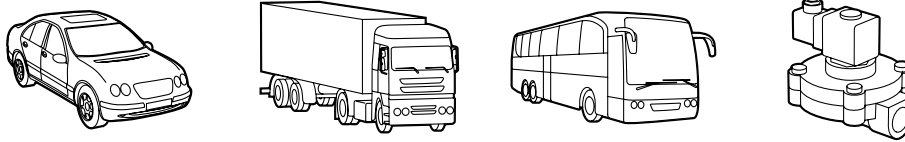


Surface Treatment/Coatings For Parts in Solenoid Valves Technical Information



Zapp is certified according to ISO 9001



Surface treatment and coatings for parts in solenoid valves

In the solenoid valves used in control systems a closing element, called "anchor" is used. It is exposed to extreme wear. Using different surface treatments and coatings, we offer our customers, in close collaboration with our coating company, the possibility to increase the durability and operating/running characteristics of their solenoid valves significantly.

Chemical nickel plating

Chemical nickel plating can be applied to the tightest tolerances and adheres to the precise contours of metallic materials. Even sharp edges, blind holes and accessible cavities of geometrically complex workpieces are coated evenly. Maximum corrosion protection and wear resistance are the primary benefits provided by this type of plating process. The layer thickness ranges from 5 - 50 µm depending on application and the hardness from 500 - 1200 HV. Appropriate dispersion layers provide special sliding properties.

Anti-friction-coatings

Dry film lubricants are applied as life lubrication for solenoid valves. Modern anti-friction-coatings are characterized by high abrasion resistance, excellent gliding properties, plus good corrosion protection. Not least through application of nanotechnology wear protection meeting the highest expectations is realized. The layer thickness ranges from 5 - 50 µm.

Nitriding/boriding

Nitriding/Boriding are surface-hardening heat treatments that improve the mechanical properties of workpieces by introducing nitrogen/boron atoms into its surface layer. Thereby no coating is applied, but the chemical composition of the surface layer is altered. The extreme increase of the surface hardness up to 1000 - 2000 HV leads amongst other things to high abrasion resistance with adhesion, reduced coefficient of friction, improved bend fatigue strength and heat resistance up to 500°C or 932°F. Nitriding/Boriding can be accomplished with a minimum of distortion and with excellent dimensional control.

Electrolytic polishing

Electrolytic polishing represents a simple and cost-effective method for producing high quality functional surfaces for the highest demands. Through electrochemical erosion the roughness of the workpiece surface is reduced drastically. Therefore, it is possible to reach friction coefficients, which amount only to a fraction of mechanical polished surfaces. Even the corrosion resistance of stainless steels is influenced positively. Furthermore, it is possible to passivate workpieces after electrolytic polishing, whereby the corrosion resistance can be increased up to 50%.

Further information and methods are available upon request. We will gladly treat your samples, so that you can see the quality for yourself.

Table

	Corrosion Protection	Wear Protection	Hardness
Chemical Nickel Plating	+++	+++	++
Anti-Friction-Coatings	++	+++	+
Boriding/Nitriding	++	++	+++
Electrolytic Polishing	+	+	-

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