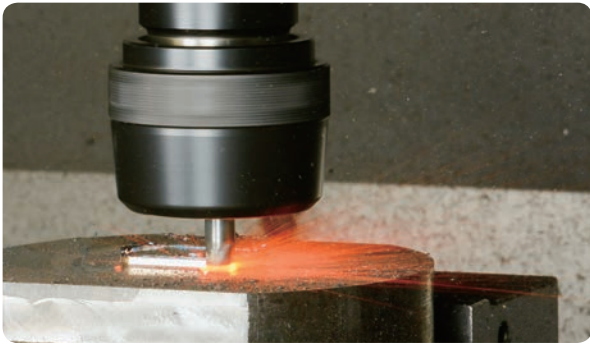


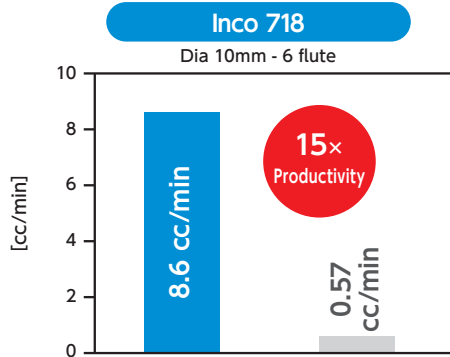
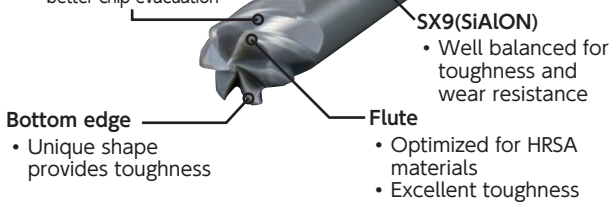
## RCE for HRSA materials →A22



### ● Ceramic specialist's design

#### Helix angle

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



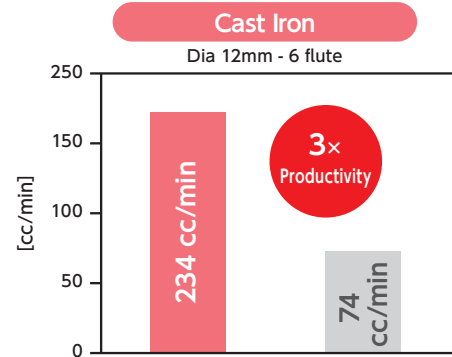
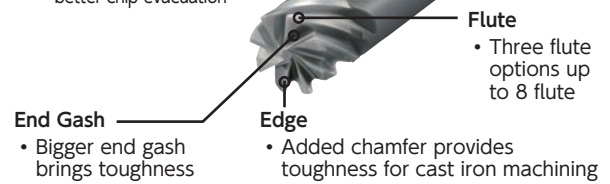
	SX9	Carbide
Cutting Speed (m/min)	600	40
Feed (mm/t)	0.03	←
DOC (mm)	3.0	←

## RCS for Cast iron / HRSA materials →A23



#### Helix angle

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



	SX9	Carbide
Cutting Speed (m/min)	700	110
Feed (mm/t)	0.05	←
DOC (mm)	3.5	7.0

### 4-flute



### 6-flute



### 8-flute



## RCE for HRSA Materials

### RCE-H4 (4-flute with Neck)

○ No center cutting edge



Slotting



Pocketing



Ramping



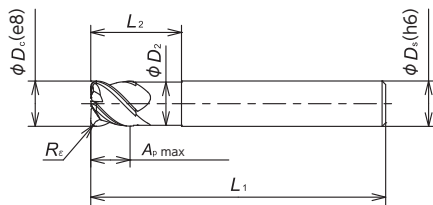
Z=4



35°



1.5°



#### Tolerances

$\phi D_c / \phi D_s$	e8	h6
8mm, 10mm, 3/8"	-0.024/-0.047	+0/-0.009
12mm, 1/2"	-0.032/-0.059	+0/-0.011

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

Item Number	Grade	Flute	$\phi D_c$		$\phi D_s$		$\phi D_2$		$R_c$		$A_p \text{ max}$		$L_1$		$L_2$	
			(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)
RCEM 080H4R100S	●	4	8.0	—	8.0	—	7.6	—	1.0	—	6.0	—	60	—	16	—
100H4R125S	●		10.0	—	10.0	—	9.6	—	1.25	—	7.5	—	65	—	20	—
120H4R150S	●		12.0	—	12.0	—	11.6	—	1.5	—	9.0	—	70	—	24	—
RCEI 375H4R047S	●	4	9.525	3/8	9.525	3/8	9.125	.359	1.19	.047	7.14	9/32	63.5	2.5	19.05	3/4
500H4R068S	●		12.7	1/2	12.7	1/2	12.3	.484	1.73	.068	9.525	3/8	69.9	2.75	25.4	1

### RCE-J6 (6-flute)

○ No center cutting edge



Face Milling



Side Milling



Profiling



Ramping



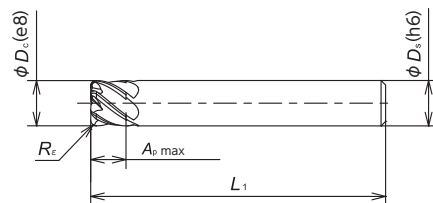
Z=6



40°



1.5°



#### Tolerances

$\phi D_c / \phi D_s$	e8	h6
8mm, 10mm, 3/8"	-0.024/-0.047	+0/-0.009
12mm, 1/2"	-0.032/-0.059	+0/-0.011


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


Item Number	Grade	Flute	$\phi D_c$		$\phi D_s$		$\phi D_2$		$R_c$		$A_p \text{ max}$		$L_1$		$L_2$	
			(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)
RCEM 080J6R100S	●	6	8.0	—	8.0	—	—	—	1.0	—	6	—	60	—	—	—
100J6R125S	●		10.0	—	10.0	—	—	—	1.25	—	7.5	—	65	—	—	—
120J6R150S	●		12.0	—	12.0	—	—	—	1.5	—	9	—	70	—	—	—
RCEI 375J6R047S	●	6	9.525	3/8	9.525	3/8	—	—	1.19	.047	7.14	9/32	63.5	2.5	—	—
500J6R068S	●		12.7	1/2	12.7	1/2	—	—	1.73	.068	9.525	3/8	69.9	2.75	—	—


## RCS for Cast Iron / HRSA Materials


### RCS-H4


○ No center cutting edge


  
Slotting

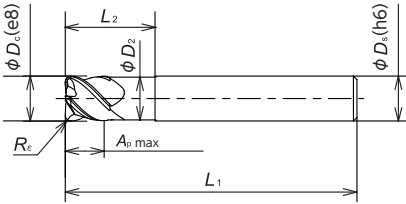
  
Pocketing

  
Ramping

  
Z=4

  
35°

  
1.5°




**Tolerances**


$\phi D_c / \phi D_s$	e8	h6
12mm, 16mm, 1/2", 5/8"	-0.032/-0.059	+0/-0.011


Item Number	Grade	Flute	$\phi D_c$		$\phi D_s$		$\phi D_2$		$R_e$		$A_p \text{ max}$		$L_1$		$L_2$	
			(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)
RCSM 120H4R150S 160H4R200S	●	4	12.0	—	12.0	—	11.6	—	1.5	—	9.0	—	70	—	24	—
			16.0	—	16.0	—	15.5	—	2.0	—	12.0	—	75	—	32	—
RCSI 500H4R068S 625H4R078S	●	4	12.7	1/2	12.7	1/2	12.3	.484	1.73	.068	9.525	3/8	69.85	2.75	25.4	1
			15.875	5/8	15.875	5/8	15.375	.609	1.98	.078	11.91	.469	76.2	3	31.75	1.25


### RCS-J6 / RCS-J8


○ No center cutting edge


  
Face Milling


  
Side Milling


  
Profiling

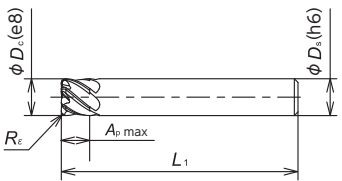
  
Ramping

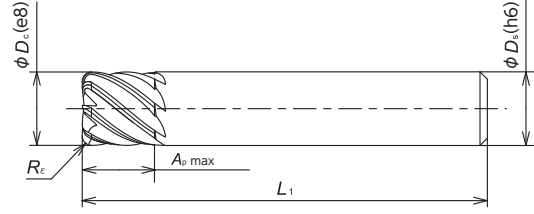
  
Z=6

  
Z=8

  
40°

  
1.5°





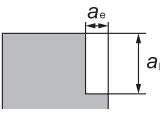

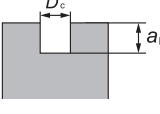



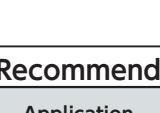



**Tolerances**



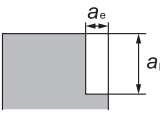

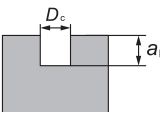

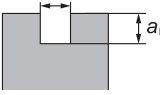

$\phi D_c / \phi D_s$	e8	h6
12mm, 16mm, 1/2", 5/8"	-0.032/-0.059	+0/-0.011
20mm, 3/4"	-0.040/-0.073	+0/-0.013

Item Number	Grade	Flute	$\phi D_c$		$\phi D_s$		$\phi D_2$		$R_e$		$A_p \text{ max}$		$L_1$		$L_2$	
			(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)
RCSM 120J6R150S 160J6R200S	●	6	12.0	—	12.0	—	—	—	1.5	—	9.0	—	70	—	—	—
			16.0	—	16.0	—	—	—	2.0	—	12.0	—	75	—	—	—
RCSI 500J6R068S 625J6R078S	●	6	12.7	1/2	12.7	1/2	—	—	1.73	.068	9.525	3/8	69.85	2.75	—	—
			15.875	5/8	15.875	5/8	—	—	1.98	.078	11.91	.469	76.2	3	—	—
RCSM 200J8R250S RCSI 750J8R094S	●	8	20.0	—	20.0	—	—	—	2.5	—	15.0	—	110	—	—	—
			19.05	3/4	19.05	3/4	—	—	2.38	.094	14.29	.562	107.95	4.25	—	—

## ● Recommend Cutting Conditions for HRSA material

Application	Grade	$\phi D_c$	Flute	Cutting Speed (m/min)			Feed (mm/t)	Depth of cut $a_p$ (mm)	Width of cut $a_e$ (mm)	Coolant
				150	600	1000				
Face Milling 	SX9	3/8"	4/6/8	150	600	1000	1.4	—	DRY 	
		1/2"								
		5/8"								
		3/4"								
		8mm								
		10mm								
		12mm								
		16mm								
		20mm								
		3.0								
Side Milling 	SX9	3/8"	4/6/8	150	600	1000	4.8	0.9	DRY 	
		1/2"								
		5/8"								
		3/4"								
		8mm								
		10mm								
		12mm								
		16mm								
		20mm								
		10.0								
Slotting 	SX9	3/8"	4	150	600	1000	2.4	—	DRY 	
		1/2"								
		5/8"								
		8mm								
		10mm								
		12mm								
		16mm								
		4.0								
		2.5								
		3.0								
Threading 	SX9	3/8"	6	150	600	1000	1.4	—	DRY 	
		1/2"								
		5/8"								
		8mm								
		10mm								
		12mm								
		16mm								
		2.4								
		1.5								
		1.8								
Shaper 	SX9	3/4"	8	150	600	1000	2.9	—	DRY 	
		16mm								
		3.0								
		3.0								

## ● Recommended cutting conditions for Cast Iron

Application	Grade	$\phi D_c$	Flute	Cutting Speed (m/min)			Feed (mm/t)	Depth of cut $a_p$ (mm)	Width of cut $a_e$ (mm)	Coolant
				150	600	1000				
Face Milling 	SX9	1/2"	4/6/8	150	600	1000	2.4	—	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								
Side Milling 	SX9	1/2"	4/6/8	150	600	1000	9.5	2.1	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								
Slotting 	SX9	1/2"	4/6/8	150	600	1000	2.4	—	DRY 	
		5/8"								
		3/4"								
		12mm								
		16mm								
		20mm								
Rotating Tools 	SX9	3/4"	4/6/8	150	600	1000	4.8	—	DRY 	
		12mm								
		16mm								
		20mm								
		4.0								
		5.0								

### 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 300m/min 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.