

Technical Recommendations

BORINOX®



1. The Procedure

BORINOX® diffusion coating is a low temperature diffusion procedure for surface hardening of stainless steels, nickel-based and cobalt-chromium alloys without reducing corrosion resistance. In the peripheral area of materials, a function zone is produced with expanded austenite and/or ferrite. The compressive stresses generated can be measured by an increase in hardness and thus the abrasive wear resistance. Cold-welding of metallic pairings is effectively prevented. Inasmuch BORINOX® is a low temperature process, dimensional and shape changes are not expected. Partial treatments, even for complicated contours, are often possible.

2. Materials

All high-alloy stainless steel grades, nickel and cobalt-based materials are suitable for treatment according to the BORINOX® process.

3. Requirements for treated parts

In a treatment request it should be clearly defined with reference to a drawing, where the hardening should take place and which surfaces should not be hardened. This obligation, also for subsequent heat treatment, is the customer's responsibility.

Inasmuch as post-processing hard BORINOX® layers is difficult, mechanically finished parts are treated. Default sensitive parts should be stress relieved before the final machining operation.

Polished, honed and machined parts made of austenitic material grades (V2A, V4A, nickel-based alloys, etc.) should be electro-polished before BORINOX® treatment, because these materials tend to form a superficial "smear layer" during processing. This layer may cause undesirable surface defects during BORINOX® treatment.

4. Product Features

The achievable surface hardness and diffusion depth is basically dependent on the material alloy.

Therefore, target designations on drawings, specifications, purchase orders and other documents about layer thickness and surface hardness are only partially fulfilled and should be tested in case the customer has any doubt. With BORINOX® treatment, a uniform diffusion layer is formed on the component.

Technical Recommendations

BORINOX®



5. Delivery Terms

Component assemblies must be delivered dismantled into individual parts. To avoid damage during transport, the delivery should be made in suitable, stable packaging.

6. Data, Documents, Information to be Delivered

Orders and delivery slips stating the quantity, designation, material, drawing showing the functional surface to be treated, drawing number, sketch, and offer number.

Treatment relevant specifications for required documentation application areas, such as aerospace and the automotive industry.