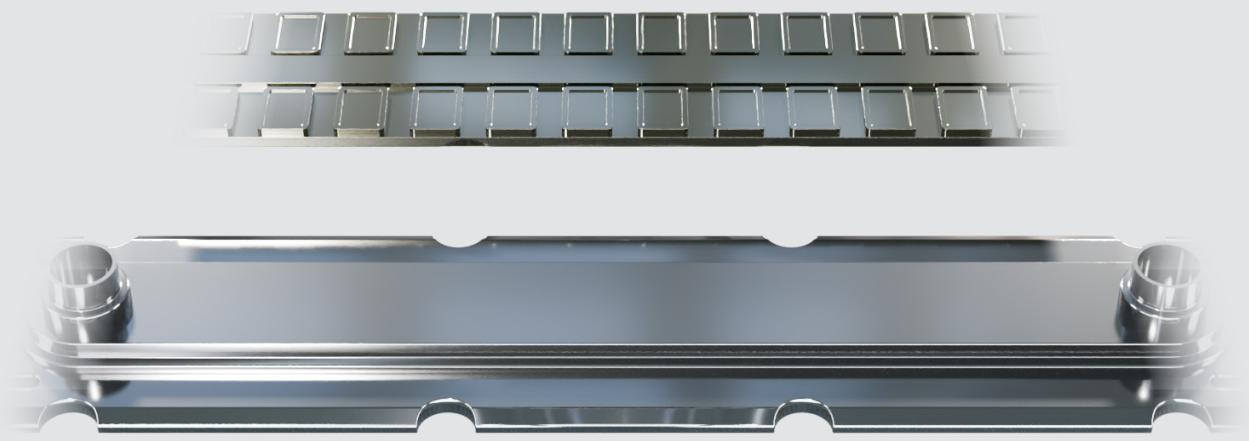
Nichem® LP 300

Low-phosphorus electroless nickel

General Metal Finishing | Electroless nickel | atotech.com



Innovative low phosphorus electroless nickel plating process

LEAD & CADMIUM-free

ELV, ROHS AND WEEE compliant

Enhancing industrial performance with high conductivity and wear-resistant coatings

Nichem LP 300 is an innovative, environmentally friendly electroless nickel plating process designed to deposit a low phosphorus (1–3%) NiP coating. This low phosphorus content is a key factor in achieving low electrical resistivity by minimizing the disruption of the regular lattice nickel structure, making Nichem LP 300 ideal for applications requiring efficient electrical conductivity.

Formulated without lead, cadmium, toxic metal stabilizers, boric acid, or EDTA, it complies with major environmental regulations, including the ELV, RoHS, and WEEE directives. Nichem LP 300 delivers a high deposition rate with excellent bath stability, low deposit stress, and superior wear resistance. The resulting coating features high hardness, good adhesion, and low electrical resistivity, making it ideal for automotive, electronics, and industrial applications requiring durability, solderability, and sustainability.

mks | Atotech

Sustainable and reliable plating solution resulting in high-performance coatings

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Image 1:
EV scroll compressor

Enhancing functionality with Nichem LP 300 deposits

Nichem LP 300 deposits exhibit several notable characteristics. The deposited NiP alloy contains 1% to 3% phosphorus, resulting in compressive deposit stress throughout the bath life. As plated, the deposit achieves a hardness of 750 to 850 $HV_{0.1}$, which increases to 900 to 1,000 $HV_{0.1}$ after heat treatment at 400 °C for one hour, enhancing wear resistance.
The coating exhibits a semi-bright to matt finish, suitable for applications where aesthetic considerations are secondary to functional performance. It demonstrates good adhesion to various base materials and low sensitivity to porosity, contributing to its reliability in protective applications.

Maximizing throughput and longevity

Nichem LP 300 stands out due to its impressive process characteristics. It achieves a consistent deposition rate of 12 to 18 µm per hour, ensuring efficient throughput in production environments. The process exhibits excellent bath stability and longevity, capable of sustaining up to 6 metal turnovers (MTOs). This stability is attributed to its unique stabilizer and complexing agent chemistry, which is free from toxic metal stabilizers, boric acid, and ethylenediaminetetraacetic acid (EDTA). Additionally, the process demonstrates a high tolerance to metallic impurities, reducing the likelihood of bath contamination and extending maintenance intervals.

Features and benefits

- Lowest %P content (1–3% P)
- Excellent solderability properties
- Very low electrical resistivity
- Excellent wear resistance and high hardness
- High deposition rate and low deposit stress throughout bath life
- Excellent bath stability due to unique stabilizer/complexing agent
- Long bath life up to 6 MTOs and simple operation
- Tolerant to metallic impurities