

Machining HRSA Materials with BIDE MICS and Ceramics

Solutions for the Aerospace Industry

JX1 BIDE MICS



■ Features

- Significantly extended tool life compared to whisker ceramics
- Double cutting speed potential compared to whisker ceramics
- Superior surface finish compared to whisker ceramics
- Applicable to powder-metallurgical heat resistant alloys

■ Recommended Work Materials

- Inco 718
- 718 Plus
- Inco 625
- Rene

■ Recommended Applications

- Rough-no scale
- Profiling
- Semi-Finishing
- Grooving

■ Turning of Inco 718



Competitor's Whisker Ceramic
Tool Life : 3min



JX1
Tool Life : 10 min



Turbine Shaft
RNG 45, 800 SFM, .008 IPR, 080 DOC, WET, Inco 718 (pre-machined)

| | JX1 | WA1 | SX7 | SX9 | SX5 |
|------------|-----|-----|-----|-----|-----|
| Notching | ◎ | | ◎ | ◎ | ○ |
| Flank Wear | ◎ | ◎ | ○ | | |
| Toughness | ○ | | | ◎ | ○ |
| Heat Shock | | | ◎ | ◎ | |

WA1 Whisker-Reinforced Ceramic

■ Features

- Versatile grade for machining of high temperature alloys
- Better flank wear resistance compared to SiAlON ceramics
- Better notching resistance compared to competitor's whisker ceramics

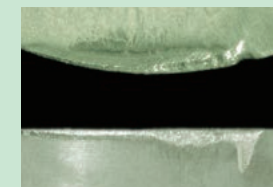
■ Recommended Work Materials

- Inco 718
- Inco 625

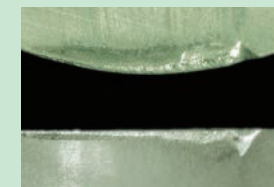
■ Recommended Applications

- Semi-Finish
- Profiling
- Grooving

■ Profiling of Inco 718



Competitor's Whisker Ceramic



WA1



Turbine Case

Tool Life : 5.0 min
RPGX 45, 800 SFM, .006 IPR, .040", Wet
Inco 718 (pre-machined)

SX5 SiAlON Ceramic

■ Features

- Best grade for scale and interruptions
- Best grade for machining high-cobalt alloys

■ Recommended Work Materials

- Waspaloy
- 718 Plus
- Udimet 720
- Rene 41

■ Recommended Applications

- Rough Turning with scale and interruptions

SX9 SiAlON Ceramic



■ Features

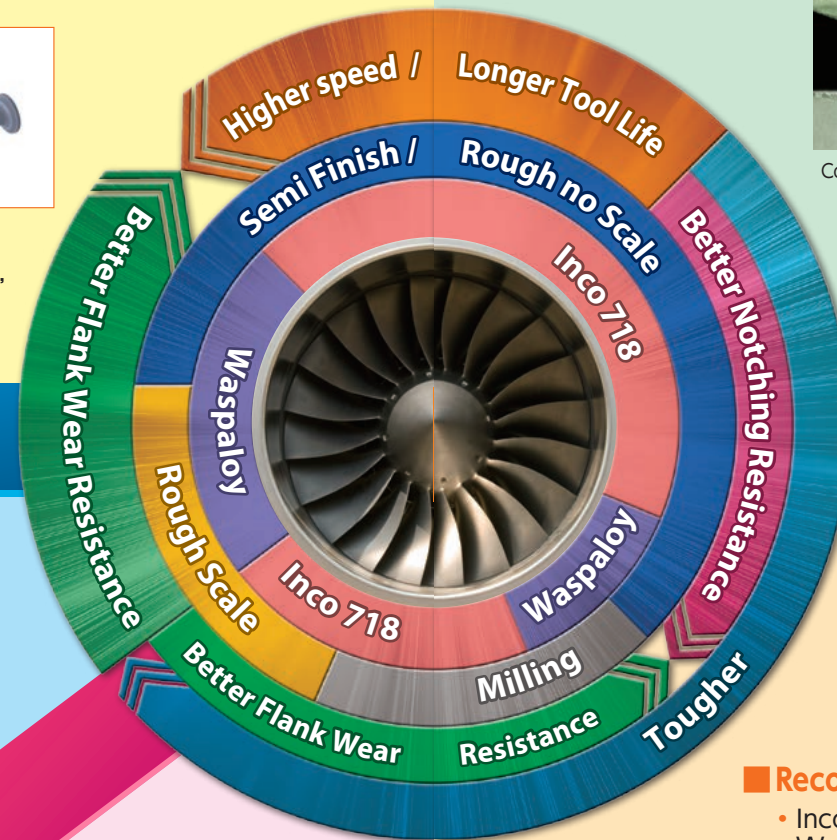
- Tougher when compared to whisker ceramics
- Extreme toughness makes higher feed and heavier DOC machining possible
- Best grade for machining Inco 718 with scale

■ Recommended Work Materials

- Inco 718
- Inco 713
- Inco 706

■ Recommended Applications

- Rough turning with scale
- Milling



SX7 SiAlON Ceramic



■ Features

- Can run at same cutting condition vs whisker ceramics
- Better notching resistance compared to whisker ceramics
- No need to program ramping when compared to whisker ceramics
- Better flank wear resistance compared to competitor's SiAlON ceramics
- Best grade for pre-machined Waspaloy
- Best grade for high-speed milling

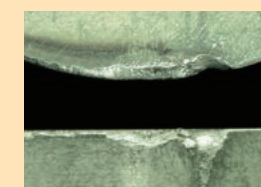
■ Recommended Work Materials

- Inco 718
- Waspaloy
- Inco 625
- Udimet 720

■ Recommended Applications

- Semi-Finish
- Milling
- Profiling
- Grooving

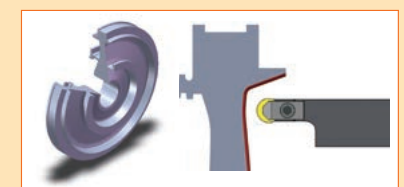
■ Profiling of Inco 718



Competitor's Whisker Ceramic



SX7



Turbine Disk

Tool Life : 4.5 min
RCGX 45, 800 SFM, .006 IPR, .040", Wet
Inco 718 (pre-machined)