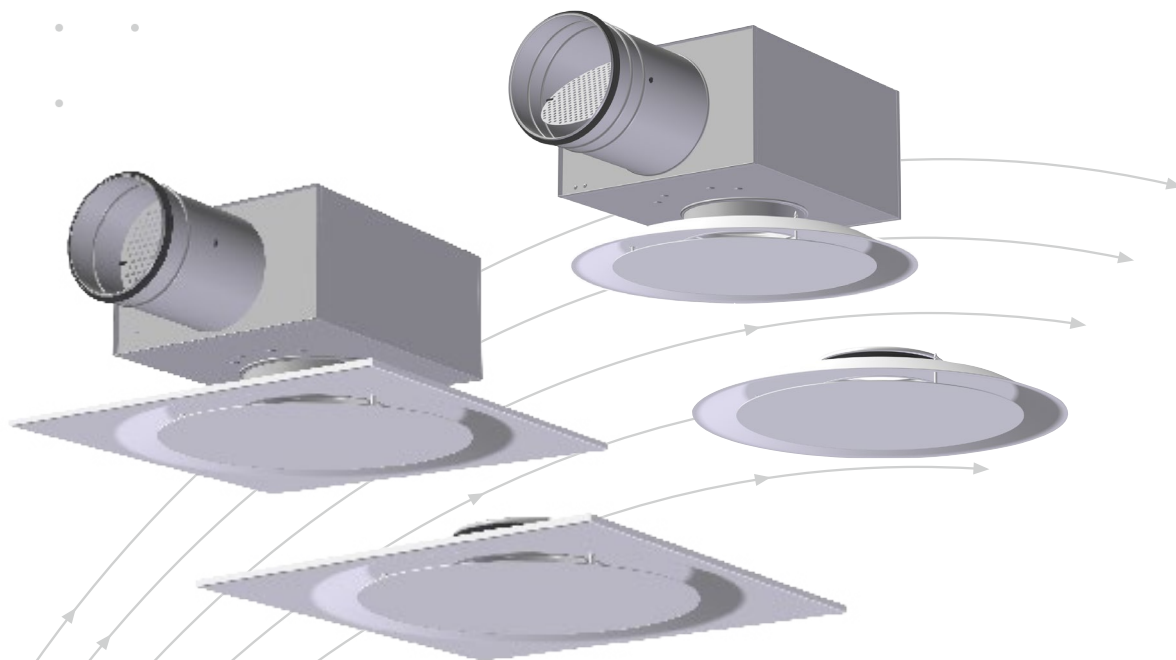


# VPD



epd

NEPD-5764-5051

- Square and circular design
- Diffuser for supply and exhaust application
- Applicability with and without LUNA plenum box
- Adapted to various ceilings
- Dismantable front inner core

# TROX<sup>®</sup> TECHNIK

## Auranor

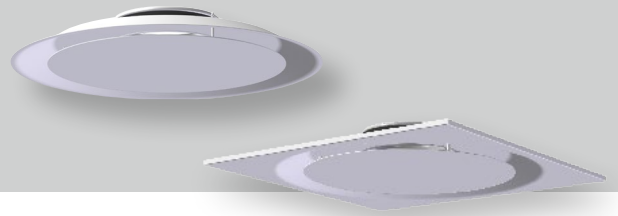
TROX Auranor AS

Auranorvegen 6  
2770 Jaren

Telephone: +47 61 31 35 00

E-mail: [office-no@troxgroup.com](mailto:office-no@troxgroup.com)  
[www.trox.no/en](http://www.trox.no/en)

# VPD



## APPLICATION

VPD is a combined supply and exhaust diffuser. VPD V3 is designed for easy installation in modular ceiling systems. VPD V1 is designed for fixed ceilings. VPD is designed to take advantage of the Coanda effect to the ceiling surface.

## DESIGN

VPD V3 has a dismantable front. Standard ceiling variant is type TA which is adapted to a T-profile ceiling, but can be delivered in alternative ceiling variants, type DC, DG, DS, EK and X-flange, see figure 3 and order code. VPD V1 has a dismantable front and can be used in fixed ceilings.

## MATERIALS AND SURFACES

Diffuser body and front is produced in steel. Spigot is fitted with an EPDM rubber gasket. The inside and outside of the diffuser is coated with RAL 9003 - 30 gloss. Other colors on request.

## QUICK SELECTION, VPD at DUCT END, SUPPLY

VPD ØD	[m³/h]		
	25dB(A)	30dB(A)	35dB(A)
125	181	213	252
160	227	267	314
200	303	351	406
250	332	396	471
315	450	504	594

Table 1, shows air flow volume at the stated sound power level (supply).

## QUICK SELECTION, VPD at DUCT END, EXHAUST

VPD ØD	[m³/h]		
	25dB(A)	30dB(A)	35dB(A)
125	237	288	356
160	396	460	529
200	460	536	622
250	468	572	669
315	453	570	655

Table 2

## DIMENSIONS AND WEIGHTS, VPD

Dim	VPD V1		VPD V3	
	D	Weight	D	Weight
125	124	3	124	3,1
160	159	3	159	3,1
200	199	3	199	3,1
250	249	3	249	3,1
315	314	3	314	3,1

Table 3, Overview of dimensions and weights, VPD

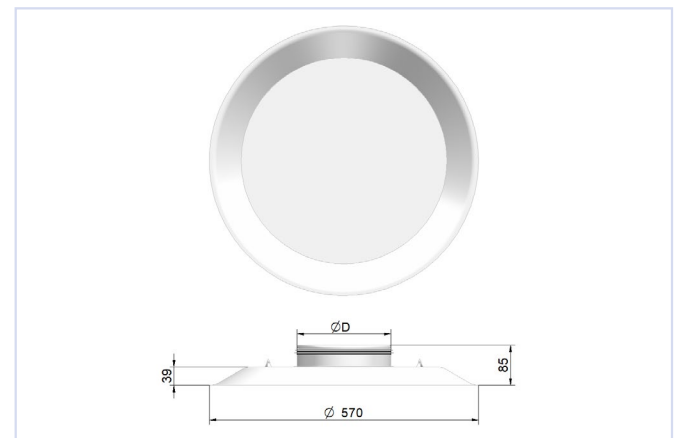


Figure 1, VPD V1

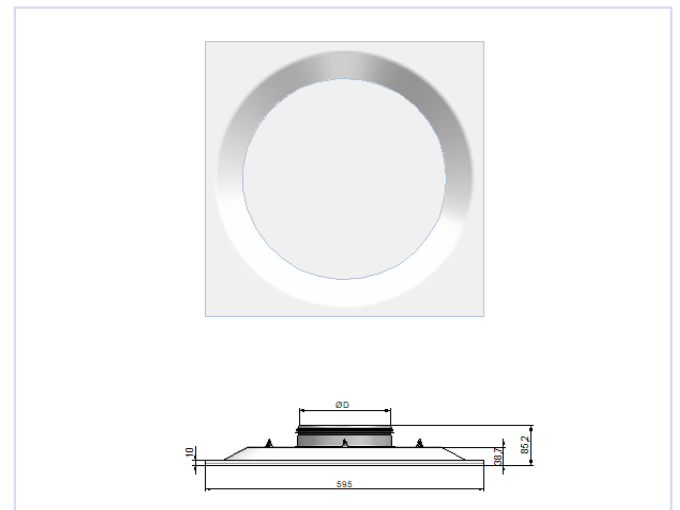


Figure 2, VPD V3

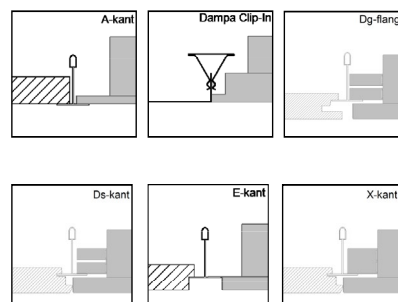
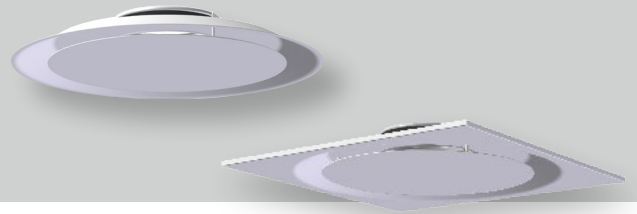


Figure 3, Ceiling types for VPD V3

# VPD



## ORDER CODE, VPD

### Order code

VPD- V3 / 200 / TA / SL- RAL / SP  
1 2 3 4 5 6

#### 1 Type

VPD, Supply and exhaust diffuser

#### 2 Variant

V1= Cirkular

V3= Square

#### 3 Dimension

125

160

200

250

315

#### 4 Ceiling systems\*

TA= A-flange

DC= Dampa Clip-in

DG= Dg-flange

DS= Ds-flange

EK24= E-flange-T24

EK15= E-flange-T15

X= X-flange

\*Only for square type, V3

#### 5 Exposed surface

No entry= RAL 9003,gloss 30

SL-RAL= special finish

SL-NCS= special finish

#### 6 Packaging

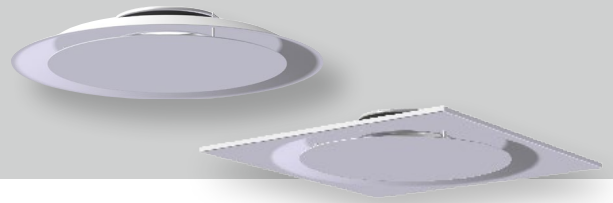
No entry= Standard packaging, multipack

SP= Single packaged

Example: VPD-V3-200-TA-SL-RAL-SP

Type	VPD
Variant	V3
Dimensjon	200
Ceiling systems	TA= A-flange
Exposed surface	SL-RAL, special finish
Packaging	SP= single packaged

# VPD with Luna



## 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

The 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 SURFACES

Luna is supplied a galvanised finish and with all four internal walls lined with sound absorber in polyester. The spigot is fitted with an EPDM rubber gasket.

## QUICK SELECTION VPD WITH LUNA (INTAKE)

Luna dim.	Open (m <sup>3</sup> /h)		
	25dB(A)	30dB(A)	35dB(A)
100-125	112	133	162
100-160	115	137	166
125-125	119	140	169
125-160	162	194	234
125-200	194	227	266
160-160	176	212	256
160-200	223	277	328
160-250	288	331	392
200-200	256	299	353
200-250	317	367	432
200-315	367	443	518
250-250	317	371	443
250-315	425	504	594
315-315	475	554	659

Table 4, Quick Selection table VPD with Luna supply, air flow volume with open damper (m<sup>3</sup>/h).

## QUICK SELECTION VPD WITH LUNA (EXHAUST)

Luna dim.	Open (m <sup>3</sup> /h)		
	25dB(A)	30dB(A)	35dB(A)
100-125	133	162	191
100-160	122	155	194
125-160	162	202	252
125-200	184	223	277
160-200	277	324	389
160-250	281	331	403
200-250	353	425	504
200-315	389	450	522
250-315	400	475	569
315-315	497	587	691

Table 5, Quick Selection table VPD with Luna exhaust, air flow volume with open damper (m<sup>3</sup>/h).

## DIMENSIONS AND WEIGHT, VPD with Luna

Dim.	D	DA	B	H	H1	L	L1	L2	Weight (kg) w/Luna
100-125	99	127	220	122	217	325	292	127	5,4
100-160	99	162	220	122	217	360	309	145	5,5
125-125	124	127	250	147	242	360	334	145	5,5
125-160	124	162	250	147	242	360	334	145	6,0
125-200	124	202	250	147	242	400	354	165	6,2
160-160	159	162	340	182	277	403	390	167	7,2
160-200	159	202	340	182	277	403	390	167	7,3
160-250	159	252	340	182	277	453	415	192	7,7
200-200	199	202	380	222	317	453	457	190	8,8
200-250	199	252	380	222	317	453	457	190	8,8
200-315	199	317	380	222	317	515	487	222	9,2
250-250	249	252	390	272	367	515	537	222	10,5
250-315	249	317	390	272	367	515	537	222	10,5
315-315	314	317	500	337	432	600	654	255	13,8

Table 6, Overview of dimensions and weight, VPD with Luna

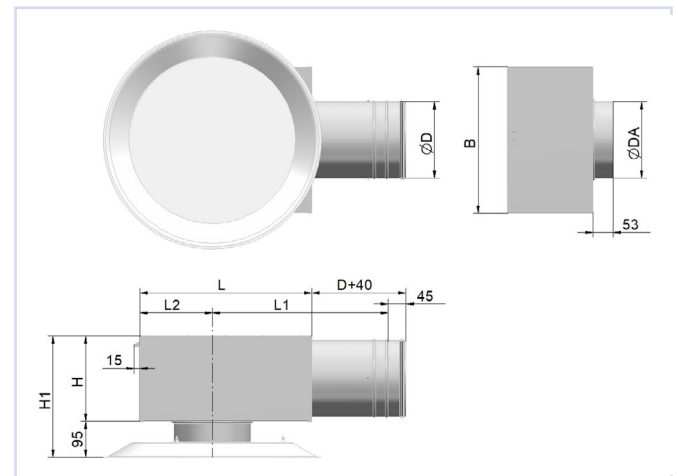


Figure 4, VPD V1 with Luna

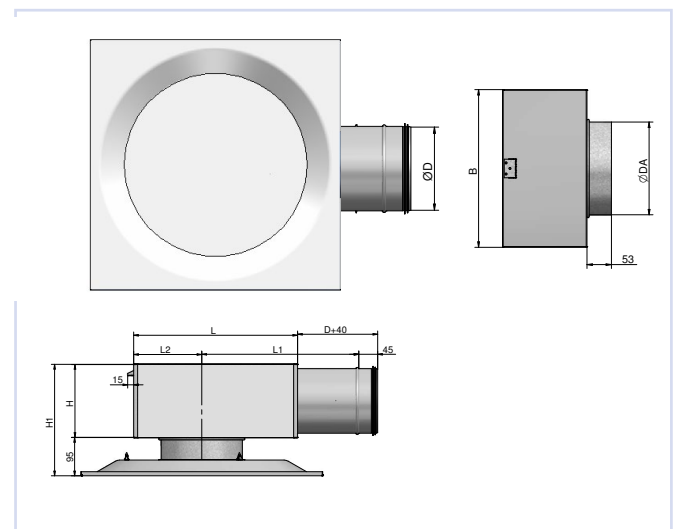
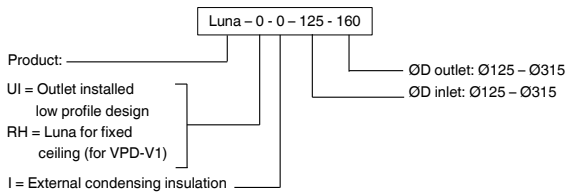


Figure 5, VPD V3 with Luna

# VPD

## ORDER CODE, Luna for VPD



### Example:

Luna-0-0-125-160

### Explanation:

Luna plenum box with inlet Ø125 and outlet Ø160

## ACOUSTIC DATA

The diagrams provide a summary of the A-weighted sound power level from diffuser, L<sub>WA</sub>. Correction factors in table 9 are used to calculate emitted sound power level at the respective frequencies, LW = L<sub>WA</sub> + 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:

Luna 160-200 - desired volume flow 70 l/s, which according to pressure drop calculations must be throttled to 50 Pa total pressure loss

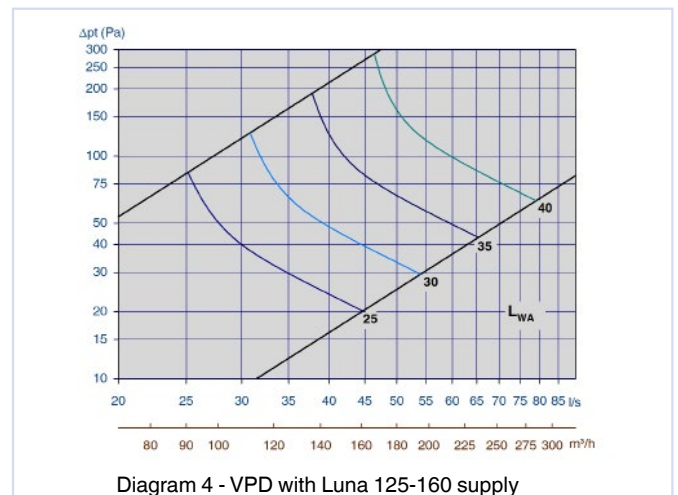
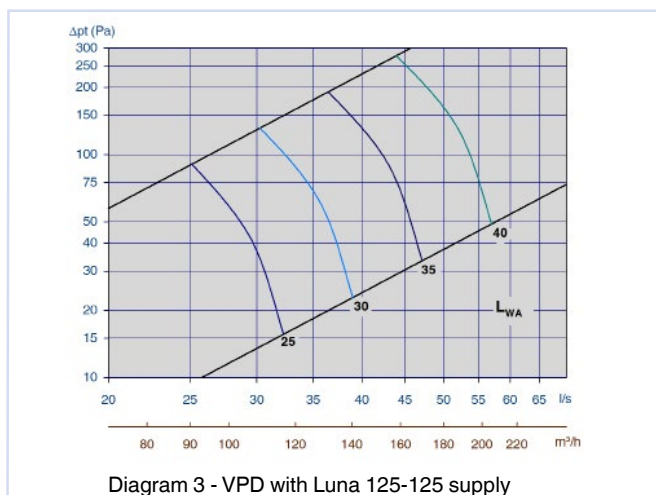
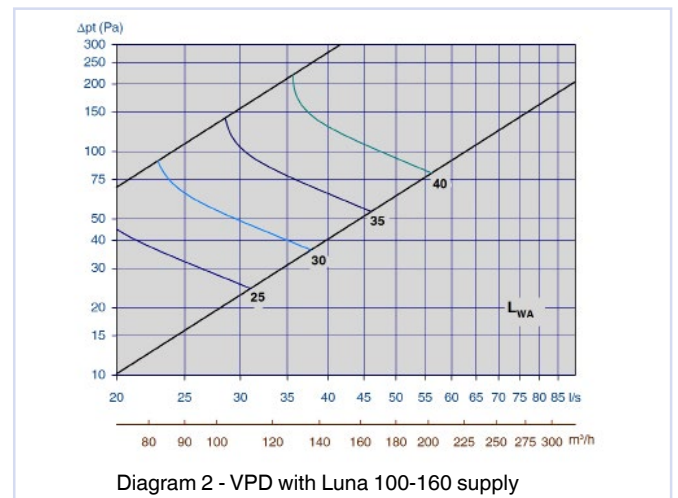
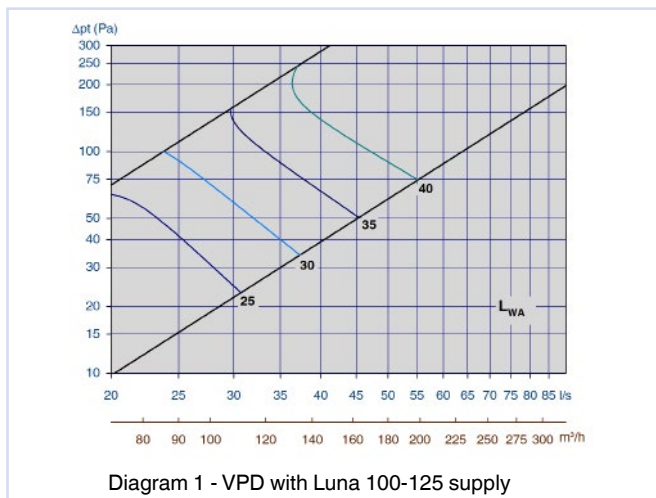
a) We aim to find emitted sound power level from the diffuser at 250 Hz at the chosen operating point.

Solution:

a) Luna 160-200 with VPD V3 Ø200 and desired volume flow 70 l/s.

From diagram 7 we find that L<sub>WA</sub> = 28dB(A) with open damper blade and 30 Pa total pressure loss. Table 9 shows that the correlation factor for open damper at 250 Hz is -1 dB. L<sub>W</sub> at 250 Hz is calculated in this manner: L<sub>WA</sub> + KO = 28+(-1) = 27dB

## CALCULATION DIAGRAM



# VPD

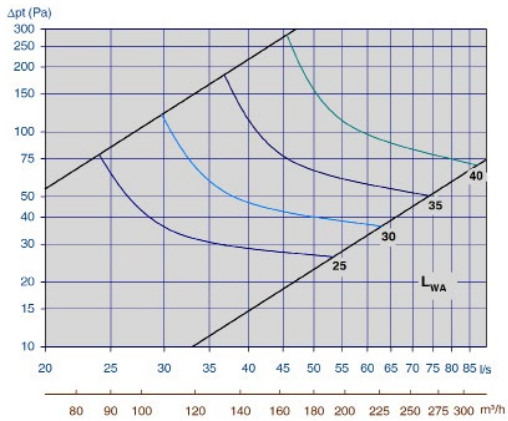


Diagram 5 - VPD with Luna 125-200 supply

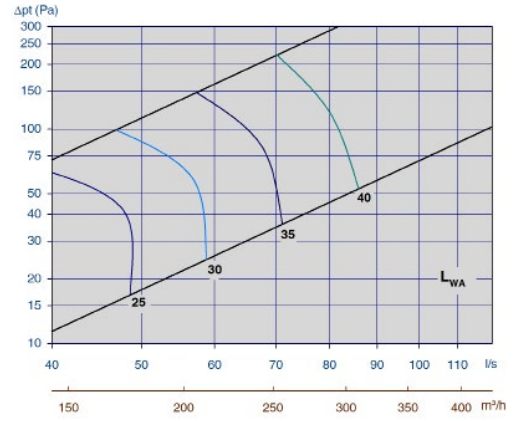


Diagram 6 - VPD with Luna 160-160 supply

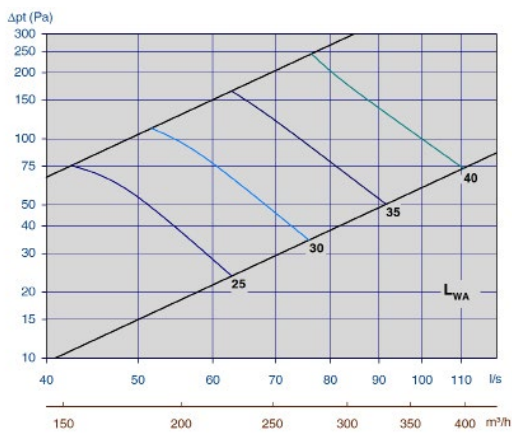


Diagram 7 - VPD with Luna 160-200 supply

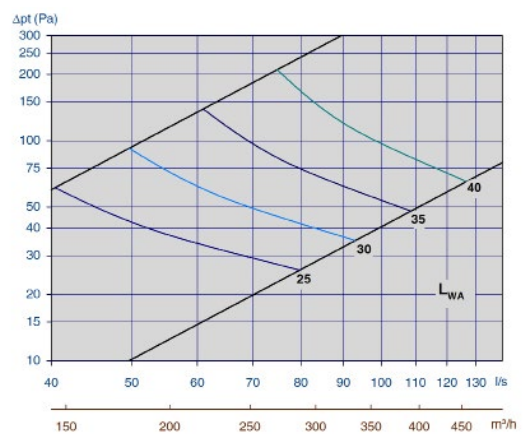


Diagram 8 - VPD with Luna 160-250 supply

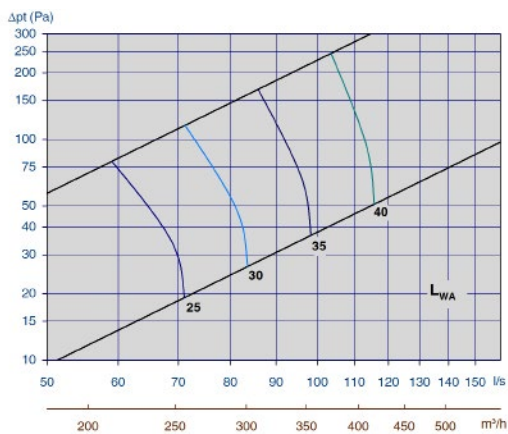


Diagram 9 - VPD with Luna 200-200 supply

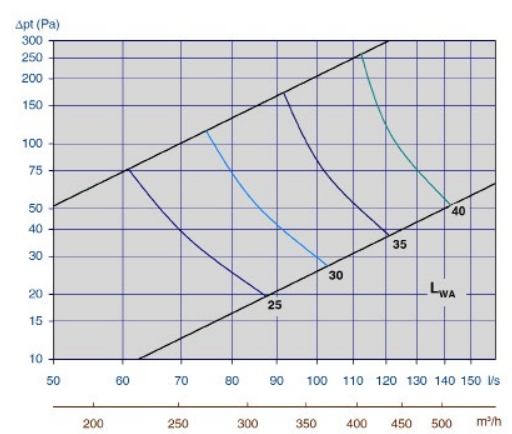
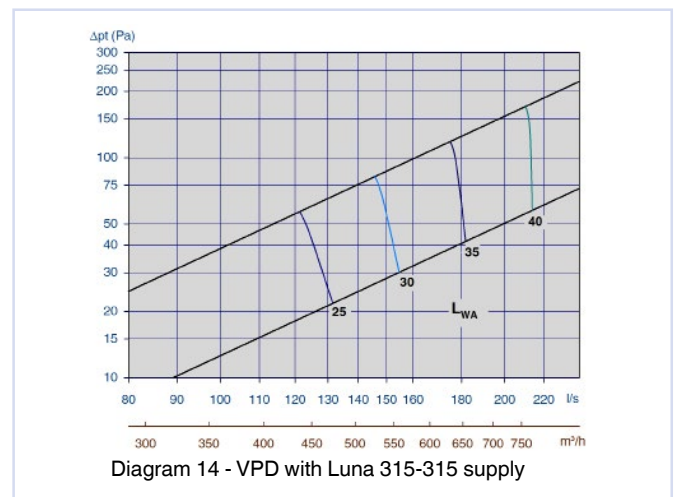
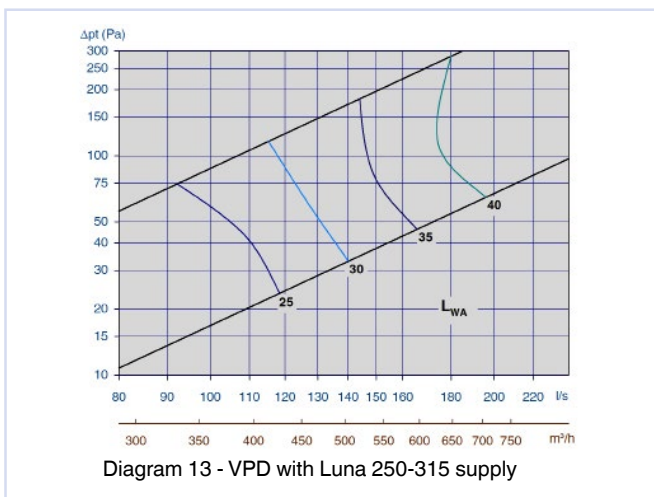
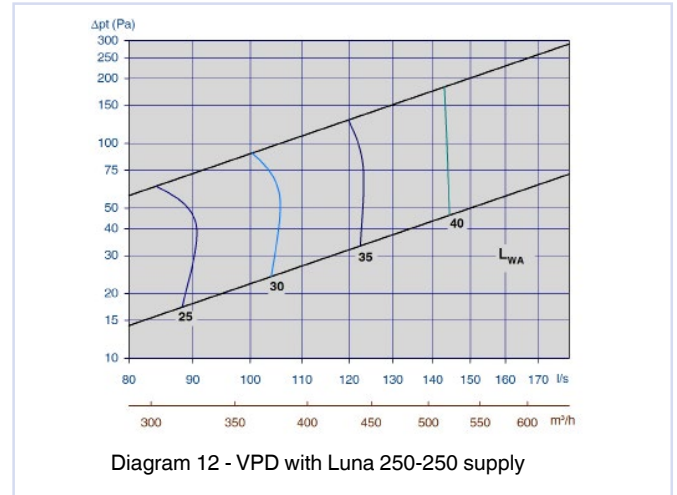
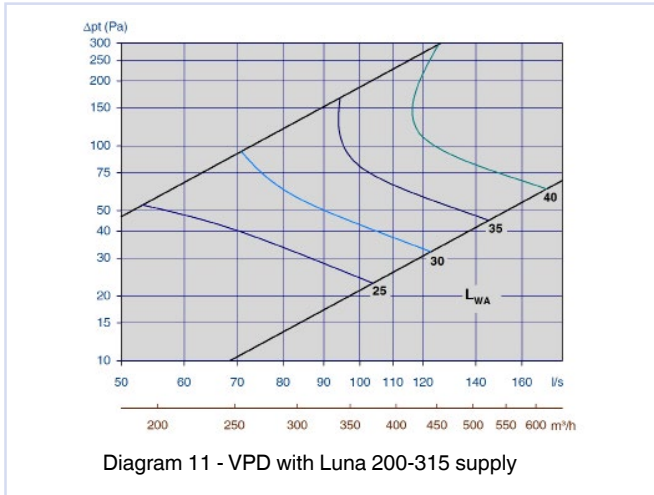


Diagram 10 - VPD with Luna 200-250 supply

# VPD



# VPD

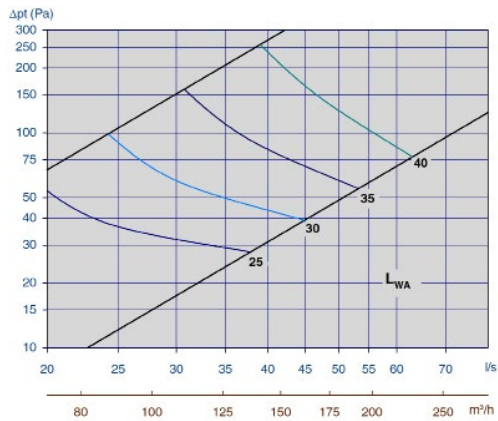


Diagram 15 - VPD with Luna 100-125 exhaust

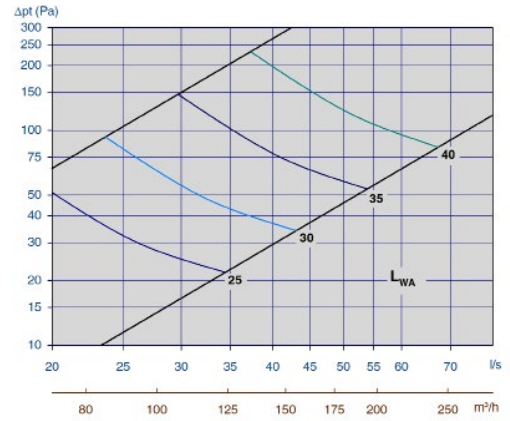


Diagram 16 - VPD with Luna 100-160 exhaust

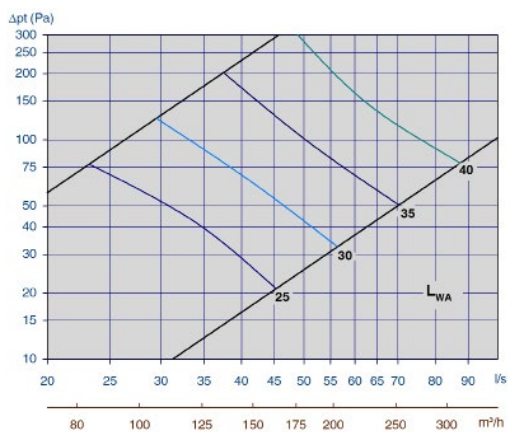


Diagram 17 - VPD with Luna 125-160 exhaust

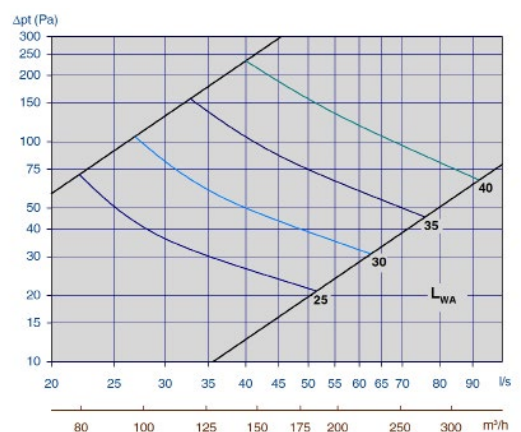


Diagram 18 - VPD with Luna 125-200 exhaust

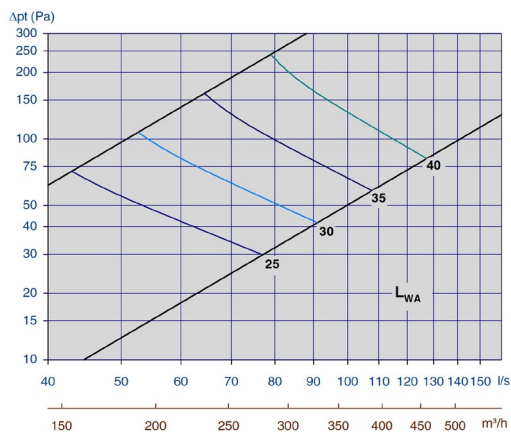


Diagram 19 - VPD with Luna 160-200 exhaust

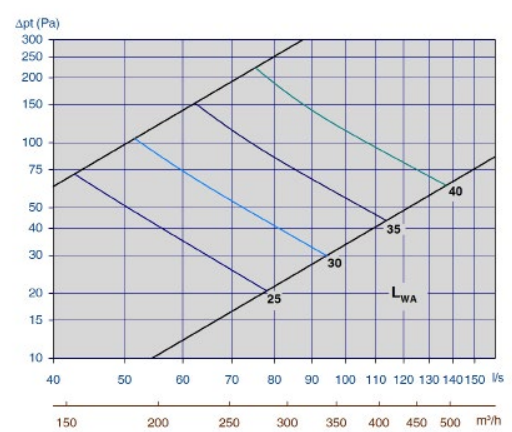
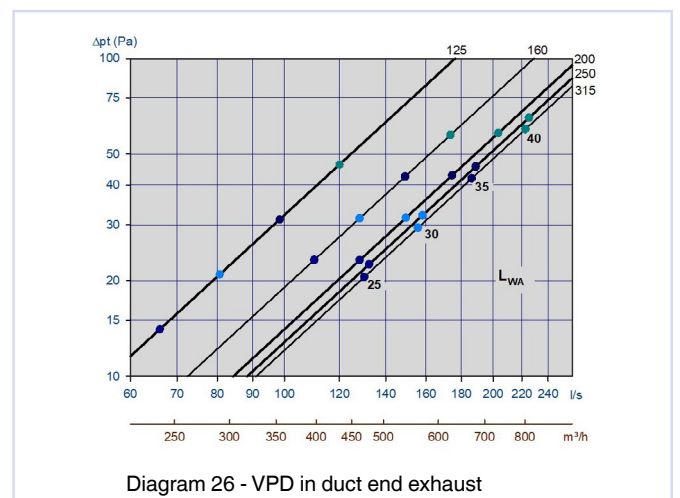
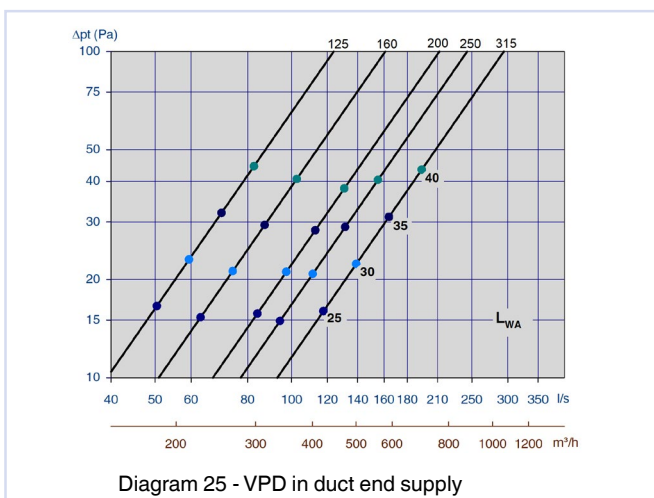
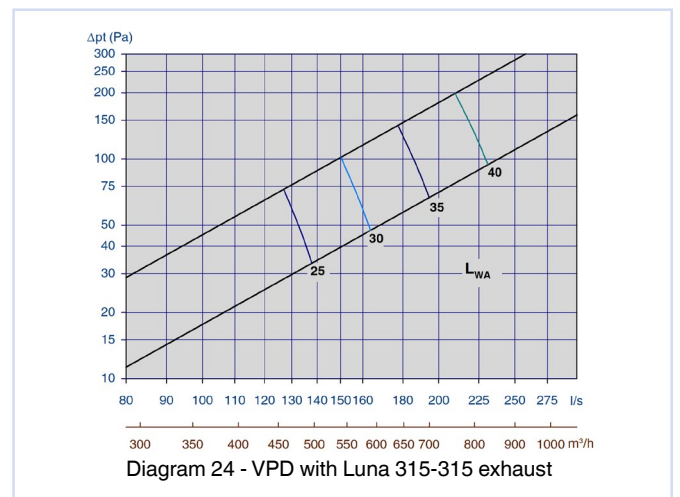
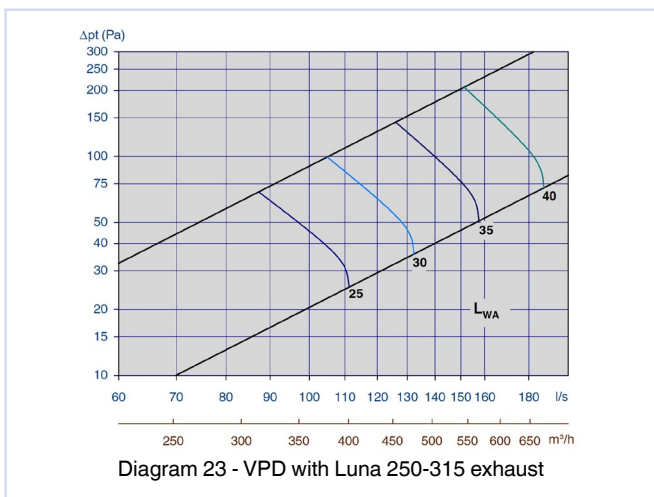
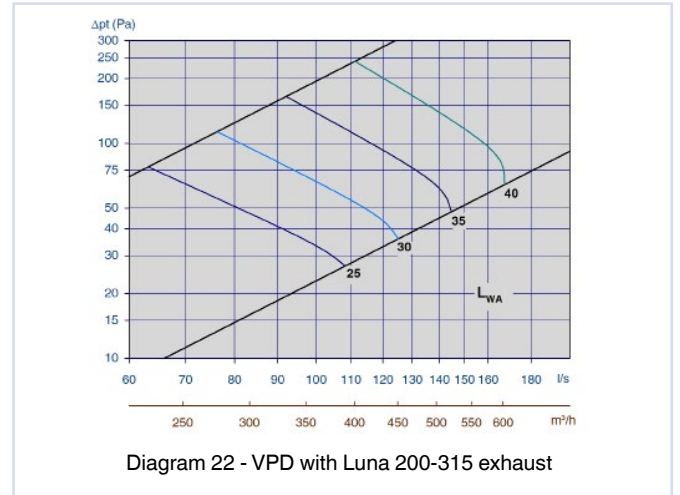
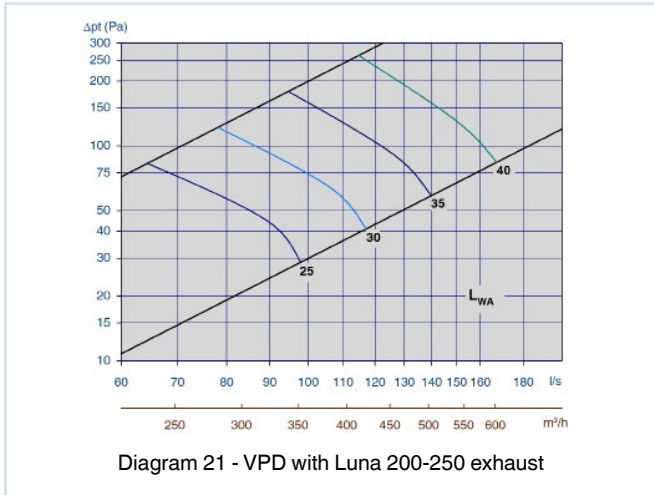


Diagram 20 - VPD with Luna 160-250 exhaust



# VPD



# VPD

ØD	63	125	250	500	1K	2K	4K	8K
125	-4	-2	-2	-2	-3	-14	-17	-15
160	-2	-1	-2	-4	-3	-14	-16	-13
200	-4	-2	-1	-4	-2	-14	-18	-16
250	-4	6	2	-3	-5	-14	-17	-15
315	-4	6	2	-3	-5	-14	-17	-15

Table 7, KO-factors for VPD in duct end (supply)

ØD	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

Table 8, Static sound attenuation for VPD in duct end (supply)

ØD	63	125	250	500	1K	2K	4K	8K
100-125	-5	-3	0	-2	-7	-10	-10	-15
100-160	-6	-3	1	-3	-6	-9	-9	-15
125-125	-6	-4	0	-1	-6	-11	-12	-16
125-160	-5	3	-1	-4	-6	-8	-9	-16
125-200	-7	2	-2	-5	-5	-8	-10	-17
160-160	-4	6	-1	-1	-6	-13	-16	-13
160-200	1	-2	-1	-5	-6	-7	-9	-12
160-250	-5	-2	-4	-5	-4	-7	-10	-16
200-200	-3	7	-1	-3	-4	-13	-16	-15
200-250	2	-3	-2	-4	-4	-10	-14	-15
200-315	-5	-3	-5	-7	-3	-7	-11	-15
250-250	1	-3	-2	-3	-4	-12	-15	-16
250-315	-3	-4	0	-3	-4	-10	-13	-14
315-315	-6	-4	1	-1	-5	-11	-14	-17

Table 9, KO-factors for VPD with Luna (supply)

ØD	63	125	250	500	1K	2K	4K	8K
100-125	24	9	13	19	22	21	18	20
100-160	23	9	12	16	17	20	14	19
125-125	16	9	10	12	16	15	14	16
125-160	18	9	10	11	14	14	13	15
125-200	18	6	10	13	18	15	12	16
160-160	24	8	13	18	20	14	15	20
160-200	17	8	9	12	13	14	12	14
160-250	17	9	10	14	17	11	12	17
200-200	18	9	12	16	16	12	15	19
200-250	17	7	9	11	10	10	11	14
200-315	21	6	10	12	15	9	12	16
250-250	19	7	9	13	13	10	12	17
250-315	15	9	9	11	12	10	11	15
315-315	13	7	10	16	12	11	14	17

Table 10, Static sound attenuation for VPD with Luna (supply)

ØD	63	125	250	500	1K	2K	4K	8K
125	-3	-1	-1	-1	-6	-11	-13	-13
160	-5	-2	0	-1	-4	-13	-16	-15
200	0	-2	-3	-3	-5	-11	-11	-10
250	-5	-2	-7	-4	-3	-9	-15	-15
315	-6	-4	-5	-3	-4	-8	-13	-15

Table 11, KO-factors for VPD in duct end (exhaust)

ØD	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

Table 12, Static sound attenuation for VPD in duct end (exhaust)

ØD	63	125	250	500	1K	2K	4K	8K
100-125	-6	-3	1	-1	-9	-12	-9	-15
100-160	-5	-2	1	-1	-7	-13	-10	-13
125-160	-7	-4	2	-4	-9	-9	-7	-13
125-200	-7	-6	2	-4	-8	-10	-7	-14
160-200	-7	-4	-1	-4	-9	-7	-8	-12
160-250	-5	-4	1	-3	-9	-7	-8	-15
200-250	-7	-4	-1	-5	-5	-7	-10	-16
200-315	-5	-3	-2	-3	-5	-8	-12	-14
250-315	-5	-4	-2	-4	-6	-8	-9	-15
315-315	-4	7	-3	-1	-6	-12	-15	-14

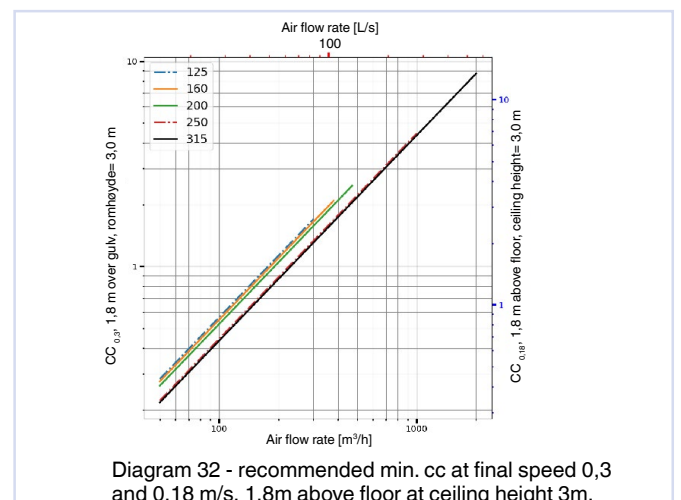
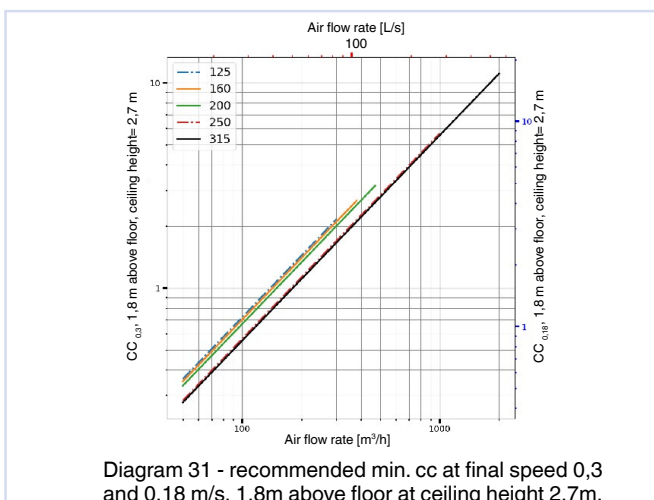
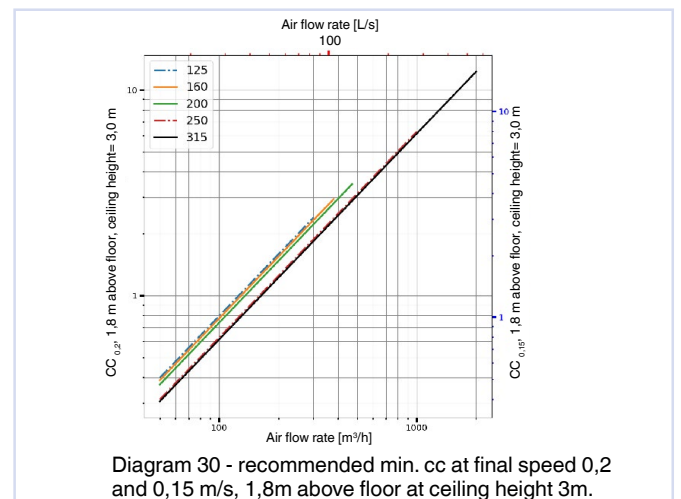
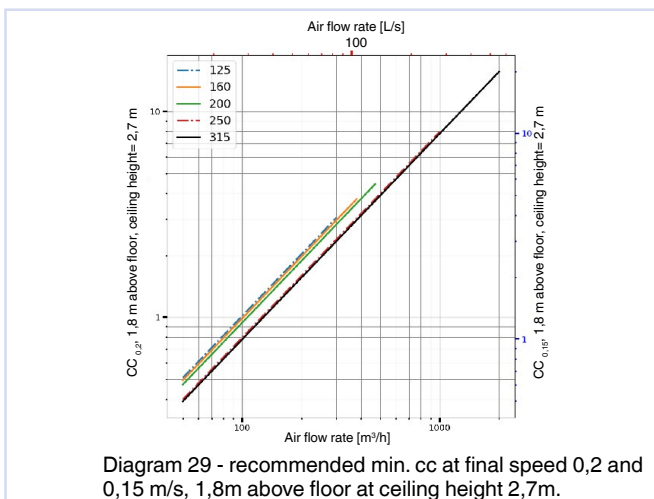
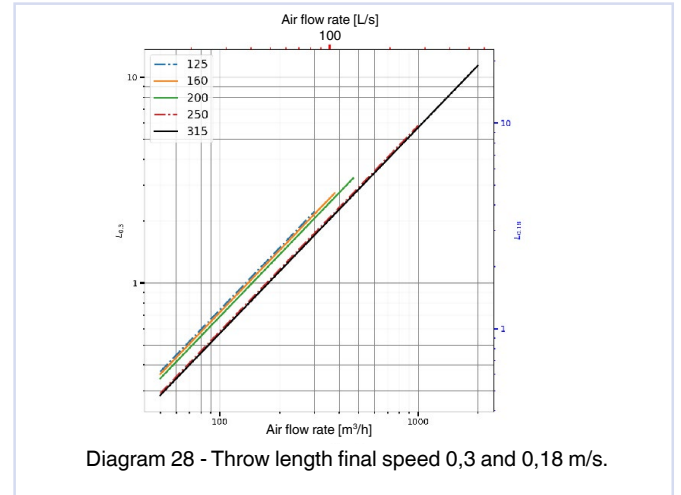
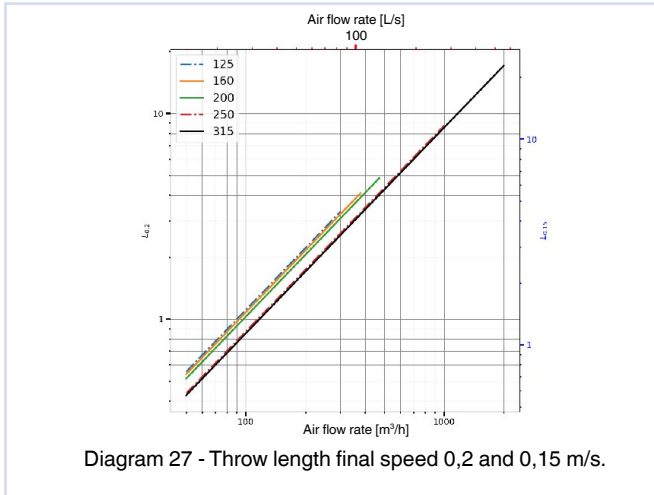
Table 13, KO-factors for VPD with Luna (exhaust)

ØD	63	125	250	500	1K	2K	4K	8K
100-125	24	9	13	19	22	21	18	20
100-160	23	9	12	16	17	20	14	19
125-160	18	9	10	11	14	14	13	15
125-200	18	6	10	13	18	15	12	16
160-200	17	8	9	12	13	14	12	14
160-250	17	9	10	14	17	11	12	17
200-250	17	7	9	11	10	10	11	14
200-315	21	6	10	12	15	9	12	16
250-315	15	9	9	11	12	10	11	15
315-315	13	7	10	16	12	11	14	17

Table 14, Static sound attenuation for VPD with Luna (exhaust)

# VPD

## THROW LENGTH



# VPD

## FLOW PATTERN

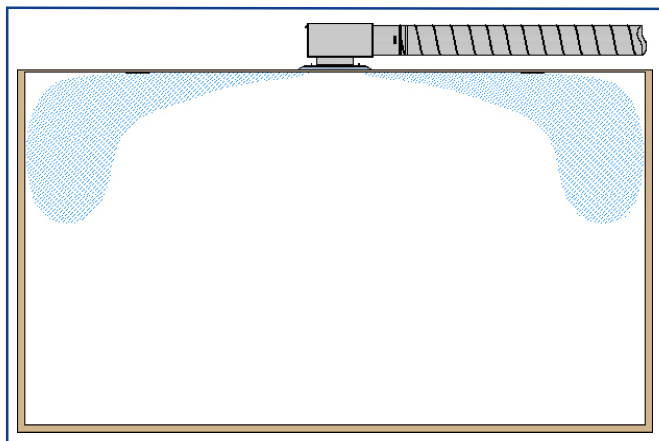


Figure 6, VPD supply

## INSTALLATION

VPD V3 can be installed in various modular ceiling systems. 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, see figure 9.

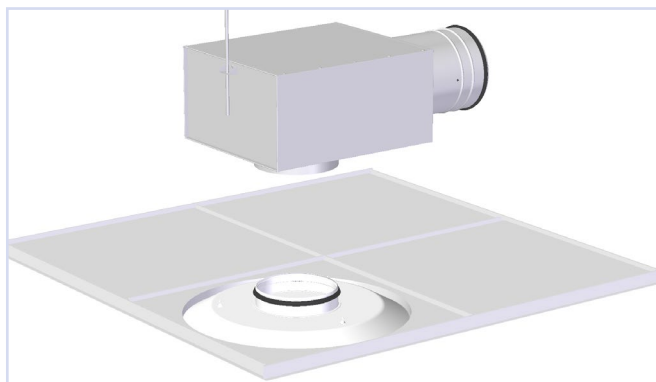


Figure 7, installation VPD V1

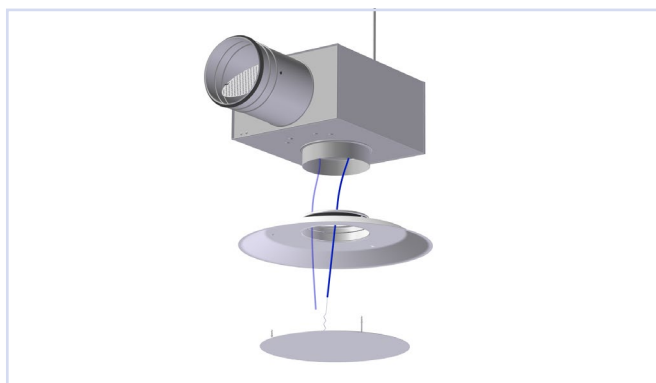


Figure 8, installation VPD V1

VPD is developed and produced by:

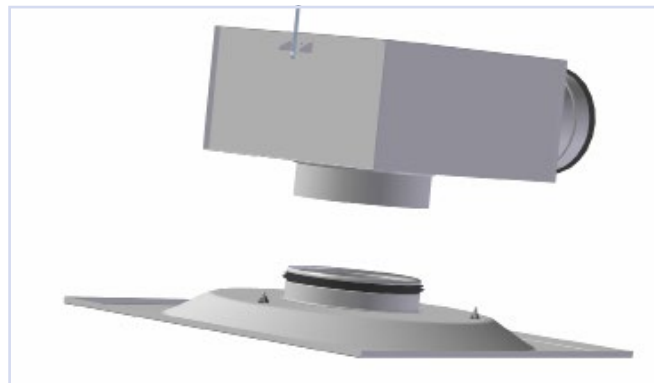


Figure 9, installation VPD V3

## 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 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)

## COMISSIONING

During commissioning, the diffuser front must be fitted. The measuring tube is pulled through the perforation 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)

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