

- ◎ PCB电主轴系列
PCB electric spindle series
- ◎ 玻璃磨削电主轴系列
Electric spindle glass grinding series
- ◎ 高光及超精加工电主轴系列
High-gloss and superfinishing electric spindle series
- ◎ 超声波主轴系列
Ultrasonic spindle series
- ◎ 加工中心主轴系列
Machining center spindle series
- ◎ 钻攻中心电主轴系列
Drilling and tapping center electric spindle series
- ◎ 雕铣电主轴系列
Engraving and milling electric spindle series
- ◎ 液压、磨削主轴系列
Hydrostatic and grinding spindle series
- ◎ 车床主轴系列
Lathe spindle series
- ◎ 木工电主轴系列
Woodworking electric spindle series
- ◎ 牙雕电主轴系列
Dental electric spindle series
- ◎ 减速器系列
Reducer series
- ◎ 直线电机系列
Linear motor series
- ◎ 转台及摆头系列
Turntable and swivel rotary head series
- 刀柄夹头系列
Tool holder and collet series
- ◎ 夹具系列
Clamping series
- ◎ 昊志氢电空压机
Haozhi hydrogen electric air compressor



刀柄夹头系列

Tool holder and collet series



www.haozhihs.com

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广州市昊志机电股份有限公司
GUANGZHOU HAOZHI INDUSTRIAL CO.,LTD.

高精 · 高效 · 高稳定性

昊志机电产品之道

High precision · High efficiency · High stability

The way of HAOZHI industrial products

组合精度最高可达 $1\mu\text{m}$

The combined accuracy is up to $1\mu\text{m}$

关于我们 About us

广州市昊志机电股份有限公司成立于2006年，是一家专业从事中高端数控机床、机器人、新能源汽车核心功能部件等的研发设计、生产制造、销售与维修服务的国家高新技术企业，于2016年在创业板上市（股票代码300503）。

昊志机电秉承“立足自主技术创新、服务全球先进制造”的发展战略，逐步发展成为国内外主轴专业领域中研产销规模最大的企业之一，电主轴领域全球市场占有率第一，公司立足主轴行业，借助在研发、制造、客户、品牌等方面的积累，稳步向数控机床和工业机器人等高端装备的核心功能部件领域横向扩张，目前产品涵盖PCB钻孔机/成型机/划片机电主轴、数控金属/玻璃雕铣机电主轴、数控车床主轴/电主轴、走芯车床电主轴、直结与皮带式机械主轴、加工中心电主轴、钻攻中心电主轴、高速内/外圆磨床主轴、木工雕铣机电主轴、高光及超精加工电主轴、超声波电主轴、液静压主轴、铣削动力头、末端执行机构、刀柄夹头、数控转台、直线电机、谐波减速器、数控系统、伺服电机、驱动器、传感器、燃料电池压缩机、曝气鼓风机、直驱类高速风机等数十个系列上百种产品。

昊志机电拥有一批经验丰富、锐意创新的科技型人才队伍，研发人员300余人，研究生占比12%，具备优异的创新水平、研发实力和竞争力，近三年平均研发投入占营收比重的8%以上，截止2023年12月31日，公司及境内子公司合计拥有专利779项。公司具备完善、齐全的各类高端实验室，包括：理化实验室、轴承实验室、测量实验室、电机实验室、综合性能实验室、切削实验室、直线电机实验室、减速机实验室、机器人实验室、磨合测试实验室、抗干扰能力实验室、可靠性实验室等。



Guangzhou HaoZhi Industrial Co., Ltd., founded in 2006 and listed (stock code: 300503) on GEM in 2016, is a national high-tech enterprise specializing in the R&D, design, production, sales and maintenance of core functional components for mid- to high-end CNC machine tools, robots, new-energy vehicles field.

HaoZhi Industrial adheres to the development strategy of "relying on independent technological innovation and serving global advanced manufacturing", and gradually develops into one of the largest enterprises in the field of research, production and sales of domestic and foreign spindle specialties. The global market share in the field of electric spindle is the first, and the company is based in the spindle industry, leveraging its accumulation in research and development, manufacturing, customers, brands, and other aspects, Steadily expanding horizontally into the core functional components of high-end equipment such as CNC machine tools and industrial robots. Currently, our products cover PCB drilling machines/forming machines/scoring electromechanical spindles, CNC metal/glass engraving and milling electromechanical spindles, CNC lathe spindles/electric spindles, core lathe electric spindles, straight and belt type mechanical spindles, machining center electric spindles, drilling center electric spindles, high-speed inner/outer cylindrical grinding machine spindles, woodworking engraving and milling electromechanical spindles High gloss and ultra precision machining electric spindles, ultrasonic electric spindles, hydrostatic spindles, milling power heads, end effectors, tool holder chucks, CNC turntables, linear motors, harmonic reducers, CNC systems, servo motors, drivers, sensors, fuel cell compressors, aeration blower fans, direct drive high-speed fans, and dozens of series or hundreds of products.

HaoZhi Industrial has a team of experienced and innovative technology-based talents, with over 300 R&D personnel and 12% of graduate students. It has excellent innovation level, R&D strength, and competitiveness, with an average R&D investment accounting for over 8% of revenue in the past three years. As of December 31, 2023, the company and its domestic subsidiaries have a total of 779 patents. The company has a complete range of high-end laboratories, including physical and chemical laboratories, bearing laboratories, measurement laboratories, motor laboratories, comprehensive performance laboratories, cutting laboratories, linear motor laboratories, reducer laboratories, robot laboratories, running-in testing laboratories, EMC laboratories, reliability laboratories, etc.





汇聚全球顶尖的加工设备
最高加工精度可达 $0.1\mu\text{m}$

Gathers World-class cutting-edge processing equipment

Asia's first fully automated production line,
Machining precision up to $0.1\mu\text{m}$

全球知名的生产基地

厂房建筑面积18.9万平方米, 产能达约120,000台套/年

World famous production base

Covering an area of $189,000\text{m}^2$, capacity: about 120,000 sets per year



雄拥世界级技术研究中心
300余人研发团队, 近三年研发投入占销售额8%以上

Haozhi has world-class technology research center

More than 300 R&D team, R&D investment in the past three years accounted for more than 8% of sales



国际一流检测仪器及设备
具备纳米级检测精度

Ultra-precision measuring instrument and inspection equipment

With nanoscale precision

工匠精神

CRAFTMANSHIP

坚持做一件事，
聚焦做一件事，
简单的事情做到极致。

Stick at one thing.
Concentrate on one thing.
Make the best of simple things.

She Said	He Said	They Said
她说	他说	他们说



研发技术

R & D Technology



研发平台

目前，公司已设立了PCB和气浮超精主轴组、机床主轴组（含高速加工中心主轴、动力头主轴、磨床主轴等）、雕铣和木工主轴组（含玻璃雕铣、金属雕铣）、超声波主轴组、外驱和车床主轴组、液静压主轴组、转台和摆头组、刀柄夹头组、减速器组、直线电机组、电机组、仿真和测试组、切削和应用组、驱动和控制组、产品服务组等专业组别，其不仅面向具体产品的研发，还涉及关键研发手段的应用研究。此外，公司建立了理化试验室、测量实验室、轴承实验室、电机实验室、切削性能实验室、综合性能实验室、噪声实验室以及常规性能实验室等研发检测实验室，在PLM（产品生命周期管理）、CAPP（计算机辅助工艺过程设计）等先进的研发和工艺数据管理软件的辅助下，使公司的研发平台不断完善。

除自主研发外，公司还与广东省科学院等单位建立了良好的合作关系，目前合作共建有电主轴联合实验室、电机联合实验室、轴承联合实验室、高性能电主轴联合技术创新中心等平台，通过与高等院校和科研院所在电机、轴承等基础部件和超高速气浮电主轴振动机理研究、电机驱动性能研究等前沿技术的合作研发，有效提升了公司技术研发的理论水平和前沿技术的储备。

R & D platform

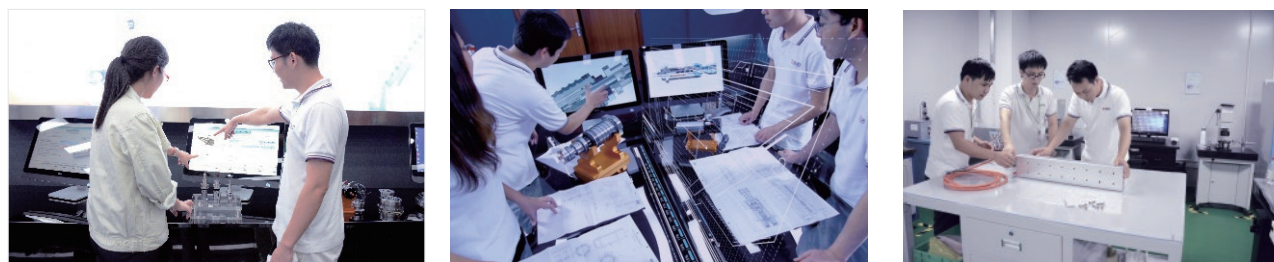
We set up many professional technology teams for PCB and air bearing ultra-precision spindle, machining tool spindle (including high-speed machining center spindle, small motor spindle, grinding spindle, etc.), engraving, milling, woodworking spindle (including glass engraving and milling spindles, metal engraving and milling spindle), ultrasonic motorized spindle, externally driven / lathe spindle, hydrostatic spindle, rotary, AC 2-axis head, tool holder and collet, reducer, linear motor, motor. In addition, we also have simulation and testing team, cutting performance study, driver and control system, customer service team. These teams are not only involved in research and development of specific products, but also in R&D methods and approaches. Moreover, we also build different R&D and testing labs, such as physical and chemical lab, measurement center lab, bearing lab, motor lab, cutting performance testing lab, comprehensive performance lab, noise testing lab, and regular performance testing lab, and so on. By using the PCM (product Life cycle management), the APPC (Computer aided process planning) and other advanced management software of research and technology data, the R&D platform is getting increasingly perfect.

We develop a good relationship with Guangdong Academy of Sciences, who work together for setting up platforms such as motorized spindle joint lab, motor joint lab, bearing joint lab, high performance motorized spindle joint innovation center. The cooperation with academic and technology institutions in basic components such as motors and bearings, and in advanced areas such as vibration mechanism of super high-speed motorized spindle, and motor drive performance, has effectively improved the theoretical research level and cutting-edge technologies.



研发技术

R & D Technology



研发优势

经过长期经营积累，公司已形成了先进的研发体系，建立了完善的研发平台，并拥有世界级技术研发中心，近三年来投入研发费用占营业收入比重平均达8%以上，积累了高素质的研发团队，掌握了领先的研究方法，使研发实力和技术水平达到国内领先水平，截至目前，公司共拥有授权专利超700项。并获得“国家重点新产品”“高新技术企业”、“国家知识产权优势企业”、“广东省名牌产品”“广东省知识产权示范企业”、“广东省创新型企业”、“广东省十佳诚信企业”“广东省高新技术产品”“广州市著名商标”“广州开发区专利创造二十强”、“广州开发区萝岗区区长质量奖”等荣誉。

公司被广东省科学技术厅授予“广东省电主轴工程技术研究中心”，被广东省经济和信息化委员会，广东省财政厅，广东省地方税务局，广东省国家税务局，中华人民共和国海关总署广东分署联合授予“广东省企业技术中心”，进一步巩固了公司的技术研发优势；荣获“广州开发区博士后创新中心”奖，并成为“国家强基工程项目超精密静压电主轴实施单位”；获得“广东省企业技术中心”等荣誉。

R & D Advantage

After long-term operation and accumulation, We have created an advanced R&D system, platform and a high quality R&D team, and have a world-class technology research and development center. Average annual R&D spending exceeded 8% of the company's revenue in the past three years. We mastered the leading research methods, and made the research and development strength and technical level reach the domestic leading level. Up to now, the company was awarded about 700 patents. Haozhi Industrial also won the honor of “National Key New Product”, “High Technology Enterprise”, “National Advantageous Intellectual Property Enterprise”, “Guangdong Top Brand Products”, “Intellectual Property Demonstration Enterprise of Guangdong Province”, “Innovative Enterprise of Guangdong Province”, “Top Ten Integrity Enterprise”, “High-tech Products of Guangdong Province”, “Famous Trademark of Guangzhou City”, “Top Twenty of Patent Invention of Development Zone of Guangzhou”, “District Chief Quality Award of Luogang District, Development Zone”, etc. Haozhi was awarded the title of Guangdong Engineering Research Center of Motorized Spindles by Guangdong Science and Technology Department, Guangdong Province Enterprise Technical Center by the Economic & Information Commission of Guangdong Province, Finance Department of Guangdong Province, Guangdong Local Taxation Bureau, Guangdong Provincial Office, SAT, and Guangdong Sub-Administration of China Customs. As a result the company leading position in technology and R&D was further consolidated. it won the award of “Post-doctor Innovation Center of Guangzhou Development Zone” and became the “Project Undertaker of National Strong Foundation Engineering Project of the Ultra-precision Static Pressure Electric Spindle”; it won the honor of “Enterprise Technology Center of Guangdong Province” etc.

研发团队

公司秉承“技术支撑产品，管理提升品质”的理念，掌握了完整的电主轴设计生产相关的技术工艺，自成立以来，一直重视研发投入和技术团队建设。同时公司积累了一支高素质的专业科研队伍，截止目前，公司拥有研发人员300多人，研发经验丰富。

R & D Team

Product and quality are depend on technology and management, which is the concept we hold all the time. Also Haozhi Industrial masters complete technical craft relevant to the design and manufacturing of electric spindle. Since the foundation, we attached great importance to R&D investment and team building. During the course, we have developed a R&D team with high professionalism. We have more than 300 people working in this area who have accumulated technology knowledge and R&D experience.

研发思路

立足于我司长期机床及主轴切削技术，稳定输出高品质筒夹式刀柄、热缩刀柄及后拉式刀柄、磨削刀柄等高性能刀柄夹头产品，专业的设计团队及优质的研发环境在立足于市场前提下同步开发为客户提供多样化切削方案的刀柄夹头产品。

R & D Direction

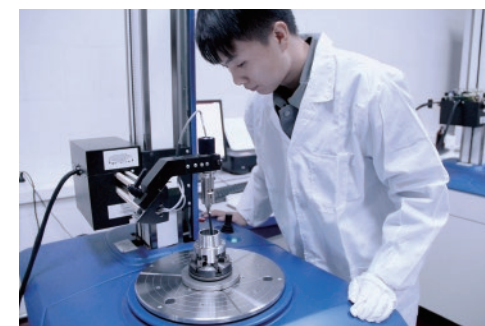
Based on our long-term machine tool and spindle cutting technology, we have stable output of universal collet tool-holder, thermal shrinkage tool-holder, back-pull tool-holder and grinding tool-holder. Professional R&D team with high quality condition develop new products according to the market's requirement to provide tool holder collet which satisfy a variety of cutting solutions for our customers.

研发方针

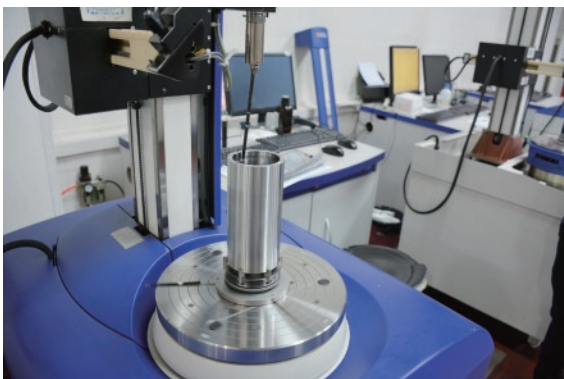
自主研发自主创新为主，联合研发为辅，拥有自主核心技术。

R & D Guideline

Based on independent development and innovation, supplemented with joint development, and aspired for proprietary core technologies.



质量体系 Quality System



设计品质

公司拥有行业最先进的人才培训体系和研发团队，常年聘请多名行业专家作为研发顾问管控设计品质；依托PLM系统、CAPP系统，使产品设计更加系统化、数字化、流程化，具备良好的市场适应能力，确保昊志产品一直处于行业领先地位。

Design quality

The company boasts the most superior talents training system and R&D team in the industry, and multiple specialists are employed around the year to control design quality as development advisors. PLM system and CAPP system are leveraged to make product design more systematic, digital, and streamlined, which keeps the company stay at the forefront of the industry.

制造品质

昊志致力于打造先进完善的加工制造车间，严格执行ISO9001质量管理体系、ISO14001环境管理体系，并配备世界顶级加工设备，为产品加工品质提供坚实保障。

Manufacturing quality

Haozhi is committed to building advanced and perfect manufacturing workshops, implementing strictly ISO 9001 quality management system, and ISO 14001 environmental management system, which in combination with world top processing equipment surely guarantee the quality of product processing.



核心零部件品质

所有产品关键零部件坚持选用国际一流品牌作为生产原料供应商，其中轴承、编码器为核心部件更是选自国际顶尖品牌。所有原材料入库之前均需要经过严格的入库质量检测，只为铸就卓越品质。

Quality of core-components

All key spare parts and components of our products are supplied by international first class brands, especially bearings, encoders, and so on, which are from top brands of the world. All raw materials undergo strict incoming inspections before acceptance into warehouse.

完善的质检流程

昊志严格按照国家和行业的标准要求，针对不同的零件、产品制定了严格的品质检测标准，保证产品质量的零缺陷，确保客户放心使用。

Perfect quality assurance system

In order to guarantee zero defect of our products, which customers could use them safely, Haozhi has established stringent quality inspection standards for different products in accordance with international and industry standards.

服务保障体系

通过“建站服务”、“统包维修”等颇具行业特色的服务模式，帮助客户对刀柄夹头故障原因做出正确判断并根据提出合理化的切削方案，进一步提高产品加工精度和加工效率，给客户带来更大的经济效益。

Service and warranty system

With Station Construction Service, One-Stop Package of Maintenance and Service, and other distinct service modes with industry characteristics, we help customers correctly identify the causes of chuck and collet failures, offer optimized cutting suggestions, further improve the processing accuracy and efficiency of the products, thus bringing more profit for the customers.

服务优势 Advantage Of Service

完善的售前、售中、售后服务，把24小时服务、超前服务、全程服务、终身服务、贯彻在产品制造、安装、调试、维修的全过程；保证出厂产品达到相应标准或约的技术条件，并使出厂产品合格率达到100%。

为重点工程配套的设备和产品，按合同要求保质保量、及时准确交货，对需要技术服务的将派专业技术服务人员参加开箱验收和指导安装、调试工作，直至设备正常转。

若用户需进行技术培训，本公司会全力帮助用户培训操作、保养、维修等有关人员，并对重点用户进行走访，质量跟踪。

定期召开用户座谈会，并对用户来函、来电、来访等信息，及时做好登记传递、分析、处理、反馈等工作，并根据用户需求改进产品性能，不断提高产品质量。

根据不同需求，可满足客户对备品、备件的要求。



With complete pre-sale service and after-sale service, the 24-hour service, anticipatory service, whole-process service, and lifetime service could be implemented through the whole process from production, installation, testing, repairing and overhaul. We guarantee that all products comply completely with technical requirements of industrial standards.

Supporting equipment and products for key projects will be delivered in time and of good quality and quantity as required in the contract. When technical service is required, professional technicians will be sent to participate in the whole process from disassembly inspection, installation instruction, and commissioning, until the normal operation of the machines.

Where the customer needs technical training service, Haozhi will do its best to help customers train their workers on operation, maintenance and repairing. Regularly visit would be paid to follow the progress of project and quality issue.

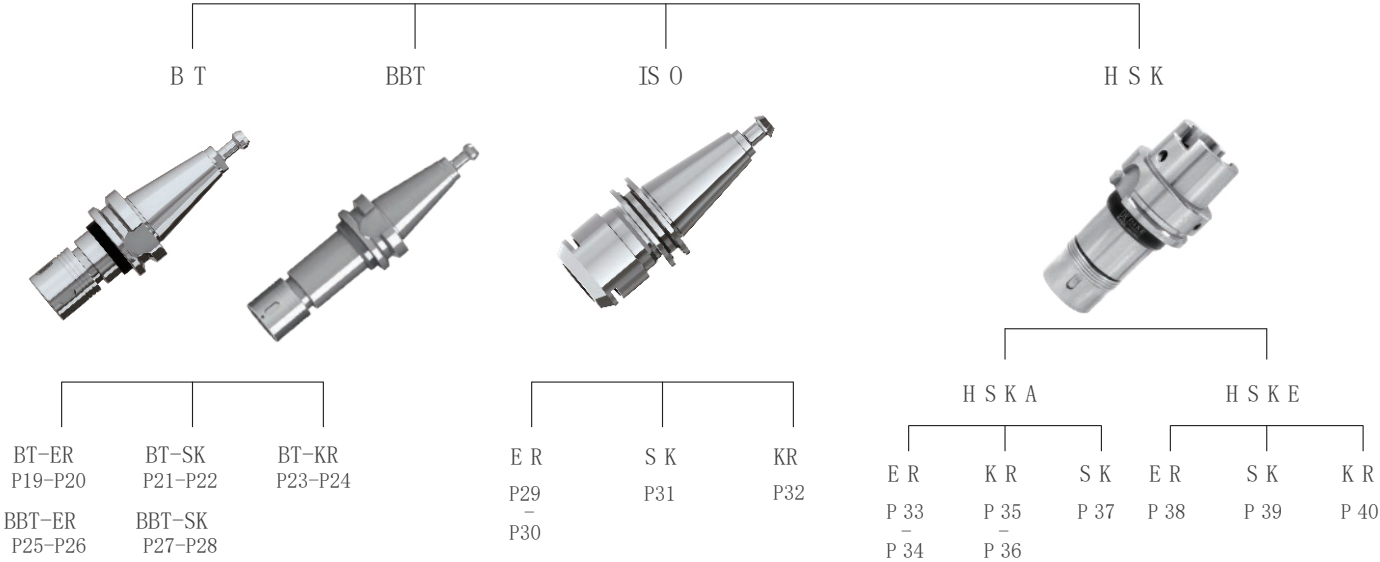
Regular customer meetings will be held. All correspondences, calls, and visits from the customers will be timely recorded, communicated, analyzed, processed, and responded. Improvements to product performance and quality will be made in accordance with customers' needs.

Alternative products and parts are available to satisfy customers' different needs.

产品目录

弹簧夹头刀柄

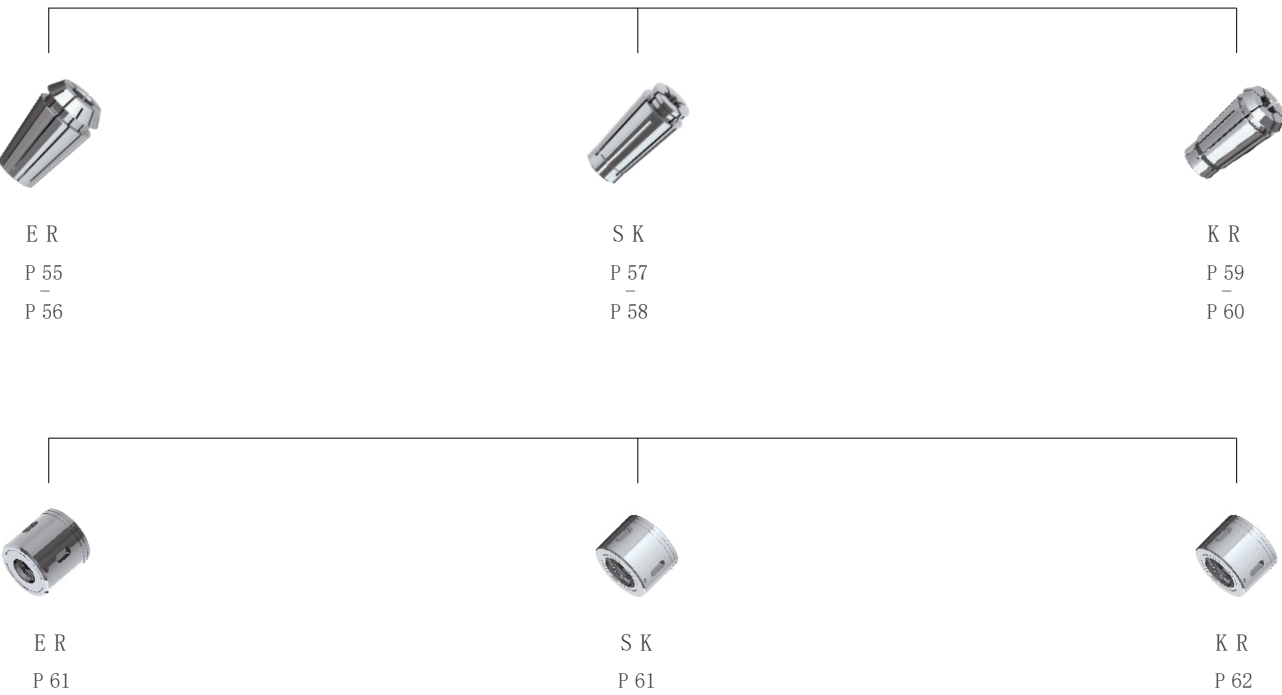
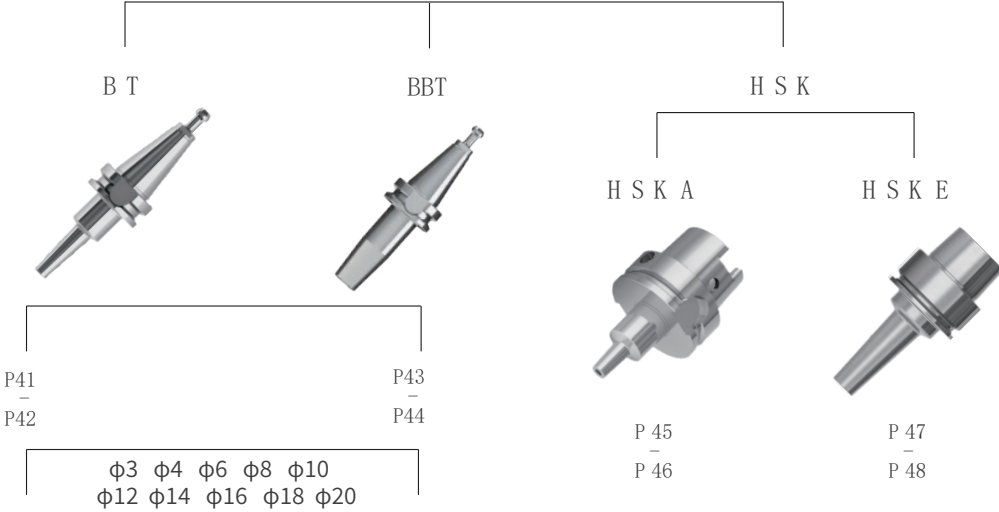
Spring chuck tool holder



PRODUCT LIST

热缩刀柄

Shrink-fit tool holder



外转内冷刀柄

External-rotation and internal-cooling tool holder



可定制化刀柄

Customized tool holder

完美解决现场复杂切削，提供稳定切削方案，高度自由、定制化设计。
Complex on-site cutting is perfectly realized; provide stable cutting scheme; highly free and customized design.
P 51-P54

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刀柄夹头产品系列

Tool Holder and Collet Series

为您提供高速高精高效的刀柄切削系统。
特别定制的超级耐磨弹性不锈钢材质,超强防锈耐磨,持久保持精度稳定性。

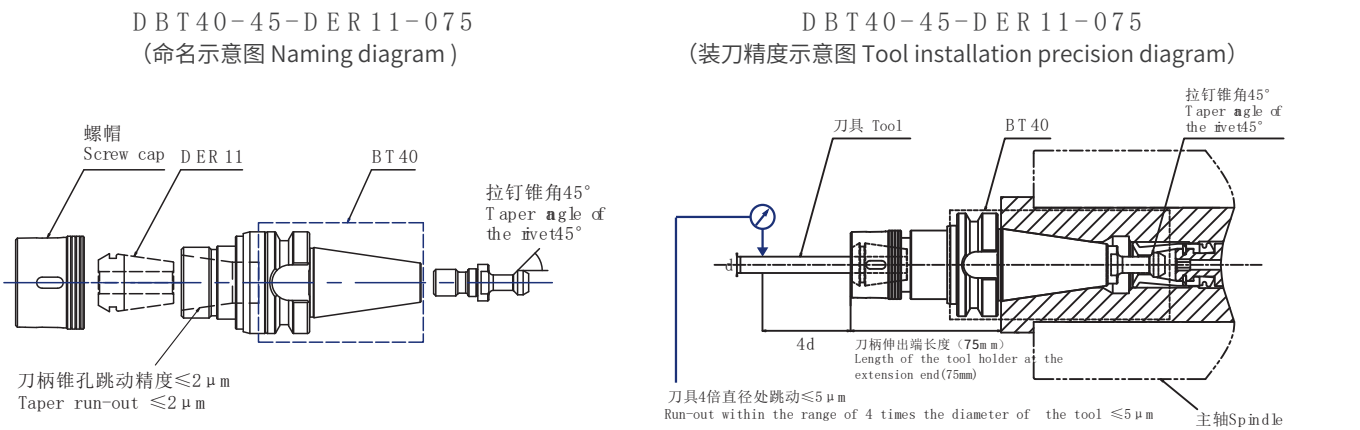
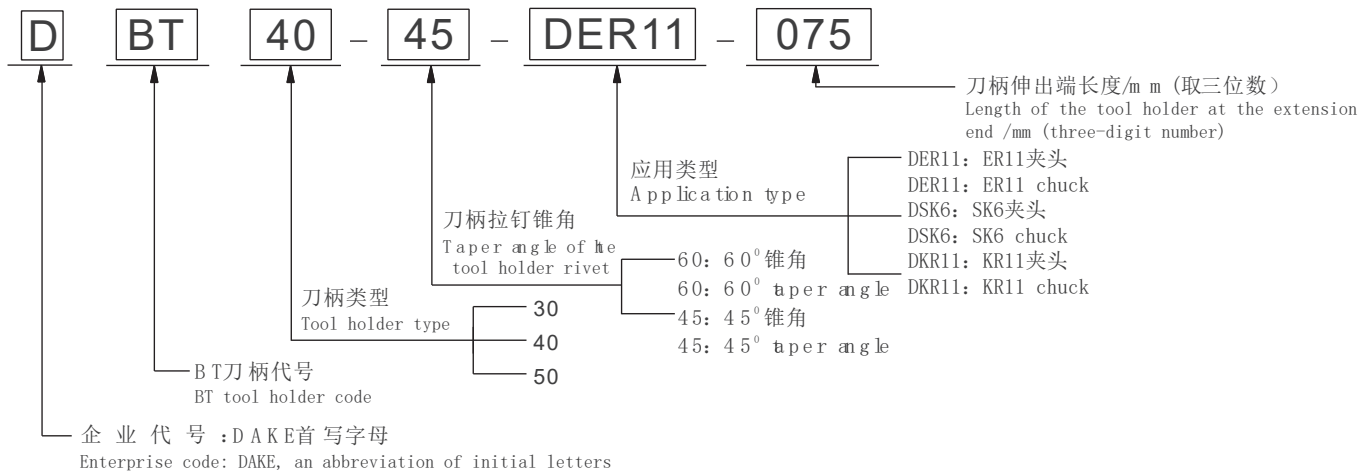
We provide you with a high-speed, high-precision, and high-efficiency tool holder cutting system.
Specially customized super wear-resistant, elastic, stainless steel material, with super rust prevention, the tool holder and collet can be used stably with high precision all the time.



主要性能特点

Main Features

全对中设计 质量中心与旋转中心高度重合GO.4动平衡等级, 实现极低振动。	Fully centered design The height of the center of mass and rotation coincides with the GO. 4 dynamic balance level, achieving extremely low vibration.
高效率 实现超精密加工与高表面加工质量匹配转速可达90000rpm, 实现高效加工。	High efficiency To achieve a matching speed of 90000rpm between ultra precision machining and high surface machining quality, achieving efficient machining.
创新夹头设计 配合更精密, 实现更大的夹持力与夹持刚性, 精度稳定。	Innovative collet design Cooperate with more precision to achieve greater clamping force and rigidity, with stable accuracy.
长寿命 独特的热处理工艺, 优秀的选材, 实现防锈耐磨, 大幅提升刀柄使用寿命。	Long service life Unique heat treatment process and excellent material selection achieve rust prevention and wear resistance, greatly improving the service life of the tool handle.
钢珠滚动锁紧设计 无扭转滑动摩擦, 实现超高装刀精度极大提高精度保持性,延长使用寿命。	Steel ball rolling locking design No torsional sliding friction, achieving ultra-high tool installation accuracy, greatly improving accuracy retention, and extending service life.

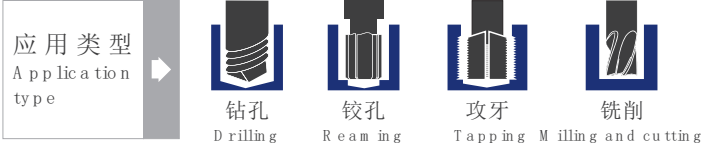


BT-ER 刀柄

BT-ER tool holder

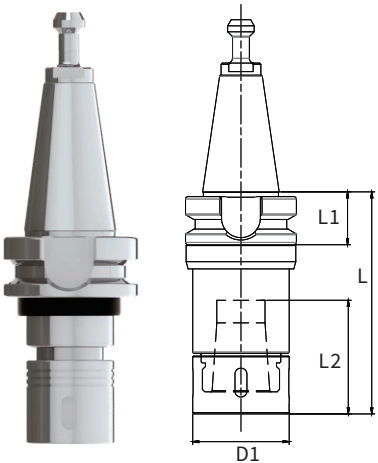
BT 刀柄特点

高精度:刀柄跳动精度 $\leq 2\mu\text{m}$ 。
组合跳动精度 $\leq 5\mu\text{m}$ 。
动平衡等级: $\leq \text{G1}$ 。
先进的表面耐磨防锈工艺。
结构简单,可以实现快速装卸刀具。
适用于较高速的加工中心。
BT刀柄配合的ER夹头锥角为 16° 。
BT刀柄配合ER夹头的优势为:重复精度高 ($\leq 5\mu\text{m}$), 使用寿命长,可夹持范围为 $\Phi 1.0\text{-}30.0\text{mm}$ 的h7精度的刀具,广泛应用于铣、钻、攻丝、雕刻等加工领域。
配合中心出水拉钉,可完美实现内冷功能。



BT tool holder features

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.
Combined run-out accuracy: $\leq 5\mu\text{m}$.
Dynamic balancing grade: $\leq \text{G1}$.
Advanced process of surface wearing resistance and corrosion resistance.
With a simple structure, the tool can be loaded and unloaded quickly.
It is suitable for a machining center with a relatively high speed.
The taper angle of ER chuck for BT tool holder is 16° .
Advantages of BT tool holder with ER chuck: High repeatability precision ($\leq 5\mu\text{m}$), long service life, clamping range of $\Phi 1.0\text{-}30.0\text{mm}$, h7-precision tool. It is widely used for milling, drilling, tapping, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of rivet with central water-out.



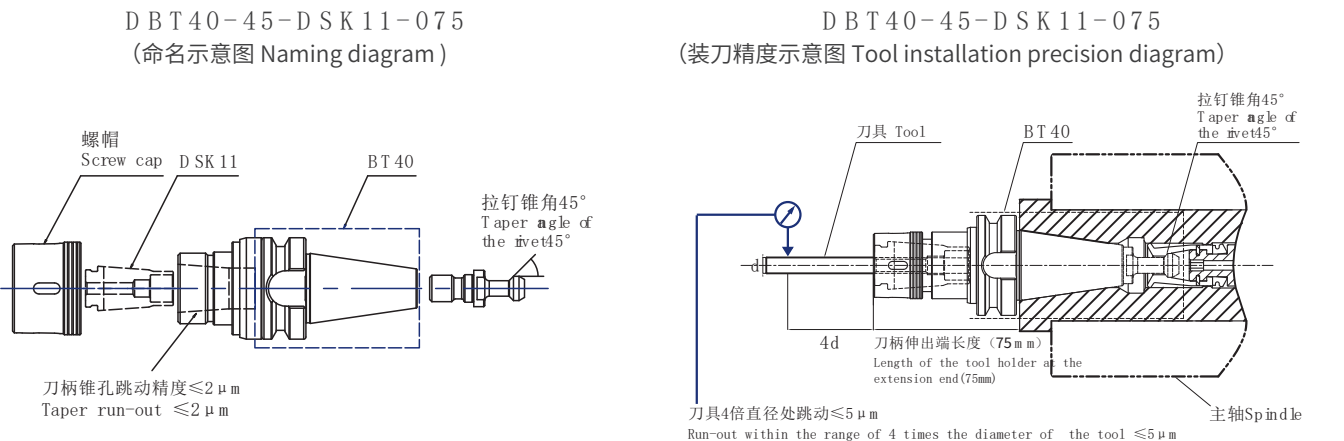
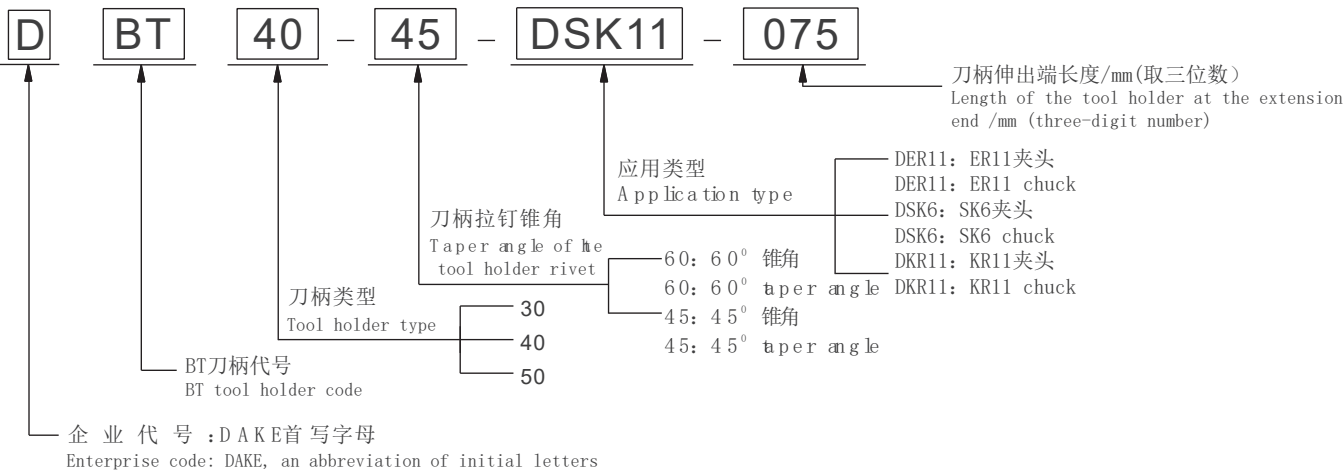
技术参数表

Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸D im ensions				螺 帽 Screw cap	适用转速 Applicable speed	夹 头 型 Chuck type	A级/普通级,AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade				P级/超精密级,PP级/仪器级 Grade P/ultra precision grade,Grade PP/instrument grade			
		L	L1	D1	夹持深度L2 Clamping depth L2				刀 具 直 径 范 围 Range of tool diameter	刀 具 直 径 精 度 要 求 Requirements for precision of tool diameter	刀 具 内 径 范 围 Range of tool inner diameter	刀 具 内 径 精 度 要 求 Requirements for precision of tool inner diameter				
BT30	DBT30-DER8-135	135		12	15.5	DER8B		ER8	2.0-5.0		1.0-5.0					
	DBT30-DER11-070	70														
	DBT30-DER11-080	80		23	19-48	DER11B		ER11	2.0-7.0		1.0-7.0					
	DBT30-DER11-090	90														
	DBT30-DER16-070	70														
	DBT30-DER16-080	80		30	29-58	DER16B		ER16	2.0-10.0		1.0-10.0					
	DBT30-DER16-090	90														
	DBT30-DER20-070	70														
	DBT30-DER20-080	80	22	34	32-68	DER20B	30000RPM	ER20	2.0-13.0	h7	2.0-13.0	h7				
	DBT30-DER20-090	90														
	DBT30-DER25-070	70														
	DBT30-DER25-080	80		42	35-73	ER25B		ER25	2.0-16.0		2.0-16.0					
	DBT30-DER25-090	90														
	DBT30-DER32-070	70														
	DBT30-DER32-080	80		51	35-73	ER32B		ER32	2.0-20.0		2.0-20.0					
	DBT30-DER32-090	90														
BT40	DBT40-DER16-070	70					18000RPM									
	DBT40-DER16-090	90		28	29-58	DER16B	18000RPM	ER16	2.0-10.0		1.0-10.0					
	DBT40-DER16-150	150					15000RPM									
	DBT40-DER20-070	72					18000RPM									
	DBT40-DER20-090	90		34	32-68	DER20B	18000RPM	ER20	2.0-13.0		2.0-13.0					
	DBT40-DER20-150	150					15000RPM									
	DBT40-DER25-070	70					18000RPM									
	DBT40-DER25-090	90	27	42	35-73	DER25B	18000RPM	ER25	2.0-16.0	h7	2.0-16.0	h7				
	DBT40-DER25-150	150					15000RPM									
	DBT40-DER32-070	70					18000RPM									
	DBT40-DER32-090	90		51	41-59	DER32B	18000RPM	ER32	2.0-20.0		2.0-20.0					
	DBT40-DER32-150	150					15000RPM									
	DBT40-DER40-070	70					18000RPM									
	DBT40-DER40-090	90		63	50-93	DER40B	18000RPM	ER40	3.0-30.0		3.0-26					
	DBT40-DER40-150	150					15000RPM									
BT50	DBT50-DER32-070	70														
	DBT50-DER32-090	90														
	DBT50-DER32-100	100		51	41-59	DER32B		ER32	2.0-20.2		2.0-20.2					
	DBT50-DER32-150	150														
	DBT50-DER32-200	200														
	DBT50-DER40-070	70	38				15000RPM			h7		h7				
	DBT50-DER40-090	90														
	DBT50-DER40-100	100		63	50-93	DER40B		ER40	3.0-30.0		3.0-30.0					
	DBT50-DER40-150	150														
	DBT50-DER40-200	200														

技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级,AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade				P级/超精密级,PP级/仪器级 Grade P/ultra precisiongrade, Grade PP/instrument grade	
		L	L1	D1	夹持深度L2 Clamping depth L2				刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter		
BT30	DBT30-DSK6-070	70												
	DBT30-DSK6-080	80		19.5	21-35	DSK6B		SK6	2.0-6.0		1.0-6.0			
	DBT30-DSK6-090	90												
	DBT30-DSK10-070	70												
	DBT30-DSK10-080	80		27.5	30-50	DSK10B		SK10	2.0-10.0		1.0-10.0			
	DBT30-DSK10-090	90												
	DBT30-DSK13-070	70												
	DBT30-DSK13-080	80	22	34	41.5	DSK13B	30000RPM	SK13	3.0-13.0	h7	3.0-13.0	h7		
	DBT30-DSK13-090	90												
	DBT30-DSK16-070	70												
	DBT30-DSK16-080	80		40	40-55	DSK16B		SK16	3.0-16.0		3.0-16.0			
	DBT30-DSK16-090	90												
	DBT30-DSK25-070	70												
	DBT30-DSK25-080	80		55	50-80	DSK25B		SK25	6.0-25.0		6.0-25.0			
	DBT30-DSK25-090	90												
BT40	DBT40-DSK10-070	70					18000RPM							
	DBT40-DSK10-090	90		30	30-50	DSK10B	18000RPM	SK10	2.0-10.0		1.0-10.0			
	DBT40-DSK10-150	150					15000RPM							
	DBT40-DSK16-070	70					18000RPM							
	DBT40-DSK16-090	90	22	42	40-55	DSK16B	18000RPM	SK16	3.0-16.0	h7	3.0-16.0	h7		
	DBT40-DSK16-150	150					15000RPM							
	DBT40-DSK25-070	70					18000RPM							
	DBT40-DSK25-090	90		50	50-80	DSK25B	18000RPM	SK25	6.0-25.0		6.0-25.0			
	DBT40-DSK25-150	150					15000RPM							
BT50	DBT50-DSK16-070	70												
	DBT50-DSK16-090	90												
	DBT50-DSK16-100	100		42	40-70	DSK16B		SK16	3.0-16.0		3.0-16.0			
	DBT50-DSK16-150	150												
	DBT50-DSK16-200	200												
	DBT50-DSK20-070	70												
	DBT50-DSK20-090	90												
	DBT50-DSK20-100	100	38	46.2	45-70	DSK20B	15000RPM	SK20	4.0-20.0	h7	34.0-20.0	h7		
	DBT50-DSK20-150	150												
	DBT50-DSK20-200	200												
	DBT50-DSK25-070	70												
	DBT50-DSK25-090	90												
	DBT50-DSK25-100	100		50	50-80	DSK25B		SK25	6.0-25.0		6.0-25.0			
	DBT50-DSK25-150	150												
	DBT50-DSK25-200	200												



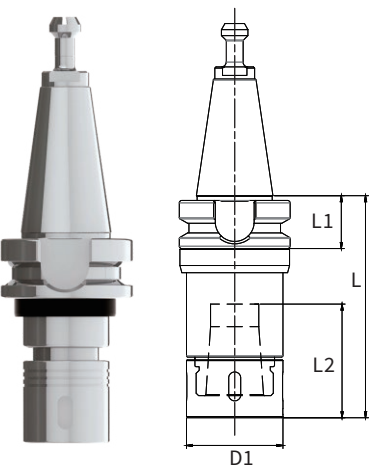
BT-SK 刀柄
BT-SK tool holder

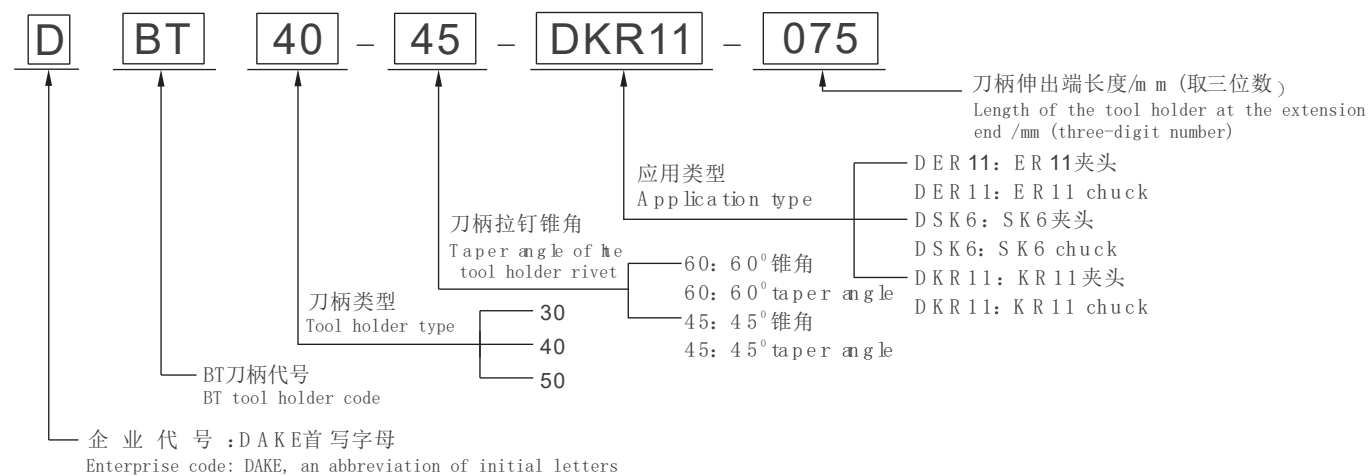
BT 刀柄特点

高精度:刀柄跳动精度≤2μm。
组合跳动精度≤5μm。
动平衡等级:≤G1。
先进的表面耐磨防锈工艺。
结构简单,可以实现快速装卸刀具。
适用于较高速的加工中心。
BT刀柄配合的SK夹头锥角为8°。
BT刀柄配合SK夹头的优势为:重复精度高(≤5μm),使用寿命长,扭矩相较于配合其它种类夹头提高了1.5倍,可夹持范围为Φ1.0-25.0mm的h7精度的刀具,广泛应用于铣、钻、攻丝、雕刻等加工领域。
配合中心出水拉钉,可完美实现内冷功能。

BT tool holder features

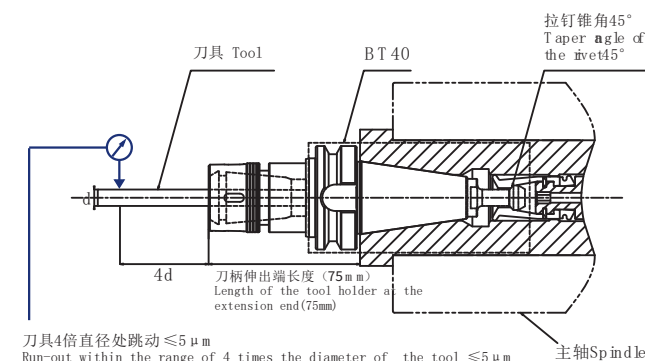
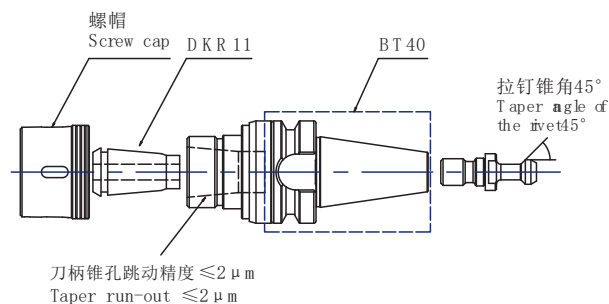
High precision: Tool holder run-out accuracy: ≤2μm.
Combined run-out accuracy: ≤5μm.
Dynamic balancing grade: ≤G1.
Advanced process of surface wearing resistance and corrosion resistance.
With a simple structure, the tool can be loaded and unloaded quickly.
It is suitable for a machining center with a relatively high speed.
The taper angle of SK chuck for BT tool holder is 8°.
Advantages of BT tool holder with SK chuck: High repeatability precision (≤5μm), long service life, 1.5times greater than the torque value of any other type of chuck, clamping range of Φ1.0-25.0mm, h7-precision tool. It is widely used for milling,drilling, tapping, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of rivet with central water-out.





DBT40-45-DKR11-075
(命名示意图 Naming diagram)

DBT 40-45-DKR 11-075
(装刀精度示意图 Tool installation precision diagram)



B T-K R 刀柄
B T-K R tool holder

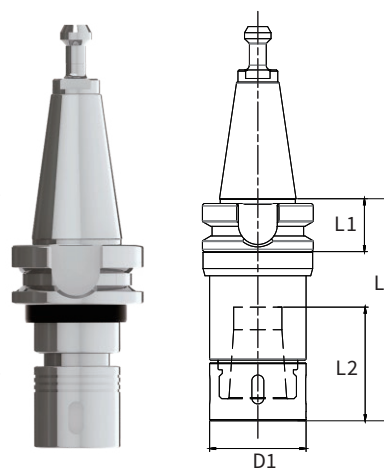


BT刀柄特点

高精度：刀柄跳动精度 $\leq 2\mu\text{m}$ 。
组合跳动精度 $\leq 5\mu\text{m}$ 。
动平衡等级： $\leq \text{G1}$ 。
先进的表面耐磨防锈工艺。
结构简单，可以实现快速装卸刀具。
适用于较高速的加工中心。
BT刀柄配合的KR夹头锥角为 10° 。
BT刀柄配合KR夹头的优势为：重复精度高（ $\leq 5\mu\text{m}$ ），使用寿命长，可夹持范围为 $\Phi 1.0\text{--}24.0\text{mm}$ 的h7精度的刀具，广泛应用于铣、钻、攻丝、雕刻等加工领域。
配合中心出水拉钉，可完美实现内冷功能。

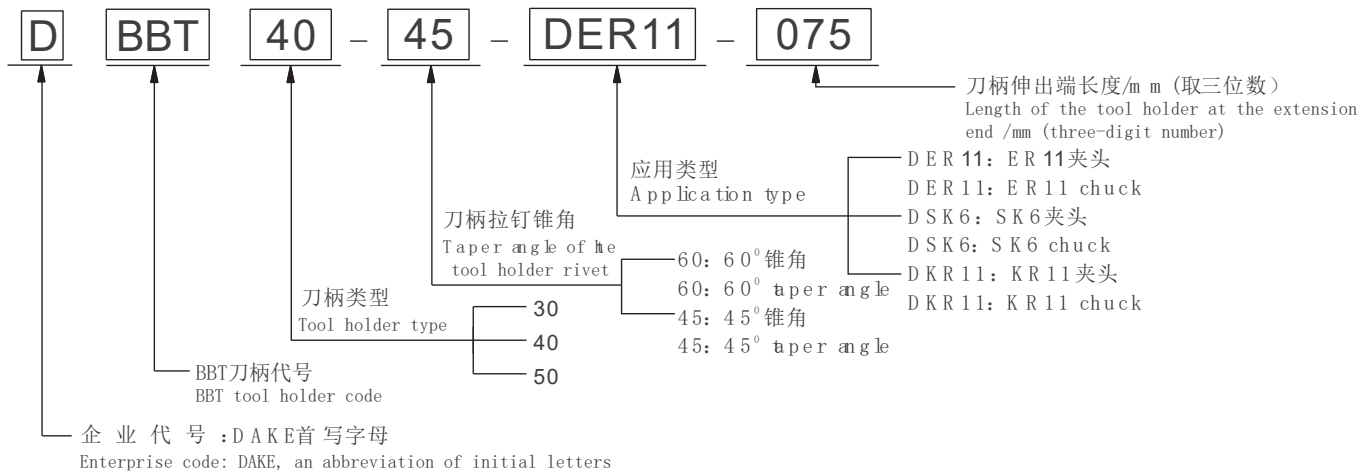
BT tool holder features

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.
Combined run-out accuracy: $\leq 5\mu\text{m}$.
Dynamic balancing grade: $\leq \text{G1}$.
Advanced process of surface wearing resistance and corrosion resistance.
With a simple structure, the tool can be loaded and unloaded quickly.
It is suitable for a machining center with a relatively high speed.
The taper angle of KR chuck for BT tool holder is 10° .
Advantages of BT tool holder with KR chuck: High repeatability precision ($\leq 5\mu\text{m}$), long service life, clamping range of $\Phi 1.0\text{--}24.0\text{mm}$, h7-precision tool. It is widely used for milling, drilling, tapping, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of rivet with central water-out.



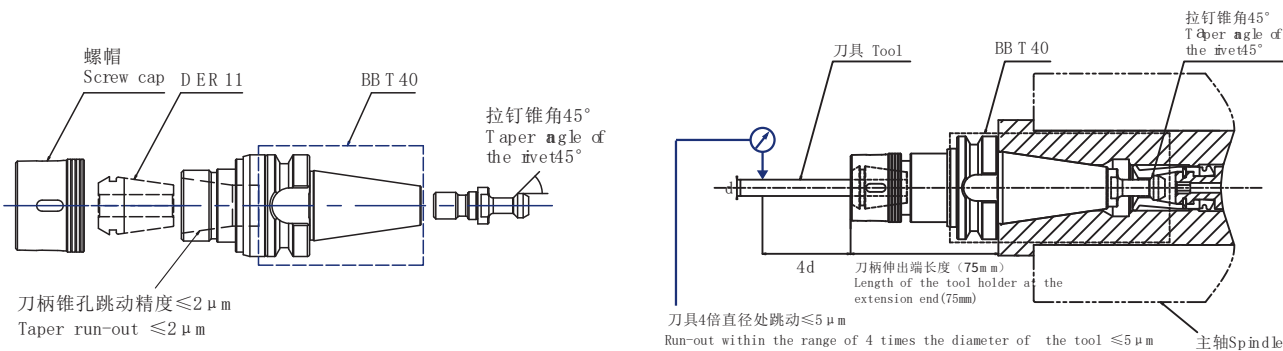
技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺 帽 Screw cap	适用转速 Applicable speed	夹 头 型 Chuck type	A级/普通级、AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、P P级/仪器级 Grade P/ultra precision grade, Grade PP/ instrument grade	
		L	L1	D1	夹持深度L2 Clamping depth L2				刀 具 直 径 范 围 Range of tool diameter	刀 具 直 径 精 度 要 求 Requirements for precision of tool diameter	刀 具 内 径 范 围 Tool internal diameter range	刀 具 直 径 精 度 要 求 Requirement for precision o f tool diameter
BT30	DBT30-DKR11-070	70	22	19.5	21-35	DKR11B	30000RPM	KR11	2.0-6.0	h7	1.0-6.0	h7
	DBT30-DKR11-090	90										
	DBT30-DKR16-070	70		34	30-50	DKR16B		KR16	2.0-8.5		1.0-8.5	
	DBT30-DKR16-090	90										
	DBT30-DKR25-070	70		40	40-55	DKR25B		KR25	3.0-16.0		3.0-16.0	
	DBT30-DKR25-090	90										
	DBT30-DKR36-070	70		55	50-80	DKR36B		KR36	6.0-24.0		6.0-24.0	
	DBT30-DKR36-090	90										
BT40	DBT40-DKR16-070	70	27	30	30-50	DKR16B	18000RPM	KR16	2.0-8.5	h7	1.0-8.5	h7
	DBT40-DKR16-090	90										
	DBT40-DKR16-150	150										
	DBT40-DKR25-070	70		42	40-55	DKR25B	18000RPM	KR25	3.0-14.5		3.0-14.5	
	DBT40-DKR25-090	90										
	DBT40-DKR25-150	150										
	DBT40-DKR36-070	70		50	50-80	DKR36B	18000RPM	KR36	6.0-24.0		6.0-24.0	
	DBT40-DKR36-090	90										
	DBT40-DKR36-150	150										
BT50	DBT50-DKR25-070	70	38	42	40-70	DKR25B	15000RPM	KR25	3.0-14.5	h7	3.0-14.5	h7
	DBT50-DKR25-090	90										
	DBT50-DKR25-100	100										
	DBT50-DKR25-150	150										
	DBT50-DKR25-200	200										
	DBT50-DKR36-070	70		50	50-80	DKR36B	KR36	6.0-24.0	6.0-24.0			
	DBT50-DKR36-090	90										
	DBT50-DKR36-100	100										
	DBT50-DKR36-150	150										
	DBT50-DKR36-200	200										



DBB T 40-45-DER11-075
(命名示意图 Naming diagram)

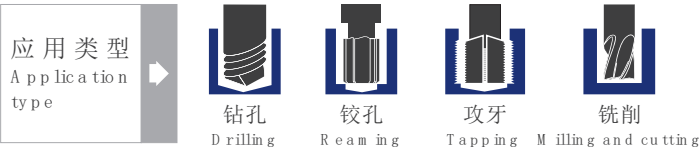
DBB T 40-45-DER11-075
(装刀精度示意图 Tool installation precision diagram)



BBT-ER 刀柄 BBT-ER tool holder

BBT 刀柄特点

高精度:刀柄跳动精度 $\leq 2\mu m$ 。
组合跳动精度 $\leq 5\mu m$ 。
动平衡等级: $\leq G1$ 。
先进的表面耐磨防锈工艺。
结构简单,可以实现快速装卸刀具。
适用于较高速的加工中心。
BBT刀柄配合的ER夹头锥角为16°。
BBT刀柄配合ER夹头的优势为:重复精度高($\leq 5\mu m$),使用寿命长,可夹持范围为 $\Phi 1.0-30.0mm$ 的h7精度的刀具,广泛应用于铣、钻、攻丝、雕刻等加工领域。
配合中心出水拉钉,可完美实现内冷功能。

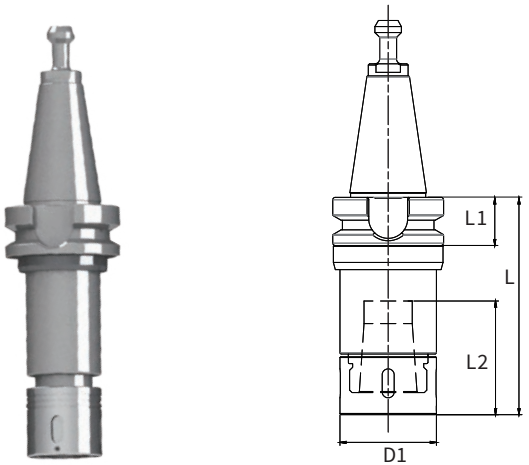


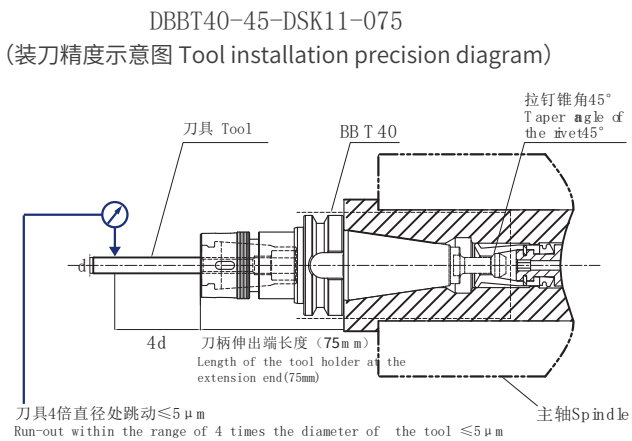
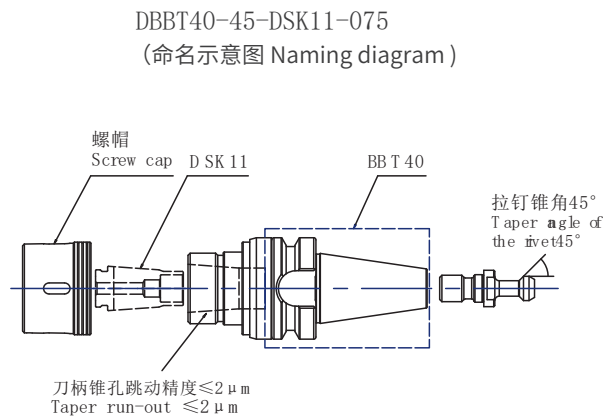
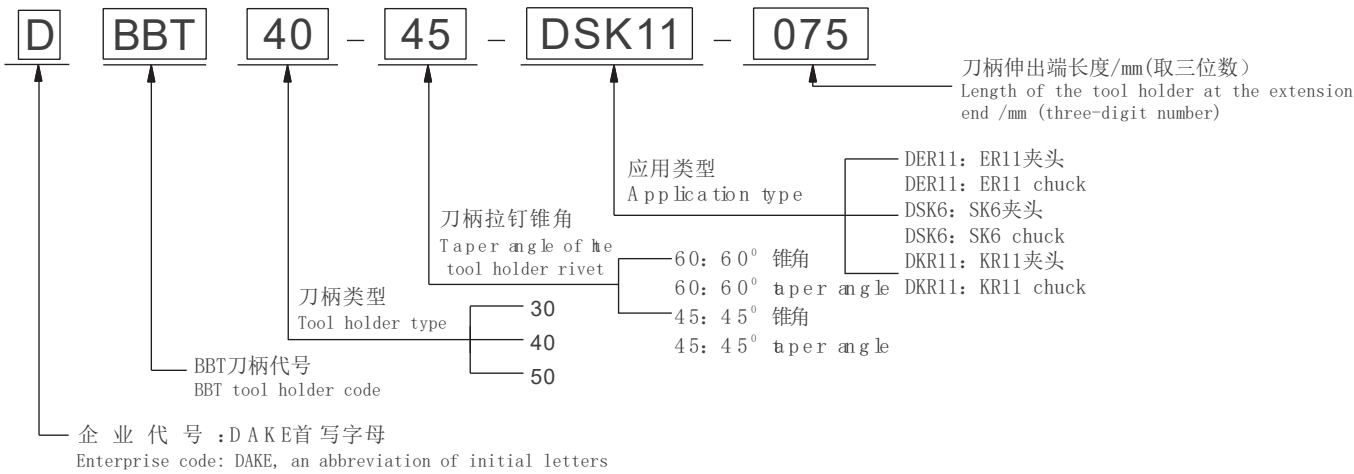
BBT tool holder features

High precision: Tool holder run-out accuracy: $\leq 2\mu m$.
Combined run-out accuracy: $\leq 5\mu m$.
Dynamic balancing grade: $\leq G1$.
Advanced process of surface wearing resistance and corrosion resistance.
With a simple structure, the tool can be loaded and unloaded quickly.
It is suitable for a machining center with a relatively high speed.
The taper angle of ER chuck for BBT tool holder is 16°.
Advantages of BBT tool holder with ER chuck: High repeatability precision ($\leq 5\mu m$), long service life, clamping range of $\Phi 1.0-30.0mm$, h7-precision tool. It is widely used for milling, drilling, tapping, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of rivet with central water-out.

技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级,AA级/精密级 Grade A/Ordinary grade,Grade AA/precision grade		P级/超精密级,PP级/仪器级 Grade P/Ultra precision grade,Grade PP/Instrument grade	
		L	L1	D1	夹持深度L2 Clamping depth L2				刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter
BBT30	DBBT30-DER16-100	100	20	30	29-58	DER16B	30000RPM	ER16	2.0-10.0	h7	1.0-10.0	h7
	DBBT30-DER25-070	70	20	42	35-73	ER25B	30000RPM	ER25	2.0-16.0	h7	2.0-16.0	h7
BBT40	DBBT40-DER16-070	70	25	28	29-58	DER16B	18000RPM	ER16	2.0-10.0	h7	1.0-10.0	h7
BBT50	DBBT50-DER32-100	100	36	51	41-59	DER32B	15000RPM	ER32	2.0-20.0	h7	2.0-20.2	h7





BBT-SK 刀柄
BBT-SK tool holder

BBT 刀柄特点

高精度:刀柄跳动精度 $\leq 2\mu\text{m}$ 。

组合跳动精度 $\leq 5\mu\text{m}$ 。

动平衡等级: $\leq G1$ 。

先进的表面耐磨防锈工艺。

结构简单,可以实现快速装卸刀具。

适用于较高速的加工中心。

BBT刀柄配合的SK夹头锥角为 8° 。

BBT刀柄配合SK夹头的优势为:重复精度高($\leq 5\mu\text{m}$),使用寿命长,扭矩相较于配合其它种类夹头提高了1.5倍,可夹持范围为 $\Phi 1.0\text{-}25.0\text{mm}$ 的h7精度的刀具,广泛应用于铣、钻、攻丝、雕刻等加工领域。

配合中心出水拉钉,可完美实现内冷功能。



BBT tool holder features

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.

Combined run-out accuracy: $\leq 5\mu\text{m}$.

Dynamic balancing grade: $\leq G1$.

Advanced process of surface wearing resistance and corrosion resistance.

With a simple structure, the tool can be loaded and unloaded quickly.

It is suitable for a machining center with a relatively high speed.

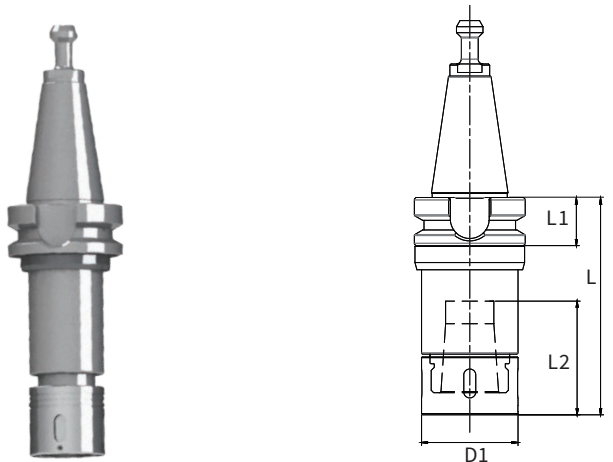
The taper angle of SK chuck for BBT tool holder is 8° .

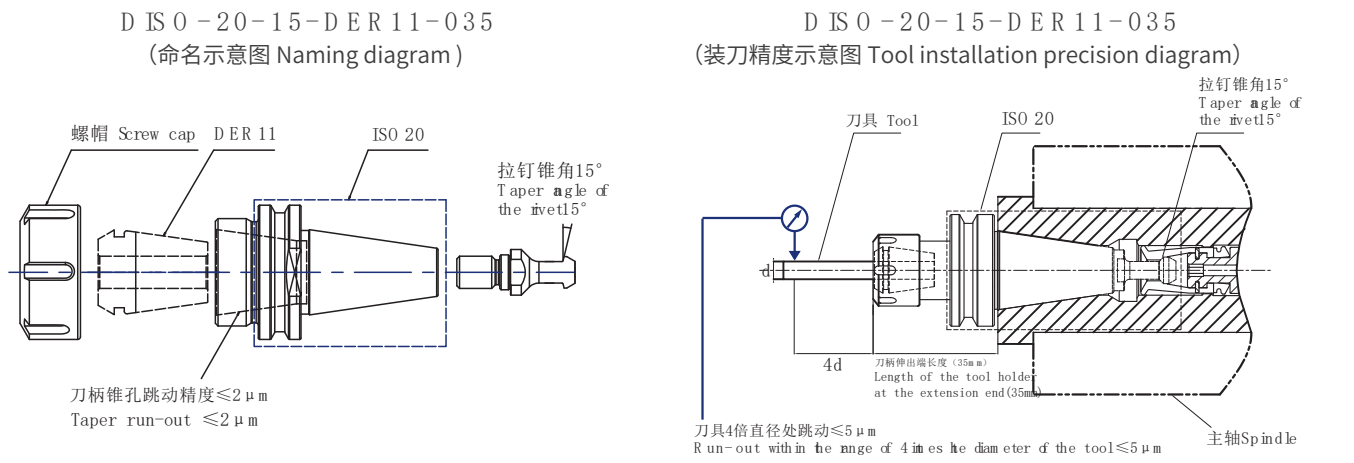
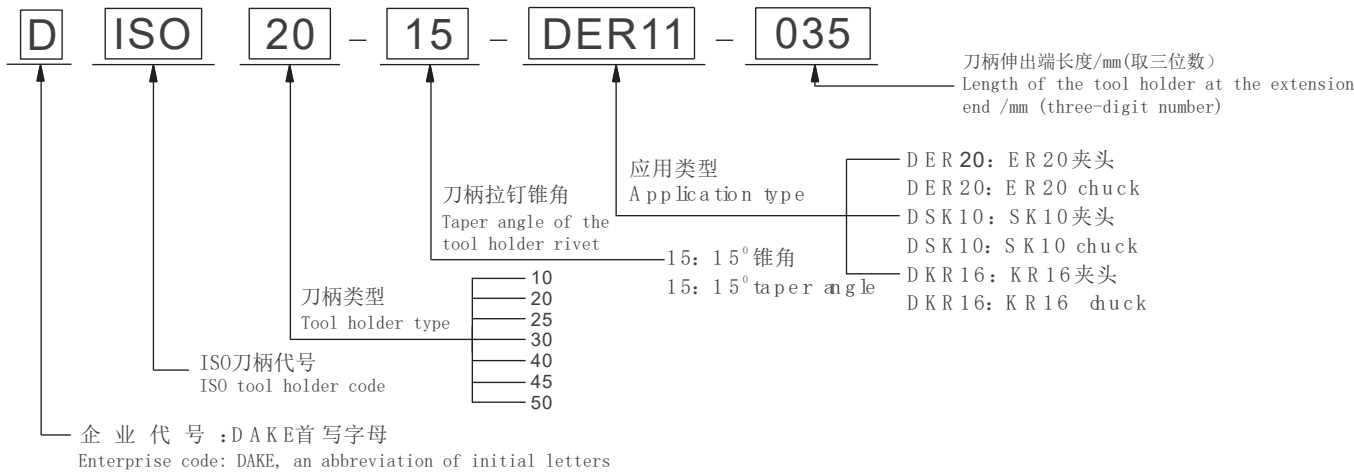
Advantages of BBT tool holder with SK chuck: High repeatability precision ($\leq 5\mu\text{m}$), long service life, 1.5 times greater than the torque value of any other type of chuck, clamping range of $\Phi 1.0\text{-}25.0\text{mm}$, h7-precision tool. It is widely used for milling, drilling, tapping, engraving and other machining areas.

Perfect internal cooling function can be realized with the assistance of rivet with central water-out.

技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级,AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级,PP级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
		L	L1	D1	夹持深度L2 Clamping depth L2				刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter
BBT30	DBBT30-DSK06-090	90	20	19.5	21-35	DSK6B	30000RPM	SK6	2.0-6.0	h7	1.0-6.0	h7
	DBBT30-DSK13-090	90	20	34	41.5	DSK13B	30000RPM	SK13	3.0-13.0	h7	3.0-13.0	h7





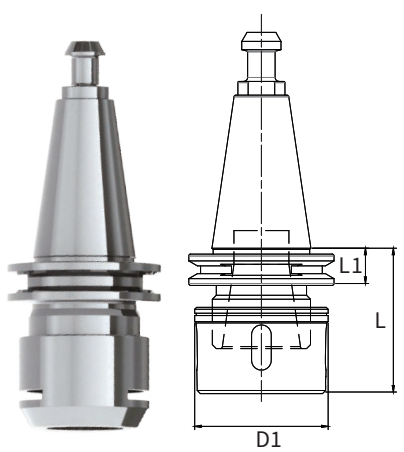
ISO-ER 刀柄
ISO-ER tool holder

ISO 刀柄特点

- 高精度: 刀柄跳动精度 $\leq 2\mu\text{m}$ 。
- 组合跳动精度 $\leq 5\mu\text{m}$ 。
- 动平衡等级: $\leq \text{G1}$ 。
- 先进的表面耐磨防锈工艺。
- 无键槽结构适于高速下使用。
- 适用于雕铣及木工机械。
- ISO刀柄配合的ER夹头锥角为 16° 。
- ISO刀柄配合ER夹头的优势为: 重复精度高 ($\leq 5\mu\text{m}$), 使用寿命长, 可夹持范围为 $\Phi 1.0\text{-}20\text{mm}$ 的h7精度的刀具。

ISO tool holder features

- High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$ 。
- Combined run-out accuracy: $\leq 5\mu\text{m}$ 。
- Dynamic balancing grade: $\leq \text{G1}$ 。
- Advanced process of surface wearing resistance and corrosion resistance.
- Keyway-free structure is suitable for the high-speed application.
- It is suitable for engraving, milling and woodworking machining.
- The taper angle of ER chuck for ISO tool holder is 16° 。
- Advantage of ISO tool holder with ER chuck: High repeatability precision ($\leq 5\mu\text{m}$), long service life and clamping range of $\Phi 1.0\text{-}20\text{mm}$ h7-precision tool.



技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions			螺帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级、A A级/精密级 Grade A/ordinary grade, Grade AA/precision grade		P级/超精密级、P级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
		L	L1	D1				刀具直径范围 Range of tool diameter	刀具柄径精度要求 Requirements for precision of tool diameter	刀具直径范围 Range of tool diameter	刀具柄径精度要求 Requirement for precision of tool diameter
ISO 10	D ISO 10-DER 11-022	24	6.5	19	DER 11B	40000RPM	ER 11	2.0-7.0	h 7	1.0-7.0	h 7
	D ISO 20-DER 16-035	35	9.2	28	DER 16B		ER 16	2.0-10.0		1.0-10.0	
ISO 20	D ISO 20-DER 16-040	40	9.2	22		40000RPM			h 7		h 7
	D ISO 20-DER 20-035	35	9.2	34	DER 20B		ER 20	2.0-13.0		2.0-13.0	
	D ISO 20-DER 20-040	40	9.2	22							
	D ISO 25-DER 16-035	35	9.5	28	DER 16B		ER 16	2.0-10.0		1.0-10.0	
ISO 25	D ISO 25-DER 16-060	60	19.1	28							
	D ISO 25-DER 20-035	35	9.5	28	DER 20B	40000RPM	ER 20	2.0-13.0	h 7	2.0-13.0	h 7
	D ISO 25-DER 20-060	60	19.1	34							
	D ISO 25-DER 25-035	35	19.1	28	DER 25B		ER 25	2.0-16.0		2.0-16.0	
	D ISO 25-DER 25-060	60	19.1	42							
	D ISO 30-DER 32-045	45	19.1	50	DER 32B	40000RPM	ER 32	2.0-20.0	h 7	2.0-20.0	h 7
ISO 30	D ISO 30-DER 32-065	65	19.1	50							

ISO – SK 刀柄
ISO – SK tool holder

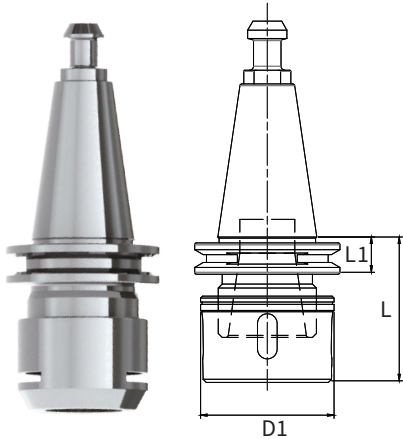


ISO 刀柄特点

高精度:刀柄跳动精度 $\leq 2\mu\text{m}$ 。
组合跳动精度 $\leq 5\mu\text{m}$ 。
动平衡等级: $\leq G1$ 。
先进的表面耐磨防锈工艺。
无键槽结构适于高速下使用。
适用于雕铣及木工机械。
ISO刀柄配合的SK夹头锥角为 8° 。
ISO刀柄配合SK夹头的优势为:精度高,使用寿命长,扭矩相较于配合其它种类夹头提高了1.5倍,可夹持范围为 $\Phi 1.0\text{-}16.0\text{mm}$ 的h7精度的刀具。

ISO tool holder features

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.
Combined run-out accuracy: $\leq 5\mu\text{m}$.
Dynamic balancing grade: $\leq G1$.
Advanced process of surface wearing resistance and corrosion resistance.
Keyway-free structure is suitable for the high-speed application.
It is suitable for engraving, milling and wood-working machining.
The taper angle of SK chuck for ISO tool holder is 8° .
Advantage of ISO tool holder with SK chuck: High precision, a long service life, 1.5 times greater than the torque value of any other type of chuck, clamping range of $\Phi 1.0\text{-}16.0\text{mm}$, h7-precision tool.



技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions			螺帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级、A级/精密级 Grade A/ordinary grade, Grade AA/precision grade		P级/超精密级、P级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
		L	L1	D1				刀具直径范围 Range of tool diameter	刀具柄径精度要求 Requirements for precision of tool diameter	刀具直径范围 Range of tool diameter	刀具柄径精度要求 Requirement for precision of tool diameter
ISO 20	DISO20-DSK10-035	35	9.2	27.5	DSK10B	40000RPM	SK10	2.0-10.0		1.0-10.0	h7
	DISO25-DSK10-035	35	9.5	27.5	DSK10B	40000RPM	SK10	2.0-10.0		1.0-10.0	
	DISO25-DSK10-060	60	19.1	27.5							
	DISO25-DSK16-035	35	19.1	27.5	DSK16B	40000RPM	SK16	3.0-16.0	h7	3.0-16.0	h7
	DISO25-DSK16-060	60	19.1	40.0							

ISO – KR 刀柄
ISO – KR tool holder

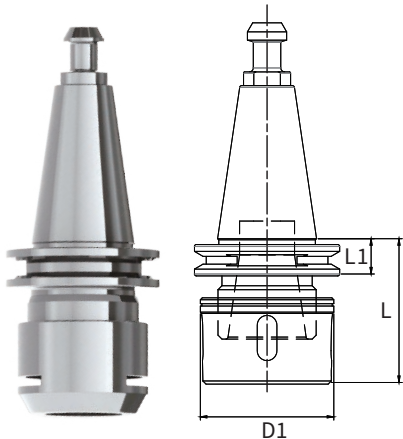


ISO 刀柄特点

高精度:刀柄跳动精度 $\leq 2\mu\text{m}$ 。
组合跳动精度 $\leq 5\mu\text{m}$ 。
动平衡等级: $\leq G1$ 。
先进的表面耐磨防锈工艺。
无键槽结构适于高速下使用。
适用于雕铣及木工机械。
ISO刀柄配合的KR夹头锥角为 10° 。
ISO刀柄配合KR夹头的优势为:重复精度高($\leq 5\mu\text{m}$),使用寿命长,可夹持范围为 $\Phi 1.0\text{-}14.5\text{mm}$ 的h7精度的刀具。

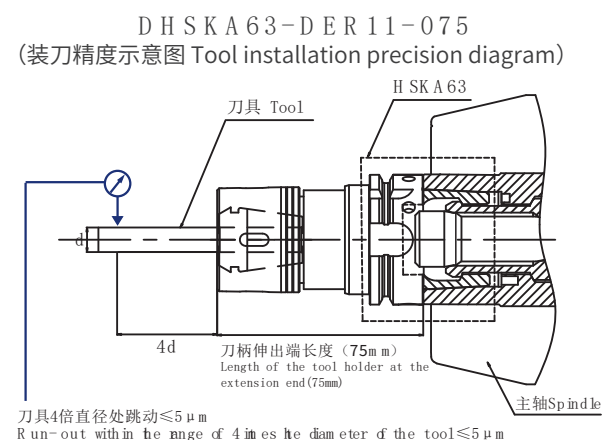
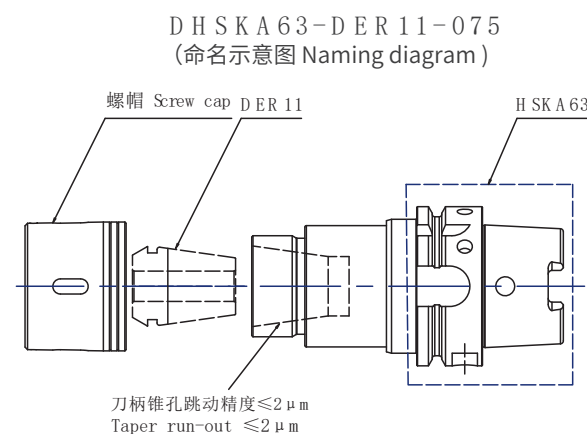
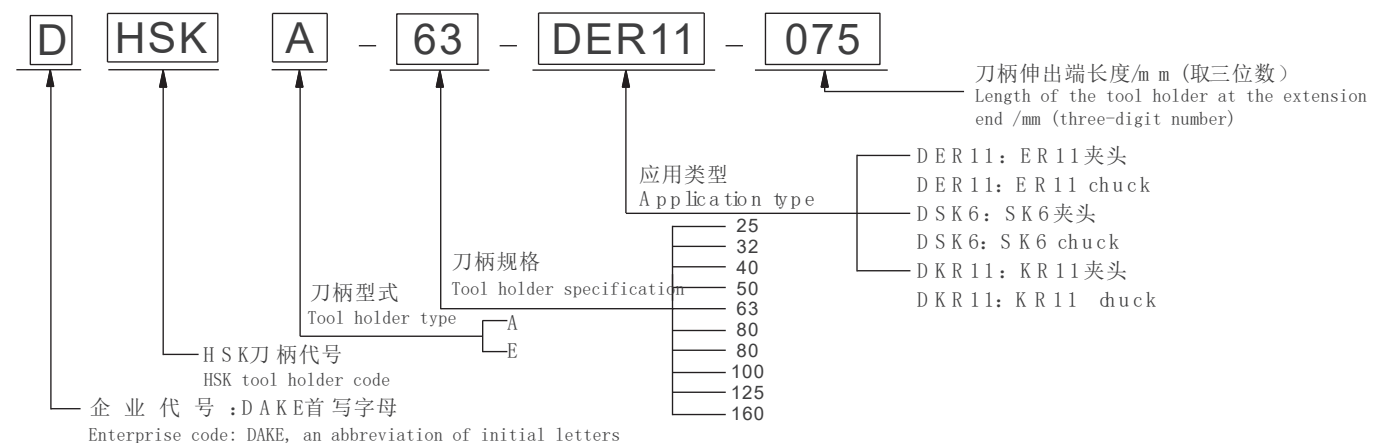
ISO tool holder features

High precision: tool holder run-out accuracy: $\leq 2\mu\text{m}$.
Combined run-out accuracy: $\leq 5\mu\text{m}$.
Dynamic balancing grade: $\leq G1$.
Advanced process of surface wearing resistance and corrosion resistance.
Keyway-free structure is suitable for the high-speed application.
It is suitable for engraving, milling and wood-working machining.
The taper angle of KR chuck for ISO tool holder is 10° .
Advantage of ISO tool holder with KR chuck: High repeatability precision ($\leq 5\mu\text{m}$), long service life and clamping range of $\Phi 1.0\text{-}14.5\text{mm}$ h7-precision tool.



技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions			螺 帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级、A A级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、P P级/仪器级 Grade P/ultra precisiongrade, Grade PP/instrument grade	
		L	L1	D1				刀 具 直 径 范 围 Range of tool diameter	刀 具 柄 径 精 度 要 求 Requirements for precision of tool diameter	刀 具 直 径 范 围 Range of tool diameter	刀 具 柄 径 精 度 要 求 Requirement for precision of tool diameter
ISO 20	DISO 20-DKR 16-035	35	9.2	24	DKR 16B	40000RPM	KR 16	2.0-8.5		1.0-8.5	
ISO 25	DISO 25-DKR 16-035	35	9.5	32.5	DKR 16B		KR 16	2.0-8.5	h 7	1.0-8.5	h 7
	DISO 25-DKR 16-060	60	19.1	34							
	DISO 25-DKR 25-035	35	19.1	32.5	DKR 25B		KR 25	3.0-14.5		3.0-14.5	
	DISO 25-DKR 25-060	60	19.1	40							



H S K A - E R 刀柄
H S K A - E R tool holder

HSKA刀柄特点

动平衡等级: $\leq G1$ 。

高精度: 刀柄跳动精度 $\leq 2\mu\text{m}$ 。组合跳动精度 $\leq 5\mu\text{m}$ 。

具有高的轴向和径向重复定位精度。其重复定位精度 $\leq 2\mu\text{m}$ 。

具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。可确保高速加工时的产品精度。

HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工。

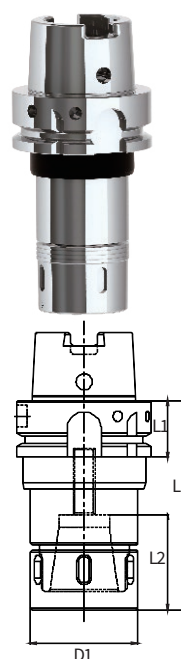
HSKA刀柄配合的ER夹头锥角为 16° 。

HSKA刀柄配合ER夹头的优势为: 精度高, 使用寿命长, 可夹持范围为 $\Phi 1.0\text{--}30.0\text{mm}$ 的 $h7$ 精度的刀具, 广泛应用于铣、钻、攻丝、雕刻等加工领域。

配合导气管部件, 可完美实现内冷功能。

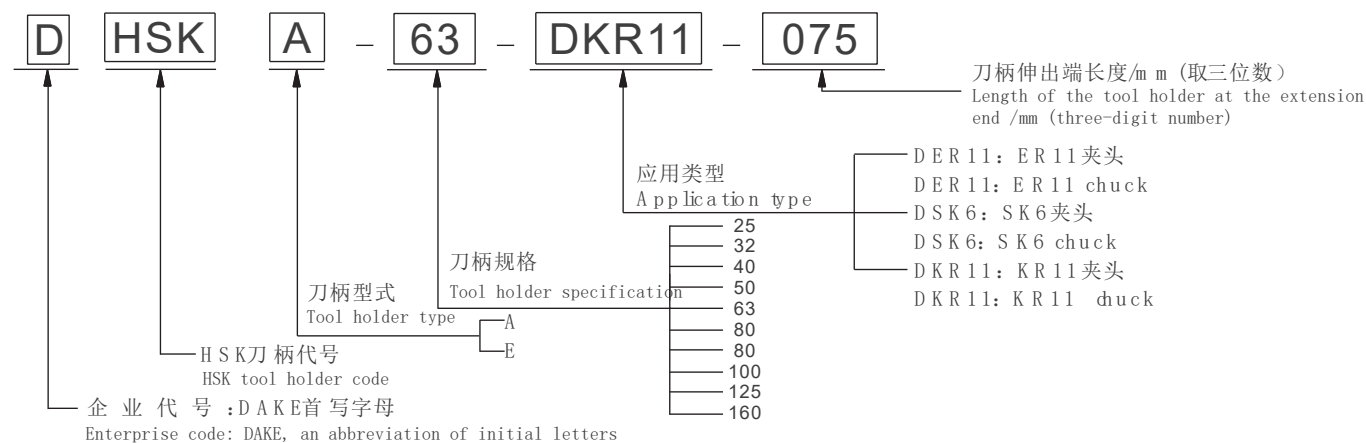
HSKA tool holder features

Dynamic balancing grade: $\leq G1$.
High precision: Tool holder run-out accuracy: $\leq 2\mu m$.
Combined run-out accuracy: $\leq 5\mu m$.
High axial and radial repeatability positioning precision.
Repeatability positioning precision is $\leq 2\mu m$.
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.
HSK tool holder is designed with a structure of hollow short taper shank. Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.
The taper angle of ER chuck for HSKA tool holder is 16° .
Advantages of HSKA tool holder with ER chuck: High precision, long service life, clamping range of $\Phi 1.0-30.0mm$, h7-precision tool. It is widely used for milling, drilling, tapping, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of air duct part.

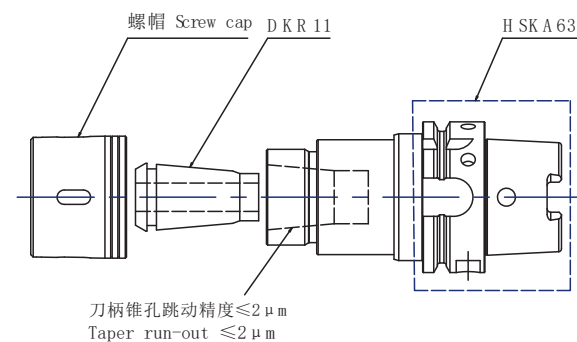


技术参数表 Technical Parameters

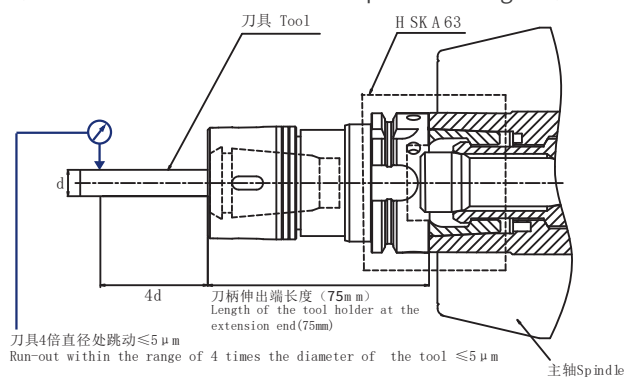
刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺 帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级、A A级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、P P级/仪器级 Grade P/ultra precisiongrade Grade PP/instrument grade	
		L	L1	L2	D1				刀具 直径 范围 Range of tool diameter	刀 具 柄 径 精 度 要 求 Requirements for precision tool diameter	刀 具 内 径 范 围 Tool internal diameter range	刀 具 柄 精 度 要 求 Requirement for precise tool diameter
D H S K A 40	D H S K A 40-D E R 16-070	70										
	D H S K A 40-D E R 16-090	90		29-58	28	DER 16B		ER 16	2.0-10.0		1.0-10.0	
	D H S K A 40-D E R 20-070	70										
	D H S K A 40-D E R 20-090	90		32-68	34	DER 20B		ER 20	2.0-13.0		2.0-13.0	
	D H S K A 40-D E R 25-070	70										
	D H S K A 40-D E R 25-090	90		35-73	42	DER 25B		ER 25	2.0-16.0		2.0-16.0	
	D H S K A 40-D E R 32-070	70										
	D H S K A 40-D E R 32-090	90		41-59	50	DER 32B		ER 32	2.0-20.0		2.0-20.0	
	D H S K A 50-D E R 16-080	80										
D H S K A 50-D E R 16-100	100		29-58	28	DER 16B		ER 16	2.0-10.0		1.0-10.0		
D H S K A 50-D E R 20-080	80											
D H S K A 50-D E R 20-100	100		32-68	34	DER 20B		ER 20	2.0-13.0	h 7	2.0-13.0	h 7	
D H S K A 50-D E R 25-080	80											
D H S K A 50-D E R 25-100	100		35-73	42	DER 25B		ER 25	2.0-16.0		2.0-16.0		
D H S K A 50-D E R 32-100	100											
D H S K A 50-D E R 32-120	120		41-59	51	DER 32B		ER 32	2.0-20.0		2.0-20.0		
D H S K A 63	D H S K A 63-D E R 25-100	100										
	D H S K A 63-D E R 25-120	120		35-73	42	DER 25B		ER 25	2.0-16.0		2.0-16.0	
	D H S K A 63-D E R 32-100	100										
	D H S K A 63-D E R 32-120	120		41-59	51	DER 32B	20000R P M	ER 32	2.0-20.0		2.0-20.0	
	D H S K A 63-D E R 40-100	100										
	D H S K A 63-D E R 40-120	120		50-93	63	DER 40B		ER 40	3.0-30.0		3.0-30.0	



D H S K A 63-D K R 11-075
(命名示意图 Naming diagram)



D H S K A 63-D K R 11-075
(装刀精度示意图 Tool installation precision diagram)



H S K A - K R 刀柄
H S K A - K R tool holder

HSKA刀柄特点

动平衡等级： $\leq G1$ 。

高精度：刀柄跳动精度 $\leq 2\mu\text{m}$ 。组合跳动精度 $\leq 5\mu\text{m}$ 。

具有高的轴向和径向重复定位精度。

其重复定位精度 $\leq 2\mu\text{m}$ 。

具有高的动、静态刚度和稳定性，具有高的轴向及径向精度。能确保高速加工时的产品精度。

HSK刀柄为中空短锥柄结构，与BT刀柄相比，HSK刀柄长度短，重量轻，换刀速度更快，特别适合高速加工。

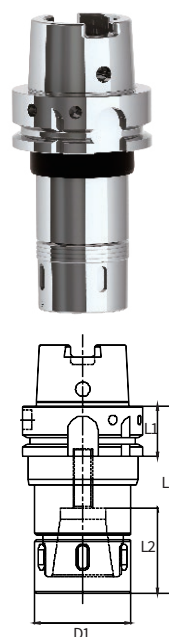
HSKA刀柄配合的KR夹头锥角为 10° 。

HSKA刀柄配合KR夹头的优势为：精度高，使用寿命长，可夹持范围为 $\Phi 1.0\sim 24.0\text{mm}$ 的h7精度的刀具，广泛应用于铣、钻、雕刻等加工领域。

配合导气管部件，可完美实现内冷功能。

HSKA tool holder features

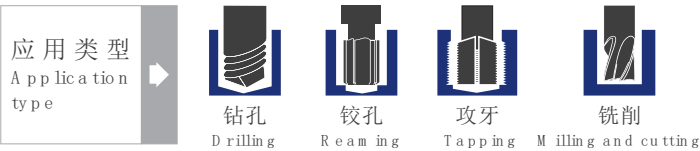
Dynamic balancing grade: $\leq G1$.
High precision: Tool holder run-out accuracy: $\leq 2\mu m$.
Combined run-out accuracy: $\leq 5\mu m$.
High axial and radial repeatability positioning precision.
Repeatability positioning precision is $\leq 2\mu m$.
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.
HSK tool holder is designed with a structure of hollow short taper shank. Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.
The taper angle of KR chuck for HSKA tool holder is 10° .
Advantages of HSKA tool holder with KR chuck: High precision, long service life, clamping range of $\Phi 1.0$ - $24.0mm$, h7-precision tool. It is widely used for milling, drilling, engraving and other machining areas.
Perfect internal cooling function can be realized with the assistance of air duct part.



技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				螺 帽 Screw cap	适用转速 Applicable speed	夹头类型 Chuck type	A级/普通级、A A级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、P P级/仪器级 Grade P/ultra precisiongrade, Grade PP/instrument grade	
		L	L1	L2	D1				刀 具 直 径 范 围 Range of tool diameter	刀 具 柄 径 精 度 要 求 Requirements for precision of tool diameter	刀 具 直 径 范 围 Tool internal diameter range	刀 具 柄 径 精 度 要 求 Requirement for precision of tool diameter
H S K A 40	D H S K A 40-D K R 16-070	70	20	30-40	19.5	D K R 16B	40000RPM	K R 16	2.0-8.5	h7	1.0-8.5	h7
	D H S K A 40-D K R 16-090	90										
	D H S K A 40-D K R 25-070	70		40-48	34	D K R 25B		K R 25	3.0-14.5		3.0-14.5	
	D H S K A 40-D K R 25-090	90										
	D H S K A 40-D K R 36-070	70		50-61	40	D K R 32B		K R 32	6.0-24.0		6.0-24.0	
	D H S K A 40-D K R 36-090	90										
H S K A 50	D H S K A 50-D K R 16-080	80	26	30-40	19.5	D K R 16B	25000RPM	K R 16	2.0-8.5	h7	1.0-8.5	h7
	D H S K A 50-D K R 16-100	100										
	D H S K A 50-D K R 25-080	80		40-48	34	D K R 25B		K R 25	3.0-14.5		3.0-14.5	
	D H S K A 50-D K R 25-100	100										
	D H S K A 50-D K R 36-100	80		50-61	40	D K R 36B		K R 36	6.0-24.0		6.0-24.0	
	D H S K A 63-D K R 36-120	90										
H S K A 63	D H S K A 63-D K R 25-100	100	26	40-48	34	D K R 25B	20000RPM	K R 25	3.0-14.5	h7	3.0-14.5	h7
	D H S K A 63-D K R 25-120	120										
	D H S K A 63-D K R 36-100	100		50-61	40	D K R 36B		K R 36	6.0-24.0		6.0-24.0	
	D H S K A 63-D K R 36-120	120										

HSKA-SK 刀柄
HSKA-SK tool holder

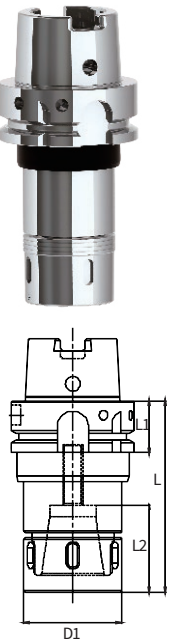


HSKA刀柄特点

动平衡等级: ≤G1。
高精度: 刀柄跳动精度 ≤2μm。组合跳动精度 ≤5μm。
具有高的轴向和径向重复定位精度。
其重复定位精度 ≤2μm。
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。能确保高速加工时的产品精度。
HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工。
HSKA刀柄配合的SK夹头锥角为8°。
HSKA刀柄配合SK夹头的优势为: 精度高, 使用寿命长, 扭矩相较于配合其它种类夹头提高了1.5倍, 可夹持范围为Φ1.0-25.0mm的h7精度的刀具, 广泛应用于铣、钻、雕刻等加工领域。
配合导气管部件, 可完美实现内冷功能。

HSKA tool holder features

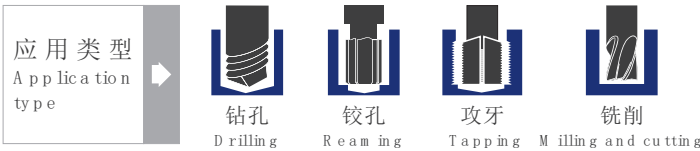
Dynamic balancing grade: ≤G1.
High precision: Tool holder run-out accuracy: ≤2μm. Combined run-out accuracy: ≤5μm.
High axial and radial repeatability positioning precision. Repeatability positioning precision is ≤2μm.
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.
HSK tool holder is designed with a structure of hollow short taper shank. Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.
The taper angle of SK chuck for HSKA tool holder is 8°.
Advantages of HSKA tool holder with SK chuck: High precision, long service life, 1.5times greater than the torque value of any other type of chuck, clamping range of Φ 1.0-25.0mm, h7-precision cutter. It is widely used for milling, drilling, engraving and other machining areas. Perfect internal cooling function can be realized with the assistance of air duct part.



技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				夹头 Chuck	螺帽 Screw cap	适用转速 Applicable speed	A级/普通级、AA级/精密级 Grade A/ordinary grade, Grade AA/precision grade		P级/超精密级、PP级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
		L	L1	D1	刀具夹持深度L2 Depth of tool clamping (L2)				刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter
HSKA40	DH S K A 40-D S K 10-070	70	20	19.5	30-40	SK 10	D S K 10 B	40000RPM	2.0-10.0		1.0-10.0	
	DH S K A 40-D S K 10-090	90										
	DH S K A 40-D S K 16-070	70										
	DH S K A 40-D S K 16-090	90										
	DH S K A 40-D S K 25-070	70										
	DH S K A 40-D S K 25-090	90										
D H S K A 50	DH S K A 50-D S K 10-080	80	26	19.5	30-40	SK 10	D S K 10 B	25000RPM	2.0-10.0		1.0-10.0	
	DH S K A 50-D S K 10-100	100										
	DH S K A 50-D S K 16-080	80										
	DH S K A 50-D S K 16-100	100										
	DH S K A 50-D S K 25-100	100										
	DH S K A 50-D S K 25-120	120										
H S K A 63	DH S K A 63-D S K 16-100	100	26	27.5	40-48	SK 16	D S K 16 B	20000RPM	3.0-16.0		3.0-16.0	
	DH S K A 63-D S K 16-120	120										
	DH S K A 63-D S K 25-100	100										
	DH S K A 63-D S K 25-120	120										
	DH S K A 63-D S K 25-120	120										

HSKE-ER 刀柄
HSKE-ER tool holder

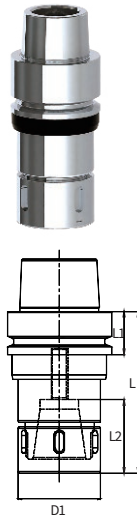


HSKE刀柄特点

动平衡等级: ≤G1。
高精度: 刀柄跳动精度 ≤2μm。组合跳动精度 ≤5μm。
具有高的轴向和径向重复定位精度。
其重复定位精度 ≤2μm。
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。能确保高速加工时的产品精度。
HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工。
HSKE刀柄配合的ER夹头锥角为16°。
HSKE刀柄配合ER夹头的优势为: 精度高, 使用寿命长, 可夹持范围为Φ1.0-20.0mm的h7精度的刀具, 广泛应用于铣、钻、雕刻等加工领域。
配合导气管部件, 可完美实现内冷功能。

HSKE tool holder features

Dynamic balancing grade: ≤G1.
High precision: Tool holder run-out accuracy: ≤2μm. Combined run-out accuracy: ≤5μm.
High axial and radial repeatability positioning precision. Repeatability positioning precision is ≤2μm.
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.
HSK tool holder is designed with a structure of hollow short taper tool holder. Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.
The taper angle of ER chuck for HSKA tool holder is 16°.
Advantages of HSKE tool holder with ER chuck: High precision, long service life, clamping range of Φ1.0-20.0mm, h7-precision tool. It is widely used for milling, drilling, engraving and other machining areas. Perfect internal cooling function can be realized with the assistance of air duct part.



技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				夹头 Chuck	螺帽 Screw cap	适用转速 Applicable speed	A级/普通级、AA级/精密级 Grade A/ordinary grade, Grade AA/precision grade		P级/超精密级、PP级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
		L	L1	D1	刀具夹持深度L2 Depth of tool clamping (L2)				刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter
H S K E 25	DH S K E 25-D E R 11-033	33	10	19	20	ER 11	D E R 11 B	80000RPM	2.0-7.0		1.0-7.0	
	DH S K E 25-D E R 16-050	50										
	DH S K E 25-D E R 16-060	60										
H S K E 32	DH S K E 32-D E R 16-060	60	20	28	29-58	ER 16	D E R 16 B	20000RPM	2.0-10.0		1.0-10.0	
	DH S K E 32-D E R 16-070	70										
	DH S K E 32-D E R 20-060	60										
	DH S K E 32-D E R 20-070	70										
H S K E 40	DH S K E 40-D E R 16-060	60	20	28	29-58	ER 16	D E R 16 B	40000RPM	2.0-10.0		1.0-10.0	
	DH S K E 40-D E R 16-070	70										
	DH S K E 40-D E R 16-100	100										
	DH S K E 40-D E R 20-060	60										
	DH S K E 40-D E R 20-070	70										
	DH S K E 40-D E R 20-100	100										
	DH S K E 40-D E R 25-060	60										
	DH S K E 40-D E R 25-070	70										
H S K E 50	DH S K E 50-D E R 16-080	80	20	51	29-58	ER 16	D E R 16 B	25000RPM	2.0-10.0		1.0-10.0	
	DH S K E 50-D E R 16-100	100										
	DH S K E 50-D E R 20-080	80										
	DH S K E 50-D E R 20-100	100										
	DH S K E 50-D E R 25-080	80										
	DH S K E 50-D E R 25-100	100										
	DH S K E 50-D E R 32-100	100										
	DH S K E 50-D E R 32-120	120										

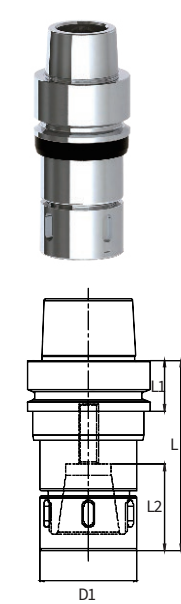
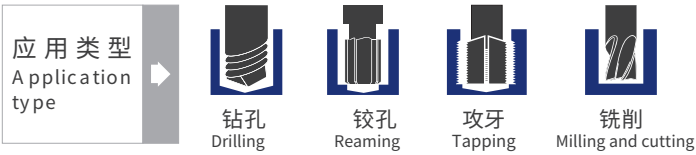
HSKE-SK 刀柄
HSKE-SK tool holder

HSKE刀柄特点

动平衡等级: ≤G1。
高精度: 刀柄跳动精度 ≤2μm。组合跳动精度 ≤5μm。
具有高的轴向和径向重复定位精度。
其重复定位精度 ≤2μm。
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。能确保高速加工时的产品精度。
HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工。
HSKE刀柄配合的SK夹头锥角为8°。
HSKE刀柄配合SK夹头的优势为: 精度高, 使用寿命长, 扭矩相较于配合其它种类夹头提高了1.5倍, 可夹持范围为Φ1.0-25.0mm的h7精度的刀具, 广泛应用于铣、钻、雕刻等加工领域。
配合导气管部件, 可完美实现内冷功能。

技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				夹 头 Chuck	螺 帽 Screw cap	适用转速 Applicable speed	A级/普通级、AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、PP级/仪器级 Grade P/ultra precision grade, Grade PP/ instrument grade									
		L	L1	D1	刀具夹持深度L2 Depth of tool clamping (L2)				刀 具 直 径 范 围 Range of tool diameter	刀 具 精 度 要 求 Requirements for precision of tool diameter	刀 具 内 径 范 围 Tool internal diameter range	刀 具 直 径 精 度 要 求 Requirement for precision tool diameter								
HSKE25	DHSKE25- DSK10- 050	50	10	34	30- 40	SK10	DSK10B	80000RPM	2.0- 10.0		1.0- 10.0									
	DHSKE25- DSK10- 060	60																		
HSKE32	DHSKE32- DSK10- 060	60	20	34	30- 40	SK10	DSK10B	50000RPM	2.0- 10.0		1.0- 10.0									
	DHSKE32- DSK10- 070	70																		
	DHSKE32- DSK10- 075	75																		
	DHSKE32- DSK10- 070	70																		
HSKE40	DHSKE40- DSK10- 070	70	20	34	30- 40	SK10	DSK10B	40000RPM	2.0- 10.0		1.0- 10.0	h7								
	DHSKE40- DSK10- 080	80																		
	DHSKE40- DSK10- 100	100																		
	DHSKE40- DSK16- 070	70		40	40- 48	SK16	DSK16B						3.0- 16.0	3.0- 16.0						
	DHSKE40- DSK16- 080	80																		
	DHSKE40- DSK16- 100	100																		
	DHSKE40- DSK16- 100	100																		
HSKE50	DHSKE50- DSK10- 080	80	20	34	30- 40	SK10	DSK10B	25000RPM	2.0- 10.0		1.0- 10.0									
	DHSKE50- DSK10- 100	100																		
	DHSKE50- DSK16- 080	80		40	40- 48	SK16	DSK16B						3.0- 16.0	3.0- 16.0						
	DHSKE50- DSK16- 100	100																		
	DHSKE50- DSK25- 080	80													55	50- 61	SK25	DSK25B	6.30- 25.0	6.30- 25.0
	DHSKE50- DSK25- 100	100																		



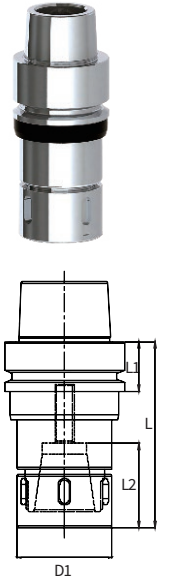
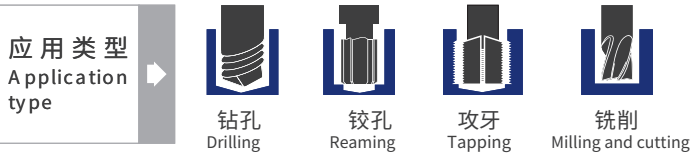
HSKE-KR 刀柄
HSKE-KR tool holder

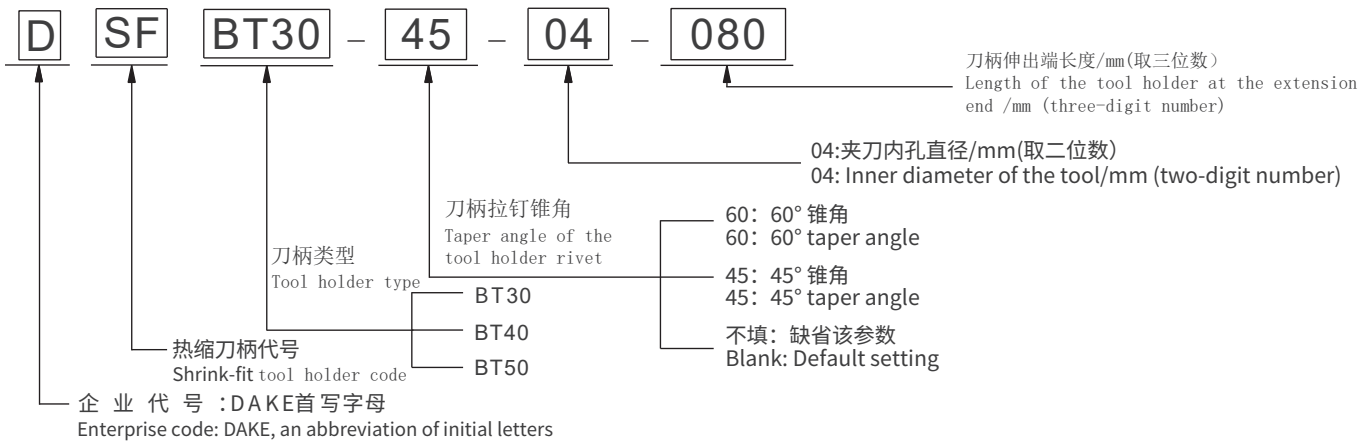
HSKE刀柄特点

动平衡等级: ≤G1。
高精度: 刀柄跳动精度 ≤2μm。组合跳动精度 ≤5μm。
具有高的轴向和径向重复定位精度。
其重复定位精度 ≤2μm。
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。能确保高速加工时的产品精度。
HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工。
HSKE刀柄配合的KR夹头锥角为10°。
HSKE刀柄配合KR夹头的优势为: 精度高, 使用寿命长, 可夹持范围为Φ1.0-24.0mm的h7精度的刀具, 广泛应用于铣、钻、雕刻等加工领域。
配合导气管部件, 可完美实现内冷功能。

技术参数表
Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions				夹 头 Chuck	螺 帽 Screw cap	适用转速 Applicable speed	A级/普通级、AA级/精密级 Grade A/ordinary grade,Grade AA/precision grade		P级/超精密级、P P级/仪器级 Grade P/ultra precision grade, Grade PP/ instrument grade		
		L	L1	D1	刀具夹持深度L2 Depth of tool clamping (L2)				刀 具 直 径 范 围 Range of tool diameter	刀 具 直 径 精 度 要 求 Requirements for precision of tool diameter	刀 具 内 径 范 围 Tool internal diameter range	刀 具 直 径 精 度 要 求 Requirement for precision tool diameter	
HSKE25	DHSKE25- DKR16- 050	50	10	34	30- 40	KR16	DKR16B	80000RPM	2.0- 8.5		1.0- 8.5		
	DHSKE25- DKR16- 060	60											
HSKE32	DHSKE32- DKR16- 060	60	20	34	30- 40	KR16	DKR16B	50000RPM	2.0- 8.5		1.0- 8.5		
	DHSKE32- DKR16- 070	70											
	DHSKE32- DKR16- 075	75											
	DHSKE32- DKR16- 070	70											
HSKE40	DHSKE40- DKR16- 070	70	20	34	30- 40	KR16	DKR16B	40000RPM	2.0- 8.5	h7	1.0- 8.5	h7	
	DHSKE40- DKR16- 080	80											
	DHSKE40- DKR16- 100	100											
	DHSKE40- DKR25- 070	70		40	40- 48	KR25	DKR25B				3.0- 14.5		3.0- 14.5
	DHSKE40- DKR25- 080	80											
	DHSKE40- DKR25- 100	100											
	DHSKE40- DKR25- 100	100											
HSKE50	DHSKE50- DKR16- 080	80	20	34	30- 40	KR16	DKR16B	25000RPM	2.0- 8.5		1.0- 8.5		
	DHSKE50- DKR16- 100	100											
	DHSKE50- DKR25- 080	80		40	40- 48	KR25	DKR25B				3.0- 14.5		3.0- 14.5
	DHSKE50- DKR25- 100	100											
	DHSKE50- DKR36- 080	80											
	DHSKE50- DKR36- 100	100											





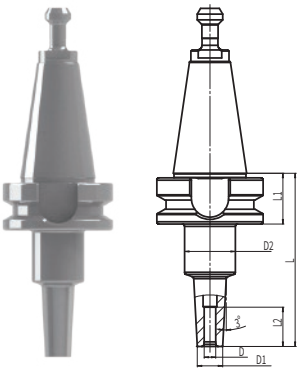
BT 热缩刀柄 BT shrink-fit tool holder

BT 热缩刀柄特点:

- 高精度: 刀柄跳动精度 ≤ 2μm。
动平衡等级: ≤ G1。
结构简单, 可以实现快速装卸刀具。
适用于较高速的加工中心。
热缩刀柄相较传统带夹头载体刀柄具有以下优点:
1. 结构紧凑、高刚性: 刀柄内孔与刀具之间直接连接, 不存在中间载体。
 2. 传递扭矩大: 可实现普通ER夹头刀柄2倍甚至更高的扭矩输出。
 3. 适应性广及加工表面质量好: 适用于各种粗加工, 并拥有很好的加工表面质量。
 4. 高夹持精度: 高精度级别的夹头刀柄夹持刀具的精度一般 ≤ 5μm (4d处) 而热缩刀柄夹持刀具的跳动精度 ≤ 2μm (4d处)。
 5. 注意: ● 要求刀具柄部精度为 h6。
● 要求刀具为钨钢, 硬质合金类等。
● 适应感应加热式热缩机。

BT shrink-fit tool holder features:

- High precision: Tool holder run-out accuracy ≤ 2μm.
Dynamic balancing grade: ≤ G1.
With a simple structure, the tool can be loaded and unloaded quickly.
It is suitable for a machining center with a relatively high speed.
Compared with the traditional carrier tool holder with the chuck, the shrink-fit tool holder has the following advantages:
1. Compact structure and high rigidity: The inner hole of the tool holder is directly connected with the cutter, without a middle carrier.
 2. Large transmission torque: It can achieve a torque out put 2 times or above that of an ordinary tool holder with ER chuck.
 3. Wide adaptability and good machining surface quality: It is suitable for various kinds of rough and fine machining, with good machining surface quality.
 4. High clamping accuracy: Generally, the clamping precision of the tool holder with the high-precision grade chuck is ≤ 5μm (at 4d position); but the run-out precision of the shrink-fit tool holder is ≤ 2μm (at 4d position).
 5. Note: ● The precision at the tool shank is required to be h6.
● The tool is required to be made of tungsten steel, hard alloy, etc.
● Adaptive induction heating type thermal shrinkage machine.

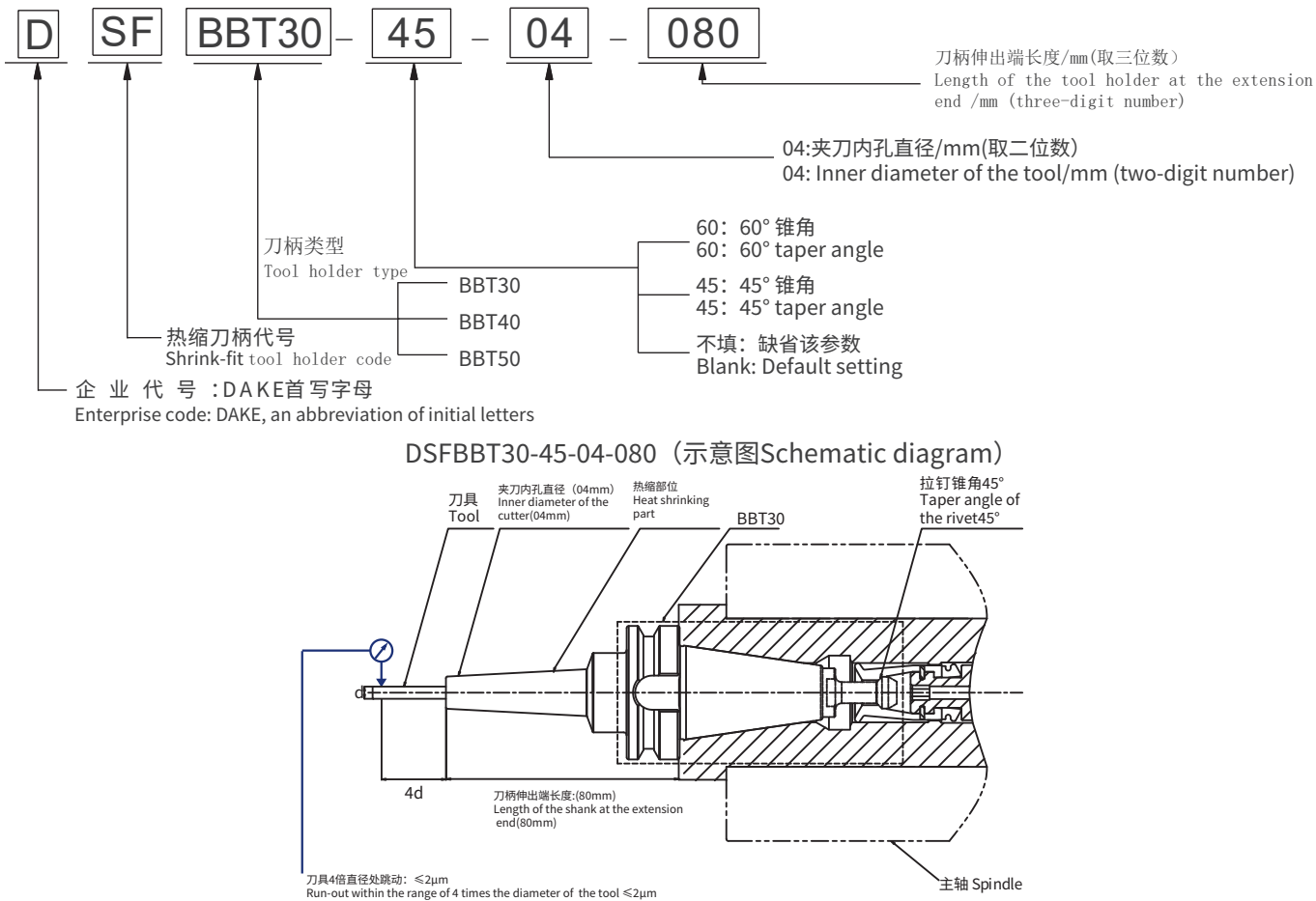


跳动精度 ≤ 2μm (直接夹持)
检测标准: 径向跳动 ≤ 2μm
(标准测试棒: 4倍直径长度),
高精度级别的跳动精度能提高加工面的光洁度, 及延长刀具寿命。

Run-out accuracy ≤ 2μm (direct clamping)
Test standard: Run-out accuracy shall be ≤ 2μm
(standard test rod: the length is 4 times of diameter);
high accuracy run-out can improve the smoothness of the machined surface and prolong the service of tool.

技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions						使用的 刀具直径 Diameter of the tool to be used	刀具柄径 精度要求 Tool holder dia- meter accuracy requirements	适用转速 Applicable speed
		D	D1	D2	L	L 1	夹持深度L2 clamping depth L2			
BT30	DSFBT30- 03- 080	3	13	20	80	22	47	φ3	h6	36000RPM
	DSFBT30- 03- 090				90					
	DSFBT30- 04- 080	4	21	27	80		20	φ4		
	DSFBT30- 04- 090		14	20	90		47			
	DSFBT30- 06- 080	6	21	27	80		38	φ6		
	DSFBT30- 06- 090				90					
	DSFBT30- 08- 080	8	21	27	80		36	φ8		
	DSFBT30- 08- 090				90					
	DSFBT30- 10- 080	10	24	32	80		42	φ1 0		
	DSFBT30- 10- 090				90					
	DSFBT30- 12- 080	12	24	32	80		47	φ1 2		
	DSFBT30- 12- 090				90					
	DSFBT30- 14- 080	14	27	34	80		47	φ1 4		
	DSFBT30- 14- 090				90					
BT40	DSFBT40- 04- 090	4	10	10	90	27	12	φ4	h6	25000RPM
	DSFBT40- 04- 130				130					18000RPM
	DSFBT40- 06- 090	6	21	27	90		36	φ6		25000RPM
	DSFBT40- 06- 130				130					18000RPM
	DSFBT40- 08- 090	8	21	27	90		36	φ8		25000RPM
	DSFBT40- 08- 130				130					18000RPM
	DSFBT40- 10- 090	10	24	32	90		42	φ1 0		25000RPM
	DSFBT40- 10- 130				130					18000RPM
	DSFBT40- 12- 090	12	24	32	90		47	φ1 2		25000RPM
	DSFBT40- 12- 130				130					18000RPM
	DSFBT40- 14- 090	14	27	34	90		47	φ1 4		25000RPM
	DSFBT40- 14- 130				130					18000RPM
BT50	DSFBT50- 04- 090	4	10	10	90	38	12	φ4	h6	18000RPM
	DSFBT50- 04- 130				130					
	DSFBT50- 06- 090	6	21	27	90		36	φ6		
	DSFBT50- 06- 130				130					
	DSFBT50- 08- 090	8	21	27	90		36	φ8		
	DSFBT50- 08- 130				130					
	DSFBT50- 10- 090	10	24	32	90		42	φ1 0		
	DSFBT50- 10- 130				130					
	DSFBT50- 12- 090	12	24	32	90		47	φ1 2		
	DSFBT50- 12- 130				130					
	DSFBT50- 14- 090	14	27	34	90		47	φ1 4		
	DSFBT50- 14- 130				130					



BBT 热缩刀柄 BBT shrink-fit tool holder

BBT热缩刀柄特点:

高精度: 刀柄跳动精度 $\leq 2\mu\text{m}$ 。

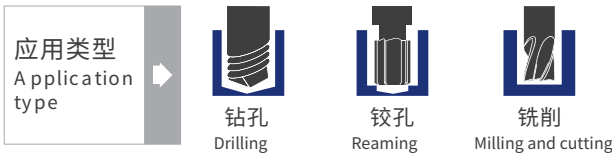
动平衡等级: $\leq \text{G1}$ 。

结构简单, 可以实现快速装卸刀具。

适用于较高速的加工中心。

热缩刀柄相较传统带夹头载体刀柄具有以下优点:

1. 结构紧凑、高刚性: 刀柄内孔与刀具之间直接连接, 不存在中间载体。
2. 传递扭矩大: 可实现普通ER夹头刀柄2倍甚至更高的扭矩输出。
3. 适用性广及加工表面质量好: 适用于各种粗精工, 并拥有很好的加工表面质量。
4. 高夹持精度: 高精度级别的夹头刀柄夹持刀具的精度一般 $\leq 5\mu\text{m}$ (4d处) 而热缩刀柄夹持刀具的跳动精度 $\leq 2\mu\text{m}$ (4d处)。
5. 注意: ●要求刀具柄部精度为h6。
●要求刀具为钨钢, 硬质合金类等。
●适应感应加热式热缩机。



BBT shrink-fit tool holder features:

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$

Dynamic balancing grade: $\leq \text{G1}$.

With a simple structure, the tool can be loaded and unloaded quickly.

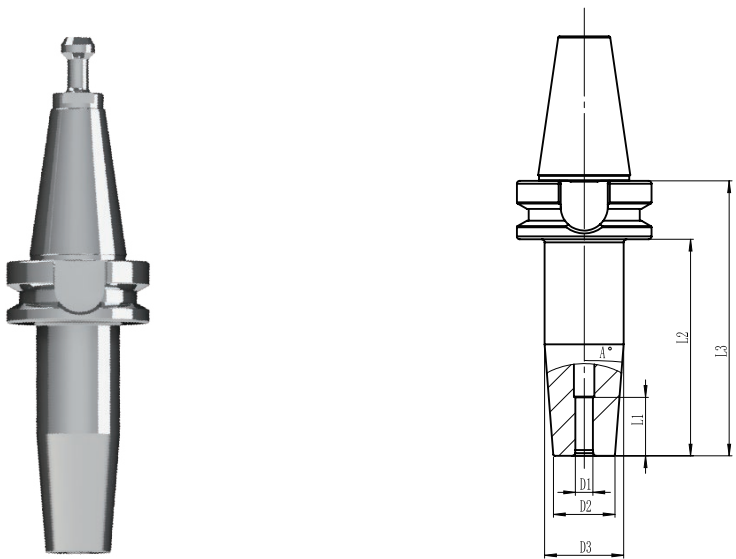
It is suitable for a machining center with a relatively high speed.

Compared with the traditional carrier tool holder with the chuck, the shrink-fit tool holder has the following advantages:

1. Compact structure and high rigidity: The inner hole of the tool holder is directly connected with the tool, without a middle carrier.
2. Large transmission torque: It can achieve a torque output 2 times or above that of an ordinary shank with ER chuck.
3. Wide adaptability and good machining surface quality: It is suitable for various kinds of rough and fine machining, with good machining surface quality.
4. High clamping accuracy: Generally, the clamping precision of the tool holder with the high-precision grade chuck is $\leq 5\mu\text{m}$ (at 4d position); but the run-out precision of the shrink-fit tool holder is $\leq 2\mu\text{m}$ (at 4d position).
5. Note: ●The precision at the tool shank is required to be h6.
●The tool is required to be made of tungsten steel, hard alloy, etc.
●Adaptive induction heating type thermal shrinkage machine.

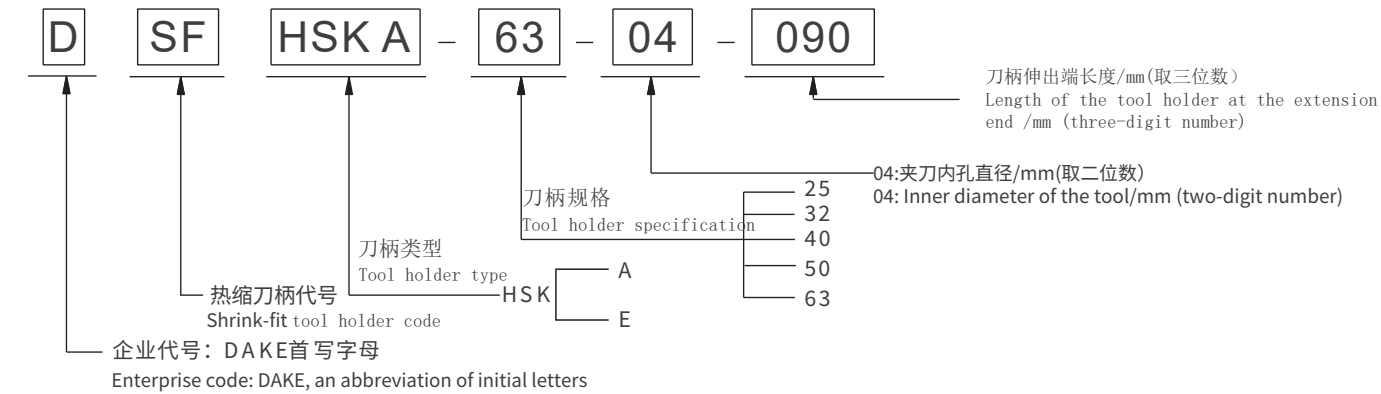
技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸/ Size							刀具柄径精度要求 Tool holder diameter accuracy requirements	动平衡等级 Dynamic balance class
		D1	D2	D3	L1	L2	L3	A		
BBT30	DSFBBT30-03-094	3	13	20	11	74	94	4.5°	h6	G1
	DSFBBT30-03-160	3	13	20	11	140	160	4.5°		
	DSFBBT30-04-094	4	14	20	16	74	94	4.5°		
	DSFBBT30-04-120	4	14	20	16	100	120	4.5°		
	DSFBBT30-06-094	6	21	27	20	74	94	4.5°		
	DSFBBT30-10-074	10	16	25	32	54	74	3°		
	DSFBBT30-12-074	12	20	28	38	54	74	3°		
	DSFBBT30-12-080	12	20	28	38	60	80	3°		



跳动精度 $\leq 2\mu\text{m}$ (直接夹持), 检测标准: 径向跳动 $\leq 2\mu\text{m}$ (标准测试棒: 4倍直径长度), 高精度级别的跳动精度能提高加工面的光洁度, 及延长刀具寿命。

Run-out accuracy $\leq 2\mu\text{m}$ (direct clamping), Test standard: Run-out accuracy shall be $\leq 2\mu\text{m}$ (standard test rod: the length is 4 times of diameter); high accuracy run-out can improve the smoothness of the machined surface and prolong the service of tool.



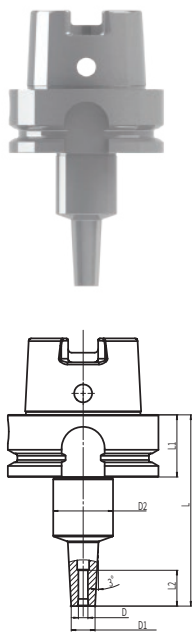
HSK A 热缩刀柄 HSK A shrink-fit tool holder

HSK A 热缩刀柄特点

- 动平衡等级: $\leq G1$;
高精度: 刀柄跳动精度 $\leq 2\mu\text{m}$;
具有高的轴向和径向重复定位精度。
其重复定位精度 $\leq 2\mu\text{m}$;
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。能确保高速加工时的产品精度;
HSK刀柄为中空短锥柄结构, 与BT刀柄相比, HSK刀柄长度短, 重量轻, 换刀速度更快, 特别适合高速加工;
热缩刀柄相较传统带夹头载体刀柄具有以下优点:
1. 结构紧凑、高刚性: 刀柄内孔与刀具之间直接连接, 不存在中间载体。
2. 传递扭矩大: 可实现普通ER夹头刀柄2倍甚至更高的扭矩输出。
3. 适应性广及加工表面质量好: 适用于各种粗精加工, 并拥有很好的加工表面质量。
4. 高夹持精度: 高精度级别的夹头刀柄夹持刀具的精度一般 $\leq 5\mu\text{m}$ (4d处) 而热缩刀柄夹持刀具的跳动精度 $\leq 2\mu\text{m}$ (4d处)。
5. 注意: ●要求刀具柄部精度为h6。
●要求刀具为钨钢, 硬质合金类等。
●适应感应加热式热缩机。

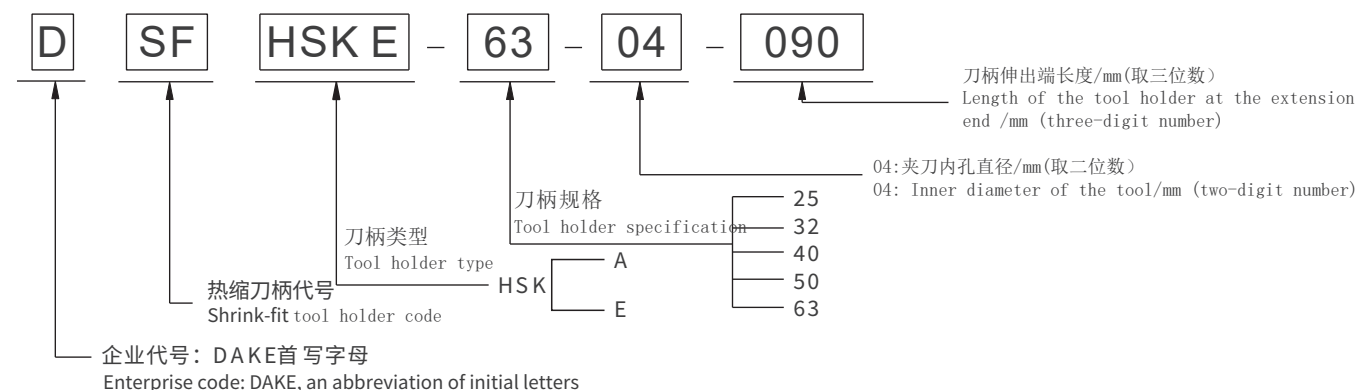
HSK A shrink-fit tool holder features

- Dynamic balancing grade: $\leq G1$.
High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.
High axial and radial repeatability positioning precision.
Repeatability positioning precision is $\leq 2\mu\text{m}$.
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.
HSK tool holder is designed with a structure of hollow short taper tool holder. Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.
Compared with the traditional carrier tool holder with the chuck, the shrink-fit tool holder has the following advantages:
1. Compact structure and high rigidity: The inner hole of the tool holder is directly connected with the tool, without a middle carrier.
2. Large transmission torque: It can achieve a torque output 2 times or above that of an ordinary tool holder with ER chuck.
3. Wide adaptability and good machining surface quality: It is suitable for various kinds of rough and fine machining, with good machining surface quality.
4. High clamping accuracy: Generally, the clamping precision of the tool holder with the high-precision grade chuck is $\leq 0.005\text{mm}$ (at 4d position); but the run-out precision of the shrink-fit shank is $\leq 0.002\text{mm}$ (at 4d position)
5. Note: ●The precision at the tool shank is required to be h6.
●The tool is required to be made of tungsten steel, hard alloy, etc.
●Adaptive induction heating type thermal shrinkage machine

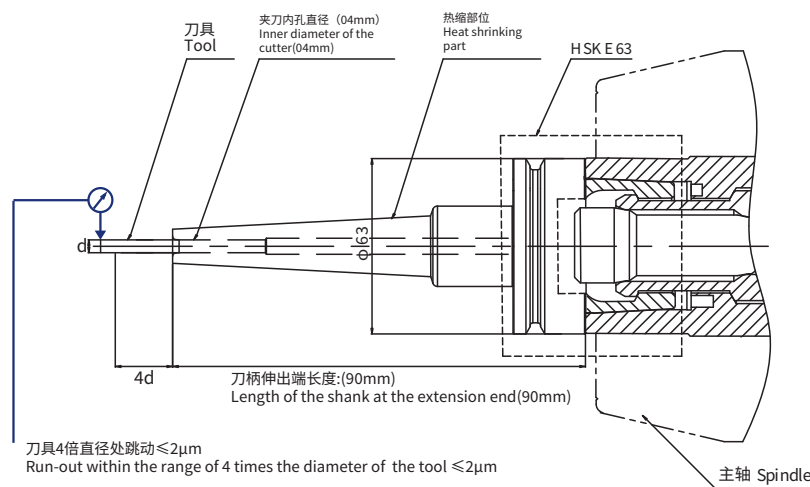


技术参数表 Technical Parameters

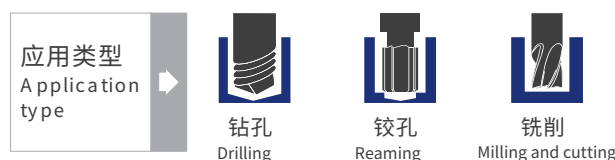
刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions						使用的 刀具直径 Diameter of the tool to be used	刀具柄径 精度要求 Tool holder dia- meter accuracy requirements	适用转速 Applicable speed
		D	D1	D2	L	L1	夹持深度L2 clamping depth L2			
HSKA40	DSFHSKA40- 04- 090	4	10	10	90	20	12	φ4	h6	40000RPM
	DSFHSKA40- 06- 090	6	21	27	90		36	φ6		
	DSFHSKA40- 08- 090	8	21	27	90		36	φ8		
	DSFHSKA40- 10- 090	10	24	32	90		42	φ1 0		
	DSFHSKA40- 12- 090	12	24	32	90		47	φ1 2		
HSKA50	DSFHSKA50- 04- 090	4	10	10	90	26	12	φ4	h6	25000RPM
	DSFHSKA50- 06- 090	6	21	27	90		36	φ6		
	DSFHSKA50- 08- 090	8	21	27	90		36	φ8		
	DSFHSKA50- 10- 090	10	24	32	90		42	φ1 0		
	DSFHSKA50- 12- 090	12	24	32	90		47	φ1 2		
HSKA63	DSFHSKA63- 04- 090	4	10	10	90	26	12	φ4	h6	20000RPM
	DSFHSKA63- 04- 130				130					
	DSFHSKA63- 06- 090	6	21	27	90		36	φ6		
	DSFHSKA63- 06- 130				130					
	DSFHSKA63- 08- 090	8	21	27	90		36	φ8		
	DSFHSKA63- 08- 130				130					
	DSFHSKA63- 10- 090	10	24	32	90		42	φ1 0		
	DSFHSKA63- 10- 130				130					
	DSFHSKA63- 12- 090	12	24	32	90		47	φ1 2		
	DSFHSKA63- 12- 130				130					
	DSFHSKA63- 14- 090	14	27	34	90		47	φ1 4		
	DSFHSKA63- 14- 130				130					
	DSFHSKA63- 16- 090	16	24	34	90		50	φ1 6		
	DSFHSKA63- 16- 130				130					
	DSFHSKA63- 18- 090	18	33	42	90		52	φ1 8		
	DSFHSKA63- 18- 130				130					
	DSFHSKA63- 20- 090	20	33	42	90		52	φ2 0		
	DSFHSKA63- 20- 130				130					
	DSFHSKA63- 25- 090	25	44	53	90		58	φ2 5		
	DSFHSKA63- 25- 130				130					
	DSFHSKA63- 32- 090	32	44	53	90		58	φ3 2		
	DSFHSKA63- 32- 130				130					



DSFHSKE63-04-090 (示意图Schematic diagram)



HSK E 热缩刀柄 HSK E shrink-fit tool holder



HSK E 热缩刀柄特点

动平衡等级: $\leq G1$;
高精度: 刀柄跳动精度 $\leq 2\mu m$;
具有高的轴向和径向重复定位精度。其重复定位精度 $\leq 2\mu m$;
具有高的动、静态刚度和稳定性, 具有高的轴向及径向精度。
能确保高速加工时的产品精度:

HSK刀柄为中空短锥柄结构,与BT刀柄相比,HSK刀柄长度短,重量轻,换刀速度更快,特别适合高速加工;
热缩刀柄相较传统带夹头载体刀柄具有以下优点:

热缩刀柄相较传统带夹头载体刀柄具有以下优点:

1. 结构紧凑、高刚性：刀柄内孔与刀具之间直接连接，不存在中间载体。
2. 传递扭矩大：可实现普通ER夹头刀柄2倍甚至更高的扭矩输出。
3. 适应性广及加工表面质量好：适用于各种粗精加工，并拥有很好的加工表面质量。
4. 高夹持精度：高精度级别的夹头刀柄夹持刀具的精度一般 $\leq 5\mu\text{m}$ (4d处)而热缩刀柄夹持刀具的跳动精度 $\leq 2\mu\text{m}$ (4d处)。
5. 注意：●要求刀具柄部精度为h6。
●要求刀具为钨钢，硬质合金类等。
●适应感应加热式热缩机。

HSK E shrink-fit tool holder features

Dynamic balancing grade: $\leq G1$.

High precision: Tool holder run-out accuracy: $\leq 2\mu\text{m}$.

High axial and radial repeatability positioning precision.

Repeatability positioning precision is $\leq 2\mu\text{m}$.

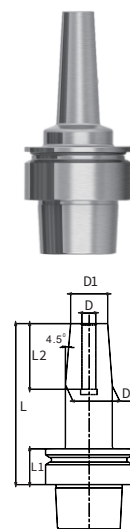
Featuring high dynamic and static rigidity and stability, and high axial and radial accuracy, it ensures the accuracy of a product machined at high speed.

HSK tool holder is designed with a structure of hollow short taper shank.

Compared with BT tool holder, HSK tool holder has a short length and light weight. With the power to change the tool more quickly, it is especially suitable for high-speed machining.

Compared with the traditional carrier tool holder with the chuck, the shrink-fit tool holder has the following advantages:

- 1.Compact structure and high rigidity: The inner hole of the tool holder is directly connected with the tool, without a middle carrier.
- 2.Large transmission torque: It can achieve a torque output 2 times or above that of an ordinary tool holder with ER chuck.
3. Wide adaptability and good machining surface quality: It is suitable for various kinds of rough and fine machining, with good machining surface quality.
- 4.High clamping accuracy: Generally, the clamping precision of the tool holder with the high-precision grade chuck is $\leq 5\mu\text{m}$ (at 4d position); but the run-out precision of the shrink-fit shank is $\leq 2\mu\text{m}$ (at 4d position)
- 5.Note: ● The precision at the tool shank is required to be h6.
● The tool is required to be made of tungsten steel, hard alloy, etc.
● Adaptive induction heating type thermal shrinkage machine



技术参数表 Technical Parameters

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions						使用的 刀具直径 Diameter of the tool to be used	刀具柄径 精度要求 Tool holder dia- meter accuracy requirements	适用转速 Applicable speed
		D	D1	D2	L	L1	夹持深度L2 clamping depth L2			
HSKE25	DSFHSKE25- 04- 45	4	10	13.5	45	20	18	φ4	h6	80000RPM
	DSFHSKE25- 04- 50				50					
	DSFHSKE25- 04- 60				60					
	DSFHSKE25- 06- 45	6	21	27	45		36	φ6		
	DSFHSKE25- 06- 50				50					
	DSFHSKE25- 06- 60				60					
	DSFHSKE25- 08- 45	8	14	18	45		30	φ8		
	DSFHSKE25- 08- 50				50					
	DSFHSKE25- 08- 60				60					
HSKE32	DSFHSKE32- 04- 60	4	10	10	60	26	12	φ4	h6	50000RPM
	DSFHSKE32- 06- 60	6	21	27	60		36	φ6		
	DSFHSKE32- 08- 60	8	21	27	60		36	φ8		
	DSFHSKE32- 10- 60	10	24	32	60		42	φ1 0		
HSKE40	DSFHSKE40- 04- 75	4	10	10	75	26	12	φ4	h6	40000RPM
	DSFHSKE40- 06- 75	6	21	27	75		36	φ6		
	DSFHSKE40- 08- 75	8	21	27	75		36	φ8		
	DSFHSKE40- 10- 75	10	24	32	75		42	φ1 0		
	DSFHSKE40- 12- 75	12	24	32	75		42	φ1 2		
HSKE50	DSFHSKE50- 04- 75	4	10	10	80	26	12	φ4	h6	30000RPM
	DSFHSKE50- 06- 75	6	21	27	80		36	φ6		
	DSFHSKE50- 08- 75	8	21	27	80		36	φ8		
	DSFHSKE50- 10- 75	10	24	32	80		42	φ1 0		
	DSFHSKE50- 12- 75	12	24	32	80		42	φ1 2		

ISO 外转内冷刀柄

ISO External-rotation and internal-cooling tool holder

干式加工Dry machining



- 一、说明
干式加工主要应用于一些特殊要求的加工材质，例如木材、板材、塑料、碳。
- 二、优点
- 2.1 操作简单、简易、易清洗；
 - 2.2 降低初期投入资金；
 - 2.3 便于观测产品加工切削过程。
- 三、缺点
- 3.1 散热性差，严重影响刀具使用寿命；
 - 3.2 刀柄刀具精度保持性差；
 - 3.3 刀具磨损快，增加刀具替换速度；
 - 3.4 产品加工周期长，生产效率低。

- I. Note
Dry machining is mainly applied to the material with special processing requirements, such as wood, plates, plastics, carbon.
- II. Advantages
- 2.1 Simple operation and cleaning;
 - 2.2 Reduce the initial investment fund;
 - 2.3 Convenient for observing the processing and cutting process of products.
- III. Defects
- 3.1 Poor heat dissipation; seriously affect the service life of tool;
 - 3.2 Cutter holder and tool has poor accuracy stability;
 - 3.3 Quick abrasion of tool, it increases the tool replacement frequency increase;
 - 3.4 The product has long processing cycle and low production efficiency.

湿式加工Wet machining



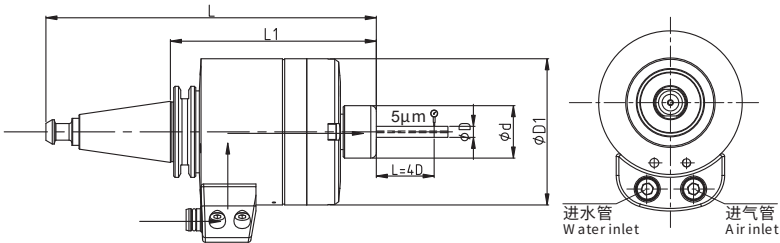
- 一、说明
在加工过程中，切削力会受到热应力的影响，而湿加工可有效降低切削热，故延长刀具使用寿命从而保护刀具。
- 二、优点
- 2.1 快速有效的降低切削热；
 - 2.2 快速带走刀刃积屑，并对刀刃达到一定的润滑效果；
 - 2.3 提高加工零件表面粗糙度；
 - 2.4 提高生产效率从而降低刀具的置换率。
- 三、缺点
- 3.1 机床供水系统需另行添加；
 - 3.2 不能清晰地观察整个加工过程；
 - 3.3 切削环境潮湿，不易干燥。

- I.Note
During the machining process, the cutting force will be affected by thermal stress. Wet machining can effectively reduce the cutting heat, which can prolong the service life of tool and protect the tool.
- II.Advantages
- 2.1 Quickly and effectively reduce the cutting heat;
 - 2.2 Quickly remove the chips accumulated on cutting edge, and there is certain lubricating effect on cutting edge;
 - 2.3 Improve the surface roughness of machined parts;
 - 2.4 Improve the production efficiency and reduce the replacement rate of tool.
- III. Defects
- 3.1 Water supply system shall be additionally added for machine tool;
 - 3.2 The whole machining process cannot be observed clearly;
 - 3.3 The cutting environment is moist .



外转内冷刀柄特点

动平衡等级: $\leq G1$;
最高转速30000rpm;
夹持棒 $L=4D$ 处径向跳动 $\leq 5\mu m$;
使用最高水压30Bar、最高气压0.6Mpa。
史上最高转速的外转内冷刀柄:
独创方案实现30000rpm高转速刀尖出水, 完美改型传统机床实现中心冷却。

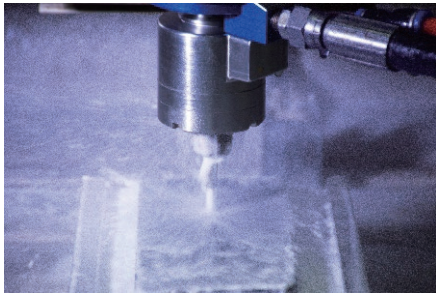


Features of external-rotation and internal-cooling tool holder

Dynamic balancing grade: $\leq G1$.
Maximum speed of 30000rpm.
Clamping bar $L=4D$ Outer radial direction run-out $\leq 5\mu m$.
Maximum hydraulic pressure,maximum air pressure.
External-rotation internal-cooling tool holder with the maximum revolution :
The unique scheme can realize 30000rpm tool point water-out, which perfectly renovates the traditional machine tool and realizes central cooling.

订货型号 Ordertype	d	夹刀D cutterD	D1	L	L1
ISO 20	19	2- 6	53	120	75

中心冷却Central cooling



- 一、说明:在加工过程中，刀柄和刀具中心设置内冷通道，带走刀柄高速旋转下产生的热量从而提高刀柄、刀具的使用寿命。
- 二、优点
- 2.1 刀刃出水集中带走大量积热；
 - 2.2 刀具承压降低；
 - 2.3 提高加工零件表面粗糙度；
 - 2.4 提高生产效率从而降低刀具的置换率。
 - 2.5 快速带走刀刃积屑，并对刀刃达到一定的润滑效果；
- 三、缺点
- 3.1 需每台机床供水系统另行添加；
 - 3.2 不能清晰地观察整个加工过程；
 - 3.3 湿润的环境容易滋生细菌。

- I. Note
During the machining process, internal cooling channel is set for tool holder and tool center, so as to eliminate the heat caused by high-speed rotation of tool holder , improving the service life of tool holder and tool.
- II. Advantages
- 2.1 Centralized cutting edge water-out eliminates a lot of accumulated heat;
 - 2.2 Pressure-bearing of tool is reduced;
 - 2.3 Improve the surface roughness of machined parts;
 - 2.4 Improve the production efficiency and reduce the replacement rate of tool.
 - 2.5 Quickly remove the chips accumulated on cutting edge, lubricating effect on cutting edge;
- III. Defects
- 3.1 Water supply system shall be additionally added for each machine tool;
 - 3.2 The whole machining process cannot be observed clearly;
 - 3.3 Bacteria is easy to be produced in moist environment.

车刀柄 Lathe tool holder

车刀柄特点 Lathe tool holder features

配合转台产品将普通机床升级为车铣复合机床, 实现车铣复合加工, 扩展了机床的加工范围, 同时也可提高机床产品的竞争力和价格。
Together with the turntable product, the ordinary machine can be updated to realize the combined machining of lathing and milling expanding the machining range , which can also improve the competitiveness and price of the machine.

刀柄类型 Tool holder Type	型号 Model	尺寸 Dimensions					
		L	L 1	L 2	L 3	L 4	ψ
车 刀 柄 Lathe tool holder	DBBT30- 45-043	43	22	10	31-39	85	110°
	DBBT30- 45-050	50	22	10	31-39	85	110°
	DBT30-45-065	65	22	10	31-39	85	110°
	DBT30-45-080	80	22	10	31-39	85	110°
	DHSKE40-050	50	19.5	10	46	44	70°
	DHSKE50-050	50	27.5	10	46	44	70°

车刀柄BT型号相比于HSK型号除柄部设计标准不同外，其余部分基本相同。
As for tool holder, the holder design standard of BT and HSK is different, and other parts are basically the same.

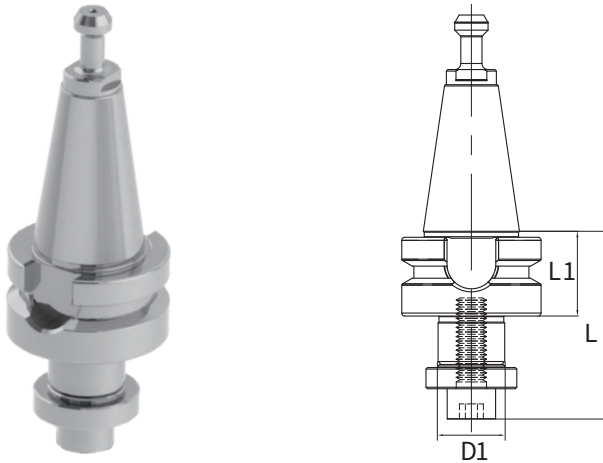


面铣刀柄 Surface milling tool holder

面铣刀柄特点 Surface milling tool holder features

通过螺纹连接使面铣刀紧固, 在强力连接下实现面铣刀柄的超高速连续加工, 展现出极高的材料切除效率, G1动平衡将高光、高精、高速特性完美展现。
The surface milling tool is fastened through threads. The surface milling tool can be used for continuous high-speed machining under strong connection conditions, showing its extremely high material cutting efficiency. Thanks to G1 dynamic balancing, high gloss, high precision and high speed are perfectly demonstrated.

刀柄类型 Tool holder Type	型号 Model	尺寸 Dimensions		
		L	L 1	D 1
面铣刀柄 Surface milling tool holder	DMXBT30-22-054	54	18	22
	DMXBT30-45-22-042	60	26	22
	DMXBT30-45-46-026	26	26	46
	DMXHSKE40-8	37	10	8
	DMXBBT30-16-055	55	20	16

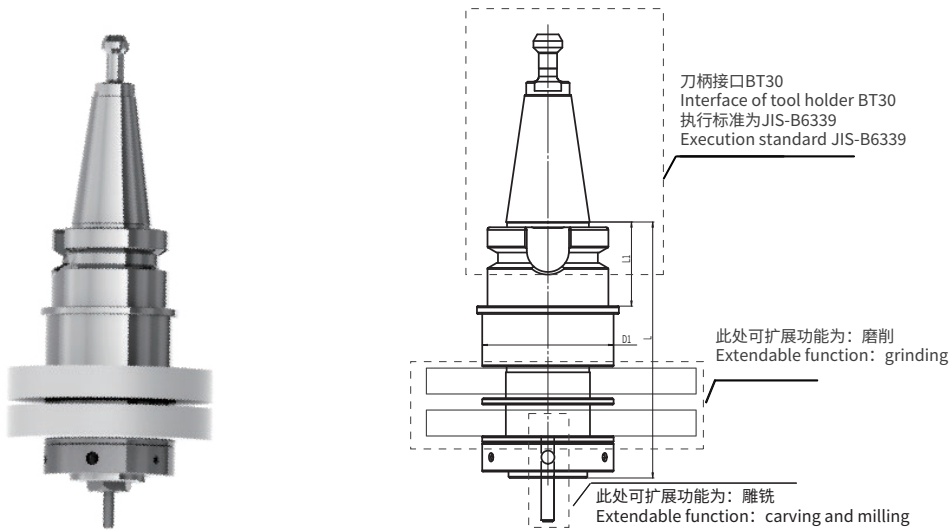


砂轮刀柄 Grinding wheel tool holder

砂轮刀柄特点 Grinding wheel tool holder features

定制化设计使得加工工序高度集成化,可同步实现磨削及雕刻两种功能,刀柄本身拥有超高的回转精度,可实现工件表面的高精加工。
Thanks to the customized design, the machining process is highly integrated so that it can achieve functions of grinding and engraving simultaneously. The tool holder owns ultra high rotation accuracy, so that it can achieve the fine machining of the workpiece surface.

刀柄类型 Tool holder Type	型号 Model	尺寸 Dimensions		
		L	L 1	D 1
砂轮刀柄 Grinding wheel tool holder	DSLBT30-SL12- 097	97	32	50
	DSLBT30- SL13-082	82	32	50
	DSLBT30-SL32- 106	106	32	50
	DSLBT40-SL12- 077	77	27	50

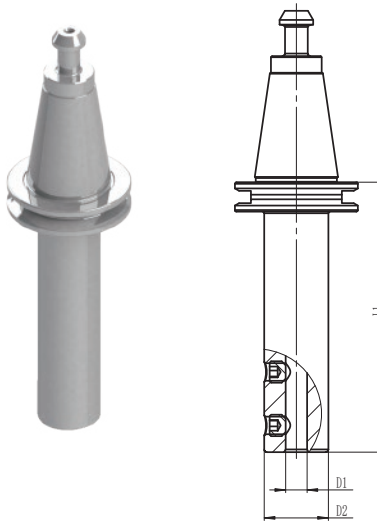


侧固刀柄 Side lock tool holders

侧固刀柄特点 Features of side lock tool holders

通过侧面固定螺丝锁紧刀具,结构简单,夹紧力大。
The tool is locked by the side fixing screw, with simple structure and large clamping force.

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions		
		D1	D2	L 1
ISO10	DCGISO10-04-050	4	12	50
	DCGISO10-06-050	6	12	50
BBT30	DCGBBT30-06-110	6	25	110

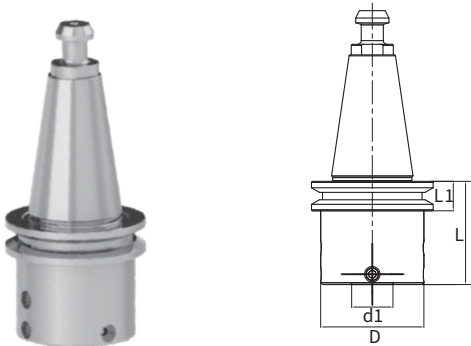


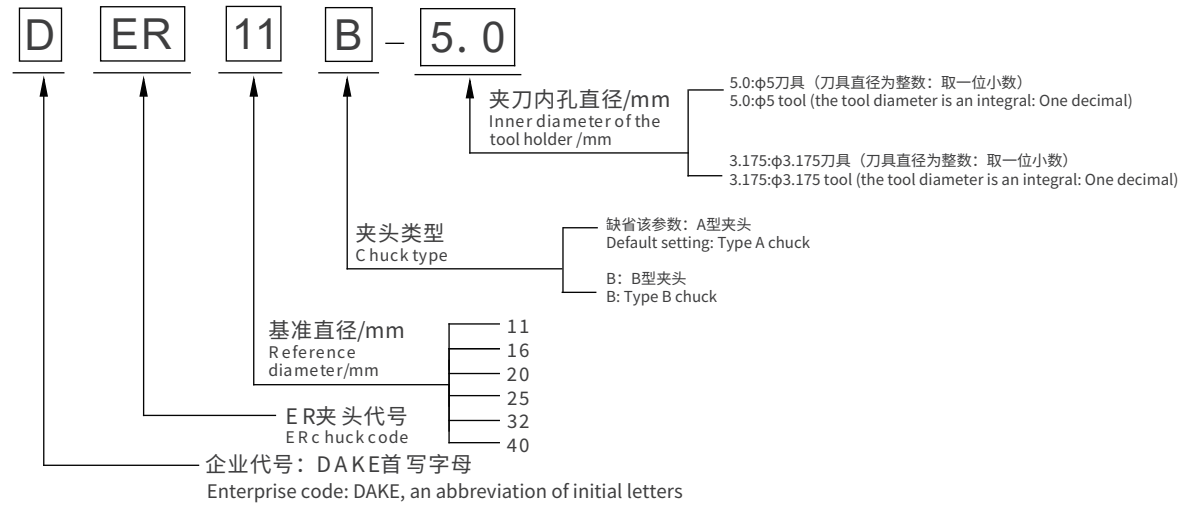
探针刀柄 Probe tool holder

探针刀柄特点 Probe tool holder features

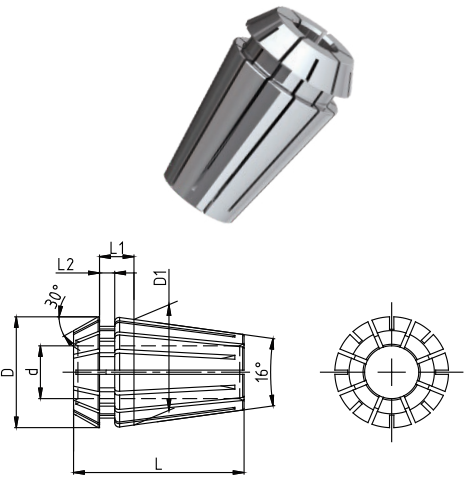
可根据客户实际使用的探头情况进行定制化设计,使机床寻原点定位、对刀及检测工件。
It can be customized according to the actual probe used by customers, so that the machine can locate the origin, set the tool and detect the workpieces.

刀柄类型 Tool holder Type	型号 Model	尺寸Dimensions			
		D	L	L 1	d 1
探 针 刀 柄 Probe tool holder	DISO20-11-021	33	21	8.7	11~20
	DISO20-11-029	28	29	9.5	11~20
	DHSKE32-038	26	38	20	11~20
	DHSKE40-035	30	35	20	11~20





ER 夹头 ER chuck



ER夹头特点 ER chuck features

夹头采用特殊材质可防锈蚀、夹紧力大、变形小精度稳定、耐磨性高;相同锁紧力的情况下磨损性能优于SK夹头,使用寿命更长。
精度高:PP级(仪器级)径向跳动 $\leq 1\mu\text{m}$, 远高于市面同类产品标准。
表面光滑,手感舒适,外观光亮。
应用范围:广泛用于、铣、钻、攻丝、磨、雕刻等加工。一般用于数控刀柄配套使用。适用于较高速的加工中心。

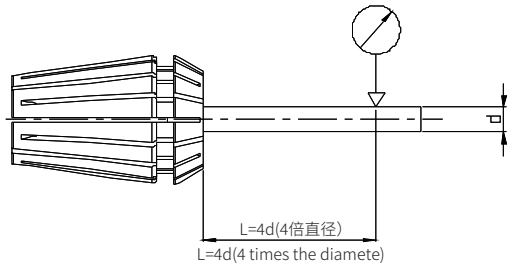
Made of special materials, the chuck has advantages of corrosion resistance, large clamping force, small deformation, stable precision and high wearing resistance; under the same locking force condition, its wearing resistance is better than that of SK chuck; therefore, it has a longer service life.

High precision: The radial run-out of grade PP (instrument grade) is $\leq 1\mu\text{m}$, which is far higher than that of similar products in the market.

Smooth surface and bright appearance.

Scope of application: It is widely used for boring, milling, drilling, tapping, grinding, engraving and other machining areas. Generally, it is used together with the CNC tool holder. It is suitable for a machining center with the relatively high speed.

精度以夹头整数为准
The accuracy shall be based on chuck integer.



精度等级符号 Symbol of the precision grade	精度等级 Precision grade	径向跳动(μm) Radial run-out
PP级	仪器级 instrument grade	≤ 1
P级	超精密级 ultra precision grade	≤ 2
AA级	精密级 precision grade	≤ 5
A级	普通级 ordinary grade	≤ 8

技术参数表 Technical Parameters

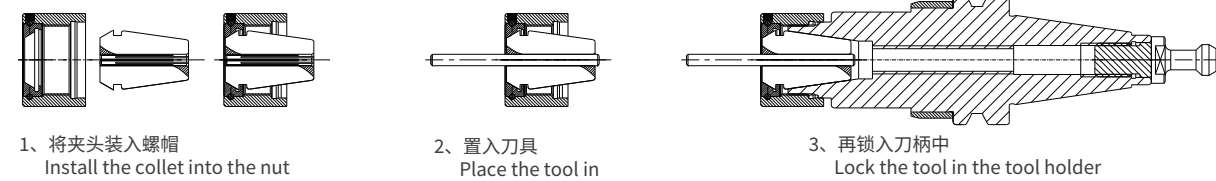
夹头类型 Chuck type	型号Model	d (h7)	D	L	D1	L1	L2	A级/普通级、AA级/精密级 Grade A/ordinary grade, Grade AA/precision grade		P级/超精密级、PP级/仪器级 Grade P/ultra precision grade, Grade PP/instrument grade	
								刀具直径范围 Range of tool diameter	刀具直径精度要求 Requirements for precision of tool diameter	刀具内径范围 Tool internal diameter range	刀具直径精度要求 Requirement for precision of tool diameter
ER8	DER8B	2.0~5.0	8.45	13.5	8	2.98	1.2	2.0~5.0		1.0~5.0	
ER11	DER11	2.0~7.0	11.5	18	11	2	2	2.0~7.0		1.0~7.0	
	DER11B					3.8	2				
ER16	DER16	2.0~10.0	17	27.5	16	2.3	2.3	2.0~10.0		1.0~10.0	
	DER16B					6.26	2.7				
ER20	DER20	2.0~13.0	21	31.5	20	2.4	2.4	2.0~13.0		2.0~13.0	
	DER20B					6.36	2.8				
ER25	DER25	2.0~16.0	26	34	25	2.5	2.5	2.0~16.0		2.0~16.0	
	DER25B					6.66	3.1				
ER32	DER32	2.0~3.0	33	40	32	2.7	2.7	2.0~3.0	h7	2.0~3.0	h7
		4.0~20.0						4.0~20.0		4.0~20.0	
	DER32B	2.0~3.0				7.16	3.6	2.0~3.0		2.0~3.0	
		4.0~20.0						4.0~20.0		4.0~20.0	
ER40	DER40	3.0~26	41	46	40	3.5	3.5	3.0~26		3.0~26	
		27.0~30.0						27.0~30.0			
	DER40B	3.0~26				7.66	4.1	3.0~26		3.0~26	
		27.0~30.0						27.0~30.0			

※ 其他未列型号可根据客户需求定制, 如有需求, 请与我司客服联系。

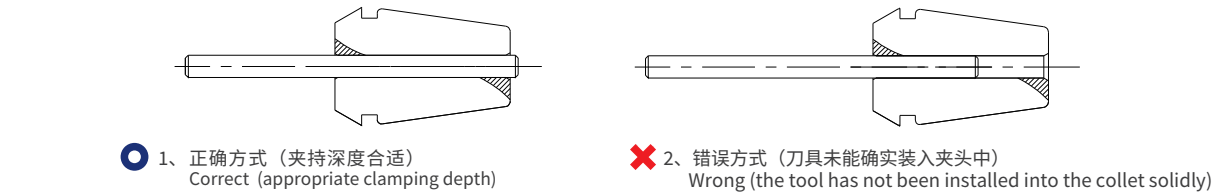
※ Other models which are not listed can be customized in accordance with the needs of the customer, you can contact the customer service of our company in case of any need.

弹簧夹头的安装及注意事项 Installation and notes to collet chuck

一、弹簧夹头的安装方法 Installation diagram



二、刀具安装注意 Note to the installation of tool

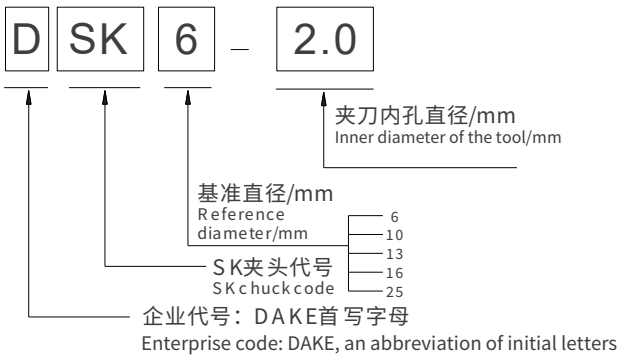


三、注意事项

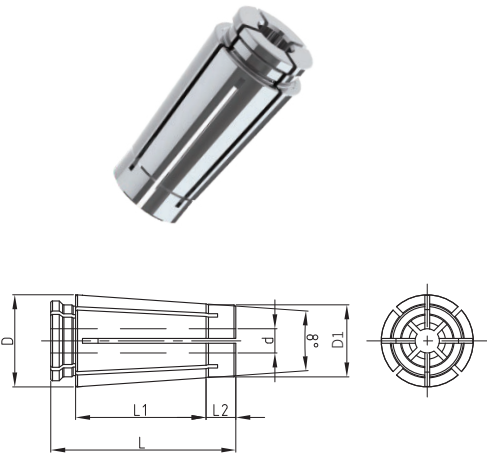
1. 在安装弹簧夹头之前, 必须先将夹头装入锁紧螺母之中然后将装上夹头的锁紧螺母轻轻拧在接杆或者刀柄上, 待装上刀具后即可用扳手夹紧投入工作。
2. 为了获得最佳使用性能, 在安装弹簧夹头之前, 请务必将夹头、锁紧螺母螺纹部分及定位面、锥面清理干净。
3. 用弹簧夹头刀柄夹紧刀具进行切削加工时, 一定要注意夹头必须夹紧刀具, 以免刀具在高速旋转中飞出伤人, 出现安全事故。
4. 弹簧夹头刀柄处于未工作状态时, 严禁夹头在未装刀具时锁紧螺母拧紧在刀柄或者接杆上, 以防夹头变形及脆性断裂。

III. Notes

1. Before installing the collet chuck, you must first put the collet into the lock nut, and then screw the lock nut installed with the collet onto the extension rod or the cutter shank lightly; install the tool and then the machine can be put into operation after the lock nut is clamped tight.
2. To obtain the best use properties, you must clean the thread locating face and the conical surface of the collet and lock nut before installing the collet chuck.
3. Please be sure that the collet chuck clamps the cutter tight when they are used for cutting and processing to avoid such accident as that the cutter flies away and hurts other people.
4. When the cutter tool holder of the collet chuck is out of working condition, the collet chuck prohibited to screw the lock nut on the tool holder or the extension rod when it is not installed with the cutter to avoid the deformation and brittle rupture of the collet chuck.



SK 夹头 SK chuck



SK 夹头特点 SK chuck features

夹头采用特殊材质可防锈蚀、夹紧力大、变形小精度稳定、耐磨性高;可实现普通ER夹头1.5倍的扭矩输出。
精度高:PP级(仪器级)径向跳动 $\leq 1\mu\text{m}$, 远高于市面同类产品标准。
表面光滑, 手感舒适, 外观光亮。
应用范围: 广泛用于、铣、钻、攻丝、磨、雕刻等加工。一般用于数控刀柄配套使用。适用于较高速的加工中心。

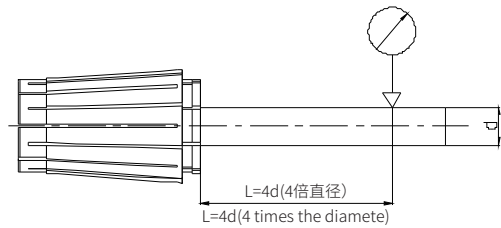
Made of special materials, the chuck has advantages of corrosion resistance, large clamping force, small deformation, stable precision and high wearing resistance; it can achieve about 1.5 times of torque output of ordinary ER chuck.

High precision: The radial run-out of Grade PP (instrument grade) is $\leq 1\mu\text{m}$, which is far higher than that of similar products in the market.

Smooth surface and bright appearance.

Scope of application: It is widely used for boring, milling, drilling, tapping, grinding, engraving and other machining areas. Generally, it is used together with the CNC tool holder. It is suitable for a machining center with relatively high speed.

精度以夹头整数为准
The accuracy shall be based on chuck integer

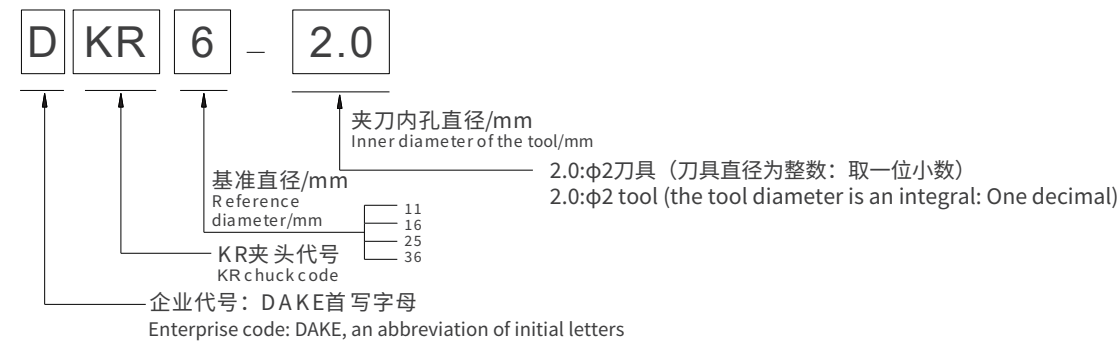


精度等级符号 Symbol of the precision grade	精度等级 Precision grade	径向跳动(μm) Radial run-out
PP级	仪器级 instrument grade	≤ 1
P级	超精密级 ultra precision grade	≤ 2
AA级	精密级 precision grade	≤ 5
A级	普通级 ordinary grade	≤ 8

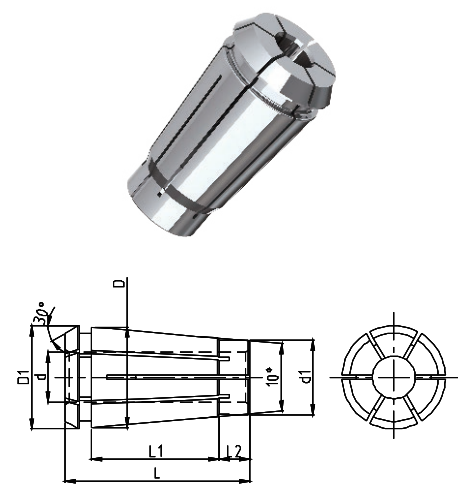
技术参数表 Technical Parameters

型号Model	d(h7)	D	D1	L	L1	L2
SK6	2.0~6.0	10.5	7.5	25	17	4
SK10	2.0~10.0	15.6	11.8	30	21.3	5
SK13	3.0~13.0	20	15.5	39	28	6
SK16	3.0~16.0	24.6	18.8	45	32	8
SK25	6.0~25.0	35.6	28.8	57	43	8.5

夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)
SK6	DSK6- 2.0	2.0	SK10	DSK10- 2.0	2.0	SK13	DSK13- 3.0	3.0	SK16	DSK16- 3.0	3.0	SK25	DSK25- 6.0	6.0
	DSK6- 2.25	2.3		DSK10- 2.25	2.3		DSK13- 3.5	3.5		DSK16- 3.5	3.5		DSK25- 8.0	8.0
	DSK6- 2.5	2.5		DSK10- 2.5	2.5		DSK13- 4.0	4.0		DSK16- 4.0	4.0		DSK25- 10.0	10.0
	DSK6- 2.75	2.8		DSK10- 2.75	2.8		DSK13- 4.5	4.5		DSK16- 4.5	4.5		DSK25- 12.0	12.0
	DSK6- 3.0	3.0		DSK10- 3.0	3.0		DSK13- 5.0	5.0		DSK16- 5.0	5.0		DSK25- 14.0	14.0
	DSK6- 3.5	3.5		DSK10- 3.5	3.5		DSK13- 5.5	5.5		DSK16- 5.5	5.5		DSK25- 16.0	16.0
	DSK6- 4.0	4.0		DSK10- 4.0	4.0		DSK13- 6.0	6.0		DSK16- 6.0	6.0		DSK25- 18.0	18.0
	DSK6- 4.5	4.5		DSK10- 4.5	4.5		DSK13- 6.5	6.5		DSK16- 6.5	6.5		DSK25- 20.0	20.0
	DSK6- 5.0	5.0		DSK10- 5.0	5.0		DSK13- 7.0	7.0		DSK16- 7.0	7.0		DSK25- 22.0	22.0
	DSK6- 5.5	5.5		DSK10- 5.5	5.5		DSK13- 7.5	7.5		DSK16- 7.5	7.5		DSK25- 24.0	24.0
SK10	DSK6- 6.0	6.0	SK13	DSK10- 6.0	6.0	SK16	DSK13- 8.0	8.0	SK25	DSK16- 8.0	8.0	SK25	DSK25- 25.0	25.0
				DSK10- 6.5	6.5		DSK13- 8.5	8.5		DSK16- 8.5	8.5			
				DSK10- 7.0	7.0		DSK13- 9.0	9.0		DSK16- 9.0	9.0			
				DSK10- 7.5	7.5		DSK13- 9.5	9.5		DSK16- 9.5	9.5			
				DSK10- 8.0	8.0		DSK13- 10.0	10.0		DSK16- 10.0	10.0			
				DSK10- 8.5	8.5		DSK13- 10.5	10.5		DSK16- 10.5	10.5			
				DSK10- 9.0	9.0		DSK13- 11.0	11.0		DSK16- 11.0	11.0			
				DSK10- 9.5	9.5		DSK13- 11.5	11.5		DSK16- 11.5	11.5			
				DSK10- 10.0	10.0		DSK13- 12.0	12.0		DSK16- 12.0	12.0			
							DSK13- 12.5	12.5		DSK16- 12.5	12.5			
SK13			SK16			SK25	DSK13- 13.0	13.0	SK25	DSK16- 13.0	13.0	SK25		
										DSK16- 13.5	13.5			
										DSK16- 14.0	14.0			
										DSK16- 14.5	14.5			
										DSK16- 15.0	15.0			
										DSK16- 15.5	15.5			
										DSK16- 16.0	16.0			



KR 夹头
KR chuck



KR 夹头特点 KR chuck features

夹头采用特殊材质可防锈蚀、夹紧力大、变形小精度稳定、耐磨性高;相同锁紧力的情况下磨损性能优于SK夹头,使用寿命更长。
精度高:PP级(仪器级)径向跳动 $\leq 1\mu\text{m}$,远高于市面同类产品标准。
表面光滑,手感舒适,外观光亮。
应用范围:广泛用于、铣、钻、攻丝、磨、雕刻等加工。一般用于数控刀柄配套使用。适用于较高速的加工中心。

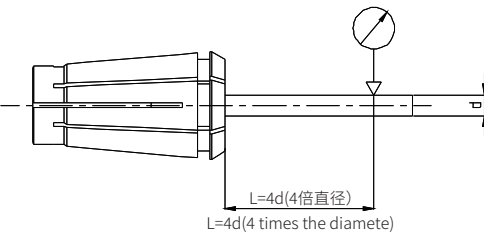
Made of special materials, the chuck has advantages of corrosion resistance, large clamping force, small deformation, stable precision and high wearing resistance; under the same locking force condition, its wearing resistance is better than that of SK chuck; therefore, it has a longer service life.

High precision: The radial run-out of grade PP (instrument grade) is $\leq 1\mu\text{m}$, which is far higher than that of similar products in the market.

Smooth surface and bright appearance.

Scope of application: It is widely used for boring, milling, drilling, tapping, grinding, engraving and other machining areas. Generally, it is used together with the CNC tool holder, and is suitable for a machining center with the relatively high speed.

精度以夹头整数为准
The accuracy shall be based on chuck integer.

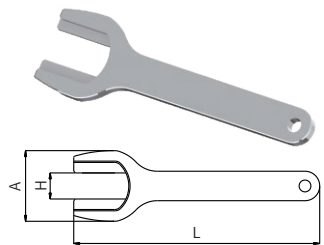


精度等级符号 Symbol of the precision grade	精度等级 Precision grade	径向跳动(μm) Radial run-out
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AA级	精密级 precision grade	≤ 5
A级	普通级 ordinary grade	≤ 8

技术参数表
Technical Parameters

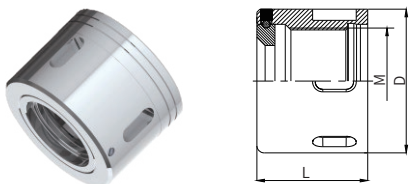
型号Model	d(h7)	D	D1	d1	L	L1	L2
KR11	2.0~6.0	11	11.8	7.5	24	16	3.6
KR16	2.0~10.0	16	16.8	11.5	30	20.3	4.6
KR25	3.0~16.0	25	26.1	18.8	43	30	7.5
KR36	6.0~25.0	36	37.1	28	54	40	8

夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)	夹头类型 Chuck type	型号 Model	刀具直径(h7) Tool diameter (h7)
DKR11	DKR11- 2.0	2.0	DKR16	DKR16- 2.0	2.0	DKR25	DKR25- 3.0	3.0	DKR36	DKR36- 6.0	6.0
	DKR11- 2.25	2.3		DKR16- 2.25	2.3		DKR25- 3.5	3.5		DKR36- 8.0	8.0
	DKR11- 2.5	2.5		DKR16- 2.5	2.5		DKR25- 4.0	4.0		DKR36- 10.0	10.0
	DKR11- 2.75	2.8		DKR16- 2.75	2.8		DKR25- 4.5	4.5		DKR36- 12.0	12.0
	DKR11- 3.0	3.0		DKR16- 3.0	3.0		DKR25- 5.0	5.0		DKR36- 14.0	14.0
	DKR11- 3.5	3.5		DKR16- 3.5	3.5		DKR25- 5.5	5.5		DKR36- 16.0	16.0
	DKR11- 4.0	4.0		DKR16- 4.0	4.0		DKR25- 6.0	6.0		DKR36- 18.0	18.0
	DKR11- 4.5	4.5		DKR16- 4.5	4.5		DKR25- 6.5	6.5		DKR36- 20.0	20.0
DKR16	DKR16- 5.0	5.0	DKR25	DKR25- 7.0	7.0	DKR36	DKR36- 22.0	22.0	DKR36	DKR36- 24.0	24.0
	DKR16- 5.5	5.5		DKR25- 7.5	7.5		DKR25- 8.0	8.0			
	DKR16- 6.0	6.0		DKR25- 8.5	8.5		DKR25- 9.0	9.0			
	DKR16- 6.5	6.5		DKR25- 9.5	9.5		DKR25- 10.0	10.0			
	DKR16- 7.0	7.0		DKR25- 10.5	10.5		DKR25- 11.0	11.0			
	DKR16- 7.5	7.5		DKR25- 11.5	11.5		DKR25- 12.0	12.0			
	DKR16- 8.0	8.0		DKR25- 12.5	12.5		DKR25- 13.0	13.0			
	DKR16- 8.5	8.5		DKR25- 13.5	13.5		DKR25- 14.0	14.0			
DKR25	DKR25- 14.5	14.5	DKR36	DKR36- 16.0	16.0	DKR36	DKR36- 18.0	18.0	DKR36	DKR36- 20.0	20.0
				DKR36- 22.0	22.0		DKR36- 24.0	24.0			



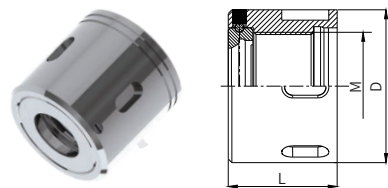
ISO 刀柄扳手
ISO tool holder wrench

订货型号 Ordertype	H	L	适用刀柄 Applicable tool holder
DHS-IS010	11	123.5	IS010
DHS-IS020	24	167.5	IS020
DHS-IS025	27	200	IS025
DHS-IS030	31	210	IS030



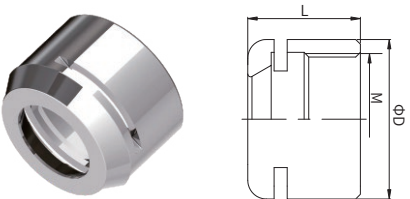
KR 钢珠螺帽
KR nut with steel balls

订货型号 Ordertype	D	L	M
DKR11B	19.5	15	M15.5X1.0
DKR16B	34	25	M21.5X1.0
DKR25B	40	24	M32X1.5
DKR36B	35	30	M45X1.5



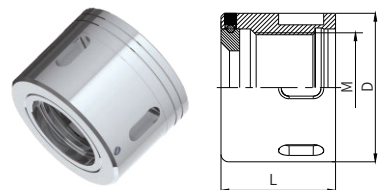
ER 钢珠螺帽
ER nut with steel balls

订货型号 Ordertype	D	L	M
DER11B	23	11	M14X0.75
DER16B	28	27.5	M19X1.0
DER16BS	28	18.5	M19X1.0
DER20B	34	31	M25X1.5
DER20BS	34	22	M25X1.5
DER25B	42	31	M32X1.5
DER32B	51	40	M40X1.5
DER40B	63	44	M50X1.5



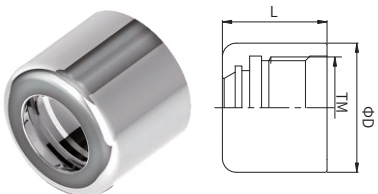
全圆卡扳螺帽
Complete-circle clamping nut

订货型号 Ordertype	M	φD	L
DER11MS	M13x0.75	16	12
DER16MS	M19x1.0	22	17
DER20MS	M24x1.0	28	19
DER25MS	M32x1.5	42	25



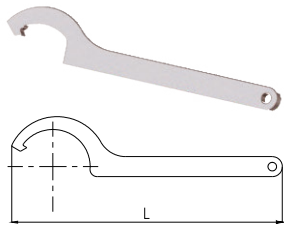
SK 钢珠螺帽
SK nut with steel balls

订货型号 Ordertype	D	L	M
DSK6B	19.5	15	M15.5X1.0
DSK10B	27.5	17	M21.5X1.0
DSK13B	34	23	M25X1.5
DSK16B	40	24	M32X1.5
DSK25B	50	30	M45X1.5



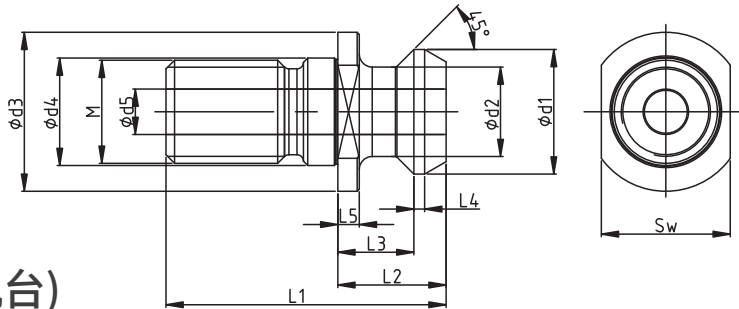
全圆小径螺帽
Complete-circle small-diameter nut

订货型号 Ordertype	TM	φD	L
DER11S	M14x0.75	19	12
DER16S	M19x1.0	22	22
DER20S	M25x1.5	33	28



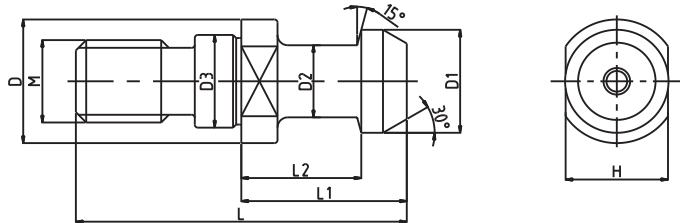
ER 钢珠螺帽扳手
ER wrench for nut with steel balls

订货型号 Order type	L	适用螺帽 Applicable nut	螺帽最大外径D Maximum outside diameter D of nut
DHS- DER11B	110	DER11B/DSK6B/DKR11B	18~24
DHS- DER16B	135	DER16B/DSK10B/DKR16B	28~32
DHS- DER20B	170	DSK13B/DER20B	34~36
DHS- DER25B	190	DER25B/DSK16B/DKR25B	38~42
DHS- DER32B	205	DER32B/DSK25B/DKR36B	48~56
DHS- DER40B	235	DER40B	60~65



BT 拉钉 (适用于MAZAK机台)
BT blind rivet (Applicable to MAZAK machine)

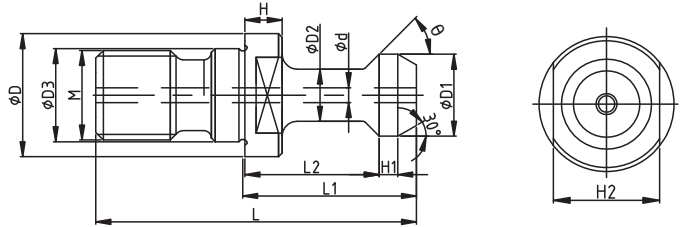
订货型号 Order type	d1	d2	d3	d4	d5	M	L1	L2	L3	L4	L5	SW
DLD-BT40	18.8	12.45	22	17	7	M16	44.1	19.1	14.02	152	3	19
DLD-BT50	29	20.83	37	25	10	M24	65.2	25.2	17.7	25	5	30



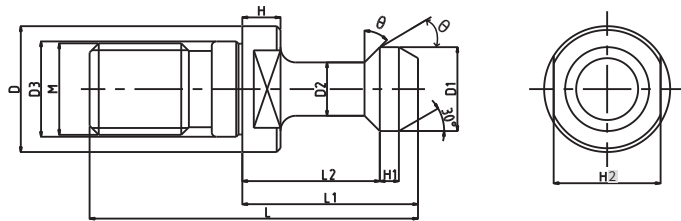
ISO拉钉 (雕铣专用)
ISO blind rivet (only for engraving and milling)

订货型号 Order type	D	D1	D2	D3	M	L	L1	L2	H	锁紧扭矩N.m Locking torque N.m
DLD-ISO20	11.4	9	6	8.5	M8	26	12	9	10	9~12
DLD-ISO25	12	10	7	9	M8	32	16	11.6	10	9~12
DLD-ISO30	17	13	9	13	M12	45	24	19	14	20~25

BT拉钉 (引用标准: JIS_B6339)
BT blind rivet (reference standard:JIS_ B6339)



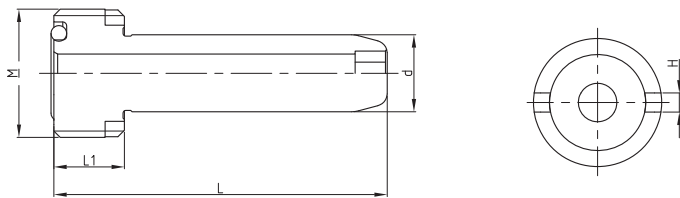
(图1:中心冷却适用Applicable to center cooling)



(图2:中心冷却不适用Not applicable to central cooling)

订货型号 Order type	中心冷却适用 Applicable to central cooling	图 Picture	D	D1	D2	D3	d	M	L	L1	L2	H	H1	H2	θ	锁紧扭矩N.m Locking torque N.m
DLD-BT30	o	1	16.5	11	7	12.5	2	M12	43	23	18	5	2.5	13	45°/60°	20~25
	-	2	16.5	11	7	12.5	-	M12	43	23	18	5	2.5	13	45°/60°	20~25
DLD-BT40	o	1	23	15	10	17	4	M16	60	35	28	6	3	19	45°/60°	60~80
	-	2	23	15	10	17	-	M16	60	35	28	6	3	19	45°/60°	60~80
DLD-BT50	o	1	38	23	17	25	6	M24	85	45	35	10	5	30	45°/60°	200~250
	-	2	38	23	17	25	-	M24	85	45	35	10	5	30	45°/60°	200~250

中心出水管 (引用标准:DIN 69895)
Center water-out tube(reference standard: DIN 69895)



产品特点 Product features
1、适用于HSK系列刀柄。
2、连接主轴与刀柄，主要使用于主轴中心出水并保证刀柄中心出水。
1. Applicable to HSK tool holder.
2.Connect spindle and tool holder with center water-out and guarantee the tool holder center water-out.

订货型号 Order type	M	d	L	L1	H
HSK E25	M8x1.0	5	17	4.5	1.5
HSK E32	M10x1.0	6	26	5.5	1.5
HSK E40	M12x1.0	8	29.5	7.5	2
HSK E50	M16x1.0	10	33	9.5	2
HSK E63	M18x1.0	12	36.5	11.5	2.5

市场布局

Market Layout



 Manufacturing Sites  Sales & Service Locations

Europe

- | | | |
|---|--|--|
|  Barcelona, Spain
MAVILOR MOTORS S.A.U. |  Yverdon-les-Bains, Switzerland
CYBELEC SA |  Lourdes, France
INFRANOR SAS |
|  Hanau, Germany
INFRANOR GERMANY |  Arese (MI), Italy
INFRANOR ITALY |  Barcelona, Spain
INFRANOR SPAIN |
|  Regensdorf, Switzerland
INFRANOR SWITZERLAND |  Lourdes, France
INFRANOR SAS | |

North America

-  Wilmington, MA, USA
INFRANOR USA

ASIA

- | | |
|---|--|
|  Guangzhou, China
Guangzhou Haozhi Industrial Co., Ltd. |  Yueyang, Hunan, China
KLKJ |
|  Shanghai, China
CNCT |  Yueyang, Hunan, China
Hunan Linear Motion |
|  Suzhou, China
Guangzhou Haozhi Industrial Co., Ltd. |  Shanghai, China
IMCT |
|  Bac Ninh Province, Vietnam
Haozhi Industrial (Vietnam) Co., Ltd. | |

为客户带去超值·为股东创造所值
为员工体现价值·为社会营造增值

Deliver Extra Value To Customers.
Create Lucrative Value For Shareholders.
Help Employees Realize Their Values.
Bring Added-Value To Society.