

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Pressure-Vacuum Relief Valve**

with type designation(s)

High Velocity Pressure Valves VQBLUE P2/P3/P4/P5/P6, Deflagration vacuum valves VQBLUE V2/V3/V4/V5/V6

Issued to

Ventiq AS

GJERDSVIKA, Møre og Romsdal, Norway

is found to comply with

DNV GL rules for classification – Ships Pt.5 Ch.5 Oil tankers

DNV GL rules for classification – Ships Pt.5 Ch.6 Chemical tankers

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Type:

High Velocity Pressure Valves VQBLUE P2/P3/P4/P5/P6

Deflagration vacuum valves VQBLUE V2/V3/V4/V5/V6

Design:

see page 2

see page 2

Sizes:

see page 2

see page 2

Issued at **Høvik** on **2021-04-30**

This Certificate is valid until **2026-04-29**.

DNV local station: **Norway Newbuilding**

Approval Engineer: **Maheshraja Venkatesan**

for **DNV**

Zeinab Sharifi

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

High Velocity Pressure Valves (VQBLUE P2/P3/P4/P5/P6)

Spring and magnet operated pressure valve (end of line device) comprising of following parts and material of construction:

Body – pressure side	: S235JR or AISI 316L
Body – side flange cover	: S235JR or AISI 316L
Pressure fixture	: AISI 316L
Test lever arrangement	: AISI 316L
Pressure fixture gasket	: NBR

Deflagration vacuum valves (VQ BLUE V2/V3/V4/V5/V6)

End-of-line deflagration flame arresters (vacuum valves with integrated gas freeing cover) equipped with a flame arrester element consisting of two wire mesh layers (Mesh 40/ thread 0.22mm) for all models except V6 where three layers of wire mesh with the following parts and materials of construction:

Body – vacuum side	: S235JR or AISI 316L
Gas freeing and vacuum cover	: S235JR or AISI 316L
Gas freeing fixture	: AISI 316L

Products covered by this certificate are designed and tested according to:

- IMO MSC/Circ. 677 (as amended by MSC.1/Circ. 1324) Revised Standards for The Design, Testing and Locating of Devices to Prevent the Passage of Flame into Cargo Tanks in Tankers
- ISO 16852:2016: Flame arresters - Performance requirements, test methods and limits for use
- ISO 15364:2016: Standard for ships and marine technology – Pressure/vacuum valves for cargo tanks

Application/Limitation

Products covered by this certificate may be used as vents on tanks for cargo on board ships having class notation "Tanker for Oil", "Tanker for Oil Products" or "Tanker for Chemicals" carrying products having an MESG of 0.65 or greater (Apparatus group IIB).

VQ BLUE High Velocity Valves					
Designation	Maximum pipe length	Minimum pipe size	Outlet	Set pressure	Maximum Ice thickness
VQBLUE P2	50 m	DN 65	62 mm	13kPa	25 mm
VQBLUE P3	50 m	DN 80	72 mm	13kPa	25 mm
VQBLUE P4	50 m	DN 100	78 mm	13kPa	25 mm
VQBLUE P5	50 m	DN 125	108 mm	17kPa	20 mm
VQBLUE P6	50 m	DN 150	115 mm	16kPa	20 mm

VQ BLUE Vacuum Valves			
Designation	Vacuum set Pressure	Inlet	Maximum Ice thickness
VQBLUE V2	3.5kPa	62 mm	0 mm
VQBLUE V3	3.5kPa	71.5 mm	0 mm
VQBLUE V4	3.5kPa	108.5 mm	0 mm
VQBLUE V5	3.5kPa	125 mm	0 mm
VQBLUE V6	3.5kPa	150 mm	0 mm

Maximum discharge rate to be established according to the latest revision of MSC/Circ. 731.

Sizing and location to be in accordance with the latest revision of MSC/Circ. 731.

Installation on board of vessels with class notation of "Tanker for oil" or "Tanker for oil Products" is to comply with the Rules Pt.5 Ch.5 Sec.5.

Installation on board of vessels with class notation of "Tanker for Chemicals" is to comply with the Rules Pt.5 Ch.6 Sec.9.

Cargo tanks connected to the combined pressure-vacuum main vent line must carry the same type of cargo.

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, including flow rates under both positive and negative pressures, operating pressures, operating sensitivity, flow resistance and velocity

No product certificate is required.

Product testing

Each finished device to be visually and dimensionally checked and pneumatically leakage tested at 75 % of the nominal setting according to ISO15364:2016 [6.1] & [10]. According to the instruction manual, acceptance criteria is to be as per ISO15364:2016 Annex I.

Type Approval documentation

Tests carried out

Corrosion Test, flow measurement test, Undamped Oscillation & Endurance Burning tests (for High Velocity Valves), flame transmission/ flash back test, External ice test.

Marking of product

Each device shall be permanently marked indicating the following:

- manufacturer's name or trademark;
- manufacturer's designation;
- size of connections;
- approved location for installation, including maximum or minimum length of pipe, if any, between the device and the atmosphere and the apparatus group assigned to the tested device;
- serial number;
- direction of flow through the device;
- set pressure; If the set-pressure is changed, the marking shall be updated accordingly.

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.