



CERTIFICATE OF APPROVAL

This is to certify that the following product has been reviewed and approved by Fearnley Procter FZE. and an NS-1™ Technical Review Committee.

Date of Approval: 15/08/2010

Cert/NS-1™ Approval Number: 007/11-2

Valid Until: 14/08/2012

Reviewed Against: AA.03.30.00.1110 Rev. 09

Review Number: FP FZE 435

NS-1™ Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment, Edition 2 – January 2006

Product Description: Arnco 100XT Hardbanding

Candidate: ARNCO TECHNOLOGY TRUST LTD 3657 Briarpark, Houston, Texas 77042-5205

FEARNLEY PROCTER NS-1™ LEVEL 2 PRODUCT APPROVAL
ARNCO 100XT HARDBANDING APPLICATION ON NEW DRILL PIPE TOOL
JOINTS

Scope: The procedure followed has been to compare the specific requirements of the relevant Fearnley Procter NS-1™ documentation with the submitted information, and to perform certain testing on the product.

The evaluation of the application procedures for 100XT Alloy Hardbanding on drill pipe has been performed in compliance with the general requirements and recommendations as stipulated in NS-1™ Supplementary Requirements, AA.03.30.00.1110 (Rev. 09) Section 5.0, and Sub-Specification 90.1, 90.3 and 160.

The following data was supplied and tests performed by Arnco Technology Trust to Fearnley Procter, for this approval.

1) Tensile test (base metal) 2) Micro Hardness test (across weld metal, HAZ plus base metal) 3) Hard Banding Adhesion Test Results 4) Welding Procedures/Guidelines 5) Inspection Guidelines
6) Acceptance/Rejection Criteria 7) Casing Wear Results 8) Industry feedback on the use of Arnco 100XT

Reference Documents: Arnco Hardbanding Specification Manual for the Preparation, Application and Inspection of Arnco Hardbanding Products (100XT, 150XT, 200XT and 300XT) Version 1.1, November 1, 2009

As a result of the review Arco Technology Trust Ltd 100XT Hardbanding has been granted approval for new application on drill pipe tool joints, and deemed suitable for service when applied as per the processes and procedures reviewed and the requirements of NS-1™.

Approved By:

A handwritten signature in black ink, appearing to read 'Kevin Fearnley', is written over a dotted line.

Kevin Fearnley
(Chairman NS-1™ Technical Review Committee)

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