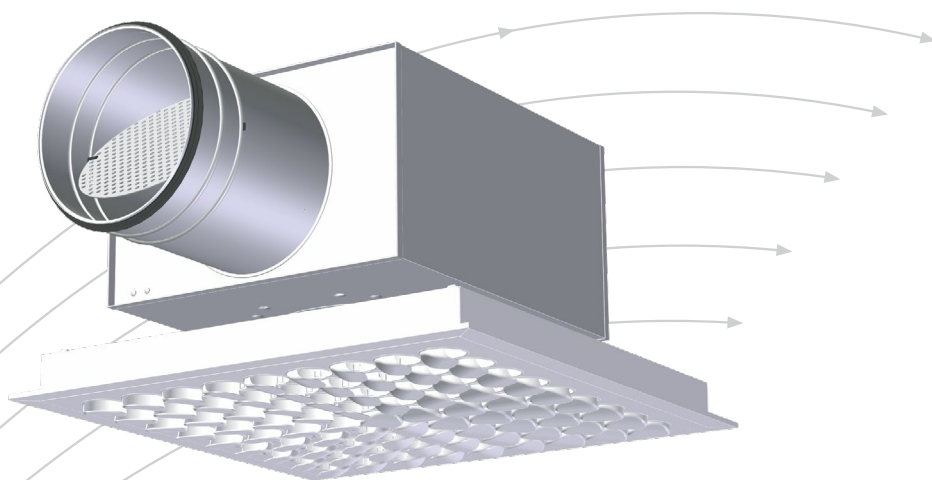


# Orion-Opus

## Square supply diffuser



- Removable front panel
- Flush mounting
- Suitable for a range of ceiling systems
- Data provided with Luna plenum box installed
- Box lined with sound absorber in polyester

**TROX<sup>®</sup> TECHNIK**

 **Auranor**

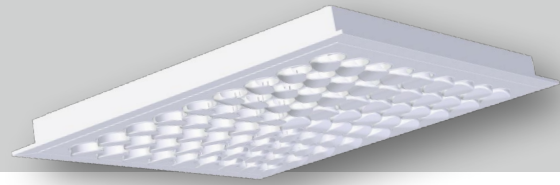
TROX Auranor AS

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[www.trox.no/en](http://www.trox.no/en)

# Orion-Opus



## APPLICATION

Orion-Opus is a square supply diffuser for installation in modular ceiling systems. The unit offers excellent induction, and is suitable for both constant and variable air flow rates.

## DESIGN

Orion-Opus features a removable front panel with Opus nozzles, and is available with 4 different nozzle settings: rotational, 1-way, 2-way 180° or 2-way 90°. Please see order code and fig.3. Furthermore, the unit is equipped with a TA flange suitable for T-profile ceiling systems, but is also available with alternative flange designs, type: DC, DG, DS and EK (see fig. 2 and order code). The diffuser front can be supplied with integrated motion sensor.

Product sheet for motion sensor can be found on our website: [www.trox.no](http://www.trox.no)

## MATERIALS AND SURFACE COATING

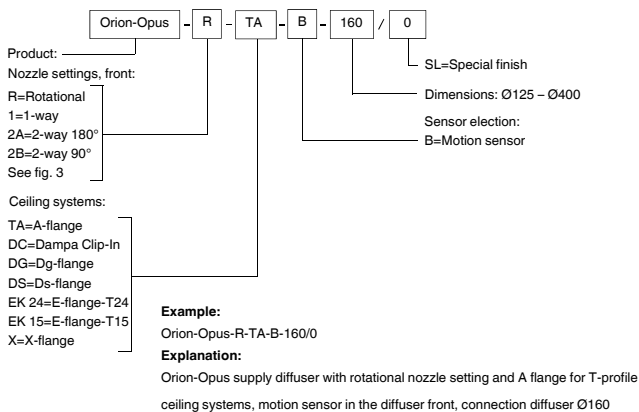
The front panel, ceiling plate and valve body are in a steel design, and the connection collar is fitted with an EPDM rubber gasket. Opus nozzles at the front and corner connection points are in plastic. Connection points are fitted with holding magnets. All internal and external valve elements are in a RAL 9003 - gloss 30 finish. Other colours are available on request.

## QUICK SELECTION

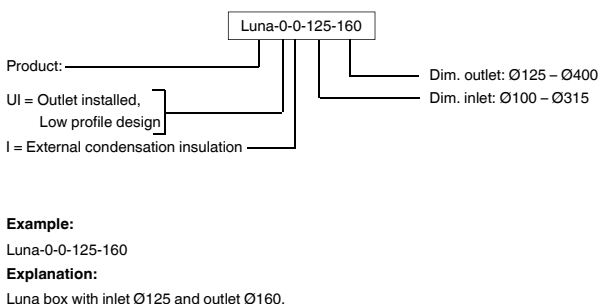
Orion-Opus Dim.	[m³/h]		
	25 dB(A)	30 dB(A)	35 dB(A)
125	119	148	180
160	166	202	245
200	223	270	328
250	313	378	457
315	425	504	601
400	544	644	763

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

## ORDER CODE, Orion-Opus



## ORDER CODE, Luna



## DIMENSIONS AND WEIGHT, Orion-Opus

Orion-Opus	D	Weight valve [kg]
125	124	3,9
160	159	3,9
200	199	3,9
250	249	3,9
315	314	3,9
400	399	3,9

Table 2

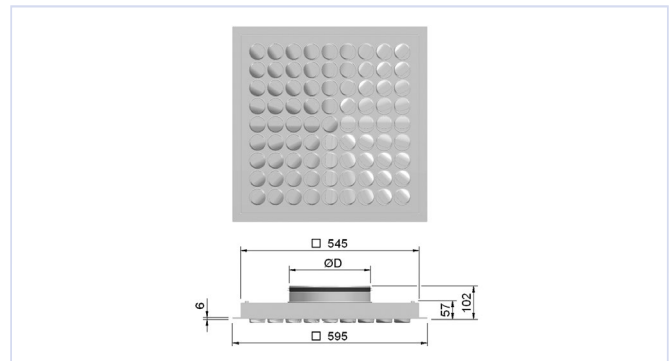


Fig. 1

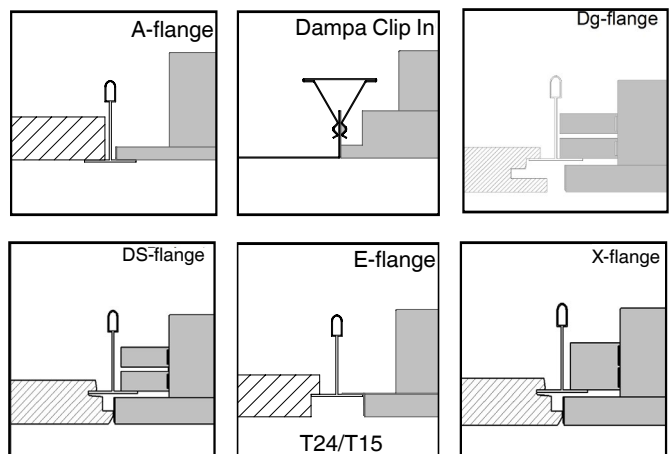


Fig. 2

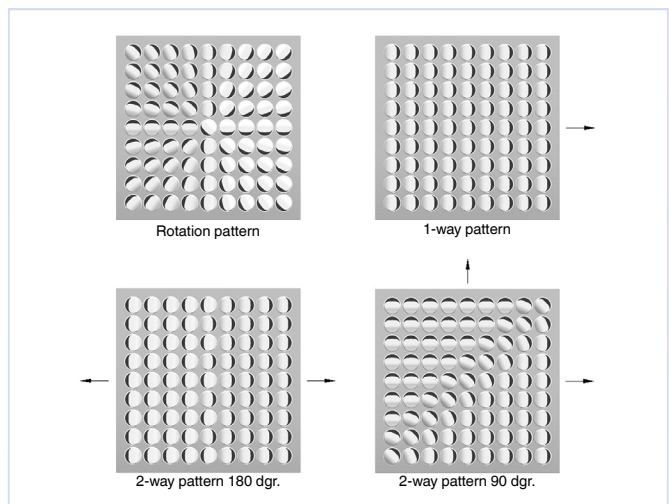


Fig. 3 Nozzle settings, Orion-Opus

# Orion-Opus with Luna plenum box

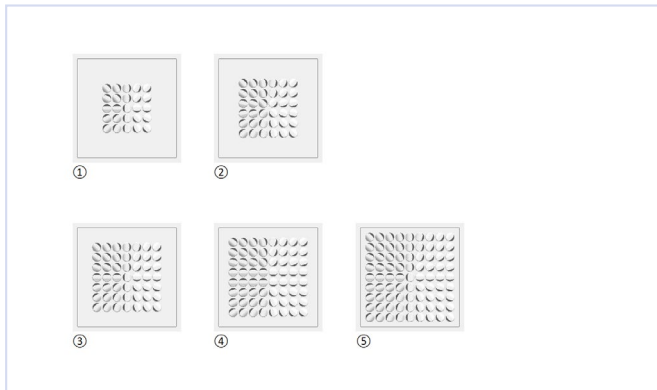
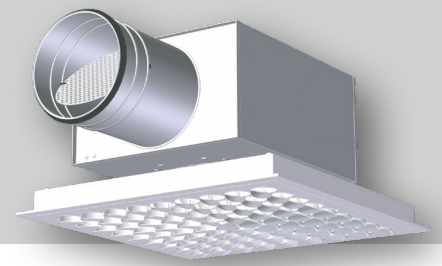


Fig. 4, the valve pattern depends on the dimension.

## 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 a sound absorber in polyester 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 valve 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 all four internal walls lined with sound absorber in polyester. Equipped with EPDM rubber gasket on connection collar.

## QUICK SELECTION

Orion-Opus Dim.	Luna Dim.	[m <sup>3</sup> /h]		
		25 dB(A)	30 dB(A)	35 dB(A)
125	100-125	61	90	119
	125-125	79	104	133
160	100-160	61	97	130
	125-160	83	126	184
200	160-160	122	148	180
	125-200	76	137	216
250	160-200	151	198	266
	200-200	184	223	270
315	200-250	137	216	320
	250-250	266	324	396
400	200-315	227	320	439
	250-315	324	396	500
400	315-315	382	443	526
	250-400	338	432	576
	315-400	450	536	641

Table 3: The table provides air flow rates at given sound power levels and 30 Pa total pressure loss.

- ① Valve pattern for dim. 125.
- ② Valve pattern for dim. 160.
- ③ Valve pattern for dim. 200.
- ④ Valve pattern for dim. 250.
- ⑤ Valve pattern for dim. 315 and 400.

## DIMENSIONS AND WEIGHT, Luna

Dim.	D	DA	B	H	H1	L	L1	L2	Weight (kg) w/Luna
100-125	99	127	220	122	228	325	292	127	2,3
100-160	99	162	220	122	228	360	309	145	2,4
125-125	124	127	250	147	253	360	334	145	2,4
125-160	124	162	250	147	253	360	334	145	2,9
125-200	124	202	250	147	253	400	354	165	3,1
160-160	159	162	340	182	288	403	390	167	4,1
160-200	159	202	340	182	288	403	390	167	4,2
160-250	159	252	340	182	288	453	415	192	4,6
200-200	199	202	380	222	328	453	457	190	5,7
200-250	199	252	380	222	328	453	457	190	5,7
200-315	199	317	380	222	328	515	487	222	6,1
250-250	249	252	390	272	378	515	537	222	7,4
250-315	249	317	390	272	378	515	537	222	7,4
250-400	249	402	500	272	378	600	579	265	9,1
315-315	314	317	500	337	443	600	654	255	10,7
315-400	314	402	500	337	443	600	644	265	10,7

Table 4

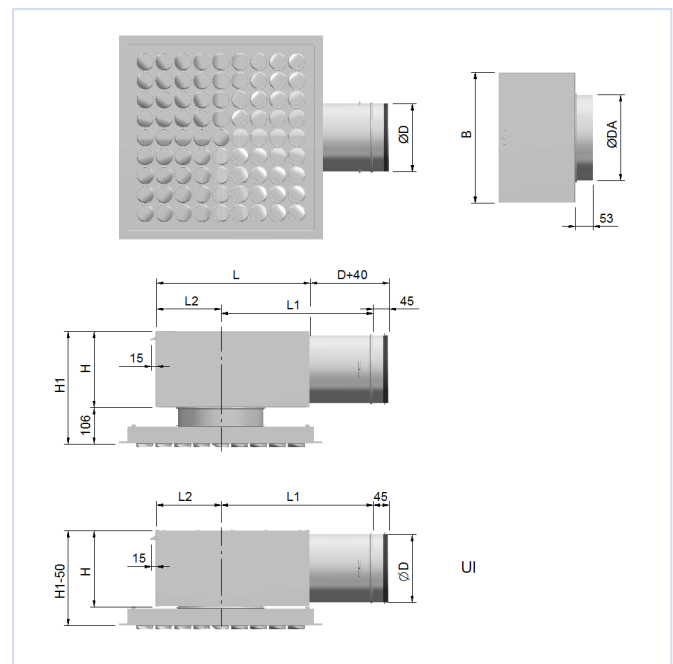


Fig. 5

# Orion-Opus

## ACOUSTIC DATA

The diagrams provide a summary of the A-weighted sound power level from diffuser,  $L_{WA}$ . Correction factors in table 5 and 6, page 7, are used to calculate emitted sound power level at the respective frequencies,  $L_w = L_{WA} + KO$ . A room with absorption equivalent to 10m<sup>2</sup> Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

### Example:

Orion-Opus with Luna Ø160-200 - desired volume flow 55 l/s.  
From diagram 7 we find that  $L_{WA} = 27$  dB(A) with damper open and 14 Pa total pressure loss.

The aim is to find the following data:

- Emitted sound power level at 250 Hz, damper open.
- A-weighted sound pressure level in an office with room attenuation equivalent to 4 dB.
- A-weighted sound pressure level at 40 Pa total pressure loss (i.e. 26 Pa choking with the unit's damper)
- Emitted sound power level at 250 Hz, damper choked.

a) The correction factor is 2dB with damper open:  $27 + 2 = 29$  dB.

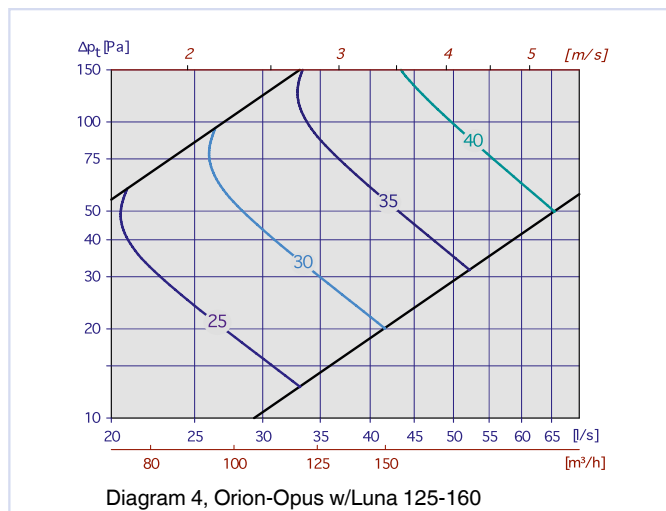
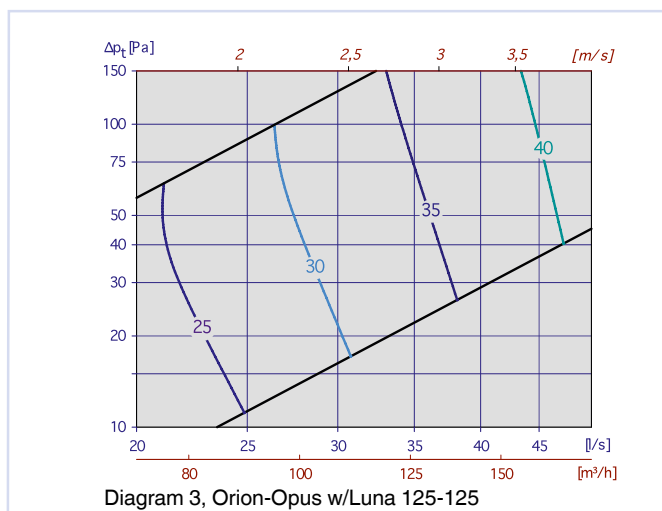
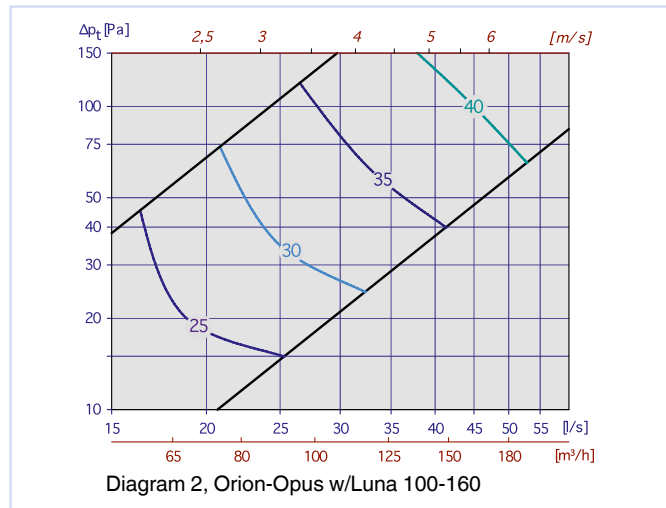
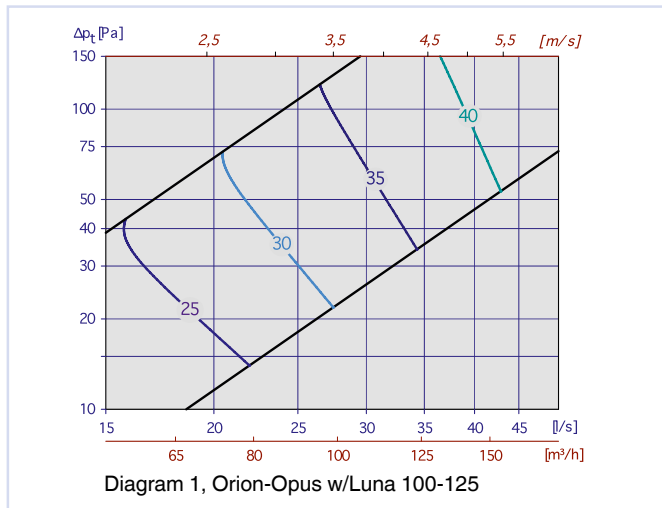
b) A-weighted sound pressure level will be:  $27 - 4 = 23$  dB(A)

c) Tracing the line for 55 l/s in the diagram up to 40 Pa provides a reading of 31 dB(A).  $31 - 4 = 27$  dB(A)

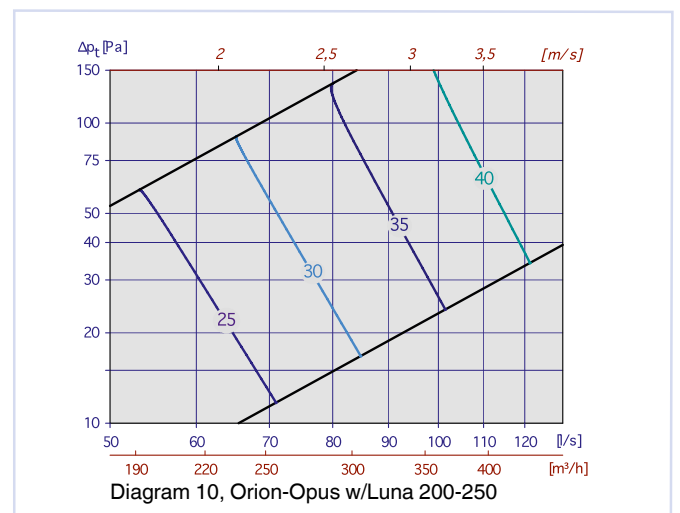
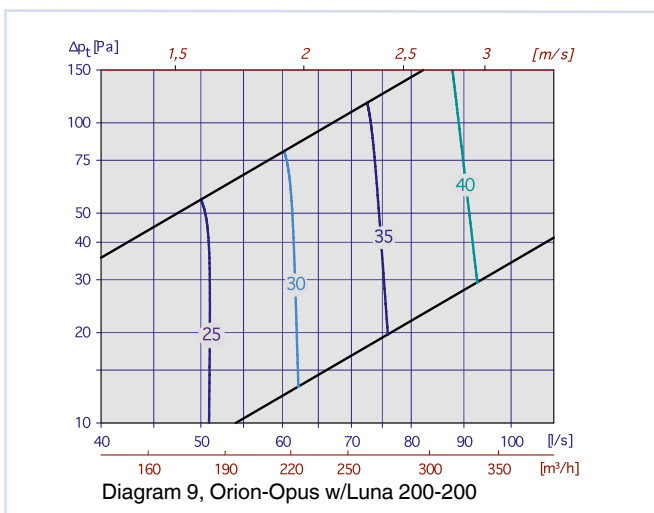
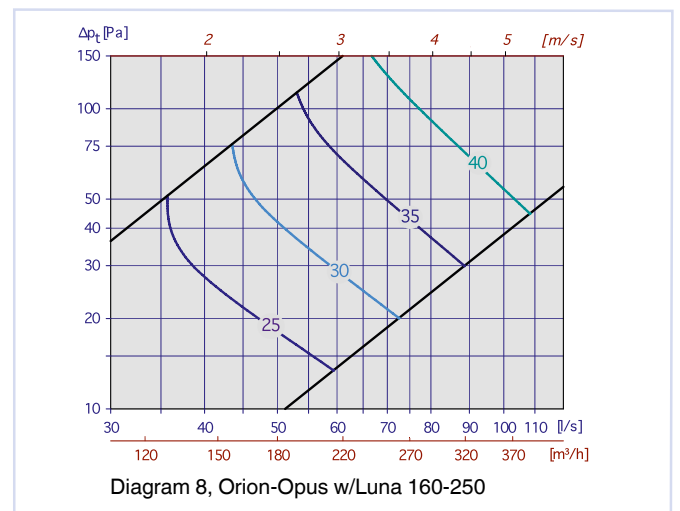
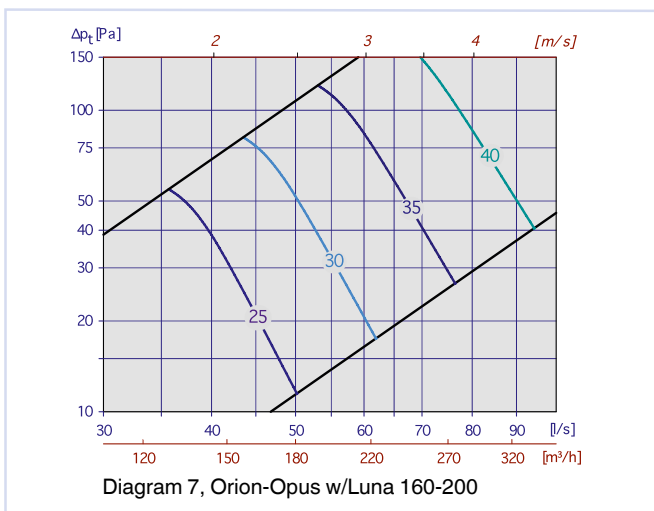
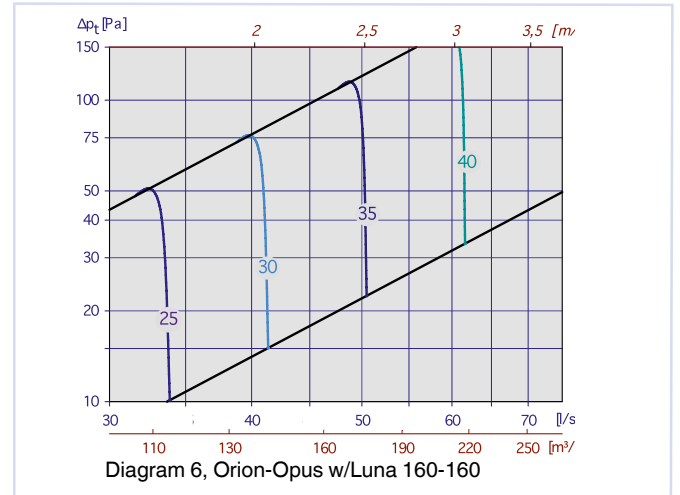
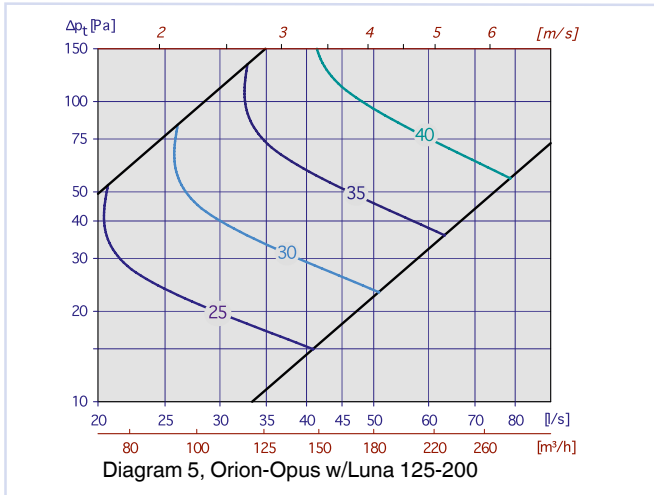
d) Correction factor for damper closed is -4dB, and the factor used for our working point position is -1dB.

The formula used is  $L_w = L_{WA} + KO$ :  $31 + (-1) = 30$  dB(A)

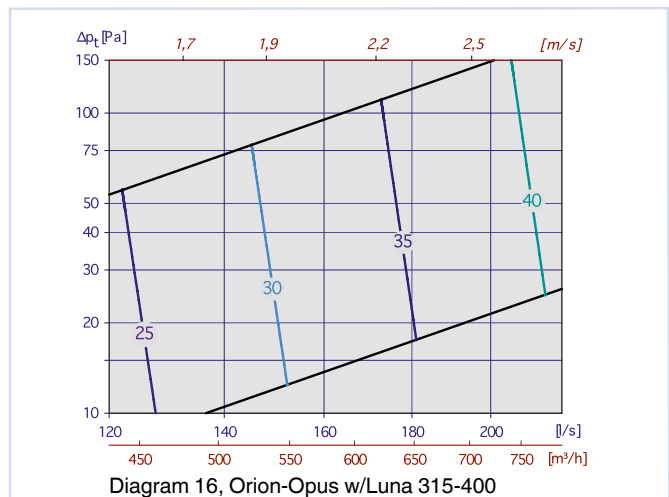
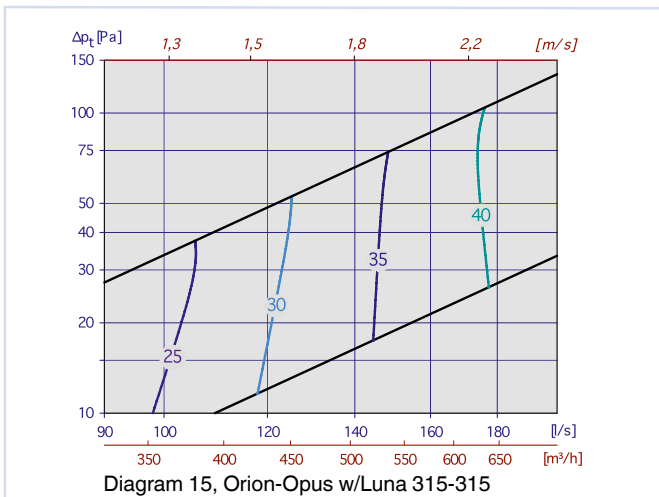
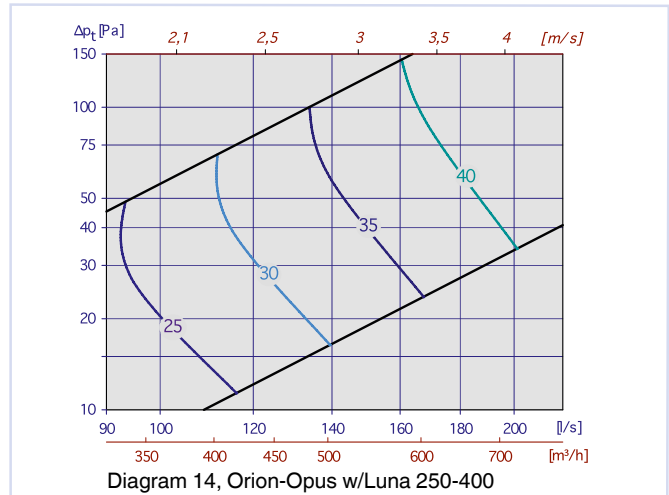
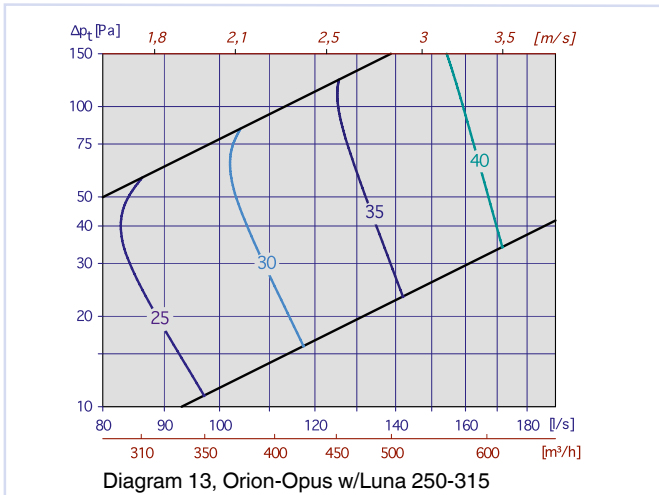
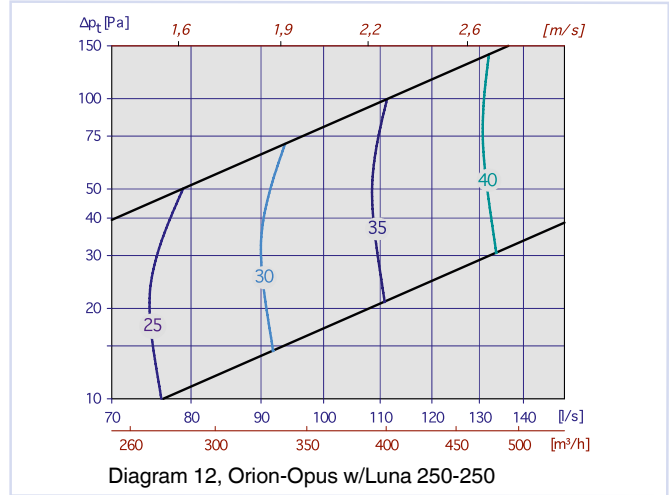
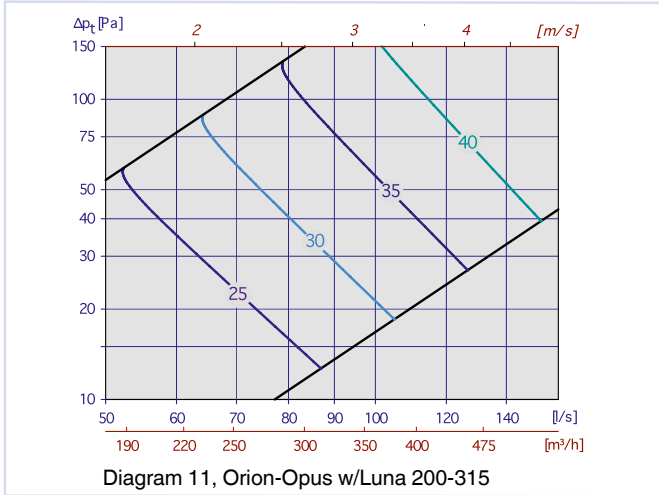
## CALCULATION DIAGRAMS



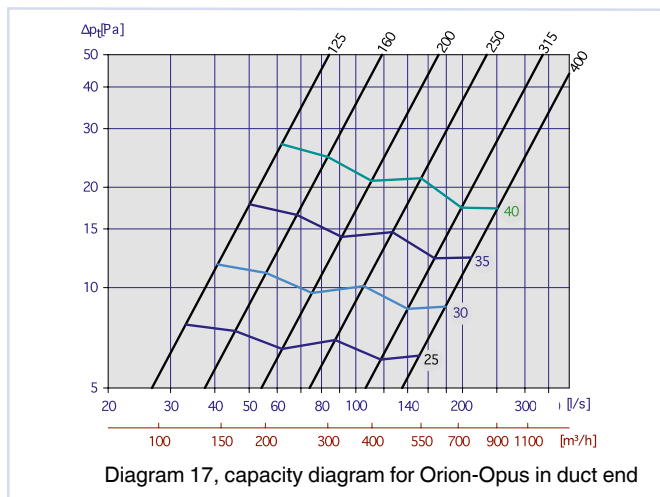
# Orion-Opus



# Orion-Opus



# Orion-Opus



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

Table 5: Correction factor [KO], Orion-Opus with Luna

Orion-Opus	KO [dB]							
	63	125	250	500	1k	2k	4k	8k
125	5	-2	-1	-1	-6	-13	-13	-10
160	7	-2	-1	-1	-6	-13	-13	-9
200	6	-2	-1	-1	-6	-13	-13	-9
250	7	-1	-2	-2	-5	-14	-14	-9
315	6	-1	-2	-3	-4	-15	-14	-10
400	6	-2	-2	-2	-4	-15	-14	-10

Table 6: Correction factors for Orion-Opus in duct end

# Orion-Opus

Orion-Opus	Luna	Attenuation [dB]							
Dim.	Dim.	63	125	250	500	1k	2k	4k	8k
125	100-125	24	9	13	19	22	21	18	20
	125-125	16	9	14	19	22	17	15	18
160	100-160	23	9	12	16	19	20	14	19
	125-160	20	9	12	15	18	15	13	18
	160-160	24	14	15	20	22	14	15	20
200	125-200	18	6	10	13	18	15	12	16
	160-200	19	9	12	15	15	12	13	19
	200-200	18	9	12	16	16	12	15	19
250	160-250	17	10	10	14	17	11	12	17
	200-250	18	7	10	15	15	10	13	18
	250-250	19	7	9	13	13	10	12	17
315	200-315	21	6	10	12	15	9	12	16
	250-315	15	9	9	11	12	10	11	15
	315-315	13	10	12	16	12	11	14	17
400	250-400	12	9	11	15	12	11	12	16
	315-400	13	8	12	14	12	11	13	16

Table 7: Static sound attenuation incl. end reflection, Orion-Opus with Luna plenum box

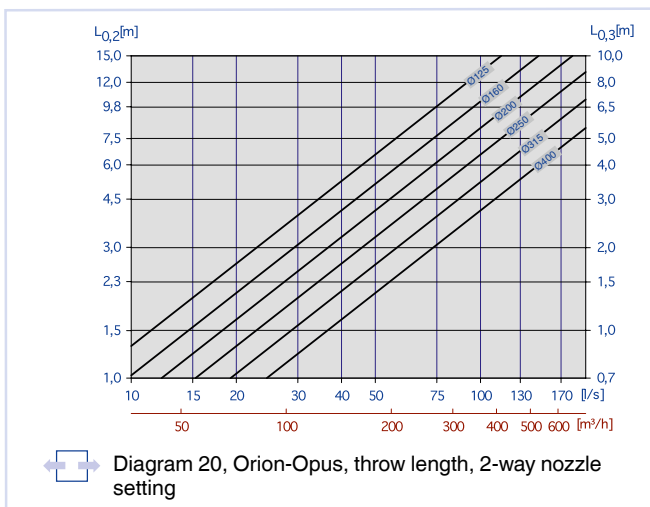
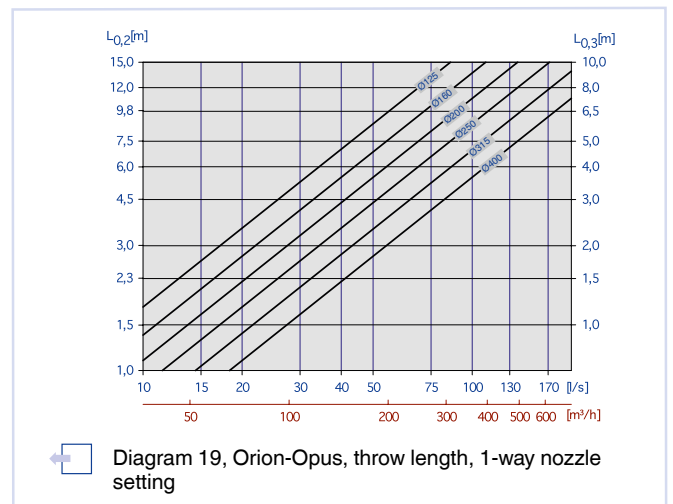
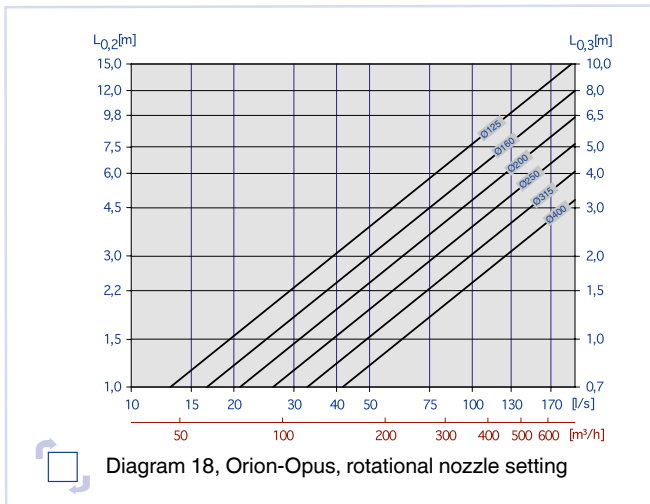
Orion-Opus	Attenuation [dB]							
Dim.	63	125	250	500	1k	2k	4k	8k
125	23	14	9	7	3	3	4	6
160	26	11	7	6	2	2	5	7
200	16	11	4	3	2	2	1	1
250	15	10	4	3	3	3	2	2
315	19	9	4	1	2	2	3	6
400	11	6	3	3	2	1	2	3

Table 8: Static sound attenuation incl. end reflection, Orion-Opus in duct end



# Orion-Opus

## THROW LENGTH



## FLOW PATTERN, 2-way and rotational nozzle setting

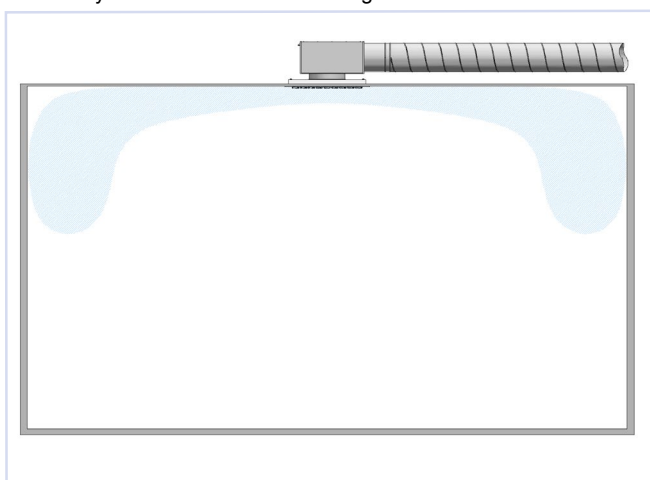


Fig. 6

## FLOW PATTERN, 1-way nozzle setting

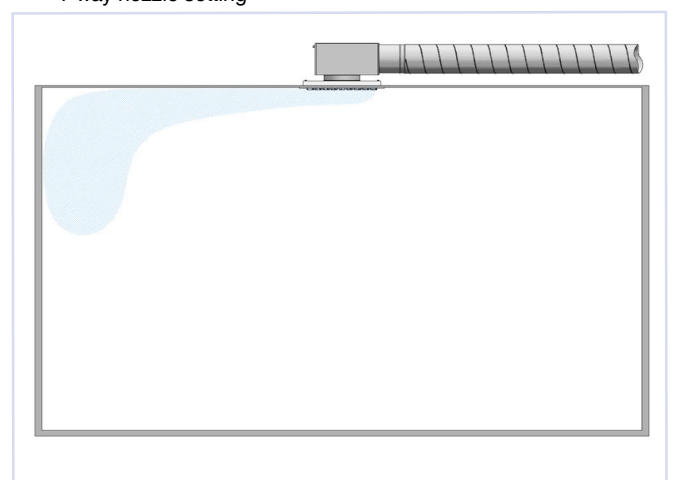


Fig. 7

# Orion-Opus

## INSTALLATION

Orion-Opus can be installed in a range of modular ceiling systems as well as in fixed ceilings, see fig. 8. If a Luna plenum box is used, the unit is attached to the rear of the support bracket by means of threaded rod or strap (fig. 9).

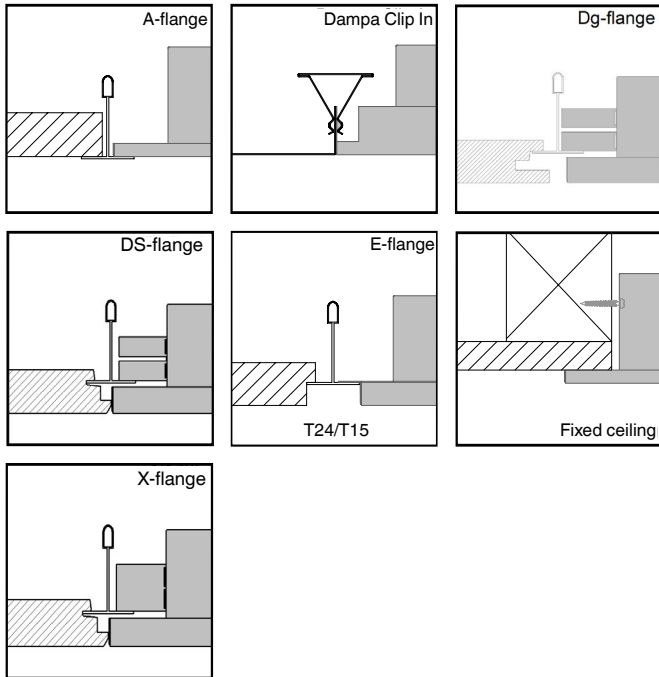
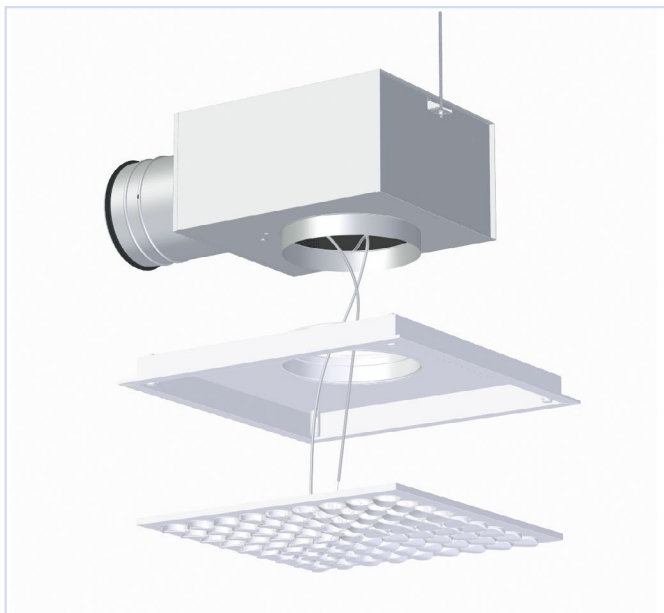


Fig. 8, Installation



Figur 9, installation

Orion-Opus is developed and manufactured by:

## COMMISSIONING

During commissioning, the diffuser front must be fitted. Measuring tube and adjustment wire are pulled through the Opus nozzle at the front, and the damper is secured by using a clamping nut on the wire. Tighten the clamping nut properly so the damper not change position. 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.trox.no](http://www.trox.no).

## MAINTENANCE

The valve should be cleaned by using a damp cloth. When cleaning the duct network, the diffuser front must be removed in order to gain access. If Luna is used, the user 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.trox.no](http://www.trox.no)

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