

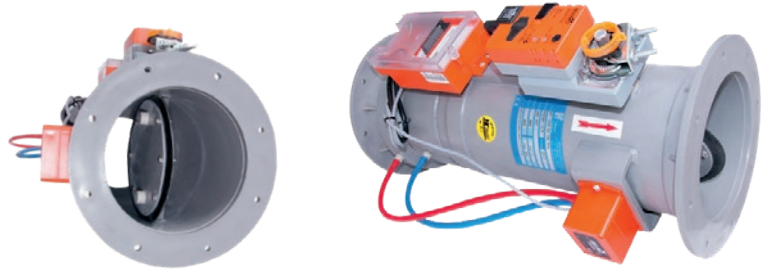
Variable volume flow controller



HF - VRR
Variable volume flow controller
round design
for controlling and
shutting off air flows in the
corrosive sector



Variable volume flow controller round design for controlling and shutting off air flows in the corrosive sector



Application

The variable volume flow controller keeps the preset / programmed air flow at a constant value, regardless of changing pressure conditions.

A complete shutdown of the pipeline is possible through the integrated sealed shut-off valve. Depending on the volume flow, differential pressure is built up in the Venturi nozzle. This differential pressure is forwarded to the regulator by the pressure sensor.

The controller performs a comparison of the target and actual values and on this basis addresses the actuator. This adjusts the valve blade until the specified target volume flow is reached.

Design

- Corrosion protection: all parts exposed to the air flow are made of plastic
- Materials: PPs, PVC, PP, PE
- Pipe connection: Flange or sleeve connection
- Control function: quick and exact compensation with an accuracy of +/- 5% of the preset volume flow
- Annular chambers: plus and minus-side annular chambers for pressure tapping increase the measuring accuracy and the measurement results in unfavourable installation situations.

Construction

The volumetric flow rate regulator consists of a round body with a pipe connection on both sides (flange or bushing connection).

A sealed shut-off valve and a Venturi nozzle are integrated in the round body to determine the differential pressure.

The Venturi nozzle is equipped with a plus and minus-side annular chamber.

The control unit (pressure sensor, regulator, actuator) is mounted on the tubular body.

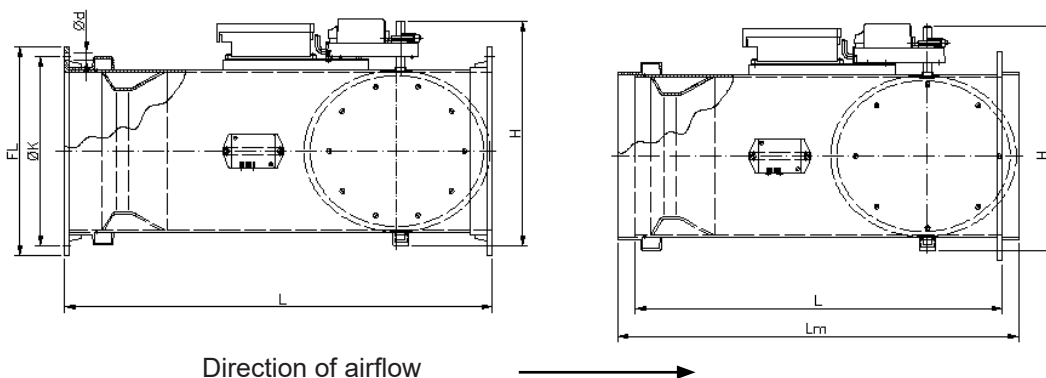
- Complete shutdown: sealed in accordance with DIN 1946 - Part 4
- Pressure loss: minimum pressure difference 100 Pa at nominal volume flow
- Manufacturer: the variable volume flow controller can be equipped with all electric or pneumatic control combinations from different manufacturers at buyer's choice.



Variable volume flow controller
round design for
controlling and shutting off air
flows in the corrosive sector

Flange version

Sleeve version



Type	ND	FL	ØK	Ød	Number Ød	L	Lm	Volume flow (m ³ /h)
HF - VRR 110	110	170	150	7	4	400	*	70-330
HF - VRR 125	125	185	165	7	8	400	*	80-440
HF - VRR 140	140	200	175	7	8	400	*	110-550
HF - VRR 160	160	230	200	7	8	450	500	150-1000
HF - VRR 180	180	250	220	7	8	490	*	170-920
HF - VRR 200	200	270	240	7	8	510	560	250-1400
HF - VRR 225	225	295	265	7	8	700	*	270-1420
HF - VRR 250	250	320	290	7	12	700	750	350-2100
HF - VRR 280	280	360	325	9	12	760	*	420-2200
HF - VRR 315	315	395	350	9	12	760	810	700-3200
HF - VRR 355	355	435	400	9	12	1050	1100	600-3500
HF - VRR 400	400	480	445	9	16	1100	1150	800-5200
HF - VRR 500	500	580	550	9	20	1300	*	1600 - 8700
HF - VRR 560	560	640	610	11	24	1450	*	1700 - 9600
HF - VRR 630	630	710	680	11	24	1600	*	~1900 - ~12100

* These volumetric flow rate regulators are not available in the sleeve version.

Dimensions and design are subject to change without notice

Acoustic data

Sound level with integrated Venturi nozzle according to DIN EN ISO 5167-1

Nennweite	w in m/s	V in m ³ /h	$\Delta p_g = 100 \text{ Pa}$										$\Delta p_g = 250 \text{ Pa}$										$\Delta p_g = 500 \text{ Pa}$									
			L_w in dB/Oktave										L_w in dB/Oktave										L_w in dB/Oktave									
			f_m in Hz										f_m in Hz										f_m in Hz									
			63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L_{WA} in dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L_{WA} in dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L_{WA} in dB(A)			
160	2	145	39	39	41	44	37	28	22	26	43	36	32	39	47	52	51	43	38	49	41	37	44	52	57	56	48	43	56			
	4	290	49	52	49	48	42	36	32	32	49	47	48	53	54	55	49	44	43	57	52	53	58	59	60	56	51	48	63			
	6	434	53	56	54	52	46	41	38	36	53	55	56	61	58	56	51	47	46	61	60	61	66	64	61	56	52	51	66			
	8	579	55	58	56	54	48	43	40	38	57	57	58	63	60	58	53	49	48	65	62	63	68	65	63	58	54	53	70			
	10	724	60	59	61	62	58	52	50	47	59	61	66	67	65	60	55	51	50	67	66	71	72	70	65	60	56	55	72			
200	2	226	41	41	43	42	41	37	33	28	45	45	48	48	51	48	48	48	51	56	48	52	50	56	55	57	58	58	64			
	4	452	50	47	49	46	47	46	37	31	51	57	55	55	53	50	62	58	51	65	58	61	58	61	57	56	56	60	65			
	6	679	54	52	52	49	52	48	41	34	55	61	60	59	56	55	59	53	48	63	64	65	63	62	59	59	60	60	67			
	8	905	59	55	55	52	55	50	44	37	58	65	64	62	59	58	60	55	50	65	69	71	68	65	62	64	64	59	71			
	10	1131	60	57	57	54	59	54	47	42	61	68	66	65	62	61	61	57	52	67	71	73	71	67	65	66	64	60	72			
250	2	353	50	47	44	46	45	46	33	22	50	53	54	53	53	51	50	56	42	60	56	58	55	60	59	57	58	54	65			
	4	707	55	51	48	51	47	42	35	27	52	64	61	58	57	55	53	49	43	60	67	67	64	63	60	58	60	58	67			
	6	1060	62	58	53	56	50	46	41	35	56	67	65	61	61	58	54	50	45	63	72	72	69	67	63	60	59	57	69			
	8	1414	62	60	57	59	55	51	49	45	61	71	67	64	64	60	56	53	48	66	75	73	71	69	65	62	59	56	71			
	10	1767	67	66	62	58	59	55	54	51	64	73	70	66	68	62	59	55	51	69	76	76	72	72	67	64	61	58	73			
315	2	561	42	47	45	43	38	35	33	32	45	47	47	49	51	54	52	50	50	57	52	52	54	56	59	57	55	55	62			
	4	1122	52	55	50	49	43	38	31	29	50	60	61	57	55	55	51	47	48	59	65	66	62	60	60	56	52	53	64			
	6	1683	54	57	52	51	45	40	33	31	52	62	63	59	57	57	53	49	50	61	67	68	64	62	62	58	54	55	66			
	8	2244	59	57	56	55	47	43	38	33	55	67	68	64	61	58	55	51	50	64	72	73	69	66	63	60	56	55	69			
	10	2806	61	59	58	57	49	45	40	35	57	69	70	66	63	60	57	53	52	66	74	75	71	68	65	62	58	57	71			
400	2	905	41	48	47	44	38	36	34	32	46	48	49	49	50	53	50	48	48	57	53	54	54	55	58	55	53	53	62			
	4	1810	53	54	53	52	46	40	34	30	52	62	62	59	57	54	52	48	47	60	67	67	64	62	59	57	53	52	65			
	6	2714	55	56	55	54	48	42	36	32	54	64	64	61	59	56	54	50	49	62	69	69	66	64	61	59	55	54	67			
	8	3619	60	58	61	62	53	46	42	35	61	68	68	67	64	59	56	51	50	66	73	73	72	69	64	61	56	55	71			
	10	4524	62	60	63	64	55	48	44	37	63	70	70	69	66	61	58	53	52	68	75	75	74	71	66	63	58	57	73			

Definition

f_m	(Hz)	Centre frequency of the octave band
L_w	(dB/Oktave)	Sound power level determined in the reverberation chamber
L_{WA}	(dB(A))	Total sound level A-weighted
Δp_g	(Pa)	Total pressure difference (measured upstream and downstream of the volume flow controller)
V	(m ³ /h)	Volume flow
w	(m/s)	Flow rate

Acoustic data

Sound level with integrated Venturi nozzle according to DIN EN ISO 5167-1

Nennweite	w in m/s	V in m ³ /h	$\Delta p_g = 100 \text{ Pa}$								L_{VA} in dB(A)	$\Delta p_g = 250 \text{ Pa}$								L_{VA} in dB(A)	$\Delta p_g = 500 \text{ Pa}$								L_{VA} in dB(A)
			L_w in dB/Oktave									L_w in dB/Oktave									L_w in dB/Oktave								
			f_m in Hz									f_m in Hz									f_m in 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		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
160	2	145	29	24	26	25	21	14	10	16	33	26	17	24	23	36	37	31	28	41	31	22	29	28	41	42	36	33	48
	4	290	39	37	34	33	26	22	20	22	36	37	33	38	37	39	35	32	33	44	42	38	43	42	44	42	39	38	51
	6	434	43	41	39	38	30	27	26	26	37	45	41	46	45	40	37	35	36	45	50	46	51	50	45	42	40	41	53
	8	579	45	43	41	40	32	29	28	28	38	47	43	48	47	42	39	37	38	46	52	48	53	52	47	44	42	43	54
	10	724	50	44	46	45	42	38	38	37	39	51	51	52	51	44	41	39	40	47	56	56	57	56	49	46	44	45	55
200	2	226	21	25	21	22	28	29	16	7	32	27	28	27	31	38	42	33	25	45	27	28	27	31	38	42	33	25	52
	4	452	37	36	31	26	30	30	18	9	35	41	40	35	33	38	43	33	28	45	41	40	35	33	38	43	33	28	51
	6	679	40	40	35	26	32	31	20	12	36	46	46	40	36	39	42	32	24	46	46	46	40	36	39	42	32	24	51
	8	905	44	44	38	30	34	33	22	14	39	50	51	45	36	39	42	33	25	46	50	51	45	36	39	42	33	25	52
	10	1131	45	46	40	32	36	34	23	15	40	53	54	48	39	42	44	34	27	48	53	54	48	39	42	44	34	27	53
250	2	353	30	28	21	20	26	28	15	9	31	33	26	24	25	36	38	31	20	42	33	25	26	31	42	47	41	33	50
	4	707	38	32	27	23	27	27	20	7	32	43	36	32	29	36	38	30	22	41	42	37	36	34	42	45	39	32	49
	6	1060	41	34	32	29	30	29	22	9	35	47	41	38	33	37	38	33	23	43	48	44	42	38	44	46	40	33	49
	8	1414	46	41	40	39	35	31	22	10	41	49	43	42	38	40	40	35	26	45	54	48	47	41	46	47	41	34	51
	10	1767	51	45	46	46	41	37	28	18	47	52	46	45	42	43	42	36	26	48	54	50	49	44	47	48	43	35	53
315	2	561	34	34	31	29	25	24	24	24	33	39	34	35	37	41	41	41	42	45	44	39	40	42	46	46	46	47	50
	4	1122	44	42	36	35	30	27	22	21	38	52	48	43	41	42	40	38	40	47	57	53	48	46	47	45	43	45	52
	6	1683	46	44	38	37	32	29	24	23	40	54	50	45	43	44	42	40	42	49	59	55	50	48	49	47	45	47	54
	8	2244	51	44	42	41	34	32	29	25	43	59	55	50	47	45	44	42	42	52	64	60	55	52	50	49	47	47	57
	10	2806	53	46	44	43	36	34	31	27	45	61	57	52	49	47	46	44	44	54	66	62	57	54	52	51	49	49	59
400	2	905	33	36	33	33	25	26	26	24	34	40	37	35	35	40	40	40	40	45	45	42	40	40	45	45	45	45	50
	4	1810	45	42	39	39	33	30	26	22	40	54	50	45	45	41	42	40	39	48	59	55	50	50	46	47	45	44	53
	6	2714	47	44	41	41	35	32	28	24	42	56	52	47	47	43	44	42	41	50	61	57	52	52	48	49	47	46	55
	8	3619	52	46	47	47	40	36	34	27	49	60	56	53	53	46	46	43	42	54	65	61	58	58	51	51	48	47	59
	10	4524	54	48	49	49	42	38	36	29	51	62	58	55	55	48	48	45	44	56	67	63	60	60	53	53	50	49	61

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