Over-pressure relief vent is device which opens automatically at design pressure difference to give a free flow path from a pressurized space (for example staircase, wardrobe) to a space of lower pressure (for example lobby, accommodation, laboratory) or to the open air. PRD is designed for maintenance 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. PRD is passive element with quick respond. It is not tight, and should be always used with other active elements for maintenance of the pressure difference (for example fans).

Under – Over – pressure relief vent, depends on orientation.
Standard opening pressures (pressure at which the flap begins to open) 10, 20, 30, 40, 45, 50 Pa
Temperature range -20 ÷ 80°C.
Made from combination of aluminium and steel
Epoxy-polyester powder coating RAL 7032
Suitable for installation according to EN 12101-6

Three standard forms:
• wall form ″W″
• wall form ″T″
• duct form ″D″

Options on request:
• Another opening pressure
• Colour
• Possibility of fine adjustment after installation
• Other dimensions

Purpose of use:
• maintenance of the pressure difference between clean room and soiled zone in laundry, pharmaceutics 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).
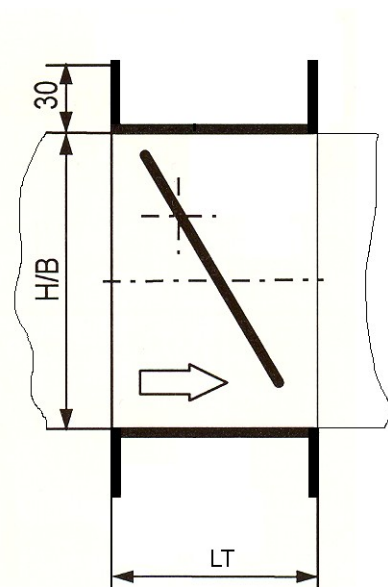
Standard forms (installation possibilities – vertical mounting only):
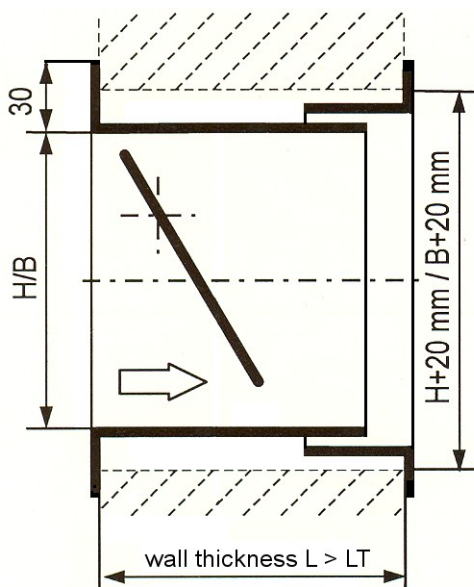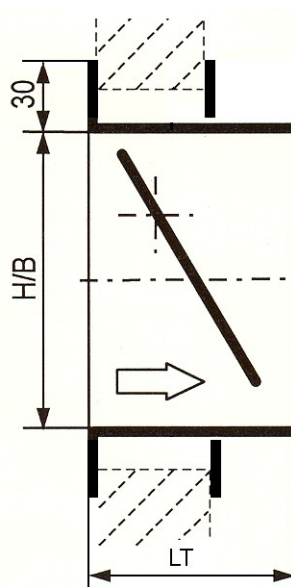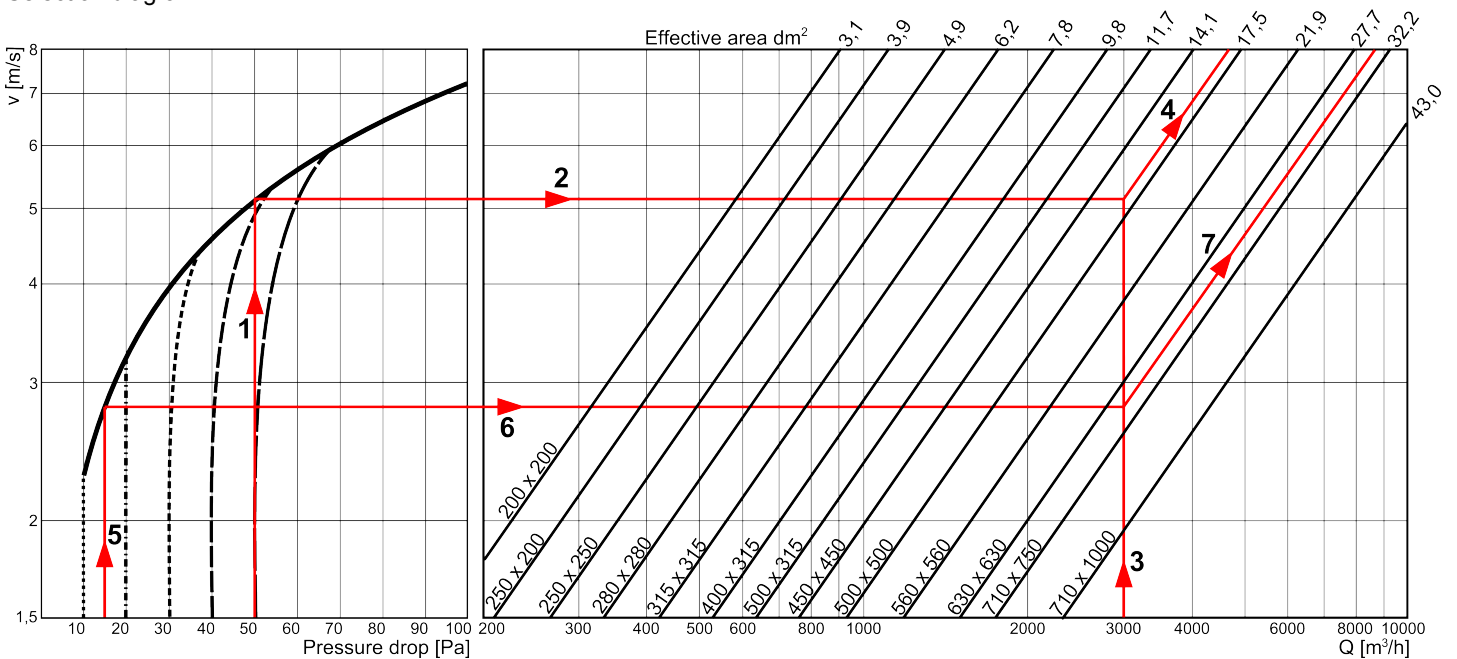
Wall form "W"   Wall form "T"   Duct form "D"

Selection diagram

In left diagram interrupted lines mean start of air velocity curves in case that the opening pressure is 10, 20, 30, 40, 50 Pa.

Table 1 : Effective area (dm²)

width B / height H	200	250	280	315	355	400	450	500	560	630	710	LT
200	3,1	3,9	4,3	4,7	5,1	5,6	6,0	6,4	6,8	7,2	7,6	230
224	3,5	4,4	4,9	5,4	5,9	6,5	7,0	7,5	8,0	8,6	9,1	260
250	3,9	4,9	5,5	6,1	6,8	7,4	8,1	8,7	9,4	10,1	10,7	280
280	4,3	5,5	6,2	6,9	7,7	8,5	9,4	10,1	10,9	11,8	12,7	310
315	4,7	6,1	6,9	7,8	8,8	9,8	10,8	11,7	12,8	13,9	15,0	350
400	6,3	7,8	8,6	9,4	10,3	11,2	12,0	12,8	13,6	14,5	15,3	230
450	7,0	8,8	9,7	10,8	11,9	13,0	14,1	15,0	**16,1**	17,2	18,2	260
500	7,8	9,8	11,0	12,2	13,5	14,9	16,2	17,5	18,8	20,1	21,5	280
560				13,8	15,4	17,0	18,7	20,2	21,9	23,6	25,3	310
630				17,5	19,5	21,6	23,5	25,5	27,7	**29,9**		350
750						24,3	26,2	28,2	30,2	32,2		280
1000							34,9	37,5	40,3	43,0		280

Table 2: Working point of PRD should be always on velocity solid line regarding to selected opening pressure:

Opening pressure	10	20	30	40	50
PRD working point	>10Pa	>20Pa	>35Pa	>54Pa	>68Pa

Selection examples:

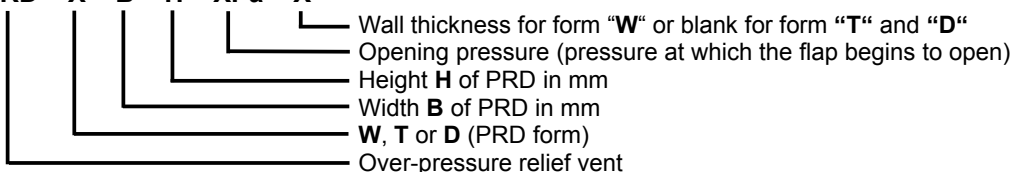| Requirements:
From room should be released V = 3.000 m³/h of air at pressure difference Δp = 50 Pa (working point). Wall form "W" with wall thickness 350 mm is needed. Which PRD to select.
Procedure:
In the left diagram draw vertical line (1) from pressure drop 50 Pa (working point) to the air velocity curve (solid line). Draw horizontal line (2) to the right diagram until intersection with vertical line (3) from air volume flow at 3.000 m³/h. At the top of the diagram (line 4) read the required effective area 14,1>Aef>17,5 dm². From the table of effective areas select appropriate PRD size (for ex-ample B x H = 560 x 450 mm with Aef = 16,1 dm²). Selecting the opening pressure should meet two demands:
1) opening pressure < 50 Pa (selected 30 Pa)
2) working point 50 Pa > 35 Pa (demand from table 2)
Ordering code: PRD–W–560–450–30Pa-350 | Requirements:
From room should be released V = 3.000 m³/h of air at pressure difference Δp = 15 Pa (working point). Wall form "T" is needed. Which PRD to select.
Procedure:
In the left diagram draw vertical line (5) from pressure drop 15 Pa (working point) to the air velocity curve (solid line). Draw horizontal line (6) to the right diagram until intersection with vertical line (3) from air volume flow at 3.000 m³/h. At the top of the diagram (line 7) read the required effective area 27,7>Aef>32,2 dm². From the table of effective areas select appropriate PRD size (for ex-ample B x H = 710 x 630 mm with Aef = 29,9 dm²). Selecting the opening pressure should meet two demands:
1) opening pressure < 15 Pa (selected 10 Pa).
2) working point 15 Pa > 10 Pa (demand from table 2)
Ordering code: PRD–T–710–630–10Pa |

Ordering code explanation:

PRD – X – B – H – XPa – X

- Wall thickness for form "**W**" or blank for form "**T**" and "**D**"
- Opening pressure (pressure at which the flap begins to open)
- Height **H** of PRD in mm
- Width **B** of PRD in mm
- **W**, **T** or **D** (PRD form)
- Over-pressure relief vent

Pressure Relief Damper
PRD-1

DESCRIPTION:

Ressure-relief dampers open and close automatically.

If the differential pressure exceeds the set maximum value, the magnetic force is overcome, and the blades open. The airflow by which the excess pressure has been caused can now flow through the damper. The pressure peak is immediately and reliably controlled. The blade opening angle depends on the differential pressure and the volume flow rate.

When the differential pressure drops below approx. 30 Pa, the blades close again..

MATERIAL :

Sheet metal Frame, Aluminum Blade

FUNCTION :

Pressure relief dampers for gas fire extinguishing systems and transformer substations

- Air leakage with back pressure to EN 1751, class 4
- Maximum differential pressure: 5000 Pa
- Differential pressure can be adjusted from 50 – 1000 Pa (B > 600 mm: 600 Pa max.)
- Blades made of aluminium, casing made of galvanised steel
- Blades open when the maximum differential pressure is exceeded and close automatically when the pressure drops
- Robust, maintenance-free construction
- Available in standard sizes and many intermediate sizes
- Operating temperature 0 to 80 °C
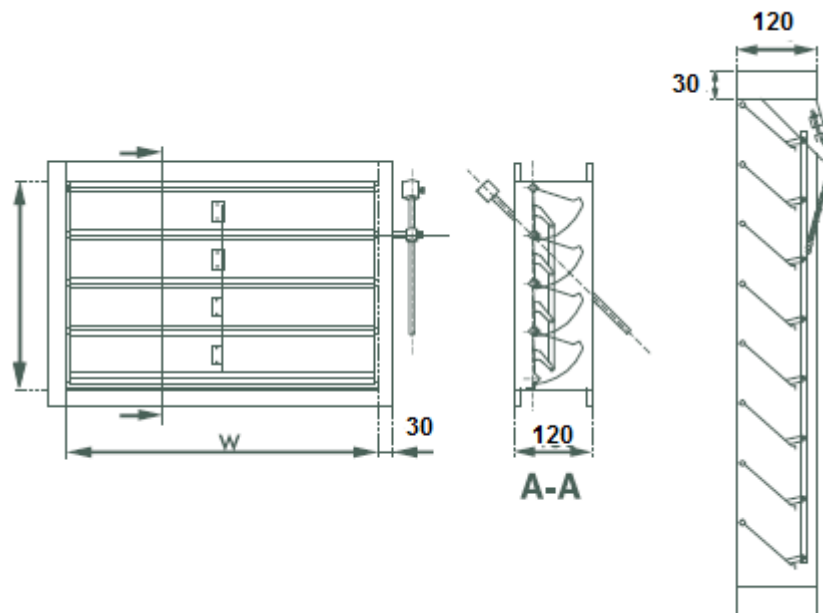
INSTALLATION :

- Screw

STANDARD SIZES (mm):

AVAILABLE SIZES (mm) - Always width x height										
	WIDHT									
HEIGHT	200	250	280	315	355	400	450	500	560	630	710
200	X	X	X	X	X	X	X	X	X	X	X
224	X	X	X	X	X	X	X	X	X	X	X
250	X	X	X	X	X	X	X	X	X	X	X
280	X	X	X	X	X	X	X	X	X	X	X
315	X	X	X	X	X	X	X	X	X	X	X
400	X	X	X	X	X	X	X	X	X	X	X
450	X	X	X	X	X	X	X	X	X	X	X
500	X	X	X	X	X	X	X	X	X	X	X
560	X	X	X	X	X	X	X	X	X	X	X
630	X	X	X	X	X	X	X	X	X	X	X
750	X	X	X	X	X	X	X	X	X	X	X
1000	X	X	X	X	X	X	X	X	X	X	X

DRAWING
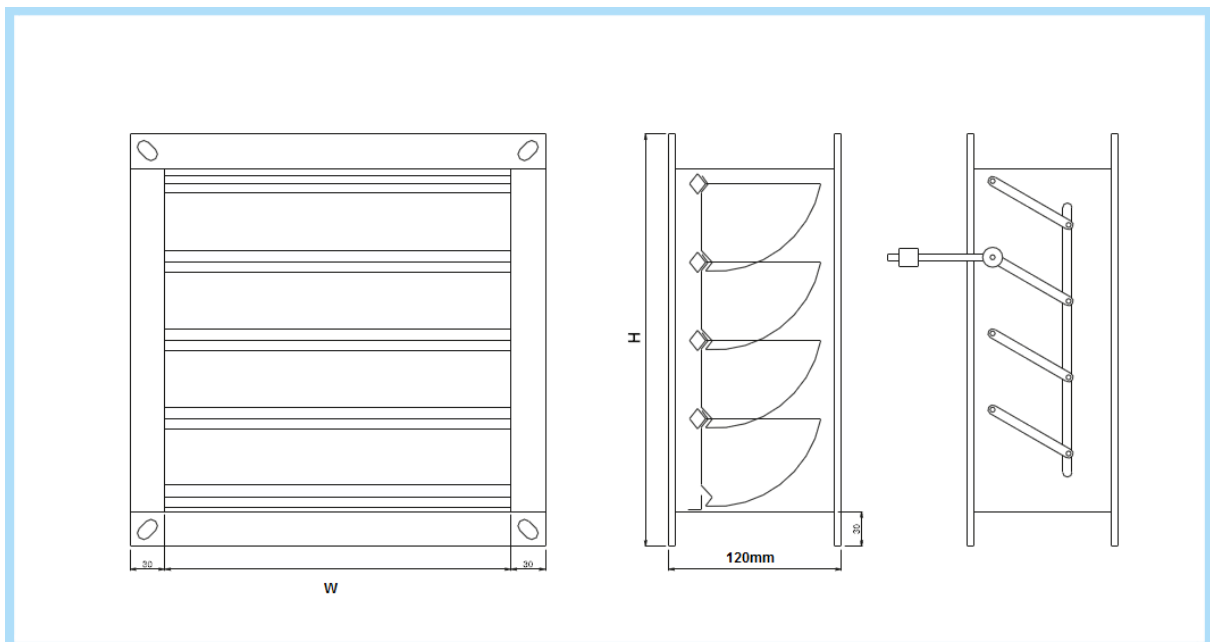
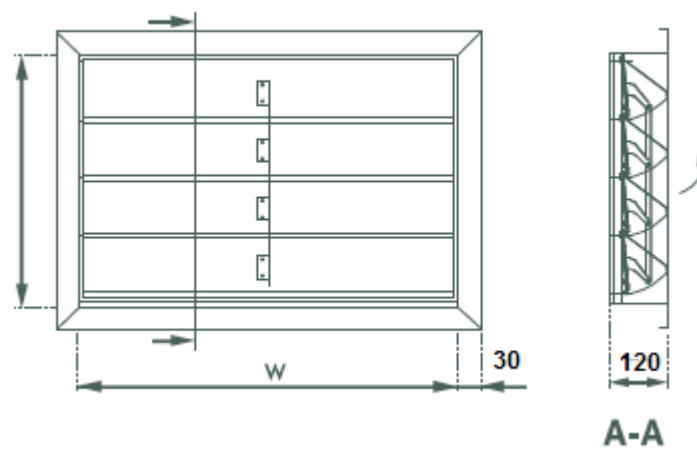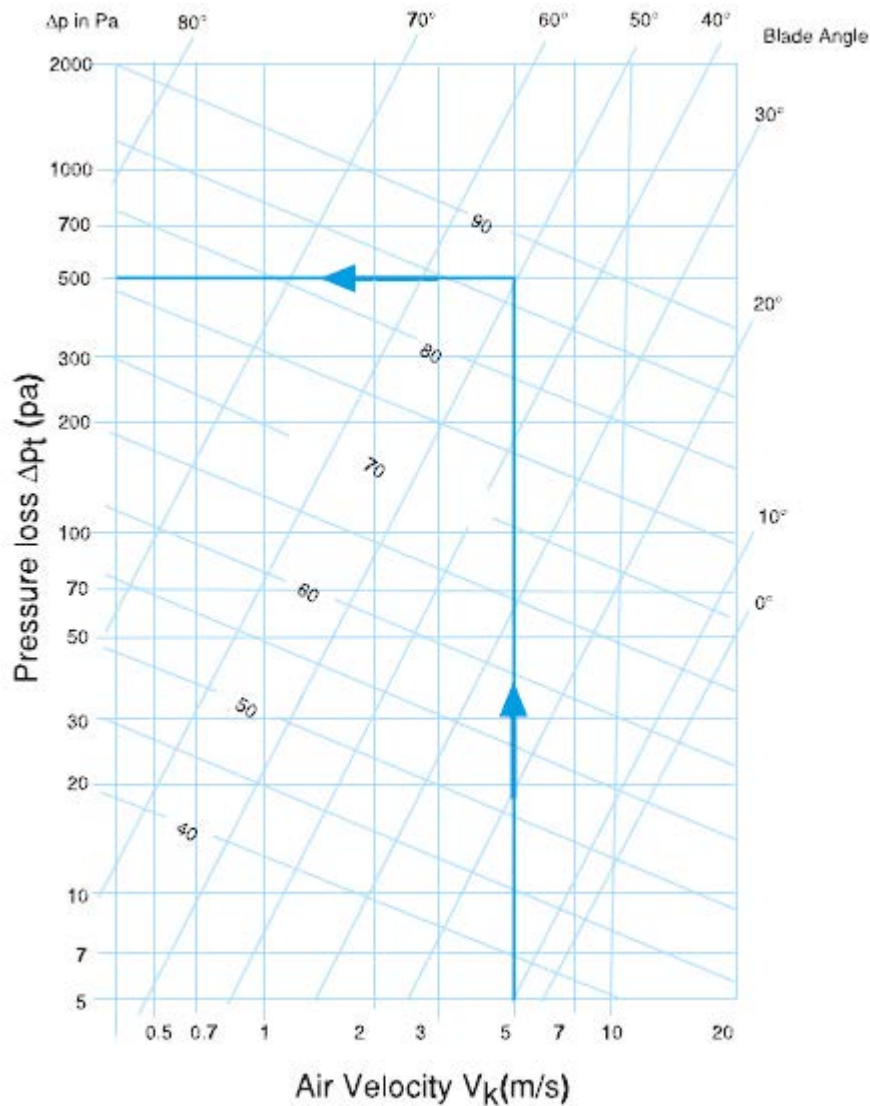**Type-1**

Type-2

SELECTION TABLE

1 m2 DAMPER FOR Ak(m2) VALUE FOR PRESSURE DROP DIAGRAM

EXAMPLE

GIVEN:

Air flow v= 18.000m^3/h
when Damper %50 is closed
Air velocity V_k= 5m /s

RESULTS:

in Diagram 1
Ak= 1m^2
Δpt= 500 pa

in Table 2 BxH 1200 x 1005

ORDER CODES

PRD-1	S	00	SM	F 600x600

PRD
PRD-1

N: Neck Size
F: Frame Size

00: No Mounting
SM: Screw Mounting

00: No coating
EX: Eloxal Coating
RAL----: Oven Drying Coating

A: Aluminum Blade (Standard)
S: Metal Sheet Blade (Ops.)