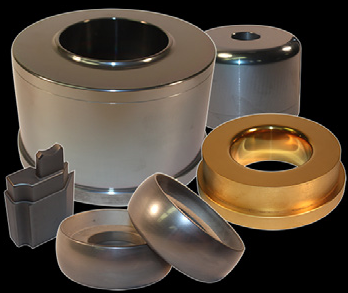


Typical Applications

- Cutting Tools
- Forming Tools
- Deep Drawing
- Blanking
- High Strength Low Alloy
- Injection Molding
- Stainless Steel
- Piercing

Advantages

- Excellent Abrasion Resistance
- Low Coefficient of Friction
- Extended Tool Life



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 DIFFERENCE...

- ▶ #1 in Quality, Performance, Price, and Lead-Time
- ▶ In-House Vacuum Heat Treatment
- ▶ In-House Quality Department
- ▶ Knowledgeable Sales Staff

PVD Coatings

	MICROHARDNESS (HV 0.05)	COEFFICIENT OF FRICTION AGAINST STEEL (DRY)	MAX. SERVICE TEMPERATURE
 TiN [Titanium Nitride]	2,300	0.4	1,112 °F / 600 °C
<i>gold-yellow</i>			
 AlCrN [Aluminum Chromium Nitride]	3,200	0.35	2,012 °F / 1,100 °C
<i>bright grey</i>			
 TiCN [Titanium Carbo-Nitride]	3,000	0.4	752 °F / 400 °C
<i>blue-grey</i>			
 WC/C (a-C:H:W) [Tungsten Carbide/Carbon] [Tungsten-Modified Hydrogenated Amorphous Carbon]	1,500 / 1,000	0.1 – 0.2	572 °F / 300 °C
<i>anthracite</i>			
 CrN [Chromium Nitride]	1,750	0.5	1,292 °F / 700 °C
<i>silver-grey</i>			
 DLC (a-C:H) [Diamond-Like Carbon] [Hydrogenated Amorphous Carbon]	> 2,000	0.1 – 0.2	662 °F / 350 °C
<i>black</i>			
 TiAlN [Titanium Aluminum Nitride]	3,300	0.30 – 0.35	1,652 °F / 900 °C
<i>violet-grey</i>			
 TiAlNx [Titanium Aluminum Nitride]	3,400	0.30 – 0.35	1,652 °F / 900 °C
<i>violet-grey</i>			
 TiCrN [Titanium Chromium Nitride]	2,100	0.5	1,292 °F / 700 °C
<i>dark grey</i>			

Full or Partial DUPLEX available on All PVD Offerings –
 Contact your TD representative to consider the
 appropriate coating for your application.