GB0622
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Opus-K/KH

Rectangular diffuser

- Front with adjustable Opus nozzles
- Flush mounting
- Removable front panel
- Data provided with Luna plenum box
- Box lined with Ecoson attenuation material

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Opus-K and Opus-KH

APPLICATION

Opus-K/KH is a rectangular supply diffuser with adjustable nozzles for ceiling mounting. With the adjustable Opus-nozzle solution, the flow pattern can be regulated and set as required.

DESIGN

Opus-K/KH features a front panel with adjustable Opus nozzles. Rotational pattern is supplied as standard. Other flow patterns are available on request. The diffuser is equipped with removable front and diffuser plate for easy access to the duct. Opus-K is intended for fixed ceiling mounting and Opus-KH is supplied with ceiling plate for installation in modular ceiling systems.

MATERIALS AND SURFACE COATING

The diffuser is made of galvanised steel and the connection collar is fitted with an EPDM rubber gasket. Front panel and ceiling plate come in a RAL 9010 finish. Opus nozzles are in plastic. Black RAL 9005 and aluminium RAL 9006 can be supplied on request. Other colours are also available, but without the adjustable nozzle option.

QUICK SELECTION

Opus-K/KH	[m^3/h]		
Dim.	25 dB(A)	30 dB(A)	35 dB(A)
160	96	118	146
200	162	196	236
250	268	320	382
315	339	411	497
400	464	547	641

Table 1. The table shows air flow rates at given sound power levels.

ORDER CODE, Opus-K/KH

Opus-KH-160-0

Product:
K = Square
KH = Complete with ceiling plate 600x600

SL = Special finish

Dimension: Ø160 – Ø400

Example:
Opus-KH-160-0
Explantation:
Complete Opus-KH dimension 160 for installation in modular ceiling system 600x600

ORDER CODE, Luna

Luna-0-0-125-160

Product:
UI = Outlet installed, low profile design
I = Insulated

Dimension outlet: Ø160 – Ø400
Dimension inlet: Ø100 – Ø315

Example:
Luna-0-0-125-160
Explantation:
Luna plenum box with inlet Ø125 and outlet Ø160

DIMENSIONS AND WEIGHT, Opus-K og Opus-KH

Dim.	DA	B	C	E	F	G	Weight Opus-K/ Opus-KH [kg]
160	159	100	388	360	115	160	6,6 / 8,0
200	199	100	388	360	115	160	8,3 / 9,7
250	249	110	550	525	125	170	12,7 / 13,4
315	314	110	550	525	125	170	14,7 / 15,4
400	399	110	550	525	125	170	14,7 / 15,4

Table 2

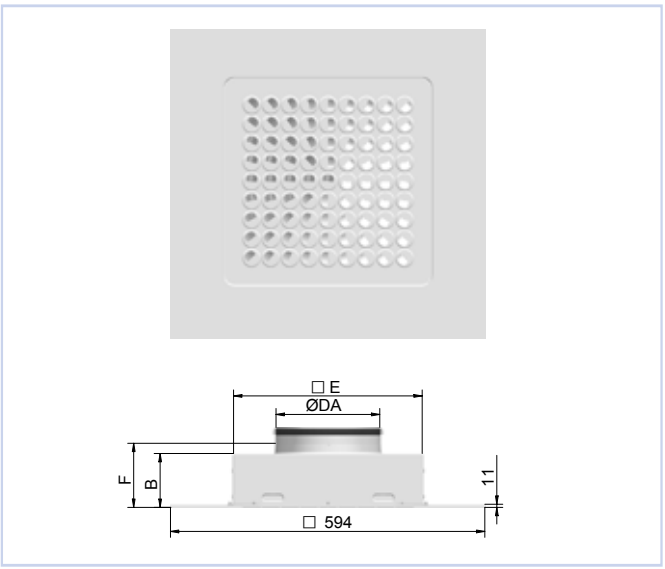


Fig.1, Opus-KH

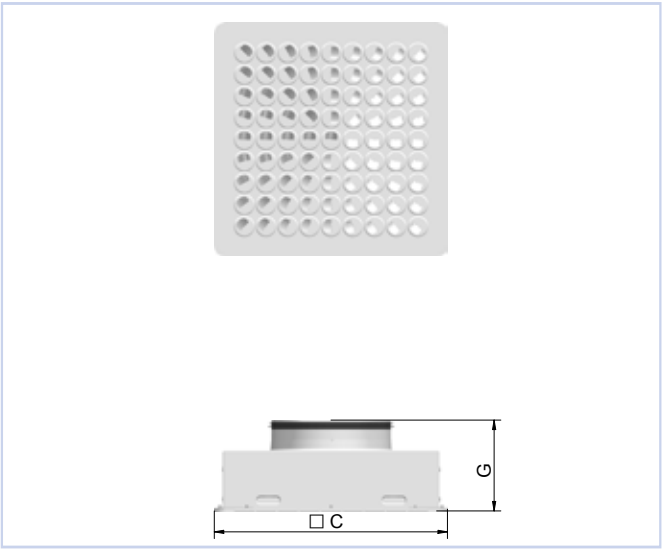


Fig. 2, Opus-K

Opus-K and

Opus-KH with plenum box

APPLICATION

The Luna plenum box is recommended for improved sound attenuation, and provides an adjustment and measurement option. Luna is a rectangular box with a removable damper providing access to the connecting duct. The damper can be locked in the position required.

DESIGN

The Luna plenum box features a damper and measuring outlet for commissioning. It is insulated with Ecoson and is available with one or two dimensional changes between inlet and outlet. Furthermore, the box can be supplied with external condensation insulation. **A low-profile design [UI]** is also available, and **for this version a reduction in capacity of approx. 20% will apply.** The distance between diffuser and box can be increased by up to 35 cm without extending the wire and measuring tube.

MATERIALS AND SURFACE COATING

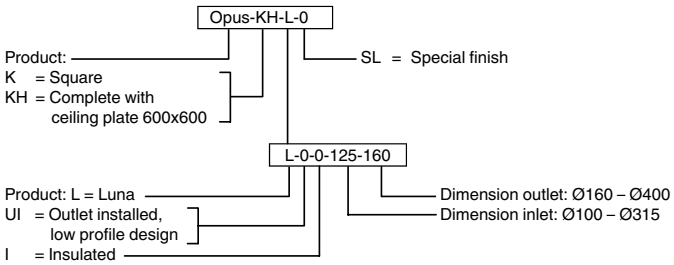
Luna is supplied in a galvanised finish, and with four internal walls lined with Ecoson fibre-free insulation. The connection collar is fitted with an EPDM rubber gasket.

QUICK SELECTION

Opus-K/KH	Luna	[m³/h]		
Dim.	Dim.	25 dB(A)	30 dB(A)	35 dB(A)
160	125-160	99	121	146
200	160-200	153	185	225
250	200-250	236	277	324
315	250-315	306	371	446
400	315-400	-	569	648

Table 3: The table shows air flow rates at given sound power levels and 50 Pa total pressure loss.

ORDER CODE, Opus-K/KH with Luna



Example:
Opus-KH-L-0-0-125-160-0
Explantation:
Opus-KH for installation in modular ceiling system and Luna plenum box inlet Ø125 and outlet/diffuser dim. Ø160.

DIMENSIONS AND WEIGHT, Luna

Dim.	D	DA	B	H	H1	H2	L	L1	L2	Weight Luna [kg]
100-160	99	162	220	122	272	150	360	310	150	2,4
125-160	124	162	250	147	297	150	360	335	150	2,9
125-200	124	202	250	147	297	150	400	355	170	3,1
160-200	159	202	340	182	332	150	400	390	170	4,2
160-250	159	252	340	182	342	160	452	415	198	4,6
200-250	199	252	380	222	382	160	452	460	198	5,7
200-315	199	317	380	222	382	160	515	485	228	6,1
250-315	249	317	390	272	432	160	515	535	228	7,4
250-400	249	402	390	272	360	88	515	535	228	7,4
315-400	314	402	500	337	425	88	600	655	260	11

Tabell 4

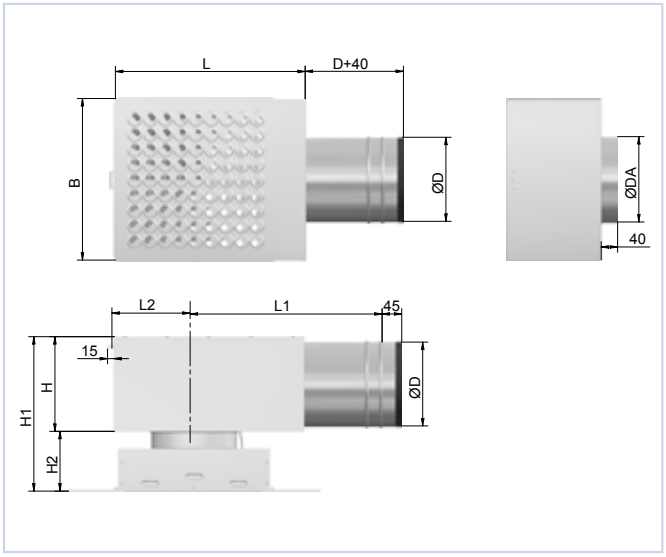


Fig. 3

Opus-K and Opus-KH

ACOUSTIC DATA

The diagrams provide a summary of the A-weighted sound power level from diffuser, L_{WA}. Correction factors in table 6, page 6, are used to calculate emitted sound power level at the respective frequencies, $L_W = L_{WA} + KO$. The sound pressure level in a room with absorption equivalent to $10m^2$ Sabine will be 4 dB below the sound power level emitted..

Example:
Opus-K with Luna 125-200. Desired air flow rate 45 l/s.
From diagram 3 we find that L_{WA} = 28 dB(A) with open damper and 30 Pa total pressure loss. We would like to find the following data:

a) Emitted sound power level at 250 Hz
b) A-weighted sound pressure level in an office
c) A-weighted sound pressure level in an office at 50 Pa total pressure loss (i.e. the unit's damper choked 20 Pa)
   a) The correction factor is 2 dB. Emitted sound power level at 250 Hz is thus: $L_W = L_{WA} + KO = 28 + 2 =$ 30 dB
   b) If we assume a room absorption equivalent to $10m^2$ Sabine, A-weighted sound pressure level will be: 28 – 4 = 24 dB(A)
   c) Tracing the 35 l/s line in the diagram up to 50 Pa gives a reading of 32 dB(A) = increase of 2 dB, and A-weighted sound pressure level will thus be 26 dB(A)

CALCULATION DIAGRAMS

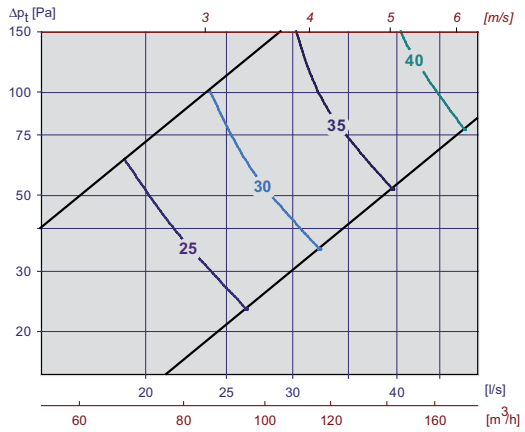


Diagram 1, Opus-K/KH w/Luna 100-160

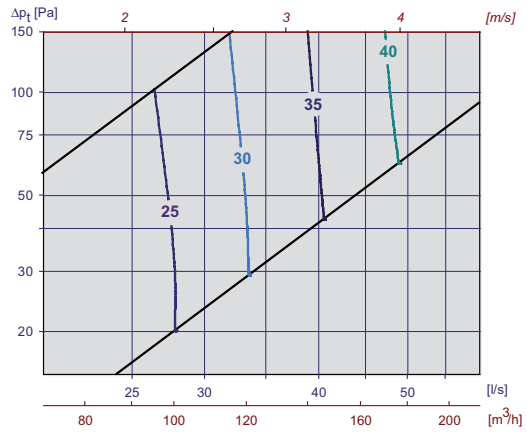


Diagram 2, Opus-K/KH w/Luna 125-160

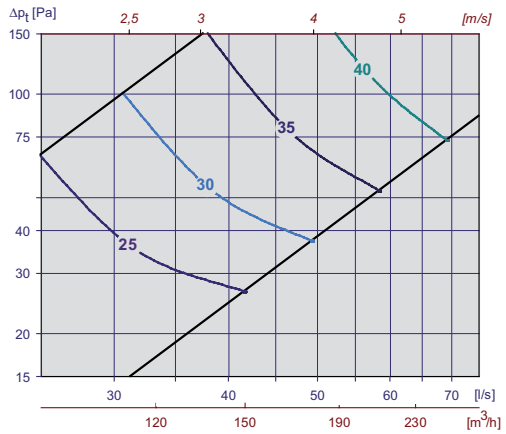


Diagram 3, Opus-K/KH w/Luna 125-200

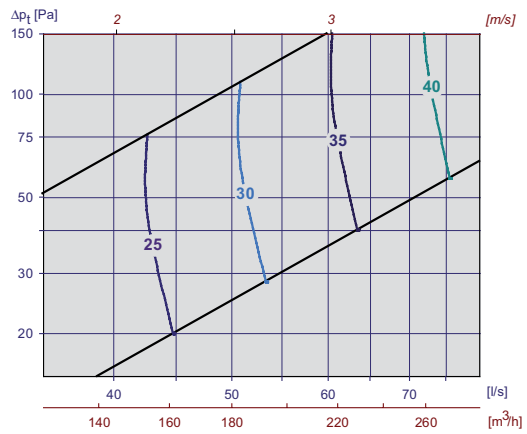


Diagram 4, Opus-K/KH w/Luna 160-200

Opus-K and Opus-KH

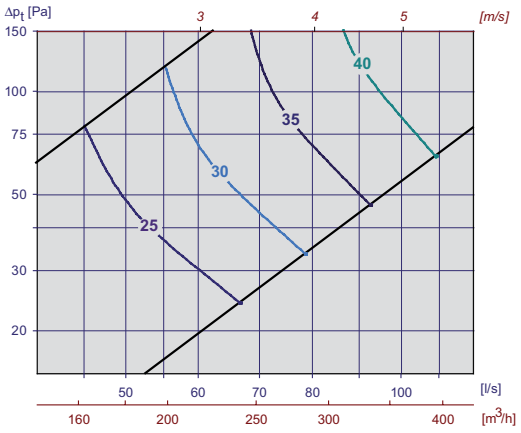


Diagram 5, Opus-K/KH w/Luna 160-250

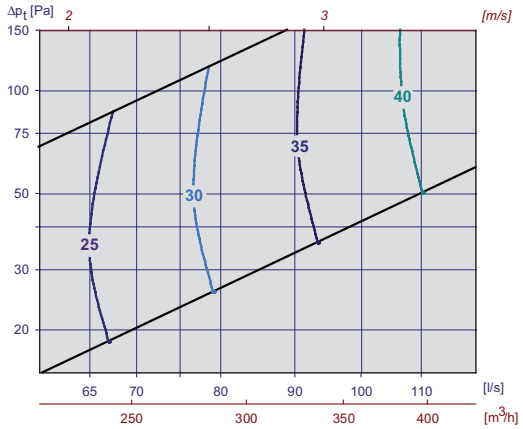


Diagram 6, Opus-K/KH w/Luna 200-250

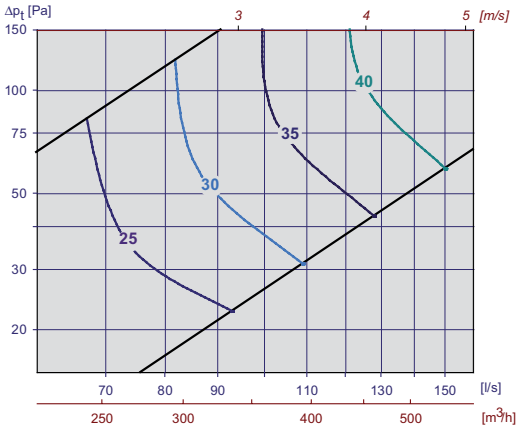


Diagram 7, Opus-K/KH w/Luna 200-315

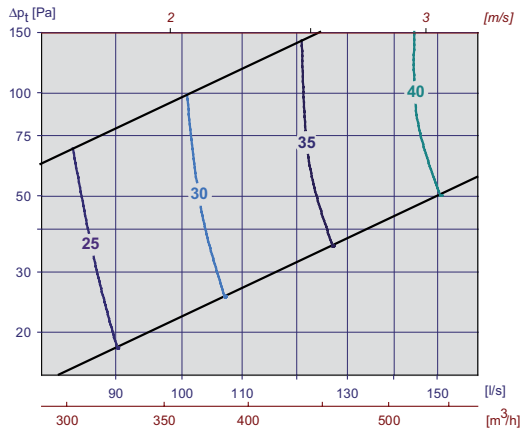


Diagram 8, Opus-K/KH w/Luna 250-315

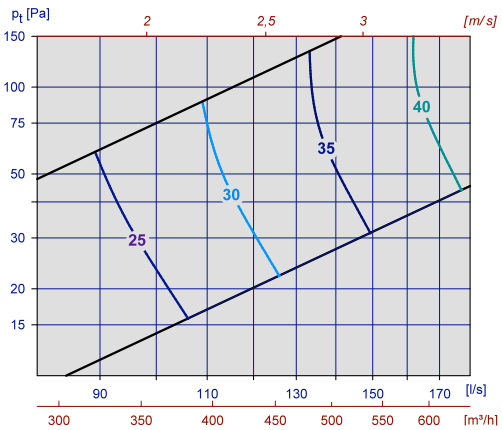


Diagram 9, OPUS-K/KH w/Luna 250-400

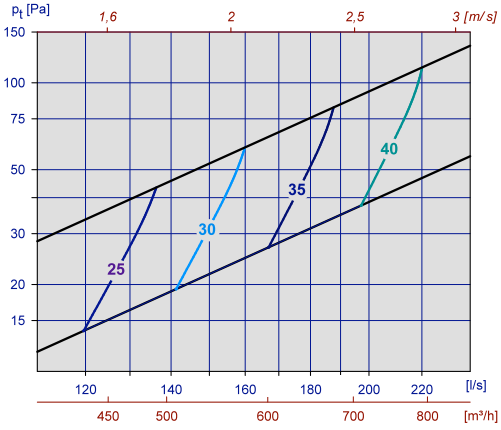


Diagram 10, OPUS-K/KH w/Luna 315-400

Opus-K and Opus-KH

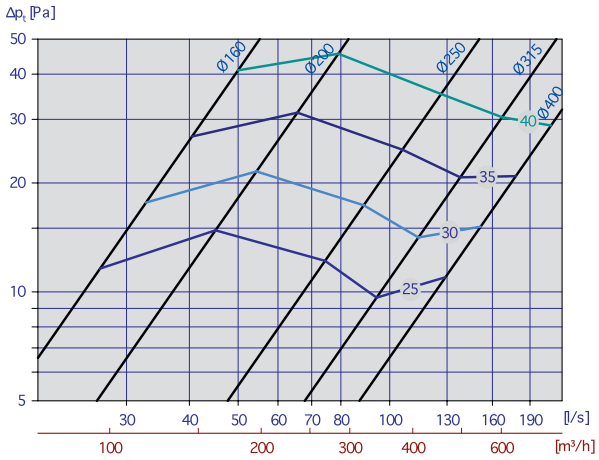


Diagram 11, capacity diagram for Opus-K/KH at duct end.

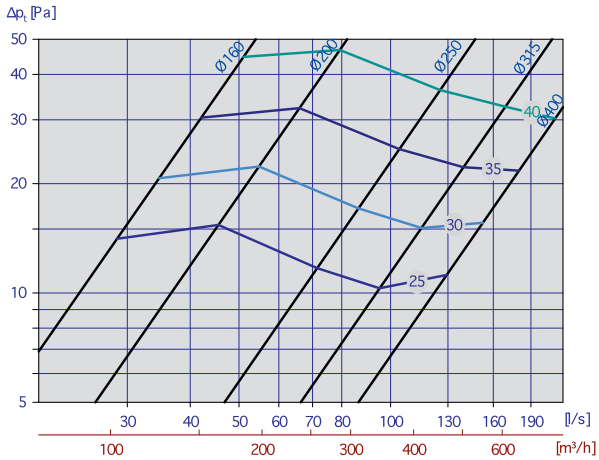


Diagram 12, capacity diagram for Opus-K/KH at 900 bend.

Static sound attenuation incl. end reflection, Opus-K/KH with Luna

Opus-K/KH	Luna	Attenuation [dB]							
Dim.	Dim.	63	125	250	500	1k	2k	4k	8k
160	100-160	25	12	12	15	23	24	18	17
	125-160	20	13	10	14	22	20	17	17
200	125-200	23	9	9	12	24	19	15	16
	160-200	18	13	13	15	24	15	19	19
250	160-250	18	12	10	15	17	12	11	2
	200-250	18	12	11	18	20	14	16	18
315	200-315	18	11	11	14	19	13	17	17
	250-315	16	10	10	14	17	13	16	17
400	250-400	15	9	10	12	15	11	15	15
	315-400	14	8	9	11	14	10	11	13

Table 5

Correction factor [KO], Opus-K/KH with Luna

		KO [dB]															
Opus-K/KH	Luna	Damper closed								Damper open							
Dim.	Dim.	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
160	100-160	0	5	4	-2	-10	-12	-12	-14	-1	4	3	-1	-8	-13	-22	-23
	125-160	-9	1	1	-1	-8	-11	-12	-11	-7	0	0	0	-6	-12	-20	-23
200	125-200	0	4	3	-2	-10	-9	-12	-13	0	2	2	-1	-7	-11	-22	-21
	160-200	-1	2	0	-1	-7	-11	-13	-13	1	1	-1	0	-6	-13	-22	-22
250	160-250	-3	2	1	-6	-9	-7	-8	-9	0	4	2	0	-7	-13	-22	-20
	200-250	0	3	1	-1	-8	-11	-14	-14	-3	-1	-1	-1	-6	-9	-21	-25
315	200-315	-1	2	0	-4	-8	-7	-10	-10	0	2	0	0	-6	-12	-22	-21
	250-315	1	3	-1	-1	-7	-11	-15	-14	0	2	-1	0	-6	-13	-22	-22
400	250-400	1	2	-3	-3	-9	-11	-8	-5	-5	1	-3	0	-6	-4	-16	-14
	315-400	-4	-0	4	0	-6	-12	-12	-12	-5	0	-4	0	-5	-13	-16	-15

Table 6

Opus-K and Opus-KH

Static sound attenuation incl. end reflection, Opus-K/KH

Opus-K/KH	Attenuation [dB]							
Dim.	63	125	250	500	1k	2k	4k	8k
160	19	11	7	9	8	6	7	5
200	18	11	5	3	7	5	7	5
250	15	8	3	6	3	4	7	4
315	14	7	3	3	3	5	7	4
400	11	6	2	3	2	2	5	3

Table 7

Correction factor [KO], Opus-K/KH

Opus-K/KH	KO [dB]							
Dim.	63	125	250	500	1k	2k	4k	8k
160	-3	-5	2	0	-6	-13	-20	-24
200	-9	-5	0	0	-5	-12	-21	-25
250	-1	-2	1	0	-7	-14	-22	-21
315	-7	-6	-2	0	-5	-11	-21	-27
400	-3	-4	-3	0	-5	-12	-15	-16

Table 8

THROW LENGTHS

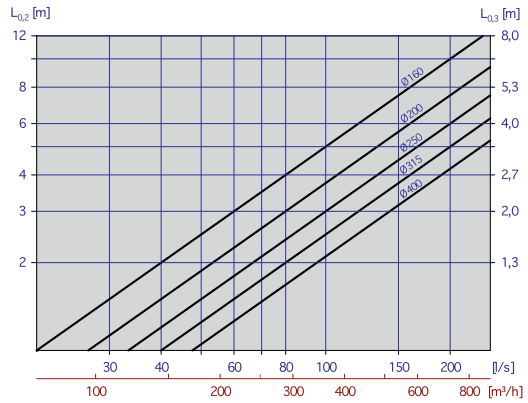


Diagram 13, Opus-K/KH rotation.

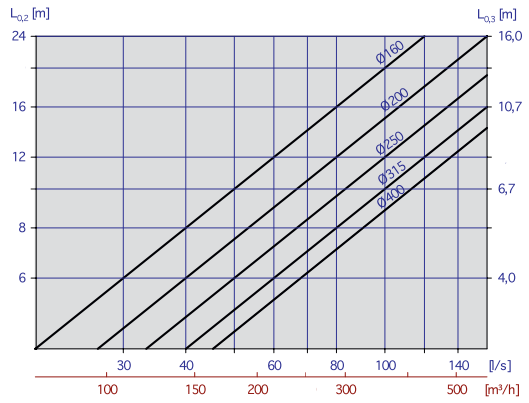


Diagram 14, Opus-K/KH one-way.

FLOW PATTERN

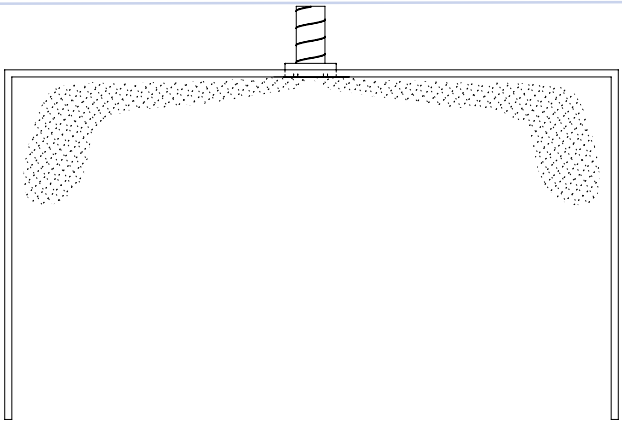


Fig. 4

Opus-K and Opus-KH

INSTALLATION

When mounted in fixed ceiling or inserted in ceiling plate, Opus-K is attached by means of two mounting brackets (fig. 5). For installation in modular ceiling systems, use of Opus-KH is recommended. If a Luna plenum box is used, this is attached to the rear of the support bracket by means of threaded rod or strap (fig. 6).

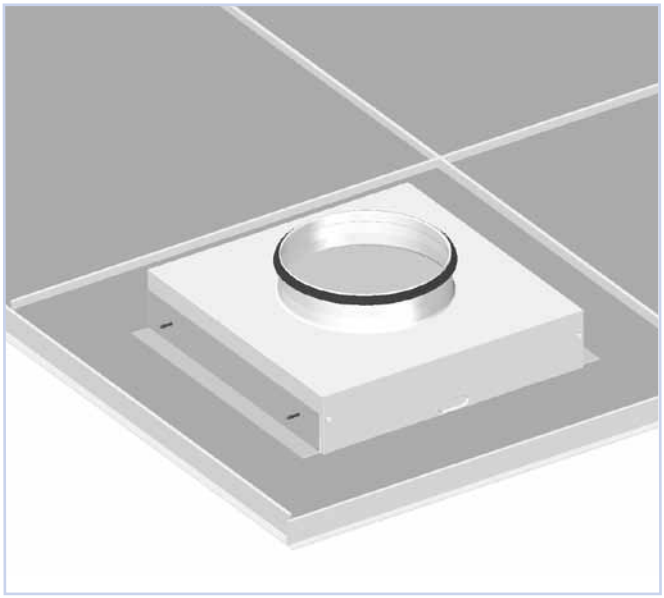


Fig. 5. Installation

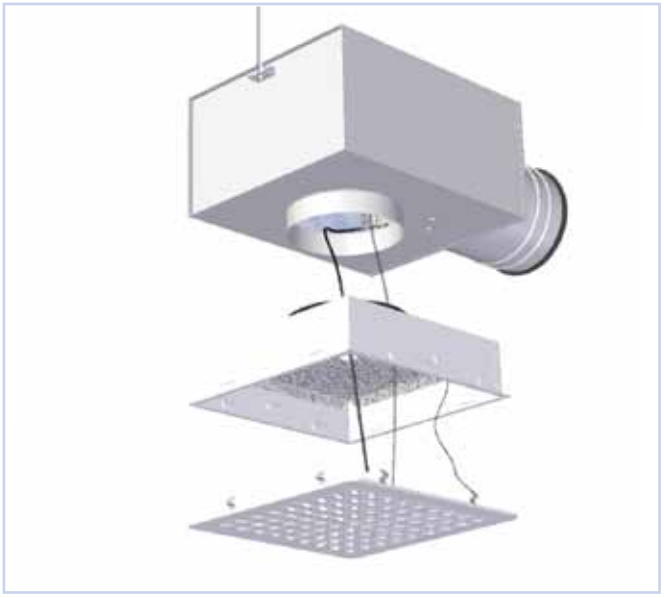


Fig. 6.Installation

COMMISSIONING

During commissioning, the diffuser front must be in place. Measuring tube and adjustment wire are pulled through one of the nozzles at the front. The damper is locked by using a clamping nut on the wire. Correction factors for calculation of air flow rates can be found on the label inside the diffuser, or in our adjustment guide at our website: www.trox.no

MAINTENANCE

The diffuser is to be cleaned with a damp cloth. When cleaning the duct network, the diffuser front and plate are to be removed in order to gain access to the duct. If Luna is used, diffuser plate and damper are to be removed in order to gain free access to the duct.

ENVIRONMENT

Enquiries regarding product declaration can be directed to our sales team, or information can be found at our website: www.trox.no

Opus-K and Opus-KH is developed and manufactured by:

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

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