SUMITOMO
CARBIDE - CBN - DIAMOND

Tooling News E-191

High Precision and High Quality Milling Cutter

SEC-WaveMill WFX Series

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

Next-Generation Coated Carbide Grades for Milling

Expansion

ACS1000/ACS2500/ACS3000 now available for WFX series

P M K N S H

SUMITOMO ELECTRIC GROUP

General Features

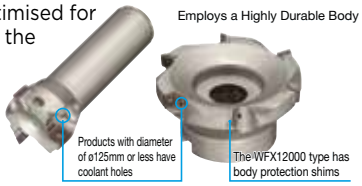
SEC-WaveMill WFX Type for shoulder milling is a screw-locking type cutter capable of using four corners. Ideal cutting edge design delivers good squareness.

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.

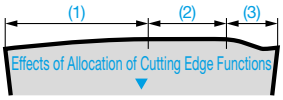
WFXH Type WFXC Type

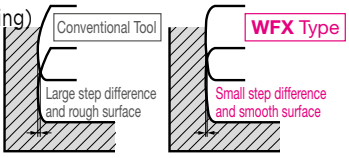
Features

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



Optimised Edge Shape (For Shoulder Milling)





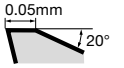
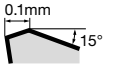
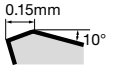
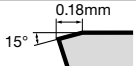
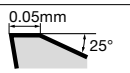
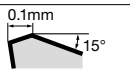
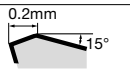
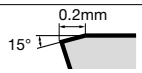
(1): The convex shape ensures cutting edge strength
(2): The flat shape reduces step differences in shoulder milling
(3): The wiper flat function improves the surface roughness

Product Range

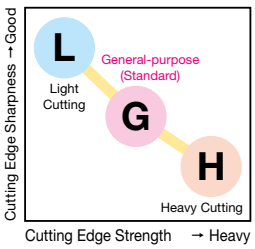
Applications	Type	Cat. No.	Description	Dia. (mm) ø8	ø16	ø20	ø22	ø25	ø28	ø30	ø32	ø33	ø40	ø50	ø63	ø80	ø100	ø125	ø160	ø200	ø250	Shape
Shoulder Milling	Shell	WFX 08000R (Inch)	Standard Pitch													6	8					
		WFX 08000RS	Standard Pitch										3	4	5	6	8					
		WFXM 08000R (Inch)	Fine Pitch								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

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

Chipbreaker Selection Guide

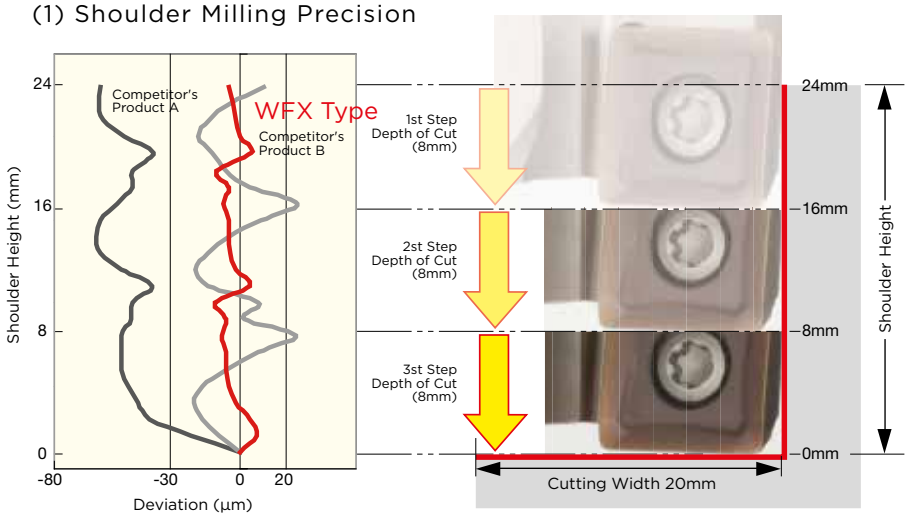
Work Material	P M K S				N
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	Main Chipbreaker General-purpose to Interrupted Milling	Roughing, Heavy Interrupted Cutting and Hardened Steel Milling	High-precision Finish	Non-Ferrous Metals
Features	Low Cutting Force	General-purpose 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					

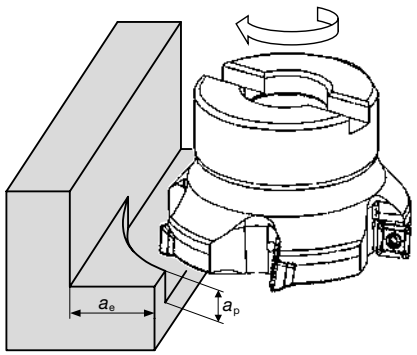
Chipbreaker Selection



Cutting Performance

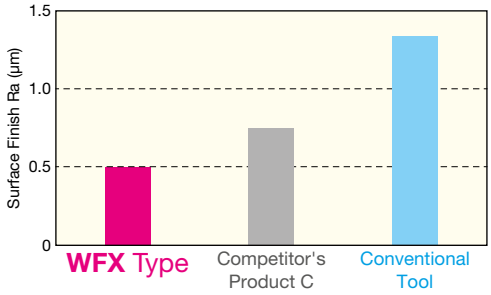
(1) Shoulder Milling Precision





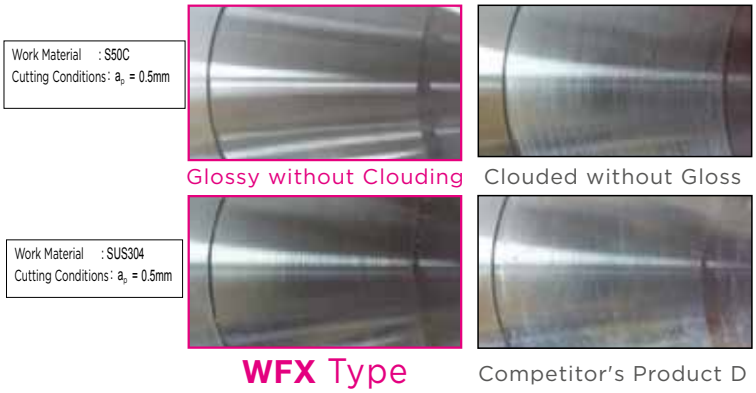
Work Material: S50C Tool: WFX12100R (ø100 x 5 flutes)
Cutting Conditions: v_c = 200m/min, f_z = 0.15mm/t,
a_p = 8.0mm × 3 Passes, a_e = 20mm

(2) Comparison of Surface Roughness

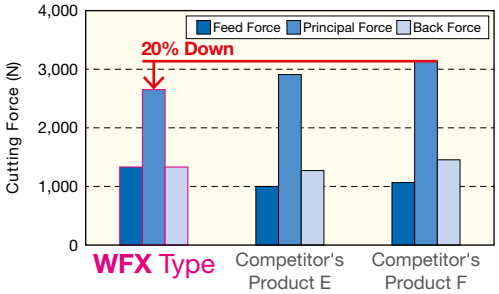


Work Material: SCM440 Tool: WFX12100R (ø100 x 5 flutes)
Cutting Conditions: v_c = 200m/min, f_z = 0.10mm/t,
a_p = 3.0mm, a_e = 90mm

(3) Comparison of Surface Properties

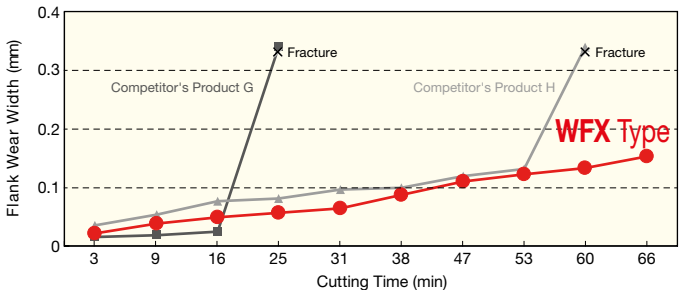


(4) Comparison of Cutting Force



Work Material: S50C Tool: WFX12100R (ø100 x 5 flutes)
Cutting Conditions: v_c = 200m/min, f_z = 0.15mm/t,
a_p = 10.0mm, a_e = 20mm

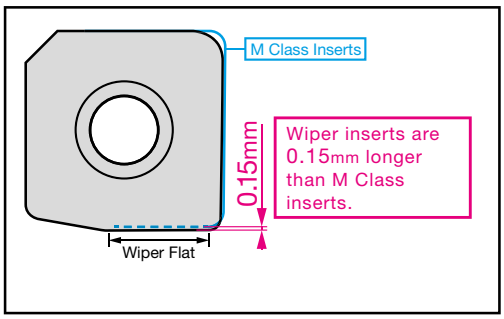
(5) Comparison of Wear Resistance

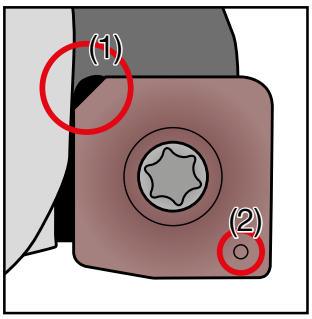


Work Material: SCM440 Tool: WFX12100R (ø100 x 1 flute evaluation)
Cutting Conditions: v_c = 200m/min, f_z = 0.15mm/t,
a_p = 5.0mm, a_e = 30mm

Wiper Insert

Optimised wiper flat shape provides superior surface roughness.



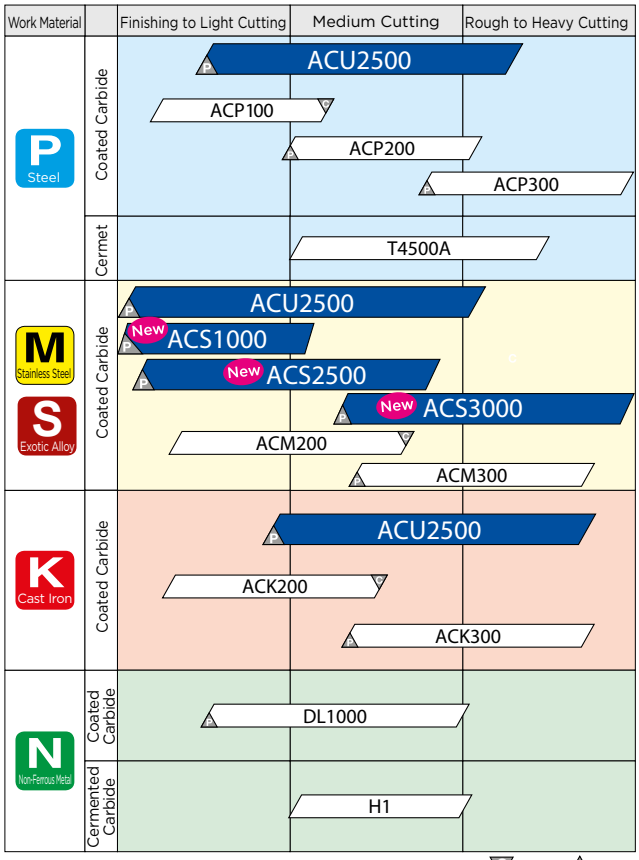


Precautions when Using Wiper Inserts

- 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.

■ Insert Grades Selection Guide

New-generation coated carbide grades **ACS1000/ ACS2500/ACS3000** now available!
Enhanced lineup of coated grades in addition to cemented carbide and cermet for milling steel, stainless steel, cast iron, and aluminum alloy.



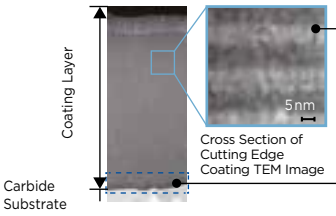
The letters "C" and "P" at the end of each grade indicate the coating type.

▽: CVD △: PVD

■ Grade Features

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

ABSOTECH **Applicable Grades: ACU2500** PVD



New Super Multi-Layered Structure

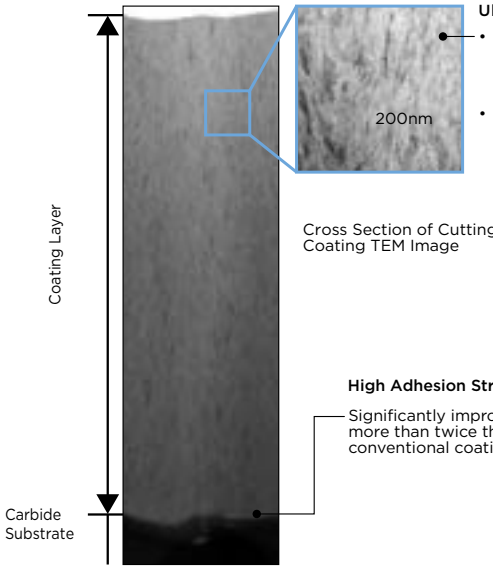
Higher hardness and twice the conventional wear resistance due to a fine crystal structure AlTiCrBN-based nano-layered coating

High Adhesion Strength

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

PVD coating with excellent wear and chipping resistance

ABSOTECH **Applicable Grades: ACS1000, ACS2500, ACS3000** PVD



Ultra-fine Grained B Additive

- New AlTiBN coating, with an ultra-fine coating structure, achieves high strength and toughness
- Outstanding balance of chipping and wear resistance

High Adhesion Strength

Significantly improved coating adhesion has more than twice the chipping resistance of conventional coatings

P 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.

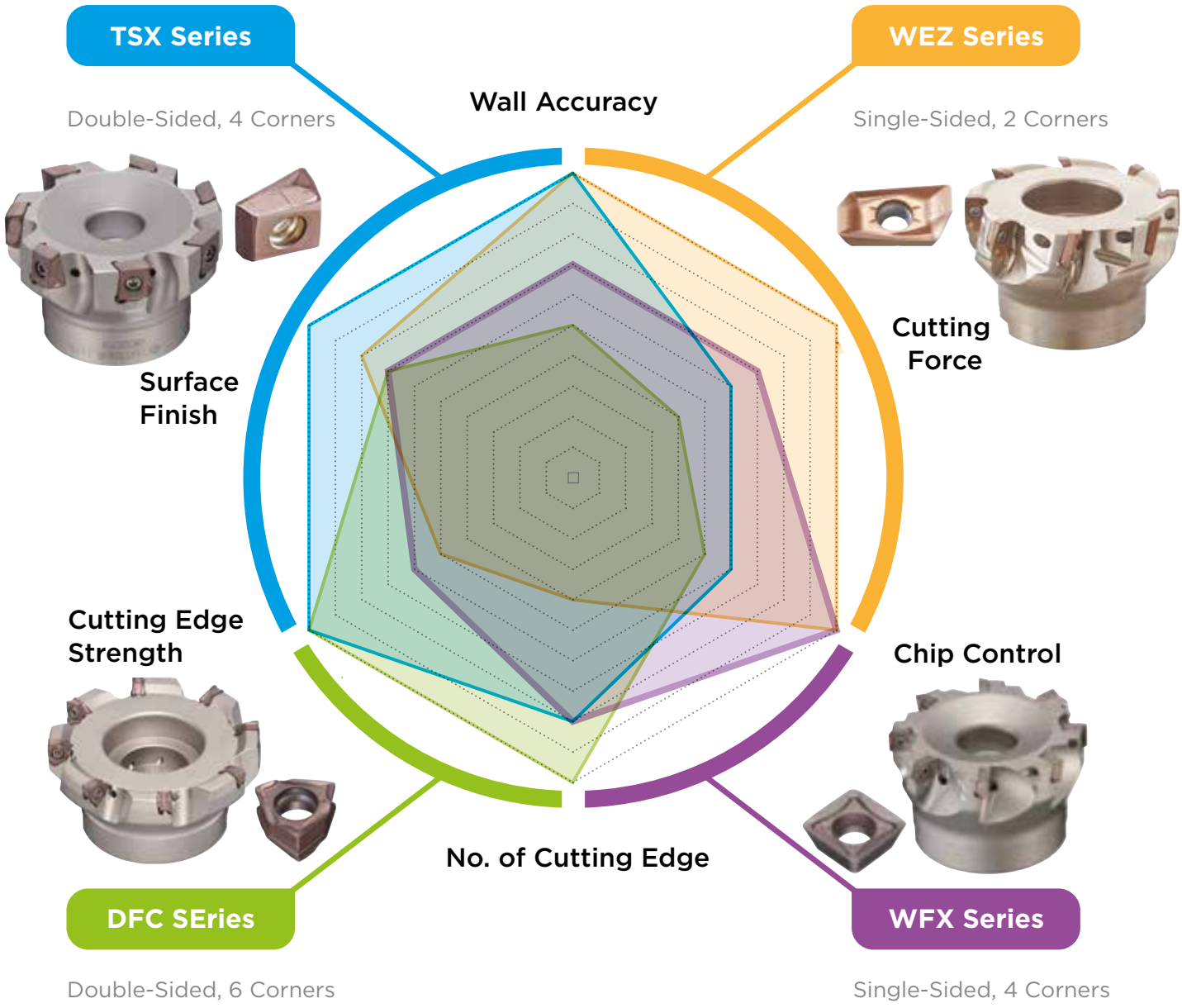
ACP100/ACK200/ACM200 — SUPER FF COAT

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.

P 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 Edge	Cutting Edge Strength
WEZ Series	★★★	★★★	★★★	★★★	★	★½
TSX Series	★★★	★★★	★★	★½	★★	★★★
DFC Series	★½	★	★	★½	★★★	★★★
WFX Series	★½	★★	★★	★★★	★★	★★

*For the details of each product, see the WEZ series (Tooling News No. 172), TSX series (Tooling News No. 153), and DFC series (Tooling News No. 131).

WFX 08000R(S) Type Expansion

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90°

Fig 1

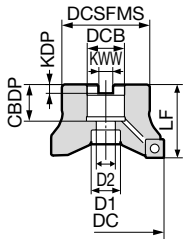


Fig 2

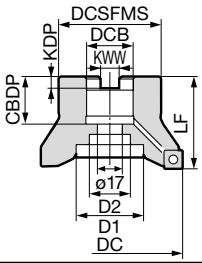
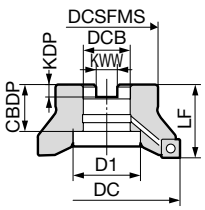


Fig 3



Body (Standard Pitch)

Dimensions (mm)

	Cat. No.	Stock	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	K M S	P			K		M S	M S		M S		K N	N		
	Medium Cutting	K M S		P M	P M	K			M S	M S	M S	M S		N	P M	
	Roughing	K M S		P M	P M		K			M S		M S			P	
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

Fig 1

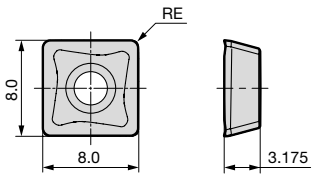
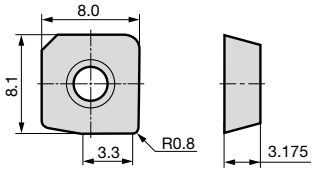


Fig 2 Wiper Insert



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

Identification Code

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

WFX	08	040	R	S
Series	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 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.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXM 08000R(S) Type Expansion

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90°

Fig 1

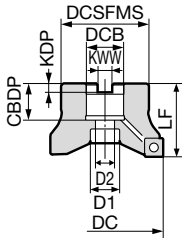


Fig 2

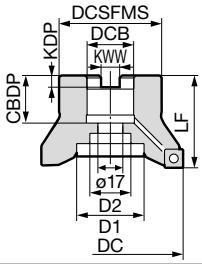
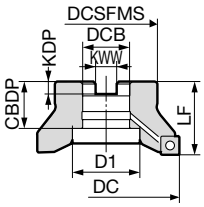


Fig 3



Body (Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	PS PM	P			K		MS	MS		MS	KN	N			
	Medium Cutting	PS PM		PM	PM	K			MS	MS	MS	MS	N	PM		
	Roughing	PS PM		PM	PM		K			MS		MS		P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

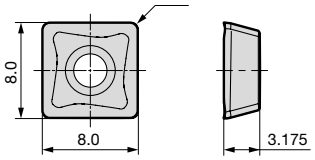
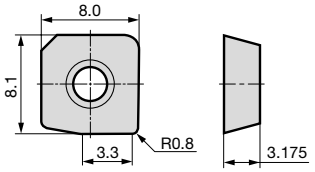


Fig 2 Wiper Insert



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

Identification Code

WFX M 08 040 R S

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 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.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXF 08000R(S) Type Expansion

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90°

Fig 1

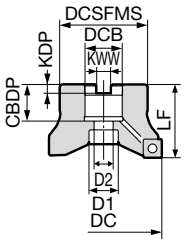


Fig 2

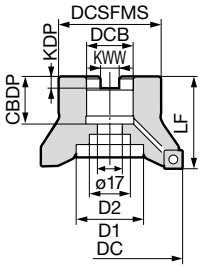
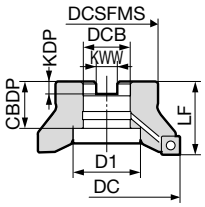


Fig 3



Body (Extra Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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)

Grade Classification		Coated Carbide											Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	PS K	P			K		MS	MS		MS		K N	N			
	Medium Cutting	PS K		PM	PM	K			MS	MS	MS	MS		N	PM		
	Roughing	PS K		PM	PM		K			MS		MS			P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

Fig 1

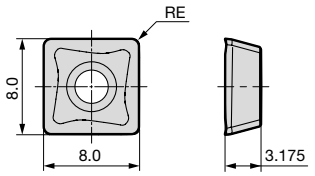
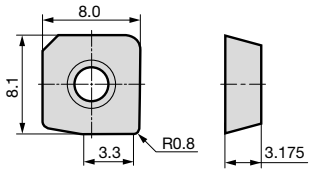


Fig 2 Wiper Insert



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

Identification Code

WFX F 08 040 R S

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 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

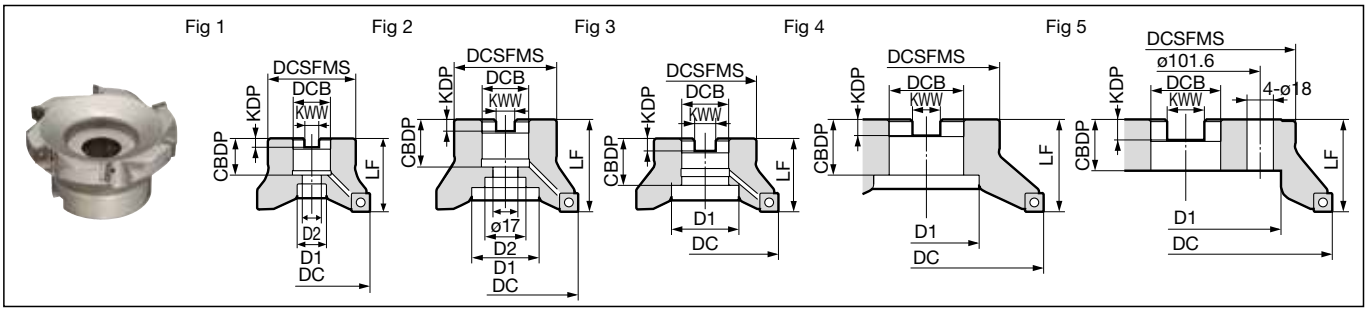
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFX 12000R(S) Type Expansion

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90°



Body (Standard Pitch)

Dimensions (mm)

	Cat. No.	Stock	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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	Cermet		
Process	High-speed/Light	MS	P			K		MS	MS		MS		N			
	Medium Cutting	MS		PM	PM	K			MS	MS	MS	MS	N	PM		
	Roughing	MS		PM	PM		K			MS		MS		P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Fig
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

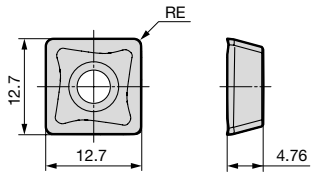
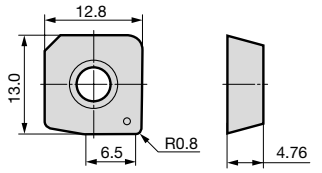
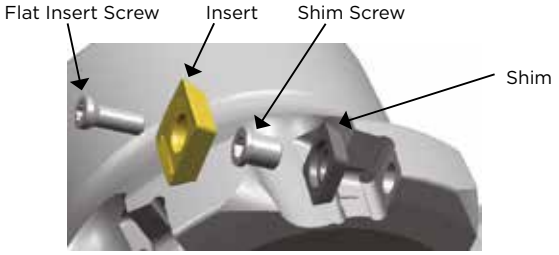


Fig 2 Wiper Insert



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



Identification Code

WFX 12 050 R S

Series | Insert Size | Dia. | Feed Direction | Metric Bore

Parts

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

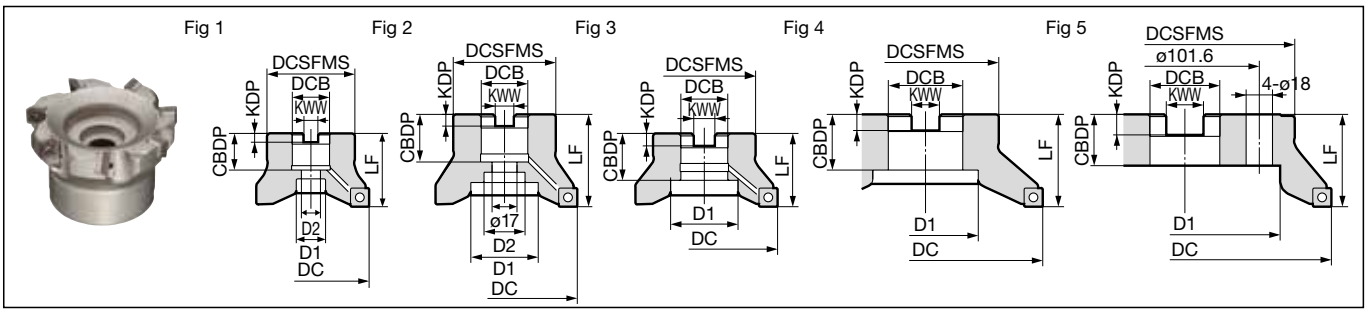
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXF 12000R(S) Type Expansion

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90°



Body (Extra Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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	Cermet	Corner Radius RE	Fig
Process	High-speed/Light	MS PM	P			K		MS	MS		MS		N			
	Medium Cutting	MS PM		P M	P M	K			MS	MS	MS	MS	N	P M		
	Roughing	MS PM		P M	P M		K			MS		MS		P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	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

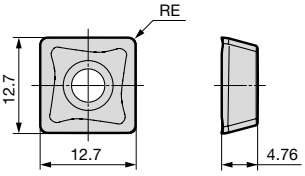
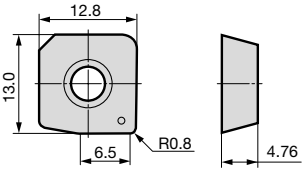
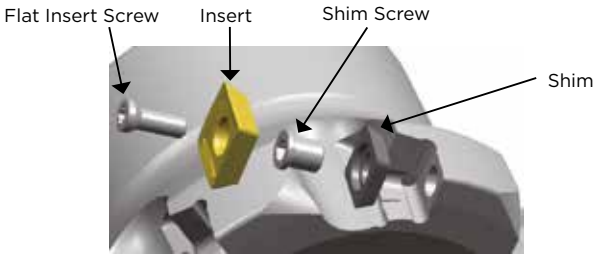


Fig 2 Wiper Insert



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



Identification Code

WFX F 12 050 R S

WFX	F	12	050	R	S
Series	Extra Fine Pitch	Insert Size	Dia.	Feed Direction	Metric Bore

Parts

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

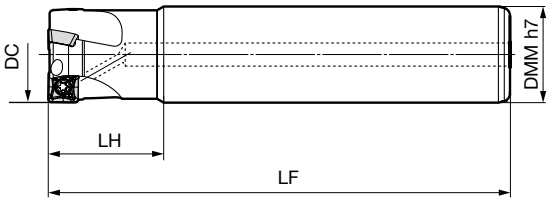
N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFX 08000E Type Expansion

Rake Angle	Radial	-6°
	Axial	12°

6mm 90°

Fig 1



Body (Standard Pitch)

Dimensions (mm)

Cat. No.	Stock	DC	DMM	LH	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	DC	DMM	LH	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		
Process	High-speed/Light	K M S	P			K		M S	M S		M S		K N	N			
	Medium Cutting	K M S		P M	P M	K			M S	M S	M S	M S		N	P M		
	Roughing	K M S		P M	P M		K			M S		M S			P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

Fig 1

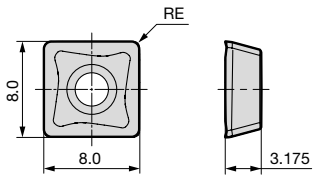
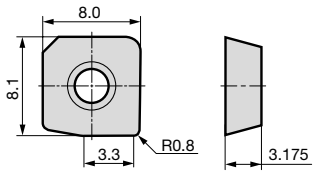


Fig 2 Wiper Insert



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

Identification Code

WFX M 08 025 E

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

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.

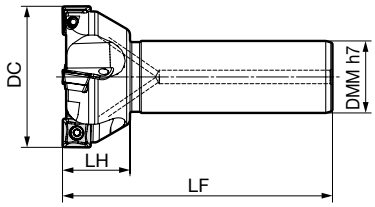
N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFX(F) 12000E Type Expansion

Rake Angle		
Radial	-8°	
Axial	8°	

10mm 90°

Fig 1



Body (Standard Pitch)

Dimensions (mm)

Cat. No.	Stock	DC	DMM	LH	LF	Number of Teeth	Weight	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	DC	DMM	LH	LF	Number of Teeth	Weight	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		
Process	High-speed/Light	P S N	P			K		M S	M S		M S	K N	N			
	Medium Cutting	P S N		P M	P M	K			M S	M S	M S	M S	K N	N	P M	
	Roughing	P S N		P M	P M		K			M S		M S			P	
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Fig
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		●					❍								❍	Q	2

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

Fig 1

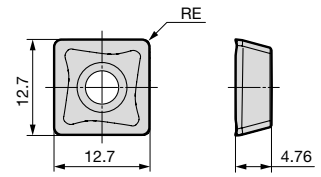
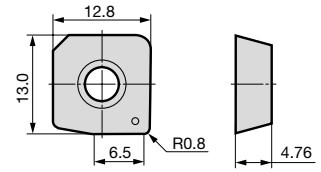
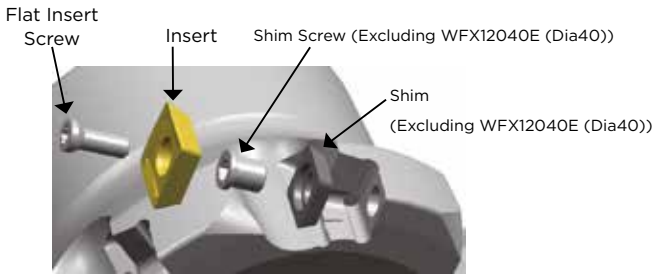


Fig 2 Wiper Insert





Identification Code

WFX F 12 050 E

WFX	F	12	050	E
Series	Extra Fine Pitch	Insert Size	Dia.	Shank Type

Parts

Shim	Shim Screw	Wrench	Flat Insert Screw		Wrench	Anti-seizure Cream
				N·m		
WFXS4R	BW0507F	LH035	BFTX03512IP	3.0	TRDR15IP	SUMI-P

ø40mm size does not have shims.

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.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

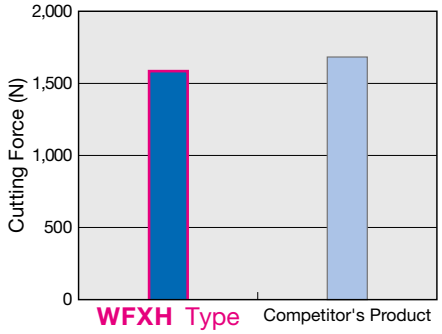
General Features

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

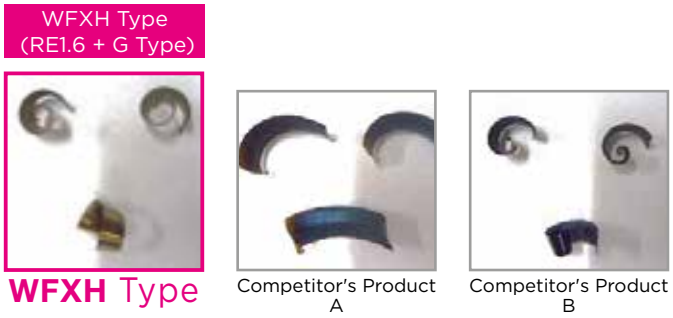
(1) Stable, high-efficiency machining due to their superior sharpness
(2) Various milling applications are supported (ramping, helical milling)
(3) Various inserts for the WFX series can be used
(4) Applicable to various work materials
In addition to the general-purpose grade ACU2500, applicable to various 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 = 200m/min, f_z = 1.0mm/t, a_p = 0.5mm, a_e = 44mm, Dry

Chips: Small and curled, low cutting temperatures



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

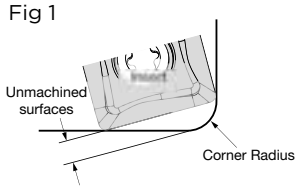
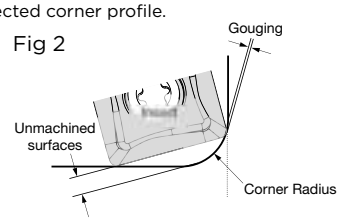


Fig 2



WFXH08000RS Type

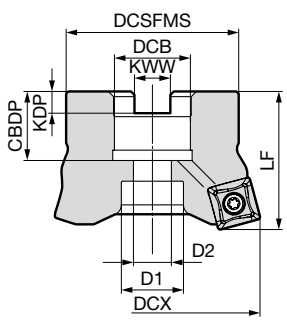
Corner Radius	SOMT08○○04-□ (RE0.4)			SOMT08○○08-□ (RE0.8)			SOMT08○○12-□ (RE1.2)		
	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig	Unmachined surfaces	Gouging	Fig
2.0	1.41	0	1	1.30	0	1	1.21	0	1
2.5	1.30	0.02	2	1.19	0.01	2	1.09	0	1
3.0	—	—	—	—	—	—	0.98	0.05	2

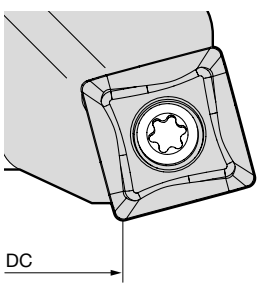
WFXH12000RS Type

Corner Radius	SOMT12○○04-□ (RE0.4)			SOMT12○○08-□ (RE0.8)			SOMT12○○12-□ (RE1.2)			SOMT08○○16-□ (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.

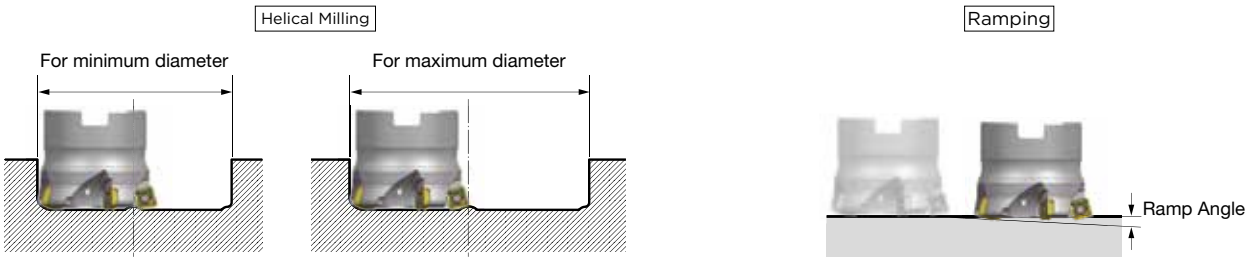




	Body Cat. No.	DCX	DC			
			R0.4	R0.8	R1.2	R1.6
*	WFXH 08025M12Z2	25	10.4	10.9	11.5	—
*	08032M12Z3	32	17.4	17.9	18.5	—
	WFXH 08040RS	40	25.4	25.9	26.5	—
	08050RS	50	35.4	35.9	36.5	—
	08050RS-Z6	50	35.4	35.9	36.5	—
	08063RS	63	48.4	48.9	49.5	—
*	WFXH 12040M12Z3	40	16.6	17.1	17.5	18.1
*	WFXH 12050RS	50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

* mark: Modular Tools P21

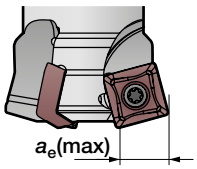
Helical Milling and Ramping



Insert Cat. No.	DC	Helical Milling (mm)		Ramping
		Min. Dia.	Max. Dia.	Maximum Ramp Angle
SOMT08○○04-□	25	35	49	1°30'
	32	49	63	0°30'
	40	65	79	0°30'
	50	Impossible	Impossible	0°30'
	63	Impossible	Impossible	Impossible
SOMT08○○08-□	25	35	48	3°
	32	49	62	1°30'
	40	65	78	1°
	50	85	98	0°30'
	63	111	124	0°30'
SOMT08○○12-□	25	34	47	4°30'
	32	48	61	2°30'
	40	64	77	1°30'
	50	84	97	1°
	63	110	123	0°30'

Insert Cat. No.	DC	Helical Milling (mm)		Ramping
		Min. Dia.	Max. Dia.	Maximum Ramp Angle
SOMT12○○04-□	40	56	79	1°
	50	76	99	0°30'
	63	Impossible	Impossible	Impossible
SOMT12○○08-□	40	56	78	1°30'
	50	76	98	1°
	63	102	124	0°30'
SOMT12○○12-□	40	55	77	2°30'
	50	75	97	1°30'
	63	101	123	1°
SOMT12○○12-□	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 XCU2500	100-150-200	SOMT08	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
P Alloy Steel Below 45HRC		80-130-180	SOMT08	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.8
			SOMT12	—	—	—	—	0.8	1.0	0.8	1.0	0.8	1.0
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
			SOMT12	—	—	—	—	1.0	0.8	1.0	0.8	1.0	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
			SOMT12	—	—	—	—	1.0	1.2	1.0	1.2	1.0	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
			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 tooldiameter) or less.

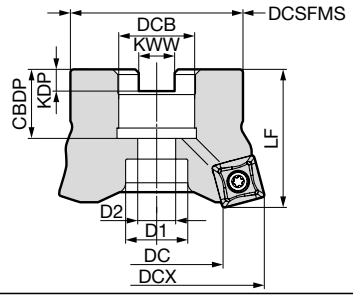
When tool overhang is more than L/D = 3 and less than or equal to L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (a_p, f_z).
When tool overhang is more than L/D = 5 and less than or equal to L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (a_p, f_z).

WFXH 08000RS Type Expansion

Rake Angle		
	Radial	-6°
	Axial	6°

1.5mm 15°

Fig 1



Body

Dimensions (mm)

	Cat. No.	Stock	DCX	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	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.

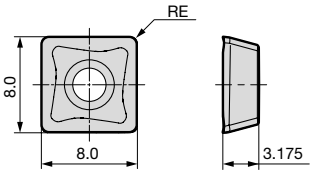
* indicates value with corner radius 1.2 inserts mounted. Refer to P13 for details.

Insert

Dimensions (mm)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light		P			K							N			
	Medium Cutting			P	P	K							N	P		
	Roughing			P	P		K							P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

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

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

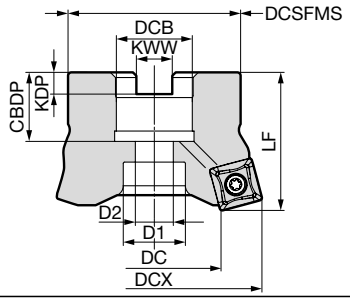
N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXH 12000RS Type Expansion

Rake Angle		
	Radial	-6°
	Axial	6°

2.5mm 15°

Fig 1



Body

Dimensions (mm)

	Cat. No.	Stock	DCX	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	D2	Number of Teeth	Weight (kg)	Fig
Metric	**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.

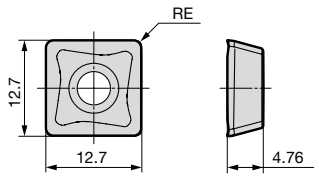
* indicates value with corner radius 1.6 inserts mounted. Refer to P13 for details.

Insert

Dimensions (mm)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	PS PM	P			K		MS	MS		MS	KN	N			
	Medium Cutting	PS PM		PM	PM	K			MS	MS	MS	MS	N	PM		
	Roughing	PS PM		PM	PM		K			MS		MS		P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Fig
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

Fig 1



*If the cutting edge strength for high-efficiency milling of non-ferrous metal is insufficient, try a G-type chipbrea

Recommended Cutting Conditions P14 Precautions for Use P13

Identification Code

WFXH 12 050 RS

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

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

General Features

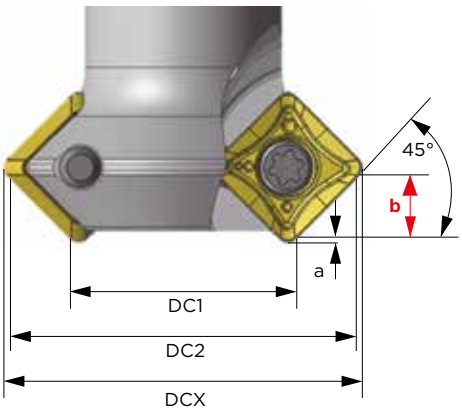
The SEC-WaveMill WFXC Type is a chamfering tool that uses a WFX series insert. A wide variety of grades supports various work materials. In addition to the general-purpose grade ACU2500, applicable to various work materials, the new-generation coated carbide grades XCU2500/XCK2000 are now available. 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
	SOMT120416	1.6	26.1	38.3	0.5	6.1	40.4
WFXC12032E	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
	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

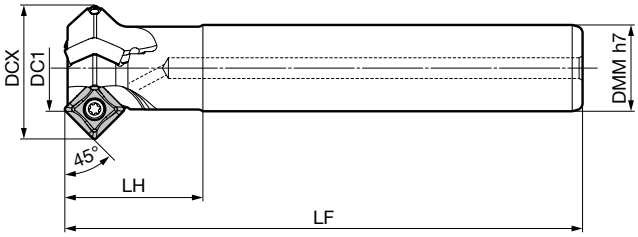


WFXC 08000E Type Expansion

Rake Angle		
	Radial	0°
	Axial	0°

45°

Fig 1



Body (Shank Type)

Dimensions (mm)

Cat. No.	Stock	DC1	DCX	LF	LH	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

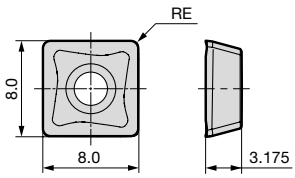
DC1 and DCX values were obtained with a 0.8 corner radius insert mounted.

Insert

Dimensions (mm)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	P M S	P			K		M S	M S		M S		N			
	Medium Cutting	P M S		P M	P M	K			M S	M S	M S	M S	N		P M	
	Roughing	P M S		P M	P M		K			M S		M S			P	
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

Fig 1



Precautions for Use P17

Identification Code

WFXC 08 016 E

WFXC	08	016	E
Series	Insert Size	Dia.	Shank Type

Parts

Flat Insert Screw		Wrench	Anti-seizure Cream
	N·m		
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.
P	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
P	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.

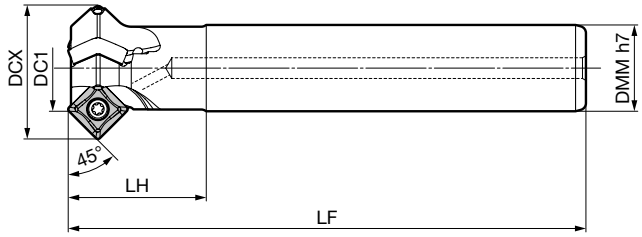
N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXC 12000E Type Expansion

Rake Angle	Radial	0°
	Axial	0°

45°

Fig 1



Body (Shank Type)

Dimensions (mm)

Cat. No.	Stock	DC1	DCX	LF	LH	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

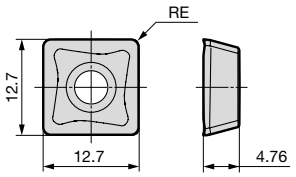
DC1 and DCX values were obtained with a 0.8 corner radius insert mounted.

Insert

Dimensions (mm)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	P M S	P			K		M S	M S		M S		K N	N		
	Medium Cutting	P M S		P M	P M	K			M S	M S	M S	M S		N	P M	
	Roughing	P M S		P M	P M		K			M S		M S			P	
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Fig
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

Fig 1



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.
P	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
P	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.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

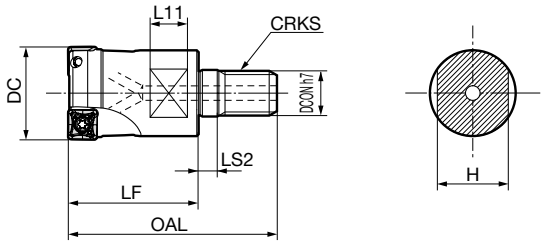
WFX 08000M Type

SEC-Modular Tool Expansion

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90°

Fig 1



Head

Dimensions (mm)

Cat. No.	Stock	DC	DCON	CRKS	OAL	LF	LS2	L11	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	DLC	Cermet		
Process	High-speed/Light	●	●			●		●	●		●		●			
	Medium Cutting	●		●	●	●			●	●	●	●	●	●		
	Roughing	●		●	●		●			●		●			●	
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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

Fig 1

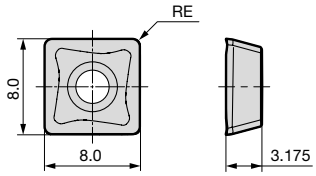
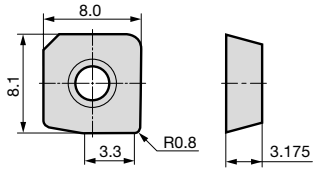


Fig 2 Wiper Insert



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

Arbors P23

Identification Code

WFX 08 020 M10 Z2

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.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

WFXH 08000M/12000M Type

SEC-Modular Tool

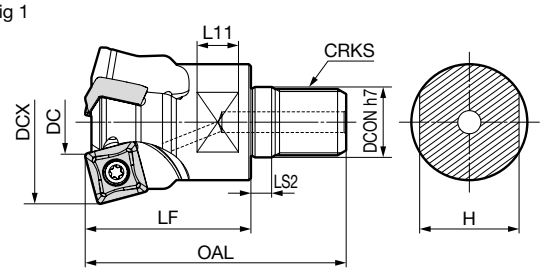
Expansion

Rake Angle		
	Radial	-6°
	Axial	6°

1.5mm 15° (08000M Type)

2.5mm 15° (12000M Type)

Fig 1



Head (Applicable Insert SOMT08 Type)

Dimensions (mm)

Cat. No.	Stock	DCX	DC	DCON	CRKS	OAL	LF	LS2	L11	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	DCX	DC	DCON	CRKS	OAL	LF	LS2	L11	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

sind die ganzen texte unter den Tabellen (auch bei den anderen Tabellen) nötig? könnte platz sparen

Dimensions (mm)

Grade Classification		Coated Carbide										Cemented Carbide	DLC	Cermet		
Process	High-speed/Light	K M S	P			K		M S	M S		M S	K N	N			
	Medium Cutting	K M S		P M	P M	K		M S	M S	M S	M S		N	P M		
	Roughing	K M S		P M	P M		K		M S		M S			P		
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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
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
120408PDER-H		●	❍	●	❍	●	●		❍	❍	❍	❍				0.8	2
SOET 120408PDFR-S													●	●		0.8	2

Fig 1

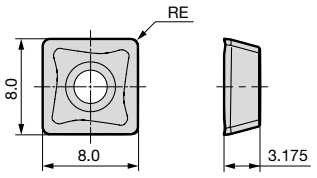
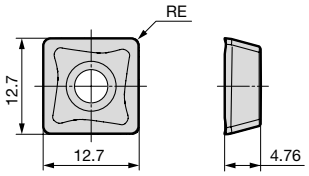


Fig 2



Precautions for Use P13 Arbors P23

Identification Code

WFXH 08 025 M12 Z2

WFXH	08	025	M12	Z2
Series	Insert Size	Dia.	Mounting Screw Size	Number of Teeth

Parts

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

Recommended Cutting Conditions

Work Material	Insert Grade	Cutting Speed v_c (m/min)	Insert Cat. No.	ø25 ap (mm)	ø25 fz (mm/rev)	ø32 ap (mm)	ø32 fz (mm/rev)	ø40 ap (mm)	ø40 fz (mm/rev)	ø50 ap (mm)	ø50 fz (mm/rev)	ø63 ap (mm)	ø63 fz (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
			SOMT12	—	—	—	—	1.0	1.0	1.0	1.0	1.0	1.0
P Alloy Steel Above HRC45	ACP200 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
			SOMT12	Q	Q	Q	Q	0.8	1.0	0.8	1.0	0.8	1.0
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
			SOMT12	—	—	—	—	1.0	0.8	1.0	0.8	1.0	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
			SOMT12	—	—	—	—	1.0	1.2	1.0	1.2	1.0	1.2
H Hardened Steel Below HRC50	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
			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 (ap, 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 (ap, f_z).

Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

Kann das weg oder kürzer?

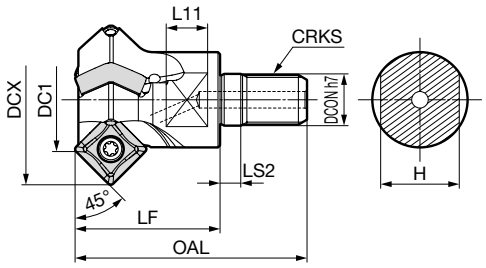
WFXC 08000M/12000M Type

SEC-Modular Tool Expansion

Rake Angle		
	Radial	0°
	Axial	0°

45°

Fig 1



Head (Applicable Insert SOMT08 Type)

Dimensions (mm)

Cat. No.	Stock	DC1	DCX	DCON	CRKS	OAL	LF	LS2	L11	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	DC1	DCX	DCON	CRKS	OAL	LF	LS2	L11	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			
Process	High-speed/Light	P M S	P			K		M S	M S		M S		N				
	Medium Cutting	P M S		P M	P M	K		M S	M S	M S	M S		N	P M			
	Roughing	P M S		P M	P M		K		M S		M S			P			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACS1000	ACS2500	ACS3000	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	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
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 120408PDFR-S													●	●		0.8	2

Fig 1

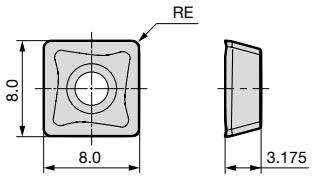
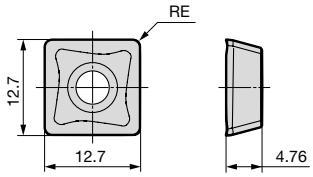


Fig 2



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	N·m	Wrench	Anti-seizure Cream
WFXC08000M	BFTX0306IP	1.5	TRDR08IP	SUMI-P
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
	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

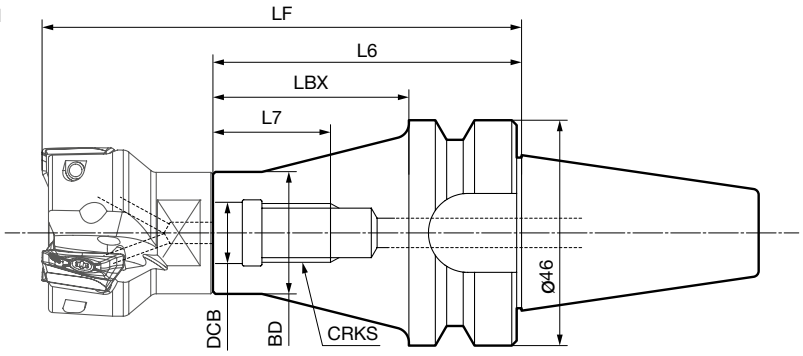
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

Special Arbor

BBT Integrated Type - SEC-Modular Tools Special Arbors

Fig 1



BBT Integrated Arbor

Dimensions (mm)

Cat. No.	Stock	CRKS	DCB	BD	L6	LBX	L7	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)

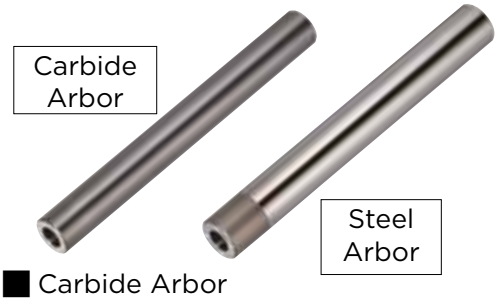
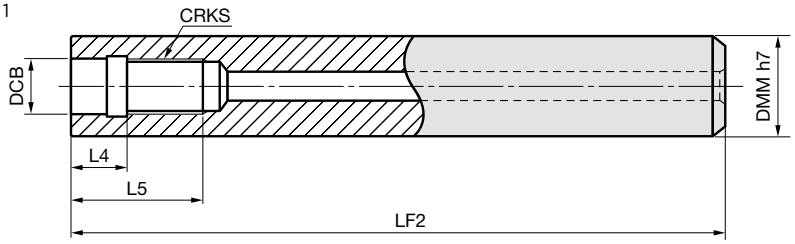


Fig 1



Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	CRKS	DCB	DMM	LF2	L4	L5	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	CRKS	DCB	DMM	LF2	L4	L5	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

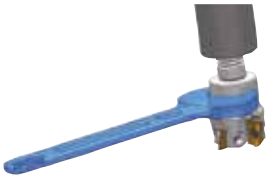
MA	15	M08	L120	C
Series	Shank Dia.	Mounting Screw Size	Arbor Overall Length	Arbor Materials C: Carbide S: Steel

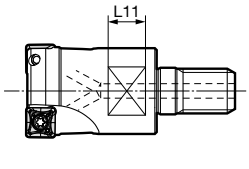
● Set Dimensions (*2)

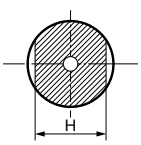
Recommended Tightening Torque (N·m)

* 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	Tool Dimensions H
M8	23	8	13
M10	46	8	15
M12	60	10	19
M16	80	10	24

N·m Recommended Tightening Torque (N·m) ● Euro stock ❍ Japan stock

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	· 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	· 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	· 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	· 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	· 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	· 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	· Achieves 1.5 times the efficiency and 2 times the tool life	

SUMITOMO
CARBIDE - CBN - DIAMOND

SUMITOMO ELECTRIC Hartmetall GmbH
Konrad-Zuse-Straße 9 | 47877 Willich | Germany
T +49 2154 4992-0
info@sumitomotool.com
www.sumitomotool.com

SUMITOMO ELECTRIC Hardmetal Ltd.
2 Devon Way | Longbridge Technology Park
Birmingham B31 2 TS | UK
T +44 121 6613650
salesUK@sumitomotool.com

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