



Marine & Offshore

Certificate number: 20467/D0 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 44139 - 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: 17 Jan 2025**

**For Bureau Veritas Marine & Offshore,**

At BV PORT EVERGLADES CENTRE, on 02 Feb 2024,

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 4 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" - 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 Type test reports table

Type test	Type test report	Revision	Date
Burst test	PTR-391	Rev 06	Dec/2022
	PTR-3220	Rev 03	Oct/2022
	CTR-10797	Rev 00	19/Sep/2023
	CTR-10822	Rev 00	18/Jan/2024
Tightness test	PTR-383	Rev 06	Nov/2022
	PTR-395	Rev 06	Dec/2022
	PTR-1192	Rev 05	Sep/2022
	PTR-3221	Rev 05	Feb/2023
	CTR-10823	Rev 00	18/Jan/2024
Pull-out test	PTR-4060	Rev 02	Dec/2022
Vibration and impulse test	PTR-976	Rev 08	Dec/2022
	PTR-1403	Rev 05	Sep/2022
	PTR-3222	Rev 03	Nov/2022
	PTR-4012	Rev 02	Dec/2022
Repeated assembly test	PTR-383	Rev 06	Nov/2022
	PTR-395	Rev 06	Dec/2022
	PTR-1192	Rev 05	Sep/2022
	CTR-10823	Rev 00	18/Jan/2024
Fire resistance test	CTR-10798	Rev 00	19/Sep/2023
	PTR-393	Rev 06	Dec/2022

- 3.2 - Impulse test performed according to standard: IACS : P2: *Rules for Piping Design, Construction and Testing* - Rev.5:2003.
- 3.3 - Repeated assembly test performed according to manufacturer's internal guidelines.
- 3.4 - Fire resistance test performed in 30 minutes wet conditions according to standard: API 607:1993
- 3.5 - Vacuum test not performed.

#### **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 (1), crude oil washing (1), vent lines (2)
- **Inert gas** - water seal/scrubber effluent lines, main lines (1), distributions lines (1)
- **Flammable fluids (flash point  $> 60^{\circ}\text{C}$ )** - cargo oil (1), fuel oil, lubricating oil, hydraulic oil, thermal oil lines
- **Sea water** – bilge lines (2), permanent water filled fire extinguishing systems, non-permanent water fire extinguishing systems (2), ballast system, cooling water, tank cleaning services, non-essential systems
- **Fresh water** - cooling water, condensate return, non-essential systems
- **Sanitary / Drains / Scuppers** – Deck drains (internal) (4), sanitary drains, scuppers and discharge (overboard)
- **Sounding / vent** - water tanks/dry spaces, oil tanks (flash point  $> 60^{\circ}\text{C}$ )
- **Miscellaneous** - service air (non-essential), brine, steam, starting/control air (3)

(1)- *Not to be used in pump rooms and open decks*

(2)- *May be used only in cases where such mechanical joints are installed on exposed open decks, as defined in Ch 4, Sec5, [1.4.3] item b) 2) (10) and not used for fuel oil lines.*

(3)- *Not to be used inside machinery spaces of category A*

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

4.2 Not to be used for:

- **Miscellaneous** – CO2 system outside protected place, CO2 system inside protected space

4.3 - 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.

4.4 - Assembly instructions given by the manufacturer are to be complied with.

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

4.6 - The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.

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

4.8 - 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 NR320.

5.3 - BV product certificate is not required.

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/C0 BV issued by the Society.*

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