

RECTANGULAR, SINGLE DUCT VAV TERMINALS

Single - and double wall construction **TYPE: VSQ**

APPLICATION

VAV (Variable-Air-Volume) terminals are commonly used to maintain a constant space temperature by varying the conditioned air volume to the space. If the space temperature raises above the set point, the primary air damper modulates open to supply more (cold) primary air into the space so that the required space temperature is maintained. As the space temperature drops below set point, the VAV terminal modulates to a pre-set minimum airflow, which is usually determined by the minimum level of ventilation required in the space. Should the space cooling loads drop even further at the minimum airflow setting, a reheat coil (hot water or electric) can be energized to provide further heating.

VAV terminals can also be used to maintain a constant (positive or negative) room pressure or as Air-Flow Measuring and Controls stations



Type VSQ-SW-BE1
(Belimo LMP-D2-MP controller)

DESIGN FEATURES

Casing

- Ridged galvanised steel construction (1,2mm).
- Flanges: 30mm, corner holes ra10x17mm
- Damper blade, extruded aluminium construction, 100mm pitch
- Air leakage flow complies with Class III, VDI 3803 or DIN V 24194, Part 2
- Damper shaft ra12 mm with Nylon bearings.
- Operating temperature +10 to 50°C
- Storage temperature 0 to 70°C, max R.H. 95%
- Other construction available upon request.

Air flow sensor

- Multi point averaging sensor type FloXact®. The unique shape creates an amplified signal (at least 2.5x Pdyn) with a very low pressure drop and noise level.

Controls

- All controls fitted are pressure independent and factory calibrated.
- The unit can be supplied with analogue, DDC or pneumatic controls
- When units are ordered with controls "free-issued" by 3rd party, wiring diagrams, calibration instructions, calibration tools and mounting instructions must be provided free of charge.
- All controls will be mounted, as standard, on the right hand side of the unit when looking in the direction of airflow, unless otherwise requested.



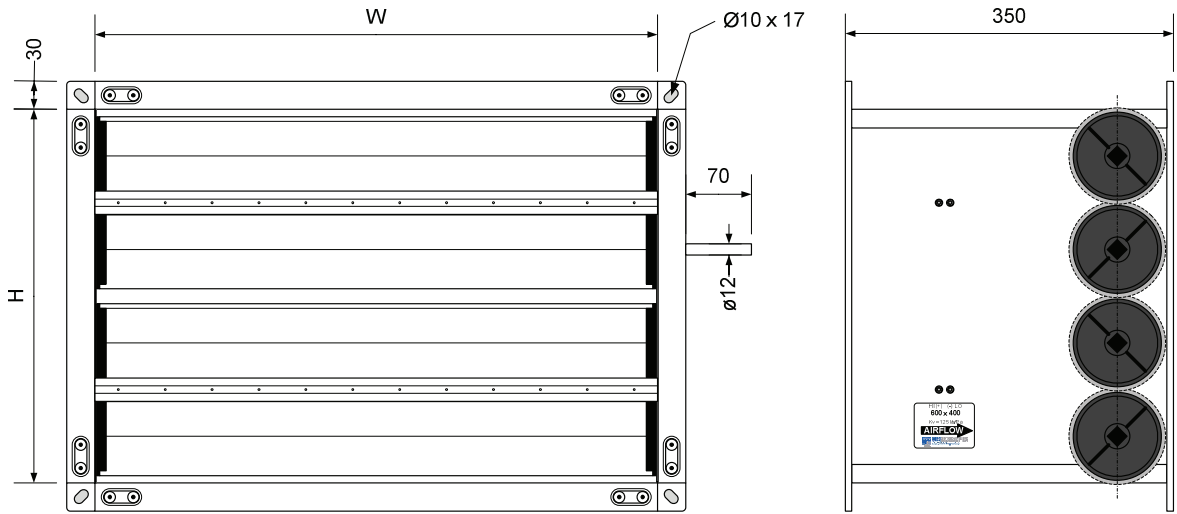
Detail FloXact® multipoint,
averaging air flow sensor



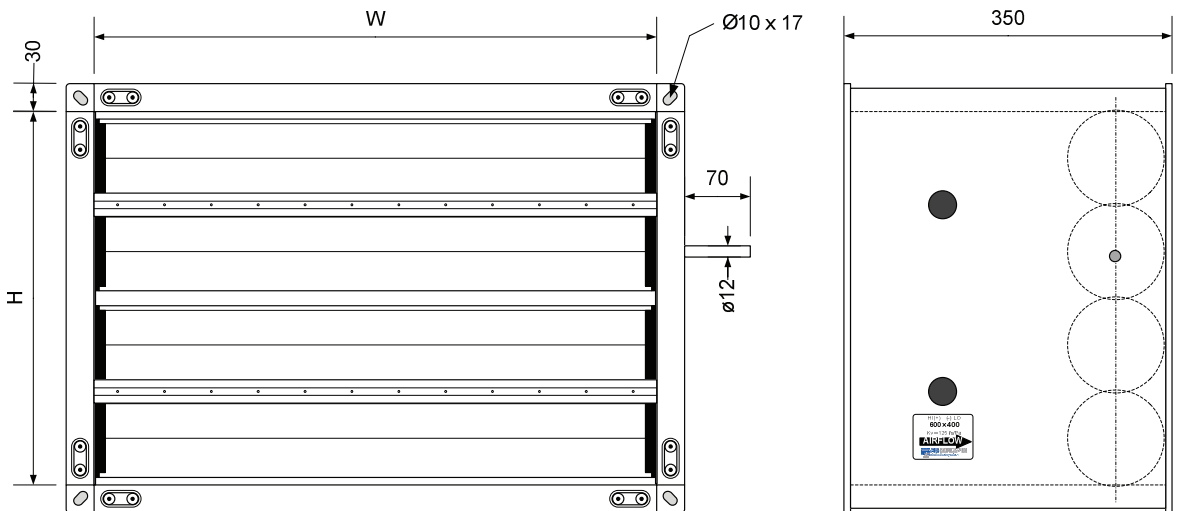
NetSensor KMD-1161

RECTANGULAR, SINGLE DUCT VAV TERMINALS

Single - and double wall construction **TYPE: VSR**



Type VSQ-SW (single wall construction), drawn model 600x400



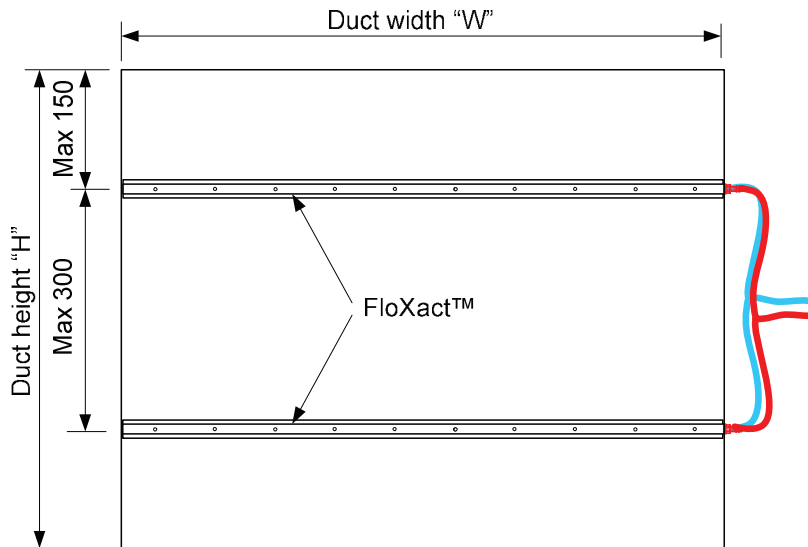
Type VSQ-DW (double wall construction), drawn model 600x400

Standard dimensions

H (mm)	Unit width (mm)										
	200	300	400	500	600	700	800	900	1000	1100	1200
200	•	•	•	•	•	•	•	•	•	•	•
300		•	•	•	•	•	•	•	•	•	•
400			•	•	•	•	•	•	•	•	•
500				•	•	•	•	•	•	•	•
600					•	•	•	•	•	•	•
700						•	•	•	•	•	•
800							•	•	•	•	•
900								•	•	•	•
1000									•	•	•
1100										•	•
1200											•

RECTANGULAR VAV TERMINALS

Single - and double wall construction **TYPE: VSQ**



		Duct or unit width "W"													
Duct	N°	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
"H"	FloXact™	K _v value in l/s/Pa													
150	1	23,0	28,8	34,5	40,3	46,0	51,8	57,5	69,1	80,6	92,1	104	115	127	138
200		33,1	41,4	49,7	58,0	66,3	74,6	82,9	99,4	116	133	149	166	182	199
250		41,4	51,8	62,1	72,5	82,9	93,2	104	124	145	166	186	207	228	249
300		47,0	58,7	70,4	82,2	94	106	117	141	164	188	211	235	258	282
350	2	55,2	69,1	82,9	96,7	110	124	138	166	193	221	249	276	304	331
400		65,4	81,7	98,1	114	131	147	163	196	229	261	294	327	360	392
450		73,7	92,1	110	129	147	166	184	221	258	295	331	368	405	442
500		83,8	105	126	147	168	189	209	251	293	335	377	419	461	503
600		101	127	152	177	203	228	253	304	354	405	456	506	557	608
700	3	115	144	173	201	230	259	288	345	403	460	518	575	633	691
800		133	167	200	234	267	300	334	400	467	534	601	667	734	801
900		152	190	228	266	304	342	380	456	532	608	684	760	836	911
1000	4	166	207	249	290	331	373	414	497	580	663	746	829	911	994
1100		184	230	276	322	368	414	460	552	644	737	829	921	1013	1105
1200		203	253	304	354	405	456	506	608	709	810	911	1013	1114	1215

- The air volume can be determined with the following formula:

$$Q = K_v \times \sqrt{P_{fs}}$$

Q = air volume in l/s

K_v = K_v value in l/s/Pa

P_{fs} = pressure difference measured by the FloXact™ in Pa

- The table above is for air with 1.20 kg/m³ density (20°C, 50% r.h. and 1013 mbar). The correction for different densities is determined with the following

formula : **Corr** = $\sqrt{(\rho/1.20)}$

- For intermediate sizes, please contact our office

ROUND, SINGLE DUCT VAV TERMINALS

Single - and double wall construction **TYPE: VSQ**

SOUND DATA

1. Discharge sound pressure level is the expected noise level in the room, generated by the VAV terminal discharge and based on the following deductions for downstream duct, diffuser attenuation and room absorptions according to ARI-885-1998 (add. 2002)

125	250	500	1k	2k	4k	Hz
-27	-29	-40	-51	-53	-39	dB

2. Radiated sound pressure level is the expected noise level in the room, radiated from the VAV terminal casing and based on the following deductions for ceiling attenuation and room absorptions according to ARI885-1998 (add. 2002)

125	250	500	1k	2k	4k	Hz
-19	-19	-21	-25	-29	-35	dB

3. "--" sound pressure levels < NC 15.
4. Sound power data is measured in a reverberation room at an independent sound laboratory, according to ISO 3741 and ISO 5135 standards.
5. Lw in dB/Oct are sound power levels (re 10⁻¹²W) per octave band in dB for discharge sound and radiated sound. Values less than 17 dB are indicated by"-".
6. Lw(A) in dB/Oct are A-weighted sound power levels (re 20 IJPa)for discharge sound and radiated sound. Values less than 20 dB(A) are indicated by"-".
7. n/a Not applicable, static pressure < unit resistance
8. Ps Static pressure.
9. Pt Total Pressure.

CORRECTION TABLE OTHER DIMENSIONS

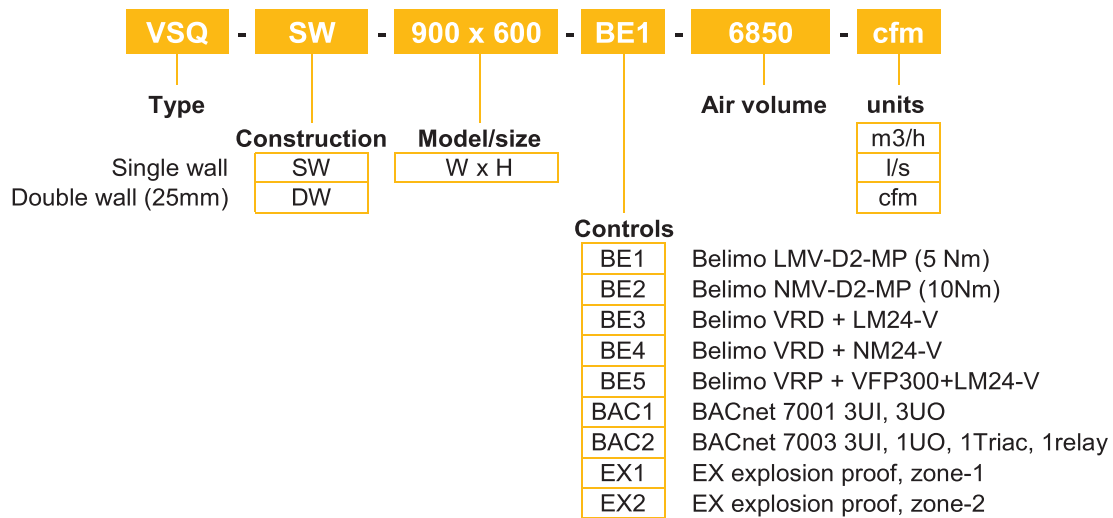
With the correction values below, noise level can be determined for unit sizes not listed in the selection tables.

Correction values are relative to unit size 500x400mm (0.2m²) .

unit area (m ²)	0,04	0,06	0,08	0,1	0,15	0,2	0,3	0,4	0,6	0,8	1	1,2	1,4
Correction (dB)	-7	-5	-3	-2	-1	0	+1	+2	+3	+4	+4	+5	+6

RECTANGULAR VAV TERMINALS

Single - and double wall construction **TYPE: VSQ**



Specify as:

Example:

Supply and install, VAV terminal, double wall construction, from 1.2mm thick galvanized sheet steel, with 30mm duct flanges. Casing leakage rate to class II, VDI 3803/ DIN 24 194. The VAV units should have a low leakage, opposed blade damper with 100mm pitch and aluminium damper shaft ø12mm with self lubricating Nylon bearings and averaging airflow sensor type FloX-act[®].

For:

Air volume	....	m ³ /h
Unit size	.... X	mm
Max. pressure loss	....	Pa
Max. discharge SPL	....	dB(A)
Max. radiated SPL	....	dB(A)
Controller	BACnet type 7003 (factory programmed, fitted and calibrated)	
Manufacturer	AIR-CONCEPTS BV	
Type	VSQ-DW-xxx-BAC1-xxx-	