Series
PVZ

The air curtains provide significant cost saving for the house cooling or heating due to invisible aerodynamic barrier between indoor and outdoor spaces, for instance, at the building entry.

Applications

The air curtains are designed to prevent the cold or hot air streams from outside into door openings or gateways.

The height or width of the covered areas ranges from 2 to 5 meters. The air curtains are suitable for crowded premises with increased traffic load. Designed for application in manufacturing premises, stocks, garages, car service centers and car wash shops, shopping malls, super- and hypermarkets, conference and exhibition halls, and other premises.

Operating logic of the air curtain

Rectangular duct high pressure fan is applied in air curtain. The supply air is filtered and then supplied to the premise through a narrow slit which ensures the outlet air speed increase and its correct operation. If the curtain has a water or electric heater the supplied air is warmed up to the set temperature. The aerodynamic barrier created in such a way separates the premise from environment.

Design

Air curtains are available in 4 standard sizes depending on the capacity. The curtains and their components are made of galvanized steel. Rectangular duct high pressure fan serves for air supply. G4 panel filter provides air filtration. Air is heated with a water or electric heater. If water serve as a heat medium these curtain types are suitable for the premises with the indoor temperature not below 0 °C only. Air distribution is performed through the slit sections. The standard slit sections are 1 to 1.5 m long that enables easy selection for any door opening.

Fan motor

The impellers with forward curved blades made of galvanized steel are powered by four- or six-pole asynchronous motors with external rotor. The fans with such turbine modification are featured with relatively high pressure differential and high air flow capacity. For thermal overheating protection the thermal contacts with the leaded terminals are built in the motor winding for connection to the external protection devices.

Mounting

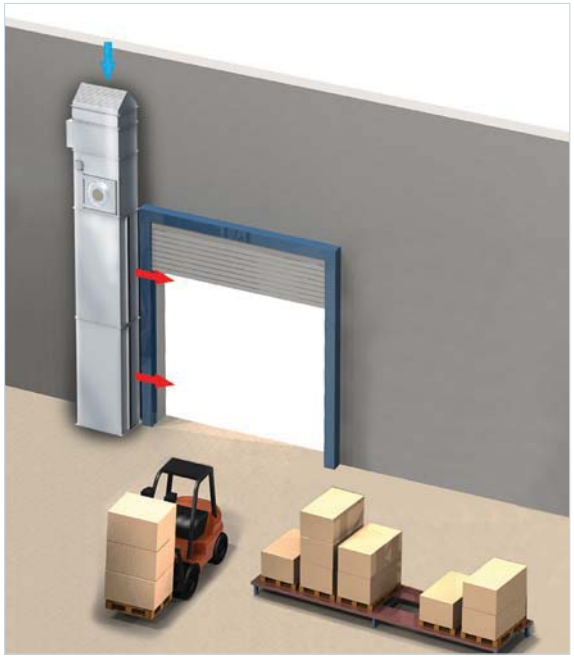
Both horizontal and vertical mounting is possible. In case of horizontal mounting the air curtain is fixed above the door opening and creates the air stream vertically downwards along the whole opening width. In case of vertical mounting the curtain is fixed at one side or at both sides of the opening and the air is streamed horizontally. One vertical curtain covers 10 to 12 m^2 space and for larger surfaces the air curtains at both sides shall be installed to increase the effective area.

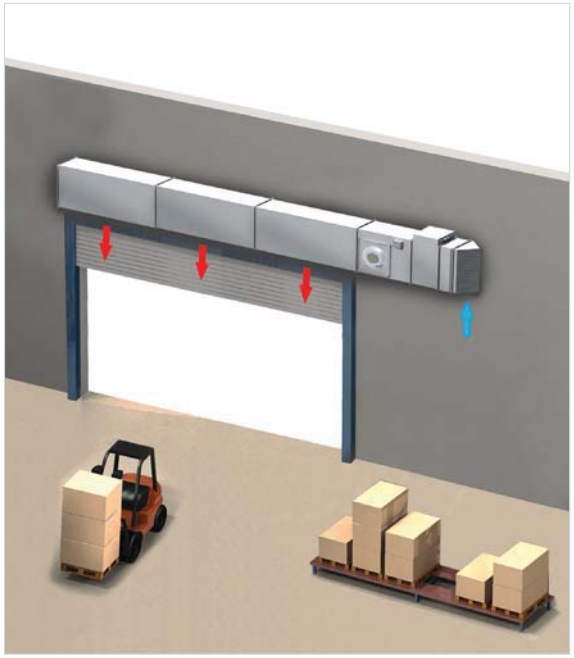
Designation key:

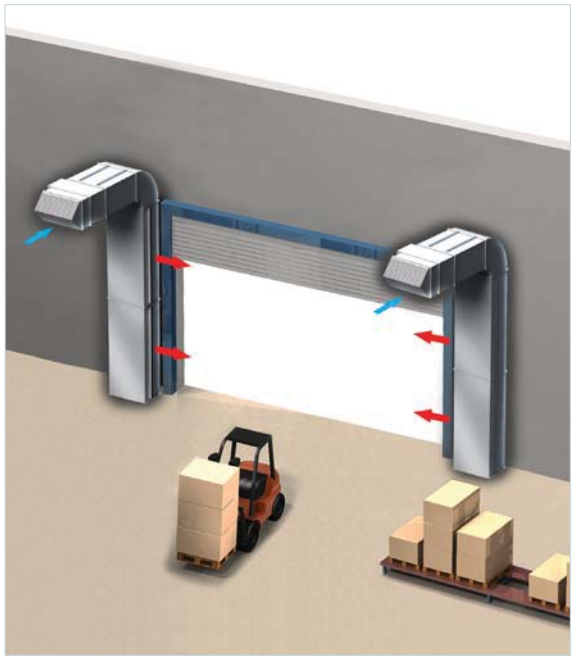
Series	Standard size	Heater type	Slit outlet section length
PVZ	600x350 700x400 800x500 900x500	**W** – water **E** – electric **N** – no heater	2; 2.5; 3; 3.5; 4; 4.5; 5

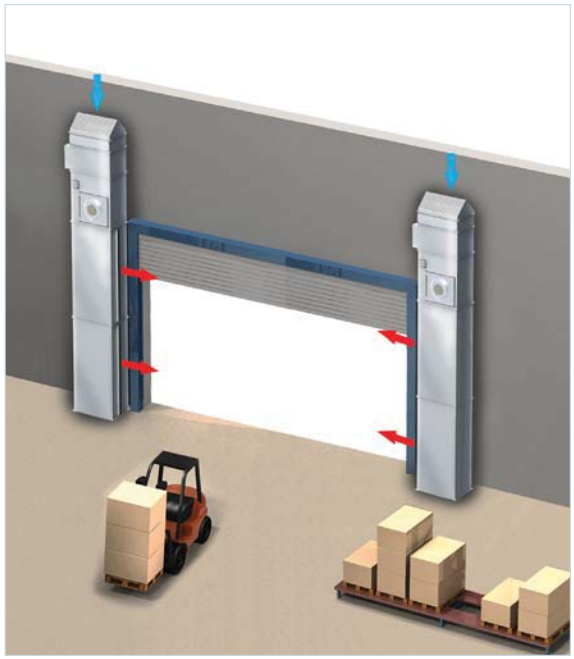
Technical data:

	PVZ 600x350	PVZ 700x400	PVZ 800x500	PVZ 900x500
Voltage [V / 50 Hz]	3~ 400	3~ 400	3~ 400	3~ 400
Air capacity [m^3/h]	4000	6000	6200	8400
Fan power [kW]	2.46	3.63	2.79	3.87
Fan current [A]	3.93	6.0	5.18	7.0
Electric heater power [kW]	21	36	36	45
Electric heater current [A]	30	52	52	65
Fan type	VKPF 4D 600x350	VKPF 4D 700x400	VKPF 6D 800x500	VKPF 6D 900x500
Filter type	FB 600x350	FB 700x400	FB 800x500	FB 900x500
Water heater type	NKV 600x350-2	NKV 700x400-2	NKV 800x500-2	NKV 900x500-2
Electric heater type	NK 600x350-21,0-3	NK 700x400-36,0-3	NK 800x500-36,0-3	NK 900x500-45,0-3



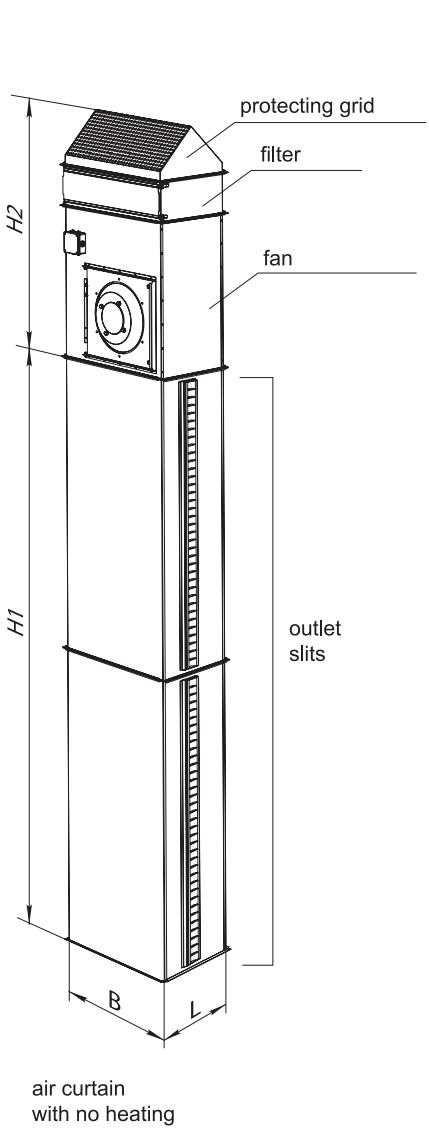




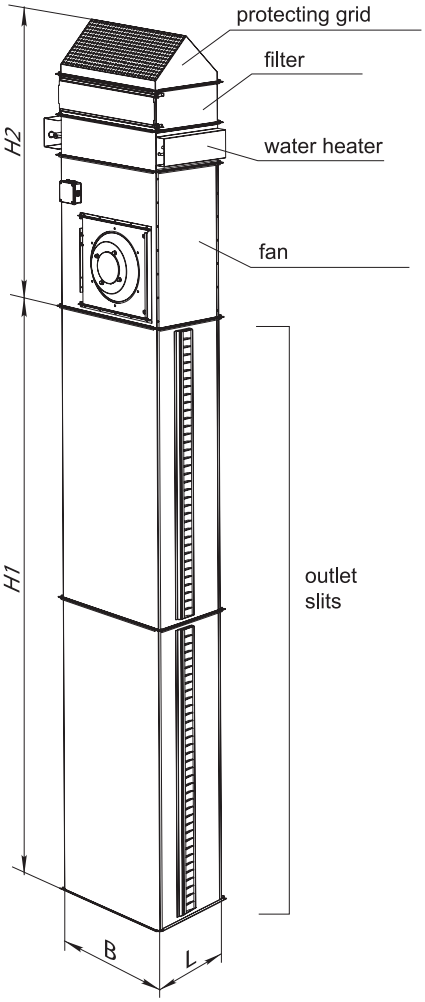


Overall dimensions:

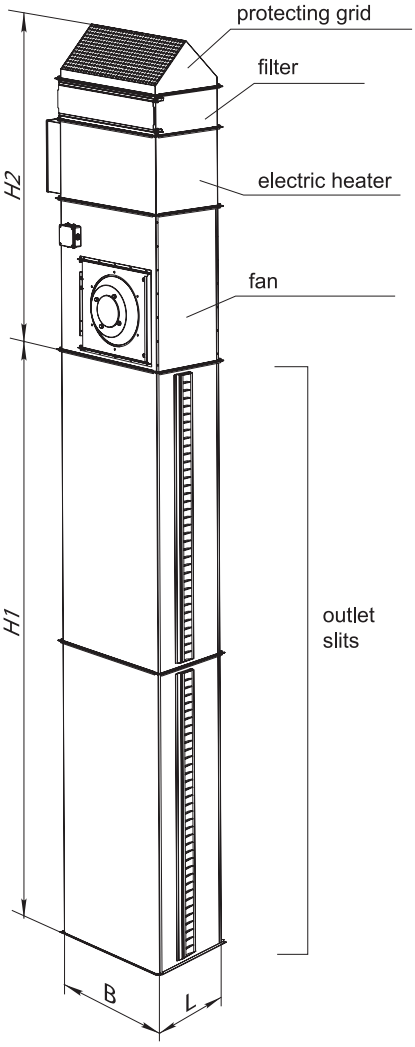
	PVZ 600x350	PVZ 700x400	PVZ 800x500	PVZ 900x500
W [mm]	600	700	800	900
L [mm]	350	400	500	500
H1 [mm]	from 2.0 up to 5.0			
H2 (curtain with no heating) [mm]	1150	1300	1450	1520
H2 (curtain with water heater) [mm]	1350	1500	1650	1720
H2 (curtain with electric heater) [mm]	1350	2050	1960	2270



air curtain
with no heating

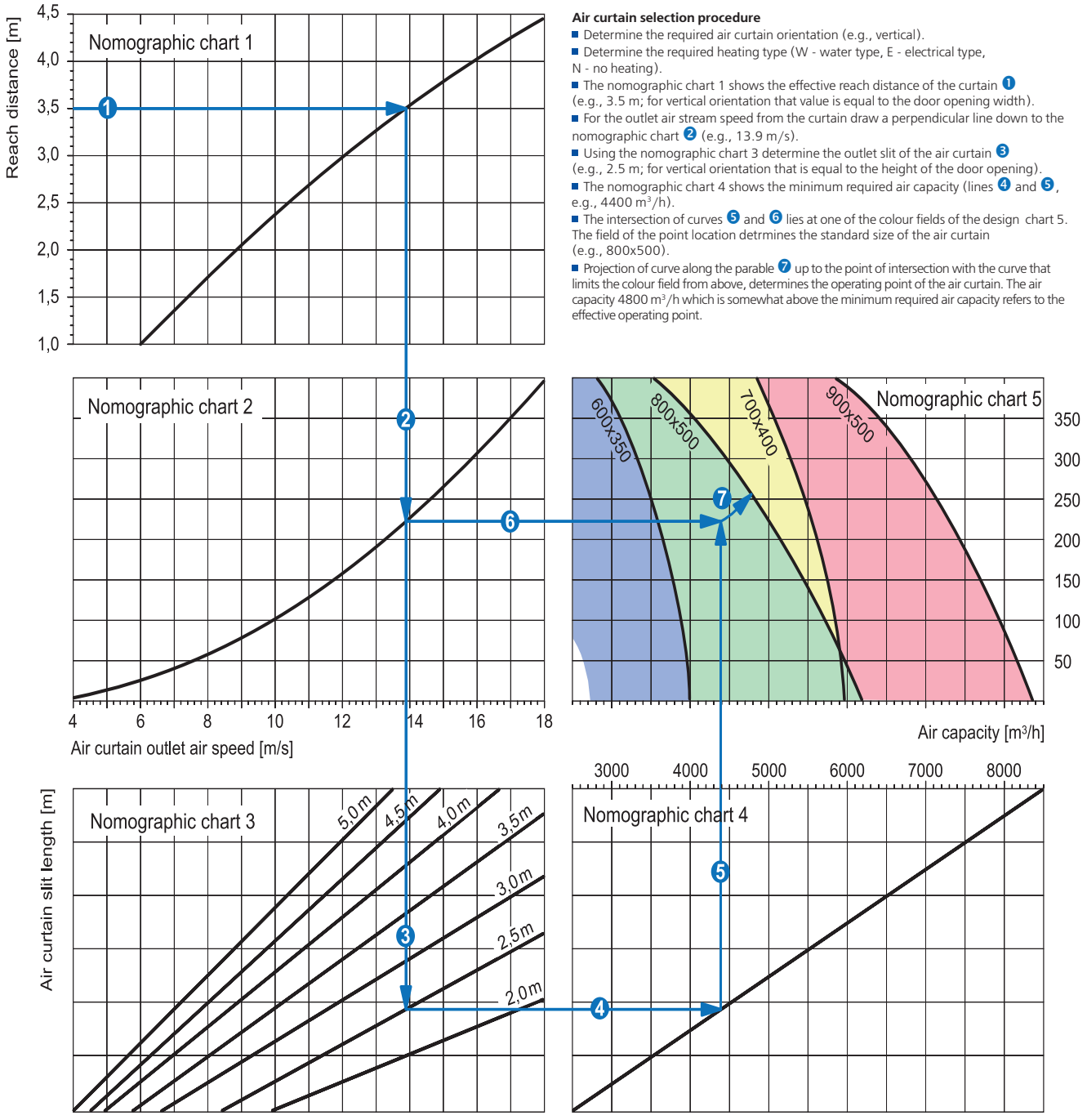


air curtain
with water heating



air curtain
with electric heating

Nomographic charts for air curtain selection



Air curtain selection procedure

- Determine the required air curtain orientation (e.g., vertical).
- Determine the required heating type (W - water type, E - electrical type, N - no heating).
- The nomographic chart 1 shows the effective reach distance of the curtain ❶ (e.g., 3.5 m; for vertical orientation that value is equal to the door opening width).
- For the outlet air stream speed from the curtain draw a perpendicular line down to the nomographic chart ❷ (e.g., 13.9 m/s).
- Using the nomographic chart 3 determine the outlet slit of the air curtain ❸ (e.g., 2.5 m; for vertical orientation that is equal to the height of the door opening).
- The nomographic chart 4 shows the minimum required air capacity (lines ❹ and ❺, e.g., 4400 m^3/h).
- The intersection of curves ❺ and ❻ lies at one of the colour fields of the design chart 5. The field of the point location detrmines the standard size of the air curtain (e.g., 800x500).
- Projection of curve along the parable ❼ up to the point of intersection with the curve that limits the colour field from above, determines the operating point of the air curtain. The air capacity 4800 m^3/h which is somewhat above the minimum required air capacity refers to the effective operating point.