



Heat-resistant alloys processing

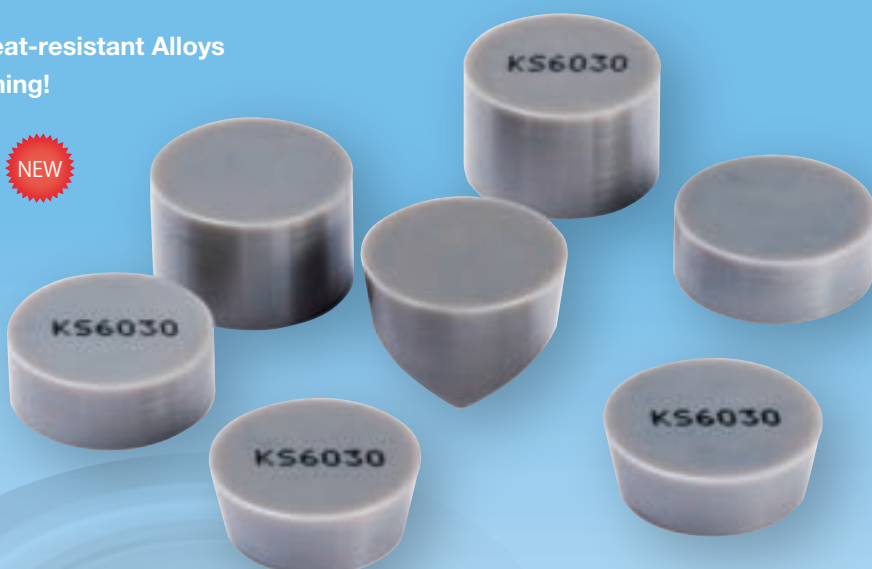
# SiAlON Ceramic

SiAlON Ceramic for Heat-resistant Alloys

Newly-developed SiAlON Ceramic for Heat-resistant Alloys  
Offers High Reliability and Stable Machining!

For Finishing-Medium 

● **KS6030**



For Roughing

● **KS6040**



ADVANCING PRODUCTIVITY

For Finishing-Medium For Roughing

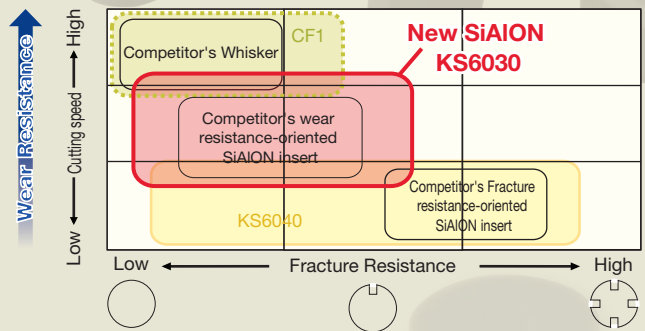
# KS6030/KS6040

## Newly-developed SiAlON Ceramic for Heat-resistant Alloys

### KS6030

#### Features

- Superior wear resistance due to high chemical stability
- Most suitable for semi-finishing and profiling at medium to high cutting speeds
- Prevents burr formation and chipping due to its high resistance to boundary wear
- Can also be used for milling



### Wear resistance comparison

#### Turning

**Cutting Conditions**  
 [Workpiece Material]: Ni-based heat-resistant alloys  
 $V_c=300\text{m/min}$   $f=0.2\text{mm/rev}$   $a_p=2.0\text{mm}$   
 Cutting time 2.5min Wet



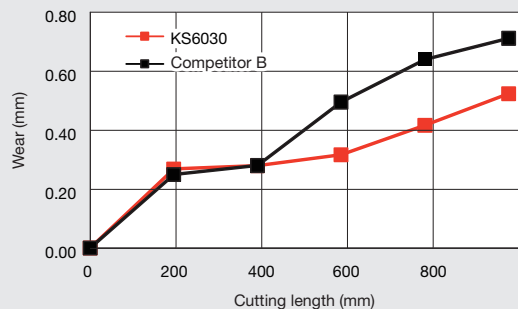
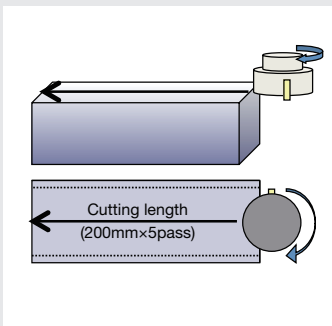
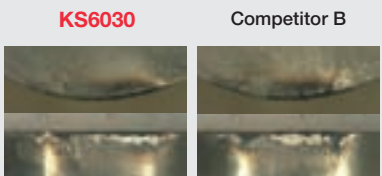
**Cutting Conditions**  
 [Workpiece Material]: Ni-based heat-resistant alloys  
 $V_c=150\text{m/min}$   $f=0.4\text{mm/rev}$   $a_p=2.0\text{mm}$   
 Cutting time 2.5min Wet



The KS6030 provides superior tool life and efficiency from low to high-speed machining. It prevents burr formation and cracks due to its excellent anti-notching properties.

#### Milling

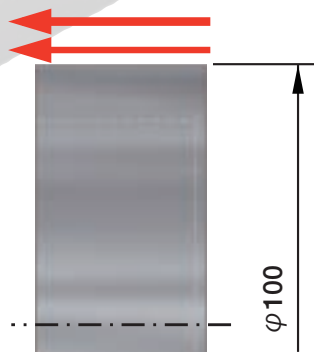
**Cutting Conditions**  
 [Workpiece Material]: Ni-based heat-resistant alloys  
 [Tool]: RNGN120400T01020  
 $V_c=1,000\text{m/min}$   $f=0.1\text{mm/t}$   $a_p=1.0\text{mm}$   
 Dry



## Case Study

### Ni-based heat-resistant alloys

- Seal
- Vc=170m/min
- f=0.2mm/rev
- ap=1.2mm (Roughing)  
ap=0.5mm (Finishing)
- WET
- RGN120700E003 (KS6030)



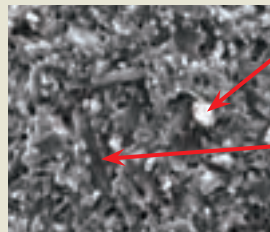
KS6030	Machining efficiency 2 pcs/edge
Competitor C	Machining efficiency 1 pcs/edge

KS6030 doubled tool life under the same cutting conditions as Competitor C

## KS6040

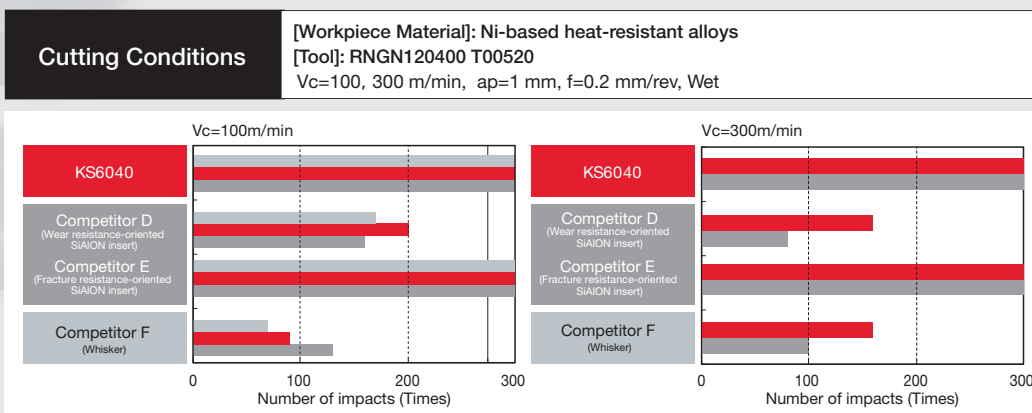
### Features

- Improved wear and fracture resistance due to the mixture of hard and acicular particles. Superior balance in heat-resistant alloy machining.
- Suitable for scaling and roughing.



Hard Particle (Wear resistance improvement)  
Acicular Particle (Fracture resistance improvement)

## Fracture Resistance Comparison



Compared to both Competitor F (Whisker) and Competitor D (Wear resistance-oriented SiAlON insert), the KS6040 provides superior fracture resistance. The KS6040's superior fracture resistance is equivalent to that Competitor E's fracture resistance-oriented SiAlON insert.

**The KS6040 achieves improved wear and fracture resistance compare to conventional SiAlON inserts! Superior balance in heat-resistant alloy machining.**

## Recommended cutting conditions

Grade	Roughing	Finishing-Medium	Profiling	Vc (m/min)					
				0	200	400	600	800	1,000
KS6030		○	○	Wet			Dry		
				Wet			Dry		
KS6040	○	○		Wet			Dry		
				Wet			Dry		

■ : Turning ■ : Milling

### Turning

E003 Recommended edge preparation: R honing

Grade	Vc(m/min)	ap (mm)	f (mm/rev)
KS6030	150 - 350	1.0 - 2.5	0.15 - 0.35
KS6040	150 - 300	1.0 - 2.5	0.15 - 0.35

### Milling

T01020 Recommended edge preparation: Chamfering

Grade	Vc(m/min)	ap (mm)	fz (mm/rev)
KS6030	700 - 1,200	1.0 - 2.0	0.08 - 0.12
KS6040	600 - 1,000	1.0 - 2.0	0.08 - 0.15

■ Stock Items

Edge Preparation				Usage Classification														
Symbol	Cutting edge type	Indication																
E	Honed Cutting Edge	E003	R0.03 Honed	✳: Interruption / 1st Choice														
		E005	R0.05 Honed	✳✳: Interruption / 2nd Choice														
T	Chamfered Cutting Edge	T01020	0.10mmX20° Chamfered Cutting Edge	●: Light Interruption / 1st Choice														
				☺: Light Interruption / 2nd Choice														
Shape				Description	Previous Description	Edge Preparation	Dimension (mm)			KS6030	KS6040							
							re	A	T									
Negative insert			CNGN 120408T01020	CNGN 120408	T01020	12.70	4.76	0.8										
			120412T01020	120412				1.2										
			CNGN 120408T02025	CNGN 120408	T02025			0.8										
			120412T02025	120412				1.2										
			CNGX 120712T01020	-	T01020	12.70	7.94	1.2										
			120716T01020	-				1.6										
			CNGX 120712T02025	-	T02025			1.2										
			120716T02025	-				1.6										
			RNGN 090300E003	-	E003	9.525	3.18	-										
			090300E005	-	E005													
			090300T01020	-	T01020													
			RNGN 120400E003	-	E003	12.70	4.76											
			120400E005	-	E005													
			120400T01020	-	T01020													
			RNGN 120700E003	-	E003	19.05	7.94											
			120700E005	-	E005													
			120700T01020	-	T01020													
			RNGN 190700E003	-	E003	25.40												
			190700E005	-	E005													
			190700T01020	-	T01020													
RNGN 250700E003			-	E003									MTO					
250700E005			-	E005														
250700T01020			-	T01020														
				SNGN 120412T01020	SNGN 120412	T01020	12.70		4.76	1.2								
	120416T01020	120416		1.6														
	SNGN 120412T02025	SNGN 120412		T02025	1.2													
	120416T02025	120416			1.6													
		SNGX 120712T01020	-	T01020	12.70	7.94	1.2											
		120716T01020	-				1.6											
		SNGX 120712T02025	-	T02025			1.2											
		120716T02025	-				1.6											
Positive insert			RCGX 060600E003	-	E003	6.35	8											
			060600E005	-	E005													
			060600T01020	-	T01020													
			RCGX 090700E003	-	E003	9.525												
			090700E005	-	E005													
			090700T01020	-	T01020													
	RCGX 120700E003	-	E003	12.70														
	120700E005	-	E005															
	120700T01020	-	T01020															
			RPGN 090300E003	-							E003	9.525	3.18					
			090300E005	-							E005							
			090300T01020	-							T01020							
			RPGN 120400E003	-	E003	12.70	4.76											
	120400E005	-	E005															
	120400T01020	-	T01020															
			RPGX 060600E003	-	E003	6.35							6.35					
060600E005			-	E005														
060600T01020			-	T01020														
RPGX 090700E003			-	E003	9.525	8												
090700E005			-	E005														
090700T01020			-	T01020														
RPGX 120700E003	-	E003	12.70															
120700E005	-	E005																
120700T01020	-	T01020																

●: Std. Stock MTO: Made to order

Search "KYOCERA Tools" on App Store & Google play



- Downloadable high resolution cutting tools catalogues
- Product usage videos
- Turning, milling and drilling calculation tools
- KYOCERA instant contact



ADVANCING PRODUCTIVITY