AYSU
HVAC SYSTEMS

DAMPERS · TECHNICAL DATASHEET

Product code: **AYS-DMP-IR**

IRIS DAMPER



Iris damper for measuring and adjusting airflow in circular ducts. Its measuring nipples allow precise balancing during commissioning.

DIAMETER	Ø100 – Ø1000
ADJUSTMENT	Iris, stepless
MEASUREMENT	Δp nipples
POWER	Not required

FEATURES

- Iris blades close evenly to the centre; flow stays symmetrical
- Stepless flow setting with knob and scale
- Airflow found from the pressure difference at the nipples
- Setting can be locked
- Sealed spigot connection; mounts directly in circular ducts
- Ø100 – Ø1000 mm; no actuator or power needed

TECHNICAL SPECIFICATIONS

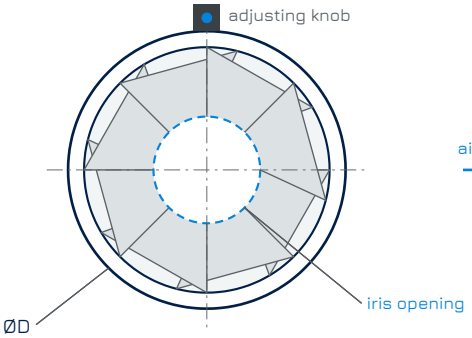
Damper type iris, circular	**Diameter** Ø100 – Ø1000 mm
Adjustment knob + scale, lockable	**Measurement** 2 Δp measuring nipples
Flow calculation $q = k \cdot \sqrt{\Delta p_m}$	**Connection** spigot with seal
Control manual, no actuator	**Use** measuring, setting, balancing

APPLICATIONS

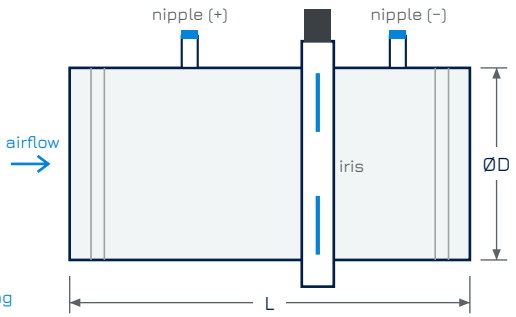
Circular duct branches, laboratories, clean rooms; measuring and balancing branch airflows during commissioning.

TECHNICAL DRAWINGS

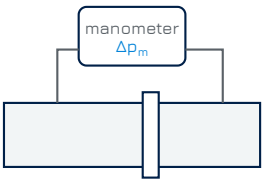
dimensions in mm · not to scale



FRONT VIEW



SIDE VIEW



$q = k \cdot \sqrt{\Delta p_m}$

k: by diameter and scale position from the maker's k-table

FLOW MEASUREMENT

ORDERING INFORMATION

Diameter (ØD)	Ø100 – Ø1000 mm; diameters in the selection table (page 2)
Casing length (L)	by diameter
Measurement	k factors on the unit label / in the maker's table
Order code	AYS-DMP-IR-[ØD], e.g. AYS-DMP-IR-250

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IRIS DAMPER

OPERATING PRINCIPLE

Iris damper · AYS-DMP-IR

1. **Adjustment:** Turning the knob moves the iris blades evenly towards the centre; the opening stays round.
2. **Measurement:** A manometer is connected to the nipples before and after the iris; the pressure difference Δp_m is read.
3. **Airflow:** Airflow $q = k \cdot \sqrt{\Delta p_m}$; the k factor comes from the maker's table by diameter and scale position.
4. **Locking:** At design airflow the scale position is locked and entered in the balancing report.

INSTALLATION AND MAINTENANCE

1. **Installation:** The 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, keep the straight duct lengths recommended by the maker before and after the damper, away from bends and branches.
3. **Access:** Install with access to the knob and nipples; provide a ceiling access panel if needed.
4. **Maintenance:** Keep the nipple caps fitted; check free movement of the iris mechanism periodically.

SELECTION TABLE

Iris fully open · ρ = 1.2 kg/m³ · calculated

ØD	A m²	AIRFLOW [m³/h] · by duct velocity			Δp [Pa] · iris fully open		
		3 m/s	5 m/s	7 m/s	3 m/s	5 m/s	7 m/s
Ø100	0.0079	85	141	198	2.7	7.5	14.7
Ø125	0.0123	133	221	309	2.7	7.5	14.7
Ø150	0.0177	191	318	445	2.7	7.5	14.7
Ø160	0.0201	217	362	507	2.4	6.6	12.9
Ø200	0.0314	339	565	792	1.9	5.3	10.4
Ø250	0.0491	530	884	1,237	1.6	4.5	8.9
Ø315	0.0779	842	1,403	1,964	1.4	4.0	7.8
Ø355	0.0990	1,069	1,782	2,494	1.4	3.8	7.4
Ø400	0.1257	1,357	2,262	3,167	1.3	3.6	7.1
Ø450	0.1590	1,718	2,863	4,008	1.3	3.5	6.9
Ø500	0.1963	2,121	3,534	4,948	1.2	3.4	6.7
Ø560	0.2463	2,660	4,433	6,207	1.2	3.3	6.5
Ø630	0.3117	3,367	5,611	7,855	1.2	3.2	6.3
Ø710	0.3959	4,276	7,127	9,977	1.1	3.2	6.2
Ø800	0.5027	5,429	9,048	12,667	1.1	3.1	6.1
Ø900	0.6362	6,871	11,451	16,032	1.1	3.0	6.0
Ø1000	0.7854	8,482	14,137	19,792	1.1	3.0	5.9

MEASUREMENT EXAMPLE

Ø250, design airflow 900 m³/h

1. **Target:** For 900 m³/h in a Ø250 duct the velocity is v = 900 / (3600 · 0.0491) ≈ 5.1 m/s.
2. **Reading:** Read Δp_m at the nipples and calculate $q = k \cdot \sqrt{\Delta p_m}$ with the k factor for the scale position.
3. **Correction:** If airflow is too high close the iris, if too low open it; measure again after each adjustment.
4. **Result:** When airflow is within ±10 % of design, lock the setting and record the scale value.

VALIDITY

Airflow and Δp are calculated with the iris fully open (not laboratory tested); Δp rises as the iris closes. Take k factors for measurement from the unit label or the maker's table.

SYMBOLS

ØD	nominal duct diameter
A	duct cross-section (m²)
Δp_m	pressure difference between nipples
k	measuring factor (manufacturer)
L	casing length