



CERTIFICATE NUMBER
15-HG1419595-PDA

DATE
22 Sep 2015

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

EMB - EIFELER MASCHINENBAU 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: **Pipe Fittings**

Model: **EMB Pipe Fittings, Screwed, Bite Type - EMB, Series "L" (light) and Series "S" (heavy) with conventional cutting-ring design.**

This Product Design Assessment (PDA) Certificate 15-HG1419595-PDA, dated 22/Sep/2015 remains valid until 21/Sep/2020 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

Reinhard Mentz
Engineer

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: 3 - Type Approved, unit certification not required

Product: Pipe Fittings**Model:** EMB Pipe Fittings, Screwed, Bite Type - EMB, Series "L" (light) and Series "S" (heavy) with conventional cutting-ring design.**Intended Service:**

Mechanical joints for use in shipboard piping systems.

Description:

Types:

A (Straight male stud couplings), AP (Straight male stud couplings), B (Male stud elbows), C (Male stud branch tees), D (Male stud barrel tees), E (Straight couplings), ER (Straight couplings), F (Equal elbows), G (Equal tees), GR (Reduction tees), H (Equal crosses), K (Straight bulkhead couplings), L (Bulkhead elbow connection), N (Welding bulkhead connections), V (Welding bosses), SBD (Banjo couplings), SB (Choke free banjo couplings), SBE (Banjo couplings with O-ring), SGE (High pressure "T" swivel), VBDKO & VB (Adjustable elbows, with/without O-ring), VCDKO & VC (Adjustable tee couplings, with/without O-ring), VDDKO & VD (Adjustable male tee stud barrels, with/without O-ring), VADKO & VA (Stud standpipe couplings, with/without O-ring), EDKO (Straight coupling with taper and O-ring), EDKOR (Straight reducer coupling with taper and O-ring), VODKO & VO (Gauge couplings, with/without taper), AI (Female stud couplings), RLDKO & RL (Reducing connections), RSDKO & RS (Reducing connections), RD/RV/RZ/RF (Non-return valves). BE (Adjustable locknut elbow), CE (Adjustable locknut branch tee), DE (Adjustable locknut run tee), BFE (Adjustable 45° locknut run tee), BFDKO (Adjustable 45° elbow with taper), BS (Weld elbow).

Diameter range based on tube dimensions: Series "L" (6-42 mm), Series "S" (6-38 mm).

Material of tube fittings: Steel, Stainless Steel (1.4571) and Brass (CuZn35Ni) for "Cu" and "CU-Alloy" Pipes.

Rating:

"PN" Pressure Rating, Series "L" (Steel/Stainless Steel): 160 - 315 bar.

"PN" Pressure Rating, Series "S" (Steel/Stainless Steel): 315 - 630 bar.

"PN" Pressure Rating, Series "L" (Brass): 70 - 160 bar.

"PN" Pressure Rating, Series "S" (Brass): 160 - 400 bar.

The pressure rating of the fittings may be required to be reduced on actual operating temperatures, high pressure surges etc. as per manufacturer's specification.

Temperature range for fittings with "Perbunan" O-rings: -20 to + 90°C.

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. Coupling types with tapered 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:

Pipe OD (mm): 6-20, Pressure Limitation (bar): 103,

Pipe OD (mm): 22-25, Pressure Limitation (bar): 82.8,

Pipe OD (mm): 28-42, Pressure Limitation (bar): 41.4.

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 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 less or being routed through hazardous areas. Threaded couplings are not to be used in Class A/B Divisions and watertight bulkheads.

Comments:

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

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

The wall thickness of the tubes used in connection with these fittings is to be in accordance with the Bureau's current Rules. Metallic materials, (except 1.4571) 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).

Notes/Drawing/Documentation:

Drawing No. 120002379-DS-IACS, 120002379-DS-IACS, Revision: -, Pages: 15

Drawing No. 120002487-DS-DSW-IACS, 120002487-DS-DSW-IACS, Revision: -, Pages: 13

Drawing No. 2015_03_31_1_Certificate of conformity ISO 17050, 2015_03_31_1_Certificate of conformity ISO 17050, Revision: -, Pages: 1

Drawing No. Correspondence, typeApproval Request_EMB Welding Nipple SNOSNR Tube Couplings, Screwed Type, Revision: -, Pages: 2

Drawing No. Correspondence, Fee Confirmation, Revision: -, Pages: 3

Drawing No. Correspondence, TypeApproval Request Revised_EMB Pipe Fittings, Screwed, Bite Type, Revision: -, Pages: 2

Drawing No. DS - Flammtests, DS Flametest ISO 15540, Revision: -, Pages: 12

Drawing No. DS-16S-V4A-Druckimpuls, Vibration and Pressure Pulsation Test, Revision: -, Pages: 7

Drawing No. DS-18L-V4A-Druckimpuls, Vibration and Pressure Pulsation Test, Revision: -, Pages: 7

Drawing No. DS-DSW-38-42-Druckimpuls-Deutsch, Vibration and Pressure Pulsation Test, Revision: -, Pages: 17

Drawing No. DS-DSW-38-42-Druckimpuls-English, Vibration and Pressure Pulsation Test, Revision: -, Pages: 17

Drawing No. DSW - Flammtests, DSW Flametest ISO 15540, Revision: -, Pages: 12

Drawing No. EMB Katalog 2012, EMB Catalog, Revision: -, Pages: 261

Drawing No. TypeAppAsbestos-EMB, Asbestosfree declaration, Revision: -, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

-Steel Vessel Rules (2015): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-1-1/Table 6, 4-6-1/Table 2, 4-6-1/7.1, 4-6-2/3, 4-6-2/5.5.5, 4-6-2/5.9, 4-6-2/Table 10, Table 11, Table 12

-Mobile Offshore Drilling Unit Rules (2015): 1-1-4/9.7, 1-1-Appendix 2 and 3, 4-2-2/5, 4-2-2/11 4-2-6/3.7, 6-1-6/Table 1, 6-1-6/5.1

-Steel Vessels Under 90 Meters (295 Feet) in Length (2015): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-6-2/13

-Offshore Support Vessels (2015): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-6-2/5.7, 4-6-1/Table 2, 4-6-1/7.1, 4-6-2/3, 4-6-2/5.5.5, 4-6-2/5.9

-Steel Vessels for Service on Rivers and Intracoastal Waterways (2015): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-3-2/13

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National:

NA

International:

ISO 8434-1 :2007, IACS UR P2.7.4 (Rev.7 23 /09 /2007) , UR P2.11 (Rev.3 03/08/2012)

Government:

NA

EUMED:

NA

OTHERS:

NA