

BOROCOAT® TUBING pup joints & accessories

Challenge

Premature tubing and pup joint wear has caused significant cost increases and performance issues in oilfield wells for decades. Primarily, rod wear in deviated wells will cause production tubing to wear out at any contact point over a short period of time, causing the operation to shut-down and replace the damaged equipment. This creates not only increased service costs, but also lost-time and production due to the workover.

For PCP & ESP applications, high turbulent and high producing wells – especially with any acids, sand or solid content – will erode away non-treated production tubing and pup joints in a very short time. This will cause disruptions at the pump discharge and inefficiencies throughout the “trouble areas” in any well, ultimately leading to tubing and accessory wear and failure.

The cost of replacement is much more than just the equipment itself – significant down-time will have major cost implications to the end user.

Our Solution - Your Benefit

BOROCOAT® Tubing enhances the surface hardness of production tubing, pup joints and accessories, creating a wide range of significant benefits to the overall application and wellbore performance. Creating an extremely hard Iron-Boride layer on the surface drastically reduces the coefficient of friction, creating an ease of flow and less disruption and cavitation at the pump discharge.

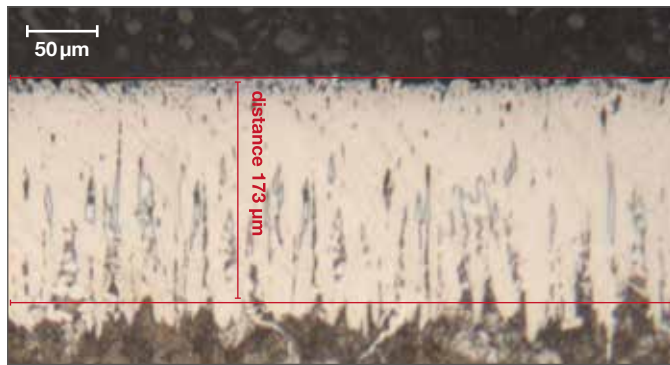
In addition, the exceptionally hardened layer provides EXTREME wear protection – specifically in deviated wells where constant rod movement is wearing holes in the tubing. High flowing wells, producing solids at high turbulent velocities will see significant run life improvement due to the exceptional abrasive wear protection with BOROCOAT® Tubing.

Finally, the dense and hardened layer will also offer increased corrosion protection against acidic environments, compared to non-treated tubulars.

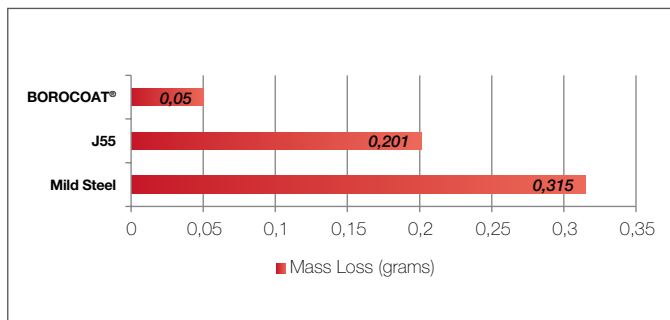
No other diffusion process for surface hardening is capable of achieving such an improvement in the mechanical characteristics, such as hardness and wear protection, in combination with durability.

Benefits to BOROcoat® Tubing & Pup Joints

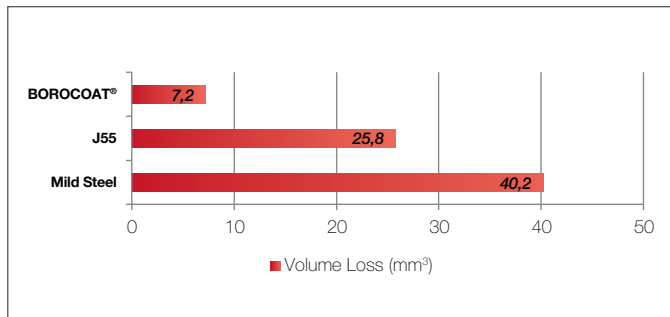
- Significantly prevents premature tubing failure due to rod wear
- Significantly reduces friction between running tools and tubing ID
- Protection against production turbulence and cavitation
- Significantly increases run life due to reduced erosion and abrasion caused by produced solids
- Increases production run time, and eliminates or substantially reduces premature downtime due to tubing failure – saving the customer time and money
- Increases protection against corrosive gasses and acid injections vs. standard J55 tubing
- Extremely hard surface layer – 1800 Vickers
- Layer thickness is adoptable from 25 – 300 µm
- No ID tolerance changes – standard API drift sizes remain the same
- Can be applied to pup joints, tubing joints, casing, and accessories



BOROcoat® layer on J55 pup joint



ASTM G65 Abrasion Test (6000 Revolutions)



ASTM G65 Abrasion Test (6000 Revolutions)

Capabilities

- BorTec offers local expertise around the globe
- Production facility and boronizing & materials experts located in Germany
- Production facility, boronizing & NICKELCOAT® experts located in Alberta (Canada)
- Production facility and boronizing experts located in Tennessee, USA
- Flexible to meet any need or requirement, between our branches, we can successfully boronize nearly any application – from small, singular orders to large scale batch production
- Size capability from extremely small components, up to range 2 tubing & casing joints