

ORV

Installation and Operating Instructions for



The data stated in these operating instructions are merely for the purpose of describing the product. Information about a certain property or suitability for a certain purpose of use cannot be derived from our information. The information does not release the user from his own assessments and examinations.

Please consider the fact that our products are subject to a natural wear and ageing process.

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An exemplary configuration has been shown on the title page. The product supplied can therefore deviate from the illustration. The original operating instructions have been written in the German language.

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1 General information

1.1 List of information



WARNING

Possible danger

Failure to comply with this warning potentially leads to death or to serious bodily harm.



CAUTION

Hazard with a low risk

Failure to comply with this warning potentially leads to moderate injuries.



NOTE

Useful information and notes

1.1.1 Safety symbols



General hazard symbol

1.2 Notes on the documentation



WARNING

Hazard as a result of improper dealing with the ORV.

These operating instructions describe safe use of the over-pressure relief vent.

- Read the operating instructions carefully!
- Keep the operating instructions. They must be permanently available at the place of use.

2 Important safety information

2.1 Safety notes

Designers, installers and operators are responsible for the proper mounting and intended use.

- Only use the over-pressure relief vent in a proper condition.
- Provide generally prescribed mechanical protective devices.
- During mounting, commissioning, maintenance and control, secure the place of mounting against unauthorised access.
- Observe rules for safe work.
- Safety components must not be bypassed or put out of function.
- Regularly instruct the personnel about safety-conscious behaviour.

2.2 Personnel

2.2.1 Mounting personnel

Mounting may only be carried out by trained, qualified personnel.

2.2.2 Personnel for operation, use, maintenance and cleaning

Operation, use, maintenance and cleaning may only be carried out by trained and authorized personnel. In the case of a malfunction or an emergency they must react correctly and adequately.

2.3 Intended use

Over-pressure relief vent is a device which opens automatically at design pressure difference to give a free flow path from a pressurized space (for example staircase, clean room applications) to a space of lower pressure (for example lobby, accommodation, laboratory) or to the open air. ORV is designed to maintain the adjusted pressure difference between two rooms or between room and exterior, when we wish to prevent contamination of the inside or exterior with chemical or biological polluted air. ORV is a passive element with quick respond. ORV are self-regulating and should be always used with other active elements for maintenance of the pressure difference (for example fans). They are not tight.

Examples:

- maintenance of the pressure difference between clean room and soiled zone in laundry, pharmaceuticals and electronic industry for preventing pollution of the process (for example pressurization cascade in wardrobe near the clean room);
- maintenance of the pressure difference in chemical laboratory for preventing pollution of exterior ;
- pressurization of evacuation corridor in an event of fire for maintenance of smokeless zone (for example stairways);
- air supply to smoking rooms with under-pressure (exhaust fan only);
- air exhaust from rooms where only air inlet is made by fan. (for example ventilating of rooms or halls with low demands);
- fresh air supply to rooms where only air exhaust is made by fan (for example ventilating of rooms or halls with low demands).

2.4 Incorrect use

Above all, the incorrect use means using the over-pressure relief vent in a way other than that described. The following points are incorrect and hazardous:

- Operation in an explosion hazardous, aggressive, dust or grease containing atmosphere;
- Operation without duct system/protective guard.

3 Warranty

Warranty for our products shall be determined according to the contractual agreements, our quotations and also, as a supplement, our General terms and Conditions of Business. Warranty claims shall presuppose that the products are correctly connected, operated and used accordingly to data sheets, and also regularly maintained.

4 Delivery, transport, storage

4.1 Delivery

Each device leaves our plant in mechanically proper condition. The over-pressure relief vents are delivered in wooden crates or in boards. We recommend to transport them to the installation site in original packaging.



CAUTION

Danger from cutting edges!

- Wear protective gloves when unpacking.

Check delivery

- ☞ Check the ORV for obvious defects, which can impair safe operation, first of all, if the flaps open and close smoothly.

4.2 Transport

- ☞ Transport and unload the wooden crate/board carefully.
- ☞ At manual transport observe allowed human lifting resp. carrying forces.
- ☞ Avoid impacts and distortion of the flaps.

4.3 Storage



⚠ CAUTION

Hazard due to loss of function!

- Before installation, check if the flaps open and close smoothly.

- ☞ Store the over-pressure relief vent in the original packaging dustproof, dry and protected against weather.

5 Description

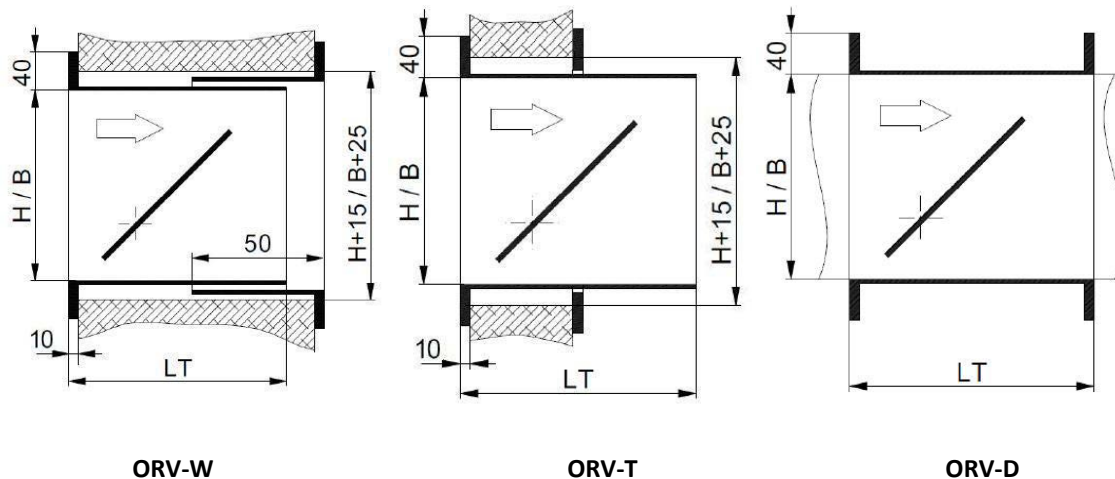
Under – Over – pressure relief vent, depends on orientation. Opening pressure (pressure at which the flap begins to open): 10 to 50 Pa (factory pre-set up to order). Temperature range $-20 \div 80^{\circ}\text{C}$. The casing is made of 1,5 mm thick hot dip galvanized steel sheet. The flanges have pre-set holes in corners. The flaps are from aluminium 1,2 to 2 mm thick. Axles are from 6 mm stainless steel, running in maintenance-free flanged bushes PAF 06080 P10.

Caution: Permaglides® P10 contains lead (Pb). Therefore, contact with foodstuffs or pharmaceutical products should be avoided. Axles can be above centreline or below it. Observe label “top” for position at installation. **Suitable for installation according to EN 12101-6.**

ORV can be delivered in three standard forms: wall form “W” or “T” and duct form “D”.

Options on request: another opening pressure, powder coating RAL 7032, non standard dimensions, horizontal mounting.

Standard forms (installation possibilities – vertical mounting only – with horizontal axles):



5.1 Technical Data – mass (app. kg), dimensions

Masses are in the table in Appendix 1, other data and selection examples please see Item No. G1049, G1050, G1051).

6 Installation

6.1 Safety information



WARNING

Hazard from falling parts!

- Transport the flap carefully and with appropriate hoisting device!
- Wear a safety helmet and safety goggles!



CAUTION

Danger from cutting edges!

- At installation wear protective gloves.

6.2 Preconditions for installation

Installation site must be protected from dust, moisture and weather influences.

6.3 Installation

- Installation may be executed only by a qualified person!
- The ORV must be installed in vertical position only – with horizontal axles – observing TOP and AIR FLOW labels;
- The casing can be fixed with appropriate screws if ducted, or with polyurethane foam or similar product, if wall mounted. If using foam or sealant, avoid incoming it inside casing, especially at the type W. At this type possible incoming of dust trough gap between both parts of the casing should be prevented (by using tape or sealing the gap).
- Use appropriate sealing tape between ORV flange and duct flange;
- The casing should not be deformed during mounting;
- Check by hand, if the flaps open and close smoothly;
- Avoid tension or deformation due to duct weight;
- Air inlet and outlet must not be hindered;
- Access to the ORV for maintenance/inspection/adjustment must be assured;
- Ingress of garbage or unintended touching of flaps should be prevented with some protective net or similar.

7 Commissioning

7.1 Preconditions

Before initial operation check the following:

- Assembling (fixing, eventual deformations) and joints for leakage;
- Check if foreign objects were left in the connected ducts.

7.2 Commissioning

Start the fan and observe opening of flaps. Switch the fan off, observe closing the flaps. Prepare instruments for measuring pressure difference (and velocity, if needed). After starting the fan measure the pressure difference at opening and in required working point.

7.3 Adjusting

The weights with thread are usually set on both sides of the flap (especially at opening pressure up to 20 Pa). The flaps open up to 70°. The balancing weights (to balance the flap) are set on the axle centreline on the outlet side of ORV. The closing weights on the inlet side of flap ensure closing of flap after switching the fan off. Pre-set is usually a little lower opening pressure than the nominal on the name plate – example 1.

To **decrease the opening pressure** unscrew balancing weights – example 2. If needed, screw the closing weights. The limit of adjustment is that, which assures closing of flap (the closing pressure decreases too – example 2 – from 8 to 7 Pa). The weights in the same row can be set on different distance to the flap.

To **increase the opening pressure** unscrew the closing weights – example 3. This **increases the closing pressure, too**. The weights in the same row can be set on different distance to the flap.

Significant changing of working point on the pressure – air volume curve is only possible by changing of fan working point (e.g. via frequency inverter).

If adjusting limits are not separately agreed at order, they are carried out as follows: opening pressure calculated up to 10% lower (possibility of increasing), closing pressure to minimum (possibility of increasing).

After adjusting mount safety elements (guards...). They are not in scope of delivery.



NOTE

Adjusting examples see Appendix 1.

7.4 Approval

It is particularly important to prove the proper function of system and control devices as well as accordance with requirements of the project and regulations. All tests should be recorded and the documents filed.

8 Maintenance/trouble setting

8.1 Malfunctions and service

Airflow does not open the flap. The flap does not close itself, when the fan stops.	Check opening/closing by hand. The flap should be centred in the casing with approximately 2 to 3 mm gap to each side. If the flap is not centred, unlock the fasteners of the flap and use a thin plain washer 6 between axle and bush on appropriate side.
Airflow does not open the flap.	Dirt in the bearings. Disassemble the flap, clean the bearings and axles and check opening/closing.
	Check operating point and system design – probably some measurements from point 7 are necessary. The opening pressure may be too high adjusted – point 7.
The flap does not close itself, when the fan stops.	Increase the closing pressure of the flap (this increases the opening pressure, too) – point 7. Dirt in the bearings. Disassemble the flap, clean the bearings and axles and check opening/closing.

If the reason for malfunction cannot be clearly determined, consult the customer service of manufacturer.

8.2 Maintenance, service

The following must be controlled periodically (depending on operating conditions, but once a year at least):

- Check if screws got loose and tighten them if needed;
- Remove dirt if there is any;
- Check if the flaps open and close smoothly;
- Check the functionality of protective devices;
- Check the functionality of control devices;
- Inspection of negative influences of environment on the product (dust, steam etc.).

8.3 Spare parts

In case of order of spare parts please specify the marking of the ORV. You can find it on the name plate.

9 Uninstalling/dismounting



CAUTION

Danger from cutting edges and impact!




- Wear protective gloves when dismantling!
- Dismount carefully.



WARNING

Hazard from falling parts!




- When selecting the hoisting device observe the weight.
- Wear a safety helmet and safety goggles!

-  Remove the ORV from duct/wall.
-  Carefully remove the fastening material.
-  Place the ORV on appropriate pallet.


10 Disposal

10.1 Disposal of the ORV

Should the ORV be disposed, proceed as follows:

-  Disassemble the ORV into its components.
-  Separate the parts according to
 - reusable material;
 - material groups to be disposed (steel, aluminium, bushes (Pb)).
-  Provide for the recycling of material. Consider the national regulation.

10.2 Disposal of packaging

-  Provide for the recycling of material. Consider the national regulation.

Anlage 1 / Appendix 1 / Priloga 1

Mass kg

B											H	LT
200	250	280	315	355	400	450	500	560	630	710		
4,9	5,7	6,0	6,4	6,8	7,3	7,8	8,4	9,0	9,8	10,6	200	230
5,4	6,3	6,7	7,1	7,5	8,1	8,6	9,2	9,9	10,7	11,7	224	260
6,0	6,9	7,2	7,7	8,2	8,7	9,3	9,9	10,7	11,6	12,6	250	280
6,6	7,6	8,0	8,5	9,0	9,6	10,3	11,0	11,8	12,7	13,8	280	310
7,6	8,6	9,0	9,6	10,1	10,8	11,5	12,3	13,2	14,2	15,4	315	350
8,6	10,0	10,4	11,0	11,6	12,3	13,0	13,8	14,8	15,9	17,1	400	230
9,6	11,1	11,6	12,2	12,9	13,7	14,5	15,4	16,4	17,7	19,1	450	260
10,6	12,1	12,7	13,3	14,0	14,9	15,8	16,7	17,9	19,2	20,7	500	280
			14,8	15,6	16,5	17,6	18,6	19,8	21,3	23,0	560	310
				17,7	18,7	19,9	21,0	22,4	24,1	25,9	630	350
						22,3	23,6	25,2	27,0	29,1	750	280
							30,6	32,6	34,9	37,7	1000	280

Adjusting examples

Beispiel 2:

2 Ausgleichsgewichte um 6 mm abgeschraubt

Öffnungsdruck 26 Pa

Schließdruck 7 Pa

Example 2:

2 balancing weights unscrew for 6 mm

Opening pressure 26 Pa

Closing pressure 7 Pa

Primer 2:

2 izravnalni uteži za 6 mm odviti

Tlak odpiranja 26 Pa

Tlak zapiranja 7 Pa

