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Tellus-LØV VAV

Circular supply diffuser with VAV

- Unique damper function
- Extensive working range
- Belimo MP-Bus

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Tellus-LØV VAV

APPLICATION
Tellus-LØV VAV is a circular supply diffuser for open installation with VAV function. It has excellent induction and is suitable for both constant and variable air flow rate.

FUNCTION
Tellus-LØV VAV has a built-in VAV regulator for demand control of air flow. The damper solution will choke the pressure at high flow rates and maintain a low sound level. This may reduce the need for additional dampers and sound attenuators in a duct system. Tellus-LØV VAV is supplied with Belimo MP-Bus. For communication with Modbus, BACnet, a Belimo UK 24-Gateway can be utilised. Measurement deviation for the area:

10-20% of nominal: ±25%
20-40% of nominal: <±10%
40-100% of nominal: <±4 %

In order to sustain the product's measurement accuracy, straight ducting of min. 5 x ØD is recommended.

DESIGN
Tellus-LØV VAV is designed as a complete measurement and regulating unit for demand control of air flow in the ventilation system. The measuring station measures the differential pressure via a sensor integrated into the unit. The unit is equipped with a CHV-VAV-MP regulator from Belimo. The regulator specifications are provided in the table below. Tellus-LØV VAV has a removable front plate with LØV perforation. Tellus-LØV VAV is available in both high-profile and low-profile design.

Actuator	CHV-VAV-MP
Operating voltage	AC 24 V 50/60 Hz, DC 24 V
Power consumption	1.5W
Dim. power	2.5 VA

Table 1, Technical specification, Belimo CHV-VAV-MP regulator

MATERIALS AND FINISH
Tellus-LØV VAV has a galvanised steel finish. The damper is fitted with a polyester cloth. The spigot has an EPDM rubber gasket.
Tellus-LØV VAV are delivered in RAL 9003 - gloss 30.

ORDER CODE, Tellus-LØV VAV

Tellus-LØV-VAV - 0 - H - 160 - 0 / 0

- Product:
  - 0 = Standard
  - S = Centered pattern
- H = High profile design
- L = Low profile design
- Dimension:
  - Ø125
  - Ø160
  - Ø200
  - Ø250
- Connections:
  - 0 = Connection box mounted
  - 1 = Connection box supplied separately
  - 2 = Only cable with loose ends
- SL = Special lacquer

Example:
Tellus-LØV-VAV-0-H-160-0/0

Explanation:
Tellus-LØV-VAV with standard pattern, high-profile design, dimension Ø160, connection box mounted, powder coated in standard RAL 9003 – gloss 30.

QUICK SELECTION, TELLUS-LØV VAV

	(Open) m³/h		
Dim.	25 dB(A)	30 dB(A)	35 dB(A)
125	163	197	239
160	306	375	461
200	388	465	557
250	441	541	663

	(75 Pa) m³/h		
Dim.	25 dB(A)	30 dB(A)	35 dB(A)
125	115	170	234
160	252	332	440
200	260	396	550
250	370	475	641

Table 2

REGULATION RANGE, TELLUS-LØV VAV

Tellus-LØV VAV	(m³/h)	
ØD.	Minimum	Maximum
125	26	265
160	43	434
200	70	700
250	106	1060

Table 3, Regulation range for VAV, air flow rate in m³/h. See calculation diagram for sound power and pressure loss.

Tellus-LØV VAV

DIMENSIONS AND WEIGHT, TELLUS-LØV VAV

Dim.	D	DA	H	S	Weight [kg]
125	124	380	210	15/29	7.5
160	159	380	262	15/29	8
200	199	380	322	15/29	9
250	249	416	397	13/28/38	11

Table 4

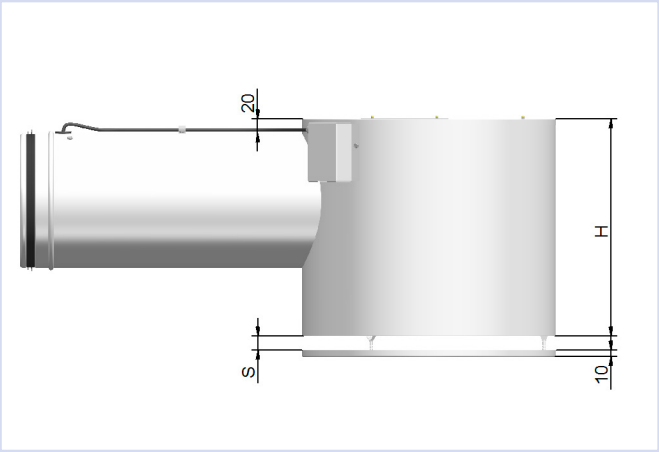

Figure 1. Dimensioned sketch, Tellus-LØV-H VAV

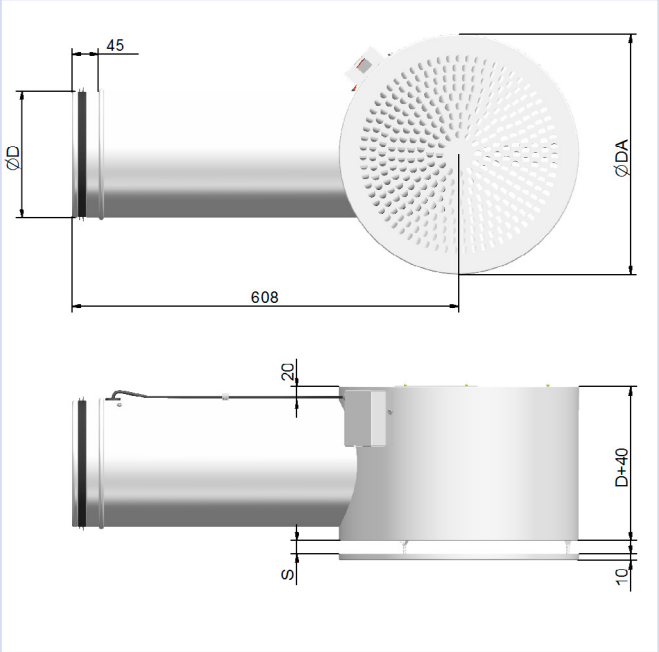

Figure 2. Dimensioned sketch, Tellus-LØV-L VAV

Tellus-LØV VAV

ACOUSTIC DOCUMENTATION

The diagrams provide a summary of the A-weighted sound power level from diffuser, L_{WA}. The correction factors in table 5 are used to calculate the emitted frequency-distributed sound power level, $L_W = L_{WA} + KO$. A room with absorption equivalent to 10 m^2 Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

Example:
Office premises with an air flow requirement of 100 l/s – product selected is Tellus-LØV VAV 160 with high-profile design.
Sound attenuation in the room is 6 dB, and it is estimated that the diffuser's damper shall choke 20 Pa. From diagram 2, we find that

L_{WA} = 28 dB(A) with open damper and 51 Pa total pressure drop.

The aim is to find the following:

a) A-weighted sound pressure level in the room with open damper and relevant room attenuation.
b) Emitted sound power level from the diffuser for frequency 250 Hz with open damper.
c) A-weighted sound pressure level in the room with choked damper and same room attenuation.
d) Emitted sound power level from the diffuser for frequency 250 Hz with choked damper.

a) With 6 dB room attenuation, the sound pressure level in the room is: 28 – 6 = 22 dB(A)
b) Table 5 shows that the correction factor for 250 Hz is +1 dB, L_W in 250 Hz is thus: $L_{WA} + KO = 28 + 1 =$ 29 dB
c) With 20 Pa choking, we arrive at 71 Pa, and the diagram shows that L_{WA} increases by 2 dB. The sound pressure level is therefore 28 + 2 – 6 = 24 dB(A)
d) Table 5 shows that the correction factor for 250 Hz is 0 with choked damper and +1 with open damper. The position of our working point therefore implies that we use factor 0. Emitted sound power level $L_W = L_{WA} + KO = 30 + 0 =$ 30 dB(A)

CALCULATION DIAGRAM.

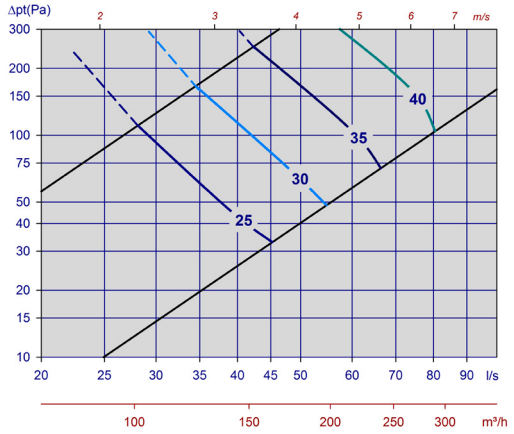

Diagram 1, Tellus-LØV VAV-H/L Ø125 Max. slot height.

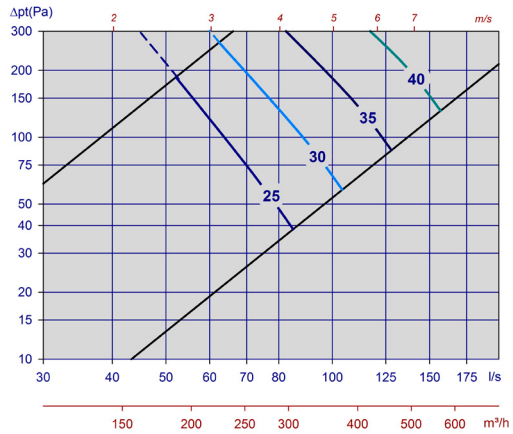

Diagram 2, Tellus-LØV VAV-H/L Ø160 Max. slot height.

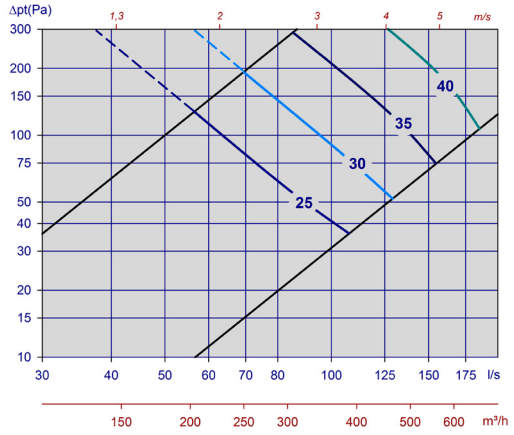

Diagram 3, Tellus-LØV VAV-H/L Ø200 Max. slot height.

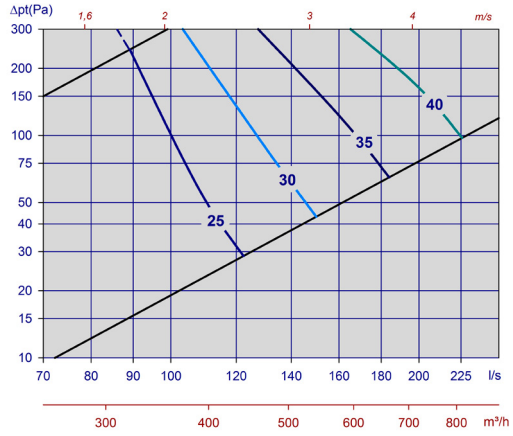

Diagram 4, Tellus-LØV VAV-H/L Ø250 Max. slot height.

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ADJUSTMENT

Tellus-LØV VAV uses Belimo PC-Tool or ZTH-EU in order to make the requisite adjustments.

	Right pressure loss line (open damper)								KO (dB)	Left pressure loss line (choked damper)							
Dim.	63	125	250	500	1k	2k	4k	8k		63	125	250	500	1k	2k	4k	8k
125	2	0	1	-2	-8	-11	-10	-10		1	-5	-2	-5	-6	-10	-7	-8
160	3	0	1	-3	-7	-10	-10	-10		2	-3	0	-6	-8	-9	-7	-9
200	1	1	1	-3	-6	-10	-12	-13		5	2	1	-5	-8	-11	-8	-8
250	5	3	0	-2	-7	-11	-13	-10		4	2	-3	-5	-9	-10	-7	-6

Table 5-Tellus-LØV VAV KO-factor

	Attenuation (dB)							
Dim.	63	125	250	500	1k	2k	4k	8k
125	20	11	8	13	14	13	15	14
160	19	10	7	12	15	13	14	17
200	19	9	7	12	13	11	12	14
250	14	7	6	11	12	10	11	13

Table 6-Tellus-LØV VAV static sound attenuation incl. end reflection

DIFFUSION PATTERN Tellus-LØV VAV

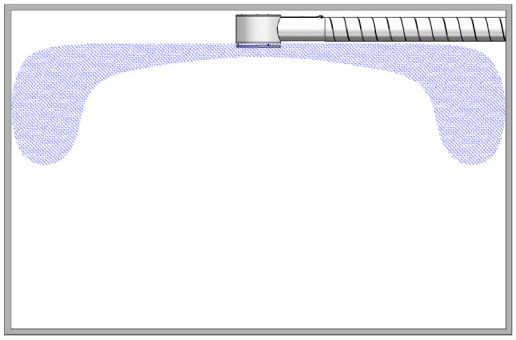


Figure 3, diffusion pattern Tellus-LØV VAV

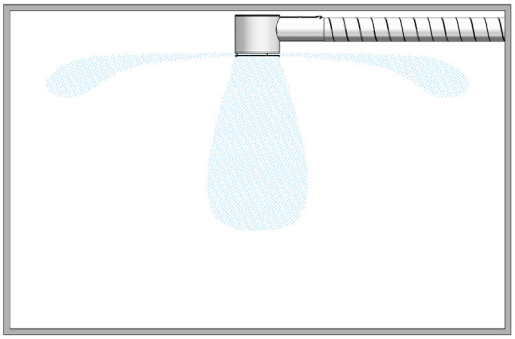


Figure 4, diffusion pattern Tellus-LØV VAV centred

Throw length TELLUS-LØV VAV

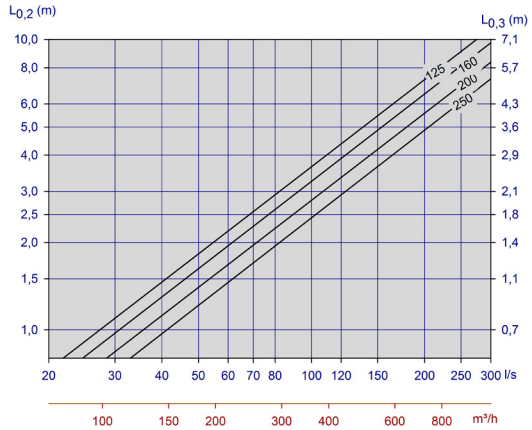


Diagram 5, Throw length - Tellus-LØV VAV

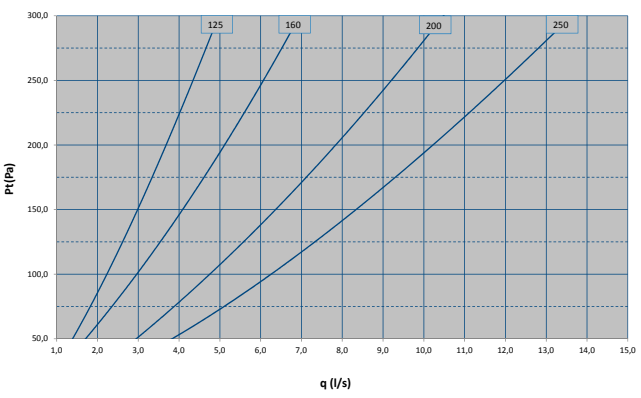


Figure 5, leakage amount with closed damper Tellus-LØV VAV

INSTALLATION

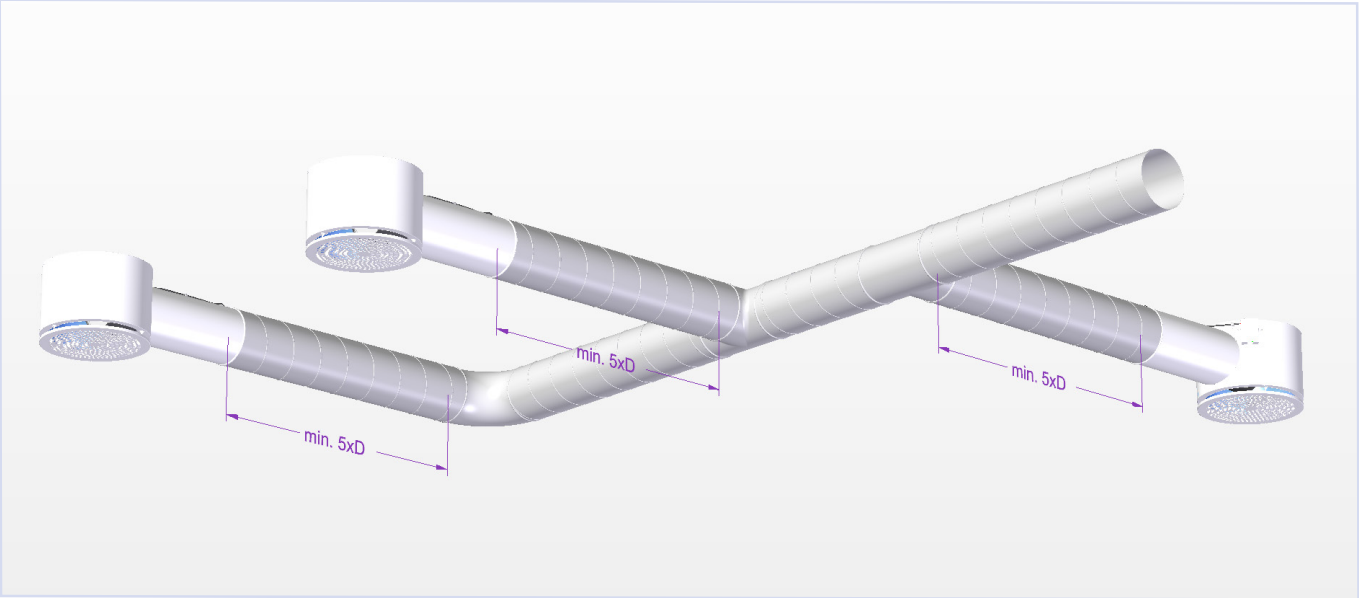


Figure 6, Tellus-LØV VAV installation

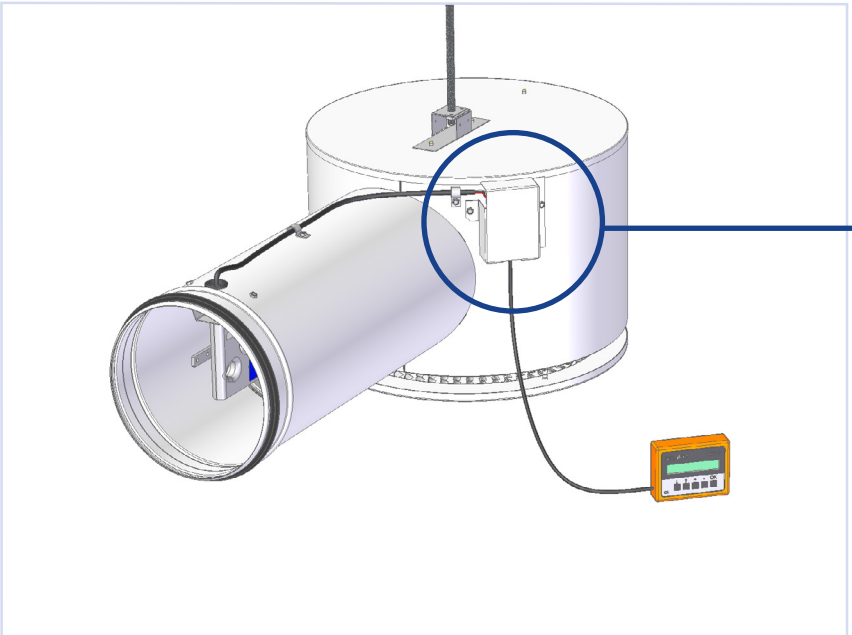
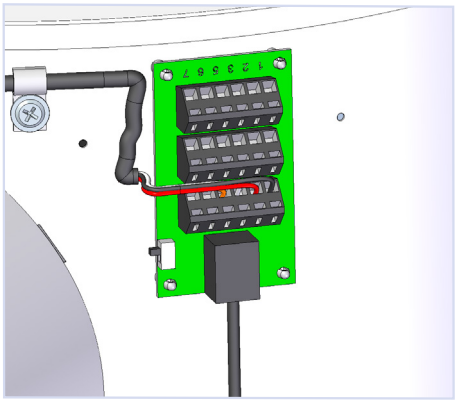


Figure 7, Tellus-LØV VAV installation. The diffuser can be suspended using a threaded rod in the fastening bracket at the top of the chamber.



Quick connection for power and bus communication via terminal blocks (1, 2, 3, 5). RJ 12 plug for easy adjustment of actuator via ZTH.
NB! When Bus communication is used, the switch on the printed circuit board must be tilted down to the service position to achieve contact with service tools. Remember to return the switch to the normal position when disconnecting service tools.

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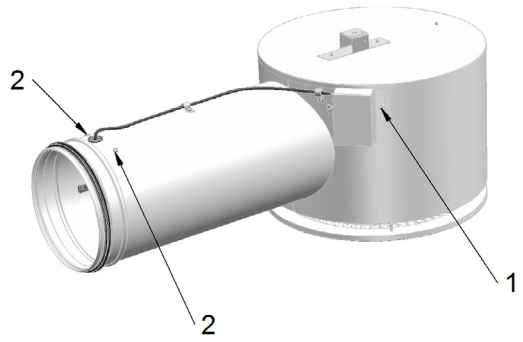
REMOVAL OF ACTUATOR AND DAMPER

Figure 8

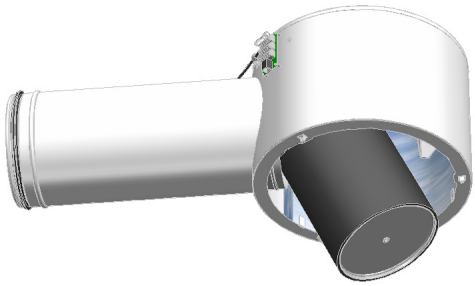


Unscrew the print card cover (1). Disconnect the actuator wires on the print card. Unscrew the two screws on the actuator support on the spigot (2). (Screw direct on the actuator, dimension 125). Remove the front.

Figure 9

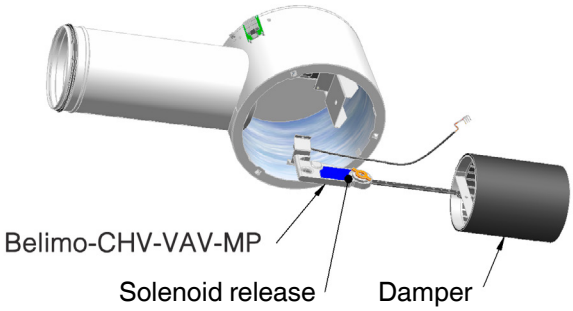
Remove the wing screw (6 mm) from the damper (3) and pull the damper bracket into the rear position. The actuator and damper are now loose from the casing.

Figure 10



Pull out the damper and angle it downwards towards the outlet. The actuator will follow.

Figure 11



In order to disconnect the pitch rack from the actuator, you have to place a magnet in the specified position on the actuator. You will find the magnet on the bracket between the damper and the rail.

ADJUSTMENT

Tellus-LØV VAV uses Belimo PC-Tool or ZTH-EU in order to make the requisite adjustments.

MAINTENANCE

There are no specific maintenance requirements.

ENVIRONMENT

Inquiries regarding the product declaration can be directed to our sales team, or information can be found on our website: www.trox.no

Tellus-LØV VAV is developed and produced by:

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

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