



# 400 Series Regulators

# 412 SERIES

The 412 Series regulators are intended for primary pressure control of non-corrosive, high purity or liquefied gases for applications requiring constant pressure control and delivery regardless of supply pressure variations.

- Dual Stage
- Brass Barstock Body
- Six Port Configuration
- 316L Stainless Steel Diaphragm



412 2331-580 shown

## Typical Applications

- EPA Protocol gases
- Gas and liquid chromatography
- High purity carrier gases
- Zero, span, and calibration gases
- High purity chamber pressurization

## Features

- Metal-to-Metal Diaphragm Seal**  
No possibility of gas contamination
- CAPSULE® Seat**  
Increased serviceability and life
- Brass Barstock Body**  
Smooth surface finish
- Front Panel-Mountable**  
Easy installation
- 10 Micron Filtration in Both Stages**  
Fail-safe seat performance
- Pressure Ranges 0-15 to 0-350 PSIG (0-1 to 0-24 BAR)**  
Broad range of applications
- Pipe Away Relief Valve**  
Safely vents exhaust gases

## Materials

- Body**  
Brass barstock
- Bonnet**  
Brass barstock
- Seat**  
PTFE (first stage)  
PTFE (second stage)
- Filter**  
10 micron sintered bronze
- Diaphragm**  
316L stainless steel
- Internal Seals**  
PTFE

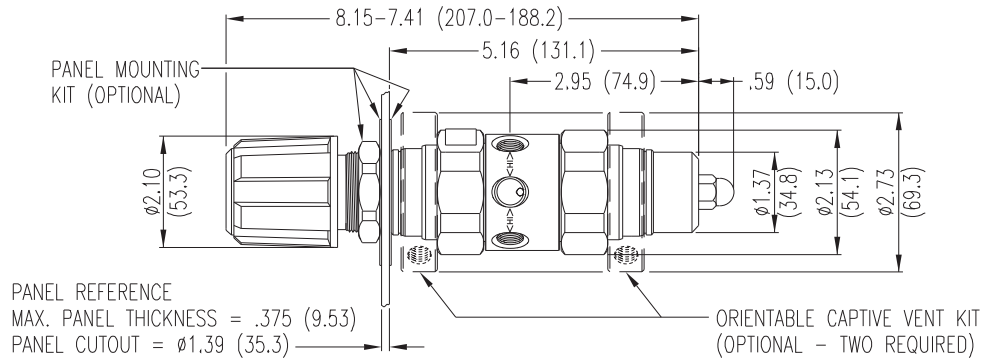
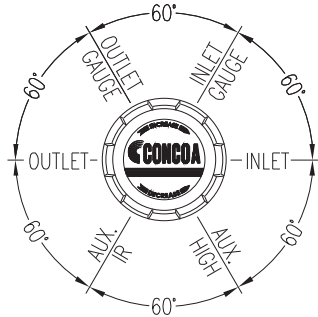
## Specifications

- Maximum Inlet Pressure**  
3000 PSIG (210 BAR)  
3500 PSIG (240 BAR) optional  
4500 PSIG (310 BAR) optional
- Temperature Range**  
-40°F to 140°F (-40°C to 60°C)
- Gauges**  
2" (53mm) diameter brass
- Ports**  
1/4" FPT
- Helium Leak Integrity**  
1 x 10<sup>-9</sup> scc/sec
- Cv**  
0.1  
See page 202 for flow curves
- Weight (412 2331-580)**  
5.3 lbs. (2.40 kg)

# 400 Series Regulators



## Installation Dimensions



## Ordering Information

| 412        | A                               | B  | C   | D   | -CON   | Options  |   |
|------------|---------------------------------|--|---|---|--|--|---|
| Series 412 | Max Outlet Pressure             | Max Outlet Gauge   | Inlet Gauge   | Outlet Assemblies                           | Assembly/ Gauges                               | Inlet Connections                                | Installed Options   |
|            | <b>1:</b> 0-15 PSIG (0-1 BAR)   | 30"-0-30 PSIG/<br>-1-0-2 BAR   | <b>0:</b> None  | <b>0:</b> 1/4" FPT port                     | <b>0:</b> Bare body                            | <b>000:</b> 1/4" FPT                             | <b>B:</b> Protocol alarm station (110/220 VAC)  |
|            | <b>2:</b> 0-50 PSIG (0-3.5 BAR) | 30"-0-100 PSIG/<br>-1-0-7 BAR  | <b>3:</b> 0-4000 PSIG/<br>0-275 BAR                       | <b>1:</b> 1/4" MPT                          | <b>1:</b> Cleanroom assembly (PSIG/kPa gauges) | <b>TF2:</b> 1/8" tube                            | <b>C:</b> Protocol switchover station   |
|            | <b>3:</b> 0-100 PSIG (0-7 BAR)  | 30"-0-200 PSIG/<br>-1-0-14 BAR                                       | <b>5:</b> 0-1000 PSIG/<br>0-70 BAR                        | <b>2:</b> 1/4" tube fitting                 | <b>2:</b> Cleanroom assembly (BAR/PSIG gauges) | <b>TF4:</b> 1/4" tube                            | <b>D:</b> Deep purge*   |
|            | <b>4:</b> 0-250 PSIG (0-17 BAR) | 0-400 PSIG/<br>0-27 BAR  | <b>6:</b> 0-300 PSIG/<br>0-21 BAR                         | <b>3:</b> Diaphragm valve 1/4" tube fitting |  | <b>TF6:</b> 3/8" tube                            | <b>H:</b> Protocol switchover station with alarm (110/220 VAC)                                      |
|            | <b>7:</b> 0-150 PSIG (0-10 BAR) | 30"-0-200 PSIG/<br>-1-0-14 BAR                                       | <b>7:</b> 0-400 PSIG/<br>0-27 BAR                         | <b>4:</b> Diaphragm valve 1/4" MPT          |  | <b>M06:</b> 6mm tube                             | <b>M:</b> Protocol station  |
|            | <b>E:</b> 0-350 PSIG (0-24 BAR) | 0-400 PSIG/<br>0-27 BAR  | <b>8:</b> 0-6000 PSIG/<br>0-415 BAR*                      | <b>5:</b> Needle valve 1/4" MPT             |  | CGA<br>DIN 477<br>BS 341<br>and others available | <b>Q:</b> Protocol purge station*<br><br>*Not available with 4500 PSIG (310 BAR) max inlet pressure |
|            |                                 | <b>G:</b> 0-4000 PSIG/<br>0-275 BAR†                                 | <b>6:</b> 1/8" tube fitting                               |   |  |  |   |
|            |                                 | *Maximum inlet pressure 4500 PSIG (310 BAR) with PCTFE seat CAPSULE® | <b>7:</b> 3/8" tube fitting                               |   |  |  |   |
|            |                                 | †Maximum inlet pressure 3500 PSIG (240 BAR) with PCTFE seat CAPSULE  | <b>8:</b> Diaphragm valve 1/8" tube fitting               |   |  |  |   |
|            |                                 |  | <b>9:</b> Diaphragm valve 1/4" FPT                        |   |  |  |   |
|            |                                 |  | <b>A:</b> 3/8" BSP RH fitting                             |   |  |  |   |
|            |                                 |  | <b>B:</b> Diaphragm valve 3/8" tube fitting               |   |  |  |   |
|            |                                 |  | <b>C:</b> 3/8" BSP LH fitting                             |   |  |  |   |
|            |                                 |  | <b>D:</b> 6mm brass hose barb (not available if A=4 or 5) |   |  |  |   |
|            |                                 |  | <b>G:</b> 1/8" stainless steel tube fitting               |   |  |  |   |
|            |                                 |  | <b>H:</b> 1/4" stainless steel tube fitting               |   |  |  |   |
|            |                                 |  | <b>M:</b> 6mm tube fitting                                |   |  |  |   |
|            |                                 |  | <b>S:</b> Diaphragm valve 6mm tube fitting                |   |  |  |   |

## Related Options

| Order No. | Description               |
|-----------|---------------------------|
| 550 0002  | Panel mount kit           |
| 550 0001  | Captured vent kit         |
| 476 0002  | Helium Leak certification |

