



CERTIFICATE NUMBER 19-1934172-PDA-DUP
EFFECTIVE DATE 19-Aug-2020
EXPIRATION DATE 08-Dec-2024
ABS TECHNICAL OFFICE CN Shanghai ESD

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

PT. MUYI MARINE EQUIPMENT

Located at

JL. SENTOSA, SEI LEKOP, SAGULUNG, BATAM, Indonesia.

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 Thermosetting, Fiberglass (FRP) Pipe, Fittings and Joints

Model MY-MOS16 & MY-MOS16C Filament Wound & Mitering GRE Piping System

This Product Design Assessment (PDA) Certificate remains valid until 08-Dec-2024 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Bin-Hong Wang, Director

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 product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

PT. MUYI MARINE EQUIPMENT

JL. SENTOSA, SEI LEKOP, SAGULUNG,

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Tier: 5 - Unit Certification Required

Product: Thermosetting, Fiberglass (FRP) Pipe, Fittings and Joints

Model: MY-MOS16 & MY-MOS16C Filament Wound & Mitering GRE Piping System

Intended Service:

Ballast system, Bilge water, Cooling water, Vent lines, Domestic water and non-essential lines.

Marine & Offshore Application - Piping Systems for Cargo (Flammable Cargoes with flash point <60 °C); Inert Gas; Flammable Liquids (flash point >60 °C); Seawater; Freshwater; Sanitary/Drains/Scuppers; Sounding/Air/Vents; Miscellaneous (Brine), in locations requiring IMO Level 3 or lower, fire endurance rating.

Description:

Glass Fiber Reinforced Plastic Pipes & Fittings

Pipe and fittings are manufactured as either non-conductive (MY-MOS16) or electrically conductive (MY-MOS16C) versions.

Rating:

DN25 to DN1100 (1" – 44"); PN1.6 (Design internal pressure: 16Bar)

Maximum external pressure: 3.8 bar

Fire Endurance Level; Level 3

Max working temperature: 93°C

MY-MOS16: None- Conductive

MY-MOS16C: Conductive (Unit length of each product 10^5 Ohm/m ; and 10^6 Ohm/m from any point in the system to earth)

Service Restriction:

1. Unit certification is required for this product unless the manufacturer has a quality system and be certified in accordance with ABS MVR 1-1-A3/5.3 and 1-1-A3/5.5 or ISO 9001 (or equivalent).
2. Where the manufacturer does not have a certified quality system in accordance with ABS MVR 1-1-A3/5.3 and 1-1-A3/5.5 or ISO 9001 (or equivalent), the tests in ABS MVR 4-6-3/5.1 through 4-6-3/5.15 and 4-6-3/19, as applicable, will be required using samples from each batch of pipes being supplied for use aboard the vessel and are to be carried out in the presence of the Surveyor.
3. Each length of pipe and each fitting is to be tested at the manufacturer's production facility to a hydrostatic pressure not less than 1.5 times the maximum allowable internal pressure of the pipe in ABS MVR 4-6-3/5.1. If the manufacturer does not have a certified quality system in accordance with ABS MVR 1-1-A3/5.3 and 1-1-A3/5.5 or ISO 9001 (or equivalent), the test is to be witnessed by the Surveyor.
4. The manufacturer is to provide documentation certifying that all piping and piping components supplied are in compliance with the requirements of ABS MVR Section 4-6-3.
5. The pipes and fittings may only be used in the systems and locations where L3 level application or below are indicated in 4-6-3/Table 1 of Marine Vessel Rules.
6. MY-MOS16&MY-MOS16C pipes and fittings are allowed to be used in locations where low flame spread characteristics of the pipes are required by 4-6-3/5.13 of Marine Vessel Rules .
7. MY-MOS16C can be used in hazardous areas and locations where electrical conductivity is required as per 4-6-3/5.15.2 of Steel Vessel Rules and 4-2-2/7.5.8(b) of Mobile Offshore Drilling Unit Rules.
8. The installation of pipes and fittings is to be in accordance with 4-6-3/7 of Marine Vessel Rules, 4-2-2/7.9 of Mobile Offshore Units Rules and the Manufacturer's instruction.
9. The plastic pipes and fittings are not to be used in systems connected to the shell of the vessel and offshore unit. MY-MOS16 & MY-MOS16C GRE pipe lines are not directly connected to the shell of the vessel, it would be applied in strict accordance with requirements of 4-6-3/7.9 of Marine Vessel Rules.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

Drawing / Documentation No Drawing Title

MY-MOS16/16C-TA-2016-01 Type approval documents for MY-MOS16&16C Marine-Offshore GRE pipe

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Tier: 5 - Unit Certification Required

MY-MOS16/16C-PDD-2016-01 Product Design Data for MY-MOS16&16C Marine-Offshore GRE pipe
MY-MOS16/16C-PM-2016- 01 Product Manual for MY-MOS16/16C Marine-Offshore GRE Pipe
MY-MOS16/16C-IH-2016-01 Installation manual for MY-MOS16/16C Marine-Offshore GRE Pipe
ITP-MY-MOS16/16C-001 Inspecting & Testing Plan for MY-MOS16&16C Marine-Offshore GRE Pipe
MY-MOS16/16C-LTD-2016-01 Laboratory Test & Determination calculation Data
MY-Q-P-GE-010 Bonding Training & Qualification
NA Test Plan for Initial Type Approval MY-MOS16&16C Marine-Offshore GRE Pipe
MY-Q-P-GE-011 Spool Bonding Qualification Testing Procedure for ABS Type Approval
MY-RP-20170301 Replies for comments of Project Number 3750588: PDA of Marine Offshore GRE PIPE.
Spool-1 Test spool Drawing for ABS bonding qualification

Test Report:

Burst Test Report No. QP.8.203(11)A dated 27 September 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
External Pressure Test Report No. QP.8.203(10)A dated 7 September 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
External Load Test Report No. QP.8.203(14)A dated 14 November 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Vacuum Test Report No. QP.8.203(17)A dated 14 November 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Long-term internal Pressure Test (10000 hours) Report No. MY-MOS16/16C-TR-2017-02 dated 19 April 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Long-term internal Pressure Test (1000 hours) Report No. 20161126E-1 dated 16 February 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Impact Resistance Test Report No. 20161126E-2 dated 16 February 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
HDT Test Report No. 20161126E-3 dated 16 February 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Axial Tensile Test Report No. 20161126E-4 dated 16 February 2017 carried out in Test Center of Shanghai FRP Research Institution
Load Deformation Test Report No. 20161126E-6 dated 16 February 2017 carried out in Test Center of Shanghai FRP Research Institution
Aging Test Report No. 20161126E-7 dated 16 February 2017 carried out in Test Center of Shanghai FRP Research Institution
Fluid Absorption Test Report No. 20161126E-10 dated 27 February 2017 carried out in Test Center of Shanghai FRP Research Institution
Material Compatibility Test Report No. 20161126E-8 dated 16 February 2017 carried out in Test Center of Shanghai FRP Research Institution
Conductivity Test Report No. 20161126E-9 dated 16 February 2017 carried out in Test Center of Shanghai FRP Research Institution
L3 Fire Endurance Test Report No. FT16431, FT16432 and FT16433 dated 5 December 2016 carried out in Far East Fire Testing Center
Low Flame Test Report No. FT16385 dated 11 January 2017 carried out in Far East Fire Testing Center
Smoke and Toxicity Report No. FT16384 dated 21 December 2016 carried out in Far East Fire Testing Center
Bonding Qualification Test Report No. QP.8.203(17)A dated 28 December 2016 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Bonding Qualification Test Report No. SQ3220440-1 dated 9 January 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Hoop Tensile Test Report No. 20161126E-5 dated 16 February 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Asbestos Free Test Report No. SZT201701030015E dated 11 January 2017 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.
Burst Test Report No. QP.8.203(11)A dated 27 November 2018 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.

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External Pressure Test Report No. TR2018112701 and TR2018112702 dated 27 November 2018 carried out in SUZHOU CITY MUYI SHIPPING EQUIPMENT CO., LTD.

External Load Deformation Test Report No. TR2018112703 dated 27 November 2018 carried out in Test Center of Shanghai FRP Research Institution

Terms of Validity:

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STANDARDS

ABS Rules:

ABS Rules for Building and Classing Steel Vessels 2019: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-3

ABS Rules for Building and Classing Marine Vessels 2019: 1-1-4/7.7, 1-1-A3, 1-1-A4,, 4-6-3

ABS Rules for Building and Classing Steel Vessels Under 90m in Length 2019: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-4-2/7

ABS Rules for Building and Classing Offshore Support Vessels 2019: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-3

ABS Rules for Building and Classing Mobile Offshore Units 2019: 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-2/7

ABS Rules for Building and Classing Mobile Offshore Drilling Units 2019: 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-2/7

National:

NA

International:

IMO Resolution A.753(18) adopted on 4 November 1993 as amended by IMO Resolution MSC. 313(88) adopted on 26 November 2010 and IMO Resolution MSC. 399(95) adopted on 5 June 2015

Government:

NA

EUMED:

NA

OTHERS:

NA