1.1.3 VSR-SA.

Circular VAV terminals integral sound attenuator

AirConcepts

AIRFLOW MEASUREMENT AND CONTROL

Application

Single duct 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.
Single duct VAV terminals can also be used to maintain a constant (positive or negative) room pressure and to control the carbon dioxide (CO2) level in the room.

Type VSR-SAS-BE1 with integral sound attenuator

Design features

Casing
- Ridged galvanised steel construction (1,0mm or 20 gauge).
- Spigots comply with DIN 24145 or DIN 24146.
- Oval shaped damper blade, sandwich construction with synthetic rubber seals. Leakage rate 0.25% of Vnom @ 750Pa (3"WG) static pressure drop.
- Air leakage flow complies with Class II, VDI 3803 or DIN 24194, Part 2
- Damper shaft aluminium, ø12 mm
- Bearings Polyamide (PA6.6)
- Thermal / acoustical insulation 25kg/m3 (1,5lb/cuFt) fire resistant to BS-476 Class "O".
- Operating temperature +5 to 50°C (controls)
- Storage temperature 0 to +70°C, max R.H. 95%
- Other construction available upon request.

Air flow sensor
- The unique shape, patent pending, creates a linear amplified signal (at least 2.5x Pdyn) with a very low pressure drop and noise level.
- Multi point averaging according to the "Log-Tchebycheff" method
- 2% (FS) accuracy with 3xDeq straight duct approach
- 5% (FS) accuracy with 1xDeq straight duct approach
- Stable measuring signal from 0,7 m/s air velocity

Detail FloXact-X® multipoint, averaging air flow sensor

Kv Values FloXact-X®

	units	100	125	160	200	250	315	355	400	450	500
Kv Value	l/s/Pa	5,23	8,89	15,6	25,5	41,3	67,5	86,8	111,3	142,2	176,8
	m3/h/Pa	18,8	32,0	56,2	91,9	148,8	243,0	312,3	400,7	511,8	636,5
Vnom @ 150Pa	l/s	64	109	191	313	506	827	1.063	1.363	1.741	2.165
	m3/h	231	392	688	1.125	1.822	2.976	3.825	4.908	6.268	7.795
Vnom @ 250Pa (1"WC)	l/s	83	141	247	404	653	1.067	1.372	1.760	2.248	2.795
	m3/h	298	506	888	1.453	2.352	3.842	4.938	6.336	8.093	10.064

Accessories / Optional

The units are supplied as standard with controls on the right side (seen in the air direction).

- Standard Controls:
  BE1 Belimo LMV-D3-MP
  GR1 Grüner 327VM-024-05
  BEM Belimo LMV-D3-MOD
  GRM Grüner 327VM-024-05-MB
  The above controllers are factory mounted, calibrated and, if desired, provided with a location label.
- If desired, Air-Concepts can install free issue controls. We have suitable mounting consoles for all common control manufacturers.
- Transformer 230/24V AC (20 or 30VA)
- Hot water duct heater 1-, 2-, or 3-row.
- Duct cooler 3-row.
- Electric duct heater.

Dimensions and weight (without controls)

		100	125	160	200	250	315	355	400	450	500
ød	mm	ø 98	ø 123	ø 158	ø 198	ø 248	ø 313	ø 353	ø 398	ø 448	ø 498
ød2	mm	ø 200	ø 225	ø 260	ø 300	ø 350	ø 415	ø 455	ø 500	ø 550	ø 600
L	mm	500	500	500	500	500	500	500	500	550	600
VSR-SW	Kg	1,1	1,4	1,9	2,5	3,3	4,5	5,3	6,2	6,7	8,9
VSR-DW	Kg	3,0	3,6	4,4	5,4	6,8	8,6	9,8	11,3	12,2	15,0
VSR-SAx	Kg	7,3	7,9	9,4	11,2	13,5	16,6	18,6	20,9	x	x

Sound data dB(A) and NR

1. The discharge sound pressure levels **Lp(A)**, are determined with a room absorption of 7dB/oct and the following assumption for downstream ductwork, diffuser(s) and end reflection:

125	250	500	1k	2k	4k	Hz
-3	-5	-10	-15	-15	-12	dB

2. The discharge sound pressure levels **Lp(A)** also include a correction for air volume :

3. The Radiated sound pressure levels **Lp(A)** are determined with a room absorption of 7dB/oct and the following assumption ceiling attenuation:

125	250	500	1k	2k	4k	Hz
-1	-3	-5	-7	-7	-10	dB

4. Sound data is measured in a reverberation room at an independent sound laboratory, according to ISO-3741 and ISO-5135 standards.
5. L_w in dB/Oct are sound power levels (re 10^{-12}W) per octave band in dB for discharge sound and radiated sound. Values less than 17 dB are indicated by "-".
6. **n/a** Not applicable, static pressure < unit resistance
7. **min ΔPs.** Unit resistance with fully opened damper blade

Sound data NC

1. The sound pressure levels **Lp(A)**, are determined with the following attenuation factors according to the guidelines in **ARI-885-98**
2. The discharge sound pressure levels include:

>Environmental effect

125	250	500	1k	2k	4k	Hz
-3	-2	-1	-1	-1	-1	dB

>**Duct lining**, 5 feet, 1" lining (1.5m, 25mm thick)

125	250	500	1k	2k	4k	Hz
-1	-3	-8	-21	-20	-12	dB

>End Reflection

125	250	500	1k	2k	4k	Hz
-11	-6	-2	0	0	0	dB

>**Acoustical flexible duct**. 5 ft 8" (1.5m ø200mm)

125	250	500	1k	2k	4k	Hz
-6	-10	-17	-19	-19	-12	dB

>**Room effect**. 3000 cu ft, 10 ft from source.

125	250	500	1k	2k	4k	Hz
-9	-10	-11	-12	-13	-14	dB

>Discharge sound total reduction in dB:

125	250	500	1k	2k	4k	Hz
-30	**-31**	**-39**	**-53**	**-53**	**-39**	dB

3. The Radiated sound pressure levels include:

>Environmental effect

125	250	500	1k	2k	4k	Hz
-3	-2	-1	-1	-1	-1	dB

>Ceilling effect. Mineral fibre 5/8" 20 lb/cu ft

125	250	500	1k	2k	4k	Hz
-9	-10	-12	-14	-15	-15	dB

>**Room effect**. 3000 cubic ft, 10 ft from source.>

125	250	500	1k	2k	4k	Hz
-9	-10	-11	-12	-13	-14	dB

>Radiated sound total reduction in dB:

125	250	500	1k	2k	4k	Hz
-21	**-22**	**-24**	**-27**	**-29**	**-30**	dB

4. Sound data is measured in a reverberation room at an independent sound laboratory, according to ISO-3741 and ISO-5135 standards.
5. L_w in dB/Oct are sound power levels (re 10^{-12}W) per octave band in dB for discharge sound and radiated sound. Values less than 17 dB are indicated by "-".
6. **n/a** Not applicable, static pressure < unit resistance
7. **min ΔPs.** Unit resistance with fully opened damper blade

Model	Air Vel.	Air Volume			Min. P_{st}	Discharge sound (Air borne sound)									Radiated sound (Break out sound)								
						Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P			Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P		
mm	m/s	m^3/h	l/s	CFM	Pa	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC
100	0,7	19	5	11	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3,0	80	22	47	4	28	-	-	-	-	-	-	-	-	25	21	20	-	-	-	-	-	-
	6,0	160	44	94	16	36	28	23	18	-	-	-	-	-	32	26	25	22	-	-	-	-	-
	9,0	239	67	141	36	43	38	34	30	25	19	**22**	-	-	36	30	28	25	-	-	-	-	-
	12,0	319	89	188	64	50	46	42	38	33	28	**29**	**24**	-	39	32	30	27	-	18	-	-	-
125	0,8	32	9	19	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3,0	126	35	74	4	33	20	-	-	-	-	-	-	-	28	23	22	18	-	-	-	-	-
	6,0	253	70	149	15	42	31	25	20	-	-	-	-	-	36	28	27	23	-	-	-	-	-
	9,0	379	105	223	33	48	40	36	32	27	21	**25**	**19**	-	42	32	30	26	-	18	-	-	-
	12,0	505	140	297	59	52	48	44	40	35	30	**31**	**26**	-	41	34	32	28	18	19	**22**	-	-
160	0,8	56	16	33	0	23	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3,0	209	58	123	3	36	28	18	-	-	-	-	-	-	24	25	23	19	-	-	-	-	-
	6,0	418	116	246	13	44	35	29	22	17	-	-	-	-	32	30	28	24	-	18	-	-	-
	9,0	627	174	369	30	50	43	39	34	29	24	**26**	**20**	-	36	34	31	28	18	20	**20**	-	-
	12,0	836	232	492	53	55	50	46	42	37	32	**31**	**26**	-	39	36	33	30	19	21	**21**	-	-
200	0,8	92	26	54	0	27	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3,0	329	91	194	3	42	35	26	-	-	19	-	-	-	26	25	22	18	-	18	-	-	-
	6,0	658	183	387	12	49	42	33	25	20	22	**24**	-	-	33	31	28	23	18	21	-	-	-
	9,0	988	274	581	28	54	47	41	36	31	27	**28**	**22**	-	37	34	31	26	20	23	-	-	-
	12,0	1317	366	775	50	59	53	49	44	39	35	**32**	**27**	-	40	36	33	29	22	24	**19**	-	-
250	0,9	149	41	88	0	31	27	20	-	-	17	-	-	-	-	17	-	-	-	-	-	-	-
	3,0	517	144	304	3	44	38	30	-	18	24	-	-	-	29	28	25	23	17	21	-	-	-
	6,0	1035	287	609	13	49	44	37	27	24	27	**23**	-	-	33	33	30	28	21	24	-	-	-
	9,0	1552	431	913	29	55	49	44	38	33	31	**27**	**22**	-	38	37	33	31	23	26	-	-	-
	12,0	2070	575	1218	51	60	55	51	46	41	37	**32**	**27**	-	43	39	35	34	24	27	**20**	-	-
315	0,9	243	67	143	0	33	32	25	-	18	23	-	-	-	18	18	17	-	-	-	-	-	-
	3,0	826	229	486	3	46	42	34	18	24	29	**22**	-	-	31	28	26	24	20	22	-	-	-
	6,0	1651	459	971	12	54	48	40	29	29	33	**26**	**21**	-	38	34	32	30	24	26	-	-	-
	9,0	2477	688	1457	26	59	53	47	40	36	36	**29**	**24**	-	43	37	35	33	26	28	-	-	-
	12,0	3303	917	1943	47	63	58	53	48	43	40	**33**	**28**	-	46	39	37	35	27	29	**19**	-	-
355	0,9	312	87	184	0	35	34	27	-	23	28	-	-	-	19	19	18	-	-	20	-	-	-
	3,0	1051	292	618	3	48	44	37	22	29	34	**23**	**19**	-	32	29	28	25	22	26	-	-	-
	6,0	2102	584	1236	11	55	50	43	32	33	38	**27**	**22**	-	39	35	33	31	26	30	-	-	-
	9,0	3153	876	1855	25	57	55	48	41	38	40	**28**	**25**	-	39	38	36	34	28	32	-	-	-
	12,0	4204	1168	2473	44	62	59	54	49	45	43	**32**	**29**	-	43	41	38	36	29	33	**19**	-	-
400	0,9	401	111	236	0	32	37	30	-	25	29	-	-	-	-	21	20	-	-	20	-	-	-
	3,0	1337	371	786	3	48	47	39	26	31	35	**24**	**20**	-	32	31	29	26	23	26	-	-	-
	6,0	2674	743	1573	10	56	52	45	34	35	39	**27**	**23**	-	40	36	34	32	27	30	-	-	-
	9,0	4011	1114	2359	24	61	57	50	43	40	41	**30**	**26**	-	44	40	37	35	29	32	-	-	-
	12,0	5348	1485	3146	42	65	61	56	51	46	44	**33**	**29**	-	47	42	39	37	30	33	**20**	-	-

Model	Air Vel.	Air Volume			Min. P_{st}	Discharge sound (Air borne sound)									Radiated sound (Break out sound)								
						Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P			Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P		
mm	m/s	m^3/h	l/s	CFM	Pa	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC
100	0,7	19	5	11	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3,0	80	22	47	4	32	21	-	-	-	-	-	-	-	29	26	26	22	-	18	-	-	-
	6,0	160	44	94	16	40	30	23	18	-	-	-	-	-	36	32	31	27	19	22	**20**	-	-
	9,0	239	67	141	36	45	39	34	30	25	19	**23**	-	-	40	35	34	30	21	24	**23**	-	-
	12,0	319	89	188	64	51	46	42	38	33	28	**29**	**24**	-	43	37	36	32	23	25	**26**	**20**	-
125	0,8	32	9	19	0	21	-	-	-	-	-	-	-	-	-	17	17	-	-	-	-	-	-
	3,0	126	35	74	4	37	25	-	-	-	-	-	-	-	32	28	28	23	17	20	-	-	-
	6,0	253	70	149	15	46	33	26	20	-	-	-	-	-	40	34	33	28	21	23	**22**	-	-
	9,0	379	105	223	33	51	41	36	32	27	21	**27**	**22**	-	46	37	36	32	23	25	**26**	**19**	-
	12,0	505	140	297	59	53	48	44	40	35	30	**31**	**26**	-	45	39	38	34	24	27	**27**	**22**	-
160	0,8	56	16	33	0	27	23	-	-	-	-	-	-	-	-	20	19	-	-	-	-	-	-
	3,0	209	58	123	3	40	33	24	-	-	20	-	-	-	28	30	29	25	19	22	-	-	-
	6,0	418	116	246	13	48	40	31	23	18	23	**24**	-	-	36	36	34	30	22	25	**23**	-	-
	9,0	627	174	369	30	53	45	39	34	29	27	**28**	**23**	-	40	39	37	33	24	27	**25**	**20**	-
	12,0	836	232	492	53	57	51	47	42	37	33	**32**	**27**	-	43	42	40	35	26	28	**26**	**21**	-
200	0,8	92	26	54	0	31	30	22	-	-	20	-	-	-	-	20	19	-	-	19	-	-	-
	3,0	329	91	194	3	46	41	32	-	17	26	-	-	-	30	31	29	23	21	25	-	-	-
	6,0	658	183	387	12	53	47	38	26	23	29	**28**	**23**	-	37	36	34	29	25	28	**22**	-	-
	9,0	988	274	581	28	58	51	43	36	31	32	**31**	**26**	-	41	40	37	32	27	30	**23**	-	-
	12,0	1317	366	775	50	61	55	49	44	39	36	**34**	**29**	-	44	42	39	34	28	32	**24**	**19**	-
250	0,9	149	41	88	0	35	33	27	-	18	25	-	-	-	20	23	22	19	17	22	-	-	-
	3,0	517	144	304	3	48	43	36	20	25	31	**26**	**21**	-	33	33	31	28	24	28	**21**	-	-
	6,0	1035	287	609	13	52	49	42	29	29	34	**28**	**24**	-	37	39	36	34	27	31	**23**	-	-
	9,0	1552	431	913	29	58	53	46	38	35	37	**31**	**26**	-	43	42	39	37	30	33	**24**	-	-
	12,0	2070	575	1218	51	63	57	52	46	42	40	**34**	**30**	-	47	45	42	39	31	35	**25**	**19**	-
315	0,9	243	67	143	0	37	38	31	-	24	31	-	-	-	22	24	23	20	20	24	-	-	-
	3,0	826	229	486	3	50	48	41	24	31	37	**27**	**23**	-	35	34	33	30	27	30	**20**	-	-
	6,0	1651	459	971	12	58	54	46	32	35	40	**31**	**27**	-	43	39	38	35	30	33	**23**	-	-
	9,0	2477	688	1457	26	62	57	50	41	39	43	**33**	**29**	-	47	43	41	38	33	35	**24**	-	-
	12,0	3303	917	1943	47	66	61	55	48	44	45	**35**	**31**	-	50	45	43	41	34	37	**25**	**19**	-
355	0,9	312	87	184	0	39	40	34	18	29	36	**23**	**22**	-	23	25	25	21	22	28	-	-	-
	3,0	1051	292	618	3	52	50	43	28	36	42	**29**	**25**	-	36	35	34	31	29	34	**21**	**19**	-
	6,0	2102	584	1236	11	59	56	48	35	39	45	**32**	**28**	-	43	41	39	36	32	37	**23**	**19**	-
	9,0	3153	876	1855	25	60	60	52	42	42	47	**33**	**30**	-	43	44	42	40	34	39	**24**	**20**	-
	12,0	4204	1168	2473	44	65	63	56	50	47	49	**35**	**32**	-	47	47	44	42	36	41	**25**	**20**	-
400	0,9	401	111	236	0	37	42	36	22	32	37	**24**	**23**	-	21	26	26	23	24	28	-	-	-
	3,0	1337	371	786	3	53	52	45	31	38	43	**30**	**26**	-	36	36	35	32	30	34	**21**	-	-
	6,0	2674	743	1573	10	60	58	51	37	42	47	**32**	**29**	-	44	42	40	38	34	38	**23**	**19**	-
	9,0	4011	1114	2359	24	65	62	54	44	44	49	**34**	**31**	-	48	45	44	41	36	40	**24**	**19**	-
	12,0	5348	1485	3146	42	68	65	58	51	48	50	**37**	**33**	**21**	51	48	46	43	37	41	**25**	**19**	-

Model	Air Vel.	Air Volume			Min. P_{st}	Discharge sound (Air borne sound)									Radiated sound (Break out sound)								
						Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P			Lw (dB/oct) re 10^{-12}W						Quick Sel. L_P		
mm	m/s	m^3/h	l/s	CFM	Pa	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	dB (A)	NR	NC
100	0,7	19	5	11	0	21	-	-	-	-	-	-	-	-	18	20	21	-	-	19	-	-	-
	3,0	80	22	47	4	36	27	-	-	-	-	-	-	-	33	32	32	27	22	26	**21**	-	-
	6,0	160	44	94	16	43	33	25	18	-	-	-	-	-	40	37	37	32	26	29	**26**	**21**	-
	9,0	239	67	141	36	48	40	35	30	25	19	**25**	**19**	-	44	40	40	36	28	31	**29**	**24**	-
	12,0	319	89	188	64	53	47	42	38	33	28	**30**	**24**	-	47	43	42	38	29	32	**31**	**26**	-
125	0,8	32	9	19	0	25	20	-	-	-	-	-	-	-	20	23	24	18	-	21	-	-	-
	3,0	126	35	74	4	41	31	19	-	-	-	-	-	-	36	34	34	29	24	27	**22**	-	-
	6,0	253	70	149	15	49	37	27	20	-	-	-	-	-	44	39	39	34	27	31	**28**	**23**	-
	9,0	379	105	223	33	55	43	37	32	27	22	**30**	**26**	-	50	43	42	37	29	33	**31**	**26**	-
	12,0	505	140	297	59	55	49	44	40	35	30	**33**	**27**	-	49	45	44	39	31	34	**33**	**28**	-
160	0,8	56	16	33	0	31	28	20	-	-	20	-	-	-	19	25	25	20	19	22	-	-	-
	3,0	209	58	123	3	44	39	30	-	-	27	-	-	-	32	36	35	30	25	29	**24**	**19**	-
	6,0	418	116	246	13	52	45	36	24	22	30	**28**	**23**	-	40	41	40	35	29	32	**29**	**24**	-
	9,0	627	174	369	30	56	49	41	34	30	33	**32**	**27**	-	44	45	44	39	31	34	**31**	**26**	-
	12,0	836	232	492	53	60	53	47	42	37	36	**35**	**30**	-	47	47	46	41	32	36	**32**	**27**	-
200	0,8	92	26	54	0	35	36	28	-	17	27	-	-	-	19	26	25	19	21	26	-	-	-
	3,0	329	91	194	3	50	46	38	21	24	33	**28**	**24**	-	34	36	35	29	28	32	**24**	**21**	-
	6,0	658	183	387	12	57	52	43	28	28	37	**33**	**29**	-	41	42	40	34	31	36	**28**	**23**	-
	9,0	988	274	581	28	61	56	47	37	33	39	**35**	**31**	-	45	45	43	37	33	38	**29**	**24**	-
	12,0	1317	366	775	50	65	59	51	45	40	41	**38**	**33**	-	48	48	45	40	35	39	**30**	**25**	-
250	0,9	149	41	88	0	39	39	33	-	25	32	-	-	-	24	29	28	24	24	29	**19**	-	-
	3,0	517	144	304	3	52	49	42	25	31	38	**31**	**27**	-	37	39	37	34	30	35	**27**	**24**	-
	6,0	1035	287	609	13	56	55	48	32	35	42	**33**	**30**	-	41	45	43	39	34	39	**29**	**24**	-
	9,0	1552	431	913	29	62	58	51	39	38	44	**35**	**32**	-	47	48	46	42	36	41	**30**	**25**	-
	12,0	2070	575	1218	51	66	61	55	47	43	46	**38**	**34**	-	51	50	48	45	38	42	**31**	**26**	-
315	0,9	243	67	143	0	41	43	38	20	31	38	**26**	**25**	-	26	29	30	26	27	31	**21**	**20**	-
	3,0	826	229	486	3	54	53	47	29	37	45	**33**	**29**	-	39	39	39	35	33	38	**27**	**24**	-
	6,0	1651	459	971	12	62	59	52	36	41	48	**36**	**33**	-	47	45	44	41	37	41	**29**	**24**	-
	9,0	2477	688	1457	26	66	63	56	42	44	50	**38**	**35**	-	51	49	47	44	39	43	**30**	**24**	-
	12,0	3303	917	1943	47	69	65	59	49	47	52	**39**	**36**	**21**	54	51	50	46	41	44	**31**	**25**	**19**
355	0,9	312	87	184	0	43	46	40	24	36	43	**29**	**30**	-	27	31	31	27	29	35	**23**	**24**	-
	3,0	1051	292	618	3	56	56	49	34	42	49	**35**	**32**	-	40	41	40	37	35	41	**28**	**26**	-
	6,0	2102	584	1236	11	63	62	55	39	46	53	**37**	**34**	-	47	47	46	42	39	45	**29**	**27**	-
	9,0	3153	876	1855	25	64	65	58	45	48	55	**38**	**36**	**21**	47	50	49	45	41	47	**30**	**27**	**20**
	12,0	4204	1168	2473	44	68	68	61	51	51	56	**40**	**38**	**24**	51	52	51	47	43	48	**31**	**27**	**21**
400	0,9	401	111	236	0	41	48	42	27	38	45	**31**	**31**	-	25	32	32	28	30	36	**24**	**24**	-
	3,0	1337	371	786	3	57	58	52	37	45	51	**36**	**32**	-	41	42	42	38	37	42	**27**	**26**	-
	6,0	2674	743	1573	10	64	64	57	43	48	54	**38**	**35**	**20**	48	48	47	43	40	45	**29**	**26**	-
	9,0	4011	1114	2359	24	69	67	60	47	51	56	**40**	**37**	**24**	52	51	50	46	42	47	**31**	**26**	**20**
	12,0	5348	1485	3146	42	72	70	63	52	53	58	**41**	**39**	**27**	55	54	52	49	44	49	**31**	**26**	**22**

VSR	-	SA	-	250	-	BEM
Type		Construction		Model		Controls

Type:
- VSR - VAV terminal met round in– and outlet. Supply and return application.

Construction:
- SA - Single wall construction

Model:
- Ø - 100, 125, 160, 200, 250, 315, 355, 400, 450 or 500

Controls:
- BE0 - Belimo LMV-D3-FX (5Nm w/o NFC)
- BE1 - Belimo LMV-D3-MP (5Nm)
- BE2 - Belimo NMV-D3-MP (10Nm)
- BE3 - Belimo VRU-D3-BAC + LM24A-VST (5Nm, 150sec/90°)
- BE4 - Belimo VRU-D3-BAC + LMQ24A-VST (5Nm, 2,5sec/90°)
- BE5 - Belimo VRU-M1-BAC + LMQ24A-VST (5Nm, 2,5sec/90°)
- BEM - Belimo LMV-D3-MOD
- GR1 - Grüner 327VM-024-05
- GRM - Grüner 327VM-024-05-MB

Specify as:

Example:
Supply and install, VAV terminal, double wall constructing, from galvanized sheet steel, duct sleeve connections suitable for DIN 24 145 or DIN 24 146. Casing leakage rate to class II, VDI 3803/ DIN 24 194. The VAV units should have a low leakage, sandwich construction damper blade with SBR gasket and an aluminium damper shaft with self lubricating Nylon bearings and averaging airflow sensor type FloXact®.
For:

Air volume	.... m3/h
Unit size	.... mm
Max. pressure loss	.... Pa
Max. discharge SPL	.... dB(A)
Max. radiated SPL	.... dB(A)
Controller	Belimo LMV-D3-MP (factory fitted and calibrated)
Manufacturer	AIR-CONCEPTS BV
Type	VSR-SA.-250-BE1-xxx-

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