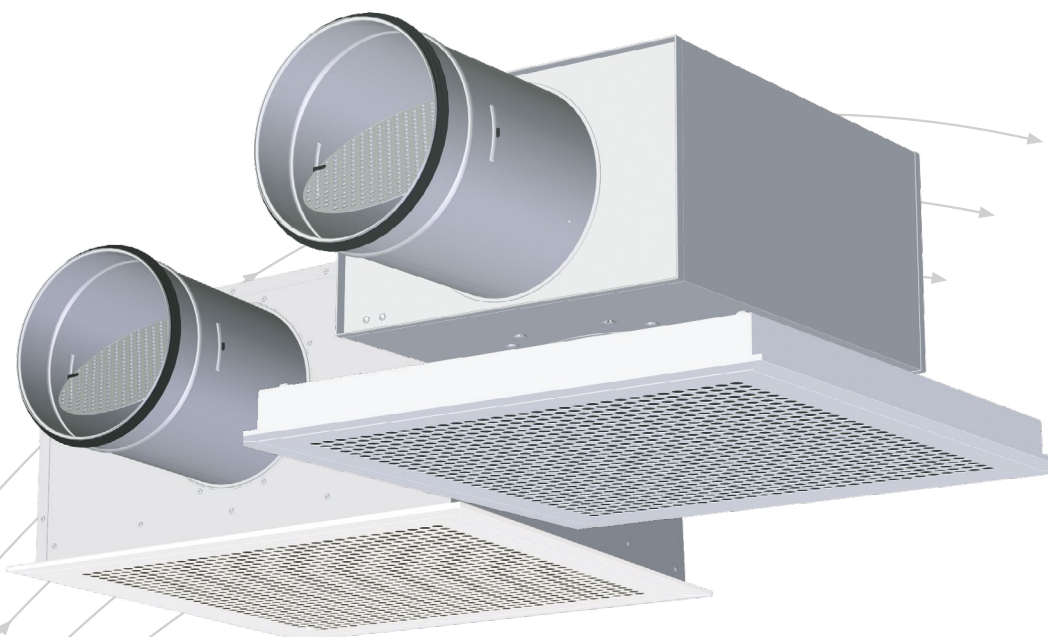


# Orion-ATV

## Square extract air terminal device



- Flush mounting
- Removable front panel
- Suitable for modular ceiling systems
- Data provided with Luna plenum box
- For high air flow rates
- Square or circular front pattern
- Top-entry spigot with Luna plenum box
- Side-entry spigot provided with integrated box

**TROX<sup>®</sup> TECHNIK**

 **Auranor**

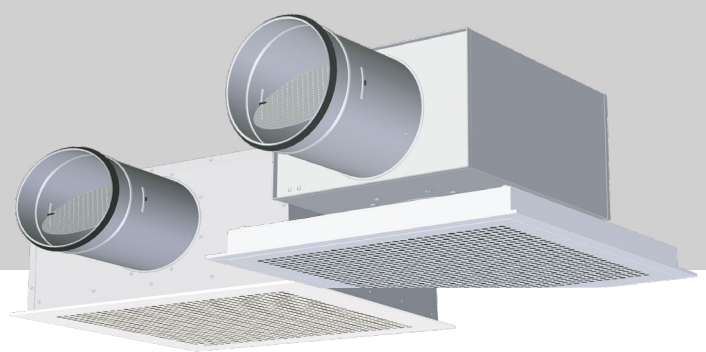
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[www.trox.no/en](http://www.trox.no/en)

# Orion-ATV



## APPLICATION

Orion-ATV is a square extract air valve with top or side connection for installation in the system ceiling.

Orion-ATV-T can be used together with Luna plenum chamber.

The Luna plenum chamber is recommended for better sound attenuation, as well as control and measurement options. Luna is a rectangular chamber with a removable damper that provides access to the connection duct. The damper locks in the desired position. Orion-ATV-S has an integrated chamber, but is not equipped with a measuring outlet. Can be regulated with e.g. funnel and unit damper or VAV in front of unit.

## DESIGN

Orion-ATV has a removable front plate, standard front pattern is square, circular pattern is available as a special option. Orion-ATV-T is only the valve body supplied with top connection. Orion-ATV-S is supplied complete with valve and chamber. The standard ceiling variant is type TA, which is adapted to T-profile ceilings, but can be supplied in alternative ceiling variants, type: DC, DG, DS and EK, see figure for ceiling variants and order code.

The Luna plenum chamber has a damper and measuring outlet for adjustment. The chamber is insulated with a polyester sound absorber and can be supplied with equal or one dimensional changes between inlet and outlet. The chamber can also be supplied with external condensation insulation. The low-build version (UI) is also available, this version provides a capacity reduction of approx. 20 per cent. The distance between valve and chamber can be increased by up to 35 cm without having to extend the wire and measuring hose.

## MATERIALS AND SURFACE COATING

The front, ceiling plate and valve body are made of steel. The connection on the valve body has a fitted EPDM rubber gasket. The attachment points in the corners of the valve body are made of plastic with built-in holding magnets. The entire valve is painted internally and externally in RAL 9003-gloss 30. Other colours are available on request.

The chamber part of Orion-ATV-S is supplied in a galvanised finish and is internally insulated with a polyester sound absorber.

Luna is supplied in a galvanised finish, internally insulated on four sides with a polyester sound absorber. The connection has an EPDM rubber seal.

## QUICK SELECTION

Orion-ATV-T Dim.	[m <sup>3</sup> /h]		
	25 dB(A)	30 dB(A)	35 dB(A)
125	187	234	299
160	306	392	500
200	504	612	742
250	680	882	1134
315	1080	1285	1526
400	1188	1404	1660

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

## QUICK SELECTION

Orion-ATV-T Dim.	Dim.	Luna [m <sup>3</sup> /h]		
		25 dB(A)	30 dB(A)	35 dB(A)
125	125-125	90	144	-
160	125-160	79	155	-
	160-160	137	238	-
200	160-200	162	238	338
	200-200	263	346	461
250	200-250	263	367	504
	250-250	367	475	-
315	250-315	310	446	626
	315-315	594	842	-
400	315-400	630	828	1152

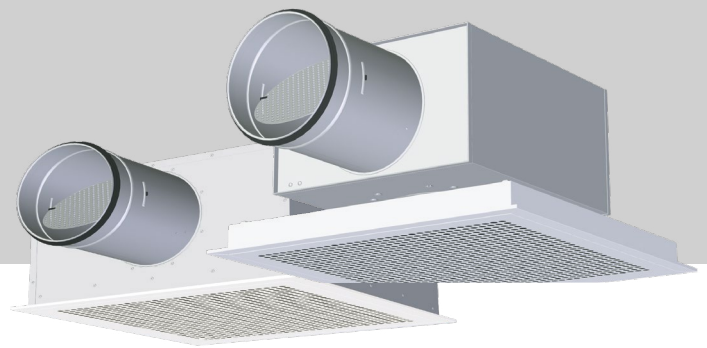
Table 2: The table provides air flow rates at given sound power levels and 30 Pa total pressure loss.

## QUICK SELECTION

Orion-ATV-S Dim.	[m <sup>3</sup> /h]		
	25 dB(A)	30 dB(A)	35 dB(A)
160	281	337	405
200	406	494	602
250	598	725	879
315	943	1148	1398
400*	1245	1543	1911

Table 3, The table provides the air flow rates with damper open. (\*400 without damper)

# Orion-ATV



## ORDER CODE, Orion-ATV

Orion-ATV - K - TA - T - 160 / SL - SP

Product: \_\_\_\_\_

Front-panel pattern:  
 K = Square, standard  
 SI = Circular, custom

For ceiling typest:  
 TA = A-flange  
 DC = Dampa Clip-In  
 DG = Dg-flange  
 DS = Ds-flange  
 EK24 = E-flang-T24  
 EK15 = E-flange-T15  
 X = X-flange

Spigot :  
 T = Top, standard  
 S = Side

No entry= Standard packaging  
 SP = Singel pack\*  
 \* only top

No entry= RAL 9003 gloss 30  
 SL = Special finish

Dimension:  
 Ø125 – Ø400 (T)  
 Ø160 – Ø400 (S\*\*)  
 \*\* Ø400 without damper

**Example:**  
 Orion-ATV-K-TA-T-160/SL-SP

**Explanation:**  
 Orion-ATV-T extract air terminal device with square front pattern. TA flange for ins. in T-profile ceiling. Standard top-entry spigot.,dim Ø160, special finish, packed in a separate cardboard box.

## ORDER CODE, Luna

Luna-0-0-125-160

Product: \_\_\_\_\_

UI = Outlet installed,  
 low profile design

I = External condensing insulation

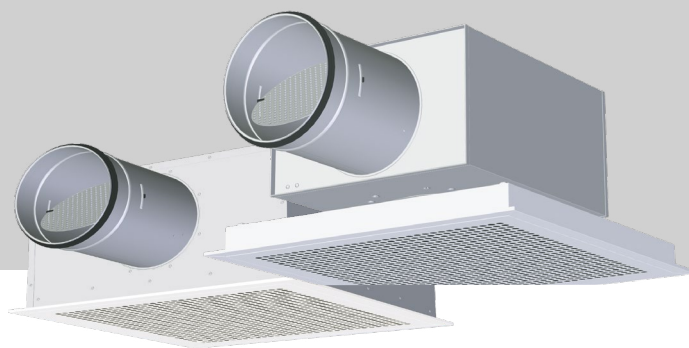
Dim. outlet: Ø125 – Ø400

Dim. inlet: Ø125 – Ø315

**Example:**  
 Luna-0-0-125-160

**Explanation:**  
 Luna with inlet Ø125 and outlet Ø160.

# Orion-ATV



## DIMENSIONS AND WEIGHT, Orion-ATV-T

Orion-ATV-T	D	Weight valve
Dim.		[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 4

## DIMENSIONS AND WEIGHT, Luna

Dim. Luna	D	DA	B	H	H1	L	L1	L2	Vekt (kg) m/Luna
125-125	124	127	250	147	253	360	334	145	2,4
125-160	124	162	250	147	253	360	334	145	2,9
160-160	159	162	340	182	288	403	390	167	4,1
160-200	159	202	340	182	288	403	390	167	4,2
200-200	199	202	380	222	328	453	457	190	5,7
200-250	199	252	380	222	328	453	457	190	5,7
250-250	249	252	390	272	378	515	537	222	7,4
250-315	249	317	390	272	378	515	537	222	7,4
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 5

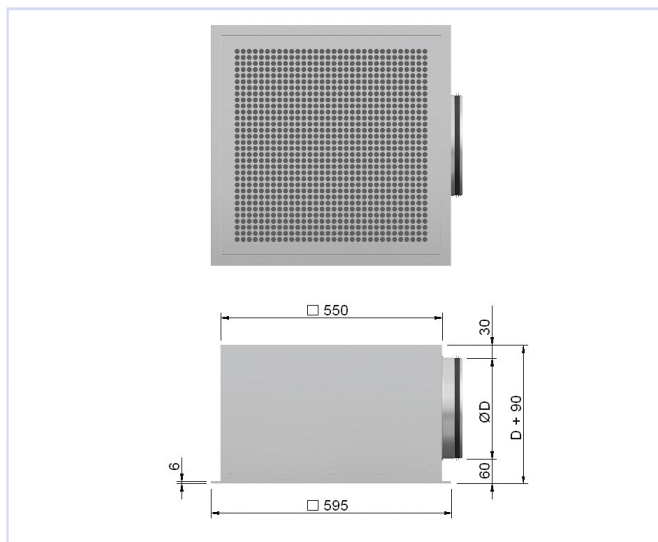


Fig.1. Orion-ATV-T

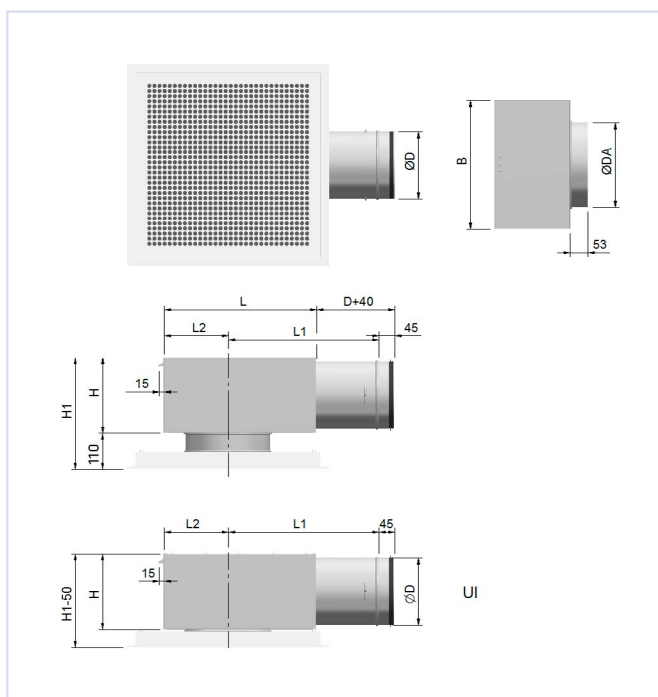
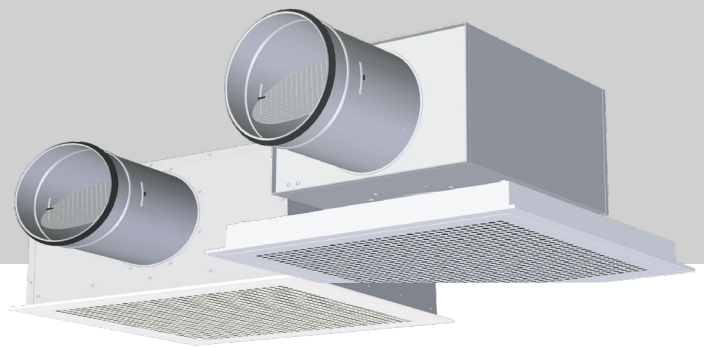


Fig.2, Orion-ATV-T with Luna

# Orion-ATV



## DIMENSIONS AND WEIGHT Orion-ATV-S

Orion-ATV-S		Weight valve [kg]
Dim.	D	
160	159	9,3
200	199	10,0
250	249	10,8
315	314	12,4
400	399	13,0

Table 6

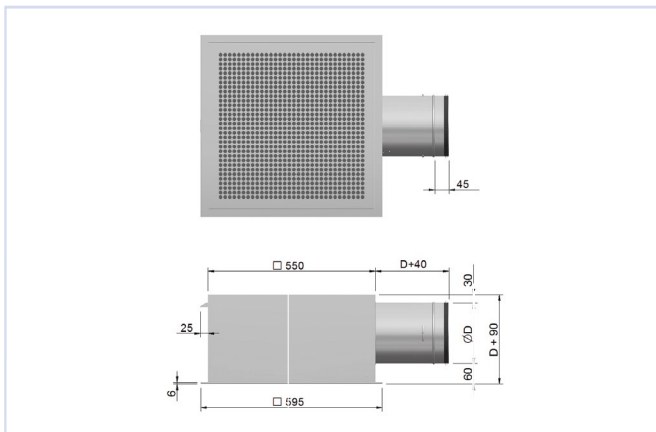


Fig. 3, Orion-ATV-S (Ø160 - 315) w/damper

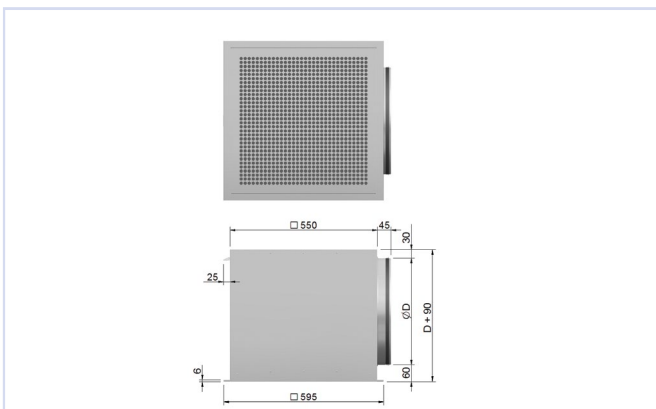


Fig. 4, Orion-ATV-S Ø400 without damper.

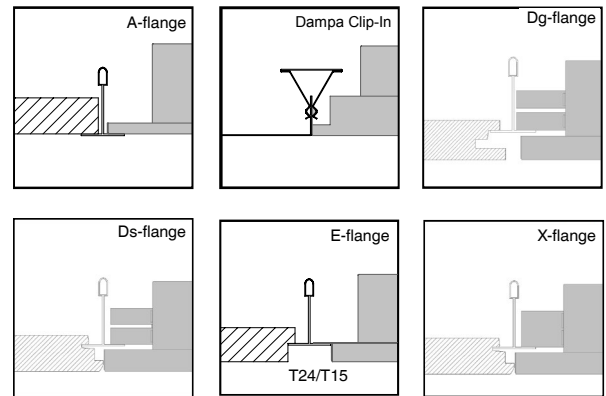


Fig. 5, Ceiling types

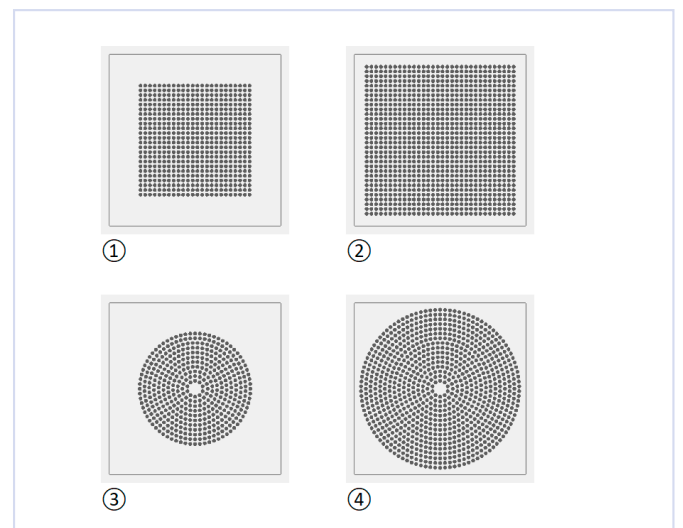


Fig.6, pattern in front

- ① Orion-ATV-K ø125-ø200
- ② Orion-ATV-K ø250-ø400
- ③ Orion-ATV-SI ø125-ø300
- ④ Orion-ATV-SI ø250-ø400

# Orion-ATV

## ACOUSTIC DATA

The diagrams provide a summary of the A-weighted sound power level from diffuser,  $L_{WA}$ . Correction factors in table 7, 8 and 9, page 9, 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:

Office premises require an indoor air draw-out level of 65l/s, and for this purpose an Orion-ATV-T extract air terminal device with Luna plenum box dimension 160-160 is used. Room attenuation is 6 dB, and the valve damper is to be choked 20 Pa.

We aim to find:

- Emitted sound power level from diffuser at 250 Hz, damper open.
- A-weighted sound pressure level in the room with damper open.
- A-weighted sound pressure level in the room with damper choked.
- Emitted sound power level from diffuser at 250 Hz, damper choked.

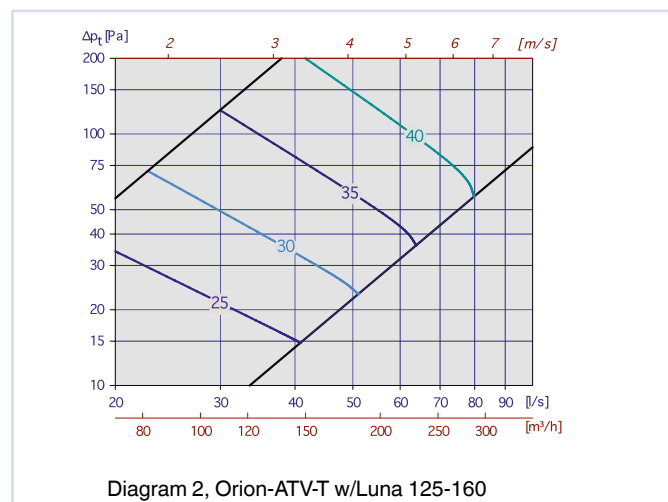
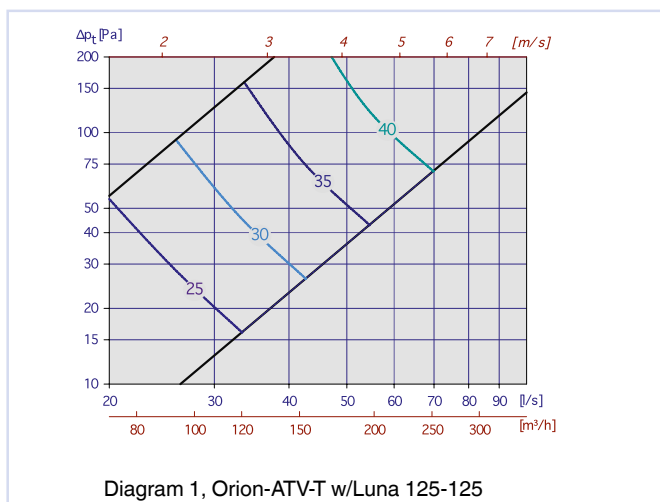
### Solution:

Orion-ATV-T with Luna Ø160-160 - desired volume flow 65 l/s.

According to diagram 3,  $L_{WA} = 28$  dB(A) with damper open and 27 Pa total pressure loss.

- Table 6 shows that the correction factor for open damper at 250 Hz is 2dB.  $L_w$  for 250 Hz:  $L_{WA} + KO = 28 + 2 = 30$  dB
- A room attenuation equivalent to 6 dB provides a sound pressure level in the room of:  $30 - 6 = 24$  dB(A)
- With 20Pa choking, the total pressure drop increases to 47Pa and  $L_{WA} = 33$  dB(A)
- Table 8 shows that the correction factor for choked damper at 250 Hz is 2dB.  $L_w$  at 250 Hz is thus:  $L_{WA} + KO = 33 + 2 = 35$  dB

## CALCULATION DIAGRAMS



# Orion-ATV

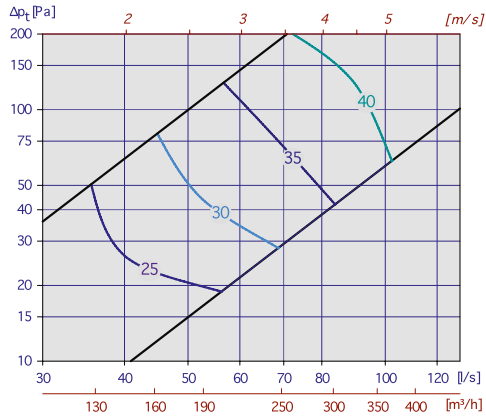


Diagram 3, Orion-ATV-T w/Luna 160-160

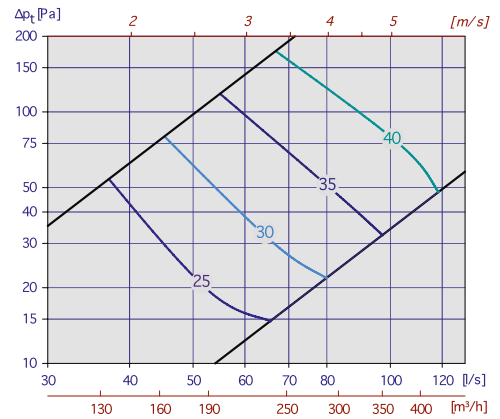


Diagram 4, Orion-ATV-T w/Luna 160-200

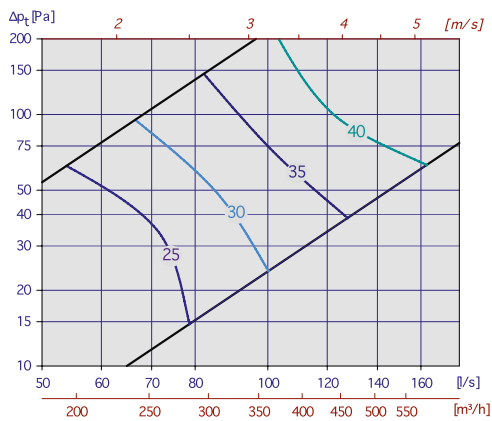


Diagram 5, Orion-ATV-T w/Luna 200-200

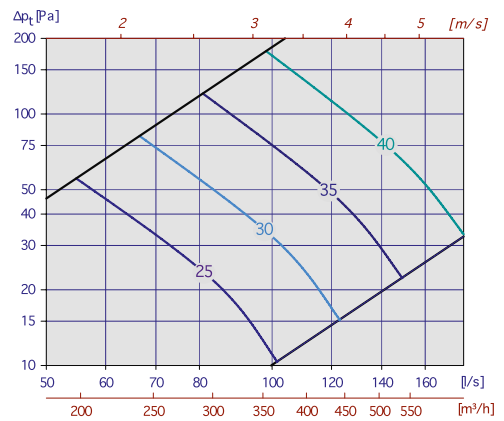


Diagram 6, Orion-ATV-T w/Luna 200-250

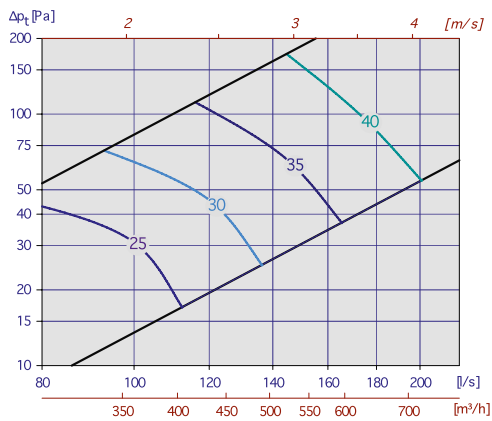


Diagram 7, Orion-ATV-T w/Luna 250-250

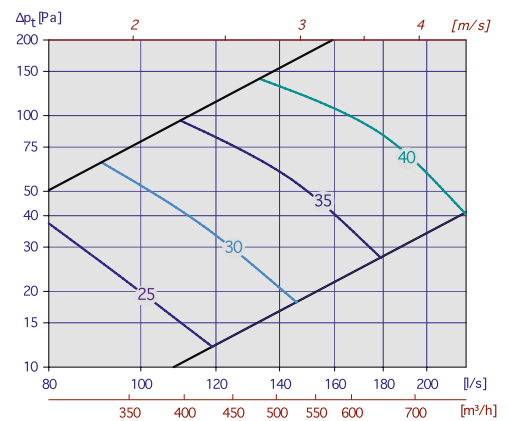
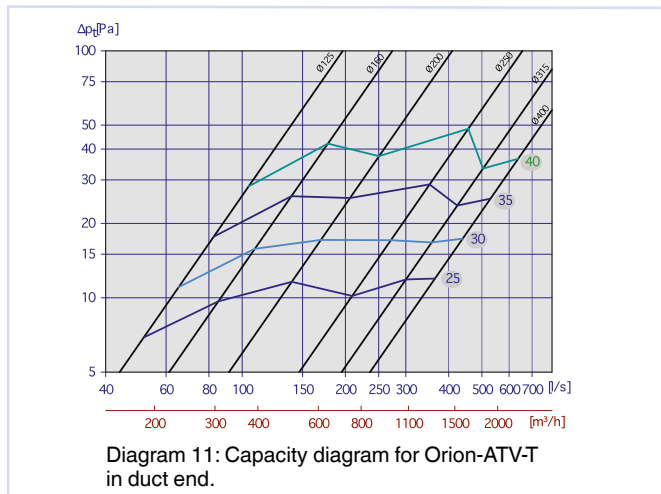
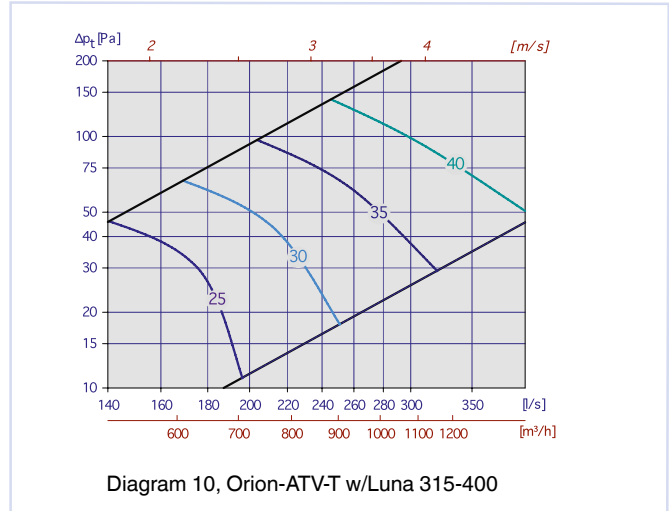
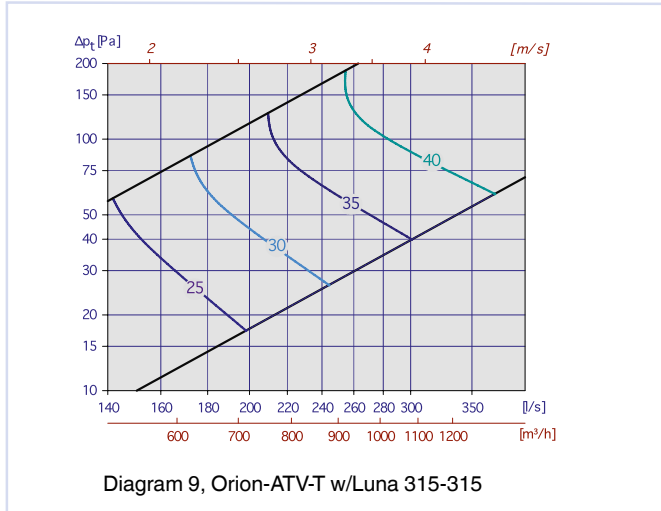


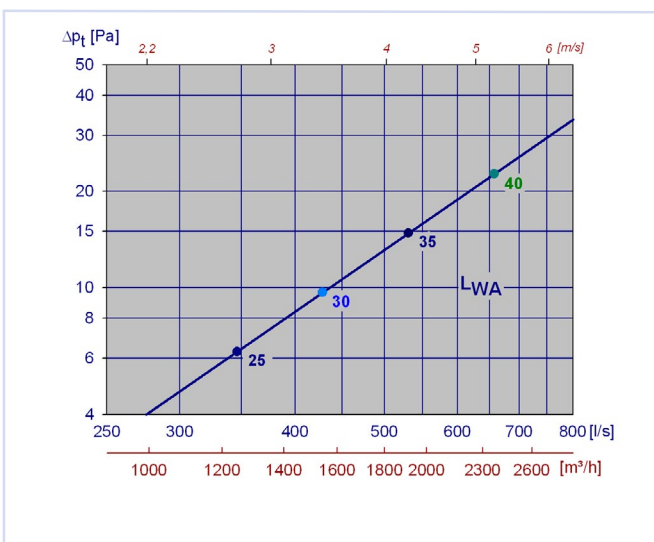
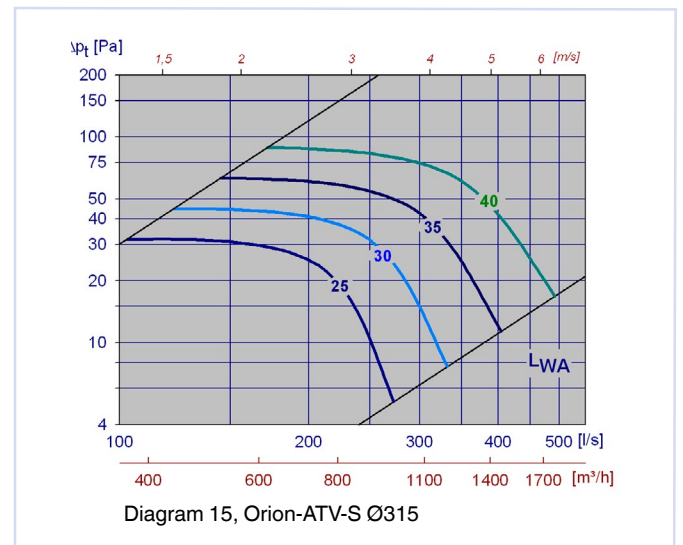
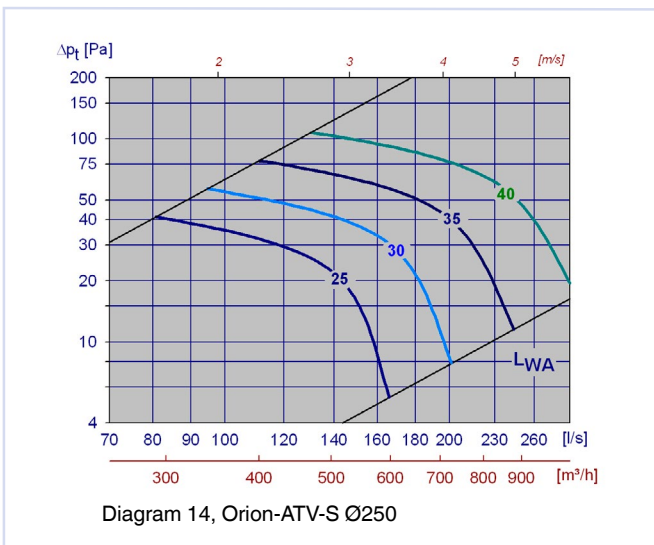
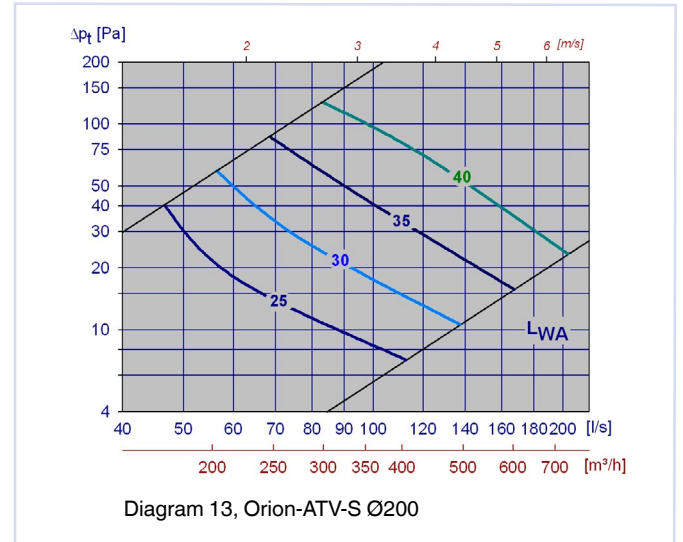
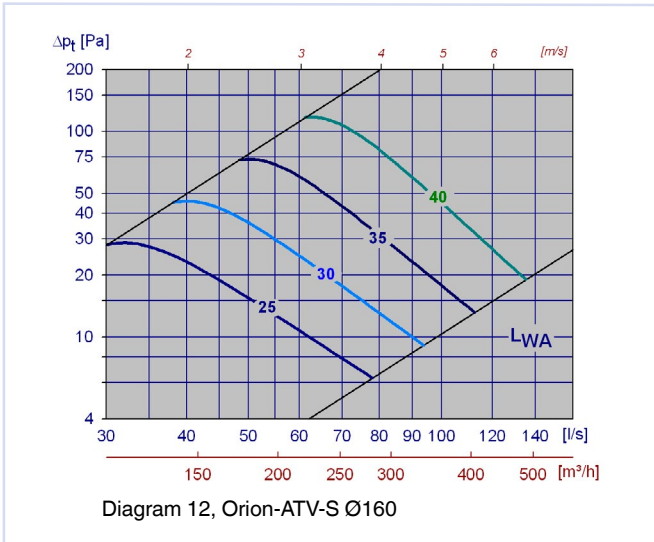
Diagram 8, Orion-ATV-T w/Luna 250-315

# Orion-ATV





# Orion-ATV



# Orion-ATV

Correction factors for Orion-ATV-T in duct end.

Orion-ATV Dim.	KO [dB]							
	63	125	250	500	1k	2k	4k	8k
125	4	1	2	-2	-8	-14	-12	-8
160	8	-1	0	-2	-7	-12	-11	-8
200	4	-1	1	-2	-7	-10	-12	-11
250	9	0	-1	-4	-7	-12	-11	-6
315	4	-2	-3	-4	-4	-8	-12	-22
400	6	1	-3	-3	-4	-13	-14	-20

Table 7

Correction factors for Orion-ATV-T with Luna.

Orion-ATV 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	125-125	4	0	2	-6	-11	-13	-7	-5	8	8	3	-5	-10	-13	-13	-9
160	125-160	5	-2	2	-6	-12	-12	-7	-6	8	3	3	-5	-9	-10	-11	-8
	160-160	5	2	0	-6	-12	-10	-7	-6	12	6	2	-4	-8	-11	-12	-10
200	160-200	3	1	0	-6	-12	-9	-7	-5	8	3	1	-6	-6	-8	-12	-10
	200-200	5	0	0	-7	-12	-9	-7	-5	12	4	2	-4	-7	-13	-12	-8
250	200-250	4	1	1	-6	-12	-9	-7	-6	8	3	0	-6	-5	-11	-12	-10
	250-250	7	3	-1	-7	-11	-9	-7	-6	11	6	0	-5	-5	-13	-13	-10
315	250-315	8	2	-1	-7	-11	-9	-6	-6	8	5	-1	-4	-4	-13	-13	-10
	315-315	4	1	-3	-8	-9	-8	-6	-8	11	6	0	-3	-6	-13	-13	-10
400	315-400	9	3	-2	-7	-8	-9	-7	-9	9	5	-2	-2	-7	-13	-12	-9

Table 8

Correction factors for Orion-ATV-S

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

Table 9

Static sound attenuation incl. end reflection for Orion-ATV-T in duct end.

Orion-ATV (T) Dim.	Attenuation [dB]							
	63	125	250	500	1k	2k	4k	8k
125	21	14	8	1	1	1	2	3
160	19	11	7	0	1	0	1	3
200	16	10	3	0	1	0	1	2
250	13	8	2	0	0	0	1	2
315	13	6	1	0	0	0	0	1
400	12	4	1	0	0	0	0	0

Table 10

Static sound attenuation incl. end reflection for Orion-ATV-S.

Orion-ATV (S) Dim.	Attenuation [dB]							
	63	125	250	500	1k	2k	4k	8k
160	21	9	10	13	11	7	10	13
200	16	9	9	13	10	7	10	13
250	13	8	9	12	8	8	9	12
315	12	7	8	11	7	8	8	11
400	8	6	6	11	7	6	9	11

Table 12

Static sound attenuation incl. end reflection for Orion-ATV-T with Luna.

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

Table 11

# Orion-ATV

## INSTALLATION

The Orion-ATV valve can be installed in different types of system ceilings or in fixed ceilings, see fig.7. If the Luna plenum chamber is used, it is suspended from the suspension bracket at the rear with a threaded rod or band, see fig.8.

Orion-ATV-S can be suspended with a threaded rod or band, see fig.9.

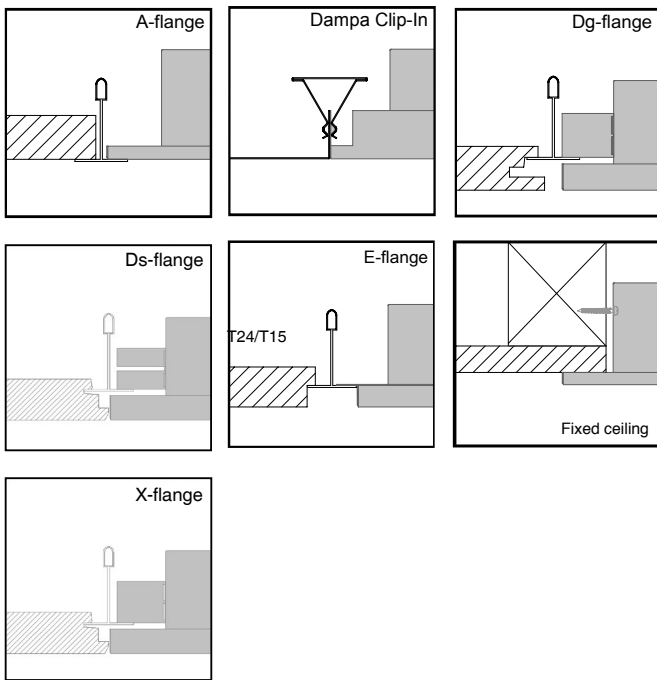


Fig. 7, Ceiling types

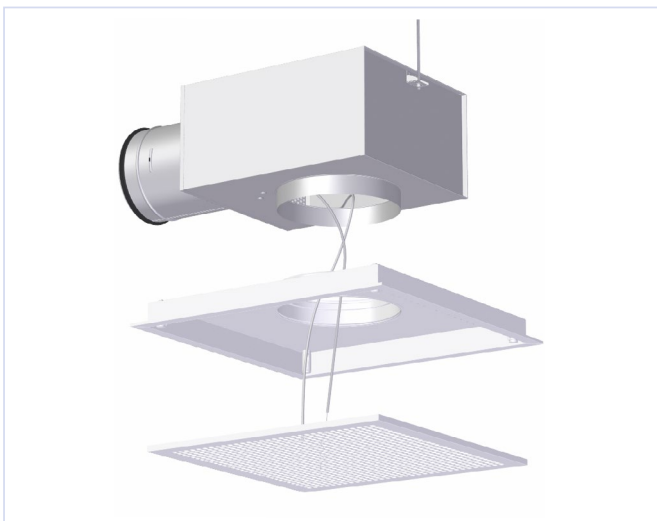


Fig. 8: Installation Orion-ATV w/Luna

Orion-ATV is developed and manufactured by:

## COMMISSIONING

Commissioning of ATV:

Orion-ATV-T is not equipped with dampers and measuring outlets. It is recommended to use a funnel and damper in the ductwork for adjustment. When adjusting Orion-ATV-T with Luna, the valve front must be fitted. The measuring hose and wire are pulled out through the perforation in the front. The damper is locked with a lock nut on the wire, remember to tighten the lock nut properly so that the damper does not change position. K-factors for calculation airflow can be found on the label in the valve, or in our adjustment guide on our website: [www.trox.no](http://www.trox.no). Orion-ATV-S is not equipped with a measuring outlet, therefore it is recommended to use the funnel and unit's damper for adjustment. For dimension  $\varnothing 400$ , a damper in the ductwork must be used.

## 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 to the duct. If Luna is used, the 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.trox.no](http://www.trox.no)

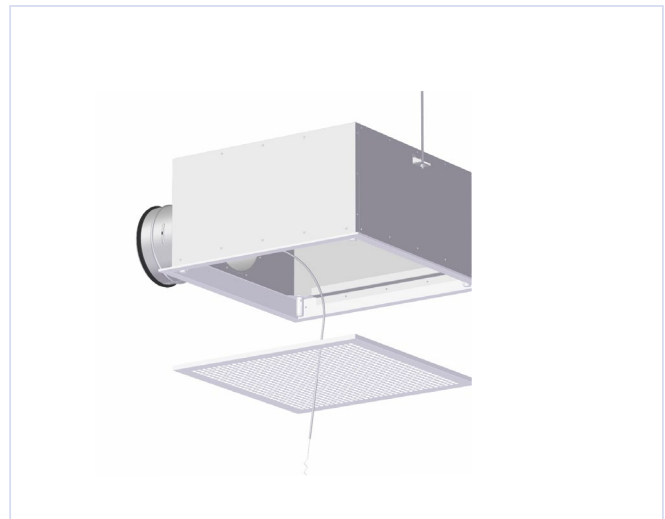


Fig. 9: Installation Orion-ATV-S

The company reserves the right to make amendments without prior notice