



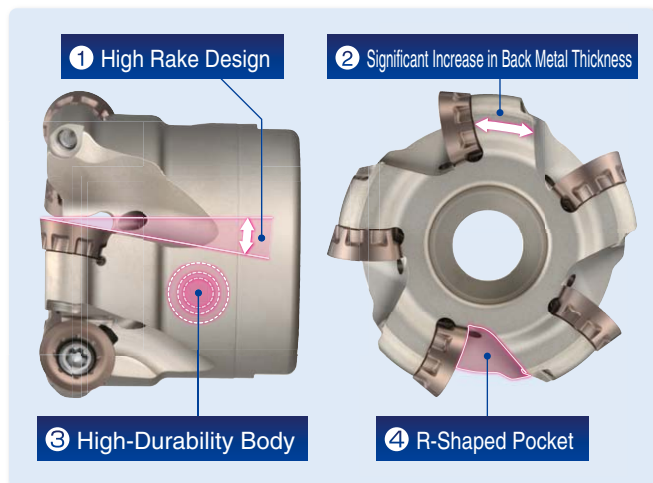
General Features

SEC-Wave Radius Mill RSX series is a radius cutter for exotic alloy machining that enables stable machining even when using equipment with low clamp rigidity thanks to its body design achieving excellent cutting performance and rigidity.

By employing the ACM series for stainless steel and exotic alloy machining achieves long tool life in the machining of stainless steel, Inconel, etc. and drastically improves reliability in exotic alloy machining.

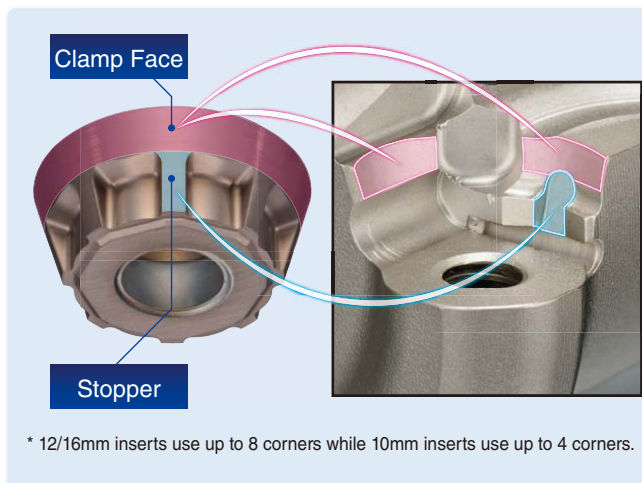
Low-Resistance, Low-Vibration Design

Achieves low-resistance, low-vibration machining thanks to ultra-high rake design and high-rigidity body design.



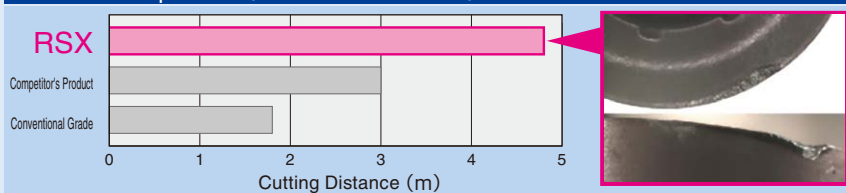
Excellent Operability

Enables easy corner management with high accuracy and operability by employing our proprietary positioning mechanism.



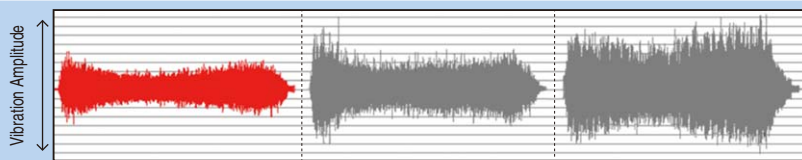
Performance

Tool Life Comparison (Fracture Resistance)



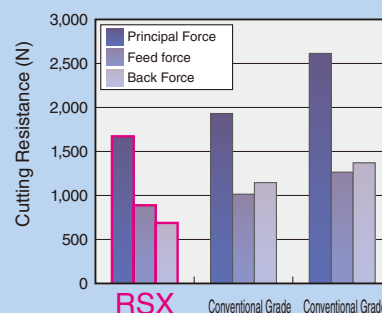
Achieves a tool life that is approximately 1.6 times longer than that of our competitors' products.

Cutting Vibration Comparison



RSX
Approximately 15% lower than competitor's product.

Cutting Resistance Comparison



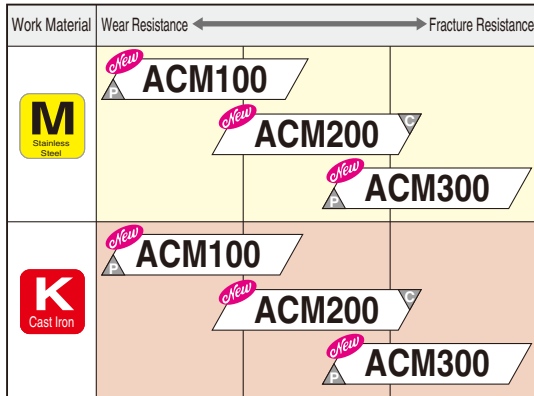
Work Material : SUS304 Tool : $\phi 50$

Cutting Conditions : $V_c=200\text{m/min}$, $f_z=0.5\text{mm/t}$

$a_p=2.0\text{mm}$, $a_e=10.0\text{mm}$ Wet

Stable, Long Tool Life

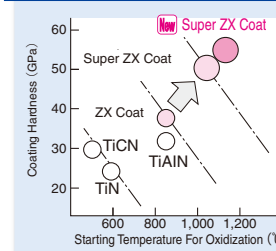
Achieves long tool life and drastically improves reliability in exotic alloy machining by employing the ACM series, exotic alloy machining.



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

▽ : CVD ▲ : PVD Blank: Non-coated

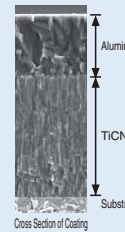
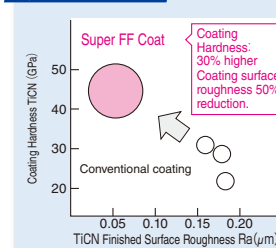
ACM100/ACM300



- Compared to conventional grades, the coating hardness has been increased by 40% and the oxidation starting temperature has been increased by 200°C.
- High speed, high efficiency machining of more than 1.5 times that of conventional grades is possible.
- Achieves over 2 times longer tool life compared to conventional grades under the same cutting conditions.

NEW Super ZX Coat

ACM200



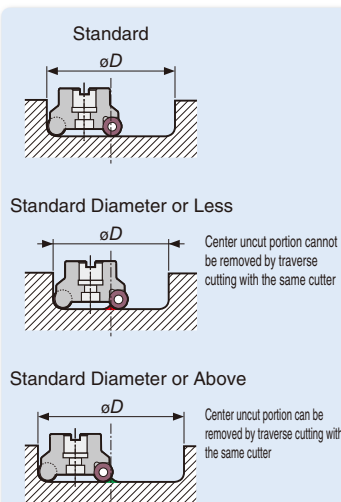
- Achieves excellent chipping resistance thanks to the smoothness of the coating and our coating stress control technology.
- High speed, high efficiency machining of more than 1.5 times that of conventional grades is possible by hardening the coating layer.
- Achieves over 2 times longer tool life compared to conventional grades under the same cutting conditions.

Super FF Coat

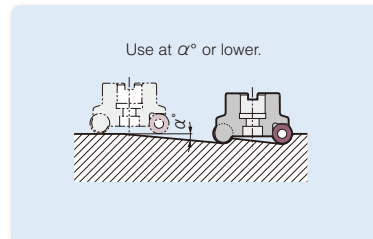
Various Applications

Applicable to various types of machining such as Stepped milling, ramping, and helical milling of dies.

Helical Milling



Ramping



Recommended Values for Helical and ramping

Insert Cat. No.	Cutter External Diameter ϕD_c	Helical (Dimensions mm)			Taper Max. Ramping Angle α° (max)
		Min.	Standard	Max.	
RDET10...	25	33.0	40	49	10°30'
	32	46.0	54	63	6°45'
	40	62.0	70	79	4°30'
	50	82.0	90	99	3°15'
	52	86.0	94	103	3°10'
RDET12...	32	41.5	52	63	12°30'
	40	57.5	68	79	8°00'
	50	77.5	88	99	5°30'
	52	81.5	92	103	5°15'
	63	103.5	114	125	4°00'
	66	109.5	120	131	3°45'
	80	137.5	148	159	2°50'
RDET16...	100	177.5	188	199	2°10'
	63	96.0	110	125	6°00'
	80	130.0	144	159	4°10'
	100	170.0	184	199	3°00'
	125	220.0	234	249	2°20'

Series

Type		Insert Size	Cat No.	External (mm)										
				ø25	ø32	ø40	ø50	ø52	ø63	ø66	ø80	ø100	ø125	ø160
Shell Type	Standard	10	RSX 10000 RS			●	●	●						
		12	RSX 12000 RS/R			●	●	●		●	●	●	●	
		16	RSX 16000 RS/R						●		●	●	●	●
	Fine Pitch	10	RSXF 10000 RS			●	●	●						
		12	RSXF 12000 RS/R			●	●	●		●	●	●	●	
		16	RSXF 16000 RS/R						●		●	●	●	○
Shank Type	Standard	10	RSX 10000 ES	●	●									
		12	RSX 12000 ES		●									
	Fine Pitch	10	RSXF 10000 ES	●	●									
		12	RSXF 12000 ES		●									
Modular Type	Standard	10	RSX 10000 M	●	●									
		12	RSX 12000 M		●	●								
	Fine Pitch	10	RSXF 10000 M	●	●									
		12	RSXF 12000 M		●	●								

● : Only metric in stock, ● : Both metric and inch in stock, ○ : Made-to-order for both metric and inch, Blank: Not available

■ Application Examples

● Power Generator Component / X12



Tool	Target	RSX Type	Competitor's Product
	Body	RSXF12050RS	φ50 Cutter
	Insert	RDET1204M0EN-G	φ12
	External (mm)	φ50	φ50
	No. of Teeth	5	5
	Insert	ACM300(PVD)	(CVD)
Cutting Conditions	Cutting Speed (m/min)	300	300
	Feed (mm/t)	0.35	0.35
	Axial Cutting Depth (mm)	2.0	2.0
	Radial Cutting Depth (mm)	50.0	50.0
	Dry / Wet	Air Blow	Air Blow
Results	Provides a tool life that is approximately 1.2 times longer than that of our competitors' products.		

● Power Generator Component / X22



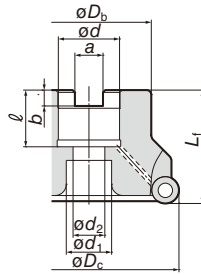
Tool	Target	RSX Type	Competitor's Product
	Body	RSX12050RS	φ50 Cutter
	Insert	RDET1204M0EN-G	φ12
	External	φ50	φ50
	No. of Teeth	5	5
	Insert	ACM300(PVD)	(CVD)
Cutting Conditions	Cutting Speed (m/min)	300	300
	Feed (mm/t)	0.3	0.3
	Axial Cutting Depth (mm)	2.0	2.0
	Radial Cutting Depth (mm)	50.0	50.0
	Dry / Wet	Air Blow	Air Blow
Results	Provides a tool life that is approximately 1.2 times longer than that of our competitors' products.		

Rake Angle	Radial	-5°
	Axial	10°



Milling for Stainless Steel and Exotic Alloy

New



Body (RSX10000RS)

Cat. No.		Stock	Dimensions(mm)									No. of Teeth	Weight (kg)
Metric			ϕD_c	ϕD_b	L_f	ϕd	a	b	ℓ	ϕd_1	ϕd_2		
	RSX 10040RS	●	40	34	40	16	8.4	5.6	18	14	9	4	0.2
	10050RS	●	50	40	40	22	10.4	6.3	20	18	11	5	0.3
	10052RS	●	52	40	40	22	10.4	6.3	20	18	11	5	0.4

Body (RSXF10000RS) Fine Pitch Type

Metric		Stock	ϕD_c	ϕD_b	L_f	ϕd	a	b	ℓ	ϕd_1	ϕd_2	No. of Teeth	Weight (kg)
	RSXF 10040RS												
	10050RS												
	10052RS												

Inserts are not included. Check the arbor attachment size (ϕd) when selecting the cutter.

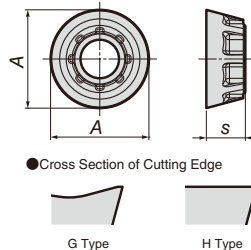
Identification Details

RSX	F	10 040	R	S
(1) Cutter Series	(2) Fine-Pitch Indication	(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		
Application	High Speed/Light	M	S	
	General Purpose	M	S	M
	Roughing			M
Cat. No.		New		
		ACM100	ACM200	ACM300
		Dimensions		
		A	s	
RDET 10T3M0EN-G		●	●	●
10T3M0EN-H		●	●	●



Spare Parts

Spanner	screw	Anti-seizure Cream
TRDR15IP	BFTX03584IP	SUMI-P

Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

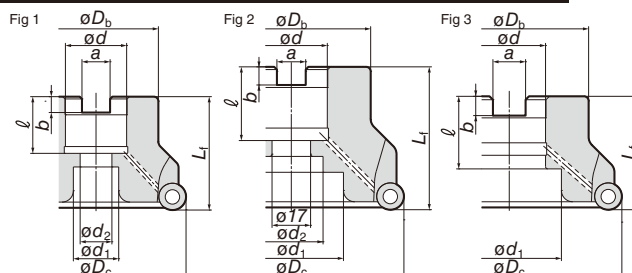
ISO	Work Material			Hardness	Cutting Speed v_c (m/min) Min.-Optimum -Max.	Feed Rate f_z (mm/it) Min.-Optimum -Max.	Insert Grade
M	Stainless Steel	Cr	Ferritic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			Martensitic	200 to 330HB	80-120-180	0.15-0.25-0.35	ACM300
		Cr-Ni	Austenitic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			2 Phase Structures (Austenitic-Ferritic)	230 to 270HB	80-120-180	0.15-0.25-0.35	ACM200
			Deposition Hardened Structures	330HB	60-100-160	0.15-0.25-0.35	ACM200
S	Heat-Resistant Alloy		Ni-Based Material	250 to 350HB	20- 30 - 40	0.10-0.20-0.30	ACM100 ACM200
	Titanium	Pure Titanium (99.5%)	(Rm400)	60- 80 -100	0.10-0.20-0.30		
		$\alpha+\beta$ Alloy	(Rm1050)	40- 50 - 60	0.10-0.20-0.30		

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.

A diagram showing a quarter-circle (90 degrees) with a radius of 6 mm. The radius is labeled as 6mm.



Milling for Stainless Steel and Exotic Alloy



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	RSX 12040RS	●	40	32	40	16	8.4	5.6	18	13.5	9	3	0.2	1
	12050RS	●	50	40	40	22	10.4	6.3	20	18	11	4	0.3	1
	12052RS	●	52	40	40	22	10.4	6.3	20	18	11	4	0.3	1
	12063RS	●	63	40	40	22	10.4	6.3	20	18	11	5	0.4	1
	12066RS	●	66	55	50	27	12.4	7.0	25	20	14	6	0.7	1
	12080RS	●	*80	55	50	27	12.4	7.0	25	20	14	6	1.0	1
	12100RS	●	100	70	50	32	14.4	8.5	32	46	-	6	1.4	3
Inch	RSX 12080R	●	*80	55	50	25.4	9.5	6.0	25	20	13	6	1.0	1
	12100R	●	*100	70	63	31.75	12.7	8.0	32.5	46	28	6	1.9	2

		Inch												
		Metric												
Metric	RSXF 12040RS	●	40	32	40	16	8.4	5.6	18	13.5	9	4	0.2	1
	12050RS	●	50	40	40	22	10.4	6.3	20	18	11	5	0.3	1
	12052RS	●	52	40	40	22	10.4	6.3	20	18	11	5	0.3	1
	12063RS	●	63	40	40	22	10.4	6.3	20	18	11	6	0.4	1
	12066RS	●	66	55	50	27	12.4	7.0	25	20	14	7	0.7	1
	12080RS	●	*80	55	50	27	12.4	7.0	25	20	14	7	0.9	1
	12100RS	●	100	70	50	32	14.4	8.5	32	46	-	10	1.3	3
Inch	RSXF 12080R	●	*80	55	50	25.4	9.5	6.0	25	20	13	7	1.0	1
	12100R	●	*100	70	63	31.75	12.7	8.0	32.5	46	28	10	1.8	2



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

RSX F 12 040 R S

(1)	(2)	(3)	(4)	(5)	(6)
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter	Direction	Metric Bore

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					
	General Purpose					
	Roughing					
Cat. No.		 ACM100	 ACM200	 ACM300	Dimensions	
					A	S
RDET 1204M0EN-G		●	●	●	12	4.76
1204M0EN-H		●	●	●	12	4.76



● Cross Section of Cutting Edge



G Type



H Type

Spanner	screw	Anti-seizure Cream
TRDR15IP	BFTX0409IP 3.0	SUMI-P

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

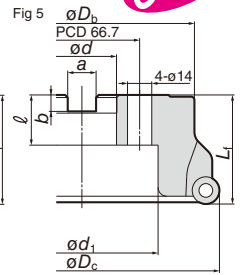
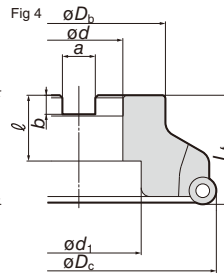
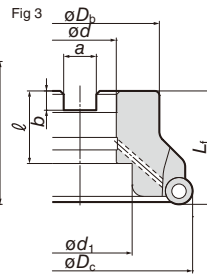
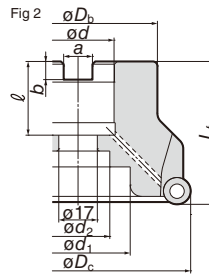
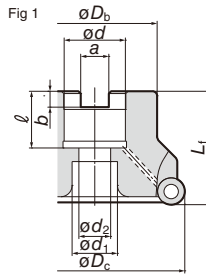
ISO	Work Material		Hardness	Cutting Speed V_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Insert Grade	
M	Stainless Steel	Cr	Ferritic	200HB	150- 180 -200	0.15- 0.25 -0.35	ACM300
			Martensitic	200 to 330HB	80- 120 -180	0.15- 0.25 -0.35	ACM300
		Cr-Ni	Austenitic	200HB	150- 180 -200	0.15- 0.25 -0.35	ACM300
			2 Phase Structures (Austenitic Ferritic)	230 to 270HB	80- 120 -180	0.15- 0.25 -0.35	ACM200
			Deposition Hardened Structures	330HB	60- 100 -160	0.15- 0.25 -0.35	ACM200
S	Heat-Resistant Alloy	Ni-Based Material	250 to 350HB	20- 30 - 40	0.10- 0.20 -0.30	ACM100 ACM200	
	Titanium	Pure Titanium (99.5%)	(Rm400)	60- 80 -100	0.10- 0.20 -0.30		
		$\alpha+\beta$ Alloy	(Rm1050)	40- 50 - 60	0.10- 0.20 -0.30		

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	-5°
	Axial	10°



Milling for Stainless Steel and Exotic Alloy



Body (RSX16000)

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	RSX 16063RS	●	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
	16080RS	●	*80	55	50	27	12.4	7.0	25	20	14	5	0.9	1
	16100RS	●	100	70	50	32	14.4	8.5	32	46	-	6	1.3	3
	16125RS	●	125	80	63	40	16.4	9.5	29	52	29	6	2.6	1
Inch	RSX 16080R	●	*80	55	50	25.4	9.5	6.0	25	20	13	5	0.9	1
	16100R	●	*100	70	63	31.75	12.7	8.0	32.5	46	28	6	1.8	2
	16125R	●	125	80	63	38.1	15.9	10.0	35.5	55	30	6	2.7	1

Body (RSXF16000) Fine Pitch Type

Metric	RSXF 16063RS	●	63	50	40	22	10.4	6.3	20	18	11	5	0.4	1
	16080RS	●	*80	55	50	27	12.4	7.0	25	20	14	6	0.8	1
	16100RS	●	100	70	50	32	14.4	8.5	32	46	-	7	1.3	3
	16125RS	●	125	80	63	40	16.4	9.5	29	52	29	8	2.5	1
	16160RS		160	130	63	40	16.4	9.5	29	88	-	10	4.8	5
Inch	RSXF 16080R	●	*80	55	50	25.4	9.5	6.0	25	20	13	6	0.8	1
	16100R	●	*100	70	63	31.75	12.7	8.0	32.5	46	28	7	1.7	2
	16125R	●	125	80	63	38.1	15.9	10.0	35.5	55	30	8	2.6	1
	16160R		160	100	63	50.8	19.1	11.0	38	72	-	10	4.3	4



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

RSX	F	16	063	R	S
(1)	(2)	(3)	(4)	(5)	(6)
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter	Direction	Metric Bore

Inserts

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	M	S			
	General Purpose	M	S	M		
	Roughing			M		
Cat. No.		ACM100	ACM200	ACM300	Dimensions	
					A	s
RDET 1606M0EN-G		●	●	●	16	6.5
1606M0EN-H		●	●	●	16	6.5



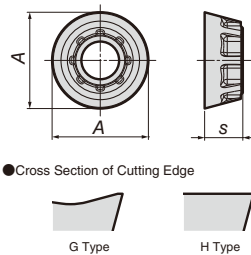
● Cross Section of Cutting Edge



G Type



H Type



Spare Parts

Spanner	screw	Anti-seizure Cream
TRDR20IP	BFTX0511P 5.0	SUMI-P

Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

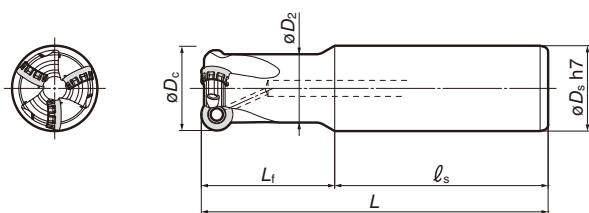
ISO	Work Material		Hardness	Cutting Speed v_c (m/min) Min.-Optimum - Max.	Feed Rate f_z (mm/t) Min.-Optimum - Max.	Insert Grade	
M	Stainless Steel	Cr	Ferritic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			Martensitic	200 to 330HB	80-120-180	0.15-0.25-0.35	ACM300
		Cr-Ni	Austenitic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			2 Phase Structures (Austenitic-Ferritic)	230 to 270HB	80-120-180	0.15-0.25-0.35	ACM200
			Deposition Hardened Structures	330HB	60-100-160	0.15-0.25-0.35	ACM200
S	Heat-Resistant Alloy	Ni-Based Material	250 to 350HB	20-30 - 40	0.10-0.20-0.30	ACM100 ACM200	
	Titanium	Pure Titanium (99.5%)	(Rm400)	60-80 -100	0.10-0.20-0.30		
		$\alpha+\beta$ Alloy	(Rm1050)	40-50 - 60	0.10-0.20-0.30		

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.

RSX(F)10000ES / 12000ES Type

Rake Angle	Radial	-5° to -8°	5mm	6mm	P	M	K	N	S	H
	Axial	10°	(10000ES Type)	(12000ES Type)	Steel	Aluminum	Cast Iron	Non-Ferrous Metal	Exotic Alloy	Hardened Steel

Milling for Stainless Steel and Exotic Alloy



New

Modular Type H128

■ Body (RSX10000ES) Applicable Insert A=10mm Type

Cat. No.	Stock	Dimensions(mm)						No. of Teeth	Weight (kg)
		ϕD_c	ϕD_s	ϕD_2	L_f	ℓ_s	L		
RSX 10025ES	●	25	25	20.3	50	80	130	2	0.4
10032ES	●	32	32	27.1	50	80	130	3	0.7

■ Body (RSX12000ES) Applicable Insert A=12mm Type

Cat. No.	Stock	Dimensions(mm)						No. of Teeth	Weight (kg)
		ϕD_c	ϕD_s	ϕD_2	L_f	ℓ_s	L		
RSX 12032ES	●	32	32	25.6	50	80	130	2	0.7

■ Body (RSXF10000ES) Fine Pitch Type Applicable Insert A=10mm Type

Cat. No.	Stock	Dimensions(mm)						No. of Teeth	Weight (kg)
		ϕD_c	ϕD_s	ϕD_2	L_f	ℓ_s	L		
RSXF 10025ES	●	25	25	20.3	50	80	130	3	0.4
10032ES	●	32	32	27.1	50	80	130	4	0.7

■ Body (RSXF12000ES) Fine Pitch Type Applicable Insert A=12mm Type

Cat. No.	Stock	Dimensions(mm)						No. of Teeth	Weight (kg)
		ϕD_c	ϕD_s	ϕD_2	L_f	ℓ_s	L		
RSXF 12032ES	●	32	32	25.6	50	80	130	3	0.7

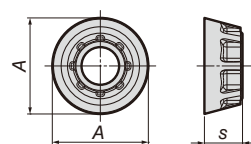
■ Identification Details

RSX (1) Cutter Series
F (2) Fine-Pitch Indication
10 (3) Insert Size
025 (4) Cutter
ES (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					
Application	High Speed/Light						
	General Purpose						
	Roughing						
Cat. No.					Dimensions		Applicable Cutter
		ACM100	ACM200	ACM300	A	s	
RDET 10T3M0EN-G		●	●	●	10	3.97	RSX(F)10000ES Type
10T3M0EN-H		●	●	●	10	3.97	
RDET 1204M0EN-G		●	●	●	12	4.76	RSX(F)12000ES Type
1204M0EN-H		●	●	●	12	4.76	



● Cross Section of Cutting Edge



■ Spare Parts

Applicable Cutter	Spanner	screw	Anti-seizure Cream
RSX(F)10000ES Type	TRDR15IP	BFTX03584IP	SUMI-P
RSX(F)12000ES Type		BFTX0409IP	

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.	Insert Grade	
M	Stainless Steel	Cr	Ferritic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			Martensitic	200 to 330HB	80-120-180	0.15-0.25-0.35	ACM300
		Cr-Ni	Austenitic	200HB	150-180-200	0.15-0.25-0.35	ACM300
			2 Phase Structures (Austenitic-Ferritic)	230 to 270HB	80-120-180	0.15-0.25-0.35	ACM200
			Deposition Hardened Structures	330HB	60-100-160	0.15-0.25-0.35	ACM200
S	Heat-Resistant Alloy	Ni-Based Material	250 to 350HB	20- 30 - 40	0.10-0.20-0.30	ACM100 ACM200	
	Titanium	Pure Titanium (99.5%)	(Rm400)	60- 80 -100	0.10-0.20-0.30		
		$\alpha+\beta$ Alloy	(Rm1050)	40- 50 - 60	0.10-0.20-0.30		

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.