



CERTIFICATE NUMBER
15-HG1421255-PDA

DATE
16 Oct 2015

ABS TECHNICAL OFFICE
Hamburg Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

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

VOLZ GRUPPE GMBH

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: **Pipe Fittings**

Model: **24° Stainless Steel pipe fittings.**

This Product Design Assessment (PDA) Certificate 15-HG1421255-PDA, dated 16/Oct/2015 remains valid until 15/Oct/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



Evgenij A Nevrotov
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).

VOLZ GRUPPE GMBH

POSTFACH 16

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Tier: 2 - PDA Issued

Product: Pipe Fittings**Model:** 24° Stainless Steel pipe fittings.**Intended Service:**

Mechanical Joints for use in shipboard piping systems, except those excluded under below Service Restrictions.

Description:

Stainless Steel pipe fittings, bite and compression type made from material, grade: 1.4571/X6CrNiMoTi17-12-2 acc. to EN 10088-3 intended for tube outside diameters from 4 mm to 42 mm.

Available product lines: LL (very light gauge), L (light gauge) and S (heavy gauge).

Sealing rings for dedicated pipe fittings,

FPM (Viton), -25°C to +200°C or

PTFE (Teflon), -60°C to +200°C.

Required pressure reductions at elevated temperatures:

Temperature [°C]/Reduction [%]: 50°C/4.5%, 100°C/11%, 200°C/20%, 300°C/29%, 400°C/33%.

Rating:

Normal working pressures defined at 20°C:

Product line LL (very light gauge):

4 mm to 8 mm tube outside diameter - 100 bar.

Product line L (light gauge):

6 mm to 10 mm tube outside diameter - 500 bar.

12 mm to 18 mm tube outside diameter - 400 bar.

22 mm to 42 mm tube outside diameter - 250 bar.

Product line S (heavy gauge):

6 mm to 10 mm tube outside diameter - 800 bar.

12 mm to 16 mm tube outside diameter - 630 bar.

20 mm to 38 mm tube outside diameter - 420 bar.

Service Restriction:

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Fittings were not tested for fire endurance. Therefore, those models that include any components which readily deteriorate in case of fire, such as FPM, PTFE seals, are not to be used in fuel-, lube-, hydraulic-, thermal oil lines-, vent lines-, fire fighting applications or any others requiring fire endurance.

Threaded couplings, type: GS-V and WS-V are not to be used in Class A/B Divisions and watertight bulkheads.

Couplings with tapered pipe threads are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495 degrees C. In class I and class II piping systems in general, for joining sections of pipes and for steering gear-, controllable pitch propeller-and propulsion related hydraulic systems their use is limited to the following restrictions: 4 mm to 20 mm OD for 100 bar, >20 mm to 25 mm for 82.8 bar, >25 mm to 42 mm for 41.4 bar. In other hydraulic oil systems they may be used without pressure limitation only for connection to equipment, such as pumps, valves, cylinders, accumulators, gauges and hoses.

The material test report is to be made available to the attending Surveyor.

The test report of the Charpy impact test is to be made available to the attending Surveyor.

Comments:

The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The application and installation of the fittings is to be in accordance with the manufacturer's specifications and instructions and is to be specifically approved in connection with the relevant piping system. Generally, care is to be taken to prevent built-up of static electricity in piping conveying fluids having flash point of 60°C or less or being routed through hazardous areas.

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The wall thickness and material of the tubes used in connection with these pipe fittings is to be in accordance with the Bureau's current Rules.

Notes/Drawing/Documentation:

Drawing No. none, Certificate, Revision: -, Pages: 10

Drawing No. none, Testing, Revision: -, Pages: 8

Drawing No. DNV test 27-03-09, testing, Revision: -, Pages: 7

Drawing No. none, DNV test certificate fittings, Revision: -, Pages: 9

Drawing No. none, protocols testing, Revision: -, Pages: 73

Terms of Validity:

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STANDARDS**ABS Rules:**

Rules for Conditions of Classification, Part 1 - 2015 Steel Vessel Rules 1-1-4/7.7, 1-1-Appendix 3, 1-1-Appendix 4, which covers the following:

Steel Vessels (2015): 4-1-1/Table 6, 4-3-4/9.5.2, 4-6-1/7.1, 4-6-2/5.5.5/5.9/Table 9/10/11/12

Guide for the Classification of Drilling System 2012 (Up-dated Feb 2014): Section 4/Table 1 (Components:

Interconnecting Piping), Section 5 and 6

Rules for Building and Classing Mobile Offshore Drilling Units (2015): 4-2-1/3.13, 4-2-1/9.1, 4-2-6/3.7, 4-2-6/5.5, 6-1-6/5

National:

DIN 3859 2005-9, DIN 2353: 2013-01

International:

DIN EN ISO 8434-1: 2008-02, 8434-1: 2007 (D), EN ISO 1127: 1996

Government:

NA

EUMED:

NA

OTHERS:

IACS UR P2.7.4 (Rev. 5 Nov 2003), (Rev. 6 May 2006), (Rev. 7 Sept 2007),

IACS UR P2.11 (Nov 2001) (Rev. 1 May 2006), (Rev. 2 Nov 2006), (Corr. 1 Apr 2007), (Rev. 3 Aug 2012) (except

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P.2.11.5.5.6 fire endurance test).