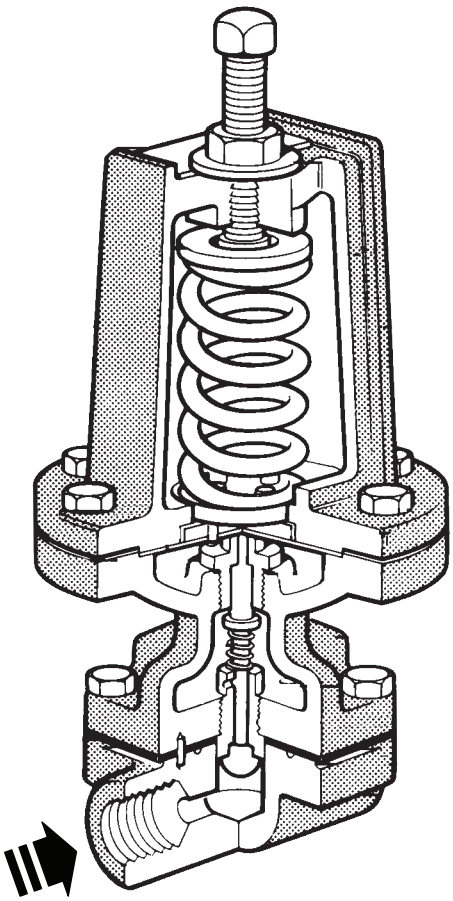
Direct Operated Pressure Regulator 25MP

Description

The 25MP is a direct acting steam pressure reducing valve. Downstream pressure is fed back through an external sensing line.

Model	25MP
Sizes	½" (DN15)
Connections	NPT
Construction	Cast Iron



Typical applications

Small steam pressure reducing applications where an 80% to 90% accuracy of regulation is acceptable.

Limiting operating conditions

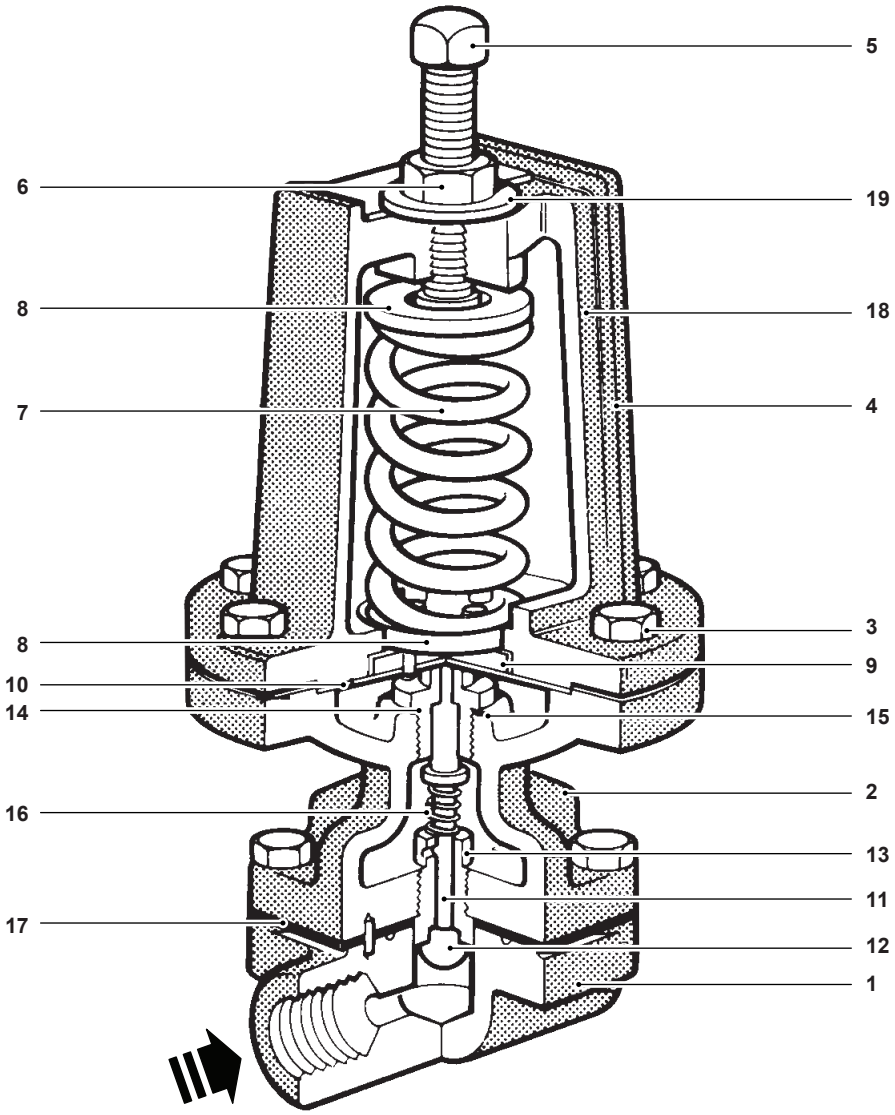
Maximum operating pressure (PMO)	250 psi g (17 bar g)
Maximum operating temperature	450 ˚F (232 ˚C)

Downstream pressure ranges

For the following downstream pressures, three color-coded pilot valve springs are available:

Yellow:	**Blue:**	**Red:**
3 to 30 psi (0.2 to 2.1 bar)	20 to 100 psi (1.4 to 6.9 bar)	80 to 250 psi (5.5 to 17.2 bar)

Materials

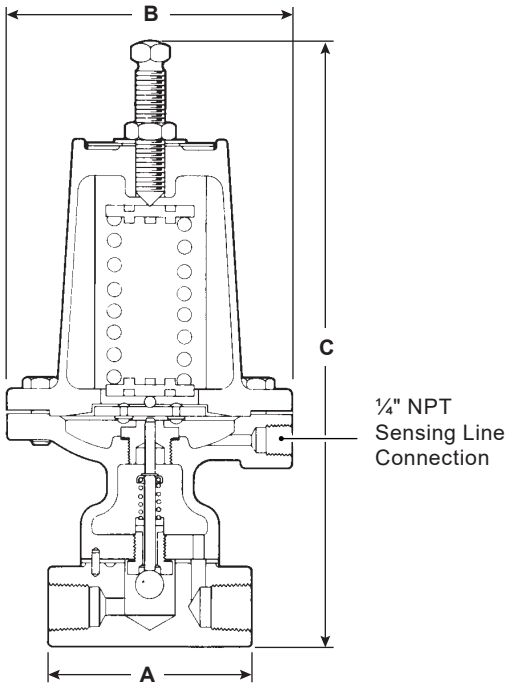


No.	Part	Material	
1	Body	Cast iron	ASTM A 126 CL B
2	Lower diaphragm housing	Cast iron	ASTM A 126 CL B
3	Diaphragm bolts	Steel	ASTM A449
4	Upper case diaphragm	Cast iron	ASTM A 126 CL B
5	Adjustment screw	Stainless steel	AISI 300 series
6	Jam nut	Brass	ASTM B16
7	Adjustment spring	Carbon steel	AISI 1060
8	Spring plate	Steel	ASTM A 569
9	Diaphragm plate	Brass	ASTM 36(260)

No.	Part	Material	
10	Diaphragm	Phosphor bronze	ASTM B 103 Alloy A
11	Stem	Stainless steel	AISI 303
12	Valve head	Stainless steel	AISI 440A
13	Valve seat	Stainless steel	400 Series STN Steel
14	Stem guide	Stainless steel	AISI 303
15	Stem guide gasket	Stainless steel	AISI 302
16	Pilot valve spring	Stainless steel	AISI 302
17	Pilot valve assembly gasket	Graphite	AISI 302
18	Cover plate	Stainless steel	AISI 300 Series
19	Retaining ring	Brass	ASTM B 36

Dimensions/weights (approximate) in inches (mm) and lbs (kg)

Size	A	B	C	Weight
½" (DN15)	3.5 (89)	4.9 (124)	9.75 (248)	9.75 lb (4.42 kg)



Capacity – Pounds of saturated steam per hour at 80% accuracy of regulation

Inlet Steam Pressure	Reduced Steam Pressure															
	psi g	2	5	10	15	20	30	40	50	60	75	100	125	150	175	200
	bar	.14	.34	.69	1.03	1.38	2.07	2.76	3.45	4.14	5.17	6.89	8.62	10.3	12.1	13.8
15	1.03	8 (3.6)	10 (4.5)	15 (6.8)												
30	2.07	12 (5.4)	18 (8.1)	27 (12.2)	31 (14.1)	33 (15.0)										
50	3.45	15 (6.8)	20 (9.1)	30 (13.6)	37 (16.8)	46 (20.9)	50 (22.7)	57 (25.9)								
75	5.17	17 (7.7)	23 (10.4)	48 (21.8)	59 (26.8)	73 (33.1)	74 (33.6)	78 (35.4)	73 (33.1)	72 (32.9)						
100	6.89	19 (8.6)	39 (17.7)	56 (25.4)	70 (31.8)	85 (38.6)	93 (42.2)	110 (49.9)	92 (41.8)	98 (44.5)	94 (42.7)					
125	8.62			68 (30.9)	85 (38.6)	102 (46.3)	118 (53.6)	122 (55.4)	116 (52.7)	125 (56.8)	128 (58.1)	119 (54.0)				
150	10.3			85 (38.6)	105 (47.7)	124 (56.3)	139 (63.1)	139 (63.1)	139 (63.1)	142 (64.5)	145 (65.8)	143 (64.9)	139 (63.1)			
175	12.1			97 (44.0)	123 (55.9)	140 (63.6)	159 (72.1)	163 (74.0)	150 (68.1)	159 (72.1)	162 (73.5)	164 (74.4)	162 (73.5)	157 (71.2)		
200	13.8			114 (51.8)	137 (62.2)	160 (72.6)	182 (82.6)	188 (85.4)	173 (78.5)	187 (84.9)	191 (86.7)	194 (88.1)	197 (89.4)	190 (86.3)	167 (75.8)	
250	17.2			137 (62.2)	164 (74.5)	192 (87.2)	218 (99.0)	226 (102.6)	224 (101.7)	228 (103.5)	230 (104.4)	233 (105.8)	232 (105.3)	234 (106.2)	222 (100.8)	210 (95.3)
300	20.6				185 (84.0)	210 (95.3)	245 (111.2)	270 (122.6)	260 (118.0)	265 (120.3)	272 (123.5)	275 (124.9)	216 (98.1)	280 (127.1)	280 (127.1)	275 (124.9)

Capacity and accuracy of regulation

Capacity of the type MP regulator is based upon the accuracy of regulation of the reduced pressure, and chart values are given for an accuracy of regulation of 80%. This means that, for example, at a reduction of 100 psi to 20 psi (6.89 bar to 1.38 bar), the capacity will be 85 lbs/hr (39 kg) when the reduced pressure drops to 80% of the 20 psi (1.38 bar) initial setting or 16 psi (1.10 bar).

The following multipliers can be used to determine the capacity for other percent of accuracy of regulation values.

Accuracy of Regulation	Capacity Chart Multiplier
75%	1.25
80%	1.0
85%	0.75
90%	0.5

Sample specification

The pressure regulator shall be direct-acting with an external pressure sensing line. The valve trim shall be hardened stainless steel, and the body shall be cast iron.

Installation

The regulator should be installed in a horizontal line with suitable bypass and isolating valves. A steam trap should be installed upstream to prevent condensate from reaching the regulator. The trap and regulator should both be protected with a strainer. The pressure sensing line should be located in a straight section of the downstream piping at least 10 pipe diameters from the nearest fitting, or in the steam space.

Maintenance

Complete installation and maintenance instructions are given in IM-3-104-US, a copy of which is supplied with each valve.

Spare parts

Cover Plate w/ Retaining Ring	**A4, B4**
Pilot Screws w/ Gasket	**B, W**
Adjustment Screw w/ Nut, and Upper and Lower Spring Support Disc	**G4, H4,J4**
Adjustment Spring Specify controlled pressure and spring color Yellow 3 to 30 psi Blue 20 to 100 psi Red 80 to 250 psi	**K4**
Diaphragm Assembly	**L4**
Stem Guide w/ Gasket	**M4, N4**
Head and Seat Assembly w/ Gasket	**S4, T4**
Square Gasket for all Pilots (set of 3)	**W**