

PS MULTI-BLADE DAMPERS



Destination:

SMAV multi-blade dampers with the backward blades are designed for use in ventilation and air conditioning systems.



Destination

They can be mounted in the air-conditioning centers, in the walls or in the channels in order to adjust precisely the air flow. Due to the construction, which allows for high tightness, the dampers are perfect as closing devices. The dampers meets the requirements of leakage class 2 according to EN-1751.

They can be used in the systems with special requirements: cooperation with the recuperators, (multi-section dampers), protecting the heaters in the centre against frost, smoke during the fire. Operating temperature -20°C to $+90^{\circ}\text{C}$ (+ 50°C for version with actuator).

The PS dampers is recommended especially for the air-conditioning centrals.

PS dampers can be manufactured with blades filled with insulating foam. The length of such blade cannot exceed 800 mm, that is why PS dampers with foam insulated blades of width $A > 800$ mm are divided into smaller, kinetically coupled fields separated by posts.

Hygienic Certificate no. HK/B/1084/2012.

Dimensions

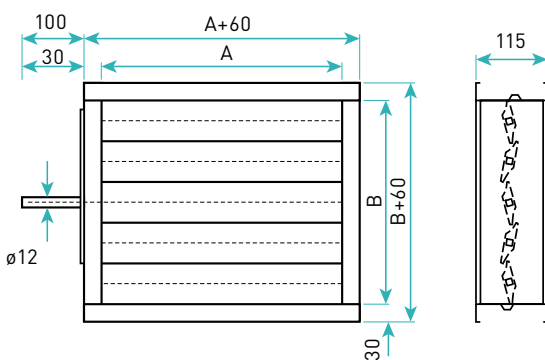


Figure 1. Dimensions of damper PS.

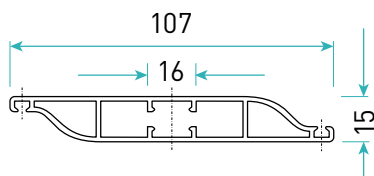


Figure 2. Dimensions.

Typical dimensions

Table 1. Typical dimensions multi-blade damper PS.

B height [mm]	A width [mm]								
	300	400	500	600	700	800	1000	1200	1400
	Approximate weight [kg]								
310	3,0	3,5	4,0	5,0	5,5	6,0	7,0	8,0	9,0
410	3,5	4,0	5,0	5,5	6,0	7,0	8,0	10,0	11,0
510	4,0	5,0	6,0	6,5	7,0	8,0	9,0	12,0	13,0
610	5,0	5,5	6,5	7,5	8,0	9,0	11,0	13,0	15,0
710	5,5	6,0	7,0	8,0	9,0	10,0	12,0	14,0	16,0
810	6,0	7,0	8,0	9,0	10,0	11,0	13,0	16,0	18,0
1010	7,0	8,0	10,0	11,0	12,0	13,0	16,0	19,0	22,0
1210	8,0	10,0	11,0	13,0	14,0	16,0	19,0	22,0	25,0
1410	9,0	11,0	3,0	15,0	16,0	18,0	22,0	25,0	29,0

Material

The shutter dampers is made of 4 types of profiles of the hardened aluminum extrusions: vertical frame, horizontal frame, blades, and an actuator brackets. The blades are joined with polypropylene bearings and gears. The drive mechanism is built into the profile (vertical frame). The plasticized PVC seals provide an airtight joint between blades. All the damper parts meet environmental class requirements. The materials from which the damper is constructed can be separated for recycling.

Finishing

Aluminum extrusions makes it possible to achieve a high level of precision workmanship and assembly, thus ensuring good air tightness in the fully closed position and a small resistance to flow in the open position. The built-in drive system enables the damper to be completely isolated. In addition, a dedicated aluminum bracket allows a manual control mechanism or an actuator to be mounted. Thanks to the special AL profile the damper can be divided into vertical sections and extended horizontally up to the following dimensions:

A - max. 3000 mm; B - max. 2510 mm.



General information

Drive

1. Damper with an actuator.
2. Damper with manual control mechanism.
3. Damper adapted for use with an actuator.

We can make each dimension A in the range **200 - 2000 [mm]**.
 Due to the width of the blade 100 [mm] recommended height is:
 $B = n \times 100 + 10$ [mm].

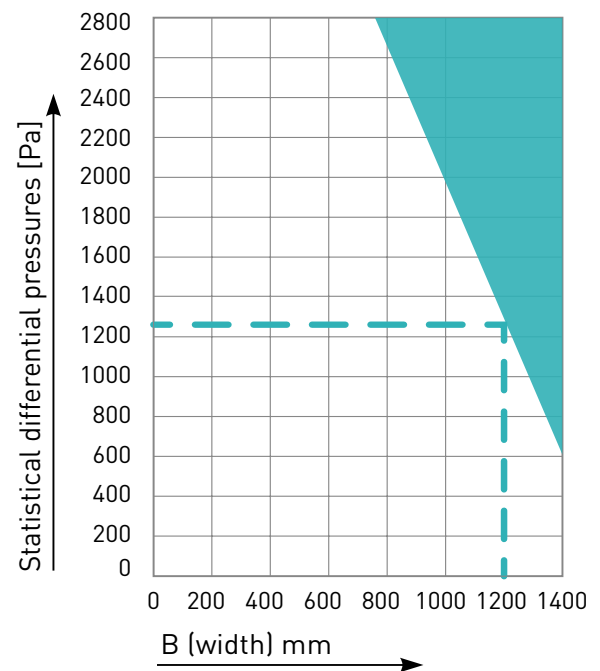
Other sizes as well as multisection units are available on request, which has to be indicated in your order.

Symbols:

V [m/s] – airflow velocity

Δp [Pa] – air pressure

α [°] – opening angle



Non-permissible scope

Chart 1. Allowable differential pressure.



The design of the aluminum blades was registered as a property of SMAY at the Polish Patent Office in 1995.

Technical information

Exemplary data:

- ⋯ ● ⋯ – damper 1200x1200
- ● — – damper 800x800
- ⋯ ● ⋯ – damper 500x500
- ● — – damper 300x300

* refers to the angle of the lamels opening (shutters) in the throttling valve

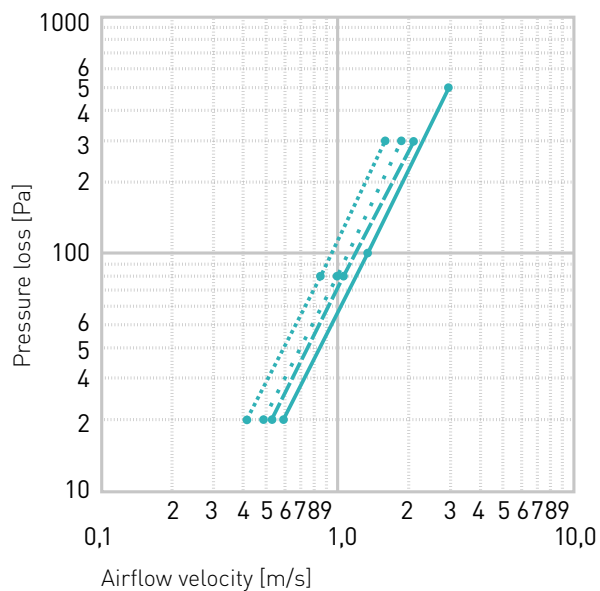


Chart 4. Pressure loss vs. airflow velocity at an angle of 30°

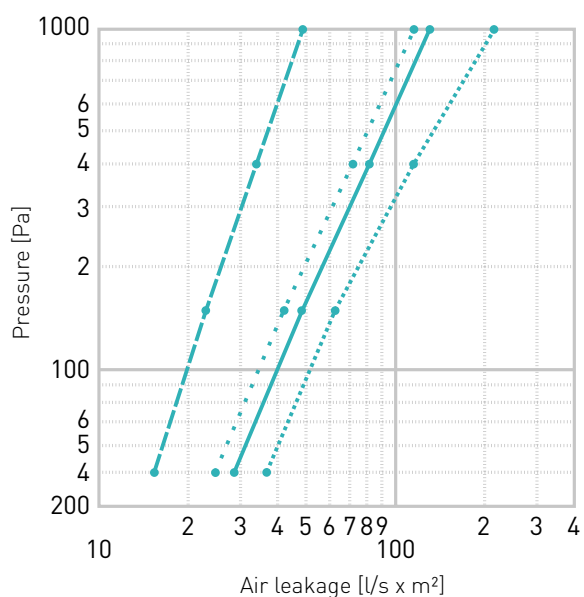


Chart 2. Air leakage through closed damper.

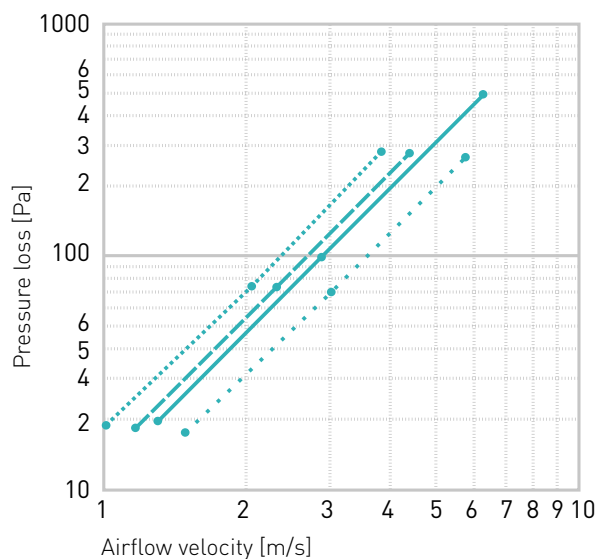


Chart 5. Pressure loss vs. airflow velocity at an angle of 45°.

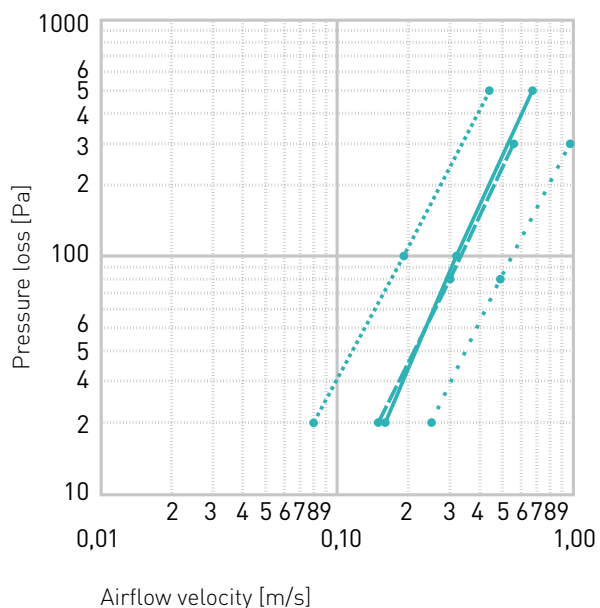


Chart 3. Pressure loss vs. airflow velocity at an angle of 15°.

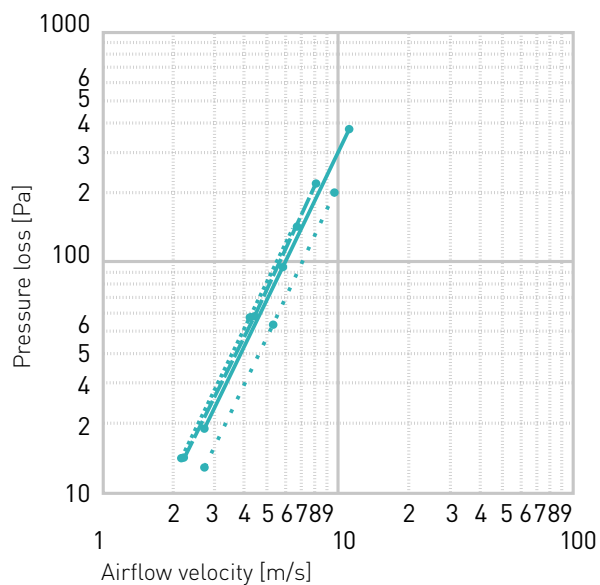


Chart 6. Pressure loss vs. airflow velocity at an angle of 60°.

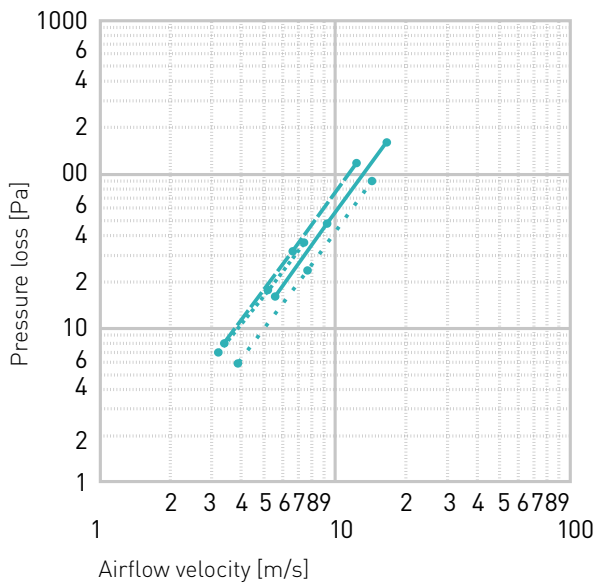


Chart 7. Pressure loss vs. airflow velocity at an angle of 75°.

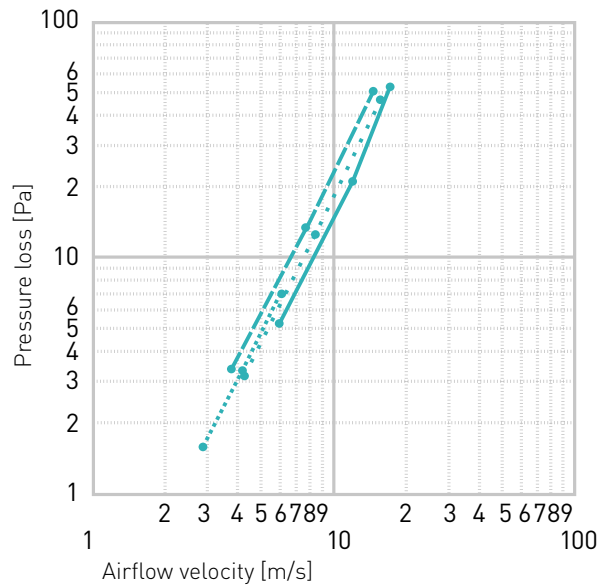


Chart 8. Pressure loss vs. airflow velocity at an angle of 90°.

PS – Multi-blade dampers

While ordering please provide information according to the following method:

PS - <I> - <A> X - W<W> - T<N> - <KL>

Where:

I	damper blades insulation*
	- - without insulating foam filling t - filled with insulating foam
A	damper light width [mm]
B	damper light height [mm]
W	number of partitions in damper per width (0-none)*
N	type of drive*
	1 - with actuator 2 - manual mechanism 3 - for use with an actuator
KL	leakage class acc. EN 1751*
	B2 - casing: B, closed blade(s): 2 C2 - casing: C, closed blade(s): 2

* optional values – if they are not provided, the default values will be used

Order example: **PS-400X405-W0-T2-A3**