



Ultra-Hard Tungsten Carbide Based Coatings



UNITECH Offshore AS

Case Study

► Profile

UNITECH Offshore AS, founded in Bergen, Norway, in 1984, supplies high integrity products and services to the subsea oil and gas industry. UNITECH specialises in Quick Connect Engineering and Products, Subsea Distribution Systems, Intervention and Control Systems as well as offshore and site support services. The company's strengths include deep water applications, high pressure systems and components ranging up to 30,000 psi.

► Challenge

The UH-500 with integrated ball valve has been designed for critical production applications subsea, including wellhead control. Integrating a 2" reduced bore ball valve into UNITECH's standard UH-550 2" male stab connector resulted in an extremely compact and short assembly. Opening and closing of the ball valve at full working pressure of 10,000 psi is by a handle mechanism operated by the ROV manipulator while the ROV remains connected to the female connector with its class 4 torque tool. This required a coating for the ball and related sealing cartridges with extremely low friction and superior wear resistance.

The key coating requirements were:

- extreme hardness against abrasion by sand and other materials
- extreme corrosion resistance
- a smooth surface, as common coatings produce sharp needles on the surface which would damage the PEEK inlay in the sealing cartridge
- an extremely low friction factor because the valve had to be handle operated and opened/closed with low friction/torque
- a non-porous surface to provide 100 % gas-tightness (common Tungsten Carbide coatings have a porous surface)

► Solution

Hardide proposed the Hardide-T Coating as a cost-effective solution that could meet these challenges as it provides a smooth and non-porous surface, an extremely low friction factor and has proven resistant to sulphide stress cracking and stress corrosion in NACE TM0177 tests. This enabled UNITECH to design this unique subsea product of which more than 120 are currently being used. They have performed subsea for over 12 months on BP's Block 31 field in Angola.



Unitech UH-550 2" male stab connector with integrated ball valve



Hardide-coated Unitech ball

► Further information

Robin Gillham
Business Development
Manager

T: +44 (0) 7949 292 719

E: info@hardide.com

W: www.hardide.com