

THE NEW VALUE FRONTIER

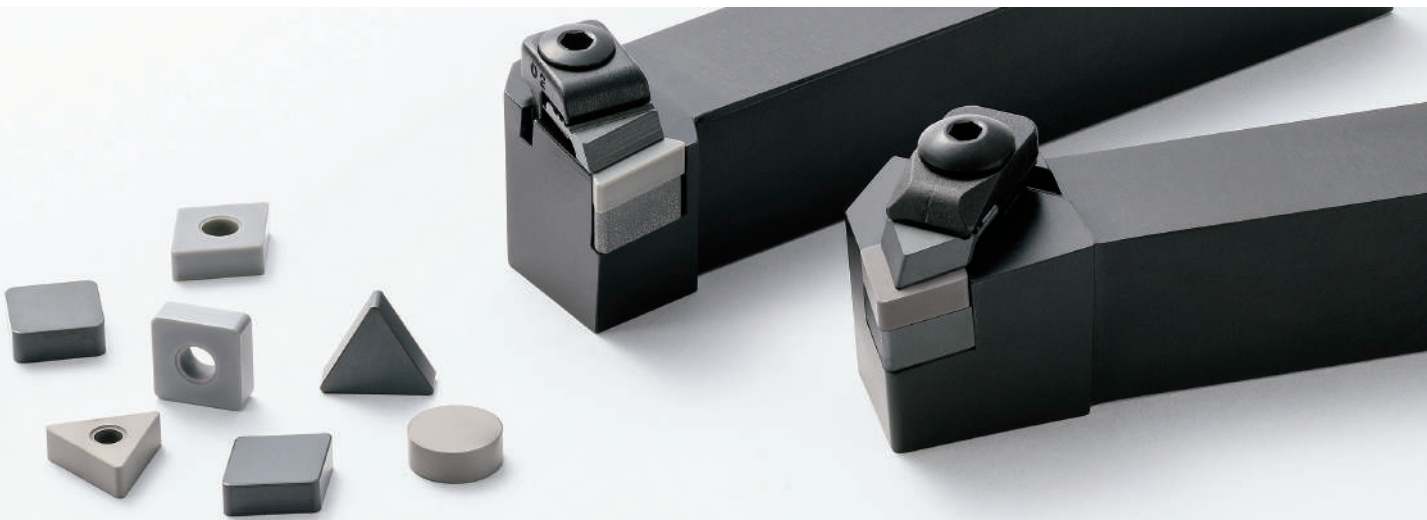


Silicon Nitride Ceramic  
for Cast Iron

**KS6015**  
**KS6050/CS7050**

Silicon Nitride Ceramic for Cast Iron

# KS6015/KS6050/CS7050



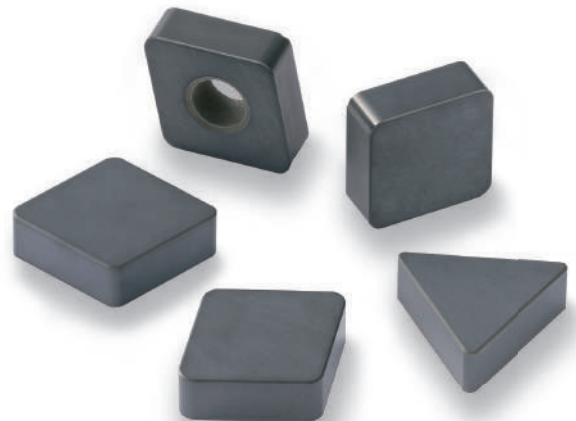
## Efficient and Reliable Cast Iron Machining

Prevents chipping during scale removal and interrupted cuts  
Excellent wear resistance with reduced grain boundary phase

**KS6015** Wear Resistant Machining

**KS6050** General Purpose and  
Interrupted Machining

**CS7050** High Speed Machining

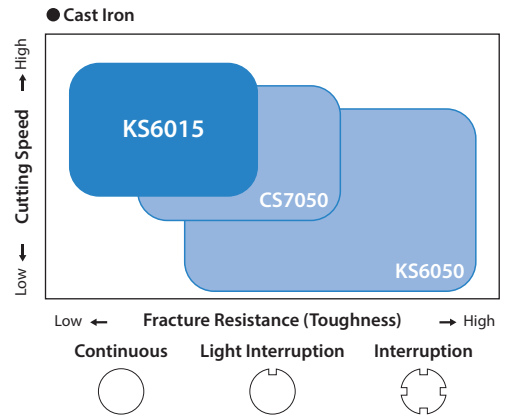


KS6015

Wear Resistant Machining

# KS6015

Crystallization of Grain Boundary Phase Improves Thermal Conductivity  
 Excellent Wear Resistance with Reduced Heat at the Cutting Edge

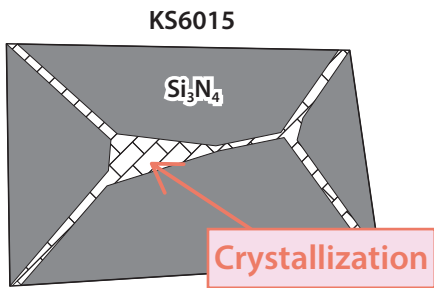


## 1 Excellent Wear Resistance

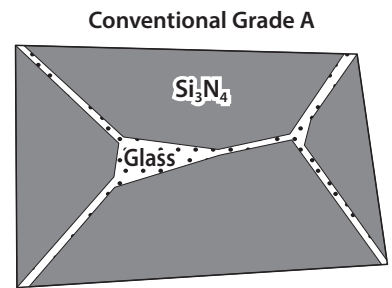
Crystallization of Grain Boundary Phase Provides Better Temperature Strength and Wear Resistance

### Grain Boundary Phase Comparison

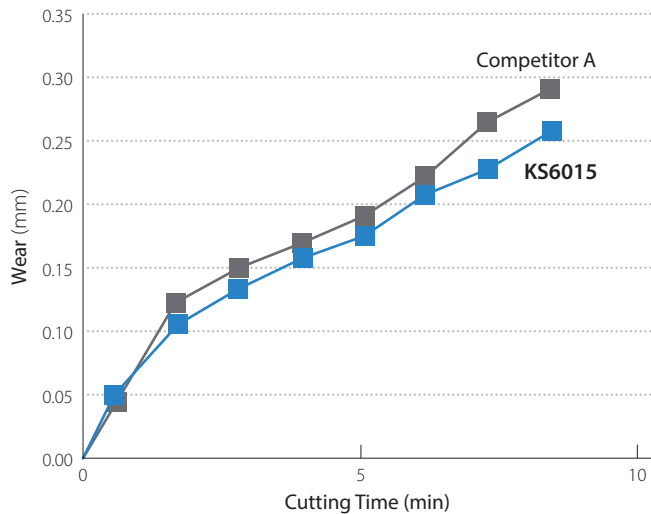
The grain boundary phase is crystallized  
 Increased temperature strength prevents deterioration  
 Improved thermal conductivity



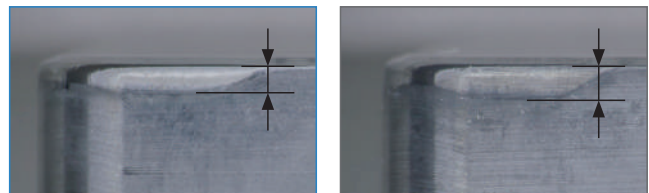
The grain boundary phase is vitrified  
 Deteriorated by softening due to high temperature



### Wear Resistance Comparison (Internal Evaluation)



### Cutting Edge Comparison (after 8.5 min)



KS6015

Competitor A (Si<sub>3</sub>N<sub>4</sub>)

**Good Surface Condition**

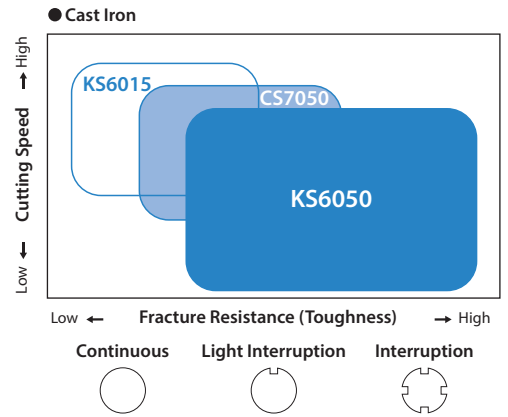
Cutting Conditions: Vc = 600 m/min, ap = 2.0 mm, f = 0.30 mm/rev, Dry  
 Workpiece: FC250



1st Recommendation for General Purpose and Interrupted Machining

# KS6050

High fracture resistance and wear resistance by reducing the grain boundary phase and high aspect ratio structure of  $\text{Si}_3\text{N}_4$

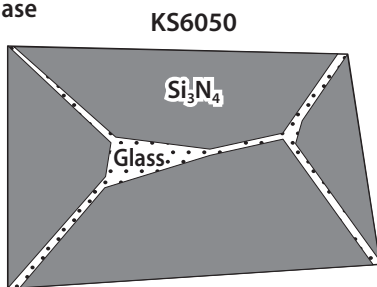


## 1 Stable Machining of Cast Iron

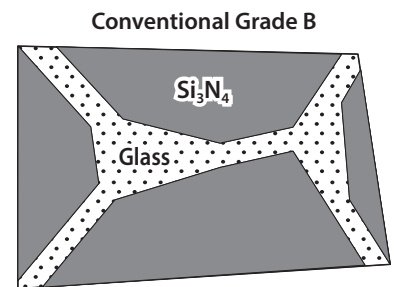
High fracture resistance and wear resistance by reducing the grain boundary phase and high aspect ratio structure of  $\text{Si}_3\text{N}_4$

### Grain Boundary Phase Comparison

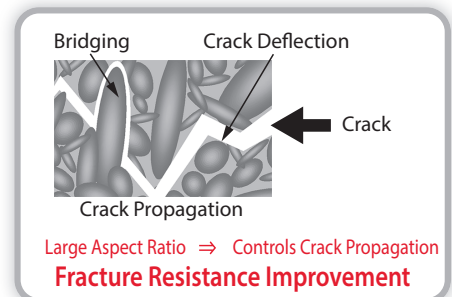
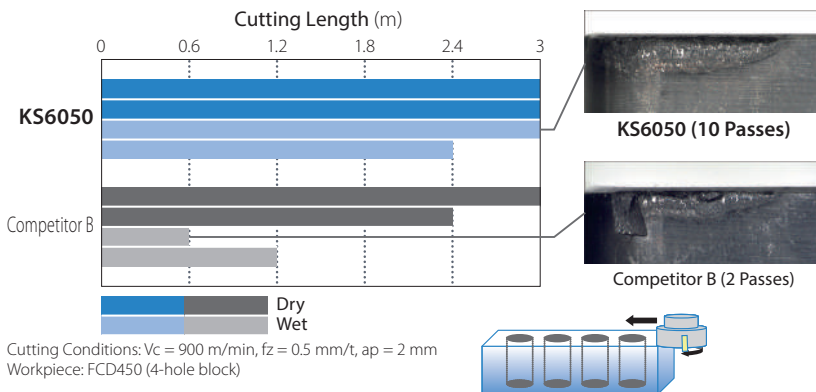
Mechanical and thermal property is improved by controlling grain boundary phase



The grain boundary phase contained a high proportion of glass, therefore its toughness will be weakened by cutting heat



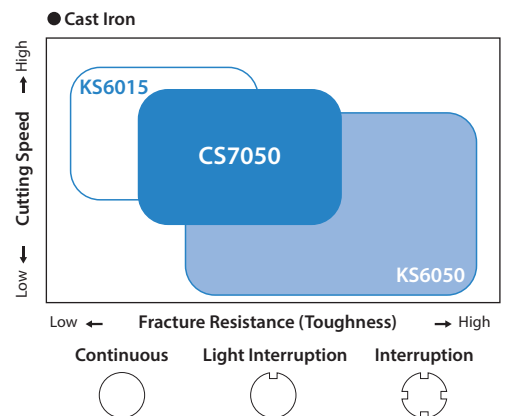
### Fracture Resistance Comparison (Internal Evaluation)



### High Speed Machining

# CS7050

Improved Coating Adhesion Provides Better Wear Resistance



## 1 For High Speed Finishing of Cast Iron

Silicon Nitride Ceramic with CVD coating  
Ensures a higher level of productivity

# Stock Items

Shape		Description	Edge Prep.	Dimensions (mm)				Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic
				IC	S	D1	RE	KS6015	KS6050	CS7050
		CNGA 120408T02025	T02025	12.70	4.76	5.16	0.8	●	●	●
		120412T02025					1.2	●	●	●
		CNGN 120408T02025	T02025	12.70	4.76	-	0.8	●	●	●
		120412T02025					1.2	●	●	●
		120416T02025					1.6	●	●	●
		RNGN 120400T02025	T02025	12.70	4.76	-	-	●	●	●
		RNGN 120700T02025	T02025	12.70	7.94	-	-	●	●	●
		SNGA 120408T02025	T02025	12.70	4.76	5.16	0.8	●	●	●
		120412T02025					1.2	●	●	●
		120416T02025					1.6	●	●	●
		SNGN 120408T02025	T02025	12.70	4.76	-	0.8	●	●	●
		120412T02025					1.2	●	●	●
		120416T02025					1.6	●	●	●
		120420T02025					2.0	●	●	●
		SNGN 120716T02025	T02025	12.70	7.94	-	1.6	●	●	●
		TNGA 160408T02025	T02025	9.525	4.76	3.81	0.8	●	●	●
		160412T02025					1.2	●	●	●
		TNGN 160408T02025	T02025	9.525	4.76	-	0.8	●	●	●
		160412T02025					1.2	●	●	●

● : Standard Stock