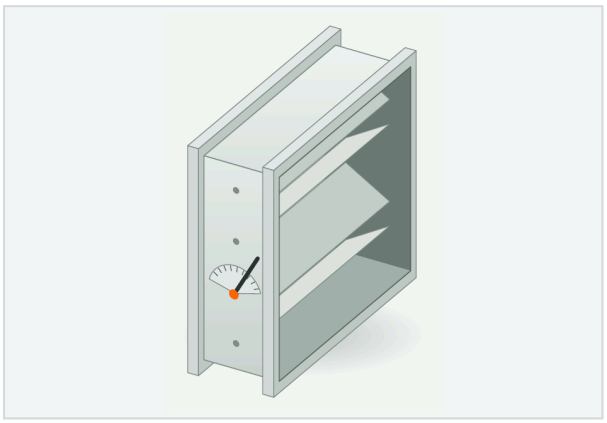
AYSU
HVAC SYSTEMS

DAMPERS · TECHNICAL DATASHEET

Product code: **AYS-DMP-VK**

MANUAL VOLUME CONTROL DAMPER



Air control damper with a hand lever and lockable setting mechanism, used to balance duct airflows during commissioning.

CONTROL	Hand lever
ADJUSTMENT	Lockable
SIZE	Made to project
POWER	Not required

FEATURES

- Opposed blades
- Stepless 0–90° setting by hand lever
- Position read on an angle scale
- Setting is locked and unaffected by vibration
- No actuator or electrical connection required
- Multi-blade design; sizes made to project

TECHNICAL SPECIFICATIONS

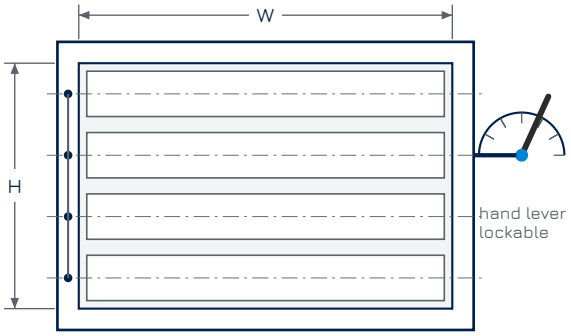
Damper type multi-blade, opposed	**Control** hand lever, mechanical
Adjustment 0–90°, with scale	**Locking** wing nut / locking screw
Blade axis horizontal or vertical	**Connection** flanged
Size made to project, any size	**Use** balancing, flow setting

APPLICATIONS

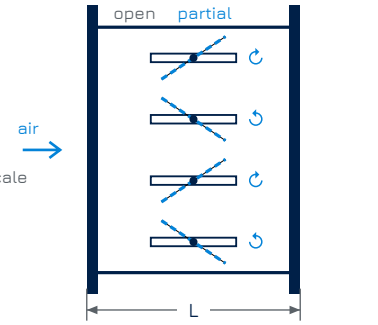
Duct branches, grille connections and balancing; adjusting branch airflows to design during commissioning.

TECHNICAL DRAWINGS

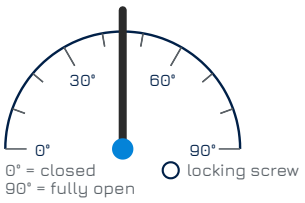
sizes to project · not to scale



FRONT VIEW



SECTION A–A · OPPOSED BLADES



SETTING SCALE

ORDERING INFORMATION

Size	W × H duct inner size and L casing length are set to project
Control	hand lever with scale and lock; state lever side when ordering
Upgrade	state if a version prepared for a later actuator is required
Order code	AYS-DMP-VK-[W×H], e.g. AYS-DMP-VK-400×300

AYSU
HVAC SYSTEMS

DAMPERS · TECHNICAL DATASHEET

Product code: **AYS-DMP-VK**

MANUAL VOLUME CONTROL DAMPER

OPERATING PRINCIPLE

Manual volume control damper · AYS-DMP-VK

1. **Adjustment:** Loosen the locking screw and set the hand lever to the required angle on the scale.
2. **Movement:** The drive shaft turns; the linkage turns the blades together in opposite directions.
3. **Locking:** Once the correct airflow is reached the lever is locked; vibration and airflow will not move it.
4. **Recording:** The scale angle is entered in the balancing report so the setting can easily be restored.

BALANCING

Recommended sequence during commissioning

1. **Start:** Set all dampers fully open; run the fan at design airflow.
2. **Measurement:** Measure airflow at every branch and grille and compare with design values.
3. **Throttling:** Throttle dampers on branches with excess airflow; set the branch furthest from the fan last.
4. **Check:** When all branches are within ±10 %, lock the dampers and record the angles.

SELECTION TABLE

Blades fully open · ρ = 1.2 kg/m³ · calculated · sizes are examples

W × H	A_F m²	AIRFLOW [m³/h] · by duct velocity			Δp [Pa] · calculated			ζ
		3 m/s	5 m/s	7 m/s	3 m/s	5 m/s	7 m/s	
200 × 200	0.023	430	720	1,010	6.9	19.3	37.8	1.29
300 × 200	0.037	650	1,080	1,510	5.3	14.8	28.9	0.98
300 × 300	0.061	970	1,620	2,270	4.0	11.2	22.0	0.75
400 × 300	0.084	1,300	2,160	3,020	3.5	9.9	19.3	0.66
400 × 400	0.117	1,730	2,880	4,030	3.1	8.7	17.0	0.58
500 × 400	0.149	2,160	3,600	5,040	2.9	8.0	15.7	0.53
600 × 400	0.181	2,590	4,320	6,050	2.8	7.6	15.0	0.51
600 × 500	0.232	3,240	5,400	7,560	2.6	7.1	13.9	0.47
800 × 500	0.315	4,320	7,200	10,080	2.4	6.7	13.1	0.45
800 × 600	0.383	5,180	8,640	12,100	2.3	6.4	12.5	0.42
1000 × 600	0.484	6,480	10,800	15,120	2.2	6.2	12.1	0.41
1000 × 800	0.657	8,640	14,400	20,160	2.1	5.8	11.4	0.39
1200 × 800	0.793	10,370	17,280	24,190	2.0	5.7	11.2	0.38
1200 × 1000	1.002	12,960	21,600	30,240	2.0	5.5	10.8	0.37
1500 × 1000	1.261	16,200	27,000	37,800	1.9	5.4	10.6	0.36

INSTALLATION AND MAINTENANCE

1. **Installation:** The damper is flange-connected to the duct; ducts are supported separately, the casing is not loaded and the blades must turn freely.
2. **Position:** Install with access to the hand lever for adjustment; provide a ceiling access panel if needed.
3. **Adjustment:** After balancing, lock the lever and record the angle; the setting must not be changed without authorization.
4. **Maintenance:** Regularly check free blade movement, the linkage and the locking mechanism.

VALIDITY

Sizes in the table are examples; the damper is made to project in any size. Airflow and Δp are calculated with fully open blades, a 20 mm frame and 10 % blade blockage (not laboratory tested); Δp rises when throttled.

SYMBOLS

A_F	free area (m²)
ζ	pressure loss coefficient
Opposed blades	adjacent blades turn in opposite directions
Balancing	adjusting branch airflows
W × H	duct inner size