

Hard Chrome Plating

Refer to “Making Plating Thickness Constant by Simulation” (page 3)

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1 What is Plating?

Plating is a technique to provide the target material with additional surface properties that the material does not have itself. Plating is conducted to impart one or more of the following three major properties:

- ① Corrosion resistance plating
To prevent corrosion of the material
(Example) Galvanizing: Galvanized sheet roof
- ② Decorative plating
To improve the appearance
(Example) Decorative chromium plating:
Automotive emblems
- ③ Functional plating
To impart wear resistance, electrical properties, heat resistance, or other properties
(Example) Hard chrome plating: Sliding parts

2 What is Hard Chrome Plating?

The main constituent of hard chrome plating is chromium trioxide (CrO_3). The plating uses a bath containing a minute amount of sulfuric acid as catalyst. As shown in Fig. 1, an object to be plated (work) is put in the plating bath as the cathode while a lead alloy electrode is used as the anode. When they are energized, chrome metal is deposited on the work.

The plating film (chrome metal) obtained in this way is generally applied to sliding parts of machinery, molding dies, rolls for papermaking, and other various components and shows the following characteristics:

- Rust-proof, metallic luster in normal environments
- Hard coating (800 to 1,000 HV - about three times harder than iron)
- A low coefficient of dynamic friction

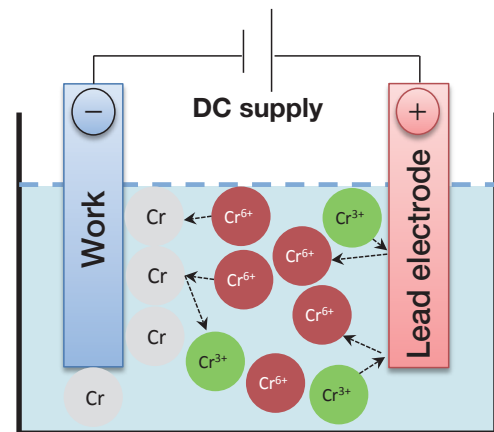


Fig. 1 Chrome plating system

3 Applications of Hard Chrome Plating in KYB

KYB applies hard chrome plating to piston rods of shock absorbers for four-wheel vehicles (Photo 1) and hydraulic cylinders mainly for the purpose of improving corrosion resistance, wear resistance, or sliding characteristics.



Photo 1 Chrome plated product