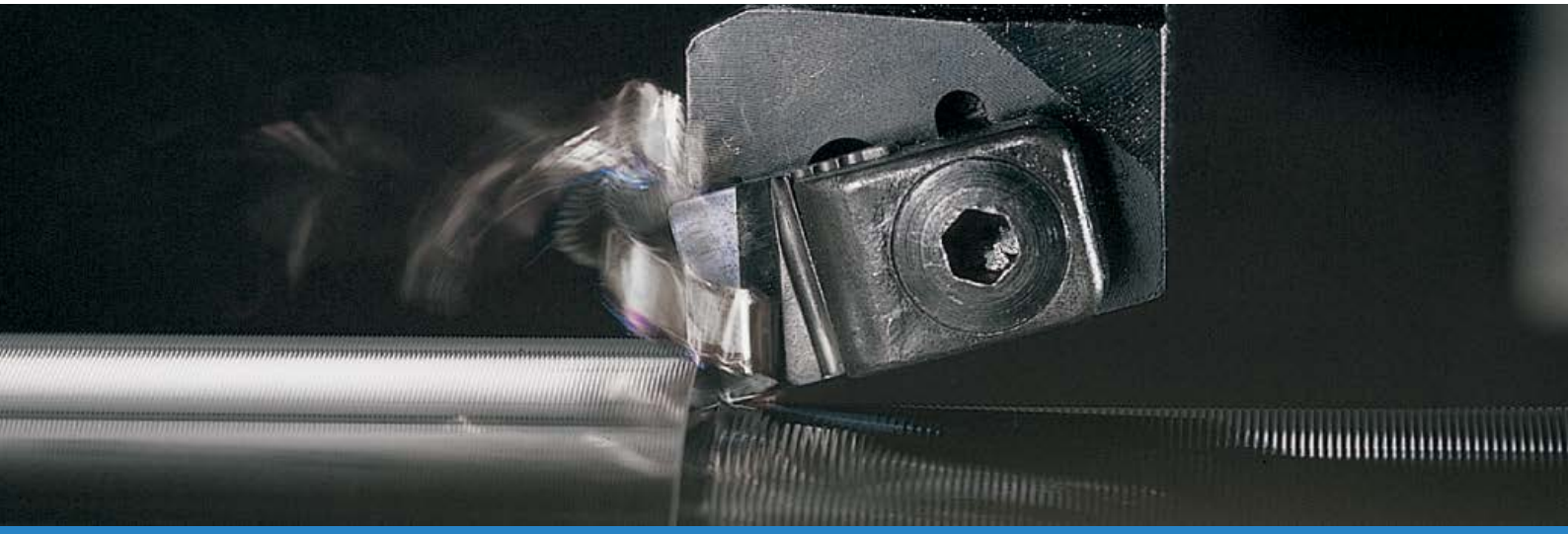
# KS001



## Whisker reinforced ceramic for greater fracture resistance

### High-speed machining of Ni-based alloys

Advanced silicon-carbide ceramic inserts with ultra-strong whiskers for excellent wear and fracture resistance.

High-speed machining of super alloys with notch wear resistance.

KEEPS YOU AHEAD

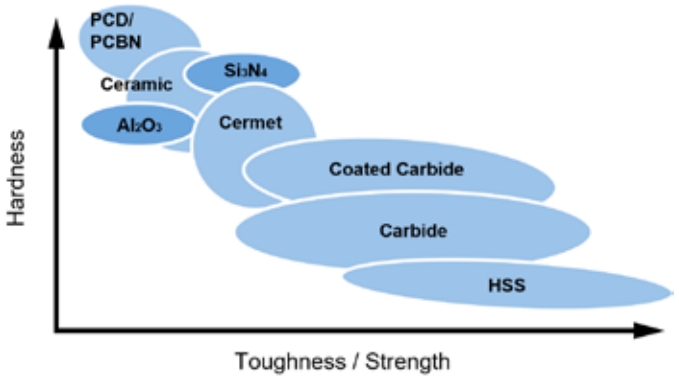
## Whisker reinforced ceramic

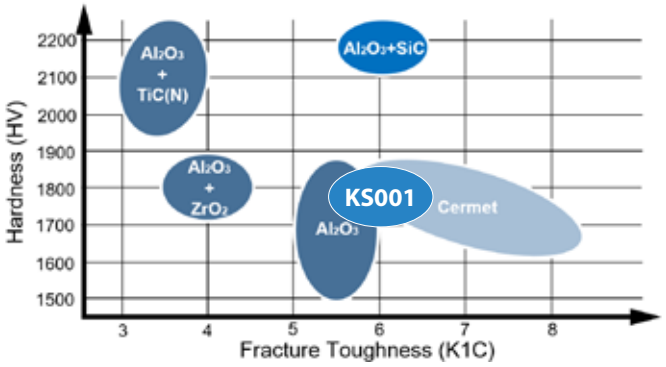
# KS001

**Advanced silicon-carbide ceramic inserts with ultra-strong whiskers for excellent wear and fracture resistance**
**High-speed machining of super alloys with notch wear resistance**

## 1 Operate up to 3~4 times the speed used for coated carbide tools

**Ultra-strong whiskers provide increased fracture toughness and notch wear resistance in the machining of super-alloys at high speeds.**

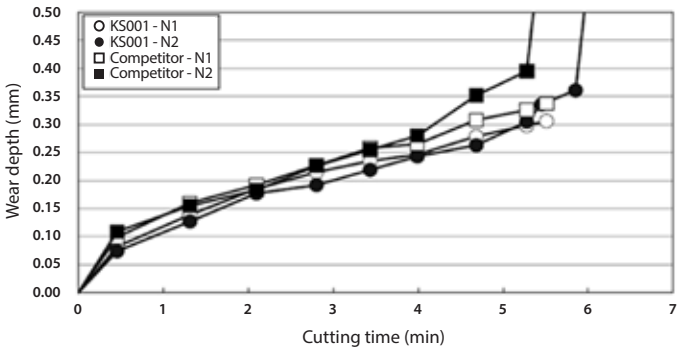


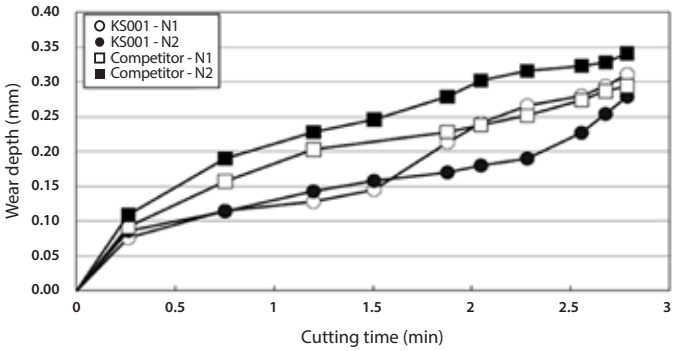

## 2 Excellent wear and thermal shock resistance at high surface speeds

**Wear Comparison** (internal Evaluation)

Wear depth at 200 m/min

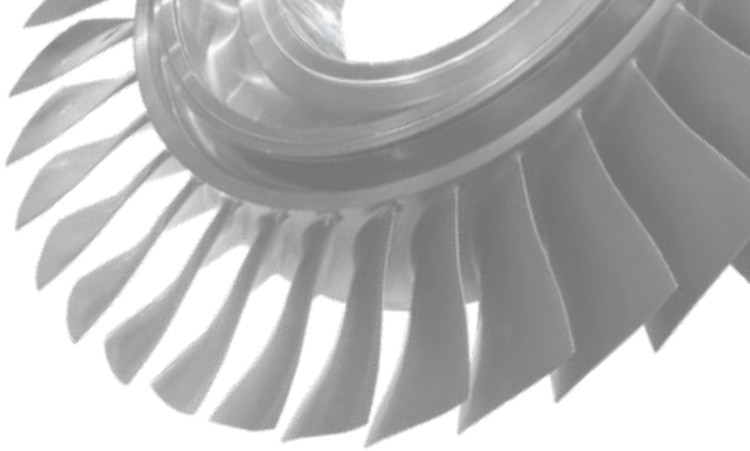



Wear depth at 350 m/min



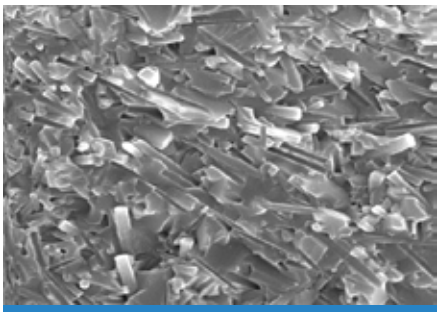

Cutting conditions:

Alloy718 (HRC47)
Vc= 200 m/min / 350 m/min
f= 0.2 mm/rev
D.O.C. = 1.0 mm
Coolant available



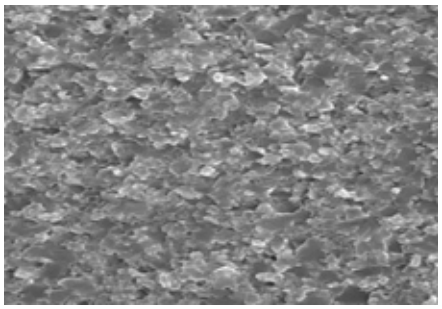
## 3 Advanced ceramic micro structure

### KS001 whisker insert



**Ultra-strong whiskers provide increased fracture toughness and notch wear resistance**

### Non-whisker ceramic insert



### KS001 grade properties

| Grade | Composition | Density ($g/cm^3$) | Hardness (Hv) | Toughness ($MPa \cdot m^{1/2}$) | Thermal expansion coefficient (* 10-6/K) |
|---|---|---|---|---|---|
| KS001 | $Al_2O_3$ + SiC | 3.7 | 2,100 | 7 | 7.6 |

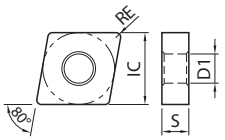
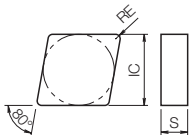
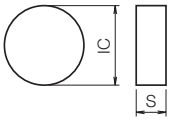
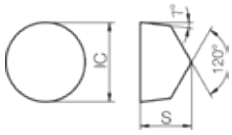
### KS001 applications

| Grade | Application range | Characteristics |
|---|---|---|
| KS001 | Ni-based alloys, Co-based alloys in high speed cutting.<br>Roughing & finishing with continuous or light interruption. | Best performance for HRSA (inconel, waspaloy, stellite).<br>For high-speed machining of HRSA with optimized heat and fracture resistance. |

### Recommended cutting conditions

| Workpiece | Grade | Application | Recommendation | | |
|---|---|---|---|---|---|
| | | | Vc (m/min) | D.O.C. (mm) | f (mm/rev) |
| Ni-based alloy | KS001 | Interrupted | ~ 250 | ~ 3.0 | ~ 0.3 |
| | | Continuous | ~ 500 | ~ 5.0 | ~ 0.5 |

## Inserts

| Shape | | Description | | Edge prep. | Dimensions (mm) | | | | Whisker ceramic |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | IC | S | D1 | RE | KS001 |
|  |  | CNGA | 120408T00520 | T00520 | 12.7 | 4.76 | 5.16 | 0.8 | ● |
| | | | 120412T00520 | | | | | 1.2 | ● |
| | | | 120416T00520 | | | | | 1.6 | ● |
|  |  | CNGN | 120708T00520 | T00520 | 12.7 | 7.94 | - | 0.8 | ● |
| | | | 120712T00520 | | | | | 1.2 | ● |
| | | | 120716T00520 | | | | | 1.6 | ● |
|  |  | RNGN | 090400T00520 | T00520 | 9.525 | 4.76 | - | - | ● |
| | | | 120400T00520 | | 12.7 | 7.94 | | | ● |
| | | | 120700T00520 | | 12.7 | 7.94 | | | ● |
|  |  | RCGX | 090700T00520 | T00520 | 9.525 | 8 | - | - | ● |
| | | | 120700T00520 | | 12.7 | | | | ● |

● : Standard item

**Inserts sold in 10 piece boxes**