

AIR VOLUME FLOW REGULATOR RWP

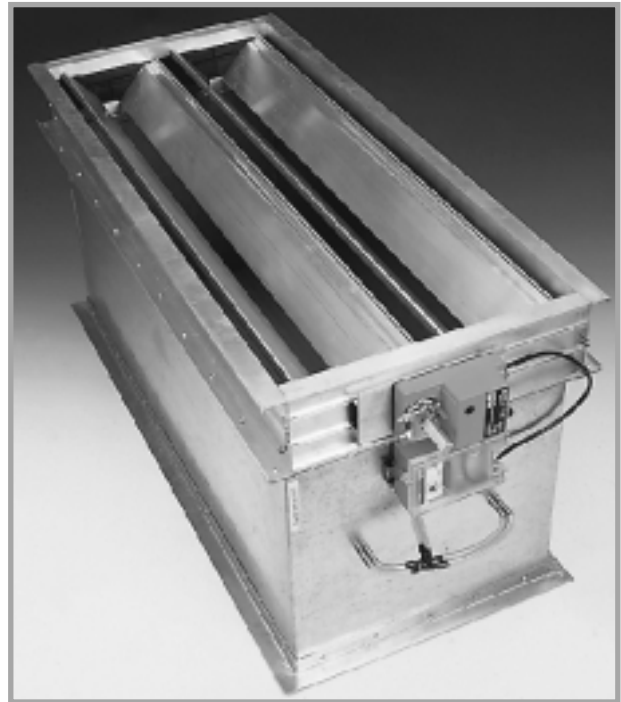


GENERAL INFORMATION

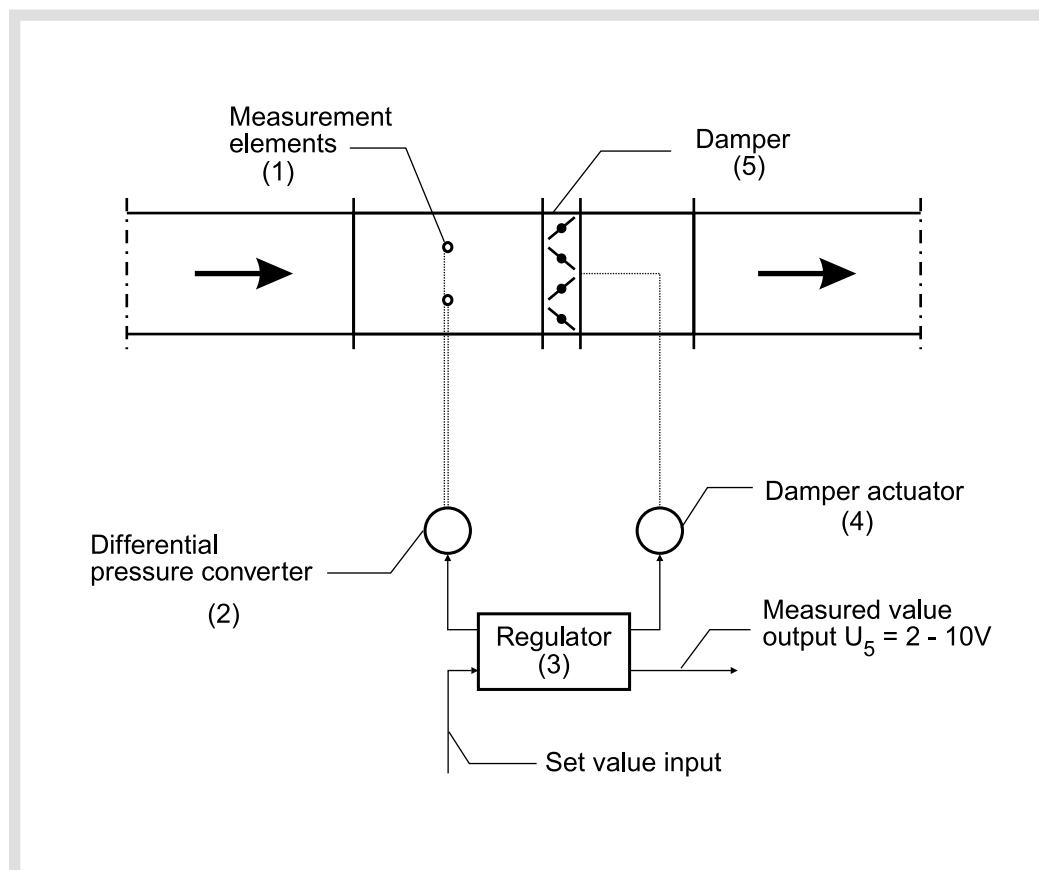
Air volume flow regulator RWP enables automatic air flow control. RWP is suitable for use in systems with variable air volume VAV and in other cases, where constant air flow is required.

Regulator can work in connection with other automatic control devices e.g. quality-quantity temperature control systems.

Efficiency regulator RWP



RWP DIAGRAM



PRINCIPLE OF OPERATION

Pressure from measurement elements (1) is converted by differential pressure converter (2) onto electric signal and then transmitted to regulator (3). Regulator controls damper actuator (4) accordingly to the result of set and measured value comparison.

Construction of RWP regulator includes elements of automation manufactured by Belimo. Regulator has limiting flow value VGR preset by manufacturer.

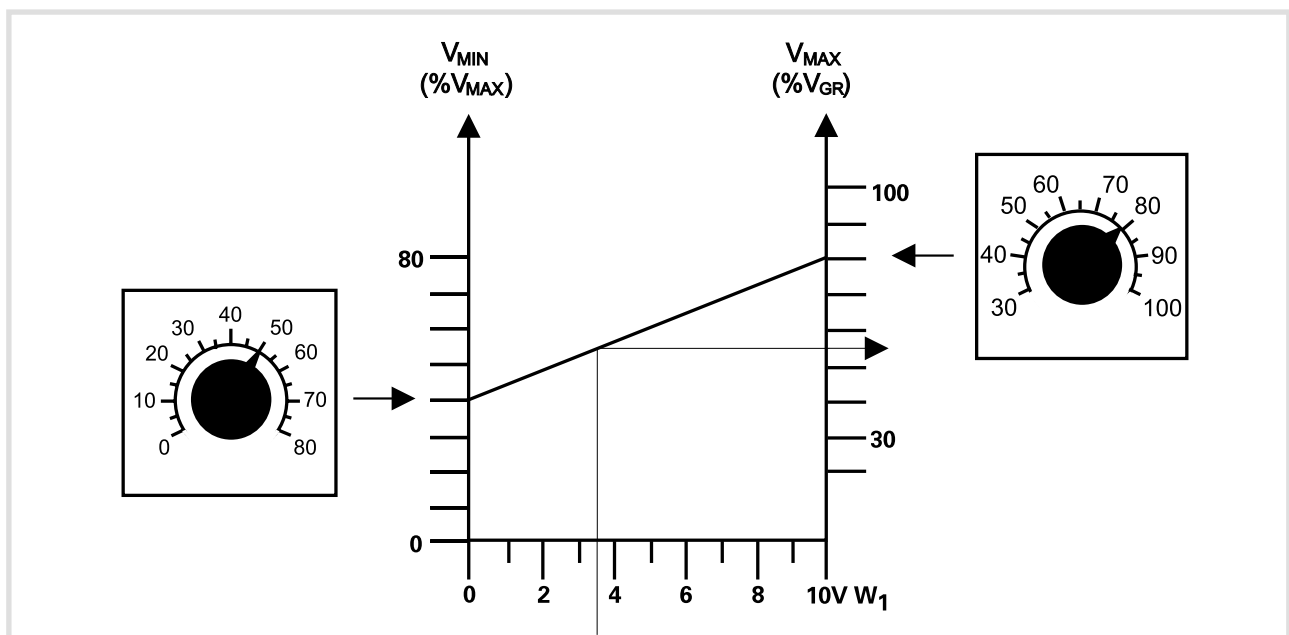
Operating range of regulator can be changed by setting maximal regulated flow value VMAX and minimal regulated flow value VMIN. User can set both values according to needs, but non of these values can exceed limiting flow value VGR.

RANGE OF USE OF PARTICULAR REGULATOR SIZES

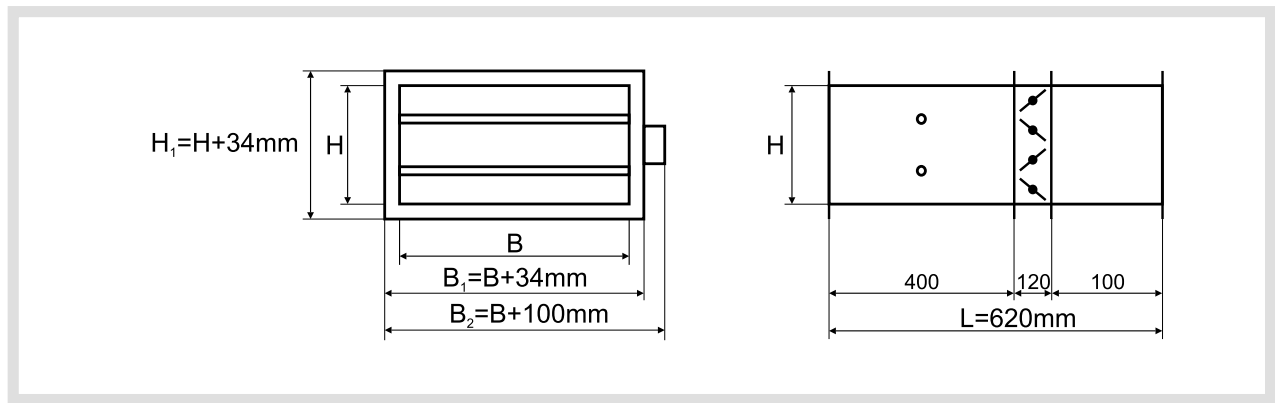
Following table shows recommended minimal VMIN [m³/h (l/s)] and limiting VGR [m³/h (l/s)] flow value preset by manufacturer(*):

H[mm]\B[mm]	200	250	315	400	500	630	800	1000
100	140 ÷ 860	180 ÷ 1080	230 ÷ 1360	x	x	x	x	x
200	290 ÷ 1730	360 ÷ 2160	450 ÷ 2720	580 ÷ 3460	720 ÷ 4320	910 ÷ 5440	x	x
315	450 ÷ 2720	570 ÷ 3400	710 ÷ 4290	910 ÷ 5440	1130 ÷ 6800	1430 ÷ 8570	1810 ÷ 10890	2270 ÷ 13600
400	580 ÷ 3460	720 ÷ 4320	910 ÷ 5440	1150 ÷ 6910	1440 ÷ 8640	1810 ÷ 10890	2300 ÷ 13820	2880 ÷ 17280
500	720 ÷ 4320	900 ÷ 5400	1130 ÷ 6800	1440 ÷ 8640	1800 ÷ 10800	2270 ÷ 13600	2880 ÷ 17280	3600 ÷ 21600

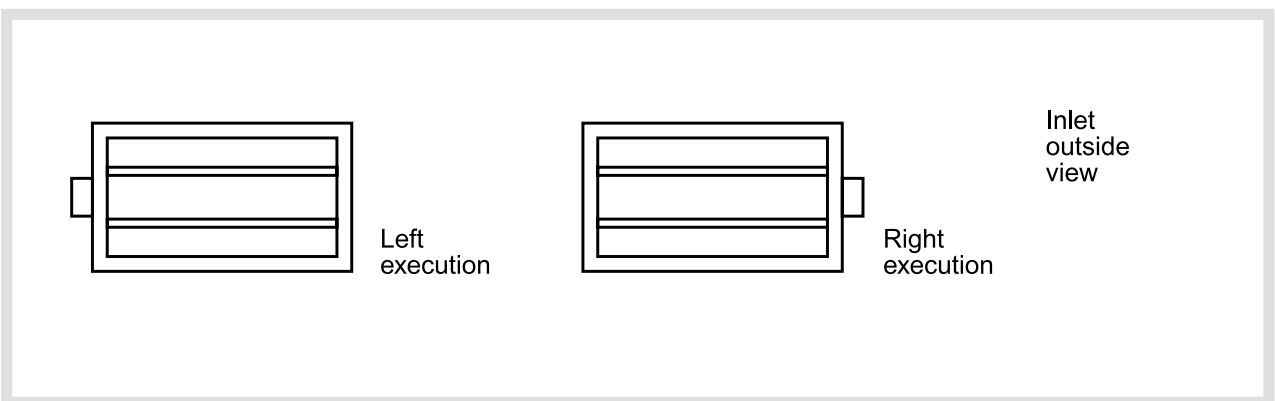
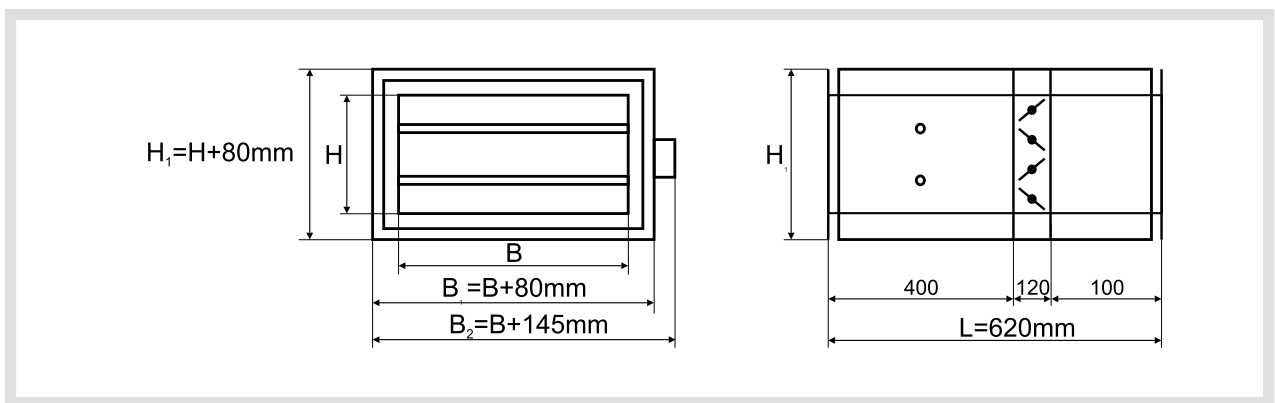
PRINCIPLE OF CHANGING OPERATING RANGE OF REGULATOR



REGULATOR RWP WITHOUT ISOLATION



REGULATOR RWP WITH ISOLATION

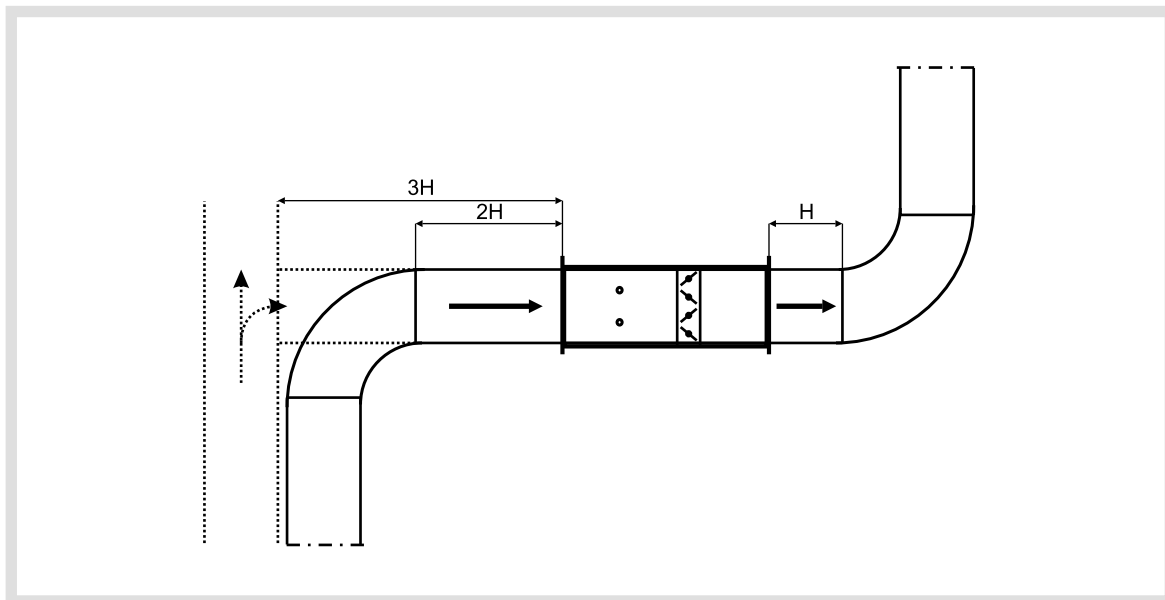


H[mm]\B[mm]	200	250	315	400	500	630	800	1000
100				x	x	x	x	x
200							x	x
315								
400								
500								

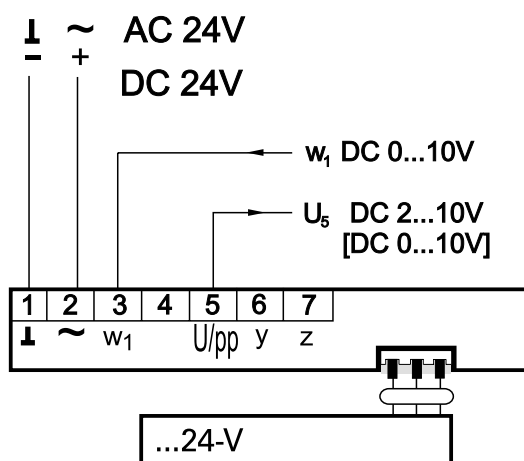
INSTALLATION

Due to precise control of air flow it is recommended to install RWP regulator in a certain distance from other elements of ventilation system disturbing the air flow pattern.

Rules of regulator installation are shown below:



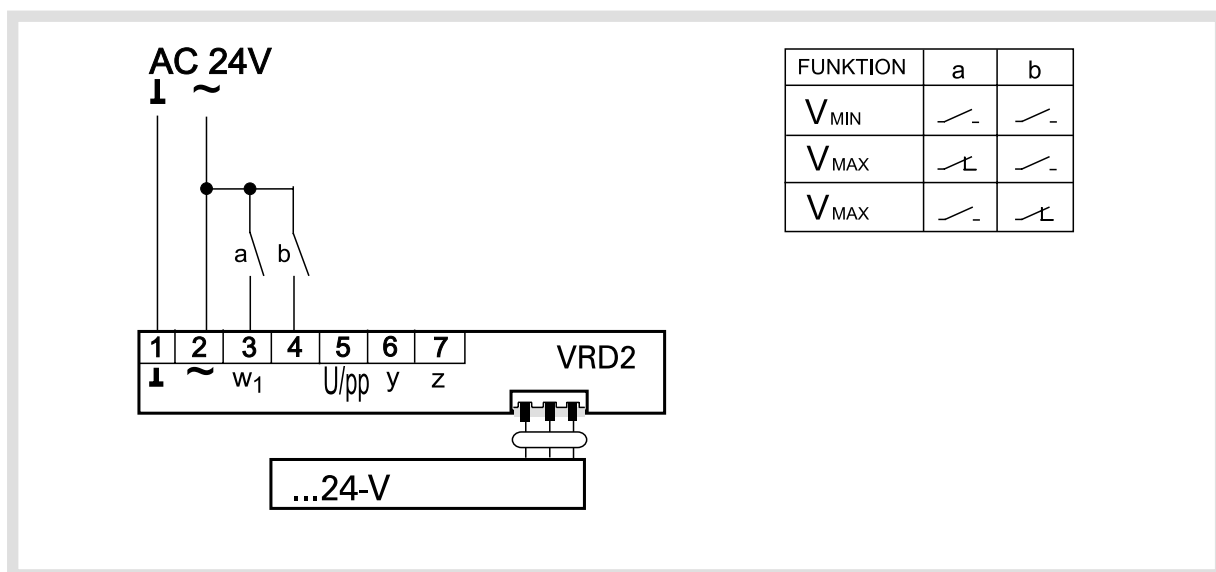
Electric terminal of the regulator



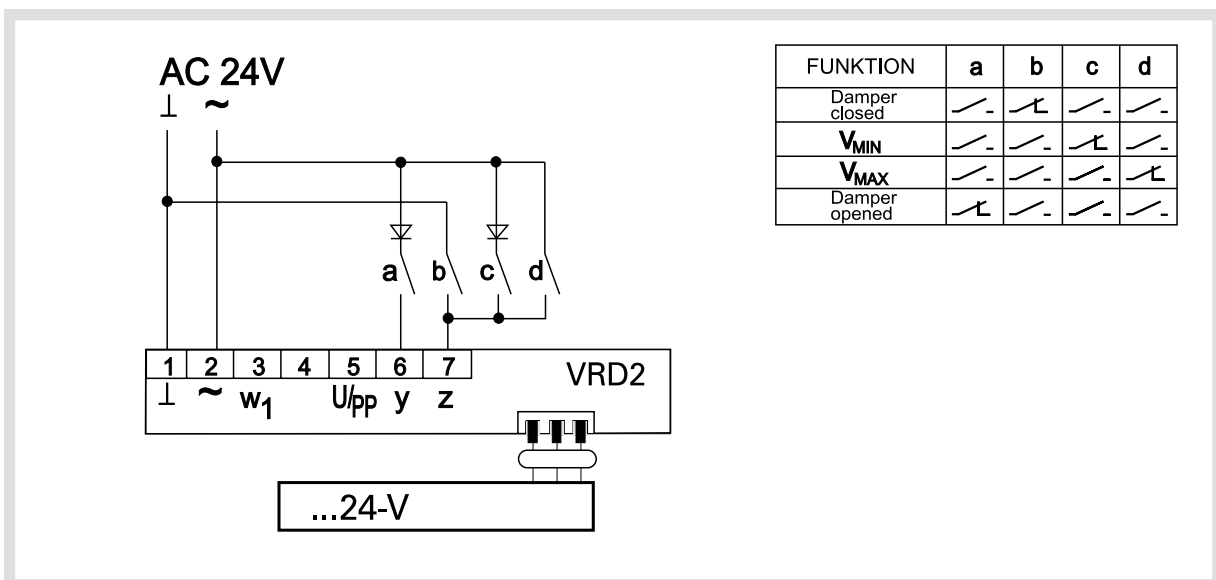
w_1 - of regulating flow
value in range $V_{\min} \div V_{\max}$

U_5 - mesured value
in the flowof range $0 \div V_{GR}$

OPERATION AT CONSTANT AIR FLOW VALUES



FUNCTIONS OF ADDITIONAL CONTROL TERMINALS



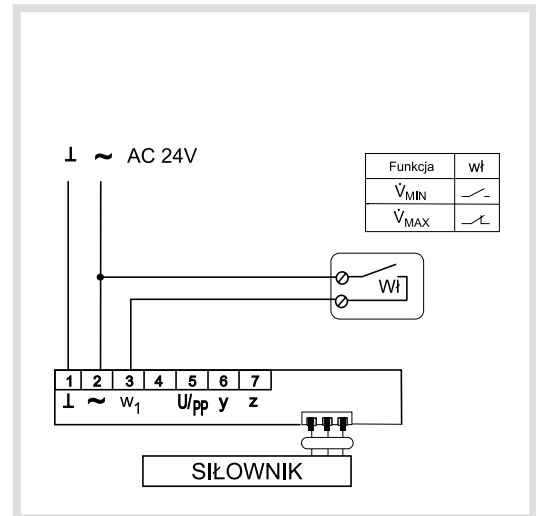
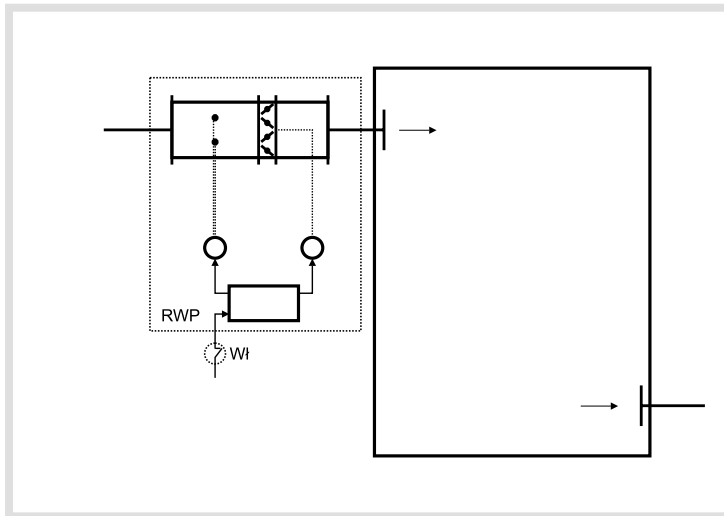
Functions forced by inputs „y” and „z” are superior and setting of regulated flow value on input w1 is no longer significant.

TECHNICAL DATA

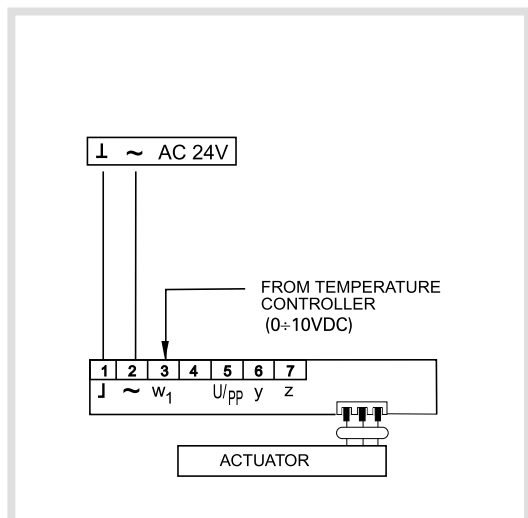
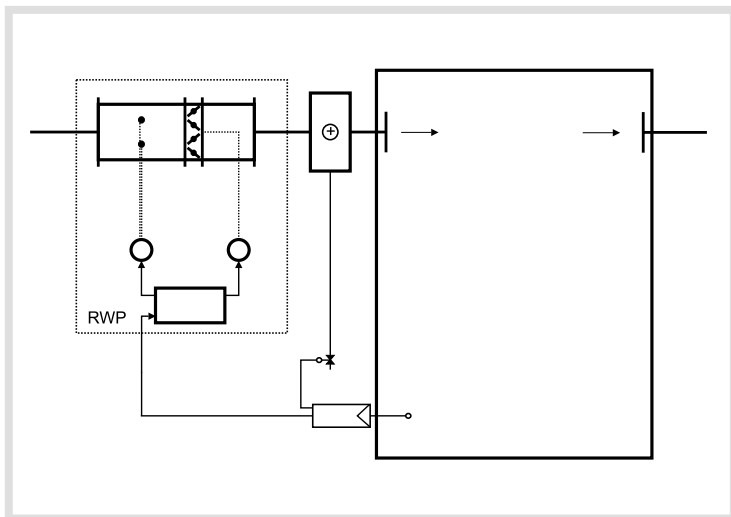
Supply voltage	24VAC \pm 20% (50/60Hz) 24VDC \pm 10%
Power consumption	1,3W (regulator module Belimo VRD2) 2,5W (damper actuator Belimo NM24-V)
Input voltage (w_1 input)	0 \div 10 VDC (input resistance 100k Ω)
Output voltage U_6	2 \div 10 VDC or 0 \div 10 VDC
Operating range regulation V_{max} V_{min}	30 \div 100% of limiting value V_{GR} 0 \div 80% of set value V_{max}
Input range of pressure converter	3 \div 300% PA
Working temperature	0 \div 50

EXAMPLE APPLICATIONS OF RWP REGULATOR

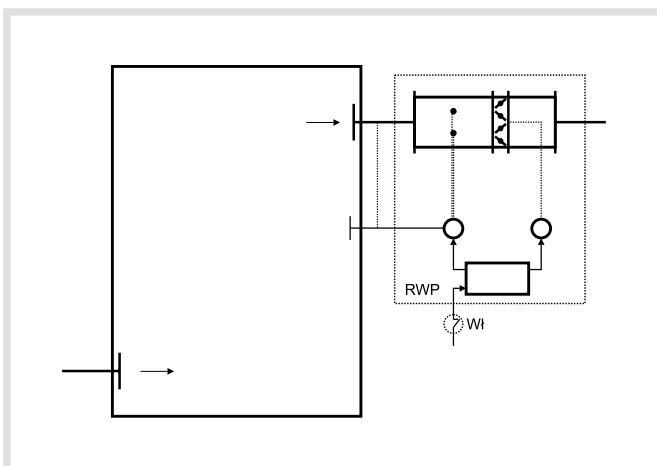
Constant air flow maintenance



Cooperation with temperature controller in ventilated premise



Constant pressure maintenance in ventilation duct or premise



In this case air flow measurement elements are not used. One input of the pressure converter is connected to premise space or ventilation duct.

ACOUSTIC DATA

Following tables show sound power levels [dB] in octave bands and level L_{WA} [dB(A)], for various air velocities and pressure drops over device.

For regulators with width B other than 500 mm read data must be corrected by correction factor •L from the lowest table.

Sound power level at RWP regulator outlet

RWP 500x100												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	48	56	62	67	55	63	65	72	64	66	70	75
250	44	52	59	66	53	60	65	71	62	65	69	72
500	40	53	59	64	52	59	64	70	58	64	68	72
1000	37	49	54	59	49	54	58	65	56	60	62	66
2000	34	44	51	56	46	53	56	63	54	59	61	64
4000	27	37	45	50	43	50	51	58	49	53	56	59
L_{WA} [dB(A)]	43	54	60	65	54	61	65	71	61	66	69	73

RWP 500x200												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	48	58	61	70	57	63	68	74	63	66	74	79
250	44	53	59	70	54	61	66	74	60	64	71	77
500	40	53	60	69	52	58	65	73	56	65	71	77
1000	37	50	55	63	51	54	60	67	54	60	65	70
2000	33	46	52	60	49	53	57	66	53	60	64	68
4000	27	38	46	55	44	50	53	61	47	54	58	62
L_{WA} [dB(A)]	42	55	61	70	56	61	66	74	60	67	72	77

RWP 500x315												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	50	57	62	70	59	64	70	74	66	68	75	80
250	45	54	60	69	56	62	68	74	64	67	72	78
500	41	54	61	68	54	61	66	73	59	67	73	78
1000	38	50	55	62	53	56	62	67	57	62	67	71
2000	34	46	53	60	50	54	59	66	56	62	65	69
4000	28	37	45	53	45	52	55	60	51	55	61	64
L_{WA} [dB(A)]	44	55	61	69	57	63	68	74	63	69	74	78

RWP 500x400												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	50	58	63	71	59	64	71	75	67	68	75	80
250	46	55	61	69	57	62	68	75	64	68	73	79
500	42	55	61	68	55	61	67	73	60	67	73	79
1000	38	50	55	62	53	56	63	68	57	62	68	72
2000	34	47	53	60	50	55	59	66	57	63	65	69
4000	29	38	46	54	46	53	56	61	52	56	62	64
L_{WA} [dB(A)]	44	56	61	69	58	63	68	74	63	69	74	79

RWP 500x500												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	51	58	63	71	60	65	72	75	68	69	75	81
250	47	55	62	70	57	63	68	76	65	69	73	80
500	42	56	61	68	55	61	67	74	60	67	73	80
1000	38	51	55	62	54	56	64	69	57	63	68	72
2000	34	47	54	60	50	56	60	66	58	63	65	70
4000	30	38	46	55	46	54	57	61	52	56	63	65
L_{WA} [dB(A)]	44	57	62	69	58	63	69	75	64	69	74	80

Correction factor ΔL for various widths B of the regulator

B [mm]	200	250	315	400	500	630	800	1000
ΔL [dB]	-5	-4	-2	-1	0	1	2	3

SOUND POWER LEVEL EMITTED TO SURROUNDINGS BY RWP REGULATOR REGULATOR WITHOUT ISOLATION

RWP 500x100												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	42	49	50	53	49	52	53	59	54	53	55	61
250	34	42	45	48	43	47	47	54	50	49	52	57
500	26	38	43	48	35	41	46	53	47	47	48	55
1000	21	32	37	42	32	38	41	48	41	44	46	52
2000	18	31	35	40	30	36	37	47	39	42	46	52
4000	17	28	31	36	26	32	37	46	35	40	45	52
L _{WA} [dB(A)]	30	40	44	49	39	45	47	55	48	50	53	59

RWP 500x200												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	44	53	50	57	55	60	56	59	53	59	59	61
250	36	47	46	51	48	55	50	54	50	55	55	58
500	30	43	45	51	40	49	49	53	46	53	51	54
1000	23	36	39	46	37	45	43	48	42	49	49	52
2000	21	35	38	45	35	42	40	47	39	48	49	53
4000	21	31	33	40	32	39	40	45	35	45	48	51
L _{WA} [dB(A)]	33	45	46	53	45	52	50	55	48	56	56	59

RWP 500x315												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	47	58	55	57	58	62	61	63	59	60	63	66
250	40	51	49	52	52	56	54	57	56	56	58	63
500	33	47	48	51	44	51	54	56	52	54	56	59
1000	27	41	43	46	41	47	48	51	47	50	53	57
2000	24	40	41	44	37	44	45	49	44	49	54	57
4000	24	37	37	40	35	42	44	48	41	45	51	56
L _{WA} [dB(A)]	36	49	49	53	48	54	55	58	54	56	60	64

RWP 500x400												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	47	58	56	58	59	63	61	63	60	61	63	67
250	40	52	50	52	52	57	55	58	57	56	58	63
500	33	48	49	51	44	51	54	57	53	54	56	60
1000	27	42	44	47	41	47	49	52	47	50	54	57
2000	24	41	41	45	37	44	46	50	45	50	55	58
4000	25	37	38	41	36	43	45	49	42	46	52	56
L _{WA} [dB(A)]	36	50	50	53	49	55	55	59	54	57	61	64

RWP 500x500												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	48	59	56	58	59	64	62	63	60	61	63	68
250	40	52	50	52	52	58	56	59	57	57	59	64
500	34	49	49	52	45	52	54	58	53	54	57	60
1000	28	43	44	47	42	47	49	52	47	51	55	58
2000	25	41	42	45	37	45	46	51	45	51	55	58
4000	26	37	39	42	36	43	46	49	43	47	53	56
L _{WA} [dB(A)]	37	51	50	54	49	55	56	59	54	58	61	65

SOUND POWER LEVEL EMITTED TO SURROUNDINGS BY RWP REGULATOR REGULATOR WITH ISOLATION

RWP 500x100												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	33	39	44	50	50	49	50	55	47	50	50	56
250	24	32	38	45	43	43	42	47	42	45	45	51
500	18	26	36	44	34	37	42	47	38	41	41	46
1000	14	21	28	35	26	30	33	38	29	35	35	41
2000	12	18	25	33	22	23	25	33	22	30	32	37
4000	12	15	21	25	20	19	24	29	16	21	24	31
L _{WA} (dB(A))	22	29	36	44	38	39	41	47	38	42	43	48

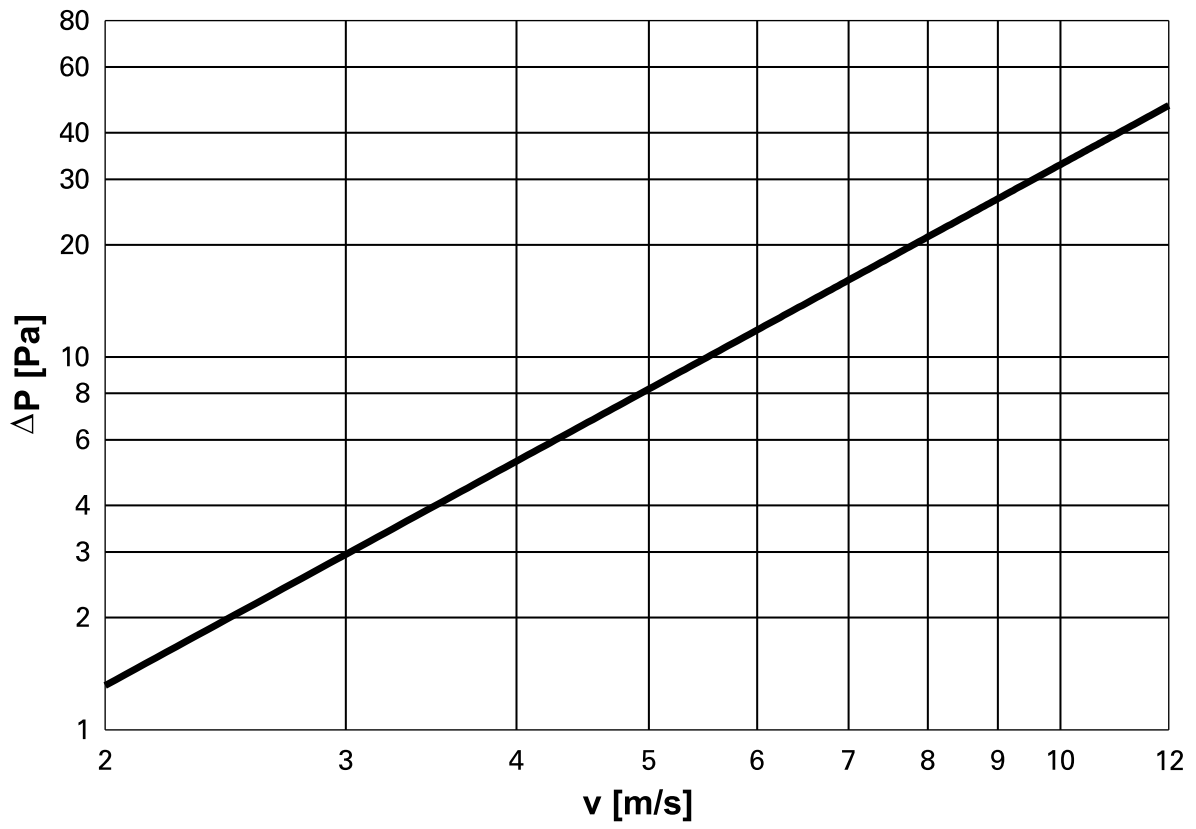
RWP 500x200												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	35	44	47	52	51	55	53	57	53	53	53	59
250	25	36	41	46	45	49	45	49	48	48	49	53
500	19	31	38	46	36	43	43	49	43	45	45	50
1000	15	26	30	37	28	36	35	40	36	39	39	44
2000	12	22	26	34	24	29	28	34	29	34	35	40
4000	12	21	23	28	23	26	26	31	24	25	27	34
L _{WA} (dB(A))	23	34	39	46	40	45	43	49	44	46	46	51

RWP 500x315												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	36	49	50	56	54	58	57	58	53	57	60	61
250	28	41	45	50	49	53	50	51	48	53	55	55
500	22	36	42	50	38	45	48	50	44	50	51	52
1000	17	31	34	41	32	39	39	42	36	43	46	46
2000	14	27	31	39	27	32	32	37	29	37	43	43
4000	14	25	26	32	27	28	30	34	24	28	35	36
L _{WA} (dB(A))	25	39	43	50	43	48	48	50	44	51	53	53

RWP 500x400												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	36	50	50	57	54	58	57	59	54	58	60	61
250	29	41	45	51	49	54	51	52	49	53	55	55
500	23	37	43	51	38	46	48	51	45	50	51	52
1000	17	32	34	41	32	39	39	42	36	43	46	47
2000	14	28	31	40	28	32	33	38	30	38	44	44
4000	14	25	27	33	28	29	31	35	24	28	35	36
L _{WA} (dB(A))	26	40	43	51	43	49	48	51	45	51	53	54

RWP 500x500												
frequency	100Pa				250Pa				500Pa			
[Hz]	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s	3m/s	6m/s	9m/s	12m/s
125	37	50	51	57	54	58	57	59	54	58	60	61
250	30	42	45	51	50	55	51	53	50	53	55	56
500	23	38	44	52	38	46	49	51	46	51	52	53
1000	17	32	35	41	32	40	39	42	36	44	47	48
2000	15	28	31	40	28	33	34	38	30	39	44	44
4000	15	25	27	33	28	29	32	35	24	29	36	36
L _{WA} (dB(A))	27	40	44	51	44	49	49	51	46	51	54	54

Pressure drop over RWP regulator versus air velocity (Damper fully open)



ORDERING FORM

Technical data

Efficiency regulator RWP

1 - 0600 - 0315 - B - R

with isolation - 1

without isolation - 0

width of regulator [mm] - 0600
(600 mm)

height of regulator [mm] - 0315
(315 mm)

BELIMO NM-24V-VRD2 - B

SIMENS GLB181.1E/B - S

BELIMO NM-VD2M9 - C

right - R

left - L

Fläkt Bovent Sp. z o.o. reserves the right to make technical changes without prior notice.



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Fläkt Bivent Sp. z o.o. ul. Łopuszańska 22, 02-220 Warszawa

tel. +48 (22) 575-55-42, fax +48 (22) 575-55-32
www.flaktwoods.com

Fläkt Bivent Sp. z o.o.

FläktWoods