

Vacuum breaker VV 34, 36

Vacuum breaker for medium to very high flow rates

Technical data

Connection DN	20 - 250
Connection G	1/2A - 2 1/2A
Nominal pressure PN	6 - 40
Setting range	0.05 - 0.95
K _{vs} value	1.2 - 388 m ³ /h
Temperature	250 °C
Medium	liquids and gases

Description

Vacuum breakers – also called vacuum venting valves or vacuum limiters - are valves which allow air to be aspirated once a set vacuum or pressure difference to atmosphere is reached. These valves are installed on pipelines, vessels, machines and equipment and are used, for instance, for venting tanks, limiting the vacuum in vacuum systems and protecting steam installations.

The standard version of the vacuum breakers is no equipment part with safety function in accordance with the Pressure Equipment Directive. Otherwise this fact would be taken into account in the Declaration of Conformity. For control duties vacuum breakers may be used only to a limited degree. For such duties we recommend using the diaphragm-controlled vacuum control valve VV 5.1.

Under normal operating conditions the valve is kept closed by a pre-loaded spring and the internal vacuum acting on the valve cone. If the vacuum drops below the value set by means of the spring, the valve is opened by the atmospheric pressure and air enters the system. With increasing air flow the cone stroke and spring force increase. The pressure difference increases accordingly.

The VV 34 vacuum breaker has a tension spring and a spring cap complete with scale for setting the breaking pressure

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with DIN EN 60534-4 and/or ANSI FCI 70-2 they may feature a leakage rate in compliance with leakage class IV (metallic seal 0,01% of the K_{vs} value), optionally leakage class V (soft seal with Δp > 1 bar).

Standard

- » VV 34 spring cap with setting scale
- » All stainless steel construction

Options

- » Soft seal
- » VV 34 made of stainless steel / steel
- » Leakage line connection for discharging the leakage into atmosphere (not suitable for toxic or hazardous media)
- » Special materials such as Duplex, Superduplex, Hastelloy® or titanium, others on request
- » Special connections: Aseptic, ANSI or JIS flanges, welding ends, other connections on request
- » Special versions on request

Product



Picture similar

Technical specification

K _{vs} values [m ³ /h]		20	25	32	40	50	65
Nominal diameter	DN						
	G...A	1/2	3/4	1	1 1/4	1 1/2	2
K _{vs} value	m ³ /h	1.2	1.5	3.2	6	9	16

Nominal diameter	DN	80	100	125	150	200	250
K _{vs} value	m ³ /h	41	70	107	169	266	388

Adjustable differential pressure Δp [bar]*		
VV 34		VV 36
≤ DN 100 G...A 1 1/2 - 2 1/2	≥ DN 125	0.05 - 0.1
0.05 - 0.95	0.05 - 0.50	
	0.05 - 0.95	

*Vacuum breakers should be selected according to the pressure difference between the atmospheric pressure and the pressure inside the vessel or pipeline, not according to the vacuum or absolute pressure in the vessel or pipeline. All specifications given in data sheets or tables or on the scales of valves etc. relate to this differential pressure.

Materials

Materials* VV 34	
body	stainless steel 1.4404
flange	stainless steel 1.4404 optional steel
spring cap	stainless steel 1.4404
cone	stainless steel 1.4404
valve seal	stainless steel 1.4404

Materials* VV 36	
body	stainless steel 1.4404
cone	stainless steel 1.4404
valve seal	stainless steel 1.4404

*All materials equal or of higher quality

Dimensions and weights

Dimensions [mm] VV 34 flange connection							
set pressure bar	size	nominal diameter DN					
		20	25	32	40	50	65
0.05 - 0.95	A	255	280	350	350	380	535

Dimensions [mm] VV 34 flange connection							
set pressure bar	size	nominal diameter DN					
		80	100	125	150	200	250
0.05 - 0.50	A	-	-	700	860	1155	1390
0.05 - 0.95		600	650	850	1050	1420	1720

Dimensions [mm] VV 34 socket connection						
size	nominal diameter G...A					
	3/4	1	1 1/4	1 1/2	2	2 1/2
A	250	280	350	350	380	530

Dimensions [mm] VV 36 socket connection							
size	nominal diameter G...A						
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
A	110	120	130	140	146	146	180

Weights [kg] VV 34 flange connection							
set pressure bar	size	nominal diameter DN					
		20	25	32	40	50	65
0.05 - 0.95	A	2.2	2.7	3.8	4.8	5.6	9

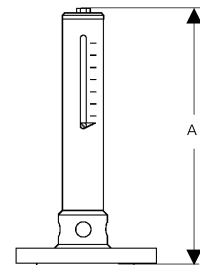
Weights [kg] VV 34 flange connection							
set pressure bar	size	nominal diameter DN					
		80	100	125	150	200	250
0.05 - 0.50	A	-	-	21	27.5	47	64
0.05 - 0.95		9.5	11.5	22	29.5	50	68

Weights [kg] VV 34 socket connection						
nominal diameter G...A						
3/4	1	1 1/4	1 1/2	2	2 1/2	
1.2	1.4	1.9	2.6	3.2	5.9	

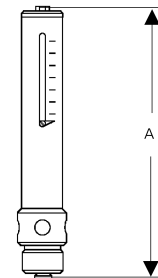
Weights [kg] VV 36 socket connection						
nominal diameter G...A						
1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
0.3	0.6	0.8	1	1.2	1.7	2

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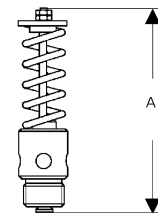
VV 34 DN 20 - 250



VV 34 G...A 3/4 - 2 1/2



VV 36 G...A 1/2 - 2 1/2



Flow Rate

Flow Rate* [Nm³/h]

nominal diameter	differential pressure (set pressure) [bar]					
	≥ 0.47	0.4	0.3	0.2	0.1	0.05
G...A 1/2					12	7
G...A 3/4	41	37	32	26	18	10
G...A 1	71	66	57	46	33	18
G...A 1 1/4	127	117	102	82	58	32
G...A 1 1/2	199	183	158	129	91	50
G...A 2	348	320	278	227	160	87
G...A 2 1/2	551	507	439	359	254	139
DN 20	41	37	32	26	18	10
DN 25	71	66	57	46	33	18
DN 32	127	117	102	82	58	32
DN 40	199	183	158	129	91	50
DN 50	348	320	278	227	160	87
DN 65	551	507	439	359	254	139
DN 80	891	819	710	580	410	225
DN 100	1.514	1.393	1.207	986	697	382
DN 125	2.316	2.129	1.846	1.507	1.065	584
DN 150	3.664	3.369	2.921	2.385	1.686	923
DN 200	5.768	5.303	4.597	3.753	2.654	1.453
DN 250	8.387	7.711	6.685	5.458	3.859	2.114

*The specified flow rate refer to a full open valve. To get this flow rate, the scale setting pressure Δp for type VV 34 must be set 0.05 bar lower than the table values, since the spring force (spring constant) increases with the power and the plug stroke. Type VV 36 is fully adjusted.

Selection example:

Vacuum breaker for 12 Nm³/h with response pressure 0.1 bar (Δp to atmosphere)

Required nominal width: G 1/2

Setting through the scale: 0.1 bar – 0.05 bar = 0.05 bar Δp to atmosphere

Authorised Distributor:



46, Jalan SS 22/21, Damansara Jaya,
47400 Petaling Jaya,
Selangor Darul Ehsan, Malaysia.

Email: ampmech@ampmech.com

Website: www.ampmech.com

Please send us your enquiry and allow us to advise you. Special designs on request.

The pressure has always been indicated as overpressure. Mankenberg reserves the right to alter technical specifications without notice.