

Mark 52 Series

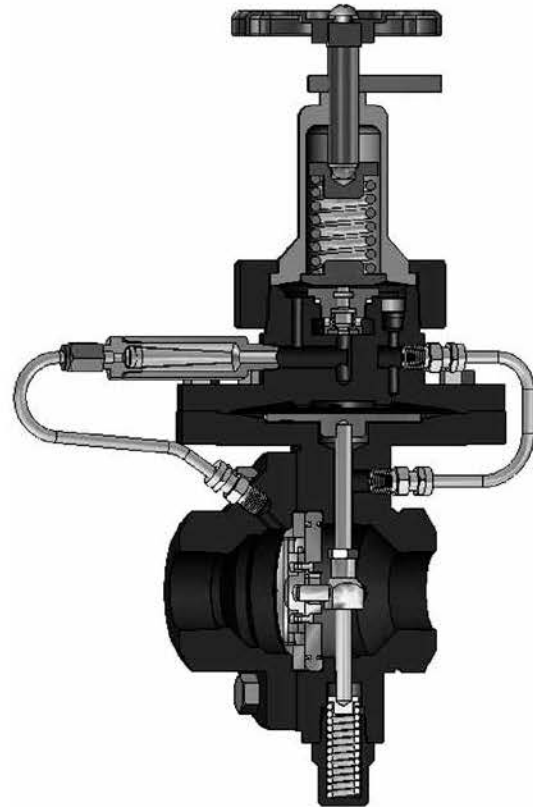
Back Pressure Internally Piloted Pressure Regulators

The Mark 52 internally piloted back pressure regulator is a specialty valve designed for critical application regulation in locations where space is limited. Small and lightweight in design, the MK52 valve provides the accuracy of a piloted valve with the size, weight and appearance of a single, self-operated valve.

As the Mark 52 is self operating, it is suitable for use in locations where accurate regulation is needed, but air or electric supply may not be readily available. With the compact design, limited space applications is no problem, making it ideal for use on skids, or as an upgraded replacement for smaller regulators. The integral pilot design also means lighter weight, placing less stress on support piping.

The MK52 will accurately control pressure with little deviation from the set point, therefore the MK52 should be considered before other more expensive, sophisticated control instrumentation.

The compact design and simple construction allows fast, simple installation and easy servicing. The high turndown ratios go up to 100:0.



OPERATION

The operation of the Mark 52 is very similar to that of an externally mounted piloted regulator. The main valve and the pilot are normally closed. The inlet pressure passes through the inlet pilot tubing beneath the pilot diaphragm. When the set point is reached, the force of the adjusting spring is overcome, and the pilot valve opens. This allows the inlet pressure to enter the chamber above the main diaphragm and opens the main valve. When the pressure drops below the set point, the adjusting spring overcomes the force of the pressure beneath the pilot diaphragm and the pilot and main valve closes.

FEATURES

- Internal pilot — provides higher accurate performance within a compact, lightweight assembly
- Sliding Gate Seats — all of Jordan Valve's differential regulators feature advanced sliding gate seat technology.
 - Straight-through flow for reduced turbulence and quiet operation
 - Short stroke for fast response and accurate regulation.
 - Easily interchangeable Cv's
 - Tight Shutoff



Jordan Valve, a division of Richards Industries
3170 Wasson Road • Cincinnati, OH 45209
513.533.5600 • 800.543.7311 • 513.871.0105 (f)
info@richardsind.com • www.jordanvalve.com

SPECIFICATIONS

Sizes: 1/2" through 2" (DN15 to DN50)

Seat Interchangeability

- 1/2" with 3/4" (DN15 with DN20)
- 1" with 1-1/4" (DN25 with DN32)

End Connections

- Threaded — NPT, BSPT or BSPP
- Flanged

Body Materials

- Ductile Iron
- Bronze

Trim Materials

- Stainless Steel
- 316SST

Seat Materials

- Jorcote on SST – Standard
- Other materials available – Consult factory

Diaphragm Materials: Stainless Steel

Spring Housing Materials: Steel

Service: Steam, oil, gas, air, chemicals (not recommended for water service)

Shutoff: ANSI Class IV

Body Rating: Ductile Iron up to 700 psi (48 bar) and 400°F (204°C); Bronze up to 500 psi (34 bar) and 400°F (204°C) depending upon specific construction. -20°F (-29°C) temperature limit on all materials. For other temperatures, consult factory.

Reduced Pressure Setpoint Ranges: 15 - 50 psig (1,03-3,45 bar); 15-200 (1,03 - 13,79).

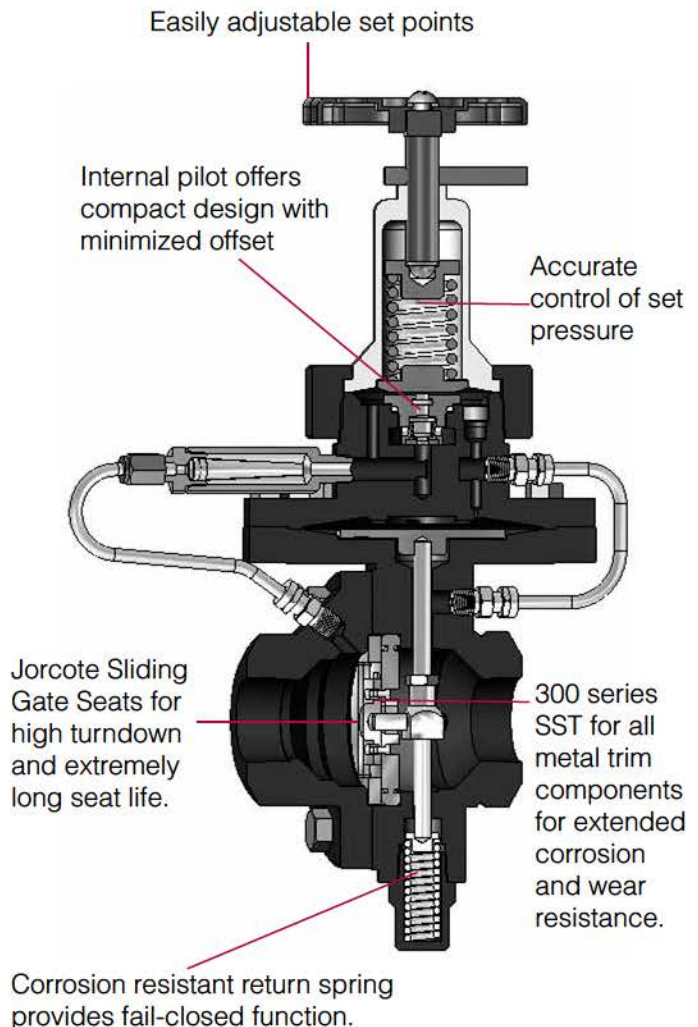
Note: a minimum pressure differential from valve inlet to outlet, as outlined below, is required in order for the valve to open properly:

- 1/2" and 3/4" (DN15 & DN20): 15 psig (1,03 bar) minimum pressure differential
- 1" and 1-1/4" (DN25 & DN32): 20 psig (1,38 bar) minimum pressure differential
- 1-1/2" and 2" (DN40 & DN50): 25 psig (1,72 bar) minimum pressure differential

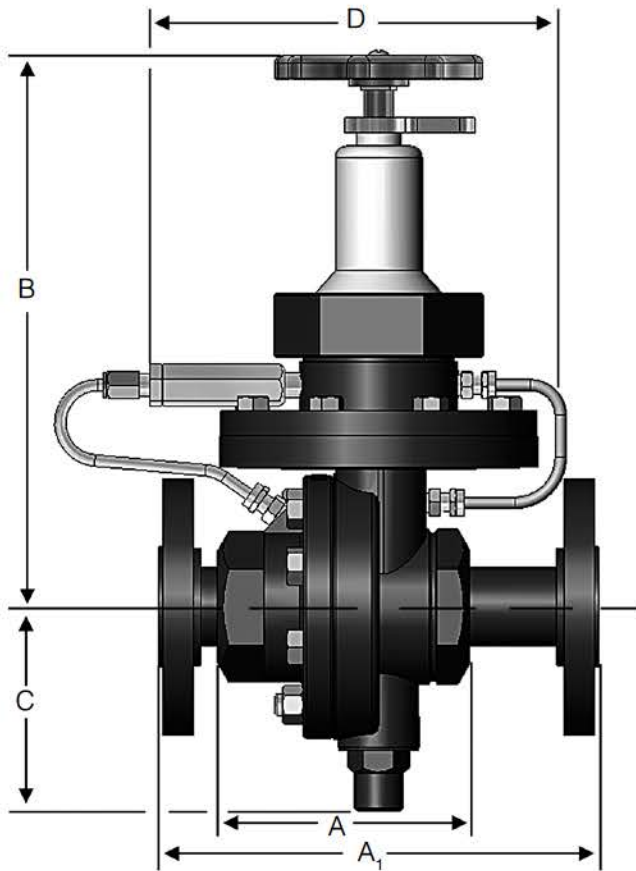
Cv (Kv) Values & Maximum Differential Pressures

| Cv (Kv) | Valve Size | Seat Material | Max. Δ P, psi (bar) |
|------------|-----------------------------|---------------|---------------------|
| 2.5 (2,15) | 1/4" to 3/4" (DN8 to 20) | SST | 125 (8,6) |
| 4.4 (3,78) | | Jorcote | 250 (17,2) |
| 6.4 (5,50) | 1" & 1-1/4" (DN25 & 32) | SST | 125 (8,6) |
| 9.5 (8,17) | | Jorcote | 250 (17,2) |
| 15 (12,9) | 1-1/2" (DN40) | SST | 75 (5,2) |
| | | Jorcote | 250 (17,2) |
| 25 (21,5) | 2" (DN50) | SST | 75 (5,2) |
| 30 (25,9) | | Jorcote | 250 (17,2) |

Low Flow Trim: reduced Cv's (Kv's) can be placed in any size valve as long as it is a smaller value than the standard Cv (Kv), with the lowest permissible value being 2.5 (2,15).



DIMENSIONS



• **Flanged Ends**

| Size | ANSI Flange | Dimensions (Inches) | | | | Weight (lbs.) |
|--------|-------------|---------------------|-------|------|------|---------------|
| | | A | B | C | D | |
| 1/2" | 150# | 7.25 | 10.37 | 3.00 | 5.87 | 19 |
| | 300# | 7.50 | 10.37 | 3.00 | 5.87 | 21 |
| 3/4" | 150# | 7.25 | 10.37 | 3.00 | 5.87 | 19 |
| | 300# | 7.62 | 10.37 | 3.00 | 5.87 | 23 |
| 1" | 150# | 7.25 | 10.62 | 3.37 | 5.87 | 26 |
| | 300# | 7.75 | 10.62 | 3.37 | 5.87 | 28 |
| 1-1/4" | 150# | 7.88 | 10.62 | 3.37 | 5.87 | 26 |
| | 300# | 8.37 | 10.62 | 3.37 | 5.87 | 28 |
| 1-1/2" | 150# | 8.75 | 11.00 | 3.50 | 5.87 | 31 |
| | 300# | 9.25 | 11.00 | 3.50 | 5.87 | 32 |
| 2" | 150# | 10.00 | 11.12 | 3.62 | 5.87 | 35 |
| | 300# | 10.50 | 11.12 | 3.62 | 5.87 | 37 |

• **Flanged Ends, DIN**

| Size (DN) | Flange (PN) | Dimensions (mm) | | | | Weight (kg) |
|-----------|-------------|-----------------|-----|----|-----|-------------|
| | | A | B | C | D | |
| 15 | 10/16 | 184 | 263 | 76 | 149 | 8,6 |
| | 25/40 | 190 | 263 | 76 | 149 | 9,5 |
| 20 | 10/16 | 184 | 263 | 76 | 149 | 8,6 |
| | 25/40 | 194 | 263 | 76 | 149 | 10,4 |
| 25 | 10/16 | 184 | 270 | 86 | 149 | 11,8 |
| | 25/40 | 197 | 270 | 86 | 149 | 12,7 |
| 32 | 10/16 | 200 | 270 | 86 | 149 | 11,8 |
| | 25/40 | 213 | 270 | 86 | 149 | 12,7 |
| 40 | 10/16 | 222 | 279 | 89 | 149 | 14,1 |
| | 25/40 | 235 | 279 | 89 | 149 | 14,5 |
| 50 | 10/16 | 254 | 282 | 92 | 149 | 15,8 |
| | 25/40 | 267 | 282 | 92 | 149 | 16,8 |

• **Threaded Ends**

| Size | Dimensions (Inches) | | | | Weight (lbs.) |
|-------------|---------------------|-------|------|------|---------------|
| | A | B | C | D | |
| 1/2" & 3/4" | 3.75 | 10.37 | 3.00 | 5.87 | 15 |
| 1" | 4.12 | 10.62 | 3.37 | 5.87 | 20 |
| 1-1/4" | 4.12 | 10.62 | 3.37 | 5.87 | 20 |
| 1-1/2" | 4.50 | 11.00 | 3.50 | 5.87 | 22 |
| 2" | 4.50 | 11.12 | 3.62 | 5.87 | 23 |

• **Threaded Ends, DIN**

| Size (DN) | Dimensions (mm) | | | | Weight (kg) |
|-----------|-----------------|-----|----|-----|-------------|
| | A | B | C | D | |
| 15 & 20 | 95 | 263 | 76 | 149 | 6,8 |
| 25 | 105 | 270 | 86 | 149 | 9,1 |
| 32 | 105 | 270 | 86 | 149 | 9,1 |
| 40 | 114 | 279 | 89 | 149 | 10,0 |
| 50 | 114 | 282 | 92 | 149 | 10,4 |

ORDERING SCHEMATIC

To specify a MK52 Back Pressure Internally Piloted Pressure Regulator, build a model number by making a selection from each category in the Product Designator Coding System below.

| | | | | | | | | | | | | | |
|----------|---|----------|---|----------|---|----------|----------|----------|----------|----------|----------|-----------|-----------|
| 1 | — | 2 | — | 3 | / | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | | | | | | | | | | | |

| 1 | Model | |
|----------|--------------|----------|
| | 52 | Standard |

| 2 | Size | |
|----------|-------------|---------------|
| | 050 | 1/2" (DN15) |
| | 075 | 3/4" (DN20) |
| | 100 | 1" (DN25) |
| | 125 | 1-1/4" (DN32) |
| | 150 | 1-1/2" (DN40) |
| | 200 | 2" (DN50) |

| 3 | Body Material | |
|----------|----------------------|--------------|
| | DI | Ductile Iron |
| | BR | Bronze |

| 4 | End Connections | |
|----------|------------------------|--------------|
| | PT | NPT |
| | BT | BSPT |
| | BP | BSPP |
| | F5 | 150#FE |
| | F3 | 300#FE |
| | ZZ | Non-Standard |

| 5 | Trim | |
|----------|-------------|-------------------|
| | S3 | 303SS |
| | S6 | 316SS |
| | L1 | 303SS/LO DP 5-10 |
| | L2 | 316SS/LO DP 5-10 |
| | L3 | 303SS/LO DP 10-15 |
| | L4 | 316SS/LO DP 10-15 |
| | L5 | 303SS/LO DP 15-20 |
| | L6 | 316SS/LO DP 15-20 |
| | ZZ | Non-Standard |

| 6 | Seat Material | |
|----------|----------------------|---------------|
| | A | 303SST |
| | B | 316SST |
| | V | 303SS/Jorcote |
| | W | 316SS/Jorcote |

| 7 | Cv | Kv |
|----------|-----------|-----------|
| | 5 | 2.5 |
| | 6 | 4.4 |
| | 7 | 6.4 |
| | 8 | 9.5 |
| | 9 | 15 |
| | A | 25 |
| | B | 30 |

| 8 | Range | |
|----------|--------------|--------------|
| | 44 | 15-50 |
| | 51 | 15-200 |
| | ZZ | Non-Standard |

| 9 | Diaphragm | |
|----------|------------------|--------------|
| | S6 | 316SST |
| | ZZ | Non-Standard |

| 10 | Actuator | |
|-----------|-----------------|---------------------|
| | MD | For Metal Diaphragm |
| | ZZ | Non-Standard |

| 11 | Accessories | |
|-----------|--------------------|---------------|
| | 00 | None |
| | S6 | 316SS Bolting |
| | B7 | Hi Temp Bolt |
| | ZZ | Non-Standard |

