AYSU
HVAC SYSTEMS

DAMPERS · TECHNICAL DATASHEET

Product code: **AYS-DMP-BT**

PRESSURE RELIEF DAMPER



Damper with adjustable counterweighted blades that open above a set pressure to relieve excess air. Balances pressure in pressurization systems.

CONTROL	Mechanical
ADJUSTMENT	Counterweight
SIZE	Made to project
POWER	Not required

FEATURES

- Blades open by themselves above the set pressure
- The counterweight closes the blades when pressure drops
- Opening pressure set by the counterweight position
- No actuator or electrical connection required
- Multi-blade design; sizes made to project
- Flanged casing for wall or duct mounting

TECHNICAL SPECIFICATIONS

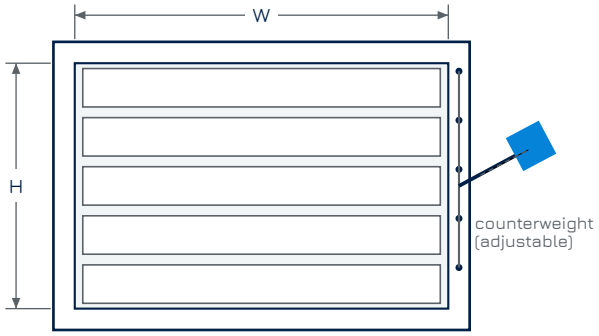
Damper type multi-blade, counterweighted	**Operation** one-way, opens by pressure
Opening pressure set to project	**Control** mechanical, no actuator
Blade axis horizontal	**Connection** flanged, wall / duct
Size made to project, any size	**Certificate** stated per model

APPLICATIONS

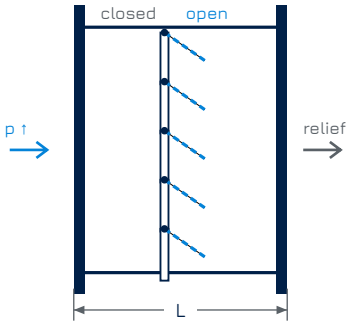
Fire escape stairs, lift shafts, clean rooms; pressurization and overpressure relief systems.

TECHNICAL DRAWINGS

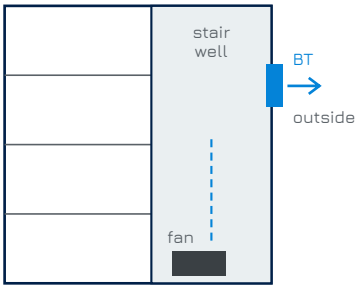
sizes to project · not to scale



FRONT VIEW



SECTION A–A



APPLICATION EXAMPLE

ORDERING INFORMATION

Size	W × H duct / wall opening and L casing length are set to project
Opening pressure	to project pressure; counterweight set at the factory, adjustable on site
Installation	in a wall or at a duct end; state relief direction when ordering
Order code	AYS-DMP-BT-[W×H], e.g. AYS-DMP-BT-600×400

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PRESSURE RELIEF DAMPER

OPERATING PRINCIPLE

Pressure relief damper · AYS-DMP-BT

1. **Normal position:** The blades stay closed by their own weight balanced by the counterweight; no air passes.
2. **Pressure rise:** When the pressure in the space exceeds the set value, the force on the blades overcomes the balance.
3. **Opening:** The blades open in the relief direction, releasing excess air outside or to an adjacent space; opening grows with pressure.
4. **Closing:** Below the set pressure the counterweight closes the blades again; they do not open in reverse.

OPENING PRESSURE SETTING

The opening pressure is set by moving the counterweight along its lever: closer to the shaft the damper opens at a lower pressure, further out at a higher pressure. The setting follows the project pressure (e.g. the design pressure of a stair pressurization system). After setting, tighten the locking screw and check free movement by opening and releasing the damper by hand.

INSTALLATION AND MAINTENANCE

1. **Installation:** Mount the damper level in the wall opening or at the duct end on its flanges, with horizontal blade axes and the correct relief direction.
2. **Position:** Leave room for the blades and counterweight lever to move freely; if discharging outdoors, a rain hood and mesh are recommended.
3. **Adjustment:** During commissioning, measure the space pressure with the pressurization fan running and finalize the counterweight setting.
4. **Maintenance:** Regularly check free blade movement, shaft bearings, seals and counterweight fixing.

SELECTION TABLE

Relief airflow · ρ = 1.2 kg/m³ · ζ ≈ 3.0 (face area) · calculated · sizes are examples

W × H	A m²	RELIEF AIRFLOW [m³/h] · by pressure difference across the damper				FACE VELOCITY [m/s]	
		25 Pa	50 Pa	75 Pa	100 Pa	50 Pa	100 Pa
200 × 200	0.04	540	760	930	1,070	5.3	7.5
300 × 200	0.06	800	1,140	1,390	1,610	5.3	7.5
300 × 300	0.09	1,210	1,710	2,090	2,410	5.3	7.5
400 × 300	0.12	1,610	2,280	2,790	3,220	5.3	7.5
400 × 400	0.16	2,150	3,040	3,720	4,290	5.3	7.5
500 × 400	0.20	2,680	3,790	4,650	5,370	5.3	7.5
600 × 400	0.24	3,220	4,550	5,580	6,440	5.3	7.5
600 × 500	0.30	4,020	5,690	6,970	8,050	5.3	7.5
800 × 500	0.40	5,370	7,590	9,300	10,730	5.3	7.5
800 × 600	0.48	6,440	9,110	11,150	12,880	5.3	7.5
1000 × 600	0.60	8,050	11,380	13,940	16,100	5.3	7.5
1000 × 800	0.80	10,730	15,180	18,590	21,470	5.3	7.5
1200 × 800	0.96	12,880	18,210	22,310	25,760	5.3	7.5
1200 × 1000	1.20	16,100	22,770	27,890	32,200	5.3	7.5
1500 × 1000	1.50	20,120	28,460	34,860	40,250	5.3	7.5

VALIDITY

Sizes in the table are examples; the damper is made to project in any size. Airflow is calculated with fully open blades and ζ ≈ 3.0 (not laboratory tested); below the opening pressure the damper is closed.

SYMBOLS

A	damper face area (W × H)
ζ	pressure loss coefficient
Set pressure	pressure at which blades start to open
Face velocity	airflow / face area
W × H	opening size