AYSU
HVAC SYSTEMS

DAMPERS · TECHNICAL DATASHEET

Product code: **AYS-DMP-VV**

VAV DAMPER



Variable air volume unit with pressure sensor, controller and actuator. Matches airflow to room demand and saves fan energy.

CONTROL	Actuator + ctrl.
ACTUATOR	BELIMO / SIEMENS
SIGNAL	0–10 V · bus
SIZE	Made to project

FEATURES

- Controls between min. and max. airflow by room demand
- Airflow measured by probe and differential pressure sensor
- Compact VAV controller and actuator in one housing
- Holds the set airflow as duct pressure varies
- Connects to BMS via 0–10 V / 2–10 V or bus
- Circular casing; rectangular version available

TECHNICAL SPECIFICATIONS

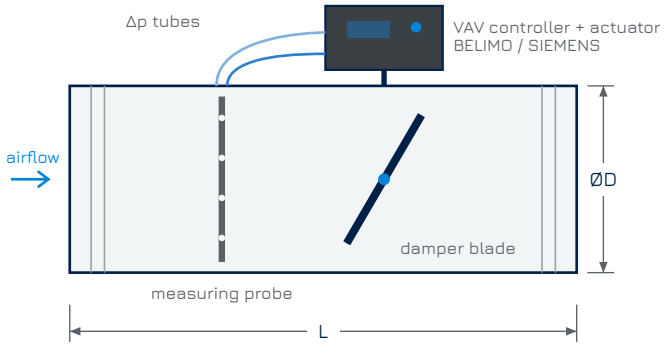
Unit type VAV, pressure independent	**Flow measurement** probe + Δp sensor
Actuator / controller BELIMO or SIEMENS	**Supply** 24 V AC/DC
Control signal 0–10 V · 2–10 V · bus	**Feedback** actual airflow signal
Connection spigot with seal	**Size** made to project

APPLICATIONS

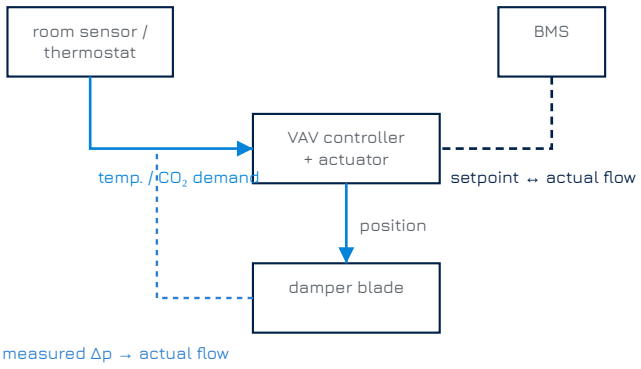
Offices, meeting rooms, laboratories, schools; zoned variable air volume HVAC systems.

TECHNICAL DRAWINGS

sizes to project · not to scale



LONGITUDINAL SECTION



CONTROL DIAGRAM

ORDERING INFORMATION

Size	ØD and L to project; for rectangular casing state W × H
Actuator / controller	BELIMO or SIEMENS; state control signal and communication when ordering
Airflow	q_{min} and q_{max} are factory-set for the project
Order code	AYS-DMP-VV-[ØD], e.g. AYS-DMP-VV-250

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OPERATING PRINCIPLE

VAV damper · AYS-DMP-VV

1 **Demand:** The room sensor or BMS sends an airflow setpoint to the controller based on room demand.

2 **Measurement:** The probe pressure difference is read by the controller's Δp sensor and converted to actual airflow.

3 **Adjustment:** The controller compares actual airflow with the setpoint; the actuator opens or throttles the blade.

4 **Feedback:** Actual airflow and blade position are reported to BMS; airflow stays between q_{min} – q_{max} .

ACTUATOR / CONTROLLER OPTIONS

Series and torques based on manufacturers' documents

BRAND	SERIES	TORQUE	SUPPLY	CONTROL / COMMUNICATION
BELIMO	VAV-Compact LMV · NMV · SMV	5 · 10 · 20 Nm	24 V AC/DC	0–10 V · 2–10 V · MP-Bus · Modbus · BACnet
SIEMENS	Compact VAV GDB181 · GLB181	5 · 10 Nm	24 V AC	0–10 V · 2–10 V · 3-point · bus (per model)

The controller combines the flow sensor and actuator in one housing. q_{min}, q_{max} and operating mode are set at commissioning with a service tool or at the factory.

SELECTION TABLE

ρ = 1.2 kg/m³ · calculated · sizes are examples

ØD	A m²	AIRFLOW [m³/h] · by duct velocity		
		q_{min} · 2 m/s	q_{nom} · 6 m/s	q_{max} · 10 m/s
Ø100	0.0079	57	170	283
Ø125	0.0123	88	265	442
Ø160	0.0201	145	434	724
Ø200	0.0314	230	680	1,130
Ø250	0.0491	350	1,060	1,770
Ø315	0.0779	560	1,680	2,810
Ø355	0.0990	710	2,140	3,560
Ø400	0.1257	900	2,710	4,520
Ø450	0.1590	1,150	3,440	5,730
Ø500	0.1963	1,410	4,240	7,070
Ø560	0.2463	1,770	5,320	8,870
Ø630	0.3117	2,240	6,730	11,220

INSTALLATION AND MAINTENANCE

1 **Installation:** Spigots are inserted into the duct and fixed with clamps or rivets; flow must follow the arrow on the casing.

2 **Straight duct:** For accurate measurement, at least 3 · ØD of straight duct is recommended at the inlet, away from bends and branches.

3 **Electrical:** Connect the 24 V supply and control / communication cables to the BMS or room controller.

4 **Maintenance:** Check the probe and tubes for blockage and the blade mechanism for free movement periodically.

VALIDITY

Diameters in the table are examples; the unit is made to project, also with a rectangular casing. Airflows are calculated from duct velocity; confirm the actual range and pressures with manufacturer data for the controller setting.

SYMBOLS

VAV	variable air volume
q_{min} / q_{max}	set min. / max. airflow
BMS	building management system
Δp	pressure difference
ØD	nominal duct diameter