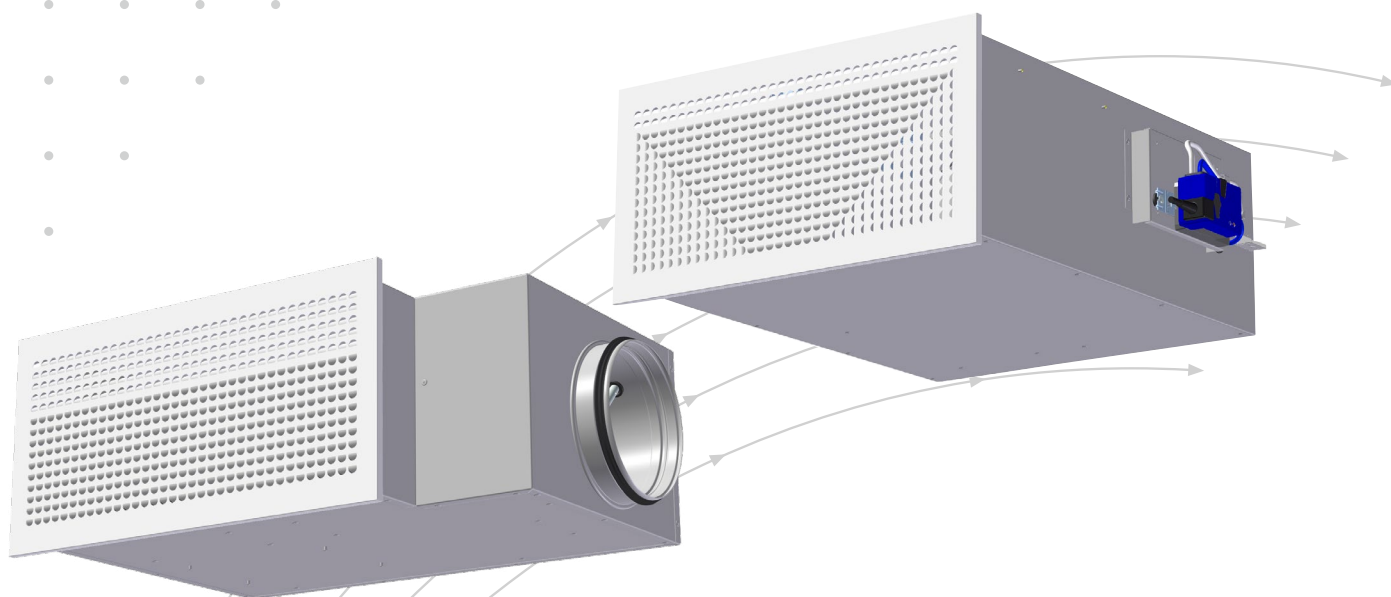


# Pegasus

## Wall diffuser with VAV function



- Unique damper function
- Large working range
- Can be used with internal linear regulator or external rotary regulator.

# TROX

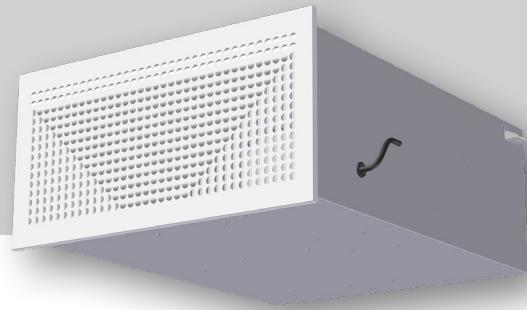
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# Pegasus



## APPLICATION

Pegasus is a wall diffuser unit with VAV function. It is used as a volume flow controller unit in demand controlled ventilation systems. Pegasus has very good induction, making it ideal for variable air flow rates.

## FUNCTION

Pegasus has a built-in VAV controller for the demand controlled adjustment of air flow rates. The damper solution will choke the pressure at high flow rates and maintain a low sound level. This may reduce the need for additional dampers and sound attenuators in a duct system. Pegasus can be delivered with several different bus options for SD systems.

Deviation for working range 10 - 20% of  $V_{nom}$ :  $\pm 25\%$   
20 - 40%: of  $V_{nom}$   $< \pm 10\%$   
40 - 100%: of  $V_{nom}$   $< \pm 4\%$

If T-pipes are used, a spacing of at least  $5 \times \text{ØD}$  is recommended in order to maintain the measurement accuracy.

## DESIGN

Pegasus is a complete measuring and control unit for the demand control of air flow rates in ventilation systems. The measuring station measures the differential pressure using measuring rods integrated into the unit. Pegasus is equipped with VAV regulators from Belimo or Siemens. Pegasus MI (motor inside) is supplied with a linear regulator from Belimo. Access to the engine is via the valve front. Pegasus MU (external motor) is supplied with rotating motor from Belimo or Siemens. When choosing the Pegasus MU, other engine variants can be delivered on request. The regulators specifications can be found in table 1. Complete technical documentation can be found on our website; [www.trox.no](http://www.trox.no). Pegasus has a removable front panel with a choice of LØV or Opus design. LØV has two different designs, long (L) or short (K) throw length. If the Opus design with turnable plastic nozzles is selected, (V) is the designation for the variable throw length.

## MATERIALS AND FINISH

Pegasus is made of galvanised steel. The measuring cross is made of aluminium, hoses and nipples are made of plastic. The damper is fitted with a polyester cloth.

The connection collar has an EPDM rubber gasket.

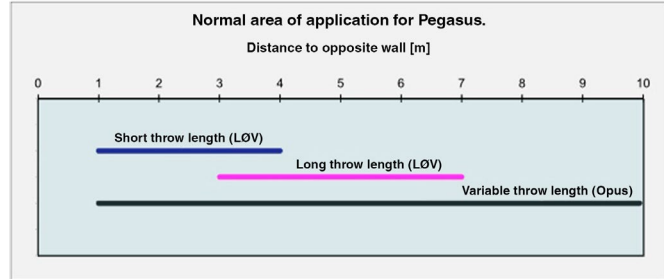
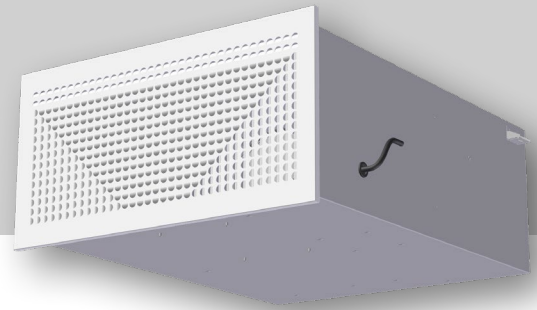
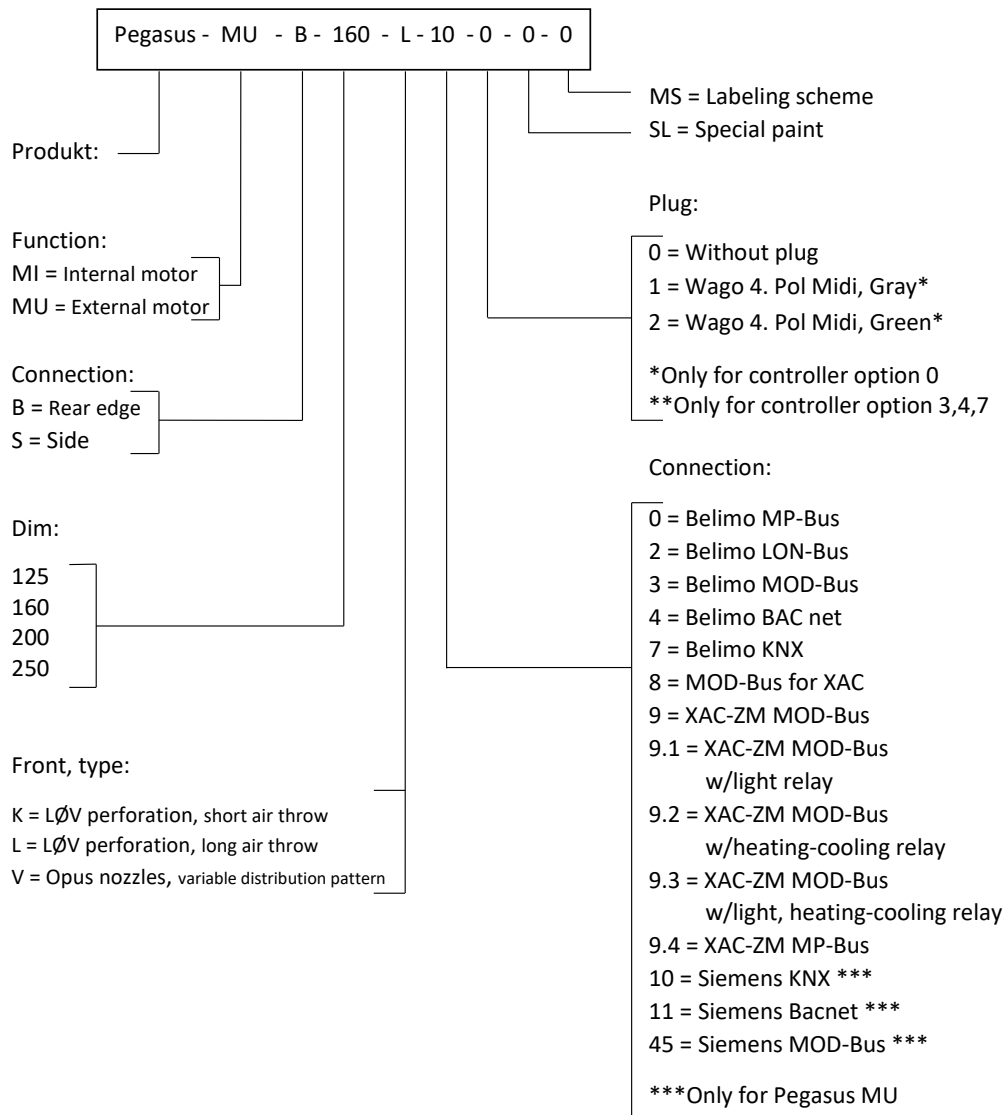


Figure 1

# Pegasus



## ORDER CODE, Pegasus



**Example:**

Pegasus-MU-B-L-160-10-0-0

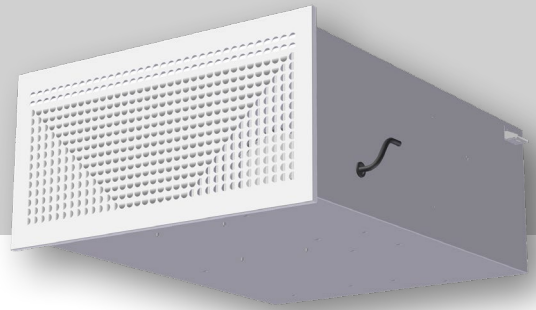
**Explanation:**

Pegasus with external motor and rear edge connection, dimension duct Ø160, LØV front with long air throw, with Siemens KNX, without special paint, without plug and without labelling scheme.

Produsent	Regulator code	Moment	Type	Operating voltage	Power consumption in operation	Dim.effect
Belimo	LHV-D3-MP/MOD/BAC/KNX	150 N	Lineær	AC/DC 24 V, 50/60 Hz	2,5W	4,5 VA (max. 8 A @ 5 ms)
Belimo	LMV-D3-MP/MOD/BAC/KNX	5 Nm	Roterende	AC/DC 24 V, 50/60 Hz	2W	4 VA (max. 8 A @ 5 ms)
Siemens	GDB181.1E/KN (KNX)	5 Nm	Roterende	AC 24 V, 50/60 Hz	2.5W	3 VA
Siemens	GDB181.1E/BA (Bacnet)	5 Nm	Roterende	AC 24 V, 50/60 Hz	2,5W	3 VA

Table 1: Technical specification

# Pegasus



## QUICK SELECTION PEGASUS LØV-B-K/L

Pegasus LØV-B-K/L	m³/h (open)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	158	194	241
160	277	335	403
200	331	396	475
250	594	706	832

## QUICK SELECTION PEGASUS LØV-B-K/L

Pegasus LØV-B-K/L	m³/h (75 Pa)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	169	202	245
160	248	324	378
200	331	403	475
250	497	648	792

## QUICK SELECTION PEGASUS LØV-S-K/L

Pegasus LØV-S-K/L	m³/h (open)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	169	205	252
160	274	335	407
200	342	410	490
250	518	630	763

## QUICK SELECTION PEGASUS LØV-S-K/L

Pegasus LØV-S-K/L	m³/h (75 Pa)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	166	209	234
160	238	320	396
200	288	385	486
250	439	630	738

## QUICK SELECTION PEGASUS OPUS-B

Pegasus Opus-B	m³/h (open)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	140	173	212
160	234	284	342
200	266	335	425
250	497	605	731

## QUICK SELECTION PEGASUS OPUS-B

Pegasus Opus-B	m³/h (75 Pa)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	140	169	212
160	212	270	338
200	292	349	428
250	371	580	724

## QUICK SELECTION PEGASUS OPUS-S

Pegasus Opus-S	m³/h (open)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	137	173	216
160	230	281	342
200	281	349	432
250	536	626	727

## QUICK SELECTION PEGASUS OPUS-S

Pegasus Opus-S	m³/h (75 Pa)		
	25 dB(A)	30 dB(A)	35 dB(A)
125	133	173	212
160	202	270	335
200	277	353	432
250	396	565	716

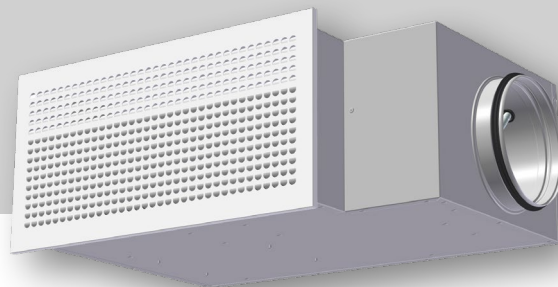
Table 2, Quick selection table Pegasus

## REGULATION RANGE, PEGASUS

Pegasus	(m³/h)	
	Minimum	Maximum
125	26	265
160	43	434
200	70	700
250	106	1060

Table 3, Adjustment range for VAV, air flow rate in m³/h.  
See calculation diagram for sound power level and pressure drop

# Pegasus



## DIMENSIONS AND WEIGHT, PEGASUS

Dim.	D	BF	HF	BK	BK2	HK	DB	DS	A	B	CB	CS	Weight [kg]
125	124	510	205	470	700	173	700	407	82	145	378	378	11
160	159	560	255	520	700	223	700	442	100	163	378	378	13
200	199	580	295	540	700	263	700	482	120	183	378	378	14.5
250	249	840	367	800	800	337	725	532	145	208	403	478	19

Table 4

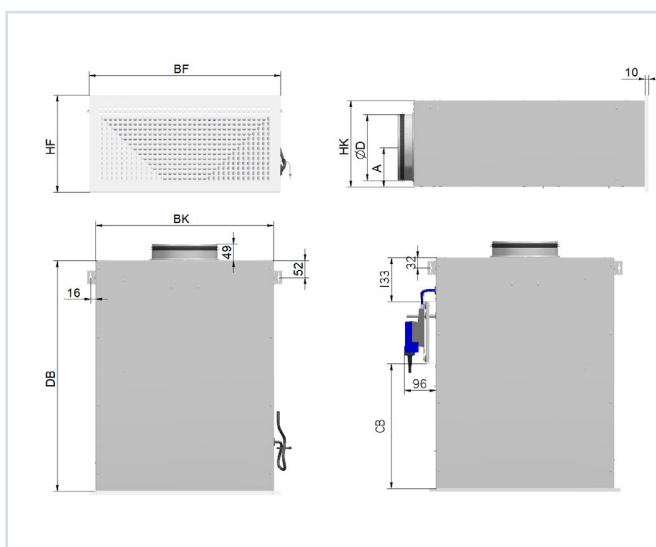


Figure 2, Dimensioned sketch Pegasus-B

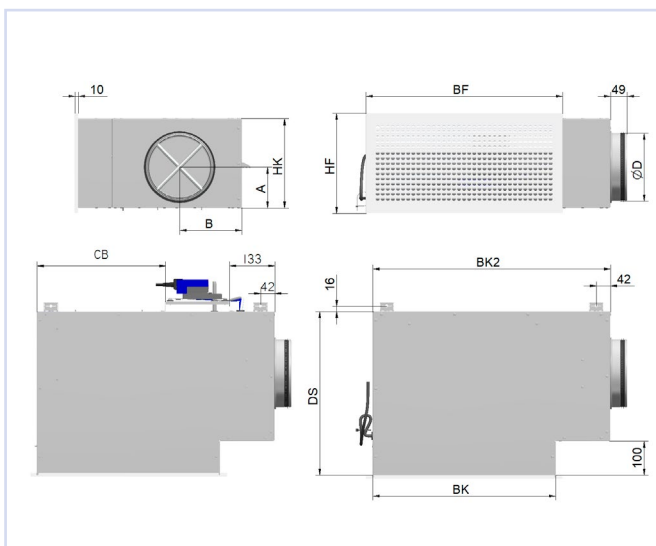


Figure 3, Dimensioned sketch Pegasus-S

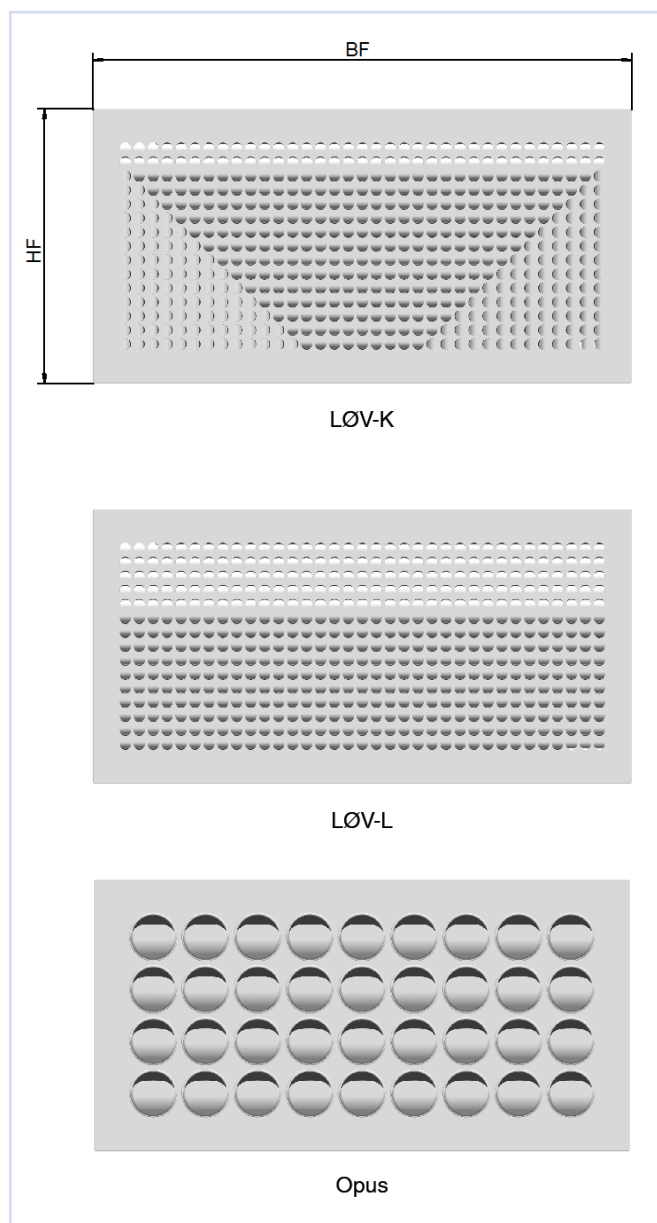
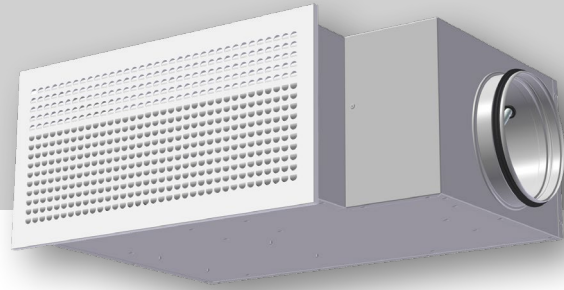


Figure 4, Pegasus fronts

# Pegasus



## ACOUSTIC DOCUMENTATION

The diagrams provide a summary of the A-weighted sound power level from diffuser,  $L_{WA}$ . The correction factors in tables 5 and 6 on page 10 are used to calculate the emitted sound power level at the respective frequencies,  $L_W = L_{WA} + KO$ . A room with absorption equivalent to 10 m<sup>2</sup> Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

Pegasus Ø160 with side connection and LØV front panel, desired air flow rate 90 l/s. From the diagram we find that  $L_{WA} = 29$  dB(A) with open damper and 50 Pa total pressure drop.

- Emitted sound power level at 250 Hz.
- A-weighted sound pressure level from the diffuser in an office with 4 dB room attenuation.
- A-weighted sound pressure level if the pressure drop increases by 25 Pa across the unit adjustment range.

## CALCULATION DIAGRAM

- The correction factor for 250 Hz is -1 dB. Emitted sound power level at 250 Hz is then:  
 $L_W = L_{WA} + KO = 29 + (-1) = 28$  dB
- With room attenuation equivalent to 4 dB, the A-weighted sound pressure level is:  
 $28 - 4 = 24$  dB(A)
- By following the line for 90 l/s in the diagram up to 75 Pa, 30 dB(A) = increase of 1 dB from the open position, i.e. the A-weighted sound pressure level is:  $24 + 1 = 25$  dB(A)

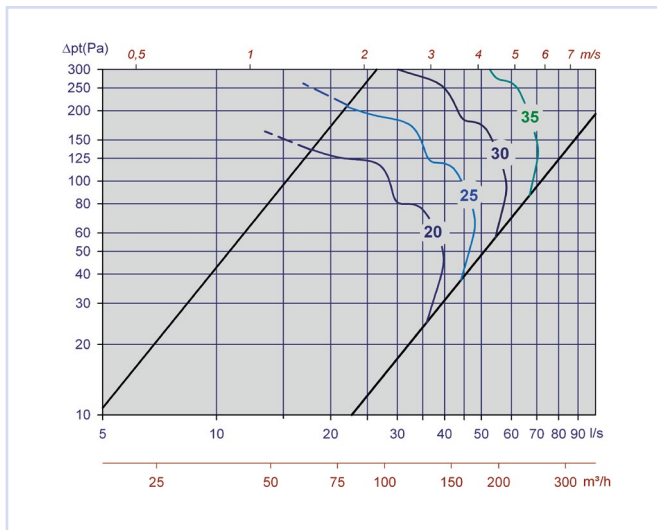


Diagram 1, Pegasus LØV 125-B

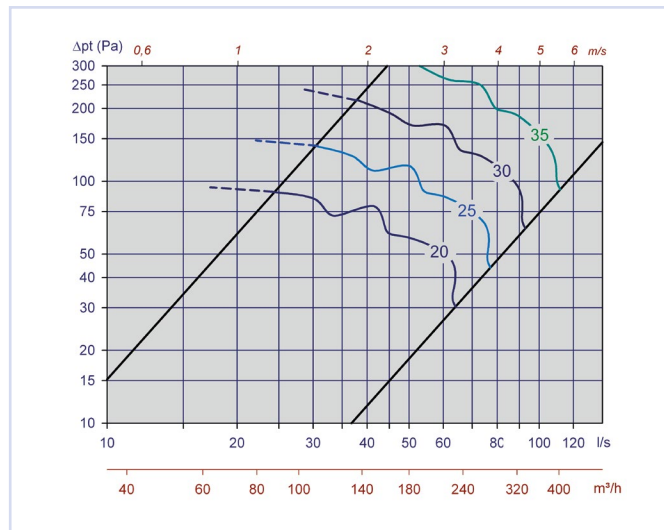


Diagram 2, Pegasus LØV 160-B

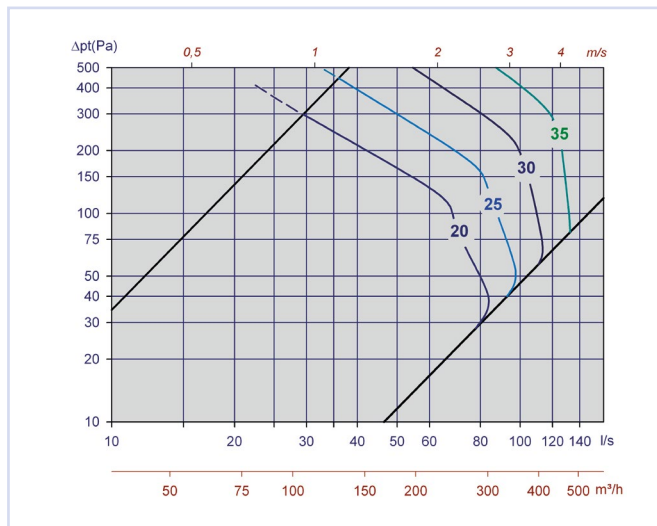


Diagram 3, Pegasus LØV 200-B

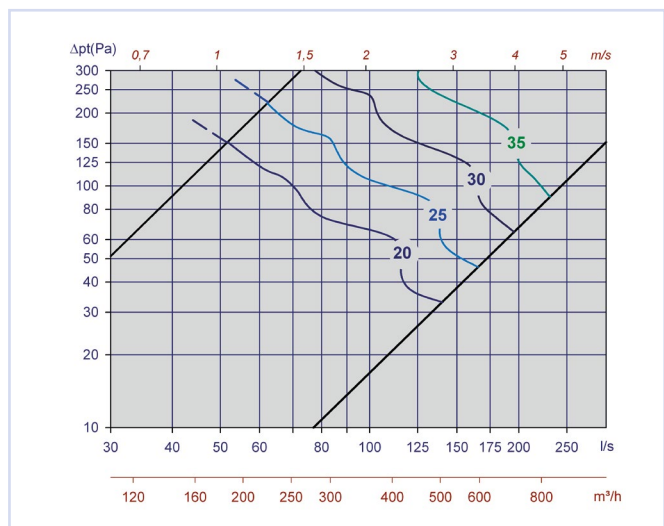
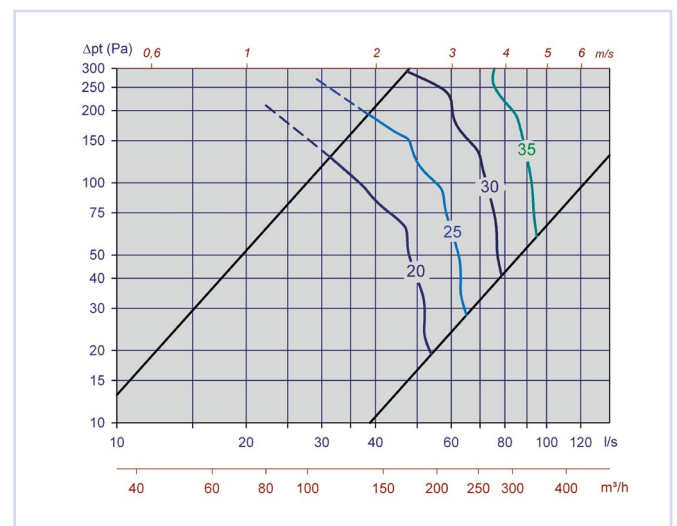
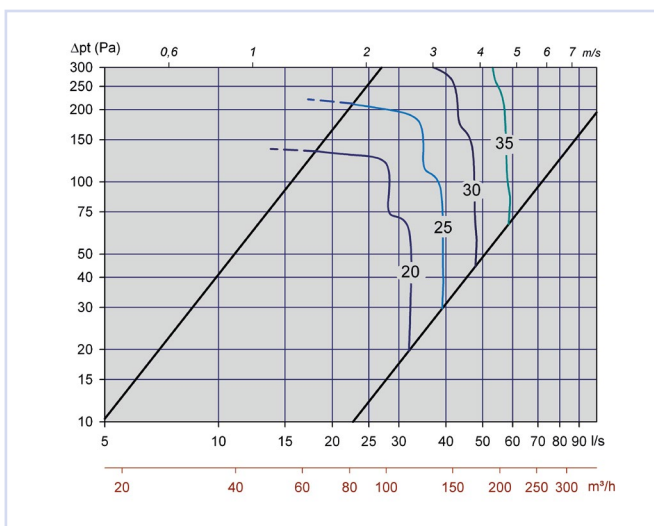
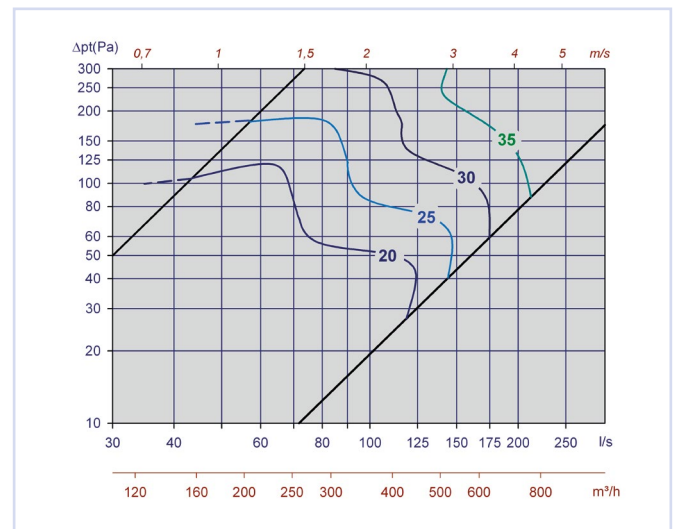
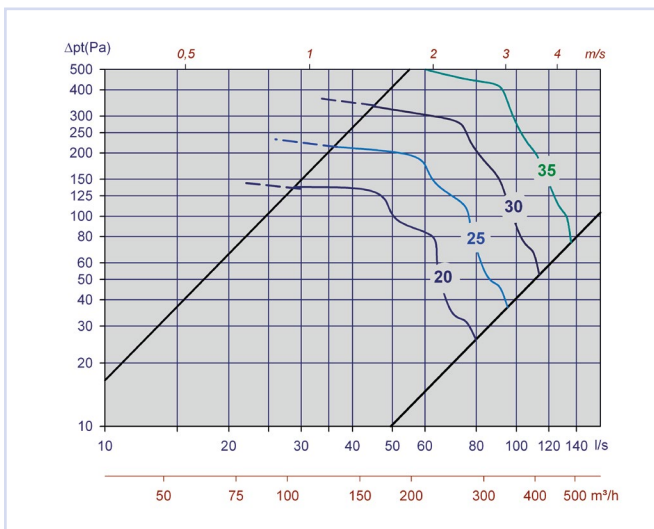
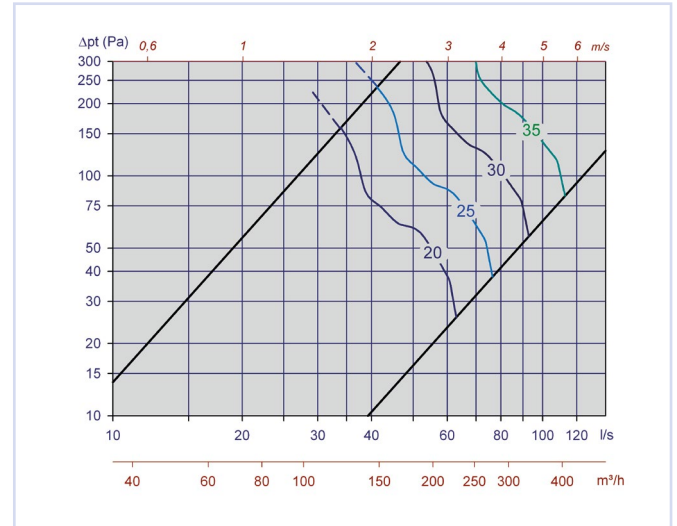
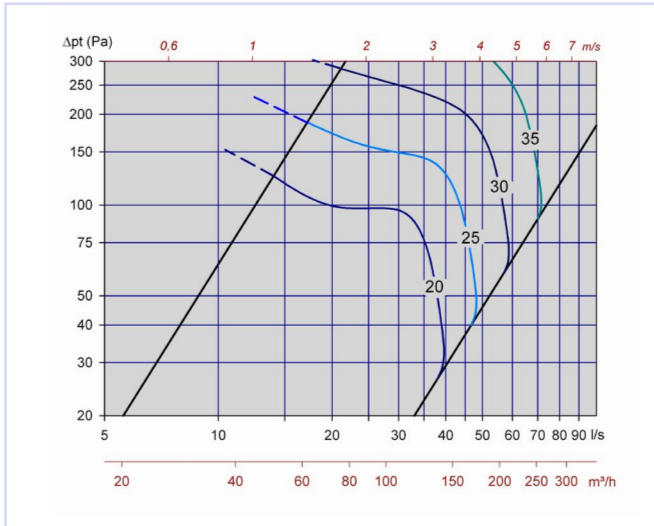


Diagram 4, Pegasus LØV 250-B



# Pegasus



# Pegasus

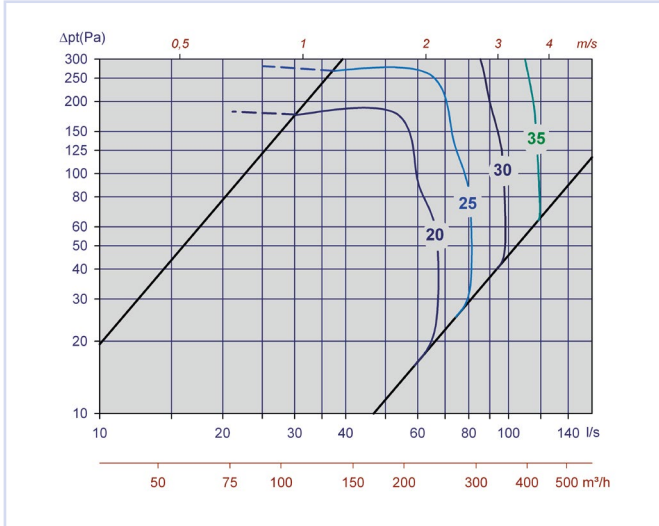


Diagram 11, Pegasus Opus 200-B

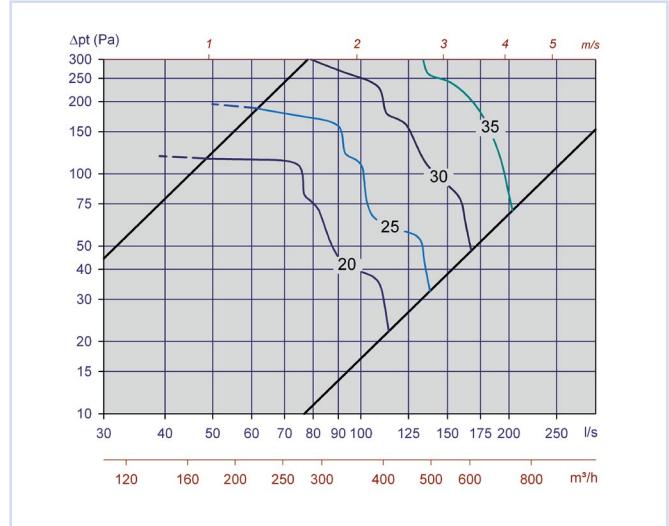


Diagram 12, Pegasus Opus 250-B

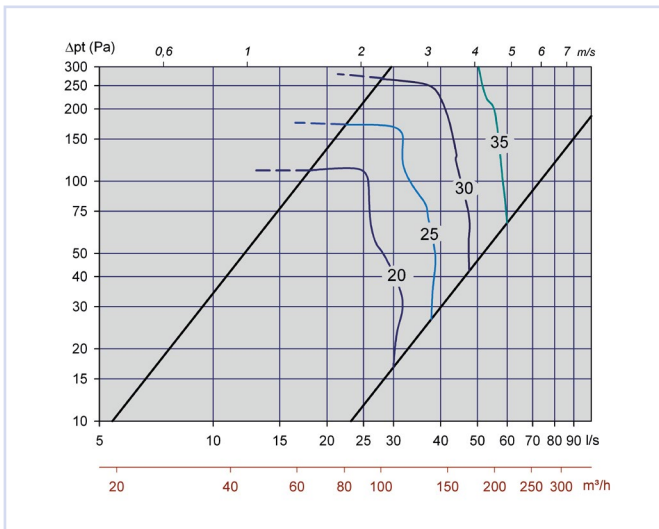


Diagram 13, Pegasus Opus 125-S

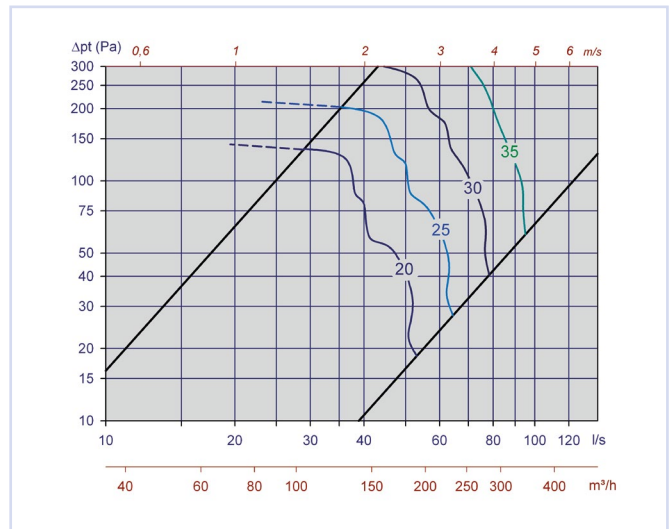


Diagram 14, Pegasus Opus 160-S

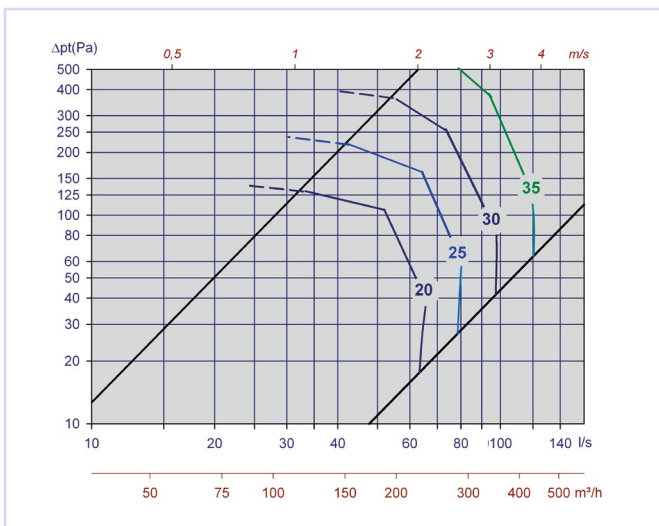


Diagram 15, Pegasus Opus 200-S

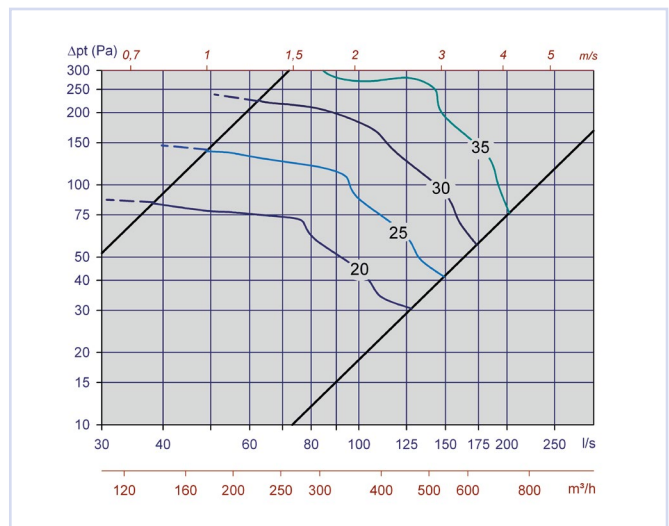


Diagram 16, Pegasus Opus 250-S



# Pegasus

## THROW LENGTH

Throw lengths can be dimensioned in our simulation program, Aurasim. [aurasim.no](http://aurasim.no)

## DISTRIBUTION PATTERN

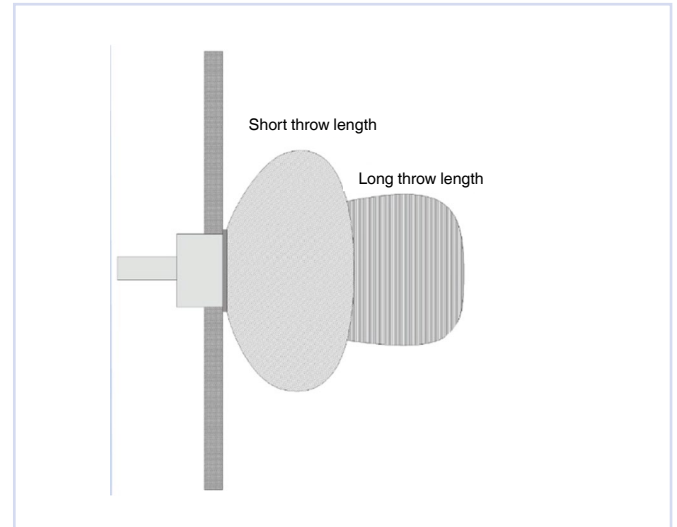


Figure 5, Example of flow pattern

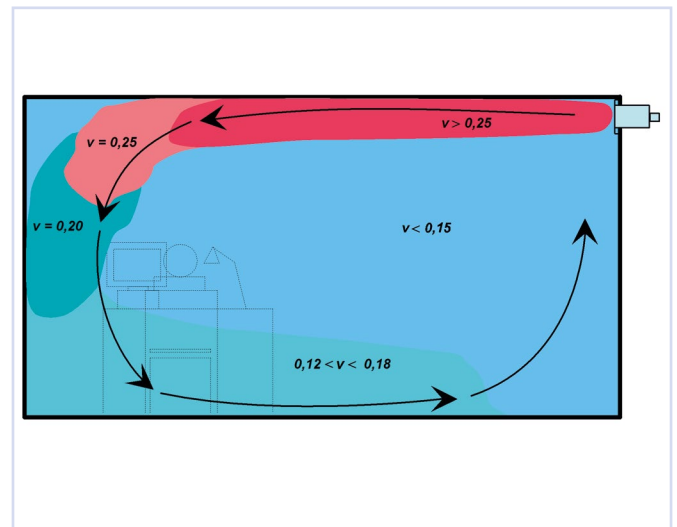


Figure 6, Example of velocity distribution

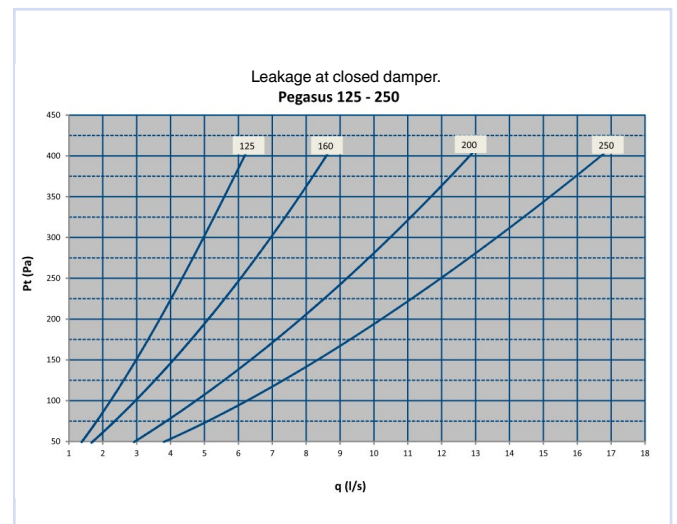


Figure 7, Leakage amount Pegasus

# Pegasus

## MOUNTING

Pegasus is installed as a rear diffuser in the rear of the unit using a suspension bracket and a threaded rod or strap, see figures 8 and 9.

The plenum box is installed in the cut-out and screwed to the studding. The adjustable installation frame is then pushed in and screwed to the plenum box. Finally, the front is pressed into position.

## ADJUSTMENT

Pegasus uses Belimo PC-tool or ZTH-GEN to make the necessary settings.

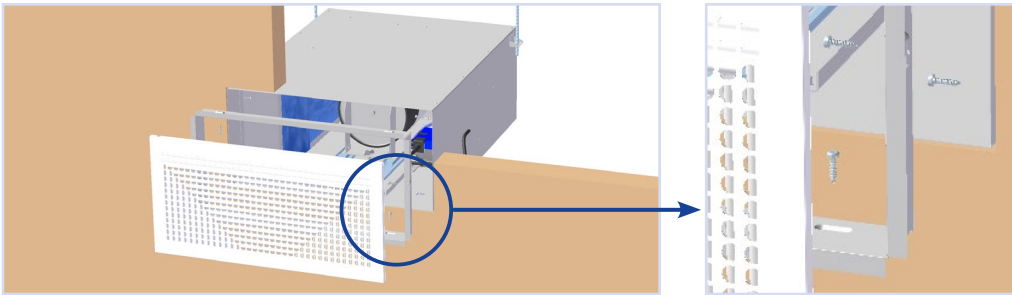


Figure 8, Pegasus-B installation

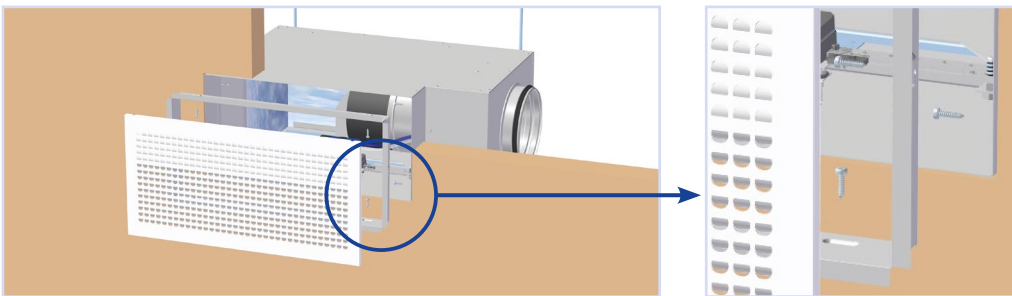


Figure 9, Pegasus-S installation

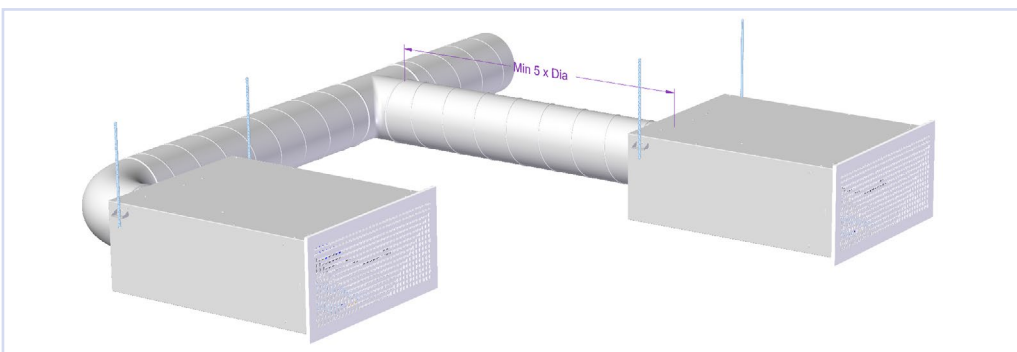


Figure 10, Pegasus-B installation duct system

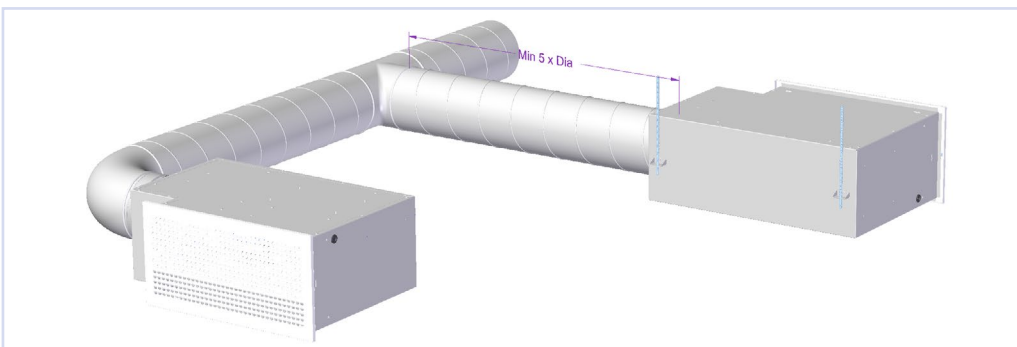


Figure 11, Pegasus-S installation duct system

# Pegasus

KO factors Pegasus LØV

Type	Position	Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
125-B	Open	0	-1	-2	-2	-6	-10	-11	-10
	Closed	4	-2	-6	-8	-8	-8	-6	-8
125-S	Open	-2	0	0	-3	-5	-11	-13	-10
	Closed	-2	-7	-6	-9	-8	-7	-5	-10
160-B	Open	4	1	-3	-3	-5	-11	-12	-10
	Closed	2	-5	-7	-9	-6	-7	-6	-10
160-S	Open	2	2	-1	-3	-5	-11	-12	-10
	Closed	6	3	0	-5	-6	-11	-9	-8
200-B	Open	3	2	-1	-2	-5	-9	-11	-10
	Closed	4	1	-3	-7	-6	-8	-8	-10
200-S	Open	3	1	-2	-2	-5	-10	-13	-11
	Closed	3	1	-3	-9	-6	-8	-7	-10
250-B	Open	1	1	-2	-2	-5	-13	-13	-10
	Closed	2	-1	-3	-7	-8	-10	-7	-5
250-S	Open	3	2	-1	-1	-6	-14	-13	-10
	Closed	4	3	-2	-6	-7	-11	-8	-6

Table 5

KO factors Pegasus Opus

Type	Position	Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
125-B	Open	5	3	-2	-2	-5	-12	-13	-11
	Closed	4	-1	-4	-7	-8	-8	-6	-7
125-S	Open	5	4	0	-3	-6	-13	-13	-9
	Closed	3	-1	-4	-7	-8	-9	-5	-9
160-B	Open	5	3	-2	-2	-6	-14	-13	-9
	Closed	6	0	-5	-8	-7	-9	-5	-9
160-S	Open	5	6	1	-3	-7	-14	-13	-10
	Closed	4	1	-3	-7	-6	-9	-7	-8
200-B	Open	5	5	1	-2	-5	-13	-12	-10
	Closed	5	2	-2	-5	-6	-7	-10	-8
200-S	Open	6	5	0	-2	-6	-14	-13	-10
	Closed	5	3	-2	-7	-7	-8	-8	-7
250-B	Open	4	3	-1	-2	-6	-15	-13	-9
	Closed	4	0	-2	-7	-9	-11	-7	-4
250-S	Open	4	3	-1	-1	-5	-15	-15	-11
	Closed	1	-3	-5	-9	-6	-8	-6	-8

Table 6

Pegasus-LØV attenuation figure									
Dim.	Spigot	63	125	250	500	1k	2k	4k	8k
125	rear	21	12	18	11	8	8	9	13
	side	23	10	16	16	11	12	15	19
160	rear	16	12	16	9	7	8	11	15
	side	18	10	15	14	11	13	15	19
200	rear	21	10	16	8	7	9	12	14
	side	19	9	17	12	10	13	15	17
250	rear	11	9	14	6	7	10	11	13
	side	11	8	12	11	11	13	14	18

Table 7, static sound attenuation incl. end reflection Pegasus-LØV

Pegasus-Opus attenuation figure									
Dim.	Spigot	63	125	250	500	1k	2k	4k	8k
125	rear	15	17	19	13	9	10	14	17
	side	17	13	16	16	11	16	16	22
160	rear	15	15	17	10	8	10	13	18
	side	17	11	16	15	12	15	17	21
200	rear	18	12	16	9	9	11	14	16
	side	17	10	17	13	11	15	16	21
250	rear	11	8	14	7	8	11	13	16
	side	11	9	15	11	10	13	14	18

Table 8, static sound attenuation incl. end reflection Pegasus-Opus

## MAINTENANCE

There are no specific maintenance requirements.

## ENVIRONMENT

Inquiries regarding the product declaration can be directed to our sales team, or information can be found on our website: [www.trox.no](http://www.trox.no)

Pegasus is developed and produced by:

The company reserves the right to make amendments without prior notice.

# TROX

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