



Marine & Offshore

Certificate number: 20467/F0 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, OH - 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 will expire on: 23 Apr 2030**

**For Bureau Veritas Marine & Offshore,**

At BV PORT EVERGLADES CENTRE, on 23 Apr 2025,

Flavio Rosas

***This certificate was created electronically and is valid without signature***



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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### Swagelok tube fittings

##### 1.1 - Ratings

- 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.

Compression Couplings: Swage type

<b>Outer Diameter OD (inch - mm)</b>	1/4" to 2" and 6mm to 50mm
<b>Max. Working Pressure (bar)</b>	Acc. to Swagelok Catalogue MS-01-140
<b>Max. Working Temperature (°C)</b>	Acc. to Swagelok Catalogue MS-01-140
<b>Wall thickness (mm)</b>	Acc. to Swagelok Catalogue MS-01-107

##### 1.2 - Materials

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

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

### 2. DOCUMENTS AND DRAWINGS

- Swagelok Catalogue N° MS-01-107 Rev. W dated August 2023: Tubing Data.
- Swagelok Catalogue N° MS-01-140 Rev. AH dated May 2023: Gaugeable Tube Fittings and Adapter Fittings.
- Manual of installation, use and maintenance from page.70 of the catalogue N° MS-01-140 Rev. AH dated May 2023.

*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 - Burst test

Test report n°CTR-10822 dated 18/01/2024 witnessed by a BV surveyor

Size (inch)	Test pressure (psi)	Size (mm)	Test pressure (bar)
1/4"	40800	6.35	2811
3/4"	23200	25.4	1598
2"	14400	50.8	992

#### 3.2 - Tightness & repeated assembly test

Test report n°CTR-10823 dated 18/01/2024 witnessed by a BV surveyor

Size (inch)	Test pressure (psi)	Size (mm)	Test pressure (bar)
1/4"	15300	6.35	1054
3/4"	8700	25.4	599
2"	5400	50.8	372

#### 3.3 - Pressure pulsation, vibration & pull-out tests

Test report n°18.18057.25.104 dated 16/04/2025 conducted at Southwest Research Institute witnessed by a BV surveyor

Size (inch)	Test pressure (psi)	Size (mm)	Test pressure (bar)
1/4"	10200	6.35	703
3/4"	4700	25.4	324
2"	3600	50.8	248

#### 3.4 - Fire resistance test

Not required (metal-to-metal compression (swage type) coupling)

**4. APPLICATION / LIMITATION**

4.1 - May be used on board for services of class I, class II and class III:

- **Flammable fluids (flash point  $\leq 60^{\circ}\text{C}$ )** - cargo oil, crude oil washing, vent lines
- **Inert gas** - water seal/scrubber effluent lines, main lines, distributions lines
- **Flammable fluids (flash point  $> 60^{\circ}\text{C}$ )** - cargo oil, fuel oil, lubricating oil, hydraulic oil, thermal oil lines
- **Sea water** – bilge lines, ballast system, cooling water, permanent water filled fire extinguishing systems, non-permanent water fire extinguishing systems, tank cleaning/non-essential systems
- **Fresh water** - cooling water, condensate return, non-essential systems
- **Sanitary/Drains/Scuppers** - Deck drains (internal) (1), sanitary drains, scuppers and discharge (overboard)
- **Sounding and venting** - water tanks/dry spaces, oil tanks (flash point  $> 60^{\circ}\text{C}$ )
- **Miscellaneous** - service air (non-essential), brine, steam, starting/control air, CO<sub>2</sub> system outside protected place, CO<sub>2</sub> system inside protected space

(1)- *Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.*

4.2 - In all cases, the associated pipes are to be suitable supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the Bureau Veritas rules.

4.3 - The mechanical joints are to be installed according to the manufacturer's instructions and Society's Rule requirements.

4.4 - The wall thickness and the material of the tubes are to be in accordance with the applicable Society Rules.

4.5 - The use of stainless steel is restricted to Bureau Veritas Rules *NR 467, Pt C, Ch 1, Sec 10, table 5 Table 5* and corresponding requirement in Bureau Veritas Rules *NR 445*

4.6 - The sealing/packing material is to be compatible with the fluid to be conveyed and the maximum working temperature.

4.7 - Tapered threaded end fittings are not to be used in engine rooms, nor in any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.

**5. PRODUCTION SURVEY REQUIREMENTS**

5.1 - The products are to be supplied by **Swagelok Company** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product certificate is within the category HBV of Bureau Veritas Rule Note NR 320 and as such does not require a Bureau Veritas product

5.4 - **Swagelok Company** has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance with the requirements of *NR 320* for HBV products.

5.5 - For information, **Swagelok Company** has declared to Bureau Veritas the following production site:

**Swagelok Company**  
**29500 Solon Road**  
**Solon, OH 44139**  
**UNITED STATES OF AMERICA**

**6. MARKING OF PRODUCT**

The product shall be marked clearly and indelibly 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/E0 BV issued by the Society.*

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