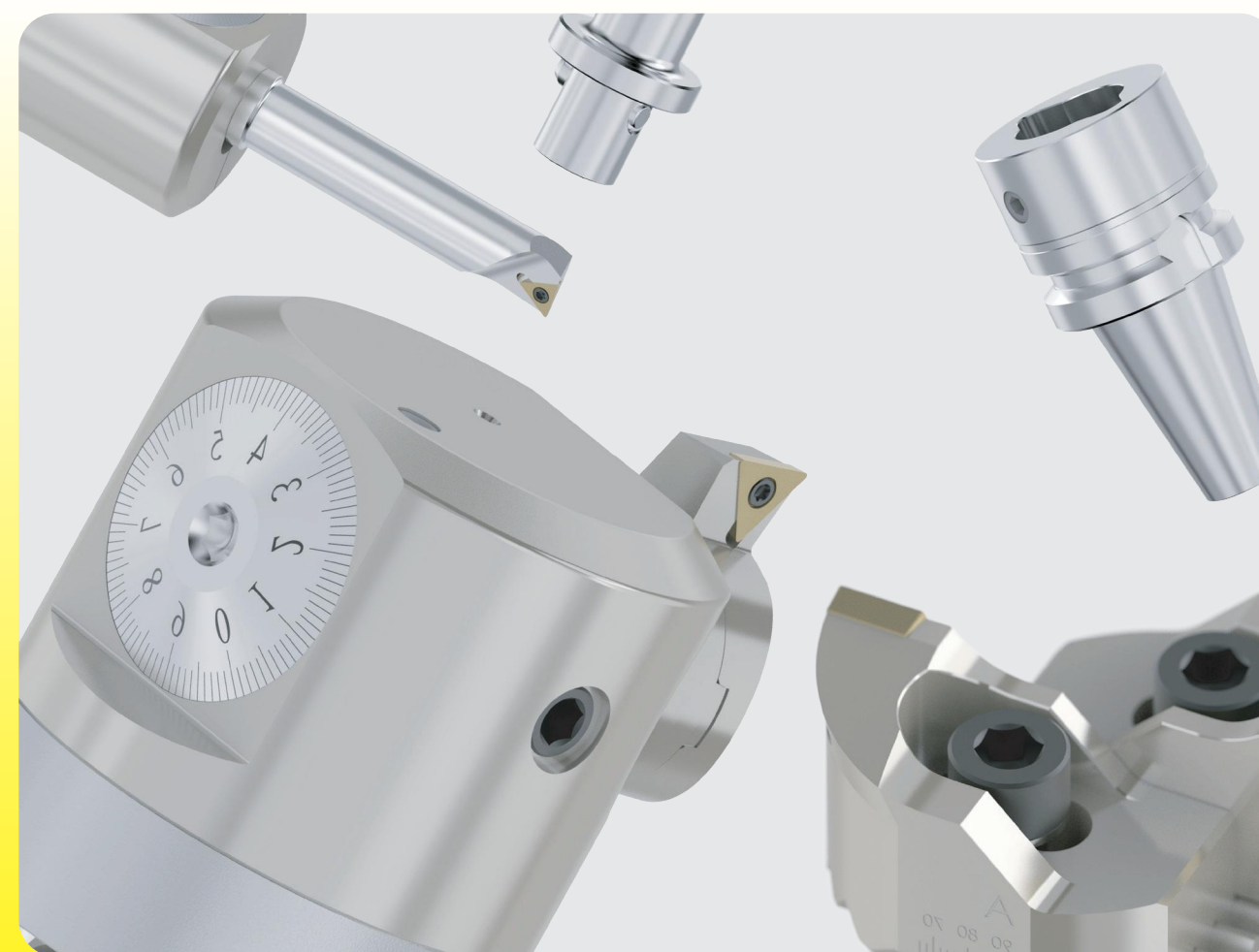
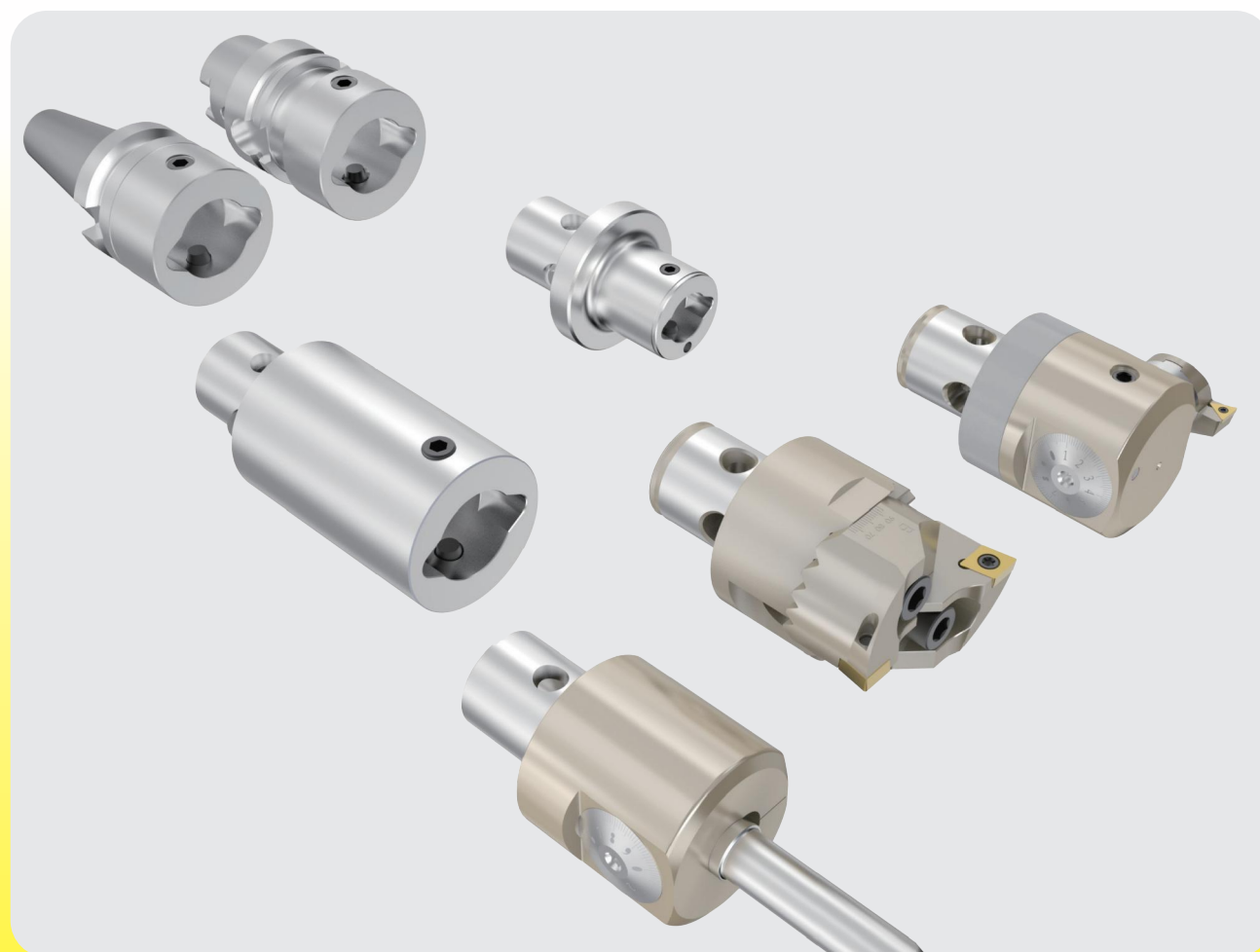


孔加工刀具 Boring Tools

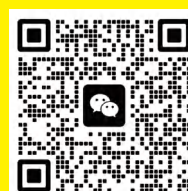


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2024-2025样本



方瀚工具源头生产厂家

上海方瀚精密工具有限公司

Shanghai Fonhae Precision Tools Co., Ltd.



上海方瀚精密工具有限公司
Shanghai Fonhae Precision Tools Co., Ltd

精密机械加工刀具制造商，成立于2016年，专业提供硬质合金、金属陶瓷刀具研发、生产、销售和服务的企业。

主要服务于航空航天、汽车、消费电子、液压气动、工程机械及精密机械等客户。

Manufacturer of precision machining tools, was established in 2016. The company specializes in providing tungsten carbide, cermet tools research and development, production, sales and service.

Mainly serve aerospace, automotive, consumer electronics, pneumatic hydraulic industry, engineering machinery and precision machinery customers.

公司提供的产品和服务
Products and services provided by the company

- 研究开发硬质合金材料、几何结构、涂层和加工工艺
- 依据客户要求开发非标刀具
- 客户服务和产品培训
- OEM-项目和加工工艺解决方案
- 效率和成本计算
- Researches and develops tungsten carbide materials, geometries, coatings and machining processes
- Develops special tools according to customer requirements
- Provides customer service and product training
- OEM - projects and machining process solutions
- Efficiency and cost calculation



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CKE模块式镗刀系列
CKE modular boring tool series

CKE镗刀系列包含从粗镗到精镗，丰富的镗头和配件支持各种镗孔加工
The CKE boring tool series includes a wide range of cartidges and accessories to support a variety of boring processes, roughing and finishing
所有镗刀具有预平衡
All boring tools are pre-balanced



- 高精度 High precision
- 高刚性 High rigidity
- 操作方便 Easy to operate

CKE模块式镗刀
CKE modular boring tool

依靠30°锥形螺丝，把紧固力转换为轴向拉力，使镗刀端面与本体端面贴紧，并与市面大多数“CK”系列实现通装。

Relying on the 30° tapered screw, the tightening force is converted into axial tension, so that the end face of the boring tool is close to the end face of the body, and it can be installed with most of the “CK” series on the market.

采用模块化设计，可以根据需要，自由搭配刀柄、延长/转换接柄及镗刀，以满足不同大小及深度孔的粗精加工。

With modular design, it can be freely matched with tool holders, extension/conversion adaptors and boring tools according to needs to meet the roughing and finishing of holes of different sizes and depths.

因镗头与本体的连接精度非常高，所以只需对镗刀单独对刀，可减轻劳动强度，提高工作效率，降低综合成本。

Because the connection accuracy between the cartidges and the body is very high, only the boring tool needs to be set separately, which can reduce labor intensity, improve work efficiency and reduce comprehensive cost.

微调精镗刀
Micro-Adjustable Boring Tools

覆盖直径 $\phi 20$ - $\phi 203$ mm加工范围。
It covers the processing range of diameter $\phi 20$ - $\phi 203$ mm.
调节精度每格0.01mm，配合游标能够实现每格0.001mm调节。
The adjustment accuracy is 0.1mm per grid, and 0.001mm per grid can be adjusted with the vernier.
微调螺纹采用高精度螺纹副，调节精度稳定可靠。
The micro-adjustable thread adopts high precision thread pairs, and the adjustment accuracy is stable and reliable.



转换接柄
Reductions

通过使用转换接柄确保刚性的同时并防止干涉。
Ensure rigidity while preventing interference through the use of a reductions.

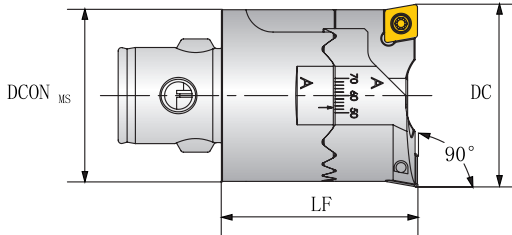
双刃镗刀
Double-Edge Boring Tools

采用高刚性齿形结构，可实现大余量切削。
The high rigidity tooth structure enables large margin cutting.
独特高低端差设计，可实现等径等高和不等径不等高两种切削方式。
Unique high and low difference design, can achieve equal diameter and equal height, unequal diameter and unequal height two cutting methods.
具有清晰的刻度及调整螺纹，可以简单方便的调整至所需加工尺寸。
With a clear scale and adjustable thread, it can be easily adjusted to the desired processing size.

小孔径精镗刀
Fine Boring For Small Diameters

镗孔范围： $\phi 3$ - $\phi 50$ mm (SBZ-16)
Boring range: $\phi 3$ - $\phi 50$ mm (SBZ-16)
调节精度每格0.01mm，配合游标可实现每格0.001mm。
The adjustment accuracy is 0.1mm per grid, and 0.001mm per grid can be adjusted with the vernier.
微调螺纹采用高精度螺纹副，调节精度稳定可靠。
The micro-adjustable thread adopts high precision thread pairs, and the adjustable accuracy is stable and reliable.

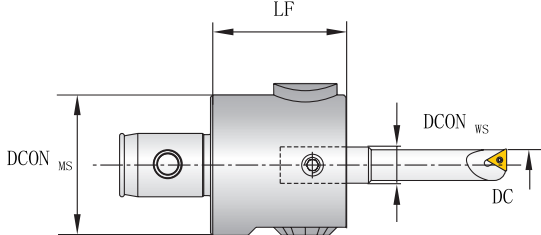
双刃粗镗刀/Double-edge Boring Tools



型号 Model	尺寸 Size (mm)				刀片座 Cartridges	镗刀体 Boring head	MID
	CZC _{MS}	DCN	DCX	LF			
CKE1-RDC20-26	CKE1	20	26	32.5	RDC2026	CKE1-RD20-26	CC..0602..
CKE2-RDC25-33	CKE2	25	33	35.5	RDC2533	CKE2-RD25-33	
CKE3-RDC32-42	CKE3	32	42	40	RDC3242	CKE3-RD32-42	
CKE4-RDC41-54	CKE4	40	55	47	RDC4055	CKE4-RD40-55	CC..09T3..
CKE5-RDC53-70	CKE5	52	70	57	RDC5270	CKE5-RD52-70	
CKE6-RDC68-92	CKE6	68	92	71	RDC6892	CKE6-RD68-92	CC..1204..
CKE6-RDC90-122	CKE6	90	122	71	RDC90122	CKE6-RD90-122	
CKE7-RDC120-164	CKE7	120	164	87	RDC120164	CKE7-RD120-164	
CKE7-RDC160-204	CKE7	160	204	87	RDC160204	CKE7-RD160-204	

刀片需单独订购。
Inserts need to be ordered separately.
所有粗镗刀均带内冷孔。
All boring tools have internal coolant hole.
为保证镗削效果，建议刀片座成对更换（表中刀片座型号包含A、B两只）。
In order to ensure the boring effect, it is recommended that the cartridges be replaced in pairs (the cartridges models in the table include A and B).
镗刀体包含紧固螺栓及垫圈。
The boring head contains fastening bolts and washer.
DCN、DCX为使用刀片CC..060204、CC..09T308、CC..120408时的值。
DCN、DCX are the value for used with the inserts CC..060204、CC..09T308、CC..120408.
本产品具有平衡与段差两种切削方式，使用方法参见说明书（P26）。
The product has two cutting methods: balance and segment difference, the use of the instructions (P26).

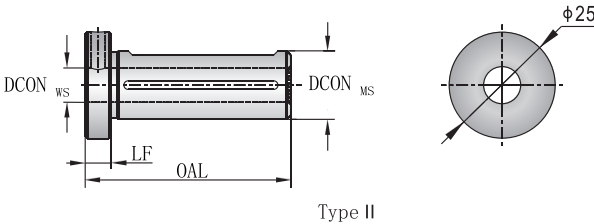
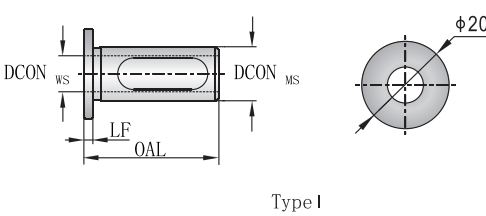
小孔径镗刀/Fine boring for Small Diameters



型号 Model	尺寸 Size (mm)					
	CZC _{MS}	DCN	DCX	DCON _{MS}	DCON _{WS}	LF
CKE4-FSD-8	CKE4	3	11	40	8	35
CKE5-FSD-12	CKE5	3	28	50	12	40
CKE6-FSD-16	CKE6	3	50	63	16	60

附件需单独订购。
Accessories need to be ordered separately.
变径套、镗刀杆需单独订购。
Reducing sleeve and boring bar need to be ordered separately.

变径套/Reducing Sleeve

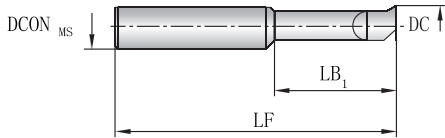


型号 Model	精镗孔器 Fine boring tool adapter	尺寸 Size (mm)				重量 Weight	型式 Type
		DCON _{WS}	DCON _{MS}	LF	OAL		
SBJ-12C8	21CD50-SBZ-12	8	12	2	30	0.05	I
SBJ-16C8	21CD63-SBZ-16	8	16	6	48	0.06	II

该产品用于夹持YBJ系列镗杆，详见7页。
The product is used to clamp YBJ series boring holder, see page 7 for details.

整体硬质合金镗刀杆/Solid Carbide Boring Bar

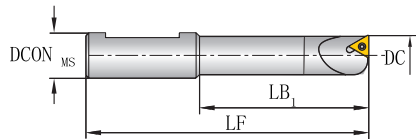
FONHAE方瀚



型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)		
		DCON _{MS}	LB ₁	LF
YBJ-0803-9	3~5	8	9	38
YBJ-0805-15	5~7	8	15	43
YBJ-0807-21	7~9	8	21	49
YBJ-0809-27	9~11	8	27	54

该系列镗杆可直接用于21CD40-SBZ-8。
The series of boring bars can be used directly with the 21CD40-SBZ-8.
该系列镗杆用于21CD50-SBZ-12时，需与变径套SBJ-12C8配合，尺寸详见6页。
When this series of boring bars is used in 21CD50-SBZ-12, it needs to be matched with the reducing sleeve SBJ-12C8, and the dimensions are detailed on page 6.
该系列镗杆用于21CD63-SBZ-16时，需与变径套SBJ-16C8配合，尺寸详见6页。
When this series of boring bars is used in 21CD63-SBZ-16, it needs to be matched with the reducing sleeve SBJ-16C8, and the dimensions are detailed on page 6.

合金镗刀杆/Carbide Boring Bar

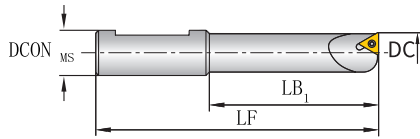


型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)			刀片 Insert	螺钉 Screw	扳手 Torx wrench	重量 Weight
		DCON _{MS}	LB ₁	LF				
YSBJ-1608-40	8~11	16	40	82	TBGT060102L	C020S05J	T6IP	0.06
YSBJ-1610-50	10~13	16	50	92	TBGT060102L	C020S05J	T6IP	0.07
YSBJ-1612-60	12~17	16	60	102	TPGH090204L	C025A07IP	T8IP	0.08
YSBJ-1616-80	16~21	16	80	122	TPGH090204L	C025A07IP	T8IP	0.12
YSBJ-1620-100	20~26	16	100	142	TPGH110304L	C030A07IP	T9IP	0.16

刀片需单独订购。
Inserts need to be ordered separately.

镗刀杆-标准型/Boring Bar-Standard

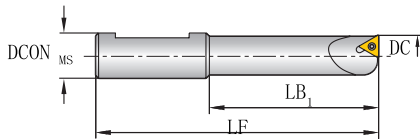
FONHAE方瀚



型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)			刀片 Insert	螺钉 Screw	扳手 Torx wrench	重量 Weight
		DCON _{MS}	LB ₁	LF				
SBJ-1208-30	8~10	12	32	60	TBGT060102L	C020S05J	T6IP	-
SBJ-1210-40	10~12	12	40	68	TBGT060102L	C020S05J	T6IP	-
SBJ-1212-48	12~14	12	48	76	TPGH090204L	C025A07IP	T8IP	-
SBJ-1214-56	14~16	12	56	84	TPGH090204L	C025A07IP	T8IP	-
SBJ-1216-60	16~18	12	60	88	TPGH090204L	C025A07IP	T8IP	-
SBJ-1218-60	18~20	12	60	88	TPGH110304L	C030A07IP	T9IP	-
SBJ-1220-60	20~24	12	60	88	TPGH110304L	C030A07IP	T9IP	-
SBJ-1224-60	24~28	12	60	88	TPGH110304L	C030A07IP	T9IP	
SBJ-1608-32	8~11	16	32	74	TBGT060102L	C020S05J	T6IP	0.06
SBJ-1610-40	10~13	16	40	82	TBGT060102L	C020S05J	T6IP	0.07
SBJ-1612-53	12~17	16	53	95	TPGH090204L	C025A07IP	T8IP	0.08
SBJ-1616-68	16~21	16	68	110	TPGH090204L	C025A07IP	T8IP	0.12
SBJ-1620-83	20~26	16	83	125	TPGH110304L	C030A07IP	T9IP	0.16
SBJ-1625-90	25~32	16	90	132	TPGH110304L	C030A07IP	T9IP	0.25
SBJ-1630-90	30~42	16	90	132	TPGH110304L	C030A07IP	T9IP	0.30
SBJ-1640-90	40~50	16	90	132	TPGH110304L	C030A07IP	T9IP	0.40
SBJ-16x8pcs	附镗刀杆 8 支，扳手 3 支，木盒 1 只 (成组配置) With 8 boring bars, 3 torx wrench, 1 wooden box (group configuration)							

刀片需单独订购。
Inserts need to be ordered separately.

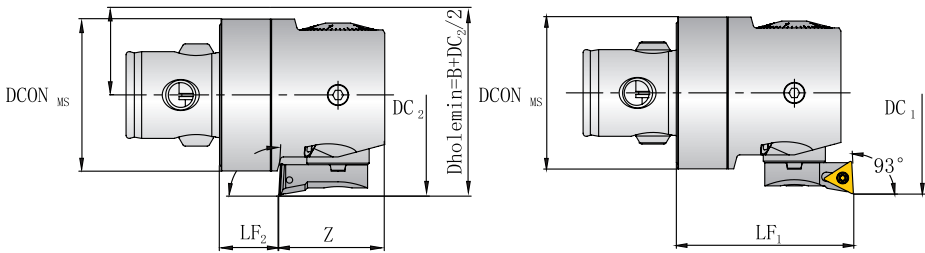
镗刀杆-短型/Boring Bar-Short



型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)			刀片 Insert	螺钉 Screw	扳手 Torx wrench	重量 Weight
		DCON _{MS}	LB ₁	LF				
SBJ-1608-16	8~11	16	16	58	TBGT060102L	C020S05J	T6IP	0.06
SBJ-1610-20	10~13	16	20	62	TBGT060102L	C020S05J	T6IP	0.07
SBJ-1612-24	12~17	16	24	66	TPGH090204L	C025A07IP	T8IP	0.08
SBJ-1616-32	16~21	16	32	74	TPGH090204L	C025A07IP	T8IP	0.12
SBJ-1620-32	20~26	16	32	74	TPGH110304L	C030A07IP	T9IP	0.16
SBJ-1625-32	25~32	16	32	74	TPGH110304L	C030A07IP	T9IP	0.25

刀片需单独订购。
Inserts need to be ordered separately.

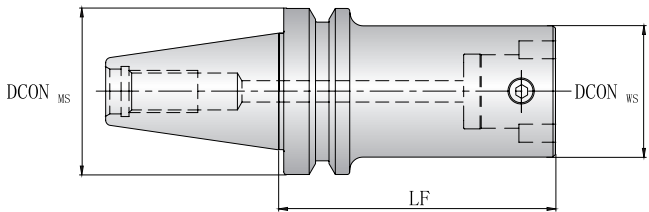
微调精镗刀/Micro-adjustable Boring Tools



型号 Model	CZC _{MS}	刀片座 Cartridges	正镗 Boring				反镗 Anti-boring					MID
			DC1N	DC1X	LF ₁	LB ₁	DC2N	DC2X	LF2	Z	B	
CKE1-FAD20-26	CKE1	FAH1-1	20	26	32.5	29.5	-	-	10.5	10	10	TP..0802..
		FAH1-2	25	31			-	-				
		FAH1-3	30	36			30	36				
CKE2-FAD25-47	CKE2	FAH2-1	25	33	35.5	32.5	-	-	11.5	21	12.5	
		FAH2-2	32	40			36	40				
		FAH2-3	39	47			39	47				
CKE3-FAD32-60	CKE3	FAH3-1	32	42	40	35	-	-	10	25	16	
		FAH3-2	41	51			46	51				
		FAH3-3	50	60			50	60				
CKE4-FAD41-74	CKE4	FAH4-1	41	54	47	43	-	-	14	29	20	TC..1102..
		FAH4-2	50	63			53	63				
		FAH4-3	61	74			61	74				
CKE5-FAD53-95	CKE5	FAH5-1	53	70	57	53	62	70	19	34	25.5	
		FAH5-2	65	82			65	82				
		FAH5-3	78	95			78	95				
CKE6-FAD68-150	CKE6	FAH6-1	68	100	71	67.2	80	100	22	45.2	32.5	
		FAH6-2	94	126			94	126				
		FAH6-3	118	150			118	150				
CKE6-FAD100-203	CKE6	FAH6-1	100	153	71	67.2	112	153	22	45.2	45.5	
		FAH6-2	126	179			126	179				
		FAH6-3	150	203			150	203				
CKE7-FAD100-203	CKE7	FAH6-1	100	153	87	83.2	112	153	38	45.2	45.5	
		FAH6-2	126	179			126	179				
		FAH6-3	150	203			150	203				

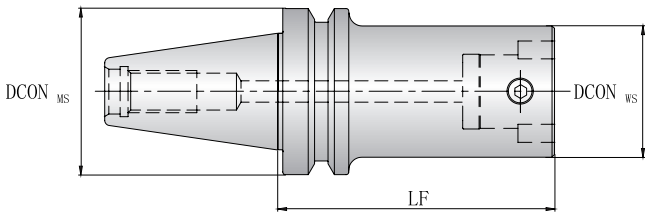
刀片需单独订购。
Inserts need to be ordered separately.
DC*N、DC*X为使用刀片TP..080202、TC..110204时的值。
DC*N、DC*X are the value for used with the inserts TP..080202、TC..110204.
标配刀片座FAH*-1，其余FAH*-2、FAH*-3需单独订购。
The cartridges FAH*-1 is standard, and the rest of the FAH*-2 and FAH*-3 need to be ordered separately.
反镗加工时，主轴需反转。
The spindle needs to be reversed during the anti-boring process.

镗刀基础柄/Boring Holder



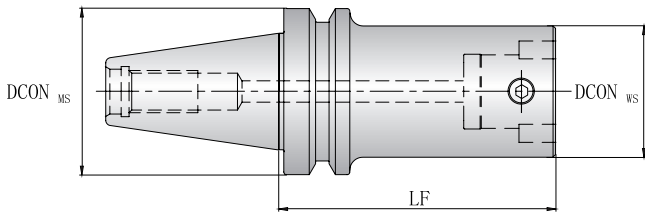
型号 Model	尺寸 Size (mm)				
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF
BT30-CKE1-55	BT30	CKE1	46	19	55
BT30-CKE1-70	BT30	CKE1	46	19	70
BT30-CKE2-40	BT30	CKE2	46	24	40
BT30-CKE2-80	BT30	CKE2	46	24	80
BT30-CKE3-40	BT30	CKE3	46	31	40
BT30-CKE3-80	BT30	CKE3	46	31	80
BT30-CKE4-40	BT30	CKE4	46	39	40
BT30-CKE4-70	BT30	CKE4	46	39	70
BT30-CKE5-65	BT30	CKE5	46	50	65
BT30-CKE6-65	BT30	CKE6	46	64	65

镗刀基础柄/Boring Holder



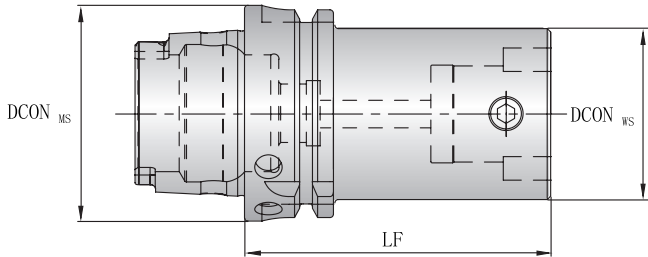
型号 Model	尺寸 Size (mm)				
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF
BT40-CKE1-70	BT40	CKE1	63	19	70
BT40-CKE1-100	BT40	CKE1	63	19	100
BT40-CKE1-130	BT40	CKE1	63	19	130
BT40-CKE2-45	BT40	CKE2	63	24	45
BT40-CKE2-75	BT40	CKE2	63	24	75
BT40-CKE2-100	BT40	CKE2	63	24	100
BT40-CKE2-130	BT40	CKE2	63	24	130
BT40-CKE2-160	BT40	CKE2	63	24	160
BT40-CKE3-45	BT40	CKE3	63	31	45
BT40-CKE3-80	BT40	CKE3	63	31	80
BT40-CKE3-100	BT40	CKE3	63	31	100
BT40-CKE3-135	BT40	CKE3	63	31	135
BT40-CKE3-165	BT40	CKE3	63	31	165
BT40-CKE4-45	BT40	CKE4	63	39	45
BT40-CKE4-70	BT40	CKE4	63	39	70
BT40-CKE4-100	BT40	CKE4	63	39	100
BT40-CKE4-150	BT40	CKE4	63	39	150
BT40-CKE4-170	BT40	CKE4	63	39	170
BT40-CKE5-50	BT40	CKE5	63	50	50
BT40-CKE5-80	BT40	CKE5	63	50	80
BT40-CKE5-100	BT40	CKE5	63	50	100
BT40-CKE5-150	BT40	CKE5	63	50	150
BT40-CKE5-180	BT40	CKE5	63	50	180
BT40-CKE6-55	BT40	CKE6	63	64	55
BT40-CKE6-100	BT40	CKE6	63	64	100
BT40-CKE6-150	BT40	CKE6	63	64	150
BT40-CKE6-180	BT40	CKE6	63	64	180

镗刀基础柄/Boring Holder



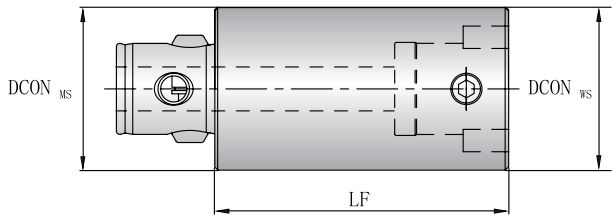
型号 Model	尺寸 Size (mm)				
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF
BT50-CKE1-80	BT50	CKE1	100	19	80
BT50-CKE1-115	BT50	CKE1	100	19	115
BT50-CKE1-145	BT50	CKE1	100	19	145
BT50-CKE2-55	BT50	CKE2	100	24	55
BT50-CKE2-80	BT50	CKE2	100	24	80
BT50-CKE2-105	BT50	CKE2	100	24	105
BT50-CKE2-135	BT50	CKE2	100	24	135
BT50-CKE2-165	BT50	CKE2	100	24	165
BT50-CKE3-55	BT50	CKE3	100	31	55
BT50-CKE3-85	BT50	CKE3	100	31	85
BT50-CKE3-110	BT50	CKE3	100	31	110
BT50-CKE3-140	BT50	CKE3	100	31	140
BT50-CKE3-170	BT50	CKE3	100	31	170
BT50-CKE4-60	BT50	CKE4	100	39	60
BT50-CKE4-100	BT50	CKE4	100	39	100
BT50-CKE4-160	BT50	CKE4	100	39	160
BT50-CKE4-205	BT50	CKE4	100	39	205
BT50-CKE5-65	BT50	CKE5	100	50	65
BT50-CKE5-90	BT50	CKE5	100	50	90
BT50-CKE5-165	BT50	CKE5	100	50	165
BT50-CKE5-210	BT50	CKE5	100	50	210
BT50-CKE5-270	BT50	CKE5	100	50	270
BT50-CKE6-85	BT50	CKE6	100	64	85
BT50-CKE6-155	BT50	CKE6	100	64	155
BT50-CKE6-215	BT50	CKE6	100	64	215
BT50-CKE6-250	BT50	CKE6	100	64	250
BT50-CKE6-300	BT50	CKE6	100	64	300
BT50-CKE6-350	BT50	CKE6	100	64	350
BT50-CKE7-85	BT50	CKE7	100	90	85
BT50-CKE7-150	BT50	CKE7	100	90	150
BT50-CKE7-210	BT50	CKE7	100	90	210
BT50-CKE7-250	BT50	CKE7	100	90	250
BT50-CKE7-300	BT50	CKE7	100	90	300

镗刀基础柄/Boring Holder



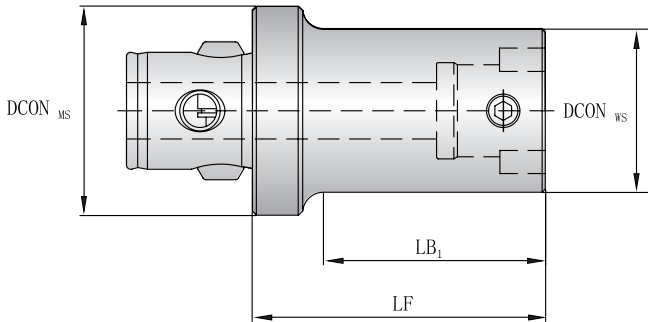
型号 Model	尺寸 Size (mm)				
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF
HSK63A-CKE1-75	HSK63A	CKE1	63	19	75
HSK63A-CKE2-80	HSK63A	CKE2	63	24	80
HSK63A-CKE3-85	HSK63A	CKE3	63	29	85
HSK63A-CKE3-130	HSK63A	CKE3	63	29	130
HSK63A-CKE4-75	HSK63A	CKE4	63	31	75
HSK63A-CKE4-125	HSK63A	CKE4	63	31	125
HSK63A-CKE5-80	HSK63A	CKE5	63	50	80
HSK63A-CKE5-120	HSK63A	CKE5	63	50	120
HSK63A-CKE6-80	HSK63A	CKE6	63	64	80
HSK63A-CKE6-120	HSK63A	CKE6	63	64	120
HSK100A-CKE1-80	HSK100A	CKE1	100	19	80
HSK100A-CKE2-80	HSK100A	CKE2	100	24	80
HSK100A-CKE3-85	HSK100A	CKE3	100	31	85
HSK100A-CKE4-100	HSK100A	CKE4	100	39	100
HSK100A-CKE5-90	HSK100A	CKE5	100	50	90
HSK100A-CKE6-90	HSK100A	CKE6	100	64	90
HSK100A-CKE7-125	HSK100A	CKE7	100	90	125

延长接柄/Extensions



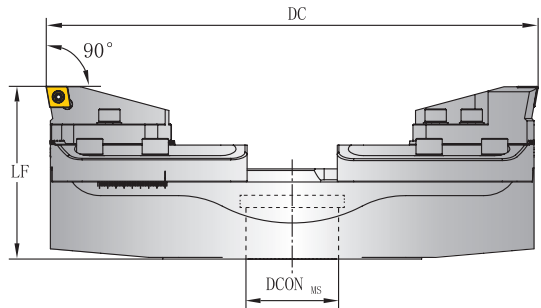
型号 Model	尺寸 Size (mm)				
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF
CKE1-1-20	CKE1	CKE1	19	19	20
CKE1-1-30		CKE1	19	19	30
CKE2-2-30	CKE2	CKE2	24	24	30
CKE2-2-45		CKE2	24	24	45
CKE3-3-30	CKE3	CKE3	31	31	30
CKE3-3-45		CKE3	31	31	45
CKE4-4-45	CKE4	CKE4	39	39	45
CKE4-4-60		CKE4	39	39	60
CKE5-5-60	CKE5	CKE5	50	50	60
CKE5-5-90		CKE5	50	50	90
CKE6-6-60	CKE6	CKE6	64	64	60
CKE6-6-100		CKE6	64	64	100
CKE7-7-105	CKE7	CKE7	90	90	105

转换接柄/Reductions



型号 Model	尺寸 Size (mm)					
	CZC _{MS}	CZC _{WS}	DCON _{MS}	DCON _{WS}	LF	LB ₁
CKE2-1-36	CKE2	CKE1	24	19	36	22.5
CKE3-1-41	CKE3	CKE1	31	19	41	28
CKE3-2-35	CKE3	CKE2	31	24	35	25
CKE4-1-58	CKE4	CKE1	39	19	58	43
CKE4-2-52	CKE4	CKE2	39	24	52	40
CKE4-3-47	CKE4	CKE3	39	39	47	35
CKE5-1-58	CKE5	CKE1	50	19	58	38
CKE5-2-52	CKE5	CKE2	50	24	52	35
CKE5-2-82	CKE5	CKE2	50	24	82	65
CKE5-3-47	CKE5	CKE3	50	31	47	30
CKE5-3-77	CKE5	CKE3	50	31	77	60
CKE5-4-40	CKE5	CKE4	50	39	40	23
CKE5-4-70	CKE5	CKE4	50	39	70	53
CKE6-1-67	CKE6	CKE1	64	19	67	33
CKE6-2-61	CKE6	CKE2	64	24	61	45
CKE6-2-96	CKE6	CKE2	64	24	96	80
CKE6-3-56	CKE6	CKE3	64	31	56	40
CKE6-3-91	CKE6	CKE3	64	31	91	75
CKE6-4-49	CKE6	CKE4	64	39	49	33
CKE6-4-84	CKE6	CKE4	64	39	84	68
CKE6-5-39	CKE6	CKE5	64	50	39	23
CKE6-5-74	CKE6	CKE5	64	50	74	58
CKE7-6-106	CKE7	CKE6	90	64	106	89

大直径双刃镗刀(SCC)/Double-edge Boring Tools(SCC)

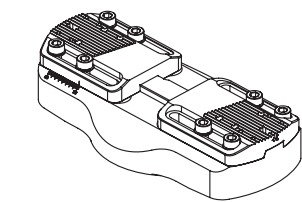


- 使用正前角刀片（刀片后角大于0°）。
- Use a positive insert (insert rear-angle greater than 0°)
- 简单可靠的刀片夹紧方式和极少的备件。
- Simple and reliable insert clamping and minimal spare parts.
- 适用于轻、中型加工场合。
- Suitable for light and medium processing occasions.

镗孔尺寸 DC Boring range	组合型号 Model	尺寸 Size (mm)		刀柄 Tool holders	桥体 Crossbars	镗刀座 Slide insert holder	内冷却 Inner Cooling	刀片 Insert	重量 Weight (不含刀柄) Holder not included
		DCON _{MS}	LF						
150~200	T90.RS150.CC12.40	40	95	..XMX40..	CRB150	SCC12. TS90	Y	CC..1204..	4.1
200~250	T90.RS200.CC12.40	40	95		CRB200		Y		4.7
250~300	T90.RS250.CC12.40	40	95		CRB250		Y		5.3
300~380	T90.RS300.CC12.60	60	105	..XMX60..	CRB300		-		8
380~460	T90.RS380.CC12.60	60	105		CRB380		-		9.1
460~540	T90.RS460.CC12.60	60	115		CRB460		-		11.9
540~620	T90.RS540.CC12.60	60	115		CRB540		-		13.4
620~700	T90.RS620.CC12.60	60	115		CRB620		-		15

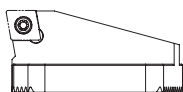
刀片需单独订购。
Inserts need to be ordered separately.
刀柄需单独订购，详见19页。
The holder need to be ordered separately, see page 19.
交货时，桥体与镗刀座分开包装。
At the time of delivery, the crossbars is packed separately from the slide insert holders.

桥体
Crossbars



型号 Model	 滑座 Slide base	 螺钉 Screw	 垫圈 Washer	 扳手 Hex wrench	 微调组件 Adjustable member	 扳手 Hex wrench
CRB150	SDB50	MS10030	DT10	S8	ADJM05	TS2.5
CRB200						
CRB250						
CRB300	SDB80					
CRB380						
CRB460						
CRB540						
CRB620						

镗刀座
Slide Insert Holders



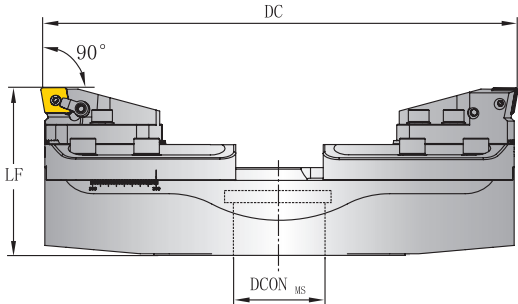
型号 Model	螺钉 Screw	垫圈 Washer	扳手 Hex wrench	螺钉 Screw	扳手 Torx wrench
SCC12.TS90	MS08020	DT08	S6	C050A12IP	T20IP

大直径双刃镗刀(MCN)/Double-edge Boring Tools (MCN)

FONHAE方瀚



- 采用销钉侧压与压板上压。
- Adopt pin side pressing and plate pressing.
- 使用N后角刀片（刀片后角为0°），刀片可双面使用。
- With the negative insert (0° of the rear-angle), the insert can be used on both sides.
- 坚固的切削刃和牢固的装夹方式为高效率切削提供了可靠的保障。
- The sturdy cutting edge and the clamping method provide a reliable guarantee for efficient cutting.

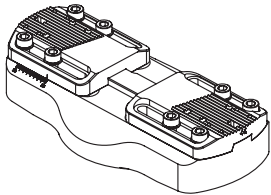


镗孔尺寸 DC Boring range	组合型号 Model	尺寸 Size (mm)		刀柄 Tool holders	桥体 Crossbars	镗刀座 Slide insert holder	内冷却 Inner Cooling	刀片 Insert	重量 Weight (不含刀柄) Holder not included
		DCON _{MS}	LF						
150~200	T90.RM150.CN16.40	40	95	..XMX40..	CRB150	MCN16. TS90	Y	CN..1606..	4.1
200~250	T90.RM200.CN16.40	40	95		CRB200		Y		4.7
250~300	T90.RM250.CN16.40	40	95		CRB250		Y		5.3
300~380	T90.RM300.CN16.60	60	105	..XMX60..	CRB300		-		8
380~460	T90.RM380.CN16.60	60	105		CRB380		-		9.1
460~540	T90.RM460.CN16.60	60	115		CRB460		-		11.9
540~620	T90.RM540.CN16.60	60	115		CRB540		-		13.4
620~700	T90.RM620.CN16.60	60	115		CRB620		-		15

刀片需单独订购。
Inserts need to be ordered separately.
刀柄需单独订购，详见23页。
The holder need to be ordered separately, see page 23.
交货时，桥体与镗刀座分开包装。
At the time of delivery, the crossbars is packed separately from the slide insert holders.

桥体

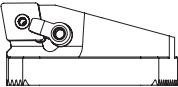
Crossbars



型号 Model	 滑座 Slide base	 螺钉 Screw	 垫圈 Washer	 扳手 Hex wrench	 微调组件 Adjustable member	 扳手 Hex wrench
CRB150	SDB50	MS10030	DT10	S8	ADJM05	TS2.5
CRB200						
CRB250						
CRB300	SDB80					
CRB380						
CRB460						
CRB540						
CRB620						

镗刀座

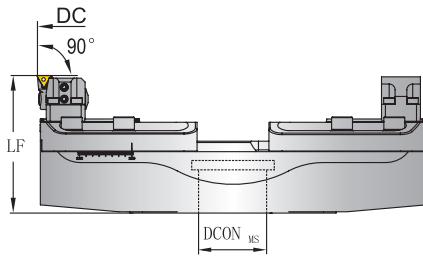
Slide Insert Holders



型号 Model	螺钉 Screw	垫圈 Washer	扳手 Hex wrench	刀垫 Shim	销钉 Pin	压板 Clump	双头螺栓 Clump screw	扳手 Hex wrench
MCN16.TS90	MS08020	DT08	S6	ICSN-533	NL-58	CL-9	XNS-510	S5/32,S1/8

大直径微调精镗刀/Fine boring tools for large diameter

FONHAE方瀚

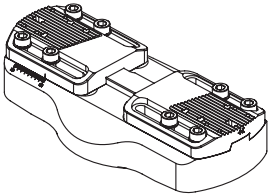


镗孔尺寸 DC Boring range	组合型号 Model	尺寸 Size (mm)		刀柄 Tool holders	桥体 Crossbars	镗刀座 Slide insert holder	内冷却 Inner Cooling	刀片 Insert	重量 Weight (不含刀柄) Holder not included
		DCON _{MS}	LF						
150~200	T90.FS150.TC11.40	40	95	..XMX40..	CRB150	FTC11. TS90	Y	TC..1102..	3.8
200~250	T90.FS200.TC11.40	40	95		CRB200		Y		4.4
250~300	T90.FS250.TC11.40	40	95		CRB250		Y		5
300~380	T90.FS300.TC11.60	60	105	..XMX60..	CRB300		-		7.7
380~460	T90.FS380.TC11.60	60	105		CRB380		-		8.8
460~540	T90.FS460.TC11.60	60	115		CRB460		-		11.6
540~620	T90.FS540.TC11.60	60	115		CRB540		-		13.1
620~700	T90.FS620.TC11.60	60	115		CRB620		-		14.7

刀片需单独订购。
Inserts need to be ordered separately.
刀柄需单独订购，详见19页。
The holder need to be ordered separately, see page 19.
交货时，桥体与镗刀座分开包装。
At the time of delivery, the crossbars is packed separately from the slide insert holders.

桥体

Crossbars



型号 Model	 滑座 Slide base	 螺钉 Screw	 垫圈 Washer	 扳手 Hex wrench			
CRB150	SDB50	MS10030	DT10	S8			
CRB200							
CRB250							
CRB300	SDB80						
CRB380							
CRB460							
CRB540							
CRB620							

镗刀座

Slide Insert Holders



型号 Model	配重块 Balance	螺钉 Screw	扳手 Hex wrench
FTC11.TS90	PZB041	MS05020	S4

刀片座

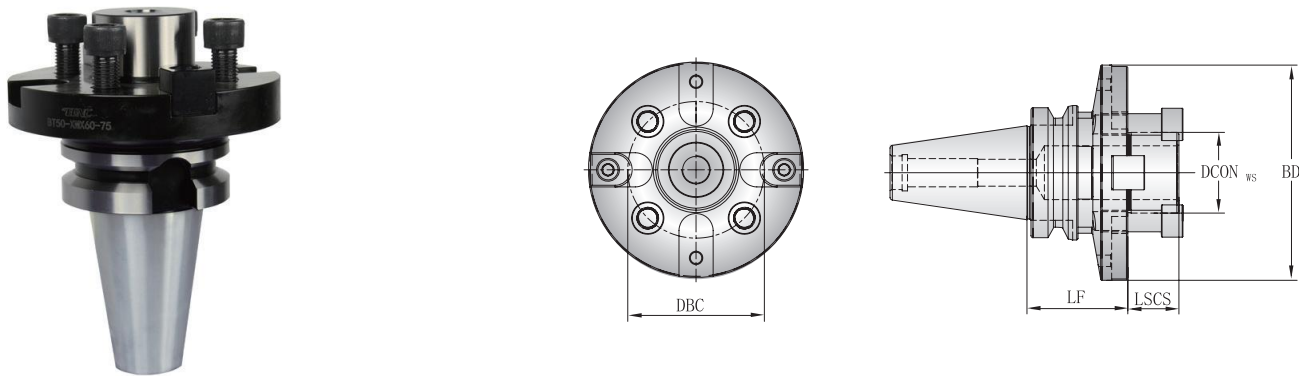
Cartridges



型号 Model	螺钉 Screw	扳手 Hex wrench	螺钉 Screw	扳手 Torx wrench
BZ041.TC11	SS05010A	S3	C025A07IP	T8IP

大直径镗刀专用刀柄/Tool holders for large diameter boring

FONHAE方瀚



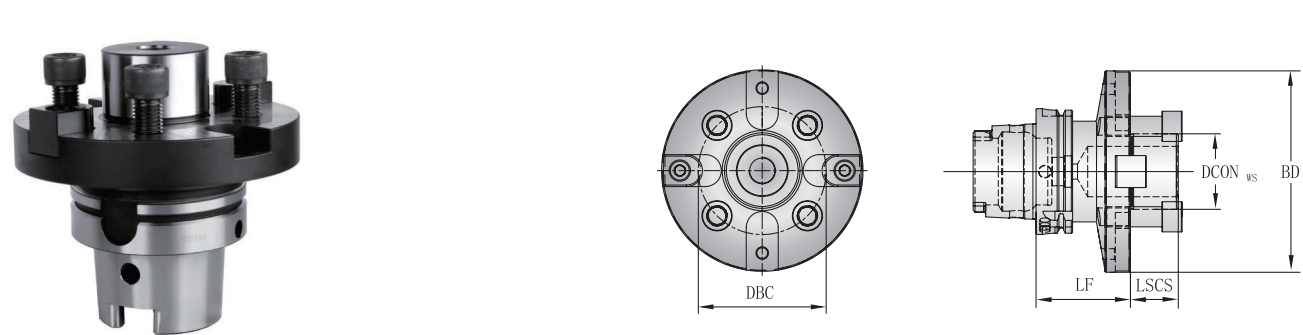
型号 Model		尺寸 Size (mm)								
		DCON _{WS}	BD	DBC	LF	LSCS				
BT40-XMX40-60	40	40	89	66.7	60	27	MS12045(4)	KXM40	MS08020	2.5
BT50-XMX40-75	50	40	89	66.7	75	27	MS12045(4)	KXM40	MS08020	5.5
-150	50	40	89	66.7	150	27	MS12045(4)	KXM40	MS08020	8.5
-200	50	40	89	66.7	200	27	MS12045(4)	KXM40	MS08020	10.5
-250	50	40	89	66.7	250	27	MS12045(4)	KXM40	MS08020	12.5
BT50-XMX60-75	50	60	160	101.6	75	38	MS16045(4)	KXMC60	MS10025	7.9
-150	50	60	160	101.6	150	38	MS16045(4)	KXMC60	MS10025	10.9
-200	50	60	160	101.6	200	38	MS16045(4)	KXMC60	MS10025	12.9
-300	50	60	160	101.6	300	38	MS16045(4)	KXMC60	MS10025	14.9

附件需单独订购。
Accessories need to be ordered separately.

附件 Accessories	DCON _{WS} =40	DCON _{WS} =60
 扳手 Hex Wrench	S10	S14

大直径镗刀专用刀柄/Tool holders for large diameter boring

FONHAE方瀚



型号 Model		尺寸 Size (mm)								
		DCON _{WS}	BD	DBC	LF	LSCS				
HSK63A-XMX40-65	HSK63A	40	89	66.7	65	27	MS12045(4)	KXM40	MS08020	2.3
HSK100A-XMX40-75	HSK100A	40	89	66.7	75	27	MS12045(4)	KXM40	MS08020	4.4
HSK100A-XMX60-75	HSK100A	60	160	101.6	75	38	MS16045(4)	KXMC60	MS10025	6.7

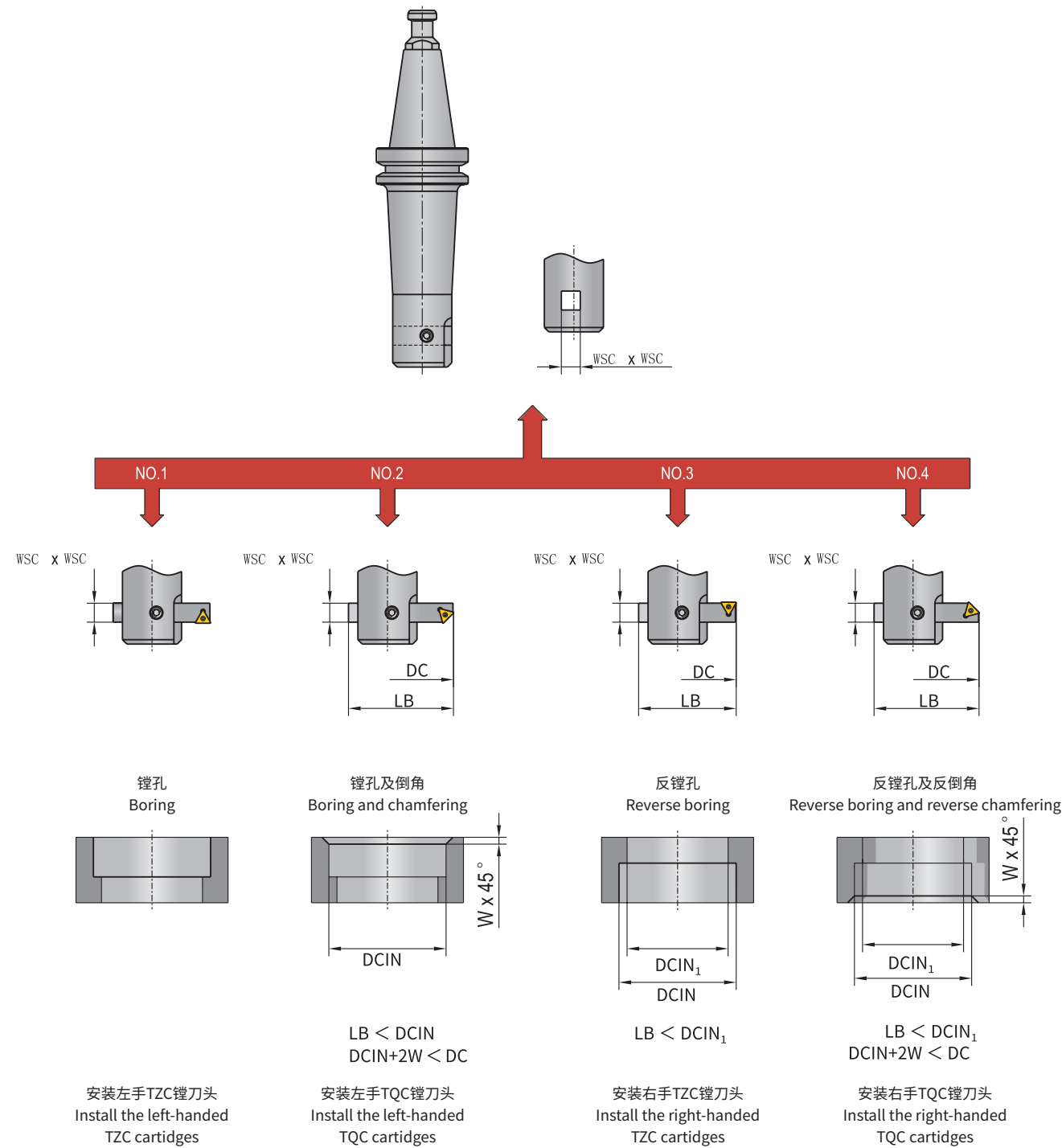
附件需单独订购。
Accessories need to be ordered separately.

附件 Accessories	DCON _{WS} =40	DCON _{WS} =60
 扳手 Hex Wrench	S10	S14

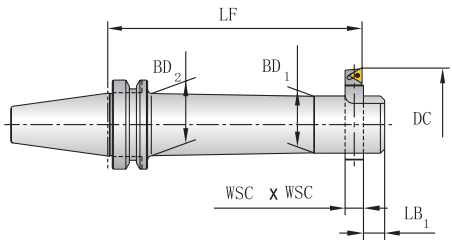
整体式粗镗刀/Rough boring tools



- 特点:
Features:
- 结构简单, 调节范围较大。
-Simple structure and large adjustment range.
 - 同一把刀杆采用安装不同的镗刀头以达到镗孔, 倒角, 反镗孔, 反倒角等不同加工要求。
-The same holder is equipped with different cartridges to meet different processing requirements such as boring, chamfering, reverse boring and reverse chamfering,etc.
 - 容屑空间大。
-Large chip space.



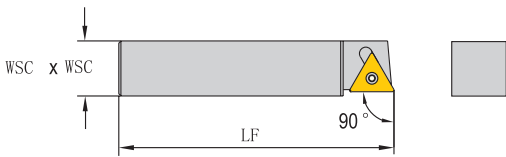
直角型粗镗刀(TZC)/Straight form rough boring tools(TZC)



型号 Model		镗孔尺寸 DC Boring range	尺寸 Size (mm)					 螺钉 Screw	 扳手 Hex wrench	 重量 Weight
			LF	BD ₁	BD ₂	LB ₁	WSC×WSC			
BT40-TZC25-135	40	25-50	135	20	24	10	8	RS04005	S2	1.33
BT40-TZC38-180	40	38-70	180	30	36	15	10	RS06008	S3	2.00
BT40-TZC50-180	40	50-90	180	40	44	15	13	RS08012	S4	3.03
BT40-TZC50-225	40	50-90	225	40	44	15	13	RS08012	S4	3.28
BT40-TZC62-180	40	62-115	180	50	56	15	16	RS10012	S5	3.82
BT40-TZC62-225	40	62-115	225	50	56	15	16	RS10012	S5	5.22
BT40-TZC72-180	40	72-135	180	50	50	15	19	RS12016	S6	3.98
BT40-TZC72-225	40	72-135	225	50	50	15	19	RS12016	S6	4.67
BT40-TZC90-180	40	90-150	180	50	50	15	19	RS12016	S6	4.73
BT40-TZC90-225	40	90-150	225	50	50	15	19	RS12016	S6	5.40
BT50-TZC25-135	50	25-50	135	20	24	10	8	RS04005	S2	4.13
BT50-TZC38-180	50	38-70	180	30	36	15	10	RS06008	S3	4.83
BT50-TZC50-180	50	50-90	180	40	48	15	13	RS08012	S4	5.44
BT50-TZC50-240	50	50-90	240	40	48	15	13	RS08012	S4	6.03
BT50-TZC62-195	50	62-115	195	50	56	15	16	RS10012	S5	6.72
BT50-TZC62-270	50	62-115	270	50	56	15	16	RS10012	S5	7.93
BT50-TZC72-195	50	72-135	195	60	66	15	19	RS12016	S6	7.61
BT50-TZC72-285	50	72-135	285	60	66	15	19	RS12016	S6	9.52
BT50-TZC90-210	50	90-150	210	72	77	18	19	RS12016	S6	10.50
BT50-TZC90-300	50	90-150	300	72	77	18	19	RS12016	S6	13.20
BT50-TZC105-195	50	105-190	195	80	80	20	25	RS16016	S8	11.30
BT50-TZC105-285	50	105-190	285	80	80	20	25	RS16016	S8	14.50

镗刀头单独订购, 根据加工要求接口B×B选配相应的镗刀头 (镗刀头资料23页)。
The cartridges are ordered separately, and the corresponding cartridges are selected according to the processing requirements interface B×B (Page 23 of the cartridges information).

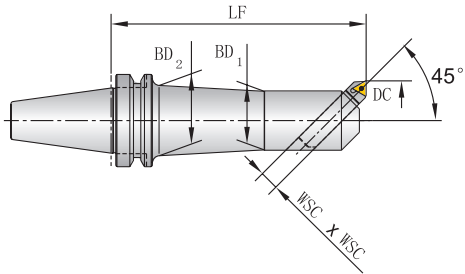
TZC镗刀头/TZC Cartidges



型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)		刀片 Insert	螺钉 Screw	扳手 Torx wrench	重量 Weight
		LF	WSC				
TZC08-23-90L	25-38	23	8	CP..050204	L60M2.2×5	T6	0.01
-36-90L	38-50	36	8	CP..050204	L60M2.2×5	T6	0.02
TZC10-36-90L	38-50	36	10	TC..090204	L60M2.2×5	T6	0.03
-48-90L	50-70	48	10	TC..090204	L60M2.2×5	T6	0.04
TZC13-48-90L	50-70	48	13	TC..110204	L60M2.5×5.2	T8	0.06
-65-90L	70-90	65	13	TC..110204	L60M2.5×5.2	T8	0.08
TZC16-60-90L	62-90	60	16	TC..110204	L60M2.5×5.2	T8	0.13
-85-90L	90-115	85	16	TC..110204	L60M2.5×5.2	T8	0.18
TZC19-70-90L	72-105	70	19	TC..16T308	L60M3.5×8.8	T15	0.20
-95-90L	105-135	95	19	TC..16T308	L60M3.5×8.8	T15	0.27
-120-90L	135-150	120	19	TC..16T308	L60M3.5×8.8	T15	0.37
TZC25-100-90L	105-140	100	25	TC..16T308	L60M3.5×8.8	T15	0.43
-135-90L	140-190	135	25	TC..16T308	L60M3.5×8.8	T15	0.60

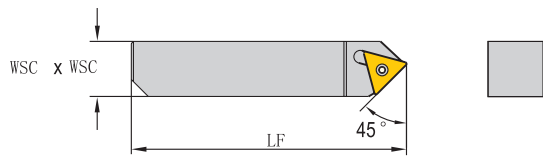
刀片需单独订购。
Inserts need to be ordered separately.

倾斜型粗镗刀(TZC)/Clino-form Rough Boring Tools(TZC)



型号 Model		镗孔尺寸 DC Boring range	尺寸 Size (mm)				螺钉 Screw	扳手 Hex wrench	重量 Weight
			LF	BD ₁	BD ₂	WSC			
BT40-TQC25-135	40	25-38	135	20	24	8	RS04005	S2	1.19
BT40-TQC30-165	40	30-42	165	24	28	8	RS05006	S2.5	1.98
BT40-TQC38-180	40	38-52	180	30	36	10	RS06008	S3	2.71
BT40-TQC42-210	40	42-56	210	34	40	10	RS06008	S3	3.20
BT40-TQC50-180	40	50-65	180	40	44	13	RS08012	S4	3.43
BT40-TQC50-225	40	50-65	225	40	44	13	RS08012	S4	4.13
BT40-TQC62-180	40	62-90	180	50	50	16	RS10012	S5	3.80
BT40-TQC62-240	40	62-90	240	50	50	16	RS10012	S5	4.42
BT40-TQC72-180	40	72-110	180	50	50	19	RS12016	S6	4.14
BT40-TQC72-240	40	72-110	240	50	50	19	RS12016	S6	4.84
BT40-TQC90-180	40	90-125	180	55	55	19	RS12016	S6	4.89
BT40-TQC90-225	40	90-125	225	55	55	19	RS12016	S6	5.26
BT50-TQC25-135	50	25-38	135	20	24	8	RS04005	S2	3.01
BT50-TQC30-165	50	30-42	165	24	28	8	RS05006	S2.5	3.87
BT50-TQC38-180	50	38-52	180	30	36	10	RS06008	S3	4.72
BT50-TQC42-210	50	42-56	210	34	40	10	RS06008	S3	5.30
BT50-TQC50-180	50	50-65	180	40	48	13	RS08012	S4	5.92
BT50-TQC50-240	50	50-65	240	40	48	13	RS08012	S4	7.40
BT50-TQC62-195	50	62-90	195	50	56	16	RS10012	S5	7.12
BT50-TQC62-270	50	62-90	270	50	56	16	RS10012	S5	9.31
BT50-TQC72-195	50	72-110	195	60	66	19	RS12016	S6	9.81
BT50-TQC72-285	50	72-110	285	60	66	19	RS12016	S6	12.74
BT50-TQC90-210	50	90-125	210	72	77	19	RS12016	S6	11.17
BT50-TQC90-300	50	90-125	300	72	77	19	RS12016	S6	14.72
BT50-TQC115-220	50	115-160	220	80	80	25	RS16016	S8	13.13
BT50-TQC115-300	50	115-160	300	80	80	25	RS16016	S8	15.80

镗刀头单独订购，根据加工要求接口B×B选配相应的镗刀头（镗刀头资料25页）。
The cartridges are ordered separately, and the corresponding cartridges are selected according to the processing requirements interface B×B (Page 25 of the cartridges information).



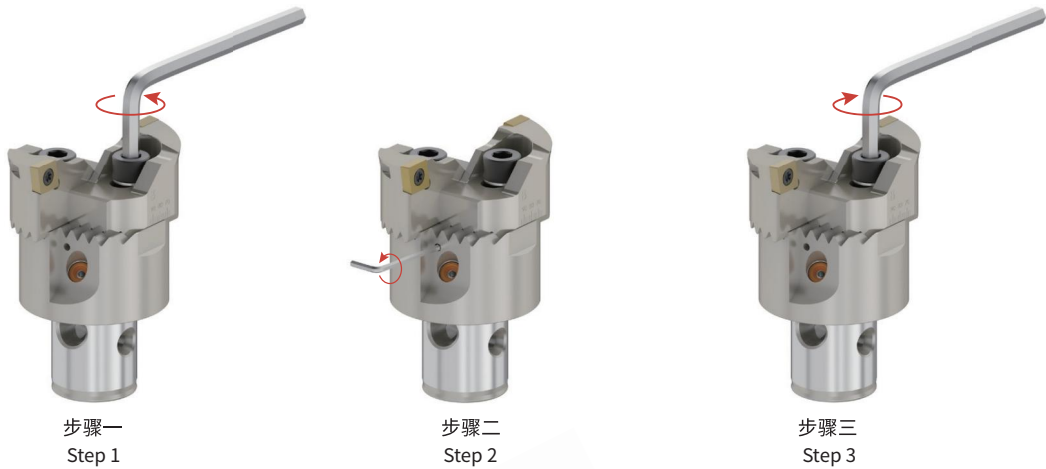
型号 Model	镗孔尺寸 DC Boring range	尺寸 Size (mm)		刀片 Insert	螺钉 Screw	扳手 Torx wrench	重量 Weight
		LF	WSC				
TQC08-29-45L	25-38	29	8	CP..050204	L60M2.2×5	T6	0.01
-45-45L	38-50	45	8	CP..050204	L60M2.2×5	T6	0.02
TQC10-45-45L	38-50	45	10	TC..090204	L60M2.2×5	T6	0.03
-60-45L	50-70	60	10	TC..090204	L60M2.2×5	T6	0.05
TQC13-60-45L	50-70	60	13	TC..110204	L60M2.5×5.2	T8	0.07
-81-45L	70-90	81	13	TC..110204	L60M2.5×5.2	T8	0.1
TQC16-75-45L	62-90	75	16	TC..110204	L60M2.5×5.2	T8	0.1
-106-45L	90-115	106	16	TC..110204	L60M2.5×5.2	T8	0.17
TQC19-88-45L	72-105	88	19	TC..16T308	L60M3.5×8.8	T15	0.26
-119-45L	105-135	119	19	TC..16T308	L60M3.5×8.8	T15	0.35
-150-45L	135-150	150	19	TC..16T308	L60M3.5×8.8	T15	0.44
TQC25-125-45L	105-140	125	25	TC..16T308	L60M3.5×8.8	T15	0.55
-169-45L	140-190	169	25	TC..16T308	L60M3.5×8.8	T15	0.77

刀片需单独订购。
Inserts need to be ordered separately.

使用步骤Directions

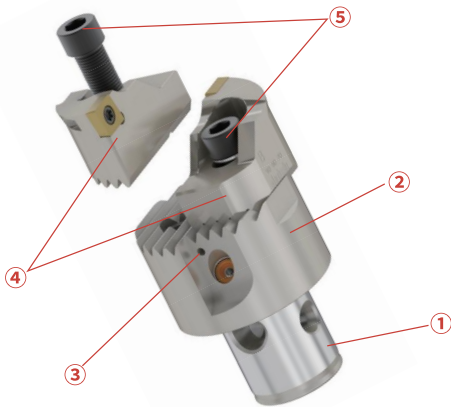
粗镗刀为双刃镗刀可先调整一侧。
The rough boring is the double-edge boring tool, and one side can be adjusted first.
步骤一：松开刀片座锁紧螺钉⑤逆时针旋转
Step 1: Loosen the cartridges locking screw ⑤ and rotate counterclockwise
步骤二：旋转刀片座调整螺钉③，推动刀片座④到预定尺寸可参照刻度线
Step 2: Rotate the cartridges adjustment screw ③ and push the cartridges ④ to the predetermined size with reference to the scale mark
步骤三：拧紧刀片座锁紧螺钉⑤顺时针旋转（另一侧调整同上）
Step 3: Tighten the cartridges locking screw ⑤ and rotate clockwise (adjust the other side as above)

操作示意图
Schematic
diagram of
operation



产品结构

Product structure
①镗刀柄部Boring shank
②镗刀刀体Boring head
③刀片座调整螺钉Cartridges adjustment screws
④刀片座Cartridges
⑤刀片座锁紧螺钉Cartridges locking screws

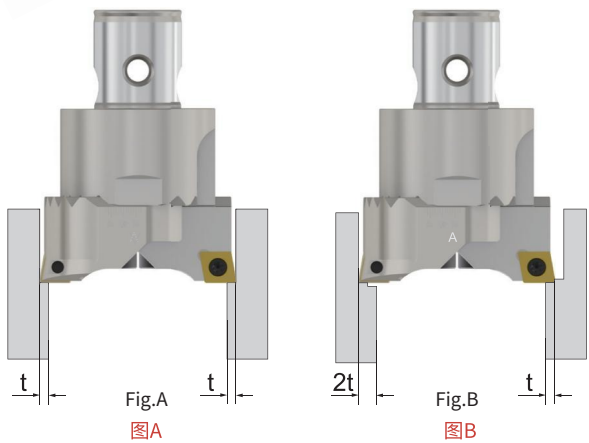


加工方法

Processing method

粗镗刀有两种切削方式

Rough boring tool has two cutting methods
1.平衡式切削（两刃等径等高）:A刀片座装于A面，B刀片座装于B面。形成等高刃，切削效率高。（图A）
1.Balanced cutting (two edges of equal diameter and equal height): A cartridges is installed on the A side, and B cartridges is installed on the B side. Forming an equal height edge and high cutting efficiency. (Fig.A)
2.段差式切削（两刃不等径不等高）：A刀片座装于B面，B刀片座装于A面。形成高低刃，切削阻力小。（图B）
2.Step boring (two edges with unequal diameter and unequal height): A cartridges is installed on the B side, and B cartridges is installed on the A side. Forming a high and low edge, and the cutting resistance is low. (Fig.B)



使用者注意事项

Notice
采用段差式切削，切削深度(ap)调整时须高刃与低刃相同。以平衡两侧所受切削力，避免单侧受力过大，且每齿进给量(fz)需小于两刃高差。
With step boring, the depth of cut (ap) must be adjusted with the same high edge as the low edge. In order to balance the cutting force on both sides, avoid excessive force on one side, and the feed per tooth is (fz) must be less than the height difference between the two edges.

小孔径精镗刀使用说明书

Instruction manual for fine boring for small diameter



使用步骤Directions

步骤一：选择加工范围内刀杆，置于镗头安装孔内，使刀杆削平面对准固定螺丝紧固方向，并确认刀尖处于镗头微调正方向。拧紧刀杆锁紧螺钉（图）
Step 1: Select the holder within the processing range, place it in the cartridges mounting hole, align the cutting plane of the holder with the fastening direction of the fixing screw, and confirm that the insert tip is in the right direction of the cartridges for micro-adjustable. Tighten the locking screw of the holder. (Fig.)
步骤二：松开微调锁紧螺钉（图）逆时针旋转
Step 2: Loosen the micro-adjustable locking screw (Fig.) and rotate counterclockwise.
步骤三：调整微调刻度盘（图），顺时针是加工直径增大，反之减小。调整尺寸时，请按同方向调整，以确保微调精度。（1格=φ0.01mm,使用游标时1格=φ0.001mm）。
Step 3: Adjust the micro-adjustable dial (Fig.), clockwise is to increase the processing diameter, and vice versa. When adjusting the size, please adjust it in the same direction to ensure the precision of the micro-adjustable. (1 grid=φ0.01mm, 1 grid=φ0.001mm when using the vernier).
步骤四：以适当扭力锁紧微调锁紧螺钉（顺时针旋转）（图），完成调整。
Step 4: Complete the adjustment by properly tightening the micro-adjustable locking screw(rotate clockwise).

操作示意图
Schematic diagram of operation



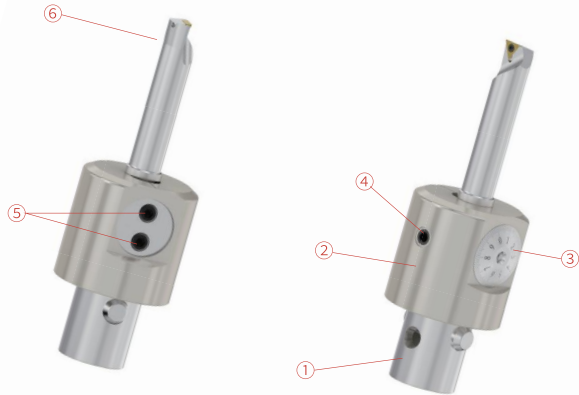
镗孔建议Boring recommend

将镗孔（在对刀仪上）预调至一个较小的直径（例如-0.02mm）进行试镗并校正至所需直径，可以获得最佳的孔径精度。为避免调整机构微小的反向间隙，对于减小直径，建议预先逆时针转动1/2圈左右，然后再顺时针调至所需直径，能获得最佳的调整可靠性。
The best boring accuracy can be obtained by pre-adjusting the boring hole (on the tool setter) to a smaller diameter (e.g.-0.02mm) for test boring and correcting it to the desired diameter. In order to avoid a small amount of backlash of the adjustment mechanism, it is recommend to turn about 1/2 turn counterclockwise in advance to reduce the diameter, and then adjust it clockwise to the desired diameter to obtain the best adjustment reliability.

产品结构

Product structure

- ①镗刀柄部Boring shank
- ②镗刀刀体Boring head
- ③微调刻度盘Micro-adjustable dial
- ④微调锁紧螺钉Micro-adjustable locking screw
- ⑤镗刀杆锁紧螺钉Boring bar locking screw
- ⑥镗刀杆Boring bar



使用注意事项

Notice

- 请在调整范围内使用
1.Please use it within the adjustment range
- 调整前，必须松开微调锁紧螺钉，否则会对内部调整机构造成损坏
2.Before adjustment, the micro-adjustable locking screw must be loosened, otherwise it will cause damage to the internal adjustment mechanism
- 本产品调整功能是由精密螺纹副推动刀片座移动来实现，在阻力过大或无法移动时，请立即停止调整。并确认以下事项：
3.The adjustment faction of this product is realized by pushing the cartridges to move by the precision thread pair, when the resistance is too large or cannot be moved, please stop the adjustment immediately. And confirm the following:
 - 微调锁紧螺钉是否松开Whether the micro-adjustable locking screw is loosened
 - 是否超出调整范围Whether it exceeds the adjustment range
- 使用反镗功能时，主轴必须反转！
4.When use the reverse boring function, the spindle must be reversed!
- 用户须定期从注油孔注入润滑脂，润滑脂的注入量以从刻度盘周围渗出为止，润滑脂不但起到润滑的作用，还可以清除渗入的冷却液和杂质；为了防止长时间不使用而使润滑脂硬化，请定期转动刻度盘。
5.The user must regularly inject grease from the oil injected hole, and the amount of grease injected is until it seeps out from the around the dial, and grease not only plays the role of lubrication, but also removes the infiltrated coolant and impurities; To prevent the grease from hardening due to prolonged non-use, turn the dial regularly.

⚠ 本产品属于精密器械，请客户不要自行拆解。
This product is a precision tool, please do not disassemble it by yourself.

微调精镗刀使用说明书

Instruction manual for micro-adjustable boring tools



安装刀片座、刀片Installing the cartridges、insert

1.将刀片座和镗头安装部分擦拭干净。刀片座底部和镗头安装面贴合，确定无缝隙后，拧紧刀片座锁紧螺钉。调整刀片座安装方向，可实现反镗加工。（图A）
1.Wipe the cartridges and cartridges mounting part clean. The bottom of the cartridges and the mounting surface of the cartridges are attached, and after making sure that there is no gap, tighten the cartridges locking screw. Adjust the installation direction of the cartridges to realize reverse boring machining. (Fig.A)
2.将刀片装入刀片座内，注意刀片的两侧面及底部必须和刀片座槽的两侧面及底面完全贴合无间隙后，锁紧刀片锁紧螺钉。（图B）
2.Load the insert into the cartridges, pay attention to the two sides and bottom of the insert must be completely fitted with the two sides and bottom surface of the cartridges groove without gap, and the then lock the insert locking screw. (Fig.B)



产品结构

Product structure

- ①镗刀柄部Boring shank
- ②镗刀本体Boring
- ③微调刻度盘Micro-adjustable dial
- ④微调锁紧螺钉Micro-adjustable locking screw
- ⑤注油孔Oil injection hole
- ⑥刀片座锁紧螺钉Cartridges locking screw
- ⑦刀片座Cartridges

使用步骤Directions

准备工作：须先确认刀片安装是否正确，刀片座锁紧螺钉是否锁紧。
Preparation: It is necessary to confirm whether the insert is installed correctly and whether the locking screw of the cartridges is locked.
步骤一：松开微调锁紧螺钉（逆时针旋转）。①
Step 1: Loosen the micro-adjustable locking screw (rotate counterclockwise)①
步骤二：旋转微调刻度盘顺时针旋转使加工直径增大②逆时针旋转加工直径缩小③（1格=φ0.01mm,使用游标时1格=φ0.001mm）。
Step 2: Rotate the micro-adjustable dial clockwise to increase the processing diameter②Rotate counterclockwise to decrease the processing diameter③(1 grid=φ0.01mm, 1 grid=φ0.001mm when using the vernier)
步骤三：以适当拧紧微调锁紧螺钉（顺时针旋转）④完成调整。
Step 3: Complete the adjustment by properly tightening the micro-adjustable locking screw (rotate clockwise).④

镗孔建议Boring recommend

将镗孔（在对刀仪上）预调至一个较小的直径（例如-0.02mm）进行试镗并校正至所需直径，可以获得最佳的孔径精度。为避免调整机构微小的反向间隙，对于减小直径，建议预先逆时针转动1/2圈左右，然后再顺时针调至所需直径，能获得最佳的调整可靠性。
The best boring accuracy can be obtained by pre-adjusting the boring hole (on the tool setter) to a smaller diameter (e.g.-0.02mm) for test boring and correcting it to the desired diameter. In order to avoid a small amount of backlash of the adjustment mechanism, it is recommend to turn about 1/2 turn counterclockwise in advance to reduce the diameter, and then adjust it clockwise to the desired diameter to obtain the best adjustment reliability.

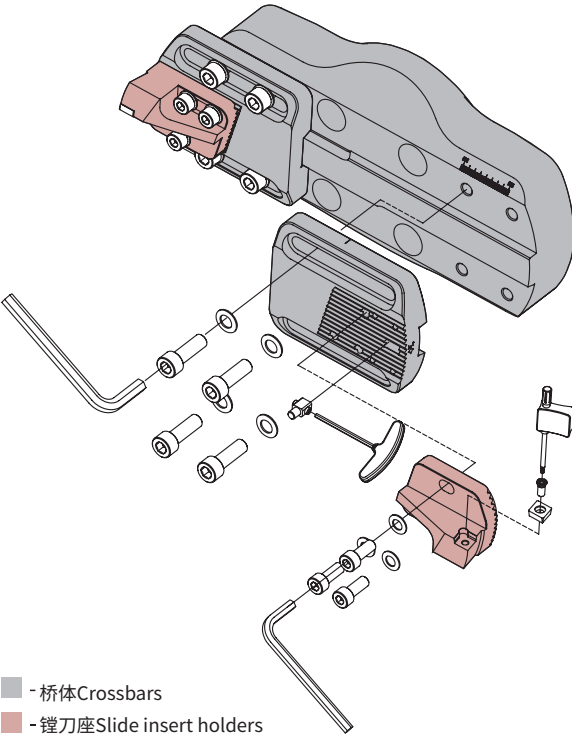
注意事项Notice

- 请在调整范围内使用
1.Please use it within the adjustment range
- 调整前，必须松开微调锁紧螺钉，否则会对内部调整机构造成损坏
2.Before adjustment, the micro-adjustable locking screw must be loosened, otherwise it will cause damage to the internal adjustment mechanism
- 本产品调整功能是由精密螺纹副推动刀片座移动来实现，在阻力过大或无法移动时，请立即停止调整。并确认以下事项：
3.The adjustment faction of this product is realized by pushing the cartridges to move by the precision thread pair, when the resistance is too large or cannot be moved, please stop the adjustment immediately. And confirm the following:
 - 微调锁紧螺钉是否松开Whether the micro-adjustable locking screw is loosened
 - 是否超出调整范围Whether it exceeds the adjustment range
- 使用反镗功能时，主轴必须反转！
4.When use the reverse boring function, the spindle must be reversed!
- 用户须定期从注油孔注入润滑脂，润滑脂的注入量以从刻度盘周围渗出为止，润滑脂不但起到润滑的作用，还可以清除渗入的冷却液和杂质；为了防止长时间不使用而使润滑脂硬化，请定期转动刻度盘。
5.The user must regularly inject grease from the oil injected hole, and the amount of grease injected is until it seeps out from the around the dial, and grease not only plays the role of lubrication, but also removes the infiltrated coolant and impurities; To prevent the grease from hardening due to prolonged non-use, turn the dial regularly.

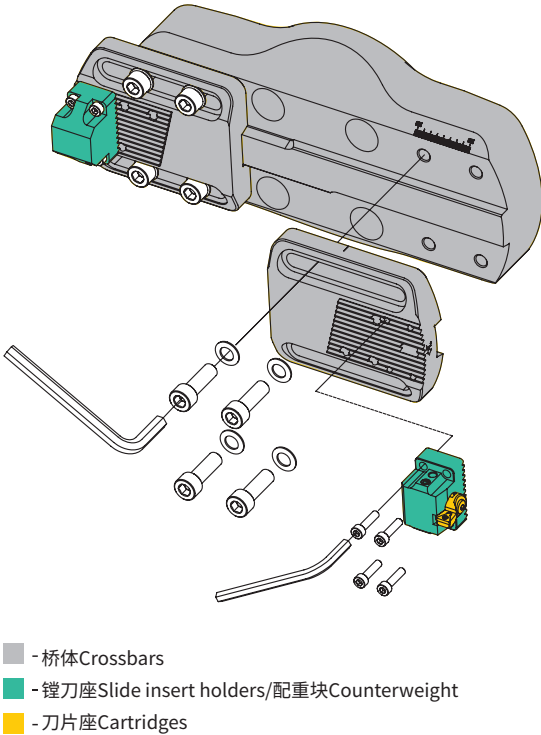
⚠ 本产品属于精密器械，请客户不要自行拆解。
This product is a precision device, please do not disassemble it by yourself.

1.安装说明Installation instructions

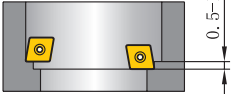
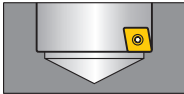
大直径双刃镗刀Double-edge boring tools for large diameter



大直径精镗刀Fine boring tools for large diameter boring

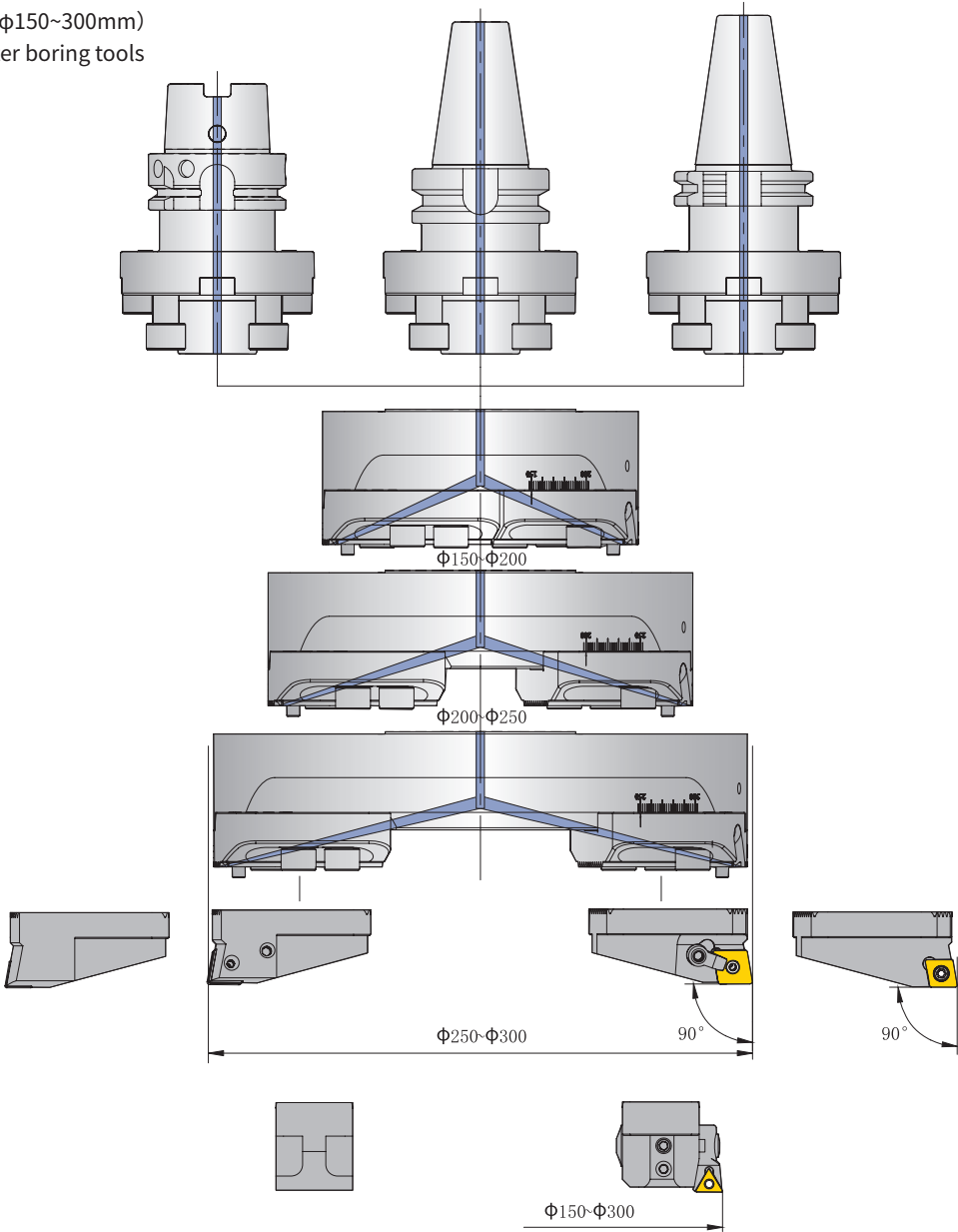


2.大直径镗刀应用示例Application cases of large diameter boring tools

A. 双刃镗Double-edge boring	B. 阶梯镗Step boring	C. 单刃镗Single-edge boring
		
两个切削刃，并且具有相同的切深可获得最高金属去除率，推荐使用。 Two cutting edge with same depth of cut for the highest metal removal rate are recommend.	通过两个不同高度的镗头形成两个高低切削刃，进给量减半，可获得最大总切深。 注意：阶梯镗用镗刀头应单独订购 By forming two high and low cutting edges with two cartridges of different heights, the feed is halved and the maximum total depth of cut is obtained. Note: The cartridges for step boring should be ordered separately	一个切削刃，进给量减半。镗头若经过精确调整，可作精镗使用。 One cutting edge, the feed is halved. If the cartridge is precisely adjusted, it can be used for fine boring.

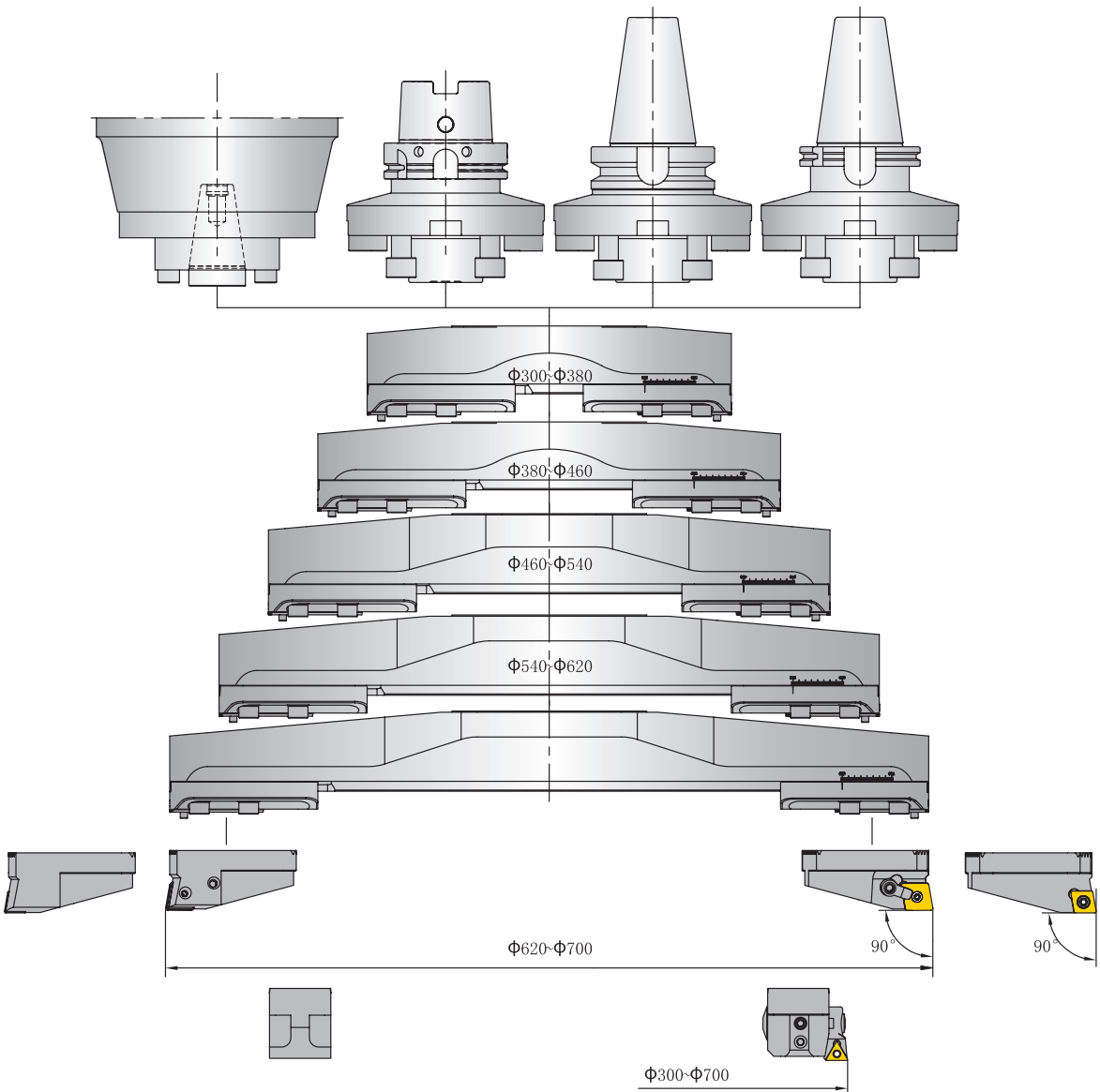
3.大直径镗刀使用说明书Instruction manual for large diameter boring tools

大直径镗刀 (φ150~300mm)
Large diameter boring tools



- φ150~300mm大直径镗刀桥体由带内冷的高强度铝合金制成。
- φ150~300mm large diameter boring crossbars is made of high-strength aluminum alloy with internal coolant.
- 采用XMX40刀柄（JT40、JT50、BT40、BT50、HSK63A、HSK100A）与机床主轴连接。
- XMX40 tool holder (JT40、JT50、BT40、BT50、HSK63A、HSK100A) is used to connect with the machine spindle.
- 与桥体连接的镗刀座由带CC12刀片与CN16刀片的两种粗镗刀座以及TC11刀片的精镗刀座。
- The slide insert holders connected to the crossbars consist of two rough slide insert holders with CC12 insert, and CN16 insert and a fine boring tools with TC11 insert.
- 桥体上的滑座可实现50mm大范围的粗调。
- The slide on the crossbars can be rough adjusted in a wide range of 50mm.
- 滑座与粗镗刀座之间的微调机构用于±2mm微调。
- The micro-adjustable mechanism between the slide and the rough slide insert holder is used for ±2mm micro-adjustable.

大直径镗刀 ($\phi 300\sim 700\text{mm}$)



- $\phi 300\sim 700\text{mm}$ 大直径镗刀桥体采用高强度铝合金制成（不带内冷，若需要内冷，可定制）。
- $\phi 300\sim 700\text{mm}$ large diameter boring tool crossbar is made of high-strength aluminum alloy(Without internal coolant, it can be customized if needed.).
- 采用XMX60刀柄（JT50、BT50、HSK100A）或直接安装到机床主轴上。
- XMX60 tool holder (JT50、BT50、HSK100A) or directly mounted to the machine spindle.
- 对于大于 $\phi 700$ 的非标定制大直径镗刀建议采用直接安装到机床主轴上的连接方式。
- For non-standard customized large diameter boring tool large than $\phi 700$, it is recommend to use the connection method directly mounted on the machine spindle.
- 与桥体连接的镗刀座由带CC12刀片与CN16刀片的两种粗镗刀座以及TC11刀片的精镗刀座。
- The slide insert holders connected to the crossbars consist of two rough slide insert holders with CC12 insert and CN16 insert, and a fine boring tools with TC11 insert.
- 桥体上的滑座可实现80mm大范围的粗调。
- The slide on the crossbars can be rough adjusted in a wide range of 80mm.
- 滑座与粗镗刀座之间的微调机构用于 $\pm 2\text{mm}$ 微调。
- The micro-adjustable mechanism between the slide and the rough slide insert holder is used for $\pm 2\text{mm}$ micro-adjustable.



应用技术是检验刀具性能的关键一步，设计制造的刀具是否可以满足客户要求，是否可以提升客户的加工效率，降低成本，都需要应用技术的支持。同样一把刀具，不同的加工参数和策略，结果可能会差异巨大。

如有任何需要请联系我们，期待与您合作！

Application technology is a key step to test tool performance. Whether the tool designed and manufactured can meet customer requirements, whether it can improve customer processing efficiency and reduce costs, all need the support of application technology. The same tool, different processing parameters and strategies, the results may be very different.

If you have any needs, please contact us and look forward to cooperating with you.