

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pressure-Vacuum Relief Valve**with type designation(s)
KSBP

Issued to

TANKTECH CO., LTD.
Busan, Republic of Korea

is found to comply with

Det Norske Veritas' Rules for Classification of Ships Pt.4, Ch.6 "Piping Systems"
ISO15364:2000 Pressure/vacuum valves for cargo tanks**Application :****The P/V Valves shall not be considered as devices to prevent passage of flame into cargo tanks.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Design: Piston type pressure / vacuum relief valve****Sizes: DN100 (-4), 150 (-6), 200 (-8), 250 (-10), 400 (-16) & 450 (-18)**This Certificate is valid until **2019-06-30**.Issued at **Høvik** on **2015-11-10**for **DNV GL**DNV GL local station: **Pusan**Approval Engineer: **Adel Samiei**

Marianne Spæren 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.

Product description

- Combined piston type pressure / vacuum relief valve. Integrated diaphragm for the pressure relief function.
- Materials:
 - Body : FCD450
 - Disc : SUS316
 - Seat : SUS316
 - Diaphragm : Viton

Application/Limitation

- Set Pressures :

Size	Set Pressure	Vacuum Set Pressure
DN100	1400 mm H ₂ O	350 mm H ₂ O
DN150	700 / 1400 mm H ₂ O	350 mm H ₂ O
DN200	1400 mm H ₂ O	350 mm H ₂ O
DN250	700 / 1400 mm H ₂ O	350 mm H ₂ O
DN400	1400 mm H ₂ O	350 mm H ₂ O
DN450	1400 mm H ₂ O	350 mm H ₂ O

- The P/V valves are approved to be installed just in-line. They shall not be installed as end of line devices.
- Drawings of stand pipes showing hatches and openings are to be approved in each separate case.
- The functioning of the valves in general should be monitored throughout the service life of the valves. Assessment of the condition of each valve should be carried out regularly.
- Surface preparation and coating shall be done according to manufacturer's procedure.
- Each finished device shall be pneumatically tested at 70 kPa (10 psi) either using a submersion test or a soap test for duration of three minutes to ensure there is no leakage.
- A copy of the instruction manual shall be kept on board, and is to include:
 - Installation instructions
 - Operating instructions
 - Maintenance requirements including cleaning
 - A copy of the laboratory report
 - Flow test data, incl. flow rates under positive and negative pressures, operating pressures, operating sensitivity, flow resistance and velocity

Type Approval documentation

Tests carried out

Corrosion, hydraulic pressure and flow condition test

Marking of product

For traceability to this type approval each device has to be permanently marked with:

- Manufacturer's name or trade mark
- Type designation
- Size of inlet and outlet
- Direction of flow
- Pressure and vacuum setting



Job Id: **262.1-011658-3**
Certificate No: **TAP000003R**

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform periodical assessment every second year and before the expiry date of this certificate. The scope of the periodical assessment survey, is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the certificate retention survey are:

- Review of Type Approval documentation
- Review of possible changes in design, materials and performance
- Ensure traceability between manufacturer's product type marking and Type Approval Certificate.

END OF CERTIFICATE