



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 07/JAN/2020. 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 22/DEC/2019 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: Instrumentation Tube Fittings
Model Name(s): Two Ferrule Tube Fittings

Presented to:

HY-LOK CORPORATION
#1467-1, SONGJEONG-DONG
KANGSEO-KU
Korea, Republic of

Intended Service:

Hydraulic Fluids, Gas, Lubricant and Fuel Oil Systems

Description:

Models - CUA, CUR, CLA, CTA, CXA, CBU, CMC, CMCT, CBMC, CLMA, CLMB, CRTM, CBTM, CPA, CCA, CFC, CGC, CBFC, CLF, CRTF, CBTF, CBR, CR, CAM, CAF, CPC, CPR, CFTC, CFU, CBFU, CFA, CSC, CSLA, CSLB, CSRT, CSBT, COS, COP, CWC, CLW, CSWC, CLSW, CN, CFB, CFF, CFS, CMC-G, COM, CAL, CRTA, CBTA, CAM-G, CAM-U, CAMOS, CAMF, SAPW, CSRA, CSL, CBST, CRST and CIAF; Tube Fittings for Fractional Sizes and Metric Sizes; Fittings include unions, tees, 45 degree and 90 degree elbows, connectors, caps, plugs and nipples; Materials: Stainless Steel, Brass and Alloy 400

Tier:

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Ratings:

1. Temperature - Stainless Steel : -196# to 649#, - Brass : -54# to 204#, - Alloy 400 : -54# to 427# 2. Pressure : Maximum up to 950 bar as per each sizes

Service Restrictions:

1) Unit Certification is not required for this product. If the manufacturer or purchaser 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) As per Section 5/1 i) of Guide for Classification of Drilling Systems, Piping systems that are used for both marine and drilling services such as hydraulic piping, air piping, seawater service, potable water, power generation, etc., are to be in accordance with Part 4, Chapter 2 of the ABS Mobile Offshore Drilling Units Rules.

Comments: 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 2) Not to be used for flammable fluid systems when tubing is of copper or copper-zinc alloys. 3) For Group I Hydraulic Systems, straight thread O-ring connections are not to be used for joining sections of pipe. 4) Brass (copper) fittings are not to be used in systems with temperatures greater than 208C (406F). 5) Bulkhead connectors, bulkhead reducers and bulkhead unions are not considered watertight or fire-tight penetrations without separate approval of penetration detail. 6) Threaded joints having tapered pipe threads complying with a recognized standard are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495 C(923F). They may be used for Classes I and II piping subject to limitations indicated in the table of 4-6-2/5.5.5 (a) of Steel Vessels Rules and the limitations for hydraulic oil system in 4-6-7/Table 1 of Steel Vessels Rules. 7) Taper-thread joints up to 80 mm (3 in.) nominal diameter may be used without pressure limitation for connection to equipment only, such as pumps, valves, cylinders, accumulators, gauges and hoses. When such fittings are used for solely, join sections of pipe, they are to be in accordance with 4-6-2/5.5.5 (a) of Steel Vessels Rules. However, hydraulic systems for the following services are to comply with the stated limitations in all respects (in 4-6-2/5.5.5 (a) and 5.5.5 (c) of Steel Vessels Rules). - Steering Gear hydraulic system, - Controllable Pitch Propeller hydraulic system, - Hydraulic systems associated with population or Propulsion Control 8) For Mobile Offshore Drilling Units, screwed fittings may be used in Class I and II piping systems, provided the maximum working temperature does not exceed 496 C (925F) and maximum working pressure does not exceed the limitations for maximum pressure tables in 4-2-2/11.1 of Mobile Offshore Drilling Units Rules (MODU Rules). Flared, flareless and compression fittings may be used for tube sizes not exceeding 60mm O.D. (2 in. N.P.S.) in Class I and II piping. Tapered threaded connections up to 89 mm O.D. (3 in. N.P.S.) may be used without limitation for connections to equipment such as pumps, valves, cylinders, accumulators, gauges and hoses in accordance with 4-2-6/3.7.4 of the MODU Rules, further, such connections are not to be used joining sections of pipe, except where permitted by 4-2-2/11.1 of the MODU Rules.

Notes / Documentation: This type approval is based upon Manufacturer's Drawing (Doc. No. WG-TFTF-14K03, Drawing for Two Ferrule Tube Fittings), new version Catalog of Two Ferrule Tube Fittings and Manufacturer's test reports witnessed by IACS Members (Report Nos. TR-GLTT-TW-070123, TR-GLTT-RAT-070202, TR-GLTT-BT-070205, TR-GLTT-PO-070214, TR-GLTT-VT-070216, TR-GLTT-VPPT-071009-01 & 02, and TR-GLTT-VPPT-071026).

Term of Validity: This Product Design Assessment (PDA) Certificate 14-BK1270722-PDA, dated 15/Dec/2014 remains valid until 22/Dec/2019 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 applicable to this assessment are: 2014 Steel Vessel Rules 1-1-4/7.7, 1-1-Appendix 3 & 4, 4-1-1/Table 6, 4-6-2/5.5.5, 4-6-2/5.9, 4-6-2/5.15, 4-6-2/5.17, 4-6-7/3.5.1, 2014 Steel Vessels Under 90 Meters (295 Feet) in Length 1-1-4/7.7, 1-1-Appendix 3 & 4, 2014 Mobile Offshore Drilling Units Rules 1-1-4/9.7, 1-1-Appendix 2 & 3, 4-2-2/11, 4-2-6/3.1 & 3.7, 2014 Facilities on Offshore Installations 1-1-4/9.7, 1-1-Appendix 2 & 3.

National Standards: ASME B16.11(2011), ASME B1.20.1(2013), ASME B31.3(2012)

International Standards:

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	14-BK1270722-PDA	23/DEC/2014	22/DEC/2019



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.