



CERTIFICATE NUMBER
15-LD1380701-PDA

DATE
07 Jul 2015

ABS TECHNICAL OFFICE
London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

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

TEGA ENGINEERING INDUSTRY AND TRADE INC.

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: **Thermoplastic Pipe, Fittings and Joints**

Model: **PE100 Electrofusion(EF) Pipe Fittings**

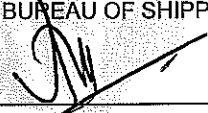
This Product Design Assessment (PDA) Certificate 15-LD1380701-PDA, dated 07/Jul/2015 remains valid until 06/Jul/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

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.

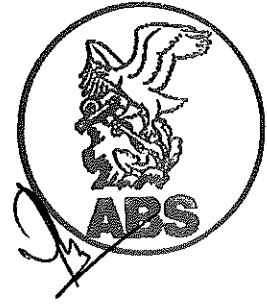
AMERICAN BUREAU OF SHIPPING


Mohammed K.M. Abbas
Engineer

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 the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

TEGA ENGINEERING INDUSTRY AND TRADE INC.

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Web: www.tega.com.tr



Tier: 2 - PDA Issued

Product: Thermoplastic Pipe, Fittings and Joints

Model: PE100 Electrofusion(EF) Pipe Fittings

Intended Service:

Marine and Offshore Installations for non-essential water based systems and other piping systems where no fire endurance is required.

Description:

PE100 electrically non conductive thermoplastic pipe fittings

Rating:

Maximum allowable working temperature 22 Degree C. Refer manufacturer's catalogue for different pipe fittings, sizes and maximum allowable pressures.

Service Restriction:

1. Not to be installed in spaces where fire endurance test is required by the Fire endurance Matrix, 4-6-3/ Table1 of the Rules or where toxicity or smoke generation tests as per IMO Res. A.753(18) are required.
2. Tested for flame spread requirements as per ASTM D635-10. Acceptability of flame spread tests performed in accordance with ASTM D635-10 may be subject to acceptance of such testing in lieu of IMO Flame spread test by the Administration of the vessel's Registry.
3. Not be used for vacuum conditions or subjected to external pressure unless verified experimentally or by a combination of testing and calculation methods, details of which are to be submitted to ABS for approval in accordance with 4-6-3/5.3 of steel vessel rules.
4. Not electrically conductive, so should not be used in Hazardous area applications.
5. Unit Certification is not required for this product. If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

1. Components are to be permanently marked with identification in accordance with a recognised standard. Identification to include pressure ratings, design standard to which the pipe fitting is manufactured, material and date of manufacturing.
- 2.. Installation to be carried out by qualified personnel in accordance with the manufacturer's instruction. Each particular application/ installation is to be specifically approved in conjunction with the relevant system.
3. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

1. Exova Warrington fire Flame Spread test report for PE-100, Report no.336918, dated: 11 February 2014, Test method - ASTM D 635-10.
2. Exova Warrington fire Flame Spread test report for PE-100, Report no.336919, dated: 11 February 2014, Test method - ASTM D 635-10.
3. SKZ test report no.91033/10 dated 03 August 2011.
4. SKZ inspection report no.464713/0.1/107547 dated 08 November 2013.
5. SKZ inspection report no.464712/0.1/102698 05 November 2012.
6. SKZ inspection report no.464711/0.1/98230 dated 18 January 2012.
7. SKZ inspection report no.199212/2.1/104784 dated 04 April 2013.
8. SKZ inspection report no. 199212/1.1/102762 dated 05 November 2012.
9. SKZ inspection report no.199112/2.1/104785 dated 04 April 2013.
10. SKZ inspection report no.199112/1.1/102763 dated 18 December 2012.
11. SKZ inspection report no.199111/S1.1/104792 dated 24 May 2013.
12. SKZ inspection report no.199111/S2.1/100179 dated 30 April 2012.

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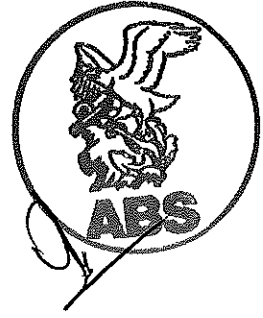
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Tier: 2 - PDA Issued

13.SKZ inspection report no.114581/15 dated 23 March 2015.
14.SKZ inspection report no. 464812/WO.1/104794 dated 24 April 2013
15.SKZ inspection report no. 464713/0.1/107547 dated 8 November 2013
(See Attached List of Products)

Terms of Validity:

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STANDARDS

ABS Rules:

Rules applicable to this assessment are:

2015 Steel Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-3/5.1, 4-6-3/5.5, 4-6-3/5.7, 4-6-3/ 5.9, 4-6-3/ 5.13.1, 4-6-3/ 5.17, 4-6-3/ 7.7, 4-6-3/ 9, 4-6-3/ 19,
2015 Mobile Offshore Drilling Unit Rules 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-2/7.5.1, 4-2-2/7.5.4, 4-2-2/7.5.5, 4-2-2/7.5.7(a), 4-2-2/7.5.9, 4-2-2/7.9, 4-2-2/7.19

National:

ASTM D635-10, DIN EN 12201-3: 2013, DIN EN 1555-3: 2011

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA