

EXHAUST AIR VALVE DSO-M

TECHNICAL DATA

DSO-M is an exhaust valve suitable for rooms, offices etc., which require forced/controlled exhaust.

Good adjusting features:

- Low noise level
- Good sound attenuation features
- Quick and easy to install
- Easy to measure the airflow.
- Can be opened electrically according to operating conditions. (manual switch or sensor)
- Basic adjustment can be set smoothly when balancing the ducting.
- Forced exhaust can be set from the controller at 5, 10, 15 or 20 mm.
- Not designed to be used in the sauna room.



CONSTRUCTION

The **DSO-M** exhaust valve is made of steel sheet. Standard color is white (RAL9010). Other colors are available to special order. The body is equipped with cellular plastic gasket to form an airtight seal. Adjustment of the airflow is simple, the inner cone being rotated to the required setting and locked in the position with a single nut. The valve opens after it receives an ON-command from a switch. (manual switch, occupancy sensor, humidity sensor etc.) The valve motor operates with a voltage of 24VAC. The valve disc contains a control motor with a screw spindle and a controller card, with which the disc can be run into the open position.

The delivery includes a valve with connecting cable, mounting frame and extension ring, with which a free space can be reserved for the connecting cable between the wall or ceiling surface and the frame.

REGULATION AND MEASUREMENTS (See also last page)

The measurement of airflow is made as a pressure difference measurement with a separate measuring tube.

Regulation of air volume is made by changing the position **s**.

For diagrams for measuring and regulation see the separate diagrams.

Refer to airflow measurement diagrams for information.

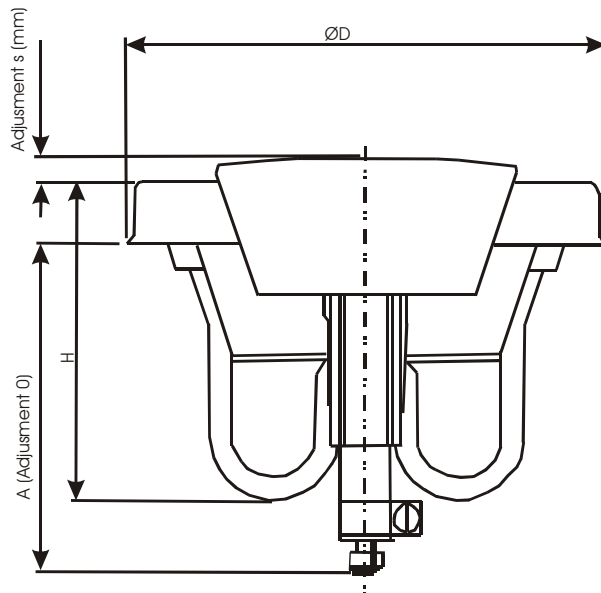
ORDER EXAMPLE:

Product: DSO-M
Size: 125
CODE: **DSO-M 125**

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DSO - M

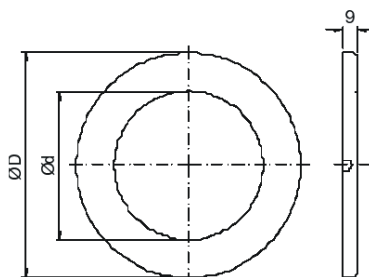


DSO - M 3.7b

DIMENSIONS in mm

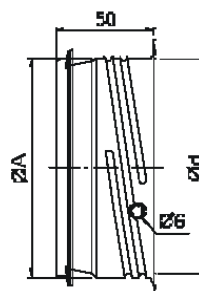
DSO - M	D	d	H	A	Weight (gr)
100	135	87	89	105	633
125	161	107.5	105	105	755

Extension ring



Size	D	d
100	151	103
125	181	128

Frame



Size	D	d
100	99.3	98
125	124.3	123

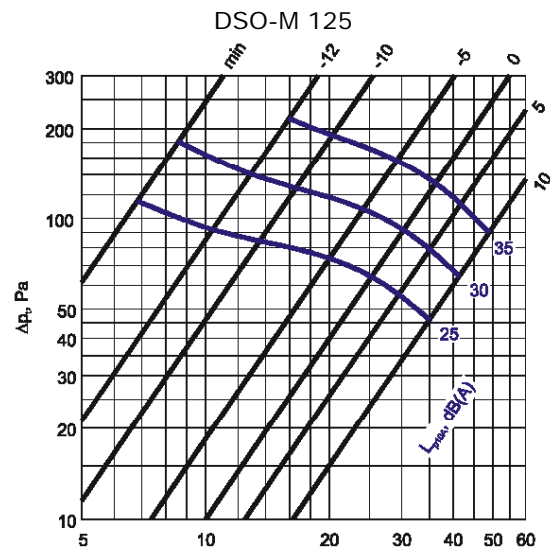
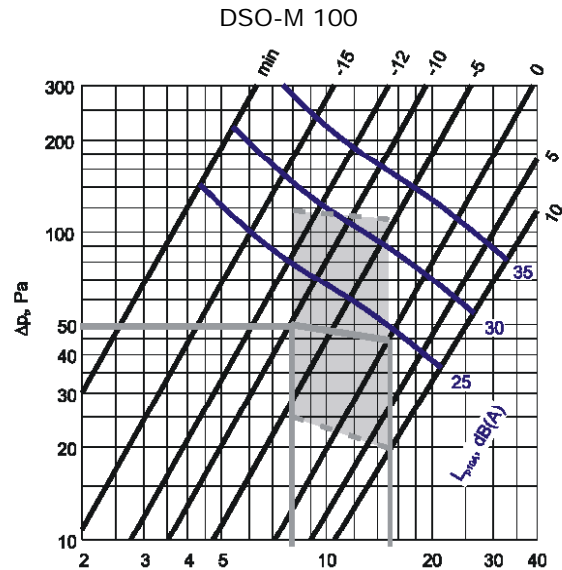
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DSO-M 100/125

The DSO-M is selected on the basis of the desired airflow rate, forced airflow rate and noise level. The used airflow can be adjusted smoothly by turning the screw spindle of the motor.

The valve must however be selected so that the basic adjustment position can be set at -15...0 mm to enable a sufficient forced effect.



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SOUND POWER LEVEL L_w

DSO-M	CORRECTION K_{oct} (dB)							
	Middle frequency by octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
100	1	-6	-5	0	-2	-1	-9	-16
125	2	2	-3	-1	-4	1	-11	-19
Toler.±	6	3	2	2	2	2	2	3

Sound power levels by octave bands are obtained by adding to total sound pressure level L_{p10A} , dB(A) the corrections K_{oct} presented in the table according to the following formula:

$$L_{Woct} = L_{p10A} + K_{oct}$$

Correction K_{oct} is average value in frequency range (Hz).

DEFINITIONS		
q_v	air volume	(m ³ /h)
Δp_t	total pressure drop	(Pa)
L_{p10A}	sound pressure level with 4 dB room attenuation (10 m ² sab)	[dB(A)]
L_{Woct}	sound power level by octave bands	(dB)
ΔL	sound attenuation	(dB)
K_{oct}	correction	(dB)

The airflow is measured by a pressure difference measurement with a separate measuring tube. The measuring diagrams and detailed regulation instruction can be found in the installation and connecting instructions delivered with the product.

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SOUND ATTENUATION ΔL

DSO -M	SOUND ATTENUATION ΔL							
	Middle frequency octave band(Hz)							
	63	125	250	500	1000	2000	4000	8000
100	25	20	13	9	10	11	6	7
125	21	16	12	10	9	14	6	6
Tol.+/-	6	3	2	2	2	2	2	3

The average sound attenuation ΔL from duct to room, including the end reflection of the connecting duct in ceiling installation, is obtained in the table above.

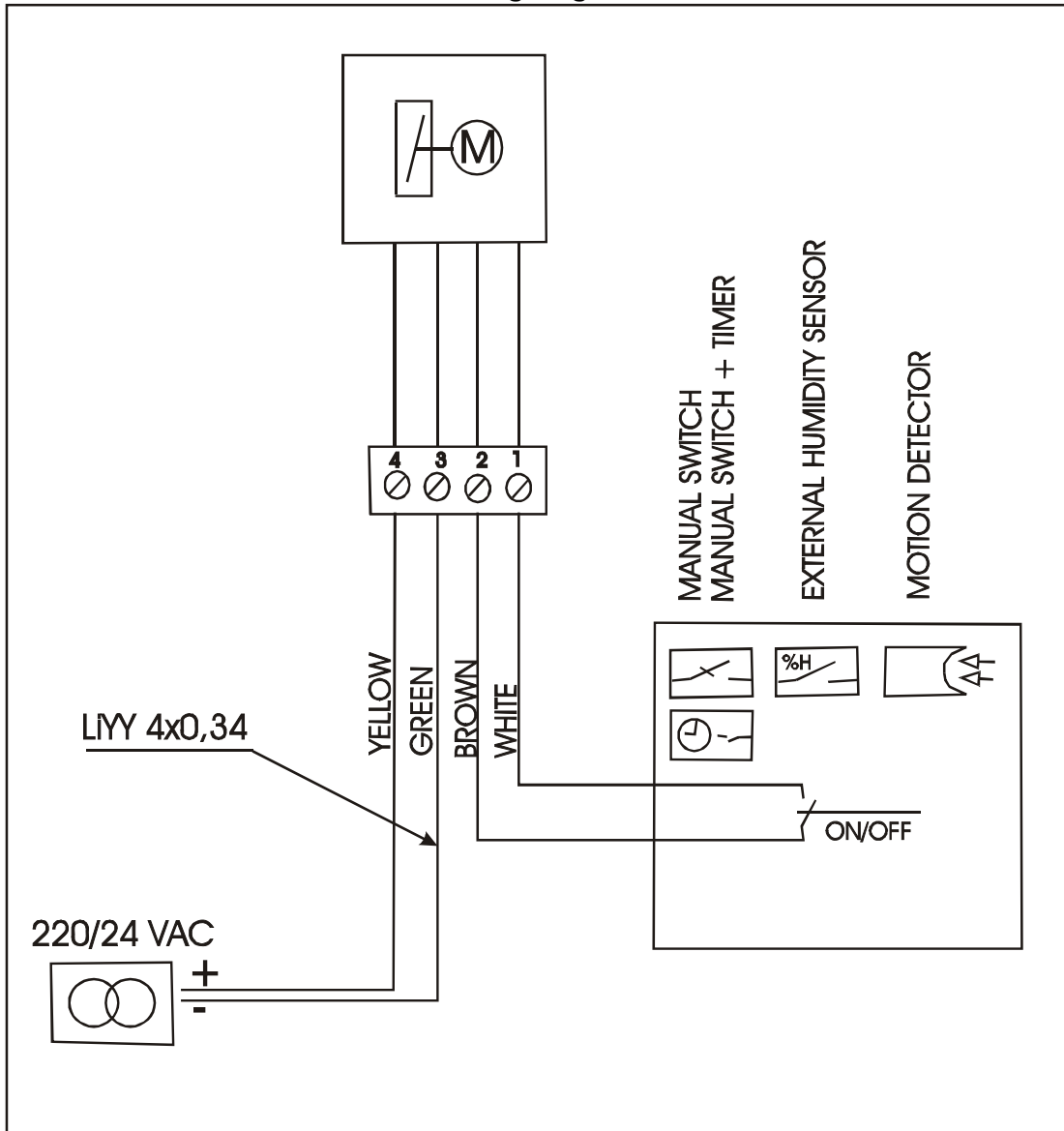
Supply Voltage	24 V AC (Protective extra low voltage, PELV) $\pm 20\%$
Rated Power	12 VA / 500 mA
Controlling	With a closing switch
Running time	Max. 6 s
Noise level while running	36 dB(A)
Electric protection	III (Protective extra low voltage, PELV)
Enclosure	IP00
Ambient temperature	+ 10°C ... + 50°C
Storage temperature	- 25 °C ... + 65°C
Humidity	... 100 %
Electromagnetic compatibility	89/336/EY
Safety	98/37/EY

The DSO-M valves operate on a voltage of 24 VAC. The transformer size is chosen according to the overall power demand of the devices connected to it. Please select the type of transformer dependent to the conditions in its surroundings.

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Wiring diagram



The supply voltage 24VAC of the valve (rated power 12 VA / 500mA), protection voltage SELV shall be connected to the yellow and green wires of the cable delivered with the valve, and the switch used for controlling to the brown and white ones.

After connecting the supply voltage, the valve performs a reference run towards the mechanical limit and a warm-up run (open-closed). The valve stops after this at the position determined by the control. If the supply voltage is interrupted, the valve holds its position and performs the above mentioned reference and warm-up runs after the supply voltage has returned.

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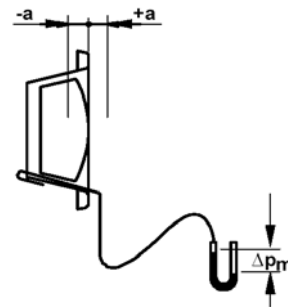
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MEASUREMENT AND REGULATION OF AIRFLOW

The basic air change rate is adjusted by changing adjustment position **a**.
 The basic adjustment is made by turning the screw spindle, **not the cover**, by hand.
 The adjustment position is locked by tightening the hose clamp carefully. The desired forced exhaust position is set by choosing the valve running distance (5, 10, 15, 20mm). This is done with dip switches on the circuit board according to the following table.
NOTE! If the adjustment is changed while the product is receiving voltage, the new adjustment is not valid until the voltage has been cut off and then switched on.

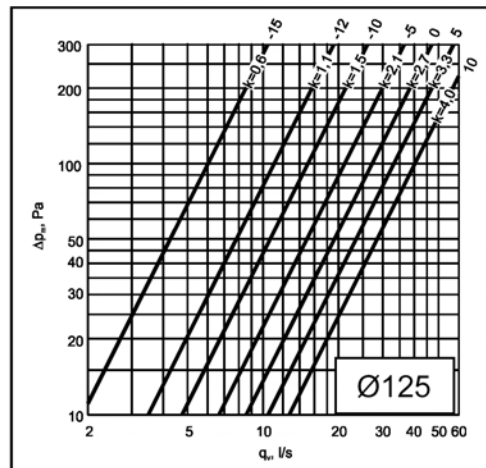
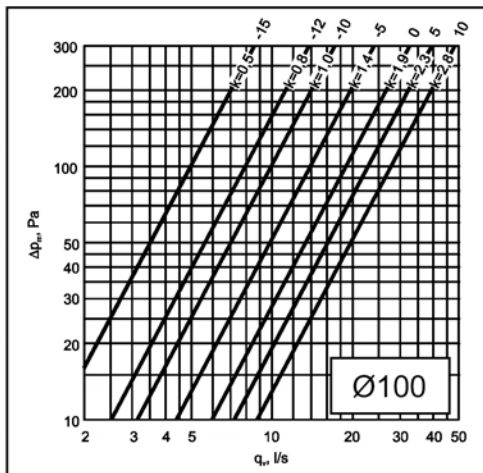
Switch		Running distance	Basic adjustment position
1	2	[mm]	[mm]
OFF	OFF	5	+5
ON	OFF	10	0
OFF	ON	15	-5
ON	ON	20	-10

Factory setting of running distance 10mm



The running distance must be chosen so that the valve in its open position does not exceed the adjustment position +10mm. The air flow is determined according to the diagram below, the pressure difference at the valve and the adjustment position (Δp_m and a)

DSO-M MEASUREMENT AND ADJUSTMENT DIAGRAMS



The properties of the product include a warm-up run every 24 hours, which the valve performs independently of the user.
 The valve is equipped with overheating protection which stops valve operation for five minutes due to a continuous back-and-forth run.

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