

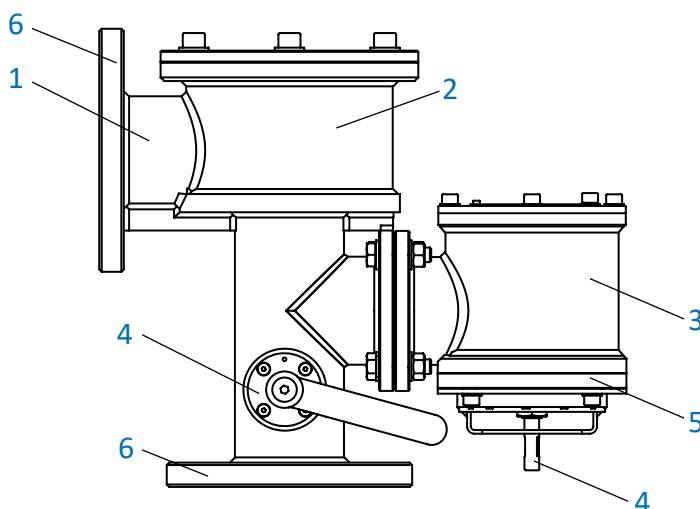
## VQ-SUB Pressure Vacuum valve



The VQ-SUB is a automatic Pipe-Away Pressure valve / integrated Vacuum valve for protection of cargo tanks in order to avoid excessive over/under pressure during loading, unloading, sloshing and thermal variations.

In case of an undesired tank pressure situation, the VQ-SUB emits the over pressure though a pipe-away system and to a controlled termination. Likewise, if an under pressure occurs, the vacuum valve opens and draws ambient air, through a flame arrester, equalizing the pressure inside the cargo tank.

Attention should be paid to fact that the pressure valve on VQ-SUB is not to be regarded as a dynamic flame arrester, as it only protects the internal over pressure on the connected cargo tank. For sufficient flame protection on the pressure side, a flame arrester, intended for the operation, must be added.



1. Pipe-away header
2. Pressure relief valve
3. Vacuum relief valve
4. Test levers
5. Flame arresting unit
6. Connection flanges

- Advanced flow control for sequential opening
- Automatically operated
- Selfdraining design
- Pressure adjustment setting by qualified personnel
- Simplified inspection and maintenance of all moving parts
- Snap on/snap off flame arrester on vacuum valve
- On-site set pressure setting verification available
- Protects crew from exposure
- Test levers for manual check of operation

## Controlled ventilation of cargo tanks carrying toxic products on OSV's

With reference to the Code for transport and handling of hazardous and noxious liquid substances in bulk on offshore support vessels Resolution A.1122(30), Norwegian Maritime Authority (NMA) has acknowledged the challenges some of the requirements of the OSV Chemical Code has on existing vessels.

The structural changes needed to comply with the requirements in 4.3.7 is a difficult task for the industry. The main rule in 4.3.7 still stands, but NMA has created an opening with regards to arrangement that can ensure that all toxic vapour discharge can be safely diverted away from the ship.

This can be solved through a pipe-away solution in form of an end of line vacuum valve and a inline pressure valve, typically connected to a vent pipe terminating below sea level.

### The solution; - submerged cargo vent pipe termination

With the introduction of the Ventiq VQ-SUB, shipowners, yards and designers has the ability to (more easily and in accordance with NMA 09-2021) convert existing vessel into the OSV chemical code.

Instead of upgrading cargo tanks to the pressure setting noted in 4.3.7 one can use the VQ-SUB as a pipe-away device leading the emissions below sea level.

The pressure valve of VQ-SUB ensures keeping the pressure below a specified pressure level and the vacuum valve will work as an end-of-line device allowing air to be drawn into the cargo tank if an under pressure develops.

The vacuum valve is protected by an certified flame arrester for Apparatus group IIB (MESG 0,65) and equalizes any under pressure created by unloading the tank and or thermal variations



VQ-SUB fitted into a  
OSV cargo tank vent system