



CERTIFICATE NUMBER 23-2431070-PDA
EFFECTIVE DATE 24-Aug-2023
EXPIRY DATE 23-Aug-2028
ABS TECHNICAL OFFICE Houston ESD - Piping

CERTIFICATE OF Product Design Assessment

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

TUBE-MAC PIPING TECHNOLOGIES LTD.

located at

853 ARVIN AVENUE, , STONEY CREEK, Canada, L8E 5N8

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: Hydraulic Pipe Flange coupling
Model: Retain Ring Flange System
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 23/Aug/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

John Vincent Bog-Acon Ulep, Senior Principal 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)

TUBE-MAC PIPING TECHNOLOGIES LTD.

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STONE CREEK ONTARIO
Canada L8E 5N8
Telephone: 905-643-8823
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Email: dan.hewson@tube-mac.com
Web: www.tube-mac.com

Tier: 3 - Type Approved, unit certification not required

Product: Hydraulic Pipe Flange coupling

Model: Retain Ring Flange System

Endorsements:

Intended Service:

Marine & Offshore Application - Hydraulic Systems, Compressed Air Systems, Cooling Water Systems, Sanitary Systems.

Description:

Heavy Wall Pipe, and a Machined Annular Groove on the Outside Diameter.

Retain Ring Flange Sizes in millimeters:

RFC 34 - Type ISO 6162-1 (SAE Code 61): (DN13, DN19, DN25, DN32, DN38, DN51, DN64 & DN76);

RFC 64 - Type ISO 6162-2 (SAE Code 62): (DN13, DN19, DN25, DN32, DN38 & DN51);

RFC 74 - Type ISO 6164 (DN 61, DN76 & DN102);

RFAC 48 - Type TMI 8-Bolt (DN127, DN152 & DN203)

RFAC 412 - Type TMI 12-Bolt: (DN254)

Rating:

Pressure Rating For Compressed Air Systems, Cooling Water Systems, and Sanitary Systems: 16 bar;

Flange Pressure Rating By Size For Hydraulic Systems:

RFC 34 - DN13 thru DN25 - 350 Bar, DN32 thru DN51 - 210 Bar, DN64-175 Bar & DN76-140 Bar

RFC 64 - DN13 thru DN51 - 420 Bar

RFC 74 - DN61 thru DN102 - 400 Bar

RFAC 48 - DN127 thru DN203 - 275Bar

RFAC 412 - DN254 - 275Bar

in accordance with Manufacturer's Manual.

Flange Temperature Rating: -20°C to 100°C

Service Restriction:

- Unit Certification is not required for this product. If the manufacturer or purchaser's request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

- All Fittings to maintain a Proof Pressure of 4 times the Maximum Allowable Working Pressure of the System (Relief Valve Setting).

Comments:

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

Notes/Drawing/Documentation:

Tube-Mac Piping Technologies Ltd. Test Report: RFC34-200 Dated 02 March 2017;

MacDermid Enthone NSS Report Dated 15 March 2018;

Certificate of Conformance - Salt Spray Results to ASTM B117 Dated 11 July 2017;

Tube-Mac Piping Technologies Ltd. Test Report: RFC34-125 Dated 10 March 2017;

SWRI Project No. 01.10085.01.706a, Fire Test Report, Dated 14 April 2004;

SWRI Project No. 01.23234.18.605 - ISO 15541:2016 Fire Test, dated 17 July 2018;

Supporting Data (previous task T1051410):

- SwRI Project No. 01.10085.01.706d, Final Report DN76 Pipe Sample, dated 14 April 2004, 9 Pages;

- SwRI Project No. 01.10085.01.706e, Final Report DN38 Pipe Sample, dated 14 April 2004, 9 Pages;

- SwRI Project No. 01.10085.01.706f, Final Report DN127 Pipe Sample, dated 14 April 2004, 9 Pages;

- Burst & Vibration Test Report dated 21 Feb. 2008, Tube-Mac Couplings

Terms of Validity:

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Tier: 3 - Type Approved, unit certification not required

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.

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1 - 2023 - 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
2023 Marine Vessel Rules: 4-6-2/5.5.4, 4-6-2/5.15, 4-6-2/Tables 6 & 7

Rules for Conditions of Classification, Part 1 - 2023 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:
2023 Mobile Offshore Units: 4-2-2/1.3, 4-2-2/5.9, 4-2-2/11.1, 4-2-2/17

National:

NA

International:

ISO 6162-1 (2012) and SAE Code 61,
ISO 6162-2 (2018) and Code 62, ISO 6164 (2018)
Only Bolt Pattern complies to these ISO and SAE Standards;
ISO 15540 (2016);

Government:

NA

EUMED:

NA

OTHERS:

NA