

# ALM

## RECTANGULAR MULTI-BLADE ALUMINIUM DAMPER



### Description:

A rectangular multi-blade damper with backward blades with a narrow profile intended for airflow control in small cross-section ducts. Controlled manually or by an electric actuator.

### Intended Use

ALM dampers are intended for installation in ventilation and air conditioning systems for airflow regulation. They can be used together with recuperators (split "bypass" dampers) as well. ALM dampers are not suitable for operating as shut-off dampers.

**The device holds hygiene certificate no. HK/K/0841/02/2017. Operating temperature: -20 °C to +90 °C, (+50 °C for the actuator version).**

### Design

ALM dampers are made of four types of hardened aluminium profiles: vertical housings, horizontal housings, blades (louvres) and the shelves for actuators. Damper louvres are connected with bearings and gears made of polypropylene (PP). The drive system is embedded in the profile (vertical housing). The PVC gasket is a seal between the damper blades.

All the elements of the damper are made to meet the requirements of the eco-friendly class. The material of the damper is made so it can be separated and recycled.

The aluminium profile design makes the dampers light. A built-in drive system makes it possible to completely isolate the damper externally. A special shelf makes the installation of the actuator or the manual mechanism easier.



The aluminium profile shape is protected as a utility design and was registered with the Patent Office of the Republic of Poland.

### 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

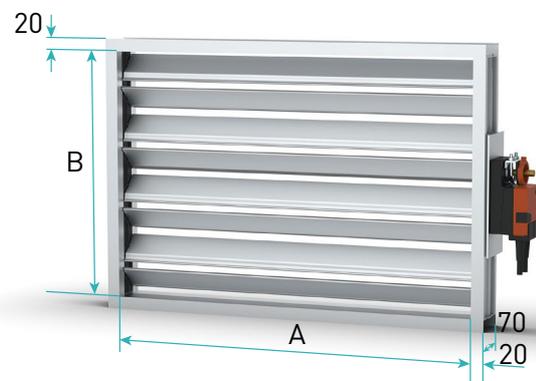


Figure 1. ALM damper dimensions.

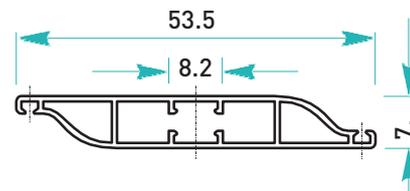


Figure 2. ALM damper blade.

Standard dimensions of ALM dampers:

- Width **A = 100 – 600 mm** (1 mm interval),
- Height **B = 105 – 605 mm** (50 mm interval).

Due to the width of the blade, the recommended height is  $B = n \times 50 + 5$ , 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 600 x 605 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).



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

Height B, [mm]	Width A, [mm]					
	100	200	300	400	500	600
105	0.009	0.018	0.027	0.036	0.045	0.054
155	0.013	0.026	0.039	0.053	0.066	0.079
205	0.017	0.035	0.052	0.070	0.087	0.105
255	0.021	0.043	0.065	0.086	0.108	0.130
305	0.025	0.051	0.077	0.103	0.129	0.155
355	0.029	0.060	0.090	0.120	0.150	0.181
405	0.034	0.068	0.103	0.137	0.172	0.206
455	0.038	0.076	0.115	0.154	0.193	0.231
505	0.042	0.085	0.128	0.171	0.214	0.257
555	0.046	0.093	0.140	0.188	0.235	0.282
605	0.050	0.102	0.153	0.205	0.256	0.308

- 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)

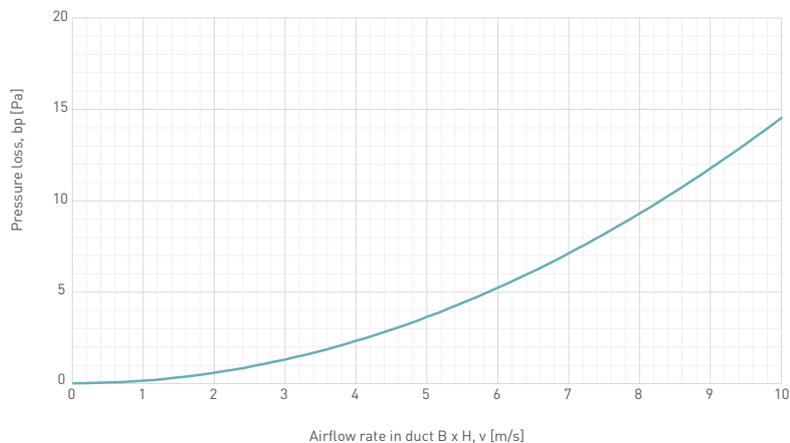


Chart 1. Pressure loss in a standard-height ALM damper (in a fully open position).



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

$$\Delta p (600 \times 460) \approx \Delta p (600 \times 405) \text{ from Chart 1}$$

Table 2. Approximate weight of ALM dampers.

Height B, [mm]	Width A, [mm]					
	100	200	300	400	500	600
105	0.6	0.7	0.9	1.0	1.2	1.4
155	0.7	0.9	1.1	1.3	1.5	1.7
205	0.8	1.0	1.3	1.5	1.8	2.0
255	0.9	1.2	1.5	1.8	2.1	2.3
305	1.0	1.4	1.7	2.0	2.3	2.7
355	1.2	1.5	1.9	2.3	2.6	3.0
405	1.3	1.7	2.1	2.5	2.9	3.3
455	1.4	1.9	2.3	2.7	3.2	3.6
505	1.5	2.0	2.5	3.0	3.5	4.0
555	1.7	2.2	2.7	3.2	3.8	4.3
605	1.8	2.3	2.9	3.5	4.0	4.6

Note: the parameters given in the table apply to dampers without actuators.

## ALM – Rectangular multi-blade aluminium damper

When ordering, please provide information as follows:

ALM - <A> x <B> - W<W> - T<N> - <KL>

Where:

<b>A</b>	Damper inner clearance width [mm]
<b>B</b>	Damper inner clearance height [mm]
<b>W</b>	Number of damper cross divisions (0 – none)*
<b>N</b>	Drive type*
	1 – With an actuator
	<b>2 – Manual mechanism</b>
	3 – For an actuator
<b>KL</b>	EN 1751 leakage class*
	<b>BX – Housing: B, baffle: None</b>

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

Sample order: **ALM-200 x 205-W0-T2-BX**