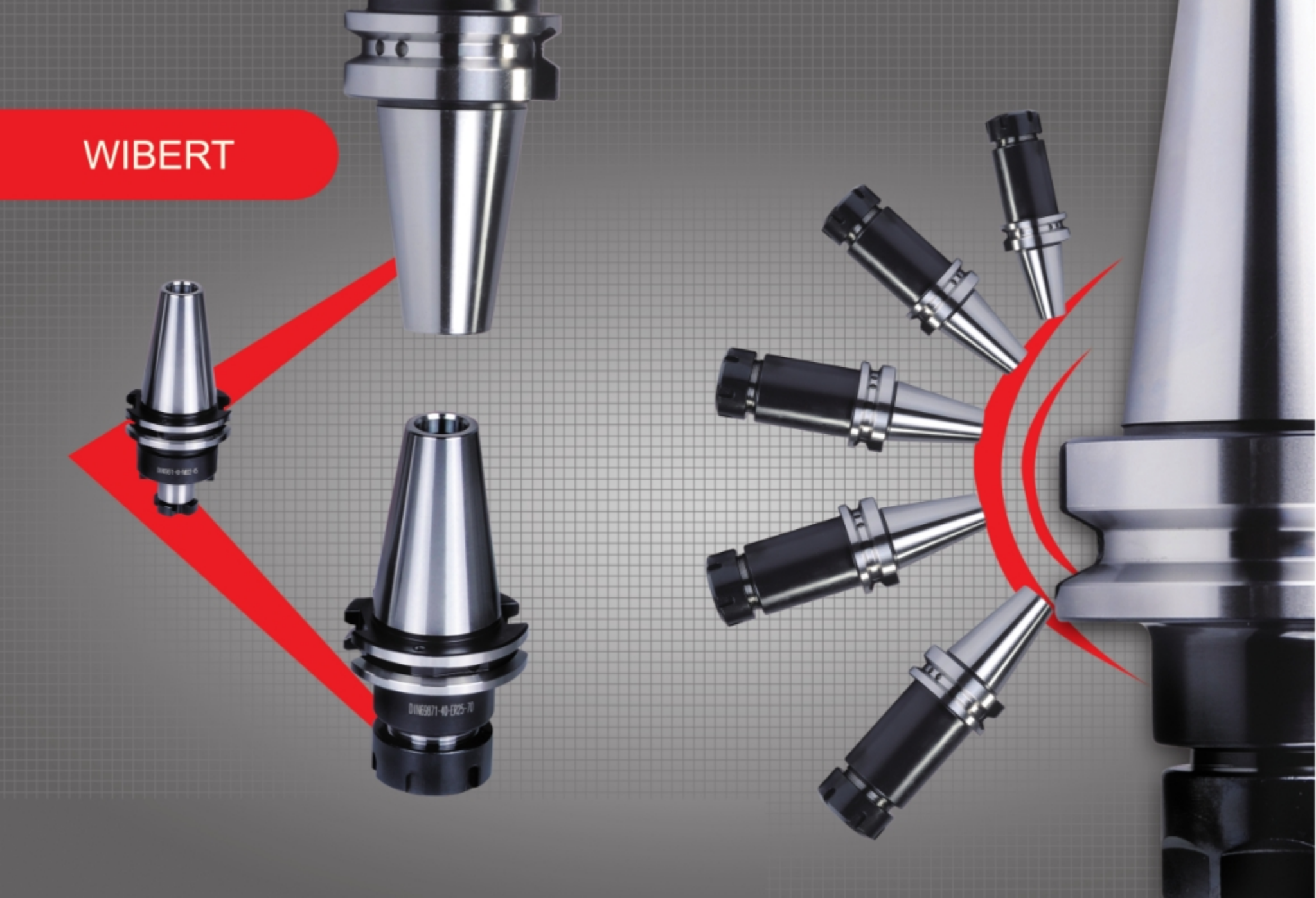
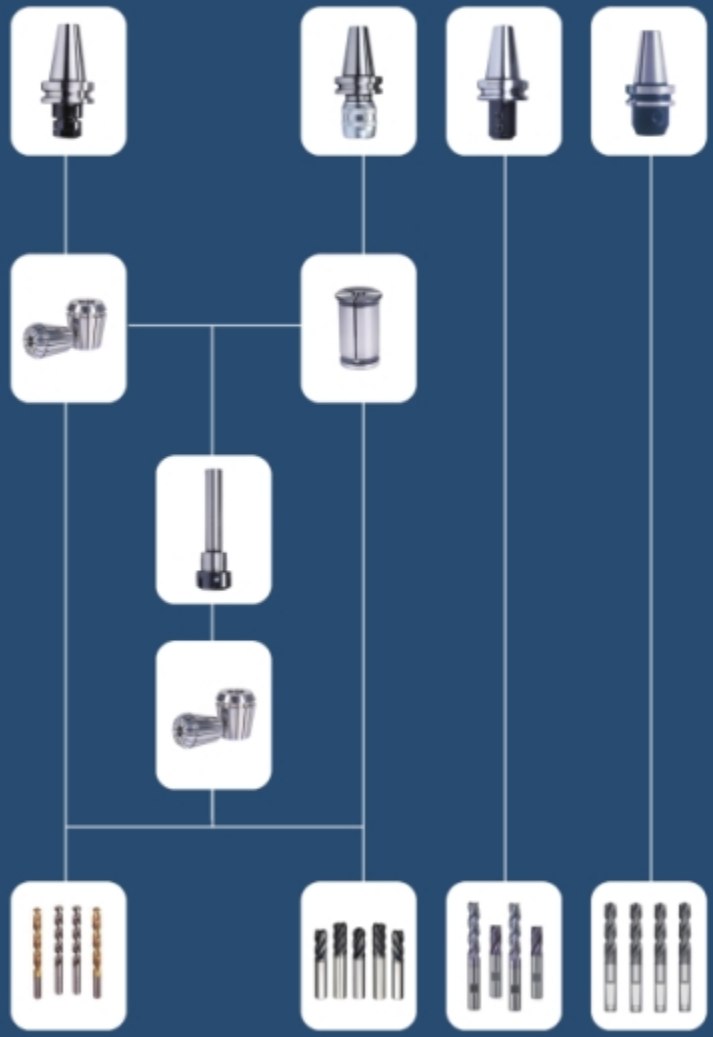
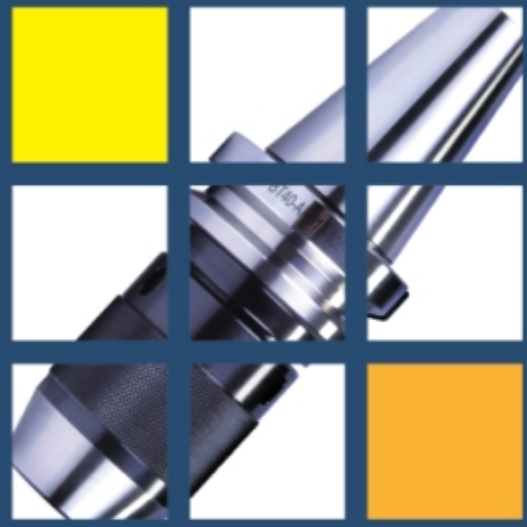

WIBERT

CNC Tool Systems 工具系统配置图



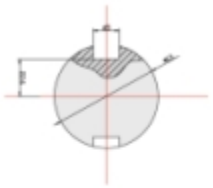
目录 DIRECTORY

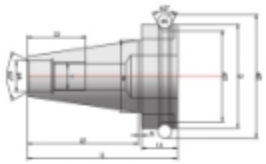
01 BT



Taper Standard 锥柄标准

MAS 403





Model	D	d1	d2	d3	d4	d5	d6	l1	l2	l3	l4	a	T
BT30	46	31.75	56.14	38	12.5	16.1	8	70.4	48.4	24	20	2	M12×1.75P
BT40	63	44.45	75.679	53	17	16.1	10	92.4	65.4	30	25	2	M16×2.0P
BT50	100	69.85	119.02	83	25	25.7	15	139.8	101.8	45	35	3	M24×3.0P

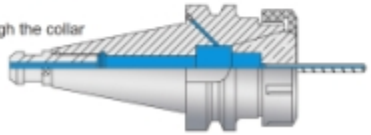
Material: Allyed case hardened steel, black-finished and precisely grinded
Taper tolerance: <AT3
Hardness: HRC 56-58
Carbon depth: 0.8mm±0.2mm
Max run out: <0.005mm
Surface Roughness: Ra<0.005mm
Cooling AD+B type can be made by request
When Order, please specify balancing G6.3 or G2.5
Shank body standard: MAS 403 and B6339

材　　质：优质渗碳合金钢，发黑处理和精细研磨
锥　　柄：公差等级<AT3
硬　　度：HRC 56-58
渗碳深度：0.8mm±0.2mm
最大跳动：<0.005mm
表面粗糙度：Ra<0.005mm
刀柄本体可另外指定冷却方式AD+B
刀柄可指定动平衡G6.3或G2.5
本体规范MAS403及B6339

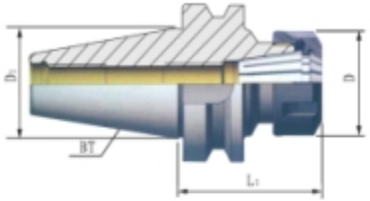
Cooling 冷却方式

Form A: without cooling supply
Form AD: central cooling supply
Form AD+B: central cooling and internal collant through the collar

A型：无内冷孔
AD型：中心通水
AD+B型：中心通水及法兰通水



ER Collet Chuck DIN6499 ER弹簧夹头刀柄 MAS 403

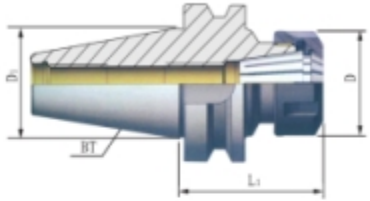


Order No.	Model	D	D1	L1	Clamping Range	Wt(kg)
11302070	BT30xER20-70	35	31.75	70	0.5-13	0.55
11302570	BT30xER25-70	42	31.75	70	0.5-16	0.58
11303270	BT30xER32-70	50	31.75	70	1-20	0.85
11304080	BT30xER40-80	63	31.75	80	2-26	1.10
11401670	BT40xER16-70	32	44.45	70	0.5-10	1.14
11402070	BT40xER20-70	35	44.45	70	0.5-13	1.16
114020100	BT40xER20-100	35	44.45	100	0.5-13	1.38
114020130	BT40xER20-130	35	44.45	130	0.5-13	1.76
11402570	BT40xER25-70	42	44.45	70	0.5-16	1.22
114025100	BT40xER25-100	42	44.45	100	0.5-16	1.52
114025130	BT40xER25-130	42	44.45	130	0.5-16	1.90
114025160	BT40xER25-160	42	44.45	160	0.5-16	2.10
11403270	BT40xER32-70	50	44.45	70	1-20	1.30
114032100	BT40xER32-100	50	44.45	100	1-20	1.72
114032130	BT40xER32-130	50	44.45	130	1-20	2.05
114032160	BT40xER32-160	50	44.45	160	1-20	2.58
11404080	BT40xER40-80	63	44.45	80	2-26	1.45
114040100	BT40xER40-100	63	44.45	100	2-26	2.01
114040160	BT40xER40-160	63	44.45	160	2-26	3.29

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可夹持各种尺寸直柄刀具

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 MAS 403

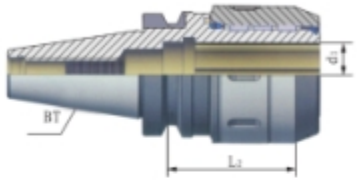


Order No.	Model	D	D1	L1	Clamping Range	Wt(kg)
11501670	BT50xER16-70	28	69.85	70	0.5-10	3.64
11502070	BT50xER20-70	35	69.85	70	0.5-13	3.67
115020100	BT50xER20-100	35	69.85	100	0.5-13	3.84
11502570	BT50xER25-70	42	69.85	70	0.5-16	3.70
115025100	BT50xER25-100	42	69.85	100	0.5-16	4.54
11503270	BT50xER32-70	50	69.85	70	1-20	3.73
115032100	BT50xER32-100	50	69.85	100	1-20	5.20
115032160	BT50xER32-160	50	69.85	160	1-20	4.97
115032200	BT50xER32-200	50	69.85	200	1-20	5.48
11504080	BT50xER40-80	63	69.85	80	2-26	3.76
115040100	BT50xER40-100	63	69.85	100	2-26	4.44
115040160	BT50xER40-160	63	69.85	160	2-26	5.77
115040200	BT50xER40-200	63	69.85	200	2-26	6.66

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可夹持各种尺寸直柄刀具

Precision Milling Chuck 强力铣刀柄 MAS 403

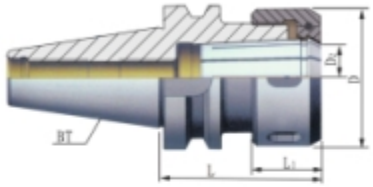


Order No	Model	d1	L2	Wt(kg)
11302075C	BT30-SC20-75	20	75	1.8
11302090C	BT30-SC20-90	20	90	2.0
11402080C	BT40-SC20-80	20	80	2.4
114020100C	BT40-SC20-100	20	100	2.5
114020135C	BT40-SC20-135	20	135	2.8
11403290C	BT40-SC32-90	32	90	2.6
114032105C	BT40-SC32-105	32	105	2.8
114032135C	BT40-SC32-135	32	135	3.0
115020105C	BT50-SC20-105	20	105	4.5
115020150C	BT50-SC20-150	20	150	4.9
115032110C	BT50-SC32-110	32	110	5.2
115032135C	BT50-SC32-135	32	135	5.9
115032165C	BT50-SC32-165	32	165	6.6
115032200C	BT50-SC32-200	32	200	8.0
115042110C	BT50-SC42-110	42	110	6.0
115042130C	BT50-SC42-130	42	130	6.5
115042165C	BT50-SC42-165	42	165	7.4

Use: For mounting shank tools in collets; to use for high speed cutting and high precision milling

应用范围：配直柄筒夹可夹持各种尺寸圆柱柄刀具用于高速及高精密加工

OZ Collet Chuck DIN6391 重切削筒夹本体 MAS 403

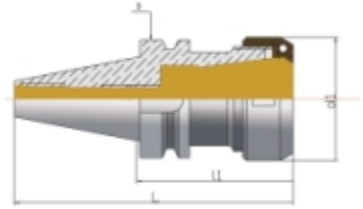


Order No.	Model	D2	L	D	L1	Collets
11402580OZ	BT40-OZ25-80	3-25	80	60	30	OZ25
114025120OZ	BT40-OZ25-120	3-25	120	60	30	OZ25
11403280OZ	BT40-OZ32-80	6-32	80	72	33	OZ32
114032150OZ	BT40-OZ32-150	6-32	150	72	33	OZ32
11502590OZ	BT50-OZ25-90	3-25	90	60	30	OZ25
115025130OZ	BT50-OZ25-130	3-25	130	60	30	OZ25
115032105OZ	BT50-OZ32-105	6-32	105	72	33	OZ32
115032150OZ	BT50-OZ32-150	6-32	150	72	33	OZ32

Use: For clamping tools with straight shank in collets of DIN6388

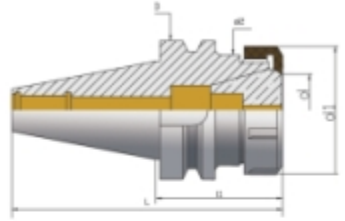
应用范围：配DIN6388 OZ弹簧夹头可夹持各种尺寸直柄刀具

TG Collet Chuck　TG 超强力刀柄　MAS 403



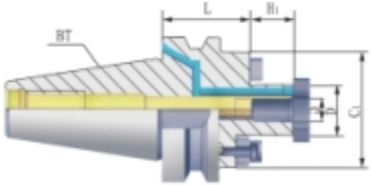
Order No.	Model	L	l1	D	d1	t2	T	Wt(kg)
11307570TG	BT30×TG75-70	118.4	70	46	50	M16×2.0P	TW1-1/2"-12	1.10
113075100TG	BT30×TG75-100	148.4	100	46	50	M16×2.0P	TW1-1/2"-12	1.15
1130100100TG	BT30×TG100-100	148.4	100	46	6	-	TW1-7/8"-12UN	1.20
114010070TG	BT40×TG100-70	135.4	70	63	60	M16×2.0P	TW1-7/8"-12UN	1.36
1140100100TG	BT40×TG100-100	165.4	100	63	60	M16×2.0P	TW1-7/8"-12UN	1.90
1140100120TG	BT40×TG100-120	185.4	120	63	60	M16×2.0P	TW1-7/8"-12UN	2.38
1140150105TG	BT40×TG150-105	170.4	105	63	82	M24×2.0P	TW2-5/8"-12	2.70
1140150120TG	BT40×TG150-120	185.4	120	63	82	M24×2.0P	TW2-5/8"-12	2.90
115010085TG	BT50×TG100-85	186.8	85	100	60	M24×2.0P	TW1-7/8"-12UN	3.40
1150100100TG	BT50×TG100-100	201.8	100	100	60	M24×2.0P	TW1-7/8"-12UN	4.40
1150100120TG	BT50×TG100-120	221.8	120	100	60	M24×2.0P	TW1-7/8"-12UN	5.10
115015090TG	BT50×TG150-90	191.8	90	100	82	M24×2.0P	TW2-5/8"-12	5.70
1150150105TG	BT50×TG150-105	206.8	105	100	82	M24×2.0P	TW2-5/8"-12	6.10
1150150120TG	BT50×TG150-120	221.8	120	100	82	M24×2.0P	TW2-5/8"-12	6.50

SK Collet Chuck　SK 高速筒夹刀柄　MAS 403



Order No.	Model	L	D	d	d1	d2	Wt(kg)
11300645SK	BT30-SK6-45	93.4	46	9.946	18	18	0.49
11300660SK	BT30-SK6-60	108.4	46	9.946	18	18	0.90
11301045SK	BT30-SK10-45	93.4	46	14.981	30	27.6	0.80
11301060SK	BT30-SK10-60	108.4	46	14.981	30	27.6	0.56
11301090SK	BT30-SK10-90	138.4	46	14.981	30	27.6	0.58
11301660SK	BT30-SK16-60	108.4	46	23.939	40	52	0.59
11400690SK	BT40-SK6-90	155.4	63	9.946	18	32	1.16
11400612OSK	BT40-SK6-120	185.4	63	9.946	18	32	1.21
11401090SK	BT40-SK10-90	155.4	63	14.981	30	40	1.29
11401012OSK	BT40-SK10-120	185.4	63	14.981	30	40	1.42
11401690SK	BT40-SK16-90	155.4	63	23.939	40	52	1.40
11401612OSK	BT40-SK16-120	185.4	63	23.939	40	52	1.71
11402590SK	BT40-SK25-90	155.4	63	35.029	55.1	55	1.49
11402512OSK	BT40-SK25-120	185.4	63	35.029	55.1	55	1.80
11500690SK	BT50-SK6-90	191.8	100	9.946	18	32	4.00
11500612OSK	BT50-SK6-120	221.8	100	9.946	18	32	4.20
11501010SK	BT50-SK10-105	206.8	100	14.981	30	40	3.99
11501015OSK	BT50-SK10-150	251.8	100	14.981	30	40	4.60
11501016SK	BT50-SK10-165	266.8	100	14.981	30	40	4.30
11501610SK	BT50-SK16-105	206.8	100	23.939	40	52	4.15
11501615OSK	BT50-SK16-150	251.8	100	23.939	40	52	4.70
11501616SK	BT50-SK16-165	266.8	100	23.939	40	52	4.50
11502510SK	BT50-SK25-105	206.8	100	35.029	55.1	55	4.50
11502515OSK	BT50-SK25-150	251.8	100	35.029	55.1	55	4.80

FMB Face Mill Holder DIN6357 面铣刀柄 MAS 403

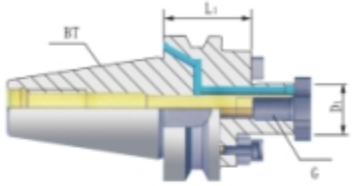


Order No.	Model	D	L	C1	H1	G
11302245FB	BT30-FMB22-45	22	45	56	18	M10
11302745FB	BT30-FMB27-45	27	45	64	20	M12
11402245FB	BT40-FMB22-45	22	45	48	18	M10
11402290FB	BT40-FMB22-90	22	90	48	18	M10
11402745FB	BT40-FMB27-45	27	45	60	20	M12
11402760FB	BT40-FMB27-60	27	60	60	20	M12
11402790FB	BT40-FMB27-90	27	90	60	20	M12
11403245FB	BT40-FMB32-45	32	45	63	21	M16
11403260FB	BT40-FMB32-60	32	60	63	21	M16
11404045FB	BT40-FMB40-45	40	45	68	23	M16
11404060FB	BT40-FMB40-60	40	60	68	23	M16
11502245FB	BT50-FMB22-45	22	45	48	18	M10
11502275FB	BT50-FMB22-75	22	75	48	18	M10
11502745FB	BT50-FMB27-45	27	45	65	20	M12
11502775FB	BT50-FMB27-75	27	75	65	20	M12
11502790FB	BT50-FMB27-90	27	90	65	20	M12
11503245FB	BT50-FMB32-45	32	45	73	21	M16
11503275FB	BT50-FMB32-75	32	75	73	21	M16
11504045FB	BT50-FMB40-45	40	45	85	23	M16
11504075FB	BT50-FMB40-75	40	75	85	23	M16
115040105FB	BT50-FMB40-105	40	105	85	23	M16

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

FMA Face Mill Holder 面铣刀柄 MAS 403



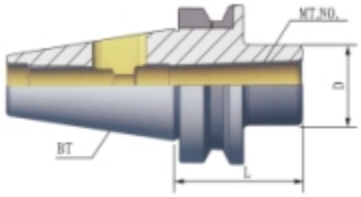
Order No.	Model	D1	L1	G	Cutter Dia.
1130254L45FA	BT30-FMA25.4-45	25.4	45	M12	76
1130254L60FA	BT30-FMA25.4-60	25.4	60	M12	76
1140254L45FA	BT40-FMA25.4-45	25.4	45	M12	76
1140254L60FA	BT40-FMA25.4-60	25.4	60	M12	76
11403175L45FA	BT40-FMA31.75-45	31.75	45	M12	102
11403175L60FA	BT40-FMA31.75-60	31.75	60	M12	102
11403175L90FA	BT40-FMA31.75-90	31.75	90	M12	102
1140381L60FA	BT40-FMA38.1-60	38.1	60	M16	127
1140381L90FA	BT40-FMA38.1-90	38.1	90	M16	127
1150254L75FA	BT50-FMA25.4-75	25.4	75	M12	76(80)
1150254L105FA	BT50-FMA25.4-105	25.4	105	M12	76(80)
1150254L125FA	BT50-FMA25.4-125	25.4	125	M12	76(80)
1150254L150FA	BT50-FMA25.4-150	25.4	150	M12	76(80)
11503175L45FA	BT50-FMA31.75-45	31.75	45	M12	100(102)
11503175L75FA	BT50-FMA31.75-75	31.75	75	M12	100(102)
11503175L105FA	BT50-FMA31.75-105	31.75	105	M12	100(102)
11503175L125FA	BT50-FMA31.75-125	31.75	125	M12	100(102)
11503175L150FA	BT50-FM131.75-150	31.75	150	M12	100(102)
1150381L45FA	BT50-FMA38.1-45	38.1	45	M16	125
1150381L75FA	BT50-FMA38.1-75	38.1	75	M16	125
1150508L45FA	BT50-FMA50.8-45	50.8	45	M16	152
1150508L75FA	BT50-FMA50.8-75	50.8	75	M16	152

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

MTA Morse Taper Adapter DIN6383 带扁尾莫氏刀柄

MAS 403



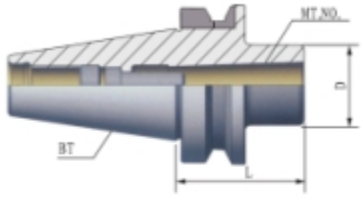
Order No.	Model	MT. No.	L	ØD	Wt(kg)
113045MA1	BT30-MTA1-45	1	45	25	0.43
113060MA2	BT30-MTA2-60	2	60	32	0.5
114045MA1	BT40-MTA1-45	1	45	25	1.02
114060MA2	BT40-MTA2-60	2	60	32	1.11
114075MA3	BT40-MTA3-75	3	75	40	1.15
114090MA4	BT40-MTA4-90	4	90	48	1.43
115045MA1	BT50-MTA1-45	1	45	25	3.6
115050MA2	BT50-MTA2-50	2	50	32	3.63
115060MA2	BT50-MTA2-60	2	60	32	3.64
1150120MA2	BT50-MTA2-120	2	120	32	4.3
115065MA3	BT50-MTA3-65	3	65	40	3.7
1150120MA3	BT50-MTA3-120	3	120	40	4.4
1150135MA3	BT50-MTA3-135	3	135	40	4.46
1150150MA3	BT50-MTA3-150	3	150	40	4.68
115085MA4	BT50-MTA4-85	4	85	48	3.75
115095MA4	BT50-MTA4-95	4	95	48	3.85
1150105MA5	BT50-MTA5-105	5	105	63	5
1150108MA5	BT50-MTA5-108	5	108	63	5.06

Use: For holding tools with Morse tapers and tang according to DIN228-1 form A

应用范围：适用于夹持DIN228-1A型带扁尾莫氏柄刀具

MTB Morse Taper Adapter (with Drawbar) DIN6364 带螺纹孔莫氏刀柄

MAS 403

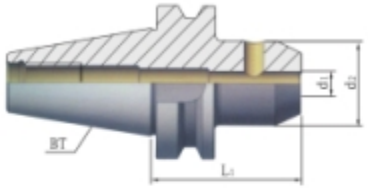


Order No.	Model	MT.No.	L	D	Wt(kg)
113045MB1	BT30-MTB1-45	1	45	25	0.55
113060MB2	BT30-MTB2-60	2	60	32	0.6
114045MB1	BT40-MTB1-45	1	45	25	1.05
114045MB2	BT40-MTB2-45	2	45	32	1.85
114075MB3	BT40-MTB3-75	3	75	40	1.9
1140100MB4	BT40-MTB4-75	4	75	48	1.7
115045MB1	BT50-MTB1-45	1	45	25	4.1
115045MB2	BT50-MTB2-45	2	45	32	3.9
115060MB3	BT50-MTB3-60	3	60	40	3.9
115075MB4	BT50-MTB4-75	4	75	50	4.2
1150120MB5	BT50-MTB5-120	5	120	70	4.3

Use: For clamping tools with Morse tapers and drawbar thread according to DIN228-1 form B

应用范围：适用于夹持DIN228-1B型带外螺纹的莫氏柄刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式刀柄 MAS 403

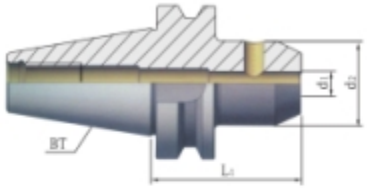


Order No.	Model	d1	d2	L1	Wt(kg)
11300660SA	BT30-SLA6-60	6	25	60	0.55
11300860SA	BT30-SLA8-60	8	28	60	0.60
11301060SA	BT30-SLA10-60	10	35	60	0.70
11301260SA	BT30-SLA12-60	12	42	60	0.75
11301675SA	BT30-SLA16-75	16	48	75	1.05
11302075SA	BT30-SLA20-75	20	52	75	1.10
11302590SA	BT30-SLA25-90	25	65	90	1.70
11400650SA	BT40-SLA6-50	6	25	50	1.10
11400850SA	BT40-SLA8-50	8	28	50	1.10
11401063SA	BT40-SLA10-63	10	35	63	1.25
11401263SA	BT40-SLA12-63	12	42	63	1.30
11401663SA	BT40-SLA16-63	16	48	63	1.40
11402063SA	BT40-SLA20-63	20	52	63	1.40
114025100SA	BT40-SLA25-100	25	65	100	2.50
114032100SA	BT40-SLA32-100	32	72	100	2.75

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B

应用范围：适用于夹持DIN1835-B具有侧固平面的刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式刀柄 MAS 403



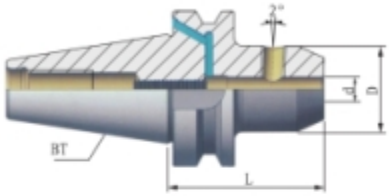
Order No.	Model	d1	d2	L1	Wt(kg)
11500663SA	BT50-SLA6-63	6	25	63	3.80
11500863SA	BT50-SLA8-63	8	28	63	3.80
11501063SA	BT50-SLA10-63	10	35	63	3.90
11501280SA	BT50-SLA12-80	12	42	80	4.00
11501680SA	BT50-SLA16-80	16	48	80	4.40
11502080SA	BT50-SLA20-80	20	52	80	4.40
115025100SA	BT50-SLA25-100	25	65	100	5.10
115032105SA	BT50-SLA32-105	32	72	105	5.20
115040115SA	BT50-SLA40-115	40	90	115	6.60
115042120SA	BT50-SLA42-120	42	90	120	6.70

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B

应用范围：适用于夹持DIN1835-B具有侧固平面的刀具

End Mill Holder Whistle North DIN6359/1835E 斜2° 侧固式铣刀柄

MAS 403



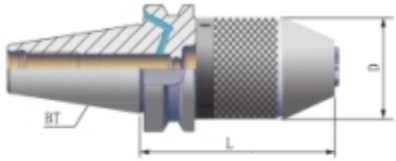
Order No.	Model	d	D	L
11400650SB	BT40-SLB06-50	6	25	50
11400850SB	BT40-SLB08-50	8	28	50
11401063SB	BT40-SLB10-63	10	35	63
11401263SB	BT40-SLB12-63	12	42	63
11401463SB	BT40-SLB14-63	14	44	63
11401663SB	BT40-SLB16-63	16	48	63
11401863SB	BT40-SLB18-63	18	50	63
11402063SB	BT40-SLB20-63	20	52	63
11402590SB	BT40-SLB25-90	25	65	90
114032100SB	BT40-SLB32-100	32	72	100
114040120SB	BT40-SLB40-120	40	80	120
11500663SB	BT50-SLB06-63	6	25	63
11500863SB	BT50-SLB08-63	8	28	63
11501063SB	BT50-SLB10-63	10	35	63
11501280SB	BT50-SLB12-80	12	42	80
11501480SB	BT50-SLB14-80	14	44	80
11501680SB	BT50-SLB16-80	16	48	80
11501880SB	BT50-SLB18-80	18	50	80
11502080SB	BT50-SLB20-80	20	52	80
115025100SB	BT50-SLB25-100	25	65	100
115032105SB	BT50-SLB32-105	32	72	105
115040110SB	BT50-SLB40-110	40	80	110

Use: For clamping cutters with straight shank and inclined flat of DIN1835-E

应用范围：适用于夹持DIN1835-E具有侧固平面的刀具

APU Drill Chuck Holder APU 钻夹头刀柄

MAS 403



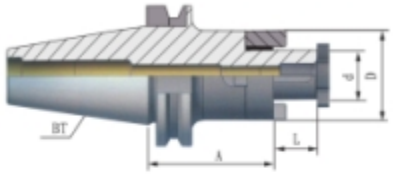
Order No.	Model	Clamping Range	D	L	
				Min	Max
11300880A	BT30-APU08-80	1-8	36.3	75	82
113013100A	BT30-APU13-100	1-13	51.5	97	104.5
11400885A	BT40-APU08-85	1-8	36.3	79	86.5
114013110A	BT40-APU13-110	1-13	51.5	98	109
114016130A	BT40-APU16-130	3-16	58	116	130
11500895A	BT50-APU08-95	1-8	36.3	90	97.5
115013120A	BT50-APU13-120	1-13	51.5	109	120
115013180A	BT50-APU13-180	1-13	51.5	169	180
115016130A	BT50-APU16-130	3-16	58	116	130
115016190A	BT50-APU16-190	3-16	58	176	190

Use: For clamping tools with straight shank

应用范围：夹持直径为0.5-16mm的钻头

Combi Shell Mill Holder DIN6358 混合式铣刀柄

MAS 403



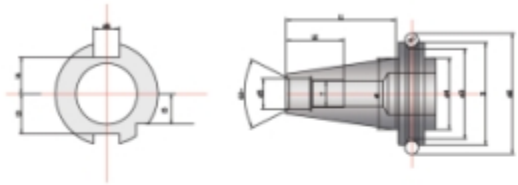
Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
11301645CS	BT30-SEMC16-45	16	32	17	45
11302247CS	BT30-SEMC22-47	22	40	19	47
11302749CS	BT30-SEMC27-49	27	48	21	49
11401655CS	BT40-SEMC16-55	16	32	17	55
114016100CS	BT40-SEMC16-100	16	32	17	100
11402255CS	BT40-SEMC22-55	22	40	19	55
114022100CS	BT40-SEMC22-100	22	40	19	100
11402755CS	BT40-SEMC27-55	27	48	21	55
114027100CS	BT40-SEMC27-100	27	48	21	100
11403260CS	BT40-SEMC32-60	32	58	24	60
114032100CS	BT40-SEMC32-100	32	58	24	100
11404060CS	BT40-SEMC40-60	40	70	27	60
114040100CS	BT40-SEMC40-100	40	70	27	100
11501670CS	BT50-SEMC16-70	16	32	17	70
11502270CS	BT50-SEMC22-70	22	40	19	70
11502770CS	BT50-SEMC27-70	27	48	21	70
11503270CS	BT50-SEMC32-70	32	58	24	70
11504070CS	BT50-SEMC40-70	40	70	27	70

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

02 SK

Taper Standard 锥柄标准 DIN 69871



Model	D	d1	d2	d3	d4	d5	d6	d7	l1	l2	l3	l4	l5	e1	e2
SK30	50	31.75	59.3	44.3	45	13	16.1	4	47.8	24	19	16.4	15	21	5
SK40	63.55	44.45	72.3	56.25	50	17	16.1	4	68.4	32	25	22.8	18.5	27	5
SK50	97.5	69.85	107.25	91.25	80	25	25.7	6	101.75	47	37.7	35.5	30	42	7

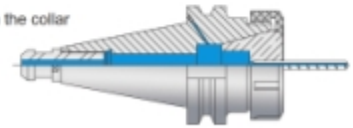
Material: Allyed case hardened steel, black-finished and precisely grinded
Taper tolerance: <AT3
Hardness: HRC 56-58
Carbon depth: 0.8mm±0.2mm
Max run out: <0.005mm
Surface Roughness: Ra<0.005mm
Cooling AD+B type can be made by request
When Order, please specify balancing G6.3 or G2.5
Shank body standard: DIN69871

材　　质：优质渗碳合金钢，发黑处理和精细研磨
锥　　柄：公差等级<AT3
硬　　度：HRC 56-58
渗碳深度：0.8mm±0.2mm
最大跳动：<0.005mm
表面粗糙度：Ra<0.005mm
刀柄本体可另外指定冷却方式AD+B
刀柄可指定动平衡G6.3或G2.5
本体规范DIN69871

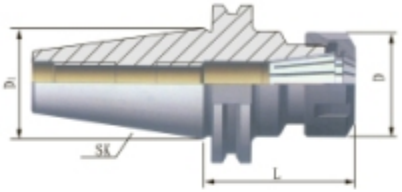
Cooling 冷却方式

Form A: without cooling supply
Form AD: central cooling supply
Form AD+B: central cooling and internal collant through the collar

A型：无内冷孔
AD型：中心通水
AD+B型：中心通水及法兰通水



ER Collet Chuck DIN6499 ER弹簧夹头刀柄 DIN 69871

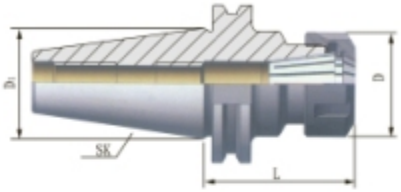


Order No.	Model	D	D1	L	Collet
22301663	SK30-ER16-63	28	31.75	63	ER16
22302063	SK30-ER20-63	35	31.75	63	ER20
22401670	SK40-ER16-70	32	44.45	70	ER16
224016100	SK40-ER16-100	32	44.45	100	ER16
22402070	SK40-ER20-70	35	44.45	70	ER20
224020100	SK40-ER20-100	35	44.45	100	ER20
224020130	SK40-ER20-130	35	44.45	130	ER20
22402570	SK40-ER25-70	42	44.45	70	ER25
224025130	SK40-ER25-130	42	44.45	130	ER25
224025160	SK40-ER25-160	42	44.45	160	ER25
22403270	SK40-ER32-70	50	44.45	70	ER32
224032100	SK40-ER32-100	50	44.45	100	ER32
224032130	SK40-ER32-130	50	44.45	130	ER32
224032160	SK40-ER32-160	50	44.45	160	ER32
224032200	SK40-ER32-200	50	44.45	200	ER32
22404080	SK40-ER40-80	63	44.45	80	ER40
224040100	SK40-ER40-100	63	44.45	100	ER40
224040150	SK40-ER40-150	63	44.45	150	ER40
224040200	SK40-ER40-200	63	44.45	200	ER40

Use: For clamping tools with straight shank in collets of DIN6499

应用范围：配DIN6499弹簧夹头可夹持各种尺寸直柄刀具

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 DIN 69871



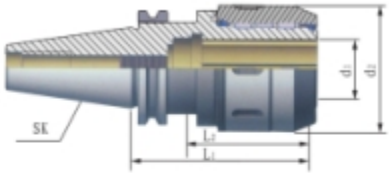
Order No.	Model	D	D1	L	Collet
22501680	SK50-ER16-80	32	69.85	80	ER16
22502080	SK50-ER20-80	35	69.85	80	ER20
225020100	SK50-ER20-100	35	69.85	100	ER20
22502580	SK50-ER25-80	42	69.85	80	ER25
225025100	SK50-ER25100	42	69.85	100	ER25
225025130	SK50-ER25-130	42	69.85	130	ER25
22503280	SK50-ER32-80	50	69.85	80	ER32
225032100	SK50-ER32-100	50	69.85	100	ER32
225032130	SK50-ER32-130	50	69.85	130	ER32
225032160	SK50-ER32-160	50	69.85	160	ER32
225032200	SK50-ER32-200	50	69.85	200	ER32
22504080	SK50-ER40-80	63	69.85	80	ER40
225040100	SK50-ER40-100	63	69.85	100	ER40
225040130	SK50-ER40-130	63	69.85	130	ER40
225040160	SK50-ER40-160	63	69.85	160	ER40
225040200	SK50-ER40-200	63	69.85	200	ER40

Use: For clamping tools with straight shank in collets of DIN6499

应用范围：配DIN6499弹簧夹头可夹持各种尺寸直柄刀具

Precision Milling Chuck 强力铣刀柄

DIN 69871



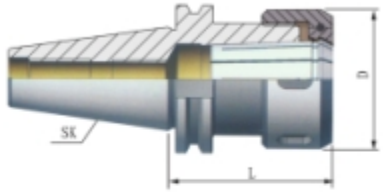
Order No.	Model	d1	d2	L1	L2	Wt(kg)
22302085C	SK30-SC20-85	20	55	85	70	1.9
223020100C	SK30-SC20-100	20	55	100	70	2.1
22402085C	SK40-SC20-85	20	55	85	70	2.4
224020100C	SK40-SC20-100	20	55	100	70	2.5
224020135C	SK40-SC20-135	20	55	135	70	2.8
224032105C	SK40-SC32-105	32	73	105	75	2.7
224032135C	SK40-SC32-135	32	73	135	75	3.0
225020105C	SK50-SC20-105	20	55	105	70	4.5
225020150C	SK50-SC20-150	20	55	150	70	4.9
225032110C	SK50-SC32-110	32	73	110	75	5.2
225032135C	SK50-SC32-135	32	73	135	75	5.9
225042110C	SK50-SC42-110	42	95	110	90	6.0

Use: For mounting straight shank tools in collets; to use for high speed cutting and high precision milling

应用范围：配直柄筒夹可夹持各种尺寸直柄刀具用于高速及高精密加工

OZ Collet Chuck 重切削筒夹本体

DIN 69871



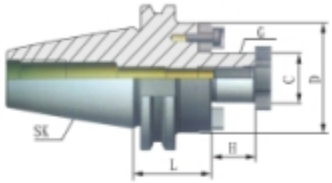
Order No.	Model	L	D	Collet
22402570OZ	SK40-OZ25-70	70	60	OZ25
224025100OZ	SK40-OZ25-100	100	60	OZ25
22403290OZ	SK40-OZ32-90	90	72	OZ32
22502585OZ	SK50-OZ25-85	85	60	OZ25
225025100OZ	SK50-OZ25-100	100	60	OZ25
22503270OZ	SK50-OZ32-70	70	72	OZ32

Use: For clamping tools with straight shank in collets of DIN6388

应用范围：配DIN6388 OZ弹簧夹头可夹持各种尺寸直柄刀具

Face Mill Holder DIN6357 面铣刀柄

DIN 69871



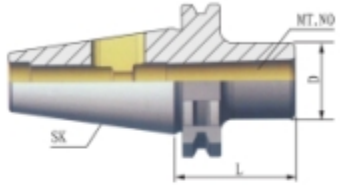
Order No.	Model	L	ØC	ØD	H	G
22401645FB	SK40-FMB16-45	45	16	38	17	M8
22402245FB	SK40-FMB22-45	45	22	48	19	M10
22402750FB	SK40-FMB27-50	50	27	58	21	M12
22403255FB	SK40-FMB32-55	55	32	78	24	M16
22404055FB	SK40-FMB40-55	55	40	88	27	M20
22501645FB	SK50-FMB16-45	45	16	38	17	M8
22502245FB	SK50-FMB22-45	45	22	48	19	M10
22502745FB	SK50-FMB27-45	45	27	58	21	M12
22503255FB	SK50-FMB32-55	55	32	78	24	M16
22504055FB	SK50-FMB40-55	55	40	88	27	M20

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

MTA Morse Taper Adapter DIN6383 带扁尾莫氏刀柄

DIN 69871



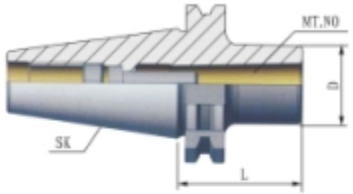
Order No.	Model	MT.No.	L	D	Wt(kg)
223050MA1	SK30-MTA1-50	1	50	25	1.6
223050MA2	SK30-MTA2-50	2	50	32	0.8
223075MA3	SK30-MTA3-75	3	75	40	0.9
224050MA1	SK40-MTA1-50	1	50	25	1.3
224050MA2	SK40-MTA2-50	2	50	32	1.5
224065MA3	SK40-MTA3-65	3	65	40	1.8
224095MA4	SK40-MTA4-95	4	95	50	2.4
2240125MA5	SK40-MTA5-125	5	125	63	3.8
225045MA1	SK50-MTA1-45	1	45	25	4.1
225060MA2	SK50-MTA2-60	2	60	32	4.4
225065MA3	SK50-MTA3-65	3	65	40	4.5
225070MA4	SK50-MTA4-70	4	70	50	4.9
2250105MA5	SK50-MTA5-105	5	105	65	5.2

Use: For holding tools with Morse tapers and tang according to DIN228-1 form A

应用范围：适用于夹持DIN228-1A型带扁尾莫氏柄刀具

MTB Morse Taper Adapter (with Drawbar) DIN6364 带螺纹孔莫氏刀柄

DIN 69871



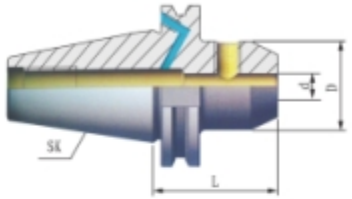
Order No.	Model	MT.No.	L	D	Wt(kg)
224050MB1	SK40-MTB1-50	1	50	25	1.3
224050MB2	SK40-MTB2-50	2	50	32	1.5
224065MB3	SK40-MTB3-65	3	65	40	1.8
224095MB4	SK40-MTB4-95	4	95	50	2.4
225060MB1	SK50-MTB1-60	1	60	25	4.1
225060MB2	SK50-MTB2-60	2	60	32	4.4
225065MB3	SK50-MTB3-65	3	65	40	4.5
225085MB4	SK50-MTB4-85	4	85	50	4.9
2250120MB5	SK50-MTB5-120	5	120	65	5.2

Use: For clamping tools with Morse tapers and drawbar thread according to DIN228-1 form B

应用范围：适用于夹持DIN228-1B型带外螺纹的莫氏柄刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式铣刀柄

DIN 69871



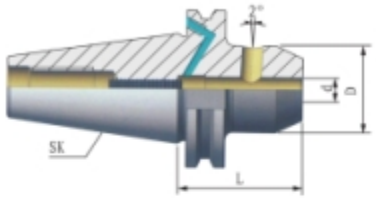
Order No.	Model	d	D	L	Wt(kg)
22300650SA	SK30-SLA6-50	6	25	50	0.73
22300850SA	SK30-SLA8-50	8	28	50	0.80
22301050SA	SK30-SLA10-50	10	35	50	0.90
22301250SA	SK30-SLA12-50	12	42	50	0.90
22301663SA	SK30-SLA16-63	16	48	63	1.10
22400650SA	SK40-SLA6-50	6	25	50	0.85
22400850SA	SK40-SLA8-50	8	28	50	1.00
22401050SA	SK40-SLA10-50	10	35	50	1.10
22401250SA	SK40-SLA12-50	12	42	50	1.30
22401663SA	SK40-SLA16-63	16	48	63	1.40
22402063SA	SK40-SLA20-63	20	52	63	1.50
224025100SA	SK40-SLA25-100	25	65	100	2.40
224032100SA	SK40-SLA32-100	32	72	100	2.70
22500663SA	SK50-SLA6-63	6	25	63	3.10
22500863SA	SK50-SLA8-63	8	28	63	3.10
22501063SA	SK50-SLA10-63	10	35	63	3.30
22501263SA	SK50-SLA12-63	12	42	63	3.50
22501663SA	SK50-SLA16-63	16	48	63	3.45
22502063SA	SK50-SLA20-63	20	52	63	3.50
22502580SA	SK50-SLA25-80	25	65	80	4.20
225032100SA	SK50-SLA32-100	32	72	100	5.00
225040100SA	SK50-SLA40-100	40	90	100	5.60
225050125SA	SK50-SLA50-125	50	100	125	5.70

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B and DIN6535-HB

应用范围：适用于夹持DIN1835-B及DIN6535-HB具有侧固平面的刀具

End Mill Holder Whistle North DIN6359/1835E 斜2° 侧固式铣刀柄

DIN 69871



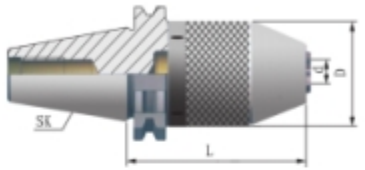
Order No.	Model	d	D	L
22400650SB	SK40-SLB06-50	6	25	50
22400850SB	SK40-SLB08-50	8	28	50
22401050SB	SK40-SLB10-50	10	35	50
22401250SB	SK40-SLB12-50	12	42	50
22401450SB	SK40-SLB14-50	14	44	50
22401663SB	SK40-SLB16-63	16	48	63
22401863SB	SK40-SLB18-63	18	50	63
22402063SB	SK40-SLB20-63	20	52	63
224025100SB	SK40-SLB25-100	25	65	100
22500663SB	SK50-SLB06-63	6	25	63
22500863SB	SK50-SLB08-63	8	28	63
22501063SB	SK50-SLB10-63	10	35	63
22501263SB	SK50-SLB12-63	12	42	63
22501463SB	SK50-SLB14-63	14	44	63
22501663SB	SK50-SLB16-63	16	48	63
22501863SB	SK50-SLB18-63	18	50	63
22502063SB	SK50-SLB20-63	20	52	63
22502580SB	SK50-SLB25-80	25	65	80
225032100SB	SK50-SLB32-100	32	72	100
225040100SB	SK50-SLB40-100	40	80	100

Use: For clamping cutters with straight shank and inclined flat of DIN1835-E and DIN6535-HE

应用范围：适用于夹持DIN1835-E及DIN6535-HE具有侧固平面的刀具

APU Drill Chuck Holder APU 钻夹头刀柄

DIN 69871

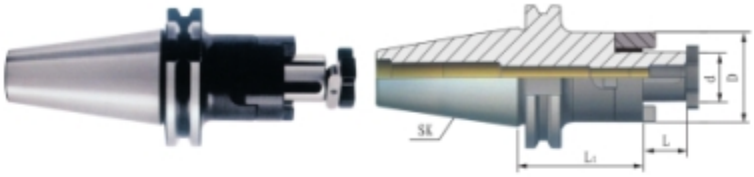


Order No.	Model	d	D	L	Wt(kg)
22300880A	SK30-APU08-80	1-8	37	80	0.6
223013120A	SK30-APU13-120	1-13	50	120	1.45
223016120A	SK30-APU16-120	3-16	57	120	1.78
22400875A	SK40-APU08-75	1-8	37	75	1.46
224013100A	SK40-APU13-100	1-13	50	100	2
224016105A	SK40-APU16-105	3-16	57	105	2.33
22500875A	SK50-APU08-75	1-8	37	75	3.86
225013100A	SK50-APU13-100	1-13	50	100	4.4
225016105A	SK50-APU16-105	3-16	57	105	4.73

Use: For clamping tools with straight shank

应用范围：夹持直径为0.5-16mm的钻头

Combi Shell Mill Holder DIN6358 混合式铣刀柄 DIN 69871

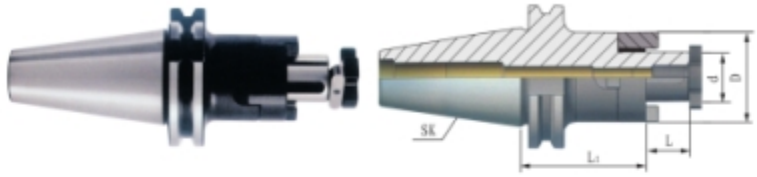


Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	L1
22301650CS	SK30-SEMC16-50	16	63	17	50
22302250CS	SK30-SEMC22-50	22	63	19	50
22302755CS	SK30-SEMC27-55	27	48	21	55
22303260CS	SK30-SEMC32-60	32	58	24	60
22401655CS	SK40-SEMC16-55	16	32	17	55
224016100CS	SK40-SEMC16-100	16	32	17	100
22402255CS	SK40-SEMC22-55	22	40	19	55
224022100CS	SK40-SEMC22-100	22	40	19	100
22402755CS	SK40-SEMC27-55	27	48	21	55
224027100CS	SK40-SEMC27-100	27	48	21	100
22403260CS	SK40-SEMC32-60	32	58	24	60
224032100CS	SK40-SEMC32-100	32	58	24	100
22404060CS	SK40-SEMC40-60	40	70	27	60
224040100CS	SK40-SEMC40-100	40	70	27	100

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

Combi Shell Mill Holder DIN6358 混合式铣刀柄 DIN 69871



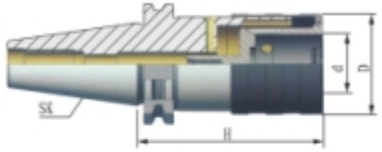
Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	L1
22501655CS	SK50-SEMC16-55	16	32	17	55
225016100CS	SK50-SEMC16-100	16	32	17	100
22502255CS	SK50-SEMC22-55	22	40	19	55
225022100CS	SK50-SEMC22-100	22	40	19	100
22502755CS	SK50-SEMC27-55	27	48	21	55
225027100CS	SK50-SEMC27-100	27	48	21	100
22503260CS	SK50-SEMC32-55	32	58	24	60
225032100CS	SK50-SEMC32-100	32	58	24	100
22504060CS	SK50-SEMC40-55	40	70	27	60
225040100CS	SK50-SEMC40-100	40	70	27	100

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

Quick Change Tapping Chuck with Length Compensation 弹性快换攻丝刀柄

DIN 69871



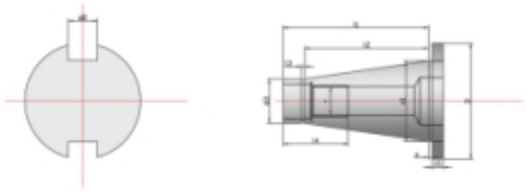
Order No.	Model	H	d	D	Capacity
22400160Q	SK40-GR1-60	60	19	38	M3-M14
224002100Q	SK40-GR2-100	100	31	55	M5-M24
224003138Q	SK40-GR3-138	138	48	79	M14-M36
22500162Q	SK50-GR1-62	62	19	38	M3-M14
22500283Q	SK50-GR2-83	83	31	55	M5-M24
225003133Q	SK50-GR3-133	133	48	79	M14-M36

Use: For tapping preferably. Axial length compensation on tension and pressure.

应用范围：用于螺纹攻丝，轴向长度可调整（弹性攻丝）

03 NT

Taper Standard 锥柄标准 DIN 2080

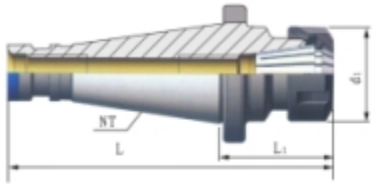


Model	D	d1	d2	d3	a	l1	l2	l3	l4	l5	T
NT30	49	31.75	16.1	17.04	1.6	68.4	48.4	3	24	8	M12/1/2"-12
NT40	63	44.45	16.1	24.92	1.6	93.4	65.4	5	32	10	M16/5/8"-11
NT50	97.5	69.85	25.7	39.19	3.2	126.8	101.8	8	47	12	M24/1"-8

Material: Allyed case hardened steel, black-finished and precisely grinded
Taper tolerance: <AT3
Hardness: HRC 56-58
Carbon depth: 0.8mm±0.2mm
Max run out: <0.005mm
Surface Roughness: Ra<0.005mm
Shank body standard: DIN2080

材质：优质渗碳合金钢，发黑处理和精细研磨
锥柄：公差等级<AT3
硬度：HRC 56-58
渗碳深度：0.8mm±0.2mm
最大跳动：<0.005mm
表面粗糙度：Ra<0.005mm
本体规范DIN2080

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 DIN 2080

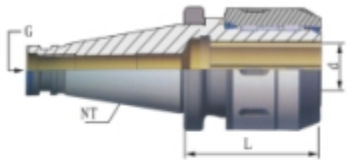


Order No.	Model	L1	d1	Clamping Range	Wt(kg)
33302070	NT30-ER20-70	70	34	0.5-13	0.6
333020100	NT30-ER20-100	100	34	0.5-13	0.8
333025100	NT30-ER25-100	100	42	0.5-16	0.9
33303260	NT30-ER32-60	60	50	1-20	0.8
333032100	NT30-ER32-100	100	50	1-20	0.9
33401645	NT40-ER16-45	45	28	0.5-10	1.0
334016100	NT40-ER16-100	100	32	0.5-10	1.1
33402045	NT40-ER20-45	45	34	0.5-13	1.2
334020100	NT40-ER20-100	100	34	0.5-13	1.3
334025100	NT40-ER25-100	100	42	0.5-16	1.5
33403260	NT40-ER32-60	60	50	1-20	1.3
334032100	NT40-ER32-100	100	50	1-20	1.7
33404070	NT40-ER40-70	70	63	2-26	1.4
335016100	NT50-ER16-100	100	28	0.5-10	3.1
335020100	NT50-ER20-100	100	34	0.5-13	3.2
335020150	NT50-ER20-150	150	34	0.5-13	3.3
335032100	NT50-ER32-100	100	50	1-20	3.3
33504080	NT50-ER40-80	80	63	2-26	3.2
33504080	NT50-ER40-100	80	63	2-26	3.4

Use: For clamping tools with straight shank in collets of DIN6499

应用范围：配DIN6499弹簧夹头可夹持各种尺寸直柄刀具

Precision Milling Chuck 强力铣刀柄 DIN 2080

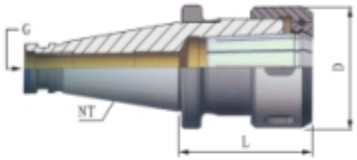


Order No.	Model	Clamping Range	d	L	G
33302580C	NT30-ASC25-80	6-25	25	80	M12×1.75P 1/2"-12
33303290C	NT30-ASC32-90	6-32	32	90	
33402580C	NT40-SC25-80	6-25	25	80	M16×2.0P 5/8"-11
334025130C	NT40-SC25-130	6-25	25	130	
33403285C	NT40-SC32-85	6-32	32	85	
334032130C	NT40-SC32-130	6-32	32	130	
33502585C	NT50-SC25-85	6-25	25	85	M24×3.0P 1"-8
335025150C	NT50-SC25-150	6-25	25	150	
33503290C	NT50-SC32-90	6-32	32	90	
335032150C	NT50-SC32-150	6-32	32	150	
33504295C	NT50-SC42-95	6-42	42	95	
335042150C	NT50-SC42-150	6-42	42	150	

Use: For mounting straight shank tools in collets; to use for high speed cutting and high precision milling

应用范围：配直柄筒夹可夹持各种尺寸直柄刀具用于高速及高精密加工

OZ Collet Chuck DIN6391 重切削筒夹本体 DIN 2080



Order No.	Model	Clamping Range	L	D	G
33402563OZ	NT40-OZ25-63	3-25	63	60	M16×2.0P 5/8"-11
334025100OZ	NT40-OZ25-100	3-25	100	60	
33403290OZ	NT40-OZ32-90	6-32	90	72	
33502563OZ	NT50-OZ25-63	3-25	63	60	M24×3.0P 1"-8
335025100OZ	NT50-OZ25-100	3-25	100	60	
33503270OZ	NT50-OZ32-70	6-32	70	72	

Use: For clamping tools with straight shank in collets of DIN6388

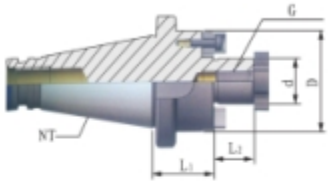
应用范围：配DIN6388 OZ弹簧夹头可夹持各种尺寸直柄刀具


6.11


6.19


6.21

FMB Face Mill Holder DIN6357 面铣刀柄 DIN 2080



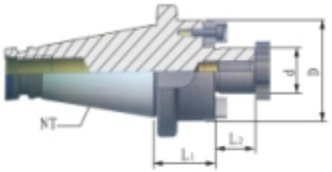
Order No.	Model	d	L1	L2	D	G	Draw Bolt
33302220FB	NT30-FMB22-20	22	20	18	53	M10	M12×1.75P 1/2"-12
33302720FB	NT30-FMB27-20	27	20	20	54	M12	
33303220FB	NT30-FMB32-20	32	20	21	59	M16	
33402220FB	NT40-FMB22-20	22	20	18	48	M10	M16×2.0P 5/8"-11
33402720FB	NT40-FMB27-20	27	20	20	58	M12	
33403220FB	NT40-FMB32-20	32	20	21	69	M16	
33404020FB	NT40-FMB40-20	40	20	24	80	M16	
33406024FB	NT40-FMB60-24	60	24	32	128	-	
33502220FB	NT50-FMB22-20	22	20	18	40	M10	M24×3.0P 1"-8
33502720FB	NT50-FMB27-20	27	20	20	70	M12	
33503220FB	NT50-FMB32-20	32	20	21	76	M16	
33504020FB	NT50-FMB40-20	40	20	24	88	M16	
33506024FB	NT50-FMB60-24	60	24	32	128	-	

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀


6.25

FMA FACE MILL HOLDER (In inch) 面铣刀柄 DIN 2080

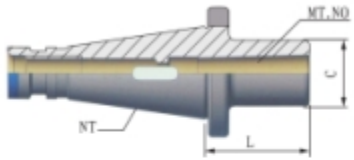


Order No.	Model	L1	Ød	ØD	L2	W
3330254L20FA	NT30-FMA25.4-20	20	25.4	50	20	9.5
33303175L25FA	NT30-FMA31.75-25	25	31.75	60	22	12.7
3330381L30FA	NT30-FMA38.1-30	30	38.1	80	25	15.9
3340254L20FA	NT40-FMA25.4-20	25	25.4	50	20	9.5
33403175L25FA	NT40-FMA31.75-25	25	31.75	60	22	12.7
3340381L30FA	NT40-FMA38.1-30	30	38.1	80	25	15.9
3340508L35FA	NT40-FMA50.8-35	35	50.8	100	28	15.9
3350254L35FA	NT50-FMA25.4-35	35	25.4	50	20	9.5
33503175L35FA	NT50-FMA31.75-35	35	31.75	60	22	12.7
3350381L35FA	NT50-FMA38.1-35	35	38.1	80	25	15.9
3350508L35FA	NT50-FMA50.8-35	35	50.8	100	28	15.9

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

MTA Morse Taper Adapter DIN6383 带扁尾莫氏刀柄 DIN 2080



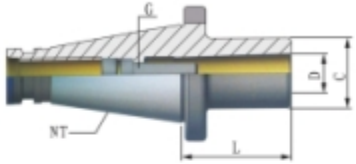
Order No.	Model	MT.No	L	C	Draw Bolt
333045MA1	NT30-MTA1-45	MTA1	45	25	M12×1.75P 1/2-12
333050MA2	NT30-MTA2-50	MTA2	50	32	
333065MA3	NT30-MTA3-65	MTA3	65	40	
334030MA1	NT40-MTA1-30	MTA1	30	25	M16×2.0P 5/8-11
334040MA2	NT40-MTA2-40	MTA2	40	32	
334070MA3	NT40-MTA3-70	MTA3	70	40	
334090MA4	NT40-MTA4-90	MTA4	90	50	
335030MA2	NT50-MTA2-30	MTA2	30	32	M24×3.0P 1"-8
335030MA3	NT50-MTA3-30	MTA3	30	40	
335070MA4	NT50-MTA4-70	MTA4	70	50	
3350105MA5	NT50-MTA5-105	MTA5	105	65	

Use: For holding tools with Morse tapers and tang according to DIN228-1 form A

应用范围：适用于夹持DIN228-1A型带扁尾莫氏柄刀具

MTB Morse Taper Adapter (with Drawbar) DIN6364 带螺纹孔莫氏刀柄

DIN 2080



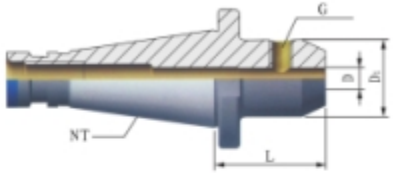
Order No.	Model	Capacity	D	L	C	G	Wt(kg)
333045MB1	NT30-MTB1-45	10-14	12.065	45	25	M6	0.6
333060MB2	NT30-MTB2-60	16-22	17.78	60	32	M10	0.9
333070MB3	NT30-MTB3-70	24-32	23.825	70	40	M12	1.0
334045MB1	NT40-MTB1-45	10-14	12.065	45	25	M6	1.2
334045MB2	NT40-MTB2-45	16-22	17.78	45	32	M10	1.3
334075MB3	NT40-MTB3-75	24-32	23.825	75	40	M12	1.9
334090MB4	NT40-MTB4-90	32-50	31.267	90	50	M16	2.5
335045MB1	NT50-MTB1-45	10-14	12.065	45	25	M6	3.0
335045MB2	NT50-MTB2-45	16-22	17.78	45	32	M10	3.2
335060MB3	NT50-MTB3-60	24-32	23.825	60	40	M12	3.5
335075MB4	NT50-MTB4-75	32-50	31.267	75	50	M16	4.0
3350105MB5	NT50-MTB5-105	50-75	44.399	105	65	M20	6.0

Use: For clamping tools with Morse tapers and drawbar thread according to DIN228-1 form B

应用范围：适用于夹持DIN228-1B型带外螺纹的莫氏柄刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式铣刀柄

DIN 2080

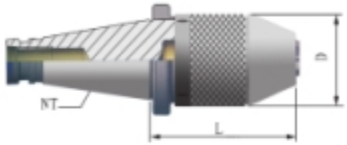


Order No.	Model	D	D1	L	G
33301255SA	NT30-SLA12-55	12	40	55	M12
33301660SA	NT30-SLA16-60	16	45	60	M12
33302065SA	NT30-SLA20-65	20	50	65	M12
33302575SA	NT30--SLA25-75	25	50	75	M12
33401255SA	NT40-SLA12-55	12	40	55	M16
33401660SA	NT40-SLA16-60	16	45	60	M16
33402065SA	NT40-SLA20-65	20	50	65	M16
33402575SA	NT40-SLA25-75	25	50	75	M16
33403290SA	NT40-SLA32-90	32	60	90	M16
33404270SA	NT40-SLA42-70	42	80	70	M16
33501263SA	NT50-SLA12-63	12	40	63	M24
33501663SA	NT50-SLA16-63	16	45	63	M24
33502063SA	NT50-SLA20-63	20	50	63	M24
33502575SA	NT50-SLA25-75	25	50	75	M24
33503280SA	NT50-SLA32-80	32	60	80	M24
335040100SA	NT50-SLA40-100	40	80	100	M24
335042100SA	NT50-SLA42-100	42	80	100	M24

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B and DIN6535-HB

应用范围：适用于夹持DIN1835-B及DIN6535-HB具有侧固平面的刀具

APU Drill Chuck Holder APU 钻夹头刀柄 DIN 2080

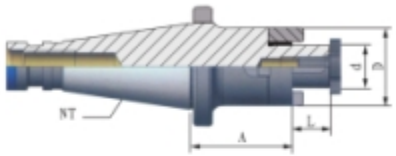


Order No.	Model	Clamping Range	D	L	
				Min	Max
33300880A	NT30-APU08-80	1-8	36.3	75	82
333013100A	NT30-APU13-100	1-13	51.5	97	104.5
33400885A	NT40-APU08-85	1-8	36.3	79	86.5
334013110A	NT40-APU13-110	1-13	51.5	98	109
334016130A	NT40-APU16-130	3-16	58	116	130
33500895A	NT50-APU08-95	1-8	36.3	90	97.5
335013120A	NT50-APU13-120	1-13	51.5	109	120
335013180A	NT50-APU13-180	1-13	51.5	169	180
335016130A	NT50-APU16-130	3-16	58	116	130
335016190A	NT50-APU16-190	3-16	58	176	190

Use: For clamping tools with straight shank

应用范围：夹持直径为0.5-16mm的钻头

Combi Shell Mill Holder DIN6358 混合式铣刀柄 DIN 2080



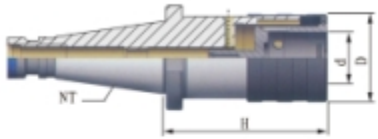
Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
33301635CS	NT30-SEMC16-35	16	32	17	35
33302235CS	NT30-SEMC22-35	22	40	19	35
33302735CS	NT30-SEMC27-35	27	48	21	35
33303250CS	NT30-SEMC32-50	30	58	24	50
33401652CS	NT40-SEMC16-52	16	32	17	52
33402252CS	NT40-SEMC22-52	22	40	19	52
33402752CS	NT40-SEMC27-52	27	48	21	52
33403252CS	NT40-SEMC32-52	32	58	24	52
33404052CS	NT40-SEMC40-52	40	70	27	52
33501655CS	NT50-SEMC16-55	16	32	17	55
33502255CS	NT50-SEMC22-55	22	40	19	55
33502755CS	NT50-SEMC27-55	27	48	21	55
33503255CS	NT50-SEMC32-55	32	58	24	55
33504055CS	NT50-SEMC40-55	40	70	27	55

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

Quick Change Tapping Chuck with Length Compensation 弹性快换攻丝刀柄

DIN 2080



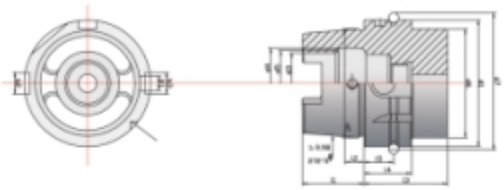
Order No.	Model	H	d	D	Capacity
33400153	NT40-GR1-53	53	19	38	M3-M14
33400277	NT40-GR2-77	77	31	55	M5-M24
33500279	NT50-GR2-79	79	31	55	M5-M24

Use: For tapping preferably. Axial length compensation on tension and pressure.

应用范围：用于螺纹攻丝，轴长度可调整（弹性攻丝）

04 HSK

Taper Standard 锥柄标准 DIN 69893

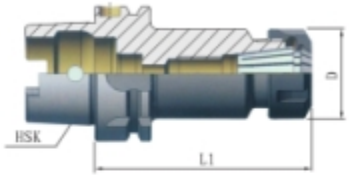


Model	d1	d2	d3	d4	d5	d6	d7	d8	l1	l2	l3	l4	l5	b1	b2	b3
HSK32A	32	24.007	17	20.5	19	26	37	4	16	3.2	35	20	16	7.05	7	9
HSK40A	40	30.007	21	25.5	23	34	45	4	20	4	35	20	16	8.05	9	9
HSK50A	50	38.009	26	32	29	42	59.3	7	25	5	42	26	18	10.54	12	12
HSK63A	63	48.010	34	40	37	53	72.3	7	32	6.3	42	26	18	12.54	16	16
HSK100A	100	75.013	53	63	58	88	109.75	7	50	10	45	29	20	20.02	20	20

Material: Allyed case hardened steel, black-finished and precisely grinded
Taper tolerance: <AT3
Hardness: HRC 56-58
Carbon depth: 0.8mm±0.2mm
Max run out: <0.005mm
Surface Roughness: Ra<0.005mm
Cooling AD+B type can be made by request
The shank is prebalanced at G6.3, G2.5 can be made by request
Shank body standard: DIN69893-1

材　　质：优质渗碳合金钢，发黑处理和精细研磨
锥　　柄：公差等级<AT3
硬　　度：HRC 56-58
渗碳深度：0.8mm±0.2mm
最大跳动：<0.005mm
表面粗糙度：Ra<0.005mm
刀柄本体可另外指定冷却方式AD+B
刀柄有预设动平衡G6.3，可另外指定精密动平衡G2.5
本体规范DIN69893-1

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 DIN 69893

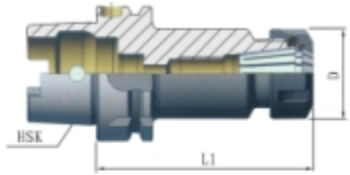


Order No.	Model	Capacity	Collet	L1	D
88501680	HSK50A-ER16-80	0.5-10	ER16	80	28
88502080	HSK50A-ER20-80	1-13	ER20	80	34
88502580	HSK50A-ER25-80	1-16	ER25	80	42
885032100	HSK50A-ER32-100	1-20	ER32	100	50
88631680	HSK63A-ER16-80	0.5-10	ER16	80	28
886316100	HSK63A-ER16-100	0.5-10	ER16	100	28
886316120	HSK63A-ER16-120	0.5-10	ER16	120	28
88632080	HSK63A-ER20-80	1-13	ER20	80	34
886320100	HSK63A-ER20-100	1-13	ER20	100	34
886320120	HSK63A-ER20-120	1-13	ER20	120	34
88632580	HSK63A-ER25-80	1-16	ER25	80	42
886325100	HSK63A-ER25-100	1-16	ER25	100	42
886325120	HSK63A-ER25-120	1-16	ER25	120	42
88633280	HSK63A-ER32-80	1-20	ER32	80	50
886332100	HSK63A-ER32-100	1-20	ER32	100	50
886332120	HSK63A-ER32-120	1-20	ER32	120	50
88634080	HSK63A-ER40-80	3-26	ER40	80	63
886340100	HSK63A-ER40-100	3-26	ER40	100	63
886340150	HSK63A-ER40-150	3-26	ER40	150	63

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可持各种尺寸直柄刀具

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 DIN 69893

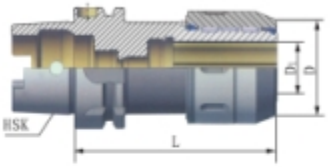


Order No.	Model	Capacity	Collet	L1	D
8810016100	HSK100A-ER16-100	0.5-10	ER16	100	28
8810016160	HSK100A-ER16-160	0.5-10	ER16	160	28
8810020100	HSK100A-ER20-100	1-13	ER20	100	34
8810020160	HSK100A-ER20-160	1-13	ER20	160	34
8810025100	HSK100A-ER25-100	1-16	ER25	100	42
8810025160	HSK100A-ER25-160	1-16	ER25	160	42
8810032100	HSK100A-ER32-100	1-20	ER32	100	50
8810032160	HSK100A-ER32-160	1-20	ER32	160	50
8810040100	HSK100A-ER40-100	3-26	ER40	100	63
8810040160	HSK100A-ER40-160	3-26	ER40	160	63

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可持各种尺寸直柄刀具

Precision Milling Chuck 强力铣刀柄 DIN 69893

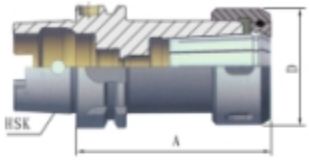


Order No.	Model	D1	D	Clamping Range	L	L1
88501680C	HSK50A-SC16-80	16	54	3-16	80	54
88631680C	HSK63A-SC16-80	16	54	3-16	80	54
886316100C	HSK63A-SC16-100	16	54	3-16	100	74
88632085C	HSK63A-SC20-85	20	53	4-20	85	59
8810016115C	HSK100A-SC16-115	16	54	3-16	115	86
8810020115C	HSK100A-SC20-115	20	53	4-20	115	86

Use: For mounting straight shank tools in collets; to use for high speed cutting and high precision milling

应用范围：配直柄筒夹可夹持各种尺寸直柄刀具用于高速及高精密加工

OZ Collet Chuck DIN6391 重切削筒夹本体 DIN 69893



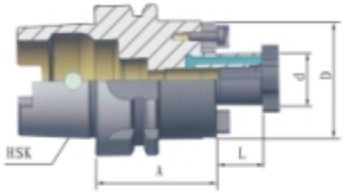
Order No.	Model	Capacity	D	A
88501690OZ	HSK50-OZ16-90	2-16	43	90
885025110OZ	HSK50-OZ25-110	2-25	60	110
886316100OZ	HSK63-OZ16-100	2-16	43	100
886325100OZ	HSK63-OZ25-100	2-25	60	100
886332120OZ	HSK63-OZ32-120	3-32	72	120
8810025110OZ	HSK100-OZ25-110	2-16	43	110
8810025120OZ	HSK100-OZ25-120	2-25	60	120
8810032130OZ	HSK100-OZ32-130	3-32	72	130

Use: For clamping tools with straight shank in collets of DIN6388

应用范围：配DIN6388 OZ弹簧夹头可夹持各种尺寸直柄刀具

FMB Face Mill Holder DIN6357 面铣刀柄

DIN 69893



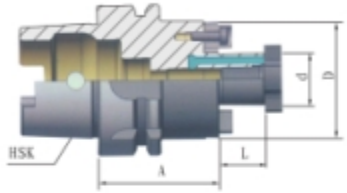
Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
88501650FB	HSK50-FMB16-50	16	38	17	50
88502260FB	HSK50-FMB22-60	22	48	19	60
88502760FB	HSK50-FMB27-60	27	58	21	60
88503260FB	HSK50-FMB32-60	32	78	24	60
88631650FB	HSK63-FMB16-50	16	38	17	50
886316100FB	HSK63-FMB16-100	16	38	17	100
88632250FB	HSK63-FMB22-50	22	48	19	50
886322100FB	HSK63-FMB22-100	22	48	19	100
88632760FB	HSK63-FMB27-60	27	58	21	60
886327100FB	HSK63-FMB27-100	27	58	21	100
88633260FB	HSK63-FMB32-60	32	78	24	60
886332100FB	HSK63-FMB32-100	32	78	24	100
88634060FB	HSK63-FMB40-60	40	88	27	60
886340100FB	HSK63-FMB40-100	40	88	27	100

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

FMB Face Mill Holder DIN6357 面铣刀柄

DIN 69893

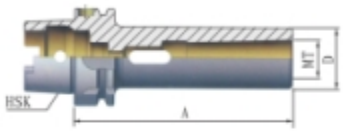


Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
88802250FB	HSK80-FMB22-50	22	48	19	50
88802750FB	HSK80-FMB27-50	27	58	21	50
88803260FB	HSK80-FMB32-60	32	78	24	60
88804060FB	HSK80-FMB40-60	40	88	27	60
881002250FB	HSK100-FMB22-50	22	48	19	50
881002750FB	HSK100-FMB27-50	27	68	21	50
881003250FB	HSK100-FMB32-50	32	78	24	50
881004060FB	HSK100-FMB40-60	40	88	27	60
881006070FB	HSK100-FMB60-70	60	130	40	70

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

MTA Morse Taper Adapter DIN6383 带扁尾莫氏刀柄 DIN 69893

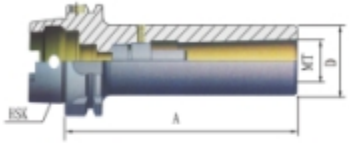


Order No.	Model	MT.No.	D（外径）	A（有效长度）
8850100MA1	HSK50-MTA1-100	MTA1	25	100
8850120MA2	HSK50-MTA2-120	MTA2	32	120
8850140MA3	HSK50-MTA3-140	MTA3	40	140
8863100MA1	HSK63-MTA1-100	MTA1	25	100
8863120MA2	HSK63-MTA2-120	MTA2	32	120
8863140MA3	HSK63-MTA3-140	MTA3	40	140
8863160MA4	HSK63-MTA4-160	MTA4	40	160
8880110MA1	HSK80-MTA1-110	MTA1	25	110
8880120MA2	HSK80-MTA2-120	MTA2	32	120
8880150MA3	HSK80-MTA3-150	MTA3	40	150
8880170MA4	HSK80-MTA4-170	MTA4	48	170
88100110MA1	HSK100-MTA1-110	MTA1	25	110
88100120MA2	HSK100-MTA2-120	MTA2	32	120
88100150MA3	HSK100-MTA3-150	MTA3	40	150
88100170MA4	HSK100-MTA4-170	MTA4	48	170
88100200MA5	HSK100-MTA5-200	MTA5	63	200

Use: For holding tools with Morse tapers and tang according to DIN228-1 form A

应用范围：适用于夹持DIN228-1A型带扁尾莫氏柄刀具

MTB Morse Taper Adapter (with Drawbar) DIN6364 带螺纹孔莫氏刀柄 DIN 69893



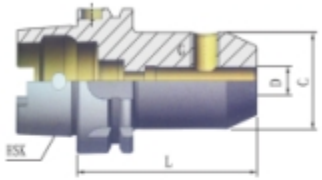
Order No.	Model	MT.No.	D（外径）	A（有效长度）
8850100MB1	HSK50-MTB1-100	MTB1	25	100
8850120MB2	HSK50-MTB2-120	MTB2	32	120
8850140MB3	HSK50-MTB3-140	MTB3	40	140
8863100MB1	HSK63-MTB1-100	MTB1	25	100
8863120MB2	HSK63-MTB2-120	MTB2	32	120
8863140MB3	HSK63-MTB3-140	MTB3	40	140
8863160MB4	HSK63-MTB4-160	MTB4	40	160
8880110MB1	HSK80-MTB1-110	MTB1	25	110
8880120MB2	HSK80-MTB2-120	MTB2	32	120
8880150MB3	HSK80-MTB3-150	MTB3	40	150
8880170MB4	HSK80-MTB4-170	MTB4	48	170
88100110MB1	HSK100-MTB1-110	MTB1	25	110
88100120MB2	HSK100-MTB2-120	MTB2	32	120
88100150MB3	HSK100-MTB3-150	MTB3	40	150
88100170MB4	HSK100-MTB4-170	MTB4	48	170
88100200MB5	HSK100-MTB5-200	MTB5	63	200

Use: For clamping tools with Morse tapers and drawbar thread according to DIN228-1 form B

应用范围：适用于夹持DIN228-1B型带外螺纹的莫氏柄刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式铣刀柄

DIN 69893



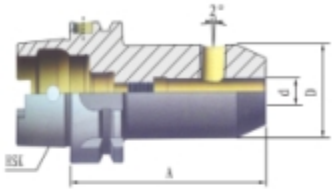
Order No.	Model	D	C	G	C
88500680SA	HSK50A-SLA06-80	6	25	M6x1.0P	80
88500880SA	HSK50A-SLA08-80	8	28	M8x1.25P	80
88501080SA	HSK50A-SLA10-80	10	35	M10x1.5P	80
88501280SA	HSK50A-SLA12-80	12	42	M10x1.5P	80
88501690SA	HSK50A-SLA16-90	16	48	M10x1.5P	90
88502090SA	HSK50A-SLA20-90	20	52	M12x1.75P	90
88630680SA	HSK63A-SLA06-80	6	25	M6x1.0P	80
88630880SA	HSK63A-SLA08-80	8	28	M8x1.25P	80
88631080SA	HSK63A-SLA10-80	10	35	M10x1.5P	80
88631280SA	HSK63A-SLA12-80	12	42	M10x1.5P	80
886316100SA	HSK63A-SLA16-100	16	48	M10x1.5P	100
886320100SA	HSK63A-SLA20-100	20	52	M12x1.75P	100
886325110SA	HSK63A-SLA25-110	25	65	M12x1.75P	110
886332110SA	HSK63A-SLA32-110	32	72	M16x2.0P	110
881000880SA	HSK100A-SLA08-80	8	28	M6x1.0P	80
881001080SA	HSK100A-SLA10-80	10	35	M8x1.25P	80
881001280SA	HSK100A-SLA12-80	12	42	M10x1.5P	80
8810016100SA	HSK100A-SLA16-100	16	48	M10x1.5P	100
8810020100SA	HSK100A-SLA20-100	20	52	M10x1.5P	100
8810025100SA	HSK100A-SLA25-100	25	65	M12x1.75P	100
8810032100SA	HSK100A-SLA32-100	32	72	M12x1.75P	100

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B and DIN6535-HB

应用范围：适用于夹持DIN1835-B及DIN6535-HB具有侧固平面的刀具

End Mill Holder Whistle North DIN6359/1835E 斜2° 侧固式铣刀柄

DIN 69893

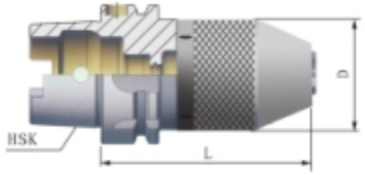


Order No.	Model	d	D	A
88500680SB	HSK50-SLB06-80	6	25	80
88500880SB	HSK50-SLB08-80	8	28	80
88501080SB	HSK50-SLB10-80	10	35	80
88501290SB	HSK50-SLB12-90	12	42	90
88501690SB	HSK50-SLB16-90	16	48	90
88502080SB	HSK50-SLB20-80	20	52	80
88630680SB	HSK63-SLB06-80	6	25	80
88630880SB	HSK63-SLB08-80	8	28	80
88631080SB	HSK63-SLB10-80	10	35	80
88631290SB	HSK63-SLB12-90	12	42	90
886316100SB	HSK63-SLB16-100	16	48	100
886320100SB	HSK63-SLB20-100	20	52	100
886325110SB	HSK63-SLB25-110	25	65	110
886332110SB	HSK63-SLB32-110	32	72	110
881000890SB	HSK100-SLB08-90	8	28	90
881001090SB	HSK100-SLB10-90	10	35	90
8810012100SB	HSK100-SLB12-100	12	42	100
8810016100SB	HSK100-SLB16-100	16	48	100
8810020110SB	HSK100-SLB20-110	20	52	110
8810025120SB	HSK100-SLB25-120	25	65	120
8810032120SB	HSK100-SLB32-120	32	72	120
8810040120SB	HSK100-SLB40-120	40	80	120

Use: For clamping cutters with straight shank and inclined flat of DIN1835-E and DIN6535-HE

应用范围：适用于夹持DIN1835-E及DIN6535-HE具有侧固平面的刀具

APU Drill Chuck Holder APU 钻夹头刀柄 DIN 69893

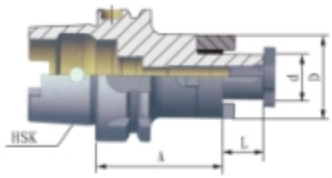


Order No.	Model	Clamping Range	D	L Min
884008120A	HSK40A-APU08-120	1-8	36.3	120
885008120A	HSK50A-APU08-120	1-8	63.3	120
886308120A	HSK63A-APU08-120	1-8	36.3	120
886313150A	HSK63A-APU13-150	1-13	51.5	150
886316155A	HSK63A-APU16-155	3-16	58.0	155
8810013155A	HSK100A-APU13-155	1-13	51.5	155
8810016160A	HSK100A-APU16-160	3-16	58.0	160

Use: For clamping tools with straight shank

应用范围：夹持直径为0.5-16mm的钻头

Combi Shell Mill Holder DIN6358 混合式铣刀柄 DIN 69893

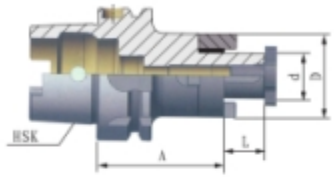


Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
88321655CS	HSK32-SEMC16-55	16	32	17	55
88322255CS	HSK32-SEMC22-55	22	40	19	55
88322765CS	HSK32-SEMC27-65	27	48	21	65
88401650CS	HSK40-SEMC16-50	16	32	17	50
88402250CS	HSK40-SEMC22-50	22	40	19	50
88402765CS	HSK40-SEMC27-65	27	48	21	65
88501650CS	HSK50-SEMC16-50	16	32	17	50
88502250CS	HSK50-SEMC22-50	22	40	19	50
88502765CS	HSK50-SEMC27-65	27	48	21	65
88631660CS	HSK63-SEMC16-60	16	32	17	60
886316100CS	HSK63-SEMC16-100	16	32	17	100
88632260CS	HSK63-SEMC22-60	22	40	19	60
886322100CS	HSK63-SEMC22-100	22	40	19	100
88632760CS	HSK63-SEMC27-60	27	48	21	60
886327100CS	HSK63-SEMC27-100	27	48	21	100
88633260CS	HSK63-SEMC32-60	32	58	24	60
886332100CS	HSK63-SEMC32-100	32	58	24	100
88634070CS	HSK63-SEMC40-70	40	70	27	70

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

Combi Shell Mill Holder DIN6358 混合式铣刀柄 DIN 69893

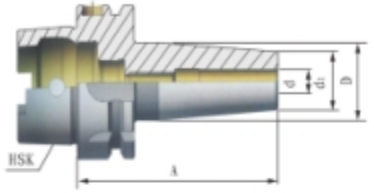


Order No.	Model	d (心轴直径)	D (端面直径)	L (心轴长度)	A
88801660CS	HSK80-SEMC16-60	16	32	17	60
88802260CS	HSK80-SEMC22-60	22	40	19	60
88802760CS	HSK80-SEMC27-60	27	48	21	60
88803260CS	HSK80-SEMC32-60	32	58	24	60
88804070CS	HSK80-SEMC40-70	40	70	27	70
881001660CS	HSK100-SEMC16-60	16	32	17	60
881002260CS	HSK100-SEMC22-60	22	40	19	60
881002760CS	HSK100-SEMC27-60	27	48	21	60
881003260CS	HSK100-SEMC32-60	32	58	24	60
881004060CS	HSK100-SEMC40-60	40	70	27	60

Use: For clamping shell mill DIN841 and DIN1880 as well as angular milling cutter DIN842 and cutter DIN1830

应用范围：适用于夹持带轴向或带径向驱动槽的铣刀如：立式盘铣刀，套式铣刀，面铣刀，盘铣刀，三面刃铣刀

Shrink Chuck 热缩刀柄 DIN 69893



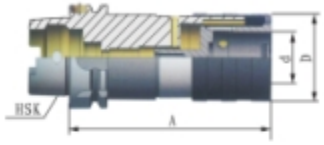
Order No.	Model	d	d1	D	L
88400380S	HSK63-03-80	3	11	20	80
88400480S	HSK63-04-80	4	14	25	80
88400580S	HSK63-05-80	5	16	25	80
88400680S	HSK63-06-80	6	21	27	80
88400880S	HSK63-08-80	8	21	27	80
88401085S	HSK63-10-85	10	24	31	85
88401290S	HSK63-12-90	12	24	31	90
88401490S	HSK63-14-90	14	27	34	90
88401695S	HSK63-16-95	16	27	34	95
88401895S	HSK63-18-95	18	33	40	95
884020100S	HSK63-20-100	20	33	40	100
884025115S	HSK63-25-115	25	44	53	115
884032120S	HSK63-32-120	32	44	53	120

Use: For mounting straight shank tools

应用范围：适用于夹持直柄刀具

Quick Change Tapping Chuck with Length Compensation 弹性快换攻丝刀柄

DIN 69893

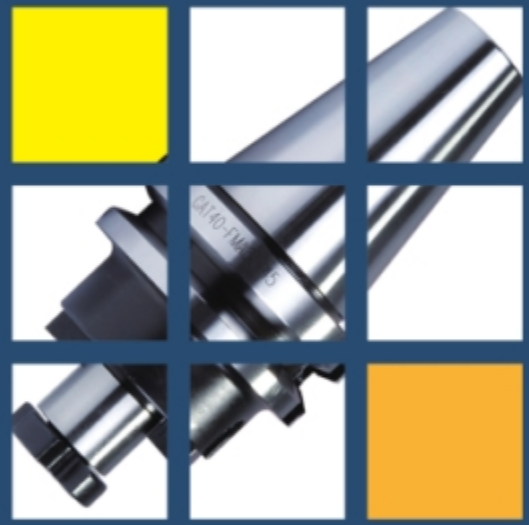


Order No.	Model	d	D	L	Capacity
88500172Q	HSK50-GR1-72	19	38	72	M3-M14
885002110Q	HSK50-GR2-110	31	54	110	M5-M22
886301102Q	HSK63-GR1-102	19	38	102	M3-M14
886302140Q	HSK63-GR2-140	31	54	140	M5-M22
8810001112Q	HSK100-GR1-112	19	38	112	M3-M14
8810002148Q	HSK100-GR2-148	31	54	148	M5-M22

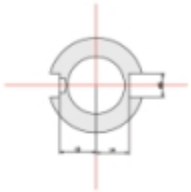
Use: For tapping preferably. Axal length compensation on tension and pressure.

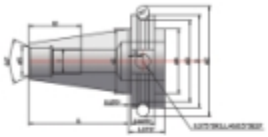
应用范围：用于螺纹攻丝，轴向长度可调整（弹性攻丝）

05 CAT



Taper Standard 锥柄标准 ANSI B5.50





Model	D	d1	d2	d3	d4	d5	d6	d7	l1	l2	l3	l4	l5	T
CAT30	1.812	1.25	2.176	1.531	1.25	0.516	0.645	0.2813	1.875	0.188	0.735	0.64	0.44	1/2-12
CAT40	2.500	1.75	2.863	2.219	1.75	0.641	0.645	0.2813	2.687	0.188	0.985	0.89	0.44	5/8-11
CAT50	3.875	2.75	4.238	3.594	2.75	1.031	1.020	0.2813	4.000	0.250	1.485	1.39	0.44	1-8

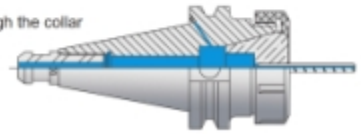
Material: Allyed case hardened steel, black-finished and precisely grinded
Taper tolerance: <AT3
Hardness: HRC 56-58
Carbon depth: 0.8mm±0.2mm
Max run out: <0.005mm
Surface Roughness: Ra<0.005mm
Cooling AD+B type can be made by request
When Order, please specify balancing G6.3 or G2.5.
Shank body standard: ANSI B5.50

材　　质：优质渗碳合金钢，发黑处理和精细研磨
锥　　柄：公差等级<AT3
硬　　度：HRC 56-58
渗碳深度：0.8mm±0.2mm
最大跳动：<0.005mm
表面粗糙度：Ra<0.005mm
刀柄本体可另外指定冷却方式AD+B
刀柄可指定动平衡G6.3或G2.5
本体规范ANSI B5.50

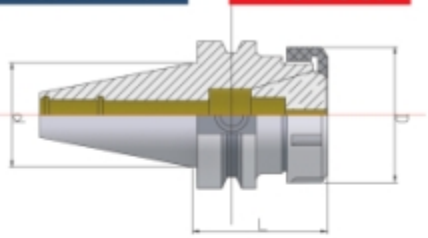
Cooling 冷却方式

Form A: without cooling supply
Form AD: central cooling supply
Form AD+B: central cooling and internal collant through the collar

A型：无内冷孔
AD型：中心通水
AD+B型：中心通水及法兰通水



ER Collet Chuck DIN6499 ER弹簧夹头刀柄 ANSI B5.50

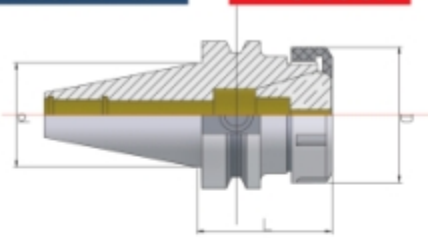


Order No.	Model	D	d	Clamping range
55401670	CAT40xER16-70	28	44.45	0.5-10
554016100	CAT40xER16-100	28	44.45	0.5-10
554016120	CAT40xER16-120	28	44.45	0.5-10
55402070	CAT40xER20-70	35	44.45	0.5-13
554020100	CAT40xER20-100	35	44.45	0.5-13
55402570	CAT40xER25-70	42	44.45	0.5-16
554025100	CAT40xER25-100	42	44.45	0.5-16
554025150	CAT40xER25-150	42	44.45	0.5-16
55403270	CAT40xER32-70	50	44.45	1-20
554032100	CAT40xER32-100	50	44.45	1-20
554032120	CAT40xER32-120	50	44.45	1-20
554032150	CAT40xER32-150	50	44.45	1-20
554040100	CAT40xER40-100	63	44.45	2-26
554040120	CAT40xER40-120	63	44.45	2-26

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可持各种尺寸直柄刀具

ER Collet Chuck DIN6499 ER弹簧夹头刀柄 ANSI B5.50

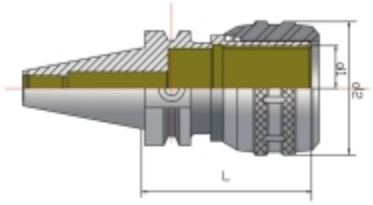


Order No.	Model	D	d	Clamping range
55501680	CAT50xER16-80	28	69.85	0.5-10
55502080	CAT50xER20-80	35	69.85	0.5-13
55502090	CAT50xER20-90	35	69.85	0.5-13
555020105	CAT50xER20-105	35	69.85	0.5-13
555020150	CAT50xER20-150	35	69.85	0.5-13
55502580	CAT50xER25-80	42	69.85	0.5-16
555025105	CAT50xER25-105	42	69.85	0.5-16
555025135	CAT50xER25-135	42	69.85	0.5-16
55503280	CAT50xER32-80	50	69.85	1-20
555032100	CAT50xER32-100	50	69.85	1-20
555032120	CAT50xER32-120	50	69.85	1-20
55504080	CAT50xER40-80	63	69.85	2-26
555040100	CAT50xER40-100	63	69.85	2-26
555040120	CAT50xER40-120	63	69.85	2-26

Use: For clamping tools with straight shank in collets of DIN 6499

应用范围：配DIN6499弹簧夹头可持各种尺寸直柄刀具

Precision Milling Chuck 强力铣刀柄 ANSI B5.50



Order No.	Model	d1	d2	L	Wt(kg)
55400.75"86C	CAT40-SC3/4"-3.385"	3/4"	2.17	3.39"	1.9
55400.75"105C	CAT40-SC3/4"-4.13"	3/4"	2.17	4.13"	2.1
55401.25"115C	CAT40-SC1-1/4"-4.53"	1.25"	2.87	4.53"	2.4
55500.75"105C	CAT50-SC3/4"-4.13'	3/4"	2.17	4.13"	2.5
55501.25"105C	CAT50-SC1-1/4"-4.13'	1.25"	2.87	4.13"	2.8

Use: For mounting straight shank tools in collets; to use for high speed cutting and high precision milling

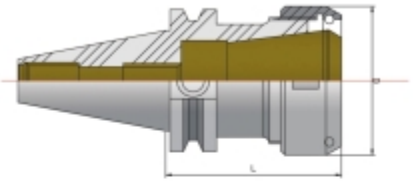
应用范围：配直柄筒夹可夹持各种尺寸直柄刀具用于高速及高精密加工


6.10


6.21


6.16

OZ Collet Chuck DIN6391 重切削筒夹本体 ANSI B5.50



Order No.	Model	D1	L	L1	D	Collet Type
554025 2.25"OZ	CAT40-OZ25-2.25"	1/8"-1"	2.25"	1.18"	2.36"	OZ25
554025 4.00"OZ	CAT40-OZ25-4.00"	1/8"-1"	4.00"	1.18"	2.36"	OZ25
554032 2.25"OZ	CAT40-OZ32-2.25"	1/4"-1-1/4"	2.25"	1.30"	2.83"	OZ32
554032 4.00"OZ	CAT40-OZ32-4.00"	1/4"-1-1/4"	4.00"	1.30"	2.83"	OZ32
555025 2.25"OZ	CAT50-OZ25-2.25"	1/8"-1"	2.25"	1.18"	2.36"	OZ25
555025 4.00"OZ	CAT50-OZ25-4.00"	1/8"-1"	4.00"	1.18"	2.36"	OZ25
555032 2.25"OZ	CAT50-OZ32-2.25"	1/4"-1-1/4"	2.25"	1.30"	2.83"	OZ32
555032 4.00"OZ	CAT50-OZ32-4.00"	1/4"-1-1/4"	4.00"	1.30"	2.83"	OZ32

Use: For clamping tools with straight shank in collets of DIN6388

应用范围：配DIN6388 OZ弹簧夹头可夹持各种尺寸直柄刀具


6.11

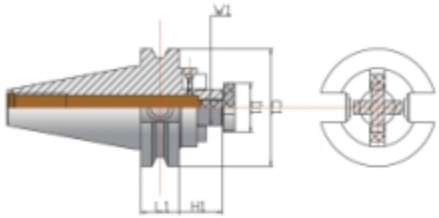

6.19


6.21


6.16

FMA FACE MILL HOLDER 面铣刀柄

ANSI B5.50



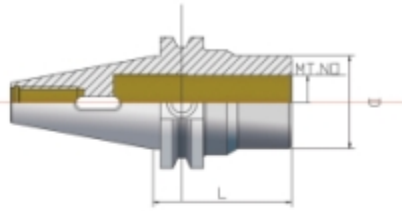
Order No.	Model	D1	L1	H1	C1	W1
5540254L175FA	CAT40-FMA25.4-1.75"	25.4(1")	1.75"	17.5	2.362"	9.5(0.374")
55403175L2FA	CAT40-FMA31.75-2"	31.75(1.25")	2"	17.5	2.756"	12.7(0.5")
5540381L2FA	CAT40-FMA38.1-2"	38.1(1.5")	2"	23.8	3.346"	15.9(0.626")
5550254L175FA	CAT50-FMA25.4-1.75"	25.4(1")	1.75"	17.5	2.362"	9.5(0.374")
5550254L4FA	CAT50-FMA25.4-4"	25.4(1")	4"	17.5	2.362"	9.5(0.374")
5550254L6FA	CAT50-FMA25.4-6"	25.4(1")	6"	17.5	2.362"	9.5(0.374")
55503175L175FA	CAT50-FMA31.75-1.75"	31.75(1.25")	1.75"	17.5	2.756"	12.7(0.5")
55503175L4FA	CAT50-FMA31.75-4"	31.75(1.25")	4"	17.5	2.756"	12.7(0.5")
55503175L6FA	CAT50-FMA31.75-6"	31.75(1.25")	6"	17.5	2.756"	12.7(0.5")
5550381L2FA	CAT50-FMA38.1-2"	38.1(1.5")	2"	23.8	3.346"	15.9(0.626")
5550381L4FA	CAT50-FMA38.1-4"	38.1(1.5")	4"	23.8	3.346"	15.9(0.626")
5550381L6FA	CAT50-FMA38.1-6"	38.1(1.5")	6"	23.8	3.346"	15.9(0.626")
5550508L2FA	CAT50-FMA50.8-2"	50.8(2")	2"	24	3.74"	19.05(0.75")
5550508L4FA	CAT50-FMA50.8-4"	50.8(2")	4"	24	3.74"	19.05(0.75")
5550508L6FA	CAT50-FMA50.8-6"	50.8(2")	6"	24	3.74"	19.05(0.75")
555047625L3FA	CAT50-FMA47.625-3"	47.625(1.875")	3"	32	5.26"	25.4(1")

Use: For holding like shell mill cutters

应用范围：用于夹持带径向驱动槽的铣刀，如面铣刀，立式盘铣刀，套式立铣刀

MTA Morse Taper Adapter DIN6383 带扁尾莫氏刀柄

ANSI B5.50



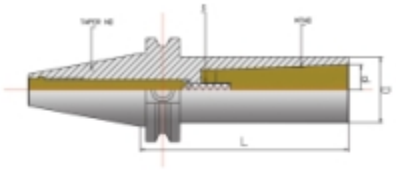
Order No.	Model	MT.No.	L	D	Wt(kg)
334045MA1	CAT40-MTA1-45	1	45	25	1.3
334063MA2	CAT40-MTA2-63	2	63	32	1.7
334075MA3	CAT40-MTA3-75	3	75	40	2
3340100MA4	CAT40-MTA4-100	4	100	48	2.5
335040MA1	CAT50-MTA1-40	1	40	25	4
335050MA2	CAT50-MTA2-50	2	50	32	4
3350135MA2	CAT50-MTA2-135	2	135	32	4.4
335063MA3	CAT50-MTA3-63	3	63	40	4.2
3350150MA3	CAT50-MTA3-150	3	150	40	4.7
335065MA4	CAT50-MTA4-65	4	65	48	4.3
335085MA4	CAT50-MTA4-85	4	85	48	4.8
3350105MA5	CAT50-MTA5-105	5	105	65	4.9

Use: For holding tools with Morse tapers and tang according to DIN228-1 form A

应用范围：适用于夹持DIN228-1A型带扁尾莫氏柄刀具

MTB Morse Taper Adapter (with Drawbar) DIN6364 带螺纹孔莫氏刀柄

ANSI B5.50



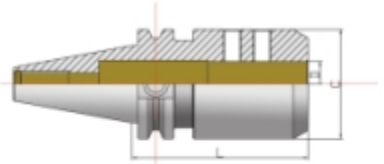
Order No.	Model	MT.No.	L	d	D	G	Wt(kg)
554050MB1	CAT40-MTB1-50	1	50	12.065	25	M6×1	1
554050MB2	CAT40-MTB2-50	2	50	17.78	32	M10×1.5	1.1
554070MB3	CAT40-MTB3-70	3	70	23.825	40	M12×1.75	1.2
5540095MB4	CAT40-MTB4-95	4	95	31.267	50	M16×2	1.3
554550MB1	CAT45-MTB1-50	1	50	12.065	25	M6×1	2.4
554560MB2	CAT45-MTB2-60	2	60	17.78	32	M10×1.5	2.4
554565MB3	CAT45-MTB3-65	3	65	23.825	40	M12×1.75	2.4
554570MB4	CAT45-MTB4-70	4	70	31.267	50	M16×2	2.5
555050MB1	CAT50-MTB1-50	1	50	12.065	25	M6×1	3.9
555060MB2	CAT50-MTB2-60	2	60	17.78	32	M10×1.5	3.9
555065MB3	CAT50-MTB3-65	3	65	23.825	40	M12×1.75	3.9
555070MB4	CAT50-MTB4-70	4	70	31.267	50	M16×2	3.9

Use: For clamping tools with Morse tapers and drawbar thread according to DIN228-1 form B

应用范围：适用于夹持DIN228-1B型带外螺纹的莫氏柄刀具

Side Lock End Mill Holder DIN6359/1835B (Weldon) 侧固式铣刀柄

ANSI B5.50



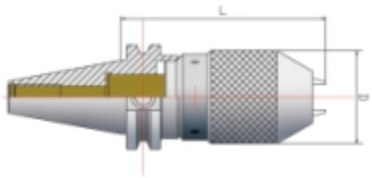
Order No.	Model	D	C	L
55400650SA	CAT40-SLA6-50	6	25	50
55400850SA	CAT40-SLA8-50	8	28	50
55401050SA	CAT40-SLA10-50	10	35	50
55401250SA	CAT40-SLA12-50	12	42	50
55401663SA	CAT40-SLA16-63	16	48	63
55402063SA	CAT40-SLA20-63	20	52	63
554025100SA	CAT40-SLA25-100	25	65	100
554032100SA	CAT40-SLA32-100	32	72	100
55500663SA	CAT50-SLA6-63	6	25	63
55500863SA	CAT50-SLA8-63	8	28	63
55501063SA	CAT50-SLA10-63	10	35	63
55501263SA	CAT50-SLA12-63	12	42	63
55501663SA	CAT50-SLA16-63	16	48	63
55502063SA	CAT50-SLA20-63	20	52	63
55502580SA	CAT50-SLA25-80	25	65	80
555032100SA	CAT50-SLA32-100	32	72	100
555040120SA	CAT50-SLA40-120	40	90	120
555050130SA	CAT50-SLA50-130	50	100	130

Use: For clamping cutters with straight shank and inclined flat of DIN1835-B and DIN6535-HB

应用范围：适用于夹持DIN1835-B及DIN6535-HB具有侧固平面的刀具

APU Drill Chuck Holder APU 钻夹头刀柄

ANSI B5.50



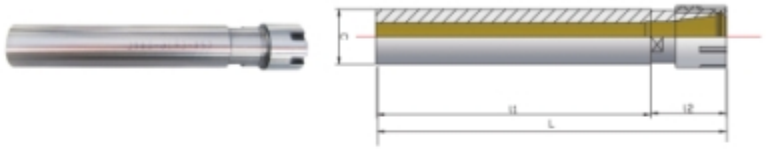
Order No.	Model	Clamping Range	D	L	
				Min	Max
55400865A	CAT40-APU08	1-8	36.3	65	76.5
55401388A	CAT40-APU13	1-13	51.5	88	99
554016106A	CAT40-APU16	3-16	58	106	120
55500870A	CAT50-APU08	1-8	36.3	70	77.5
55501389A	CAT50-APU13	1-13	51.5	89	100
55501696A	CAT50-APU16	3-16	58	96	110

Use: For clamping tools with straight shank

应用范围：夹持直径为0.5-16mm的钻头

06 ACCESSORY

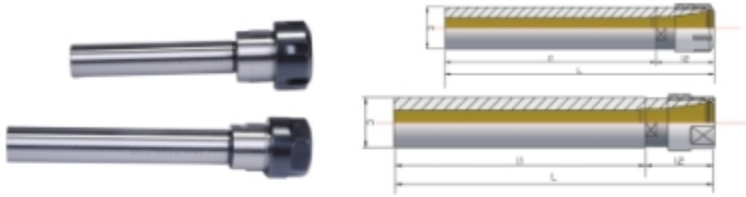
Straight Shank Collet Chuck 直柄延长杆(M型压帽)



Order No.	Model	C	l1	Wt(kg)
661008M100	C10-ER8M-100	10	100	0.07
661211M100	C12-ER11M-100	12	100	0.16
661611M100	C16-ER11M-100	16	100	0.18
661616M100	C16-ER16M-100	16	100	0.19
662016M100	C20-ER16M-100	20	100	0.26
662020M100	C20-ER20M-100	20	100	0.32

6.06 6.18 6.20

Straight Shank Collet Chuck 直柄延长杆



Order No.	Model	C	l1	Wt(kg)
661611050	C16-ER11A-50	16	50	0.13
661611100	C16-ER11A-100	16	100	0.19
661616100	C16A-ER16A-100	16	100	0.2
661616150	C16A-ER16A-150	16	150	0.24
662016050	C20-ER16A-50	20	50	0.18
662016100	C20-ER16A-100	20	100	0.27
662016150	C20-ER16A-150	20	150	0.37
662020050	C20A-ER20A-50	20	50	0.22
662020100	C20A-ER20A-100	20	100	0.38
662025050	C20-ER25-50	20	50	0.39
662025100	C20-ER25-100	20	100	0.41
662516100	C25-ER16A-100	25	100	0.45
662516150	C25-ER16A-150	25	150	0.56
662520100	C25-ER20A-100	25	100	0.46
662520150	C25-ER20A-150	25	150	0.58
662525100	C25-ER25-100	25	100	0.47
662525150	C25-ER25-150	25	150	0.58
662532100	C25-ER32-100	25	100	0.6
663225100	C32-ER25-100	32	100	0.7
663232100	C32-ER32-100	32	100	0.8
663232150	C32-ER32-150	32	150	1.3
663240100	C32-ER40-100	32	100	2.4
664032100	C40-ER32-100	40	100	1.7
664040100	C40-ER40-100	40	100	1.9

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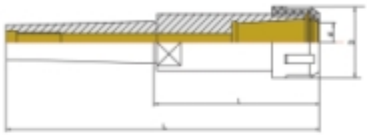
Morse Taper ER Collet Chuck 莫氏延长杆



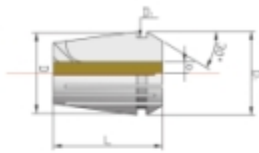
Order No.	Model	L	l	D	Drawbar Thread
7708M1	MT1-ER8	80	25	12	M6
7708M2	MT2-ER8	91	25	12	M10
7711M1	MT1-ER11	85	30	19	M6
7711M2	MT2-ER11	96	30	19	M10
7711M3	MT3-ER11	119	30	19	M12
7716M1	MT1-ER16	95	40	28	M6
7716M2	MT2-ER16	106	40	28	M10
7716M3	MT3-ER16	129	40	28	M12
7720M1	MT1-ER20	95	40	35	M6
7720M2	MT2-ER20	106	40	35	M10
7720M3	MT3-ER20	126	40	35	M12
7725M1	MT1-ER25	95	37	42	M6
7725M2	MT2-ER25	103	37	42	M10
7725M3	MT3-ER25	123	37	42	M12
7725M4	MT4-ER25	145	37	42	M16
7725M2	MT2-ER25	103	37	42	M10
7732M2	MT2-ER32	116	50	50	M10
7732M3	MT3-ER32	136	50	50	M12
7732M4	MT4-ER32	163	50	50	M16
7740M3	MT3-ER40	152	66	63	M12
7740M4	MT4-ER40	174	66	63	M16

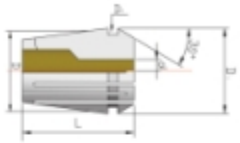

6.06


6.18


6.20

ER Collet ER 弹簧夹头 DIN 6499B





Model	d	D	D1	D2	L	Collapsible Capacity
ER8	1.0-5.0	8	8.45	6.5	13.5	0.5
ER11	1.0-7.0	11	11.5	9.5	18	0.5
ER16	1.0-2.5	16	17	13.8	27.5	0.5
ER16	2.5-10.0	16	17	13.8	27.5	1.0
ER20	1.0-2.5	20	21	17.4	31.5	0.5
ER20	2.5-13	20	21	17.4	31.5	1.0
ER25	1.0-2.5	25	26	22	34	0.5
ER25	2.5-16.0	25	26	22	34	1.0
ER32	2.0-2.5	32	33	29.2	40	0.5
ER32	2.5-20.0	32	33	29.2	40	1.0
ER40	3.0-26.0	40	41	36.2	46	1.0

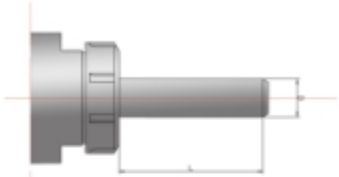
Order Example: CER32080
CER32120

Inch Size:

Model	d	D	D1	D2	L
ER11	1/32-17/64	11	11.5	9.5	18
ER16	1/32-3/8	16	17	13.8	27.5
ER20	1/32-33/64	20	21	17.4	31.5
ER25	3/64-5/8	25	26	22	34
ER32	1/16-25/32	32	33	29.2	40
ER40	1/8-1"	40	41	36.2	46

Order Example: CER321/8
CER3217/64

ER Collet　ER 弹簧夹头　DIN 6499B



Inspection of accuracy　精度检测

d	L	Run out tolerance		
		DIN6499B	Standard	UP
1.0-1.6	6	0.015	0.015	0.01
1.6-3.0	10	0.015	0.015	0.01
3.0-6.0	16	0.015	0.015	0.01
6.0-10.0	25	0.015	0.01	0.005
10.0-18.0	40	0.02	0.01	0.005
18.0-26.0	50	0.02	0.01	0.005
26.0-36.0	60	0.025	0.015	0.01

ER Collet Set　ER 筒夹套装　DIN 6499B

Order No.	Model	Size	PCS/SET
SER0809	ER8-9PCS	1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5	9
SER0806I	ER8-6PCS(inch)	1/32, 1/16, 3/32, 1/8, 5/32, 3/16	6

Order No.	Model	Size	PCS/SET
SER1107	ER11-7PCS	1, 2, 3, 4,5,6,7	7
SER1109	ER11-9PCS	3,3.5,4,4.5, 5, 5.5, 6, 6.5, 7	9
SER1113	ER11-13PCS	1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7	13
SER1108I	ER11-8PCS(inch)	1/32, 1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4	8

Order No.	Model	Size	PCS/SET
SER1608	ER16-8PCS	3, 4,5,6,7,8,9,10,	8
SER1610	ER16-10PCS	1, 2, 3, 4,5,6,7,8,9,10,	10
SER1612	ER16-12PCS	1, 1.5, 2, 2.5, 3, 4,5,6,7,8,9,10,	12
SER1605I	ER16-5PCS(inch)	1/8,3/16,1/4,5/16,3/8	5
SER1608I	ER16-8PCS(inch)	1/8, 5/32, 3/16, 7/32, 1/4,5/16,11/32,3/8	8
SER1612I	ER16-12PCS(inch)	1/32, 1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4,9/32,5/16,11/32,3/8	12

Order No.	Model	Size	PCS/SET
SER2011	ER20-11PCS	3,4,5,6,7,8,9,10,11,12,13	11
SER2013	ER20-13PCS	1,2,3,4,5,6,7,8,9,10,11,12,13	13
SER2011I	ER20-11PCS(inch)	1/8,5/32,3/16,7/32,1/4,9/32,5/16,11/32,3/8,7/16,1/2	11
SER2014I	ER20-14PCS(inch)	3/32, 1/8, 5/32, 3/16, 7/32, 1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32,1/2	14
SER2016I	ER20-16PCS(inch)	1/32, 1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32,1/2	16

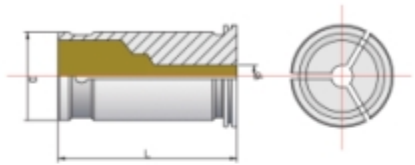
ER Collet Set　ER 筒夹套装　DIN 6499B

Order No.	Model	Size	PCS/SET
SER2514	ER25-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14
SER2515	ER25-15PCS	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	15
SER2509I	ER25-9PCS(inch)	1/8, 3/16, 1/4,5/16,3/8,7/16,1/2,9/16,5/8	9
SER2518I	ER25-18PCS(inch)	3/32, 1/8, 5/32, 3/16, 7/32, 1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32,1/2,17/32,9/16,5/8	18

Order No.	Model	Size	PCS/SET
SER3218	ER32-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18
SER3219	ER32-19PCS	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	19
SER3211I	ER32-11PCS(inch)	1/8,3/16,1/4,5/16,3/8,7/16,1/2,9/16,5/8,11/16,3/4	11
SER3212I	ER32-12PCS(inch)	1/8,5/32,3/16,1/4,5/16,3/8,7/16,1/2,9/16,5/8,11/16,3/4	12
SER3218I	ER32-18PCS(inch)	1/8,5/32,3/16,7/32,1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32,1/2,9/16,5/8,11/16,23/32,3/4	18

Order No.	Model	Size	PCS/SET
SER4015	ER40-15PCS	4,5,6,8,10,12,14,15,16,18,20,22,24,25,26	15
SER4018	ER40-18PCS	4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,25	18
SER4023	ER40-23PCS	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	23
SER4024	ER40-24PCS	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	24
SER4008I	ER40-8PCS(inch)	1/8,1/4,3/8,1/2,5/8,3/4,7/8,1"	8
SER4014I	ER40-14PCS(inch)	1/8,3/16,1/4,5/16,3/8,7/16,1/2,9/16,5/8,11/16,3/4,13/16, 7/8,1"	14
SER4015I	ER40-15PCS(inch)	1/8,3/16,1/4,5/16,3/8,7/16,1/2,9/16,5/8,11/16,3/4,13/16, 7/8,15/16,1"	15
SER4018I	ER40-18PCS(inch)	5/32,3/16,7/32,1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32, 1/2,9/16,5/8,11/16,3/4,13/16,1"	18
SER4023I	ER40-23PCS(inch)	1/8,5/32,3/16,7/32,1/4,9/32,5/16,11/32,3/8,13/32,7/16,15/32, 1/2,9/16,5/8,11/16,23/32,3/4,13/16,27/32,7/8,29/32,1"	23

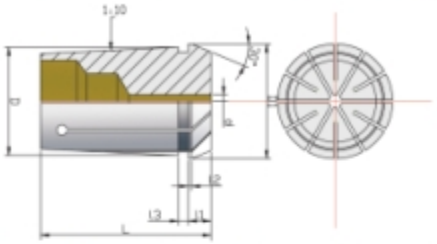
Straight Shank Collet　直柄筒夹



Model	D	d	L
SC16	16	3,4,5,6,8,10,12	45
SC20	20	3,4,5,6,8,10,12,14,16	50
SC22	22	3,4,5,6,8,10,12,14,16	50
SC25	25	3,4,5,6,8,10,12,14,16,18,20	60
SC32	32	3,4,5,6,8,10,12,14,16,18,20,25	65
SC40	40	6,8,10,12,14,16,18,20,25,28,30,32	80
SC42	42	3,4,5,6,8,10,12,14,16,18,20,22,24,25,28,30,32	80

Order Example: CSC1608
CSC3210

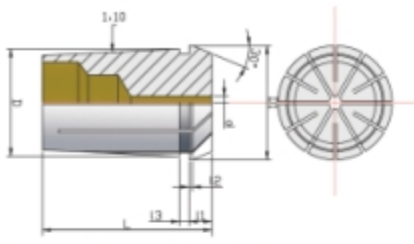
EOC Collet　EOC 铣 夹 头　DIN 6388A



Model	d	D	D1	L	L1	L2	L3
EOC 6A	1-6	10	11.5	21	3.5	0.5	4
EOC 8A	1-8	12.65	14.5	26	4	0.8	4.5
EOC 10A	1-10	15.15	17.2	30	4.5	0.8	4.5
EOC 12A	1-12	17.75	19.8	34	5	1.1	4.5
EOC 16A	2-16	22.65	25.5	40	5.5	1.2	5.5
EOC 20A	2-20	27.4	29.8	45	6	1.35	6
EOC 25A	2-25	32.9	35.05	52	6	1.4	6
EOC 32A	4-32	41.3	43.7	60	6	1.45	7
EOC 40A	6-40	49.7	52.2	68	6	1.45	8
EOC 50A	8-50	61.1	63.8	80	7	1.55	9

Order Example: CE0606A
CE3210A

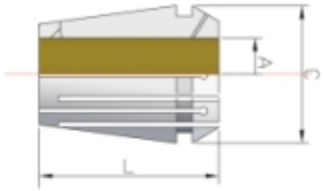
EOC Collet　EOC 铣 夹 头　DIN 6388B



Model	d	D	D1	L	L1	L2	L3
EOC 16B	2-16	22.65	25.5	40	5.5	1.2	9.5
EOC 20B	2-20	27.4	29.8	45	6	1.35	10
EOC 25B	2-25	32.9	35.05	52	6	1.4	10
EOC 32B	4-32	41.3	43.7	60	6	1.45	11
EOC 40B	6-40	49.7	52.2	68	6	1.45	12
EOC 50B	8-50	61.1	63.8	80	7	1.55	13

Order Example: CE0606B
CE3210B

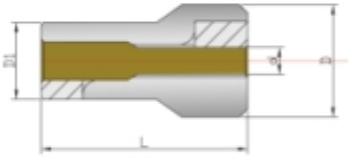
ER Sealed Collet　ER 止水筒夹　DIN 6499



Model	C	L	Clamping Range	Wt(kg)
ERS16	17	27.5	3-10	0.03
ERS20	21	31.5	3-13	0.04
ERS25	26	34	3-16	0.06
ERS32	33	40	3-20	0.1
ERS40	41	46	3-26	0.25

Order Example: CERS1606
CERS3210

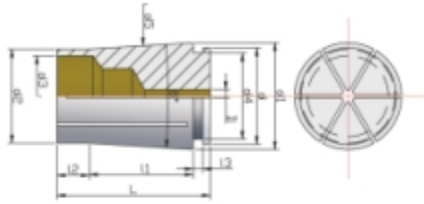
DA Collet　DA 筒 夹



Model	D(mm)	L(mm)	D1(mm)	d	
				mm	in
DA10-d	19.5	36.5	16.5	2-12.5	1/16-1/2
DA18-d	26.045	41.7	22.08	2-18	1/16-45/64
DA20-d	13.6	30.4	11.43	1-8	3/64-5/16
DA30-d	9.5	25.4	7.62	1-6	1/32-15/64

Order Example: CDA2006
CDA3005

Slim Chuck Collet　SK 高速弹簧筒夹

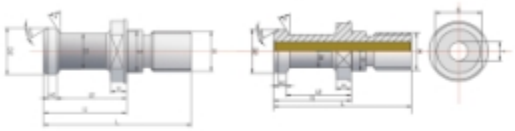


Model	L	l1	l2	l3	d	d1	d2	d3	d4	d5
SK06	25.7	17.5	4	2.4	9.26	10.5	7.5	6	7.8	9.964
SK10	32	22	5	2.5	13.7	15.6	12	10	12	15.013
SK16	46	32	8	2.8	21	24.6	18.8	16	19	23.939
SK25	58	43	8.5	3.6	31	35.6	28.9	25.5	28.2	35.029

Model	D	Collapsible Capacity
SK6	2,2.5,3	0.25
SK6	3.5,4,4.5,5,5.5,6	0.5
SK10	2,2.5,3	0.25
SK10	3.175	0.475
SK10	3.5,4,4.5,5,5.5,6,6.5,7,7.5,8,8.5,9,9.5,10	0.5
SK16	3	0.25
SK16	3.175	0.475
SK16	3.5,4,4.5,5,5.5,6,6.5,7,7.5,8,8.5,9,9.5,10,10.5,11,11.5,12,12.5,13, 13.5,14,14.5,15,15.5,16	0.5
SK25	6,8,10,12,14,16,16.5,17,17.5,18,18.5,19,19.5,20, 20.5,21,21.5,22, 22.5,23,23.5,24,24.5,25	0.5

Order Example: CSK06020
CSK16055

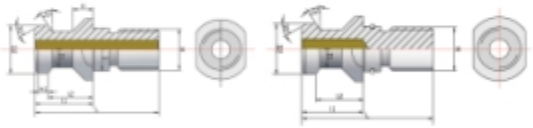
BT Pull Stud　BT 拉钉　MAS403-1982



Model	D	D1	D2	M	L	L1	L2	H	H1	Ø
BT30	12.5	7	11	M12	43	23	18	5	2.5	30° 45° 60° 90°
BT40	17	10	15	M16	60	35	28	6	3	
BT50	25	17	23	M24	85	45	35	10	5	

Order Example: PBT3045
PBT4060
For Collant Type: PBT4045C

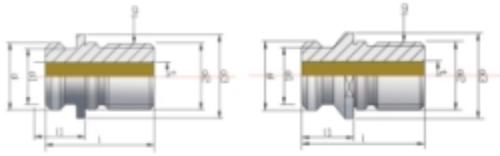
SK Pull Stud　SK 拉钉　DIN69872



Order No	Model	D	D1	D2	M	L	L1	L2
PSK30A/B	SK-30A(B)	13	9	13	M12	44	24	19
PSK40A/B	SK-40A(B)	17	14	19	M16	54	26	20
PSK50A/B	SK-50A(B)	25	21	28	M24	74	34	25

Order Example: PSK40A
PSK50B

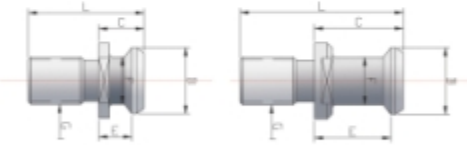
ISO7388 Pull Stud　ISO7388 拉钉　ISO7388



Order No	Model	d3	d2	d1	d	g	l	t
P738840A	DIN7388-40A	23	17	14	19	M16	54	7.5
P738850A	DIN7388-50A	36	25	21	28	M24	74	11.5

Order No	Model	d3	d2	d1	d	g	l	t
P738840B	DIN7388-40B	22.5	17	12.9	18.9	M16	44.5	7.5
P738850B	DIN7388-50B	36	25	19.6	29.1	M24	65.5	11.5

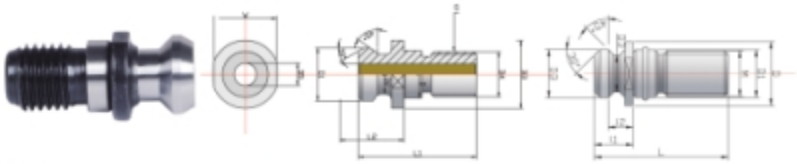
CAT Pull Stud　CAT 美标拉钉



Model	Type	G	θ	L	B	C	E	F
CAT40-A	A	5/8"-11	45	1.5	0.74	0.64	0.44	0.49
CAT50-A	A	1"-8	45	2.3	1.14	1	0.7	0.82
CAT40-B	B	5/8"-11	45/60/90	2.13	0.59	1.27	0.99	0.393
CAT50-B	B	1"-8	45/60/90	3.07	0.906	1.772	1.378	0.669

Order Example: PCAT4045A
PCAT4060B

Mazak Pull Stud 马扎克拉钉



BT

Order No	Model	L1	L2	D1	D2	D3	D4	D5	W	G
PBTM40	Marzak-BT40	44.1	19.1	18.8	12.45	22	17	7	19	M16
PBTM50	Marzak-BT50	65.2	25.2	29	20.83	36	25	10	30	M24

CAT

Order No	Model	D	D1	D2	D3	L	L1	L2	M
PCATM40	Marzak-CAT40	22	17	18.79	12.5	41.25	16.25	11.17	M16
PCATM50	Marzak-CAT50	35.6	25	28.95	20.82	65.4	25.4	17.78	M24

MTB Pull Stud MTB 加长拉钉

BT

Model	MT.No.	G	DEG
MTB4	4	M16X2.0P	30/45/60/90
MTB5	5	M20X2.5P	30/45/60/90

SK

Model	MT.No.	G
MTB4	4	M16X2.0P
MTB5	5	M20X2.5P

Order Example:
PBT4045L
PBT4060L PSK40AL

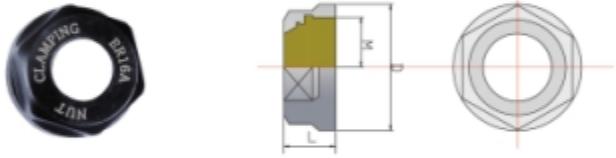
NT Pull Stud NT 拉杆

Order No	Model	M	d1	d2	d3	d4	l3	l2	l1
PNT40	NT40	M16	25	21.2	17	7	13.6	25.1	53
PNT50	NT50	M24	39.6	32	25	7	13.3	25.1	65.1

ER Clamping Nut ER 压 帽 DIN 6499

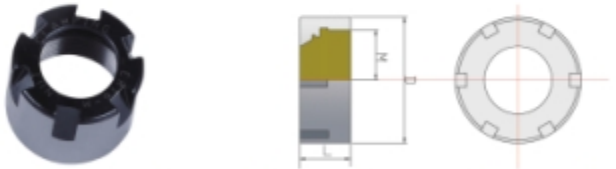
UM/T2

Order No	Model	D(mm)	d1(mm)	L(mm)	T	Wt(kg)
NER16UM	ER16-UM	32	26	17	M22X1.5	0.05
NER20UM	ER20-UM	35	29	19	M25X1.5	0.1
NER25UM	ER25-UM	42	36	20	M32X1.5	0.14
NER32UM	ER32-UM	50	44	22.5	M40X1.5	0.2
NER40UM	ER40-UM	63	57	25.5	M50X1.5	0.3
NER50UM	ER50-UM	78	71	35.5	M64X2	0.5



A/Hex

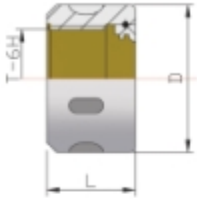
Order No	Model	D(mm)	d1(mm)	L(mm)	T	Wt(kg)
NER11A	ER11-A	19	17	11.3	M14X0.75	0.005
NER16A	ER16-A	28	25	17.5	M22X1.5	0.01
NER20A	ER20-A	34	30	19	M25X1.5	0.05



Mini

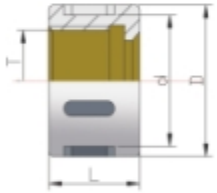
Order No	Model	D(mm)	d1(mm)	L(mm)	T	Wt(kg)
NER08M	ER8-M	12	10	10	M10X0.75	0.005
NER11M	ER11-M	16	12	12	M13X0.75	0.01
NER16M	ER16-M	22	17.2	18	M19X1	0.05
NER20M	ER20-M	28	22.5	19	M24X1	0.05
NER25M	ER25-M	35	28.6	20	M30X1	0.08

EOC Clamping Nut　EOC 压帽　DIN 6388



Order No.	Model	D(mm)	L(mm)	T
NEOC06	EOC6	18	14	M14X1
NEOC08	EOC8	26	19	M20X1.5
NEOC10	EOC10	30	19	M22X1.5
NEOC12	EOC12	35	20	M27X1.5
NEOC16	EOC16	43	24	M33X1.5
NEOC20	EOC20	50	28	M42X2
NEOC25	EOC25	60	30	M48X2
NEOC32	EOC32	72	33.5	M60X2.5
NEOC40	EOC40	85	37	M68X2.5
NEOC50	EOC50	100	43	M80X2.5

SK Nut　SK 压帽



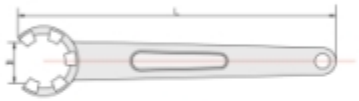
Order No.	Model	d	D	L	T
NSK06	SK06	18.1	20	15	M15.5X1
NSK10	SK10	25.4	28	17	M21.5X1
NSK16	SK16	35	40	24	M32X1.5
NSK20	SK20	43	48	27	M40X1.5
NSK25	SK25	50	55	30	M45X1.5

ER Spanner　ER 扳手

A

Order No.	Model	B	L	Clamping Nut
WER11A	ER11-A	17	110	ER11-A
WER16A	ER16-A	25	120	ER16-A
WER20A	ER20-A	30	130	ER20-A

Mini



Order No.	Model	B	L	Clamping Nut
WER08M	ER8-M	7.5	70	ER8-M
WER11M	ER11-M	11	90	ER11-M
WER16M	ER16-M	15	110	ER16-M
WER20M	ER20-M	19.5	120	ER20-M
WER25M	ER25-M	25	130	ER25-M

UM

Order No.	Model	B	L	Clamping Nut
WER16UM	ER16-UM	26	180	ER16-UM
WER20UM	ER20-UM	30	190	ER20-UM
WER25UM	ER25-UM	37	210	ER25-UM
WER32UM	ER32-UM	46.5	250	ER32-UM
WER40UM	ER40-UM	58	290	ER40-UM
WER50UM	ER50-UM	74	350	ER50-UM

Hook Spanner Wrench 勾头扳手

DIN 1810

ER

Order No.	Model	B	Size	Clamping Nut
WER25C	ER25-C	168	38-42	ER25-UM
WER32C	ER32-C	190	45-52	ER32-UM
WER40C	ER40-C	210	55-63	ER40-UM
WER50C	ER50-C	240	78-85	ER50-UM

EOC

Order No.	Model	L(mm)	Dia of Nut(mm)
WEOC06	EOC06	90	18-21
WEOC08	EOC08	125	22-26
WEOC10	EOC10	140	28-32
WEOC12	EOC12	154	34-36
WEOC16	EOC16	168	38-42
WEOC20	EOC20	190	45-52
WEOC25	EOC25	210	55-62
WEOC32	EOC32	230	68-72
WEOC40	EOC40	240	78-85
WEOC50	EOC50	250	100-110

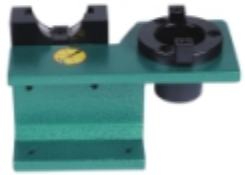
SC

Order No.	Model	L(mm)	Dia of Nut(mm)
WC20	SC20	55-62	214
WC22	SC22	55-62	214
WC25	SC25	55-62	214
WC32	SC32	68-72	235
WC42	SC42	78-85	261

SK Ball Spanner SK 滚珠扳手

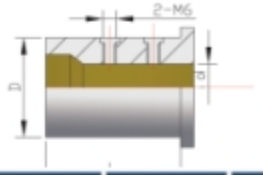
Order No.	Model	D	L
WSK06	SK06	19.5	120
WSK10	SK10	27.5	130
WSK16	SK16	40	193
WSK20	SK20	48	200
WSK25	SK25	55	210

Tool Holder Locking Device 刀柄锁刀座

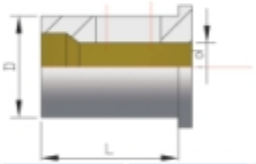


Order No.	Taper of Tool Holder	Outsize(mm)	Wt(kg)
DBT30	BT30	205X98.5X128	3.7
DBT40	BT40	205X98.5X128	3.8
DBT50	BT50	275X150X198	11.4
DSK30	DIN69871.30	205X98.5X128	3.7
DSK40	DIN69871.40	205X98.5X128	3.8
DSK50	DIN69871.50	275X150X198	11.4
DCAT30	CAT30	205X98.8X128	3.7
DCAT40	CAT40	205X98.5X128	3.8
DCAT50	CAT50	275X150X198	11.4

Reduction Sleeve for Boring Bar Holder 镗刀减径套

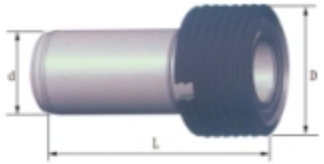


Order No.	Model	d	D	L
SL2506	25-06	6	25	46
SL2508	25-08	8	25	46
SL2510	25-10	10	25	46
SL2512	25-12	12	25	46
SL3206	32-06	6	32	56
SL3208	32-08	8	32	56
SL3210	32-10	10	32	56
SL3212	32-12	12	32	56
SL4006	40-06	6	40	71
SL4008	40-08	8	40	71
SL4010	40-10	10	40	71
SL4012	40-12	12	40	71



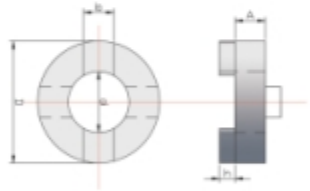
Order No.	Model	d	D	L
SL2516	25-16	16	25	46
SL2520	25-20	20	25	46
SL3216	32-16	16	32	56
SL3220	32-20	20	32	56
SL3225	32-25	25	32	56
SL4016	40-16	16	40	71
SL4020	40-20	20	40	71
SL4025	40-25	25	40	71
SL4032	40-32	32	40	71

HSK Coolant Tube HSK 冷却导管



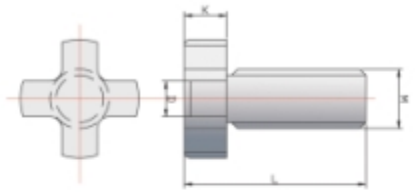
Order No.	Model	d	D	L
CT32	HSK32	6	M10X1	26.0
CT40	HSK40	8	M12X1	29.5
CT50	HSK50	10	M16X1	33.0
CT63	HSK63	12	M18X1	34.5
CT80	HSK80	14	M20X1.5	40.0
CT100	HSK100	16	M24X1.5	44.0

Clutch Drive Ring 驱动环 DIN 6366



Order No.	d	D	A	b	h
CDR16	16	32	10	8	5.0
CDR22	22	40	12	10	5.6
CDR27	27	46	12	12	6.3
CDR32	32	55	14	14	7.0
CDR40	40	68	14	16	8.0

Retaining Screw 压紧螺栓 DIN 6357



Metric

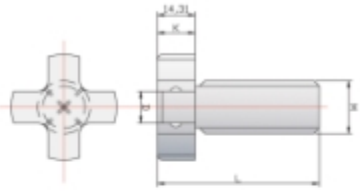
Order No.	Size	M	D	K	L
RS16	16	M8x1.25	20	6	16
RS22	22	M10x1.50	28	7	18
RS27	27	M12x1.75	35	8	22
RS32	32	M16x2.00	42	9	26
RS40	40	M20x2.50	52	10	30
RS50	50	M24x3.00	63	12	36
RS60	60	M30x3.50	75	14	45

Inch

Order No.	Size	M	D	K	L
RS1/2"	1/2"	1/4"-28UNF	0.66	0.34	0.66
RS3/4"	3/4"	3/8"-24UNF	0.88	0.38	0.68
RS1"	1"	1/2"-20UNF	1.19	0.38	0.81
RS1-1/4"	1-1/4"	5/8"-18UNF	1.50	0.50	1.04
RS1-1/2"	1-1/2"	3/4"-16UNF	1.88	0.50	1.02
RS2"	2"	1"-14UNF	2.50	0.50	1.04

For Face Mill Holder and Combi Shell Mill Holder 用于面铣刀柄和复合式铣刀柄

Retaining Screw with Drill Through for Collant 带冷却孔压紧螺栓 DIN 6367



Metric

Order No.	Size	M	D	K	L
RS16	16	M8x1.25	20	6	16
RS22	22	M10x1.50	28	7	18
RS27	27	M12x1.75	35	8	22
RS32	32	M16x2.00	42	9	26
RS40	40	M20x2.50	52	10	30
RS50	50	M24x3.00	63	12	36
RS60	60	M30x3.50	75	14	45

Inch

Order No.	Size	M	D	K	L
RS1/2"	1/2"	1/4"-28UNF	0.66	0.34	0.66
RS3/4"	3/4"	3/8"-24UNF	0.88	0.38	0.68
RS1"	1"	1/2"-20UNF	1.19	0.38	0.81
RS1-1/4"	1-1/4"	5/8"-18UNF	1.50	0.50	1.04
RS1-1/2"	1-1/2"	3/4"-16UNF	1.88	0.50	1.02
RS2"	2"	1"-14UNF	2.50	0.50	1.04

For Face Mill Holder and Combi Shell Mill Holder 用于面铣刀柄和复合式铣刀柄

58 PCS Clamping Kits 58件套机床组合压板

Metric	Inch	Us	Wt(kg)	Packing(mm)
M8	5/16	5/16	7.5	318×116×210
M10	3/8	3/8	8	318×116×210
M12	1/2-12	1/2-12	12	368×108×218
M14	-	-	14	388×128×218
M16	5/8	5/8	16	500×130×228
M18	3/4	3/4	22	370×160×300
M20	-	-	27	370×160×300
M22	7/8	7/8	53	470×230×360

Precision Drill Re-sharpening Machine 精密钻头研磨机

Order No.	Model	Range of Grinding Dia.	Equipped Collet
DC13	C13	2-13mm	ER20
DC26	C26	13-26mm	ER40

Tool Holder Mobile Cabinet 刀具车

Order No.	Model	Size	Remark
CBT4025	BT40-25	W1060 x D600 x H880	with 25 pcs BT40 cutter boxes.
CBT5020	BT50-20	W1060 x D600 x H880	with 20 pcs BT50 cutter boxes.

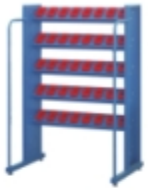
Tool Holder Mobile Cabinet 刀具车

Order No.	Model	Size	Remark
CBT40251	BT40/25/1	W1060 x D600 x H880	with 25 pcs BT40 sheaths.
CBT50201	BT50/20/1	W1060 x D600 x H880	with 20 pcs BT50 sheaths.

Tool Holder Cabinet with Door 刀具柜

Order No.	Model	Size	Remark
CBT4025	BT40-25	W1060 x D600 x H880	with 25 pcs BT40 cutter boxes.
CBT5020	BT50-20	W1060 x D600 x H880	with 20 pcs BT50 cutter boxes.

Simple Tool Holder Cabinet 简体刀具架



Order No.	Model	Size
CBT4030S	BT40-30	W890 x D530 x H1100
CBT5025S	BT50-25	W890 x D530 x H1400
CBT4042S	BT40-42	W890 x D530 x H1700
CBT5035S	BT50-35	W890 x D530 x H1100
CBT4054S	BT40-54	W890 x D530 x H1400
CBT5045S	BT50-45	W890 x D530 x H1700

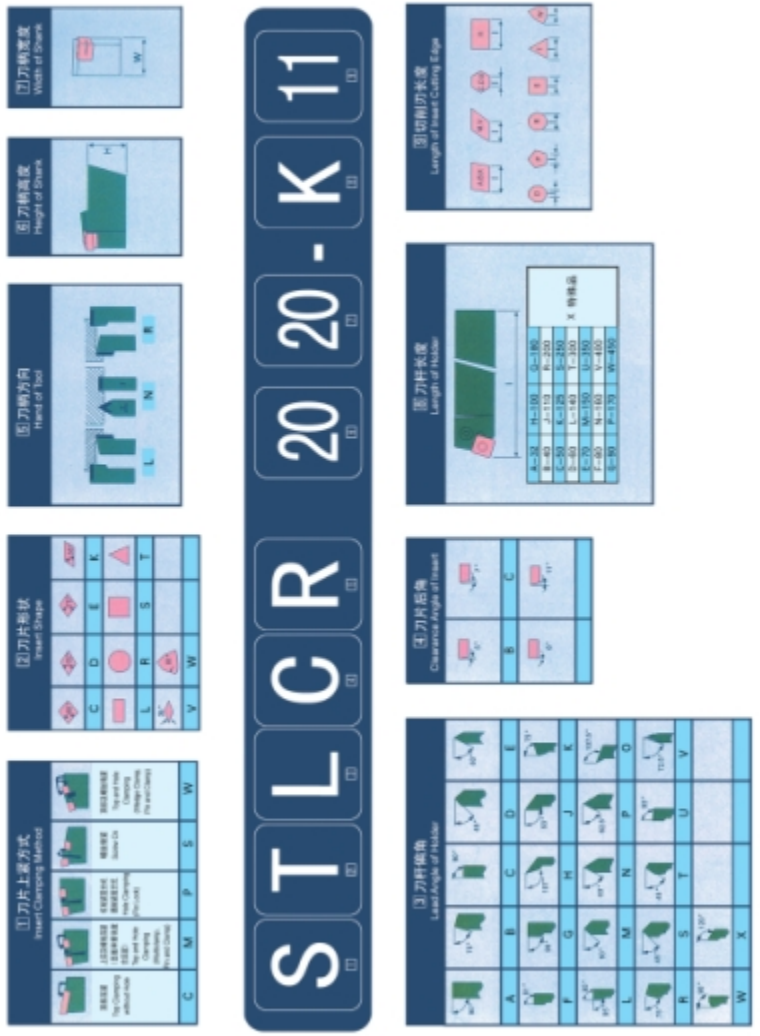
Tool Holder Cabinet with Drawer 刀具抽屉柜

Order No.	Model	Size	Drawer spec
CBT4040DR	BT40-40	W730 x D675 x H1105	1 x 200; 2 x 400
CBT5032DR	BT50-32	W730 x D675 x H1105	1 x 200; 2 x 400
CBT4060DR	BT40-60	W730 x D675 x H1305	3 x 400
CBT5048DR	BT50-48	W730 x D675 x H1305	3 x 400
CBT4060DR4	BT40-60	W730 x D675 x H1465	1 x 160; 3 x 400
CBT5048DR4	BT50-48	W730 x D675 x H1465	1 x 160; 3 x 400

07 CUTTING TOOLS

Turning Tool Precessing Diagram 车刀加工形式示意图

Turning Tool Holder Code System 可转位车刀编码示意图

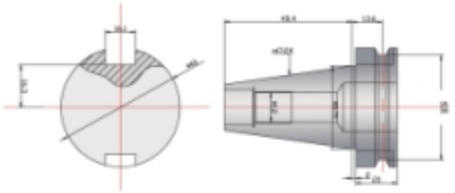


S 25 R S C L C R 09
①刀杆材料 Material of Bar
②刀杆直径 Bar Diameter
③刀杆长度 Bar Length
④刀片安装方式 Mounting Insert Method
C P M S
⑤刀片形状 Insert Shape
⑥刀片后角 Relief Angle of Insert
⑦刀杆方向 Hand of Bar
⑧切削刃长度 Length of Cutting Edge
⑨刀杆偏角 Lead Angle of Holder

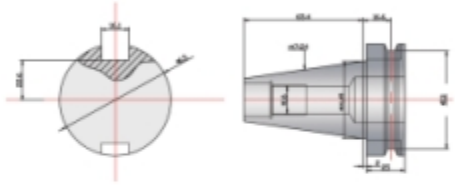
08 TECHNICAL DATA

Taper Standard Datas 锥柄标准尺寸图 MAS 403

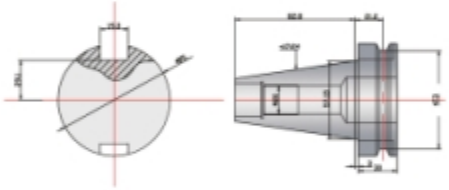
BT30



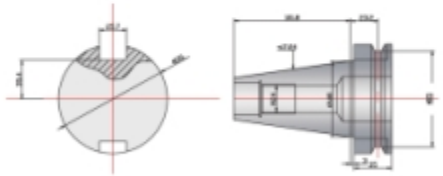
BT40



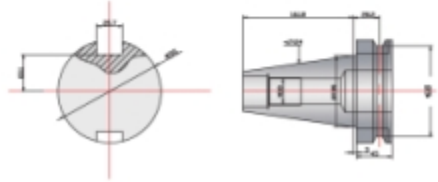
BT45



BT50

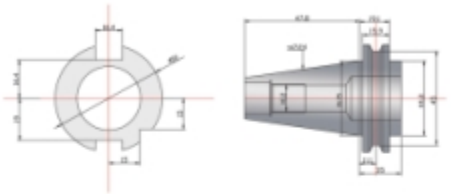


BT60

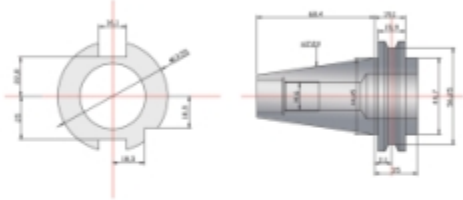


Taper Standard Datas 锥柄标准尺寸图 DIN 69871

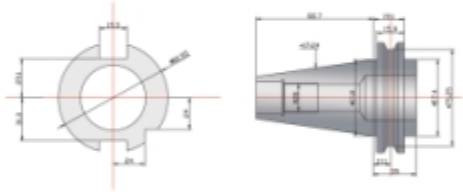
SK30



SK40



SK45



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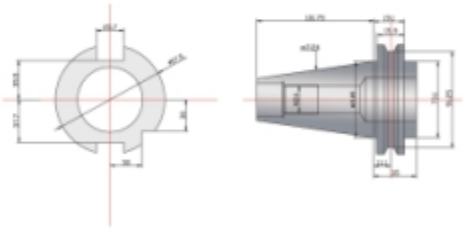

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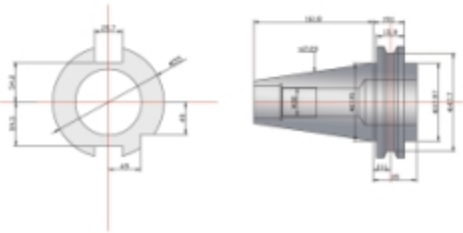

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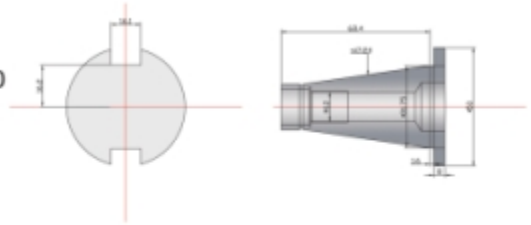

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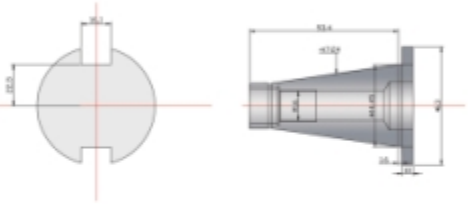

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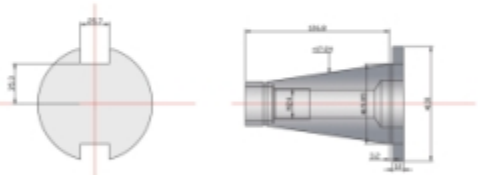

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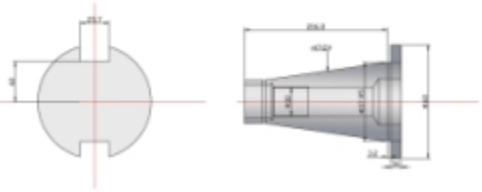
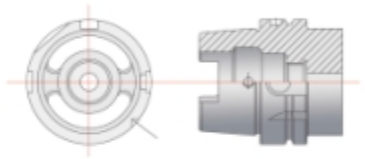


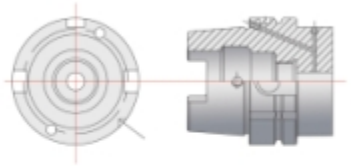
A 型

加工中心和铣床采用的标准刀柄
通过V型槽以及定位槽可实现自动换刀
通过锥柄上的固定孔可实现手动操作
传递扭矩大，适合重切削，中心内冷



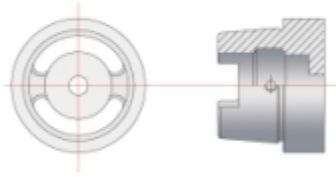
B 型

用于加工中心，铣床，车床
法兰较大，可以更稳固地加工
自动换刀，冷却液通过法兰



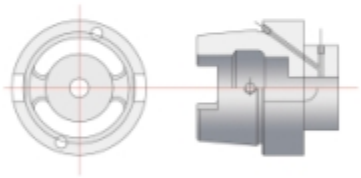
C 型

用于流水线，特殊机床和模块式刀具系统
手动换刀，中心内冷
传递扭矩大，适合重切削



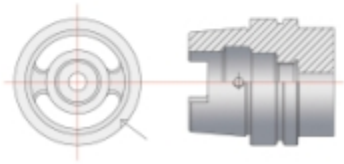
D 型

用于特殊机床
法兰较大，可以更稳固地加工
手动换刀，冷却液通过法兰



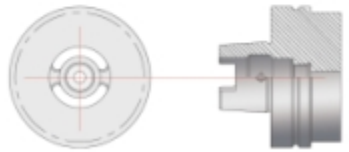
E 型

用于高速加工，中心内冷
通过V型槽以及定位槽可实现自动换刀



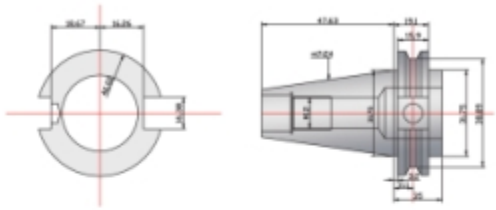
F 型

用于高速加工，木材加工
法兰较大，可以更稳固地加工
自动换刀

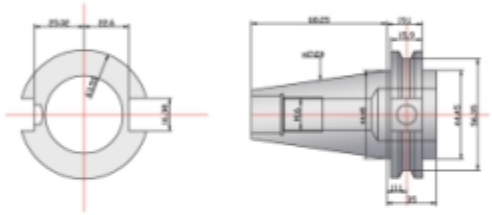


Taper Standard Datas 锥柄标准尺寸图 ANSI B5.50

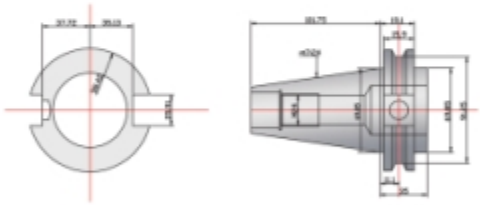
CAT30



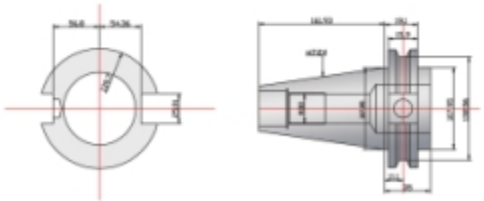
CAT40



CAT50

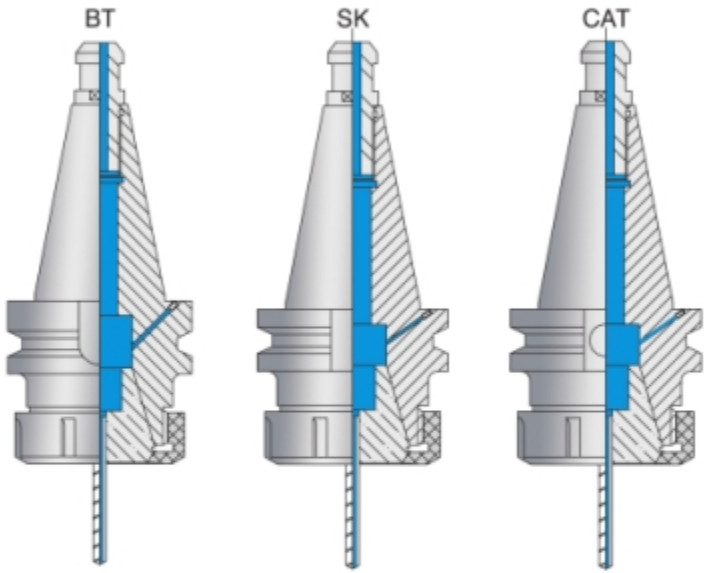


CAT60



AD+B Coolant Tool Holder AD+B 出水型刀柄 MAS 403/DIN69871/ANSI B5.50

Suitable for BT, SK and CAT Tool Holder
适用于BT，SK和CAT刀柄



Set screw to stop coolant, with coolant pull stud, AD type cooling method
锁上侧旁螺丝，用以止水，配通水型拉钉，AD型出水方式

Take out the set screw, pull stud without coolant hole, B type cooling method
取下侧旁螺丝，通过法兰进水，配不通水拉钉，B型出水方式

Take out the set screw, with coolant pull stud, AD+B type cooling method
取下侧旁螺丝，配通水型拉钉，AD+B型出水方式

Balancing Machine 动平衡机

Balancing are made by request
刀柄类产品可根据客户要求进行动平衡

Order Example:11403270 G6.3/15000 100 pcs
Or type model BT40-ER32-50G6.3/15000 100 pcs

Technical details 技术参数

Tool Dynamic 2009	Comfort Plus	Comfort
Dimensions wxhxd [mm]	1100x1500x820	500x1500x820
Weight [kg]	450	450
Spindle speed [rpm]	300-1100	300-1100
Measuring accuracy [gmm]	< 0,5	< 0,5
Power requirements [V/Hz]	230/50-60	230/50-60
Power usage [kw]	0.4	0.4
Compressed air [bar]	6	6
Max. tool length [mm]	400	400
Optional	700	700
Max. tool diameter [mm]	350/380 1)	350/380 1)
Optional	400/425	400/425
Max. tool weight [kg]	30	30

Balancing Grade and Setting 动平衡级别及设置原理

Balancing Grade		G0.4	G1	G2.5	G6.3	G16	G40	G100
"Precision	e×w(mm/s)	0.4	1	2.5	6.3	16	40	100
Required"	e×w(μm×rpm)	3820	9549	23875	60165	152800	38200	954900

Setting of the Balance Series is according to ISO 1940 Standard

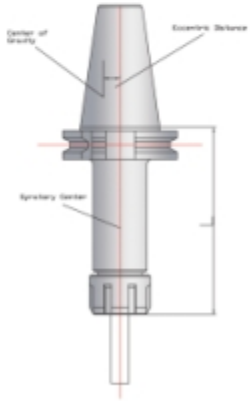
The formula is as follows:

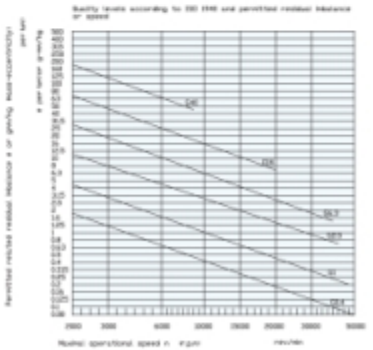
$$U = M \times e$$

$$U = \frac{G \times e}{n} \times 9549$$

$$G = \frac{n \times U}{9545 \times M}$$

G=Unbalance Series
U=Unbalance (g-mm)
e=Eccentric Distance (mm)
M=Rotator Weight (kg)
n=RPM
9549=Constant

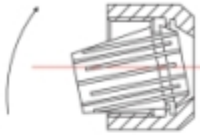




The Tool Dynamic Adantages 刀具动平衡优势

01	Enable the full potential of your machine tool > Higher RPMs > Higher cutting capacity > Better surface finish	能使刀具发挥最大潜能 > 更高的转速 > 更高的切削能力 > 更好的表面光洁度
02	Protect your machine tool > Less vibrations > Lower wear on bearings > Higher spindle life time > Quality control > Preservation of warranty in case of spindle damages	保护刀具 > 更少的震动 > 降低轴承磨损 > 延长主轴寿命 > 控制生产质量 > 保护主轴不受损坏
03	Reduce your machining costs > Less dowtimes > Higher process reliability	降低机床费用 > 更少的停机时间 > 更高的工艺可靠性
04	With balanced tools you save money fourfold > Higher cutting volume > Longer spindle lifetime > Longer tool life > Higher precision at the workpiece	使用动平衡刀柄，优势体现在 > 更高的切削量 > 延长主轴寿命 > 更长的刀具寿命 > 更好的表面加工质量

Mounting Instruction for ER Collets per DIN6499B ER筒夹装卸须知

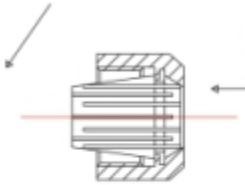


Assembling Collet

Insert groove of the collet into eccentric ring of the clamping nut the mark on the bottom of the nut. Push collet in the direction of the arrow until it clicks in insert tool. Screw nut with collet onto tool holder.

组装筒夹

将筒夹外缘的沟槽依螺母底部的标示放入螺母内。依箭头指示将筒夹推入螺母，直至发出咔嗒一声响，将筒夹及螺母锁至刀杆上。

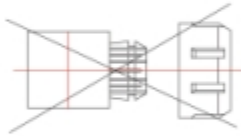


Removing Collet

After the nut is unscrewed from the tool holder, press on the face of the collet while simultaneously pushing sideways on the back of the collet until it disengages from the clamping nut.

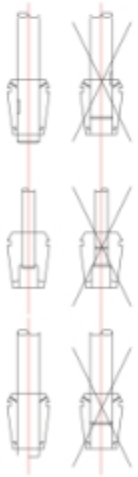
移除筒夹

将螺母从刀杆上松开取下来，依箭头指示轻推筒夹上面，同时从筒夹背部的侧面轻推直至筒夹与螺母分开。



Improper assembly can permanently destroy the comcentricity of the collet and may result in a damaged clamping nut.

不正当的组装方式，长期可能导致筒夹同心度偏离并造成螺母损坏。



NOTE

Only mount nuts with correctly inserted collets!
Never place the collet into the holder without first assembling it into the nut

Never clamp oversize tool shaffs!!
e.g never use a Φ12-11mm collet to clamp a Φ12.2mm shaff. Rather use the next bigger collet (here Φ12.5-11.5mm or Φ13-12mm)

Insert tool the full length of the collet for best results if possible. However never insert tool less than 2/3 of the collet bore length. Improper tool insertion can permanently deform the collet and will result in poor runout.

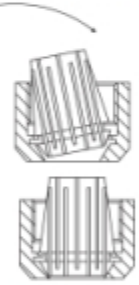
注 意

组装时务必使用正确的筒夹，筒夹需先与螺母组合后再放入刀杆。

请勿使用尺寸过大之刀具。（请勿将12.2mm 的刀具装在12-11mm 筒夹，应该使用更大尺寸的筒夹如12.5-11.5mm 或13-12mm 的筒夹）

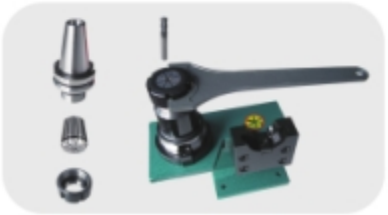
尽可能的将刀具依筒夹口径之长度置入筒夹内，刀具置入筒夹内不可少于筒夹口径长度之2/3。 不正当之组装方式长期可能导致筒夹变形或并且影响精度。

- Mount ER collet chuck firmly according to "HOW TO MOUNT" in this manual. Otherwise, the tool holder might be loosened, which may eventually result in serious bodily injuries or accidents for user.
- Check and confirm the tool is clamped firmly by the tool holder before starting operation. Improper clamping of the tool will cause its abnormal run out, breakage or detaching of tool holder, which may result in serious injuries or accidents for user.
- Please use the proper tool holder to clamp the tool to avoid its abnormal run out and tool dropping off, which may result in serious injuries or accidents for user.
- DO NOT change the tool on the spindle to avoid causing serious accidents and injuries for user due to turning idly in the spindle itself. When idling, please turn power off or press emergency stop.
- DO NOT touch the tool or the tool holder when rotating, otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT manipulate the tool holder before the spindle stops totally. Otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT use tool holder any more if some abnormal conditions, like cracks, breakage or transformation are detected thereon. Otherwise, it may result in serious injuries or accidents for user.
- DO NOT make any repairing, re-assembling nor remodeling on the tool holder. Otherwise, it will cause the weak function or abnormal run out of the tool holder.
- Please operate tool holder under normal and clean usage.
- Please wipe iron filings away before and after operating tool holder. Also it's necessary to do anti-corrosion treatment to ensure the longevity of tool holder.



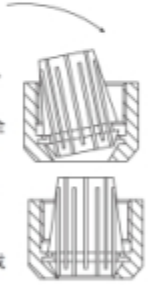
How to Mount

1. Please choose the collet with proper shank of tool holder and make sure if you have wiped the iron filings and dusts away before using it.
2. Please put ER collet into ER nut.
3. Be sure that the groove of collet and the inner of nut match well. (Please refer to the right drawing)
4. Accordingly, put the tool holder into the locking device and fix its direction to avoid shaking fore and after.
5. To lock ER collet and ER nut into the tool holder.
6. To insert the tool into ER collet, For safety, please insert it into the bottom of ER collet or the depth of 2/3.
7. Please use the attached ER wrench to tighten ER nut, thus the tool can be clamped by the tool holder.
8. Please operate the tool holder on the spindle after tightening the tool. If not, the tool drops off and may result in serious injuries or accidents. (The operation of changing the tool directly on universal machine shall not be limited on this instruction. Please follow above steps 1-7)



注 意

- 依据此手册中遵导“装置及固定”之步骤，正确完成装置此刀柄。否则此刀柄松脱可能造成使用者严重的意外伤害。
- 开始操作前，检查并确认刀柄是否确定地夹持住您所使用的刀具。错误的夹持可能产生精度差异、刀柄破损或解体，进而造成使用者严重的意外伤害。
- 请使用适当的工具来夹持刀具，以及使用适当的刀具，以避免精度偏差及因刀具脱落而造成使用者严重地意外伤害。
- 请勿再主轴上更换刀柄上的刀具，以免因夹持力不足而造成使用者严重的意外伤害。（若为在泛用机器上的直接换刀操作，请避免主轴空转。主轴错误回转时，请切断电源，或按下紧急停止按钮，停止运转。）
- 请勿碰触正在转动中的刀柄或刀具，否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 主轴还未完全停止前，请勿操作刀柄；否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 刀柄、筒夹及刀具出现外观破裂、外型损坏或变形等等异常状况时，请勿再继续使用，否则可能造成严重的意外伤害。
- 切勿作任何修复、重组甚至重新改造此刀柄之动作，否则将造成产品机能衰减、精度不良，及引起严重的意外伤害。
- 请在刀柄无污损的状态下使用。
- 请与使用前、后拭净沾粘的铁屑，并作适当的防锈处理，以确保刀柄寿命。



装置固定步骤

1. 请选取与刀具柄径适合的筒夹，使用前请确认是否已清除沾附的铁屑或灰尘。
2. 将ER筒夹及ER压帽配合组装。
3. 确认筒夹凹槽及压帽内部装配是否完全吻合（请参照右图）。若在未完全吻合的情况下使用可能造成刀柄及筒夹损伤。
4. 将刀柄置入锁刀座内，固定好方向避免前后摇晃。（若未在泛用机器上直接换刀使用的情况下，请注意勿使主轴空转或错误运转。）
5. 将压帽及筒夹锁入刀柄。
6. 将欲使用之刀具插入筒夹中。为操作安全，请务必将刀具插入筒夹底端或2/3以上的深度。
7. 使用附属的专用板手锁紧压帽，使刀柄夹持住刀具。
8. 为防止刀具脱落而造成意外伤害，请确保锁紧刀具后再装上主轴使用。

（泛用机器上的直接换刀操作不在此限，请参照步骤1-7。）

- Mount milling chuck firmly according to "HOW TO MOUNT" in this manual. Otherwise, the milling chuck might be loosened, which may eventually result in serious bodily injuries or accidents for user.
- Check and confirm the tool is clamped firmly by the chuck before starting operation. Improper clamping of the tool will cause its abnormal run out, breakage or detaching of the chuck, which may result in serious injuries or accidents for user.
- Please use the Milling Chuck to clamp the tool to avoid its abnormal run out and bits dropping off. Which may result in serious injuries or accidents for user.
- DO NOT change the tool on the spindle to avoid causing serious accidents and injuries for user due to turning idly in the spindle itself. When idling, please turn power off or press emergency stop.
- DO NOT touch the tool or milling chuck when rotating, otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT manipulate the milling chuck before the spindle stops totally, otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT use milling chuck any more if some abnormal conditions, like cracks, breakage or transformation are detected thereon. Otherwise, it may result in serious injuries or accidents for user.
- DO NOT make any repairing, re-assembling nor remodeling on the tool holder, otherwise, it will cause the weak function or abnormal run out of the tool holder.
- Please operate milling chuck under normal and clean usage.
- Please wipe iron filings away before and after operating milling chuck. Also it's necessary to do anti-corrosion treatment to ensure the longevity of tool holder.

HOW TO MOUNT

1. please use the tool with tolerance h7 shank, which keeps the tool and straight collet under the best clamping condition. It not only affects the capacity of the chuck, but also hurst the straight collet and milling chuck itself if using the broken tool.
2. Accordingly, put the tool holder into the locking device and fix its direction to avoid shaking fore and after.
3. Please put the straight collet and the tool into the milling chuck by steps.
4. For safety, please insert the tool into the bottom of collet or the depth of 2/3.
5. Please use the attached hook wrench to tighten the nut with the strength 60-85Nm, Thus the tool holder could maximum the torsion to 1500kg-Cm, do not rotate or knock the nut excessively for fear of the abnormal run out and breakdown.
6. Please operate the milling chuck on the spindle after tightening the tool.(The operation of changing the tool directly on Universal machine shall not be limited on this instruction. Please follow above steps 1-5).

注 意

- 依据此手册 "装置及固定" 的步骤，正确完成装置此刀柄。否则此刀柄松脱可能造成使用者严重的意外伤害。
- 开始操作前，检查并确认刀柄是否确定地夹持住您所使用的刀具。错误的夹持可能产生精度差异、刀柄破损或解体，进而造成使用者严重的意外伤害。
- 请使用适当的工具来夹持刀具，以及使用适当的刀具，以避免精度偏差及因刀具脱落而造成使用者严重地意外伤害。
- 请勿再主轴上更换刀柄上的刀具，以免因夹持力不足而造成使用者严重的意外伤害。（若为在泛用机器上的直接换刀操作，请避免主轴空转。主轴错误回转时，请切断电源，或按下紧急停止按钮，停止运转。）
- 请勿碰触正在转动中的刀柄或刀具，否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 主轴还未完全停止前，请勿操作刀柄；否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 刀柄、筒夹及刀具出现外观破裂、外型损坏或变形等等异常状况时，请勿再继续使用，否则可能造成严重的意外伤害。
- 切勿作任何修复、重组甚至重新改造此刀柄之动作，否则将造成产品机能衰减、精度不良，及引起严重的意外伤害。
- 请在刀柄无污损的状态下使用。
- 请与使用前、后拭净沾粘的铁屑，并作适当的防锈处理，以确保刀柄寿命。为长期保持精度稳定，请与加工完成后，将筒夹及铁刀卸除。

装置固定步骤

1. 请使用公差h7柄径的刀具。刀具与直式筒夹间无任何间隙时可连成夹持的最佳状态。若使用损伤的刀具会影响夹持力，亦可能造成直式筒夹及刀柄的损伤。
2. 先将刀柄置于锁刀座内，柄固定好方向避免前后摇晃。（若为在泛用机器上直接换刀使用的情况下，请注意勿使主轴空转或错误运转。）
3. 请依序将直式筒夹及所需使用之刀具置于刀柄压帽中。
4. 为操作安全，请务必将刀具插入筒夹底端或2/3以上的深度。
5. 使用专用勾头扳手，锁紧压帽，使刀柄夹持住刀具。锁紧刀道约5-8Kg，此时刀柄最大扭力约达1500Kg-Cm。请勿过度旋转或敲击压帽以免影响精度及造成故障。
6. 锁紧刀具后，才可装置于主轴上使用。（泛用机器上的直接换刀操作不在此限，请参照步骤1-5.）

- Mount APU Drill Chuck Holder firmly according to" HOW TO MOUNT" in this manual. Otherwise the holder might be loosened, which may eventually result in serious bodily injuries or accidents for user.
- Check and confirm the drill bit is clamped firmly by the chuck before starting operation. Improper clamping of the drill bits will cause its abnormal run out, breakage or detaching of the chuck, which may result in serious injuries or accidents for user.
- Please use the proper APU Drill Chuck Holder to clamp the drill bits to avoid its abnormal run out and bits dropping off, which may result in serious injuries or accidents for user.
- DO NOT change the tool on the spindle to avoid causing serious accidents and injuries for user due to turning idly in the spindle itself. When idling, please turn power off or press Emergency Stop.
- DO NOT touch the tool or the drill chuck when rotating. Otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT manipulate APU Drill Chuck Holder before the spindle stops totally; otherwise, user might be hauled by the rotating machine, which may result in serious injuries or accidents.
- DO NOT use APU Drill Chuck Holder anymore if some abnormal conditions, like cracks, breakage or transformation are detected thereon. Otherwise, it may result in serious injuries or accidents for user.
- DO NOT make any repairing, re-assembling or remodeling on the holder. Otherwise, it may result in serious injuries or accidents for user.
- Please operate APU Drill Chuck Holder under normal and clean usage.
- Please wipe iron filings away before and after operating APU Drill Chuck Holder. Also, it's necessary to do anti-corrosion treatment to ensure the longevity of this chuck.

How to amount

1. Accordingly, put APU Drill Chuck Holder into the locking device.
2. To rotate the ring to adjust the open and close of three jaws
3. Please put the drill bit into the Holder.
4. Please use the attached hook spanner to rotate the ring to let the drill bit be clamped firmly by the jaws.
5. For safety, please insert the drill bit into the bottom of jaws or the depth of 2/3.
6. Please operate APU Drill Chuck Holder on the spindle after tightening the bit, If not, the bit drops off and may result in serious injuries or accidents.(The operation of changing the bit directly on universal machine shall not be limited on this instruction. Please follow above steps 1-5)

注 意

- 依据此手册中“装置及固定”之步骤，正确完成装置此钻夹头刀柄。否则此刀柄松脱可能造成使用者严重的意外伤害。
- 开始操作前，请检查并确认钻夹头是否确定地夹持住您所使用的钻头。错误的夹持可能产生精度差异、刀柄破损或解体，进而造成使用者严重的意外伤害。
- 请使用适当的钻夹头上的工具，以免因夹持力不足而造成使用者严重的意外伤害。（若为在泛用机器上的直接换刀操作，请避免主轴空转。主轴错误回转时，请切断电源，或按下紧急停止钮，停止运转。）
- 请勿碰触正在转动中的钻夹头或刀具，否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 主轴还未完全停止前，请勿操作此刀柄；否则可能会被正在运转中的机器拖住，造成严重的意外伤害。
- 钻夹头刀柄及刀具出现外观破裂、外型损坏或变形等等异常状况时，请勿再继续使用，否则可能造成严重的意外伤害。
- 切勿作任何修复、重组甚至重新改造此产品之动作，否则将造成产品机能衰减、精度不良，及引起严重的意外伤害。
- 请在刀柄无污损的状态下使用。
- 请与使用前、后拭净沾粘的铁屑，并作适当的防锈处理，以确保钻夹头刀柄的寿命。

装置固定步骤

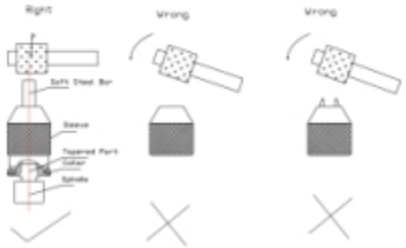
1. 将钻夹头刀柄置入锁刀座内。（若为在泛用机器上直接换到使用的情况下，请注意勿使主轴空转或错误运转。）
2. 旋转驱动环，调整三爪开合。
3. 将所需使用之刀具置入刀柄中。
4. 使用附属勾头扳手旋转驱动环，使爪子夹持住刀具。
5. 为操作安全，请务必将刀具插入夹爪底端或2/3以上的深度。
6. 为防止刀具脱落而造成意外伤害，请确定锁紧刀具后再装上主轴使用。（泛用机器上的直接换刀操作不在此限，请参照步骤1-5。）

Caution

- Mount the chuck firmly according to "How to mount" in this manual. Otherwise, the chuck might be loosened, which may eventually result in serious bodily injuries or accidents.
- Check and confirm that the tool is clamped firmly by the three jaws before starting operation. Improper clamping of the tool will cause its abnormal run out, breakage and/or detaching, which may result in serious bodily injuries or accidents.
- Tighten the chuck strongly by hands In case of chucking a tool of smaller diameter with a chuck of large capacity, the automatic tightening mechanism may fail to function properly, which may cause slipping of the tool and eventually its falling down.
- The chuck can not be used to the CCW rotation. If the chuck is rotated in CCW direction, the tool will be loosened and spin off from the chuck which may cause serious bodily injuries or accidents.
- The chuck can not be used to the machine having an emergency stop mechanism. If the machine spindle stops rotating by such emergency stopping, the tool will be loosened and spin off from the chuck, which may cause serious bodily injuries and accidents. (Use our CNC keyless chuck or dream chuck for the machines having such emergency stop mechanism.)
- Do not touch the chuck or the tool while being rotated. Otherwise, there will be dangers to be caught by the rotating parts of the machine, which can result in serious bodily injuries or accidents.
- Do not manipulate the chuck before complete stop of the spindle. Otherwise, there will be dangers to be caught by the rotating parts of the machine, which can result in serious bodily injuries or accidents.
- Do not use the chuck if some abnormal conditions, like cracks, breakage or transformation are detected thereon. Use of such defective chuck may cause serious bodily injuries or accidents.
- Do not make any repairing, re-assembling nor remodeling on the chuck. Use of such re-worked chuck may cause serious bodily injuries or accidents.

How to mount

1. The tapered part of the chuck must well be cleaned off of oily material, dust and foreign material.
2. The three jaws must be retracted below the level of the chuck nose.
3. The tapered part of the spindle or the arbor must also well be cleaned.
4. Insert the tapered part of the spindle or the arbor into the tapered part of the chuck, taking care not to make any flaws or damages on any of the tapered parts. And drive the chuck by hammering the edge of the soft steel bar with a wooden hammer, taking care not to let the chuck slip off or fall down from the spindle or the arbor.
5. Do not hammer the jaws nor sleeve.



Keyless Drill Chuck Manual 自紧式钻夹头操作须知

ATTENTION

"Easy to operate, Convenience and the Higher safety" are the great advantage of this kind of Drill chuck. When operating this product, you have to read the MANUAL carefully to keep from causing the accidents and promote longevity. Please follow the point as below:
When you operate, the length of holding capacity (L1) shall insert the drill bit to the bottom or at least insert to 2/3 of the length of three jaws (L)

Every kind of specification (Drill chuck) for the length of three jaws (L) & the holding capacity (L) is as follows, please refer to it.

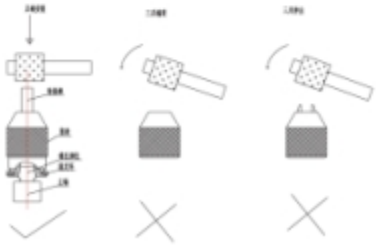
Spec of Drill Chuck	Length of three jaw L(mm)	Holding Capacity L1mm
5/8"(16mm)	30	20
1/2"(13mm)	28	19
3/8"(10mm)	26	17
1/4"(6.5mm)	20	13
1/8"(3mm)	14	9
5/16"(8mm)	26	17

注 意

- 依据此手册中教导“如何装置及固定”之步骤，即可正确地完成装置此夹头；否则，此夹头将会松开，最后可能造成使用者严重地受伤及意外。
- 开始早操前，检查并确认三爪是否紧紧地夹住您所使用的工具。错误的夹持将会产生夹头精度有差异、破损或解体，这样可能造成使用者严重的受伤及意外。
- 用手用力地锁紧夹头，如果使用一个夹持量较大的夹头来夹持一个较小尺寸的工具，则此夹头具有之自动锁紧的装置可能会无法夹持，可能会导致工具滑落最后失败。
- 此夹头于加工时，只可正转，不可逆转；若逆转操作将失去功能，夹持之工具将会松开，且旋出夹头外，则可能造成使用者严重地受伤及意外。
- 此夹头不能使用于有紧急停止装置的机器，如果机器主轴因紧急情况而停止转动，则工具将会松开且旋出夹头外，可能造成使用者严重受伤及意外。
- 勿碰触正在转动中之夹头或工具，否则您将会有危险，会被正在运转中的机器拖住，一定会造成您严重地受伤及意外。
- 主轴还未完全停止前，勿操作夹头；否则您将会有危险，会被正在运转中的机器拖住，造成您严重地受伤及意外。
- 出现某种异常状况下，如：立即察觉外壳破裂、夹头损坏或变形，则勿再使用此夹头，若再使用此种有缺陷夹头，会造成您严重地受伤及意外。
- 切勿作任何再修复、重组甚至重新制造此夹头之动作，若使用这种重制的夹头，会造成您严重地受伤及意外。

“装置固定”步骤

1. 夹头锥部须用防锈油清除干净，避免灰尘及外来的尘埃。
2. 三爪必须缩回至夹头鼻端的水平线之下。
3. 主轴锥部或夹头柄也一定要清干净。
4. 将主轴或夹头柄锥部嵌入夹头之锥部，嵌入时，注意不要伤到锥部或者造成任何裂痕。接着，用木槌击软木棒而降夹头击入，注意勿使夹头从主轴或夹头柄滑落。
5. 勿直接撞打三爪或前套。



注意事项

本产品之最大优点是简单容易操作、快速方便、安全性极高，当使用本产品时，为了减少意外事故发生，延长产品寿命，必须详细阅读操作说明书，并遵守以下列举的基本事项：夹持长度（L1）应将钻头柄插入到底或至少爪长（L）的2/3。

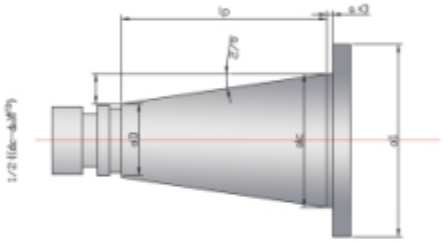
以下为各种规格夹爪长度及夹持量

规　格	夹爪长度L（mm）	夹持量L1（mm）至少
5/8"(16mm)	30	20
1/2"(13mm)	28	19
3/8"(10mm)	26	17
1/4"(6.5mm)	20	13
1/8"(3mm)	14	9
5/16"(8mm)	26	17

刀柄是连接机床和刀具的纽带，对刀柄而言，要检验的参数很多，但最重要的是参数是其锥柄的圆锥角和刀夹部分的圆跳动。

1. 刀柄锥部的圆锥公差

在圆锥公差的标准中，对刀柄的大小端直径、锥长都用严格的公差等级来限定和保证精度。刀具的锥度精度是保证刀柄的锥面与机床主轴壁紧密结合的必要条件，它可以有效阻止和吸收在切削时所产生的振动和阻力，使刀具各部分所承受的切削力均匀一致，从而达到大幅度提高机床主轴和刀具的使用寿命，以及改善工件的表面粗糙度之目的。



刀柄规格	a/2	dC-dD	lp	ATD				
				AT3	AT4	AT5	AT6	AT7
SK30	8° 15'50" 8.29714°	12.25	42	0.002	0.003	0.005	0.008	0.013
SK40		17.208	59	0.003	0.005	0.007	0.012	0.019
SK45		21.292	73	0.003	0.005	0.007	0.012	0.019
SK50		26.833	92	0.004	0.006	0.009	0.015	0.023
SK55		34.125	117	0.004	0.006	0.009	0.015	0.023
SK60		44.333	152	0.005	0.008	0.012	0.019	0.030
SK65		55.709	191	0.005	0.008	0.012	0.019	0.031
SK70		70.292	241	0.006	0.010	0.015	0.024	0.039
SK75		85.75	294	0.006	0.010	0.015	0.024	0.047
SK80		110.542	379	0.008	0.012	0.019	0.030	0.047

Tool Holder Inspection Standard 刀柄检验标准

在图一和表一中表明了DIN7178中规定的SK(BT)系列刀柄AT3至AT7标准的圆锥角公差允许的范围。

a：刀柄后端到大端直径的d1之距离，其公差为±0.2mm，可保证刀柄锥柄的长度精确。

圆锥角公差共分为12个等级公差，用AT1，AT2，AT3…AT12表示，ATD是以长度单位微米来表示的。表明在锥柄C面和D面上的直径差dC-dD的公差。

从表中可以看出，在锥柄C面（大端面）和D面（小端面）上的直径差dC-dD的实测值不容许小于所给的dC-dD数值，而同时也不容许大于dC-dD+ATD。换句话也就是说，锥角的下偏差为零，而锥角的上偏差不容许大于ATD。

例如：对于BT40的AT3而言，其dC-dD应为

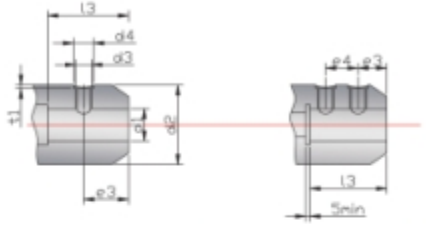
$$17.208 \leq dC-dD \leq 17.208+0.003$$

由于这两边的差值为0.003mm，故称之为锥度精度为0.003mm，即对BT40而言，按照AT3的标准，其锥柄的圆锥角最大偏差不能超过10"。

2. 刀柄刀夹部分的跳动

刀柄另外一个重要的检验参数就是在刀夹部分的圆跳动。它通常是在刀夹端面处测量的。另外一种表达方式是在3XD(5XD)处的圆跳动。后者更接近刀具切削刃处的真实的圆跳动。众所周知，在机加工过程中，尤其是高速切削时，如果刀具的圆周跳动过大，将造成一系列非常不良的后果。比如，刀具磨损过快，工件表面粗糙，还有可能造成振动和主轴损坏等严重后果。

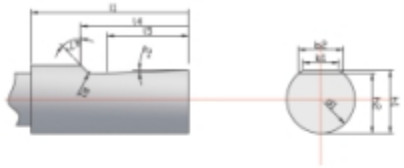
End Mill Holder (DIN1835B)　侧固式刀柄形式



d1	d2	d3	d4	e3	l3	t1
6	25	M6	8	18	35	1.0
8	28	M8	10	18	35	1.3
10	35	M10	12	20	39	1.5
12	42	M12	14	22.5	44	1.6
14	44	M12	14	22.5	44	1.6
16	48	M14	16	24	47	1.7
18	50	M14	16	24	47	1.7
20	52	M16	18	25	49	2.1
25	65	M18×2	20	24	54	2.1
32	72	M20×2	22	24	58	2.2

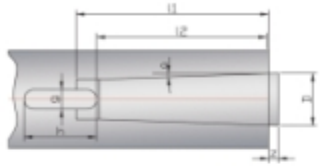
d1	l1	b1	l1	e1	h1
6	36	4.2	-	18.0	5.1
8	36	5.5	-	18.0	6.9
10	40	7.0	-	20.0	8.5
12	45	8.0	-	22.5	10.4
14	45	8.0	-	22.5	12.7
16	48	10.0	-	24.0	14.2
18	48	10.0	-	24.0	16.2
20	50	11.0	-	25.0	18.2
25	56	12.0	17	32.0	23.0
32	60	14.0	19	35.0	30.0

End Mill Holder (DIN1835E)　侧固式刀柄形式



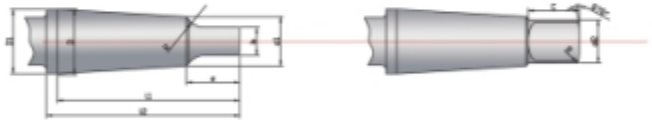
d1	b1(≈)	b2	h1	h2	l1	l4	l5	R1 (min)
6	3.5	4.8	5.4	4.8	36	25	18	1.2
8	4.7	6.1	7.2	6.6	36	25	18	1.2
10	5.7	7.3	9.1	8.4	40	28	20	1.2
12	6.0	8.2	11.2	10.4	45	33	22.5	1.2
16	7.6	10.1	15.0	14.2	48	36	24	1.6
20	8.4	11.5	19.1	18.2	50	38	25	1.6
25	9.3	13.6	24.1	23.0	56	44	32	1.6
32	9.9	15.5	31.2	30.0	60	48	35	1.6

Morse Taper with Tang (DIN228D) 带扁尾莫氏锥柄形式



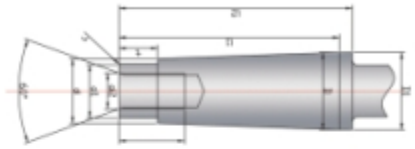
Taper No.	Taper		a°	D	l1(min)	L2	g	h	z	Drill Diameter
MT1	1/20.047	0.04988	1°25'43"	12.065	56	52	5.4	19	1	1
MT2	1/20.020	0.04995	1°25'50"	17.780	67	62	6.6	22	1	1
MT3	1/19.922	0.05020	1°26'16"	23.825	84	78	8.2	27	1	1
MT4	1/19.254	0.05194	1°29'15"	31.267	107	98	12.2	32	1.5	1.5
MT5	1/19.002	0.05263	1°30'26"	44.399	135	125	16.2	38	1.5	1.5

Morse Taper with Tang (DIN228B) 带扁尾莫氏锥柄形式



Taper No.	L2	D1	d1	d2	l1	l2	b	c	e	R	r	Drill Diameter
MT1	12.065	12.240	8.972	8.7	62	65.5	5.2	8.5	13.5	5	1.2	3.00-14.00
MT2	17.780	18.030	14.034	13.5	75	80.0	6.3	10.0	16.0	6	1.6	14.25-23.00
MT3	23.825	24.076	19.107	18.5	94	99.0	7.9	13.0	20.0	7	2	23.25-31.75
MT4	31.267	31.605	25.164	24.5	117.5	124.0	11.9	16.0	24.0	8	2.5	32.00-50.50
MT5	44.399	44.741	36.531	35.7	149.5	156.0	15.9	19.0	29.0	10	3	51.00-76.00

Morse Taper (DIN228A) 无扁尾莫氏锥柄形式



Taper No.	D	D1	d	d1	l1	l2	t	r	d2	k	End Mill Diameter
MT1	12.065	12.240	9.396	9	53.5	57	5	0.2	M6	16	6.00-12.00
MT2	17.780	18.030	14.583	14	64	69	5	0.2	M10	24	14.00-20.00
MT3	23.825	24.076	19.759	19	81	86	7	0.6	M12	28	22.00-36.00
MT4	31.267	31.605	25.943	25	102.5	109	9	1.0	M16	32	32.00-56.00
MT5	44.399	44.741	37.584	25.7	129.5	136	9	2.5	M20	40	40.00-71.00

原 因	对 策	磨损形态
1. 切削角的间歇性加热 2. 切削速度太快 3. 金属切削量太大	1. 使用含TaC较多的耐热材质 2. 使用正让角刀片 3. 增加刀角半径 4. 降低速度进给及切削深度 5. 避免使用冷却液	热裂 (Thermal Crackimg)
1. 切削刀具材质太脆 2. 使用的刀具材质太硬	1. 使用含钴量较高，韧性较高的材质 2. 使用负让角刀片 3. 增加刀角半径 4. 使用较大的刀边Lamd 5. 提高切削速度	微裂 (Chipping)
1. 切削刀具材质太软 2. 加工速度太快	1. 使用较硬，较耐磨耗之刀片材质 2. 降低速度 3. 提高进给 4. 使用冷却液	磨耗 (Excessive Flank Wear)
刮痕通常发生于切削深度的方向通常是工件表面硬化，锈皮或磨损	1. 增加进刀角度 2. 使用较大半径之刀角 3. 降低速度或进给 4. 变化切削深度	刮痕 (Notching)
让该加工材料而言切削速度太慢	1. 提高切削速 2. 使用低摩擦之材质，如TiAlN之镀层材质 3. 使用高润滑性之冷却液	积屑 (Built-Up-Edge)
切削速太快或进给太大	1. 降低切削速度 2. 降低进给 3. 使用较硬的刀具材质 4. 使用高耐热之刀具材质	变形 (Deformation)
温度太高导致屑片焊连在刀角上	1. 使用较硬之刀片材质 2. 降低切削速度 3. 降低进给	凹蚀，倾面 (Crater Wear)

Cause	Countermeasure	Attrition State
1. Intermittent heating on the cutting angle 2. Over-speeding of cutting 3. Over-volume of metal cutting	1. Heat-resistant materials that contain much TaC should be used. 2. Front relief angle blade should be used. 3. Increase the semi-diameter of the knife angle. 4. Slow down the feeding speed and cutting depth. 5. Avoid using coolants	Thermal Crackimg
1. Material for the cutting cutter is too fragile. 2. Material used for the cutter is too hard.	1. Use the materials with higher level of cobalt and tenacity. 2. Use negative relief angle blade. 3. Increase the semi-diameter of the knife angle. 4. Use larger knife edge (Lamd) 5. Increase the cutting speed.	Chipping
1. Material foe the cutting cutter is too soft. 2. Processing speed is to fast.	1. Use harder and more wearing-proof material for the blade. 2. Slow down the speed. 3. Increase the feeding. 4. Use some coolants.	Excessive Flank Wear
Scrape usually occurs to the direction of cutting depth. Case hardening, rusty surface and wearing usually occur to the work piece	1. Increase the blade feeding angle. 2. Use the knife angle with larger semi-diameter. 3. Slow down the speed or feeding. 4. Change the cutting depth.	Notching
The cutting speed is too low for the particular processing material.	1. Increase the cutting speed. 2. Use low-friction materials like the plating material of TiAlN 3. Use the coolants with high lubricant performance.	Built-Up-Edge
The cutting speed is too high or the feeding volume is too much.	1. Slow down the cutting speed. 2. Reduce the feeding. 3. Use harder materials for the cutter 4. Use high heat-resistant materials for the cutter.	Deformation
The scraps are welded in the knife angle due to too high temperature.	1.Use harder materials for the blade. 2.Slow down the cutting speed. 3.Decrease the feeding.	Crater Wear

Recommended Cutting Speed 推荐切削速度

工作材料		热处理（合金）状态	硬 度	TCC410	TCM10	CTC1115	CTC1125	CTC1135	CTC2135
			HB	Vc(m/min)					
A	碳素钢	退火 ≤0.15%C	125	400-520	280-350	250-300	190-240	190-240	-
		退火 0.15%-0.45%C	150-250	350-400	230-270	220-250	170-200	170-200	-
		回火 ≥0.45%	300	300-350	190-240	180-220	130-160	130-160	-
	低合金钢	退火	180	400-440	260-300	250-280	170-200	170-200	-
		退火	250-300	300-360	180-230	170-220	100-160	100-160	-
		回火	350	250-300	140-220	150-200	80-140	80-140	-
	高合金钢	退火	200	310-380	160-200	170-220	130-170	130-170	-
		回火	350	280-400	160-200	120-180	80-130	80-130	-
R	不锈钢	退火 铁素体/马氏体	200	250-320	170-240	150-220	140-180	140-180	140-200
		淬火 奥氏体 austenitic	180	300-350	200-240	-	100-170	100-170	110-190
		淬火 双相型 duplex	230-260	-	-	-	-	-	80-150
		沉淀硬化 马氏体/奥氏体	330	210-250	130-160	-	-	-	55-75
S	耐合金	退火 铁基 Fe-	200	-	-	-	-	-	20-40
		沉淀硬化 铁基 Fe-	280	-	-	-	-	-	15-35
		退火 镍或钴 Ni-/Co-	250	-	-	20-40	-	-	8-25
		沉淀硬化 镍或钴 Ni-/Co-	350	-	-	20-30	-	-	4-15
		铸造 镍或钴 Ni-/Co-	320	-	-	20-30	-	-	4-15
	钛合金	冷硬钛 pure titanium	Rm400	-	-	-	-	-	80-130
			Rm1050	-	-	-	-	-	15-35
F			180	340-380	-	150-220	-	-	-
			260	260-360	-	130-220	-	-	-
			160	360-520	220-300	200-360	-	-	-
			250	300-400	180-250	160-220	-	-	-
			130	330-500	250-350	180-350	-	-	-
			230	180-320	160-250	160-260	-	-	-
N		非硬质	60	-	-	-	-	-	-
		硬化质	100	-	-	-	-	-	-
		非硬质 <12%Si	80	-	-	-	-	-	-
		硬化质 <12%Si	90	-	-	-	-	-	-
		非硬质 >12%Si	130	-	-	-	-	-	-
		黄 铜	-	-	-	-	-	-	-
		青 铜	90	-	-	-	-	-	-
		热硬化塑料	100	-	-	-	-	-	-
		纤维强化塑料	-	-	-	-	-	-	-
		硬 橡 胶	-	-	-	-	-	-	-
H			>45HRC	-	-	-	-	-	-
			>60HRC	-	-	-	-	-	-
			400	-	-	-	-	-	-

Recommended Cutting Speed 推荐切削速度

Gm40	Sr226	S40T	YT798	TN60/TA2000A	KW10/H1	H210T	H10T	ZK10UF	PCD	CBN
Vc(m/min)										
170-240	150-280	80-140	60-120	60-120	-	-	-	-	-	-
150-200	120-200	70-100	60-120	60-120	-	-	-	-	-	-
110-160	100-180	60-100	60-120	60-120	-	-	-	-	-	-
150-200	120-200	60-100	60-120	60-120	-	-	-	-	-	-
80-160	90-160	50-90	60-120	60-120	-	-	-	-	-	-
60-140	80-140	50-80	60-120	60-120	-	-	-	-	-	-
110-170	110-180	60-80	60-120	60-120	-	-	-	-	-	-
60-130	80-140	-	60-120	60-120	-	-	-	-	-	-
120-180	-	50-160	-	-	-	-	-	-	-	-
80-170	-	50-130	-	-	-	-	-	-	-	-
-	-	40-100	-	-	-	-	-	-	-	-
-	-	40-80	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	120-200	-	60-135	165-250	60-130	140-200	120-160	-	-	-
-	120-200	-	40-95	100-155	60-130	100-160	90-140	-	-	-
-	110-200	-	45-115	125-265	60-130	160-200	130-170	-	-	-
-	110-200	-	30-80	90-190	60-130	110-150	90-130	-	-	-
-	100-200	-	45-105	190-250	60-130	160-200	140-200	-	-	-
-	100-200	-	30-80	140-210	60-130	140-180	120-160	-	-	-
-	-	-	-	-	-	300-2500	300-2500	200-1000	1000-2500	
-	-	-	-	-	-	200-2500	200-2000	100-800	1000-2000	
-	-	-	-	-	-	400-2000	400-1500	200-800	1000-1500	
-	-	-	-	-	-	400-1800	400-1500	200-700	1000-1500	
-	-	-	-	-	-	200-1000	200-800	100-600	200-1000	
-	-	-	-	-	-	200-800	200-600	150-300	600-1000	
-	-	-	-	-	-	150-600	150-400	80-150	200-500	
-	-	-	-	-	-	100-220	80-180			
-	-	-	-	-	-	80-200	60-150			
-	-	-	-	-	-	100-250	100-250			180-120
-	-	-	-	-	-					125-160
-	-	-	-	-	-					180-110
-	-	-	-	-	-					

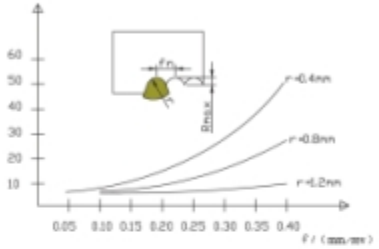
表面粗糙度的理论值Rmax的计算公式

$$Rmax = \frac{fn^2}{8r} \times 1000(um)$$

Rmax=残留面积高度(um)

r=刀尖直径(mm)

fn=没转进给(mm/rev)



表面粗糙度与刀尖半径，进给量的关系表

Rt	Ra	ISO 1302	刀尖半径及进给量 (mm/rev)			
			r=0.4	r=0.8	r=1.2	r=1.6
√Rt100	12.5-25	25	-	0.51	0.69	0.88
√Rt63	6.3-25	12.5	0.27	0.43	0.56	0.68
√Rt40	4.9-6.3	6.3	0.25	0.37	0.49	0.57
√Rt31.5	4.0-4.9	6.3	0.22	0.32	0.41	0.47
√Rt25	2.5-4.0	3.2	0.20	0.28	0.36	0.39
√Rt16	1.6-2.5	3.2	0.15	0.22	0.29	0.31
√Rt10	1.0-1.6	1.6	0.10	0.13	0.18	0.20

根据螺纹尺寸推荐的钻头直径

螺纹直径	钻头直径 mm	螺距 mm
M公制粗牙螺距		
M4	3.30	0.7
M4.5	3.70	0.75
M5	4.20	0.8
M6	5.00	1
M7	6.00	
M8	6.80	1.25
M9	7.80	
M10	8.50	1.5
M11	9.50	
M12	10.20	1.75
M14	12.00	2
M16	14.00	
M18	15.50	2.5
M20	17.50	
M22	19.50	
M24	21.00	3
M27	24.00	
M30	26.50	3.5
M33	29.50	
M36	32.00	4
M39	35.00	
M42	37.50	4.5
M45	40.50	
M48	43.00	5
M52	47.00	
M公制挤压螺纹		
M4	3.70	0.7
M5	4.63	0.8
M6	5.50	1
M7	6.51	
M8	7.40	1.25
M10	9.25	1.5
M12	11.12	1.75
M14	13.00	2
M16	15.00	
M公制细牙螺纹		
钻头直径=丝锥直径-螺距		

螺纹直径	钻头直径 mm	螺距TPI
UNF美制统一细牙螺纹		
UNF NO.6	3.00	40
UNF NO.8	3.50	36
UNF NO.10	4.10	32
UNF NO.12	4.65	28
UNF 1/4"	5.50	
UNF 5/16"	6.90	24
UNF 3/8"	8.50	
UNF 7/16"	9.90	20
UNF 1/2"	11.50	
UNF 9/16"	12.90	18
UNF 5/8"	14.50	
UNF 3/4"	17.50	16
UNF 7/8"	20.50	14
UNF 1"	23.25	12
UNF 1 1/8"	26.50	
UNF 1 1/4"	29.75	
UNF 1 3/8"	33.00	
UNF 1 1/2"	36.00	
UNF美制统一粗牙螺纹		
UNF NO.6	2.85	32
UNF NO.8	3.50	
UNF NO.10	3.90	24
UNF NO.12	4.50	
UNF 1/4"	5.20	20
UNF 5/16"	6.60	18
UNF 3/8"	8.00	16
UNF 7/16"	9.40	14
UNF 1/2"	10.75	13
UNF 9/16"	12.25	12
UNF 5/8"	13.50	11
UNF 3/4"	16.50	10
UNF 7/8"	19.50	9
UNF 1"	22.25	8
UNF 1 1/8"	25.00	7
UNF 1 1/4"	28.25	
UNF 1 3/8"	31.00	6
UNF 1 1/2"	34.00	
UNF 1 3/4"	39.50	5
UNF 2"	45.25	4 1/2

螺纹直径	钻头直径 mm	螺距TPI
RC 英制圆锥管螺纹		
Rc 1/8"	8.40	28
Rc 1/4"	11.20	19
Rc 3/8"	14.75	
Rc 1/2"	18.25	14
Rc 3/4"	23.75	
Rc 1"	30.00	11
G 英制圆柱管螺纹		
G 1/8"	8.80	28
G 1/4"	11.80	19
G 3/8"	15.25	
G 1/2"	19.00	14
G 5/8"	21.00	
G 3/4"	24.50	
G 7/8"	28.25	
G 1"	30.75	11
G 11/4"	39.50	
G 11/2"	45.50	
G 13/4"	51.40	
G 2"	57.20	
NPT 60° 全牙形锥管螺纹		
NPT 1/16"	6.10	27
NPT 1/8"	8.50	
NPT 1/4"	11.00	18
NPT 3/8"	14.50	
NPT 1/2"	17.80	14
NPT 3/4"	23.00	
NPT 1"	29.00	11 1/2
NPT 11/4"	37.50	
NPT 11/2"	44.00	
NPT 2"	56.00	
NPTF 60° 全牙形锥管螺纹		
NPTF 1/16"	6.00	27
NPTF 1/8"	8.40	
NPTF 1/4"	10.90	18
NPTF 3/8"	14.25	
NPTF 1/2"	17.75	14
NPTF 3/4"	23.00	
NPTF 1"	29.00	11 1/2
NPTF 11/4"	37.75	
NPTF 11/2"	43.75	
NPTF 2"	55.75	

★TPI=每英寸螺纹扣数

丝锥柄部方头尺寸

ISO					JIS				DIN				
a柄部尺寸			丝锥型号		a柄部尺寸			丝锥型号	柄部尺寸			丝锥型号	
d	a	l	ISO529(1)	ISO529(2) SIO2283	d	a	l	JISB4430(3)	d	a	l	DIN371(4)	DIN374(5) DIN376
2.24	1.80	4		M3.0	3.00	2.50	5	M1.0-M2.6	2.50	2.10	5	M1-M1.8	M3.5
2.50	2.00		M1-M2	M3.5	4.00	3.20	6	M3.0-M3.5	2.80	2.10		M2-M2.5	M4.0
2.80	2.24	5	M2.2-M2.6		5.00	4.00	7	M4.0-M4.5	3.50	2.70	6	M3	M4.5-M5
3.15	2.50		M3.0	M4.0	5.50	4.50		M5.0	4.00	3.00		M3.5	
3.55	2.80		M3.5	M4.5	6.00			M6.0	4.50	3.40		M4.0	M6.0
4.00	3.15	6	M4.0	M5.0	6.20	5.00	8	M7.0-M8.0	6.00	4.90	8	M4.5-M6	M8.0
4.50	3.55		M4.5	M6.0	7.00	5.50		M9.0-M10	7.00	5.50		M7.0	M10
5.00	4.00	7	M5.0		8.00	6.00	9	M11	8.00	6.20	9	M8.0	M12
5.60	4.50			M7.0	8.50	6.50		M12	9.00	7.00	10	M10	
6.30	5.00	8	M6.0	M8.0	9.50	7.00	10	M10-M11	10.00	8.00	11		
7.10	5.60		M7.0	M9.0	10.50	8.00	11	M14	11.00	9.00	12		M14
8.00	6.30	9	M8.0	M10-M11	12.50	10.00	13	M16	12.00	9.00			M16
9.00	7.10	10	M9.0	M12	14.00	11.00	14	M18	14.00	11.00	14		M18
10.00	8.00	11	M10		15.00	12.00	15	M20	16.00	12.00	15		M20
11.20	9.00	12		M13-M15	17.00	13.00	16	M22	18.00	14.50	17		M22-M26
12.50	10.00	13		M16-M17	19.00	15.00	18	M24	20.00	16.00	19		M27
14.00	11.20	14		M18-M21	20.00			M27	22.00	18.00	21		M29-M32
16.00	12.50	16		M22-M23	23.00	17.00	20	M30	25.00	20.00	23		M33
18.00	14.00	18		M24-M26	25.00	19.00	22	M33	28.00	22.00	25		M34-M38
20.00	16.00	20		M27-M30	28.00	21.00	24	M36	32.00	24.00	27		M39-M42
22.40	18.00	22	-	M31-M33	30.00	23.00	26	M39	36.00	29.00	32		M44-M50
25.00	20.00	24		M36	32.00	26.00	30	M42	40.00	32.00	35		M52
28.00	22.40	26		M37-M42					45.00	35.00	38		M55-M60
31.50	25.00	28		M44-M50									
35.50	28.00	31		M52-M56	-	-	-	-	-	-	-		-
40.00	31.50	34		M58-M65									
45.00	35.50	38		M66-M75									

双刃镗刀推荐切削参数

主偏角	镗孔尺寸	刀片	推荐切深 ap(mm)	最大切深 ap(mm)	钢	不锈钢	铸铁	有色金属
Kr=80° 	32-70	SCMT09T308	0.5-2.5	4.5	-			
		SCMT09T308	0.5-2.0	3.0		-		
		SCMT09T308	0.5-3.0	5.0			-	
		SCMT09T308	0.5-3.0	5.0				-
	70-230	SCMT120408	0.5-3.5	6.5	-			
		SCMT120408	0.5-2.5	4.5		-		
		SCMT120408	0.5-4.0	7.0			-	
		SCMT120408	0.5-4.0	7.0				-
Kr=90° 	20-24	CPMT050204	0.5-1.0	2.0	-			
		CPMT050204	0.5-0.8	1.5		-		
		CPMT050204	0.5-1.5	2.5			-	
		CPMT050204	0.5-1.5	2.5				-
	23-27	CCMT060204	0.5-1.5	3.0	-			
		CCMT060204	0.5-1.0	1.5		-		
		CCMT060204	0.5-2.0	3.0			-	
		CCMT060204	0.5-2.0	3.0				-
	46-70	CCMT09T308	0.5-2.0	4.0	-			
		CCMT09T308	0.5-1.5	2.5		-		
		CCMT09T308	0.5-2.5	4.5			-	
		CCMT09T308	0.5-2.5	4.5				-
	70-230	CCMT120408	0.5-3.0	6.0	-			
		CCMT120408	0.5-2.0	4.0		-		
		CCMT120408	0.5-3.5	6.5			-	
		CCMT120408	0.5-3.5	6.5				-

精镗刀推荐切削参数-ZMAC-MBQ-MBZ

镗孔直径	最佳条件下		极限条件下	
	ap(mm)	f (mm/rev)	ap(mm)	f (mm/rev)
Φ20-Φ25	0.1-0.2	0.07-0.07	0.75	0.1
Φ25-Φ32	0.1-0.2	0.05-0.07	1.0	0.1
Φ32-Φ42	0.1-0.2	0.05-0.08	1.0	0.2
Φ42-Φ55	0.1-0.25	0.05-0.08	2.0	0.2
Φ55-Φ70	0.1-0.25	0.05-0.08	2.0	0.2
Φ70-Φ85	0.1-0.4	0.05-0.10	2.0	0.25
Φ85-	0.1-0.4	0.05-0.10	2.0	0.25

钻、铰刀具切削参数推荐表

浅孔钻推荐切削参数

工件材料	Φ21-Φ23	Φ24-Φ29	Φ30-Φ42	Φ38-Φ53
	f（mm/rev）			
钢	0.05-0.12	0.08-0.12	0.08-0.15	0.10-0.25
不锈钢	0.05-0.12	0.08-0.14	0.10-0.16	0.10-0.18
铸铁	0.06-0.14	0.10-0.18	0.12-0.20	0.15-0.22

浅孔钻推荐切削参数

		工作材料									
		铸钢 中低碳钢		不锈钢 耐蚀耐热钢		灰口铸铁 可锻铸铁		有色金属		镍基高温合金	
直径		Vc(m/min)	f(mm/rev)	Vc(m/min)	f(mm/rev)	Vc(m/min)	f(mm/rev)	Vc(m/min)	f(mm/rev)	Vc(m/min)	f(mm/rev)
定心钻	10-20	40-55	0.05	20-40	0.05	40-60	0.20	70-120	0.20	12-15	0.10
整体合金直槽钻	3-4	不推荐使用		不推荐使用		40-60	0.05	70-120	0.05	不推荐使用	
	4-10						0.12		0.15		
	10-14						0.20		0.20		

整体硬质合金铣铰刀推荐切削参数

	碳钢			合金钢			铸铁			有色金属		
刀具材料	MG18						ZK10UF					
螺旋角	30°	45°	60°	30°	45°	60°	30°	45°	60°	30°	45°	60°
切削速度V（m/min）	15-30			5-20			18-45			70-100		
进给量 fz（mm/z）	0.13-0.25			0.05-0.15			0.1-0.3			0.05		
单边切深（mm）	0.1-0.2			0.05-0.15			0.1-0.2			0.2-0.8		

注：1. 螺旋角选取：余量偏大时，螺旋角选小；余量偏小时，螺旋角选大

2. 冷却液：水基切削液

09

PRECISION MACHINING

Capabilities 加工能力及范围

Machining Capability

- Precision machining of small and medium sized components using conventional as well as CNC machines
- Drilling
- Turning
  - CNC turning of highly precise small and medium components – up to 0.001mm accuracy
  - Capability to turn components Diameter within 350mm, length up to 500mm
- Milling
- Grinding
  - ID grinding, OD grinding and Surface grinding

生产加工能力

- 中小件精密加工
- 钻
- 车
  - 高精度数控车床，精度可高达0.001mm
  - 最大加工直径350mm，长度800mm
- 铣
- 磨
  - 内孔，外圆，端面

Engineer Capability

- Engineering, Process planning
- Manufacturing process plan
- Conceptualization of jigs and fixtures as per process plan
- Validation of jigs and fixtures
- Thorough reviews before production
- Routing
- Process plan along with planning for Tools & Gauges
- Preparation of manufacturing drawings
- Our own drawings used for manufacturing to maintain uniformity on shop floor

工程师技能及职责

- 审图，生产工艺初步编排
- 初步工装设计
- 确定生产工装及工具等
- 生产前全面审核工艺
- 确定生产路线图
- 工装制作及准备相关工量具
- 准备生产图纸
- 重新画图，保证车间工人生产图纸的一致性

Heat Treatment

Engineers capable of designing heat treatment cycles for Annealing, Normalizing, Hardening (surface & precipitation), tempering, carburizing, etc.

热处理

工程师有能力编排热处理相关工艺， 如退火、正火、淬火、回火、调质、渗碳等。

Surface Treatment

Zinc / Chrome / Nickel Plating, Shot blasting, acid cleaning, Phosphating, Painting in controlled atmosphere with fast drying, etc.

表面处理

电镀（镀锌/镍/铬等），喷砂，酸化，磷化，喷漆等。

Machining Services Procedure 机械加工下单程序

- Latest drawings and/or product samples are required before quotation, other information is also required (purchase quantity, delivery time, etc).
- Discuss the basic and unique quality requirements, in order to make all perfect.
- Calculate the cost and quote the competitive price for YOU.
- If necessary, redraw the design and assign the task.
- MANUFACTURING
- Production quality assurance during the whole process.
- Final QC and package.
- Shipment
- Customers' documents & logistics.

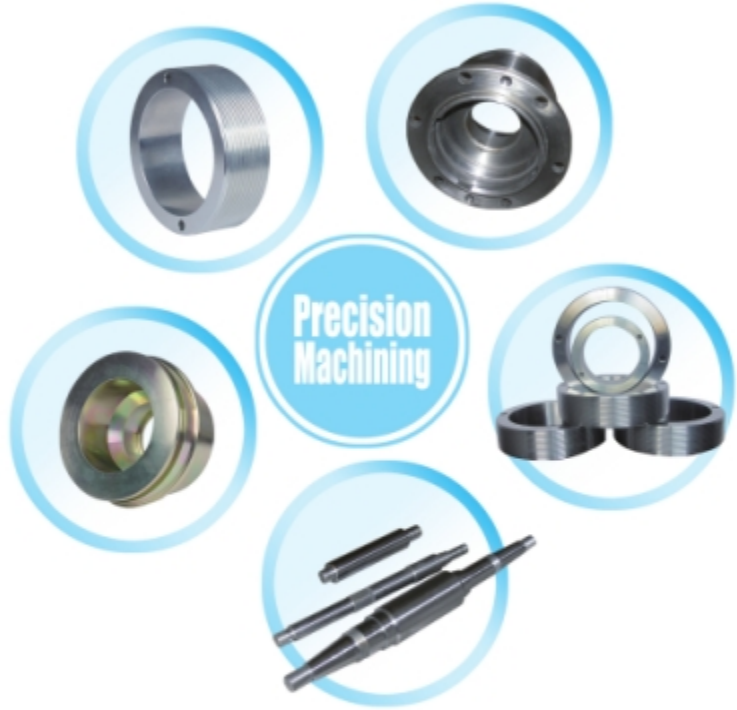
- 客户提供最新图纸或样品、采购量和交货期等以便报价
- 协商产品质量要求等细节问题
- 计算成本，报价
- 必要的话，重画图纸，下生产任务单
- 开始生产
- 生产过程中质量控制
- 终检，包装
- 发货
- 提供客户需要的文件资料，如箱单发票等。

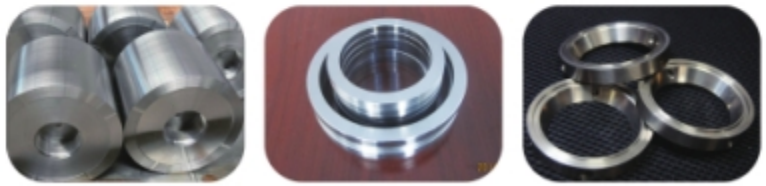
Manufacturing Machines 生产设备

- CNC Processing Center
- Numerical Control Lathe
- Semi-CNC Turning Machine
- Turning Machine
- CNC Milling Machine
- Milling Machine
- High-speed Grinding Machine
- Cylindrical Grinding Machine
- Internal Grinding Machine
- Drilling and Milling Machine
- Drilling Machine
- Inspection Machines and Tools

- 数控加工中心
- 数控车床
- 半数控车床
- 普通车床
- 数控铣床
- 普通铣床
- 高速磨床
- 外圆磨床
- 内圆磨床
- 钻铣床
- 钻床
- 检测设备及工具等

Manufacturing Shops and Machines 生产设备及车间图片展示


Precision
Machining



Turning

- Turing application

In the lathe use different lathe tools or other tools, can process kinds of rotary surface, such as internal and external cylindrical surface, internal and external circular conical surface, thread, groove, head face and shape face.

- Turing character
  - Easy to keep the position precision of processing parts
  - Cutting process is much stable so that it can avoid inertial force and impact. It can allow large cutting dosage, high-speed cutting, and improve the productivity.
  - Used for non-ferrous metal finish machining.
  - Simple cutting tools

车

- 车削应用

在车床使用不同的车刀或其他刀具，可以加工各种回转表面，如内外圆柱面、内外圆锥面、螺纹、沟槽、端面和成形面等

- 车削特点
  - 易于保证工件各加工面的位置精度
  - 切削过程较平稳避免了惯性力与冲击力，允许采用较大的切削用量，高速切削，利于生产率提高。
  - 适于有色金属零件的精加工
  - 刀具简单

Milling

- Main process object
  - Plane parts
  - Surface parts
- Milling character
  - Milling cutters involve in the discontinuous cutting periodically
  - The thickness of cutter tooth is changeable in the cutting process.
  - Each teeth feeding express the workpiece relative displacement during the period that milling cutter turned one teeth.

铣

- 主要加工对象
  - 平面类零件
  - 曲面类零件
- 铣削的特征
  - 铣刀各刀齿周期性地参与间断切削
  - 每个刀齿在切削过程中的切削厚度是变化的。
  - 每齿进给量（毫米/齿）表示铣刀每转过一个刀齿的时间内工件的相对位移量

Main Machining Procedure 主要机加工步骤简介

Drilling

- Drilling definition

Drilling is one of the basic methods of hole drilling. Hole drilling is often used in drilling and turning machine, also can be used in boring and milling machine. The most widely used drilling machines are table drilling machine, vertical machine and radical drilling machine.

- Drilling application

Drilling is mainly used in rough processing, such as screw hole which accuracy and roughness is not very strict, oil hole and threaded herein. While for the high precision and roughness hole, drilling is often used as pre-processing.

钻削

- 钻削概念

钻削是孔加工的一种基本方法，钻孔经常在钻床和车床上进行，也可以在镗床或铣床上进行。常用的钻床有台式钻床、立式钻床和摇臂钻床。

- 钻削特点

钻孔主要用于粗加工，例如精度和粗糙度要求不高的螺钉孔、油孔和螺纹底孔等。但精度和粗糙度要求较高的孔，也要以钻孔作为预加工工序。

Grinding

- Grinding Classification
  - Cylindrical grinding
  - Internal grinding
  - Flat surface grinding
  - Centerless grinding
- Processing range
  - Grinding machine can process high hardness material, such as hardened steel, hard alloy
  - Process fragile material such as glasses and granite.
  - Process high accuracy and roughness grinding.
  - High efficiency grinding such as power grinding.

磨削

- 磨削分类
  - 外圆磨削
  - 内圆磨削
  - 平面磨削
  - 无心磨削
- 加工对象
  - 磨床可以加工硬度较高的材质如淬硬钢，硬质合金。
  - 加工脆性材料如玻璃，花岗岩。
  - 磨床可做高精度和表面粗糙度很小的磨削。
  - 做高效率的磨削，如强力磨削。