

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Valve for Liquefied Gas**with type designation(s)  
**Needle Valves**

Issued to

**BMT Co., Ltd.**  
**Yangsan-si Gyeongsangnam-do, Korea**

is found to comply with

**DNV GL rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers**  
**DNV GL class programme DNVGL-CP-0186 – Type approval – Valves****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2017-11-24**This Certificate is valid until **2022-11-23**.DNV GL local station: **Gimhae Station**Approval Engineer: **Mehdi Rowshan**for **DNV GL**

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**Marianne Marveng**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-025648-1**  
Certificate No: **TAP000013V**

## Product description

Two cryogenic needle valves

Design standard: ASME B16.34

Sizes: 1" (DN25), 1/2 " (DN12)

Flanges: RF Class 150# according to ASME B16.5

Material:

Shell material	ASTM A351 CF8M
Stem	ASTM A276 316
Bonnet flange	ASTM A351 CF8M
Extension bonnet	ASTM A351 CF8M
Gland packing	Graphite
Packing gland	SS316
Gasket	Graphite/316SS

## Application/Limitation

Valves covered by this certificate may be used under the following design conditions:

Service Fluids: Cryogenic fluid (LNG/LPG applications)

Design temperature: -196 °C to 65 °C

Pressure rating: ASME Class 150:

Temperature (°C)	Maximum working pressure (bar)
-196 ~ 38	19
50	18.4
65	17.74

Valves shall not be considered for the fire safe applications

## Production Testing

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the allowable pressure at room temperature.

In addition each valve shall be subject to seat leakage testing at 1.1 times the design pressure in the valve flow direction.

Testing shall follow procedures and acceptance criteria in EN12266-1.

Tests consisting of valve operation and leakage verification for a minimum of 10% of each type and size of valve intended to be used at a working temperature below -55°C shall be undertaken in the presence of the Society's representative. (DNV GL Ship Rules P.5 Ch.7 Sec.5 [13.1.1])

## Certification

All valves covered by this type approval certificate shall be delivered with a product certificate.

The material used in bodies of valves shall be delivered with VL certificate when the minimum design temperature is less than -55°C; otherwise work certificates are accepted. In any case, material of bodies shall be made at foundries approved by the Society.

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### **Type Approval documentation**

DWG No: 170217-01-115

Valve datasheet, doc no: BMT-DBS-0.5-150-CN, dated: 2015.11.18

Valve datasheet, doc no: BMT-DBS-1-150-CN, dated: 2015.11.18

Cryogenic test, report no: BMT\_T1705\_D01, 2017.05.17

Inspection Test Procedure: doc no: TPR16C-03, rev.0

Certificate of material and mechanical tests, doc no: MCM1703-0830, dated: 2017.03.09

### **Tests carried out**

Cryogenic Leakage test

### **Marking of product**

Minimum marking requirements shall be as outlined in the valve design standard. For non-standard valves the following shall be considered a minimum:

- Manufacturer's name or trade mark
- Valve type designation
- Size
- Maximum design pressure and temperature
- Arrow to indicate direction of flow on one way flow valves

### **Periodical assessment**

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.