



Marine &amp; Offshore

Certificate number: 20467/C0 BV

File number: ACM 135/2665/01

Product code: 2140H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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## TYPE APPROVAL CERTIFICATE

This certificate is issued to

**Swagelok Company**

Solon - UNITED STATES OF AMERICA

for the type of product

**MECHANICAL JOINTS - COMPRESSION COUPLINGS - SWAGE TYPE**

SWAGELOK Tube Fittings

### Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate is a renewal of certificate N° 20467/B1 BV expiring on 17/01/2019

**This certificate will expire on: 17 Jan 2024**

For Bureau Veritas Marine & Offshore,

At BV PORT EVERGLADES CENTRE, on 21 Nov 2018,

Flavio Rosas



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### Swagelok tube fittings

##### 1.1 Design (compression couplings, swage type)

- The connection system for stainless steel pipes consists of two-ferrules (back and front) and nuts.
- Configurations: straights, shapes (elbows, tee and crosses) including reducers, caps, plugs and tube adapters.

##### 1.2 Ratings

Range Size (inch / mm)	1/4" to 2" / 6 to 50
Tubing Wall Thickness (mm)	Acc. to Swagelok Catalogue MS-01-107
Max. Working Pressure (bar)	Acc. to Swagelok Catalogue MS-01-140
Max. Working Temperature (°C)	Acc. to Swagelok Catalogue MS-01-140

##### 1.3 Material Specification

Fittings	316 stainless steel - ASTM A276 / ASME SA 479 / EN 10272 (Bar Stock) F316 stainless steel - ASTM A182 / ASME SA 182 / EN 10222 (Forgings )
O-rings	Buna N / FKM

*When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.*

### 2. DOCUMENTS AND DRAWINGS

- Swagelok Catalogue MS-01-140 September 2011, R14 - Gaugeable Tube Fittings and Adapter Fittings
- Swagelok Catalogue MS-01-107 January 2010, R9 - Tubing Data

*No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.*

### 3. TEST REPORTS

3.1 Tests carried out: Tightness test, vibration test, pressure impulse test, burst test, pull-out test, fire endurance test and repeated assembly test.

3.2 Test reports: N° PTR-391, 396, 680, 1192 (tightness test), N° PTR-976, 1195, 1368, 1403, N° CTR-1556, 1616, 1617 (vibration test and pressure impulse test), N° PTR-382, 680, 1194 (burst test), N° PTR-387, 1193 (pull-out test), N° PTR-393, 679 (fire endurance test), N° PTR-383, 395, 1192 (repeated assembly test).

### 4. APPLICATION / LIMITATION

- 4.1 To use as tubing/piping systems for marine and offshore applications.
- 4.2 The manufacturer's recommendations with respect to rated temperature, pressure and fluid compatibility are to be observed.
- 4.3 The wall thickness and material of the tubes are to be in accordance with the BUREAU VERITAS Rules and Regulations stated on the front page of this certificate.
- 4.4 In all cases, the associated pipes are to be suitably supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the BUREAU VERITAS rules.
- 4.5 Assembly instructions given by the manufacturer are to be complied with.
- 4.6 The bulkhead fittings are not approved through watertight or fire bulkheads.

### 5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by Swagelok Company in compliance with the type described in this certificate and in compliance with the requirements stated on the front page of this certificate.

5.2 This type of product is within the category HBV of BUREAU VERITAS Rule Note NR 320 and as such does not require a BV product certificate.

5.3 Swagelok Company has to make the necessary arrangements to have its works recognised by BUREAU VERITAS in compliance with the requirements of NR 320 for HBV products.

For information, Swagelok Company has declared to Bureau Veritas the following production sites:

- 29500 Solon Rd, Solon, OH 44139

#### **6. MARKING OF PRODUCT**

Each fitting shall be clearly marked with at least:

- Manufacturer's name or logo

- Type designation: Trace ID

#### **7. OTHERS**

It is Swagelok Company's responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*This certificate supersedes the Type Approval Certificate N° 20467/B0 BV issued by the Society.*

\*\*\* END OF CERTIFICATE \*\*\*