

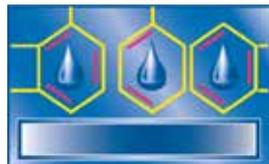


PVD Coating

Physical Vapour Deposition



Reduction of the friction coefficient



improved corrosion resistance



Attractive aesthetic appearance



High wear resistance



High surface hardness



Clean process

PVD Coating

Physical Vapour Deposition

PVD Coatings are traditionally deposited onto cutting tools and forming tools to extend the life of the tool. There is a very wide range of PVD Coatings from which to choose all having extremely high hardness (2000 - 3500Hv); the choice of coating depends on the application. Coatings have different properties such as hardness, chemical composition, colour and friction coefficient.



The PVD Coating process is essentially an atomic plasma spray treatment inside a high vacuum chamber. The process is carried out at elevated temperature (up to 450°C) and is a 'line of sight' operation. The common coatings deposited are Titanium Nitride (TiN), Titanium CarboNitride (TiCN), Chromium Nitride (CrN) and Aluminium Titanium Nitride (AlTiN) with many variants of these also available.

All types of tooling can be coated including milling, drilling, stamping, piercing, forming, gear cutting and punching. All high speed steels, carbide and many other tool steels can be coated. PVD coatings are usually less than 6 microns thick and conform exactly to the texture of the surface being coated.



Forming and Stamping

Many Press Forming tools have issues with pick-up / galling. Applying a PVD coating to the wear surface will greatly enhance the lifetime of the tool, result in a better finish to the pressing and minimise/ eliminate pick-up. It is also possible to PVD Coat steels which have been nitrided. In this case the benefits obtained can be exceptional. The hard nitrided case (up to 70Rc) produced at the surface provides support for the very hard PVD coatings and offers good resistance to deformation under high loads press tools.



Components

As well as tooling and decorative applications, PVD coatings are increasingly deposited onto components to improve wear resistance, anti galling and scratch resistance. In particular PVD coatings are used successfully in eliminating galling on stainless steel or titanium threads. Steel parts may be initially nitrided before applying the PVD coating.

Some non tooling markets:

- Aerospace
- Medical
- Oil & Gas
- Military

Decorative Finishes

Hard wearing PVD Coatings are excellent as decorative coatings to replace traditional electroplated and painted finishes such as gold plating, as well as providing alternative colour finishes. Our decorative PVD Coatings will not tarnish, chip, fade or corrode. They provide excellent scratch and wear resistance compared to traditional



PVD coatings can be deposited onto a polished, brushed, blasted, rumbled or satin finish as well as ground or machined finishes. These different finishes will affect the final visual appearance of the colour. Popular colours available include gold, anthracite black, gunmetal, bronze and champagne.

Materials which can be PVD coated:

- Aluminium and zinc
- Stainless steel
- Titanium
- Cemented carbide
- Tool steel
- High speed steel
- Chrome plated brass,
- Zinc

Benefits of PVD:

- Very high surface hardness
- Very high wear resistance
- Improved corrosion resistance
- Reduction in friction coefficient
- Excellent optical properties