THE NEW VALUE FRONTIER

KYOCERA

Silicon nitride ceramic
for cast iron

KS6015 / KS6050
CS7050

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

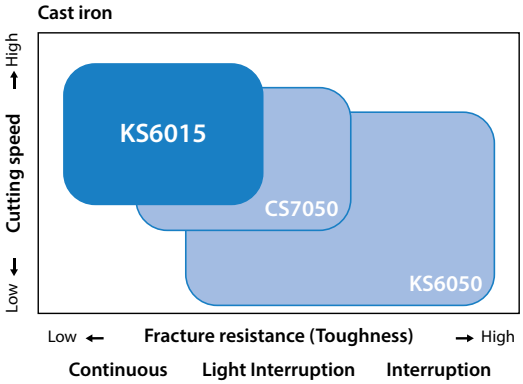
NEW **KS6015**

Excellent wear resistance

NEW

KS6015

Improved thermal conductivity leads to reduced heat at the cutting edge

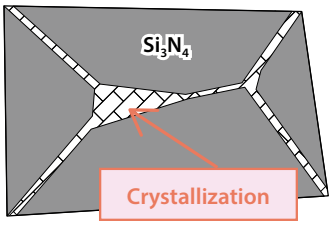


1 Excellent wear resistance

Crystallization of grain boundary phase provides better temperature strength and wear resistance

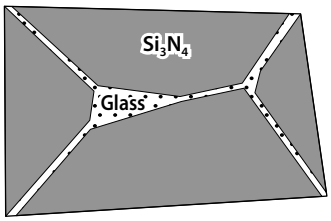
Grain boundary phase comparison

KS6015



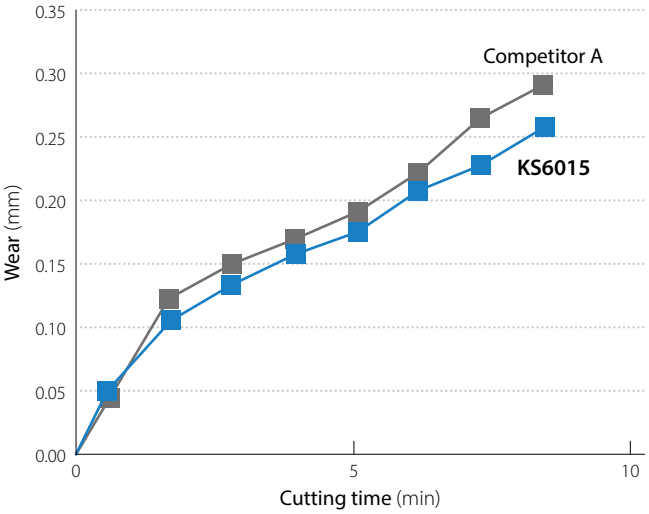
The grain boundary phase is crystallized
Increased temperature strength prevents deterioration
Improved thermal conductivity

Conventional grade A

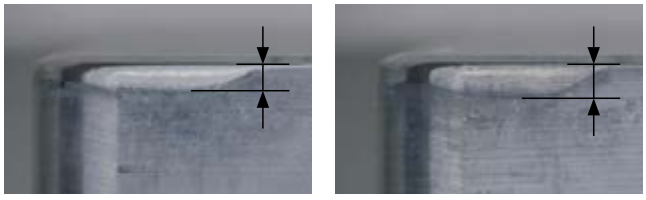


The grain boundary phase is vitrificated
Deteriorated by softening due to high temperature

Wear resistance comparison (Internal evaluation)



Cutting edge comparison (after 8.5 min)



KS6015 | Competitor A (Si_3N_4)

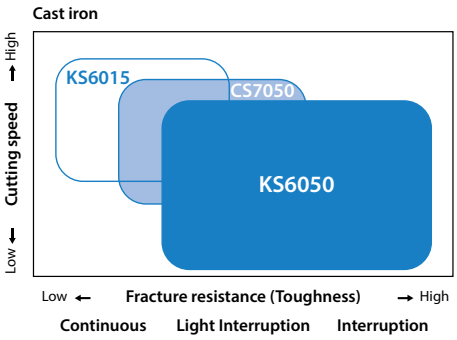
Less flank wear

Cutting conditions: Vc = 600 m/min, ap = 2.0 mm, f = 0.30 mm/rev, dry, workpiece: GG25

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 Si_3N_4



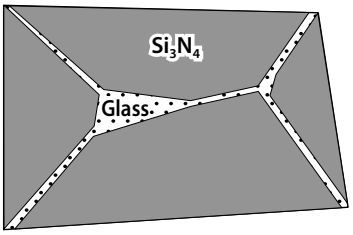
1 Stable machining of cast iron

High fracture resistance and wear resistance by reducing the grain boundary phase and high aspect ratio structure of Si_3N_4

Grain boundary phase comparison

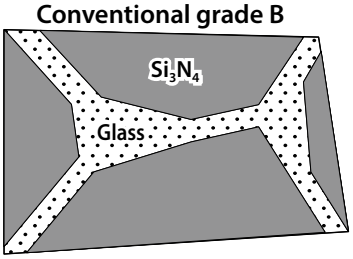
KS6050

Mechanical and thermal property is improved by controlling grain boundary phase

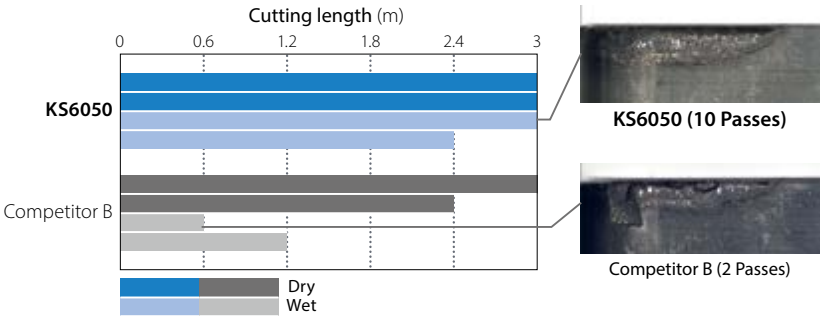


Conventional grade B

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

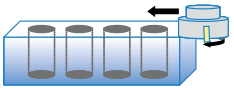


Fracture resistance comparison (Internal evaluation)

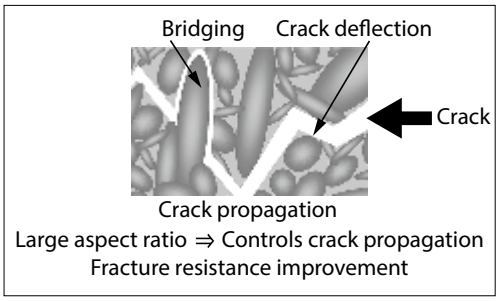


KS6050 (10 Passes)

Competitor B (2 Passes)



Cutting conditions: Vc = 900 m/min, fz = 0.5 mm/t, ap = 2 mm
Workpiece: 450-10S (4-hole block)

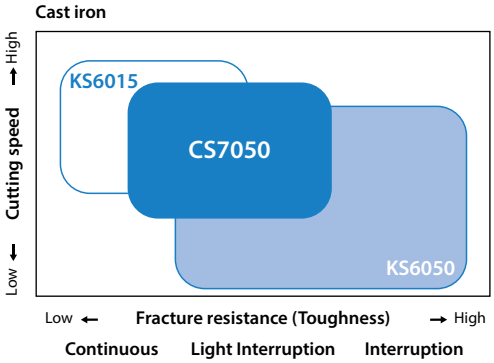


Crack propagation
Large aspect ratio ⇒ Controls crack propagation
Fracture resistance improvement

High speed machining

CS7050

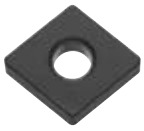
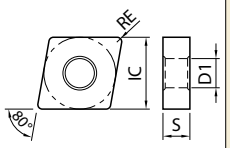
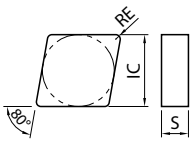
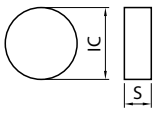
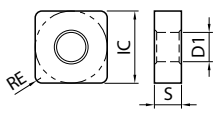
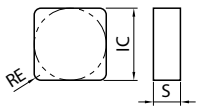
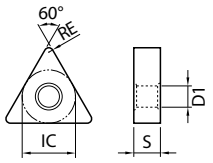
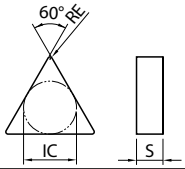
Improved coating adhesion provides better wear resistance



1 For high speed finishing of cast iron

Silicon nitride ceramic with CVD coating ensures a higher level of productivity

Inserts

Shape		Description		Edge preparation	Dimensions (mm)				Silicon nitride ceramic		CVD coated silicon nitride ceramic
					IC	S	D1	RE	NEW 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	●		

● : Available