



STI DryCoat System

English

Surface solutions by STI Group



Cost-effective functionality



High competence in surface technology, wide technology range, process excellence as well as a comprehensive and flexible service package - these are the factors that make STI Group the preferred technology and innovation partner for demanding industries all over the world.

Optimized friction - maximum wear and corrosion resistance

Many years of technical expertise, project-related research and development, and individual multi-disciplinary advice allow STI Group to deliver individually optimized and specified surface solutions of excellent functionality and quality.

Consistent quality and reproducibility

In its quest for perfection, STI Group controls each individual process parameter down to the last detail. Process steps are recorded to ensure that the entire production process is fully transparent.

Modern infrastructure for serial and one-of production

STI Group maintains modern machinery and infrastructure with sufficient capacity to handle small and also very large work pieces, either in series or as single components.

Top quality and environmental standards

The process-oriented STI Group Management System and certifications according to ISO 9001 and 14001 ensure high-end quality and compliance with highest environmental standards.

Hartchrom Teikuro process: high resistance to wear for sheet metal forming, diecast and plastic molds

The production of complex designed car body panels with outstanding quality out of thin metal sheeting requires highest performance of the production tools. The Hartchrom Teikuro process is the preferred treatment for gray cast iron and steel tools used

by the automotive industry. The surface is characterized by its high wear resistance and excellent surface quality. It substantially increases the production life of the dies while minimizing service costs. The accurate layer application and the highly polished surface also generate excellent added value for plastic injection and diecast molds.

STI DryCoat system: for tools processing thick and high-strength materials in excess of 1.5 mm

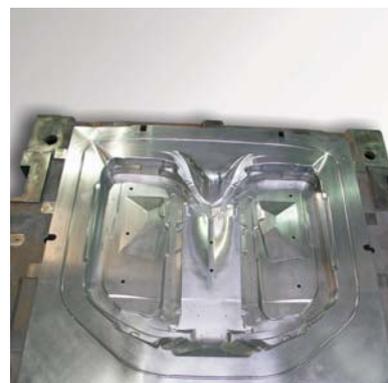
The STI DryCoat system, which is based on plasma technology (plasma-nitriding, PVD, PACVD), is a consequent complementary technology for all steel components and tools which have to withstand even tougher conditions in terms of load, wear, and abrasion and which have a higher tendency to cold welding while requiring a visually perfect and zero defect component surface quality. Typical applications are tools used for processing thick and high-strength materials over 1.5 mm as well as molds for diecast and plastic tools for the production of heavy-duty plastic components.

STI Perform (+): top performance, maximum lifetime

For extremely heavy duty tools with highest requirements in terms of quality and lifetime, STI Group has developed the Perform (+) technology. Perform (+) is a coating process, in which the respective PVD layer is coated with a supporting layer and, in addition, is subjected to a special treatment. STI Perform (+) achieves results in terms of quality, performance and lifetime which, up until now, could not be realized with comparable coating systems.

STI PlaNit: unique wear resistance with minimal radii

For thin sheet metal forming tools with small radii STI PlaNit is the ideal supplement to the Hartchrom Teikuro hardchrome plating process.



STI Glide: good glide characteristics, excellent demoldability

STI Glide is a medium-hard layer with a highly polished finish, good glide characteristics, excellent demoldability, and very high resistance to abrasion wear.

STI Dur: the surface for a wide range of applications

Thanks to a specially developed process, STI Dur offers particularly high adhesion strength and good polishing ability. Excellent hardness and resistance to wear and corrosion, as well as to cold welding, make STI Dur an all-purpose layer for a wide range of applications.

STI DurOx: even better gliding characteristics

This STI Dur layer has an inert, even harder surface layer which results in even better gliding characteristics and an additional reduction of the cold welding effect.

STI DurDLC: the thinnest but hardest layer

This diamant-hard, extremely thin layer with the lowest co-efficient of friction and the highest resistance to abrasion and cold welding is particularly suitable for applications with no or very little lubrication or dry running conditions.

Low Temperature PVD (LT): for low tempering temperatures

PVD layers are normally applied at temperatures between 400 and 450 °C resulting in layers with optimum performance characteristics. For steel grades with relatively low tempering temperatures, it is possible to apply the STI Dur layer at a coating temperature of 200 °C. The process allows for uncompromising coating performance and quality, but avoids heat distortion.



STI Group Surface solutions worldwide.

STI DryCoat System

Process (color)	Layer-gas/-material	Layer-thickness (µm)	Micro hardness HV 0.05	Friction coefficient w. steel 100 Cr6	Max. temperature	Dimension, weight
STI PlaNit (gray-black)	NN + H	10 - 30 (>100)	750 - 1100	Steel 0.1 - 0.16 Alu 0.1 - 0.2	400 °C	Ø 850 x H 1,050 mm/ Ø 700 x H 1,900 mm 2 t
Main application	Gray cast iron tools with small radii for sheet metal forming, thickness < 1.5 mm; components such as rails, shafts etc.; not suitable for non-ferrous metal grades.					
STI Glide (gray)	Various gases	up to 100	900 - 1600	Steel 0.08 - 0.14	400 °C	Ø 850 x H 1,050 mm/ Ø 700 x H 1,900 mm, 2 t
Main application	Punching and metal forming tools: steel tools for black sheet < 1.8 mm (optimum gliding); aluminum and magnesium die casting tools (improved demolding, increased wear resistance, anti-adhesion); precision components.					
STI Dur(+)/LT* (silver-gray)	CrN	2 - 10	2000 ± 200	Steel 0.3 - 0.4	600 °C	Ø 1,300 x H 1,500 mm 2 t
Main application	Punching and forming tools for ungalvanized sheeting < and > 2 mm; can be used for thick and high-strength materials in combination with STI Perform (+); plastic molds (high wear resistance, improved demolding); all die casting molds.					
STI DurOx(+)* (iridescent)	CrN	4 - 6	> 2000	Steel 0.1 - 0.2	700 °C	Ø 1,300 x H 1,500 mm 2 t
Main application	Tools with an increased tendency to cold welding: esp. stainless steel and aluminum sheet < and > 2 mm; STI Perform (+) recommended for heavy duty service and excellent anti-adhesive effect).					
STI DurDLC(+)* (black)	DLC a-C:H	1 - 2	2500	Steel 0.1 - 0.2	350 °C	Ø 1,300 x H 1,500 mm 300 kg
Main application	Punching and forming tools with high abrasion and extreme cold welding tendency (steel and non-ferrous metal grades) with STI Perform (+) for thick material and high pressure; plastic injection and press molds (excellent protection with highly abrasive materials).					
Hard chrome** (silver-gray)	Chrome	2 - 150	1100	Steel 0.06 - 0.12 Alu 0.07 - 0.14	400 °C	5,000 x 2,700 mm 20 t
Main application	Ideal for steel and cast iron tools for metal forming: steel and non-ferrous sheet up to 1.3 mm, aluminum up to 2.5 mm; plastic injection molding and plastic forming tools (high resistance to wear, improved demolding); aluminum and magnesium die casting tools.					

* (+): As an option, this coating is available with additional STI Perform (+)

LT: Low Temperature PVD process (200 °C) is possible

** Teikuro Process



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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