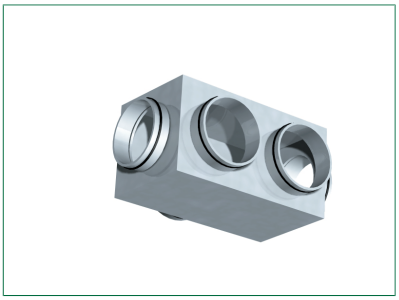
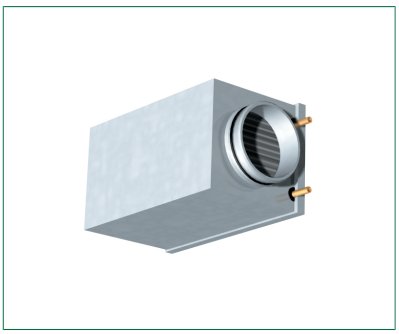
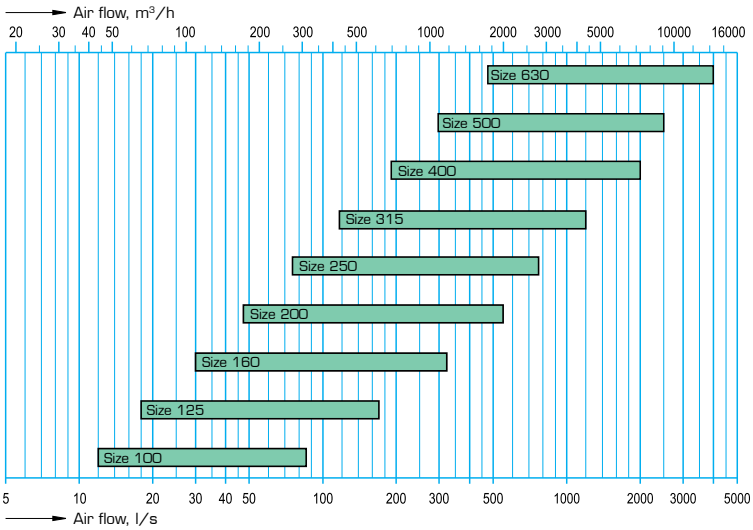
Flow variator EHSS, EHSD





EHSS and EHSD are air flow variators for OPTIVENT system when higher duct velocities are needed (for example renovation projects). 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.

Quick Selection



Recommended limits for air flow. The lowest air flows correspond to air speed of 1.5 m/s.

Specifications

Flow variator for supply and exhaust air

EHSS, non-insulated casing

EHSD, insulated casing

Integrated orifice plate for air measurement

FW compact controller as standard

Setting up values without external equipment

Real time air flow display

Operating range from 1.5 m/s

Available in nine sizes for duct diameters between 100 - 630 mm

Product code example

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

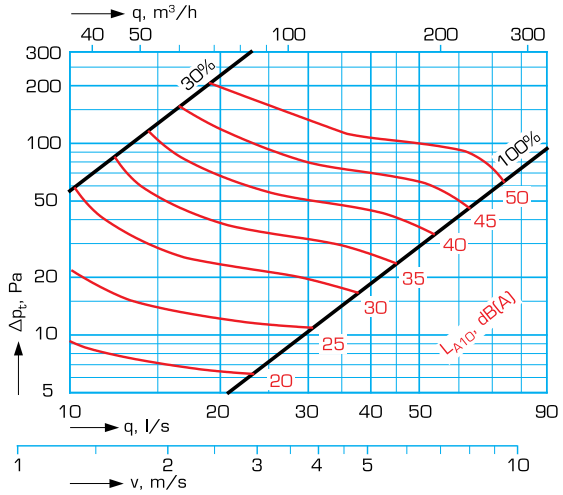
Sound attenuator EMOZ-15-125-1

Water reheater EMOZ-17-125

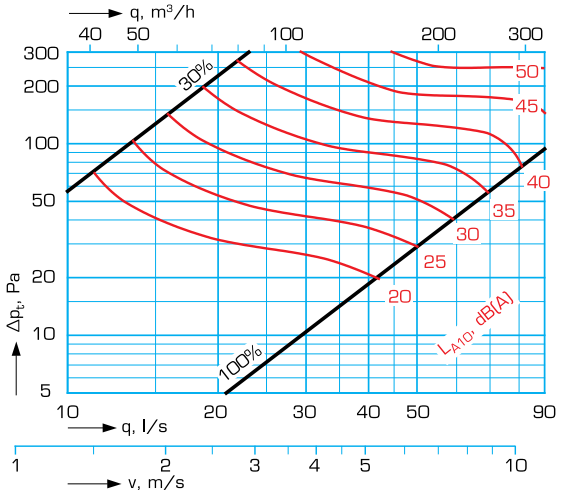
AIRTREND Ltd
Predstavništvo u Beogradu
Kumanovska 14, 11000 Beograd
Tel: 011/3836886, 3085740
Faks: 011/3444113
e-mail: gobrid@eunet.rs
web: www.airtrend.rs

Sound pressure levels in room (damper blade opening 30% = operating area begins)

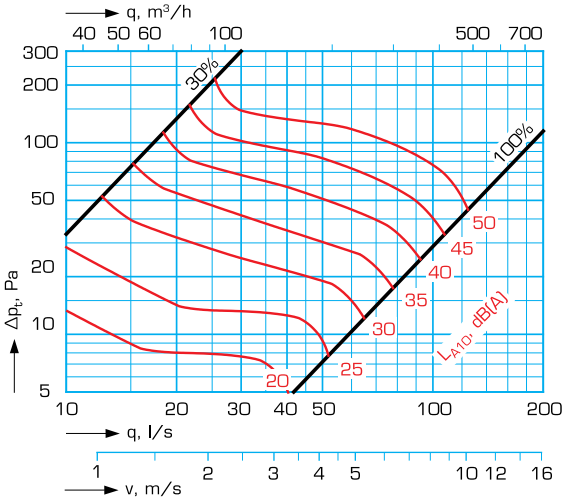
EHSS/EHSD-100



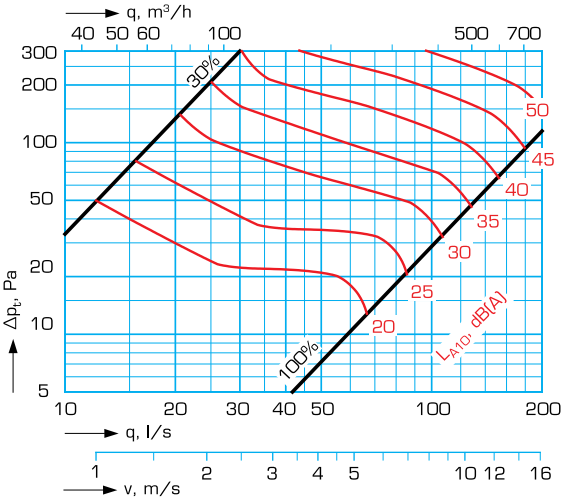
EHSS/EHSD-100 + EMOZ-15



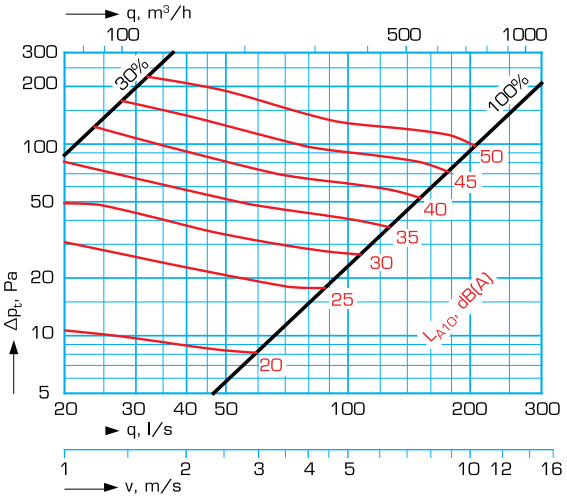
EHSS/EHSD-125



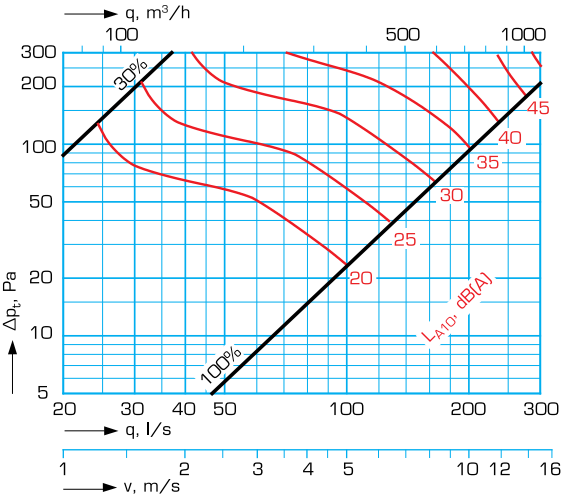
EHSS/EHSD-125 + EMOZ-15



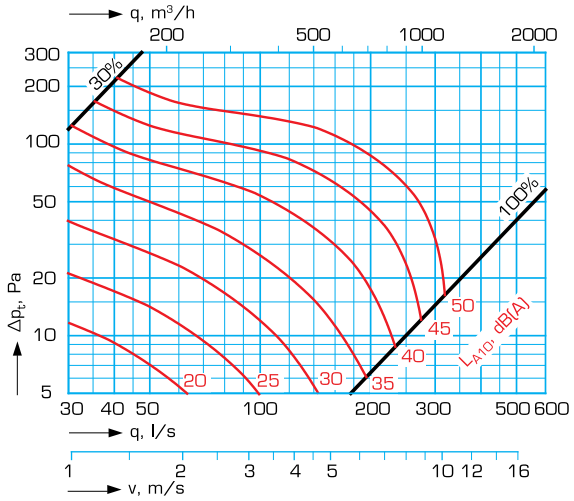
EHSS/EHSD-160



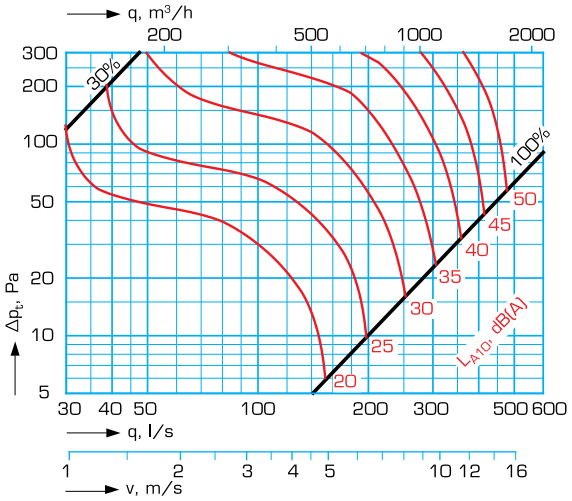
EHSS/EHSD-160 + EMOZ-15



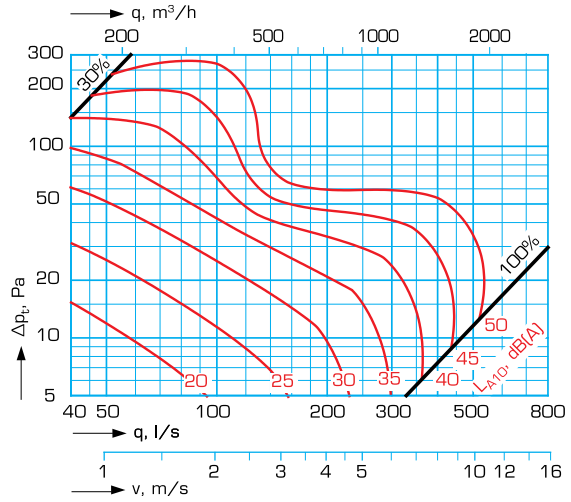
EHSS/EHSD-200



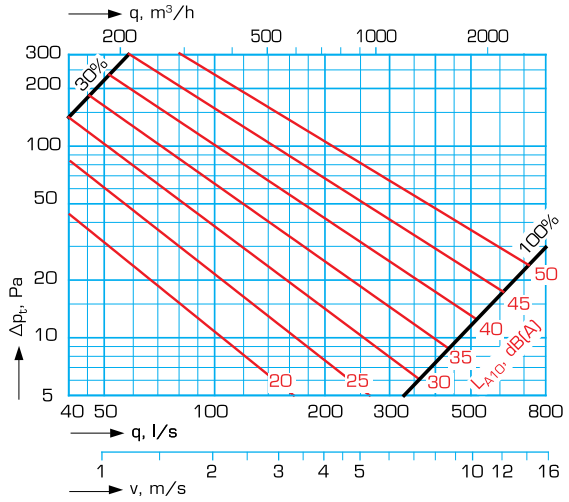
EHSS/EHSD-200 + EMOZ-15



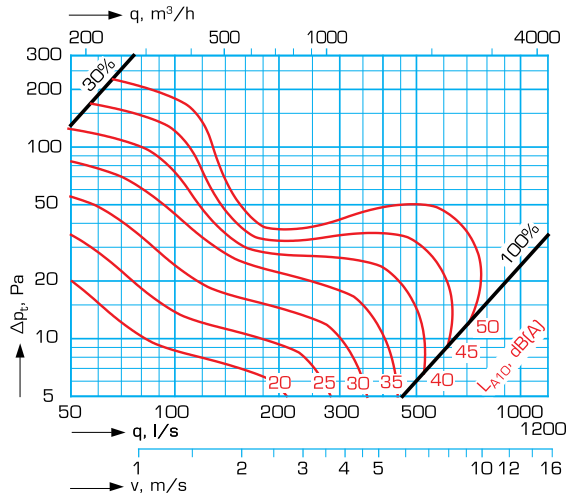
EHSS/EHSD-250



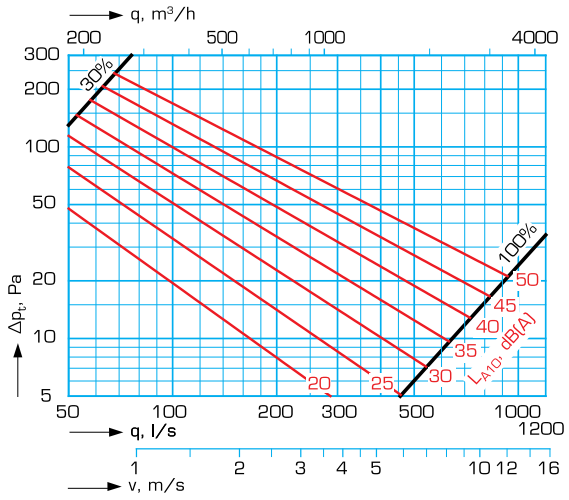
EHSS/EHSD-250 + EMOZ-15



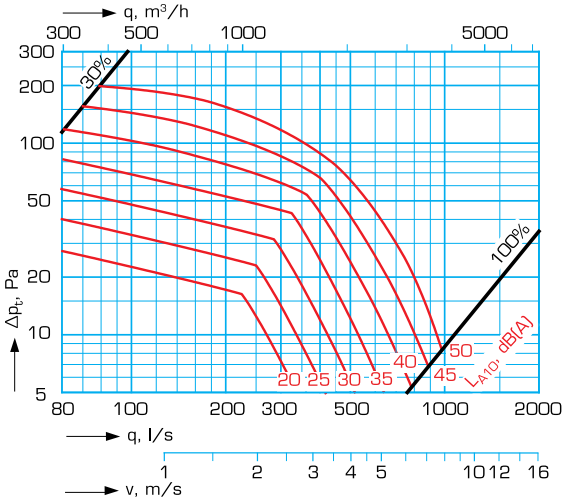
EHSS/EHSD-315



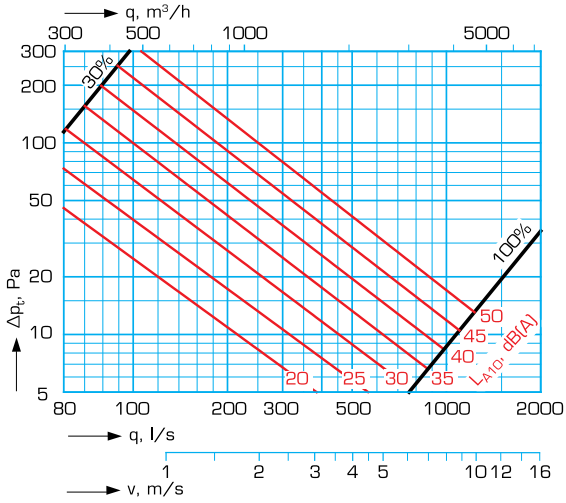
EHSS/EHSD-315 + EMOZ-15



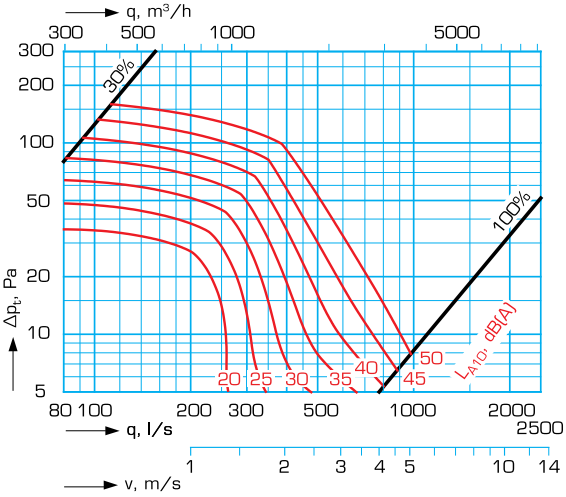
EHSS/EHSD-400



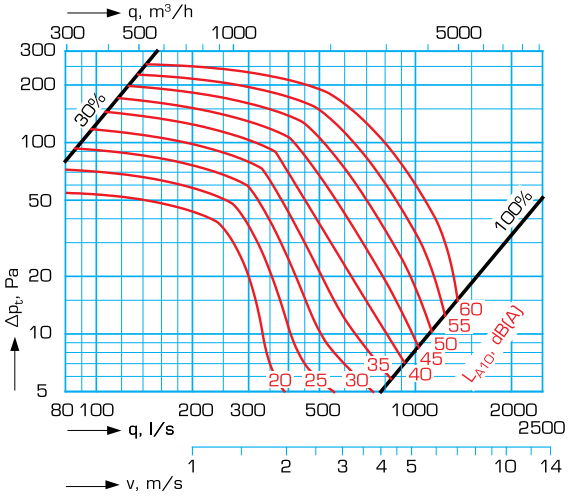
EHSS/EHSD-400 + EMOZ-15



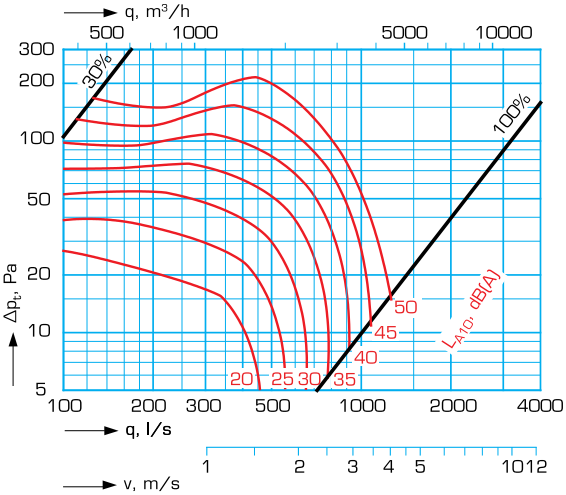
EHSS/EHSD-500



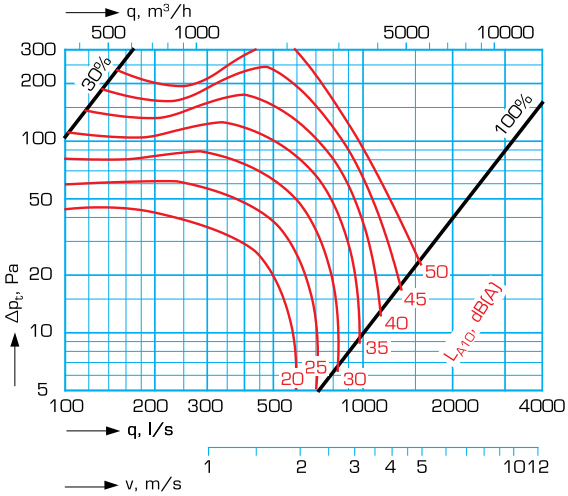
EHSS/EHSD-500 + EMOZ-15



EHSS/EHSD-630



EHSS/EHSD-630 + EMOZ-15



Sound characteristics

Duct sound

EHS(S,D)	Correction of sound level K (dB)							
	63	125	250	500	1000	2000	4000	8000
100	33	22	14	10	2	-4	-11	-10
125	27	24	11	7	2	-5	-12	-10
160	23	17	10	6	1	-5	-12	-10
200	26	13	7	4	1	-6	-13	-10
250	21	15	6	4	0	-6	-12	-10
315	18	15	4	3	0	-9	-13	-9
400	17	12	4	3	0	-8	-13	-9
500	11	5	4	1	-2	-6	-10	-8
630	5	4	5	3	-4	-9	-10	-9
Tolerance ±	6	3	2	2	2	2	2	3

EHS(S,D) +EM0Z-15	Correction of sound level K (dB)							
	63	125	250	500	1000	2000	4000	8000
100	30	17	12	10	1	-6	-13	-14
125	34	22	13	8	1	-5	-13	-14
160	34	25	10	6	0	-5	-10	-7
200	34	20	8	5	-1	-7	-8	-7
250	29	17	11	4	4	-7	-14	-11
315	26	19	9	2	-1	-8	-14	-11
400	26	16	6	2	-1	-6	-13	-11
500	15	8	4	1	-1	-3	-11	-10
630	9	5	5	5	-4	-12	-13	-10
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_{A10}, dB(A), the correction K_{oct} presented in the table according to the following formula:

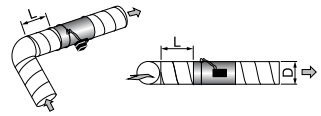
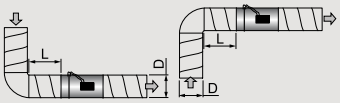
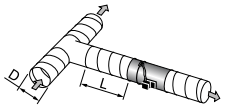
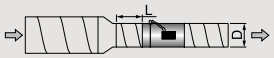
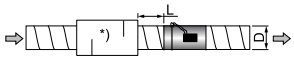
$$L_{Woct} = L_{A10} + K_{oct}$$

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

Nominal air flow and k-factors

Size	EHS(S,D)-1/5/6		EHS(S,D)-2	
	q_{nom} (l/s)	aver. k	q_{nom} (l/s)	k
100	86	5,8	89	5,6
125	169	12	178	11
160	319	20	319	20
200	541	35	511	32
250	777	49	817	52
315	1323	81	1217	77
400	2028	130	1913	121
500	3020	204	2909	184
630	4743	312	4348	275

Safety distances

Type of flow disturbance	Measuring accuracy	
Ø125-400:	±12%	±15%
Ø100, 500, 630:	±16%	±19%
Bend (FW recommendation)	≥ 2D	≥ OD
		
Bend (other ways)	≥ 4D	≥ OD
		
T-piece	≥ 2D	≥ OD
		
Reducer (1:3)	≥ 1D	≥ OD
		
Silencer	≥ OD	-
	*) BDER-30/40/44/60	

With other types of flow disturbance sufficient safety distances should be used.

Measuring accuracy

Size	Measuring accuracy	Valid when
100	±15% ±10%	blade angle <40° blade angle >40°
125-400	±10%	blade angle >30°
500	±15%	blade angle >30°
630	±15%	blade angle >30° and air velocity > 1.8 m/s

Measuring accuracies are valid when air velocity is over 1.5 m/s unless stated otherwise.

Sound transmitted through casing - EHSS

EHSS	Air flow q		Δp = 150 Pa Medium frequency by octave band (Hz)								Δp = 250 Pa Medium frequency by octave band (Hz)							
	m^3/h	l/s	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
100	54	15	38	34	26	28	22	10	9	10	40	33	27	24	27	16	19	10
	108	30	43	41	33	34	29	20	14	10	42	42	36	38	34	26	20	15
	162	45	44	44	36	37	31	25	19	12	47	47	40	42	37	30	25	19
	216	60	48	46	36	38	33	29	25	17	49	51	42	44	39	33	29	22
	270	75	49	47	38	39	34	31	27	20	50	52	43	45	41	34	31	24
125	90	25	36	34	27	25	22	15	12	10	37	34	29	28	26	21	18	13
	180	50	43	42	33	31	28	24	19	10	43	43	36	35	32	30	26	18
	270	75	46	46	37	35	32	29	25	15	47	49	41	40	36	33	30	22
	360	100	48	47	38	37	35	33	30	20	50	53	43	42	39	37	35	27
	450	125	50	49	40	40	36	36	30	19	52	55	45	44	41	39	37	29
160	144	40	29	26	25	21	21	19	14	9	29	29	29	26	26	25	21	19
	288	80	40	35	31	26	27	27	23	12	40	37	35	31	31	33	29	23
	432	120	44	40	36	32	32	32	29	19	44	43	39	36	35	36	33	26
	576	160	44	42	38	35	37	36	33	24	47	47	42	39	40	41	38	34
	720	200	47	45	41	36	39	38	34	26	51	50	45	41	42	43	40	35
200	216	60	36	34	26	25	28	25	22	17	36	36	30	30	32	31	28	25
	432	120	43	43	33	29	32	31	28	20	44	45	36	34	37	36	34	29
	648	180	47	48	36	34	36	34	32	24	49	50	40	38	40	39	37	32
	864	240	48	51	40	39	40	37	34	27	53	54	43	41	43	43	40	36
	1080	300	51	54	43	42	43	40	37	30	56	58	46	43	46	43	42	39
	1296	360	53	57	46	46	46	43	39	33	59	62	49	45	49	45	45	42
250	360	100	48	34	27	27	30	34	31	21	48	36	30	32	34	39	37	27
	720	200	52	42	33	31	33	37	35	24	53	46	37	36	38	42	41	31
	1080	300	54	45	36	35	36	38	36	25	59	50	41	39	41	44	43	33
	1440	400	56	49	38	38	38	39	36	26	63	53	43	42	43	46	44	35
	1800	500	58	52	41	40	41	41	38	28	64	55	45	44	45	47	44	35
	2160	600	60	54	44	43	43	43	40	31	66	58	48	46	47	49	45	38
315	720	200	43	32	29	25	31	36	33	24	45	35	33	31	36	39	39	31
	1260	350	49	35	32	29	34	38	35	27	51	38	36	34	39	42	41	34
	1800	500	52	36	35	32	37	39	37	29	56	41	39	38	41	44	42	36
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400	1080	300	45	38	34	29	34	37	34	22	44	39	35	35	39	42	41	29
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	4320	1200	54	50	44	40	45	48	46	34	58	52	49	44	48	52	49	41
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	3600	1000	55	52	40	36	43	46	43	32	58	53	54	40	47	49	46	38
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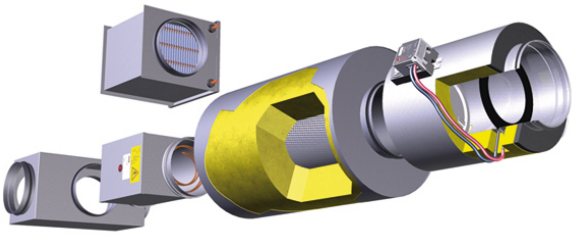
	6480	1800	62	58	47	41	49	50	47	39	67	61	52	47	53	56	53	46
	7920	2200	64	60	49	43	51	52	48	41	69	63	54	49	56	58	55	48
	9360	2600	66	62	51	45	53	54	50	44	71	65	56	51	59	60	57	50
630	2880	800	56	54	38	35	45	48	43	33	58	53	45	38	47	49	44	35
	5760	1600	60	58	42	38	47	50	45	36	62	57	49	42	51	51	48	39
	8640	2400	63	62	45	40	49	52	47	39	65	60	52	46	54	54	52	43
	11520	3200	66	65	49	43	51	54	49	42	68	63	55	49	57	57	56	47
	14400	4000	68	67	52	45	52	55	50	45	70	66	58	52	60	61	59	51

Sound transmitted through casing - EHSD

EHSD	Air flow q		Δp = 150 Pa Medium frequency by octave band (Hz)								Δp = 250 Pa Medium frequency by octave band (Hz)							
	m^3/h	l/s	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
100	54	15	32	33	24	25	34	-	-	-	34	32	25	21	39	10	12	-
	108	30	37	40	31	31	41	14	-	-	36	41	34	35	46	20	13	-
	162	45	38	43	34	34	43	19	12	-	41	46	38	39	49	24	18	13
	216	60	42	45	34	35	45	23	18	11	43	50	40	41	51	27	22	16
	270	75	43	46	36	36	46	25	20	14	44	51	41	42	53	28	24	18
125	90	25	31	31	23	21	14	-	-	-	32	31	25	24	18	11	-	-
	180	50	38	39	29	27	20	14	8	-	38	40	32	31	24	20	15	10
	270	75	41	43	33	31	24	19	14	-	42	46	37	36	28	23	19	14
	360	100	43	44	34	33	27	23	19	12	45	50	39	38	31	27	24	19
	450	125	45	46	36	36	28	26	19	11	47	52	41	40	33	29	26	21
160	144	40	30	28	22	17	12	-	-	-	30	31	26	22	17	13	8	8
	288	80	41	37	28	22	18	15	10	-	41	39	32	27	22	21	16	12
	432	120	45	42	33	28	23	20	16	-	45	45	36	32	26	24	20	15
	576	160	45	44	35	31	28	24	20	13	48	49	39	35	31	29	25	23
	720	200	48	47	38	32	30	26	21	15	52	52	42	37	33	31	27	24
200	216	60	32	27	23	19	16	16	9	-	32	29	27	24	20	22	15	9
	432	120	39	36	30	23	20	22	15	-	40	38	33	28	25	27	21	13
	648	180	43	41	33	28	24	25	19	-	45	43	37	32	28	30	24	16
	864	240	44	44	37	33	28	28	21	11	49	47	40	35	31	34	27	20
	1080	300	47	47	40	36	31	31	24	14	52	51	43	37	34	34	29	23
	1296	360	49	49	43	38	34	34	27	16	55	55	40	39	37	36	31	26
250	360	100	34	29	25	22	18	25	17	-	34	31	28	27	22	30	23	10
	720	200	36	37	31	26	21	28	21	-	39	41	35	31	26	33	27	14
	1080	300	40	40	34	30	24	29	22	-	45	45	39	34	29	35	29	16
	1440	400	42	44	36	33	26	30	22	-	49	48	41	37	31	37	30	18
	1800	500	44	47	39	35	29	32	24	11	50	50	43	39	33	38	30	18
	2160	600	46	49	42	38	31	34	26	14	52	53	46	41	35	40	31	41
315	720	200	35	39	31	27	23	29	20	-	35	40	35	32	29	32	26	13
	1260	350	38	40	34	30	26	31	22	-	40	43	38	35	31	35	28	15
	1800	500	41	41	37	33	29	32	24	10	45	46	41	39	33	37	29	17
	2340	650	43	46	39	36	31	34	25	12	49	50	44	41	36	40	31	20
	2880	800	45	48	42	38	34	36	27	14	51	52	47	43	38	41	32	22
	3420	950	49	51	45	40	36	39	28	15	54	56	50	46	41	43	34	24
400	1080	300	38	42	35	32	28	29	19	10	38	43	36	36	32	34	26	16
	2160	600	41	45	38	35	32	33	23	11	42	47	41	40	36	38	29	18
	3240	900	44	49	41	39	36	37	27	15	46	51	46	44	40	42	32	22
	4320	1200	47	53	45	42	39	40	31	19	51	55	50	46	42	44	34	26
	5400	1500	50	55	48	44	41	42	33	22	54	57	52	48	44	46	36	28
	6480	1800	53	57	50	46	43	44	35	25	57	59	54	50	46	48	38	30
500	2160	600	42	50	41	37	34	37	25	16	44	51	46	41	39	40	27	18
	3600	1000	46	54	45	41	38	40	28	16	49	55	50	45	42	43	31	22
	5040	1400	50	58	49	45	42	43	31	20	54	60	54	49	45	47	35	27
	6480	1800	53	60	52	46	44	44	32	23	58	63	57	52	48	50	38	30
	7920	2200	55	62	54	48	46	46	33	25	60	65	59	54	51	52	40	32
	9360	2600	57	64	56	50	48	48	35	27	62	67	61	56	54	54	42	34
630	2880	800	46	54	46	42	40	44	31	21	48	58	56	45	44	45	30	21
	5760	1600	50	58	50	45	43	46	31	23	53	61	59	49	48	48	34	25
	8640	2400	53	61	54	47	45	48	32	25	57	64	61	53	51	51	38	29
	11520	3200	56	64	57	49	47	49	34	27	61	67	63	57	54	54	41	32
	14400	4000	59	67	60	52	50	50	35	28	65	70	65	60	56	57	44	35

EHS(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 (EHSS) or an insulated casing (EHSD).

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 EHSD has double walls and intermediate glass wool insulation with a minimum thickness of 50 mm 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.

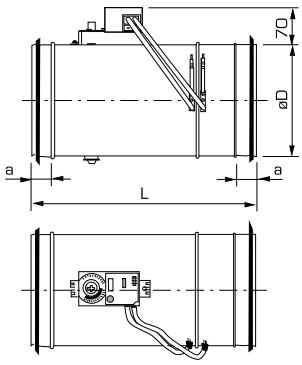
Air tightness class B in accordance with EN1751:1998.

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.

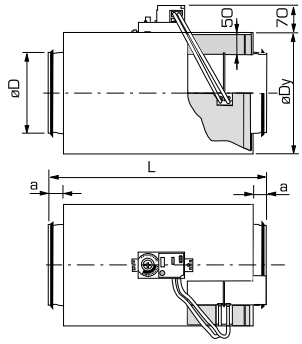
Dimensions and weights

EHSS (uninsulated)



Size	ØD [mm]	a [mm]	L [mm]	Weight [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

EHSD (insulated)



Size	ØD [mm]	ØDy [mm]	a [mm]	L [mm]	Weight [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

Flow variator, round **EHSS-a-bbb-c-d**
without insulation

Flow variator, round **EHSD-a-bbb-c-d**
with insulation

Actuator (a)
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 (bbb)
100, 125, 160, 200, 250, 315, 400, 500, 630

Material (c)
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 (d)
2 = CEN3

Accessories

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

See EMSS, EMSD technical catalogue.

Ordering codes for electrical and control equipment; see separate codes in the section "Optivent Control equipment".