



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 17/FEB/2019. 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 01/JUL/2018 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: Hydraulic Pipe Flange coupling
Model Name(s): Flare Flanges System

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

Intended Service:	Marine & Offshore Application - Hydraulic Systems, Compressed Air, Cooling Water Systems, and Sanitary Systems
Description:	Flared configuration based on flaring the pipe ends to 37°. Flare Flange Sizes in millimeters. Type ISO 6162-11 (SAE Code 61): (13, 19, 25, 32, 38, 51, 64, 76) - Type ISO 6162-2 (SAE Code 62): (13, 19, 25, 32, 38, 51) - Type ISO 6164-2: (64, 76)
Tier:	3
Ratings:	Pressure Rating For Compressed Air Systems, Cooling Water Systems, Lubricating Systems, Fuel Oil Systems, and Sanitary Systems is 16 bar; Flange Pressure Rating By Size For Hydraulic Systems: FFC 34 (113-350 bar, DN76-140 bar), FFC 64 (DN13-420 bar, DN38-420 bar), in accordance with the manufacturer's manual. Flange temperature rating: -20°C to 100°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. 1) These Fittings are not to be used on any Shell Valve, Valves on Oil Tanks with a static head of oil and in Firemain Systems. 2) 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 / Documentation: Supporting Data: - SwRI Project No. 01.10085.01.706a, Final Report DN13 Pipe Sample, dated 14 April 2004, 9 Pages; - SwRI Project No. 01.10085.01.706b, Final Report DN38 Pipe Sample, dated 14 April 2004, 9 Pages; - 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

Term of Validity: This Product Design Assessment (PDA) Certificate 02-HS224936B-3-PDA, dated 02/Jul/2013 remains valid until 01/Jul/2018 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: 2013 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 4-6-2/5.5.4, 4-6-2/5.5.5, 4-6-2/5.15, 4-6-2 Tables 6 , 7 , 9 & 10; 2012 MODU Rules 4-2-1/11.11; 4-2-2/1.3; 4-2-2/ 11 & 4-2-2/ 17.

National Standards:
International Standards: ISO 6162-1 (1998) and SAE Code 61, ISO 6162-2 (1998) SAE Code 62, ISO 6164 (1996) Flange Pattern complies to these ISO Standards and SAE Standards; ISO 15540:2001

Government Authority:
EUMED:
Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	02-HS224936B-3-PDA	02/JUL/2013	01/JUL/2018



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.