



COATING INFORMATION

**AlTiN-Aluminum
Titanium Nitride**



Nanohardness – up to 38GPa
Thermal Stability - 1650F

AlTiN is ideal for high temperature cutting operations in many materials such as titanium and nickel alloys, Co-CR-Mo, stainless steel, alloy steels and cast iron. When exposed to higher temperatures, it forms a hard aluminum oxide layer and, as temperatures increase, the coating insulates the tool and transfers heat into the chips. It is a very tough coating that will hold up in heavy and interrupted cuts.

AlTiN contains a higher aluminum content than the similar TiAlN coating which makes it much harder and smoother than TiAlN. AlTiN is ideal for smaller depths of cut and excels in high speed and dry machining applications and when machining hardened steel.

Nanohardness – up to 24GPa
Thermal Stability - 1100F



TiN-The ideal coating for a wide range of applications, materials, and cutting conditions where tool life and higher feeds and speeds are operating objectives. **TiN** reduces wear and improves chip formation to extend tool life. **TiN** is a good choice for for the machining of iron-based materials, molding of plastics, and for components requiring resistance to abrasive and adhesive wear.



Nanohardness – up to 37GPa
Thermal Stability - 750F

TiCN-An exceptional high hardness and low coefficient of friction coating which provides excellent wear resistance. TiCN performs well cutting alloy steels, stainless steels, and in high speed cutting where moderate temperatures are generated at the cutting edge. The high lubricity of TiCN facilitates chip flow, prevents build up and reduces cutting forces and temperature. Provides an excellent surface quality on machined components. Also, excellent in applications which require high feed and speed rates.



COATING INFORMATION

Melin Tool operates an in house coating department capable of coating tools quickly while still maintaining the highest quality control standards you expect with all of our tools.

Standard coatings (TiN, TiCN, and AlTiN) are available for the same additional cost on most of Melin's tools. Other coatings such as nACo (for hardened steel), CVD Diamond, and PVD Amorphous Diamond are also available.

To order standard coated tools, add TiN, TiCN, or AlTiN after the tool name or change the first digit of the EDP to 2 for TN, 4 for TiCN, or 5 for AlTiN. nACo, ZrN, CVD, and PVD are offered in specific series throughout this catalog or by special request.

		EDP	Hardness	Thermal Stability
TiN	Titanium Nitride	2	24GPa	1100F (600C)
TiCN	Titanium Carbonitride	4	37GPa	750F (400C)
AlTiN	Aluminum Titanium Nitride	5	38GPa	1450F (800C)
nACo	Aluminum Titanium Nitride + Silicon Nitride	-	45GPa	2000F (1100C)

Material	Hardness	1st Choice	2nd Choice
Aluminum		TiCN	TiN
Alloy Steel	160-240HBn	TiN	TiCN
Alloy Steel	23-38	TiN	TiCN
Alloy Steel	>38	AlTiN	AlTiN
Carbon Steel	160-240HBn	TiN	TiCN
Carbon Steel	23-38	TiN	TiCN
Carbon Steel	>38	AlTiN	AlTiN
Hardened Steel		nCAo	AlTiN
Low Carbon Steel	130-240HBn	TiCN	TiN
Low Carbon Steel	23-38	TiN	TiCN
Low Carbon Steel	>38	AlTiN	AlTiN
Gray Cast Iron	180-220HBn	AlTiN	AlTiN
Nodular Cast Iron	220-320HBn	nACo	AlTiN
Austenetic Stainless Steel	180-220	TiCN	TiN
Martinsitic Stainless Steel	<35	AlTiN	TiCN
Martinsitic Stainless Steel	>=35	nACo	AlTiN
Ni Alloys		nACo	AlTiN
PH Stainless Steel	<35	AlTiN	TiCN
PH Stainless Steel	>=35	nACo	AlTiN
Ni, Co, Fe Based Superalloys		AlTiN	AlTiN
High Si Aluminum		nACo	AlTiN
Titanium		nACo	AlTiN



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