

High Precision and High Quality Milling Cutter

SEC-WaveMill WFX Series

Rev.12

Superior machined surface quality with optimised insert cutting edge shape and high-precision technology



Expansion

Next-Generation Coated Carbide Grades for Milling

XCU2500/XCK2000
now available for WFX Type



General Features

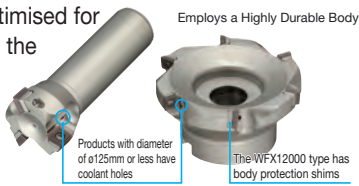
SEC-WaveMill WFX Type for shoulder milling is a screw-locking type cutter capable of using four corners. Ideal cutting edge design delivers good squareness. Now with high-efficiency, multi-functional WFXH type and chamfering WFXC type. Our comprehensive range covers a wide variety of applications. In addition to the general-purpose grade ACU2500, applicable to various work materials, the new-generation coated carbide grades XCU2500/XCK2000 are now available. Covering a wide variety of machining.



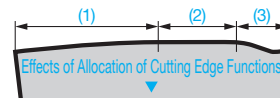
WFXH Type WFXC Type

Features

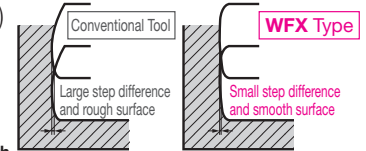
The insert shape optimised for shoulder milling and the high-precision body leave a superior machined surface finish.



Optimised Edge Shape (For Shoulder Milling)



- (1): The convex shape **ensures cutting edge strength**
- (2): The flat shape **reduces step differences** in shoulder milling
- (3): The wiper flat function **improves the surface roughness**



Product Range

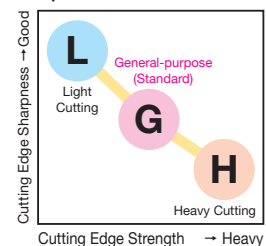
Applications	Type	Cat. No.	Description	Dia. (mm)																Shape		
				ø8	ø16	ø20	ø22	ø25	ø28	ø30	ø32	ø33	ø40	ø50	ø63	ø80	ø100	ø125	ø160		ø200	ø250
Shoulder Milling	Shell	WFX 08000R	Standard Pitch												6	8						
		WFX 08000RS	Standard Pitch								3	4	5	6	8							
		WFXM 08000R	Fine Pitch												8	10						
		WFXM 08000RS	Fine Pitch									4	5	6	8	10						
		WFXF 08000R	Extra Fine Pitch												10	12						
		WFXF 08000RS	Extra Fine Pitch									6	7	8	10	12						
		WFX 12000R	Standard Pitch										3	4	4	5	6	8	10	12		
		WFX 12000RS	Standard Pitch											3	4	4	5	6	8	10		12
		WFXF 12000R	Extra Fine Pitch												6	7	8	12	16	18		
		WFXF 12000RS	Extra Fine Pitch											4	5	6	7					
Shoulder Milling	Shank	WFX 08000E	Standard Pitch		2*	2*	2*	2*	3	3	3	3	4	5								
		WFXM 08000E	Fine Pitch				3			4		4	5	6								
		WFX 12000E	Standard Pitch									3	3	4	4							
		WFXF 12000E	Extra Fine Pitch										4	5	6							
High Efficiency	Modular	WFX 08000M	Modular Type		2	2	2	2	3	3		3										
		WFXH 08000RS	Standard Pitch									4	5	6	6							
		WFXH 12000RS	Standard Pitch											4	5							
		WFXH 08000M	Modular Type				2			3												
Chamfering	Modular	WFXC 08000E	Standard Pitch	1	2																	
		WFXC 12000E	Standard Pitch				3			3												
		WFXC 08000M	Modular Type		2																	
		WFXC 12000M	Modular Type				3			3												

Chipbreaker Selection Guide

Number in ● shows the number of teeth Inch Bore *mark: Different-diameter shanks in stock

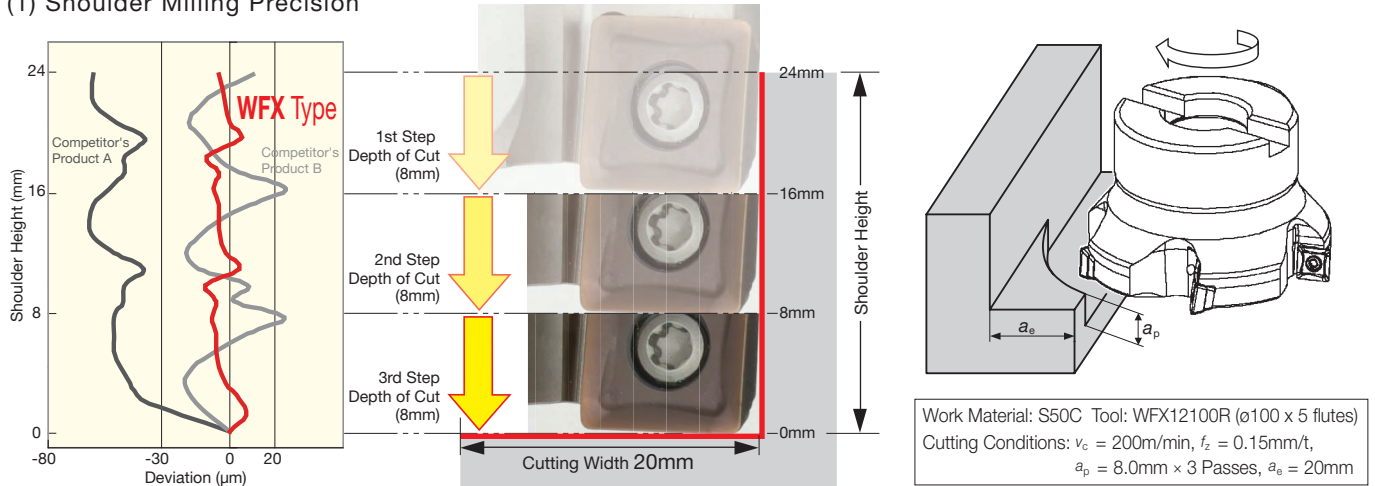
Work Material	P M K S				N
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	Main Chipbreaker General-purpose to Interrupted Milling	Roughing, Heavy Interrupted Cutting and Hardened Steel Milling	High-precision Finish	Non-Ferrous Metals
Features	Low Cutting Force	General-purpose Type	High Strength Type	Wiper	Sharp Edge
Chipbreaker	L Type	G Type	H Type	Wiper Insert	S Type
08 Series Cross Section					
12 Series Cross Section					

Chipbreaker Selection

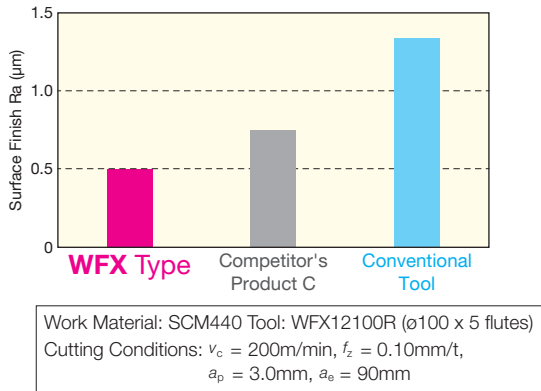


Cutting Performance

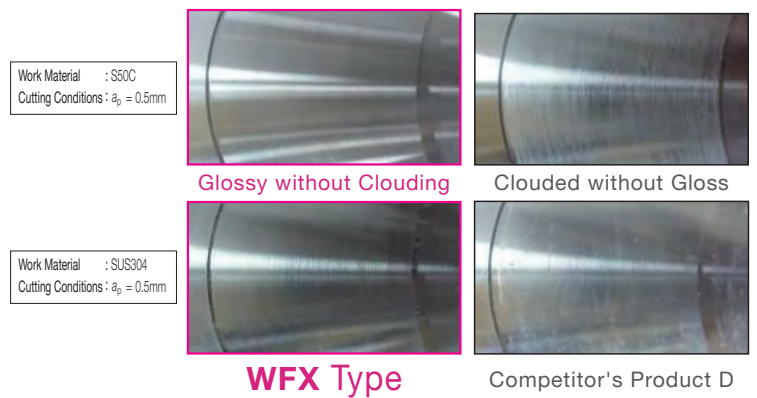
(1) Shoulder Milling Precision



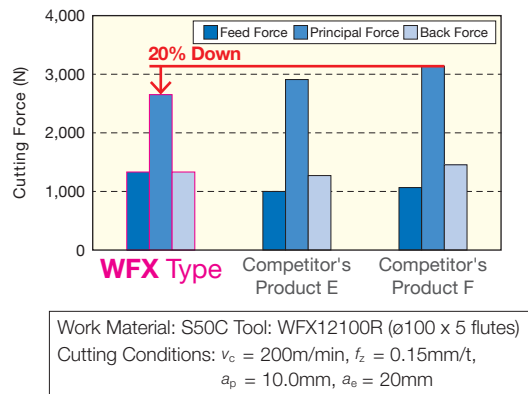
(2) Comparison of Surface Roughness



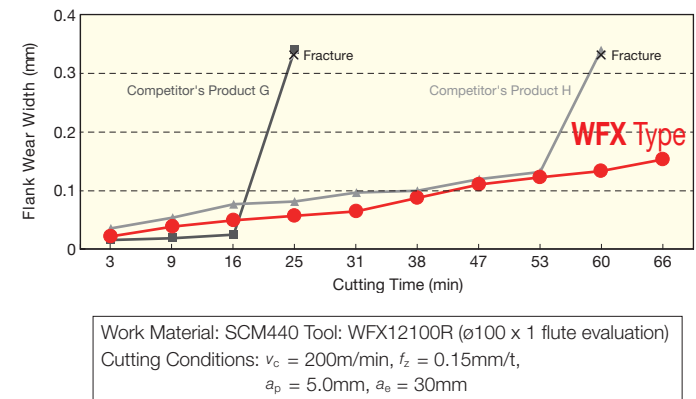
(3) Comparison of Surface Properties



(4) Comparison of Cutting Force

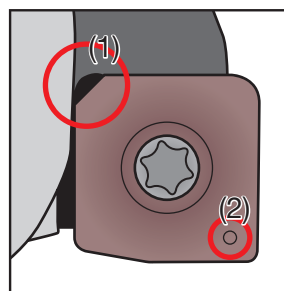
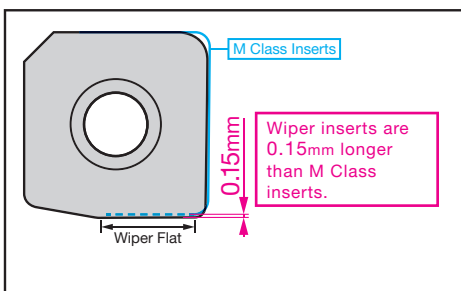


(5) Comparison of Wear Resistance



Wiper Insert

Optimised wiper flat shape provides superior surface roughness.



Precautions when Using Wiper Inserts

- The wiper insert has a single corner specification.
- Attach the wiper insert so that the chamfered corner is in location (1) shown in the figure.
- Use the corner with the ID mark. (2)
 (08-size inserts have no marks.)
- For wiper inserts, see "The Basics of Milling, Milling Edition" in Chapter N of the General Catalogue.

Grade Application Range

New-generation coated carbide grades **XCU2500/XCK2000** now available!
 Enhanced lineup of coated grades in addition to cemented carbide and cermet for milling steel, stainless steel, cast iron, and aluminum alloy.

Work Material	Finishing to Light Cutting	Medium Cutting	Rough to Heavy Cutting
P Steel	Coated Carbide	ACU2500 XCU2500 ACP100	ACP200 ACP300
	Cermet	T4500A	
M Stainless Steel	Coated Carbide	ACU2500 XCU2500 ACM200	ACM300
	Cermet	T4500A	
K Cast Iron	Coated Carbide	ACU2500 XCU2500 XCK2000 ACK200	ACK300
	Cemented Carbide	DL1000	H1

The letters "C" and "P" at the end of each grade indicate the coating type. ▽ : CVD ▲ : PVD

Grade Features

New coating technology that realises absolute stability
ABSOTECH™ (Absolute Technology)

ABSOTECH
PVD

New Super Multi-Layered Structure
 Higher hardness and twice the conventional wear resistance due to a fine crystal structure AlTiCrBN-based nano-layered coating

High Adhesion Strength
 Coating adhesion significantly increased for twice or more the conventional chipping resistance

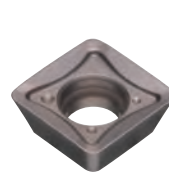
Applicable Grades: **ACU2500**

ABSOTECH
CVD

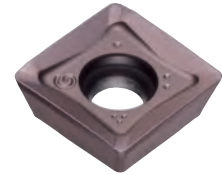
Pure cubic crystal AlTiN with high Al content
 With proprietary structural control technology, differently composed layers of AlTiN are stacked at the nanometre level. With a high-Al composition containing over 80% Al on average, it also maintains a cubic crystalline structure to achieve excellent thermal resistance and high hardness. Vastly improved wear resistance.

Special Surface Treatment
 Proprietary surface treatment introduces high compression stress to the coating, suppressing the development of cracks. Greatly improved fracture and thermal crack resistance.

Applicable Grades: **XCU2500, XCK2000**



Insert for WFX08000
 (General-purpose G Chipbreaker)



Insert for WFX12000
 (General-purpose G Chipbreaker)

ACP200/ACP300/ACK300/ACM300

NEW SUPER ZX COAT

Realises superb stability due to a carbide substrate optimised for steel, cast iron, and stainless steel with a highly chipping-resistant coating.

ACP100/ACK200/ACM200

SUPER FF COAT

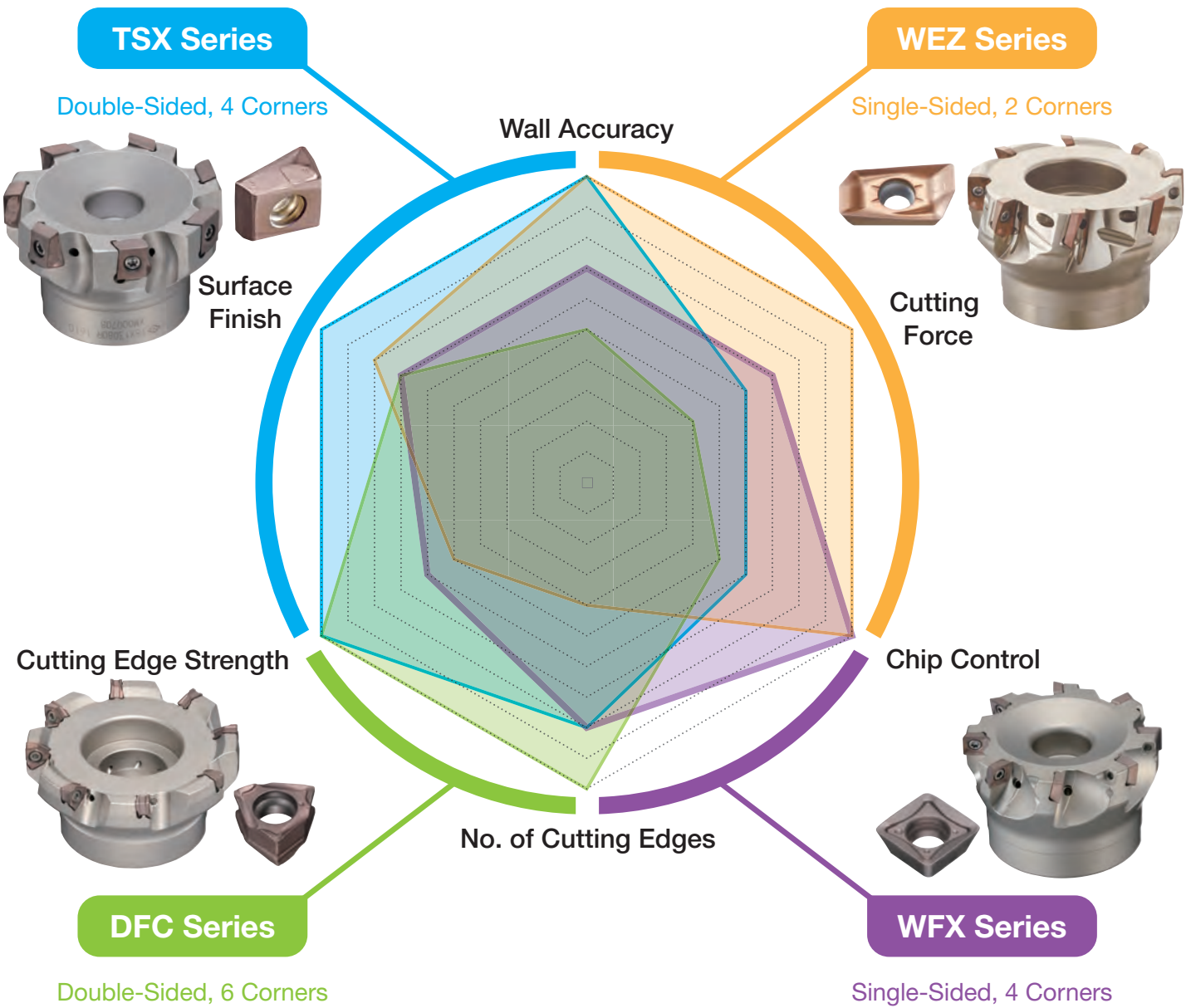
Realises superb stability in high-efficiency machining due to a carbide substrate optimised for steel, cast iron, and stainless steel with a highly wear-resistant coating.

DL1000

AURORA Coat (DLC (Diamond-like Carbon))

Second only to diamond in terms of hardness, this flat and smooth coating has a low coefficient of friction and provides excellent adhesion resistance to deliver better machined surface quality.

Shoulder Milling Selection Guide

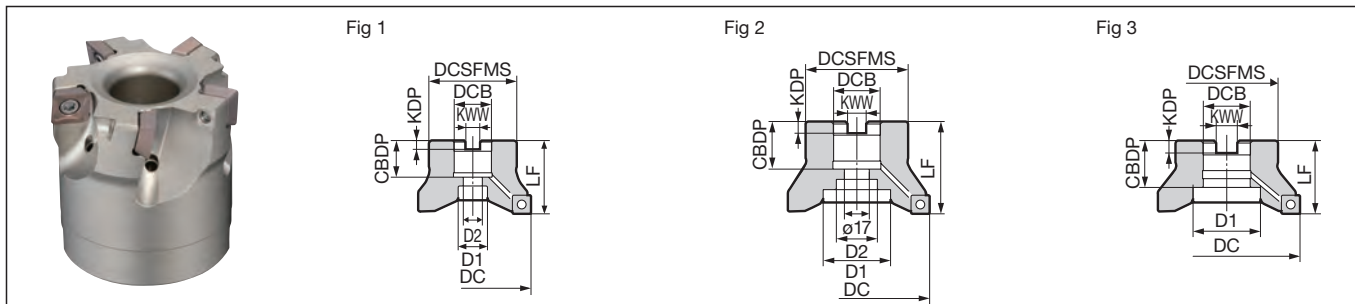


★★★: 1st Recommendation

	Surface Finish	Wall Accuracy	Cutting Force	Chip Control	No. of Cutting Edges	Cutting Edge Strength
WEZ Series	★★★	★★★	★★★	★★★	★	★★★
TSX Series	★★★	★★★	★★	★★★	★★	★★★
DFC Series	★★★	★	★	★★★	★★★	★★★
WFX Series	★★★	★★	★★	★★★	★★	★★

*For the details of each product, see the WEZ series (Tooling News No. 528), TSX series (Tooling News No. 523), and DFC series (Tooling News No. 513).

Rake Angle	Radial	-6°
	Axial	12°



Body (Standard Pitch)

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFX 08040RS	●	40	33	40	16	8.4	5.6	18	14	9	3	0.2	1
	08050RS	●	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
	08063RS	●	63	50	40	22	10.4	6.3	20	18	11	5	0.6	1
	08080RS	●	80	55	50	27	12.4	7	22	20	14	6	1.0	1
	08100RS	●	100	70	50	32	14.4	8	32	46	—	8	1.4	3
Inch	WFX 08080R	●	*80	55	50	25.4	9.5	6	25	20	14	6	1.0	1
	08100R	●	*100	70	63	31.75	12.7	8	32	46	27	8	1.9	2

Inserts are sold separately. Take note of the cutter mounting size (DCB) when selecting a cutter.

For mounting the ø80 and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (mm)

Process	Grade Classification		Coated Carbide								Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig	
	High-speed/Light	Medium Cutting	P	M	K	K	M	M	N	N	P					
	Medium Cutting	Roughing	P	M	K	K	M	M	N	N	P					
	Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A		
	SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
	080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
	SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
	SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—	0.4	1
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—	0.8	1
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—	1.2	1
	SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—	0.2	1
	080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—	0.4	1
	080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—	0.8	1
	XOEW 080308PZTR-W	●	—	—	—	—	—	—	—	—	—	—	●	—	—	2

Fig 1

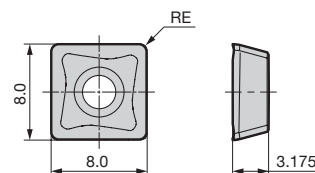
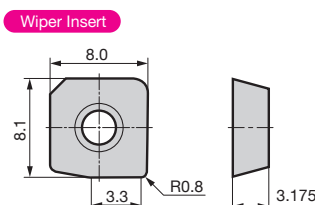


Fig 2



Identification Code

WFX **08** **040** **R** **S**
 Series Insert Size Dia. Feed Direction Metric Bore

Parts

Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	TRDR08IP	SUMI-P

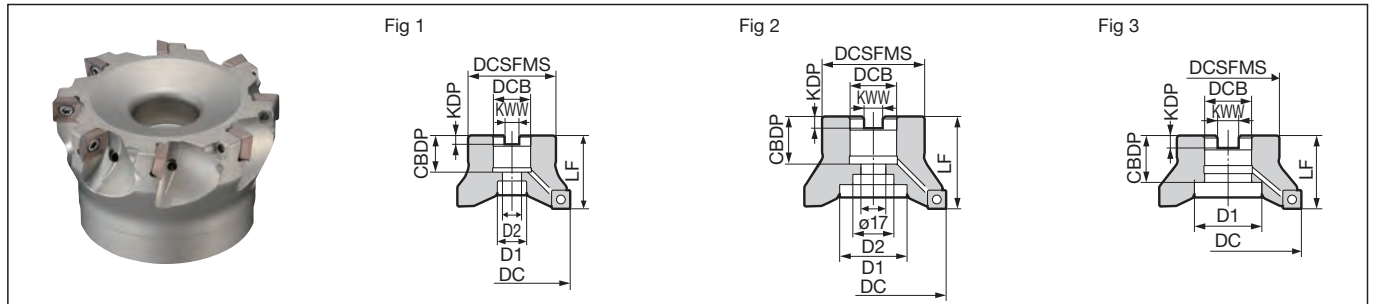
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.08-0.12-0.18	< 6	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 6	
	Die Steel	200 to 220 HB	100-150-200	0.08-0.12-0.18	< 4	XCU2500
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 6	ACU2500 ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 6	ACU2500 ACK200 ACK300 XCU2500 XCK2000
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 6	H1 DL1000
S	Exotic Alloy	—	30-50-80	0.08-0.13-0.18	< 6	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.



Rake Angle	Radial	-6°	6mm	90°
	Axial	12°		



Body (Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFXM 08040RS	●	40	33	40	16	8.4	5.6	18	14	9	4	0.2	1
	08050RS	●	50	41	40	22	10.4	6.3	20	18	11	5	0.3	1
	08063RS	●	63	50	40	22	10.4	6.3	20	18	11	6	0.5	1
	08080RS	●	80	55	50	27	12.4	7	22	20	14	8	1.0	1
	08100RS	●	100	70	50	32	14.4	8	32	46	—	10	1.4	3
Inch	WFXM 08080R	●	80	55	50	25.4	9.5	6	25	20	14	8	1.0	1
	08100R	●	100	70	63	31.75	12.7	8	32	46	27	10	1.9	2

Inserts are sold separately. Take note of the cutter mounting size (DCB) when selecting a cutter.

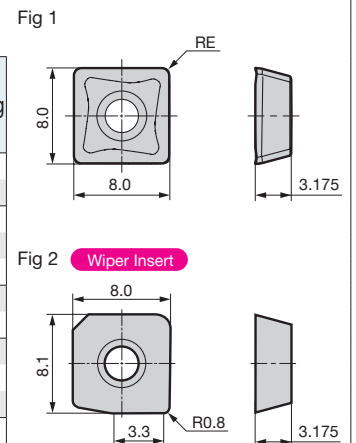
For mounting the ø80 and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (mm)

Process	Grade Classification		Coated Carbide								Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig		
	High-speed/Light	Medium Cutting	P	K	K	M	M	M	M	N	N	P					
	Medium Cutting	Roughing	P	K	K	M	M	M	M	N	N	P					
	Cat. No.		ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A		
	SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
	080308PZER-L	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
	SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
	080312PZER-H	●	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
	SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	●	—	0.4	1
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	●	—	0.8	1
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	●	—	●	—	1.2	1
	SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	—	●	—	—	0.2	1
	080304PZFR-S	—	—	—	—	—	—	—	—	—	—	—	●	—	—	0.4	1
	080308PZFR-S	—	—	—	—	—	—	—	—	—	—	—	●	—	—	0.8	1
	XOEW 080308PZTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●	—	—	2

Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).



Identification Code

WFX **M** **08** **040** **R** **S**

Series Fine Pitch Insert Size Dia. Feed Direction Metric Bore

Parts

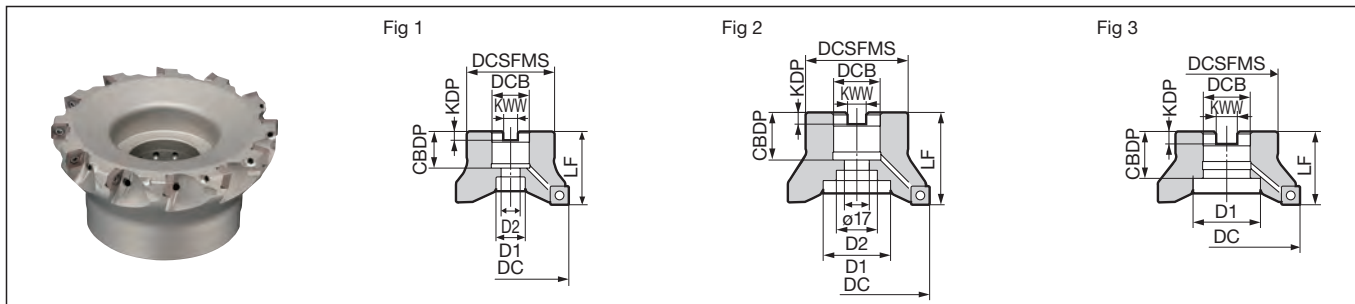
Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	2.0	TRDR08IP SUMI-P

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.08-0.12-0.18	< 6	ACU2500
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 6	ACP200
	Die Steel	200 to 220 HB	100-150-200	0.08-0.12-0.18	< 4	ACP300
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 6	XCU2500
						ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 6	ACU2500
						ACK200
						ACK300
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 6	XCU2500
						ACM200
						ACM300
S	Exotic Alloy	—	30-50-80	0.08-0.13-0.18	< 6	ACU2500

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-6°
	Axial	12°



Body (Extra Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFXF 08040RS	●	40	33	40	16	8.4	5.6	18	14	9	6	0.2	1
	08050RS	●	50	41	40	22	10.4	6.3	20	18	11	7	0.3	1
	08063RS	●	63	50	40	22	10.4	6.3	20	18	11	8	0.5	1
	08080RS	●	80	55	50	27	12.4	7	22	20	14	10	0.9	1
	08100RS	●	100	70	50	32	14.4	8	32	46	—	12	1.4	3
Inch	WFXF 08080R	●	80	55	50	25.4	9.5	6	25	20	14	10	1.0	1
	08100R	●	100	70	63	31.75	12.7	8	32	46	27	12	1.9	2

Inserts are sold separately. Take note of the cutter mounting size (DCB) when selecting a cutter.

For mounting the ø80 and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (mm)

Process	Grade Classification		Coated Carbide						Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig				
	High-speed/Light	Medium Cutting	P	M	K	K	M	M	N	N							
	Medium Cutting	Roughing	P	M	K	K	M	M	N	P							
			ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A		
			●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
			●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	0.4	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	0.8	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	1.2	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	0.2	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	0.4	1
			—	—	—	—	—	—	—	—	—	—	●	—	—	0.8	1
			●	—	—	—	—	—	—	—	—	—	—	●	—	—	2

Fig 1

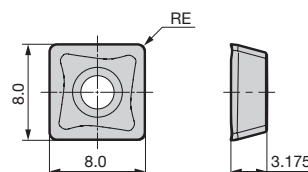
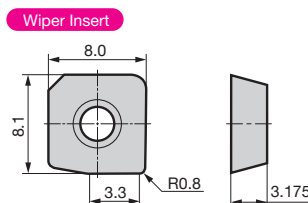


Fig 2



Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).

Identification Code

WFX F 08 040 R S

Series Extra Fine Pitch Insert Size Dia. Feed Direction Metric Bore

Parts

Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	2.0	TRDR08IP SUMI-P

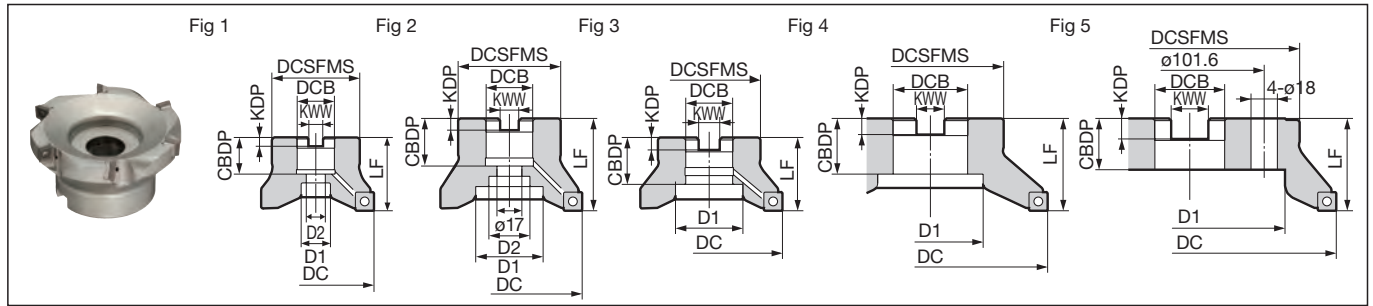
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.08-0.12-0.18	< 6	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 6	XCU2500
	Die Steel	200 to 220 HB	100-150-200	0.08-0.12-0.18	< 4	
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 6	ACU2500 ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 6	ACU2500 ACK200 ACK300 XCU2500 XCK2000
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 6	H1 DL1000
S	Exotic Alloy	—	30-50-80	0.08-0.13-0.18	< 6	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.



Rake Angle	Radial	-8°	<div style="border: 1px solid black; padding: 2px;">10mm</div> <div style="border: 1px solid black; padding: 2px;">90°</div>
	Axial	8°	



Body (Standard Pitch)

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFX 12050RS	●	50	41	40	22	10.4	6.3	20	18	11	3	0.3	1
	12063RS	●	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
	12080RS	●	80	55	50	27	12.4	7	22	20	14	4	0.9	1
	12100RS	●	100	70	50	32	14.4	8	32	46	—	5	1.3	3
Inch	WFX 12080R	●	80	55	50	25.4	9.5	6	25	20	14	4	0.9	1
	12100R	●	100	70	63	31.75	12.7	8	32.5	46	27	5	1.7	2
	12125R	●	125	80	63	38.1	15.9	10	35.5	55	30	6	2.4	1
	12160R	●	160	100	63	50.8	19.1	11	38	72	—	8	3.6	4
	12200R	●	200	160	63	47.625	25.4	14	35	130	—	10	6.8	5
	12250R	●	250	180	63	47.625	25.4	14	35	160	—	12	9.6	5

Inserts are sold separately. Sizes ø160mm and above do not have coolant holes.

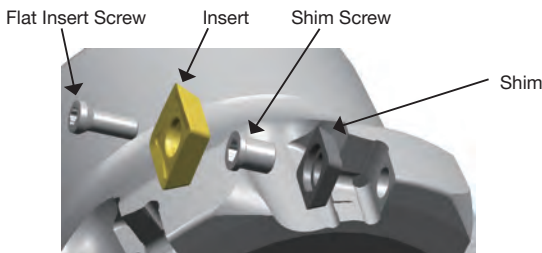
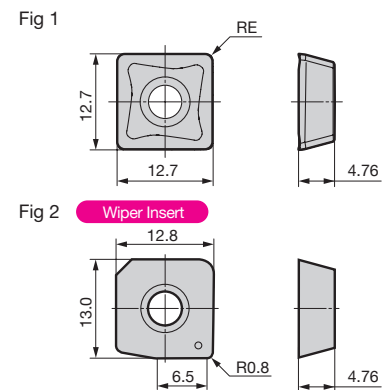
For mounting the ø80 and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (mm)

Grade Classification	Coated Carbide										Cemented Carbide	DLC	Cermets	Corner Radius RE	Fig	
	High-speed/Light															
	Medium Cutting															
Process	Roughing															
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A			
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1	
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1	
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	●	—	0.8	1	
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1	
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.6	1	
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1	
SOET 120408PDFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8	1	
XOEW 120408PDTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●	—	2	

Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).



Parts

Applicable Cutter	Shim	Shim Screw	Wrench	Flat Insert Screw	Integrated Wrench	Detachable Wrench Handle Grip	Wrench Bit	Anti-seizure Cream	
DC ø60 to 125 Other than above	WFXS4R	BW0507F	LH035	BFTX03512IP	3.0	TRDR15IP	HPS1015	TRB15IP	SUMI-P

Identification Code

WFX 12 050 R S

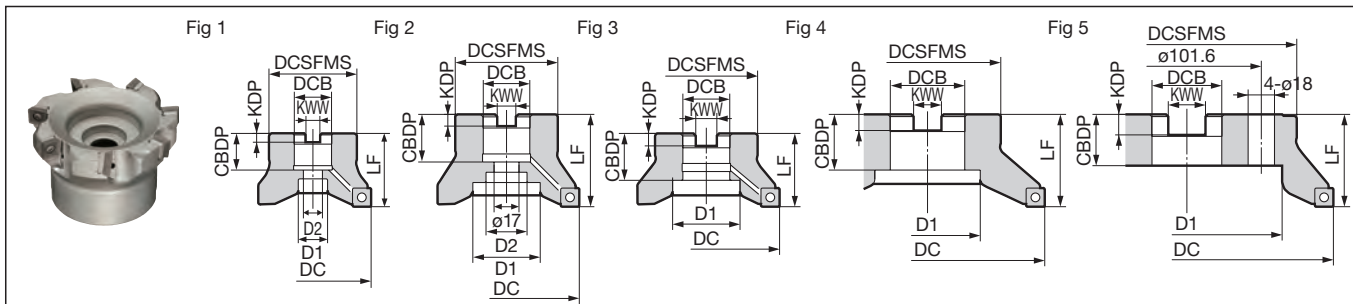
Series Insert Size Dia. Feed Metric Direction Bore

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.10-0.15-0.20	< 10	ACU2500
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 10	ACP200
	Die Steel	200 to 220 HB	100-150-200	0.10-0.15-0.20	< 6	ACP300
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 10	ACU2500
						ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 10	ACU2500
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 10	H1
						DL1000
						ACU2500
S	Exotic Alloy	—	30-50-80	0.10-0.15-0.20	< 10	ACM200
						ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-8°	90°
Angle	Axial	8°	



Body (Extra Fine Pitch)

Dimensions (mm)

Metric	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFXF 12050RS	●	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
	12063RS	●	63	50	40	22	10.4	6.3	20	18	11	5	0.5	1
	12080RS	●	80	55	50	27	12.4	7	22	20	14	6	0.9	1
	12100RS	●	100	70	50	32	14.4	8	32	46	—	7	1.3	3
Inch	WFXF 12080R	●	80	55	50	25.4	9.5	6	25	20	14	6	0.9	1
	12100R	●	100	70	63	31.75	12.7	8	32.5	46	27	7	1.7	2
	12125R	●	125	80	63	38.1	15.9	10	35.5	55	30	8	2.3	1
	12160R	●	160	100	63	50.8	19.1	11	38	72	—	12	3.5	4
	12200R	●	200	160	63	47.625	25.4	14	35	135	—	16	6.7	5
	12250R	●	250	180	63	47.625	25.4	14	35	160	—	18	9.5	5

Inserts are sold separately. Sizes ø160mm and above do not have coolant holes.

For mounting the ø80 and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (mm)

Grade Classification	Coated Carbide										Cemented Carbide	DLC	Cermets	Corner Radius RE	Fig	
	High-speed/Light															
	Medium Cutting															
Process	Roughing															
Cat. No.		ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A		
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4	1
120408PDER-G	●	●	●	●	●	●	●	●	●	●	●	—	●	—	0.8	1
120412PDER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2	1
120416PDER-G	●	●	●	●	●	●	●	●	●	●	●	—	—	—	1.6	1
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8	1
SOET 120408PDFR-S	—	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8	1
XOEW 120408PDTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●	—	—	2

Fig 1

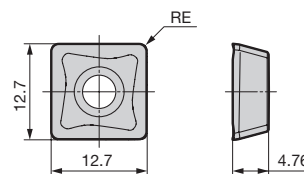
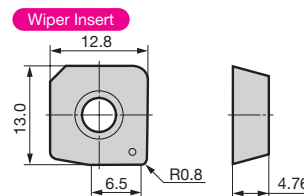
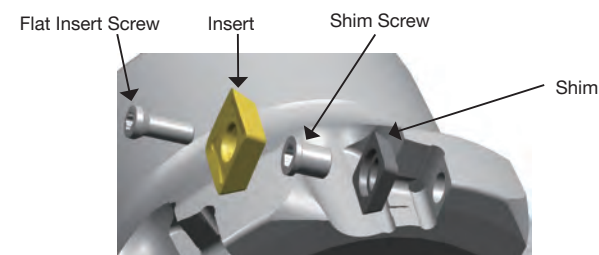


Fig 2



Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).



Parts

Applicable Cutter	Shim	Shim Screw	Wrench	Flat Insert Screw	Integrated Wrench	Detachable Wrench Handle Grip	Wrench Bit	Anti-seizure Cream	
DC ø50 to 125 Other than above	WFXS4R	BW0507F	LH035	BFTX03512IP	3.0	TRDR15IP	HPS1015	TRB15IP	SUMI-P

Identification Code

WFX F 12 050 R S

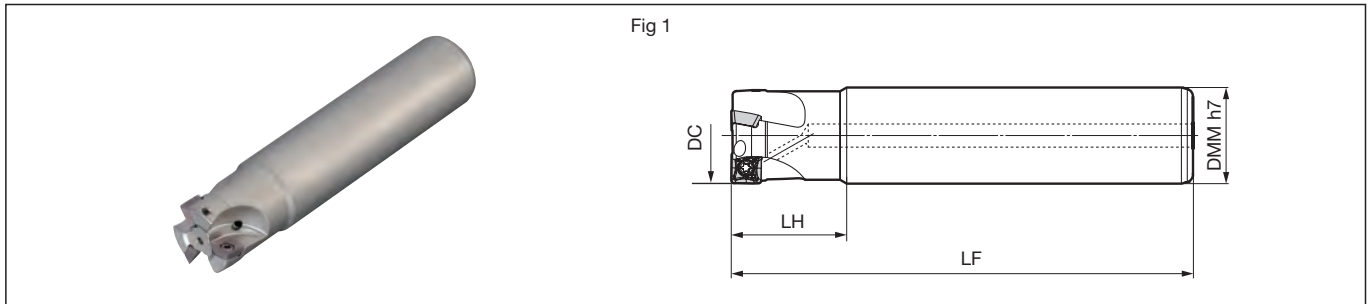
Series Extra Fine Pitch Insert Size Dia. Feed Direction Metric Bore

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.10-0.15-0.20	< 10	ACU2500
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 10	ACP200
	Die Steel	200 to 220 HB	100-150-200	0.10-0.15-0.20	< 6	ACP300
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 10	XCU2500
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 10	ACU2500
						ACK200
						ACK300
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 10	H1
						DL1000
						ACU2500
S	Exotic Alloy	—	30- 50 -80	0.10-0.15-0.20	< 10	ACM200
						ACM300
						ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-6°	
	Axial	12°	



Body (Standard Pitch)

Dimensions (mm)

Cat. No.	Stock	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Fig
WFX 08020E-16	●	20	16	30	110	2	1
08020E	●	20	20	30	110	2	1
08022E	●	22	20	30	120	2	1
08025E-20	●	25	20	30	120	2	1
08025E	●	25	25	30	120	2	1
08028E	●	28	25	30	120	2	1
08030E	●	30	25	30	120	3	1
08032E	●	32	32	30	120	3	1
08033E	●	33	32	30	120	3	1
08040E	●	40	32	30	120	3	1
08050E	●	50	32	30	120	4	1
08063E	●	63	32	30	120	5	1

Inserts are sold separately.

Body (Fine Pitch)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Fig
WFXM 08025E	●	25	25	30	120	3	1
08032E	●	32	32	30	120	4	1
08040E	●	40	32	30	120	4	1
08050E	●	50	32	30	120	5	1
08063E	●	63	32	30	120	6	1

Inserts are sold separately.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide								Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig
	High-speed/Light	P	M	K	K	M	M	M	N	N			
Process	Medium Cutting	P	M	K	K	M	M	M	N	N			
	Roughing	P	M	K	K	M	M	M			P		
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—
080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—
080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—
080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—
080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—
XOEW 080308PZTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●

Fig 1

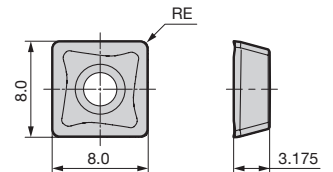
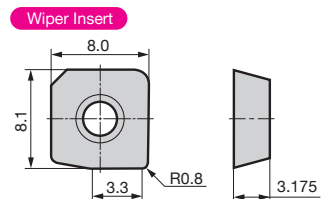


Fig 2



Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).

Identification Code

WFX Series **M** Fine Pitch **08** Insert Size **025** Dia. **E** Shank Type

Parts

Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	TRDR08IP	SUMI-P
2.0 N·m		

Recommended Cutting Conditions

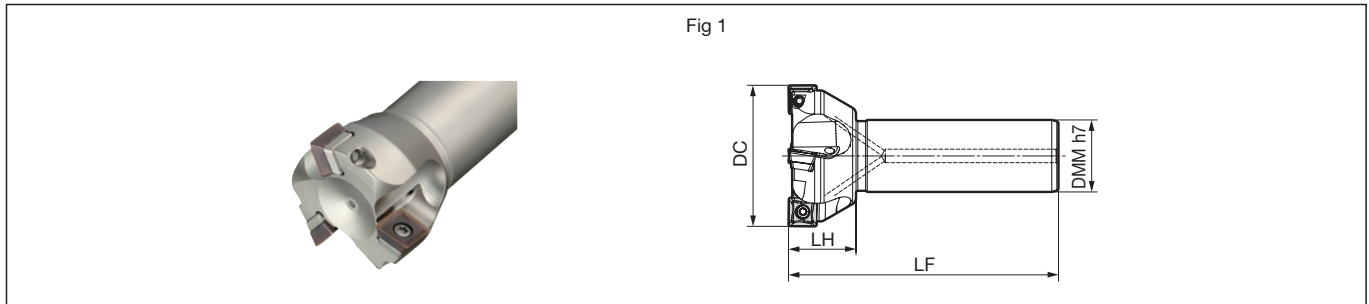
ISO	Work Material	Hardness	Cutting Speed v_c (m/min)	Feed Rate f_z (mm/t)	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.08-0.12-0.18	< 6	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 6	XCU2500
	Die Steel	200 to 220 HB	100-150-200	0.08-0.12-0.18	< 4	
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 6	ACU2500 ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 6	ACU2500 ACK200 ACK300 XCU2500 XCK2000
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 6	H1 DL1000
S	Exotic Alloy	—	30-50-80	0.08-0.13-0.18	< 6	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Recommended Tightening Torque (N·m) ● mark: Standard stocked item ● mark: Standard stocked item (expanded item) Blank: Made-to-order item — mark: Not available

Rake Angle	Radial	-8°
	Axial	8°

10mm 90°



Body (Standard Pitch)

Dimensions (mm)

Cat. No.	Stock	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WFX 12040E	●	40	32	30	120	3	0.68	1
12050E	●	50	32	30	120	3	0.78	1
12063E	●	63	32	30	120	4	0.94	1
12080E	●	80	32	30	120	4	1.29	1

Inserts are sold separately. ø40mm size does not have shims.

Body (Extra Fine Pitch)

Dimensions (mm)

Cat. No.	Stock	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WFXF 12050E	●	50	32	30	120	4	0.78	1
12063E	●	63	32	30	120	5	0.96	1
12080E	●	80	32	30	120	6	1.22	1

Inserts are sold separately.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide							Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig		
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	N	N					
Process	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	N	N					
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.8
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.6
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8
SOET 120408PDFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8
XOEW 120408PDTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●	—

Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).

Fig 1

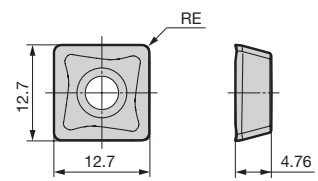
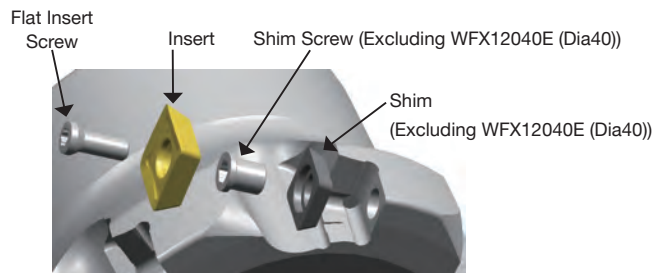
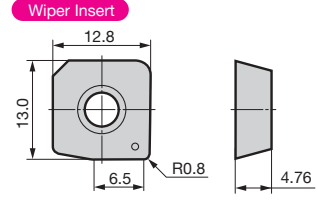


Fig 2



Identification Code

WFX F 12 050 E

Series Extra Fine Pitch Insert Size Dia. Shank Type

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-200-250	0.10-0.15-0.20	< 10	ACU2500 ACP200 ACP300 XCU2500
	Mild Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	< 10	
	Die Steel	200 to 220 HB	100-150-200	0.10-0.15-0.20	< 6	
M	Stainless Steel	—	160-200-250	0.10-0.15-0.20	< 10	ACU2500 ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	< 10	ACU2500 ACK200 ACK300 XCU2500 XCK2000
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20	< 10	H1 DL1000
S	Exotic Alloy	—	30-50-80	0.10-0.15-0.20	< 10	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Parts

Shim	Shim Screw	Wrench	Flat Insert Screw	Wrench	Anti-seizure Cream	
WFXS4R	BW0507F	LH035	BFTX035-12IP	3.0	TRDR15IP	SUMI-P

ø40mm size does not have shims.



General Features

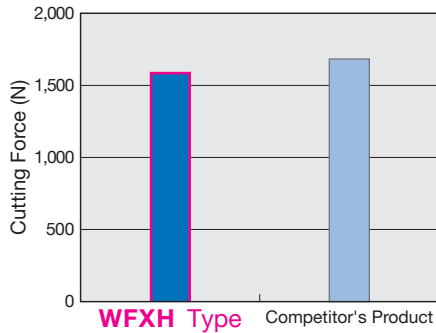
SEC-WaveMill WFXH Types are high performance multi-functional cutters that use WFX series inserts to support roughing at high feed rates and other milling applications.

Features

- (1) Stable, high-efficiency machining due to their superior sharpness
- (2) Various milling applications are supported (ramping, helical milling)
- (3) Various inserts for the WFX series can be used
- (4) Applicable to various work materials

In addition to the general-purpose grade ACU2500, applicable to various work materials, the new-generation coated carbide grades XCU2500/XCK2000 are applicable to a wide variety of machining

Cutting force: High sharpness realises stable cutting



Work Material : S50C
Tool : WFXH12063RS (5 fluted)
Cutting Conditions: $v_c = 200\text{m/min}$, $f_z = 1.0\text{mm/t}$, $a_p = 0.5\text{mm}$, $a_e = 44\text{mm}$, Dry

Chips: Small and curled, low cutting temperatures



Work Material : S50C
Tool : WFXH12063RS, SOMT120416PDER-G (ACP200)
Cutting Conditions: $v_c = 200\text{m/min}$, $f_z = 1.0\text{mm/t}$, $a_p = 1\text{mm}$, $a_e = 35\text{mm}$, Dry

Precautions for Use (1) Precautions for Corner Finishing

* Corners will have unmachined surfaces or gouges with respect to the expected corner profile.

Fig 1

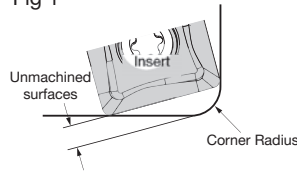
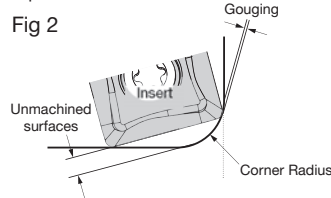


Fig 2



WFXH08000RS Type

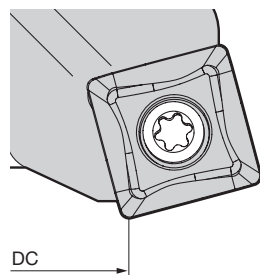
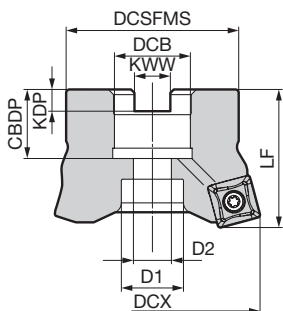
Corner Radius	SOMT080004-□ (RE0.4)			SOMT080008-□ (RE0.8)			SOMT080012-□ (RE1.2)		
	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig
2.0	1.41	0	1	1.30	0	1	1.21	0	1
2.5	1.30	0.02	2	1.19	0.01	2	1.09	0	1
3.0	—	—	—	—	—	—	0.98	0.05	2

WFXH12000RS Type

Corner Radius	SOMT120004-□ (RE0.4)			SOMT120008-□ (RE0.8)			SOMT120012-□ (RE1.2)			SOMT080016-□ (RE1.6)		
	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig
2.0	2.58	0	1	2.48	0	1	2.37	0	Fig 1	2.25	0	1
2.5	2.47	0	1	2.37	0	1	2.25	0	Fig 1	2.14	0	1
3.0	2.36	0	1	2.26	0	1	2.14	0	Fig 1	2.11	0	1
3.5	2.24	0.01	2	2.14	0	1	2.03	0	Fig 1	1.91	0	1
4.0	—	—	—	2.03	0.04	2	1.91	0.03	Fig 2	1.8	0.01	2

Precautions for Use (2)

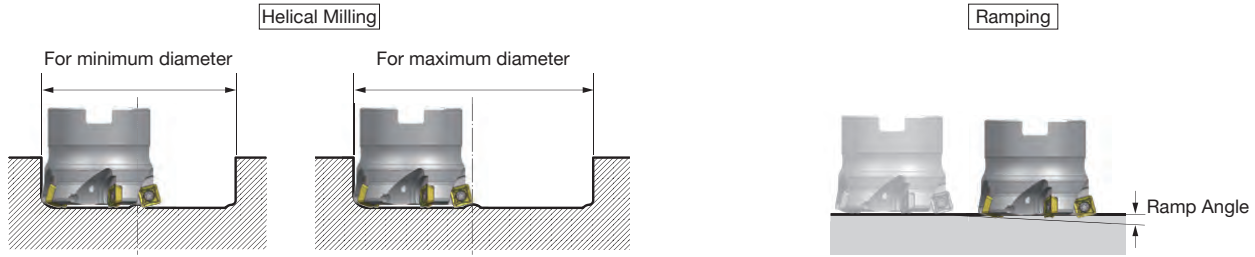
The cutting diameter DC differs depending on the insert used. We recommend using WFXH Type with large corner radius inserts.



Body Cat. No.	DCX	DC			
		R0.4	R0.8	R1.2	R1.6
* WFXH 08025M12Z2	25	10.4	10.9	11.5	—
* 08032M12Z3	32	17.4	17.9	18.5	—
WFXH 08040RS	40	25.4	25.9	26.5	—
08050RS	50	35.4	35.9	36.5	—
08050RS-Z6	50	35.4	35.9	36.5	—
08063RS	63	48.4	48.9	49.5	—
* WFXH 12040M12Z3	40	16.6	17.1	17.5	18.1
* WFXH 12050RS	50	26.6	27.2	27.7	28.2
12063RS	63	39.5	40.0	40.4	41.1

* mark: Modular Tools P21

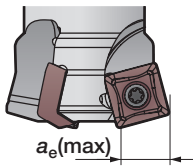
Helical Milling and Ramping



Insert Cat. No.	DC	Helical Milling (mm)		Ramping
		Min. Dia.	Max. Dia.	Maximum Ramp Angle
SOMT080004-□	25	35	49	1°30'
	32	49	63	0°30'
	40	65	79	0°30'
	50	Impossible	Impossible	0°30'
	63	Impossible	Impossible	Impossible
SOMT080008-□	25	35	48	3°
	32	49	62	1°30'
	40	65	78	1°
	50	85	98	0°30'
SOMT080012-□	25	34	47	4°30'
	32	48	61	2°30'
	40	64	77	1°30'
	50	84	97	1°
SOMT080012-□	63	110	123	0°30'

Insert Cat. No.	DC	Helical Milling (mm)		Ramping
		Min. Dia.	Max. Dia.	Maximum Ramp Angle
SOMT120004-□	40	56	79	1°
	50	76	99	0°30'
	63	Impossible	Impossible	Impossible
SOMT120008-□	40	56	78	1°30'
	50	76	98	1°
	63	102	124	0°30'
SOMT120012-□	40	55	77	2°30'
	50	75	97	1°30'
	63	101	123	1°
SOMT120012-□	40	55	76	3°30'
	50	75	96	2°
	63	101	122	1°30'

Maximum Depth of Cut when Plunging




Insert Cat. No.	Max. Depth of Cut $a_e(\max)$
SOMT08	6mm
SOMT12	10mm

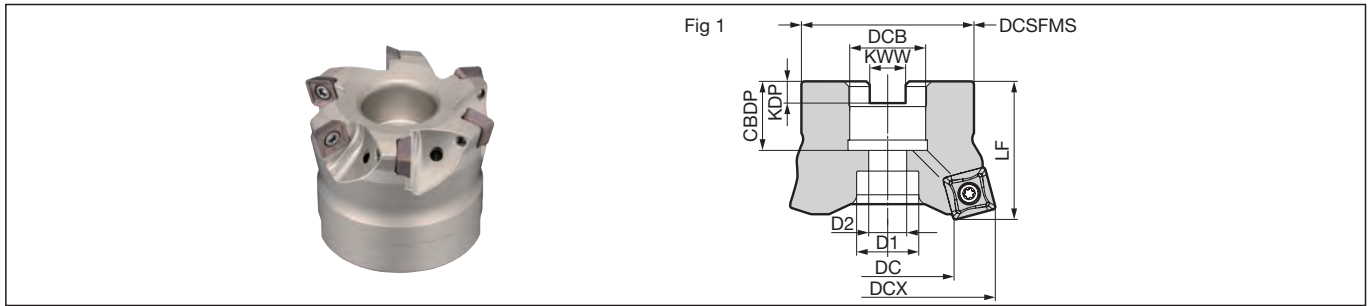
Lower the feed rate when plunging.

Recommended Cutting Conditions

Work Material	Insert Grade	Cutting Speed v_c (m/min)	Insert Cat. No.	ø25		ø32		ø40		ø50		ø63		
				a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	
P General Steel Below 200HB	ACU2500 ACP200	100-150-200	SOMT08	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
			SOMT12	—	—	—	—	1.0	1.0	1.0	1.0	1.0	1.0	1.0
P Alloy Steel Below 45HRC	XCU2500	80-130-180	SOMT08	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.8
			SOMT12	—	—	—	—	0.8	1.0	0.8	1.0	0.8	1.0	0.8
M Stainless Steel SUS304, etc.	ACU2500 ACM300	80-120-150	SOMT08	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.7
			SOMT12	—	—	—	—	1.0	0.8	1.0	0.8	1.0	0.8	0.8
K Cast Iron FC, FCD	ACU2500 ACK200 XCU2500 XCK2000	100-150-200	SOMT08	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	1.0
			SOMT12	—	—	—	—	1.0	1.2	1.0	1.2	1.0	1.2	1.2
H Hardened Steel Below 50HRC	ACK300	40- 80-100	SOMT08	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
			SOMT12	—	—	—	—	0.6	0.8	0.6	0.8	0.6	0.8	0.6

- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity. The above figures are guidelines for use with BT50 machine tools.
- The above recommended cutting conditions assume a tool overhang length of $L/D=3$ (i.e. overhang length of 3 times tool diameter) or less. When tool overhang is more than $L/D = 3$ and less than or equal to $L/D=5$, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (a_p, f_z). When tool overhang is more than $L/D = 5$ and less than or equal to $L/D=8$, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (a_p, f_z).

Rake Angle	Radial	-6°	
	Axial	6°	



Body

Dimensions (mm)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDFP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WFXH 08040RS	●	40	*26.5	33	40	16	8.4	5.6	18	14	9	4	0.2	1
	08050RS	●	50	*36.5	41	40	22	10.4	6.3	20	18	11	5	0.3	1
	08050RS-Z6	●	50	*36.5	41	40	22	10.4	6.3	20	18	11	6	0.3	1
	08063RS	●	63	*49.5	50	40	22	10.4	6.3	20	18	11	6	0.5	1

Inserts are sold separately.

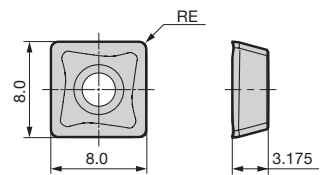
* indicates value with corner radius 1.2 inserts mounted. Refer to P13 for details.

Insert

Dimensions (mm)

Process	Grade Classification		Coated Carbide						Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig				
	High-speed/Light	Medium Cutting	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200			ACM300	H1	DL1000	T4500A
	High-speed/Light	Medium Cutting	Roughing	High-speed/Light	Medium Cutting	Roughing	High-speed/Light	Medium Cutting	Roughing	High-speed/Light	Medium Cutting			Roughing	High-speed/Light	Medium Cutting	Roughing
	Cat. No.																
	SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	●	●	●	0.4	1	
	080308PZER-L	●	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1	
	SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	0.4	1	
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1	
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	1.2	1	
	SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1	
	080312PZER-H	●	●	●	●	●	●	●	●	●	●	●	●	●	1.2	1	
	SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	0.4	1	
	080308PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1	
	080312PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	●	1.2	1	
	SOET 080302PZFR-S	●	●	●	●	●	●	●	●	●	●	●	●	●	0.2	1	
	080304PZFR-S	●	●	●	●	●	●	●	●	●	●	●	●	●	0.4	1	
	080308PZFR-S	●	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1	

Fig 1



*If the cutting edge strength for high-efficiency milling of non-ferrous metal is insufficient, try a G-type chipbreaker (ACK300).




Recommended Cutting Conditions P14 Precautions for Use P13

Identification Code

WFXH 08 040 RS - Z6

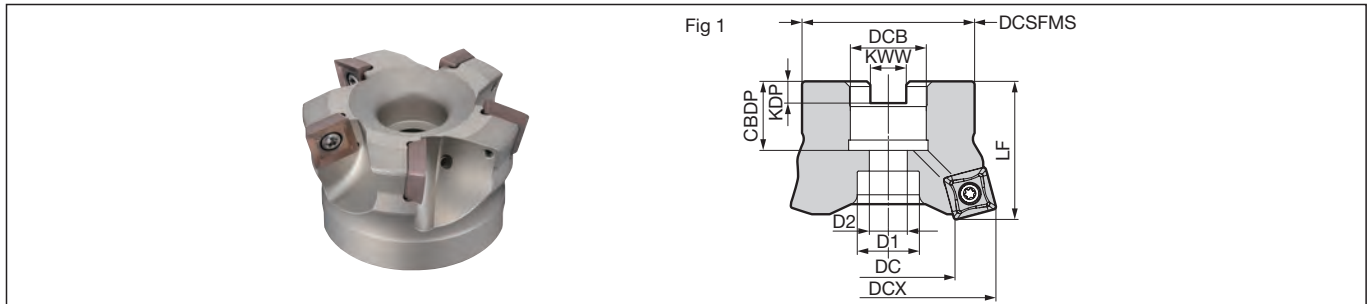
Series Insert Size Dia. Metric Bore Fine Pitch Type (with no. of teeth)

Parts

Flat Insert Screw	Wrench	Anti-seizure Cream
		
BFTX0306IP	2.0 TRDR08IP	SUMI-P

Rake Angle	Radial	-6°
	Axial	6°

2.5mm 15°



Body

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
WFXH 12050RS	●	50	28.2	41	40	22	10.4	6.3	20	18	11	4	0.3	1
12063RS	●	63	41.1	50	40	22	10.4	6.3	20	18	11	5	0.4	1

Inserts are sold separately.

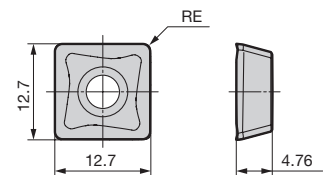
* indicates value with corner radius 1.6 inserts mounted. Refer to P13 for details.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide								Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig	
	High-speed/Light	Medium Cutting	Roughing											
Process														
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4 1
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.8 1
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2 1
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.6 1
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
SOET 120408PDRF-S*	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8 1

Fig 1



*If the cutting edge strength for high-efficiency milling of non-ferrous metal is insufficient, try a G-type chipbreaker (ACK300).

Recommended Cutting Conditions P14 Precautions for Use P13

Identification Code

WFXH 12 050 RS

Series Insert Size Dia. Metric Bore

Parts

Flat Insert Screw	Detachable Wrench		Anti-seizure Cream
	Handle Grip	Bit	
BFTX03512IP	3.0	HPS1015	TRB15IP
		SUMI-P	



■ General Features

The SEC-WaveMill WFXC Type is a chamfering tool that uses a WFX series insert. A wide variety of grades supports various work materials.

In addition to the general-purpose grade ACU2500, applicable to various work materials, the new-generation coated carbide grades XCU2500/XCK2000 are now available. Covering a wide variety of machining.

■ Precautions for Use

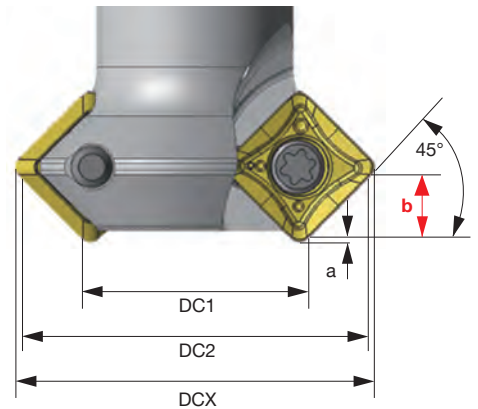
Chamfering tools use a straight cutting edge that enables the chamfering range to be changed depending on the corner radius (RE) of the insert mounted to the body.

Chamfer diameter: Use within the range shown in the table below, no lower than DC1 and no higher than DC2.


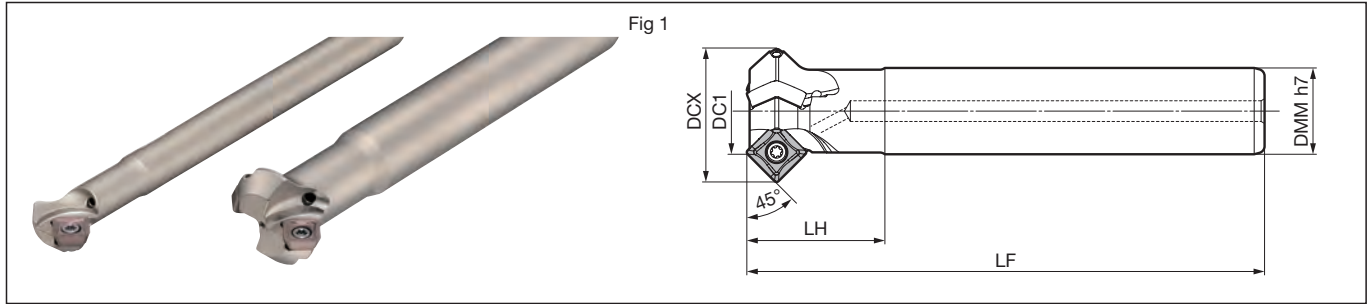
Depth of Cut: Cutting to a depth shown by the distance from the tool tip (a) in a straight line to the cutting edge (b) is possible.

Dimensions (mm)

Body	Insert		Min. Chamfer Dia.	Max. Chamfer Dia.	Minimum Depth	Maximum Depth	Max. Dia.
	Cat. No.	RE	DC1	DC2	a	b	DCX
WFXC08008E	SOMT080304	0.4	7.5	15.8	0.1	4.1	17.8
	SOMT080308	0.8	8.0	15.8	0.2	3.9	17.5
	SOMT080312	1.2	8.5	15.8	0.4	3.6	17.2
WFXC08016E	SOMT080304	0.4	15.5	23.8	0.1	4.1	25.8
	SOMT080308	0.8	16.0	23.8	0.2	3.9	25.5
	SOMT080312	1.2	16.5	23.8	0.3	3.6	25.2
WFXC12025E	SOMT120404	0.4	24.6	38.3	0.1	6.8	41.3
	SOMT120408	0.8	25.0	38.3	0.2	6.6	41.0
	SOMT120412	1.2	25.6	38.3	0.4	6.3	40.7
WFXC12032E	SOMT120416	1.6	26.1	38.3	0.5	6.1	40.4
	SOMT120404	0.4	31.6	45.3	0.1	6.8	48.3
	SOMT120408	0.8	32.0	45.3	0.2	6.6	48.0
WFXC12032E	SOMT120412	1.2	32.6	45.3	0.4	6.3	47.7
	SOMT120416	1.6	33.1	45.3	0.5	6.1	47.4



Rake Angle	Radial	0°
	Axial	0°

Body (Shank Type)

Dimensions (mm)

Cat. No.	Stock	Min. Chamfer Dia. DC1	Max. Dia. DCX	Overall Length LF	Head LH	Shank DMM	Number of Teeth	Weight (kg)	Fig
WFXC 08008E	●	8	17.5	120	30	10	1	0.1	1
08016E	●	16	25.5	120	30	16	2	0.2	1

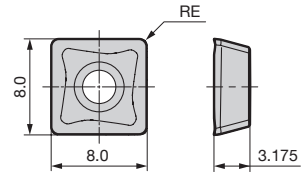
DC1 and DCX values were obtained with a 0.8 corner radius insert mounted.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide								Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig	
	High-speed/Light	Medium Cutting	Roughing											
Process														
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4 1
080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4 1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2 1
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2 1
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.4 1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.8 1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	1.2 1
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.2 1
080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.4 1
080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8 1

Fig 1



Precautions for Use P17

Identification Code

WFXC 08 016 E

Series Insert Size Dia. Shank Type

Parts

Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	2.0	TRDR08IPSUMI-P


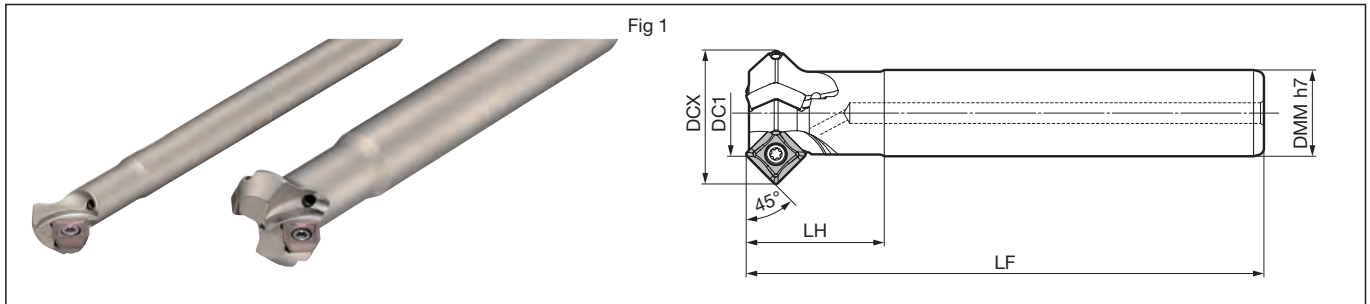
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.
P	General Steel	180 to 280 HB	150- 200 -250	0.05- 0.10 -0.15
	Mild Steel	≤ 180HB	180- 265 -350	0.10- 0.15 -0.20
	Die Steel	200 to 220 HB	100- 150 -200	0.05- 0.10 -0.15
M	Stainless Steel	—	150- 200 -250	0.05- 0.10 -0.15
K	Cast Iron	250HB	100- 175 -250	0.05- 0.10 -0.15
N	Non-Ferrous Metals	—	300- 500 -1,000	0.10- 0.15 -0.20
S	Exotic Alloy	—	30- 50 -80	0.08- 0.13 -0.18

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Recommended Tightening Torque (N-m) ● mark: Standard stocked item ● mark: Standard stocked item (expanded item) Blank: Made-to-order item — mark: Not available

Rake Angle	Radial	0°
	Axial	0°

Body (Shank Type)

Dimensions (mm)

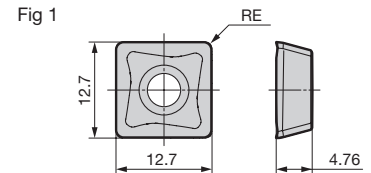
Cat. No.	Stock	Min. Chamfer Dia. DC1	Max. Dia. DCX	Overall Length LF	Head LH	Shank DMM	Number of Teeth	Weight (kg)	Fig
WFXC 12025E	●	25	41.0	150	40	25	3	0.6	1
12032E	●	32	48.0	150	40	32	3	1.0	1

DC1 and DCX values were obtained with a 0.8 corner radius insert mounted.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide							Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig		
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
Process	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
	High-speed/Light	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting	Medium Cutting							
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.8
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.6
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8
SOET 120408PDFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8



Precautions for Use **P17**

Identification Code

WFXC 12 025 E

Series Insert Size Dia. Shank Type

Parts

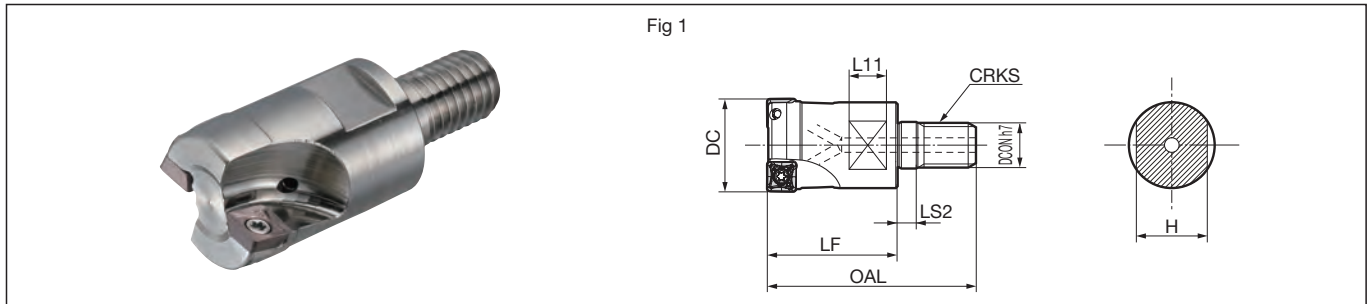
Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX03512IP	3.0	TRDR15IP SUMI-P

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.
	General Steel	180 to 280 HB	150- 200 -250	0.05- 0.10 -0.15
P	Mild Steel	≤ 180HB	180- 265 -350	0.10- 0.15 -0.20
	Die Steel	200 to 220 HB	100- 150 -200	0.05- 0.10 -0.15
M	Stainless Steel	—	150- 200 -250	0.05- 0.10 -0.15
K	Cast Iron	250HB	100- 175 -250	0.05- 0.10 -0.15
N	Non-Ferrous Metals	—	300- 500 -1,000	0.10- 0.15 -0.20
S	Exotic Alloy	—	30- 50 -80	0.10- 0.15 -0.20

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-6°	
	Axial	12°	



Head

Dimensions (mm)

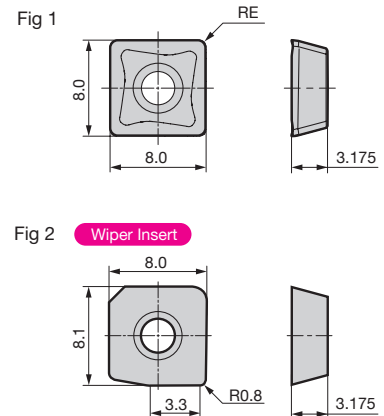
Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Neck LS2	Flat L11	Width H	Number of Teeth	Fig
WFX 08020M10Z2	●	20	10.5	M10	49	30	5	8	15	2	1
08022M10Z2	●	22	10.5	M10	49	30	5	8	15	2	1
08025M12Z2	●	25	12.5	M12	56	35	5	10	19	2	1
08028M12Z2	●	28	12.5	M12	56	35	5	10	19	2	1
08030M16Z3	●	30	17.0	M16	63	40	5	10	24	3	1
08032M16Z3	●	32	17.0	M16	63	40	5	10	24	3	1
08040M16Z3	●	40	17.0	M16	63	40	5	10	24	3	1

Inserts are sold separately.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide								Cemented Carbide	DL1000	Cermet	Corner Radius RE	Fig	
	Process													
	High-speed/Light	P		K		M								
General-purpose	P		K		M									
Roughing	P		K		M									
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Fig
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4 1
080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.4 1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2 1
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	0.8 1
080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—	1.2 1
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.4 1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	0.8 1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	●	1.2 1
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.2 1
080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.4 1
080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—	0.8 1
XOEW 080308PZTR-W	●	—	—	—	—	—	—	—	—	—	—	—	●	— 2



Refer to P3 "Precautions when Using Wiper Inserts" (Mounting Precautions).

Arbors P23

Identification Code

WFX 08 020 M10 Z2

Series Insert Size Dia. Mounting Screw Size Number of Teeth

Parts

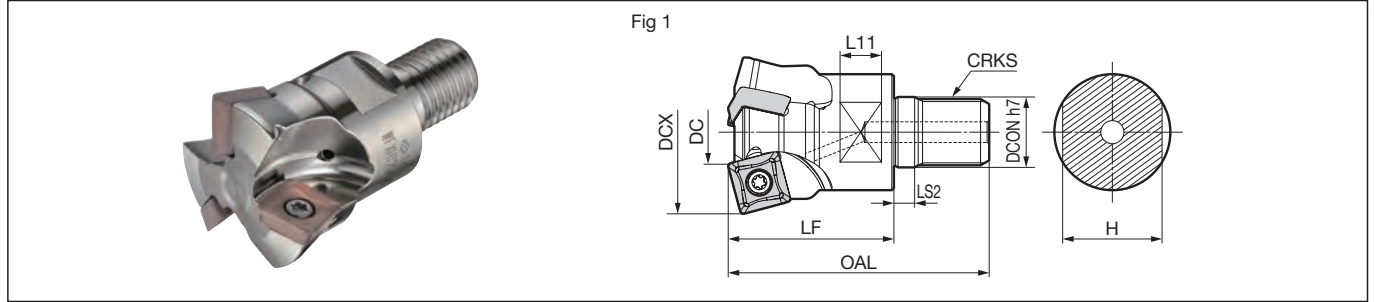
Flat Insert Screw	Wrench	Anti-seizure Cream
BFTX0306IP	2.0 TRDR08IP	SUMI-P

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150- 200 -250	0.08- 0.12 -0.18	< 6	ACU2500 ACP200 ACP300 XCU2500
	Mild Steel	≤ 180HB	180- 250 -350	0.10- 0.15 -0.20	< 6	
	Die Steel	200 to 220 HB	100- 150 -200	0.08- 0.12 -0.18	< 4	
M	Stainless Steel	—	160- 200 -250	0.10- 0.15 -0.20	< 6	ACU2500 ACM300
K	Cast Iron	250HB	100- 175 -250	0.10- 0.15 -0.20	< 6	ACU2500 ACK200 ACK300 XCU2500 XCK2000
N	Non-Ferrous Metals	—	300- 500 -1,000	0.10- 0.15 -0.20	< 6	H1 DL1000
S	Exotic Alloy	—	30- 50 -80	0.08- 0.13 -0.18	< 6	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-6°	1.5mm	15°	2.5mm	15°
	Axial	6°	(08000M Type)		(12000M Type)	



Head (Applicable Insert SOMT08 Type) Dimensions (mm)

Cat. No.	Stock Dia. DCX	Max. Dia. DC	Dia. DCON	Mounting Dia. CRKS	Screw OAL	Insert Length LF	Neck Length LS2	Flat Length L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXH 08025M12Z2	● 25	11.5	12.5	M12	56	35	5	10	19	2	0.1	1
08032M16Z3	● 32	18.5	17.0	M16	63	40	5	10	24	3	0.2	1

* indicates value with corner radius 1.2 inserts mounted. Refer to P13 for details.

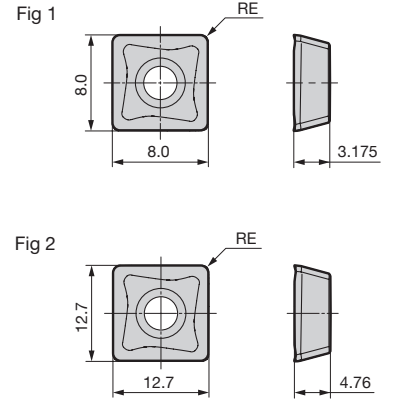
Head (Applicable Insert SOMT12 Type) Dimensions (mm)

Cat. No.	Stock Dia. DCX	Max. Dia. DC	Dia. DCON	Mounting Dia. CRKS	Screw OAL	Insert Length LF	Neck Length LS2	Flat Length L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXH 12040M16Z3	● 40	18.1	17.0	M16	63	40	5	10	24	3	0.2	1

Inserts are sold separately. * indicates value with corner radius 1.6 inserts mounted. Refer to P13 for details.

Insert

Grade Classification	Coated Carbide							Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig	
	Process												
	High-speed/Light	General-purpose	Roughing										
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—
080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	—
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—
080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	—
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	●	—
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—
080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—
080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	—	—
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	—
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	—
120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	—
SOET 120408PDFR-S	—	—	—	—	—	—	—	—	—	—	●	●	—



Identification Code

WFXH 08 025 M12 Z2

Series: WFXH08000M, Insert Size: 025, Dia.: M12, Mounting Screw Size: Z2, Number of Teeth: 2

Parts

Applicable Cutter	Flat Insert Screw	Wrench	Anti-seize Cream
WFXH08000M	BFTX0306IP	2.0 TRDR08IP	SUMI-P
WFXH12000M	BFTX03512IP	3.0 TRDR15IP	SUMI-P


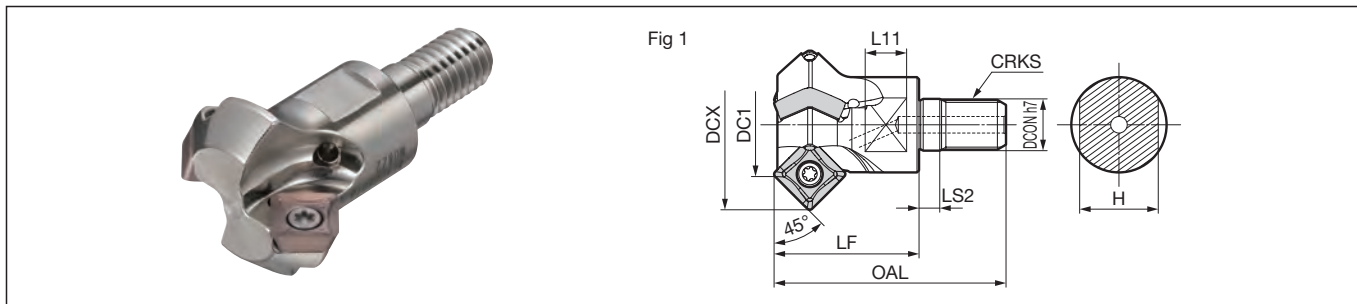
Recommended Cutting Conditions

Work Material	Insert Grade	Cutting Speed v _c (m/min)	Insert Cat. No.	ø25		ø32		ø40		ø50		ø63	
				a _p (mm)	f _z (mm/rev)	a _p (mm)	f _z (mm/rev)	a _p (mm)	f _z (mm/rev)	a _p (mm)	f _z (mm/rev)	a _p (mm)	f _z (mm/rev)
P General Steel Below 200HB	ACU2500	100-150-200	SOMT08	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	ACP200		SOMT12	—	—	—	—	1.0	1.0	1.0	1.0	1.0	1.0
P Alloy Steel Above HRC45	XCU2500	80-130-180	SOMT08	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8
	ACU2500		SOMT12	—	—	—	—	0.8	1.0	0.8	1.0	0.8	1.0
M Stainless Steel SUS304, etc.	ACU2500	80-120-150	SOMT08	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7
	ACM300		SOMT12	—	—	—	—	1.0	0.8	1.0	0.8	1.0	0.8
K Cast Iron FC, FCD	ACU2500	100-150-200	SOMT08	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0
	ACK200		SOMT12	—	—	—	—	1.0	1.2	1.0	1.2	1.0	1.2
H Hardened Steel Below HRC50	XCU2500	40- 80-100	SOMT08	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	XCK2000		SOMT12	—	—	—	—	0.6	0.8	0.6	0.8	0.6	0.8

• The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity. The above figures are guidelines for use with BT50 machine tools.
 • The above recommended cutting conditions assume a tool overhang length of L/D=3 (i.e. overhang length of 3 times tool diameter) or less. When tool overhang is more than L/D = 3 and less than or equal to L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (a_p, f_z). When tool overhang is more than L/D = 5 and less than or equal to L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (a_p, f_z).

⊖ Recommended Tightening Torque (N·m) ● mark: Standard stocked item ● mark: Standard stocked item (expanded item) Blank: Made-to-order item — mark: Not available

Rake Angle	Radial	0°
	Axial	0°

Head (Applicable Insert SOMT08 Type)

Dimensions (mm)

Cat. No.	Stock	Min. Chamfer Dia. DC1	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Neck LS2	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXC 08016M08Z2	●	16	25.5	8.5	M8	42	25	5	8	13	2	0.1	1

DC1 and DCX dimensions are values with an insert with 0.8 corner radius mounted.

Head (Applicable Insert SOMT12 Type)

Dimensions (mm)

Cat. No.	Stock	Min. Chamfer Dia. DC1	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Neck LS2	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXC 12025M12Z3	●	25	41.0	12.5	M12	56	32	5	10	19	3	0.1	1
12032M16Z3	●	32	48.0	17.0	M16	63	40	5	10	24	3	0.2	1

DC1 and DCX dimensions are values with an insert with 0.8 corner radius mounted.

Insert

Dimensions (mm)

Grade Classification	Coated Carbide							Cemented Carbide	DLC	Cermet	Corner Radius RE	Fig		
	High-speed/Light	General-purpose	Roughing											
Process	●	●	●	●	●	●	●	●	●	●				
Cat. No.	ACU2500	XCU2500	ACP100	ACP200	ACP300	XCK2000	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	0.4	1
080308PZER-L	●	●	●	●	●	●	●	●	●	●	—	—	0.8	1
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	0.4	1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	0.8	1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	—	—	1.2	1
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	0.8	1
080312PZER-H	●	●	●	●	●	●	●	●	●	●	—	—	1.2	1
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	0.4	1
080308PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	0.8	1
080312PZER-G	●	●	●	●	●	●	●	●	●	●	●	●	1.2	1
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	0.2	1
080304PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	0.4	1
080308PZFR-S	—	—	—	—	—	—	—	—	—	—	●	●	0.8	1
SOMT 120408PDER-L	●	●	●	●	●	●	●	●	●	●	—	—	0.8	2
SOMT 120404PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	0.4	2
120408PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	0.8	2
120412PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	1.2	2
120416PDER-G	●	●	●	●	●	●	●	●	●	●	—	—	1.6	2
SOMT 120408PDER-H	●	●	●	●	●	●	●	●	●	●	—	—	0.8	2
SOET 120408PDRF-S	—	—	—	—	—	—	—	—	—	—	●	●	0.8	2

Fig 1

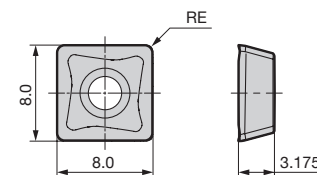
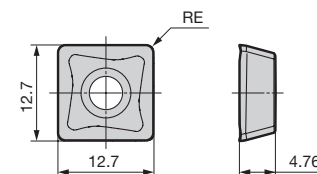


Fig 2



Precautions for Use **P17** Arbors **P23**

Identification Code

WFXC 08 016 M08 Z2

Series Insert Size Dia. Mounting Screw Size Number of Teeth

Parts

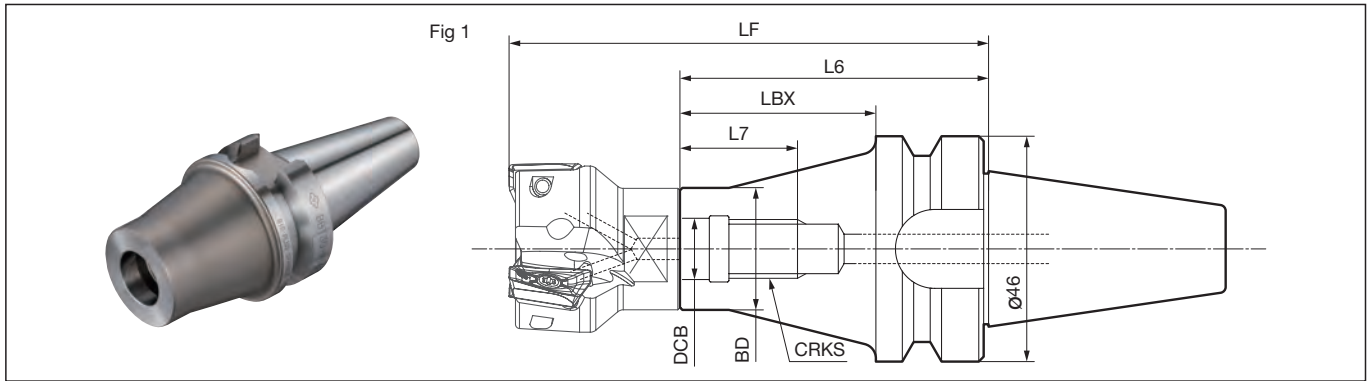
Applicable Cutter	Flat Insert Screw		Wrench	Anti-seizure Cream
	WFXC08000M	BFTX0306IP	1.5	TRDR08IP
WFXC12000M	BFTX03512IP	3.0	TRDR15IP	

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.
P	General Steel	180 to 280 HB	150-200-250	0.05-0.10-0.15
	Mild Steel	≤ 180HB	180-265-350	0.10-0.15-0.20
M	Die Steel	200 to 220 HB	100-150-200	0.05-0.10-0.15
	Stainless Steel	—	150-200-250	0.05-0.10-0.15
K	Cast Iron	250HB	100-175-250	0.05-0.10-0.15
N	Non-Ferrous Metals	—	300-500-1,000	0.10-0.15-0.20
S	Exotic Alloy	—	30- 50 -80	0.10-0.15-0.20

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

■ BBT Integrated Type - SEC-Modular Tools Special Arbors



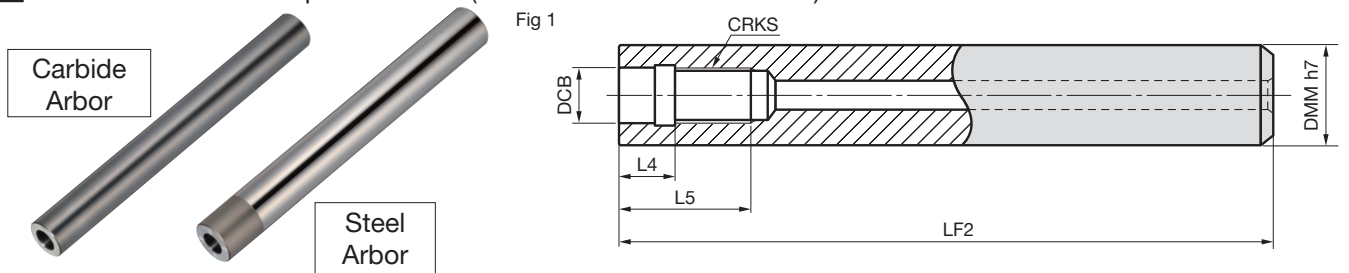
■ BBT Integrated Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	External BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF ¹	Coolant Hole	Fig
BBT30-M8-50	●	M8	8.5	15.9	73	50	18	98	Yes	1
M10-45	●	M10	10.5	19.9	68	45	20	98	Yes	1
M12-40	●	M12	12.5	24.9	63	40	22	98	Yes	1
M16-35	●	M16	17	31.9	58	35	24	98	Yes	1

*1: Overhang length for LF is with head mounted.
 Can also be used with BT30 spindle machines.

■ SEC-Modular Tools - Special Arbors (Carbide Arbors/Steel Arbors)



■ Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF ²	Fig
MA15M08L120C	●	M8	8.5	15	120	10	18	145	1
15M08L160C	●	M8	8.5	15	160	10	18	185	1
16M08L120C	●	M8	8.5	16	120	10	18	145	1
16M08L160C	●	M8	8.5	16	160	10	18	185	1
MA18M10L150C	●	M10	10.5	18	150	10	20	180	1
18M10L200C	●	M10	10.5	18	200	10	20	230	1
20M10L150C	●	M10	10.5	20	150	10	20	180	1
20M10L200C	●	M10	10.5	20	200	10	20	230	1
MA23M12L200C	●	M12	12.5	23	200	10	22	235	1
23M12L250C	●	M12	12.5	23	250	10	22	285	1
25M12L200C	●	M12	12.5	25	200	10	22	235	1
25M12L250C	●	M12	12.5	25	250	10	22	285	1
MA28M16L200C	●	M16	17	28	200	10	24	240	1
28M16L300C	●	M16	17	28	300	10	24	340	1
32M16L200C	●	M16	17	32	200	10	24	240	1
32M16L300C	●	M16	17	32	300	10	24	340	1

■ Steel Arbor

Dimensions (mm)

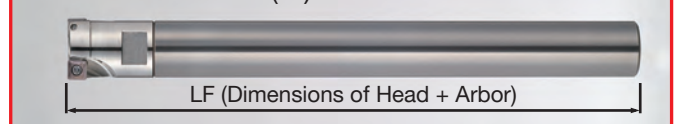
Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF ²	Fig
MA16M08L120S	●	M8	8.5	16	120	10	18	145	1
20M10L150S	●	M10	10.5	20	150	10	20	180	1
25M12L200S	●	M12	12.5	25	200	10	22	235	1
32M16L200S	●	M16	17	32	200	10	24	240	1

■ Identification Code

MA 15 M08 L120 C

Series Shank Dia. Mounting Screw Size Arbor Overall Length Arbor Materials
 C: Carbide
 S: Steel

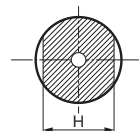
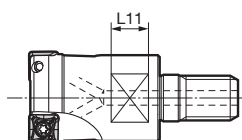
● Set Dimensions (*2)



■ Recommended Tightening Torque (N·m)


* Take care when tightening the head.

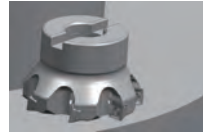
- When mounting the head to an arbor, follow the standard tightening torque in the table below.
- Check the mounting screw size for the head and arbor beforehand.





Screw Size	Regulated Tightening Torque (N·m)	Tool Dimensions	
		L11	H
M8	23	8	13
M10	46	8	15
M12	60	10	19
M16	80	10	24


Application Examples

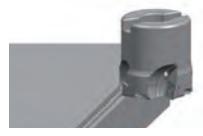
S50C	Sumitomo	Conventional Tool	
	Tool	WFXF08063RS	—
	Grade	ACP200	—
	Diameter (mm)	63	63
	Number of Teeth	8	5
	V_c (m/min)	220	220
	V_f (mm/min)	1,100	1,100
	f_z (mm/t)	0.15	0.20
	a_p (mm)	3.0	4.0
	a_e (mm)	50	50
	Coolant	Wet	Wet
	Results	<ul style="list-style-type: none"> · Vibration reduced by approximately 30% · Good machined surface · Tool life doubled 	

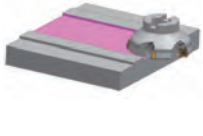
FCD450	Sumitomo	Conventional Tool	
	Tool	WFXF12100R	—
	Grade	ACK300	—
	Diameter (mm)	100	100
	Number of Teeth	7	6
	V_c (m/min)	200	200
	V_f (mm/min)	446	382
	f_z (mm/t)	0.10	0.10
	a_p (mm)	0.05	0.05
	a_e (mm)	—	—
	Coolant	Dry	Dry
	Results	<ul style="list-style-type: none"> · Good surface roughness Ra 0.98 → 0.38μm, Rz 7.63 → 3.34μm · Cutting time shortened Insert life was extended by approximately 20% 	

FCD600	Sumitomo	Conventional Tool	
	Tool	WFXF12100R	—
	Grade	ACK300	—
	Diameter (mm)	100	100
	Number of Teeth	7	8
	V_c (m/min)	150	100
	V_f (mm/min)	334	255
	f_z (mm/t)	0.10	0.10
	a_p (mm)	2.5	2.0
	a_e (mm)	50 - 100	50 - 100
	Coolant	Dry	Dry
	Results	<ul style="list-style-type: none"> · 130% Machining Efficiency 	

SS400	Sumitomo	Conventional Tool	
	Tool	WFX12050E	—
	Grade	ACP200	—
	Diameter (mm)	50	50
	Number of Teeth	3	3
	V_c (m/min)	135	135
	V_f (mm/min)	361	361
	f_z (mm/t)	0.14	0.14
	a_p (mm)	1.5	1.5
	a_e (mm)	20	20
	Coolant	Wet	Wet
	Results	<ul style="list-style-type: none"> · 20% tool life improvement 	

SUS304	Sumitomo	Conventional Tool	
	Tool	WFXM08025E	—
	Grade	ACM300	—
	Diameter (mm)	25	25
	Number of Teeth	3	3
	V_c (m/min)	94	94
	V_f (mm/min)	550	550
	f_z (mm/t)	0.45	0.45
	a_p (mm)	0.3	0.3
	a_e (mm)	15 - 25	15 - 25
	Coolant	Air Blow	Air Blow
	Results	<ul style="list-style-type: none"> · 150% tool life improvement 	

Pre-hardened Steel	Sumitomo	Conventional Tool	
	Tool	WFXF08040RS	—
	Grade	ACP200	—
	Diameter (mm)	40	40
	Number of Teeth	6	4
	V_c (m/min)	180	180
	V_f (mm/min)	3,580	2,864
	f_z (mm/t)	0.5	0.5
	a_p (mm)	0.5	0.5
	a_e (mm)	3	3
	Coolant	Air Blow	Air Blow
	Results	<ul style="list-style-type: none"> · High accuracy with stable machining · Enables high-efficiency machining using multiple edges 	

FCD450	Sumitomo	Conventional Tool	
	Tool	WFX12100RS	—
	Grade	XCK2000	—
	Diameter (mm)	100	100
	Number of Teeth	5	5
	V_c (m/min)	286	286
	V_f (mm/min)	683	683
	f_z (mm/t)	0.15	0.1
	a_p (mm)	1.0	1.0
	a_e (mm)	60	60
	Coolant	Wet	Wet
	Results	<ul style="list-style-type: none"> · Achieves 1.5 times the efficiency and 2 times the tool life 	

< SAFETY NOTES >



- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.

- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.

- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

Sumitomo Electric Industries, Ltd.

Hardmetal Division

Global Marketing Department : 1-1-1, Koyakita, Itami, Hyogo 664-0016, Japan

<https://www.sumitool.com/global>