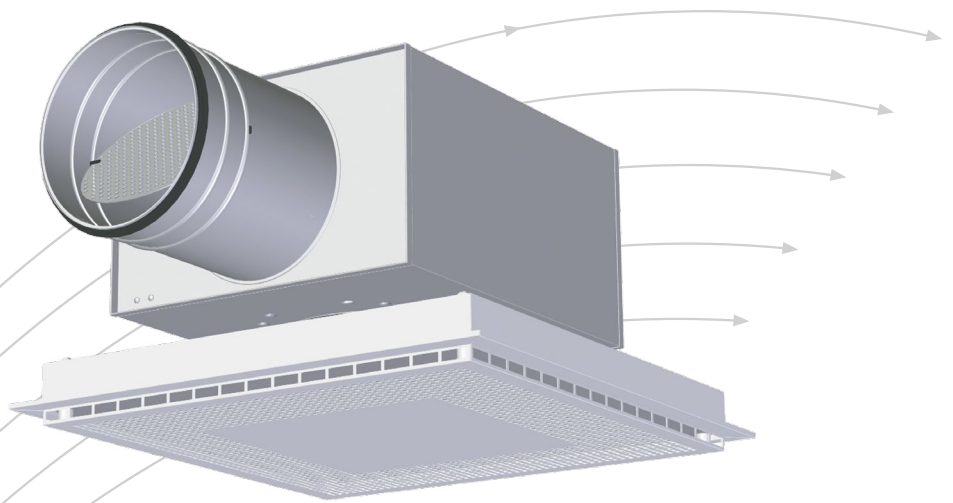


Orion-PTV

Square supply diffuser



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

TROX[®] TECHNİK

Auranor

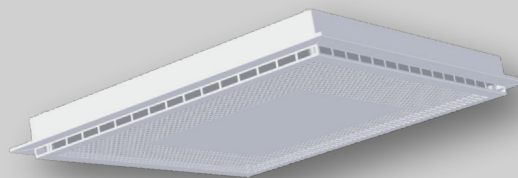
TROX Auranor AS

Auranorvegen 6
NO-2770 Jaren

Telephone +47 61 31 35 00

e-mail: office-no@troxgroup.com
www.trox.no

Orion-PTV



APPLICATION

Orion-PTV is a square supply diffuser for installation in modular ceiling systems. Orion-PTV is a high-capacity system with excellent induction, and is ideal for high air flow rates.

DESIGN

Orion-PTV features a removable front panel with perforated front and sides. 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

MATERIALS AND SURFACE COATING

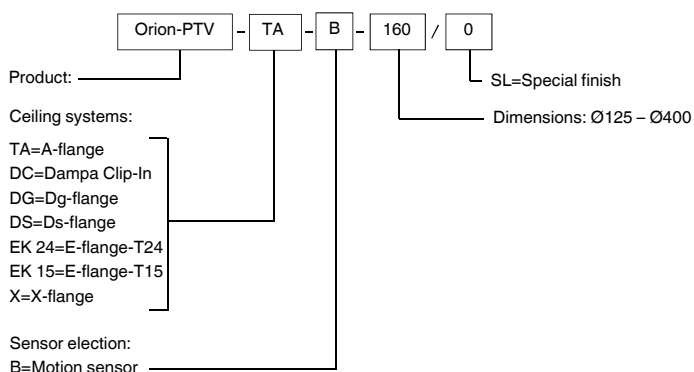
The front panel, ceiling plate and valve body are in a steel design, and the connection collar is fitted with an EPDM rubber gasket. Corner connection points are in plastic, and are fitted with holding magnets. All internal and external valve elements are in a RAL 9003 - gloss 30 finish. Other colours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

QUICK SELECTION

Orion-PTV	[m³/h]		
Dim.	25 dB(A)	30 dB(A)	35 dB(A)
125	140	162	191
160	184	212	248
200	234	270	310
250	299	346	403
315	410	479	558
400	648	756	878

Table 1: Air flow rate at given sound power levels

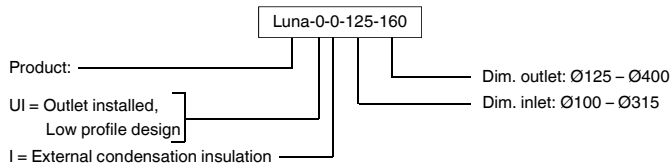
ORDER CODE, ORION-PTV



Example:
Orion-PTV-TA-B-160/0

Explanation:
Orion-PTV supply diffuser with A flange for T-profile ceiling systems, motion sensor in the diffuser front, connection diffuser Ø160

ORDER CODE, Luna



Example:
Luna-0-0-125-160

Explanation:
Luna box with inlet Ø125 and outlet Ø160.

DIMENSIONS AND WEIGHT, Orion-PTV

Orion-PTV	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

Tabell 2

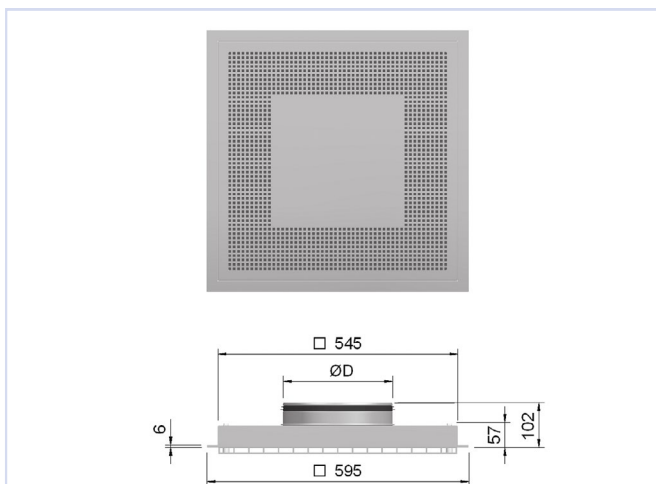


Fig. 1

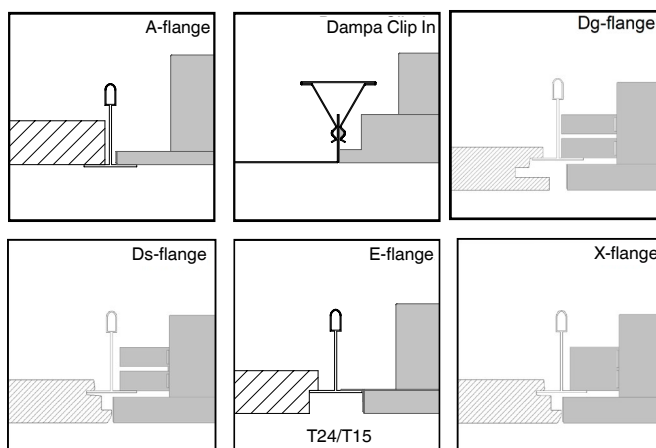
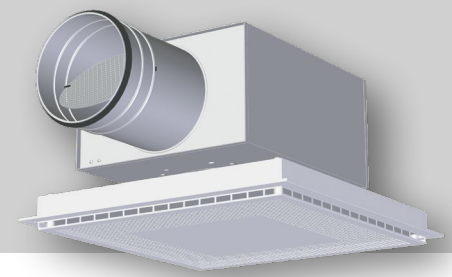


Fig. 2

Orion-PTV 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, is lined 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

The front panel, ceiling plate and valve body are in a steel design, and the connection collar is fitted with an EPDM rubber gasket. Corner connection points are in plastic, and 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-PTV Dim.	Luna Dim.	[m³/h]		
		25 dB(A)	30 dB(A)	35 dB(A)
125	100-125	61	90	126
	125-125	83	112	151
160	100-160	58	112	162
	125-160	90	137	187
200	160-160	144	180	220
	125-200	90	140	216
250	160-200	166	223	274
	200-200	187	230	277
315	160-250	144	216	324
	200-250	205	263	321
400	250-250	263	306	360
	200-315	198	281	374
400	250-315	317	371	457
	315-315	371	428	497
400	315-315	371	428	497
	250-400	364	457	547
400	315-400	432	504	605

Table 3: Air flow rates at given sound power levels and 30 Pa total pressure loss.

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

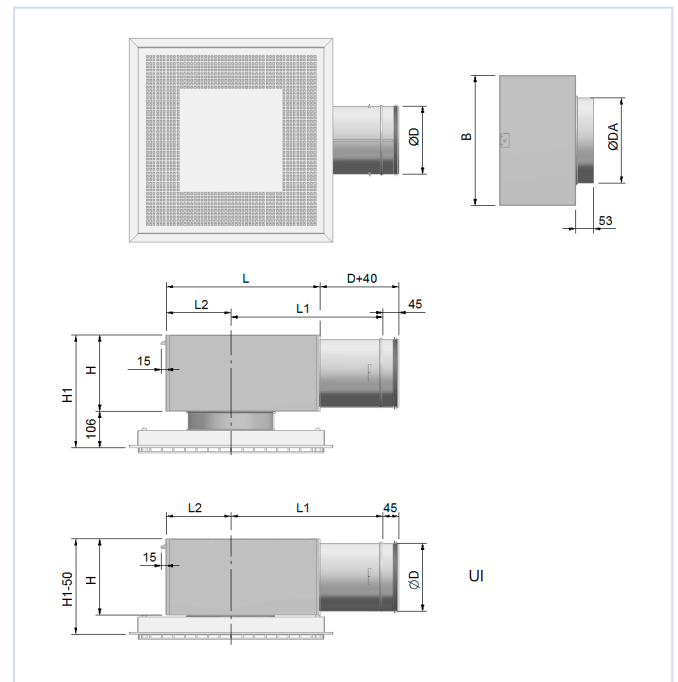


Fig. 3

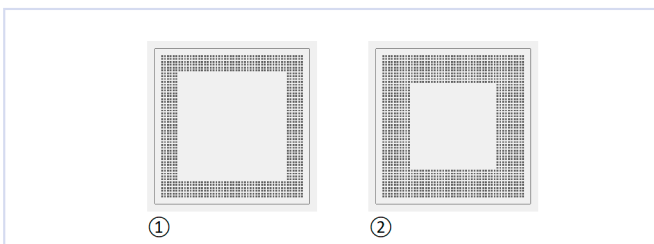


Fig. 4, the valve pattern depends on the dimension.

- ① Valve pattern for dim. 125-200.
- ② Valve pattern for dim. 250-400.

Orion-PTV

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 10m² Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

Example:

Orion-PTV with Luna Ø160-200 - desired volume flow 60l/s. From diagram 7 we find that $L_{WA} = 26$ dB(A) with open damper and 16 Pa total pressure drop. Room attenuation is 4dB (10m²SABINE).

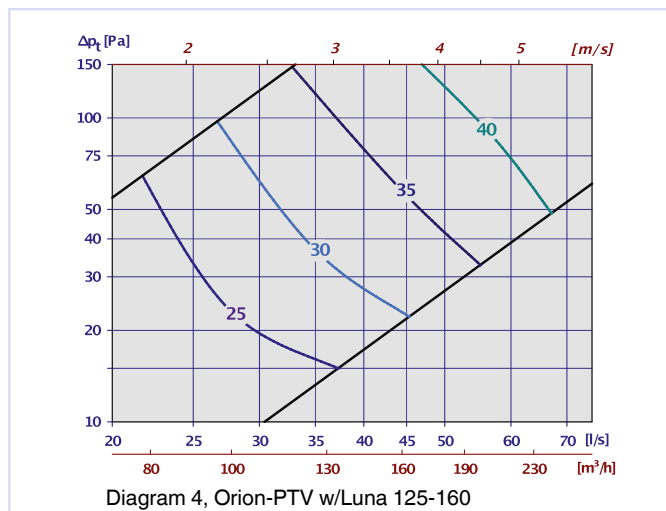
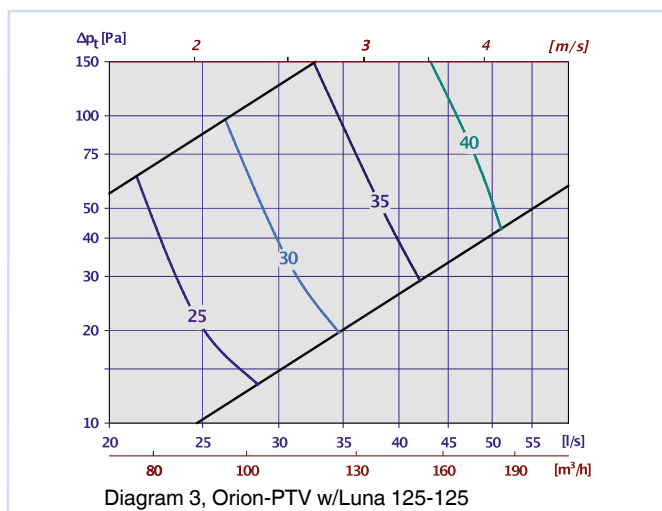
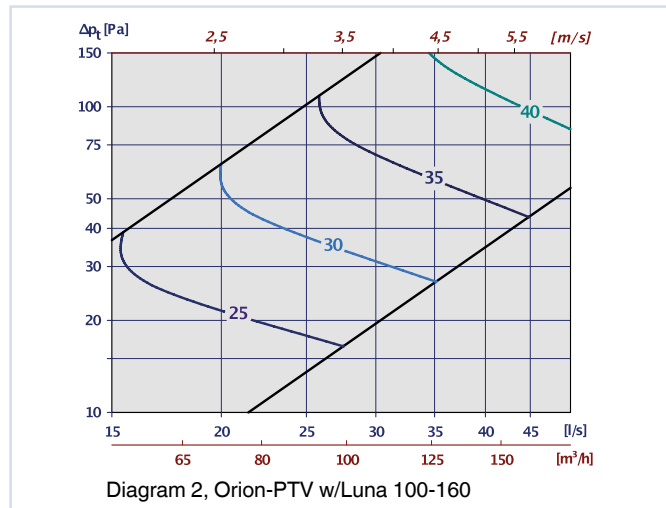
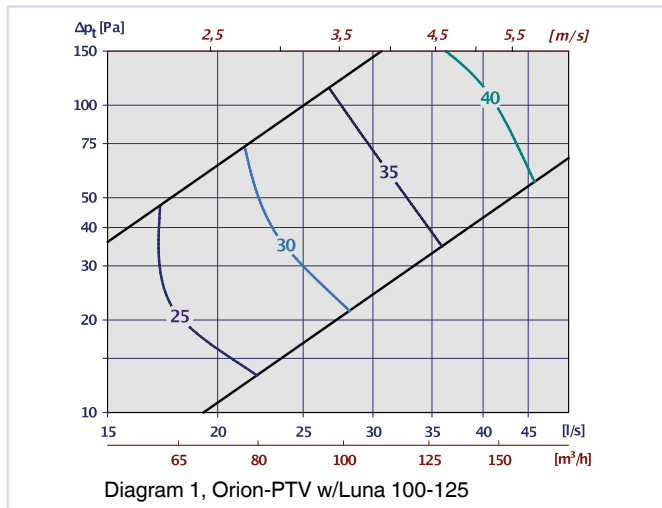
The aim is to find the following data:

- Emitted sound power level at 250 Hz
- A-weighted sound pressure level in an office with room attenuation equivalent to 4 dB.
- A-weighted sound pressure level in an office at 40 Pa total pressure loss (i.e. 24 Pa choking with the unit's damper)

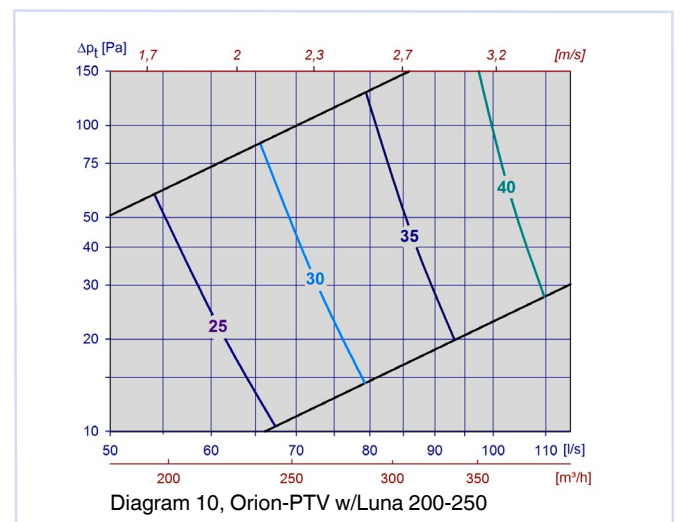
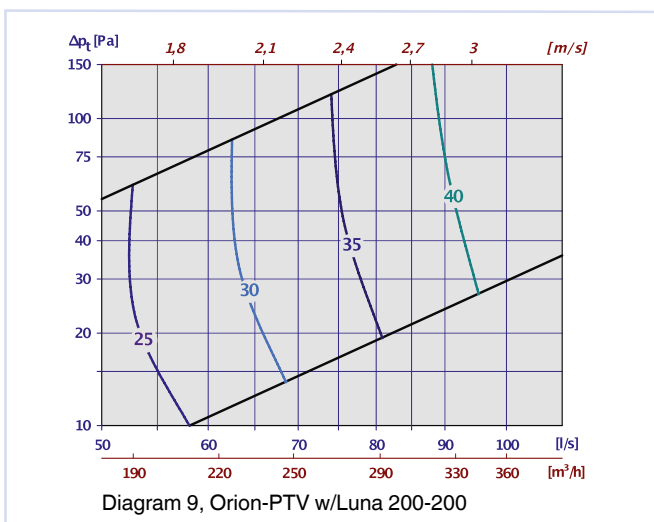
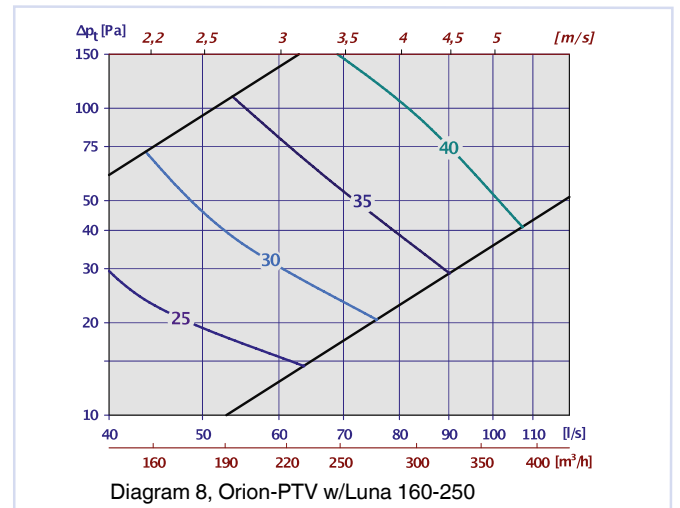
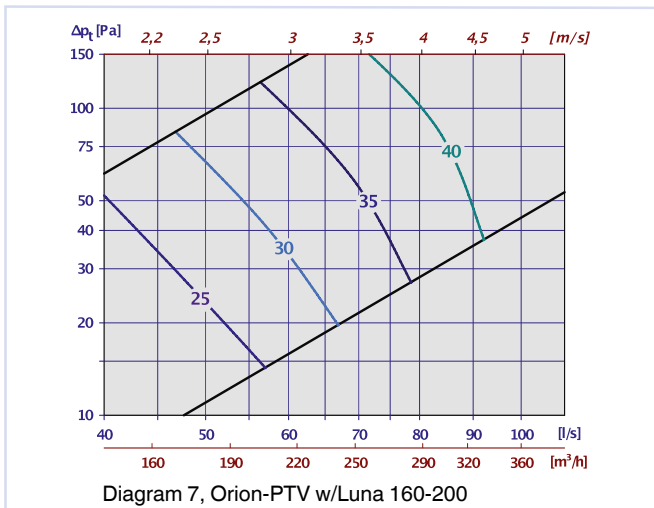
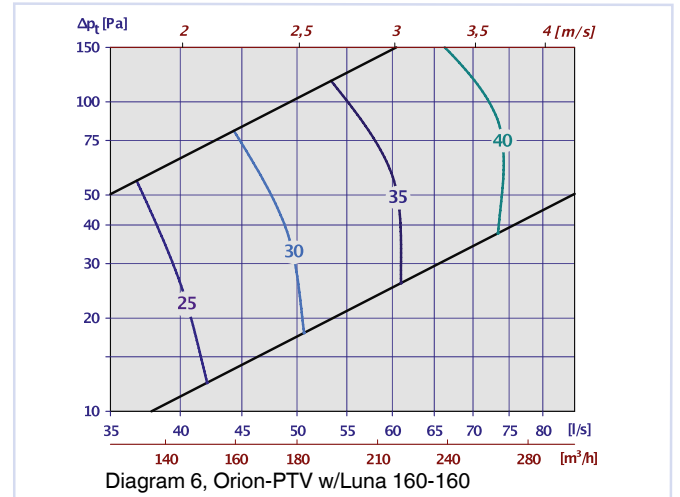
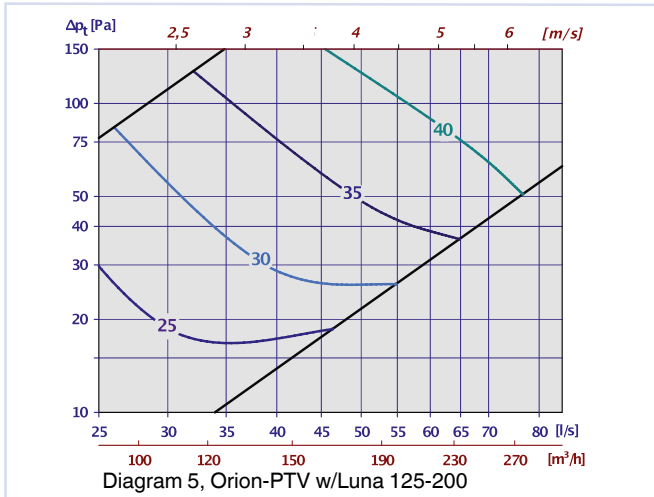
Solution:

- The correction factor is 0 dB. Emitted sound power level at 250 Hz is then: $L_w = L_{WA} + KO = 26 + 0 = 26$ dB
- With a room absorption of 4dB, A-weighted sound pressure level will be: $26 - 4 = 22$ dB(A)
- Tracing the line for 60 l/s in the diagram up to 40 Pa provides a reading of 31 dB(A) sound power level. This is an increase of 5 dB. A-weighted sound pressure level in the office is: $22 + 5 = 27$ dB(A)

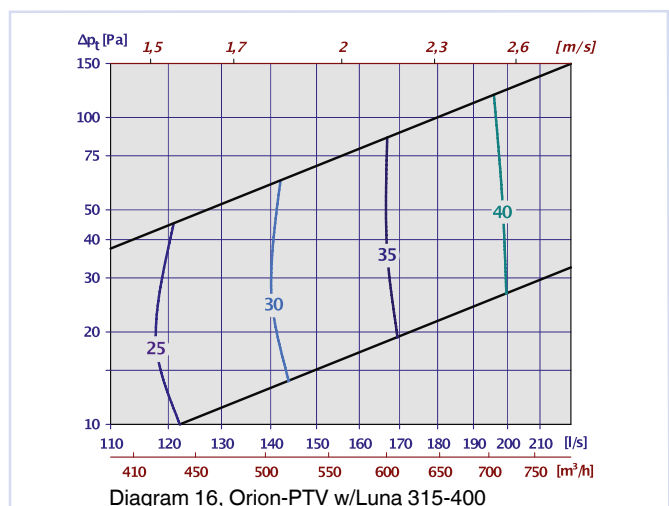
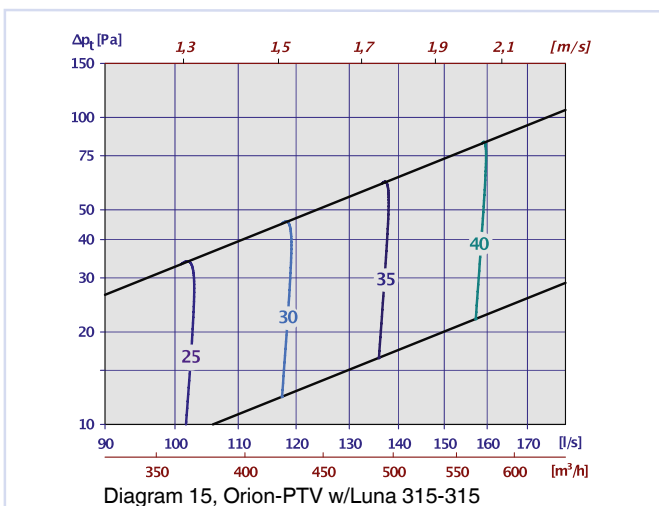
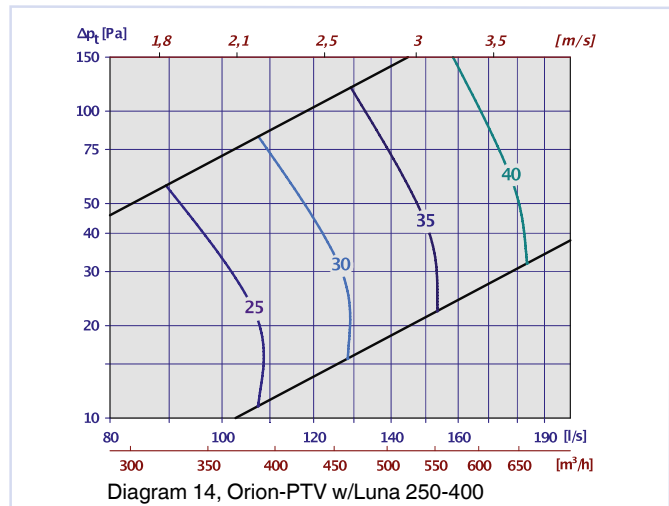
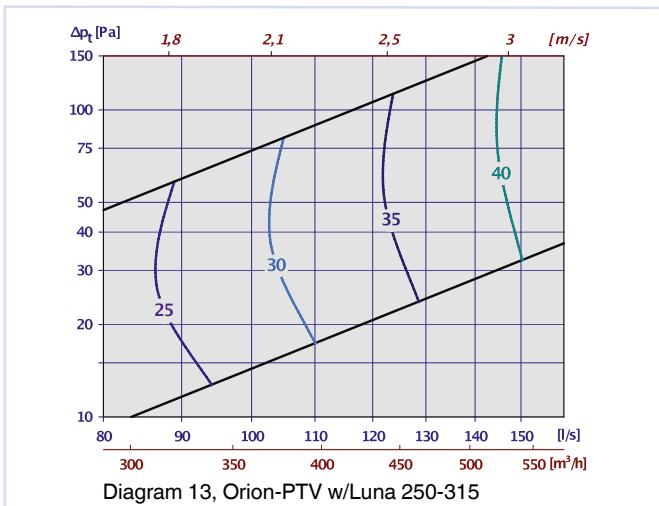
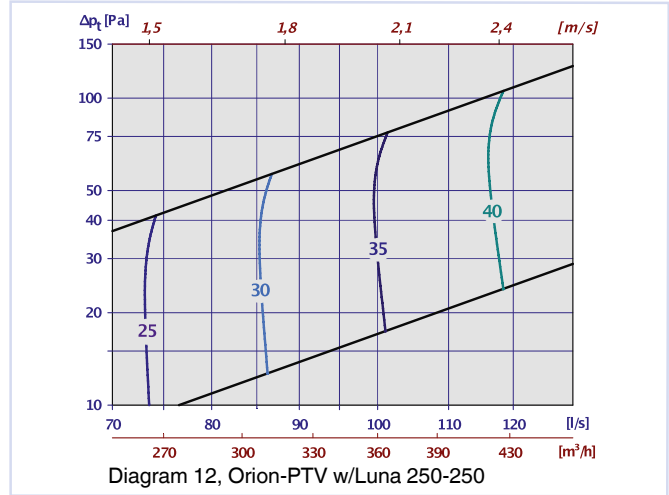
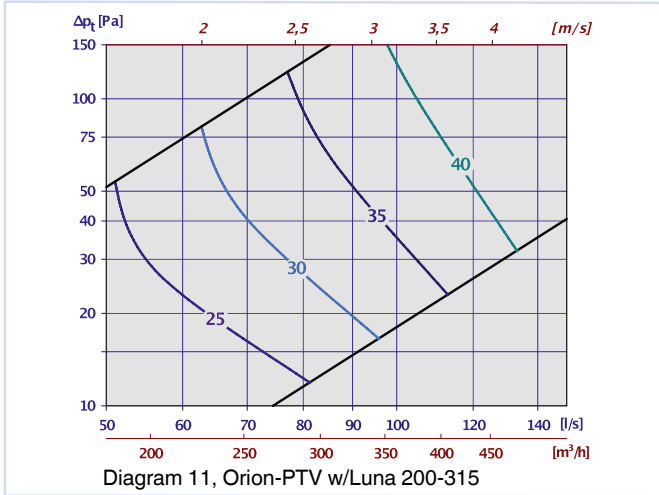
CALCULATION DIAGRAMS



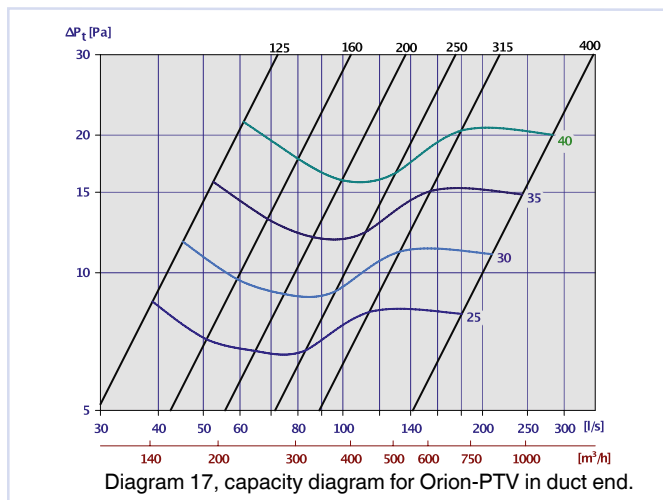
Orion-PTV



Orion-PTV



Orion-PTV



Orion-PTV	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	4	1	-1	-3	-10	-13	-7	-7	6	5	0	-1	-9	-16	-14	-9
	125-125	4	0	-3	-6	-13	-13	-5	-6	7	5	0	-1	-8	-17	-15	-10
160	100-160	5	1	0	-4	-10	-13	-7	-6	5	3	0	-2	-8	-13	-13	-9
	125-160	1	-4	-4	-8	-13	-13	-4	-5	7	2	0	-1	-7	-15	-14	-9
200	160-160	5	2	-3	-5	-10	-11	-6	-6	6	4	-1	-2	-7	-16	-13	-8
	125-200	5	-3	-3	-6	-11	-12	-5	-5	3	3	0	-2	-6	-10	-16	-12
250	160-200	4	-3	-5	-9	-14	-11	-5	-4	6	0	-2	-2	-5	-15	-15	-10
	200-200	6	-1	-3	-3	-6	-12	-9	-7	4	-1	-3	-2	-5	-15	-14	-9
315	160-250	3	-3	-7	-11	-15	-10	-5	-4	5	2	-2	-3	-4	-14	-15	-10
	200-250	6	-2	-4	-6	-8	-11	-7	-5	4	-1	-3	-3	-4	-14	-14	-9
400	250-250	5	-1	-3	-3	-4	-13	-12	-10	5	-3	-5	-3	-4	-13	-15	-10
	200-315	1	-6	-6	-11	-13	-10	-5	-4	7	-2	-2	-3	-4	-13	-14	-10
400	250-315	4	-2	-3	-5	-7	-12	-7	-5	6	-3	-4	-3	-4	-12	-16	-12
	315-315	5	-3	-4	-3	-3	-13	-15	-11	5	-3	-6	-3	-3	-12	-17	-13
400	250-400	5	-2	-4	-8	-9	-10	-6	-4	4	1	-2	-3	-5	-13	-15	-11
	315-400	5	0	-2	-3	-5	-12	-10	-9	6	0	-2	-3	-4	-13	-14	-10

Tabell 5, Correction factor [KO], Orion-PTV with Luna

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

Tabell 6, Correction factor [KO], Orion-PTV with Luna

Orion-PTV

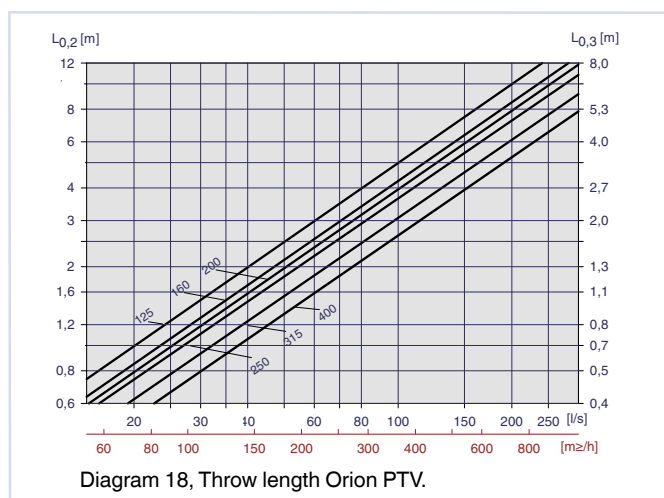
Orion-PTV Dim.	Luna Dim.	Attenuation [dB]							
		63	125	250	500	1k	2k	4k	8k
125	100-125	24	9	13	19	22	21	18	20
	125-125	16	9	14	19	22	17	15	18
160	100-160	23	9	12	16	19	20	14	19
	125-160	20	9	12	15	18	15	13	18
200	160-160	24	14	15	20	22	14	15	20
	125-200	18	6	10	13	18	15	12	16
250	160-200	19	9	12	15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

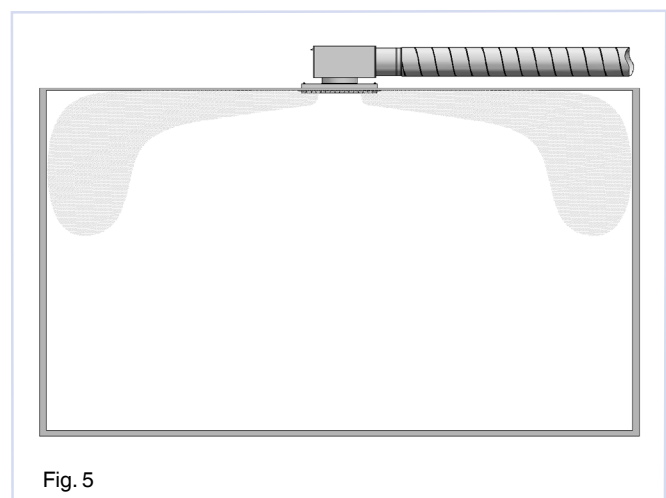
Orion-PTV Dim.	Attenuation [dB]							
	63	125	250	500	1k	2k	4k	8k
125	23	14	9	7	3	3	4	6
160	26	11	7	6	2	2	5	7
200	16	11	4	3	2	2	1	1
250	15	10	4	3	3	3	2	2
315	19	9	4	1	2	2	3	6
400	11	6	3	3	2	1	2	3

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

THROW LENGTH



FLOW PATTERN



Orion-PTV

INSTALLATION

The diffuser can be installed in modular ceiling systems as shown in fig. 6. 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. 7).

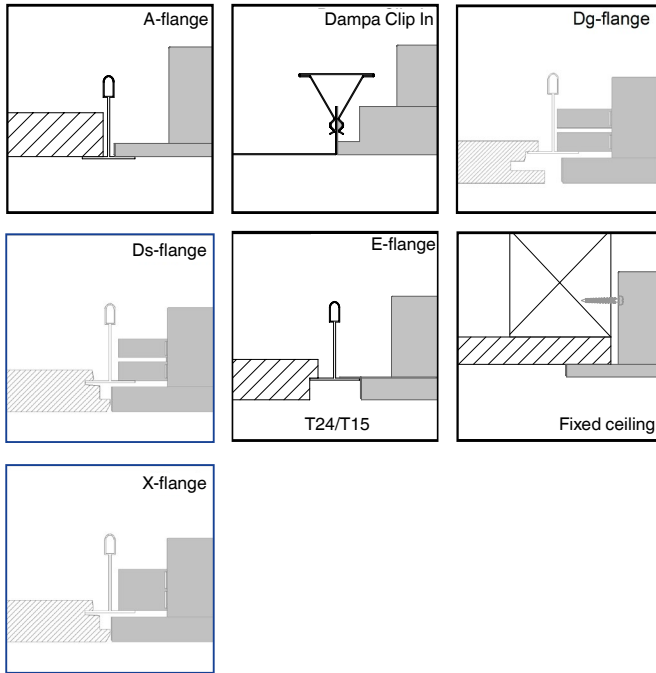


Fig. 6, Installation

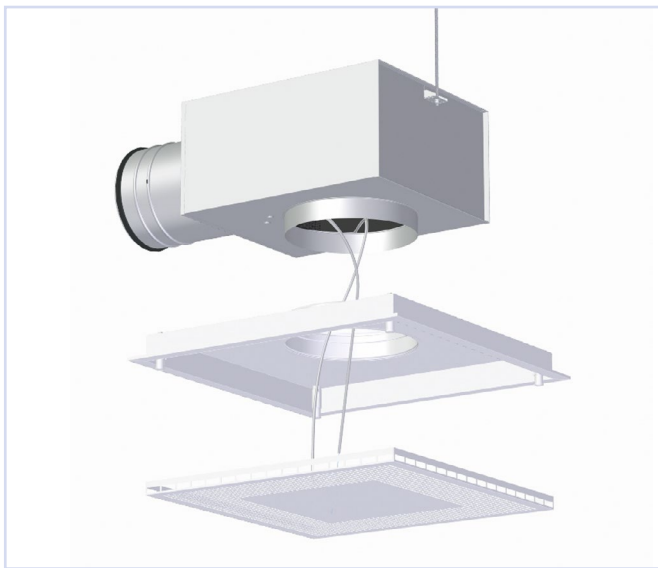


Fig. 7, Installation

Orion-PTV is developed and manufactured by:

The company reserves the right to make amendments without prior notice

COMMISSIONING

During commissioning, the diffuser front must be fitted. The measuring tube is pulled through the perforation at the front as illustrated in fig. 7, 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.

MAINTENANCE

The diffuser 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