

Pressure control valves

Back pressure regulators UV 4.5 ASME

Standard cast valve acc. to ASME



Technical Data

Connection NPS	1/2 - 4
Flange class	150 - 300
Inlet pressure	4 - 145 psi 0.3 - 10 bar
C _{vs} value	6 - 75 US gal/min.
K _{vs} value	5 - 65 m³/h
Temperature	266 °F (steam 302 °C) 130 °C (steam 150 °C)
Medium	liquids, gases and steam

Description

Self-acting back pressure regulators are simple control valves offering accurate control while being easy to install and maintain. They control the pressure upstream of the valve without requiring pneumatic or electrical control elements.

The back pressure regulator UV 4.5 ASME is a diaphragm-operated, spring-loaded and balanced proportional valve for high flow rates. The valve body is made of cast steel. Diaphragm housing, spring cap and internal parts are made of stainless steel. The valve cone is fitted with a soft seal.

The inlet pressure to be controlled is balanced across the valve seat by the force of the valve spring (set pressure). If the inlet pressure rises above the set pressure, the valve opens. With decreasing inlet pressure the valve control orifice reduces, when the pipeline is depressurised, the valve is closed. Rotating the adjusting screw clockwise increases the inlet pressure.

The valves requires a sense line (to be installed on-site).

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 closed position in compliance with the leakage classes V.

Standard

- » Body made of A216WCB (GP240 - 1.0619) acc. to ASME
- » Diaphragm housing and spring cap made of stainless steel 316L (1.4404)
- » Internal parts made of stainless steel 316L / S31803 (1.4404 / 1.4462)
- » Leakage line connection and sealed adjusting screw
- » Balanced cone for soft opening and quick closing
- » Sense line connection
- » EPDM elastomers

Options

- » FKM elastomers
- » PTFE protection foil for diaphragm

Operating instructions, know how and safety instructions must be observed. The pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



C_{vs} values [US gal/min]

NPS	1/2	3/4	1	1 1/2	2	2 1/2	3	4
4 - 75 psi	6	8	8	34	34	75	75	75
60 - 145 psi	6	8	8	34	34	58	58	58

K_{vs} values [m³/h]

NPS	1/2	3/4	1	1 1/2	2	2 1/2	3	4
0.3 - 5 bar	5	7	7	30	30	65	65	65
4.5 - 10 bar	5	7	7	30	30	50	50	50

Setting Ranges [psi/bar]

psi	4 - 16	10 - 35	30 - 75	60 - 145
bar	0.3 - 1.1	0.8 - 2.5	2 - 5	4.5 - 10

max. Operating Pressure PS with Operating Temperature TS

TS	setting range [psi]			
	4 - 16	10 - 35	30 - 75	60 - 145
-20 up to 302 °F	25 psi	55 psi	110 psi	220 psi

max. Operating Pressure PS with Operating Temperature TS

TS	setting range [bar]			
	0.3 - 1.1	0.8 - 2.5	2 - 5	4.5 - 10
-10 up to 150 °C	1.65 bar	3.75 bar	7.5 bar	15 bar

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Materials

Body	A216-WCB (GP240GH - 1.0619)
Diaphragm Housing	stainless steel 316L (1.4404)
Spring Cap	stainless steel 316L (1.4404)
Internal Parts	stainless steel 316L / S31803 (1.4404 / 1.4462)
Valve Seal	EPDM*
Diaphragm	EPDM*
O-ring (release)	EPDM*

* elastomeres optionally made of FKM, PTFE protection foile

Dimensions [inch]

size	Class	NPS							
		1/2	3/4	1	1 1/2	2	2 1/2	3	4
A*	150	7.25	7.25	7.25	8.75	10	10.88	11.75	13.88
	300	7.5	7.62	7.75	9.25	10.5	11.5	12.5	14.5
B		2.36	2.36	2.36	2.95	2.95	4.41	4.41	4.41
C		11	11	11	17.4	17.4	20.2	20.2	20.2
D		NPT 1/8				NPT 1/4			
øE		4.5	4.5	4.5	8.2	8.2	8.7	8.7	8.7

Dimensions [mm]

size	Class	NPS							
		1/2	3/4	1	1 1/2	2	2 1/2	3	4
A*	150	184	184	184	222	254	276	298	352
	300	190	194	197	235	267	292	318	368
B		60	60	60	75	75	112	112	112
C		278	278	278	441	441	511	511	511
D		NPT 1/8				NPT 1/4			
øE		115	115	115	208	208	220	220	220

* Overall length tolerances in acc. with ANSI/ISA-75.08.01-2016

Weights

Class	NPS	1/2	3/4	1	1 1/2	2	2 1/2	3	4
150	lbs	21	22	23	77	84	146.5	151	165
	kg	9.5	10	10.5	35	38	66.5	68.5	75
300	lbs	22	24	26.5	82.5	86	151	160	183
	kg	10	11	12	37.5	39	68.5	72.5	83

Customs Tariff Number

84814010

Please specify on order:

- » Nominal diameter
- » C_{vs}/K_{vs} value
- » Body material
- » Flange Class
- » Pressure range
- » Elastomeres

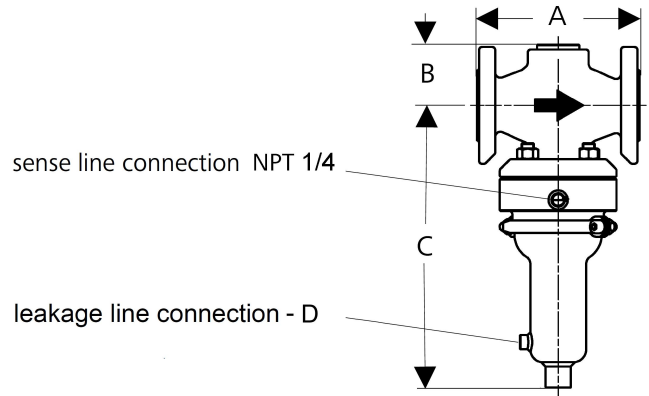
eg.: UV 4.5 ASME, NPS 2, Class 300, C_{vs} 34 US gal/min, 30 - 75 psi, A216-WCB, EPDM

Special designs on request.

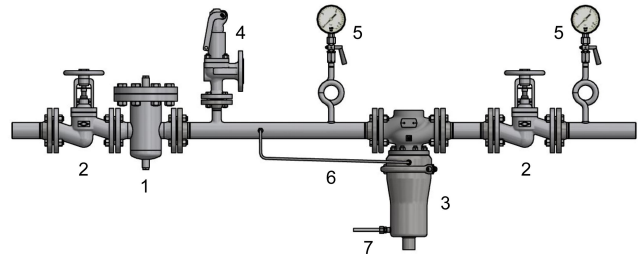
The pressure has always been indicated as overpressure.

Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

Dimensional Drawing



Recommended Installation



- 1 Strainer*
- 2 Shut-off Valves
- 3 Back Pressure Regulator *
- 4 Safety Valve
- 5 Manometer
- 6 Sense Line
- 7 Leakage Line

Sense line connection 10 - 20 x nominal diameter before the valve

*use MANKENBERG-products

Pressure control valves

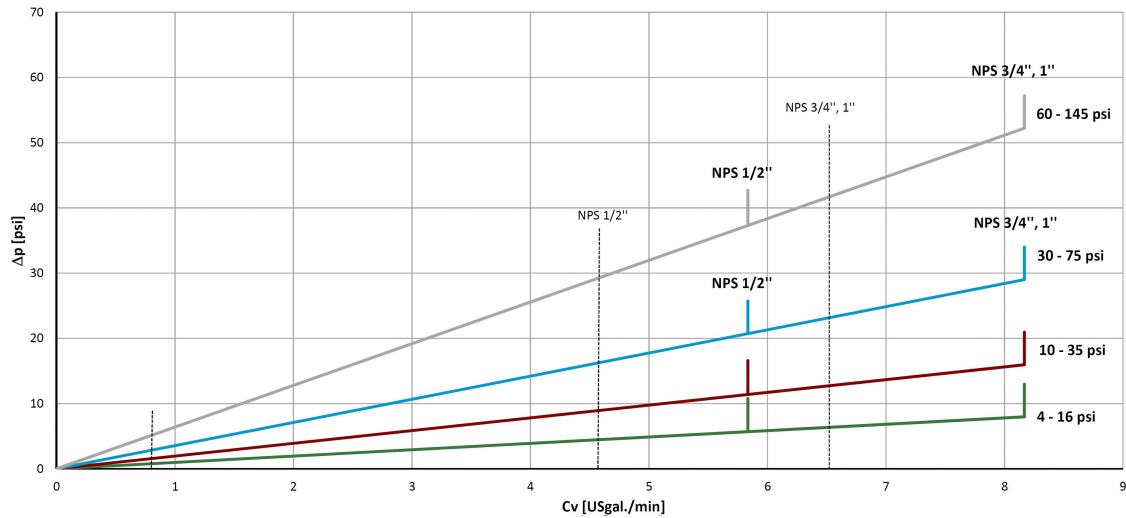
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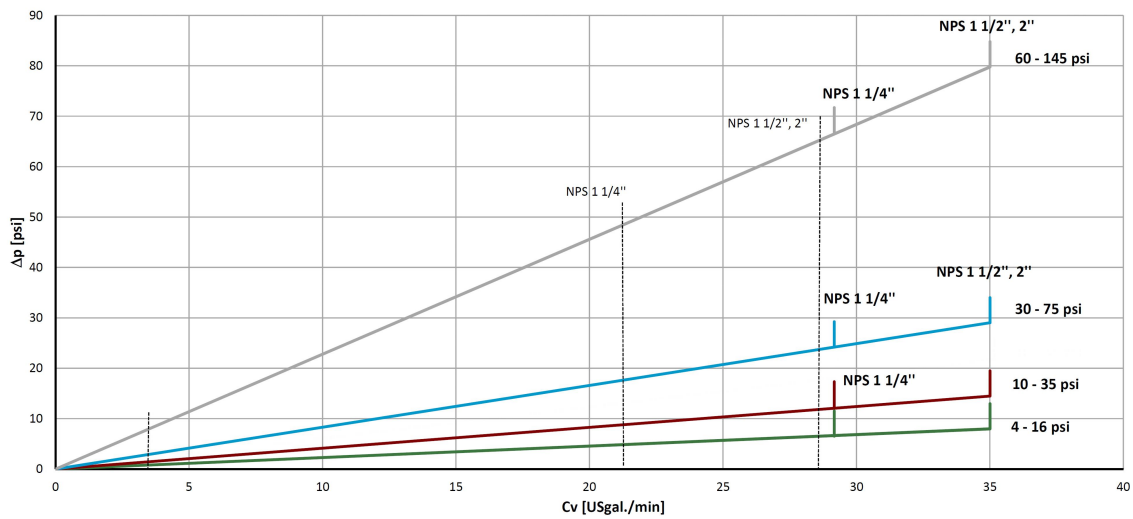


Pressure Rise (starting from set value)

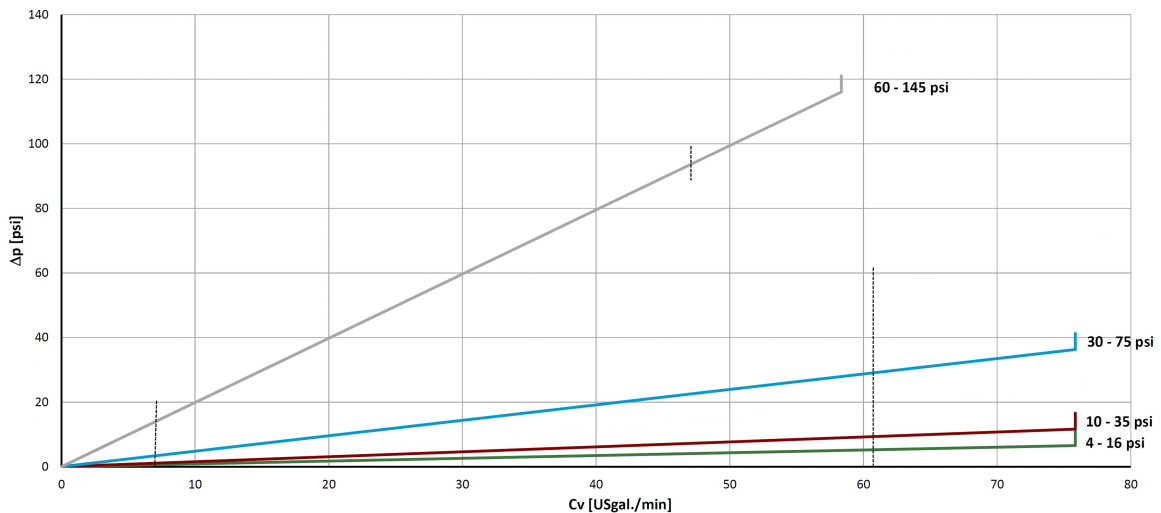
NPS 1/2 - 1



NPS 1 1/4 - 2



NPS 2 1/2 - 4



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