

Opus-R

Circular diffuser



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

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Opus-R



APPLICATION

Opus-R is a circular supply diffuser with adjustable nozzles for ceiling mounting. It can be installed in fixed ceilings or supplied with ceiling plate for use in various modular ceiling systems. With the adjustable Opus-nozzle solution, the flow pattern can be regulated and set as required.

DESIGN

Opus-R features a front panel with adjustable Opus nozzles. Rotational pattern is supplied as standard, and other flow patterns are available on request. The diffuser is fitted with a removable front which provides access to the duct for cleaning purposes. HLØ ceiling plate for installation in modular ceiling systems is optional. A version without removable front for modular ceiling systems, Opus-RH, is also available.

MATERIALS AND SURFACE COATING

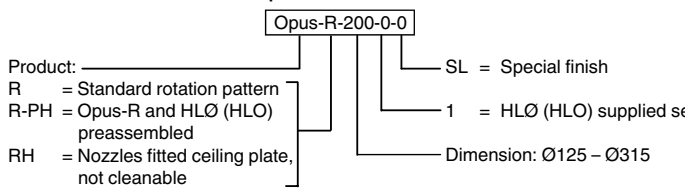
Both the diffuser front and ceiling plate are in a steel design. Opus-nozzles are in ABS plastic. The diffuser body is in aluminium and is fitted with an EPDM rubber gasket at the connection collar. All internal and external diffuser elements come in a RAL 9010 finish. Black RAL 9005 and aluminium 9006 are available on request. Other colours can be supplied, but without the nozzle adjustment option.

QUICK SELECTION

Opus-R Dim.	[m ³ /h]		
	25 dB(A)	30 dB(A)	35 dB(A)
125	72	85	101
160	126	147	177
200	154	180	211
250	224	267	319
315	242	291	350

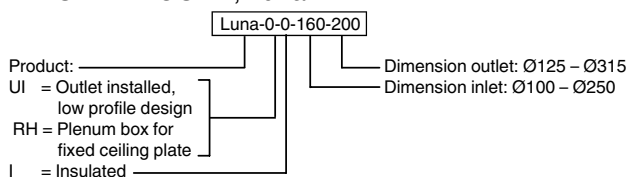
Table 1: The table shows air flow rates at given sound power levels.

ORDER CODE, Opus-R



Example:
Opus-R-200-0-0
Explanation:
Opus-R dimension 200 with standard rotation pattern

ORDER CODE, Luna



Example:
Luna-0-0-160-200
Explanation:
Luna plenum box with inlet Ø160 and outlet Ø200

DIMENSIONS AND WEIGHT, Opus-R

Groove dimensions: ØG+5

Dim.	A	B	C	G	E	F	I	Weight diffuser [kg]	Weight diffuser with *HLP[kg]
125	322	124	230	282	65	115	75	0,9	3,0
160	420	159	320	380	70	120	80	1,3	3,2
200	460	199	350	420	70	120	80	1,5	3,2
250	570	249	470	530	70	120	80	2,2	3,4
315	570	314	470	530	70	120	80	2,2	3,4

Table 2: (*HPL = ceiling plate HLØ or RH)

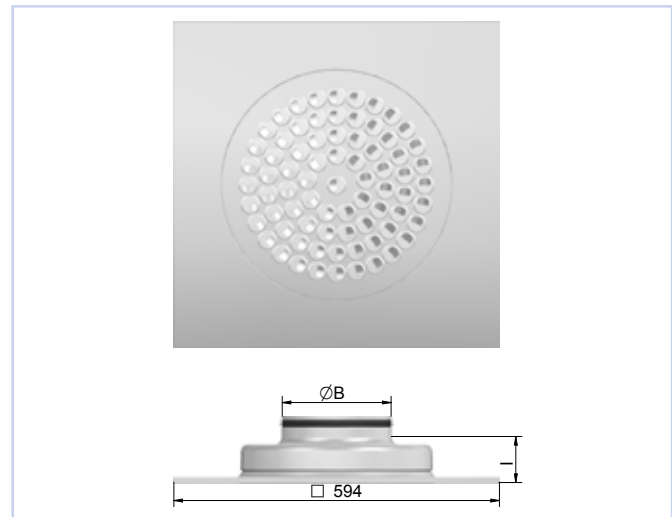


Fig. 1

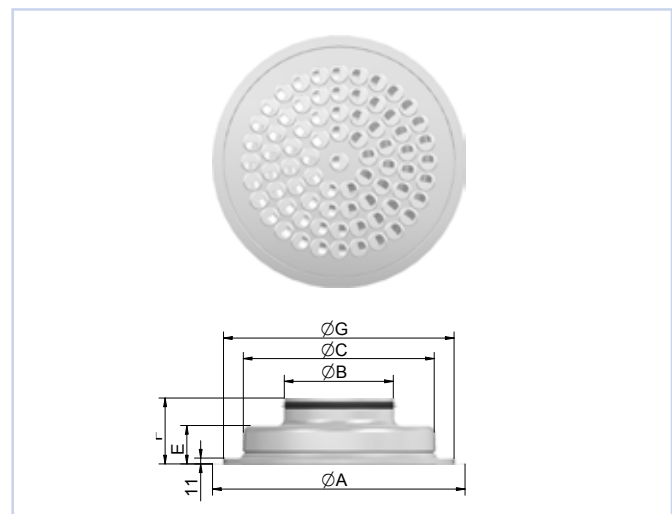


Fig. 2

Opus-R with Luna plenum box



APPLICATION

The Luna plenum box is recommended for improved sound attenuation, and works as an adjustment and measurement unit. Luna is a rectangular box fitted with a removable damper which provides access to the connecting duct. The damper can be secured in any position required.

DESIGN

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 delivered with external condensation insulation. A low-profile design [UI] is also available, and for this type 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

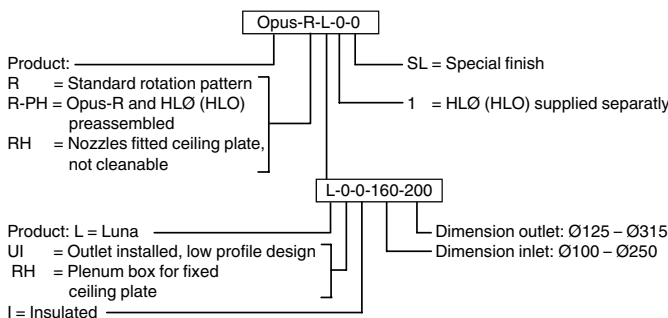
Luna is supplied in a galvanized finish, and with all four internal walls lined with Ecoson fibre-free insulation. The connection collar is fitted with EPDM rubber gasket.

QUICK SELECTION

Opus-R Dim.	Luna Dim.	[m ³ /h]		
		25 dB(A)	30 dB(A)	35 dB(A)
125	100-125	60	72	94
160	125-160	97	124	158
200	160-200	144	169	198
250	200-250	216	259	310
315	250-315	234	277	331

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

ORDER CODE, OPUS-R with Luna



Example:

Opus-R-L-0-0-160-200-0-0

Explanation:

Opus-R with standard rotation pattern and Luna plenum box inlet Ø160 and outlet/diffuser dim. Ø200.

DIMENSIONS AND WEIGHT, Luna

Dim.	D	DA	B	H	H1	H2	L	L1	L2	Weight Luna [kg]
100-125	99	127	220	122	247	125	325	295	133	2,3
100-160	99	162	220	122	252	130	360	310	150	2,4
125-125	124	127	250	147	272	125	360	335	150	2,4
125-160	124	162	250	147	277	130	360	335	150	2,9
125-200	124	202	250	147	277	130	400	355	170	3,1
160-160	159	162	340	182	312	130	400	390	170	4,1
160-200	159	202	340	182	312	130	400	390	170	4,2
160-250	159	252	340	182	312	130	452	415	198	4,6
200-200	199	202	380	222	352	130	452	460	198	5,7
200-250	199	252	380	222	352	130	452	460	198	5,7
200-315	199	317	380	222	352	130	515	485	228	6,1
250-250	249	252	390	272	402	130	515	535	228	7,4
250-315	249	317	390	272	402	130	515	535	228	7,4

Table 4

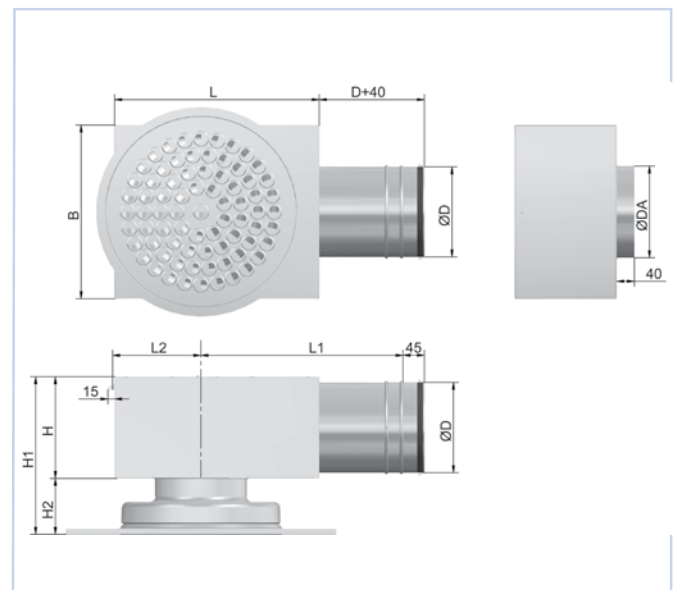


Fig. 3

Opus-R

ACOUSTIC DATA

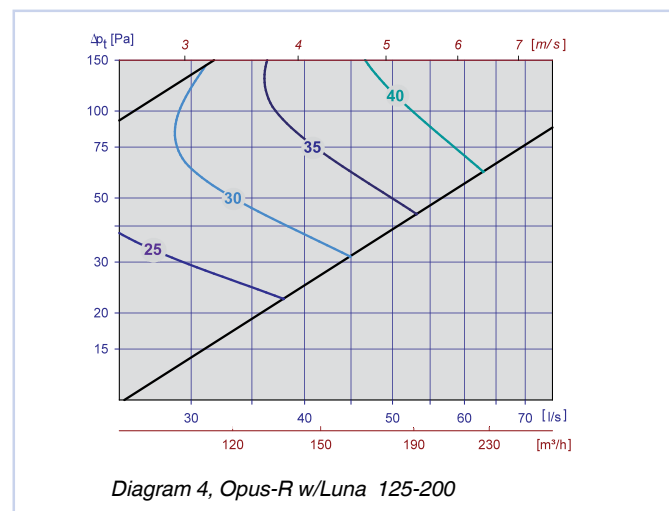
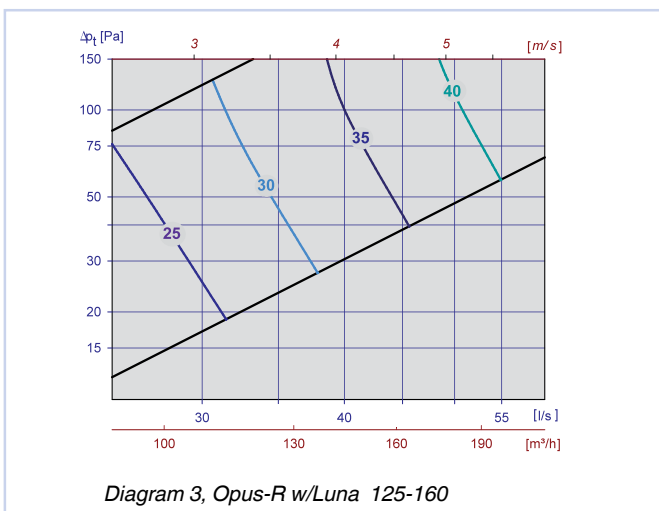
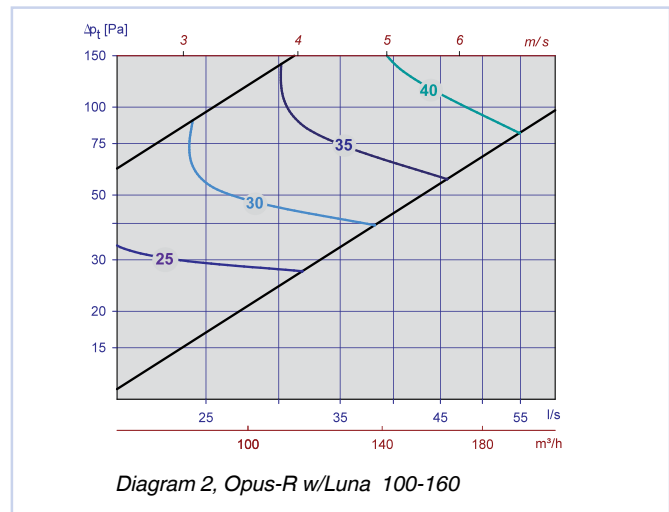
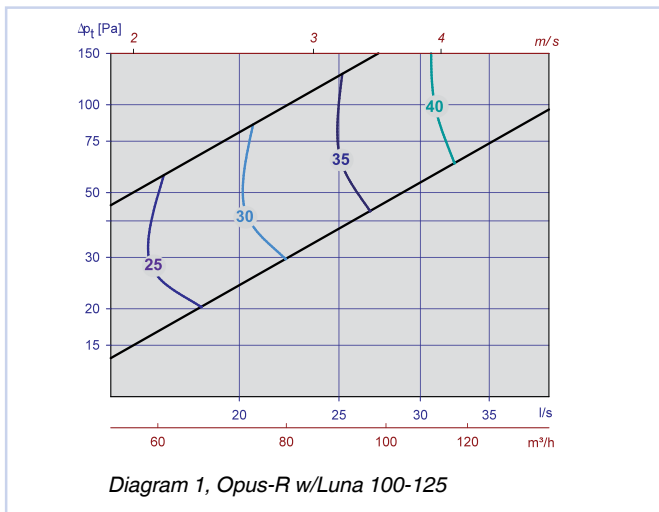
The diagrams provide a summary of the A-weighted sound power level from diffuser, L_{WA} . Correction factors in table 6, page 6, are used to calculate emitted sound power level at the respective frequencies, $L_W = L_{WA} + KO$. A room with absorption equivalent to 10m² Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

Example:

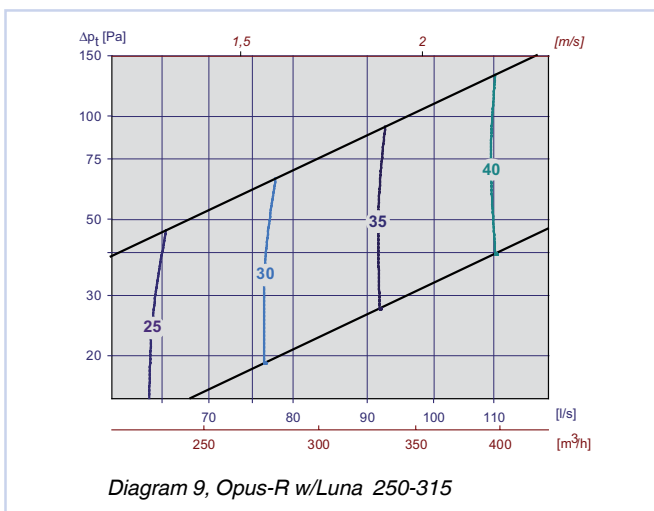
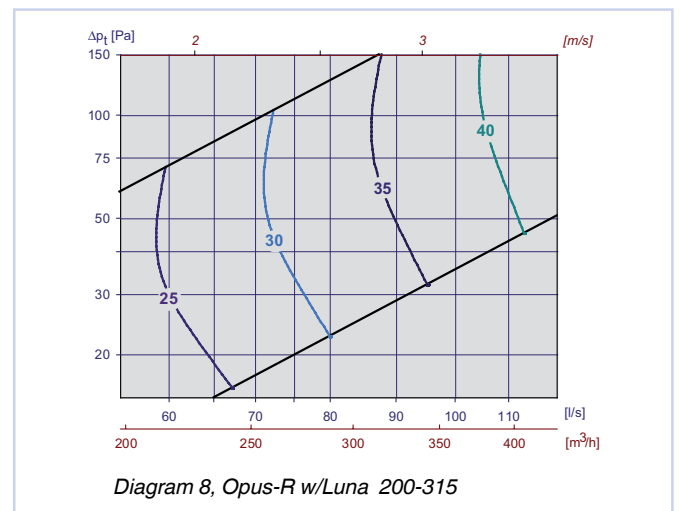
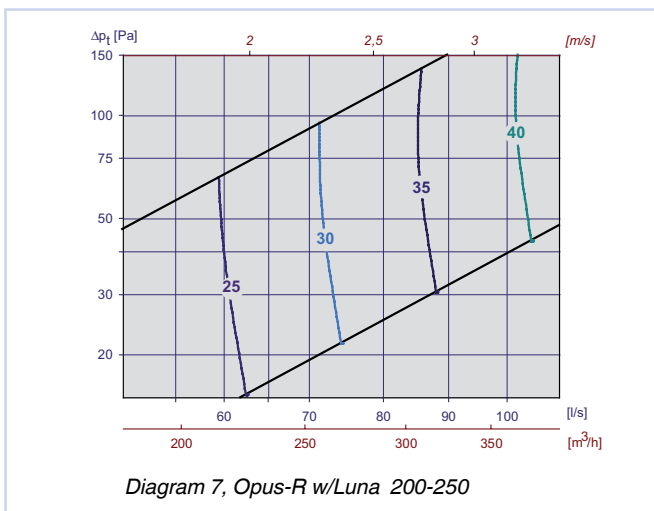
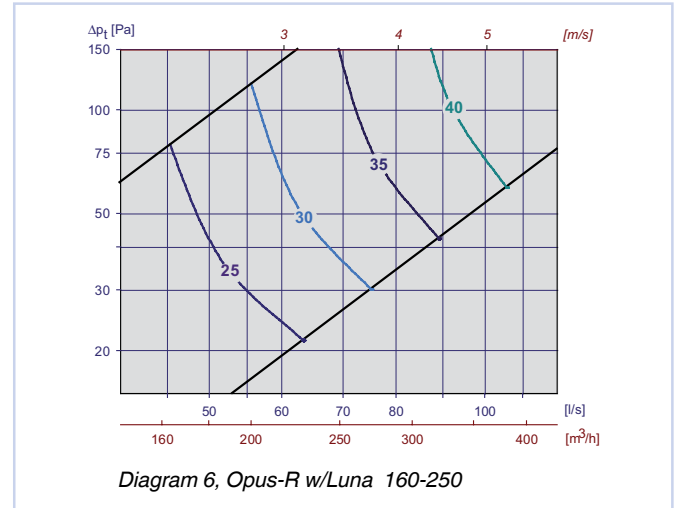
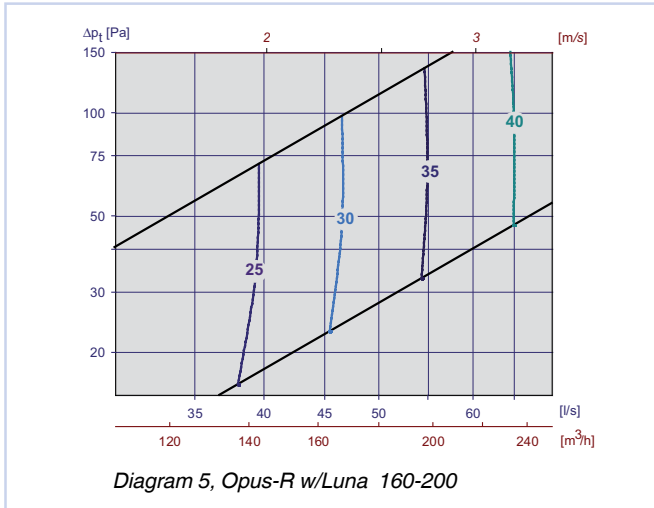
Opus-R with Luna 125-160. Desired air flow rate: 35 l/s.
From diagram 3 we find that $L_{WA} = 28$ dB(A) with damper open and 24 Pa total pressure loss. We aim to find the following:

- Emitted sound power level in 250 Hz
 - A-weighted sound pressure level in an office.
 - A-weighted sound pressure level in an office at 50 Pa total pressure drop, (i.e. 26 Pa choking with the unit's damper)
- The correction factor is -4 dB. Emitted sound power level at 250 Hz is thus: $L_W = L_{WA} + KO = 28 + (-4) = 24$ dB
 - If we assume a room absorption equivalent to 10m² Sabine, A-weighted sound pressure level will be: $28 - 4 = 24$ dB(A)
 - Tracing the 35 l/s line in the diagram up to 50 Pa gives a reading of 30 dB(A) = an increase of 2 dB, and A-weighted sound pressure level will thus be 26 dB(A)

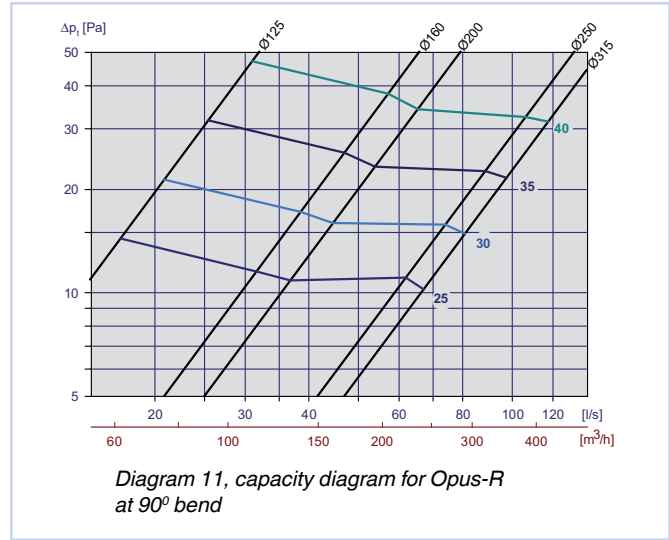
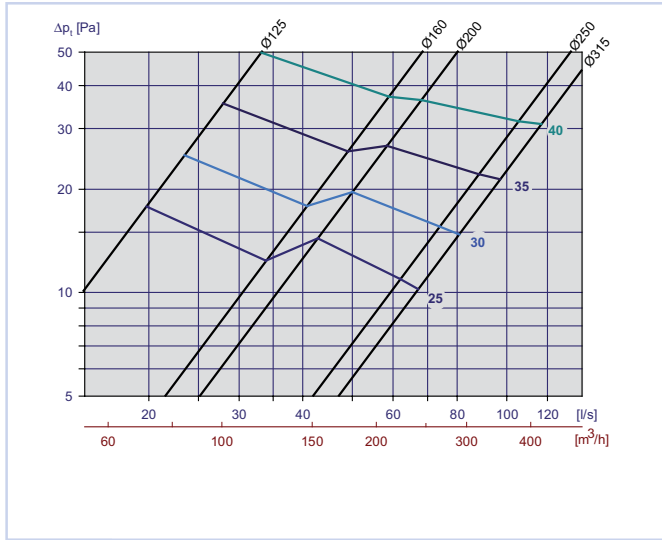
CALCULATION DIAGRAMS



Opus-R



Opus-R



Static sound attenuation incl. end reflection, Opus-R with Luna

Opus-R Dim.	Luna Dim.	Attenuation [dB]							
		63	125	250	500	1k	2k	4k	8k
125	100-125	26	15	15	12	23	27	22	19
160	100-160	25	10	13	11	22	23	19	18
	125-160	23	12	10	12	22	20	17	18
200	125-200	20	12	11	13	21	19	17	17
	160-200	19	12	14	14	23	16	19	19
250	160-250	22	11	11	11	15	12	10	8
	200-250	18	12	13	15	20	16	18	19
315	200-315	18	11	13	12	19	15	18	18
	250-315	16	10	12	14	17	16	18	18

Table 5

Correction factor [KO], Opus-R with Luna

Opus-R Dim.	Luna Dim.	KO [dB]															
		Damper closed								Damper open							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
125	100-125	-4	0	-3	-1	-4	-12	-19	-20	-4	-1	-4	-1	-4	-12	-22	-23
160	100-160	-1	4	2	-1	-9	-11	-12	-16	-1	1	-1	-2	-4	-11	-21	-21
	125-160	-9	-1	-1	-2	-5	-10	-11	-12	-8	-4	-4	-2	-3	-11	-20	-24
200	125-200	-1	1	0	-2	-8	-11	-9	-9	-3	-1	-2	-2	-3	-13	-22	-21
	160-200	0	0	-2	-2	-4	-12	-16	-15	-2	-2	-4	-2	-3	-13	-22	-21
250	160-250	-2	3	1	-3	-9	-9	-9	-8	-3	0	-2	-1	-4	-14	-23	-21
	200-250	-5	0	-3	-1	-4	-12	-16	-15	-6	-3	-5	-1	-3	-14	-23	-23
315	200-315	-3	1	-1	-3	-4	-10	-14	-14	-4	0	-2	-2	-3	-13	-22	-21
	250-315	-3	0	-3	-2	-3	-13	-20	-19	-5	-1	-3	-2	-3	-12	-22	-24

Table 6

Opus-R

Static sound attenuation incl. end reflection, Opus-R

Opus-R Dim	Attenuation [dB]							
	63	125	250	500	1k	2k	4k	8k
100	24	15	10	4	8	9	9	6
125	19	13	9	2	5	9	8	6
160	19	13	6	2	6	6	8	5
200	16	11	4	2	4	7	8	6
250	16	8	4	1	4	6	8	5
315	24	15	10	4	8	9	9	6

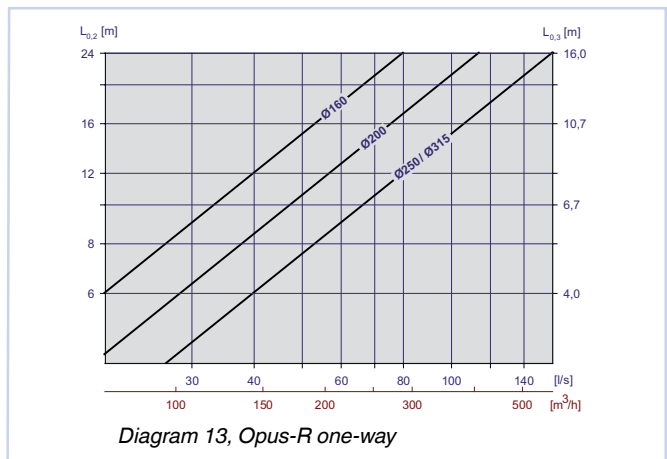
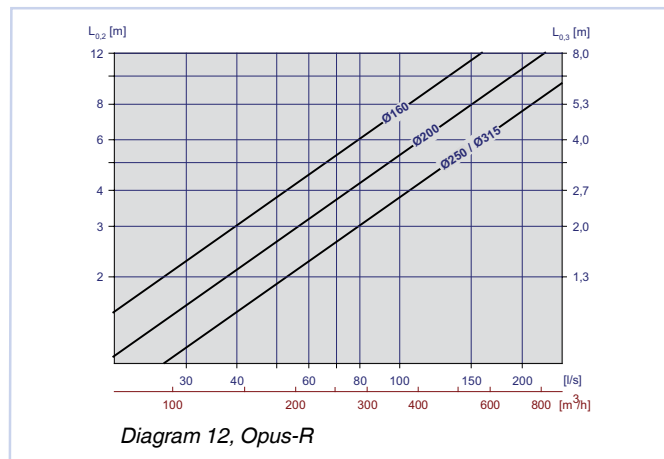
Table 7

Correction factor [KO], Opus-R

Opus-R Dim.	KO [dB]							
	63	125	250	500	1k	2k	4k	8k
100	-9	-10	-4	-2	-3	-10	-19	-23
125	-10	-11	-6	-3	-2	-11	-21	-24
160	-8	-8	-3	-2	-3	-12	-22	-24
200	-8	-7	-3	-1	-3	-14	-23	-23
250	-6	-7	-4	-2	-3	-11	-21	-26
315	-9	-10	-4	-2	-3	-10	-19	-23

Table 8

THROW LENGTH



FLOW PATTERN

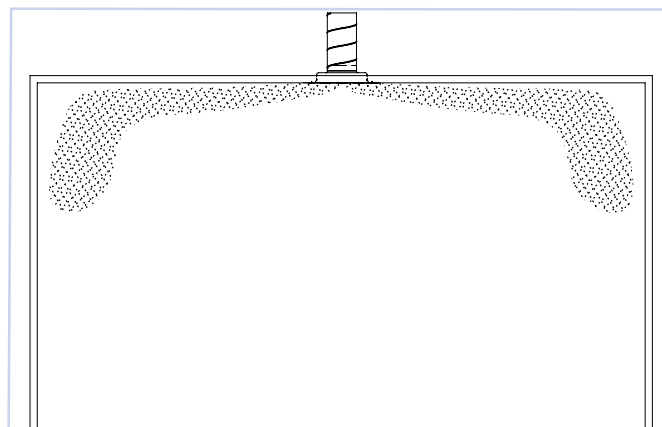


Fig. 4

Opus-R

INSTALLATION

When mounted in fixed ceiling or inserted in ceiling plate, Opus-R is attached by means of two mounting brackets (fig. 5). For installation in modular ceiling systems, use of HLØ ceiling plate 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).

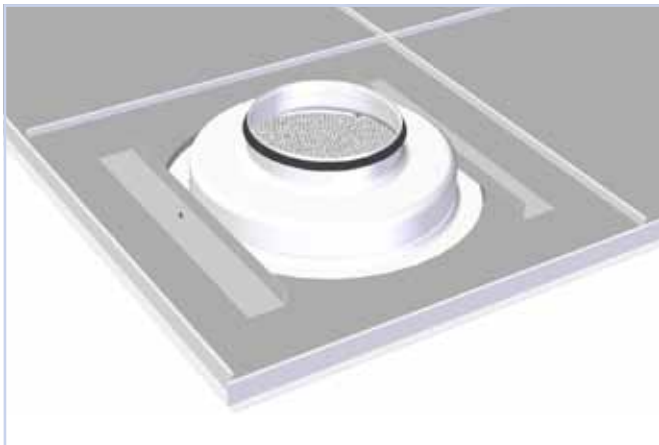


Fig. 5: Installation

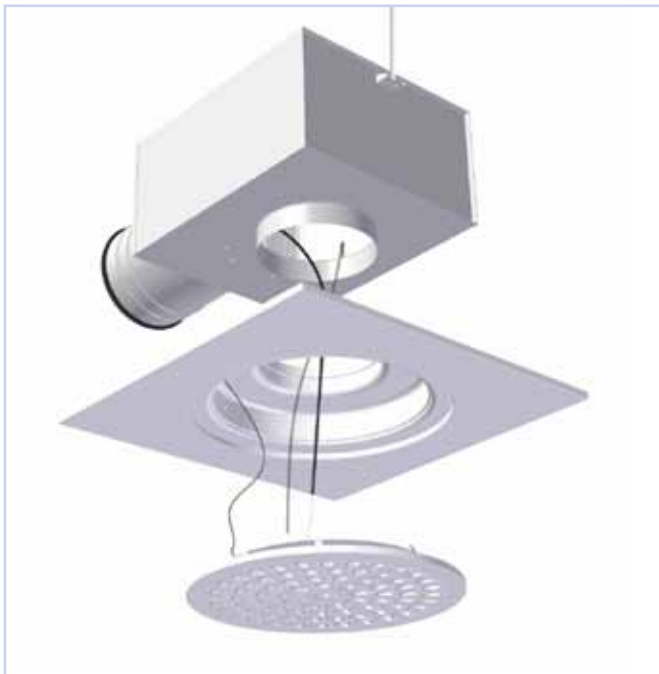


Fig. 6: Installation

COMMISSIONING

During commissioning, the diffuser front must be fitted. Measuring tube and adjustment wire are pulled through one of the nozzles at the front. If Opus-RH is used, wire and measuring tube are pulled out from underneath the box, and the damper is secured by using a clamping nut on the wire. Correction factors for calculation of air flow rates are provided on the label inside the diffuser, or can be found in our commissioning guide at our website: www.auranor.no

MAINTENANCE

The diffuser can be cleaned by using a damp cloth. When cleaning the duct network, the diffuser front must be removed in order to gain access to the duct. If Luna is used, diffuser plate and damper must 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.auranor.no

LØV-R is developed and manufactured by:

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