



Electroless Nickel Coatings

English

Surface solutions by STI Group



Application-optimized coatings



In addition to your requirements, STI Group optimizes your components for their profitable and functional use. In the process, our surface solutions are always based on application-oriented use. STI | Hartchrom's range of technologies is comprised of mechanical processing, galvanic and thermal treatments as well as electroless nickel plating.

Fully automated systems engineering

The STI Surface Centre in Sternenfels-Diefenbach (DE) gives STI Group one of the largest electroless nickel plants in Europe. Our fully automated facilities are equipped for processing single parts and series and guarantee high-quality coatings. Our full service also includes the (mechanical) pre- and post-processing of the coatings as well as transport and logistics processes.

ELECTROLESS NICKEL COATINGS



Optimized corrosion protection

Electroless nickel coating is a method for coating components with complex shapes that maintains the dimensions and contours. In contrast to electrolytic processes, the electroless nickel coating is precipitated without external electricity. This results in a very good and even distribution of the coating, even on components with complex profiles. In addition, X-ray-amorphous coatings have the benefit of excellent ductility and are particularly corrosion resistant.



A broad range of property profiles

During the deposition, electroless nickel coatings achieve a hardness of up to 600 HV. Appropriate post-curing increases the hardness up to 1'000 HV and also improves the wear characteristics. Further characteristics of the electroless nickel coatings include its good brazeability and the compatibility when applied in the food and pharmaceutical industries. Because of the high phosphorus level (10.5 – 12 %) the coating is non-magnetic.

Procedure and applications

Electroless nickel coatings combine several functional advantages. They are extremely non-corroding, non-porous and free from toxic heavy metals. Depending on the area of application, we will give your components additional, required functional surface properties with different coating combinations.



Surface technologies for your applications



Treatments	Characteristics	Applications
Electroless nickel high phos Nitrag®	very high level of corrosion protection, excellent ductility, deposited hardness 550 HV (up to 1,000 HV with thermal treatment), 10 – 12% phosphor component, specified according to EN ISO 4527, RAL-RG 660, Mil-C-26074B, AMS 2404B	textile industry (nozzles, thread guides), electrical, engineering (shielding), engineering (valves, pressure rolls, casting moulds)
Hard nickel low phos Microdur®	increased wear protection, high level of hardness of up to 750 HV (without thermal treatment), up to 4% phosphor component, non-porous	automotive industry (gear wheels, clutches, gearboxes), aerospace (hydraulics, pipes), food and pharmaceutical industry (agitators, housings, feed screws)
Electroless nickel low- & high phos	combination of the two coating systems, good corrosion and wear protection, no subsequent thermal treatment necessary	aerospace (oil pump housings, diffuser housings), paper industry (diversion devices, rolls)
Nickel chrome	combination of the wear-resistant - chrome coating and the corrosion-resistant nickel coating, high level of hardness of up to 1,000 HV, improved sliding characteristics through polishing	paper & printing industry (rolls, cylinders), mining hydraulics (drill elements, hydraulic stamps)
Nickel-phosphor dispersions	for individual customer solutions, development cooperation possible	off-shore (pipeline components, drive shafts, wind wheels), plastics industry (moulds, extruders)
Dimensions/capacity: Ø up to 600 mm, length of up to 2,500 mm, weight up to 2,000 kg		

Further procedures on request or at www.sti-surface.com. We coat most basic materials such as steel, stainless steel or non-ferrous metal.

STI Group Surface solutions worldwide.



Individual Solutions	STI Group offers you individual overall solutions – from comprehensive analyses and consulting, development and innovation to the actual treatment process, mechanical processing, the final quality check and transport.
Industrial Areas	Automotive, Aviation, Defense Technology, Film, Foil, Food, General Industries, Hydraulics, Marine & Powertrain, Paper, Power Generation, Print, Textile, Tools etc.
Range of technologies	Hard chrome (including Triplex, structural chrome and Nanochrom), electroless nickel, galvanic nickel, hybrid layers, dispersion layers, thermal spraying (HVOF, plasma, wire flame spraying), Dry Coating (plasma nitriding, PVD, PACVD), painting, grinding, polishing, milling, turning, boring. Various special processes are available on request.
Quality and Precision	STI Group surface treatments stand for precision, functionality and quality. STI Group guarantees the required process safety to achieve the narrowest tolerance ranges and create tailor-made, reproducible surfaces.
S to XXL Components	STI Group develops innovative, tailor-made surface solutions for components up to 6,000 mm in diameter, 27,000 mm in length and 64 tons weight.
Complex Geometries	One of the core competencies of STI Group is the coating of components with complex geometries. STI freeform surfaces are renowned for their optimized characteristics, the highest level of quality and reproducibility.
Single Parts and Series	STI Group is your specialist for custom-designed surfaces, both for individual parts and series. Know-how, experience and modern infrastructure guarantee optimum results.
Research & Development	STI Group carries out systematic application-oriented and pure research and development. Our focus is on high-performance, individually optimized surface solutions for you and your success.

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