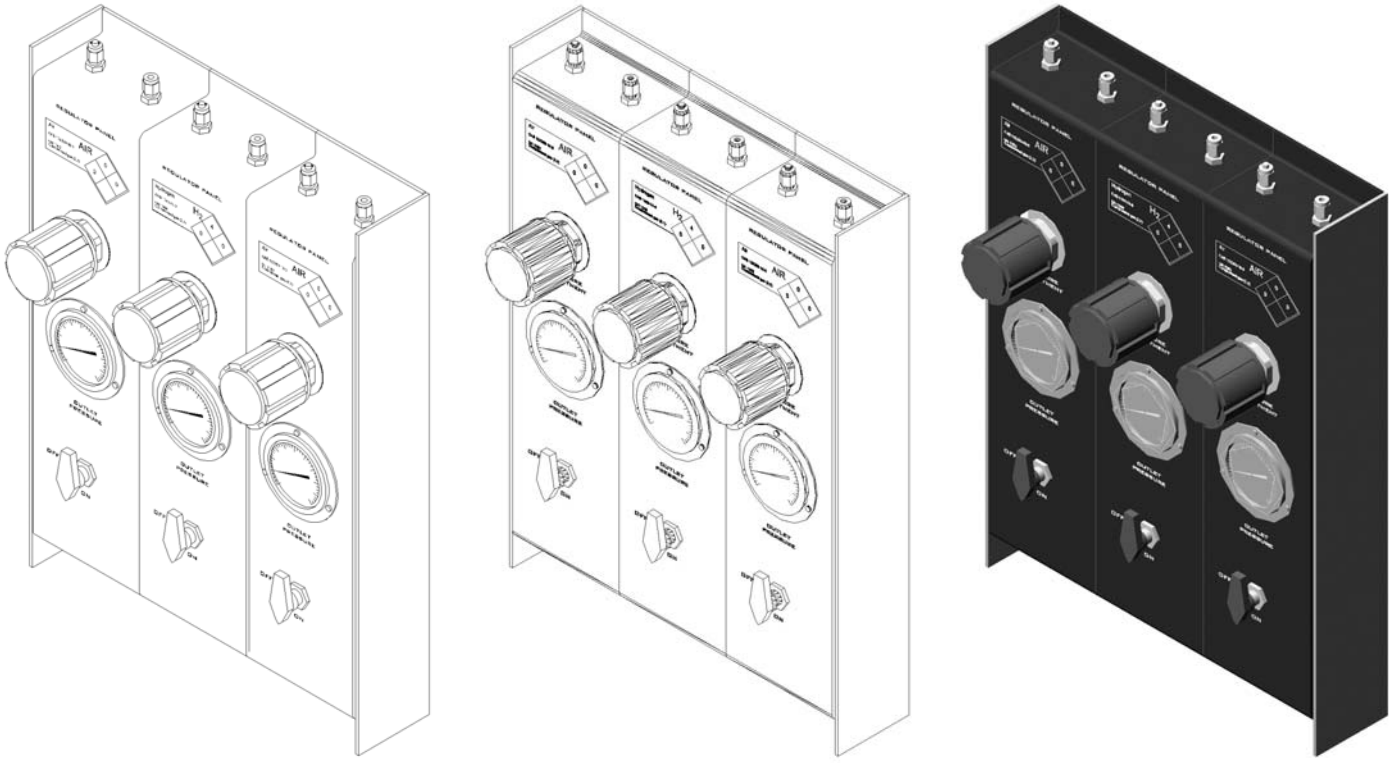
Gas Delivery Systems

Product Catalog

Point-Of-Use Panels for High Purity Applications



WESTERN

Innovative solutions for all your gas delivery needs

Table of Contents

Industry Standards

Western manufactures and distributes equipment for the storage, control, and transmission of high pressure gases. In addition to the high purity gas equipment contained in this catalog, Western offers a complete line of gas control products for industrial, medical, and helium market applications.

Ordering Information

To place an order, please call your gas equipment wholesaler. For more information on specific products, contact Western Customer Service at 1-800-783-7890.

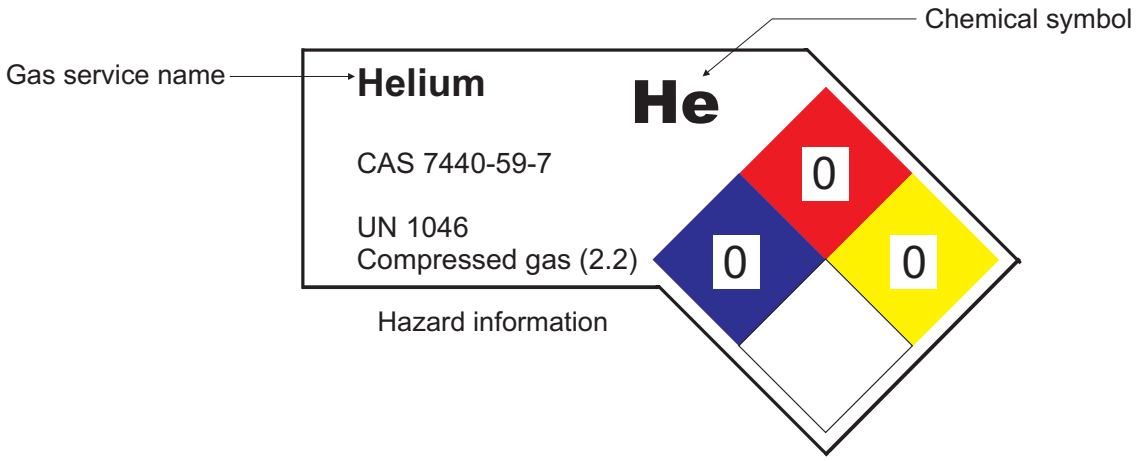
Note: *If any questions should arise as to the safety or application for Western products, Western Enterprises' product design engineering department will evaluate the requirements and make recommendations based on known regulatory information. User/installer is responsible for insuring installation has been done in accordance with local codes.*

Warranty

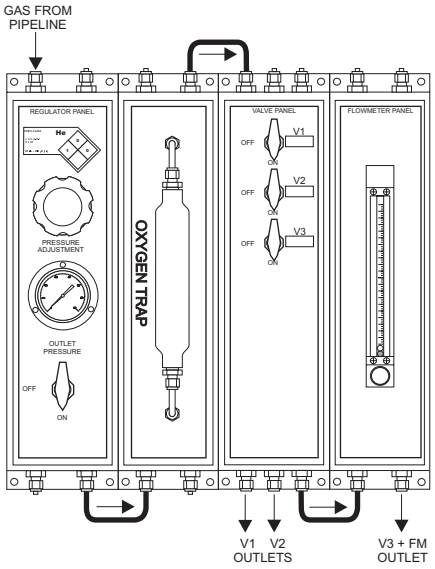
Western warrants to the purchaser that the products delivered to the purchaser will be free from manufactured defects in material and workmanship.

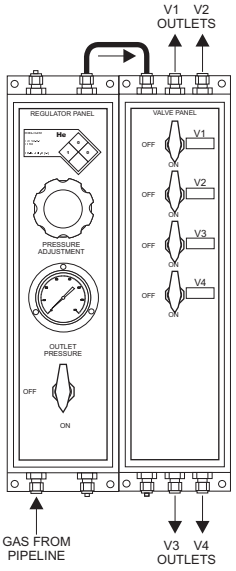
This catalog is for informational purposes. Specific information regarding the use of these products is contained in the operating instructions provided with each product or on the product packaging.

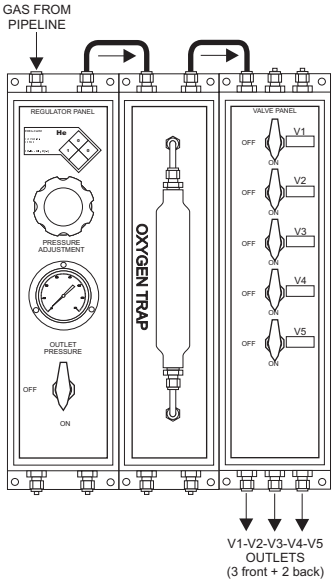
Unique in the Industry - A Useful and Comprehensive Nametag

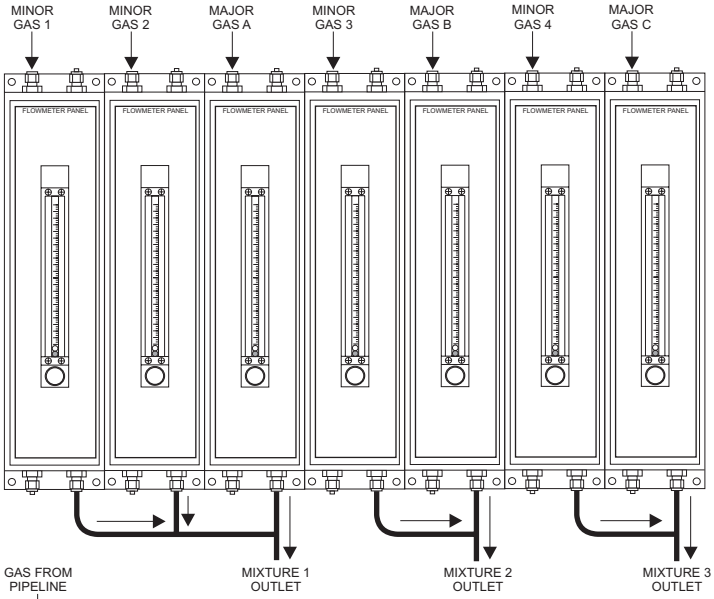


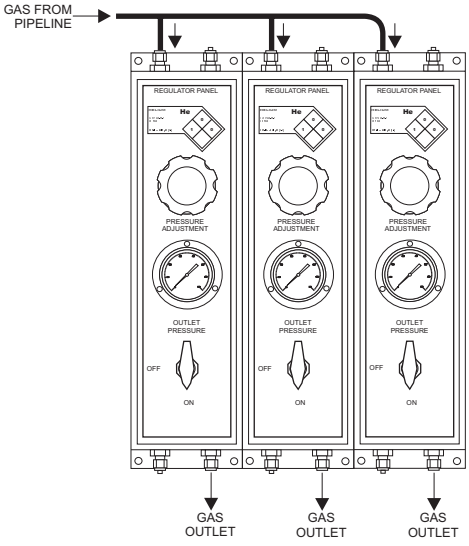
Unlimited Panel Configurations with the Modular Series

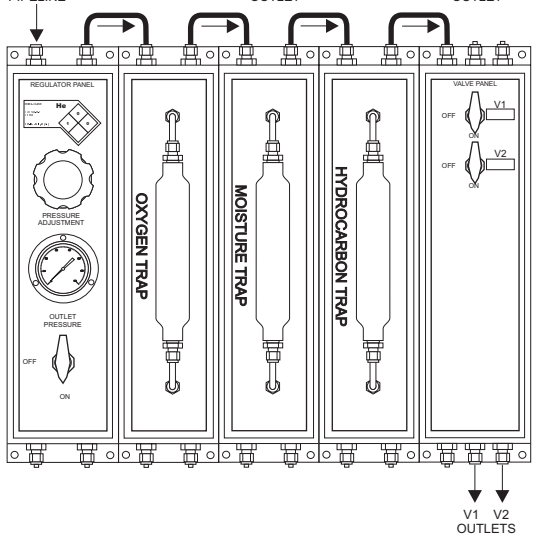


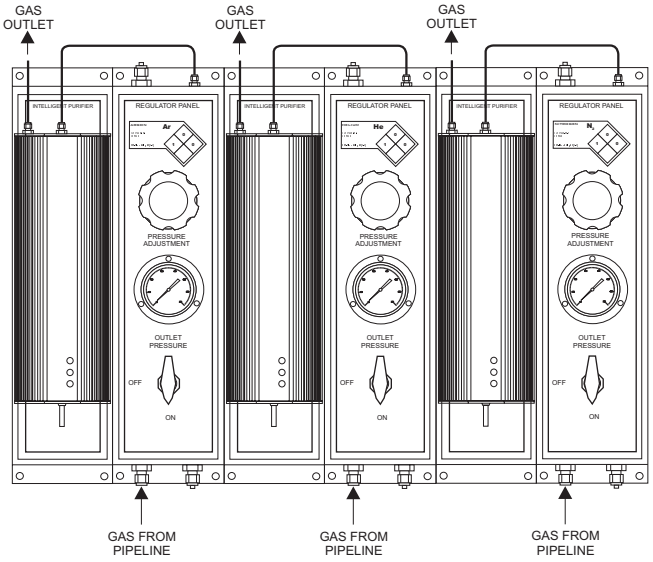




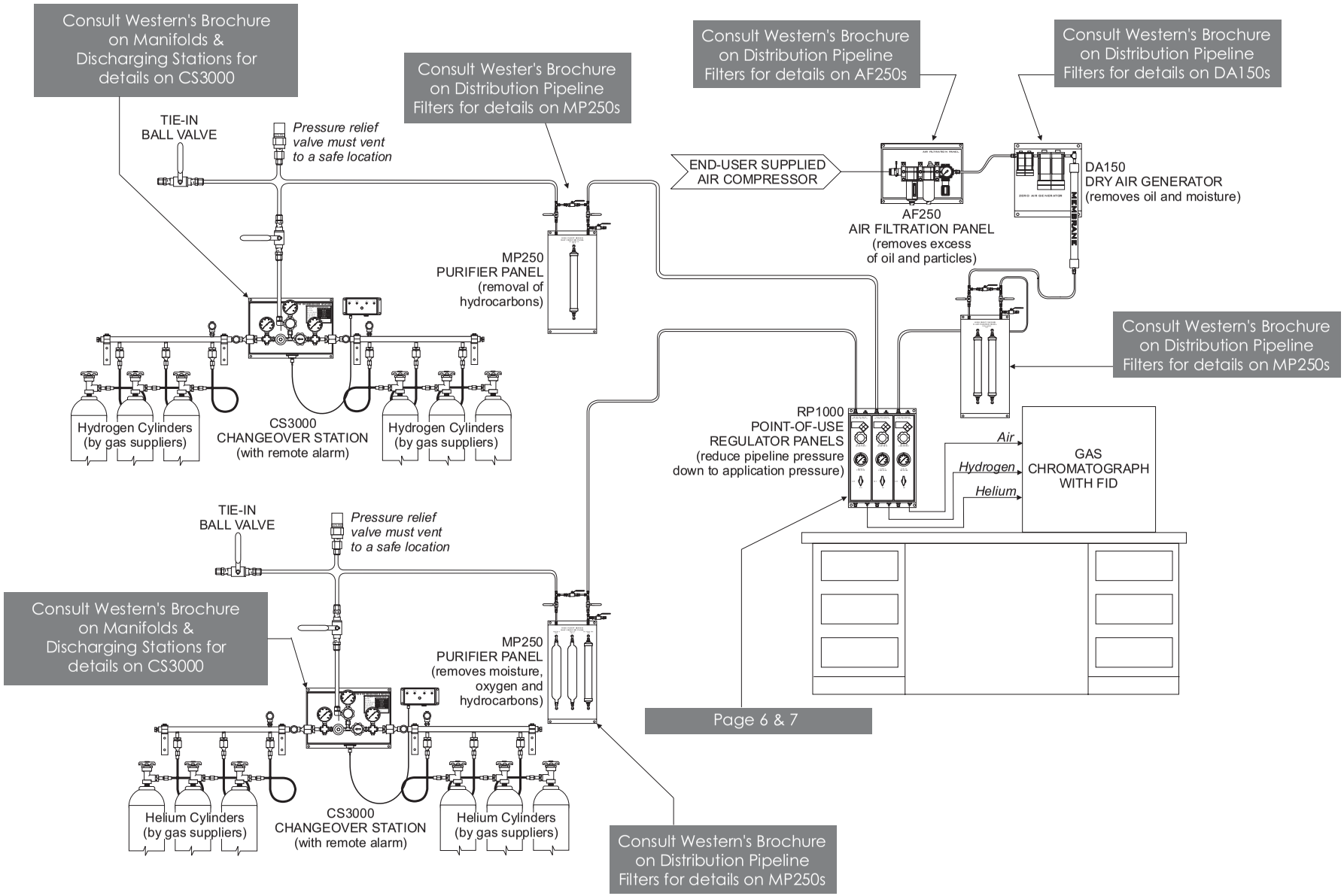




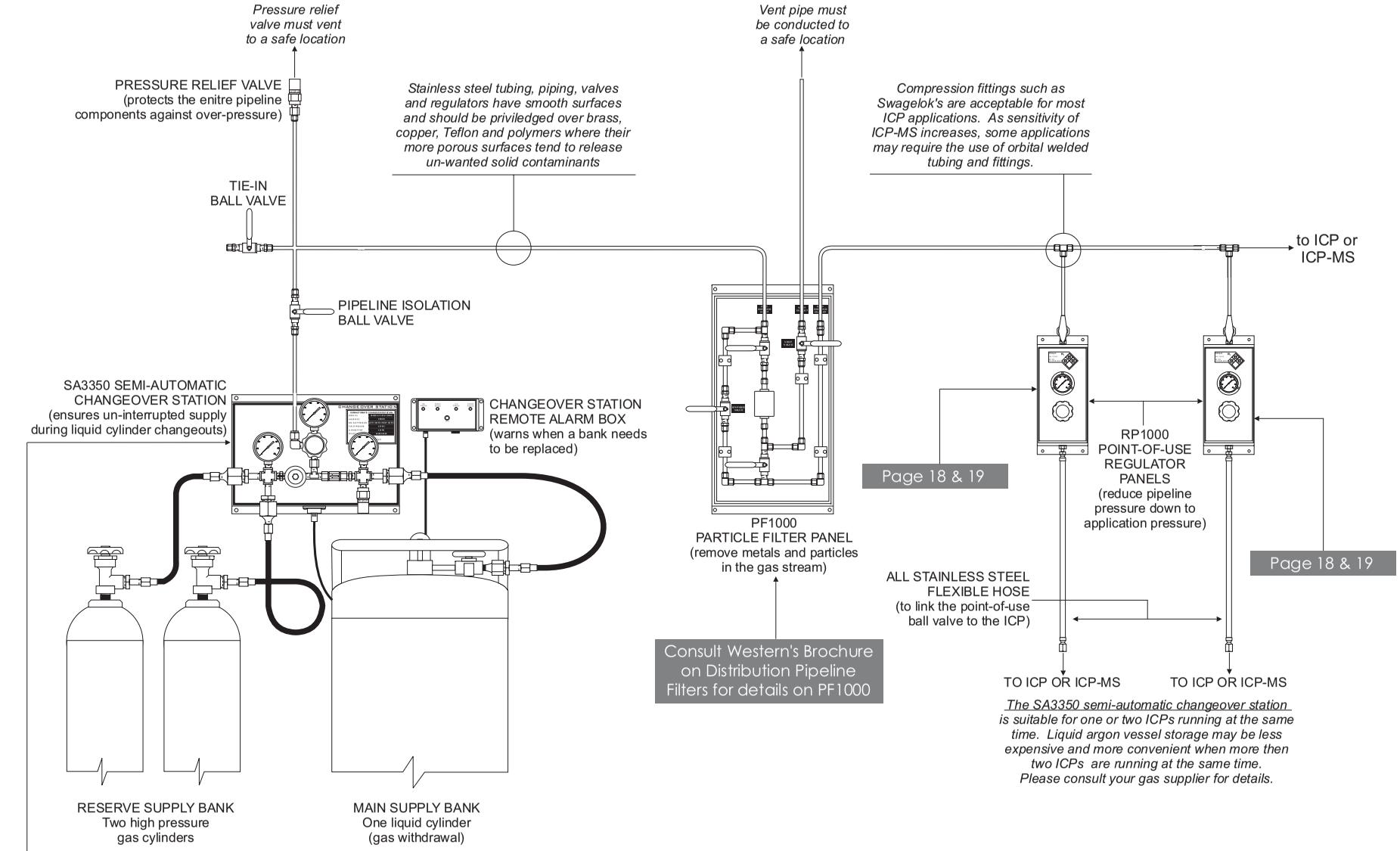




Typical Gas: Chromatography Installation



Typical Inductively: Coupled Plasma Installation



MODULAR POINT-OF-USE REGULATOR PANELS

RP1000
SERIES

Description

The RP1000 Series Regulator Panels are a convenient way to control point-of-use high purity gas delivery pressure. This equipment can be used as a stand-alone panel or can be combined with other filter and/or flowmeter panels.

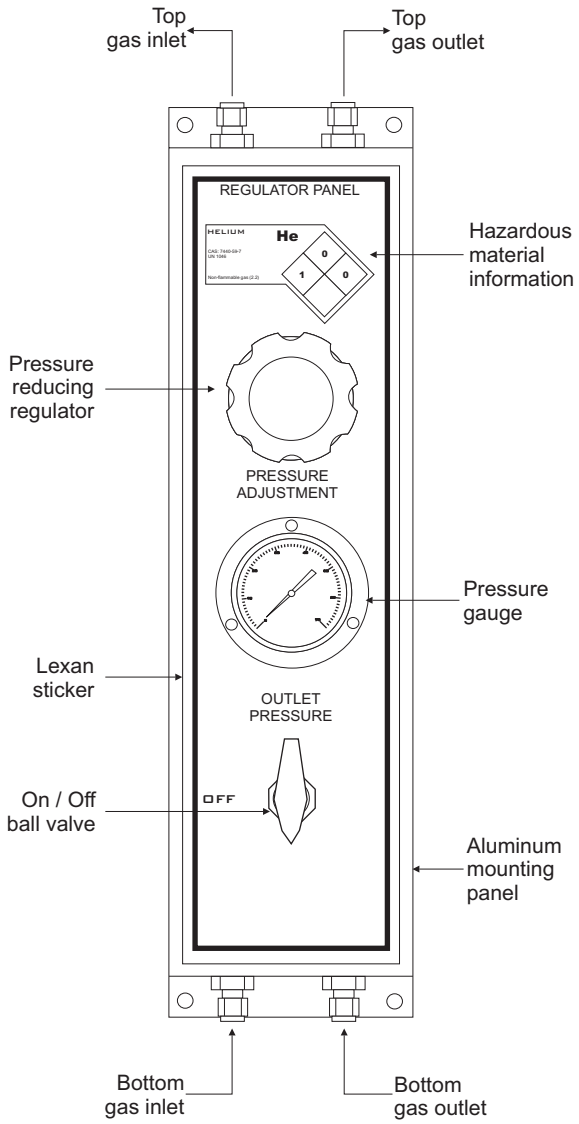
The system will accomodate any number of panel sections while allowing for future expansions. Our systems are designed, cleaned and built to maintain high purity levels.

Key Features

- **Rust-free aluminum mounting panel**
- Each gas is labeled with the appropriate NFPA hazard diamond, CAS registry number, UN and DOT classifications
- **Wide range of outlet pressure**
- Panels completely assembled and tested prior to shipping
- **Customizable regulator panel with unlimited possibilities**
- Pre-drilled holes for convenient installation
- **System allows for upgrades or modifications**
- Top or bottom inlets and outlets provide unlimited installation configurations

Installation tip

You can combine several other types of WESTERN panels with this regulator panel. The RP1000 Series Regulator Panels can be combined modular with point-of-use purifier panels or outlet valve panels. Please consult WESTERN for details



Model shown: RP1000-5-125

How to order - part number matrix

RP1000 – [ ] – [ ] – [ ]

Series

Fluid

- Acetylene = 1
- Air = 2
- Argon = 3
- Carbon dioxide = 4
- Helium = 5
- Hydrogen = 6
- Nitrogen = 7
- Nitrous oxide = 8
- Oxygen = 9
- LPG = 10

Outlet pressure

- 2-30 psig = 30
- 4-75 psig = 75
- 10-125 psig = 125
- 20-250 psig = 250
- 30-500 psig = 500

Other please specify

500 psi outlet regulators cannot be used with WESTERN standard FP250 filter panels

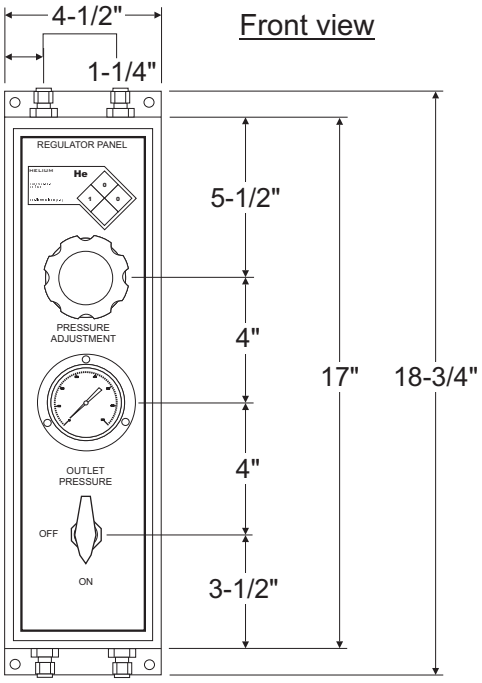
Options

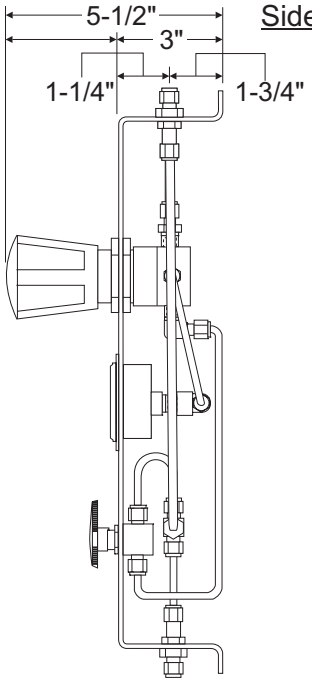
- Stainless steel regulator, fittings & tubing = SR1
- 1/8" compression inlet & outlet = 1/8
- 3/8" compression inlet & outlet = 3/8

WE CAN ACCOMODATE YOUR SPECIFIC DESIGN REQUIREMENTS, PLEASE CALL WESTERN FOR DETAILS

MODULAR POINT-OF-USE REGULATOR PANELS FOR HIGH PURITY GASES
RP1000 SERIES TECHNICAL SPECIFICATIONS

Dimensional drawing

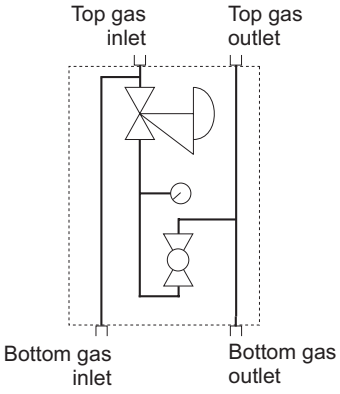




Approximate dimensions

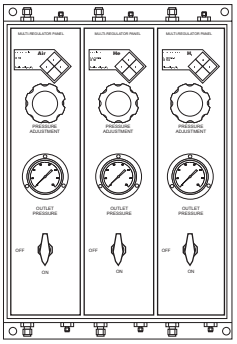
Model Shown:
RP1000-5/125

Flow schematic



Specifications

Description	
Maximum inlet pressure	1000 psig
Outlet pressure range	Refer to P/N matrix
Inlet connection	1/4" compression S/S
Outlet connection	1/4" compression S/S
Operating temperature	-40°F to 140°F
Pressure gauge dial	2-1/2"
Tube diameter	1/4"
Pressure regulator type	Single stage, high purity



Example of a three regulator panel

Model shown:
RP1000-2/125/1/8-5/125/1/8-6/125/1/8

Standard materials of construction

Part	
Ball valve	Body: brass - Ball: stainless steel 316 - Packing & seal: PTFE
Fittings	Stainless steel 316 - brass: CDA 360 & CDA 377
Pressure gauge	Brass CDA 360 inlet
Tubing	Stainless steel 304 - Copper ASTM B280
Regulator	Body & bonnet: brass - Diaphragm: stainless steel

MODULAR POINT-OF-USE FILTER PANELS

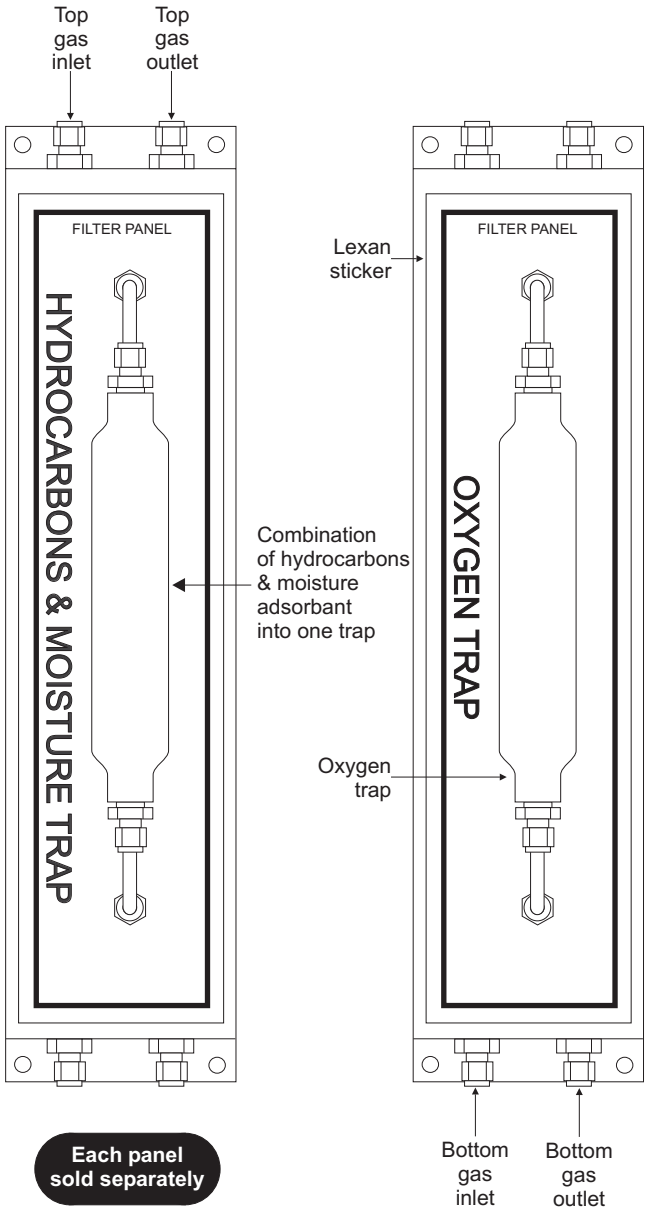
FP250
SERIES

Description

The FP250 point-of-use oxygen traps are designed to remove trace levels of oxygen from carrier gases such as argon, carbon dioxide, carbon monoxide, helium, hydrogen, methane or nitrogen. These are commonly used with gas chromatographs.

The FP250 point-of-use hydrocarbons and moisture traps are capable of removing oil and moisture to trace levels from air, helium, argon, nitrogen and hydrogen.

The system will accomodate any number of panel sections while allowing for future expansion. Our systems are designed, cleaned and built to maintain high purity levels.



Key Features

- **Rust-free aluminum mounting panel**
- Each trap is pre-purged and pressurized with UHP helium to insure leak integrity
- **The all-metal construction eliminates potential contamination from outgassing or diffusion**
- Each trap is equipped with sintered type 316 stainless steel inlet and outlet filters to protect against adsorbent migration into the downstream system

Installation tip

You can combine several of these panels one after the other for complete gas filtration. The FP250 modular Series Filter Panels can also be combined with end-of-the-line regulator panels.

Please consult WESTERN for details

How to order - part number matrix

FP250 – [ ] – [ ] – [ ]

Series

Fluid
- Air = 2
- Nitrogen = 7
- Helium = 5
- Hydrogen = 6

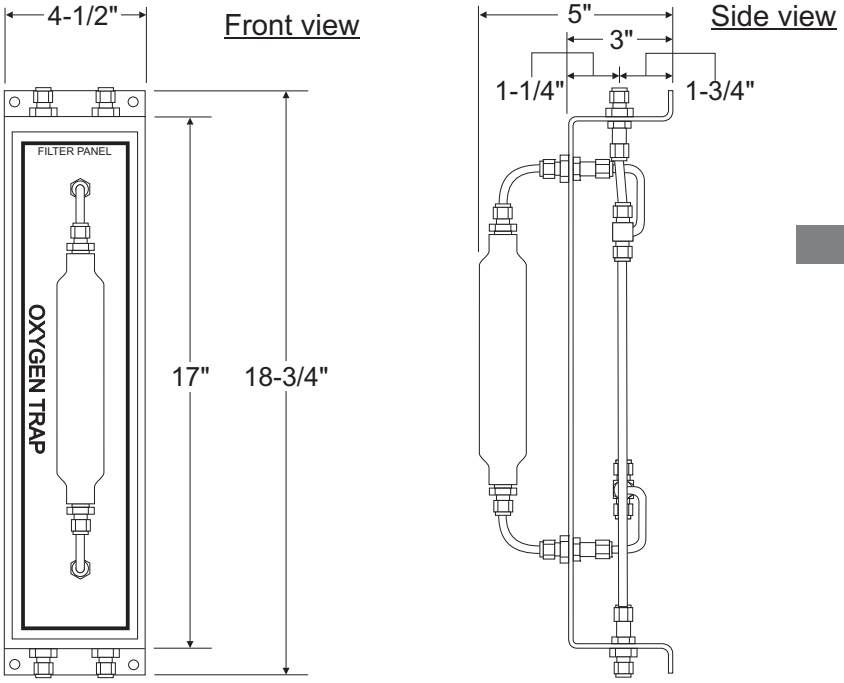
Other please specify

Filter type
- Hydrocarbons & moisture trap = HMT
- Oxygen trap = O2T
- Combo trap = CT

Options
- Stainless steel fittings & tubing = SSFT
- 1/8" compression outlet & inlet = 1/8

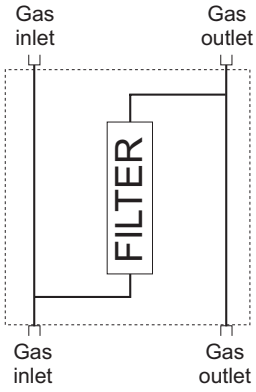
POINT-OF-USE FILTER PANELS FOR HIGH PURITY GASES
FP250 SERIES TECHNICAL SPECIFICATIONS

Dimensional drawing



Approximate dimensions

Flow schematic



Specifications

Description	Oxygen trap	Hydrocarbon moisture trap
Maximum operating pressure	250 psig	250 psig
Efficiency	5 ppb when inlet levels are 10 ppm or less	-
Capacity	260 cm^3	-
Maximum flow	5 slpm	35 slpm
Inlet & outlet connection	1/4" compression (stainless steel)	1/4" compression (stainless steel)
Molecular sieve type		13X

Standard materials of construction

Part	
Fittings	Inlet & outlet: stainless steel 316 - Internal & filter: brass
Tubing	Copper
Enclosure mounting panel	Aluminum
Particle filter	Stainless steel 316

MODULAR POINT-OF-USES FLOWMETER PANELS

FP150
SERIES

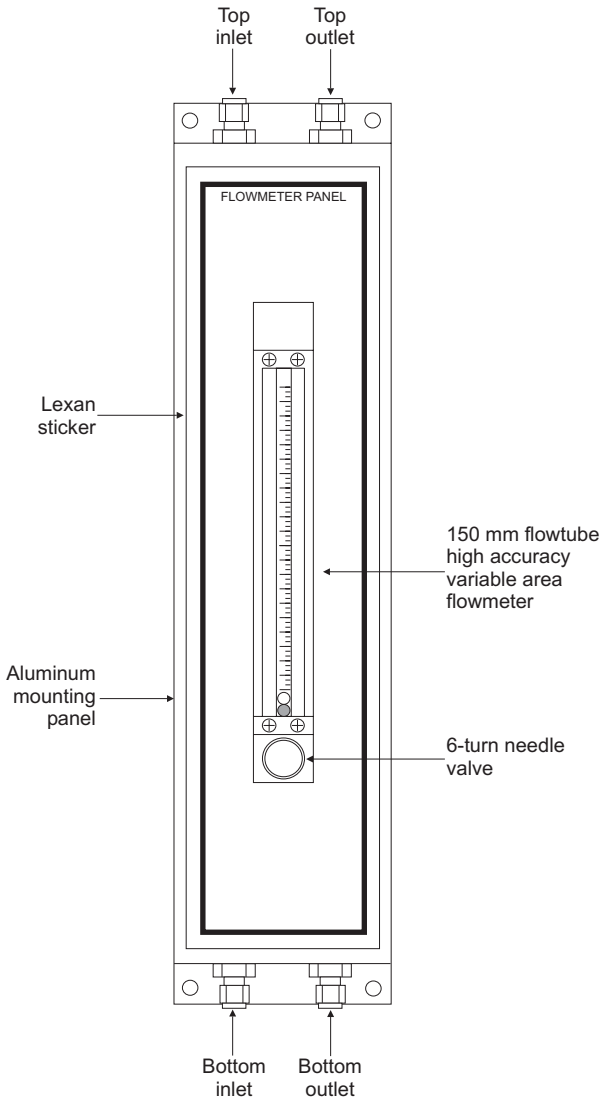
Description

The FP150 Series Flowmeter Panels are designed to accurately measure the flow of high purity gases with the convenience of a panel mounted variable area flowmeter. Flowmeters feature an easy-to-read universal 150 mm scale with a correlation chart containing calibration data for air and other gases.

Glass flowmeters are suitable for metering carrier gases, gas measurement in pilot plants, laboratories and process flows

Key Features

- **Rust-free aluminum mounting panel**
- 6-turn needle valve for accurate flow rate control
- **Permanently fused ceramic scale with vertical locator line reduces parallax and eye fatigue**
- Panels completely assembled and tested prior to shipping
- **Pre-drilled panel holes for convenient installation**
- Top or bottom inlets and outlets provide unlimited installation configurations
- **Thick polycarbonate front shield protects tube from breakage and also serves as a magnifying lens to enhance reading resolution**



How to order - part number matrix

FP150 – [ ] – [ ] – [ ]

Series

Fluid

- Acetylene = 1
- Air = 2
- Argon = 3
- Carbon dioxide = 4
- Helium = 5
- Hydrogen = 6
- Nitrogen = 7
- Nitrous oxide = 8
- Oxygen = 9
- LPG = 10

Maximum flow

Specify the maximum flow you want to measure for the fluid (gas) service in either scfh or lpm.

Then, we will select the right flowmeter to suit your flow requirements while assuring material compatibility.

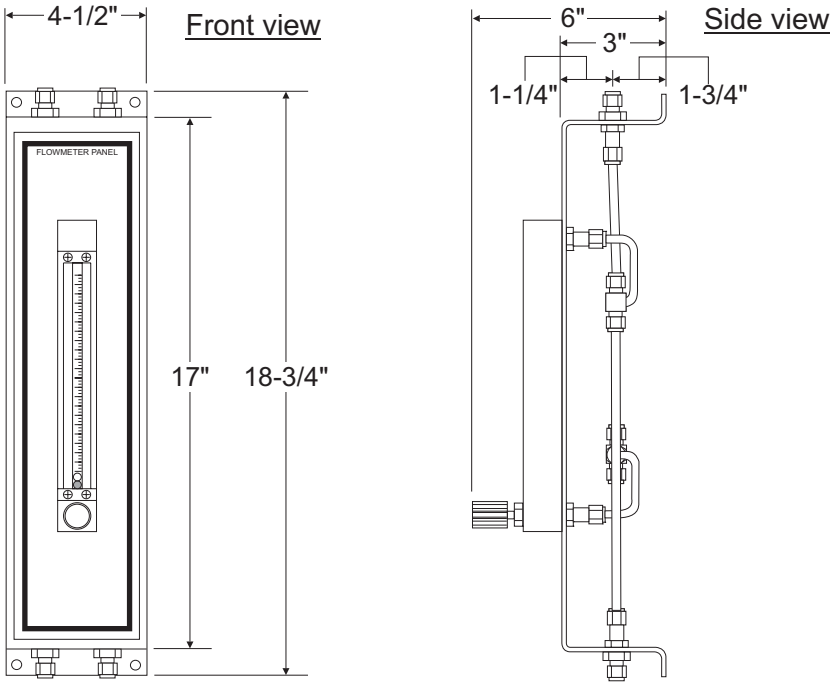
NIST traceability

- NIST traceable = NIST certificate

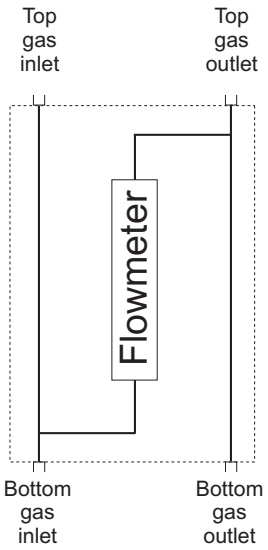
Leave blank if none

MODULAR FLOWMETER PANELS FOR HIGH PURITY GASES
FP150 SERIES TECHNICAL SPECIFICATIONS

Dimensional drawing



Flow schematic



Specifications

Description	
Maximum working pressure	150 psig
Inlet connection	1/4" compression S/S
Outlet connection	1/4" compression S/S
Operating temperature	100°F
Tube diameter	1/4" O.D.
Nb of top ports	1 inlet & 1 outlet
Nb of bottom ports	1 inlet & 1 outlet

Standard materials of construction

Part	
Fittings	Stainless steel 316
Tubing	Stainless steel 316
Flowmeter	
Tube	Borosilicate glass
Tube float stop	Teflon
End blocks	Anodized aluminum or Stainless steel 316 or Brass
Metering valve	Chrome plated brass or Stainless steel 316
Floats	Selection based on flows: Borosilicate glass Sapphire Stainless steel 316 Carboloy Tantalum
O-rings	Buna-N or Viton
Valve orifice	Delrin or Kel-F
Side panels	Black anodized aluminum
Front shield	Lexan polycarbonate

MODULAR POINT-OF-USE VALVE PANELS

VP1000 SERIES

Description

The VP1000 Series is the most versatile and compact valve panel on the market. It allows the end user to combine different regulator panels, filter panels and flow meter panels and direct one or several supply gases into one or more points of use.

Our systems are designed, cleaned and built to maintain high purity levels.

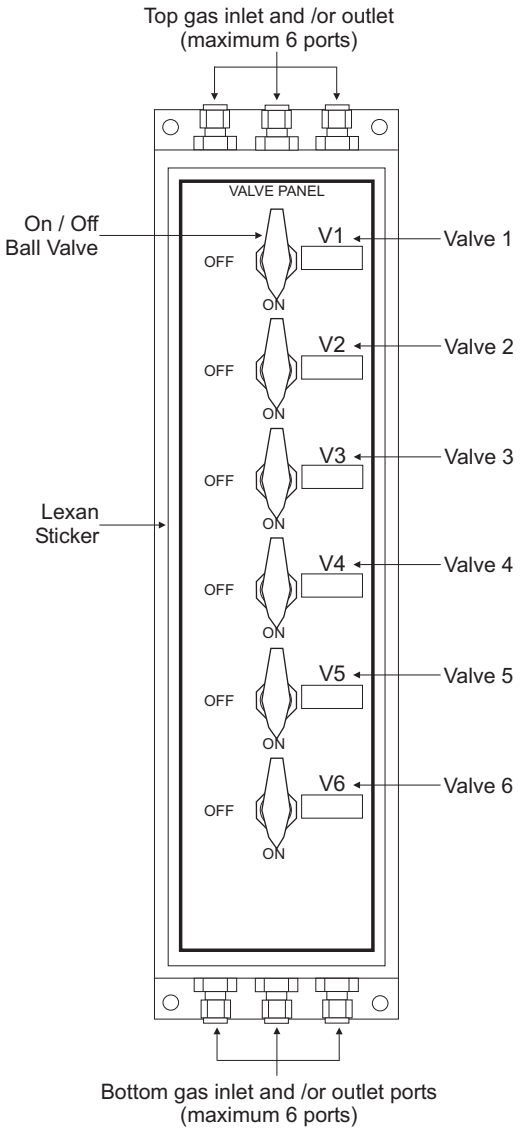
Key Features

- **Rust-free aluminum mounting panel**
- Each outlet is labeled with the appropriate gas service name
- **Up to 6 inlets and outlets** that you can mix and match to meet your specific requirements
- Panels completely **assembled and tested** prior to shipment
- Pre-drilled panel holes for **convenient installation**
- **Top or bottom inlets and outlets** provide unlimited installation configurations
- Oil-free, non-lubricated, instrument, 1/4-turn ball valve to maintain **high purity levels**

Installation tip

You can combine several other types of WESTERN panels with this valve panel. The VP1000 Series valve panels can be combined with end-of-the-line purifier panels and/or regulator panels.

Please consult WESTERN for details



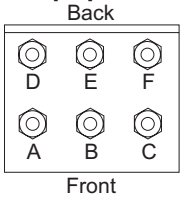
How to order - part number matrix

VP1000 – ____ – ____ – ____ – ____ – ____ – ____

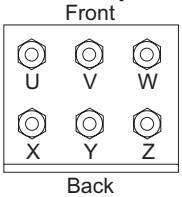
Series
- VP1000 Brass & copper
- VP1000SS All stainless steel

Valve 1	Valve 2	Valve 3	Valve 4	Valve 5	Valve 6
☑A ☑U	☑A ☑U	☑A ☑U	☑A ☑U	☑A ☑U	☑A ☑U
☑B ☑V	☑B ☑V	☑B ☑V	☑B ☑V	☑B ☑V	☑B ☑V
☑C ☑W	☑C ☑W	☑C ☑W	☑C ☑W	☑C ☑W	☑C ☑W
☑D ☑X	☑D ☑X	☑D ☑X	☑D ☑X	☑D ☑X	☑D ☑X
☑E ☑Y	☑E ☑Y	☑E ☑Y	☑E ☑Y	☑E ☑Y	☑E ☑Y
☑F ☑Z	☑F ☑Z	☑F ☑Z	☑F ☑Z	☑F ☑Z	☑F ☑Z

Top ports

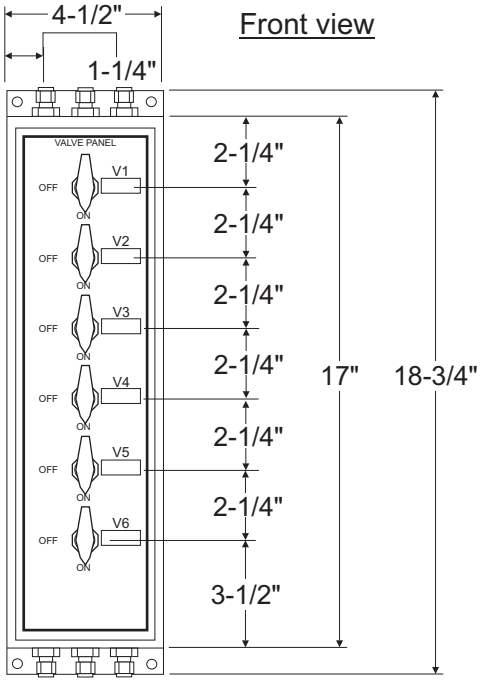


Bottom ports



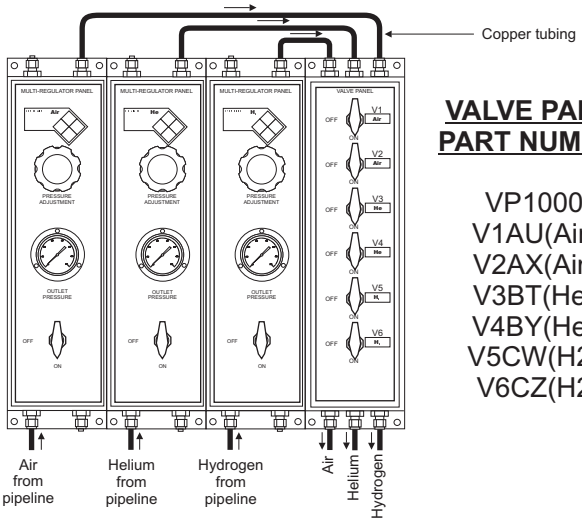
Rules to follow when putting together the part number matrix:
1 - Inlet and outlet ports can be located at top and/or bottom sides (as an example, inlet can be "Y" and outlet can be "Z").
2 - The same port cannot be serviced by two valves.
3 - Several ports can service one valve.
4 - The quantity of valves per panel cannot exceed 6 (if you order a three-valve panel, the panel will have three valves and not six).
5 - Specify the gas service being used for each valve when ordering.

Dimensional drawing



Specifications

Description	
Maximum inlet pressure	1000 psig
Inlet connection	1/4" compression S/S
Outlet connection	1/8" compression S/S
Operating temperature	-40°F to 140°F
Tube diameter	1/4" O.D.
Nb of top ports	6
Nb of bottom ports	6



VALVE PANEL PART NUMBER

VP1000-
V1AU(Air)-
V2AX(Air)-
V3BT(He)-
V4BY(He)-
V5CW(H2)-
V6CZ(H2)

Standard materials of construction

Part	
Ball valve	Body: brass - Ball: stainless steel 316 - Packing & seal: PTFE
Fittings	Stainless steel 316 - brass: CDA 360 & CDA 377
Tubing	Copper: ASTM B280

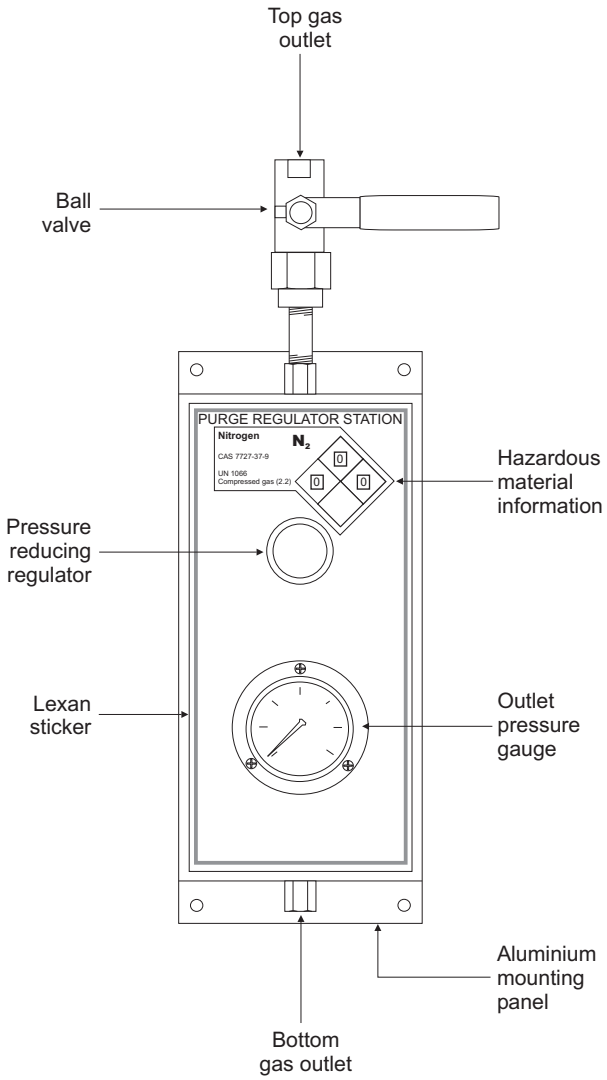
COMPACT PURGE REGULATOR PANELS FOR COMMERCIAL GRADE GASES

RP300 SERIES

Description

The RP300 Series Purge Regulator Panels are designed for low purity gases used in-line at pipeline pressures up to 300 psig. These panels are specially suited for point-of-use gas delivery systems where leak integrity is not an issue.

The RP300s are recommended for use to supply carbon dioxide to incubators or to supply nitrogen as a process purge gas.



Key Features

- **Rust-free aluminum mounting panel**
- Each gas labeled with the appropriate NFPA hazard diamond, CAS registry number, UN and DOT classifications
- **Wide range of outlet pressures**
- Panels completely assembled and tested prior to shipping
- **Balanced regulator design minimizes the effect of variation in the inlet pressure, on the outlet pressure**
- Pre-drilled holes for convenient installation
- **Standard relieving regulator allows a reduction of downstream pressure when the system is dead-ended**
- Top inlet and bottom outlet

How to order - part number matrix

RP300 – [ ] – [ ]

Series

Typical fluid

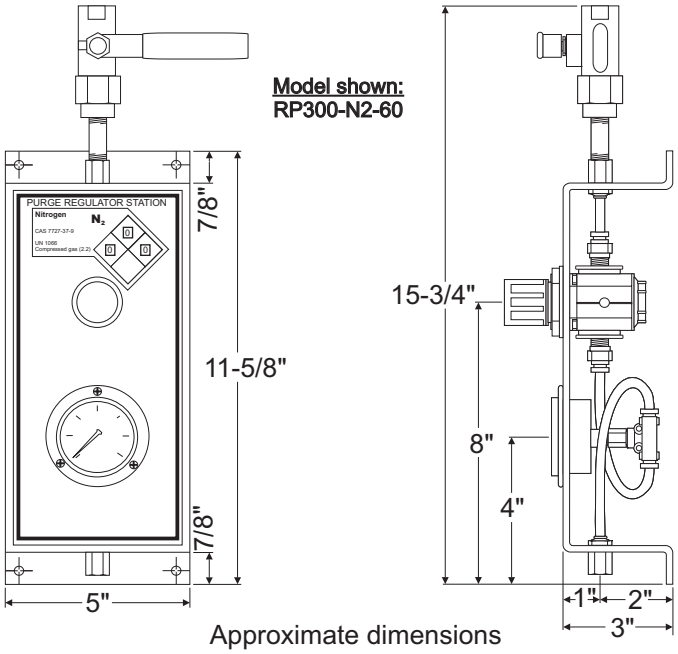
- Air = 2
- Carbon dioxide = 4
- Nitrogen = 7

Outlet pressure

- 5 to 60 psig = 60
- 5 to 150 psig = 150
- 10 to 250 psig = 250

COMPACT PURGE REGULATOR PANELS FOR COMMERCIAL GRADE GASES
RP300 SERIES TECHNICAL SPECIFICATIONS

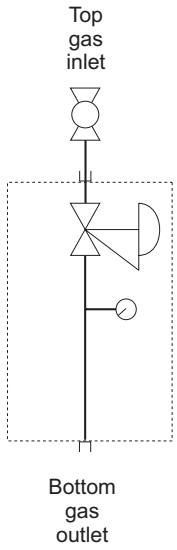
Dimensional drawing



Approximate dimensions

Front view Side view

Flow schematic



Specifications

Description	
Maximum inlet pressure	300 psig
Outlet pressure range	refer to part number matrix
Inlet connection	1/4" F.NPT
Outlet connection	1/4" F.NPT
Operating temperature	-30°F to 175°F
Pressure gauge dial	2-1/2"
Tube diameter	1/4" outside diameter
Pressure regulator type	Single stage, relieving

Standard materials of construction

Part	
Ball valve	Body: forged brass - Ball: chrome plated brass
Fittings	Body: PBT - Seals: NBR - Release sleeve & back ring: POM - Grab ring: stainless steel
Pressure gauge	Inlet: brass - Bourdon tube: copper alloy - Movement: copper alloy
Tubing	Teflon (PTFE) or Nylon
Regulator	Body & bonnet: aluminum - Valve: brass - Elastomers: Nitrile - Bottom plug: Acetal

COMPACT PURGE FLOWMETER PANELS FOR COMMERCIAL GRADE GASES

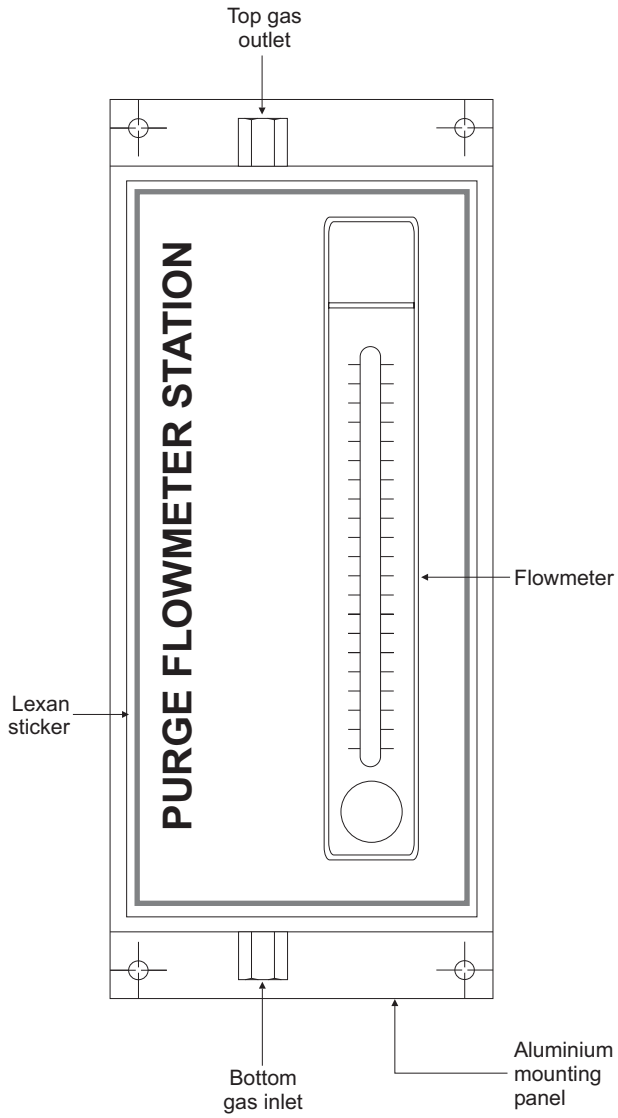
FM70 SERIES

Description

Offering advanced features at low cost, the FM70 Series of Flowmeter Panels are ideal for a wide range of laboratory applications, air samplers, gas analyzers and monitors, chemical injectors, cabinet purging etc.

The FM70 Series of direct read purge flowmeter panels incorporate many unique user features at moderate cost.

Scale is in SCFH OF AIR only



Key Features

- **Rust-free aluminum mounting panel**
- Pre-drilled holes for convenient and easy installation
- **Wide range of flow scales**
- Panels completely assembled and tested prior to shipping
- **Easy to read design - The float is highly visible against a white background**
- Bottom inlet and top outlet
- **Construction assures accuracy - All FM70 flowmeters are injection molded of tough, clear, shatter-proof polycarbonate plastic around a precision tapered pin**

How to order - part number matrix

What is the flow when using gases other than air but the scale is in SCFH of air ?

The instruction manual for the FM70 contains a conversion chart showing the multiplier to use for common gases. As an example, when used in argon service, any reading you see on the flowmeter should be multiplied by 0.85 to get the actual flow in SCFH argon.

FM70 – ____

Series

Range (in SCFH Air)

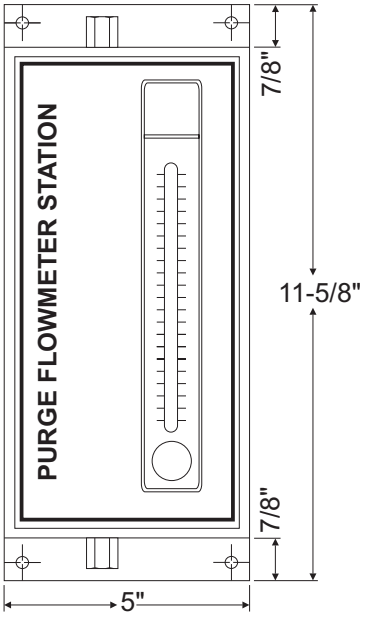
- ☑ 0.5 to 5 = 5
- ☑ 1 to 10 = 10
- ☑ 3 to 20 = 20
- ☑ 4 to 50 = 50
- ☑ 10 to 100 = 100
- ☑ 20 to 200 = 200
- ☑ 40 to 400 = 400
- ☑ 50 to 500 = 500
- ☑ 60 to 600 = 600

CAUTION !

WESTERN'S FM70 purge flowmeter panels are designed to provide satisfactory long term service when used with air, nitrogen, carbon dioxide, argon and other inert gases. Refer to factory for information on questionable gases. Oxygen and other oxidizers such as chlorine and very small molecules such as hydrogen should definitely not be used.

COMPACT PURGE FLOWMETER PANELS FOR COMMERCIAL GRADE GASES
FM70 SERIES TECHNICAL SPECIFICATIONS

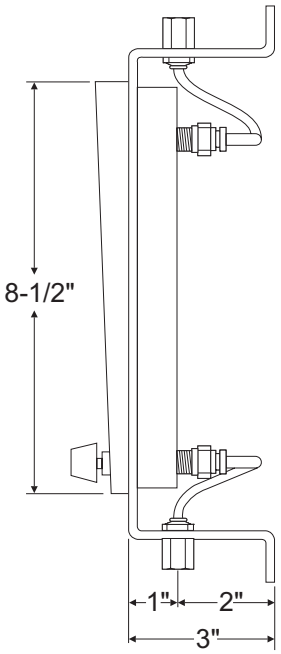
Dimensional drawing



Front view

Model shown:
FP70-100

Approximate dimensions

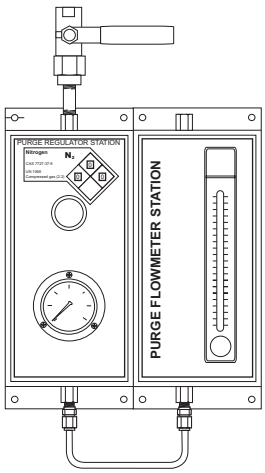


Side view

Specifications

Description

Maximum inlet pressure	70 psig
Flow rates	Refer to part number matrix
Inlet connection	1/4" F.NPT
Outlet connection	1/4" F.NPT
Operating temperature	130°F maximum
Tube diameter	1/4" outside diameter



Standard materials of construction

Part

Fittings	Body: PBT - Seals: NBR - Release sleeve & back ring: POM - Grab ring: stainless steel
Tubing	Teflon (PTFE) or Nylon
Flowmeter	Meter body, bezel, float stop and tube: polycarbonate - Wetted metal parts (valve): brass - Floats: stainless steel, black glass, aluminum, Monel, tungsten carbide - "O"-rings: neoprene and Buna-N - Fittings: stainless steel brazed to stainless steel backbone plate - Rivets: stainless steel, set into slots - Scale: brushed aluminum - clear epoxy coated - Knob: ABS plastic

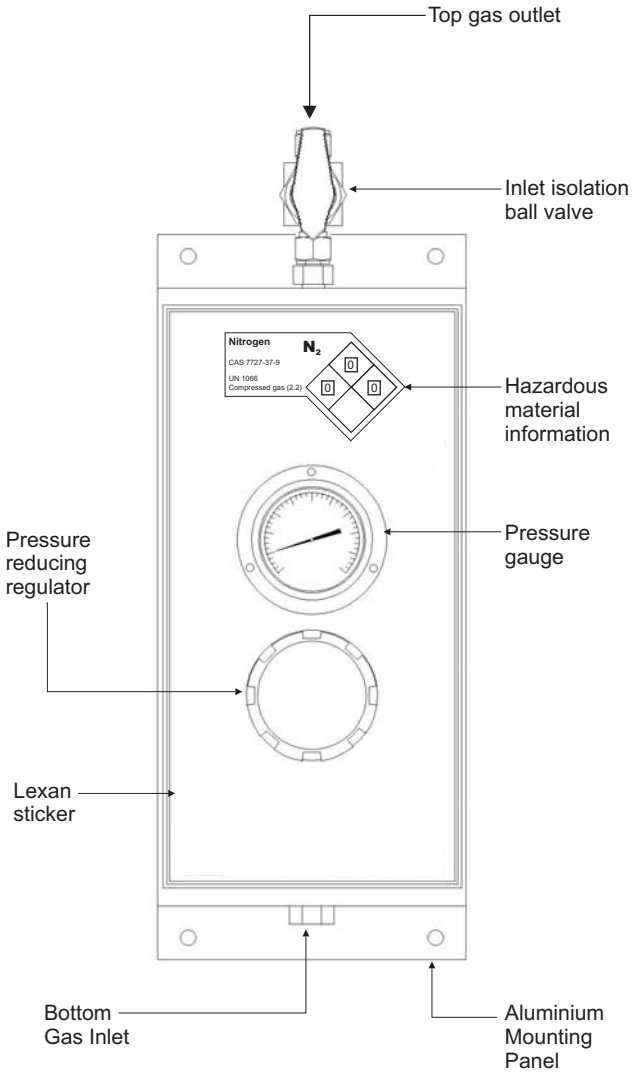
COMPACT REGULATOR PANELS FOR HIGH PURITY GASES

RP600
SERIES

Description

Laboratories often grow into a tangle of tubing and line regulators. Because of its compact design, the RP600 Series Compact Regulator Panels can be easily located anywhere in the laboratory.

The RP600s are designed for laboratories who want to control end-of-the-line pressure for any king of gases. The RP600s offers the same feature as the RP1000s at lower prices.



Key Features

- **Rust-free aluminum mounting panel**
- Each gas labeled with the appropriate NFPA hazard diamond, CAS registry number, UN and DOT classifications
- **Wide range of outlet pressure**
- Panels completely assembled and tested prior to shipping
- **Customizable regulator panel with unlimited possibilities**
- Pre-drilled holes for convenient installation
- **When selecting single regulator panels, system allows for upgrades or modifications**
- Top inlet and bottom outlet
- **Compact design**
- Inlet shutoff valve is standard

How to order - part number matrix

RP600 – [ ] – [ ]

Series

Fluid

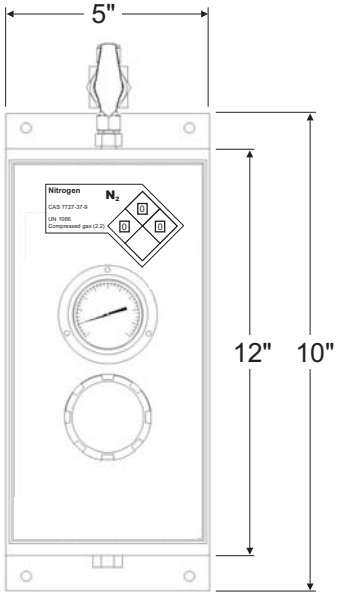
- Acetylene = 1
- Air = 2
- Argon = 3
- Carbon dioxide = 4
- Helium = 5
- Hydrogen = 6
- Nitrogen = 7
- Nitrous oxide = 8
- Oxygen = 9
- LPG = 10

Outlet pressure

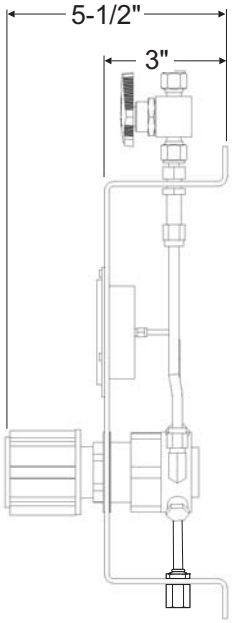
- = 30
- = 75
- = 125
- = 250
- = 500

COMPACT REGULATOR PANELS FOR HIGH PURITY GASES
RP600 SERIES TECHNICAL SPECIFICATIONS

Dimensional drawing



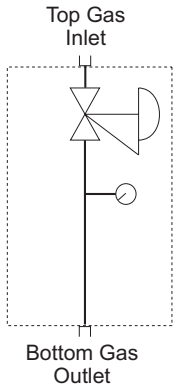
Front view



Side view

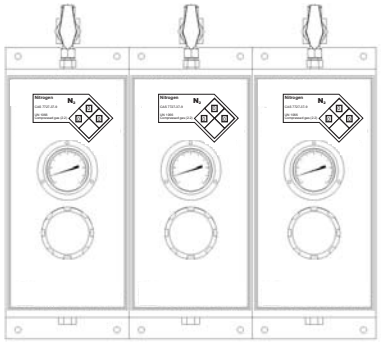
Approximate dimensions

Flow schematic



Specifications

Description	
Maximum inlet pressure	600 psig
Outlet pressure range	250 psig
Inlet connection	1/4" compression S/S
Outlet connection	1/4" F.NPT brass
Operating temperature	-40°F to 140°F
Pressure gauge dial	2-1/2"
Tube diameter	1/4"
Pressure regulator type	Single stage, high purity



Standard materials of construction

Part	
Ball valve	Body: brass - Ball: stainless steel 316 - Packing & seal: PTFE
Fittings	Stainless steel 316 - brass: CDA 360 & CDA 377
Pressure gauge	Brass CDA 360 inlet
Tubing	Stainless steel 304 - Copper ASTM B280
Regulator	Body & bonnet: brass - Diaphragm: stainless steel

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