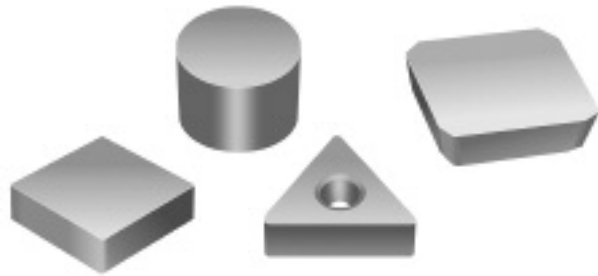


SOWA Ceramic Grades


SOWA Grade	ISO	Special Features	Use
GP100	P01 - P10 K01 - K10	GP100 offers excellent shock resistance and wear resistance. It is a general machining grade for hardened steel and difficult cutting. It can be used for finish and medium cutting for soft cast iron without interruption.	Turning
GP300	P01 - P15 K01 - K15	GP300 was developed for extremely hardened steel and high hardness alloy steel. It is a Al-TiCN grade with micrograin structure.	Turning
S300	P01 - P15 K01 - K15	Designed for high cutting speed of Cast Iron with heavy interruption.	Milling
S400	P01 - P20 K01 - K20	The toughness and hardness of the edge were highly improved against wear for high speed cutting with heavy interruption. Especially in the automobile industry.	Milling

Recommended Cutting Condition
■ Turning

Grade	Work-piece	Cutting Style	Speed (sfm)	Feed (in/rev)	Depth (D.O.C) (in)
GP100	Gray Cast Iron	•Gray Cast Iron (FC)	450~2,400	.008~.02	.118~.236
		•Malleable (FCMB)	600~3,600	.012~.02	.004~.020
		•Ductile Cast Iron (FCD)			
	•Chilled Cast Iron	Rough Finish	90~300 150~600	.004~.008 .002~.006	.020~.059 .004~.020
GP300	Steel	•Carbon Steel	450~1,200	.008~.02	.079~.197
		•Alloy Steel	600~2,400	.002~.008	.004~.020
		•Bearing Steel			
	•Hard Steel (HRC 45 >)	Rough Finish	60~300 120~600	.004~.008 .002~.02	.020~.059 .004~.020



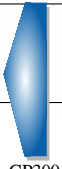

■ Milling

Grade	Work-piece	Cutting Style	Speed (sfm)	Feed (in/rev)	Depth (D.O.C) (in)
S300	•Gray Cast Iron	Rough	300~3,600	.012~.020	.118~.236
		Finish	450~4,500	.012~.028	.004~.020
S400	•Ductile Cast Iron •Alloy Steel	Rough	270~1,500	.004~.012	<0.197
		Medium	300~2,100	.004~.016	<0.118
		Finish	600~4,500	.004~.020	<0.118

Grades & Chipbreakers

Guide of Grade Selection

■ Turning

ISO	Application Range	ISO	Application Range
P01		K01	
P10		K10	
P20		K20	

■ Milling

ISO	Application Range	ISO	Application Range
P01		K01	
P10		K10	
P20		K20	

Choice of Ceramic

	Work-piece	Grade	GP 100 GP 300	GP 100 GP 300
Cast Iron	Gray Cast Iron		●	●
	Chilled Cast Iron		●	●
	Ductile Cast Iron		○	○
Steel	Mild Steel			
	Carbon Steel			
	Alloy Steel		●	
	Forged Steel		●	
	Heat Treated Steel		●	
	High Speed Steel		●	
	High Manganese Steel		○	○
	Stainless Steel			
	Heat Resistant Steel		○	○
	Super Alloy Steel		○	○

