BORINOX®
Hardening of Stainless Steel

BORINOX
HARDENING OF STAINLESS STEEL

THE PROBLEM

Stainless steel is always used when increased requirements are placed on the corrosion resistance of machine components. In most applications, corrosion as well as wear due to abrasion, cold welding or cavitation appear and pose new challenges to construction.

The wear problem is not resolved without suitable surface hardening. Classical methods such as nitriding help against mechanical wear, but simultaneously destroy the corrosion resistance of stainless steel caused by precipitates of chromium nitrides. High process temperatures involve the risk of dimensional and shape change. Coatings tend to flake off, cannot be applied with contour fidelity and provide insufficient wear protection due to the "eggshell effect."

OUR SOLUTION – YOUR BENEFIT

The innovative BORINOX® process produces an extremely wear and corrosion resistant surface on stainless steel. The interstitial solid solution of carbon and nitrogen generates compressive stresses in the component's peripheral zone. The precisely coordinated guided process effectively suppresses the formation of chromium nitrides and carbides. BORINOX® diffusion layers remain corrosion stable and successfully protect against wear from abrasion, cavitation, cold welding and fatigue.

BORINOX® is suitable for work pieces of only a few grams up to large components of several hundred kilos per piece. The treatment occurs very uniform with accuracy of surface. Cracks, cavities and concave geometries typically represent no problem. If necessary, masking and partial surface hardening is also possible.

Let us show you how you can ensure the essential competitive advantage for your product by using our know-how!

EN ISO 9001
DNV
Certified Company

FURTHER INFORMATION AND CONSULTING

BorTec GmbH & Co. KG · Goldenbergstrasse 2 · D-50354 Huerth
T: +49 2233 406-300 · F: +49 2233 406-333 · office@bortec.de · www.hardening-stainless.com

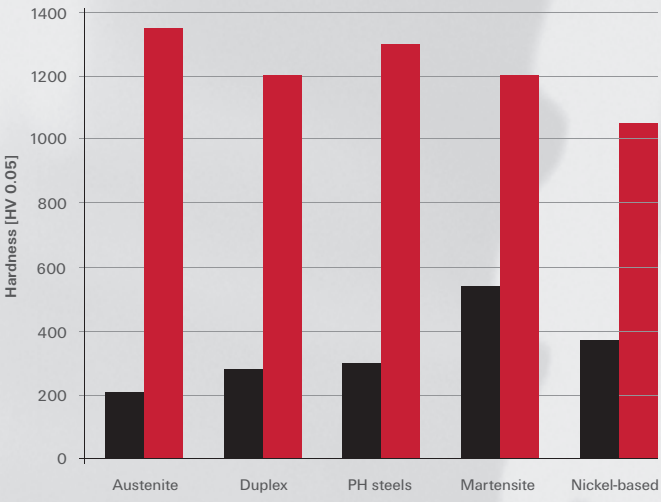
BORINOX®
Hardening of Stainless Steel

BORINOX
HARDENING OF STAINLESS STEEL

BORINOX® Diffusion zone for austenite

Cross-section of a connection (austenitic nut and bolt) shows the uniform treatment with BORINOX®. The diffusion zone produced protects against cold welding

Surface hardening **without** and **with BORINOX®**



PROPERTIES

- Surface hardness up to 1500 HV
- Diffusion layer – no coating
- Protection against abrasion, cold welding, cavitation
- Increased fatigue strength
- Improved coefficient of friction
- Corrosion resitant
- Dimensionally stable

MATERIALS

- Austenite (AISI 303, AISI 304, AISI 316LN, AISI 319L, AISI 316Ti, AISI 904L, ...)
- Duplex steels (AISI 318LN, AlloyF255, AISI 2304...)
- PH steels (17-4 PH, 17-7 PH, 15-5 PH, ...)
- Martensite (AISI 420, AISI 440A, 1.4922, ...)
- Nickel-based alloys (Inconel®, Hastelloy®, Haynes®, ...)
- Stellite

APPLICATIONS

- Automotive
- Turbocharger construction, bearings, coupling rods
- Fittings
- Valves, dampers, impellers, pumps
- Mechanical engineering
- Fasteners
- Mixer systems
- Filling and dosing lines
- Food technology

EN ISO 9001
DNV Certified Company

FURTHER INFORMATION AND CONSULTING

BorTec GmbH & Co. KG · Goldenbergstrasse 2 · D-50354 Huerth
T: +49 2233 406-300 · F: +49 2233 406-333 · office@bortec.de · www.hardening-stainless.com