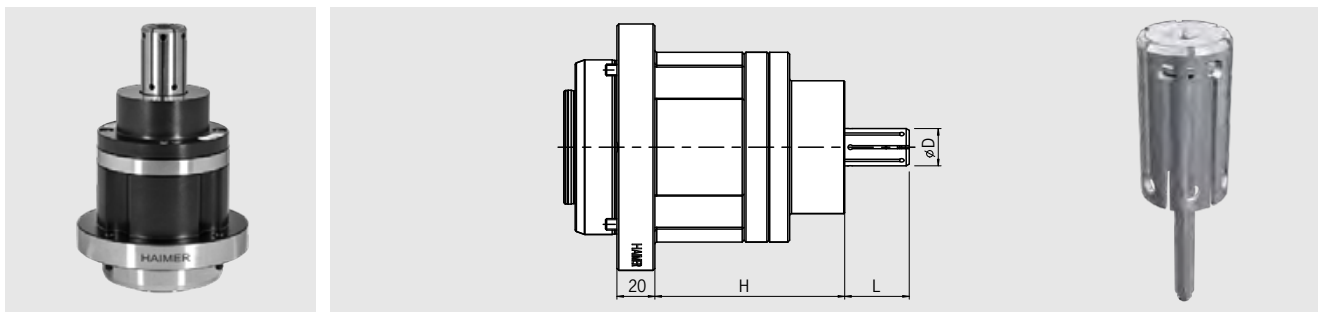
订购时需要同时订动平衡转换套和至少一个夹套

When ordering, you need one balancing adapter and at least one clamping set

## HSM 动平衡转换套(手动型)

### HSM BALANCING ADAPTER (MANUAL)

#### HSM 02 – HSM 04



翰默带手动夹持系统的动平衡转换套 HSM balancing adapter with manual clamping system	夹套 Clamping set	内孔直径 Ø D [mm] Bore Ø D [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 /+ 0,5 mm		
<b>HSM 02, 夹持范围/Clamping range 25-30 mm</b>				
<b>80.201.HSM02.00</b>	<b>80.201.HSZ02.25</b>	Ø 25,0	45	100 mm
	<b>80.201.HSZ02.25.5</b>	Ø 25,5	45	100 mm
	<b>80.201.HSZ02.26</b>	Ø 26,0	45	100 mm
	<b>80.201.HSZ02.26.5</b>	Ø 26,5	45	100 mm
	<b>80.201.HSZ02.27</b>	Ø 27,0	45	100 mm
	<b>80.201.HSZ02.27.5</b>	Ø 27,5	45	100 mm
	<b>80.201.HSZ02.28</b>	Ø 28,0	45	100 mm
	<b>80.201.HSZ02.28.5</b>	Ø 28,5	45	100 mm
	<b>80.201.HSZ02.29</b>	Ø 29,0	45	100 mm
	<b>80.201.HSZ02.29.5</b>	Ø 29,5	45	100 mm
	<b>80.201.HSZ02.30</b>	Ø 30,0	45	100 mm
<b>HSM 03, 夹持范围/Clamping range 30-35 mm</b>				
<b>80.201.HSM03.00</b>	<b>80.201.HSZ03.30</b>	Ø 30,0	49	100 mm
	<b>80.201.HSZ03.30.5</b>	Ø 30,5	49	100 mm
	<b>80.201.HSZ03.31</b>	Ø 31,0	49	100 mm
	<b>80.201.HSZ03.31.5</b>	Ø 31,5	49	100 mm
	<b>80.201.HSZ03.32</b>	Ø 32,0	49	100 mm
	<b>80.201.HSZ03.32.5</b>	Ø 32,5	49	100 mm
	<b>80.201.HSZ03.33</b>	Ø 33,0	49	100 mm
	<b>80.201.HSZ03.33.5</b>	Ø 33,5	49	100 mm
	<b>80.201.HSZ03.34</b>	Ø 34,0	49	100 mm
	<b>80.201.HSZ03.34.5</b>	Ø 34,5	49	100 mm
	<b>80.201.HSZ03.35</b>	Ø 35,0	49	100 mm
<b>HSM 04, 夹持范围/Clamping range 35-40 mm</b>				
<b>80.201.HSM04.00</b>	<b>80.201.HSZ04.35</b>	Ø 35,0	59	100 mm
	<b>80.201.HSZ04.35.5</b>	Ø 35,5	59	100 mm
	<b>80.201.HSZ04.36</b>	Ø 36,0	59	100 mm
	<b>80.201.HSZ04.36.5</b>	Ø 36,5	59	100 mm
	<b>80.201.HSZ04.37</b>	Ø 37,0	59	100 mm
	<b>80.201.HSZ04.37.5</b>	Ø 37,5	59	100 mm
	<b>80.201.HSZ04.38</b>	Ø 38,0	59	100 mm
	<b>80.201.HSZ04.38.5</b>	Ø 38,5	59	100 mm
	<b>80.201.HSZ04.39</b>	Ø 39,0	59	100 mm
	<b>80.201.HSZ04.39.5</b>	Ø 39,5	59	100 mm
	<b>80.201.HSZ04.40</b>	Ø 40,0	59	100 mm

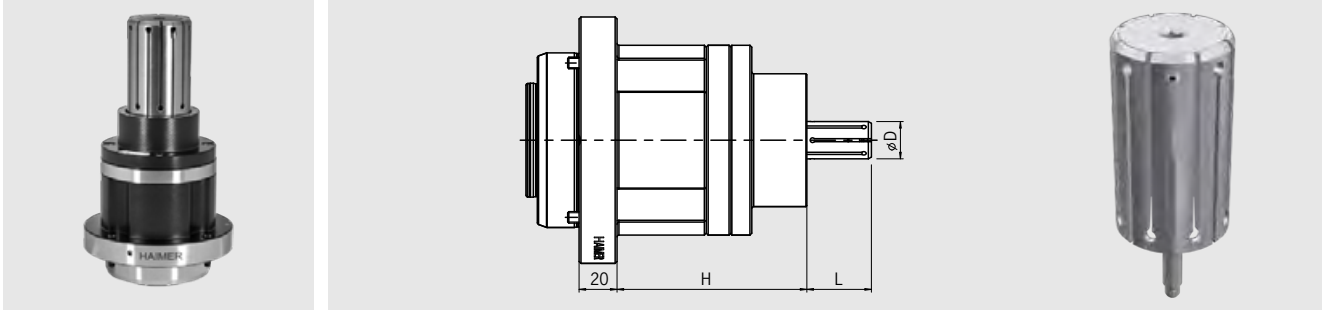
订购时需要同时订动平衡转换套和至少一个夹套

When ordering, you need one balancing adapter and at least one clamping set

# HSM 动平衡转换套(手动型)

## HSM BALANCING ADAPTER (MANUAL)

### HSM 05 – HSM 07



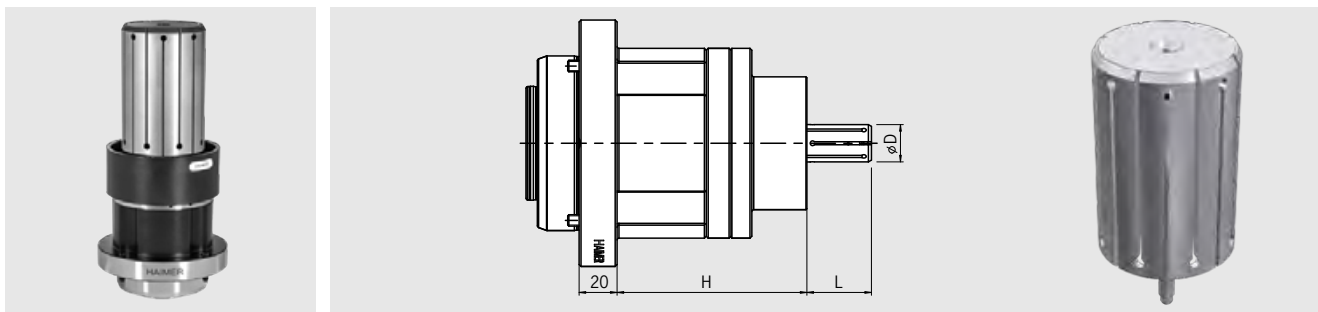
翰默带手动夹持系统的动平衡转换套 HSM balancing adapter with manual clamping system	夹套 Clamping set	内孔直径 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 /+ 0,5 mm		
<b>HSM 05, 夹持范围/Clamping range 40-45 mm</b>				
<b>80.201.HSM05.00</b>	<b>80.201.HSZ05.40</b>	$\varnothing 40,0$	59	100 mm
	<b>80.201.HSZ05.40.5</b>	$\varnothing 40,5$	59	100 mm
	<b>80.201.HSZ05.41</b>	$\varnothing 41,0$	59	100 mm
	<b>80.201.HSZ05.41.5</b>	$\varnothing 41,5$	59	100 mm
	<b>80.201.HSZ05.42</b>	$\varnothing 42,0$	59	100 mm
	<b>80.201.HSZ05.42.5</b>	$\varnothing 42,5$	59	100 mm
	<b>80.201.HSZ05.43</b>	$\varnothing 43,0$	59	100 mm
	<b>80.201.HSZ05.43.5</b>	$\varnothing 43,5$	59	100 mm
	<b>80.201.HSZ05.44</b>	$\varnothing 44,0$	59	100 mm
	<b>80.201.HSZ05.44.5</b>	$\varnothing 44,5$	59	100 mm
	<b>80.201.HSZ05.45</b>	$\varnothing 45,0$	59	100 mm
<b>HSM 06, 夹持范围/Clamping range 45-55 mm</b>				
<b>80.201.HSM06.00</b>	<b>80.201.HSZ06.45</b>	$\varnothing 45,0$	79	100 mm
	<b>80.201.HSZ06.46</b>	$\varnothing 46,0$	79	100 mm
	<b>80.201.HSZ06.47</b>	$\varnothing 47,0$	79	100 mm
	<b>80.201.HSZ06.48</b>	$\varnothing 48,0$	79	100 mm
	<b>80.201.HSZ06.49</b>	$\varnothing 49,0$	79	100 mm
	<b>80.201.HSZ06.50</b>	$\varnothing 50,0$	79	100 mm
	<b>80.201.HSZ06.51</b>	$\varnothing 51,0$	79	100 mm
	<b>80.201.HSZ06.52</b>	$\varnothing 52,0$	79	100 mm
	<b>80.201.HSZ06.53</b>	$\varnothing 53,0$	79	100 mm
	<b>80.201.HSZ06.54</b>	$\varnothing 54,0$	79	100 mm
	<b>80.201.HSZ06.55</b>	$\varnothing 55,0$	79	100 mm
<b>HSM 07, 夹持范围/Clamping range 55-65 mm</b>				
<b>80.201.HSM07.00</b>	<b>80.201.HSZ07.55</b>	$\varnothing 55,0$	89	100 mm
	<b>80.201.HSZ07.56</b>	$\varnothing 56,0$	89	100 mm
	<b>80.201.HSZ07.57</b>	$\varnothing 57,0$	89	100 mm
	<b>80.201.HSZ07.58</b>	$\varnothing 58,0$	89	100 mm
	<b>80.201.HSZ07.59</b>	$\varnothing 59,0$	89	100 mm
	<b>80.201.HSZ07.60</b>	$\varnothing 60,0$	89	100 mm
	<b>80.201.HSZ07.61</b>	$\varnothing 61,0$	89	100 mm
	<b>80.201.HSZ07.62</b>	$\varnothing 62,0$	89	100 mm
	<b>80.201.HSZ07.63</b>	$\varnothing 63,0$	89	100 mm
	<b>80.201.HSZ07.64</b>	$\varnothing 64,0$	89	100 mm
	<b>80.201.HSZ07.65</b>	$\varnothing 65,0$	89	100 mm

订购时需要同时订动平衡转换套和至少一个夹套  
When ordering, you need one balancing adapter and at least one clamping set

## HSM 动平衡转换套(手动型)

### HSM BALANCING ADAPTER (MANUAL)

#### HSM 00 – HSM 09



翰默带手动夹持系统的动平衡转换套 HSM balancing adapter with manual clamping system	夹套 Clamping set	内孔直径 Ø D [mm] Bore Ø D [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 /+ 0,5 mm		
<b>HSM 08, 夹持范围/Clamping range 65–82 mm</b>				
<b>80.201.HSM08.00</b>	<b>80.201.HSZ08.65</b>	Ø 65,0	99	100 mm
	80.201.HSZ08.66	Ø 66,0	99	100 mm
	80.201.HSZ08.67	Ø 67,0	99	100 mm
	80.201.HSZ08.68	Ø 68,0	99	100 mm
	80.201.HSZ08.69	Ø 69,0	99	100 mm
	80.201.HSZ08.70	Ø 70,0	99	100 mm
	80.201.HSZ08.71	Ø 71,0	99	100 mm
	80.201.HSZ08.72	Ø 72,0	99	100 mm
	80.201.HSZ08.73	Ø 73,0	99	100 mm
	80.201.HSZ08.74	Ø 74,0	99	100 mm
	80.201.HSZ08.75	Ø 75,0	99	100 mm
	80.201.HSZ08.76	Ø 76,0	99	100 mm
	80.201.HSZ08.77	Ø 77,0	99	100 mm
	80.201.HSZ08.78	Ø 78,0	99	100 mm
	80.201.HSZ08.79	Ø 79,0	99	100 mm
	80.201.HSZ08.80	Ø 80,0	99	100 mm
	80.201.HSZ08.81	Ø 81,0	99	100 mm
	80.201.HSZ08.82	Ø 82,0	99	100 mm
<b>HSM 09, 夹持范围/Clamping range 82–101 mm</b>				
<b>80.201.HSM09.00</b>	<b>80.201.HSZ09.82</b>	Ø 82,0	121	100 mm
	80.201.HSZ09.83	Ø 83,0	121	100 mm
	80.201.HSZ09.84	Ø 84,0	121	100 mm
	80.201.HSZ09.85	Ø 85,0	121	100 mm
	80.201.HSZ09.86	Ø 86,0	121	100 mm
	80.201.HSZ09.87	Ø 87,0	121	100 mm
	80.201.HSZ09.88	Ø 88,0	121	100 mm
	80.201.HSZ09.89	Ø 89,0	121	100 mm
	80.201.HSZ09.90	Ø 90,0	121	100 mm
	80.201.HSZ09.91	Ø 91,0	121	100 mm
	80.201.HSZ09.92	Ø 92,0	121	100 mm
	80.201.HSZ09.93	Ø 93,0	121	100 mm
	80.201.HSZ09.94	Ø 94,0	121	100 mm
	80.201.HSZ09.95	Ø 95,0	121	100 mm
	80.201.HSZ09.96	Ø 96,0	121	100 mm
	80.201.HSZ09.97	Ø 97,0	121	100 mm
	80.201.HSZ09.98	Ø 98,0	121	100 mm
	80.201.HSZ09.99	Ø 99,0	121	100 mm
	80.201.HSZ09.100	Ø 100,0	121	100 mm
	80.201.HSZ09.101	Ø 101,0	121	100 mm

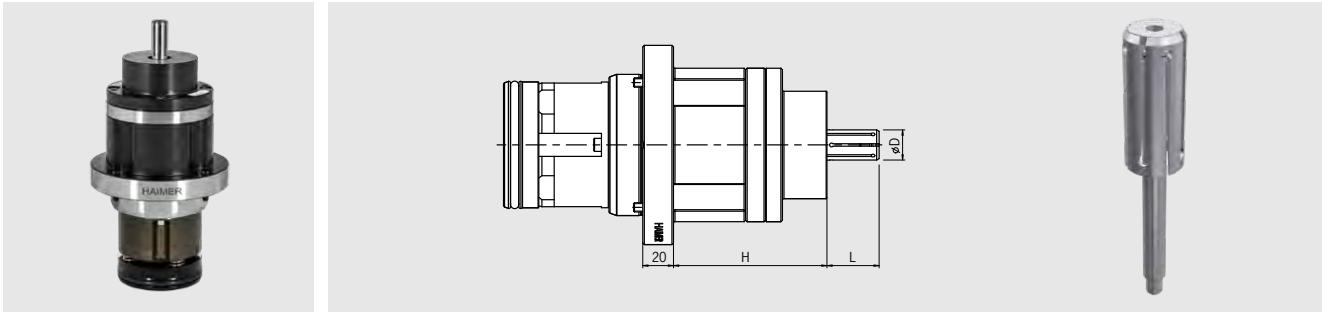
订购时需要同时订动平衡转换套和至少一个夹套

When ordering, you need one balancing adapter and at least one clamping set

## HSA 动平衡转换套 (自动型)

### HSA BALANCING ADAPTER (AUTOMATIC)

#### HSA 00 – HSA 01



用于夹持内孔为  $\varnothing 15$  至  $\varnothing 100$  mm 的回转体的带芯轴的  
自动平衡转换套

- 夹持范围 - 0,3 / + 0,5 mm
- 精确的同心夹持获得很高的重复精度
- 精确动平衡至  $< 1 \text{ g} \cdot \text{mm}$
- 单独使用

#### 注意：

转换套仅适用于翰默 HAIMER 的动平衡机

Automatic balancing adapter with cartridge mandrel for inner diameter with bore of  $\varnothing 15$  up to  $\varnothing 100$  mm

- Clamping range - 0,3 / + 0,5 mm
- Precise center clamping for highest repeatability
- Fine balanced to  $< 1 \text{ g} \cdot \text{mm}$
- Can be used individually

#### Note:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

翰默带自动夹持系统的动平衡转换套 HSA balancing adapter with automatic clamping system	夹套 Clamping set	内孔直径 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 / + 0,5 mm		
<b>HSA 00, 夹持范围/Clamping range 15-20 mm</b>				
<b>80.201.HSA00.00</b>	<b>80.201.HSZ00.15</b>	$\varnothing 15,0$	34	100 mm
	<b>80.201.HSZ00.15.5</b>	$\varnothing 15,5$	34	100 mm
	<b>80.201.HSZ00.16</b>	$\varnothing 16,0$	34	100 mm
	<b>80.201.HSZ00.16.5</b>	$\varnothing 16,5$	34	100 mm
	<b>80.201.HSZ00.17</b>	$\varnothing 17,0$	34	100 mm
	<b>80.201.HSZ00.17.5</b>	$\varnothing 17,5$	34	100 mm
	<b>80.201.HSZ00.18</b>	$\varnothing 18,0$	34	100 mm
	<b>80.201.HSZ00.18.5</b>	$\varnothing 18,5$	34	100 mm
	<b>80.201.HSZ00.19</b>	$\varnothing 19,0$	34	100 mm
	<b>80.201.HSZ00.19.5</b>	$\varnothing 19,5$	34	100 mm
	<b>80.201.HSZ00.20</b>	$\varnothing 20,0$	34	100 mm
<b>HSA 01, 夹持范围/Clamping range 20-25 mm</b>				
<b>80.201.HSA01.00</b>	<b>80.201.HSZ01.20</b>	$\varnothing 20,0$	39	100 mm
	<b>80.201.HSZ01.20.5</b>	$\varnothing 20,5$	39	100 mm
	<b>80.201.HSZ01.21</b>	$\varnothing 21,0$	39	100 mm
	<b>80.201.HSZ01.21.5</b>	$\varnothing 21,5$	39	100 mm
	<b>80.201.HSZ01.22</b>	$\varnothing 22,0$	39	100 mm
	<b>80.201.HSZ01.22.5</b>	$\varnothing 22,5$	39	100 mm
	<b>80.201.HSZ01.23</b>	$\varnothing 23,0$	39	100 mm
	<b>80.201.HSZ01.23.5</b>	$\varnothing 23,5$	39	100 mm
	<b>80.201.HSZ01.24</b>	$\varnothing 24,0$	39	100 mm
	<b>80.201.HSZ01.24.5</b>	$\varnothing 24,5$	39	100 mm
	<b>80.201.HSZ01.25</b>	$\varnothing 25,0$	39	100 mm

订购时需要同时订动平衡转换套和至少一个夹套

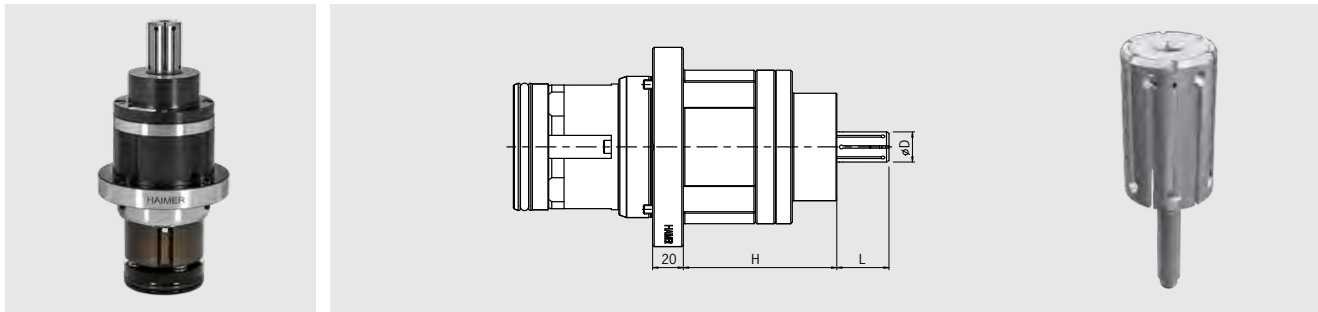
When ordering, you need one balancing adapter and at least one clamping set



## HSA 动平衡转换套 (自动型)

### HSA BALANCING ADAPTER (AUTOMATIC)

#### HSA 02 – HSA 04



翰默带自动夹持系统的动平衡转换套 HSA balancing adapter with automatic clamping system	夹套 Clamping set	内孔直径 Ø D [mm] Bore Ø D [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 /+ 0,5 mm		
<b>HSA 02, 夹持范围/Clamping range 25–30 mm</b>				
<b>80.201.HSA02.00</b>	<b>80.201.HSZ02.25</b>	Ø 25,0	45	100 mm
	<b>80.201.HSZ02.25.5</b>	Ø 25,5	45	100 mm
	<b>80.201.HSZ02.26</b>	Ø 26,0	45	100 mm
	<b>80.201.HSZ02.26.5</b>	Ø 26,5	45	100 mm
	<b>80.201.HSZ02.27</b>	Ø 27,0	45	100 mm
	<b>80.201.HSZ02.27.5</b>	Ø 27,5	45	100 mm
	<b>80.201.HSZ02.28</b>	Ø 28,0	45	100 mm
	<b>80.201.HSZ02.28.5</b>	Ø 28,5	45	100 mm
	<b>80.201.HSZ02.29</b>	Ø 29,0	45	100 mm
	<b>80.201.HSZ02.29.5</b>	Ø 29,5	45	100 mm
	<b>80.201.HSZ02.30</b>	Ø 30,0	45	100 mm
<b>HSA 03, 夹持范围/Clamping range 30–35 mm</b>				
<b>80.201.HSA03.00</b>	<b>80.201.HSZ03.30</b>	Ø 30,0	49	100 mm
	<b>80.201.HSZ03.30.5</b>	Ø 30,5	49	100 mm
	<b>80.201.HSZ03.31</b>	Ø 31,0	49	100 mm
	<b>80.201.HSZ03.31.5</b>	Ø 31,5	49	100 mm
	<b>80.201.HSZ03.32</b>	Ø 32,0	49	100 mm
	<b>80.201.HSZ03.32.5</b>	Ø 32,5	49	100 mm
	<b>80.201.HSZ03.33</b>	Ø 33,0	49	100 mm
	<b>80.201.HSZ03.33.5</b>	Ø 33,5	49	100 mm
	<b>80.201.HSZ03.34</b>	Ø 34,0	49	100 mm
	<b>80.201.HSZ03.34.5</b>	Ø 34,5	49	100 mm
	<b>80.201.HSZ03.35</b>	Ø 35,0	49	100 mm
<b>HSA 04, 夹持范围/Clamping range 35–40 mm</b>				
<b>80.201.HSA04.00</b>	<b>80.201.HSZ04.35</b>	Ø 35,0	59	100 mm
	<b>80.201.HSZ04.35.5</b>	Ø 35,5	59	100 mm
	<b>80.201.HSZ04.36</b>	Ø 36,0	59	100 mm
	<b>80.201.HSZ04.36.5</b>	Ø 36,5	59	100 mm
	<b>80.201.HSZ04.37</b>	Ø 37,0	59	100 mm
	<b>80.201.HSZ04.37.5</b>	Ø 37,5	59	100 mm
	<b>80.201.HSZ04.38</b>	Ø 38,0	59	100 mm
	<b>80.201.HSZ04.38.5</b>	Ø 38,5	59	100 mm
	<b>80.201.HSZ04.39</b>	Ø 39,0	59	100 mm
	<b>80.201.HSZ04.39.5</b>	Ø 39,5	59	100 mm
	<b>80.201.HSZ04.40</b>	Ø 40,0	59	100 mm

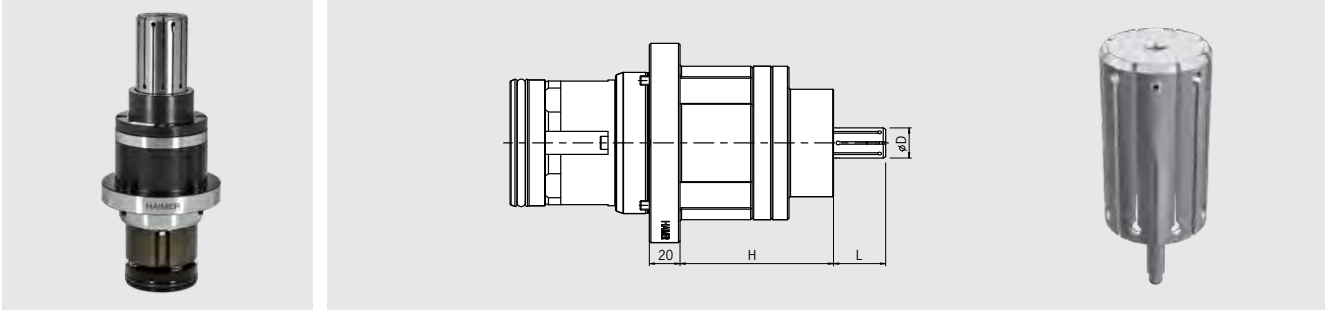
订购时需要同时订动平衡转换套和至少一个夹套

When ordering, you need one balancing adapter and at least one clamping set

## HSA 动平衡转换套 (自动型)

### HSA BALANCING ADAPTER (AUTOMATIC)

#### HSA 05 – HSA 06

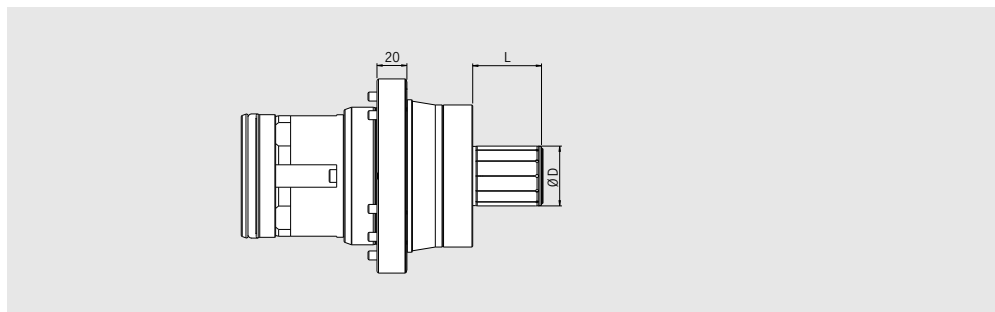


翰默带自动夹持系统的动平衡转换套 HSA balancing adapter with automatic clamping system	夹套 Clamping set	内孔直径 Ø D [mm] Bore Ø D [mm]	夹持长度 L [mm] Clamping length L [mm]	转换套的高度 H Height adapter H
订货号/Order No.	订货号/Order No.	- 0,3 /+ 0,5 mm		
<b>HSA 05, 夹持范围/Clamping range 40–45 mm</b>				
<b>80.201.HSA05.00</b>	<b>80.201.HSZ05.40</b>	Ø 40,0	59	100 mm
	<b>80.201.HSZ05.40.5</b>	Ø 40,5	59	100 mm
	<b>80.201.HSZ05.41</b>	Ø 41,0	59	100 mm
	<b>80.201.HSZ05.41.5</b>	Ø 41,5	59	100 mm
	<b>80.201.HSZ05.42</b>	Ø 42,0	59	100 mm
	<b>80.201.HSZ05.42.5</b>	Ø 42,5	59	100 mm
	<b>80.201.HSZ05.43</b>	Ø 43,0	59	100 mm
	<b>80.201.HSZ05.43.5</b>	Ø 43,5	59	100 mm
	<b>80.201.HSZ05.44</b>	Ø 44,0	59	100 mm
	<b>80.201.HSZ05.44.5</b>	Ø 44,5	59	100 mm
	<b>80.201.HSZ05.45</b>	Ø 45,0	59	100 mm
<b>HSA 06, 夹持范围/Clamping range 45–55 mm</b>				
<b>80.201.HSA06.00</b>	<b>80.201.HSZ06.45</b>	Ø 45,0	79	100 mm
	<b>80.201.HSZ06.46</b>	Ø 46,0	79	100 mm
	<b>80.201.HSZ06.47</b>	Ø 47,0	79	100 mm
	<b>80.201.HSZ06.48</b>	Ø 48,0	79	100 mm
	<b>80.201.HSZ06.49</b>	Ø 49,0	79	100 mm
	<b>80.201.HSZ06.50</b>	Ø 50,0	79	100 mm
	<b>80.201.HSZ06.51</b>	Ø 51,0	79	100 mm
	<b>80.201.HSZ06.52</b>	Ø 52,0	79	100 mm
	<b>80.201.HSZ06.53</b>	Ø 53,0	79	100 mm
	<b>80.201.HSZ06.54</b>	Ø 54,0	79	100 mm
	<b>80.201.HSZ06.55</b>	Ø 55,0	79	100 mm

订购时需要同时订动平衡转换套和至少一个夹套  
When ordering, you need one balancing adapter and at least one clamping set

可以定制夹持孔径为55mm – 101mm的回转体的HSA自动型动平衡转换套(按需生产)  
HSA Balancing Adapters (automatic) are also available with diameters of 55 mm – 101 mm (upon request)

## SDA 动平衡转换套 (自动型) SDA BALANCING ADAPTER (AUTOMATIC)



带芯轴的自动型动平衡转换套, 适用于内孔直径从 $\varnothing 8$  至 $\varnothing 60$  mm和1"至2"的回转体

- 夹持范围 - 0,03 / + 0,05 mm
- 精确的同心夹持获得很高的重复精度
- 精确动平衡至 < 1 g·mm
- 单独使用

### 注意:

转换套仅适用于翰默 HAIMER 的动平衡机

Automatic balancing adapter with mandrel for inner diameter with bore of  $\varnothing 8$  up to  $\varnothing 60$  mm and 1" up to 2".

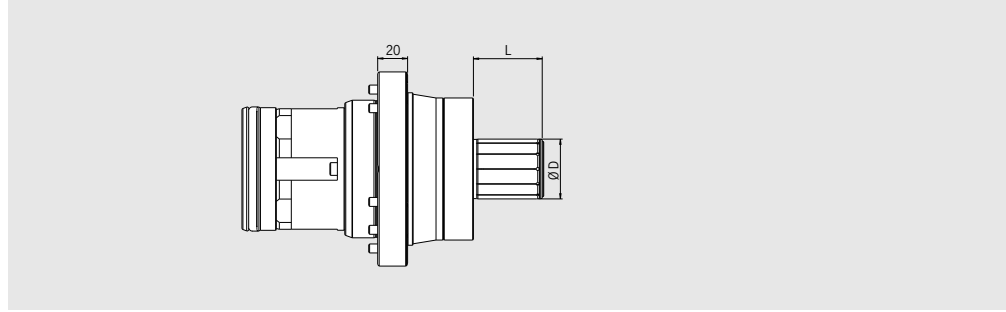
- Clamping range - 0,03 / + 0,05 mm
- Precise center clamping for highest repeatability
- Fine balanced to < 1 g·mm
- Can be used individually

### Note:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

SDA 翰默带自动夹持系统的动平衡转换套 SDA balancing adapter with automatic clamping system	内孔直径 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]	夹持长度 L [mm] Clamping length L [mm]
订货号/Order No.		
80.201.SDA08.00	$\varnothing 8,0$	2 x D
80.201.SDA10.00	$\varnothing 10,0$	2 x D
80.201.SDA12.00	$\varnothing 12,0$	2 x D
80.201.SDA14.00	$\varnothing 14,0$	2 x D
80.201.SDA16.00	$\varnothing 16,0$	2 x D
80.201.SDA18.00	$\varnothing 18,0$	2 x D
80.201.SDA20.00	$\varnothing 20,0$	1 x D
80.201.SDA22.00	$\varnothing 22,0$	2 x D
80.201.SDA25.00	$\varnothing 25,0$	1 x D
80.201.SDA27.00	$\varnothing 27,0$	2 x D
80.201.SDA30.00	$\varnothing 30,0$	1 x D
80.201.SDA32.00	$\varnothing 32,0$	2 x D
80.201.SDA35.00	$\varnothing 35,0$	1 x D
80.201.SDA40.00	$\varnothing 40,0$	1 x D
80.201.SDA45.00	$\varnothing 45,0$	1 x D
80.201.SDA50.00	$\varnothing 50,0$	1 x D
80.201.SDA55.00	$\varnothing 55,0$	1 x D
80.201.SDA60.00	$\varnothing 60,0$	1 x D
80.201.SDA1Z.00	$\varnothing 1"$	2 x D
80.201.SDA11/4Z.00	$\varnothing 11/4"$	1 x D
80.201.SDA11/2Z.00	$\varnothing 11/2"$	1 x D
80.201.SDA17/8Z.00	$\varnothing 17/8"$	1 x D
80.201.SDA2Z.00	$\varnothing 2"$	2 x D

## SDA 动平衡转换套 (自动型) SDA BALANCING ADAPTER (AUTOMATIC)



带芯轴的自动型动平衡转换套, 优化的夹持长度适用于内孔直径从 $\varnothing 16$  至 $\varnothing 60$  mm和3/4"至2"的面铣刀

- 夹持范围 - 0,03 / + 0,05 mm
- 精确的同心夹持获得很高的重复精度
- 精确动平衡至 < 1 g·mm
- 单独使用

### 注意:

转换套仅适用于翰默 HAIMER 的动平衡机

Automatic balancing adapter with mandrel for inner diameter with bore of  $\varnothing 16$  up to  $\varnothing 60$  mm and 3/4" up to 2". Suitable for face mills with optimised clamping length.

- Clamping range - 0,03 / + 0,05 mm
- Precise centre clamping for highest repeatability
- Fine balanced to < 1 g·mm
- Can be used individually

### Attention:

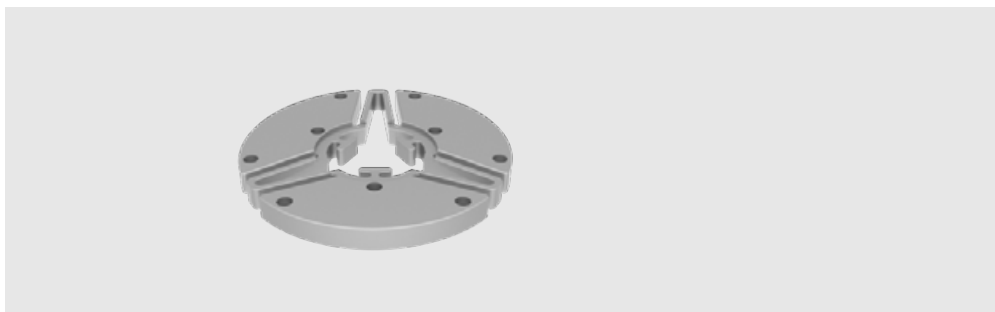
Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

SDA 翰默带自动夹持系统的动平衡转换套 SDA balancing adapter with automatic clamping system	内孔直径 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]	夹持长度 L [mm] Clamping length L [mm]
订货号/Order No.		
80.201.SDA16.02	$\varnothing 16,00$	16,00
80.201.SDA22.02	$\varnothing 22,00$	18,00
80.201.SDA27.02	$\varnothing 27,00$	20,00
80.201.SDA32.02	$\varnothing 32,00$	23,00
80.201.SDA40.02	$\varnothing 40,00$	26,00
80.201.SDA50.02	$\varnothing 50,00$	29,00
80.201.SDA60.02	$\varnothing 60,00$	39,00
80.201.SDA3/4Z.02	$\varnothing 3/4"$ (19,05 mm)	17,05
80.201.SDA1Z.02	$\varnothing 1"$ (25,40 mm)	17,05
80.201.SDA11/4Z.02	$\varnothing 1 1/4"$ (31,75 mm)	17,05
80.201.SDA11/2Z.02	$\varnothing 1 1/2"$ (38,10 mm)	23,40
80.201.SDA17/8Z.02	$\varnothing 1 7/8"$ (47,625 mm)	23,40
80.201.SDA2Z.02	$\varnothing 2"$ (50,80 mm)	23,40

## SAB 动平衡转换套 (自动型)

### SAB BALANCING ADAPTER (AUTOMATIC)

#### SAB 01



带弹簧垫片的自动型动平衡转换套, 适用于内孔直径从 $\varnothing 120$  至 $\varnothing 250$  mm的回转体

- 夹持范围 - 0,15 / + 0,8 mm
- 精确的同心夹持获得很高的重复精度
- 精确动平衡至  $< 1 \text{ g}\cdot\text{mm}$
- 单独使用

#### 注意:

转换套仅适用于翰默 HAIMER 的动平衡机

Automatic balancing adapter with spring washer for inner diameter with bore of  $\varnothing 120$  up to  $\varnothing 250$  mm

- Clamping range - 0,15 / + 0,8 mm
- Precise center clamping for highest repeatability
- Fine balanced to  $< 1 \text{ g}\cdot\text{mm}$
- Can be used individually

#### Note:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

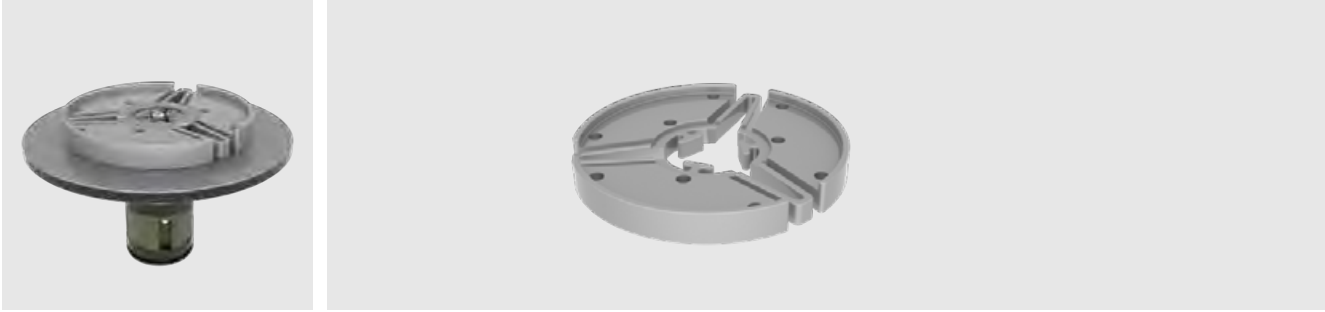
SAB 自动夹持型动平衡转换套 SAB balancing adapter with automatic clamping system	弹簧垫片 Spring washer	内孔 $\varnothing D$ [mm] Bore $\varnothing D$ [mm]
订货号/Order No.		可以定制/on request
<b>SAB 01, 夹持范围/Clamping range 120-250 mm</b>		
<b>80.201.SAB</b>	<b>80.201.SAB01.120</b>	$\varnothing 120$
	<b>80.201.SAB01.127</b>	$\varnothing 127$
	<b>80.201.SAB01.150</b>	$\varnothing 150$
	<b>80.201.SAB01.175</b>	$\varnothing 175$
	<b>80.201.SAB01.203</b>	$\varnothing 203$
	<b>80.201.SAB01.250</b>	$\varnothing 250$



应用案例

Application example

## SAS 动平衡转换套 (自动型) SAS BALANCING ADAPTER (AUTOMATIC) SAS 01



带弹簧垫片的自动型动平衡转换套, 适用于外圆直径从 $\varnothing 120$  至 $\varnothing 250$  mm的回转体

- 夹持范围 - 0,15 / + 0,8 mm
- 精确的同心夹持获得很高的重复精度
- 精确动平衡至 < 1 g·mm
- 单独使用

### 注意:

转换套仅适用于翰默 HAIMER 的动平衡机

Automatic balancing adapter with spring washer for outside diameter of  $\varnothing 120$  up to  $\varnothing 250$  mm

- Clamping range - 0,15 / + 0,8 mm
- Precise center clamping for highest repeatability
- Fine balanced to < 1 g·mm
- Can be used individually

### Note:

Adapters only to be used with original HAIMER Tool Dynamic Balancing Machines

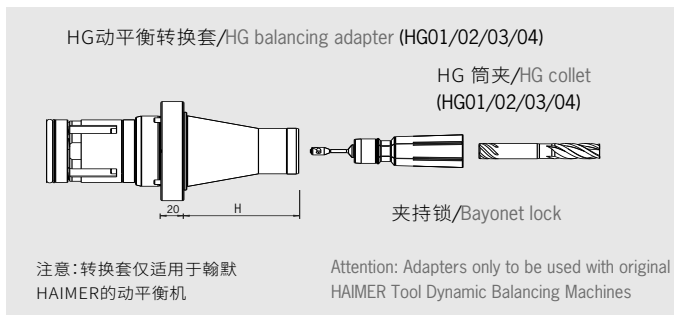
SAS 自动夹持型动平衡转换套 SAS balancing adapter with automatic clamping system	弹簧垫片 Spring washer	外径 $\varnothing D$ [mm] Spindle $\varnothing D$ [mm]
订货号/Order No.		可以定制/on request
<b>SAS 01, 夹持范围/Clamping range 120–250 mm</b>		
<b>80.201.SAS</b>	<b>80.201.SAS01.120</b>	$\varnothing 120$
	<b>80.201.SAS01.127</b>	$\varnothing 127$
	<b>80.201.SAS01.150</b>	$\varnothing 150$
	<b>80.201.SAS01.175</b>	$\varnothing 175$
	<b>80.201.SAS01.203</b>	$\varnothing 203$
	<b>80.201.SAS01.250</b>	$\varnothing 250$



### 应用案例

Application example

# HG动平衡转换套 HG BALANCING ADAPTER



### 针对直柄刀具的动平衡转换套

- 自动高效地夹持直柄刀具
- 可夹持公差达到 h8 的圆柱柄刀具
- 可按要求订作最大的夹持直径达到 40mm 的转换套

动平衡转换套可更换高精度的夹套并且自动夹持。从现在起您可以直接夹持直柄刀具做动平衡而不需要任何附件。

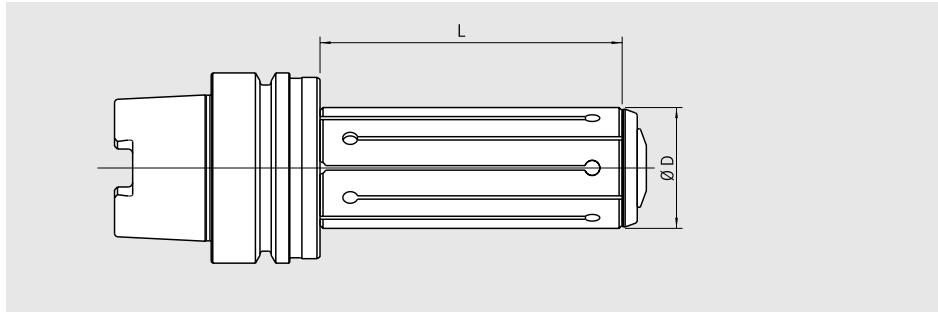
### Balancing adapter for tools with shank

- For efficient and automatic clamping of tools with shank
- For cylindrical shanks up to tolerance h8
- Available with shank diameter up to 40 mm upon request

Balancing adapter with exchangeable high precision collets (system HG) and automatic clamping. From now on you can clamp your shank-tools directly in the balancing adapter without any accessories.

HG-转换套/HG adapter 订货号/Order No.	筒夹/Collet 订货号/Order No.	夹持范围 D/Clamping range D	高度 H/Height H
<b>HG01</b>	<b>HG01</b>	<b>Ø 2-9,25 mm</b>	
<b>80.201.HG01.00</b>	<b>80.201.HG01.02</b>	2 mm	80 mm
	<b>80.201.HG01.02.5</b>	2,5 mm	80 mm
	<b>80.201.HG01.03</b>	3 mm	80 mm
	<b>80.201.HG01.03.5</b>	3,5 mm	80 mm
	<b>80.201.HG01.04</b>	4 mm	80 mm
	<b>80.201.HG01.04.5</b>	4,5 mm	80 mm
	<b>80.201.HG01.05</b>	5 mm	80 mm
	<b>80.201.HG01.05.5</b>	5,5 mm	80 mm
	<b>80.201.HG01.05.6</b>	5,6 mm	80 mm
	<b>80.201.HG01.06</b>	6 mm	80 mm
	<b>80.201.HG01.06.3</b>	6,3 mm	80 mm
	<b>80.201.HG01.07</b>	7 mm	80 mm
	<b>80.201.HG01.07.1</b>	7,1 mm	80 mm
	<b>80.201.HG01.08</b>	8 mm	80 mm
	<b>80.201.HG01.09</b>	9 mm	80 mm
	<b>80.201.HG01.09.25</b>	9,25 mm	80 mm
<b>HG02</b>	<b>HG02</b>	<b>Ø 10-14 mm</b>	
<b>80.201.HG02.00</b>	<b>80.201.HG02.10</b>	10 mm	80 mm
	<b>80.201.HG02.11</b>	11 mm	80 mm
	<b>80.201.HG02.12</b>	12 mm	80 mm
	<b>80.201.HG02.12.5</b>	12,5 mm	80 mm
	<b>80.201.HG02.13</b>	13 mm	80 mm
	<b>80.201.HG02.14</b>	14 mm	80 mm
<b>HG03</b>	<b>HG03</b>	<b>Ø 16-20 mm</b>	
<b>80.201.HG03.00</b>	<b>80.201.HG03.16</b>	16 mm	80 mm
	<b>80.201.HG03.18</b>	18 mm	80 mm
	<b>80.201.HG03.20</b>	20 mm	80 mm
<b>HG04</b>	<b>HG04</b>	<b>Ø 20-32 mm</b>	
<b>80.201.HG04.00</b>	<b>80.201.HG04.20</b>	20 mm	100 mm
	<b>80.201.HG04.22</b>	22 mm	100 mm
	<b>80.201.HG04.25</b>	25 mm	100 mm
	<b>80.201.HG04.27</b>	27 mm	100 mm
	<b>80.201.HG04.30</b>	30 mm	100 mm
	<b>80.201.HG04.32</b>	32 mm	100 mm

## 动平衡芯轴 BALANCING ARBOUR



- 平衡带有中心圆孔的回转体
- 高的夹持精度和重复精度
- 精细平衡<1gmm
- 单独使用

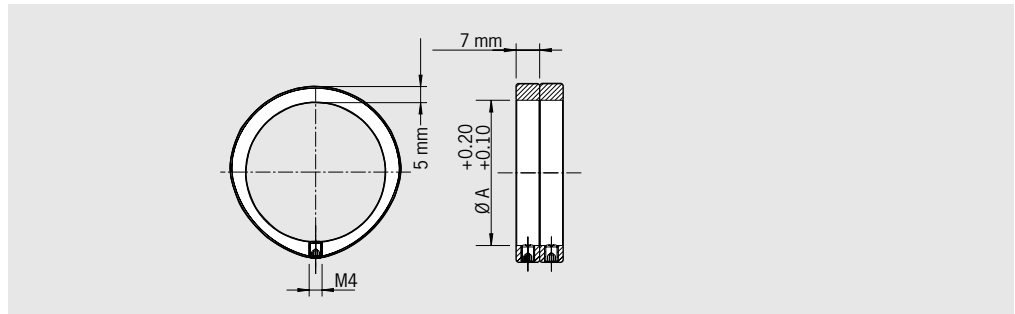
- To balance tools with cylindrical bore
- Precise centrally clamping for highest repeatability
- Fine balanced to < 1 gmm
- Individual useable

动平衡芯轴 Balancing arbour	夹套 Collet	夹持范围 Ø D Clamping range Ø D	L L
订货号/Order No.	订货号/Order No.		
<b>DG07, 夹持范围/Clamping range 25–34,5 mm</b>			
<b>80.250.A63.070</b>	80.250.07.25	Ø 25–25,5 mm	100 mm
	80.250.07.26	Ø 26–26,5 mm	100 mm
	80.250.07.28	Ø 28–28,5 mm	100 mm
	80.250.07.30	Ø 30–30,5 mm	100 mm
	80.250.07.32	Ø 32–32,5 mm	100 mm
	80.250.07.34	Ø 34–34,5 mm	100 mm
<b>DG08, 夹持范围/Clamping range 35–44,5 mm</b>			
<b>80.250.A63.080</b>	80.250.08.35	Ø 35–35,5 mm	100 mm
	80.250.08.36	Ø 36–36,5 mm	100 mm
	80.250.08.38	Ø 38–38,5 mm	100 mm
	80.250.08.40	Ø 40–40,5 mm	100 mm
	80.250.08.42	Ø 42–42,5 mm	100 mm
	80.250.08.44	Ø 44–44,5 mm	100 mm
<b>DG09, 夹持范围/Clamping range 45–54,5 mm</b>			
<b>80.250.A63.090</b>	80.250.09.45	Ø 45–45,5 mm	125 mm
	80.250.09.48	Ø 48–48,5 mm	125 mm
	80.250.09.50	Ø 50–50,5 mm	125 mm
	80.250.09.52	Ø 52–52,5 mm	125 mm
	80.250.09.54	Ø 54–54,5 mm	125 mm
<b>DG10, 夹持范围/Clamping range 55–64,5 mm</b>			
<b>80.250.A63.100</b>	80.250.10.55	Ø 55–55,5 mm	135 mm
	80.250.10.58	Ø 58–58,5 mm	135 mm
	80.250.10.60	Ø 60–60,5 mm	135 mm
	80.250.10.62	Ø 62–62,5 mm	135 mm
	80.250.10.65	Ø 65–65,5 mm	135 mm

订购时需同时订购动平衡芯轴和筒夹  
By ordering you need one balancing arbour and one collet



## 动平衡环 BALANCING RINGS



适用于带有圆柱外径 (diam.A) 的刀具系统做精细动平衡。

动平衡环有一个自身设定的不平衡量, 通过固定到不同角度来补偿整个刀具系统的不平衡量。

必须用 2 个平衡环来调节一个平衡面。

- 快速精确地进行平衡
  - 对刀具系统没有损伤
  - 根据需要可进行重复操作
  - 可通过螺丝进行简单的固定
  - 适用于各种品牌的刀具系统
  - 动平衡机指定环的位置
- 发货时包含: 2个动平衡环, 含支紧螺钉, 不包含扳手

For fine-balancing of all tool holders with cylindrical outer diameter (diam. A).

The balancing index rings have a defined unbalance in themselves. They are turned in such a position that the unbalance of the tool holder will be compensated. There are always 2 rings needed per balancing plane.

- Balancing quickly and precisely
  - No damage of tool holder
  - Can be repeated as often as necessary
  - Simply fixed by clamping screw
  - Suitable for tool holders of all brands
  - The balancing machine determines the position of the rings
- Included in delivery: 2 balancing rings with clamping screws without hex wrench

订货号/Order No.	Ø A [mm]	不平衡量 <sup>1)</sup> unbalance	最高转速 rpm [1/min]
79.350.15	15	14 g·mm	max. 55.000
79.350.16	16	14 g·mm	max. 55.000
79.350.17	17	16 g·mm	max. 55.000
79.350.18	18	17 g·mm	max. 55.000
79.350.19	19	19 g·mm	max. 55.000
79.350.20	20	21 g·mm	max. 55.000
79.350.22	22	23 g·mm	max. 55.000
79.350.23	23	25 g·mm	max. 55.000
79.350.24	24	27 g·mm	max. 55.000
79.350.25	25	28 g·mm	max. 55.000
79.350.26	26	32 g·mm	max. 50.000
79.350.27	27	32,5 g·mm	max. 50.000
79.350.28	28	34 g·mm	max. 50.000
79.350.30	30	37 g·mm	max. 45.000
79.350.32	32	43 g·mm	max. 45.000
79.350.34	34	46 g·mm	max. 40.000
79.350.35	35	48 g·mm	max. 40.000
79.350.36	36	51 g·mm	max. 40.000
79.350.38	38	56 g·mm	max. 35.000
79.350.40	40	60 g·mm	max. 35.000
79.350.42	42	65 g·mm	max. 35.000
79.350.43	43	69 g·mm	max. 35.000
79.350.44	44	72 g·mm	max. 35.000
79.350.46	46	80 g·mm	max. 35.000
79.350.48	48	85 g·mm	max. 30.000
79.350.50	50	90 g·mm	max. 30.000
79.350.52	52	100 g·mm	max. 30.000
79.350.53	53	100 g·mm	max. 30.000
79.350.54	54	103 g·mm	max. 30.000

订货号/Order No.	Ø A [mm]	不平衡量 <sup>1)</sup> unbalance	最高转速 rpm [1/min]
79.350.55	55	105 g·mm	max. 30.000
79.350.56	56	110 g·mm	max. 30.000
79.350.58	58	120 g·mm	max. 30.000
79.350.60	60	128 g·mm	max. 25.000
79.350.62	62	132 g·mm	max. 25.000
79.350.63	63	135 g·mm	max. 25.000
79.350.64	64	147 g·mm	max. 25.000
79.350.65	65	147 g·mm	max. 25.000
79.350.66	66	145 g·mm	max. 25.000
79.350.68	68	161 g·mm	max. 25.000
79.350.70	70	165 g·mm	max. 25.000
79.350.72	72	170 g·mm	max. 25.000
79.350.74	74	184 g·mm	max. 25.000
79.350.76	76	186 g·mm	max. 20.000
79.350.78	78	206 g·mm	max. 20.000
79.350.80	80	215 g·mm	max. 20.000
79.350.82	82	213 g·mm	max. 20.000
79.350.84	84	229 g·mm	max. 20.000
79.350.86	86	249 g·mm	max. 20.000
79.350.87	87	256 g·mm	max. 20.000
79.350.88	88	251 g·mm	max. 20.000
79.350.89	89	260 g·mm	max. 20.000
79.350.90	90	265 g·mm	max. 20.000
79.350.92	92	275 g·mm	max. 20.000
79.350.94	94	286 g·mm	max. 20.000
79.350.96	96	300 g·mm	max. 20.000
79.350.98	98	305 g·mm	max. 20.000
79.350.100	100	320 g·mm	max. 15.000
79.350.125	125	500 g·mm	max. 15.000

## 动平衡螺钉套装 SET OF BALANCING SCREWS



动平衡螺钉适用于各种带 M6 动平衡螺纹孔的刀具系统 (例如翰默 HAIMER 的热缩刀柄)

For fine-balancing of all tool holders with balancing threads M6 (e.g. shrink fit chucks from HAIMER).

螺钉的重量经过精确校准。将之通过螺纹旋入刀具系统的平衡螺孔中, 这样可以补偿整个刀具系统的不平衡量。

The screws have different weights in a fine graduation. They are screwed into the balancing threads of the tool holder so that their weight compensates the unbalance of the tool holder.

- 每套包括11种不同尺寸和重量的螺钉
- 螺钉旋入螺纹孔的底部, 不需要其它附加螺钉固定
- 快速、精确平衡
- 对刀具系统没有损伤
- 根据需要可重复进行
- 适合各种品牌的刀具系统
- 由动平衡机来计算需要螺钉的重量 (例如翰默 HAIMER 动平衡机)
- 发货时包含: 盒子中装有 11x10 个动平衡螺钉、螺丝扳手

- Set consisting of screws of 11 different sizes and weights
- Screws are screwed to the ground of the thread and tightened. No additional fixing of screws necessary.
- Balancing quickly and precisely
- No damage of tool holders
- Can be repeated as often as necessary
- Suitable for tool holders of all brands
- The balancing machine calculates the necessary weight of the screws (e.g. HAIMER TOOL DYNAMIC)

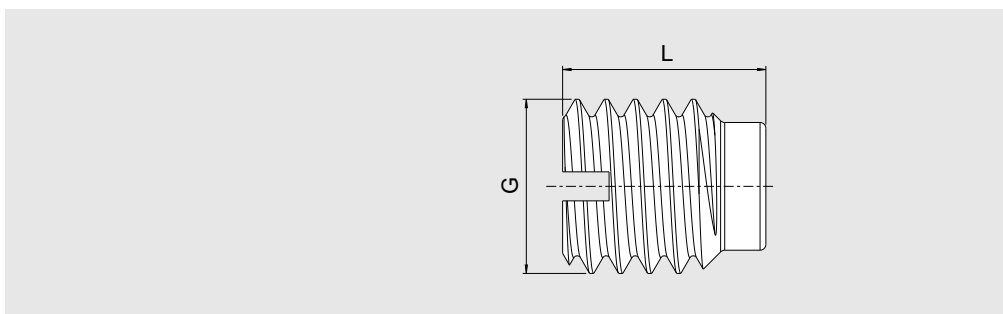
- Included in delivery: Case with 11 x 10 balancing screws, screw driver

平衡螺钉套装/Set of balancing screws

订货号/Order No.

80.203.00

## 重金属的动平衡螺钉 HEAVY METAL BALANCING SCREWS



重金属的动平衡螺钉 (M6) 用于整个刀具系统的手动平衡修正

Heavy metal balancing screws (thread M6) for manual balancing of tool holders.

长度/Length L [mm]	07	07	08	08	10	10
尺寸/Size G [mm]	M6x7	M6x7 (5 个/5 pcs.)	M6x8	M6x8 (5 个/5 pcs.)	M6x10	M6x10 (5 个/5 pcs.)
质量/Mass	约 2,3g	约 2,3g	约 2,7g	约 2,7g	约 3,5g	约 3,5g
订货号/Order No.	85.502...	.7.0 .7.0.SET	.8.0 .8.0	.8.0 .8.0.SET	.10.0 .10.0	.10.0 .10.0.SET

# 对刀 (刀具预调) 技术

## PRESETTING TECHNOLOGY

对刀技术  
Presetting Technology



<b>概要 / General</b>	
选用翰默对刀技术的10大理由 Top 10 Reasons to use HAIMER Microset Presetting Technology	653
产品精度以及生产力 / Precision and Productivity in Production	654
刀具预调仪-您的收益 / Tool Presetters – Your Benefits	655
UNO-系列产品-配置和功能 / UNO series – Equipment and Functionality	656
VIO-系列产品-配置和功能 / VIO series – Equipment and Functionality	658
<b>数据交换及传输 / Data Exchange and Data Transfer</b>	
RFID 芯片系统 / RFID – Data Carrier System	659
HQR-连接 / HQR-Connect	660
HRFID-连接 / HRFID-Connect	661
<b>刀具预调仪-UNO系列 / Tool Presetters – UNO Series</b>	
UNO smart	662
UNO premium	664
UNO autofocus	666
UNO automatic drive	668
<b>刀具预调仪-VIO系列 / Tool Presetters – VIO Series</b>	
VIO linear	670
VIO linear toolshrink	672
<b>预调软件 / Software</b>	
Microvision	674
<b>附件 / Accessories</b>	
转换套及主轴 / Adapters and Spindles	675
<b>技术参数 / Technical data</b>	
	680

备注：刀具预调仪=对刀仪；适配器=转换套=变径套；



## 选用翰默对刀仪的十大理由

## Top 10 reasons to use HAIMER Microset Presetting Technology

1

### 提高机床利用率

减少调试时间高达70%，意味着机床的利用率提高了。

### Increased Machine Utilization

Reducing set-up time by as much as 70% or more translates to more machine „up-time“.

2

### 更快的调试

即使调试是在线状态下，使用对刀仪也比在机床内手动测量或使用激光测量更快。

### Faster Set-ups

Even if set-ups are not being performed offline, using a tool presetter is significantly faster than setting tools in the machine manually or with a laser.

3

### 减少报废

翰默对刀仪使用光学相机测量，其测量精度比手动调试的方式更高。而自动聚焦和测量的选项将进一步减少测量误差，避免操作人员的影响。

### Reduced Scrap

Microset presettlers use optical cameras for measurement, which provide higher degrees of accuracy versus manual setting methods. Options like automatic focusing and measuring further reduce deviations in measurement, regardless of the operator.

4

### 延长刀具寿命

非关键刀具通常不测量其径跳误差。而这是可以用对刀仪方便地测量和统计的，从而防止将这些不精确的刀具装上机床，因此延长了刀具的寿命。

### Longer Tool Life

Runout that is not often inspected for non-critical assemblies can be measured and accounted for easily with a presetter, thereby extending tool life by preventing inaccurate tools from ever entering the machine.

5

### 避免撞刀

使用RFID芯片读写系统或者后处理软件的数据传输方式的选项，可以取消手动输入补偿值的方式。这将避免因为操作员错误输入补偿值而导致事故。

### Fewer Collisions

With optional data transmission methods like RFID or post-processing, the manual entry of offsets into the machine can be eliminated. This reduces errors that occur from operator's accidentally mistyping offset values.

6

### 比激光对刀仪更合算

机床产生铁屑时才会产生效益，而不是将他们用作测量设备。而且一台对刀仪可以服务10-30台机床，这比为每一台机床配一套激光对刀仪更合算。

### More Cost-Effective than Lasers

Machines make money when they are making chips and not being used as measuring devices. Furthermore, one presetter can manage 10–30 machines, which is more cost-effective than purchasing a laser for each machine.

7

### 一致性

每次都确保刀具被正确地调整到特定的公差范围内。

### Consistency

Confirmation that tools are set properly, within specified tolerances, every time.

8

### 简单易用

简单的软件为操作者简化操作流程，无需软件工程师的水准。

### Ease of Use

Simple software makes the process uncomplicated for all users. No software engineering degrees needed!

9

### 通用性

简易地预调来自各个供应商的各种刀具，例如：简单的立铣刀、可调式镗头、复杂的多刃面铣刀、PCD成型刀具、阶梯钻等。

### Universal

Easy to preset milling tools, adjustable boring heads, complicated multi-inserted face-mills, PCD form tools, step-drills, etc. from all makes and manufacturers.

10

### 工业4.0的成功

工业4.0的精髓就是收集各种信息并快速地自动交换，以优化加工流程。更智能的工厂需要能够接收和传送这些数据的技术，而现在翰默的对刀仪就能和各种数控机床的控制器及CAD/CAM系统交换数据。

### Industry 4.0 Success

Industry 4.0 is all about using gathered data to automate changes on the fly that optimise the machining process. The future smart factory will require technologies that can receive and transmit such data. HAIMER Microset tool presettlers are able to communicate (bi-directionally) with a variety of machine controls and CAD/CAM systems.

## 生产中的精度和效率 Precision and productivity in production



无论是刀具预调、热缩装拆、动平衡、检查还是测量——我们为各种尺寸的刀具和加工环境提供完美的解决方案。用我们的经验和丰富的产品为您提高产品质量和精度。

Whether it is **presetting, shrinking, balancing or checking and measuring** – we offer the perfect solutions for all tool sizes and **machine environments**. Improve the quality and precision of your workpieces with our know-how and wide range of products.



UNO系列产品 – 具有高科技特征的入门级刀具预调仪  
UNO series – unique high-tech features in entry level tool presetters.

# 刀具预调仪 – 您的收益 TOOL PRESETTERS – YOUR BENEFITS

## 节约时间和金钱, 提高工件质量 Save time and money, improve workpiece quality

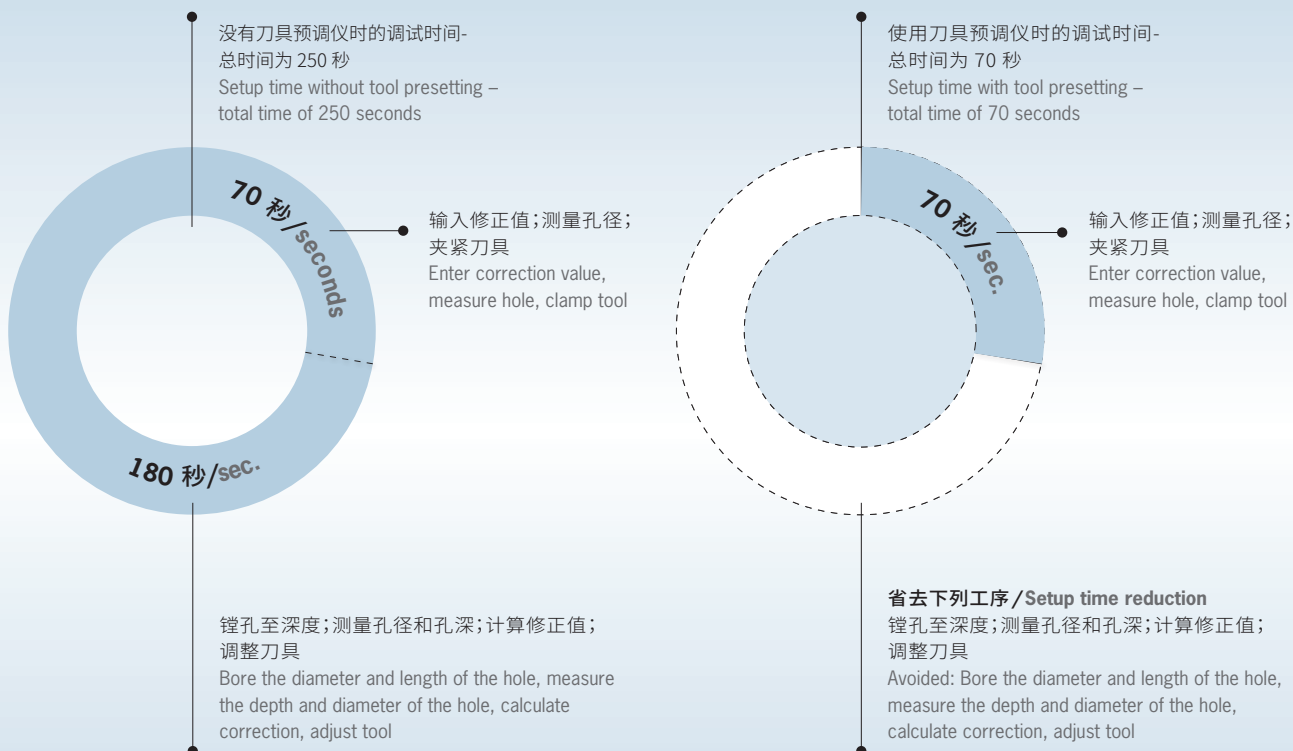
HAIMER Microset 翰默提供的高效刀具预调设备协助您优化加工流程。提高刀具寿命; 获得更好的工件表面质量和提高您生产中各种流程的工艺稳定性。

- 减少您的停机时间
- 减少您的刀具成本和废品率
- 提高您生产流程中的工艺稳定性
- 提高您的刀具寿命
- 获得稳定的产品质量

The efficient tool presetting equipment from HAIMER Microset optimises your machining processes from the ground up. Improve your tool life, achieve better surface finishes and boost overall process reliability in your production.

- Minimise the idle time of your machines
- Reduce scrap and tooling costs
- Increase process reliability in your production
- Improve your tool life
- Generate consistent quality in your products

## 最多可减少您70%的调试时间! Reduce up to 70% of your setup time!





## UNO-系列产品-配置和功能 UNO SERIES – EQUIPMENT AND FUNCTIONALITY

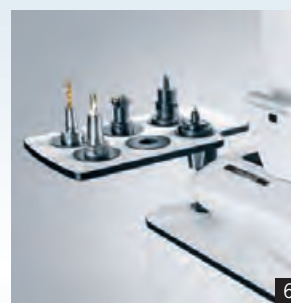
### UNO-系列产品-具有独特的高科技特征的入门级 对刀仪/UNO series – entry level tool presettters include high-tech options as standard



除了精度,速度和可靠性,UNO系列产品根据配置的不同,还有一些特征。

全新的符合先进的人机工程学的设计为对刀仪设置了新的标准。该对刀仪使用了高品质的配件,例如:来自SMC, Bosch Rexroth/THK, Heidenhain, IDS的配件。

**In addition to its precision, speed and reliability, the UNO series also includes numerous features in hardware.** The new design and improved ergonomics set the standard by using high-quality components from Festo/SMC, Bosch Rexroth/THK, Heidenhain, and IDS.



1: 用于设置车刀中心高的的相机系统/Camera system for setting the centre of rotation

2: 用于设置车刀中心高的的接触式测量系统/  
Tactile measurement of the centre of rotation

3: 触摸释放系统, 无需按钮, 易于操作/  
Release-by-touch function, easy to operate without buttons

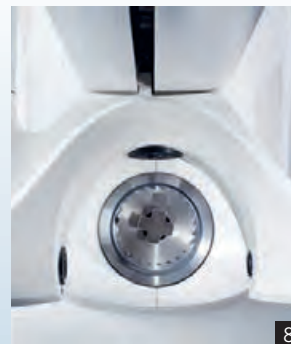
4: 实用的系统工作台面带有3个抽屉, 一扇门和内置油盘, 还有3个维修孔 (在所有的外立面上) / Useful system cabinet with 3 drawers, 1 door and internal oil tray.  
Also includes 3 maintenance doors (on all sides)

5: 按键区和微米精度级的微调系统/Keypad and  $\mu\text{m}$ -precise adjustment

6: 可以旋转150°的适配器托盘/150° swivelling adapter storage

7+ 8: 基于卡规原理的最大测量直径为  $\varnothing 100 \text{ mm}$  /

Measuring based on the snap gauge principle for diameters up to 100 mm



## UNO-系列产品-最新的自动聚焦型和自动驱动型的特征 UNO SERIES – NEW AUTOFOCUS AND AUTOMATIC DRIVE FEATURES

### UNO 自动聚焦和自动驱动 – 高效和精确 UNO autofocus & automatic drive – efficient and precise

UNO自动聚焦和自动驱动系列产品为高级的测量提供决定性的优势。  
选择您的对刀仪-满足您的需求。

#### 亮点:

通过使用全自动/半自动的对刀仪,减少操作人员的工作负荷。

The autofocus and automatic drive models of the UNO series provide unique advantages for tool measurement at the highest level.

Choose the presetter that meets your needs.

#### Highlights

Reduce the work load of the operator through the automation of presetting, with full or partially automated measuring functions.



#### autofocus 自动聚焦/autofocus

可以自动聚焦于刀刃。电机驱动的主轴, 24英寸10点触摸屏和实用的系统工作台是标配。

Automatically focuses on the cutting edge. Motorised spindles with convenient system cabinet and 24", 10 point touch-screen as standard.



#### automatic drive 自动驱动/automatic drive

可以无人全自动地对刀和测量, CNC-3轴数控。24英寸触摸屏和实用的系统工作台是标配。

Fully automatic tool presetting and measurement independent of the operator (CNC-controlled, 3-axis), with convenient system cabinet and 24" touch display as standard.

## VIO-系列产品-配置和功能 VIO SERIES – EQUIPMENT AND FUNCTIONALITY

# VIO *linear* 功能非常全和使用很方便 VIO *linear* – maximum ease of use and functionality

全自动的测量流程协助您在生产中优化工艺稳定性。  
整体配置的理念使该对刀仪易于融入各种生产流程,包括您现有的。

非常稳定及精确

VIO *linear*系列产品的FEM热优化的稳定的铸铁结构确保精确的测量结果和设备的耐用性。除此之外,高动态和无磨损的直线电机驱动确保了长期的精度和品质。平行的驱动和导向系统确保了力的传导和±2 μm的重复测量精度。

亮点

- 由于刚性很好,即使在最大的允许负荷下,变形量仍然很小
- FEM热优化的稳定的铸铁结构
- 最大的刀具重量为160公斤
- 独特的直线电机驱动确保快速,安静和高精度地接近刀刃

Optimise process reliability in your production with fully automatic measurement processes. The open device platform allows for the integration of both new and existing production processes.

Maximum stability and precision

The FEM-optimised, thermally stable cast iron construction of the VIO *linear* series ensures accurate measuring results and equipment longevity. Additionally, highly dynamic, wear-free linear drives ensure accurate longterm quality. The parallel drive and guidance system ensures optimal distribution of forces and guarantees ±2 μm measurement repeatability.

Highlights

- Torsionally stiff even under the highest loads
- FEM-optimised and thermally stable cast iron construction
- Maximum tool weight 160 kg
- Fast, silent and high accurate cutting edge approach by unique linear drive



行业内的创新标杆体现在:

- 全自动的测量循环带来很简便的操作
- 高品质的零件来自Heidenhain, Bosch Rexroth
- 免维护的直线电机驱动实现快速和高精度的定位
- 用户友好型操作控制板非常灵活
- 强大的软件Microvision VIO软件
- 触摸释放功能
- 触摸测量功能(选配)

Worldwide Leader in innovation:

- Fully automatic measuring cycles for maximum operating convenience
- High quality components from Heidenhain, Bosch Rexroth/THK
- Maintenance free linear drives for higher speed, low noise and highly accurate positioning
- User-friendly operating panel ensures ultimate ergonomics
- High power software Microvision VIO
- Release-by-touch
- Measure-by-touch (optional)



1



2



3

1: 第二相机用于测量车刀的中心高度(选配)/Second camera for measuring the centre of rotation (optional)  
2 + 3: 先进的直线电机技术全自动地驱动各轴/Fully automatic axis drive via modern linear technology

## 数据交换和传输 DATA EXCHANGE AND DATA TRANSFER

# 数据交换和传输至机床 Data exchange and data transfer to the machine tool

### 后处理器/网络/USB优盘

经过后处理的数据通过网络、优盘或者RS232接口传输至相关的数据交换盘

### 双向接口

通过双向接口，各种翰默对刀仪都可以将刀具数据提供给各种的软件（刀具管理软件；数据库；CAD/CAM），不管它是标准方案还是定制方案。

(UNO SMART系列对刀仪无法提供)

### 后处理器和双向接口

HAIMER翰默\*对刀仪兼容各种机床商生产的机床。测量数据可以被快速的传输至机床。(UNO SMART系列对刀仪无法提供)

### HQR

通过HQR USB接口进行轻松的数据输入。使用扫描仪扫描对刀仪打印出的标签上的二维码，输入数据。不需要操作者的手动操作。

\*对刀仪可以通过优盘、网络或者RS232接口将测量数据快速的传输至Siemens, Heidenhain, FANUC, MAPPS或者其他们的控制系统。

### Post-processor / Ethernet / USB

Post-processed data is transferred to the relevant data exchange drive either via USB or Ethernet LAN.

### Interfaces

All presetting units can send and receive tool data to nearly all software (tool management, databases, CAD/CAM) via a bidirectional interface – regardless of whether it is a standard or a customized solution.

(Not available for UNO smart)

### Post-processor and interface\*

HAIMER Microset tool presetting devices are compatible with machine tools from all manufacturers. (Not available for UNO smart)

### HQR

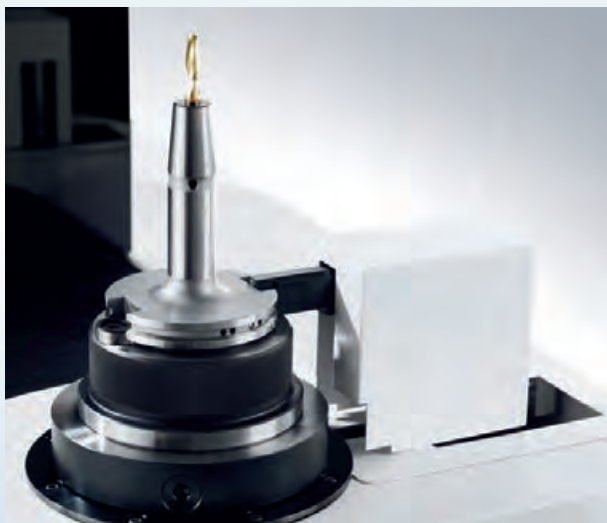
Easy data input via HQR USB plug in. Input your data at the machine tool via scan of a code on the label, printed on the presetter before, without manual operation of the operator.

\*The measured data is quickly transferred directly to the machine tool. Control systems from Siemens, Heidenhain, FANUC, MAPPS and many others can be connected by USB data storage, Ethernet LAN or RS232

## RFID – 数据传输系统 RFID – data carrier system

- 客户特定数据的存储
- 测量过程中的综合数据检索和存储
- 各种流行的RFID系统的整合
- 针对各种流行的刀柄系统，读写头能够自动或者手动定位  
(例如：Balluff, Euchner, Mazak, Pepperl & Fuchs, Turck)

- Customer-specific data storage
- Measurement processes with integrated data retrieval and storage
- Integration of all popular RFID systems
- The read/write head can be positioned automatically and manually for all popular tool holder systems (e.g. Balluff, Euchner, Mazak, Pepperl & Fuchs, Turck)



读写头的自动定位  
Automatic positioning of the read/write head



读写头的手动定位  
Manual positioning of the read/write head

## 数据交换和传输 DATA EXCHANGE AND DATA TRANSFER

### HQR-连接 / HQR-Connect

通过HQR-连接，对刀仪可以编辑和打印出一个含有刀具数据的二维码，并通过机床上的扫码枪扫描读取后直接发送给机床的控制器。

对刀仪可以生成一个包含所有必需的实际测量数据以及刀具特性的二维码。通过HQR-连接，储存在二维码中的数据被自动传输到机床的数据处理单元中。HQR连接系统通过USB连接方式与机床控制单元连接。机床控制单元通过扫码枪读取二维码，并接受数据。

#### 优点：

- 不需要网络连接
- 比手动输入节省高达45%的时间
- 防止手动输入引起的误输入错误
- 任何时候均可以升级

(不适用于UNO smart)

With HQR-Connect tool data can be edited and printed as QR Code on the presetter, then be read by a scanner at the machine tool and directly sent to the machine control.

The tool presetter creates a QR code which contains all the necessary actual values and other features of the tool. Through HQR-Connect the data stored in the QR code is automatically transferred into the data fields of the machine tool. The HQR-Connect System is connected to the machine control via USB. At the machine control, the generated QR code is read with a scanner and the data is transmitted.

#### Your benefits:

- Network connectivity is not necessary
- Up to 45% time savings compared to manual entry
- Elimination of manual input errors or transposed digits
- Upgrades are possible at any time

(Not available for UNO smart)

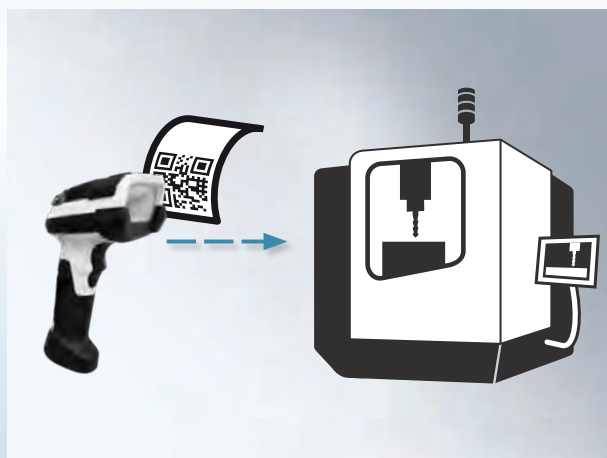
## HQR-连接 – 功能介绍 HQR-Connect – Operating Principle

- HQR系统的工作原理类似一个外接 (USB) 键盘
- 数据会自动传输到控制系统，因此可以避免读写错误
- HQR-系统工作环境：Windows
- 系统包含一个电子的二维码扫码枪
- 可用于各种允许通过外部键盘数据输入的带USB接口的控制系统

- The HQR-system works like an external (USB) keyboard
- The data is automatically sent to the control system, therefore reading or typing errors are eliminated
- The configuration of the HQR-system is done with a Windows based software
- The system consists of electronics and the QR code scanner
- Available for all control units with USB ports that allow data input via an external keyboard



对刀仪测量刀具后，会打印一个带二维码的标签  
After measuring the tool, a label with the QR code is printed



HQR-系统与机床的控制系统连接。扫描仪读取二维码并直接传输刀具数据到控制系统。/The HQR system is connected to the control system of the machine. It reads the QR code and transmits the tool data directly to the control system

## 数据交换和传输 DATA EXCHANGE AND DATA TRANSFER

### HRFID-连接 / HRFID-Connect

使用HRFID-连接, 对刀仪测量的刀具数据可以储存在一个RFID数据芯片中, 之后通过机床边上的RFID读取器读取并直接发送至机床控制器。

对刀仪测量的实际测量数值以及刀具的其他一些参数被存储在RFID芯片上。

通过USB连接方式, HRFID读取器与机床的控制系统相连接。通过HRFID-读取器, 芯片上的数据自动传输至机床的数据处理单元。

#### 优点:

- 不需要网络连接
- 比手动输入节省高达45%的时间
- 防止手动输入引起的误输入错误
- 任何时候均可以升级

(不适用于UNO smart)

With HRFID-Connect tool data can be written on a RFID-data carrier on the presetter, then be read by a RFID reader at the machine tool and directly sent to the machine control.

The actual values measured on the tool presetter and other features of the tool are saved on the RFID data carrier. The HRFID-Connect System is connected to the control system of the machine via USB.

The data stored on the data carrier is automatically entered into the data fields of the machine tool via HRFID-Connect transfer.

#### Your benefits:

- Network connectivity is not necessary
- Up to 45% time savings compared to manual entry
- Elimination of manual input errors or transposed digits
- Upgrades are possible at any time

(Not available for UNO smart)

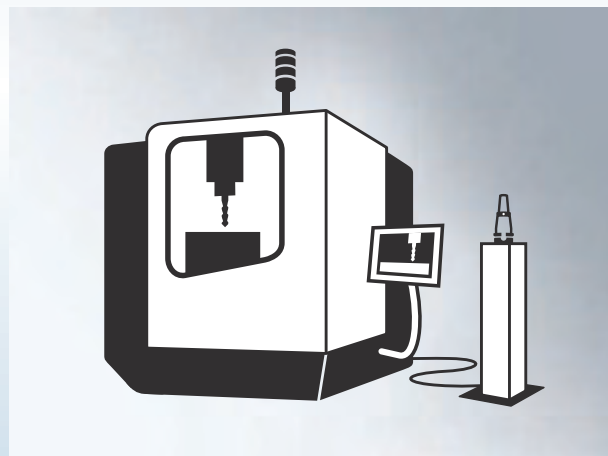
## HRFID-连接 – 功能介绍 HRFID-Connect – Operating Principle

- HRFID-系统 工作原理类似一个外接 (USB) 键盘
- 数据会自动传输到控制系统, 因此可以避免读写错误
- HRFID-系统工作环境: Windows
- 系统包含一个电子的RFID读取器
- 可用于各种允许通过外部键盘数据输入的带USB接口的控制系统

- The HRFID-system works like an external (USB) keyboard
- The data is automatically sent to the control system, therefore reading or typing errors are eliminated
- The configuration of the HRFID-system is done with a Windows based software
- The system consists of electronics and the RFID reader
- Available for all control units with USB ports that allow data input via an external keyboard



对刀仪测量刀具后, 数据传输到巴鲁夫的芯片内  
After measuring the tool, the data is transferred to the Balluff data carrier



机床边上也安装了RFID的读取器。通过读取巴鲁夫芯片内的内容, 然后直接将刀具的数据传输到机床的控制系统。

The RFID reader is connected to the machine control. It reads the Balluff data carrier and transmits the tool data directly into the control system of the machine

# UNO smart

## 智能入门级刀具预调仪

### Smart entry into tool presetting



图片显示的为：带选配的制动和分度机构的UNO smart 20/40  
Picture shows Uno smart 20/40 with optional locking indexing

## 刀具预调设备 – 手动版 TOOL PRESETTERS – MANUAL

UNO smart是我们的入门级设备,它占用空间更少并且更易于操作,同时保留高精度。

此设备适用于生产过程中的测量工作,其拥有很好的性价比优势

The UNO smart is our entry-level machine featuring a small footprint, user-friendly operation and high precision. It is particularly well suited for measurements right on the shop floor and has all this at an unbeatable price-performance ratio.

### 标准配置/Standard Equipment

- |                              |   |
|------------------------------|---|
| - 图像处理系统 Microvision SMART   | - Microvision SMART image processing system                           |
| - 手动 SK50 高精度主轴              | - SK50 high-precision spindle, manual                                 |
| - 稳固耐用的铸铁结构                  | - Robust, long-life cast iron construction                            |
| - 热优化的混合材料,更高的重复测量精度         | - Thermally optimised material combination for improved repeatability |
| - 手动操作                       | - Manual operation  |
| - 提供节能模式                     | - Energy-saving mode  |
| - 7英寸多触点触摸屏                  | - 7" multi-touch display  |
| - 可存储99个零点的内存                | - Memory for 99 zero points   |
| - 重复测量精度 $\pm 5 \mu\text{m}$ | - $\pm 5 \mu\text{m}$ repeatability                                   |

### 测量范围/Measurement range

- X轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	400 mm
- Z轴方向可测量的最大刀具长度/ Maximum tool length on Z-axis	400 / 700 mm
- 最大刀具重量/Maximum tool weight	20 kg
- 重量/Weight	20 40: 95 kg 20 70: 105 kg
- 订货号/Order No.	20 40: M-G1111 20 70: M-G1116

### 选项/Options

- 技术包:检测光,快速寻边器,触摸释放  
Technology package: Tool inspection light, edfinder, release-by-touch
- "smart pro"-包:检测光,快速寻边器,触摸释放功能,标准工作台配备3个可装载刀具或适配器的插孔  
"Smart pro" package: tool inspection light, edfinder, release-by-touch, base cabinet smart incl. adapter tray for 3 tools or adapters
- 4×90°分度功能和主轴制动/Indexing 4×90° and spindle brake
- 车刀包:配置百分表并带气动分度功能  
Turning package: dial gauge inclusive pneumatic indexing
- 手动微调/Manual fine adjustment
- 标签打印机/Label printer
- 校准调试包/Alignment and calibration-set
- Sigma 功能/Sigma function



图片显示的是包含“Smart-Pro”选项包的UNO smart对刀仪  
Picture shows UNO smart with Smart Pro package (optional)





## UNO premium

作为您机床辅助的高品质产品

The bestseller with high-quality components that complement your machine tool



## 刀具预调设备 – 手动版 TOOL PRESETTERS – MANUAL

### UNO premium – 各种用户的正确解决方案。

高标准的手动刀具预调仪。

操作者可以独立地完成测量工作并轻松地实现数据传输。

### UNO premium – The right solution for almost every user – the highest standard of manual tool presetting.

Operator independent measuring results, easy to use with digital data transfer capabilities.

#### 标准配置/Standard Equipment

- 图像处理系统 Microvision UNO
- 手动SK50超高精密主轴
- 稳固耐用的铸铁结构
- 热优化的混合材料, 更高的重复测量精度
- 手动控制
- 22"触摸显示屏
- Windows 10
- 高级工作台带6个适配器孔
- Sigma功能
- 可存储1000个零点和刀具的内存
- USB/网线数据输出
- 重复测量精度 ± 2 μm

- Microvision UNO image processing system
- SK50 ultra-high precision spindle, manual
- Robust, long-life cast iron construction
- Thermally optimised material combination for improved repeatability
- Manual operation
- 22" touchscreen
- Windows 10
- Premium base cabinet incl. storage for six adapters
- Sigma function
- Memory for 1.000 zero points and tools
- USB / LAN data output
- ± 2 μm repeatability

#### 测量范围/Measurement range

– X 轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	400 mm
– X 轴方向可使用卡规原理 测量的最大刀具直径/ Maximum snap gauge tool diameter on X-axis	100 mm
– Z 轴方向可以测量的最大刀具长度/ Maximum tool length on Z-axis	400 / 700 mm
– 最大刀具重量/Maximum tool weight	30 kg
– 重量/Weight	20 40: 240 kg 20 70: 255 kg
– 订货号/Order No.	20 40: M-G1180 20 70: M-G1190



#### 选项/Options

- 技术包: 检测光, 快速寻边器, 触摸释放功能/  
Technology package: Incident light, Edgfinder, release-by-touch
- 车床包: 4 × 90° 和 3 × 120° 分度功能, 第二相机/  
Turning package: 4 × 90° and 3 × 120° indexing, second camera
- 手动微调/Manual fine adjustment
- 标签打印机/Label printer
- 使用者管理/User management
- 手动RFID系统 (仅限于和高级专业包一起订购) /  
Manual RFID system (only combined with Premium-Pro package)
- 双向接口/Bidirectional interface
- 后处理软件/Post-processor
- 手动 ISS 主轴/Manual ISS spindle
- HQR-连接/HQR-Connect
- HRFID-连接/HRFID-Connect

# UNO autofocus

适用于多刃刀具测量  
Ideal for multi-edge tools



## 刀具预调仪 – 半自动 TOOL PRESETTERS – SEMI AUTOMATIC

**UNO autofocus – 高档次的测量仪器。**  
利用半自动主轴进行同一平面的多刀具测量

**UNO autofocus – The right presetter for demanding measurements.** Take advantage of full-automatic spindle operation with multiple tool measurements on one plane.

### 标准配置/Standard Equipment

- 图像处理系统Microvision UNO	- Microvision UNO image processing system
- SK50超高精密主轴, 自动聚焦	- SK50 ultra-high precision spindle, autofocus
- 稳固耐用的铸铁结构	- Robust, long-life cast iron construction
- 热优化的混合材料导致更好的重复测量精度	- Thermally optimised material combination for improved repeatability
- 电机驱动C轴微调	- Motorised fine adjustment of the C-axis
- 24"触摸显示屏	- 24" touchscreen
- 电机分度4 × 90°和3 × 120°	- 4 × 90° and 3 × 120° motor-driven indexing
- 气动主轴制动功能	- Pneumatic spindle brake
- 真空吸紧	- Vacuum clamping
- 高级工作台带6个适配器孔	- Premium base cabinet incl. storage for six adapters
- Sigma功能	- Sigma function
- 1000个零点、刀具和刀具清单的内存	- Memory for 1.000 zero points, tools and tool lists
- 通过优盘或者网络USB / LAN 输出数据	- USB / LAN data output
- 触摸释放功能	- Release-by-touch
- 快速寻边器	- Edgfinder
- 检测光	- Incident light
- 主轴跳动精度2 μm	- 2 μm spindle runout
- 重复测量精度± 2 μm	- ± 2 μm repeatability
- 标签打印机	- Label printer
- Windows 10	- Windows 10

### 测量范围/Measurement range

- X 轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	400 mm
- X 轴方向可使用卡规原理测量的最大刀具直径/ Maximum snap gauge tool diameter on X-axis	100 mm
- Z 轴方向可以测量的最大刀具长度/ Maximum tool length on Z-axis	400 / 700 mm
- 最大刀具重量/Maximum tool weight	30 kg
- 重量/Weight	20 40: 240 kg 20 70: 255 kg
- 订货号/Order No.	20 40: M-G1140 20 70: M-G1150

### 选项/Options

- 带自动识别适配器功能的ISS超高精度主轴/  
ISS-U universal ultra-high precision spindle with automatic adapter identification
- 手动微调/Manual fine adjustment
- 车床包: 电机驱动的4 × 90°和3 × 120°分度功能, 第二相机/Turning package: Second camera incl. indexing, 4 × 90°, and 3 × 120° motor driven
- 双向接口/Bidirectional interface
- 手动RFID系统/Manual RFID system
- 后处理软件/Post-processor
- HQR-连接/HQR-Connect
- HRFID-连接/HRFID-Connect



自动聚焦切削刃  
Automatic focus on the cutting edge

# UNO automatic drive

极为方便的全自动化测量  
Fully automatic measuring for unrivalled convenience



## 刀具预调仪 – 全自动 TOOL PRESETTERS – FULLY AUTOMATIC

结合其全自动测量操作，UNO系列最高版本——UNO automatic drive可进行无人测量，并对操作人员无专业技术要求。

这保证高质量及尽可能地节省操作时间，并且适用于多平面的复合刀具测量。

With fully automated measurement capabilities, the UNO automatic drive is the high-end model in the UNO series. The UNO automatic drive is fully independent of the operator and can be used with minimal user expertise. This guarantees maximum quality and time savings, even with complex tools on multiple planes.

### 标准配置/Standard Equipment

- 图像处理系统Microvision UNO	- Microvision UNO image processing system
- 在3轴上自动测量刀具	- Automatic tool measurement in 3 axes
- SK50超高精密主轴, 自动聚焦	- SK50 ultra-high precision spindle, autofocus
- 电机驱动各轴的微调	- Motorised fine adjustment of all axes
- 24"触摸显示屏	- 24" touchscreen
- 电机分度 $4 \times 90^\circ$ 和 $3 \times 120^\circ$	- $4 \times 90^\circ$ and $3 \times 120^\circ$ motor-driven indexing
- 气动的主轴制动功能	- Pneumatic spindle brake
- 真空吸紧	- Vacuum clamping
- 高级工作台带6个适配器孔	- Premium base cabinet including storage for 6 adapters
- Sigma功能	- Sigma function
- 1000个零点, 刀具和刀具清单的内存	- Memory for 1.000 zero points, tools and tool lists
- USB / LAN输出口	- USB / LAN data output
- 触摸释放功能	- Release-by-touch
- 快速寻边器	- Edgfinder
- 检测光	- Incident light
- 主轴跳动精度 $2 \mu\text{m}$	- $2 \mu\text{m}$ spindle runout
- 重复测量精度 $\pm 2 \mu\text{m}$	- $\pm 2 \mu\text{m}$ repeatability
- 标签打印机	- Label printer

### 测量范围/Measurement range

- X 轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	400 mm
- X 轴方向可使用卡规原理测量的最大刀具直径/ Maximum snap gauge tool diameter on X-axis	100 mm
- Z 轴方向可以测量的最大刀具长度/ Maximum tool length on Z-axis	400 / 700 mm
- 最大刀具重量/Maximum tool weight	30 kg
- 重量/Weight	20 40: 240 kg 20 70: 255 kg
- 订货号/Order No.	20 40: M-G1160 20 70: M-G1170

全自动独立刀具预调及测量  
Fully automatic tool presetting and measurement independent of the operator



### 选项/Options

- 带自动识别适配器功能的ISS超高精度主轴/ISS-U universal ultra-high precision spindle with automatic adapter identification	- 后处理软件/Post-processor
- 车床包: 电机驱动的 $4 \times 90^\circ$ 和 $3 \times 120^\circ$ 分度功能, 第二相机 Turning package: Second camera incl. indexing, $4 \times 90^\circ$ , and $3 \times 120^\circ$ motor driven	- HQR-连接/HQR-Connect
- 双向接口/Bidirectional interface	- HRFID-连接/HRFID-Connect
- 手动RFID系统/Manual RFID system	- 铰刀模块/Reamer software module for guided reamers
- X/Z轴的分别单独释放/individual release of X/Z-axis	- 历史测量记录/Measured value history

## VIO *linear*

快速测量的完美解决方案，亦适用于高级别复合刀具/Perfect for rapid measurements, even on highly complex tools



## 刀具预调仪 – 全自动 TOOL PRESETTERS – FULLY AUTOMATIC

**VIO linear** – 高端全自动刀具预调仪的最佳选择，可根据客户需求配置。

独有的模块化设计使刀具可测量范围达到直径1000mm和长度1000mm。

**VIO linear** – The complete solution: for fully automatic high-end tool presetting with individual options.

The modular concept makes it possible to preset tools up to 1.000 mm in length and diameter.

### 标准配置/Standard Equipment

- |   |   |
|---|---|
| - 图像处理系统 Microvision VIO  | - Microvision VIO image processing system   |
| - 通过直线电机驱动保持高精度和快速轴向定位  | - High precision and fast axis-positioning through linear motion  |
| - ISS超高精密主轴带自动适配器识别功能，机械式夹紧和电机分度 $4 \times 90^\circ$ 和 $3 \times 120^\circ$ | - ISS-U universal ultra-high precision spindle with automatic adapter identification, mechanical clamping and motorised indexing $4 \times 90^\circ$ and $3 \times 120^\circ$ |
| - $4 \times 90^\circ$ 和 $3 \times 120^\circ$ 的电机分度                          | - $4 \times 90^\circ$ and $3 \times 120^\circ$ electronic indexing  |
| - 气动的主轴制动   | - Pneumatic spindle brake   |
| - 稳固耐用的铸铁结构   | - Robust, long-life cast iron construction  |
| - 热优化的混合材料，更高的重复测量精度  | - Thermally optimised material combination for improved repeatability   |
| - 电机驱动微调各轴  | - Motorised fine adjustment of all axes   |
| - 24英寸多点触摸显示屏   | - 24" multi-touchscreen   |
| - 高级工作台最多可以储存九个适配器  | - System VIO incl. storage for up to 9 adapters   |
| - Sigma 功能  | - Sigma function  |
| - 1000个零点的内存  | - Memory for 1.000 zero points  |
| - 无刀具存储数量限制   | - Unlimited tool memory   |
| - 使用者管理   | - User management   |
| - 可旋转操作面板   | - Swivelling operating panel  |
| - 快速寻边器   | - Edgefinder  |
| - 检测光   | - Incident light  |
| - 主轴跳动精度 $2 \mu\text{m}$  | - $2 \mu\text{m}$ spindle runout  |
| - 重复测量精度 $\pm 2 \mu\text{m}$  | - $\pm 2 \mu\text{m}$ repeatability   |

### 测量范围/Measurement range

- X轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	420 / 700 / 1000 mm
- X轴方向可使用卡规原理测量的最大刀具直径/ Maximum snap gauge tool diameter on X-axis	100 mm
- Z轴方向可以测量的最大刀具长度/ Maximum tool length on Z-axis	500 / 700 / 1000 mm
- 最大刀具重量/Maximum tool weight	160 kg
- 重量/Weight	400 kg – 550 kg
- 订货号/Order No.	MG1035*



### 选项/Options

- |   |   |
|---|---|
| - 第二相机用于测量车刀的中心高<br>Second camera for measuring the centre of rotation  | - 针对由液压刀柄或ER筒夹刀柄的刀具长度调节系统<br>Length stop system for automatic length adjustment for hydraulic or ER collet chucks |
| - 双向接口/Bidirectional interface  | - 刀具照片的直接存储功能，方便数据库管理<br>Direct photo storage for easy integration of tool data                                   |
| - 手动或自动RFID系统/Manual or automatic RFID system   | - 滚齿刀具测量系统/Gear Skyving System  |
| - 27" 多点触摸屏/27" multi-touchscreen   | - 用于测量偏心车刀的Y轴<br>Y-axis for measurement of multi-tool turning holder  |
| - 后处理软件/Post-Processor  | - 铰刀模块/Reamer software module for guided reamers  |
| - Vio 比对/扫描/Vio Fit/Scan  |   |
| - 角度头系统/Angular head system   |   |
| - HQR-连接/HQR-Connect, HRFID-连接/HRFID-Connect  |   |
| - 预留机器人接口，方便后续的无人化操作的升级/Robot-ready software interface for integration of a robot cell to preset tools without operator |   |

\* 这个订货号是为最小X及Z轴的对刀仪准备的，如果需要更大尺寸，请联系默认人员

\* This part number is for the smallest unit in X and Z, please contact HAIMER for the part numbers of the larger machines



## V10 *linear* toolshrink

结合刀具热缩和刀具预调功能的仪器  
Shrinking and presetting combined



## 热缩/预调 SHRINKING/PRESETTING

结合了热缩机和预调科技的热缩对刀一体机,可以在刀具长度上进行微米级别的设置,在其它级别亦达到领先水准。

VIO linear toolshrink热缩对刀一体机是您在使用热缩刀具、姊妹刀具及多主轴机床的优先选择。

The combination of shrinking and presetting technology with precise length adjustment on the  $\mu\text{m}$  scale makes the VIO linear top of its class, including the toolshrink variant. The VIO linear toolshrink is the ideal choice, especially when using shrink fit holders, duplicate assemblies, or multi-spindle machines.

### 标准配置/Standard Equipment

- |   |   |
|---|---|
| - 图像处理系统Microvision VIO   | - Microvision VIO image processing system   |
| - ISS超高精密主轴带自动适配器识别功能,机械式夹紧和电机分度 $4 \times 90^\circ$ 和 $3 \times 120^\circ$ | - ISS-U universal ultra-high precision spindle with automatic adapter identification, mechanical clamping and motorised indexing $4 \times 90^\circ$ and $3 \times 120^\circ$ |
| - 适用于多数品牌的刀柄,获得很好的热缩效果  | - Best shrinking results, regardless of the holder brand  |
| - 高精度直线电机驱动的轴向定位  | - High precision and fast axis-positioning through linear motion  |
| - 翰默全自动的13KW感应线圈  | - Fully automatic HAIMER induction unit 13 kW coil  |
| - 自动监控热缩数据  | - Automatic monitoring of shrinking parameters  |
| - 自动刀具长度调整精度 $\pm 10 \mu\text{m}$   | - Automatic length adjustment within $\pm 10 \mu\text{m}$   |
| - 带过滤器的抽气装置   | - Extractor with filter   |
| - 翰默的接触式冷却系统  | - HAIMER contact cooling  |
| - 24"触摸显示屏  | - 24" touchscreen   |
| - 结合翰默HAIMER热缩刀柄可以达到更好的效果:刀长调整精度 $\pm 5 \mu\text{m}$                        | - Ideally used with HAIMER shrink fit holders for best results: shrink in on $\pm 5 \mu\text{m}$  |
| - 充满活力的热缩流程缩短了辅助时间  | - Dynamic shrinking for short process times   |
| - 预先导入的翰默数据库  | - Pre-installed HAIMER data base  |

### 测量范围/Measurement range

- X轴方向可测量的最大刀具直径/ Maximum tool diameter on X-axis	420 / 700 / 1000 mm
- X轴方向可使用卡规原理测量的最大刀具直径/ Maximum snap gauge tool diameter on X-axis	100 mm
- Z轴方向可热缩的刀具长度/ Tool length on Z-axis shrinking	60 – 650 mm
- Z轴方向可以测量的最大刀具长度/ Maximum tool length on Z-axis measuring	500 / 700 / 1000 mm
- 最大刀具重量/Maximum tool weight	160 kg
- 重量/Weight	720 kg – 800 kg
- 订货号/Order No.	M-G1061*



### 选项/Options

- |   |   |
|---|---|
| - 第二相机用于测量车刀的中心高/<br>Second camera for rotation centre measuring              | - 预留机器人接口,方便后续的无人化操作的升级/Robot-ready software interface for integration of a robot cell to preset tools without operator |
| - 后处理软件/Post-processor  | - HQR-连接/HQR-Connect, HRFID-连接/HRFID-Connect  |
| - 双向接口/Bidirectional interface  | - 针对液压刀柄或ER筒夹刀柄的刀具长度调节系统/Length stop system for automatic length adjustment for hydraulic or ER collet chucks           |
| - VIO 比对/扫描/Vio Fit/Scan  | - 滚齿刀具测量系统/Gear Skyving System  |
| - 手动RFID系统/Manual RFID system   | - 铰刀模块/Reamer software module for guided reamers  |
| - 自动RFID系统/Automatic RFID system  | - 能够像工业4.0级热缩机一样地快速热缩装夹刀具(无需调试)/Quick in/out, shrinking like a Power Clamp i4.0 (no setup)                              |
| - 标签打印机/Label printer   | - 热缩参数扫码读取功能/Scan function for shrinking parameters   |
| - 带主动温度监控系统的TME冷却系统/<br>TME cooling system with active temperature monitoring |   |
| - 27"多触点触摸显示屏/27" multi-touchscreen   |   |
| - 刀具照片的直接存储功能,方便数据库管理/Direct photo storage for easy integration of tool data  |   |

\* 这个订货号是为最小X及Z轴的对刀仪准备的,如果需要更大尺寸,请联系翰默人员

\* This part number is for the smallest unit in X and Z, please contact HAIMER for the part numbers of the larger machines

## 刀具预调 – 软件 TOOL PRESETTING – SOFTWARE

# Microvision简单直观 Microvision – easy and intuitive

Microvision软件能让使用者快速和简便地测量复杂的形状和尺寸,在预调工作中创造更大的节省时间的潜力。

时间的节约源于该设备能快速和精确地测量和预调刀具,且不依赖于操作者的水平。先进的图像处理系统保证刀具测量的高效及精准,亦保证您的产品获得高品质。您可以在很短的时间内通过新式的测量方法测量复杂的刀具。

Microvision software enables fast and easy inspection of complex shapes and features, creating even more time savings potential during setup.

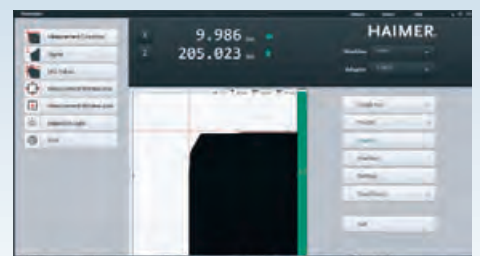
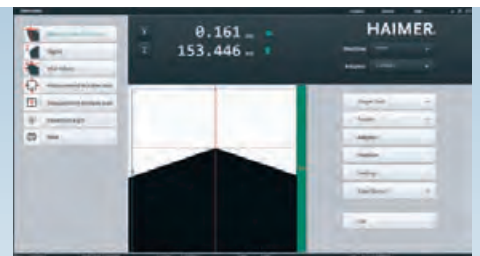
These savings are achieved due to the machine's ability to quickly and precisely measure and set tools, independent from the operator. Modern image processing ensures that the tools are quickly and accurately measured and in turn guarantees the highest quality in your production processes. Complex tools can be measured within an incredibly short period of time with the latest measuring techniques.

### 亮点

- 直观的操作确保了快速和精确的测量结果
- 通过准确聚焦窗口得出复杂和螺旋型刃具的精确测量数值
- 使用者管理及权限
- 显示格式16:9
- 自动十字交叉线可固定/移动进行自动轮廓投影测量
- Microset采用统一的测量软件
- 基于Windows视窗系统
- 测量宏指令有助于快速的创建自动测量的次序
- 可以创建客户自定义的测量循环
- 通过模板系统中的模块可以轻松的复制一个完全相同的测量循环,例如:另一个不同尺寸的钻头
- 测量结果的历史记录确保测量结果的安全性和优化的流程
- 可配备HQR ID扫码枪,通过扫描刀具上的二维码,识别刀具并找到特定刀具的测量宏程序
- 热缩参数的二维码打印,方便非翰默刀柄的热缩参数的识别
- 打印格式编辑器易于调整输出的打印格式
- 可在刀具预调仪中直接存储图片,便于添加图片至数据库
- 远程支持功能,你可以在办公桌旁边编写你的刀具的程序
- 测量功能具备测量刀尖的理论交点的能力

### Highlights

- Intuitive operation ensures quick and precise measurement results
- Accurate measurement of complex cutters with the precise focus window
- User administration and access privileges
- Display currently in 16:9 format
- Cross hair fixed/floating with automatic measurement lines and automatic contour evaluation
- Identical software design for all Microset models
- Windows based
- Measuring macros for fast creation of automatic measuring sequences
- Creation of customised master measuring cycles possible
- Template module to easily copy measuring cycle of identical tool types, e.g. drill from one size to the next
- History of measured data for security of measuring results and process optimisation
- HQRID scanner ready, to scan and ID tools and to find the measuring cycle of that specific tool
- QR code parameter print for easy shrink parameter identification for non-HAIMER holders
- Print Editor for easy adjustment of printouts
- Direct photo storage to easily add pictures to the database, right at the presetter
- Remote access, program your tool from your desk
- Measurement rules that allow calculation of theoretical measurement points



## 刀具预调 – 附件 TOOL PRESETTING – ACCESSORIES

# 满足各种要求的适配器和主轴 Adapters and spindles for all requirements

对精密的刀具预调工作而言，高品质和高精度的适配器和主轴是成功的重要因素。

我们提供各种类型的转换套与主轴，您可以快速、轻松地找到您所需求的产品。我们很乐意为您的个人需求提供咨询服务以及应用支持。

ISS-U通用超高精密主轴实现了令人难以置信的高精度直接夹紧。

使用ISS-U主轴可以获得很高的夹紧力，径跳精度 < 0.002毫米，不需要额外的转换套。

**High-quality, precise adapters and spindles are important elements for precise tool presetting.**

We offer an extraordinarily wide range of adapters and spindles so that you can quickly and easily get the results you need. We will gladly provide consultation regarding your individual requirements and applications.

The ISS-U universal ultra-high precision spindle enables incredibly high-precision direct clamping. The ISS-U spindle utilizes the highest clamping forces with runout accuracy < 0.002 mm, all without need for adapters.

### 适配器举例/Examples of Adapters



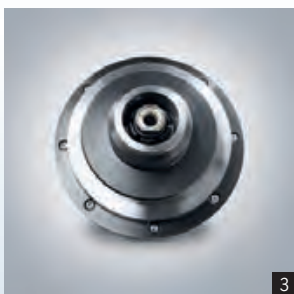
SK50 超精密适配器/SK50 Ultra precision adapter

- 1: 带夹紧机构的HSK 63适配器/HSK 63 adapter with integrated clamping
- 2: 带夹紧机构的VDI 40适配器/VDI 40 adapter with manual clamping
- 3: 带夹紧机构的PSC适配器/PSC adapter with integrated manual clamping system

我们为您的各种工业需求提供解决方案，包含标准的刀柄以及客户专用的特殊刀柄。我们多年的刀具设计经验可以使您受益良多。

We offer solutions for all requirements, from standard tool holders to customer-specific special tool holders. You benefit from our many years of experience in tool design.

### 主轴举例/Examples of spindles



通用夹紧系统 /Universal clamping system

- 1: 超高精度的通用型ISS-U主轴/ISS-U universal ultra-high precision spindle
- 2: 附加刀座 (ISS转换套) (SK, HSK, PSC, VDI)/Attachment holder (SK, HSK, PSC, VDI)
- 3: 整个系统 /Complete system

我们提供：用于精确且可靠的夹紧各种类型和几何体形状的刀具的通用夹紧系统，包括适用于市面上通用的各种锥柄的附加刀座 (2)。

Our offer: the Universal clamping system clamps tools precisely and reliably, regardless of the tool holder's geometry. This also applies to the attachment holder (2), which was designed for all common tool holder systems on the market.

## 刀具预调 – 附件 TOOL PRESETTING – ACCESSORIES



### 带直接拉紧系统的转换套

以下规格的接口有效

HSK-ACET 32 / BDF 40 – HSK-ACET 100 / BDF 125,  
HSK-F80 Makino, PSC 32 – PSC 80, KM 32 – KM 80,  
VDI 16 – VDI 60, 配备Trifix的VDI 25 – 配备Trifix的VDI 50,  
BMT 40 – BMT 75, ER11-ER32

### Adapter with integrated clamping.

Available in taper sizes

HSK-ACET 32 / BDF 40 – HSK-ACET 100 / BDF 125,  
HSK-F80 Makino, PSC 32 – PSC 80, KM 32 – KM 80,  
VDI 16 – VDI 60, VDI 25 with Trifix – VDI 50 with Trifix,  
BMT 40 – BMT 75, ER11 – ER32

带夹紧系统的SK50变径转换套, 适用于HSK/PSC/KM/VDI/BMT/ER接口的刀柄

Reduction sleeves from SK50 to HSK/PSC/KM/VDI/BMT/ER adapter with clamping system

锥柄尺寸/For taper size	高度H/Height H	订货号/Order No.
- HSK-ACET 32 / BDF 40	50 mm	MR1034
- HSK-ACET 40 / BDF 50	60 mm	MR1035
- HSK-ACET 50 / BDF 63	70 mm	MR1036
- HSK-ACET 63 / BDF 80	80 mm	MR1037
- HSK-ACET 80 / BDF 100	90 mm	MR1038
- HSK-ACET 100 / BDF 125	110 mm	MR1039
- HSK-F80 Makino	80 mm	MR4071
- PSC 32	70 mm	MR1040
- PSC 40	80 mm	MR1046
- PSC 50	90 mm	MR1047
- PSC 63	120 mm	MR1048
- PSC 80	140 mm	MR1049
- KM 32	40 mm	MR3200
- KM 40	40 mm	MR3210
- KM 50	60 mm	MR3220
- KM 63	60 mm	MR3230
- KM 80	80 mm	MR3240
- VDI 16	70 mm	MR1027
- VDI 20	70 mm	MR1028
- VDI 25	70 mm	MR1029
- VDI 30	80 mm	MR1030
- VDI 40	80 mm	MR1031
- VDI 50	110 mm	MR1032
- VDI 60	115 mm	MR1033
- VDI 25 (配备 Trifix)/with Trifix	70 mm	MR1200
- VDI 30 (配备 Trifix)/with Trifix	80 mm	MR1210
- VDI 40 (配备 Trifix)/with Trifix	80 mm	MR1220
- VDI 50 (配备 Trifix)/with Trifix	110 mm	MR1230
- BMT 40	95 mm	MR3100
- BMT 45	95 mm	MR3104
- BMT 50	95 mm	MR3107
- BMT 55	95 mm	MR3103
- BMT 60	95 mm	MR3101
- BMT 65	95 mm	MR3105
- BMT 75	95 mm	MR3106
- 转换套/Adapter SK50 : ER11		MR5010
- 转换套/Adapter SK50 : ER16		MR5011
- 转换套/Adapter SK50 : ER20		MR5012
- 转换套/Adapter SK50 : ER25		MR5013
- 转换套/Adapter SK50 : ER32		MR5014

## 刀具预调 – 附件 TOOL PRESETTING – ACCESSORIES



### 不带夹紧系统的转换套

以下规格的接口有效

SK/BT/CAT/ANSI 20 – SK/BT/CAT/ANSI 45,  
HSK-ACET 25 / BDF 32 – HSK-ACET 100 / BDF 125,  
PSC 32 – PSC 80, VDI 16 – VDI 60

### Adapter without clamping system.

Available in taper sizes

SK/BT/CAT/ANSI 20 – SK/BT/CAT/ANSI 45,  
HSK-ACET 25 / BDF 32 – HSK-ACET 100 / BDF 125,  
PSC 32 – PSC 80, VDI 16 – VDI 60

不带夹紧系统的变径转换套 (SK50 变为各种其他规格的接口SK/BT/CAT/ANSI/BBT/HSK/PSC/VDI)

Reduction sleeves from SK50 to SK/BT/CAT/ANSI/BBT\*/HSK/PSC/VDI adapter without clamping system

锥柄尺寸/For taper size	高度H/Height H	订货号/Order No.
– SK/BT/CAT/ANSI 20	45 mm	M-R1004
– SK/BT/CAT/ANSI 25	45 mm	M-R1003
– SK/BT/CAT/ANSI/BBT* 30	25 mm	M-R1001
– SK/BT/CAT/ANSI/BBT* 40	20 mm	M-R1000
– SK/BT/CAT/ANSI 45	25 mm	M-R1002
– HSK-ACET 25 / 32 BDF	50 mm	M-R1070
– HSK-ACET 32 / 40 BDF	40 mm	M-R1010
– HSK-ACET 40 / 50 BDF	40 mm	M-R1011
– HSK-ACET 50 / 63 BDF	40 mm	M-R1012
– HSK-ACET 63 / 80 BDF	55 mm	M-R1013
– HSK-ACET 80 / 100 BDF	60 mm	M-R1014
– HSK-ACET 100 / 125 BDF	90 mm	M-R1015
– PSC 32	30 mm	M-R1063
– PSC 40	30 mm	M-R1064
– PSC 50	30 mm	M-R1065
– PSC 63	30 mm	M-R1066
– PSC 80	70 mm	M-R1067
– VDI 16	60 mm	M-R1020
– VDI 20	60 mm	M-R1021
– VDI 25	40 mm	M-R1022
– VDI 30	40 mm	M-R1023
– VDI 40	40 mm	M-R1024
– VDI 50	50 mm	M-R1025
– VDI 60	130 mm	M-R1026

\*BBT是大昭和公司的注册商标/商标号

\*BBT is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

## 刀具预调 – ISS附加刀座 (转换套)

### TOOL PRESETTING – ISS ADAPTER



#### 带自动夹紧系统的ISS附加刀座 (转换套)

- Z轴方向测量损失小
- 不管操作者是谁, 夹紧的一致性
- 高精度转换套

#### ISS Adapter with automatic clamping system.

- Minimal loss of measuring range (in Z-axis) due to standardized adapter height
- Constant tool clamping regardless of the operator
- High change accuracy of the adapter

#### 带自动夹紧系统的ISS附加刀座 (转换套)

#### ISS Adapter with automatic clamping system

锥柄尺寸/For taper size	订货号/Order No.
<b>HSK</b>	
- HSK-E25	M-R4070
- HSK-ACET 32 / BDF 40	M-R3024
- HSK-ACET 40 / BDF 50	M-R3025
- HSK-ACET 50 / BDF 63	M-R3026
- HSK-ACET 63 / BDF 80	M-R3027
- HSK-ACET 80 / BDF 100	M-R3028
- HSK-ACET 100 / BDF 125	M-R3029
- HSK 125	M-R4076
- HSK-F80 Makino	M-R3050
<b>PSC</b>	
- PSC 32	M-R3048
- PSC 40 - IKZ	M-R3030
- PSC 50 - IKZ	M-R3031
- PSC 63 - IKZ	M-R3032
- PSC 80 - IKZ	M-R3033
<b>VDI</b>	
- VDI 16 mm 带手动拉紧/with manual clamping	M-R3034
- VDI 20 mm 带手动拉紧/with manual clamping	M-R3035
- VDI 25 mm 带手动拉紧/with manual clamping	M-R3036
- VDI 30 mm 带手动拉紧/with manual clamping	M-R3037
- VDI 40 mm 带手动拉紧/with manual clamping	M-R3038
- VDI 50 mm 带手动拉紧/with manual clamping	M-R3039
- VDI 60 mm 带手动拉紧/with manual clamping	M-R3040
<b>SK/BT/ANSI/CAT/BBT</b>	
- SK, BT, ANSI, CAT, BBT*30	M-R3044
- SK, BT, ANSI, CAT, BBT*40	M-R3045
- SK, BT, ANSI, CAT 45	M-R3022
- SK, BT, ANSI, CAT, BBT*50	M-R3046
- SK, BT, ANSI, CAT, BBT*60	M-R3060

## 刀具预调 – ISS附加刀座 (转换套) TOOL PRESETTING – ISS ADAPTER



### 带自动夹紧系统的ISS附加刀座 (转换套)

- Z轴方向测量损失小
- 不管操作者是谁, 夹紧的一致性
- 高精度转换套

### ISS Adapter with automatic clamping system.

- Minimal loss of measuring range (in Z-axis) due to standardized adapter height
- Constant tool clamping regardless of the operator
- High change accuracy of the adapter

### 带自动夹紧系统的ISS附加刀座 (转换套) ISS Adapter with automatic clamping system

锥柄尺寸/For taper size	订货号/Order No.
<b>KM</b>	
- KM32	M-R3047
- KM40	M-R3061
- KM50	M-R3062
- KM63	M-R3063
- KM80	M-R3064
- KM32 带手动拉紧/with manual clamping	M-R3091
- KM40 带手动拉紧/with manual clamping	M-R3092
- KM50 带手动拉紧/with manual clamping	M-R3093
- KM63 带手动拉紧/with manual clamping	M-R3094
- KM80 带手动拉紧/with manual clamping	M-R3095
<b>BMT</b>	
- BMT40	M-R3121
- BMT45	M-R3122
- BMT55	M-R3124
- BMT60	M-R3125
- BMT65	M-R3126
- BMT75	M-R3127
<b>Nikken</b>	
- Nikken 3锁定 ISS 40转换套/Nikken 3 Lock ISS Adapter 40	M-R4072
- Nikken 3锁定 ISS 50转换套/Nikken 3 Lock ISS Adapter 50	M-R4073
<b>热缩对刀一体机Toolshrink</b>	
- HSK-32 A/E 热缩对刀一体机toolshrink	M-R1077
- HSK-40 A/E 热缩对刀一体机toolshrink	M-R1075
- HSK-50 A/E 热缩对刀一体机toolshrink	M-R1074
- HSK-63 A/E 热缩对刀一体机toolshrink	M-R1073
- HSK-80 A/E 热缩对刀一体机toolshrink	M-R1088
- HSK-100 A/E 热缩对刀一体机toolshrink	M-R1076
- PSC 50 - 轴向中心内冷IKZ/热缩对刀一体机toolshrink	M-R1078
- PSC 63 - 轴向中心内冷IKZ/热缩对刀一体机toolshrink	M-R1079



# 刀具预调 TOOL PRESETTING

## 技术参数 Technical data

		UNO smart	UNO premium
<b>测量范围/Measurement range</b>			
最大可测的刀具直径/Maximum tool diameter	mm	400	400 / (420 optional)
依据卡规测量原理可以检测的最大刀具直径/Max. tool diameter for measuring using the snap gauge principle	mm	-	100
Z 轴方向的最大刀具长度/Maximum tool length on Z-axis	mm	400 / 700	400 / 700
最长可热缩刀具长度/Maximum tool length shrinking	mm	-	-
<b>操作/Operation</b>			
手动/Manual		●	●
自动对焦/Autofocus		-	-
全自动/Fully automatic		-	-
热缩型/Shrinking		-	-
<b>系统柜/Base cabinet</b>			
标准的系统柜, 包含可以存放 3 个适配器的搁架/System base cabinet smart including storage for 3 adapters		○	-
高级的系统柜, 包含可以存放 6 个适配器的搁架/System base cabinet premium including storage for 6 adapters		-	●
包含最大可存储到9个转换套的VIO专用系统柜/System VIO <sup>1)</sup> including storage for up to 9 adapters		-	-
<b>主轴/Spindle</b>			
SK50 手动高精度主轴/SK50 high-precision spindle, manual		●	-
SK50 手动超高精度主轴/SK50 ultra-high precision spindle, manual		-	●
SK50 自动聚焦的超高精度主轴/SK50 ultra-high precision spindle, autofocus		-	-
ISS-U 通用型高精度主轴, 手动型/ISS-U universal ultra-high precision spindle, manual		-	○
ISS-U 通用型高精度主轴, 自动型/ISS-U universal ultra-high precision spindle, autofocus		-	-
自动识别适配器/Automatic adapter recognition		-	-
机械式夹紧/Mechanical clamping		-	-
真空夹紧/Vacuum clamping		-	●
主轴制动/Spindle brake		○	●
4 × 90° 和 3 × 120° 分度/4 × 90° and 3 × 120° indexing		○	○
<b>精度/Accuracy</b>			
主轴径向跳动/Spindle runout	μm	3	2
重复测量精度/Repeatability	μm	± 5	± 2
<b>车削中心的测量项目/Turning centre measurement</b>			
4 × 90° 分度和百分表/Dial gauge incl. 4 × 90° indexing		○	-
4 × 90° 分度功能和第二相机/Camera incl. 4 × 90° indexing		-	○
<b>其他功能/Miscellaneous</b>			
检测光/Incident light		○	○
寻边器/Edgefinder		○	○
磁力板/Magnet board		-	○
7" 触摸屏/7" touchscreen		●	-
22" 触摸屏/22" touchscreen		-	●
24" 触摸屏/24" touchscreen		-	○
27" 触摸屏/27" touchscreen		-	-
触摸测量/Measure-by-touch		-	-
触摸释放/Release-by-touch		○	○
X/Z 轴可以单独的释放和锁紧/Individual release and clamping of X/Z-axis		-	○
操纵杆/Joystick		-	-
<b>软件/Software</b>			
图像处理/Image processing		Microvision SMART	Microvision UNO
零点/Zero points		99	1000
刀具存储单元/Tool storage unit		-	1000
Sigma 功能/Sigma function		○	●
用户管理/User management		-	○
<b>数据输出/Data output</b>			
标签打印/Label printing		○	○
USB/USB		-	●
LAN/网络/LAN/network		-	●
后处理器/Post-processor		-	○
双向接口/Bidirectional interface		-	○
RFID 手动系统/Manual RFID system		-	○
RFID 自动系统/Automatic RFID system		-	-
HQR-连接/HQR-Connect		-	○
HRFID-连接/HRFID-Connect		-	○

● 标准/Standard ○ 选配/Optional - 不能提供/Not available

<sup>1)</sup>热缩对刀一体机用系统柜包含3个转换套的储存位/<sup>1)</sup> System base cabinet VIO linear toolshrink including storage for 3 adapters

UNO autofocus	UNO automatic drive	VIO linear	VIO linear toolshrink
400 / (420 optional)	400 / (420 optional)	420 / 700 / 1000	420 / 700 / 1000
100	100	100	100
400 / 700	400 / 700	500 / 700 / 1000	500 / 700 / 1000
-	-	-	650
•	•	•	•
•	•	•	•
-	•	•	•
-	-	-	•
-	-	•	•
•	•	-	-
-	-	•	•
-	-	-	-
•	•	•	-
-	-	-	-
○	○	○	•
○	○	○	○
○	○	○	•
•	•	•	-
•	•	•	•
○	○	•	•
2	2	2	2
± 2	± 2	± 2	± 2
-	-	-	-
○	○	○	○
•	•	•	•
•	•	•	•
•	•	-	-
-	-	-	-
-	-	-	-
•	•	•	•
-	-	○	○
-	-	○	○
•	•	•	•
○	○	•	•
-	-	•	•
Microvision UNO	Microvision UNO	Microvision VIO	Microvision VIO
1000	1000	1000	1000
1000	1000	不限/unlimited	不限/unlimited
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
○	○	○	○
○	○	○	○
○	○	○	○
-	-	○	○
○	○	○	○
○	○	○	○



测量技术

MEASURING TECHNOLOGY

# 目录

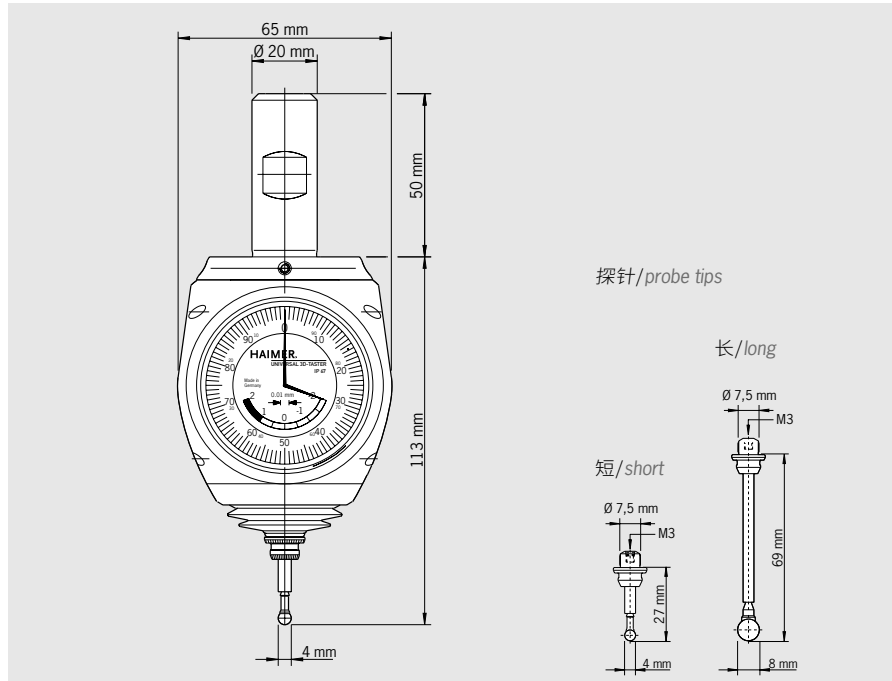
## CONTENT

<b>机械式3D寻边器 / 3D-Sensors mechanical</b>	
通用型3D寻边器 / Universal 3D-Sensor	684
一体式通用型3D寻边器 / Universal 3D-Sensor with integrated adapter	686
新一代3D寻边器 / 3D-Sensor New Generation	688
一体式短型新一代3D寻边器 / 3D-Sensor with integrated short adapter	690
<b>数显3D寻边器 / 3D-Sensors digital</b>	
数显3D寻边器 / 3D-Sensor Digital	692
一体式数显3D寻边器 / 3D-Sensor Digital with integrated adapter	694
<b>超小型3D寻边器 / 3D-Sensors Zero Master</b>	
超小型3D寻边器 / 3D-Sensor Zero Master	696
一体式超小型3D寻边器 / 3D-Sensor Zero Master with integrated short adapter	698
<b>测量同轴度的对中仪 / Coaxial indicator Centro</b>	
对中仪 / Centro	700
一体式中仪 / Centro with integrated adapter	702
<b>机床的校正套装 / Machine tool calibration set</b>	
机床的校正套装 / Machine tool calibration set	704

# 通用型3D寻边器 Universal 3D-Sensor



## 通用型3D寻边器 UNIVERSAL 3D-SENSOR



### 通用型3D寻边器

对于铣削和EDM (绝缘探针)的加工设备而言,通用型3D寻边器属于高精度和万能的测量仪器。将它安装到机器主轴上,它的径跳精度(T.I.R)完全可以调整到零位,然后就可以将机床主轴的中心轴线移动到工件的边缘,可以快速并简单的设置零位和测量。无论从任何方向(X-Y-Z轴)靠近工件,当刻度盘上的指针指向零时,机床主轴坐标和工件边缘的坐标是重合的。

无需计算探针触球的直径,只需归零,减少了数学或计算的问题。有效提高了生产率和操作的准确性。

可选用长探针和短探针,探针更换非常方便,无需专用工具。

使用更加安全,在到达预设的测量临界点之前它有很大的行程,可保证寻边器寿命更长。为了达到最佳精度,在组装生产时每一只通用型3D寻边器都进行了独立检测和预调。

- 防水等级:IP67

### Universal 3D-Sensor

The Universal 3D-Sensor is a very precise and versatile measuring instrument for milling and EDM machines (insulated probe). Once clamped into the machine spindle, the run-out (T.I.R) is fully adjustable to Zero. Then, it can be used to bring the spindle axis on the edges of the workpiece. This allows to set zeros and to measure quickly and easily. approachability in any direction (X-, Y-, Z- axis). When the dial gage shows zero, the spindle axis is exactly on the edge of the workpiece.

No calculating of the probe's ball diameter is necessary – just Zero it out! Problems with mathematics or calculations are eliminated. It helps increasing the productivity and accuracy of the operator.

Short and long probes are available. The sensor probes may be changed without any tool, no re-calibration of the unit is needed.

Additional safety, the unit has a large overrun distance in connection with the fully tested preset breaking points giving the sensor long life. All Universal 3D-Sensors are individually tested and adjusted when being assembled in order to achieve a maximum of measuring precision.

- IP 67 waterproof

#### 技术参数/Technical details

通用型3D寻边器的夹持杆直径为 $\varnothing 20\text{mm}$ , 含 $\varnothing 4\text{mm}$ 球头短探针  
Universal 3D-Sensor with clamping shank  $\varnothing 20\text{mm}$  including short probe tip  $\varnothing 4\text{mm}$

精度/Accuracy	0,01 mm
不含夹持杆的长度/Length without clamping shank	113 mm
订货号/Order No.	<b>80.360.00.FHN</b>

#### 附件/Accessories

$\varnothing 4\text{mm}$ 球头短探针/Short probe tip  $\varnothing 4\text{mm}$   
订货号/Order No. **80.362.00**



$\varnothing 8\text{mm}$ 球头长探针/Long probe tip  $\varnothing 8\text{mm}$   
订货号/Order No. **80.363.00**



#### 建议使用的HAIMER翰默刀柄

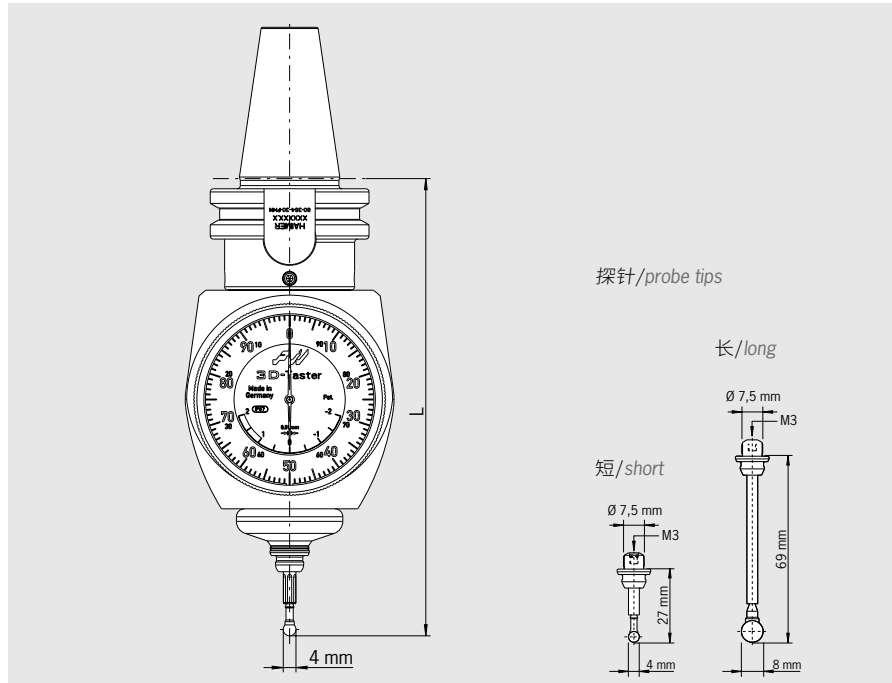
#### Recommended HAIMER tool holders

	订货号/Order No.
SK40 短刀柄/short chuck SK40	<b>40.305.20</b>
SK50 短刀柄/short chuck SK50	<b>50.300.20</b>
BT40 短刀柄/short chuck BT40	<b>40.500.20</b>
BT50 短刀柄/short chuck BT50	<b>50.500.20</b>
HSK-A50 短刀柄/short chuck HSK-A50	<b>A50.000.20</b>
HSK-E50 短刀柄/short chuck HSK-E50	<b>E50.000.20</b>
HSK-A63 短刀柄/short chuck HSK-A63	<b>A63.000.20</b>
HSK-A80 短刀柄/short chuck HSK-A80	<b>A80.000.20</b>
HSK-A100 短刀柄/short chuck HSK-A100	<b>A10.000.20</b>

# 一体式通用型3D寻边器 Universal 3D-Sensor with integrated adapter



# 一体式通用型3D寻边器 UNIVERSAL 3D-SENSOR WITH INTEGRATED ADAPTER



## 一体式通用型3D寻边器

含有刀柄 (DIN ISO 7388-1, SK40 或者 JIS B6339-2, BT40) 的一体式寻边器使用更加方便和舒适。

对于铣削和EDM (绝缘探针)的加工设备而言,通用型3D寻边器属于高精度和万能的测量仪器。将它安装到机器主轴上,它的径跳精度 (T.I.R) 完全可以调整到零位,然后就可以将机床主轴的中心轴线移动到工件的边缘,可以快速并简单的设置零位和测量。无论从任何方向 (X- Y- ,Z-轴) 靠近工件,当刻度盘上的指针指向零时,机床主轴坐标和工件边缘的坐标是重合的。

无需计算探针触球的直径,只需归零,减少了数学和计算的问题。有效提高了生产率和操作的准确性。

可选用长探针和短探针,探针更换非常方便,无需专用工具即可更换。

使用更加安全,在到达预设的测量临界点之前它有很大的行程,可保证寻边器寿命更长。为了达到最佳精度,在组装生产时每一只通用型3D寻边器都进行了独立检测和预调。

- 防水等级:IP67

## Universal 3D-Sensor with integrated adapter

The integrated taper (DIN ISO 7388-1, SK40 or JIS B6339-2, BT40) guarantees easiest handling and a maximum of comfort.

The Universal 3D-Sensor is a very precise and versatile measuring instrument for milling and EDM machines (insulated probe). Once clamped into the machine spindle, the run-out (T.I.R) is fully adjustable to Zero. Then, it can be used to bring the spindle axis on the edges of the workpiece. This allows to set zeros and to measure quickly and easily. approachability in any direction (X-, Y-, Z- axis). When the dial gage shows zero, the spindle axis is exactly on the edge of the workpiece.

No calculating of the probe's ball diameter is necessary – just Zero it out! Problems with mathematics or calculations are eliminated. It helps increasing the productivity and accuracy of the operator.

Short and long probes are available. The sensor probes may be changed without any tool, no re-calibration of the unit is needed.

Additional safety, the unit has a large overrun distance in connection with the fully tested preset breaking points giving the sensor long life. All Universal 3D-Sensors are individually tested and adjusted when being assembled in order to achieve a maximum of measuring precision.

- IP 67 waterproof

## 技术参数/Technical details

### 一体式通用型3D寻边器含Ø4mm球头短探针

### Universal 3D-Sensor with integrated adapter including short probe tip Ø 4 mm

精度/Accuracy	0,01 mm	
不含夹持杆的长度/Length without clamping shank	113 mm	
<b>产品描述/Article</b>	<b>订货号/Order No.</b>	<b>L [mm]</b>
含 SK 30 刀柄//with integrated adapter SK 30	<b>80.364.30.FHN</b>	<b>144,0</b>
含 SK 40 刀柄//with integrated adapter SK 40	<b>80.364.40.FHN</b>	<b>143,9</b>
含 BT 30 刀柄//with integrated adapter BT 30	<b>80.365.30.FHN</b>	<b>143,5</b>
含 BT 40 刀柄//with integrated adapter BT 40	<b>80.365.40.FHN</b>	<b>143,9</b>

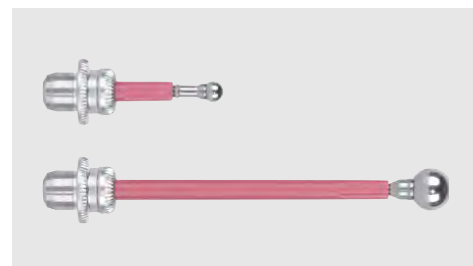
### 附件/Accessories

Ø4mm球头短探针/Short probe tip Ø 4 mm

订货号/Order No. **80.362.00**

Ø8mm球头长探针/Long probe tip Ø 8 mm

订货号/Order No. **80.363.00**



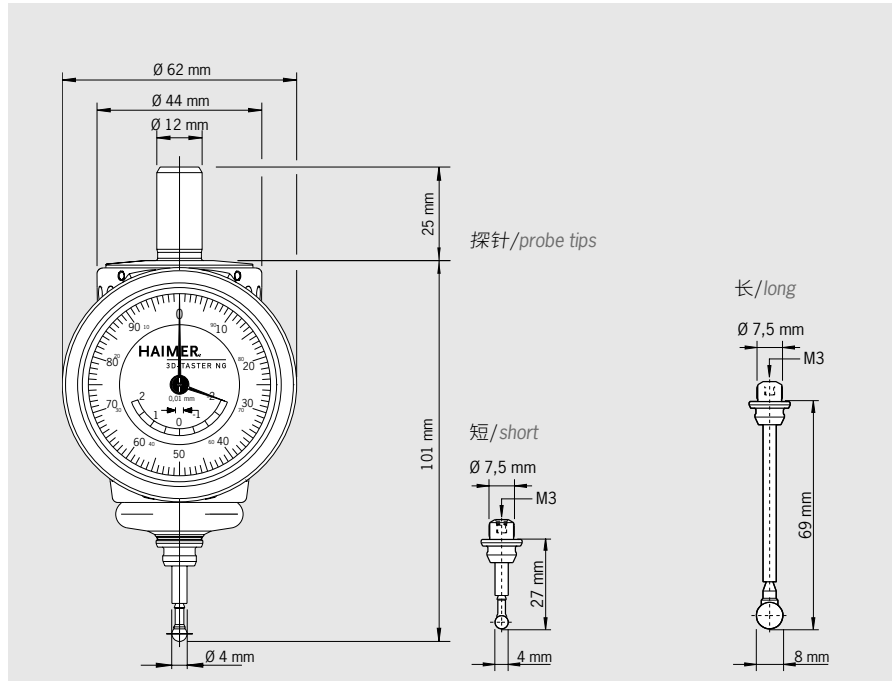
Ø4mm球头短探针/Short probe tip Ø 4 mm  
Ø8mm球头长探针/Long probe tip Ø 8 mm



# 新一代3D寻边器 3D-Sensor New Generation



# 新一代3D寻边器 3D-SENSOR NEW GENERATION



## 新一代3D寻边器

德国 HAIMER 公司的新一代3D 寻边器是在被世界广泛认可的通用型3D寻边器的基础上进一步研发的产品。其显著特征是改进的机械结构以及新的紧凑设计。

### 特点:

- 紧凑且便于夹持的壳体, 工作区域不受限制
- 0.01mm分度表盘精确显示主轴位置 (2表针)
- 最高精度0.01mm (使用 HAIMER 原厂探针)
- 标有过行程距离 (安全距离)
- 防水等级: IP67

### 功能:

- 校准机床主轴到工件边和参照边 (x-,y-z轴)
- 设置零点
- 孔和轴的对心
- 测量长度和深度
- 检测直线度和表面水平度
- 工件和虎钳的找正
- 快捷, 无需计算, 无正负号错误

## 3D-Sensor New Generation

The 3D-Sensor NG is a further development of our worldwide accepted and proven Universal 3D-Sensor. Its distinguishing features are improved mechanics and a new and compact design.

### Advantages:

- Compact and easy to grip casing, no restriction to working area
- Precise display of spindle position with large 1/100 mm dial gauge (2 hands)
- Utmost precision of 0.01 mm (when using original HAIMER probe tips)
- Marked overrun distance (safety distance)
- IP 67 waterproof

### Functions:

- Aligning machine spindles to work piece edges and reference edges (x-, y-, z-axis)
- Set zeros
- Centre borings and shafts
- Measuring lengths and depths
- Checking straightness and levelness of surfaces
- Aligning work pieces and vices
- Quick, without calculations, no mistakes with algebraic signs

## 技术参数/Technical details

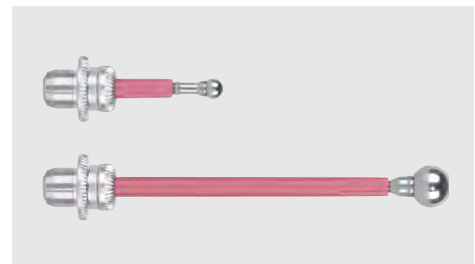
NG 3D寻边器, 夹持杆 $\varnothing$ 12mm, 含 $\varnothing$ 4mm球头短探针  
3D-Sensor NG with clamping shank  $\varnothing$  12 mm including short probe tip  $\varnothing$  4 mm

精度/Accuracy 0,01 mm  
不含夹持杆的长度/Length without clamping shank 101 mm  
订货号/Order No. 80.360.00NG

## 附件/Accessories

$\varnothing$ 4mm球头短探针/Short probe tip  $\varnothing$  4 mm  
订货号/Order No. 80.362.00

$\varnothing$ 8mm球头长探针/Long probe tip  $\varnothing$  8 mm  
订货号/Order No. 80.363.00

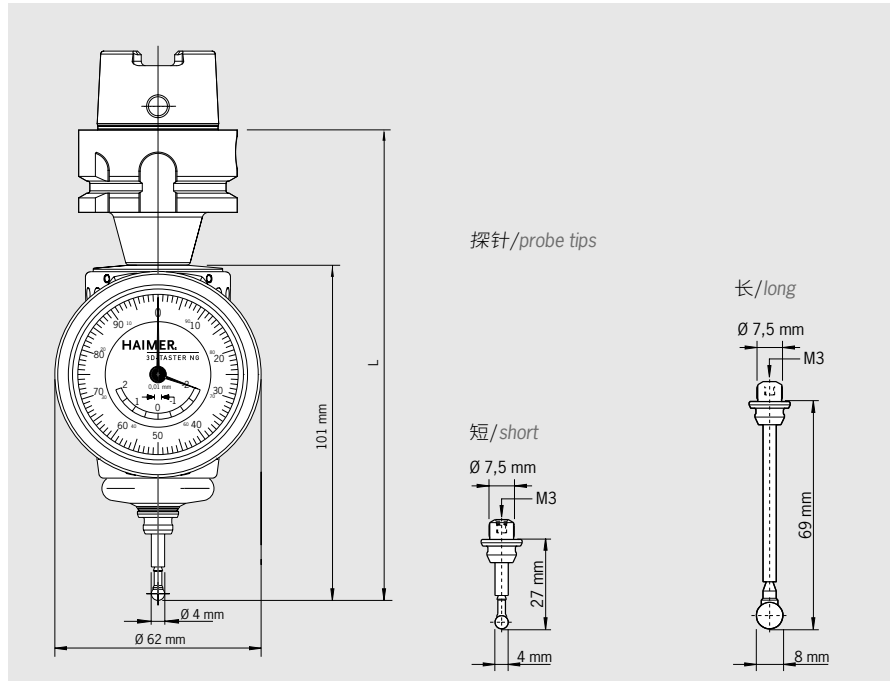


$\varnothing$ 4mm球头短探针/Short probe tip  $\varnothing$  4 mm  
 $\varnothing$ 8mm球头长探针/Long probe tip  $\varnothing$  8 mm

# 一体式短型新一代3D寻边器 3D-Sensor NG with integrated short adapter



# 一体式短型新一代3D寻边器 3D-SENSOR NG WITH INTEGRATED SHORT ADAPTER



## 为SK30, BT30, HSK-25/32/40/50/63接口设计

节省机床空间的简易工件测量设备

### 种类:

- 搭配SK30, BT30, HSK-25/32/40/50/63接口的短型刀柄
- 无需手动进一步调整精度, 发货前探针的预调精度为0.01mm
- 测量精度: 0.01mm
- 可选择长探针或短探针, 无需工具即可更换
- 无需再次校准
- 增加临界距离
- 防水等级: IP67

### 应用:

- 适合小型的加工中心和EDM机床 (绝缘探针)
- 适合工件预设或者长度测量
- 任何方向都可测量 (x- y- z-轴)

## For interfaces SK30, BT30, HSK-25/32/40/50/63

Simple workpiece measuring with less space in the machine.

### Version:

- With integrated short adapter in version SK30, BT30, HSK-A32/40/50/63, HSK-E25/32/40/50
- No further manual runout adjustment necessary! Delivery with preset runout accuracy at the probe tip of 0.01 mm
- Measuring accuracy: 0.01 mm
- Short and long probe tips available, no tool change necessary
- No re-calibration of the sensor is needed
- Enhanced overrun distance
- IP 67 waterproof

### Application:

- For small Milling and EDM machines (isolated probe)
- For workpiece-reset and length measuring
- Any direction approach (X-, Y-, Z-axis)

## 技术参数/Technical details

### 一体式短型NG 3D寻边器 含Ø4mm球头短探针

### 3D-Sensor NG with integrated short adapter including short probe tip Ø 4 mm

精度/Accuracy	0,01 mm	
产品描述/Article	订货号/Order No.	L [mm]
含 HSK-E25 短刀柄/with short adapter HSK-E25	80.363.E25NG	126,5
含 HSK-E32 短刀柄/with short adapter HSK-E32	80.363.E32NG	136,5
含 HSK-E40 短刀柄/with short adapter HSK-E40	80.363.E40NG	136,5
含 HSK-E50 短刀柄/with short adapter HSK-E50	80.363.E50NG	143,5
含 HSK-A32 短刀柄/with short adapter HSK-A32	80.363.A32NG	136,5
含 HSK-A40 短刀柄/with short adapter HSK-A40	80.363.A40NG	136,5
含 HSK-A50 短刀柄/with short adapter HSK-A50	80.363.A50NG	143,5
含 HSK-A63 短刀柄/with short adapter HSK-A63	80.363.A63NG	147,0
含 SK30 短刀柄/with short adapter SK30	80.364.30NG	136,1
含 BT30 短刀柄/with short adapter BT30	80.365.30NG	135,5

## 附件/Accessories

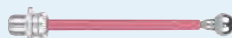
Ø4mm球头短探针/Short Probe tip Ø 4 mm

订货号/Order No. 80.362.00



Ø8mm球头长探针/Long Probe tip Ø 8 mm

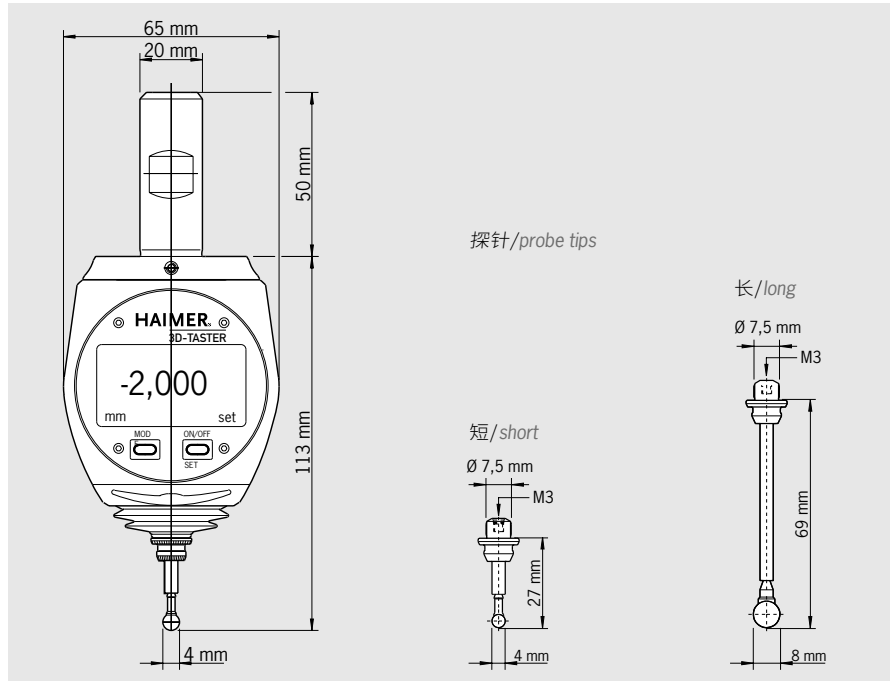
订货号/Order No. 80.363.00



# 数显3D寻边器 3D-Sensor Digital



# 数显3D寻边器 3D-SENSOR DIGITAL



## 数显3D寻边器

### 更加准确安全的测量设备

数显3D寻边器是机械式寻边器的进一步发展,用于铣削和EDM加工设备。机床主轴能快速安全的定位于参照边。细微的靠近过程都能准确地显示于数字屏幕上。因为主轴能准确定位在接触边上,不需要计算就能设置零位。

### 特殊配置:

分辨率为0.001mm的大数字屏幕显示。从远距离也会容易的读取数字。(例如:大型的加工中心上)屏幕是防水和防尘设计(IP64),能够储存在刀具库内。

## 3D-Sensor Digital

### Highly accurate – safe handling

The Digital 3D-Sensor is a further development of the time proven mechanical 3D-Sensor. It serves for approaching workpiece edges on milling and EDM machines. The spindle may be positioned quickly and safely on the references edge. The approaching operation can be exactly monitored on the digital display. The zero points can be set without any calculations because the spindle axis is positioned exactly on the approached edge.

### Especially practical

The digital display has large numbers that measure in increments of 0.001 mm. It can be easily read from a long distance (i.e. when mounted on a large machining center). The digital display is water- and dust-proof (IP 64) and can be stored in the tool magazine of the machine.

## 技术参数/Technical details

数显3D寻边器, 夹持杆 $\varnothing$ 20mm, 含 $\varnothing$ 4mm球头短探针

3D-Sensor Digital with clamping shank  $\varnothing$  20 mm incl. short probe tip  $\varnothing$  4 mm

分辨率/Smallest unit of measure	0,001 mm
重复精度/Repeatability	0,005 mm
测量精度/Measuring accuracy	0,005 mm
<b>显示屏/Display</b>	
显示模式	英制与公制互换
Display mode	May be switched to inch or metric
显示屏尺寸/Display size	45x23 mm
字符高度/Height of numbers	8,5 mm
电池寿命(不间断使用)大约	3000 小时
Service life of battery (continuous operation) approx.	3000 hrs
订货号/Order No.	<b>80.460.00.FHN</b>

## 附件/Accessories

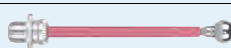
$\varnothing$ 4mm球头短探针/Short probe tip  $\varnothing$  4 mm

订货号/Order No. **80.362.00**



$\varnothing$ 8mm球头长探针/Long probe tip  $\varnothing$  8 mm

订货号/Order No. **80.363.00**



## 建议使用的HAIMER翰默刀柄

Recommended HAIMER tool holders

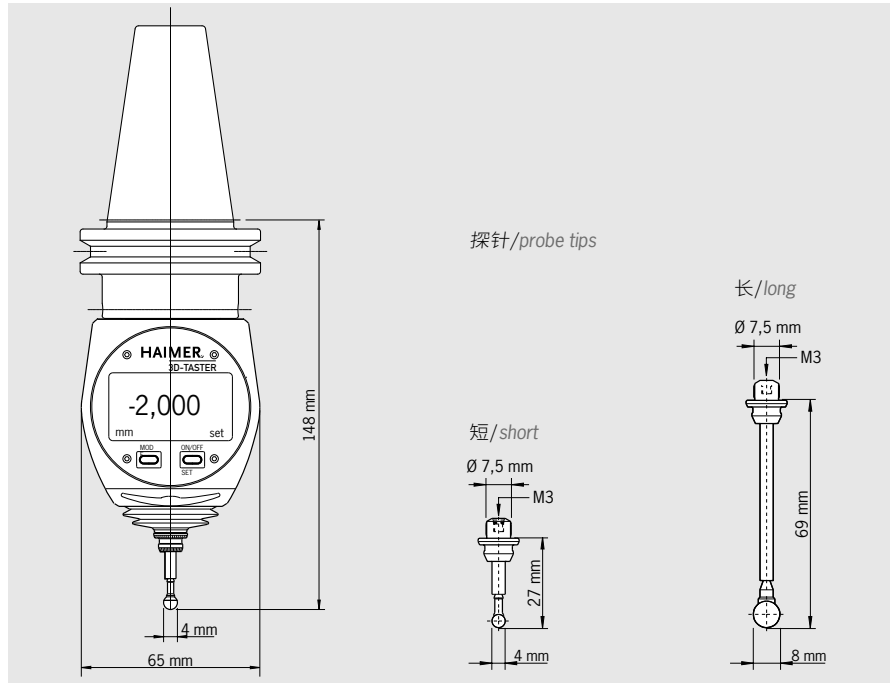
	订货号/Order No.
SK 40 短刀柄/short chuck SK40	<b>40.305.20</b>
SK 50 短刀柄/short chuck SK50	<b>50.300.20</b>
BT 40 短刀柄/short chuck BT40	<b>40.500.20</b>
BT 50 短刀柄/short chuck BT50	<b>50.500.20</b>
HSK-A50 短刀柄/short chuck HSK-A50	<b>A50.000.20</b>
HSK-E50 短刀柄/short chuck HSK-E50	<b>E50.000.20</b>
HSK-A63 短刀柄/short chuck HSK-A63	<b>A63.000.20</b>
HSK-A80 短刀柄/short chuck HSK-A80	<b>A80.000.20</b>
HSK-A100 短刀柄/short chuck HSK-A100	<b>A10.000.20</b>

# 一体式数显3D寻边器

## 3D-Sensor Digital with integrated adapter



# 一体式数显3D寻边器 3D-SENSOR DIGITAL WITH INTEGRATED ADAPTER



## 一体式数显3D寻边器

含有刀柄 (DIN 69871, SK40 或者 JIS B6339, BT40) 的一体式寻边器使用更加方便和舒适。

### 更加准确安全的测量设备

数显3D寻边器是机械式寻边器的进一步发展,用于铣削和EDM加工设备。机床主轴能快速安全的定位于参照边。细微的靠近过程都能准确地显示于数字屏幕上。因为主轴能准确定位在接触边上,不需要计算就能设置零位。

### 特殊配置:

分辨率为0.001mm的大数字屏幕显示。从远距离也会容易的读取数字。(例如:大型的加工中心上)屏幕是防水和防尘设计(IP64),能够储存在刀具库内。

## 3D-Sensor Digital with integrated adapter

The integrated taper (DIN 69871, SK40 or JIS B6339, BT40) guarantees easiest handling and a maximum of comfort.

### Highly accurate – safe handling

The Digital 3D-Sensor is a further development of the time proven mechanical 3D-Sensor. It serves for approaching workpiece edges on milling and EDM machines. The spindle may be positioned quickly and safely on the references edge. The approaching operation can be exactly monitored on the digital display. The zero points can be set without any calculations because the spindle axis is positioned exactly on the approached edge.

### Especially practical

The digital display has large numbers that measure in increments of 0.001 mm. It can be easily read from a long distance (i.e. when mounted on a large machining center). The digital display is water- and dust-proofed (IP 64) and can be stored in the tool magazine of the machine.

## 技术参数/Technical details

### 一体式数显3D寻边器, 含Ø4mm球头短探针 3D-Sensor Digital with integrated adapter incl. short probe tip Ø 4 mm

分辨率/Smallest unit of measure	0,001 mm
重复精度/Repeatability	0,005 mm
测量精度/Measuring accuracy	0,005 mm
<b>显示屏/Display</b>	
显示模式	英制与公制互换
Display mode	May be switched to inch or metric
显示屏尺寸/Display size	45x23 mm
字符高度/Height of numbers	8,5 mm
电池寿命(不间断使用)大约	3000 小时
Service life of battery (continuous operation) approx.	3000 hrs
含 SK 40 刀柄//with integrated adapter SK 40	
<b>订货号/Order No.</b>	<b>80.464.40.FHN</b>
含 BT 40 刀柄//with integrated adapter BT 40	
<b>订货号/Order No.</b>	<b>80.465.40.FHN</b>

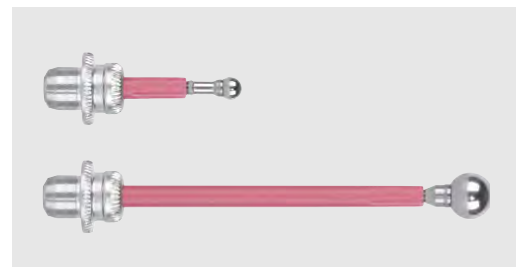
## 附件/Accessories

Ø4mm球头短探针/Short probe tip Ø 4 mm

**订货号/Order No. 80.362.00**

Ø8mm球头长探针/Long probe tip Ø 8 mm

**订货号/Order No. 80.363.00**



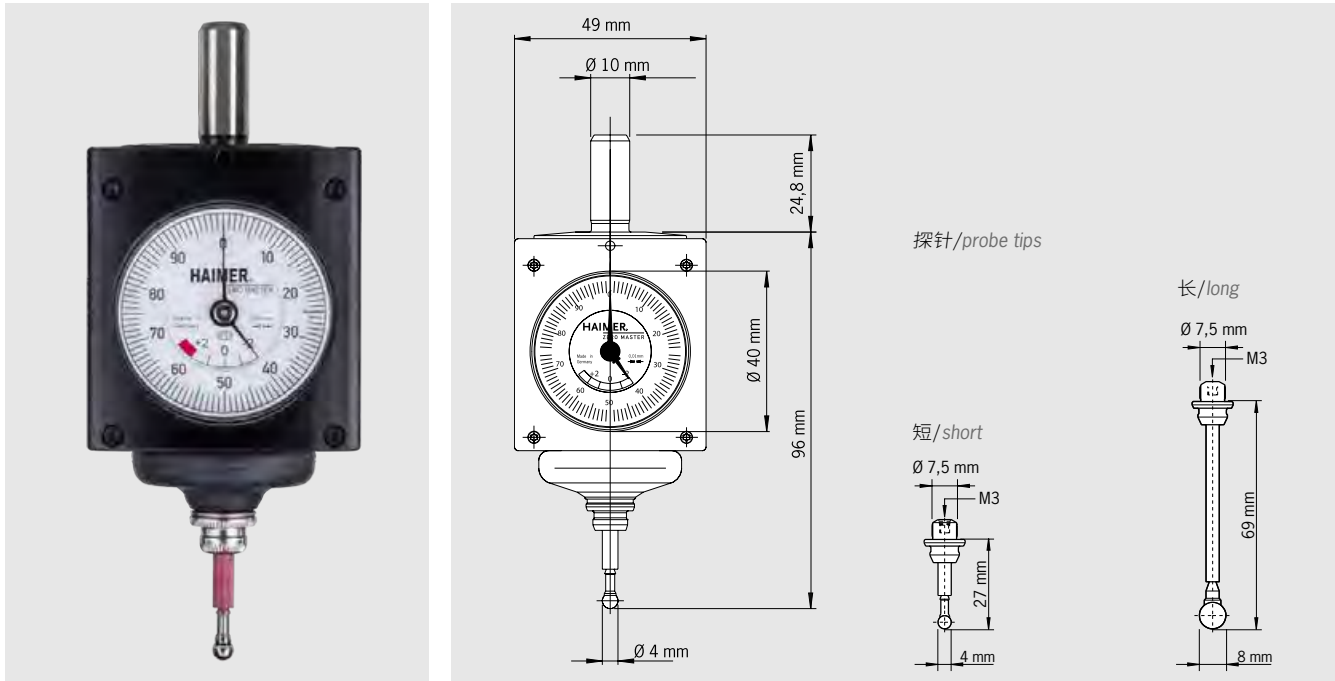
Ø4mm球头短探针/Short probe tip Ø 4 mm  
Ø8mm球头长探针/Long probe tip Ø 8 mm



# 超小型3D寻边器 3D-Sensor Zero Master



## 超小型3D寻边器 3D-SENSOR ZERO MASTER



### 超小型3D寻边器

#### 尺寸小巧性能优良

Zero Master是非常小的3D寻边器。使用、功能和精度与通用型3D寻边器相同。Zero Master适用于小机床，夹持直径为10mm，因此它能用于ISO30或小型HSK主轴的机床上。本体缩短且不会突出主轴太远，因此可用于测量平整的大工件。Zero Master能通过小表盘读取数值。

Zero Master可安装直径 $\varnothing 4$ mm的球头短探针或直径 $\varnothing 8$ mm的球头长探针。这些探针与其它HAIMER 翰默3D寻边器兼容。

#### 请注意：

只有使用HAIMER翰默原厂探针才能保证测量精度达到0.01mm。

- 防水等级：IP67

### Zero Master

#### Small but nice

The Zero Master is the smallest 3D-Sensor worldwide. Usage, function and accuracy are equal to the Universal 3D-Sensor. The size of the Zero Master is adapted to small machines. The diameter of the clamping shank is 10mm. Thus it can be also used on machines with ISO 30 or small HSK spindles.

The housing is shortened and does not protrude far out of the spindle so even big work pieces can be measured. The Zero Master can be read with a small analog dial gauge.

The Zero Master can be equipped with a short (ball diam. 4 mm) and a long (ball diam. 8 mm) probe tip. The probe tips of course are compatible to all other HAIMER 3D-Sensors.

#### Please take note:

The given measuring precision of 0.01 mm only applies if the original HAIMER probe tips are used.

- IP 67 waterproof

#### 技术参数/Technical details

超小型3D寻边器，夹持杆 $\varnothing 10$ mm，含 $\varnothing 4$ mm球头短探针

Zero Master with clamping shank  $\varnothing 10$  mm including short probe tip  $\varnothing 4$  mm

精度/Accuracy 0,01 mm

不含夹持杆的长度/Length without clamping shank 96 mm

订货号/Order No. **80.960.00**

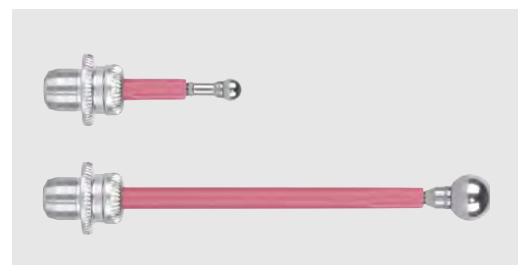
#### 附件/Accessories

$\varnothing 4$ mm球头短探针/Short probe tip  $\varnothing 4$  mm

订货号/Order No. **80.362.00**

$\varnothing 8$ mm球头长探针/Long probe tip  $\varnothing 8$  mm

订货号/Order No. **80.363.00**

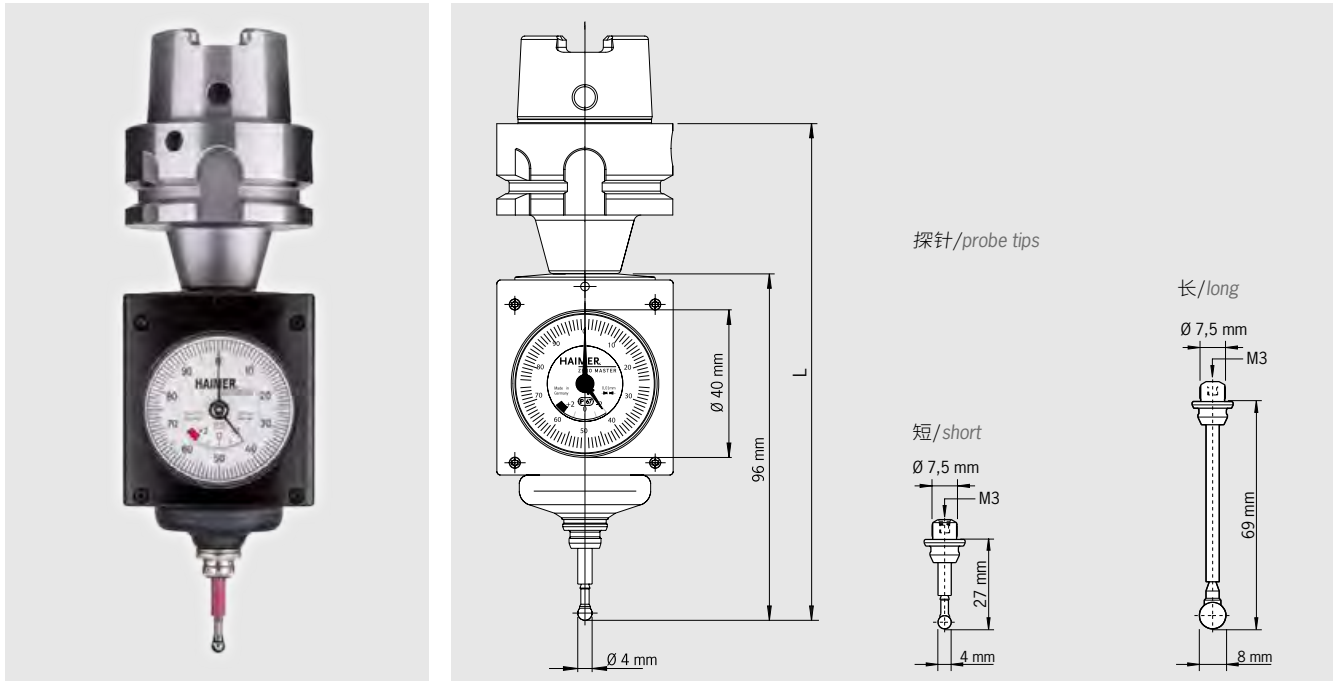


$\varnothing 4$ mm球头短探针/Short probe tip  $\varnothing 4$  mm  
 $\varnothing 8$ mm球头长探针/Long probe tip  $\varnothing 8$  mm

# 一体式超小型3D寻边器 3D-Sensor Zero Master with integrated short adapter



# 一体式超小型3D寻边器 3D-SENSOR ZERO MASTER WITH INTEGRATED SHORT ADAPTER



## 为SK30, BT30, HSK-25/32/40/50/63接口设计

节省机床空间的简易工件测量设备

### 种类:

- 搭配SK30, BT30, HSK-25/32/40/50/63接口的短型刀柄
- 无需手动进一步调整精度, 发货前探针的预调精度为0.01mm
- 测量精度: 0.01mm
- 可选择长探针或短探针, 无需工具即可更换
- 无需再次校准
- 增加临界距离
- 防水等级: IP67

### 应用:

- 适合小型的加工中心和EDM机床 (绝缘探针)
- 适合工件预设或者长度测量
- 任何方向都可测量 (x- y- z-轴)

## For interfaces SK30, BT30, HSK-25/32/40/50/63

Simple workpiece measuring with less space in the machine.

### Version:

- With integrated short adapter in version SK30, BT30, HSK-25/32/40/50/63
- No further manual runout adjustment necessary! Delivery with preset runout accuracy at the probe tip of 0.01 mm
- Measuring accuracy: 0.01 mm
- Short and long probe tips available, no tool change necessary
- No re-calibration of the sensor is needed
- Enhanced overrun distance
- IP 67 waterproof

### Application:

- For small Milling and EDM machines (isolated probe)
- For workpiece-reset and length measuring
- Any direction approach (X-, Y-, Z-axis)

## 技术参数/Technical details

### 一体式超小型3D寻边器 含Ø4mm球头短探针 3D-Sensor Zero Master with integrated short adapter including short probe tip Ø 4 mm

精度/Accuracy	0,01 mm	
产品描述/Article	订货号/Order No.	L [mm]
含HSK-E25短型刀柄/Zero Master with short adapter	<b>HSK-E25</b>	<b>121,6</b>
含HSK-E32短型刀柄/Zero Master with short adapter	<b>HSK-E32</b>	<b>131,6</b>
含HSK-E40短型刀柄/Zero Master with short adapter	<b>HSK-E40</b>	<b>131,6</b>
含HSK-E50短型刀柄/Zero Master with short adapter	<b>HSK-E50</b>	<b>138,6</b>
含HSK-A32短型刀柄/Zero Master with short adapter	<b>HSK-A32</b>	<b>131,6</b>
含HSK-A40短型刀柄/Zero Master with short adapter	<b>HSK-A40</b>	<b>131,6</b>
含HSK-A50短型刀柄/Zero Master with short adapter	<b>HSK-A50</b>	<b>138,6</b>
含HSK-A63短型刀柄/Zero Master with short adapter	<b>HSK-A63</b>	<b>142,1</b>
含SK30短型刀柄/Zero Master with short adapter	<b>SK30</b>	<b>131,2</b>
含BT30短型刀柄/Zero Master with short adapter	<b>BT30</b>	<b>130,7</b>

### 附件/Accessories

Ø4mm球头短探针/Short probe tip Ø 4 mm

订货号/Order No. **80.362.00**



Ø8mm球头长探针/Long probe tip Ø 8 mm

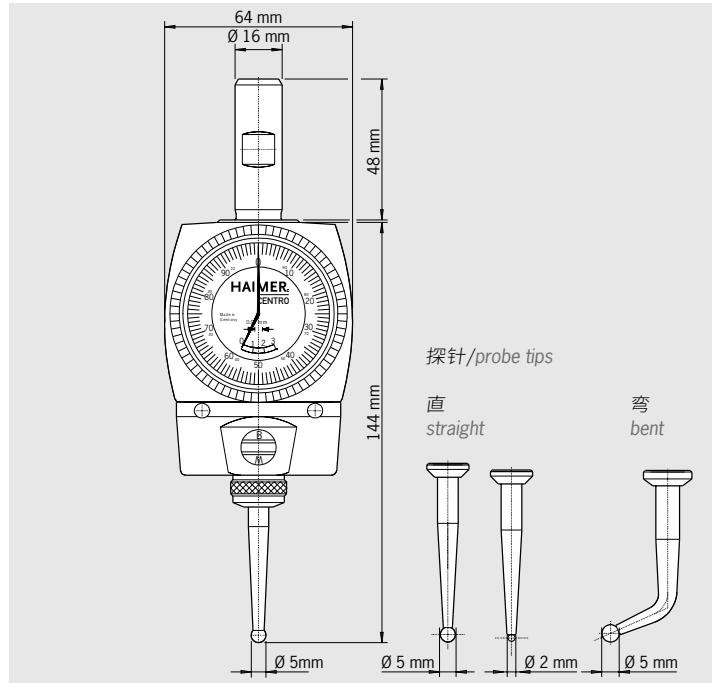
订货号/Order No. **80.363.00**



## 测量同轴度的对中仪 Coaxial Indicator Centro



# 对中仪 CENTRO



## 对中仪

### 内孔和外圆的快速且精密的对中

对中仪装夹于刀柄上，定位于测量轴线的附近。  
调整探头，使探头接触需要测量的内孔表面或外圆表面。

### 表盘总位于可视范围

探针在内孔或者轴的外圆低速滑动时，他的运动反映在表盘上。  
通过使用天线，对中仪的表盘不会旋转，表盘始终在操作者的视野内。

### 对中仪可以很可靠地寻找轴或者内孔的轴线

通过调整机床x-y-轴，可达到工件和主轴轴线重合。当表盘上的指针停止运动时，主轴和被测内孔或者轴的中心重合。

### 更多功能：

- 测量工件轴线相对于主轴的跳动
- 补偿主轴和刀柄的同心误差>>不必调整
- 超大表盘可以让远距离的测量变得简单
- 探针可更换

## Centro

### Center bores and arbors quick and precise

The Centro is clamped in a tool holder and positioned close the sought axis.  
The probe tip is adjusted and touches the bore or arbor all the way around.

### Dial gauge always in field of vision

With low rpm the probe slides along the bore or arbor.  
Its movement is transferred to the dial gauge. By using an antenna the Centro does not spin around and stays in field of vision.

### By using the Centro you find the axis of bores or arbors - reliably

As long as the spindle is out of the center of the bore or arbor the hands of the dial gauge stay in movement. By changing the position of x- and y- axis at the machine you can jibe the axis of the spindle and the work piece.

### Further advantages:

- Check the axial run-out of the work piece to the spindle
- Compensation of the run-out errors of the spindle and tool holder  
>> No adjustment necessary
- Even in bigger distance the unusual size of the dial gauge is helpful to finish the job
- Replaceable probes

## 技术参数/Technical details

对中仪 夹持杆Ø16mm，含Ø5mm球头直探针  
Centro with clamping shank Ø 16 mm incl. straight probe tip Ø 5 mm

对中精度/Centering accuracy	0,003 mm
最高转速/Max. rotation speed	150 1/min
内径测量范围(孔)/Measuring range interior diameter (drill hole)	3-125 mm
外径测量范围(轴, 使用弯探针) Measuring range exterior diameter (shaft, with probe tip bent)	0-125 mm
订货号/Order No.	<b>80.300.00.FHN</b>

## 附件/Accessories

Ø5mm球头直探针/Probe tip straight with diameter of ball 5 mm  
订货号/Order No. **80.301.00**



Ø5mm球头弯探针/Probe tip bent with diameter of ball 5 mm  
订货号/Order No. **80.302.00**



Ø2mm球头直探针, 用于小孔/  
Probe tip straight with diameter of ball 2 mm, for small bores  
订货号/Order No. **80.303.00**



## 建议使用的HAIMER翰默刀柄

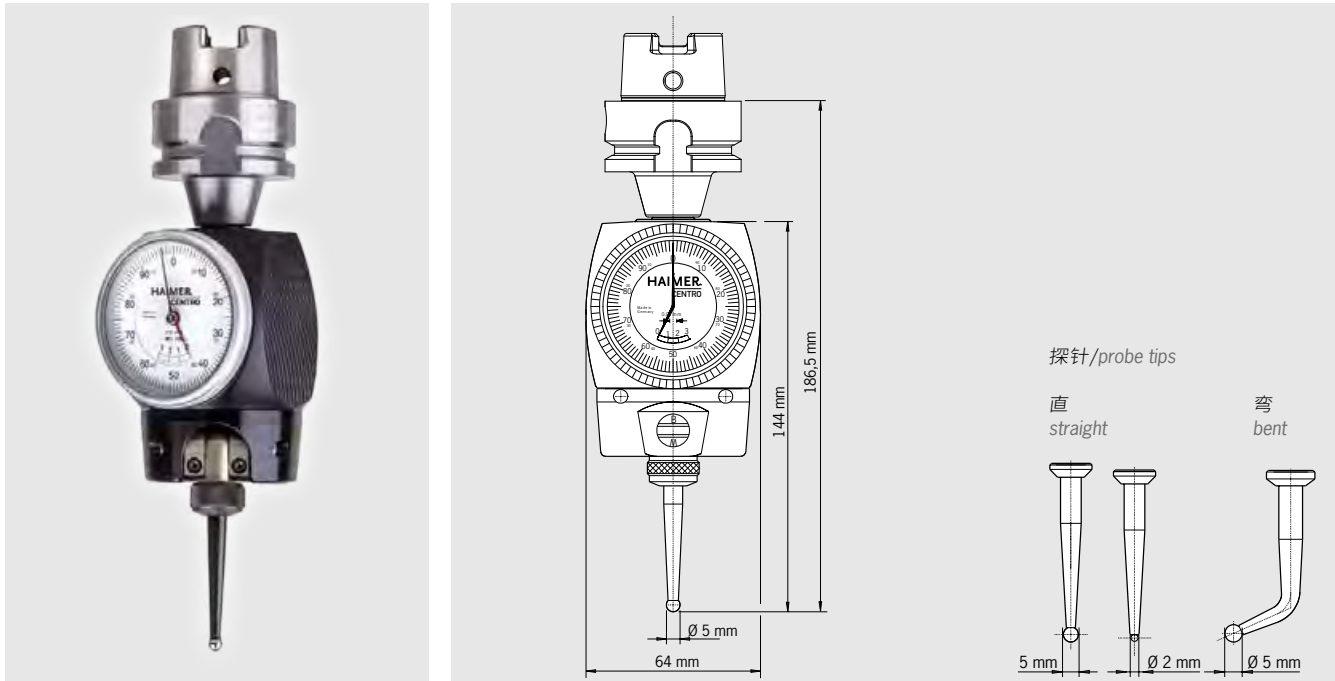
### Recommended HAIMER tool holders

	订货号/Order No.
SK 40 短刀柄/short chuck SK40	<b>40.300.16</b>
SK 50 短刀柄/short chuck SK50	<b>50.300.16</b>
BT 40 短刀柄/short chuck BT40	<b>40.500.16</b>
BT 50 短刀柄/short chuck BT50	<b>50.500.16</b>
HSK-A40 短刀柄/short chuck HSK-A40	<b>A40.000.16</b>
HSK-A50 短刀柄/short chuck HSK-A50	<b>A50.000.16</b>
HSK-E50 短刀柄/short chuck HSK-E50	<b>E50.000.16</b>
HSK-A63 短刀柄/short chuck HSK-A63	<b>A63.000.16</b>
HSK-A100 短刀柄/short chuck HSK-A100	<b>A10.000.16</b>

## 带HSK-A50刀柄的一体式对中仪 Centro with integrated short adapter



## 带HSK-A50刀柄的一体式对中仪 CENTRO WITH INTEGRATED ADAPTER HSK-A50



### 一体式对中仪

一体式对中仪为客户提供更简单和人性化的操作方法。

### 内孔和外圆的快速精密对中

对中仪装夹于刀柄上，定位于测量轴线的附近。调整探头，使探头接触需要测量的内孔表面或外圆表面。

### 表盘总位于可视范围

探针在内孔或者轴的外圆低速滑动时，他的运动反映在表盘上。通过使用天线，对中仪的表盘不会旋转，表盘始终在操作者的视野内。

### 对中仪可以很可靠地寻找轴或者内孔的轴线

通过调整机床x-y-轴，可达到工件和主轴轴线重合。当表盘上的指针停止运动时，主轴和被测内孔或者轴的中心重合。

### 更多功能：

- 测量工件轴线相对于主轴的跳动
- 补偿主轴和刀柄的同心误差>>不必调整
- 超大表盘可以让远距离的测量变得简单
- 探针可更换

### Centro with integrated adapter

The integrated adapter guarantees easiest handling and a maximum of comfort.

### Center bores and arbors quick and precise

The Centro is clamped in a tool holder and positioned close the sought axis. The probe tip is adjusted and touches the bore or arbor all the way around.

### Dial gauge always in field of vision

With low rpm the probe slides along the bore or arbor. Its movement is transferred to the dial gauge. By using an antenna the Centro does not spin around and stays in field of vision.

### By using the Centro you find the axis of bores or arbors - reliably

As long as the spindle is out of the center of the bore or arbor the hands of the dial gauge stay in movement. By changing the position of x- and y- axis at the machine you can jibe the axis of the spindle and the work piece.

### Further advantages:

- Check the axial run-out of the work piece to the spindle
- Compensation of the run-out errors of the spindle and tool holder  
>> No adjustment necessary
- Even in bigger distance the unusual size of the dial gauge is helpful to finish the job
- Replaceable probes

### 技术参数/Technical details

带HSK-A50刀柄的一体式对中仪，含 $\varnothing 5\text{mm}$ 球头直探针  
Centro with integrated adapter HSK-A50 and straight probe tip  $\varnothing 5\text{ mm}$

对中精度/Centering accuracy	0,003 mm
最高转速/Max. rotation speed	150 1/min
内径测量范围(孔)/Measuring range interior diameter (drill hole)	3-125 mm
外径测量范围(轴, 使用弯探针) Measuring range exterior diameter (shaft, with probe tip bent)	0-125 mm

订货号/Order No. **80.303.A50**

### 附件/Accessories

$\varnothing 5\text{mm}$ 球头直探针/Probe tip straight with diameter of ball 5 mm

订货号/Order No. **80.301.00**



$\varnothing 5\text{mm}$ 球头弯探针/Probe tip bent with diameter of ball 5 mm

订货号/Order No. **80.302.00**



$\varnothing 2\text{mm}$ 球头直探针, 用于小孔/  
Probe tip straight with diameter of ball 2 mm, for small bores

订货号/Order No. **80.303.00**





# 机床的校正套装 Machine tool calibration set



## 机床的校正套装 MACHINE TOOL CALIBRATION SET



- 稳定, 防尘, 防水  
为您的测量设备提供完美防护的高强度塑料外壳
- 两套包含附件的高质量和高精度的通用型翰默寻边器
- 适用于各种金属切削机床的翰默寻边器的转换接口
- 用于设备校正以及测量的几个块规
- 两套带专用表座的高质量的杠杆表
- Stable, dust proof and water proof plastic-case provides perfect protection of your measuring equipment
- Two high quality, precise and universal HAIMER sensors incl. accessories
- Adapter for versatile use of the HAIMER sensors in all types of metal cutting machines
- Several gauge blocks for checking and calibrating your measuring equipment and for individual measurements
- Two high quality dial indicators with corresponding gauge stand

### 安装快速, 简单, 可以轻松的对您的机床设备进行检测

- 对您的车床及铣床进行高精度的对中, 以保障您加工产品的质量等级
- 通过快速且精确地对您机床的运行轴及工件进行定位来检查机床精度
- 更快和更精确地调整您的机床的主轴和各轴的位置, 降低零件报废的概率, 同时避免不必要的刀具损耗成本
- 简单可靠地检测您的机床的几何尺寸, 确保测量结果的一致性

#### 发货时包含:

- 工具箱  
黑色工业塑料箱体, IP67级防尘防水, 碰撞保护, 外形尺寸: 464\*366\*176mm, 内部尺寸: 426\*290\*159mm
- 18个黑色泡沫凹槽
- 翰默通用型3D寻边器
- $\phi 4$ mm球头短探针;  $\phi 8$ mm球头长探针
- 翰默对中仪
- $\phi 5$ mm球头直探针
- $\phi 5$ mm球头弯探针
- $\phi 2$ mm球头直探针
- 对中仪夹具和调整工具
- 测试棒,  $\phi 16 \times 93$ mm
- KAFER 杠杆表 M2TopS:  
10mm测量范围, 碰撞防护, 坚固的金属外壳, 旋转计数
- TESA瑞士杠杆表  
带红宝石球, 测头臂长度12.5mm
- 杠杆表支架, DK夹具系统  
行动半径345mm, 磁力900N, 夹紧柄径 $\phi 8$ , h6等级
- 测量块,  $50 \times 35 \times 9$ mm

### Fast and easy installation and inspection of your machine tool

- Highly accurate alignment of lathe and milling machines to secure your quality level
- Quick and very precise positioning of your axis and workpieces to check the machine accuracy
- Faster and more precise installation of axis and spindles of your machine tool to reduce scrap and avoid unnecessarily high tool costs
- Simple and reliable inspection of the machine geometry for consistent machining results

#### Included in delivery:

- Suitcase:  
Black plastic-case, dust- and water proof according to IP67, collision protection external dimension: 464 x 366 x 176 mm, internal dimension: 426 x 290 x 159 mm
- Black foam inlay with 18 recesses
- HAIMER Universal 3D-Sensor
- Short probe tip  $\phi 4$  mm, Long probe tip  $\phi 8$  mm
- HAIMER Centro
- Straight probe tip,  $\phi 5$  mm
- Bent probe tip,  $\phi 5$  mm
- Straight probe tip,  $\phi 2$  mm
- Centro fixture and adjustment help
- Test bolt,  $\phi 16 \times 93$  mm
- KÄFER dialindicator M2TopS:  
Measuring range 10 mm, collision protection, robust metal housing, rotation counter
- Lever gauge, TESA Swisstast  
Length probe arm 12,5 mm with ruby ball
- Dial indicator tripod, DK fixturing systems  
Radius of action 345 mm, magnetic holding power 900 N, clamping shaft  $\phi 8$  h 6
- Gauge block,  $50 \times 35 \times 9$  mm

机床的校正套装/ Machine tool calibration set

订货号/Order No. 80.370.00

# 刀具管理系统

# TOOL MANAGEMENT

# 目录

## CONTENT

<b>刀具管理系统/Tool Management</b>	
概论/Overview	708
<b>模块及工具柜/Modules and Cabinets</b>	
转角连接单元/Corner Module	711
装配工作台单元/Workbench Assembly Module	712
多层刀具柜/Magazine Cabinet	714
货架单元/Shelf Module	715
通用型垂直储物柜/Vertical Cabinet Universal	716
刀柄储物柜/Vertical Cabinet Tool Holder	717
刀柄储物柜-货架/Vertical Cabinet Tool Holder–Shelves	719
<b>装配工作台及附件/Assembly Station and Accessories</b>	
装配工作台/Assembly Station	720
<b>连接部件/Connection Parts</b>	
<b>722</b>	
<b>刀柄运输车 and 附件/Tool Holder Cart and Accessories</b>	
刀柄运输车/Tool Holder Cart	723
货架/Shelves	726
更多的刀柄运输车附件/Further Accessories for Tool Holder Cart	727
<b>开孔板/Perforated Plate</b>	
开孔板下支架/Holder Jowls for Perforated Plate	728
<b>附件/Accessories</b>	
<b>729</b>	

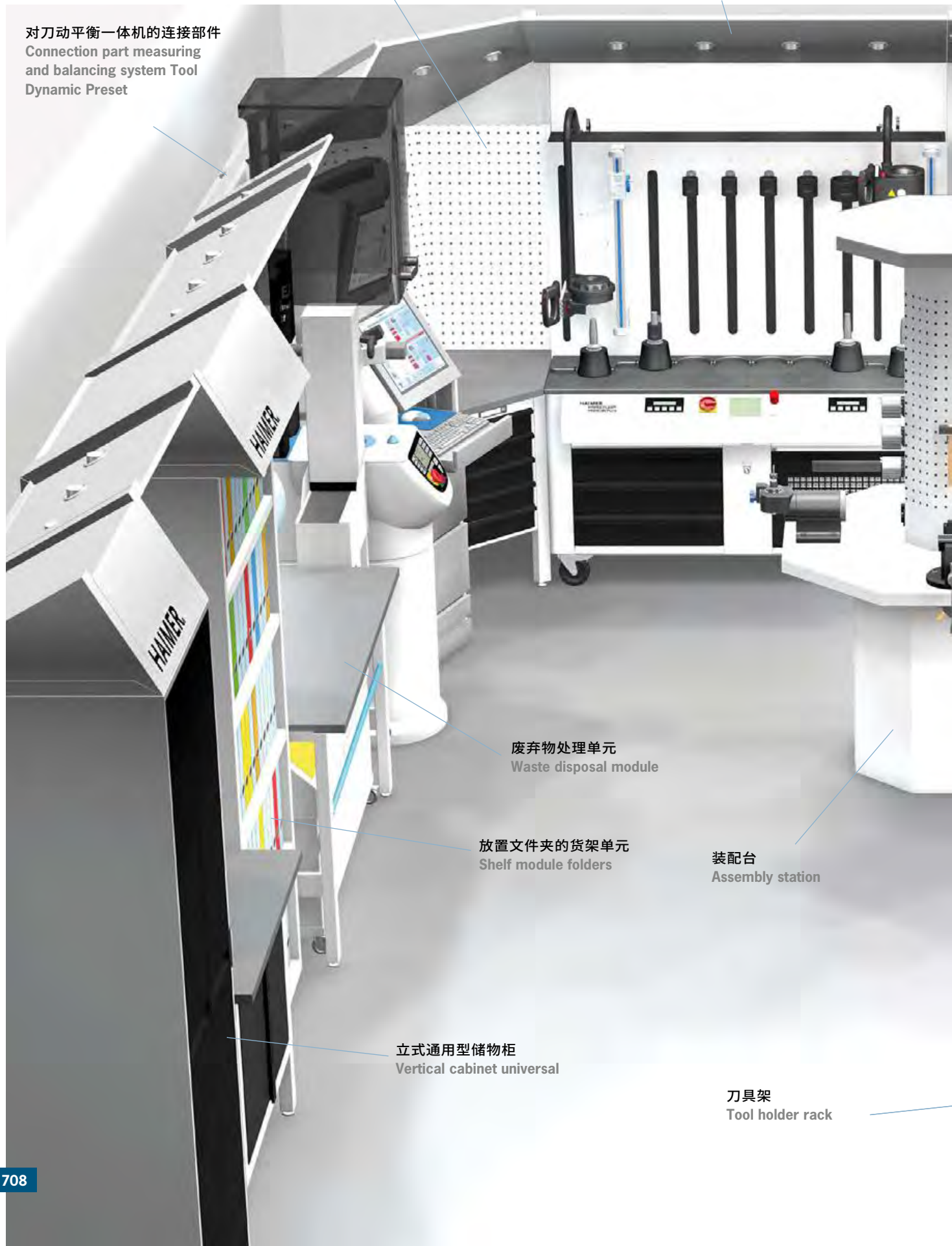
# 翰默刀具管理系统-概论

## HAIMER TOOL MANAGEMENT LOGISTICS SYSTEM – OVERVIEW

带穿孔墙的角落连接单元  
Corner module with perforated wall

超级增强型热缩机的连接部件  
Connection part shrink fit machine  
Power Clamp Premium Plus

对刀动平衡一体机的连接部件  
Connection part measuring and balancing system Tool Dynamic Preset



废弃物处理单元  
Waste disposal module

放置文件夹的货架单元  
Shelf module folders

装配台  
Assembly station

立式通用型储物柜  
Vertical cabinet universal

刀具架  
Tool holder rack

装配工作台单元  
Workbench assembly module

带背墙的转角连接单元, 背墙上同时含有刀  
具储存套  
Corner module with rear wall for storing  
collets and tools

信息登记工作台单元  
Workbench info module

架子部件单元  
Shelf module parts

多层刀具柜  
Magazine cabinet

立式刀柄储藏柜  
Vertical cabinet  
tool holders



## 刀具管理系统-工作效率更高 TOOL MANAGEMENT – FOR EFFICIENT WORKING



### 用途:

翰默刀具管理系统完善了翰默的产品范围,使其成为刀具夹持领域的系统供应商。翰默成为提供完整的刀具管理设备的单一供应商。作为刀具预调和刀具管理的完整解决方案,翰默刀具管理系统为您的工作场所提供符合人体工程学的功能标准。翰默的解决方案帮您优化和简化刀具的存储,调整和管理,因此可以保证高效率的工作。

- 根据客户的需求定制模块化的刀具室
- 其中已经具备了刀具的热缩安装、预调和动平衡的功能
- 整洁和独立的空间有助于专注的工作

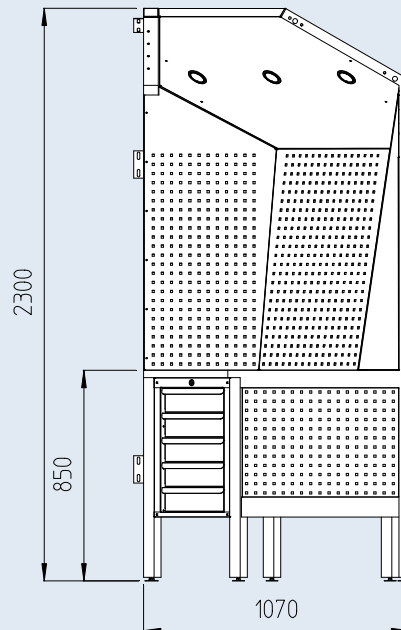
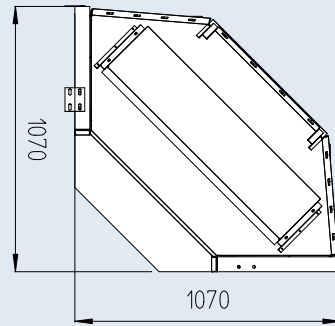
### Use:

The HAIMER Tool Management completes the HAIMER product program as a system partner around tool clamping. That means HAIMER offers the complete Tool Management equipment from a single source. As a complete solution for tool presetting and tool management, the HAIMER Tool Management provides you with functional and ergonomic criteria for the design of work stations. The storage, setup and management of tools is simplified and optimised by the HAIMER solutions so that efficient working is guaranteed.

- Modular room design according to the customer's requirements
- Shrinking, balancing and presetting already integrated into the concept
- Tidy and isolated solution for concentrated working

## 转角连接单元 CORNER MODULE

### 带穿孔墙的转角连接单元 Corner module with perforated wall



#### 用途:

穿孔的后壁以及抽屉单元提供了一个整洁及结构化的工作空间。三个集成的LED灯保障了一个持续明亮和舒适的工作氛围。

#### 发货时包含:

- 带穿孔墙的转角连接单元, 集成了LED灯以及相应的抽屉单元

#### Use:

The perforated back wall and drawer unit provide a clean and structured workspace. The three integrated LED spots ensure a continually bright and comfortable working atmosphere.

#### Delivery includes:

- Corner module with a perforated wall, roof with LED lighting, drawer unit

#### 描述/Description

转角连接单元 4.0/Corner module 4.0

#### 订货号/Order No.

84.802.00.3



## 装配工作台单元 WORKBENCH ASSEMBLY MODULE



### 用途：

- 自由配置的工作台
- 各种配置可模块化预选，根据您的选择进行对应产品的交付

### 发货时包含：

- 包含穿孔墙的标准工作台，集成了4个LED灯柱以及4个230V电源插座

### Use:

- Freely configurable workbench
- Individual delivery by using a predefined modular system

### Delivery includes:

- Standard equipment includes perforated back wall, 4 LED spots and 4 x 230V power outlets

描述/Description

装配工作台单元/Workbench assembly module

订货号/Order No.

84.801.00.3

## 装配工作台单元-配置 WORKBENCH ASSEMBLY MODULE – CONFIGURATIONS



图片显示：配置屏幕支架，废弃物处理单元以及擦拭纸辊筒的装配工作台单元  
Picture shows: Assembly module with screen holder, waste disposal module and paper dispenser



擦拭纸辊筒  
Paper dispenser



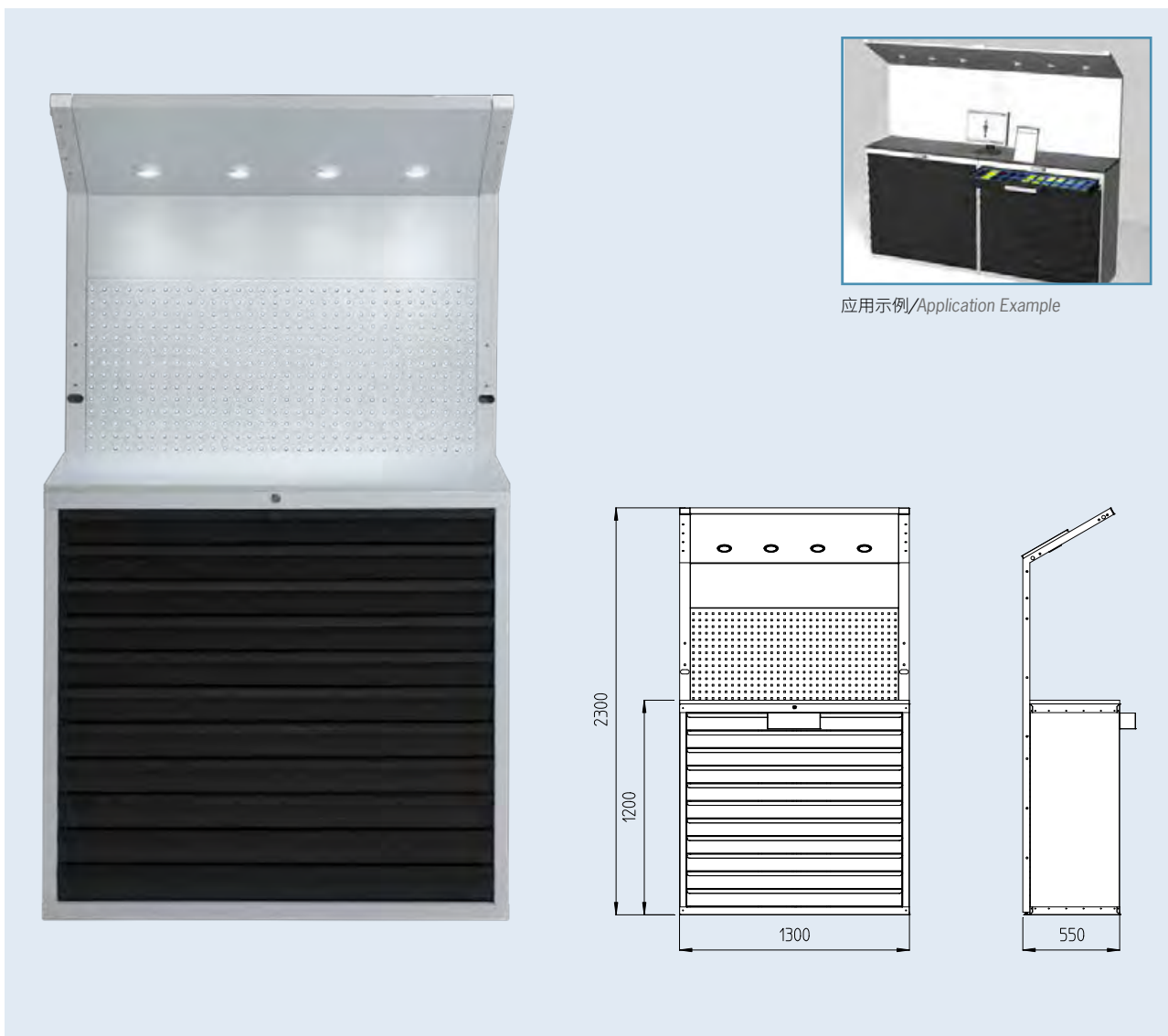
废弃物处理单元  
Waste disposal module



抽屉柜  
Drawer cupboard

配置/Configurations	订货号/Order No.
带穿孔墙的装配工作台单元/Workbench assembly module with perforated wall	84.801.00.3
带抽屉柜的装配工作台单元/Workbench assembly module with drawer cupboard	84.801.01.3
带电脑支架以及显示器支架的装配工作台单元/Workbench assembly module with PC holder and screen holder	84.801.02.3
带电脑支架，显示器支架，以及抽屉柜的装配工作台单元 Workbench assembly module with PC holder, screen holder and drawer cupboard	84.801.03.3
带擦拭纸辊筒的装配工作台单元/Workbench assembly module with paper dispenser	84.801.04.3
带抽屉柜以及擦拭纸辊筒的装配工作台单元 Workbench assembly module with drawer cupboard and paper dispenser	84.801.05.3
带抽屉柜，擦拭纸辊筒，电脑支架以及显示器支架的装配工作台单元 Workbench assembly module with drawer cupboard, paper dispenser, PC holder and screen holder	84.801.06.3
带废弃物处理单元的装配工作台单元/Workbench assembly module with waste disposal module	84.801.07.3
带废弃物处理单元以及擦拭纸辊筒的装配工作台单元 Workbench assembly module with waste disposal module and paper dispenser	84.801.08.3
超级型热压机专用型装配工作台单元/Workbench module – dropped for Power Clamp Premium	84.807.00.3

## 多层刀具柜 MAGAZINE CABINET



### 用途:

用于存储工具(刀具, 刀柄等等)以及小型部件的多层刀具柜。带穿孔的背墙可以清晰的陈列各种刀具。整体高度1.2m,符合人体工程学设计。

### 发货时包含:

- 带一个标准工作台的多层刀具柜, 集成了4套LED灯座的穿孔背墙
- 11个抽屉

### Use:

Magazine cabinet for proper disposal of tools (inserts, shank tools etc.) and small parts. The perforated wall helps for a clear arrangement of (mounting) tools.

Ergonomical working height at 1,20 m.

### Delivery includes:

- Magazine cabinet with a standing work area, perforated wall and 4 LED Spots
- 11 drawers

### 描述/Description

多层刀具柜/Magazine cabinet

### 订货号/Order No.

84.804.00.3

### 附件/Accessories

12件抽屉小组件(工业塑料, 蓝色), 用于多层刀具柜单层抽屉分隔

12 pcs. Drawer equipment (plastic blue) sufficient for 1 drawer at the magazine cabinet

84.810.14

24个抽屉柜的分隔件(合成材料)/24 pcs. Divider for drawer equipment (synthetic material)

84.810.15

## 货架单元 SHELF MODULE



### 用途:

带遮蔽层的货架单元, 用于储放附件类产品

### 发货时包含:

- 标配4层货架, 以及2组LED灯座
- 选配: 额外的货架层, 砂轮货架层

### Use:

Shelf module with hood for proper disposal of accessories.

### Delivery includes:

- Equipped as standard with 4 shelf cabinets and 2 LED Spots
- Optional: additional shelf cabinet, shelf cabinet for grinding wheels

### 描述/Description

带遮蔽层的货架单元/Shelf module with hood

### 订货号/Order No.

84.805.01.3

### 附件/Accessories

货架储物止动板/Shelf for shelf cabinet with stop bar

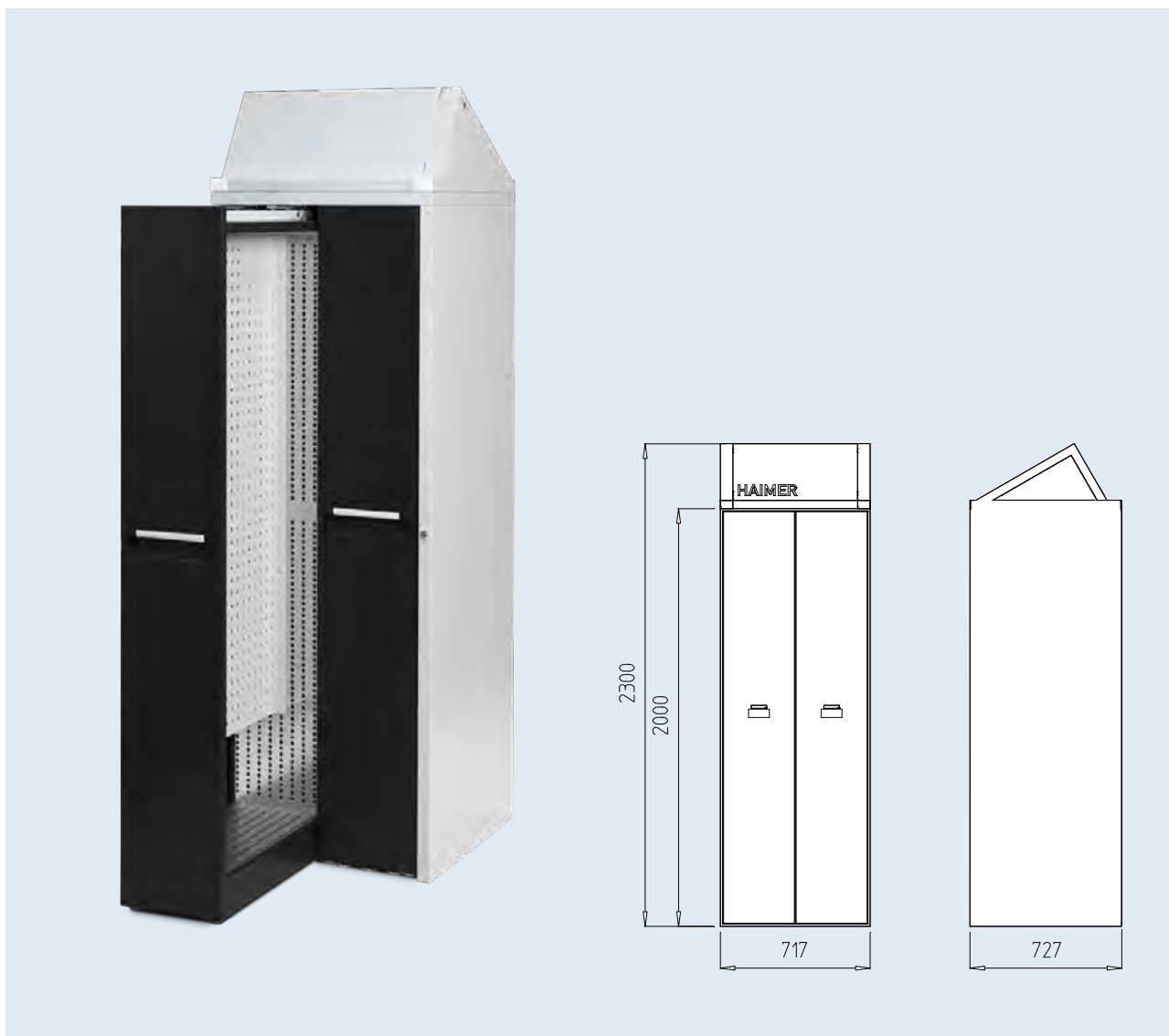
### 订货号/Order No.

84.805.00.01.3

可存储2个砂轮的砂轮用货架层/Shelf for grinding wheels for shelf cabinet to hold 2 grinding wheels

84.805.00.03

## 立式通用型储物柜 VERTICAL CABINET UNIVERSAL



### 用途:

可两侧开出的带开孔墙的储物柜, 便于存储刀具及刀具附件, 保持工作环境的整洁。两边都可以移动, 精准定位所需求的刀具。

### 发货时包含:

- 带两块穿孔背板的立式通用型储物柜(可两侧打开)

### Use:

Pullout cabinets with perforated walls can be equipped on both sides and provide a clean storage area for tools or auxiliary tools. The accessibility from both sides facilitates the removal and localisation of the needed tool.

### Delivery includes:

- Vertical cabinet Universal with 2 perforated panel extracts (can be equipped on both sides)

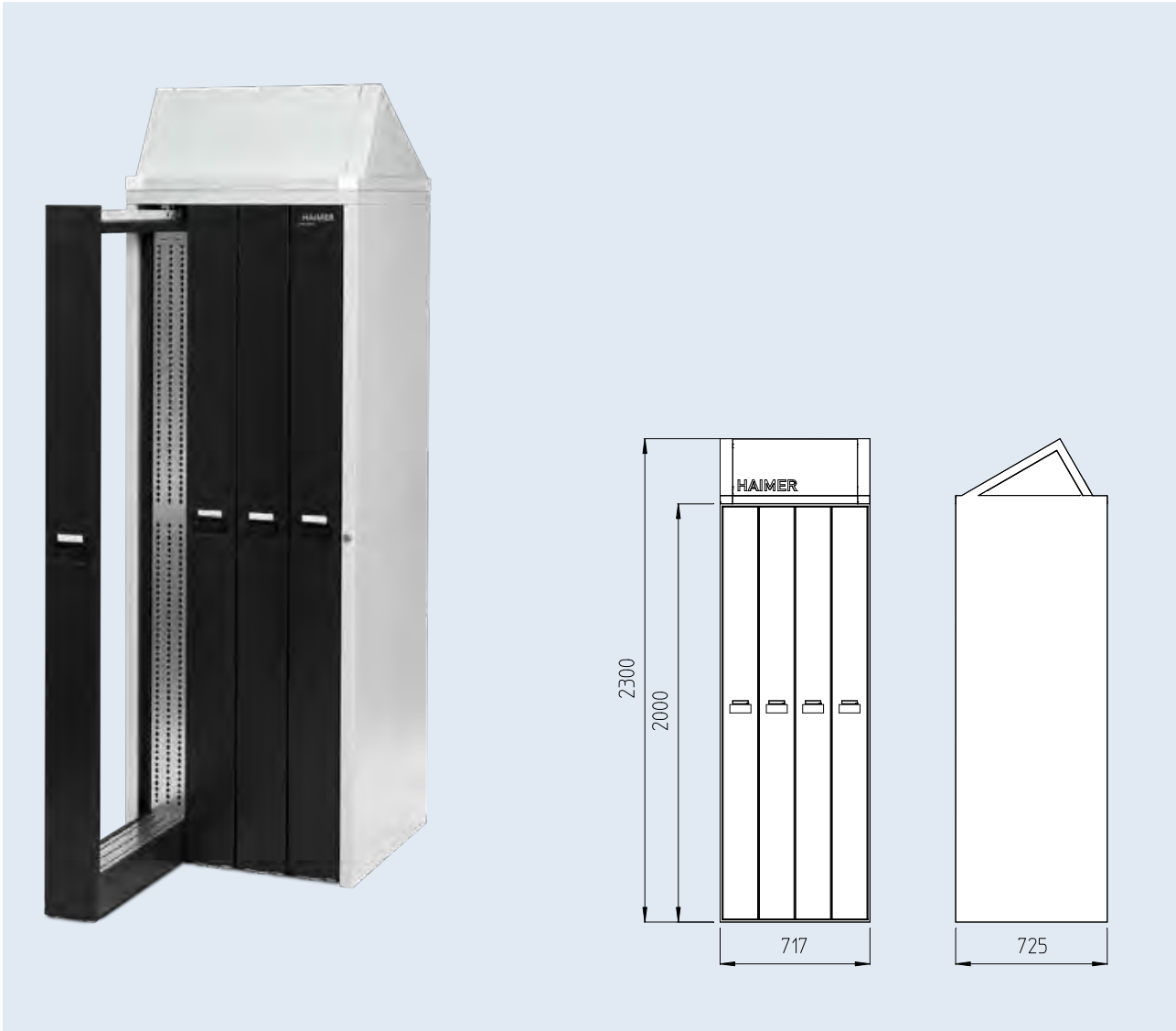
描述/Description

立式通用型储物柜/Vertical cabinet Universal

订货号/Order No.

84.805.06.3

## 立式刀柄储藏柜 VERTICAL CABINET TOOL HOLDER



### 用途:

用于存储各种接口类型的刀柄,安全且节省空间。如有必要,也可以存放一些已经夹持了刃具的刀柄。两侧均可以打开。

### 发货时包含:

- 带4个拉柜的立式刀柄储藏柜
- 可选装的货架单元,提供了存储的安全性,维持工作环境的整洁,同时节省了存储空间

### Use:

Safe and space-saving storage of tool holders of all interfaces, if necessary with clamped cutting tools. Good accessibility from both sides of the pullouts.

### Delivery includes:

- Vertical cabinet for tool holders with 4 pullout cabinets
- Additionally available shelf units provide a clean, save and space-saving storage for your tool holders

### 描述/Description

立式刀柄储藏柜/Vertical cabinet tool holder

### 订货号/Order No.

84.805.07.3

### 附件/Accessories

立式柜专用货架/Shelves for vertical cabinet

### 订货号/Order No.

参见719页/See page 719

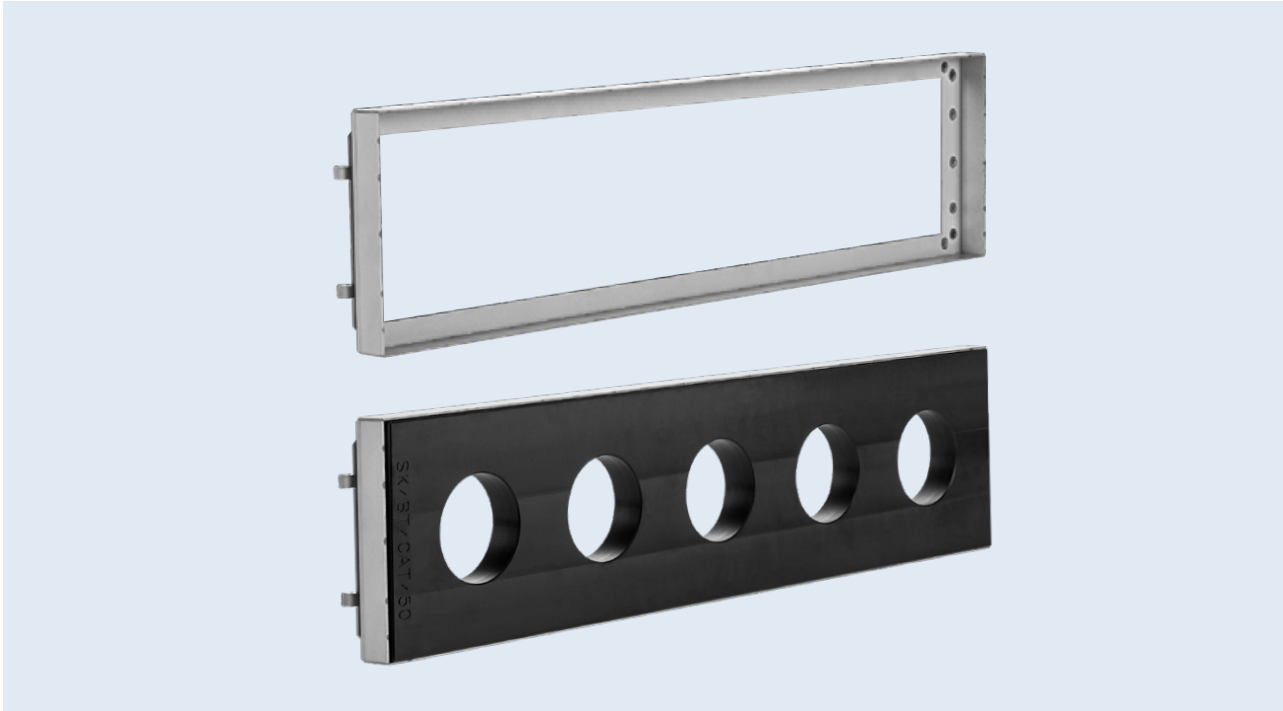
## 立式刀柄储藏柜产品应用范例 VERTICAL CABINET TOOL HOLDER – APPLICATION EXAMPLE

这才是正确存储您的刀柄及刀柄附件的方法

This is how you store your tool holders and accessories correctly.



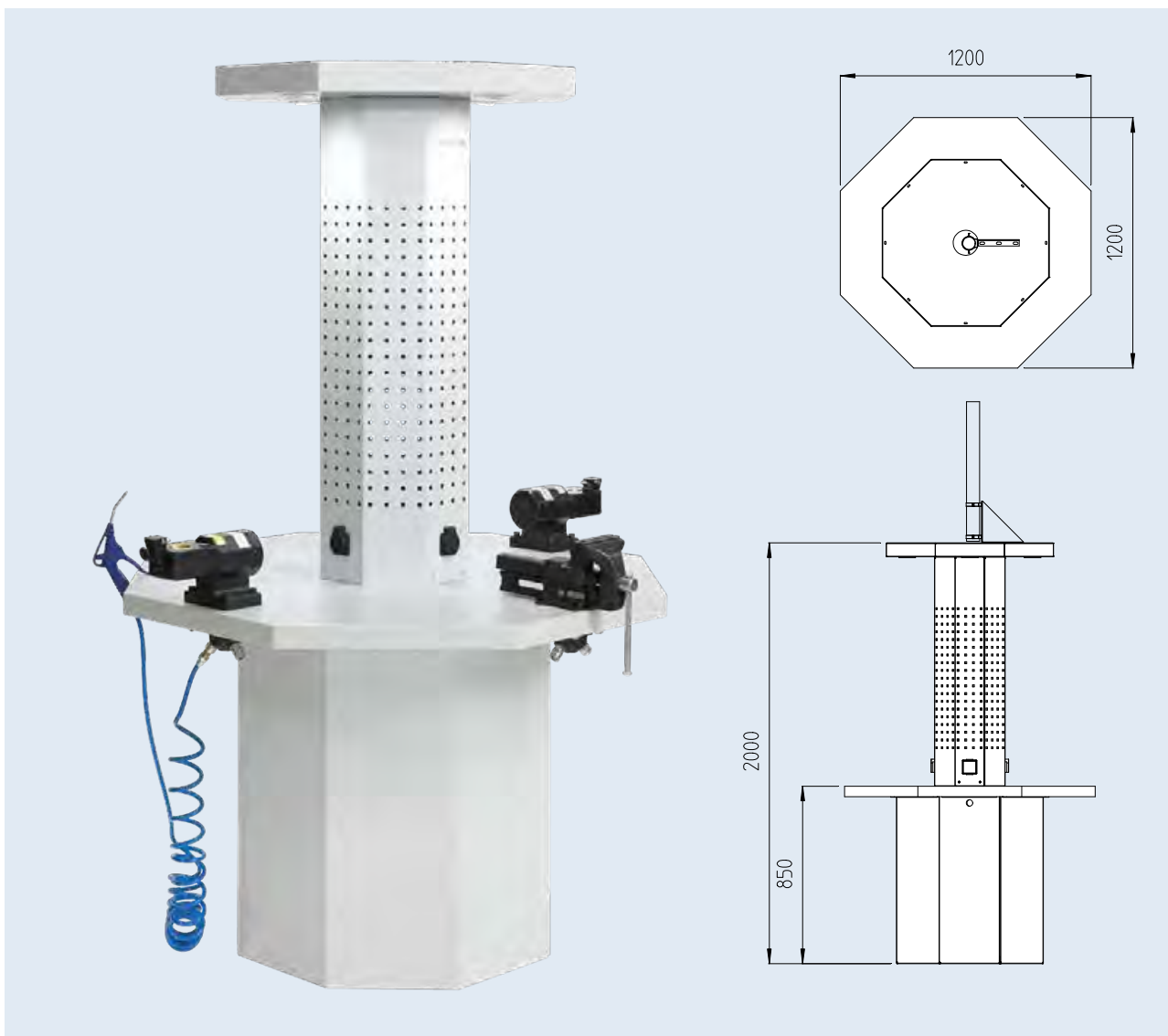
## 立式刀柄储藏柜-专用货架 VERTICAL CABINET TOOL HOLDER – SHELVES



描述/Description	订货号/Order No.
4层立式刀柄储藏柜用货架支架/Frame to hold the shelves in the 4-fold vertical cabinet	84.805.07.01
2层立式刀柄储藏柜用货架支架/Frame to hold the shelves in the 2-fold vertical cabinet	84.805.07.02
2层立式刀柄储藏柜用货架支架(加宽)/Frame to hold the shelves in the 2-fold vertical cabinet (extra wide)	84.805.07.03
<b>SK/BT/CAT 储放架/Shelf SK/BT/CAT</b>	
可存放12个SK30/BT30/CAT30刀柄的储放架/Shelf to hold 12 SK30/BT30/CAT30 holders	84.805.07.032
可存放4个SK40/BT40/CAT40刀柄的储放架/Shelf to hold 4 SK40/BT40/CAT40 holders	84.805.07.040
可存放6个SK40/BT40/CAT40刀柄的储放架/Shelf to hold 6 SK40/BT40/CAT40 holders	84.805.07.041
可存放6个SK40/BT40/CAT40刀柄的储放架/Shelf to hold 12 SK40/BT40/CAT40 holders	84.805.07.042
可存放4个SK50/BT50/CAT50刀柄的储放架/Shelf to hold 4 SK50/BT50/CAT50 holders	84.805.07.050
可存放5个SK50/BT50/CAT50刀柄的储放架/Shelf to hold 5 SK50/BT50/CAT50 holders	84.805.07.051
<b>HSK 储放架/Shelf HSK</b>	
可存放16个HSK-A/C/E32刀柄的储放架/Shelf to hold 16 HSK-A/C/E 32 holders	84.805.07.132
可存放16个HSK-A/C/E40刀柄的储放架/Shelf to hold 16 HSK-A/C/E 40 holders	84.805.07.140
可存放4个HSK-A/C/E40刀柄的储放架/Shelf to hold 4 HSK-A/C/E 40 holders	84.805.07.141
可存放12个HSK-A/C/E50刀柄的储放架/Shelf to hold 12 HSK-A/C/E 50 holders	84.805.07.150
可存放4个HSK-A/C/E63刀柄的储放架/Shelf to hold 4 HSK-A/C/E 63 holders	84.805.07.163
可存放6个HSK-A/C/E63刀柄的储放架/Shelf to hold 6 HSK-A/C/E 63 holders	84.805.07.164
可存放12个HSK-A/C/E63刀柄的储放架/Shelf to hold 12 HSK-A/C/E 63 holders	84.805.07.165
可存放5个HSK-A/C/E80刀柄的储放架/Shelf to hold 5 HSK-A/C/E 80 holders	84.805.07.181
可存放4个HSK-A/C/E100刀柄的储放架/Shelf to hold 4 HSK-A/C/E 100 holders	84.805.07.110
可存放5个HSK-A/C/E100刀柄的储放架/Shelf to hold 5 HSK-A/C/E 100 holders	84.805.07.111
可存放4个HSK-A/C/E125刀柄的储放架/Shelf to hold 4 HSK-A/C/E 125 holders	84.805.07.125
<b>其余类型储放架/Other Shelves</b>	
可存储12个PSC 32刀柄的储物架/Shelf to hold 12 PSC 32 holders	84.805.07.230
可存储12个PSC 40刀柄的储物架/Shelf to hold 12 PSC 40 holders	84.805.07.240
可存储12个PSC 50刀柄的储物架/Shelf to hold 12 PSC 50 holders	84.805.07.250
可存储6个PSC 63刀柄的储物架/Shelf to hold 6 PSC 63 holders	84.805.07.260
可存放4个VDI25刀柄的储物架/Shelf to hold 4 VDI25 holders	84.805.07.325
可存放4个VDI40刀柄的储物架/Shelf to hold 4 VDI40 holders	84.805.07.340
可存储5个牧野F-80刀柄的储物架/Shelf to hold 5 Makino F-80 holders	84.805.07.680
可存储3个动平衡机转换套的储放架/Shelf to hold 3 balancing adapter	84.805.07.401
超宽储物架/Shelf without plain (extra wide)	84.805.07.801



## 装配工作台 ASSEMBLY STATION



### 用途:

- 工作区域360°
- 配置了3个230V插座以及4组LED灯座的含开孔墙的中心圆柱
- 可以放置在加工中心附近或者直接放置在装配工作室, 便于进行装配工作, 节省空间。
- 可装配重物

### 发货时包含:

- 4个双头的压缩空气口
- 4组LED灯座

### Use:

- 360° accessible assembly area
- Middle column with perforated tin wall equipped with 3 x 230 V sockets and 4 LED spots
- The assembly station is perfectly suited for a peripheral, space-saving placement next to the machining center or centrally in the tool assembly room.
- Heavy Duty workplace

### Delivery includes:

- 4 double compressed air connections
- 4 LED lighting spots

### 描述/Description

装配工作台/Assembly station

### 订货号/Order No.

84.803.00.3

### 工具钳/Vice

订货号/Order No.

84.810.22

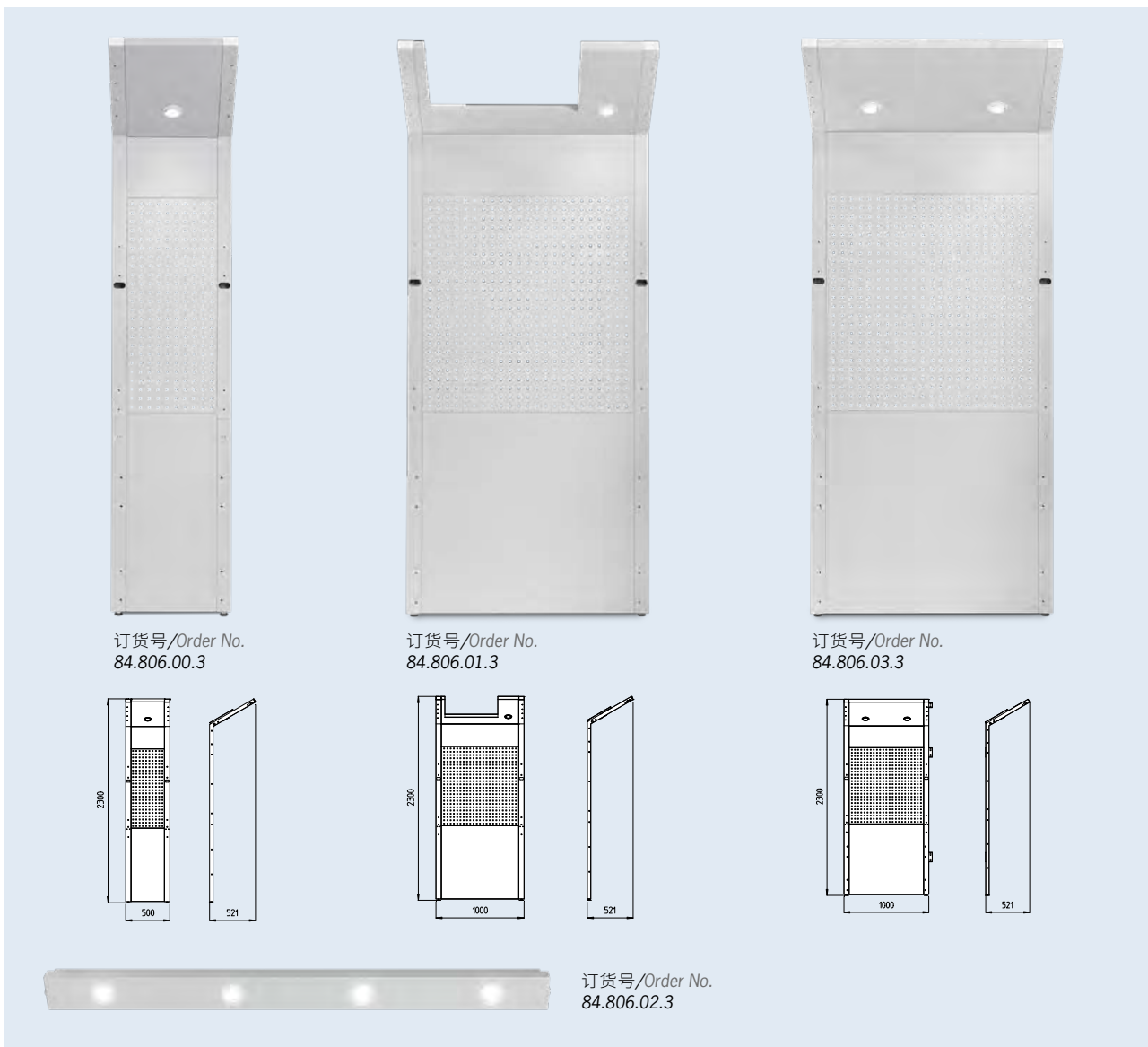


# 翰默刀具动平衡机

达到您期待的动平衡精度、  
良好的工件表面质量和优化的刀具寿命

For highest balancing grade, best surface  
finish and maximum tool life

# 连接件 CONNECTION PARTS



**用途:**

- 用以连接其他部分的连接单元
- 均配置了灯座及开孔背墙

**Use:**

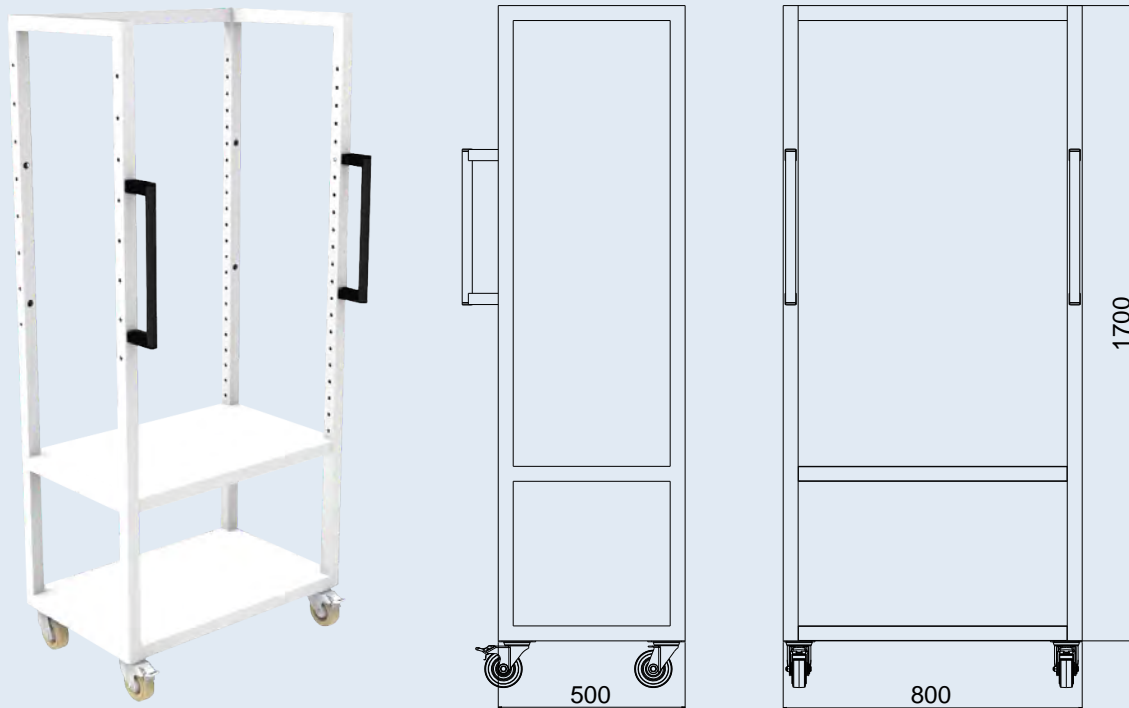
- Intermediate segment in order to connect the individual modules
- Each intermediate segment is equipped with a perforated wall and lighting spots

描述/Description	订货号/Order No.
<b>连接件/Connection part</b>	
50cm宽连接件,带一个LED灯座以及多孔板/Connection part 50 cm wide with 1 LED spot and perforated plate	<b>84.806.00.3</b>
100cm连接件,带2个LED灯座,适用于TD Preset的多孔板 Connection part 100 cm wide with 1 LED spot and perforated plate for TD Preset	<b>84.806.01.3</b>
100cm宽连接件,带2个LED灯座以及多孔板/Connection part 100 cm wide with 2 LED spots and perforated plate	<b>84.806.03.3</b>
适用于超级增强型热缩机的顶层灯带/Light Bar superstructure for Power Clamp Premium Plus	<b>84.806.02.3</b>

## 刀柄运输车 TOOL HOLDER CART

### 刀柄运输车-基架

Tool holder cart – base frame



#### 用途:

- 四轮标准框架，带刹车及2个把手
- 根据预选的配置单独发运
- 安全的运输刀具及配件至机床
- 机床区域更高组织化
- 刀柄排列比普通商业用刀柄运输车更整齐和清晰
- 适用于砂轮杆的工具车(通过标准尺寸的刀具夹持器)
- 适用于运输机床上使用的各种工具:内六角扳手、外六角扳手、钩扳手、橡胶锤和校准棒等
- 适用于运输动平衡机的一些附件,比如转换套、HG筒夹等。

#### Use:

- Standard frame with four wheels, brakes and two handles
- Individual delivery by using a predefined modular system
- Safe transportation of tools and accessories to the machine
- More organization in the machine area
- More clearly arranged than commercially available tool carts
- Tool cart for grinding wheel adapters (held using standard size grip-per grooves)
- Tool cart works for any tool used at the machine, no matter if it has an internal hexagon, external hexagon, hook wrench, rubber mallet, gauge etc.
- Tool cart for balancing machine accessories to hold balancing adapters, HG collets etc.

描述/Description

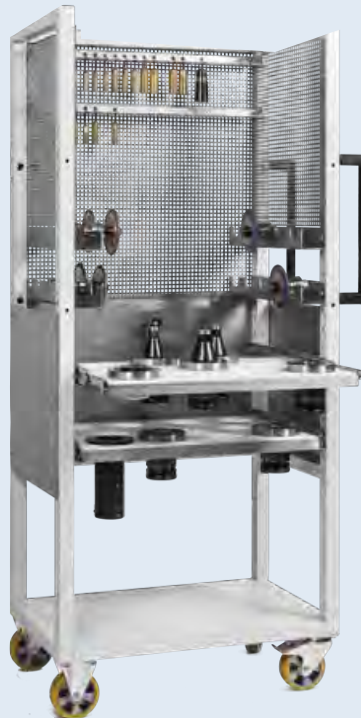
刀柄运输车/Tool holder cart

订货号/Order No.

84.808.00.3

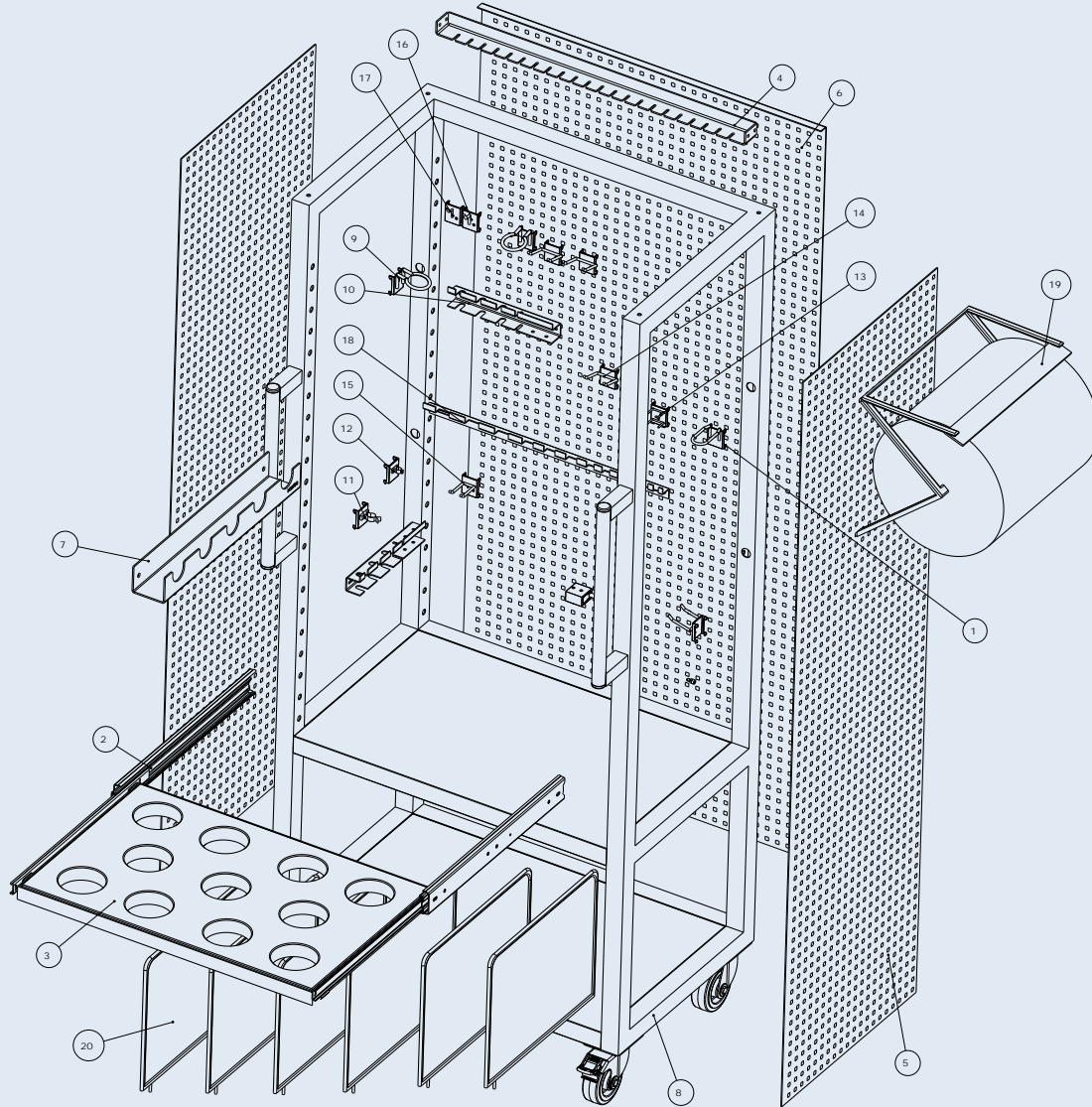
# 刀柄运输车 TOOL HOLDER CART

刀柄运输车-产品应用范例  
Tool holder cart – Configuration examples



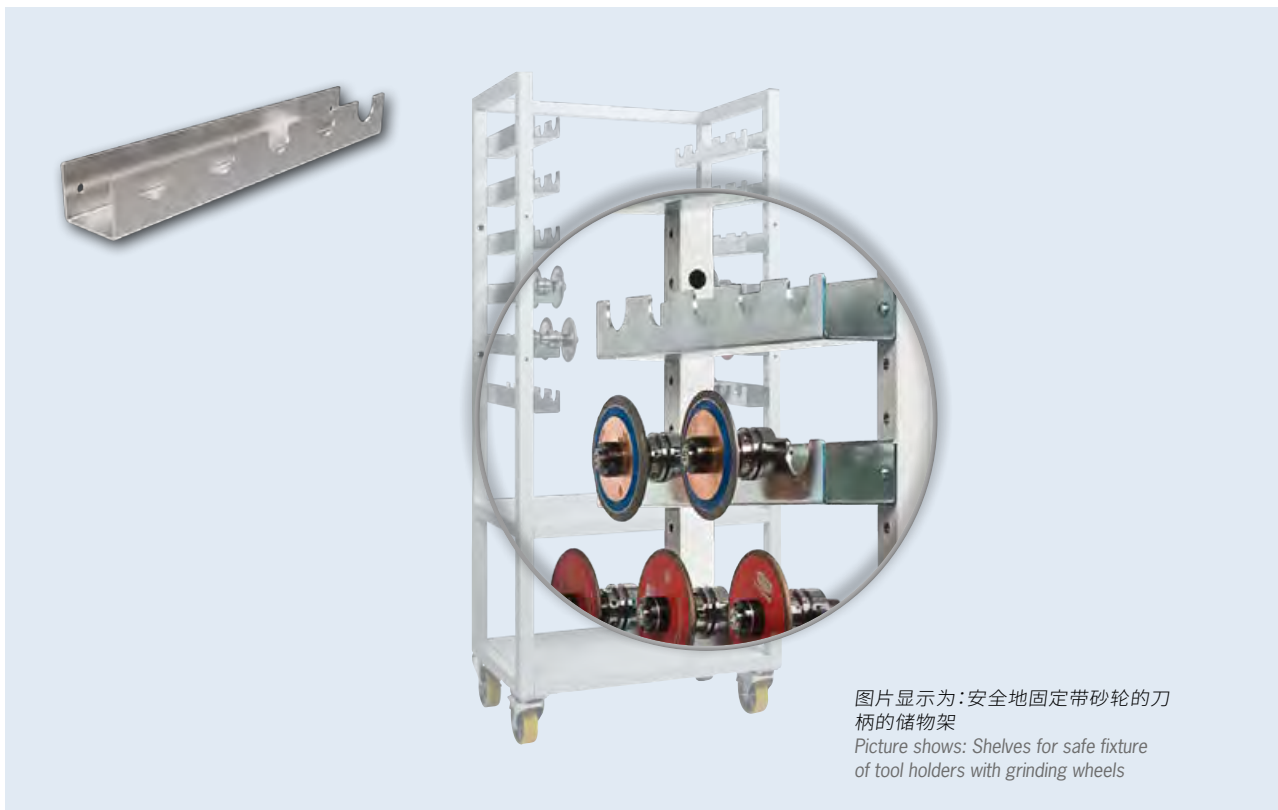
# 刀柄运输车结构图

## TOOL HOLDER CART DESIGN



1	Pliers holder 7 mm x 40 mm	11	Tool clip Ø 25 mm
2	Drawer slide	12	Tool clip Ø 12 mm
3	Shelf for balancing adapters	13	Articulated wrench hook (28 mm x Ø 3 mm)
4	Shelf for collets	14	Double hook (50 mm x 40 mm)
5	Perforated plate long version (side)	15	Double hook (55 mm x 25 mm)
6	Perforated plate long version (back)	16	Hook (24 mm x Ø 5)
7	Shelf for tool holders	17	Hook (22 mm x Ø 3)
8	Base cart	18	Screw wrench holder
9	Ring holder (inside Ø 40 mm)	19	Paper dispenser (without paper roll)
10	Screwdriver holder	20	Partition wall

## 刀柄运输车 – 附件 TOOL HOLDER CART – ACCESSORIES 货架/SHELVES



图片显示为：安全地固定带砂轮的刀柄的储物架  
Picture shows: Shelves for safe fixture of tool holders with grinding wheels

### 用途：

– 用于安全放置刀柄的货架

### Use:

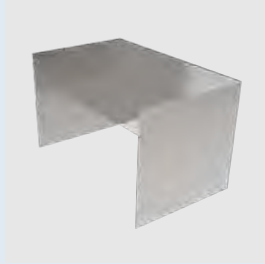
– Shelves for safe tool holder fixture

描述/Description	订货号/Order No.
刀柄运输车储物架/Shelves for toolholder cart	
标准8片装, 无类型/8 pieces without plain	84.808.00.01
SK接口储物架/Shelves SK	
SK30: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.030
SK40: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.040
SK50: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.050
BT接口储物架/Shelves BT	
BT30: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.130
BT40: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.140
BT50: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.150
CAT接口储物架/Shelves CAT	
CAT40: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.240
CAT50: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.250
HSK接口储物架/Shelves HSK	
HSK-A/E 32: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.332
HSK-A/E/F 40: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.340
HSK-A/E/F 50: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.350
HSK-A/E/F 63: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.363
HSK-A/E/F 80: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.380
HSK-A/E/F 100: 每片4个孔位, 共8片/8 pcs. for 4 pcs. toolholders each	84.808.00.310
PSC63接口储物架/Shelves PSC 63	
PSC63: 每片5个孔位, 共8片/8 pcs. for 5 pcs. toolholders each	84.808.00.460

## 刀柄运输车 – 附件 TOOL HOLDER CART – ACCESSORIES



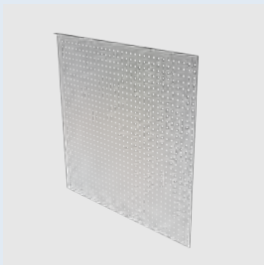
基架  
Base frame



金属盖板  
Metal cover plate



动平衡机转换套用抽屉插件  
Drawer insert for balancing adapters



开孔板  
Perforated plate



间隔墙  
Partition wall

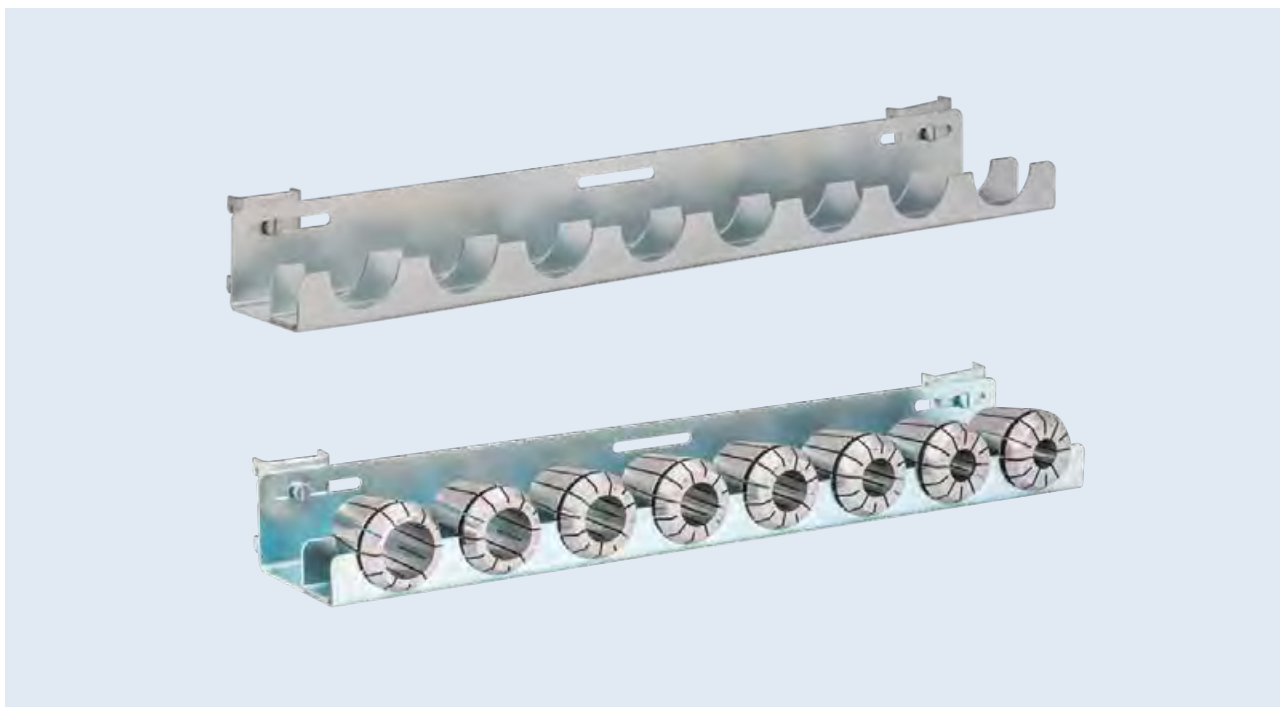


擦拭纸辊筒  
Paper dispenser

描述/Description	订货号/Order No.
开孔板/Perforated plate	
背面-长边/back long	140056-0013
背面-短边/back short	140056-0009
侧面-长边/side long	140056-0014
侧面-短边/side short	140056-0010
金属盖板/Metal cover plate	
长型/long	140056-0008
短型/short	140956-0005
动平衡机转换套用抽屉插件/Drawer insert for balancing adapters	
角板框架/Angle plate frame	140056-0006
货架/Shelf	140056-0007
抽屉滑槽/Drawer slide	140956-0006
间隔墙/Partition wall	
间隔墙(6底板)/Partition wall (6 piece bottom plate)	140056-0015
擦拭纸辊筒/Paper dispenser	
不带纸辊的擦拭纸辊筒/Paper dispenser without paper roll	84.810.23



## 开孔板 – 附件 PERFORATED PLATE – ACCESSORIES 下颚型支架/HOLDER JOWLS

**用途:**

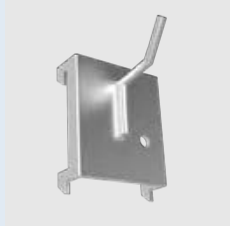
- 用以存储筒夹的下颚型支架

**Use:**

- Holder jowls for secure storage of collets

描述/Description	订货号/Order No.
<b>ER筒夹用下颚型支架/Holder Jowls for ER Collets</b>	
ER11筒夹用下颚型支架,可储存21个/Holder jowl for 21 pcs. ER11 collets	84.809.011
ER16筒夹及ER16强力筒夹用下颚型支架,可储存17个/Holder jowl for 17 pcs. ER16 Collets and ER16 Power Collets	84.809.016
ER20筒夹用下颚型支架,可储存12个/Holder jowl for 12 pcs. ER20 collets	84.809.020
ER25筒夹及ER25强力筒夹用下颚型支架,可储存12个/Holder jowl for 12 pcs. ER25 Collets and ER25 Power Collets	84.809.025
ER32筒夹及ER32强力筒夹用下颚型支架,可储存11个/Holder jowl for 11 pcs. ER32 Collets and ER32 Power Collets	84.809.032
ER40筒夹用下颚型支架,可储存8个/Holder jowl for 8 pcs. ER40 collets	84.809.040
<b>OZ筒夹用下颚型支架/Holder Jowls for OZ Collets</b>	
OZΦ2-16mm筒夹用下颚型支架,可储存15个/Holder jowl for 15 pcs. OZ collets Ø 2-16 mm	84.809.116
OZΦ2-25mm筒夹用下颚型支架,可储存11个/Holder jowl for 11 pcs. OZ collets Ø 2-25 mm	84.809.125
OZΦ6-32mm筒夹用下颚型支架,可储存8个/Holder jowl for 8 pcs. OZ collets Ø 6-32 mm	84.809.132
OZΦ8-40mm筒夹用下颚型支架,可储存7个/Holder jowl for 7 pcs. OZ collets Ø 8-40 mm	84.809.140
OZΦ4-50mm筒夹用下颚型支架,可储存6个/Holder jowl for 6 pcs. OZ collets Ø 4-50 mm	84.809.150
<b>HG筒夹用下颚型支架/Holder Jowls for HG Collets</b>	
HG01筒夹用下颚型支架,可储存16个/Holder jowl for 16 pcs. HG01 collets	84.809.201
HG02筒夹用下颚型支架,可储存16个/Holder jowl for 16 pcs. HG02 collets	84.809.202
HG03筒夹用下颚型支架,可储存13个/Holder jowl for 13 pcs. HG03 collets	84.809.203

# 附件 ACCESSORIES



单挂钩  
Hook single



双挂钩  
Hook double



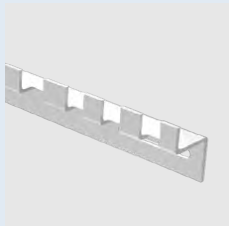
钢领座  
Ring holder



扳手挂钩  
Articulated wrench hook



工具夹  
Tool clip



HG筒夹固定架  
HG Collet fixture



螺丝刀支架  
Screwdriver holder



擦拭纸辊筒  
Paper dispenser

描述/Description	订货号/Order No.
<b>开孔板附件/Accessories for perforated plate</b>	
Φ3mm单挂钩/Hook single Ø 3 mm	84.810.01
Φ5mm单挂钩/Hook single Ø 5 mm	84.810.02
55*25mm双挂钩/Hook double 55 x 25 mm	84.810.03
50*40mm双挂钩/Hook double 50 x 40 mm	84.810.04
扳手挂钩/Articulated wrench hook	84.810.05
Φ12mm工具夹/Tool clip Ø 12 mm	84.810.06
Φ15mm工具夹/Tool clip Ø 15 mm	84.810.07
钢领座/Ring holder	84.810.08
底座支架/Base holder	84.810.09
螺丝刀支架, 6支用/Screwdriver holder for 6 screwdrivers	84.810.10
螺丝刀支架, 12支用/Wrenchholder for 12 wrenches	84.810.11
缠绕膜支架/Holder for clear film	84.810.12
物品存放处(440 mm x 300 mm x 100 mm)/Storage place (440 mm x 300 mm x 100 mm)	84.810.13.3
钳子架/Pliers holder	84.810.16
擦拭纸辊筒 (不带纸辊)/Paper dispenser (without paper roll)	84.810.23
HG筒夹固定架/HG Collet fixture	140056-0005
<b>电气附件/Accessories for electronics</b>	
带变压器的电源连接/Electronic connection set with transformer	84.811.00
变压器/Transformer	140051-0108
灯/Lamp	140051-0111
灯用插座/Lamp socket	140051-0110
电缆铺设管组 (电/气)/Pipe set for cable laying (Electronic/air)	84.811.10
可根据要求提供特定国家的电源插座/Country-specific power outlets available on request!	
<b>启动套装/Starter Sets</b>	
迷你启动套装/Starterset Mini	84.810.17
中型启动套装/Starterset Medium	84.810.17.1
大型启动套装/Starterset Large	84.810.17.2
<b>工作垫/Work pads</b>	
600 mm x 1500 mm工作台用工作垫 (透明, PVC材质) Work pad for work bench 600 mm x 1500 mm (transparent, soft PVC)	84.810.18
角单元用工作垫 (透明, PVC材质)/Work pad for corner module (transparent, soft PVC)	84.810.19
工作垫 690mm x 500mm (透明, PVC材质)/Work pad 690 mm x 500 mm (transparent, soft PVC)	84.810.20
装配工作台用工作垫 (透明, PVC材质)/Work pad for assembly station (transparent, soft PVC)	84.810.29

# 附件

用于刀柄

## ACCESSORIES

FOR TOOL HOLDERS



# 目录

## CONTENT

热缩延长杆 / Shrink Fit Extensions	
热缩延长杆 / Shrink Fit Extensions	732
迷你热缩延长杆 / Mini Shrink Extensions	734
重型热缩延长杆 / Heavy Duty Shrink Fit Extensions	735
热缩筒夹 / Shrink Fit Collets	
热缩筒夹 ER11 / Shrink Fit Collets ER11	736
热缩筒夹 ER16 / Shrink Fit Collets ER16	737
热缩筒夹 ER20 / Shrink Fit Collets ER20	738
热缩筒夹 ER25 / Shrink Fit Collets ER25	739
热缩筒夹 ER32 / Shrink Fit Collets ER32	741
ER筒夹 / Collets ER	
高精度ER型弹簧筒夹 / High Precision Collets ER	742
高精度ER型止水筒夹 / High Precision Collets ER sealed	745
含冷却喷孔的高精度ER型止水筒夹 / High Precision Collets ER sealed with Cool Jet	747
翰默 HAIMER 强力筒夹 / Power Collets	748
其他附件 / Other Accessories	
扭力扳手 / Torque Master Torque Wrench	750
扭力扳手插件 / Inserts for Torque Master	750
扳手 / Wrenches	751
用于高精度筒夹刀柄的滚针轴承扳手 / Roller Bearing Wrench for High Precision Collet Chucks	752
用于高精度筒夹刀柄的圆形锁紧螺母 / Smooth Locknuts for High Precision Collet Chucks	752
弹簧筒夹刀柄用锁紧螺母 / Locknuts for ER Collet Chucks and Power Collet Chucks	753
HG型弹簧筒夹和清洁器 / HG Collets and HG Cone Wiper	754
迷你型后拉式延长杆 / HG Mini Extensions	755
拉钉 / Pull Studs	757
锯片夹持器 / Sawblade Holders	760
清洁毛刷, 冷却管 / Shrink Fit Brushes, Coolant Tubes	762
变径套 / Reduction Sleeves	763
动平衡环 / Balancing Index Rings	766
动平衡螺钉套装和重金属的动平衡螺钉 / Set of Balancing Screws, Heavy Metal Balancing Screws	767
支撑螺钉 / Back-Up Screws	768
热缩刀柄用支撑弹簧 / Tension Springs for Shrink Fit Chuck	772
夹持螺钉 / Clamping Screws	773
FH型快换式攻丝套筒 / Quick Change Inserts Type FH	774
面铣刀和壳铣刀刀柄的附件 / Accessories Face Mill Arbor, Combination Shell End Mill Adapter	775
主轴锥孔清洁器 / Cone Wiper	776
转换工具 DIN 2080-DIN ISO 7388-1 / Conversion Kit DIN 2080-DIN ISO 7388-1	779

备注: 本样本中有3种ER筒夹, 分别是: ER弹簧筒夹、热缩筒夹和模块式筒夹, 他们的夹持原理不同。  
本文中的弹簧筒夹即ER弹簧筒夹。

# 热缩延长杆 SHRINK FIT EXTENSIONS

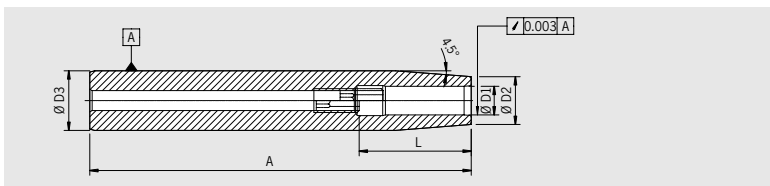


### 您的金属切削加工任务的通用解决方案

- 高精度
- 按照您的需求优化
- 多用途, 并且可以重复使用
- 特殊金属切削任务的解决方案
- 适用于硬质合金和高速钢的刀具
- 发货时不带冷却转换套

### The universal solution for your machining issues

- Highest runout accuracy
- Optimum and almost unlimited extensions likely
- Versatile to use and always re-usable
- The most economic way for special machining requirements
- For carbide steel and HSS shanks
- Delivery without cooling adapter



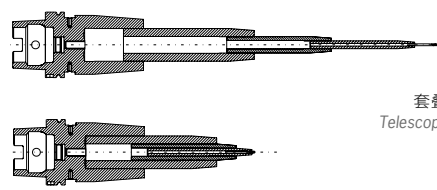
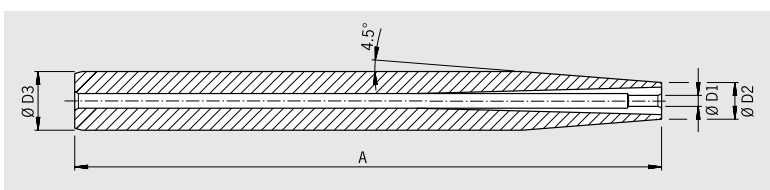
### 型号:

- 带支撑螺钉(调整范围10mm)

### Version:

- With set screw (adjustment range 10 mm)

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body	适用冷却转换套 Additional cooling adapter required
78.160.06	28	160	16	h6	6	10	Ø 14-16	80.105.14.1.1
78.200.06	28	160	20	h6	6	14	Ø 14-16	80.105.14.1.2
78.200.08	34	160	20	h6	8	14	Ø 14-16	80.105.14.1.2
78.250.08	34	160	25	h6	8	19	Ø 6-8	—
78.250.10	42	160	25	h6	10	20	Ø 6-8	—
78.250.12	47	160	25	h6	12	20	Ø 6-8	—
78.250.14	47	160	25	h6	14	20	Ø 6-8	—
78.250.16	50	160	25	h6	16	22	Ø 6-8	—
78.320.10	42	160	32	h6	10	24	Ø 10-12	—
78.320.12	47	160	32	h6	12	24	Ø 10-12	—
78.320.14	47	160	32	h6	14	27	Ø 14-16	—
78.320.16	50	160	32	h6	16	27	Ø 14-16	—
78.320.18	50	160	32	h6	18	27	Ø 14-16	—
78.320.20	52	160	32	h6	20	27	Ø 14-16	—



### 型号:

- 不带支撑螺钉
- 为保证夹持和刀具周边冷却, 延长杆的夹持孔的内壁上有细缝, 内冷却液沿着刀具的柄部喷出
- 可调节长度(套叠)

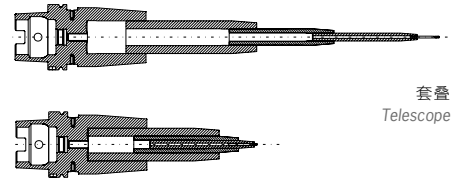
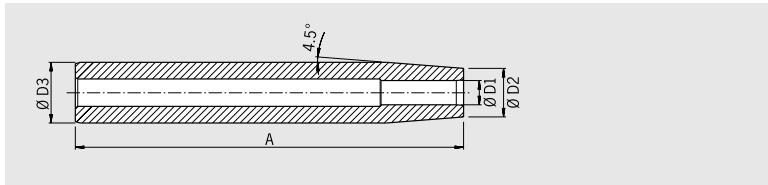
### Version:

- Without set screw
- With slits along the clamping bore for proper clamping and coolant around the cutting tool
- Variable length setting (telescope)

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body	适用冷却转换套 Additional cooling adapter required
78.120.03.2	—	160	12	h6	3	8	Ø 14-16	80.105.14.1.1
78.120.04.2	—	160	12	h6	4	8	Ø 14-16	80.105.14.1.1
78.160.03.2	—	160	16	h6	3	10	Ø 14-16	80.105.14.1.1
78.160.04.2	—	160	16	h6	4	10	Ø 14-16	80.105.14.1.1
78.160.05.2	—	160	16	h6	5	10	Ø 14-16	80.105.14.1.1
78.200.05.2	—	160	20	h6	5	14	Ø 14-16	80.105.14.1.2

# 热缩延长杆

## SHRINK FIT EXTENSIONS



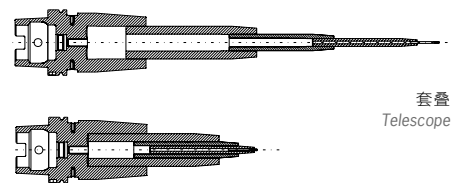
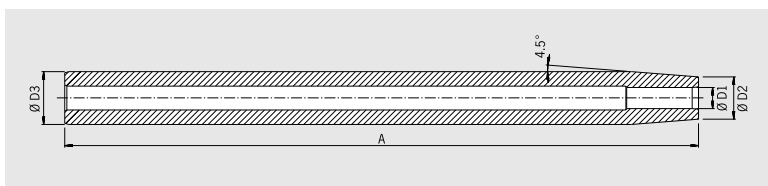
### 型号:

- 不带支撑螺钉
- 可调节长度(套叠)

### Version:

- Without set screw
- Variable length setting (telescope)

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body	适用冷却转换套 Additional cooling adapter required
78.120.03.1	—	160	12	h4	3	8	Ø 14-16	80.105.14.1.1
78.120.04.1	—	160	12	h4	4	8	Ø 14-16	80.105.14.1.1
78.160.03.1	—	160	16	h4	3	10	Ø 14-16	80.105.14.1.1
78.160.04.1	—	160	16	h4	4	10	Ø 14-16	80.105.14.1.1
78.160.05.1	—	160	16	h4	5	10	Ø 14-16	80.105.14.1.1
78.160.06.1	—	160	16	h6	6	10	Ø 14-16	80.105.14.1.1
78.200.05.1	—	160	20	h4	5	14	Ø 14-16	80.105.14.1.2
78.200.06.1	—	160	20	h6	6	14	Ø 14-16	80.105.14.1.2
78.200.08.1	—	160	20	h6	8	14	Ø 14-16	80.105.14.1.2
78.250.08.1	—	160	25	h6	8	19	Ø 6-8	—
78.250.10.1	—	160	25	h6	10	20	Ø 6-8	—
78.250.12.1	—	160	25	h6	12	20	Ø 6-8	—
78.250.14.1	—	160	25	h6	14	20	Ø 6-8	—
78.250.16.1	—	160	25	h6	16	22	Ø 6-8	—
78.320.10.1	—	160	32	h6	10	24	Ø 10-12	—
78.320.12.1	—	160	32	h6	12	24	Ø 10-12	—
78.320.14.1	—	160	32	h6	14	27	Ø 14-16	—
78.320.16.1	—	160	32	h6	16	27	Ø 14-16	—
78.320.18.1	—	160	32	h6	18	27	Ø 14-16	—
78.320.20.1	—	160	32	h6	20	27	Ø 14-16	—



### 型号: 全长300 mm

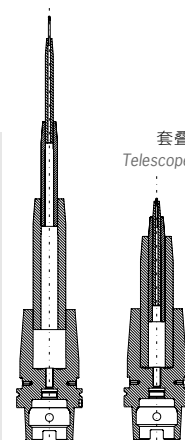
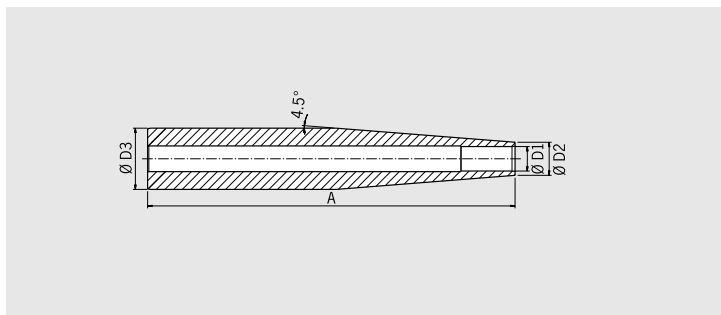
- 不带支撑螺钉
- 可调节长度(套叠)

### Version: Extension length 300 mm

- Without set screw
- Variable length setting (telescope)

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body	适用冷却转换套 Additional cooling adapter required
78.161.06.1	—	300	16	h6	6	10	Ø 14-16	80.105.14.1.1
78.201.06.1	—	300	20	h6	6	14	Ø 14-16	80.105.14.1.2
78.201.08.1	—	300	20	h6	8	14	Ø 14-16	80.105.14.1.2
78.251.08.1	—	300	25	h6	8	19	Ø 6-8	—
78.251.10.1	—	300	25	h6	10	20	Ø 6-8	—
78.251.12.1	—	300	25	h6	12	20	Ø 6-8	—
78.251.14.1	—	300	25	h6	14	20	Ø 6-8	—
78.251.16.1	—	300	25	h6	16	22	Ø 6-8	—
78.321.10.1	—	300	32	h6	10	24	Ø 10-12	—
78.321.12.1	—	300	32	h6	12	24	Ø 10-12	—
78.321.14.1	—	300	32	h6	14	27	Ø 14-16	—
78.321.16.1	—	300	32	h6	16	27	Ø 14-16	—
78.321.20.1	—	300	32	h6	20	27	Ø 14-16	—

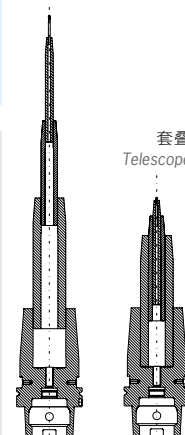
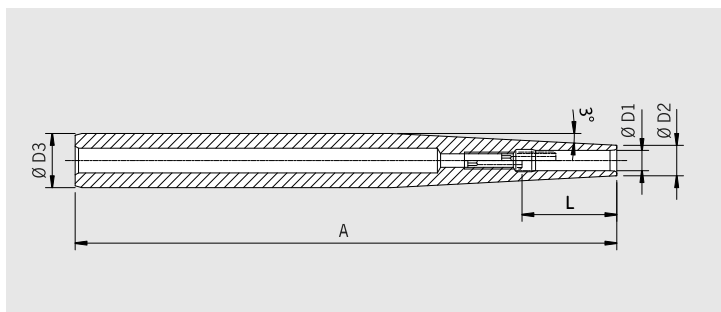
# 热缩延长杆/SHRINK FIT EXTENSIONS 迷你热缩延长杆/MINI SHRINK EXTENSIONS



型号: 延长杆直径 50mm  
(仅用强力型热缩机加热)  
- 高速钢+硬质合金

Version: Extension with diameter 50 mm  
(Shrinking only with Power Clamp Profi Plus)  
- HSS + solid carbide

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body
78.501.10.1	—	300	50	h6	10	24	Ø 10-12
78.501.12.1	—	300	50	h6	12	24	Ø 10-12
78.501.14.1	—	300	50	h6	14	27	Ø 14-16
78.501.16.1	—	300	50	h6	16	27	Ø 14-16
78.501.18.1	—	300	50	h6	18	27	Ø 14-16
78.501.20.1	—	300	50	h6	20	33	Ø 18-20
78.501.25.1	—	300	50	h6	25	44	Ø 25-32
78.501.32.1	—	300	50	h6	32	44	Ø 25-32

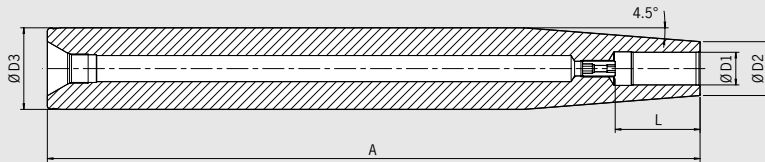


迷你型热缩延长杆(适用于各种柄径公差为h6公差范围内的硬质合金刀具)  
Mini Shrink extensions (For all solid carbide tools with shank tolerance h6)

订货号 Order No.	L [mm]	长度A Length A [mm]	外径 Ø Outer Ø D3 [mm]	夹持部公差 Shank tolerance	夹持范围 Ø Clamping Ø D1 [mm]	Ø D2 [mm]	适用冷却套 Cooling body	适用的安装冷却套 suitable shrink and cooling sleeve
77.162.03	—	160	16	h6	3	9	Ø 6-8	80.105.14.2.04
77.162.04	—	160	16	h6	4	10	Ø 6-8	80.105.14.2.08
77.162.05	—	160	16	h6	5	11	Ø 6-8	80.105.14.2.05
77.162.06 <sup>1)</sup>	28	160	16	h6	6	12	Ø 6-8	80.105.14.2.09
77.162.08 <sup>1)</sup>	34	160	16	h6	8	14	Ø 6-8	80.105.14.2.10
77.162.10 <sup>1)</sup>	41	160	16	h6	10	16	Ø 6-8	—
77.202.06	—	200	20	h6	6	12	Ø 6-8	80.105.14.2.09
77.202.08	—	200	20	h6	8	14	Ø 6-8	80.105.14.2.10
77.202.10	—	200	20	h6	10	16	Ø 6-8	80.105.14.2.11
77.202.12	—	200	20	h6	12	18	Ø 6-8	80.105.14.2.12
<b>超细/Extra slim</b>								
77.160.03	—	160	16	h6	3	6	Ø 6-8	80.105.14.2.01
77.160.04	—	160	16	h6	4	7	Ø 6-8	80.105.14.2.02
77.160.05	—	160	16	h6	5	8	Ø 6-8	80.105.14.2.03
77.160.06 <sup>1)</sup>	28	160	16	h6	6	9	Ø 6-8	80.105.14.2.04
77.160.08 <sup>1)</sup>	34	160	16	h6	8	11	Ø 6-8	80.105.14.2.05
77.160.10 <sup>1)</sup>	41	160	16	h6	10	13	Ø 6-8	80.105.14.2.06
77.200.06	—	200	20	h6	6	9	Ø 6-8	80.105.14.2.04
77.200.08	—	200	20	h6	8	11	Ø 6-8	80.105.14.2.05
77.200.10	—	200	20	h6	10	13	Ø 6-8	80.105.14.2.06
77.200.12	—	200	20	h6	12	15	Ø 6-8	80.105.14.2.07

1) 带支撑螺钉/With set screw

## 重型热缩延长杆 HEAVY DUTY SHRINK FIT EXTENSIONS



### 重型热缩延长杆

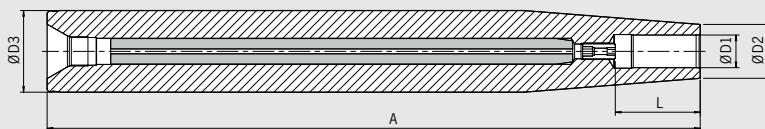
- 翰默 HAIMER 做为整个系统的提供者: 与重型热缩刀柄搭配使用
- Ø 50mm 的外径, 稳定性非常好
- 含调整螺丝, 可安全地支撑刀具
- 可用于重型加工的细小位置: 长度400mm和600mm可选
- 可按照客户的要求缩短
- 可选配包含用于抗振的硬质合金芯棒

### Heavy Duty Shrink Fit Extensions

- HAIMER as full system provider: The consistent addition to the Heavy Duty Chucks
- Extremely stable with 50 mm outer diameter
- Safe support of the tool with set screws
- Heavy machining also in hidden angles: Length of 400 and 600 mm
- The extensions can be shortened to customer's needs on request
- Solid carbide inserts for vibration dampening on request

### 不含硬质合金芯棒的重型热缩延长杆/Heavy Duty Shrink Fit Extensions without solid carbide core

夹持/Clamping	Ø D1 [mm]	16	20	25
	Ø D2 [mm]	27	33	44
	Ø D3 [mm]	50	50	50
	L [mm]	50	52	58
长度A/Length A [mm]	超长/overszie	400	400	400
订货号/Order No.	78.502...	.16	.20	.25
长度A/Length A [mm]	ZG600	600	600	600
订货号/Order No.	78.506...	.16	.20	.25

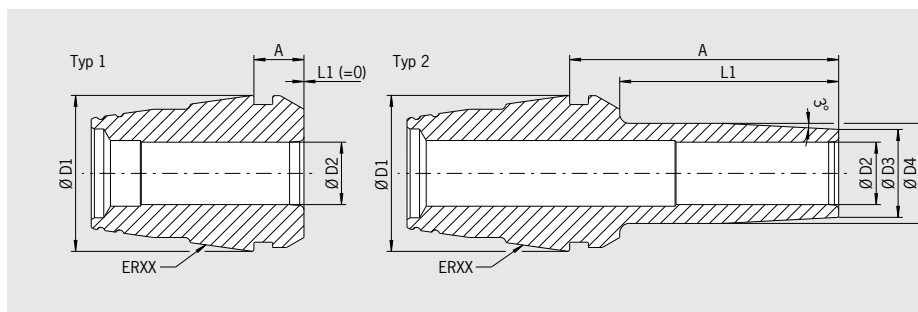


### 含硬质合金芯棒的重型热缩延长杆/Heavy Duty Shrink Fit Extensions with solid carbide core

夹持/Clamping	Ø D1 [mm]	16	20	25
	Ø D2 [mm]	27	33	44
	Ø D3 [mm]	50	50	50
	L [mm]	50	52	58
长度A/Length A [mm]	超长/overszie	400	400	400
订货号/Order No.	78.502...	.16.9	.20.9	.25.9
长度A/Length A [mm]	ZG600	600	600	600
订货号/Order No.	78.506...	.16.9	.20.9	.25.9



## 热缩筒夹 ER11 (8°) SHRINK FIT COLLETS ER11 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

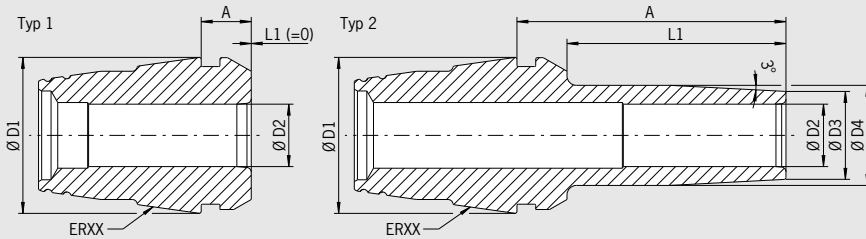
- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.110.000.03	1	ER11	11	4,55	0	3	-	-	-
81.110.010.03	2	ER11	11	14,55	10	3	7	7,4	-
81.110.020.03	2	ER11	11	24,55	20	3	7	7,4	-
81.110.000.04	1	ER11	11	4,55	0	4	-	-	-
81.110.010.04	2	ER11	11	14,55	10	4	7	7,4	-
81.110.020.04	2	ER11	11	24,55	20	4	7	7,4	-
81.110.000.05 <sup>1)</sup>	1	ER11	11	4,55	0	5	-	-	-
81.110.000.06 <sup>1)</sup>	1	ER11	11	4,55	0	6	-	-	17

内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

## 热缩筒夹 ER16 (8°) SHRINK FIT COLLETS ER16 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

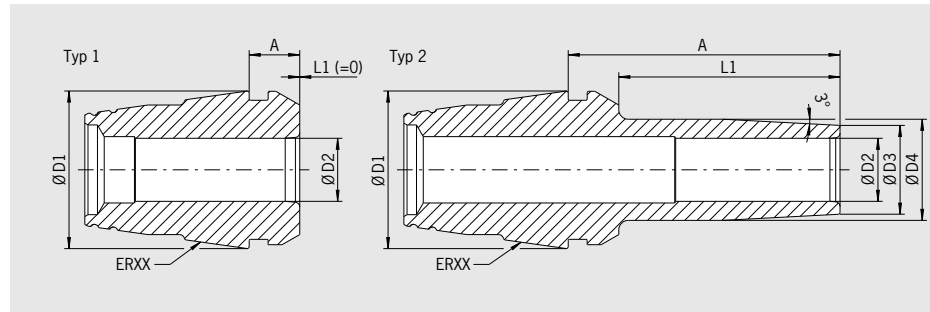
订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.160.000.03	1	ER16	16	6,7	0	3	-	-	-
81.160.010.03	2	ER16	16	16,7	10	3	7	-	-
81.160.020.03	2	ER16	16	26,7	20	3	7	-	-
81.160.025.03	2	ER16	16	31,7	25	3	7	-	-
81.160.030.03	2	ER16	16	36,7	30	3	7	9,5	-
81.160.035.03	2	ER16	16	41,7	35	3	7	9,5	-
81.160.000.04	1	ER16	16	6,7	0	4	-	-	-
81.160.010.04	2	ER16	16	16,7	10	4	7	-	-
81.160.020.04	2	ER16	16	26,7	20	4	7	-	-
81.160.025.04	2	ER16	16	31,7	25	4	7	-	-
81.160.030.04	2	ER16	16	36,7	30	4	7	9,5	-
81.160.035.04	2	ER16	16	41,7	35	4	7	9,5	-
81.160.000.05	1	ER16	16	6,7	0	5	-	-	-
81.160.010.05	2	ER16	16	16,7	10	5	8	-	-
81.160.020.05	2	ER16	16	26,7	20	5	8	9,5	-
81.160.025.05	2	ER16	16	31,7	25	5	8	9,5	-
81.160.030.05	2	ER16	16	36,7	30	5	8	9,5	-
81.160.035.05	2	ER16	16	41,7	35	5	8	9,5	-
81.160.000.06	1	ER16	16	6,7	0	6	-	-	-
81.160.010.06	2	ER16	16	16,7	10	6	9	-	-
81.160.020.06	2	ER16	16	26,7	20	6	9	10	-
81.160.025.06	2	ER16	16	31,7	25	6	9	10	-
81.160.030.06	2	ER16	16	36,7	30	6	9	10	-
81.160.035.06	2	ER16	16	41,7	35	6	9	10	-
81.160.000.08 <sup>1)</sup>	1	ER16	16	6,7	0	8	-	-	-
81.160.000.10 <sup>1)</sup>	1	ER16	16	6,7	0	10	-	-	23

### 内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

1) 无法增加内冷细缝  
Mounting of slits not possible

## 热缩筒夹 ER20 (8°) SHRINK FIT COLLETS ER20 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

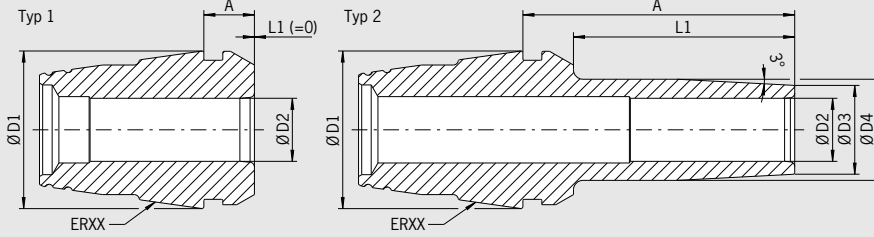
订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.200.000.03	1	ER20	20	7,52	0	3	-	-	-
81.200.025.03	2	ER20	20	32,52	25	3	7	12,5	-
81.200.035.03	2	ER20	20	42,52	35	3	7	13,5	-
81.200.000.04	1	ER20	20	7,52	0	4	-	-	-
81.200.025.04	2	ER20	20	32,52	25	4	7	12,5	-
81.200.035.04	2	ER20	20	42,52	35	4	7	13,5	-
81.200.000.05	1	ER20	20	7,52	0	5	-	-	-
81.200.025.05	2	ER20	20	32,52	25	5	8	13,5	-
81.200.035.05	2	ER20	20	42,52	35	5	8	13,5	-
81.200.000.06	1	ER20	20	7,52	0	6	-	-	-
81.200.025.06	2	ER20	20	32,52	25	6	9	13,5	-
81.200.035.06	2	ER20	20	42,52	35	6	9	13,5	-
81.200.000.08	1	ER20	20	7,52	0	8	-	-	-
81.200.025.08	2	ER20	20	32,52	25	8	11	14	-
81.200.035.08	2	ER20	20	42,52	35	8	11	14	-
81.200.000.10	1	ER20	20	7,52	0	10	-	-	-
81.200.000.12 <sup>1)</sup>	1	ER20	20	7,52	0	12	-	-	29,5

### 内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

1) 无法增加内冷细缝  
Mounting of slits not possible

## 热缩筒夹 ER25 (8°) SHRINK FIT COLLETS ER25 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

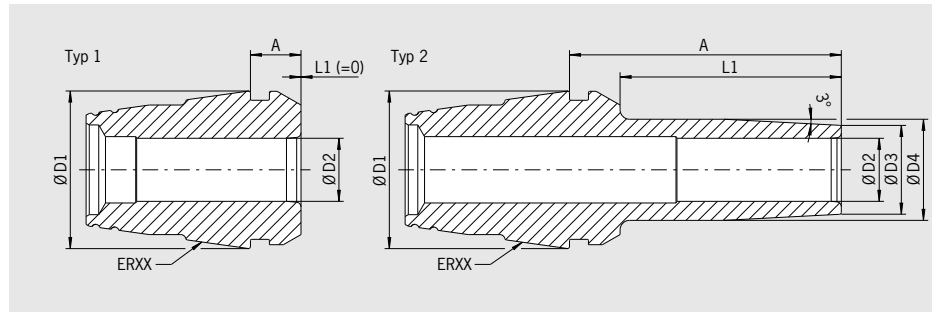
- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.250.000.03	1	ER25	25	8	0	3	-	-	-
81.250.010.03	2	ER25	25	18	10	3	7	12,5	-
81.250.020.03	2	ER25	25	28	20	3	7	12,5	-
81.250.025.03	2	ER25	25	33	25	3	7	12,5	-
81.250.030.03	2	ER25	25	38	30	3	7	13,5	-
81.250.035.03	2	ER25	25	43	35	3	7	13,5	-
81.250.000.04	1	ER25	25	8	0	4	-	-	-
81.250.010.04	2	ER25	25	18	10	4	7	12,5	-
81.250.020.04	2	ER25	25	28	20	4	7	12,5	-
81.250.025.04	2	ER25	25	33	25	4	7	12,5	-
81.250.030.04	2	ER25	25	38	30	4	7	13,5	-
81.250.035.04	2	ER25	25	43	35	4	7	13,5	-
81.250.000.05	1	ER25	25	8	0	5	-	-	-
81.250.010.05	2	ER25	25	18	10	5	8	13,5	-
81.250.020.05	2	ER25	25	28	20	5	8	13,5	-
81.250.025.05	2	ER25	25	33	25	5	8	13,5	-
81.250.030.05	2	ER25	25	38	30	5	8	14,5	-
81.250.035.05	2	ER25	25	43	35	5	8	14,5	-
81.250.000.06	1	ER25	25	8	0	6	-	-	-
81.250.010.06	2	ER25	25	18	10	6	9	14,5	-
81.250.020.06	2	ER25	25	28	20	6	9	14,5	-
81.250.025.06	2	ER25	25	33	25	6	9	14,5	-
81.250.030.06	2	ER25	25	38	30	6	9	15,5	-
81.250.035.06	2	ER25	25	43	35	6	9	15,5	-
81.250.000.08	1	ER25	25	8	0	8	-	-	-
81.250.010.08	2	ER25	25	18	10	8	11	16	-

### 内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

## 热缩筒夹 ER25 (8°) SHRINK FIT COLLETS ER25 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

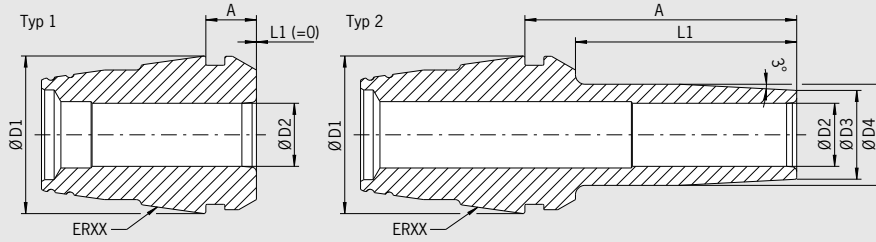
订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.250.020.08	2	ER25	25	28	20	8	11	16	-
81.250.025.08	2	ER25	25	33	25	8	11	16	-
81.250.030.08	2	ER25	25	38	30	8	11	16,7	-
81.250.035.08	2	ER25	25	43	35	8	11	16,7	-
81.250.000.10	1	ER25	25	8	0	10	-	-	-
81.250.010.10	2	ER25	25	18	10	10	14	-	-
81.250.020.10	2	ER25	25	28	20	10	14	-	-
81.250.025.10	2	ER25	25	33	25	10	14	-	-
81.250.030.10	2	ER25	25	38	30	10	14	16	-
81.250.035.10	2	ER25	25	43	35	10	14	16	-
81.250.000.12	1	ER25	25	8	0	12	-	-	-
81.250.000.14	1	ER25	25	8	0	14	-	-	-
81.250.000.16 <sup>1)</sup>	1	ER25	25	8	0	16	-	-	33

### 内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

1) 无法增加内冷细缝  
Mounting of slits not possible

## 热缩筒夹 ER32 (8°) SHRINK FIT COLLETS ER32 (8°)



### 特征

- 能够和现有的各种ER系统兼容
- 可以在筒夹的夹持孔的内壁增加细缝，使内冷却液沿刀具的柄部喷出
- 用于夹持柄径公差为h6的硬质合金刀具

### Version

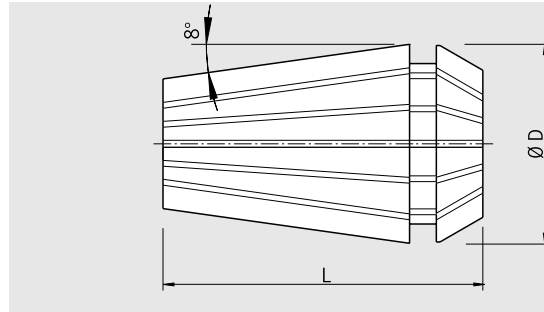
- Compatible with all established ER nuts
- Optional with slits along the clamping bore for cooling from outside
- For solid carbide tools with shank tolerance h6

订货号 Order No.	类型 Type	ER 尺寸 ER Size	D1 [mm]	A [mm]	L1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	最大的夹持长度 Insertion depth [mm]
81.320.000.03	1	ER32	32	9	0	3	-	-	-
81.320.035.03	2	ER32	32	44	35	3	7	15	-
81.320.000.04	1	ER32	32	9	0	4	-	-	-
81.320.035.04	2	ER32	32	44	35	4	7	15	-
81.320.000.05	1	ER32	32	9	0	5	-	-	-
81.320.035.05	2	ER32	32	44	35	5	8	16	-
81.320.000.06	1	ER32	32	9	0	6	-	-	-
81.320.035.06	2	ER32	32	44	35	6	9	17	-
81.320.000.08	1	ER32	32	9	0	8	-	-	-
81.320.035.08	2	ER32	32	44	35	8	11	19	-
81.320.000.10	1	ER32	32	9	0	10	-	-	-
81.320.035.10	2	ER32	32	44	35	10	14	22	-
81.320.000.12	1	ER32	32	9	0	12	-	-	-
81.320.035.12	2	ER32	32	44	35	12	15	24	-
81.320.000.14	1	ER32	32	9	0	14	-	-	-
81.320.035.14	2	ER32	32	44	35	14	17	24	-
81.320.000.16	1	ER32	32	9	0	16	-	-	-
81.320.035.16	2	ER32	32	44	35	16	19	24	-
81.320.000.18	1	ER32	32	9	0	18	-	-	-
81.320.000.20	1	ER32	32	9	0	20	-	-	-

### 内冷细缝/Coolant slots

订货号/Order No. **91.100.42**

## 高精度ER型弹簧筒夹 HIGH PRECISION COLLETS ER



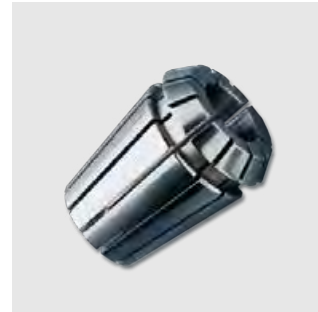
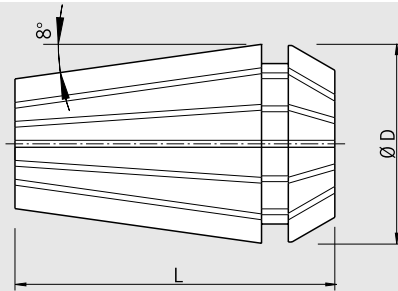
- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 5  $\mu\text{m}$

- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 5  $\mu\text{m}$

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.110.1.0	ER11	0.50 – 1.00	11,5	18
81.110.1.5	ER11	1.00 – 1.50	11,5	18
81.110.2.0	ER11	1.50 – 2.00	11,5	18
81.110.2.5	ER11	2.00 – 2.50	11,5	18
81.110.3.0	ER11	2.50 – 3.00	11,5	18
81.110.3.5	ER11	3.00 – 3.50	11,5	18
81.110.4.0	ER11	3.50 – 4.00	11,5	18
81.110.4.5	ER11	4.00 – 4.50	11,5	18
81.110.5.0	ER11	4.50 – 5.00	11,5	18
81.110.5.5	ER11	5.00 – 5.50	11,5	18
81.110.6.0	ER11	5.50 – 6.00	11,5	18
81.110.6.5	ER11	6.00 – 6.50	11,5	18
81.110.7.0	ER11	6.50 – 7.00	11,5	18
81.110.00	ER11	ER筒夹套装 (7个, 独立包装) Set of ER collets (7 pcs., separately packaged)		

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.160.01	ER16	0.50 – 1.00	17	27
81.160.1.5	ER16	1.00 – 1.50	17	27
81.160.02	ER16	1.50 – 2.00	17	27
81.160.2.5	ER16	2.00 – 2.50	17	27
81.160.03	ER16	2.00 – 3.00	17	27
81.160.04	ER16	3.00 – 4.00	17	27
81.160.05	ER16	4.00 – 5.00	17	27
81.160.06	ER16	5.00 – 6.00	17	27
81.160.07	ER16	6.00 – 7.00	17	27
81.160.08	ER16	7.00 – 8.00	17	27
81.160.09	ER16	8.00 – 9.00	17	27
81.160.10	ER16	9.00 – 10.00	17	27
81.160.00	ER16	ER筒夹套装 (10个, 独立包装) Set of ER collets (10 pcs., separately packaged)		
81.160.001	ER16	ER筒夹套装 (10个, 带筒夹托架) Set of ER collets (10 pcs., with collet carrier)		

## 高精度ER型弹簧筒夹 HIGH PRECISION COLLETS ER



- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 5  $\mu\text{m}$

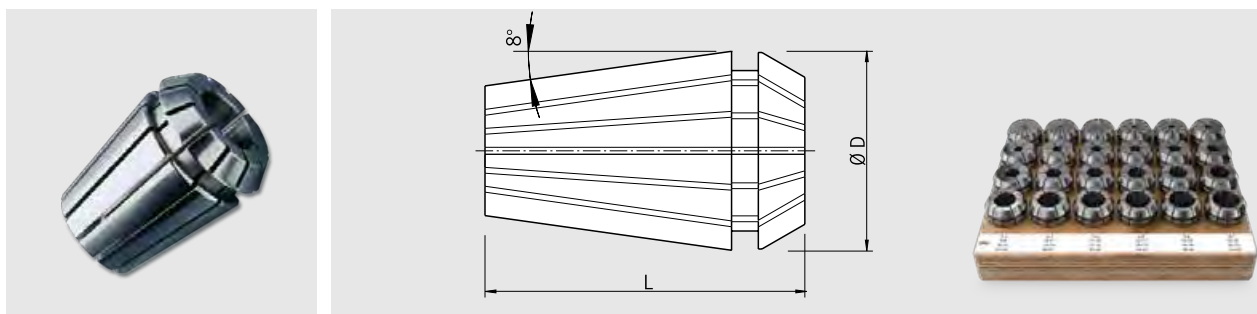
- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 5  $\mu\text{m}$

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.200.02	ER20	1.50 – 2.00	21	31,5
81.200.03	ER20	2.00 – 3.00	21	31,5
81.200.04	ER20	3.00 – 4.00	21	31,5
81.200.05	ER20	4.00 – 5.00	21	31,5
81.200.06	ER20	5.00 – 6.00	21	31,5
81.200.07	ER20	6.00 – 7.00	21	31,5
81.200.08	ER20	7.00 – 8.00	21	31,5
81.200.09	ER20	8.00 – 9.00	21	31,5
81.200.10	ER20	9.00 – 10.00	21	31,5
81.200.11	ER20	10.00 – 11.00	21	31,5
81.200.12	ER20	11.00 – 12.00	21	31,5
81.200.13	ER20	12.00 – 13.00	21	31,5
81.200.00	ER20	ER筒夹套装 (12个, 独立包装) Set of ER collets (12 pcs., sepearatly packaged)		
81.200.001	ER20	ER筒夹套装 (12个, 带筒夹托架) Set of ER collets (12 pcs., with collet carrier)		

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.250.1.5	ER25	1.00 – 1.50	26	35
81.250.02	ER25	1.50 – 2.00	26	35
81.250.2.5	ER25	1.50 – 2.50	26	35
81.250.03	ER25	2.00 – 3.00	26	35
81.250.04	ER25	3.00 – 4.00	26	35
81.250.05	ER25	4.00 – 5.00	26	35
81.250.06	ER25	5.00 – 6.00	26	35
81.250.07	ER25	6.00 – 7.00	26	35
81.250.08	ER25	7.00 – 8.00	26	35
81.250.09	ER25	8.00 – 9.00	26	35
81.250.10	ER25	9.00 – 10.00	26	35
81.250.11	ER25	10.00 – 11.00	26	35
81.250.12	ER25	11.00 – 12.00	26	35
81.250.13	ER25	12.00 – 13.00	26	35
81.250.14	ER25	13.00 – 14.00	26	35
81.250.15	ER25	14.00 – 15.00	26	35
81.250.16	ER25	15.00 – 16.00	26	35
81.250.00	ER25	ER筒夹套装 (15个, 独立包装) Set of ER collets (15 pcs., sepearatly packaged)		
81.250.001	ER25	ER筒夹套装 (15个, 带筒夹托架) Set of ER collets (15 pcs., with collet carrier)		



# 高精度ER型弹簧筒夹 HIGH PRECISION COLLETS ER



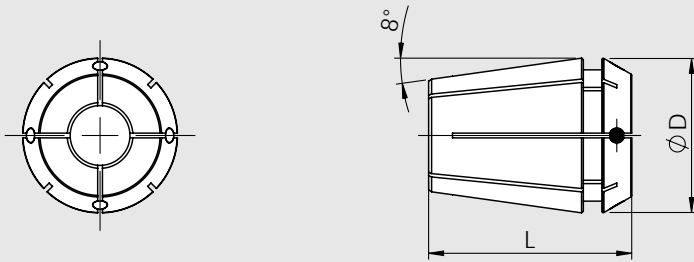
- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 5 μm

- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 5 μm

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.320.02	ER32	1.50 – 2.00	33	40
81.320.2.5	ER32	1.50 – 2.50	33	40
81.320.03	ER32	2.00 – 3.00	33	40
81.320.04	ER32	3.00 – 4.00	33	40
81.320.05	ER32	4.00 – 5.00	33	40
81.320.06	ER32	5.00 – 6.00	33	40
81.320.07	ER32	6.00 – 7.00	33	40
81.320.08	ER32	7.00 – 8.00	33	40
81.320.09	ER32	8.00 – 9.00	33	40
81.320.10	ER32	9.00 – 10.00	33	40
81.320.11	ER32	10.00 – 11.00	33	40
81.320.12	ER32	11.00 – 12.00	33	40
81.320.13	ER32	12.00 – 13.00	33	40
81.320.14	ER32	13.00 – 14.00	33	40
81.320.15	ER32	14.00 – 15.00	33	40
81.320.16	ER32	15.00 – 16.00	33	40
81.320.17	ER32	16.00 – 17.00	33	40
81.320.18	ER32	17.00 – 18.00	33	40
81.320.19	ER32	18.00 – 19.00	33	40
81.320.20	ER32	19.00 – 20.00	33	40
81.320.00	ER32	ER筒夹套装 (19个, 独立包装) Set of ER collets (19 pcs., seperatly packaged)		
81.320.001	ER32	ER筒夹套装 (19个, 带筒夹托架) Set of ER collets (19 pcs., with collet carrier)		

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.400.03	ER40	2.50 – 3.00	41	46
81.400.04	ER40	3.00 – 4.00	41	46
81.400.05	ER40	4.00 – 5.00	41	46
81.400.06	ER40	5.00 – 6.00	41	46
81.400.07	ER40	6.00 – 7.00	41	46
81.400.08	ER40	7.00 – 8.00	41	46
81.400.09	ER40	8.00 – 9.00	41	46
81.400.10	ER40	9.00 – 10.00	41	46
81.400.11	ER40	10.00 – 11.00	41	46
81.400.12	ER40	11.00 – 12.00	41	46
81.400.13	ER40	12.00 – 13.00	41	46
81.400.14	ER40	13.00 – 14.00	41	46
81.400.15	ER40	14.00 – 15.00	41	46
81.400.16	ER40	15.00 – 16.00	41	46
81.400.17	ER40	16.00 – 17.00	41	46
81.400.18	ER40	17.00 – 18.00	41	46
81.400.19	ER40	18.00 – 19.00	41	46
81.400.20	ER40	19.00 – 20.00	41	46
81.400.21	ER40	20.00 – 21.00	41	46
81.400.22	ER40	21.00 – 22.00	41	46
81.400.23	ER40	22.00 – 23.00	41	46
81.400.24	ER40	23.00 – 24.00	41	46
81.400.25	ER40	24.00 – 25.00	41	46
81.400.26	ER40	25.00 – 26.00	41	46
81.400.00	ER40	ER筒夹套装 (24个, 独立包装) Set of ER collets (24 pcs., seperatly packaged)		
81.400.001	ER40	ER筒夹套装 (24个, 带筒夹托架) Set of ER collets (24 pcs., with collet carrier)		

## 高精度ER型止水筒夹 HIGH PRECISION COLLETS ER – SEALED



- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 5  $\mu\text{m}$
- 密封, 可以中心出水

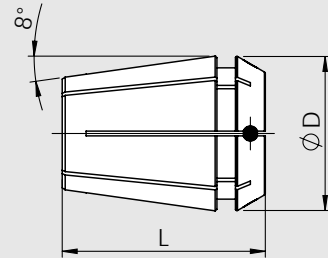
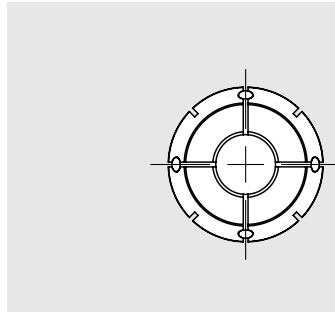
- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 5  $\mu\text{m}$
- Sealed for internal coolant tools

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.165.03	ER16	03	16,70	30
81.165.04	ER16	04	16,70	30
81.165.05	ER16	05	16,70	30
81.165.06	ER16	06	16,70	30
81.165.07	ER16	07	16,70	30
81.165.08	ER16	08	16,70	30
81.165.09	ER16	09	16,70	30
81.165.10	ER16	10	16,70	30

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.255.03	ER25	03	25,70	34
81.255.04	ER25	04	25,70	34
81.255.05	ER25	05	25,70	34
81.255.06	ER25	06	25,70	34
81.255.07	ER25	07	25,70	34
81.255.08	ER25	08	25,70	34
81.255.09	ER25	09	25,70	34
81.255.10	ER25	10	25,70	34
81.255.11	ER25	11	25,70	34
81.255.12	ER25	12	25,70	34
81.255.13	ER25	13	25,70	34
81.255.14	ER25	14	25,70	34
81.255.15	ER25	15	25,70	34
81.255.16	ER25	16	25,70	34

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.205.03	ER20	03	20,70	30
81.205.04	ER20	04	20,70	30
81.205.05	ER20	05	20,70	30
81.205.06	ER20	06	20,70	30
81.205.07	ER20	07	20,70	30
81.205.08	ER20	08	20,70	30
81.205.09	ER20	09	20,70	30
81.205.10	ER20	10	20,70	30
81.205.11	ER20	11	20,70	30
81.205.12	ER20	12	20,70	30

## 高精度ER型止水筒夹 HIGH PRECISION COLLETS ER – SEALED



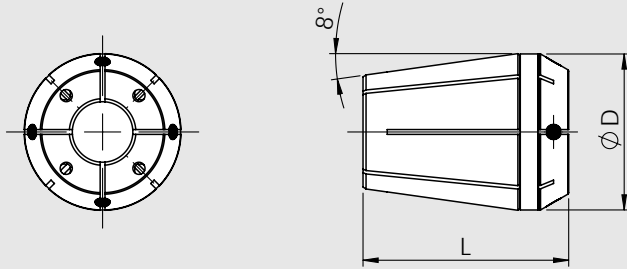
- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 5  $\mu\text{m}$
- 密封, 可以中心出水

- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 5  $\mu\text{m}$
- Sealed for internal coolant tools

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.325.03	ER32	03	32,70	45
81.325.04	ER32	04	32,70	45
81.325.05	ER32	05	32,70	45
81.325.06	ER32	06	32,70	45
81.325.07	ER32	07	32,70	45
81.325.08	ER32	08	32,70	45
81.325.09	ER32	09	32,70	45
81.325.10	ER32	10	32,70	45
81.325.11	ER32	11	32,70	45
81.325.12	ER32	12	32,70	45
81.325.13	ER32	13	32,70	45
81.325.14	ER32	14	32,70	45
81.325.15	ER32	15	32,70	45
81.325.16	ER32	16	32,70	45
81.325.17	ER32	17	32,70	45
81.325.18	ER32	18	32,70	45
81.325.19	ER32	19	32,70	45
81.325.20	ER32	20	32,70	45

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.405.06	ER40	06	40,70	30
81.405.08	ER40	08	40,70	30
81.405.10	ER40	10	40,70	30
81.405.12	ER40	12	40,70	30
81.405.14	ER40	14	40,70	30
81.405.16	ER40	16	40,70	30
81.405.18	ER40	18	40,70	30
81.405.20	ER40	20	40,70	30
81.405.22	ER40	22	40,70	30
81.405.25	ER40	25	40,70	30

## 含冷却喷孔的高精度ER止水筒夹 HIGH PRECISION COLLETS ER – SEALED WITH COOL JET



- 高精度, 长寿命, 尤其是配合使用翰默 HAIMER 筒夹式刀柄
- ISO 15488 (原 DIN 6499)
- 夹持力大
- 适用于各种品牌的 ER 筒夹刀柄
- 跳动精度 3  $\mu\text{m}$
- 含冷却喷孔, 可端面出水
- 用于柄部直径公差为 h8 或更小的刀具

- High polished finish for extra accuracy and long life, especially when clamped in HAIMER ER chucks
- ISO 15488 (formerly DIN 6499)
- Superior clamping strength
- Fits all brands of ER holders
- Run-out accuracy 3  $\mu\text{m}$
- With Cool Jet bores for optimal coolant supply
- For cylindrical shanks with tolerance h8 or better

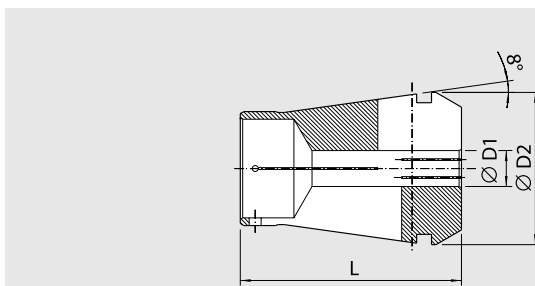
订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.252.04	ER25	04	26	34
81.252.06	ER25	06	26	34
81.252.08	ER25	08	26	34
81.252.10	ER25	10	26	34
81.252.12	ER25	12	26	34
81.252.14	ER25	14	26	34

订货号 Order No.	ER 尺寸 ER Size	[mm]	D [mm]	L [mm]
81.322.04	ER32	04	33	45
81.322.06	ER32	06	33	45
81.322.08	ER32	08	33	45
81.322.10	ER32	10	33	45
81.322.12	ER32	12	33	45
81.322.14	ER32	14	33	45
81.322.16	ER32	16	33	45
81.322.18	ER32	18	33	45
81.322.20	ER32	20	33	45

注意: 蓝色塑料环仅用于标识, 在使用前必须去除。

Attention: Blue plastic ring is for identification purposes only and must be removed before use

## 翰默 HAIMER 强力筒夹 POWER COLLET FOR HAIMER POWER COLLET CHUCK



- 非常高的跳动精度：在3xD的悬升长度内高达0.003mm
- 高夹持大
- 用于 HAIMER 强力筒夹刀柄和高精度筒夹刀柄
- 适用于柄部公差优于 h10的刀具
- 选项：可以在自密封的强力筒夹上增加内冷喷孔

- High runout accuracy: 0,003 mm at 3×D
- Superior clamping strength
- Fits HAIMER Power Collet Chucks and High Precision Collet Chucks
- For cylindrical shanks with tolerance h10
- Optional: Cool Jet bores at self-sealing collets

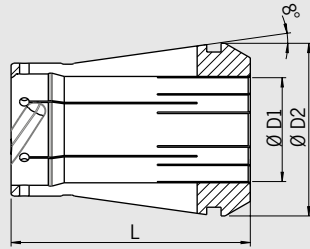
订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.163.02	ER16	2	16,45	30
81.163.03	ER16	3	16,45	30
81.163.04	ER16	4 <sup>1)</sup>	16,45	30
81.163.045	ER16	4,5 <sup>1)</sup>	16,45	30
81.163.05	ER16	5 <sup>1)</sup>	16,45	30
81.163.06	ER16	6 <sup>1)</sup>	16,45	30
81.163.08	ER16	8 <sup>1)</sup>	16,45	30
81.163.10	ER16	10 <sup>1)</sup>	16,45	30
81.163.00	ER16	强力筒夹套装, 含8个 Ø 2 - 10 mm的强力筒夹 Set of Power Collets (includes 8 pcs., Ø 2-10 mm)		

订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.253.02	ER25	2	25,45	37
81.253.03	ER25	3	25,45	37
81.253.04	ER25	4	25,45	37
81.253.05	ER25	5 <sup>1)</sup>	25,45	37
81.253.06	ER25	6 <sup>1)</sup>	25,45	37
81.253.08	ER25	8 <sup>1)</sup>	25,45	37
81.253.10	ER25	10 <sup>1)</sup>	25,45	37
81.253.12	ER25	12 <sup>1)</sup>	25,45	37
81.253.14	ER25	14 <sup>1)</sup>	25,45	37
81.253.16	ER25	16 <sup>1)</sup>	25,45	37
81.253.00	ER25	强力筒夹套装, 含10个 Ø 2 - 16 mm的强力筒夹 Set of Power Collets (includes 10 pcs., Ø 2-16 mm)		

订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.323.02	ER32	2	32,48	45
81.323.03	ER32	3	32,48	45
81.323.04	ER32	4	32,48	45
81.323.05	ER32	5 <sup>1)</sup>	32,48	45
81.323.06	ER32	6 <sup>1)</sup>	32,48	45
81.323.08	ER32	8 <sup>1)</sup>	32,48	45
81.323.10	ER32	10 <sup>1)</sup>	32,48	45
81.323.12	ER32	12 <sup>1)</sup>	32,48	45
81.323.14	ER32	14 <sup>1)</sup>	32,48	45
81.323.16	ER32	16 <sup>1)</sup>	32,48	45
81.323.18	ER32	18 <sup>1)</sup>	32,48	45
81.323.20	ER32	20 <sup>1)</sup>	32,48	45
81.323.00	ER32	强力筒夹套装, 含12个 Ø 2 - 20 mm的强力筒夹 Set of Power Collets (includes 12 pcs., Ø 2-20 mm)		

1) 密封, 适用于内冷/Sealed for internal coolant

## 翰默 HAIMER 带安全锁结构的强力筒夹 POWER COLLET WITH SAFE-LOCK®



- 由于翰默的高精度强力筒夹的尾部增加了导柱, 同心度和稳定性都获得提高
- 由于夹持部位的接触面加大, 因此可以传递更大的扭矩
- 刀具不会被拔出或者在刀柄中转动
- 刀具柄部的沟槽将刀具向刀柄方向引导 (取决于刀具的旋转方向)
- 自密封功能, 适用于内冷
- 选项: 冷却喷孔

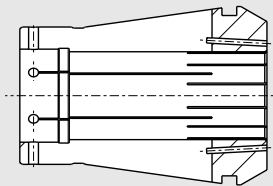
- High-precision Power Collets with stabilisation and concentration trough pilot of collet
- High torque due to form closed clamping
- No pull out and no spinning of the tool
- Groove on tool shank is directed so that the tool will be pulled into the chuck (depending on direction of rotation)
- Sealed for internal coolant
- Optional: Cool Jet bores

订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.163.06.7	ER16	6	16,45	30
81.163.08.7	ER16	8	16,45	30
81.163.10.7	ER16	10	16,45	30

订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.253.06.7	ER25	6	25,45	37
81.253.08.7	ER25	8	25,45	37
81.253.10.7	ER25	10	25,45	37
81.253.12.7	ER25	12	25,45	37
81.253.14.7	ER25	14	25,45	37
81.253.16.7	ER25	16	25,45	37

订货号 Order No.	ER 尺寸 ER Size	D1 [mm]	D2 [mm]	L [mm]
81.323.06.7	ER32	6	32,48	45
81.323.08.7	ER32	8	32,48	45
81.323.10.7	ER32	10	32,48	45
81.323.12.7	ER32	12	32,48	45
81.323.14.7	ER32	14	32,48	45
81.323.16.7	ER32	16	32,48	45
81.323.18.7	ER32	18	32,48	45
81.323.20.7	ER32	20	32,48	45

## 翰默 HAIMER 带冷却喷孔的强力筒夹 COOL JET BORES FOR POWER COLLETS



### 选项: 强力筒夹的冷却喷孔

- 优化的冷却液喷孔, 指向筒夹的中心
- 冷却液可以直接到达切削刃
- 最高可以提升刀具寿命达100%
- 切削过程更稳定
- 刃口不再出现粘屑现象
- 适用于自密封的强力筒夹

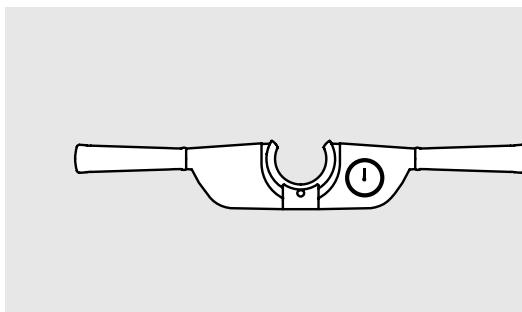
### Optional: Cool Jet for Power Collets

- Optimized coolant bores, aimed at center in the collet
- Coolant directly to the cutting edge
- Extended tool life up to 100%
- Higher reliability of cutting process
- No more balls of chips on tools
- Available for self-sealing Power Collets

强力筒夹的冷却喷孔/Cool Jet bores for Power Collets

订货号/Order No. **91.100.27**

## 翰默 HAIMER 强力筒夹刀柄和标准ER筒夹刀柄用扭力扳手 TORQUE MASTER TORQUE WRENCH FOR HAIMER POWER COLLET CHUCK AND STANDARD ER CHUCKS



### 用于强力筒夹和标准ER筒夹刀柄的双手操作的扭力扳手

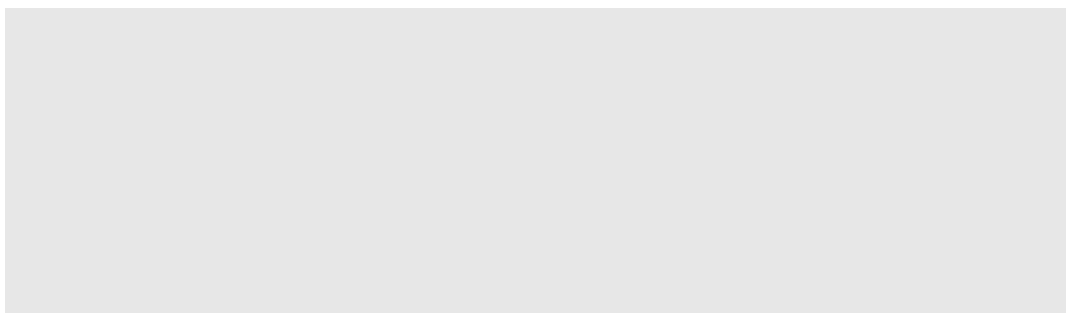
- 获得很高的跳动精度, 不是单边受力的夹持
- 优化力的传输
- 扭力扳手的表盘上, 可精确显示扭力
- 对应大夹持力的大扭力
- 不会超过额定负荷
- 更换扳手插件, 即可适用于各种ER筒夹刀柄

### Two-armed torque wrench for Power Collet Chucks:

- For highest runout accuracy, no one-sided clamping
- Optimal power transmission by constant force application
- Torque wrench for highest clamping accuracy and repeatability with dial gauge
- Maximum torque for highest clamping force
- No overloading of smaller clamping diameters
- Changeable inserts, useable also for standard ER-Collets

扭力扳手/Torque wrench	订货号/Order No.
带包装盒/with suitcase	84.600.00
不带包装盒/without suitcase	84.600.00.S
包含扭力扳手、包装盒和3个标准ER16/25/32插件的套装 Torque Master torque wrench set with suitcase and 3 inserts for Standard ER Chucks in ER16, ER25, ER32	84.600.00.AK

## 扭力扳手插件 INSERTS FOR TORQUE MASTER TORQUE WRENCH



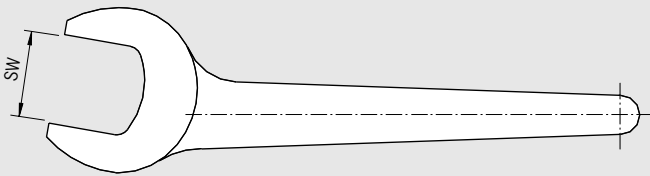
扭力扳手的插件/Inserts for Torque Master wrench		
用于强力筒夹刀柄/ for Power Collet Chucks	尺寸/Size	
订货号/Order No.		
84.610.16	ER 16	
84.610.25	ER 25	
84.610.32	ER 32	
用于标准ER筒夹刀柄/for Standard ER Chucks	尺寸/Size	扳手尺寸 SW/Wrench size SW
84.620.11	ER 11	SW17
84.620.16	ER 16	SW25
84.620.20	ER 20	SW30
84.620.25	ER 25	
84.620.32	ER 32	
标准迷你型ER刀柄用插件/for Standard ER Chucks ER Mini	尺寸/Size	扳手尺寸 SW/Wrench size SW
84.620.16.1	ER 16 Mini	

# 扳手 WRENCHES



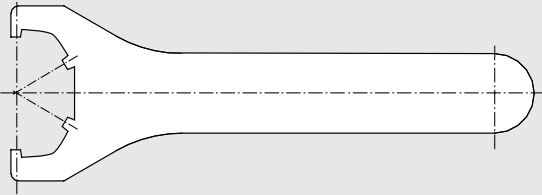
ER16, ER25, ER32 强力筒夹刀柄用的固定扳手/Power Collet clamping wrench for ER 16, ER 25 and ER 32

ER	ER 16	ER 25	ER 32	
订货号/Order No.	84.650...	.16	.25	.32



ER 11, ER 16, ER 20 锁紧螺母用扳手/Wrench for locknuts ER 11, ER 16 and ER 20

ER	ER 11	ER 16	ER 20	
扳手尺寸 SW/Wrench size	17	25	30	
订货号/Order No.	84.200...	.11	.16	.20



ER 25-50 锁紧螺母用扳手/Wrench for locknuts ER 25-50

ER	ER 25	ER 32	ER 40	ER50	
订货号/Order No.	84.200...	.25	.32	.40	.50

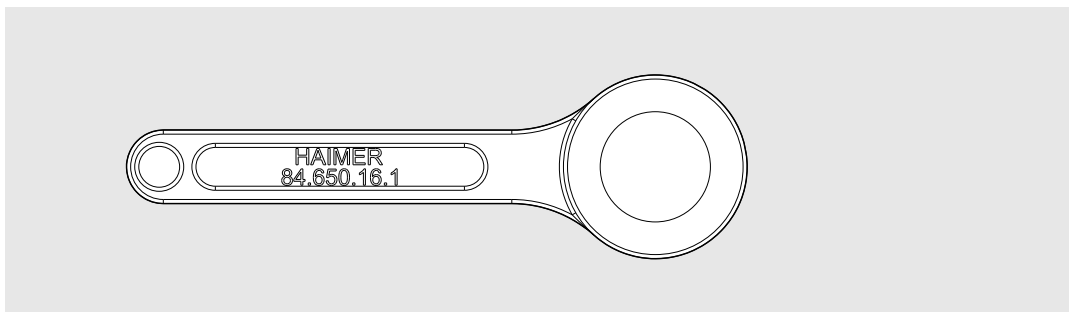


用于芯轴直径为  $\varnothing$  16-60 的面铣刀和壳铣刀刀柄的端面拉紧螺钉的扳手  
Wrench for tightening bolts for face mill arbors and combination shell end mill adapters  $\varnothing$  16-60

$\varnothing$	16	22	27	32	40	50	60	
订货号/Order No.	84.400...	.16	.22	.27	.32	.40	.50	.60



## 用于高精度筒夹刀柄的滚针轴承扳手 ROLLER BEARING WRENCH FOR HIGH PRECISION COLLET CHUCKS



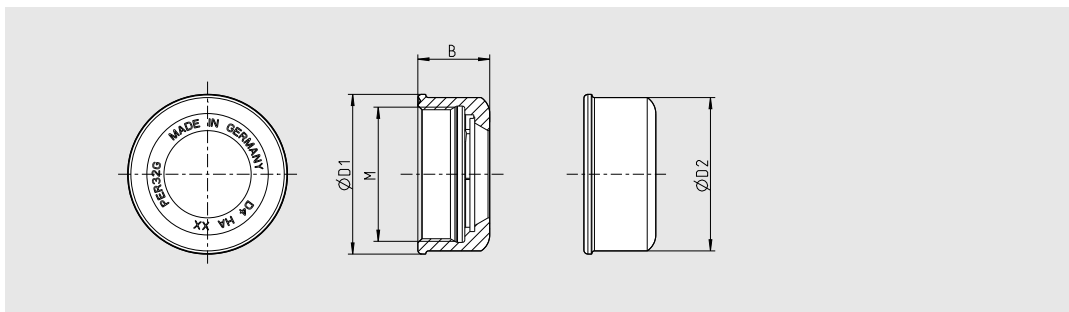
用于高精度筒夹刀柄的锁紧螺母的滚针轴承扳手

Roller bearing wrench for clamping of locknuts for High Precision Collet Chucks.

### ER16/25/32用滚针轴承扳手/Roller bearing wrench for ER 16, ER 25 and ER 32

ER	ER 16	ER 25	ER 32
订货号/Order No. 84.650...	.16.1	.25.1	.32.1

## 用于高精度筒夹刀柄的圆形锁紧螺母 SMOOTH LOCKNUTS FOR HIGH PRECISION COLLET CHUCKS



### 高精度圆形锁紧螺母ER

- 非常高的跳动精度
- 耐磨损和很高的夹紧力, 均得益于特殊的涂层
- 出厂前的预平衡有助于减少使用时的振动
- 减少噪音

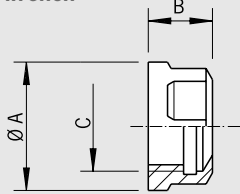
### High Precision Smooth Locknuts ER:

- Highest run-out accuracy
- No wear and high clamping force due to special slide coating
- Less vibrations due to pre-balancing
- Noise reducing

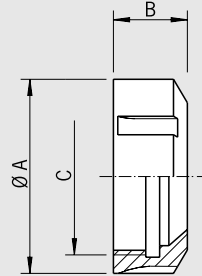
ER	ER 16	ER 25	ER 32
订货号/Order No. 83.914...	.16.1	.25.1	.32.1
Ø D1	28	42	50
Ø D2	27	40	48
M	M 23 x 1,5	M 34 x 1,5	M 42 x 1,5
B	17,8	20	22,5

## 弹簧筒夹刀柄用锁紧螺母 LOCKNUTS FOR COLLET CHUCKS

**ER 11-20**  
适用于开口扳手  
for fork wrench



**ER 25-40**  
适用爪形扳手  
for ER clamping wrench



### ER锁紧螺母

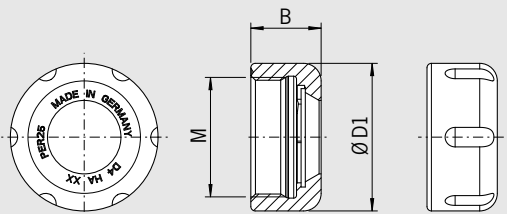
- 非常高的跳动精度
- 耐磨损和很高的夹紧力，均得益于特殊的涂层
- 出厂前的预平衡有助于减少使用时的振动
- 精密动平衡的HS型

### Locknuts ER:

- Highest runout accuracy
- No wear and high clamping force due to special slide coating
- Small vibrations due to pre-balancing
- Version HS fine-balanced

ER	ER 11	ER 16	ER 20	
订货号/Order No. <b>83.912...</b>	<b>.11</b>	<b>.16</b>	<b>.20</b>	
HS型/HS Version				
订货号/Order No. <b>83.912...</b>		<b>.16.HS</b>	<b>.20.HS</b>	
Ø A	19	28	34	
B	11,3	17	19	
C	M 14 x 0,75	M 22 x 1,5	M 25 x 1,5	
ER		ER 25	ER 32	ER 40
订货号/Order No. <b>83.912...</b>		<b>.25</b>	<b>.32</b>	<b>.40</b>
HS型/HS Version				
订货号/Order No. <b>83.912...</b>		<b>.25.HS</b>	<b>.32.HS</b>	<b>.40.HS</b>
Ø A		42	50	63
B		20	22,5	25,5
C		M 32 x 1,5	M 40 x 1,5	M 50 x 1,5

## 强力筒夹刀柄用锁紧螺母 LOCKNUTS FOR POWER COLLET CHUCKS



### 强力筒夹刀柄用锁紧螺母:

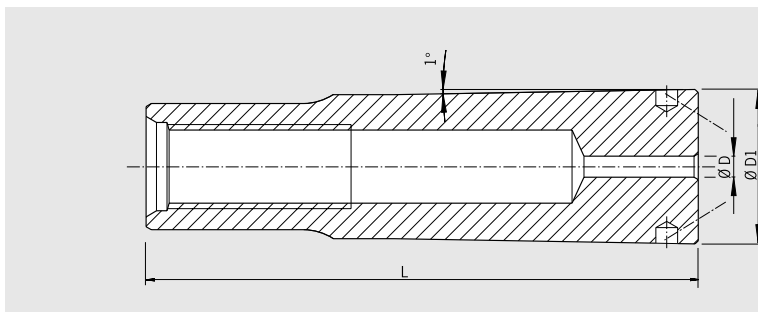
- 非常高的跳动精度
- 耐磨损和很高的夹紧力，均得益于特殊的涂层
- 出厂前的预平衡有助于减少使用时的振动

### Power Collet locknuts:

- Highest runout accuracy
- No wear and high clamping force due to special slide coating
- Less vibrations due to pre-balancing

ER	ER 16	ER 25	ER 32
订货号/Order No. <b>83.914...</b>	<b>.16</b>	<b>.25</b>	<b>.32</b>
Ø D1	28	42	50
M	M 23 x 1.5	M 34 x 1.5	M 42 x 1.5
B	17.8	20	22.5

# HG型弹簧筒夹和清洁器 HG COLLETS AND HG CONE WIPER



### HG型弹簧筒夹

适用于夹持圆柱柄刀具的高精度筒夹

- 适用于刀具柄径公差为h6

### HG Collets

For clamping tools with cylindrical shank with utmost precision in HG chucks.

- For tools with Shank tolerance h6

HG 01	Ø D [mm]	2	2,5	3	4	4,5	5	5,5	5,6 <sup>1)</sup>	6	6,3	7	7,1 <sup>1)</sup>	8	9
	Ø D1[mm]	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7	14,7
	L [mm]	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5
订货号/Order No.	82.510...	.02	.025	.03	.04	.045	.05	.055	.056	.06	.063	.07	.071	.08	.09
HG 02	Ø D [mm]	10	11	12	12,5	14									
	Ø D1[mm]	17,87	17,87	17,87	17,87	17,87									
	L [mm]	64,2	64,2	64,2	64,2	64,2									
订货号/Order No.	82.520...	.10	.11	.12	.125	.14									
HG 03	Ø D [mm]	16	18	20											
	Ø D1[mm]	26,147	26,147	26,147											
	L [mm]	69,7	69,7	69,7											
订货号/Order No.	82.530...	.16	.18	.20											

### 订货号/Accessories

筒夹拉钩/Pull-out hook

HG

订货号/Order No. **82.570.00**



润滑膏/Lubricating paste

订货号/Order No. **82.585.00**

冷却喷孔/Cool Jet bores

订货号/Order No. **91.100.24**



### 锥孔清洁器

用于清洁HG型刀柄内锥面

### Cone wiper

For cleaning tool holder I.D. of HG chuck.

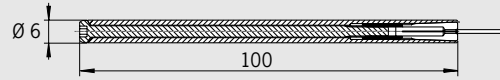
锥孔清洁器/Cone wiper	HG 01	HG 02	HG 03
订货号/Order No. <b>82.590...</b>	<b>.01</b>	<b>.02</b>	<b>03</b>

1) 按需供货/On request

## 迷你型后拉式延长杆 HG MINI EXTENSIONS

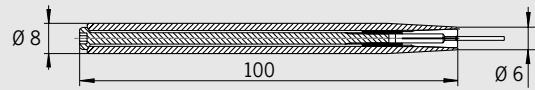
### HG Mini 01

圆柱形/cylindrical



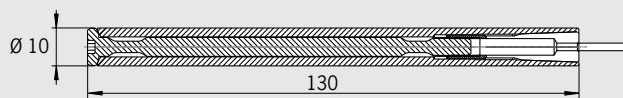
### HG Mini 01

圆锥形/conical



### HG Mini 02

圆柱形/cylindrical



### 迷你型后拉式延长杆

适用于圆柱柄刀具的高精度夹持

- 适用柄径公差为h6的刀具

### HG Mini Extensions

For clamping tools with cylindrical shank with utmost precision.

- For tools with Shank tolerance h6

	HG Mini 01 圆柱形/cylindrical	HG Mini 01 圆锥形/conical	HG Mini 02 圆柱形/cylindrical
尺寸/Size	A=100 mm	A=100 mm	A=130 mm
外圆尺寸/Outer diam.	6 mm 圆柱形/cylindrical	6-8 mm 圆锥形/conical	10 mm 圆柱形/cylindrical
夹持范围 Ø/Clamping range Ø	1-2,5 mm	1-2,5 mm	2,5-4,5 mm
订货号/Order No.	<b>82.611.01</b>	<b>82.621.01</b>	<b>82.610.02</b>

### HG Mini 01用筒夹/Collets for HG Mini 01

夹持范围/Clamping Ø D [mm]	1	1,5	2	2,5	
订货号/Order No.	<b>82.650...</b>	<b>.010</b>	<b>.015</b>	<b>.020</b>	<b>.025</b>

### HG Mini 02用筒夹/Collets for HG Mini 02

夹持范围/Clamping Ø D [mm]	2	2,5	3	3,5	4	4,5	
订货号/Order No.	<b>82.660...</b>	<b>.020</b>	<b>.025</b>	<b>.030</b>	<b>.035</b>	<b>.040</b>	<b>.045</b>



迷你型后拉式延长杆用的扭力扳手和装夹设备  
HG Mini with torque wrench and assembly device



迷你型后拉式延长杆的装夹设备  
Assembly device for HG Mini

### 附件/Accessories

迷你型后拉式延长杆用的扭力扳手(已经预调的)/Torque wrench for HG Mini (pre-adjusted)

尺寸/Size	01	02
订货号/Order No.	<b>82.576.00</b>	<b>82.577.00</b>

迷你型后拉式延长杆用的装夹设备/Assembly device for HG Mini

订货号/Order No.	<b>82.578.00</b>
---------------	------------------

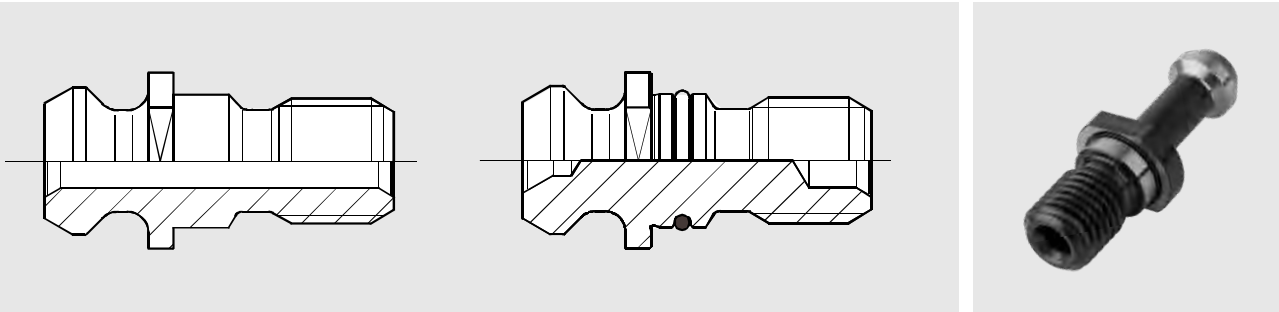


# 翰默 热缩机

快如闪电、坚如磐石

For fastest tool change and  
highest process stability

# 拉钉 PULL STUDS



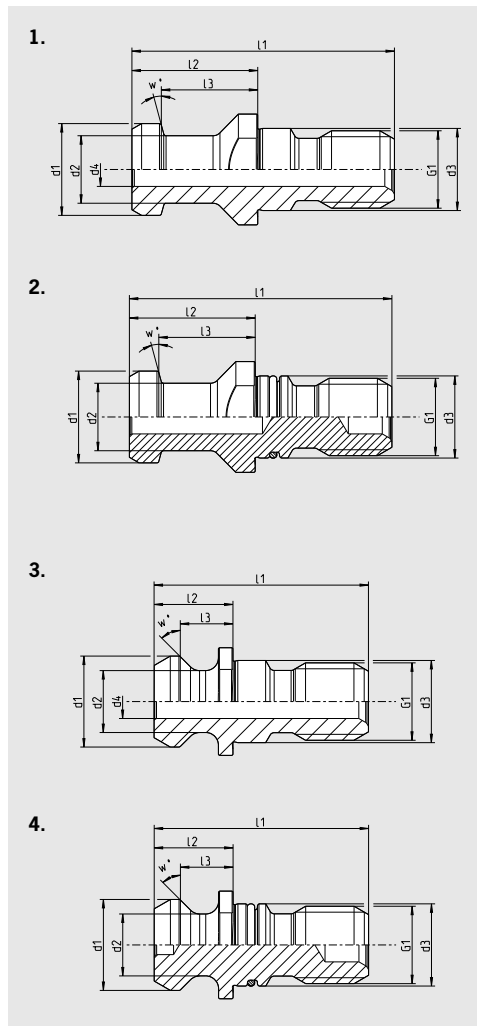
拉钉是机床与刀具之间连接的重要部件。要求有极高的精度，刚度和可靠性。

低质量的拉钉不仅影响机床的性能，甚至成为安全隐患。拉钉一旦出问题就可能造成机床和工件的损坏，甚至是人身伤害。

- 特种钢材制造，高刚度
- 经过多次高成本的热处理
- 高耐冲击强度
- 硬化处理后，全部功能面精加工
- 很高的安全性和可靠性

Pull studs are an important link between machine and tool. The requirements concerning accuracy, rigidity and reliability are very high. Pull studs of minor quality not only decrease the performance of the machine, they are even a safety risk. A breaking pull stud might cause severe damage on machine and workpiece and even injuries on persons.

- Made of special steel with high rigidity
- Costly heat treatment in several steps
- High impact strength
- All functional surfaces fine finished after hardening
- Highest security and reliability



## 1. ISO 7388-3 AD型，带通孔/with drill through (旧标准/former norm DIN 69872 Form A)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>SK 40</b>									
订货号/Order No. <b>88.200.40</b>	19	14	17	7	54	26	20	M16	15°
<b>SK 50</b>									
订货号/Order No. <b>88.200.50</b>	28	21	25	11,5	74	34	25	M24	15°

## 2. ISO 7388-3 AF型，带密封/sealed (旧标准/former norm DIN 69872 Form B)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>SK 40</b>									
订货号/Order No. <b>88.202.40</b>	19	14	17	—	54	26	20	M16	15°
<b>SK 50</b>									
订货号/Order No. <b>88.202.50</b>	28	21	25	—	74	34	25	M24	15°

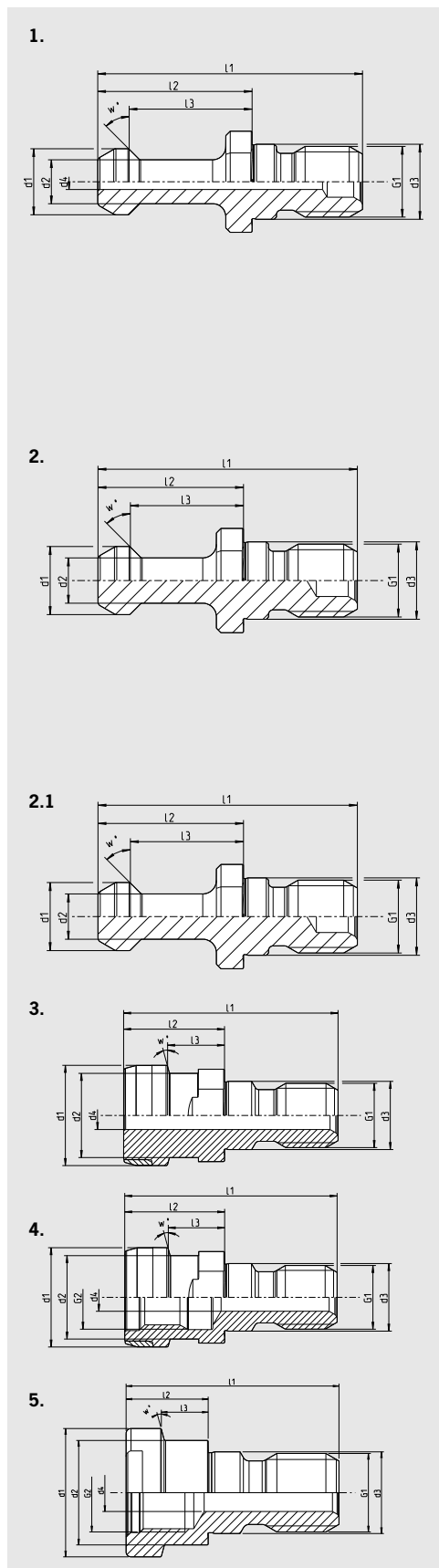
## 3. ISO 7388-3 UD型，带通孔/with drill through (旧标准/former norm ISO 7388-2 Form B)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>SK 40</b>									
订货号/Order No. <b>88.400.40</b>	18,95	12,95	17	7	44,5	16,4	11,15	M16	45°
<b>SK 50</b>									
订货号/Order No. <b>88.400.50</b>	29,1	19,6	25	11,5	65,5	25,55	17,95	M24	45°

## 4. ISO 7388-3 Form UF型，带密封/sealed (旧标准/former norm ISO 7388-2 Form B)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>SK 40</b>									
订货号/Order No. <b>88.402.40</b>	18,95	12,95	17	—	44,5	16,4	11,15	M16	45°
<b>SK 50</b>									
订货号/Order No. <b>88.402.50</b>	29,1	19,6	25	—	65,5	25,55	17,95	M24	45°

# 拉钉 PULL STUDS



**1. ISO 7388-3 Form JD型带通孔/with drill through**  
(旧标准/former norm MAS 403 30°/45°)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>BT30</b>									
订货号/Order No. <b>88.605.30</b>	11	7	12,5	2,5	43	23	18	M12	30°
<b>BT30</b>									
订货号/Order No. <b>88.600.30</b>	11	7	12,5	2,5	43	23	18	M12	45°
<b>BT40</b>									
订货号/Order No. <b>88.605.40</b>	15	10	17	3,5	60	35	28	M16	30°
<b>BT40</b>									
订货号/Order No. <b>88.603.40</b>	15	10	17	3,5	60	35	28	M16	45°
<b>BT50</b>									
订货号/Order No. <b>88.605.50</b>	23	17	25	6	85	45	35	M24	30°
<b>BT50</b>									
订货号/Order No. <b>88.603.50</b>	23	17	25	6	85	45	35	M24	45°

**2. ISO 7388-3 Form JF型无通孔/without drill through**  
(旧标准/former norm MAS 403 30°/45°)

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>BT30</b>									
订货号/Order No. <b>88.604.30</b>	11	7	12,5	—	43	23	18	M12	30°
<b>BT30</b>									
订货号/Order No. <b>88.601.30</b>	11	7	12,5	—	43	23	18	M12	45°
<b>BT40</b>									
订货号/Order No. <b>88.604.40</b>	15	10	17	—	60	35	28	M16	30°
<b>BT40</b>									
订货号/Order No. <b>88.601.40</b>	15	10	17	—	60	35	28	M16	45°
<b>BT50</b>									
订货号/Order No. <b>88.604.50</b>	23	17	25	—	85	45	35	M24	30°
<b>BT50</b>									
订货号/Order No. <b>88.601.50</b>	23	17	25	—	85	45	35	M24	45°

**2.1 特殊/Special:**  
类似 ISO 7388-3 JF型无通孔/without drill through

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>BT40 缩短的/shortened</b>									
订货号/Order No. <b>88.601.40.1</b>	15	10	17	—	57,1	32,15	25,15	M16	45°

**3. Ott-有槽并带通孔/Ott-groove with drill through**  
SK40 带黄铜保护环/SK40 with protective ring of brass

	d1	d2	d3	d4	l1	l2	l3	G1	w°
<b>SK40</b>									
订货号/Order No. <b>88.300.40</b>	25	21,1	17	7	53	25	13,6	M16	15°
<b>SK50</b>									
订货号/Order No. <b>88.300.50</b>	39,3	32	25	11,5	65	25	13,35	M24	15°

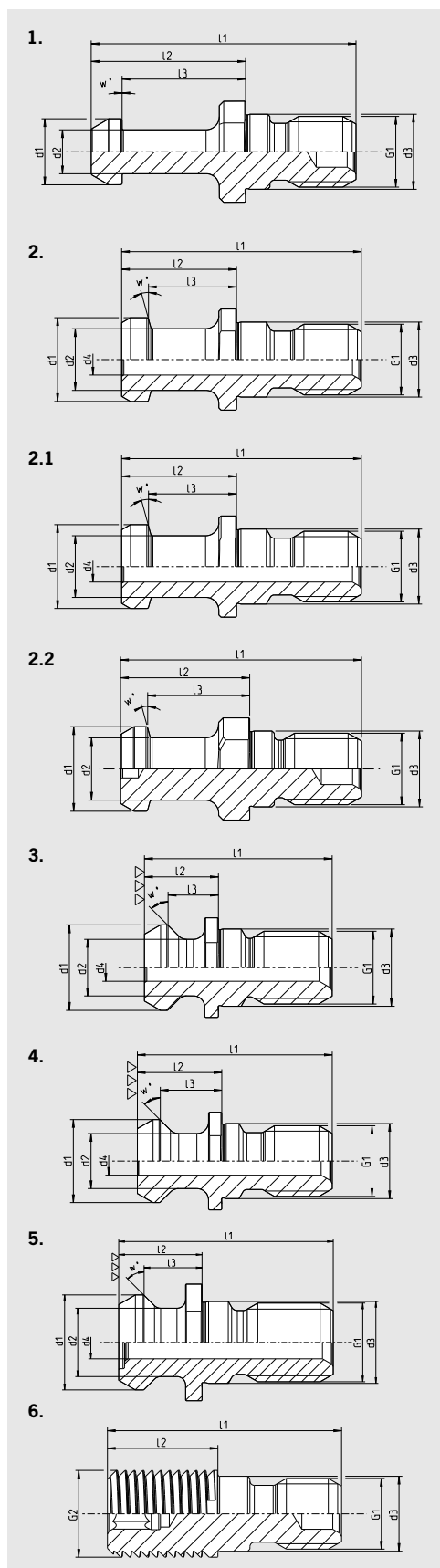
**4. Ott-有槽并带内螺纹/Ott-groove with inner thread**  
SK40 带黄铜保护环/SK40 with protective ring of brass

	d1	d2	d3	d4	l1	l2	l3	G1	G2	w°
<b>SK40</b>										
订货号/Order No. <b>88.303.40</b>	25	21,1	17	7	53	25	13,6	M16	M16	15°

**5. Ott-有槽并带内螺纹/Ott-groove with inner thread**

	d1	d2	d3	d4	l1	l2	l3	G1	G2	w°
<b>SK50</b>										
订货号/Order No. <b>88.303.50</b>	39,3	32	25	11,5	65	25	13,35	M24	M24	15°

# 拉钉 PULL STUDS



**1. MORI – SEIKI MAS 90° 不带通孔/without drill through**

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>BT40</b>									
订货号/Order No. <b>88.101.40</b>	15	10	17	—	60	35	28	M16	0°
<b>BT50</b>									
订货号/Order No. <b>88.101.50</b>	23	17	25	—	85	45	35	M24	0°

**2. ISO 7388-2 Typ/A 型带通孔/Type A drill through**

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>SK40</b>									
订货号/Order No. <b>88.800.40</b>	19	14	17	7	54	26	20	M16	15°
<b>SK50</b>									
订货号/Order No. <b>88.800.50</b>	28	21	25	11,5	74	34	25	M24	15°

**2.1 JIS B 6339 带通孔/with drill through**

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>BT40</b>									
订货号/Order No. <b>88.700.40</b>	19	14	17	7	54	29	23	M16	15°
<b>BT50</b>									
订货号/Order No. <b>88.700.50</b>	28	21	25	10	74	34	25	M24	15°

**2.2 JIS B 6339 不带通孔/without drill through**

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>BT40</b>									
订货号/Order No. <b>88.701.40</b>	19	14	17	—	54	29	23	M16	15°

**3. ANSI – CAT (MAZAK) 带通孔/with drill through**  
端面 and 导向部分带密封/sealing on face side and pilot

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>CAT40</b>									
订货号/Order No. <b>88.500.40</b>	18,80	12,45	17	6	41,26	16,26	11,18	M16	45°
<b>CAT40 带导向/with pilot</b>									
订货号/Order No. <b>88.500.40.1</b>	18,80	12,45	17	7	41,26	16,26	11,18	M16	45°

**4. ANSI – CAT 40 (MAZAK) 带通孔/with drill through**  
端面 and 导向部分带密封/sealing on face side and pilot

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>CAT40 加长的/extended</b>									
订货号/Order No. <b>88.900.40.1</b>	18,8	12,45	17	6,4	44,11	19,11	14,03	M16	45°

**5. ANSI – CAT 50 (MAZAK) 带通孔/with drill through**  
端面 and 导向部分带密封/sealing on face side and pilot

	d1	d2	d3	d4	l1	l2	l3	G1	w°
--	----	----	----	----	----	----	----	----	----

<b>CAT50</b>									
订货号/Order No. <b>88.500.50</b>	28,96	20,83	25	10	65,4	25,4	17,78	M24	45°

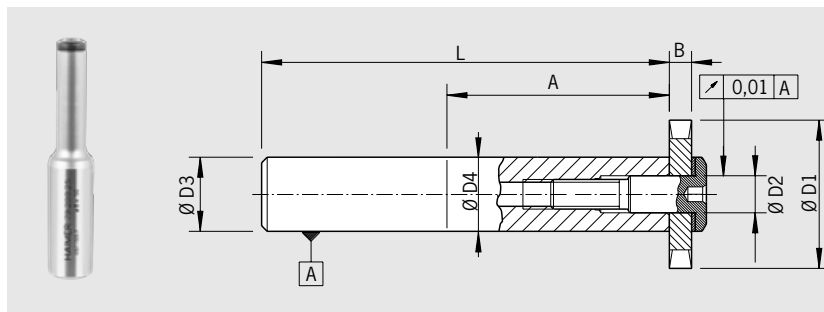
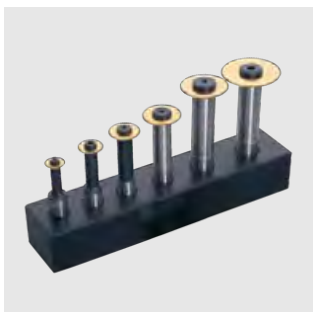
**6. 锯齿螺纹 S 20 × 2/with saw thread S 20×2**

	d1	d2	d3	d4	l1	l2	l3	G1	G2	w°
--	----	----	----	----	----	----	----	----	----	----

<b>SK40</b>										
订货号/Order No. <b>88.600.40</b>	—	—	17	—	53	25	—	M16	S20×2	0°



# 圆柱柄的锯片夹持器 SAWBLADE HOLDER



**用途:**  
用于在标准的刀柄上夹持锯片

柄部设计符合  
**DIN 1835-A**  
良好的淬火、回火处理, 内外部的精磨加工

- 发货包含: 锁紧螺栓和垫圈
- 冷却喷孔需要额外费用

**Use:**  
For holding sawblades on standard tool holders.

Design of shank according to  
**DIN 1835-A**  
well quenched and tempered, internally and externally ground

- Included in delivery: completely with tightening bolt and intermediate disk
- Cooling with Cool Jet against extra charge

用于锯片/Sawblade	Ø D1 [mm]	20	25	32	40	50	63
Ø D2 [mm]		5	8	8	10	13	16
Ø D3 [mm]		20	20	20	20	25	25
Ø D4 [mm]		10	13	16	20	25	25
L [mm]		90	100	105	110	136	136
B	0,2 mm – 6 mm						
长度 A/Length A [mm]		40	50	55	60	80	80
订货号/Order No.	<b>79.200...</b>	<b>.20.3</b>	<b>.25.3</b>	<b>.32.3</b>	<b>.40.3</b>	<b>.50.3</b>	<b>.63.3</b>
包含6个锯片夹持器的工具包/Tool bar incl. 6 pcs. sawblade adapter							
订货号/Order No.	<b>79.200.00.3</b>						

**附件/Accessories**

**螺栓/Tightening bolt**

尺寸/Size D1		20	25	32	40	50	63
订货号/Order No.	<b>79.250...</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>

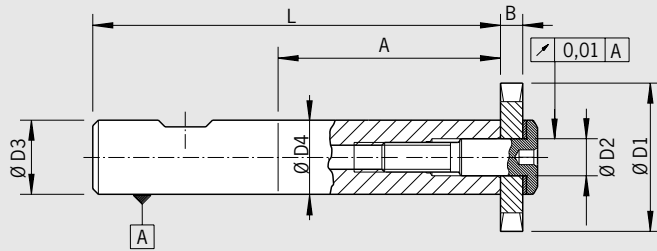
**垫圈/Disk**

尺寸/Size D1		20	25	32	40	50	63
订货号/Order No.	<b>79.260...</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>

**冷却喷孔/Cool Jet bores**

订货号/Order No.	<b>91.100.24</b>						
---------------	------------------	--	--	--	--	--	--

## 侧固柄的锯片夹持器 SAWBLADE HOLDER – WITH WELDON SHANK



### 用途:

用于在标准的刀柄上夹持锯片

柄部设计符合

**DIN 1835-B**

良好的淬火、回火处理, 内外部的精磨加工

- 发货包含: 锁紧螺栓和垫圈
- 冷却喷孔需要额外费用

### Use:

For holding sawblades on Weldon tool holders.

Design of shank according to

**DIN 1835-B**

well quenched and tempered, internally and externally ground

- Included in delivery: completely with tightening bolt and intermediate disk
- Cooling with Cool Jet against extra charge

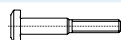
用于锯片/Sawblade	Ø D1 [mm]	20	25	32	40	50	63
Ø D2 [mm]		5	8	8	10	13	16
Ø D3 [mm]		20	20	20	20	25	25
Ø D4 [mm]		10	13	16	20	25	25
L [mm]		90	100	105	110	136	136
B	0,2 mm – 6 mm						
长度 A/Length A [mm]		40	50	55	60	80	80
订货号/Order No.	<b>79.200...</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>
包含6个锯片夹持器的工具包/Tool bar incl. 6 pcs. sawblade adapter							
订货号/Order No.	<b>79.200.00</b>						

### 附件/Accessories

#### 螺栓/Tightening bolt

尺寸/Size D1

订货号/Order No. **79.250...**



20	25	32	40	50	63
<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>

#### 垫圈/Disk

尺寸/Size D1

订货号/Order No. **79.260...**



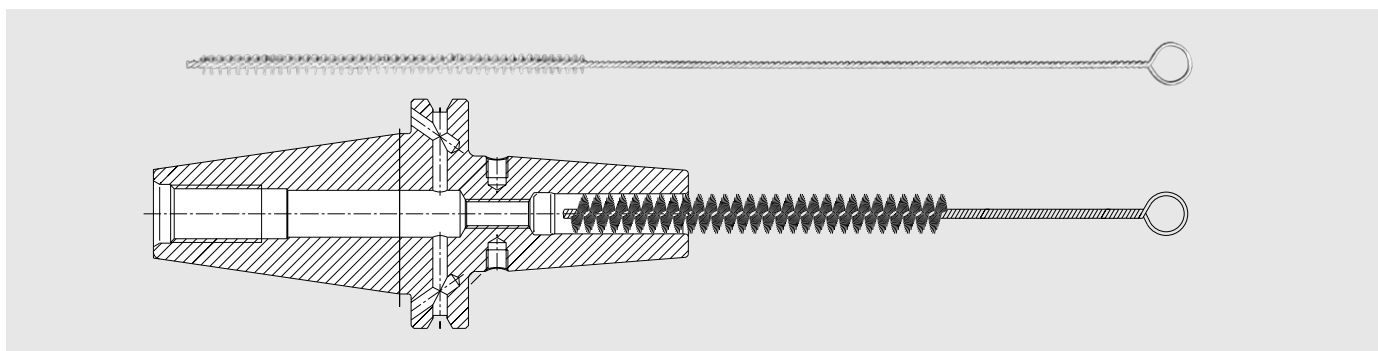
20	25	32	40	50	63
<b>.20</b>	<b>.25</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>

#### 冷却喷孔/Cool Jet bores

订货号/Order No. **91.100.24**



## 热缩刀柄用清洁毛刷 SHRINK FIT BRUSH



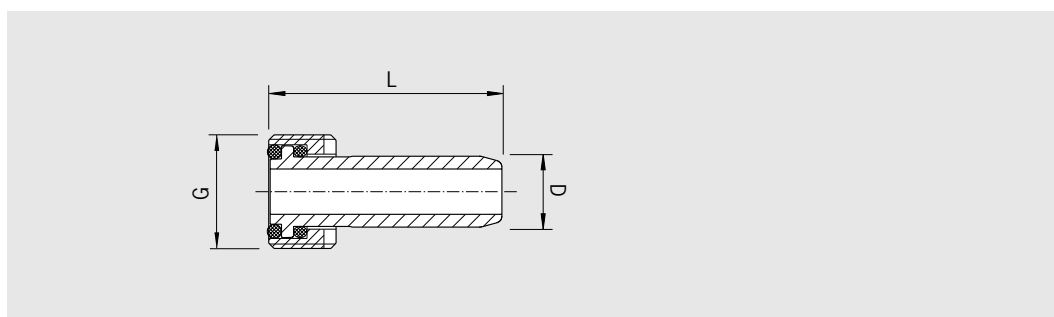
为了达到好的热缩夹持效果，清理刀柄内部是必要的。这个清洁刷专门针对刀柄设计，方便，快捷，有效的清洁刀柄内部的夹持孔，可配合一些冷的溶剂一起使用，例如：刹车盘清洁剂，从而使刀柄一直处于高精度的工作状态下。

In order to achieve the best possible shrink fit connection, a grease free socket and shank is necessary. The cleaning can be done by a cold solvent (e.g. brake cleaner). An appropriate cleaning brush is necessary to clean the socket of the Shrink Fit Chuck.

清洁毛刷/Shrink Fit Brush	Ø [mm]
订货号/Order No. <b>86.200.01</b>	3
<b>86.200.02</b>	3,5
<b>86.200.02</b>	4
<b>86.200.02</b>	4,5
<b>86.200.02</b>	5
<b>86.200.03</b>	6
<b>86.200.03</b>	8

清洁毛刷/Shrink Fit Brush	Ø [mm]
订货号/Order No. <b>86.200.04</b>	10
<b>86.200.04</b>	12
<b>86.200.06</b>	14
<b>86.200.06</b>	16
<b>86.200.07</b>	18
<b>86.200.07</b>	20
<b>86.200.08</b>	25

## 冷却水管/COOLANT TUBE

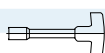


- 防止主轴损坏
- 中心出水的HSK主轴必须选用
- 双O型环设计使管可以微调
- 在超光表面上进行特殊的涂层
- 不损坏密封系统
- 适于各种品牌的HSK刀柄

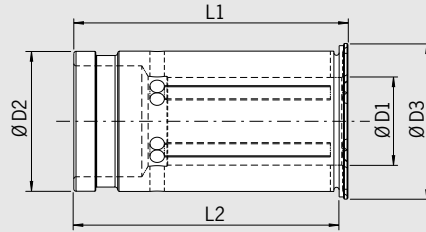
- Prevents spindle from being spoiled
- Must be used with all coolant through HSK spindles
- Dual o-ring design makes tube slightly movable
- Special coating with extremely smooth surface
- No damaging of the sealing system
- Fits all brands of HSK holders

含两个O型环的冷却管/ Coolant tube with 2 o-rings	HSK-A32	HSK-A40	HSK-A50	HSK-A63	HSK-A80	HSK-A100	HSK-A125
订货号/Order No. <b>85.700...</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>	<b>.80</b>	<b>.10</b>	<b>.125</b>
螺纹/Thread G [mm]	M10 x 1	M12 x 1	M16 x 1	M18 x 1	M20 x 1,5	M24 x 1,5	M30 x 1,5
直径/Diameter D [mm]	6	8	10	12	14	16	18
长度/Length L [mm]	26	29,5	33	36,5	40	44	48

附件/Accessories 扳手/Wrench for	HSK-32	HSK-40	HSK-50	HSK-63	HSK-80	HSK-100	HSK-125
订货号/Order No. <b>84.500...</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>	<b>.63</b>	<b>.80</b>	<b>.10</b>	<b>.125</b>



## 用于液压刀柄的减径套 REDUCTION SLEEVES FOR HYDRAULIC CHUCKS



### 用途:

使用一个刀柄和各种规格的减径套可以夹持不同柄径的刀具。他们可以用于各种市面上的液压刀柄。

### 特征:

- 密封(可以承受高达80巴的内冷压力)
- 适用于所有柄径公差为h6的刀具

### Use:

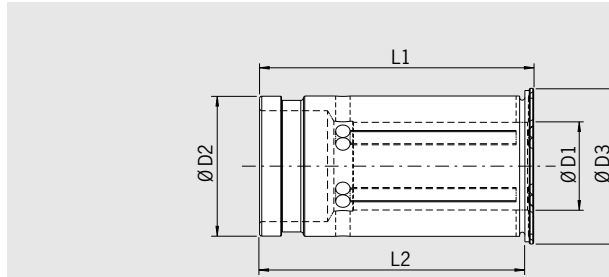
Reduction sleeves allow clamping of several different shank diameters with just one tool holder. They can be used in all marketable hydraulic chucks.

### Version:

- Sealed (Coolant-proof up to 80 bar)
- Suitable for all common cutting tool shanks with h6 tolerance

订货号 Order No.	Ø D1 [mm] Ø D1 [mm]	Ø D2 [mm] Ø D2 [mm]	Ø D3 [mm] Ø D3 [mm]	L1 [mm] L1 [mm]	L2 [mm] L2 [mm]
76.120.03	3	12	16,5	47	45
76.120.04	4	12	16,5	47	45
76.120.05	5	12	16,5	47	45
76.120.06	6	12	16,5	47	45
76.120.08	8	12	16,5	47	45
76.200.03	3	20	24	52,5	50,5
76.200.04	4	20	24	52,5	50,5
76.200.05	5	20	24	52,5	50,5
76.200.06	6	20	24	52,5	50,5
76.200.08	8	20	24	52,5	50,5
76.200.10	10	20	24	52,5	50,5
76.200.12	12	20	24	52,5	50,5
76.200.14	14	20	24	52,5	50,5
76.200.16	16	20	24	52,5	50,5
76.320.06	6	32	35,5	62,5	60,5
76.320.08	8	32	35,5	62,5	60,5
76.320.10	10	32	35,5	62,5	60,5
76.320.12	12	32	35,5	62,5	60,5
76.320.14	14	32	35,5	62,5	60,5
76.320.16	16	32	35,5	62,5	60,5
76.320.18	18	32	35,5	62,5	60,5
76.320.20	20	32	35,5	62,5	60,5
76.320.25	25	32	35,5	62,5	60,5

## 用于液压刀柄的带冷却细缝的减径套 REDUCTION SLEEVES WITH COOLANT SLITS FOR HYDRAULIC CHUCKS



### 用途:

使用一个刀柄和各种规格的减径套可以夹持不同柄径的刀具。他们可以用于各种市面上的液压刀柄。特殊形状的冷却细缝确保冷却液直达刃口。

### 特征:

- 适用于所有柄径公差为h6的刀具

### Use:

Reduction sleeves allow clamping of several different shank diameters with just one tool holder. They can be used in all marketable hydraulic chucks. The special geometry of coolant slits ensures targeted coolant supply of the cutting edge.

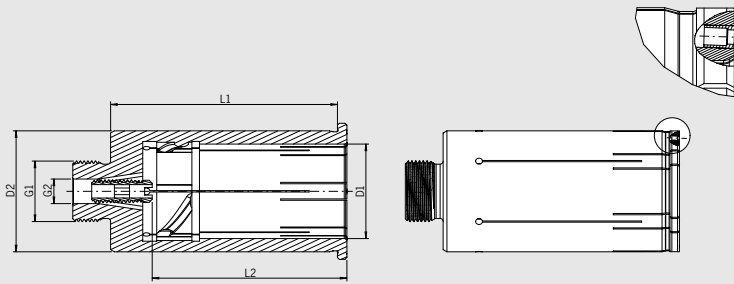
### Version:

- Suitable for all common cutting tool shanks with h6 tolerance

### 用于液压刀柄的带冷却细缝的减径套/Reduction sleeves with coolant slits for Hydraulic Chucks

订货号 Order No.	Ø D1 [mm] Ø D1 [mm]	Ø D2 [mm] Ø D2 [mm]	Ø D3 [mm] Ø D3 [mm]	L1 [mm] L1 [mm]	L2 [mm] L2 [mm]
76.200.06.2	6	20	24	52,5	50,5
76.200.08.2	8	20	24	52,5	50,5
76.200.10.2	10	20	24	52,5	50,5
76.200.12.2	12	20	24	52,5	50,5
76.200.16.2	16	20	24	52,5	50,5
76.320.06.2	6	32	35,5	62,5	60,5
76.320.08.2	8	32	35,5	62,5	60,5
76.320.10.2	10	32	35,5	62,5	60,5
76.320.12.2	12	32	35,5	62,5	60,5
76.320.16.2	16	32	35,5	62,5	60,5

## 用于液压刀柄的带安全锁结构的减径套 REDUCTION SLEEVES WITH SAFE-LOCK FOR POWER HYDRAULIC CHUCKS



### 用途:

使用一个刀柄和各种规格的减径套可以夹持不同柄径的刀具。带安全锁结构的减径套用于翰默HAIMER强力型液压刀柄,可以夹持带安全锁结构的刀具。刀具被减径套中的螺旋形锁销固定,从而避免被拔出。减径套被拧入液压刀柄中并锁紧,因而也避免被拔出。

- 避免刀具被拔出和在刀柄中的转动
- 带冷却喷孔,冷却液直达刃口
- 发货包含:支撑螺钉(订货号 85.810.15.3)

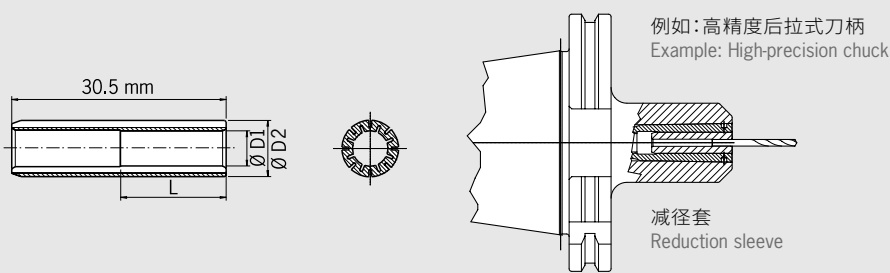
### Use:

Reduction sleeves allow clamping of several different shank diameters with just one tool holder. The reduction sleeves with Safe-Lock can be used in HAIMER Power Hydraulic Chucks to clamp tools with Safe-Lock shanks. The tools are protected against pull out by the additional form lock. The reduction sleeve is screwed into the hydraulic chuck and tightened to also be secured against pull out.

- No pull out and no spinning of the tool
- With Cool Jet bores for targeted cooling of the cutting edge
- Included in delivery: with back-up screw (Order No. 85.810.15.3)

订货号 Order No.	Ø D1 [mm] Ø D1 [mm]	Ø D2 [mm] Ø D2 [mm]	L1 [mm] L1 [mm]	L2 [mm] L2 [mm]	G1	G2
76.323.12.27	12	32	60	45	M16x1	M6
76.323.16.27	16	32	60	48	M16x1	M6
76.323.20.27	20	32	60	50	M16x1	M6
76.323.25.27	25	32	60	51	M16x1	M6

## 用于机械式刀柄的减径套 REDUCTION SLEEVES FOR MECHANICAL CHUCKS



### 用途:

刀柄夹持外径尺寸为Ø8mm或者Ø5/16“的减径套,通过减径套夹持小柄径的刀具。

- 适用于柄径公差为h6的刀具
- 密封(可中心出水)

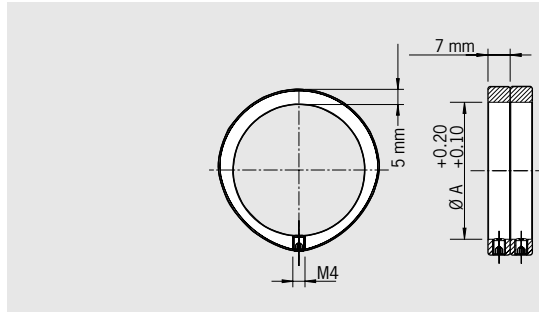
### Use:

For clamping small shanks in chucks with Ø 5/16" or 8 mm ID's.

- Shank tolerance h6
- Sealed (ready for internal coolant)

订货号 Order No.	Ø D1 [mm] Ø D1 [mm]	Ø D2 [mm] Ø D2 [mm]	L [mm] L [mm]
79.110.2.5	2,5	8	7,5
79.110.03	3	8	9
79.110.3.5	3,5	8	10,5
79.110.04	4	8	12
79.110.4.5	4,5	8	13,5
79.110.05	5	8	15
79.110.5.5	5,5	8	16,5

## 动平衡环 BALANCING INDEX RINGS



适用于带有圆柱外径(直径A)的刀具系统做精细动平衡。

For fine-balancing of all tool holders with cylindrical outer diameter (diam. A).

动平衡环有一个自身设定的不平衡量,通过固定到不同角度来补偿整个刀具系统的不平衡量。  
必须用 2 个平衡环来调节一个平衡面。

The balancing index rings have a defined unbalance in themselves. They are turned in such a position that the unbalance of the tool holder will be compensated. There are always 2 rings needed per balancing plane.

- 快速精确地进行平衡
- 对刀具系统没有损伤
- 根据需要可进行重复操作
- 可简便地通过支紧螺钉进行固定
- 适用于各种品牌的刀具系统
- 动平衡机指定环的位置
- 发货时包含:2个动平衡环,含支紧螺钉,不包含内六角扳手

- Balancing quickly and precisely
- No damage of tool holder
- Can be repeated as often as necessary
- Simply fixed by clamping screw
- Suitable for tool holders of all brands
- The balancing machine determines the position of the rings
- Included in delivery: 2 balancing rings with clamping screws without hex wrench

订货号/Order No.	Ø A [mm]	不平衡量 <sup>1)</sup> unbalance	最大转速 rpm [1/min]
79.350.15	15	14 g·mm	max. 55.000
79.350.16	16	14 g·mm	max. 55.000
79.350.17	17	16 g·mm	max. 55.000
79.350.18	18	17 g·mm	max. 55.000
79.350.19	19	19 g·mm	max. 55.000
79.350.20	20	21 g·mm	max. 55.000
79.350.22	22	23 g·mm	max. 55.000
79.350.23	23	25 g·mm	max. 55.000
79.350.24	24	27 g·mm	max. 55.000
79.350.25	25	28 g·mm	max. 55.000
79.350.26	26	32 g·mm	max. 50.000
79.350.27	27	32,5 g·mm	max. 50.000
79.350.28	28	34 g·mm	max. 50.000
79.350.30	30	37 g·mm	max. 45.000
79.350.32	32	43 g·mm	max. 45.000
79.350.34	34	46 g·mm	max. 40.000
79.350.35	35	48 g·mm	max. 40.000
79.350.36	36	51 g·mm	max. 40.000
79.350.38	38	56 g·mm	max. 35.000
79.350.40	40	60 g·mm	max. 35.000
79.350.42	42	65 g·mm	max. 35.000
79.350.43	43	69 g·mm	max. 35.000
79.350.44	44	72 g·mm	max. 35.000
79.350.46	46	80 g·mm	max. 35.000
79.350.48	48	85 g·mm	max. 30.000
79.350.50	50	90 g·mm	max. 30.000
79.350.52	52	100 g·mm	max. 30.000
79.350.53	53	100 g·mm	max. 30.000
79.350.54	54	103 g·mm	max. 30.000

订货号/Order No.	Ø A [mm]	不平衡量 <sup>1)</sup> unbalance	最大转速 rpm [1/min]
79.350.55	55	105 g·mm	max. 30.000
79.350.56	56	110 g·mm	max. 30.000
79.350.58	58	120 g·mm	max. 30.000
79.350.60	60	128 g·mm	max. 25.000
79.350.62	62	132 g·mm	max. 25.000
79.350.63	63	135 g·mm	max. 25.000
79.350.64	64	147 g·mm	max. 25.000
79.350.65	65	147 g·mm	max. 25.000
79.350.66	66	145 g·mm	max. 25.000
79.350.68	68	161 g·mm	max. 25.000
79.350.70	70	165 g·mm	max. 25.000
79.350.72	72	170 g·mm	max. 25.000
79.350.74	74	184 g·mm	max. 25.000
79.350.76	76	186 g·mm	max. 20.000
79.350.78	78	206 g·mm	max. 20.000
79.350.80	80	215 g·mm	max. 20.000
79.350.82	82	213 g·mm	max. 20.000
79.350.84	84	229 g·mm	max. 20.000
79.350.86	86	249 g·mm	max. 20.000
79.350.87	87	256 g·mm	max. 20.000
79.350.88	88	251 g·mm	max. 20.000
79.350.89	89	260 g·mm	max. 20.000
79.350.90	90	265 g·mm	max. 20.000
79.350.92	92	275 g·mm	max. 20.000
79.350.94	94	286 g·mm	max. 20.000
79.350.96	96	300 g·mm	max. 20.000
79.350.98	98	305 g·mm	max. 20.000
79.350.100	100	320 g·mm	max. 15.000
79.350.125	125	500 g·mm	max. 15.000

1) 不平衡量的数值为参考值,误差非常小  
Unbalance g·mm are reference values, little variances possible

## 动平衡螺钉套装 SET OF BALANCING SCREWS



动平衡螺钉适用于各种带 M6 动平衡螺纹孔的刀具系统 (例如: 翰默HAIMER的热缩刀柄)

螺钉的重量经过精确校准。将之通过螺纹旋入刀具系统的平衡螺孔中, 这样可以补偿整个刀具系统的不平衡量。

- 每套包括11种不同尺寸和重量的螺钉
- 螺钉旋入螺纹孔的底部, 不需要其它附加螺钉固定
- 快速、精确平衡
- 对刀具系统没有损伤
- 根据需要可重复进行
- 适合各种品牌的刀具系统
- 由动平衡机来计算需要螺钉的重量 (例如: 翰默HAIMER 动平衡机)

- 发货时包含: 盒子中装有 11x10 个动平衡螺钉、螺丝扳手

For fine-balancing of all tool holders with balancing threads M 6 (e.g. shrink fit chucks from HAIMER).

The screws have different weights in a fine graduation. They are screwed into the balancing threads of the tool holder so that their weight compensates the unbalance of the tool holder.

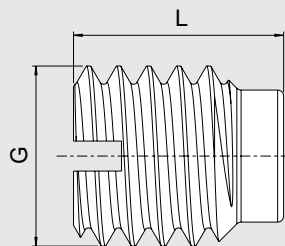
- Set consisting of screws of 11 different sizes and weights
- Screws are screwed to the ground of the thread and tightened. No additional fixing of screws necessary.
- Balancing quickly and precisely
- No damage of tool holders
- Can be repeated as often as necessary
- Suitable for tool holders of all brands
- The balancing machine calculates the necessary weight of the screws (e.g. HAIMER TOOL DYNAMIC)

- Included in delivery: Case with 11 x 10 balancing screws, screw driver

### 平衡螺钉套装/Set of balancing screws

订货号/Order No. **80.203.00**

## 重金属的动平衡螺钉 HEAVY METAL BALANCING SCREWS



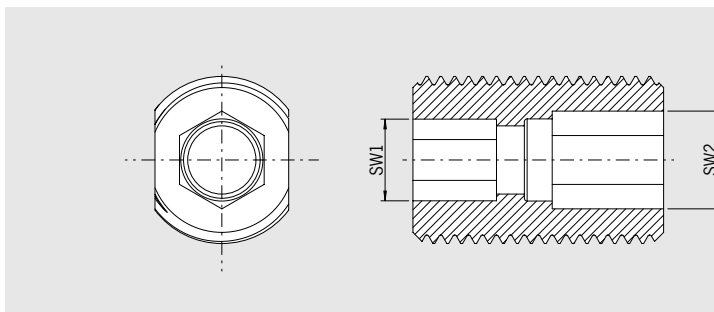
重金属的动平衡螺钉 (M6) 用于整个刀具系统的手动动平衡修正

Heavy metal balancing screws (thread M6) for manual balancing of tool holders.

长度/Length L [mm]	07	07	08	08	10	10
尺寸/Size G [mm]	M6x7	M6x7 (5 个/5 pcs.)	M6x8	M6x8 (5 个/5 pcs.)	M6x10	M6x10 (5 个/5 pcs.)
质量/Mass	大约 2,3g	大约 2,3g	大约 2,7g	大约 2,7g	大约 3,5g	大约 3,5g
订货号/Order No.	<b>85.502...</b>	<b>.7.0</b>	<b>.8.0</b>	<b>.8.0.SET</b>	<b>.10.0</b>	<b>.10.0.SET</b>



## 热缩刀柄和液压刀柄用支撑螺钉 BACK-UP SCREWS FOR SHRINK FIT CHUCKS AND HYDRAULIC CHUCKS



- 双端内六角插槽
- 侧边铣有两个平面用于切削液流通
- 高精度细牙螺纹

- Hexagon socket on each end – can always be reached
- Flats on sides for optimized coolant drainage
- Fine thread for maximum accuracy

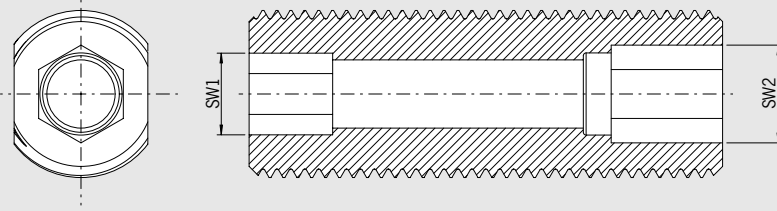
[mm]	类型/Type	SK40/50 BT40/50	HSK-A32/E32 A40/E40	HSK-A50/ E50	HSK-A63	HSK-F63	HSK-A80	HSK-A100
夹持直径 Ø Clamping Ø	长度/Length 订货号 Order No. <b>85.810...</b>							
6		.12.1	.12.1	.12.1	.12.1	.12.1	.12.1	.12.1
8		.15.1	.15.1	.15.1	.15.1	.15.1	.15.1	.15.1
10	短型/short	.18.2	.18.2	.18.2	.18.2	.18.2	.18.2	.18.2
	其他/other	.18.2	.36.2	.36.2	.36.2	.36.2	.36.2	.36.2
12	短型/short	.24.2	.24.2	.39.2	.39.2	.39.2	.21.2	.21.2
	其他/other	.24.2	.24.2	.24.2	.24.2	.24.2	.24.2	.24.2
14	短型/short	.24.2	.24.2	.39.2	.39.2	—	.21.2	.21.2
	ZG130/oversize	.24.2	.24.2	.24.2	.24.2	—	.24.2	.24.2
16	短型/short	.46.2	.27.2	.25.2	.25.2	.25.2 <sup>1)</sup>	.27.2	.40.1
	ZG130/oversize	.46.2	.27.2	.38.2	.46.2	.46.2 <sup>1)</sup>	.46.2	.46.2
18	短型/short	.46.2	—	.25.2	.25.2	—	.27.2	.40.1
	ZG130/oversize	.46.2	—	.38.2	.46.2	—	.46.2	.46.2
20	短型/short	.52.2	—	.51.2	.51.2	.51.2 <sup>1)</sup>	.51.2	.51.2
	ZG130/oversize	.52.2	—	.52.2	.52.2	.52.2 <sup>1)</sup>	.52.2	.52.2
25	短型/short	.52.2	—	—	.52.2	.52.2 <sup>1)</sup>	.52.2	.52.2
	ZG130/oversize	.52.2	—	—	.52.2	.52.2 <sup>1)</sup>	.52.2	.52.2
32	短型/short	.52.2	—	—	.52.2	—	.52.2	.52.2
	ZG130/oversize	.52.2	—	—	.52.2	—	.52.2	.52.2

订货号/Order No.	SW1	SW2	螺纹/Thread
<b>85.810.12.1</b>	SW2,5	SW2,5	M5x0,8x16
<b>85.810.15.1</b>	SW3	SW3	M6x1x16
<b>85.810.18.2</b>	SW3	SW4	M8x1x16
<b>85.810.24.2</b>	SW4	SW5	M10x1x20
<b>85.810.25.2</b>	SW5	SW6	M12x1x18
<b>85.810.27.2</b>	SW4	SW6	M12x1x18
<b>85.810.36.2</b>	SW3	SW4	M8x1x20
<b>85.810.46.2</b>	SW6	SW6	M12x1x20

订货号/Order No.	SW1	SW2	螺纹/Thread
<b>85.810.21.2</b>	SW4	SW5	M10x1x16
<b>85.810.38.2</b>	SW5	SW6	M12x1x22
<b>85.810.39.2</b>	SW4	SW5	M10x1x18
<b>85.810.40.1</b>	SW6	SW6	M12x1x16
<b>85.810.51.2</b>	SW5	SW8	M16x1x18
<b>85.810.52.2</b>	SW6	SW8	M16x1x22

1) 只能从夹持孔方向调节  
Only adjustable through clamping bore

## 热缩刀柄用长支撑螺钉 BACK-UP SCREWS LONG FOR SHRINK FIT CHUCKS



- 双端内六角插槽
- 侧边铣有两个平面用于切削液流通
- 高精度细牙螺纹

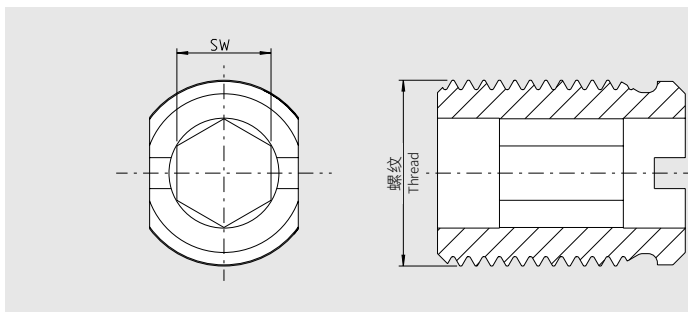
- Hexagon socket on each end – can always be reached
- Flats on sides for optimized coolant drainage
- Fine thread for maximum accuracy

[mm]	类型/Type	SK40/50 BT40/50	HSK-A32/E32 A40/E40	HSK-A50/ E50	HSK-A63	HSK-F63	HSK-A80	HSK-A100
夹持直径 Ø Clamping Ø	长度/Length 订货号 Order No. <b>85.810...</b>							
6		.12.4	.12.4	.12.4	.12.4	.12.4	.12.4	.12.4
8		.15.4	.15.4	.15.4	.15.4	.15.4	.15.4	.15.4
10		.18.4	.18.4	.18.4	.18.4	.18.4	.18.4	.18.4
12		.21.4	.21.4	.21.4	.21.4	.21.4	.21.4	.21.4
14		.21.4	.21.4	.21.4	.21.4	.21.4	.21.4	.21.4
16	短型/short ZG130/oversize	.37.4 .37.4	.27.4 .27.4	.25.4 .25.4	.25.4 .37.4	.25.4 <sup>1)</sup> .37.4 <sup>1)</sup>	.27.4 .37.4	.40.4 .37.4
18	短型/short ZG130/oversize	.37.4 .37.4	— —	.25.4 .25.4	.25.4 .37.4	.25.4 <sup>1)</sup> .37.4 <sup>1)</sup>	.27.4 .37.4	.40.4 .37.4
20	短型/short ZG130/oversize	.52.4 .52.4	— —	.52.4 .52.4	.52.4 .52.4	.52.4 <sup>1)</sup> .52.4 <sup>1)</sup>	.52.4 .52.4	.52.4 .52.4
25		.52.4	—	—	.52.4	.52.4 <sup>1)</sup>	.52.4	.52.4
32		.52.4	—	—	.52.4	.52.4 <sup>1)</sup>	.52.4	.52.4

订货号/Order No.	SW1	SW2	螺纹/Thread
<b>85.810.12.4</b>	SW2,5	SW2,5	M5x0,8x24
<b>85.810.15.4</b>	SW3	SW3	M6x1x24
<b>85.810.18.4</b>	SW3	SW4	M8x1x24
<b>85.810.21.4</b>	SW4	SW5	M10x1x28
<b>85.810.25.4</b>	SW5	SW6	M12x1x34
<b>85.810.27.4</b>	SW4	SW6	M12x1x34
<b>85.810.37.4</b>	SW6	SW8	M12x1x34
<b>85.810.52.4</b>	SW6	SW8	M16x1x34

1) 只能从夹持孔方向调节  
Only adjustable through clamping bore

## 强力热缩刀柄用的支撑螺钉 BACK-UP SCREWS FOR POWER SHRINK CHUCKS



- 尤其适用于带冷却喷孔Cool Jet的热缩刀柄
- 端面的横槽确保内部冷却液的顺畅供应
- 双端内六角插槽
- 侧边铣有平面用于切削液流通
- 高精度细牙螺纹

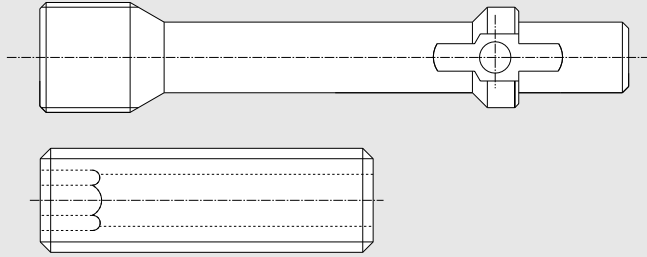
- Optimised for Shrink Fit Chucks with Cool Jet
- Guaranteed coolant supply via transverse groove
- Hexagon socket on each end – can always be reached
- Flats on sides for optimized coolant drainage
- Fine thread for maximum accuracy

[mm]	类型/Type	SK40/50 BT40/50	HSK-A32/E32 A40/E40	HSK-A50/ E50	HSK-A63	HSK-F63	HSK-A80	HSK-A100
夹持直径 Ø Clamping Ø	长度/Length 订货号 Order No. 85.810...							
6		.12.3	.12.3	.12.3	.12.3	.12.3	.12.3	.12.3
8		.15.3	.15.3	.15.3	.15.3	.15.3	.15.3	.15.3
10		.18.3	.18.3	.18.3	.18.3	.18.3	.18.3	.18.3
12	超短型/ultrashort	.48.3 .48.3.1	.48.3 —	.48.3 —	.48.3 —	.48.3 —	.48.3 —	.48.3 —
14		.21.3	.21.3	.21.3	.21.3	—	.21.3	.21.3
16	超短型/ultrashort	.49.3 .49.3.1	.49.3 —	.49.3 —	.49.3 —	.49.3 —	.49.3 —	.49.3 —
18		.40.3	—	.40.3	.40.3	—	.40.3	.40.3
20		.51.3	—	.51.3	.51.3	.51.3	.51.3	.51.3
25		.52.3	—	—	.52.3	—	.52.3	.52.3
32		.52.3	—	—	.52.3	—	.52.3	.52.3

订货号/Order No.	SW	螺纹/Thread
85.810.12.3	SW2,5	M5x0,8x16
85.810.15.3	SW3	M6x1x16
85.810.18.3	SW4	M8x1x16
85.810.21.3	SW5	M10x1x16
85.810.40.3	SW6	M12x1x16
85.810.43.3	SW6	M12x1x18
85.810.46.3	SW6	M12x1x20
85.810.48.3	SW5	M10x1x16

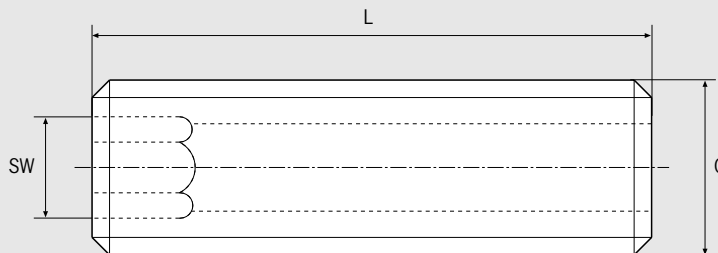
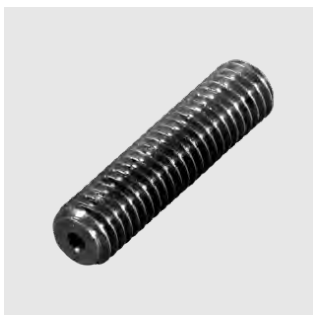
订货号/Order No.	SW	螺纹/Thread
85.810.48.3.1	SW5	M10x1x28
85.810.49.3	SW6	M12x1x16
85.810.49.3.1	SW6	M12x1x20
85.810.51.3	SW6	M16x1x18
85.810.52.3	SW6	M16x1x20

## 斜孔侧固刀柄用支撑螺钉 BACK-UP SCREWS FOR WHISTLE NOTCH



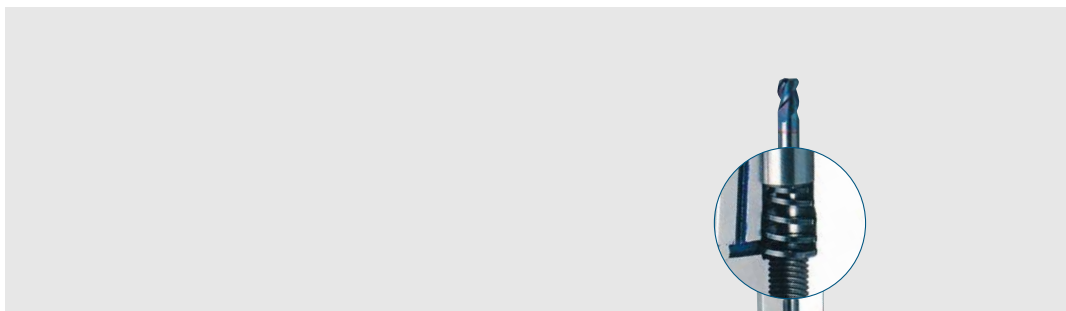
尺寸/Size	Ø D1 [mm]	DIN 69871, SK40	DIN 69871, SK50	JIS B 6339, BT40	JIS B 6339, BT50	DIN 69893, HSK-A63, HSK-A80, HSK-A100
6	短型/short	85.150.01	85.150.03	85.150.01	85.150.03	85.810.12.1
6	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.12.1
6	ZG 130	85.150.05	85.150.05	—	—	—
6	超长/oversize	85.150.07	85.150.07	85.150.07	85.150.07	85.810.12.1
8	短型/short	85.150.01	85.150.03	85.150.01	85.150.03	85.810.15.1
8	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.15.1
8	ZG 130	85.150.05	85.150.05	—	—	—
8	超长/oversize	85.150.07	85.150.07	85.150.07	85.150.07	85.810.15.1
10	短型/short	85.150.01	85.150.03	85.150.02	85.150.03	85.810.18.2
10	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.18.2
10	ZG 130	85.150.05	85.150.05	—	—	—
10	超长/oversize	85.150.07	85.150.07	85.150.07	85.150.07	85.810.36.2
12	短型/short	85.150.01	85.150.01	85.150.01	85.150.02	85.810.24.2
12	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.24.2
12	ZG 130	85.150.05	85.150.05	—	—	—
12	超长/oversize	85.150.06	85.150.07	85.150.06	85.150.07	85.810.24.2
14	短型/short	85.150.01	85.150.01	85.150.01	85.150.02	85.810.24.2
14	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.24.2
14	ZG 130	85.150.05	85.150.05	—	—	—
14	超长/oversize	85.150.06	85.150.06	85.150.06	85.150.07	85.810.24.2
16	短型/short	85.150.01	85.150.01	85.150.01	85.150.02	85.810.46.2
16	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.46.2
16	ZG 130	85.150.05	85.150.05	—	—	—
16	超长/oversize	85.150.07	85.150.06	85.150.06	85.150.06	85.810.46.2
18	短型/short	85.150.01	85.150.01	85.150.01	85.150.02	85.810.46.2
18	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.46.2
18	ZG 130	85.150.05	85.150.05	—	—	—
18	超长/oversize	85.150.07	85.150.06	85.150.06	85.150.06	85.810.46.2
20	短型/short	85.150.01	85.150.01	85.150.01	85.150.02	85.810.38.2
20	长/long	85.150.04	85.150.04	85.150.04	85.150.04	85.810.38.2
20	ZG 130	85.150.05	85.150.05	—	—	—
20	超长/oversize	85.150.07	85.150.06	85.150.06	85.150.06	85.810.38.2
25	短型/short	85.150.03	85.150.02	85.150.03	85.150.03	85.810.38.2
25	长/long	—	—	—	—	85.810.38.2
25	ZG 130	85.150.08	85.150.08	—	—	—
25	超长/oversize	85.150.06	85.150.06	85.150.06	85.150.06	85.810.38.2
32	短型/short	—	85.150.03	85.150.03	85.150.03	85.810.38.2
32	长/long	—	—	—	—	85.810.38.2
32	ZG 130	—	85.150.08	—	—	—
32	超长/oversize	—	85.150.06	85.150.06	85.150.06	85.810.38.2
40	短型/short	—	85.150.02	—	85.150.03	—
40	长/long	—	—	—	—	—
40	ZG 130	—	85.150.08	—	—	—
40	超长/oversize	—	85.150.05	—	85.150.05	—

## 筒夹刀柄用支撑螺钉 BACK-UP SCREWS FOR COLLET CHUCKS



尺寸/Size Ø [mm]	HSK-32, 40, 50, 63, 80, 100	SW	L [mm]	螺纹/Thread
ER 16	订货号/Order No. <b>85.800.34</b>	3	25	M6
ER 20	<b>85.800.34</b>	3	25	M6
ER 25	<b>85.800.34</b>	3	25	M6
ER 32	<b>85.800.35</b>	5	25	M10
ER 40	<b>85.800.35</b>	5	25	M10

## 热缩刀柄用支撑弹簧 TENSION SPRINGS FOR SHRINK FIT CHUCKS



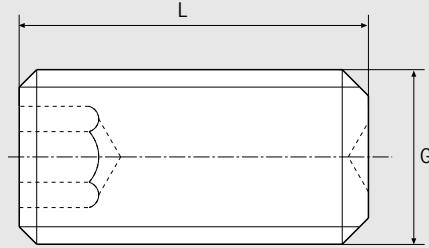
- 放置在刀柄夹持孔内
- 刀具被弹簧推动直到止动位
- 适合于各种型式的热缩刀柄
- 支撑螺钉可以保留在刀柄中

- Spring is set into clamping bore
- Spring presses tool against stop disc
- Fits all common shrink fit chucks
- Backup screw can remain in chuck

长度调整用支撑弹簧  
Tension spring for length presetting

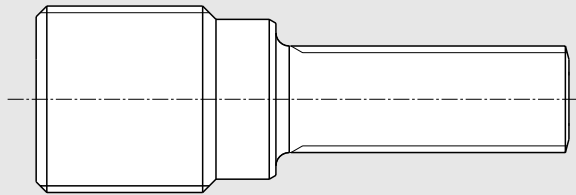
订货号/Order No.										
支撑弹簧/Tension spring	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	Ø 32
订货号/Order No. <b>85.830...</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	<b>.20</b>	<b>.25</b>	<b>.32</b>
支撑弹簧套装 (每个尺寸10件), 含夹取工具/Tension spring set (10 pcs. of each size) incl. grab										
<b>85.830.00</b>										

## 侧固和斜孔侧固刀柄用夹持螺钉 CLAMPING SCREWS FOR WELDON AND WHISTLE NOTCH



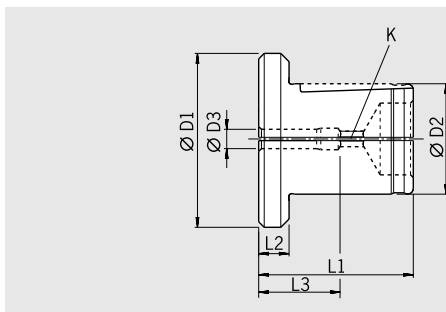
夹持直径/Clamping Ø D1 [mm]	06	08	10	12	14	16	18	20	25	25	32	40	
订货号/Order No.	<b>85.100...</b>	<b>.06</b>	<b>.08</b>	<b>.10</b>	<b>.12</b>	<b>.12</b>	<b>.14</b>	<b>.14</b>	<b>.16</b>	<b>.18</b>	超短 ultra short <b>.18.1</b>	<b>.20</b>	<b>.20</b>
G	M6	M8	M10	M12	M12	M14	M14	M16	M18x2	M18x2	M18x2	M20x2	
L	10	10	12	16	16	16	16	16	20	20	13	20	

## HG后拉式高精度刀柄用夹持螺钉 CLAMPING SCREWS FOR HG CHUCK



		DIN 69871 SK 40	DIN 69871 SK 50	MAS BT 40	MAS BT 50	HSK-A63	HSK-F63	HSK-A80	HSK-A100
长度/for length	短型/short	40.420.01	50.420.01	40.620.01	—	A63.120.01	F63.120.01	A80.120.01	A10.120.01
订货号/Order No.	<b>82.560...</b>	<b>.03</b>	<b>.03</b>	<b>.03</b>	—	<b>.02</b>	<b>.02</b>	<b>.02</b>	<b>.02</b>
长度/for length	短型/short	40.420.02	50.420.02	40.620.02	—	A63.120.02	F63.120.02	A80.120.02	A10.120.02
订货号/Order No.	<b>82.560...</b>	<b>.02</b>	<b>.02</b>	<b>.02</b>	—	<b>.14</b>	<b>.14</b>	<b>.14</b>	<b>.14</b>
长度/for length	短型/short	40.420.03	50.420.03	40.620.03	—	A63.120.03	F63.120.03	A80.120.03	A10.120.03
订货号/Order No.	<b>82.560...</b>	<b>.02</b>	<b>.02</b>	<b>.02</b>	—	<b>.14</b>	<b>.14</b>	<b>.14</b>	<b>.14</b>
长度/for length	长/long	40.421.01	50.421.01	40.621.01	50.621.01	—	—	—	—
订货号/Order No.	<b>82.560...</b>	<b>.04</b>	<b>.04</b>	<b>.04</b>	<b>.04</b>	—	—	—	—
长度/for length	长/long	40.421.02	50.421.02	40.621.02	50.621.02	—	—	—	—
订货号/Order No.	<b>82.560...</b>	<b>.01</b>	<b>.01</b>	<b>.01</b>	<b>.01</b>	—	—	—	—
长度/for length	长/long	40.421.03	50.421.03	40.621.03	50.621.03	—	—	—	—
订货号/Order No.	<b>82.560...</b>	<b>.05</b>	<b>.05</b>	<b>.05</b>	<b>.17</b>	—	—	—	—
长度/for length	超长/oversize	40.422.01	50.422.01	40.622.01	50.622.01	A63.122.01	—	A80.122.01	A10.122.01
订货号/Order No.	<b>82.560...</b>	<b>.08</b>	<b>.08</b>	<b>.08</b>	<b>.08</b>	<b>.04</b>	—	<b>.04</b>	<b>.04</b>
长度/for length	超长/oversize	40.422.02	50.422.02	40.622.02	50.622.02	A63.122.02	—	A80.122.02	A10.122.02
订货号/Order No.	<b>82.560...</b>	<b>.06</b>	<b>.06</b>	<b>.06</b>	<b>.06</b>	<b>.01</b>	—	<b>.05</b>	<b>.05</b>
长度/for length	超长/oversize	40.422.03	50.422.03	40.622.03	50.622.03	A63.122.03	—	A80.122.03	A10.122.03
订货号/Order No.	<b>82.560...</b>	<b>.07</b>	<b>.07</b>	<b>.07</b>	<b>.07</b>	<b>.01</b>	—	<b>.05</b>	<b>.05</b>

## FH型快换攻丝套筒 QUICK CHANGE INSERTS TYPE FH



不兼容Bilz品牌的刀柄/Not useable with comp. Bilz

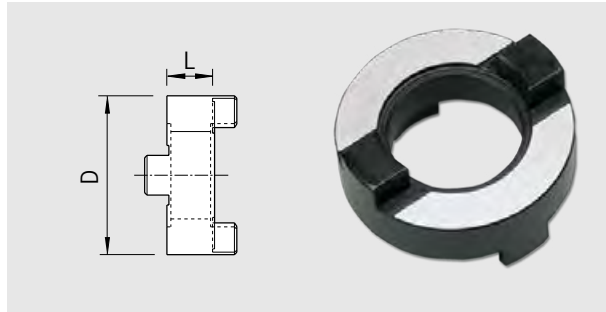
FH 类型/Type FH				01	03	
Ø D1 [mm]				32	42	
Ø D2 [mm]				20	28	
L1 [mm]				28	35	
L2 [mm]				5,5	5,5	
丝锥尺寸范围/Cutting range				M3-M14	M4,5-M24	
柄部/Shank Ø D3	方径 K Square K	DIN 371	DIN 374/376 ISO	柄部规格 Shank size	L3 订货号 Order No.	L3 订货号 Order No.
2,5	2,1	M1-M1,8	M3,5	—	11,5 <b>80.501.02.5</b>	—
2,8	2,1	M2-M2,5	M4	—	12 <b>80.501.02.8</b>	—
3,15	2,5	M3	M4,5-M5	M4-M3	13 <b>80.501.03.1</b>	—
3,5	2,7	M3	M4,5-M5	—	14,5 <b>80.501.03.5</b>	—
3,55	2,8	M3	M4,5-M5	M4,5-M3,5	14 <b>80.501.03.6</b>	—
4	3	M3,5	—	—	16 <b>80.501.04.0</b>	—
4	3,15	M3,5	—	M4-M5	16 <b>80.501.04.3</b>	—
4,5	3,4	M4	M6	—	17 <b>80.501.04.5</b>	—
5	4	M4	M6	M5	17 <b>80.501.05.0</b>	—
6	4,9	M4,5-M6	M8	—	17 <b>80.501.06.0</b>	17 <b>80.503.06.0</b>
6,3	5	M4,5-M6	M8	M6-M8	17 <b>80.501.06.3</b>	17 <b>80.503.06.3</b>
7	5,55	M7	M10	—	17 <b>80.501.07.0</b>	17 <b>80.503.07.0</b>
8	6,3	M8	—	—	17 <b>80.501.08.0</b>	20 <b>80.503.08.0</b>
9	7,1	—	M12	—	17 <b>80.501.09.0</b>	21 <b>80.503.09.0</b>
10	8	M10	—	—	17 <b>80.501.10.0</b>	21 <b>80.503.10.0</b>
11	9	—	M14	—	17 <b>80.501.11.0</b>	21 <b>80.503.11.0</b>
11,2	9	—	—	—	—	21 <b>80.503.11.2</b>
12	9	—	M16	—	—	21 <b>80.503.12.0</b>
12,5	10	—	M16	M16	—	21 <b>80.503.12.5</b>
14	11	—	M18	—	—	22 <b>80.503.14.0</b>
14	11,2	—	M18	M18-M20	—	22 <b>80.503.14.2</b>
16	12	—	M20	—	—	22 <b>80.503.16.0</b>
16	12,5	—	M20	M22	—	22 <b>80.503.16.5</b>
18	14,5	—	M22-M24	—	—	22 <b>80.503.18.0</b>

## 用于面铣刀柄和组合式壳铣刀刀柄的附件 ACCESSORIES FACE MILL AND COMBINATION ARBORS

### 传动环/DRIVING RINGS

刀柄 $\varnothing$ /Tool holder $\varnothing$	16	22	27	32	40	50	
$\varnothing D$ [mm]	32	40	48	58	70	90	
L [mm]	10	12	12	14	14	16	
订货号/Order No.	85.200...	.16	.22	.27	.32	.40	.50

传动环 DIN 6366/1 用于组合壳铣刀柄

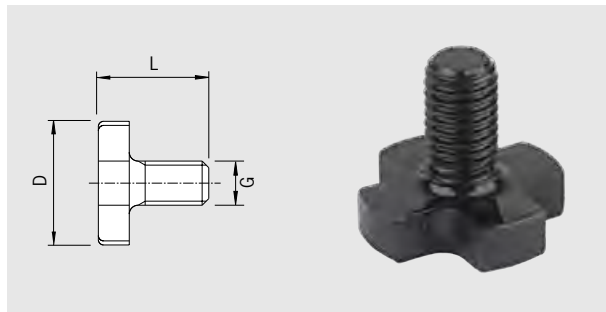


Driving rings DIN 6366/1 for combination shell end mill adapters

### 拉紧螺钉 TIGHTENING BOLTS

刀柄 $\varnothing$ /Tool holder $\varnothing$	16	22	27	32	40	50	60	
$\varnothing D$ [mm]	20	28	35	42	52	63	75	
L [mm]	22	25	30	35	40	48	59	
G	M8	M10	M12	M16	M20	M24	M30	
订货号/Order No.	85.300...	.16	.22	.27	.32	.40	.50	.60

拉紧螺钉 DIN 6367 用于组合壳铣刀柄和面铣刀柄

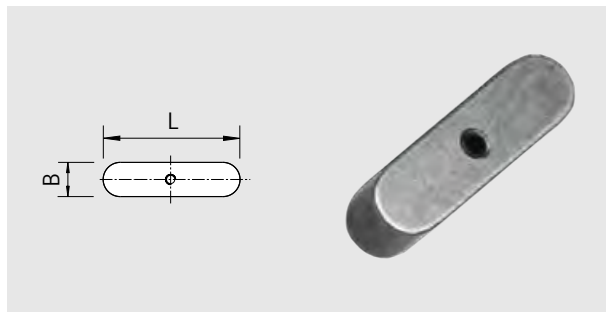


Tightening bolts DIN 6367 for combination shell end mill adapters and face mill arbors

### 滑键/FEATHER KEYS

刀柄 $\varnothing$ /Tool holder $\varnothing$	16	22	27	32	40	50	
L [mm]	20	25	25	28	32	36	
B [mm]	4	6	7	8	10	12	
订货号/Order No.	85.400...	.16	.22	.27	.32	.40	.50

滑键 DIN 6885 带有用于取出滑键的螺纹孔，  
用于组合壳铣刀柄

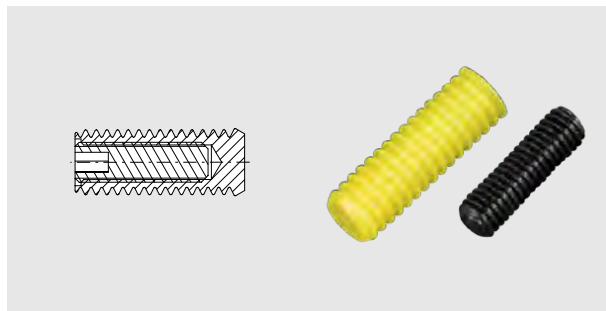


Feather keys DIN 6885 with loosening screw for combination shell end mill adapters

### 刀柄内冷方式的转换包 AD/JD- AF/JF CONVERSION KIT AD/JD-AF/JF

尺寸/Size	SK40	SK50	
订货号/Order No.	85.600...	.40	.50

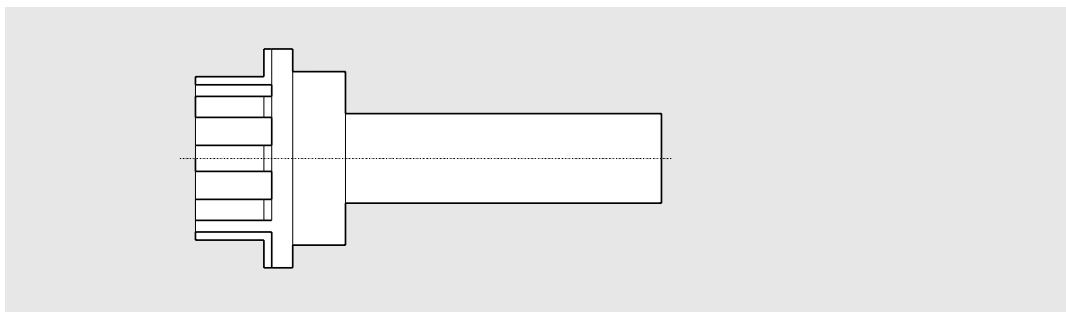
从AD/JD型到AF/JF型的转换包，含50个密封销和锁紧螺钉



Conversion kit form AD/JD to form AF/JF comprising each 50 sealing dowels and lock screws

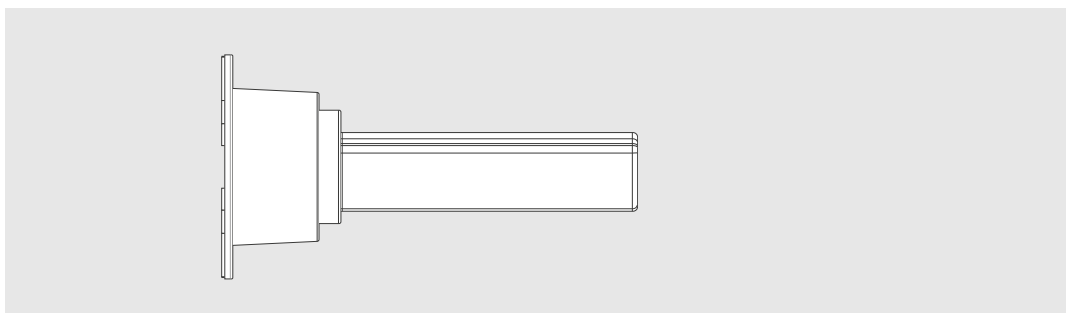


## 主轴锥孔清洁器 CONE WIPER



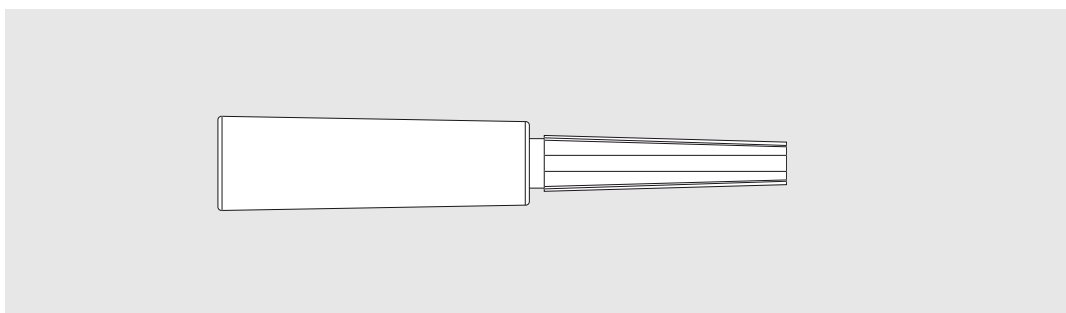
HSK 主轴锥孔清洁器/Cone wiper HSK	HSK-25	HSK-32	HSK-40	HSK-50	HSK-63	HSK-80	HSK-100
订货号/Order No. 85.820...	.25	.32	.40	.50	.63	.80	.10

用于清洁HSK刀柄、主轴和转换套的内锥孔/For cleaning inner taper of HSK-Chucks, spindles or adapters.



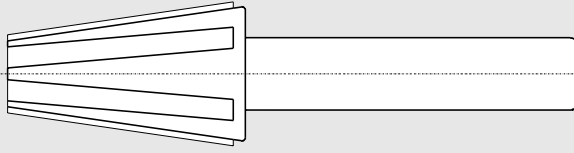
清洁HSK刀柄的外锥面的清洁器/Cone wiper - Outside HSK	HSK-40	HSK-50	HSK-63	HSK-80	HSK-100
订货号/Order No. 85.821...	.40	.50	.63	.80	.10

用于清洁HSK刀柄的外锥面/For cleaning the outer cone of HSK chucks.



MK 莫氏刀柄锥孔清洁器/Cone wiper MK	MK 01	MK 02	MK 03	MK 04
订货号/Order No. 86.100...	.01	.02	.03	.04

用于清洁MK莫氏刀柄、主轴和转换套的内锥孔/For cleaning inner taper of MK-Chucks, spindles or adapters.



SK, BT, CAT 主轴锥孔清洁器/Cone wiper SK, BT, CAT	SK30	BT30	SK40	BT40	CAT40	SK50	BT50	CAT50
订货号/Order No. <b>86.100...</b>	.30	.30	.40	.40	.40	.50	.50	.50

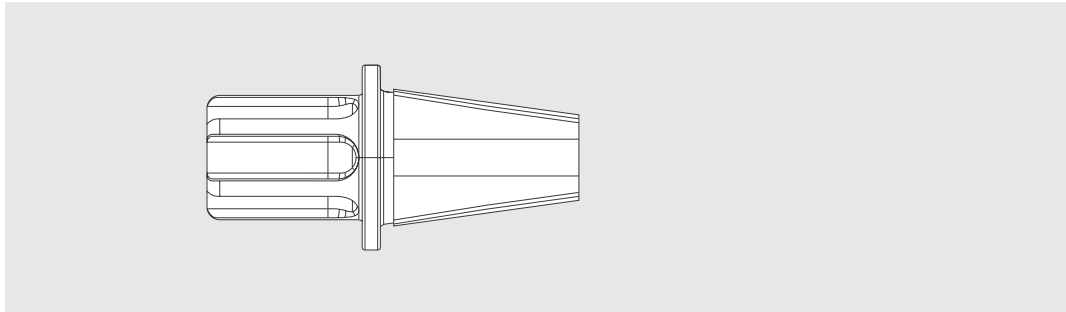
用于清洁SK/BT/CAT刀柄、主轴和转换套的内锥孔/For cleaning inner taper of SK/BT/CAT-Chucks, spindles or adapters.



圆柱形的清洁器/Cylindrical wiper Ø [mm]	06	08	10	12	14	16	18	20	25	32
订货号/Order No. <b>86.201...</b>	.06	.08	.10	.12	.14	.16	.18	.20	.25	.32

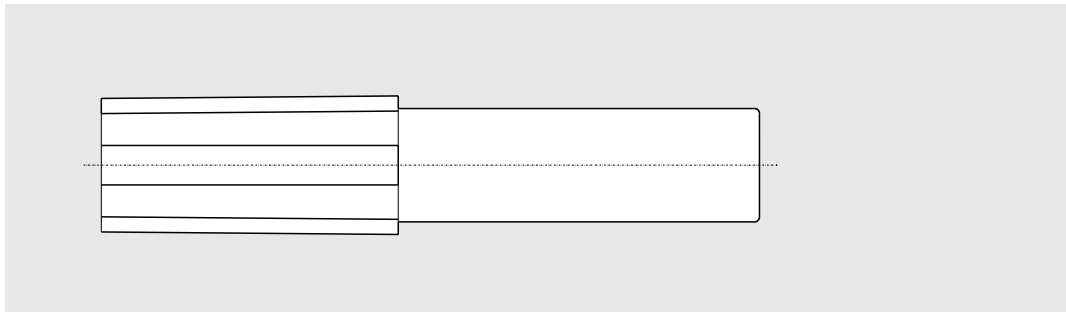
用于清洁圆柱形的夹持孔/For cleaning cylindrical clamping bores.

## 主轴锥孔清洁器 CONE WIPER



ER锥孔清洁器/Cone wiper ER	ER 11	ER 16	ER 20	ER 25	ER 32
订货号/Order No. 86.100...	.ER11	.ER16	.ER20	ER25	ER32

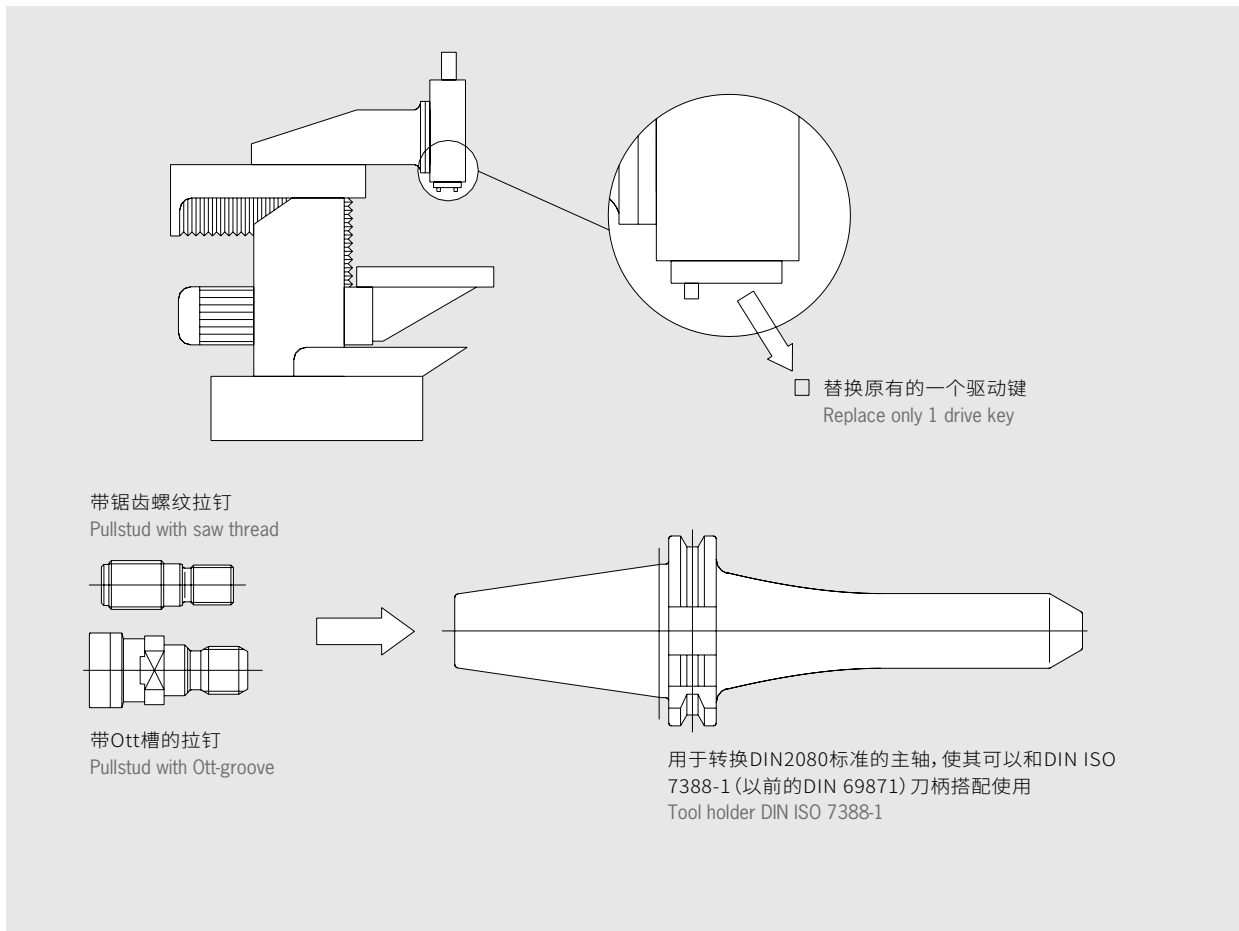
用于清洁ER刀柄、主轴和转换套的内锥孔/For cleaning the inner taper of ER-Chucks, spindles or adapters.



HG后拉式高精度刀柄的锥孔清洁器/Cone wiper HG	HG 01	HG 02	HG 03
订货号/Order No. 82.590...	.01	.02	.03

适用于HG刀柄内孔清洁/For cleaning the inner cone of HG chucks

## 转换工具 DIN 2080-DIN ISO 7388-1 CONVERSION KIT DIN 2080-DIN ISO 7388-1



用于转换DIN2080标准的主轴,使其可以和DIN ISO 7388-1 (以前的DIN 69871) 刀柄搭配使用  
For conversion of spindles DIN 2080 for tool holders DIN ISO 7388-1 (previous DIN 69871)



2件带锁紧螺丝的驱动键  
2 drive keys with clamping screws  
**SK 40: 订货号/Order No. 85.500.40**  
**SK 50: 订货号/Order No. 85.500.50**

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
113027-0004	590	30.550.16.KKB	301	30P.525.16.3	338
113027-0005	590	30.550.22.KKB	301	30P.525.16.3.HP	339
113027-0006	590	30.550.27.KKB	301	30P.525.25.3	338
113027-0007	590	30.640.03	296	30P.525.25.3.HP	339
113027-0008	590	30.640.04	296	30P.525.32.3	338
113027-0009	590	30.640.05	296	30P.525.32.3.HP	339
30.440.03	246	30.640.06	296	30P.527.16.3	338
30.440.04	246	30.640.08	296	30P.527.16.3.HP	339
30.440.05	246	30.640.10	296	30P.527.25.3	338
30.440.06	246	30.640.12	296	30P.527.25.3.HP	339
30.440.08	246	30.640.14	296	30P.527.32.3	338
30.440.10	246	30.640.16	296	30P.527.32.3.HP	339
30.440.12	246	30.640.18	296	30P.529.16.3.060	338
30.440.16	246	30.640.20	296	30P.529.16.3.060.HP	339
30.445.03	246	30.645.03	296	30P.529.16.3.075	338
30.445.04	246	30.645.04	296	30P.529.16.3.075.HP	339
30.445.06	246	30.645.05	296	30P.529.16.3.105	338
30.445.08	246	30.645.06	296	30P.529.16.3.105.HP	339
30.445.10	246	30.645.08	296	30P.529.25.3.060	338
30.445.12	246	30.645.10	296	30P.529.25.3.060.HP	339
30.445.16	246	30.645.12	296	30P.529.25.3.075	338
30.445.20	246	30.645.14	296	30P.529.25.3.075.HP	339
30.520.11	298	30.645.16	296	30P.529.25.3.105	338
30.520.16	298	30.645.18	296	30P.529.25.3.105.HP	339
30.520.16.3	299	30.645.20	296	30P.529.32.3.060	338
30.520.16.3.HP	300	30.671.03.8	297	30P.529.32.3.060.HP	339
30.520.20	298	30.671.04.8	297	30P.529.32.3.075	338
30.520.25	298	30.671.06.8	297	30P.529.32.3.075.HP	339
30.520.25.3	299	30.677.03.8	297	30P.529.32.3.105	338
30.520.25.3.HP	300	30.677.04.8	297	30P.529.32.3.105.HP	339
30.520.32.3	299	30.677.06.8	297	30P.640.03	336
30.520.32.3.HP	300	30.680.03.8	297	30P.640.04	336
30.521.11	298	30.680.04.8	297	30P.640.05	336
30.521.16	298	30.680.06.8	297	30P.640.06	336
30.521.20	298	30.680.08.8	297	30P.640.08	336
30.521.25	298	30.680.10.8	297	30P.640.10	336
30.523.16	298	30.680.12.8	297	30P.640.12	336
30.523.20	298	30.6H10.06	302	30P.640.14	336
30.523.25	298	30.6H10.08	302	30P.640.16	336
30.525.11	298	30.6H10.10	302	30P.640.18	336
30.525.16	298	30.6H10.12	302	30P.640.20	336
30.525.16.3	299	30.6H10.14	302	30P.645.03	336
30.525.16.3.HP	300	30.6H10.16	302	30P.645.04	336
30.525.20	298	30.6H10.18	302	30P.645.05	336
30.525.25.3	299	30.6H10.20	302	30P.645.06	336
30.525.25.3.HP	300	30.6H10.20.3	303	30P.645.08	336
30.525.32	298	30P.520.16.3	338	30P.645.10	336
30.525.32.3	299	30P.520.16.3.HP	339	30P.645.12	336
30.525.32.3.HP	300	30P.520.25.3	338	30P.645.14	336
30.528.16	298	30P.520.25.3.HP	339	30P.645.16	336
30.528.20	298	30P.520.32.3	338	30P.645.18	336
30.528.25	298	30P.520.32.3.HP	339	30P.645.20	336

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
30P.671.03.8	337	40.320.16.3	253	40.341.32	260
30P.671.04.8	337	40.320.16.3.HP	254	40.341.40	260
30P.671.06.8	337	40.320.20	252	40.342.16	260
30P.677.03.8	337	40.320.25	252	40.342.22	260
30P.677.04.8	337	40.320.25.3	253	40.342.27	260
30P.677.06.8	337	40.320.25.3.HP	254	40.344.16	260
30P.680.03.8	337	40.320.32	252	40.344.22	260
30P.680.04.8	337	40.320.32.3	253	40.344.27	260
30P.680.06.8	337	40.320.32.3.HP	254	40.344.32	260
30P.680.08.8	337	40.320.40	252	40.346.16	260
30P.680.10.8	337	40.321.16	252	40.346.22	260
30P.680.12.8	337	40.321.16.3	253	40.346.27	260
40.300.06	256	40.321.16.3.HP	254	40.350.16.1.KKB	259
40.300.06.2	256	40.321.20	252	40.350.16.KKB	259
40.300.08	256	40.321.25	252	40.350.22.KKB	259
40.300.08.2	256	40.321.25.3	253	40.350.27.KKB	259
40.300.10	256	40.321.25.3.HP	254	40.350.32.KKB	259
40.300.10.2	256	40.321.32	252	40.350.40.KKB	259
40.300.12	256	40.321.32.3	253	40.351.16.KKB	259
40.300.12.2	256	40.321.32.3.HP	254	40.351.22.KKB	259
40.300.14	256	40.321.40	252	40.351.27.KKB	259
40.300.14.2	256	40.322.16	252	40.351.32.KKB	259
40.300.16	256	40.322.16.3	253	40.352.22.KKB	259
40.300.16.2	256	40.322.16.3.HP	254	40.352.27.KKB	259
40.300.18	256	40.322.25	252	40.352.32.KKB	259
40.300.20	256	40.322.25.3	253	40.370.01	265
40.300.20.2	256	40.322.25.3.HP	254	40.370.03	265
40.300.25	256	40.322.32	252	40.380.01	263
40.300.25.2	256	40.322.32.3	253	40.380.02	263
40.300.32	256	40.322.32.3.HP	254	40.380.03	263
40.301.06	256	40.322.40	252	40.380.04	263
40.301.08	256	40.326.16	252	40.390.63	264
40.301.10	256	40.326.25	252	40.395.63	264
40.301.12	256	40.326.32	252	40.400.16	267
40.301.14	256	40.330.06	261	40.411.13	266
40.301.16	256	40.330.08	261	40.420.01	255
40.301.18	256	40.330.10	261	40.420.02	255
40.301.20	256	40.330.12	261	40.420.03	255
40.302.06	256	40.330.14	261	40.421.01	255
40.302.08	256	40.330.16	261	40.421.02	255
40.302.10	256	40.330.18	261	40.421.03	255
40.302.12	256	40.330.20	261	40.422.01	255
40.302.14	256	40.330.25	261	40.422.02	255
40.302.16	256	40.330.32	261	40.422.03	255
40.302.18	256	40.340.16	260	40.430.02	262
40.302.20	256	40.340.22	260	40.430.03	262
40.302.25	256	40.340.27	260	40.430.04	262
40.305.16	256	40.340.32	260	40.440.03	247
40.305.20	256	40.340.40	260	40.440.03.1	247
40.305.25	256	40.341.16	260	40.440.04	247
40.305.32	256	40.341.22	260	40.440.04.1	247
40.320.16	252	40.341.27	260	40.440.05	247

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
40.440.05.1	247	40.442.20	247	40.445.16.37	249
40.440.06	247	40.442.20.3	249	40.445.18.3	249
40.440.06.2	247	40.442.20.37	249	40.445.18.37	249
40.440.06.7	247	40.442.25	247	40.445.20.3	249
40.440.08	247	40.442.25.3	249	40.445.20.37	249
40.440.08.2	247	40.442.25.37	249	40.445.25.3	249
40.440.08.7	247	40.442.32.3	249	40.445.25.37	249
40.440.10	247	40.442.32.37	249	40.445.32.3	249
40.440.10.2	247	40.444.03.1	247	40.445.32.37	249
40.440.10.7	247	40.444.04.1	247	40.446.06	247
40.440.12	247	40.444.05.1	247	40.446.08	247
40.440.12.2	247	40.444.06	247	40.446.10	247
40.440.12.7	247	40.444.06.3	249	40.446.12	247
40.440.14	247	40.444.06.37	249	40.446.14	247
40.440.14.2	247	40.444.08	247	40.446.16	247
40.440.14.7	247	40.444.08.3	249	40.446.18	247
40.440.16	247	40.444.08.37	249	40.446.20	247
40.440.16.2	247	40.444.10	247	40.446.25	247
40.440.16.7	247	40.444.10.3	249	40.447.03.1	247
40.440.18	247	40.444.10.37	249	40.447.03.10	248
40.440.18.2	247	40.444.12	247	40.447.04.1	247
40.440.18.7	247	40.444.12.3	249	40.447.04.10	248
40.440.20	247	40.444.12.37	249	40.447.05.1	247
40.440.20.2	247	40.444.14	247	40.447.05.10	248
40.440.20.7	247	40.444.14.3	249	40.447.06	247
40.440.25	247	40.444.14.37	249	40.447.06.10	248
40.440.25.2	247	40.444.16	247	40.447.08	247
40.440.25.7	247	40.444.16.3	249	40.447.08.10	248
40.440.32	247	40.444.16.37	249	40.447.10	247
40.440.32.2	247	40.444.18	247	40.447.10.10	248
40.440.32.7	247	40.444.18.3	249	40.447.12	247
40.442.06	247	40.444.18.37	249	40.447.12.10	248
40.442.06.3	249	40.444.20	247	40.447.14	247
40.442.06.37	249	40.444.20.3	249	40.447.16	247
40.442.08	247	40.444.20.37	249	40.447.18	247
40.442.08.3	249	40.444.25	247	40.447.20	247
40.442.08.37	249	40.444.25.3	249	40.447.25	247
40.442.10	247	40.444.25.37	249	40.447.32	247
40.442.10.3	249	40.444.32	247	40.472.03.8	251
40.442.10.37	249	40.444.32.3	249	40.472.04.8	251
40.442.12	247	40.444.32.37	249	40.472.05.8	251
40.442.12.3	249	40.445.06.3	249	40.472.06.8	251
40.442.12.37	249	40.445.06.37	249	40.472.08.8	251
40.442.14	247	40.445.08.3	249	40.472.10.8	251
40.442.14.3	249	40.445.08.37	249	40.472.12.8	251
40.442.14.37	249	40.445.10.3	249	40.474.03.8	251
40.442.16	247	40.445.10.37	249	40.474.04.8	251
40.442.16.3	249	40.445.12.3	249	40.474.05.8	251
40.442.16.37	249	40.445.12.37	249	40.474.06.8	251
40.442.18	247	40.445.14.3	249	40.474.08.8	251
40.442.18.3	249	40.445.14.37	249	40.474.10.8	251
40.442.18.37	249	40.445.16.3	249	40.474.12.8	251

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
40.476.03.8	251	40.4H10.06	257	40.521.16	307
40.476.04.8	251	40.4H10.08	257	40.521.16.3	308
40.476.05.8	251	40.4H10.10	257	40.521.16.3.HP	309
40.476.06.8	251	40.4H10.12	257	40.521.20	307
40.476.08.8	251	40.4H10.14	257	40.521.25	307
40.476.10.8	251	40.4H10.16	257	40.521.25.3	308
40.476.12.8	251	40.4H10.18	257	40.521.25.3.HP	309
40.477.03	250	40.4H10.20	257	40.521.32	307
40.477.04	250	40.4H10.20.3	258	40.521.32.3	308
40.477.05	250	40.4H10.25	257	40.521.32.3.HP	309
40.477.06	250	40.4H10.32	257	40.521.40	307
40.477.08	250	40.4H10.32.3	258	40.522.16	307
40.477.10	250	40.500.06	311	40.522.16.3	308
40.477.12	250	40.500.08	311	40.522.16.3.HP	309
40.482.03.8	251	40.500.10	311	40.522.20	307
40.482.04.8	251	40.500.12	311	40.522.25	307
40.482.05.8	251	40.500.14	311	40.522.25.3	308
40.482.06.8	251	40.500.16	311	40.522.25.3.HP	309
40.482.08.8	251	40.500.18	311	40.522.32	307
40.482.10.8	251	40.500.20	311	40.522.32.3	308
40.482.12.8	251	40.500.25	311	40.522.32.3.HP	309
40.482.16.8	251	40.500.32	311	40.522.40	307
40.484.03.8	251	40.501.06	311	40.540.16	315
40.484.04.8	251	40.501.08	311	40.540.22	315
40.484.05.8	251	40.501.10	311	40.540.27	315
40.484.06.8	251	40.501.12	311	40.540.32	315
40.484.08.8	251	40.501.16	311	40.540.40	315
40.484.10.8	251	40.501.20	311	40.541.16	315
40.484.12.8	251	40.502.06	311	40.541.22	315
40.484.16.8	251	40.502.08	311	40.541.27	315
40.486.03.8	251	40.502.10	311	40.541.32	315
40.486.04.8	251	40.502.12	311	40.542.16	315
40.486.05.8	251	40.502.16	311	40.542.22	315
40.486.06.8	251	40.502.20	311	40.542.27	315
40.486.08.8	251	40.502.25	311	40.550.16.KKB	314
40.486.10.8	251	40.502.32	311	40.550.22.KKB	314
40.486.12.8	251	40.505.16	311	40.550.27.KKB	314
40.486.16.8	251	40.505.18	311	40.550.32.KKB	314
40.487.03	250	40.505.20	311	40.550.40.KKB	314
40.487.04	250	40.505.25	311	40.551.22.KKB	314
40.487.05	250	40.505.32	311	40.551.27.KKB	314
40.487.06	250	40.520.16	307	40.580.01	317
40.487.08	250	40.520.16.3	308	40.580.02	317
40.487.10	250	40.520.16.3.HP	309	40.580.03	317
40.487.12	250	40.520.20	307	40.580.04	317
40.487.16	250	40.520.25	307	40.620.01	310
40.490.DL10	201	40.520.25.3	308	40.620.02	310
40.490.DL12	201	40.520.25.3.HP	309	40.620.03	310
40.490.DL16	201	40.520.32	307	40.621.01	310
40.490.DL20	201	40.520.32.3	308	40.621.02	310
40.490.DL25	201	40.520.32.3.HP	309	40.621.03	310
40.490.DL32	201	40.520.40	307	40.630.01	316

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order



订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
40.630.02	316	40.642.16	304	40.645.20.3	305
40.630.03	316	40.642.16.3	305	40.645.20.37	305
40.630.04	316	40.642.16.37	305	40.645.25.3	305
40.640.03	304	40.642.18	304	40.645.25.37	305
40.640.03.1	304	40.642.18.3	305	40.645.32.3	305
40.640.04	304	40.642.18.37	305	40.645.32.37	305
40.640.04.1	304	40.642.20	304	40.646.06	304
40.640.05	304	40.642.20.3	305	40.646.08	304
40.640.05.1	304	40.642.20.37	305	40.646.10	304
40.640.06	304	40.642.25	304	40.646.12	304
40.640.06.2	304	40.644.03.1	304	40.646.14	304
40.640.06.7	304	40.644.04.1	304	40.646.16	304
40.640.08	304	40.644.05.1	304	40.646.18	304
40.640.08.2	304	40.644.06	304	40.646.20	304
40.640.08.7	304	40.644.06.3	305	40.646.25	304
40.640.10	304	40.644.06.37	305	40.647.03.1	304
40.640.10.2	304	40.644.08	304	40.647.04.1	304
40.640.10.7	304	40.644.08.3	305	40.647.05.1	304
40.640.12	304	40.644.08.37	305	40.647.06	304
40.640.12.2	304	40.644.10	304	40.647.08	304
40.640.12.7	304	40.644.10.3	305	40.647.10	304
40.640.14	304	40.644.10.37	305	40.647.12	304
40.640.14.2	304	40.644.12	304	40.647.14	304
40.640.14.7	304	40.644.12.3	305	40.647.16	304
40.640.16	304	40.644.12.37	305	40.647.18	304
40.640.16.2	304	40.644.14	304	40.647.20	304
40.640.16.7	304	40.644.14.3	305	40.647.25	304
40.640.18	304	40.644.14.37	305	40.647.32	304
40.640.18.7	304	40.644.16	304	40.672.03.8	306
40.640.20	304	40.644.16.3	305	40.672.04.8	306
40.640.20.2	304	40.644.16.37	305	40.672.05.8	306
40.640.20.7	304	40.644.18	304	40.672.06.8	306
40.640.25	304	40.644.18.3	305	40.672.08.8	306
40.640.25.2	304	40.644.18.37	305	40.672.10.8	306
40.640.25.7	304	40.644.20	304	40.672.12.8	306
40.640.32	304	40.644.20.3	305	40.674.03.8	306
40.640.32.7	304	40.644.20.37	305	40.674.04.8	306
40.642.06	304	40.644.25	304	40.674.05.8	306
40.642.06.3	305	40.645.06.3	305	40.674.06.8	306
40.642.06.37	305	40.645.06.37	305	40.674.08.8	306
40.642.08	304	40.645.08.3	305	40.674.10.8	306
40.642.08.3	305	40.645.08.37	305	40.674.12.8	306
40.642.08.37	305	40.645.10.3	305	40.676.03.8	306
40.642.10	304	40.645.10.37	305	40.676.04.8	306
40.642.10.3	305	40.645.12.3	305	40.676.05.8	306
40.642.10.37	305	40.645.12.37	305	40.676.06.8	306
40.642.12	304	40.645.14.3	305	40.676.08.8	306
40.642.12.3	305	40.645.14.37	305	40.676.10.8	306
40.642.12.37	305	40.645.16.3	305	40.676.12.8	306
40.642.14	304	40.645.16.37	305	40.682.03.8	306
40.642.14.3	305	40.645.18.3	305	40.682.04.8	306
40.642.14.37	305	40.645.18.37	305	40.682.05.8	306

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
40.682.06.8	306	40P.522.25.3	343	40P.642.20.37	341
40.682.08.8	306	40P.522.25.3.HP	344	40P.642.25	340
40.682.10.8	306	40P.522.32.3	343	40P.644.06	340
40.682.12.8	306	40P.522.32.3.HP	344	40P.644.06.3	341
40.682.16.8	306	40P.527.16.3	343	40P.644.08	340
40.684.03.8	306	40P.527.16.3.HP	344	40P.644.08.3	341
40.684.04.8	306	40P.527.25.3	343	40P.644.10	340
40.684.05.8	306	40P.527.25.3.HP	344	40P.644.10.3	341
40.684.06.8	306	40P.527.32.3	343	40P.644.12	340
40.684.08.8	306	40P.527.32.3.HP	344	40P.644.12.3	341
40.684.10.8	306	40P.640.03	340	40P.644.12.37	341
40.684.12.8	306	40P.640.03.1	340	40P.644.14	340
40.684.16.8	306	40P.640.04	340	40P.644.14.3	341
40.686.03.8	306	40P.640.04.1	340	40P.644.16	340
40.686.04.8	306	40P.640.05	340	40P.644.16.3	341
40.686.05.8	306	40P.640.05.1	340	40P.644.16.37	341
40.686.06.8	306	40P.640.06	340	40P.644.18	340
40.686.08.8	306	40P.640.06.2	340	40P.644.18.3	341
40.686.10.8	306	40P.640.08	340	40P.644.20	340
40.686.12.8	306	40P.640.08.2	340	40P.644.20.3	341
40.686.16.8	306	40P.640.10	340	40P.644.20.37	341
40.690.DL10	203	40P.640.10.2	340	40P.644.25	340
40.690.DL12	203	40P.640.12	340	40P.645.06.3	341
40.690.DL16	203	40P.640.12.2	340	40P.645.08.3	341
40.690.DL20	203	40P.640.14	340	40P.645.10.3	341
40.690.DL25	203	40P.640.14.2	340	40P.645.12.3	341
40.690.DL32	203	40P.640.16	340	40P.645.12.37	341
40.6H10.06	312	40P.640.16.2	340	40P.645.14.3	341
40.6H10.08	312	40P.640.18	340	40P.645.16.3	341
40.6H10.10	312	40P.640.20	340	40P.645.16.37	341
40.6H10.12	312	40P.640.20.2	340	40P.645.18.3	341
40.6H10.14	312	40P.640.25	340	40P.645.20.3	341
40.6H10.16	312	40P.640.25.2	340	40P.645.20.37	341
40.6H10.18	312	40P.640.32	340	40P.645.25.3	341
40.6H10.20	312	40P.642.06	340	40P.645.25.37	341
40.6H10.20.3	313	40P.642.06.3	341	40P.645.32.3	341
40.6H10.25	312	40P.642.08	340	40P.645.32.37	341
40.6H10.32	312	40P.642.08.3	341	40P.672.03.8	342
40P.520.16.3	343	40P.642.10	340	40P.672.04.8	342
40P.520.16.3.HP	344	40P.642.10.3	341	40P.672.05.8	342
40P.520.25.3	343	40P.642.12	340	40P.672.06.8	342
40P.520.25.3.HP	344	40P.642.12.3	341	40P.672.08.8	342
40P.520.32.3	343	40P.642.12.37	341	40P.672.10.8	342
40P.520.32.3.HP	344	40P.642.14	340	40P.672.12.8	342
40P.521.16.3	343	40P.642.14.3	341	40P.674.03.8	342
40P.521.16.3.HP	344	40P.642.16	340	40P.674.04.8	342
40P.521.25.3	343	40P.642.16.3	341	40P.674.05.8	342
40P.521.25.3.HP	344	40P.642.16.37	341	40P.674.06.8	342
40P.521.32.3	343	40P.642.18	340	40P.674.08.8	342
40P.521.32.3.HP	344	40P.642.18.3	341	40P.674.10.8	342
40P.522.16.3	343	40P.642.20	340	40P.674.12.8	342
40P.522.16.3.HP	344	40P.642.20.3	341	40P.682.03.8	342

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
40P.682.04.8	342	50.304.10	277	50.324.25.3.HP	275
40P.682.05.8	342	50.304.12	277	50.324.32.3	274
40P.682.06.8	342	50.304.14	277	50.324.32.3.HP	275
40P.682.08.8	342	50.304.16	277	50.326.16	273
40P.682.10.8	342	50.304.18	277	50.326.25	273
40P.682.12.8	342	50.304.20	277	50.326.32	273
40P.682.16.8	342	50.304.25	277	50.326.40	273
40P.684.03.8	342	50.304.32	277	50.330.06	282
40P.684.04.8	342	50.304.40	277	50.330.08	282
40P.684.05.8	342	50.306.06	277	50.330.10	282
40P.684.06.8	342	50.306.08	277	50.330.12	282
40P.684.08.8	342	50.306.10	277	50.330.14	282
40P.684.10.8	342	50.306.12	277	50.330.16	282
40P.684.12.8	342	50.306.14	277	50.330.18	282
40P.684.16.8	342	50.306.16	277	50.330.20	282
50.300.06	277	50.306.18	277	50.330.25	282
50.300.08	277	50.306.20	277	50.330.32	282
50.300.10	277	50.320.16	273	50.330.40	282
50.300.10.2	277	50.320.16.3	274	50.340.16	281
50.300.12	277	50.320.16.3.HP	275	50.340.22	281
50.300.12.2	277	50.320.20	273	50.340.27	281
50.300.14	277	50.320.25	273	50.340.32	281
50.300.16	277	50.320.25.3	274	50.340.40	281
50.300.16.2	277	50.320.25.3.HP	275	50.340.50	281
50.300.18	277	50.320.32	273	50.341.16	281
50.300.20	277	50.320.32.3	274	50.341.22	281
50.300.20.2	277	50.320.32.3.HP	275	50.341.27	281
50.300.25	277	50.320.40	273	50.341.32	281
50.300.32	277	50.321.16	273	50.341.40	281
50.300.40	277	50.321.16.3	274	50.341.50	281
50.301.06	277	50.321.16.3.HP	275	50.342.16	281
50.301.08	277	50.321.20	273	50.342.22	281
50.301.10	277	50.321.25	273	50.342.27	281
50.301.12	277	50.321.25.3	274	50.342.32	281
50.301.14	277	50.321.25.3.HP	275	50.342.40	281
50.301.16	277	50.321.32	273	50.342.50	281
50.301.18	277	50.321.32.3	274	50.344.16	281
50.301.20	277	50.321.32.3.HP	275	50.344.22	281
50.301.25	277	50.321.40	273	50.344.27	281
50.302.06	277	50.322.16	273	50.344.32	281
50.302.08	277	50.322.16.3	274	50.344.40	281
50.302.10	277	50.322.16.3.HP	275	50.346.16	281
50.302.12	277	50.322.25	273	50.346.22	281
50.302.14	277	50.322.25.3	274	50.346.27	281
50.302.16	277	50.322.25.3.HP	275	50.346.32	281
50.302.18	277	50.322.32	273	50.346.40	281
50.302.20	277	50.322.32.3	274	50.346.50	281
50.302.25	277	50.322.32.3.HP	275	50.350.22.KKB	280
50.302.32	277	50.322.40	273	50.350.27.KKB	280
50.302.40	277	50.324.16.3	274	50.350.32.KKB	280
50.304.06	277	50.324.16.3.HP	275	50.350.40.KKB	280
50.304.08	277	50.324.25.3	274	50.350.50.KKB	280

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
50.350.60.KKB	280	50.440.16.37	270	50.444.20	268
50.351.22.KKB	280	50.440.16.6	271	50.444.25	268
50.351.27.KKB	280	50.440.16.67	271	50.444.32	268
50.351.32.KKB	280	50.440.18	268	50.446.06	268
50.351.40.KKB	280	50.440.18.2	268	50.446.06.3	270
50.352.22.KKB	280	50.440.18.3	270	50.446.06.37	270
50.352.27.KKB	280	50.440.18.37	270	50.446.08	268
50.352.32.KKB	280	50.440.20	268	50.446.08.3	270
50.352.40.KKB	280	50.440.20.2	268	50.446.08.37	270
50.360.40	288	50.440.20.3	270	50.446.10	268
50.370.03	286	50.440.20.37	270	50.446.10.3	270
50.380.02	284	50.440.25	268	50.446.10.37	270
50.380.03	284	50.440.25.2	268	50.446.12	268
50.380.04	284	50.440.25.3	270	50.446.12.3	270
50.390.95	285	50.440.25.37	270	50.446.12.37	270
50.400.16	289	50.440.32	268	50.446.14	268
50.411.13	287	50.440.32.2	268	50.446.14.3	270
50.420.01	276	50.442.06	268	50.446.14.37	270
50.420.02	276	50.442.06.3	270	50.446.16	268
50.420.03	276	50.442.06.37	270	50.446.16.3	270
50.421.01	276	50.442.08	268	50.446.16.37	270
50.421.02	276	50.442.08.3	270	50.446.18	268
50.421.03	276	50.442.08.37	270	50.446.18.3	270
50.422.01	276	50.442.10	268	50.446.18.37	270
50.422.02	276	50.442.10.3	270	50.446.20	268
50.422.03	276	50.442.10.37	270	50.446.20.3	270
50.430.02	283	50.442.12	268	50.446.20.37	270
50.430.03	283	50.442.12.3	270	50.446.25	268
50.430.04	283	50.442.12.37	270	50.446.25.3	270
50.440.06	268	50.442.14	268	50.446.25.37	270
50.440.06.2	268	50.442.14.3	270	50.446.32	268
50.440.06.3	270	50.442.14.37	270	50.447.03.10	269
50.440.06.37	270	50.442.16	268	50.447.04.10	269
50.440.08	268	50.442.16.3	270	50.447.05.10	269
50.440.08.2	268	50.442.16.37	270	50.447.06	268
50.440.08.3	270	50.442.18	268	50.447.06.10	269
50.440.08.37	270	50.442.18.3	270	50.447.08	268
50.440.10	268	50.442.18.37	270	50.447.08.10	269
50.440.10.2	268	50.442.20	268	50.447.10	268
50.440.10.3	270	50.442.20.3	270	50.447.10.10	269
50.440.10.37	270	50.442.20.37	270	50.447.12	268
50.440.12	268	50.442.25	268	50.447.12.10	269
50.440.12.2	268	50.442.25.3	270	50.447.14	268
50.440.12.3	270	50.442.25.37	270	50.447.16	268
50.440.12.37	270	50.442.32	268	50.447.18	268
50.440.14	268	50.444.06	268	50.447.20	268
50.440.14.2	268	50.444.08	268	50.447.25	268
50.440.14.3	270	50.444.10	268	50.447.32	268
50.440.14.37	270	50.444.12	268	50.450.16.6	271
50.440.16	268	50.444.14	268	50.450.16.67	271
50.440.16.2	268	50.444.16	268	50.450.20.6	271
50.440.16.3	270	50.444.18	268	50.450.20.67	271

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
50.450.25.6	271	50.4H10.10	278	50.522.25.3.HP	323
50.450.25.67	271	50.4H10.12	278	50.522.32	321
50.450.32.6	271	50.4H10.14	278	50.522.32.3	322
50.450.32.67	271	50.4H10.16	278	50.522.32.3.HP	323
50.450.40.6	271	50.4H10.18	278	50.522.40	321
50.450.40.67	271	50.4H10.20	278	50.524.16.3	322
50.450.50.6	271	50.4H10.20.3	279	50.524.16.3.HP	323
50.450.50.67	271	50.4H10.25	278	50.524.25.3	322
50.452.16.6	271	50.4H10.32	278	50.524.25.3.HP	323
50.452.16.67	271	50.4H10.32.3	279	50.524.32.3	322
50.452.20.6	271	50.500.06	325	50.524.32.3.HP	323
50.452.20.67	271	50.500.08	325	50.540.16	329
50.452.25.6	271	50.500.10	325	50.540.22	329
50.452.25.67	271	50.500.12	325	50.540.27	329
50.452.32.6	271	50.500.16	325	50.540.32	329
50.452.32.67	271	50.500.20	325	50.540.40	329
50.452.40.6	271	50.500.25	325	50.541.16	329
50.452.40.67	271	50.500.32	325	50.541.22	329
50.452.50.6	271	50.500.40	325	50.541.27	329
50.452.50.67	271	50.501.10	325	50.541.32	329
50.456.16.6	271	50.501.12	325	50.541.40	329
50.456.16.67	271	50.501.16	325	50.542.16	329
50.456.20.6	271	50.501.20	325	50.542.22	329
50.456.20.67	271	50.502.06	325	50.542.27	329
50.456.25.6	271	50.502.08	325	50.542.32	329
50.456.25.67	271	50.502.10	325	50.542.40	329
50.456.32.6	271	50.502.12	325	50.550.22.KKB	328
50.456.32.67	271	50.502.16	325	50.550.27.KKB	328
50.456.40.6	271	50.502.20	325	50.550.32.KKB	328
50.456.40.67	271	50.502.25	325	50.550.40.KKB	328
50.456.50.6	271	50.502.32	325	50.551.22.KKB	328
50.456.50.67	271	50.520.16	321	50.551.27.KKB	328
50.472.06.8	272	50.520.16.3	322	50.551.32.KKB	328
50.472.08.8	272	50.520.16.3.HP	323	50.580.02	331
50.474.06.8	272	50.520.20	321	50.580.03	331
50.474.08.8	272	50.520.25	321	50.580.04	331
50.476.06.8	272	50.520.25.3	322	50.590.95	332
50.476.08.8	272	50.520.25.3.HP	323	50.620.02	324
50.482.06.8	272	50.520.32	321	50.620.03	324
50.482.08.8	272	50.520.32.3	322	50.621.02	324
50.484.06.8	272	50.520.32.3.HP	323	50.622.01	324
50.484.08.8	272	50.520.40	321	50.622.02	324
50.486.06.8	272	50.521.16	321	50.630.02	330
50.486.08.8	272	50.521.20	321	50.630.03	330
50.490.DL10	202	50.521.25	321	50.630.04	330
50.490.DL12	202	50.521.32	321	50.640.06	318
50.490.DL16	202	50.521.40	321	50.640.06.3	319
50.490.DL20	202	50.522.16	321	50.640.06.37	319
50.490.DL25	202	50.522.16.3	322	50.640.08	318
50.490.DL32	202	50.522.16.3.HP	323	50.640.08.3	319
50.4H10.06	278	50.522.25	321	50.640.08.37	319
50.4H10.08	278	50.522.25.3	322	50.640.10	318

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
50.640.10.3	319	50.644.08	318	50.650.25.67	320
50.640.10.37	319	50.644.10	318	50.650.32.6	320
50.640.12	318	50.644.12	318	50.650.32.67	320
50.640.12.3	319	50.644.14	318	50.650.40.6	320
50.640.12.37	319	50.644.16	318	50.650.40.67	320
50.640.14	318	50.644.18	318	50.650.50.6	320
50.640.14.3	319	50.644.20	318	50.650.50.67	320
50.640.14.37	319	50.644.25	318	50.652.16.6	320
50.640.16	318	50.644.32	318	50.652.16.67	320
50.640.16.3	319	50.646.06	318	50.652.20.6	320
50.640.16.37	319	50.646.06.3	319	50.652.20.67	320
50.640.16.6	320	50.646.06.37	319	50.652.25.6	320
50.640.16.67	320	50.646.08	318	50.652.25.67	320
50.640.18	318	50.646.08.3	319	50.652.32.6	320
50.640.18.3	319	50.646.08.37	319	50.652.32.67	320
50.640.18.37	319	50.646.10	318	50.652.40.6	320
50.640.20	318	50.646.10.3	319	50.652.40.67	320
50.640.20.3	319	50.646.10.37	319	50.652.50.6	320
50.640.20.37	319	50.646.12	318	50.652.50.67	320
50.640.25	318	50.646.12.3	319	50.656.16.6	320
50.640.25.3	319	50.646.12.37	319	50.656.16.67	320
50.640.25.37	319	50.646.14	318	50.656.20.6	320
50.640.32	318	50.646.14.3	319	50.656.20.67	320
50.642.06	318	50.646.14.37	319	50.656.25.6	320
50.642.06.3	319	50.646.16	318	50.656.25.67	320
50.642.06.37	319	50.646.16.3	319	50.656.32.6	320
50.642.08	318	50.646.16.37	319	50.656.32.67	320
50.642.08.3	319	50.646.18	318	50.656.40.6	320
50.642.08.37	319	50.646.18.3	319	50.656.40.67	320
50.642.10	318	50.646.18.37	319	50.656.50.6	320
50.642.10.3	319	50.646.20	318	50.656.50.67	320
50.642.10.37	319	50.646.20.3	319	50.6H10.06	326
50.642.12	318	50.646.20.37	319	50.6H10.08	326
50.642.12.3	319	50.646.25	318	50.6H10.10	326
50.642.12.37	319	50.646.25.3	319	50.6H10.12	326
50.642.14	318	50.646.25.37	319	50.6H10.14	326
50.642.14.3	319	50.646.32	318	50.6H10.16	326
50.642.14.37	319	50.647.06	318	50.6H10.18	326
50.642.16	318	50.647.08	318	50.6H10.20	326
50.642.16.3	319	50.647.10	318	50.6H10.20.3	327
50.642.16.37	319	50.647.12	318	50.6H10.25	326
50.642.18	318	50.647.14	318	50.6H10.32	326
50.642.18.3	319	50.647.16	318	50.6H10.32.3	327
50.642.18.37	319	50.647.18	318	50P.520.16.3	345
50.642.20	318	50.647.20	318	50P.520.16.3.HP	346
50.642.20.3	319	50.647.25	318	50P.520.25.3	345
50.642.20.37	319	50.647.32	318	50P.520.25.3.HP	346
50.642.25	318	50.650.16.6	320	50P.520.32.3	345
50.642.25.3	319	50.650.16.67	320	50P.520.32.3.HP	346
50.642.25.37	319	50.650.20.6	320	50P.522.16.3	345
50.642.32	318	50.650.20.67	320	50P.522.16.3.HP	346
50.644.06	318	50.650.25.6	320	50P.522.25.3	345

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
50P.522.25.3.HP	346	75.129.DL12.5.070.030	195	75.209.DL20.5.090.045	195
50P.522.32.3	345	75.129.DL12.5.093.045	195	75.209.DL20.5.125.075	195
50P.522.32.3.HP	346	75.129.DL12.5.180.006	195	75.209.DL20.5.260.010	195
50P.524.16.3	345	75.129.DL12.5.XXX.XXX	195	75.209.DL20.5.XXX.XXX	195
50P.524.16.3.HP	346	75.160.DL10	192	75.250.DL16	192
50P.524.25.3	345	75.160.DL10.1	192	75.250.DL16.1	192
50P.524.25.3.HP	346	75.160.DL10.82	197	75.250.DL16.82	197
50P.524.32.3	345	75.160.DL10.9	196	75.250.DL20	192
50P.524.32.3.HP	346	75.160.DL12	192	75.250.DL20.1	192
70.121.0300	515	75.160.DL12.1	192	75.250.DL20.9	196
70.121.0400	515	75.160.DL12.9	196	75.250.DL25	190
70.121.0500	515	75.160.DL16	190	75.250.DL25.1	190
70.121.0600	515	75.160.DL16.1	190	75.251.DL25	190
70.121.0800	515	75.161.DL16	190	75.251.DL25.1	190
70.121.1/2z	515	75.161.DL16.1	190	75.252.DL16	193
70.121.1/4z	515	75.162.DL10	193	75.252.DL16.1	193
70.121.1000	515	75.162.DL10.1	193	75.252.DL20	193
70.121.1200	515	75.162.DL12	193	75.252.DL20.1	193
70.121.1400	515	75.162.DL12.1	193	75.252.DL25	191
70.121.1600	515	75.162.DL16	191	75.252.DL25.1	191
70.121.1800	515	75.162.DL16.1	191	75.259.DL10.4.XXX.XXX	194
70.121.2000	515	75.169.DL10.4.XXX.XXX	194	75.259.DL12.4.XXX.XXX	194
70.121.3/4z	515	75.169.DL12.4.XXX.XXX	194	75.259.DL16.4.XXX.XXX	194
70.121.3/8z	515	75.169.DL16.4.XXX.XXX	194	75.259.DL20.4.XXX.XXX	194
70.121.5/8z	515	75.169.DL16.5.090.042	195	75.259.DL25.4.XXX.XXX	194
70.129.001	515	75.169.DL16.5.108.060	195	75.259.DL25.5.120.050	195
75.000.DL10	208	75.169.DL16.5.240.008	195	75.259.DL25.5.165.09375	195
75.000.DL12	208	75.169.DL16.5.XXX.XXX	195	75.259.DL25.5.260.0125	195
75.000.DL16	208	75.200.DL10	192	75.259.DL25.5.XXX.XXX	195
75.000.DL20	208	75.200.DL10.1	192	75.320.DL20.82	197
75.000.DL25	208	75.200.DL12	192	75.320.DL25	192
75.000.DL32	208	75.200.DL12.1	192	75.320.DL25.1	192
75.100.DL10	190	75.200.DL12.82	197	75.320.DL32	190
75.100.DL10.1	190	75.200.DL16	192	75.320.DL32.1	190
75.102.DL10	191	75.200.DL16.1	192	75.321.DL32	190
75.102.DL10.1	191	75.200.DL16.9	196	75.321.DL32.1	190
75.109.DL10.4.XXX.XXX	194	75.200.DL20	190	75.322.DL25	193
75.109.DL10.5.0775.0375	195	75.200.DL20.1	190	75.322.DL25.1	193
75.109.DL10.5.150.005	195	75.201.DL20	190	75.322.DL32	191
75.109.DL10.5.XXX.XXX	195	75.201.DL20.1	190	75.322.DL32.1	191
75.120.DL10	192	75.202.DL10	193	75.329.DL10.4.XXX.XXX	194
75.120.DL10.1	192	75.202.DL10.1	193	75.329.DL12.4.XXX.XXX	194
75.120.DL12	190	75.202.DL12	193	75.329.DL16.4.XXX.XXX	194
75.120.DL12.1	190	75.202.DL12.1	193	75.329.DL20.4.XXX.XXX	194
75.121.DL12	190	75.202.DL16	193	75.329.DL25.4.XXX.XXX	194
75.121.DL12.1	190	75.202.DL16.1	193	75.329.DL32.4.XXX.XXX	194
75.122.DL10	193	75.202.DL20	191	75.329.DL32.5.130.070	195
75.122.DL10.1	193	75.202.DL20.1	191	75.329.DL32.5.180.120	195
75.122.DL12	191	75.209.DL10.4.XXX.XXX	194	75.329.DL32.5.260.016	195
75.122.DL12.1	191	75.209.DL12.4.XXX.XXX	194	75.329.DL32.5.XXX.XXX	195
75.129.DL10.4.XXX.XXX	194	75.209.DL16.4.XXX.XXX	194	75.400.DL32	192
75.129.DL12.4.XXX.XXX	194	75.209.DL20.4.XXX.XXX	194	75.400.DL32.1	192

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
75.402.DL32	193	76.320.12.2	764	78.250.08	732
75.402.DL32.1	193	76.320.14	763	78.250.08.1	733
75.409.DL10.4.XXX.XXX	194	76.320.16	763	78.250.10	732
75.409.DL12.4.XXX.XXX	194	76.320.16.2	764	78.250.10.1	733
75.409.DL16.4.XXX.XXX	194	76.320.18	763	78.250.12	732
75.409.DL20.4.XXX.XXX	194	76.320.20	763	78.250.12.1	733
75.409.DL25.4.XXX.XXX	194	76.320.25	763	78.250.14	732
75.409.DL32.4.XXX.XXX	194	76.323.12.27	765	78.250.14.1	733
75.500.DL32	192	76.323.16.27	765	78.250.16	732
75.500.DL32.1	192	76.323.20.27	765	78.250.16.1	733
75.502.DL32	193	76.323.25.27	765	78.251.08.1	733
75.502.DL32.1	193	77.160.03	734	78.251.10.1	733
75.509.DL10.4.XXX.XXX	194	77.160.04	734	78.251.12.1	733
75.509.DL12.4.XXX.XXX	194	77.160.05	734	78.251.14.1	733
75.509.DL16.4.XXX.XXX	194	77.160.06	734	78.251.16.1	733
75.509.DL20.4.XXX.XXX	194	77.160.08	734	78.320.10	732
75.509.DL25.4.XXX.XXX	194	77.160.10	734	78.320.10.1	733
75.509.DL32.4.XXX.XXX	194	77.162.03	734	78.320.12	732
75.DL10.DL10.030	198	77.162.04	734	78.320.12.1	733
75.DL12.DL10.030	199	77.162.05	734	78.320.14	732
75.DL12.DL12.040	198	77.162.06	734	78.320.14.1	733
75.DL16.DL10.035	199	77.162.08	734	78.320.16	732
75.DL16.DL12.035	199	77.162.10	734	78.320.16.1	733
75.DL16.DL16.050	198	77.200.06	734	78.320.18	732
75.DL20.DL10.045	199	77.200.08	734	78.320.18.1	733
75.DL20.DL12.045	199	77.200.10	734	78.320.20	732
75.DL20.DL16.045	199	77.200.12	734	78.320.20.1	733
75.DL20.DL20.060	198	77.202.06	734	78.321.10.1	733
76.120.03	763	77.202.08	734	78.321.12.1	733
76.120.04	763	77.202.10	734	78.321.14.1	733
76.120.06	763	77.202.12	734	78.321.16.1	733
76.200.03	763	78.120.03.1	733	78.321.20.1	733
76.200.04	763	78.120.03.2	732	78.501.10.1	734
76.200.05	763	78.120.04.1	733	78.501.12.1	734
76.200.06	763	78.120.04.2	732	78.501.14.1	734
76.200.06.2	764	78.160.03.1	733	78.501.16.1	734
76.200.08	763	78.160.03.2	732	78.501.18.1	734
76.200.08.2	764	78.160.04.1	733	78.501.20.1	734
76.200.10	763	78.160.04.2	732	78.501.25.1	734
76.200.10.2	764	78.160.05.1	733	78.501.32.1	734
76.200.12	763	78.160.05.2	732	78.502.16	735
76.200.12.2	764	78.160.06	732	78.502.16.9	735
76.200.14	763	78.160.06.1	733	78.502.20	735
76.200.16	763	78.161.06.1	733	78.502.20.9	735
76.200.16.2	764	78.200.05.1	733	78.502.25	735
76.320.06	763	78.200.05.2	732	78.502.25.9	735
76.320.06.2	764	78.200.06	732	78.506.16	735
76.320.08	763	78.200.06.1	733	78.506.16.9	735
76.320.08.2	764	78.200.08	732	78.506.20	735
76.320.10	763	78.200.08.1	733	78.506.20.9	735
76.320.10.2	764	78.201.06.1	733	78.506.25	735
76.320.12	763	78.201.08.1	733	78.506.25.9	735

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order



订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
79.110.03	765	79.350.36	648	80.103.40	581
79.110.04	765	79.350.38	648	80.103.50	581
79.110.05	765	79.350.40	648	80.103.63	581
79.110.2.5	765	79.350.42	648	80.103.80	581
79.110.3.5	765	79.350.43	648	80.104.30	581
79.110.4.5	765	79.350.44	648	80.104.40	581
79.110.5.5	765	79.350.46	648	80.104.50	581
79.200.00	761	79.350.48	648	80.104.60	581
79.200.00.3	760	79.350.50	648	80.104.80	581
79.200.20	761	79.350.52	648	80.105.14.0	586
79.200.20.3	760	79.350.53	648	80.105.14.1.1	586
79.200.25	761	79.350.54	648	80.105.14.1.2	586
79.200.25.3	760	79.350.55	648	80.105.14.1.3	586
79.200.32	761	79.350.56	648	80.105.14.1.99	586
79.200.32.3	760	79.350.58	648	80.105.14.2.00	587
79.200.40	761	79.350.60	648	80.105.14.2.01	587
79.200.40.3	760	79.350.62	648	80.105.14.2.02	587
79.200.50	761	79.350.63	648	80.105.14.2.03	587
79.200.50.3	760	79.350.64	648	80.105.14.2.04	587
79.200.63	761	79.350.65	648	80.105.14.2.05	587
79.200.63.3	760	79.350.66	648	80.105.14.2.06	587
79.250.20	760	79.350.68	648	80.105.14.2.07	587
79.250.25	760	79.350.70	648	80.105.14.2.08	587
79.250.32	760	79.350.72	648	80.105.14.2.09	587
79.250.40	760	79.350.74	648	80.105.14.2.10	587
79.250.50	760	79.350.76	648	80.105.14.2.11	587
79.250.63	760	79.350.78	648	80.105.14.2.12	587
79.260.20	760	79.350.80	648	80.105.14.2.16	587
79.260.25	760	79.350.82	648	80.105.14.2.99	587
79.260.32	760	79.350.84	648	80.105.16.0	586
79.260.40	760	79.350.86	648	80.105.19.3.0	586
79.260.50	760	79.350.87	648	80.105.19.3.1	586
79.260.63	760	79.350.88	648	80.105.19.3.2	586
79.350.100	648	79.350.89	648	80.105.19.3.3	586
79.350.125	648	79.350.90	648	80.105.19.3.4	586
79.350.15	648	79.350.92	648	80.106.00.3	574
79.350.16	648	79.350.94	648	80.107.00	590
79.350.17	648	79.350.96	648	80.112.30	578
79.350.18	648	79.350.98	648	80.112.30	578
79.350.19	648	80.101.02NG.01	593	80.112.40	578
79.350.20	648	80.101.02NG.02	593	80.112.40	578
79.350.22	648	80.101.02NG.03	593	80.112.45	578
79.350.23	648	80.101.03NG	563	80.112.45	578
79.350.24	648	80.101.03NG.02	593	80.112.50	578
79.350.25	648	80.102.30	581	80.112.50	578
79.350.26	648	80.102.40	581	80.113.10	578
79.350.27	648	80.102.45	581	80.113.10	578
79.350.28	648	80.102.50	581	80.113.125	578
79.350.30	648	80.103.00	581	80.113.125	578
79.350.32	648	80.103.10	581	80.113.25	578
79.350.34	648	80.103.25	581	80.113.25	578
79.350.35	648	80.103.32	581	80.113.32	578

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
80.113.32	578	80.133.F80M	579	80.152.14.2	595
80.113.40	578	80.134.00NG	543	80.152.18.1	595
80.113.40	578	80.134.30	579	80.152.25	595
80.113.50	578	80.134.40	579	80.152.25.1	595
80.113.50	578	80.134.50	579	80.152.25.2	595
80.113.63	578	80.134.60	579	80.155.01	575
80.113.63	578	80.134.80	579	80.162.00	595
80.113.80	578	80.135.11	582	80.162.03	595
80.113.80	578	80.135.16	582	80.162.06	595
80.113.F63M	578	80.135.20	582	80.162.10	595
80.113.F63M	578	80.135.25	582	80.162.10.2	595
80.113.F80M	578	80.135.32	582	80.162.30	577
80.113.F80M	578	80.136.001	585	80.162.30.01	577
80.114.30	578	80.136.002	585	80.162.40.01	577
80.114.30	578	80.136.003	585	80.162.40.02	577
80.114.40	578	80.136.004	585	80.162.40.04	577
80.114.40	578	80.136.006	585	80.162.40.06	577
80.114.50	578	80.136.007	585	80.162.T15	577
80.114.50	578	80.136.240	585	80.163.25	577
80.114.60	578	80.136.310	585	80.163.32	577
80.114.60	578	80.136.325	585	80.163.40	577
80.114.80	578	80.136.332	585	80.163.50	577
80.114.80	578	80.136.340	585	80.163.63	577
80.114.KM63	578	80.136.350	585	80.164.00	531
80.114.KM63	578	80.136.363	585	80.164.02	531
80.115.00	536	80.136.440	585	80.165.00.3	531
80.116.00	536	80.136.450	585	80.165.01	531
80.117.00	536	80.137.ER11	583	80.165.20.3	561
80.123.00	584	80.137.ER16	583	80.166.00	531
80.123.01	584	80.137.ER20	583	80.166.03	531
80.123.02	584	80.137.ER25	583	80.166.04	531
80.123.03	584	80.137.ER32	583	80.166.05	531
80.123.04	584	80.151.00.01	593	80.166.06	531
80.124.00.8	574	80.151.10.01	593	80.166.08	531
80.124.04	574	80.151.10.41	595	80.166.10	531
80.125.00	584	80.151.10.41.1	595	80.166.12	531
80.126.00	590	80.151.10.42	595	80.167.C4	577
80.131.01	575	80.151.10.42.1	595	80.167.C5	577
80.131.02	576	80.151.30.10	549	80.167.C6	577
80.132.30	579	80.151.30.10S	571	80.168.ER11	577
80.132.40	579	80.151.30S	573	80.168.ER16	577
80.132.45	579	80.151.40.40	595	80.168.ER20	577
80.132.50	579	80.151.40.40.1	595	80.168.ER25	577
80.133.10	579	80.152.00	595	80.168.ER32	577
80.133.125	579	80.152.00.1	595	80.172.30	580
80.133.25	579	80.152.03	595	80.172.40	580
80.133.32	579	80.152.03.1	595	80.172.45	580
80.133.40	579	80.152.06	595	80.172.50	580
80.133.50	579	80.152.06.1	595	80.173.10	580
80.133.63	579	80.152.06.2	595	80.173.125	580
80.133.80	579	80.152.14	595	80.173.25	580
80.133.F63M	579	80.152.14.1	595	80.173.32	580

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
80.173.40	580	80.201.E32.00	632	80.201.HSA03.00	640
80.173.50	580	80.201.E32.02	633	80.201.HSA04.00	640
80.173.63	580	80.201.E40.00	632	80.201.HSA05.00	641
80.173.80	580	80.201.E40.02	633	80.201.HSA06.00	641
80.173.F63M	580	80.201.E50.00	632	80.201.HSM00.00	635
80.173.F80M	580	80.201.E50.02	633	80.201.HSM01.00	635
80.174.30	580	80.201.E63.00	632	80.201.HSM02.00	636
80.174.40	580	80.201.E63.02	633	80.201.HSM03.00	636
80.174.50	580	80.201.E80.00	632	80.201.HSM04.00	636
80.174.60	580	80.201.F63.00.M	632	80.201.HSM05.00	637
80.174.80	580	80.201.F80.00.M	632	80.201.HSM06.00	637
80.175.30	580	80.201.HG01.00	646	80.201.HSM07.00	637
80.175.40	580	80.201.HG01.02	646	80.201.HSM08.00	638
80.175.45	580	80.201.HG01.02.5	646	80.201.HSM09.00	638
80.175.50	580	80.201.HG01.02.6	646	80.201.HSZ00.15	635
80.185.00	566	80.201.HG01.03	646	80.201.HSZ00.15	639
80.185.01	567	80.201.HG01.03.5	646	80.201.HSZ00.15.5	635
80.188.00	571	80.201.HG01.04	646	80.201.HSZ00.15.5	639
80.188.40	563	80.201.HG01.04.5	646	80.201.HSZ00.16	635
80.201.140.01	631	80.201.HG01.05	646	80.201.HSZ00.16	639
80.201.150.01	631	80.201.HG01.05.5	646	80.201.HSZ00.16.5	635
80.201.330.01	631	80.201.HG01.05.6	646	80.201.HSZ00.16.5	639
80.201.330.01.IN	631	80.201.HG01.06	646	80.201.HSZ00.17	635
80.201.330.02	631	80.201.HG01.06.3	646	80.201.HSZ00.17	639
80.201.330.04	631	80.201.HG01.07	646	80.201.HSZ00.17.5	635
80.201.340.01	631	80.201.HG01.07.1	646	80.201.HSZ00.17.5	639
80.201.340.01.IN	631	80.201.HG01.08	646	80.201.HSZ00.18	635
80.201.340.02	631	80.201.HG01.08.1	646	80.201.HSZ00.18	639
80.201.340.04	631	80.201.HG01.09	646	80.201.HSZ00.18.5	635
80.201.340.06	631	80.201.HG01.09.25	646	80.201.HSZ00.18.5	639
80.201.345.01	631	80.201.HG02.00	646	80.201.HSZ00.19	635
80.201.345.02	631	80.201.HG02.10	646	80.201.HSZ00.19	639
80.201.350.01	631	80.201.HG02.11	646	80.201.HSZ00.19.5	635
80.201.350.01.IN	631	80.201.HG02.12	646	80.201.HSZ00.19.5	639
80.201.350.02	631	80.201.HG02.12.5	646	80.201.HSZ00.20	635
80.201.350.04	631	80.201.HG02.13	646	80.201.HSZ00.20	639
80.201.350.06	631	80.201.HG02.14	646	80.201.HSZ01.20	635
80.201.A10.00	632	80.201.HG03.00	646	80.201.HSZ01.20	639
80.201.A125.00	632	80.201.HG03.15	646	80.201.HSZ01.20.5	635
80.201.A32.00	632	80.201.HG03.16	646	80.201.HSZ01.20.5	639
80.201.A40.00	632	80.201.HG03.18	646	80.201.HSZ01.21	635
80.201.A50.00	632	80.201.HG03.20	646	80.201.HSZ01.21	639
80.201.A63.00	632	80.201.HG04.00	646	80.201.HSZ01.21.5	635
80.201.A80.00	632	80.201.HG04.20	646	80.201.HSZ01.21.5	639
80.201.C10.00	631	80.201.HG04.22	646	80.201.HSZ01.22	635
80.201.C3.00	631	80.201.HG04.25	646	80.201.HSZ01.22	639
80.201.C4.00	631	80.201.HG04.27	646	80.201.HSZ01.22.5	635
80.201.C5.00	631	80.201.HG04.30	646	80.201.HSZ01.22.5	639
80.201.C6.00	631	80.201.HG04.32	646	80.201.HSZ01.23	635
80.201.C8.00	631	80.201.HSA00.00	639	80.201.HSZ01.23	639
80.201.E10.00	632	80.201.HSA01.00	639	80.201.HSZ01.23.5	635
80.201.E25.00	632	80.201.HSA02.00	640	80.201.HSZ01.23.5	639

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
80.201.HSZ01.24	635	80.201.HSZ04.35.5	636	80.201.HSZ06.50	637
80.201.HSZ01.24	639	80.201.HSZ04.35.5	640	80.201.HSZ06.50	641
80.201.HSZ01.24.5	635	80.201.HSZ04.36	636	80.201.HSZ06.51	637
80.201.HSZ01.24.5	639	80.201.HSZ04.36	640	80.201.HSZ06.51	641
80.201.HSZ01.25	635	80.201.HSZ04.36.5	636	80.201.HSZ06.52	637
80.201.HSZ01.25	639	80.201.HSZ04.36.5	640	80.201.HSZ06.52	641
80.201.HSZ02.25	636	80.201.HSZ04.37	636	80.201.HSZ06.53	637
80.201.HSZ02.25	640	80.201.HSZ04.37	640	80.201.HSZ06.53	641
80.201.HSZ02.25.5	636	80.201.HSZ04.37.5	636	80.201.HSZ06.54	637
80.201.HSZ02.25.5	640	80.201.HSZ04.37.5	640	80.201.HSZ06.54	641
80.201.HSZ02.26	636	80.201.HSZ04.38	636	80.201.HSZ06.55	637
80.201.HSZ02.26	640	80.201.HSZ04.38	640	80.201.HSZ06.55	641
80.201.HSZ02.26.5	636	80.201.HSZ04.38.5	636	80.201.HSZ07.55	637
80.201.HSZ02.26.5	640	80.201.HSZ04.38.5	640	80.201.HSZ07.56	637
80.201.HSZ02.27	636	80.201.HSZ04.39	636	80.201.HSZ07.57	637
80.201.HSZ02.27	640	80.201.HSZ04.39	640	80.201.HSZ07.58	637
80.201.HSZ02.27.5	636	80.201.HSZ04.39.5	636	80.201.HSZ07.59	637
80.201.HSZ02.27.5	640	80.201.HSZ04.39.5	640	80.201.HSZ07.60	637
80.201.HSZ02.28	636	80.201.HSZ04.40	636	80.201.HSZ07.61	637
80.201.HSZ02.28	640	80.201.HSZ04.40	640	80.201.HSZ07.62	637
80.201.HSZ02.28.5	636	80.201.HSZ05.40	637	80.201.HSZ07.63	637
80.201.HSZ02.28.5	640	80.201.HSZ05.40	641	80.201.HSZ07.64	637
80.201.HSZ02.29	636	80.201.HSZ05.40.5	637	80.201.HSZ07.65	637
80.201.HSZ02.29	640	80.201.HSZ05.40.5	641	80.201.HSZ08.65	638
80.201.HSZ02.29.5	636	80.201.HSZ05.41	637	80.201.HSZ08.66	638
80.201.HSZ02.29.5	640	80.201.HSZ05.41	641	80.201.HSZ08.67	638
80.201.HSZ02.30	636	80.201.HSZ05.41.5	637	80.201.HSZ08.68	638
80.201.HSZ02.30	640	80.201.HSZ05.41.5	641	80.201.HSZ08.69	638
80.201.HSZ03.30	636	80.201.HSZ05.42	637	80.201.HSZ08.70	638
80.201.HSZ03.30	640	80.201.HSZ05.42	641	80.201.HSZ08.71	638
80.201.HSZ03.30.5	636	80.201.HSZ05.42.5	637	80.201.HSZ08.72	638
80.201.HSZ03.30.5	640	80.201.HSZ05.42.5	641	80.201.HSZ08.73	638
80.201.HSZ03.31	636	80.201.HSZ05.43	637	80.201.HSZ08.74	638
80.201.HSZ03.31	640	80.201.HSZ05.43	641	80.201.HSZ08.75	638
80.201.HSZ03.31.5	636	80.201.HSZ05.43.5	637	80.201.HSZ08.76	638
80.201.HSZ03.31.5	640	80.201.HSZ05.43.5	641	80.201.HSZ08.77	638
80.201.HSZ03.32	636	80.201.HSZ05.44	637	80.201.HSZ08.78	638
80.201.HSZ03.32	640	80.201.HSZ05.44	641	80.201.HSZ08.79	638
80.201.HSZ03.32.5	636	80.201.HSZ05.44.5	637	80.201.HSZ08.80	638
80.201.HSZ03.32.5	640	80.201.HSZ05.44.5	641	80.201.HSZ08.81	638
80.201.HSZ03.33	636	80.201.HSZ05.45	637	80.201.HSZ08.82	638
80.201.HSZ03.33	640	80.201.HSZ05.45	641	80.201.HSZ09.100	638
80.201.HSZ03.33.5	636	80.201.HSZ06.45	637	80.201.HSZ09.101	638
80.201.HSZ03.33.5	640	80.201.HSZ06.45	641	80.201.HSZ09.82	638
80.201.HSZ03.34	636	80.201.HSZ06.46	637	80.201.HSZ09.83	638
80.201.HSZ03.34	640	80.201.HSZ06.46	641	80.201.HSZ09.84	638
80.201.HSZ03.34.5	636	80.201.HSZ06.47	637	80.201.HSZ09.85	638
80.201.HSZ03.34.5	640	80.201.HSZ06.47	641	80.201.HSZ09.86	638
80.201.HSZ03.35	636	80.201.HSZ06.48	637	80.201.HSZ09.87	638
80.201.HSZ03.35	640	80.201.HSZ06.48	641	80.201.HSZ09.88	638
80.201.HSZ04.35	636	80.201.HSZ06.49	637	80.201.HSZ09.89	638
80.201.HSZ04.35	640	80.201.HSZ06.49	641	80.201.HSZ09.90	638

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
80.201.HSZ09.91	638	80.201.SDA27.02	643	80.245.13	615
80.201.HSZ09.92	638	80.201.SDA2Z.00	642	80.245.14	614
80.201.HSZ09.93	638	80.201.SDA2Z.02	643	80.250.07.25	647
80.201.HSZ09.94	638	80.201.SDA3/4Z.02	643	80.250.07.26	647
80.201.HSZ09.95	638	80.201.SDA30.00	642	80.250.07.28	647
80.201.HSZ09.96	638	80.201.SDA32.00	642	80.250.07.30	647
80.201.HSZ09.97	638	80.201.SDA32.02	643	80.250.07.32	647
80.201.HSZ09.98	638	80.201.SDA35.00	642	80.250.07.34	647
80.201.HSZ09.99	638	80.201.SDA40.00	642	80.250.08.35	647
80.201.KM100.01	631	80.201.SDA40.02	643	80.250.08.36	647
80.201.KM100.4X	631	80.201.SDA45.00	642	80.250.08.38	647
80.201.KM125.00	631	80.201.SDA50.00	642	80.250.08.40	647
80.201.KM32.01	631	80.201.SDA50.02	643	80.250.08.42	647
80.201.KM40.01	631	80.201.SDA55.00	642	80.250.08.44	647
80.201.KM50.01	631	80.201.SDA60.00	642	80.250.09.45	647
80.201.KM63.01	631	80.201.SDA60.02	643	80.250.09.48	647
80.201.KM63.4X	631	80.201.W63.00	632	80.250.09.50	647
80.201.KM80.01	631	80.202.00	612	80.250.09.52	647
80.201.RO25.00	634	80.203.00	649	80.250.09.54	647
80.201.RO25.01	634	80.206.00	615	80.250.10.55	647
80.201.SAB01.120	644	80.207.01	615	80.250.10.58	647
80.201.SAB01.127	644	80.207.10	615	80.250.10.60	647
80.201.SAB01.150	644	80.207.12	615	80.250.10.65	647
80.201.SAB01.175	644	80.209.00	614	80.250.A63.070	647
80.201.SAB01.203	644	80.212.00	613	80.250.A63.080	647
80.201.SAB01.250	644	80.213.01	614	80.250.A63.090	647
80.201.SAS01.120	644	80.214.00	614	80.250.A63.100	647
80.201.SAS01.127	645	80.215.02	615	80.252.01	612
80.201.SAS01.150	645	80.215.05	615	80.254.00.3	615
80.201.SAS01.175	645	80.217.00	612	80.300.00.FHN	701
80.201.SAS01.203	645	80.218.00	614	80.301.00	701
80.201.SAS01.250	645	80.227.00	613	80.302.00	701
80.201.SDA08.00	642	80.228.02.01.3	613	80.303.00	701
80.201.SDA10.00	642	80.228.02.02.3	613	80.303.A50	703
80.201.SDA11/2Z.00	642	80.228.02.04.3	613	80.360.00.FHN	685
80.201.SDA11/2Z.02	643	80.228.03.3	613	80.360.00NG	689
80.201.SDA11/4Z.00	642	80.229.02	613	80.362.00	687
80.201.SDA11/4Z.02	643	80.229.03	613	80.363.00	687
80.201.SDA12.00	642	80.229.04	613	80.363.A32NG	691
80.201.SDA14.00	642	80.230.00	615	80.363.A40NG	691
80.201.SDA16.00	642	80.232.01.3	614	80.363.A50NG	691
80.201.SDA16.02	643	80.232.02.3	614	80.363.A63NG	691
80.201.SDA17/8Z.00	642	80.233.00.4	613	80.363.E25NG	691
80.201.SDA17/8Z.02	643	80.233.01.3	613	80.363.E32NG	691
80.201.SDA18.00	642	80.233.02.3	613	80.363.E40NG	691
80.201.SDA1Z.00	642	80.233.09	613	80.363.E50NG	691
80.201.SDA1Z.02	643	80.243.01	615	80.364.30.FHN	687
80.201.SDA20.00	642	80.245.06	613	80.364.30NG	691
80.201.SDA22.00	642	80.245.09	614	80.364.40.FHN	687
80.201.SDA22.02	643	80.245.10	614	80.365.30.FHN	687
80.201.SDA25.00	642	80.245.11	614	80.365.30NG	691
80.201.SDA27.00	642	80.245.12	614	80.365.40.FHN	687

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
80.370.00	705	81.110.010.04	736	81.160.08	742
80.460.00.FHN	693	81.110.020.03	736	81.160.09	742
80.464.40.FHN	695	81.110.020.04	736	81.160.1.5	742
80.465.40.FHN	695	81.110.1.0	742	81.160.10	742
80.501.02.5	774	81.110.1.5	742	81.160.2.5	742
80.501.02.8	774	81.110.2.0	742	81.163.00	748
80.501.03.1	774	81.110.2.5	742	81.163.02	748
80.501.03.5	774	81.110.3.0	742	81.163.03	748
80.501.03.6	774	81.110.3.5	742	81.163.04	748
80.501.04.0	774	81.110.4.0	742	81.163.045	748
80.501.04.3	774	81.110.4.5	742	81.163.05	748
80.501.04.5	774	81.110.5.0	742	81.163.06	748
80.501.05.0	774	81.110.5.5	742	81.163.06.7	749
80.501.06.0	774	81.110.6.0	742	81.163.08	748
80.501.06.3	774	81.110.6.5	742	81.163.08.7	749
80.501.07.0	774	81.110.7.0	742	81.163.10	748
80.501.08.0	774	81.160.00	742	81.163.10.7	749
80.501.09.0	774	81.160.000.03	737	81.165.03	745
80.501.10.0	774	81.160.000.04	737	81.165.04	745
80.501.11.0	774	81.160.000.05	737	81.165.05	745
80.503.06.0	774	81.160.000.06	737	81.165.06	745
80.503.06.3	774	81.160.000.08	737	81.165.07	745
80.503.07.0	774	81.160.000.10	737	81.165.08	745
80.503.08.0	774	81.160.001	742	81.165.09	745
80.503.09.0	774	81.160.01	742	81.165.10	745
80.503.10.0	774	81.160.010.03	737	81.200.00	743
80.503.11.0	774	81.160.010.04	737	81.200.000.03	738
80.503.11.2	774	81.160.010.05	737	81.200.000.04	738
80.503.12.0	774	81.160.010.06	737	81.200.000.05	738
80.503.12.5	774	81.160.0120.DL10	200	81.200.000.06	738
80.503.14.0	774	81.160.02	742	81.200.000.08	738
80.503.14.2	774	81.160.020.03	737	81.200.000.10	738
80.503.16.0	774	81.160.020.04	737	81.200.000.12	738
80.503.16.5	774	81.160.020.05	737	81.200.01	743
80.503.18.0	774	81.160.020.06	737	81.200.0130.DL10	200
80.960.00	697	81.160.025.03	737	81.200.0140.DL12	200
80.963.A32	699	81.160.025.04	737	81.200.02	743
80.963.A40	699	81.160.025.05	737	81.200.025.03	738
80.963.A50	699	81.160.025.06	737	81.200.025.04	738
80.963.A63	699	81.160.03	742	81.200.025.05	738
80.963.E25	699	81.160.030.03	737	81.200.025.06	738
80.963.E32	699	81.160.030.04	737	81.200.025.08	738
80.963.E40	699	81.160.030.05	737	81.200.03	743
80.963.E50	699	81.160.030.06	737	81.200.035.03	738
80.964.30	699	81.160.035.03	737	81.200.035.04	738
80.965.30	699	81.160.035.04	737	81.200.035.05	738
81.110.00	742	81.160.035.05	737	81.200.035.06	738
81.110.000.03	736	81.160.035.06	737	81.200.035.08	738
81.110.000.04	736	81.160.04	742	81.200.04	743
81.110.000.05	736	81.160.05	742	81.200.05	743
81.110.000.06	736	81.160.06	742	81.200.06	743
81.110.010.03	736	81.160.07	742	81.200.07	743

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
81.200.08	743	81.250.030.05	740	81.255.07	745
81.200.09	743	81.250.030.06	740	81.255.08	745
81.200.10	743	81.250.030.08	740	81.255.09	745
81.200.11	743	81.250.030.10	740	81.255.10	745
81.200.12	743	81.250.035.03	739	81.255.11	745
81.200.13	743	81.250.035.04	739	81.255.12	745
81.205.03	745	81.250.035.05	739	81.255.13	745
81.205.04	745	81.250.035.06	739	81.255.14	745
81.205.05	745	81.250.035.08	740	81.255.15	745
81.205.06	745	81.250.035.10	740	81.255.16	745
81.205.07	745	81.250.04	743	81.320.00	744
81.205.08	745	81.250.05	743	81.320.000.03	741
81.205.09	745	81.250.06	743	81.320.000.04	741
81.205.10	745	81.250.07	743	81.320.000.05	741
81.205.11	745	81.250.08	743	81.320.000.06	741
81.205.12	745	81.250.09	743	81.320.000.08	741
81.250.00	743	81.250.1.5	743	81.320.000.10	741
81.250.000.03	739	81.250.10	743	81.320.000.12	741
81.250.000.04	739	81.250.11	743	81.320.000.14	741
81.250.000.05	739	81.250.12	743	81.320.000.16	741
81.250.000.06	739	81.250.13	743	81.320.000.18	741
81.250.000.08	739	81.250.14	743	81.320.000.20	741
81.250.000.10	739	81.250.15	743	81.320.001	744
81.250.000.12	739	81.250.16	743	81.320.0140.DL10	200
81.250.000.14	739	81.250.2.5	743	81.320.0150.DL12	200
81.250.000.16	739	81.252.04	747	81.320.0170.DL16	200
81.250.001	743	81.252.06	747	81.320.0190.DL20	200
81.250.010.03	739	81.252.08	747	81.320.02	744
81.250.010.04	739	81.252.10	747	81.320.0215.DL25	200
81.250.010.05	739	81.252.12	747	81.320.03	744
81.250.010.06	739	81.252.14	747	81.320.035.03	741
81.250.010.08	739	81.253.00	748	81.320.035.04	741
81.250.010.10	739	81.253.02	748	81.320.035.05	741
81.250.0135.DL10	200	81.253.03	748	81.320.035.06	741
81.250.0135.DL16	200	81.253.04	748	81.320.035.08	741
81.250.0145.DL12	200	81.253.05	748	81.320.035.10	741
81.250.02	743	81.253.06	748	81.320.035.12	741
81.250.020.03	739	81.253.06.7	749	81.320.035.14	741
81.250.020.04	739	81.253.08	748	81.320.035.16	741
81.250.020.05	739	81.253.08.7	749	81.320.0355.DL10	200
81.250.020.06	739	81.253.10	748	81.320.0355.DL16	200
81.250.020.08	740	81.253.10.7	749	81.320.0355.DL20	200
81.250.020.10	740	81.253.12	748	81.320.0365.DL12	200
81.250.025.03	740	81.253.12.7	749	81.320.04	744
81.250.025.04	740	81.253.14	748	81.320.0407.DL25	200
81.250.025.05	740	81.253.14.7	749	81.320.05	744
81.250.025.06	740	81.253.16	748	81.320.06	744
81.250.025.08	740	81.253.16.7	749	81.320.07	744
81.250.025.10	740	81.255.03	745	81.320.08	744
81.250.03	743	81.255.04	745	81.320.09	744
81.250.030.03	740	81.255.05	745	81.320.10	744
81.250.030.04	740	81.255.06	745	81.320.11	744

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
81.320.12	744	81.325.15	746	82.510.08	754
81.320.13	744	81.325.16	746	82.510.09	754
81.320.14	744	81.325.17	746	82.520.10	754
81.320.15	744	81.325.18	746	82.520.11	754
81.320.16	744	81.325.19	746	82.520.12	754
81.320.17	744	81.325.20	746	82.520.12.5	754
81.320.18	744	81.400.00	744	82.520.14	754
81.320.19	744	81.400.001	744	82.530.16	754
81.320.2.5	744	81.400.03	744	82.530.18	754
81.320.20	744	81.400.04	744	82.530.20	754
81.322.04	747	81.400.05	744	82.560.01	773
81.322.06	747	81.400.06	744	82.560.02	773
81.322.08	747	81.400.07	744	82.560.03	773
81.322.10	747	81.400.08	744	82.560.04	773
81.322.12	747	81.400.09	744	82.560.05	773
81.322.14	747	81.400.10	744	82.560.06	773
81.322.16	747	81.400.11	744	82.560.07	773
81.322.18	747	81.400.12	744	82.560.08	773
81.322.20	747	81.400.13	744	82.560.09	773
81.323.00	748	81.400.14	744	82.560.10	773
81.323.02	748	81.400.15	744	82.560.12	773
81.323.03	748	81.400.16	744	82.560.14	773
81.323.04	748	81.400.17	744	82.560.15	773
81.323.05	748	81.400.18	744	82.560.17	773
81.323.06	748	81.400.19	744	82.560.18	773
81.323.06.7	749	81.400.20	744	82.560.20	773
81.323.08	748	81.400.21	744	82.576.00	755
81.323.08.7	749	81.400.22	744	82.577.00	755
81.323.10	748	81.400.23	744	82.578.00	755
81.323.10.7	749	81.400.24	744	82.585.00	754
81.323.12	748	81.400.25	744	82.586.1/2z.C1	512
81.323.12.7	749	81.400.26	744	82.586.1/2z.C2	512
81.323.14	748	81.405.06	746	82.586.1/2z.C3	512
81.323.14.7	749	81.405.08	746	82.586.1/2z.Set	512
81.323.16	748	81.405.10	746	82.586.1/4z.A5.SET	511
81.323.16.7	749	81.405.12	746	82.586.3/8z.B1	512
81.323.18	748	81.405.14	746	82.586.3/8z.B2	512
81.323.18.7	749	81.405.16	746	82.586.3/8z.Set	512
81.323.20	748	81.405.18	746	82.587.00	213
81.323.20.7	749	81.405.20	746	82.587.DL10	213
81.325.03	746	81.405.22	746	82.587.DL12	213
81.325.04	746	81.405.25	746	82.587.DL16	213
81.325.05	746	82.510.02	754	82.587.DL20	213
81.325.06	746	82.510.02.5	754	82.588.00	214
81.325.07	746	82.510.03	754	82.588.DL16	214
81.325.08	746	82.510.04	754	82.588.DL20	214
81.325.09	746	82.510.04.5	754	82.588.DL25	214
81.325.10	746	82.510.05	754	82.588.DL32	214
81.325.11	746	82.510.05.5	754	82.590.01	754
81.325.12	746	82.510.06	754	82.590.02	754
81.325.13	746	82.510.06.3	754	82.590.03	754
81.325.14	746	82.510.07	754	82.610.02	755

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order



订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
82.611.01	755	84.600.00.S	750	84.703.63	756
82.621.01	755	84.600.01	510	84.703.80	756
82.650.010	755	84.600.10.1	209	84.704.63.M	756
82.650.015	755	84.600.20	209	84.704.80.M	756
82.650.020	755	84.600.20.AK	209	84.705.30	756
82.650.025	755	84.610.16	750	84.705.40	756
82.660.020	755	84.610.25	750	84.705.50	756
82.660.025	755	84.610.32	750	84.705.60	756
82.660.030	755	84.620.11	750	84.706.4X100	756
82.660.035	755	84.620.16	750	84.801.00.3	712
82.660.040	755	84.620.16.1	750	84.801.01.3	713
82.660.045	755	84.620.20	750	84.801.02.3	713
83.912.11	753	84.620.25	750	84.801.03.3	713
83.912.16	753	84.620.32	750	84.801.04.3	713
83.912.16.HS	753	84.630.1/2Z	210	84.801.05.3	713
83.912.20	753	84.630.1/2Z	510	84.801.06.3	713
83.912.20.HS	753	84.640.10	210	84.801.07.3	713
83.912.25	753	84.640.10.1	210	84.801.08.3	713
83.912.25.HS	753	84.640.12	210	84.802.00.3	711
83.912.32	753	84.640.12.1	210	84.803.00.3	720
83.912.32.HS	753	84.640.16	210	84.804.00.3	714
83.912.40	753	84.640.20	210	84.805.00.01.3	715
83.912.40.HS	753	84.640.25	210	84.805.00.03.3	715
83.914.16	753	84.640.32	210	84.805.01.3	715
83.914.16.1	752	84.645.DL10	211	84.805.06.3	716
83.914.25	753	84.645.DL12	211	84.805.07.01	719
83.914.25.1	752	84.645.DL16	211	84.805.07.02	719
83.914.32	753	84.645.DL20	211	84.805.07.032	719
83.914.32.1	752	84.647.00	212	84.805.07.040	719
84.200.11	751	84.647.DL10	212	84.805.07.041	719
84.200.16	751	84.647.DL12	212	84.805.07.042	719
84.200.20	751	84.647.DL16	212	84.805.07.050	719
84.200.25	751	84.647.DL20	212	84.805.07.051	719
84.200.32	751	84.650.16	751	84.805.07.110	719
84.200.40	751	84.650.16.1	752	84.805.07.111	719
84.200.50	751	84.650.25	751	84.805.07.125	719
84.400.16	751	84.650.25.1	752	84.805.07.132	719
84.400.22	751	84.650.32	751	84.805.07.140	719
84.400.27	751	84.650.32.1	752	84.805.07.141	719
84.400.32	751	84.700.00	756	84.805.07.150	719
84.400.40	751	84.701.30	756	84.805.07.163	719
84.400.50	751	84.701.40	756	84.805.07.164	719
84.400.60	751	84.701.50	756	84.805.07.165	719
84.500.10	762	84.702.10	756	84.805.07.181	719
84.500.125	762	84.702.40	756	84.805.07.230	719
84.500.25	762	84.702.50	756	84.805.07.240	719
84.500.32	762	84.702.63	756	84.805.07.250	719
84.500.40	762	84.702.80	756	84.805.07.260	719
84.500.50	762	84.703.25	756	84.805.07.3	717
84.500.63	762	84.703.32	756	84.805.07.325	719
84.500.80	762	84.703.40	756	84.805.07.340	719
84.600.00	750	84.703.50	756	84.805.07.401	719

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
84.805.07.680	719	84.810.17	729	85.502.10.0	649
84.806.00.3	722	84.810.17.1	729	85.502.10.0.SET	649
84.806.01.3	722	84.810.17.2	729	85.502.7.0	649
84.806.02.3	722	84.810.18	729	85.502.7.0.SET	649
84.806.03.3	722	84.810.19	729	85.502.8.0	649
84.808.00.01	726	84.810.20	729	85.502.8.0.SET	649
84.808.00.030	726	84.810.22	721	85.504.14.0	507
84.808.00.040	726	84.810.23	727	85.505.001	509
84.808.00.050	726	84.811.00	729	85.505.002	509
84.808.00.130	726	85.100.06	773	85.600.40	775
84.808.00.140	726	85.100.08	773	85.600.50	775
84.808.00.150	726	85.100.10	773	85.700.10	762
84.808.00.240	726	85.100.12	773	85.700.125	762
84.808.00.250	726	85.100.14	773	85.700.32	762
84.808.00.3	723	85.100.16	773	85.700.40	762
84.808.00.310	726	85.100.18	773	85.700.50	762
84.808.00.332	726	85.100.18.1	773	85.700.63	762
84.808.00.340	726	85.100.20	773	85.700.80	762
84.808.00.350	726	85.150.01	771	85.800.34	772
84.808.00.363	726	85.150.02	771	85.800.35	772
84.808.00.380	726	85.150.03	771	85.810.12.1	768
84.808.00.460	726	85.150.04	771	85.810.12.3	770
84.809.011	728	85.150.05	771	85.810.12.4	769
84.809.016	728	85.150.06	771	85.810.15.1	768
84.809.020	728	85.150.07	771	85.810.15.3	770
84.809.025	728	85.150.08	771	85.810.15.4	769
84.809.032	728	85.200.16	775	85.810.18.2	768
84.809.040	728	85.200.16.1	775	85.810.18.3	770
84.809.116	728	85.200.22	775	85.810.18.4	769
84.809.125	728	85.200.22.1	775	85.810.21.2	768
84.809.132	728	85.200.27	775	85.810.21.3	770
84.809.140	728	85.200.32	775	85.810.21.4	769
84.809.150	728	85.200.40	775	85.810.23.1	768
84.809.201	728	85.200.50	775	85.810.24.2	768
84.809.202	728	85.300.16	775	85.810.25.2	768
84.809.203	728	85.300.22	775	85.810.25.4	769
84.810.01	729	85.300.27	775	85.810.27.2	768
84.810.02	729	85.300.32	775	85.810.27.4	769
84.810.03	729	85.300.40	775	85.810.36.2	768
84.810.04	729	85.300.50	775	85.810.37.2	768
84.810.05	729	85.300.60	775	85.810.37.4	769
84.810.06	729	85.400.16	775	85.810.38.2	768
84.810.07	729	85.400.16.1	775	85.810.39.2	768
84.810.08	729	85.400.22	775	85.810.40.1	768
84.810.09	729	85.400.22.1	775	85.810.40.3	770
84.810.10	729	85.400.27	775	85.810.40.4	769
84.810.11	729	85.400.27.1	775	85.810.43.2	768
84.810.12	729	85.400.32	775	85.810.43.3	770
84.810.13.3	729	85.400.40	775	85.810.43.4	769
84.810.14	714	85.400.50	775	85.810.46.2	768
84.810.15	714	85.500.40	779	85.810.46.3	770
84.810.16	729	85.500.50	779	85.810.48.3	770

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
85.810.48.3.1	770	86.201.08	777	91.100.45	469
85.810.49.3	770	86.201.10	777	915005-0001	506
85.810.49.3.1	770	86.201.12	777	915005-0004	506
85.810.51.2	768	86.201.14	777	915005-0004	510
85.810.51.3	770	86.201.16	777	915005-0006	510
85.810.52.2	768	86.201.18	777	999001-1134	506
85.810.52.3	770	86.201.20	777	999001-1135	506
85.810.52.4	769	86.201.25	777	999001-1136	506
85.820.10	776	86.201.32	777	999001-1137	506
85.820.125	776	88.101.40	758	999001-1138	506
85.820.25	776	88.101.50	758	999001-1139	506
85.820.32	776	88.200.40	757	999001-1140	506
85.820.40	776	88.200.50	757	999001-1149	506
85.820.50	776	88.202.40	757	999001-1150	506
85.820.63	776	88.202.50	757	999001-1151	506
85.820.80	776	88.300.40	758	999001-1152	506
85.821.10	776	88.303.40	758	999001-1153	506
85.821.40	776	88.303.50	758	999001-1154	506
85.821.50	776	88.400.40	757	999001-1155	506
85.821.63	776	88.400.50	757	999001-1156	506
85.821.80	776	88.402.40	757	999001-1157	506
85.830.00	589	88.402.50	757	A10.000.06	410
85.830.06	589	88.500.40	758	A10.000.08	410
85.830.08	589	88.500.40.1	758	A10.000.10	410
85.830.10	589	88.500.50	758	A10.000.12	410
85.830.12	589	88.600.40	758	A10.000.14	410
85.830.14	589	88.601.30	758	A10.000.16	410
85.830.16	589	88.601.40	758	A10.000.18	410
85.830.18	589	88.601.40.1	758	A10.000.20	410
85.830.20	589	88.601.50	758	A10.000.25	410
85.830.25	589	88.603.40	758	A10.000.32	410
85.830.32	589	88.603.50	758	A10.002.06	410
86.100.01	776	88.604.30	758	A10.002.08	410
86.100.02	776	88.604.40	758	A10.002.10	410
86.100.03	776	88.604.50	758	A10.002.12	410
86.100.04	776	88.605.30	758	A10.002.14	410
86.100.30	777	88.605.40	758	A10.002.16	410
86.100.40	777	88.700.40	758	A10.002.18	410
86.100.50	777	88.700.50	758	A10.002.20	410
86.100.ER11	778	88.701.40	758	A10.002.25	410
86.100.ER16	778	88.800.40	758	A10.002.32	410
86.100.ER20	778	88.800.50	758	A10.020.16	406
86.100.ER25	778	88.900.40.1	758	A10.020.16.3	407
86.100.ER32	778	900052-0007	506	A10.020.16.3.HP	408
86.200.01	591	91.100.06	465	A10.020.25	406
86.200.02	591	91.100.07	465	A10.020.25.3	407
86.200.03	591	91.100.24	468	A10.020.25.3.HP	408
86.200.04	591	91.100.25	468	A10.020.32	406
86.200.06	591	91.100.26	468	A10.020.32.3	407
86.200.07	591	91.100.31	200	A10.020.32.3.HP	408
86.200.08	591	91.100.40	466	A10.020.40	406
86.201.06	777	91.100.41	466	A10.022.16	406

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A10.022.16.3	407	A10.051.22.KKB	413	A10.140.20.6	405
A10.022.16.3.HP	408	A10.051.27.KKB	413	A10.140.20.67	405
A10.022.25	406	A10.051.32.KKB	413	A10.140.25	403
A10.022.25.3	407	A10.051.40.KKB	413	A10.140.25.3	404
A10.022.25.3.HP	408	A10.052.16.KKB	413	A10.140.25.37	404
A10.022.32	406	A10.052.22.KKB	413	A10.140.32	403
A10.022.32.3	407	A10.052.27.KKB	413	A10.142.06	403
A10.022.32.3.HP	408	A10.052.32.KKB	413	A10.142.06.3	404
A10.022.40	406	A10.052.40.KKB	413	A10.142.06.37	404
A10.024.16.3	407	A10.080.01	416	A10.142.08	403
A10.024.16.3.HP	408	A10.080.02	416	A10.142.08.3	404
A10.024.25.3	407	A10.080.03	416	A10.142.08.37	404
A10.024.25.3.HP	408	A10.080.04	416	A10.142.10	403
A10.024.32.3	407	A10.090.83	418	A10.142.10.3	404
A10.024.32.3.HP	408	A10.111.13	419	A10.142.10.37	404
A10.025.16.3	407	A10.111.16	419	A10.142.12	403
A10.025.16.3.HP	408	A10.120.01	409	A10.142.12.3	404
A10.025.25.3	407	A10.120.02	409	A10.142.12.37	404
A10.025.25.3.HP	408	A10.120.03	409	A10.142.14	403
A10.025.32.3	407	A10.122.01	409	A10.142.14.3	404
A10.025.32.3.HP	408	A10.122.02	409	A10.142.14.37	404
A10.030.06	415	A10.122.03	409	A10.142.16	403
A10.030.08	415	A10.130.01	417	A10.142.16.3	404
A10.030.10	415	A10.130.02	417	A10.142.16.37	404
A10.030.12	415	A10.130.03	417	A10.142.18	403
A10.030.14	415	A10.130.04	417	A10.142.18.3	404
A10.030.16	415	A10.140.06	403	A10.142.18.37	404
A10.030.18	415	A10.140.06.3	404	A10.142.20	403
A10.030.20	415	A10.140.06.37	404	A10.142.20.3	404
A10.030.25	415	A10.140.08	403	A10.142.20.37	404
A10.030.32	415	A10.140.08.3	404	A10.142.25	403
A10.040.16	414	A10.140.08.37	404	A10.142.25.3	404
A10.040.22	414	A10.140.10	403	A10.142.25.37	404
A10.040.27	414	A10.140.10.3	404	A10.142.32	403
A10.040.32	414	A10.140.10.37	404	A10.144.06	403
A10.040.40	414	A10.140.12	403	A10.144.08	403
A10.041.16	414	A10.140.12.3	404	A10.144.10	403
A10.041.22	414	A10.140.12.37	404	A10.144.12	403
A10.041.27	414	A10.140.14	403	A10.144.14	403
A10.041.32	414	A10.140.14.3	404	A10.144.16	403
A10.041.40	414	A10.140.14.37	404	A10.144.18	403
A10.042.16	414	A10.140.16	403	A10.144.20	403
A10.042.22	414	A10.140.16.3	404	A10.144.25	403
A10.042.27	414	A10.140.16.37	404	A10.144.32	403
A10.042.32	414	A10.140.16.6	405	A10.146.06	403
A10.042.40	414	A10.140.16.67	405	A10.146.06.3	404
A10.050.16.KKB	413	A10.140.18	403	A10.146.06.37	404
A10.050.22.KKB	413	A10.140.18.3	404	A10.146.08	403
A10.050.27.KKB	413	A10.140.18.37	404	A10.146.08.3	404
A10.050.32.KKB	413	A10.140.20	403	A10.146.08.37	404
A10.050.40.KKB	413	A10.140.20.3	404	A10.146.10	403
A10.051.16.KKB	413	A10.140.20.37	404	A10.146.10.3	404

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A10.146.10.37	404	A10.152.50.67	405	A10.160.25.150.001.HA	489
A10.146.12	403	A10.156.16.6	405	A10.160.25.150.002.HA	493
A10.146.12.3	404	A10.156.16.67	405	A10.160.25.200.001.HA	489
A10.146.12.37	404	A10.156.20.6	405	A10.160.25.200.002.HA	493
A10.146.14	403	A10.156.20.67	405	A10.160.25.255.002.HA	493
A10.146.14.3	404	A10.156.25.6	405	A10.160.25.300.002.HA	493
A10.146.14.37	404	A10.156.25.67	405	A10.160.25.350.002.HA	493
A10.146.16	403	A10.156.32.6	405	A10.160.2z.065.003.HA	499
A10.146.16.3	404	A10.156.32.67	405	A10.160.2z.100.003.HA	499
A10.146.16.37	404	A10.156.40.6	405	A10.160.2z.215.003.HA	499
A10.146.18	403	A10.156.40.67	405	A10.160.2z.300.003.HA	499
A10.146.18.3	404	A10.156.50.6	405	A10.160.2z.400.003.HA	499
A10.146.18.37	404	A10.156.50.67	405	A10.160.32.065.003.HA	499
A10.146.20	403	A10.160.10.075.001.HA	489	A10.160.32.075.001.HA	489
A10.146.20.3	404	A10.160.10.100.001.HA	489	A10.160.32.100.001.HA	489
A10.146.20.37	404	A10.160.10.100.002.HA	493	A10.160.32.100.003.HA	499
A10.146.25	403	A10.160.10.150.001.HA	489	A10.160.32.110.002.HA	493
A10.146.25.3	404	A10.160.10.150.002.HA	493	A10.160.32.150.001.HA	489
A10.146.25.37	404	A10.160.10.200.001.HA	489	A10.160.32.150.002.HA	493
A10.146.32	403	A10.160.10.200.002.HA	493	A10.160.32.200.001.HA	489
A10.147.06	403	A10.160.10.250.002.HA	493	A10.160.32.200.002.HA	493
A10.147.08	403	A10.160.10.300.002.HA	493	A10.160.32.215.003.HA	499
A10.147.10	403	A10.160.10.350.002.HA	493	A10.160.32.260.002.HA	493
A10.147.12	403	A10.160.12.100.002.HA	493	A10.160.32.300.002.HA	493
A10.147.14	403	A10.160.12.150.002.HA	493	A10.160.32.300.003.HA	499
A10.147.16	403	A10.160.12.200.002.HA	493	A10.160.32.350.002.HA	493
A10.147.18	403	A10.160.12.250.002.HA	493	A10.160.32.400.003.HA	499
A10.147.20	403	A10.160.12.300.002.HA	493	A10.160.3z.115.003.HA	499
A10.147.25	403	A10.160.12.350.002.HA	493	A10.160.3z.150.003.HA	499
A10.150.16.6	405	A10.160.16.075.001.HA	489	A10.160.3z.200.003.HA	499
A10.150.16.67	405	A10.160.16.100.001.HA	489	A10.160.3z.300.003.HA	499
A10.150.20.6	405	A10.160.16.100.002.HA	493	A10.160.3z.400.003.HA	499
A10.150.20.67	405	A10.160.16.150.001.HA	489	A10.160.5z.115.003.HA	499
A10.150.25.6	405	A10.160.16.150.002.HA	493	A10.160.5z.150.003.HA	499
A10.150.25.67	405	A10.160.16.200.001.HA	489	A10.160.5z.200.003.HA	499
A10.150.32.6	405	A10.160.16.200.002.HA	493	A10.160.5z.300.003.HA	499
A10.150.32.67	405	A10.160.16.250.002.HA	493	A10.160.5z.400.003.HA	499
A10.150.40.6	405	A10.160.16.300.002.HA	493	A10.180.DL10.100	207
A10.150.40.67	405	A10.160.16.350.002.HA	493	A10.180.DL10.150	207
A10.150.50.6	405	A10.160.20.075.001.HA	489	A10.180.DL12.100	207
A10.150.50.67	405	A10.160.20.100.001.HA	489	A10.180.DL12.150	207
A10.152.16.6	405	A10.160.20.105.002.HA	493	A10.180.DL12.200	207
A10.152.16.67	405	A10.160.20.150.001.HA	489	A10.180.DL12.250	207
A10.152.20.6	405	A10.160.20.150.002.HA	493	A10.180.DL16.100	207
A10.152.20.67	405	A10.160.20.200.001.HA	489	A10.180.DL16.150	207
A10.152.25.6	405	A10.160.20.200.002.HA	493	A10.180.DL16.200	207
A10.152.25.67	405	A10.160.20.255.002.HA	493	A10.180.DL16.250	207
A10.152.32.6	405	A10.160.20.300.002.HA	493	A10.180.DL20.100	207
A10.152.32.67	405	A10.160.20.350.002.HA	493	A10.180.DL20.150	207
A10.152.40.6	405	A10.160.25.075.001.HA	489	A10.180.DL20.200	207
A10.152.40.67	405	A10.160.25.100.001.HA	489	A10.180.DL20.250	207
A10.152.50.6	405	A10.160.25.105.002.HA	493	A10.1H10.06	411

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A10.1H10.08	411	A125.146.16.37	420	A32.140.04	352
A10.1H10.10	411	A125.146.20.3	420	A32.140.05	352
A10.1H10.12	411	A125.146.20.37	420	A32.140.06	352
A10.1H10.14	411	A125.146.25.3	420	A32.140.08	352
A10.1H10.16	411	A125.146.25.37	420	A32.140.10	352
A10.1H10.18	411	A125.150.16.6	421	A40.000.06	361
A10.1H10.20	411	A125.150.16.67	421	A40.000.08	361
A10.1H10.20.3	412	A125.150.20.6	421	A40.000.10	361
A10.1H10.25	411	A125.150.20.67	421	A40.000.12	361
A10.1H10.32	411	A125.150.25.6	421	A40.000.14	361
A10.1H10.32.3	412	A125.150.25.67	421	A40.000.16	361
A125.020.25.3	422	A125.150.32.6	421	A40.020.16	358
A125.020.32.3	422	A125.150.32.67	421	A40.020.16.3	359
A125.022.25.3	422	A125.150.40.6	421	A40.020.16.3.HP	360
A125.022.32.3	422	A125.150.40.67	421	A40.020.25	358
A125.024.25.3	422	A125.150.50.6	421	A40.020.25.3	359
A125.024.32.3	422	A125.150.50.67	421	A40.020.25.3.HP	360
A125.026.25.3	422	A125.152.16.6	421	A40.020.32.3	359
A125.026.32.3	422	A125.152.16.67	421	A40.020.32.3.HP	360
A125.050.22.3.KKB	423	A125.152.20.6	421	A40.025.11	358
A125.050.27.3.KKB	423	A125.152.20.67	421	A40.025.16	358
A125.052.22.3.KKB	423	A125.152.25.6	421	A40.025.16.3	359
A125.052.27.3.KKB	423	A125.152.25.67	421	A40.025.16.3.HP	360
A125.054.22.3.KKB	423	A125.152.32.6	421	A40.025.25	358
A125.054.27.3.KKB	423	A125.152.32.67	421	A40.025.25.3	359
A125.056.22.3.KKB	423	A125.152.40.6	421	A40.025.25.3.HP	360
A125.056.27.3.KKB	423	A125.152.40.67	421	A40.025.32	358
A125.140.10.3	420	A125.152.50.6	421	A40.025.32.3	359
A125.140.10.37	420	A125.152.50.67	421	A40.025.32.3.HP	360
A125.140.12.3	420	A125.156.16.6	421	A40.040.16	363
A125.140.12.37	420	A125.156.16.67	421	A40.040.22	363
A125.140.16.3	420	A125.156.20.6	421	A40.050.16.KKB	362
A125.140.16.37	420	A125.156.20.67	421	A40.050.22.KKB	362
A125.140.20.3	420	A125.156.25.6	421	A40.140.03	357
A125.140.20.37	420	A125.156.25.67	421	A40.140.04	357
A125.140.25.3	420	A125.156.32.6	421	A40.140.05	357
A125.140.25.37	420	A125.156.32.67	421	A40.140.06	357
A125.142.10.3	420	A125.156.40.6	421	A40.140.08	357
A125.142.10.37	420	A125.156.40.67	421	A40.140.10	357
A125.142.12.3	420	A125.156.50.6	421	A40.140.12	357
A125.142.12.37	420	A125.156.50.67	421	A40.140.14	357
A125.142.16.3	420	A32.000.06	356	A40.140.16	357
A125.142.16.37	420	A32.000.08	356	A40.144.03.1	357
A125.142.20.3	420	A32.000.10	356	A40.144.04.1	357
A125.142.20.37	420	A32.020.16	353	A40.144.05.1	357
A125.142.25.3	420	A32.020.25	353	A40.144.06	357
A125.142.25.37	420	A32.025.16	353	A40.144.08	357
A125.146.10.3	420	A32.025.16.3	354	A40.144.10	357
A125.146.10.37	420	A32.025.16.3.HP	355	A40.144.12	357
A125.146.12.3	420	A32.025.25.3	354	A40.147.03.1	357
A125.146.12.37	420	A32.025.25.3.HP	355	A40.147.04.1	357
A125.146.16.3	420	A32.140.03	352	A40.147.05.1	357

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A40.147.06	357	A50.144.16	364	A63.020.25.3	378
A40.147.08	357	A50.147.03.1	364	A63.020.25.3.HP	379
A40.147.10	357	A50.147.04.1	364	A63.020.32	377
A40.147.12	357	A50.147.05.1	364	A63.020.32.3	378
A40.169.Z50.12.1001	505	A50.147.06	364	A63.020.32.3.HP	379
A50.000.06	368	A50.147.08	364	A63.020.40	377
A50.000.08	368	A50.147.10	364	A63.022.16	377
A50.000.10	368	A50.147.12	364	A63.022.16.3	378
A50.000.12	368	A50.147.16	364	A63.022.16.3.HP	379
A50.000.16	368	A50.165.Z50.10	504	A63.022.25	377
A50.000.20	368	A50.165.Z50.11	504	A63.022.25.3	378
A50.020.16	365	A50.165.Z50.12	504	A63.022.25.3.HP	379
A50.020.25	365	A50.165.Z50.5	504	A63.022.32	377
A50.020.32	365	A50.165.Z50.7	504	A63.022.32.3	378
A50.020.40	365	A50.165.Z50.9	504	A63.022.32.3.HP	379
A50.025.11	365	A50.169.Z50.11.1001	505	A63.022.40	377
A50.025.16	365	A50.169.Z50.11.1002	505	A63.025.11	377
A50.025.16.3	366	A50.169.Z50.999.1001	505	A63.025.16	377
A50.025.16.3.HP	367	A63.000.06	381	A63.025.16.3	378
A50.025.25	365	A63.000.06.2	381	A63.025.16.3.HP	379
A50.025.25.3	366	A63.000.08	381	A63.025.25	377
A50.025.25.3.HP	367	A63.000.08.2	381	A63.025.25.3	378
A50.025.32	365	A63.000.10	381	A63.025.25.3.HP	379
A50.025.32.3	366	A63.000.10.2	381	A63.025.32	377
A50.025.32.3.HP	367	A63.000.12	381	A63.025.32.3	378
A50.025.40	365	A63.000.12.2	381	A63.025.32.3.HP	379
A50.040.16	370	A63.000.14	381	A63.025.40	377
A50.040.22	370	A63.000.16	381	A63.030.06	386
A50.050.16.KKB	369	A63.000.16.2	381	A63.030.08	386
A50.050.22.KKB	369	A63.000.18	381	A63.030.10	386
A50.050.27.KKB	369	A63.000.20	381	A63.030.12	386
A50.051.16.KKB	369	A63.000.20.2	381	A63.030.14	386
A50.051.22.KKB	369	A63.000.25	381	A63.030.16	386
A50.051.27.KKB	369	A63.000.32	381	A63.030.18	386
A50.051.32.KKB	369	A63.001.06	381	A63.030.20	386
A50.052.16.KKB	369	A63.001.08	381	A63.030.25	386
A50.140.03	364	A63.001.10	381	A63.030.32	386
A50.140.04	364	A63.002.06	381	A63.040.16	385
A50.140.05	364	A63.002.08	381	A63.040.22	385
A50.140.06	364	A63.002.10	381	A63.040.27	385
A50.140.08	364	A63.002.12	381	A63.040.32	385
A50.140.10	364	A63.002.14	381	A63.040.40	385
A50.140.12	364	A63.002.16	381	A63.041.16	385
A50.140.14	364	A63.002.18	381	A63.041.22	385
A50.140.16	364	A63.002.20	381	A63.041.27	385
A50.144.03.1	364	A63.002.25	381	A63.041.32	385
A50.144.04.1	364	A63.002.32	381	A63.041.40	385
A50.144.05.1	364	A63.020.11	377	A63.042.16	385
A50.144.06	364	A63.020.16	377	A63.042.22	385
A50.144.08	364	A63.020.16.3	378	A63.042.27	385
A50.144.10	364	A63.020.16.3.HP	379	A63.042.32	385
A50.144.12	364	A63.020.25	377	A63.042.40	385

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A63.050.16.KKB	384	A63.140.16.6	374	A63.144.06.3	373
A63.050.22.KKB	384	A63.140.16.67	374	A63.144.06.37	373
A63.050.27.KKB	384	A63.140.16.7	371	A63.144.08	371
A63.050.32.KKB	384	A63.140.18	371	A63.144.08.2	371
A63.050.40.KKB	384	A63.140.18.2	371	A63.144.08.3	373
A63.051.22.KKB	384	A63.140.18.7	371	A63.144.08.37	373
A63.051.27.KKB	384	A63.140.20	371	A63.144.10	371
A63.051.32.KKB	384	A63.140.20.2	371	A63.144.10.2	371
A63.051.40.KKB	384	A63.140.20.6	374	A63.144.10.3	373
A63.052.22.KKB	384	A63.140.20.67	374	A63.144.10.37	373
A63.052.27.KKB	384	A63.140.20.7	371	A63.144.12	371
A63.052.32.KKB	384	A63.140.25	371	A63.144.12.2	371
A63.070.01	390	A63.140.25.2	371	A63.144.12.3	373
A63.070.03	390	A63.140.25.7	371	A63.144.12.37	373
A63.080.01	387	A63.140.32	371	A63.144.14	371
A63.080.02	387	A63.140.32.2	371	A63.144.14.2	371
A63.080.03	387	A63.140.32.7	371	A63.144.14.3	373
A63.080.04	387	A63.142.06	371	A63.144.14.37	373
A63.090.64	389	A63.142.06.3	373	A63.144.16	371
A63.111.13	391	A63.142.06.37	373	A63.144.16.2	371
A63.120.01	380	A63.142.08	371	A63.144.16.3	373
A63.120.02	380	A63.142.08.3	373	A63.144.16.37	373
A63.120.03	380	A63.142.08.37	373	A63.144.18	371
A63.122.01	380	A63.142.10	371	A63.144.18.2	371
A63.122.02	380	A63.142.10.3	373	A63.144.18.3	373
A63.122.03	380	A63.142.10.37	373	A63.144.18.37	373
A63.130.02	388	A63.142.12	371	A63.144.20	371
A63.130.03	388	A63.142.12.3	373	A63.144.20.2	371
A63.130.04	388	A63.142.12.37	373	A63.144.20.3	373
A63.140.03	371	A63.142.14	371	A63.144.20.37	373
A63.140.03.1	371	A63.142.14.3	373	A63.144.25	371
A63.140.04	371	A63.142.14.37	373	A63.144.25.2	371
A63.140.04.1	371	A63.142.16	371	A63.144.25.3	373
A63.140.05	371	A63.142.16.3	373	A63.144.25.37	373
A63.140.05.1	371	A63.142.16.37	373	A63.144.32.3	373
A63.140.06	371	A63.142.18	371	A63.144.32.37	373
A63.140.06.2	371	A63.142.18.3	373	A63.145.06.3	373
A63.140.06.7	371	A63.142.18.37	373	A63.145.06.37	373
A63.140.08	371	A63.142.20	371	A63.145.08.3	373
A63.140.08.2	371	A63.142.20.3	373	A63.145.08.37	373
A63.140.08.7	371	A63.142.20.37	373	A63.145.10.3	373
A63.140.10	371	A63.142.25	371	A63.145.10.37	373
A63.140.10.2	371	A63.142.25.3	373	A63.145.12.3	373
A63.140.10.7	371	A63.142.25.37	373	A63.145.12.37	373
A63.140.12	371	A63.142.32	371	A63.145.14.3	373
A63.140.12.2	371	A63.142.32.3	373	A63.145.14.37	373
A63.140.12.7	371	A63.142.32.37	373	A63.145.16.3	373
A63.140.14	371	A63.144.03.1	371	A63.145.16.37	373
A63.140.14.2	371	A63.144.04.1	371	A63.145.16.6	374
A63.140.14.7	371	A63.144.05.1	371	A63.145.16.67	374
A63.140.16	371	A63.144.06	371	A63.145.18.3	373
A63.140.16.2	371	A63.144.06.2	371	A63.145.18.37	373

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order



订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A63.145.20.3	373	A63.160.10.075.001.HA	488	A63.160.32.200.001.HA	488
A63.145.20.37	373	A63.160.10.100.001.HA	488	A63.160.32.205.003.HA	498
A63.145.20.6	374	A63.160.10.115.002.HA	492	A63.160.32.225.002.HA	492
A63.145.20.67	374	A63.160.10.150.001.HA	488	A63.160.32.250.002.HA	492
A63.145.25.3	373	A63.160.10.175.002.HA	492	A63.160.32.300.002.HA	492
A63.145.25.37	373	A63.160.10.200.001.HA	488	A63.160.32.300.003.HA	498
A63.145.32.3	373	A63.160.10.225.002.HA	492	A63.160.32.350.002.HA	492
A63.145.32.37	373	A63.160.10.240.002.HA	492	A63.172.03.8	376
A63.146.06	371	A63.160.10.300.002.HA	492	A63.172.04.8	376
A63.146.08	371	A63.160.10.350.002.HA	492	A63.172.05.8	376
A63.146.10	371	A63.160.12.115.002.HA	492	A63.172.06.8	376
A63.146.12	371	A63.160.12.175.002.HA	492	A63.172.08.8	376
A63.146.14	371	A63.160.12.225.002.HA	492	A63.172.10.8	376
A63.146.16	371	A63.160.12.240.002.HA	492	A63.172.12.8	376
A63.146.18	371	A63.160.12.300.002.HA	492	A63.173.06	375
A63.146.20	371	A63.160.12.350.002.HA	492	A63.173.08	375
A63.146.25	371	A63.160.16.075.001.HA	488	A63.173.10	375
A63.146.32	371	A63.160.16.100.001.HA	488	A63.173.12	375
A63.147.03.1	371	A63.160.16.115.002.HA	492	A63.174.03.8	376
A63.147.04.1	371	A63.160.16.150.001.HA	488	A63.174.04.8	376
A63.147.05.1	371	A63.160.16.175.002.HA	492	A63.174.05.8	376
A63.147.06	371	A63.160.16.200.001.HA	488	A63.174.06.8	376
A63.147.06.10	372	A63.160.16.225.002.HA	492	A63.174.08.8	376
A63.147.06.3	373	A63.160.16.240.002.HA	492	A63.174.10.8	376
A63.147.06.37	373	A63.160.16.300.002.HA	492	A63.174.12.8	376
A63.147.08	371	A63.160.16.350.002.HA	492	A63.176.03.8	376
A63.147.08.10	372	A63.160.20.075.001.HA	488	A63.176.04.8	376
A63.147.08.3	373	A63.160.20.100.001.HA	488	A63.176.05.8	376
A63.147.08.37	373	A63.160.20.125.002.HA	492	A63.176.06.8	376
A63.147.10	371	A63.160.20.150.001.HA	488	A63.176.08.8	376
A63.147.10.10	372	A63.160.20.175.002.HA	492	A63.176.10.8	376
A63.147.10.3	373	A63.160.20.200.001.HA	488	A63.176.12.8	376
A63.147.10.37	373	A63.160.20.225.002.HA	492	A63.177.03	375
A63.147.12	371	A63.160.20.250.002.HA	492	A63.177.04	375
A63.147.12.10	372	A63.160.20.300.002.HA	492	A63.177.05	375
A63.147.12.3	373	A63.160.20.350.002.HA	492	A63.177.06	375
A63.147.12.37	373	A63.160.25.075.001.HA	488	A63.177.08	375
A63.147.14	371	A63.160.25.100.001.HA	488	A63.177.10	375
A63.147.14.3	373	A63.160.25.125.002.HA	492	A63.177.12	375
A63.147.14.37	373	A63.160.25.150.001.HA	488	A63.180.DL10.100	206
A63.147.16	371	A63.160.25.175.002.HA	492	A63.180.DL10.125	206
A63.147.16.3	373	A63.160.25.200.001.HA	488	A63.180.DL10.150	206
A63.147.16.37	373	A63.160.25.225.002.HA	492	A63.180.DL12.100	206
A63.147.18	371	A63.160.25.250.002.HA	492	A63.180.DL12.125	206
A63.147.18.3	373	A63.160.25.300.002.HA	492	A63.180.DL12.150	206
A63.147.18.37	373	A63.160.25.350.002.HA	492	A63.180.DL16.100	206
A63.147.20	371	A63.160.32.075.001.HA	488	A63.180.DL16.125	206
A63.147.20.3	373	A63.160.32.080.003.HA	498	A63.180.DL16.150	206
A63.147.20.37	373	A63.160.32.100.001.HA	488	A63.180.DL16.175	206
A63.147.25.3	373	A63.160.32.125.002.HA	492	A63.180.DL16.200	206
A63.147.25.37	373	A63.160.32.150.001.HA	488	A63.180.DL16.250	206
A63.147.32.3	373	A63.160.32.175.002.HA	492	A63.180.DL20.100	206

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A63.180.DL20.125	206	A63.1H10.18	382	A63/80.145.20.3	393
A63.180.DL20.150	206	A63.1H10.1Z	382	A63/80.145.20.37	393
A63.180.DL20.175	206	A63.1H10.20	382	A63/80.145.20.5	393
A63.180.DL20.200	206	A63.1H10.20.3	383	A63/80.145.20.57	393
A63.180.DL20.250	206	A63.1H10.3/4Z	382	A63/80.145.25.3	393
A63.182.03.8	376	A63.1H10.3/8Z	382	A63/80.145.25.37	393
A63.182.04.8	376	A63.1H10.32	382	A63/80.145.25.5	393
A63.182.05.8	376	A63.1H10.32.3	383	A63/80.145.25.57	393
A63.182.06.8	376	A63.1H17.06	382	A63/80.182.03.8	395
A63.182.08.8	376	A63.1H17.08	382	A63/80.182.04.8	395
A63.182.10.8	376	A63.1H17.10	382	A63/80.182.05.8	395
A63.182.12.8	376	A63.1H17.12	382	A63/80.182.06.8	395
A63.182.16.8	376	A63.1H17.14	382	A63/80.182.08.8	395
A63.184.03.8	376	A63.1H17.16	382	A63/80.182.10.8	395
A63.184.04.8	376	A63.1H17.18	382	A63/80.182.12.8	395
A63.184.05.8	376	A63.1H17.20	382	A80.000.06	402
A63.184.06.8	376	A63.1H17.25	382	A80.000.10	402
A63.184.08.8	376	A63/80.024.16.3	396	A80.000.16	402
A63.184.10.8	376	A63/80.024.25.3	396	A80.000.20	402
A63.184.12.8	376	A63/80.024.32.3	396	A80.000.25	402
A63.184.16.8	376	A63/80.025.16.3	396	A80.000.32	402
A63.186.03.8	376	A63/80.025.25.3	396	A80.020.16	400
A63.186.04.8	376	A63/80.025.32.3	396	A80.020.25	400
A63.186.05.8	376	A63/80.050.22	397	A80.020.32	400
A63.186.06.8	376	A63/80.050.27	397	A80.029.25.3.2021	401
A63.186.08.8	376	A63/80.140.25.3	393	A80.029.25.3.2022	401
A63.186.10.8	376	A63/80.140.25.37	393	A80.029.25.3.2024	401
A63.186.12.8	376	A63/80.140.32.3	393	A80.029.32.3.2021	401
A63.186.16.8	376	A63/80.144.06	392	A80.029.32.3.2022	401
A63.187.03	375	A63/80.144.06.3	393	A80.029.32.3.2024	401
A63.187.04	375	A63/80.144.08	392	A80.140.06	398
A63.187.05	375	A63/80.144.08.3	393	A80.140.08	398
A63.187.06	375	A63/80.144.10	392	A80.140.10	398
A63.187.08	375	A63/80.144.10.3	393	A80.140.12	398
A63.187.10	375	A63/80.144.12	392	A80.140.14	398
A63.187.12	375	A63/80.144.12.3	393	A80.140.16	398
A63.187.16	375	A63/80.144.12.37	393	A80.140.18	398
A63.190.DL10	204	A63/80.144.14	392	A80.140.20	398
A63.190.DL12	204	A63/80.144.16	392	A80.140.25	398
A63.190.DL16	204	A63/80.144.16.3	393	A80.140.32	398
A63.190.DL20	204	A63/80.144.16.37	393	A80.149.08.3.2140	399
A63.190.DL25	204	A63/80.144.18	392	A80.149.08.3.2142	399
A63.190.DL32	204	A63/80.145.06.3	393	A80.149.08.3.2144	399
A63.1H10.06	382	A63/80.145.08.3	393	A80.149.10.3.2140	399
A63.1H10.08	382	A63/80.145.08.37	393	A80.149.10.3.2142	399
A63.1H10.1/2Z	382	A63/80.145.10.3	393	A80.149.10.3.2144	399
A63.1H10.1/4Z	382	A63/80.145.10.37	393	A80.149.12.3.2140	399
A63.1H10.10	382	A63/80.145.10.5	393	A80.149.12.3.2142	399
A63.1H10.11/4Z	382	A63/80.145.12.3	393	A80.149.12.3.2144	399
A63.1H10.12	382	A63/80.145.12.37	393	A80.149.16.3.2140	399
A63.1H10.14	382	A63/80.145.16.3	393	A80.149.16.3.2142	399
A63.1H10.16	382	A63/80.145.16.37	393	A80.149.16.3.2144	399

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
A80.149.20.3.2140	399	CC6.025.32	456	CC6.144.16	454
A80.149.20.3.2142	399	CC6.025.40	456	CC6.144.16.3	455
A80.149.20.3.2144	399	CC6.050.16.KKB	460	CC6.144.16.37	455
C50.160.20.4	481	CC6.050.22.KKB	460	CC6.144.18	454
C50.160.20.6	484	CC6.050.27.KKB	460	CC6.144.20	454
C50.161.20.4	481	CC6.050.32.KKB	460	CC6.144.20.3	455
C50.161.20.6	484	CC6.050.40.KKB	460	CC6.144.20.37	455
C50.163.20.4	481	CC6.140.03	454	CC6.144.25	454
C50.163.20.6	484	CC6.140.04	454	CC6.144.32	454
C50.165.20.4	481	CC6.140.05	454	CC6.145.06.3	455
C50.165.20.6	484	CC6.140.06	454	CC6.145.08.3	455
C50.167.20.4	481	CC6.140.08	454	CC6.145.10.3	455
C50.168.20.6	484	CC6.140.10	454	CC6.145.10.37	455
CC6.000.06	459	CC6.140.12	454	CC6.145.12.3	455
CC6.000.08	459	CC6.140.14	454	CC6.145.12.37	455
CC6.000.10	459	CC6.140.16	454	CC6.145.14.3	455
CC6.000.12	459	CC6.140.18	454	CC6.145.16.3	455
CC6.000.14	459	CC6.140.20	454	CC6.145.16.37	455
CC6.000.16	459	CC6.140.25	454	CC6.145.18.3	455
CC6.000.18	459	CC6.140.32	454	CC6.145.20.3	455
CC6.000.20	459	CC6.141.06	454	CC6.145.20.37	455
CC6.000.25	459	CC6.141.08	454	CC6.145.25.3	455
CC6.000.32	459	CC6.141.10	454	CC6.145.32.3	455
CC6.000.40	459	CC6.141.12	454	CC6.147.03.1	454
CC6.021.11.7	456	CC6.141.14	454	CC6.147.04.1	454
CC6.021.16	456	CC6.141.16	454	CC6.147.05.1	454
CC6.021.16.7	456	CC6.141.18	454	CC6.147.06	454
CC6.021.20	456	CC6.141.20	454	CC6.147.08	454
CC6.021.25	456	CC6.142.06	454	CC6.147.10	454
CC6.021.32	456	CC6.142.08	454	CC6.147.12	454
CC6.021.40	456	CC6.142.10	454	CC6.147.14	454
CC6.022.11.7	456	CC6.142.12	454	CC6.147.16	454
CC6.022.16	456	CC6.142.14	454	CC6.147.20	454
CC6.022.16.7	456	CC6.142.16	454	CC6.147.25	454
CC6.022.20	456	CC6.142.18	454	CC6.160.10.110.002.HA	494
CC6.022.25	456	CC6.142.20	454	CC6.160.10.170.002.HA	494
CC6.022.32	456	CC6.142.25	454	CC6.160.10.220.002.HA	494
CC6.022.40	456	CC6.142.32	454	CC6.160.10.240.002.HA	494
CC6.024.16	456	CC6.144.03.1	454	CC6.160.10.300.002.HA	494
CC6.024.16.3	457	CC6.144.04.1	454	CC6.160.10.350.002.HA	494
CC6.024.16.3.HP	458	CC6.144.05.1	454	CC6.160.12.110.002.HA	494
CC6.024.20	456	CC6.144.06	454	CC6.160.12.170.002.HA	494
CC6.024.25	456	CC6.144.06.3	455	CC6.160.12.220.002.HA	494
CC6.024.25.3	457	CC6.144.08	454	CC6.160.12.240.002.HA	494
CC6.024.25.3.HP	458	CC6.144.08.3	455	CC6.160.12.300.002.HA	494
CC6.024.32	456	CC6.144.10	454	CC6.160.12.350.002.HA	494
CC6.024.32.3	457	CC6.144.10.3	455	CC6.160.16.115.002.HA	494
CC6.024.32.3.HP	458	CC6.144.10.37	455	CC6.160.16.175.002.HA	494
CC6.024.40	456	CC6.144.12	454	CC6.160.16.225.002.HA	494
CC6.025.16	456	CC6.144.12.3	455	CC6.160.16.240.002.HA	494
CC6.025.20	456	CC6.144.12.37	455	CC6.160.16.300.002.HA	494
CC6.025.25	456	CC6.144.14	454	CC6.160.16.350.002.HA	494

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
CC6.160.20.125.002.HA	494	DL10F1004MN1000R2.50D-	117	DL10V2004MN0300RD-	169
CC6.160.20.175.002.HA	494	DL10F1004MN1000R2.50DAKR	121	DL10V2004MN0400RD-	169
CC6.160.20.225.002.HA	494	DL10F1105MN1000CDA	127	DL10V2004MN0500RD-	169
CC6.160.20.250.002.HA	494	DL10F2003MN0200SDA	129	DL10V2004MN0600RD-	169
CC6.160.20.300.002.HA	494	DL10F2003MN0300SDA	129	DL10V2004MN0800RD-	169
CC6.160.20.350.002.HA	494	DL10F2003MN0400SDA	129	DL10V2004MN1000RD-	169
CC6.160.25.125.002.HA	494	DL10F2003MN0500SDA	129	DL10V2004UK1000RD-	171
CC6.160.25.175.002.HA	494	DL10F2003MN0600SDA	129	DL10V2004UK1000RDAKR	173
CC6.160.25.225.002.HA	494	DL10F2003MN0800SDA	129	DL10V4002UK1000RD-	175
CC6.160.25.250.002.HA	494	DL10F2003MN1000SDA	129	DL10V4002UK1000RDC	177
CC6.160.25.300.002.HA	494	DL10F2003UK1000SDA	131	DL12E1002KK1200W120DA	103
CC6.160.25.350.002.HA	494	DL10F2004MN0200CDA	133	DL12E1002KK1200W142DA	103
CC6.160.32.075.003.HA	500	DL10F2004MN0300CDA	133	DL12E1002KK1200W60DA	103
CC6.160.32.125.002.HA	494	DL10F2004MN0400CDA	133	DL12E1002KK1200W90DA	103
CC6.160.32.175.002.HA	494	DL10F2004MN0500CDA	133	DL12E1014UK1200R2.50DA	105
CC6.160.32.205.003.HA	500	DL10F2004MN0600CDA	133	DL12E1014UK1200R3.00DA	105
CC6.160.32.225.002.HA	494	DL10F2004MN0800CDA	133	DL12E1016UK1200W120DA	107
CC6.160.32.250.002.HA	494	DL10F2004MN1000CDA	133	DL12E1016UK1200W60DA	107
CC6.160.32.300.002.HA	494	DL10F2004MN1000R0.30DA	135	DL12E1016UK1200W90DA	107
CC6.160.32.350.002.HA	494	DL10F2004MN1000R0.50DA	135	DL12F1004MN1200CD-	109
CC6.190.DL10	205	DL10F2004MN1000R0.80DA	135	DL12F1004MN1200CDA	113
CC6.190.DL12	205	DL10F2004MN1000R1.00DA	135	DL12F1004MN1200CDAKR	115
CC6.190.DL16	205	DL10F2004MN1000R1.50DA	135	DL12F1004MN1200CD-KR	111
CC6.190.DL20	205	DL10F2004MN1000R2.00DA	135	DL12F1004MN1200R0.50D-	117
CC6.190.DL25	205	DL10F2004MN1000R2.50DA	135	DL12F1004MN1200R0.50DAKR	121
CC6.190.DL32	205	DL10F2004UK1000CDA	139	DL12F1004MN1200R0.80D-	117
DL10E1002KK1000W120DA	103	DL10F2006MN1000CDA	141	DL12F1004MN1200R0.80DAKR	121
DL10E1002KK1000W142DA	103	DL10F2006MN1000R0.50DA	143	DL12F1004MN1200R1.00D-	117
DL10E1002KK1000W60DA	103	DL10F2006MN1000R1.00DA	143	DL12F1004MN1200R1.00DAKR	121
DL10E1002KK1000W90DA	103	DL10F2006MN1000R1.50DA	143	DL12F1004MN1200R1.50DAKR	121
DL10E1014UK1000R1.00DA	105	DL10F2006MN1000R2.00DA	143	DL12F1004MN1200R2.00D-	117
DL10E1014UK1000R1.50DA	105	DL10F2006UK1000CDA	145	DL12F1004MN1200R2.00DAKR	121
DL10E1014UK1000R2.00DA	105	DL10F2304MN1000CDA	147	DL12F1004MN1200R2.50D-	117
DL10E1016UK1000W120DA	107	DL10F2304UK1000CDA	149	DL12F1004MN1200R2.50DAKR	121
DL10E1016UK1000W60DA	107	DL10F4002MN1000CD-	151	DL12F1004MN1200R3.00D-	117
DL10E1016UK1000W90DA	107	DL10F4002MN1000CDC	153	DL12F1004MN1200R3.00DAKR	121
DL10F1004MN1000CD-	109	DL10F4003MN1000CD-	155	DL12F1004MN1200R4.00D-	119
DL10F1004MN1000CDA	113	DL10F4003MN1000CDC	157	DL12F1004MN1200R4.00DAKR	123
DL10F1004MN1000CDAKR	115	DL10H2004UK1000RDAKZ	159	DL12F1105MN1200CDA	127
DL10F1004MN1000CD-KR	111	DL10H2006UK1000RDPKZ	161	DL12F2003MN1200SDA	129
DL10F1004MN1000R0.30D-	117	DL10V2002MN0200RDA	163	DL12F2003UK1200SDA	131
DL10F1004MN1000R0.30DAKR	121	DL10V2002MN0250RDA	163	DL12F2004MN1200CDA	133
DL10F1004MN1000R0.50D-	117	DL10V2002MN0300RDA	163	DL12F2004MN1200R0.50DA	135
DL10F1004MN1000R0.50DAKR	121	DL10V2002MN0400RDA	163	DL12F2004MN1200R0.80DA	135
DL10F1004MN1000R0.80D-	117	DL10V2002MN0500RDA	163	DL12F2004MN1200R1.00DA	135
DL10F1004MN1000R0.80DAKR	121	DL10V2002MN0600RDA	163	DL12F2004MN1200R2.00DA	135
DL10F1004MN1000R1.00D-	117	DL10V2002MN0800RDA	163	DL12F2004MN1200R2.50DA	135
DL10F1004MN1000R1.00DAKR	121	DL10V2002MN1000RDA	163	DL12F2004MN1200R3.00DA	135
DL10F1004MN1000R1.50D-	117	DL10V2002UK1000RDA	165	DL12F2004MN1200R4.00DA	135
DL10F1004MN1000R1.50DAKR	121	DL10V2002UK1000RDAKR	167	DL12F2004UK1200CDA	139
DL10F1004MN1000R2.00D-	117	DL10V2004MN0200RD-	169	DL12F2006MN1200CDA	141
DL10F1004MN1000R2.00DAKR	121	DL10V2004MN0250RD-	169	DL12F2006MN1200R0.50DA	143

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
DL12F2006MN1200R1.00DA__	143	DL16F2004MN1600R1.00DA__	137	DL20F1004MN2000R4.00DAKR	123
DL12F2006MN1200R2.00DA__	143	DL16F2004MN1600R2.00DA__	137	DL20F1105LL2000CDA	125
DL12F2006UK1200CDA	145	DL16F2004MN1600R2.50DA	137	DL20F1105MN2000CDA	127
DL12F2304MN1200CDA	147	DL16F2004MN1600R3.00DA__	137	DL20F2000MN2000CDA	141
DL12F2304UK1200CDA	149	DL16F2004MN1600R4.00DA__	137	DL20F2000MN2000R0.50DA	143
DL12F4002MN1200CD-	151	DL16F2004UK1600CDA	139	DL20F2000MN2000R2.00DA	143
DL12F4002MN1200CDC	153	DL16F2008MN1600CDA	141	DL20F2000MN2000R4.00DA	143
DL12F4003MN1200CD-	155	DL16F2008MN1600R0.50DA	143	DL20F2000UK2000CDA	145
DL12F4003MN1200CDC	157	DL16F2008MN1600R1.00DA	143	DL20F2003MN2000SDA	129
DL12H2004UK1200RDAKZ	159	DL16F2008MN1600R2.00DA	143	DL20F2003UK2000SDA	131
DL12H2006UK1200RDPKZ	161	DL16F2008MN1600R4.00DA	143	DL20F2004MN2000CDA	133
DL12V2002UK1200RDA	165	DL16F2008UK1600CDA	145	DL20F2004MN2000R0.50DA	137
DL12V2002UK1200RDAKR	167	DL16F2304MN1600CDA	147	DL20F2004MN2000R0.80DA	137
DL12V2004UK1200RD-	171	DL16F2304UK1600CDA	149	DL20F2004MN2000R2.00DA	137
DL12V2004UK1200RDAKR	173	DL16F4002MN1600CD-	151	DL20F2004MN2000R2.50DA	137
DL12V4002UK1200RD-	175	DL16F4002MN1600CDC	153	DL20F2004MN2000R3.00DA	137
DL12V4002UK1200RDC	177	DL16F4003MN1600CD-	155	DL20F2004MN2000R4.00DA	137
DL16E1002KK1600W120DA	103	DL16F4003MN1600CDC	157	DL20F2004UK2000CDA	139
DL16E1002KK1600W142DA	103	DL16H2004UK1600RDAKZ	159	DL20F2304MN2000CDA	147
DL16E1002KK1600W60DA	103	DL16H2006UK1600RDPKZ	161	DL20F2304UK2000CDA	149
DL16E1002KK1600W90DA	103	DL16V2002UK1600RDA	165	DL20F4002MN2000CD-	151
DL16E1014UK1600R3.50DA	105	DL16V2002UK1600RDAKR	167	DL20F4002MN2000CDC	153
DL16E1014UK1600R4.00DA	105	DL16V2004UK1600RD-	171	DL20F4003MN2000CD-	155
DL16E1014UK1600R4.50DA	105	DL16V2004UK1600RDAKR	173	DL20F4003MN2000CDC	157
DL16E1018UK1600W120DA	107	DL16V4002UK1600RD-	175	DL20H2004UK2000RDAKZ	159
DL16E1018UK1600W60DA	107	DL16V4002UK1600RDC	177	DL20V2002UK2000RDA	165
DL16E1018UK1600W90DA	107	DL20E1002KK2000W120DA	103	DL20V2002UK2000RDAKR	167
DL16F1004MN1600CD-	109	DL20E1002KK2000W142DA	103	DL20V2004UK2000RD-	171
DL16F1004MN1600CDA	113	DL20E1002KK2000W60DA	103	DL20V2004UK2000RDAKR	173
DL16F1004MN1600CDAKR	115	DL20E1002KK2000W90DA	103	DL20V4002UK2000RD-	175
DL16F1004MN1600CD-KR	111	DL20E1014UK2000R5.00DA	105	DL20V4002UK2000RDC	177
DL16F1004MN1600R0.50D-	119	DL20E1014UK2000R6.00DA	105	DL25F1004MN2500CD-	109
DL16F1004MN1600R0.50DAKR	123	DL20E1018UK2000W120DA	107	DL25F1004MN2500CDA	113
DL16F1004MN1600R0.80D-	119	DL20E1018UK2000W60DA	107	DL25F1004MN2500CDAKR	115
DL16F1004MN1600R0.80DAKR	123	DL20E1018UK2000W90DA	107	DL25F1004MN2500CD-KR	111
DL16F1004MN1600R1.00D-	119	DL20F1004MN2000CD-	109	DL25F1105LL2500CDA	125
DL16F1004MN1600R1.00DAKR	123	DL20F1004MN2000CDA	113	DL25F1105MN2500CDA	127
DL16F1004MN1600R2.00D-	119	DL20F1004MN2000CDAKR	115	DL25F2004MN2500CDA	133
DL16F1004MN1600R2.00DAKR	123	DL20F1004MN2000CD-KR	111	DL25F2004UK2500CDA	139
DL16F1004MN1600R2.50D-	119	DL20F1004MN2000R0.50D-	119	DL32F1004MN3200CD-	109
DL16F1004MN1600R2.50DAKR	123	DL20F1004MN2000R0.50DAKR	123	DL32F1004MN3200CDA	113
DL16F1004MN1600R3.00D-	119	DL20F1004MN2000R0.80D-	119	DL32F1004MN3200CDAKR	115
DL16F1004MN1600R3.00DAKR	123	DL20F1004MN2000R0.80DAKR	123	DL32F1004MN3200CD-KR	111
DL16F1004MN1600R4.00D-	119	DL20F1004MN2000R1.00D-	119	DL32F1105LL3200CDA	125
DL16F1004MN1600R4.00DAKR	123	DL20F1004MN2000R1.00DAKR	123	DL32F1105MN3200CDA	127
DL16F1105LL1600CDA	125	DL20F1004MN2000R2.00D-	119	DL32F2004MN3200CDA	133
DL16F1105MN1600CDA	127	DL20F1004MN2000R2.00DAKR	123	DL32F2004UK3200CDA	139
DL16F2003MN1600SDA	129	DL20F1004MN2000R2.50D-	119	E1012NLH0600W120DA	41
DL16F2003UK1600SDA	131	DL20F1004MN2000R2.50DAKR	123	E1012NLH0600W142DA	41
DL16F2004MN1600CDA	133	DL20F1004MN2000R3.00D-	119	E1012NLH0600W60DA	41
DL16F2004MN1600R0.50DA	137	DL20F1004MN2000R3.00DAKR	123	E1012NLH0600W90DA	41
DL16F2004MN1600R0.80DA	137	DL20F1004MN2000R4.00D-	119		

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
E1012NLH0800W120DA	41	E25.185.12	424	E40.140.12	433
E1012NLH0800W142DA	41	E32.020.16	430	E40.140.14	433
E1012NLH0800W60DA	41	E32.020.25	430	E40.140.16	433
E1012NLH0800W90DA	41	E32.021.16	430	E40.145.06	433
E1012NLH1000W120DA	41	E32.025.16.3	431	E40.145.08	433
E1012NLH1000W142DA	41	E32.025.16.3.HP	432	E40.145.10	433
E1012NLH1000W60DA	41	E32.025.25.3	431	E40.145.12	433
E1012NLH1000W90DA	41	E32.025.25.3.HP	432	E40.145.14	433
E1012NNH0400W120DA	41	E32.140.03	428	E40.145.16	433
E1012NNH0400W142DA	41	E32.140.04	428	E40.170.03	434
E1012NNH0400W60DA	41	E32.140.05	428	E40.170.04	434
E1012NNH0400W90DA	41	E32.140.06	428	E40.170.05	434
E1014UNH0400W120DA	45	E32.140.08	428	E40.170.06	434
E1014UNH0400W60DA	45	E32.140.10	428	E40.170.08	434
E1014UNH0400W90DA	45	E32.183.03	429	E40.170.10	434
E1014UNH0600R0.25DA	43	E32.183.04	429	E40.170.12	434
E1014UNH0600R0.50DA	43	E32.183.05	429	E40.173.03	434
E1014UNH0800R0.75DA	43	E32.183.06	429	E40.173.04	434
E1014UNH0800R1.00DA	43	E32.183.08	429	E40.173.05	434
E1014UNH1000R1.50DA	43	E32.183.10	429	E40.173.06	434
E1014UNH1000R2.00DA	43	E32.183.12	429	E40.173.08	434
E1016UNH0600W120DA	45	E32.185.03	429	E40.173.10	434
E1016UNH0600W60DA	45	E32.185.04	429	E40.173.12	434
E1016UNH0600W90DA	45	E32.185.05	429	E40.175.03	434
E1016UNH0800W120DA	45	E32.185.06	429	E40.175.04	434
E1016UNH0800W60DA	45	E32.185.08	429	E40.175.05	434
E1016UNH0800W90DA	45	E32.185.10	429	E40.175.06	434
E1016UNH1000W120DA	45	E32.185.12	429	E40.175.08	434
E1016UNH1000W60DA	45	E40.020.16	435	E40.175.10	434
E1016UNH1000W90DA	45	E40.020.16.3	436	E40.175.12	434
E25.020.16	426	E40.020.16.3.HP	437	E40.180.03	434
E25.020.16.7	425	E40.020.25	435	E40.180.04	434
E25.025.16.3	426	E40.020.25.3	436	E40.180.05	434
E25.025.16.3.HP	427	E40.020.25.3.HP	437	E40.180.06	434
E25.025.16.7	425	E40.020.32.3	436	E40.180.08	434
E25.180.03	424	E40.020.32.3.HP	437	E40.180.10	434
E25.180.04	424	E40.025.11	435	E40.180.12	434
E25.180.05	424	E40.025.16	435	E40.183.03	434
E25.180.06	424	E40.025.16.3	436	E40.183.04	434
E25.180.06.V2	424	E40.025.16.3.HP	437	E40.183.05	434
E25.180.06.V3	424	E40.025.25	435	E40.183.06	434
E25.180.08	424	E40.025.25.3	436	E40.183.08	434
E25.180.10	424	E40.025.25.3.HP	437	E40.183.10	434
E25.180.10.V2	424	E40.025.32	435	E40.183.12	434
E25.180.10.V3	424	E40.025.32.3	436	E40.185.03	434
E25.180.12	424	E40.025.32.3.HP	437	E40.185.04	434
E25.185.03	424	E40.140.03	433	E40.185.05	434
E25.185.04	424	E40.140.04	433	E40.185.06	434
E25.185.05	424	E40.140.05	433	E40.185.08	434
E25.185.06	424	E40.140.06	433	E40.185.10	434
E25.185.08	424	E40.140.08	433	E40.185.12	434
E25.185.10	424	E40.140.10	433	E50.000.06	443

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
E50.000.08	443	E50.170.04	439	F1003NNH0500SAA	47
E50.000.10	443	E50.170.05	439	F1003NNH0600SAA	47
E50.000.12	443	E50.170.06	439	F1003NNH0800SAA	47
E50.000.16	443	E50.170.08	439	F1003NNH1000SAA	47
E50.000.20	443	E50.170.10	439	F1003NNH1200SAA	47
E50.020.16	440	E50.170.12	439	F1003NNH1400SAA	47
E50.020.25	440	E50.171.05	439	F1003NNH1600SAA	47
E50.020.32	440	E50.171.06	439	F1003NNH1800SAA	47
E50.025.11	440	E50.171.08	439	F1003NNH2000SAA	47
E50.025.16	440	E50.171.10	439	F1003NNL0200SAA	47
E50.025.16.3	441	E50.171.12	439	F1003NNL0300SAA	47
E50.025.16.3.HP	442	E50.173.03	439	F1003NNL0400SAA	47
E50.025.20	440	E50.173.04	439	F1003NNL0500SAA	47
E50.025.25	440	E50.173.05	439	F1003NNL0600SAA	47
E50.025.25.3	441	E50.173.06	439	F1003NNL0800SAA	47
E50.025.25.3.HP	442	E50.173.08	439	F1003NNL1000SAA	47
E50.025.32	440	E50.173.10	439	F1003NNL1200SAA	47
E50.025.32.3	441	E50.173.12	439	F1003NNL1400SAA	47
E50.025.32.3.HP	442	E50.180.03	439	F1003NNL1600SAA	47
E50.050.16.KKB	444	E50.180.04	439	F1003NNL1800SAA	47
E50.050.22.KKB	444	E50.180.05	439	F1003NNL2000SAA	47
E50.050.27.KKB	444	E50.180.06	439	F1004NNB0200CAA	49
E50.050.32.KKB	444	E50.180.08	439	F1004NNB0200R.20AA	51
E50.051.16.KKB	444	E50.180.10	439	F1004NNB0300CAA	49
E50.051.22.KKB	444	E50.180.12	439	F1004NNB0300R.20AA	51
E50.051.27.KKB	444	E50.181.05	439	F1004NNB0300R.30AA	51
E50.051.32.KKB	444	E50.181.06	439	F1004NNB0400CAA	49
E50.052.22.KKB	444	E50.181.08	439	F1004NNB0400R.20AA	51
E50.140.03	438	E50.181.10	439	F1004NNB0400R.30AA	51
E50.140.04	438	E50.181.12	439	F1004NNB0400R.40AA	51
E50.140.05	438	E50.183.03	439	F1004NNB0400R.50AA	51
E50.140.06	438	E50.183.04	439	F1004NNB0500CAA	49
E50.140.08	438	E50.183.05	439	F1004NNB0500R.30AA	51
E50.140.10	438	E50.183.06	439	F1004NNB0500R.50AA	51
E50.140.12	438	E50.183.08	439	F1004NNB0500R.1.00AA	51
E50.140.14	438	E50.183.10	439	F1004NNB0600CAA	49
E50.140.16	438	E50.183.12	439	F1004NNB0600R.20AA	51
E50.144.06	438	F1003NNB0200SAA	47	F1004NNB0600R.30AA	51
E50.144.08	438	F1003NNB0300SAA	47	F1004NNB0600R.50AA	52
E50.144.10	438	F1003NNB0400SAA	47	F1004NNB0600R.1.00AA	52
E50.144.12	438	F1003NNB0500SAA	47	F1004NNB0600R.1.50AA	52
E50.144.14	438	F1003NNB0600SAA	47	F1004NNB0800CAA	49
E50.144.16	438	F1003NNB0800SAA	47	F1004NNB0800R.20AA	52
E50.160.20.1	480	F1003NNB1000SAA	47	F1004NNB0800R.30AA	52
E50.160.20.2	479	F1003NNB1200SAA	47	F1004NNB0800R.50AA	52
E50.160.20.8	485	F1003NNB1400SAA	47	F1004NNB0800R.1.00AA	52
E50.161.20.2	479	F1003NNB1600SAA	47	F1004NNB0800R.1.50AA	52
E50.163.20.1	480	F1003NNB1800SAA	47	F1004NNB0800R.2.00AA	52
E50.163.20.2	479	F1003NNB2000SAA	47	F1004NNB1000CAA	49
E50.163.20.8	485	F1003NNH0200SAA	47	F1004NNB1000R.30AA	52
E50.165.20.8	485	F1003NNH0300SAA	47	F1004NNB1000R.50AA	53
E50.170.03	439	F1003NNH0400SAA	47	F1004NNB1000R.1.00AA	53

1) 订货号的排序按: 1)数字; 2)字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F1004NNB1000R1.50AA	53	F1004NNH0600R0.30AA	51	F1004NNL0200R0.20AA	51
F1004NNB1000R2.00AA	53	F1004NNH0600R0.50AA	52	F1004NNL0300CAA	49
F1004NNB1200CAA	49	F1004NNH0600R1.00AA	52	F1004NNL0300R0.20AA	51
F1004NNB1200R0.30AA	53	F1004NNH0600R1.50AA	52	F1004NNL0300R0.30AA	51
F1004NNB1200R0.50AA	53	F1004NNH0800CAA	49	F1004NNL0400CAA	49
F1004NNB1200R1.00AA	53	F1004NNH0800R0.20AA	52	F1004NNL0400R0.20AA	51
F1004NNB1200R1.50AA	53	F1004NNH0800R0.30AA	52	F1004NNL0400R0.30AA	51
F1004NNB1200R2.00AA	53	F1004NNH0800R0.50AA	52	F1004NNL0400R0.40AA	51
F1004NNB1200R3.00AA	53	F1004NNH0800R1.00AA	52	F1004NNL0400R0.50AA	51
F1004NNB1200R4.00AA	53	F1004NNH0800R1.50AA	52	F1004NNL0500CAA	49
F1004NNB1400CAA	49	F1004NNH0800R2.00AA	52	F1004NNL0500R0.30AA	51
F1004NNB1400R0.50AA	53	F1004NNH1000CAA	49	F1004NNL0500R0.50AA	51
F1004NNB1400R1.00AA	53	F1004NNH1000R0.30AA	52	F1004NNL0500R1.00AA	51
F1004NNB1400R2.00AA	53	F1004NNH1000R0.50AA	53	F1004NNL0600CAA	49
F1004NNB1600CAA	49	F1004NNH1000R1.00AA	53	F1004NNL0600R0.20AA	51
F1004NNB1600R0.30AA	53	F1004NNH1000R1.50AA	53	F1004NNL0600R0.30AA	51
F1004NNB1600R0.50AA	53	F1004NNH1000R2.00AA	53	F1004NNL0600R0.50AA	52
F1004NNB1600R0.80AA	53	F1004NNH1200CAA	49	F1004NNL0600R1.00AA	52
F1004NNB1600R1.00AA	53	F1004NNH1200R0.30AA	53	F1004NNL0600R1.50AA	52
F1004NNB1600R1.50AA	53	F1004NNH1200R0.50AA	53	F1004NNL0800CAA	49
F1004NNB1600R2.00AA	53	F1004NNH1200R1.00AA	53	F1004NNL0800R0.20AA	52
F1004NNB1600R3.00AA	53	F1004NNH1200R1.50AA	53	F1004NNL0800R0.30AA	52
F1004NNB1600R4.00AA	53	F1004NNH1200R2.00AA	53	F1004NNL0800R0.50AA	52
F1004NNB1800CAA	49	F1004NNH1200R3.00AA	53	F1004NNL0800R1.00AA	52
F1004NNB1800R0.50AA	53	F1004NNH1200R4.00AA	53	F1004NNL0800R1.50AA	52
F1004NNB1800R1.00AA	53	F1004NNH1400CAA	49	F1004NNL0800R2.00AA	52
F1004NNB1800R2.00AA	53	F1004NNH1400R0.50AA	53	F1004NNL1000CAA	49
F1004NNB2000CAA	49	F1004NNH1400R1.00AA	53	F1004NNL1000R0.30AA	52
F1004NNB2000R0.30AA	53	F1004NNH1400R2.00AA	53	F1004NNL1000R0.50AA	53
F1004NNB2000R0.50AA	53	F1004NNH1600CAA	49	F1004NNL1000R1.00AA	53
F1004NNB2000R0.80AA	53	F1004NNH1600R0.30AA	53	F1004NNL1000R1.50AA	53
F1004NNB2000R1.00AA	53	F1004NNH1600R0.50AA	53	F1004NNL1000R2.00AA	53
F1004NNB2000R1.50AA	53	F1004NNH1600R0.80AA	53	F1004NNL1200CAA	49
F1004NNB2000R2.00AA	53	F1004NNH1600R1.00AA	53	F1004NNL1200R0.30AA	53
F1004NNB2000R3.00AA	53	F1004NNH1600R1.50AA	53	F1004NNL1200R0.50AA	53
F1004NNB2000R4.00AA	53	F1004NNH1600R2.00AA	53	F1004NNL1200R1.00AA	53
F1004NNH0200CAA	49	F1004NNH1600R3.00AA	53	F1004NNL1200R1.50AA	53
F1004NNH0200R0.20AA	51	F1004NNH1600R4.00AA	53	F1004NNL1200R2.00AA	53
F1004NNH0300CAA	49	F1004NNH1800CAA	49	F1004NNL1200R3.00AA	53
F1004NNH0300R0.20AA	51	F1004NNH1800R0.50AA	53	F1004NNL1200R4.00AA	53
F1004NNH0300R0.30AA	51	F1004NNH1800R1.00AA	53	F1004NNL1400CAA	49
F1004NNH0400CAA	49	F1004NNH1800R2.00AA	53	F1004NNL1400R0.50AA	53
F1004NNH0400R0.20AA	51	F1004NNH2000CAA	49	F1004NNL1400R1.00AA	53
F1004NNH0400R0.30AA	51	F1004NNH2000R0.30AA	53	F1004NNL1400R2.00AA	53
F1004NNH0400R0.40AA	51	F1004NNH2000R0.50AA	53	F1004NNL1600CAA	49
F1004NNH0400R0.50AA	51	F1004NNH2000R0.80AA	53	F1004NNL1600R0.30AA	53
F1004NNH0500CAA	49	F1004NNH2000R1.00AA	53	F1004NNL1600R0.50AA	53
F1004NNH0500R0.30AA	51	F1004NNH2000R1.50AA	53	F1004NNL1600R0.80AA	53
F1004NNH0500R0.50AA	51	F1004NNH2000R2.00AA	53	F1004NNL1600R1.00AA	53
F1004NNH0500R1.00AA	51	F1004NNH2000R3.00AA	53	F1004NNL1600R1.50AA	53
F1004NNH0600CAA	49	F1004NNH2000R4.00AA	53	F1004NNL1600R2.00AA	53
F1004NNH0600R0.20AA	51	F1004NNL0200CAA	49	F1004NNL1600R3.00AA	53

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order



订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F1004NNL1600R4.00AA	53	F1005NNH2500CAA	57	F1105LLL1000CAA	61
F1004NNL1800CAA	49	F1005NNH3200CAA	57	F1105LLL1200CAA	61
F1004NNL1800R0.50AA	53	F1005NNL1000CAA	57	F1105LLL1400CAA	61
F1004NNL1800R1.00AA	53	F1005NNL1200CAA	57	F1105LLL1600CAA	61
F1004NNL1800R2.00AA	53	F1005NNL1400CAA	57	F1105LLL1800CAA	61
F1004NNL2000CAA	49	F1005NNL1600CAA	57	F1105LLL2000CAA	61
F1004NNL2000R0.30AA	53	F1005NNL1800CAA	57	F1304NNB0600CAA	63
F1004NNL2000R0.50AA	53	F1005NNL2000CAA	57	F1304NNB0800CAA	63
F1004NNL2000R0.80AA	53	F1005NNL2500CAA	57	F1304NNB1000CAA	63
F1004NNL2000R1.00AA	53	F1005NNL3200CAA	57	F1304NNB1200CAA	63
F1004NNL2000R1.50AA	53	F1104NNB0600CAA	59	F1304NNB1400CAA	63
F1004NNL2000R2.00AA	53	F1104NNB0800CAA	59	F1304NNB1600CAA	63
F1004NNL2000R3.00AA	53	F1104NNB1000CAA	59	F1304NNB1800CAA	63
F1004NNL2000R4.00AA	53	F1104NNB1200CAA	59	F1304NNB2000CAA	63
F1005LLB0600CAA	55	F1104NNB1400CAA	59	F1304NNH0600CAA	63
F1005LLB0800CAA	55	F1104NNB1600CAA	59	F1304NNH0800CAA	63
F1005LLB1000CAA	55	F1104NNB1800CAA	59	F1304NNH1000CAA	63
F1005LLB1200CAA	55	F1104NNB2000CAA	59	F1304NNH1200CAA	63
F1005LLB1400CAA	55	F1104NNH0600CAA	59	F1304NNH1400CAA	63
F1005LLB1600CAA	55	F1104NNH0800CAA	59	F1304NNH1600CAA	63
F1005LLB1800CAA	55	F1104NNH1000CAA	59	F1304NNH1800CAA	63
F1005LLB2000CAA	55	F1104NNH1200CAA	59	F1304NNH2000CAA	63
F1005LLH0600CAA	55	F1104NNH1400CAA	59	F1304NNL0600CAA	63
F1005LLH0800CAA	55	F1104NNH1600CAA	59	F1304NNL0800CAA	63
F1005LLH1000CAA	55	F1104NNH1800CAA	59	F1304NNL1000CAA	63
F1005LLH1200CAA	55	F1104NNH2000CAA	59	F1304NNL1200CAA	63
F1005LLH1400CAA	55	F1104NNL0600CAA	59	F1304NNL1400CAA	63
F1005LLH1600CAA	55	F1104NNL0800CAA	59	F1304NNL1600CAA	63
F1005LLH1800CAA	55	F1104NNL1000CAA	59	F1304NNL1800CAA	63
F1005LLH2000CAA	55	F1104NNL1200CAA	59	F1304NNL2000CAA	63
F1005LLL0600CAA	55	F1104NNL1400CAA	59	F2004LLB0600CDA	71
F1005LLL0800CAA	55	F1104NNL1600CAA	59	F2004LLB0800CDA	71
F1005LLL1000CAA	55	F1104NNL1800CAA	59	F2004LLB1000CDA	71
F1005LLL1200CAA	55	F1104NNL2000CAA	59	F2004LLB1200CDA	71
F1005LLL1400CAA	55	F1105LLB0600CAA	61	F2004LLB1400CDA	71
F1005LLL1600CAA	55	F1105LLB0800CAA	61	F2004LLB1600CDA	71
F1005LLL1800CAA	55	F1105LLB1000CAA	61	F2004LLB1800CDA	71
F1005LLL2000CAA	55	F1105LLB1200CAA	61	F2004LLB2000CDA	71
F1005NNB1000CAA	57	F1105LLB1400CAA	61	F2004LLH0600CDA	71
F1005NNB1200CAA	57	F1105LLB1600CAA	61	F2004LLH0800CDA	71
F1005NNB1400CAA	57	F1105LLB1800CAA	61	F2004LLH1000CDA	71
F1005NNB1600CAA	57	F1105LLB2000CAA	61	F2004LLH1200CDA	71
F1005NNB1800CAA	57	F1105LLH0600CAA	61	F2004LLH1400CDA	71
F1005NNB2000CAA	57	F1105LLH0800CAA	61	F2004LLH1600CDA	71
F1005NNB2500CAA	57	F1105LLH1000CAA	61	F2004LLH1800CDA	71
F1005NNB3200CAA	57	F1105LLH1200CAA	61	F2004LLH2000CDA	71
F1005NNH1000CAA	57	F1105LLH1400CAA	61	F2004LLL0600CDA	71
F1005NNH1200CAA	57	F1105LLH1600CAA	61	F2004LLL0800CDA	71
F1005NNH1400CAA	57	F1105LLH1800CAA	61	F2004LLL1000CDA	71
F1005NNH1600CAA	57	F1105LLH2000CAA	61	F2004LLL1200CDA	71
F1005NNH1800CAA	57	F1105LLL0600CAA	61	F2004LLL1400CDA	71
F1005NNH2000CAA	57	F1105LLL0800CAA	61	F2004LLL1600CDA	71

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F2004LLL1800CDA	71	F2004NNB1200R1.50DA	69	F2004NNH0500R1.00DA	68
F2004LLL2000CDA	71	F2004NNB1200R2.00DA	69	F2004NNH0500SDA	65
F2004NNB0200CDA	67	F2004NNB1200R2.50DA	69	F2004NNH0570CDA	66
F2004NNB0200R0.20DA	68	F2004NNB1200R3.00DA	69	F2004NNH0600CDA	67
F2004NNB0200SDA	65	F2004NNB1200R4.00DA	69	F2004NNH0600R0.30DA	68
F2004NNB0300CDA	67	F2004NNB1200SDA	65	F2004NNH0600R0.50DA	68
F2004NNB0300R0.30DA	68	F2004NNB1370CDA	66	F2004NNH0600R0.80DA	68
F2004NNB0300SDA	65	F2004NNB1400CDA	67	F2004NNH0600R1.00DA	68
F2004NNB0400CDA	67	F2004NNB1400R0.50DA	69	F2004NNH0600R1.50DA	69
F2004NNB0400R0.30DA	68	F2004NNB1400R1.00DA	69	F2004NNH0600R2.00DA	69
F2004NNB0400R0.40DA	68	F2004NNB1400R2.00DA	69	F2004NNH0600SDA	65
F2004NNB0400R0.50DA	68	F2004NNB1400SDA	65	F2004NNH0770CDA	66
F2004NNB0400SDA	65	F2004NNB1560CDA	66	F2004NNH0800CDA	67
F2004NNB0500CDA	67	F2004NNB1600CDA	67	F2004NNH0800R0.30DA	69
F2004NNB0500R0.30DA	68	F2004NNB1600R0.30DA	69	F2004NNH0800R0.50DA	69
F2004NNB0500R0.50DA	68	F2004NNB1600R0.50DA	69	F2004NNH0800R0.80DA	69
F2004NNB0500R1.00DA	68	F2004NNB1600R0.80DA	69	F2004NNH0800R1.00DA	69
F2004NNB0500SDA	65	F2004NNB1600R1.00DA	69	F2004NNH0800R1.50DA	69
F2004NNB0570CDA	66	F2004NNB1600R1.50DA	69	F2004NNH0800R2.00DA	69
F2004NNB0600CDA	67	F2004NNB1600R2.00DA	69	F2004NNH0800SDA	65
F2004NNB0600R0.30DA	68	F2004NNB1600R3.00DA	69	F2004NNH0970CDA	66
F2004NNB0600R0.50DA	68	F2004NNB1600R4.00DA	69	F2004NNH1000CDA	67
F2004NNB0600R0.80DA	68	F2004NNB1600SDA	65	F2004NNH1000R0.30DA	69
F2004NNB0600R1.00DA	68	F2004NNB1800CDA	67	F2004NNH1000R0.50DA	69
F2004NNB0600R1.50DA	69	F2004NNB1800R0.50DA	69	F2004NNH1000R0.80DA	69
F2004NNB0600R2.00DA	69	F2004NNB1800R1.00DA	69	F2004NNH1000R1.00DA	69
F2004NNB0600SDA	65	F2004NNB1800R2.00DA	69	F2004NNH1000R1.50DA	69
F2004NNB0770CDA	66	F2004NNB1800SDA	65	F2004NNH1000R2.00DA	69
F2004NNB0800CDA	67	F2004NNB1950CDA	66	F2004NNH1000R2.50DA	69
F2004NNB0800R0.30DA	69	F2004NNB2000CDA	67	F2004NNH1000SDA	65
F2004NNB0800R0.50DA	69	F2004NNB2000R0.30DA	70	F2004NNH1170CDA	66
F2004NNB0800R0.80DA	69	F2004NNB2000R0.50DA	70	F2004NNH1200CDA	67
F2004NNB0800R1.00DA	69	F2004NNB2000R0.80DA	70	F2004NNH1200R0.30DA	69
F2004NNB0800R1.50DA	69	F2004NNB2000R1.00DA	70	F2004NNH1200R0.50DA	69
F2004NNB0800R2.00DA	69	F2004NNB2000R1.50DA	70	F2004NNH1200R0.80DA	69
F2004NNB0800SDA	65	F2004NNB2000R2.00DA	70	F2004NNH1200R1.00DA	69
F2004NNB0970CDA	66	F2004NNB2000R3.00DA	70	F2004NNH1200R1.50DA	69
F2004NNB1000CDA	67	F2004NNB2000R4.00DA	70	F2004NNH1200R2.00DA	69
F2004NNB1000R0.30DA	69	F2004NNB2000SDA	65	F2004NNH1200R2.50DA	69
F2004NNB1000R0.50DA	69	F2004NNH0200CDA	67	F2004NNH1200R3.00DA	69
F2004NNB1000R0.80DA	69	F2004NNH0200SDA	65	F2004NNH1200R4.00DA	69
F2004NNB1000R1.00DA	69	F2004NNH0300CDA	67	F2004NNH1200SDA	65
F2004NNB1000R1.50DA	69	F2004NNH0300R0.30DA	68	F2004NNH1370CDA	66
F2004NNB1000R2.00DA	69	F2004NNH0300SDA	65	F2004NNH1400CDA	67
F2004NNB1000R2.50DA	69	F2004NNH0400CDA	67	F2004NNH1400R0.50DA	69
F2004NNB1000SDA	65	F2004NNH0400R0.30DA	68	F2004NNH1400R1.00DA	69
F2004NNB1170CDA	66	F2004NNH0400R0.40DA	68	F2004NNH1400R2.00DA	69
F2004NNB1200CDA	67	F2004NNH0400R0.50DA	68	F2004NNH1400SDA	65
F2004NNB1200R0.30DA	69	F2004NNH0400SDA	65	F2004NNH1560CDA	66
F2004NNB1200R0.50DA	69	F2004NNH0500CDA	67	F2004NNH1600CDA	67
F2004NNB1200R0.80DA	69	F2004NNH0500R0.30DA	68	F2004NNH1600R0.30DA	69
F2004NNB1200R1.00DA	69	F2004NNH0500R0.50DA	68	F2004NNH1600R0.50DA	69

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F2004NNH1600R0.80DA	69	F2004NNL0800R0.80DA	69	F2004NNL2000R0.50DA	70
F2004NNH1600R1.00DA	69	F2004NNL0800R1.00DA	69	F2004NNL2000R0.80DA	70
F2004NNH1600R1.50DA	69	F2004NNL0800R1.50DA	69	F2004NNL2000R1.00DA	70
F2004NNH1600R2.00DA	69	F2004NNL0800R2.00DA	69	F2004NNL2000R1.50DA	70
F2004NNH1600R3.00DA	69	F2004NNL0800SDA	65	F2004NNL2000R2.00DA	70
F2004NNH1600R4.00DA	69	F2004NNL0970CDA	66	F2004NNL2000R3.00DA	70
F2004NNH1600SDA	65	F2004NNL1000CDA	67	F2004NNL2000R4.00DA	70
F2004NNH1800CDA	67	F2004NNL1000R0.30DA	69	F2004NNL2000SDA	65
F2004NNH1800R0.50DA	69	F2004NNL1000R0.50DA	69	F2014KKB0200CDA	73
F2004NNH1800R1.00DA	69	F2004NNL1000R0.80DA	69	F2014KKB0300CDA	73
F2004NNH1800R2.00DA	69	F2004NNL1000R1.00DA	69	F2014KKB0400CDA	73
F2004NNH1800SDA	65	F2004NNL1000R1.50DA	69	F2014KKB0500CDA	73
F2004NNH1950CDA	66	F2004NNL1000R2.00DA	69	F2014KKB0600CDA	73
F2004NNH2000CDA	67	F2004NNL1000R2.50DA	69	F2014KKB0800CDA	73
F2004NNH2000R0.30DA	70	F2004NNL1000SDA	65	F2014KKB1000CDA	73
F2004NNH2000R0.50DA	70	F2004NNL1170CDA	66	F2014KKB1200CDA	73
F2004NNH2000R0.80DA	70	F2004NNL1200CDA	67	F2014KKB1400CDA	73
F2004NNH2000R1.00DA	70	F2004NNL1200R0.30DA	69	F2014KKB1600CDA	73
F2004NNH2000R1.50DA	70	F2004NNL1200R0.50DA	69	F2014KKB1800CDA	73
F2004NNH2000R2.00DA	70	F2004NNL1200R0.80DA	69	F2014KKB2000CDA	73
F2004NNH2000R3.00DA	70	F2004NNL1200R1.00DA	69	F2014KKH0200CDA	73
F2004NNH2000R4.00DA	70	F2004NNL1200R1.50DA	69	F2014KKH0300CDA	73
F2004NNH2000SDA	65	F2004NNL1200R2.00DA	69	F2014KKH0400CDA	73
F2004NNL0200CDA	67	F2004NNL1200R2.50DA	69	F2014KKH0500CDA	73
F2004NNL0200R0.20DA	68	F2004NNL1200R3.00DA	69	F2014KKH0600CDA	73
F2004NNL0200SDA	65	F2004NNL1200R4.00DA	69	F2014KKH0800CDA	73
F2004NNL0300CDA	67	F2004NNL1200SDA	65	F2014KKH1000CDA	73
F2004NNL0300R0.30DA	68	F2004NNL1370CDA	66	F2014KKH1200CDA	73
F2004NNL0300SDA	65	F2004NNL1400CDA	67	F2014KKH1400CDA	73
F2004NNL0400CDA	67	F2004NNL1400R0.50DA	69	F2014KKH1600CDA	73
F2004NNL0400R0.30DA	68	F2004NNL1400R1.00DA	69	F2014KKH1800CDA	73
F2004NNL0400R0.40DA	68	F2004NNL1400R2.00DA	69	F2014KKH2000CDA	73
F2004NNL0400R0.50DA	68	F2004NNL1400SDA	65	F4002NNB0200CA-	75
F2004NNL0400SDA	65	F2004NNL1560CDA	66	F4002NNB0200CAC	77
F2004NNL0500CDA	67	F2004NNL1600CDA	67	F4002NNB0300CA-	75
F2004NNL0500R0.30DA	68	F2004NNL1600R0.30DA	69	F4002NNB0300CAC	77
F2004NNL0500R0.50DA	68	F2004NNL1600R0.50DA	69	F4002NNB0400CA-	75
F2004NNL0500R1.00DA	68	F2004NNL1600R0.80DA	69	F4002NNB0400CAC	77
F2004NNL0500SDA	65	F2004NNL1600R1.00DA	69	F4002NNB0500CA-	75
F2004NNL0570CDA	66	F2004NNL1600R1.50DA	69	F4002NNB0500CAC	77
F2004NNL0600CDA	67	F2004NNL1600R2.00DA	69	F4002NNB0600CA-	75
F2004NNL0600R0.30DA	68	F2004NNL1600R3.00DA	69	F4002NNB0600CAC	77
F2004NNL0600R0.50DA	68	F2004NNL1600R4.00DA	69	F4002NNB0800CA-	75
F2004NNL0600R0.80DA	68	F2004NNL1600SDA	65	F4002NNB0800CAC	77
F2004NNL0600R1.00DA	68	F2004NNL1800CDA	67	F4002NNB1000CA-	75
F2004NNL0600R1.50DA	69	F2004NNL1800R0.50DA	69	F4002NNB1000CAC	77
F2004NNL0600R2.00DA	69	F2004NNL1800R1.00DA	69	F4002NNB1200CA-	75
F2004NNL0600SDA	65	F2004NNL1800R2.00DA	69	F4002NNB1200CAC	77
F2004NNL0770CDA	66	F2004NNL1800SDA	65	F4002NNB1400CA-	75
F2004NNL0800CDA	67	F2004NNL1950CDA	66	F4002NNB1400CAC	77
F2004NNL0800R0.30DA	69	F2004NNL2000CDA	67	F4002NNB1600CA-	75
F2004NNL0800R0.50DA	69	F2004NNL2000R0.30DA	70	F4002NNB1600CAC	77

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F4002NNB1800CA- _____	75	F4003NNB0200CA- _____	79	F4003NNL0400CA- _____	79
F4002NNB1800CAC _____	77	F4003NNB0200CAC _____	81	F4003NNL0400CAC _____	81
F4002NNB2000CA- _____	75	F4003NNB0300CA- _____	79	F4003NNL0500CA- _____	79
F4002NNB2000CAC _____	77	F4003NNB0300CAC _____	81	F4003NNL0500CAC _____	81
F4002NNH0200CA- _____	75	F4003NNB0400CA- _____	79	F4003NNL0600CA- _____	79
F4002NNH0200CAC _____	77	F4003NNB0400CAC _____	81	F4003NNL0600CAC _____	81
F4002NNH0300CA- _____	75	F4003NNB0500CA- _____	79	F4003NNL0800CA- _____	79
F4002NNH0300CAC _____	77	F4003NNB0500CAC _____	81	F4003NNL0800CAC _____	81
F4002NNH0400CA- _____	75	F4003NNB0600CA- _____	79	F4003NNL1000CA- _____	79
F4002NNH0400CAC _____	77	F4003NNB0600CAC _____	81	F4003NNL1000CAC _____	81
F4002NNH0500CA- _____	75	F4003NNB0800CA- _____	79	F4003NNL1200CA- _____	79
F4002NNH0500CAC _____	77	F4003NNB0800CAC _____	81	F4003NNL1200CAC _____	81
F4002NNH0600CA- _____	75	F4003NNB1000CA- _____	79	F4003NNL1400CA- _____	79
F4002NNH0600CAC _____	77	F4003NNB1000CAC _____	81	F4003NNL1400CAC _____	81
F4002NNH0800CA- _____	75	F4003NNB1200CA- _____	79	F4003NNL1600CA- _____	79
F4002NNH0800CAC _____	77	F4003NNB1200CAC _____	81	F4003NNL1600CAC _____	81
F4002NNH1000CA- _____	75	F4003NNB1400CA- _____	79	F4003NNL1800CA- _____	79
F4002NNH1000CAC _____	77	F4003NNB1400CAC _____	81	F4003NNL1800CAC _____	81
F4002NNH1200CA- _____	75	F4003NNB1600CA- _____	79	F4003NNL2000CA- _____	79
F4002NNH1200CAC _____	77	F4003NNB1600CAC _____	81	F4003NNL2000CAC _____	81
F4002NNH1400CA- _____	75	F4003NNB1800CA- _____	79	F50.160.20.3 _____	478
F4002NNH1400CAC _____	77	F4003NNB1800CAC _____	81	F50.161.20.3 _____	478
F4002NNH1600CA- _____	75	F4003NNB2000CA- _____	79	F50.163.20.3 _____	478
F4002NNH1600CAC _____	77	F4003NNB2000CAC _____	81	F63.020.11 _____	446
F4002NNH1800CA- _____	75	F4003NNH0200CA- _____	79	F63.020.16 _____	446
F4002NNH1800CAC _____	77	F4003NNH0200CAC _____	81	F63.020.20 _____	446
F4002NNH2000CA- _____	75	F4003NNH0300CA- _____	79	F63.020.25 _____	446
F4002NNH2000CAC _____	77	F4003NNH0300CAC _____	81	F63.020.32 _____	446
F4002NNL0200CA- _____	75	F4003NNH0400CA- _____	79	F63.020.40 _____	446
F4002NNL0200CAC _____	77	F4003NNH0400CAC _____	81	F63.025.11 _____	446
F4002NNL0300CA- _____	75	F4003NNH0500CA- _____	79	F63.025.16 _____	446
F4002NNL0300CAC _____	77	F4003NNH0500CAC _____	81	F63.025.20 _____	446
F4002NNL0400CA- _____	75	F4003NNH0600CA- _____	79	F63.025.25 _____	446
F4002NNL0400CAC _____	77	F4003NNH0600CAC _____	81	F63.025.32 _____	446
F4002NNL0500CA- _____	75	F4003NNH0800CA- _____	79	F63.025.40 _____	446
F4002NNL0500CAC _____	77	F4003NNH0800CAC _____	81	F63.050.22.KKB _____	447
F4002NNL0600CA- _____	75	F4003NNH1000CA- _____	79	F63.050.27.KKB _____	447
F4002NNL0600CAC _____	77	F4003NNH1000CAC _____	81	F63.140.03 _____	445
F4002NNL0800CA- _____	75	F4003NNH1200CA- _____	79	F63.140.04 _____	445
F4002NNL0800CAC _____	77	F4003NNH1200CAC _____	81	F63.140.04.1 _____	445
F4002NNL1000CA- _____	75	F4003NNH1400CA- _____	79	F63.140.05 _____	445
F4002NNL1000CAC _____	77	F4003NNH1400CAC _____	81	F63.140.06 _____	445
F4002NNL1200CA- _____	75	F4003NNH1600CA- _____	79	F63.140.08 _____	445
F4002NNL1200CAC _____	77	F4003NNH1600CAC _____	81	F63.140.10 _____	445
F4002NNL1400CA- _____	75	F4003NNH1800CA- _____	79	F63.140.12 _____	445
F4002NNL1400CAC _____	77	F4003NNH1800CAC _____	81	F63.140.16 _____	445
F4002NNL1600CA- _____	75	F4003NNH2000CA- _____	79	F63.140.18 _____	445
F4002NNL1600CAC _____	77	F4003NNH2000CAC _____	81	F63.140.20 _____	445
F4002NNL1800CA- _____	75	F4003NNL0200CA- _____	79	F63.140.25 _____	445
F4002NNL1800CAC _____	77	F4003NNL0200CAC _____	81	F63.144.06 _____	445
F4002NNL2000CA- _____	75	F4003NNL0300CA- _____	79	F63.144.08 _____	445
F4002NNL2000CAC _____	77	F4003NNL0300CAC _____	81	F63.144.10 _____	445

1) 订货号的排序按: 1)数字; 2)字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
F63.144.12	445	MR1014	677	MR3025	678
F63.144.16	445	MR1015	677	MR3026	678
F63.144.20	445	MR1020	677	MR3027	678
F63.144.25	445	MR1021	677	MR3028	678
F63.147.03.1	445	MR1022	677	MR3029	678
F63.147.04.1	445	MR1023	676	MR3030	678
F63.147.05.1	445	MR1024	676	MR3031	678
F63.147.06	445	MR1025	676	MR3032	678
F63.147.08	445	MR1026	676	MR3033	678
F63.147.10	445	MR1027	676	MR3034	678
F63.147.12	445	MR1028	676	MR3035	678
F63.147.16	445	MR1029	676	MR3036	678
F63.147.20	445	MR1030	676	MR3037	678
F63.147.25	445	MR1031	676	MR3038	678
F80M.025.11	449	MR1032	676	MR3039	678
F80M.025.16	449	MR1033	676	MR3040	678
F80M.025.20	449	MR1034	676	MR3044	678
F80M.025.25	449	MR1035	676	MR3045	678
F80M.025.32	449	MR1036	676	MR3046	678
F80M.025.40	449	MR1037	676	MR3047	679
F80M.145.06	448	MR1038	676	MR3048	678
F80M.145.08	448	MR1039	676	MR3050	678
F80M.145.10	448	MR1040	676	MR3060	678
F80M.145.12	448	MR1046	676	MR3061	679
F80M.145.14	448	MR1047	676	MR3062	679
F80M.145.16	448	MR1048	676	MR3063	679
F80M.145.20	448	MR1049	676	MR3064	679
F80M.145.20.5	448	MR1050	676	MR3091	679
F80M.145.25	448	MR1051	676	MR3092	679
F80M.145.25.5	448	MR1055	676	MR3093	679
H2004KNH0600RDAKZ	83	MR1063	676	MR3094	679
H2004KNH0800RDAKZ	83	MR1064	676	MR3095	679
H2004KNH1000RDAKZ	83	MR1065	676	MR3100	676
M-G1035	671	MR1066	676	MR3101	676
M-G1061	673	MR1067	676	MR3103	676
M-G1111	663	MR1070	677	MR3104	676
M-G1116	663	MR1073	679	MR3105	676
M-G1140	667	MR1074	679	MR3106	676
M-G1150	667	MR1075	679	MR3107	676
M-G1160	669	MR1076	679	MR3121	679
M-G1170	669	MR1077	679	MR3122	679
M-G1180	665	MR1078	679	MR3124	679
M-G1190	665	MR1079	679	MR3125	679
MR1000	677	MR1080	679	MR3126	679
MR1001	677	MR1088	679	MR3127	679
MR1002	677	MR1200	676	MR3200	676
MR1003	677	MR1210	676	MR3210	676
MR1004	677	MR1220	676	MR3220	676
MR1010	677	MR1230	676	MR3230	676
MR1011	677	MR3010	678	MR3240	676
MR1012	677	MR3022	678	MR4070	678
MR1013	677	MR3024	678	MR4071	676

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
M-R4072	679	RODL10-D10HA0200-0002KR02186		RODL16-D16HA0320-0001KR02180	
M-R4073	679	RODL10-D10HA0200-0002KR03187		RODL16-D16HA0320-0001KR03181	
M-R4076	678	RODL10-D10HA0200-0002KR04188		RODL16-D16HA0320-0001KZ_179	
M-R5010	676	RODL10-D10HA0200-0002KZ_185		RODL16-D16HA0320-0002_184	
M-R5011	676	RODL10-D1270HA0125-0002_183		RODL16-D16HA0320-0002KR02186	
M-R5012	676	RODL10-D1270HA0200-0002_184		RODL16-D16HA0320-0002KR03187	
M-R5013	676	RODL10-D12HA0125-0002_183		RODL16-D16HA0320-0002KR04188	
M-R5014	676	RODL10-D12HA0200-0002_184		RODL16-D16HA0320-0002KZ_185	
PC100-I01-C10-EU	549	RODL10-D16HA0125-0002_183		RODL16-D18HA0200-0002_183	
PC100-I21-C10-EU	549	RODL10-D16HA0200-0002_184		RODL16-D18HA0320-0002_184	
PC101-I01-C00-EU	543	RODL10-D20HA0125-0002_183		RODL16-D20HA0200-0002_183	
PC101-I21-C00-EU	543	RODL10-D20HA0200-0002_184		RODL16-D20HA0320-0002_184	
PC102-I01-C10-EU	545	RODL12-D1270HA0150-0002_183		RODL16-D2540HA0200-0002_183	
PC102-I01-C11-EU	545	RODL12-D1270HA0240-0002_184		RODL16-D2540HA0320-0002_184	
PC102-I21-C10-EU	545	RODL12-D12HA0150-0001_178		RODL16-D25HA0200-0002_183	
PC102-I21-C10-EU-SE	547	RODL12-D12HA0150-0001KR02180		RODL16-D25HA0320-0002_184	
PC103-I21-C10-EU	553	RODL12-D12HA0150-0001KR04182		RODL16-D32HA0200-0002_183	
PC103-I21-C11-EU	553	RODL12-D12HA0150-0001KR04182		RODL16-D32HA0320-0002_184	
PC104-I01-C00-EU	533	RODL12-D12HA0150-0001KZ_179		RODL20-D20HA0250-0001_178	
PC105-I01-C00-EU	535	RODL12-D12HA0150-0002_183		RODL20-D20HA0250-0001KR02180	
PC106-I04-C00-EU	531	RODL12-D12HA0150-0002KR02186		RODL20-D20HA0250-0001KR04182	
PC107-I41-I03-C11-EU	555	RODL12-D12HA0150-0002KR04188		RODL20-D20HA0250-0001KZ_179	
PC120-I21-C10-EU	551	RODL12-D12HA0150-0002KZ_185		RODL20-D20HA0250-0002_183	
PC400-I21-C10-EU	567	RODL12-D12HA0240-0001_178		RODL20-D20HA0250-0002KR02186	
PC403-I21-C10-EU	569	RODL12-D12HA0240-0001KR02180		RODL20-D20HA0250-0002KR04188	
PC403-I21-C11-EU	569	RODL12-D12HA0240-0001KR03181		RODL20-D20HA0250-0002KZ_185	
PC406-I42-C20-EU	561	RODL12-D12HA0240-0001KZ_179		RODL20-D20HA0400-0001_178	
PC407-I22-C11-EU	571	RODL12-D12HA0240-0002_184		RODL20-D20HA0400-0001KR02180	
PC408-I22-C21-EU	573	RODL12-D12HA0240-0002KR02186		RODL20-D20HA0400-0001KR03181	
PC409-I21-C21-EU	563	RODL12-D12HA0240-0002KR03187		RODL20-D20HA0400-0001KZ_179	
PC409-I41-C21-EU	565	RODL12-D12HA0240-0002KR04188		RODL20-D20HA0400-0002_184	
RA100.096.1010.0100	418	RODL12-D12HA0240-0002KZ_185		RODL20-D20HA0400-0002KR02186	
RA100.096.1010.0200	418	RODL12-D16HA0150-0002_183		RODL20-D20HA0400-0002KR03187	
RA63.096.0650.0100	389	RODL12-D16HA0240-0002_184		RODL20-D20HA0400-0002KR04188	
RA63.096.0650.0250	389	RODL12-D18HA0150-0002_183		RODL20-D20HA0400-0002KZ_185	
RODL10-D0635HA0200-0002_184		RODL12-D18HA0240-0002_184		RODL20-D2540HA0250-0002_183	
RODL10-D06HA0200-0002_184		RODL12-D20HA0150-0002_183		RODL20-D2540HA0400-0002_184	
RODL10-D08HA0200-0002_184		RODL12-D20HA0240-0002_184		RODL20-D25HA0250-0002_183	
RODL10-D10HA0125-0001_178		RODL12-D2540HA0150-0002_183		RODL20-D25HA0400-0002_184	
RODL10-D10HA0125-0001KR02180		RODL12-D2540HA0240-0002_184		RODL20-D32HA0250-0002_183	
RODL10-D10HA0125-0001KR04182		RODL12-D25HA0150-0002_183		RODL20-D32HA0400-0002_184	
RODL10-D10HA0125-0001KR04182		RODL12-D25HA0240-0002_184		RODL20-D36HA0250-0002_183	
RODL10-D10HA0125-0001KZ_179		RODL16-D16HA0200-0001_178		RODL20-D36HA0400-0002_184	
RODL10-D10HA0125-0002_183		RODL16-D16HA0200-0001KR02180		RODL20-D40HA0250-0002_183	
RODL10-D10HA0125-0002KR02186		RODL16-D16HA0200-0001KR04182		RODL20-D40HA0400-0002_184	
RODL10-D10HA0125-0002KR04188		RODL16-D16HA0200-0001KZ_179		RODL25-D2540HA0313-0002_183	
RODL10-D10HA0125-0002KZ_185		RODL16-D16HA0200-0002_183		RODL25-D2540HA0500-0002_184	
RODL10-D10HA0200-0001_178		RODL16-D16HA0200-0002KR02186		RODL25-D25HA0313-0001_178	
RODL10-D10HA0200-0001KR02180		RODL16-D16HA0200-0002KR04188		RODL25-D25HA0313-0001KZ_179	
RODL10-D10HA0200-0001KR03181		RODL16-D16HA0200-0002KZ_185		RODL25-D25HA0313-0002_183	
RODL10-D10HA0200-0001KZ_179		RODL16-D16HA0320-0001_178		RODL25-D25HA0313-0002KZ_185	
RODL10-D10HA0200-0002_184					

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

订货号 Article No.	页码 Page	订货号 Article No.	页码 Page	订货号 Article No.	页码 Page
RODL25-D25HA0500-0001	178	V1002NNL1200RAA	85	V4002NNH2000RAC	89
RODL25-D25HA0500-0001KZ	179	V1002NNL1400RAA	85	V4002NNL0200RA-	87
RODL25-D25HA0500-0002	184	V1002NNL1600RAA	85	V4002NNL0200RAC	89
RODL25-D25HA0500-0002KZ	185	V1002NNL1800RAA	85	V4002NNL0300RA-	87
RODL32-D32HA0400-0001	178	V1002NNL2000RAA	85	V4002NNL0300RAC	89
RODL32-D32HA0400-0001KZ	179	V4002NNB0200RA-	87	V4002NNL0400RA-	87
RODL32-D32HA0400-0002	183	V4002NNB0200RAC	89	V4002NNL0400RAC	89
RODL32-D32HA0400-0002KZ	185	V4002NNB0300RA-	87	V4002NNL0500RA-	87
RODL32-D32HA0640-0001	178	V4002NNB0300RAC	89	V4002NNL0500RAC	89
RODL32-D32HA0640-0001KZ	179	V4002NNB0400RA-	87	V4002NNL0600RA-	87
RODL32-D32HA0640-0002	184	V4002NNB0400RAC	89	V4002NNL0600RAC	89
RODL32-D32HA0640-0002KZ	185	V4002NNB0500RA-	87	V4002NNL0800RA-	87
TD100-H01-EU	607	V4002NNB0500RAC	89	V4002NNL0800RAC	89
TD101-H01-EU	603	V4002NNB0600RA-	87	V4002NNL1000RA-	87
TD102-H01-EU	605	V4002NNB0600RAC	89	V4002NNL1000RAC	89
TD103-H01-EU	609	V4002NNB0800RA-	87	V4002NNL1200RA-	87
TD104-H02-EU	619	V4002NNB0800RAC	89	V4002NNL1200RAC	89
TD105-H06-EU	601	V4002NNB1000RA-	87	V4002NNL1400RA-	87
TD106-H07-EU	625	V4002NNB1000RAC	89	V4002NNL1400RAC	89
TD107-H04-EU	623	V4002NNB1200RA-	87	V4002NNL1600RA-	87
TD403-H03-EU	611	V4002NNB1200RAC	89	V4002NNL1600RAC	89
V1002NNB0200RAA	85	V4002NNB1400RA-	87	V4002NNL1800RA-	87
V1002NNB0300RAA	85	V4002NNB1400RAC	89	V4002NNL1800RAC	89
V1002NNB0400RAA	85	V4002NNB1600RA-	87	V4002NNL2000RA-	87
V1002NNB0500RAA	85	V4002NNB1600RAC	89	V4002NNL2000RAC	89
V1002NNB0600RAA	85	V4002NNB1800RA-	87	Z50.160.20.5	482
V1002NNB0800RAA	85	V4002NNB1800RAC	89	Z50.161.20.5	482
V1002NNB1000RAA	85	V4002NNB2000RA-	87	Z50.163.20.5	482
V1002NNB1200RAA	85	V4002NNB2000RAC	89	Z50.165.20.5	482
V1002NNB1400RAA	85	V4002NNH0200RA-	87	Z50.167.20.5	482
V1002NNB1600RAA	85	V4002NNH0200RAC	89		
V1002NNB1800RAA	85	V4002NNH0300RA-	87		
V1002NNB2000RAA	85	V4002NNH0300RAC	89		
V1002NNH0200RAA	85	V4002NNH0400RA-	87		
V1002NNH0300RAA	85	V4002NNH0400RAC	89		
V1002NNH0400RAA	85	V4002NNH0500RA-	87		
V1002NNH0500RAA	85	V4002NNH0500RAC	89		
V1002NNH0600RAA	85	V4002NNH0600RA-	87		
V1002NNH0800RAA	85	V4002NNH0600RAC	89		
V1002NNH1000RAA	85	V4002NNH0800RA-	87		
V1002NNH1200RAA	85	V4002NNH0800RAC	89		
V1002NNH1400RAA	85	V4002NNH1000RA-	87		
V1002NNH1600RAA	85	V4002NNH1000RAC	89		
V1002NNH1800RAA	85	V4002NNH1200RA-	87		
V1002NNH2000RAA	85	V4002NNH1200RAC	89		
V1002NNL0200RAA	85	V4002NNH1400RA-	87		
V1002NNL0300RAA	85	V4002NNH1400RAC	89		
V1002NNL0400RAA	85	V4002NNH1600RA-	87		
V1002NNL0500RAA	85	V4002NNH1600RAC	89		
V1002NNL0600RAA	85	V4002NNH1800RA-	87		
V1002NNL0800RAA	85	V4002NNH1800RAC	89		
V1002NNL1000RAA	85	V4002NNH2000RA-	87		

1) 订货号的排序按: 1) 数字; 2) 字母; 顺序递增  
Sorted ascendingly in 1) numerical and 2) alphabetical order

## 重要的金属切削和机器操作的安全指示

### IMPORTANT SAFETY INSTRUCTIONS FOR METAL CUTTING AND MACHINE OPERATION

请在使用本样本中的产品前阅读以下信息。

#### 突然射弹和破碎的危险:

当今的机床主轴转速高、刀具转速也高、高温、大切削力、各种液体和油都是金属切削加工的组成部分。

例如:在金属切削加工过程中,铁屑会飞离工件;虽然切削刃具能耐受高温和大切削力,但是如果他们在加工过程中的负载过大,仍然可能会崩刃或者断裂,从而造成极端的影响或伤害。

#### 避免伤害:

- 使用金属切削机床或在金属切削机床附近工作时,使用适当的个人防护设备
- 确保所有的机器防护装置就位
- 确认所有产品符合产品制造商的使用说明和安全指南

#### 呼吸和身体接触的危害:

研磨硬质合金或其他刀具材料和使用冷却系统时会产生含有害金属的灰尘颗粒。吸入这些尘埃,尤其是长时间的吸入后,会导致短期或永久性的肺部感染疾病或使先前存在的身体状况变得更差。此外,这种灰尘可能刺激眼睛、皮肤,并可能使皮肤情况变糟。

#### 避免伤害:

- 磨削时或者在打磨材料的人旁边工作,必须佩戴防护面罩或口罩和护目镜。
- 磨削时正确使用通风控制和冷却系统,正确地收集并处理灰尘或污泥。
- 穿着长袖和长裤的安全服,避免皮肤与灰尘接触。

#### 机器操作的安全性:

在操作任何的翰默机器之前,请仔细阅读使用说明书,并遵守安全注意事项、说明和规定。任何翰默机器只能由培训过的合格员工,按照机器交付时的培训和安装过程中的指导和用户手册中的描述来操作机器。

欲了解更多信息,请查询当地的通用工业安全和健康条例。

请把这些安全说明当作通用的指导方针,它是不可能涵盖每一个具体的情况,因为有许多影响金属切削加工操作的变量。请注意:本样本中包含的技术信息和有关加工的建议,也许不适合您的具体应用。更多信息、产品安全和环境问题,请与当地翰默办事处联系。联络地址请浏览我们的官方网页 [www.haimer.cn](http://www.haimer.cn)。

Please read the following information prior to using the products in this catalog.

#### Sudden Projectile and Shattering Hazards:

High spindle speeds, cutter speeds, high temperatures, cutting forces, and a variety of liquids and oils are all part of metal cutting operations today.

For example, during the machining process, hot metal chips may fly off the work piece and, even though cutting tools are created to tolerate high temperatures and cutting forces, they can sometimes break or chip especially if they are exposed to overstraining during the cutting process, extreme impact or other abuse.

#### Avoid injury by:

- Using appropriate personal protection equipment when working with or being near a metal cutting machine
- Ensuring all machine guards are in place
- Confirming all products are adhering to the product manufacturer's instructions and safety guidelines

#### Respiratory and Physical Contact Hazards:

Grinding carbide or other cutting tool materials and working with cooling systems create a dust containing harmful metallic particles. Breathing in this dust, especially over a long period of time, can cause short term or permanent lung infections, disease or make preexisting medical conditions more intolerable. In addition, this dust may irritate eyes, skin and may make skin conditions worse.

#### Avoid injury by:

- Wearing a face shield or mask and safety goggles when grinding or working next to someone who is grinding materials
- Using ventilation control and cooling while grinding and properly collect/dispose of dust or sludge.
- Avoiding skin contact with the dust by wearing safety clothes with long sleeves and pants.

#### Machine Operation Safety:

Before operating any of the displayed HAIMER machines please carefully read the instruction manual and comply with the safety instructions and provisions. Any HAIMER machine shall only be used by competent staff, which is accordingly instructed in the machine handling as described in the user's manual and during training and installation of the machine.

For more information, consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

Please consider these safety instructions as general guidelines. It is impossible to cover every specific situation because there are many variables that affect machining operations. Please also consider that the technical information included in this catalog and recommendations on machining practices may not be applicable for your particular operation. For more information, product safety and environmental questions, contact your local HAIMER office. Contact addresses can be found at our official homepage [www.haimer.com](http://www.haimer.com).



## 合同通用条款 (202106)

### 通则

我方的报价、销售、服务和交付是基于满足以下条款形成约束,除非经我方书面同意,否则买方提议的与本条款不一致或在此之外的任何条款和条件均无效。

#### 1. 价格及付款

- 1.1. 我们提供的价格是人民币价格,包含增值税。发票中增值税将单独计算并列示。
- 1.2. 付款方式及时间将在合同中明确约定,买方应按双方约定的付款方式按时支付。
- 1.3. 除非经卖方许可,否则不接受承兑汇票作为付款方式。
- 1.4. 我们排除任何形式反诉而导致的付款或者款项抵消。

#### 2. 包装、运输及交付

- 2.1. 产品损毁及灭失的风险在货物运抵买方指定地点,或交付买方承运人时,由卖方转移至买方。
- 2.2. 只要买方能合理预期,允许分批装运。
- 2.3. 卖方依据具体要求进行包装,包装应适合远程运输,符合相关法律,并能防腐蚀、防潮、防湿、防冻、防震、防锈,以保证货物安全运抵现场,不出现任何损坏。应买方要求而产生的额外装箱、包装和运输费用,须由买方承担。

#### 3. 所有权保留

- 3.1. 我们保留对已交付货物的所有权,直到收到所有款项。
- 3.2. 交付的标的物在未足额交付前,不允许以担保的形式进行抵押和转让给第三方。买方须立即通知我方任何的财产查封、扣押或第三方的任何其他处置或干预。如遇第三方扣押交付物,我们需要第一时间被通知,以便我方执行我们的所有权。如第三方无法向我方偿还与上述事项相关的费用,买方应该承担司法或非司法费用。
- 3.3. 如果发生违反合同条款的行为,特别是延迟付款,我们有权解除合同。解除合同后,我们可以要求买方退货。

#### 4. 交货期

- 4.1. 交货时间和交货期详见销售合同,须在我方以书面形式确认后才有约束力。
- 4.2. 在澄清所有细节之后才开始计算交货期,我们不接受指定的交货期。如遇不可抗力,战争,罢工,官方命令或类似的交货障碍,或者我们的供应商遇到以上障碍,我们有权在持续期间加上合理的启动时间内推迟交货或履行合同以及相应地调整价格,买方无权以延迟交货或受损而向我们索赔。

#### 5. 质量保证

- 5.1. 卖方保证所交付的产品符合卖方的质量标准或双方书面确认的其他标准,并在本合同约定的条件和范围内承担质量保证责任。
- 5.2. 保修期因产品而异,具体时间在销售合同中另行约定。机器类产品保修期为验收合格后1年,刀柄类产品无保修期。若因买方原因导致产品到货后未能及时安装调试和验收,保修期最长不超过货物运抵买方指定地点后18个月。
- 5.3. 保修期内,经买卖双方确认因卖方生产工艺或产品原材料问题导致的产品不符合约定的质量标准的,卖方应免费对瑕疵产品进行修复或更换。
- 5.4. 卖方的质量保证不适用以下情形:
  - (1) 产品的正常消耗;
  - (2) 产品涉及错误使用、错误操作或错误应用(包括但不限于加工不符合卖方推荐的工料、买方生产工艺不符合额定的规格和标准、不当维护等),或由非卖方或卖方指定的服务代理商对产品进行维修、改造、修磨或改变规格的。
- 5.5. 在产品存在缺陷或质量问题的情况下,卖方所应承担的损害赔偿不得超过产品的实际成交价格。卖方不承担任何连带赔偿责任。

#### 6. 验收及索赔

- 6.1. 除非双方有特别约定,否则合同货物在交付后15天内验收完毕。
- 6.2. 买方应在收到货物后立即检查产品的数量和质量。若发现任何缺陷,则买方可在收到货物后15天内书面通知卖方。如果交货未被买方拒绝,且买方未就有关缺陷及时通知卖方,则买方无权拒收该产品,卖方对有关缺陷无需承担责任,且买方应根据合同约定支付相应价款。
- 6.3. 如存在一般检查所不能发现的缺陷,买方在质保期一旦发现此类缺陷应立即书面通知卖方。否则,即视为该产品连同该缺陷已被接受,卖方对此不承担上述保证责任。
- 6.4. 除非获得卖方的书面同意,买方不得退货。在卖方书面同意的情形下,退货必须依照以下条件进行:
  - a) 买方负担并预先支付退货的所有运输费和其他相关费用
  - b) 货物必须保持包装完整和良好状态
  - c) 不迟于开出发票后的30天内
- 6.5. 如果买方根据上述规定向卖方提出任何有关产品的因其质量或状态缺陷或规格不符而引起的有效索赔,卖方应对产品予以修理或免费更换。
- 6.6. 卖方或其雇员或代理商向买方或其雇员或代理商所提供的有关存储、运用或使用产品的任何建议,如未经卖方书面确认,则对其遵守或施行所可能产生的风险由买方自行承担。卖方对未经其确认的任何上述建议不承担相应责任。

#### 7. 责任限制

- 7.1. 无论因何种原因,卖方对买方仅承担有限责任。卖方对任何随附的、间接的、或惩罚性的索赔,无论是明示或暗示,均不承担责任,包括但不限于买方的生产经营损失、利润损失、生产资料损失等。
- 7.2. 任何情况下,卖方对买方承担的索赔责任合计不超过本合同项下产品价款总额的100%。

#### 8. 知识产权和保密义务

- 8.1. 卖方保证根据本合同销售给买方的产品中,不存在侵犯任何第三人知识产权的情形。如买方收到来自第三人的任何宣称卖方销售给买方的产品侵犯其知识产权的索赔、请求或法律行动的,买方应立即通知卖方,由卖方单独负责处理相关纠纷并承担费用。买方根据卖方的合理要求并在卖方承担费用的情况下,应对卖方处理相关纠纷提供必要的配合和支持。卖方应保证不因此对买方适当使用产品造成影响以及不造成买方经济上的损失。
- 8.2. 本合同的签订,并未对任何卖方所有的知识产权赋予买方任何许可或授权。
- 8.3. 买方应承诺,其自身以及其员工、代理人和供应商会充分尊重卖方内部业务事宜的保密性。买方在此承诺对根据本合同从卖方得到或者传递给客户(或者,在合同签署之前的讨论或协商中)或者在履行合同的过程中得到的所有信息保密,并不会将该类信息披露给任何人(但是其自身雇员除外,限于需要知悉此类信息的雇员)且仅为与履行其在合同项下的义务有关的目的使用此类信息,不会为其自身的利益或者任何第三方的利益使用。下述信息除外:
  - (1) 在由本合同产生的协商开始之前已经合法占有的信息;或者
  - (2) 已经处于公共领域或者后来进入公共领域的信息(但是因为违反本条款而进入公共领域的除外);或者
  - (3) 合法持有并有权披露信息的第三方传递或者披露给客户的信息。
- 8.4. 卖方提供的工具、图形、样品、模型、节段、图样、标准、格式、文件和标准尺寸等,以及依据这些制成的物品,在未经卖方书面同意的情况下,不得给予第三方和用于合同规定以外的目的。它们应得到保护,免于未经授权的检查和利用。

#### 9. 不可抗力

- 9.1. 如果由于战争及严重的火灾、水灾、台风、地震、疫情等事件和其他双方同意的不可抗力事由而影响任何一方履行合同,则应顺延履行合同的期限,延迟的时间应相当于不可抗力事由所影响的时间。
- 9.2. 受不可抗力事由影响的一方在条件允许的情况下应尽快将该事由书面通知另一方。在此情形下,在不可抗力所引起的迟延的范围内,应免除受影响的履约义务。
- 9.3. 不可抗力事由存续期间,双方应各自负担因延迟履行其合同义务而产生的各项费用。
- 9.4. 如果不可抗力事故持续90日以上,则双方应协商继续履行或终止该项买卖。如果不可抗力事故发生之日起90日内双方仍无法达成协议,则任何一方均可撤销该项买卖。在此情形下,双方应各自承担费用,并不得就因解除而产生的损害主张赔偿。

#### 10. 合同的解除与终止

- 10.1. 双方协商一致的,可以终止合同的履行。一方根本性违约的,另一方有权解除合同,但应当及时书面通知对方。

#### 11. 适用法律和争议解决

- 11.1. 本条款的解释和履行,适用中华人民共和国法律。
- 11.2. 买卖双方之间就本合同相关事宜产生争议时,买方和卖方应通过友好协商解决。经协商仍不能解决的,应通过诉讼解决,由卖方所在地人民法院管辖。

#### 12. 特别约定

- 12.1. 如果本《合同通用条款》与双方书面签订的合同条款有冲突,以书面签订的合同条款为准。

## 版本说明 IMPRINT

### 翰默HAIMER大样本

2022年12月 初版

#### 出版者

Haimer GmbH  
Weiherstraße 21  
86568 Igenhausen, Deutschland

#### 法律负责人

Claudia Haimer

#### 项目经理

Tobias Völker

#### 构思与设计

Tobias Völker  
Andreas Kreppold  
Martin Schleicher

#### 摄影

Andreas Kreppold  
Martin Schleicher  
Lighthouse Fotografie  
Fotografie Holger Weiß  
Adobe Stock

#### 印刷

上海意俊杨广告传播有限公司

本样本仅供商业用途。

本样本受版权保护。任何一种(部分的) 重印请求需获得出版者明确的许可。

该大样本包括增补、摘录或附录, 是免费提供给我们的客户。本样本是非绑定的, 样本信息的正确性是负责的(例如: DIN / ISO公司标准的变化等)。如有技术变更, 恕不另行通知。

该样本中的图片可能与产品不同。可能出现的印刷错误、技术发展导致的产品变化是负责的。此外, 由于印刷工艺的原因, 样本中的产品颜色可能会和原产品不同。

一般来说, 所有订单的交易和交付都是基于我们的交货和付款条件。

### HAIMER Delivery Program

1st Edition 12/2022

#### Publisher

Haimer GmbH  
Weiherstrasse 21  
86568 Igenhausen, Germany

#### V. i. S. d. P.

Claudia Haimer

#### Project lead

Tobias Völker

#### Conception & Design

Tobias Völker  
Andreas Kreppold  
Martin Schleicher

#### Photography

Andreas Kreppold  
Martin Schleicher  
Lighthouse Fotografie  
Fotografie Holger Weiß  
Adobe Stock

#### Printshop

Shanghai Jollythink Advertising Co., Ltd.

This catalog is for commercial use only.

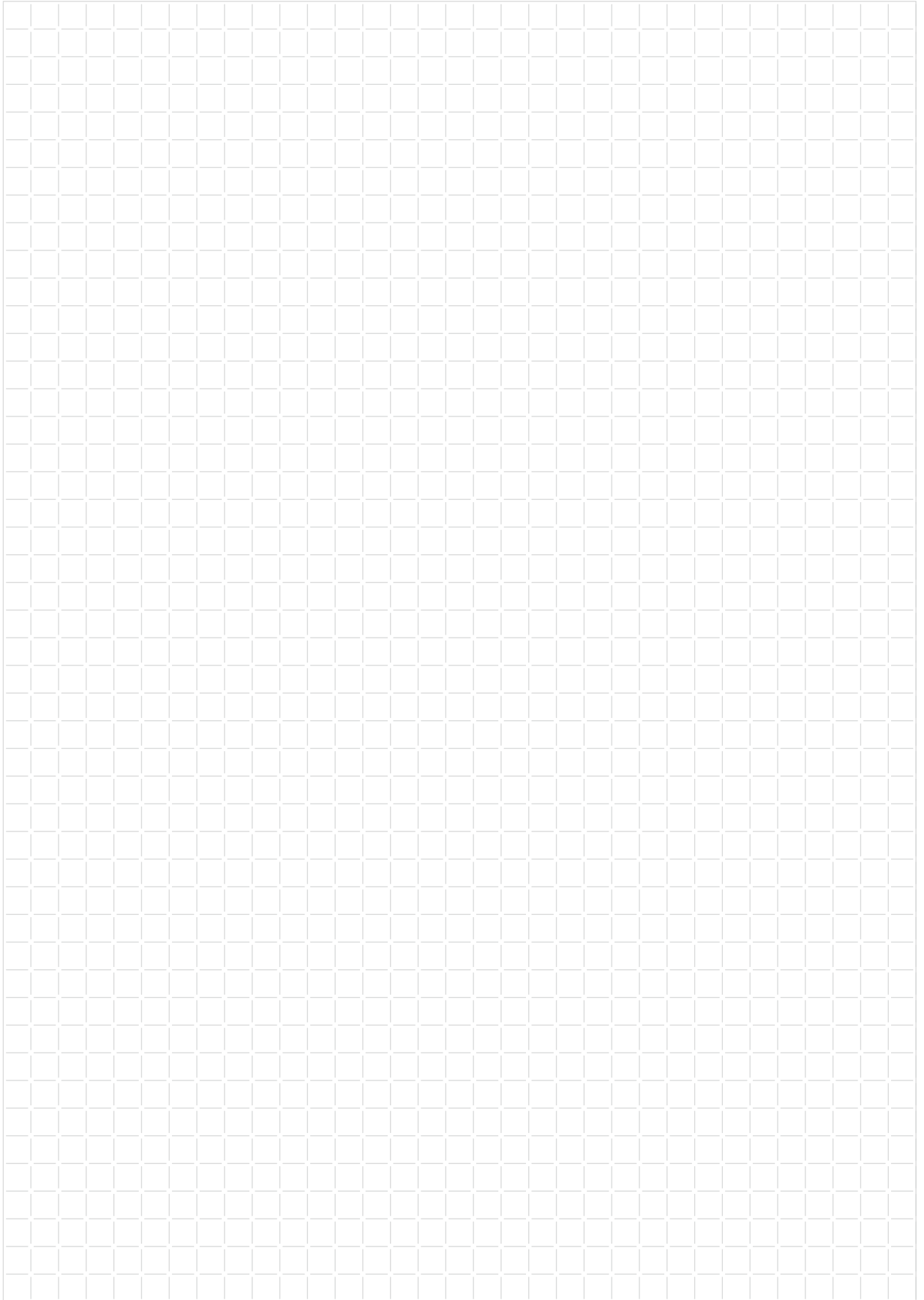
This catalog is protected by copyright. Any kind of (partial) reprint requests explicit permission by the publisher.

The catalog including supplements, excerpts or appendices is provided to our customers free of charge. The content of this catalog is non binding. No responsibility is taken for the correctness of the information (DIN / ISO company standard changes etc.). Subject to technical change without prior notice.

Subject to technical change without prior notice.

Pictures in the catalog might vary from the original product. No responsibility is taken for possible printing errors, product changes through technical further developments or model changes. Furthermore the colors in the catalog might vary from the original product colors due to printing technology reasons.

In general all order transactions and deliveries are based on our terms of delivery and payment.



刀具管理技术

Tool Management Logistics

刀具技术

Tooling Technology

测量技术

Measuring Technology

热缩机技术

Shrinking Technology

对刀技术

Presetting Technology

动平衡机技术

Balancing Technology

您的机床领域的系统合作伙伴  
YOUR SYSTEM PARTNER AROUND THE MACHINE TOOL.

翰默

HAIMER®



翰默(上海)贸易有限责任公司 | 中国上海市松江区莘砖公路258号42幢3楼(201612) | 电话: +86-21-6776 6318  
传真: +86-21-6776 6319 | haimer@haimer.cn | 网站: www.haimer.cn