



CERTIFICATE NUMBER	23-2354152-PDA
EFFECTIVE DATE	17-Feb-2023
EXPIRY DATE	16-Feb-2028
ABS TECHNICAL OFFICE	Hamburg Engineering Department

## CERTIFICATE OF Product Design Assessment

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

### **EXMAR GMBH**

located at

**AM TAUBENBAUM 6, , D-61231 BAD NAUHEIM, Germany**

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  
**Endorsements:**  
**Tier:** 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 16/Feb/2028 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



Efstratios Maliatsos, 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 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**

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

**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 Marine 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 under DIN EN ISO 8434-1:2018 and for dynamic conditions, the manufacturer shall be consulted.

**Notes/Drawing/Documentation:**  
Drawing No. Correspondence, Correspondence\_Input E-Mail\_Clarifications, Revision: -, Pages: -  
Drawing No. DeclarationOfConformity, DeclarationOfConformity, Revision: -, Pages: -  
Drawing No. PDA\_Online-Request-Form, PDA\_Online-Request-Form, Revision: -, Pages: -

----- Drawings as of 18-HG1704121-PDA -----

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.

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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.

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:**

This Product Design Assessment (PDA) Certificate remains valid until 16/Feb/2028 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).

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**STANDARDS**

**ABS Rules:**

2023 Marine Vessel Rules: 1-1-4/7.7, 1-1-A3 and A4, 4-6-1/7.1, 4-6-2/5.9 /Table 12, 4-6-7/3.5 /Table 1.  
2023 Mobile Offshore Unit Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3.

**National:**

NA

**International:**

DIN EN ISO 8434-1:2018 Metallic tube connections for fluid power and general use.

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA