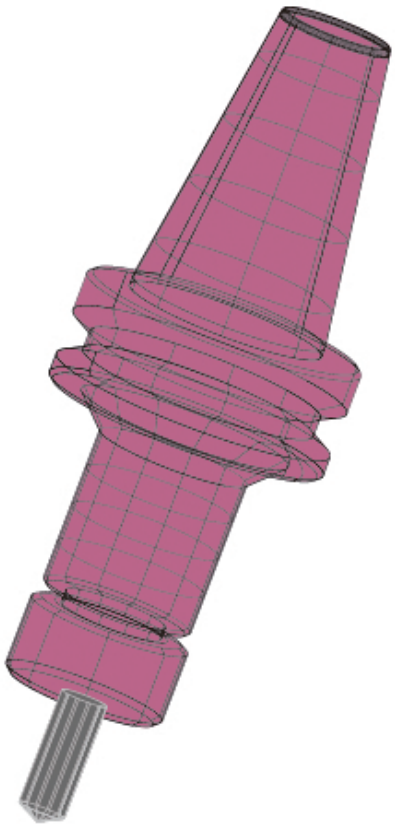
MST

TOOLING SYSTEM

General Catalog



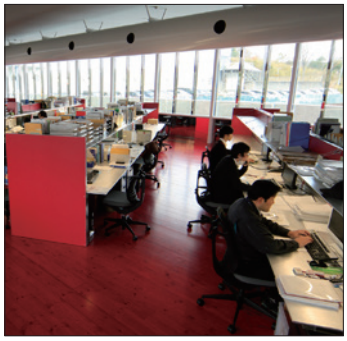
MST corporation

Vol. 5
2501

Individuality and creation

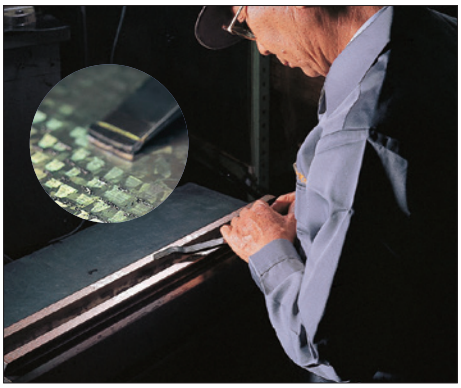
Since its inauguration in 1937, MST has been developing new products with forward-looking creativity. We have a basic philosophy of "Personality and Creation", and we pursue of originality and try to improve brand value as we strive to meet the needs of our customers.




■ Fusing humans and machines

By fusing the automated machining proceses and by-hand processes at a high level, we are aiming to produce even higher quality products.

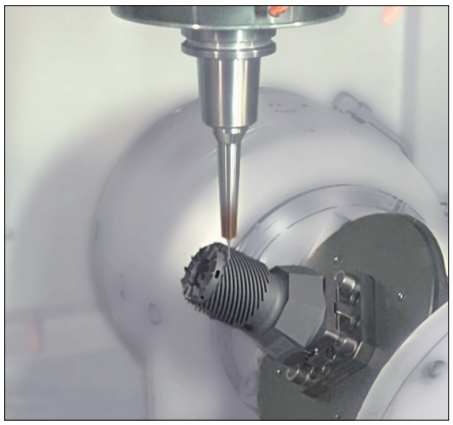


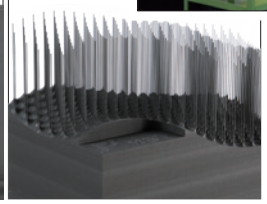



Partnering with Our Customers

We have been developing new processing technologies through our knowledge and the experience we've accumulated over the years, and we are able to offer contract manufacturing to our customers.

■ Graphite Machining



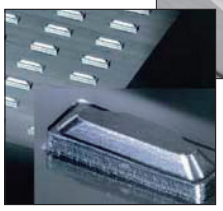


Thailand factory

Contract manufacturing of graphite electrodes We are able to provide our customers with high-quality, short lead- time, high-volume production with our state-of-the-art equipment and production system.

■ Metal component manufacturing

Integrated production / Stable supply



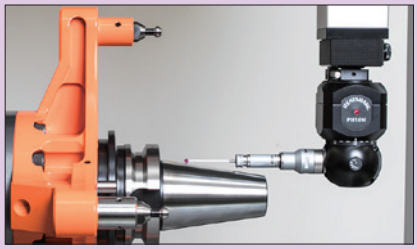
We meet our customers' needs by utilizing the micron-level processing technology we have cultivated over many years as a tool holder manufacturer.

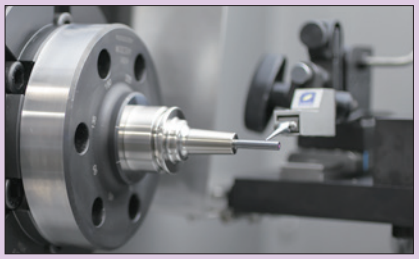
RELIABLE TOOLING

MST's tooling is subject to its own MST's 4 accuracy standards: taper contact, roundness, surface roughness and heat treatment. These are more precise than JIS or MAS standards. We provide trustworthy products under strict quality control.

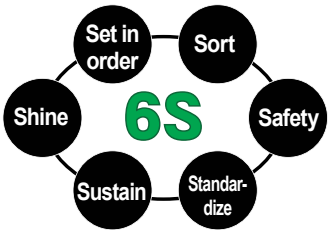
● MST's 4 accuracy standards.

1 Taper contact		%	90
2 Roundness		μm	0.8
3 Surface roughness (Rmax)		μm	0.6
4 Heat treatment	Material		SCM415
	Carburized depth	mm	0.8 ~1.0
	Hardness	HRC	55° ± 2°

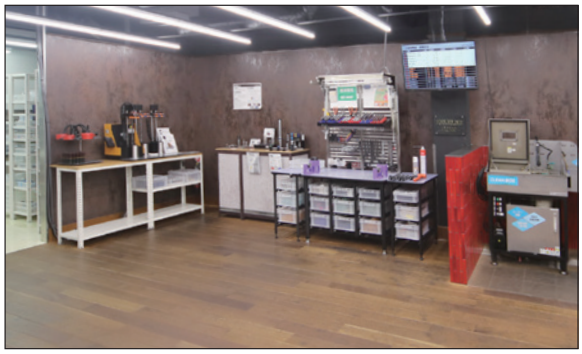




6S activity



In order to maintain a good factory environment, MST Corporation is engaging in 6S activities that add "safety" to 5S activities of "Sort", "Set in order", "Shine", "Standardize" and "Sustain". By having each individual implement improvements to the work environment, we are achieving improvements in quality and production efficiency, as well as cost reduction.



Centralized management of cutting tools and holders in tool room

Inspection for cutting tool wear

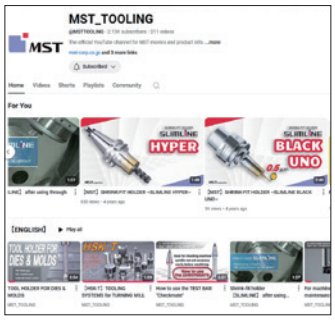
Periodic cleaning of the coolant tank

Digital education materials

We are engaged in in-house production of various educational materials to promote products and support customers.

Video operation manual

Downloading catalogs and drawings



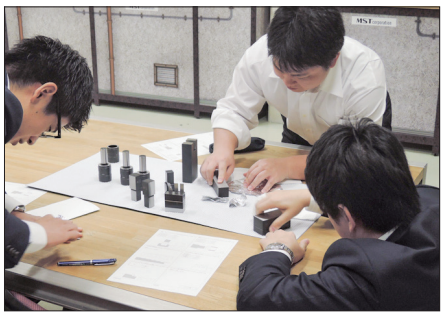
Posting on SNS

MST factory tour

The offices and factories at MST Corporation are a "LIVE SHOWROOMS".
We can customize the tour content to suit your needs, during which we will show you a wide variety of machine centers, our process integration, automated and unmanned operations, working environment improvements, and employee training system.

Automated / unmanned operated factory

Live machine demonstration

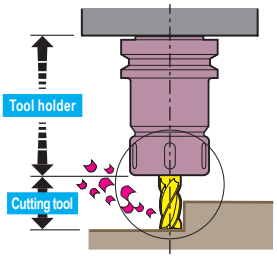


Experience program

Master Index

For High-accuracy, and High-efficiency machining 6 Points

1 The shortest
As short as possible



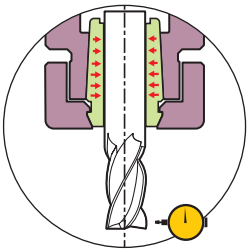
Length becomes **2** times

↓

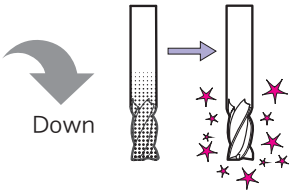
Deflection becomes **8** times

Deflection amount is proportional to projection length^3.

2 Selection
Choose a tool holder that can clamp a cutting tool securely and with high accuracy.

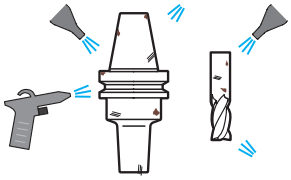


3 Quality
Do not use worn cutting tools.



Replace!

4 Cleanliness
Clean your tool holders and cutting tools.

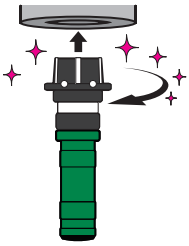


Cutting chips and oil are
your main enemies.

Use a tool holder washing machine,

CLEAN BOX!

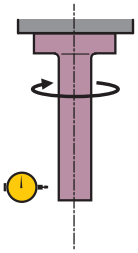
5 Cleanliness
Clean the machine spindle tapered hole.



For a spindle taper hole
CLEANING TOOL

STAR DUST!

6 Accuracy
Machine spindle run-out accuracy should be within 10 microns (.0004").



Check
the spindle condition

Use a test bar for dedicated machine spindle maintenance,

CHECKMATE!

Tool holder washing machine

CLEAN BOX
Washes tool holders, collets, nuts and cutting tools thoroughly to maintain their high accuracy.

➔P.94

CLEANING TOOL

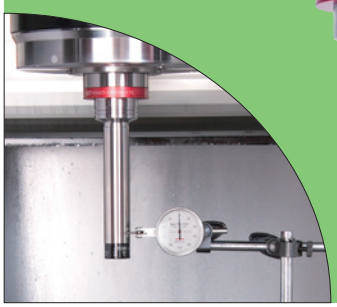
STAR DUST
Achieves high-precision machining by cleaning the machine spindle tapered hole.

➔P.97

TEST BAR

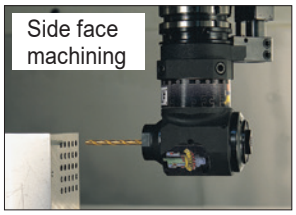
CHECKMATE
Ideal for easy machine spindle run-out accuracy checks.

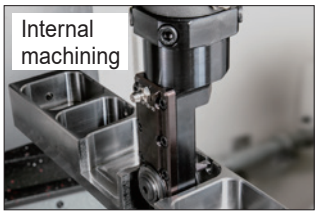
➔P.98

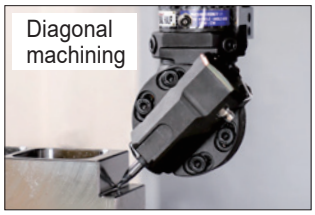


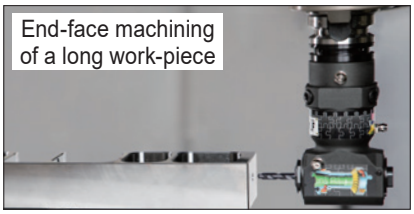
ANGLE HEAD

You can carry out 5-surface machining, such as side face and inside surface, without needing to change the positioning of the work-piece.









Voluminous variety

■ New concept Angle head HALF for drilling and tapping applications

Affordable • Short delivery • Lightweight!

Type	Angle	MODEL	Application	Chucking range (ϕD)		MAX. (min-1) [Main spindle : Angle shaft]	ATC	(Typical holder)
90°type ➔P.8	90°	HFCS6	Drill Endmill	ϕ3, 4, 6	FCS6	5680:5000 [1 : 0.88]	○	1.8
		HFD 7		ϕ1 ~ 7	D 7	6000:6000 [1(CCW):1(CW)]		
		HFD12		ϕ2.5 ~ 13	D12	4000:4000 [1(CCW):1(CW)]		2.9
		HFA10		ϕ2.4 ~ 10	C10	6000:6000 [1(CCW):1(CW)]		1.8
		HFA20		ϕ5.8 ~ 20	C20	6000:5000 [1(CCW):0.83(CW)]		4.4
		HFCS6	Tap	M4, 5, 6	FCS6	5680:5000 [1 : 0.88]		1.8
		HFT 4		M2 ~ 8	TA4	6000:6000 [1(CCW):1(CW)]		2.3
		HFT 6		M3 ~ 12	TA6	4000:4000 [1(CCW):1(CW)]		2.9
		HFT12		M3 ~ 16	TA6/12	6000:5000 [1(CCW):0.83(CW)]		4.4
UNIVERSAL type (Free setting of cutting directions) ➔P.11	0° ~ 120°	HUD 7	Drill Endmill	ϕ1 ~ 7	D 7	6300:3000(BT30:7200:4000) [1(CW):0.48(CW)][BT30:1(CCW):0.56(CW)]	○	1.8
		HUA10		ϕ2.4 ~ 10	C10	6300:3000 [1(CW):0.48(CW)]		3.9
		HUA20		ϕ5.8 ~ 20	C20			4.8
		HUT 4	Tap	M2 ~ 8	TA4	6300:3000 (BT30:7200:4000) [1(CW):0.48(CW)][BT30:1(CCW):0.56(CW)]		3.8
		HUT 6		M3 ~ 12	TA6	6300:3000 [1(CW):0.48(CW)]		4.8

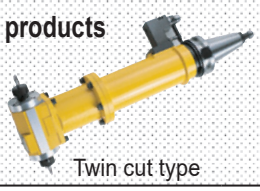
mini type ➔P.10

■ High-rigidity STANDARD type

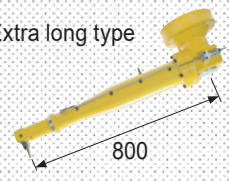
(※Use the BT30 tooling system with the Quick Change system.)

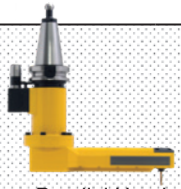
MODULAR type (Recombination type) ➔P.15	90°	AHB 5	Drill Endmill	ϕ0.5~ 5	ER8	6000:6000 [1(CCW):1(CW)]	○	5.5
		AHB 7		ϕ0.5~ 7	ESX12			5.3
		AHB10		ϕ2.4~10	C10			6.2
	45°	AHC10	Drill Endmill					
SOLID type ➔P.16	90°	AHA20	Drill Endmill	ϕ5.8~20	C20	3000:2430 [1(CCW):0.81(CW)]	○	7.3
		AHA25		ϕ5.8~25	C25	2500:2400 [1(CCW):0.96(CW)]		13.6
		AHD30		BT30※	BT30			14.7
FLANGE type (Mounting directly on machine spindle) ➔P.17	90°	AHA20	Drill Endmill	ϕ5.8~20	C20	3000:2430 [1(CCW):0.81(CW)]	×	18.0
		AHA25		ϕ5.8~25	C25	2500:2400 [1(CCW):0.96(CW)]		18.5
		AHD30		BT30※	BT30			19.6
UNIVERSAL type (Free setting of cutting directions) ➔P.18	0° ~ 90°	AHU10	Drill Endmill	ϕ2.4~10	C10	3000:4500 [1(CW):1.5(CW)]	○	9.6
		AHU20		ϕ5.8~20	C20	3000:3000 [1(CW):1(CW)]		15.8

Custom-made products ➔P.19


Twin cut type

Extra long type




Parallel Head

Slim and extended type

ANGLE HEAD HALF

PAT.

Affordable 2,300USD~ | Speedy Shorter delivery | Lightweight 1.8kg~ | Compact φ36~ | Repair it yourself

Drilling and tapping account for 80% of angle head operation.

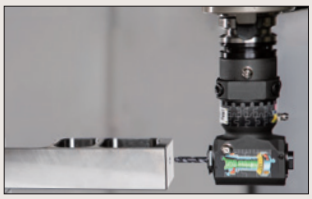
The Angle Head HALF was redesigned to achieve the necessary rigidity and accuracy, it allows;

AFFORDABLE (Price : 1/2)

QUICK DELIVERY (Lead Time : 1/2)

LIGHTWEIGHT (Weight : 1/2)

NEW CONCEPT



90° type

BT30/40/50
HSK-A63
DIN40/50,
CAT.40/50

HFD / HFA
φ1~20mm

HFT
M2~16

mini type

Extra-compact head

BT30/40/50
DIN40/50
CAT.40/50

HFCS
φ3,4,6mm
M4,5,6

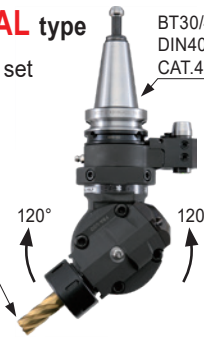
UNIVERSAL type

Angle can be set arbitrarily

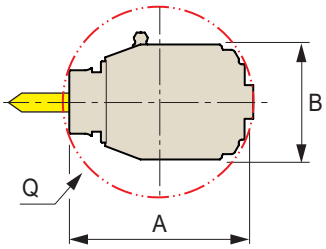
BT30/40/50
DIN40/50
CAT.40/50

HUD / HUA
φ1~20mm

HUT
M2~12



Compact design



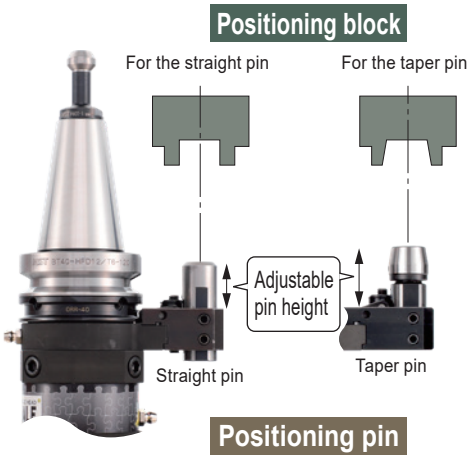
Type	MODEL	Q	A	B
90° type	HFD 7	72	68	38
	HFD12	98	93	58
	HFT 4	75	73	38
	HFT 6	97	92	58
	HFA10	90	87	38
	HFA20	119	111	64
	HFT12	97	96	64
		116	115	
mini type	HFCS6	36	31.5	31

Auto Tool Changer (A.T.C) is available on BT30 machine.

BT30
1.8kg

Easy installation

The positioning pin allows an in-use positioning block to be used is now a standard feature.
Can be used with a variety of machining centers.

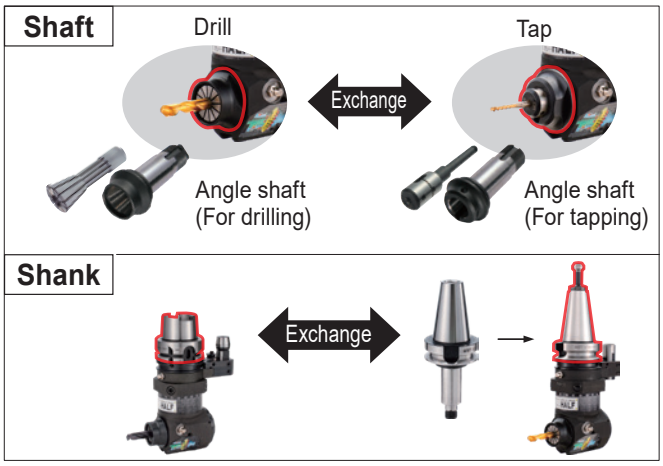


Easy disassembly and assembly

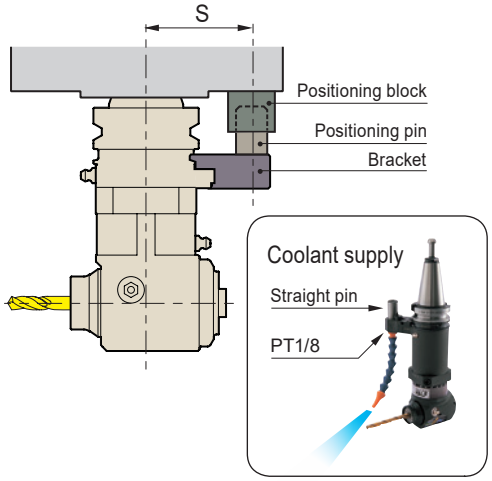
- The number of parts (22 pcs.) is half that of conventional angle heads.
- No need for fine matching and adjustment.
- Makes use of commercial items such as bearings. Affordable and readily available.
- An informative video and an instruction manual for disassembly and reassembly are provided.

Running cost is reduced by 90% as a result of reduced repair costs and machine down time.

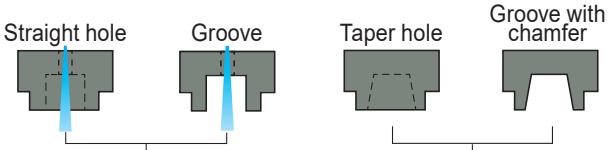
Easy to reassemble



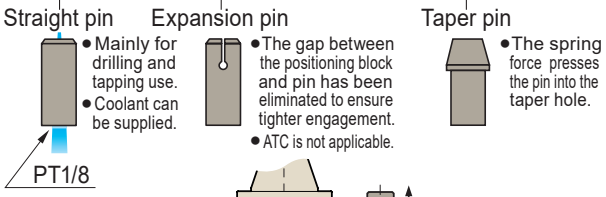
Positioning block and positioning pin



Positioning block

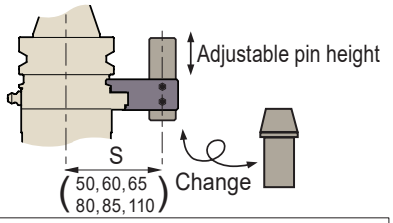


Positioning pin



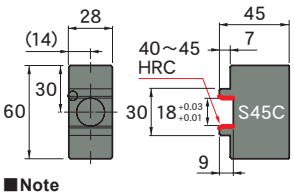
Bracket

- S dimension can be changed by reassembling the bracket.
- The positioning pin can be easily adjusted in length and replaced.



Semi-finished positioning block

CODE
HB-01



■**Note**

- Please confirm with the machine tool manufacturer about the dimensions of the positioning block.
- We have a semi-finished positioning block with a taper hole available. (→P.19)

Positioning block for machines

- FANUC

ROBODRILL
α-DiB series

CODE
ABF005

- BROTHER

SPEEDIO
Compact machining center

CODE	NOTE
ABF213	S300Xd1 / X1N / X2 / X1 S500Xd1 / X1N / X2 / X1 S700Xd1 / X1N / X2 / X1
ABF259	W1000Xd2 / Xd1 S1000X1 / X1N
ABF176	TC−S2, S2A※, S2B, S2C, S2D, R2B※

■**A product code example when ordering Angle Head HALF.**

- FANUC
  BT30-HFD7-122-S65
- BROTHER
  BT30-HFD7L-120-S50C

■**Caution**

- TC-S2A※ (Tapping center),The user needs to confirm whether the positioning block can be mounted on the machine (spindle surface) or not.Please contact us.
- TC-R2B※ (Tapping center) machining area is limited to some extent due to interference between the positioning block and the internal part cover of the machine. For more information, please contact us.

Kit Package

- Learning Kit to understand gear and bearing mechanism.
- There are only 22 parts and anyone can assemble them in about 10 min.
- Spare/consumable parts and assembly tools are included.

	CODE	
Contents of kit	BT40-HF12-LK	BT50-HF12-LK
Complete unit	BT40-HFD12-180-S65 (1pc.)	BT50-HFD12-195-S80 (1pc.)
Angle shaft (For tapping)	FR-T6 (1pc.)	
Tap sleeve	TA6-3, 4, 5, 6, 8 (each1pc.)	
DETa-1 Collet	D12-4, 6, 8, 10, 12, 13 (each 1pc.)	
Positioning pin	HP-50T(1pc.)	HP-62T(1pc.)
Spare bearing	7005ADB (1set), 6805 (1pc.), 51106 (1pc.)	

HALF 90° type

Drill · Endmill

Fig. 1
HFD7
( )…HFD7L

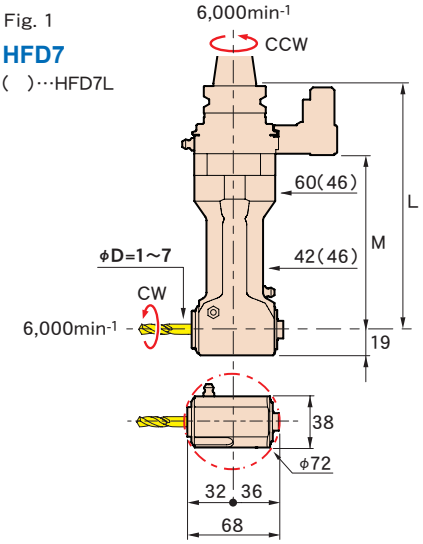


Fig. 3
HFA10

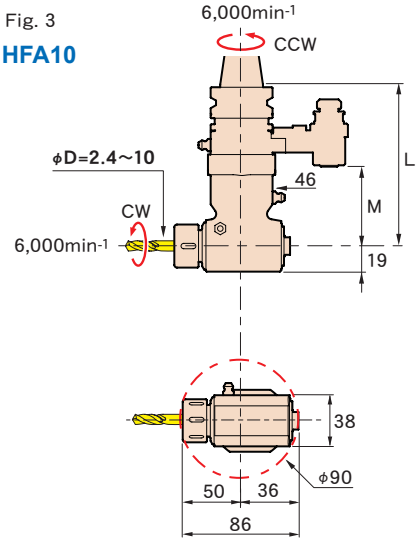


Fig. 2
HFD12

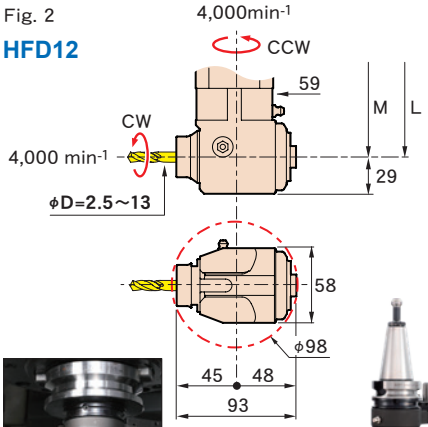
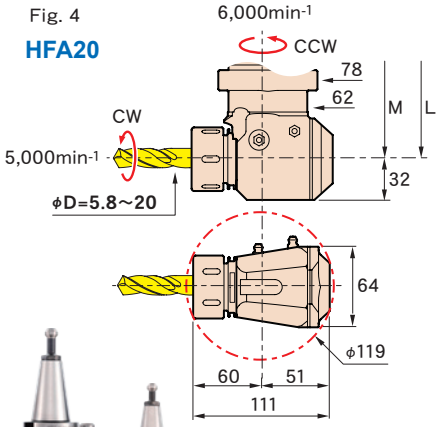


Fig. 4
HFA20



BT40-HFA20-135

BT40-HFD12-120

BT30-HFD7-122

Tap

Fig. 5
HFT4
( )…HFT4L

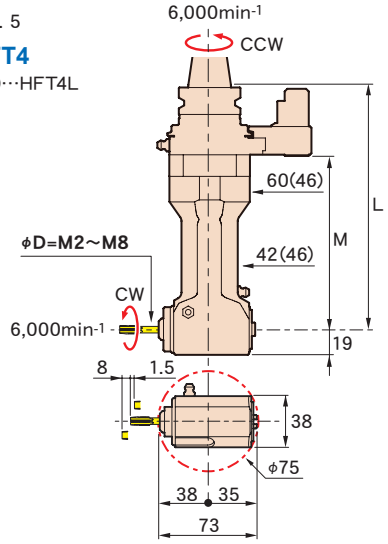


Fig. 6
HFT6

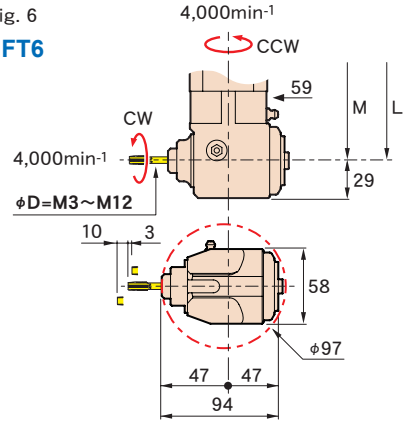
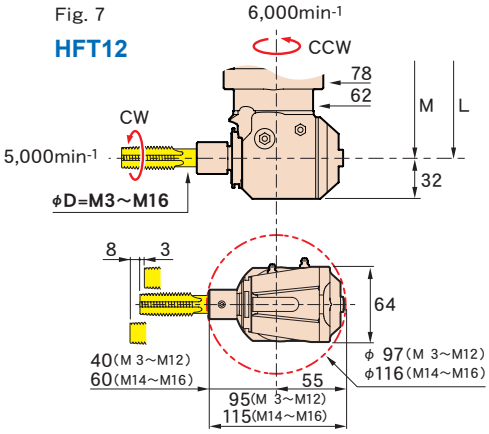
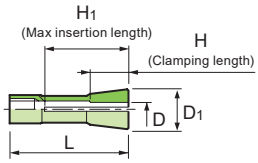


Fig. 7
HFT12

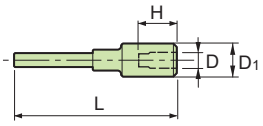


DETa-1 Collet (HFD,HUD)



CODE	ϕD	ϕD1	L	H	H1	Holder type
D 7- 1.5	1 ~ 1.5	17	50	7	36	HFD 7
- 2	1.5~ 2			10		HUD 7
- 2.5	2 ~ 2.5			12		
- 3	2.5~ 3					
- 4	3 ~ 4			14		
- 5	4 ~ 5			16		
- 6	5 ~ 6					
- 7	6 ~ 7					
D12- 4	2.5~ 4	26	70	16	50	HFD12
- 6	4 ~ 6			20		
- 8	6 ~ 8			22		
-10	8 ~10					
-12	10 ~12					
-13	11 ~13					

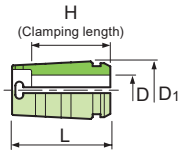
Tap sleeve (HFT,HUT)



CODE	ϕD	L	ϕD1	H	Holder type
TA 4-M 2	M 2	67.5	16	19	HFT 4
-M 3	M 3			20	HUT 4
-M 4	M 4			21	
-M 5	M 5				
-M 6	M 6				
-M 8	M 8				
TA 6-M 3	M 3	92	19	21	HFT 6
-M 4	M 4			22	HUT 6
-M 5	M 5				HFT12
-M 6	M 6				
-M 8	M 8			23	
-M10	M10				
-M12	M12			24	
TA12-M14	M14	111.5	25	33	HFT12
-M16	M16			35	

■Note
- Above products meet JIS standards. We can produce other standard Tap sleeves, such as ANSI, ISO, DIN and others. For more information, please contact us.

Spring collet (HFA,HUA)



CODE	ϕD	ϕD1	L	H	Holder type
C10-D	2.6 2.8 3 ... (0.2Steps) ... 9.6 9.8 10	17.2	26	16 (ϕD=2.6~5) Except for 18 ※3, 4 (ϕD=3, 4, 20 5.2~5.8) (ϕD= 6~10)	HFA10 HUA10
C20-D	6 6.2 6.4 ... (0.2Steps) ... 19.8 20	29.5	50	32 (ϕD= 6~ 9.8) 35 (ϕD=10~15.8) 40 (ϕD=16~20)	HFA10 HUA10

Ex. ϕD C10-6

CODE (Master holder)	Fig.	φD	L	M	Kg
BT30-HFD 7 -122	1	1 ~ 7	122	70	2.3
-182			182	130	3.0
-HFD 7L-120			120	57	1.8
-HFD12 -122	2	2.5~ 13	122	70	2.9
-HFA10 -120	3	2.4~ 10	120	57	1.8
-HFT 4 -122	5	M2~M 8	122	70	2.3
-182			182	130	3.0
-HFT 4L-120			120	57	1.8
-HFT 6 -122	6	M3~M12	122	70	2.9
BT40-HFD 7 -120	1	1 ~ 7	120	70	3.0
-180			180	130	3.3
-HFD12 -120	2	2.5~ 13	120	70	3.6
-180			180	130	4.9
-HFA20 -135	4	5.8~ 20	135	77	4.4
-195			195	137	5.6
-HFT 4 -120	5	M2~M 8	120	70	3.0
-180			180	130	3.3
-HFT 6 -120	6	M3~M12	120	70	3.6
-180			180	130	4.9
-HFT12 -135	7	M3~M16	135	77	4.4
-195			195	137	5.6
BT50-HFD 7 -195	1	1 ~ 7	195	130	6.4
-255			255	190	6.8
-HFD12 -135	2	2.5~ 13	135	70	6.3
-195			195	130	7.6
-255			255	190	8.9
-HFA20 -150	4	5.8~ 20	150	77	7.1
-210			210	137	8.3
-270			270	197	9.4
-HFT 4 -195	5	M2~M 8	195	130	6.4
-255			255	190	6.8
-HFT 6 -135	6	M3~M12	135	70	6.3
-195			195	130	7.6
-255			255	190	8.9
-HFT12 -150	7	M3~M16	150	77	7.1
-210			210	137	8.3
-270			270	197	9.4
A63 -HFD 7 -183	1	1 ~ 7	183	130	3.5
-243			243	190	3.9
-HFD12 -123	2	2.5~ 13	123	70	3.3
-183			183	130	4.7
-243			243	190	6.0
-HFA20 -198	4	5.8~ 20	198	137	5.4
-258			258	197	6.5
-HFT 4 -183	5	M2~M 8	183	130	3.5
-243			243	190	3.9
-HFT 6 -123	6	M3~M12	123	70	3.3
-183			183	130	4.7
-243			243	190	6.0
-HFT12 -198	7	M3~M16	198	137	5.4
-258			258	197	6.5

CODE (Master holder)	Fig.	φD	L	M	Kg (lbs)
DN40A-HFD 7-135	1	1 ~ 7	135	70	3.1
-195			195	130	3.4
-HFD12-135	2	2.5~ 13	135	70	3.7
-195			195	130	5.0
DIN -HFA20-150	4	5.8~ 20	150	77	4.7
-210			210	137	5.8
-HFT 4-135	5	M2~M 8	135	70	3.1
-195			195	130	3.4
-HFT 6-135	6	M3~M12	135	70	3.7
-195			195	130	5.0
-HFT12-150	7	M3~M16	150	77	4.7
-210			210	137	5.8
DN50A-HFD 7-195	1	1 ~ 7	195	130	5.9
-255			255	190	6.3
-HFD12-135	2	2.5~ 13	135	70	5.8
-195			195	130	7.1
-255			255	190	8.4
-HFA20-150	4	5.8~ 20	150	77	6.6
-210			210	137	7.8
DIN -270			270	197	8.9
-HFT 4-195	5	M2~M 8	195	130	5.9
-255			255	190	6.3
-HFT 6-135	6	M3~M12	135	70	5.8
-195			195	130	7.1
-255			255	190	8.4
-HFT12-150	7	M3~M16	150	77	6.6
-210			210	137	7.8
-270			270	197	8.9
CT40 -HFD 7-135	1	0.4~.28	5.31	2.75	6.8
-195			7.68	5.11	7.5
-HFD12-135	2	2.5~ 13	5.31	2.75	8.2
-195			7.68	5.11	11.0
-HFA20-150	4	.23~ .79	5.91	3.03	10.4
CAT. -210			8.27	5.39	12.9
-HFT 4-135	5	M2~M 8	5.31	2.75	6.8
-195			7.68	5.11	7.5
-HFT 6-135	6	M3~M12	5.31	2.75	8.2
-195			7.68	5.11	11.0
-HFT12-150	7	#4 ~ 5/8	5.91	3.03	10.4
-210			8.27	5.39	12.9
CT50 -HFD 7-195	1	0.4~.28	7.68	5.11	13.0
-255			10.04	7.47	13.8
-HFD12-135	2	.10~ .51	5.31	2.75	12.8
-195			7.68	5.11	15.6
-255			10.04	7.47	18.5
-HFA20-150	4	.23~ .79	5.91	3.03	14.7
-210			8.27	5.39	17.3
-270			10.63	7.76	19.8
CAT. -HFT 4-195	5	M2~M 8	7.68	5.11	13.0
-255			10.04	7.47	13.8
-HFT 6-135	6	M3~M12	5.31	2.75	12.8
-195			7.68	5.39	15.6
-255			10.04	7.47	18.5
-HFT12-150	7	#4 ~ 5/8	5.91	3.03	14.7
-210			8.27	5.39	17.3
-270			10.63	7.76	19.8

■ A product code example when ordering.

BT40-HFD7-120 - S 65

Holder

Positioning pin type

S : Straight pin
W : Expansion pin
T : Taper pin

Dimension S

50, 60, 65,
80, 85, 110 ...

■**Option**
- DETa-1 Collet (HFD) ●Spring collet (HFA) ●Tap sleeve (HFT)
- Retention knob→P.64 ●Tools for assembly

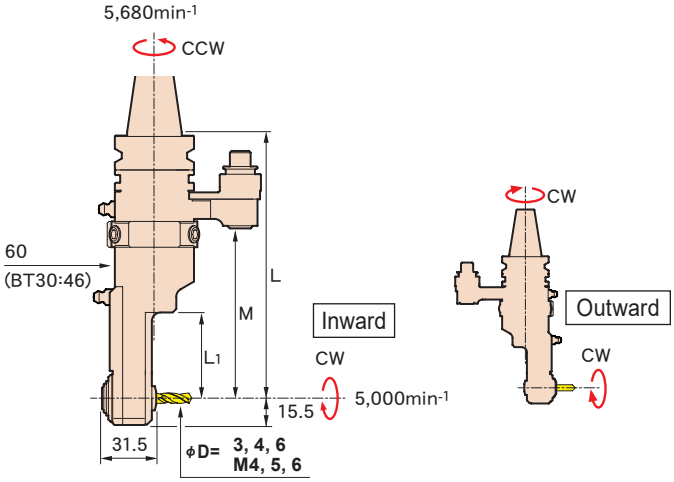
■**Std. Access.**
- Coolant duct (HSK-A) ●Fixing spanner(Except for HFA10/HFT4L)
- Hexagonal wrench set ●Spanner(HFA)
- Single-ended wrench(HFD7L/HFA10) ●Spanner(HFA) ●Low head bolt

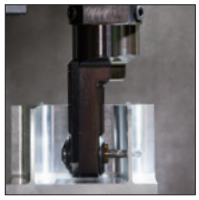
■**Note**
- The height of a grease nipple is approximately 9mm [.355"].
- Other shanks are also available upon request.

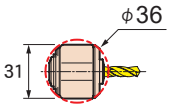
Cutting data ➔P. 13
Parts list ➔P. 113

HALF mini type

BT40-HFCS6-205

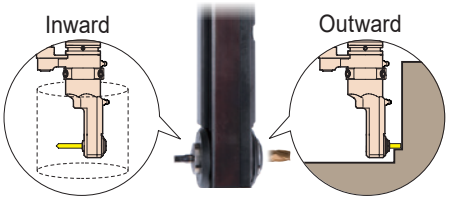






Cutter mounts in two directions

A cutting tool can be mounted both ways, inward or outward, by reassembling the angle shaft.

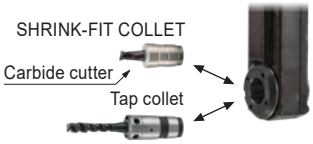


Allows maximum tool holder diameter limitation even when using a long cutting tool.

Minimal interference with face of workpiece.

Collet exchange system

Shaft exchange system for Shrink-fit collet for carbide cutter (end-mill, drill) or Tap collet for Tap.



CODE (Master holder)	φD	L	L1	M	Kg (lbs)
BT30 -HFCS6-155	Drill・Endmill φ3, 4, 6 / Tap M4, 5, 6	155	50	92	1.8
BT40 -HFCS6-160		160	50	110	2.8
-205		205	95	155	3.0
BT50 -HFCS6-175		175	50	110	5.6
-220		220	95	155	5.8
DN40A-HFCS6-175 (DIN)	Drill・Endmill φ3, 4, 6 / Tap M4, 5, 6	175	50	110	3.0
-220		220	95	155	3.2
DN50A-HFCS6-175		175	50	110	5.1
-220		220	95	155	5.3
CT40 -HFCS6-175 (CAT.)	Drill・Endmill φ3, 4, 6 / Tap M4, 5, 6	6.89	1.97	4.33	6.61
-220		8.66	3.74	6.10	7.28
CT50 -HFCS6-175		6.89	1.97	4.33	11.24
-220		8.66	3.74	6.10	11.68

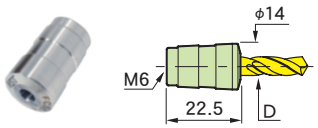
■**Option**
- Shrink-fit collet ●Tap collet
- Retention knob→P.64 ●Tools for assembly

■**Std. Access.**
- Fixing spanner ●Hexagonal wrench set ●Low head bolt

■**Note**
- When shipping, the head direction is inward. The tool for assembly (pliers for retaining ring) is required to reassemble the collet to allow for outward positioning of the cutting tool.
- The height of a grease nipple is approximately 9mm [.355"].
- Other shanks such as HSK are also available upon request.

■**Caution**
- The angle axis rotating direction is different due to its mounting direction, inward and outward.

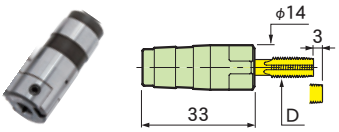
Shrink-Fit Collet



CODE	φD	Holding length
FCS6- 3	3	11～13
- 4	4	
- 6	6	12～13

■**Caution**
- The dedicated shrink-fit collet for the Angle Head Half Mini.
- A shrink-fit heating device is required to insert and remove cutting tools.

Tap collet



CODE	φD	Holding length
FCS6-M4	M4	22
-M5	M5	
-M6	M6	

■**Note**
- Tap collets meet JIS standards. We can produce ANSI standard tap collet. For more information, please contact us.

■A product code example when ordering.

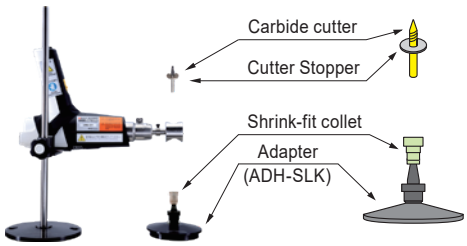
BT30-HFCS6-155 - S 65

Holder

Positioning pin type
- **S** : Straight pin
- **W** : Expansion pin
- **T** : Taper pin

Dimension S
50, 60, 65, 80, 85, 110 ...

■Procedure of cutter insertion to shrink-fit collet



Shrink-fit Heater (HRB-01)

1. Attach the shrink-fit collet to the adapter(ADH-SLK).
2. Heat the shrink-fit collet with the shrink-fit heater.
3. Attach a stopper to the carbide cutter. After finishing heating, insert the cutter to the shrink-fit collet.
4. Cool the shrink-fit collet with the shrink-fit heater.

CODE	Power
HRB-01	100V

Cutting data ➔P. 13
Parts list ➔P. 113

HALF UNIVERSAL type

Drill · Endmill

Fig. 1
HUD7
( )···BT30

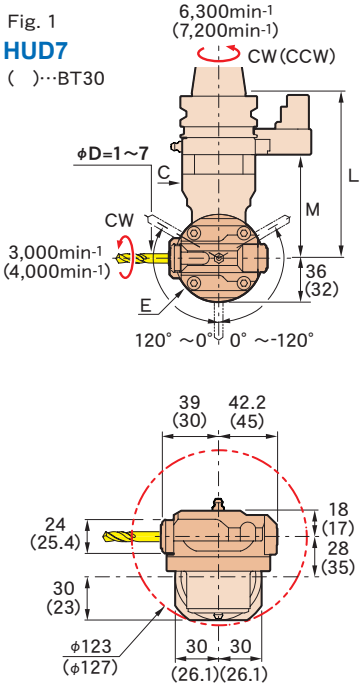


Fig. 2
HUA10

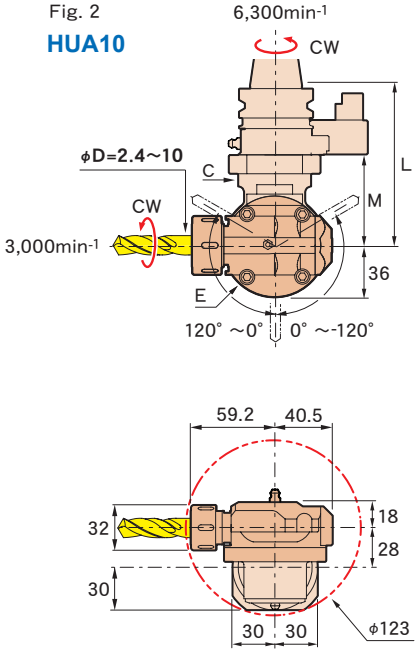
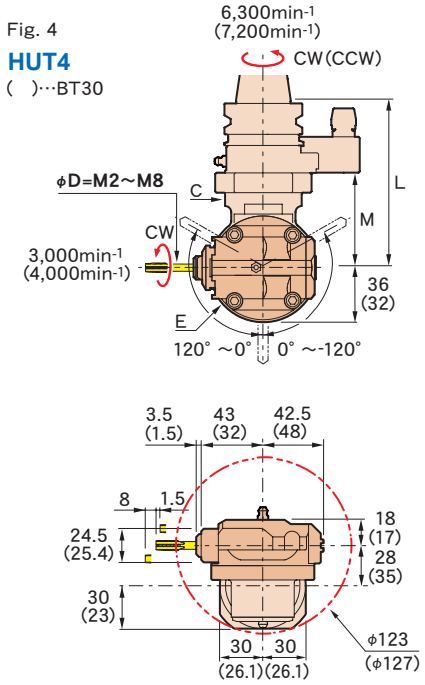


Fig. 4
HUT4
( )···BT30



BT40-HUA20-135

Fig. 3
HUA20

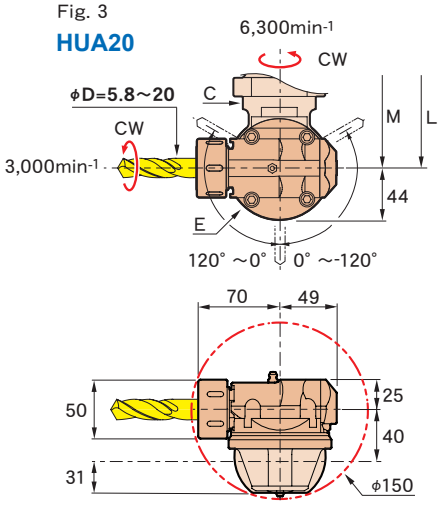
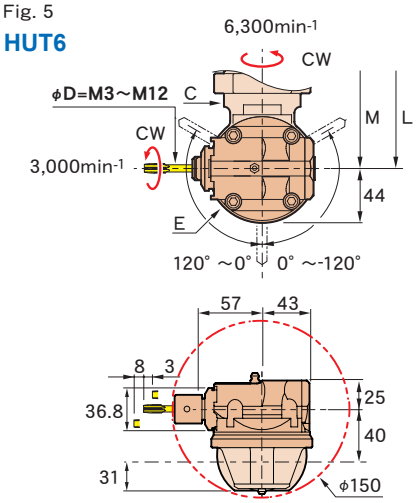


Fig. 5
HUT6



CODE (Master holder)	Fig.	φD	L	M	φC	φE	Kg (lbs)
BT30 -HUD 7-102	1	1 ~ 7	102	39	46	64	1.8
-HUT 4-102	4	M2 ~ M 8					
BT40 -HUD 7-135	1	1 ~ 7	135	85	60	72	3.8
-HUA10-135	2	2.4 ~ 10					3.9
-HUA20-135	3	5.8 ~ 20		77	62	88	4.8
-HUT 4-135	4	M2 ~ M 8		85	60	72	3.8
-HUT 6-135	5	M3 ~ M12		77	62	88	4.8
BT50 -HUD 7-150	1	1 ~ 7	150	85	60	72	6.6
-HUA10-150	2	2.4 ~ 10					6.7
-HUA20-150	3	5.8 ~ 20		77	62	88	7.5
-HUT 4-150	4	M2 ~ M 8		85	60	72	6.6
-HUT 6-150	5	M3 ~ M12		77	62	88	7.5
DN40A -HUD 7-150	1	1 ~ 7	150	85	60	72	3.8
-HUA10-150	2	2.4 ~ 10					
DIN -HUA20-150	3	5.8 ~ 20		77	62	88	5.0
-HUT 4-150	4	M2 ~ M 8		85	60	72	
-HUT 6-150	5	M3 ~ M12		77	62	88	
DN50A -HUD 7-150	1	1 ~ 7	150	85	60	72	6.6
-HUA10-150	2	2.4 ~ 10					6.7
DIN -HUA20-150	3	5.8 ~ 20		77	62	88	7.0
-HUT 4-150	4	M2 ~ M 8		85	60	72	6.6
-HUT 6-150	5	M3 ~ M12		77	62	88	7.0
CT40 -HUD 7-150	1	.04 ~ .28	5.91	3.3	2.36	2.8	8.4
-HUA10-150	2	.09 ~ .39					8.6
CAT. -HUA20-150	3	.23 ~ .79		3	2.44	3.5	11.0
-HUT 4-150	4	M2 ~ M 8		3.3	2.36	2.8	8.4
-HUT 6-150	5	#4 ~ 1/2		3	2.44	3.5	11.0
CT50 -HUD 7-150	1	.04 ~ .28	5.91	3.3	2.36	2.8	14.6
-HUA10-150	2	.09 ~ .39					14.8
CAT. -HUA20-150	3	.23 ~ .79		3	2.44	3.5	15.4
-HUT 4-150	4	M2 ~ M 8		3.3	2.36	2.8	14.6
-HUT 6-150	5	#4 ~ 1/2		3	2.44	3.5	15.4

■**Option**
- DETa-1 Collet (HUD)→P.8 ●Spring collet (HUA)→P.8
- Tap sleeve (HUT)→P.8 ●Retention knob→P.64 ●Tools for assembly

■**Std. Access.**
- Fixing spanner ●Hexagonal wrench set ●Spanner (HUA) ●Low head bolt

■**Note**
- The height of a grease nipple is approximately 9mm [.355"].
- Other shanks such as HSK are also available upon request.

Cutting data ➔ P. 13

Parts list ➔ P. 113

■A product code example when ordering.

BT50-HUA20-150 - S 65

Holder

Positioning pin type

S : Straight pin
W : Expansion pin
T : Taper pin

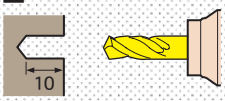
Dimension S

50, 60, 65,
80, 85, 110 ...

Cutting data

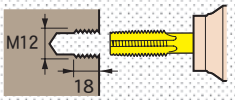
90°type

S55C — ϕ12 Drill
- n 670 min-1
- Vf 80 mm/min
- Vc 25.5 m/min
- f 0.12 mm/rev



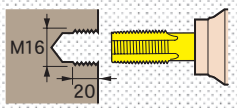
BT40-HFD12-120

S55C — M12 Tap
- n 184 min-1
- Vf 322 mm/min
- Vc 7 m/min



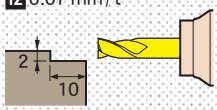
BT40-HFT6-120

S50C — M16 Tap
- n 60 min-1
- Vf 120 mm/min
- Vc 3 m/min



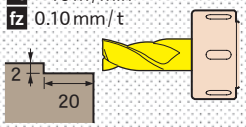
BT40-HFT12-135

S55C — ϕ10 Endmill 2-flutes
- n 350 min-1
- Vf 50 mm/min
- Vc 11 m/min
- fz 0.07 mm/t



BT40-HFD12-120

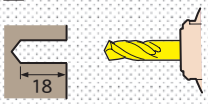
S50C — ϕ20 Endmill 2-flutes
- n 158 min-1
- Vf 32 mm/min
- Vc 10 m/min
- fz 0.10 mm/t



BT40-HFA20-135

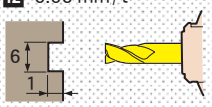
mini type

S50C — ϕ6 Carbide drill
- n 5000 min-1
- Vf 250 mm/min
- Vc 94 m/min
- f 0.05 mm/rev



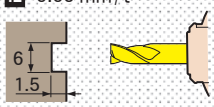
BT30-HFCS6-155

S50C — ϕ6 Carbide endmill 2-flutes
- n 3500 min-1
- Vf 210 mm/min
- Vc 66 m/min
- fz 0.03 mm/t



BT40-HFCS6-205

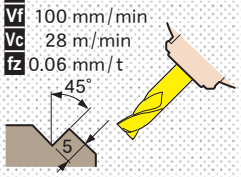
A7075 — ϕ6 Carbide endmill 2-flutes
- n 5000 min-1
- Vf 300 mm/min
- Vc 94 m/min
- fz 0.03 mm/t



BT30-HFCS6-155

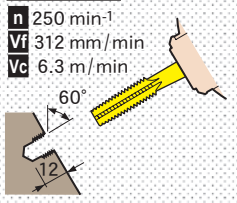
UNIVERSAL type

S50C — ϕ10 Endmill 2-flutes
- n 900 min-1
- Vf 100 mm/min
- Vc 28 m/min
- fz 0.06 mm/t



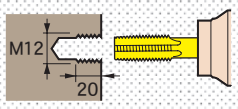
BT50-HUA10-150

S50C — M8 Tap
- n 250 min-1
- Vf 312 mm/min
- Vc 6.3 m/min



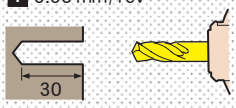
BT40-HUT4-135

S50C — M12 Tap
- n 184 min-1
- Vf 322 mm/min
- Vc 7 m/min



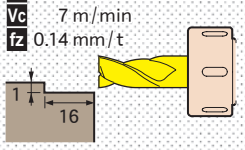
BT40-HUT6-135

SUS304 — ϕ10 Drill
- n 314 min-1
- Vf 16 mm/min
- Vc 9.9 m/min
- f 0.05 mm/rev



BT50-HUA10-150

S50C — ϕ16 Endmill 2-flutes
- n 140 min-1
- Vf 40 mm/min
- Vc 7 m/min
- fz 0.14 mm/t



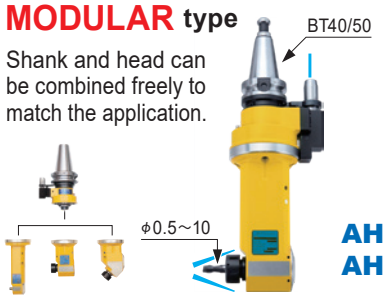
BT40-HUA20-135

ANGLE HEAD STANDARD type

High-rigidity standard type for end-milling appliications

MODULAR type

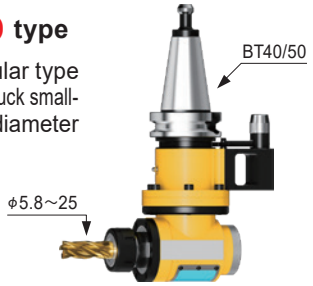
Shank and head can be combined freely to match the application.



AHB
AHC

SOLID type

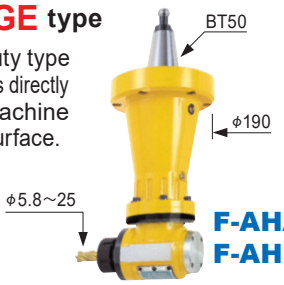
The popular type that can chuck small- to large-diameter cutters.



AHA
AHD

FLANGE type

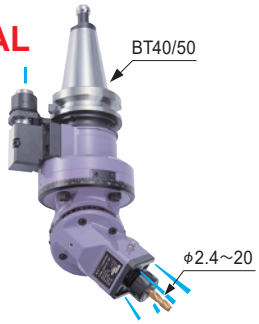
Heavy-duty type that mounts directly on the machine spindle surface.



F-AHA
F-AHD

UNIVERSAL type

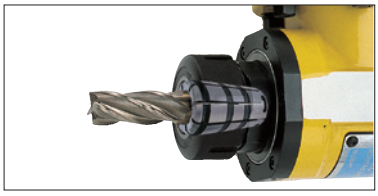
Cutting angle can be adjusted arbitrarily.



AHU

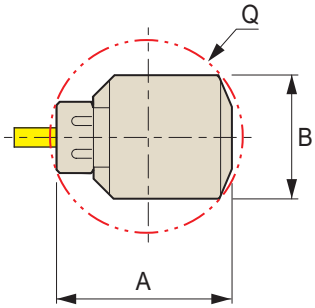
Use of collet holder

To chuck a cutting tool, the collet chuck system is used, which has a long history of good performance. This product is applicable to all the types of machining, including drilling and milling.



Compact design

Ideal for internal machining.



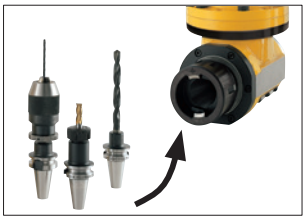
Type	Model	Q	A	B
MODULAR type	AHB 5	62	57	46
	AHB 7	76	72	56
	AHB10	96	88	62
SOLID type FLANGE type	AHA20	171	160	88
	AHA25	193	180	90
UNIVERSAL type	AHU10	156	154	55
	AHU20	192	188.5	70

Body-through coolant

Coolant can be feed from a closer position to the cutting edge.Prevents heat generation inside the body to achieve high-speed rotation.
(MODULAR type、UNIVERSAL type)

MST's Quick Change system(AHD type)

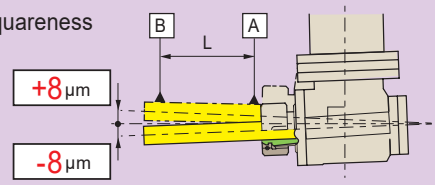
By adopting the BT30 Quick Change mechanism at the angle axis, a large variety of machining applications are made possible.



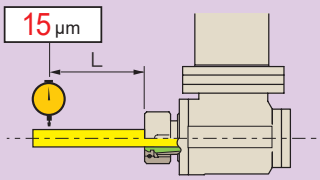
Highest Guaranteed Accuracies

All standard type angle heads have passed an accuracy test and rotation test.

Squareness



Runout accuracy

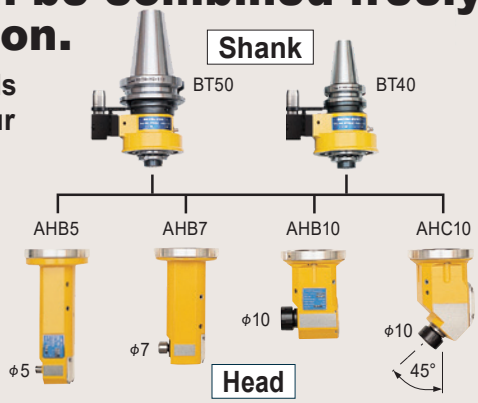


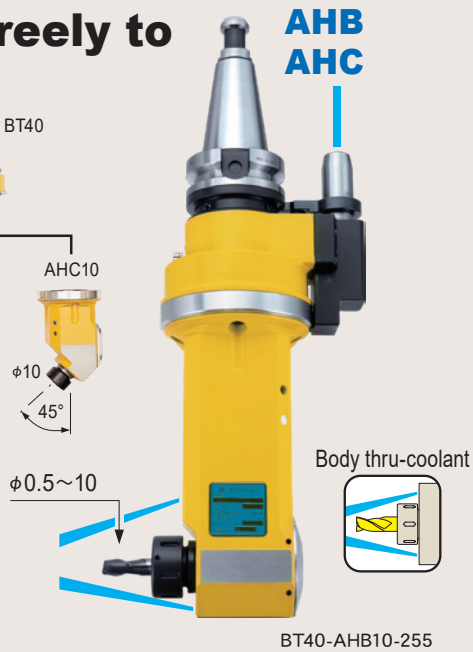
Type	Model	L
MODULAR type	AHB 5 AHB 7 AHB10 AHC10	40
UNIVERSAL type	AHU10	
SOLID type FLANGE type	AHA20 AHA25 AHD30	50
UNIVERSAL type	AHU20	

STANDARD type MODULAR type

Shank and head can be combined freely to match the application.

▷ Various types of shanks and heads are freely combined to meet your machining needs.





MODEL	Chucking range	Gear ratio Main spindle:Angle shaft	MAX. (min-1) Main spindle(CCW) : Angle shaft (CW)
AHB 5	ϕ0.5～ 5	1:1	5,000:5,000
AHB 7	ϕ0.5～ 7		6,000:6,000 (When using body thru-coolant)
AHB10	ϕ2.4～10		
AHC10			

Fig. 1
AHB

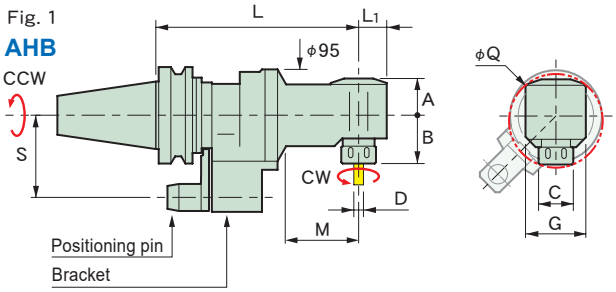
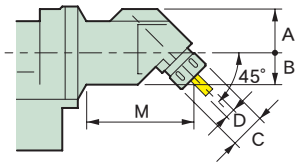


Fig. 2
AHC



CODE	Fig.	ϕD	L	ϕC	L1	M	A	B	G	ϕQ	Kg	
BT40-AHB 5-210	1	0.5～ 5	210	12	20	85	25	32	46	62	5.5	ER8
-270			270			145					6.4	
-AHB 7-180		0.5～ 7	180	19	22	60	29	43	56	76	5.3	ESX12
-240			240			120					6.6	
-AHB10-195		2.4～10	195	36	29	80	38	50	63	96	6.2	C10
-255			255			140					7.9	
-AHC10-230	2		230		—	110	45	32.5	65	—	6.2	
BT50-AHB 5-225	1	0.5～ 5	225	12	20	85	25	32	47	62	8.8	ER8
-285			285			145					9.7	
-AHB 7-195		0.5～ 7	195	19	22	60	29	43	57	76	8.6	ESX12
-255			255			120					9.9	
-AHB10-210		2.4～10	210	36	29	80	38	50	62	96	9.5	C10
-270			270			140					11.2	
-AHC10-245	2		245		—	110	45	32.5	66	—	9.5	

Available for **DIN / CAT.**

Cutting data
➔P. 20

■**Option**
- Spring collet→P.19 ●Retention knob →P.64
- Semi-finished positioning block→P.19

■**Std. Access.**
- A complete set of spanners and wrenches.

■**Note**
- The phase of the drive key and the positioning pin is set freely.
- Standard specifications:
  S = 60 mm, 65 mm (BT40), 80 mm, 85 mm, and 110 mm (BT50).
- Other shanks such as HSK are also available upon request.

■**Caution**
- For the shape and mounting position of the positioning block, contact the machine manufacturer or MST.
- The height of the positioning pin depends on the shape of the positioning block.
- The machine spindle and angle shaft should rotate in reverse directions, so make sure the spindle rotates in the reverse direction.
- For precautions and maintenance, refer to page 123.

Shank / Head reference list

CODE	Shank	Head
BT40-AHB 5-210	BT40-MS- 98	MB 5-112
-270		-172
-AHB 7-180		MB 7- 82
-240		-142
-AHB10-195		MB10- 97
-255		-157
-AHC10-230		MC10-132
BT50-AHB 5-225	BT50-MS-113	MB 5-112
-285		-172
-AHB 7-195		MB 7- 82
-255		-142
-AHB10-210		MB10- 97
-270		-157
-AHC10-245		MC10-132

STANDARD type SOLID type

The popular type that can chuck small- to large-diameter cutters.

MODEL	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. (min-1) Main spindle(CCW):Angle shaft(CW)
AHA20	ϕ5.8～20	1:0.81	3000:2430
AHA25	ϕ5.8～25	1:0.96	2500:2400
AHD30	BT30 tools		

Fig. 1
AHA

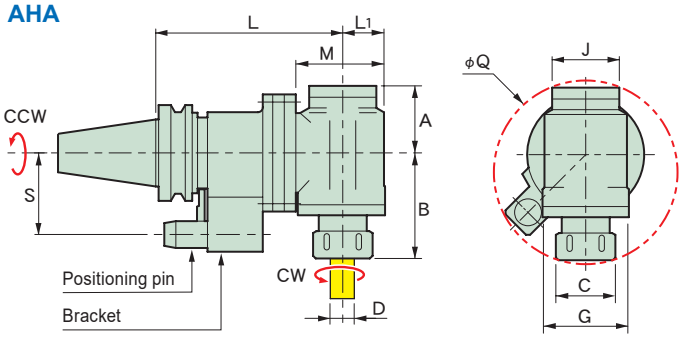
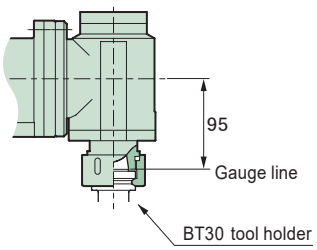


Fig. 2
AHD



CODE	Fig.	ϕD	L	L1	M	A	B	G	ϕC	J	ϕQ	Kg	
BT40-AHA20-160	1	5.8～20	160	40	85	65	95	88	50	65	171	7.3	C20
BT50-AHA20-195	1	5.8～20	195	40	89	65	95	88	50	65	171	13.1	C20
-250			249									14.8	
-AHA25-195		5.8～25	195	44	93	70	110	90	62	70	193	13.6	C25
-250			249									15.3	
-AHD30-195	2	—	195				112.6		66			14.7	—

■**Option**
- Spring collet→P.19 ●Retention knob →P.64 ●Semi-finished positioning block→P.19

■**Std. Access.**
- A complete set of spanners and wrenches

■**Note**
- The phase of the drive key and the positioning pin is set freely.
- Standard specifications: S = 60 mm, 65 mm (BT40), 80 mm, 85 mm, and 110 mm (BT50).
- Other shanks such as HSK are also available upon request.

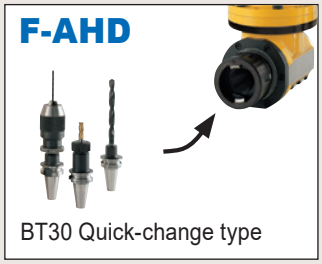
■**Caution**
- For the shape and mounting position of the positioning block, contact the machine manufacturer or MST.
- The height of the positioning pin depends on the shape of the positioning block.
- The machine spindle and angle shaft should rotate in reverse directions, so make sure the spindle rotates in the reverse direction.
- For precautions and maintenance, refer to page 123.

Available for DIN / CAT.

Cutting data
P.20

STANDARD type **FLANGE** type

Ideal for heavy cutting by mounting the angle head flange type directly on the machine spindle surface.



F190-AHA25-350

MODEL	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. (min-1) Main spindle(CCW):Angle shaft(CW)
AHA20	ϕ5.8～20	1:0.81	3000:2430
AHA25	ϕ5.8～25	1:0.96	2500:2400
AHD30	BT30 tools		

Fig. 1
AHA

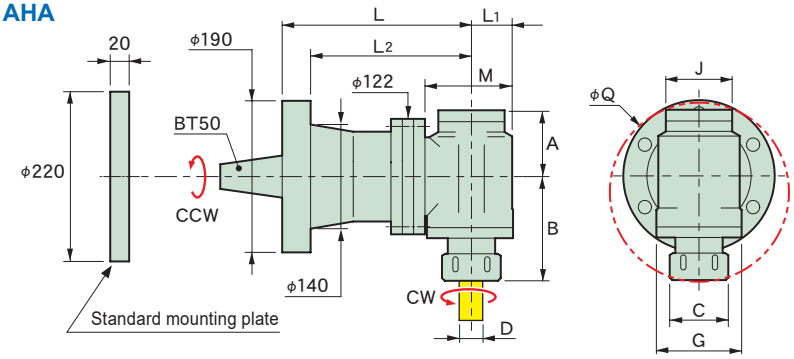
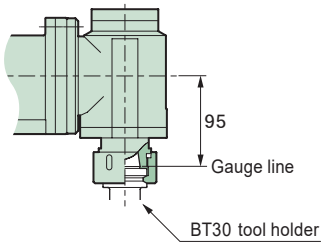


Fig. 2
AHD



CODE	Fig.	ϕD	L	L1	L2	M	A	B	G	ϕC	J	ϕQ	Kg	
F190-AHA20-200	1	5.8～20	200	40	160	89	65	95	88	50	65	171	18	C20
-350			350		310								28	
-AHA25-200		5.8～25	200	44	160	93	70	110	90	62	70	193	18.5	C25
-350			350		310								28.5	
-AHD30-200	2	—	200		160					66			19.6	—
-350			350		310			112.6					29.8	

■**Option**
- Spring collet→P.19 ●Retention knob →P.64

■**Std. Access.**
- A complete set of spanners and wrenches
- Standard mounting plate(No mounting holes are provided.)
- Mounting bolts for ANGLE HEAD

■**Note**
- NT50U shank is also available.

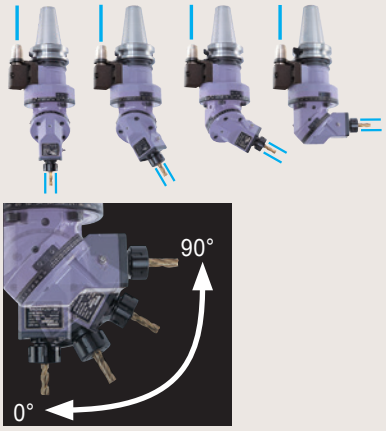
■**Caution**
- For mounting plate shapes and mounting bolt location, contact the machine manufacturer or MST.
- The machine spindle and angle shaft should rotate in reverse directions, so make sure the spindle rotates in the reverse direction.
- For precautions and maintenance, refer to page 123.

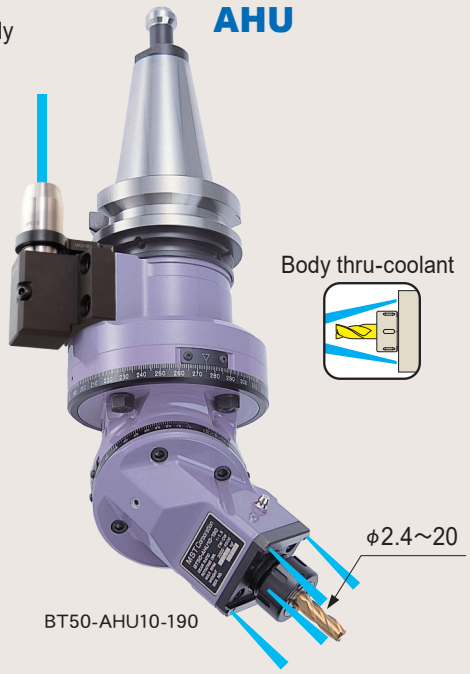
STANDARD type UNIVERSAL type

Machining at every angle is possible with just this one unit.

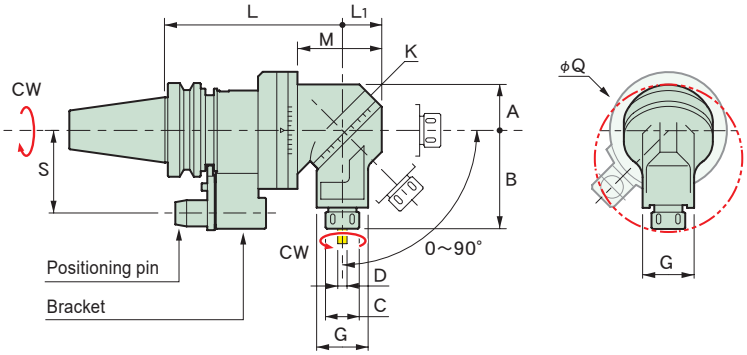
Splash coolant-through body

Whatever machining angle is set, coolant is properly supplied to the cutting edge.





MODEL	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. (min⁻¹) Main spindle(CW):Angle shaft(CW)
AHU10	ϕ2.4～10	1 : 1.5	3000 : 4500
AHU20	ϕ5.8～20	1 : 1	3000 : 3000



CODE	ϕD	L	L1	M	A	B	K	G	ϕC	ϕQ	Kg	
BT40-AHU10-175	2.4～10	175	42	96	49	105	95	55	32	156	9.6	C10
BT50-AHU10-190	2.4～10	190	42	90	49	105	95	55	32	192	13.9	C10
-AHU20-200	5.8～20	200	54	112	58.5	130	120	70	50		15.8	C20

■Option
- Spring collet →P.19 ●Retention knob →P.64 ●Semi-finished positioning block →P.19 ●Test bar

■Std. Access.
- A complete set of spanners and wrenches

■Note
- The phase of the drive key and the positioning pin is set freely.
- Standard specifications: S = 60 mm, 65 mm (BT40), 80 mm, 85 mm, and 110 mm (BT50).
- Products other than BT shanks can be manufactured upon request.

■Caution
- For the shape and mounting position of the positioning block, contact the machine manufacturer or MST.
- The machine spindle and angle shaft should rotate in reverse directions, so make sure the spindle rotates in the reverse direction.
- For precautions and maintenance, refer to page 123.

Test bar

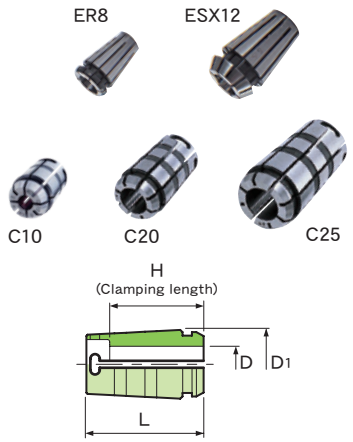
Use for super accurate angle adjustment.

CODE	Holder type
TBU10	AHU10
TBU20	AHU20

Available for DIN / CAT.

Cutting data ➔P.20

SPRING COLLET

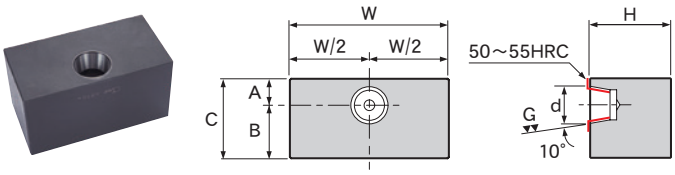


CODE	φD	φD1	L	H	Holder type
ER8-D	1 ～ 5 (0.5 Steps)	8.5	13.5	-	AHB 5
ESX12-D	1 ～ 3 (0.5 Steps)	12	19.5	-	AHB 7
	4 ～ 7 (1.0 Steps)				
C10-D	2.6～ 5.8 (0.2 Steps)	17.2	26	18	AHB10 AHC10 AHU10
	6 ～10 (0.2 Steps)			20	
C20-D	6 ～ 9.8 (0.2 Steps)	29.5	50	32	AHA20 AHU20
	10 ～15.8 (0.2 Steps)			35	
	16 ～20 (0.2 Steps)			40	
C25-D	6 , 8	36.5	68	38	AHA25
	10 ～15 (0.5 Steps)			48	
	15.5～20 (0.5 Steps)			54	
	20.5～25 (0.5 Steps)			57	

■Option
- Collet remover (C10 , C20) →P.38

Semi-finished positioning block

The semi-finished positioning block must be modified to the appropriate shape by the customer after delivery. Determine the shape and dimensions as follows, and then modify the positioning block as necessary.



CODE	A	B	C	W	H	d	Spindle	Material
AB-15	15	43	58	92	58	20	BT40	S50C
-12	20		63	120	63	28	BT50	

1. Obtain the machine manufacturer's drawing for the positioning block and modify the positioning block in accordance with that drawing.
2. Determine the dimensions as shown in the instruction and then modify.
   - This block may not be applicable for dimensional reasons. Carefully check to see whether the positioning block is applicable.
   - The positioning block exclusively for your machine may also be available on request.
   - For further information, please contact MST.

Custom-made products

We are proud of our over 40 years of experience custom making products for our customers. We can produce the best product for you depending on your applications such as O.D and I.D machining thanks to our accumulated know-how.

40 years — Manufacturing history

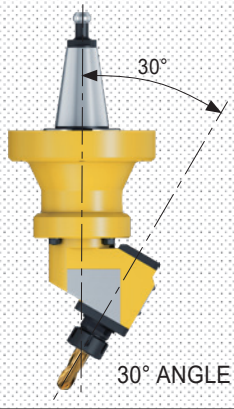
1 unit — Production starting from just 1 unit

2~4 months — Delivery

30,000 units — Custom Design : 2,000 units; Standard : 28,000 units

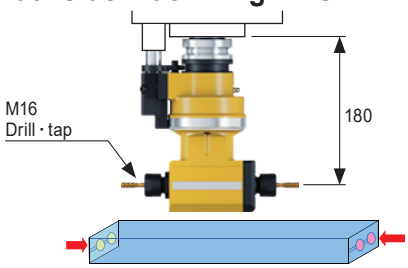
ANGLE HEAD CUSTOM DESIGN

For more information, please contact us.



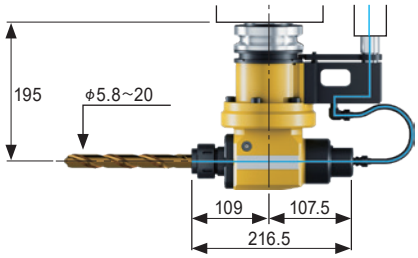
30° ANGLE HEAD

Dual side machining ANGLE HEAD



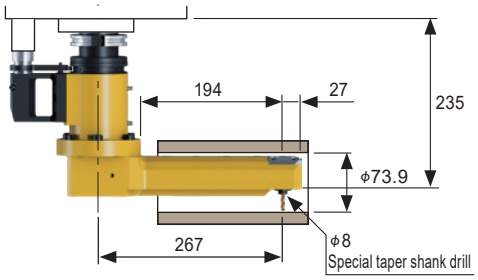
Medical equip-ment | AL | 1 | 1 | MAX 1500min-1 | BT50

Side face machining ANGLE HEAD



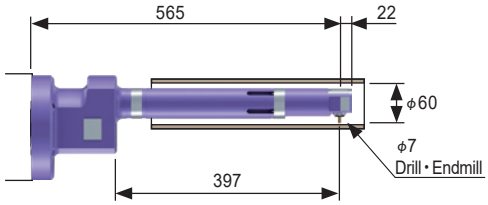
Industry | SUS | 1 | 0.9 | MAX 2000min-1 | BT50

Internal bore surface machining ANGLE HEAD



AL | 1 | 1.76 | MAX 2650min-1 | BT50

Internal bore surface machining ANGLE HEAD

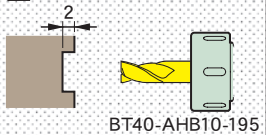


1 | 3 | MAX 4500min-1 | Direct mount

Cutting data

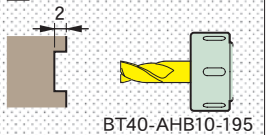
MODULAR type

SUS304 — ϕ10 Endmill 2 flutes
- n 640 min-1
- Vf 60 mm/min
- Vc 20 m/min
- fz 0.05 mm/t



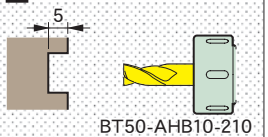
BT40-AHB10-195

A2017 — ϕ10 Carbide endmill 2 flutes
- n 4000 min-1
- Vf 400 mm/min
- Vc 126 m/min
- fz 0.05 mm/t



BT40-AHB10-195

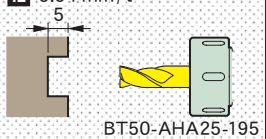
S50C — ϕ10 Endmill 2 flutes
- n 640 min-1
- Vf 60 mm/min
- Vc 20 m/min
- fz 0.05 mm/t



BT50-AHB10-210

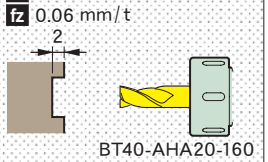
SOLID type

A2017 — ϕ16 Endmill 2 flutes
- n 1800 min-1
- Vf 130 mm/min
- Vc 90 m/min
- fz 0.04 mm/t



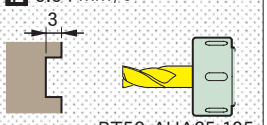
BT50-AHA25-195

SUS304 — ϕ12 Endmill 2 flutes
- n 527 min-1
- Vf 20 mm/min
- Vc 60 m/min
- fz 0.06 mm/t



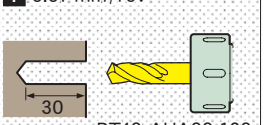
BT40-AHA20-160

SUS304 — ϕ16 Endmill 2 flutes
- n 570 min-1
- Vf 40 mm/min
- Vc 29 m/min
- fz 0.04 mm/t



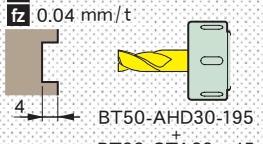
BT50-AHA25-195

S55C — ϕ12 Drill 2 flutes
- n 527 min-1
- Vf 39 mm/min
- Vc 20 m/min
- f 0.07 mm/rev



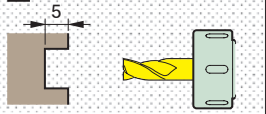
BT40-AHA20-160

FC30 — ϕ12 Endmill 2 flutes
- n 816 min-1
- Vf 60 mm/min
- Vc 31 m/min
- fz 0.04 mm/t



BT50-AHD30-195
+
BT30-CTA20- 45

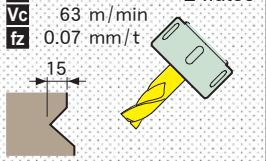
S50C — ϕ16 Endmill 2 flutes
- n 630 min-1
- Vf 80 mm/min
- Vc 32 m/min
- fz 0.06 mm/t



BT50-AHA25-195

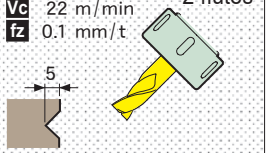
UNIVERSAL type

A2017 — ϕ10 Endmill 2 flutes
- n 2000 min-1
- Vf 200 mm/min
- Vc 63 m/min
- fz 0.07 mm/t



BT50-AHU10-190(45°)

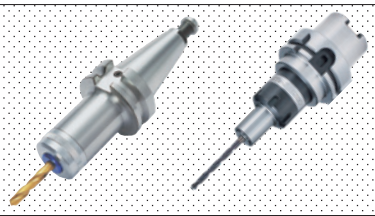
S50C — ϕ20 Carbide endmill 2 flutes
- n 350 min-1
- Vf 70 mm/min
- Vc 22 m/min
- fz 0.1 mm/t



BT50-AHU20-200(45°)

M/C Tool

Pull collet type collet chuck
DETa-1 Collet Holder



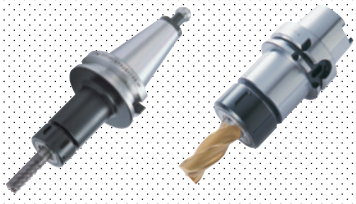
DTA
DTB
DTE

P. 22

Retension knob

P. 64

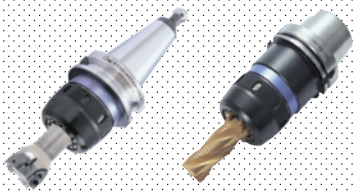
Taper collet chuck
COLLET HOLDER



CTH
CTA

P. 32

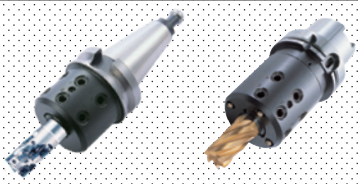
Needle-roller type chuck
Hi-ART MILLING CHUCK



ART

P. 40

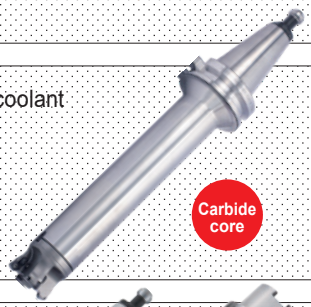
End-mill holder for ultra-heavy duty application
SUMMIT



SLZ

P. 43

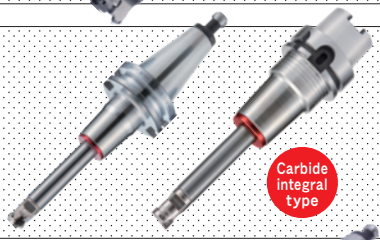
The face mill arbor for through-spindle coolant
FMH RIGID type



FMH-H

P. 46

The arbor for screw-in End Mill
RED SCREW arbor



RSG

P. 48

Cutter arbor with spindle-through coolant

FMH

P. 53

Fine adjustment boring holder
MICRO HEAD

MFA
MBH
MBJ

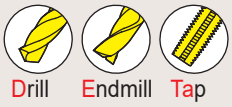
P. 55

DETa-1 Collet Holder

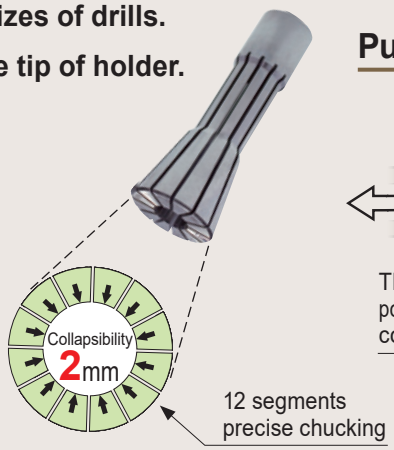
Pull collet type collet chuck

2mm collapsibility with just one collet !!

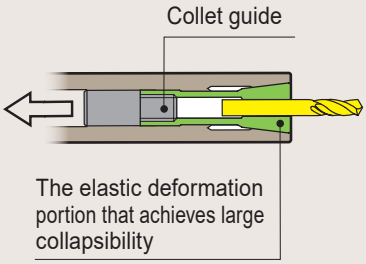
- ▷ Just 6 collets is all it takes to chuck 106 sizes of drills.
- ▷ Slim design due to no tightening nut at the tip of holder.
- ▷ Compatible with synchronized tapping. Provides simple tooling lay-out.



DETa-1

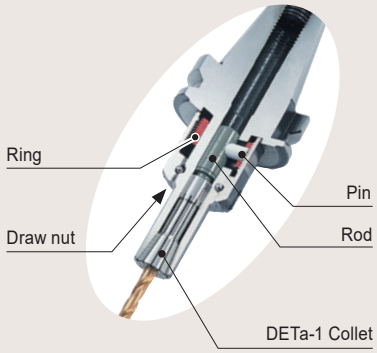


Pull collet design



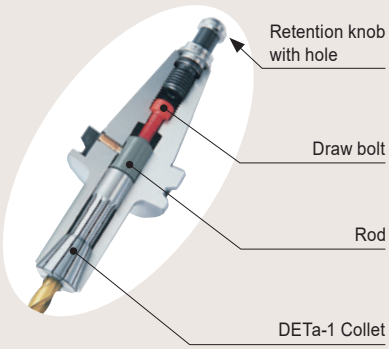
DTA

Nut-tightening type of easy operation



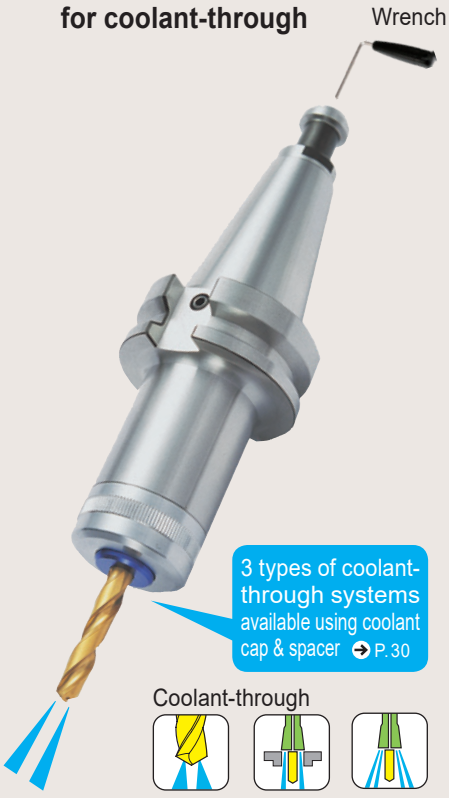
DTB

For high-speed cutting, High cost performance



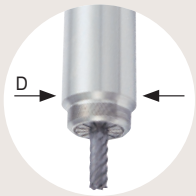
DTE

Fully applicable for coolant-through



3 types of coolant-through systems available using coolant cap & spacer ➔ P.30

	φD
DTE 7	29
DTE12	40



DETa-1 Collet

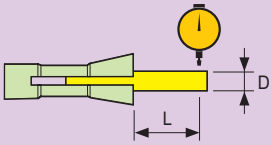
Using a high-precision collet will increase the life of your tools.
➔ P. 125

Highest guaranteed accuracies throughout entire chucking range (100% inspection).

Both large collapsibility and precise chucking achieved by the pull collet design.

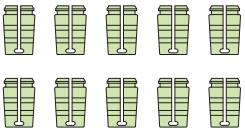
Collet	Run-out accuracy(μm)	
	D3	D7/D12
Precision Collet	3 (6)	5 (10)
Standard Collet	5 (10)	10 (15)

※Accuracy of collet alone,
( ) means collapsibility usable.



D	L
~10	4×D
10~13	40

Reduces the number of conventional collets needed by 90% (in-house comparison)



Ten collets

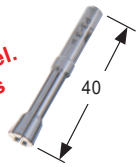
Only one collet !

Fewer collet types means easier collet management !

D3 Collet

DTA3
DTB3

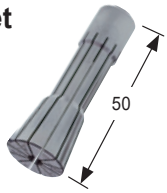
Uses a maraging steel. Initial accuracy lasts for a long period of time.



ϕ0.5~3.175 8 pcs.

D7 Collet

DTA7
DTB7
DTE7



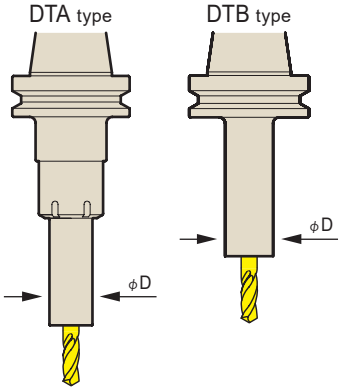
ϕ1~7 8 pcs.

D12 Collet

DTA12
DTB12
DTE12

ϕ2.5~13 6 pcs.

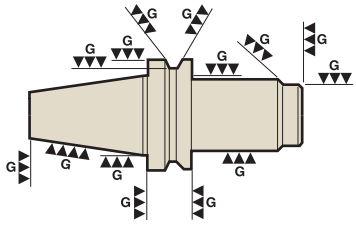
Slim and compact without the nut at the tip.



Size	ϕD
3 type	10
7 type	21
12 type	30

Pre-balanced design (DTE type)

The collet holder is pre-balanced by previously designing the holder to be as axisymmetrical as possible.
When used with the precision collet, it enables stable machining during high-speed machining.

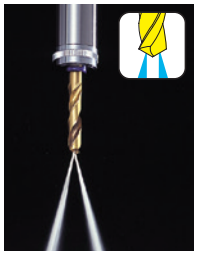


Longer cutter life using through-spindle capability
➔ P. 125

Coolant-through system

Pressure 7 Mpa

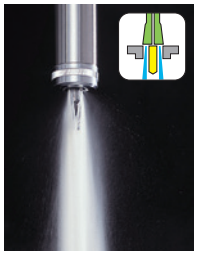
Multiple coolant supply systems.
The best methods can be chosen from three options.



Coolant-through cutter

For a cutting tool with oil holes.
The shank of the cutting tool is sealed with an O-ring, enabling reliable coolant supply.
Compatible with small-diameter cutting tools starting from 3 mm.

DTE type



"SUKIMA-through" coolant-around tool

High-pressure coolant performance can be obtained even when using a cutting tool without oil holes.

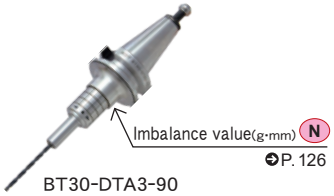
DTE type

Coolant-through collet

Coolant is supplied through the slits in the collet. No dedicated optional parts are required.

DTB type
DTE type

DETa-1 Collet Holder A type (DTA)



BT30-DTA3-90


BT50-DTA12-135


S32-DTA12-100

Fig. 1

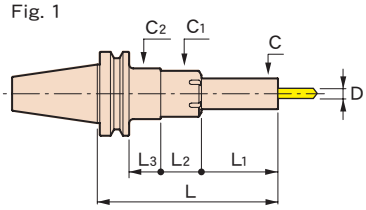


Fig. 2

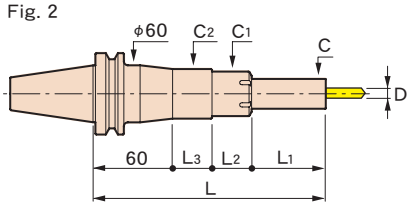


Fig. 3

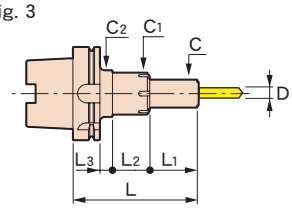


Fig. 4

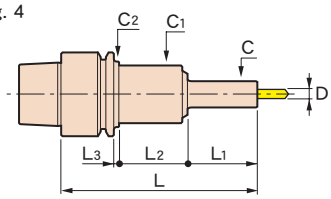


Fig. 5

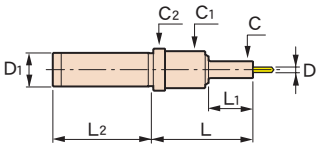
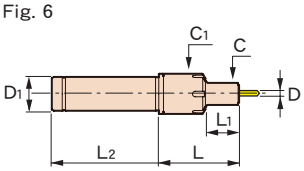


Fig. 6



CODE	Fig.	ϕD	L	ϕC	L1	L2	L3	ϕC1	ϕC2	ϕD1	Kg	N
BT30-DTA 3- 90	1	0.5～ 3.175	90	10	27	26	15	22	25	—	0.5	2.4
-DTA 7- 90		1 ～ 7		21	30	37	1	38	42		0.7	6.7
-120			120		60						0.8	7.9
-DTA12-120		2.5 ～13		30	52.5	42	3.5	45	45		1.0	10.4
BT40-DTA 3- 95	1	0.5～ 3.175	95	10	27	26	15	22	25	—	1.1	3.9
-125			125				45				1.2	4.3
-DTA 7-105		1 ～ 7	105	21	38	37	3	38	60		1.3	8.5
-135			135		60		11		43		1.4	9.5
-165			165				41				1.7	10.8
-195			195				71				2.1	12.1
-DTA12-120		2.5～13	120	30	52.5	40	0.5	45	58		1.5	11.6
-150			150		75		8		50		1.7	13.8
-180			180				38				2.1	15.5
-210			210				68				2.6	17.1
BT50-DTA 7-105	1	1 ～ 7	105	21	30	37	—	38	—	—	3.8	15.5
-135			135		60						3.9	16.6
-165			165				30		43		4.0	18.0
-195			195				60				4.4	19.5
-255			255				120				5.0	18.2
-315	2		315								5.9	19.1
-DTA12-135	1	2.5～13	135	30	52.5	40	4.5	45	50		4.1	19.4
-165			165		75		12				4.3	21.6
-195			195				42				4.7	23.4
-255			255				102				5.5	22.3
-315	2		315								6.6	23.3
A63 -DTA 3- 90	3	0.5～ 3.175	90	10	27	26	11	22	25	—	0.8	3.0
-120			120				41				1.0	3.4
-DTA 7-105		1 ～ 7	105	21	30	37	12	38	50		1.1	17.3
-120			120		38		19				1.3	18.3
-150			150		60		27				1.7	20.3
-DTA12-120		2.5～13	120	30	52.5	40	1.5	45			1.2	21.9
-150			150		75		9				1.4	25.2
-180			180				39				1.8	27.7

CODE	Fig.	φD	L	φC	L1	L2	L3	φC1	φC2	φD1	Kg (lbs)	N
A100 -DTA 7-135	3	1 ～ 7	135	21	30	37	39	38	50	—	2.7	33.8
-165			165		60						2.8	35.5
-225			225				99				3.7	33.6
-DTA12-135		2.5～13	135	30	52.5	40	13.5	45			2.7	37.1
-165			165		75		21				2.9	40.4
-225			225				81				3.8	39.7
E32 -DTA 3- 75	4	0.5～ 3.175	75	10	27	26	2	22	25	—	0.2	1.8
E40 -DTA 3- 75	4	0.5～ 3.175	75	10	27	26	2	22	25	—	0.3	1.7
E50 -DTA 3- 80	4	0.5～ 3.175	80	10	27	26	1	22	25	—	0.5	2.1
F63 -DTA 3- 90	4	0.5～ 3.175	90	10	27	26	11	22	25	—	0.8	2.3
-120			120				41	27	26		0.9	2.7
DN40A-DTA 3- 95	1	0.5～ 3.175	95	10	27	26	10.8	22	25	—	1.1	4.6
-125			125				40.8				1.2	5.0
DIN -DTA 7-105		1 ～ 7	105	21	30	43.8	12.1	38	45		1.2	11.9
-135			135		60	37	18.9				1.3	14.4
-DTA12-130		2.5～13	130	30	52.5	56.9	—	45	—		1.5	18.0
-160			160		75	66.4					1.7	20.0
DN50A-DTA 7-135	1	1 ～ 7	135	21	60	37	3	38	50	—	3.4	20.1
-165			165				33		43		3.6	20.0
DIN -195			195				63				3.9	20.6
-DTA12-135		2.5～13	135	30	52.5	40	7.5	45	50		3.6	21.5
-165			165		75		15				3.8	25.8
-195			195				45				4.2	26.4
CT40 -DTA 3- 95	1	.02～.13	3.74	0.39	1.06	1.02	.28	.87	.98	—	2.4	4.4
-125			4.92				1.46				2.7	4.8
CAT. -DTA 7-102		.04～.28	4.01	0.83	1.18	1.46	.63	1.49	1.75		2.8	8.1
-132			5.19		2.36						2.9	9.3
-DTA12-130		.10～.51	5.11	1.18	2.08	1.57		1.77			3.3	11.7
-152			5.98		2.95		.61				3.8	13.5
CT50 -DTA 7-102	1	.04～.28	4.01	0.83	1.18	1.46	.63	1.49	2.75	—	7.1	11.8
-132			5.19		2.36						7.3	13.0
CAT. -152			5.98				.71			1.69	7.7	13.9
-203			7.87				2.71				8.6	14.0
-DTA12-130		.10～.51	5.11	1.18	2.08	1.57	.73	1.77		—	7.7	15.6
-152			5.98		2.95		.71				7.9	17.5
-203			7.87				2.09		1.97		9.3	18.3
ST16 -DTA 3	5	0.5～ 3.175	60	10	27	60	—	22	25	16	—	—
ST20 -DTA 3	5	0.5～ 3.175	60	10	27	60	—	22	—	20	—	—
ST32T-DTA 7- 75	6	1 ～ 7	75	21	31.5	100	—	38	—	32	—	—
-105			105		61.5							
-DTA12-105		2.5～13		30	52.5			45				
-135			135		75							
S32 -DTA 7- 75	6	1 ～ 7	75	21	31.5	70	—	38	—	32	—	—
-DTA12-100		2.5～13	100	30	52.5			45				

■**Option**
- DETa-1 collet→P.31 ●Spanner→P.31 ●Adjustable torque wrench→P.31
- Retention knob(BT)→P.64 ●Cleaning tool→P.31

■**Std. Access.**
- Coolant duct(Fixed)(HSK-A)→P.112 ●Rod(DTA3)

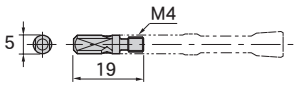
■**Note**
- Swing type coolant ducts are available upon request(HSK-A). For details, please contact us.

■**Caution**
- HSK-E and F shank don't come with a coolant duct and cannot be attached.
- ATC may not be possible for some machining centers with BT30-DTA12-120.
- For precautions and maintenance, refer to page 123.

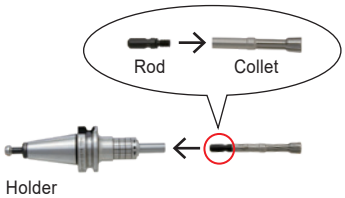
Rod (DTA3 type)

Cutting data ➔P.29

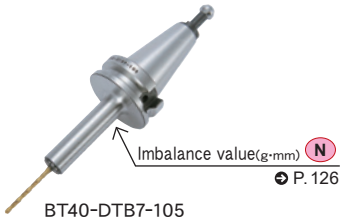
These are necessary when attaching a collet to the holder (DTA3).



CODE	Holder type	Q'ty
PR-DTA3	DTA3	2pcs.



DETa-1 Collet Holder B type (DTB)



BT40-DTB7-105


E40-DTB3-70


S32-DTB7-15

Fig. 1

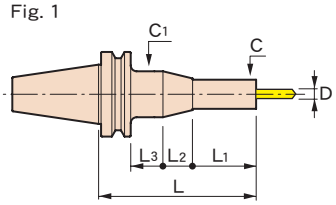


Fig. 2

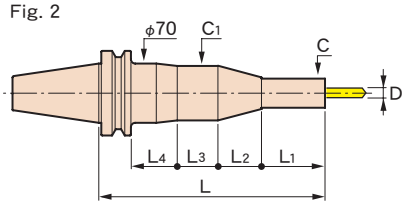


Fig. 3

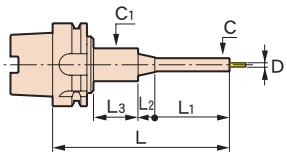


Fig. 4

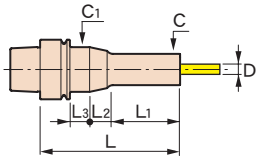


Fig. 5

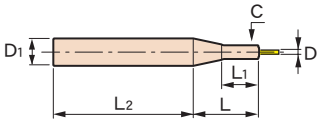
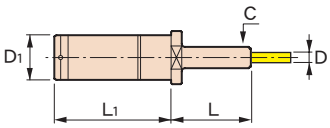


Fig. 6



CODE	Fig.	ϕD	L	ϕC	L1	L2	L3	L4	ϕC1	ϕD1	Kg	N
BT30-DTB 3- 90	1	0.5～ 3.175	90	10	27	13	28	—	25	—	0.6	1.7
-DTB 7- 75		1 ～ 7	75	21	53	—	—		—		0.5	2.4
-105			105		83							3.4
-DTB12- 75		2.5～13	75	30	53							
-105			105		83						0.7	5.6
BT40-DTB 3- 80	1	0.5～ 3.175	80	10	27	13	13	—	25	—	1.3	2.8
-110			110				43				1.4	3.2
-110L					57		13				1.3	2.8
-DTB 7- 60		1 ～ 7	60	21	33	—	—		—		1.0	3.7
-105			105		78						1.1	4.8
-135			135		75	11.8	21.2		30		1.3	5.2
-165			165		75.5	35.3	27.2		40		1.6	5.4
-195			195				57.2				1.9	5.6
-DTB12- 90		2.5～13	90	30	63	—	—		—		1.2	5.3
-120			120		93						1.3	7.6
-150			150		105	11.8	6.2		40		1.5	8.4
-180			180				36.2				1.8	8.7
-210			210				66.2				2.1	8.9
BT50-DTB 7- 75	1	1 ～ 7	75	21	37	—	—	—	—	—	3.5	11.7
-105			105		67						3.7	12.3
-135			135		75	11.8	10.2		30		3.8	18.6
-195			195			58.8	23.2		50		4.6	25.0
-255			255		75.5	82.3	59.2		60		6.1	27.6
-315	2		315		75	58.8	43.7	99.5	50		7.4	33.9
-DTB12- 75	1	2.5 ～13	75	30	37	—	—	—	—		3.7	12.5
-105			105		67						3.9	14.8
-135			135		97						4.0	15.3
-195			195		105	35.3	16.7		50		4.7	24.3
-255			255			58.8	53.2		60		5.9	28.4
-315	2		315				50.2	63			7.5	34.1
A63 -DTB 3- 75	3	0.5～ 3.175	75	10	27	13	4	—	25	—	0.8	6.9
-105			105				34				0.9	7.5
-105L					57		4				0.8	7.0

CODE	Fig.	φD	L	φC	L1	L2	L3	L4	φC1	φD1	Kg (lbs)	N
E25 -DTB 3- 58	3	0.5～ 3.175	58	10	27	16	4.6	—	18	—	0.1	0.4
E32 -DTB 3- 65	3	0.5～ 3.175	65	10	27	16	4.5	—	20	—	0.2	0.6
-DTB 7- 65K	4	1.5～ 7		21	30	14.2	10.8		26			0.9
E40 -DTB 3- 70	3	0.5～ 3.175	70	10	27	13	—	—	20	—	0.3	0.9
-DTB 7- 95	4	1 ～ 7	95	21	50	11.8	13.2		30		0.4	1.6
-DTB12-110		2.5～13	110	30	90	—	—		—		0.5	2.8
E50 -DTB 3- 75	3	0.5～ 3.175	75	10	27	16	1.5	—	20	—	0.5	1.7
-DTB 7-100	4	1 ～ 7	100	21	50	11.8	12.2		30		0.6	3.2
-DTB12-115		2.5～13	115	30	89	—	—		—		0.8	4.2
F63 -DTB 3- 75	3	0.5～ 3.175	75	10	27	13	4	—	25	—	0.8	2.1
-105			105				34				0.9	2.5
-105L					57		4				0.8	2.1
F63M-DTB 7-100	4	1 ～ 7	100	21	50	11.8	12.2	—	30	—	0.9	3.3
-DTB12-120		2.5～13	120	30	70				40		1.1	4.8
DN40AD-DTB 3- 80	1	0.5～ 3.175	80	10	27	13	18.8	25	—	—	1.2	3.5
-110			110				38.8				1.3	3.6
DIN -110L					57		18.8				1.2	3.9
-DTB 7-105		1 ～ 7	105	21	74	—	12.1	—	44.45		1.1	4.8
-135			135		75	11.8	17		30		1.2	5.0
-DTB12-105		2.5～13	105	30	74	—	12.1		44.45		1.2	5.7
-135			135		104						1.3	8.0
DN50AD-DTB 7-135	1	1 ～ 7	135	21	75	11.8	13.2	15.9	30	—	3.3	14.9
-195			195			58.8	26.2		50		4.1	21.5
DIN -DTB12-135		2.5～13	135	30	100	—	—		—		3.5	11.7
-195			195		105	35.3	19.7		50		4.2	20.8
CT40 -DTB 3- 80	1	.02～.13	3.15	.39	1.06	.51	.20	.98	—	—	2.4	3.3
-110			4.33				1.38				2.7	3.7
CAT. -110L					2.24		.20				2.4	3.3
-DTB 7-105		.04～.28	4.13	.83	2.76	—	.63	—	1.75		2.4	4.6
-135			5.31		2.95	.46	.52		1.18		2.9	5.2
-DTB12-120		.10～.51	4.72	1.18	3.34	—	.63		1.75		1.3	7.5
-150			5.91		3.66	.88	.62				3.5	8.5
CT50 -DTB 7-135	1	.04～.28	5.31	.83	2.91	.46	.52	—	1.18	—	7.3	14.8
-195			7.68			2.31	1.03		1.97		9.0	21.4
CAT. -DTB12-135		.10～.51	5.31	1.18	3.94	—	.63		2.75		7.7	11.6
-195			7.68		4.13	1.39	.78		1.97		9.0	20.8
ST12 -DTB 3	5	0.5～ 3.175	29	10	25	61	—	—	—	12	—	—
ST16 -DTB 3	5	0.5～ 3.175	38.5	10	27	81.5	—	—	—	16	—	—
ST20 -DTB 3	5	0.5～ 3.175	48	10	27	102	—	—	—	20	—	—
ST25T-DTB 7- 15	6	1 ～ 7	15	21	110	—	—	—	—	25	—	—
- 45			45									
- 75			75									
ST32T-DTB 7- 15	6	1 ～ 7	15	21	92	—	—	—	—	32	—	—
- 45			45									
- 75			75									
-DTB12- 15		2.5～13	15	30								
- 45			45									
- 75			75									
S32 -DTB 7- 15	6	1 ～ 7	15	21	70	—	—	—	—	32	—	—
-DTB12- 40		2.5～13	40	30								

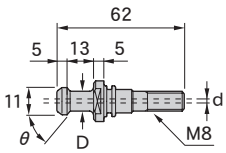
■**Option**
- DETa-1 collet→P.31 ●Wrench→P.31 ●Retention knob(BT)→P.64
- Cleaning tool→P.31

■**Std. Access.**
- Coolant duct(Fixed)(HSK-A)→P.112

■**Note**
- Swing type coolant ducts are available upon request(HSK-A). For details, please contact us.
- BT30-DTB12 requires the dedicated retention knob,which has the feature of draw bolt. Please choose P-538 or P-535.

■**Caution**
- For the E32-DTB7-65K, collet collapsibility is not available. The clamping diameter applies only to nominal end-mill shank size.
- HSK-E shank doesn't come with a coolant duct and cannot be attached.
- For precautions and maintenance, refer to page 123.

Retention knob for BT30-DTB12



CODE	φD	φd	θ	Note
P-333	7	2.5	45	In accordance with MAS-1
-334			60	In accordance with MAS-2
-538	8	4	45	FANUC center-through
-535	7.5	2.5	60	BROTHER center-through

Cutting data ➔P.29

DETa-1 Collet Holder E type (DTE)

Imbalance value(g·mm) N

BT40-DTE7-120

P. 126

A63-DTE12-120

Fig. 1

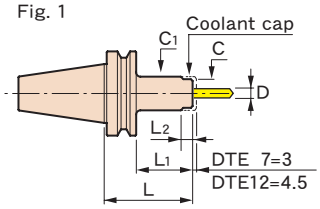


Fig. 2

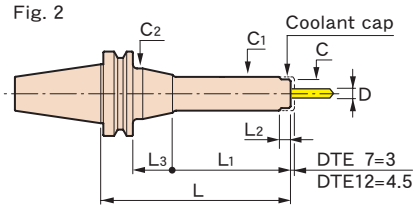


Fig. 3

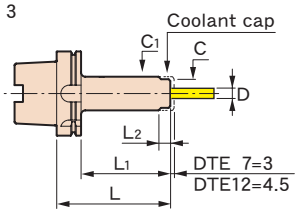
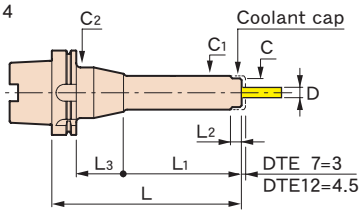


Fig. 4



CODE	Fig.	φD	L	φC	L1	L2	L3	φC1	φC2	Kg	N
BT30-DTE 7- 60-MAS1	1	1 ～ 7	60	24	38	11.5	—	29	—	0.6	3.2
-MAS2											
-DTE12- 75-MAS1		2.5～ 13	75	34	53	14		40		0.9	4.9
-MAS2											
BT40-DTE 7- 90	1	1 ～ 7	90	24	63	11.5	—	29	—	1.3	4.9
-120	2		120		70		23		40	1.5	6.2
-150			150				53		50	1.9	7.2
-180			180				83			2.4	8.9
-210			210				113			2.9	9.8
-DTE12- 90	1	2.5～ 13	90	34	63	14	—	40	—	1.5	6.1
-120			120		93					1.8	7.4
-150			150		123					2.1	9.4
-180	2		180		140		13		50	2.5	9.6
-210			210				43			2.9	11.7
BT50-DTE 7-105	1	1 ～ 7	105	24	67	11.5	—	29	—	3.9	15.6
-135	2		135		70		27		40	4.2	16.5
-165			165				57		50	4.6	18.7
-225			225				117		60	6.0	24.4
-285			285				177			7.3	30.1
-DTE12-105	1	2.5～ 13	105	34	67	14	—	40	—	4.2	16.6
-135			135		97					4.5	18.9
-165			165		127					4.8	21.0
-225	2		225		140		47		60	5.7	24.5
-285			285				107		70	7.6	27.1
A40 -DTE 7- 95	3	1 ～ 7	95	24	75	11.5	—	29	—	0.6	4.4
-DTE12-105		2.5～ 13	105	34	85	14		40		0.9	14.4
A50 -DTE 7-105	3	1 ～ 7	105	24	79	11.5	—	29	—	0.7	9.8
-DTE12-120		2.5～ 13	120	34	94	14		40		1.1	12.5
A63 -DTE 7-105	4	1 ～ 7	105	24	70	11.5	9	29	40	1.1	12.3
-120			120				24			1.2	12.8
-150			150				54		50	1.7	14.3
-180			180				84			2.1	15.7
-DTE12-120	3	2.5～ 13	120	34	94	14	—	40	—	1.5	14.9
-150			150		124					1.8	16.0
-180	4		180		140		14		50	2.3	19.1
A100-DTE 7-135	4	1 ～ 7	135	24	70	11.5	36	29	40	2.7	31.0
-165			165				66		50	3.2	32.4
-225			225				126		60	4.7	35.7
-DTE12-135	3	2.5～ 13	135	34	106	14	—	40	—	3.0	33.1
-165			165		136					3.3	36.2
-225	4		225		140		56		60	4.4	40.3

CODE	Fig.	φD	L	φC	L1	L2	L3	φC1	φC2	Kg (lbs)	N
DN40AD-DTE 7- 90	2	1 ～ 7	90	24	58	11.5	12.9	29	45	1.2	5.4
-120			120		70		30.9			1.4	6.4
-DTE12- 90		2.5～13	90	34	58.8	14	12.1	40		1.3	6.1
-150			150		118.8					1.9	9.3
DN50AD-DTE 7-105	2	1 ～ 7	105	24	70	11.5	15.9	29	70	3.4	12.0
-165			165				60		50	4.2	15.1
-DTE12-105		2.5～13	105	34		14	15.9	40	70	3.6	12.6
-165			165		130					4.2	17.0
CT40-DTE 7- 90	2	.04～.28	3.54	.94	2.17	.45	.63	1.14	1.75	2.7	5.2
-120			4.72		2.75		1.22			3.3	6.2
-DTE12- 90		.10～.51	3.54	1.34	2.17	.55	.63	1.57		3.1	6.1
-150			5.91		4.53					4.2	9.6
CT50-DTE 7-105	2	.04～.28	4.13	.94	2.75	.45	.63	1.14	2.75	7.5	11.8
-165			6.5				2.36		1.97	9.0	15.0
-DTE12-105		.10～.51	4.13	1.34		.55	.63	1.57	2.75	7.9	12.9
-165			6.5		5.12					9.3	17.3

DIN

DIN

CAT.

CAT.

■**Option**
- DETa-1 collet→P.31 ●Wrench→P.31 ●Retention knob(BT40/50)→P.64
- Tap rod (DTE12) →P.30 ●Spacer ●Coolant cap
- Spacer set ●Coolant-through system

■**Std. Access.**
- Coolant duct(Fixed)(HSK-A)→P.112 ●Retention knob(BT30)

■**Note**
- Swing type coolant ducts are available upon request(HSK-A). For details, please contact us.

■**Caution**
- A dedicated retention knob is supplied with the BT30-DTE as a standard accessory. When ordering, specify whether a MAS-1 or MAS-2 retention knob is required. To replace the retention knob, please contact us.
- For precautions and maintenance, refer to page 123.

Cutting data

DTA type

S50C — φ3 Carbide drill 3 flutes
n 9000 min-1 | Vf 900 mm/min | Vc 85 m/min | f 0.1 mm/rev
9 — E32-DTA3-75

S50C — φ3 Carbide Square endmill 3 flutes
n 6000 min-1 | Vf 150 mm/min | Vc 60 m/min | fz 0.013 mm/t
0.6 — E32-DTA3-75

Aluminum — φ8.5 Carbide drill
n 10000 min-1 | Vf 5000 mm/min | Vc 267 m/min | f 0.5 mm/rev
30 — BT40-DTA12-165

DTB type

A6061 — φ0.8 Straight drill
n 6000 min-1 | Vf 60 mm/min | Vc 15 m/min
4 — BT40-DTB3-110L

A5052 — φ0.8 Straight drill
n 10000 min-1 | Vf 400 mm/min | Vc 25 m/min
3 ※234 pcs. — A63-DTB3-75

S50C — R1.5 Carbide ball endmill
n 12500 min-1 | Vf 1560 mm/min | Vc 120 m/min | f 0.125 mm/rev
0.15 | 0.65 — E32-DTB3-65

S50C — φ3 Carbide Square endmill 2 flutes
n 6000 min-1 | Vf 150 mm/min | Vc 60 m/min | fz 0.013 mm/t
6 | 0.21 — E32-DTB3-65

S50C — R1.5 Carbide ball endmill
n 12500 min-1 | Vf 1560 mm/min | Vc 120 m/min | f 0.125 mm/rev
0.15 — E32-DTB3-65

STAVAX(42HRC) — φ0.6 Carbide straight drill
n 3715 min-1 | Vf 30 mm/min | Vc 7 m/min | f 0.01 mm/rev
11 — F63-DTB3-75

SKD61(46HRC) — R3 Carbide ball endmill 2 flutes
n 5000 min-1 | Vf 1500 mm/min | Vc 94 m/min | fz 0.15 mm/t
0.4 — BT40-DTB7-105

SKD61(46HRC) — φ10 Carbide endmill 2 flutes
n 4500 min-1 | Vf 1500 mm/min | Vc 141 m/min | fz 0.17 mm/t
0.2 | 0.2 — BT40-DTB12-90

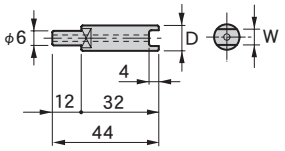
DTE type

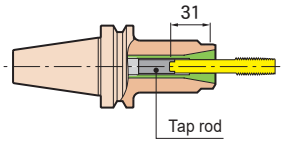
S50C — φ6 Carbide drill
n 6369 min-1 | Vf 1592 mm/min | Vc 120 m/min | f 0.25 mm/rev
18 — A63-DTE7-105

SKD61(53HRC) — R5 Carbide ball endmill 2 flutes
n 20000 min-1 | Vf 6000 mm/min | Vc 628 m/min | fz 0.15 mm/t
0.5 — A63-DTE12-120

Tap rod (DTE12type)

To be used as a stopper for synchronized tapping.



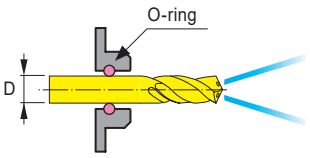


CODE	Applicable taps	ϕD	W
TR-5	JIS M 8	10.5	5
-5.5	JIS M10		5.5
-6	OSG M 8 M10		6
-6.5	JIS M12		6.5
-8	OSG M12	12	8

COOLANT-THROUGH SYSTEM (OPTION)

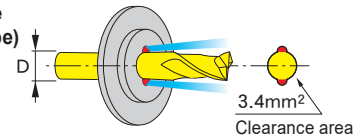
Spacer

EA type



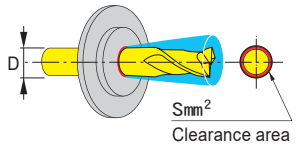
CODE	Holder type	ϕD	Q'ty
7EA- 3.5-3	DTE 7	3 ~ 3.5	3pcs. 1set
- 4 -3		3.5~ 4	
- 4.5-3		4 ~ 4.5	
- 5 -3		4.5~ 5	
- 5.5-3		5 ~ 5.5	
- 6 -3		5.5~ 6	
- 6.5-3		6 ~ 6.5	
- 7 -3		6.5~ 7	
12EA- 3.5-3	DTE12	3 ~ 3.5	3pcs. 1set
- 4 -3		3.5~ 4	
- 4.5-3		4 ~ 4.5	
- 5 -3		4.5~ 5	
- 5.5-3		5 ~ 5.5	
- 6 -3		5.5~ 6	
- 6.5-3		6 ~ 6.5	
- 7 -3		6.5~ 7	
- 8 -3		7 ~ 8	
- 9 -3		8 ~ 9	
-10 -3		9 ~10	
-11 -3		10 ~11	
-12 -3		11 ~12	
-13 -3		12 ~13	

EBM type (Groove-type)

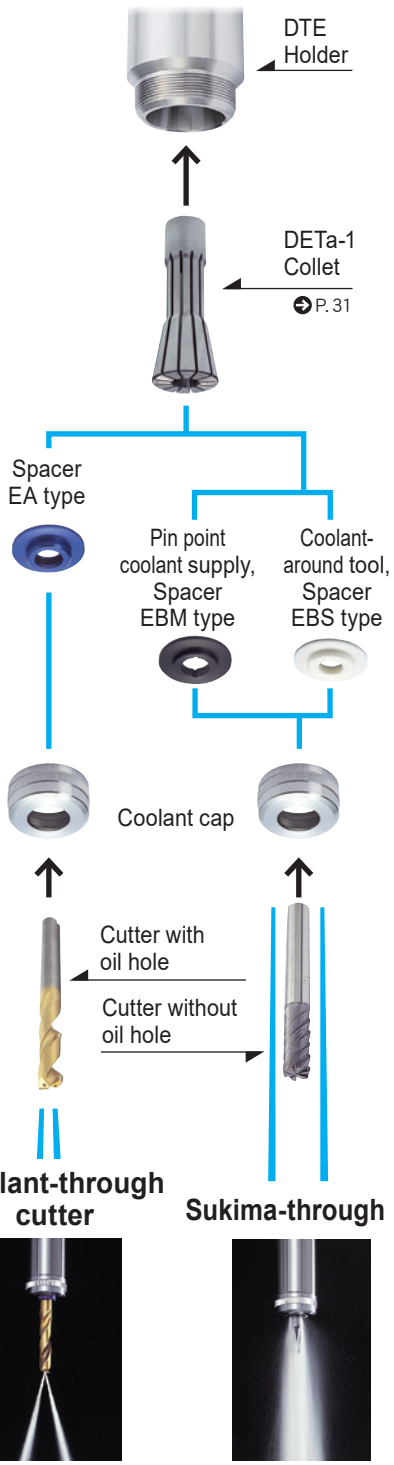


CODE	Holder type	ϕD	Q'ty
7EBM- 3-3	DTE 7	3	3pcs. 1set
- 4-3		4	
- 6-3		6	
12EBM- 3-3	DTE12	3	3pcs. 1set
- 4-3		4	
- 6-3		6	
- 8-3		8	
-10-3		10	
-12-3		12	

EBS type (Round-type)



CODE	Holder type	ϕD	S	Q'ty
7EBS- 3.6-3	DTE 7	3	3.1	3pcs. 1set
- 4.5-3		4	3.3	
- 6.4-3		6	3.9	
12EBS- 3.6-3	DTE12	3	3.1	3pcs. 1set
- 4.5-3		4	3.3	
- 6.4-3		6	3.9	
- 8.4-3		8	4.6	
-10.3-3		10	4.8	
-12.3-3		12		



Spacer blank type

Depend on cutter or application, please modify.

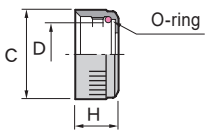
CODE	Holder type	Q'ty
7EBF-BL-5	DTE 7	5pcs. 1set
12EBF-BL-5	DTE12	

Spacer set

CODE	Holder type	Contents of set			
		Spacer	Q'ty	Coolant cap	Q'ty
7ES-A	DTE 7	7EA -3.5~7	(1ea.) total 14pcs.	CLP- 7E	1pc.
		7EBM-3 , 4 , 6			
		7EBS-3.6 , 4.5 , 6.4			
12ES-A	DTE12	12EA -3.5~13	(1ea.) total 26pcs.	CLP-12E	1pc.
		12EBM-3~12			
		12EBS-3.6~12.3			

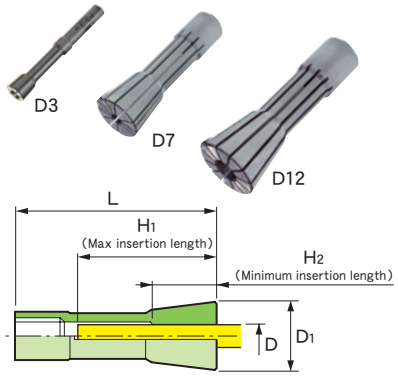
■Std. Access.
●Collet driver

Coolant cap



CODE	Holder type	ϕD	ϕC	H
CLP- 7E	DTE 7	21	29	14
-12E	DTE12	30	40	18

DETa-1 COLLET

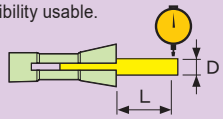


Highest guaranteed accuracies throughout entire chucking range(100% inspection)

Collet	Run-out accuracy(μm)	
	D3	D7 / D12
Precision Collet	3 (6)	5 (10)
Standard Collet	5 (10)	10 (15)

※Accuracy of collet alone,
( ) means collapsibility usable.

D	L
～10	4×D
10～13	40



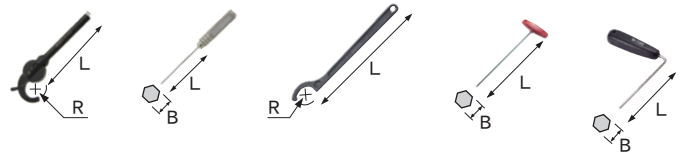
CODE		φD	Holder type	Collap-sibility	φD1	L	H1	H2
Standard Collet	Precision Collet							
D 3- 0.6	Add "-P" after the standard type item code. 〈 Example 〉 D12 - 6 - P	0.5 ～ 0.6	DTA 3 DTB 3	0.1	7	40	30	6.9
- 0.8		0.6 ～ 0.8		0.2				
- 1		0.8 ～ 1						7
- 1.5		1 ～ 1.5		0.5				7.2
- 2		1.5 ～ 2						7.3
- 2.5		2 ～ 2.5						7.4
- 3		2.5 ～ 3						7.5
- 3.175		2.7 ～ 3.175						7.6
D 7- 1.5		1 ～ 1.5	DTA 7 DTB 7 DTE 7	0.5	17	50	36	7
- 2		1.5 ～ 2						10
- 2.5		2 ～ 2.5						12
- 3		2.5 ～ 3						
- 4		3 ～ 4		1				14
- 5		4 ～ 5						16
- 6		5 ～ 6						
- 7		6 ～ 7						
D12- 4		2.5 ～ 4	DTA12 DTB12 DTE12	1.5	26	70	50	16
- 6		4 ～ 6		2				20
- 8		6 ～ 8						22
-10		8 ～ 10						
-12		10 ～ 12						
-13		11 ～ 13						

Spanner · Wrench

CODE	Holder type	Fig.	B	R	L	Tightening torque (N·m)
F- 22	DTA 3	1	-	22	110	2～ 3
DW-2.5-110	DTB 3	2	2.5	-	103	
F- 38	DTA 7	3	-	19	148.5	20～40
- 45	DTA12			22.5	225	70
TW-4	E32 - DTB 7	4	4	-	77	14
-5	DTB 7		5		153	
-6	DTB12		6		173	34
W-135DR	DTE 7	5	5		110	14
	DTE12					18
	E40 - DTB12					
	E50 - DTB12					
	F63M - DTB 7					14
	F63M - DTB12					18

■**Std. Access.**
- Collet driver (F-38, F-45, TW-5, TW-6, W135-DR)

Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5



Adjustable torque wrench

The nut-tightening torque can be adjusted more properly.

Spanner for torque wrench	Adjustable torque wrench	Holder type
F-38AW	AW-1	DTA 7
-45AW		DTA12

Attaching a cutting tool (DTB, DTE)

If a retention knob with a hole is used,
direct tightening of cutting tools is possible.

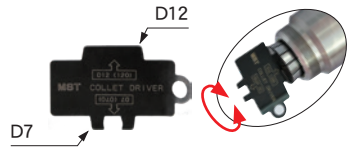
Reguired hole dia of retention knob

DTB 3 : φ4～
DTB 7, DTE : φ6～
DTB12 : φ7～

Collet driver

The DETa-1 collet can be attached/detached with ease.

CODE	Q'ty
DR-1	2pcs.

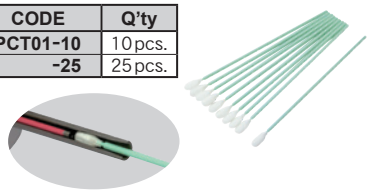


Cleaning tool

Apply this tool to clean the hard-to-clean inside portion.
The initial accuracy of tool holders can be made to last a long time by keeping the internal bore clean.

Felt type
(for DTA3 / DTB3)

CODE	Q'ty
PCT01-10	10pcs.
-25	25pcs.



STAR DUST
(for DTA7 / DTB7 / DTE7 / DTA12 / DTB12 / DTE12)

CODE	HOLDER
CLT-D 7-G1	DTA7 DTB7 DTE7
CLT-D12-G2	DTA12 DTB12 DTE12

Cleaning tool for machine spindle taper hole available.
→P.97

COLLET HOLDER

Taper collet chuck

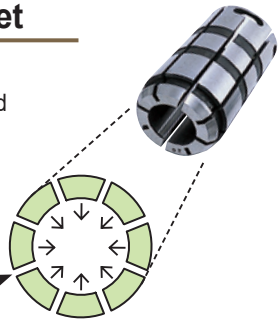
The optimum holder choices for a variety of applications!!

Coolant-through

Coolant-Through Cutter | "SUKIMA" Coolant Around Tool | Coolant-Through Collet

Precision spring collet

The increased number of slits ensures the uniform tightening and high accuracy of the collet.



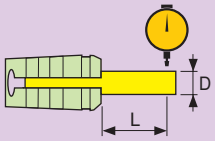
Using a high-precision collet will increase the life of your tools. ➔ P. 125

Highest guaranteed accuracies throughout entire chucking range

(100% inspection)

Collet	Run-out accuracy(μm)
Precision Collet	5
Standard Collet	10

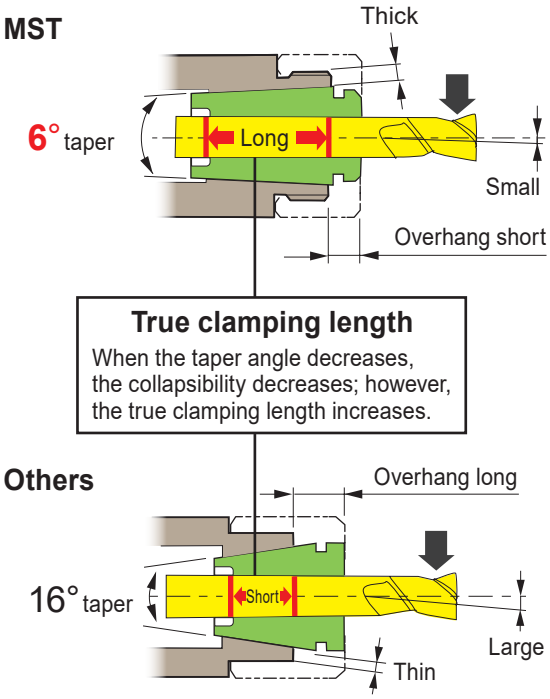
※Accuracy of collet alone



D	L
~10	4×D
10 ~20	40
20.5~42	60

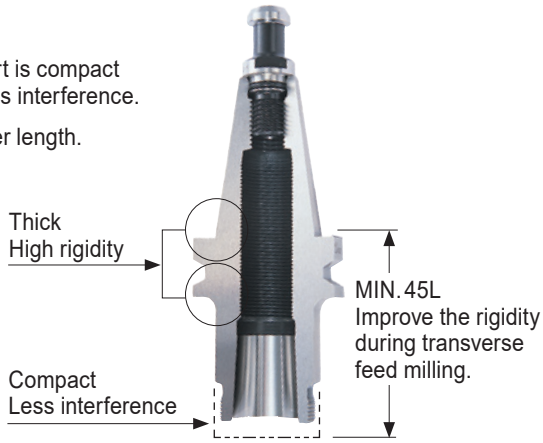
Ideal taper angle

Since the collet angle is smaller than that of typical collets, the collapsibility is also small. However, because the collet can be inserted deeper into the main body, the gripping area increases, it provides stable run-out accuracy and high gripping force and rigidity for end milling. This collet as a taper angle of 6°, the ideal angle for run-out accuracy, gripping force and rigidity.



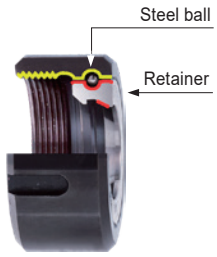
Thick and highly rigid body

- Thick body.
- The nut part is compact and has less interference.
- Short holder length.

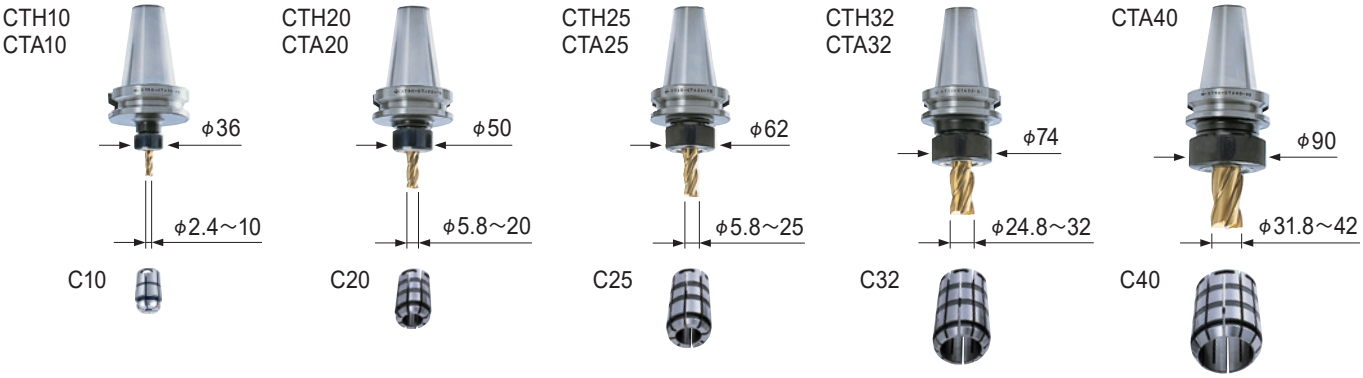


Nut for high accuracy

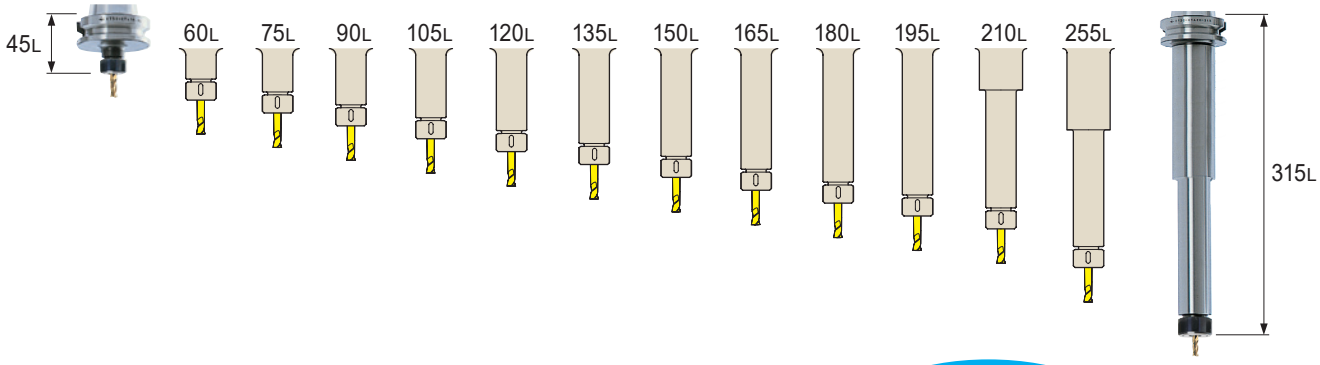
- Because steel ball bearings are built into the nut, the collet does not get twisted when tightened.
- The threaded area and the ball bearing grooves for steel bearings are finished using the same process after heat treatment, thus providing high accuracy with no distortion.
- Stable tightening force and smoothly rotation achieve high accuracy.



Five main body types based on cutting tool size

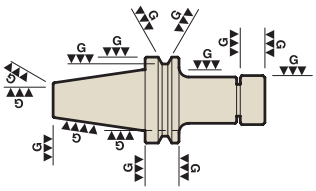


A variety of holder lengths 45L~315L



Pre-balanced by previously designing (CTHtype)

The collet holder (CTH type) is pre-balanced by previously designing the holder to be as axisymmetrical as possible. When used with the precision collet, it enables stable machining during high-speed machining.



Comparison in imbalance value

Holder code	Spring collet used	Cutter used		Imbalance value (g·mm)
		Diameter	Overhang	
BT30-CTH10-75	Precision collet C10-10-P	ϕ10	40	3.3
-CTA10-75	Standard collet C10-10			13.1

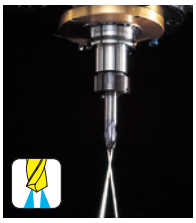
Longer cutter life using through-spindle capability
➔ P. 125

Coolant-through system

The spindle-through feature can be used whether the cutting tool has oil holes or not. ➔ P. 39

Pressure **7** Mpa

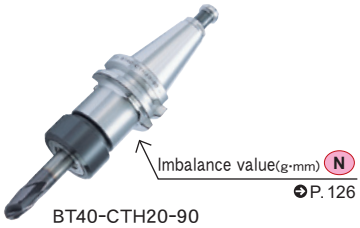
Coolant-Through Cutter



"SUKIMA" Coolant Around Tool

Coolant-Through Collet

COLLET HOLDER for high-speed (CTH)



BT40-CTH20-90


A63-CTH20-90

Fig. 1

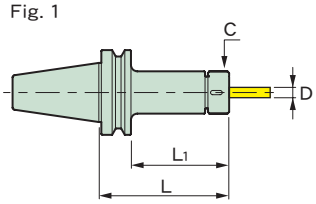


Fig. 2

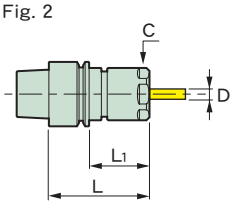


Fig. 3

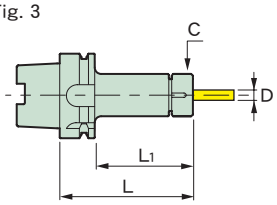


Fig. 4

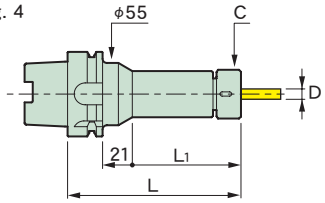
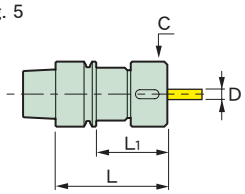


Fig. 5



CODE	Fig.	ϕD	L	ϕC	L1	Kg	N
BT30-CTH10- 45	1	2.4～10	45	36	23	0.5	2.6
- 75			75		53	0.6	2.7
-CTH20- 60		5.8～20	60	50	38		4.3
- 90			90		68	0.9	4.7
BT40-CTH10- 60	1	2.4～10	60	36	33	1.1	3.8
- 90			90		63	1.3	4.0
-120			120		93	1.4	4.4
-150			150		123	1.6	4.6
-CTH20- 60		5.8～20	60	50	33	1.2	6.4
- 90			90		63	1.4	7.0
-120			120		93	1.7	7.3
-150			150		123	2.0	7.6
-CTH25- 75		5.8～25	75	62	48	1.5	8.9
-105			105		78	2.0	9.8
BT50-CTH10-105	1	2.4～10	105	36	67	3.8	5.3
-135			135		97	4.0	5.7
-165			165		127	4.1	6.1
-CTH20-105		5.8～20	105	50	67	4.2	8.3
-135			135		97	4.6	9.0
-165			165		127	4.9	9.4
-CTH25- 75		5.8～25	75	62	37	3.8	10.3
-105			105		67	4.4	11.0
-CTH32- 90		24.8～32	90	74	52	4.1	14.4
A40 -CTH10- 55	3	2.4～10	55	32	35	0.4	3.6
- 75			75		55	0.5	3.9
- 90			90		70	0.6	4.0
-CTH20- 75		5.8～20	75	50	55	0.7	7.3
- 90			90		70	0.8	7.0
-CTH25- 95		5.8～25	95	55	75	0.9	10.7
A50 -CTH10- 55	3	2.4～10	55	36	29	0.6	6.6
- 75			75		49	0.7	6.9
A50M-CTH20- 80※		5.8～20	80	50	54	0.9	10.2
-105※			105		79	1.2	11.1
-CTH25-105※		5.8～25		62		1.3	14.7

CODE	Fig.	φD	L	φC	L1	Kg	N
A63 -CTH10- 75	3	2.4～10	75	36	49	0.9	10.2
- 90			90		64	1.0	10.4
-120			120		94	1.2	10.7
-150			150		124	1.4	11.0
-CTH20- 90		5.8～20	90	50	64	1.2	14.1
-120			120		94	1.5	14.0
-150			150		124	1.9	14.9
-CTH25-105		5.8～25	105	62	79	1.6	17.1
A100-CTH10-135	3	2.4～10	135	36	106	2.7	25.1
-165			165		136	2.9	25.4
-225	4		225		175	3.4	26.0
-CTH20-135	3	5.8～20	135	50	106	3.2	28.5
-165			165		136	3.6	29.5
-225			225		196	4.3	31.1
-CTH25-135		5.8～25	135	62	106	3.7	31.4
-165			165		136	4.3	32.7
-195			195		166	4.8	34.1
E32 -CTH10- 55	5	2.4～10	55	32	35	0.2	1.2
-CTS10- 50※	2		50	26	30		0.9
E40 -CTH10- 55	5	2.4～10	55	32	34	0.4	1.4
E50 -CTH10- 60	5	2.4～10	60	36	34	0.7	2.1
- 90			90		64	0.9	2.3
-CTH20- 75		5.8～20	75	50	49		3.8
F63 -CTH10- 60	5	2.4～10	60	36	34	0.9	2.2
- 90			90		64	1.1	2.4
-CTH20- 75		5.8～20	75	50	49		3.9
DN40AD-CTH20- 75	1	5.8～20	75	50	56	1.1	5.4
-135			135		116	1.7	5.9
DIN -CTH25- 75※		5.8～25	75	62	56	1.4	7.2
DN50AD-CTH20-105	1	5.8～20	105	50	70	3.6	9.1
-165			165		130	4.4	9.9
DIN -CTH25-105		5.8～25	105	62	70	3.8	10.9

■**Option**
- Spring collet(Precison collet)→P.38 ●Spanner→P.38 ●Adjust screw→P.37
- Retention knob(BT)→P.64 ●Adjustable torque wrench→P.38
- Coolant screw→P.39 ●Sukima nut→P.39 ●Collet remover→P.38

■**Std. Access.**
- Nut(NUA-CTH)→P.37 ●Coolant duct(Fixed)(HSK-A)→P.112

■**Note**
- Swing type coolant ducts are available upon request (HSK-A). For details, please contact us.
- Applicable for coolant-through methods →P.39
- Be sure to use precision-type spring collet.

■**Caution**
- ※The undercut area of the A50M and DN40AD-CTH25 are different from the standards. Please be careful to check for interference with the ATC arm.
- ※CTS10 = Collapsibility cannot be used. The collet can only chuck a tool of the reference diameter.
- HSK-E and F shank don't come with a coolant duct and cannot be attached.
- For precautions and maintenance, refer to page 124.

COLLET HOLDER(CTA)

BT50-CTA20-135

ST32T-CTA20-90

Fig. 1

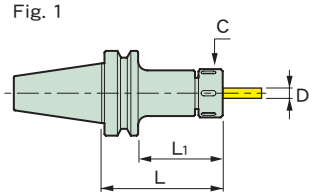


Fig. 2

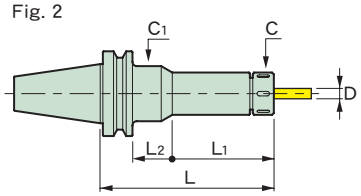


Fig. 3

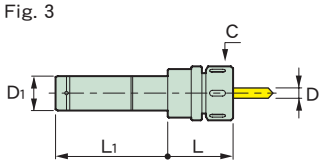
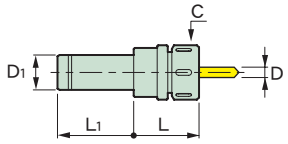


Fig. 4



CODE	Fig.	φD	L	φC	L1	L2	φC1	Kg
BT30-CTA10- 45	1	2.4～10	45	36	23	—	—	0.5
- 75			75		53			0.7
-105			105		83			0.9
-CTA20- 60		5.8～20	60	50	38			0.6
- 90			90		68			0.9
BT40-CTA10- 60	1	2.4～10	60	36	33	—	—	1.1
- 90			90		63			1.3
-120			120		93			1.5
-150			150		123			1.7
-180			180		153			1.9
-210	2		210		155	28	44	2.1
-CTA20- 60	1	5.8～20	60	50	33	—	—	1.1
- 90			90		63			1.4
-120			120		93			1.7
-150			150		123			2.1
-180			180		153			2.5
-210			210		183			2.9
-CTA25- 75		5.8～25	75	62	48			1.2
-105			105		78			1.6
-135			135		108			2.0
-CTA32-105		24.8～32	105	74	78			1.8
BT50-CTA10-105	1	2.4～10	105	36	67	—	—	3.8
-135			135		97			3.9
-165			165		127			4.0
-195			195		157			4.2
-255	2		255		155	62	55	4.9
-315			315			122		5.8
-CTA20-105	1	5.8～20	105	50	67	—	—	4.0
-135			135		97			4.4
-165			165		127			4.8
-195			195		157			5.2
-255	2		255		180	37	65	6.3
-315			315			97		7.7
-CTA25- 75	1	5.8～25	75	62	37	—	—	3.6
-105			105		67			4.2
-135			135		97			4.8
-165			165		127			5.4
-195			195		157			6.0
-255			255		217			7.2
-315	2		315		225	52	70	8.7
-CTA32- 90	1	24.8～32	90	74	52	—	—	4.0
-120			120		82			4.7
-150			150		112			5.4
-180			180		142			6.1
-CTA40- 90		31.8～42	90	90	52			4.0
-120			120		82			5.0

CODE	Fig.	φD	L	φC	L1	φD1	G	Kg (lbs)
DN40AD-CTA20- 75	1	5.8～20	75	50	56	—	—	1.1
-135			135		116			1.9
DIN -CTA25- 75		5.8～25	75	62	56			1.7
DN50AD-CTA20-105	2	5.8～20	105	50	70	—	—	2.3
-165			165		130			3.0
DIN -CTA25-105		5.8～25	105	62	70			2.9
CT40 -CTA20- 75	1	.23～.79	2.95	1.97	2.20	—	—	2.65
-135			5.31		4.57			3.75
CAT. -CTA25- 75		.23～.98	2.95	2.44	2.20			3.09
CT50 -CTA20-105	1	.23～.79	4.13	1.97	2.68			7.94
-165			6.50		5.12			9.70
CAT. -CTA25-105		.23～.98	4.13	2.44	2.68			8.60
ST20T-CTA10	3	2.4～10	35	36	110	20	—	—
ST25T-CTA10	3	2.4～10	35	36	110	25	—	—
-CTA20		5.8～20	60	50				
ST32T-CTA10- 30	3	2.4～10	30	36	100	32	—	—
- 60			60					
- 90			90					
-120			120					
-CTA20- 60		5.8～20	60	50				
- 90			90					
-120			120					
ST42T-CTA25- 90	3	5.8～25	90	62	110	42	—	—
-120			120					
S 32 -CTA10	4	2.4～10	30	36	70	32	—	—
-CTA20		5.8～20	60	50				
S 42 -CTA10	4	2.4～10	30	36	80	42	—	—
-CTA20		5.8～20	35	50				
-CTA25		5.8～25	80	62				

■**Option**
- Spring collet→P.38 ●Spanner→P.38 ●Retention knob(BT)→P.64
- Adjustable torque wrench→P.38

■**Std. Access.**
- Nut(NUA-CTA)

■**Note**
- Applicable for coolant-through methods. Please contact us for more information.

■**Caution**
- The undercut area of the DN40AD-CTA25 and CT40-CTA25 are different from the standard. Please be careful to check for interference with the ATC arm.
- For precautions and maintenance, refer to page 124.

Nut

Fig. 1

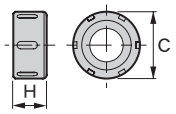


Fig. 2

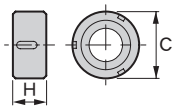
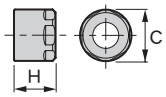


Fig. 3



CODE	Fig.	φC	H	Holder type
NUA-CTA10	1	36	18	CTA10
-CTA20		50	25	CTA20
-CTA25		62	28.5	CTA25
-CTA32		74	32	CTA32
-CTA40		90	36	CTA40
-CTH10	2	36	18	CTH10
-CTH20		50	25	CTH20
-CTH25		62	28.5	CTH25
-CTH25-55		55		CTH25(A40)
-CTH32		74	32	CTH32
-CTH10-32		32	18	CTH10(A40, E32, E40)
-CTS10	3	26	21	CTS10

Adjust screw

Fig. 1

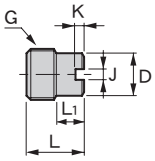
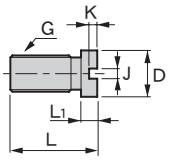
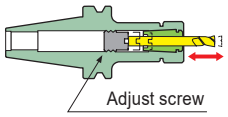


Fig. 2



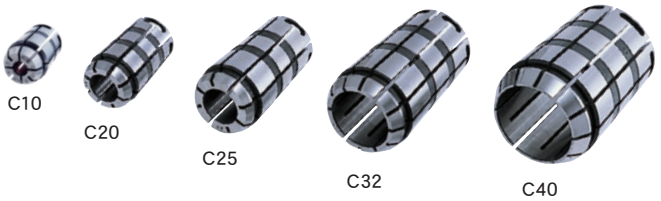
The overhang of the cutting tool can be adjusted.

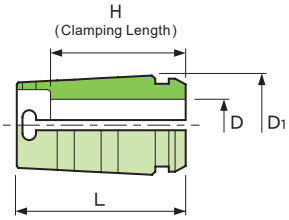


CODE	Fig.	L	φD	L1	J	K	G	Holder type
AJC-M14	1	22	10	8	1.5	3	M14×1.5	CTA10 ST25T-CTA20
-M24		27	20	13	5	4	M24×1.5	CTA20 (※1) BT40-CTA25- 75 BT40-CTA32-105
-M28			25				M28×1.5	CTA25 (※2)
-M18		24	15	8			M18×1.5	BT30-CTA20 , ST32T-CTA20
-M18L	2	43	23					BT50-CTA32 , CTA40

※1:Except BT30, SE30M, ST25T and ST32T
※2:Except BT40-CTA25-75

SPRING COLLET





CODE Standard Collet	CODE Precision Collet	φD	Holder type	Collapsibility	L	φD1	H
C10-D	Add "-P" after the standard type item code. 〈 Example 〉 C10 - 6 - P	2.6 2.8 **3** 3.2 3.4 3.6 3.8 **4** 4.2 4.4 4.6 4.8 **5** 5.2 5.4 5.6 5.8	CTH10 CTA10 CTS10※	0.2	26	17.2	18
		6 6.2 6.4 6.6 6.8 7 7.2 7.4 7.6 7.8 **8** 8.2 8.4 8.6 8.8 9 9.2 9.4 9.6 9.8 **10**					20
C20-D		**6** 6.2 6.4 6.6 6.8 7 7.2 7.4 7.6 7.8 **8** 8.2 8.4 8.6 8.8 9 9.2 9.4 9.6 9.8	CTH20 CTA20	0.2	50	29.5	32
		10 10.2 10.4 10.6 10.8 11 11.2 11.4 11.6 11.8 **12** 12.2 12.4 12.6 12.8 13 13.2 13.4 13.6 13.8 14 14.2 14.4 14.6 14.8 15 15.2 15.4 15.6 15.8					35
		16 16.2 16.4 16.6 16.8 17 17.2 17.4 17.6 17.8 18 18.2 18.4 18.6 18.8 19 19.2 19.4 19.6 19.8 **20**					40
C25-D		**6** **8**	CTH25 CTA25	0.2	68	36.5	38
		10 10.5 11 11.5 **12** 12.5 13 13.5 14 14.5 15					48
		15.5 **16** 16.5 17 17.5 18 18.5 19 19.5 **20**					54
		20.5 21 21.5 22 22.5 23 23.5 24 24.5 **25**					57
C32-D		25 28	CTH32 CTA32	0.2	80	46	66
		30 32					68
C40-D		32 40	CTA40	0.2	80	56	65
		42					70

CODE Standard Collet	φD	Holder type	Collapsibility	L	φD1	H
C20-D	1/4 5/16 3/8	CTA20	.008	1.97	1.16	1.14
	7/16 1/2					1.30
	5/8 3/4					1.57
C25-D	1/4 5/16 3/8	CTA25	.008	2.67	1.44	1.38
	7/16 1/2					1.81
	5/8 3/4					2.12
	1IN					2.24

Ex. φD C10 - 6 - P

■**Option**
- Collet remover

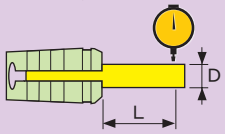
■**Note**
- Please contact us if you need a size that is not mentioned above, and we will manufacture it for you (standard accuracy collets only).

■**Caution**
- ※CTS10 = Collapsibility cannot be used. The collet can only chuck a tool of the reference diameter.

Highest guaranteed accuracies throughout entire chucking range(100% inspection)

Collet	Run-out accuracy (μm)
Precision Collet	5
Standard Collet	10

※Accuracy of collet alone

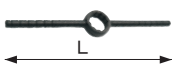


D	L
～10	4×D
10 ～20	40
20.5～42	60

Spanner · Wrench

Fig. 1

Fig. 2



CODE	Fig.	Holder type	R	L	Tightening torque(N・m)
FC-32	1	CTH10 (A40, E32, E40)	16	120	40～60
-36		CTA10, CTH10	18	208	
-50		CTA20, CTH20	25	281	120
-55		CTH25(A40)	27.5	284	150
-62		CTA25, CTH25	31	312	
-74		CTA32, CTH32	37	364	
-90		CTA40	45		
RC-26	2	CTS10	-	240	-

Adjustable torque wrench

The nut-tightening torque can be adjusted more properly.

Spanner for torque wrench	Adjustable torque wrench	Holder type
FC-36AW	AW-1	CTA10, CTH10
-50AW	-2	CTA20, CTH20

Spring collet standard set

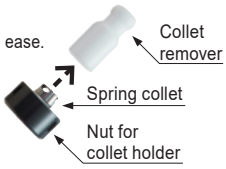
CODE	Collet inner diameter	Q'ty	Holder type
C10-Aset	3, 4, 5, 6, 8, 10	6pcs. (1ea.)	CTA10
C20-Aset	6, 8, 10, 12, 16, 20		CTA20
C25-Aset	6, 8, 10, 12, 16, 20, 25	7pcs. (1ea.)	CTA25

■**Std. Access.**
- Collet remover(C10-A set)

Collet remover

The collet can be attached/detached with ease.

CODE	Holder type
C10-RM	C10
C20-RM	C20
CE-CTS10	CTS10



Cleaning tool STAR DUST

Clean the difficult to reach part inside the holder.
The initial accuracy of tool holders can be made to last a long time by keeping the internal bore clean.

CODE	HOLDER
CLT-C10-G1	CTH10/CTA10
-C20-G2	CTH20/CTA20
-C25-G2	CTH25/CTA25

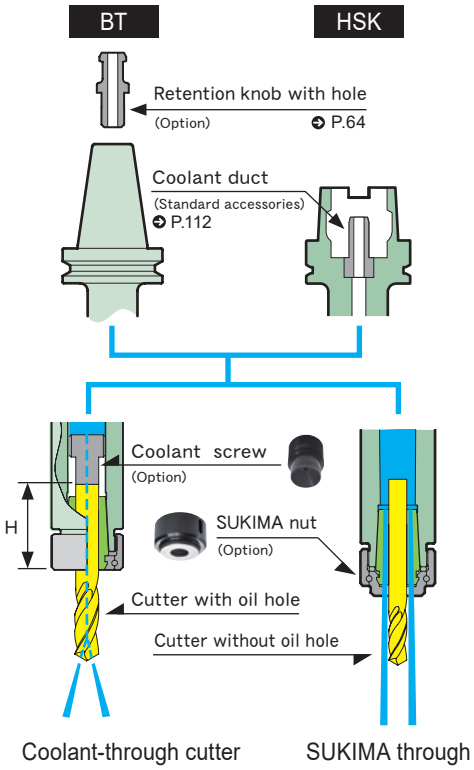
※Cleaning tool for machine spindle taper available.→P.97

COOLANT-THROUGH SYSTEM

CODE	Retention knob with hole	Coolant-through cutter: Coolant screw	H	SUKIMA through: SUKIMA nut
BT30 -CTH10- 45	Model no. of retention knob depends on the machine model.	CSA-M14	22～38	NUB-CTH10
- 75			22～68	
-CTH20- 60		※1	-	-CTH20
- 90				
BT40 -CTH10- 60		CSA-M14	22～54	NUB-CTH10
- 90			22～67	
-120				
-150				
-CTH20- 60		-M24S	44～54	-CTH20
		-M24L	36～46	
- 90		-M24S	44～79	
		-M24L	36～71	
-120		-M24S	44～83	
		-M24L	36～75	
-150		-M24S	44～89	
		-M24L	36～81	
-CTH25- 75		-M24S	61～73	-CTH25
		-M24L	53～65	
-105		-M28	61～80	
BT50 -CTH10-105		CSA-M14	22～49	NUB-CTH10
-135			22～67	
-165				
-CTH20-105		-M24S	44～81	-CTH20
		-M24L	36～73	
-135		-M24S	44～89	
		-M24L	36～81	
-165		-M24S	44～89	
		-M24L	36～81	
-CTH25- 75		-M28	61～79	-CTH25
-105			61～89	
-CTH32- 90		※1	-	-CTH32
DN40AD-CTH20- 75		CSA-M24S	44～ 69	NUB -CTH20
		-M24L	36～ 61	
-135		-M24S	44～ 89	
		-M24L	36～ 81	
-CTH25- 75		-M24S	61～ 73	-CTH25
		-M24L	53～ 65	
DN50AD-CTH20-105		CSA-M24S	44～ 89	NUB-CTH20
		-M24L	36～ 81	
-165		-M24S	44～ 89	-CTH20
		-M24L	36～ 81	
-CTH25-105		-M28	61～ 90	-CTH25

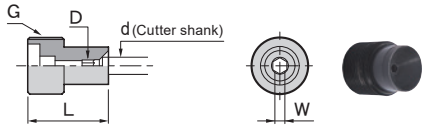
CODE	Coolant duct	Coolant screw	H	SUKIMA nut
A40 -CTH10- 55	CD 40-01	CSR- 14	21.7	NUB-CTH10
- 75		CSA-M14	22～ 24	
- 90			21～ 44	
-CTH20- 75	-03	Unnecessary	53	-CTH20
- 90	-01	CSA-M24S	41.9	
-CTH25- 95	-04	Unnecessary	72	-CTH25
A50 -CTH10- 55	CD 50-01	Unnecessary	-	NUB-CTH10
- 75		CSA-M14	21～ 22	
A50M-CTH20- 80		Unnecessary	-	-CTH20
-105		CSA-M24S	42～ 47	
-CTH25-105	-03	Unnecessary	80	-CTH25
	-04※2		60	
A63 -CTH10- 75	CD 63-02	CP - 14M	21～ 28	NUB-CTH10
- 90	-01	CSA-M14	22～ 31	
-120			22～ 52	
-150				
-CTH20- 90	-03	Unnecessary	65	-CTH20
	-04※2		44	
-120	-01	CSA-M24S	44～ 54	
		-M24L	36～ 46	
-150		-M24S	44～ 77	
		-M24L	36～ 69	
-CTH25-105	-03	Unnecessary	80	-CTH25
	-04※2		59	
A100 -CTH10-135	CD100-01	CSA-M14	22～ 67	NUB-CTH10
-165				
-225				
-CTH20-135		-M24S	44～ 65	-CTH20
		-M24L	36～ 57	
-165		-M24S	44～ 89	
		-M24L	36～ 81	
-225		-M24S	44～ 89	
		-M24L	36～ 81	
-CTH25-135	-02	※1	-	-CTH25
-165	-01	CSA-M28	61～ 75	
-195			61～105	

■Note
- For information on the asterisked (※1) coolant screw for the coolant-through cutter capability, please contact MST.
- A coolant duct is built into every tooling holder. However, the coolant ducts marked with ※2 are optional.
- Applicable for CTA type too. Please contact us for more information.



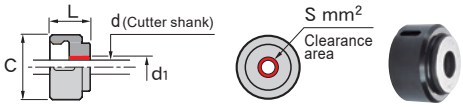
*SUKIMA through = Coolant Around Tool

Coolant screw



CODE	φD	φd	L	G	W
CSR-14	3.2	4～10	14	-	-
CP -14M	3	7～10	53	M14×1.5	3
CSA-M14	2.4	4～10	26		2
-M24S	7	10～20	30	M24×1.5	6
-M24L	3.4	6～12	38		3
-M28	6	10～25	40	M28×1.5	5

SUKIMA nut



CODE	φC	L	φd	φd1	S
NUB-CTH10- 3.6	36	23	3	3.6	3.1
- 4.5			4	4.5	3.3
- 5.5			5	5.5	3.7
- 6.4			6	6.4	3.9
- 8.4			8	8.4	4.6
-10.3			10	10.3	4.8
-CTH20- 6.4	50	30	6	6.4	3.9
- 8.4			8	8.4	4.6
-10.3			10	10.3	4.8
-12.3			12	12.3	
-16.2			16	16.2	5.1
-20.2			20	20.2	5.7
-CTH25-20.2	62	34.5			
-25.2			25	25.2	5.9
-CTH32-25.2	74	38			
-32.1			32	32.1	6.0

■Caution
- Only the reference cutter size can be used.

Hi-ART MILLING CHUCK

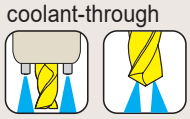
Needle-roller type chuck

The Hi-ART milling chuck achieves the accuracy, rigidity and torque required of a milling chuck.
Ideal for use as the end-milling base holder!!

Shrinker

Thanks to the shrinker, the cutter shank is chucked evenly from the bottom to the top of the gripping range, ensuring high rigidity and gripping force.

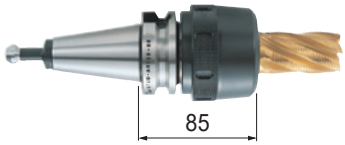
coolant-through



Nozzle-through | Coolant-Through Cutter

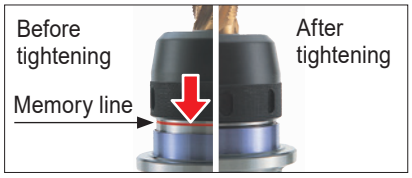
The shortest holder length is 85mm (BT40).

The shorter holder length means increased rigidity. The rigidity of the tool holder is inversely proportional to the cube of the length, meaning the deflection of this holder is about half that of a 105mm holder.



Memory line clearly confirms tightness of the nut.

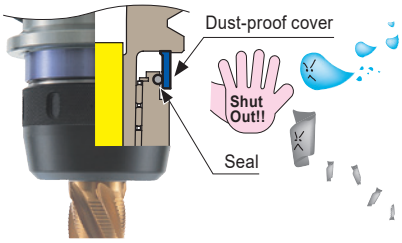
You can check the recommended degree of tightening at a glance.
Also, it only takes about one and half turns for tightening operation.



Keeps chips and coolant out completely

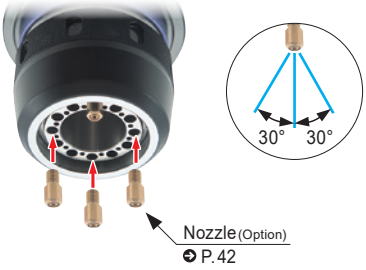
Longer life

Dust-proof cover keeps chips and coolant out completely.

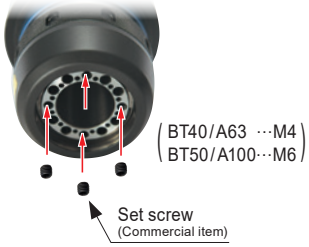


Applicable for coolant-through version

Nozzle-through



Coolant-Through Cutter



Longer cutter life using through-spindle capability P.125

Applicable as a base holder for various applications

Hi-ART MILLING CHUCK (ART)

BT50-ART32-105

A100-ART32-135

Fig. 1

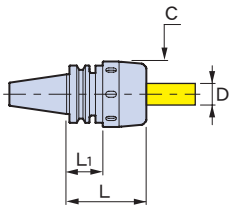


Fig. 2

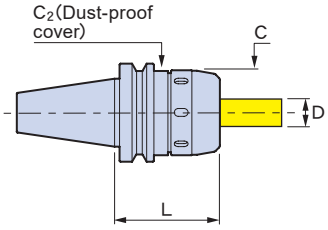


Fig. 3

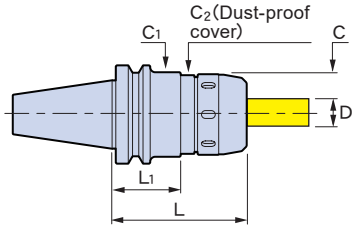


Fig. 4

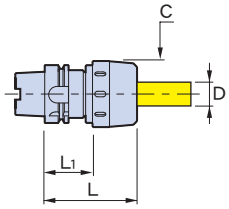
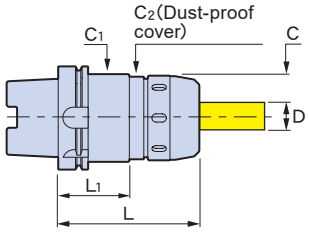


Fig. 5



CODE	Fig.	φD	L	φC	φC1	φC2	L1	Cutter insertion length	Kg	MAX. min-1
BT40-ART32- 85	1	32	85	72	—	—	37	66～ 88	1.9	6,000
- 95			95				47		2.1	
-105			105				57		2.3	
-135			135				87		3.0	
BT50-ART32-105	2	32	105	82	—	80	—	66～ 98	5.1	5,000
-135	3		135		86		69		6.4	
-165			165				99		7.7	
-180			180				114		8.4	
-ART42-105	2	42	105	97	—	95	—	76～108	5.4	3,000
-135	3		135		99		67		7.1	
A50M-ART32-100	4	32	100	72	—	—	44	66～ 71	1.7	6,000
A63 -ART32-100	4	32	100	72	—	—	44	66～ 71	2.0	6,000
A100-ART32-135	5	32	135	82	85	80	69	66～ 98	5.3	5,000
-ART42-135		42		97	99	95	67	76～ 98	6.1	3,000

■Option

- Straight collet→P.42 ●Nozzle→P.42 ●Spanner with ejection hook→P.42
- Adjust screw→P.42 ●Retention knob(BT)→P.64

■Std. Access.

- Coolant duct(Fixed)(HSK-A)→P.112

■Note

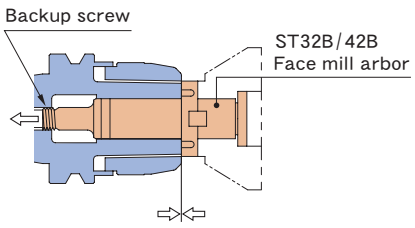
- To utilize the coolant-through nozzle capability, the retention knob with hole and nozzle are required.
- Swing type coolant ducts are available upon request(HSK-A). For details, please contact us.

■Caution

- For BT40 type, the outer diameter of the nut is larger than that of the V-flange. Therefore, pay close attention to possible interference with the ATC arm.
- When using the straight arbor in BT40, use the S type (ex.S32-CTA10).
- For A50M and A63, the coolant-through system is not available for straight collets.
- Cutter-through coolant is not available for straight collets.
- For precautions and maintenance, refer to page 124.

Increased rigidity with the Face Lock system (BT)

For face milling applications, combining a holder and a face mill arbor, with backup screw (ST32B, ST42B-FMA), will achieve strong gripping (Face Lock) and improve the rigidity during transverse feed milling.

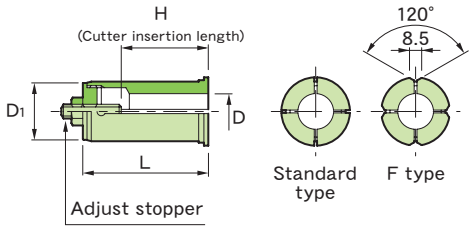


Face Lock

Straight collet

Standard type

F type



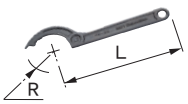
CODE		φD	L	φD1	H	Holder type
Standard type	F type					
S32- 6	S32- 6F	6	75	32	30～68	ART32
- 8	- 8F	8				
-10	-10F	10			40～68	
-12	-12F	12				
-16	-16F	16			50～68	
-20	-20F	20				
-25	-25F	25			55～68	
S42- 6	S42- 6F	6	80	42	30～73	ART42
- 8	- 8F	8				
-10	-10F	10			45～73	
-12	-12F	12				
-16	-16F	16			50～73	
-20	-20F	20				
-25	-25F	25			55～73	
-32	-32F	32			60～73	

■**Caution**
- Remove the adjust stopper when using a straight collet with A50M/ A63.
- When a straight collet with nozzles is used, use the F type.

■**Std. Access.**
- Adjust stopper

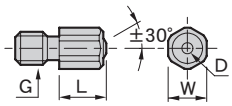
Spanner with ejection hook

This spanner can be used to both tighten a nut and remove a straight collet.



CODE	R	L	Holder type	Clamping torque(N·m)
FM-72	36	204	ART32 (BT40, A50M, A63)	60
-82	41	234	ART32 (BT50, A100)	70
-97	48.5	239	ART42 (BT50, A100)	

Nozzle

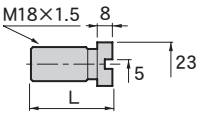


CODE	L	G	W	φD	Holder type	Q'ty
NOZ-M4-12	6.3	M4	4.5	1.2	BT40, A50M, A63	12pcs.
-60						60pcs.
-M6-12	8.5	M6	7	1.8	BT50, A100	12pcs.
-60						60pcs.

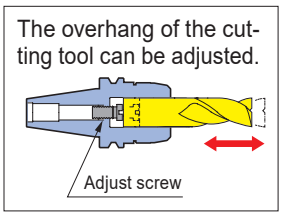
■**Std. Access.**
- Wrench for attachment

Adjust screw

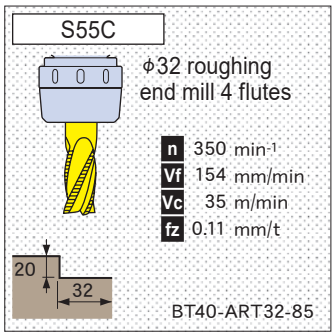
The overhang of the cutting tool can be adjusted.

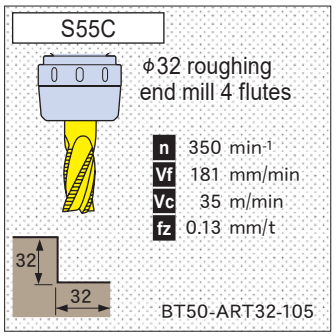


CODE	L	Shank type	Q'ty
AJN-M18L	38	BT40	5pcs.
-M18	63	BT50	



Cutting data





The ace for heavy-duty cutting!! The set screw holder that doesn't need a whistle notch.

▷ Accuracy → Less than 20μm / 100L

▷ Gripping force → 4000N · m (ϕ 42)

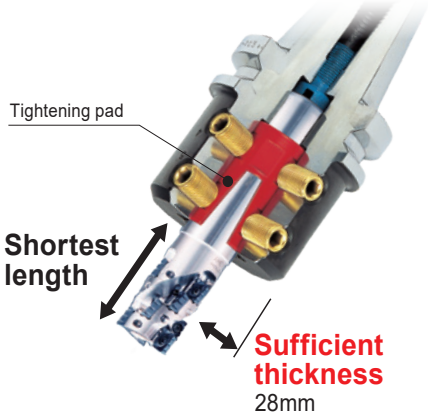
Whistle notch end mill

coolant-through

Nozzle-through

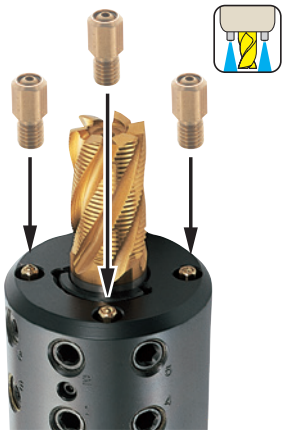
Adjustable projection of cutting tool

Our original tightening pad system allows a round shank, as well as a whistle notch shank end mill, to be used. The projection of the cutting tool, which is critical for heavy-duty cutting, can be made as short as possible.



Applicable for coolant-through version (A100)

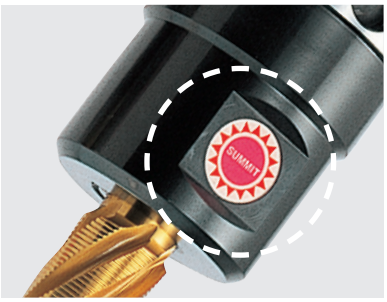
Nozzle-through



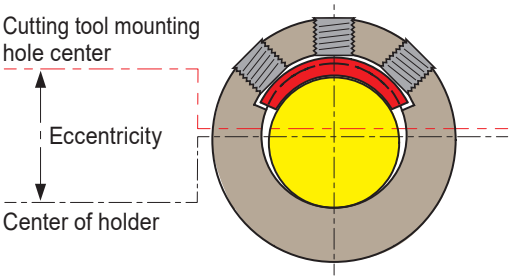
Longer cutter life using through-spindle capability
➔ P. 125

Applicable to high-speed cutting

Pre-balanced design



High accuracy thanks to its eccentric bore design



SUMMIT (SLZ)

BT50-SLZ32-105

A100-SLZ32-135

Fig. 1

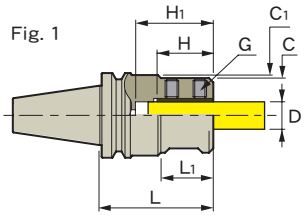


Fig. 2

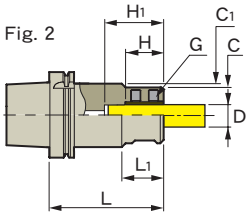
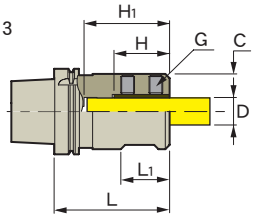


Fig. 3



CODE	Fig.	ϕD	L	L1	ϕC	ϕC1	H	H1	G	Kg
BT50-SLZ25- 90	1	25	90	—	66	—	45	70	4-M12	4.6
-120			120	45		75				5.6
-150			150							6.5
-SLZ32-105		32	105	—	88	—	65	100	6-M16	5.9
-135			135	62		95				7.5
-165			165							9.1
-SLZ42-105		42	105	—	98	—	70	110		6.1
-135			135							7.8
-165			165							9.5
A100-SLZ25-135	2	25	135	66	66	75	45	70	4-M12	4.9
-SLZ32-135	3	32		88	88	—	65	100	6-M16	6.1
-SLZ42-135		42		98	98		70			6.6

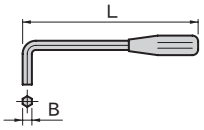
■**Option**
- Wrench ●Adjust screw (BT50) ●Nozzle (HSK-A100) ●Retention knob (BT50)→P.64

■**Std. Access.**
- Coolant duct (Fixed) (HSK-A100)→P.112

■**Note**
- Swing type coolant ducts are available upon request (HSK-A). For details, please contact us.

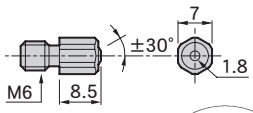
■**Caution**
- If the dedicated wrench is not used, use a wrench with a minimum handle length of 30 cm for the M16 or 20 cm for the M12.
- For precautions and maintenance, refer to page 125.

Wrench



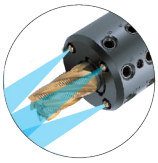
CODE	Holder type	B	L	Tightening torque (N·m)
W-206	SLZ25	6	200	40
-308	SLZ32 SLZ42	8	300	100

Nozzle



CODE	Q'ty
NOZ-M6-12	12pcs.
-60	60pcs.

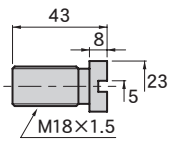
■**Std. Access.**
- Wrench for attachment



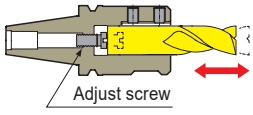
Adjust screw

The overhang of the cutting tool can be adjusted.

CODE	Shank type	Q'ty
AJC-M18L	BT50	5pcs.

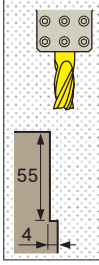


The overhang of the cutting tool can be adjusted.



Cutting data

A2017

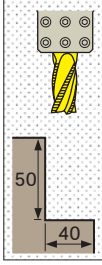


ϕ38 end mill
4 flutes

n	5000 min-1
Vf	5000 mm/min
Vc	597 m/min
fz	0.25 mm/t

BT50-SLZ32-105

S50C

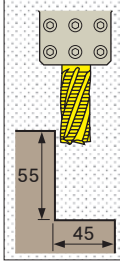


ϕ40 roughing
end mill 6 flutes

n	280 min-1
Vf	168 mm/min
Vc	35 m/min
fz	0.1 mm/t

BT50-SLZ32-105

S50C



ϕ45 roughing
end mill 6 flutes

n	190 min-1
Vf	114 mm/min
Vc	25 m/min
fz	0.1 mm/t

BT50-SLZ42-105

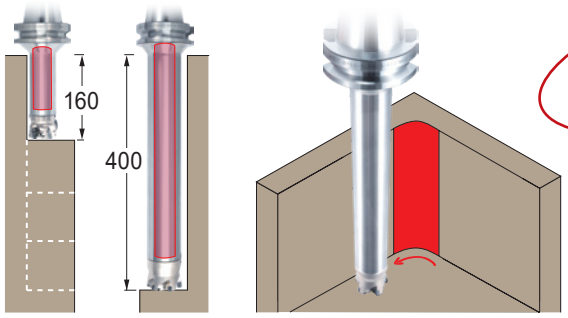
The solution for high-efficient machining of deep cavity application.

1 Roughing

With a solid carbide core PAT.

FMH RIGID type P. 46

Ideal for heavy duty roughing application at shallow and deep machining using a face milling arbor with a large size solid carbide core.

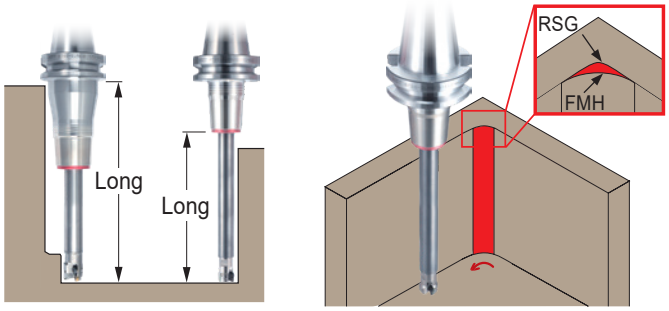


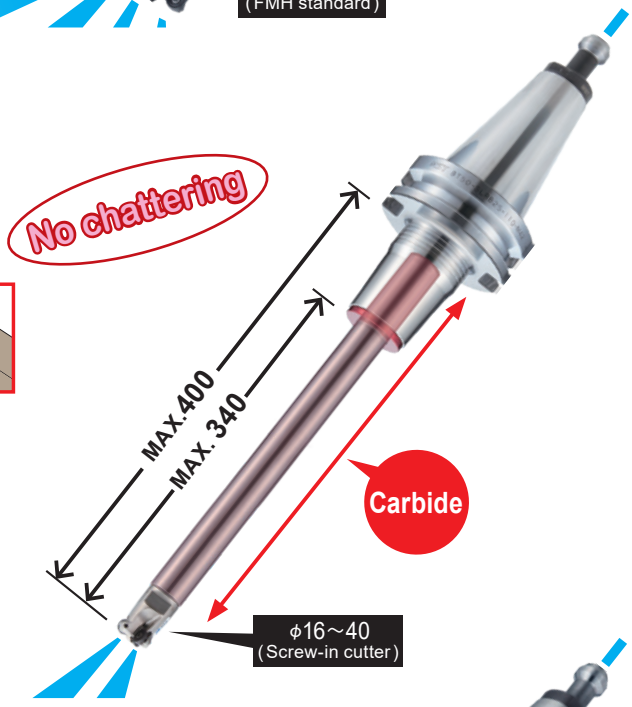
2 Semi-finishing

For screw-in end-mills PAT.

RED SCREW ARBOR P. 48

Less vibration at a corner and pocket machining thanks to a solid design using a carbide shaft.



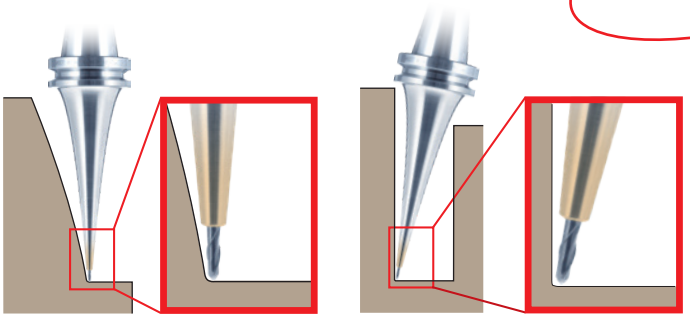


3 Finishing

SHRINK-FIT HOLDER PAT.

SLIMLINE MONO CURVE

Superior Accessibility.
Slim tip design of Curve minimizes cutter projection.



If you would like more detailed information, please contact MST and ask for a SLIMLINE catalog.

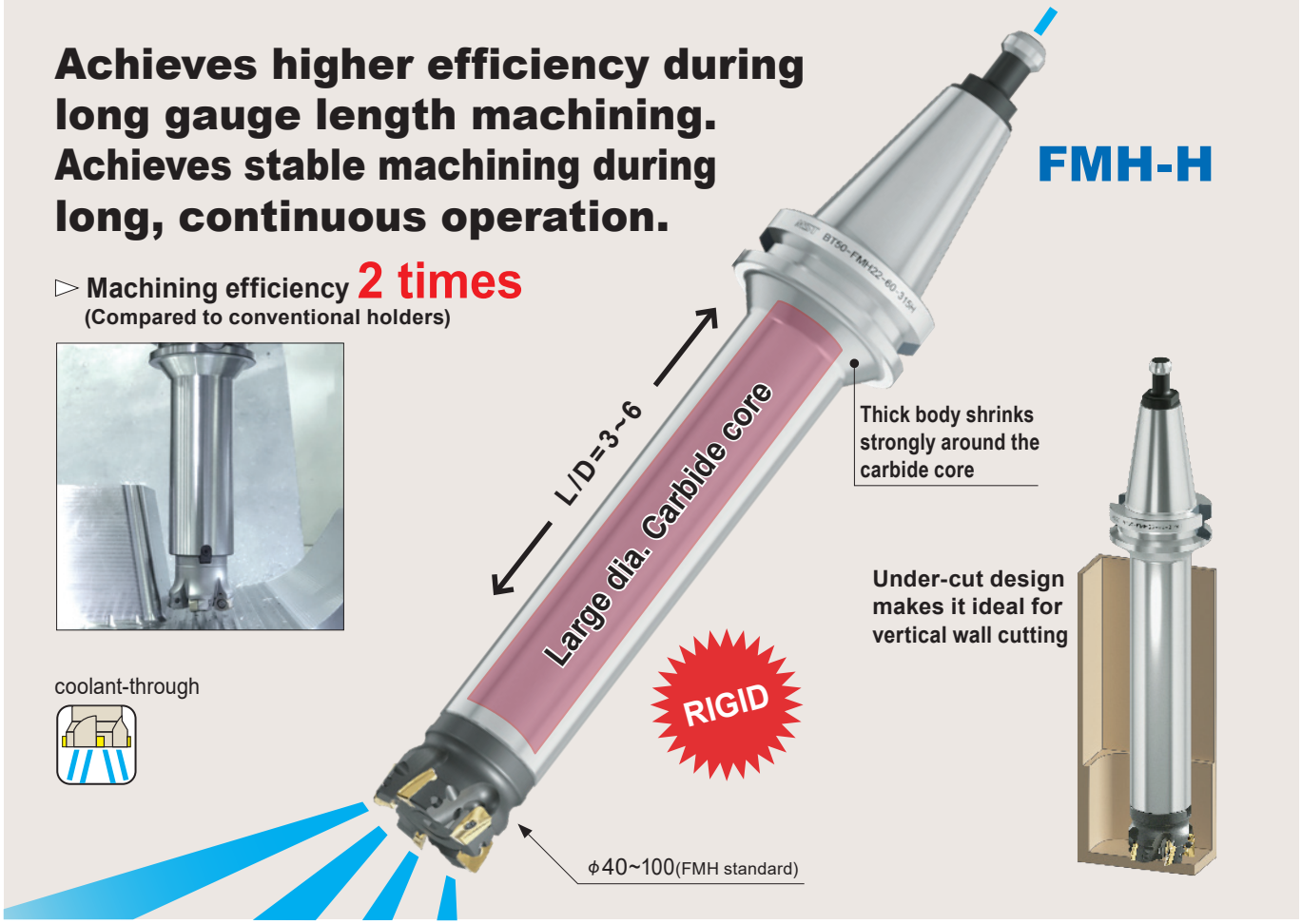
FMH RIGID type

PAT.
with a solid carbide core

Achieves higher efficiency during long gauge length machining. Achieves stable machining during long, continuous operation.

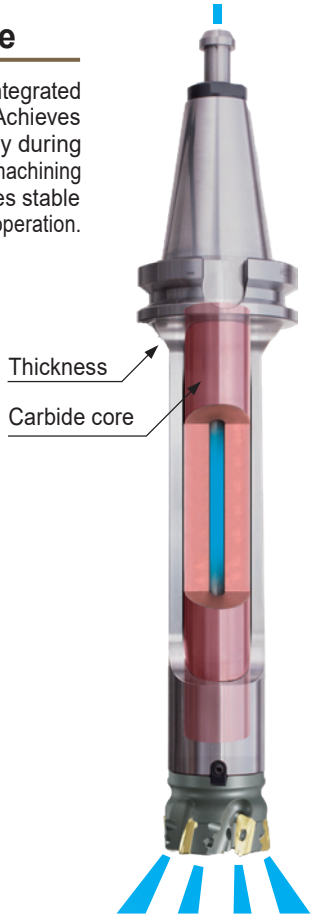
▷ Machining efficiency **2 times**
(Compared to conventional holders)

coolant-through



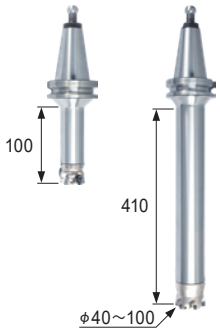
Large dia. Carbide core

The large-diameter carbide core is integrated into the thick body by shrink-fitting. Achieves less deflection and higher efficiency during long-gauge machining. Vibration-free machining leads to longer insert life and achieves stable machining during long and continuous operation.



Even greater efficiency!

Effective length of our line up is from 100mm to 410mm and cutter dia of our line up is from ϕ40 to ϕ100.
Shorter and longer gauge length models added to our current line up. Ideal for deep cavity mold applications. Makes more efficient roughing possible.



FMH standard

Available for FMH standard cutting tools that supplies coolant to the cutting edge properly.

Works with these manufacturers' cutting tools

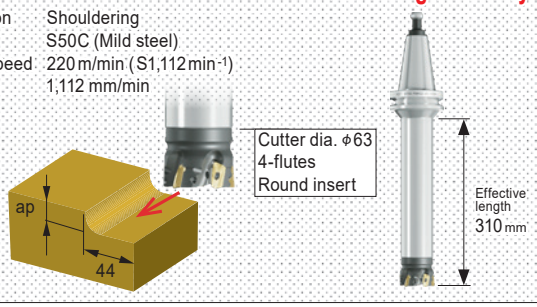
OSG KYOCERA Sumitomo Electric Hardmetal
DIJET INDUSTRIAL Tungaloy MITSUBISHI MATERIALS
MOLDINO AURA

Comparison test

Cutting depth ap (mm)	0.5	1.0	1.5	2.0
FMH RIGID type BT50-FMH22-60-315H	○	○	○	○
Conventional BT50-FMH22-60-300	○	× Chattering		

Double the Machining efficiency

- Application: Shouldering
- Material: S50C (Mild steel)
- Cutting speed: 220 m/min (S1,112 min^{-1})
- Feed rate: 1,112 mm/min



FMH RIGID type with a solid carbide core (FMH-H)

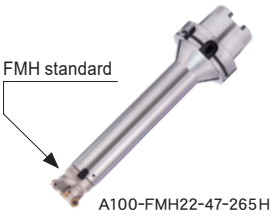


Fig. 1

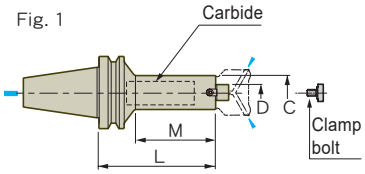
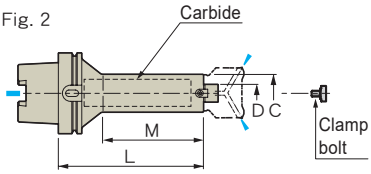


Fig. 2



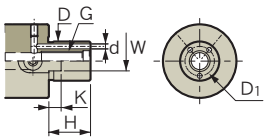
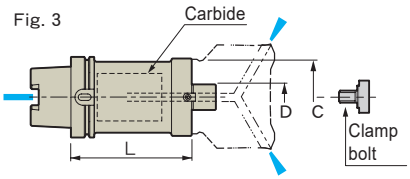


Fig. 3



CODE	Fig.	L	M	Kg	Moment kgf·m
BT50-FMH16 -37-125H	1	125	60	5.0	0.1
-175H		175	110	5.7	0.2
-225H		225	160	6.4	0.3
-275H		275	210	7.1	0.5
-325H		325	260	7.8	0.7
BT50-FMH22 -47-165H	1	165	110	5.9	0.2
-215H		215	160	6.5	0.3
-265H		265	210	7.4	0.5
-315H		315	260	8.2	0.7
-365H		365	310	9.0	1.0
-60-165H		165	110	6.9	0.3
-215H		215	160	8.0	0.5
-265H		265	210	9.3	0.8
-315H		315	260	10.5	1.2
-365H		365	310	11.8	1.6
-415H		415	360	13.1	2.1
BT50-FMH27 -60-165H	1	165	110	6.9	0.3
-215H		215	160	8.0	0.5
NEW -265H		265	210	9.3	0.8
-315H		315	260	10.5	1.2
-365H		365	310	11.8	1.6
-415H		415	360	13.1	2.1
-76-215H		215	160	10.3	0.8
-265H		265	210	12.2	1.3
-315H		315	260	14.0	1.8
-365H		365	310	15.9	2.4
BT50-FMH31.75-76-215H	1	215	160	10.3	0.8
-265H		265	210	12.3	1.3
-315H		315	260	14.0	1.8
-365H		365	310	16.0	2.4

CODE	Fig.	L	M	Kg	Moment kgf·m
A100-FMH16 -37-125H	2	125	60	3.9	0.1
-175H		175	110	4.6	0.2
-225H		225	160	5.3	0.3
-275H		275	210	6.0	0.5
-325H		325	260	6.7	0.7
A100-FMH22 -47-165H	2	165	110	4.6	0.2
-215H		215	160	5.3	0.4
-265H		265	210	6.2	0.6
-315H		315	260	7.0	0.8
-365H		365	310	7.8	1.1
-60-165H		165	110	5.7	0.3
-215H		215	160	6.8	0.6
-265H		265	210	8.1	0.8
-315H		315	260	9.4	1.2
-365H		365	310	10.6	1.6
-415H		415	360	11.9	2.1
A100-FMH27 -60-165H	2	165	110	5.7	0.3
-215H		215	160	6.8	0.6
NEW -265H		265	210	8.1	0.9
-315H		315	260	9.4	1.2
-365H		365	310	10.6	1.6
-415H		415	360	11.9	2.1
-76-215H		215	160	9.1	0.8
-265H		265	210	11.1	1.3
-315H		315	260	12.9	1.8
-365H		365	310	14.8	2.4
A100-FMH31.75-76-215H	2	215	160	9.2	0.9
-265H		265	210	11.1	1.3
-315H		315	260	12.9	1.8
-365H		365	310	14.9	2.5
-96-250H	3	250	—	15.6	1.9
-300H		300		18.8	2.7
-350H		350		22.0	3.8
A100-FMH32 -96-250H	3	250	—	15.6	1.9
NEW -300H		300		18.8	2.7
-350H		350		22.0	3.7

■Common dimensions

CODE	Cutter dia.	φD	H	φC	W	K	φD1	φd	G	Clamp bolt
FMH16 -37	40	16	17	37	8	5	12	2	M 8	M 8※
FMH22 -47	50/52	22	18	47	10	5	16	3	M10	M10※
-60	63/66			60						
FMH27 -60	63/66	27	20	60	12	6	19.5	3.5	M12	M12※
-76	80									
FMH31.75-76	80	31.75	30	76	12.7	7	24	4	M16	MBF-M16
-96	100			96						
FMH32 -96	100	32	22	96	14	7	24	4	M16	MBF-M16

Available for DIN/ CAT.

■**Option**
- Retention knob(BT)→P.64

■**Std. Access.**
- Coolant duct(Fixed)(HSK-A)→P.112
- Clamp bolt(unless marked with in the list) • Stopper key

■**Note**
- Swing type coolant ducts are available upon request (HSK-A). For details, please contact us.
- The clamp bolt marked with ※ in the list is a hexagonal socket bolt. Use a market standard bolt.
- Contact us to find out what manufacturers' cutters can be used with this product.

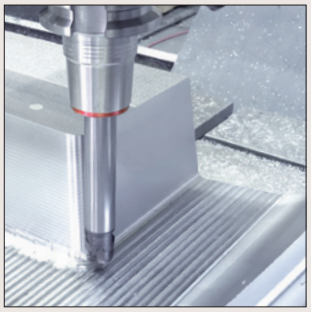
■**Caution**
- The required clamp bolt design depends on the cutter manufacturer and the type of cutter.

RED SCREW arbor

PAT.
The arbor for screw-in End Mill

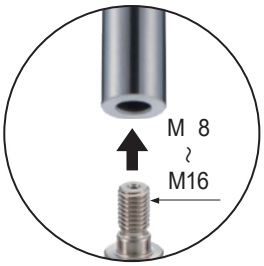
Displaying the highest cutting performance of any screw-in end mill!!

- ▷ Highly rigid design makes the best use of carbide properties (high Young's modulus).
- ▷ Ideal for deep standing-wall machining.

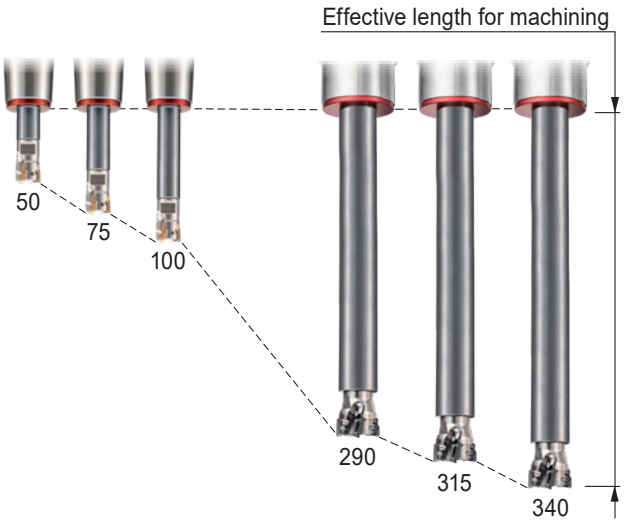


coolant-through

Works with these manufacturers' tools



Many effective lengths for machining

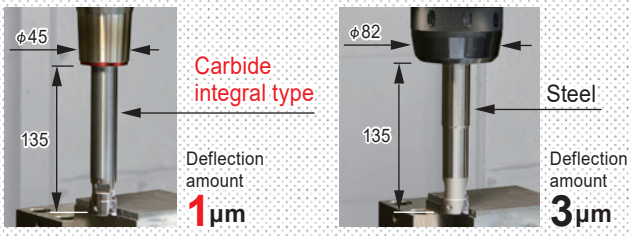


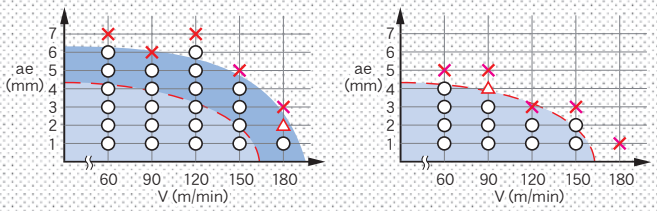
Heavy cutting ⟷ **Deep standing-wall machining**

Machining example

RED screw arbor
BT50-RSG12-215-M100

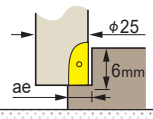
A general holder+
A steel shank





○ Excellent
✕ Chattering

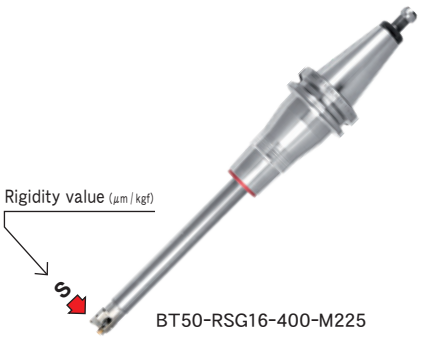
Cutting condition

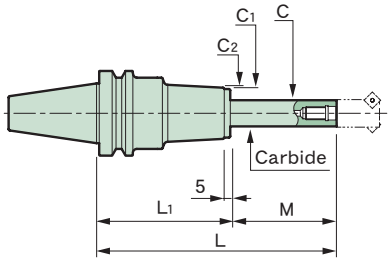


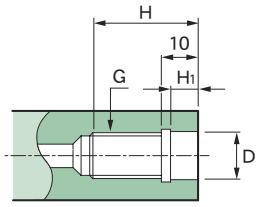
2-flutes end-mill
Climb milling
Feed : 0.1mm/tooth
Material : S50C

RED SCREW arbor (RSG)

BT







Dimensions for the screw-in end mill mounting.

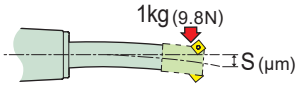
Available for **DIN/ CAT.**

■**Option**
- Retention knob→P.64

■**Caution**
- Some of the screw-in end mills cannot be attached to the RED screw arbor. Please check your screw-in end mills for conformance to the dimensions, or please contact MST.
- Because cutting resistance is greater than the tool holder connection force associated with the machine spindle, please reduce the recommended cutting conditions by 50% for the RED screw arbors marked with ※. Otherwise, the tool holder shank may experience fretting corrosion or fall out of the machine spindle.

S The rigidity value

A rigidity value represents the amount of deflection for the entire holder and tool when a bending load of 1 kgf (9.8 N) is applied to the tip of the tool. The smaller the numerical value is, the higher the rigidity and the more accurate the machining.



CODE	L	M	L1	Kg	S
BT40-RSG 8-105-M 25	105	25	80	1.4	0.6
-135-M 25	135		110	1.8	0.7
-165-M 25	165		140	2.1	0.8
-130-M 50	130	50	80	1.4	1.5
-160-M 50	160		110	1.8	1.7
-190-M 50	190		140	2.1	1.8
-155-M 75	155	75	80	1.5	3.1
-185-M 75	185		110	1.9	3.4
-215-M 75	215		140	2.2	3.5
-170-M 90	170	90	80	1.5	4.5
-200-M 90	200		110	1.9	4.8
-230-M 90	230		140	2.2	4.9
-185-M105	185	105	80	1.6	6.2
-215-M105	215		110	2.0	6.7
-245-M105	245		140	2.3	6.8
BT40-RSG10-125-M 25	125	25	100	1.8	0.4
-155-M 25	155		130	2.2	0.5
-185-M 25	185		160	2.4	0.7
-150-M 50	150	50	100	1.9	0.8
-180-M 50	180		130	2.3	1.0
-210-M 50	210		160	2.5	1.2
-175-M 75	175	75	100	2.0	1.6
-205-M 75	205		130	2.4	1.8
-235-M 75	235		160	2.6	2.0
-200-M100	200	100	100	2.0	2.7
-230-M100	230		130	2.4	3.0
-260-M100	260		160	2.6	3.3
-220-M120	220	120	100	2.1	4.0
-250-M120	250		130	2.5	4.3
-280-M120	280		160	2.7	4.6
BT40-RSG12-125-M 25	125	25	100	2.0	0.3
-155-M 25	155		130	2.4	0.4
-185-M 25	185		160	2.7	0.5
-150-M 50	150	50	100	2.1	
-180-M 50	180		130	2.5	0.7
-210-M 50	210		160	2.8	0.9
-175-M 75	175	75	100	2.3	
-205-M 75	205		130	2.7	1.1
-235-M 75	235		160	3.0	1.3

CODE	L	M	L1	Kg	S
BT40-RSG12-200-M100	200	100	100	2.4	1.4
-230-M100	230		130	2.8	1.6
-260-M100	260		160	3.1	1.9
-225-M125	225	125	100	2.6	2.1
-255-M125	255		130	3.0	2.4
-285-M125	285		160	3.3	2.8
BT40-RSG16-125-M 25	125	25	100	2.6	0.2
-150-M 50	150	50		2.8	0.3
-175-M 75	175	75		3.0	0.5
-200-M100	200	100		3.2	0.8
-225-M125※	225	125		3.4	1.2
BT50-RSG 8-120-M 25	120	25	95	4.0	0.6
-150-M 25	150		125	4.3	0.7
-180-M 25	180		155	4.8	
-145-M 50	145	50	95	4.0	1.5
-175-M 50	175		125	4.3	1.7
-205-M 50	205		155	4.8	
-170-M 75	170	75	95	4.1	3.1
-200-M 75	200		125	4.4	3.4
-230-M 75	230		155	4.9	
-185-M 90	185	90	95	4.1	4.4
-215-M 90	215		125	4.4	4.8
-245-M 90	245		155	4.9	
-200-M105	200	105	95	4.2	6.2
-230-M105	230		125	4.5	6.6
-260-M105	260		155	5.0	
BT50-RSG10-140-M 25	140	25	115	4.3	0.4
-170-M 25	170		145	4.6	0.5
-200-M 25	200		175	5.6	
-165-M 50	165	50	115	4.4	0.8
-195-M 50	195		145	4.7	0.9
-225-M 50	225		175	5.7	1.0
-190-M 75	190	75	115	4.5	1.6
-220-M 75	220		145	4.8	1.7
-250-M 75	250		175	5.8	1.8
-215-M100	215	100	115	4.5	2.7
-245-M100	245		145	4.8	2.9
-275-M100	275		175	5.8	

■Common dimensions

CODE	Cutter dia.	G	ϕD	H	H1	ϕC	ϕC1	ϕC2
RSG 8	16	M 8	8.5	18	6.5	15	30	32
RSG10	20	M10	10.5	22	6.5	19	36	38
RSG12	25	M12	12.5	22	6	24	43	45
RSG16	32/40	M16	17	25	6	29	52	54
RSG16-37	40	M16	17	25	6	37	71	73

BT50-RSG16-37-265-M150

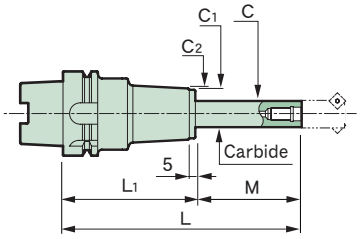
CODE	L	M	L1	Kg	S
BT50-RSG10-235-M120	235	120	115	4.6	3.9
-265-M120	265		145	4.9	4.2
-295-M120	295		175	5.9	
-255-M140	255	140	115	4.7	5.5
-285-M140	285		145	5.0	5.8
-315-M140	315		175	6.0	
BT50-RSG12-140-M 25	140	25	115	4.6	0.2
-170-M 25	170		145	5.0	0.3
-200-M 25	200		175	5.8	0.4
-165-M 50	165	50	115	4.7	0.5
-195-M 50	195		145	5.1	0.6
-225-M 50	225		175	5.9	
-190-M 75	190	75	115	4.9	0.8
-220-M 75	220		145	5.3	1.0
-250-M 75	250		175	6.1	
-215-M100	215	100	115	5.0	1.3
-245-M100	245		145	5.4	1.5
-275-M100	275		175	6.2	1.6
-240-M125	240	125	115	5.2	2.1
-270-M125	270		145	5.6	2.3
-300-M125	300		175	6.4	2.4
-265-M150	265	150	115	5.3	3.0
-295-M150	295		145	5.7	3.3
-325-M150	325		175	6.5	3.4
-290-M175	290	175	115	5.5	4.2
-320-M175	320		145	5.9	4.6
-350-M175	350		175	6.7	
BT50-RSG16-140-M 25	140	25	115	4.8	0.2
-170-M 25	170		145	5.4	
-200-M 25	200		175	6.6	
-165-M 50	165	50	115	5.0	0.3
-195-M 50	195		145	5.6	0.4
-225-M 50	225		175	6.8	
-190-M 75	190	75	115	5.3	0.5
-220-M 75	220		145	5.9	0.6
-250-M 75	250		175	7.0	
-215-M100	215	100	115	5.5	0.7
-245-M100	245		145	6.1	0.9
-275-M100	275		175	7.2	
-240-M125	240	125	115	5.7	1.1
-270-M125	270		145	6.3	1.3

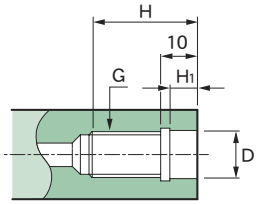
CODE	L	M	L1	Kg	S
BT50-RSG16-300-M125	300	125	175	7.4	1.3
-265-M150	265	150	115	5.9	1.6
-295-M150	295		145	6.5	1.8
-325-M150	325		175	7.7	
-290-M175	290	175	115	6.1	2.2
-320-M175	320		145	6.7	2.4
-350-M175	350		175	7.9	2.5
-315-M200	315	200	115	6.3	3.0
-345-M200	345		145	6.9	3.2
-375-M200	375		175	8.1	3.3
-340-M225	340	225	115	6.5	3.9
-370-M225	370		145	7.1	4.1
-400-M225	400		175	8.3	4.2
BT50-RSG16- 37-190-M 75	190	75	115	6.8	0.2
-215-M100	215	100			0.3
-240-M125	240	125		7.6	0.4
-265-M150	265	175			0.6
-290-M175	290	200		8.3	0.9
-315-M200	315	225			1.1
-340-M225	340	250		9.0	1.5
-365-M250	365	250			1.9
-390-M275	390	275		9.7	2.4
-415-M300	415	300			2.9

RED SCREW arbor (RSG)

HSK-A

A63-RSG10-175-M75





Dimensions for the screw-in end mill mounting.

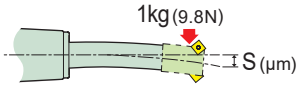
■**Std. Access.**
- Coolant duct(Fixed type)→P.112

■**Note**
- Swing type coolant ducts are available upon request. For details, please contact us.

■**Caution**
- Some of the screw-in end mills cannot be attached to the RED screw arbor. Please check your screw-in end mills for conformance to the dimensions, or please contact MST.
- Because cutting resistance is greater than the tool holder connection force associated with the machine spindle, please reduce the recommended cutting conditions by 50% for the RED screw arbors marked with ※. Otherwise, the tool holder shank may experience fretting corrosion or fall out of the machine spindle.

S The rigidity value

A rigidity value represents the amount of deflection for the entire holder and tool when a bending load of 1 kgf (9.8 N) is applied to the tip of the tool. The smaller the numerical value is, the higher the rigidity and the more accurate the machining.



CODE	L	M	L1	Kg	S
A63-RSG 8-105-M 25	105	25	80	1.3	0.6
-135-M 25	135		110	1.4	0.7
-165-M 25	165		140	1.9	0.8
-130-M 50	130	50	80	1.3	1.5
-160-M 50	160		110	1.4	1.7
-190-M 50	190		140	1.9	
-155-M 75	155	75	80	1.4	3.1
-185-M 75	185		110	1.5	3.4
-215-M 75	215		140	2.0	
-170-M 90	170	90	80	1.4	4.4
-200-M 90	200		110	1.5	4.8
-230-M 90	230		140	2.0	4.9
-185-M105	185	105	80	1.5	6.2
-215-M105	215		110	1.6	6.6
-245-M105	245		140	2.1	6.7
A63-RSG10-125-M 25	125	25	100	1.6	0.4
-155-M 25	155		130	1.9	0.5
-185-M 25	185		160	2.3	0.6
-150-M 50	150	50	100	1.7	0.8
-180-M 50	180		130	2.0	1.0
-210-M 50	210		160	2.4	1.2
-175-M 75	175	75	100	1.8	1.6
-205-M 75	205		130	2.1	1.8
-235-M 75	235		160	2.5	2.0
-200-M100	200	100	100	1.8	2.7
-230-M100	230		130	2.1	2.9
-260-M100	260		160	2.5	3.2
-220-M120	220	120	100	1.9	4.0
-250-M120	250		130	2.2	4.2
-280-M120	280		160	2.6	4.5
-240-M140	240	140	100	2.0	5.6
-270-M140	270		130	2.3	5.9
-300-M140	300		160	2.7	6.2

CODE	L	M	L1	Kg	S
A63 -RSG12-125-M 25	125	25	100	1.9	0.3
-155-M 25	155		130	2.3	0.4
-185-M 25	185		160	2.7	0.5
-150-M 50	150	50	100	2.0	
-180-M 50	180		130	2.4	0.6
-210-M 50	210		160	2.8	0.8
-175-M 75	175	75	100	2.2	0.9
-205-M 75	205		130	2.6	1.0
-235-M 75	235		160	3.0	1.3
-200-M100	200	100	100	2.3	1.4
-230-M100	230		130	2.7	1.6
-260-M100	260		160	3.1	1.9
-225-M125	225	125	100	2.5	2.1
-255-M125	255		130	2.9	2.4
-285-M125	285		160	3.3	2.7
-250-M150	250	150	100	2.6	3.1
-280-M150	280		130	3.0	3.4
-310-M150	310		160	3.4	3.8
A63 -RSG16-140-M 25	140	25	115	2.6	0.2
-165-M 50	165	50		2.8	0.4
-190-M 75	190	75		3.0	0.6
-215-M100	215	100		3.2	0.9
-240-M125※	240	125		3.4	1.3
-265-M150※	265	150		3.7	1.9
-290-M175※	290	175		3.9	2.5
A100-RSG 8-120-M 25	120	25	95	2.6	0.6
-150-M 25	150		125	2.9	0.8
-180-M 25	180		155	3.4	
-145-M 50	145	50	95	2.6	1.5
-175-M 50	175		125	2.9	1.7
-205-M 50	205		155	3.4	
-170-M 75	170	75	95	2.7	3.1
-200-M 75	200		125	3.0	3.4

■Common dimensions

CODE	Cutter dia.	G	φD	H	H1	φC	φC1	φC2
RSG 8	16	M 8	8.5	18	6.5	15	30	32
RSG10	20	M10	10.5	22	6.5	19	36	38
RSG12	25	M12	12.5	22	6	24	43	45
RSG16	32/40	M16	17	25	6	29	52	54
RSG16-37	40	M16	17	25	6	37	71	73

CODE	L	M	L1	Kg	S
A100-RSG 8-230-M 75	230	75	155	3.5	3.4
-185-M 90	185	90	95	2.7	4.5
-215-M 90	215		125	3.0	4.9
-245-M 90	245		155	3.5	4.8
-200-M105	200	105	95	2.8	6.3
-230-M105	230		125	3.1	6.7
-260-M105	260		155	3.6	6.6
A100-RSG10-140-M 25	140	25	115	3.1	0.4
-170-M 25	170		145	3.5	0.5
-200-M 25	200		175	4.4	
-165-M 50	165	50	115	3.2	0.8
-195-M 50	195		145	3.6	1.0
-225-M 50	225		175	4.5	
-190-M 75	190	75	115	3.3	1.6
-220-M 75	220		145	3.7	1.8
-250-M 75	250		175	4.6	
-215-M100	215	100	115	3.3	2.7
-245-M100	245		145	3.7	2.9
-275-M100	275		175	4.6	
-235-M120	235	120	115	3.4	4.0
-265-M120	265		145	3.8	4.2
-295-M120	295		175	4.7	
-255-M140	255	140	115	3.5	5.6
-285-M140	285		145	3.9	5.8
-315-M140	315		175	4.8	
A100-RSG12-140-M 25	140	25	115	3.4	0.3
-170-M 25	170		145	3.7	0.4
-200-M 25	200		175	4.7	
-165-M 50	165	50	115	3.5	0.5
-195-M 50	195		145	3.8	0.6
-225-M 50	225		175	4.8	
-190-M 75	190	75	115	3.7	0.8
-220-M 75	220		145	4.0	1.0
-250-M 75	250		175	5.0	
-215-M100	215	100	115	3.8	1.4
-245-M100	245		145	4.1	1.6
-275-M100	275		175	5.1	
-240-M125	240	125	115	4.0	2.1
-270-M125	270		145	4.3	2.4
-300-M125	300		175	5.3	
-265-M150	265	150	115	4.1	3.0
-295-M150	295		145	4.4	3.4
-325-M150	325		175	5.4	
-290-M175	290	175	115	4.3	4.3
-320-M175	320		145	4.6	4.6
-350-M175	350		175	5.6	

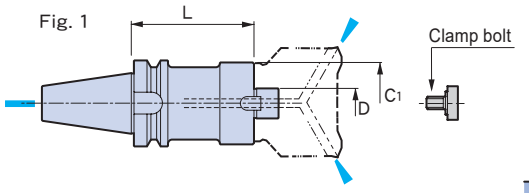
CODE	L	M	L1	Kg	S
A100-RSG16-140-M 25	140	25	115	4.0	0.2
-170-M 25	170		145	4.5	
-200-M 25	200		175	5.7	
-165-M 50	165	50	115	4.2	0.3
-195-M 50	195		145	4.7	0.4
-225-M 50	225		175	5.9	
-190-M 75	190	75	115	4.5	0.5
-220-M 75	220		145	5.0	0.6
-250-M 75	250		175	6.1	
-215-M100	215	100	115	4.7	0.8
-245-M100	245		145	5.2	0.9
-275-M100	275		175	6.3	
-240-M125	240	125	115	4.9	1.1
-270-M125	270		145	5.4	1.3
-300-M125	300		175	6.5	
-265-M150	265	150	115	5.1	1.6
-295-M150	295		145	5.6	1.8
-325-M150	325		175	6.7	
-290-M175	290	175	115	5.3	2.2
-320-M175	320		145	5.8	2.4
-350-M175	350		175	7.0	2.5
-315-M200	315	200	115	5.5	3.0
-345-M200	345		145	6.0	3.2
-375-M200	375		175	7.2	3.3
-340-M225	340	225	115	5.7	3.9
-370-M225	370		145	6.3	4.2
-400-M225	400		175	7.4	
A100-RSG16- 37-190-M 75	190	75	115	6.3	0.2
-215-M100	215	100			0.3
-240-M125	240	125		7.1	0.4
-265-M150	265	150			0.6
-290-M175	290	175		7.8	0.9
-315-M200	315	200			1.1
-340-M225	340	225		8.5	1.5
-365-M250	365	250			1.9
-390-M275	390	275		9.2	2.4
-415-M300	415	300			2.9

Cutter arbor with spindle-through coolant (FMH)

- ▷ Standard design has through-coolant holes that allow superior chip evacuation, cutting edge cooling and lubrication.
- ▷ Achieves amazing high-feed machining
- ▷ We also have a variety of ultra-long type arbors.

BT50-FMH31.75-76-300

Fig. 1



Dimensions
for the cutter mounting
Depth of threaded portion

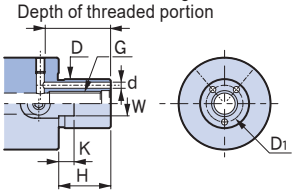
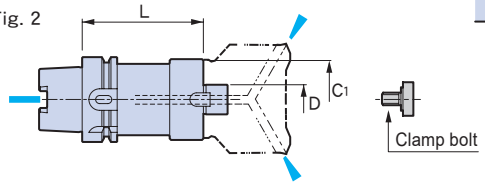


Fig. 2



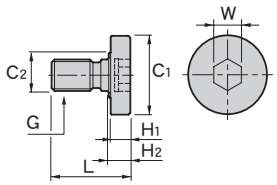
CODE	Fig.	Cutter dia.	L	φC1	kg
BT40-FMH16 -29- 45	1	32	45	29	1.1
- 90			90		1.4
-120			120		1.5
-37- 45		40	45	37	1.2
- 90			90		1.6
-120			120		1.9
BT40-FMH22 -47- 45	1	50/52	45	47	1.3
- 90			90		1.9
-150			150		2.7
-200			200		3.3
-60- 45		63/66	45	60	1.4
- 90			90		2.2
-150			150		3.2
-200			200		4.1
BT40-FMH22.225-47- 45	1	50/52	45	47	1.3
- 90			90		1.9
-150			150		2.7
-200			200		3.3
-60- 45		63/66	45	60	1.4
- 90			90		2.2
-150			150		3.2
-200			200		4.1
BT40-FMH25.4 -70- 60	1	80	60	70	1.9
- 90			90		2.4
-150			150		3.4
BT40-FMH31.75 -76- 60	1	80	60	76	2.1
- 90			90		2.6
-150			150		3.6
-200			200		4.4
-96- 60		100	60	96	2.4
- 90			90		3.1
-150			150		4.1
-200			200		4.9
BT50-FMH16 -29- 90	1	32	90	29	3.9
-150			150		4.3
-37- 90		40	90	37	4.1
-150			150		4.7
-200			200		5.3

CODE	Fig.	Cutter dia.	L	φC1	kg
BT50-FMH22 -47- 90	1	50/52	90	47	4.4
-150			150		5.4
-200			200		6.2
-250			250		7.2
-300			300		8.3
-60- 90	1	63/66	90	60	4.8
-150			150		6.4
-200			200		7.8
-250			250		9.2
-300			300		10.8
BT50-FMH22.225-47- 90	1	50/52	90	47	4.4
-150			150		5.4
-200			200		6.2
-250			250		7.2
-300			300		8.3
-60- 90		63/66	90	60	4.8
-150			150		6.4
-200			200		7.7
-250			250		9.2
-300			300		10.8
BT50-FMH25.4 -70- 60	1	80	60	70	4.4
- 90			90		5.3
-150			150		7.0
BT50-FMH31.75 -76- 60	1	80	60	76	4.5
- 90			90		5.6
-150			150		7.6
-200			200		9.3
-250			250		11.0
-300			300		12.8
-96- 60		100	60	96	5.0
- 90			90		6.4
-150			150		9.2
-200			200		11.5
-250			250		13.8
-300			300		16.2
BT50-FMH38.1 -100- 60	1	125	60	100	5.2
- 90			90		6.6
-150			150		9.4
-200			200		11.7
-250			250		13.9
BT50-FMH50.8 -100- 60	1	160	60	100	5.4
- 90			90		6.9
-150			150		9.6
-200			200		11.8
-250			250		14.1

■Common dimensions

CODE	φD	H	W	K	φD1	φd	G	Clamp bolt
FMH16	16	17	8	5	12	2	M8	M 8 ※
FMH22	22	18	10	5	16	3	M10	M10 ※
FMH22.225	22.225	17	8	3.5	16	3	M10	M10 ※
FMH25.4	25.4	22	9.5	5	18.5	3.5	M12	MBF-M12
FMH31.75	31.75	30	12.7	7	24	4	M16	MBF-M16
FMH38.1	38.1	34	15.9	9	29	5	M20	MBF-M20
FMH50.8	50.8	36	19.05	10	37.5	7	M24	MBF-M24

Clamp bolt



CODE	L	φC1	φC2	H1	H2	W	G	FMH model
MBF-M12	30	33	23	10	11	10	M12	FMH25.4
-M16	40	40				14	M16	FMH31.75
-M20	50	50	27	14	16	17	M20	FMH38.1
-M24	59	65	37			19	M24	FMH50.8

CODE	Fig.	Cutter dia.	L	φC1	kg
A63 -FMH16 -29- 45	2	32	45	29	0.8
- 90			90		1.1
-120			120		1.3
-37- 45		40	45	37	0.9
- 90			90		1.3
-120			120		1.6
A63 -FMH22 -47- 45	2	50/52	45	47	1.0
- 90			90		1.6
-150			150		2.6
-200			200		3.5
-60- 60		63/66	60	60	1.4
- 90			90		1.9
-150			150		2.9
-200			200		3.8
A63 -FMH22.225-47- 45	2	50/52	45	47	1.0
- 90			90		1.6
-150			150		2.6
-200			200		3.4
-60- 60		63/66	60	60	1.4
- 90			90		1.9
-150			150		2.9
-200			200		3.8
A63 -FMH25.4 -70- 60	2	80	60	70	1.6
- 90			90		2.1
-150			150		3.1
A63 -FMH31.75 -76- 60	2	80	60	76	1.7
- 90			90		2.3
-150			150		3.3
-200			200		4.1
-96- 60		100	60	96	2.1
- 90			90		2.9
-150			150		3.8
-200			200		4.6
A100-FMH16 -29- 90	2	32	90	29	2.4
-150			150		2.8
-37- 90		40	90	37	2.6
-150			150		3.3
-200			200		3.9
A100-FMH22 -47- 90	2	50/52	90	47	2.9
-150			150		3.9
-200			200		4.8
-250			250		5.8
-300			300		6.9

CODE	Fig.	Cutter dia.	L	φC1	kg
A100-FMH22 - 60- 90	2	63/66	90	60	3.5
-150			150		5.1
-200			200		6.4
-250			250		7.9
-300			300		9.5
A100-FMH22.225- 47- 90	2	50/52	90	47	2.9
-150			150		3.9
-200			200		4.8
-250			250		5.8
-300			300		6.9
- 60- 90		63/66	90	60	3.4
-150			150		5.0
-200			200		6.4
-250			250		7.9
-300			300		9.5
A100-FMH25.4 - 70- 60	2	80	60	70	3.1
- 90			90		4.0
-150			150		5.7
A100-FMH31.75 - 76- 60	2	80	60	76	3.3
- 90			90		4.3
-150			150		6.4
-200			200		8.1
-250			250		9.8
-300			300		11.5
- 96- 90		100	90	96	5.3
-150			150		8.1
-200			200		10.4
-250			250		12.7
-300			300		15.1
A100-FMH38.1 -100- 90	2	125	90	100	5.5
-150			150		8.2
-200			200		10.5
-250			250		12.8
A100-FMH50.8 -100- 90	2	160	90	100	5.7
-150			150		8.4
-200			200		10.7
-250			250		12.9

■Option
- Retention knob→P.64

■Std. Access.
- Coolant duct(Fixed) (HSK-A)→P.112
- Clamp bolt(unless marked with ※ in the list) ●Stopper key

■Note
- The clamp bolt marked with ※ in the list is a hexagonal socket bolt. Use a market standard bolt.
- Swing type coolant ducts are available upon request. For details, please contact us.

■Caution
- The required clamp bolt design depends on the cutter manufacturer and the type of cutter.

MICRO HEAD

Fine adjustment boring holder

Applicable for all applications, from finishing to roughing.

MFA

Finishing

coolant-through

ϕ20～102

Super precision finishing boring holder

MBH

Roughing

Semi-finishing

Finishing

coolant-through

ϕ50～380

Finishing and heavy duty boring holder

MBJ

Semi-finishing

Finishing

ϕ5.5～205

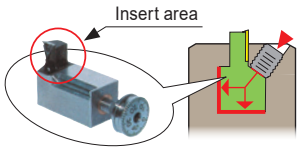
Wide range and multi-purpose boring holder

Super precision finishing boring holder MFA

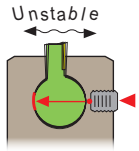
➔P. 57

Rigid design thanks to the square sliding head

The square slide system can achieve greater rigidity against cutting force compared to a round slide system since it has 2-face contact.



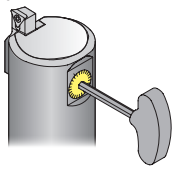
MST square slide



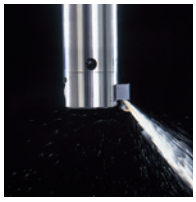
Competitors' round slide

Guaranteed fine adjustment

It allows 0.01mm dia. fine adjustment easily and precisely.The setting diameter doesn't change when you clamp the head.



Available for spindle-through coolant as standard.



System

MODEL	Boring dia.
MFA20	ϕ20～ 24.5
MFA24	ϕ24～ 30
MFA29	ϕ29～ 38
MFA36	ϕ36～ 52
MFA50	ϕ50～ 77
MFA75	ϕ75～102

Adjustable effective length

Using the extension allows for increased effective length

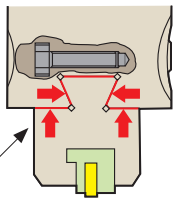
MODEL	Length(mm)
MFA20	30・35・40・45
MFA24	
MFA29	30・40・50・60
MFA36	40・50・60・70
MFA50	45・60・75・90
MFA75	

Finishing and heavy duty boring holder MBH

➔P. 59

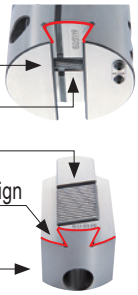
Dovetail clamping … High rigidity and accuracy

The dovetail clamping capability holds the slide portion firmly without needing to change the setting diameter when clamping the slide. It is ideal for high-rigidity, high-accuracy boring applications.



Sliding rack design … Wide adjusting range

The micro head, MBH provides a wide adjusting range and secure clamping by making use of the sliding rack design for fine adjustment in combination with dovetail clamping capability.

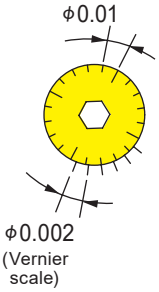


Cartridge … Exchangeable

Both negative and positive inserts are available, expanding the range of insert selection.

System

MODEL	Boring dia.
MBH 50	ϕ 50 ~ 80
MBH 75	ϕ 75 ~ 120
MBH115	ϕ115 ~ 185
MBH180	ϕ180 ~ 250
MBH245	ϕ245 ~ 315
MBH310	ϕ310 ~ 380

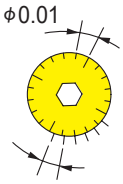


Wide range and multi-purpose boring holder MBJ

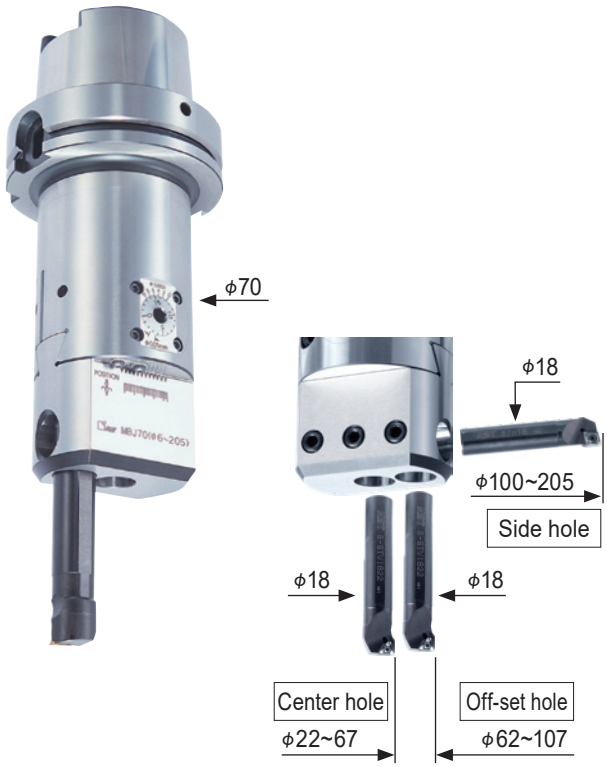
➔P. 61

The combination of two kinds of boring bars allows for a wide range of boring applications from 5.5mm to 205mm dia.

MBJ45

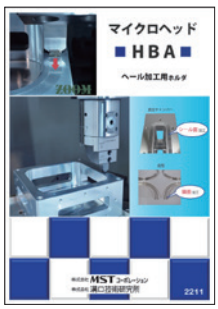


MBJ70



Micro Head for engraving

If you would like more detailed information, please contact MST and ask for a catalog.



Cutting data ➔P. 63

MICRO HEAD MFA type (MFA)

BT50-MFA36-165

A100-MFA29-165

S32-MFA24-90

Fig. 1

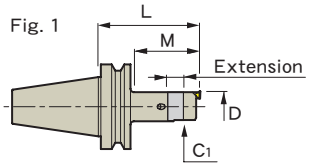


Fig. 2

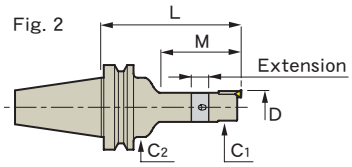


Fig. 3

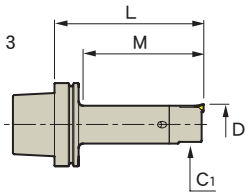


Fig. 4

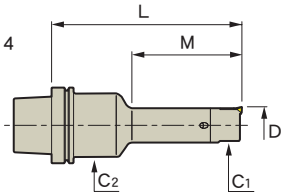
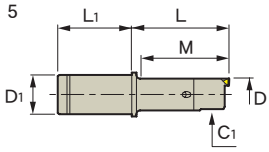
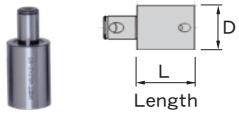


Fig. 5



CODE	Fig.	Boring dia. (φD)	L	M	φC1	φC2	Extension	Kg
BT30-MFA20- 90	1	20～ 24.5	90	63	19	—	—	0.6
-MFA24- 90		24～ 30			22			
-MFA29-105		29～ 38	105	78	27.6			0.7
-MFA36-105		36～ 52			34.4			0.9
BT40-MFA20-120	2	20～ 24.5	120	65	19	46	—	1.4
-150			150	81				1.5
-MFA24-150		24～ 30		62	22			1.7
-180			180	92			30	1.8
-MFA29-150		29～ 38	150	82	27.6		—	1.7
-180			180	112			30	1.8
-MFA36-150		36～ 52	150	97	34.4	62	—	1.9
-195			195	142			45	2.2
-MFA50-150		50～ 77	150	102	46		—	2.4
-195			195	147			45	3.0
-MFA75-150		75～102	150	102	51		—	2.5
-195			195	147			45	3.1
BT50-MFA20-165	2	20～ 24.5	165	54	19	62	—	4.9
-195			195	84			30	5.0
-240			240	64			—	6.3
-MFA24-165		24～ 30	165	52	22			4.9
-195			195	82			30	5.0
-240			240	62			—	6.3
-270			270	92			30	6.4
-MFA29-165		29～ 38	165	82	27.6	70	—	4.7
-195			195	112			30	4.8
-240			240	82			—	6.7
-270			270	112			30	6.9
-MFA36-165		36～ 52	165	97	34.4		—	4.6
-210			210	142			45	4.9
-255			255	97		80	—	7.9
-300			300	142			45	8.2
-MFA50-165	1	50～ 77	165	122	46	—	—	4.9
-210			210	167			45	5.5
-255	2		255	147		86	—	7.6
-300			300	192			45	8.2
-MFA75-165	1	75～102	165	122	51	—	—	5.0
-210			210	167			45	5.6
-255	2		255	147		86	—	7.7
-300			300	192			45	8.3

Extension



CODE	Applicable head	φD	L	Kg
MS0-30	MFA20	19	30	0.1
-35			35	0.1
-40			40	0.1
-45			45	0.1
MS1-30	MFA24	22	30	0.1
-35			35	0.1
-40			40	0.1
-45			45	0.1
MS2-30	MFA29	27.6	30	0.1
-40			40	0.2
-50			50	0.2
-60			60	0.3
MS3-40	MFA36	34.4	40	0.3
-45			45	0.3
-50			50	0.3
-60			60	0.4
-70			70	0.5
MS4-45	MFA50	46	45	0.6
-60	MFA75		60	0.7
-75			75	0.9
-90			90	1.1

■**Caution**

- Longer projection length causes chattering and reduced rigidity

Insert

CODE	R	Insert material	Q'ty	Work material
TPA082-PA	0.2	Cermet	10pcs.	Steel
TPA084-PA	0.4			
TPA082-MA	0.2	Carbide		Stainless
TPA084-MA	0.4			
TPA082-KA	0.2			Cast iron
TPA084-KA	0.4			
TPA082-NA	0.2			Aluminum
TPA084-NA	0.4			
TPA082-ND	0.2	Polycrystalline diamond	1pc.	
TPA084-ND	0.4			

CODE	Fig.	Boring dia. (φD)	L	M	φC1	φC2	Extension	D1	L1	Kg
A40 -MFA20- 90	3	20～ 24.5	90	65	19	—	—	—	—	0.4
-MFA24- 90		24～ 30			22					
-MFA29-105		29～ 38	105	82	27.6					0.6
-MFA36-105		36～ 52			34.4					0.8
-MFA50-105		50～ 77			46					1.2
A50 -MFA20-120	4	20～ 24.5	120	69	19	41	—	—	—	0.8
-MFA24-120		24～ 30			22					0.9
-MFA29-120		29～ 38		82	27.6					
-MFA36-120	3	36～ 52		91	34.4	—				1.1
-MFA50-120		50～ 77			46					1.6
-MFA75-120		75～102			51					1.7
A63 -MFA20-150	4	20～ 24.5	150	81	19	46	—	—	—	1.3
-MFA24-150		24～ 30		62	22					1.5
-180			180	92			30			1.6
-MFA29-150		29～ 38	150	82	27.6		—			1.5
-180			180	112			30			1.6
-MFA36-150		36～ 52	150	97	34.4	52	—			1.7
-195			195	142			45			2.0
-MFA50-150		50～ 77	150	102	46		—			2.2
-195			195	147			45			2.7
-MFA75-150		75～102	150	102	51		—			2.3
-195			195	147			45			2.8
A100 -MFA20-165	4	20～ 24.5	165	54	19	62	—	—	—	3.8
-195			195	84			30			3.9
-240			240	64			—			5.3
-MFA24-165		24～ 30	165	52	22					3.8
-195			195	82			30			3.9
-240			240	62			—			5.4
-270			270	92			30			5.5
-MFA29-165		29～ 38	165	82	27.6	70	—			3.7
-195			195	112			30			3.8
-240			240	82			—			5.8
-270			270	112			30			6.0
-MFA36-165		36～ 52	165	97	34.4	80	—			3.7
-210			210	142			45			4.0
-255			255	97			—			7.2
-300			300	142			45			7.5
-MFA50-165	3	50～ 77	165	131	46	—	—			3.6
-210			210	176			45			4.2
-255	4		255	147		85	—			6.7
-300			300	192			45			7.3
-MFA75-165	3	75～102	165	131	51	—	—			3.7
-210			210	176			45			4.3
-255	4		255	147		85	—			6.8
-300			300	192			45			7.4
F63 -MFA20-150	4	20～ 24.5	150	81	19	46	—	—	—	1.3
-MFA24-150		24～ 30		62	22					1.5
-180			180	92			30			1.6
-MFA29-150		29～ 38	150	82	27.6		—			1.5
-180			180	112			30			1.6
-MFA36-150		36～ 52	150	97	34.4	52	—			1.7
-195			195	142			45			2.0
-MFA50-150		50～ 77	150	102	46		—			2.2
-195			195	147			45			2.7
ST25T-MFA20- 75	5	20～ 24.5	75	75	19	—	—	25	70	—
-MFA24- 90		24～ 30	90	85	22					
-MFA29-105		29～ 38	105	105	27.6					
S 32 -MFA20- 90	5	20～ 24.5	90	75	19	—	—	32	70	—
-MFA24- 90		24～ 30		80	22					
-MFA29-105		29～ 38	105	95	27.6					
-MFA36-105		36～ 52			34.4					
-MFA50-105		50～ 77			46					

Cutting data
P. 63

■**Option**
- Insert
- Retention knob(BT)→P.64

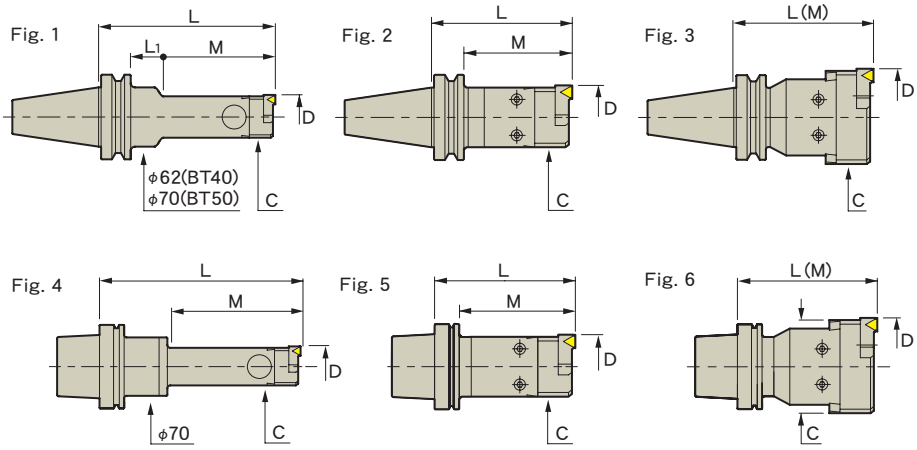
■**Std. Access.**
- T wrench
- Insert clamping screw
- Coolant duct(Fixed)(HSK-A)→P.112
- Torx wrench

■**Note**
- Swing type coolant ducts are available upon request. For details, please contact us.
- Drive key slot and cutting direction are in alignment.
- The extension mentioned in the list is set between shank and head. The number refers to the extension length.

MICRO HEAD MBH type (MBH)

BT50-MBH180-225

A100-MBH75-165



CODE	Fig.	Boring dia. (ϕD)	L	M	ϕC	L1	Cartridge	Kg
BT40-MBH 50-150	2	50～ 80	150	118	45	—	PTC 10 STGP10	2.1
-210	1		210	155		28		3.0
-MBH 75-165	3	75～120	165	165	70	—	PTC 12 STGP12	4.0
-MBH115-165		115～185			110			5.9
-MBH180-165		180～250			153			6.6
BT50-MBH 50-150	2	50～ 80	150	107	45	—	PTC 10 STGP10	4.5
-180			180	137				5.6
-240	1		240	155		47		6.3
-300			300			107		7.0
-MBH 75-165	3	75～120	165	127	70	—	PTC 12 STGP12	6.7
-225			225	187				8.5
-285			285	247				10.3
-315			315	277				11.2
-MBH115-165		115～185	165	165	110			8.6
-225			225	225				10.4
-285			285	285				12.2
-315			315	315				13.1
-MBH180-165		180～250	165	165	153			9.3
-225			225	225				11.1
-285			285	285				12.9
-MBH245-165		245～315	165	165	200			10.0
-225			225	225				11.8
-285			285	285				13.6
-MBH310-165		310～380	165	165	255			11.0
-225			225	225				12.8
A50M-MBH 50-135	5	50～ 80	135	109	45	—	PTC10/STGP10	1.6
-MBH 75-175	6	75～120	175	149	70		PTC12/STGP12	3.4
A63 -MBH 50-150	5	50～ 80	150	119	45	—	PTC 10 STGP10	1.9
-210			210	179				2.6
-MBH 75-195	6	75～120	195	195	70		PTC 12 STGP12	4.5
-MBH115-195		115～185			110			6.5
-MBH180-195		180～250			153			7.2
A100-MBH 50-150	5	50～ 80	150	116	45	—	PTC 10 STGP10	3.3
-180			180	146				3.6
-240	4		240	155		56		5.2
-300			300			116		6.8
-MBH 75-165	5	75～120	165	131	70	—	PTC 12 STGP12	5.3
-225			225	191				6.9
-285			285	251				8.6
-315			315	281				9.4

CODE	Fig.	Boring dia. (ϕD)	L	M	ϕC	L1	Cartridge	Kg
A100-MBH115-165	6	115～185	165	165	110	—	PTC 12	7.2
-225			225	225			STGP12	8.9
-285			285	285				10.5
-315			315	315				11.4
-MBH180-165		180～250	165	165	153			7.9
-225			225	225				9.6
-285			285	285				11.2
-MBH245-165		245～315	165	165	200			8.7
-225			225	225				10.3
-285			285	285				12.0
-MBH310-165		310～380	165	165	255			9.6
-225			225	225				11.2

Cutting data
P. 63

■**Option**
- Insert ● Cartridge ● Coolant-through ● Retention knob(BT)→P.64

■**Std. Access.**
- T wrench ● Coolant duct(Fixed) (HSK-A)→P.112

■**Note**
- Swing type coolant ducts are available upon request. For details, please contact us.
- Drive key slot and cutting direction are in alignment.
- Add "C" after the MBH model no. for through-spindle coolant when you order. (Example: BT50-MBH75C-165)

■**Caution**
- Each slide part is produced to match precisely with its corresponding slide, so such parts are not interchangeable with each other.
- The undercut area of the A50M is different from the standards. Please be careful to check for interference with the ATC arm.

MBH50

MBH75

MBH115

MBH180

MBH245

MBH310

Cartridge

MBH50

PTC10

STGP10

Negative

Positive

MBH75～310

PTC12

STGP12

Negative

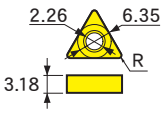
Positive

CODE	Work-piece material	Holder type
PTC10	Steel・Cast Iron・Stainless	MBH50
STGP10	Steel・Cast Iron Stainless・Aluminum	
PTC12	Steel・Cast Iron	MBH75 ～310
STGP12	Steel・Cast Iron Stainless・Aluminum	

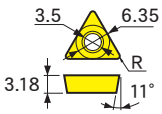
■**Note**
- PTC : Pin lock type
- STGP : Clamp-on type

Insert

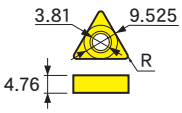
PTC10



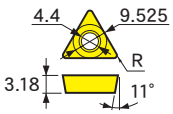
STGP10



PTC12



STGP12



CODE	R	Insert material	Work-piece material	Application	Q'ty	Cartridge
TNB114-PB	0.4	Carbide coating	Steel	Semi-finishing	10pcs.	PTC 10
-MB		Carbide	Stainless			
-KB			Cast iron			
-PMA		Cermet	Steel・stainless	Finishing		
-KA		Carbide	Cast iron			
TPC112-PA	0.2	Cermet	Steel	Finishing	10pcs.	STGP10
TPC114-PA	0.4					
TPC112-MA	0.2	Carbide	Stainless			
TPC114-MA	0.4					
TPC112-KA	0.2		Cast iron			
TPC114-KA	0.4					
TPC112-NA	0.2		Aluminum			
TPC114-NA	0.4					
TPC112-ND	0.2	Polycrystalline diamond			1pc.	
TPC114-ND	0.4					
TNB168-PB	0.8	Carbide coating	Steel	Semi-finishing	10pcs.	PTC 12
-MB			Stainless			
-KB		Carbide	Cast iron			
TNB164-PMA	0.4	Cermet	Steel・stainless	Finishing		
-KA		Carbide	Cast iron			
TPC164-PA	0.4	Cermet	Steel	Finishing	10pcs.	STGP12
-MA		Carbide coating	Stainless			
-KA		Carbide	Cast iron			
-NA			Aluminum			
-ND		Polycrystalline diamond			1pc.	

MICRO HEAD MBJ45 type (MBJ45)

A100-MBJ45-150

Fig. 1

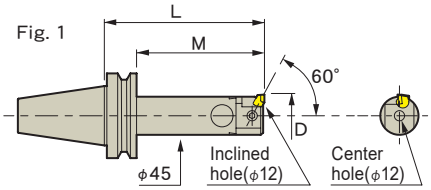
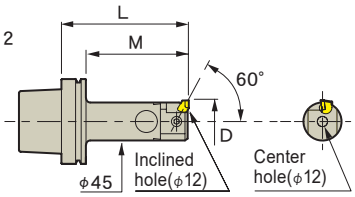
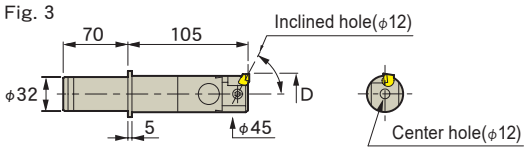


Fig. 2



S32-MBJ45-105

Fig. 3



CODE	Fig.	Boring dia. (ϕD)	L	M	Kg
BT30-MBJ45-120	1	5.5～80	120	98	1.3
BT40-MBJ45-150	1	5.5～80	150	123	2.2
BT50-MBJ45-150	1	5.5～80	150	112	4.6
-180			180	142	5.6
A63 -MBJ45-150	2	5.5～80	150	124	2.0
A100-MBJ45-150	2	5.5～80	150	121	3.3
-180			180	151	3.7
S32 -MBJ45-105	3	5.5～80	—	—	—

■Option
- Insert ●Insert holder
- Insert and insert holder set ●Retention knob(BT)→P.64

■Std. Access.
- Wrench set
- Coolant duct(Fixed) (HSK-A)→P.112

■Note
- Swing type coolant ducts are available upon request. For details, please contact us.
- Drive key slot and cutting direction are in alignment.

Insert holder, Insert

For center hole

STV-C1208

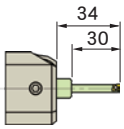
STV1216

Boring diameter ϕ5.5～8

Insert holder

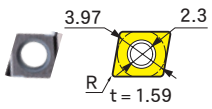
CODE
STV-C12055

Carbide shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPE042-PA	0.2	Cermet	10pcs.	Steel
-MKA		Carbide coating		Stainless Cast iron
-NA		Carbide		Aluminum

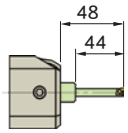


Boring diameter ϕ8～10

Insert holder

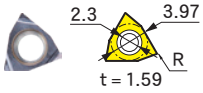
CODE
STV-C1208

Carbide shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPE032-PA	0.2	Cermet	10pcs.	Steel
TPE034-PA	0.4			
TPE032-MKA	0.2	Carbide coating		Stainless Cast iron
TPE034-MKA	0.4			
TPE032-NA	0.2	Carbide		Aluminum
TPE034-NA	0.4			

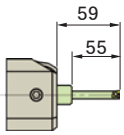


Boring diameter ϕ10～12

Insert holder

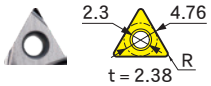
CODE
STV-C1210

Carbide shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPE082-PA	0.2	Cermet	10pcs.	Steel
TPE084-PA	0.4			
TPE082-MA	0.2	Carbide		Stainless
TPE084-MA	0.4			
TPE082-KNA	0.2			Cast iron Aluminum
TPE084-KNA	0.4			

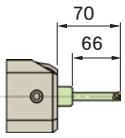


Boring diameter ϕ12～14

Insert holder

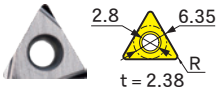
CODE
STV-C1212

Carbide shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPE112-PA	0.2	Cermet	10pcs.	Steel
TPE114-PA	0.4			
TPE112-MA	0.2	Carbide coating		Stainless
TPE114-MA	0.4			
TPE112-KNA	0.2	Carbide		Cast iron Aluminum
TPE114-KNA	0.4			

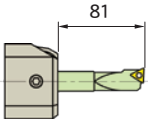


Boring diameter ϕ14～46

Insert holder

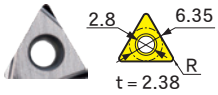
CODE
STV-C1214

Carbide shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPE112-PA	0.2	Cermet	10pcs.	Steel
TPE114-PA	0.4			
TPE112-MA	0.2	Carbide coating		Stainless
TPE114-MA	0.4			
TPE112-KNA	0.2	Carbide		Cast iron Aluminum
TPE114-KNA	0.4			

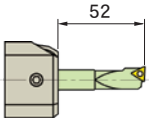


Boring diameter ϕ16～48

Insert holder

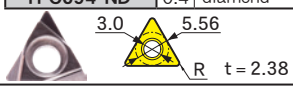
CODE
STV1216

Steel shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPC092-PA	0.2	Cermet	10pcs.	Steel
TPC094-PA	0.4			
TPC092-MA	0.2	Carbide		Stainless
TPC094-MA	0.4			
TPC092-KNA	0.2			Cast iron Aluminum
TPC094-KNA	0.4			
TPC092-ND	0.2	Polycrystalline diamond	1pc.	Aluminum
TPC094-ND	0.4			



For inclined hole

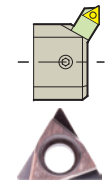

S-STA12

Boring diameter ϕ48～80

Insert holder

CODE
S-STA12

Steel shank



Insert

CODE	R	Insert material	Q'ty	Work material
TPC112-PA	0.2	Cermet	10pcs.	Steel
TPC114-PA	0.4			
TPC112-MA	0.2	Carbide		Stainless
TPC114-MA	0.4			
TPC112-KA	0.2			Cast iron
TPC114-KA	0.4			
TPC112-NA	0.2			Aluminum
TPC114-NA	0.4			
TPC112-ND	0.2	Polycrystalline diamond	1pc.	
TPC114-ND	0.4			

Insert and insert holder set

CODE	Insert holder	Q'ty	Insert	Q'ty	Work material
PJ-45	STV1216	1pc.	TPC094-PA	10pcs.	Steel
	S-STA12		TPC114-PA		
KJ-45	STV1216	1pc.	TPC094-KNA	10pcs.	Cast iron
	S-STA12		TPC114-KA		Aluminum


STV1216


S-STA12


TPC094


TPC114

MICRO HEAD MBJ70 type (MBJ70)


BT50-MBJ70-165

Fig. 1

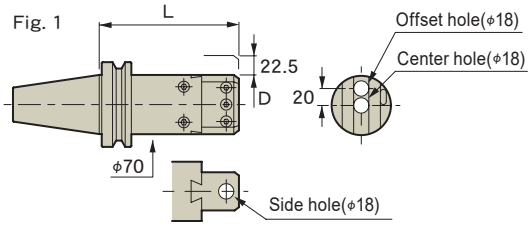
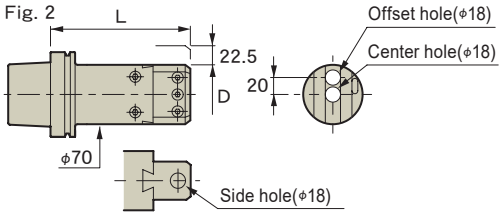


Fig. 2



CODE	Fig.	Chucking range(ϕD)	L	Kg
BT40-MBJ70-165	1	22～205	165	4.2
BT50-MBJ70-165	1	22～205	165	6.5
A63 -MBJ70-195	2	22～205	195	4.6
A100-MBJ70-165	2	22～205	165	5.4

■**Option**
- Insert ●Insert holder ●Insert and insert holder set
- Clamping sleeve ●Retention knob(BT)→P.64

■**Std. Access.**
- Wrench set ●Coolant duct (Fixed)(HSK-A)→P.112

■**Note**
- Swing type coolant ducts are available upon request. For details, please contact us.
- Drive key slot and insertion direction are in alignment.
- The throw-away insert for aluminum is a diamond insert. Sales unit is per 1 piece.

Insert holder, Insert

For center hole · inclined hole


S-STV1822

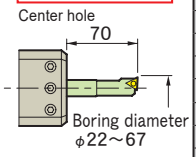
Boring diameter ϕ22 ～ 107

Insert holder

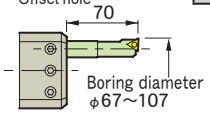
CODE
S-STV1822

Steel shank

Center hole

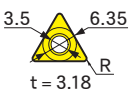


Offset hole



Insert

CODE	R	Insert material	Q'ty	Work material
TPC112-PA	0.2	Cermet	10pcs.	Steel
TPC114-PA	0.4			
TPC112-MA	0.2	Carbide		Stainless
TPC114-MA	0.4			
TPC112-KA	0.2			Cast iron
TPC114-KA	0.4			
TPC112-NA	0.2			Aluminum
TPC114-NA	0.4			
TPC112-ND	0.2	Polycrystalline diamond	1pc.	
TPC114-ND	0.4			



For side hole

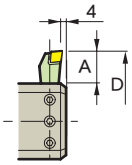
Boring diameter ϕ100～205


STH18

Insert holder

CODE
STH18

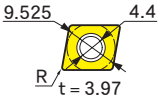
Steel shank



A	ϕD
15	100～145
35	140～185
45	160～205

Insert

CODE	R	Insert material	Q'ty	Work material
CCD094-PA	0.4	Carbide coating	10pcs.	Steel
CCD094-MA				Stainless
CCD094-KA		Carbide		Cast iron
CCD094-NA				Aluminum
CCD094-ND		Polycrystalline diamond	1pc.	



Insert and insert holder set

CODE	Insert holder	Q'ty	Insert	Q'ty	Work material
PJ-70	S-STV1822	1pc.	TPC114-PA	10pcs.	Steel
	STH18		CCD094-PA		
KJ-70	S-STV1822	1pc.	TPC114-KA	10pcs.	Cast iron
	STH18		CCD094-KA		


S-STV1822


STH18


TPC114

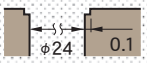

CCD094

Cutting data

MFA type

S45C – Finishing –
Insert : TPA084-PA (Nose R0.4)

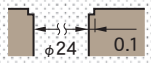
n	3317 min-1
Vf	331 mm/min
Vc	250 m/min
f	0.1 mm/rev



BT50-MFA24-270

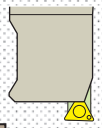
SUS304 – Finishing –
Insert : TPA084-MA (Nose R0.4)

n	1326 min-1
Vf	132 mm/min
Vc	100 m/min
f	0.1 mm/rev

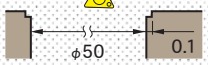


BT50-MFA24-240

FC250 – Finishing –
Insert : TPA084-KA (Nose R0.4)



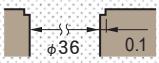
n	636 min-1
Vf	63 mm/min
Vc	100 m/min
f	0.1 mm/rev



BT50-MFA50-300

A5056 – Finishing –
Insert : TPA084-NA (Nose R0.4)

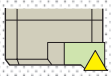
n	3538 min-1
Vf	353 mm/min
Vc	400 m/min
f	0.1 mm/rev



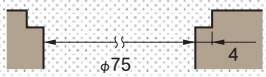
BT50-MFA36-300

MBH type

S45C – Semi-finishing –
Insert : TNB168-PB (Nose R0.8)
Cartridge : PTC12

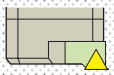


n	575 min-1
Vf	86 mm/min
Vc	135 m/min
f	0.15 mm/rev

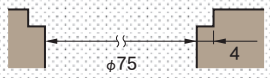


BT50-MBH75-315

SUS304 – Semi-finishing –
Insert : TNB168-MB (Nose R0.8)
Cartridge : PTC12

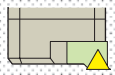


n	383 min-1
Vf	57 mm/min
Vc	90 m/min
f	0.15 mm/rev

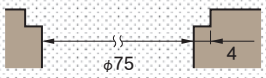


BT50-MBH75-315

FC250 – Semi-finishing –
Insert : TNB168-KB (Nose R0.8)
Cartridge : PTC12

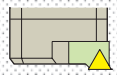


n	383 min-1
Vf	57 mm/min
Vc	90 m/min
f	0.15 mm/rev

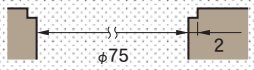


BT50-MBH75-315

A5056 – Semi-finishing –
Insert : TPC164-NA (Nose R0.4)
Cartridge : STGP12

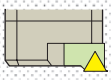


n	806 min-1
Vf	120 mm/min
Vc	190 m/min
f	0.15 mm/rev

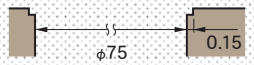


BT50-MBH75-315

S45C – Finishing –
Insert : TPC164-PA (Nose R0.4)
Cartridge : STGP12

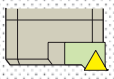


n	1057 min-1
Vf	105 mm/min
Vc	250 m/min
f	0.1 mm/rev

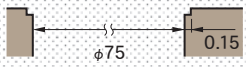


BT50-MBH75-315

SUS304 – Finishing –
Insert : TPC164-MA (Nose R0.4)
Cartridge : STGP12

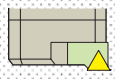


n	507 min-1
Vf	50 mm/min
Vc	120 m/min
f	0.1 mm/rev

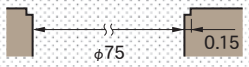


BT50-MBH75-315

FC250 – Finishing –
Insert : TPC164-KA (Nose R0.4)
Cartridge : STGP12

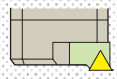


n	507 min-1
Vf	50 mm/min
Vc	120 m/min
f	0.1 mm/rev

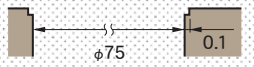


BT50-MBH75-315

A5056 – Finishing –
Insert : TPC164-NA (Nose R0.4)
Cartridge : STGP12



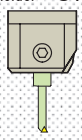
n	1693 min-1
Vf	169 mm/min
Vc	400 m/min
f	0.1 mm/rev



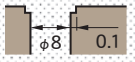
BT50-MBH75-315

MBJ type

S45C – Finishing –
Insert : TPE032-PA (Nose R0.2)
Insert holder : STV-C1208

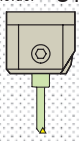


n	3107 min-1
Vf	186 mm/min
Vc	80 m/min
f	0.06 mm/rev

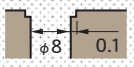


BT40-MBJ45-150

SUS304 – Finishing –
Insert : TPE032-MKA (Nose R0.2)
Insert holder : STV-C1208

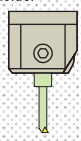


n	1165 min-1
Vf	69 mm/min
Vc	30 m/min
f	0.06 mm/rev

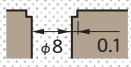


BT40-MBJ45-150

FC250 – Finishing –
Insert : TPE032-MKA (Nose R0.2)
Insert holder : STV-C1208

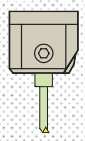


n	3107 min-1
Vf	186 mm/min
Vc	80 m/min
f	0.06 mm/rev

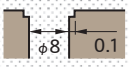


BT40-MBJ45-150

A5056 – Finishing –
Insert : TPE032-NA (Nose R0.2)
Insert holder : STV-C1208



n	6602 min-1
Vf	396 mm/min
Vc	170 m/min
f	0.06 mm/rev



BT40-MBJ45-150

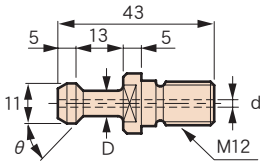
Retention knob

Caution

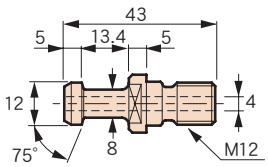
- Retention knobs in this catalog are typical models for various machine tool companies. Confirm the correct retention knob design refer to the machine specification sheet.
- We manufacture other kinds of retention knobs. Please contact us for the details.

Compatible manufacturers	Standard type						For through spindle coolant type		
	BT30		BT40		BT50		BT30	BT40	BT50
	Standard type	Standard type with a through hole	Standard type	Standard type with a through hole	Standard type	Standard type with a through hole			
BROTHER	P30T-2	P-511	–		–		P-511	–	–
DMG MORI	P30T-1	P-445	P-141	–	P-143	–	–	P-435	P-513
FANUC	P30T-1	P-522	–		–		P-522	–	–
HOWA	P30T-1	P-445	P40T-1	P-297	P50T-1	P-299	–	–	–
JTEKT	–		P40T-1	P-297	P50T-1	P-299	–	P-297	P-299
KIRA	P30T-1	P-445	P40T-1	P-297	–		–	P-323-1	–
KITAMURA	P30T-1 P-399 (Mycenter-1Xi)	P-445	P-348	P-323-1	P-400		–	P-323-1	P-400
KIWA	P30T-1	P-445	P-348	P-323-1	P-400		–	P-323-1	P-400
KOMATSU NTC	P30T-1	P-445	P40T-1	P-297	P50T-1	P-299	P-522	P-505	P-384
KURASHIKI	–		P40T-1	P-297	P50T-1	P-299	–	–	–
MAKINO	–		P40T-1 (V series)	P-297	P50T-1 (A series, MCC series, V series,)	P-299	–	P-323-1	P-299
			P-348 (a series, D series)	P-323-1	P-400 (A series, a series)				
MATSUURA	P30T-2 P-399	P-511	P-348	P-323-1	P50T-2 P-400	P-419	–	P-323-1	–
MAZAK	–		P-227		P-514		–	P-227	P-514
MITSUI SEIKI	–		P-007	–	P-008	P-250	–	–	–
NIDEC MACHINE TOOL	–		P40T-1	–	P50T-2	–	–	–	–
NIDEC OKK	–		P40T-1	–	P-143	–	–	–	P-506
NIIGATA MACHINE TECHNO	–		–		P50T-2	P-419	–	–	–
OHTORI	–		P40T-1	P-297	P50T-1	P-299	–	–	–
OKUMA	–		P40T-2 (MB series)	P-339	P50T-2	P-419	–	P-499	P-419
			P40T-1 (MILLAC series)	P-297					
SHIBAURA MACHINE	–		–		P50T-1	P-299	–	–	–
SHIZUOKA	P30T-1	P-445	P-141	P-498	P-143	P-402	–	–	–
SNK	–		P40T-2	P-339	P50T-2	P-419	–	–	–
SUGINO	P30T-2	P-497	–		–		–	–	–
YAMAZAKI GIKEN	–		P40T-1	P-297	P50T-2	P-419	–	–	–
YASDA	–		P-348	P-438	P50T-1	P-299	–	P-509	P-459
					P-288-1, P-400 (YBM1218V)				

BT30

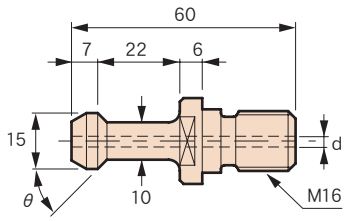


CODE	ϕD	ϕd	θ	Note
P30T-1	7	-	45	MAS-1
P-445		3		P30T-1 through hole
P30T-2		-	60	MAS-2
P-497		2		P30T-2 through hole
-522	8	4	45	FANUC center-through
-511	7.5	2.5	60	BROTHER center-through

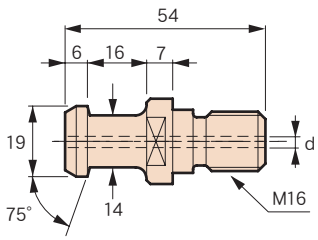


CODE	Note
P-399	JIS30P

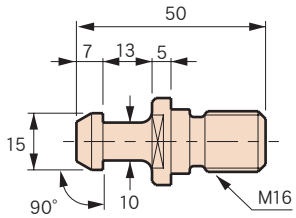
BT40



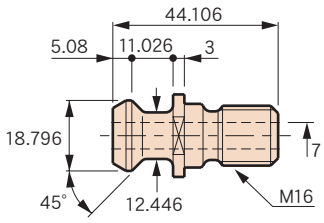
CODE	ϕd	θ	Note
P40T-1	-	45	MAS-1
P-297	4		P40T-1 through hole
P40T-2	-	60	MAS-2
P-339	4		P40T-2 through hole
-141	-	90	-
-498	4		P-141 through hole
-505	3	45	KOMATSU NTCcenter-through



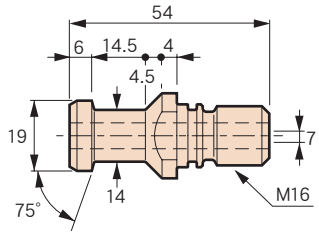
CODE	ϕd	Note
P-348	-	JIS40P
-323-1	7	P-348 through hole
-499	4	OKUMA center-through
-438	7	YASDA through hole
-509		YASDA center-through



CODE	Note
P-007	MITSUI SEIKI

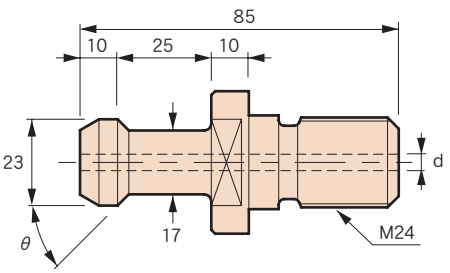


CODE	Note
P-227	MAZAK

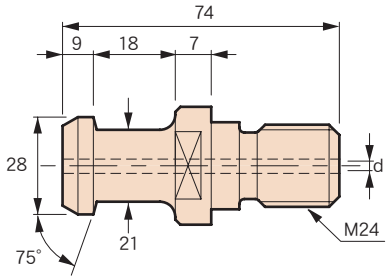


CODE	Note
P-435	DMG MORI center-through

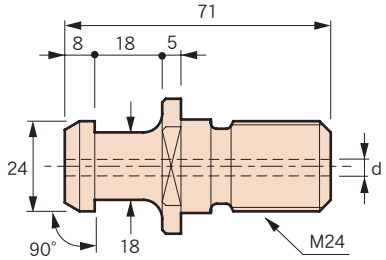
BT50



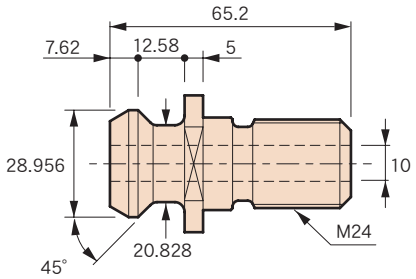
CODE	ϕd	θ	Note
P50T-1	-	45	MAS-1
P-299	6		P50T-1 through hole
P50T-2	-	60	MAS-2
P-419	6		P50T-2 through hole
-143	-	90	-
-402	7		P-143 through hole
-459		45	YASDA center-through
-506	6	90	NIDEC OKK center-through
-513	8		DMG MORI center-through
-384	5.5	45	KOMATSU NTC center-through



CODE	ϕd	Note
P-288-1	6	-
-400	10	JIS50P



CODE	ϕd	Note
P-008	-	MITSUI SEIKI
-250	8	P-008 through hole



CODE	Note
P-514	MAZAK

HSK-T Tooling Systems for Turning Mill

World standard ISO
for Turning Mill
HSK
TOOLING SYSTEM

Set screw holders for Round shank

For through-spindle coolant
CC type

For nozzle-coolant
CN type

P. 69

Insert holders for Square-shank

For external turning and cutting off
SV type

For external / face turning
SA type

For external / face turning
SB type

For external / face turning
SC type

For external / face turning
SN type

For face turning
SH type

P. 70

BLANK TOOL

P. 72

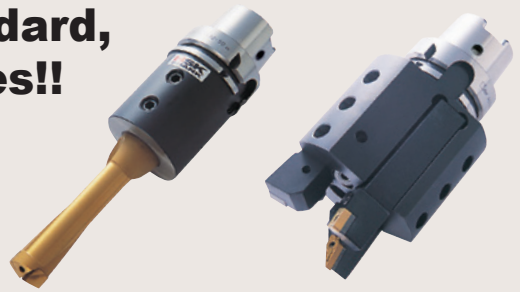
CHECKING ARBOR

P. 72

HSK-T TOOLING SYSTEMS for TURNING MILL

The obvious choice for ISO standard, HSK-T specs turning mill spindles!!

- ▷ A full range of milling tool holders, covering 70% of multi-tasking machine applications!
- ▷ Compatible with machining center holders!
- ▷ Supplied by tool holder manufacturer world wide!
- ▷ Extensive line-up and reasonable price!



Standardized by many machine tool manufacturers!

OKUMA
- MULTUS SERIES
- MACTURN SERIES etc

DMG MORI
- NT(NTX) Series
- CTX Series

Nakamura-tome Precision Industry
- Super NTJX Series
- Super NTMX Series etc

YAMAZAKI MAZAK
- INTEGREX
  i Series
  J Series
  e Series etc

MATSUURA MACHINERY CORPORATION
- CUBLEX Series

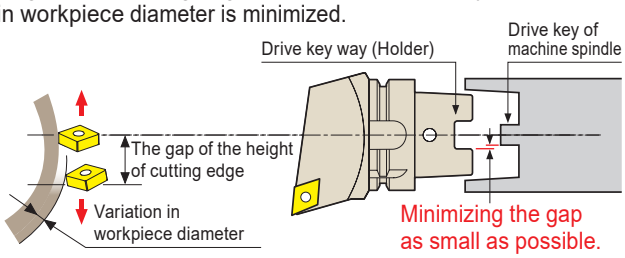
HERMLE
- MT Series

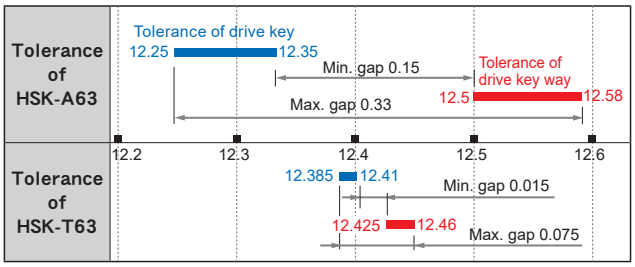
HORKOS
- NS70 Version

Turning tools (HSK-T standard)

Maintains high precision during turning operation

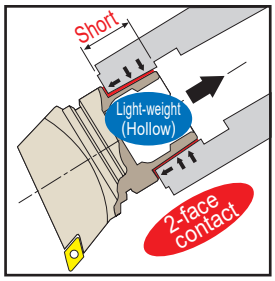
By using an ICTM tool holder, which minimizes the gap between the machine spindle drive key and tool holder drive key way, the height of the cutting edge is maintained precisely and variation in workpiece diameter is minimized.





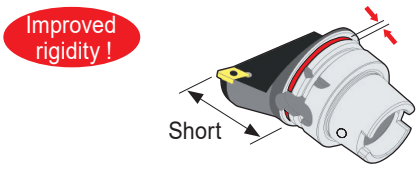
High bending rigidity

During turning, the cutting force of a spindle axis becomes very large. Therefore, a rigid, two-face-contact clamping system performs very well.



Designed to shorten undercut area

We made an undercut area thicker and as short as possible in order to increase the holder rigidity.

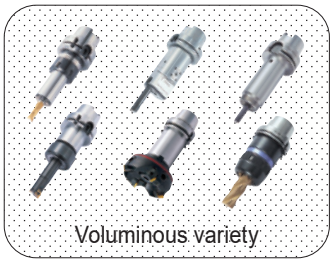


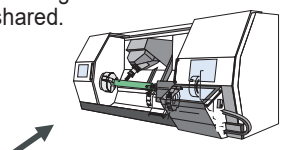
Undercut area
Width 4 mm
Depth 0.5 mm

Rotating tools (HSK-A standard)

Compatible with machining center

Needless to say, the holder of a machining center and a turning mill machine can be shared.





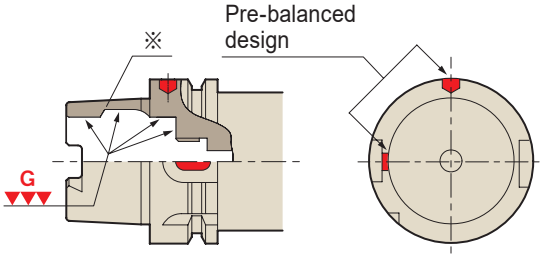
Turning mill

Sharable

Machining center

Pre-balanced design

The HSK-A-type shank is unbalanced in its standard form, but at MST we have applied our original pre-balancing to make the tool holders applicable for high-speed machining. According to DIN standards, only the area marked with ※ in the hollow shank needs to be finished. However, MST provides perfect finishing for all areas after heat treatment in order to improve balance.

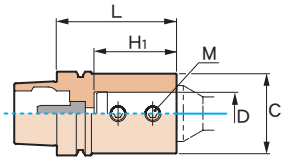


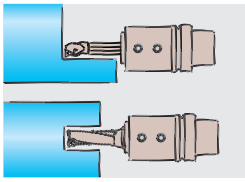
HSK Shank
P. 127

Set screw holders for Round shank

CC type for through-spindle coolant

T63-CC32-90





CODE	L	φD	φC	H1	M	Kg
T40 -CC32- 90	90	32	58	62	M12	1.2
T50 -CC32- 85	85	32	62	62	M12	1.4
T63 -CC32- 90	90	32	62	62	M12	1.6
-CC40-100	100	40	68	72		2
T100-CC40-105	105	40	82	72	M12	4.5
-CC50-115	115	50	92	82	M14	5.3

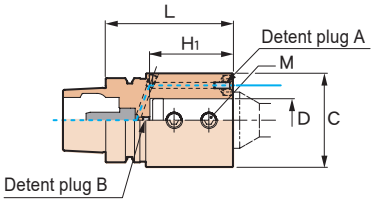
■**Option**
- Sleeve for set screw holder (SS)

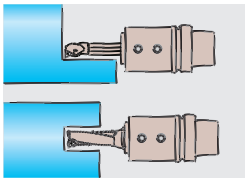
■**Std. Access.**
- Coolant duct→P.112

■**Note**
- Available for both boring bar and indexable drill.

CN type for nozzle-coolant

T63-CN32-95





CODE	L	φD	φC	H1	M	Kg
T40 -CN32- 95	95	32	70	62	M12	2
T50 -CN32-100	100	32	70	62	M12	2.1
T63 -CN32- 95	95	32	70	62	M12	2.2
-CN40-105	105	40	78	71		2.7
T100-CN40-115	115	40	82	72	M12	4.9
-CN50-125	125	50	92	82	M14	5.8

■**Option**
- Sleeve for set screw holder(SS)

■**Std. Access.**
- Coolant duct→P.112
- Detent plug for a nozzle A =Set screw(M5-12L)
- Detent plug for Center through B =Set screw(M5-5L)

■**Note**
- The coolant nozzle direction is adjustable.
- Nozzle-coolant type is available for through-spindle coolant.
- Available for both boring bar and indexable drill.

Sleeve for set screw holders

Fig.1

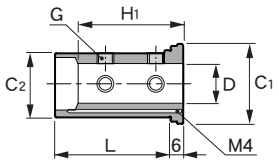
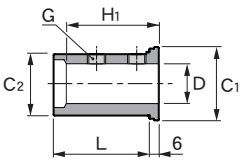


Fig.2



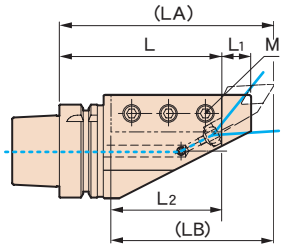
CODE	Fig	L	φD	φC1	φC2	H1	G
SS32- 8	1	55	8	38	32	35	4-M6
-10			10			40	4-M8
-12			12			45	
-16			16			50	
-20			20				
-25	2		25			58	※
SS40- 8	1	60	8	46	40	35	4-M6
-10			10			40	4-M8
-12			12			45	
-16			16			50	
-20			20				4-M10
-25	2		25			58	2-M10
-32			32			62	※

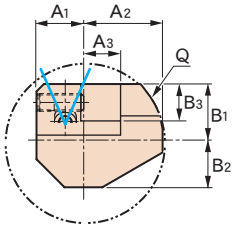
■**Note**
- Items marked with ※ in the G section of the list means they are screw-tightening type.
- Available for both boring bar and indexable drill.

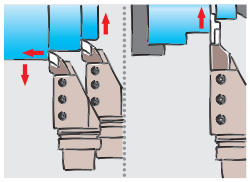
Insert holders for Square-shank

SV type for external turning and cutting off

T63-SV2525R-105







CODE	L	L1	L2	(LA)	(LB)	A1	A2	A3	B1	B2	B3	M	Q	Kg
T40 -SV2020R- 90	90	15	60	120	90	24.5	39	20	25	22	20	M10	78	1.5
-SV2020L- 90														
T50 -SV2020R- 95	95	15	60	125	90	25	43.5	20	25	25	20	M10	87	1.9
-SV2020L- 95														
T63 -SV2020R-105	105	20	70	135	100	32	45	20	33	32	20	M12	90	2.7
-SV2020L-105														
-SV2525R-105※							53.5	25	38		25		108	3.1
-SV2525L-105※														
-SV2525R-105D	105			135			45		28				90	2.7
-SV2525L-105D														
-SV2525R-115	115			145			53.5		38				108	3.3
-SV2525L-115														
T100-SV2525R-150	150	20	70	190	150	37	59	25	48	43	25	M12	118	9.1
-SV2525L-150														
-SV3232R-150		25	100	195	145	40	68.5	32	47		32	M14	137	9.3
-SV3232L-150														

■ **Std. Access.**
- Coolant duct→P.112

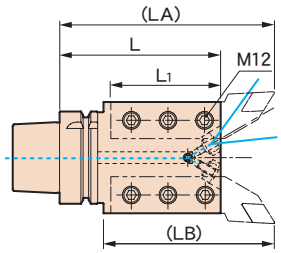
■ **Note**
- The coolant nozzle direction is adjustable.

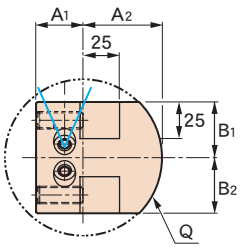
■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.
- The holder marked with ※ in the chart cannot be installed on the Mazak INTEGREX I and J series.

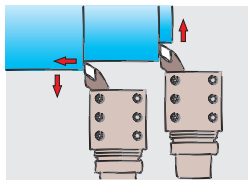
SA type for external / face turning

The multi-inserts type holder reduces using holders quantity, it saves A.T.C. magazine pot.

T63-SA2525-105







CODE	L	L1	(LA)	(LB)	A1	A2	B1	B2	Q	Kg
T63 -SA2525-105※	105	70	135	100	32	54	38	38	108	3.7
-115	115		145							
T100-SA2525-150	150	70	185	105	37	59	48	48	118	9.3

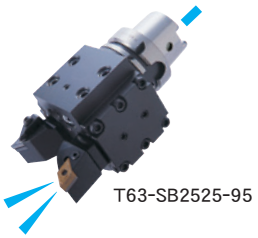
■ **Std. Access.**
- Coolant duct→P.112
- Detent plug for a nozzle=Set screw(M5-12L) (Ex.) When using only right-hand, plug the nozzle on the left-hand side.

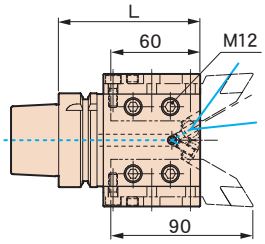
■ **Note**
- The coolant nozzle direction is adjustable.

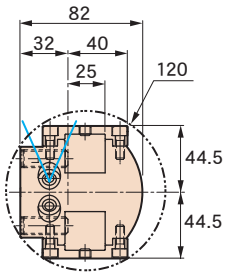
■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.
- The holder marked with ※ in the chart cannot be installed on the Mazak INTEGREX I and J series.

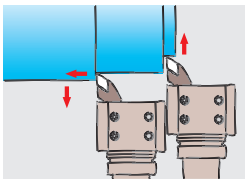
SB type for external / face turning

The multi-inserts type holder reduces using holders quantity,
it saves A.T.C. magazine pot.









CODE	L	Kg
T63-SB2525- 95※	95	3.2
-105	105	

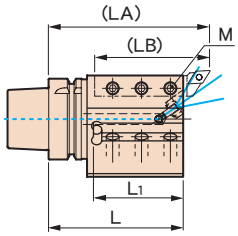
■ **Std. Access.**
- Coolant duct→P.112
- Detent plug for a nozzle=Set screw (M5-12L)
  (Ex.) When using only right-hand, plug the nozzle on the left-hand side.

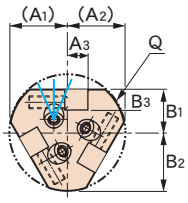
■ **Note**
- The coolant nozzle direction is adjustable.

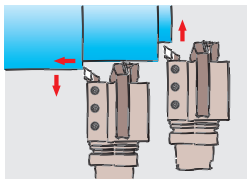
■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.
- The holder marked with ※ in the chart cannot be installed on the Mazak INTEGREX I and J series.

SC type for external / face turning

The multi-inserts type holder reduces using holders quantity, it saves A.T.C. magazine pot.







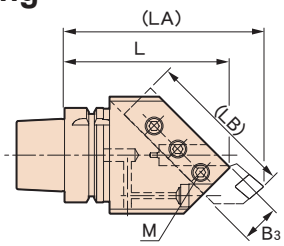
CODE	L	L1	(LA)	(LB)	(A1)	(A2)	A3	B1	B2	B3	M	Q	Kg
T40 -SC1616R- 90	90	60	110	80	38	38	16	30	38.5	16	M10	77	1.7
T50 -SC2020R- 95	95	60	125	90	44.5	44.5	20	35	45	20	M10	90	2.4
T63 -SC2020R-105	105	70	140	105	44.5	44.5	20	35	45	20	M12	90	3.0
T100-SC2525R-150	150	70	185	105	59	59	25	48	59	25	M12	108	9.7

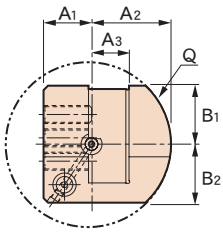
■ **Std. Access.**
- Coolant duct→P.112
- Detent plug for a nozzle=Set screw(M5-12L)

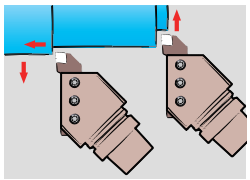
■ **Note**
- The coolant nozzle direction is adjustable.

■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.

SN type for external / face turning







CODE	L	(LA)	(LB)	A1	A2	A3	B1	B2	B3	M	Q	Kg
T40 -SN2020R-100	100	125	80	25	40	20	32	32	20	M10	80	1.7
T50 -SN2020R-110	110	135	85	25	45	20	35	35	20	M10	90	2.2
T63 -SN2020R-110	110	135	85	25	45	20	35	35	20	M10	90	2.5
-SN2020L-110												
-SN2525R-110		140	105	32	53	25	39	39	25	M12	106	3.2
-SN2525L-110												
T100-SN2525R-135	135	165	105	32	54	25	43	43	25	M12	108	6.1
-SN2525L-135												
-SN3232R-135		175	120	37	68.5	32	48		32	M14	137	7.2
-SN3232L-135												

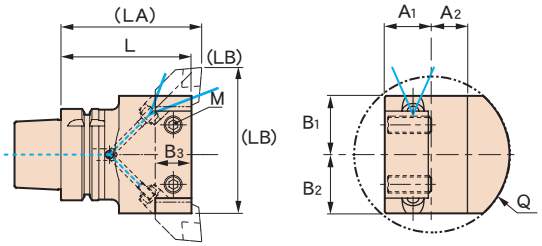
■ **Std. Access.**
- Coolant duct→P.112

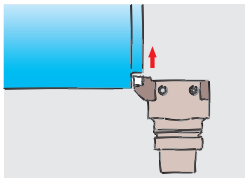
■ **Note**
- The coolant nozzle direction is adjustable.

■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.

SH type for face turning


T63-SH2525-90





CODE	L	(LA)	(LB)	A1	A2	B1	B2	B3	M	Q	Kg
T40 -SH2020- 75	75	79	70	25	20	25	25	20	M12	80	1.2
-120	120	124									1.6
T50 -SH2020- 90	90	94	75	25	20	27.5	27.5	20	M12	90	1.8
-120	120	124									2.3
T63 -SH2020- 90	90	94	80	32	20	30	30	20	M12	90	2.5
-SH2525- 90		97	100		25	40.5	40.5	25		108	2.9
-120	120	127									3.6
T100-SH2525-105	105	112	120	32	25	48	48	25	M12	118	6.1
-150	150	157									8.8
-SH3232-105	105	113	145	40	32	57	57	32	M14	148	7.7

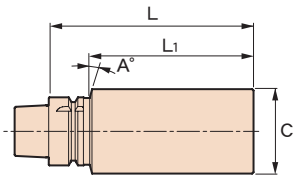
■ **Std. Access.**
- Coolant duct→P.112 • Detent plug for a nozzle=Set screw(M5-12L)
  (Ex.) When using only right-hand, plug the nozzle on the left-hand side.

■ **Note**
- The coolant nozzle direction is adjustable.

■ **Caution**
- The maximum coolant pressure for the nozzle on the holder is 1.5MPa.

BLANK TOOL (For additional machining)


T63-BL75-200



CODE	L	L1	ϕC	A°	Kg
T40 -BL 32- 35	35	15	32	0	0.3
-BL 48-120	120	97	48	15	1.6
-BL 95- 75	75	52	95		2.9
T50 -BL 40- 42	42	16	40	0	0.6
-BL 62-150	150	120	62	15	3.3
-BL105- 90	90	60	105		4.3
T63 -BL 52- 45	45	19	52	0	1.0
-BL 75-200	200	168	75	15	6.6
-BL115- 90	90	58	115		5.5
T100-BL 87- 45	45	16	87	0	2.8
-BL100-200	200	166	100		12.6
-BL118-120	120	86	118	15	9.7

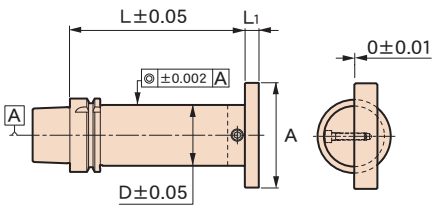
■**Std. Access.**
- Coolant duct→P.112

■**Note**
- Material: SNCM439, Heat treatment hardness：43HRC±2
- Hardening depth indicates depth to the center.

■**Caution**
- If heat treatment is applied again to a holder produced from a blank tool, the original taper area may be deformed. Therefore, please do not apply heat treatment.

CHECKING ARBOR


T63-CAAX52-150



CODE	L	L1	ϕD	A	Kg
T40 -CAAX32-150	150	10	32	60	1.1
T50 -CAAX40-150	150	10	40	70	1.7
T63 -CAAX52-150	150	10	52	90	2.9
T100-CAAX60-250	250	12	60	110	7.2

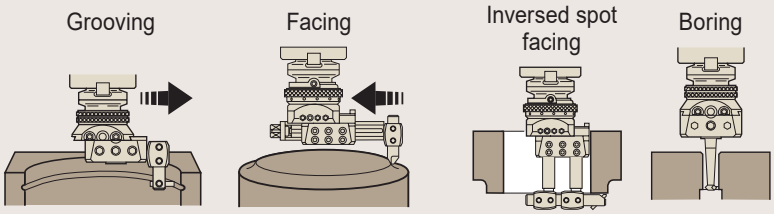
■**Std. Access.**
- Coolant duct→P.112

■**Usage**
1. Measure the concentricity of the spindle using cylinder area.
2. When using a flat surface, adjustment of the insert position can be verified.
3. Confirm and adjust the absolute dimension in the X direction.
4. Measure the bending of the spindle using flange surface area.
5. Can be used with tool presetter.

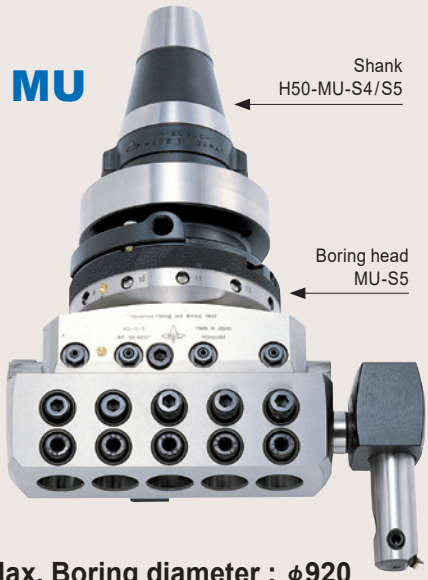
■**Note**
- ATC repeatability can be observed.
- Flatness of square test bar for the datum A is within ±0.01mm.

Universal Facing Boring Head

Universal Boring Head allows any applications just using this holder.



Automatic feeding using the machine spindle rotation.



Max. Boring diameter : ϕ920

High accuracy and Long life

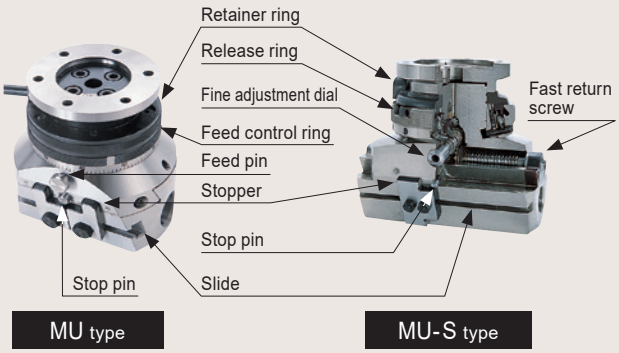
Hand scraping surface leads to higher accuracy and longer life.

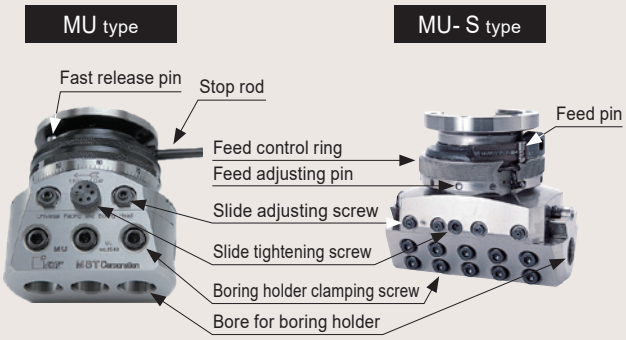
Specification

We guarantee a slide traverse accuracy of 5μm squareness at 50L, and we provide thorough overhaul and repair after-service.

TYPE	Max. Boring diameter	Max. slide movement	Automatic feed speed	Fine adjustment (one graduation)	Fast return screw	Max. rotation min⁻¹	Kg
MU	ϕ260	48	0.05/Rotation	0.005 Vernier scale 0.001	—	600	2.1
MU-S4	ϕ400	52	0.02 ~ 0.24/Rotation 12 speeds	0.005	3.0/Rotation	400	7
MU-S5	ϕ620	112					8.7
MU-S6H	ϕ800	140				250	21
MU-S6	ϕ920	210					23.3

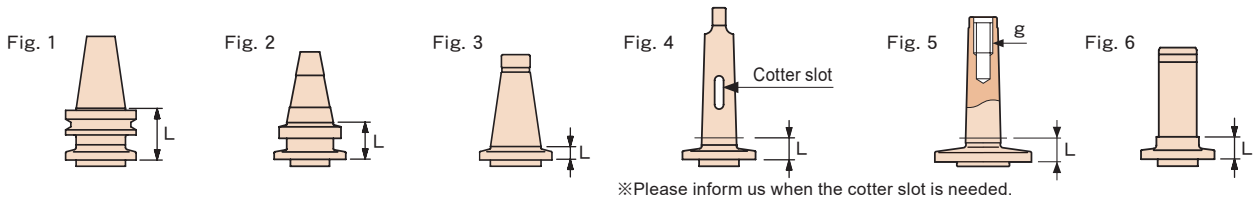
Parts name





Combination of shank and head

Shank



※Please inform us when the cotter slot is needed.
(please inform us the machine brand and model).

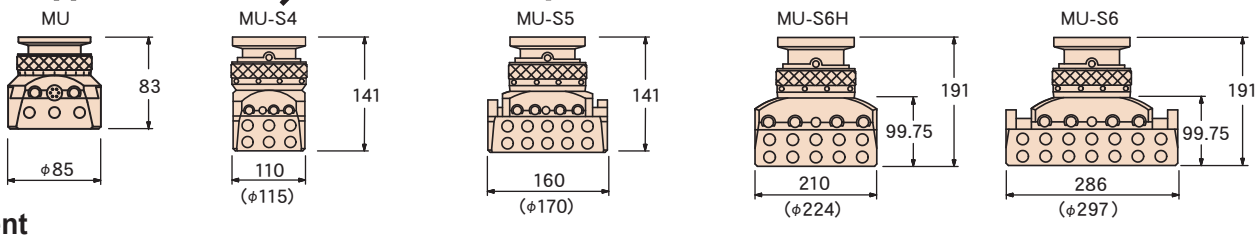
CODE	Fig.	L	g
BT40 -MU	1	49	—
H 40 -MU	2	34	
NT40U-MU	3	15	
MT3 -MU(Tang type)	4	18	
MT4 -MU(Tang type)		19.5	
MT3 -MU(Screw type)	5	18	M12
MT4 -MU(Screw type)		19.5	M16
S32 -MU-20	6	20	—
S42 -MU-20			

CODE	Fig.	L	g
BT50 -MU-S4/S5	1	73.5	—
H 50 -MU-S4/S5	2	44.5	
NT40U-MU-S4/S5	3	17.1	
NT50U-MU-S4/S5		18.7	
MT4 -MU-S4/S5(Tang type)	4	28	
MT5 -MU-S4/S5(Tang type)			
MT6 -MU-S4/S5(Tang type)		29.5	
MT4 -MU-S4/S5 (Screw type)	5	27	M16

CODE	Fig.	L
BT50 -MU-S6H/S6	1	77
NT50U-MU-S6H/S6	2	28.2
MT6 -MU-S6H/S6(Tang type)	3	35

CODE
Mounting flange

Boring head



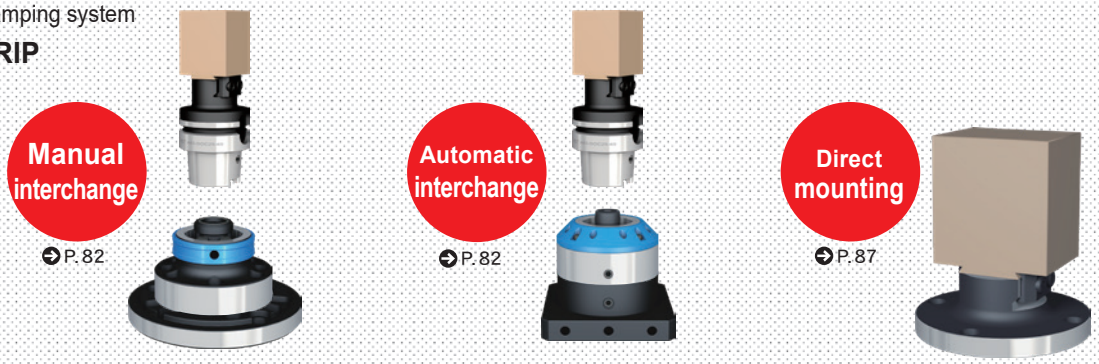
Set content

Accessories \ Boring head (set)	MU	MU-S4	MU-S5	MU-S6H	MU-S6
Boring head	MU-H	MU-S4-H	MU-S5-H	MU-S6H-H	MU-S6-H
Boring bar	Diameter×length / Effective length / Q'ty	Diameter×length / Effective length / Q'ty	Diameter×length / Effective length / Q'ty	Diameter×length / Effective length / Q'ty	Diameter×length / Effective length / Q'ty
	18× 60 / 30 / 1	22× 85 / 45 / 1	22× 85 / 45 / 1	30×120 / 70 / 1	30×120 / 70 / 1
	18× 90 / 60 / 1	22×125 / 85 / 1	22×125 / 85 / 1	30×200 / 150 / 1	30×200 / 150 / 1
	18×120 / 90 / 1	22×165 / 125 / 1	22×165 / 125 / 1	30×260 / 210 / 1	30×260 / 210 / 1
Boring bar holder	Diameter×Shank length / Q'ty	Diameter×Shank length / Q'ty	Diameter×Shank length / Q'ty	Diameter×Shank length / Q'ty	Diameter×Shank length / Q'ty
	18× 82 / 1	22× 98 / 3	22× 98 / 2	30×120 / 2	30×120 / 2
	18×120 / 1	22×180 / 1	22×130 / 1	30×220 / 1	30×220 / 1
	—	—	22×229 / 1	30×360 / 1	30×360 / 1
Adjustment collar for boring bar holder	—	Inner diameter×Thickness / Q'ty	Inner diameter×Thickness / Q'ty	Inner diameter×Thickness / Q'ty	Inner diameter×Thickness / Q'ty
		22×10 / 1	22×10 / 1	30×10 / 1	30×10 / 1
		22×20 / 1	22×20 / 1	30×20 / 1	30×20 / 1
		22×60 / 1	22×45 / 1	30×40 / 1	30×40 / 1
		—	22×60 / 1	30×70 / 1	30×70 / 1
		—	—	30×80 / 1	30×80 / 1
Draw bolt for boring bar holder	—	Diameter×length / Q'ty	Diameter×length / Q'ty	Diameter×length / Q'ty	Diameter×length / Q'ty
		M12×40 / 1	M12×89 / 1	M16×80 / 1	M16×120 / 1
Clamping sleeve	Outer dia.× Inner dia. / Q'ty	Outer dia.× Inner dia. / Q'ty	Outer dia.× Inner dia. / Q'ty	Outer dia.× Inner dia. / Q'ty	Outer dia.× Inner dia. / Q'ty
	18× 8 / 1	22× 8 / 1	22× 8 / 1	22×12 / 1	22×12 / 1
	18×10 / 1	22×10 / 1	22×10 / 1	22×14 / 1	22×14 / 1
	18×12 / 1	22×12 / 1	22×12 / 1	22×18 / 1	22×18 / 1
	18×14 / 1	22×14 / 1	22×14 / 1	30×22-A / 1	30×22-A / 1
	—	22×18 / 1	22×18 / 1	30×22-B / 1	30×22-B / 1
Insert — Material	□ × length / Q'ty	□ × length / Q'ty	□ × length / Q'ty	□ × length / Q'ty	□ × length / Q'ty
Insert — HSS	□ 6×30L-H / 3	□ 6×40L-H / 3	□ 6×40L-H / 3	□ 10×60L-H / 3	□10×60L-H / 3
Insert — Carbide	□ 6×30L-C / 1	□ 6×30L-C / 1	□ 6×30L-C / 1	□ 10×60L-C / 1	□10×60L-C / 1
Other accessories	●Stop rod ●Spanner ●Knocking rod ●L wrench	●Stop rod ●T handle wrench ●Connection for wrench ●L wrench ●Spanner	●Stop rod ●T handle wrench ●Connection for wrench ●L wrench ●Spanner	●Stop rod ●T handle wrench ●Connection for wrench ●Auxiliary bar ●L wrench ●Spanner	●Stop rod ●T handle wrench ●Connection for wrench ●Auxiliary bar ●L wrench ●Spanner

■Note
●We can provide only the head without accessories.

Workpiece clamping system

SMART GRIP

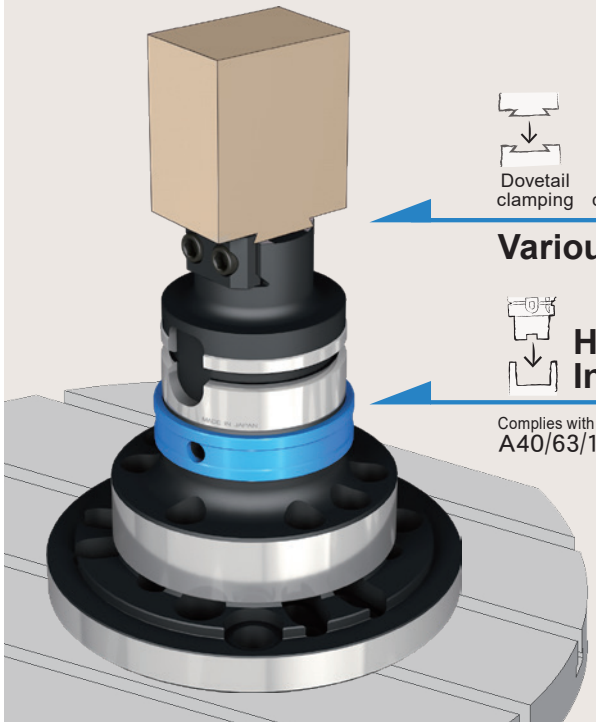


SMART GRIP

PAT.
Workpiece clamping system

The fixture creates the new machining process!

- ▷ Rigid workpiece clamping system developed for multi-face machining on 5-axis machines and 3-axis machines with a rotary table.
- ▷ Unites the machine table and the workpiece with a strong grip and high rigidity.
- ▷ No interference from any direction due to its compact design.
- ▷ Quick workpiece exchange and off-line set-up minimize machine downtime.



Process integration

Various models

HSK Interface

Complies with DIN69893 ISO12164
A40/63/100

Multi-face machining

29th Award

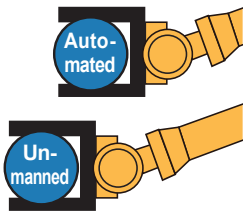
Small and Medium size Enterprises Award for Excellence in New Innovative Technologies and Products

The Resona Foundation for Small and Medium Enterprise Promotion and The Daily Industrial News

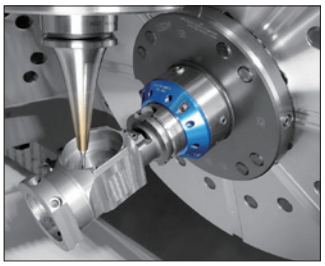
Can be used with any machine

5-axis MC
3-axis MC
Multi-tasking machine
Measuring machine
⋮

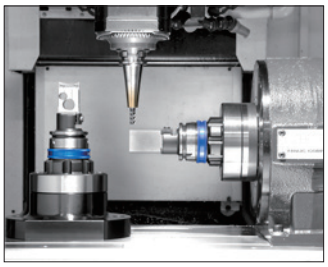
Eliminates a manpower shortage problems



Only one robotic arm required for various workpieces



Stable machining with 5-axis machine

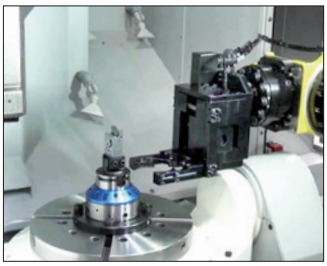


Multi-face machining with single 3-axis machine

Able to clamp workpiece of any shape

Wide range of workpiece holders, including custom designs, are available.

Quick workpiece exchange

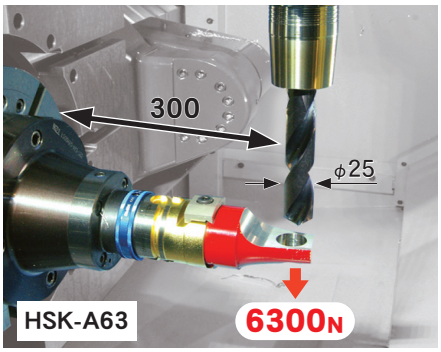


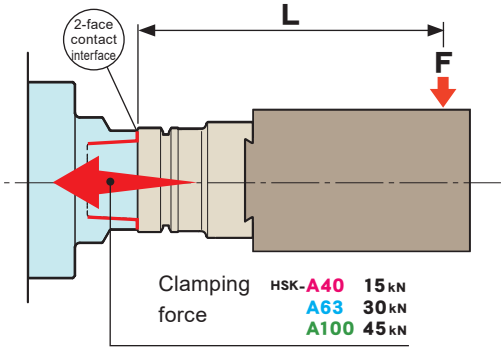
Compatible with automated systems

Clamping feature

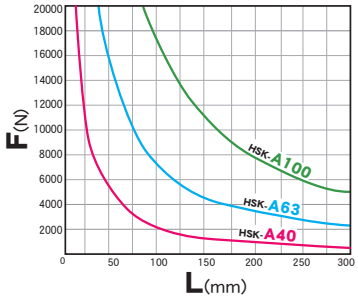
Strong clamping force

Stable machining is possible without the workpiece lifting up, even when machining from all directions.Heavy-duty machining compatible.



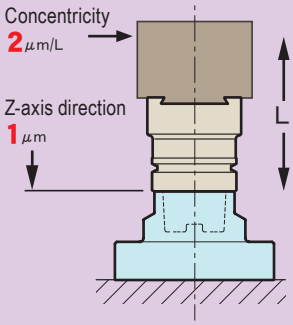


Maximum cutting force

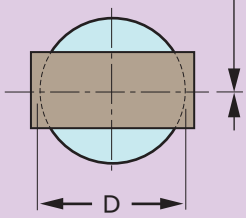


High positioning accuracy

No skills required for exchanging workpiece.



L=3×D	ϕD	L
A40	40	120
A63	63	190
A100	100	300



Rotation direction
0.1~0.3mm/D

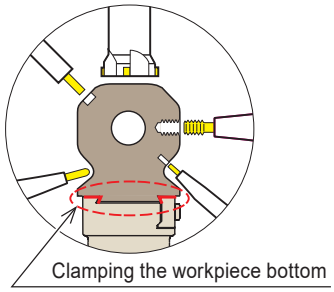
If necessary, offset the rotation direction with a touch probe.

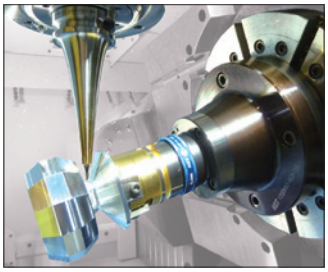
BLUM high-accuracy touch probe

Compact design

Avoids interference

By designing the head and workpiece holder as compact as possible and adopting a structure that clamps the bottom of the workpiece, tool accessibility is maximized.



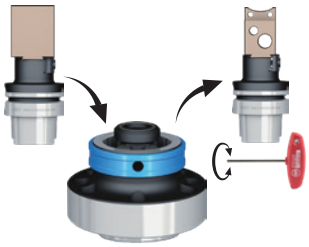


Quick exchange

Exchange time 10 sec.

Easy operation — just place the workpiece holder on the head and tighten with a wrench.

Clamping (5 sec.), unclamping (5 sec.)

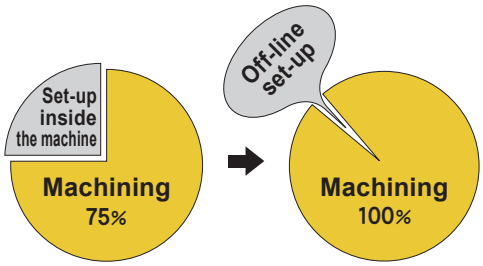


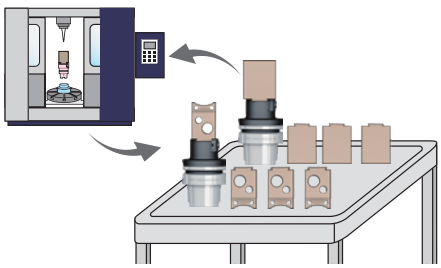
Off-line set-up

Minimizes machine downtime

If you have already set the workpiece in the work holder, you can simply replace the work holder and immediately start the next process.

The machine can be operated continuously, and the machine's operating rate can be increased to its maximum.



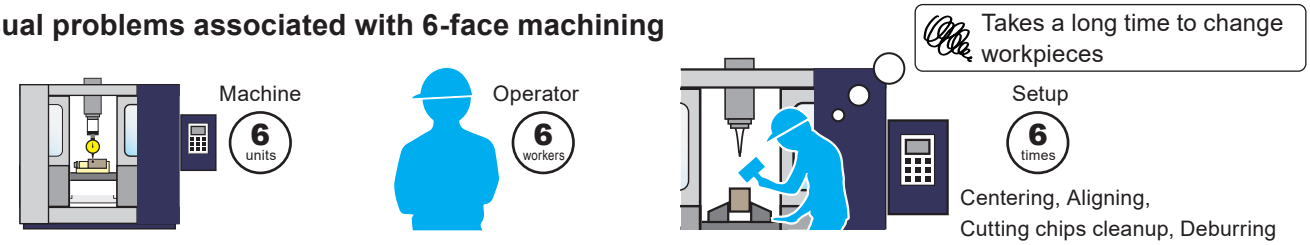


Utilization of SMART GRIP

"Process integration" will improve machine down time and manpower shortages.
SMART GRIP is a good method to integrate the process for a wide variety of workpieces.

Process integration with 3-axis machining center and rotary table

Usual problems associated with 6-face machining



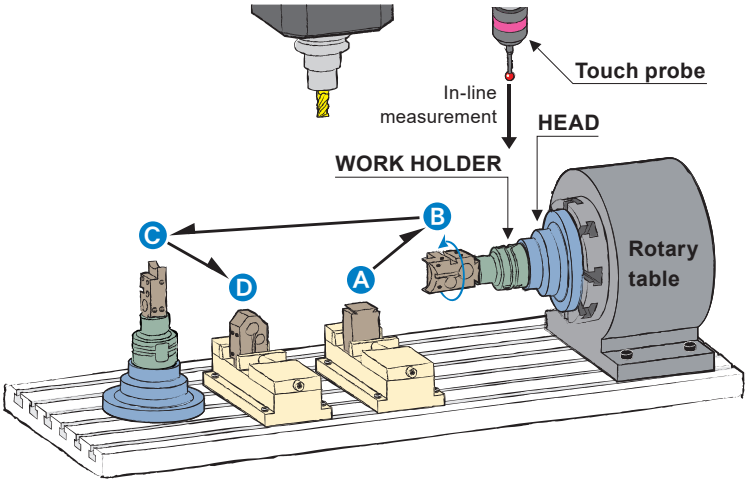
SMART GRIP solves the problem!

- Single-cycle 6-face machining. The entire process can be done done using 1 machine, 1 operator and 1 set-up.
- SMART GRIP's precise positioning accuracy and off line set-up will reduce the time required to change workpieces.

6-face machining with one cycle

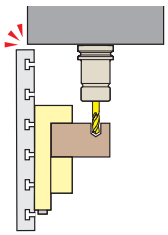
- A Dovetail grooving
- B 1 to 4-face machining
- C 5th face machining
- D Cutting off the dovetail + 6th face machining

Machine	● 3-axis M/C	1unit
Operator	● 1worker	
Fixture	● **SMART GRIP**	
	HEAD	**2pcs**
	WORK HOLDER	**2pcs**
	● Rotary table	1unit
	● Vise	2pcs

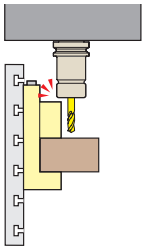


Process integration with 5-axis machining centers

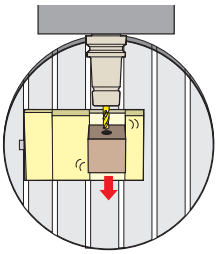
Usual problems with clampiing by vise



Machine spindle interferes with machine table



Tool holder interferes with machine vise



Insufficient clamping strength in machining direction

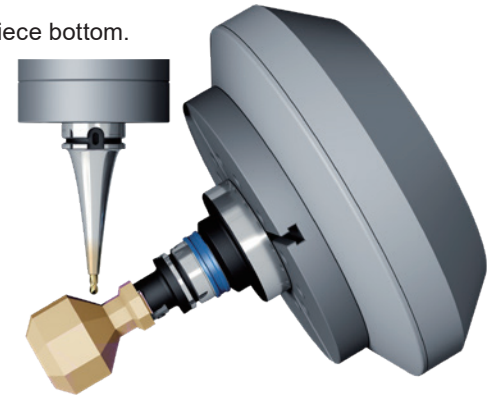
SMART GRIP solves the problem!

- Stable and rigid machining can be performed even when the work-piece is located away from machine table.
- No interference since work-piece holder is more compact than the work-piece.
- Stable machining in any direction, since clamping vector is towards the work-piece bottom.

5-face machining with 1 clamp

- Under-cut machining
- Simultaneous 5-axis machining
- Turning machining

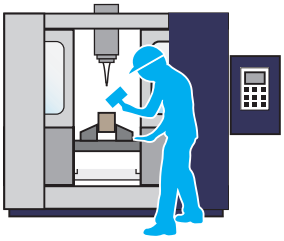
Machine	● 5-axis M/C	1unit
Operator	● 1worker	
Fixture	● **SMART GRIP**	
	HEAD	**1pc**
	WORK HOLDER	**1pc**

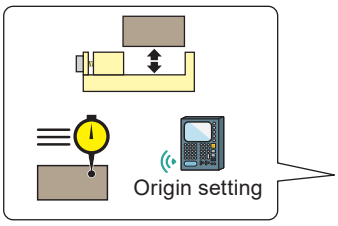


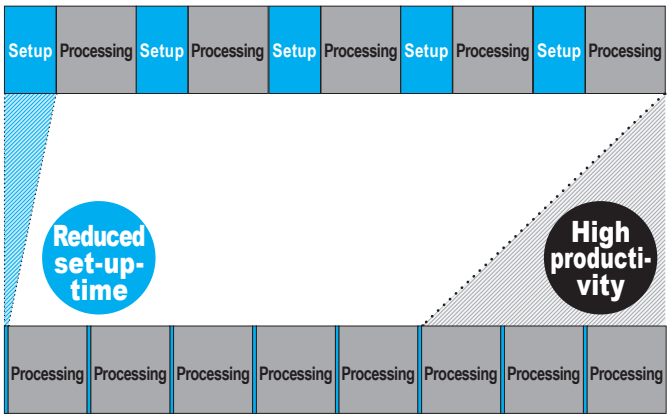
Off-line set-up

- By setting up the next workpiece off the machine while machining is in progress, the next operation can be performed immediately after machining is complete, thereby improving machine utilization.

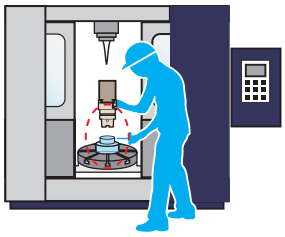
Usual workpiece change by machine vice



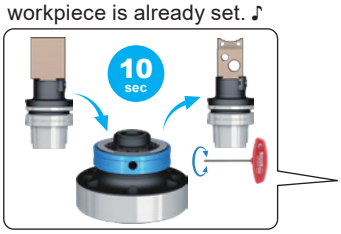




SMART GRIP



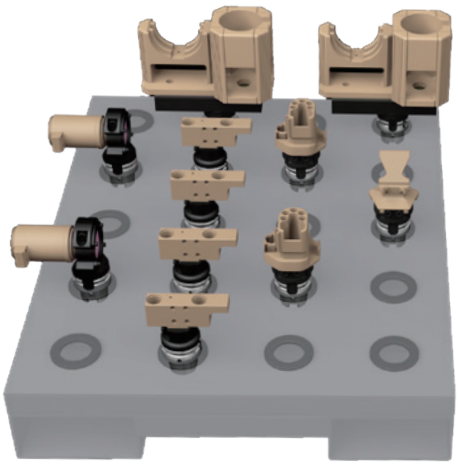
All you need to do is change the holder since the workpiece is already set. ♪

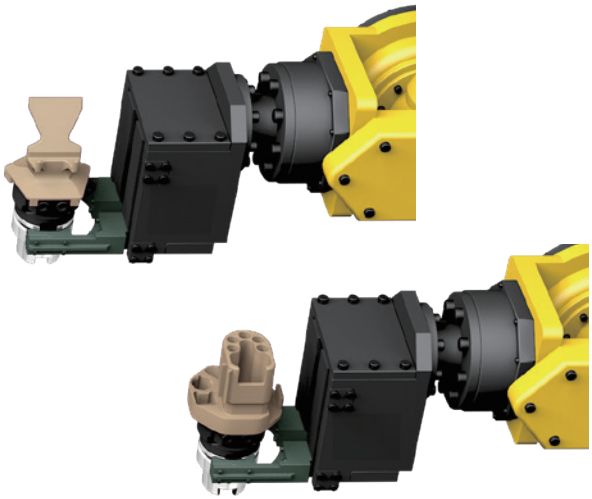


Automation

- Even if the workpiece changes, since the robot only grips the HSK interface portion of the workholder, a single robot hand can handle a wide variety of workpieces.

Various workpieces, 1 system

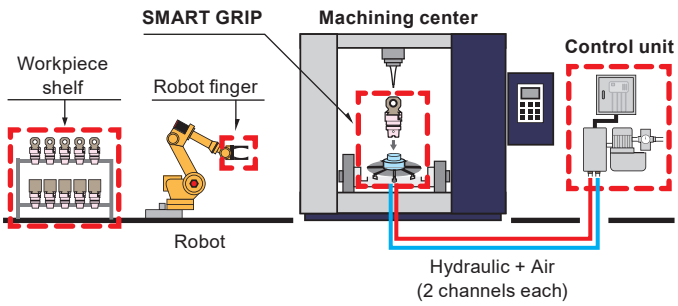




Automation system

We can provide the following items to automate your system:

●Control unit ●Workpiece shelf ●Robot finger



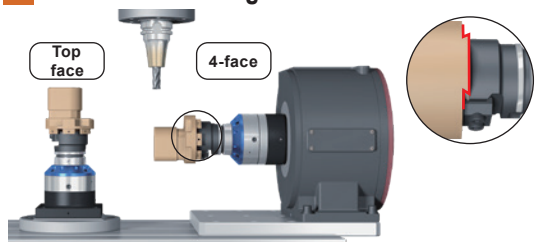
Case studies

1 5-axis machining

A5052
13min
DOC50

- The dovetail clamping method clamps the workpiece at the bottom. Compact and strong clamping.
- Ideal for multi-sided machining and heavy cutting with one chucking.

2 4+1-face machining with a 3-axis MC and Rotary table

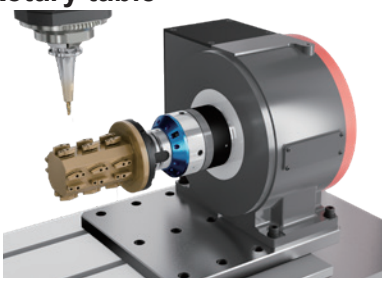


A5052
35min
DOC50

- The dovetail clamping method clamps at the bottom of the workpiece. Dovetail clamping method clamps the workpiece at the bottom, providing compact, strong clamping.
- No workpiece rise from radial direction force.
- Ideal for multiple-direction and heavy load-machining with a single clamp.

Movie

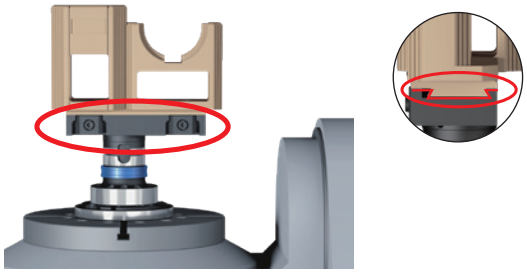
3 4-face machining with a 3-axis MC and Rotary table



SCM415
128min
FP110

- Large cylindrical shapes are clamped using the flange clamping work holder.
- No interference by clamping the bottom of the workpiece.

4 5-axis machining of large workpieces

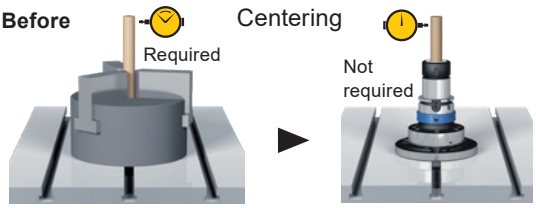


S45C
83min
FP63 + Dedicated fixture

- Uses a long dovetail clamping holder to strongly clamp large workpieces.
- Adding a dovetail adapter to the workpiece bottom eliminates the dovetail process and material waste.

Movie

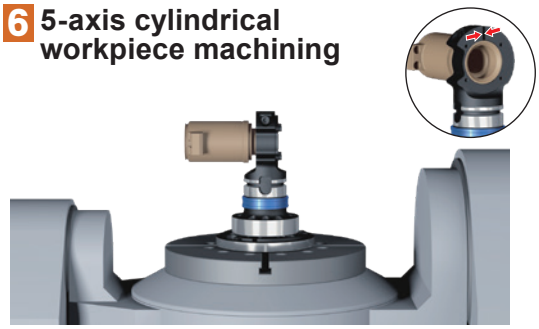
5 Uses a MC (collet) holder to clamp cylindrical workpieces



S50C
CTH20

- Use your HSK-A holder to clamp cylindrical workpieces.
- High positioning accuracy and repeatability eliminate the centering process.
- Off line set-up will reduce the time required to change workpieces and allows continuous operation.
- Various diameter workpieces can be clamped by changing collets.

6 5-axis cylindrical workpiece machining



FCD450
48min
Dedicated fixture

- Customized design allows clamping of cylindrical workpieces
- Workpiece holders can be custom-designed to any shape depending on your application or workpiece shape.

7 5-axis machining of irregular shaped workpieces

FC250
FP110 + Clamping fixture

- By attaching the plate jig to the flange clamp holder, it is possible to handle workpieces with irregular shapes.
- It greatly reduces the jig fixture setup time.

Movie

8 5-axis machining of irregular shaped workpieces

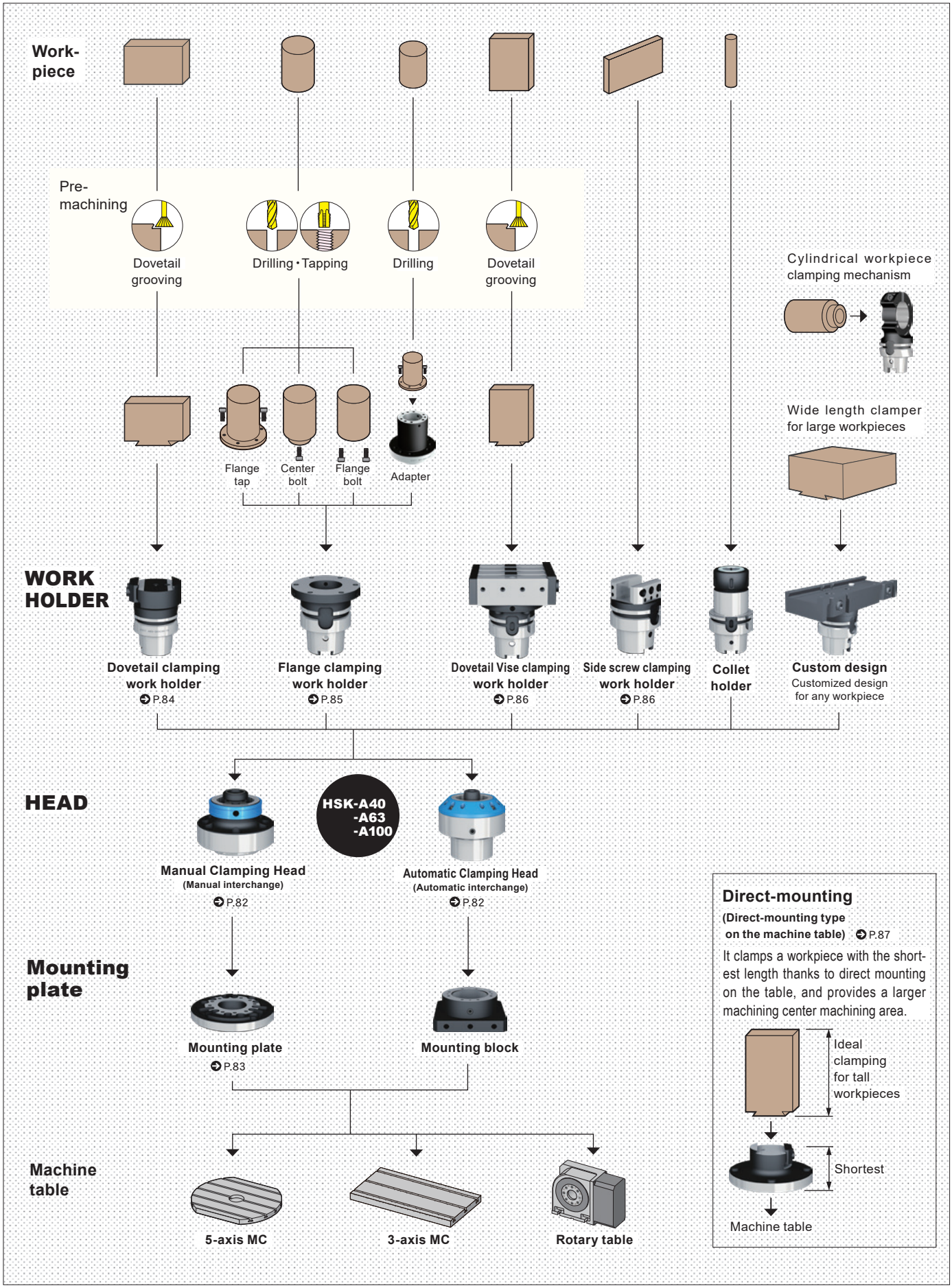
ADC12
FP110 + Clamping fixture

- By attaching the plate jig to the flange clamp holder, it is possible to handle workpieces with irregular shapes.
- It greatly reduces the jig fixture setup time.

Movie

System

Supports various workpiece shapes

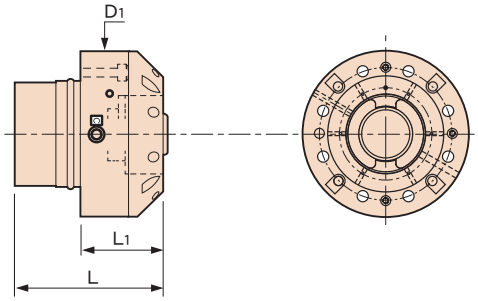


HEAD

Automatic Clamping Head (Automatic exchange)

- The hydraulic clamping design allows you to interchange workpieces automatically, and makes it possible for you to combine your machining centers with robots to create a fully-automated system.

F100S65-A63-89

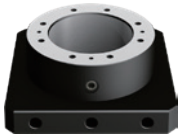


CODE	Interface	L	ϕD1	L1	Clamping force	Max. loading weight	Kg
F70S45 -A40 - 64	HSK-A40	64	70	35	6.6(kN)	40(kg)	1.1
F100S65 -A63 - 89	HSK-A63	89	100	50	24	160	2.9
F140S100-A100-139	HSK-A100	139	140	80	55	640	9.7

■Note
- Hydraulic pressure range : 2.7 ~ 4.3MPa
- Recommended pressure
  Clamp / Unclamp : 3.5MPa (Hydraulic oil ISO-VG32)
  Seating confirmation air : 0.1 ~ 0.2MPa (Pneumatic)
  Air purge : 0.5MPa (Pneumatic)

Mounting block

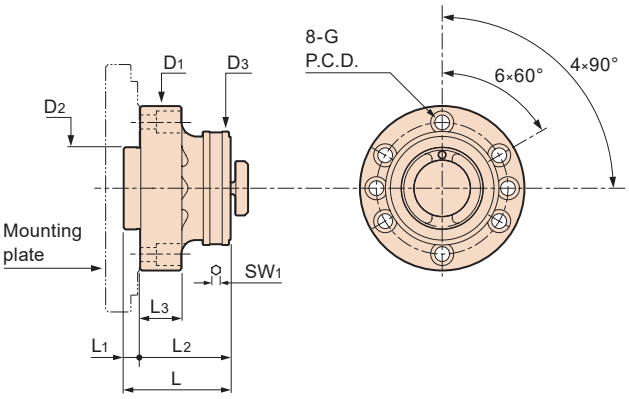
The mounting plate is an adapter for installation on the machine table and for connecting the hydraulic and pneumatic lines. Please provide us with a detailed drawing of your machine table and the plumbing drawing of your hydraulic and pneumatic lines. We can design and produce an exclusive mounting block, so please contact us for more information.



Manual Clamping Head (Manual exchange)

- Easy workpiece exchange by a wrench.

F100S50-A63-65



CODE	Interface	Screw hole	P.C.D.	ϕD1	ϕD2	ϕD3	L	L1	L2	L3	SW	Clamping force	Kg
F 63S32-A40 - 42.5	HSK-A40	M 5	50	63	32	46	42.5	7.5	35	15	3	15 (kN)	0.5
F100S50-A63 - 65	HSK-A63	M 8	80	100	50	69	65	10	55	25	5	30	1.9
F160S80-A100-106	HSK-A100	M12	125	160	80	106	106	21	85	35	8	45	7.4

■Std access.
- T-handle wrench
- Mounting bolt × 4pcs.

■Option
- Mounting plate

■Note
- A manual clamping hole on the work holder is required for mounting.

■Caution
- Requires mounting plate to attach on any table.

Mounting plate

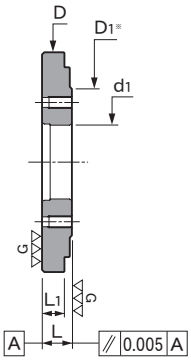


Fig. 1

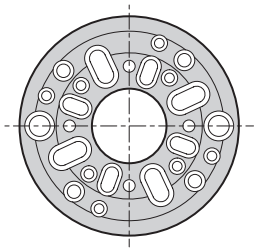


Fig. 2

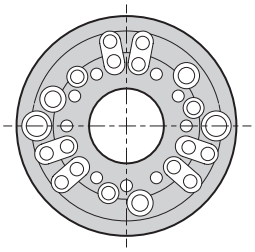


Fig. 3

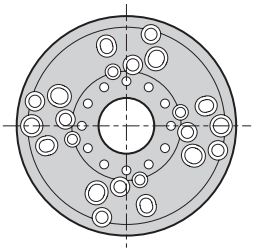
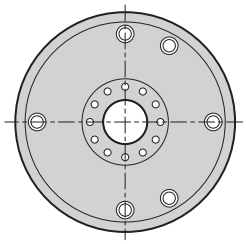


Fig. 4

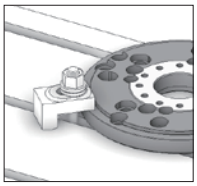


※ D_1 : Mounting surface for the Manual Clamping Head

CODE	HEAD	ϕD	L	ϕD1	ϕd1	L1	Kg
MP 40F150-1	A 40	147	20	62	32	15	1.8
-2							1.9
MP 63F150-1	A 63	147	20	98	50	15	1.6
-2							1.7
MP 63F200		197	22			17	3.8
MP 63F250		247	25			20	8.1
MP100F250	A100	247	25	157	80	20	7.5

■**Caution**

- MP63F250 / MP100F250 is a mounting plate for 5-axis machining center. Please modify the mounting plate if it doesn't fit the table. (Material : SCM415 / 55±2 HRC (1mm carburized case depth))
- Please fix with two M12 bolt for vertical machining center's table.
- Bolts, T-nuts and clampers are not included.



Please apply additional clampers if required.

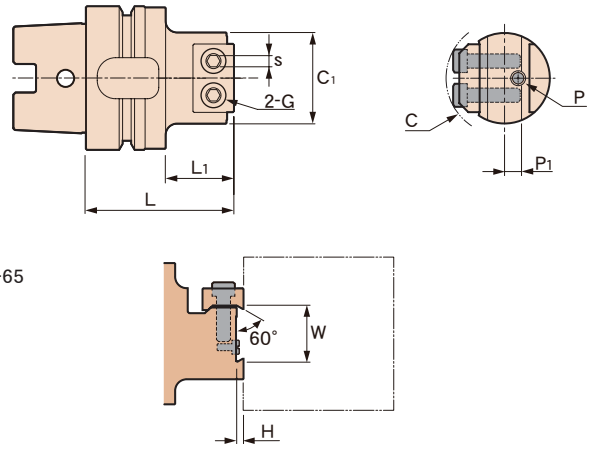
Please refer to below flow chart to select the mounting plate.
Feel free to contact us for any queries.

Head size	Screw hole	Equally spaced	P.C.D.	Mounting plate	Fig.
A40	M6	4	84 118	MP40F150-1	1
	M8	4	68-85 115	MP40F150-1	1
		3	84 88 93 113 115	MP40F150-2	2
	M10	4	75-100	MP40F150-1	1
		3	104.7	MP40F150-2	2
	M12	2	120	MP40F150-1 / MP40F150-2	1 / 2
A63	M6	4	84 118	MP63F150-1	1
	M8	4	68-85 115	MP63F150-1	1
			100	MP63F200	3
		3	84 88 93 113 115	MP63F150-2	2
	M10	4	75-100	MP63F150-1	1
			110 145-150 170	MP63F200	3
		3	104.7	MP63F150-2	2
	M12	4	130-133.4	MP63F200	3
			200	MP63F250	4
		3	200	MP63F250	4
		2	120	MP63F150-1 / MP63F150-2	1 / 2
			170	MP63F200	3
A100	M12	4	200	MP100F250	4
		3	200	MP100F250	4

WORK HOLDER

Dovetail clamping work holder

A63-DOC25-65



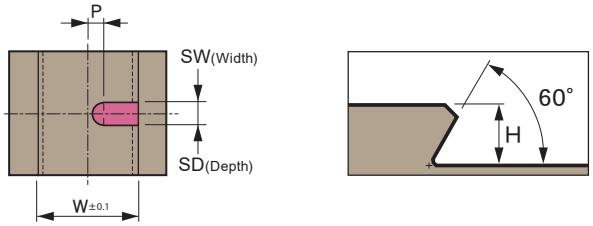
CODE	L	L1	φC	φC1	W	H	φP	P1	G	s	Kg
A40 -DOC 17.5-55	55	21	41	30	17.5	2	4	5	M 5	4	0.5
-DOC 25 -55		30	54	40	25	3	6	6	M 6	5	
-DOC 35 -55		20	63	50	35		8	10			0.6
-DOC 50 -60	60	30	84	70	50	5	10	15	M 8	6	1.1
A63 -DOC 25 -65	65	30	54	40	25	3	6	6	M 6	5	1.2
-DOC 35 -65			63	50	35		8	10			1.3
-DOC 50 -70	70		84	70	50	5	10	15	M 8	6	1.8
-DOC 70 -75	75		114	100	70		12	25	M10	8	2.7
A100-DOC 35 -70	70	30	63	50	35	3	8	10	M 6	5	3.2
-DOC 50 -75	75	35	84	70	50	5	10	15	M 8	6	3.6
-DOC 70 -75			114	100	70		12	25	M10	8	4.6
-DOC100 -85	85	40	157	140	100	10	15	35	M12	10	6.5

■**Std access.**
- Fixing bolt(G) × 2pcs
- Marker pin(P) × 1pc

Dovetail grooving

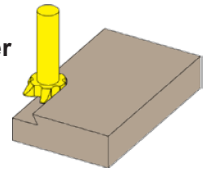
Dovetail grooving of the workpiece clamping area using an angular cutter is required prior to machining.

■**Details of dovetail dimensions**



Holder type	W	H	P	SW	SD
DOC 17.5	17.5	2.5	2.5	4	2
DOC 25	25	3.5		6	2.5
DOC 35	35		5.5	8	
DOC 50	50	5.5	9	10	4
DOC 70	70		18	12	
DOC100	100	10.5	26	15	

■**Angular cutter**



Please purchase market standard dovetail cutters. For more information, please contact us.

Flange clamping work holder

A63-FP85-50

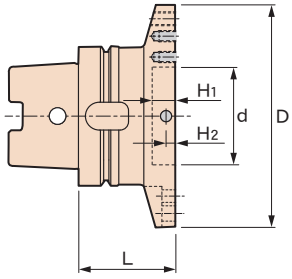


Fig. 1

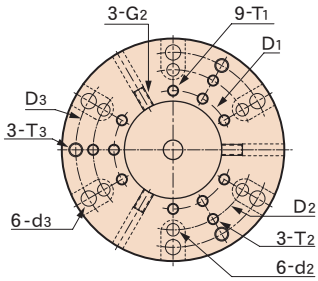


Fig. 2

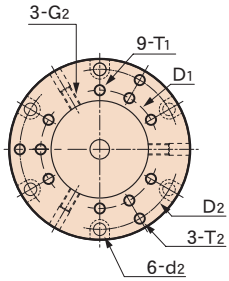
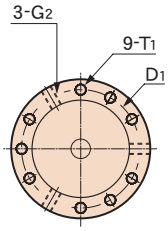
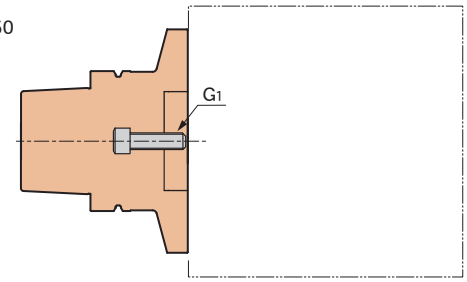


Fig. 3





CODE	Fig.	L	φD	φD1	T1	φD2	T2	φd2	φD3	T3	φd3	φd	H1	H2	G1	G2	Kg
A40 -FP40 -35	3	35	40	32	M4× 6	—	—	—	—	—	—	25 +0.053 +0.020	12	4	M 6×16	M4× 8	0.3
-FP63 -40	2	40	63			50	M5 thru	5.5							M 6×20		0.5
A63 -FP63 -45	3	45	63	50	M5× 8	—	—	—	—	—	—	40 +0.064 +0.025	13	5	M10×20	M6×10	0.9
-FP85 -50	2	50	85			73	M6 thru	6.6							M10×25		1.2
-FP110-55	1	55	110				M6×9		95	M 8 thru	9				M10×30		1.7
A100-FP100-55	3	55	100	85	M8×12	—	—	—	—	—	—	70 +0.076 +0.030	17	7	M12×25	M8×16	3.0
-FP130-65	2	65	130			115	M8 thru	9							M12×35		4.2
-FP160-70	1	70	160				M8×12		140	M10 thru	11				M12×40		5.3

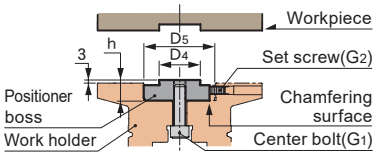
■Std access.
- Center bolt (G_1)×1pc. ● Set screw (G_2)×3pcs.
- M6 special small-head bolt (the head diameter size is the same as the M5 bolt) ×6pcs. (A63FP-85-50 / A63-FP110-55)
  ※Regular M6 cap screw doesn't fit.

■Option
- Positioner boss ● Adapter

■Note
- Use the center bolt (G_1) when you use the center bolt to clamp the workpiece. When you need whirl-stop machining of a workpiece, make a flat surface on the workpiece and clamp it using a set screw (G_2).

Positioner boss

Please use when you need centering.



CODE	Work holder	φD4	φD5	h	Kg
IR15-A40 FP	A40	15 $^{0}_{-0.027}$	25	15	0.05
IR25-A63 FP	A63	25 $^{0}_{-0.033}$	40	16	0.1
IR40-A100FP	A100	40 $^{0}_{-0.039}$	70	20	0.5

■Note
- Clamp it with the center bolt(G_1). When you do not want the workpiece to rotate, secure the chamfering surface using a set screw(G_2).

IR25-A63FP

Adapter

Minimizing clamping area for a small-size workpieces reduces the interference area.

RS-A63-A40

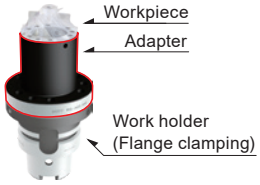


Fig. 1

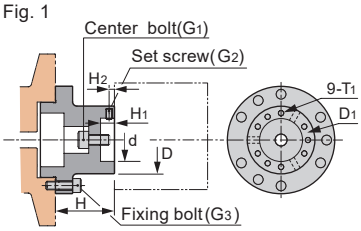
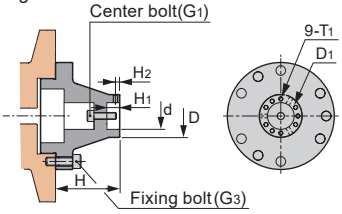


Fig. 2



CODE	Work holder	Fig.	φD	φD1	φd	H1	H2	H	T1	G1	G2	G3	Kg
RS-A63 -A40	A63	1	40	32	25 +0.053 +0.020	12	4	50	M4×6	M 6×20	M4× 8	M5×16	0.5
RS-A100-A40	A100	2	40	32	25 +0.053 +0.020	12	4	60	M4×6	M 6×20	M4× 8	M8×25	1.5
RS-A100-A63	A100	1	63	50	40 +0.064 +0.025	13	5	55	M5×8	M10×20	M6×10	M8×25	1.7

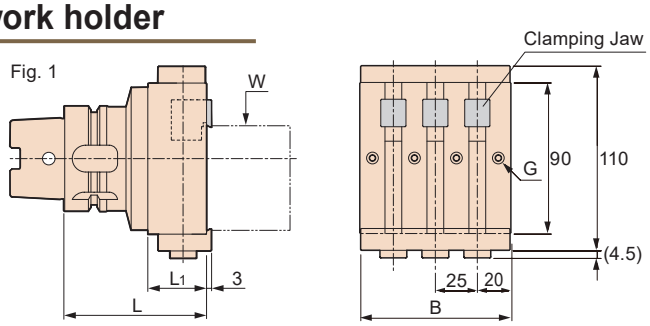
■Std access.
- Center bolt (G_1)×1pc. ● Set screw (G_2)×3pcs.
- Fixing bolt (G_3)× 3pcs.

■Note
- Attach the workpiece with the center bolt (G_1). When you do not want the workpiece to rotate, secure the chamfering surface using a set screw(G_2).

Dovetail Vise clamping work holder

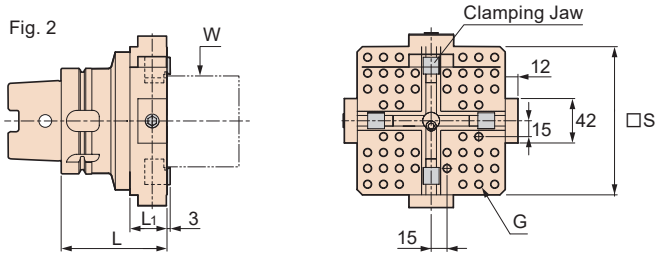
A63-DOV90

Fig. 1



A63-DOV110I

Fig. 2



CODE	Fig.	□S	Number of grooves	B	W	G	L	L1	Kg
A63 -DOV 90	1	—	3	90	12～ 73	4-M6×12	85	35	3.8
-DOV110I	2	110	—	—	36～ 80	28-M8×12	90	35	5.7
A100-DOV140	1	—	5	140	12～ 73	6-M6×12	100	35	7.7
-DOV140I	2	140	—	—	36～110	56-M8×12	100	35	9.9

■**Std access.**
- 8mm hexagonal wrench
- Marker pin

■**Note**
- Please refer to P.84 for dovetail details.
- Workpiece clamping jaws move individually.
- Please use the screw hole on the top face as necessary.

Side screw clamping work holder

A63-SCS20-55

A63-SCD40-85

Fig. 1

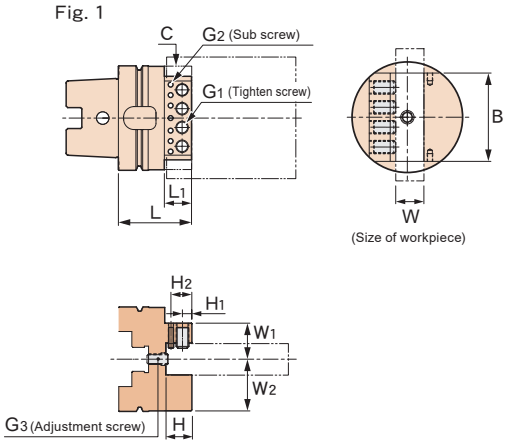
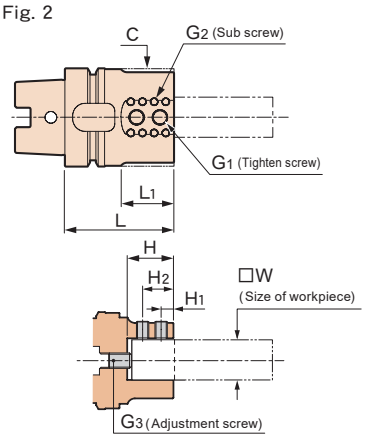


Fig. 2



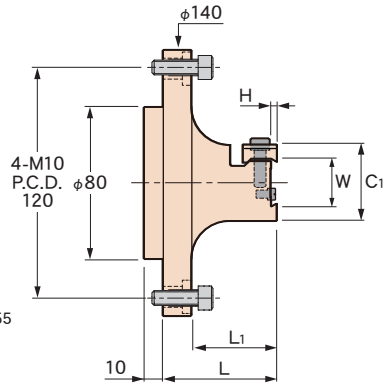
CODE	Fig.	W	W1	W2	B	L	L1	φC	H	H1	H2	□B	G1	G2	G3	Kg
A40 -SCS10-40	1	5 ~ 10	13	18.6	30	40	11	38	10	4.5	—	—	M 6×10	—	M 6	0.5
-SCD20-55	2	15 ~ 20	—	—	—	55	30	49	25	11	—	44	M 8×16	M4	M10	0.5
A63 -SCS10-55	1	5 ~ 10	20	23.5	50	55	21	61	20	7.5	17	—	M10×15	M5	M 6	1.1
-SCS20-55		10 ~ 20	25	28.5											M10	
-SCD20-65	2	15 ~ 20	—	—	—	65	30	49	25	11	—	44	M 8×16	M4	M10	1.2
-SCD25-70		20 ~ 25				70	35	56	30	8	20	49				1.3
-SCD30-70		25 ~ 30					44	62	35	9	24	58	M10×20	M5		1.4
-SCD40-85		30 ~ 40				85	52	76	45	12	30	68	M12×20	M6		1.9
A100-SCS20-70	1	10 ~ 20	29.5	34	80	70	26	94	25	9	20	—	M12×20	M5	M10	3.6
-SCS30-70		20 ~ 30	34.5	39				98								
-SCD20-70	2	15 ~ 20	—	—	—	70	30	49	25	11	—	44	M 8×16	M4	M10	3
-SCD25-75		20 ~ 25				75	35	56	30	8	20	49				3.4
-SCD30-80		25 ~ 30				80		62	35	9	24	58	M10×20	M5		3.5
-SCD40-90		30 ~ 40				90	45	76	45	12	30	68	M12×20	M6		3.9

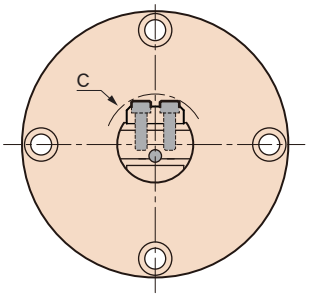
■**Std access.**
- Tighten screw (G1) SCS× 2pcs. SCD× 4pcs.

Direct-mounting (Direct-mounting type on the machine table)

Dovetail clamping type

F140S80-DOC50-55





CODE	L	L1	H	ϕC	ϕC1	W	Kg
F140S80-DOC 17.5-60	60	45	2	41	30	17.5	2.5
-DOC 25 -60			3	54	40	25	2.6
-DOC 35 -55	55	40		63	50	35	2.8
-DOC 50 -55			5	84	70	50	3.4
-DOC 70 -55				114	100	70	4.7
-DOC100 -55			10	157	140	100	5.5

■**Std access.**
- Mounting bolt × 4pcs. (DOC100)

■**Option**
- Mounting plate

■**Note**
- Please refer to P.84 for dovetail details.

■**Caution**
- Requires mounting plate to attach on any table.

Flange clamping type

F140S80-FP85-50

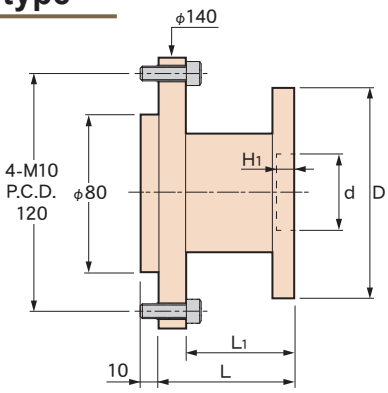


Fig. 1

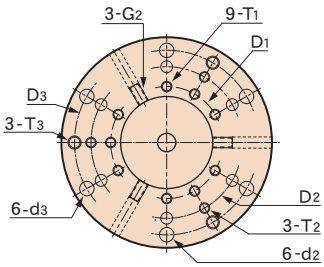
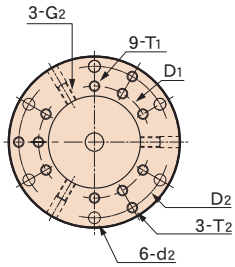


Fig. 2



CODE	Fig.	L	L1	H1	ϕD	ϕD1	T1	ϕD2	T2	ϕd2	ϕD3	T3	ϕd3	ϕd	G2	Kg
F140S80-FP 63-50	2	50	35	12	63	32	M4× 6	50	M5 thru	5.5 thru	—	—	—	25 +0.053 +0.020	M4	2.6
-FP 85-50				13	85	50	M5× 8	73	M6 thru	6.6 thru				40 +0.064 +0.025	M6	3.1
-FP110-70	1	70	55		110				M6×9		95	M8 thru	9 thru			3.7
-FP130-75	2	75	60	17	130	85	M8×12	115	M8 thru	9 thru	—	—	—	70 +0.076 +0.030	M8	5.5

■**Std access.**
- Mounting bolt × 4pcs.

■**Option**
- Mounting plate
- Positioner boss→P.85
- Adapter→P.85

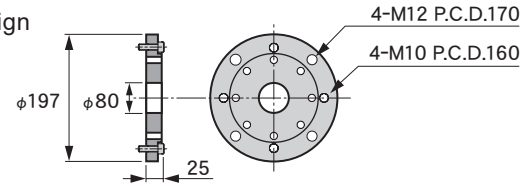
■**Caution**
- Requires mounting plate to attach on any table.

Mounting plate

Also, we can make a custom design

CODE	Kg
F200H80-MP140-25	4.3

■**Std access.**
- Mounting bolt × 4pcs.

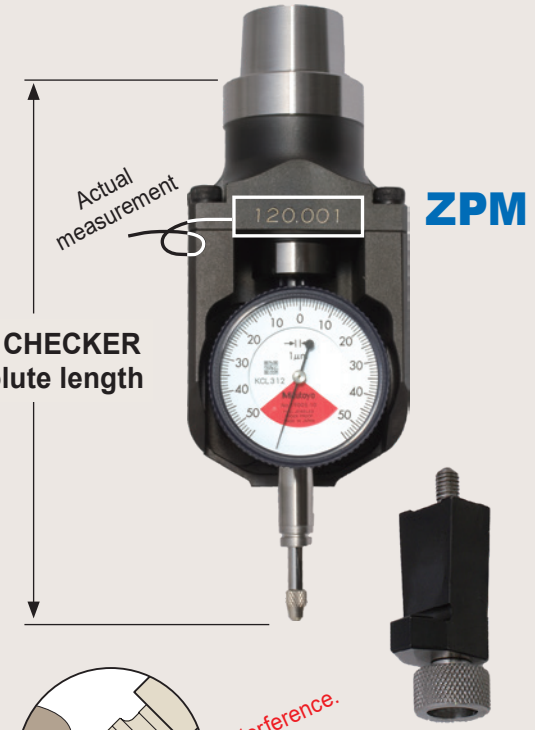


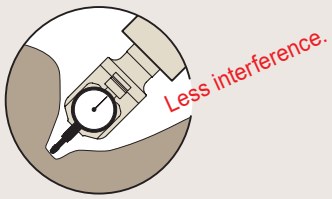
Goo Checker

Set up the original point on the Z axis / measuring tool for reference position

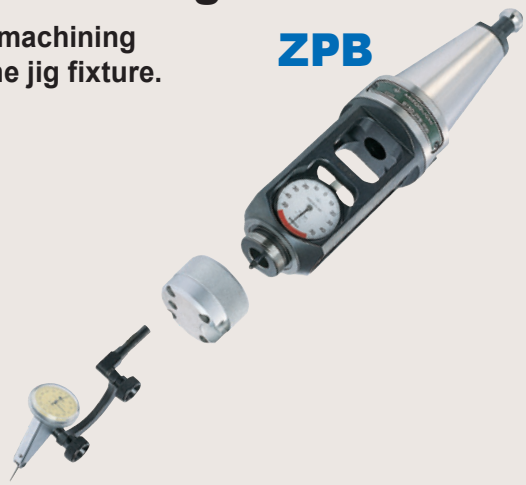
Easy and accurate Z-axis origin setting!

▷ It is easy to accurately set the Z-axis origin of the machining center, the reference surface of work-piece, and the jig fixture.



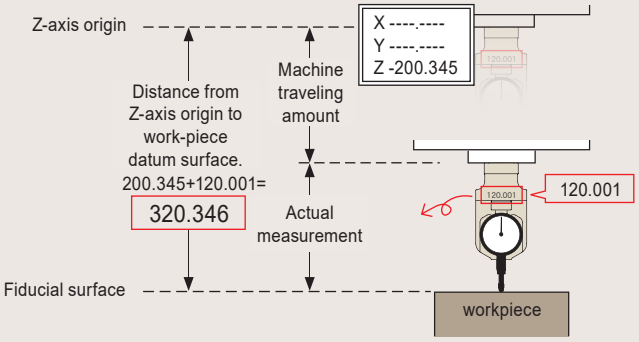


Available for using 5-axis machine.



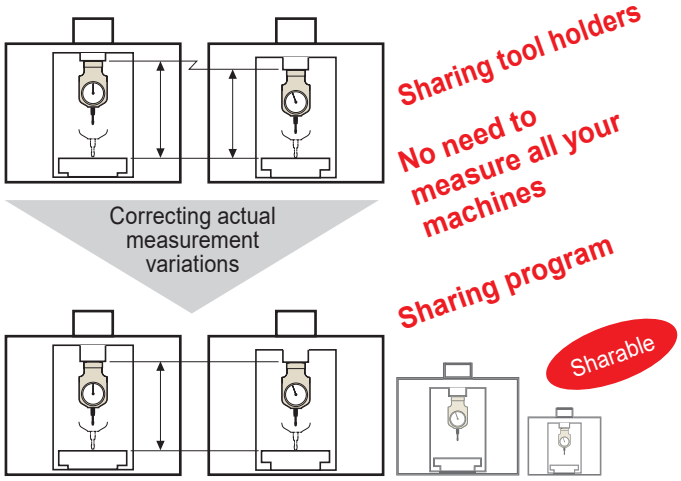
Measuring steps are easy.

Accurate measuring of the distance from the Z-axis origin to the reference surface of the work-piece and jig fixture is easy.



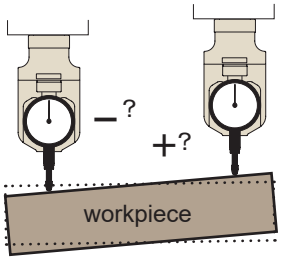
Sharable Z-axis origin for several machining centers

After measuring the distance from the Z-axis origin to the table surface of each machining center and correcting any variations, multiple machining centers can share the tool holders and programming.



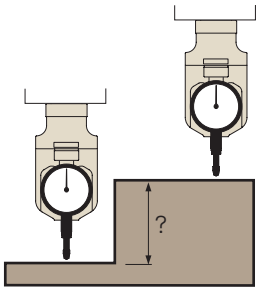
Flatness check

Precise measurement for flatness.



Step measurement

Measurement for steps on the work-piece.

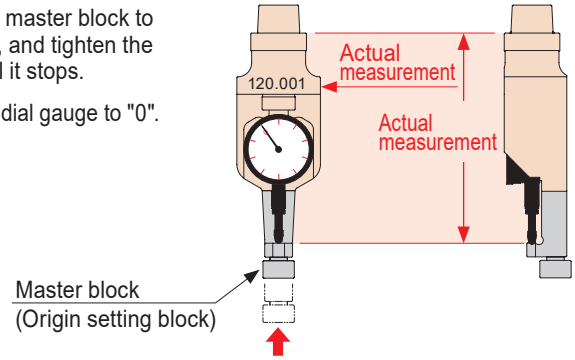


Goo Checker ZPM type (ZPM)

▷ **Thanks to its compact design, interference is reduced , making it the optimum holder for compact machining centers.**

Easy confirmation of actual value (self-check function)

1. Attach the master block to the holder, and tighten the screw until it stops.
2. Adjust the dial gauge to "0".



CODE	Fig.	L	L1	Kg
BT30-ZPM-130	1	130	100	1.0
-165		165	135	1.2
BT40-ZPM-150	2	150	120	1.3
-210		210	180	1.5
BT50-ZPM-180	2	180	150	2.9
-240		240	210	4.1
A63 -ZPM-150	3	150	120	1.2
-210		210	180	1.5
A100-ZPM-180	3	180	150	2.5
-240		240	210	3.8
E32 -ZPM-120	3	120	90	0.7
-165		165	135	1.0
E40 -ZPM-120	3	120	90	0.8
-180		180	150	1.1
E50 -ZPM-150	3	150	120	1.0
-195		195	165	1.3
F63 -ZPM-150	3	150	120	1.1
-210		210	180	1.3
F80PD-ZPM-180	3	180	150	1.6
-240		240	210	1.8
DN40-ZPM-150	2	150	120	1.3
DN50-ZPM-180	2	180	150	2.9
CT40-ZPM-150	2	150	120	1.3
CT50-ZPM-240	2	240	210	4.1

Fig. 1

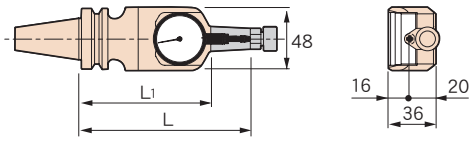


Fig. 2

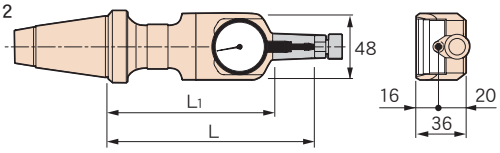
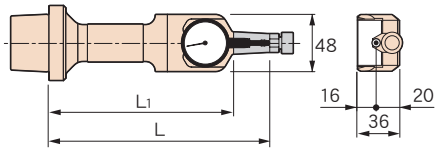


Fig. 3



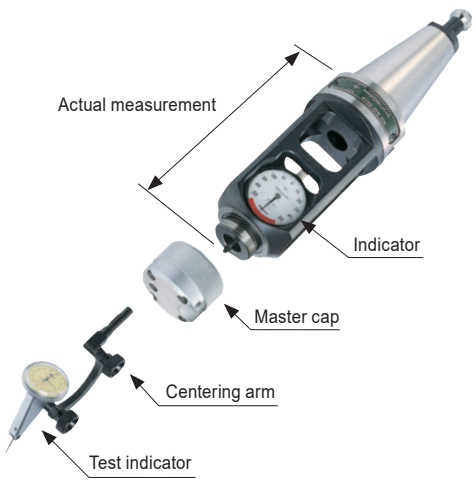
■**Option**
- Retention knob (BT/DIN/CAT.) → P.64

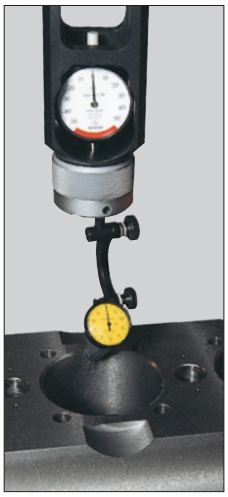
■**Std. Access.**
- Master block
- Indicator, 1/ 1000 reading

■**Caution**
- A.T.C is not available. (except for BT30)

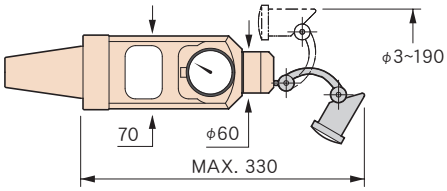
Goo Checker ZPB type (ZPB)

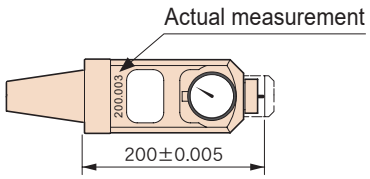
▷ **High reliability due to its machined solid structure.**





Usage example for test indicator





CODE	Kg
BT40-ZPB-200	3.3
BT50-ZPB-200	5.2

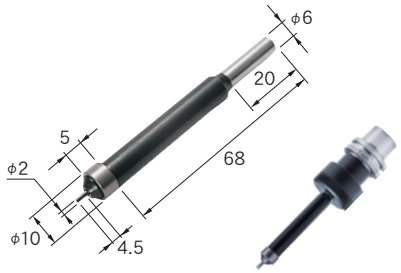
■**Option**
- Retention knob → P.64

■**Std. Access.**
- Indicator, 1/ 1000 reading
- Test Indicator, 2/ 1000 reading
- Centering arm
- Master cap
- Wooden box

Centering bar

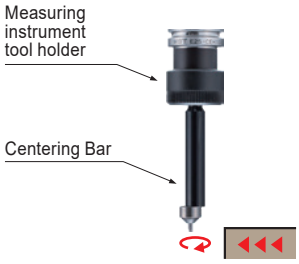
To identify workpiece datum position

CODE
ST6-CEB102



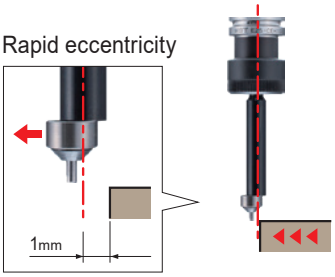
Usage

①Rotate a spindle in low-speed rotation (450~600min-1)



②Contact the stylus carefully with a work-piece by micro feeding until it doesn't have a swing.

③You can find the alignment between the machine spindle center and the work-piece edge face after the stylus moves another 1mm(the radius of dia. 2mm stylus).



Measuring instrument tool holder (HSK-E25)

Use when centering a workpiece.
The spring collet (C10-6-P) and the centering bar (ST6-CEB102) are required and sold separately. Tighten nuts by hand.

CODE
E25-CEH10-37

■**Option**
- Centering bar
- Spring collet(C10-6-P)→P.38

■**Caution**
- Not usable for machining.

MAINTENANCE TOOL

TOOL SET UP STATION

Work table
6S DESK **6SD**

➔P.92

Tool washing machine
CLEAN BOX **CBX**

➔P.94

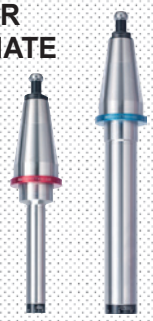
The teaching DVD
with practical maintenance tools
MAINTENANCE VIDEO **MTN**

➔P.96

Cleaning Tool
for a spindle taper hole
STAR DUST **CLT**

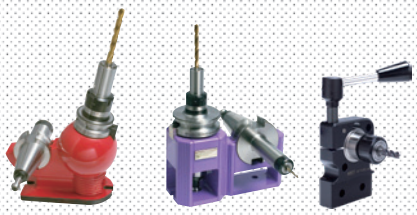
➔P.97

For machine spindle maintenance
TEST BAR CHECKMATE **CMA CMB**



➔P.98

Tool tightening stand
TOOL SET UP STAND **Petit-Ball MY CUBE HF series**

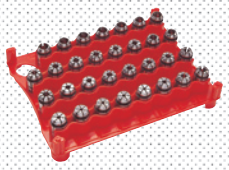


➔P.100

Cutting tool cover
TOOL CAP **TCA TCB TCC**

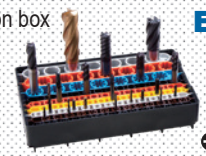
➔P.102

Collet stand
PALETTE **PA**



➔P.104

Cutter protection box
ENDMILL HOUSE **EMO**



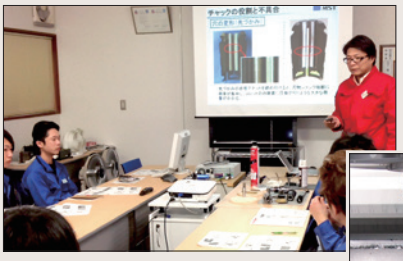
➔P.105

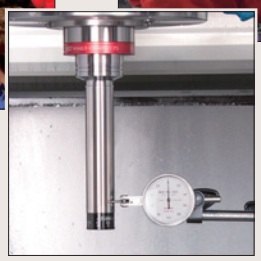
TOOL HOLDER STORING CABINET **HBX**

➔P.106

■ TOOL CLINIC

Our engineers are here to improve your productivity by demonstrating the correct usage and maintenance of tool holders.





➔P.122

TOOL SET UP STATION

6S DESK

Work table

Ensures safe tool settings !
Improves the work environment in the factory !

- ▷ Helps in the rapid implementation of the five S's in your factory.
- ▷ Compact and space saving.
- ▷ Do-it-yourself style allows you to do the assembly.

CODE
6SD-01

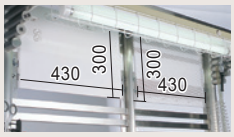
※This image includes the options. Tool is not included.

Upper lighting

Safety light cover.

White board and Punched board

Useful as a bulletin board or message board, and for attaching drawings. Freely mounting position.



Tool insert stand (Option)

Air gun

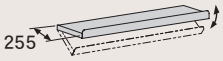
Can be mounted on either the right or left.

Lower lighting

Brightly lit, safe work space

Shelf Board

Shelf is deep enough for a laptop computer, and the shelf can be attached at whatever height you desire.



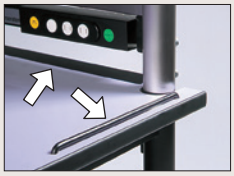
Two-position angle adjustment

Lighting switch and socket

Upper lighting (32W) and under shelf lighting (20W) (max. capacity 1,500W)

Dust Shooter (Option)

Safety stopper



Hook

Hooks can be easily attached and rearranged to fit your tools!

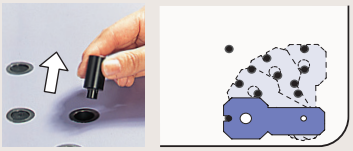
Hook + Hook base Panel

Side table (option)

Container box

Tabletop

The tool setup stand (sold separately) can be installed anywhere using the tabletop holes.



The installation position can be freely adjusted by removing the tabletop cover.

Effective utilization of a rear space

Storage

Can be removed and carried.

Organizing

The see-through box allows easy storage and organizing.

Optional dividers allow you to easily organize and systematize items.

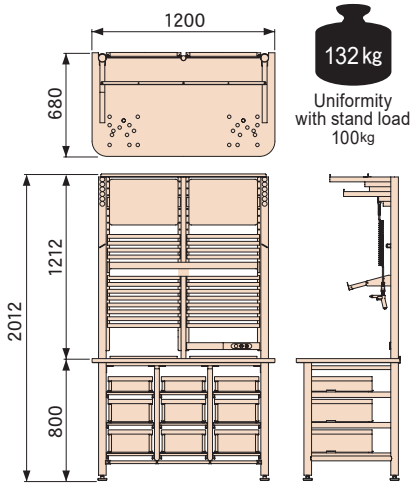
Tool set up stand

➔P.100

MY CUBE

Petit Ball

Dimensions



Std. Access.

CODE	Description	Q'ty
6SD-FBP	Hook base panel	12pcs.
-FS	Short hook	3pcs.
-FL	Long hook	2pcs.
-UFS	U-type short hook	3pcs.
-UFL	U-type long hook	1pc.
-FSP	Hook for spanner	1pc.
-FDR	Hook for driver	1pc.
CN -103	Container box	3pcs.
-150		6pcs.
6SD-AIR	Air gun set	1set

Description	Q'ty
Shelf Board	1pc.
Upper lighting / Lower lighting ※Select 50Hz or 60Hz	1ea.
Power code set (Socket / Lighting / switch / Power code)	1set
White board. Marker pen for whiteboard. Whiteboard eraser. Magnet pocket. Punched board. Name seal set. Magnets(3pcs.). Memo book.	1set

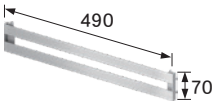
■Caution
- Assembly by buyer.
- Customers pay the shipping cost.
- 100V electric power supply (transformer is required)

Consumables / Replacement parts

Hook

Hook base panel

CODE	Q'ty
6SD-FBP	2pcs.



Short hook

CODE	Q'ty
6SD-FS	5pcs.

U-type short hook

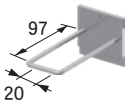
CODE	Q'ty
6SD-UFS	5pcs.

Long hook

CODE	Q'ty
6SD-FL	5pcs.

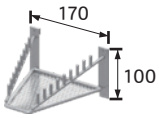
U-type long hook

CODE	Q'ty
6SD-UFL	5pcs.



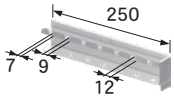
Hook for spanner

CODE	Q'ty
6SD-FSP	1pc.



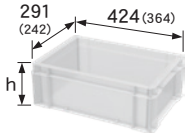
Hook for driver

CODE	Q'ty
6SD-FDR	1pc.



Container box

CODE	h	Capacity	Q'ty
CN-103-3	103 (88)	8ℓ	3pcs.
-150-3	150 (135)	12ℓ	



※( ):Inside dimension

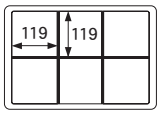
Lid for container box

CODE	Q'ty
CN-FT-3	3pcs.

※Lockable

Dividers for storage cabinet

CODE	Required box	Q'ty
CN-S 84-3	CN-103	9 pcs. (for 6 rooms)
-S135-3	-150	(Container box 3 pcs. / set)



Air gun set

CODE
6SD-AIR

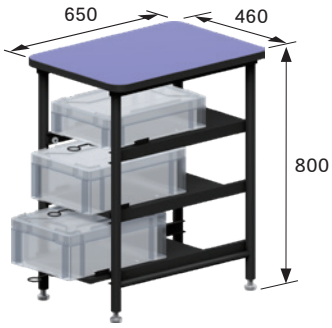
Option

Side table

Side Table for the 6S DESK

CODE
6SD-STB

■Std. Access.
- Container box (CN-103×1pc., CN-150×2pcs.)
- Lid for Container Box (3pcs.)



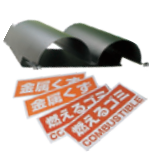
Uniformity with stand load :40kg

Dust Shooter

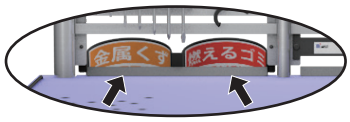
Easy trash separation.

CODE
6SD-DST

■Std. Access.
- Sign seals (2 kinds, 2pcs.)



Usage image
※Trash cans are not provided.



Tool insert stand

Insert and store frequently used hand tools, stationery, etc.

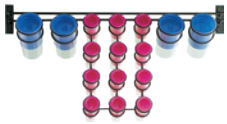
Tool insert stand 5

CODE
6SD-IS5

5-pocket movable model

Tool insert stand 16

CODE
6SD-IS16



16-pocket fixed model

TOOL SET UP STATION

CLEAN BOX

Tool washing machine

Wash the tooling holders, collets, nuts, cutting tools, and small work-pieces thoroughly to maintain their accuracy!

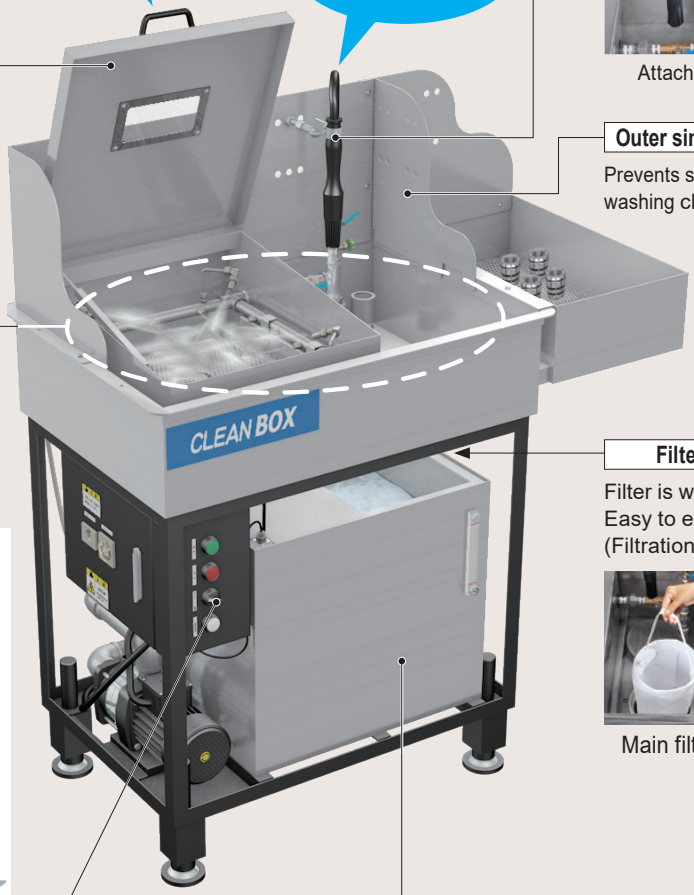
CODE
CBX-01

※This image includes the options.

- ▷ No plumbing required.
- ▷ Safe cleaning system using water.
- ▷ Built-in washing water heater.

Light dirt can be washed off using automatic washing.

Heavy dirt can be washed off by hand.



Hand nozzle

Heavy dirt can be washed off using the hand nozzle brush and hot water (40°C / 104°F)
Easy to attach and detach.

Attach

Remove

Top cover

Can be opened and closed with one hand.

Comes with an automatic shutoff function for the washing cycle.

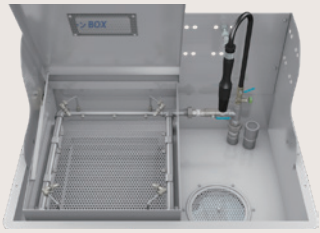
Automatic washing stops automatically when the top cover is lifted during operation.

Outer sink cover

Prevents splashing of the washing cleaner.

◀ Draining basket (option)

Built-in sink



Automatic washing space

Shoots cleaning fluid from 18 location nozzles to wash off all the dirt!

Hand washing space

Heavy dirt can be washed off using the hand nozzle brush

Built-in sink with an overflow drain allows pre-soaked washing.

Filter

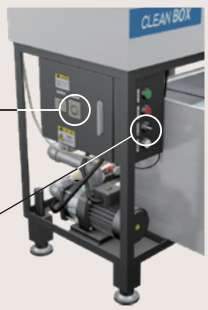
Filter is washable and reusable.
Easy to exchange.
(Filtration Accuracy : 50μm)

Main filter

Sub-filter

Timer operating mode

The time can be set arbitrarily, up to 12 min.



Tank

The use of heated cleaning fluid (40°C / 104°F) increases the cleaning power and makes cleaning easy even in the winter.

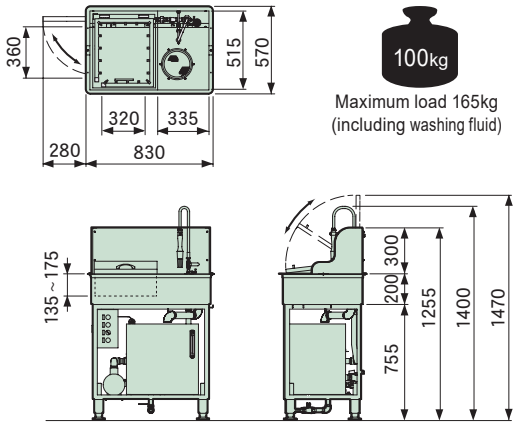
Tank can be removed for washing.
(Tank capasity : 65ℓ)

Comes with built-in heater (3kW) standard.

⚠ Be sure to use water-soluble cleaning fluid.

The sink, washing unit and tank are made of stainless steel, resulting in easy maintenance and less staining.

Dimensions



100kg

Maximum load 165kg
(including washing fluid)

Specification

Material	SU304 (Sink、Tank、Cleaning unit) SS400 (Base frame)
Tank	Approx. 65L (Level gauge with thermometer is standard accessory.)
Pump	0.3～0.51kW (50/60Hz) (Produced by Grundfos)
Heater	3kW (with temperature control)
Weight	Approx. 100kg (165kg, including cleaning fluid)
Voltage	3-phase 200V (Rated 15A)

Std. Access.

CODE	Description	Q'ty
CBX-WBSK	Washing basket	1pc.
-WTBL	Washing table	1pc.
-MFIL	Main filter	2pcs.
-SFIL	Sub-filter	2pcs.
-TRP	Drain trap	1pc.
-GSTP	Rubber drain plug	1pc.
-HNZ	Hand nozzle	1pc.

Description	Q'ty
Sink outer cover	1set
Hook	2pcs.
Bamboo brush	1pc.
Primary power code (plug attached 15m)	1pc.

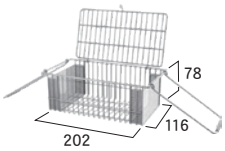
■**Caution**
- Be sure to use water-soluble cleaning fluid.
- Customers pay the shipping cost.
- 200V electric power supply (transformer is required)

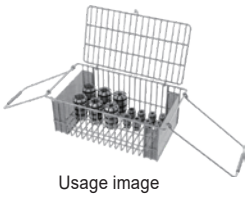
Consumables / Replacement parts

Washing basket

CODE
CBX-WBSK

Collet and small parts can be washed.



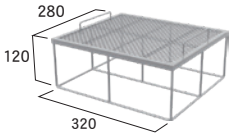


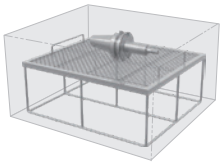
Usage image

Washing table

CODE
CBX-WTBL

Used in a sink as an auxiliary table when washing by hand.





Usage image in the sink

Main filter

CODE	Q'ty
CBX-MFIL	5pcs.

Sub-filter

CODE	Q'ty
CBX-SFIL	3pcs.

Drain trap

CODE
CBX-TRP

Rubber drain plug

CODE
CBX-GSTP

Hand nozzle

CODE
CBX-HNZ

Cleaning fluid

CODE
CBX-EKI

- Capacity 18ℓ
- Product name:
"Clean Super 285"
weak alkaline cleaner

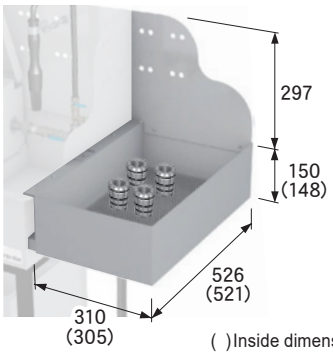
Option

Draining basket

CODE
CBX-SBX

■**Std. Access.**
- Triple hook

Used for draining, air blowing, rust-proofing, etc.
Can be attached to either the right or left side of the unit.



( )Inside dimension
Uniformity with stand load 40kg

MAINTENANCE VIDEO

The teaching DVD
with practical maintenance tools

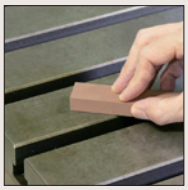
Watch the video and you'll be ready to carry out maintenance immediately!

▷ Removing dents and scratches restores the high accuracy.

Scratches on the tool holder significantly degrade the connecting accuracy with the spindle.


Tool holder


Fixture


Machine table


Work-piece


Comes with tools

Basic Kit

CODE
MTN-BSK1

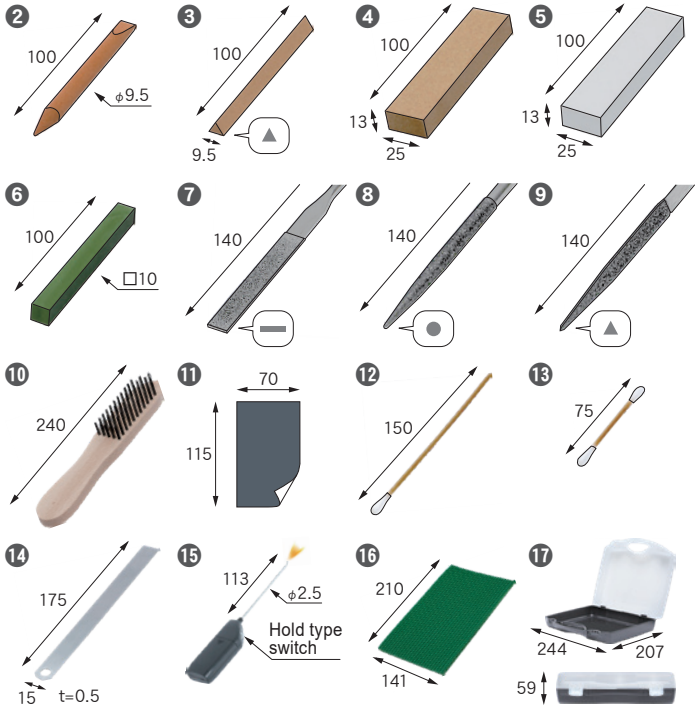
Contents ※You can also watch on our website.

PR Movie

1. The negative influence of dents, scratches and rust.
2. Practical ways to remove dents, scratches and rust - Tool holder edition.
3. Practical ways to remove dents, scratches and rust - Machine table, Fixture edition.
4. Introduction of tools.

■ Contents of kit / ■ Single unit

	Tools	Specification	Q'ty	CODE	Q'ty
❶	Maintenance DVD	DVD	1	MTN-MV1	1
❷	Oilstone-Both ends tapered type	#500	2	MTN-OS1	1
❸	-Triangular type		2	-OS2	1
❹	-Square type		1	-OS3	1
❺	-White type	#3000	1	-OS4	1
❻	Rubber grinding stone-Square type	#320	1	-RS1	1
❼	Diamond file-Flat type	#120	1	-DY1	1
❽	-Round type		1	-DY2	1
❾	-Triangular type		1	-DY3	1
❿	Wire brush	Hardened steel wire	1	-WB1	2
⓫	Water-resistant Sandpaper	#1000	10	-WP1	20
⓬	Cotton-tipped stick-Long type	–	10	-MB1	100
⓭	-Short type		10	-MB2	100
⓮	Scraper for clearance gap		1	-SS1	1
⓯	Light	AA battery×2	1	-HL1	1
⓰	Mat for work	Rubber mat	2	-MS1	2
⓱	Kit case	–	1	-KC1	1



■Note
●Can be sold individually. ●User registration is required to view the content on the web.

Replacement tool set

CODE
MTN-RSS1

■Option
- ●Oilstone-Both ends tapered type(2pcs.)
- ●Oilstone-Triangular type(2pcs.)
- ●Water-resistant Sandpaper (10sheets)
- ●Cotton-tipped stick-Long type (10pcs.)
- ●Cotton-tipped stick-Short type (10pcs.)

Anti-rust oil set

CODE
MTN-ARS1

■Contents
- ●Anti-rust oil
- ●Anti-rust oil (Refill)

■Note
- ●Can be sold individually.

Anti-rust oil

CODE
MTN-AR1


500mℓ

Anti-rust oil (Refill)

CODE
MTN-AR2


4ℓ

TOOL CLINIC

➔P. 122

We will show you how to use and maintain the tools properly!
For details, please contact us!

- ●Maximize the potential of your tool holders
- ●Maintain the initial performance of your tool holders for a long time.
- ●Decrease the number of manufacturing defects and tool problems

STAR DUST

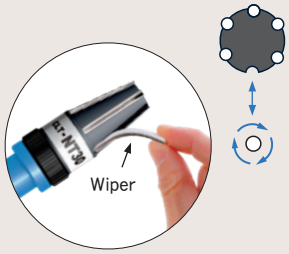
PAT.
Cleaning Tool for a spindle taper hole

If 1μm chip adhering on the spindle, it causes 10μm run-out of the cutting edge.

Achieves high-precision machining by cleaning the machine spindle tapered hole.

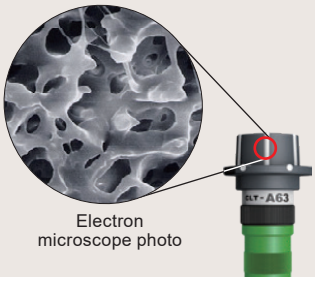
▷Replaceable wiper

Dirt doesn't re-adhere thanks to the use of replaceable wipers. When wipers get dirty, please change their position, and when the entire wiper gets dirty, please replace it. This will allow your operations to always take place under clean conditions.
It is very economical compared to disposable cleaners.



▷Excellent dirt adsorption

We use a spongy resin for the wiper. Micron-size air bubbles catch and hold on to oil and powdery cutting chips.



Electron microscope photo

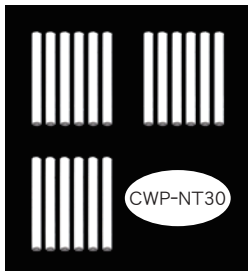
31th Award
Small- and Medium-size Enterprises Award for Excellence in New Innovative Technologies and Products
The Resona Foundation for Small and Medium Enterprise Promotion and The Daily Industrial News

	SET CODE	Enabled spindles and holders	Plug code	Grip code
For spindle	CLT-NT30-G2	BT30 / DIN30 / CAT.30	CLT-NT30	GR25-100
	-NT40-G3	BT40 / DIN40 / CAT.40	-NT40	GR35-100
	-NT50-G3	BT50 / DIN50 / CAT.50	-NT50	
	-A40 -G2	HSK-A40 / T40	CLT-A40	GR25-100
	-A50 -G2	-A50 / T50	-A50	
	-A63 -G3	-A63 / T63	-A63	GR35-100
	-A100-G3	-A100 / T100	-A100	
	-E25 -G1	HSK-E25	CLT-E25	GR18- 80
	-E32 -G1	-E32	-E32	
	-E40 -G2	-E40	-E40	GR25-100
	-E50 -G2	-E50	-E50	
	-F63 -G2	HSK-F63	CLT-F63	GR25-100
	-F80 -G3	-F80	-F80	GR35-100
For holder	CLT-SLK 6-G1	SLK 6	CLT-SLK 6	GR18- 80
	-SLK 8-G1	SLK 8	-SLK 8	
	-SLK12-G2	SLK12	-SLK12	GR25-100
	-C10 -G1	CTH10 / CTA10	CLT-C10	GR18- 80
	-C20 -G2	CTH20 / CTA20	-C20	GR25-100
	-C25 -G3	CTH25 / CTA25	-C25	GR35-100
	-D 7 -G1	DTA 7 / DTB 7 / DTE 7	CLT-D 7	GR18- 80
	-D12 -G2	DTA12 / DTB12 / DTE12	-D12	GR25-100

	CODE
For Spindle	CWP-NT30
	-NT40
	-NT50
	-A40
	-A50
	-A63
	-A100
	-E25
	-E32
	-E40
	-E50
	-F63
	-F80
For Holder	CWP-SLK 6
	-SLK 8
	-SLK12
	-C10
	-C20
	-C25
	-D 7
	-D12

Replacement Wiper

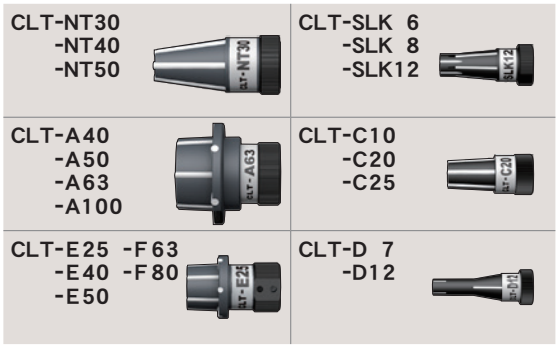
This contains 3 sets.



※ Plugs and grips can be purchased separately.
※ 3 sets of wipers are included with each set.

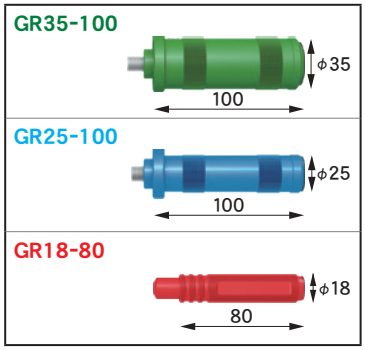
For Spindle | For Holder

Plug



+

Grip



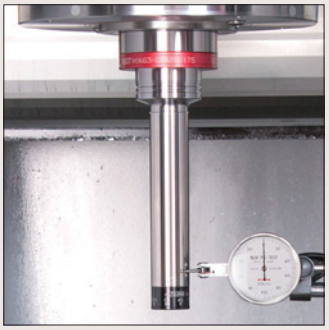
The packing case can be attached to the machine body.

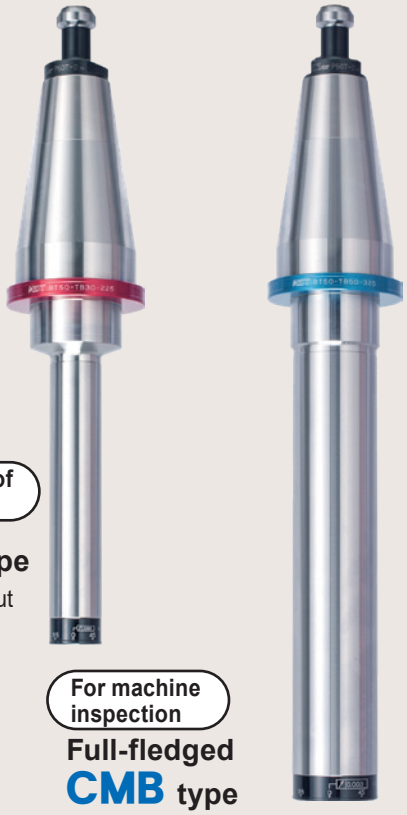
TEST BAR CHECKMATE

For machine spindle maintenance

The maintaining machine spindle run-out accuracy allows superior machining quality. Maximizes tool holder performance!

- ▷ 100% analog. No expensive IoT devices required.
- ▷ Light-weight (20% lighter), hollow design makes it easy to use.
- ▷ Ideal for setting Z axis datum.
- ▷ Reasonable price.
- ▷ The sub-zero treatment prevents secular change.





For monthly inspection of the run-out accuracy

Handy CMA type

For dynamic spindle run-out measurement

For machine inspection

Full-fledged CMB type

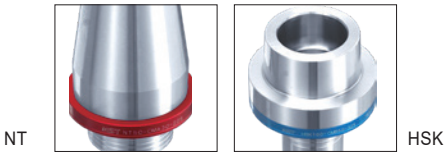
For run-out accuracy at low spindle rotation and Z-axis deflection measurement

You can recognize the exact run-out accuracy and the highest run-out of the spindle.

You can check the spindle condition more precisely using the run-out value and position marked on the body.

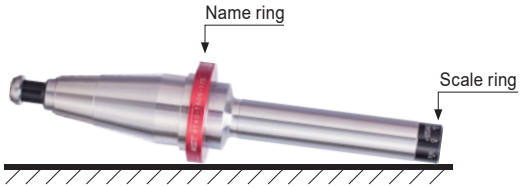
It can be installed into the spindle in every phase.

There is no drive-key groove, so measurements can be made without worrying about the phase.



The name ring and scale ring protect it from scratches and dents.

The taper area and straight area do not touch the table surface even if they are placed horizontally.



Guaranteed accuracy

Delivered with the accuracy inspection sheet.

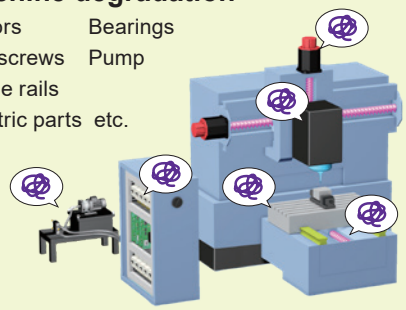
- Runout accuracy
- Length
- Diameter
- Circularity
- Cylindricity

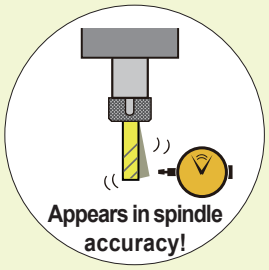
Diagnosing the machine degradation by spindle run-out.

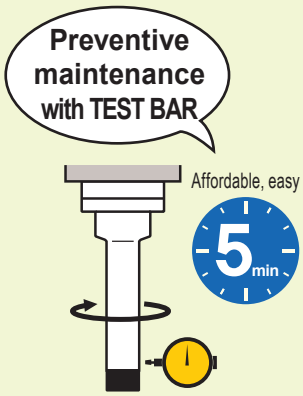
Machine will break down one day, and costs hugely and take time to repair.
It is difficult to check all the moving parts, however presuming the deterioration of all the driving parts are possible by checking the spindle run-out.

Machine degradation

Motors Bearings
Ball screws Pump
Guide rails
Electric parts etc.

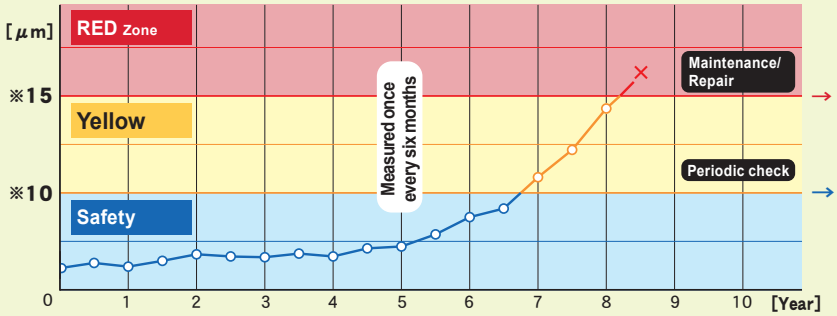






Check the spindle run-out accuracy with the TEST BAR CHECKMATE!

Spindle run-out degradation



→ RED Zone···Exchange all the degraded components.

→ Safety Zone···Once the safety line is exceeded, call the manufacturer for an inspection.

※ Determine the allowable range of run-out accuracy according to your requirements.

	CODE	Fig.	φD	φD1	φD2	L	L1	L2	Kg
BT/DIN/CAT.	NT30 -CMA20-125	1	20	32	50	125	45	65	0.7
	NT40 -CMA25-175	2	25	42	63	175	50	110	1.3
	NT50 -CMA30-225		30	53	80	225	65	145	3.5
	NT30 -CMB30-175	1	30	32	50	175	45	115	1.0
	NT40 -CMB40-325	2	40	42	63	325		265	2.8
	NT50 -CMB50-325		50	53	80		60	250	5.7
HSK-A / HSK-E	HSK32 -CMA20-125	3	20	26	37	125	35	75	0.4
	HSK40 -CMA20-125			32	50		45	65	0.5
	HSK50 -CMA25-175		25	42	63	175	50	110	1.0
	HSK63 -CMA25-175	4							1.2
	HSK80 -CMA30-225		30	53	80	225	65	145	2.2
	HSK100-CMA30-225				100				3.0
	HSK125-CMA30-225				125				4.1
	HSK32 -CMB25-175	3	25	26	37	175	35	125	0.7
	HSK40 -CMB30-175		30	32	50		40	120	0.9
	HSK50 -CMB40-225		40	42	63	225	45	165	1.8
	HSK63 -CMB40-325	4				325		265	2.7
	HSK80 -CMB50-325		50	53	80		60	250	4.4
	HSK100-CMB50-325				100				5.2
	HSK125-CMB50-325				125				6.3
HSK-F	HSK63F-CMA25-175	4	25	42	63	175	50	110	1.2
	HSK80F-CMA30-225		30	53	80	225	65	145	2.3
	HSK63F-CMB40-325	4	40	42	63	325	45	265	2.7
	HSK80F-CMB50-325		50	53	80		60	250	4.5

Fig. 1

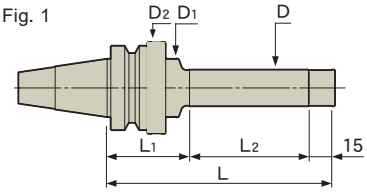


Fig. 2

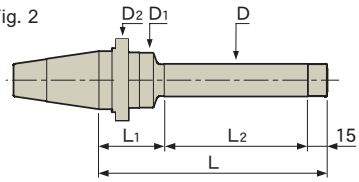


Fig. 3

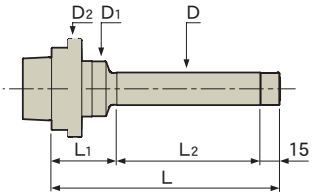
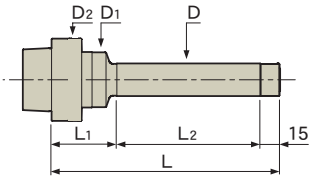


Fig. 4



■Option

- Coolant duct(HSK-A) ●Retention knob(BT)
- Exclusive retension knob(CAT. / DIN)
- Balance adjustment (only for CMA type) less than G2.5 /30000min^{-1}
  *Please order by adding "BL" to the end of the code.
  (Ex. : HSK63-CMA25-175 **BL**)

■ Std. Access.

- Accuracy inspection sheet

■Note

- NT type is available for BT/CAT. and DIN spindle by changing the retention knob.
- HSK type is available for both HSK-A and HSK-E spindles.
- HSK-F type is available only for HSK-F spindle.
- A special design retention knob is required for CAT./DIN spindle.
  A market standard retention knob for ANSI/DIN/ISO is not available. Contact us for detail.
- Use a market standard retention knob for the BT spindle.
- NT30 type can be installed into a spindle at 0°and 180°.

■Caution

- A.T.C is not available. (except for NT30)

Exclusive retention knob

CODE	Shank
P-576	CAT. 40
-575	CAT. 50
-578	DIN40
-577	DIN50

Tool set up stand

Tool tightening stand

The setup time can be shortened! Not only can you mount cutting tools simply and quickly without using other tools, but also clamping collets and retention knobs!

プチボール Petit Ball40

BT40/DIN40/CAT.40

Freely set vertically or horizontally

マイキューブ MY CUBE50

BT50/DIN50/CAT.50

マイキューブ MY CUBE100

HSK-A100/T100

Vise clamping type

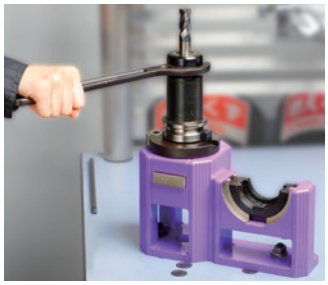
HF SERIES

BT30/BT40/BT50
HSK A40/A50/A63/A100
E32/E40/E50/F63
T40/T50/T63/T100

Affordable

Usable either vertically or horizontally (Petit Ball, MY CUBE)

The tool can be placed either vertically or horizontally, whatever angle is most convenient for you.



Nut tightening

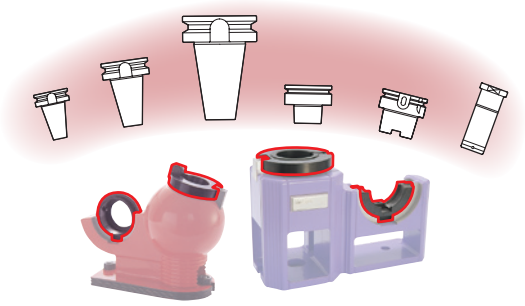
Clamping DETa-1 Collet(DTB)

Retention knob tightening

Clamping SLIMLINE collet

Multi-purpose usage

By using adapters, various tool holder shank types, including straight arbor DTB holders, can be used.



Accuracy assured

The taper is the most crucial part for maintaining the accuracy of a tool holder. A special resin is applied to the taper contact area to prevent scratches on the tool holder.

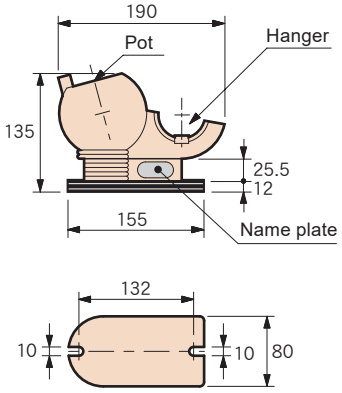
Petit Ball

CODE	Shank type	Kg
Petit Ball40	BT40/DIN40/CAT.40	6.1

■Option
- Adapter

■Std. Access.
- Name plate

■Caution
- No mounting bolts are provided. Use two M8 bolts for mounting.



Name plate

A specially finished name plate is provided, on which your company name is inscribed. Up to 12 characters (upper-case alphabetic characters, numeric characters, and/or hyphens).

Adapter (Petit Ball)

Adapter for pot

CODE	Shank type
AP40-T30V	BT30

Adapter for hanger

CODE	Shank type
AP40-T30H	BT30
-S25H	ST25T-DTB7
-S32H	ST32T-DTB7, 12

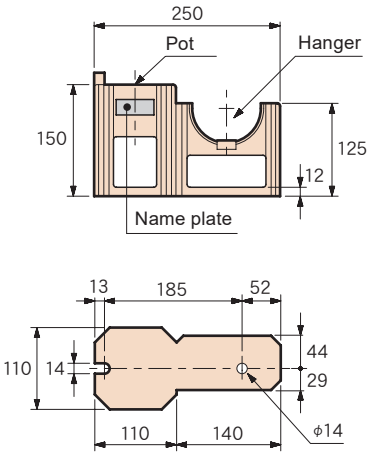
My Cube

CODE	Shank type	Kg
MY CUBE 50	BT50 / DIN50 / CAT.50	9.7
MY CUBE100	HSK-A100, T100	9.6

■Option
- Adapter

■Std. Access.
- Name plate

■Caution
- No mounting bolts are provided. Use two M12 bolts for mounting.



Name plate

A specially finished name plate is provided, on which your company name is inscribed. Up to 12 characters (upper-case alphabetic characters, numeric characters, and/or hyphens).

Adapter (My Cube50)

Adapter for pot

CODE	Shank type
AP50-T30V	BT30
-T40V	BT40/DIN40/CAT.40
-A63V	HSK-A63, T63
-F63V	HSK-F63

Adapter for hanger

CODE	Shank type
AP50-T30H	BT30
-T40H	BT40
-A63H	HSK-A63, T63
-F63H	HSK-F63
-S25H	ST25T-DTB7
-S32H	ST32T-DTB7, 12

HF series

CODE	Fig.	Shank type	H	W	t	Kg
HF-BT30	1	BT30	77	70	30	0.8
-BT40		BT40	90	90	37	1.2
-BT50	2	BT50	—	—	—	2.2
HF-A40	1	HSK-A40, T40	72	60	30	0.8
-A50		-A50, T50	77	70	37	1.0
-A63		-A63, T63	87	90		1.2
-A100	2	-A100, T100	—	—	—	2.1
HF-E32	3	HSK-E32	98	64	—	1.0
-E40		-E40	100	70		1.1
-E50		-E50	106	80		1.3
-F63		-F63	120	90		1.6

Fig. 1

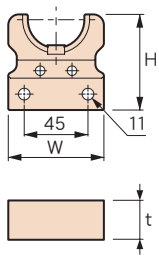


Fig. 2

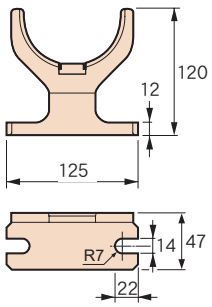
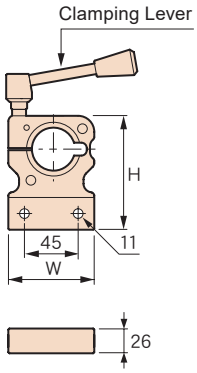


Fig. 3



TOOL CAP

See-through tool cover.
You can take care of your tools safely and simply.

▷ Prevent cutting tools from coming into contact with each other and being damaged or chipped. Minimize grinding costs for reconditioning and lead to reduced operating costs.

▷ Prevent getting injured when taking the tool holder in and out or when carrying.

Can be put on with one touch, and won't fall off when turned upside down.

ENDMILL HOUSE
➔ P.105

It can be used with every configuration and brand.

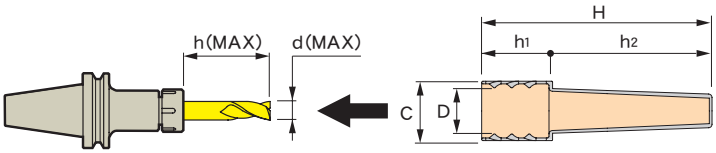
TCC type
Attached by deforming its cap.

TCB type
Attaches directly to the tip of the cutting tool.

TCA type
Attaches to the tip of a tool holder.

TCA type

Attaches to the tip of a tool holder.



Identifies size by color

TCA2022 TCA2830 TCA3436 TCA4043 TCA4650

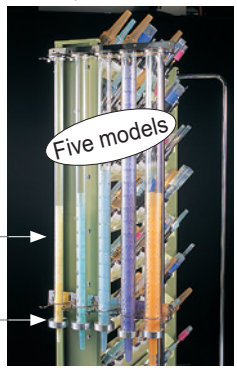
CODE	ϕD	ϕC	ϕd	H	h	h1	h2	Type
TCA2022	20～22	29	8	100	70	30	70	DTA7/DTB7
TCA2830	28～30	34	14	130	90	40	90	DTA12/DTB12/DTE7
TCA3436	34～36	41		135		45		CTA10/CTH10
TCA4043	40～43	47	20	152	105	47	105	DTE12
TCA4650	46～50	54		167	120		120	CTA20/CTH20

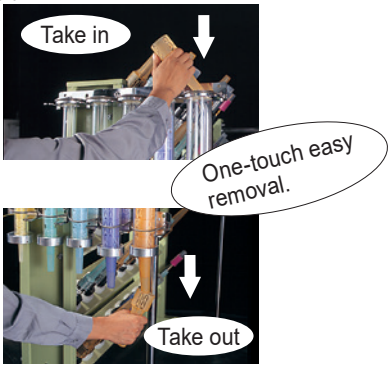
Note

10pcs. 50pcs. 100pcs.300pcs. 500pcs.
Please order by adding Q'ty to the end of the code.
Ex. TCA2022-10

Cap dispenser (TCA type)

Made of transparent acrylic resin, allowing you to confirm which caps are still in the dispenser.





Cap dispenser

CODE	Type	Q'ty
CAP2022	TCA2022	31pcs.
CAP2830	TCA2830	20pcs.
CAP3436	TCA3436	
CAP4043	TCA4043	22pcs.
CAP4650	TCA4650	

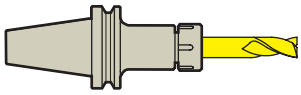
Dedicated bracket

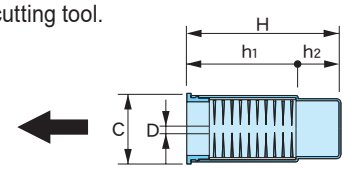
Five cap servers can be attached. Attach the bracket to a wall using bolts. (Metal plating finish)

CODE
SRV-01

TCB type

Attaches directly to the tip of the cutting tool.
Handles a broad range of sizes.





Identifies size by color

TCB0820 TCB2042

CODE	φD	φC	H	h1	h2
TCB0820	8～20	33	82	52	30
TCB2042	20～42	54	102	62	40

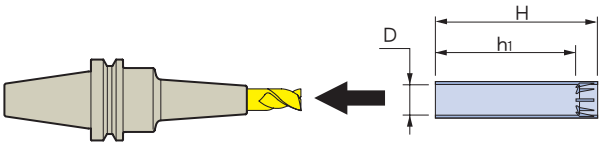
Note
10pcs. 50pcs. 100pcs. 300pcs. 500pcs. Please order by adding Q'ty to the end of the code. Ex. TCB0820-10

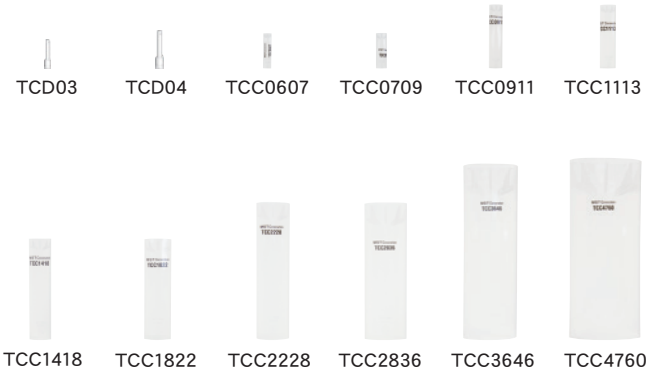
■Note

- The bristles of the brush may become deformed during use. If such deformation occurs, remove the brush and immerse it in hot water (60°C to 80°C). This should restore the deformed bristles to their original state.

TCC type

Attached by deforming its cap.
Simple and reasonably priced.
For small size tool holders and cutting tools.





TCD03 TCD04 TCC0607 TCC0709 TCC0911 TCC1113

TCC1418 TCC1822 TCC2228 TCC2836 TCC3646 TCC4760

CODE	φD	h1	H	Q'ty
TCD03-50	3	—	25	50 pcs.
TCD04-50	4	—	32	50 pcs.
TCC0607- 50	5.4～ 6.7	35	40	50 pcs.
-100				100 pcs.
-500				500 pcs.
TCC0709- 50	6.8～ 8.9	35	40	50 pcs.
-100				100 pcs.
-500				500 pcs.
TCC0911- 50	8.9～10.9	65	70	50 pcs.
-100				100 pcs.
-500				500 pcs.
TCC1113- 50	10.9～13.4	65	70	50 pcs.
-100				100 pcs.
-500				500 pcs.
TCC1418- 25	13.8～17.8	100	110	25 pcs.
- 50				50 pcs.
-250				250 pcs.

CODE	φD	h1	H	Q'ty
TCC1822- 25	17.8～22.4	100	110	25 pcs.
- 50				50 pcs.
-250				250 pcs.
TCC2228- 25	22.3～28	135	150	25 pcs.
- 50				50 pcs.
-250				250 pcs.
TCC2836- 10	28 ～36	130	150	10 pcs.
- 20				20 pcs.
- 50				50 pcs.
-200				200 pcs.
TCC3646- 10	36.2～47	165	190	10 pcs.
- 20				20 pcs.
- 50				50 pcs.
-200				200 pcs.
TCC4760- 10	46 ～60	160	190	10 pcs.
- 20				20 pcs.
- 50				50 pcs.
-200				200 pcs.

Usage

1. Hold the mouth of the tool cap vertically, and then press it so that its oval shape becomes round.
2. Once the mouth of the tool cap becomes round, push it into the cutting tool or tool holder.

You can cut it to any desired length.

Variety set

CODE	Q'ty
TCC-F	2 pieces per cutting tool cover size for TCC0607 to 4760 (Total of 20 pieces / set)

PALETTE

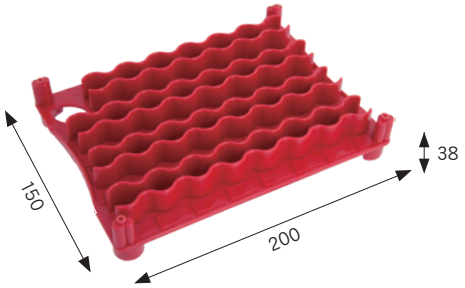
This pallet neatly houses collets.

- ▷ Uniquely designed by an industrial designer.
- ▷ Protects the collets from damage to maintain their accuracy.
- ▷ Both top side and back side are usable.
- ▷ Affixing labels allows easy storage by size.
- ▷ Has standard outer dimensions ensuring applicability to various types of drawers and shelves.
- ▷ Applicable regardless of manufacturer.

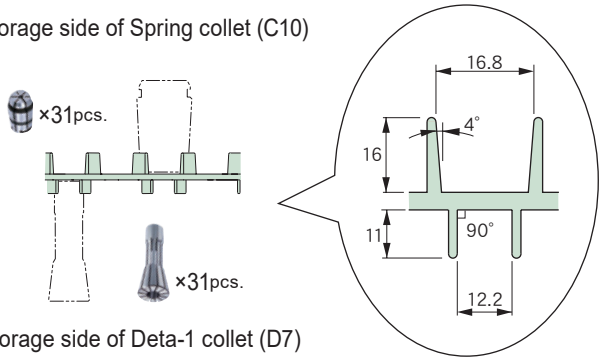
Neatly arranged by size

A stand for the SLIMLINE 2PIECE type collets is also available.

PA-R



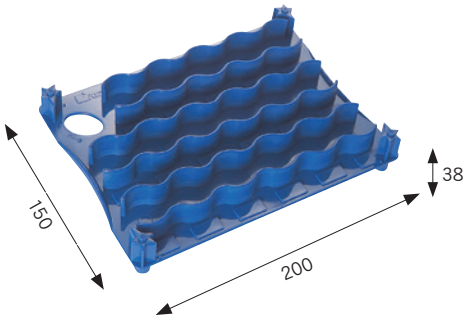
Storage side of Spring collet (C10)



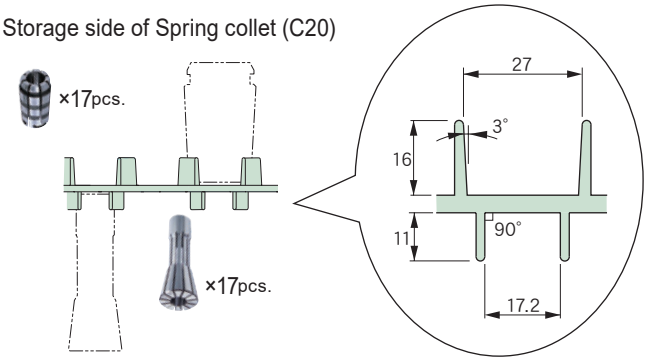
Storage side of Deta-1 collet (D7)

CODE	Q'ty
PA-R- 1	1pc.
- 5	5pcs.
-10	10pcs.

PA-B



Storage side of Spring collet (C20)



Storage side of Deta-1 collet (D12)

CODE	Q'ty
PA-B- 1	1pc.
- 5	5pcs.
-10	10pcs.

ENDMILL HOUSE

Cutter protection box

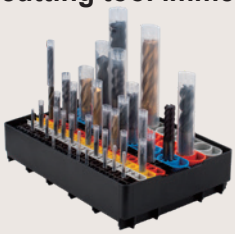
Are you having trouble storing your cutting tools?

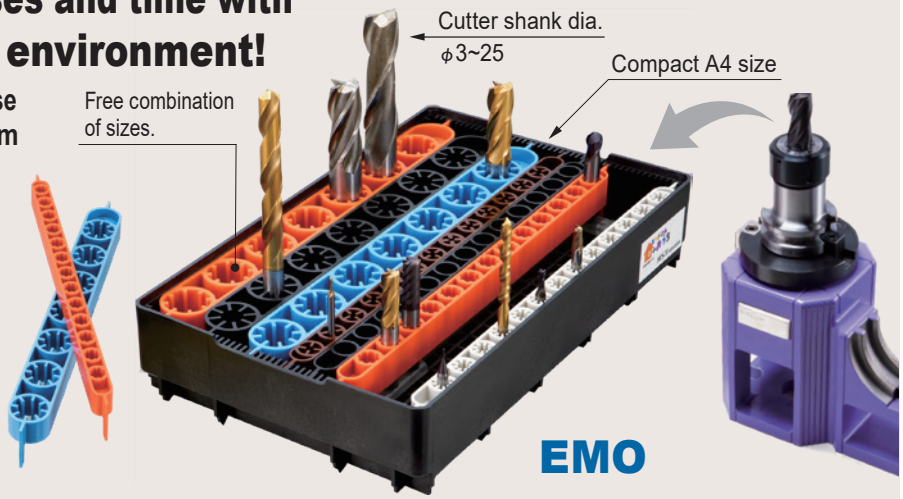
Cutting tool expenses increase due to cutting edge chipping.

The required cutting tool cannot be found easily.

Save cutting tool expenses and time with the optimum working environment!

- ▷ Cutting tool life is extended because the cutting edge is not dulled from striking other cutters.
- ▷ You can find the required cutting tool immediately.





Value set

This is a convenient value set that can be immediately used and handles tool shank diameters of 3 mm to 12 mm. (Stores 156 cutting tools)

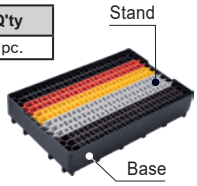
CODE
EMO-SET-01

Stand

Cutter dia	Q'ty
ϕ 3	1pc.
ϕ 4	2pcs.
ϕ 6	3pcs.
ϕ 8	2pcs.
ϕ10	2pcs.
ϕ12	2pcs.

Base

Q'ty
1pc.



+

TOOL CAP

Cutter dia	Q'ty
ϕ 3	50pcs.
ϕ 4	50pcs.
ϕ 6	50pcs.
ϕ 8	50pcs.
ϕ10	50pcs.
ϕ12	50pcs.

+

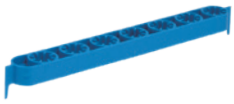
TOOL CAP storage box

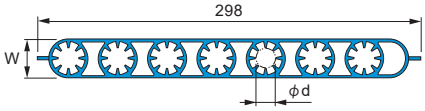
Q'ty
1pc.

ϕ3…13pcs. ϕ 4…26pcs. ϕ 6…39pcs.
ϕ8…26pcs. ϕ10…26pcs. ϕ12…26pcs.

Stand

Parts for storing and securing cutting tools. It is possible to identify the cutting tool size by color, and the cutting tool you need can be found at a glance. Use this stand inserting it into the base.





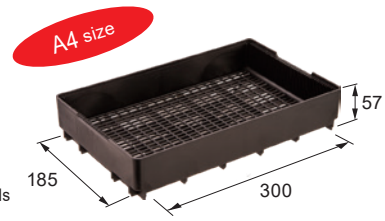
CODE	ϕd	W	max. Q'ty	Color	Q'ty
EMO-STD 3-2	3	15mm (1W)	13 pcs./cutting tools/stand	Black	2pcs.
-5					5pcs.
-STD 4-2	4			Brown	2pcs.
-5					5pcs.
-STD 6-2	6			Gray	2pcs.
-5					5pcs.
-STD 8-2	8			Yellow	2pcs.
-5					5pcs.
-STD10-2	10			Orange	2pcs.
-5					5pcs.
-STD12-2	12			Black	2pcs.
-5					5pcs.
-STD16-2	16	30mm (2W)	7 pcs./cutting tools/stand	Blue	2pcs.
-5					5pcs.
-STD20-2	20			Orange	2pcs.
-5					5pcs.
-STD25-2	25			Gray	2pcs.
-5					5pcs.

Base

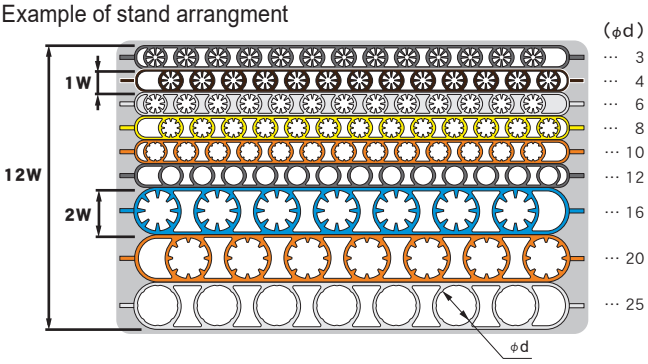
Container for holding the stands.
Stands can be arranged by changing the combination of stands freely.

CODE	Q'ty
EMO-BAS-1	1pc.
-3	3pcs.

■ **Note**
- 12 rows for the stands of 3mm to 12mm diameter or 6 rows for the stands of 16mm to 25mm diameter.
- The left-right orientation of the stands can be set.



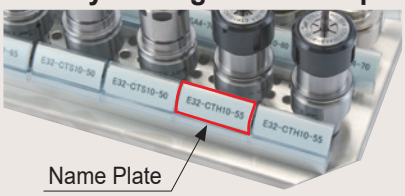
Example of stand arrangment



TOOL HOLDER STORING CABINET

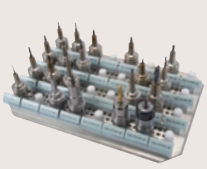
Compact Storage Box with Anti-Rust Treatment for tool holders.

Orderly storing with name plate!



Freely arrangeable

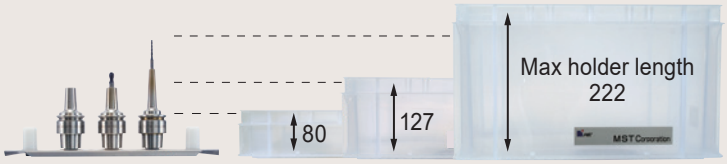
Can be used with a variety of holders by changing the pins and combining as you wish.



Horizontal type

Vertical type

Three types of container boxes.



Standard Set

CODE	max. Q'ty	Container box	Pin	Q'ty	Shank type
HBX-A40	24	CN-150	HBX-PNE40	18pcs.	HSK-A40
-A50	15	-245	-PNE50	15pcs.	-A50
-E25	40	-150	-PNE25	32pcs.	-E25
-E32			-PNE32		-E32
-E40	24		-PNE40	18pcs.	-E40
-E50	15	-245	-PNE50	15pcs.	-E50
-F63	10				-F63
-15T	40	-150	-PN15T	16pcs.	15T(BROTHER)
-20T			-PN20T		RS20/20T(SUGINO)

■**Contents of set**
- Base plate
- Container box
- Pin

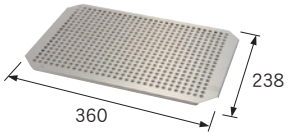
■**Option**
- Rail
- Name plate
- Lid for container box
- Eyenut

■**Note**
- Knock-down type. A wrench (5mm) is required.

Base plate

A multi-hole base plate is employed. Supports a variety of holder specifications using pins that can be freely changed and relocated.

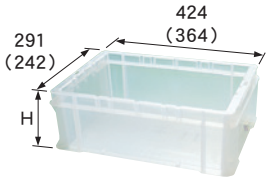
CODE
HBX-BP01



Container box

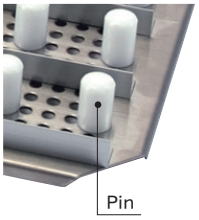
CODE	H Outside diameter	H Inside diameter	Shank type
CN-103	103	88	—
-150	150	135	E25, 32, 40/15T/20T
-245	245	230	A50, E50, F63

※( ) : Inside diameter



Pin

CODE	Q'ty	Size
HBX-PNE25	10 pcs.	φ13.5 × H20
-PNE32		φ16.5 × H25
-PNE40	5 pcs.	φ20.5 × H29
-PNE50		φ25.5 × H36
-PN15T		φ26.5 × H54
-PN20T		φ30.5 × H62



■**Std. Access.**
- Mounting bolt (M6)

Eyenut

CODE	Q'ty
HBX-ENM6	2pcs.

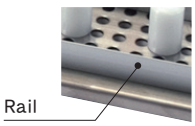
■**Std. Access.**
- Mounting bolt (M6)

Rail (for name plate)

CODE	Q'ty	L	Note
HBX-R210	6pcs.	210	Vertical type
-R330	4pcs.	330	Horizontal type

■**Std. Access.**
- Mounting bolt (M5)

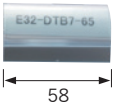
Required for attaching name plate.

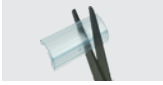


Name plate

CODE	Q'ty
HBX-NP01	40pcs.

Useful for organizing tools.
Attaches easily to the rail.





Freely cut to required overall length

Lid for container box

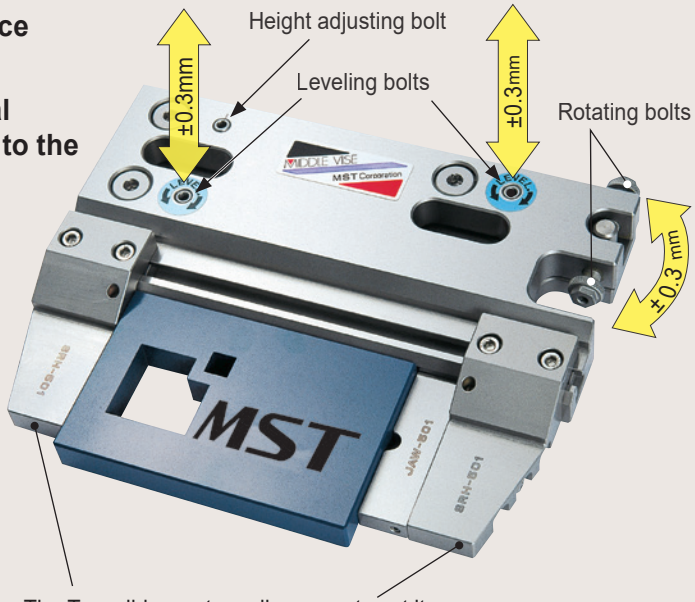
CODE
CN-FT

MIDDLE VISE

A work-piece fixture with high-accuracy positioning and short setup time.

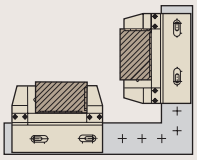
MIDDLE VISE

- ▷ Ideal for small work-pieces.
- ▷ High flexibility in choosing installation place compact design.
- ▷ After the work-piece is clamped, horizontal and parallel adjustments are possible due to the independent fine adjustment functionality.
- ▷ Two sliders makes it easy use to use.



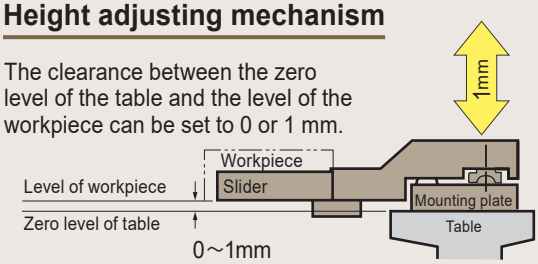
Compact design

This product does not use a table corner, allowing it to be installed in any place.Multiple pieces may be installed.



Height adjusting mechanism

The clearance between the zero level of the table and the level of the workpiece can be set to 0 or 1 mm.

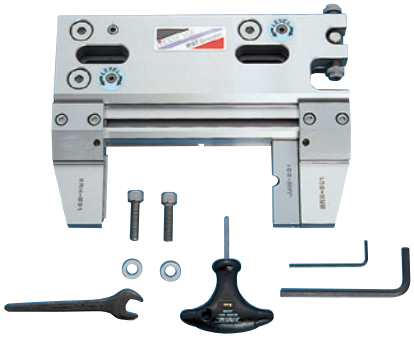


Standard set

CODE
MDV-501

Description

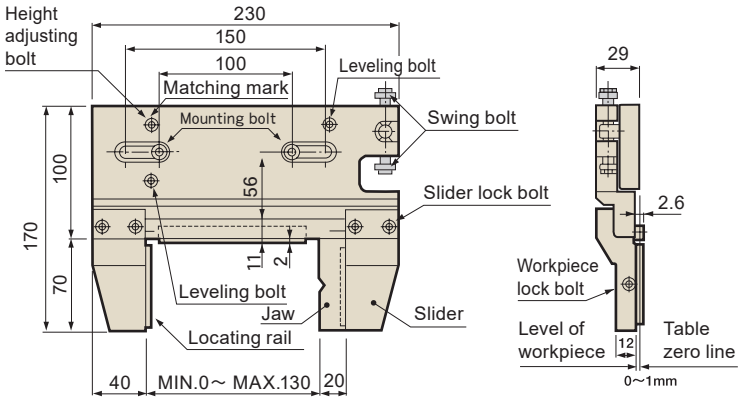
1. A complete set of main body (Including 2 sliders and 1 jaw)
2. Allen wrench (1 each: 2.5, 4, and 6 mm)
3. 10 mm spanner (1pc.)
4. M8×25 mounting bolts and washers (2 ea.)



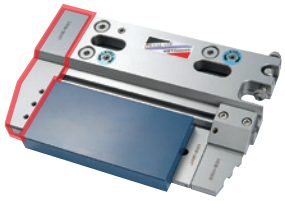
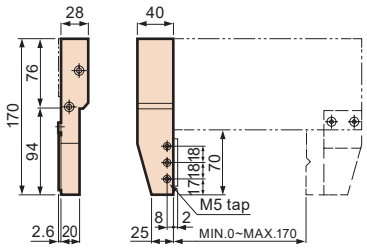
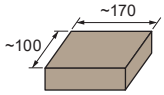
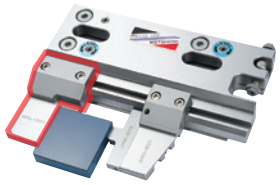
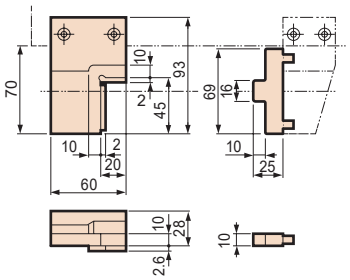
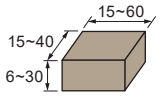
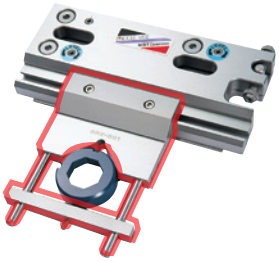
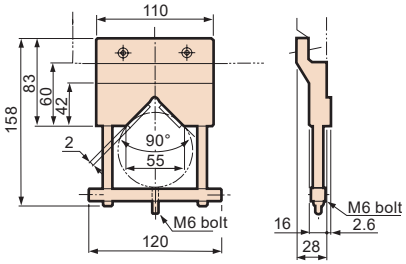
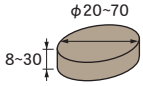
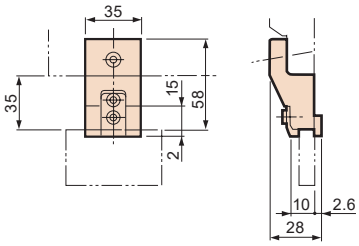
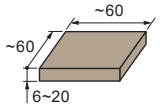
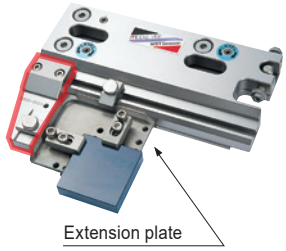
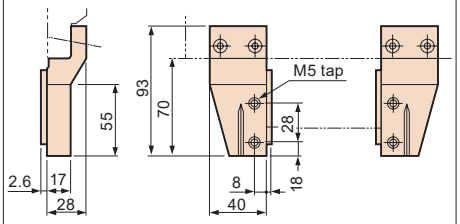
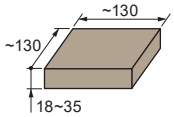
Specification

This unit uses stainless steel that is highly resistant to corrosion and wear.

Maximum dimensions of work-piece	130×100
Maximum weight of work-piece	3kg
Weight of main body	5kg
Material	SUS420J2
Hardness	50HRC



Optional accessories

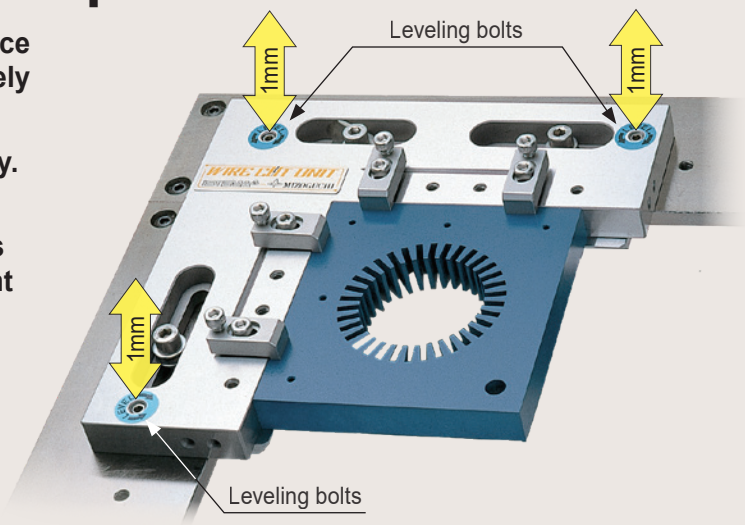
Name	Model No.		Dimensions	work-piece size
Extension Jaw For large work-pieces	**JAE-501**			
L Slider For small work-pieces	**SRL-501**			
V Slider For round work-pieces	**SRV-501**			
Sandwich Slider For small and thin work-pieces	**SRS-501**			
Clamp on Slider The work-piece can be clamped to the jaw using the clamper. The extension plate can also be used.	**SRC-501**			

Wire Cut Unit

A work-piece fixture with high-accuracy positioning and short setup time.

WIRE CUT UNIT

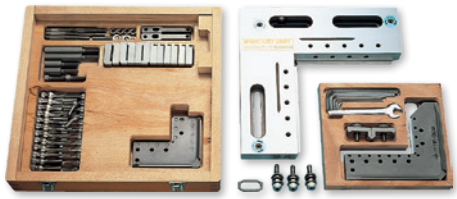
- ▷ A work-piece having a datum surface can be accurately attached by merely affixing it to the wire cut unit body.
- ▷ You can clamp a work-piece quickly.
- ▷ After the work-piece is clamped, horizontal and parallel adjustments are possible due to the independent fine adjustment functionality.



Wire Cut Unit set

WCU - A set

WCU - B set



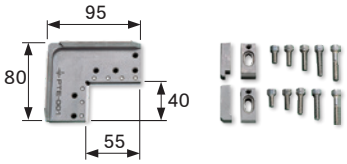
WCU - C set

※The right side is the state where set contents are stored in the case.

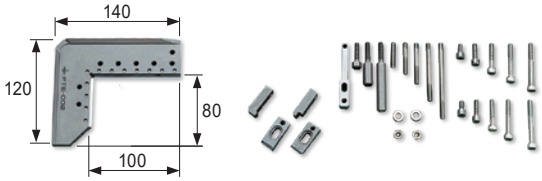
Extension Plate (Optional accessories)

Case is not included.

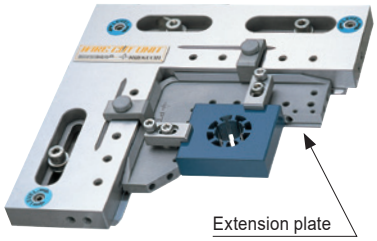
PTE-001

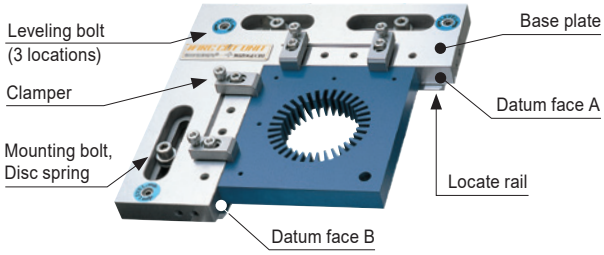


PTE-002



Examples of use

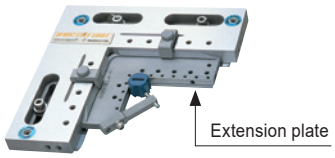




Large work-piece - Clamp on

Square work-piece - Side Clamp

Small round work-piece – Side Clamp with the extension plate



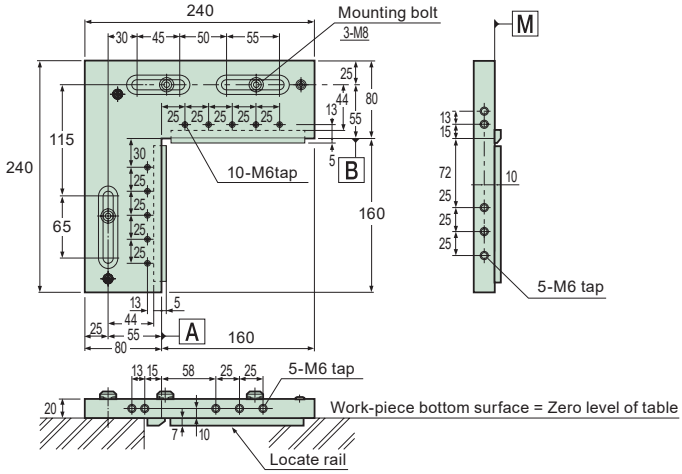
Set Contents

Name	Model No.	A set	B set	C set	Extension plate (Option)	
		WCU-A	WCU-B	WCU-C	PTE-001	PTE-002
Base plate	—	1 pc.	1 pc.	1 pc.	—	—
Extension plate (Only plate)	PTE-001	1 pc.	1 pc.	2 pcs.	1 pc.	—
	-002	—	1 pc.	2 pcs.	—	1 pc.
Clamper	CLP-101	4 pcs.	6 pcs.	10 pcs.	2 pcs.	2 pcs.
	-102	4 pcs.	6 pcs.	10 pcs.	2 pcs.	2 pcs.
	-201	1 pc.	2 pcs.	3 pcs.	—	1 pc.
Grip	GRP-002	2 pcs.	2 pcs.	2 pcs.	—	—
Adjusting bolt	AJB-M6-L (L= 30, 50, 80)	1 ea.	2 ea.	3 ea.	—	1 ea.
Stud bolt	STB-M6-L (L= 40, 50, 70, 90)	1 ea.	2 ea.	3 ea.	—	1 ea.
Cap bolt M6 × L	—	L=16, 20, 25, 30, 35 4 ea. L=40, 50 2 ea.	L=16, 20, 25, 30, 35 6 ea. L=40, 50 4 ea.	L=16, 20, 25, 30, 35 10 ea. L=40, 50 6 ea.	L=16, 20, 25, 30, 35 2 ea.	L=16, 20, 25, 30, 35, 40, 50 2 ea.
Set screw (Kultopp) M6×30	—	1 ea.	2 ea.	3 ea.	—	1 pc.
Nut, Washer M6	—	2 ea.	4 ea.	6 ea.	—	2 ea.
Hexagonal wrench, spanner	—	1 set	1 set	1 set	—	—

Specification

This unit uses stainless steel that is highly resistant to corrosion and wear.

Max. work-piece dimensions	160mm(6.30")×160mm(6.30")
Max. work-piece weight	15kg(33lbs)
Main body weight	4.3kg(9.5lbs)
Material	SUS420J2(Stainless steel)
Hardness	50HRC
Datum surface squareness M ⊥ A•B A ⊥ B	5μm(.0002")/100mm(3.94")



PARTS

Wrench · Spanner

Fig. 1

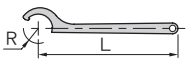


Fig. 2

Fig. 3

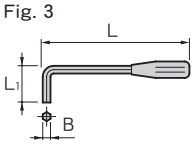


Fig. 4

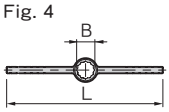
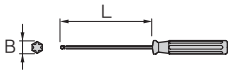


Fig. 5

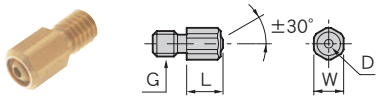


CODE	Fig.	L	R	B	L_1	Holder type
DW-2.5-110	5	110	—	2.5	—	DTB 3
F - 22	1	110	22	—	—	DTA 3
- 38		148.5	19			DTA 7
- 45		225	22.5			DTA12
FC- 32	1	120	16	—	—	CTH10(A40, E32, E40), HUD, HUA10, AHU10, HUT4
- 36		208	18			CTA10, CTH10
- 50		281	25			CTA20, CTH20
- 55		284	27.5			CTH25(A40)
- 62		312	31			CTA25, CTH25
- 74		364	37			CTA32, CTH32
- 90			45			CTA40
FF- 50	1	165	22.5	—	—	ST32B-FMA25.4
- 60		195	26			ST32B-FMA31.75, ST42B-FMA
FM- 72	1	204	36	—	—	ART32(BT40, A50M, A63, NT40, H50)
- 82		234	41			ART32(BT50, A100, NT50)
- 97		239	48.5			ART42(BT50, A100, NT50)
RC- 26	4	240	—	24	—	CTS10(E32)
TW- 4	2	77	—	4	—	DTB 7(E32)
- 5		153		5		DTB 7
- 6		173		6		DTB12
W -135	3	132.5	—	5	110	SLK12 (SLIMLINE 2PIECE TYPE)
-135 DR						DTB 7 (F63M), DTB12(E40, E50, F63M), DTE7, DTE12
-206		200		6	30	SLZ25
-308		300		8		SLZ32, SLZ42

Adjustable torque wrench

Spanner for torque wrench	Adjustable torque wrench	R	Holder type	Recommended tightening torque
F -38AW	AW-1	19	DTA 7	D7-1.5 : 20N·m D7-2.0～7.0 : 40N·m
-45AW		22.5	DTA12	D12(All sizes) : 70N·m
FC-36AW	AW-1	18	CTA10 / CTH10	C10-2.6～5.0 : 40N·m C10-5.2～5.8 : 50N·m C10-6～10 : 60N·m
-50AW	AW-2	25	CTA20 / CTH20	C20(All sizes) : 120N·m

Nozzle



CODE	L	G	W	φD	Holder type	Q'ty
NOZ-M4-12	6.3	M4	4.5	1.2	BT40-ART A63 -ART -SLK	12pcs.
-60						60pcs.
-M6-12	8.5	M6	7	1.8	BT50-ART A100-ART -SLZ	12pcs.
-60						60pcs.

■**Std. Access.**
- Wrench for attachment

■**Caution**
- Four nozzles are necessary for one tool holder.

Nut (For collet holder)

Fig. 1

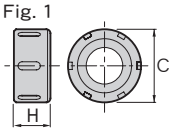


Fig. 2

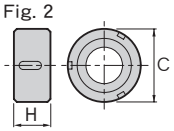
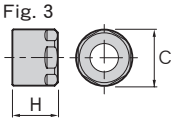
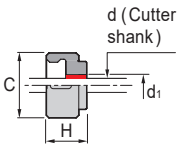


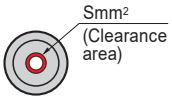
Fig. 3



CODE	Fig.	φC	H	Holder type
NUA-CTA10	1	36	18	CTA10, AHB10
-CTA20		50	25	CTA20, AHA20, AHU20
-CTA25		62	28.5	CTA25, AHA25
-CTA32		74	32	CTA32
-CTA40		90	36	CTA40
-CTH10	2	36	18	CTH10
-CTH20		50	25	CTH20
-CTH25		62	28.5	CTH25
-CTH25-55		55		CTH25 (A40)
-CTH32		74	32	CTH32
-CTH10-32		32	18	CTH10 (A40, E32, E40), AHU10
-CTS10	3	26	21	CTS10

Sukima nut (For collet holder)





CODE	φC	H	φd	φd1	S	Holder type
NUB-CTH10- 3.6	36	23	3	3.6	3.1	CTH10
- 4.5			4	4.5	3.3	
- 5.5			5	5.5	3.7	
- 6.4			6	6.4	3.9	
- 8.4			8	8.4	4.6	
-10.3			10	10.3	4.8	
-CTH20- 6.4	50	30	6	6.4	3.9	CTH20
- 8.4			8	8.4	4.6	
-10.3			10	10.3	4.8	
-12.3			12	12.3		
-16.2			16	16.2	5.1	
-20.2			20	20.2	5.7	
-CTH25-20.2	62	34.5				CTH25
-25.2			25	25.2	5.9	
-CTH32-25.2	74	38				CTH32
-32.1			32	32.1	6.0	

Adjust screw

Fig. 1

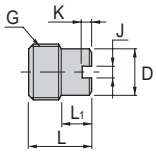
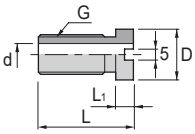


Fig. 2



Use this to adjust the cutter projection length.
※1 BT30 , SE30M, ST25T and ST32T are excluded.
※2 BT40−CTA25−75 is excluded.

CODE	Fig.	L	φD	φd	L1	J	K	G	Holder type
AJC-M14	1	22	10	-	8	1.5	3	M14×1.5	CTA10 ST25T-CTA20 SE30M -CTA20
-M24		27	20		13	5	4	M24×1.5	CTA20(※1) BT40-CTA25- 75 BT40-CTA32-105
-M28			25					M28×1.5	CTA25(※2)
-M18		24	15		8			M18×1.5	BT30-CTA20, ST32T-CTA20
-M18L	2	43	23						BT50-CTA32, CTA40 BT50-SLZ25, SLZ32, SLZ42
AJN-M18L	2	38	23	10	8	-	-	M18×1.5	BT40-ART32
-M18		63							BT50-ART32, ART42

Coolant duct

Coolant duct (Fixed)

Fig. 1

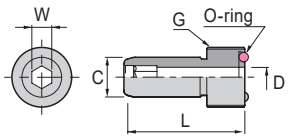


Fig. 2

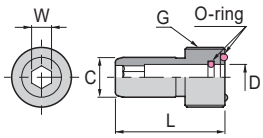
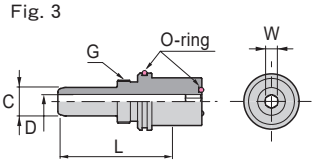


Fig. 3



CODE	Fig.	φC	φD	L	G	W	Shank type
CD40 -01	1	8	4	29.5	M12×1	4	A40, T40
-03	3			35.5			A40-CTH10-75 A40-CTH25-95
-04				36.5			
CD50 -01	1	10	5	33	M16×1	5	A50, T50
-03	3			39			A50-CTH25-105
-04				59			
CD63 -01	1	12	6	36.5	M18×1	6	A63, T63
-02	2						A63-CTH10-75
-03	3			39.5		5	A63-CTH20-90
-04				60.5			A63-CTH25-105
CD100-01	1	16	8	44	M24×1.5	8	A100, T100
-02	2		10.3				A100-CTH25-135

■Note
- Comes as a standard feature with our holders. However, for the CD50-03 and the CD63-03, CD50-04 and CD63-04 come as options, respectively.

Coolant duct (Adjustable)

Fig. 1

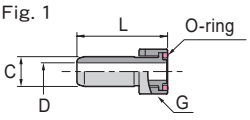
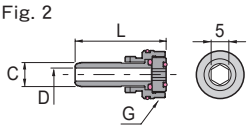


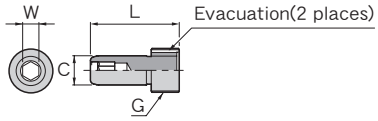
Fig. 2



CODE	Fig.	φC	L	φD	G	Replaceable coolant duct
CD63 -01F	1	12	36.5	7	M18×1	CD 63-01
-03F	2		45.5	6.5		CD 63-03
CD100-01F	1	16	44	10	M24×1.5	CD100-01

■Note
- For some machines, the use of a coolant duct (Adjustable) is recommended. The existing coolant duct is replaced with an adjustable one at your request only when you have placed an order for the holder.
- If the replacement of the coolant duct is needed after the purchase, use the wrench CD63-01F-RNT.

Dummy duct



CODE	φC	L	G	W	Replaceable coolant duct
CD40 -A1	8	29.5	M12×1	4	CD 40-01
CD50 -A1	10	33	M16×1	5	CD 50-01
CD63 -A1	12	36.5	M18×1	6	CD 63-01
CD100-A1	16	44	M24×1.5	8	CD100-01

ANGLE HEAD HALF PARTS LIST

HFD7 / HFT4 (BT30/40/50, A63, DN40/50, CT40/50)

CODE (Master holder)	1 Shank	2 Orientation Ring	8 Washer for intermediate bearing B	9 Intermediate bearing	19 Head
BT30 -HFD7-122	BT30 -FSA-7S	ORR-30	-	-	FBA-7S
-HFT4-122					
-HFD7-182	BT30 -FSA-7L		FZ-7	6804ZZ	FBA-7L
-HFT4-182					
BT40 -HFD7-120	BT40 -FSA-7S	ORR-40	-	-	FBA-7S
-HFT4-120					
-HFD7-180	BT40 -FSA-7L		FZ-7	6804ZZ	FBA-7L
-HFT4-180					
BT50 -HFD7-195	BT50 -FSA-7L	ORR-40			
-HFT4-195					
-HFD7-255	BT50 -FSA-7XL				FBA-7XL
-HFT4-255					
A63 -HFD7-183	A63 -FSA-7L	ORR-40	FZ-7	6804ZZ	FBA-7L
-HFT4-183					
-HFD7-243	A63 -FSA-7XL				FBA-7XL
-HFT4-243					
DN40A-HFD7-135	DN40A-FSA-7S	ORR-40	-	-	FBA-7S
-HFT4-135					
-HFD7-195	DN40A-FSA-7L		FZ-7	6804ZZ	FBA-7L
-HFT4-195					
DN50A-HFD7-195	DN50A-FSA-7L				
-HFT4-195					
-HFD7-255	DN50A-FSA-7XL				FBA-7XL
-HFT4-255					
CT40 -HFD7-135	CT40 -FSA-7S	ORR-40	-	-	FBA-7S
-HFT4-135					
-HFD7-195	CT40 -FSA-7L		FZ-7	6804ZZ	FBA-7L
-HFT4-195					
CT50 -HFD7-195	CT50 -FSA-7L				
-HFT4-195					
-HFD7-255	CT50 -FSA-7XL				FBA-7XL
-HFT4-255					

■Std. Access.
- Fixing spanner(KS-23) ● Hexagonal wrench set(W-1550S)
- Single-ended wrench 13mm(SN-13)

※3, 9, 11, 14 and 22 are able to use standard commercial items.

The tools for assembly

Wrench (for shank)

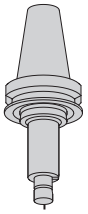
To be used for tightening 11.

CODE
FC-32

Wrench (for head)

To be used for tightening 12 and 13.

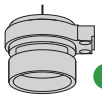
CODE
TSH-HF7



1 Shank

2 Orientation ring

3 Angular bearing
CODE 7005ADB



4 Housing
CODE FHA-S

5 Dovetail nut
CODE FDN-M6

6 Collar A
CODE FHC-S

3

10 Collar F
CODE FHC-7F

11 Nut and washer for bearing
CODE AN04/AW04

8 Washer for intermediate bearing B

9 Intermediate bearing

7 Drive gear
CODE GRI-7

27 Positioning pin

BT30/40, A63

CODE	Fig.	Pin type	φD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

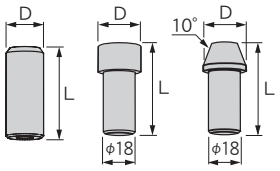
DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S-20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	

Fig. 1 Fig. 2 Fig. 3



28 Bracket

BT30/40, A63

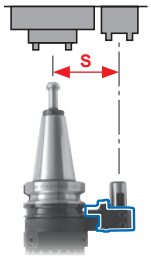
CODE	S
FKA-60	60
-65	65

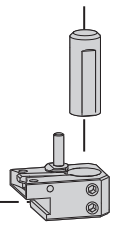
DN40, CT40

FKA-60-L	60
-65-L	65

BT50, DN50, CT50

FKA- 80	80
- 85	85
-110	110





27 Positioning pin

28 Bracket

HFD7

Drill (φ1~7)

23 Angle shaft(for drilling)
CODE FR-D7L

26 Draw bolt
CODE FR-7BL

DETa-1 Collet (D7)→P.8

HFT4

25 Draw nut and spring
CODE FR-T4NS

Tap sleeve (TA4)→P.8

Tap (M2~8)

24 Angle shaft(for tapping)
CODE FR-T4

21 Collar C
CODE FBC-7C

22 Bearing for angle shaft
CODE 71804

19 Head

20 Collar B
CODE FBC-7B

※It is already installed in head

18 Passive gear
CODE GRO-7

17 Collar D
CODE FBC-7D

16 Collar E
CODE FBC-7E

15 Wave washer
CODE FWW-7

14 Bearing for angle shaft
CODE 7903A5

12 Fixation nut for angle shaft
CODE FBN-7

13 Cover
CODE FBK-7

HFD7L / HFA10 / HFT4L (BT30)

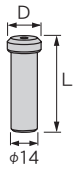
CODE (Master Holder)
BT30-HFD7L-120
-HFA10-120
-HFT4L-120

■Std. Access.
- Fixing spanner (KS-23) (HFD7L)
- Hexagonal wrench set (W-1540S)
- Single-ended wrench (SN-13) (HFD7L/HFA10)
- Fook spanner (FC-32) (HFA10)

※3, 4, 9, 15 and 16 are able to use standard commercial items.

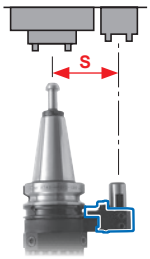
28 Positioning pin

CODE	Pin type	ϕD	L
HP-45S	Straight pin	12	45
HP-E50S	Straight pin	18	50

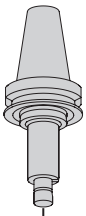


29 Bracket

CODE	S
FKC-50A	50
FKC-65	65



■Note
- Be sure to use positioning pin (HP-45S) and the bracket (FKC-50A) in a combination, and the positioning pin (HP-E50S) and the bracket (FKC-65) in combination.

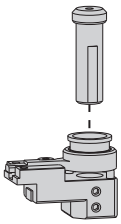


1 Shank
CODE BT30-FSA-7

2 Orientation ring
CODE ORR-30L

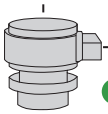
3 Angular bearing
CODE 7904C

6 Collar A
CODE FHC-7L



28 Positioning pin

29 Bracket



5 Housing
CODE FHA-7L

7 Dovetail nut
CODE FDN-E7

4 Angular bearing
CODE 7903C

8 Collar F
CODE FHC-7LF

9 Nut and washer for bearing
CODE AN03/AW03

10 Drive gear
CODE GRI-7

The tools for assembly

Wrench (for shank)

To be used for tightening 9. It can also be used as a wrench for head of HFD12.

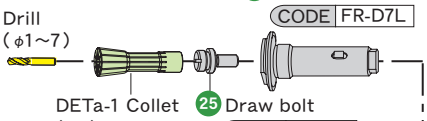
CODE
TSS-HF7L

Wrench (for head)

To be used for tightening 23 and 24.

CODE
TSH-HF7

HFD7L



Drill (ϕ1~7)

12 Angle shaft (for drilling)
CODE FR-D7L

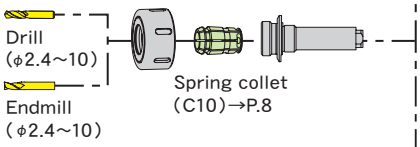
DETa-1 Collet (D7)→P.8

25 Draw bolt
CODE FR-7BL

HFA10

26 Nut
CODE NUA-CTA10

13 Angle shaft (for drilling・endmilling)
CODE FR-A10



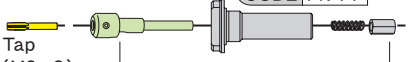
Drill (ϕ2.4~10)

Endmill (ϕ2.4~10)

Spring collet (C10)→P.8

HFT4L

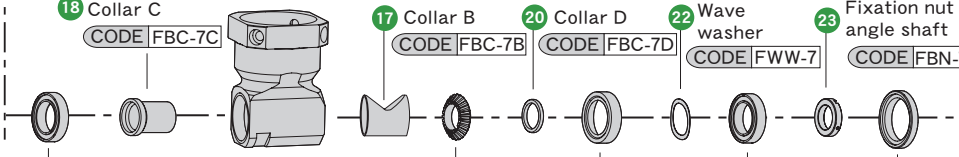
14 Angle shaft (for tapping)
CODE FR-T4



Tap (M2~8)

Tap sleeve (TA4)→P.8

27 Draw nut and spring
CODE FR-T4NS



11 Head
CODE FBA-7

18 Collar C
CODE FBC-7C

17 Collar B
CODE FBC-7B

20 Collar D
CODE FBC-7D

22 Wave washer
CODE FWW-7

23 Fixation nut for angle shaft
CODE FBN-7

15 Angular bearing for angle shaft
CODE 71804

19 Passive gear
CODE GRO-7

21 Collar E
CODE FBC-7E

24 Cover
CODE FBK-7

16 Bearing for angle shaft
CODE 7903A5

HFD12 / HFT6 (BT30/40/50, A63, DN40/50, CT40/50)

CODE (Master Holder)	1 Shank	2 Orientation Ring	3 Angular bearing	4 Housing	6 Collar A	7 Collar AXL	8 Intermediate bearing
BT30 -HFD12-122	BT30 -FSA-12S	ORR-30	7005ADB	FHA-S	FHC-S	-	-
-HFT 6-122							
BT40 -HFD12-120	BT40 -FSA-12S	ORR-40					
-HFT 6-120							
-HFD12-180	BT40 -FSA-12L			FHA-L	FHC-L		
-HFT 6-180							
BT50 -HFD12-135	BT50 -FSA-12S			FHA-S	FHC-S		
-HFT 6-135							
-HFD12-195	BT50 -FSA-12L			FHA-L	FHC-L		
-HFT 6-195							
-HFD12-255	BT50 -FSA-12XL		7906A5DB	FHA-XL	FHC-XL1 (※)	FHC-XL2 (※)	6005VV
-HFT 6-255							
A63 -HFD12-123	A63 -FSA-12S	ORR-40	7005ADB	FHA-S	FHC-S	-	-
-HFT 6-123							
-HFD12-183	A63 -FSA-12L			FHA-L	FHC-L		
-HFT 6-183							
-HFD12-243	A63 -FSA-12XL		7906A5DB	FHA-XL	FHC-XL1 (※)	FHC-XL2 (※)	6005VV
-HFT 6-243							
DN40A-HFD12-135	DN40A-FSA-12S	ORR-40	7005ADB	FHA-S	FHC-S	-	-
-HFT 6-135							
-HFD12-195	DN40A-FSA-12L			FHA-L	FHC-L		
-HFT 6-195							
DN50A-HFD12-135	DN50A-FSA-12S			FHA-S	FHC-S		
-HFT 6-135							
-HFD12-195	DN50A-FSA-12L			FHA-L	FHC-L		
-HFT 6-195							
-HFD12-255	DN50A-FSA-12XL		7906A5DB	FHA-XL	FHC-XL1 (※)	FHC-XL2 (※)	6005VV
-HFT 6-255							
CT40 -HFD12-135	CT40 -FSA-12S	ORR-40	7005ADB	FHA-S	FHC-S	-	-
-HFT 6-135							
-HFD12-195	CT40 -FSA-12L			FHA-L	FHC-L		
-HFT 6-195							
CT50 -HFD12-135	CT50 -FSA-12S			FHA-S	FHC-S		
-HFT 6-135							
-HFD12-195	CT50 -FSA-12L			FHA-L	FHC-L		
-HFT 6-195							
-HFD12-255	CT50 -FSA-12XL		7906A5DB	FHA-XL	FHC-XL1 (※)	FHC-XL2 (※)	6005VV
-HFT 6-255							

(※) FHC-XL1/XL2FHC-XL1/XL2 Set 2pcs-each

■**Std. Access.**
- Fixing spanner (KS-30) ● Hexagonal wrench set (W-1550S)
- Single-ended wrench 17mm (SN-17)

※3, 8, 10, 13 and 16 are able to use standard commercial items.

25 Positioning pin

BT30/40, A63

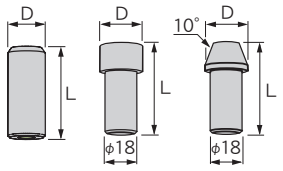
CODE	Fig.	Pin type	φD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S-20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	



26 Bracket

BT30/40, A63

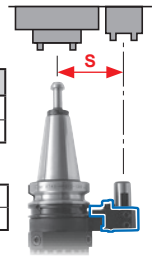
CODE	S
FKA-60	60
-65	65

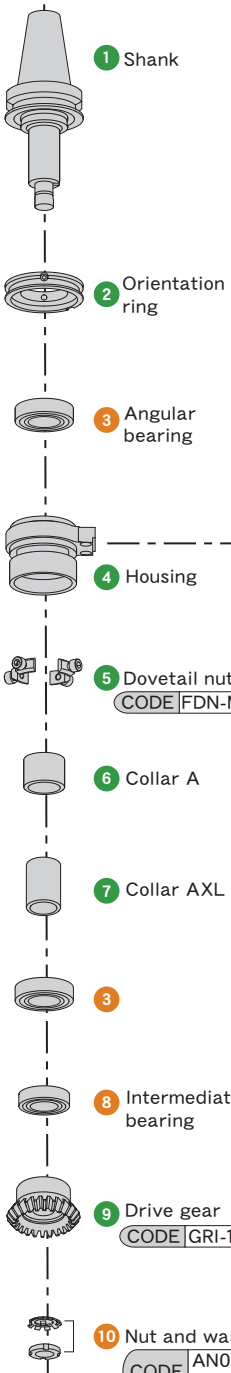
DN40, CT40

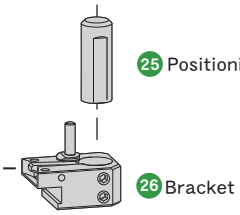
FKA-60-L	60
-65-L	65

BT50, DN50, CT50

FKA- 80	80
- 85	85
-110	110







The tools for assembly

Wrench (for shank)

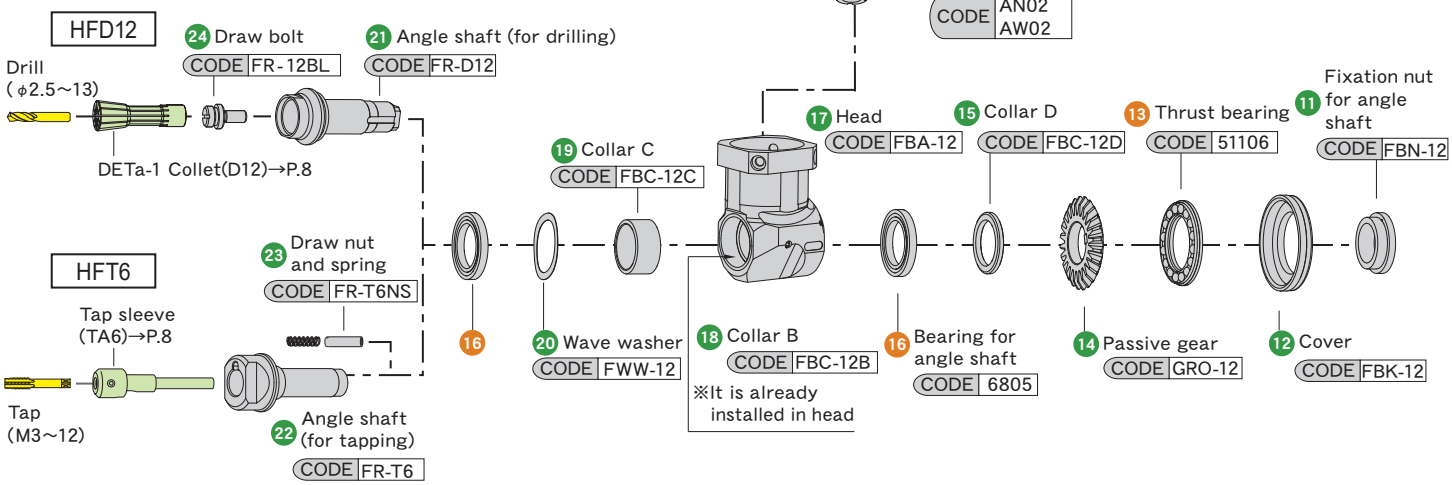
To be used for tightening 10.

CODE
TSS-HF12

Wrench (for head)

To be used for tightening 11 and 12.

CODE
TSH-HF12

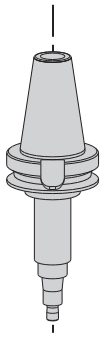


HFA20 / HFT12 (BT40/50, A63, DN40/50, CT40/50)

CODE (Master Holder)	1 Shank	3 Needle bearing	5 Angular bearing	6 Collar A	7 Housing	8 Angular bearing
BT40 -HFA20-135	BT40 -FSA-20S	—	7906A5	FHC-20S	FHA-20S	7905A5
-HFT12-135						
-HFA20-195	BT40 -FSA-20L			FHC-20L	FHA-20L	
-HFT12-195						
BT50 -HFA20-150	BT50 -FSA-20S			FHC-20S	FHA-20S	
-HFT12-150						
-HFA20-210	BT50 -FSA-20L			FHC-20L	FHA-20L	
-HFT12-210						
-HFA20-270	BT50 -FSA-20XL	TAF374720	7905A5DB	FHC-20XL	FHA-20XL	—
-HFT12-270						
A63 -HFA20-198	A63 -FSA-20L	—	7906A5	FHC-20L	FHA-20L	7905A5
-HFT12-198						
-HFA20-258	A63 -FSA-20XL	TAF374720	7905A5DB	FHC-20XL	FHA-20XL	—
-HFT12-258						
DN40A-HFA20-150	DN40A-FSA-20S	-	7906A5	FHC-20S	FHA-20S	7905A5
-HFT12-150						
-HFA20-210	DN40A-FSA-20L			FHC-20L	FHA-20L	
-HFT12-210						
DN50A-HFA20-150	DN50A-FSA-20S			FHC-20S	FHA-20S	
-HFT12-150						
-HFA20-210	DN50A-FSA-20L			FHC-20L	FHA-20L	
-HFT12-210						
-HFA20-270	DN50A-FSA-20XL	TAF374720	7905A5DB	FHC-20XL	FHA-20XL	—
-HFT12-270						
CT40 -HFA20-150	CT40 -FSA-20S	-	7906A5	FHC-20S	FHA-20S	7905A5
-HFT12-150						
-HFA20-210	CT40 -FSA-20L			FHC-20L	FHA-20L	
-HFT12-210						
CT50 -HFA20-150	CT50 -FSA-20S			FHC-20S	FHA-20S	
-HFT12-150						
-HFA20-210	CT50 -FSA-20L			FHC-20L	FHA-20L	
-HFT12-210						
-HFA20-270	CT50 -FSA-20XL	TAF374720	7905A5DB	FHC-20XL	FHA-20XL	—
-HFT12-270						

■**Std. Access.**
- Fixing spanner(KS-41) • Hexagonal wrench set (W-1550S)
- Fook spanner(FC-50) (HFA20)

※3, 5, 8, 16, 18 and 21 are able to use standard commercial items.



1 Shank

2 Orientation ring
CODE ORR-40

3 Needle bearing(XL)

4 Ring A(XL)
CODE FHR-A

5 Angular bearing

6 Collar A

7 Housing

8 Angular bearing

9 Ring B
CODE FHR-B

10 Drive gear
CODE GR1-20

11 Shank lock nut
CODE FHN-20

12 Dovetail nut
CODE FDN-20

27 Positioning pin

BT40, A63

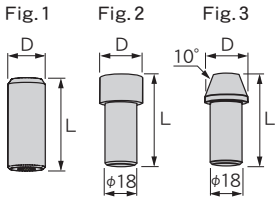
CODE	Fig.	Pin type	φD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S-20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	



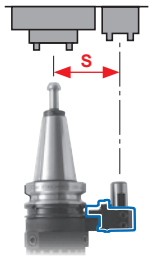
28 Bracket

BT40, A63, DN40, CT40

CODE	S
FKB-60	60
-65	65

BT50, DN50, CT50

FKB- 80	80
- 85	85
-110	110



27 Positioning pin

28 Bracket

The tools for assembly

Wrench (for shank and head)

To be used for tightening 11 and 17.

CODE
TS-HA20

Assembling tool for needle bearings

To be used for tightening 21.

CODE
TPN-HA20

HFA20

24 Nut
CODE NUA-CTA20

23 Angle shaft(for drilling)
CODE FR-A20

Drill (φ5.8~20)

Endmill (φ5.8~20)

Spring collet (C20)→P.8

HFT12

Tap (M14, 16)

Tap sleeve (TA12)→P.8

Tap (M3~12)

Tap sleeve (TA6)→P.8

25 Angle shaft (for tapping)
CODE FR-T12

26 Draw nut and spring
CODE FR-T12NS

20 Collar B
CODE FBC-20B

22 Collar C
CODE FBC-20C

21 Needle bearing
CODE TAF324230P6

13 Head
CODE FBA-20

14 Passive gear
CODE GRO-20

16 Deep-groove bearing
CODE 6905

18 Thrust bearing
CODE CRT10-20
※Only for HFA20

17 Fixation nut for angle shaft
CODE FBN-20

15 Bearing supporter
CODE FBK2-20

19 Cover (for drilling)
CODE FBK-A20
Cover (for tapping)
CODE FBK-T12

HFCS6 (BT30)

CODE(Master Holder)
BT30-HFCS6-155

■Std. Access.
- Fixing spanner(PS-21)
- Hexagonal wrench set (W-1540S)

※3,7,9,14,15 and 20 are able to use standard commercial items.

The tools for assembly

Wrench (for shank)

To be used for tightening 9.
It can also be used as a wrench for head of HFD12.

CODE
TSH-HF12

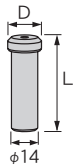
Pliers for Retaining ring

To be used for tightening 28.

CODE
TSH-G6

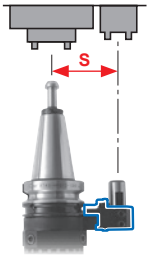
29 Positioning pin

CODE	Pin type	ϕD	L
HP-45S	Straight pin	12	45
HP-E50S	Straight pin	18	50

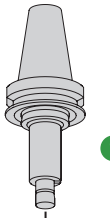


30 Bracket

CODE	S
FKC-50A	50
FKC-65	65



■Note
- Be sure to use positioning pin (HP-45S) and the bracket (FKC-50A) in a combination, and the positioning pin (HP-E50S) and the bracket (FKC-65) in combination.



1 Shank
CODE BT30-FSA-G6-30

2 Orientation ring
CODE ORR-30L

3 Angular bearing
CODE 7904C

29 Positioning pin

4 Collar A
CODE FHC-7L

30 Bracket

5 Housing
CODE FHA-7L

6 Dovetail nut
CODE FDN-E7

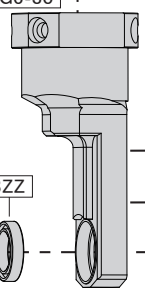
7 Angular bearing
CODE 7903C

8 Collar F
CODE FHC-7LF

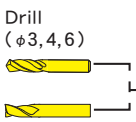
9 Nut and washer for bearing
CODE AN03/AW03

10 Collar 1
CODE CA1-G6

11 Drive gear
CODE GR1-G6



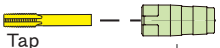
12 Head
CODE FBA-G6-30



Drill
(ϕ3,4,6)

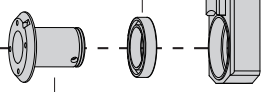
Endmill
(ϕ3,4,6)

Shrink-fit collet
(FCS)→P.10



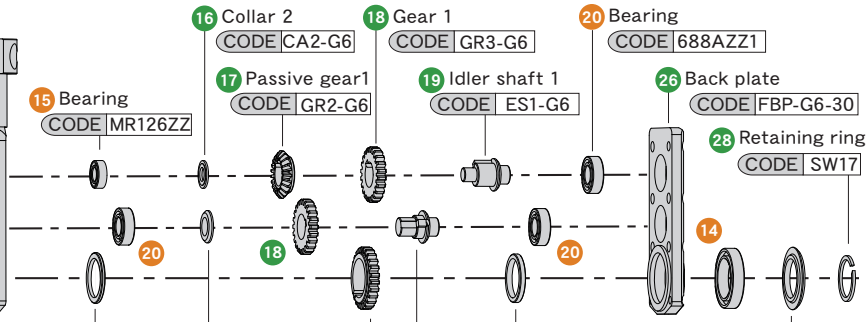
Tap
(M4,5,6)

Tap collet
(FCS-M)→P.10



14 Bearing
CODE 6803ZZ

13 Angle shaft
CODE FR-CS6



15 Bearing
CODE MR126ZZ

16 Collar 2
CODE CA2-G6

17 Passive gear1
CODE GR2-G6

18 Gear 1
CODE GR3-G6

19 Idler shaft 1
CODE ES1-G6

20 Bearing
CODE 688AZZ1

26 Back plate
CODE FBP-G6-30

28 Retaining ring
CODE SW17

20 18 20 14

21 Collar 3
CODE CA3-G6

23 Collar 4
CODE CA4-G6

24 Gear 2
CODE GR4-G6

22 Idler shaft 2
CODE ES2-G6

25 Collar 5
CODE CA5-G6

27 Cover
CODE KA-G6

HFCS6 (BT40/50, DN40/50, CT40/50)

CODE (Master Holder)	1 Shank	11 Head	17 Gear 1	Q'ty	18 Gear 3	20 Bearing	Q'ty	21 Collar 3	Q'ty	22 Idler shaft 2	Q'ty	26 Back plate
BT40 -HFCS6-160	BT40 -FSA-G6	FBA-G6	GR3-G6	2	—	688AZZ1	3	CA3-G6	1	ES2-G6	1	FBP-G6
-205		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L
BT50 -HFCS6-175	BT50 -FSA-G6	FBA-G6		2	—		3		1		1	FBP-G6
-220		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L
DN40A-HFCS6-175	DN40A-FSA-G6	FBA-G6	GR3-G6	2	—	688AZZ1	3	CA3-G6	1	ES2-G6	1	FBP-G6
-220		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L
DN50A-HFCS6-175	DN50A-FSA-G6	FBA-G6		2	—		3		1		1	FBP-G6
-220		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L
CT40 -HFCS6-175	CT40 -FSA-G6	FBA-G6	GR3-G6	2	—	688AZZ1	3	CA3-G6	1	ES2-G6	1	FBP-G6
-220		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L
CT50 -HFCS6-175	CT50 -FSA-G6	FBA-G6		2	—		3		1		1	FBP-G6
-220		FBA-G6L		3	GR5-G6		7		3		3	FBP-G6L

■**Std. Access.**
- Fixing spanner (PS-21)
- Hexagonal wrench set (W-1550S)

※3, 8, 13, 14 and 20 are able to use standard commercial items.

29 Positioning pin

BT40

CODE	Fig.	Pin type	ϕD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S -20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	

Fig.1 Fig.2

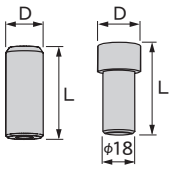
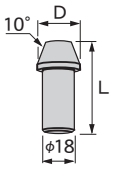


Fig.3



30 Bracket

BT40

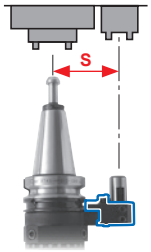
CODE	S
FKA-60	60
-65	65

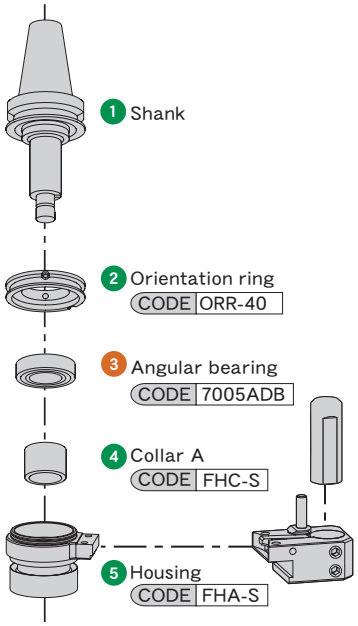
DN40, CT40

FKA-60-L	60
-65-L	65

BT50, DN50, CT50

FKA- 80	80
- 85	85
-110	110





1 Shank

2 Orientation ring
CODE ORR-40

3 Angular bearing
CODE 7005ADB

4 Collar A
CODE FHC-S

29 Positioning pin

30 Bracket

5 Housing
CODE FHA-S

6 Dovetail nut
CODE FDN-M6

3

7 Collar F
CODE FHC-7F

8 Nut and washer for bearing
CODE AN04/AW04

9 Collar 1
CODE CA1-G6

10 Drive gear
CODE GR1-G6

The tools for assembly

Wrench (for shank)

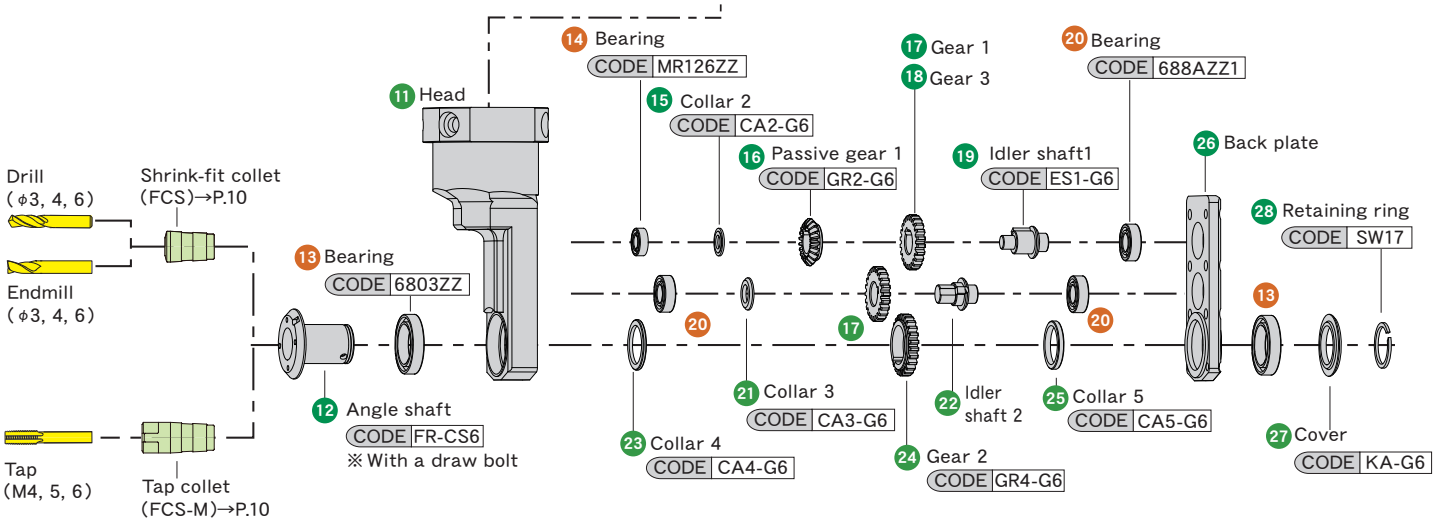
To be used for tightening 8.
It can also be used as a wrench for head of HFD12.

CODE
FC-32

Pliers for Retaining ring

To be used for tightening 28.

CODE
TSH-G6



HUD7 / HUT4 (BT30)

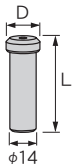
CODE (Master Holder)
BT30-HUD7-102
-HUT4-102

■Std. Access.
- Fixing spanner (KS-23) (HUD7)
- Hexagonal wrench set (W-1540S)

※3, 4, 17, 23 and 30 are able to use standard commercial items.

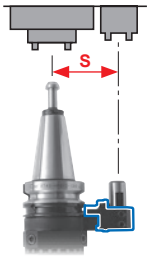
32 Positioning pin

CODE	Pin type	ϕD	L
HP-45S	Straight pin	12	45
HP-E50S	Straight pin	18	50

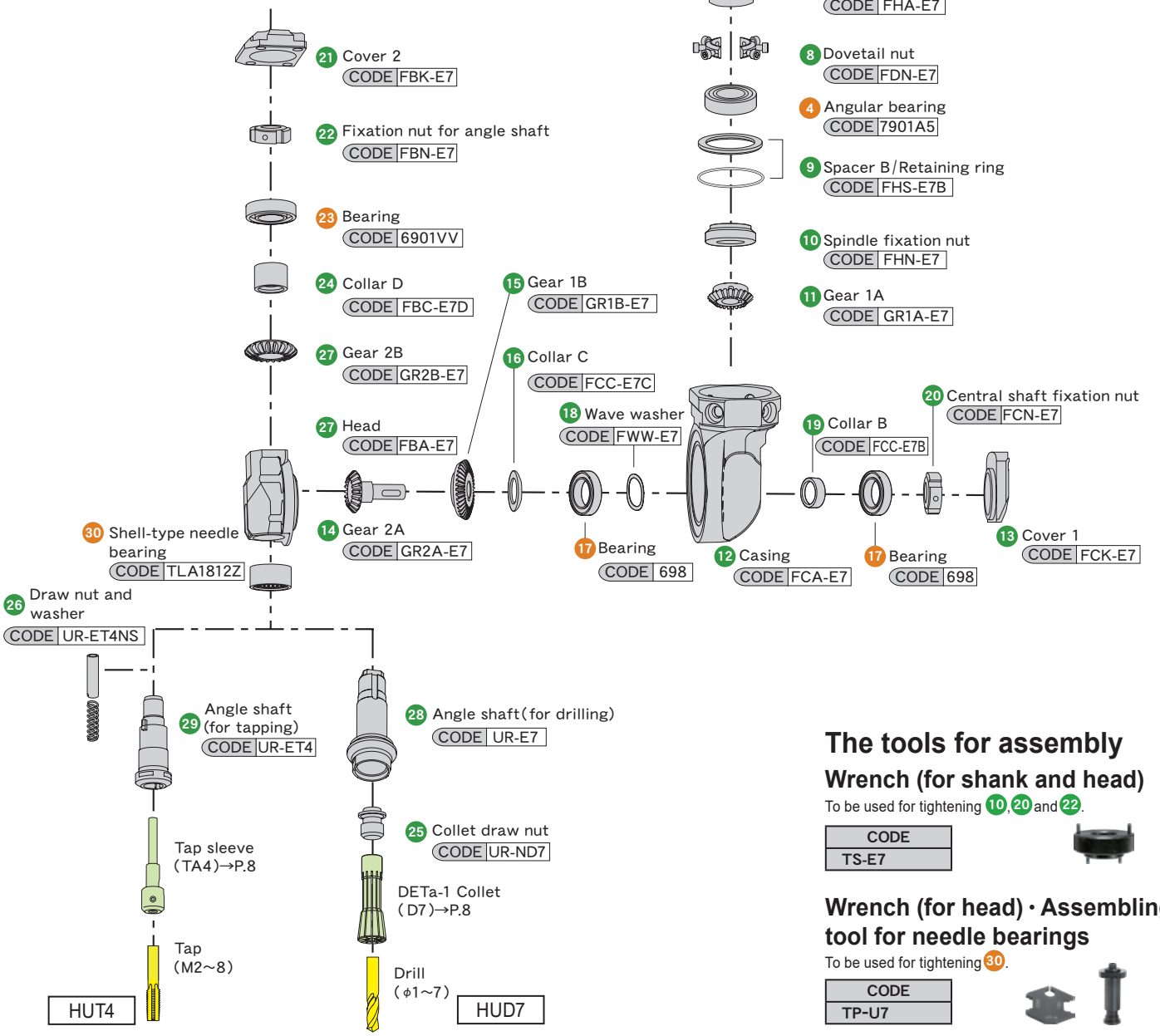


33 Bracket

CODE	S
FKC-50A	50
FKC-65	65



■Note
- Be sure to use positioning pin (HP-45S) and the bracket (FKC-50A) in a combination, and the positioning pin (HP-E50S) and the bracket (FKC-65) in combination.



The tools for assembly

Wrench (for shank and head)

To be used for tightening 10, 20 and 22.

CODE
TS-E7

Wrench (for head) · Assembling tool for needle bearings

To be used for tightening 30.

CODE
TP-U7

HUD7 / HUA10 / HUT4 (BT40/50, DN40/50, CT40/50)

CODE (Master Holder)	1 Shank
BT40 -HUD 7-135	BT40-FSA-U7
-HUA10-135	
-HUT 4-135	
BT50 -HUD 7-150	BT50-FSA-U7
-HUA10-150	
-HUT 4-150	
DN40A-HUD 7-150	DN40A-FSA-U7
-HUA10-150	
-HUT 4-150	
DN50A-HUD 7-150	DN50A-FSA-U7
-HUA10-150	
-HUT 4-150	
CT40 -HUD 7-150	CT40-FSA-U7
-HUA10-150	
-HUT 4-150	
CT50 -HUD 7-150	CT50-FSA-U7
-HUA10-150	
-HUT 4-150	

■Std. Access.
- Fixing spanner(KS-21)
- Hexagonal wrench set (W-1550S)
- Fook spanner(FC-32) (HUA10)

※3, 8, 13, 16, 21 and 27 are able to use standard commercial items.

The tools for assembly

Wrench (for shank)

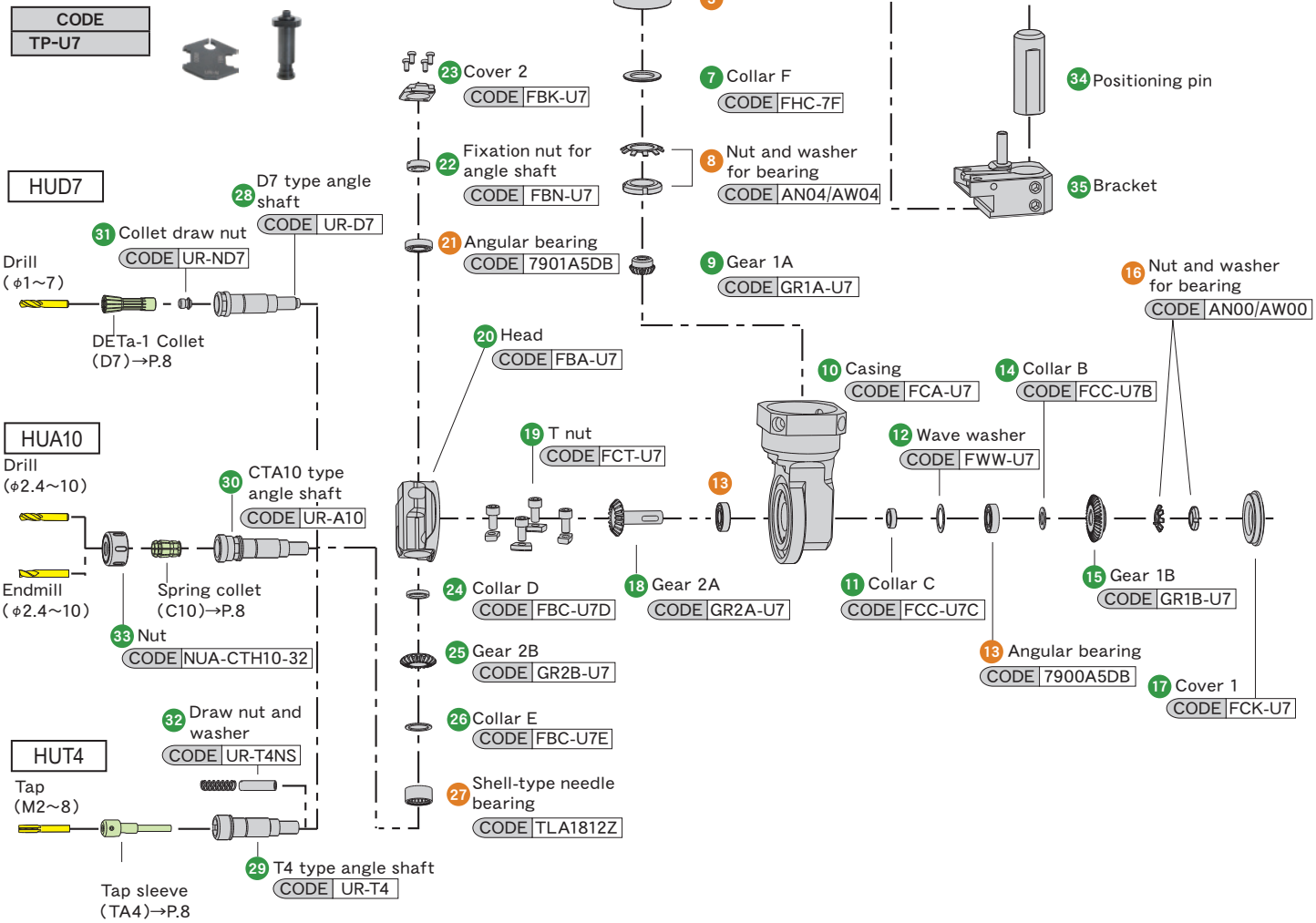
CODE
FC-32

To be used for tightening 8.

Wrench (for head) · Assembling tool for needle bearings

To be used for tightening 16, 22 and 27.

CODE
TP-U7



34 Positioning pin

BT40

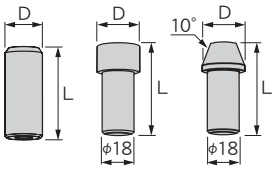
CODE	Fig.	Pin type	ϕD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S-20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	



35 Bracket

BT40

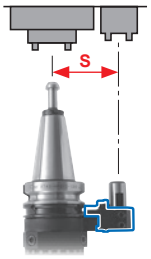
CODE	S
FKA-60	60
-65	65

DN40, CT40

FKA-60-L	60
-65-L	65

BT50, DN50, CT50

FKA- 80	80
- 85	85
-110	110

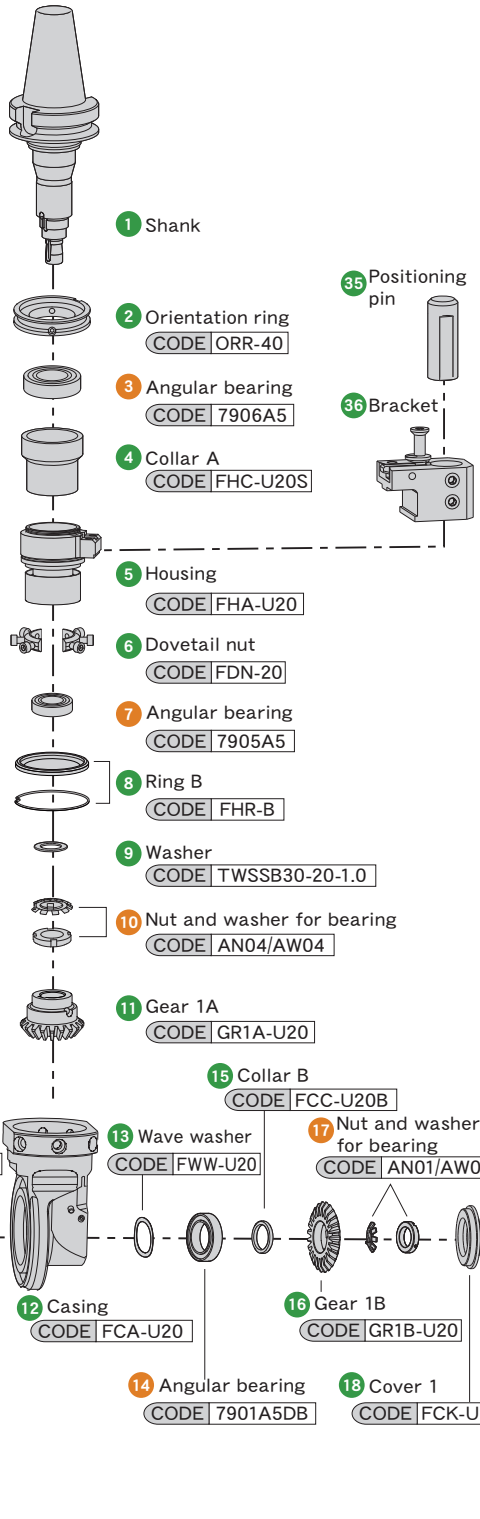


HUA20 / HUT6 (BT40/50, DN40/50, CT40/50)

CODE (Master Holder)	1 Shank
BT40 -HUA20-135	BT40 -FSA-U20
-HUT 6-135	
BT50 -HUA20-150	BT50 -FSA-U20
-HUT 6-150	
DN40A-HUA20-150	DN40A-FSA-U20
-HUT 6-150	
DN50A-HUA20-150	DN50A-FSA-U20
-HUT 6-150	
CT40 -HUA20-150	CT40 -FSA-U20
-HUT 6-150	
CT50 -HUA20-150	CT50 -FSA-U20
-HUT 6-150	

■Std. Access.
- Fixing spanner(KS-33)
- Hexagonal wrench set (W-1560S)
- Fook spanner(FC-50)(HUA20)

※3, 7, 10, 14, 17, 25, 27 and 29 are able to use standard commercial items.



35 Positioning pin

BT40

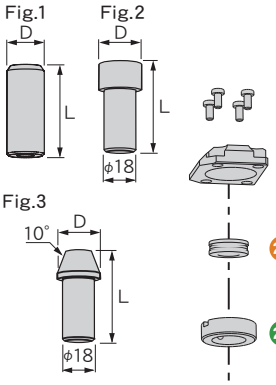
CODE	Fig.	Pin type	φD	L
HP-50S	1	Straight pin	18	50
-50W		Expansion pin		
-50T	3	Taper pin	20	

DN40, CT40

HP-62S	1	Straight pin	18	62
-62W		Expansion pin		
-50TL	3	Taper pin	20	65

BT50, DN50, CT50

HP-62S	1	Straight pin	18	62
-62S-20	2		20	
-62W	1	Expansion pin	18	
-62W-20	2		20	
-62T	3	Taper pin	28	



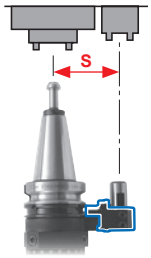
36 Bracket

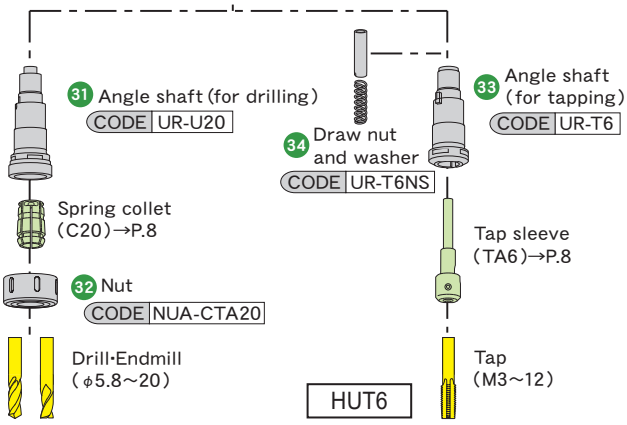
BT40, DN40, CT40

CODE	S
FKB-60	60
-65	65

BT50, DN50, CT50

FKB- 80	80
- 85	85
-110	110





The tools for assembly

Wrench (for shank)

To be used for tightening 10 and 17.

CODE
TSS-HU20

Wrench (for head)

To be used for tightening 26.

CODE
TSH-HF12

Assembling tool for needle bearings

To be used for tightening 29.

CODE
TPN-HU20

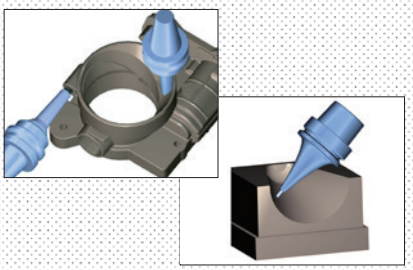
Technical support

At MST, we provide the long-term support that allows you to use our products safely and to maintain the high accuracy of our products for your machining.

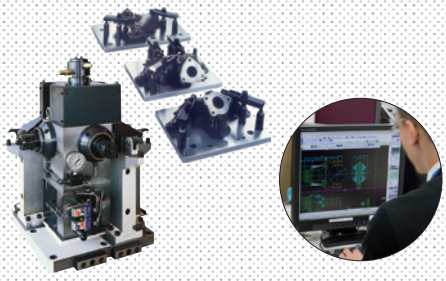
1. Pre-sales

Provide wide-ranging technical support.

Tool selection



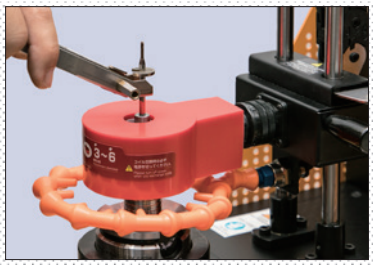
Interference check with 3D drawings



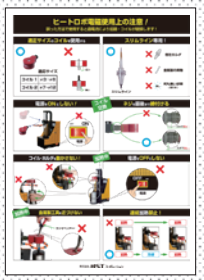
Designing manufacturing jig fixtures

2. On delivery

You will receive instructions.



Instructions for a heater

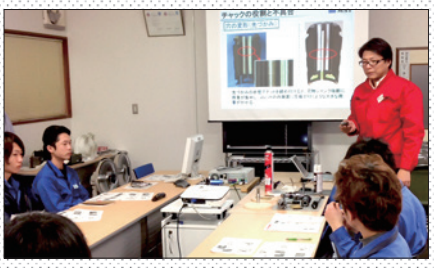


Maintenance instruction

3. Post-sales

Our Tool Clinic experts can visit your factory to demonstrate the correct usage, maintenance and give seminars.

TOOL CLINIC



Seminar

Evaluation

Consulting

Substantial peripheral equipment

Work table
6S DESK
➔P. 92

Holder,
Tool washing machine
CLEAN BOX
➔P. 94

The teaching DVD with practical maintenance tools
MAINTENANCE VIDEO
➔P. 96

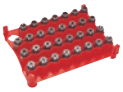
For machine spindle maintenance
Test bar CHECKMATE
➔P. 98

Tool protection cover
TOOL CAP
➔P. 102

Cutter protection box
ENDMILL HOUSE
➔P. 105

Cleaning tool for a spindle taper hole
STAR DUST
➔P. 97

Tool tightening stand
Tool set up stand
➔P. 100



Collet stand
PALETTE
➔P. 104

Tool holder storage cabinet
➔P. 106

Instructions for use

To ensure optimum, trouble-free performance, please read this operation manual carefully before using the unit. Please contact us if your holder is damaged. We are ready to help you.

Instructions for using tool holder

Pay attention to scratches and rust.

Before using, be sure to remove anti-rust oil on the holder. Scratches and dust can reduce performance and accuracy.Please keep your holders clean with rags.Our CLEAN BOX is available for your cleaning needs.

Holder,
Tool washing machine
CLEAN BOX
P. 94

Tool holder shank.

If you insert holder shanks with scratches and dust into machine spindles, the accuracy of the spindle is reduced and the spindle can be damaged. For shank maintenance, use an oil grinding stone or sandpaper to remove scratches and rust. We cannot re-grind shank since it changes the position of gauge line, so we recommend you to purchase new holders.

Storage.

Please use tool protection covers if you store holders with cutters. Cutting edges may be damaged by coming in contact with each other, and you may get injured by sharp cutting edges.

Tool protection cover
TOOL CAP
P. 102

Retention knob is comsumable.

Exchange the retention knob regularly.(Usage period is depend on the frequency and cutting condition. Approximately 6 months for heavy duty cutting. 18 months for standard cutting.

ANGLE HEAD

- The gear and bearing in the angle head are consumables. Periodic maintenance is required. The inside of the head can be checked by taking off the aluminum cover and the name plate.
- Be careful about the spindle rotating direction. If used in a wrong rotating direction, it will damage the gears.

DETa-1 Collet Holder

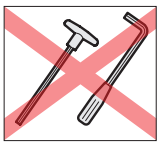
Tighten with the proper torque.

- Excessive tightening will reduce the accuracy and damage the internal components.
- An adjustable torque wrench, which can tighten the nut with the appropriate torque, is available for DTA type holders.

Adjustable torque wrench

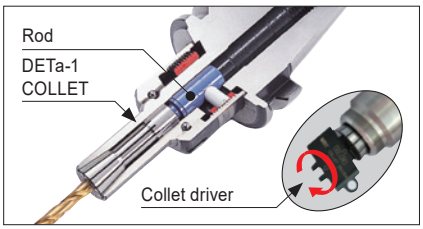
The nut-tightening torque can be adjusted more properly.
P. 31

- For the DTB3, the torque is adequate when the wrench starts to bend. Do not use T-type or L-type wrenches for tightening. If a ommercially-available torque wrench is used, use a screwdriver type.



Firmly attach the DETa-1 collet to a rod.

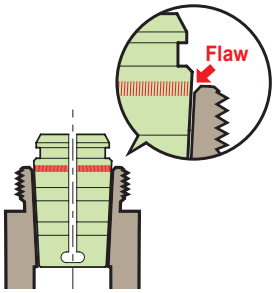
Use a collet driver when screwing in the collet all the way until it stops. If the collet is not screwed in enough, the rod might break.
The rod is replaceable.



COLLET HOLDER

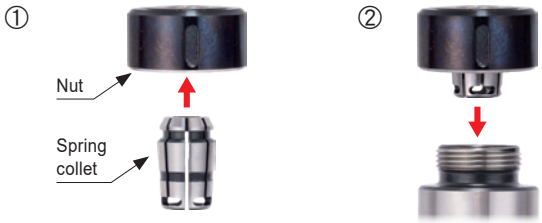
Do not use a collet that has a notch or nick (flaw) on its tapered surface.

In order to maintain the accuracy of the main unit, the hardness of the collet is less than that of the main unit.
If the collet is used with its tapered surface having a notch or nick (flaw) in it, poor accuracy or insufficient tightening can cause an accident.
Replacing the collet will allow you to restore the holder to more or less its initial precision level.



Precautions for collet tightening.

First set the collet into the nut. Do not first put the collet into the tool holder. The collet might get stuck in the tool holder when tightened by the nut.



Tighten with the proper torque.

Excessive tightening will damage the holder. Clean the tool holder thoroughly inside and out when setting it up.
When coolant or chips remain on the thread of the tool holder or the nut, the frictional resistance decreases. This will cause the torque to be similar to the torque experienced when over-tightening. Therefore, even if the tightening torque is correct, it might lead to breakage.

Adjustable torque wrench

The nut-tightening torque can be adjusted more properly. ➔ P.38

Be sure to keep the clamping length of the cutter insertion to a minimum.

Not clamping the cutter with the entire clamping length will cause degradation of accuracy, slipping out of the cutter, and breakage of the tool holder and the nut.

Collet inner diameter	Min. holding length	HOLDER CODE
φ 2.6～10	20	CTA10, CTH10
φ 6 ～20	40	CTA20, CTH20
φ 6 ～ 9.5	38	CTA25, CTH25
φ10 ～15	48	
φ15.5～25	57	
φ25, 28, 30, 32	68	CTA32, CTH32
φ32, 40, 42	70	CTA40

Hi-ART MILLING CHUCK

Do not tighten the collet without inserting a cutting tool.

Tightening the nut without inserting a cutter will cause the clamping portion of the holder to change shape and make it difficult to insert a cutter.

Use the holder within the allowable spindle speed.

HOLDER	MAX.min-1
BT40, A 63-ART32	6000
BT50, A100-ART32	5000
BT50, A100-ART42	3000

Be sure to insert the cutter shank deeper than the minimum clamping depth.

If the internal bore gets damaged, accuracy degradation, gripping torque degradation and unable insertion of the cutter might occur. Refer to "Cutter insertion length" on the chart.

Cutter shank dia.	Min. holding length	
	ART32	ART42
φ 6, 8	30	30
φ10, 12	40	45
φ16, 20	50	50
φ25	55	55
φ32	66	60
φ42	-	76

After removing the tool, loosen the nut by another one turn or more.

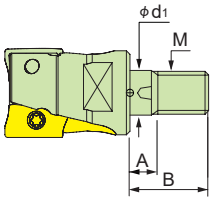
Otherwise, the next time the tool is clamped, the component of the nut might be damaged. This will also prevent you from being able to grip the tool with sufficient strength, causing the tool to slip during machining.

Loosen the nut by another one turn or more.

RED screw arbor

Confirm if an screw-in tool can be used.

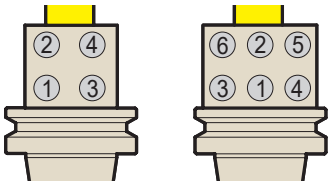
Some of the screw-in end mills cannot be attached to the RED screw arbor.
Please check your screw-in end mills for conformance to the dimensions,or please contact MST.



Holder type	M	φd1	A	B
RSG8	M 8	8.5	10	18
RSG10	M10	10.5	10	22
RSG12	M12	12.5	10	22
RSG16	M16	17	10	25

Tighten the all bolts at least twice.

Tighten the bolts in the order of the numbers marked on them.



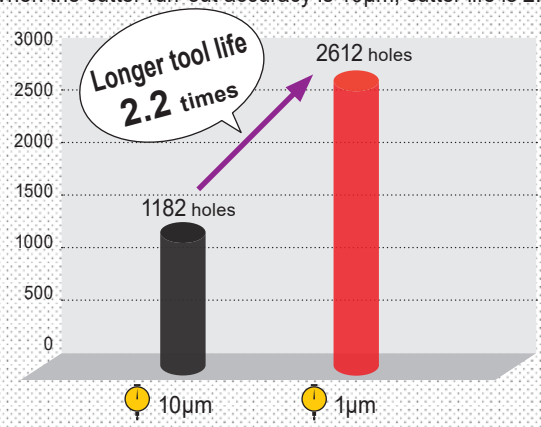
SLZ25 SLZ32, 42

Precautions for tightening the bolts.

If you are unable to loosen the last one or two bolts, tighten all the bolts again and then try to loosen all the bolts again little by little.
(This occurs when the bolts are not loosened equally and little by little from the first step.)
When loosened slowly, the wrench might bend, so loosen the bolts with instantaneous torque.

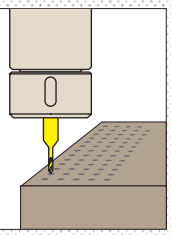
Cutter life comparison depending on different run-out accuracy

When the cutter run-out accuracy is 10μm, cutter life is 2.2 times longer than with 40μm run-out accuracy.



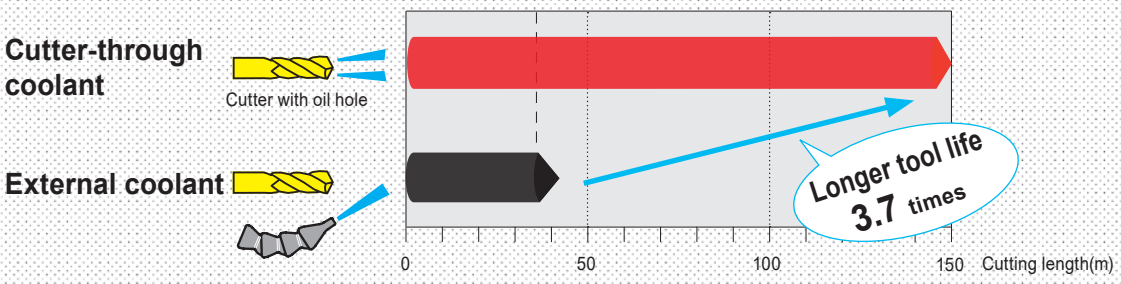
Cutting condition

Cutting tool	:	ϕ0.1 mm drill
Material	:	NAK80 (40HRC)
Coolant	:	Water solubility coolant
Revolution	:	20,000min-1
Feed	:	60 mm/min
Step feed	:	Non-step
Depth	:	0.4 mm



Cutter life comparison when using cutter-through coolant and external coolant

Applying the cutter-through coolant improves the tool life 3.7 times higher than when external coolant is used.

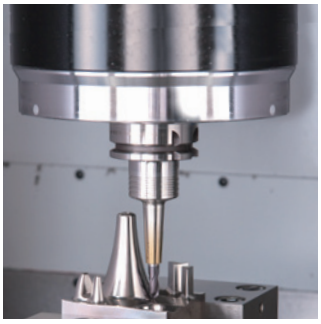


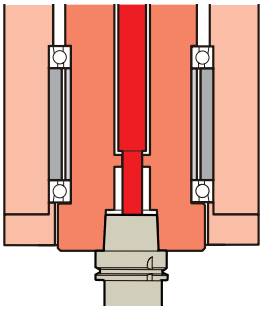
For high-speed spindle rotation

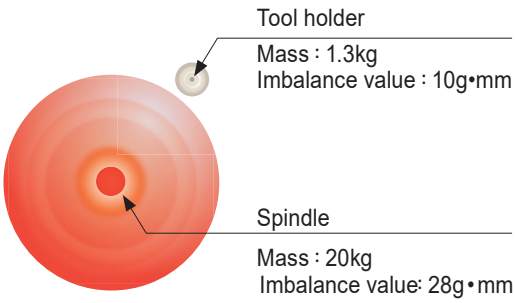
Imbalance value of a machine tool spindle and a tool holder

A tool holder imbalance value (G grade) focuses at high-speed spindle rotation of a machining center. However, it is important to consider the entire rotation body, including the spindle, holder and cutter to determine the high-speed spindle rotation. This is because the holder and cutter weight is much lighter than the spindle weight (less than approx. 1/20th), and thus the effect of a tool holder on the spindle rotating equipment (spindle, tool holder and cutter) becomes significantly smaller.

Spending time and money on balance corrections to the holder alone will not result in significant improvement.







Achieving high-speed, high-efficiency machining requires more than just good balance.

- What is the run-out accuracy of the machine spindle, tool holder and cutting tool?
- Is there taper contact between the machine spindle and tool holder?
- What is the diameter of the cutting tool?
- What is the cutting speed? Spindle rotation?

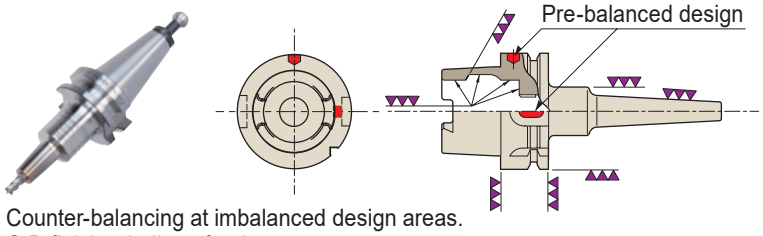
Points to keep in mind at high-speed rotation.

- Minimize the length of a tool holder and cutting tool as short as possible.
- Use high accuracy and compact design tool holders.
- Optimize the cutting condition(rpm, feed and depth of cut).

MST considers these points carefully and produces a tool holder according to our own pre-balanced design concept.

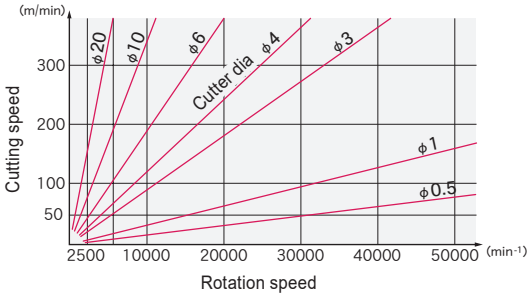
Pre-balanced design

MST has applied our original pre-balancing to make the tool holders applicable for high-speed spindle rotation. Balancing corrections for our products is not required.

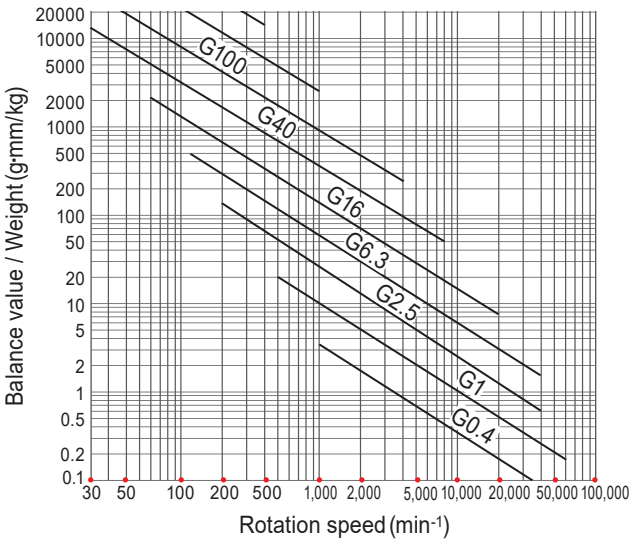


- Counter-balancing at imbalanced design areas.
- O.D finish grinding after heat treatment.

Relationship between a cutter diameter and spindle rotation



■Unbalancing in terms of tolerable residual ration against the balancing grade(G grade value)



<<Reference >>

■Recommend various of G grade of a rotating body

G grade	G	Rotating body
G40	~40	The car wheel
G16	~16	The parts of agricultural machines The parts of truck
G 6.3	~ 6.3	Machine tools and aviation gas- turbine rotors after assembling general mechanical parts
G 2.5	~ 2.5	**The spindle of machine tool** Gas turbine Steam turbine
G 1	~ 1	The grinding wheel spindle of grinding machine
G 0.4	~ 0.4	The grinding wheel spindle of precise grinding machine Gyroscope

■Determining tool holder G grade

$$G = \frac{\text{Imbalance value(g·mm)}}{\text{Weight (kg)}} \times \frac{\text{Spindle rotation speed}}{9{,}550}$$

Holders for high-speed operation include "Imbalance value" and "holder weight" columns in the dimensions table.

■Determining G grade of rotating equipment

(spindle · tool holder · cutting tool)

$$G = \frac{\text{(Spindle + Holder + Cutter) Imbalance value(g·mm)}}{\text{(Spindle + Holder + Cutter) Weight (kg)}} \times \frac{\text{Spindle rotation speed}}{9{,}550}$$

HSK SHANK

MST uses DIN-HSK standard shanks, which are widely used in Japan and other countries as “2-face contact tooling” for high-speed, high-efficiency machining.

▷ The close contact of the end faces (2-face contact) of the HSK shank results in high rigidity for transverse feed, which minimizes vibrations during machining and improves the operating life of the cutting tool and the finished surface.

▷ Even if the spindle expands during high-speed rotations, the tapered hollow portion comes up with that expansion, thereby maintaining high precision.

A type
The most common type in use today.

E type
This type has no drive keyway and is suitable for high-speed machining.

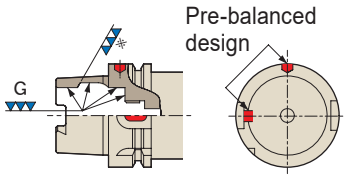
F type
This type uses a combination of different sizes of tapers and flanges.

T type
This type is for turning with multiple machining

Pre-Balanced design

The HSK-A-type shank is unbalanced in its standard form, but at MST we have applied our original pre-balancing to make the tool holders applicable for high-speed machining. According to DIN standards, only the area marked with ※ in the hollow shank needs to be finished. However, MST provides perfect finishing for all areas after heat treatment in order to improve balance.

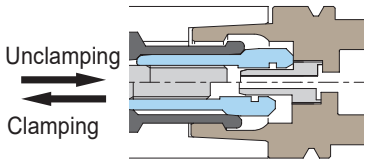
	MST	DIN standard
A63	15 g·mm	75g·mm
A100	28 g·mm	170g·mm



Three times stronger clamping force

HSK uses a clamping mechanism, which utilizes the wedge effect,to provide a tool gripping power 2.5 to 3.0 times greater than in the retention knob system (BT40 and BT50), thereby increasing rigidity.

	Tensile strength of draw bar	Tool clamping force
BT40	10~15kN	10~15kN
A63	5.8kN	18.4kN
BT50	20~25kN	20~25kN
A100	14.5kN	45.9kN



Rigidity comparison with BT shank

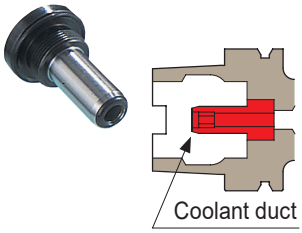
The HSK shank is effective when longer overhang or higher transverse feed rigidity is required. The higher rigidity greatly contributes to improve the operating life of the cutting tool and the smoothness of the finished surface.

Taper gauge

MST establishes the optimal value within the tolerance in accordance with the DIN standard and manufacturers master gauges for tool shanks and those for spindle tapers accordingly.

Coolant duct

This is a coolant feed part exclusively for the HSK-A type.
MST's HSK-A type holder comes standard with each coolant duct.



For some machines, the use of a coolant duct (Adjustable) is recommended. The existing coolant duct is replaced with an adjustable one at your request only when you have placed an order for the holder.
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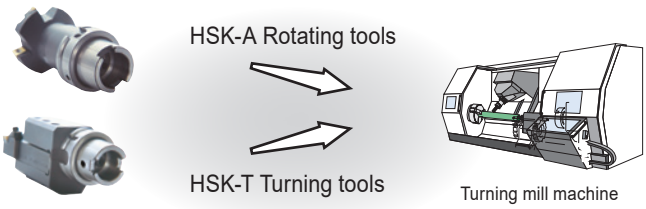
TOOLING SYSTEMS for HSK-T

Collaborative development with 17 Japanese manufacturers has resulted in an interface for mill-turning machines based on the HSK-A type. With its 2008 ISO accreditation, it has become popular standard around the world.

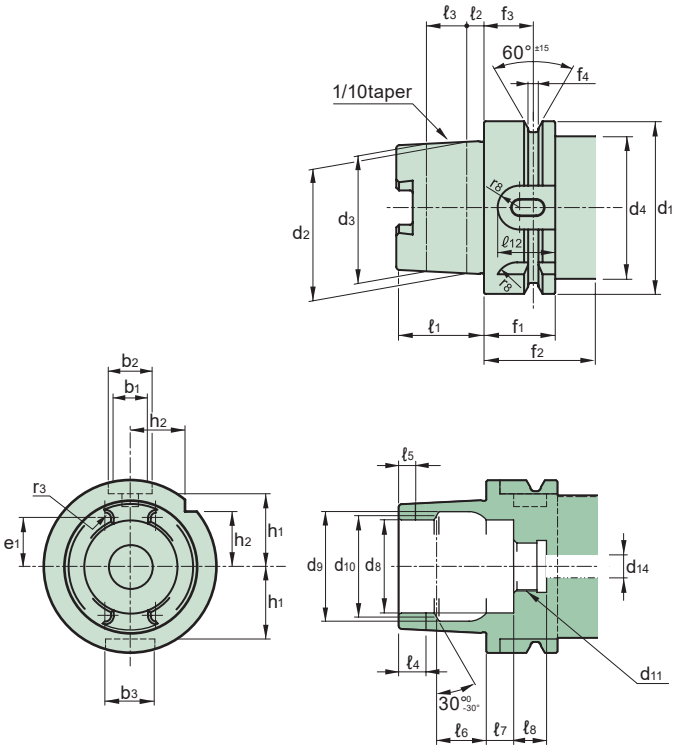


Technical data

The shank dimensions

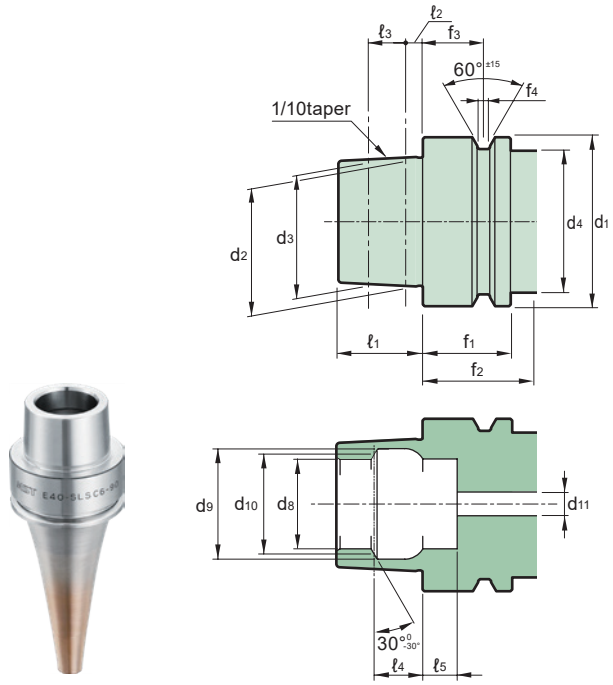
HSK-A (Extracts from DIN 69893-1;1993-07)

Shank	A40	A50	A63	A100	A125
b_1 (H10)	8	10.5	12.5	20	25
b_2 (H10)	9	12	16	20	25
b_3 (H10)	11	14	18	22	28
d_1 (h10)	40	50	63	100	125
d_2	30	38	48	75	95
	+0.007 +0.005	+0.009 +0.006	+0.011 +0.007	+0.015 +0.009	+0.018 +0.011
d_3	29.05	36.9	46.53	72.6	91.95
	+0.005 +0.003	+0.006 +0.003	+0.007 +0.003	+0.009 +0.003	+0.011 +0.004
d_4 (Max.)	34	42	53	85	105
d_8 (H10)	21	26	34	53	67
d_9 (H11)	25.5	32	40	63	80
d_{10}	23	29	37	58	73
d_{11}	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
d_{14} (Max.)	5	6.8	8.4	12	14
e_1	10.88	13.797	17.862	27.329	35.324
f_1 ($^{0}_{-0.1}$)	20	26	26	29	29
f_2 (min.)	35	42	42	45	45
f_3 (± 0.1)	16	18	18	20	20
f_4 ($^{+0.15}_{0}$)	2	3.75	3.75	3.75	3.75
h_1 ($^{0}_{-0.2}$)	17	21	26.5	44	55.5
h_2 ($^{0}_{-0.3}$)	12	15.5	20	31.5	39.5
ℓ_1 ($^{0}_{-0.2}$)	20	25	32	50	63
ℓ_2	4	5	6.3	10	12.5
ℓ_3	9.5	11	14.7	24	30.5
ℓ_4 ($^{+0.2}_{0}$)	6	7.5	10	15	19
ℓ_5 ($^{+0.2}_{0}$)	3.5	4.5	6	10	12
ℓ_6 (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ_7 ($^{0}_{-0.1}$)	8	10	10	12.5	16
ℓ_8 ($^{0}_{-0.3}$)	8	10	12	16	18
ℓ_{12}	12	19	21	24	24
r_3 ($^{+0.05}_{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r_8	4.5	6	8	10	5



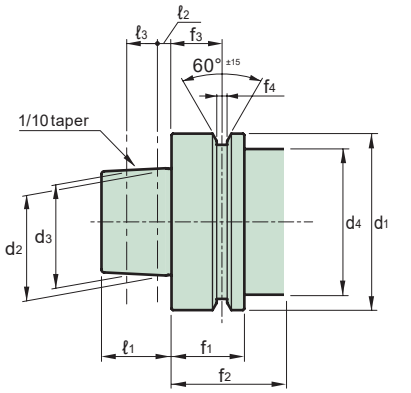
HSK-E (Extracts from DIN V 69893-5;1996-01)

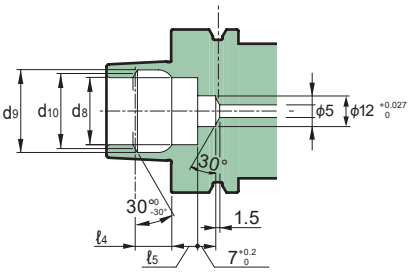
Shank	E25	E32	E40	E50
d_1 (h10)	25	32	40	50
d_2	19	24	30	38
	+0.006 +0.004	+0.007 +0.005	+0.007 +0.005	+0.009 +0.006
d_3	18.15	23.27	29.05	36.90
	+0.004 +0.002	+0.005 +0.003	+0.005 +0.003	+0.006 +0.003
d_4 (Max.)	20	26	34	42
d_8 (H10)	14	17	21	26
d_9 (H11)	16.4	21	25.5	32
d_{10}	15	19	23	29
d_{11} (Max.)	3	4.2	5	6.8
ℓ_1 ($^{0}_{-0.2}$)	13	16	20	25
ℓ_2	2.5	3.2	4	5
ℓ_3	8.5	7.3	9.5	11
ℓ_4 (JS10)	7.21	8.92	11.42	14.13
ℓ_5 ($^{0}_{-0.1}$)	6	8	8	10
f_1 ($^{0}_{-0.1}$)	10	20	20	26
f_2 (min.)	20	35	35	42
f_3 (± 0.1)	4.5	16	16	18
f_4 ($^{+0.15}_{0}$)	2	2	2	3.75



HSK-F (Extracts from DIN 69893-1;1993-07)

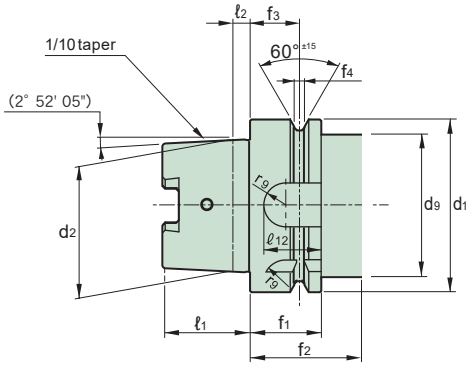
Shank	F63	F80
d1 (h10)	63	80
d2	38	48
	+0.009 +0.006	+0.011 +0.007
d3	36.9	46.53
	+0.006 +0.003	+0.007 +0.003
d4 (Max.)	53	67
d8 (H10)	26	34
d9 (H11)	32	40
d10	29	37
f1 ($^{0}_{-0.1}$)	26	26
f2 (min.)	42	42
f3 (± 0.1)	18	18
f4 ($^{+0.15}_{0}$)	3.75	3.75
ℓ1 ($^{0}_{-0.2}$)	25	32
ℓ2	5	6.3
ℓ3	11	14.7
ℓ4 (Js10)	14.13	18.13
ℓ5 ($^{0}_{-0.1}$)	10	10
f1 ($^{0}_{-0.1}$)	26	26
f2 (min.)	42	42
f3 (± 0.1)	18	18
f4 ($^{+0.15}_{0}$)	3.75	3.75

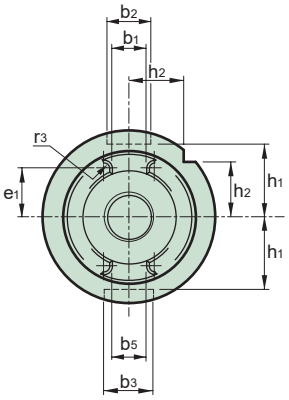


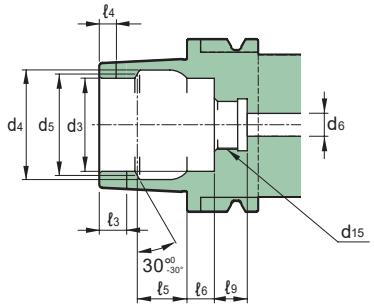


HSK-T (Extracts from ISO 12164-3;2008) For turning with turning mill machines

Shank	T40	T50	T63	T100	T125
b1 ($^{+0.04}_{-0.04}$)	8.05	10.54	12.54	20.02	25.02
b2 (H10)	9	12	16	20	25
b3 (H10)	11	14	18	22	28
b5	7.932	10.425	12.425	19.91	24.915
	+0.03 0	+0.035 0			+0.04 0
d1 (h10)	40	50	63	100	125
d2	30.007	38.009	48.010	75.013	95.016
d3 (H10)	21	26	34	53	67
d4 (H11)	25.5	32	40	63	80
d5	23	29	37	58	73
d6 (Max.)	5	6.8	8.4	12	14
d9 (Max.)	39	49	62	99	124
d15	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
e1	11	13.88	17.99	27.37	35.37
f1 ($^{0}_{-0.1}$)	20	26	26	29	29
f2 (min.)	23	30	30	34	34
f3 (± 0.1)	16	18	18	20	20
f4 ($^{+0.15}_{0}$)	2	3.75	3.75	3.75	3.75
h1 ($^{0}_{-0.2}$)	17	21	26.5	44	55.5
h2 ($^{0}_{-0.3}$)	12	15.5	20	31.5	39.5
ℓ1 ($^{0}_{-0.2}$)	20	25	32	50	63
ℓ2	4	5	6.3	10	12.5
ℓ3 ($^{+0.5}_{0}$)	6	7.5	10	15	19
ℓ4 ($^{+0.2}_{0}$)	3.5	4.5	6	10	12
ℓ5 (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ6 ($^{0}_{-0.1}$)	8	10	10	12.5	16
ℓ9 ($^{0}_{-0.2}$)	8	10	12	16	18
ℓ12	12	19	21	24	24
r3 ($^{+0.05}_{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r9	4.5	6	8	10	5

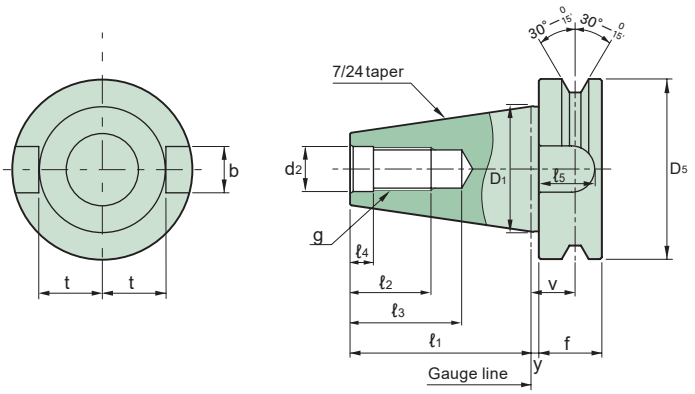






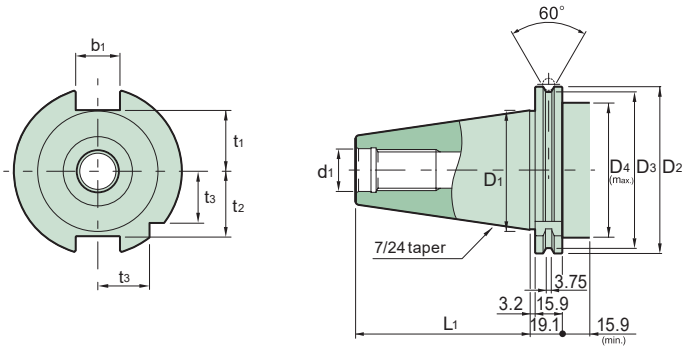
BT (Extracts from MAS 403)

Shank	BT30	BT40	BT50
D_1	31.75	44.45	69.85
ℓ_1 (± 0.15)	48.4	65.4	101.8
d_2 (H8)	12.5	17	25
g (6H)	M12	M16	M24
ℓ_2 (min.)	24	30	45
ℓ_3 (min.)	34	43	62
ℓ_4	7	9	13
b (H12)	16.1	16.1	25.7
ℓ_5 (min.)	17	21	31
t ($^{0}_{-0.2}$)	16.3	22.6	35.4
D_5 (h8)	46	63	100
f	20	25	35
v (± 0.1)	13.6	16.6	23.2
y (± 0.4)	2	2	3



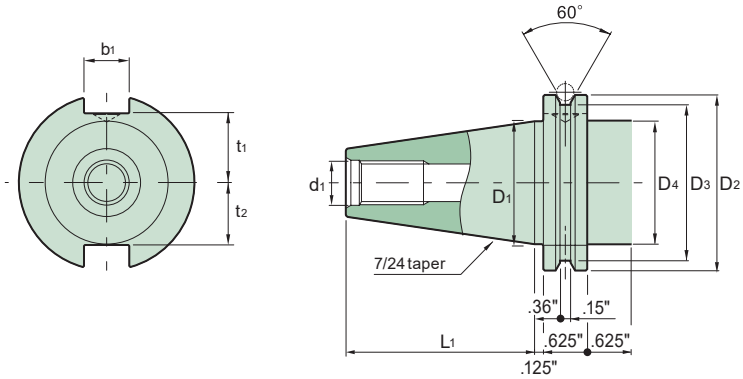
DIN (DIN69871-1)

Shank	DN40	DN50
D_1	44.45	69.85
D_2	63.55	97.5
D_3	56.25	91.25
D_4	50	80
L_1	68.4	101.75
L_3	3.75	6.495
b_1	16.1	25.7
d_1	17	25
t_1	22.8	35.5
t_2	25	37.7
t_3	18.5	30

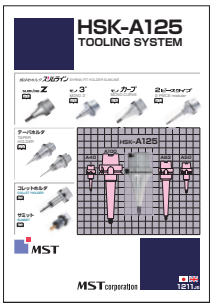


CAT.

Shank	CT40	CT50
D_1	1.75	2.75
D_2	2.5	3.88
D_3	2.22	3.59
D_4	1.75	2.75
L_1	2.69	4
b_1	.65	1.06
d_1	.64	1.03
t_1	.99	1.49
t_2	.84	1.39



HSK-A125/ F80PD are also available as standard products.



If you would like more detailed information, please contact MST and ask for a catalog.

Drill hole size in metric coarse screw thread

Nominal size x pitch	Drill hole dia.
M 1 ×0.25	0.75
M 1.2×0.25	0.95
M 1.6×0.35	1.25
M 2 ×0.4	1.6
M 2.5×0.45	2.1
M 3 ×0.5	2.5
M 4 ×0.7	3.3
M 5 ×0.8	4.2
M 6 ×1	5
M 8 ×1.25	6.8
M10 ×1.5	8.5
M12 ×1.75	10.3
M16 ×2	14
M20 ×2.5	17.5
M24 ×3	21
M30 ×3.5	26.5
M33 ×3.5	29.5
M36 ×4	32
M39 ×4	35
M42 ×4.5	37.5
M45 ×4.5	40.5
M48 ×5	43

Drill hole size in unified screw threads

Nominal size x pitch	Drill hole dia.
NO. 1 - 64UNC	1.55
NO. 2 - 56UNC	1.8
NO. 3 - 48UNC	2.1
NO. 4 - 40UNC	2.3
NO. 5 - 40UNC	2.6
NO. 6 - 32UNC	2.8
NO. 8 - 32UNC	3.4
NO.10 - 24UNC	3.9
NO.12 - 24UNC	4.5
1/4 - 20UNC	5.1
5/16 - 18UNC	6.6
3/8 - 16UNC	8
7/16 - 14UNC	9.4
1/2 - 13UNC	10.8
9/16 - 12UNC	12.2
5/8 - 11UNC	13.6
3/4 - 10UNC	16.5
7/8 - 9UNC	19.5
1 -8UNC	22.2
1 1/8 -7UNC	25
1 1/4 -7UNC	28.2
1 3/8 -6UNC	30.8
1 1/2 -6UNC	34
1 3/4 -5UNC	39.5

Drill hole size in screw for pipe

Nominal size	Rc(PT)	Rp(PS)	G(PF)
1/8	8.2	8.5	8.8
1/4	10.9	11.4	11.87
3/8	14.4	14.9	15.38
1/2	18	18.5	19.1
5/8	—	—	21
3/4	23	24	24.6
7/8	—	—	28.3
1	29	30	30.9
1 1/8	—	—	35.5
1 1/4	38	39	39.4
1 1/2	44	45	45.4

Dia. of tap shank

Metric screw threads	Unified screw threads	Gas screw threads	φD2
φD1			
M 1~M 2.6	UNo. 0~ 4		3
M 3·M 3.5	UNo. 5 · 6		4
M 4·M 4.5	UNo. 8		5
M 5·M 5.5	UNo.10 ·12		5.5
M 6	U 1/4		6
	U 5/16		6.1
M 7·M 8			6.2
M 9·M10	U 3/8		7
M11	U 7/16	P1/16 · 1/8	8
M12			8.5
	U 1/2		9
M13			9.5
M14·M15	U 9/16		10.5
		P 1/4	11
	U 5/8		12
M16			12.5
M17			13
M18	U 3/4	P 3/8	14
M20			15
M22	U 7/8		17
		P 1/2	18
M24·M25		P 5/8	19
M26·M27	U1		20
M28			21
	U1 1/8		22
M30		P 3/4	23
M32	U1 1/4	P 7/8	24
M33			25
M35	U1 3/8	P1	26
M36·M38		P1 1/8	28
M39·M40	U1 1/2		30
M42	U1 5/8	P1 1/4	32
M45	U1 3/4	P1 3/8	35
M48		P1 1/2	38
M50	U2	P1 5/8	40
M52		P1 3/4	42

Dimensional tolerance of typically used mating (JIS B 0401)

The class of dimension(mm)		The tolerance of the hole dimension(μm)						The tolerance of the shaft dimension(μm)					
More than	Less than	H4	H5	H6	H7	H8	H9	h4	h5	h6	h7	h8	h9
—	3	+3 0	+4 0	+6 0	+10 0	+14 0	+25 0	0 -3	0 -4	0 -6	0 -10	0 -14	0 -25
3	6	+4 0	+5 0	+8 0	+12 0	+18 0	+30 0	0 -4	0 -5	0 -8	0 -12	0 -18	0 -30
6	10	+4 0	+6 0	+9 0	+15 0	+22 0	+36 0	0 -4	0 -6	0 -9	0 -15	0 -22	0 -36
10	18	+5 0	+8 0	+11 0	+18 0	+27 0	+43 0	0 -5	0 -8	0 -11	0 -18	0 -27	0 -43
18	30	+6 0	+9 0	+13 0	+21 0	+33 0	+52 0	0 -6	0 -9	0 -13	0 -21	0 -33	0 -52
30	50	+7 0	+11 0	+16 0	+25 0	+39 0	+62 0	0 -7	0 -11	0 -16	0 -25	0 -39	0 -62
50	80	+8 0	+13 0	+19 0	+30 0	+46 0	+74 0	0 -8	0 -13	0 -19	0 -30	0 -46	0 -74
80	120	+10 0	+15 0	+22 0	+35 0	+54 0	+87 0	0 -10	0 -15	0 -22	0 -35	0 -54	0 -87
120	180	+12 0	+18 0	+25 0	+40 0	+63 0	+100 0	0 -12	0 -18	0 -25	0 -40	0 -63	0 -100
180	250	+14 0	+20 0	+29 0	+46 0	+72 0	+115 0	0 -14	0 -20	0 -29	0 -46	0 -72	0 -115
250	315	+16 0	+23 0	+32 0	+52 0	+81 0	+130 0	0 -16	0 -23	0 -32	0 -52	0 -81	0 -130
315	400	+18 0	+25 0	+36 0	+57 0	+89 0	+140 0	0 -18	0 -25	0 -36	0 -57	0 -89	0 -140
400	500	+20 0	+27 0	+40 0	+63 0	+97 0	+155 0	0 -20	0 -27	0 -40	0 -63	0 -97	0 -155

Conversion table for International System of Units

Force

N	kgf
1	1.01972×10^{-1}
9.80665	1

Pressure

Pa	kgf/cm²
1	1.01972×10^{-5}
9.80665×10^{4}	1

Stress

Pa	kgf/mm²
1	1.01972×10^{-7}
9.80665×10^{6}	1

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	BT50 – SLRA4 – 110 – M42	SLIMLINE MONO series SLIMLINE STRAIGHT ARBOR	※
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※See our dedicated catalog for shrink-fit holder SLIMLINE.
For details, please contact us.

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Söding
info@steindl.at
TEL 43-3137272240
FAX 43-3137272246

Cimtrode GmbH
Mattighofen
office@cimtrode.com
TEL 43-774222610

DENMARK 2 distributors

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TEL 45-24790300

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info@naglis-err.com
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info@diatool.be
TEL 32-14401830
FAX 32-14438880

Germond NV
IZEGEM
info@germond.be
TEL 32-51310672

MachinImmo BVBA
LOKEREN
mc@machinimmo.com
TEL 32-93288811

FINLAND 1 distributor

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HELSINKI
info@fmstools.fi
TEL 358-98190950
FAX 358-981909550

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GesKor Kft.
KUNSZIGET
office@geskor.com
TEL 36-96200075

CZECH REPUBLIC 3 distributors

CNC Invest s.r.o.
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cnc@cnc-invest.cz
TEL 420-272088911

Creative Tools s.r.o.
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info@creative-tools.cz
TEL 420-725588988
FAX 420-582384485

OSG
BRATISLAVA
info@osg-belgium.com
TEL 421-43291295

FRANCE 3 distributors

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MAUREPAS
doga@doga.fr
TEL 33-130664141
FAX 33-130664199

OSG France s.a.r.l.
VILLEPINTE
sales@osg-france.com
TEL 33-149901010
FAX 33-149901015

ZEBRAL
LE MANS
commercial@zebral.fr
TEL 33-243853088

GERMANY 5 distributors

Aura Tools GMBH
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kontakt@aura-tools.de
TEL 49-646591119414
FAX 49-646591119429

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KERNEN
info@schreurs-tools.de
TEL 49-715195899-0
TEL 49-715195899-0

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TEL 49-7021503201

ZECHA Hartmetall-Werkzeugfabrikation GmbH
KÖNIGSBACH-STEIN
info@zecha.de
TEL 49-723230220

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FAX 49-71616064444

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info@mmc-italia.it
TEL 39-029377031
FAX 39-0293589093

MMC EMILIA ROMAGNA SRL
MODENA
info@mmcemilia.it
TEL 39-0536946687
FAX 39-0536946695

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TORINO
info@osg-italia.it
TEL 39-0117705211
FAX 39-0117071402

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info@machinno.com
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BERGEIJK
info@svmfreestechniek.nl
TEL 31-648490933

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Naglis & Err SIA
RIGA
info@naglis-err.com
TEL 37-166100336

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info@naglis-err.com
TEL 37-166100336

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TEL 351-244560456
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norswiss@norswiss.no
TEL 47-23241020
FAX 47-23241021

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ALESUND
post@promaskin.no
TEL 47-97013916

RUSSIA 2 distributors

Company PromArsenal LLC
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sales@promarsenal.ru
TEL 7-3512253138

SodicoM-Center
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info@sodick.ru
TEL 7-4957870970

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office@gssgroup.ro
TEL 40-728898896

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TEL 40-212328001
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office@topmetrology.ro
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k.kosla@aura-tools.de
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FAX 49-646591119429

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WROCLAW
sales@mitsubishicarbide.com.pl
TEL 48-655467284
FAX 48-655467283

MB Michał Rzepka
OBORNIKI
mb@mb-frezy.pl
TEL 48-504647666
FAX 48-616222339

OSG POLAND Sp. z o.o.
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osg@osg-poland.com
TEL 48-227608271

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TEL 421-911775678

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info@kactrade.si
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info@bts-company.si
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TEL 34-944538224
FAX 34-944538225

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FAX 34-933086993

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TEL 46-40412255
osg@osg-scandinavia.com
FAX 46-40413255

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info@streuli-techno.ch
FAX 41-17394077

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info@form-teknik.com
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TEL 90-2163131413
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FAX 44-1827312314

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TEL 44-1189795200
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<North America>

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FAX 1-847-310-9484

Northeast
MR. MATT GENOVESE
mgenovese@kitagawa-usa.com
TEL 1-203-912-8906
FAX 1-847-310-9484

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MR. DAVID TAKAHASHI
dtakahashi@kitagawa-usa.com
TEL 1-562-522-9749
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TEL 1-612-281-7476
FAX 1-847-310-9484

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MS. KRISTAL DRINK-HARRISON
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FAX 1-(248) 232-6233

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rgrabarek@sstconsumables.com
TEL 1-248-232-6268
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owen.clous@sstconsumables.com
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FAX 1-(248) 232-6233

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chris.lachner@sstconsumables.com
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FAX 1-(248) 232-6233

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ben.guest@sstconsumables.com
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HQ - Elk Grove Village, IL
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

IL (NE, MO, KS, WI, TX)
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

CA
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

AZ (NM, NV, UT, WA, OR, ID, MT, WY, CO)
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

MI
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

IN (KY)
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

GA (SC, AL, TN, MS, NC, VA)
toolingsupport@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

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toolingsupport@yamazen.com
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FAX 1-847-882-9056

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CA
MR. MICHAEL PEREZ
mperez@centric-intl.com
TEL 1-760-974-0016

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FAX 1-800-837-3334

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pschnepp@ptservice.com
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FAX 1-828-676-3680

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Steve.Hallam@sstconsumables.com
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FAX 1-(248) 232-6233

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hcampos@ahnsa.com
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FAX 52-81-8126-1001

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MR. MICHAEL MOTTE
mmotte@centric-intl.com
TEL 52-442-250-1170

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QUERETARO
MR. GUILLERMO ORTIZ
lortiz@mmcmex.com
TEL 52-442 192 6800
FAX 52-442 221 6134

QUERETARO
MR. JOSE MEDIA
jmedina@mmcmex.com
TEL 52-449-769-2970

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QUERETARO
MR. ARTURO LOZANO
alozano@kitagawa-usa.com
TEL 52-81-2029-0349

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QUERETARO
MR. MAURICIO MONTESINOS
mauricio.montesinos@sstconsumables.com
TEL 52-442-824-9399

MONTERREY
MR. ROMAN CAMPOS
roman.campos@sstconsumables.com
TEL 52-442-101-6009

LEON
MR. IVAN DIAZ
ivan.diaz@sstconsumables.com
TEL 52-479-232-5146

OSG / ROYCO, S.A. DE C.V.
MEXICO CITY
MR. TOSHITAKA YOSHIZAKI
toshi@osgroyco.com.mx
TEL 52-55-51-19-3363
FAX 52-55-51-19-3370

YAMAZEN MEXICANA S.A. DE C.V
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MR. GERARDO PLASCENCIA
gerardo.perez@yamazen.com.mx
TEL 52-477-3910280
FAX 52-477-3910278

<South America>

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SAN PAULO
SALES DEPARTMENT
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TEL 55-11-6190-0900
FAX 55-11-6190-0901

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MR. LUCIANO CHIQUETTE
luciano.chiquette@innovatetech.com.br
TEL 55-19-3829-9280

<Oceania>

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AUCKLAND
MR. Phil MITCHELL
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besen@vip.126.com FAX 86-512-57320248

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DONGGUAN 東莞
MR. JASON LEE 李 忠信 TEL 86-769-8530-7420
sales@yajiya.cn FAX 86-769-8530-7470

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东莞市诚晋精密机械有限公司
DONGGUAN 東莞
MR. YANG YABIN 楊 亞兵 TEL 86-769-82288607
frank.yang@chengjinjm.com.cn FAX 86-769-82288609

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zhuangzhen@yamazensh.com FAX 86-411-8762-6332

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yy65498@yamazen.com.cn FAX 86-755-8280-5100

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HEAD OFFICE & FACTORY

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