MAGNAPLATE
COATINGS ENGINEERED FOR YOUR SUCCESS

Magnaplate HMF®

Mirror-Smooth Microfinish Coating Features Very Low COF and Eliminates Static Buildup

BENEFITS

- Increased hardness and abrasion resistance
- Less friction generation-low COF without polymers
- Permanent lubricity
- Prevents scratching of films and foils
- Excellent corrosion and moisture resistance
- High temperature resistance
- Electrically conductive
- Excellent heat transfer
- None of the cracking problems of chrome
- Meets FDA and USDA codes for food and drug contact
- Reflective chrome-like appearance
- Excellent bond to parent metal

MAGNAPLATE HMF® is a proprietary, multi-step coating process that creates an extremely hard (up to an equivalent of Rc 68), mirror-smooth (down to 4RA), highly-reflective microfinish on the surface of ferrous metal, copper or aluminum alloy components.

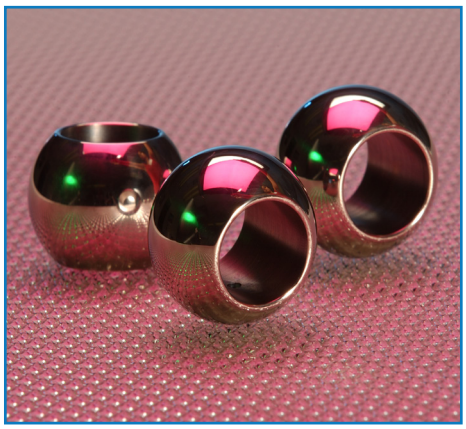
During the multi-step process, using specially developed application equipment, a series of nickel base alloys is co-deposited on the scientifically pre-cleaned and prepared surface of the metal part.

An exceptionally smooth, slippery surface with an amorphous, non-crystalline structure is created through subsequent steps of hardening and diffusion.

At various stages in the MAGNAPLATE HMF coating process, a series of independent processing operations creates a unique microfinish that is mirror-smooth. Friction wear is reduced to a minimum.

The total process gives the part permanent lubricity along with improved surface hardness, exceptionally good abrasion resistance, and protection against common solvents and corrosion.

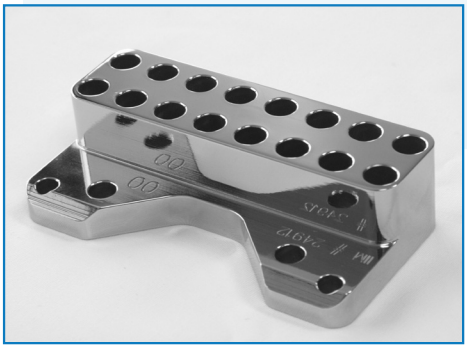
Proprietary engineering polymers may be added when needed for special requirements.



Because of its extremely low coefficient of friction, the MAGNAPLATE HMF coating applied to the SS ball portion of a valve containing a powdered metal seat, eliminates galling that could result in premature wear, leaking and, ultimately, total failure of the valve. In addition, use of the coating permits raising the operating temperature by over +200°F (+93°C), and extends both the active life and shelf life of the valves.

TYPICAL APPLICATIONS

- Pharmaceutical manufacturing
- Cosmetic manufacturing
- Paper, film and foil production
- Closure devices
- Ball valves and seats
- Engine pistons and cams
- Calendering
- Embossing
- Chutes
- Hoppers
- Folders
- Packaging
- Aerospace



Mirror-smooth MAGNAPLATE HMF is used on pharmaceutical segment blocks that fill capsules to reduce friction and wear and provide non-stick release. It also eliminates static buildup.

ENGINEERING DATA & PERFORMANCE CHARACTERISTICS

Friction. The surface of the part becomes smooth, slippery and mirror-like in appearance. Eliminates "stick-slip" and undesirable vibration of higher break-away friction. Effectively ensures against galling and seizing. Eliminates generation of Lanier lines or similar stress lines in sensitive plastic film processing.

Low microfinish. MAGNAPLATE HMF is capable of reaching a microfinish of 8 microinches or less. Since one of the most important variables in friction measurement is microfinish, these two properties are interrelated. In many cases, a lower microfinish will result in a lower COF. A low COF through a low microfinish is the primary objective of MAGNAPLATE HMF.

Hardness. Surfaces of parts treated with MAGNAPLATE HMF are super-hard. They can achieve an equivalent Rockwell hardness rating up to Rc 68 — superior to that of hard chrome plate. The likelihood of galling or seizing is virtually eliminated.

Temperature resistance. MAGNAPLATE HMF will function effectively within far wider temperature ranges than conventional protective coatings and at higher temperatures. High strength, toughness, and self-lubricity are maintained down to -250°F (-157°C). At the other extreme, MAGNAPLATE HMF has a temperature range up to +950°F (+510°C).

Corrosion resistance. MAGNAPLATE HMF provides effective corrosion protection against common solvents.

Various packaging equipment parts are protected against abrasion and corrosion by MAGNAPLATE HMF. In addition to eliminating static buildup, the mirror-smooth surface prevents scratching or "clouding" of film and foil package wraps on product surfaces as they flow through production lines.