FläktGroup®

VAV damper EMSS, EMSD

TECHNICAL DATA

KEY FEATURES

- FG compact controller as standard
- Setting up values without external equipment
- Real time air flow display
- Operating range 0.5 - 8 m/s
- Available in nine sizes for duct diameters between 100 - 630 mm

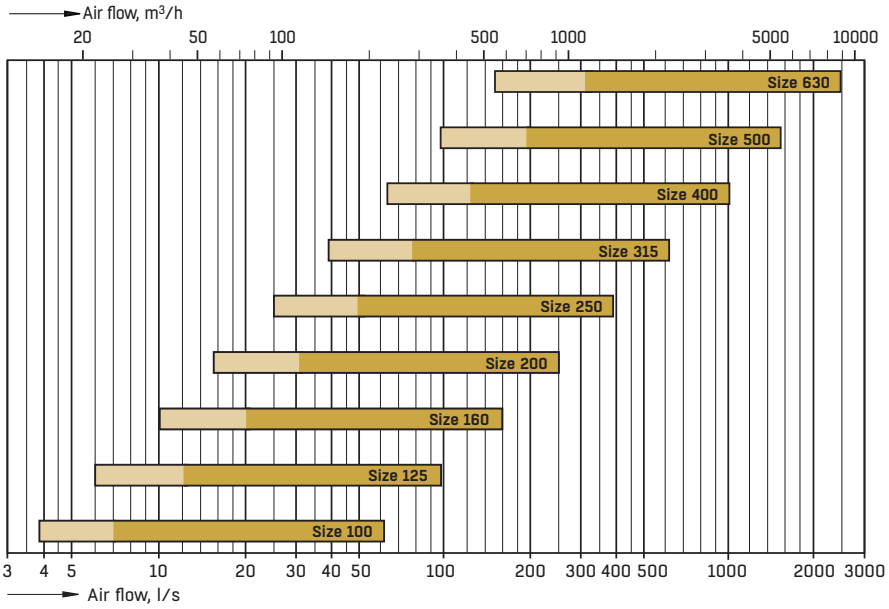
FLOW VARIATOR EMSS, EMSD

EMSS and EMSD are air flow variators for OPTIVENT and OPTILAB systems. They are used to control and regulate the supply air flow and the exhaust air flow. They can be used for many different purposes, for example to regulate the temperature and the air quality in a room.

SPECIFICATIONS

- EMSS, non-insulated casing
- EMSD, insulated casing
- Integrated orifice plate for air measurement

QUICK SELECTION



The air flow limits with compact controller 227VM correspond to air velocity 0.5-8 m/s. When air velocity is below 1 m/s ±10% measuring accuracy cannot be guaranteed (light brown above).

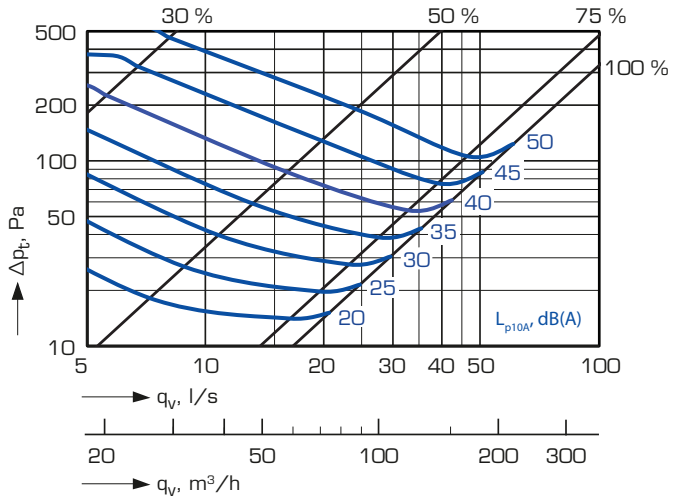
PRODUCT CODE EXAMPLE

Flow variator for supply or exhaust air
EMSS-1-125-1-2

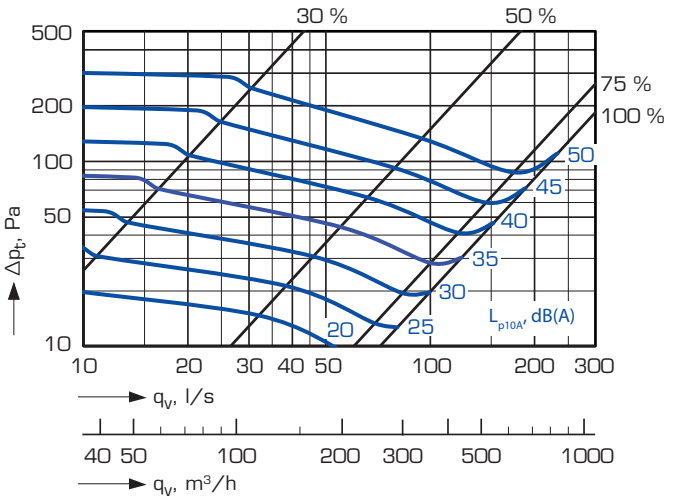
SOUND PRESSURE LEVELS IN ROOM

Damper blade opening 30% = operating area begins.

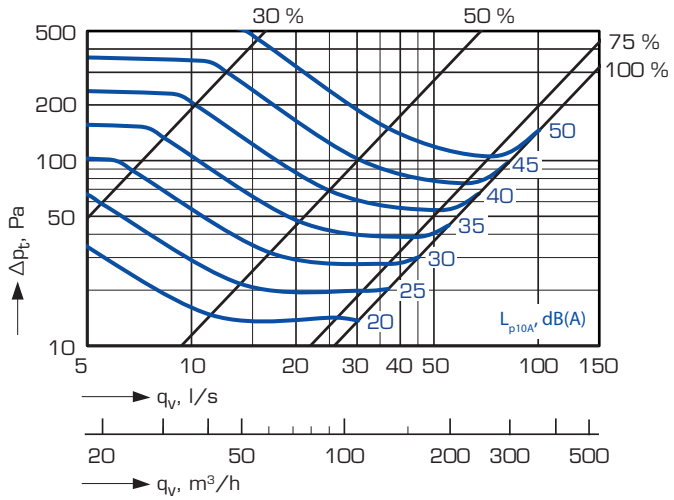
EMSS/EMSD-100



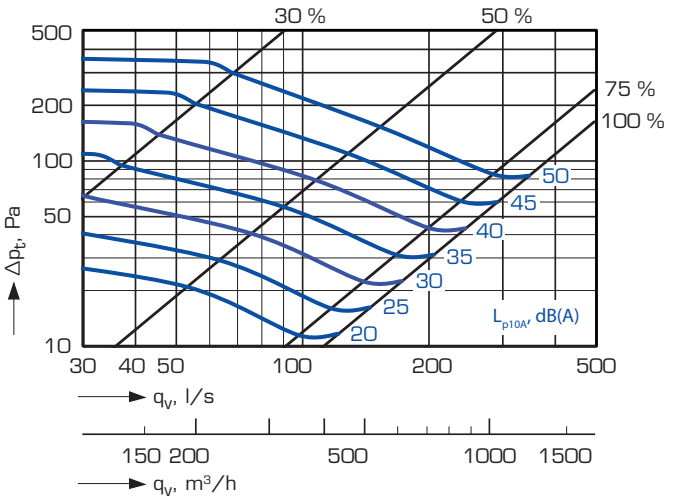
EMSS/EMSD-200



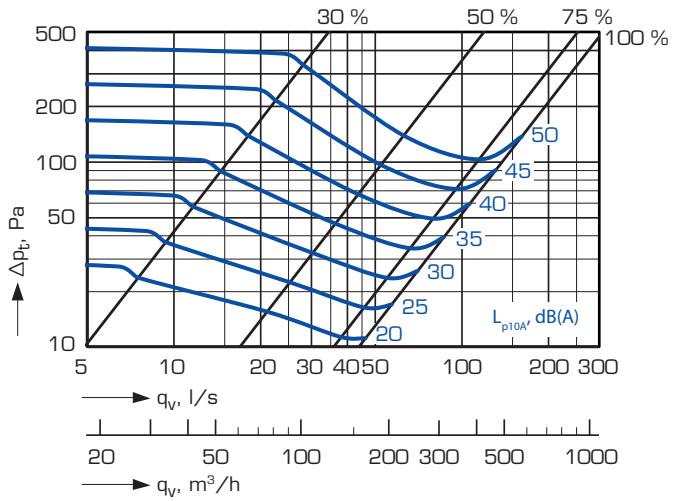
EMSS/EMSD-125



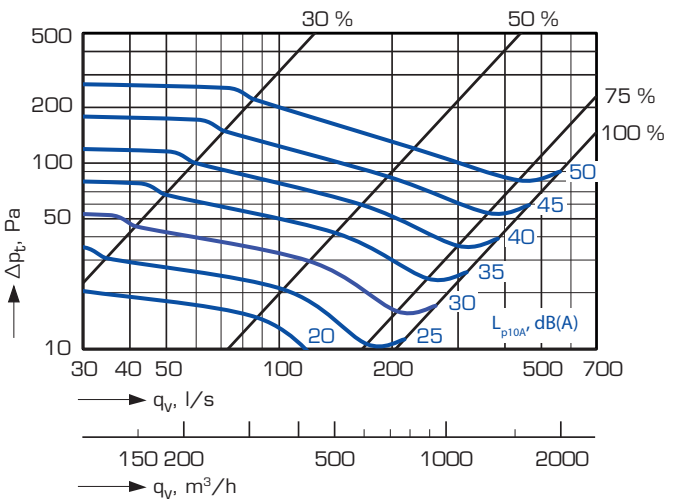
EMSS/EMSD-250



EMSS/EMSD-160



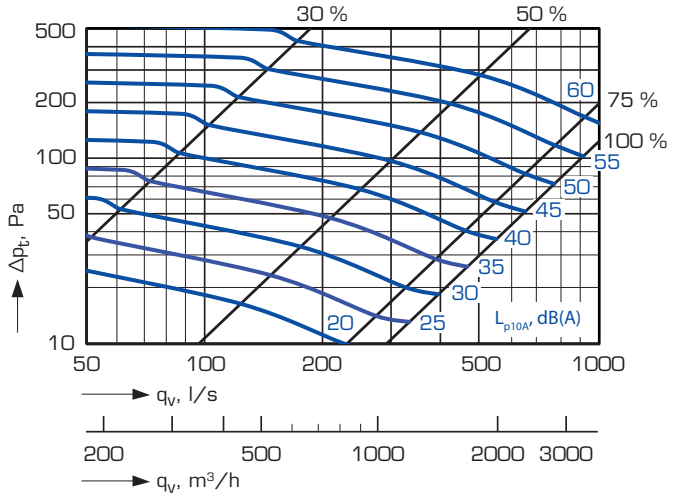
EMSS/EMSD-315



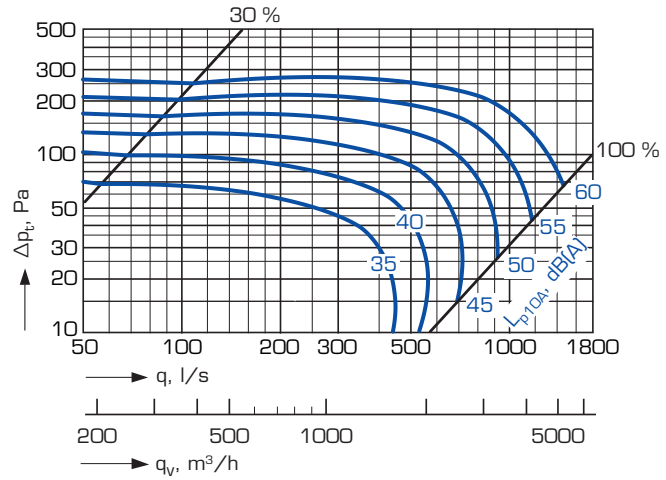
SOUND PRESSURE LEVELS IN ROOM AND SOUND DATA

Damper blade opening 30% = operating area begins.

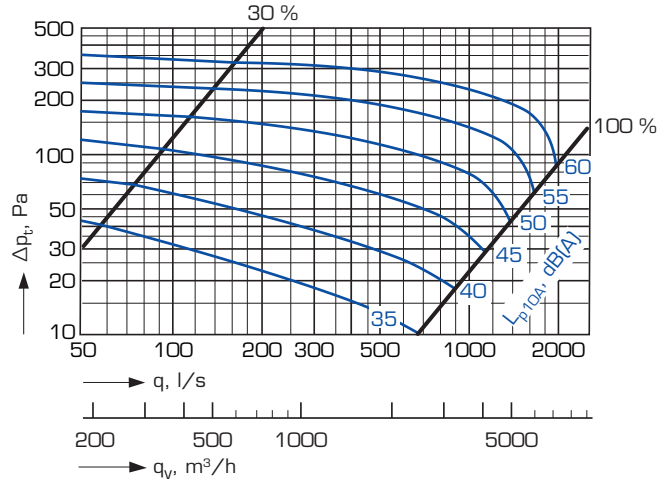
EMSS/EMSD-400



EMSS/EMSD-500



EMSS/EMSD-630



DUCT SOUND

EMS(S,D)	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000
100	37	23	16	11	3	-8	-14	-10
125	35	23	15	9	2	-11	-14	-10
160	36	22	14	7	1	-9	-14	-10
200	32	17	11	6	1	-10	-14	-10
250	31	19	11	5	-2	-8	-14	-10
315	29	18	9	4	-1	-8	-14	-11
400	27	16	9	4	-2	-8	-13	-10
500	18	16	10	4	-1	-11	-20	-25
630	12	7	8	-2	-3	-6	-7	-6
Tolerance ±	6	3	2	2	2	2	2	3

The sound power levels of the duct for every octave band are obtained by adding to the total sound pressure level L_{p10A}, dB(A), the correction K_{oct} presented in the table according to the following formula:

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

Correction K_{oct} is average value in range of use of the flow variator.

SOUND TRANSMITTED THROUGH CASING

EMSS	Correction of sound level K_c (dB)							
	63	125	250	500	1000	2000	4000	8000
100	7	-7	-5	-17	-30	-36	-39	-42
125	-3	-9	-18	-21	-27	-34	-40	-42
160	-4	-11	-12	-19	-25	-28	-35	-39
200	-4	-9	-18	-24	-29	-32	-39	-39
250	-11	-11	-16	-19	-26	-30	-36	-35
315	-3	-8	-22	-15	-22	-31	-33	-43
400	-7	-14	-22	-16	-26	-25	-28	-46
500	3	-6	-18	-27	-33	-37	-41	-57
630	-2	-9	-17	-32	-31	-24	-29	-39
Tolerance ±	6	3	2	2	2	2	2	3

EMSD	Correction of sound level K_c (dB)							
	63	125	250	500	1000	2000	4000	8000
100	4	-9	-9	-19	-34	-41	-44	-47
125	-5	-13	-20	-21	-32	-35	-41	-47
160	-5	-16	-12	-20	-28	-34	-38	-45
200	-4	-9	-18	-27	-34	-36	-44	-47
250	-11	-11	-16	-20	-30	-35	-43	-45
315	-4	-7	-23	-16	-26	-36	-44	-52
400	-11	-14	-22	-18	-28	-30	-39	-50
500	1	-6	-18	-28	-35	-40	-47	-57
630	-2	-10	-18	-34	-34	-29	-38	-43
Tolerance ±	6	3	2	2	2	2	2	3

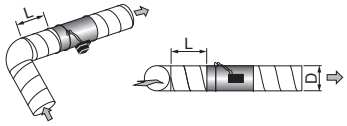
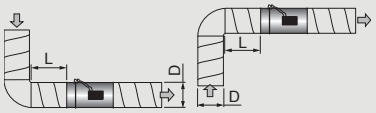
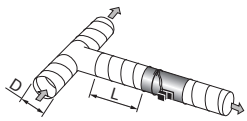
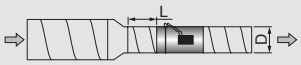
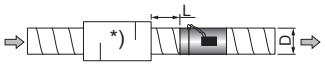
The power levels of the soung transmitted through casing of the flow variator for every octave band are obtained by adding to the total sound pressure level L_{p10A}, dB(A), the correction K_c presented in the table according to the following formula:

$$L_{Wc} = L_{p10A} + K_c$$

Correction K_c is average value in range of use of the flow variator.

SAFETY DISTANCES AND NOMINAL AIR FLOW

SAFETY DISTANCES

Type of flow disturbance	Measuring accuracy	
	±12%	±15%
Bend (FG recommendation) 	≥ 2D	≥ 0D
Bend (other ways) 	≥ 4D	≥ 0D
T-piece 	≥ 2D	≥ 0D
Reducer (1:3) 	≥ 1D	≥ 0D
Silencer  *) BDDER-30/40/44/45/60/61	≥ 0D	-

With other installations and when air velocity is below 1 m/s measuring accuracies in the above table cannot be guaranteed.

NOMINAL AIR FLOW

Size	q_{nom} 1)		q_{nom} 2)		k 3)
	EMS(S,D)-1 / -5 / -6		EMS(S,D)-2 / -3		average
	(l/s)	(m^3/h)	(l/s)	(m^3/h)	
100	62	223	62	223	4.2
125	93	335	98	353	6.0
160	145	522	160	576	10
200	246	886	251	904	16
250	380	1368	392	1411	25
315	636	2290	623	2243	40
400	998	3593	1005	3618	64
500	1599	5756	1570	5652	99
630	2365	8514	2493	8975	165

1) EMS(S,D)-1 since 05.2014 and EMS(S,D)-5/-6 since 08.2014

2) EMS(S,D)-1 before 05.2014 and EMS(S,D)-5/-6 before 08.2014

3) K-value is an average over the entire operating range (blade opening 30-100 %)

MEASURING ACCURACY

With EMS(S,D)-1/5/6 the measuring accuracy is ±10% or ±3 l/s of display.

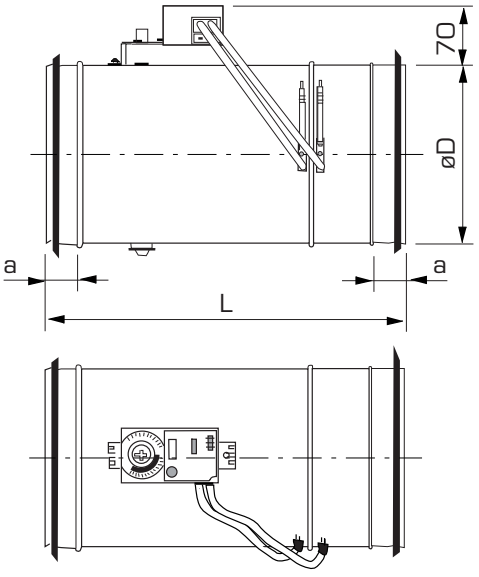
When air velocity is below 1 m/s ±10% measuring accuracy cannot be guaranteed.

EMS(S,D) FLOW VARIATOR

The variator can be used both for variable and constant flow and, if appropriate, forced shut-off for both the supply and exhaust air.
The variator consists of a orifice plate and damper blade with a non-insulated casing (EMSS) or an insulated casing (EMSD).
Integrating flow measurement with separate measurement nipples for control and manual measurement.
The damper has stable bearings made of nylon and its shaft is mounted in maintenance free nylon headings. Damper equipped with a EPDM rubber blade seal conforms to air tightness class 3 in accordance with EN 1751:1998
The casing of the EMSD has double walls and intermediate glass wool insulation with a minimum thickness of 50 mm and gives low acoustic radiation.
Connection dimensions 100 - 630 mm.
Components in contact with the ventilation air conform to corrosivity classes C3 or C4 in accordance with EN-ISO 12944-2.
Air tightness class B in accordance with EN1751:1998.
All control equipment is installed on the apparatus casing.
Manual measurement of the air flow can be performed without disturbing the control circuit via a separate pressure outlet on the orifice plate of the flow variator.
All duct connections have spigot dimensions and are equipped with sealing rings made of rubber.

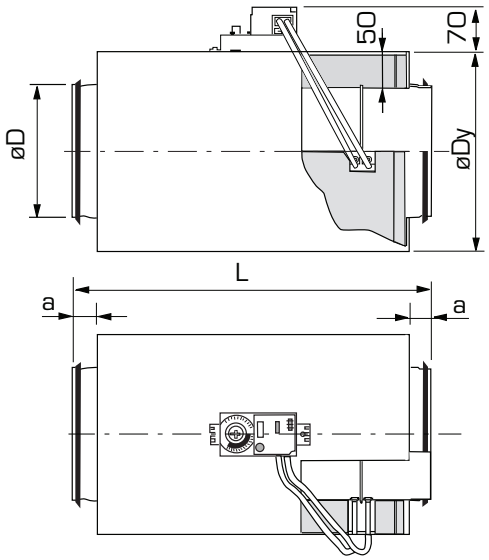
DIMENSIONS AND WEIGHTS

EMSS (uninsulated)



Size	ØD	a	L	Weight
	(mm)	(mm)	(mm)	(kg)
100	99	35	400	1.4
125	124	35	400	1.7
160	159	35	400	2.2
200	199	35	400	2.7
250	249	40	580	4.1
315	314	40	580	5.4
400	399	60	650	9.3
500	499	60	850	14.2
630	629	60	850	19.5

EMSD (insulated)



Size	ØD	ØDy	a	L	Weight
	(mm)	(mm)	(mm)	(mm)	(kg)
100	99	200	35	400	2.5
125	124	225	35	400	2.9
160	159	260	35	400	3.4
200	199	300	35	400	4.0
250	249	350	40	580	6.5
315	314	415	40	580	7.9
400	399	500	60	650	11.8
500	499	600	60	850	19.0
630	629	730	60	850	24.0

PRODUCT CODE AND ACCESSORIES

PRODUCT CODE

VAV damper, round **EMSa-b-ccc-d-e**

Execution (a)
S = without insulation
D = with insulation
Actuator (b)
1 = Compact controller 227VM
2 = Compact controller D3
3 = Compact controller for KNX
5 = Compact controller for Modbus 227VM-MB
6 = Compact controller for Modbus, IPSUM-version 227VM-MB-ST
Size (ccc)
100, 125, 160, 200, 250, 315, 400, 500, 630
Material (d)
1 = Corrosivity class C3, galvanized sheet steel
2 = Corrosivity class C4, acid-proof steel (AISI 316)
(applies to parts in contact with the ventilation air)
Tightness (e)
2 = CEN3

ACCESSORIES

Accessories are supplied loose, not installed (muffle joints are not included).

Circular attenuator **BDER-aa-bbb-ccc**

Model (aa)
30, 40, 44, 45, 60, 61
Size, cm (bbb)
Length, cm (ccc)

BDER-40 straight M1-certified sound absorber with 50 mm polyester fibre filling.
BDER-44 straight M1-certified sound absorber with 100 mm polyester fibre filling.
BDER-45 straight M1-certified sound absorber with 100 mm polyester fibre filling and a 100 mm baffle.
BDER-30 straight sound absorber with 50 mm mineral wool filling, fire resistance class EI 30 (SITAC 2525/80).
BDER-60 straight sound absorber with 100 mm mineral wool filling, fire resistance class EI 60 (SITAC 2525/80).
BDER-61 straight sound absorber with 100 mm mineral wool filling and a 100 mm baffle, fire resistance class EI 60 (SITAC 2525/80).

Rectangular attenuator with circular spigots **BDER-aa-bbb-ccc**

Model (aa)
70, 71, 72, 73
Size, cm (bbb)
Length, cm (ccc)

BDER-70 fixed casing, glass wool absorbent.
BDER-71 fixed casing, M1-certified, polyester absorbent.
BDER-72 openable casing, glass wool absorbent.
BDER-73 openable casing, M1-certified, polyester absorbent.

FläktGroup®

EXCELLENCE IN SOLUTIONS

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

PRODUCT FUNCTIONS BY FLÄKTGROUP

Air Treatment | Air Movement | Air Diffusion | Air Distribution | Air Filtration
Air Management & ATD's | Air Conditioning & Heating | Controls | Service

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