



**STI
Hartchrom**

The precision company

Factors of Success Thermal Spray Coatings

Surfaced by STI | Hartchrom



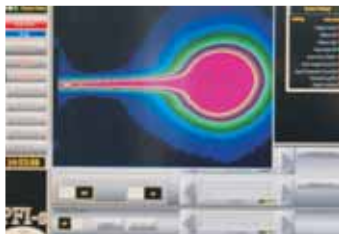
High Velocity Oxygen Fuel Spraying (HVOF)



Increasing demands on machines and components require continuous development of corrosion- and wear-resistant surfaces. One of the latest coating technologies implemented by STI | Hartchrom is the Thermal Spray technology. This cost-effective process uses and combines the most advantageous properties of different materials.

Innovative and very stable process

High velocity oxygen fuel spraying can be used for many different applications. High process temperature combined with high kinetic energy make it possible to apply most metals, alloys and cermets. As a result, this process offers great flexibility for combining base and coating materials. Our robot-aided and process-monitored systems are suitable for coating parts measuring 3,500 mm in length, 1,100 mm in diameter and 6 tonnes in weight, but are equally as cost-effective for coating parts with smaller dimensions.



Customer benefits

- Excellent wear and corrosion protection characteristics
- Produces chemically very pure, hard and dense layers with a fine-grained, nearly homogenous structure
- Layers with intense bonding to the base material
- Range from low internal tensile stresses through to compressive stresses in the material
- Very thick layers are possible
- Highly recommended for layers made of carbide materials and super-alloys
- Smooth surface structure which can often be used without applying a finishing process
- Well suited for grinding and very fine processing through super-finish
- Suitable for coating components with complex geometry
- Areas not requiring coating can easily be covered
- Process lends itself to fully automatic operation

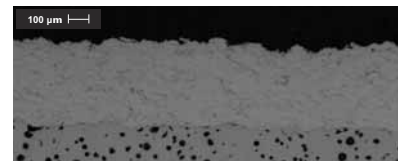
Mechanical processing with maximum precision

Finish machining of the sprayed layers is as important as the selection of the best materials. STI | Hartchrom provides a wide range of modern machinery for turning/milling, grinding and polishing, with which the required tolerances in the micrometer range can be achieved.



CUSTOM-DESIGNED SOLUTIONS

STI | Hartchrom surface technologies are intended to render your product more cost-efficient and functional. The type of material used depends on your specific application and market requirements.



Materials and selection of layer

Material*	Corrosion protection	Wear protection	Hardness (HV 0.3)	Layer Characteristics	Recommended applications
WC-Co-Cr	+	+++	1200 – 1450	Wear and corrosion protection	Paper processing, calander rolls, piston rods
WC-Ni	++	+++	1000 – 1200	Wear and corrosion protection	Foil processing, chemical plant construction, pump construction, wide-aperture nozzles
NiCrBSi	+++	++	up to 750	Wear and corrosion protection	Petrochemical industry, machine construction, valve balls
Stainless steel/316L	+++	0	350 – 400	Corrosion protection, good processing properties turning/milling/grinding	Printing machine construction, paper industry, rubber cylinders
13% chromium steel	++	+	350	Base layer, corrosion protection, dimensional correction	Machine construction, journal repair, rolls
Cr ₃ C ₂ -NiCr	+++	+++	1000 – 1200	Wear and corrosion protection at higher temperatures, oxidation protection	Turbine construction, engine construction, gas turbine housings, valve shafts
Iron base alloy	+	+	250 – 500	Wear and corrosion protection	(Printing) machine construction, rolls, piston rods
NiCr 80/20	++	0	250	Base layer, corrosion protection	Machine construction, rolls, piston rods
Co-alloys (Stellite)	0	++	500 – 800	Wear protection, low friction coefficients, temperature resistance	Fittings, screw conveyors, chemical plant engineering, pump components, water turbines

+++ excellent, ++ very good, + adequate, 0 low
 * Other coatings on request or www.hartchrom.com

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**STI
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The precision company

Individual solutions	STI Hartchrom 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	Print, Paper, Marine Propulsion, Power Generation, Film, Foil, Food, Textile, Hydraulics, Tools, Automotive, Aeronautics, Defense Technology, General Industries, etc.
Technological range	Hard chrome, triplex chrome, dispersion coatings, Nanochrom, chromium/PTFE, chrome ceramics, galvanic nickel, electroless nickel, nickel chrome, HVOF cadmium coating, dehydration, burnishing, stainless steel passivation, electropolishing, grinding, polishing, turning, milling, drilling etc.
Quality and precision	The STI Hartchrom coatings stand for precision, functionality and quality. STI Hartchrom guarantees the required process safety to achieve the narrowest tolerance ranges and create customized, reproducible surfaces.
S to XXL components	STI Hartchrom develops innovative, customized surface solutions for components up to 6,000 mm in diameter, up to 27,000 mm in length and up to 64 tons weight.
Complex geometries	One of the core competencies of STI Hartchrom is the surface treatment of components with complex geometries. Our freeform surfaces are renowned for their optimized features, the highest level of quality and reproducibility.
Single parts and series	The multiplication of our long-term experience is both the instrument for the specialized batch production as well as the automated series production processes.
Research & Development	STI Hartchrom 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.

