



# MAGNAPLATE

COATINGS ENGINEERED FOR YOUR SUCCESS

## BENEFITS

- Dramatically increase surface hardness
- Resist corrosion, chemicals and acids
- Prevent abrasive wear and galling
- Self-lubricating for extended wear
- Resists static buildup
- Provide superior mold release
- Meets and exceeds requirements for AMS 2404 and AMS-C-26074
- Permanently dry-lubricated for very low COF
- Many meet FDA and USDA codes
- Speed cleanup and sanitation maintenance
- Eliminate sticking and product "hang-up"
- Prevent galvanic corrosion with incompatible metals
- Won't chip, peel or flake off like "paint-ons"
- Resist static buildup
- REACH compliant

## Nedox®

*"Synergistic" Surface Enhancement Coatings Protect Most Metals — Including Aluminum — Against Wear, Corrosion, Sticking and Galling*

The Magnaplate-applied process improves parts made of less durable and/or less costly metals by adding physical properties that permit them to outperform and outwear even chrome and stainless steel. Because NEDOX®-treated surfaces are superior in performance to the base metal itself or to any of the individual components used in the enhancement process, NEDOX coatings are considered "synergistic."

## ENGINEERING DATA & PERFORMANCE CHARACTERISTICS

**Wear resistance.** Hardness is up to Rc 68 – better than hard chrome plate. NEDOX coatings also eliminate the likelihood of galling or seizing.

**Corrosion resistance.** NEDOX "synergistic" coatings are superior in corrosion resistance to chromium or standard electroless-nickel plated coatings. Exceptional resistance to most common chemicals. Certain coatings perform really well when immersed in pH 3.0-9.5 solutions. Some NEDOX coatings are especially resistant to phosphate-free bleach used in washdown solutions in food processing and packaging operations. NEDOX coatings on aluminum also provide resistance to a wide range of chemicals.

**Friction.** Surface is smooth and slippery. In some cases, the static friction decreases with an increase in load. NEDOX eliminates "stick-slip" and undesirable vibration of higher break-away friction.



*Feeder auger used in handling ultrafine powders for the non-woven industry. NEDOX provides the release necessary to keep the powders from sticking and caking.*





## TYPICAL APPLICATIONS

- Aircraft
- Aerospace
- Chemical processing equipment
- Electronic equipment
- Food processing
- Heat sinks
- Meters (gas and electric)
- Molds (release agents)
- Packaging equipment
- Pharmaceutical processing
- Pumps
- Sealing equipment
- Textile manufacturing
- Valves



A variety of seal bars are coated with NEDOX to increase wear life and prevent packaging films from sticking during heat sealing operations.



These metering valves, which regulate the flow of oil in a jet engine, received the non-binding surface it needed with a NEDOX coating.

**Temperature.** Exhibits high strength, toughness and self-lubricity down to -250°F (-157°C). NEDOX has a wide range of operating temperatures up to +1,000°F (+538°C), based on the coating type selected.



**FDA and USDA compliance.** Compliance with FDA and USDA codes makes many NEDOX coatings particularly advantageous for food and pharmaceutical applications. They are used extensively on processing, packaging and handling equipment to prevent product residue from clinging to machinery and add the benefits of quicker equipment cleanup and sanitation maintenance.

**Non-stick release properties.** Very few solid substances, even adhesives, adhesive-backed products or glues, will permanently adhere to the proprietary polymer-impregnated surface of a NEDOX-coated part. Most substances, such as plastics, rubber or slurries, release easily. Some extremely tacky materials may exhibit mild temporary adhesion.

**Thickness.** Typical surface deposition is 0.0002 to 0.002 inch and is based upon thickness requirement and coating formulation. Precise control of coating thickness permits use on machine threads and similar close-tolerances.

**NEDOX vs. chromium plating.** High-efficiency NEDOX coatings provide optimum uniformity and do not build up on high current density areas (see diagrams below). Thus, costly and labor-intensive secondary machining and secondary finishing steps can be completely eliminated.

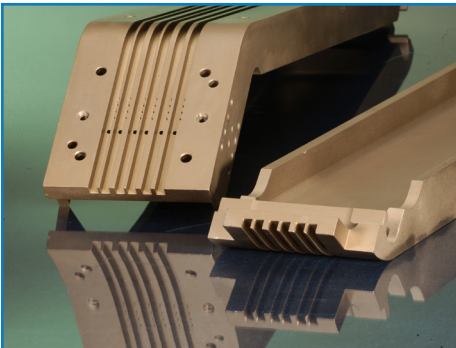
The poor efficiency of chromium plating systems, when complicated by high and low current density areas, can lead to extremely uneven deposition rates and leave large variations in the coating thickness. Uneven deposition of chrome also results in a very brittle coating.

NEDOX	Chromium Plating
	

**Anti-static electrical properties.** The proprietary polymeric impregnation usually imparts dielectric resistance, a low dissipation factor, and very high surface resistivity over a wide range of frequencies. Some NEDOX coatings can provide conductivity to be used in anti-static applications.



*A cookie manufacturer eliminates frequent production downtime to change batter-clogged cookie molds and also reduces mold replacement by treating the molds with an FDA/USDA-compliant NEDOX coating. Other food processors solve mold release, cleanup and sanitation problems by specifying NEDOX for molds, extrusion pistons and dies, filling nozzles, rollers, trays, kettles and blades.*



*Guide plates used in pharmaceutical form/fill seal machine. NEDOX prevents product hang-up, keeping flow rates steady.*

**Non-wetting.** Since our proprietary polymer-impregnated surfaces are both oleophobic and hydrophobic, they resist wetting by most liquids. Hence, clean-up is faster, easier and more thorough. In many cases, parts become self-cleaning. Maintenance time and labor are greatly reduced.

**Value-added coatings permit substitution of carbon steel or aluminum for expensive metals.** In order to reduce bottomline costs, innovative design engineers today are utilizing Magnaplate “synergistic” coatings such as NEDOX to permit substitution of aluminum and low-cost steels for more expensive metals such as stainless steel. Similarly, other lower cost ferrous alloys can be specified in a wide range of applications where higher cost substrate materials are currently used.

**Wide range of NEDOX surface enhancement coatings offers design flexibility.** During the multiple steps of the NEDOX process, there are a number of variables that can be controlled to produce different surface enhancement characteristics.

Through experience and research, the exact control required to produce the desired results of a specific coating type has been refined. There are many different types of coatings within the NEDOX family of “synergistic” coatings. Each one has unique characteristics to meet application needs or can be modified to achieve special performance requirements.