

SYNERGIES

VOLUME 29

Smart Coatings Solutions

NEDOX® COATINGS NOW AVAILABLE IN SPAIN AND PORTUGAL

Continuing its strategy to offer customers a global coatings partner that can service facilities worldwide, General Magnaplate has announced its first Spanish licensee. Based in Barcelona, Tecnocrom Industrial has been a leading coatings provider in Spain and Portugal for 55 years and has earned a reputation as being extremely customer-focused.

This newly formed relationship with General Magnaplate means that NEDOX® coatings will now be available in both Spain and Portugal. Tecnocrom Industrial serves many markets including packaging, pharmaceutical, oil & gas, automotive, military & aerospace, food processing, hydraulics, printing, paper and sealing.

“We are delighted that Tecnocrom Industrial has joined the Magnaplate Worldwide team,” reported Nemanja Marinkovic, International Licensee Liaison, Magnaplate Worldwide. “General Magnaplate and Tecnocrom Industrial share a common philosophy



of solving our customers’ problems and putting their applications needs first. Also, we both have been working in the coatings industry for over fifty years so there is a tremendous amount of application data that we can share to improve the services we both offer.”

Jordi Giró, Export Manager at Tecnocrom Industrial, commented, “In our constant search for alternatives,

more efficient and environmentally friendly coating solutions, we believe that the agreement with General Magnaplate will allow us to implement this new technology in our plating lines and successfully introduce it in the market with the help of our loyal customers.”

To learn more about Tecnocrom Industrial visit: www.tecnocrom.es

THE NEDOX ADVANTAGE

NEDOX enhances the performance of common metal alloys. By offering superior protection against wear, friction and corrosion, NEDOX can help less durable metals achieve the longevity and performance of chrome and stainless steel.

NEDOX exceeds the physical properties of common industry coatings such as nickel plating, electroless nickel plating, sulfamate nickel, co-dep electroless nickel and polymer impregnated electroless nickel.

It is well-known for its ability to eliminate stick-slip and galling in a wide variety of applications. It also performs well in chemically corrosive environments—including wash-down and uranium-enrichment applications with UF6 exposure. NEDOX is also highly resistant to salt spray.

ENGINEERED COATINGS FOR FLUID DELIVERY COMPONENTS

General Magnaplate's coatings help precision nozzles perform better

Precision liquid dispensing nozzles may seem straightforward, but they have hidden design challenges. Chief among these challenges is the ability to maintain high flow rates at low pressures. While it may not be visible to the untrained eye, small improvements to the geometry of the nozzle and its surface characteristics can have a big impact on flow rates.

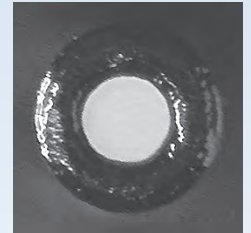
Subrex, a leading supplier of these nozzles, has mastered the art of refining nozzle geometry to reduce flow restrictions. The company's standard-gauge and micro-precision nozzles feature thin walls, smooth transitions and a precise exit aperture—all of which contribute to optimize flow.

And now, the company has taken its nozzle performance a step further by applying General Magnaplate's engineered coatings that improve the lubricity, hardness, release and corrosion resistance of the nozzle surfaces. These coatings include Nedox® SLK and NH1, as well as Nedox Basic electroless nickel.

Here's a look at how these coatings contribute to the performance of Subrex's liquid dispensing components.

Precision Nozzle Materials. Subrex precision nozzles are one-piece conical shells made from formable, low-cost metal alloys, mainly phosphor bronze and nickel silver. Once formed, these copper alloys make a thin, hard wall nozzle core with good mechanical properties.

Phosphor bronze (UNS C51000) yields between 19 and 80 ksi and has an ultimate tensile strength of 140 ksi. Its nominal composition is 94.8% copper, 5.0% tin and 0.2% phosphorus.



Nickel silver (UNS C73500), on the other hand, is a corrosion-resistant brass metal with an ultimate tensile strength of 110 ksi and a yield strength between 15 and 84 ksi. It has a nominal composition of 72.0% copper, 10.0% zinc and 18.0% nickel.

Beginning in an annealed state, these metal alloys become harder as they're cold-worked for increased rigidity and strength. Metal is pulled down through a successive series of smaller dies until a final work-hardened core shape forms.

Once the copper alloys are shaped and coated, the nozzle cores take on the coating's properties. Coated surfaces can optimize the anti-stick characteristics of the nozzle for better control of the fluid as it exits the tip.

Engineered Coatings For Improved Performance. About half the precision nozzles that leave the Subrex factory come with a General Magnaplate coating. The coatings fully encase the nozzles' base metal, making the surfaces harder, smoother and anti-stick for better fluid release than uncoated nozzles. The coatings also radius the outside and inside diameter edges of the nozzle wall, which also helps with fluid control.

Other performance characteristics include low pressure, high flow and clog resistance with coating-enhanced fluid release to aid break off and reduce wicking and stringing.

The coatings increase the wall thickness anywhere from 40 to 50 percent, depending on the core size. Nickel-based coatings, for example, add 0.001 inch of nominal thickness to a wall, enhancing mechanical strength by improving the rigidity and surface hardness of a core.

SUBREX NOZZLES ARE USED IN AUTOMATED OR ROBOTIC APPLICATIONS IN MEDICAL, SEMICONDUCTOR AND FOOD AND BEVERAGE INDUSTRIES. SOME APPLICATIONS INCLUDE:

- Placement of viscous, small diameter dots and lines
- Precise deposition of adhesive
- Depositing of high surface tension fluid into wells
- Under-filling of epoxy in semiconductor applications
- Silicone gasket applications
- Dispensing of UV cure adhesives
- Dropping of phosphor laden silicone onto LED components
- Dispensing of thermal grease
- Thermal adhesive applications
- Semiconductor encapsulation
- Cavity fill
- Pastes



NTS

In their precision nozzles, Subrex uses Nedox SLK, NH1 and Nedox Basic. These coatings cover asperities in small complex geometries while providing a smooth surface around the tip. Here's a more detailed look at these coatings:

- Nedox SLK is a proprietary hard nickel polymer coating that, when applied to a nozzle core's interior and exterior, provides hardnesses up to Rc 65 as well as corrosion and abrasion resistance. Other benefits include anti-stick, release and lubricity.
- Nedox NH1 is a proprietary hard nickel polymer coating that's resistant to corrosion, abrasion and wetting. In addition, this coating has reliable release characteristics.
- Nedox Basic electroless nickel creates a smooth, hard surface that resists oxidation, corrosion and abrasive wear.

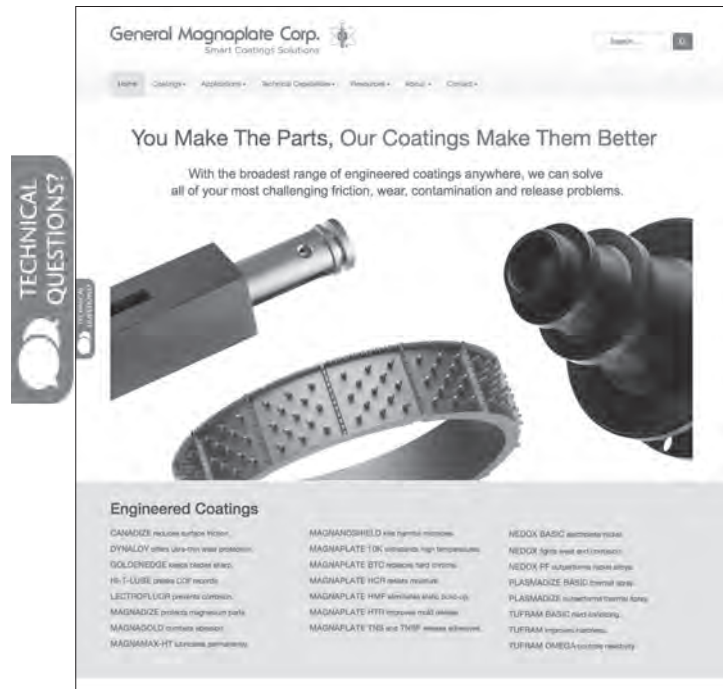
FLUID DELIVERY COMPONENTS FOR ROBOTICS AND AUTOMATION

Subrex fluid delivery components are used with a wide variety of fluids. Nozzle selection is based on application requirements that dictate size and surface properties needed for robotic or automated dispense applications. Common fluids include aqueous mixtures, epoxies, silver epoxies, silicones, oils, UV cure and thermal.



INSTANT GRATIFICATION WITH OUR NEW LIVE CHAT

If you have a technical question or an application issue that just can't wait, then please jump on our website and use the new Live Chat feature. You will see it on the left hand side of our website and we have applications engineers manning the station from 8.30am to 5pm EST. If you need to contact us outside of these hours, you can still use the Live Chat to send us an email and we will get right back to you.



2016 TRADE SHOW CALENDAR

OTC 2016

OFFSHORE TECHNOLOGY CONFERENCE

May 2-5

NGR Park
Houston, TX
Booth: #5880

INTERNATIONAL POWDER & BULK SOLIDS 2016 CONFERENCE & EXHIBITION

May 3-5

Donald E Stephens Convention Center
Rosemont, IL
Booth: #3635

EAST PACK 2016

ATLANTIC DESIGN & MANUFACTURING

June 14-16

Jacob K. Javits Convention Center
New York, NY
Booth: #2839

Magnaplate Introduces New Basic Coatings Line

We are pleased to announce a new range of 'Basic' products that offer differing characteristics and deliver great value for applications that have less demanding requirements. They may be a little more cost-effective but our new Basic products are applied with the same quality and professionalism that you have become used to from General Magnaplate.

Wear Resistance on Aluminum Surfaces

Part of our Tufram® family of coatings, Tufram Basic hard anodizing is an electrochemical process that creates a protective oxide layer on aluminum parts, improving corrosion resistance and imparting other desirable surface properties such as lubricity. Since the entire process takes place in a cool electrolyte bath, Tufram Basic protects aluminum parts from any thermal distortion.

A wide range of wrought and cast aluminum alloys can be hard anodized. Process conditions as well as aluminum alloy determine the hard oxide layer's thickness, surface characteristics and degree of substrate incorporation. Our tight process control is a crucial ingredient in a quality hard anodized coating.

Wear resistant coating offers corrosion protection on metals

Nedox® Basic electroless nickel is a high quality electroless nickel process worthy of the Magnaplate name, which delivers superior performance compared to other electroless nickel processes.

Our Nedox Basic coating offers many distinct advantages when plating irregularly-shaped objects, holes, recesses, internal surfaces, valves or threaded parts. This coating features uniform deposit thickness and ductility relative to pure metals, and its high surface hardness and reliable corrosion-resistance makes it ideal for industrial applications.

Thermal Spray for Wear Resistance

Our Plasmadize® Basic thermal spray is an engineered coating system for applications experiencing high wear and abrasion. In the Plasmadize Basic thermal spray process, a metal alloy, ceramic or cermet material is applied by thermal application, creating a 0.003- to 0.25-inch layer on the surface. The high quality and process standards employed through this process make Plasmadize Basic the only thermal spray worthy of the Magnaplate name.

Unlike chemically deposited coatings, Plasmadize Basic mechanically bonds to the substrate material without altering its surface properties. The coating also limits the heat encountered by the substrate material, further preserving its original properties.

NADCAP UPDATE

General Magnaplate would like to remind its customers that its New Jersey facility has achieved Nadcap accreditation. General Magnaplate's Texas facility is currently undergoing the Nadcap approval process.

Nadcap is the leading worldwide cooperative program of major companies designed to manage a cost-effective consensus approach to special processes and products and provide continual improvement within the aerospace and automotive industries. Its mission is to provide international, unbiased, independent manufacturing process and product assessments and certification services for the purpose of adding value, reducing total cost, and facilitating relationships between subscribers and suppliers.

Fred Mueller, Corporate Quality and Safety Manager of General Magnaplate, reported, "We are proud of our Nadcap accreditation. General Magnaplate has always been a leader in the aerospace industry, partnering with many of the OEMs and suppliers responsible for the United States' proud history of space exploration. Nadcap's mission to add value, reduce total cost, and build stronger relationships between vendors and customers matches our own corporate philosophy here at Magnaplate."



For more information, or to request literature on any of our "synergistic" surface enhancement coatings, contact:



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