



CERTIFICATE NUMBER
18-HG1704121-PDA

DATE
08 Jan 2018

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
EXMAR 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: **Tube Fittings**

Model: **Exmar Cutting Ring Fittings and Exmar Tapered Seal Connections**


This Product Design Assessment (PDA) Certificate 18-HG1704121-PDA, dated 08/Jan/2018 remains valid until 07/Jan/2023 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


Dagmar Gramatzki
Engineer/Consultant

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).

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Tier: 2 - PDA Issued

Product: Tube Fittings**Model:** Exmar Cutting Ring Fittings and Exmar Tapered Seal Connections**Intended Service:**

Tube fittings for marine and offshore systems

Description:

Cutting Ring Fittings: compression type tube fittings including straight fittings, equal elbows, equal tees, equal crosses, bulkhead couplings, bulkhead elbow couplings, reducing unions, tube end reducers, T-reducing fittings, straight connectors male, straight connectors female.

Tapered Seal Connections: straight thread O-ring type fittings including stud standpipe adaptors, adjustable equal elbows, adjustable equal tees, adjustable male stud tee-stud barrel, straight couplings.

Rating:

Couplings are manufactured from AISI 316 Ti material. Stainless steel unions can be used up to a temperature of 400°C. Exceptions to this are soft-seal unions or tapered seal unions, which may only be used up to +200°C. Material AISI 316 Ti needs a reduction in pressure as a function of temperature. Please consult manufacturer for temperature and pressure ratings in detail.

Cutting Ring Fittings: Three ranges of couplings (LL, L and S) cover a pressure range up to 800 bar.

Serie LL: (extra light) tube diameter: 4 - 12 mm nominal pressure (PN) 100 bar.

Serie L: (light) tube diameter 6 - 10 mm PN 500 bar, tube diameter 12 - 18 mm PN 400 bar, tube diameter 22 - 42 mm PN 250 bar.

Serie S: (heavy) tube diameter 6 - 10 mm PN 800 bar, tube diameter 12 - 16 mm PN 630 bar, tube diameter 20 - 38 mm PN 420 bar.

Tapered Seal Connections: Two ranges of couplings (L and S) cover a pressure range up to 800 bar..

Serie L: 6 - 10 mm PN 500 bar, 12 - 18 mm PN 400 bar, 22 - 42 mm PN 250 bar.

Serie S: 6 - 10 mm PN 800 bar, 12 - 16 mm PN 630 bar, 20 - 38 mm PN 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.

- Straight thread O-ring type fittings may be used for pipe connection to equipment such as pumps, valves, cylinders, accumulators, gauges and hoses, without size and pressure limitations. However, such fittings are not to be used for connecting sections of pipe as per section 4-6-7/Table 1 of the Steel Vessel Rules.

Comments:

- The manufacturer has provided a declaration about the control of, or the lack of asbestos in this product.

- For pressure ratings higher than the maximum working pressures specified in section 5.5/Table 1 DIN EN ISO 8434-1:2008 and for dynamic conditions, the manufacturer shall be consulted.

Notes/Drawing/Documentation:

Document No. 2016 Sortimentspruefung, Burst Pressure Test Results 2016, Revision: -, Pages: 2.

Document No. DNV Zusammenfassung fuer ABS, Pressure Test Procedure, Revision: -, Pages: 2.

Document No. DNV-ISO9001-EXMAR_de, ISO9001 Certificate EXMAR, Revision: -, Pages: 1.

Document No. IMA Testreport Annex 1_, Test Report of 27 Oct 2011_ IMA Dresden_ Annex 1, Revision: -, Pages: 14.

Document No. IMA Testreport Annex 2_, Test Report of 27 Oct 2011_ IMA Dresden_ Annex 2, Revision: -, Pages: 18.

Document No. IMA Testreport Annex 3, Test Report of 27 Oct 2011_ IMA Dresden_ Annex 3, Revision: -, Pages: 1.

Document No. IMA Testreport C080_11_, Test Report of 27 Oct 2011_ IMA Dresden_ Type Approval Tests-Exmar Cutting Ring Couplings, Revision: -, Pages: 19.

Document No. Sortimentspruefungen_ Uebersicht, Test Plan Overview, Revision: -, Pages: 1.

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Document No. Test sample definition, Burst Pressure Test Procedure_Test Samples definition, Revision: -, Pages: 2.
Document No. V16_10_Schneidringverschraubungen_07_2017, Exmar Catalogue Cutting Ring Fittings, Revision: -, Pages: 202.

Terms of Validity:

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STANDARDS**ABS Rules:**

2018 Steel Vessel Rules: 1-1-4/7.7, 1-1-A3 and A4, 4-1-1/7.1 /7.5, 4-6-1/7.1, 4-6-2/5.9 /Table 12, 4-6-7/3.5 /Table 1.

National:

NA

International:

DIN EN ISO 8434-1:2008 Metallic tube connections for fluid power and general use.

Government:

NA

EUMED:

NA

OTHERS:

NA