

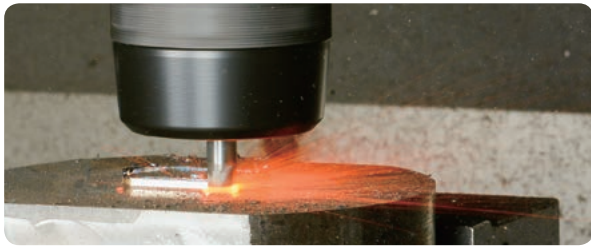
NEW Solid Ceramic End Mill



Features

- Extremely high speed machining for HRSA materials with our durable SiAlON grade "SX9"
- More than 15 times higher productivity than a Carbide end mill
- 4, 6 and 8 flutes are available
- Unique patent pending design provides toughness to the edge

RCE for HRSA materials →I10



● Ceramic specialist's design

Helix angle

- Designed for the purpose of:
 - 4-flute: toughness
 - 6-flute: less tool pressure and better chip evacuation



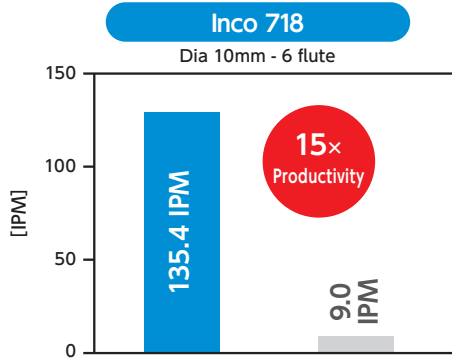
- Well balanced for toughness and wear resistance

Bottom edge

- Unique shape provides toughness

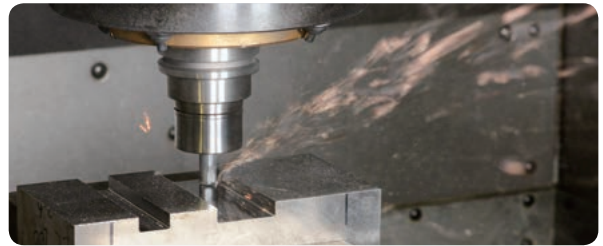
Flute

- Optimized for HRSA materials
- Excellent toughness



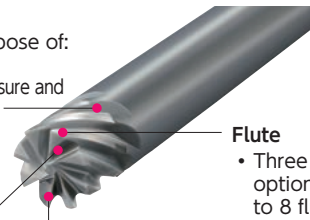
	SX9	Carbide
SFM	1970	130
IPT	.0012	←
DOC	.118	←

RCS for Cast iron / HRSA materials →I11



Helix angle

- Designed for the purpose of:
 - 4-flute: toughness
 - 6/8-flute: less tool pressure and better chip evacuation



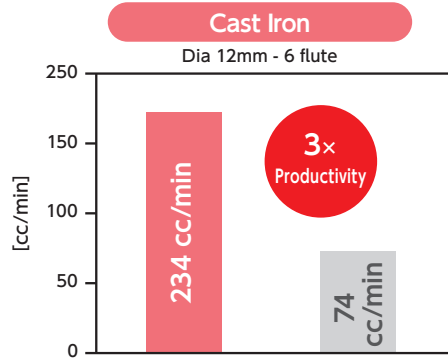
- Three flute options up to 8 flute

End Gash

- Bigger end gash brings toughness

Edge

- Added chamfer provides toughness for cast iron machining



	SX9	Carbide
SFM	2300	360
IPT	.002	←
DOC	.138	.275

4-flute



6-flute



8-flute



Rotating Tools

RCE for HRSA Materials

RCE-H4 (4-flute with Neck)

○ No center cutting edge

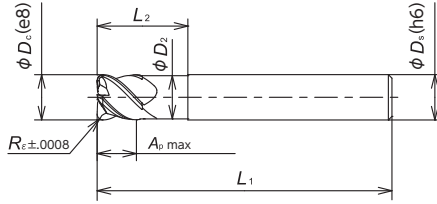


Slotting

Pocketing

Ramping

Z=4



Tolerances

$\phi D_c / \phi D_s$	e8	h6
3/8", 8mm, 10mm	-.00098/-0.00185"	+0/-0.00035"
1/2", 12mm	-.00126/-0.00232"	+0/-0.00043"

Heat Resistant Alloy S ● : 1st Choice ● : 2nd choice

Item Number	Grade	Flute	ϕD_c		ϕD_s		ϕD_2		R_e		A_p max		L_1		L_2	
			(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)
RCEI375H4R047S	●	4	3/8		3/8		.359		.047		9/32		2.50		3/4	
RCEI500H4R068S	●	4	1/2		1/2		.484		.068		3/8		2.75		1	
RCEM080H4R100S	●	4	.315	8	.315	8	.299	7.6	.039	1.0	.236	6	2.362	60	0.630	16
RCEM100H4R125S	●	4	.394	10	.394	10	.378	9.6	.049	1.25	.295	7.5	2.559	65	0.787	20
RCEM120H4R150S	●	4	.472	12	.472	12	.457	11.6	.059	1.5	.354	9	2.756	70	0.945	24

RCE-J6 (6-flute)

○ No center cutting edge



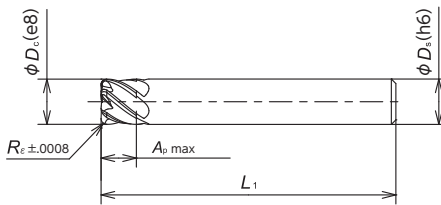
Face Milling

Side Milling

Profiling

Ramping

Z=6



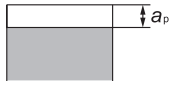

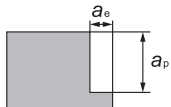

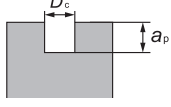



Tolerances

$\phi D_c / \phi D_s$	e8	h6
3/8", 8mm, 10mm	-.00098/-0.00185"	+0/-0.00035"
1/2", 12mm	-.00126/-0.00232"	+0/-0.00043"

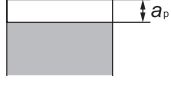

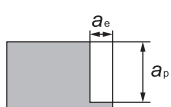

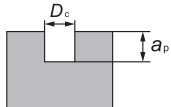

Heat Resistant Alloy S ● : 1st Choice ● : 2nd choice

Item Number	Grade	Flute	ϕD_c		ϕD_s		R_e		A_p max		L_1	
			(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)
RCEI375J6R047S	●	6	3/8		3/8		.047		9/32		2.50	
RCEI500J6R068S	●	6	1/2		1/2		.068		3/8		2.75	
RCEM080J6R100S	●	6	.315	8	.315	8	.039	1.0	.236	6	2.362	60
RCEM100J6R125S	●	6	.394	10	.394	10	.049	1.25	.295	7.5	2.559	65
RCEM120J6R150S	●	6	.472	12	.472	12	.059	1.5	.354	9	2.756	70

● Recommend Cutting Conditions for HRSA material

Application	Grade	ϕD_c	Flute	Cutting Speed (SFM)			Feed (IPT)	Depth of cut (a_p —inch)	Width of cut (a_e —inch)	Coolant
				500	2000	3500				
Face Milling 	SX9	3/8"	4/6/8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.0012	.056	—	DRY 	
		1/2"								
		5/8"								
		3/4"								
		8mm								
		10mm								
		12mm								
		16mm								
		20mm								
Side Milling 	SX9	3/8"	4/6/8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.0012	.187	.037	DRY 	
		1/2"								
		5/8"								
		3/4"								
		8mm								
		10mm								
		12mm								
		16mm								
		20mm								
Slotting 	SX9	3/8"	4	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.0012	.094	—	DRY 	
		1/2"								
		5/8"								
		8mm								
		10mm								
		12mm								
		16mm								
	SX9	6	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.0012	.056	—	DRY 		
						1/2"				
						5/8"				
						8mm				
						10mm				
						12mm				
						16mm				
						.094				
SX9	8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.0012	.113	—	DRY 			
					3/4"					
					16mm					

● Recommended cutting conditions for Cast Iron

Application	Grade	ϕD_c	Flute	Cutting Speed (SFM)			Feed (IPT)	Depth of cut (a_p —inch)	Width of cut (a_e —inch)	Coolant
				500	2000	3500				
Face Milling 	SX9	1/2"	4/6/8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.004	.094	—	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								
Side Milling 	SX9	1/2"	4/6/8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.004	.375	.083	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								
Slotting 	SX9	1/2"	4/6/8	[Red bar with 2 flutes]	[Red bar with 2 flutes]	.004	.094	—	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								

For Maximum Productivity

- A continuous cut is recommended. An interrupted cut may cause chipping or breakage.
- When using a Hydraulic or Shrink chuck, blow air to the arbor body, DON'T blow air to the endmill itself.
- A Minimum speed of 980 SFM is required. (Don't run at lower speed.)
- A 1.5 degree ramping angle is recommended. Run at 50% lower feed rate when ramping cut.

When cutting HRSA materials

- Continue to machine even if you see BUE, removing BUE may cause chipping or breakage to the edge.
- High speed machining work hardens the material. For this reason, leave at least 0.3mm of material for a finishing process.

RCS for Cast Iron / HRSA Materials

RCS-H4

○ No center cutting edge



Slotting



Pocketing



Ramping



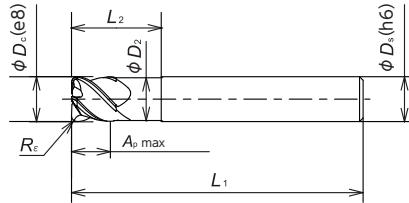
Z=4



35°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
1/2", 12mm, 5/8", 16mm	-.00126/-0.00232"	+0/-0.00043"

Cast Iron		K	●							
Heat Resistant Alloy		S	●							
		● : 1st Choice ● : 2nd choice								
	Item Number	Grade	Flute	ϕD_c	ϕD_s	ϕD_2	R_ϵ	A_p max	L_1	L_2
		SX9		(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)
RCS-H4	RCSI500H4R068S	●	4	1/2	1/2	.484 12.3	.068 1.73	3/8	2.75 69.85	1 25.4
	RCSI625H4R078S	●	4	5/8	5/8	.605 15.4	.078 1.98	.469 11.91	3 76.2	1.25 31.75
	RCSM120H4R150S	●	4	.472 12	.472 12	.457 11.6	.059 1.5	.354 9	2.76 70	.954 24
	RCSM160H4R200S	●	4	.630 16	.630 16	.610 15.5	.079 2.0	.472 12	2.95 75	1.26 32

RCS-J6 / RCS-J8

○ No center cutting edge



Face Milling



Side Milling



Profiling



Ramping



Z=6



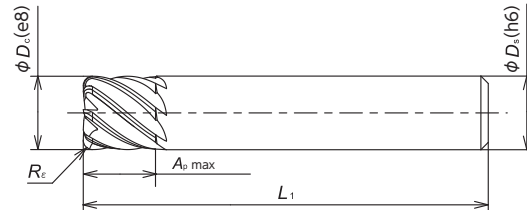
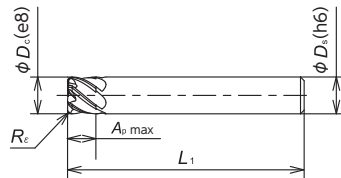
Z=8



40°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
1/2", 12mm, 5/8", 16mm	-.00126/-0.00232"	+0/-0.00043"
3/4", 20mm	-.00157/-0.00287"	+0/-0.00051"

Cast Iron		K	●					
Heat Resistant Alloy		S	●					
		● : 1st Choice ● : 2nd choice						
	Item Number	Grade	Flute	ϕD_c	ϕD_s	R_ϵ	A_p max	L_1
		SX9		(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)	(Inch) (mm)
RCS-J6	RCSI500J6R068S	●	6	1/2	1/2	.068 1.73	3/8	2.75
	RCSI625J6R078S	●	6	5/8	5/8	.078 1.98	.469 11.91	3
	RCSM120J6R150S	●	6	.472 12	.472 12	.059 1.5	.354 9	2.76 70
	RCSM160J6R200S	●	6	.630 16	.630 16	.079 2.0	.472 12	2.95 75
RCS-J8	RCSI750J8R094S	●	8	3/4	3/4	.094 2.38	.563 14.29	4.25
	RCSM200J8R250S	●	8	.787 20	.787 20	.098 2.5	.984 15	4.33 110