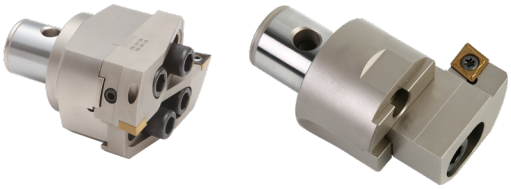
Boring

CUTTING TOOL CATALOGUE

Overview of Boring Tools

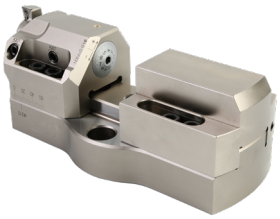
ARB Twin-edge rough boring tool
- Twin-Edge rough boring tools - for blind hole
- Twin-Edge rough boring tools - for through hole
- (Back-boring) Rough boring
- Step rough boring



MLR Rough boring tool for large diameter
- Standard rough boring
- Lightweight rough boring
- (Back-boring) large diameter

AFB fine boring tool
- Fine boring with cartridge A
- Fine boring with cartridge B
- Fine boring with cartridge C
- (Back-boring) Fine boring

MLF Fine boring tool for large diameter
- Standard fine boring
- Lightweight fine boring

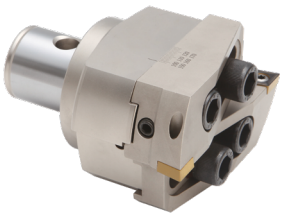


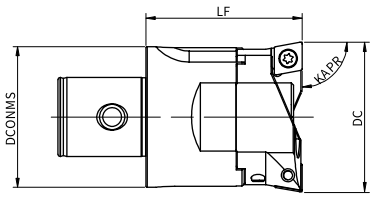
Damping Boring Tool
- DFB series fine boring tool
- Damping boring shank
- Damping boring bar
- DTB series damping Boring Bars

EFB external fine boring tool
- Large diameter --external fine boring
- Small diameter --external fine boring

Twin-Edge Rough Boring Tool

Diameter range ⌀20mm- ⌀153mm.
Cover wide applications.
High precision, high rigidity, flexible on tool combination.
Adjusting scale marked on tool body, easy to operate.





Boring tool denomination

ARB-_ _ _-_ _ _-AK_-W
1 2 3 4 5

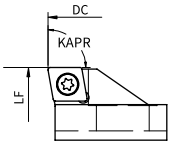
"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size:
AK1/AK2/AK3/AK4/AK5/AK6/AK7
"5" W means without cartridge,
L means larger diameter

Dia range DC (mm)	Product code	Coupling	DCONMS (mm)	LF (mm)	Cartridge (●Standard ○Option)	Screw for cartridge	Weight (kg)
20-26	**ARB-020-026-AK1**	AK1	19	32.5	RC-020-CC06 ●	SH040160	0.07
					RC-020-SC06 ○		
25-33	**ARB-025-033-AK2**	AK2	24	35.5	RC-025-CC06 ●	SH050200	0.12
					RC-025-SC06 ○		
32-42	**ARB-032-042-AK3**	AK3	31	40	RC-032-CC09 ●	SH060200	0.2
					RC-032-SC09 ○		
41-54	**ARB-041-054-AK4**	AK4	39	47	RC-041-CC09 ●	SH080250	0.38
					RC-041-SC09 ○		
53-70	**ARB-053-070-AK5**	AK5	50	57	RC-041-CC12 ●	SH100300	0.75
					RC-041-SC12 ○		
68-90	**ARB-068-110-AK6**	AK6	64	71	RC-068-CC12 ●	SH100350	1.6
					RC-068-SC12 ○		
88-110	**ARB-068-110-AK6-L**	AK6	64	71	RC-088-CC12 ●		1.8
					RC-088-SC12 ○		
98-126	**ARB-098-153-AK6**	AK6	93	71	RC-098-CC12 ●	SH120400	2.3
					RC-098-SC12 ○		
125-153	**ARB-098-153-AK6-L**	AK6	93	71	RC-125-CC12 ●		2.6
					RC-125-SC12 ○		
98-126	**ARB-098-153-AK7**	AK7	93	87	RC-098-CC12 ●		3.9
					RC-098-SC12 ○		
125-153	**ARB-098-153-AK7-L**	AK7	93	87	RC-125-CC12 ●		4.1
					RC-125-SC12 ○		

- Tool body is assembled with blind hole boring cartridges as standard package. For through hole, the tool body without cartridge need to be ordered separately. Example: ARB-148-203-AK6/W&RC-098-SC12.
- Tool body without cartridge also can be ordered. Example: ARB-020-026-AK1-W.
- Spare parts including: Screw set (with washers), L-type wrench. The inserts need to be ordered separately.
- The full series boring tool is provided with internal coolant.
- Ensure complete tightening, and use feeler gauges during installation to check the gap between mating surfaces.
- For the ideal axial runout, the inserts need to be indexed at the same time.

ARB Twin-Edge Rough Boring Tool Series

Rough boring cartridge for blind-hole



Boring tool denomination

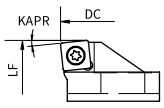
RC-_ _ _-CC_ _-B
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Insert
"4" B means back boring

Product code	Tool body	Insert (Option)	Screw	Wrench
RC-020-CC06	ARB-020-026-AK1-W	CC__ 0602__	ST025060	FT-T8
RC-025-CC06	ARB-025-033-AK2-W			
RC-032-CC09	ARB-032-042-AK3-W	CC__ 09T3__	ST040100	FT-T15
RC-041-CC09	ARB-041-054-AK4-W			
RC-053-CC12	ARB-053-070-AK5-W	CC__ 1204__	ST050120	FT-T20
RC-068-CC12	ARB-068-110-AK6-W			
RC-088-CC12				
RC-098-CC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			
RC-125-CC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			

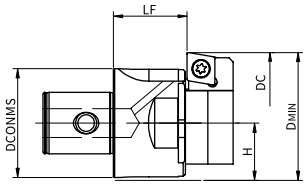
ARB Twin-Edge Rough Boring Tool

Rough boring cartridge for through hole



Product code	Tool body	Insert (Option)	Screw	Wrench
RC-020-SC06	ARB-020-026-AK1-W	SC__ 0602__	ST025060	FT-T8
RC-025-SC06	ARB-025-033-AK2-W			
RC-032-SC09	ARB-032-042-AK3-W	SC__ 09T3__	ST040100	FT-T15
RC-041-SC09	ARB-041-054-AK4-W			
RC-053-SC12	ARB-053-070-AK5-W	SC__ 1204__	ST050120	FT-T20
RC-068-SC12	ARB-068-110-AK6-W			
RC-088-SC12				
RC-098-SC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			
RC-125-SC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			

Back Boring

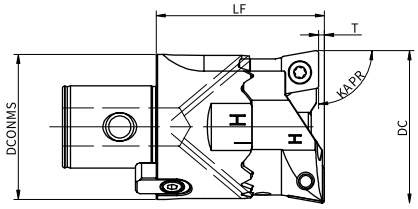


Min. through hole diameter DMIN = H+(Back-boring diameter DC/2)

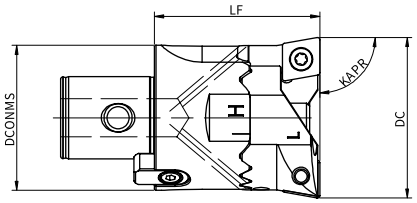
Dia range DC (mm)	Tool body	Coupling	Back-boring Cartridge (Optional)	DC0NMS (mm)	LF (mm)	Screw for cartridge	H (mm)	Weight (kg)	Insert (Optional)	Screw/ Wrench
25-31	**ARB-020-026-AK1-W**	AK1	RC-025-CC06-B	19	21.5	SH040160	10	0.06	CC_ _ 0602	ST025060 FT-T8
30-35			RC-030-CC06-B					0.06		
32-40	**ARB-025-033-AK2-W**	AK2	RC-032-CC06-B	24	23.5	SH050200	12.5	0.11		
39-47			RC-039-CC06-B					0.11		
41-51	**ARB-032-042-AK3-W**	AK3	RC-041-CC09-B	31	23.5	SH060200	16	0.18	CC_ _ 09T3	ST040100 FT-T15
50-60			RC-05060-CC09-B					0.19		
50-63	**ARB-041-054-AK4-W**	AK4	RC-05063-CC09-B	39	28.5	SH080250	20	0.36		
61-74			RC-061-CC09-B					0.38		
65-82	**ARB-053-070-AK5-W**	AK5	RC-065-CC12-B	50	33.5	SH100300	25.5	0.7	CC_ _ 1204	ST050120 FT-T20
78-95			RC-078-CC12-B					0.75		
80-102	**ARB-068-110-AK6-W**	AK6	RC-080-CC12-B	64	45.5	SH100350	32.5	1.5		
100-122			RC-100-CC12-B					1.6		
98-126	**ARB-098-153-AK6-W**	AK6	RC-098-CC12-B	93	45.5	SH120400	47	2.25		
125-153			RC-125-CC12-B					2.45		

- Back-boring tool: please order tool body and choose a cartridge, e.g. ARB-020-026-AK1-W & RC-025-CC06-B.
- Example of tool selection: back-boring ∅26, find the corresponding tool body and boring cartridge ARB-020-026-AK1-W & RC-025-CC06-B; Min. through hole diameter is = 10+26/2 which is 23mm.

ARS Step Rough Boring



Step boring (HHLL)



Twin-Edge Boring

Boring tool denomination

ARS-_ _ _-_ _ _-AK-L
1 2 3 4 5

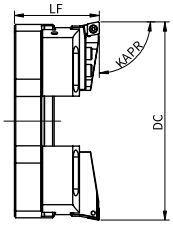
"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size, and its specifications are listed in below:
AK1/AK2/AK3/AK4/AK5/AK6
"5"L means larger diameter

Dia range DC (mm)	Product code	Coupling	DCONMS (mm)	LF (mm)	Axial Step T (mm)	Cartridge (Standard)	Screw	Insert (Optional)	Weight (kg)
20-26	**ARS-020-026-AK1**	AK1	19	32.5	0.2	RC-020-CC06-HL	SH040160	CC_ _ 0602	0.08
25-33	**ARS-025-033-AK2**	AK2	24	35.5	0.2	RC-025-CC06-HL	SH050200	CC_ _ 0602	0.12
32-42	**ARS-032-042-AK3**	AK3	31	40	0.2	RC-032-CC09-HL	SH060200	CC_ _ 09T3	0.22
41-54	**ARS-041-054-AK4**	AK4	39	47	0.4	RC-041-CC09-HL	SH080250	CC_ _ 09T3	0.42
53-70	**ARS-053-070-AK5**	AK5	50	57	0.4	RC-053-CC12-HL	SH100300	CC_ _ 1204	0.80
68-90	**ARS-068-110-AK6**	AK6	64	71	0.4	RC-068-CC12-HL	SH080300	CC_ _ 1204	1.75
88-110	**ARS-068-110-AK6-L**	AK6	64	71	0.4	RC-088-CC12-HL	SH080300	CC_ _ 1204	1.85
98-126	**ARS-098-153-AK6**	AK6	93	71	0.4	RC-098-CC12-HL	SH120400	CC_ _ 1204	2.90
125-153	**ARS-098-153-AK6-L**	AK6	93	71	0.4	RC-125-CC12-HL	SH120400	CC_ _ 1204	3.15

- Standard configuration includes 1 set (1 piece on each side) cartridge, through the special design of tool body and interchangeable cartridge positions (refer to the corresponding letters in the top-right diagram), enables quick switching between single-edge axial step boring and twin-edge boring operations.
- Each model is equipped with a set of tool holder lock screws and one L-shaped wrench; the insert need to be ordered separately.
- The ARS step boring series is equipped with internal coolant.
- Before use, ensure that the tool is securely clamped and there are no gaps between the mating surfaces. It is recommended to verify this using a feeler gauge or the light transmission method.
- When using the ARS step boring tools, radial adjustments can be made to effectively reduce issues such as bad chips and vibration during more material cutting.

Rough Boring Tool For Large Diameter

Dia. range ⌀150mm- ⌀850mm。
Modular design and flexible assembly for faster operation.
Lightweight bridge can reduce the tool's weight.



Boring tool denomination

MLR-_ _ _-_ _ _-LD
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" LD means light weight, without LD means standard

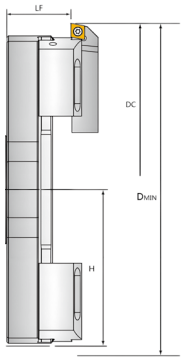
Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Steel Bridge	Slider	Cartridge	Insert (Optional)
150-210	**MLR-150-210**	5.5	/	90	BS-150-210	RB-150	RC-150	CC_ _1204
210-290	**MLR-210-290**	6.7			BS-210-290			
290-370	**MLR-290-370**	8.1			BS-290-370			
370-450	**MLR-370-450**	9.8			BS-370-450			
450-530	**MLR-450-530**	11.4			BS-450-530			

Lightweight Bridge Rough Boring Tools

Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Aluminium Bridge	Slider	Cartridge	Insert (Optional)
150-210	**MLR-150-210-LD**	3.9	/	90	BS-150-210-LD	RB-150	RC-150	CC_ _1204
210-290	**MLR-210-290-LD**	4.3			BS-210-290-LD			
290-370	**MLR-290-370-LD**	5.0			BS-290-370-LD			
370-450	**MLR-370-450-LD**	5.5			BS-370-450-LD			
450-530	**MLR-450-530-LD**	6.0			BS-450-530-LD			

- Rough boring tool assembled with cartridges as standard package, include bridge, slider, cartridge, some models (include coupling), the inserts not are included.
- For the ideal axial runout, the inserts need to be indexed at the same time.

Back-Boring For Large Diameter



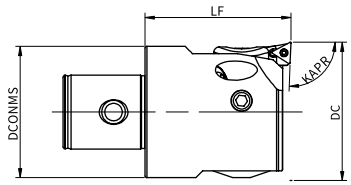
Min. through hole diameter DMIN = H+(Back-boring diameter/2)

Dia range DC (mm)	Steel Bridge	Slider	Back-boring Cartridge	Insert	H (mm)	LF (mm)	Weight (kg)
165-205	**BS-150-210**	RB-150	RC-150-B	CC_ 1204	75	59	5.00
225-265	**BS-210-290**				105		6.20
305-345	**BS-290-450**				145		7.55
385-425	**BS-370-450**				185		9.30
465-505	**BS-450-530**				225		10.90

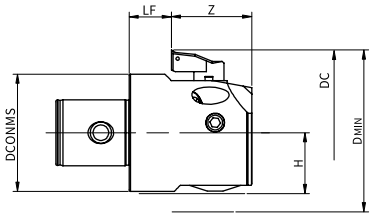
- Shared base components with MLR series. Simply replace the back-boring cartridge (optional) to enable back-boring operations.
- Calculate the minimum through-hole diameter, e.g. back-boring ∅320mm, minimum through-hole diameter = 145+320/2, i.e. 305mm.

AFB Single-Edge Fine Boring Tool

Interchangeable cartridges enable multi-type fine boring operations.
Dia. range ∅20mm- ∅203mm。
The precision screw is located inside the tool body, avoiding the impact of chips, corrosion and rust, extend the tool's life.



Front boring



Min. through hole diameter DMIN = H+(Back-boring diameter/2)

Boring tool denomination

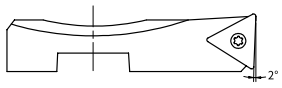
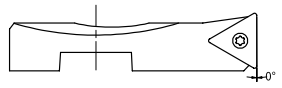
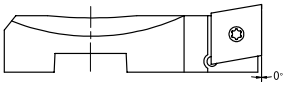
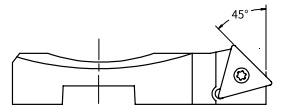
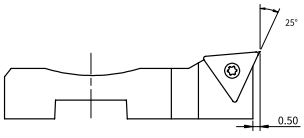
AFB-_ _ _-_ _ _-AK_-W
1 2 3 4 5

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size
"5" "W" means without cartridge, which is optional

Product code	Coupling	Cartridge (Standard ● Option ○)	Front boring			Back-boring				Weight (kg)	Insert optional
			Dia. range DC (mm)	LF (mm)	DCONMS (mm)	Dia. range DC (mm)	LF (mm)	Z (mm)	H (mm)		
AFB-020-036-AK1	AK1	FCT-10A ●	20-26	32.5	19	-	10.5	20	10	0.07	TP0802
		FCT-10B ○	25-31			30-31					
		FCT-10C ○	30-36			30-36					
AFB-025-047-AK2	AK2	FCT-20A ●	25-33	35.5	24	-	11.5	21.5	12.5	0.12	
		FCT-20B ○	32-40			36-40					
		FCT-20C ○	39-47			39-47					
AFB-032-060-AK3	AK3	FCT-30A ●	32-42	40	31	-	10	27	16	0.22	
		FCT-30B ○	41-51			46-51					
		FCT-30C ○	50-60			50-60					
AFB-041-074-AK4	AK4	FCT-40A ●	41-54	47	39	-	12	31	20	0.42	TC1102
		FCT-40B ○	50-63			53-63					
		FCT-40C ○	61-74			61-74					
AFB-053-095-AK5	AK5	FCT-50A ●	53-70	57	50	62-70	15	37	25.5	0.85	TC1102
		FCT-50B ○	65-82			65-82					
		FCT-50C ○	78-95			78-95					
AFB-068-150-AK6	AK6	FCT-60A ●	68-100	71	64	80-100	23	44	32.5	1.85	
		FCT-60B ○	94-126			94-126					
		FCT-60C ○	118-150			118-150					
AFB-100-203-AK7	AK7	FCT-60A ●	100-153	87	90	112-153	39	44	46.5	4.05	
		FCT-60B ○	126-179			126-179					
		FCT-60C ○	150-203			150-203					

- When used with a scale, the minimum adjustment accuracy of the bore diameter can reach ∅0.002mm.
- Standard configuration includes the A-type base cartridge; when ordering an optional tool holder, please refer to the example: AFB-020-026-AK1-W, FCT-10B.
- The assembled fine boring tool does not include inserts; for front boring, left-hand inserts should be selected, while for back-boring, right-hand inserts and spindle reversal are required.
- All AFB boring tool is with internal coolant.
- It is recommended to regularly lubricate the internal parts of the tool with grease to extend the service life of the AFB single-edge fine boring tool.

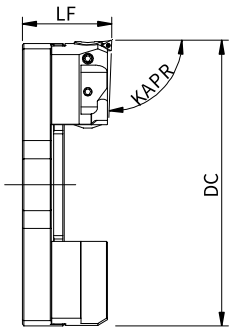
AFB Single-Edge Fine Boring Tool

Picture	Product code	Adaptive boring head	Dia. range DC (mm)	Insert (Optional)	Screw/Wrench
	**FCT-10A**	AFB-020-036-AK1	20-26	TP_ _ 0802	ST020040 FT-T6
	FCT-10B		25-31		
	FCT-10C		30-36		
	FCT-20A	AFB-025-047-AK2	25-33		
	FCT-20B		35-40		
	FCT-20C		39-47		
	FCT-30A	AFB-032-060-AK3	32-42		
	FCT-30B		41-51		
	FCT-30C		50-60		
	FCT-40A	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-40B		50-63		
	FCT-40C		61-74		
	FCT-50A	AFB-053-095-AK5	53-70		
	FCT-50B		65-82		
	FCT-50C		78-95		
	FCT-60A	AFB-068-150-AK6	68-153		
	FCT-60B	AFB-100-203-AK6	94-179		
	FCT-60C	AFB-100-203-AK7	118-203		
	**FCT-40A00**	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-50A00	AFB-053-095-AK5	53-70		
	FCT-60A00	AFB-068-150-AK6	68-100		
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCC-40A00**	AFB-041-074-AK4	41-54	CC_ _ 0602	
	FCC-50A00	AFB-053-095-AK5	53-70		
	FCC-60A00	AFB-068-150-AK6	68-100	CC_ _ 09T3	ST040100 FT-T15
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCT-40A45**	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-50A45	AFB-053-095-AK5	53-70		
	FCT-60A45	AFB-068-150-AK6	68-100		
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCT-30A25**	AFB-032-060-AK3	32-42	TP_ _ 0802	ST020040 FT-T6
	FCT-40A25	AFB-041-074-AK4	41-54		
	FCT-50A25	AFB-053-095-AK5	53-70		
	FCT-60A25	AFB-068-150-AK6	68-100	TC_ _ 1102	ST025060 FT-T8
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		

- Cartridge do not include inserts and the inserts need to be ordered separately.
- Non-standard cartridge can be custom-made (another insert for boring, flat-bottom).

MLF Fine Boring Tool For Large Diameter

Dia. range ⌀150mm- ⌀530mm.
Modular design, for both tool body balancing and machining precision.
Flexible on tool combination. Easy to use.
Including steel and aluminium bridge.



Boring tool denomination

MLF-_ _ _-_ _ _-LD
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" "LD"means light weight,
without "LD" means standard

Steel Bridge

Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Steel Bridge	Fine Adjustment Slider	Balance Block	Cartridge (Option)	Insert (Option)
150-210	**MLF-150-210**	6.2	/	90	BS-150-210	FB-150	BB-150	FCT-60A (Standard) FCT-60B FCT-60C	TC_ _ 1102
210-290	**MLF-210-290**	7.5			BS-210-290		BB-200		
290-370	**MLF-290-370**	8.5			BS-290-370				
370-450	**MLF-370-450**	10.2			BS-370-450				
450-530	**MLF-450-530**	11.6			BS-450-530				

Aluminium Bridge

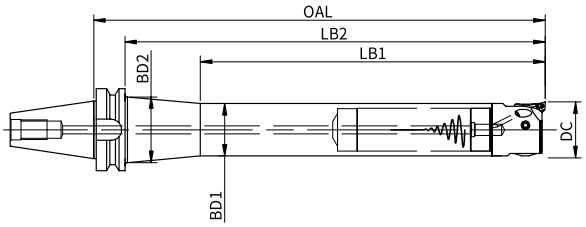
Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Aluminium Bridge	Fine Adjustment Slider	Balance Block	Cartridge (Option)	Insert (Option)
150-210	**MLF-150-210-LD**	4.6	/	90	BS-150-210-LD	FB-150	BB-150	FCT-60A (Standard) FCT-60B FCT-60C	TC_ _ 1102
210-290	**MLF-210-290-LD**	5.1			BS-210-290-LD		BB-200		
290-370	**MLF-290-370-LD**	5.5			BS-290-370-LD				
370-450	**MLF-370-450-LD**	5.9			BS-370-450-LD				
450-530	**MLF-450-530-LD**	6.2			BS-450-530-LD				

More Diameter Combinations

Cartridge	Tool body (without cartridge)	Dia.
FCT-60A	**MLF-150-210-W**	150-210
FCT-60B		176-236
FCT-60C		200-260
FCT-60A	**MLF-210-290-W**	210-290
FCT-60B		236-315
FCT-60C		260-340
FCT-60A	**MLF-290-370-W**	290-370
FCT-60B		316-396
FCT-60C		340-420

Cartridge	Tool body (without cartridge)	Dia.
FCT-60A	**MLF-370-450-W**	370-450
FCT-60B		396-476
FCT-60C		420-500
FCT-60A	**MLF-450-530-W**	450-530
FCT-60B		476-556
FCT-60C		500-580

DFB Integral Damping Fine Boring Tool



Boring tool denomination

DFB-_ _ _-_ _ _-BBT50-L_ _ _
1 2 3 4 5

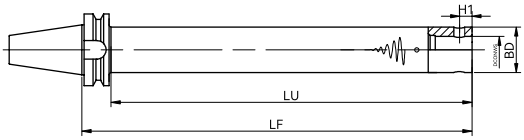
"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Type of machine spindle
"5" Effective boring depth

Product code	Cartridge (Optional)	Dia range DC (mm)	Dimensions (mm)					Weight (kg)	Insert (Optional)
			LB1	LB2	OAL	BD1	BD2		
DFB-041-074-BBT50-L280	FCT-40A	41-54	280	320	358	40	55	7.4	TC_ _ 1102
	FCT-40B	50-63							
	FCT-40C	61-71							
DFB-053-095-BBT50-L350	FCT-50A	53-70	350	400	438	50	56	11	
	FCT-50B	65-82							
	FCT-50C	78-95							
DFB-068-150-BBT50-L450	FCT-60A	68-100	450	512	550	64	80	18.9	
	FCT-60B	94-126							
	FCT-60C	118-150							
DFB-100-203-BBT50-L525	FCT-60A	100-153	525	525	563	70	85	23.5	
	FCT-60B	126-179							
	FCT-60C	150-203							

- Product code does not include cartridge, order example: DFB-041-074-BBT50-L280 & FCT-40A.
- Inserts need to be ordered separately.

Note: Limited stock, please contact our sales engineer for details on stock availability.

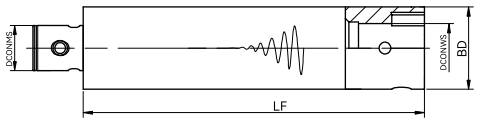
Damping Boring Shank



Product code	Dimensions (mm)					Weight (kg)
	BD	DCONWS	H1	LU	LF	
BT40-AKB2-145-D	24	14	6.45	110	145	1.44
BT40-AKB2-170-D	24	14	6.45	135	170	1.54
BT40-AKB2-195-D	24	14	6.45	160	195	1.64
BT40-AKB3-195-D	31	18	7.9	160	195	2.15
BT40-AKB3-225-D	31	18	7.9	190	225	2.37
BT40-AKB3-255-D	31	18	7.9	220	255	2.59
BT40-AKB4-240-D	39	22	10	205	240	3.07
BT40-AKB4-280-D	39	22	10	245	280	3.5
BT40-AKB4-320-D	39	22	10	285	320	3.93
BT40-AKB5-315-D	50	28	13	283	315	5.65
BT50-AKB2-165-D	24	14	6.45	117	165	4.12
BT50-AKB2-190-D	24	14	6.45	142	190	4.22
BT50-AKB2-215-D	24	14	6.45	167	215	4.32
BT50-AKB3-205-D	31	18	7.9	160	205	4.8
BT50-AKB3-235-D	31	18	7.9	190	235	5.02
BT50-AKB3-265-D	31	18	7.9	220	265	5.24
BT50-AKB4-255-D	39	22	10	210	255	5.89
BT50-AKB4-295-D	39	22	10	250	295	6.27
BT50-AKB4-335-D	39	22	10	290	335	6.65
BT50-AKB5-315-D	50	28	13	270	315	8.51
BT50-AKB5-360-D	50	28	13	315	360	9.3
BT50-AKB5-405-D	50	28	13	360	405	10.09
BT50-AKB6-380-D	64	36	16	335	380	12.56
BT50-AKB6-445-D	64	36	16	400	445	14.24
BT50-AKB6-510-D	64	36	16	465	510	15.93

The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

Damping Extension Bar

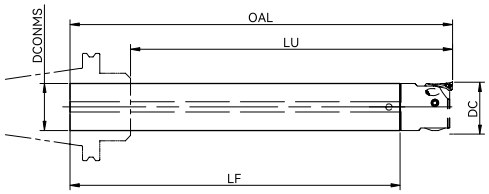


Product code	Dimensions (mm)				Weight (kg)
	BD	DCONMS	DCONWS	LF	
AKB22-90-D	24	14	14	90	0.33
AKB33-115-D	31	18	18	115	0.75
AKB44-125-D	39	22	22	125	1.14
AKB55-155-D	50	28	28	155	2.39
AKB66-185-D	64	36	36	185	5.11

The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

Carbide Anti-Vibration Boring Bar

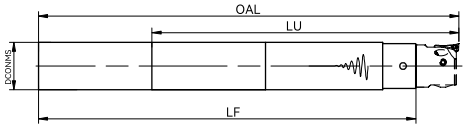
- Boring depth in the range of 5-7*Dc, carbide boring bars are recommended;
  If necessary, the damping boring bar can be selected to reduce vibration.
- The boring bars are made through high-temperature sintering of tungsten carbide with cobalt, nickel, and other bonding metals, tungsten carbide content ranging from 85%-88%, providing a high elastic modulus.
- To improve the clamping rigidity of the tool, it is recommended that the clamping length of the boring bar more than 4*DCONMS.
- For optimal tool rigidity, A-type cartridge is preferred; C-type cartridge is not recommended.



Product code	Dimensions (mm)				Weight (kg)	Tool body (Option)	Cartridge (Option)	Dia. range DC (mm)	Power collet	Compatible shank
	DCONMS	OAL	LF	LU						
C19C-AK1-150	19	182.5	150	130	0.46	AFB-020-036-AK1-W	FCT-10A	20-26	C32-19 C42-19	power chuck
C19C-AK1-200	19	232.5	200	170	0.68		FCT-10B	25-31		
C24C-AK2-200	24	235.5	200	170	1.07	AFB-025-047-AK2-W	FCT-20A	25-33	C32-24 C42-24	power chuck
C24C-AK2-250	24	285.5	250	210	1.42		FCT-20B	32-40		
C32C-AK3-250	32	290	250	180	2.33	AFB-032-060-AK3-W	FCT-30A	32-42	C42-32	power chuck
C32C-AK3-300	32	340	300	230	3.50		FCT-30B	41-51		

Damping Boring Bar

- Boring depth in the range of 6-9*Dc, damping boring bars are preferred.
- These bars use a Inlaid structure with tungsten carbide rods and damping devices, reducing vibration.
- To improve the clamping rigidity of the tool, it is recommended that the clamping length of the boring bar more than 4*DCONMS.
- For optimal tool rigidity, A-type cartridge is preferred; C-type cartridge is not recommended.

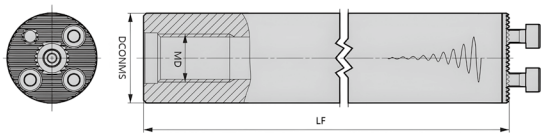


Product code	Dimensions (mm)				Weight (kg)	Boring head (Option)	Cartridge (Option)	Dia. range DC (mm)	Power collet	Compatible shank
	DCONMS	LU	LF	OAL						
C19C-AKB1-190-D	19	133	190	222	0.43	AFB-020-036-AKB1	FCT1-1	20-26	C32-19 C42-19	power chuck
C19C-AKB1-240-D	19	190	240	272	0.77		FCT1-2	25-31		
C24C-AKB2-220-D	24	168	220	255	0.79	AFB-025-047-AKB2	FCT2-1	25-33	C32-24 C42-24	power chuck
C24C-AKB2-280-D	24	240	280	315	1.43		FCT2-2	32-40		
C32C-AKB3-280-D	32	224	280	320	1.78	AFB-032-060-AKB3	FCT3-1	32-42	C42-32	power chuck
C32C-AKB3-350-D	32	320	350	390	3.24		FCT3-2	41-51		

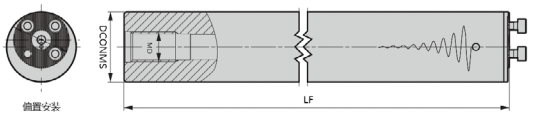
The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

DTB Damping Turning Bars

Style 1



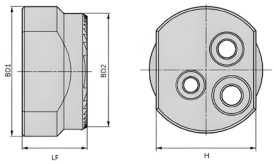
Style 2



Product code	Dimensions (mm)			Interchangeable head (optional)	Weight (kg)	Style
	DCONMS	LF	MD			
DTB16-C16-156	16	156	G1/8″	DTH16-…	0.24	1
DTB16-C16-204	16	204	/	DTH16-…	0.32	1
DTB20-C20-200	20	200	G1/4″	DTH20-…	0.46	1
DTB20-C20-260	20	260	/	DTH20-…	0.62	1
DTB25-C25-255	25	255	G1/4″	DTH25-…	0.97	1
DTB25-C25-330	25	330	G1/4″	DTH25-…	1.29	1
DTB32-C32-320	32	320	G3/8″	DTH32-…	1.87	1
DTB32-C32-416	32	416	G3/8″	DTH32-…	2.64	1
DTB40-C40-408	40	408	G1/2″	DTH40-…	3.88	1
DTB40-C40-528	40	528	G1/2″	DTH40-…	5.16	1
DTB40-C50-518	50	518	G1/2″	DTH40-…	7.77	2
DTB40-C50-668	50	668	G1/2″	DTH40-…	10.28	2
DTB40-C60-628	60	628	G3/4″	DTH40-…	12.43	2
DTB40-C60-808	60	808	G3/4″	DTH40-…	16.14	2

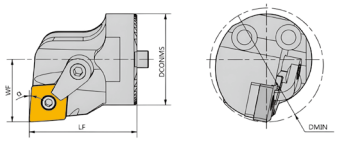
- It is recommended to use a C-type clamping sleeve for increased tool clamping rigidity, with a clamping length more than 4*DCONMS.
- When using longer and heavier damping boring bars on horizontal lathes, it is advised to use a center support to reduce vibration and improve machining precision and stability.
- The boring bars are equipped with internal cooling channels. It is recommended to use external or internal cooling methods to cool the damping area, which helps prevent the aging of internal sealing components and extends tool life.
- When using a boring bar for the first time, use a calibration tool to adjust the boring bar to a horizontal position (parallel to the X-axis of the machine tool) to ensure the correct center height; otherwise, the insert may break unexpectedly.
- For better performance in parts processing, please consult the regional sales consultant before purchasing to evaluate the working conditions and provide a suitable matching solution.

Center Height Calibration Block

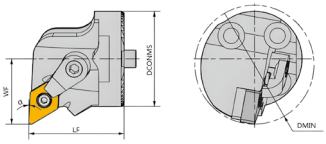


Product code	Dimensions (mm)				Compatible holders
	BD1	BD2	H	LF	
DTB 16-25-M	28	25	22	14	DTB16/DTB20/DTB25
DTB 32-60-M	62	60	52	25	DTB32/DTB40

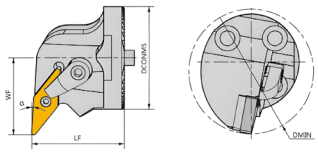
DTH Damping Turning Heads



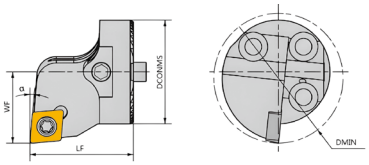
Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH32-MCLNR/L-12	32	40	22	38	5°	CN__120408	S-MCN12032	SS060170	CL182114	SD060250
DTH40-MCLNR/L-12	40	50	27	38	5°	CN__120408	S-MCN12032	SS060170	CL182114	SD060250



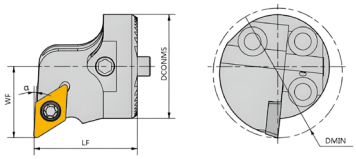
Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH32-MDUNR/L-11	32	40	22	32	3°	DN__110408	S-MDN11032	SS050130	CL182114	SD060250
DTH40-MDUNR/L-15	40	50	27	38	3°	DN__150608	S-MDN15047	SS060190	CL215132	SD060250



Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH40-MVUNR/L-16	40	52	30	36	3°	VN__160408	S-MVN16032	SS050130	CL215132	SD060250

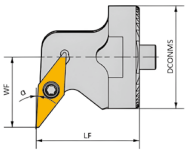


Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH16-SCLCR/L-06	16	20	11	20	5°	CC__060204	ST025060
DTH20-SCLCR/L-09	20	25	13	20	5°	CC__09T308	ST040080
DTH25-SCLCR/L-09	25	32	17	22	5°	CC__09T308	ST040080
DTH32-SCLCR/L-09	32	40	22	32	5°	CC__09T308	ST040100
DTH40-SCLCR/L-12	40	50	27	38	5°	CC__120408	ST050110

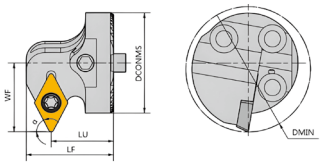


Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH16-SDUCR/L-07	16	20	11	20	3°	DC__070204	ST025050
DTH20-SDUCR/L-11	20	25	13	20	3°	DC__11T308	ST040100
DTH25-SDUCR/L-11	25	32	17	22	3°	DC__11T308	ST040100
DTH32-SDUCR/L-11	32	40	22	32	3°	DC__11T308	ST040100
DTH40-SDUCR/L-11	40	50	27	38	3°	DC__11T308	ST040100

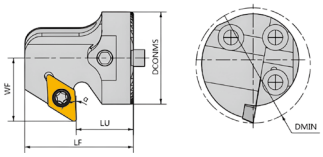
DTH Damping Turning Heads



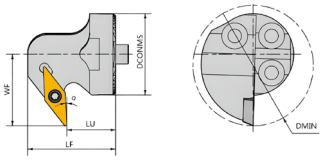
Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH20-SVUCR/L-11	20	27	16	20	3°	VC__110304	ST025070
DTH25-SVUCR/L-11	25	31	17	25	3°	VC__110304	ST025070
DTH32-SVLCR/L-16	32	40	22	32	5°	VC__160408	ST040100
DTH40-SVLCR/L-16	40	50	27	32	5°	VC__160408	ST040100



Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH16-SDPCR/L-07	16	22	13	15	19	62.5°	DC__070204	ST025050
DTH20-SDPCR/L-07	20	27	15	15	19	62.5°	DC__070204	ST025050
DTH25-SDPCR/L-07	25	33	18	15	19	62.5°	DC__070204	ST025050
DTH32-SDPCR/L-11	32	40	22	20	28	62.5°	DC__11T308	ST040100
DTH40-SDPCR/L-11	40	50	27	20	28	62.5°	DC__11T308	ST040100



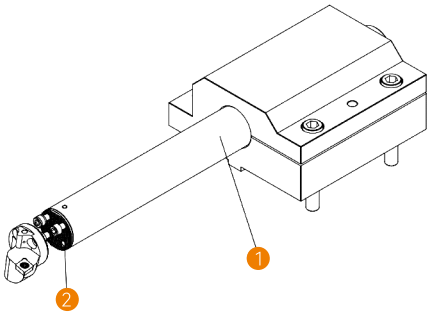
Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH16-SDZCR/L-07	16	22	13	15	27	3°	DC__070204	ST025050
DTH20-SDZCR/L-07	20	27	15	15	27	3°	DC__070204	ST025050
DTH25-SDZCR/L-07	25	33	18	15	27	3°	DC__070204	ST025050
DTH32-SDZCR/L-11	32	40	22	20	38	3°	DC__11T308	ST040100
DTH40-SDZCR/L-11	40	50	27	20	38	3°	DC__11T308	ST040100



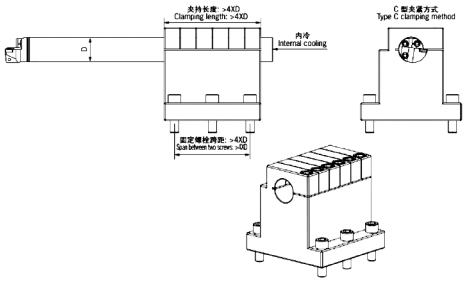
Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH20-SVZCR/L-11	20	32	20	15	27	3°	VC__110304	ST025070
DTH25-SVZCR/L-11	25	37	22	15	27	3°	VC__110304	ST025070

Operation Manual of DTB

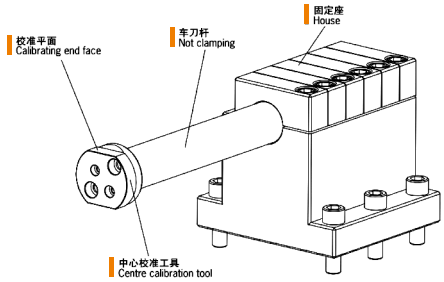
1.Wipe the assembly areas, such as the outer cylindrical part of the anti-vibration holder and the inner hole of the mounting seat, as well as the V-shaped positioning grooves of the damping bar and head.



2.The clamping length of the anti-vibration holder must be more than 4*D. Use clamping methods such as open clamping sleeves, and avoid using unstable locking methods like direct screw compression. When used for a long time, internal cooling must be applied to ensure that the damping device dissipates heat effectively, extending the tool's life and damping performance.

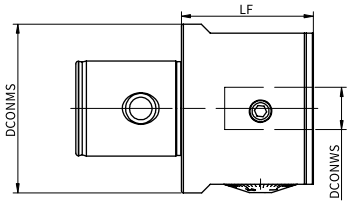


3.Adjust the center height — during the initial installation, use a center calibration block. Move the tool holder along the machine's X-axis on the calibration plane, to ensure that the height difference of the reference surface is controlled within 0.01mm.



4.Select the required tool head and compatible insert based on processing needs and complete the installation and calibration of the tool.

SFB Small Dia. Fine Boring Tool



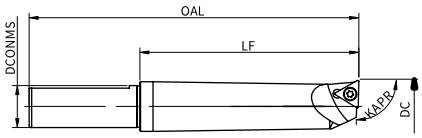
Boring tool denomination

SFB-016-AK6
1 2 3

"1" Series name
"2" means the maximum boring bar diameter is 16mm
"3" Coupling size. The coupling size is AK6

Product code	Coupling	DCONMS	DCONWS	LF	Weight (kg)
SFB-016-AK6	AK6	64	16	50	1.25

Steel Boring Bar for Small Dia. Fine Boring Head



Boring tool denomination

BAR-16 __-__
1 2 3 4

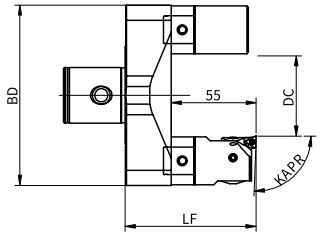
"1" Series name
"2" Boring bar shank diameter
"3" Minimum machining diameter
"4" Maximum permissible machining depth

Product code	Dia. range DC (mm)	DCONMS	LF	OAL	Insert (Optional)	Screw/Wrench	Weight (kg)
BAR1608-32	8-11	16	32	76	TBET 0601	ST020040 FT-T6	0.08
BAR1610-40	10-13	16	40	77			0.08
BAR1612-53	12-17	16	53	90	TPEH 0902	ST025060 FT-T8	0.11
BAR1616-68	16-21	16	68	102			0.14
BAR1620-83	20-26	16	83	120	TPEH 1103	ST030070 FT-T10	0.21

Note: When using TP_ _ 0902 carbide inserts, the screw hole diameter of the insert must be more than 2.8mm.

EFB External Fine Boring Tool

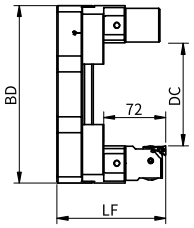
Modular interchangeable design; Rotating the boring head enables the switching between inner hole boring and external sleeve boring.
Dia. range: ∅25mm - ∅400mm。
For external sleeve boring, the spindle must rotate in reverse.



Dia range DC (mm)	Components			Cartridge (Option)	Interference Range BD(mm)	Tool Body Length LF (mm)	Max. Sleeve Boring Depth	Weight (kg)	Insert
	Steel Bridge	Fine Boring Head	Balance Block						
25-34	**EFB-025-052-AK6**	AFB-032-060-AK3	EB-AK3	FCT-30C	118	85	55	1.94	TP_ _ 0802
34-43				FCT-30B					
43-52				FCT-30A					
50-59	**EFB-050-077-AK6**			FCT-30C	143			2.24	
59-68				FCT-30B					
68-77				FCT-30A					
75-84	**EFB-075-102-AK6**			FCT-30C	168			2.34	
84-93				FCT-30B					
93-102				FCT-30A					

- Order Example:
  For bore diameters 25-34mm, order with tools: EFB-025-052-AK6 & AFB-032-060-AK3 & EB-AK3.
  For bore diameters 34-43mm, order with tools: EFB-025-052-AK6 & AFB-032-060-AK3-W & FCT-30B & EB-AK3.
- Complete sleeve boring tools do not come with internal coolant. The maximum sleeve boring depth can be adjusted by symmetrically adding extended bars.

Large Diameter --External Fine Boring



Dia range DC (mm)	Components				Interference Range BD(mm)	Tool Body Length LF(mm)	Max. Sleeve Boring Depth	Weight (kg)	Insert
	Steel Bridge	Fine Boring Head	Balance Block	Slider					
41-96	**BS-150-210**	AFB-041-074-AK4	EB-150-AK4	EB-AK4	150	126	72	4.86	TC_ _ 1102
80-160	**BS-210-290**				210			6.06	
160-240	**BS-290-370**				290			7.36	
240-320	**BS-370-450**				370			9.16	
320-400	**BS-450-530**				450			10.86	

- All components are freely configurable, and compared with smaller diameter sleeve boring tools, two additional sliders are required.
- For tools requiring weight reduction, the aluminum bridge option can be selected. For example, BS-150-210-LD.

BT Basic Boring Shank

Fig.1

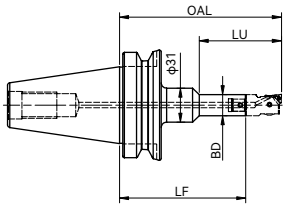
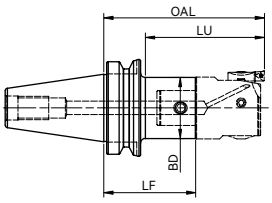
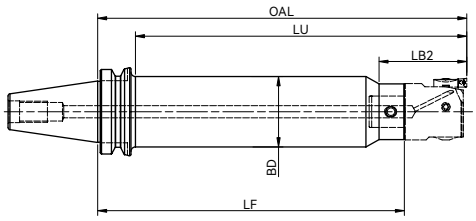


Fig.2



Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
BT30-AK1-70	AK1	19	70	102	80	0.5	2
BT30-AK2-80	AK2	24	80	115	93	0.6	2
BT30-AK3-80	AK3	31	80	120	98	0.7	2
BT30-AK4-70	AK4	39	70	117	95	0.8	2
BT30-AK5-70	AK5	50	70	127	105	0.8	2
BT30-AK6-70	AK6	64	70	141	119	1.2	2
BT40-AK1-75	AK1	19	75	107	80	1.0	2
BT40-AK1-105	AK1	19	105	137	110	1.2	2
BT40-AK2-85	AK2	24	85	120	93	1.1	2
BT40-AK2-115	AK2	24	115	150	123	1.4	2
BT40-AK3-95	AK3	31	95	135	108	1.2	2
BT40-AK3-125	AK3	31	125	165	138	1.5	2
BT40-AK4-85	AK4	39	85	132	105	1.3	2
BT40-AK4-130	AK4	39	130	177	150	1.9	2
BT40-AK4-175	AK4	39	175	222	195	2.2	2
BT40-AK5-50	AK5	50	50	107	80	1.2	2
BT40-AK5-75	AK5	50	75	132	105	1.3	2
BT40-AK5-125	AK5	50	125	182	155	2.4	2
BT40-AK5-175	AK5	50	175	232	205	3.0	2
BT40-AK6-65	AK6	50	65	136	109	1.3	2
BT40-AK6-115	AK6	64	115	186	159	2.7	2
BT40-AK6-165	AK6	64	165	236	209	3.9	2
BT50-AK1-115	AK1	19	115	147	75	4.0	**1**
BT50-AK2-85	AK2	24	85	120	82	3.8	2
BT50-AK2-110	AK2	24	110	145	107	3.9	2
BT50-AK3-90	AK3	31	90	130	92	3.9	2
BT50-AK3-125	AK3	31	125	165	127	4.1	2
BT50-AK4-115	AK4	39	115	162	124	4.3	2
BT50-AK4-145	AK4	39	145	192	154	4.5	2
BT50-AK4-175	AK4	39	175	222	184	4.8	2
BT50-AK5-65	AK5	50	65	122	84	3.9	2
BT50-AK5-105	AK5	50	105	162	124	4.5	2
BT50-AK5-150	AK5	50	150	207	169	5.1	2
BT50-AK5-180	AK5	50	180	237	199	5.5	2
BT50-AK5-240	AK5	50	240	297	259	6.2	2
BT50-AK6-95	AK6	64	95	166	128	4.5	2
BT50-AK6-170	AK6	64	170	241	203	6.3	2
BT50-AK6-230	AK6	64	230	301	263	7.7	2
BT50-AK6-290	AK6	64	290	361	323	9.0	2
BT50-AK7-170	AK7	90	170	257	219	6.1	2
BT50-AK7-230	AK7	90	230	317	279	11.8	2
BT50-AK7-290	AK7	90	290	377	339	14.6	2
BT50-AK7-350	AK7	90	350	437	399	17.4	2

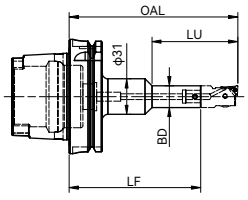
BT Series Reinforced Boring Shank



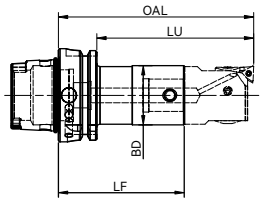
Product code	Coupling	Dimensions (mm)					Weight (kg)
		BD	LF	OAL	LU	LB2	
BT50-AK4-190-P46	AK4	46	190	237	194	65	5.6
BT50-AK4-235-P46	AK4	46	235	282	239	65	6.2
BT50-AK5-240-P61	AK5	61	240	297	254	80	8.2
BT50-AK5-300-P61	AK5	61	300	357	314	80	9.6
BT50-AK6-260-P72	AK6	72	260	332	289	100	10.3
BT50-AK6-315-P72	AK6	72	315	386	343	100	12.2
BT50-AK6-290-P80	AK6	80	290	361	318	100	13.2
BT50-AK6-350-P80	AK6	80	350	421	378	100	15.2

HSK-A Boring Shank

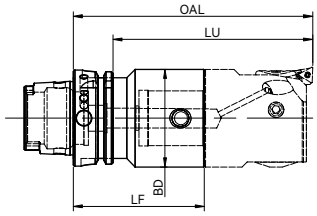
Style 1



Style 2

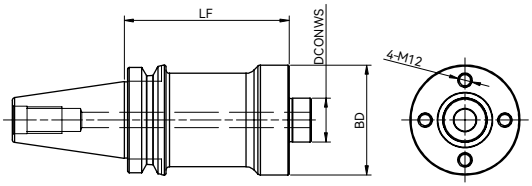


Style 3



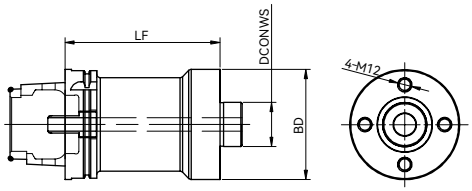
Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
HSK-A63-AK1-75	AK1	19	75	107	81	0.9	2
HSK-A63-AK1-100	AK1	19	100	132	106	1.3	2
HSK-A63-AK2-85	AK2	24	85	120	94	1.7	2
HSK-A63-AK2-100	AK2	24	100	135	109	2.2	2
HSK-A63-AK3-95	AK3	31	95	135	109	2.3	2
HSK-A63-AK3-125	AK3	31	125	165	139	2.6	2
HSK-A63-AK4-85	AK4	39	85	132	106	2.1	2
HSK-A63-AK4-130	AK4	39	130	177	151	2.7	2
HSK-A63-AK5-75	AK5	50	75	132	106	2.3	2
HSK-A63-AK5-135	AK5	50	135	192	166	2.8	2
HSK-A63-AK6-75	AK6	64	75	146	120	2.3	3
HSK-A63-AK6-115	AK6	64	115	186	160	2.8	3
HSK-A63-AK6-165	AK6	64	165	236	210	3.1	3
HSK-A100-AK1-105	AK1	19	105	137	75	2.6	1
HSK-A100-AK2-115	AK2	24	115	150	121	2.7	2
HSK-A100-AK3-125	AK3	31	125	165	136	2.9	2
HSK-A100-AK4-120	AK4	39	120	167	138	3.1	2
HSK-A100-AK4-180	AK4	39	180	227	198	3.7	2
HSK-A100-AK5-110	AK5	50	110	167	138	3.5	2
HSK-A100-AK5-185	AK5	50	185	242	213	4.6	2
HSK-A100-AK6-95	AK6	64	95	166	137	3.6	2
HSK-A100-AK6-170	AK6	64	170	241	212	5.5	2
HSK-A100-AK6-230	AK6	64	230	301	272	7.1	2

Bridge Boring Shank



Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
BT40-BA40-70	BA40	100	40	70	SH120350	2.8
BT50-BA40-100	BA40	100	40	100		6.1
BT50-BA40-150	BA40	100	40	150		7.9
BT50-BA40-200	BA40	100	40	200		9.7
BT50-BA40-250	BA40	100	40	250		10.9
BT50-BA40-300	BA40	100	40	300		12.5
BT50-BA40-350	BA40	100	40	350		13.9

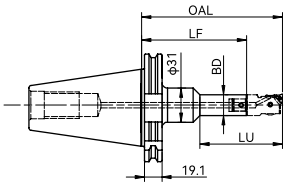
HSK-A100 Bridge Boring Shank



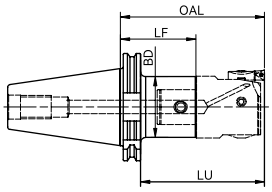
Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
HSK-A100-BA40-80	BA40	100	40	80	SH120350	5.1
HSK-A100-BA40-150	BA40	100	40	150		7.3

SK Series Boring Shank (DIN69871)

Style 1

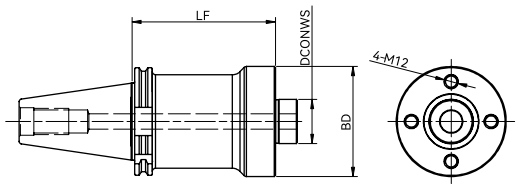


Style 2



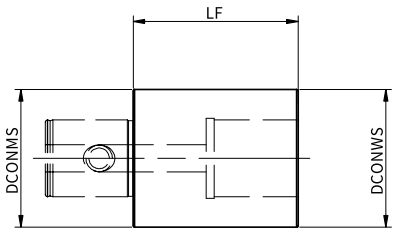
Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
SK40-AK1-75	AK1	19	75	107	88	0.8	2
SK40-AK2-85	AK2	24	85	120	101	1.0	2
SK40-AK3-95	AK3	31	95	135	115	1.0	2
SK40-AK3-125	AK3	31	125	165	145	1.3	2
SK40-AK4-85	AK4	39	85	132	112	1.2	2
SK40-AK4-130	AK4	39	130	177	157	1.8	2
SK40-AK5-75	AK5	50	75	132	112	1.2	2
SK40-AK5-125	AK5	50	125	182	162	2.3	2
SK40-AK6-65	AK6	64	65	136	116	1.2	2
SK40-AK6-115	AK6	64	115	186	166	2.6	2
SK40-AK6-165	AK6	64	165	236	216	3.8	2
SK50-AK1-115	AK1	19	115	147	75	3.2	1
SK50-AK2-110	AK2	24	110	145	125	3.1	2
SK50-AK3-90	AK3	31	90	130	110	3.2	2
SK50-AK3-125	AK3	31	125	165	145	3.4	2
SK50-AK4-115	AK4	39	115	162	142	3.8	2
SK50-AK4-145	AK4	39	145	192	172	4.0	2
SK50-AK5-105	AK5	50	105	162	142	3.9	2
SK50-AK5-150	AK5	50	150	207	187	4.5	2
SK50-AK6-95	AK6	64	95	166	146	4.0	2
SK50-AK6-170	AK6	64	170	241	221	5.8	2
SK50-AK6-230	AK6	64	230	301	281	7.2	2

SK Bridge Boring Shank



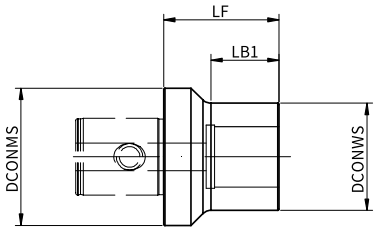
Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
SK40-BA40-70	BA40	100	40	70	SH120350	2.8
SK50-BA40-80	BA40	100	40	80		5.1
SK50-BA40-150	BA40	100	40	150		7.3
SK50-BA40-200	BA40	100	40	200		9.4
SK50-BA40-250	BA40	100	40	250		10.5

Extended Bars



Product code	Dimensions (mm)			Weight (kg)
	DCONMS	DCONWS	LF	
AK11-30	19	19	30	0.07
AK22-30	24	24	30	0.1
AK33-30	31	31	30	0.15
AK44-45	39	39	45	0.4
AK44-60	39	39	60	0.53
AK55-60	50	50	60	0.8
AK55-90	50	50	90	1.25
AK66-60	64	64	60	1.4
AK66-100	64	64	100	2.33

Reducing Bars



Product code	Dimensions (mm)				Weight (kg)
	DCONMS	DCONWS	LF	LB1	
AK21-36	24	19	36	30	0.1
AK31-41	31	19	41	30	0.15
AK32-37	31	24	37	25	0.15
AK41-58	39	19	58	40	0.3
AK42-50	39	24	50	36	0.3
AK43-50	39	31	50	37	0.35
AK51-60	50	19	60	40	0.45
AK52-54	50	24	54	35	0.45
AK52-75	50	24	75	55	0.47
AK53-47	50	31	47	29	0.5
AK53-75	50	31	75	55	0.57
AK54-42	50	39	42	25	0.5
AK54-75	50	39	75	55	0.66
AK61-70	64	19	70	40	0.9
AK62-63	64	24	63	45	0.7
AK62-90	64	24	90	72	0.72
AK63-56	64	31	56	39	0.75
AK63-90	64	31	90	73	0.88
AK64-51	64	39	51	35	0.85
AK64-90	64	39	90	75	1.08
AK65-41	64	50	41	25	0.85
AK65-90	64	50	90	74	1.45

ISO Cartridges Denomination System

S	C	L	P	R	08	CA	-	06
1	2	3	4	5	6	7	-	8

1-Insert Clamping

S: Screw clamping
M: Top and pin hole clamping

2-Insert Shape

C: 

3-Cartridge Type

L 

F 

G 

U 

J 

R 

T 

S 

4-Insert Clearance Angle

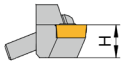
C: 

P: 

5-Cartridge Direction

R: Right-hand
L: Left-hand

6-Cartridge Height



10=10mm

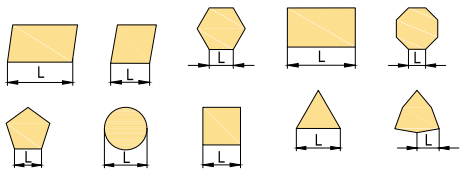
12=12mm

7-Cartridge Series Code

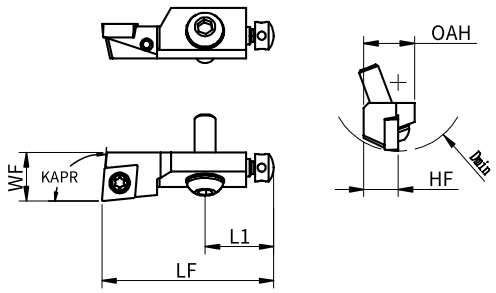
CA---Cartridge

8-Cutting Edge Length

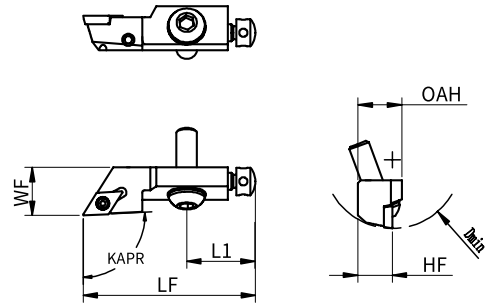
Incircle Dia. (mm)	Insert Shape C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56					09			
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					



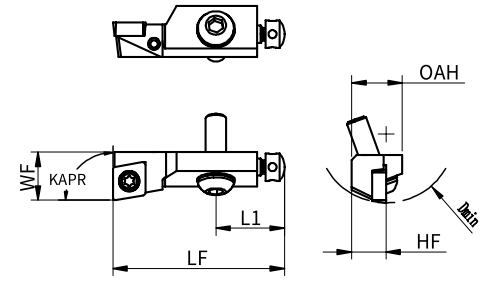
ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCLCR08CA-06	**SCLCL08CA-06**	8	10	32	10	17	25	95°	CC__ 0602__
SCLCR10CA-09	**SCLCL10CA-09**	10	14	50	15	20	40		CC__ 09T3__
SCLCR12CA-12	**SCLCL12CA-12**	12	20	55	20	20	50		CC__ 1204__
SCLCR16CA-12	**SCLCL16CA-12**	16	25	63	21	25	60		CC__ 1204__

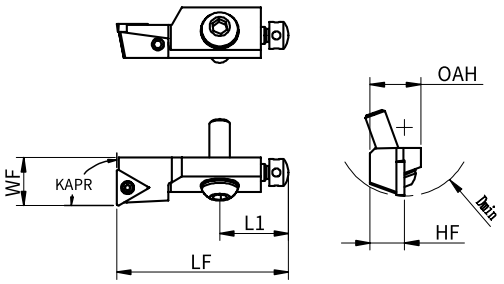


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SDJCR08CA-07	**SDJCL08CA-07**	8	14	50	15	20	25	93°	DC__ 0702__
SDJCR10CA-07	**SDJCL10CA-07**	10	14	50	15	20	40		DC__ 0702__
SDJCR10CA-11	**SDJCL10CA-11**	10	14	50	15	20	40		DC__ 11T3__
SDJCR12CA-11	**SDJCL12CA-11**	12	20	55	20	20	50		DC__ 11T3__

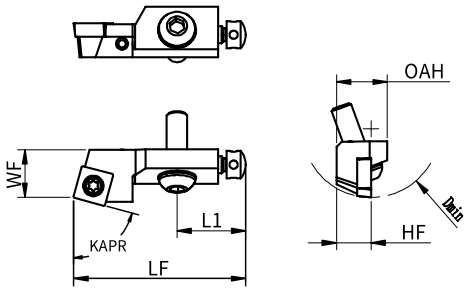


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCFCR08CA-06	**SCFCL08CA-06**	8	10	32	10	17	25	90°	CC__ 0602__
SCFCR10CA-06	**SCFCL10CA-06**	10	14	50	15	20	40		CC__ 0602__
SCFCR10CA-09	**SCFCL10CA-09**	10	14	50	15	20	40		CC__ 09T3__
SCFCR12CA-09	**SCFCL12CA-09**	12	20	55	20	20	50		CC__ 09T3__
SCFCR12CA-12	**SCFCL12CA-12**	12	20	55	20	20	50		CC__ 1204__
SCFCR16CA-12	**SCFCL16CA-12**	16	25	63	20	25	60		CC__ 1204__

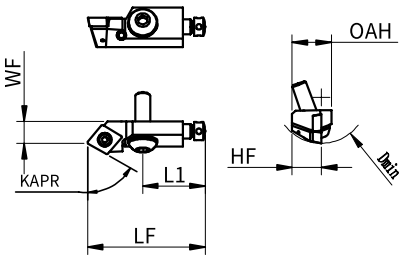
ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
STFCR08CA-09	**STFCL08CA-09**	8	10	32	10	17	25	90°	TC__ 0902__
STFCR10CA-11	**STFCL10CA-11**	10	14	50	15	20	40		TC__ 1102__
STFCR12CA-16	**STFCL12CA-16**	12	20	55	20	20	50		TC__ 16T3__
STFCR16CA-16	**STFCL16CA-16**	16	25	63	21	25	60		TC__ 16T3__

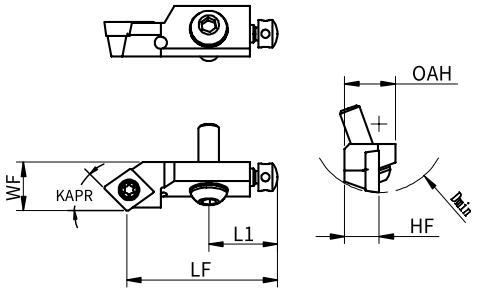


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SSRCR10CA-09	**SSRCL10CA-09**	10	14	50	15	20	40	75°	SC__ 09T3__
SSRCR12CA-09	**SSRCL12CA-09**	12	20	55	20	20	50		SC__ 09T3__
SSRCR12CA-12	**SSRCL12CA-12**	12	20	55	20	20	50		SC__ 1204__
SSRCR16CA-12	**SSRCL16CA-12**	16	25	63	21	25	55		SC__ 1204__

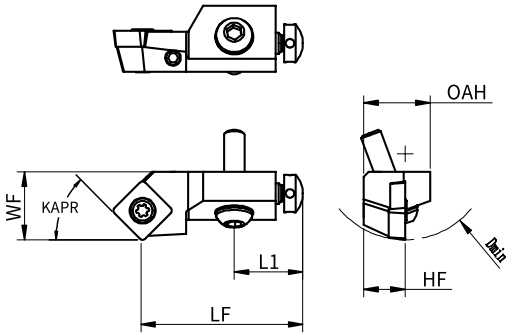


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCTCR08CA-06	**SCTCL08CA-06**	8	6	32	10	17	25	60°	CC__ 0602__
SCTCR10CA-09	**SCTCL10CA-09**	10	9	50	15	20	40		CC__ 09T3__

ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCSCR08CA-06	**SCSCL08CA-06**	8	10	28	10	17	25	45°	CC__ 0602__
SCSCR10CA-09	**SCSCL10CA-09**	10	14	44	44	20	40		CC__ 09T3__



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SSSCR10CA-09	**SSSCL10CA-09**	10	14	44	15	20	40	45°	SC__ 09T3__
SSSCR12CA-09	**SSSCL12CA-09**	12	20	47	20	20	50		SC__ 09T3__
SSSCR12CA-12	**SSSCL12CA-12**	12	20	47	20	20	50		SC__ 1204__
SSSCR16CA-12	**SSSCL16CA-12**	16	25	53	21	25	60		SC__ 1204__

Fine Adjustment Cartridge Denomination System

AFB	-	C	90	16	-	C	C	06	R
1	-	2	3	4	-	5	6	7	8

1-Fine Boring Code

AFB--Series name
Achteck Fine Boring

3-Approach Angle Kr

90---Approach angle 90°
95---Approach angle 95°
120--Approach angle 120°

5-Insert Shape

C: 

6-Insert Clearance Angle

C: 

P: 

8-Cartridge Direction

R: Right-hand
L: Left-hand

2-Fine Adjustment Cartridge Type

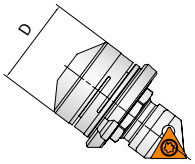
Type A:
With an angle installation

Type B:
perpendicular installation

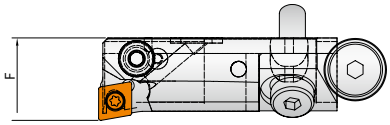
Type C:

4-Cartridge Dimension

D = 16mm

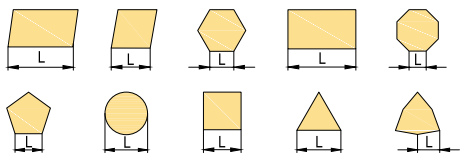


F= 16mm



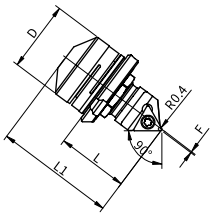
7-Length of Cutting Edge

Incircle Dia. (mm)	Insert Shape C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56					09			
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					

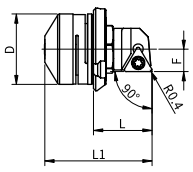


A/B Type Fine Adjustment Cartridge

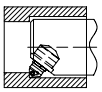
A-type Fine Adjustment Cartridge

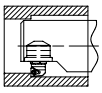


A-type Fine Adjustment Cartridge--installation with an angle



B-Type Fine Adjustment Cartridge---perpendicular installation

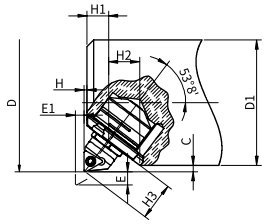
Installation method	Right-hand	Left-hand	Approach Angle	Dmin	D	L1	L	F	Insert	Screw & Wrench
 Installation with an angle	**AFB-A9016-CC06R**	**AFB-A9016-CC06L**	90°	25.5	16	25.15	14.3	0.45	CC__ 0602__	ST025060 FT-T8
	AFB-A9016-TB06R	**AFB-A9016-TB06L**		24.8	16	25.0	14.3	0.49	TB__ 0601__	ST020040 FT-T6
	AFB-A9020-TC09R	**AFB-A9020-TC09L**		32.5	20	33.7	19.1	0.9	TC__ 0902__	ST022055 FT-T6
	AFB-A9020-TP09R	**AFB-A9020-TP09L**			20	33.7	19.1	0.9	TP__ 0902__	ST025060 FT-T8
	AFB-A9022-TC11R	**AFB-A9022-TC11L**		42.0	22	45.3	23.0	1.1	TC__ 1102__	ST025060 FT-T8
	AFB-A9022-TP11R	**AFB-A9022-TP11L**			22	45.3	23.0	1.1	TP__ 1103__	ST030070 FT-T10
	AFB-A9032-TC16R	**AFB-A9032-TC16L**		59.5	32	62.3	33.3	1.2	TC__ 16T3__	ST040100 FT-T15

Installation method	Right-hand	Left-hand	Approach Angle	Dmin	D	L1	L	F	Insert	Screw & Wrench
 Perpendicular installation	**AFB-B9016-CC06R**	**AFB-B9016-CC06L**	90°	27.0	16	24.2	13.3	5.1	CC__ 0602__	ST025060 FT-T8
	AFB-B9016-TB06R	**AFB-B9016-TB06L**		27.0	16	24.2	13.3	5.1	TB__ 0601__	ST020040 FT-T6
	AFB-B9020-TC09R	**AFB-B9020-TC09L**		36.5	20	32.9	18.3	6.3	TC__ 0902__	ST022055 FT-T6
	AFB-B9020-TP09R	**AFB-B9020-TP09L**			20	32.9	18.3	6.3	TP__ 0902__	ST025060 FT-T8
	AFB-B9022-TC11R	**AFB-B9022-TC11L**		48.5	22	44.3	22.1	7.2	TC__ 1102__	ST025060 FT-T8
	AFB-B9022-TP11R	**AFB-B9022-TP11L**			22	44.3	22.1	7.2	TP__ 1103__	ST030070 FT-T10
	AFB-B9032-TC16R	**AFB-B9032-TC16L**		68.4	32	62.7	32.0	10.3	TC__ 16T3__	ST040100 FT-T15

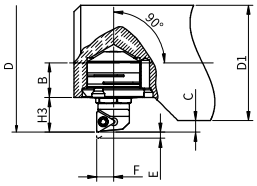
- For cartridge installed in an angle, axial movement = radial movement/tan53° 8′ .
- Never loosen the cartridge beyond the adjustment range indicated by the adjustment wrench, as exceeding the adjustment range may result in damage to the unit.
- Type A/B cartridge is self-locking, so there is no need to unlock it before size adjustment and no need to lock it after adjustment.
- The fine adjustment cartridge has a dial, and the radial adjustment size is ∅0.02mm per minute scale.

Fine Adjustment Cartridge Instruction

Type A/B fine adjustment cartridge dimension



A-type Fine Adjustment Cartridge---
Installation with an angle



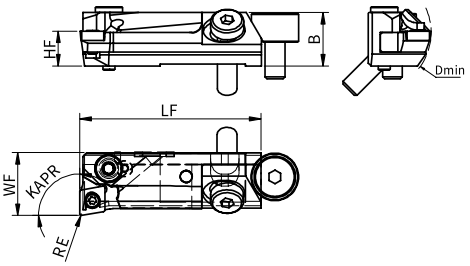
B-type Fine Adjustment Cartridge---
Perpendicular installation

Installation Method	Insert		D1	D	C	E	E1	H3	H	H1	H2	F
	Model	RE	min	min	min	max	max	min				
Installation with an angle	CC__ 06	0.2	22.0	26.2	1.70	2.0	1.5	11.0	0.5	6.6	9.55	0.40
		0.4		25.9	1.65			10.7				0.40
		0.8		25.3	1.60			10.1				0.45
	TB__ 06	0.2		25.7	1.50			10.9				0.40
		0.4		25.4	1.45			10.6				0.40
		0.8		24.8	1.40			10.0				0.45
	T__ 09	0.2	28.5	33.4	2.45	2.8	2.1	14.9		9.4	12.15	0.95
		0.4		33.1	2.30			14.5				1.00
		0.8		32.5	2.00			13.7				1.10
	T__ 11	0.2	38.0	42.9	2.45	4.8	3.6	17.6		11.2	14.85	1.15
		0.4		42.6	2.30			17.2				1.20
		0.8		42.0	2.00			16.4				1.30
	TC__ 16	0.2	55.0	60.6	2.80	8.0	6.0	26.2		16.65	12.70	1.30
		0.4		60.0	2.50			25.4				1.40
		0.8		59.4	2.20			24.6				1.50

Installation Method	Insert		D1	D	C	E	B	H3	F
	Model	RE	min	min	min	max	min	min	
Perpendicular installation	CC__ 06	0.2	26.0	27.9	0.60	2.5	3.6	9.80	5.1
		0.4		27.6	0.55			9.60	
		0.8		27.0	0.50			9.10	
	TB__ 06	0.2	24.0	25.9	0.60			8.80	
		0.4		25.6	0.55			8.60	
		0.8		25.0	0.50			8.10	
	T__ 09	0.2	34.5	37.4	1.45	3.5	4.55	13.95	6.3
		0.4		37.1	1.30			13.60	
		0.8		36.5	1.00			12.90	
	T__ 11	0.2	46.5	49.7	1.45	6.0	7.75	16.75	7.2
		0.4		49.1	1.30			16.40	
		0.8		48.5	1.00			15.70	
	TC__ 16	0.2	67.0	69.6	1.30	10.0	9.4	25.00	10.3
		0.4		69.0	1.00			24.30	
		0.8		68.4	0.70			23.60	

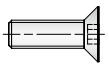
C-Type Fine Adjustment Cartridge

Right hand cartridge



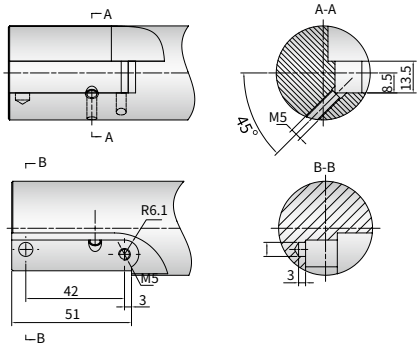
Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)					Approach angle KAPR	Insert	Screw & Wrench
		Dmin	LF	WF	B	HF			
AFB-C9016-CC06R	**AFB-C9016-CC06L**	28	45.8	16	13.5	8.5	90°	CC__ 060204	ST025060 FT-T8
AFB-C9516-CC06R	**AFB-C9516-CC06L**						95°	CC__ 060204	
AFB-C9016-TP09R	**AFB-C9016-TP09L**						90°	TP__ 090204	
AFB-C9516-TP09R	**AFB-C9516-TP09L**						95°	TP__ 090204	
AFB-C12016-DC07R	**AFB-C12016-DC07L**	28	47.5	16			120°	DC__ 070204	
AFB-C9020-TC11R	**AFB-C9020-TC11L**	36	45.8	20			90°	TC__ 110204	
AFB-C9520-TC11R	**AFB-C9520-TC11L**						95°	TC__ 110204	
AFB-C9020-TP11R	**AFB-C9020-TP11L**						90°	TP__ 110304	ST030070 FT-T10
AFB-C9520-TP11R	**AFB-C9520-TP11L**						95°	TP__ 110304	

- Please read the Type C adjustment instruction before making adjustments to avoid damage to the parts.
- When TP_ _ 0902 carbide insert is selected, the hole diameter of the insert screw must be larger than 2.8.
- Fine adjustment accuracy is ⌀0.01mm in diameter.
- Axial adjustment movement is 0-1mm; radial adjustment movement is 0- ⌀0.6mm.

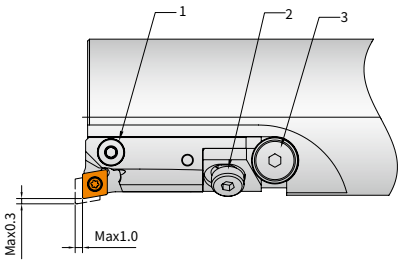
Axial adjustment block	Axial adjustment screw	Lock screw	Cartridge locking wrench	Radial adjustment wrench	Axial adjustment wrench
					
ASV-12H	AH050200	SH050200	LT-H4	LT-H2.5	LT-H3

Fine Adjustment Cartridge Instruction

Detailed dimensions



The method of adjustment



1. Radial adjustmen
2. Cartridge set screw
3. Axial adjusting screw

Axial adjustment.

- Slightly loosen the cartridge locking screw (position 2 shown)
- Turn the axial adjustment screw clockwise (position 3 shown); move the cartridge forward to the requested size
- Lock the cartridge screw (position 2 shown)

Note: If the cartridge needs to be adjusted backward in axial, loosen the cartridge locking screw and move the cartridge to the last position, then adjust the position 3 shown to the requested size

Radial adjustment.

- Turn the radial adjustment screw clockwise (position 1 shown); the tool diameter becomes larger (⌀0.01mm per scale)
- Turn the radial adjustment screw counterclockwise (position 1 shown); the tool diameter becomes smaller (⌀0.01mm per scale)

Boring Insert

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 0602_ _	1	**CCMT 060204E-PC2**	Steel	AC152P	Coated carbide insert (P05-P15)	●
	2	**CCMT 060204E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	3	**CCMT 060204E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	4	**CCMT 060204E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	5	**CCMT 060204E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	6	**CCGW 060204-S01020-SL-2**		PB90	CBN Insert (K01-K20)	○
	7	**CCGT 060204F-NC2**	Aluminium	AW100K	Carbide insert	●
	8	**CCGW 060204-1-NL-05**		PD20	Standard PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 09T3_ _	1	**CCMT 09T308-M2T**	Steel	AT202	Cermet (P10-P20)	●
	2	**CCMT 09T308E-PC2**		AC152P	Coated carbide insert (P05-P15)	●
	3	**CCMT 09T308E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	4	**CCMT 09T308E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	5	**CCMT 09T308E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	6	**CCMT 09T308E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	7	**CCGW 09T308-S01020-SL-2**		PB90	CBN (K01-K20)	○
	8	**CCGT 09T308F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**CCGW 09T308-1-NL-05**		PD20	Standard PCD insert	○
	10	**CCGW 09T308-1-LL-05**		PD20	Straight-edge PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 1204_ _	1	**CCMT 120408E-PC2**	Steel	AT202	Cermet (P10-P20)	●
	2	**CCMT 120408E-PC2**		AC152P	Coated carbide insert (P05-P15)	●
	3	**CCMT 120408E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	4	**CCMT 120408E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	5	**CCMT 120408E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	6	**CCMT 120408E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	7	**CCGW 120408-S01020-SL-2**		PB90	CBN (K01-K20)	○
	8	**CCGT 120408F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**CCGW 120408-1-NL-05**		PD20	Standard PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
TP_ _ 0802_ _	1	**TPGT 080204FL-F**	Steel	AT200	Cermet (P10-P20)	●
	2	**TPEH 080204FL-F**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	3	**TPGW 080202-1-NL-05**	Aluminium	PD20	Standard PCD insert	○
	4	**TPGW 080204-1-NL-05**		PD20	Standard PCD insert	○

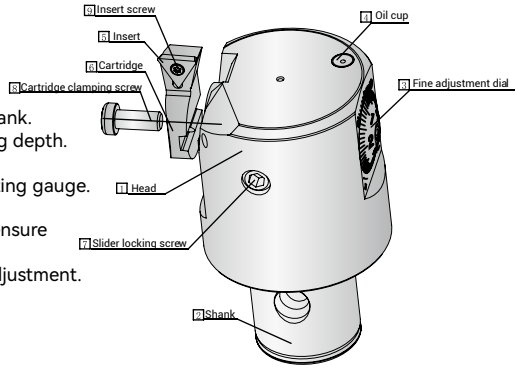
	S/N	Insert	Workpiece material	Insert grade	Description	Stock
TC_ _ 1102_ _	1	**TCMT 110204-M2T**	Steel	AT202	Cermet (P10-P20)	●
	2	**TCGT 110204FL-F**		AT200	Cermet (P10-P20)	●
	3	**TCMT 110202E-PB1**		AC250P	Coated carbide insert (P20-P35)	●
	4	**TCMT 110204E-PB1**		AC250P	Coated carbide insert (P20-P35)	●
	5	**TCGT 110204F-UF**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	6	**TCGT 110204E-UF**		AP301M	Coated carbide insert (M15-M35)	●
	7	**TCMT 110204E-KC2**	Cast iron	AC202K	Coated carbide insert (K10-K30)	●
	8	**TCGT 110204F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**TCGW 110202-1-NL-05**		PD20	Standard PCD insert	○
	10	**TCGW 110204-1-NL-05**		PD20	Standard PCD insert	○

● : Standard stock ○ : Made-to-Order

AFB Series Fine Boring Head Operator's Manual

Procedures of Use

Main Components of Fine Boring Head



Preparation:
1. Verify that the adjustment range of the fine boring head meets the requirement of the bore diameter to be machined.
2. Check (right figure) that all parts are in order; that the cartridge and insert locking screws are locked tight.
3. Clean and wipe the shank mounting hole and tighten the boring head mounting screw on the shank.
4. Confirm that the assembled boring tool meets the requirement of boring diameter and machining depth.

Step 1: Loosen the fine adjustment cartridge locking screw ⑦ on the tool change chuck or tool setting gauge.
Step 2: Rotate the fine adjustment dial ③ to preset to the size needed as indicated .
Step 3: When preset to the size needed, please make the fine adjustment in the same direction to ensure the fine adjustment accuracy.
Step 4: Tighten the fine adjustment cartridge locking screw ⑦ with proper force to complete the adjustment.

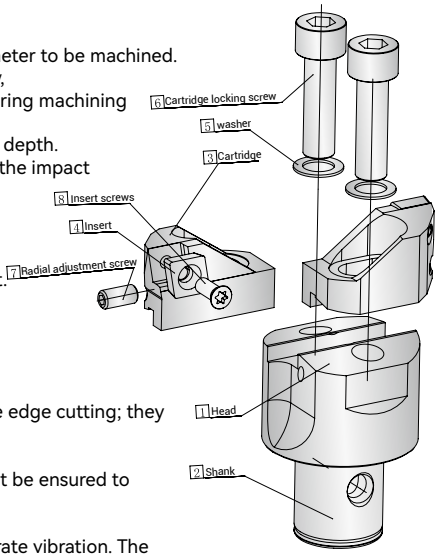
Attention

1. Before machining, make sure all parts are locked properly to avoid damage to the boring head during machining.
2. The AFB series fine boring head rotated its internal precision screw to achieve radial movement of the cartridge. In case of excessive resistance or unable to turn the adjustment dial, stop the operation and check immediately (whether the adjustment cartridge screw is loose or it is out of the adjustment range of the boring head diameter).
3. For back-boring, use the right-hand insert and reverse rotate the machine spindle, paying attention to the interference range during the movement.
4. For long overhang (> 4 x coupling diameter), it is recommended to use anti-vibration boring tools.
5. Large insert nose radius will help to improve machining safety and surface quality, but may generate vibration. An insert nose radius bigger than 0.4 mm should not be used for finish boring.

ARB Series Rough Boring Head Operator's Manual

Procedures of Use

Main Components of Rough Boring Head



Preparation:
1.Verify that the adjustment range of the rough boring head meets the requirement of the bore diameter to be machined.
2.Check (as shown on the right) that all parts are in order; and the cartridge, radial adjustment screw, and insert locking screw are locked to prevent damage to the tool or to avoid cartridge flying out during machining and causing accidents.
3.Confirm that the assembled boring tool meets the requirement for boring diameter and machining depth.
Pay attention to the chip removal, cooling, cutting depth and other conditions, and pay attention to the impact of chips to the vibration control.

Step 1: On the tool change chuck or tool setting gauge, loosen the cartridge screw ⑥ .
Step 2: Turn the radial adjustment screw ⑦ to reach the required size of the tool.
Step 3: After adjusting to the size of the tool, lock the cartridge screw ⑥ to complete the adjustment.

Attention

1. Before machining, ensure that all parts are properly locked to avoid damage to the boring head or prevent the cartridge flying out during machining, which may cause accidents.
2. ARB series rough boring heads are designed for equal radius and balanced machining with double edge cutting; they are used for rough boring with tolerances greater than or equal to IT9 when metal removal rate is a priority.
3. For rough boring with large depth of cut, adequate chip space and chip evacuation condition must be ensured to reduce tool vibration caused by chip jam.
4. For long overhang (> 4 x coupling diameter), it is recommended to use anti-vibration boring tools.
5. A large insert nose radius will help to improve machining safety and surface quality, but may generate vibration. The recommended starting tip nose radius is 0.8 mm.

Bridge boring main parts name