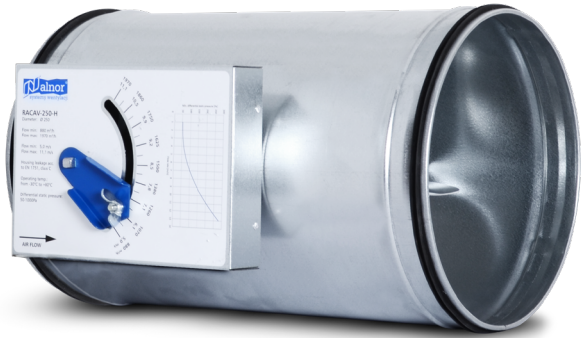


CAV Constant air flow regulator

RACAV



Description

The RACAV constant air velocity regulator keeps the air output steady in ventilation systems. The device works without any electric power supply and from the minimum pressure differential shown in Chart 1 to the maximum pressure differential of 1000 Pa. The air velocity stability may be reduced outside the range shown in the differential pressure chart. The regulator can be used in comfort or industrial air supply and air exhaust systems.



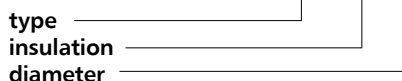
The air flow rate setting is protected against tampering with a dedicated RACAV-NUT6 nut which can only be operated with a matching RACAV-KEY.

Available materials:

- RACAV-... - galvanized steel (standard version)
- RACAV-I-... - galvanized steel with 50 mm thick insulation in cladding

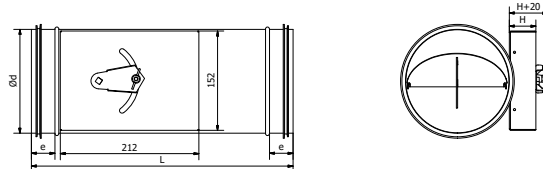
Product code example

Product code: **RACAV - I - aaa**

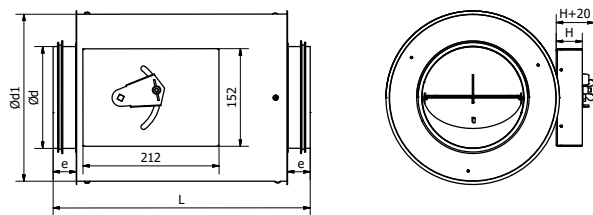


Dimensions

RACAV



RACAV-I



Dimensions and weight of RACAV regulators

Product code	Ød [mm]	L [mm]	H [mm]	Weight [kg]
RACAV-125-L	125	400	40	2,23
RACAV-125-H	125	400	40	2,23
RACAV-160-L	160	400	40	2,55
RACAV-160-H	160	400	40	2,55
RACAV-200-L	200	400	40	2,67
RACAV-200-H	200	400	40	2,67
RACAV-250-L	250	400	40	3,12
RACAV-250-H	250	400	40	3,12
RACAV-315-L	315	400	55	3,73
RACAV-315-H	315	400	55	3,73

Dimensions and weight of insulated RACAV regulators

Product code	Ød [mm]	Ød ₁ [mm]	L [mm]	H [mm]	Weight [kg]
RACAV-I-125-L	125	224	400	40	3,27
RACAV-I-125-H	125	224	400	40	3,27
RACAV-I-160-L	160	250	400	40	3,86
RACAV-I-160-H	160	250	400	40	3,86
RACAV-I-200-L	200	300	400	40	4,29
RACAV-I-200-H	200	300	400	40	4,29
RACAV-I-250-L	250	355	400	40	5,11
RACAV-I-250-H	250	355	400	40	5,11
RACAV-I-315-L	315	400	400	55	6,22
RACAV-I-315-H	315	400	400	55	6,22

CAV Constant air flow regulator

RACAV

Design and principle of operation

The housing and most components of the regulator control gear are made from galvanized steel sheet; the moving damper blade is made from aluminium sheet. The standard gaskets are made from EPDM which resists temperatures up to 100°C. The bearings are made from Nylon 6.6. The operating principle of a CAV regulator is to equalize the damper closing torque caused by the air flow with the damper opening torque generated by the control gear. When the CAV regulator senses an increase in pressure differential (caused e.g. by closing a ventilation damper, an increased air output from an AHU, etc.), the CAV regulator damper begins to close automatically to keep the air output constant. The CAV regulator features a vibration damper which holds the damper blade steady.

All CAV regulators are available in two air output ranges labelled L and H, as well as in versions with 50 mm thick thermal insulation in cladding made from galvanized steel sheet. The product can be made with FLS steel flange connections on request.

Regulator operating accuracy

Flow rate (m ³ /h) RACAV-125-L	Regulator operating accuracy	Flow rate (m ³ /h) RACAV-125-H	Regulator operating accuracy
130	20%	190	20%
170	15%	255	15%
210	15%	320	15%
235	10%	360	10%
260	10%	400	10%
275	10%	435	10%
290	10%	470	10%
300	10%	485	10%
310	15%	500	15%

Flow rate (m ³ /h) RACAV-160-L	Regulator operating accuracy	Flow rate (m ³ /h) RACAV-160-H	Regulator operating accuracy
260	20%	340	20%
315	15%	400	15%
370	15%	460	15%
415	10%	510	10%
460	10%	560	10%
500	10%	610	10%
540	10%	660	10%
560	10%	705	10%
580	10%	750	10%

Regulator operating accuracy

Flow rate (m ³ /h) RACAV-200-L	Regulator operating accuracy	Flow rate (m ³ /h) RACAV-200-H	Regulator operating accuracy
380	20%	540	20%
525	15%	700	15%
670	15%	860	15%
760	10%	940	10%
850	10%	1020	10%
890	10%	1105	10%
930	10%	1190	10%
945	10%	1220	10%
960	10%	1250	10%

Flow rate (m ³ /h) RACAV-250-L	Regulator operating accuracy	Flow rate (m ³ /h) RACAV-250-H	Regulator operating accuracy
650	20%	880	20%
805	15%	1070	15%
960	15%	1260	15%
1065	10%	1380	10%
1170	10%	1500	10%
1240	10%	1625	10%
1310	10%	1750	10%
1370	10%	1860	10%
1430	10%	1970	10%

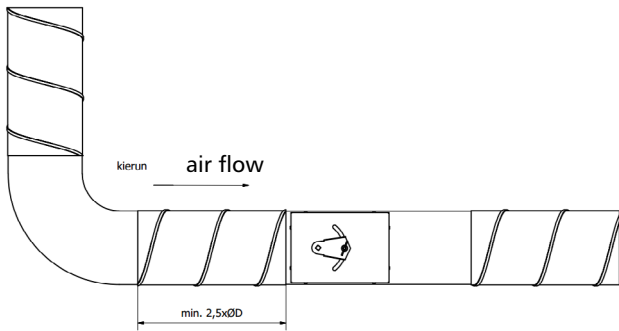
Flow rate (m ³ /h) RACAV-315-L	Regulator operating accuracy	Flow rate (m ³ /h) RACAV-315-H	Regulator operating accuracy
1040	20%	1250	20%
1275	15%	1625	15%
1510	15%	2000	15%
1705	10%	2255	10%
1900	10%	2510	10%
2045	10%	2660	10%
2190	10%	2810	10%
2300	10%	2980	10%
2410	10%	3150	10%

CAV Constant air flow regulator

RACAV

Installation method

CAV regulators work with the declared control accuracy if its installation position is at least at the minimum recommended distance from units generating air flow turbulence, e.g. ventilation dampers, bends, T-pieces, reducers, silencers, etc. The minimum recommended installation distance is $2.5 \times$ the nominal diameter of the CAV regulator.



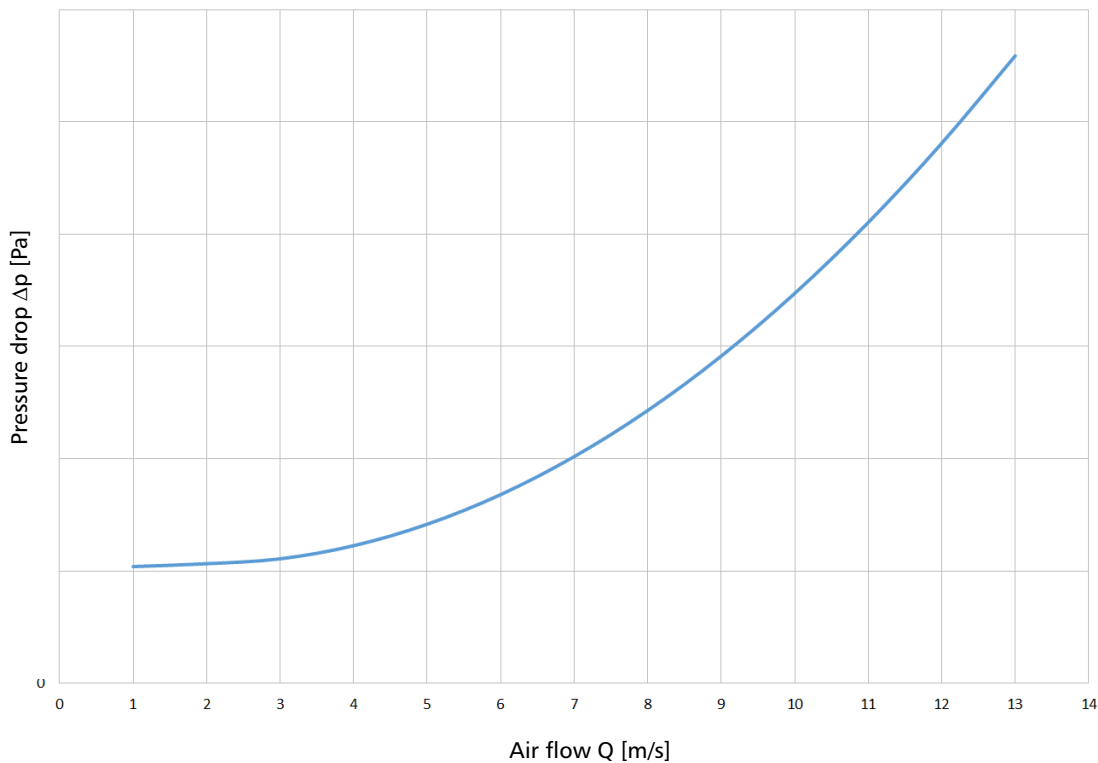
Operation conditions

CAV regulators work properly in a temperature range from -30°C to $+80^{\circ}\text{C}$. CAV regulators are not intended for use with aggressive airborne chemicals and airborne particulates.

Minimum pressure differential

For proper performance of RACAV air flow regulators, the minimum static pressure differential between both sides of the device must be maintained. The actual pressure differential depends on the designed air flow rate in the duct in which the CAV regulator is installed.

Chart 1. Minimum pressure differential



The accuracy of the scale on the air flow regulator control gear housing is $\pm 5\%$.

CAV Constant air flow regulator

RACAV

Sound ratings

Noise emission into the ductwork vs. air flow rates, where:

ØD — air flow regulator nominal diameter

v — air flow velocity (m/s)

Q — air flow output (m³/h), (l/s)

Δp — static pressure differential (Pa)

f_m — octave band mid frequency values (Hz)

L_w — sound power level (dBA)

L_{wA} — A-weighted sound power level (dBA)

ØD	v [m/s]	Q		Δp=100 [Pa]										Δp=250 [Pa]										Δp=500 [Pa]									
				L _w [dB] Oct										L _w [dB] Oct										L _w [dB] Oct									
				f _m [Hz]										f _m [Hz]										f _m [Hz]									
				63	125	250	500	1000	2000	4000	8000	L _{wA} [dBA]	63	125	250	500	1000	2000	4000	8000	L _{wA} [dBA]	63	125	250	500	1000	2000	4000	8000	L _{wA} [dBA]			
125	2	83	23	41	39	37	35	33	31	29	26	39	52	50	47	45	43	41	39	37	49	61	59	57	55	53	51	48	46	58			
	4	167	46	49	47	45	43	41	38	36	34	46	57	55	53	51	49	46	44	42	54	64	62	60	57	55	53	51	49	61			
	6	250	70	55	53	50	48	46	44	42	40	52	62	60	58	55	53	51	49	47	59	68	66	64	61	59	57	55	53	65			
	8	334	93	58	56	54	52	49	47	45	43	55	66	64	61	59	57	55	53	51	63	71	69	67	65	63	60	58	56	68			
	10	417	116	61	58	56	54	52	50	48	46	58	69	67	65	62	60	58	56	54	66	74	72	70	68	66	63	61	59	71			
	12	501	139	63	61	59	57	54	52	50	48	60	71	69	66	64	62	60	58	56	68	77	74	72	70	68	66	64	62	74			
160	2	139	38	43	40	38	36	34	32	30	28	40	53	51	49	46	44	42	40	38	50	62	60	58	56	54	52	50	48	60			
	4	277	77	50	48	46	44	42	40	38	35	48	58	56	54	52	50	48	45	43	55	65	63	61	59	57	54	52	50	62			
	6	416	115	56	54	52	50	47	45	43	41	53	63	61	59	57	54	52	50	48	60	69	67	65	63	60	58	56	54	66			
	8	554	154	59	57	55	53	51	48	46	44	56	67	65	63	60	58	56	54	52	64	72	70	68	66	64	62	60	57	70			
	10	693	192	62	60	58	55	53	51	49	47	59	70	68	66	64	61	59	57	55	67	75	73	71	69	67	65	62	60	72			
	12	831	231	64	62	60	58	56	54	51	49	61	72	70	68	65	63	61	59	57	69	78	76	74	71	69	67	65	63	75			
200	2	218	61	44	42	39	37	35	33	31	29	41	54	52	50	47	45	43	41	39	51	64	61	59	57	55	53	51	49	61			
	4	436	121	51	49	47	45	43	41	39	36	49	59	57	55	53	51	49	46	44	57	66	64	62	60	58	55	53	51	63			
	6	654	182	57	55	53	51	48	46	44	42	54	64	62	60	58	56	53	51	49	61	70	68	66	64	62	59	57	55	67			
	8	872	242	60	58	56	54	52	50	47	45	57	68	66	64	62	59	57	55	53	65	73	71	69	67	65	63	61	58	71			
	10	1091	303	63	61	59	56	54	52	50	48	60	71	69	67	65	63	60	58	56	68	76	74	72	70	68	66	64	61	74			
	12	1309	364	65	63	61	59	57	55	52	50	62	73	71	69	67	64	62	60	58	70	79	77	75	72	70	68	66	64	76			
250	2	342	95	45	43	40	38	36	34	32	30	42	55	53	51	49	46	44	42	40	52	65	62	60	58	56	54	52	50	62			
	4	684	190	52	50	48	46	44	42	40	38	50	60	58	56	54	52	50	48	45	58	67	65	63	61	59	57	54	52	64			
	6	1027	285	58	56	54	52	49	47	45	43	55	65	63	61	59	57	54	52	50	62	71	69	67	65	63	60	58	56	68			
	8	1369	380	61	59	57	55	53	51	48	46	58	69	67	65	63	60	58	56	54	66	75	72	70	68	66	64	62	60	72			
	10	1711	475	64	62	60	58	55	53	51	49	61	72	70	68	66	64	61	59	57	69	77	75	73	71	69	67	65	62	75			
	12	2053	570	66	64	62	60	58	56	54	51	64	74	72	70	68	65	63	61	59	71	80	78	76	74	71	69	67	65	77			
315	2	546	152	46	44	42	39	37	35	33	31	43	56	54	52	50	48	45	43	41	53	66	64	61	59	57	55	53	51	63			
	4	1092	303	54	51	49	47	45	43	41	39	51	62	59	57	55	53	51	49	47	59	68	66	64	62	60	58	56	53	66			
	6	1639	455	59	57	55	53	51	48	46	44	56	66	64	62	60	58	56	53	51	63	72	70	68	66	64	62	59	57	69			
	8	2185	607	62	60	58	56	54	52	50	47	60	70	68	66	64	62	59	57	55	67	76	74	71	69	67	65	63	61	73			
	10	2731	759	65	63	61	59	56	54	52	50	62	73	71	69	67	65	63	60	58	70	79	76	74	72	70	68	66	64	76			
	12	3277	910	67	65	63	61	59	57	55	52	65	75	73	71	69	67	64	62	60	72	81	79	77	75	72	70	68	66	78			