

PVD Coating for Cutting Tools



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Coating Portfolio

Performance Coatings	Coating	Composition	Hardness	Thickness	Color	Structure	Oxidation Temperature	Surface Roughness (Ra)	Coefficient of Friction	Coating Deposition Temperature	Properties	Applications
	TiN*	TiN	30 GPa	2.5 ~ 3 μm	Gold	Monolayer	500° C	0.15 ~ 0.30	0.25	450° C 220° C	Excellent adhesion, good chemical stability.	Multi-purpose applications. General machining.
	TiCN	TiCN	35 GPa	2.5 ~ 3 μm	Grey	Multilayer	400° C	0.15 ~ 0.30	0.25	450° C	Higher toughness and excellent lubricity for threading process.	Multi-purpose applications. Tapping and milling.
	AlTiN	AlTiN	37 GPa	2.2 ~ 3.2 μm	Violet	Multilayer	800° C	0.15 ~ 0.30	0.4	450° C	High heat resistance and hardness. Favorable adhesion on carbide.	Continuous cut, drilling, turning, high speed machining in cast iron.
	AlCrN	AlCrN	38 GPa	2 ~ 3 μm	Dark Grey	Multilayer	1,100° C	0.10 ~ 0.25	0.4	450° C	High temperature oxidation resistance.	Suitable for milling and turning process in Stainless Steel.
	AlTiCrN	AlTiCrN	38 GPa	2 ~ 3 μm	Grey Violet	Gradient Layer	900° C	0.10 ~ 0.25	0.4	450° C	High heat resistance and high abrasion resistance.	High speed milling of alloyed steel up to 54HRC, and stainless steel.

* Available in Low Temperature.

High Performance Coatings	Coating	Composition	Hardness	Thickness	Color	Structure	Oxidation Temperature	Surface Roughness (Ra)	Coefficient of Friction	Coating Deposition Temperature	Properties	Applications
	HP Drilling	AlTi Based	37 GPa	2.2 ~ 3.2 μm	Violet	Multilayer	800° C	0.15 ~ 0.30	0.35	450° C	High toughness and low friction.	High performance and high speed drilling in cast iron and alloyed steel up to 54HRC. Suitable for deep hole.
	HP Dura	AlCr Based	38 GPa	2 ~ 3 μm	Dark Grey	Multilayer	1,100° C	0.10 ~ 0.25	0.33	450° C	High temperature oxidation resistance. Excellent lubricity and wear resistance.	High efficiency milling, high speed machining for gear cutting, dry/wet machining. Suitable for high hardened materials up to 50HRC.
	HP Vicious	AlTiSi Based	41 GPa	2 ~ 3.2 μm	Red Brown	Nanolayer	1,100° C	0.10 ~ 0.25	0.3	450° C	Very high heat resistance and high abrasion resistance.	Milling and drilling high hardened steels up to 72HRC. Suitable for dry/wet machining.
	HP Atlas NEW	Cr, Si Based	40 GPa	2 ~ 3 μm	Interference Color	Nanolayer	1,100° C	0.10 ~ 0.25	0.3	450° C	High wear resistance and extreme toughness.	High performance drilling in steels, cast iron, and hardened steels.
	HP Cera*	Cr Based	30 GPa	1.5 ~ 2 μm	Dark Grey	Multilayer	550° C	0.04 ~ 0.10	0.1	450° C 250° C	High toughness, low coefficient of friction and friction wear resistance, excellent sliding properties.	Machining of aluminum alloys and non-ferrous materials.
	HP Alu	Equivalent to TiB2	28 GPa	1.5 ~ 2 μm	Silver	Multilayer	500° C	0.04 ~ 0.10	0.1	450° C	Anti-galling, low coefficient of friction.	Machining of aluminum with high Si-content. Also suitable for copper alloys, brass and bronze machining.
	HP Aero	AlTiCr Based	30 GPa	2 ~ 3 μm	Silver	Multilayer	700° C	0.10 ~ 0.20	0.25	450° C	High toughness, low coefficient of friction.	Machining of high tensile strength materials, Ti and Ni based alloys, stainless steel.
	HP Milling	AlTiCr Based	38 GPa	2 ~ 3 μm	Grey Violet	Gradient Layer	900° C	0.10 ~ 0.25	0.33	450° C	High heat resistance and high abrasion resistance.	High speed, semi-dry/dry milling of cast iron and alloyed steel up to 54HRC.
	HP TiCN	TiCN	35 GPa	2.5 ~ 3 μm	Grey	Multilayer	400° C	0.10 ~ 0.20	0.2	450° C	Higher toughness and low coefficient of friction. Excellent lubricity for threading process.	High performance threading process. Suitable for tapping steels, stainless steel, cast iron, Ni based alloys, and non-ferrous materials.
HP ZrN	ZrN	23 GPa	2 ~ 3 μm	Silver Gold	Monolayer	600° C	0.15 ~ 0.30	0.4	450° C	Excellent corrosion and wear resistance. Resistant against abrasive wear.	Suitable for cutting, punching, piercing of non-ferrous metals and polymer materials.	

* Available in Low Temperature.

PVD Coating for Cutting Tools

Our PVD coatings were specially developed to reduce friction, increase surface hardness and increase tool life in different applications and working conditions.

With over 30 years of experience in coating cutting tools, our R&D center has been developing high performance coatings dedicated to all machining applications.

Our coatings are divided in two series: Performance and High Performance, each with specific characteristics, processes, and most recommended applications.



PVD Coating Recommendation by Material and Application

Material Machined		Application				
		Drilling	Milling	Threading	Turning	
P	Mild Steel / Alloy Steel / Carbon Steel / Tool Steel (up to 40HRC)	☉	HP Atlas	HP Dura	HP TiCN	HP Dura
		○	HP Drilling	AlCrN / AlTiCrN	TiN / AlTiN	AlTiN
M	Stainless Steel	☉	HP Aero	HP Aero	HP TiCN	HP Aero
		○	AlTiN	AlCrN / AlTiCrN	TiN / AlTiN	AlCrN / AlTiCrN
K	Cast Iron	☉	HP Atlas	HP Vicious	HP TiCN	HP Drilling
		○	HP Dura	AlTiN	AlTiN	AlTiN
N	Soft Aluminum	☉	HP Cera	HP Cera / HP ZrN	HP Cera	HP Cera
	Aluminum with High Si-content	☉	HP Alu	HP Alu	HP TiCN	HP Alu
	Cooper Alloys / Brass / Bronze	☉	HP Alu	HP Alu	HP TiCN	HP Alu
S	Titanium Alloys / Nickel Alloys / Heat Resistant Alloys	☉	HP Aero	HP Aero	HP TiCN	HP Aero
		○	HP Drilling	HP Drilling	TiN / AlTiN	
H	Hardened Steel (up to 54HRC)	☉	HP Vicious	HP Vicious	HP Dura	HP Vicious
	Hardened Steel (up to 72HRC)	☉	HP Vicious	HP Vicious	HP Dura	HP Vicious

The table presents basic recommendations for cutting tools applications. For specific applications contact our sales department or sales@primuscoating.com

☉ Recommended ○ Alternative



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