SEC-Sumi Power Mill

PWC(F)4000 Type

Rake Angle		
	Radial	−15°
	Axial	−5°

15mm 88°

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

High Efficiency Semi-Shouldering for Cast Iron

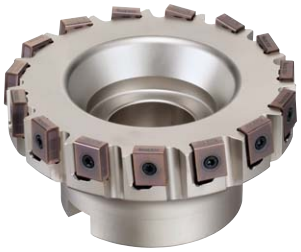


Fig 1

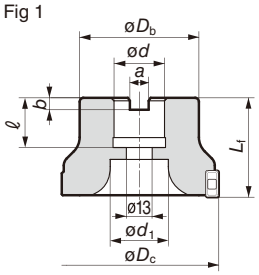


Fig 2

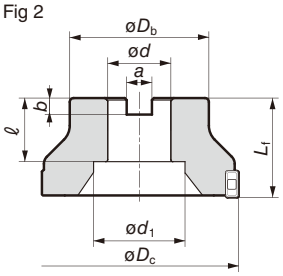
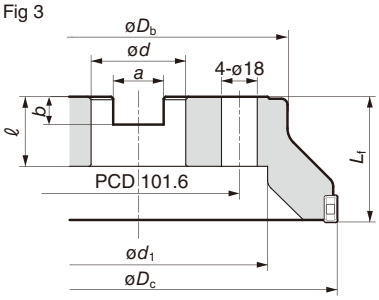


Fig 3



■ Body (Standard Type) Imperial

Cat. No. (R)	Stock	Cat. No. (L)	Stock	Dimensions (mm) øDc	ød	øDb	ød1	Lf	a	b	ℓ	No. of Teeth	Weight (kg)	Fig
PWC 4080R	●	**PWC 4080L**		*80	25.4	60	29.5	50	9.5	6	25	7	0.9	1
4100R	●	**4100L**		100	31.75	70	46	50	12.7	8	32	8	1.3	2
4125R	●	**4125L**		125	38.1	80	56	63	15.9	10	38	10	2.5	2
4160R	●	**4160L**		160	50.8	100	72	63	19.1	11	38	12	4.2	2
4200R	●	**4200L**		200	47.625	150	130	63	25.4	14	35	16	7.2	3

■ Body (Fine Pitch Type) Imperial

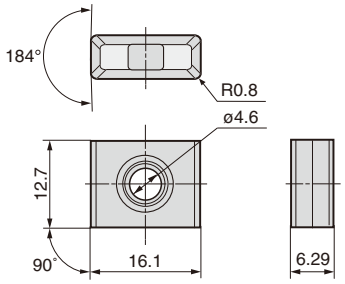
Cat. No. (R)	Stock	Cat. No. (L)	Stock	Dimensions (mm) øDc	ød	øDb	ød1	Lf	a	b	ℓ	No. of Teeth	Weight (kg)	Fig
PWCF 4080R	●	**PWCF 4080L**		*80	25.4	60	29.5	50	9.5	6	25	9	0.9	1
4100R	●	**4100L**		100	31.75	70	46	50	12.7	8	32	12	1.4	2
4125R	●	**4125L**		125	38.1	80	56	63	15.9	10	38	15	2.6	2
4160R	●	**4160L**		160	50.8	100	72	63	19.1	11	38	18	4.3	2
4200R	●	**4200L**		200	47.625	150	130	63	25.4	14	35	24	7.4	3

Inserts are not included.

*Please use hexagonal bolt (JISB1176) M12 x 30-35 mm for securing ø80 mm cutter to the arbour.

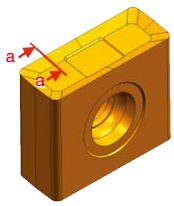
■ Inserts

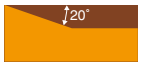
P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | S Exotic Alloy | H Hardened Steel



● General Purpose G Series

Fig 4

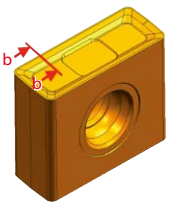


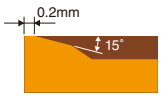


Section a-a

● Strong Edge Type H Series

Fig 5





Section b-b

Grade		Coated Carbide		
Application	High Speed/Light	K	K	
	General Purpose	K	K	
	Roughing			K

Cat. No.	ACK100	ACK200	ACK300	Fig	Application	Remarks
LNMX 160608PNSN-G		●	●	4	General Purpose	Recommended
160608PNSN-H	●	●	●	5	Heavy interrupted cutting and other unstable applications	

■ Spare Parts

Screw		Spanner	Anti-seizure Cream
			
BFTX0412N	3.0	TTX15W	SUMI-P

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.	Grade
K	Cast Iron	250HB	150-**250**-350	0.10-**0.23**-0.35	ACK200/ACK300
	Ductile Cast Iron	250HB	100-**200**-300	0.05-**0.18**-0.30	ACK100/ACK200

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.

PWS(F) / PWSR Type

■ General Features

Highly reliable shoulder milling cutter with tangentially mounted for never-before-possible high cutting edge strength and sharp cutting edges.

A 2-step insert array structure creates a new PWSR Type to meet the needs of deep cutting.

■ Characteristics

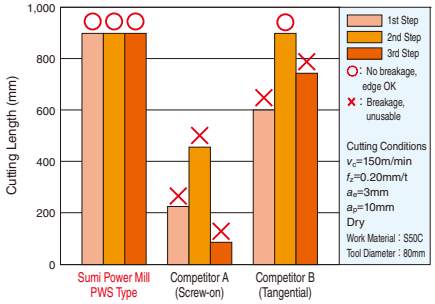
- Tangentially mounted inserts for outstanding cutting edge strength combined with optimised breaker for outstanding edge sharpness and cutting ability.
- Nicked insert design created with high-precision molding technology allows stable milling even in applications with large tool overhang.
- New ACP and ACK milling grades are used to meet the needs of various types of work material.

■ Performance

● Performance Comparison with General-purpose G-type Inserts

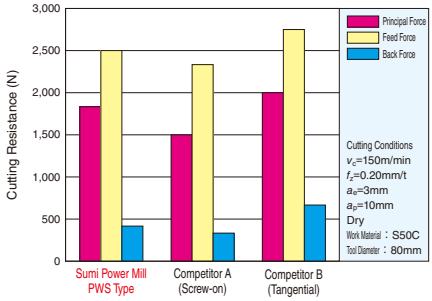
■ Cutting Edge Strength Comparison

High cutting edge strength for excellent stability!



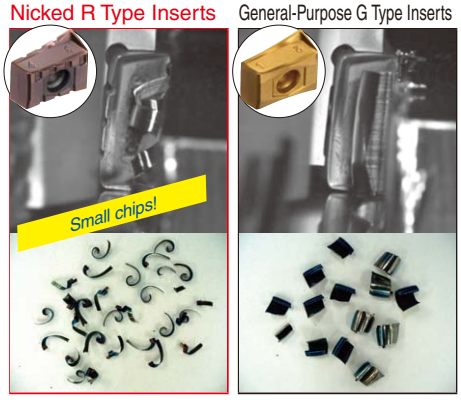
■ Comparison of Cutting Force

Cutting that is nearly the same as screw-on type!!



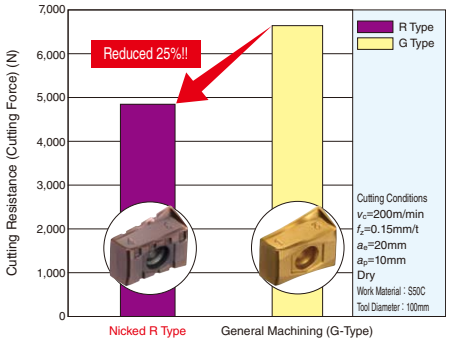
● Performance Comparison with Nicked R Type Inserts

Nicked R Type Inserts　General-Purpose G Type Inserts

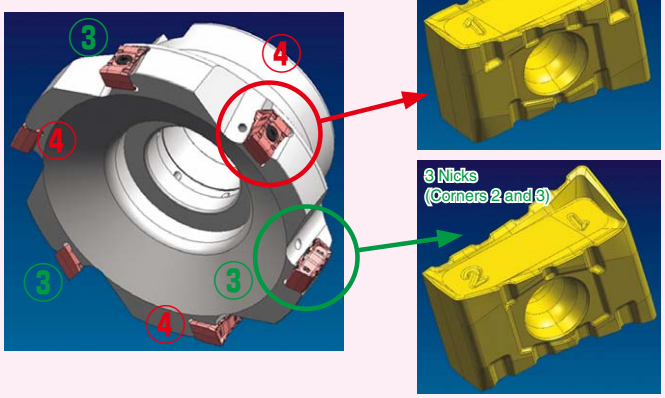


■ Comparison of Cutting Force

Reduced cutting power and excellent vibration resistance!



⚠ Cautions when Using Nicked R Type Inserts



1) Precautions During Installation

When using R type nicked indexable inserts, attach them so that the nicked grooves alternate as shown in the image to the left.

2) Cutting Condition Precautions

In order to attach as shown in the image to the left, the feed rate per tooth is double that when attaching the same-shaped inserts on all teeth. This means that adjustments should be made so the upper feed limit is as shown below.

f_z=0.25mm/t

Example: Use at f_z=0.2mm/t

Feed when all teeth are normal: 0.2mm/t

Feed when nicked: 0.4mm/t

Any incorrect use of inserts may damage tools.

SEC-Sumi Power Mill

PWS(F)4000 Type

Rake Angle		
	Radial	−15°
	Axial	−6°

16mm 90°

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

Shoulder Milling for Steel, Stainless Steel & Cast Iron

Fig1

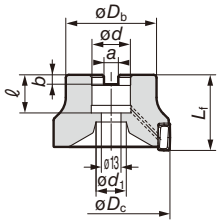


Fig 2

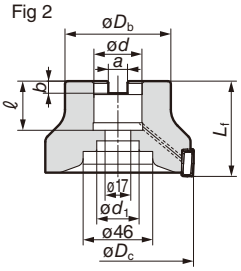


Fig 3

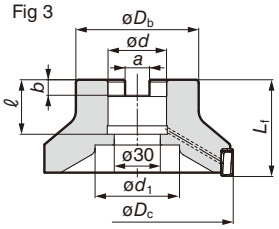


Fig 4

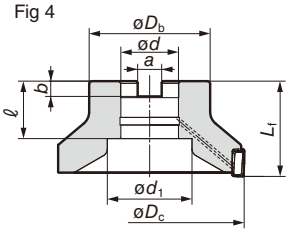
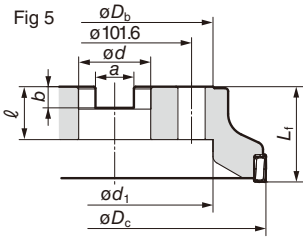


Fig 5



■ Body (Standard Type) Imperial

Cat. No.	Stock	Dimensions (mm)								No. of Teeth	Weight (kg)	Fig
		øD_c	ød	øD_b	ød_1	L_f	a	b	ℓ			
PWS 4080R	●	*80	25.4	60	20	50	9.5	6	25	4	1.0	1
4100R	●	*100	31.75	70	28	63	12.7	8	32.5	6	1.8	2
4125R	●	125	38.1	80	55	63	15.9	10	35.5	6	2.4	3
4160R	●	160	50.8	100	72	63	19.1	11	38	8	4.0	4
4200R	●	200	47.625	130	130	63	25.4	14	35	10	6.5	5
4250R	●	250	47.625	130	160	63	25.4	14	35	12	12.3	5

■ Body (Fine Pitch Type) Imperial

* Cutters with sizes of ø200 mm or above come with seats (no coolant holes).

Cat. No.	Stock	Dimensions (mm)								No. of Teeth	Weight (kg)	Fig
		øD_c	ød	øD_b	ød_1	L_f	a	b	ℓ			
PWSF 4080R	●	*80	25.4	60	20	50	9.5	6	25	6	0.9	1
4100R	●	*100	31.75	70	28	63	12.7	8	32.5	8	1.7	2
4125R	●	125	38.1	80	55	63	15.9	10	35.5	8	2.3	3
4160R	●	160	50.8	100	72	63	19.1	11	38	10	3.9	4
4200R	●	200	47.625	130	130	63	25.4	14	35	12	6.4	5
4250R	●	250	47.625	130	160	63	25.4	14	35	14	12.2	5

* Cutters with sizes of ø200 mm or above come with seats (no coolant holes).

Inserts are not included.

*Please use JIS B1176 hexagonal bolt (ø80: M12x30 to 35mm, ø100: M16x40 to 45mm) for securing ø80/ø100mm cutter to the arbour.

■ Insert

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

Grade		Coated Carbide				
Application	High Speed/Light	P			K	
	General Purpose		P M	P M	K	
	Roughing		P M	P M		K

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	Application	Remarks	Fig
LNMX170808PNSR-L	●	●	●	●	●	Light Cut		6
170808PNSR-G	●	●	●	●	●	General Purpose	Recommended	6
170808PNSR-R	●	●	●	●	●	Heavy Cut	Nicked	7

Fig 6

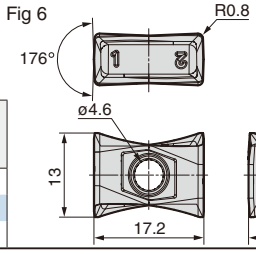
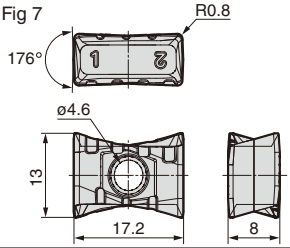


Fig 7



■ Spare Parts

Stopper Screw (For Insert/Seat)		Spanner	Anti-seizure Cream	Seat (*)
				
BFTX0412IP	3.0	TTR15IP	SUMI-P	PWSS4R

N·m Recommended Tightening Torque (N·m)

* Included with ø200 mm or larger

■ 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.	Grade
P	Carbon Stee	180 to 280HB	150-**250**-350	0.10-**0.23**-0.35	ACP200
	Alloy Steel	180 to 280HB	100-**175**-250	0.10-**0.18**-0.25	ACP200
M	Stainless Steel	—	100-**150**-200	0.10-**0.18**-0.25	ACP300
K	Cast Iron Ductile Cast Iron	250HB	100-**175**-250	0.10-**0.23**-0.35	ACK200

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	−15°
	Axial	−6°

Max. Depth of Cut 31 mm, 90°

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

Shoulder Milling for Steel, Stainless Steel & Cast Iron

Fig1

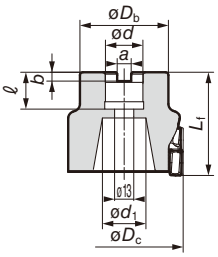


Fig 2

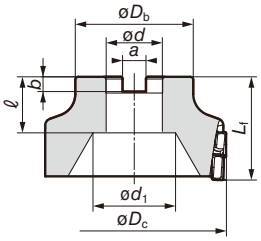


Fig 3

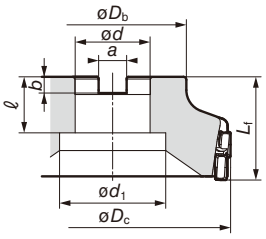
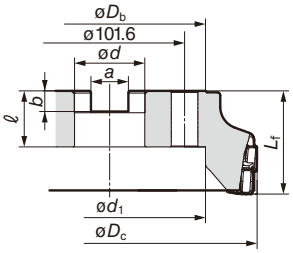


Fig 4



■ Body (2-step Type)

Imperial

Cat. No.	Stock	Dimensions (mm) øDc	ød	øDb	ød1	Lf	a	b	ℓ	No. of Teeth	Effective Teeth	Weight (kg)	Fig
PWSR 4080R		*80	25.4	60	29.5	70	9.5	6	25	8	4	1.4	1
4100R		*100	31.75	70	46	70	12.7	8	32	12	6	2.0	2
4125R		125	38.1	80	56	70	15.9	10	38	12	6	3.0	2
4160R		160	50.8	100	72	70	19.1	11	38	16	8	5.2	3
4200R		200	47.625	130	160	70	25.4	14	38	20	10	8.0	4

*Cutters with sizes of ϕ200 mm or above come with seats.
Inserts are not included.

*Please use JIS B1176 hexagonal bolt (ø80: M12x30 to 35mm, ø100: M16x40 to 45mm) for securing ø80/ø100mm cutter to the arbour.

■ Insert

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

Grade		Coated Carbide				
Application	High Speed/Light	P			K	
	General Purpose		PM	PM	K	
	Roughing		PM	PM		K

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	Application	Remarks	Fig
LNMX170808PNSR-L	●	●	●	●	●	Light Cut		5
170808PNSR-G	●	●	●	●	●	General Purpose	Recommended	5
170808PNSR-R	●	●	●	●	●	Heavy Cut	Nicked	6

Fig 5

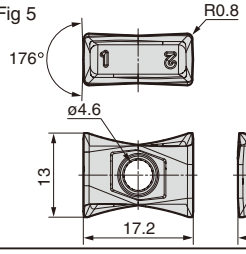
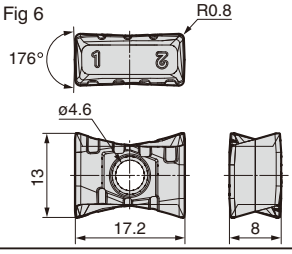


Fig 6



■ Spare Parts

Stopper Screw (For Insert/Seat)		Spanner	Anti-seizure Cream	Seat (*)
				
BFTX0412IP	3.0	TTR15IP	SUMI-P	PWSS4R

N·m Recommended Tightening Torque (N·m)

* Included with ø200 mm or larger

■ 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.	Grade
P	Carbon Stee	180 to 280HB	150-**250**-350	0.10-**0.23**-0.35	ACP200
	Alloy Steel	180 to 280HB	100-**175**-250	0.10-**0.18**-0.25	ACP200
M	Stainless Steel	—	100-**150**-200	0.10-**0.18**-0.25	ACP300
K	Cast Iron Ductile Cast Iron	250HB	100-**175**-250	0.10-**0.23**-0.35	ACK200

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.

Large diameter (ϕ200 or above) body structure
Safety seat design protects body