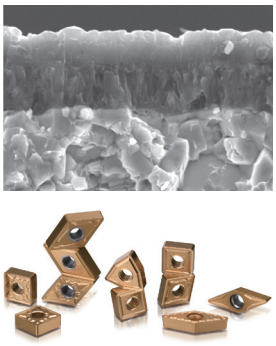
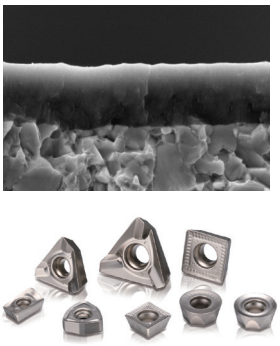
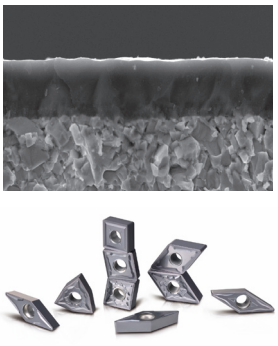
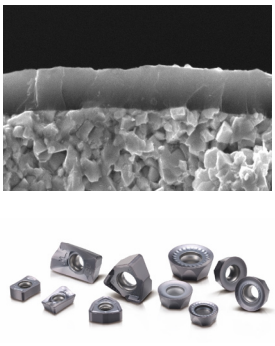
Ultra Coating Series (UNC805 / UNC840 / UPC810 / UPC845)

Purpose

• To promote premium grade for machining of HRSA including Inconel, Hastelloy, Titanium alloy etc.

Detailed information

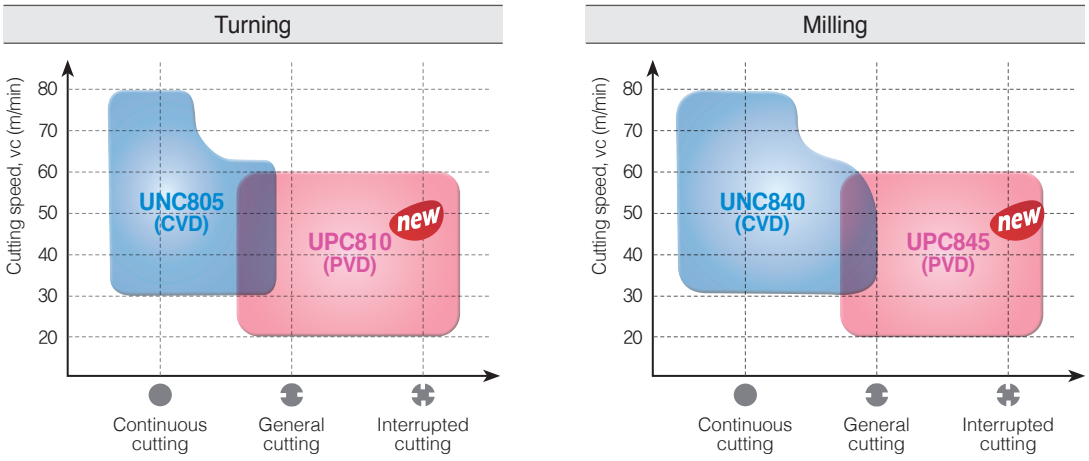
❶ Subject Item

UNC805 (CVD Turning)	UN840 (CVD Milling)	UPC810 (PVD Turning) new	UPC845 (PVD Milling) new
			
- Good performance in high speed machining - For high speed and low feed machining - For forged workpiece - For high hardness (HRC35 or above) HRSA - For large-sized workpiece (Ø200 or above)		- Good performance in low speed and high feed machining - For high interrupted cutting conditions - For cast and round bar machining - For low hardness (under HRC35) HRSA - For workpiece (under Ø200)	

❷ 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 and lubrication
• Minimized built-up edge due to the optimized cutting edge of the insert

❸ Application range



Launch date

• From June 2020

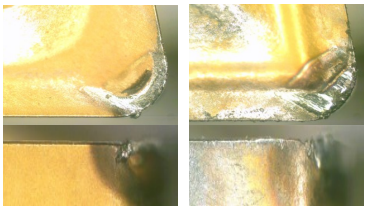
Grade comparison (Turning)

Grade	KORLOY	SANDVIK	TaeguTec	Kyocera	Kenametal	SECO
S05	**UNC805**	S05F	TT3005 TT05C	CA6515	KCM15	TH1500
S10	**UPC810** new	GC1105	TT5080 TT3010	PR1115	KC5010	TH1000

Application examples (Turning)

UNC805

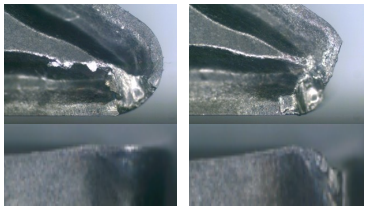
- **Workpiece** 9723 (ISO), Inconel718 (AISI), IN718 (KS)
- **Cutting conditions** vc (m/min) = 60, fn (mm/rev) = 0.15, ap (mm) = 0.4, wet
- **Cutting pass** After 15 minutes of machining, both the rake surface and major cutting edge of insert showed no excessive wear
- **Tools** **Insert** CNMG120408-VP4
  Holder PCLNR2525-M12N



[**UNC805**] [Conventional grade]

UPC810

- **Workpiece** 5832-11 (ISO), Ti-6Al-4V (AISI), Ti-6Al-4V (KS)
- **Cutting conditions** vc (m/min) = 60, fn (mm/rev) = 0.35, ap (mm) = 0.4, wet
- **Cutting pass** After 15 minutes of machining, both the rake surface and major cutting edge of insert showed no excessive wear
- **Tools** **Insert** VBGT160408-MU
  Holder SVJVL2525-M16



[**UPC810**] [Conventional grade]

Recommended cutting conditions (Turning)

Application		Grade	Chip breaker		Recommended cutting conditions					
					Inconel			Titanium alloy		
					vc (m/min)	fn (mm/rev)	ap (mm)	vc (m/min)	fn (mm/rev)	ap (mm)
Finishing	High speed machining	**UNC805**	General use (1st recommendation)	VP2	30-60	0.10-0.20	≤1.0	40-80	0.10-0.20	≤1.0
			Good chip control	LU						
			Good toughness	MU						
	High feed machining	**UPC810**	General use (1st recommendation)	VP2	20-50	0.10-0.30	≤1.0	30-60	0.10-0.30	≤1.0
			Good chip control	LU						
			Good toughness	MU						
Medium cutting	High speed machining	**UNC805**	General use (1st recommendation)	MM	30-60	0.10-0.25	≤1.5	40-80	0.10-0.25	≤1.5
			Good chip control	LU						
			Good toughness	MU						
	High feed machining	**UPC810**	General use (1st recommendation)	VP3	20-50	0.10-0.30	≤1.5	30-60	0.10-0.30	≤1.5
			Good chip control	LU						
			Good toughness	MU						
Roughing	High speed machining	**UNC805**	General use (1st recommendation)	VP4	30-60	0.15-0.30	≤3.0	40-80	0.15-0.30	≤3.0
			Good chip control	LU						
			Good toughness	MU						
	High feed machining	**UPC810**	General use (1st recommendation)	VP4	20-50	0.10-0.40	≤3.0	30-60	0.10-0.40	≤3.0
			Good chip control	LU						
			Good toughness	MU						

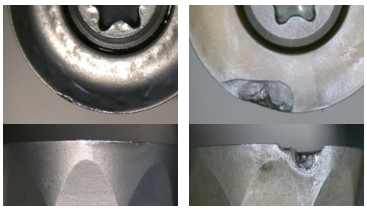
Grade comparison (Milling)

Grade	KORLOY	SANDVIK	TaeguTec	Kyocera	MMC	CERATIZIT	ISCAR	Walter
S40	**UNC840**	S40T	TT9540	CA6535	US735	CTC5235 CTC5240	IC928 IC830	WSM25S WSM30S WSM35S
S45	**UPC845** new	S30T GC1030 GC2040	TT3540	PR1535	VP15TF MP9130	-	IC830	WSM45S

Application examples (Milling)

UNC840

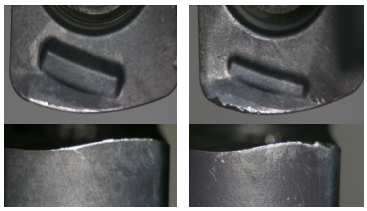
- **Workpiece** 9723 (ISO), Inconel718 (AISI), IN718 (KS)
- **Cutting conditions** vc (m/min) = 40, fz (mm/t) = 0.35, ap (mm) = 1.5 -1.8, wet
- **Cutting pass** After 20 minutes of machining, both the rake surface and major cutting edge of insert showed no excessive wear
- **Tools** **Insert** RPMT12040M0E-ML4
  Holder FMRCM4055RP-4



[UNC840] [Conventional grade]

UPC845

- **Workpiece** 5832-11 (ISO), Ti-6Al-4V (AISI), Ti-6Al-4V (KS)
- **Cutting conditions** vc (m/min) = 40, fz (mm/t) = 0.7, ap (mm) = 0.5, wet
- **Cutting pass** After 30 minutes of machining, both the rake surface and major cutting edge of insert showed no excessive wear
- **Tools** **Insert** LNMX060310R-ML
  Holder HFMDS032R-5C32-200-LN06



[UPC845] [Conventional grade]

Recommended cutting conditions (Milling)

Application		Grade	Chip breaker		Recommended cutting conditions							
					Inconel				Titanium alloy			
					vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)	vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
FMR P-positive	High speed machining	**UNC840**	For general cutting (KA*)	ML	30-50	0.4-0.5	≤2.0	0.7D-0.1D	30-80	0.4-0.8	≤2.0	0.7D-0.1D
			For general cutting (MU*)	ML2								
			Rough	ML3								
			Finishing	ML4								
			Heavy interrupted cutting, Low depths of cut	MF								
			Heavy interrupted cutting, High depths of cut	MM								
FMR P-positive	High feed machining	**UPC845**	For general cutting (KA*)	ML	20-40	0.4-0.6	≤3.0	0.7D-0.1D	20-60	0.4-1.0	≤3.0	0.7D-0.1D
			For general cutting (MU*)	ML2								
			Rough	ML3								
			Finishing	ML4								
			Heavy interrupted cutting, Low depths of cut	MF								
			Heavy interrupted cutting, High depths of cut	MM								
HFM / HFMD	High speed machining	**UNC840**	Finishing - Medium	ML	30-50	0.6-1.0	≤1.0	0.7D-0.1D	30-80	0.6-1.0	≤1.0	0.7D-0.1D
			Medium - Rough	MF								
	High feed machining	**UPC845**	Finishing - Medium	ML	20-40	0.6-1.2	≤1.0	0.7D-0.1D	20-60	0.6-1.2	≤1.0	0.7D-0.1D
			Medium - Rough	MF								
APMT / ADKT	High speed machining	**UNC840**	Finishin - Medium	ML	30-50	0.05-0.2	≤9.0	≤0.3D	30-80	0.05-0.2	≤9.0	≤0.3D
			Medium - Rough	MF								
	High feed machining	**UPC845**	Finishin - Medium	ML	20-40	0.07-0.3	≤9.0	≤0.3D	20-60	0.07-0.3	≤9.0	≤0.3D
			Medium - Rough	MF								

※ KA Grade : Grinding / MU Grade : Non-Grinding

Available Stock (Turning)

Designation		Grade	
		UNC805	UPC810
CNMG	120408-MM	●	●
	120412-MM	●	●
	120408-VP2	●	●
	120408-VP3		●
	120412-VP3	●	●
	120408-VP4	●	●
	120412-VP4	●	●
DNMG	150604-MM	●	●
	150608-MM	●	●
	150604-VP2	●	
	150608-VP2	●	
	150604-VP3	●	●
	150608-VP3		●
	150608-VP4	●	●
SNMG	120408-MM	●	●
	120412-MM	●	●
	120408-VP3		●
	120412-VP3		●
	120408-VP4	●	●
	120412-VP4	●	●

Designation		Grade	
		UNC805	UPC810
VBGT	160404-MU	●	●
	160408-MU	●	●
	160412-MU	●	●
VBMT	160404-LU	●	●
	160408-LU	●	●
	160412-LU	●	●
	160404-MP	●	●
	160408-MP	●	●
	160412-MP	●	●
VNMG	160404-VP3		●
	160408-VP3		●
WNMG	80408-MM	●	●
	80412-MM	●	●
	80408-VP2	●	
	80412-VP2	●	
	80408-VP3		●
	80412-VP3		●
	80408-VP4	●	●
	80412-VP4	●	●

Available Stock (Milling)

Designation		Grade	
		UNC840	UPC845
ADKT	170608PESR-ML	●	●
	170608PESR-MM	●	●
APMT	11T308PDER-ML	●	●
	11T3PDER-ML	●	●
LNMX	060310R-MF	●	●
	060310R-ML	●	●
RPET	10T3M0E-ML	●	●
	1606M0E-ML		●
RPMT	10T3M0E-MF	●	●
	1204M0E-MF	●	●
	1204M0E-ML2	●	●
	1204M0E-ML3	●	●

Designation		Grade	
		UNC840	UPC845
RPMT	1204M0E-ML4	●	●
	1204M0S-MM	●	●
	1606M0E-MF	●	●
	1606M0E-ML1	●	●
	1606M0E-ML2		●
	1606M0S-MM		●
	2007M0E-MF		●
	2007M0S-MM		●
WNGX	040308PNER-ML	●	●
	080608PNER-ML	●	●
WNMX	09T316ZNN-ML	●	●
	130520ZNN-ML	●	●