Borocoat®
Boriding for Oil & Gas Industry

BorTec
THE EXPERTS FOR WEAR PROTECTION

WE UNDERSTAND YOUR NEEDS

In many fields of application in the oil & gas industry on shore, off shore and sub sea there are high requirements made with regard to both the functionality and the operational safety of the various key components. The processes of extraction and exploration as well as the conveyance of abrasive and corrosive substances in combination with high pressures and low temperatures makes extreme demands of construction, design and material. This is where a selected group of materials with good strength and excellent corrosion properties, for example, stainless steel and nickel-based alloys with different aging conditions, come into their own.

For complex strained components, the pure material characteristics are not sufficient to resist wear. Christmas tree components, valves, gate and regulating valves, linear actuators and drilling equipment all sustain damages caused by abrasion and adhesion, metallic seals are fretted and cannot be loosened – a latent safety risk in every operation!

OUR SOLUTION – YOUR BENEFIT

For these particular cases boronizing using the Borodur®-procedure is an excellent way of reducing wear, improving product quality, ensuring operational safety and significantly reducing the costs for production, operation and maintenance. We have modified the Borodur® boriding procedure specifically for the high alloyed materials used in the oil & gas industry, resulting in outstanding wear and corrosion properties without affecting the aging conditions of the base material. Unlike other heat treatments, Borocoat® will not significantly influence charpy impact values, fatigue strength and aging hardness. Furthermore, Borocoat® does not result in any grain boundary segregations which alter the strength of the material. No other diffusion process for surface hardening is capable of achieving such an improvement in the mechanical characteristics, such as hardness and wear protection, in combination with excellent low-temperature durability.

Wellheads Christmas tree components
Threaded linear actuators Ball valves and valve seats
Check valves Gates Hold down rings
Nuts and Bolts Tubings Drilling equipment
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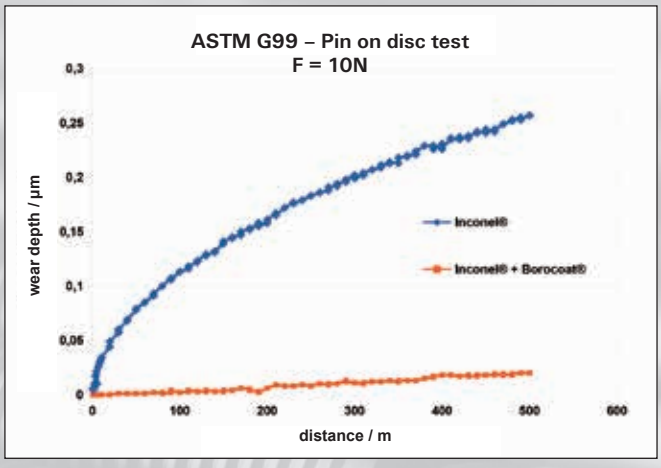
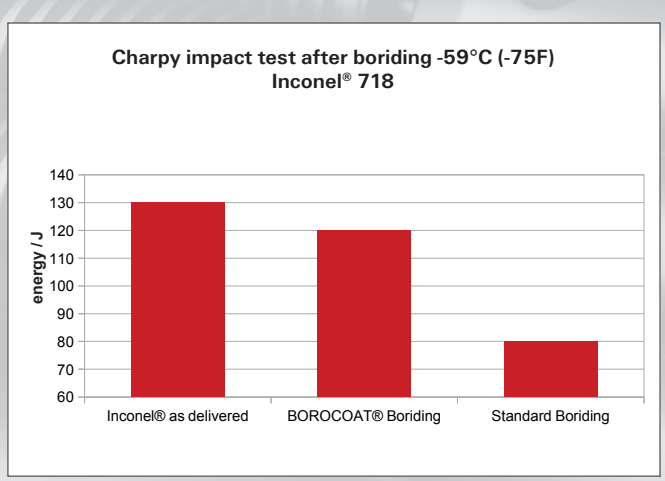


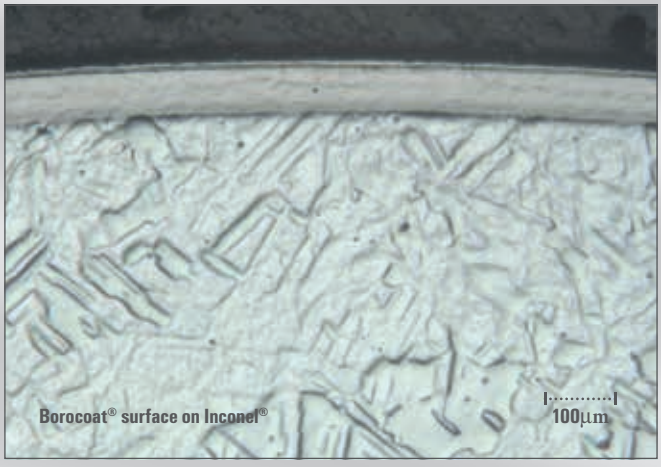
Borocoat® PROPERTIES

- Surface hardness up to 8 times higher
- Outstanding protection against abrasive wear
- Maintenance of aging conditions
- Maintenance of notch impact strength
- No cracking or spalling of functional layer
- No dimensional changes
- Prevention of galling or cold welding
- Low friction coefficient
- Resistance against sour gas environments



Borocoat® APPLICATIONS

- Wellheads
- Christmas tree components
- Threaded linear actuators
- Valve bodies, ball valves and valve seats
- Check valves, gate valves
- Hold down rings
- Tubings
- Drilling equipment
- Nuts and bolts



MATERIALS

- Quenched and tempered steel (AISI 4140, ...)
- Stainless steel (AISI 3xx series, AISI 4xx series, PH steels, Nitronic 50 ...)
- Nickel-based alloys (Inconel®, Monel®, Incoloy®, Nimonic®, Hastelloy®, Haynes® ...)

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