



ABS

CERTIFICATE NUMBER

05-SG131254/1-PDA

DATE

28 November 2010

ABS TECHNICAL OFFICE

Singapore Engineering Services

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
AMERON PTE LTD - SINGAPORE

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT:

Fiberglass (FRP) Pipe, Fittings and Joints

MODEL:

Bondstrand Series 5000 & 5000C

This Product Design Assessment (PDA) Certificate 05-SG131254/1-PDA, dated 28/Nov/2010 remains valid until 27/Nov/2015 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Mahesh Peyyeti

Engineering Type Approval Co-ordinator

AB258(01/10)

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned manufacturing process without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rule 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

AMERON PTE LTD

7A TUAS AVENUE 3

SINGAPORE

639407

Singapore

Telephone: 65-861-6118

Fax: 65-861-5713

Email: hoochen_fou@ameron.com.sg

Web: www.ameron.com.sg

MA Certificate No. 06-SG733805-X

Product: Fiberglass (FRP) Pipe, Fittings and Joints

Model: Bondstrand Series 5000 & 5000C

Intended Service:

The pipes are for non-essential systems as per 4-2-2/Table 2 of MODU Rules, non-essential systems as per 4-6-3/Table 1 of Steel Vessels Rules, non-essential systems as per Section 2/Table 3 of Guide for Certification of FRP Hydrocarbon Production Piping Systems, having no requirements for fire endurance, e.g., for hypochlorite injection line

Description:

Bondstrand Filament Wound, Fiberglass Reinforced Piping System

Ratings:

Norminal Size: 1"-6"; Norminal Pressure: 16 Bar; External Pressure: N/A;

Service Restrictions:

1. The pipes are to be fitted in the locations where low flame spread characteristics is not required, such as open decks and within tanks, cofferdam, void spaces, pipe tunnels and ducts, in accordance with the requirements of the applicable Rules and Guide.
2. 5000C piping can be used where electrically conductive piping is required.

Comments:

Not Applicable

Notes / Drawings / Documentation:

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

Term of Validity:

This Product Design Assessment (PDA) Certificate 05-SG131254/1-PDA, dated 28/Nov/2010 remains valid until 27/Nov/2015 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:

2010 Steel Vessel Rules, MODU Rules, Guide for Certification of FRP Hydrocarbon Production Piping Systems

National:

NA

International:

NA

Government Authority:

NA

AMERON PTE LTD

7A TUAS AVENUE 3

SINGAPORE

639407

Singapore

Telephone: 65-861-6118

Fax: 65-861-5713

Email: hoochen_fou@ameron.com.sg

Web: www.ameron.com.sg

MA Certificate No. 06-SG733805-X

NA

EUMED:

NA

Others:

NA