



Constant Air Volume Control BM-CAV-01



Constant Air Volume Control



BM-CAV-01 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

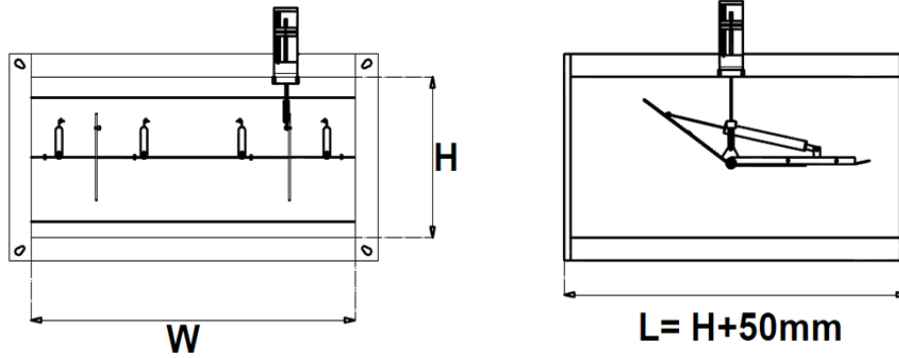
The regulator makes it possible to control the air flow within the pressure range from 50 to 1000 Pa, without any external power supply. The standard version of the regulator has the housing and the baffle made of galvanized steel, whereas the baffle axis is fastened in brass bearings. The special version 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.

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
- 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 $\pm 10\%$
- Operating temperature 10 – 80 °C

Technical Data

General Sizes and Quick Selection

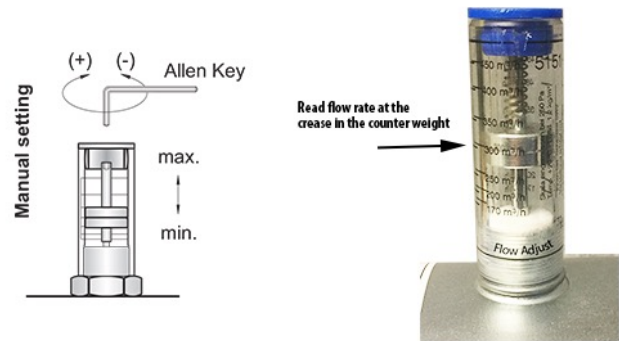
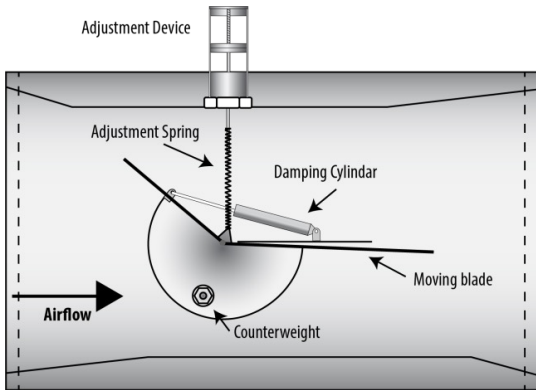


Dimensions

Height (H)	Width (W)									Length (L)
	100	200	300	400	500	600	800	1000	1200	
100		•								220
200		•	•	•						220
300			•	•	•	•				320
400				•	•	•				380
500					•	•	•			425
600						•	•	•	•	475

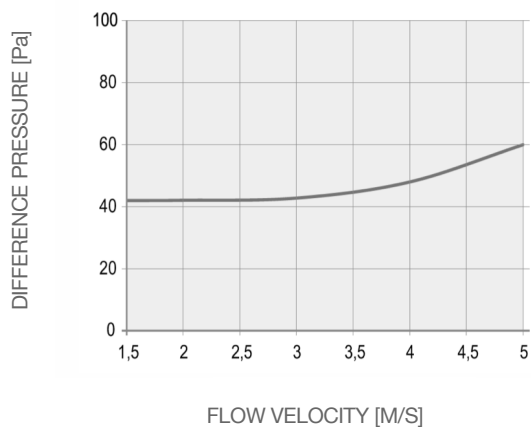
Model H x W	Recommended air volume							
	l/s			CFM			m ³ /h	
	Min		Max	Min		Max	Min	Max
100 x 200	60	–	180	120	–	383	220	650
200 x 200	120	–	360	254	–	762	432	1296
200 x 300	180	–	540	381	–	1144	648	1944
200 x 400	240	–	720	508	–	1525	864	2592
300 x 300	270	–	810	572	–	1715	972	2916
300 x 400	360	–	1080	762	–	2290	1296	3888
300 x 500	450	–	1350	950	–	2290	1620	4860
300 x 600	540	–	1620	1144	–	3431	1944	5832
400 x 400	480	–	1440	1016	–	3049	1728	5184
400 x 500	600	–	1800	1271	–	3812	2160	6480
400 x 600	720	–	2160	1525	–	4574	2592	7776
500 x 500	750	–	2250	1588	–	4765	2700	8100
500 x 600	900	–	2700	1906	–	5718	3240	9720
500 x 800	1250	–	3600	2545	–	7633	4320	12960
600 x 600	1080	–	3240	2291	–	8246	3890	14000
600 x 800	1440	–	4320	3051	–	9159	5180	15550
600 x 1000	1800	–	5400	3816	–	11450	6480	19440
600 x 1200	2160	–	6480	4582	–	13740	7780	23330

Technical Data



- Insert a 2 mm allen key through the small hole in the top of the adjustment device.
- CW Increases the flow
- CCW Decrease flow
- The device is calibrated in M3/hour

MINIMUM STATIC PRESSURE DIFFERENCE DIAGRAM



- Constant volume flow controller with proof plug connection (only fitting measure)
- Automatically regulating without auxiliary energy
- Customers can change the amount of air by manual adjustment

Quick Selection

Width [mm]	Height [mm]	Air Velocity [m/s]	Air Flow [m³/h]	Differential Static Pressure [Pa]																											
				100 Pa										250 Pa										500 Pa							
				Sound Power Level LW										Total Power Level LWtot A-weighted [dB(A)]	Sound Power Level LW										Total Power Level LWtot A-weighted [dB(A)]	Sound Power Level LW					
				[dB/Octave]								[dB/Octave]								[dB/Octave]											
				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	63 Hz	125 Hz		250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	63 Hz	125 Hz	250 Hz	500 Hz		1000 Hz	2000 Hz	4000 Hz	8000 Hz		
200	100	2.8	202	48	47	46	44	42	40	37	35	48	56	55	54	52	50	48	45	43	59	62	61	60	58	56	54	51	49		
		6.3	435	53	53	52	50	49	47	45	42	54	61	61	60	58	57	55	53	50	62	67	67	66	64	63	61	59	56		
		9.7	698	-	-	-	-	-	-	-	-	-	-	64	64	63	62	61	59	57	59	66	70	70	69	68	67	65	63	61	
300	100	2	216	46	45	44	42	40	37	35	42	45	54	53	52	50	48	45	43	40	53	60	59	58	56	54	51	49	46		
		4.7	508	53	52	51	49	47	45	43	40	53	61	60	59	57	55	53	51	48	61	67	66	65	63	61	59	57	54		
		7.4	799	-	-	-	-	-	-	-	-	-	-	64	63	62	61	59	57	55	53	65	70	69	68	67	65	63	61	59	
400	100	2.1	302	47	46	45	43	41	38	35	32	46	55	54	53	51	49	46	43	40	54	61	60	59	57	55	52	49	46		
		4.9	705	53	53	51	50	48	46	44	41	54	61	60	59	58	56	54	52	49	62	67	66	65	64	62	60	58	55		
		7.6	1094	-	-	-	-	-	-	-	-	-	-	64	64	63	61	60	58	56	53	65	70	70	69	67	66	64	62	59	
300	150	3	486	52	50	49	47	45	43	40	37	50	60	58	57	55	53	51	48	45	58	66	64	63	61	59	57	54	51		
		6	972	56	56	54	53	51	49	47	44	57	64	64	62	61	59	57	55	52	65	70	70	68	67	65	63	61	58		
		9	1458	59	59	58	56	55	53	51	48	60	67	66	66	64	63	61	59	56	68	73	73	72	70	69	67	65	62		
200	200	3	432	52	50	49	47	45	43	40	37	50	60	58	57	55	53	51	48	45	58	66	64	63	61	59	57	54	51		
		6	864	56	56	54	53	51	49	47	44	57	64	64	62	61	59	57	55	52	65	70	70	68	67	65	63	61	58		
		9	1296	59	59	58	56	55	53	51	48	60	67	66	66	64	63	61	59	56	68	73	73	72	70	69	67	65	62		
300	200	3	648	53	52	50	48	46	44	41	38	51	61	60	58	56	54	52	49	46	59	67	66	64	62	60	58	55	52		
		6	1296	58	57	56	54	52	50	48	45	58	66	65	64	62	60	58	56	53	66	72	71	70	68	66	64	62	59		
		9	1944	61	60	59	57	56	54	52	49	61	69	68	67	65	64	62	59	57	69	75	74	73	71	70	68	65	63		
400	200	3	684	54	52	51	49	47	44	41	38	52	62	60	59	57	55	52	49	46	60	68	66	65	63	61	58	55	52		
		6	1728	59	58	56	55	53	51	48	45	58	67	66	64	63	61	59	56	53	66	73	72	70	69	67	65	62	59		
		9	2592	61	61	60	58	56	54	52	49	62	69	69	68	66	64	62	60	57	70	75	75	74	72	70	68	66	63		
300	300	3	972	54	53	51	49	47	45	42	39	53	62	61	59	57	55	53	50	47	61	68	67	65	63	61	59	56	53		
		6	1944	60	58	57	56	54	51	49	46	59	67	66	65	63	62	59	57	54	67	74	72	71	69	68	65	63	60		
		9	2916	62	62	60	59	57	55	53	50	63	70	69	68	67	65	63	61	58	71	76	75	74	73	71	69	67	64		
600	300	3	1944	56	55	53	51	49	46	43	40	54	64	63	61	59	57	54	51	48	62	70	69	67	65	63	60	57	54		
		6	3888	62	60	59	57	55	53	50	47	61	70	68	67	65	63	61	58	55	69	76	74	73	71	69	67	64	61		
		9	5832	65	64	62	61	59	57	54	51	64	73	72	70	69	67	65	62	59	72	79	78	76	75	73	71	68	65		
400	400	3	1728	56	55	53	51	49	46	43	40	54	64	63	61	59	57	54	51	48	62	70	69	67	65	63	60	57	54		
		6	3456	62	60	59	57	55	53	50	47	61	70	68	67	65	63	61	58	55	69	76	74	73	71	69	67	64	61		
		9	5184	-	-	-	-	-	-	-	-	-	73	72	70	69	67	65	62	59	72	79	78	76	75	73	71	68	65		
500	400	3	2160	57	56	54	52	49	46	43	40	55	65	64	62	60	58	55	52	48	63	71	70	68	66	63	60	57	54		
		6	4320	62	61	60	58	56	53	51	48	61	70	69	68	66	64	61	59	56	69	76	75	74	72	70	67	65	62		
		9	6480	-	-	-	-	-	-	-	-	-	73	72	71	69	67	65	63	60	73	79	78	77	75	73	71	69	66		
600	400	3	2592	58	56	54	52	50	47	44	41	55	66	64	62	60	58	55	52	48	63	72	70	68	66	64	61	58	54		
		6	5184	63	62	60	58	56	54	51	48	62	71	70	68	66	64	62	59	56	69	77	76	74	72	70	68	65	62		
		9	7776	-	-	-	-	-	-	-	-	-	74	73	71	70	68	65	63	60	73	80	79	77	76	74	71	69	66		
500	500	3	2700	58	56	54	52	50	47	44	41	55	66	64	62	60	58	55	52	49	63	72	70	68	66	64	61	58	55		
		6	5400	63	62	60	59	56	54	51	48	62	71	70	68	66	64	62	59	56	70	77	76	74	73	70	68	65	62		
		9	8100	-	-	-	-	-	-	-	-	-	74	73	72	70	68	66	63	60	73	80	79	78	76	74	72	69	66		
600	500	3	3240	58	56	55	53	50	47	44	41	56	66	65	63	61	58	55	52	49	64	72	71	69	67	64	61	58	55		
		6	6480	64	62	61	59	57	54	51	48	62	72	70	69	67	64	62	59	56	70	78	77	75	73	71	68	65	62		
		9	9720	-	-	-	-	-	-	-	-	-	75	74	72	71	68	66	63	61	74	81	80	78	77	74	72	70	67		
600	600	3	3888	59	57	55	53	51	48	45	41	56	67	65	63	61	59	56	53	49	64	73	71	69	67	65	62	59	55		
		6	7778	65	63	62	60	57	55	52	49	63	72	71	69	68	65	62	60	57	71	78	77	76	74	71	69	66	63		
		9	11664	-	-	-	-	-	-	-	-	-	75	74	73	71	69	67	64	61	74	82	80	79	77	75	73	70	67		

*sound level in dB/octave in relation to 10⁻¹²W

General:

- Minimum static pressure drop over the control P_{min} in Pa
- Sound power L_w in dB in the octave bands at a reference value of 10-12 Watt.
- The selection table shows the L_w and L_p values for discharge sound. The sound pressure levels L_p , 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 L_w 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).

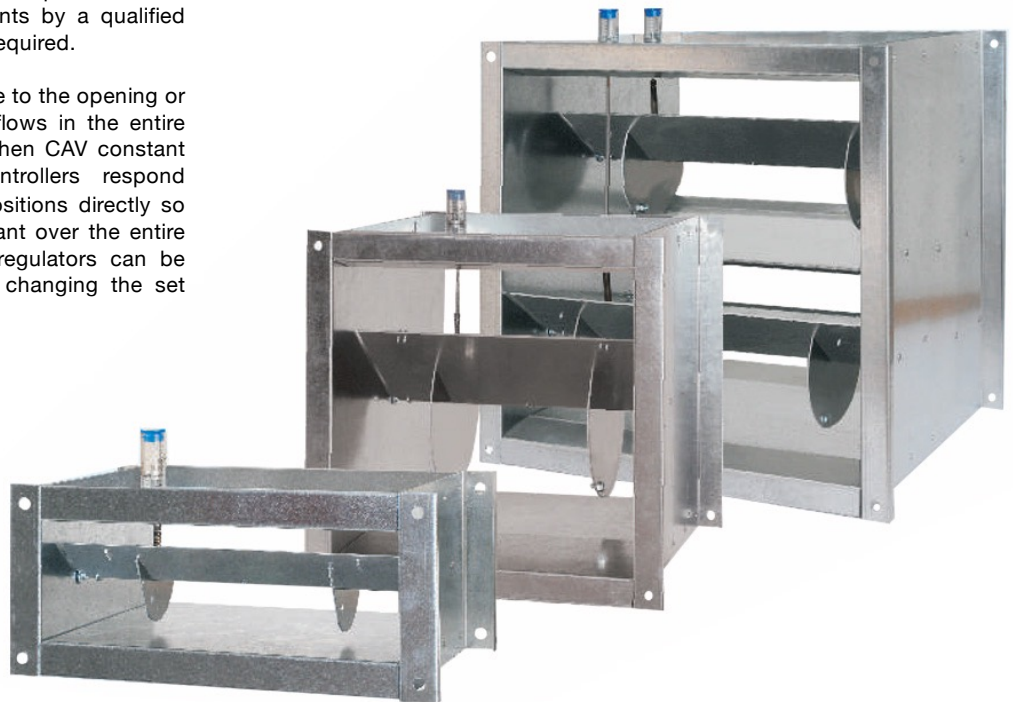
Commissioning

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

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

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						



R01

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	-	db
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	

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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