

## Product Specification

**TiN** is the original all-purpose coating known for its high hardness, excellent wear resistance, and corrosion protection. It offers a favorable performance-to-coating ratio for machinery applications.

TiN	Color	GOLD
	Micro Hardness	2000 - 2400HV 0.05
	Friction Coefficient	0.4
	Oxidation Temperature	600 °C / 1120 °F
	Thickness	2.5 - 5 MICRON
	Application	High speed cutting, especially for cutting soft products like brass and low carbon steel. TiN provide hard and lubricious film on all kinds of solid metal surface.

**TiAlN** is a versatile high-performance coating that provides increased hardness and excellent oxidation resistance. It excels in high-speed dry cutting conditions, making it an ideal choice for various machining applications.

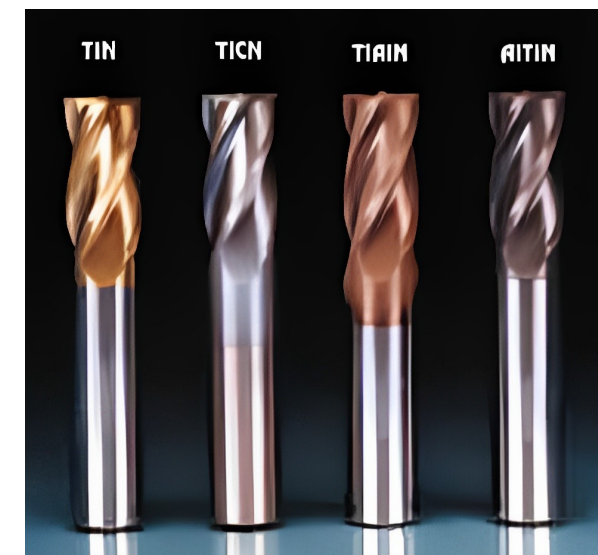
TiAlN	Color	BROWN
	Micro Hardness	2400 - 2800HV 0.05
	Friction Coefficient	0.4
	Oxidation Temperature	800 °C / 1470 °F
	Thickness	2.5 - 5 MICRON
	Application	High speed & cutting harden steel, especially processing high alloy steel, stainless steel, titanium alloy, nickel alloy etc.

**TiCN** exhibits lower internal stress, higher tenacity, good lubricant and wear resistance. It is ideal for situations that require low friction and high hardness, offering improved wear resistance and stability at high temperatures. However, it is not suitable for dry cutting.

TiCN	Color	BLACK GRAY
	Micro Hardness	2000 - 2400HV 0.05
	Friction Coefficient	0.4
	Oxidation Temperature	800 °C / 1470 °F
	Thickness	2.5 - 5 MICRON
	Application	Dry machining of hardened steels at higher speed. TiCN also serve as a protective coating for dies and molds, protecting tools from wear, heat and thermal fatigue.

**AlTiN** is a special high performance coating with significant amount of aluminum. It offers exceptional heat resistance, making it ideal for dry high-speed machining. The coating has a smooth surface, providing better oxidation resistance and toughness.

AlTiN	Color	GRAY
	Micro Hardness	2600 - 3200HV 0.05
	Friction Coefficient	0.35
	Oxidation Temperature	700 °C / 1290 °F
	Thickness	2.5 - 5 MICRON
	Application	Interrupted cutting, milling, tapping, stamping, punching, and forming. Higher hardness and wear resistance compared to TiN, cooling with coolants enhances coating performance.



New coating technologies, including AlCrN and DLC (a-C:H), are currently in the process of production verification.

All coatings are Processed in the USA.



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