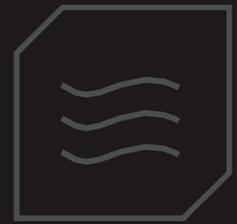


PW3S

RECTANGULAR MULTI-BLADE SPECIAL DAMPER



Description:

A rectangular multi-blade damper with backward blades and a high level of tightness used for airflow control or closing. Controlled manually or by an electric actuator.

Intended Use

PW3S multi-blade dampers with backward blades are designed for airflow control and closing in rectangular ventilation ducts.

It is possible to mount them in air handling units, within walls or normally within ventilation ducts.

Operating temperature: -20 °C to +90 °C, (+50 °C for the actuator version).

Design

The housing and the blades are made of galvanised steel or stainless steel 1.4301 (in accordance with EN 10088). The blades have rubber seals (EPDM). The sealing inserts and drive mechanism elements are made of plastic. In accordance with PN-EN 1751, the design of the damper ensures baffle tightness within the range of **class 3** and the highest possible housing leakage **class C**. Special sealing inserts mounted at the blade ends guarantee high baffle integrity, as well as side seals – the integrity of the whole housing. The individual blades are driven by a system of plastic levers and steel tie rods in a backward arrangement. The blades are fitted with plastic slide bearings. The assembling frame has a width of 30 mm. It can be powder coated to any colour from the RAL palette.

Manufacturing Versions

Drive:

- **T1** – Damper with an actuator
- **T2** – Damper with a manual mechanism
- **T3** – Damper with an extended axle (for the actuator installation)

Dimensions

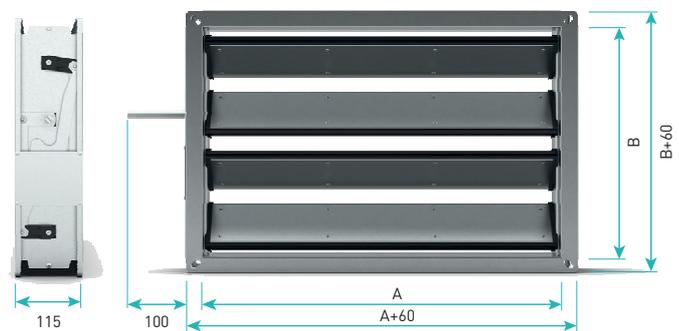


Figure 1. PW3S damper dimensions.

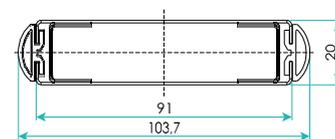


Figure 2. PW3S damper blade.

Standard dimensions of PW3S dampers:

- Width **A = 200 – 1400 mm** (1 mm interval)
- Height **B = 200 – 2000 mm** (100 mm interval)

Due to the width of the blade, the recommended height is $B = n \times 100$, where n is the number of the blades. It is possible to make the damper another height (1 mm interval), with a masking frame covering the clearance partially.

If it is necessary to use a damper larger than 1400 x 2000 mm, a combined damper consisting of two smaller dampers is made. The dampers have independent driving axes (two separate manual mechanisms or actuators on opposite sides).

Other sizes and variants are available for special order.

SO

SN



Technical Data

Table 1. Types of actuators and the net surface area for the PW3S damper in a fully open position.

Height B, [mm]	Width A, [mm]											
	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
300	0.069	0.093	0.117	0.141	0.165	0.189	0.213	0.237	0.261	0.285	0.309	0.333
400	0.092	0.124	0.156	0.188	0.220	0.252	0.284	0.316	0.348	0.380	0.412	0.444
500	0.115	0.155	0.195	0.235	0.275	0.315	0.355	0.395	0.435	0.475	0.515	0.555
600	0.138	0.186	0.234	0.282	0.330	0.378	0.426	0.474	0.522	0.570	0.618	0.666
700	0.161	0.217	0.273	0.329	0.385	0.441	0.497	0.553	0.609	0.665	0.721	0.777
800	0.184	0.248	0.312	0.376	0.440	0.504	0.568	0.632	0.696	0.760	0.824	0.888
900	0.207	0.279	0.351	0.423	0.495	0.567	0.639	0.711	0.783	0.855	0.927	0.999
1000	0.230	0.310	0.390	0.470	0.550	0.630	0.710	0.790	0.870	0.950	1.030	1.110
1100	0.253	0.341	0.429	0.517	0.605	0.693	0.781	0.869	0.957	1.045	1.133	1.221
1200	0.276	0.372	0.468	0.564	0.660	0.756	0.852	0.948	1.044	1.140	1.236	1.332
1300	0.299	0.403	0.507	0.611	0.715	0.819	0.923	1.027	1.131	1.235	1.339	1.443
1400	0.322	0.434	0.546	0.658	0.770	0.882	0.994	1.106	1.218	1.330	1.442	1.554
1500	0.345	0.465	0.585	0.705	0.825	0.945	1.065	1.185	1.305	1.425	1.545	1.665
1600	0.368	0.496	0.624	0.752	0.880	1.008	1.136	1.264	1.392	1.520	1.648	1.776
1700	0.391	0.527	0.663	0.799	0.935	1.071	1.207	1.343	1.479	1.615	1.751	1.887
1800	0.414	0.558	0.702	0.846	0.990	1.134	1.278	1.422	1.566	1.710	1.854	1.998
1900	0.437	0.589	0.741	0.893	1.045	1.197	1.349	1.501	1.653	1.805	1.957	2.109
2000	0.460	0.620	0.780	0.940	1.100	1.260	1.420	1.580	1.740	1.900	2.060	2.220

- Actuator minimum: **4 Nm**, e.g. Belimo LM24A (without a spring) or LF24 (with a spring)
- Actuator minimum: **10 Nm**, e.g. Belimo NM24A (without a spring) or NF24A (with a spring)
- Actuator minimum: **20 Nm**, e.g. Belimo SM24A (without a spring) or SF24A (with a spring)
- Actuator minimum: **40 Nm**, e.g. GM24A (without a spring) or **combined damper 2 x 20 Nm** SF24A (with a spring)

The combined damper 2 x 20 Nm requires the use of two smaller dampers with separate actuators.

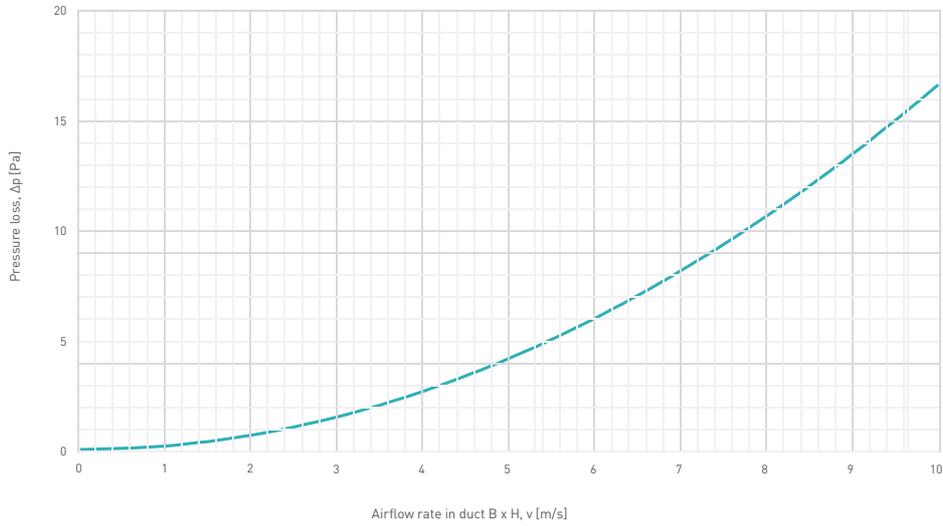


Chart 1. Pressure loss for the PW3S damper in a fully open position.



Pressure loss in a custom-height damper (with a masking frame covering the clearance partially) is comparable to the pressure loss for the nearest smaller standard height damper read from Chart 1.

$\Delta p (600 \times 460) \approx \Delta p (600 \times 400)$ from Chart 1

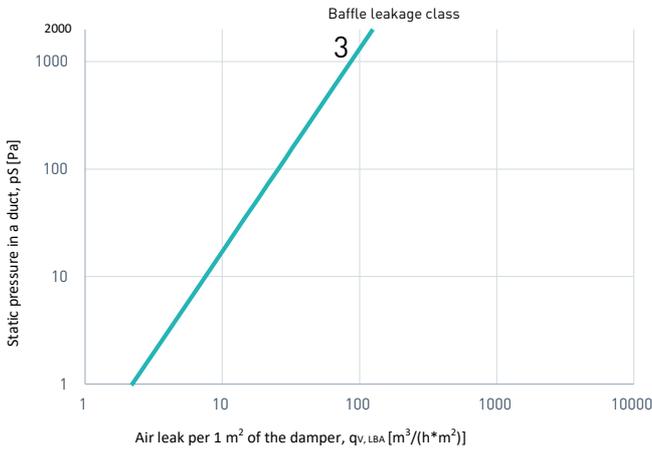


Chart 2. Air leaks through the PW3S damper baffle (in a fully closed position).

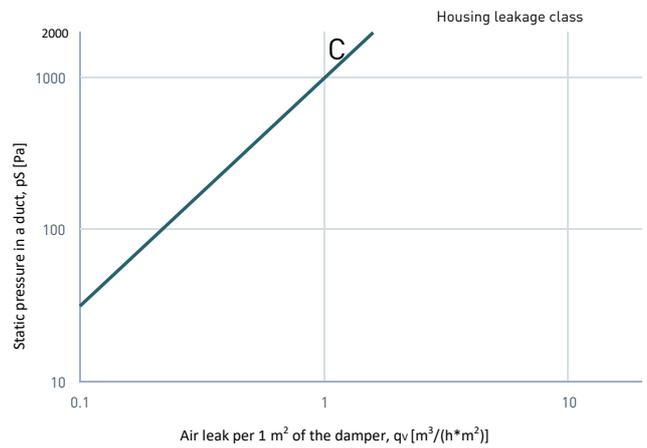


Chart 3. Air leaks through the PW3S damper housing (in a fully closed position).

PW3S – Rectangular multi-blade special damper

When ordering, please provide information as follows:

PW3S<K> - <A>x - W<W> - <P><RAL> - <KK> - T<N> - <KL>

Where:

K	Kinematics*
	p – Backward blades
A	Damper inner clearance width [mm]
B	Damper inner clearance height [mm]
W	Number of damper cross divisions (0 – none)*
P	Finish
	S0 – Galvanised steel
	SN – Stainless steel
	SL – Painted steel
RAL	Colour as per RAL (for SL version only)
KK	Increased corrosivity category (for SL version only)*
	None – Non-increased corrosivity category
	C5 – C5 corrosivity category (all elements painted with an epoxy primer and polyester paint, connectors made of stainless steel)
N	Drive type*
	1 – With an actuator
	2 – Manual mechanism
	3 – For an actuator
KL	EN 1751 leakage class*
	C3 – Housing: C, baffle: 3

* Optional values, if not specified, the default values will be used

Sample order: **PW3Sp-400x400-W0-SL9011-C5-T2-C3**