



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 02-AUG-2021. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Pipe Coupling
Model Name(s): DM20, DM60 and DM80

Presented to:
TUBE-MAC PIPING TECHNOLOGIES LTD.
853 ARVIN AVENUE
L8E 5N8
Canada

Intended Service:	Marine & Offshore Application - Air, Oil, Water, Sea Water & Steam Piping Systems
Description:	Pyelok Pipe Couplings - Compression Swaged Type Mechanically attached Pipe and Tube Fittings.
Tier:	3
Ratings:	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) Rating: Pressure up to 3750 psi; Temperature -34°C to +200°C
Service Restrictions:	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. 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: 1- The Pyelok Pipe Coupling material specification ASTM A350 LF2 is approved for the operating temperature range of -34°C to -18°C; 2- Quality assurance and material traceability are to be demonstrated to the satisfaction of ABS attending Surveyor, upon request.
Comments:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The subject Pyelok Pipe Couplings have passed the ISO

19921 test. 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(j) of the Steel Vessel Rules. 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 Steel Vessel Rules. The mechanical joint applications are to be in accordance with 4-6-2/10 and Table 11 of the Steel Vessel Rules. The manufacturer's Trademark, pressure/temperature rating and material identification, as applicable, must be stamped or cast on the component.

Notes / Documentation:

Intertek ISO 9001:2008 Certificate - Current as of Sep 7, 2015; ABS TA application form TWZ-017-03-P01-W002; Material Test Report, Rev. N/A, 21 August 2016; Supporting Data: Stork Garwood Laboratory Cert. No: C5126, Rev. N/C, 31Jul 09; Stork Garwood Laboratory Cert. No: C7513A, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C5126C, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C5126D, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C5126E, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C7513C, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C7513D, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C7513E, Rev. N/C, 1 Aug 09; Stork Garwood Laboratory Cert. No: C5126B, Rev. N/C, 31Jul 09; Stork Garwood Laboratory Cert. No: C7513B, Rev. N/C, 1 Aug 09; SwRI Project No. 01.14432.01.205a, 27Apr 09; SwRI Project No. 01.14432.01.205b, 19 May 09; 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 Pyelok Fittings to ISO 19921.

Term of Validity:

This Product Design Assessment (PDA) Certificate 16-HS1537413-PDA, dated 03/Aug/2016 remains valid until 02/Aug/2021 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.

ABS Rules:

The Rules for Conditions of Classification, Part 1 - 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessel (2016): 4-6-2/5.5, 4-6-2/5.9, and 4-6-2/10. The Rules for Conditions of Classification, Part 1 - 2016 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: Mobile Offshore Drilling Units (2016): 4-2-1/11.11; 4-2-2/1.3; 4-2-2/ 11, and 4-2-2/ 17. The Rules for Materials and Welding (2016): 2-3-13.

National Standards:

ASME B31.1-2014 Power Piping ASME B31.3-2014 Process Piping

International Standards:

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 Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-HS1537413-PDA	22-AUG-2016	02-AUG-2021



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the

manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



CERTIFICATE NUMBER
16-HS1510187-PDA

DATE
05 May 2016

ABS TECHNICAL OFFICE
Houston OED - Systems

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of
TUBE-MAC PIPING TECHNOLOGIES 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: **Pipe Coupling**

Model: **DM20, DM60 and DM80**

This Product Design Assessment (PDA) Certificate 16-HS1510187-PDA, dated 05/May/2016 remains valid until 04/May/2021 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, 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-A35 9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

TUBE-MAC PIPING TECHNOLOGIES LTD.

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Email: dan.hewson@tube-mac.com

Web: www.tube-mac.com

Tier: 3 - Type Approved, unit certification not required

Product: Pipe Coupling

Model: DM20, DM60 and DM80

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:

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)

Rating: Pressure up to 3750 psi; Temperature -18°C to +200°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.

Comments:

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

The subject Pyplok Pipe Couplings have passed the ISO 19921 test.

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(j) of the Steel Vessel Rules.

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 Steel Vessel Rules.

The mechanical joint applications are to be in accordance with 4-6-2/Table 10 and Table 11 of the Steel Vessel Rules.

Notes/Drawing/Documentation:

Intertek ISO 9001:2008 Certificate - Current as of Sep 7, 2015

Email dated 3-31-16 submittal

ABS TA application form SWZ-102-03-P04

Supporting Data: Stork Garwood Laboratory Cert. No: C5126, Rev. N/C, 31Jul 09;

Stork Garwood Laboratory Cert. No: C7513A, Rev. N/C, 1 Aug 09;

Stork Garwood Laboratory Cert. No: C5126C, Rev. N/C, 1 Aug 09;

Stork Garwood Laboratory Cert. No: C5126D, Rev. N/C, 1 Aug 09;

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SwRI Project No. 01.14432.01.205a, 27Apr 09;

SwRI Project No. 01.14432.01.205b, 19 May 09;

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:

This Product Design Assessment (PDA) Certificate 16-HS1510187-PDA, dated 05/May/2016 remains valid until 04/May/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

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Tier: 3 - Type Approved, unit certification not required

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STANDARDS

ABS Rules:

The Rules for Conditions of Classification, Part 1 - 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

Steel Vessel (2016): 4-6-2/5.5, 4-6-2/5.9, and 4-6-2/Table 10.

The Rules for Conditions of Classification, Part 1 - 2016 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

Mobile Offshore Drilling Units (2016): 4-2-1/11.11; 4-2-2/1.3; 4-2-2/ 11, and 4-2-2/ 17.

National:

ASME B31.1-2014 Power Piping

ASME B31.3-2014 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

EUMED:

NA

OTHERS:

NA