



# 400 Series Regulators

# 411 SERIES

The 411 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
- Chrome-plated Brass Barstock
- Six Port Configuration
- 316L Stainless Steel Diaphragm



411 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
- Chrome-plated 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**  
Chrome-plated brass barstock
- Bonnet**  
Chrome-plated brass barstock
- Seat**  
PTFE (first stage)  
PTFE (second stage)
- Filter**  
10 micron sintered bronze
- Diaphragm**  
316L stainless steel
- Internal Seals**  
PTFE

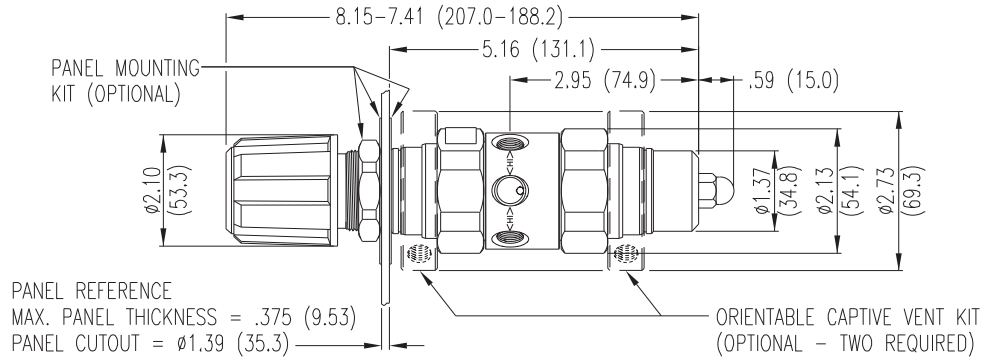
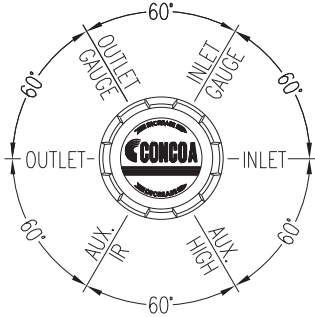
## Specifications

- 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 chrome-plated
- 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 (411 2331-580)**  
5.3 lbs. (2.40 kg)

# 400 Series Regulators



## Installation Dimensions



## Ordering Information

411	A	B	C	D	-CON	Options	
Series 411	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/ -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/ -1-0-7 BAR	<b>3:</b> 0-4000 PSIG/ 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/ -1-0-14 BAR	<b>5:</b> 0-1000 PSIG/ 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/ 0-27 BAR	<b>6:</b> 0-300 PSIG/ 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/ -1-0-14 BAR	<b>7:</b> 0-400 PSIG/ 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/ 0-27 BAR	<b>8:</b> 0-6000 PSIG/ 0-415 BAR*	<b>5:</b> Needle valve 1/4" MPT		CGA DIN 477 BS 341 and others available	<b>Q:</b> Protocol purge station*  *Not available with 4500 PSIG (310 BAR) max inlet pressure
		<b>G:</b> 0-4000 PSIG/ 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

