GERHMAN

Constant Air Volume Control

CAV

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Constant Air Volume Control

CAV regulators are used for automatic constant air flow control in ventilation installations. They maintain constant air volumes regardless of the changes of static pressure in the ventilation duct. They operate automatically, without any external power supply. Regulation range is from 2 to 12 m/s, operating pressure from 50 to 1000 Pa. Complies with EN 1751 casing air leakage has class C, close blade air leakage has class 0.

The changes of set values can be made independently by the user, so the regulator is delivered with default factory settings. It is possible to order factory-made value settings, which should be indicated in the order code.

Advantages

The regulator makes it possible to control the air flow within the pressure range from 50 to 1000 Pa, without any external power supply. The standard version of the regulator has the housing and the baffle made of galvanized steel, whereas the baffle axis is fastened in brass bearings. The special version of the regulator made of AISI304L stainless steel can be ordered. In accordance with EN1751, the housing leakage class is C. Due to intuitive adjusting mechanism, any flow rate maintained by the regulator can be set by the user independently. The possibility of making the regulator with a 24 V AC/DC or 230 V AC electric actuator is additional benefit, which makes it possible to maintain two selected flow rates without any problem.

Main Advantages

- Operating range 2 – 12 m/s
- Operating pressure 50 – 1000 Pa
- The possibility of changing settings by the user
- The possibility of making the version with an actuator
- Complies with EN 1751 air leakage has class C0
- The device does not require any electric power supply (for the version without an actuator)
- It can be used both in ventilation air supply and air extraction ducts
- It can be mounted both vertically and horizontally
- It can be made with a seal on the service lines
- Round or rectangular options
- Scale accuracy ±4%
- Operating temperature 10 – 80 °C

Constant Air Volume Control

CAV-R

The volume flow controllers CAV-R are used in complex piping systems for automatically controlling the amount of air distribution.

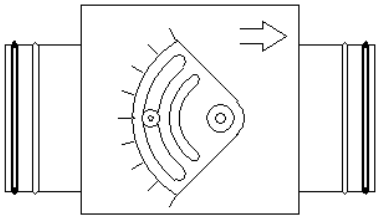
Table 1. Design features for round and rectangular models

	Standard	Optional
Casing	Galvanized	AISI 304, AISI 316, Powder Coated
Blade	Galvanized	AISI 304, AISI 316
Damper Shaft	AISI 304	
Bearings	Maintenance free	
Sealing		Rubber Sealing rings on connecting spigots
Mechanism	Manual Adjusting mechanism console	Actuator controlled (24V or 230V)
	Vibration absorption elements	-
Casing Leakage	Class C (EN1751)	

Operating Range

Table 2. CAV-R round, regulator application field

DN	Vmin [m3/h]	Vmax [m3/h]
100	70	340
125	120	575
140	140	610
160	150	760
200	250	960
250	420	1550
315	700	2800
400	1100	4500



Regulation Accuracy Tolerance

The accuracy of the flow setting scale is +/-4%. The adjustment error can increase, when there is interference in the form of the duct variable cross-section, the lack of recommended straight segments before and after the regulator, arches, sharp edges, duct narrowing etc.

The minimum differential pressure of CAV controllers is an important factor in designing the ductwork and in rating the fan including speed control.

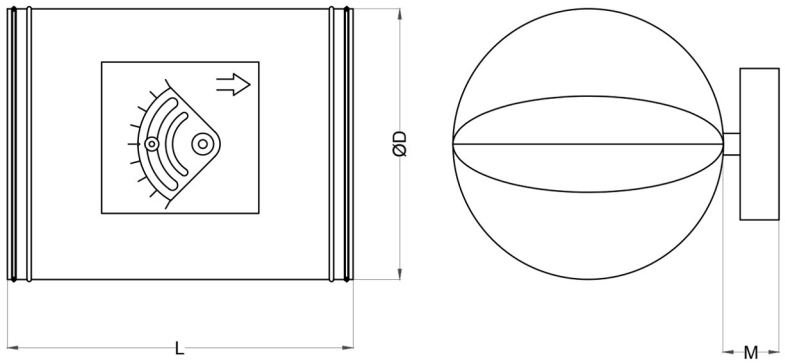
Sufficient duct pressure must be ensured for all operating conditions and for all control units. The measurement points for fan speed control must be selected accordingly.

Dimensions

Table 4. CAV-R round, dimensions

Nominal size	ØD (mm)	L (mm)	M (mm)	Weight (Kg)
100	98	300	70	1,8
125	123	300	70	2,0
140	138	300	70	2,2
160	158	300	70	2,5
200	198	300	70	3,0
250	248	350	70	3,5
315	313	400	70	4,8
400	398	400	70	5,7

Remark:
The stated dimensions are nominal sizes in mm.
Connection “D” = is actual O.D. Secondary attenuators if required are available upon request.



Technical Data

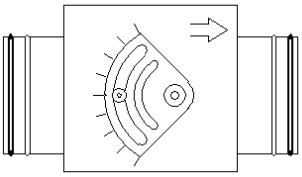


Table 6. CAV-R Round, Discharged Sound

Static inlet pressure

					50 Pa						100 Pa						250 Pa					
				Lw in octave						Lw in octave						Lw in octave						
DN	[m3/h]	P min	**63**	**125**	**250**	**500**	**1k**	**2k**	**Lp**	**63**	**125**	**250**	**500**	**1k**	**2k**	**Lp**	**63**	**125**	**250**	**500**	**1k**	**2k**	**Lp**
100	70	50	25	29	22	23	23	24	-	36	40	33	33	34	35	**13**	46	42	37	38	39	40	**17**
	130	50	41	38	34	32	35	34	**13**	45	44	39	39	38	37	**18**	50	49	44	46	46	46	**24**
	190	50	45	41	38	38	40	38	**17**	46	46	43	41	41	41	**21**	51	50	48	48	47	49	**26**
	250	50	45	44	42	43	41	43	**20**	50	49	48	47	48	46	**25**	53	54	53	52	51	50	**30**
	300	70	-	-	-	-	-	-	-	52	54	51	51	50	48	**29**	57	58	55	55	55	55	**33**
125	120	50	43	41	34	33	35	33	**15**	48	44	38	38	41	39	**19**	51	50	43	43	45	46	**24**
	200	50	45	42	37	37	39	36	**17**	48	46	41	40	41	40	**21**	55	51	48	48	50	49	**27**
	280	50	47	44	39	41	40	39	**19**	50	49	46	45	46	45	**24**	54	54	50	51	51	53	**29**
	360	50	48	44	42	43	42	41	**20**	52	51	49	48	47	47	**27**	56	57	56	55	54	54	**33**
	500	70	-	-	-	-	-	-	-	55	55	53	54	51	50	**31**	59	60	59	59	58	60	**36**
140	140	50	44	42	35	35	36	35	**16**	52	50	42	43	44	43	**24**	56	53	50	48	51	52	**28**
	260	50	47	44	41	39	39	39	**19**	55	52	47	47	47	46	**27**	60	56	53	53	53	54	**32**
	380	50	48	45	43	42	42	41	**21**	54	53	51	49	50	48	**28**	59	58	56	56	55	56	**34**
	490	50	50	49	46	46	46	44	**24**	56	55	52	52	52	50	**30**	60	61	60	59	59	59	**37**
	600	70	-	-	-	-	-	-	-	61	60	58	59	56	55	**36**	63	64	64	63	63	62	**41**
160	150	50	46	43	36	35	37	35	**17**	50	47	40	41	43	41	**21**	53	52	46	45	46	48	**26**
	300	50	47	43	39	39	39	38	**18**	52	49	45	44	44	43	**24**	54	52	49	49	49	51	**27**
	450	50	46	44	41	41	43	40	**19**	54	51	46	47	49	46	**26**	58	58	53	55	54	55	**33**
	600	50	48	46	44	45	44	43	**22**	54	53	51	51	50	50	**28**	59	58	57	58	56	57	**34**
	750	70	-	-	-	-	-	-	-	56	56	55	57	54	52	**33**	61	64	63	63	60	60	**40**
200	250	50	45	42	36	36	38	36	**17**	50	46	40	42	43	40	**21**	55	53	48	49	50	50	**28**
	450	50	45	42	38	38	39	37	**17**	51	48	44	43	45	44	**23**	56	54	50	51	51	52	**29**
	700	50	45	43	40	42	40	39	**19**	51	49	46	48	48	46	**25**	58	57	55	55	55	56	**33**
	900	50	49	47	45	46	44	44	**23**	54	52	52	52	51	50	**29**	58	59	58	58	56	57	**35**
250	420	50	48	43	37	38	39	37	**18**	52	48	42	44	43	44	**23**	55	52	48	47	49	50	**27**
	700	50	47	44	41	38	39	38	**19**	53	51	46	45	46	45	**26**	59	56	51	51	52	53	**31**
	1100	50	48	45	44	42	42	42	**21**	53	51	48	49	48	47	**27**	59	57	54	56	54	55	**33**
	1400	50	48	46	44	44	43	42	**22**	55	54	52	53	51	49	**30**	58	60	59	57	56	58	**36**
315	700	50	44	42	35	35	36	35	**16**	52	50	42	43	44	43	**24**	56	53	50	48	51	52	**28**
	1100	50	47	44	41	39	39	39	**19**	55	52	47	47	47	46	**27**	60	56	53	53	53	54	**32**
	1700	50	48	45	43	42	42	41	**21**	54	53	51	49	50	48	**28**	59	58	56	56	55	56	**34**
	2200	50	50	49	46	46	46	44	**24**	56	55	52	52	52	50	**30**	60	61	60	59	59	59	**37**
	2800	90	-	-	-	-	-	-	-	61	60	58	59	56	55	**36**	63	64	64	63	63	62	**41**
400	1100	50	43	41	34	33	35	33	**15**	48	44	38	38	41	39	**19**	51	50	43	43	45	46	**24**
	1700	50	45	42	37	37	39	36	**17**	48	46	41	40	41	40	**21**	55	51	48	48	50	49	**27**
	2600	50	47	44	39	41	40	39	**19**	50	49	46	45	46	45	**24**	54	54	50	51	51	53	**29**
	3350	50	48	44	42	43	42	41	**20**	52	51	49	48	47	47	**27**	56	57	56	55	54	54	**33**
	4500	90	-	-	-	-	-	-	-	55	55	53	54	51	50	**31**	59	60	59	59	58	60	**36**

Table 7. Correction radiated sound

DN	100	125	140	160	200	250	315	400
Single walled	-18	-17	-17	-15	-14	-13	-12	-12
Double walled	-36	-35	-35	-33	-32	-31	-30	-30

General:

- Minimum static pressure drop over the control Pmin in Pa
- Sound power Lw in dB in the octave bands at a reference value of 10-12 Watt.
- The selection table shows the Lw and Lp values for dis- charge sound. The sound pressure levels Lp, dB(A) stated have taken into account the attenuation of a silencer and a ceiling diffuser with plenumbox.
- The adopted room attenuation is 10dB. If the actual value is lower, the dB(A) values have to be corrected.
- Note: the Lw values have been measured with one end nozzle of the duct in the free room. (i.e. including end reflection). For rooms with a low sound level (<25dB(A)), hard surfaces, light walls etc. consult an acoustic consul- tant.
- The available pressure drop across the unit has to be mini- mal 50 Pa. Interpolation of intermediate values is acceptable.

Constant Air Volume Control

CAV-S

The mechanical CAV-S unit serves to keep the set volume flow constant, independent of inlet pressure and without external energy supply

Table 1. Design features for round and rectangular models

	Standard	Optional
Casing	Galvanized	AISI 304, AISI 316, Powder Coated
Blade	Galvanized	AISI 304, AISI 316
Damper Shaft	AISI 304	
Bearings	Maintenance free	
Sealing		Rubber Sealing rings on connecting spigots
Mechanism	Manual Adjusting mechanism console	Actuator controlled (24V or 230V)
	Vibration absorption elements	-
Casing Leakage	Class C (EN1751)	

Operating Range

Table 3. CAV-S Rectangular, Regulator Application Field

V min-max (m³/h)		W									
		150	200	250	300	350	400	450	500	550	600
H	150	200-800	270-1080	340-1350	405-1620	470-1890	540-2160				
	200	270-1440	360-1440	450-1800	540-2160	630-2520	720-2880	810-3240	900-3600	990-3960	1080-4300
	250	335-1350	450-1800	560-2250	675-2700	790-3150	900-3600	1010-4050	1125-4500	1240-4950	1350-5400
	300	405-1620	540-2160	675-2700	810-3240	945-3780	1080-4320	1215-4860	1350-5400	1485-5940	1620-6480
	350	470-1890	630-2520	785-3150	945-3780	1100-4400	1260-5040	1420-5670	1575-6300	1730-6930	1890-7560
	400 (*)	540-2160	720-2880	900-3600	1080-4320	1260-5040	1440-5760	1620-6480	1800-7200	1980-7920	2160-8640
	500 (*)	675-2700	900-3600	1125-4500	1350-5400	1575-6300	1800-7200	2025-8100	2250-9000	2480-9900	2700-10800
	600 (*)	810-3240	1080-4320	1350-5400	1620-6480	1890-7560	2160-8640	2430-9720	2700-10800	2970-11880	3240-12960

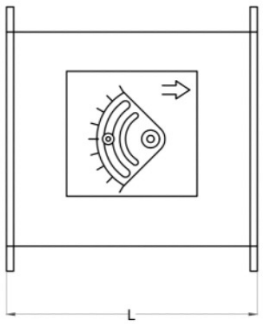
(*) Multi modules

Regulation Accuracy Tolerance

The accuracy of the flow setting scale is +/-4%. The adjustment error can increase, when there is interference in the form of the duct variable cross-section, the lack of recommended straight segments before and after the regulator, arches, sharp edges, duct narrowing etc.

The minimum differential pressure of CAV controllers is an important factor in designing the ductwork and in rating the fan including speed control.

Sufficient duct pressure must be ensured for all operating conditions and for all control units. The measurement points for fan speed control must be selected accordingly.



Dimensions

Table 5. CAV-S rectangular, dimensions

Nominal size	W	h	L	M	Flange	Weight	
(mm)	(mm)					(Kg)	
150 x 150	150	150	250	70	35	4	
200 x 150	200	150	250	70	35	5	
300 x 150	300	150	250	70	35	6	
300 x 150	300	150	250	70	35	6,5	
300 x 200	300	200	250	70	35	7	
400 x 200	400	200	250	70	35	9	
500 x 200	500	200	250	70	35	11	
600 x 200	600	200	250	70	35	13	
400 x 250	400	250	300	70	35	10	
500 x 250	500	250	300	70	35	12	
600 x 250	600	250	300	70	35	14	
400 x 300	400	300	400	70	35	12	
500 x 300	500	300	400	70	35	13	
600 x 300	600	300	400	70	35	15	
400 x 400	s	400	250	70	35	18	*
500 x 400	500	400	250	70	35	18	*
600 x 400	600	400	250	70	35	18	*
500 x 500	500	500	300	70	35	18	*
600 x 500	600	500	300	70	35	19	*
600 x 600	600	600	400	70	35	20	*

* Multi modules

Remark:
The stated dimensions are nominal sizes in mm.
Connection “D” = is actual O.D. Secondary attenuators if required are available upon request.

Technical Data

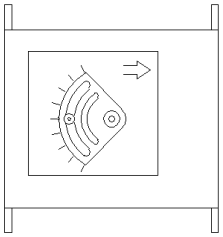


Table 8. CAV-S Rectangular, Discharged Sound

Static inlet pressure

			50 Pa							100 Pa							250 Pa						
					Lw in dB/octave							Lw in dB/octave							Lw in dB/octave				
W x H	[m3/h]	P min	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp
150 x 150	200	50	49	44	39	35	34	32	**19**	52	49	46	41	40	38	**23**	56	55	54	49	47	46	**30**
	288	50	58	51	44	38	37	36	**26**	60	56	51	45	43	42	**30**	62	62	59	53	51	50	**35**
	432	50	65	57	47	39	38	40	**32**	66	61	54	47	45	46	**35**	67	67	63	57	53	53	**40**
	576	75	-	-	-	-	-	-	-	71	65	57	48	46	48	**39**	71	71	66	59	55	55	**44**
	720	100	-	-	-	-	-	-	-	74	68	59	49	47	49	**42**	73	74	69	61	57	56	**46**
200 X 150	270	50	46	42	38	35	34	30	**16**	50	48	45	41	40	37	**22**	55	54	53	48	47	46	**29**
	432	50	58	51	44	38	37	36	**26**	60	56	51	45	43	43	**30**	63	62	59	54	51	50	**36**
	648	50	65	56	47	38	37	39	**32**	66	61	54	47	45	46	**35**	67	67	63	57	53	53	**40**
	864	75	-	-	-	-	-	-	-	71	65	57	48	46	48	**39**	71	71	66	59	55	55	**44**
	1080	100	-	-	-	-	-	-	-	74	68	59	49	47	49	**42**	73	74	69	61	57	56	**46**
200 x 200	360	50	47	43	39	36	34	31	**17**	52	49	46	42	41	39	**23**	57	56	55	50	49	48	**30**
	576	50	58	51	44	38	37	36	**26**	61	57	52	46	44	43	**31**	64	63	60	55	52	51	**37**
	864	50	65	56	47	38	37	39	**32**	67	62	55	47	45	46	**36**	68	68	64	58	54	54	**41**
	1152	75	-	-	-	-	-	-	-	71	66	57	49	47	48	**40**	72	72	67	60	56	56	**45**
	1440	100	-	-	-	-	-	-	-	74	68	59	49	47	49	**42**	74	74	69	62	57	57	**47**
300 X 150	405	50	45	42	38	35	34	30	**16**	50	48	45	42	41	38	**22**	56	55	54	50	49	48	**30**
	648	50	58	51	44	38	37	36	**26**	61	57	52	46	44	43	**31**	64	64	61	55	53	52	**37**
	972	50	65	56	47	38	37	39	**32**	67	62	55	47	45	46	**36**	69	69	65	58	55	54	**42**
	1296	75	-	-	-	-	-	-	-	71	66	57	49	47	48	**40**	72	72	68	61	57	56	**45**
	1620	100	-	-	-	-	-	-	-	74	68	59	49	47	49	**42**	74	75	70	62	58	57	**47**
300 X 200	540	50	47	43	39	36	35	31	**18**	52	49	47	43	42	39	**24**	58	57	56	51	50	49	**31**
	864	50	59	52	45	38	37	37	**26**	61	57	52	46	44	44	**31**	65	64	61	56	53	52	**38**
	1296	50	65	57	47	39	38	40	**32**	67	62	55	48	46	47	**36**	69	69	65	59	55	55	**42**
	1728	75	-	-	-	-	-	-	-	71	66	57	49	47	48	**40**	72	72	68	61	57	56	**45**
	2160	100	-	-	-	-	-	-	-	74	68	59	49	47	49	**42**	74	75	70	62	58	57	**47**
300 X 250	675	50	47	43	40	37	36	32	**18**	52	49	47	43	42	39	**24**	58	57	56	52	51	50	**32**
	1080	50	59	52	45	38	37	37	**26**	61	57	52	46	44	44	**31**	65	65	62	56	54	53	**38**
	1620	50	65	57	47	39	38	40	**32**	67	62	55	48	46	47	**36**	70	70	66	59	56	55	**43**
	2160	75	-	-	-	-	-	-	-	71	66	57	49	47	48	**40**	73	73	68	61	57	57	**46**
	2700	100	-	-	-	-	-	-	-	73	67	57	48	45	48	**40**	73	74	69	61	57	56	**46**
400 x 200	720	50	49	45	41	37	36	33	**19**	54	51	48	44	43	40	**25**	60	59	57	53	52	50	**33**
	1152	50	59	52	45	39	38	37	**27**	62	58	53	47	45	44	**32**	66	65	62	57	54	53	**39**
	1728	50	66	57	48	39	38	40	**33**	68	63	56	48	46	47	**37**	70	70	66	60	56	56	**43**
	2304	75	-	-	-	-	-	-	-	72	66	58	49	47	49	**40**	73	73	69	62	58	57	**46**
	2880	100	-	-	-	-	-	-	-	73	67	58	48	46	48	**41**	74	74	69	62	57	57	**47**
300 x 300	810	50	48	44	40	37	36	32	**19**	53	50	48	44	43	40	**25**	59	58	57	53	51	50	**33**
	1296	50	59	52	45	39	38	37	**27**	62	58	53	47	45	44	**32**	66	65	62	57	54	53	**39**
	1944	50	66	57	48	39	38	40	**33**	68	63	56	48	46	47	**37**	70	70	66	60	56	56	**43**
	2592	75	-	-	-	-	-	-	-	72	66	58	49	47	49	**40**	73	73	69	62	58	57	**46**
	3240	100	-	-	-	-	-	-	-	75	69	59	50	47	50	**42**	75	76	71	63	59	58	**48**
400 x 250	800	50	48	44	41	38	37	33	**19**	53	50	48	44	43	40	**25**	60	59	58	53	52	51	**33**
	1440	50	60	53	46	39	38	38	**27**	62	58	53	47	45	45	**32**	67	66	63	58	55	54	**40**
	2160	50	66	57	48	39	38	40	**33**	68	63	56	48	46	47	**37**	71	71	67	60	57	56	**44**
	2880	75	-	-	-	-	-	-	-	72	66	58	49	47	49	**40**	74	74	69	62	58	58	**47**
	3600	100	-	-	-	-	-	-	-	75	69	59	50	47	50	**42**	76	76	71	64	59	59	**49**
500 x 200	900	50	50	45	41	38	37	33	**20**	54	51	48	45	43	41	**26**	61	60	58	54	53	51	**34**
	1440	50	60	53	46	39	38	38	**27**	62	58	53	47	45	45	**32**	67	66	63	58	55	54	**40**
	2160	50	66	57	48	39	38	40	**33**	68	63	56	48	46	47	**37**	71	71	67	60	57	56	**44**
	2880	75	-	-	-	-	-	-	-	72	66	58	49	47	49	**40**	74	74	69	62	58	58	**47**
	3600	100	-	-	-	-	-	-	-	75	69	59	50	47	50	**42**	76	76	71	64	59	59	**49**
400 x 300	1080	50	48	44	40	37	36	32	**18**	53	50	48	44	43	40	**25**	60	59	58	53	52	51	**33**
	1728	50	60	53	46	39	38	38	**27**	63	59	54	48	46	45	**33**	67	67	64	58	56	55	**40**
	2592	50	65	57	47	39	38	40	**32**	68	63	56	48	46	47	**37**	71	71	67	60	57	56	**44**
	3456	75	-	-	-	-	-		-	72	66	58	49	47	49	**40**	74	74	69	62	58	58	**47**
	4320	100	-	-	-	-	-	-	-	75	69	59	50	47	50	**42**	76	76	71	64	59	59	**49**
600 x 200	1125	50	50	46	41	37	36	33	**20**	55	52	49	45	43	41	**26**	61	60	59	54	53	52	**35**
	1728	50	60	53	46	39	38	38	**27**	63	59	54	48	46	45	**33**	67	67	64	58	56	55	**40**
	2592	50	65	57	47	39	38	40	**32**	68	63	56	48	46	47	**37**	71	71	67	60	57	56	**44**
	3456	75	-	-	-	-	-	-	-	72	66	58	49	47	49	**40**	74	74	69	62	58	58	**47**
	4320	100	-	-	-	-	-	-	-	75	69	59	50	47	50	**42**	76	76	71	64	59	59	**49**

Static inlet pressure

			50 Pa							100 Pa							250 Pa						
					Lw in dB/octave							Lw in dB/octave							Lw in dB/octave				
W x H	[m3/h]	P min	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp
500 x 200	1000	50	48	44	41	38	37	33	**19**	54	51	48	45	44	41	**25**	60	59	58	54	53	52	**34**
	1800	50	60	53	46	39	38	38	**27**	63	59	54	48	46	45	**33**	67	67	64	58	56	55	**40**
	2700	50	66	57	48	39	38	40	**33**	68	63	56	49	47	48	**37**	71	71	67	61	57	57	**44**
	3600	75	-	-	-	-	-	-	**-**	72	67	58	50	48	49	**41**	74	74	70	63	59	58	**47**
	4500	100	-	-	-	-	-	-	**-**	75	69	59	50	47	50	**42**	76	76	71	64	59	59	**49**
500 X 300	1200	50	48	44	41	38	37	33	**19**	54	51	49	45	44	41	**26**	61	60	59	54	53	52	**34**
	2160	50	60	53	46	39	38	38	**27**	63	59	54	48	46	46	**33**	68	67	64	59	56	55	**41**
	3240	50	66	57	48	39	38	40	**33**	69	64	57	49	47	48	**38**	72	72	68	61	58	57	**45**
	4320	75	-	-	-	-	-	-	**-**	72	67	58	50	48	49	**41**	74	74	70	63	59	58	**47**
	5400	100	-	-	-	-	-	-	**-**	75	69	60	50	48	50	**43**	76	77	72	64	60	59	**49**
600 x 250	1400	50	51	46	42	38	37	34	**20**	56	53	50	46	45	42	**27**	62	61	60	55	54	53	**36**
	2160	50	60	53	46	39	38	38	**27**	63	59	54	48	46	46	**33**	68	67	64	59	56	55	**41**
	3240	50	66	57	48	39	38	40	**33**	69	64	57	49	47	48	**38**	72	72	68	61	58	57	**45**
	4320	75	-	-	-	-	-	-	**-**	72	67	58	50	48	49	**41**	74	74	70	63	59	58	**47**
	5400	100	-	-	-	-	-	-	**-**	75	69	60	50	48	50	**43**	76	77	72	64	60	59	**49**
600 x 300	1600	50	51	46	42	39	38	34	**21**	56	53	50	47	45	43	**28**	63	62	61	56	55	54	**37**
	2592	50	60	53	46	40	39	38	**28**	64	60	55	49	47	46	**34**	69	68	65	60	57	56	**42**
	3888	50	66	57	48	39	38	40	**33**	69	64	57	49	47	48	**38**	72	72	68	62	58	58	**45**
	5184	75	-	-	-	-	-	-	**-**	73	67	59	50	48	50	**41**	75	75	71	64	60	59	**48**
	6480	100	-	-	-	-	-	-	**-**	75	69	60	50	48	50	**43**	77	77	72	65	60	60	**50**

Table 9. CAV-S Rectangular, Radiated Sound

Static inlet pressure

			50 Pa							100 Pa							250 Pa						
					Lw in dB/octave							Lw in dB/octave							Lw in dB/octave				
W x H	[m3/h]	P min	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp
150 x 150	200	50	41	40	32	29	24	23	**16**	45	44	37	34	29	29	**21**	50	49	43	39	35	36	**26**
	288	50	46	44	35	32	29	27	**20**	49	49	41	37	33	32	**25**	54	54	48	43	39	39	**30**
	432	50	50	48	38	35	32	31	**24**	53	53	44	40	37	36	**29**	57	59	52	46	42	41	**35**
	576	75	-	-	-	-	-	-	**-**	56	56	47	42	39	38	**31**	60	62	55	49	45	43	**38**
	720	100	-	-	-	-	-	-	**-**	58	59	49	44	41	39	**34**	62	65	57	50	46	44	**40**
200 X 150	270	50	39	38	31	28	23	21	**14**	43	43	36	33	28	28	**19**	49	48	43	39	35	36	**25**
	432	50	46	44	35	32	29	27	**20**	50	49	42	38	34	33	**25**	55	56	49	44	40	40	**32**
	648	50	50	48	38	35	32	31	**24**	54	54	45	41	37	36	**29**	59	60	53	48	44	43	**36**
	864	75	-	-	-	-	-	-	**-**	57	57	47	43	40	38	**32**	61	64	56	50	46	44	**39**
	1080	100	-	-	-	-	-	-	**-**	59	59	49	45	42	40	**34**	63	66	58	52	48	46	**41**
200 x 200	360	50	39	38	31	28	23	22	**15**	44	43	37	33	28	28	**20**	50	49	43	39	35	36	**26**
	576	50	46	44	35	32	29	27	**20**	50	49	42	38	34	33	**25**	55	56	49	44	40	40	**32**
	864	50	50	49	39	36	33	31	**24**	54	54	45	41	38	37	**30**	59	61	54	48	44	43	**37**
	1152	75	-	-	-	-	-	-	**-**	57	57	48	43	40	39	**32**	62	64	57	51	47	45	**40**
	1440	100	-	-	-	-	-	-	**-**	59	60	50	45	42	40	**35**	64	67	59	52	48	46	**42**
300 X 150	405	50	38	37	30	27	22	21	**14**	43	42	36	32	28	27	**19**	49	48	43	39	35	36	**25**
	648	50	46	44	35	32	29	27	**20**	50	49	42	38	34	33	**25**	56	56	50	45	41	41	**32**
	972	50	50	49	39	36	33	31	**24**	54	54	45	41	38	37	**30**	60	61	54	49	45	44	**37**
	1296	75	-	-	-	-	-	-	**-**	57	57	48	43	40	39	**32**	62	65	57	51	47	45	**40**
	1620	100	-	-	-	-	-	-	**-**	59	60	50	45	42	40	**35**	64	67	59	53	49	47	**42**
300 X 200	540	50	40	39	32	29	24	22	**15**	44	44	37	34	29	29	**20**	51	50	44	41	36	37	**27**
	864	50	47	45	36	33	30	28	**21**	51	50	43	39	35	34	**26**	57	57	51	46	42	42	**33**
	1296	50	51	50	40	37	34	32	**25**	55	55	46	42	39	38	**31**	61	62	55	50	46	45	**38**
	1728	75	-	-	-	-	-	-	**-**	58	58	49	44	41	40	**33**	63	66	58	52	48	46	**41**
	2160	100	-	-	-	-	-	-	**-**	60	61	51	46	43	41	**36**	65	68	60	54	50	48	**43**
300 X 250	675	50	39	38	31	28	23	22	**15**	44	43	37	34	29	29	**20**	50	50	44	40	36	37	**27**
	1080	50	47	45	36	33	30	28	**21**	51	51	43	39	35	34	**27**	57	58	51	46	42	42	**34**
	1620	50	51	50	40	37	34	32	**25**	56	56	47	43	39	38	**31**	61	63	56	50	46	45	**39**
	2160	75	-	-	-	-	-	-	**-**	59	59	49	45	42	40	**34**	64	66	59	53	49	47	**42**
	2700	100	-	-	-	-	-	-	**-**	61	61	51	47	44	42	**36**	66	69	61	54	50	48	**44**

Static inlet pressure

			50 Pa							100 Pa							250 Pa						
				L	in dB/octave						L	in dB/octave						L	in dB/octave				
					w						w							w					
W x H	[m3/h]	P min	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp	63	125	250	500	1k	2k	Lp
400 x 200	720	50	40	39	32	29	24	23	**16**	45	44	38	34	29	29	**21**	52	51	45	41	37	38	**28**
	1152	50	47	45	36	33	30	28	**21**	51	50	43	39	35	34	**26**	57	58	51	46	42	42	**34**
	1728	50	51	50	40	37	34	32	**25**	55	55	46	42	39	38	**31**	61	63	56	50	46	45	**39**
	2304	75	-	-	-	-	-	-	-	59	59	49	45	42	40	**34**	64	67	59	53	49	47	**42**
	2880	100	-	-	-	-	-	-	-	61	61	51	47	44	42	**36**	66	69	61	55	51	49	**44**
300 x 300	810	50	39	39	31	28	23	22	**15**	44	44	37	34	29	29	**20**	51	50	45	41	37	38	**27**
	1296	50	46	45	36	33	29	28	**20**	51	50	43	39	35	34	**26**	57	58	51	46	42	42	**34**
	1944	50	51	49	39	36	33	32	**25**	55	55	46	42	39	38	**31**	61	63	56	50	46	45	**39**
	2592	75	-	-	-	-	-	-	-	59	59	49	45	42	40	**34**	64	67	59	53	49	47	**42**
	3240	100	-	-	-	-	-	-	-	61	62	52	47	44	42	**37**	67	70	62	55	51	49	**45**
400 x 250	800	50	39	38	31	28	23	22	**15**	44	43	37	34	29	29	**20**	51	50	45	41	37	38	**27**
	1440	50	47	45	36	33	30	28	**21**	51	51	43	39	35	34	**27**	58	58	52	47	43	43	**34**
	2160	50	51	50	40	37	34	32	**25**	56	56	47	43	39	38	**31**	62	63	56	51	47	46	**39**
	2880	75	-	-	-	-	-	-	-	59	59	50	45	42	41	**34**	65	67	60	54	50	48	**43**
	3600	100	-	-	-	-	-	-	-	61	62	52	47	44	42	**37**	67	70	62	55	51	49	**45**
500 x 200	900	50	40	39	32	29	24	22	**15**	45	44	38	34	30	29	**21**	52	51	45	41	37	38	**28**
	1440	50	47	45	36	33	30	28	**21**	51	51	43	39	35	34	**27**	58	58	52	47	43	43	**34**
	2160	50	51	50	40	37	34	32	**25**	56	56	47	43	39	38	**31**	62	63	56	51	47	46	**39**
	2880	75	-	-	-	-	-	-	-	59	59	50	45	42	41	**34**	65	67	60	54	50	48	**43**
	3600	100	-	-	-	-	-	-	-	61	62	52	47	44	42	**37**	67	70	62	55	51	49	**45**
400 x 300	1080	50	40	39	32	29	24	22	**15**	45	44	38	34	30	29	**21**	52	51	45	42	37	38	**28**
	1728	50	47	46	37	34	30	29	**21**	52	51	44	40	36	35	**27**	58	59	52	47	43	43	**35**
	2592	50	52	50	40	37	34	33	**26**	56	56	47	43	40	39	**32**	62	64	57	51	47	46	**40**
	3456	75	-	-	-	-	-	-	-	60	60	50	46	43	41	**35**	65	68	60	54	50	48	**43**
	4320	100	-	-	-	-	-	-	-	62	62	52	48	45	43	**37**	67	70	62	56	52	50	**45**
600 x 200	1125	50	41	40	33	30	25	24	**16**	46	46	39	35	31	30	**22**	53	52	47	43	38	39	**29**
	1728	50	47	46	37	34	30	29	**21**	52	51	44	40	36	35	**27**	58	59	52	47	43	43	**35**
	2592	50	52	50	40	37	34	33	**26**	56	56	47	43	40	39	**32**	62	64	57	51	47	46	**40**
	3456	75	-	-	-	-	-	-	-	60	60	50	46	43	41	**35**	65	68	60	54	50	48	**43**
	4320	100	-	-	-	-	-	-	-	62	62	52	48	45	43	**37**	67	70	62	56	52	50	**45**
500 x 200	1000	50	40	39	32	29	23	22	**15**	45	44	37	34	29	29	**20**	51	51	45	41	37	38	**28**
	1800	50	47	46	37	34	30	29	**21**	52	51	44	40	36	35	**27**	58	59	52	47	43	43	**35**
	2700	50	52	50	40	37	34	33	**26**	56	56	47	43	40	39	**32**	62	64	57	51	47	46	**40**
	3600	75	-	-	-	-	-	-	-	60	60	50	46	43	41	**35**	65	68	60	54	50	48	**43**
	4500	100	-	-	-	-	-	-	-	62	62	52	48	45	43	**37**	67	70	62	56	52	50	**45**
500 X 300	1200	50	40	39	32	29	23	22	**15**	45	44	38	35	30	30	**21**	52	51	46	42	38	39	**28**
	2160	50	47	46	37	34	30	29	**21**	52	52	44	40	36	35	**28**	59	59	53	48	44	44	**35**
	3240	50	52	50	40	37	34	33	**26**	57	57	48	44	40	39	**32**	63	64	57	52	48	47	**40**
	4320	75	-	-	-	-	-	-	-	60	60	51	46	43	42	**35**	66	68	61	55	51	49	**44**
	5400	100	-	-	-	-	-	-	-	62	63	53	48	45	43	**38**	68	71	63	56	52	50	**46**
600 x 250	1400	50	41	40	33	30	25	23	**16**	47	46	39	36	31	31	**22**	53	53	47	43	39	40	**30**
	2160	50	47	46	37	34	30	29	**21**	52	52	44	40	36	35	**28**	59	59	53	48	44	44	**35**
	3240	50	52	50	40	37	34	33	**26**	57	57	48	44	40	39	**32**	63	64	57	52	48	47	**40**
	4320	75	-	-	-	-	-	-	-	60	60	51	46	43	42	**35**	66	68	61	55	51	49	**44**
	5400	100	-	-	-	-	-	-	-	62	63	53	48	45	43	**38**	68	71	63	56	52	50	**46**
600 x 300	1600	50	41	40	33	30	25	23	**16**	47	46	39	36	31	31	**22**	54	53	47	44	39	40	**30**
	2592	50	47	46	37	34	30	29	**21**	52	52	44	40	36	35	**28**	59	60	53	48	44	44	**36**
	3888	50	52	50	40	37	34	33	**26**	57	57	48	44	40	39	**32**	63	65	58	52	48	47	**41**
	5184	75	-	-	-	-	-	-	-	60	60	51	46	43	42	**35**	66	69	61	55	51	49	**44**
	6480	100	-	-	-	-	-	-	-	63	63	53	49	46	44	**38**	69	72	64	57	53	51	**47**

Table 10. Discharge Sound Correction table
4k and 8k in relation to 2k

	50 Pa		100 Pa		250 Pa	
m/s	4k	8k	4k	8k	4k	8k
2	-10	-17	-7	-14	-3	-8
4	-8	-17	-6	-14	-3	-9
6	-6	-17	-5	-14	-3	-10
8	-	-	-4	-14	-3	-10
10	-	-	-4	-14	-3	-10

Table 11. Radiated Sound Correction table
4k and 8k in relation to 2k

	50 Pa		100 Pa		250 Pa	
m/s	4k	8k	4k	8k	4k	8k
2	-13	-20	-10	-16	-6	-11
4	-9	-19	-8	-16	-5	-11
6	-7	-18	-6	-15	-5	-11
8	-	-	-5	-15	-4	-11
10	-	-	-4	-14	-4	-12

General:

• Minimum static pressure drop over the control Pmin in Pa
• Sound power Lw in dB in the octave bands at a reference value of 10-12 Watt.
• The selection table shows the Lw and Lp values for discharge sound. The sound pressure levels Lp, dB(A) stated have taken into account the attenuation of a silencer and a ceiling diffuser with plenum box.
• The adopted room attenuation is 10dB. If the actual value is lower, the dB(A) values have to be corrected.
• Note: the Lw values have been measured with one end nozzle of the duct in the free room. (i.e. including end reflection). For rooms with a low sound level (<25dB(A)), hard surfaces, light walls etc. consult an acoustic consultant.
• The available pressure drop across the unit has to be minimal 50 Pa. Interpolation of intermediate values is acceptable.

Authority

To ensure accuracy of the unit, the pressure drop across the damper should be at least equal to the total pressure drop behind the unit (duct plus grilles, diffusers).

Commissioning

The advantage over conventional dampers is that repeated measurements and adjustments by a qualified commissioning engineer are no longer required.

If the system pressure changes, e.g. due to the opening or closing of duct sections, the volume flows in the entire system change; this is not the case when CAV constant flow regulators are used. The controllers respond immediately and adjust the damper positions directly so that the set volume flow is held constant over the entire differential pressure range. The CAV regulators can be supplied with an electric actuator for changing the set value.

Installation instructions

• CAV constant flow regulators are adjusted for the entire scaled application area.
• To install the regulator, a straight inlet section which is at least three times as long as the nominal width and a straight outlet section which is at least 1.5 times as long as nominal width is required. Installation directly downstream or upstream of flow disruption points (bends, branches, etc.) reduces the control accuracy.
• The volume flow set point is adjusted during installation. This does not affect the control accuracy.
• The basic version is adjusted manually by setting the pointer to the required set point on the scale and fixing this setting.
• Dual controller: If the duct cross section is larger than the available controller size, two or more CAV can be installed in parallel. The volume flow must be distributed in such a way that the same flow velocity is configured for each controller.
Suitable metal plates for connecting the flanges and compensating for differences in length must be provided on site. Sound power levels must be added up.
• CAV constant flow regulators and sound attenuators are supplied individually. Assembly on site!

Accessories

Actuator-driven

- For setpoint changeover via remote signals
- Electrical supply 24V AC/DC or 230V AC
- Factory-fitted

Technical data for actuator-driven adjusting drives			
	ACT1	**ACT2**	**ACT3**
Supply voltage	230 V AC	24 V AC/DC	24 V AC/DC
Function area	85 to 265 V	19.2 to 28.8 V	19.2 to 28.8 V
Runtime for 90°	150 s	150 s	150 s
Power consumption	≤ 2.5 W	≤ 2 W	≤ 2W
Degree of protection	IP 54	IP 54	IP 54
Connection cable	3-core	3-core	4-core
Operating temp.	-30 to +50°C	-30 to +50°C	-30 to +50°C

Silencer

For reduction of internal flow noise. Sound attenuator length 500-750-1000-1500 mm.
For performance details check model K100 and R01 silencer catalogue.

K100

R01

Quick Selection	**Model:**	K100			
Maximum possible reduction of flow noise in [dB]					
width [mm]		**200**	**300**	**400**	**500**	**600**
No. Of splitters		1	1	2	2	3
height [mm]	**100**	-	-	-	-	-
	150	-16	-10			
	200	-16	-10	-16	-12	-15
	250		-10	-16	-12	-16
	300		-10	-16	-12	-15
Total Length L: 1000 mm						

Quick Selection	**Model:**	R01	
Maximum possible reduction of flow noise in [dB] with a			
Size	**Outer diameter**	**L [mm]**	
DN	**Ø [mm]**	**750**	**1000**
100	200	-22	-
125	225	-22	-25
140	240	-22	-25
160	260	-22	-24
200	300	-19	-24
250	355	-18	-22
315	415	-17	-20
400	500	-15	-20

db

Reheat Coil

– Separately deliverable for reheat of air volume
– Casing made of galvanised sheet steel
– Flanged on both ends
– Copper tubes and aluminium fins
– Generally two rows
– Maximum operating pressure 16 bar
– For warm water up to 100 °C
– Water connections horizontal, air venting by customer

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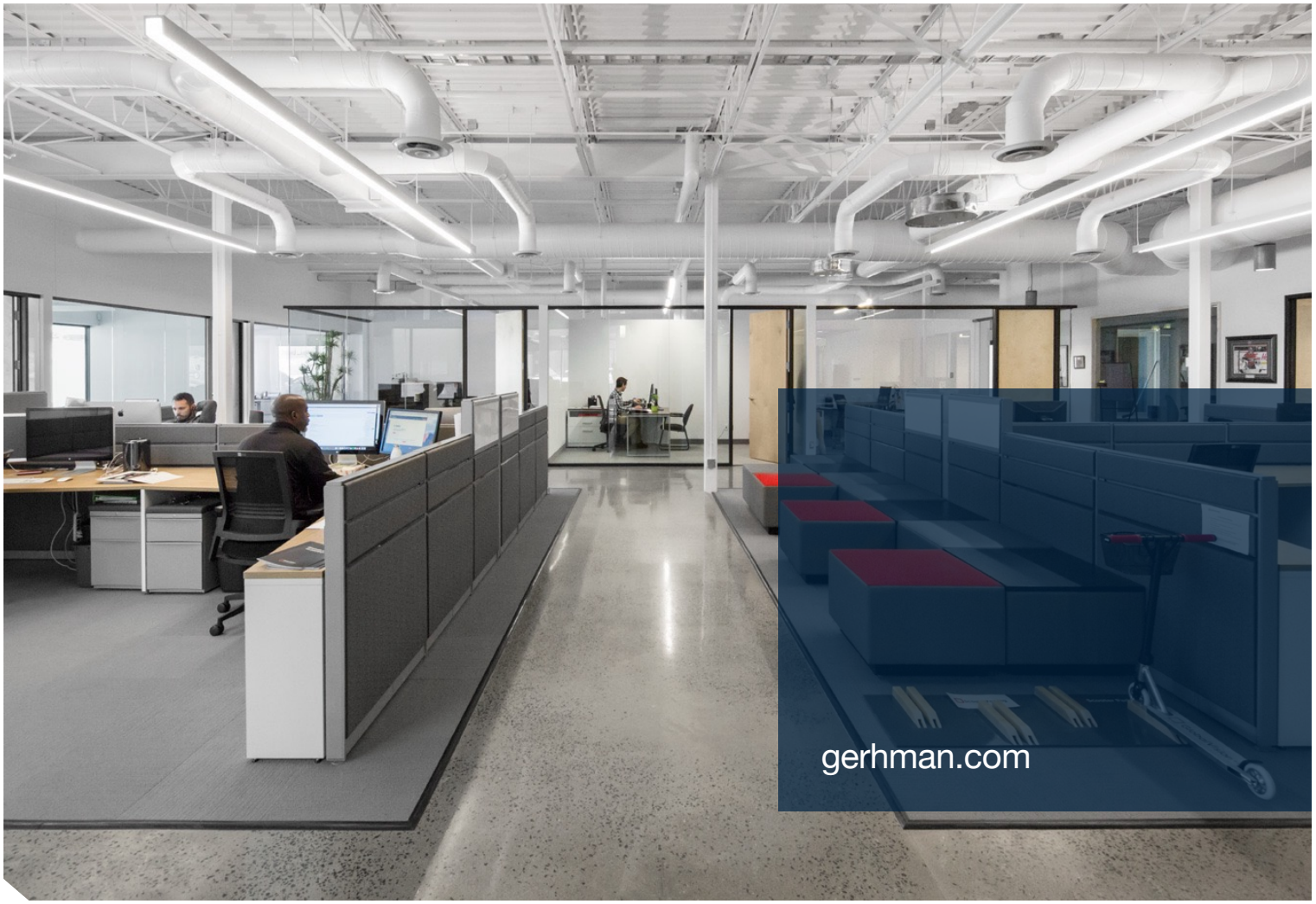

Constant Air Volume Control

CAV

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