



## ***Confirmation of Product Type Approval 05/DEC/2010***

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This is to certify that, pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 17/JUL/2011. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 03/OCT/2015 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid 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.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

### AMERON PTE LTD

Model Name(s): Bondstrand Filament Wound , Fiberglass Reinforced Piping System - S2000M WD, S7000M WD, S2400 WD (S2410 WD, S2412 WD, S2414 WD, S2416 WD, S2420 WD & S2425 WD) & S2400C WD (S2410C WD, S2412C WD, S2414C WD, S2416C WD, S2420C WD & S2425C WD)

**Presented to:**

AMERON PTE LTD  
7A TUAS AVENUE 3  
SINGAPORE  
Singapore

**Intended Service:**

Applications refer to 4-6-3/Table 1 of 2010 Steel Vessels Rules, 4-2-2/Table 2 of MODU Rules & Appendix 1 Section 2/Table 1 of Offshore Facilities Guide

**Description:**

Bondstrand Filament Wound , Fiberglass Reinforced Piping, with Fire Protective Coating or Tape for Fire Endurance Level 3 WD

**Ratings:**

(1a) S2000M WD (Nominal size 1 inch to 16 inch): Pressures to 17.2 bar with temperature 120 degree C; (1b) S2000M WD (Nominal size 18 inch to 40 inch): Pressures to 15.5 bar with temperature 120 degree C; (2a) S7000M WD (Nominal size 1 inch to 16 inch): Pressures to 17.2 bar with temperature 120 degree C; (2b) S7000M WD (Nominal size 18 inch to 40 inch): Pressures to 15.5 bar with temperature 120 degree C; (3) S2410 WD & S2410C WD: Nominal Pressure - 10 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8, 3x1.8, 4x1.8, 6x2.0, 8x2.6, 10x3.0, 12x3.4, 14x3.6, 16x4.0, 18x4.4, 20x4.9, 22x5.3, 24x5.8, 26x6.4, 28x6.9, 30x7.4, 32x7.9, 36x8.8 & 40x9.8; (4) S2412 WD & S2412C WD: Nominal Pressure - 12 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8, 3x1.8, 4x1.8, 6x2.2, 8x2.7, 10x3.4, 12x4.0, 14x4.3, 16x5.0, 18x5.5, 20x6.1, 22x6.6, 24x7.2, 26x8.0, 28x8.6, 30x9.2, 32x9.8, 36x11.0 & 40x12.3; (5) S2414 WD & S2414C WD: Nominal Pressure - 14 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8,

3x1.8, 4x1.8, 6x2.5, 8x3.2, 10x4.0, 12x4.8, 14x5.2, 16x5.9, 18x6.5, 20x7.2, 22x8.0, 24x8.8, 26x9.6, 28x10.3, 30x11.1, 32x11.8, 36x13.2 & 40x14.8; (6) S2416 WD & S2416C WD: Nominal Pressure - 16 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8, 3x1.8, 4x2.0, 6x2.9, 8x3.7, 10x4.6, 12x5.5, 14x6.1, 16x6.9, 18x7.6, 20x8.4, 22x9.3, 24x10.1, 26x11.2, 28x12.1, 30x13.0, 32x13.8, 36x15.5 & 40x17.3; (7) S2420 WD & S2420C WD: Nominal Pressure - 20 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8, 3x1.8, 4x2.2, 6x3.3, 8x4.3, 10x5.3, 12x6.3, 14x6.9, 16x7.9, 18x8.7, 20x9.6, 22x10.6, 24x11.6, 26x12.9, 28x13.8, 30x14.8, 32x15.8, 36x17.7 & 40x19.8; (8) S2425 WD & S2425C WD: Nominal Pressure - 25 bar, Temperature to 120 degree C, Nominal Diameter (inch) x Minimum Reinforced Wall Thickness (mm) - 2x1.8, 3x2.2, 4x2.8, 6x4.1, 8x5.3, 10x6.7, 12x7.9, 14x8.7, 16x10.0, 18x11.0, 20x12.2, 22x13.4, 24x14.6, 26x16.1, 28x17.4, 30x18.6, 32x19.9, 36x22.3 & 40x24.8;

**Service Restrictions:**

(1) Applications are limited to piping on open decks and within tanks, cofferdams, void spaces, pipe tunnels and duct where low flame spread characteristics of the pipes are not required in accordance with 4-6-3/5.13 of the 2010 Steel Vessels Rules. (2) The installation is to be in accordance with the ABS Rules/Guides, the manufacturer's recommendations, and to the satisfaction of the attending Surveyor. (3) The material of construction are to be suitable for the intended service and consistent with the manufacturer's recommendations. Plastic pipes are to be electrically conductive if the pipe passes through a hazardous zone, in accordance with 4-6-3/5.15 of the Steel Vessel Rules, 4-2-2/7.5.8 of MODU Rules and Appendix 1, Section 2.15 of Offshore Facilities Guide. S2000M WD and S2400 WD piping may not be used where electrically conductive piping is required. S7000M WD and S2400C WD piping is acceptable where electrically conductive piping is required. (4) Unit Certification is not required for this product.

**Comments:**

This Design Assessment (DA) Certificate is effective as far as DA Certificates for original products (01-SG248534/1-PDA for Models 2000M & 7000M and 01-SG248533/3-PDA for Models 2400 & 2400C, both dated 13 September 2006) are effective.

**Notes / 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-YO117616/1-PDA, dated 04/Oct/2010 remains valid until 03/Oct/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.

**ABS Rules:**

2010 Steel Vessel Rules 1-1-4/7.7 & 4-6-3, MODU Rules 4-2-2/7, Offshore Facilities Guide Appendix 1

**National Standards:****International Standards:**

IMO Resolution A.753(18) Level 3 and Level 3 WD Fire Endurance Tests

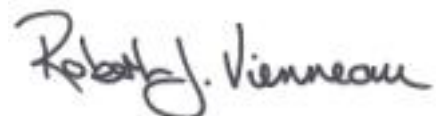
**Government Authority:****EUMED:****Others:****Model Certificate****Model Certificate No****Issue Date****Expiry Date**

PDA

05-YO117616/1-PDA

04/OCT/2010

03/OCT/2015



## ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.