Pietro Fiorentini

# Reval 182

Pressure Regulators

# REVAL 182 Description and application

## INTRODUCTION

**Reval 182 is a pilot-controlled pressure regulator for medium and low pressure applications.**

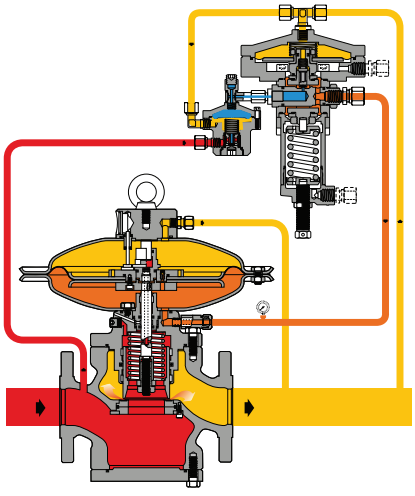
The Reval 182 is normally a fail to close regulator that will close under the following conditions:

- Breakage of main diaphragm
- Lack of gas feeding to the pilot loop

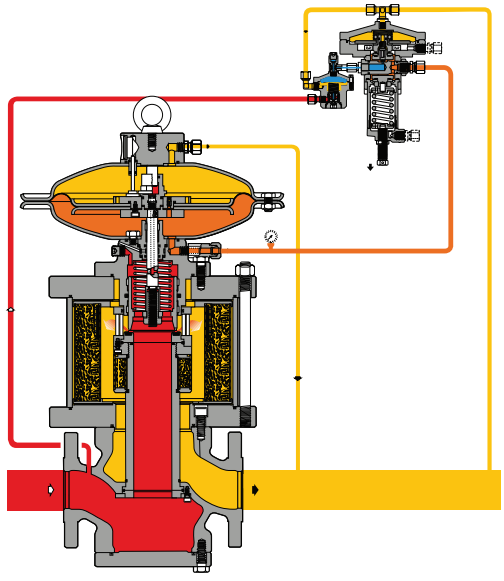
This regulator is suitable for use with previously filtered, non-corrosive gases.

## MODULAR DESIGN

The modular design of the Reval 182 pressure regulator allows retrofitting of an emergency monitor PM/182 or slam shut valve and/or silencer on the same body. The Reval 182 regulator is truly a top-entry design which allows easy maintenance and/or retrofitting options in the field. The unique dynamic balancing system ensures an outstanding turn down ratio combined with an extremely accurate outlet pressure control.



Reval 182 **Fig. 1**



Reval 182 + DB **Fig. 2**

## DESIGNED WITH YOUR NEEDS IN MIND

- **Compact design**
- **Easy maintenance**
- **Top-entry**
- **Low noise—very low operating ΔP**
- **Outstanding turndown ratio**
- **High accuracy**
- **Low operation cost**

## SILENCER DB/182

Whenever a lower noise limit is desired, the silencer allows you to considerably reduce the noise level (dBA) as much as 30 dBA.

The Reval 182 pressure regulator can be supplied with an incorporated silencer in either the standard version or version with incorporated slam-shut or incorporated monitor regulator.

With the built-in silencer, the CG and KG valve coefficients are 5% lower than the corresponding version without the silencer. Given the modular arrangement of the regulator, the silencer may be retrofited to both the standard Reval 182 version as well as those with incorporated slam shut or monitor, without any need for piping modifications.

## SLAM SHUT SB/82 OR VB/83

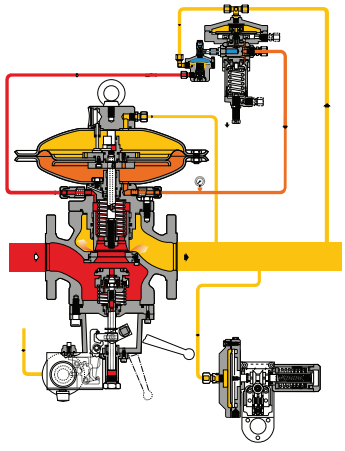


Fig. 3

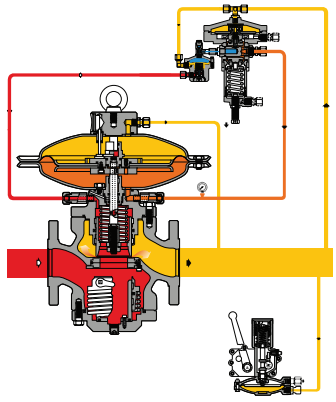


Fig. 4

The Reval 182 pressure regulator offers the option of installing an incorporated slam shut valve SB/82 Fig. 3 or VB/93 Fig. 4, depending on the regulator size, and this can be done either during the manufacturing process or be retrofitted in the field. Retrofitting can be done without modifying the pressure regulator. The CG and KG coefficients of a regulator plus incorporated slam shut system are 7 or 10% (depending on the slam shut type) lower than those for standard versions.

## SLAM SHUT MAIN CHARACTERISTICS

- **Tripping for over pressure and/or under pressure**
- **Manual re-setting with internal by-pass activated by the lever mechanism**
- **Manual push button control**
- **Compact dimensions**
- **Easy maintenance**
- **Optional pneumatic or electromagnetic remote control**
- **Optional installation of remote signal devices (contact switches or proximity switches)**

# REVAL 182 — PM/ 82 MONITOR

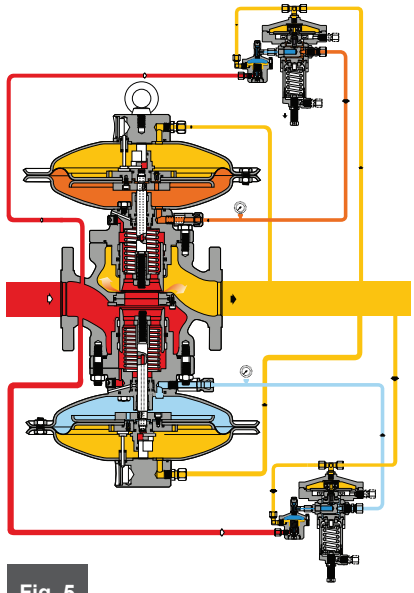


Fig. 5

This emergency regulator (monitor) is directly connected to the body of the main regulator. Both pressure regulators, therefore, use the same valve body, although they have independent actuators, pilots, and valve seats.

The operational characteristics of the PM/182 monitor are the same as for the Reval 182 regulator. The Cg and $K_G$ coefficients of a regulator having an incorporated monitor are 8% lower than those for standard version. Another great advantage offered by the incorporated monitor regulator is that it can be installed at any time, even on an already existing regulator, without piping modifications. This solution allows the construction of regulator stations with compact dimensions.

## SLAM SHUT MAIN CHARACTERISTICS

- **Maximum inlet pressure up to:** 275 PSIG for steel body and 246 psig for ductile iron
- **Range of downstream pressure:** 2.8” W.C. to 174 PSIG depending on installed pilot
- **Minimum ambient temperature:** Execution up to -40° F (to specify in the request)
- **Maximum ambient temperature:** +140° F
- **Flowing gas temperature:** up to -4° F + 140° F
- **Accuracy class AC:** up to 5
- **Lock-up pressure class SG:** up to 10 depending upon outlet pressure
- **Range of outlet pressure:** Wh: 2.8" W.C. to 174 PSIG depending on installed pilot1”
- **Nominal dimensions DN:** 2", 2½", 3", 4", 6", 8", 10"

## MATERIALS

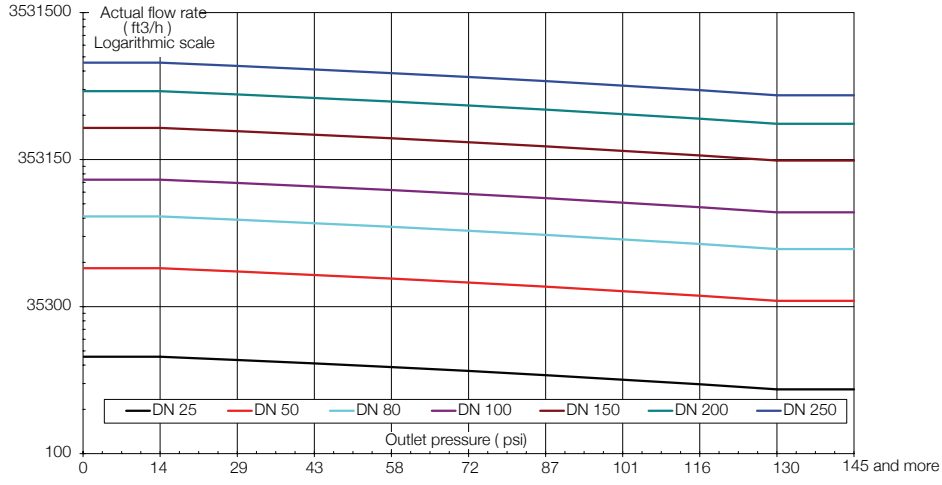
- **Body:** Cast steel ASTM A216 WCB for all sizes
  Ductile iron GS 400-18 ISO 1083 for size ≤ 8”
- **Head covers:** Die stamped carbon steel
- **Stem:** AISI 416 Stainless steel
- **Valve:** ASTM A 350 LF2 Nickel coated on sealing surfaces
- **Valve seat:** Steel + vulcanized rubber
- **Diaphragm:** Rubberized canvas
- **Seals:** Nitrile rubber
- **Compression fittings:** According to DIN 2353 in zinc-plated stainless steel

## CG, KG AND C1 COEFFICIENT

| Nominal diameter (mm) | 25 | 50 | 65 | 80 | 100 | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|
| Size (inches) | 1” | 2” | 2 ½” | 3” | 4” | 6” | 8” | 10” |
| Cg flow coefficient | 575 | 2220 | 3320 | 4937 | 8000 | 16607 | 25933 | 36525 |
| KG flow coefficient | 605 | 2335 | 4197 | 5194 | 8416 | 17471 | 27282 | 38425 |
| C1 body shape factor | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 |

For sizing formula refer to www.fiorentini.com/sizing

**CAUTION:**
The graph gives a quick reference of maximum recommended regulator capacity depending on selected size. Values are expressed in actual SCFH of Natural gas (s.g. 0.6): to have the data directly in SCFH it is necessary to multiply the value by the outlet pressure value in bar – absolute.



# REVAL 182

## PILOTS

The Reval is equiped with a 200 series pilot listed below:

• 201/A control range 2.8" w.c. to 8.4 PSIG

• 204/A control range 4.35 to 174 PSIG

The pilots can be adjusted manually or remotely as shown in table 3:

## PILOT ADJUSTMENTS

- **Pilot type .../A:** Manual setting
- **Pilot type .../D:** Electric remote control
- **Pilot type .../CS:** Pneumatic remote control manual setting
- **Pilot type .../FIO:** Smart unit for remote setting, monitoring flow limitation and indirect flow

## PRE-REGULATORS

The pilot loop is completed with a device called a pre-regulator, separate from the pilot.
The pre-regulators available are listed below:

- **R14/A:** self adjusting pre-regulator that that automatically regulates the feeding pressure to the pilot complete with integral filter at the inlet. Standard supply with pilot 204/A.
- **R31/A:** self adjusting pre-regulator that that automatically regulates the feeding pressure to the pilot complete with integral filter at the inlet. Standard supply with pilot 201/A.
- **R32/A:** with adjustable set point, range of feeding pressure to the pilot Pep =1.44 to 24.6 PSIG
- **R42/A:** with adjustable set point, range of feeding pressure to the pilot Pep =11 to 137 PSIG

## PRESSURE SWITCH

| MOD. SB | MIN | MAX |
|---|---|---|
| **101M** | .14 - 3.77* | ..29 - 14.5* |
| **102M** | .6 - 40 | 3 - 79 |
| **102MH** | 41 - 79 | 3 - 79 |
| **103M** | 3 - 116 | 29 - 319 |
| **103MH** | 116 - 275 | 29 - 319 |
| Values in PSIG | | |

| MOD. VB | MIN. | MIN. |
|---|---|---|
| **31** | .11 - 13 | .23 - 17.4 |
| **32** | 3.62 - 39.1 | 10.15 - 72.5 |
| **33** | 11.6 - 84.12 | 43.5 - 152.2 |
| Values in PSIG | | |

## OPTIONS

**For Regulator**

- Stroke limiter
- Flow-limiting devices
- Limit switches
- Position transmitters
- Steel fittings, single or dual
- Sealing

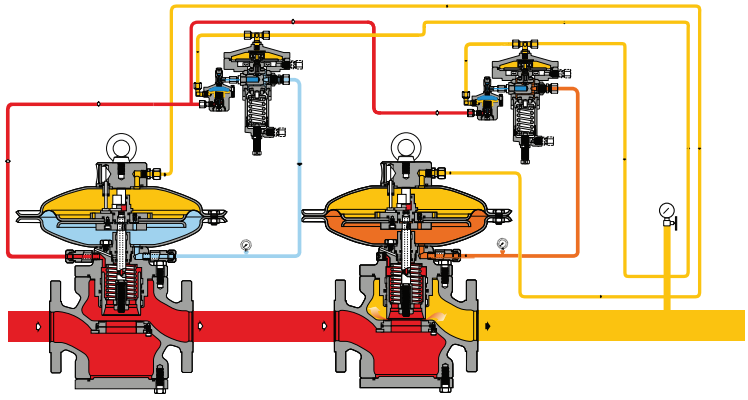
**For Pilot**

- Supplementary filter CF14
- Dehydrating filter CF 14/D

## IN-LINE MONITOR

The monitor is generally installed upstream of the main regulator. Although the function of the monitor regulator is different, the two regulators are virtually identical from the point of view of their mechanical components.

The only difference is that the monitor is set at a higher pressure than the main regulator. The Cg and KG coefficients of the regulator plus in-line monitor system are about 20% lower than those of the regulator alone.



## M/A ACCELERATOR

When the monitor is required to take over rapidly, in the event of a main regulator failure, an M/A or V/25 accelerator pilot installed on the monitor is recommended. Installation of the accelerator is mandatory when the monitor is used as safety accessory according to PED directive. This device, connected by a sensing line to the downstream pressure, discharges the gas enclosed in the motorization chamber of the monitor regulator, allowing the monitor to take over control quickly.

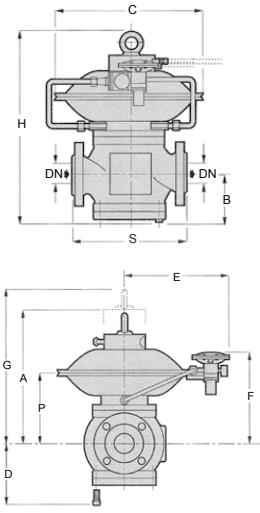
The set point of M/A accelerator is usually higher than set point of the monitor by 4.35 to 7.25 PSIG. A V/25 accelerator is also available with pressure set range Wh 0.17 PSIG to 87 PSIG. In case of a working monitor configuration (two stage pressure cut with monitor override) the accelerator may not be necessary.

# REVAL 182

## Overall dimensions in inches

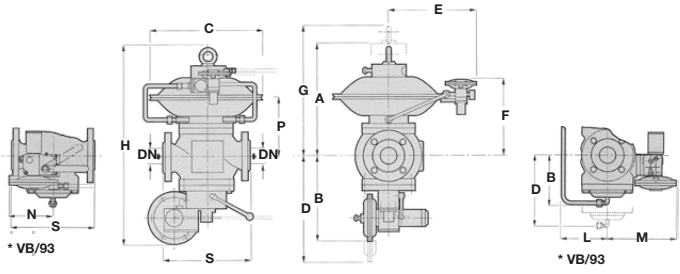
| SIZE | 25 | 50 | 65 | 80 | 100 | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|
| **Inches** | 1” | 2” | 2 ½” | 3” | 4” | 6” | 8” | 10” |
| **S-ANSI** 150/PN16 | 7.2 | 10 | 10.86 | 11.73 | 13.85 | 17.75 | 21.49 | 26.49 |
| **A** | 12.59 | 13.77 | 16.92 | 16.92 | 18.5 | 21.65 | 25.59 | 30.31 |
| **B** | 3.93 | 5.11 | 5.51 | 5.90 | 7.48 | 8.66 | 10.23 | 12.2 |
| **C** | 14.76 | 14.76 | 19.48 | 19.48 | 19.48 | 24.8 | 24.8 | 24.8 |
| **D** | 5.11 | 6.29 | 7.08 | 7.87 | 9.84 | 10.62 | 12.24 | 15.66 |
| **E** | 13.77 | 13.77 | 16.14 | 16.14 | 16.14 | 18.7 | 18.7 | 18.5 |
| **F** | 9.84 | 11.22 | 12.99 | 13.38 | 14.56 | 15.74 | 17.71 | 21.65 |
| **G** | 16.14 | 16.92 | 20.86 | 20.86 | 23.62 | 28.93 | 33.46 | 29.92 |
| **H** | 16.92 | 18.89 | 22.44 | 22.83 | 25.98 | 30.31 | 35.82 | 42.12 |
| **P** | 6.69 | 8.07 | 9.84 | 10.23 | 11.41 | 12.59 | 14.56 | 18.5 |
| **Tubing Connections** | 1/4” NPT | | | | | | | |

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334




## Weight in lbs

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **S-ANSI** 150/PN16 | 72 | 110 | 127 | 154 | 242 | 429 | 661 | 1.278 |



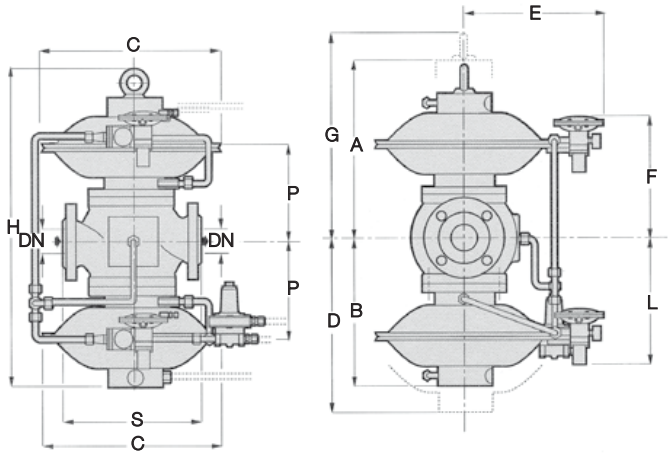

# REVAL 182 + SB82

## Overall dimensions in inches

| SIZE | 25 | | 50 | | 65 | | 80 | | 100 | | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Inches** | 1” | | 2” | | 2 ½” | | 3” | | 4” | | 6” | 8” | 10” |
| **S-ANSI** 150/PN16 | 7.2 | | 10 | | 10.86 | | 11.73 | | 13.85 | | 17.75 | 21.37 | 26.49 |
| **A** | 12.59 | | 13.77 | | 16.92 | | 16.92 | | 18.5 | | 21.65 | 25.59 | 30.31 |
| **B** | 11.81 | 5.7” | 11.81 | 6.33* | 12.4 | 7* | 13.18 | 7.28* | 14.17 | 15.9* | 16.92 | 18.7 | 21.65 |
| **C** | 14.76 | | 14.76 | | 19.48 | | 19.48 | | 19.48 | | 24.8 | 24.8 | 24.8 |
| **D** | 15.35 | 8.34 | 15.35 | 10.03* | 16.73 | 11.49* | 17.51 | 12.67* | 19.68 | 25.03* | 24.21 | 27.26 | 31.49 |
| **E** | 13.77 | | 13.77 | | 16.14 | | 16.14 | | 16.14 | | 18.7 | 18.7 | 18.5 |
| **F** | 9.84 | | 11.22 | | 12.99 | | 13.38 | | 14.56 | | 15.74 | 17.71 | 21.65 |
| **G** | 16.14 | | 16.92 | | 20.86 | | 20.86 | | 23.62 | | 28.93 | 33.46 | 29.92 |
| **H** | 24.4 | 18.3” | 25.59 | 20.11* | 29.33 | 23.93* | 30.11 | 24.21* | 32.67 | 34.4* | 38.58 | 44.29 | 51.96 |
| **P** | 6.69 | | 8.07 | | 9.84 | | 10.23 | | 11.41 | | 12.59 | 14.56 | 18.5 |
| **L** | | 3.85” | | 5.74* | | 5.74* | | 5.74* | | 5.74* | | | |
| **M** | | 7.63” | | 8.62* | | 9.13* | | 9.68* | | 10.35* | | | |
| **N** | | 4.92” | | 4.92* | | 4.92* | | 5.11* | | 5.11* | | | |
| **Tubing Connections** | 1/4” NPT | | | | | | | | | | | | |

## Weight in lbs

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S-ANSI** 150/PN16 | 99 | 77* | 123 | 114* | 154 | 132* | 194 | 158 | 291 | 249* | 542 | 780 | 1,499 |




## REVAL 182 + PM182

### Overall dimensions in inches

| SIZE | 25 | 50 | 65 | 80 | 100 | 150 | 200 |
|---|---|---|---|---|---|---|---|
| Inches | 1” | 2” | 2 ½” | 3” | 4” | 6” | 8” |
| S-ANSI 150/PN16 | 7.2 | 10 | 10.86 | 11.73 | 13.85 | 17.75 | 21.37 |
| A | 12.59 | 13.77 | 16.92 | 16.92 | 18.5 | 21.65 | 25.59 |
| B | 10.23 | 11.41 | 14.56 | 14.96 | 16.14 | 19.29 | 23.22 |
| C | 14.76 | 14.76 | 19.48 | 19.48 | 19.48 | 24.8 | 24.8 |
| D | 16.14 | 16.29 | 20.86 | 20.86 | 23.62 | 28.93 | 33.46 |
| E | 13.77 | 13.77 | 16.14 | 16.14 | 16.14 | 18.7 | 18.7 |
| F | 9.84 | 11.22 | 12.99 | 13.38 | 14.56 | 15.74 | 17.71 |
| G | 16.14 | 16.92 | 20.86 | 20.86 | 23.62 | 28.93 | 33.46 |
| H | 25.19 | 27.55 | 33.85 | 33.85 | 37 | 4.33 | 51.18 |
| L | 10.23 | 11.61 | 13.38 | 13.77 | 14.96 | 16.14 | 18.11 |
| P | 6.69 | 8.07 | 9.84 | 10.23 | 11.41 | 12.59 | 14.56 |
| Tubing Connections | 1/4” NPT | | | | | | |

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

### Weight in lbs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| S-ANSI 150/PN16 | 119 | 165 | 187 | 220 | 330 | 562 | 870 |

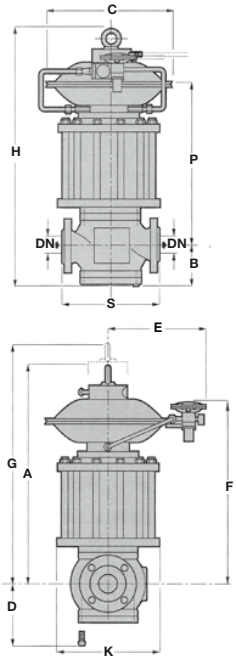
# REVAL 182

## REVAL 182 + DB/182

### Overall dimensions in inches

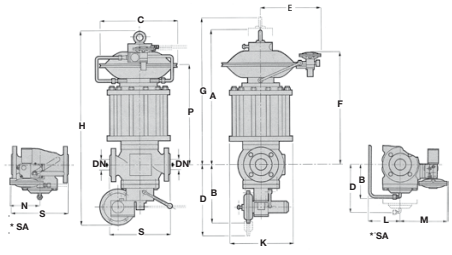
| SIZE | 25 | 50 | 65 | 80 | 100 | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|
| Inches | 1” | 2” | 2 ½” | 3” | 4” | 6” | 8” | 10” |
| S-ANSI 150/PN16 | 7.2 | 10 | 10.86 | 11.73 | 13.89 | 17.75 | 21.37 | 26.49 |
| A | 20.47 | 21.56 | 25.69 | 25.67 | 29.72 | 36.22 | 41.33 | 49.68 |
| B | 3.93 | 5.11 | 5.51 | 5.90 | 7.48 | 8.66 | 10.23 | 12.2 |
| C | 14.76 | 14.76 | 19.48 | 19.48 | 19.48 | 24.8 | 24.8 | 24.8 |
| D | 5.11 | 6.29 | 7.08 | 7.87 | 9.84 | 10.62 | 12.4 | 15.66 |
| E | 13.77 | 13.77 | 16.14 | 16.14 | 16.14 | 18.7 | 18.7 | 18.5 |
| F | 17.71 | 18.89 | 21.65 | 23.03 | 25.78 | 30.31 | 33.46 | 40.94 |
| G | 24.01 | 25.19 | 30.7 | 30.9 | 35.23 | 44.09 | 49.21 | 57.08 |
| H | 32.28 | 33.46 | 37.99 | 39.76 | 43.89 | 53.14 | 60.03 | 62 |
| P | 8.46 | 11.61 | 12.79 | 12.79 | 15.35 | 18.5 | 23.62 | 37.79 |
| K | 14.56 | 15.74 | 18.5 | 19.88 | 22.63 | 27.16 | 30.31 | 27.55 |
| Tubing Connections | 1/4” NPT | | | | | | | |

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334




### Weight in lbs

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| S-ANSI 150/PN16 | 97 | 185 | 194 | 246 | 392 | 747 | 1,181 | 1,984 |



## REVAL 182 + DB/182 + SB82

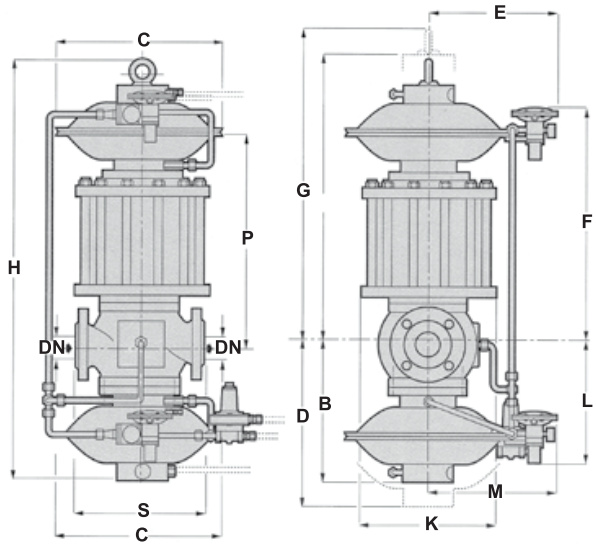
### Overall dimensions in inches

| SIZE | 25 | | 50 | | 65 | | 80 | | 100 | | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inches | 1” | | 2” | | 2 ½” | | 3” | | 4” | | 6” | 8” | 10” |
| S-ANSI 150/PN16 | 7.2 | | 10 | | 10.86 | | 11.73 | | 13.85 | | 17.75 | 21.37 | 26.49 |
| A | 20.47 | | 21.65 | | 25.59 | | 26.57 | | 29.72 | | 36.22 | 41.33 | 49.68 |
| B | 11.81 | 5.7” | 11.81 | 6.33* | 12.4 | 7* | 13.18 | 7.28* | 14.17 | 15.9* | 16.92 | 18.7 | 21.65 |
| C | 14.76 | | 14.76 | | 19.48 | | 19.48 | | 19.48 | | 24.8 | 24.8 | 24.8 |
| D | 15.35 | 8.34 | 15.35 | 10.03* | 16.73 | 11.49* | 17.51 | 12.67* | 19.68 | 25.03* | 24.21 | 27.26 | 31.49 |
| E | 13.77 | | 13.77 | | 16.14 | | 16.14 | | 16.14 | | 18.7 | 18.7 | 18.5 |
| F | 9.84 | | 18.89 | | 21.65 | | 23.03 | | 25.78 | | 30.31 | 33.46 | 40.94 |
| G | 24.01 | | 25.19 | | 30.7 | | 30.9 | | 35.23 | | 44.09 | 49.21 | 57.08 |
| H | 32.28 | 18.3” | 33.46 | 20.11* | 37.99 | 23.93* | 39.76 | 24.21* | 43.89 | 34.4* | 53.14 | 60.03 | 71.33 |
| P | 8.46 | | 11.61 | | 12.79 | | 12.79 | | 15.35 | | 18.5 | 23.62 | 37.79 |
| L | 370 | 3.85” | 15.74 | 5.74* | 18.5 | 5.74* | 19.88 | 5.74* | 22.63 | 5.74* | 27.16 | 30.31 | 27.55 |
| M | | 7.63” | | 8.62* | | 9.13* | | 9.68* | | 10.35* | | | |
| N | | 4.92” | | 4.92* | | 4.92* | | 5.11* | | 5.11* | | | |
| Tubing Connections | 1/4” NPT | | | | | | | | | | | | |

### Weight in lbs

***indicated dimensions with the MODEL VB/93**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-ANSI 150/PN16 | 123 | 77* | 198 | 114* | 220 | 132* | 286 | 158* | 440 | 249* | 859 | 1,300 | 2,204 |




## REVAL 182 + DB/182 + PM/182

### Overall dimensions in inches

| SIZE | 25 | 50 | 65 | 80 | 100 | 150 | 200 |
|---|---|---|---|---|---|---|---|
| Inches | 1” | 2” | 2 ½” | 3” | 4” | 6” | 8” |
| S-ANSI 150/PN16 | 27.56 | 10 | 10.86 | 11.73 | 13.85 | 17.75 | 21.37 |
| A | 20.47 | 21.56 | 25.59 | 26.57 | 29.72 | 36.22 | 41.33 |
| B | 10.23 | 11.41 | 14.56 | 14.96 | 36.22 | 19.29 | 23.22 |
| C | 14.76 | 14.76 | 19.48 | 19.48 | 19.29 | 24.8 | 24.8 |
| D | 16.14 | 16.92 | 20.86 | 23.62 | 24.8 | 28.93 | 33.46 |
| E | 13.77 | 13.77 | 16.14 | 16.14 | 28.93 | 18.7 | 18.7 |
| F | 17.71 | 18.89 | 21.65 | 25.78 | 18.7 | 30.31 | 33.46 |
| G | 24.01 | 25.19 | 30.7 | 35.23 | 30.31 | 44.09 | 49.21 |
| H | 30.7 | 33.07 | 40.15 | 45.86 | 44.09 | 55.51 | 64.56 |
| L | 10.23 | 11.61 | 13.38 | 14.96 | 55.51 | 16.14 | 18.11 |
| M | 13.77 | 13.77 | 16.14 | 16.14 | 16.14 | 18.7 | 18.7 |
| M | 8.46 | 11.61 | 12.79 | 15.35 | 15.35 | 18.5 | 23.62 |
| P | 14.56 | 15.74 | 18.5 | 19.88 | 22.63 | 27.16 | 30.31 |
| Tubing Connections | 1/4” NPT | | | | | | |

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

### Weight in lbs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| S-ANSI 150/PN16 | 143 | 240 | 253 | 313 | 480 | 879 | 1,391 |

EQUIPMENT CONTROLS COMPANY

Ph: 800.554.1036
www.equipmentcontrols.com



04.06.22