



CERTIFICATE NUMBER 21-2148921-PDA
EFFECTIVE DATE 03-Aug-2021
EXPIRY DATE 02-Aug-2026
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: Pipe Coupling
Model: DM20, DM60, DM80, DP40N and DP40M
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 02/Aug/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

Yongjin Lee

Yongjin Lee, 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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Web: www.tube-mac.com

Tier: 3 - Type Approved, unit certification not required

Product: Pipe Coupling
Model: DM20, DM60, DM80, DP40N and DP40M
Endorsements:

Intended Service:
Marine & Offshore Application - Air, Oil, Water, Sea Water & Steam Piping Systems

Description:
Pyplok Pipe Couplings - Compression Swaged Type Mechanically attached Pipe and Tube Fittings.

Rating:
Materials: Carbon Steel - ASTM A105/A350 LF2, Stainless Steel - ASTM A479/A182 - 316, Duplex/Super Duplex – ASTM A479/A182 - UNS 31803/32750 and Copper-Nickel – MIL - C71500/ C70600
Rating: Pressure up to 3750 psi; Temperature -34°C to +200°C
Model: DM20 Series (1/4" to 2" NPS)
Model: DM60 Series (1/4" to 2" O.D. Tube)
Model: DM80 Series (6mm to 60mm O.D. Tube)
Model: DP40N Series (2-1/2" (DN65) thru 4" (DN100))
Model: DP40M Series (44.5mm (DN40) thru 57mm (DN50))

Service Restriction:

1. 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.
2. The manufacturer has provided the Charpy Impact Test for the Material ASTM A350 LF2 in accordance with part 2-3-13/23 of the Rules for Materials and Welding; therefore:
 - The Pyplok Pipe Coupling material specification ASTM A350 LF2 is approved for the operating temperature range of -34°C to -18°C;
 - Quality assurance and material traceability are to be demonstrated to the satisfaction of ABS attending Surveyor, upon request.

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. The subject Pyplok Pipe Couplings have passed the ISO 19921 fire test.
3. Piping in which a mechanical joint is fitted is to be adequately adjusted, aligned and supported. Supports or hangers are not to be used to force alignment of piping at the point of connection as per 4-6-2/5.9.1(h) of the Marine Vessel Rules.
4. The installation of mechanical pipe joints is to be in accordance with the manufacturer's assembly instructions. The special tool required for installation of the joints is to be kept onboard as per 4-6-2/9.6 of the Marine Vessel Rules.
5. The mechanical joint applications are to be in accordance with 4-6-2/Table 10 and Table 11 of the Marine Vessel Rules.
6. The manufacturer's Trademark, pressure/temperature rating and material identification, as applicable, must be stamped or cast on the component.

Notes/Drawing/Documentation:

Material Test Report, Rev. N/A, 21 August 2016;
Supporting Data: Stork Garwood Laboratory Cert. No: C5126, Rev. N/C, 31 July 09;
Stork Garwood Laboratory Cert. No: C7513A, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C5126C, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C5126D, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C5126E, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C7513C, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C7513D, Rev. N/C, 1 August 09;

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Stork Garwood Laboratory Cert. No: C7513E, Rev. N/C, 1 August 09;
Stork Garwood Laboratory Cert. No: C5126B, Rev. N/C, 31 July 09;
Stork Garwood Laboratory Cert. No: C7513B, Rev. N/C, 1 August 09;
SwRI Project No. 01.23234.18.402[2], 11 May 2018;
SwRI Project No. 01.14432.01.205a, 27 April 2009;
SwRI Project No. 01.14432.01.205b, 19 May 2009;
Pull Out Tests for 4" Pyplok Fittings by ANEMOI, 17 April 2018;
Burst Test Report for 4" Pyplok Fittings by DNVGL, 13 April 2018;
Vibration and Impulse Test for 4" Pyplok Fittings by DNVGL, 6 March 2018;
PYPLOK DNV Type Test Programme, 100 pgs;
PYPLOK - 2011 SVR - ABS Type Approval Test Plan & Results. 26 pgs;
SwRI Project No. 01.17787.01.802, Test Date 12-15 February 2013, Report Date 14 March 2013 (13 Pgs), Testing of Pyplok Fittings to ISO 19921.

Terms of Validity:

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STANDARDS

ABS Rules:

The Rules for Conditions of Classification, 2021 Marine Vessel Rules: 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the followings:

2021 Rules for Building and Classing Marine Vessels Rules: 4-6-2/5.5, 4-6-2/5.9, and 4-6-2/Table 10 & 11;
2021 Rules for Materials and Welding: 2-3-13;

The Rules for Conditions of Classification - Offshore Units and Structures, 2021 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3 which covers the following:

2021 Rules for Building and Classing Mobile Offshore Units: 4-2-1/11.11; 4-2-2/1.3; 4-2-2/ 11, and 4-2-2/ 17;

National:

ASME B31.1-2020 Power Piping
ASME B31.3-2020 Process Piping

International:

ISO 19921:2005 Ships and marine technology. Fire resistance of metallic pipe components with resilient and elastomeric seals. Test methods

ISO 19922:2005 Ships and marine technology. Fire resistance of metallic pipe components with resilient and elastomeric seals. Requirements on the test bench

Government:

NA

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EUMED:

NA

OTHERS:

NA