

WRM Constant Volume Controllers

Introduction

WRM volume flow rate controllers for air conditioning and ventilation systems, suitable for vertical and horizontal installation in supply and exhaust ducts. The casing and control mechanism are made of galvanised sheet steel. The centrally supported damper blade, which controls the volume flow rate, has a stainless steel bearing axis in special bushings. Adjustment device with rotary pointer, scale and lock for the volume flow rate set point and can be adjusted manually or by actuator.

WRM volume flow controllers are mechanical controllers for constant volume flow rates and do not require an auxiliary power supply. A special control mechanism guarantees control accuracy over the entire volume flow range. For each model size, the volume flow range is at least 5 times the minimum flow rate. Within this control range, specified at V_{min} and V_{max} , the set point for the required volume flow rate is adjustable. The volume flow rate is maintained constant at varying pressures within the specified pressure range, with an approximate deviation of between $\pm 5\%$ and $\pm 10\%$ with greater deviations at lower flow rates, especially on the smaller sizes

Product Description

WRM Volume flow rate controllers are mechanical controllers that provide a constant volume flow rate in ventilation and air conditioning installations.

WRM/M Volume flow rate controller with actuator driven adjustment of the volume flow rate set point.

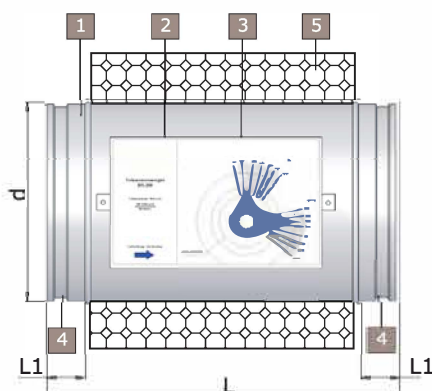
WRMD Volume flow rate controller with acoustic insulation for the reduction of external sound radiation

Features

- Volume flow range: 45 to 5200 m³/h
- Pressure range: 50 to 1000Pa
- Leak tightness classification: A in accordance with EN 1751
- Internal temperature range -20 to + 70°C, 90°C for a short time only
- Lip seals on both connection ends

Options

- Actuator AC 230V or AC/DC 24V, setting to two volume flow set points
- Continuous actuator AC/DC 24V, setting to any desired volume flow set point
- External acoustic insulation with sheet metal jacket



- 1- Round casing
- 2- Adjustment device
- 3- Pointer with scale
- 4- Lip seal
- 5- Optional acoustic insulation with steel casing

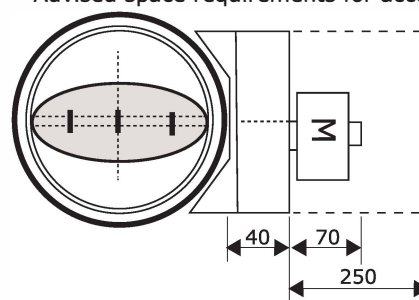


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Advised space requirements for access



Size DN	V_{min} [m ³ /h]	V_{max} [m ³ /h]	V_{min} [l/s]	V_{max} [l/s]	Ød [mm]	L [mm]	L1 [mm]
80	45	210	12,5	60	78	320	38
100	70	325	20	90	98	320	38
125	110	510	30	145	123	320	38
160	180	825	50	230	158	320	38
200	285	1300	80	360	198	350	38
250	450	2030	125	565	248	410	47
315	700	3325	195	925	313	460	47
400	1130	5200	310	1450	398	460	60

Technical data for actuators

	M1 (LM 230 A)	M2 (LM 24A)	M3 (LM 24A-MF)
Connection voltage	AC 230 V	AC/DC 24 V	AC/DC 24 V
Operating range	85 to 265 V	19.2 to 28.8 V	19.2 to 28.8 V
Torque	5 Nm	5 Nm	5 Nm
Run time for 90°	150 s	150 s	150 s
Input power supply	4 VA	2 VA	2 VA
Energy consumption	1.5 W	1W	1W
Degree of protection	IP 54	IP 54	IP 54
Connecting cable 0.75mm ²	~1m (3 core)	~1m (3 core)	~1m (4 core)
Ambient temperature	-30 to +50°C	-30 to +50°C	-30 to +50°C

Order Example

WRM/200/M1/D

Type _____
 Size _____
 Actuator _____
 Acoustic Insulation _____



WRM Constant Volume Regulator

Size DN	Velocity (m/s)	Volume Flow (m³/hr)	dP=100Pa													dP=200Pa														
			Airborne noise Lw							Radiated noise Lw						Airborne noise Lw							Radiated noise Lw							
			125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A
			dB							dB							dB							dB						
80	3	55	30	25	25	27	30	30	36	-	-	-	-	-	-	<25	36	31	31	33	36	36	42	-	-	-	-	-	-	<25
	4	73	34	30	30	31	34	33	40	-	-	-	-	-	-	<25	39	35	35	36	39	38	45	21	17	17	18	21	20	27
	6	110	42	40	40	40	42	40	48	24	22	22	22	24	22	30	46	44	44	44	46	44	52	29	27	27	27	29	27	35
	10	180	50	50	50	49	50	49	56	34	34	34	33	34	33	40	52	52	52	51	52	51	58	37	37	37	36	37	36	43
	12	218	53	54	54	53	53	52	59	37	38	38	37	37	36	43	56	57	57	56	56	55	62	40	41	41	40	40	39	46
100	3	80	32	27	27	29	32	32	38	-	-	-	-	-	-	<25	39	34	34	36	39	39	45	-	-	-	-	-	-	<25
	4	106	36	32	32	33	36	35	42	-	-	-	-	-	-	<25	42	38	38	39	42	41	48	24	20	20	21	24	23	30
	6	160	42	40	40	40	42	40	48	24	22	22	22	24	22	30	47	45	45	45	47	45	53	30	28	28	28	30	28	36
	8	213	46	45	45	45	46	44	52	30	29	29	29	30	28	36	50	49	49	49	50	48	56	35	34	34	34	35	33	41
	10	266	49	49	49	48	49	48	55	34	34	34	33	34	33	40	52	52	52	51	52	51	58	38	38	38	37	38	37	44
	12	319	51	52	52	51	51	50	57	39	40	40	39	39	38	45	55	56	56	55	55	54	61	41	42	42	41	41	40	47
125	3	126	40	35	35	37	40	40	46	-	-	-	-	-	-	<25	47	42	42	44	47	47	53	28	23	23	25	28	28	34
	4	168	42	38	38	39	42	41	48	25	21	21	22	25	24	31	49	45	45	46	49	48	55	30	26	26	27	30	29	36
	6	252	46	44	44	44	46	44	52	30	28	28	28	30	28	36	52	50	50	50	52	50	58	34	32	32	32	34	32	40
	8	336	49	48	48	48	49	47	55	32	31	31	31	32	30	38	54	53	53	53	54	52	60	37	36	36	36	37	35	43
	10	421	51	51	51	50	51	50	57	34	34	34	33	34	33	40	56	56	56	55	56	55	62	40	40	40	39	40	39	46
	12	505	53	54	54	53	53	52	59	37	38	38	37	37	36	43	57	58	58	57	57	56	63	42	43	43	42	42	41	48
160	3	209	41	36	36	38	41	41	47	28	23	23	25	28	28	34	48	43	43	45	48	48	54	33	28	28	30	33	33	39
	4	279	43	39	39	40	43	42	49	30	26	26	27	30	29	36	50	46	46	47	50	49	56	35	31	31	32	35	34	41
	6	418	46	44	44	44	46	44	52	32	30	30	30	32	30	38	53	51	51	51	53	51	59	38	36	36	36	38	36	44
	8	557	47	46	46	46	47	45	53	34	33	33	33	34	32	40	55	54	54	54	55	53	61	40	39	39	39	40	38	46
	10	697	49	49	49	48	49	48	55	36	36	36	35	36	35	42	57	57	57	56	57	56	63	42	42	42	41	42	41	48
	12	836	51	52	52	51	51	50	57	38	39	39	38	38	37	44	58	59	59	58	58	57	64	43	44	44	43	43	42	49
200	3	328	42	37	37	39	42	42	48	29	24	24	26	29	29	35	49	44	44	46	49	49	55	35	30	30	32	35	35	41
	4	439	44	40	40	41	44	43	50	31	27	27	28	31	30	37	51	47	47	48	51	50	57	37	33	33	34	37	36	43
	6	658	47	45	45	45	47	45	53	34	32	32	32	34	32	40	54	52	52	52	54	52	60	40	38	38	38	40	38	46
	8	877	49	48	48	48	49	47	55	35	34	34	34	35	33	41	56	55	55	55	56	54	62	42	41	41	41	42	40	48
	10	1097	51	51	51	50	51	50	57	36	36	36	35	36	35	42	57	57	57	56	57	56	63	43	43	43	42	43	42	49
	12	1316	52	53	53	52	52	51	58	38	39	39	38	38	37	44	59	60	60	59	59	58	65	44	45	45	44	44	43	50
250	3	517	43	38	38	40	43	43	49	29	24	24	26	29	29	35	49	44	44	46	49	49	55	36	31	31	33	36	36	42
	4	690	44	40	40	41	44	43	50	31	27	27	28	31	30	37	51	47	47	48	51	50	57	37	33	33	34	37	36	43
	6	1034	49	47	47	47	49	47	55	35	33	33	33	35	33	41	55	53	53	53	55	53	61	41	39	39	39	41	39	47
	8	1379	51	50	50	50	51	49	57	37	36	36	36	37	35	43	57	56	56	56	57	55	63	44	43	43	43	44	42	50
	10	1724	53	53	53	52	53	52	59	40	40	40	39	40	39	46	59	59	59	58	59	58	65	46	46	46	45	46	45	52
	12	2069	54	55	55	54	54	53	60	42	43	43	42	42	41	48	60	61	61	60	60	59	66	47	48	48	47	47	46	53
315	3	825	44	39	39	41	44	44	50	32	27	27	29	32	32	38	50	45	45	47	50	50	56	38	33	33	35	38	38	44
	4	1100	45	41	41	42	45	44	51	34	30	30	31	34	33	40	52	48	48	49	52	51	58	40	36	36	37	40	39	46
	6	1651	49	47	47	47	49	47	55	37	35	35	35	37	35	43	56	54	54	54	56	54	62	44	42	42	42	44	42	50
	8	2201	52	51	51	51	52	50	58	40	39	39	39	40	38	46	58	57	57	57	58	56	64	46	45	45	45	46	44	52
	10	2751	54	54	54	53	54	53	60	43	43	43	42	43	42	49	60	60	60	59	60	59	66	49	49	49	48	49	48	55
	12	3301	56	57	57	56	56	55	62	45	46	46	45	45	44	51	61	62	62	61	61	60	67	51	52	52	51	51	50	57
400	3	1336	45	40	40	42	45	45	51	34	29	29	31	34	34	40	52	47	47	49	52	52	58	40	35	35	37	40	40	46
	4	1782	46	42	42	43	46	45	52	36	32	32	33	36	35	42	54	50	50	51	54	53	60	42	38	38	39	42	41	48
	6	2672	51	49	49	49	51	49	57	39	37	37	37	39	37	45	58	56	56	56	58	56	64	46	44	44	44	46	44	52
	8	3563	53	52	52	52	53	51	59	41	40	40	40	41	39	47	59	58	58	58	59	57	65	49	48	48	48	49	47	55
	10	4454	56	56	56	55	56	55	62	44	44	44	43	44	43	50	61	61	61	60	61	60	67	51	51	51	50	51	50	57
	12	5345	58	59	59	58	58	57	64	47	48	48	47	47	46	53	63	64	64	63	63	62	69	53	54	54	53	53	52	59

Size DN	Correction factors for radiated noise if fitted with insulation (in dB)					
	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz
80	37	45	46	47	54	56
100	38	45	46	47	54	57
125	36	42	48	51	60	58
160	28	35	40	44	51	54
200	22	29	37	42	51	53
250	20	26	35	41	50	52
315	18	26	38	42	51	53
400	16	23	33	39	48	50



WRM Constant Volume Regulator

Size DN	Velocity (m/s)	Volume Flow (m³/hr)	dP=400Pa														dP=800Pa													
			Airborne noise Lw							Radiated noise Lw							Airborne noise Lw							Radiated noise Lw						
			125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	L (dB) A
			dB							dB							dB							dB						
80	3	55	42	37	37	39	42	42	48	24	19	19	21	24	24	30	48	43	43	45	48	48	54	39	44	44	42	39	39	33
	4	73	45	41	41	42	45	44	51	26	22	22	23	26	25	32	50	46	46	47	50	49	56	31	27	27	28	31	30	37
	6	110	50	48	48	48	50	48	56	33	31	31	31	33	31	39	54	52	52	52	54	52	60	37	35	35	35	37	35	43
	10	180	56	56	56	55	56	55	62	40	40	40	39	40	39	46	59	59	59	58	59	58	65	44	44	44	43	44	43	50
	12	218	58	59	59	58	58	57	64	43	44	44	43	43	42	49	61	62	62	61	61	60	67	47	48	48	47	47	46	53
100	3	80	46	41	41	43	46	46	52	28	23	23	25	28	28	34	52	47	47	49	52	52	58	33	28	28	30	33	33	39
	4	106	49	45	45	46	49	48	55	31	27	27	28	31	30	37	54	50	50	51	54	53	60	37	33	33	34	37	36	43
	6	160	52	50	50	50	52	50	58	36	34	34	34	36	34	42	57	55	55	55	57	55	63	41	39	39	39	41	39	47
	8	213	55	54	54	54	55	53	61	40	39	39	39	40	38	46	60	59	59	59	60	58	66	45	44	44	44	45	43	51
	10	266	57	57	57	56	57	56	63	42	42	42	41	42	41	48	61	61	61	60	61	60	67	47	47	47	46	47	46	53
125	3	126	52	47	47	49	52	52	58	33	28	28	30	33	33	39	58	53	53	55	58	58	64	39	34	34	36	39	39	45
	4	168	54	50	50	51	54	53	60	36	32	32	33	36	35	42	60	56	56	57	60	59	66	42	38	38	39	42	41	48
	6	252	57	55	55	55	57	55	63	40	38	38	38	40	38	46	62	60	60	60	62	60	68	45	43	43	43	45	43	51
	8	336	59	58	58	58	59	57	65	42	41	41	41	42	40	48	65	64	64	64	65	63	71	47	46	46	46	47	45	53
	10	421	61	61	61	60	61	60	67	45	45	45	44	45	44	51	66	66	66	65	66	65	72	49	49	49	48	49	48	55
160	3	209	54	49	49	51	54	54	60	39	34	34	36	39	39	45	60	55	55	57	60	60	66	43	38	38	40	43	43	49
	4	279	56	52	52	53	56	55	62	41	37	37	38	41	40	47	62	58	58	59	62	61	68	47	43	43	44	47	46	53
	6	418	59	57	57	57	59	57	65	44	42	42	42	44	42	50	65	63	63	63	65	63	71	50	48	48	48	50	48	56
	8	557	61	60	60	60	61	59	67	46	45	45	45	46	44	52	67	66	66	66	67	65	73	51	50	50	50	51	49	57
	10	697	62	62	62	61	62	61	68	47	47	47	46	47	46	53	68	68	68	67	68	67	74	52	52	52	51	52	51	58
200	3	328	56	51	51	53	56	56	62	41	36	36	38	41	41	47	61	56	56	58	61	61	67	46	41	41	43	46	46	52
	4	439	58	54	54	55	58	57	64	43	39	39	40	43	42	49	64	60	60	61	64	63	70	49	45	45	46	49	48	55
	6	658	60	58	58	58	60	58	66	46	44	44	44	46	44	52	67	65	65	65	67	65	73	51	49	49	49	51	49	57
	8	877	62	61	61	61	62	60	68	47	46	46	46	47	45	53	68	67	67	67	68	66	74	54	53	53	53	54	52	60
	10	1097	63	63	63	62	63	62	69	49	49	49	48	49	48	55	70	70	70	69	70	69	76	55	55	55	54	55	54	61
250	3	1316	65	66	66	65	65	64	71	50	51	51	50	50	49	56	71	72	72	71	71	70	77	56	57	57	56	56	55	62
	4	517	56	51	51	53	56	56	62	42	37	37	39	42	42	48	62	57	57	59	62	62	68	48	43	43	45	48	48	54
	6	690	58	54	54	55	58	57	64	43	39	39	40	43	42	49	65	61	61	62	65	64	71	51	47	47	48	51	50	57
	8	1034	61	59	59	59	61	59	67	47	45	45	45	47	45	53	67	65	65	65	67	65	73	54	52	52	52	54	52	60
	10	1379	63	62	62	62	63	61	69	49	48	48	48	49	47	55	69	68	68	68	69	67	75	56	55	55	55	56	54	62
315	3	1724	64	64	64	63	64	63	70	51	51	51	50	51	50	57	70	70	70	69	70	69	76	57	57	57	56	57	56	63
	4	2069	66	67	67	66	66	65	72	53	54	54	53	53	52	59	71	72	72	71	71	70	77	59	60	60	59	59	58	65
	6	825	57	52	52	54	57	57	63	41	36	36	38	41	41	47	64	59	59	61	64	64	70	49	44	44	46	49	49	55
	8	1100	59	55	55	56	59	58	65	44	40	40	41	44	43	50	66	62	62	63	66	65	72	52	48	48	49	52	51	58
	10	1651	62	60	60	60	62	60	68	46	44	44	44	46	44	52	68	66	66	66	68	66	74	56	54	54	54	56	54	62
400	3	2201	64	63	63	63	64	62	70	50	49	49	49	50	48	56	70	69	69	69	70	68	76	58	57	57	57	58	56	64
	4	2751	65	65	65	64	65	64	71	52	52	52	51	52	51	58	71	71	71	70	71	70	77	60	60	60	59	60	59	66
	6	3301	66	67	67	66	66	65	72	55	55	55	54	55	54	61	72	73	73	72	72	71	78	62	63	63	62	62	61	68
	8	1336	58	53	53	55	58	58	64	42	37	37	39	42	42	48	65	60	60	62	65	65	71	51	46	46	48	51	51	57
	10	1782	60	56	56	57	60	59	66	45	41	41	42	45	44	51	67	63	63	64	67	66	73	54	50	50	51	54	53	60
400	3	2672	64	62	62	62	64	62	70	48	46	46	46	48	46	54	70	68	68	68	70	68	76	58	56	56	56	58	56	64
	4	3563	66	65	65	65	66	64	72	51	50	50	50	51	49	57	72	71	71	71	72	70	78	60	59	59	59	60	58	66
	6	4454	67	67	67	66	67	66	73	54	54	54	53	54	53	60	73	73	73	72	73	72	79	61	61	61	60	61	60	67
	8	5345	68	69	69	68	68	67	74	57	58	58	57	57	56	63	74	75	75	74	74	73	80	63	64	64	63	63	62	69
	12																													

Note:

Room attenuation has not been included in the presented data