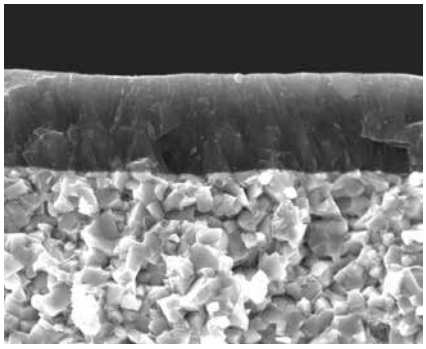
PVD Coated Grades

Features

- PVD coating technology has inherent advantages such as a superior chipping resistance of the coated film while maintaining the toughness of the substrate. Thus it is possible to increase the tool life significantly
- PVD coatings ensure sharp cutting edges without blunting the substrate
- Ti-based coating films can provide excellent surface finish and high accuracy machining due to the low affinity of Ti-film with the workpiece



Cross-sectional view of PVD coating

Advantages of PVD Coatings

- TiAlN coating optimal for high speed machining
- Toughness of TiAlN has been enhanced to reduce brittleness of conventional TiAlN
- The outer TiN layer reduces friction and improves surface smoothness
- Easy to recognize the amount of wear on the cutting edge

Grade Selection Guide

Turning

Workpiece		Machining types	Recommended grade	Recommended cutting speed(m/min)	ISO	Application range
P	Steel	Continuous cutting	PC5300	175 (100 ~ 250)	P30	PC5300
		Interrupted cutting		145 (80 ~ 120)	P40	PC5400 New
			PC5400 New	125 (80 ~ 160)	P50	
M	Stainless steel	Continuous cutting	PC8105 New	175 (120 ~ 230)	M01	
			PC8110	160 (110 ~ 210)	M10	PC8105 New, PC8110
			PC8115 New	150 (100 ~ 200)	M20	PC8115 New, PC5300
		Interrupted cutting	PC5300	135 (80 ~ 190)	M30	PC9030, PC5400 New
			PC9030	130 (80 ~ 180)	M40	
			PC5400 New	110 (80 ~ 140)	M50	
S	HRSA	Continuous cutting	PC8105 New	55 (40 ~ 70)	S01	PC8105 New
			PC8110	50 (35 ~ 65)	S10	PC8110, PC8115 New
			PC8115 New	45 (30 ~ 60)	S20	PC5300
		Interrupted cutting	PC5300	40 (20 ~ 60)	S30	PC5400 New
			PC5400 New	35 (20 ~ 50)	S40	
H	High hardness steel	Interrupted cutting	PC8110	100 (70 ~ 130)	H01	PC8110
			PC8115 New	90 (65 ~ 115)	H10	PC8115 New

Milling

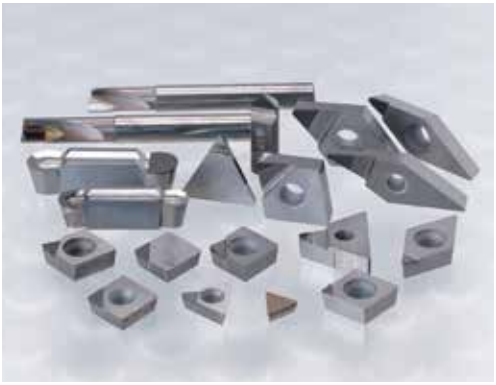
Workpiece		Machining types	Recommended grade	Recommended cutting speed(m/min)	ISO	Application range
P	Steel	Continuous cutting	PC3600	235 (180 ~ 290)	P20	PC3600
			PC3500	235 (180 ~ 290)	P30	PC3500, PC5300
		Interrupted cutting	PC5300	195 (150 ~ 240)	P40	PC5400 New
			PC5400 New	145 (80 ~ 210)		
M	Stainless steel	Continuous cutting	PC5300	130 (100 ~ 160)	M20	
			PC9530	125 (80 ~ 150)	M30	PC5300, PC9530
		Interrupted cutting	PC5400 New	110 (80 ~ 140)	M40	PC5400 New
K	Cast iron	Continuous cutting	PC8110	180 (140 ~ 230)	K05	
			PC6510	180 (140 ~ 230)	K10	PC8110, PC6510
		Interrupted cutting	PC5300	145 (110 ~ 180)	K20	
			PC5400 New	125 (85 ~ 160)	K30	PC5300, PC5400 New
S	HSRA	Continuous cutting	PC5300	55 (40 ~ 70)	S10	
					S20	PC5300
		Interrupted cutting	PC5400 New	40 (30 ~ 50)	S30	PC5400 New
H	High hardness steel	Continuous cutting	PC2005 New	60 (40 ~ 80)	H01	
			PC2010 New	55 (40 ~ 70)	H10	PC2005 New, PC2505 New, PC2010 New, PC2510 New
			PC2015 New	50 (35 ~ 65)	H20	PC2015 New, PC210F
			PC210F	50 (35 ~ 65)	H30	

PCD Grades

Features

- KORLOY PCD products are manufactured by using high quality PCD tips under ultra high temperatures and pressure.
  The PCD tip is welded on the qualified KORLOY carbide insert
  KORLOY high quality PCD products meet a wide range of application needs in turning, milling, and endmills.

  – Excellent tool life for aluminum alloy and copper alloy
  – Excellent tool life for Ceramic, high-silicon aluminum and rocks or stones
  – Excellent tool life for rubber, carbon, graphite and wood



PCD grades

Grade	Features	Application	Grain size(㎛)	Hardness(Hv)	TRS(kg/mm²)
DP90	Coarse diamond grain has been used to get excellent wear resistance enough to machine cemented-carbide, high Si aluminum alloys	Cemented carbide Ceramic roughing High Si aluminum alloy rocks, stones	50	10,000 ~ 12,000	110
DP150	By using fine diamond grains having good bounding proprieties, this grade is suitable for machining of non-ferrous metals, graphite, etc	High Si aluminum alloy Copper, Bronze alloy Rubber, Wood, Carbon	5	10,000 ~ 12,000	200
DP200	By using ultra fine diamond grains, it is possible to make a sharp cutting edge. Thus this grade is appropriate for machining non-ferrous materials	Plastic Wood Precise finishing of aluminum	0.5	8,000 ~ 10,000	220

Recommended Cutting Conditions

Workpiece	Cutting speed (m/min)	Feed (mm/rev)	Depth of cut (mm)	Recommended grade	
				1st	2nd
Aluminum alloy (4%~8%Si)	1000 ~ 3000	0.1 ~ 0.6	~ 3	DP150	DP200
Aluminum alloy (9%~14%Si)	600 ~ 2500	0.1 ~ 0.5	~ 3	DP150	DP200
Aluminum alloy (15%~18%Si)	300 ~ 700	0.1 ~ 0.4	~ 3	DP150	DP200
Copper, Bronze alloy	~ 1000	0.05 ~ 0.2	~ 3	DP150	DP200
Reinforced plastic	~ 1000	0.1 ~ 0.3	~ 2	DP150	DP200
Wood	~ 4000	0.1 ~ 0.4	-	DP150	DP200
Cemented carbide	10 ~ 30	~ 0.2	~ 0.5	DP90	DP150