

CVD Turning UNC805 & Milling UNC840 New Grades Released

Purpose

- To promote milling grade for machining of HRSA including Inconel, Waspaloy, Rene, Titanium alloy

Subject Item

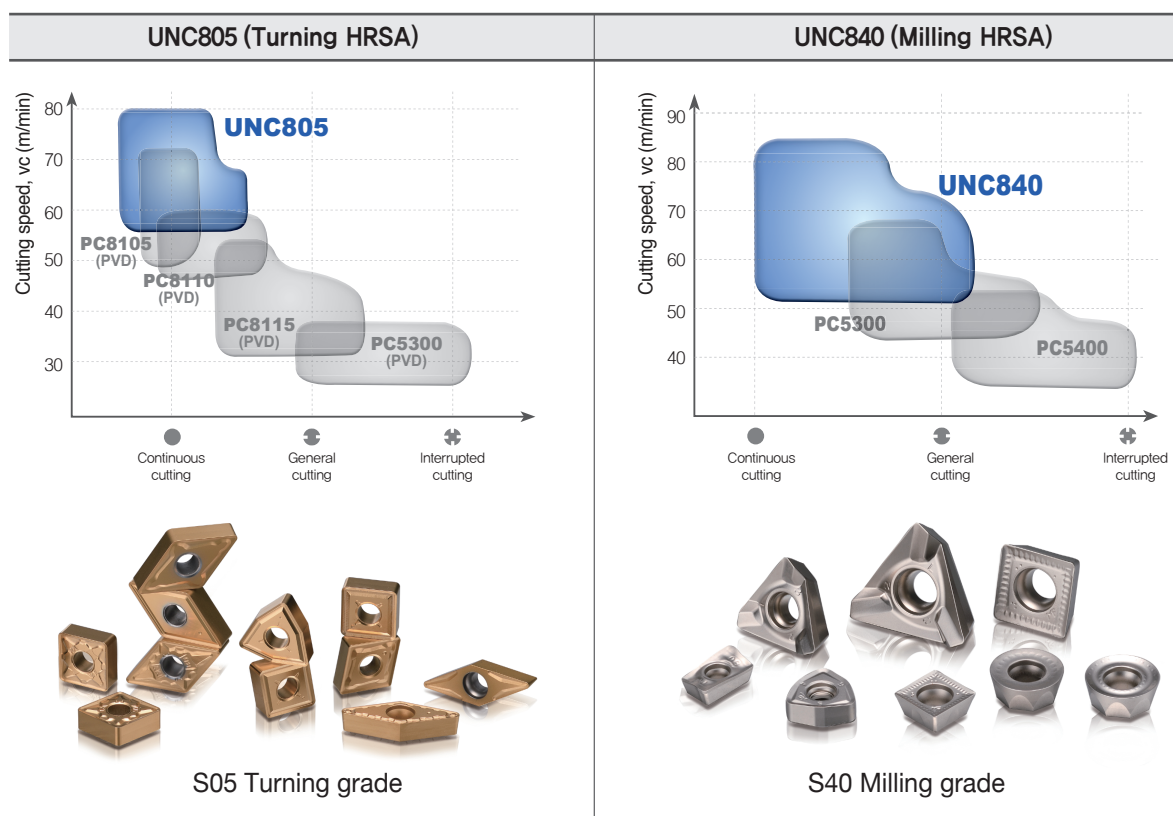
- UNC805 (CVD turning S05), UNC840 (CVD Milling S40) ※ See the attached #1 for details

Detailed Information

1 Features

- Enhanced substrate in order to minimize thermal crack resistance at high temperature and prevent unexpected tool breakage
- Increased chip removal volume thanks to **Ultra Coating** technology with high hardness & lubrication
- Minimized build-up edge due to the optimized cutting edge of the insert

2 Application Range



3 Recommended Cutting Conditions

- ※ See the attached #2 for details

Launch Date

- From March 2019

[Attached 1]

Available Stock (Turning)

Designation		Grade
		UNC805
CNMG	120408-MM	●
	120412-MM	●
	120408-VP2	●
	120412-VP2	●
	120408-VP4	●
	120412-VP4	●
DNMG	150604-MM	●
	150608-MM	●
	150604-VP2	●
	150608-VP2	●
	150604-VP4	●
	150608-VP4	●
SNMG	120408-MM	●
	120412-MM	●
	120408-VP4	●
	120412-VP4	●

Designation		Grade
		UNC805
WNMG	080408-MM	●
	080412-MM	●
	080408-VP2	●
	080412-VP2	●
	080408-VP4	●
	080412-VP4	●
VBGT	160404-LU	●
	160408-LU	●
	160412-LU	●
VBMT	160404-MU	●
	160408-MU	●
	160412-MU	●
	160404-MP	●
	160408-MP	●

Available Stock (Milling)

Designation		Grade
		UNC840
RPMT	1204M0E-MF	●
	1606M0E-MF	●
	10T3M0S-MF	●
	10T3M0E-ML	●
	1204M0E-ML	●
	1606M0E-ML1	●
	1204M0E-ML2	●
	1204M0E-ML3	●
	1204M0E-ML4	●
	1204M0E-MM	●

Designation		Grade
		UNC840
APMT	11T3PDER-ML	●
	11T308PDER-ML	●
WNMX	09T316ZNN-ML	●
	130520ZNN-ML	●
WNGX	040308PNER-ML	●
	080608PNER-ML	●

[Attached 2]

Recommended Cutting Conditions

① Turning UNC805

Application		Chip breaker	Recommended Cutting Conditions					
			[Ti-6Al-4V] Landing Gear / Engine Blisk / Engine Casing / Wing Flap Track			[Inconel] Engine Housing / Engine Disk		
			vc (m/min)	fn (mm/rev)	ap (mm)	vc (m/min)	fn (mm/rev)	ap (mm)
Finishing	Multi purpose	VP2	40 - 80	0.1 - 0.2	Lower than 1.0	30 - 60	Lower than 1.0	Lower than 1.0
	Advanced chip treatment	LU						
	Higher toughness	MU						
Medium cutting	Multi purpose	MM	40 - 80	0.15 - 0.25	Lower than 1.5	30 - 60	Lower than 0.15	Lower than 1.5
	Medium cutting	LU						
	Higher toughness	MU						
Roughing	Multi purpose	VP4	40 - 80	0.2 - 0.3	Lower than 2.0	30 - 60	Lower than 1.5	Lower than 2.0
	Advanced chip treatment	LU						
	Higher toughness	MU						

② Milling UNC840

Application		Chip breaker	Recommended Cutting Conditions							
			[Ti-6Al-4V] Landing Gear / Engine Blisk / Engine Casing / Wing Flap Track				[Inconel] Engine Housing / Engine Disk			
			vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
Low resistance	FMR P-posi	ML	40 - 80	0.2 - 0.45	~ 1.0	0.7D - 0.1D	30 - 60	0.2 - 0.45	~ 0.1	0.7D - 0.1D
	FMR P-posi	ML2								
	FMR P-posi	ML3								
	FMR P-posi	ML4								
Light cutting	FMR P-posi	MF	40 - 60	0.4 - 1.2	~ 1.0	0.7D - 0.1D	30 - 60	0.3 - 0.8	~ 0.1	0.7D - 0.1D
Multi purpose	FMR P-posi	MM								
Low resistance	HFM	ML	40 - 60	0.4 - 1.2	~ 1.0	0.7D - 0.1D	30 - 60	0.3 - 0.8	~ 0.1	0.7D - 0.1D
Light cutting	HFM	MF								
Light cutting	APMT	ML	30 - 60	0.05 - 0.2	Lower than 9.0	Lower than 0.3D	30 - 60	0.05 - 0.2	Lower than 2.0	Lower than 0.3D

[Attached 3]

Grade Comparison

① Turning

KORLOY	Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
UNC805	S05F GC1105	TT05C TT5080	CA6515 PR1215	MP9005 VP10RT	KC5010 KCM15B	IC808 IC907	WSM10S

② Milling

KORLOY	Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
UNC840	S40T GC2040	TT9540	CA6535 PR1535	US735 VP15TF	WSM35S	IC928 IC830	CTC5235 CTC5240

Turning Chip Breaker Comparison

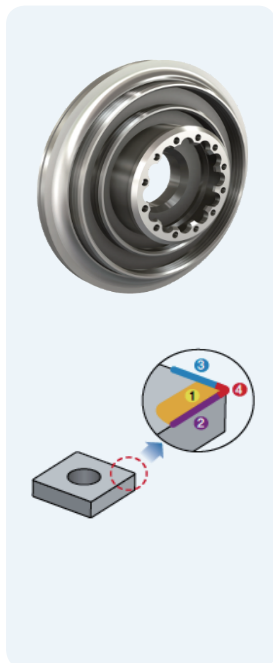
Application	KORLOY	Competitor A	Competitor B	Competitor C
Roughing	VP4, MU	SMR, MM	MT,NRS,STW	MS
Medium cutting to finishing	VP2, MM, LU	SM, UM	MP,NMS	MU,TK
Finishing	VP1	SF	ML	MQ

Milling Chip Breaker Comparison

Type	KORLOY	Competitor A	Competitor B	Competitor C	Application
FMR P-posi Only	ML2	F20	E-PL	M	Both of Inconel and Titanium
	ML3	M30	E-PM	ML	Inconel and Titanium For Roughing Machining
	ML4	M31	E-MM	MLL	Inconel and Titanium For Finishing Machining
	MF	M50	PM	MM	Inconel and Titanium For High Interruption & Low Depth of Cut
	MM	R50	PM	MR	Inconel and Titanium For High Interruption & High Depth of Cut
FMR P-posi etc.	ML	M31	PL	ML	Inconel and Titanium For High Interruption & High Depth of Cut

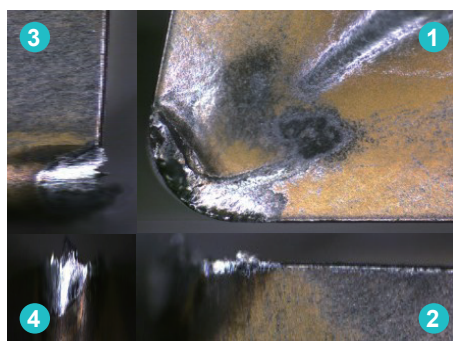
[Attached 4]

Performance Evaluation

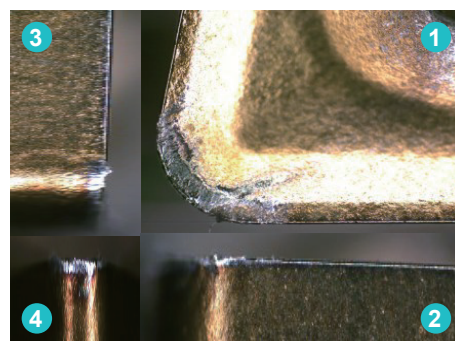


Turning UNC805 (Inconel 718)

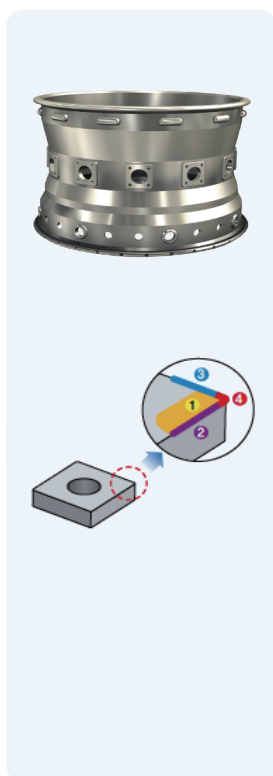
- Workpiece IN718 (KS), 2.4668 (DIN), AMS5662 (ASTM), $\varnothing = 700$, L = 300
- Cutting conditions vc (m/min) = 60, fn (mm/rev) = 0.15
 ap (mm) = 0.4, wet
- Cutting time After 15 minutes of wet machining, both the rake surface and major cutting edge of insert showed no excessive wear
- Tools Insert CNMG120408-VP4 Holder PCLNR2525-M12N



[Competitor]

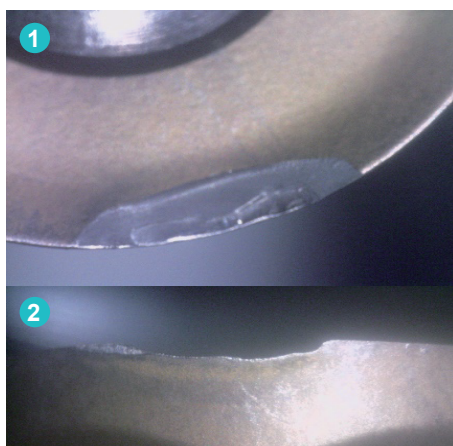


[UNC805]

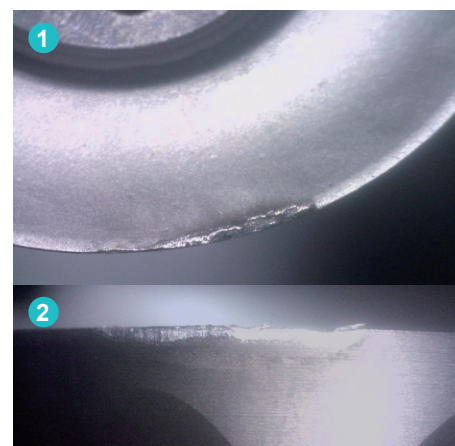


Milling UNC840 (Inconel 718)

- Workpiece IN718 (KS), 2.4668 (DIN), AMS5662 (ASTM), $\varnothing = 700$, L = 300
- Cutting conditions vc (m/min) = 40, Fz (mm/t) = 0.3
 ap (mm) = 1.5, wet
- Cutting time After 20 minutes of wet machining, both the rake surface and major cutting edge of insert showed no excessive wear
- Tools Insert RPMT1204M0E-ML2 Holder FMRS4032HRP-3M32



[Competitor]



[UNC840]