



## Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>HSME CORPORATION</b>								
<b>Address</b>	8, Hwajeonsandan 5-ro, Gangseo-gu, Busan, 46741, South Korea								
<b>Type</b>	Compression Fittings								
<b>Description</b>	Carbon steel and stainless steel single compression type tube fittings								
<b>Trade Name</b>	Bite Type Tube Fittings								
<b>Application</b>	High pressure tube connections for use in marine, offshore and industrial piping systems with hydraulic system fluids, fuel oil, lubricating oil, fresh water, salt water, sanitary, gas, steam and condensate.  Note. This certificate only covers metallic materials, so if non-metallic materials are included such as sealing materials, fire tests are necessary.								
<b>Specified Standard</b>	Part 5, Chapter12 of Lloyd's Register (LR) Rules and Regulations for the Classification of Ships (July 2023) IACS UR P2 'Rules for piping design, construction and testing'								
<b>Ratings</b>	Carbon steel and stainless steel fittings: <table><thead><tr><th><u>Tube O.D. (mm)</u></th><th><u>Nominal Pressure ratings (kgf/cm<sup>2</sup>)</u></th></tr></thead><tbody><tr><td>4 to 15</td><td>400</td></tr><tr><td>16 to 22</td><td>350</td></tr><tr><td>25 to 28</td><td>300</td></tr></tbody></table>	<u>Tube O.D. (mm)</u>	<u>Nominal Pressure ratings (kgf/cm<sup>2</sup>)</u>	4 to 15	400	16 to 22	350	25 to 28	300
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4 to 15	400								
16 to 22	350								
25 to 28	300								

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

**Da-Young Kang**

Engineering Piping - Senior Specialist to  
Lloyd's Register Asia  
A member of the Lloyd's Register group

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30 to 38                      250  
40 to 50                      210

Pressure-temperature ratings: see the producer's catalogue

### Materials

JIS G4303 SUS304, SUS316  
JISG4051 S10C, S20C, S45C

### **Additional Tests**

Representative samples of joints have been tested in accordance with the requirements as specified in IACS UR P2.11 as follows:-

- 1) Tightness test
- 2) Repeated assembly test
- 3) Burst test
- 4) Vibration test & Pressure pulsation test
- 5) Pull-out test

### **Other Conditions**

Where the tube fittings are intended to be installed on a ship classed with LR, the following conditions of acceptance will be applicable:-

- 1) The tube fittings are to be installed and tested in accordance with Part 5, Chapter 13, Section 2, of the Rules and Regulations for the Classification of Ships in so far as applicable.
- 2) The tube fittings are to be made, installed and tested to appropriate pipe class requirements in accordance with Part 5, Chapter 12 of the Rules and Regulations for the Classification of Ships in so far as applicable.
- 3) Coupling with seal on non-metallic materials are not covered this approval. If couplings include any components which are sensitive to heat, they are to be of approved fire resistant type.
- 4) The fittings are to be installed in accordance with the manufacturer's instructions.
- 5) Attention is drawn to Section 3.6 of IMO MSC/Circular.851 – Guidelines on Engine Room Oil Fuel Systems which describes that couplings require careful attention to tightening procedures and torques to avoid leaks or damage to the pipe when subjected to overtightening and they should not be used in the fuel supply line of the (oil engine) injection pumps and spill system.

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This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** 16/40050(E1)

The Design Appraisal Document BTS/ENG/M234586-2 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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