

### Protective solutions

#### Applications

The PVD-50 exhaust and sanitary blast valve is used as exhaust air valve of Civil Defence and military shelters. The PVD-series exhaust and sanitary blast valves are specially designed to be used in the exhaust systems of diesel engines and are suitable for other applications with hot and corrosive gases. The valve is also applied for protection of vent pipes of sanitary systems and fuel and water tanks. When ordering, please mention if the valve is to be used for vent pipe application.

#### Specification

Manufacturer of PVD-50 exhaust and sanitary blast valve is Temet, Helsinki Finland.

The PVD-50 exhaust and sanitary blast valve comprises a special heat resistant steel pressure disk mounted on a stainless steel spindle within cast steel valve body and casing. The valve disk is held open by the gas flow and closes in response to the blast load.

The valve is also available as vent pipe model, PVD-50-VP, with spring-loaded pressure disk for applications in which the gas/air flow is not sufficient to keep the pressure disk in the open position during normal operation.

#### Design Criteria

The PVD-50 exhaust and sanitary blast valve is made in accordance with specific provisions issued by the Finnish Ministry of Interior. The PVD-50 blast valve 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 > 60 ms) blast loads having peak reflected overpressure of 20 bar and short duration (positive phase duration < 5.0ms) blast load having peak reflected overpressure of 60 bar while retaining its full functional ability.

The valve is shock tested in directions of the three main axis with a mechanical shock of installation base having an acceleration of 80g.

The valve is designed to function within operating temperature range of -20 ... +520 °C. The high temperature models of the PVD valves are designed to provide complete blast protection up to 650°C operation temperature.

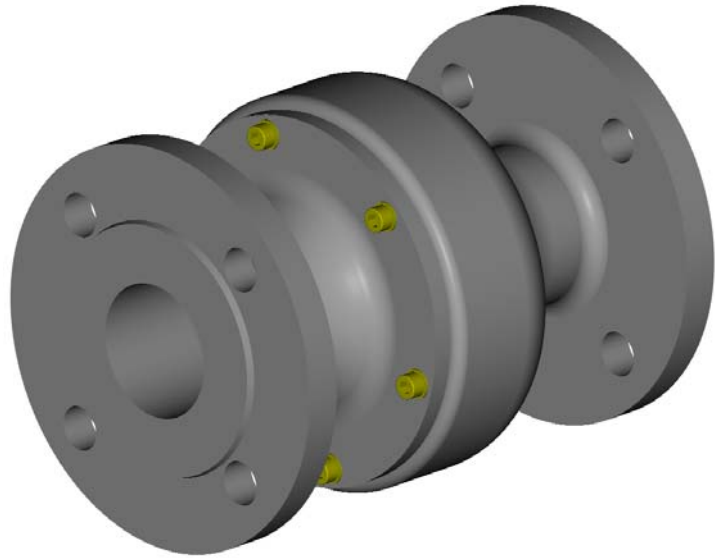
#### Type test report

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

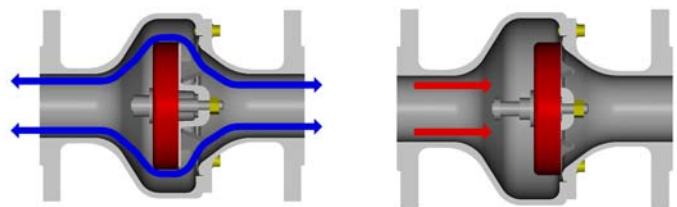
Other documents related to PVD-50 Exhaust and Sanitary Blast Valve:

Installation Instruction

Operation & Maintenance Instruction



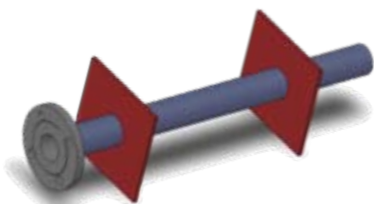
**PVD-50 Exhaust and Sanitary Blast Valve**



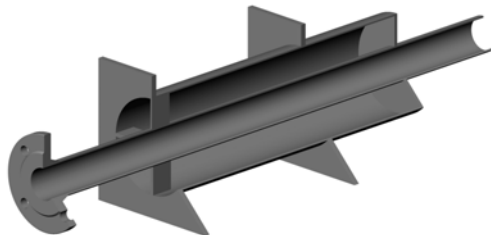
Normal ventilation position

Blast pressure from the outside Valve closes

**PVD-50 Exhaust and Sanitary Blast Valve Operation Principle**



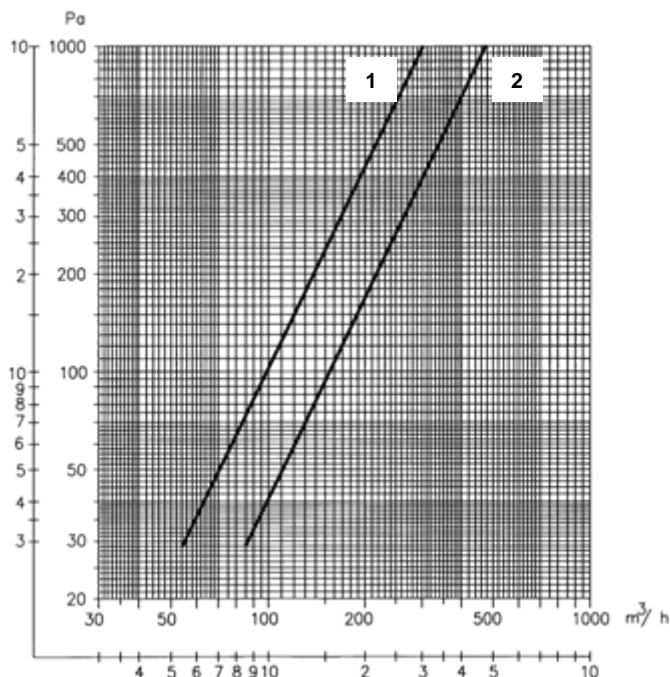
PVD-50-VP wall sleeve



PVD-50 heat resistant wall sleeve

Temet LP-PP wall sleeves are made specially for the hot exhaust gases. The heat transfer to the walls is minimized with the unique wall sleeve construction. The high temperature wall sleeves LP-PP-HT are recommended for use with high temperature PVD valves, from 520 to 650°C.

PVD-50-BS is a complete fixing bolt set and PVD-50-BS-HT is a complete fixing bolt set for high temperature models.



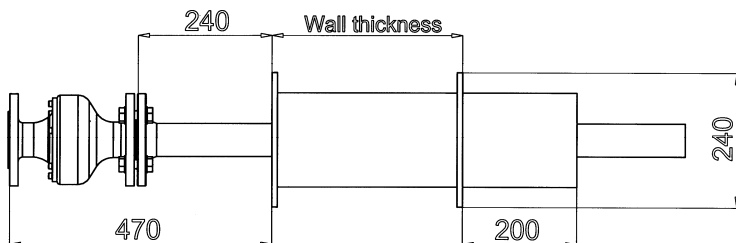
Graph 1. Air flow characteristics measured with air at 20 °C corresponding to air density of 1.20 kg/m<sup>3</sup>.

Graph 2. Gas flow characteristics measured with exhaust gas at 520 °C corresponding to gas density of 0.50 kg/m<sup>3</sup>.

### Example for valve selection:

The shelter auxiliary power system has a diesel engine having a nominal exhaust gas flow of 340 m<sup>3</sup>/h. The maximum recommended back pressure caused by blast valve is 500 Pa. The required exhaust blast valve type is PVD-50 providing 340 m<sup>3</sup>/h at 500 Pa.

If the exhaust gas temperature has not been informed by generator manufacturer, the valve type can be selected depending on the distance of the valve from the diesel engine. For location less than 2 meters from the engine the high temperature model designed for 650°C operating temperature is recommended, for location more than 2 meters the normal type of PVD-50 valve can be used.



PVD-50 t Blast Valve and Wall Sleeve dimensions

Valve	Width x Height of wall sleeve (mm)	Min wall thickness (mm)	Weight of valve (kg)	Weight of wall sleeve (kg) for wall thickness 600 mm	Total weight (kg)	Air Flow at 100 Pa (m <sup>3</sup> /h)	Air Flow at 200 Pa (m <sup>3</sup> /h)	Air Flow at 300 Pa (m <sup>3</sup> /h)	Air Flow at 500 Pa (m <sup>3</sup> /h)
PVD-50	240x240	300	8	22	30	160	220	260	340
PVD-100	300x300	300	20	40	60	280	420	540	680
PVD-150	375x375	300	35	58	93	900	1300	1550	2100
PVD-250	450x450	300	95	100	195	3240	4320	5940	7200

Design - Production – Installation – Maintenance - Consultation