



CERTIFICATE NUMBER
18-HS1727522-PDA

DATE
23 Apr 2018

ABS TECHNICAL OFFICE
Houston ESD - Piping

CERTIFICATE OF Design Assessment

This is to certify that a representative of this Bureau did, at the request of
BMT CO., LTD.

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: **SUPERLOK Tube Fittings**

This Product Design Assessment (PDA) Certificate 18-HS1727522-PDA, dated 23/Apr/2018 remains valid until 22/Apr/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

Tim Kimble

Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Codes, 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-A5/5.0 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

ABS25401105

BMT CO.

35, SANMAKGONGDANNAM 11-GIL

YANGSAN

Korea, Republic of

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Web: www.superlok.com

Tier: 2 - PDA Issued

Product: Tube Fittings

Model: SUPERLOK Tube Fittings

Intended Service:

Hydraulic & Pneumatic Fluid and Instrument Control Systems.

Description:

UNIONS:

Union(SU), Reducing Union(SRU), Bulkhead Reducing Union(SBHRU) & Bulkhead Union(SBHU).

CONNECTORS:

Male Connector(SMC), Male Connector for Bonded Washer Seal(SGMC), Male Connector for Metal Gasket Seal(SOMC), Female Connector(SFC), Gauge Connector(SGC), Bulkhead Male Connector(SBMC) & Bulkhead Female Connector(SBFC).

ELBOWS:

Union Elbow(SUE), Male Elbow(SME), 45° Male Elbow(SHME) & Female Elbow(SFE).

TEES:

Union Tee(SUT), Reducing Union Tee(SRUT), Male Branch Tee(SMBT), Male Run Tee(SMRT), Female Branch Tee(SFBT), Female Run Tee(SFRT) & Union Cross(SUC).

STUB TUBE CONNECTORS:

Reducer(SR), Bulkhead Reducer(SBR), Male Adapter(SMA), Female Adapter(SFA), Port Connector(SPC) & Flange Lapped Tubes Connector(SFTC).

AN TUBES:

An Flare(SAF), An Union(SAU) & An Adapter(SAA).

O-RING SEAL:

O-Seal Straight Thread Connector(SOSC), O-Seal Pipe Thread Connector(SOPC) & SAM/MS Male Connector(SSMC).

WELD ENDS:

Male Pipe Weld Connector(SPWC), Male Pipe Weld Elbow(SMPWE), Socket Weld Connector(SSWC) & Socket Weld Elbow(SSWE).

PLUGS & CAPS:

Plug(SP), Cap(SC).

Rating:

1. Raw Material: 316 Stainless Steel
2. Tube O.D Size:
1/16 ~ 1 inch. (3mm ~25mm)
3. Pressure Ratings: As per manufacturer's specification

Service Restriction:

- Unit Certification is not required for this product.
- Taper-thread joints are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495 degree Celsius as per Steel Vessel Rules (SVR) 4-6-2/5.5.5 (a).
- 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: less than 20 mm ND for 103 bar; above 20 mm to 25mm ND for 82.8 bar and above 25 mm to 50 mm ND for 41.4

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bar. In other hydraulic oil systems they may be used without pressure limitation only for connection for 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.

- Bulkhead connectors, bulkhead reducers and bulkhead unions are not considered water tight or fire-tight penetration without separate approval of penetration detail.

Comments:

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

- This test report submitted have the following tests:

Pull-out Test;

Vibration Test and Pressure Pulsation Test;

Repeat Assembly Test;

Tightness Test;

Vacuum Test;

Burst Pressure Test;

Notes/Drawing/Documentation:

Test Report No. BTR-S060703-01 - GL Type Approval - Product Test Report, dated 03 Jul 2006, Revision: -, Pages: 66;

Design Report No. BMT-CS-13-S01, Design Calculation SUPERLOK Tube Fitting Thickness of shell under internal pressure, dated 20 Nov 2013, Rev:0, Pages: 7;

Terms of Validity:

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STANDARDS**ABS Rules:**

2018 Steel Vessel Rules: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-2/5.9, 4-6-2/5.15, 4-6-2/5.17 & 4-6-7/3.5.1;

National:

NA

International:

NA

Government:

NA

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EUMED:

NA

OTHERS:

Not Applicable