

World of heat treatment.
Hardening. Consulting. Contracting.

Gerster

Hardening of stainless steel.

HARD-INOX®-S, the hardening solution for stainless steels.



The Home of HARD-INOX®-S.

The Hardening Solution for Stainless Steels! The HARD-INOX®-S process was developed by Gerster Heat Treatment Ltd. more than 10 years ago and has since been continuously optimized and improved in line with market requirements.



Hello – We Are Gerster Heat Treatment.

Gerster Heat Treatment Ltd., the Swiss market leader in heat treatment services, successfully supports customers in the hardening of stainless steels.

Our Strengths:



Quality

The HARD-INOX®-S process is equivalent to Kolsterising and in some cases exceeds the required specifications.



Expertise

Your stainless-steel components are in the best hands with us. We know stainless steel. Our specialists support you from the initial enquiry through to successful serial production treatment.



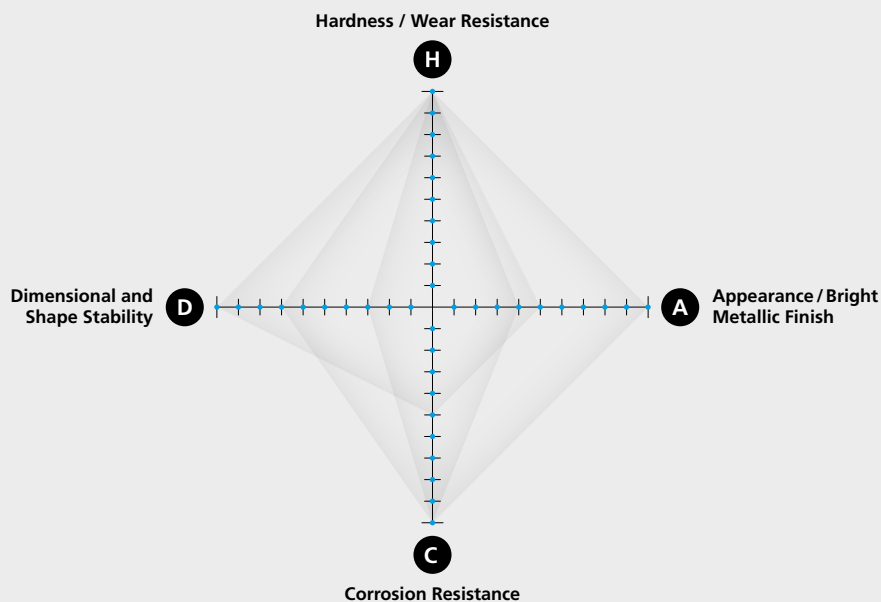
Flexibility

We are a lean, flexible medium-sized company. We provide personal, fast and straightforward support to jointly meet your technical requirements.

HARD-INOX®-S

One Process, Many Possibilities.

HARD-INOX®-S modifies the properties of stainless steels. The desired combination of hardness, wear resistance, corrosion resistance, dimensional stability and appearance can be adjusted through various process steps. This allows the process to be optimally tailored to the requirements of your component.



- Material grade and component geometry are decisive factors for the hardening process and the achievable combinations of properties.

Typical Materials

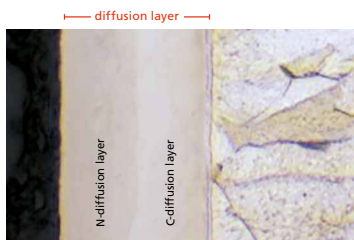
1.4305 (X8CrNiS 18-9), 1.4571 (X6CrNiMoTi17-12-2), 1.4301 (X5CrNi18-10), 1.4303 (X4CrNi18-12), 1.4435 (X2CrNiMo18-14-3), 1.4404 (X2CrNiMo17-12-2)

Hardness 900 HV to 1400 HV, i.e. 3 to 6 times higher than the core hardness.

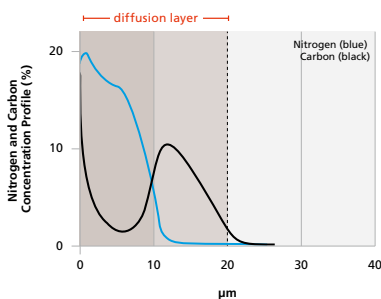
Our Hardening Process

Significant Improvement of Material Properties.

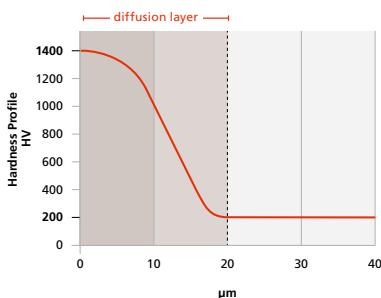
Stainless steel has a passive layer on its surface that provides excellent corrosion resistance but also prevents nitrogen and carbon from diffusing into the surface layer.



During the HARD-INOX®-S process, this passive layer is reduced sufficiently to allow nitrogen and carbon to diffuse into the surface layer of the component. After completion of the process, the passive layer reforms, ensuring corrosion resistance once again.



A concentration profile develops in the surface layer. This profile is crucial for both the improved mechanical properties and corrosion resistance. The bright outer layer (S-phase) contains the highest concentration of nitrogen and carbon. The layer thickness can reach up to 30 μm . Its bright appearance after metallographic etching indicates excellent corrosion behaviour.



Hardness is directly related to the concentration gradient of nitrogen and carbon and reaches very high surface hardness values of up to 1400 HV. The clearly visible surface layer is not a coating but a diffusion layer. Therefore, there is no risk of flaking, adhesion problems or dimensional changes to the component.

Application Properties



Hardness/Wear Resistance

HARD-INOX®-S improves resistance to Abrasion (e.g. scratches or scoring) and Adhesion wear (galling in moving contact areas).



Appearance / Bright Metallic Finish

The surface may appear dark or matte due to process-related influences. Through appropriate pre-treatment and/or post-treatment steps, a bright metallic finish can be achieved.

HARD-INOX®-S - Tailored to Your Specific Requirements.

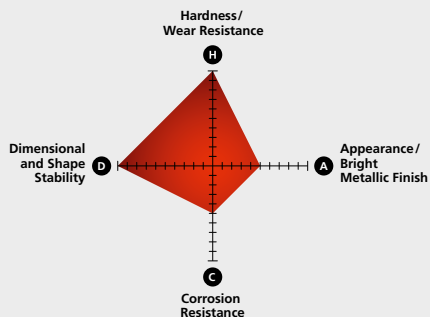
HARD-INOX®-S is used in applications such as fastening technology, mechanical engineering, precision engineering, automotive industry, valves and fittings, food industry, pump technology, plant engineering and oil & gas.

Not all requirements for a hardened stainless-steel component are equally important. We provide comprehensive advice to achieve the desired combination of properties depending on the required function and application.

Representative application examples are shown opposite.

HARD-INOX®-S I

All Stainless Steels





Corrosion Resistance

Corrosion properties can be slightly affected by the hardening process. This can be avoided through suitable pre-treatment and/or post-treatment processes.

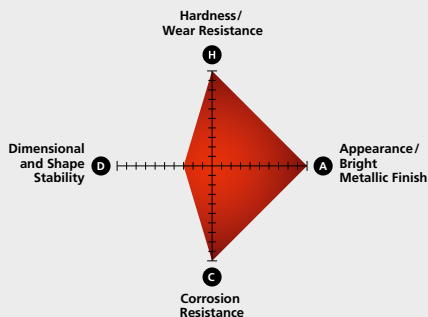


Dimensional and Shape Stability

The low treatment temperature of the hardening process prevents dimensional and shape changes. For specific reasons, prior high-temperature treatment may be beneficial. In such cases, minimal distortion may occur due to process-related factors.

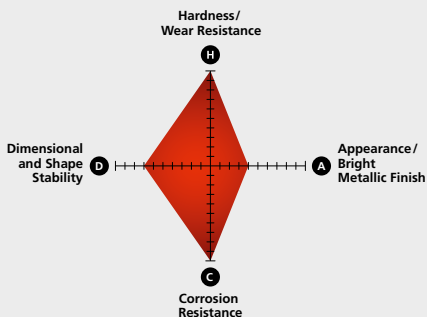
HARD-INOX®-S II

V4A stainless steels (1.4404, 1.4435, 1.4571, etc.)
Nickel-based alloys



HARD-INOX®-S III

V4A stainless steels (1.4404, 1.4435, 1.4571, etc.)
Nickel-based alloys



Hardening of Stainless Steel.

We Are Here for You.

1.

Contact us and describe the properties you require. We will advise you on heat treatment and material selection.

2.

Send us your stainless-steel component. Our team will perform the optimum HARD-INOX®-S heat treatment for your part.

3.

You will receive your hardened component together with an inspection report, to evaluate the results according to your requirements. Together, we will guide your component to serial production readiness.

Please contact us at any time if you have any questions.



André Aschwanden

Key Account Manager
andre.aschwanden@gerster.ch

+41 62 388 70 34



Patrick Margraf

Head of Market, Operations & Development
patrick.margraf@gerster.ch

+41 62 388 70 59

Härterei Gerster AG

Güterstrasse 3
4622 Egerkingen
Switzerland
www.gerster.ch

Quality Management Systems

ISO 9001; ISO 14001 (Environment)
IATF 16949 (Automotive)
ISO 13485 (Medical)
EN 9100 (Aerospace)

