



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 01/NOV/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 16/NOV/2020 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: Tube Fittings

Model Name(s): Tube Fitting Components (See Description)

Presented to:
SWAGELOK COMPANY
31400 AURORA ROAD
United States

Intended Service: Marine & Offshore Applications - Tubing / Piping Systems

Description: Tees, Straight, 45° & 90° Elbows Configuration Unions, Port , Connections, Reducers, Caps & Plugs, Adapters, Crosses, etc. For specific details on Gaugeable Tube Fittings and Adapter Fittings refer to Swagelok Catalog MS-01-140.

Ratings: For Ratings, Sizes, Configurations, Material , etc. refer to the latest Swagelok Catalog MS-01-140. Stainless Steel Size 1/16" to 2" (2-50mm) Carbon Steel Size 1/16" to 2" (2-50mm) Alloy 400 Size 1/8" to 1" (3-25mm) Brass Size 1/8" to 1-1/8" (3-28mm)

Service Restrictions: 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. Brass fittings are not to be used in oil systems. Brass fittings are not to be used in systems where pressure pulsation other than water hammer is expected (e.g. systems using positive displacement pumps). Fittings with o-rings are not to be used in systems with flammable fluids. Back Ferrules (Dwg. Nos.: SS-1614-1A and SS-1614-1) for the 1 inch and 25 mm, the design pressure is not to exceed 3,750 psi.

Comments: The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. For your ready reference find here the link to the Swagelok Catalog that defines the Pressure Ratings, <http://www.swagelok.com>

then search for ms-01-140.pdf - 2517k ABS has no control on the content and any questions are to be deferred to ABS for resolution.

Notes / Documentation:

This Product Design Assessment (PDA) is valid only 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. 01-140R12_TubeFitting (Gaugeable Tube Fittings and Adapter Fittings), 02-10R4_SpecialAlloys (Special Alloy, Fluid System Components), 02-200R4_FlangeAdapters, Carbon Steel Tube Fittings Burst Test, Brass Tube Fittings Burst Test, Monel Tube Fittings Burst Test, Impulse Test Summary for SS Swagelok Tube Fittings, NK Type Approval Testing of Alloy 400 Swagelok Tube Fittings, NK Type Approval Testing of Brass Swagelok Tube Fittings, NK Type Approval Testing of Carbon Steel Swagelok Tube Fittings, Nitrogen Gas Seal Test with Repeated Reassembly of SS Swagelok Tube Fittings, Tensile Pull Test of SS Swagelok Tube Fittings with SS Tubing, Hydrostatic Pressure Test of 316 SS Swagelok Tube Fittings with SS Heavy-Wall Tubing, Rotary Flexure Test of 316 SS Swagelok Tube Fittings with SS Tubing, NK Brass Rotary Flex Test, Rotary Flex and Pressure Impulse Test of Alloy 400 Swagelok Tube Fittings with Alloy 400 Tubing, Rotary Flex and Pressure Impulse Test of Carbon Steel Swagelok Tube Fittings with Carbon Steel, Rotary Flex and Pressure Impulse Test of 316 SS Swagelok Tube Fittings with SS Tubing, Rotary Flexure Test 316 SS Swagelok Tube Fittings with SS Tubing, Rotary Flex and Pressure Impulse Test of 316 SS Swagelok Tube Fittings with SS Tubing, Hydrostatic Pressure Test of 316 SS Swagelok Tube Fittings with SS Heavy-Wall Tubing, Positive Pressure Helium Leak Test and Nitrogen Gas Seal Test with Repeated Reassembly of 316 SS Swagelok Tube Fittings with Heavy-Wall SS Tubing, Tensile Pull Test of 316 SS Swagelok Tube Fittings with SS Tubing, Hydrostatic Pressure Test of SS Swagelok Tube Fittings on Extra Heavy Wall Tubing, Fire (Burn) Test with Water Quench (Reference API 607) of SS Swagelok Tube Fittings, Nitrogen Gas Seal Test with Repeated Reassembly of 316 SS Swagelok Tube Fittings with Thin-Wall Tubing, Nitrogen Gas Test of Swagelok Tube Fittings with Thin-Wall Tubing, Fire Test with Water Quench (Reference API 607) of SS Swagelok Tube Fittings, Hydrostatic Pressure Test of Swagelok Tube Fittings, Summary of Vibration Test Performance Data Using a Shaker Table for 316 SS Swagelok Tube Fittings, LAB TEST METHOD TENSILE PULL, LAB TEST FITTING REMAKE PROCEDURE, STANDARD TEST METHOD FOR HELIUM LEAK TESTING, LAB TEST METHOD FOR VIBRATION FATIGUE TEST, HYDRAULIC PRESSURE TEST PROCEDURE, LAB TEST METHOD PROOF AND BURST HYDRAULIC FOR TUBE FITTING REASSEMBLY, Southwest Labs Qualification Tests of Swagelok Mechanically Attached Fittings Tested in accordance with ASTM F 1387-93 Standard Specification.

Term of Validity:

This Product Design Assessment (PDA) Certificate 15-HS1445596-PDA, dated 17/Nov/2015 remains valid until 16/Nov/2020 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:

Rules for Conditions of Classification, Part 1 2015 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessels Rules 1-1-4/7.7, 4-6-1/7.5.2 Table 1 & 2, 4-6-2/5.9; 2015 ABS Rules for Conditions of Classification, Part 1 – 2015 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: Mobile Offshore Drilling Units 4-2-2/1.3, 5.9, 11.1, 17. 4-2-4/1.3, 11.1, 17; 2015 Steel Vessels Under 90 Meters Rules, 4-1-1/3.3 & 4-7-1/5.39; 2015 Offshore Support Vessels Rules, 4-1-1/3.3, 4-6-1/7.1.2, 4-6-2/5.9;

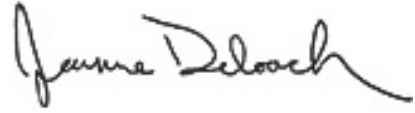
National Standards:

ASME B31.1 (2014), SAE J1926/3 (2010), ASTM F 1387 (2012)

International Standards:**Government Authority:****EUMED:****Others:**

Swagelok Catalog MS-01-140 (10 March 2010).

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	15-HS1445596-PDA	19/NOV/2015	16/NOV/2020



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.