

Mark 958 Series

Sanitary Gas Back Pressure Regulators (3/4" - 1")

The Mark 958 Sanitary Gas Back Pressure Regulator is the ideal valve for low back pressure gas regulation for blanketing, motive force, or low pressure sparging in pharmaceutical and food & beverage applications.

The Mark 958 works in conjunction with the Mark 968 (or other) Pressure reducing valve in these applications. The Mark 958 can be used to vent gas from a vessel to prevent the pressure from rising to a level that could damage the vessel, or cause process upset, while maintaining a small constant flow (if desired) to keep the gas fresh. During vessel filling - this regulator will be required to open wide to allow enough gas to escape as the vapor space in the tank grows smaller. To size properly, the rate of fill must be known so that a regulator can be chosen based on its ability to relieve the required amount of gas while sustaining desired blanketing pressure. The Mark 958 will also work well in any other type of low back pressure gas application.

The large diaphragm and lever actuation allows the Mark 958 to act with higher sensitivity compared to smaller diaphragm pressure regulators. High sensitivity is important, as the Mark 958 often works with very low pressure (down to 2" w.c. / 5,0 mbar). This special actuation improves the accuracy and shutoff of the valve - two important benefits in this style of regulator. Together, the SST construction, FDA-approved seals and the tri-clamp connections make this valve well suited for sanitary applications and environments.

FEATURES

- Body rating up to 150 psi (10,3 bar)
- Robust design - emergency outlet pressure may reach 100% of inlet pressure without damaging valve
- 360° body orientation - valve can be installed in any position, and can be easily repositioned while in-line
- Easy maintenance - seat and plug can be inspected without removing body from the line
- Completely self-operated - no external power source required



SPECIFICATIONS

Line Sizes: 3/4" (DN20) & 1" (DN25)

End Connections

- Tri-Clamp — ISO/DIN or ASME BPE sizes
- Flanged — 150#, 300#, PN25/40 & sterile flanges

Materials

- Body & Housing: SA351 Gr. CF8M 316SS, or CF3M 316L
- Seat: ASTM A479 316/316L
- Plug: ASTM A479 316L and FDA-approved Viton
- Diaphragm: Viton (FDA)
- Aspirator Tube: FDA USP Class VI Teflon

Surface finish: Internal and external cast body components are 130 Ra μin (3,30 Ra μm) minimum after electropolishing. Electropolishing is standard.

Service: Air or gas

Shutoff: ANSI Class VI

Temperature Range: -20°F (-29°C) to 200°F (93°C)

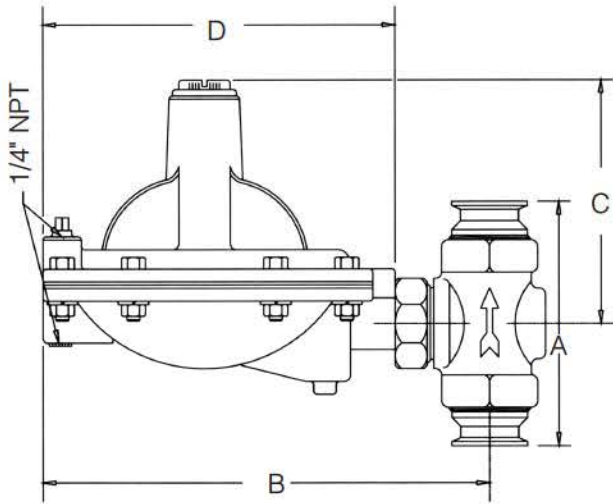
Maximum Inlet Pressure: 150 psi (10 bar)

Reduced Pressure Control Range:

- 2.0 to 6.0 inches w.c. (5,0 to 15,0 mbar)
- 3.0 to 11.0 inches w.c. (7,5 to 27,4 mbar)
- 5.0 to 35.0 inches w.c. (12,4 to 87,0 mbar)

MARK 958 SERIES SANITARY GAS BACK PRESSURE REGULATORS

DIMENSIONS



| Valve Size | Dimensions, Inches | | | |
|------------|--------------------|-------|------|------|
| | A | B | C | D |
| 3/4" | 5.88 | 11.31 | 5.75 | 9.00 |
| 1" | 5.88 | 11.31 | 5.75 | 9.00 |

| Valve Size | Dimensions, Mm | | | |
|------------|----------------|-------|-------|-------|
| | A | B | C | D |
| DN20 | 149,4 | 287,3 | 146,1 | 228,6 |
| DN25 | 149,4 | 287,3 | 146,1 | 228,6 |

FLOW CAPACITIES & SIZING

| Spring Range | Set Point | Minimum Pressure Build | Outlet Vacuum psig (bar) | Flow of Nitrogen scfh (nm ³ /h) |
|--------------------------------|----------------------|------------------------|--------------------------|--|
| 2 - 6" WC 5,0 - 15,0 mbar | 3.0" WC 7,5 mbar | 2.3" WC 5,7 mbar | 0 (0) | 368 (10) |
| | | | -2.5 (-0,2) | 1253 (35) |
| | | | -5.0 (-0,3) | 1582 (45) |
| | 5.0" WC 12,5 mbar | 2.3" WC 5,7 mbar | 0 (0) | 406 (12) |
| | | | -2.5 (-0,2) | 1199 (34) |
| | | | -5.0 (-0,3) | 1505 (43) |
| 3 - 11" WC 7,5 - 27,4 mbar | 6" WC 15,0 mbar | 2.9" WC 7,2 mbar | 0 (0) | 456 (13) |
| | | | -2.5 (-0,2) | 1233 (35) |
| | | | -5.0 (-0,3) | 1540 (44) |
| | 11" WC 27,4 mbar | 2.9" WC 7,2 mbar | 0 (0) | 569 (16) |
| | | | -2.5 (-0,2) | 1272 (36) |
| | | | -5.0 (-0,3) | 1569 (44) |
| 5 - 35" WC 12,5 - 87,2 mbar | 18" WC 44,8 mbar | 8.0" WC 19,9 mbar | 0 (0) | 708 (20) |
| | | | -2.5 (-0,2) | 1245 (35) |
| | | | -5.0 (-0,3) | 1493 (42) |
| | 30" WC 74,7 mbar | 8.0" WC 19,9 mbar | 0 (0) | 856 (24) |
| | | | -2.5 (-0,2) | 1324 (37) |
| | | | -5.0 (-0,3) | 1552 (44) |

MARK 958 SERIES SANITARY GAS BACK PRESSURE REGULATORS

ORDERING SCHEMATIC (3/4" - 1")

| Model | Size | Material | 1&2 | 3&4 | 5&6 | 7&8 |
|-------|------|----------|-----|-----|-----|-----|
| | — | — | / | | | |

| Model | |
|-------|---------------------------------|
| 958 | Mark 958 Sanitary Gas Regulator |

| Size | |
|------|-------------|
| 075 | 3/4" (DN20) |
| 100 | 1" (DN25) |

| Body Material | |
|---------------|------------------------|
| S6 | ASTM A351 Gr. CF8M 316 |
| 6L | SA 351 Gr. CF3M, 316L |

| 1&2 | Connections & Body Finish |
|-----|--|
| TC | Tri Clamp - Electropolished Finish |
| DC | DIN - Tri Clamp - Electropolished Finish |
| SC | ISO - Tri-Clamp - Electropolished Finish |
| ZZ | Non-Standard |

| 3&4 | Range |
|-----|------------------------------|
| 01 | 2"-6" W.C. (5,0-15,0 mbar) |
| 02 | 3"-11" W.C. (7,5-27,4 mbar) |
| 03 | 5"-35" W.C. (12,5-87,2 mbar) |
| ZZ | Non-Standard |

| 5&6 | Actuator Finish & Diaphragm |
|-----|-------------------------------|
| SD | Electropolished w/Viton (FDA) |
| ZZ | Non-Standard |

| 7&8 | Accessory Features |
|-----|----------------------------|
| 00 | None |
| 03 | Clean for Oil-free Service |
| ZZ | Non-Standard |

Mark 958 Series

Sanitary Gas Regulator (1-1/2" – 2")

The 1-1/2" and 2" valves are for use on large tank blanketing applications or other low pressure gas applications. In a tank blanketing application, the Mark 958 is used to control the flow of the blanketing gas into the tank to maintain the proper positive pressure. Once the blanket has been established, a small flow of nitrogen is continually admitted to the tank to keep the blanket fresh. These valves are often used in conjunction with the Mark 958 back pressure gas regulator, used to vent gas from the tank to prevent blanketing pressure from rising to a level that could damage the tank.

The Mark 958 comes standard with an extra large diaphragm to give set point control as low as 2.0" W.C. (4,98 mbar). In addition, the "S" pattern body design allows for high flow capacity and bubble tight shutoff.

SPECIFICATIONS

Line Sizes: 1-1/2" (DN40), 2" (DN50)

End Connections

- Tri-clamp — ISO, DIN, or ASME BPE
- Flanged — 150#, 300#, Sanitary
- Others upon request

Materials

- Body: Stainless Steel SA351 Gr. CF8M 316SS
- Trim: 316/316L Stainless Steel
- Seat: 316/316L Stainless Steel with Viton (FDA)
- Diaphragm: Viton (FDA)

Surface finish: Internal and external cast body components are 130 Ra μ m (3,30 Ra μ m) minimum after electropolishing. Electropolishing is standard.

Shutoff: ANSI Class VI

Ranges:

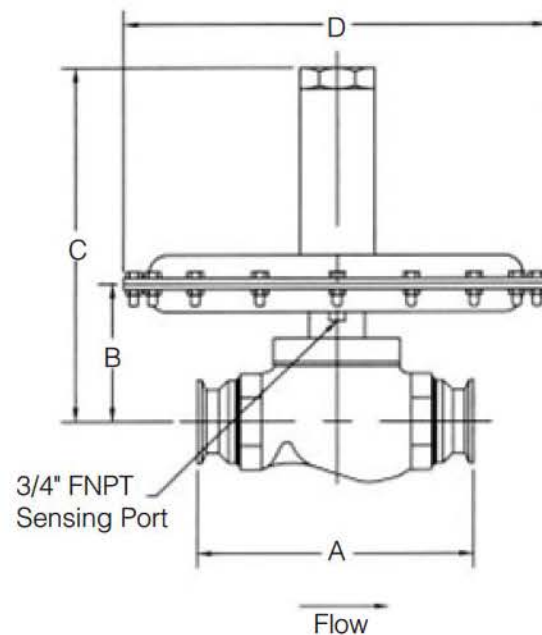
- 2 to 5 inches w.c. (4,98 to 12,5 mbar)
- 4 to 8 inches w.c. (9,96 to 19,93 mbar)
- 8 to 28 inches w.c. (19,93 to 69,75 mbar)
- 10 to 17 inches w.c. (24,91 to 42,35 mbar)
- 14 to 28 inches w.c. (34,87 to 69,75 mbar)
- 0.75 to 1 psi (51,71 to 68,95 mbar)
- 1 to 2 psi (68,95 to 137,90 mbar)
- 1.5 to 3 psi (0,10 to 0,21 bar)
- 3 to 5 psi (0,21 to 0,34 bar)

Cv Rating: 23 (20 Kv)

Pressure Temperature Rating: 25 psi @ 100°F (1,72 bar @ 27,8 °C), 25 psi @ 275°F (1,72 bar @ 135°C)

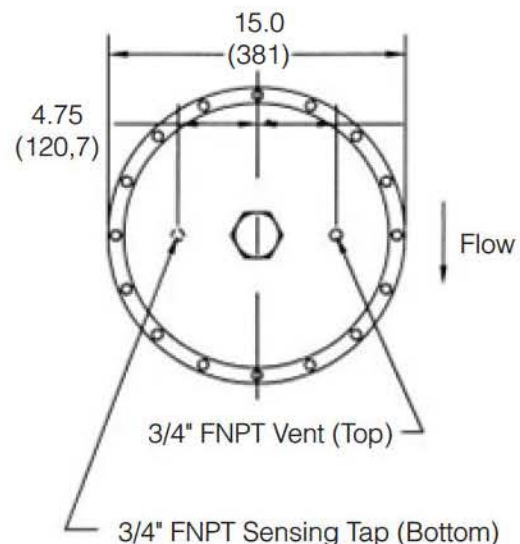
Maximum Pressure Drop: 25 psig (1,72 bar)

DIMENSIONS



| Valve Size | Dimensions, Inches | | | |
|------------|--------------------|------|-------|-------|
| | A | B | C | D |
| 1-1/2" | 8.75 | 4.93 | 12.32 | 15.00 |
| 2" | 8.75 | 4.93 | 12.32 | 15.00 |

| Valve Size | Dimensions, Inches | | | |
|------------|--------------------|-------|-------|-------|
| | A | B | C | D |
| DN40 | 222,3 | 125,2 | 312,9 | 381,0 |
| DN50 | 222,3 | 125,2 | 312,9 | 381,0 |



MARK 958 SERIES SANITARY GAS BACK PRESSURE REGULATORS

1-1/2" SIZE FLOW CAPACITIES

| | | Flow Rate @ Pressure Over Set Point (SCFH) | | | | | | |
|-------------------|-----------|--|----------------------|----------------------|-----------------------|--------------------|--------------------|--------------------|
| Range | Set Point | 2.0" WC (5,0 mbar) | 4" WC (10,0 mbar) | 8" WC (19,9 mbar) | 0.50 psi (0,7 bar) | 1 psi (1,0 bar) | 2 psi (1,4 bar) | 3 psi (1,7 bar) |
| 2.0 - 5.0 WC | 3.0" WC | 1496 | 2134 | 2938 | 4034 | 6291 | 9380 | 11980 |
| 5,0 - 12,5 mbar | 7,5 mbar | 42 | 60 | 83 | 114 | 178 | 266 | 339 |
| 4.0 - 8.0" WC | 5.0" WC | 1886 | 2537 | 3397 | 4484 | 6297 | 9481 | 12202 |
| | 7.0" WC | 1971 | 2828 | 3642 | 4612 | 6893 | 9565 | 12195 |
| 10,0 - 20,0 mbar | 12,5 mbar | 53 | 72 | 96 | 127 | 178 | 268 | 346 |
| | 17,4 mbar | 56 | 80 | 103 | 131 | 195 | 271 | 345 |
| 8.0 - 28" WC | 10.0" WC | 1786 | 3239 | 4390 | 5115 | 7115 | 10060 | 12646 |
| | 25.0" WC | 1411 | 3683 | 6098 | 6989 | 8707 | 11444 | 13737 |
| 20,0 - 70,0 mbar | 24,9 mbar | 51 | 92 | 124 | 145 | 201 | 285 | 358 |
| | 62,3 mbar | 40 | 104 | 173 | 198 | 247 | 324 | 389 |
| 10.0 - 17.0" WC | 12.0" WC | 2014 | 3493 | 4688 | 5648 | 7199 | 10270 | 12889 |
| | 15.0" WC | 2264 | 3977 | 5262 | 5907 | 7598 | 10445 | 13047 |
| 24,9 - 42,4 mbar | 28,9 mbar | 57 | 99 | 133 | 160 | 204 | 291 | 365 |
| | 37,4 mbar | 64 | 113 | 149 | 167 | 215 | 296 | 369 |
| 14.0 - 28.0" WC | 15.0" WC | 1979 | 3451 | 5056 | 5949 | 7555 | 10611 | 13169 |
| | 25.0" WC | 1858 | 3716 | 5916 | 7107 | 8662 | 11535 | 13807 |
| 34,9 - 70,0 mbar | 37,4 mbar | 56 | 98 | 143 | 168 | 214 | 300 | 373 |
| | 62,3 mbar | 53 | 105 | 168 | 201 | 245 | 327 | 391 |
| 0.75 - 1 psi | 0.75 psi | | 3498 | 5525 | 6479 | 8316 | 11153 | 13788 |
| | 1 psi | | 2951 | 5824 | 7370 | 9011 | 11736 | 15160 |
| 51,7 - 69,0 mbar | 51,7 mbar | | 99 | 156 | 183 | 235 | 316 | 390 |
| | 68,8 mbar | | 84 | 165 | 209 | 255 | 332 | 429 |
| 1 - 2 psi | 1.5 psi | | | 5310 | 8443 | 10312 | 12812 | 16120 |
| | 2.0 psi | | | 5568 | 8960 | 11444 | 13941 | 17024 |
| 69,0 - 137,9 mbar | 0,10 bar | | | 150 | 239 | 292 | 363 | 456 |
| | 0,14 bar | | | 158 | 254 | 324 | 395 | 482 |
| 1.5 - 3 psi | 2.0 psi | | | | 8295 | 11568 | 13835 | 17046 |
| | 3.0 psi | | | | 8463 | 13218 | 16575 | 18756 |
| 0.10 - 0.21 bar | 0,14 bar | | | | 235 | 328 | 392 | 483 |
| | 0,21 bar | | | | 240 | 374 | 469 | 531 |
| 3 - 5 psi | 3.5 psi | | | | 6208 | 12356 | 16925 | 19025 |
| | 5.0 psi | | | | 5655 | 11412 | 18093 | 20658 |
| 0,21 - 0,34 mbar | 0,24 bar | | | | 176 | 350 | 479 | 539 |
| | 0,34 bar | | | | 160 | 323 | 512 | 585 |

Nitrogen at 0.97 s.g. in scfh and Nm³/hr
 Operation in shaded areas not recommended

MARK 958 SERIES SANITARY GAS BACK PRESSURE REGULATORS

2" SIZE FLOW CAPACITIES

| Range | Set Point | Flow Rate @ Pressure Over Set Point (SCFH) | | | | | | |
|-------------------|-----------|--|----------------------|----------------------|-----------------------|--------------------|--------------------|--------------------|
| | | 2.0" WC (5,0 mbar) | 4" WC (10,0 mbar) | 8" WC (19,9 mbar) | 0.50 psi (0,7 bar) | 1 psi (1,0 bar) | 2 psi (1,4 bar) | 3 psi (1,7 bar) |
| 2.0 - 5.0 WC | 3.0" WC | 1663 | 2371 | 3264 | 4482 | 6990 | 10422 | 13311 |
| 5,0 - 12,5 mbar | 7,5 mbar | 47 | 67 | 92 | 127 | 198 | 295 | 377 |
| 4.0 - 8.0" WC | 5.0" WC | 2095 | 2819 | 3775 | 4982 | 6997 | 10535 | 13558 |
| | 7.0" WC | 2190 | 3142 | 4047 | 5125 | 7659 | 10628 | 13550 |
| 10,0 - 20,0 mbar | 12,5 mbar | 59 | 80 | 107 | 141 | 198 | 298 | 384 |
| | 17,4 mbar | 62 | 89 | 115 | 145 | 217 | 301 | 384 |
| 8.0 - 28" WC | 10.0" WC | 1984 | 3599 | 4878 | 5684 | 7905 | 11178 | 14052 |
| | 25.0" WC | 1568 | 4092 | 6776 | 7765 | 9675 | 12716 | 15263 |
| 20,0 - 70,0 mbar | 24,9 mbar | 56 | 102 | 138 | 161 | 224 | 317 | 398 |
| | 62,3 mbar | 44 | 116 | 192 | 220 | 274 | 360 | 432 |
| 10.0 - 17.0" WC | 12.0" WC | 2238 | 3882 | 5209 | 6276 | 7999 | 11411 | 14321 |
| | 15.0" WC | 2515 | 4419 | 5847 | 6563 | 8442 | 11606 | 14497 |
| 24,9 - 42,4 mbar | 28,9 mbar | 63 | 110 | 148 | 178 | 227 | 323 | 406 |
| | 37,4 mbar | 71 | 125 | 166 | 186 | 239 | 329 | 411 |
| 14.0 - 28.0" WC | 15.0" WC | 2199 | 3834 | 5617 | 6610 | 8395 | 11790 | 14632 |
| | 25.0" WC | 2064 | 4128 | 6573 | 7896 | 9625 | 12817 | 15342 |
| 34,9 - 70,0 mbar | 37,4 mbar | 62 | 109 | 159 | 187 | 238 | 334 | 414 |
| | 62,3 mbar | 58 | 117 | 186 | 224 | 273 | 363 | 434 |
| 0.75 - 1 psi | 0.75 psi | | 3887 | 6139 | 7199 | 9240 | 12392 | 15320 |
| | 1 psi | | 3279 | 6471 | 8189 | 10012 | 13040 | 16845 |
| 51,7 - 69,0 mbar | 51,7 mbar | | 110 | 174 | 204 | 262 | 351 | 434 |
| | 68,8 mbar | | 93 | 183 | 232 | 284 | 369 | 477 |
| 1 - 2 psi | 1.5 psi | | 5900 | 9381 | 11457 | 14235 | 17911 | |
| | 2.0 psi | | 6186 | 9956 | 12716 | 15490 | 18916 | |
| 69,0 - 137,9 mbar | 0,10 bar | | 167 | 266 | 324 | 403 | 507 | |
| | 0,14 bar | | 175 | 282 | 360 | 439 | 536 | |
| 1.5 - 3 psi | 2.0 psi | | 9216 | 12853 | 15372 | 18940 | | |
| | 3.0 psi | | 9403 | 14687 | 18416 | 20840 | | |
| 0.10 - 0,21 bar | 0,14 bar | | 261 | 364 | 435 | 536 | | |
| | 0,21 bar | | 266 | 416 | 521 | 590 | | |
| 3 - 5 psi | 3.5 psi | | 6898 | 13728 | 18806 | 21138 | | |
| | 5.0 psi | | 6283 | 12680 | 20103 | 22953 | | |
| 0,21 - 0,34 mbar | 0,24 bar | | 195 | 389 | 533 | 599 | | |
| | 0,34 bar | | 178 | 359 | 569 | 650 | | |

Nitrogen at 0.97 s.g. in scfh and Nm³/hr
 Operation in shaded areas not recommended

ORDERING SCHEMATIC (1-1/2" – 2")

| Model | Size | Material | / | 1&2 | 3&4 | 5&6 | 7&8 | 9&10 | 11&12 |
|-------|------|----------|---|-----|-----|-----|-----|------|-------|
| | — | — | | | | | | | |

| Model | |
|-------|---------------------------------|
| 958 | Mark 958 Sanitary Gas Regulator |

| Size | |
|------|---------------|
| 150 | 1-1/2" (DN40) |
| 200 | 2" (DN50) |

| Body Material | |
|---------------|-----------------|
| S6 | Stainless Steel |

| 1&2 | Connections & Body Finish |
|-----|--|
| TC | Tri Clamp - Electropolished Finish |
| DC | DIN - Tri Clamp - Electropolished Finish |
| SC | ISO - Tri Clamp - Electropolished Finish |
| ZZ | Non-Standard |

| 3&4 | Seat & Diaphragm / Seat Finish |
|-----|--------------------------------|
| VN | Viton / Electropolished Seat |

| 5&6 | Range |
|-----|-------------------------------|
| 07 | 2-5" WC (4,98-12,5 mbar) |
| 08 | 4-8" WC (9,96-19,93 mbar) |
| 09 | 8-28" WC (19,93-69,75 mbar) |
| 10 | 10-17" WC (24,91-42,35 mbar) |
| 11 | 14-28" WC (34,87-69,75 mbar) |
| 12 | 0.75-1 psi (51,71-68,95 mbar) |
| 13 | 1-2 psi (68,95-137,90 mbar) |
| 14 | 1.5-3 psi (0,10-0,21 bar) |
| 15 | 3-5 psi (0,21-0,34 bar) |
| ZZ | Non-Standard |

| 7&8 | Actuator Finish |
|-----|-----------------|
| SD | Electropolished |
| ZZ | Non-Standard |

| 9&10 | Bushing |
|------|--------------|
| TF | Teflon-FDA |
| ZZ | Non-Standard |

| 11&12 | PED Compliance |
|-------|----------------|
| 00 | Not Required |
| FF | CE Category 1 |
| ZZ | Non-Standard |



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