

Machining Gray / Ductile Cast Iron with Ceramics

High Speed Machining of Cast Irons

SX6 Silicon Nitride Ceramic

■ Features

- 1st choice for roughing gray cast iron
- Applicable for wet cutting
- Excellent thermal shock resistance makes high speed milling possible

■ Recommended Applications

- Gray cast iron – Rough – Turning and milling

■ Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (SFM)	Feed (IPR / IPT)	Depth of cut (inch)	DRY	WET
Gray cast iron	Turning	SX6	1800-3500	.012-.024	.020-.140	●	●
	Milling	SX6	1500-4200	.003-.010	.020-.140	●	○

	SX6
Notching	◎
Flank Wear	
Toughness	○
Heat Shock	◎

HC1, HW2 Alumina Oxide Ceramic

■ Features

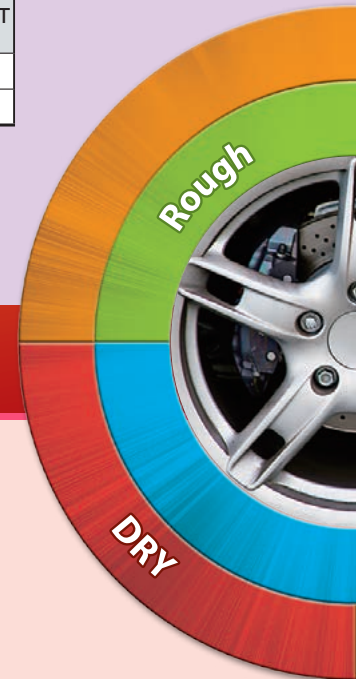
- 1st choice for finishing gray cast iron with no coolant
- Excellent wear resistance makes high speed finishing possible

■ Recommended Applications

- Gray cast iron – Finish – Turning
- Chilled liners – Rough / Finish – Turning (HW2)

■ Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Gray cast iron	Turning	HC1	1200-2100	.004-.016	.020-.080	●	
		HW2	1200-2100	.004-.016	.020-.080	●	
Chilled liners	Turning	HW2	800-1200	.004-.012	.020-.080	●	





SP9 CVD Coated Silicon Nitride Ceramic



SP9
○
○

■ Features

- Extremely tough – Tough enough to rough cast iron with T0420 (.004” X20) edge preparation
- Small edge preparation – Low tool pressure for stable precision machining
- SP9’ s toughness makes higher feed rates possible
- Dramatically reduced flank wear due to CVD coating

■ Recommended Applications

- Gray cast iron – Rough – Turning and milling
- Ductile cast iron – Rough – Turning and milling

■ Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (SFM)	Feed (IPR / IPT)	Depth of cut (inch)	DRY	WET
Gray cast iron	Turning	SP9	1200–2700	.012–.024	-.140	●	○
	Milling		1200–2500	.003–.010	-.240	●	○
Ductile cast iron	Turning	SP9	800–2000	.012–.024	-.140	○	●
	Milling		2100–3000	.002–.010	-.240	●	○



HC2, HC6 TiC Ceramic WA1 Whisker Reinforced Ceramic

■ Features

- All grades make high speed finishing of cast iron possible
- Applicable for wet cutting conditions
- HC6 – Optimized for finishing ductile cast iron

■ Recommended Applications

- Gray cast iron – Finish – Turning (HC2 • HC6 • WA1)
- Ductile cast iron – Finish – Turning (HC6)

■ Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Gray cast iron	Turning	HC2/HC6	1200–2100	.004–.016	-.060	●	●
		WA1	1200–2100	.004–.016	-.120	●	●
Ductile cast iron	Turning	HC6	600–1500	.004–.012	-.040	○	●