Constant Air Volume Regulators

VRS

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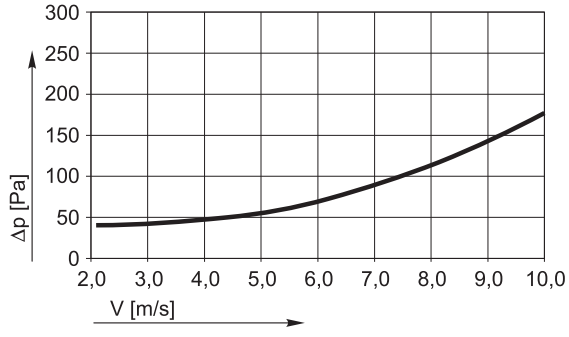
Application

The regulator of the permanent air flow VRS constitute an independent regulation element, working without an external energy supply. It provides steady, desired volume of air, irrespectively of the changes of the pressures in the system, thanks to which it eliminates the need of counterbalancing the system.
It can be used in inflow and outflow systems, high or low pressure in the vertical or horizontal position.
The regulator works reliably from the minimum difference of pressures, which depends on the velocity of the air (which is defined by the diagram), to the maximum difference of pressures equal to 1000[Pa].

Minimum difference of statistical pressures on the regulator:



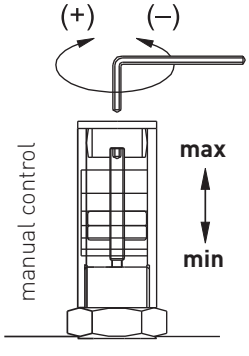
Example

Diameter:	size 160
Velocity of the air:	4,5 [m/s]
Intensity of the air flow:	325 [m³/h]
Sought difference of statistical pressures:	
- from the diagram	50[Pa]

Recommended velocity of the air amounts to about 4,5 [m/s] and should not be lower than 2,7 [m/s]. The work temperature amounts to -30°C to 100°C. Upon the special order, the version resistant to temperature can be performed up to 250°C.

Material and construction

Corpus and regulation damper:	galvanized steel
Bearings:	PTFE (Teflon)
Non-standard version foresees to perform:	
Corpus and regulation damper:	- galvanized steel
Corpus:	- galvanized steel, lacquered
	- insulated (25mm)



The generator's corpus laser welded has calibrated endings connected with gum gaskets. The regulation damper, mounted on the Teflon bearings is precisely counterbalanced and equipped with a silencing element, which prevents from trembling. The regulator has the device of manual setting, thanks to which you can select any size of the flow within its working scope.

Tolerance of the regulation precision

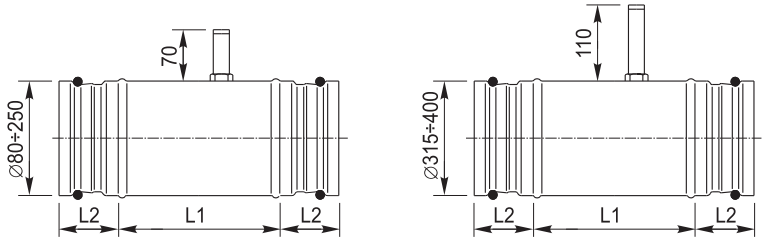
The tolerance of correctness of the air stream intensity setting amounts to ±10%. However, if the velocity of the air is smaller than 4 [m/s] or the regulator is mounted in the horizontal position, the changes can be higher. It can happen also when there are disturbances in the form of the cold intersection of the flow, arcs, sharp edges or narrowing.

Note

The flow parameters can be set of a factory to the required flow intensity. If need be, they can be easily changed by the user in the working area of the controler.

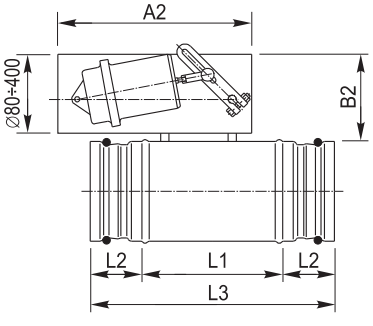
Version 1

Mechanical regulator, without external power. Changes of the default settings – manually.



Version 2

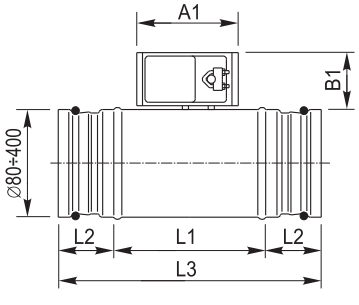
Mechanical regulator, with the possibility to set of a factory by means of a pneumatic actuator.



Regulation pressure: from 0,2 to 1,0 [bar]
Maximum pressure: 1,3 [bar]

Version 3

Mechanical regulator, with the possibility to set of a factory by means



3. Two settings – supply voltage 230V.
4. As above, but with an additional switch which allows for supplementing launching.
5. As (3) or - supply voltage 24V
6. As (5) or - but with a constant regulation with a line signal 2-10V

Ø D [mm]	Vt [m³/h]		Dimensions [mm]						
	min	max	L1	L2	L3	A1	B1	A2	B2
80	40	125	120	40	200	155	105	225	100
100	70	200	170	40	250	155	105	225	100
125	100	280	170	40	250	155	105	225	100
140	140	400	170	40	250	155	105	225	100
160	180	500	240	40	320	155	105	225	100
200	250	900	240	40	320	155	105	225	100
250	500	1500	240	40	320	155	105	225	100
315	600	2200	220	60	340	155	105	300	150
400	1000	3800	295	60	415	230	160	300	150

Sound power level

Vt [m³/h] / L_{wa} [dB(A)]	Ø D [mm]	100 [Pa]			250 [Pa]			500 [Pa]		
	80	40	83	125	40	83	125	40	83	125
		38	45	49	50	54	58	57	61	65
	100	70	135	200	70	135	200	70	135	200
		41	46	51	53	55	59	60	63	66
	125	100	190	280	100	190	280	100	190	280
		41	46	50	54	56	59	60	63	67
	140	140	270	400	140	270	400	140	270	400
		42	48	52	55	57	61	62	65	68
	160	180	340	500	180	340	500	180	340	500
		43	48	52	56	57	61	63	65	68
	200	250	575	900	250	575	900	250	575	900
		43	50	-	56	59	64	63	67	70
	250	500	1000	1500	500	1000	1500	500	1000	1500
		47	52	-	60	61	65	66	69	72
	315	600	1400	2200	600	1400	2200	600	1400	2200
		44	51	-	58	60	65	65	69	72
	400	1000	2400	3800	1000	2400	3800	1000	2400	3800
		46	52	-	59	61	67	66	70	74

The information provided, calculated on the basis of the laboratory tests are only of informative nature.

The noise of the flow depends to a large extent on the local conditions. In practice, additional silencing takes place resulting from the silencing at the outlet of the duct and silencing the room, the effect of which is the lowering of the sound's level. Silencing the room and the outlet can be to a large extent adopted on the level of about 8 dB. The application of the silencer in the system, will result in lowering the noise level by other up to a dozen or so dB, mainly depending on the type and the length of the silencer.

Product symbolic description - how to order

VRSt-200-500

VRS I - D - V_{nom} - S - P

I insulation*
- **not insulated**
t insulated

D diameter [mm]

V_{nom} nominal air volume [m³/h]

S version*
1 **no external power supply**
2 with pneumatic actuator
3.1 with electric actuator 230 - two settings
3.2 with electric actuator 230V - Two sets of additional switch
3.3 with electric actuator 24V - two settings
3.4 with electric actuator 24V with continuous analog control 2..10V

P material*
- **galvanized sheet**
SN stainless steel sheet
SL coated sheet steel

* optional values – lack of them will cause application of default values