



CERTIFICATE NUMBER

05-HG209151-2-PDA

DATE

09 February 2011

ABS TECHNICAL OFFICE

Hamburg Engineering Services

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
VOSS FLUID GMBH - D-51688 WIPPERFUERTH

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: **Bite Type Tube Fittings**

MODEL: **ES-4 Tube Couplings**

This Product Design Assessment (PDA) Certificate 05-HG209151-2-PDA, dated 09/Feb/2011 remains valid until 08/Feb/2016 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

Michael R. V. Zech

Engineering Type Approval Co-ordinator

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).

VOSS FLUID GMBH

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Germany
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Email: fluid@voss.de
Web: www.voss.de

MA Certificate No. 10-HN1778758-X

Product: Bite Type Tube Fittings

Model: ES-4 Tube Couplings

Intended Service:

For use in steel piping systems.

Description:

Bite type tube couplings with VOSS 2S, two edged, cutting ring and with additional (NBR, FPM/ FKM) soft seal elements provided in the secondary zone. Coupling types as per VOSS Catalogue (9177003102/200805/03/05.0/2).

Ratings:

Series L (light):

6 mm to 10 mm OD for 500 bar; 12 mm to 18 mm OD for 400 bar; 22 mm to 42 mm OD for 250 bar.

Series S (heavy):

6 mm to 10 mm OD for 800 bar; 12 mm to 16 mm OD for 630 bar; 20 mm to 38 mm OD for 420 bar. Operating temperatures depending on coupling and sealing materials, as per manufacturer's specification (see Comments).

Service Restrictions:

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.

Coupling types with tapered pipe threads are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495°C. In Classes I and II piping systems in general, for joining sections of hydraulic pipes and for steering gear-, controllable pitch propeller- and propulsion related hydraulic systems their use is limited to the following restrictions: 6 mm to 20 mm OD for 103 bar; 22 mm to 25 mm OD for 82.8 bar; 28 mm to 42 mm OD 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. Straight-thread O-ring type fittings may be used for connections to equipment in hydraulic oil piping, without pressure and service limitation, but are not to be used for joining sections of pipes. Generally, care is to be taken to prevent build-up of static electricity in piping conveying fluids having flash point of 60°C or below or being routed through hazardous areas.

Comments:

The above maximum working pressures are less than or equal to 1/4 burst pressure. In order to retain this safety factor of four (4), the specified maximum working pressures may be reduced depending on operating temperatures, high pressure surges etc. The application and installation of the couplings is to be in accordance with manufacturer's specifications and instructions and is to be approved in conjunction with the relevant systems. Metallic materials except austenitic stainless steel and used in piping systems operating at or below -18°C are to have adequate notch toughness properties (See Section 4-6-2/3.1.6 of the Steel Vessel Rules. The wall thickness of tubes used in connection with ES-4 type fittings is to be in accordance with the Bureau's current Rules.

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.

Examination Test Report: AEL 214/06/1.

WTD - ISO 19921/22 Fire Test Reports.

IMA Dresden - Test Report to IACS UR P2.11.

TÜV - ISO 9001 Certification.

Term of Validity:

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MA Certificate No. 10-HN1778758-X

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STANDARDS**ABS Rules:**

2011 Steel Vessel Rules 1-1-Appendix 3, 4-6-2/5.5.5, 4-6-2/5.9

National:

DIN 2353, 3852, 3861, 3870, 3859, 2391C

International:

ISO 8434-1, IACS UR P2.7.4, UR P2.11.

Government Authority:

NA

EUMED:

NA

Others:

NA