

# P99 Pressure Reducing Regulator

## Applications

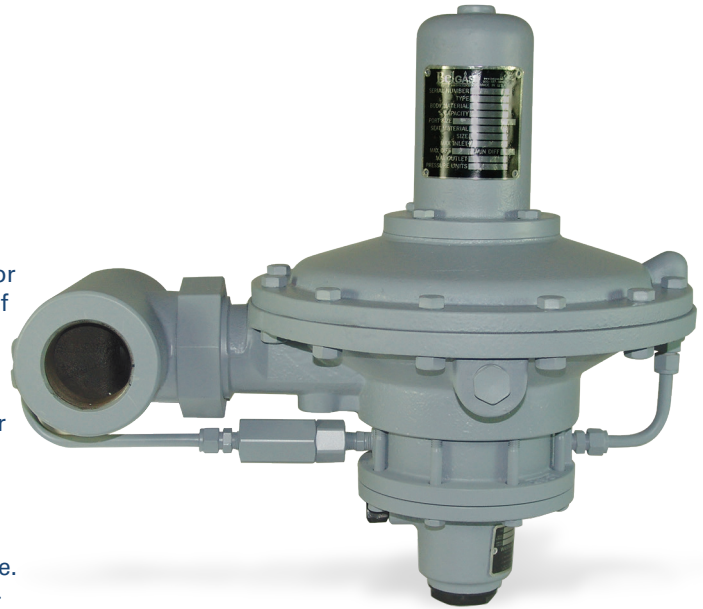
- City / District gate operation
- Commercial buildings
- Boilers, furnace, oven
- Plant air service

## Features

- 5 Pilot choices for low to extra high pressure
- Up to 1,000 psi inlet when fitted with a P39 reducing regulator
- Loading pressure bleeds downstream – no atmospheric relief

## Operations

- Double diaphragm pilot providing quick response and high accuracy requires less droop than a direct operated regulator to obtain the same pressure difference.
- Pilots assemblies can be exchanged in the field from high to low pressure.
- Seat selections include an elastomer seat disk against a sharp edge orifice or an elastomer O-ring against a flat orifice.
- The O-ring against a flat orifice should be used in all applications with 250 psi and above inlet pressure and when heavy main springs are used.



## P99 Specifications

| P99 Specifications |                     |                                   |
|--------------------|---------------------|-----------------------------------|
| Pilot Versions     | L                   | 2" to 20 PSIG                     |
|                    | LD                  | Narrower proportional band than L |
|                    | LE                  | Broader proportional band than L  |
|                    | H                   | 10 to 65 PSIG                     |
|                    | HP                  | 35 to 100 PSIG                    |
| Max Pilot Pressure | LD                  | 160 PSIG                          |
|                    | L, LE, H            | 400 PSIG                          |
|                    | HP                  | 600 PSIG                          |
|                    | Temperature Ratings |                                   |
| Nitrile, Neoprene  | -20° to 180°F       | -29° to 82°C                      |
| Fluorocarbon       | 0 to 300°F          | -18° to 149° C                    |
| Weight Approximate |                     |                                   |
|                    | 115 lbs.            | 52.2 kg                           |

## P99 Materials of Construction

| P99 Main Regulator     |                          |
|------------------------|--------------------------|
| Body                   | Ductile Iron / WCB Steel |
| Spring Case            | Ductile Iron             |
| Upper and Lower Casing | Ductile Iron             |
| Main Spring            | Steel                    |
| Diaphragm              | Nitrile                  |
| Diaphragm Plate        | Steel                    |
| P99 Pilot Regulator    |                          |
| Body                   | Ductile Iron             |
| Spring Case            | Ductile Iron             |
| Casings                | Ductile Iron             |
| Diaphragms             | Nitrile                  |
| Orifices               | Stainless Steel / Brass  |
| Springs                | Steel                    |
| Bleed Valve            | Stainless Steel          |
| Tubing                 | Copper / Stainless Steel |
| Fittings               | Brass / Stainless Steel  |

## P99 Maximum Inlet, Pressure Drop and Differential Pressures

| Max allowable inlet pressure / drop PSIG / BAR | Min differential for full stroke PSIG / BAR | Recommended disk material         | Max Orifice Size | Notes   |
|--|---|-----------------------------------|------------------|---|
| 25 / 1.7                                       | 0.75 / 0.05                                 | Nitrile or Fluorocarbon Disk      | 1-1/8"           | Can use 1/2" through 1-1/8"                       |
| 50 / 3.4                                       | 1.5 / 0.10                                  | Neoprene or Fluorocarbon Disc     | 1-1/8"           | Can use 1/2" through 1-1/8"                       |
| 150 / 10.3                                     | 3 / 0.21                                    | Nitrile, Neoprene or Fluorocarbon | 1-1/8"           | Can use 1/2" through 1-1/8"                       |
| 250 / 17.2                                     | 3 / 0.21                                    | Neoprene or Fluorocarbon O-ring   | 7/8"             | 7/8" and 1 1/8" only sizes for O-ring seat        |
| 300 / 20.7                                     | 10 / 0.69                                   | Nylon Disk, Nitrile O-ring        | 1-1/8"           | 1-1/8" only available size for 300 inlet pressure |
| 400 / 27.6                                     | 10 / 0.69                                   | Nylon Disk                        | 7/8"             | 7/8" and 1-1/8" only sizes for O-ring seat        |
| 1000 / 69.0                                    | 10 / 0.69                                   | Nylon Disk                        | 1/2"             | 1/2" only available orifice for 1000 inlet        |

Note: When choosing an O-ring seat and flat orifice, only the 7/8" and 1-1/8" orifice can be used



## P99 Outlet Pressure Ranges

| Pilot Type | Maximum Pilot Supply Pressure |      | Outlet (Control) Pressure Ranges |                             | Pilot Control Spring |              |               |      |             |      |
|------------|-------------------------------|------|----------------------------------|-----------------------------|----------------------|--------------|---------------|------|-------------|------|
|            |                               |      |                                  |                             | Part Number          | Color Code   | Wire Diameter |      | Free Length |      |
|            | PSIG                          | BAR  | PSIG                             | BAR                         |                      |              | Inches        | mm   | Inches      | mm   |
| LD         | 160                           | 11.0 | 3 to 12 inches WC <sup>(1)</sup> | 7 to 30 mBAR <sup>(1)</sup> | 655-734-010          | Unpainted    | 0.080         | 2.03 | 3.00        | 76.2 |
| L          | 400                           | 27.6 | 0.25 to 2                        | 0.02 to 0.14                | 655-734-002          | Red          | 0.109         | 2.77 | 2.75        | 69.9 |
| LD         | 160                           | 11.0 | 1 to 5                           | 0.07 to 0.35                | 655-734-007          | Yellow       | 0.142         | 3.61 | 2.75        | 69.9 |
|            |                               |      | 2 to 10                          | 0.14 to 0.69                | 655-734-003          | Blue         | 0.172         | 4.37 | 2.88        | 73.2 |
| LE         | 400                           | 27.6 | 5 to 15                          | 0.35 to 1.0                 | 655-734-008          | Brown        | 0.187         | 4.75 | 3.03        | 77.0 |
|            |                               |      | 10 to 20                         | 0.69 to 1.4                 | 655-734-009          | Green        | 0.207         | 5.26 | 3.13        | 79.5 |
| H          | 400                           | 27.6 | 10 to 65                         | 0.69 to 4.5                 | 655-659-003          | Green stripe | 0.363         | 9.22 | 6.00        | 152  |
| HP         | 600                           | 41.4 | 35 to 100                        | 2.4 to 6.9                  | 655-734-012          | Blue         | 0.200         | 5.08 | 1.69        | 42.3 |

1. Type LD pilot only.

## P99 Approximate Proportional Bands

| Pilot Type    | Pilot Control Spring |              |               |       |             |       | Proportional Bands |                |
|---------------|----------------------|--------------|---------------|-------|-------------|-------|--------------------|----------------|
|               | Part Number          | Color Code   | Wire Diameter |       | Free Length |       | WC / PSI           | mBAR           |
|               |                      |              | Inches        | mm    | Inches      | mm    |                    |                |
| LD            | 655-734-010          | Unpainted    | 0.080         | 2.03  | 3.25        | 82.6  | 0.1 to 0.5 WC      | 0.25 to 1      |
| L             | 655-734-002          | Red          | 0.109         | 2.77  | 2.75        | 69.9  | 1 to 2 WC          | 2 to 5         |
| LD            |                      | Red          | 0.109         | 2.77  | 2.75        | 69.9  | 0.25 to 1 WC       | 0.62 to 2      |
| LE            |                      | Red          | 0.109         | 2.77  | 2.75        | 69.9  | 5 to 8 WC          | 12 to 20       |
| L, LD, and LE |                      | 655-734-007  | Yellow        | 0.142 | 3.61        | 2.75  | 69.9               | 0.1 to 0.3 PSI |
|               | 655-734-003          | Blue         | 0.172         | 4.37  | 2.88        | 73.2  |                    |                |
|               | 655-734-008          | Brown        | 0.187         | 4.75  | 2.88        | 73.2  |                    |                |
|               | 655-734-009          | Green        | 0.207         | 5.26  | 3.13        | 79.5  |                    |                |
| H             | 655-659-003          | Green Stripe | 0.363         | 9.22  | 6.00        | 152.4 | 0.1 to 0.3 PSI     | 6.9 to 21      |
| HP            | 655-734-012          | Blue         | 0.209         | 5.08  | 1.69        | 42.3  | 1 to 2 PSI         | 68.9 to 137.8  |

## P99 Orifice Sizes and Flow and Sizing Coefficients

| Trim Construction  | Orifice Size |          | FOR RELIEF SIZING<br>WIDE-OPEN C <sub>g</sub> | REGULAT-<br>ING C <sub>g</sub> | C <sub>1</sub> | K <sub>m</sub> | IEC Sizing Coefficients |                |                |
|--|--------------|----------|---|--------------------------------|----------------|----------------|-------------------------|----------------|----------------|
|  | Inches       | mm       |   |                                |                |                | X <sub>T</sub>          | F <sub>D</sub> | F <sub>L</sub> |
| Restricted capacity trim,<br>Straight bore —<br>Elastomer disk seat only | 1/2          | 3        | 200   | 155                            | 35             | 0.79           | 0.78                    | 0.50           | 0.89           |
|  | 5/8          | 16       | 300   | 216                            |                |                |                         |                |                |
|  | 3/4          | 19       | 425   | 330                            |                |                |                         |                |                |
| Full capacity trim,<br>Elastomer disk,<br>or O-ring seats                | 7/8<br>1-1/8 | 22<br>29 | 550<br>850                                    | 408<br>680                     |                |                |                         |                |                |

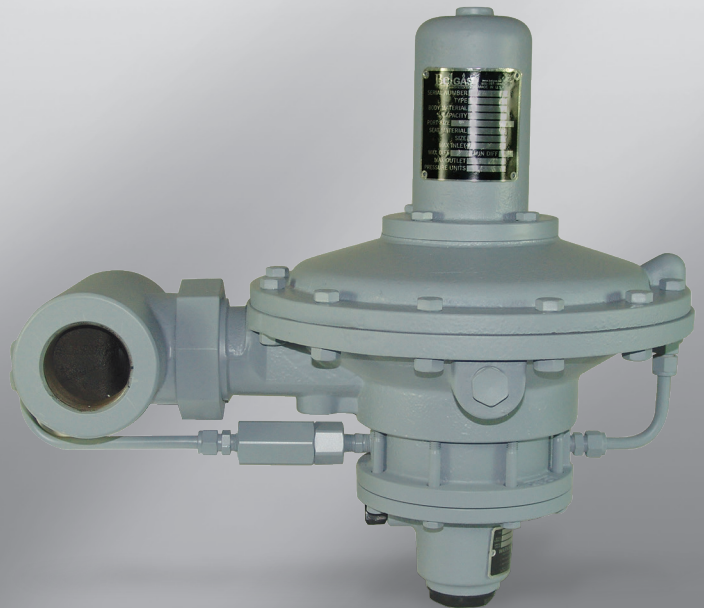


# P99 Capacities of Type 99 Regulators (Full Capacity)



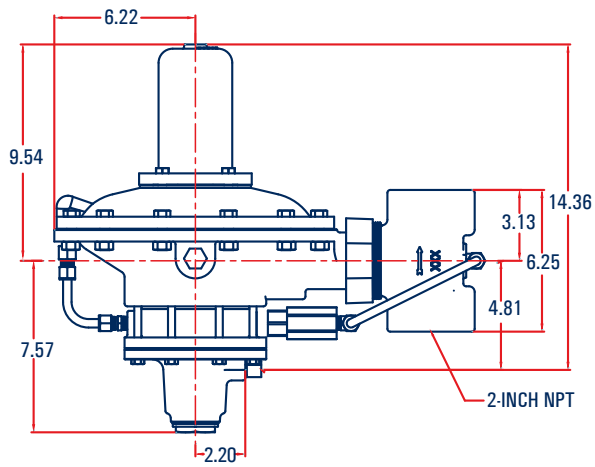
| Orifice Size |      | Inlet Pressure |      | Capacities in Thousands of SCFH / Nm <sup>3</sup> /h of 0.6 Specific Gravity Natural Gas <sup>(2)</sup> |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|--------------|------|----------------|------|---|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|-----------|--------------------|------|--------------------|--|
|              |      |                |      | Outlet Pressure, PSIG (BAR)   |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
| Inches       | mm   | PSIG           | BAR  | 15 (1.0)  |                    | 20 (1.4) |                    | 25 (1.7) |                    | 30 (2.1) |                    | 35 (2.4) |                    | 40 (2.8) |                    | 45 (3.1) |                    | 50 (3.5) |                    | 60 (4.1) |                    | 75 (5.2) |                    | 100 (6.9) |                    |      |                    |  |
|              |      |                |      | SCFH  | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH     | Nm <sup>3</sup> /h | SCFH      | Nm <sup>3</sup> /h | SCFH | Nm <sup>3</sup> /h |  |
| 7/8          | 22   | 20             | 1.4  | 10.8  | 0.3                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 25             | 1.7  | 16.2  | 0.4                | 12       | 0.3                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 30             | 2.1  | 20  | 0.5                | 17       | 0.5                | 12.5     | 0.3                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 35             | 2.4  | 24  | 0.6                | 21       | 0.6                | 18       | 0.5                | 13       | 0.3                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 40             | 2.8  | 28  | 0.8                | 26       | 0.7                | 23       | 0.6                | 19       | 0.5                | 14.4     | 0.4                |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 50             | 3.4  | 34  | 0.9                | 34       | 0.9                | 31       | 0.8                | 28       | 0.8                | 25       | 0.7                | 21       | 0.6                | 15.5     | 0.4                |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 60             | 4.1  | 42  | 1.1                | 42       | 1.1                | 42       | 1.1                | 37       | 1.0                | 35       | 0.9                | 30       | 0.8                | 27       | 0.7                | 23       | 0.6                |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 75             | 5.2  | 47  | 1.3                | 47       | 1.3                | 47       | 1.3                | 47       | 1.3                | 47       | 1.3                | 45       | 1.2                | 41       | 1.1                | 37       | 1.0                | 30       | 0.8                |          |                    |           |                    |      |                    |  |
|              |      | 100            | 6.9  | 59  | 1.6                | 59       | 1.6                | 59       | 1.6                | 59       | 1.6                | 59       | 1.6                | 59       | 1.6                | 59       | 1.6                | 59       | 1.6                | 53       | 1.4                | 44       | 1.2                |           |                    |      |                    |  |
|              |      | 125            | 8.6  | 73  | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 73       | 2.0                | 66       | 1.8                | 48        | 1.3                |      |                    |  |
|              |      | 150            | 10.3 | 86  | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86       | 2.3                | 86        | 2.3                | 72   | 1.9                |  |
|              |      | 175            | 12.1 | 96  | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96       | 2.6                | 96        | 2.6                | 93   | 2.5                |  |
|              |      | 200            | 13.8 | 108   | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108      | 2.9                | 108       | 2.9                | 108  | 2.9                |  |
|              |      | 225            | 15.5 | 123   | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123      | 3.3                | 123       | 3.3                | 123  | 3.3                |  |
|              |      | 250            | 17.2 | 132   | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132      | 3.5                | 132       | 3.5                | 132  | 3.5                |  |
|              |      | 300            | 20.7 | 162   | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162      | 4.3                | 162       | 4.3                | 162  | 4.3                |  |
| 350          | 24.1 | 188            | 5.0  | 188   | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188      | 5.0                | 188       | 5.0                |      |                    |  |
| 400          | 27.6 | 215            | 5.8  | 215   | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215      | 5.8                | 215       | 5.8                |      |                    |  |
| 1-1/8        | 29   | 20             | 1.4  | 18  | 0.5                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 25             | 1.7  | 27  | 0.7                | 20       | 0.5                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 30             | 2.1  | 34  | 0.9                | 28       | 0.8                | 21       | 0.6                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 35             | 2.4  | 40  | 1.1                | 35       | 0.9                | 30       | 0.8                | 22       | 0.6                |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 40             | 2.8  | 47  | 1.3                | 43       | 1.2                | 38       | 1.0                | 32       | 0.9                | 24       | 0.6                |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 50             | 3.4  | 57  | 1.5                | 57       | 1.5                | 52       | 1.4                | 47       | 1.3                | 42       | 1.1                | 35       | 0.9                | 26       | 0.7                |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 60             | 4.2  | 65  | 1.7                | 65       | 1.7                | 65       | 1.7                | 62       | 1.7                | 58       | 1.6                | 50       | 1.3                | 45       | 1.2                | 38       | 1.0                |          |                    |          |                    |           |                    |      |                    |  |
|              |      | 75             | 5.2  | 78  | 2.1                | 78       | 2.1                | 78       | 2.1                | 78       | 2.1                | 78       | 2.1                | 74       | 2.0                | 68       | 1.8                | 32       | 0.9                | 50       | 1.3                |          |                    |           |                    |      |                    |  |
|              |      | 100            | 6.9  | 99  | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 99       | 2.7                | 88       | 2.4                |           |                    |      |                    |  |
|              |      | 125            | 8.6  | 122   | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122      | 3.3                | 122       | 3.3                | 80   | 2.1                |  |
|              |      | 150            | 10.3 | 143   | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143      | 3.8                | 143       | 3.8                | 120  | 3.2                |  |
|              |      | 175            | 12.1 | 160   | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160      | 4.3                | 160       | 4.3                | 155  | 4.2                |  |
|              |      | 200            | 13.8 | 180   | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180      | 4.8                | 180       | 4.8                | 180  | 4.8                |  |
|              |      | 225            | 15.5 | 205   | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205      | 5.5                | 205       | 5.5                | 205  | 5.5                |  |
|              |      | 250            | 17.2 | 220   | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220      | 5.9                | 220       | 5.9                | 220  | 5.9                |  |
|              |      | 300            | 20.7 | 265   | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265      | 7.1                | 265       | 7.1                | 265  | 7.1                |  |
|              |      |                |      | L Pilot   |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      |                |      | H Pilot   |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |
|              |      |                |      | HP Pilot  |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |          |                    |           |                    |      |                    |  |

1. When sizing a regulator, always use the lowest inlet pressure, the highest outlet pressure, and the maximum capacity desired.  
 2. Requires 0.75 PSIG / 0.05 bar minimum differential pressure construction.  
 — Shaded areas indicate no capacity due to differential pressure requirement.

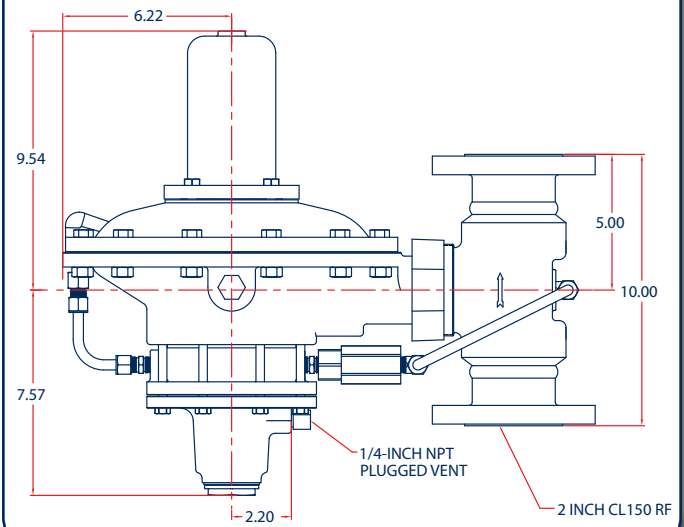


## P99 Dimensions

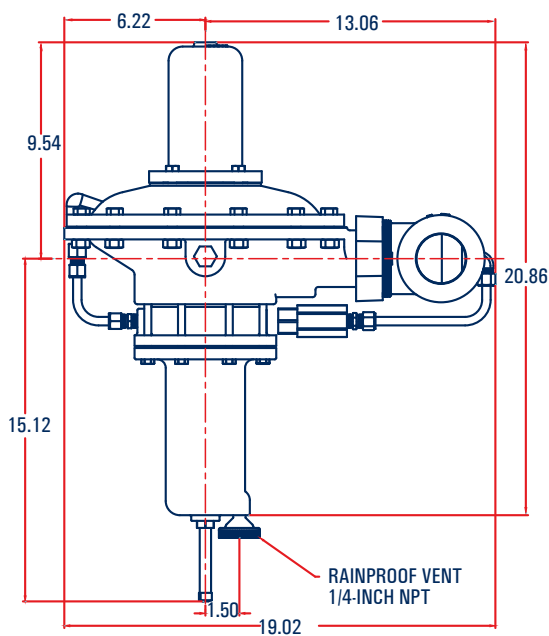
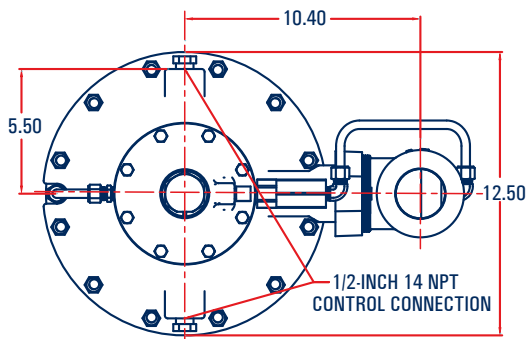
### P99L



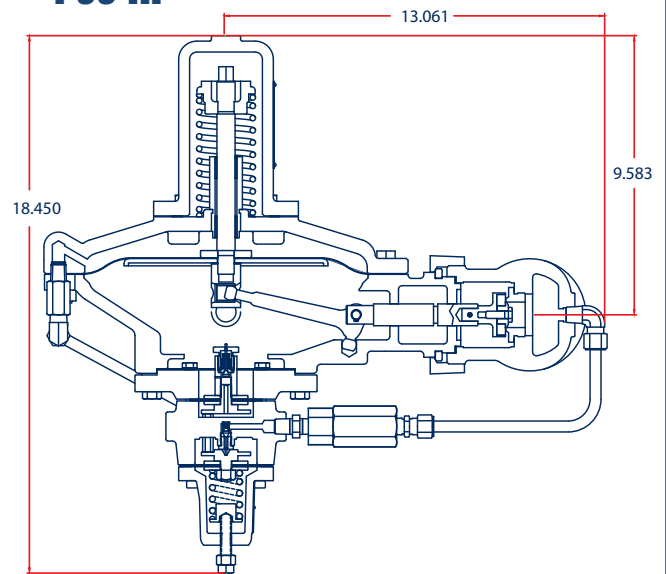
### P99 Flanged with Type 61L Pilot



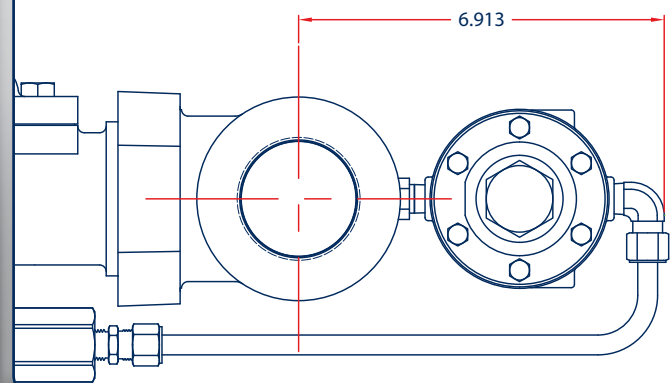
### P99H

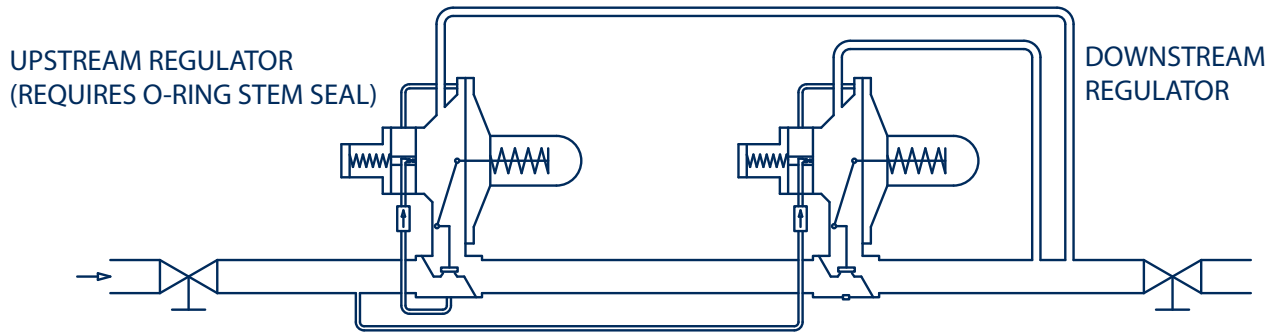


### P99 HP

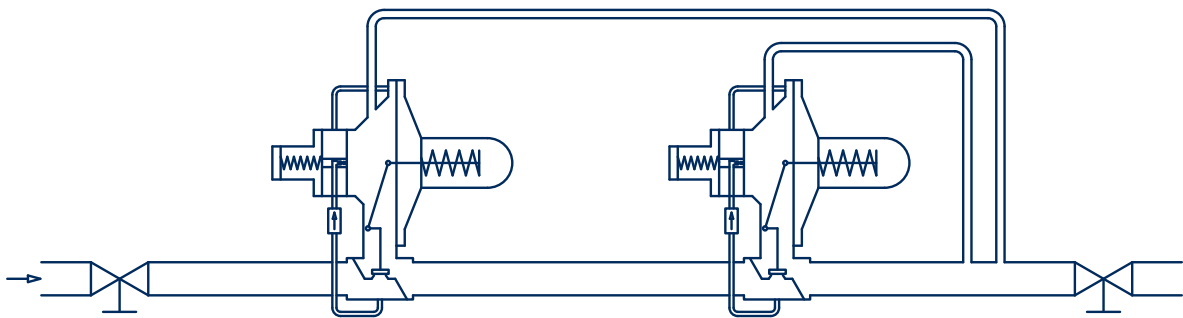


### P99 HP Pilot with P39 & Relief Valve





MONITOR REGULATOR MAY BE PLACED EITHER UPSTREAM OR DOWNSTREAM. REQUIRES ADDITIONAL PIPING



P99 WIDE-OPEN MONITOR INSTALLATIONS

### **Monitoring Systems**

A monitor unit can serve as overpressure protection in the case of a wide-open failure of the main regulator. A P99 that is configured as a monitor regulator has a modified lower casing that includes an O-ring seal around the valve carrier.

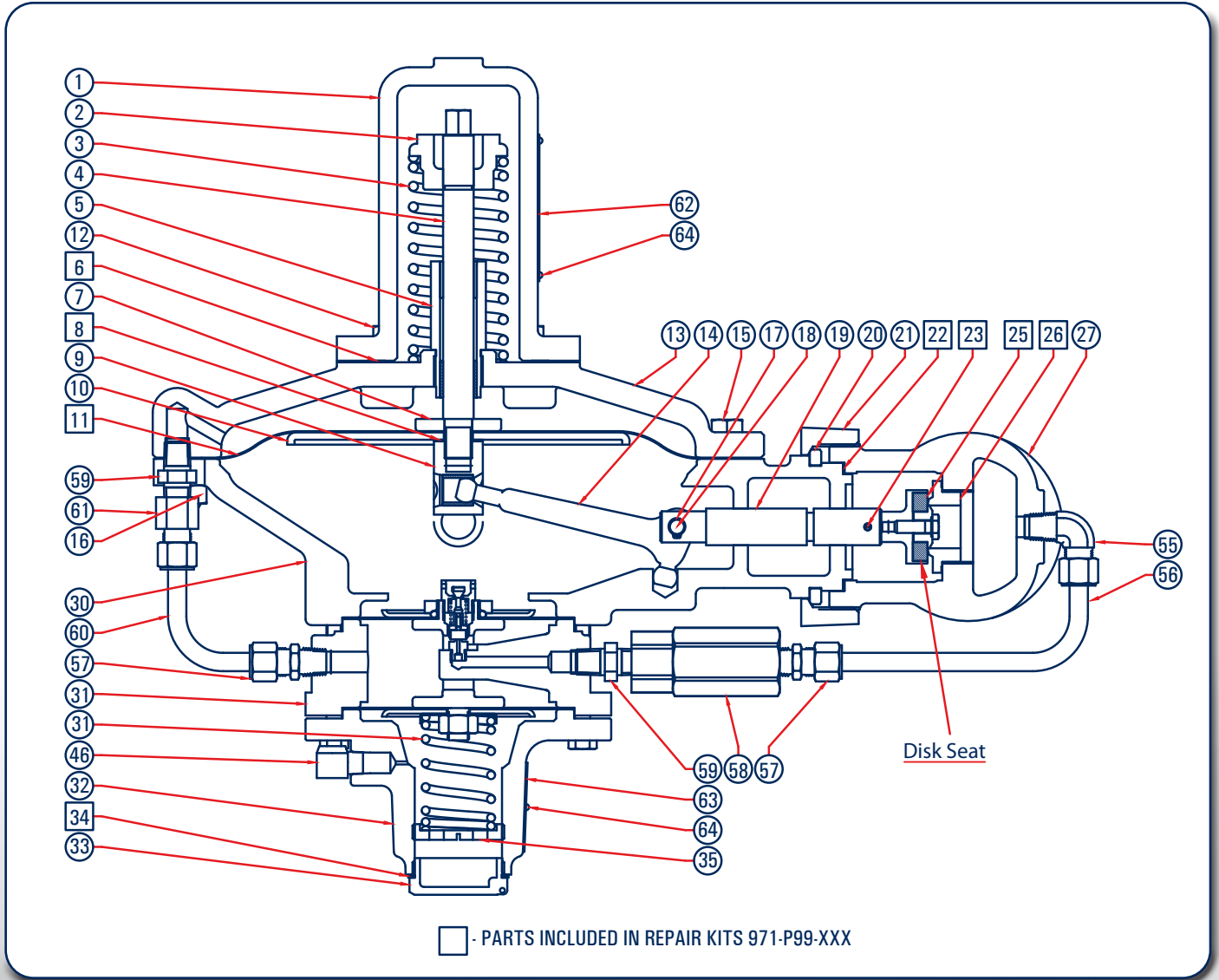
The system should be set up as seen above with the O-ring seal unit upstream. The control line of the upstream regulator must be installed downstream of the second regulator. During normal operation, the monitor regulator remains wide open. If the main regulator fails open, the monitor regulator will take over at a slightly higher pressure.

When adjusting the set point of a wide-open monitor, first increases the set point of both regulators to a point above the desired monitor setting by turning the adjustment screws clockwise. Lower the set point of the monitor regulator to the desired pressure, and then adjust the main regulator. Be sure that the difference between the monitor and main regulator set points is at least equal to the minimum differential pressure for full stroke of the main spring.

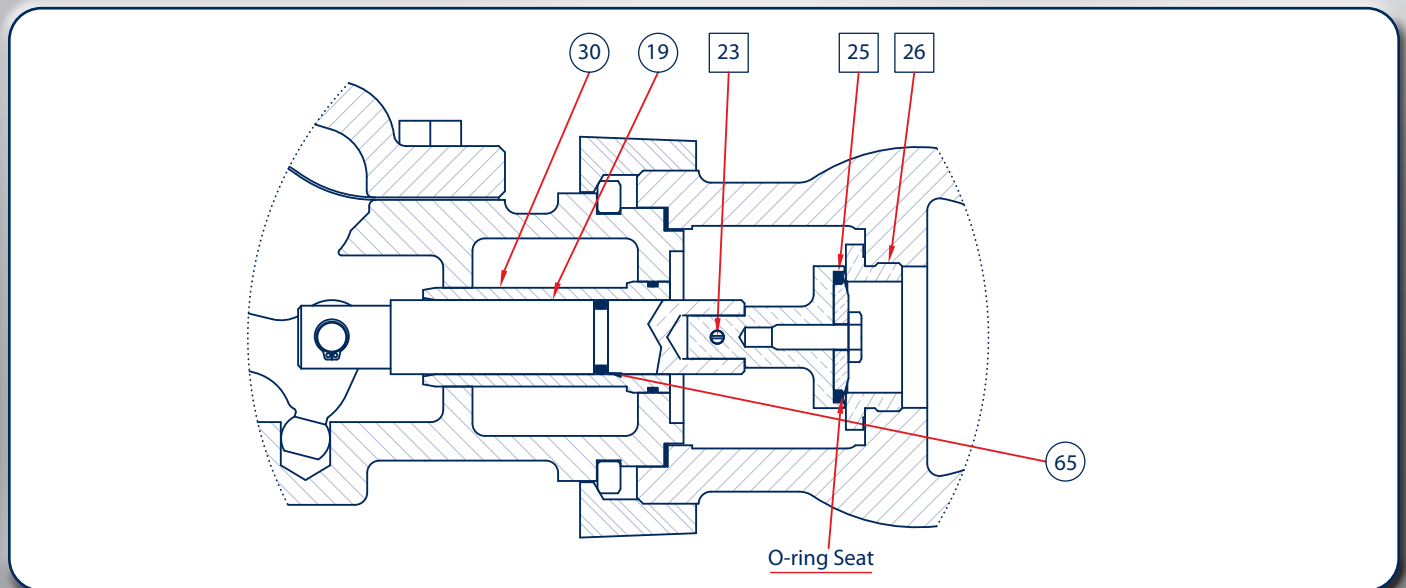
## P99 Parts with L Pilot

| Item | Description                         | Qty. | Part Number |
|------|-------------------------------------|------|-------------|
| 1    | Spring Case - Cast Iron             | 1    | 604-260-000 |
| 2    | Main Spring Seat                    | 1    | 626-109-000 |
|      | Main Spring Seat - 1000 PSIG        | 1    | 626-109-001 |
| 3    | <b>Main Springs</b>                 |      |             |
|      | 25 PSIG Diff.                       | 1    | 655-734-006 |
|      | 50 PSIG Diff.                       | 1    | 655-734-005 |
|      | 250 PSIG Diff.                      | 1    | 655-734-004 |
|      | 300 PSIG Diff.                      | 1    | 655-659-001 |
| 4    | SS Diaphragm Rod                    | 1    | 646-548-000 |
| 5    | Brass Diaphragm Rod Guide Assembly  | 1    | 626-111-001 |
|      | Brass Diaphragm Rod Guide - SS      | 1    | 626-110-000 |
| 6    | Spring Case Gasket                  | 1    | 624-081-000 |
| 7    | Brass Collar                        | 1    | 612-012-001 |
|      | Stainless Collar                    | 1    | 612-012-000 |
| 8    | Pusher Post Gasket                  | 1    | 624-079-000 |
| 9    | Brass Pusher Post Assembly          | 1    | 637-332-001 |
|      | Brass Pusher Post - Stainless       | 1    | 637-331-000 |
| 10   | Diaphragm Plate - Steel             | 1    | 638-075-000 |
| 11   | Regulator Diaphragm - Nitrile       | 1    | 618-097-000 |
| 12   | Cap Screw                           | 4    | 648-467-003 |
| 13   | Upper Casing - Cast Iron            | 1    | 604-261-000 |
| 14   | Lever - Steel                       | 1    | 703-010-000 |
| 15   | Casing Cap Screw                    | 12   | 648-467-004 |
| 16   | Casing Hex Nut                      | 12   | 634-199-000 |
| 17   | Retaining Ring for Brass Trim       | 2    | 693-026-000 |
| 18   | Lever Pin                           | 1    | 635-073-000 |
| 19   | Valve Carrier - Brass               | 1    | 651-102-001 |
|      | Valve Carrier - Stainless           | 1    | 651-102-000 |
| 20   | Body Snap Ring                      | 2    | 644-060-000 |
| 21   | Union Nut                           | 1    | 634-198-000 |
| 22   | Body Gasket                         | 1    | 624-080-000 |
| 23   | Cotter Pin                          | 1    | 635-000-042 |
| 25   | 7/8" O-ring Seat Assembly - Brass   | 1    | 822-061-0C1 |
|      | 1-1/8" O-ring Seat Assembly - Brass | 1    | 822-061-0E1 |
|      | 7/8" O-ring Seat Assembly - 316     | 1    | 822-061-0C3 |
|      | 1-1/8" O-ring Seat Assembly - 316   | 1    | 822-061-0E3 |
|      | 7/8" Disk Seat Assembly - Brass     | 1    | 822-061-0C0 |
|      | 1-1/8" Disk Seat Assembly - Brass   | 1    | 822-061-0E0 |
|      | 7/8" Disk Seat Assembly - 316       | 1    | 822-061-0C2 |
|      | 1-1/8" Disk Seat Assembly - 316     | 1    | 822-061-0E2 |
| 26   | Brass Disk Orifice - 7/8"           | 1    | 688-057-001 |
|      | Brass Disk Orifice - 1-1/8"         | 1    | 688-058-001 |
|      | Stainless Disk Orifice - 7/8"       | 1    | 688-057-000 |
|      | Stainless Disk Orifice - 1-1/8"     | 1    | 688-058-000 |
|      | Brass O-ring Orifice - 7/8"         | 1    | 688-062-001 |
|      | Brass O-ring Orifice - 1-1/8"       | 1    | 688-063-001 |
|      | Stainless O-ring Orifice - 7/8"     | 1    | 688-062-000 |
|      | Stainless O-ring Orifice - 1-1/8"   | 1    | 688-063-000 |
|      | Stainless Orifice/Nitrile- 1/2"     | 1    | 822-018-000 |
| 27   | 2" NPT Iron                         | 1    | 664-379-000 |
|      | 2" NPT Steel                        | 1    | 664-390-000 |

| Item | Description                            | Qty. | Part Number |
|------|--|------|-------------|
| 30   | Lower Casing - Cast Iron               | 1    | 629-236-000 |
|      | Lower Casing - Monitor                 | 1    | 802-124-000 |
| 31   | Relay Valve Body                       | 1    | 664-380-000 |
| 32   | L, LE, LD Spring Case                  | 1    | 604-262-000 |
| 33   | Closing Cap - L, LE and LD             | 1    | 610-056-000 |
| 34   | Gasket                                 | 1    | 624-069-000 |
| 35   | L, LE and LD Screw                     | 1    | 648-499-000 |
| 36   | <b>Pilot Control Springs</b>           |      |             |
|      | 0.25 to 2 PSIG - Red                   | 1    | 655-734-002 |
|      | 1 to 5 PSIG - Yellow                   | 1    | 655-734-007 |
|      | 2 to 10 PSIG - Blue                    | 1    | 655-734-003 |
|      | .5 to 15 PSIG - Brown                  | 1    | 655-734-008 |
|      | 10 to 20 PSIG - Green                  | 1    | 655-734-009 |
| 37   | L and LD Diaphragm Head                | 1    | 638-076-000 |
|      | LE and H Diaphragm Head                | 1    | 638-077-000 |
| 38   | Upper Relay Diaphragm                  | 1    | 618-098-000 |
| 39   | Relay Yoke Assembly                    | 1    | 670-035-000 |
| 40   | L, LE and LD Relay Diaphragm - Nitrile | 1    | 618-099-000 |
| 41   | L, LE and LD Relay Diaphragm Head      | 1    | 638-076-001 |
| 42   | L, LE and LD Spring Seat               | 1    | 650-175-000 |
| 43   | Pipe Plug - (not shown)                | 1    | 639-119-000 |
| 44   | Cap Screw                              | 8    | 648-467-004 |
| 46   | L, LE and LD Vent Assembly             | 1    | 836-004-000 |
| 47   | Pilot Adjustment Screw Nut             | 1    | 634-000-056 |
| 48   | Bleed Orifice - Stainless              | 1    | 688-056-000 |
| 49   | Diaphragm Nut - Brass                  | 1    | 634-200-001 |
|      | Diaphragm Nut - Stainless              |      | 634-200-000 |
| 50   | O-ring Seal - Nitrile                  | 1    | 649-309-002 |
| 51   | Relay Orifice - 25 PSIG Drop           | 1    | 688-055-001 |
|      | Relay Orifice - > 25 PSIG Drop         | 1    | 688-055-000 |
| 52   | L, LE and LD Bleed Valve               | 1    | 636-058-000 |
| 53   | LD Bleed Valve Spring                  | 1    | 655-734-010 |
|      | L and LE Bleed Valve Spring            | 1    | 655-734-000 |
| 54   | Relay Disk Assembly - Nitrile          | 1    | 822-042-002 |
| 55   | Elbow Fitting - Brass                  | 1    | 622-061-000 |
| 56   | Pilot Supply Tubing - Horizontal       | 1    | 660-081-001 |
|      | Pilot Supply Tubing - Vertical         | 1    | 660-081-002 |
| 57   | Male Fitting - Brass                   | 2    | 662-062-000 |
| 58   | P590 Brass Line Filter - Brass         | 1    | P590        |
|      | 590 Stainless Filter                   | 1    | P594        |
|      | P590 Element - Cellulose               | 1    | 677-052-000 |
| 59   | Pipe Nipple - Steel - SS               | 2    | 633-022-000 |
| 60   | Loading Tubing - Copper                | 1    | 660-081-000 |
| 61   | Female Fitting - Brass                 | 1    | 662-063-000 |
| 62   | Nameplate                              | 1    | 632-546-000 |
| 63   | Pilot Nameplate                        | 1    | 632-547-000 |
| 64   | Drive Screw                            | 4    | 648-464-000 |

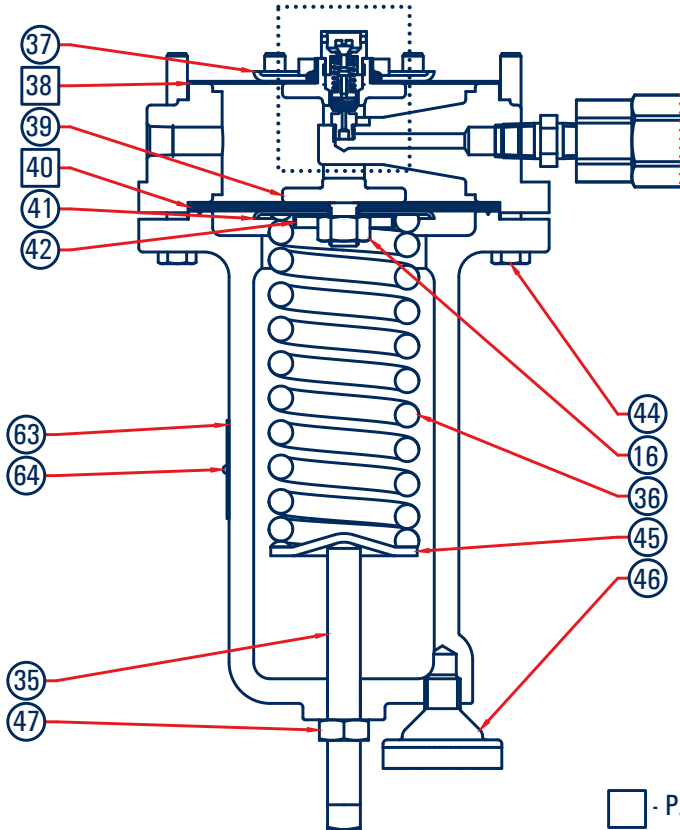


**P99 Monitor Housing and O-ring Seat**

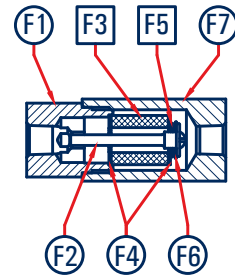


## P99 Regulator with H Series Pilot Parts List

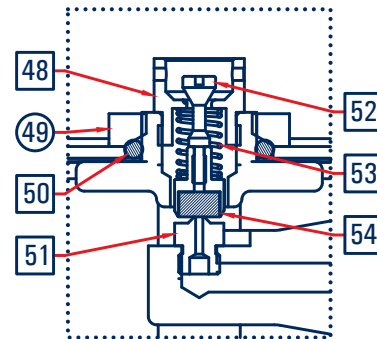
H SERIES PILOT



P590 SERIES FILTER



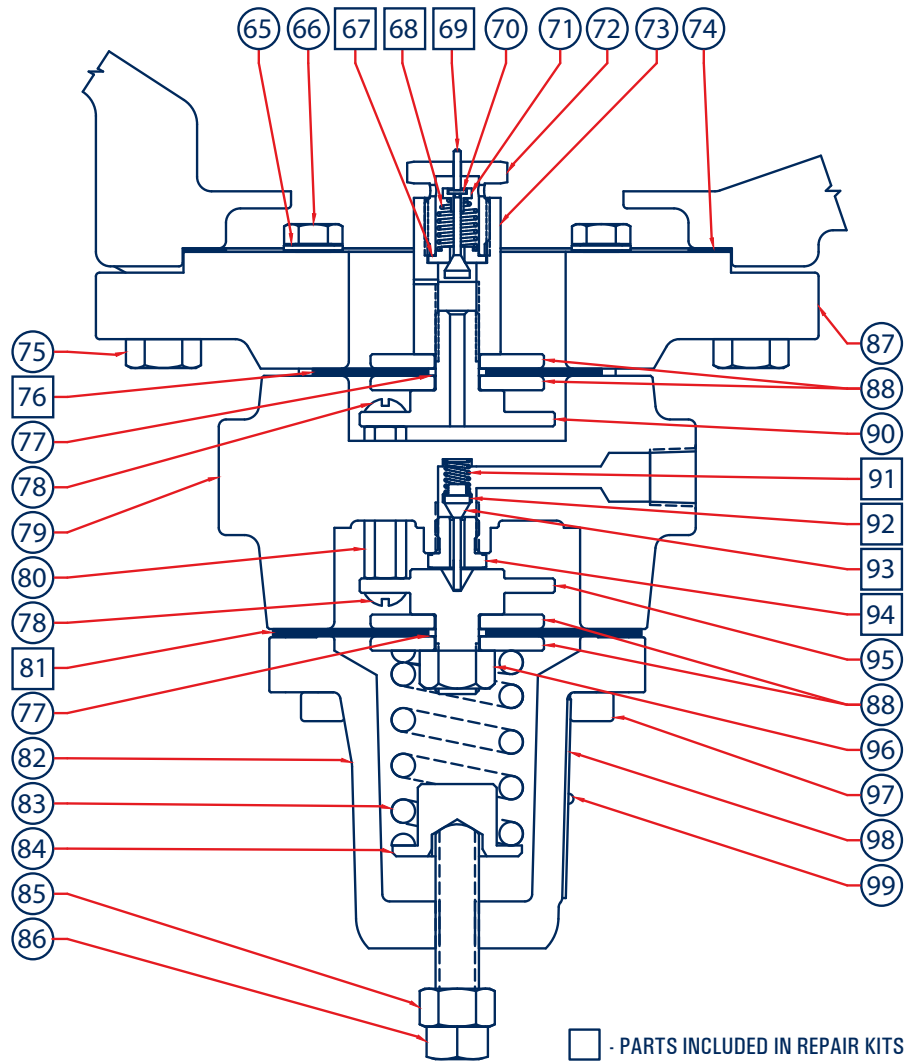
P61 SERIES BLEED VALVE ASSEMBLY



 - PARTS INCLUDED IN REPAIR KITS 971-P99-XXX

| Item | Description                             | Qty. | Part Number |
|------|---|------|-------------|
| 32   | H Spring Case                           | 1    | 604-263-000 |
| 35   | H Adjustment Screw                      | 1    | 648-462-000 |
| 36   | 10-65 psi Control Spring - Green stripe | 1    | 655-659-003 |
| 37   | H Diaphragm Head                        | 1    | 638-077-000 |
| 38   | Upper Relay Diaphragm                   | 1    | 618-098-000 |
| 39   | Relay Yoke Assembly                     | 1    | 670-035-000 |
| 40   | H Lower Relay Diaphragm - Nitrile       | 1    | 618-100-000 |
| 41   | H Lower Relay Diaphragm Head            | 1    | 638-078-000 |
| 42   | H Spring Seat                           | 1    | 650-173-000 |
| 44   | Cap Screw                               | 8    | 648-467-004 |
| 45   | Spring Seat H Only                      | 1    | 626-077-000 |

| Item | Description                    | Qty. | Part Number |
|------|--------------------------------|------|-------------|
| 46   | H Vent Assembly                | 1    | 836-008-000 |
| 48   | Bleed Orifice - Stainless      | 1    | 688-056-000 |
| 49   | Diaphragm Nut - Brass          | 1    | 634-200-001 |
|      | Diaphragm Nut - Stainless      | 1    | 634-200-000 |
| 50   | O-ring Seal - Nitrile          | 1    | 649-309-002 |
| 51   | Relay Orifice - 25 PSIG Drop   | 1    | 688-055-001 |
|      | Relay Orifice - > 25 PSIG Drop | 1    | 688-055-000 |
| 52   | H Bleed Valve                  | 1    | 636-058-001 |
| 53   | H Bleed Valve Spring           | 1    | 655-734-001 |
| 54   | Relay Disk Assembly - Nitrile  | 1    | 822-042-002 |



| Item | Description           | Qty. | Part Number  |
|------|-----------------------|------|--------------|
| 65   | Seal Washer           | 2    | 662-239-000  |
| 66   | Build Screw           | 2    | 648-567-000  |
| 67   | Bleed Valve Orifice   | 1    | 688-065-000U |
| 68   | Bleed Valve Spring    | 1    | 655-734-013  |
| 69   | Bleed Valve           | 1    | 636-060-000  |
| 70   | Spring Seat Washer    | 1    | 693-032-000  |
| 71   | Spring Seat           | 1    | 643-221-000  |
| 72   | Relief Valve Cap      | 1    | 610-093-000  |
| 73   | Relief Valve Body     | 1    | 664-574-000  |
| 74   | Flange Adaptor Gasket | 1    | 624-098-000  |
| 75   | Build Screw           | 2    | 648-567-002  |
| 76   | Upper Diaphragm       | 1    | 618-106-000  |
| 77   | Diaphragm Insert      | 2    | 624-097-000  |
| 78   | Slotted Round Screw   | 2    | 648-568-000  |
| 79   | Pilot Body            | 1    | 664-573-000  |
| 80   | Yoke Standoff         | 1    | 654-193-000  |
| 81   | Lower Diaphragm       | 1    | 618-107-000  |

| Item      | Description               | Qty. | Part Number |
|-----------|---------------------------|------|-------------|
| 82        | Pilot Bonnet              | 1    | 604-563-000 |
| 83        | Main Spring 35-100        | 1    | 655-734-012 |
| 84        | Main Spring Seat          | 1    | 650-191-000 |
| 85        | Jam Nut                   | 1    | 634-475-000 |
| 86        | Adjustment Screw          | 1    | 648-566-000 |
| 87        | Pilot Flange Adaptor      | 1    | 623-047-000 |
| 88        | Diaphragm Plate           | 4    | 638-085-000 |
| 90        | Upper Yoke Cap            | 1    | 610-092-001 |
| 91        | Pintle Spring             | 1    | 655-734-014 |
| 92        | Molded Pintle Spring Seat | 1    | 650-190-000 |
| 93        | Molded Pintle Assy        | 1    | 813-054-000 |
| 94        | Pilot Orifice             | 1    | 688-064-000 |
| 95        | Lower Yoke Cap            | 1    | 610-092-000 |
| 96        | Diaphragm Nut             | 1    | 634-476-000 |
| 97        | Build Screw               | 2    | 648-567-001 |
| 98        | Nameplate                 | 1    | 632-570-000 |
| Not Shown | Pilot Tube Adaptor        | 1    | 622-072-001 |
|           | Loading Tubing            | 1    | 660-117-000 |
|           | Pilot Tubing              | 1    | 660-117-001 |