

# ACT

ADVANCED COATING TECHNOLOGIES, INC.

## CUTTING TOOLS

### WHY ADVANCED COATING TECHNOLOGIES:

- Industry Leading Research and Development Team
- PVD and DLC Coating Capabilities
- Extensive Material Coating Testing
- Enhanced Quality Control & Quick Turnaround
- Ph.D. Scientist on staff
- ISO 9001 & AS9100 Certified

You make it First...  
We make it *Last!*

### ADVANTAGES OF COATING:

- Uniform & Conformal Coating
- Reduced Friction
- Increased Productivity
- Corrosion Resistance
- Increased Quality & Performance

ACT coatings save overall machining cost as they allow higher cutting speeds and feeds, advanced oxidation resistance and reduce the time needed for tool change due to the extended tool life (100-200% Typical).

The low coefficient of friction properties and the hardness of the coatings allow the reduction of lubrication, low-thermal conductivity, establish predictable wear and ensure a better surface quality of the machined part.



#### Dr. Andreas Schuetze,

VP of Technology and Lead Scientist

- Master's Degree in Physics and Ph.D. in Mechanical Engineering
- (4) Registered Patents and more than (20) Published Papers
- Contributor / Professor at UCLA & Technical University, Zurich
- Former head of Research & Development at OERLIKON (Balzers)

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## Common Coatings - Cutting Tools

Average coating thickness = 2 microns

Coating	Coating Material	Color	Hardness [HV]	Friction Coefficient	Thickness [Microns]	Max. Working Temperature	Characteristics	Common Use	
TiN	Titanium Nitride	Gold	2400	0.50	1-7	600c - 1100f	The General Purpose Coating	Steels - Cast Iron - Aluminum - Bronze - Copper	
ALTiN/TiAlN	Aluminum Titanium Nitride	Dark Grey	3400-3600	0.60	1-4	700c - 1300f	Universal High Performance Coating	Steels - Copper	
TiCN	Titanium Carbonitride	Silver Grey	3500	0.25	1-4	400c - 750f	Conventional Coating	Steels - Alloyed Steels - Superalloys - Cast Iron - Wood - Bronze - Copper - Aluminum	
ZrN	Zirconium Nitride	Light Gold	2400	0.30	1-4	550c - 1300f	Monolayer Ti or Cr based adhesion layer	Steels - Alloyed Steels - Superalloys - Cast Iron - Wood - Bronze - Copper - Aluminum	
CrN	Chromium Nitride	Silver Grey	1800	0.30	1-4	700c - 1300f	Standard Coating for Non-Cutting Application	Steels - Copper	
DLC	Diamond Like Carbon	Dark Grey	2400-4000	0.1-0.2	1-10	200c - 400f	Ultimate Performance Coating	Low Friction Properties - Molds & Mold Components - High Performance Moto & Auto - Aerospace - Bearings	
X-LC (MOS)	Molybdenum Disulfide	Black	600	0.10	1	200c - 400f	Low Coefficient of Friction	Bearings - Sliding Parts - Injection Molding - Engine Components - Shaft/Gear - Vacuum / Space	
ALTiSiN	Aluminum Titanium Silicon Nitride	Dark Grey	4500	0.45	1-4	1200c - 2200f	Extremely High Hardness	Dry Milling - High Speed Ops	
Quantum(x)	ZrN+TiN Top Layer	Gold	2400	0.30	1-4	660c - 1100f	High Wear Resistant Coating	Milling Titanium	
Warrior	Proprietary	Copper	Proprietary					Universal High Performance Coating	
NACO	Titanium Aluminum Silicon Nitride	Dark Grey	4500	0.45	1-4	1200c - 2200f	Extremely High Hardness	Steels - Alloys - Hardened Steels	
NACRO	Titanium Aluminum Chrome Nitride	Dark Silver	4500	0.45	1-7	1100c - 2000f	Extremely High Hardness	Steels - Alloys - Hardened Steels - Cast Iron	
NEXCEL	NACRO+MOS Top Layer	Black	4500	0.25	1-7	1100c - 2000f	Low Coefficient of Friction	Cutting of Non-Ferrous Material	