

PVD Coatings for Stamping and Forming



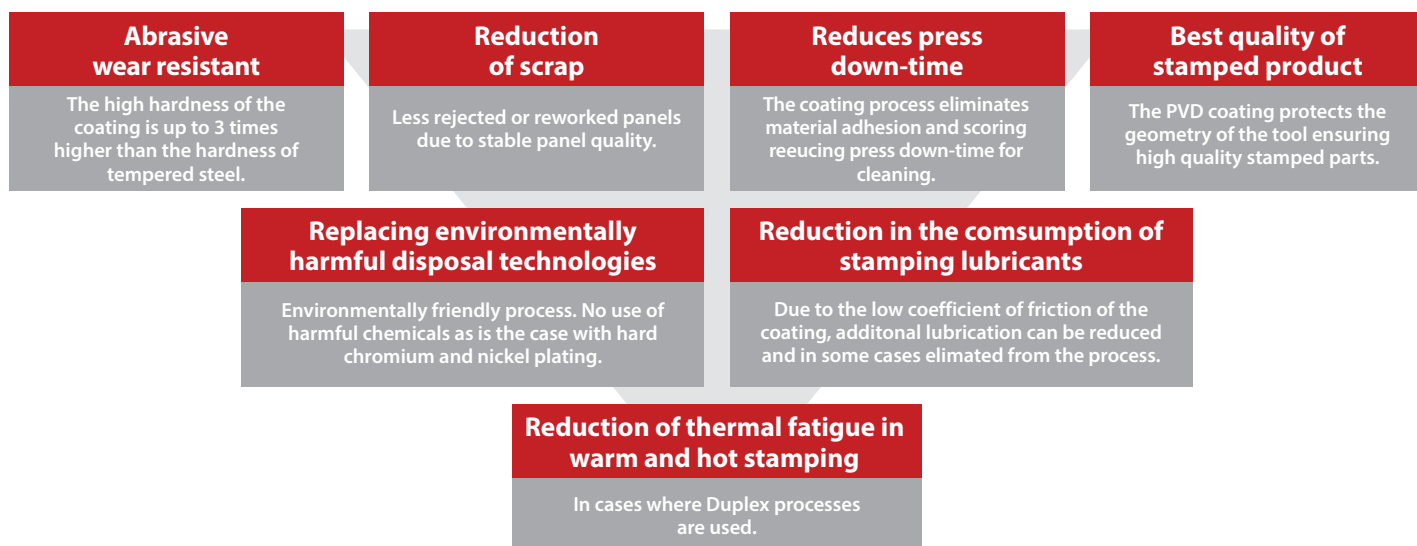
PVD Coatings for Stamping and Forming

Our PVD coatings are specifically designed to reduce friction, reduce galling, scoring and material adhesion. Especially in medium to high strength material forming applications.

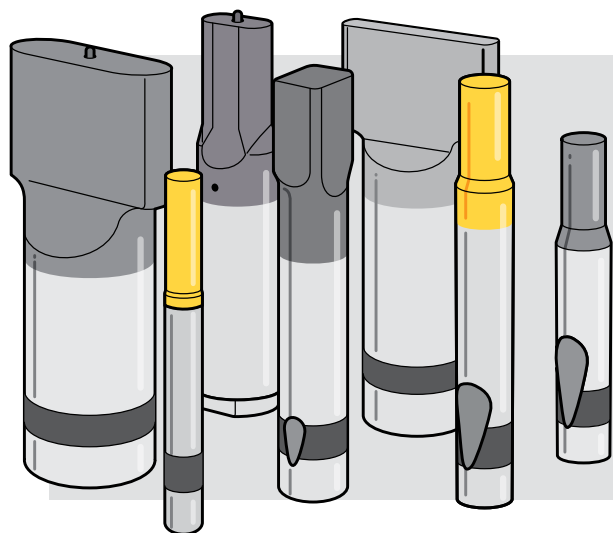
With over 30 years of experience in the segment, our R&D center is continuously developing and improving high-performance coatings dedicated to molds and dies.



Benefits of PVD Coating in the Stamping Process



■ Benefits of PVD Coating in the Stamping Process

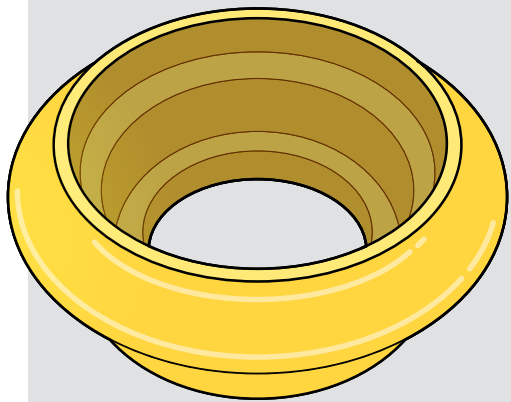
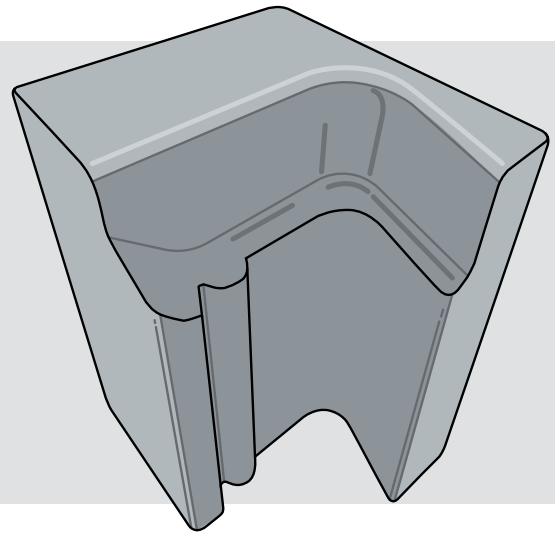


Piercing, Trimming and Fine Blanking Tools

- Longer punch life.
- Greater dimensional reliability in the process.
- Eliminates material adhesion to the punch surface.
- Reduce punching forces on the tool.

Sheet Forming Dies

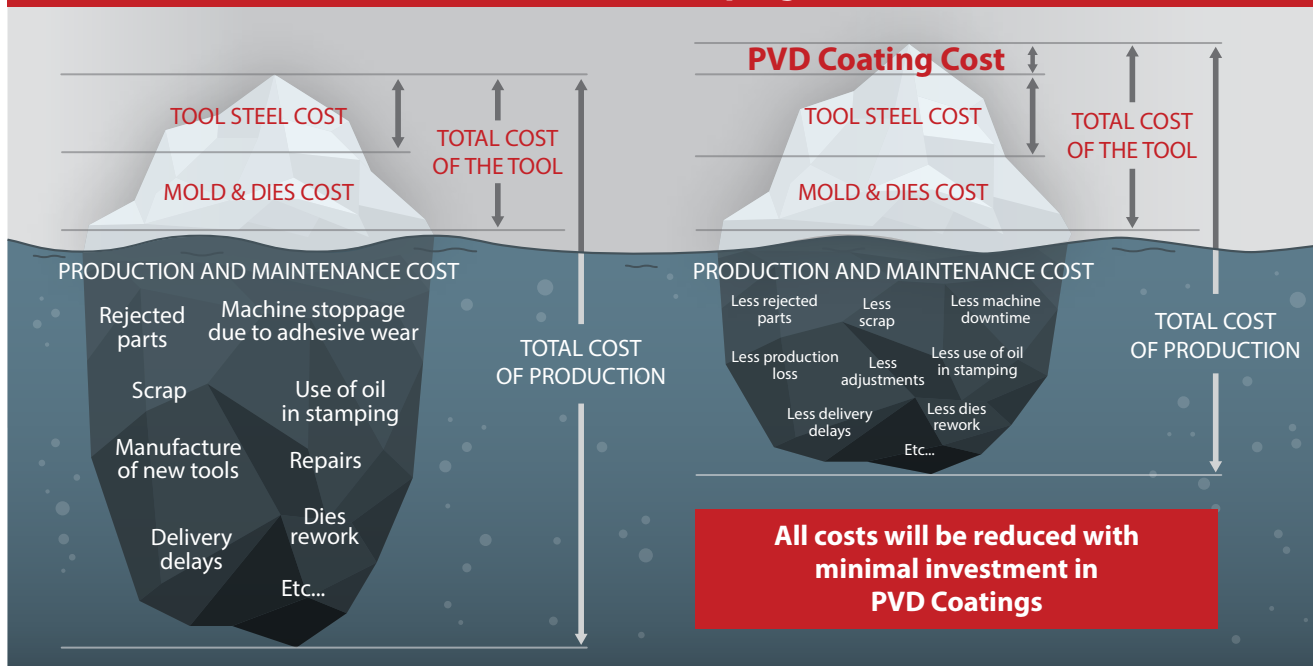
- Less oil consumption during production.
- Improved quality of the stamped item.
- Less scoring and cold welding on the tool.
- Enables forming of Advanced High Strength Steel material.



Aluminum Forming

- Eliminates aluminum adhesion to tool surface during the manufacturing process.
- Increased productivity.
- Longer tool life.
- Reduces the use of lubrication oil in the forming process.
- Less machine downtime for maintenance and tool change.

Hidden Cost of Stamping Process



■ Specifications of Coating for Stamping and Forming Molds and Dies

Coating Features	TiN	HP Fama*	HP Form*	HP Dura*	HP Cera*
Composition	TiN	TiC Based	TiAlN Based	AlCr Based	Cr Based
Hardness (GPa)	30 GPa	35 GPa	37 GPa	38 GPa	30 GPa
Coefficient of Friction* (dry against steel)	0.25	0.25	0.4	0.33	0.1
Coating Thickness (μm)	2 ~ 4 μm	4 ~ 6 μm	4 ~ 6 μm	4 ~ 6 μm	1.5 ~ 2 μm
Maximum Oxidation Temperature (°C)	500°C	400°C	850°C	1,100°C	550°C
Coating Deposition Temperature (°C)	450°C	450°C	450°C	450°C	450°C
Coating Color	Gold	Grey	Violet	Dark Grey	Dark Grey
Coating Structure	Monolayer	Multilayer	Multilayer	Multilayer	Multilayer

If pre-polishing is required, please contact our sales department or sales@primuscoating.com

* Duplex coating available (Nitride + Coating). For more information, please contact our sales department or sales@primuscoating.com

The depth of nitride will depend on the material of the mold.

■ Indicated Applications

Material			Recommended Coatings													
Group	Subgroup	Plate Thickness	Forming				Cut				Fine Cut				Drawing	
			Die		Punch		Die		Punch		Die		Punch			
			○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙	○	⊙
Steels	Carbon Steel	SAE 1010 • 1020	0 ~ 3mm		HP Fama	HP Form	HP Fama	HP Dura	HP Fama	HP Dura	HP Form	HP Dura	HP Fama	HP Form	HP Fama	HP Form
			> 3 mm		HP Fama Duplex	HP Dura Duplex	HP Fama Duplex	HP Form Duplex	HP Fama	HP Dura	HP Form	HP Dura	HP Dura	-	HP Dura	-
		SAE 1035 • 1045 • 1050 • 1050 • 1070 • 1090	0 ~ 3 mm		HP Fama Duplex	-	HP Fama Duplex	HP Dura Duplex	HP Fama	HP Dura	HP Form	HP Dura	HP Dura	-	HP Dura	-
			> 3 mm		HP Fama Duplex	-	HP Fama Duplex	HP Dura Duplex	HP Fama	HP Dura	HP Form	HP Dura	HP Dura	-	HP Dura	-
	Advanced High Strength Steels	DP, CP, FP • TRIP	0 ~ 3 mm		HP Fama Duplex	HP Dura Duplex	HP Fama Duplex	HP Dura Duplex	HP Fama	HP Dura	HP Form	HP Dura	HP Fama	-	HP Dura	-
			> 3 mm		HP Fama Duplex	HP Dura Duplex	HP Fama Duplex	HP Dura Duplex	HP Fama Duplex	HP Dura Duplex	HP Form Duplex	HP Fama Duplex	HP Fama	-	HP Dura	-
Aluminum	All	Aluminum-Manganese / Aluminum Magnesium / Aluminum-Magnesium-Silicon / Aluminum-Zinc	All Thicknesses		HP Cera	HP Fama	TiN	HP Cera	TiN	HP Dura	TiN	HP Dura	N/A	-	N/A	-
			All Thicknesses		HP Fama	HP Cera	HP Cera	HP Fama	HP Dura	-	HP Dura	-	N/A	-	N/A	-
Copper	All	Aluminum Copper, Silicon Copper and Beryllium Copper	All Thicknesses		HP Fama	HP Cera	HP Cera	HP Fama	HP Dura	-	HP Dura	-	N/A	-	N/A	-

⊙ Excelent ○ Good

PrimCoat

PrimCoat PVD Technology India Private Limited

Pune Plant

Plot No. G-22, MIDC Phase II
Chakan Industrial Area - Savardari Village
Tal Khed, Pune - 410 501
Maharastra, India

raman@primcoat.com | www.primcoat.com | Tel.: +91 755 022 3546

Bangalore Plant

Plot No: 22-J2, Attibele Industrial Area
Survey N° 125, 126, 127 - Ichhangur Village
Attibele Hobli, Anekal Taluk, Bangalore- 562 107
Karnataka, India

Chennai Plant

Plot No: K-16, Phase II
SIPCOT Industrial Park - Mambakkam Village
Sriperumbudur Taluk, Kancheepuram - 602105
Tamil Nadu, India

Gujarat Plant

Plot No. 8,9,10 Swastik Industrial Estate
Sarkhej - Bavla highway, Village Sari
Tal. Sanand, Dist - 382213
Ahmedabad - 382213, India

www.primuscoating.com