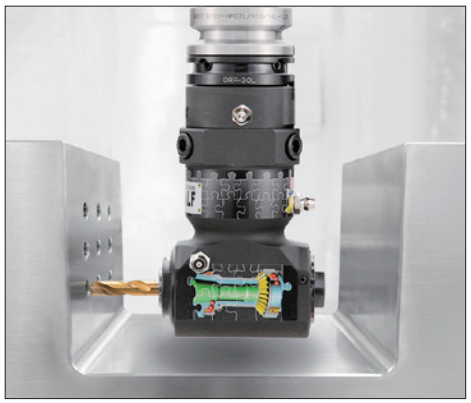


ANGLE HEAD

A63 / A100
NEW LINEUP!

ANGLE HEAD
HALF

NEW CONCEPT

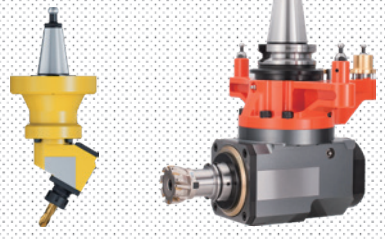
Optimal design for drilling and tapping.

Add one more axis at a minimum cost.

Easy assembly

Custom-made products

Extensive manufacturing experience.



MST

PAT.

MST corporation

2607

ANGLE HEAD HALF

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

NEW LINEUP!
A63 Undercut model
A100 Shank

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

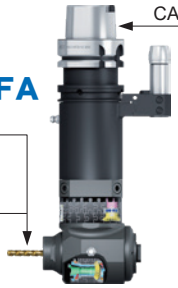
The Angle Head HALF was redesigned to achieve the necessary rigidity and accuracy, it allows;

AFFORDABLE (Price : 1/2)
QUICK DELIVERY (Lead Time : 1/2)
LIGHTWEIGHT (Weight : 1/2)

90° type
BT30/40/50
HSK-A63/A100
DIN40/50,
CAT.40/50

HFD / HFA
φ1~20mm

HFT
M2~16



mini type
Extra-compact head
BT30/40/50
HSK-A63/A100
DIN40/50,
CAT.40/50

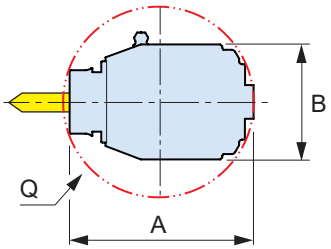
HFCS
φ3, 4, 6mm
M4, 5, 6

UNIVERSAL type
BT30/40/50
HSK-A63/A100
DIN40/50,
CAT.40/50

HUD / HUA
φ1~20mm

HUT
M2~12

Compact design



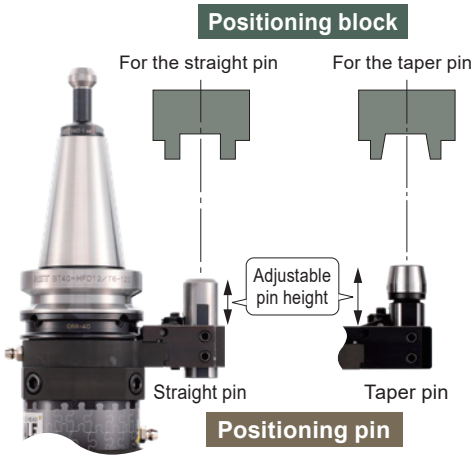
Type	CODE	Q	A	B
90° type	HFD 7	72	68	38
	HFD12	98	93	58
	HFT 4	75	72	38
	HFT 6	97	94	58
	HFA10	90	86	38
	HFA20	119	111	64
	HFT12	97	95	64
		116	115	
mini type	HFCS6	36	31.5	31

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.



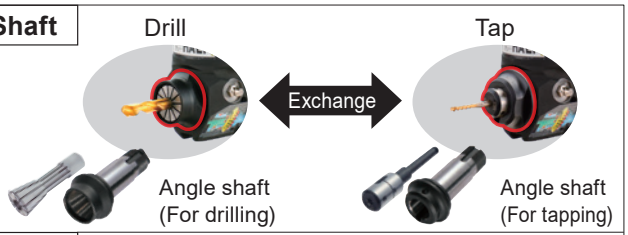
Easy disassembly and assembly

- 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.

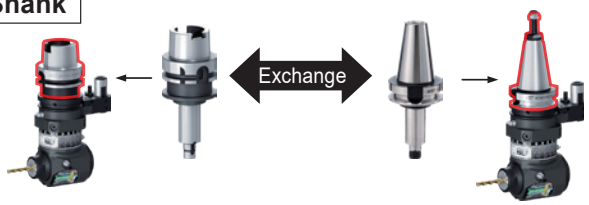
Running cost is reduced by 90%
as a result of reduced repair costs and machine down time.

Easy to reassemble

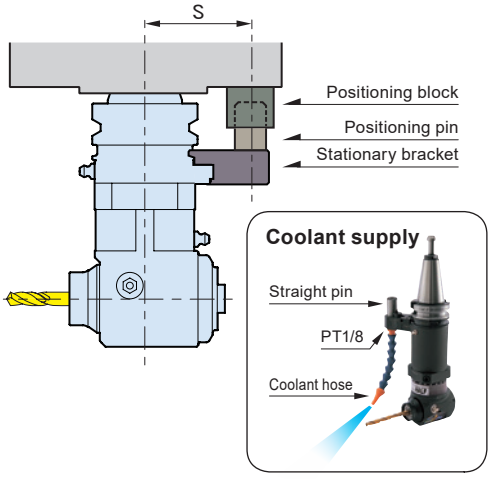
Shaft



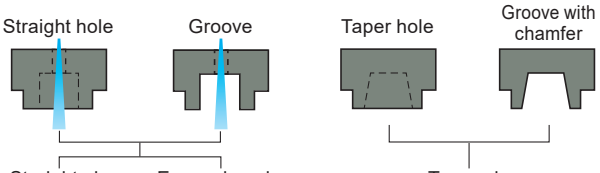
Shank



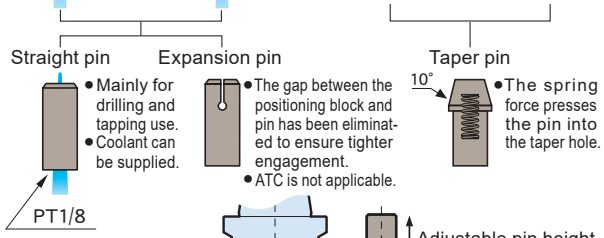
Positioning block and positioning pin



Positioning block

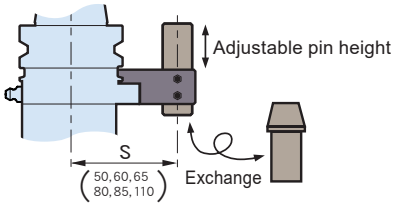


Positioning pin



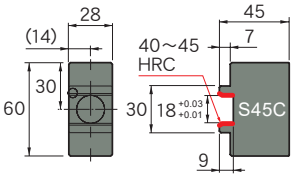
Stationary bracket

- S dimension can be changed by reassembling the stationary 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.14

Positioning block for machines

•FANUC

ROBODRILL
DC series
α-DiB series

CODE
ABF005

●BROTHER

SPEEDIO
Compact machining center

CODE	NOTE
ABF213	S series (Except for S1000) U series
ABF259	W series, S1000
ABF176	TC−S2, S2A※, S2B, S2C, S2D, R2B※

■A product code example when ordering the 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 (1 pc.)	BT50-HFD12-195-S80 (1 pc.)
Angle shaft (For tapping)	FR-T6 (1 pc.)	
Tap sleeve	TA6-3, 4, 5, 6, 8 (each 1 pc.)	
DETa-1 Collet	D12-4, 6, 8, 10, 12, 13 (each 1 pc.)	
Positioning pin	HP-50T(1 pc.)	HP-62T(1 pc.)
Spare bearing	7005ADB (1 set), 6805 (2 pcs.), 51106 (1 pc.)	

HALF 90° type

Drill・Endmill

Fig. 1
HFD7
( )...HFD7L

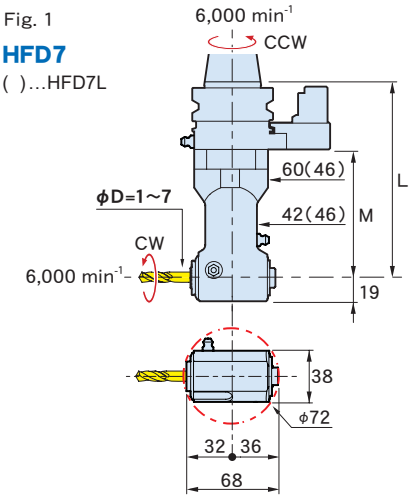


Fig. 3
HFA10

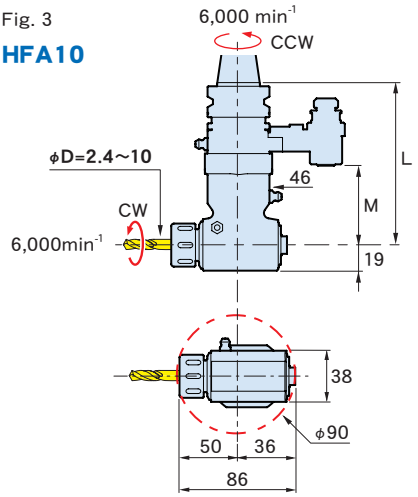


Fig. 2
HFD12

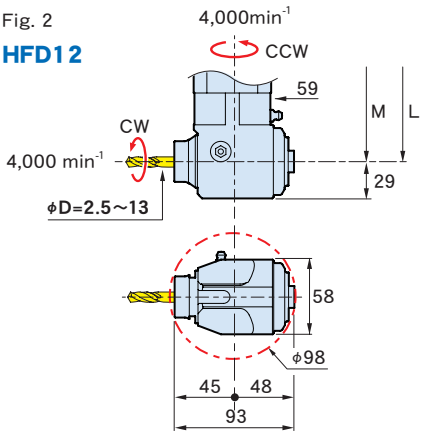
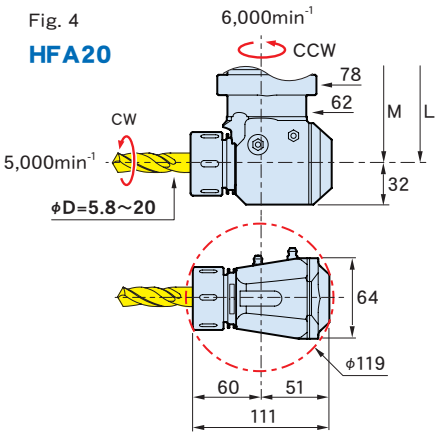


Fig. 4
HFA20



Tap

Fig. 5
HFT4
( )...HFT4L

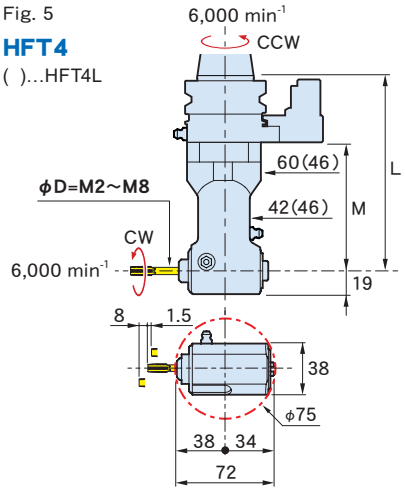


Fig. 6
HFT6

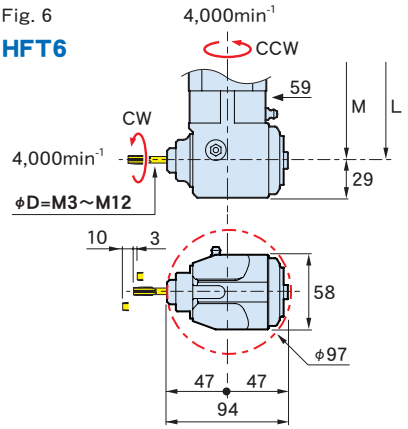
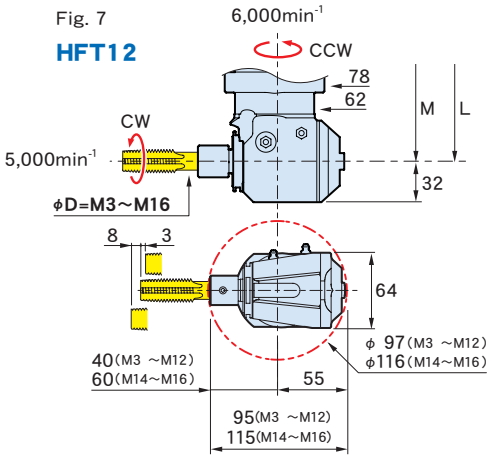


Fig. 7
HFT12



A63-HFD12-203

BT40-HFA20-135

BT30-HFD7-122

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

CODE (Master holder)	Fig.	ϕD	L	M	Kg
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

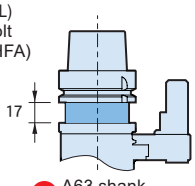
CODE (Master holder)	Fig.	φD	L	M	Kg
BT50-HFD 7 -195	1	1 ～ 7	195	130	6.4
-255			255	190	6.8
-HFD12 -135	2	2.5～ 13	135	70	6.3
-195			195	130	7.6
-255			255	190	8.9
-HFA20 -150	4	5.8～ 20	150	77	7.1
-210			210	137	8.3
-270			270	197	9.4
-HFT 4 -195	5	M2～M 8	195	130	6.4
-255			255	190	6.8
-HFT 6 -135	6	M3～M12	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 -143 NEW	1	1 ～ 7	143	70	3.5
-203 NEW			203	130	3.9
-263 NEW			263	190	4.3
-HFD12 -143 NEW	2	2.5～ 13	143	70	3.7
-203 NEW			203	130	5.1
-263 NEW			263	190	6.4
-HFA20 -158 NEW	4	5.8～ 20	158	77	4.6
-218 NEW			218	137	5.8
-278 NEW			278	197	6.9
-HFT 4 -143 NEW	5	M2～M 8	143	70	3.5
-203 NEW			203	130	3.9
-263 NEW			263	190	4.3
-HFT 6 -143 NEW	6	M3～M12	143	70	3.7
-203 NEW			203	130	5.1
-263 NEW			263	190	6.4
-HFT12 -158 NEW	7	M3～M16	158	77	4.6
-218 NEW			218	137	5.8
-278 NEW			278	197	6.9
A100-HFD 7 -135 NEW	1	1 ～ 7	135	70	4.8
-195 NEW			195	130	5.2
-255 NEW			255	190	5.6
-HFD12 -135 NEW	2	2.5～ 13	135	70	5.1
-195 NEW			195	130	6.4
-255 NEW			255	190	7.7
-HFA20 -150 NEW	4	5.8～ 20	150	77	5.9
-210 NEW			210	137	7.1
-270 NEW			270	197	8.2
-HFT 4 -135 NEW	5	M2～M 8	135	70	4.8
-195 NEW			195	130	5.2
-255 NEW			255	190	5.6
-HFT 6 -135 NEW	6	M3～M12	135	70	5.1
-195 NEW			195	130	6.4
-255 NEW			255	190	7.7
-HFT12 -150 NEW	7	M3～M16	150	77	5.9
-210 NEW			210	137	7.1
-270 NEW			270	197	8.2

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
-HFA20-150	4	5.8～ 20	150	77	4.7
DIN -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
DIN -210			210	137	7.8
-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	.10～ .51	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	M3～M16	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
CAT. -210			8.27	5.39	17.3
-270			10.63	7.76	19.8
-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	M3～M16	5.91	3.03	14.7
-210			8.27	5.39	17.3
-270			10.63	7.76	19.8

■**Option**
- DETa-1 Collet (HFD)→P.7 ●Spring collet (HFA) →P.7 ●Tap sleeve (HFT)→P.7
- Retention knob(BT) ●Tools for assembly

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

■**Note**
- The height of a grease nipple is approximately 9mm [.355"].
- CAT shank dimensions are in inch / lbs.
- Other shanks are also available upon request.
- NEW (A63 shank) : Models with undercut. Refer to the figure on the right.



NEW A63 shank Undercut area

■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 ...

Cutting data ➔P.15

HALF UNIVERSAL type

Drill・Endmill

Fig. 1
HUD7
( )...BT30

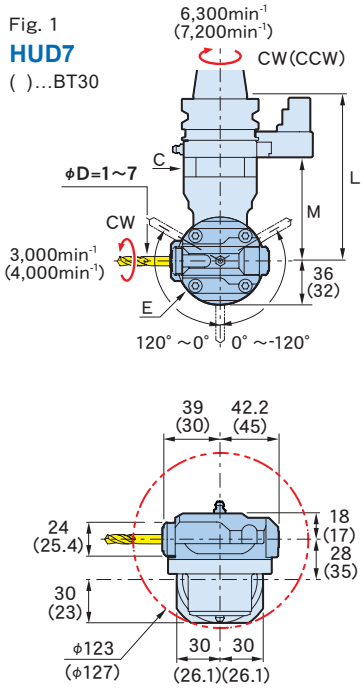


Fig. 2
HUA10

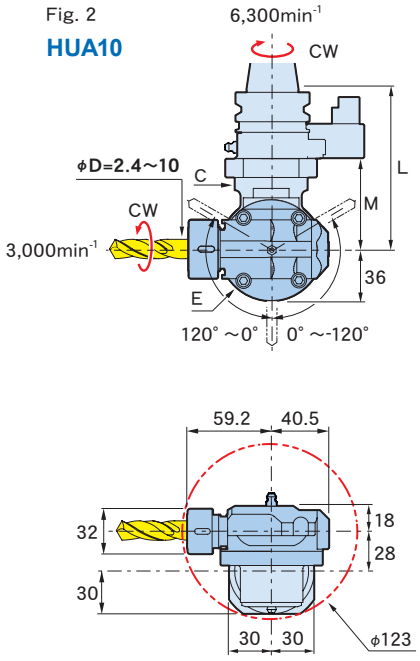
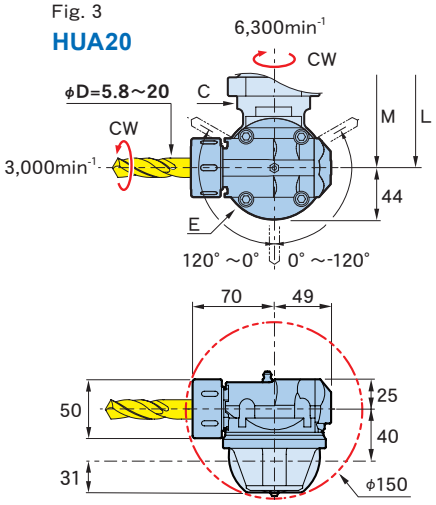


Fig. 3
HUA20



Tap

Fig. 4
HUT4
( )...BT30

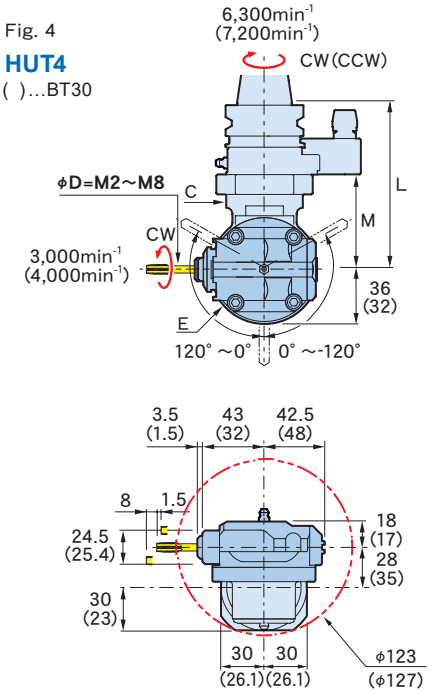
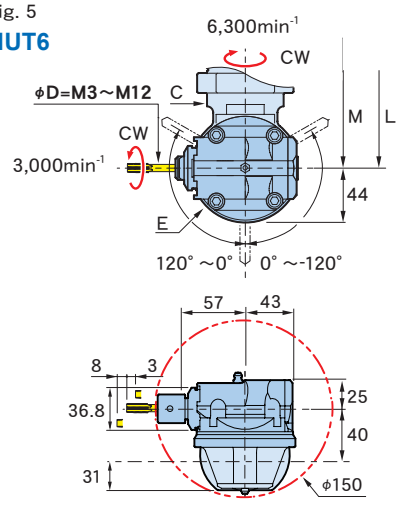


Fig. 5
HUT6



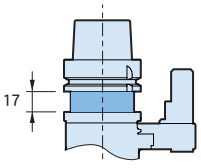
BT40-HUA20-135

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
A63	-HUD 7-158 NEW	1	1 ~ 7	158	85	60	72	4.1
	-HUA10-158 NEW	2	2.4 ~ 10					
	-HUA20-158 NEW	3	5.8 ~ 20		77	62	88	5.0
	-HUT 4-158 NEW	4	M2 ~ M 8		85	60	72	4.1
	-HUT 6-158 NEW	5	M3 ~ M12		77	62	88	5.0
A100	-HUD 7-150 NEW	1	1 ~ 7	150	85	60	72	5.4
	-HUA10-150 NEW	2	2.4 ~ 10					5.5
	-HUA20-150 NEW	3	5.8 ~ 20		77	62	88	6.3
	-HUT 4-150 NEW	4	M2 ~ M 8		85	60	72	5.4
	-HUT 6-150 NEW	5	M3 ~ M12		77	62	88	6.3
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	M3 ~ M12		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	M3 ~ M12		3	2.44	3.5	15.4

■**Option**
- DETa-1 Collet (HUD) ● Spring collet (HUA) ● Tap sleeve (HUT)
- Retention knob(BT) ● Tools for assembly

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

■**Note**
- The height of a grease nipple is approximately 9mm [.355"].
- CAT shank dimensions are in inch / lbs.
- Other shanks are also available upon request.
- NEW (A63 shank) : Models with undercut. Refer to the figure on the right.



NEW A63 shank Undercut area

■A product code example when ordering.

BT50-HUA20-150 - S 65

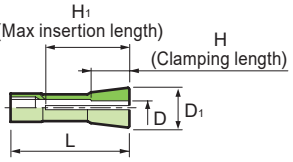
Holder

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

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

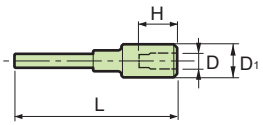
Cutting data ➔ P.15

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 HUD 7
- 2	1.5 ~ 2			10		
- 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					

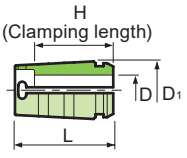
Tap sleeve (HFT,HUT)



CODE	φD	L	φD1	H	Holder type
TA 4-M 2	M 2	67.5	16	19	HFT 4 HUT 4
-M 3	M 3			20	
-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)

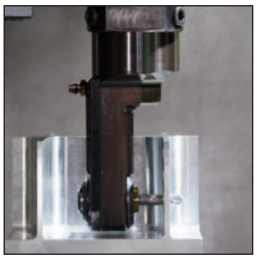


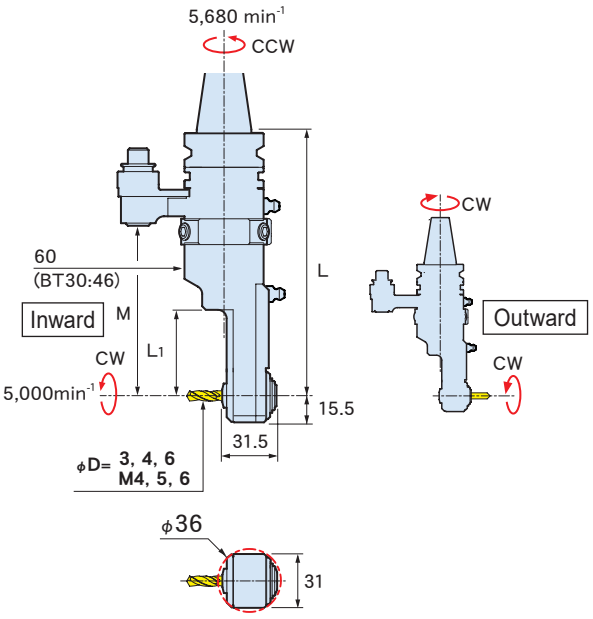
CODE	φD	φD1	L	H	Holder type
C10-D	2.6 2.8 3 ... (0.2 steps) ... 9.6 9.8 10	17.2	26	16 (φD=2.6~5) ※Except for 3,4 18 (φD=3, 4, 5.2~5.8) 20 (φD=6 ~10)	HFA10 HUA10
C20-D	6 6.2 6.4 ... (0.2 steps) ... 19.8 20	29.5	50	32 (φD=6~9.8) 35 (φD=10~15.8) 40 (φD=16~20)	HFA20 HUA20

Ex. φD C10-6

HALF mini type

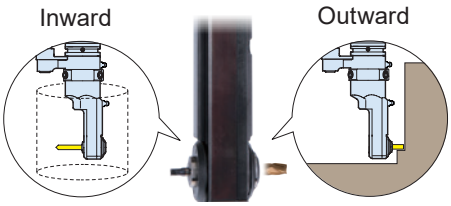
BT40-HFCS6-160





Cutter mounts in two directions

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

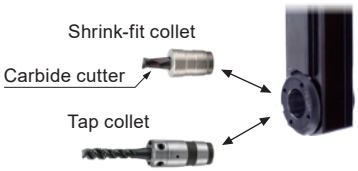


Allows maximum tool holder diameter limitation even when using a long cutting tool.

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.

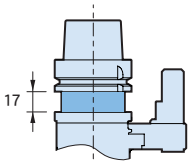


CODE (Master holder)	φD	L	L1	M	Kg (lbs)
BT30 -HFCS6-155	Drill・Endmill φ3, 4, 6 Tap M4, 5, 6	155	50	92	1.8
BT40 -HFCS6-160		160	50	110	2.8
-205		205	95	155	3.0
BT50 -HFCS6-175		175	50	110	5.6
-220		220	95	155	5.8
A63 -HFCS6-183 NEW		183	50	110	3.1
-228 NEW		228	95	155	3.3
A100 -HFCS6-175 NEW		175	50	110	4.4
-220 NEW		220	95	155	4.6
DIN DN40A-HFCS6-175		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
CAT. CT40 -HFCS6-175		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(BT)
- Tools for assembly

■**Std. Access.**
- Coolant duct (HSK-A)
- Fixing spanner
- Hexagonal wrench set
- Low head bolt

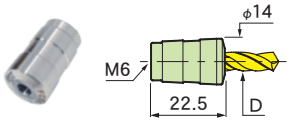
■**Note**
- When shipping, the head direction is inward. The tool for assembly (pliers for retaining ring) is required to reassemble the collet to allow for outward positioning of the cutting tool.
- CAT shank dimensions are in inch / lbs.
- The height of a grease nipple is approximately 9mm [.355"].
- Other shanks are also available upon request.
- NEW (A63 shank) : Models with undercut. Refer to the figure on the right.



NEW A63 shank Undercut area

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

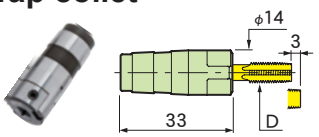
Shrink-Fit Collet



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

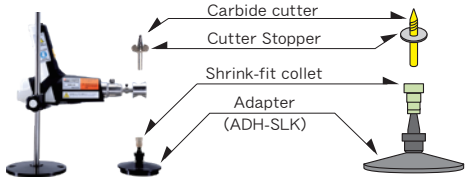
Positioning pin type

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.

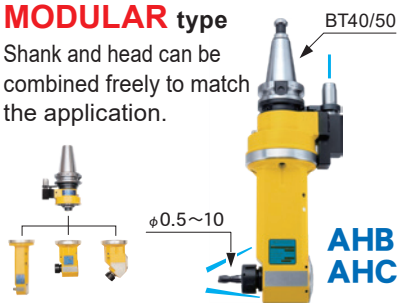
CODE	Output
HRB-01	100V

Cutting data ➔ P. 15

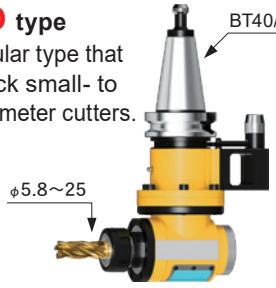
ANGLE HEAD

High-rigidity standard type for end-milling appliications

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

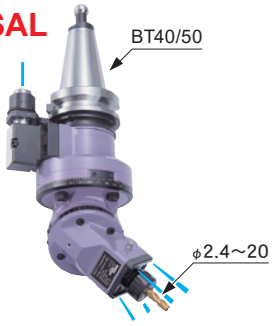


SOLID type
The popular type that can chuck small- to large-diameter cutters.



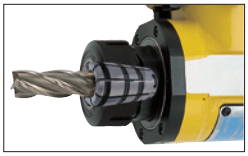
FLANGE type
Heavy-duty type that mounts directly on the machine spindle surface.

UNIVERSAL type
Cutting angle can be adjusted arbitrarily.



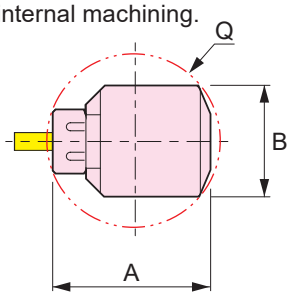
High rigidity

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

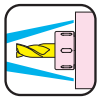
Ideal for internal machining.



Type	CODE	Q	A	B
MODULAR type	AHB 5	62	57	47
	AHB 7	76	72	57
	AHB10	96	88	63
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)



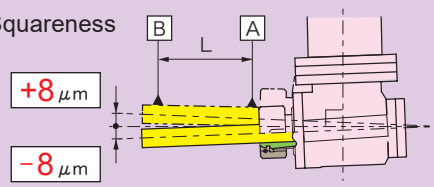
MST's Quick Change system (AHD type)

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

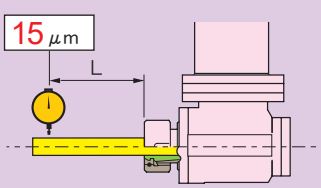
Highest Guaranteed Accuracies

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

Squareness



Runout accuracy

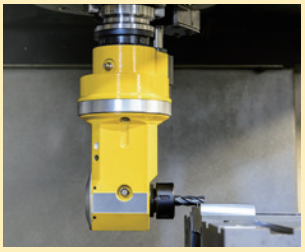


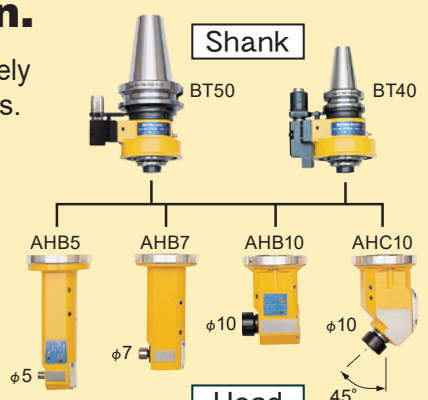
Type	CODE	L
MODULAR type	AHB 5 AHB 7 AHB10 AHC10	40
UNIVERSAL type	AHU10	
SOLID type FLANGE type	AHA20 AHA25 AHD30	50
UNIVERSAL type	AHU20	

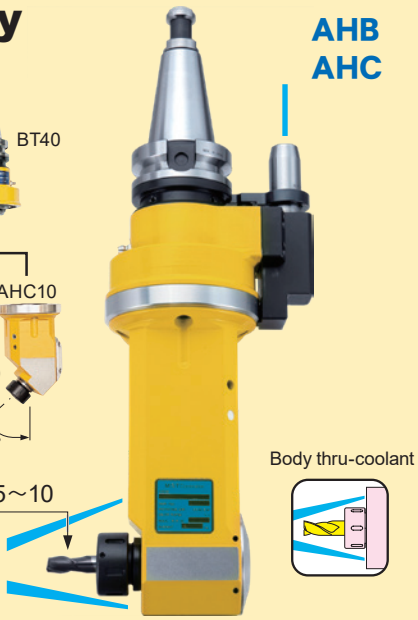
MODULAR type

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.







Type	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

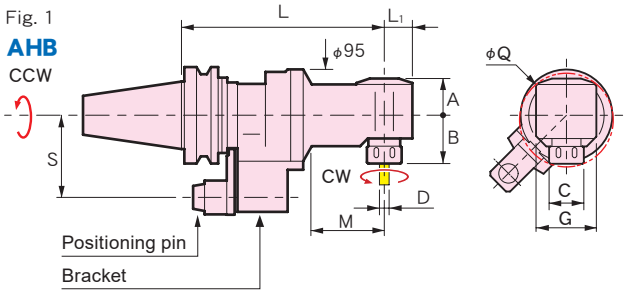
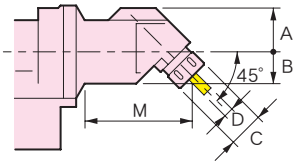


Fig. 2
AHC



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	47	62	5.5	ER8
-270			270			145					6.4	
-AHB 7-180		0.5~ 7	180	19	22	60	29	43	57	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	66	—	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	63	96	9.5	C10
-270			270			140					11.2	
-AHC10-245	2		245		—	110	45	32.5	66	—	9.5	

Cutting data P. 15

■Option
- Spring collet→P.14 ●Retention knob ●Semi-finished positioning block→P.14

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

■Note
- The phase of the drive key and the positioning pin may be set freely.
- Standard specifications: S = 60 mm, 65 mm (BT40), 80 mm, 85 mm, and 110 mm (BT50).
- Other shanks such as HSK, DIN and CAT. 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.

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

SOLID type

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

AHD

BT30 Quick-change type

AHA

BT50-AHA25-195

Type	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. (min⁻¹) Main spindle(CCW) : Angle shaft (CW)
AHA 20	ϕ5.8~20	1:0.81	3,000:2,430
AHA 25	ϕ5.8~25	1:0.96	2,500:2,400
AHD 30	BT30 tools		

Fig. 1

AHA

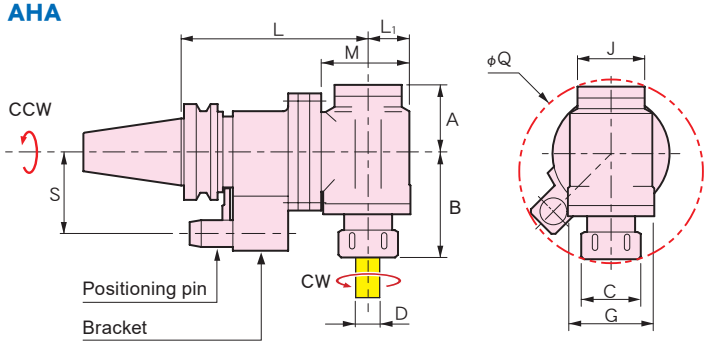
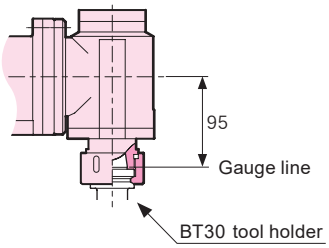


Fig. 2

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	—

Cutting data P. 15

■Option
- Spring collet→P.14 ●Retention knob
- Semi-finished positioning block→P.14

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

■Note
- The phase of the drive key and the positioning pin may be set freely.
- Standard specifications: S = 60 mm, 65 mm (BT40), 80 mm, 85 mm, and 110 mm (BT50).
- Other shanks such as HSK, DIN and CAT. 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.

FLANGE type

Heavy cutting is possible by mounting the angle head flange type directly on the machine spindle surface.

▷ This angle head is applicable to heavy cutting by mounting to the machine spindle.

F-AHD

BT30 Quick-change type

F190-AHA25-350

Type	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. min⁻¹ Main spindle(CCW):Angle shaft(CW)
AHA20	ϕ5.8～20	1:0.81	3,000:2,430
AHA25	ϕ5.8～25	1:0.96	2,500:2,400
AHD30	BT30 tools		

Fig. 1

AHA

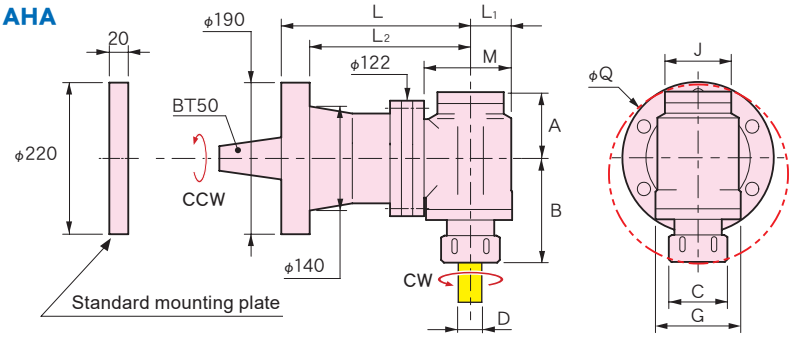
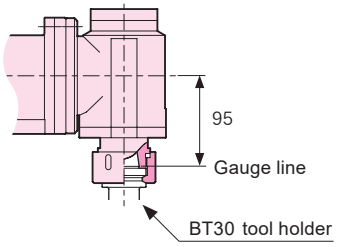


Fig. 2

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.14
- Retention knob

■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.

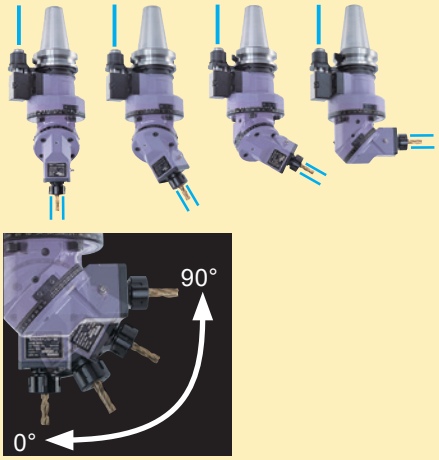
■Caution
- For mounting plate shapes and mounting bolt location, contact the machine manufacturer or MST.
- The machine spindle and angle shaft should rotate in reverse directions, so make sure the spindle rotates in the reverse direction.

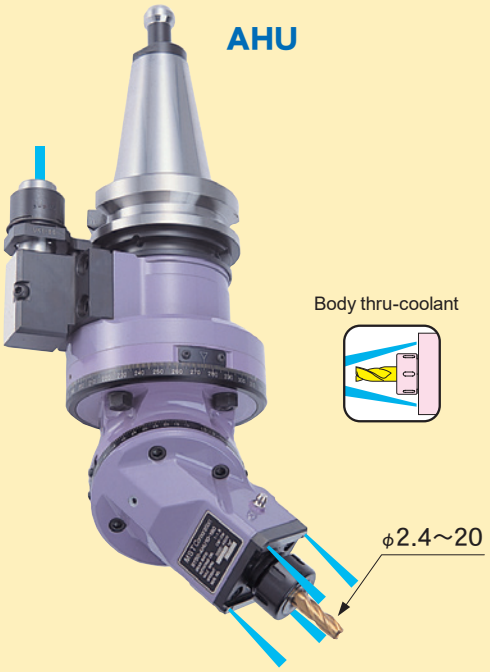
UNIVERSAL type

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

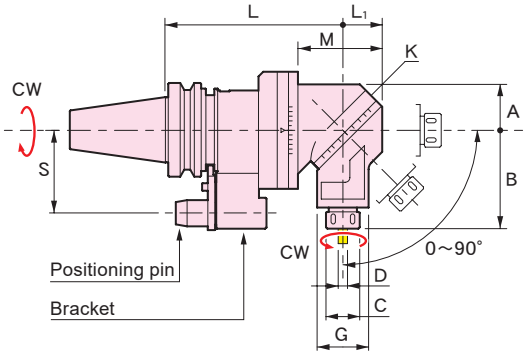
Splash coolant-through body

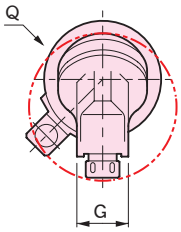
Whatever machining angle is set, coolant is properly supplied to the cutting edge.





Type	Chucking range	Gear ratio Main spindle : Angle shaft	MAX. (min⁻¹) Main spindle(CW) : Angle shaft(CW)
AHU10	ϕ2.4～10	1 : 1.5	3,000 : 4,500
AHU20	ϕ5.8～20	1 : 1	3,000 : 3,000





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	156	13.9	C10
-AHU20-200	5.8～20	200	54	112	58.5	130	120	70	50	192	15.8	C20

Cutting data P. 15

■**Option**
- Spring collet →P.14 ●Retention knob ●Semi-finished positioning block →P.14
- Test bar

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

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

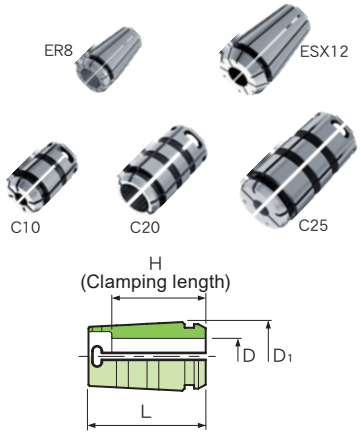
■**Caution**
- For the shape and mounting position of the positioning block, contact the machine manufacturer or MST.
- The height of the positioning pin depends on the shape of the positioning block.
- The machine spindle and angle shaft should rotate in forward directions, so make sure the spindle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

Test bar

Use for super accurate angle adjustment.

CODE	Holder type
TBU10	AHU10
TBU20	AHU20

SPRING COLLET

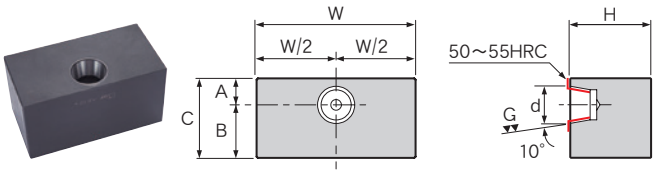


CODE	φD	Collapsibility	φD1	L	H	Holder type
ER8-D	1 ～ 5 (0.5 steps)	0.5	8.5	13.5	-	AHB 5
ESX12-D	1 ～ 3 (0.5 steps)	0.5	12	19.5	-	AHB 7
	4 ～ 7 (1.0 steps)					
C10-D	2.6～ 5.8 (0.2 steps)	0.2	17.2	26	18	AHB10 AHC10 AHU10
	6 ～10 (0.2 steps)				20	
C20-D	6 ～ 9.8 (0.2 steps)	0.2	29.5	50	32	AHA20 AHU20
	10 ～15.8 (0.2 steps)				35	
	16 ～20 (0.2 steps)				40	
C25-D	6 , 8	0.2	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)

Semi-finished positioning block

The semi-finished positioning block must be modified to the appropriate shape by the customer after delivery.



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

Determine the shape and dimensions as follows, and then modify the positioning block as necessary.

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.

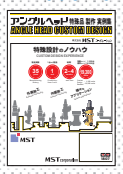
43 years Manufacturing History

1 unit Production from just 1 unit

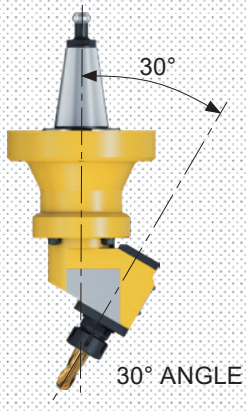
2~4 months Lead time

30,000 units Standard : 28,000 units / Custom Design : 2,000 units

Custom-made Portfolio

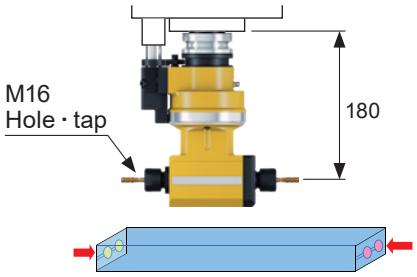


For more information, please contact MST Corporation.



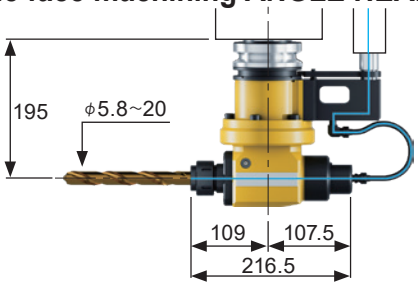
30° ANGLE HEAD

Dual side machining ANGLE HEAD



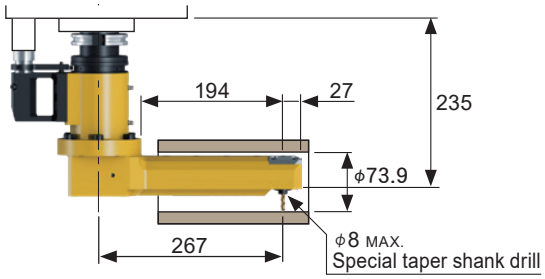
Medical equip-ment | AL | 1 | MAX 1500min⁻¹ | BT50

Side face machining ANGLE HEAD



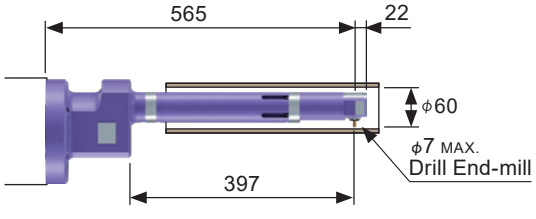
Industrial equip-ment | SUS | 0.9 | MAX 2000min⁻¹ | BT50

Internal bore surface machining ANGLE HEAD



AL | 1.76 | MAX 2650min⁻¹ | BT50

Internal bore surface machining ANGLE HEAD

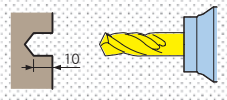


3 | MAX 4500min⁻¹ | Direct mount

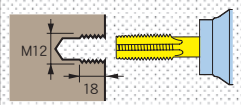
MST

Cutting data

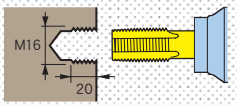
Angle Head HALF 90° type

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


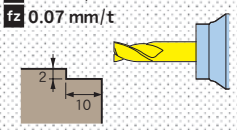
BT40-HFD12-120

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


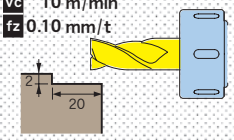
BT40-HFT6-120

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


BT40-HFT12-135

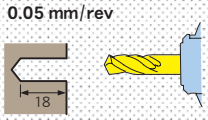
S55C — ϕ10 Endmill 2-flutes
n 350 min-1
Vf 50 mm/min
Vc 11 m/min
fz 0.07 mm/t


BT40-HFD12-120

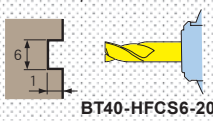
S50C — ϕ20 Endmill 2-flutes
n 158 min-1
Vf 32 mm/min
Vc 10 m/min
fz 0.10 mm/t


BT40-HFA20-135

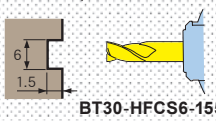
Angle Head HALF mini type

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


BT30-HFCS6-155

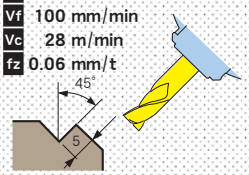
S50C — ϕ6 Carbide endmill 2-flutes
n 3500 min-1
Vf 210 mm/min
Vc 66 m/min
fz 0.03 mm/t


BT40-HFCS6-205

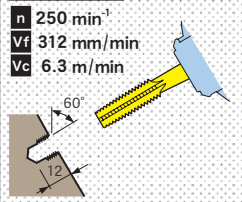
A7075 — ϕ6 Carbide endmill 2-flutes
n 5000 min-1
Vf 300 mm/min
Vc 94 m/min
fz 0.03 mm/t


BT30-HFCS6-155

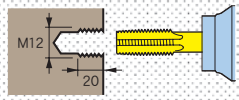
Angle Head HALF UNIVERSAL type

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


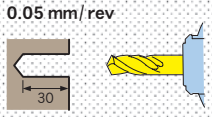
BT50-HUA10-150

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


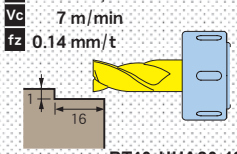
BT40-HUT4-135

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


BT40-HUT6-135

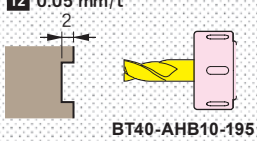
SUS304 — ϕ10 Drill
n 314 min-1
Vf 16 mm/min
Vc 9.9 m/min
f 0.05 mm/rev


BT50-HUA10-150

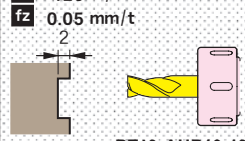
S50C — ϕ16 Endmill 2-flutes
n 140 min-1
Vf 40 mm/min
Vc 7 m/min
fz 0.14 mm/t


BT40-HUA20-135

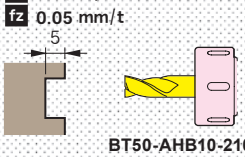
ANGLE HEAD MODULAR type

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

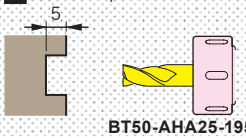
A2017 — ϕ10 Carbide endmill 2 flutes
n 4000 min-1
Vf 400 mm/min
Vc 126 m/min
fz 0.05 mm/t


BT40-AHB10-195

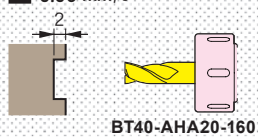
S50C — ϕ10 Endmill 2 flutes
n 640 min-1
Vf 60 mm/min
Vc 20 m/min
fz 0.05 mm/t


BT50-AHB10-210

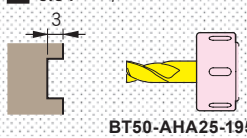
ANGLE HEAD SOLID type

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


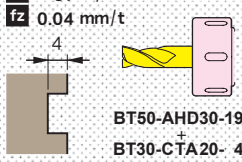
BT50-AHA25-195

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


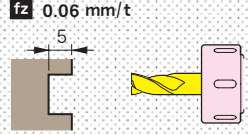
BT40-AHA20-160

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


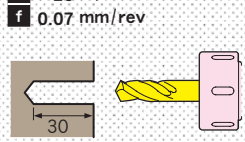
BT50-AHA25-195

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

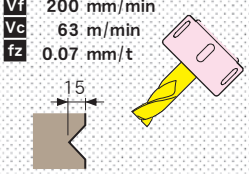
S50C — ϕ16 Endmill 2 flutes
n 630 min-1
Vf 80 mm/min
Vc 32 m/min
fz 0.06 mm/t


BT50-AHA25-195

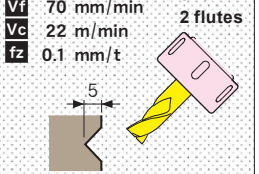
S55C — ϕ12 Drill 2 flutes
n 527 min-1
Vf 39 mm/min
Vc 20 m/min
f 0.07 mm/rev


BT40-AHA20-160

ANGLE HEAD 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


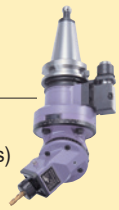
BT50-AHU20-200(45°)

ANGLE HEAD voluminous variety

New concept Angle Head HALF for drilling and tapping applications Affordable • Shorter delivery • Lightweight !

Type	Angle	Model	Application	Chucking range (φD)	Collet type	MAX. min⁻¹ [Main spindle (CCW): Angle shaft (CW)]	ATC	Kg (Typical holder)
90° type P. 4   **mini type** P. 8	90°	HFCS6	Drill Endmill	φ3, 4, 6	FCS6	5,680 : 5,000 [1 : 0.88]	○	1.8
		HFD 7 HFD 7L		φ1 ~ 7	D 7	6,000 : 6,000 [1(CCW) : 1(CW)]		
		HFD12		φ2.5 ~ 13	D12	4,000 : 4,000 [1(CCW) : 1(CW)]		2.9
		HFA10		φ2.4 ~ 10	C10	6,000 : 6,000 [1(CCW) : 1(CW)]		1.8
		HFA20		φ5.8 ~ 20	C20	6,000 : 5,000 [1(CCW) : 0.83(CW)]		4.4
		HFCS6	Tap	M4, 5, 6	FCS6	5,680 : 5,000 [1 : 0.88]		1.8
		HFT 4 HFT 4L		M2 ~ 8	TA4	6,000 : 6,000 [1(CCW) : 1(CW)]		2.3
		HFT 6		M3 ~ 12	TA6	4,000 : 4,000 [1(CCW) : 1(CW)]		2.9
		HFT12		M3 ~ 16	TA6/12	6,000 : 5,000 [1(CCW) : 0.83(CW)]		4.4
UNIVERSAL type (Free setting of cutting directions) P. 6 	0° ≀ 120°	HUD 7	Drill Endmill	φ1 ~ 7	D 7	6,300 : 3,000 (BT30:7200:4000) [1(CW) : 0.48(CW)] [BT30:1(CCW):0.56(CW)]	○	1.8
		HUA10		φ2.4 ~ 10	C10	6,300 : 3,000 [1(CW) : 0.48(CW)]		3.9
		HUA20		φ5.8 ~ 20	C20			4.8
		HUT 4	Tap	M2 ~ 8	TA4	6,300 : 3,000 (BT30:7200:4000) [1(CW) : 0.48(CW)] [BT30:1(CCW):0.56(CW)]		3.8
		HUT 6		M3 ~ 12	TA6	6,300 : 3,000 [1(CW) : 0.48(CW)]		4.8

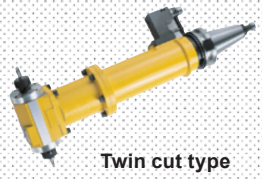
High-rigidity STANDARD type for end-milling applications

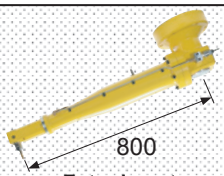
MODULAR type (Recombination type) P. 10 	90°	AHB 5	Drill Endmill	φ0.5~ 5	ER8	6,000 : 6,000 [1(CCW) : 1(CW)]	○	5.5
		AHB 7		φ0.5~ 7	ESX12			5.3
		AHB10		φ2.4~10	C10			6.2
	45°	AHC10	Drill Endmill					
SOLID type P. 11  	90°	AHA20	Drill Endmill	φ5.8~20	C20	3,000 : 2,430 [1(CCW) : 0.81(CW)]	○	7.3
		AHA25		φ5.8~25	C25	2,500 : 2,400 [1(CCW) : 0.96(CW)]		13.6
		AHD30		BT30※	BT30			14.7
FLANGE type (Mounting directly on machine spindle) P. 12 	90°	AHA20	Drill Endmill	φ5.8~20	C20	3,000 : 2,430 [1(CCW) : 0.81(CW)]	×	18.0
		AHA25		φ5.8~25	C25	2,500 : 2,400 [1(CCW) : 0.96(CW)]		18.5
		AHD30		BT30※	BT30			19.6
UNIVERSAL type (Free setting of cutting directions) P. 13	0° ≀ 90°	AHU10	Drill Endmill	φ2.4~10	C10	3,000 : 4,500 [1(CW) : 1.5(CW)]	○	9.6
		AHU20		φ5.8~20	C20	3,000 : 3,000 [1(CW) : 1(CW)]		15.8

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

Custom-made products

P. 14


Twin cut type



Extra long type


Parallel Head

Slim and extended type

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