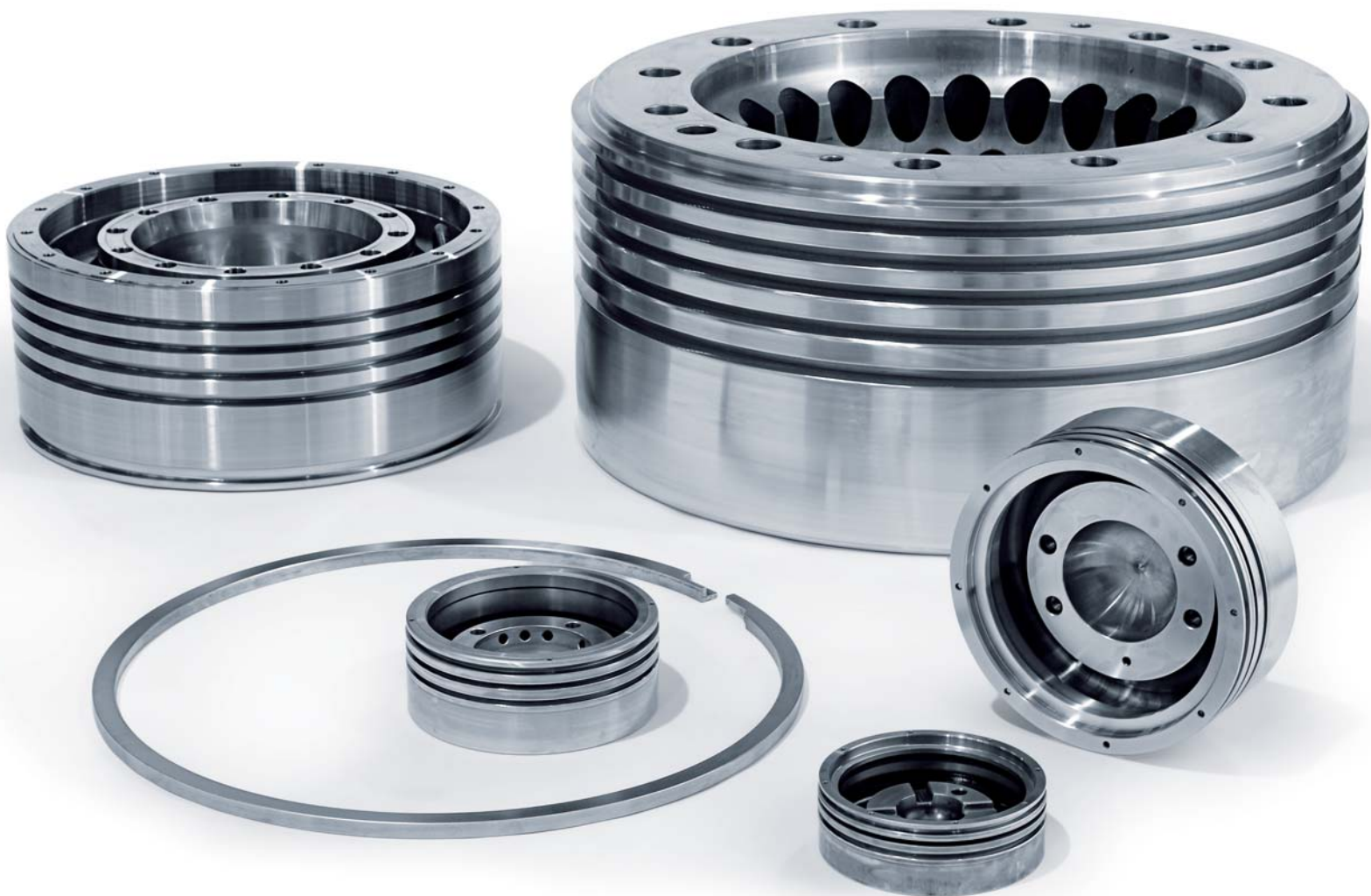




Marine & Powertrain

English

Surface solutions by STI Group



Maximum service life and functionality for large diesel engine components



Whether for cruise ships, stationary diesel or power stations, container ships or tanker: maximum service life, high degree of cost-effectiveness and availability at all times are important factors for success. Leading manufacturers of main engines, diesel generators and auxiliary diesel engines worldwide count on the functional surface solutions provided by STI Group when exacting requirements have to be fully complied with and short reaction times are imperative.

Optimum functionality for different applications

Specifically developed STI coating systems provide piston crowns, rings, skirts and rods, cylinder liners, turbine shafts, crank shafts, valves and other gear box and engine components with the necessary precision and resistance to wear and corrosion. In addition, STI Group's R & D engineers and process specialists develop specific customer solutions such as surfaces with defined topographies or tribological, slide or lubrication characteristics.



Range of technologies and process management

The production of customized, reproducible component functionality requires a high degree of competence in technology and engineering solutions combined with uncompromising process management. STI Group's range of technologies comprises galvanic, chemical, thermal and dry coating processes. With this wide range of technologies, it is possible to utilize a number of different materials. Additional properties can be achieved with the help of multilayer and dispersion layers, as well as various mechanical precision processes. Thanks to the company's know-how and uncompromising process management, STI Group is able to precisely control individual parameters and comply with extremely tight tolerances. This results in functional layers with exactly defined characteristics.



GL-certification for piston crowns of 4- and 2-stroke engines

STI Group is the first surface treatment company to achieve certification by Germanische Lloyd for the surface treatment process of piston crowns and ring grooves of 4- and 2-stroke diesel and gas engines. As preferred OEM supplier and development partner of IMOTIER III, STI Group meets top requirements.



New and reconditioned components

Surface coatings by STI Group are a cost-effective solution for the coating of both new components and the precise reconditioning of highly worn components. New piston crowns and ring grooves of 4- and 2-stroke engines are treated to achieve the necessary wear and corrosion characteristics, and piston crowns and turbine rotors requiring renovation are also returned to their original dimensions.

The modern, 2,000 m² processing center in Steinach (Switzerland), was designed for short lead times and maximum efficiency. For particularly urgent orders, STI Group offers the STI 24/7 Express Service. On request it is possible to repair 4-stroke piston crowns within a maximum of two weeks.

Optimized STI coating systems

For the components of large diesel engines and powertrains, STI Group continuously develops new coating systems together with its customers.

The optimized hard chrome layer for [ring grooves of 4- and 2-stroke piston crowns](#) with integral oil pockets offers outstanding wear resistance combined with excellent lubrication.

Structured surfaces of [piston rings](#) treated with hard chrome offer a maximum of wear resistance as well as good lubrication.

The STI multilayer system gives [cylinder liners](#) excellent protection against corrosion and wear, and a defined oil holding volume. With a specially developed process, it is possible to precisely correct the dimensions of turbine rotors and, for the bearing seats, to achieve maximum resistance to wear.

For [piston rods](#) of 2-stroke ship diesel engines STI Group has developed a highly efficient repair process based on thermal spray technology. The use of molybdenum makes it possible to correct dimensions by several mm. Outstanding slide and emergency running characteristics prevent dry running and significantly increase service life.

Applications

- Piston crowns 4-stroke engines
- Piston crowns 2-stroke engines
- Turbine shafts
- Cylinder liners
- Valves, etc.

Your benefits

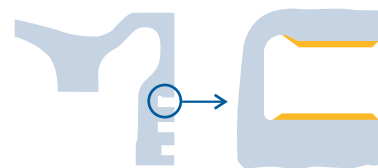
- Maximum cost-effectiveness
- Extended life time
- Optimized functionality
- Short lead times
- High corrosion protection

Reconditioning of piston crowns

Chrome plating of the landing surface



Plating and grinding of ring grooves





Surface treatments for marine & powertrain components

Treatment	Wear protection	Corrosion protection	Other characteristics	Application examples
Electroless Nickel	++	+++	true to size, defined geometries	drill rods, valve housings, fuel pipes
Galvanic nickel	+	++++	very good machinability, layers up to 1 mm	overhaul parts, machine building, chemical industry
Dispersion layer	++++	+++	suitable for high thermal exposure	drill rods, high-performance friction bearings
Thermal spraying			HVOF-, APS- and wire-flame spray processes on request	

STI ResistCoat Marine & Powertrain

Hard chrome (dimensional)	++	+	very cost-effective, layers up to 0.1 mm	piston crowns (landing surface), hydraulics and pneumatics rods, piston skirts
Hard chrome (thick)	+++	++	layer up to 1 mm, high geometric precision, high-gloss surface through grinding and polishing	ring grooves for piston crowns, bridge bearings, reconditioning layers
Multilayer hard chrome (duplex, triplex, structured)	+++	+++	high-density layer, high geometric precision, high-gloss surface through grinding and polishing	piston bowls, piston crowns, piston rings, cylinder liners

Capacity

Plating up to Ø 4,500 mm, length up to 12,000 mm, weight up to 64,000 kg;
Grinding up to Ø 6,000 mm, length up to 27,000 mm, weight up to 64,000 kg.
 For further processes and component sizes, please enquire or visit www.sti-surface.com.

0 = acceptable + = satisfactory ++ = good +++ = very good ++++ = excellent

STI Group Surface solutions worldwide.

STI Group Factors of Success

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.

www.sti-surface.com



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