

# spirax sarco®

## Pilot Operated Pressure Regulator 1/2" to 4" 25P

The 25P is a self-actuated pilot-operated pressure regulator. Downstream pressure is fed back through an external sensing line to the pressure pilot, which adjusts the opening of the main valve so as to maintain the set pressure. The main valve can close tight for dead-end shut off when steam is not required.

Model ⇄	25P			
Sizes	1/2" to 2"	2-1/2", 3", 4"	1/2" to 2"	2-1/2", 3", 4"
Connections	NPT	ANSI 125 flgd.	NPT	ANSI 300 flgd.
Construction	Cast Iron		Cast Steel	
Options		ANSI 250 flgd.		ANSI 150 flgd.

### Typical Applications

The 25P is a reliable, accurate regulator to reduce steam from a high supply pressure to the most efficient operating pressure of the equipment, and to protect the equipment from dangerously high pressures.

### Capacities

For selection and sizing data, see TIS 3.030.

### Limiting Operating Conditions

**Max. Operating Pressure(PMO)** NPT: 250 psig (17 barg) @ 450°F (232°C)  
ANSI 125: 125 psig (8 barg) @ 450°F (232°C)  
ANSI 250: 250 psig (17 barg) @ 450°F (232°C)  
ANSI 150: 185 psig (12 barg) @ 450°F (232°C)  
ANSI 300: 300 psig (20 barg) @ 450°F (232°C)

**Max. Operating Temperature** 450°F (232°C)

### Downstream Pressure Ranges

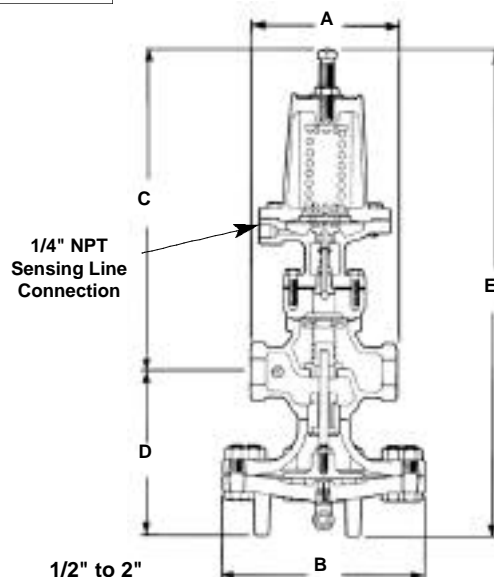
For the following downstream pressures, three color-coded pilot valve springs are available:

**Yellow:** 3 to 30 psi **Blue:** 20 to 100 psi **Red:** 80 to 290 psi

### Pressure Shell Design Conditions

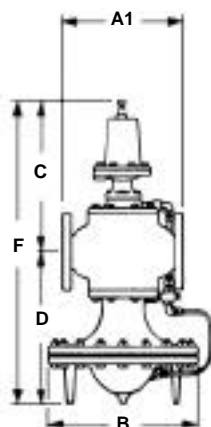
**PMA** Cast Iron: 250 psig/0-450°F 17 barg/0-232°C  
Max. allowable pressure Cast Steel: 300 psig/0-600°F 21 barg/0-316°C

**TMA** Cast Iron: 450°F/0-250 psig 232°C/0-17 barg  
Max. allowable temperature Cast Steel: 600°F/0-300 psig 316°C/0-21 barg



### Sample Specification

The pressure regulator shall be of the pilot-actuated diaphragm operated type. The main valve shall be single-seated with hardened stainless steel trim; the regulator body shall be cast iron (cast steel). The pilot shall be bolted directly to the regulator body. The regulator shall be capable of dead-end shut-off.



2-1/2" to 4"

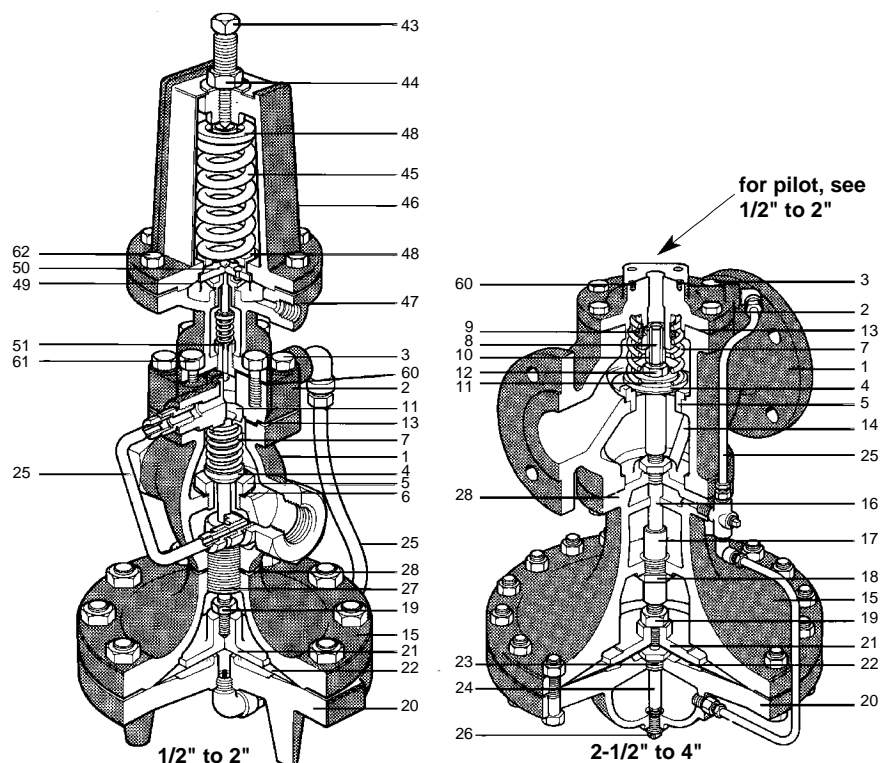
Dimensions (nominal) in inches and millimeters									
	Ansi 125		Ansi 250 Ansi 300					Weight	
Size	A	A1	A1	B	C	D	E	Cast Iron	Cast Steel
1/2", 3/4"	5.5 140	— —	— —	7.6 194	12.2 310	6.2 157	18.4 467	32 lb 14.5 kg	35 lb 15.9 kg
1"	6.0 152	— —	— —	8.6 219	12.1 308	6.75 171	18.9 479	39 lb 17.7 kg	43 lb 19.5 kg
1-1/4", 1-1/2"	7.25 184	— —	— —	8.6 219	12.7 322	7.1 179	19.75 502	44 lb 20 kg	48 lb 21.8 kg
2"	8.5 216	— —	— —	10.6 270	13.3 338	8.2 208	21.5 546	69 lb 31.3 kg	75 lb 34 kg
2-1/2"	— —	10.9 276	11.5 292	13.6 346	14.0 356	13.9 354	27.9 710	157 lb 71.2 kg	171 lb 77.6 kg
3"	— —	11.75 298	12.5 318	13.6 346	13.9 354	14.4 367	28.4 721	188 lb 85.3 kg	205 lb 93 kg
4"	— —	13.9 352	14.5 368	15.6 397	15.25 387	16.1 410	31.4 797	284 lb 129 kg	309 lb 140 kg

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.

In the interests of development and improvement of the product, we reserve the right to change the specification.

TIS 3.015 US 09.02

# Pilot Operated Pressure Regulator 1/2" to 4" 25P



## Construction Materials

No.	Part	Material
1	Valve Body	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
2	Cover	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
3	Cover Bolts	Steel ASTM A449
4	Main Valve Head	Stainless Steel 1-1/2", 25 & 2" 25S all other sizes AISI 420 AISI 420F
5	Main Valve Seat	Stainless Steel 1/2"-2" 2-1/2" - 4" AISI 420F AISI 303
6	Main Valve Seat Gasket	Copper ASTM B272
7	Valve Return Spring	Stainless Steel AISI 631
8	Valve Stem	Stainless Steel AISI 303
9	Strainer Screen	Stainless Steel AISI 304
10	Valve Stem Sleeve	Stainless Steel AISI 420F
11	Spring Guide	Cast Iron 1/2"-2" CRS 2-1/2" - 4" ASTMA 126 CL B AISI 1117
12	Nut	Steel ASTMA307
13	Cover Gasket	Graphite
14	Pressure Equalizer Pipe	Stainless Steel AISI 304
15	Upper Diaphragm Case	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
16	Stem Bushing (2-1/2" - 4" Cast Steel only)	Stainless Steel AISI 303
17	Diaphragm Plate Stem	Stainless Steel AISI 304
18	Diaphragm Stem Guide	Stainless Steel AISI 303
19	Nut	Brass 1/2" - 2" Steel 2-1/2" - 4" ASTMB16 ASTMA307
20	Lower Diaphragm Case	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
21	Diaphragm Plate	Brass 1/2" - 2" C.I. 2-1/2" - 4" ASTMB124 (377) ASTM A126 CLB
22	Main Diaphragm (2 ply)	Phosphor Bronze ASTMB103 (511)
23	Bushing	CRS AISI 1117
24	Tube & Orifice	Stainless Steel AISI 304
25	Tubing Assembly	Copper ASTMB280 (122) Brass ASTM B16
26	Plug (Cast Iron) (Cast Steel)	Brass ASTMB16 Steel ASTMA105

No.	Part	Material
27	Connector Stud	Stainless Steel AISI 303
28	Body Gasket	1/2" - 2" Copper Clad 2-1/2" - 4" Graphite Non-Asbestos Fill
43	Adjustment Screw	Stainless Steel AISI 303
44	Jam Nut	Brass ASTMB16
45	Pilot Valve Spring	Steel AISI 1060
46	Upper Diaphragm Case	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
47	Lower Diaphragm Case	Cast Iron ASTMA 126 CL B Cast Steel ASTMA216 Gr WCB
48	Spring Plate	Steel ASTMA569
49	Diaphragm	Stainless Steel ASTMA240
50	Diaphragm PLate	Brass ASTMB36
51	Pilot Head Spring	Stainless Steel AISI Type 302
60	Pilot Gasket	Graphite
61	Pilot Mounting Screws	Steel ASTM A449
62	Diaphragm Case Screws	Steel 5/16" - 18 x 1" ASTMA449

## 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. Complete installation instructions are given in IMI3.000.

## Maintenance

Complete installation and maintenance instructions are given in IMI 3.000, a copy of which is supplied with each regulator. Available spare parts are shown on TIS 3.027 & 3.0271.

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