



CERTIFICATE NUMBER	21-2063781-PDA
EFFECTIVE DATE	12-Jan-2021
EXPIRY DATE	11-Jan-2026
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

VOSS FLUID GMBH

located at

**LUEDENSCHIEDER STR. 52-54, D-51688 WIPPERFUERTH,
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: Bite Type Tube Fittings
Model: ES-4 Tube Couplings
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 11/Jan/2026 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)

VOSS FLUID GMBH

LUEDENSCHIEDER STR. 52-54

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Germany

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Web: www.voss.net

Tier: 3 - Type Approved, unit certification not required

Product: Bite Type Tube Fittings

Model: ES-4 Tube Couplings

Endorsements:

Intended Service:

For use in steel piping systems.

Description:

Bite type tube couplings with VOSS ES-4, two edged, cutting ring and with additional (NBR, FKM) soft seal elements provided in the secondary zone.

Coupling types as per VOSS Catalogue.

Rating:

- 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 Restriction:

1. Unit Certification is not required for this product.

2. 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.

3. Materials are to be compatible with the piping material and internal and external media.

4. 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.

5. This product may be used for Classes I and II piping up to and including 60 mm outside diameter.

6. Other service restrictions are to be in accordance with 4-6-2/Table 10 of Marine Vessels Rules

7. This product is not approved for piping penetrations through watertight, fire tight and smoke tight bulkheads

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2. 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.

3. 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.

4. 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 4-6-2/3.1.7 of the 2021 Marine Vessel Rules).

5. 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/Drawing/Documentation:

Drawing No. 0267 Test Report_English, 2018_0267 Test Report_English, Revision: 0, Pages: 11

Drawing No. 214a, GL report 2006, Revision: -, Pages: 26

Drawing No. Flammbestaendigkeit WTD71 Kiel Druckstufenerhoehung 2006, fire test 2006, Revision: -, Pages: 13

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Drawing No. Part 1 voss catalog, 2018 Part 1, Revision: 0, Pages: 250

Drawing No. Product information ES-4, Catalogue May 2015, Revision: 0, Pages: 3

Drawing No. Test Report_C101_06, IACS P2 11 2006, Revision: -, Pages: 24

Drawing No. act on form alert, Request form, Revision: -, Pages: 3

Drawing No. voss_catalog_hydraulic-connection-technology_en_reduced, 2018 Part 2, Revision: 0, Pages: 287

Terms of Validity:

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STANDARDS

ABS Rules:

2021 Rules for Conditions of Classification: 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2021 Rules for Building and Classing Marine Vessels: 4-6-2/5.9, 4-6-2/Table 10, 4-6-2/Table 11, 4-6-2/Table 12

National:

- DIN 2353:2013-01
- DIN 3852-1:2014-05
- DIN 3852-2:2014-05
- DIN 3861:2016-09
- DIN 3870:2001-09
- DIN 3859-1:2005-09
- DIN 3859-2:1999-07
- DIN EN 10305-4:2016-08
- SAE J518/3, 2015-11

International:

ISO 8434-1 :2018-11, ISO 6149-1 :2019-4, ISO 6149-3: 2007-05

DIN EN ISO 19879: 2019-04

IACS U.R. P2.7.4 Rev. 9 Oct 2018 & U.R. P2.11 Rev. 4 Mar 2016

Government:

NA

EUMED:

NA

OTHERS:

NA