



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

26-0539561-PDA
29-May-2026
28-May-2031
Singapore Engineering Services

CERTIFICATE OF Product Design Assessment

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

VOLZ GRUPPE GMBH

located at

POSTFACH 16, , D-78586 DEILINGEN, 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: Pipe Fittings
Model: 24° Carbon Steel Pipe Fittings
Endorsements:
Tier: 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 28/May/2031 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

Guanying Wu, 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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POSTFACH 16

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Germany

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Product: Pipe Fittings
Model: 24° Carbon Steel Pipe Fittings
Endorsements:

Intended Service:

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

Description:

Pipe fittings, bite and compression type. Materials: Carbon Steel: C15, C22, St-37. 0, St-37-2 and 9SMNPb28B (1. 0718) 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, PTFE (Teflon), -60°C to +200°C or NBR, -30°C to 120°C.

Operating temperature range of mechanical joints: -20°C to +120°C.

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:

1) 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.

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

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

4) 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.

Comments:

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

2) The application and installation of the fittings are to be in accordance with the manufacturer's specifications and instructions and is to be specifically approved in connection with the relevant piping system.

3) 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.

4) The wall thickness and material of the tubes used in connection with these pipe fittings are to be in accordance with

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the Bureau's current Rules.

5) Ferrous materials used in piping systems operating at lower than -18°C are to have adequate notch toughness properties. (See 4-6-2/3.1.7 of the Marine Vessels Rules).

Notes/Drawing/Documentation:

Drawing No. None I, Design Drawings, Revision: -, Pages 42

Drawing No. None II, Catalogue (2009 Edition), Revision: -, Pages 138

Drawing No. Prüfzeugnis Nr 120016095, Certificate, Revision: -, Pages: 10

Drawing No. Commencement of Testing 2nd March 1995, Commencement of Testing, Revision: -, Pages: 8

Test Report No.: 09/162, Statistical pressure test according to DIN EN ISO 19879, Laboratory: FLEXTTEST, Dated: 27 March 2009, Revision: NA, Pages: 7

Terms of Validity:

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STANDARDS

ABS Rules:

ABS Rules for Conditions of Classification – Ships (2026) 1A-1-4/7.7, 1A-1-A3 and A4, which covers the following: 2026 Rules for Building and Classing Marine Vessels: 4-1-1/Table 6, 4-3-4/9.5.2, 4-6-1/7.1, 4-6-1/7.5.2, 4-6-2/5.5.5, 4-6-2/5.9, 4-6-2/Tables 9/10/11/12

ABS Rules for Conditions of Classification – Offshore (2025) 1B-1-4/9.7, 1B-1-A2 and A3, which covers the following:

2026 Rules for Building and Classing Offshore Units: 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: 2022-01;

DIN 2353: 2013-01

International:

DIN EN ISO 8434-1: 2018-11;

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), (Rev. 8 Mar 2016), (Rev. 9 Oct 2018),

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(Rev.10 Jan 2021), (Rev. 11 Oct 2023)

IACS UR P2.11 (Nov 2001) (Rev. 1 May 2006), (Rev. 2 Nov 2006), (Corr. 1 Apr 2007), (Rev. 3 Aug 2012), (Rev.4 Mar 2016) (except P.2.11.5.5.6 fire endurance test), (Rev.5 Jan 2021), (Rev. 6 Oct 2023)