Protective solutions

Applications

The YV-1 overpressure blast valve is used as air outlet valve in Civil Defence and military shelters and blast protected industrial facilities. The valve regulates the internal over-pressure of the shelter and closes rapidly when subject to blast from the outside.

Specification

Manufacturer of YV-1 overpressure blast valve is Temet, Helsinki Finland.

The YV-1 overpressure blast valve comprises a pivoted closing element (pressure disk) closing the air passage against the valve seats in response to positive phase of the blast or lack of overpressure inside the shelter. The valve is mounted on a structural steel wall sleeve to be cast in the concrete wall. The wall sleeve is of flush design leaving no parts to extent beyond the concrete wall surface. The valve is completely corrosion resistant. The valve pressure disk is made of aluminum alloy, other moving parts are made of stainless steel. The valve casing is made of steel and is epoxy powder coated.

Design Criteria

The YV-1 overpressure blast valve is made in accordance with specific provisions issued by the Finnish Ministry of Interior. The YV-1 is type tested and approved for use by the Technical Research Centre of Finland / VTT Building Technology, an Independent Testing Authority mandated to perform type inspection for shelter equipment and systems by the Ministry of Interior. Type test reports as well as additional test data are available upon request.

Test and performance data

The valve is designed and tested to withstand multiple long duration (peak duration > 25 ms) blast loads having peak reflected overpressure of 3.0 bar while retaining its full functional ability.

The valve is shock tested with a mechanical shock of the installation base having a maximum acceleration of 30 g and velocity of 1.5 m/s horizontal and 1.5 m/s vertical direction.

When closed manually the valve is gastight. The maximum leakage is less than 0.03 l/s (0.108 m^3/h) at pressure difference of 150 Pa.

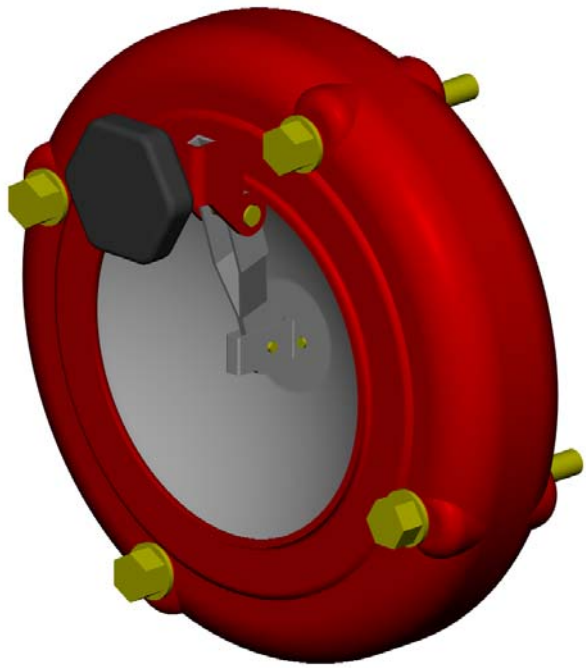
The valve is designed to function within the operating temperature range of -20 …+80°C.

Type test report

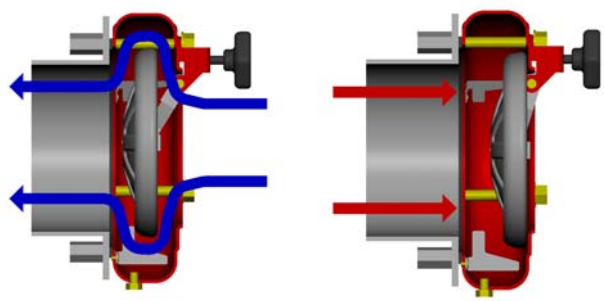
VTT type test report and additional test data is available upon request.

Other documents related to YV-1 Overpressure Blast Valve:

Installation Instructions
Operation & Maintenance Instructions



YV-1 Overpressure Blast Valve



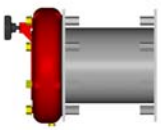
Normal ventilation position
Overpressure inside the shelter causes the valve to open

Blast wave from the outside or lack of internal over-pressure, pressure disk closes

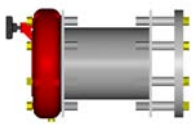
YV-1 Overpressure Blast Valve Operation Principle

TEMET OVERPRESSURE BLAST VALVE YV-1

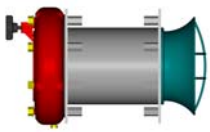
YV-1 Overpressure Blast Valve with accessories



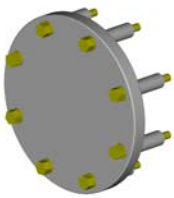
YV-1



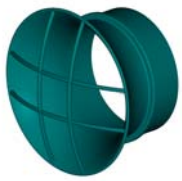
YV-1 with YV1SP



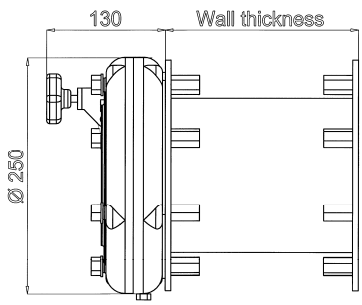
YV-1 with YV1FG



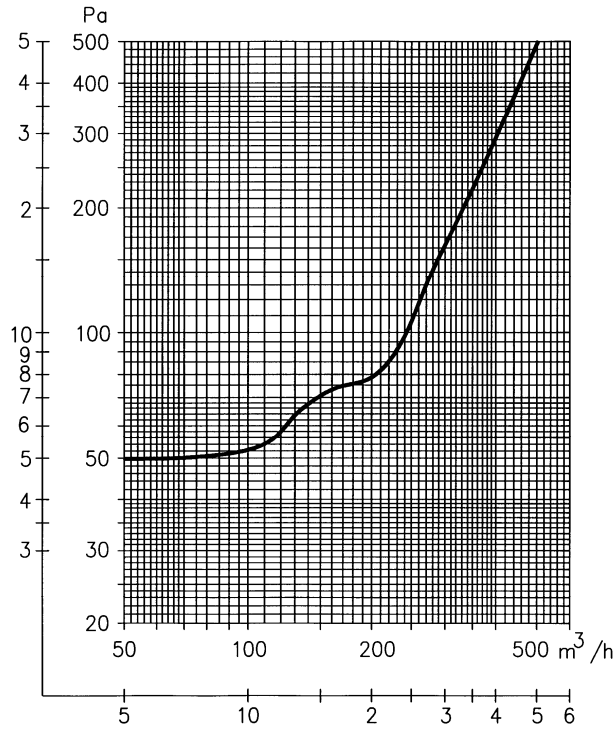
YV1SP
Splinter Plate



YVS-160
Flow Guide



YV-1 Overpressure Blast Valve dimensions

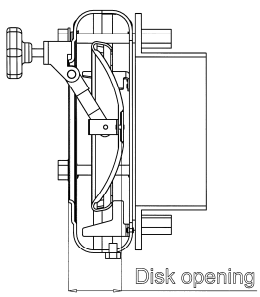


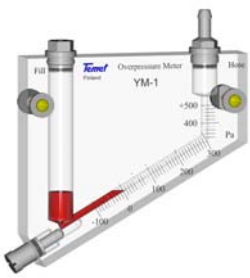
Air flow characteristics measured at 20 ºC corresponding to air density of 1.2 kg/m³.

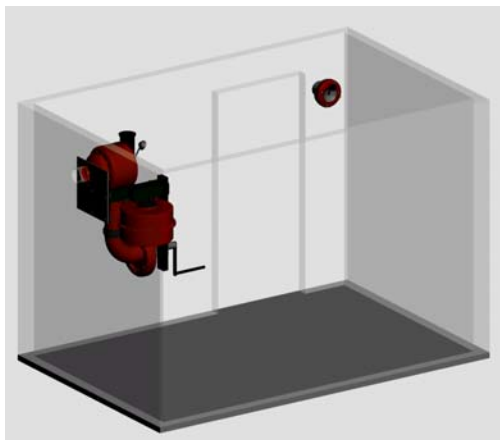
Adjustment of overpressure

The overpressure in the shelter can be adjusted by rotating and locking the hand-wheel of the over-pressure valve in the desired position thus limiting the valve disk opening.

The shelter overpressure meter indicates when the specified overpressure inside the shelter is reached.







Typical Installation of YV-1 in small shelter

The YV-1 Overpressure Blast Valve can be used together with Emergency Ventilation Units such as VIL-units.

Design - Production – Installation – Maintenance - Consultation

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