

WFX Series



General Features

SEC-Wave Mill WFX series for shoulder milling, is a screw-lock type cutter using 4-cornered inserts. Ideal cutting edge design delivers good squareness.

The WFX08000 type has been added (max. depth of cut: 6.0mm) for small-depth cutting. Our wide lineup covers a wide variety of applications.

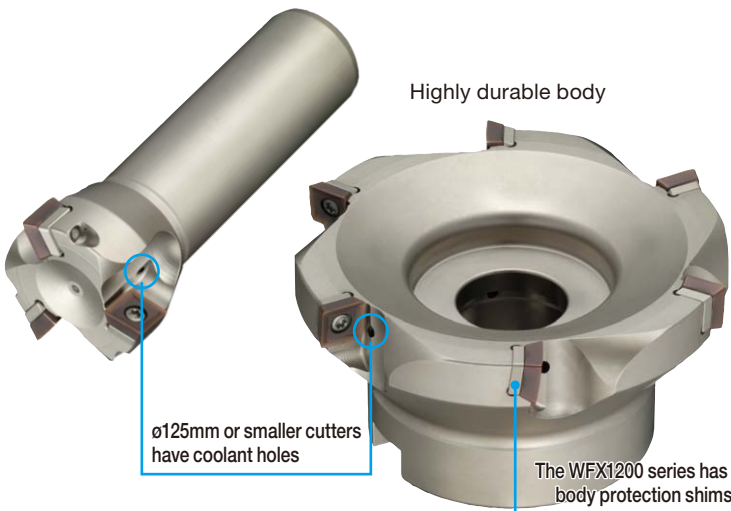
SEC-Wave Mill WFX 08000 Type

New

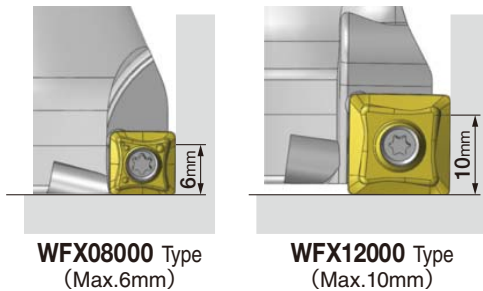


Characteristics

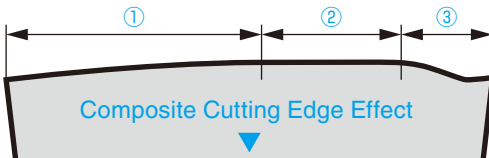
The insert shape optimized for shoulder milling combined with a high-precision body leaves a superior machined surface finish.



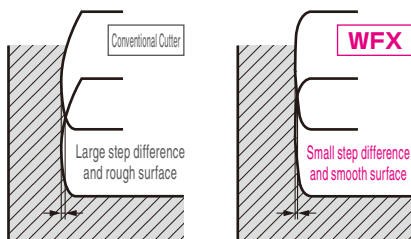
Max. depth of cut



Optimized Edge Shape



- ① : The convex shape ensures the cutting edge strength.
② : The flat shape reduces step differences in stepped milling.



- ③ : The wiper edge function improves the surface roughness.

Series

Shell Type

■ Metric ■ Imperial

WFX	WFXM	WFXF
Standard Pitch	Fine Pitch	Ultra-Fine Pitch
WFX08000RS <i>New</i> →H77	WFXM08000RS <i>New</i> →H78	WFXF08000RS <i>New</i> →H79
ø40-100mm, 3-8 flutes	ø40-100mm, 4-10 flutes	ø40-100mm, 6-12 flutes
WFX08000R <i>New</i> →H77	WFXM08000R <i>New</i> →H78	WFXF08000R <i>New</i> →H79
ø80-100mm, 6-8 flutes	ø80-100mm, 8-10 flutes	ø80-100mm, 10-12 flutes
WFX12000RS →H80		WFXF12000RS →H81
ø50-100mm, 3-5 flutes		ø50-100mm, 4-7 flutes
WFX12000R →H80		WFXF12000R →H81
ø80-250mm, 4-12 flutes		ø80-250mm, 6-18 flutes

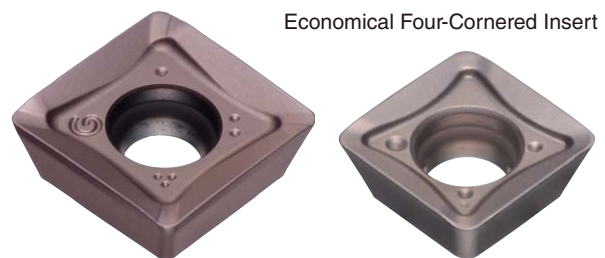
Endmill Type

WFX-E	WFXM-E	WFXF-E
Standard Pitch	Fine Pitch	Ultra-Fine Pitch
WFX08000E <i>New</i> →H82	WFXM08000E <i>New</i> →H82	
ø20-63mm, 2-5 flutes	ø25-63mm, 3-6 flutes	
WFX12000E →H83		WFXF12000E →H83
ø40-80mm, 3-4 flutes		ø50-80mm, 4-6 flutes

Modular Type

WFX-M
Standard Pitch
WFX08000M <i>New</i> →H129
ø20-40mm, 2-3 flutes

Economical Four-Cornered Insert

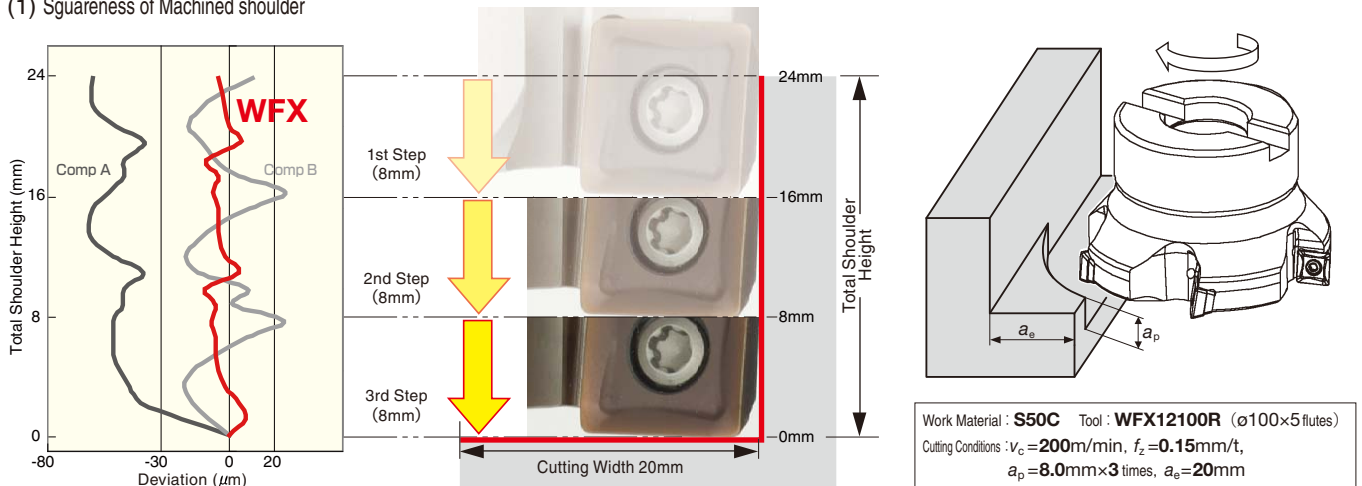


WFX12000 Type Insert
(General-Purpose G Type Chipbreaker)

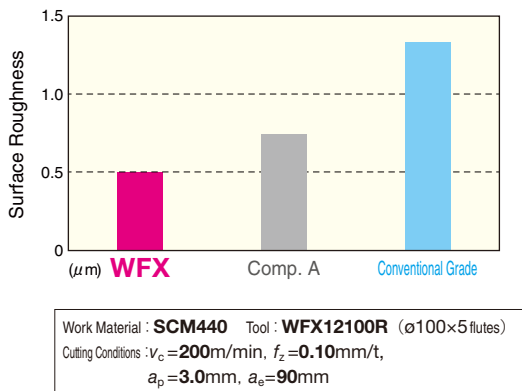
WFX08000 Type Insert
(General-Purpose G Type Chipbreaker)

■ Performance

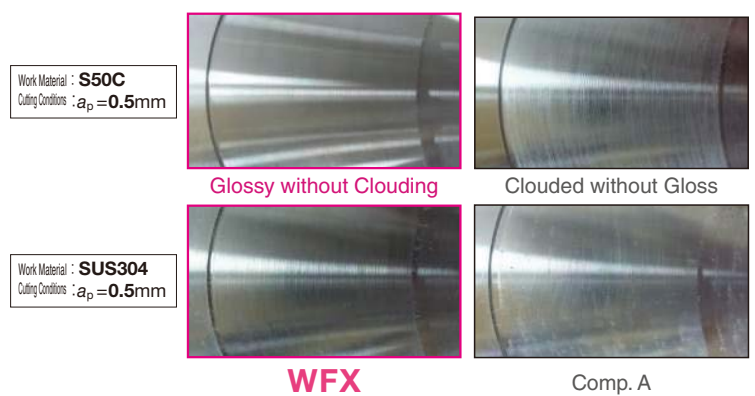
(1) Squareness of Machined shoulder



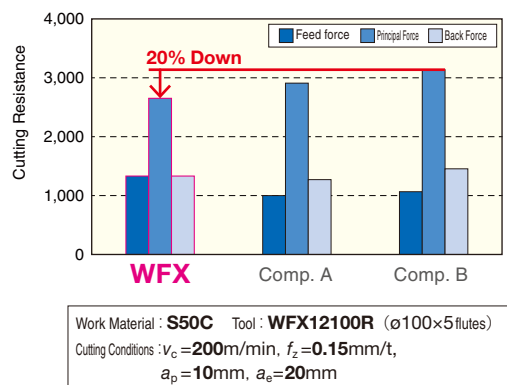
(2) Surface Roughness Comparison



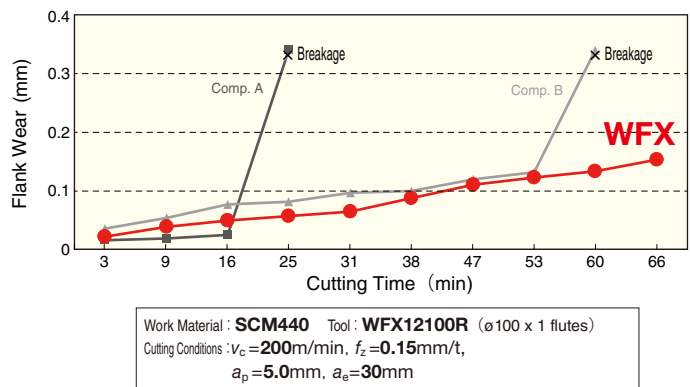
(2) Comparison of Surface Texture



(3) Cutting Resistance Comparison



(4) Comparison of Wear Resistance



■ Application Examples

Work (S50C)	SEH Product	Conventional Grade
	Tool	WFXF08063RS
	Grade	ACP200
	Tool Diameter(mm)	$\phi 63$
	No. of Teeth	8
	$v_c(\text{m/min})$	220
	$v_f(\text{mm/min})$	1,100
	$f_z(\text{mm/t})$	0.15
	$a_p(\text{mm})$	3.0
	$a_e(\text{mm})$	50
	Coolant	Wet
Results	- Vibration reduced by approximately 30%. - Good machined surface - Tool life is doubled.	

Work (FCD450)	SEH Product	Conventional Grade
	Tool	WFXF12100R
	Grade	ACK300
	Tool Diameter(mm)	$\phi 100$
	No. of Teeth	7
	$v_c(\text{m/min})$	200
	$v_f(\text{mm/min})$	446
	$f_z(\text{mm/t})$	0.10
	$a_p(\text{mm})$	0.05
	$a_e(\text{mm})$	-
	Coolant	Dry
Results	- Good Surface Roughness $Ra\ 0.98 \rightarrow 0.38\mu\text{m}$, $Rz\ 7.63 \rightarrow 3.34\mu\text{m}$ - Cutting time is shortened. Insert life is extended by approximately 20%.	

WFX Series

Insert Grades

The WFX type offers the newly developed multi-layer PVD coating structure **(New) Super ZX Coat** on these grades: **(New) ACP200**, **(New) ACP300**, and **(New) ACK300**. With excellent resistance against wear, fracture, and adhesion, the grades achieve 1.5 times longer tool life than conventional coating.

In addition to the DL1000 and H1 for non-ferrous metals and T4500A, a new cermet grade for milling, we have released the ACM200 and ACM300 grades for stainless steel and exotic alloys, thereby covering a wide range of work materials.



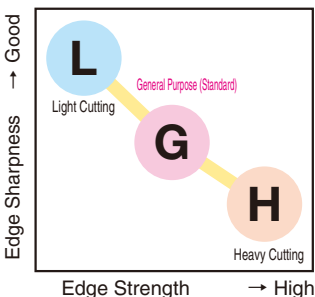
Grade Selection

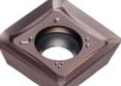
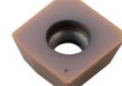
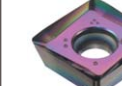
Work Material	Grade	Finishing to Light Cutting	Medium Cut	Rough to Heavy Cutting
P Steel	Coat	ACP100	ACP200	ACP300
	Coat	ACM200	ACM300	

Work Material	Grade	Finishing to Light Cutting	Medium Cut	Rough to Heavy Cutting
K Cast Iron	Coat	ACK200	ACK300	
	Coat	DL1000	H1	

The letters "C" and "P" at either end of each grade indicate coating type. ▽ : CVD ▲ : PVD Blank: Non-coated

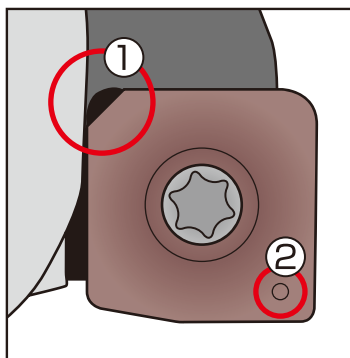
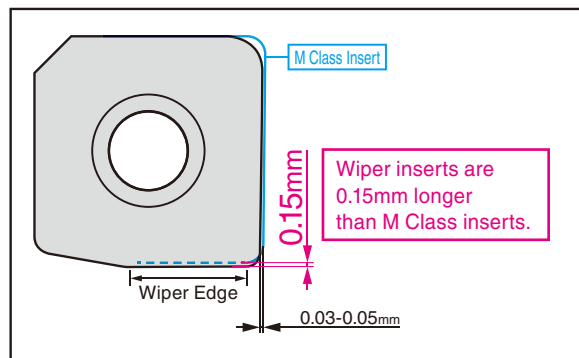
Chipbreaker Selection



Work Material	P Steel K Cast Iron				N Aluminium
Breaker	L Type	G Type	H Type	Wiper Insert	S Type
					
Characteristic	Low Cutting Force	General Purpose	Strong Edge	Wiper Edge	Sharp Edge
Cutting Edge Figure					
Application	Light Cutting, Low Rigidity Milling Low-Burr Design	Main Chipbreaker General - Interrupted Milling	Heavy Cut, Heavy Interrupted Machining Hardened steel	Precision Finishing	Non-Ferrous Metal

Wiper Insert

Optimised wiper edge shape provides superior surface roughness.



Important Notes About Wiper Inserts

- Wiper inserts are single-cornered.
- Attach the wiper insert so that the chamfered corner is in location 1 shown in the figure.
- Be sure to use the corner with an ID mark (2 in the figure). (08-size inserts have no marks.)
- Refer to page N17 for details about wiper inserts.

Rake Angle	Radial	-6°
	Axial	12°



SEC-Wave Mill

WFX08000R(S) Type

New

Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys



Fig 1

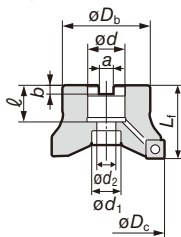


Fig 2

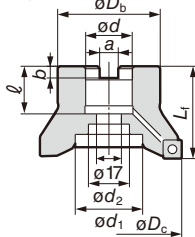
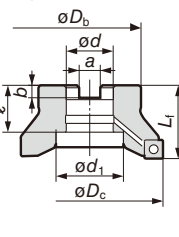


Fig 3



Body (Standard Pitch)

Cat. No.		Stock	Dimensions (mm)								No. of Teeth	Weight (kg)	Fig.	
			$\varnothing D_c$	$\varnothing D_b$	L_f	$\varnothing d$	a	b	ℓ	$\varnothing d_1$				$\varnothing d_2$
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	7	25	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 not included. Check the arbor attachment size (ϕd) when selecting the cutter.

* Please use JIS B1176 hexagonal bolt ($\phi 80$: M12x30 to 35mm, $\phi 100$: M16x40 to 45mm) for securing $\phi 80/\phi 100$ cutter to the arbor.

Identification Details

WFX 08 040 R S

(1) Cutter Series (3) Insert Size (4) Cutter (5) Direction (6) Metric Bore

Insert

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Grade		Coated Carbide						Carbide	DLC	Cermet	Dimensions (mm)	
Application	High Speed/Light	P	P	K	M	M	M	K	N		r_ϵ	Fig
	General Purpose	P	P	K	M	M	M	K	N	P		
	Roughing	P	P	K	M	M	M	K	N	P		
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 080304PZER-L		●	●	●	●	●	●	●	—	—	—	0.4 4
080308PZER-L		●	●	●	●	●	●	●	—	—	—	0.8 4
SOMT 080304PZER-G		●	●	●	●	●	●	●	—	—	—	0.4 4
080308PZER-G		●	●	●	●	●	●	●	—	—	—	0.8 4
080312PZER-G		●	●	●	●	●	●	●	—	—	—	1.2 4
SOMT 080308PZER-H		●	●	●	●	●	●	●	—	—	—	0.8 4
080312PZER-H		●	●	●	●	●	●	●	—	—	—	1.2 4
SOET 080304PZER-G		●	●	●	●	●	●	●	—	—	●	0.4 4
080308PZER-G		●	●	●	●	●	●	●	—	—	●	0.8 4
080312PZER-G		●	●	●	●	●	●	●	—	—	●	1.2 4
SOET 080302PZFR-S		—	—	—	—	—	—	—	●	●	—	0.2 4
080304PZFR-S		—	—	—	—	—	—	—	●	●	—	0.4 4
080308PZFR-S		—	—	—	—	—	—	—	●	●	—	0.8 4
XOEW 080308PZTR-W		—	—	—	●	—	—	—	—	—	●	— 5

Fig 4

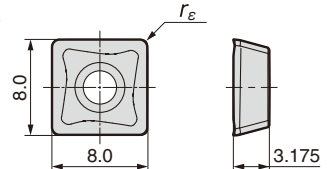
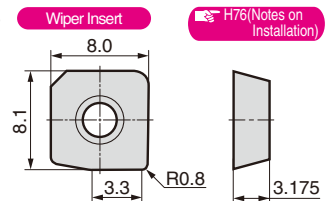


Fig 5



Parts

screw	Spanner
BFTX0306IP	TRDR08IP

Recommended Tightening Torque (N·m)

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.08-0.12-0.18	<6	ACP200 ACP300
	Soft Steel	≤180HB	180-250-350	0.10-0.15-0.20	<6	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.08-0.12-0.18	<4	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<6	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<6	ACK200 ACK300
N	Non-Ferrous Metal	-	300-500-1000	0.10-0.15-0.20	<6	H1 DL1000

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

H
Milling
Cutters

Face
Milling
Radius
Multi-
Purpose
Shoulder
Milling
R/Copying
Groove/
T-Slot
Chamfering
Aluminum/
Light Alloys
High-Speed
Cast Iron

H77

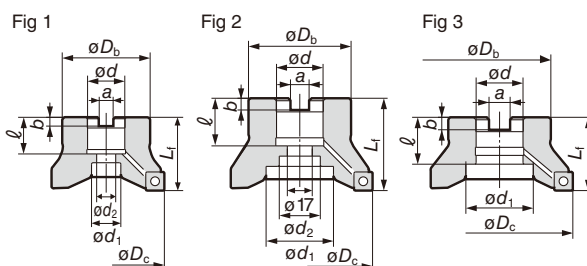
WFXM08000R(S)Type

Rake Angle	Radial	-6°
	Axial	12°



Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys

New



■ Body (Fine Pitch)

Cat. No.		Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
			$\varnothing D_c$	$\varnothing D_b$	L_f	$\varnothing d$	a	b	ℓ	$\varnothing d_1$	$\varnothing d_2$			
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	7	25	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 not included. Check the collet attachment size (ϕd) when selecting the cutter.* Please use JIS B1176 hexagonal bolt ($\phi 80$: M12x30 to 35mm, $\phi 100$: M16x40 to 45mm) for securing $\phi 80/\phi 100$ cutter to the arbor.

■ Identification Details

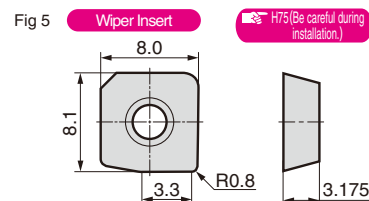
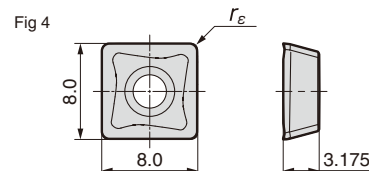
WFX M 08 040 R S

(1) Cutter Series (2) M: Fine Pitched F: Extra-Fine Pitched (3) Insert Size (4) Cutter (5) Direction (6) Metric Bore

■ Insert

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Grade	Coated Carbide						Carbide	DLC	Cermert	Dimensions (mm)	Fig
	High Speed/Light	General Purpose	Roughing								
Application	P	M	K	N	S	H					
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	
SOMT 080304PZER-L	●	●	●	●	●	●	●	—	—	—	0.4 4
080308PZER-L	●	●	●	●	●	●	●	—	—	—	0.8 4
SOMT 080304PZER-G	●	●	●	●	●	●	●	—	—	—	0.4 4
080308PZER-G	●	●	●	●	●	●	●	—	—	—	0.8 4
080312PZER-G	●	●	●	●	●	●	●	—	—	—	1.2 4
SOMT 080308PZER-H	●	●	●	●	●	●	●	—	—	—	0.8 4
080312PZER-H	●	●	●	●	●	●	●	—	—	—	1.2 4
SOET 080304PZER-G	●	●	●	●	●	●	●	—	—	●	0.4 4
080308PZER-G	●	●	●	●	●	●	●	—	—	●	0.8 4
080312PZER-G	●	●	●	●	●	●	●	—	—	●	1.2 4
SOET 080302PZFR-S	—	—	—	—	—	—	●	●	—	—	0.2 4
080304PZFR-S	—	—	—	—	—	—	●	●	—	—	0.4 4
080308PZFR-S	—	—	—	—	—	—	●	●	—	—	0.8 4
XOEW 080308PZTR-W	—	—	—	●	—	—	—	—	●	—	5



■ Parts

screw	Spanner
BFTX0306IP	TRDR08IP

Recommended Tightening Torque (N·m)

■ 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	D.O.C. (mm)	Grades
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K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<6	ACK200 ACK300
N	Non-Ferrous Metal	-	300-500-1000	0.10-0.15-0.20	<6	H1 DL1000

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

Rake Angle	Radial	-6°
	Axial	12°

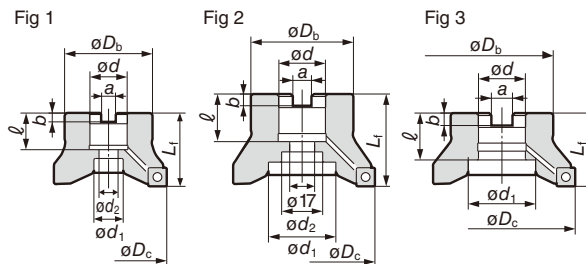


SEC-Wave Mill

WFXF08000R(S)Type

New

Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys



Body (Extra-Fine Pitch)

Cat. No.		Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
			$\varnothing D_c$	$\varnothing D_b$	L_f	$\varnothing d$	a	b	ℓ	$\varnothing d_1$	$\varnothing d_2$			
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	7	25	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 not included. Check the collet attachment size (ϕd) when selecting the cutter.

* Please use JIS B1176 hexagonal bolt ($\phi 80$: M12x30 to 35mm, $\phi 100$: M16x40 to 45mm) for securing $\phi 80/\phi 100$ cutter to the arbor.

Identification Details

WFX M 08 040 R S

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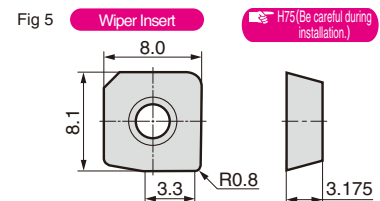
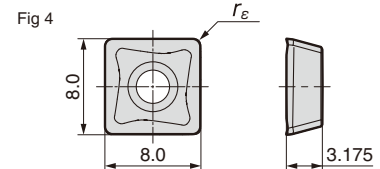
Insert

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Grade		Coated Carbide						Carbide	DLC	Cermet			
Application	High Speed/Light	P			K		MS	KN	N				
	General Purpose		PM	PM	K		MS		N		P		
	Roughing		PM	PM		K	MS						
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Dimensions (mm)	Fig
			New	New		New	New					r _E	
SOMT 080304PZER-L		●	●	●	●	●	●	●	—	—	—	0.4	4
080308PZER-L		●	●	●	●	●	●	●	—	—	—	0.8	4
SOMT 080304PZER-G		●	●	●	●	●	●	●	—	—	—	0.4	4
080308PZER-G		●	●	●	●	●	●	●	—	—	—	0.8	4
080312PZER-G		●	●	●	●	●	●	●	—	—	—	1.2	4
SOMT 080308PZER-H		●	●	●	●	●	●	●	—	—	—	0.8	4
080312PZER-H		●	●	●	●	●	●	●	—	—	—	1.2	4
SOET 080304PZER-G		●	●	●	●	●	●	●	—	—	●	0.4	4
080308PZER-G		●	●	●	●	●	●	●	—	—	●	0.8	4
080312PZER-G		●	●	●	●	●	●	●	—	—	●	1.2	4
SOET 080302PZFR-S		—	—	—	—	—	—	—	●	●	—	0.2	4
080304PZFR-S		—	—	—	—	—	—	—	●	●	—	0.4	4
080308PZFR-S		—	—	—	—	—	—	—	●	●	—	0.8	4
XOEW 080308PZTR-W		—	—	—	●	—	—	—	—	—	●	—	5

Fig 4

Fig 5



Parts

screw	Spanner
BFTX0306IP	TRDR08IP

Recommended Tightening Torque (N·m)

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.08-0.12-0.18	<6	ACP200 ACP300
	Soft Steel	≤ 180HB	180-250-350	0.10-0.15-0.20	<6	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.08-0.12-0.18	<4	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<6	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<6	ACK200 ACK300
N	Non-Ferrous Metal	-	300-500-1000	0.10-0.15-0.20	<6	H1 DL1000

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

H
Milling
Cutters

Face Milling
Radius
Multi-Purpose
Shoulder Milling
R/Copying
Groove/T-Slot
Chamfering
Aluminum/Light Alloys
High-Speed Cast Iron

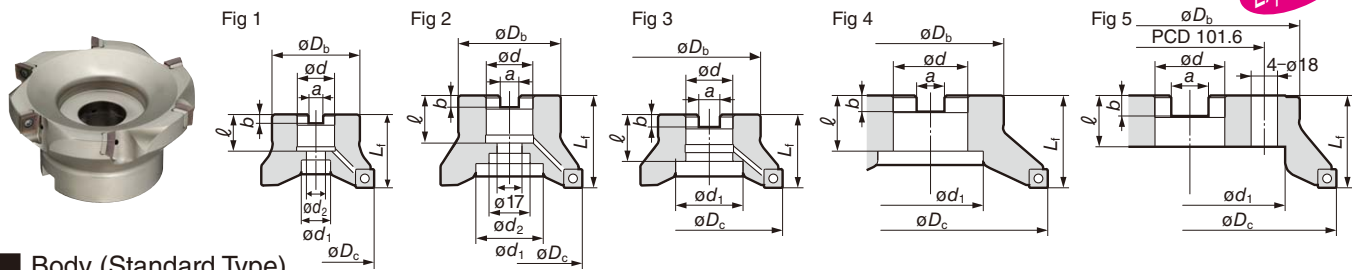
WFX12000R(S) Type

Rake Radial Angle	Radial	-8°
	Axial	8°

10mm	90°
------	-----

P	M	K	N	S	H
Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Exotic Alloy	Hardened Steel

Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys



Body (Standard Type)

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
		ϕD_c	ϕD_b	L_f	ϕd	a	b	ℓ	ϕd_1	ϕd_2			
Metric	WFX 12050RS	● 50	40	40	22	10.4	6.3	20	18	11	3	0.2	1
	12063RS	● 63	50	40	22	10.4	6.3	20	18	11	4	0.4	1
	12080RS	● *80	60	50	27	12.4	7	25	20	13.5	4	0.9	1
	12100RS	● 100	70	50	32	14.4	8.5	32	46	—	5	1.3	3
Inch	WFX 12080R	● *80	60	50	25.4	9.5	6	25	20	13	4	0.9	1
	12100R	● *100	70	63	31.75	12.7	8	32.5	46	28	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	28	72	—	8	3.7	4
	12200R	● 200	150	63	47.625	25.4	14	35	130	—	10	6.3	5
	12250R	● 250	190	63	47.625	25.4	14	35	150	—	12	11.0	5



Inserts are not included. *Sizes $\phi 160$ mm or above do not have coolant holes.

* Please use JIS B1176 hexagonal bolt ($\phi 80$: M12x30 to 35mm, $\phi 100$: M16x40 to 45mm) for securing $\phi 80/\phi 100$ mm cutter to the arbor.

Identification Details

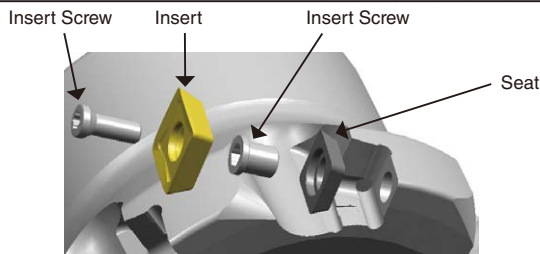
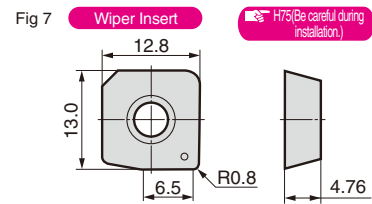
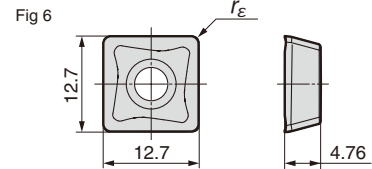
WFX 12 050 R S

(1) Cutter Series (2) Insert Size (3) Cutter (4) Direction (5) Metric Bore

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Inserts

Grade	Coated Carbide				Carbide	DLC	Cermets
	High Speed/Light	General Purpose	Roughing				
Application	P	M	K	N	N	N	P
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300
SOMT 120408PDER-L	●	●	●	●	●	—	—
SOMT 120404PDER-G	●	●	●	●	●	—	—
120408PDER-G	●	●	●	●	●	—	—
120412PDER-G	●	●	●	●	●	—	—
120416PDER-G	●	●	●	●	●	—	—
SOMT 120408PDER-H	●	●	●	●	●	—	—
SOET 120408PDFR-S	—	—	—	—	—	●	—
XOEW 120408PDTR-W	—	—	—	—	—	—	●



Spare Parts

Seat	Seat Screw	Insert Screw	Wrench (insert)	Wrench (seat)
WFXS4R	BW0507F	BFTX03512IP	TRDR15IP	LH035

(N·m) Recommended Tightening Torque (N·m)

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.10-0.15-0.20	<10	ACP200 ACP300
	Soft Steel	≤180HB	180-250-350	0.10-0.15-0.20	<10	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.10-0.15-0.20	<6	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<10	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<10	ACK200 ACK300
N	Non-Ferrous Alloy	-	300-500-1000	0.10-0.15-0.20	<10	H1 DL1000

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

Rake Radial	Radial	-8°
Angle	Axial	8°

10mm 90°



Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys

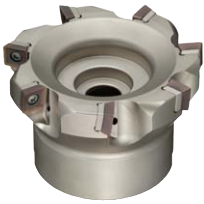


Fig 1

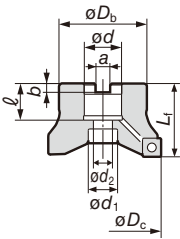


Fig 2

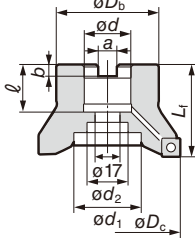


Fig 3

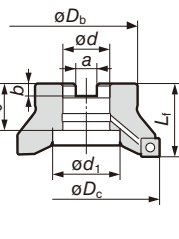


Fig 4

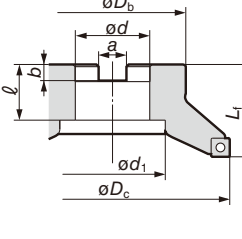
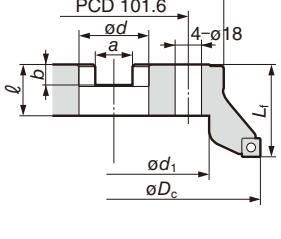


Fig 5



Expansion

Body (Extra-Fine Pitch)

Cat. No.		Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
			ϕD_c	ϕD_b	L_f	ϕd	a	b	ℓ	ϕd_1	ϕd_2			
Metric	WFXF 12050RS	●	50	40	40	22	10.4	6.3	20	18	11	4	0.2	1
	12063RS	●	63	50	40	22	10.4	6.3	20	18	11	5	0.4	1
	12080RS	●	*80	60	50	27	12.4	7	25	20	13.5	6	0.9	1
	12100RS	●	100	70	50	32	14.4	8.5	32	46	—	7	1.2	3
Inch	WFXF 12080R	●	*80	60	50	25.4	9.5	6	25	20	13	6	0.9	1
	12100R	●	*100	70	63	31.75	12.7	8	32.5	46	28	7	1.6	2
	12125R	●	125	80	63	38.1	15.9	10	35.5	55	30	8	2.4	1
	12160R	●	160	100	63	50.8	19.1	11	28	72	—	12	3.5	4
	12200R	●	200	150	63	47.625	25.4	14	35	130	—	16	6.2	5
	12250R		250	190	63	47.625	25.4	14	35	150	—	18	10.9	5

Inserts are not included. *Sizes $\phi 160$ mm or above do not have coolant holes.* Please use JIS B1176 hexagonal bolt ($\phi 80$: M12x30 to 35mm, $\phi 100$: M16x40 to 45mm) for securing $\phi 80/\phi 100$ mm cutter to the arbor.

Identification Details

WFX 12 050 R S

(1) Cutter Series (2) Insert Size (3) Cutter (4) Direction (5) Metric Bore

Inserts

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Grade		Coated Carbide						Carbide	DLC	Cermet	
Application	High Speed/Light	P			K	MS		KN	N		
	General Purpose		PM	PM	K	MS	MS		N	P	
	Roughing		PM	PM	K	MS					
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SOMT 120408PDER-L		●	●	●	●	●	●	●	—	—	—
SOMT 120404PDER-G		●	●	●	●	●	●	●	—	—	—
120408PDER-G		●	●	●	●	●	●	●	—	—	●
120412PDER-G		●	●	●	●	●	●	●	—	—	—
120416PDER-G		●	●	●	●	●	●	●	—	—	—
SOMT 120408PDER-H		●	●	●	●	●	●	●	—	—	—
SOET 120408PDFR-S		—	—	—	—	—	—	—	●	●	—
XOEW 120408PDTR-W		—	—	—	—	●	—	—	—	—	●

Fig 6

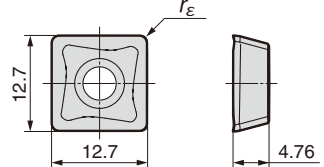
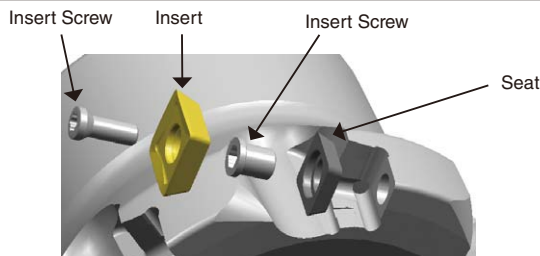
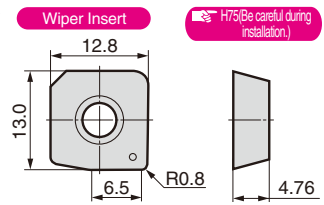


Fig 7



Spare Parts

Seat	Seat Screw	Insert Screw	Wrench (insert)	Wrench (seat)
WFXS4R	BW0507F	BFTX03512IP	3.0 TRDR15IP	LH035

Recommended Tightening Torque (N·m)

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.10-0.15-0.20	<10	ACP200 ACP300
	Soft Steel	≤180HB	180-250-350	0.10-0.15-0.20	<10	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.10-0.15-0.20	<6	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<10	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<10	ACK200 ACK300
N	Non-Ferrous Alloy	-	300-500-1000	0.10-0.15-0.20	<10	H1 DL1000

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

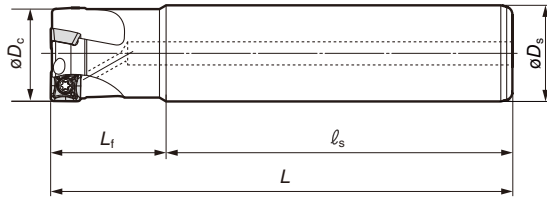
● mark: Standard stocked item (expanded item)

WFX(M)08000E Type

Rake Angle	Radial	-6°
	Axial	12°



Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys



New

Modular Type H129

Body (Standard Pitch)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		ϕD_c	ϕD_s	L_f	ℓ_s	L	
WFX 08020E-16	●	20	16	30	80	110	2
WFX 08020E	●	20	20	30	80	110	2
08022E	●	22	20	30	90	120	2
WFX 08025E-20	●	25	20	30	90	120	2
WFX 08025E	●	25	25	30	90	120	2
08028E	●	28	25	30	90	120	2
08030E	●	30	25	30	90	120	3
WFX 08032E	●	32	32	30	90	120	3
08033E	●	33	32	30	90	120	3
08040E	●	40	32	30	90	120	3
08050E	●	50	32	30	90	120	4
08063E	●	63	32	30	90	120	5

Inserts are not included.

Body (Fine Pitch)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		ϕD_c	ϕD_s	L_f	ℓ_s	L	
WFXM 08025E	●	25	25	30	90	120	3
WFXM 08032E	●	32	32	30	90	120	4
08040E	●	40	32	30	90	120	4
08050E	●	50	32	30	90	120	5
08063E	●	63	32	30	90	120	6

Inserts are not included.

Identification Details

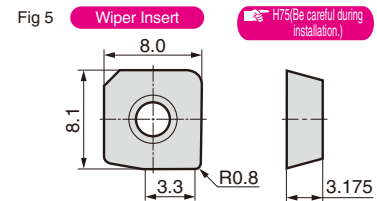
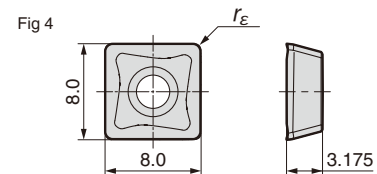
WFX M 08 025 E

(1) Cutter Series (2) Fine-Pitched (3) Insert Size (4) Cutter (5) Endmill Type

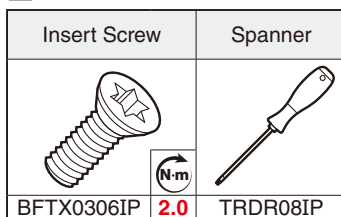
Insert

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Application	Grade		Coated Carbide					Carbide	DLC	Cermet	Dimensions (mm)	Fig
	High Speed/Light	General Purpose	P	M	K	N	S	H				
		Roughing	P	M	K	N	S	H				
Cat. No.			ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
			●	●	●	●	●	●	●	●	●	●
SOMT 080304PZER-L	●	●	●	●	●	●	●	●	●	●	0.4	4
080308PZER-L	●	●	●	●	●	●	●	●	●	●	0.8	4
SOMT 080304PZER-G	●	●	●	●	●	●	●	●	●	●	0.4	4
080308PZER-G	●	●	●	●	●	●	●	●	●	●	0.8	4
080312PZER-G	●	●	●	●	●	●	●	●	●	●	1.2	4
SOMT 080308PZER-H	●	●	●	●	●	●	●	●	●	●	0.8	4
080312PZER-H	●	●	●	●	●	●	●	●	●	●	1.2	4
SOET 080304PZER-G	●	●	●	●	●	●	●	●	●	●	0.4	4
080308PZER-G	●	●	●	●	●	●	●	●	●	●	0.8	4
080312PZER-G	●	●	●	●	●	●	●	●	●	●	1.2	4
SOET 080302PZFR-S	—	—	—	—	—	—	—	—	●	●	0.2	4
080304PZFR-S	—	—	—	—	—	—	—	—	●	●	0.4	4
080308PZFR-S	—	—	—	—	—	—	—	—	●	●	0.8	4
XOEW 080308PZTR-W	—	—	—	—	—	●	—	—	—	—	—	5



Parts



Recommended Tightening Torque (N·m)

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.08-0.12-0.18	<6	ACP200 ACP300
	Soft Steel	≤180HB	180-250-350	0.10-0.15-0.20	<6	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.08-0.12-0.18	<4	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<6	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<6	ACK200 ACK300
N	Non-Ferrous Metal	-	300-500-1000	0.10-0.15-0.20	<6	H1 DL1000

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

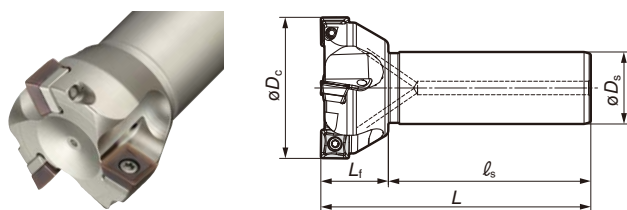
Rake Angle	Radial	-8°
	Axial	8°

10mm 90°



Shoulder Milling for Steel, Stainless Steel, Die Steel, Cast Iron, Non-Ferrous Alloys

Expansion



Body (Standard Pitch)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		ϕD_c	ϕD_s	L_f	ℓ_s	L	
WFX 12040E	●	40	32	30	90	120	3
12050E	●	50	32	30	90	120	3
12063E	●	63	32	30	90	120	4
12080E	●	80	32	30	90	120	4

Inserts are not included. $\phi 40$ mm sizes do not have a seat.

Body (Extra-Fine Pitch)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		ϕD_c	ϕD_s	L_f	ℓ_s	L	
WFXF 12050E	●	50	32	30	90	120	4
12063E	●	63	32	30	90	120	5
12080E	●	80	32	30	90	120	6

Inserts are not included.

Identification Details

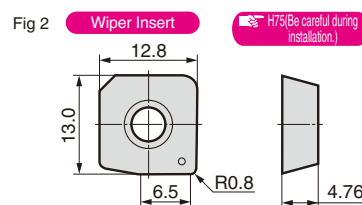
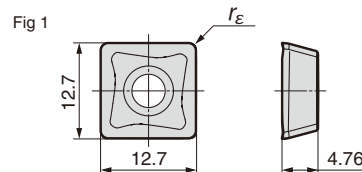
WFX F 12 050 E

(1) Cutter Series (2) Fine-Pitched Insert Size (3) (4) Cutter (5) Endmill Type

Insert

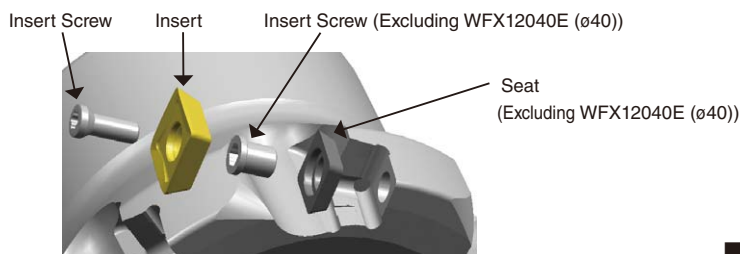
P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Grade		Coated Carbide						Carbide	DLC	Cermet			
Application	High Speed/Light	P			K	MS		KN	N				
	General Purpose		PM	PM	K	MS	MS		N		P		
	Roughing		PM	PM	K	MS							
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Dimensions (mm)	Fig
			New	New		New	New					r_{ϵ}	
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



H Milling Cutters

Face Milling
Radius
Multi-Purpose
Shoulder Milling
R/Copying
Groove/T-Slot
Chamfering
Aluminum/Light Alloys
High-Speed Cast Iron



Spare Parts

Seat	Seat Screw	Insert Screw	Wrench (insert)	Wrench (seat)
WFXS4R	BW0507F	BFTX03512IP	TRDR15IP	LH035

Recommended Tightening Torque (N·m)

 $\phi 40$ mm sizes do not have a seat.

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	D.O.C. (mm)	Grades
P	General Steel	180 to 280HB	150-200-250	0.10-0.15-0.20	<10	ACP200 ACP300
	Soft Steel	≤ 180 HB	180-250-350	0.10-0.15-0.20	<10	ACP200 ACP300
	Die Steel	200 to 220HB	100-150-200	0.10-0.15-0.20	<6	ACP200 ACP300
M	Stainless Steel	-	160-200-250	0.10-0.15-0.20	<10	ACM300
K	Cast Iron	250HB	100-175-250	0.10-0.15-0.20	<10	ACK200 ACK300
N	Non-Ferrous Metal	-	300-500-1000	0.10-0.15-0.20	<10	H1 DL1000

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

● mark: Standard stocked item (expanded item)