

# LAB DESIGN

## Manifolds

**1. The PSB/PSSL Single Station Manifold** - In some applications, specialty gas is used only to calibrate instrumentation. Calibration gases flowing for only a few minutes each day do not require an automatic changeover manifold. Single-station manifolds with brackets present an ideal solution for users that have infrequent gas bottle changes. It provides for a safe and cost-effective means to connect and change out cylinders thereby eliminating the need to disconnect the regulator from the cylinder.

**2. The 110/220 Series Multiple-Station Manifold** - A header manifold is generally a wise choice where cylinder changeouts are not that critical to the application.

Each cylinder connection point or station is fitted with a valve, which permits individual cylinders to be isolated for changeout. In order to preserve system purity, these valves are usually diaphragm-typed. They are designed to prevent oxygen, nitrogen, water vapor or other contaminants from intruding into the process.

Header manifolds can also be used in conjunction with changeover manifolds, providing a means to connect more than one cylinder to each bank of the changeover manifold.

**3. The 150/160 Series Manual Manifold** - Many users require a constant, uninterrupted supply of gas. Any pause in the gas supply results in lost or downtime for an entire laboratory. Manifolds that provide the capability to manually switch from a primary to a reserve bank without interrupting the gas supply can minimize or eliminate such costly downtime.

Selecting the correct manifold then depends on the application, since the additional features in the more sophisticated versions can justify their expense in critical applications.

**4. The 210/220 Series Semi-Automatic Manifold** - The simplest manifold is designed to changeover on a sensed drop-in pressure of one cylinder bank relative to the other.

This type of manifold is called a differential manifold. Differential manifolds require regular periodic monitoring and resetting. A line regulator should be installed downstream to eliminate pressure variations caused by differential-type manifolds.

**5. The 250 Series Automatic Changeover** - A change or drop in delivery pressure can adversely affect instrument performance in some instances. To avoid this problem, an Automatic Changeover manifold may be selected. Though not **Fully Automatic**, the operation of this type of manifold is also based on differential pressure. The delivery pressure is held virtually constant during cylinder bank changeover. Indicating Contact Gauges are installed onto the manifold to provide alarm capability when the cylinder gets to a lower pressure. The Automatic Manifold regulates pressure in two stages to keep delivery pressure stable, even during changeover.

## Point of Use Gas Control Panels

Most modern laboratories have multiple instruments that use the same specialty gas but may require different delivery pressures, flowrates or purity levels. Unfortunately, even when a centralized gas distribution system is in place, these varying needs of the instruments are often accommodated by a maze of tubing, line regulators and other accessories that are scattered behind laboratory equipment. Such disorganization can result in a number of serious problems.

First, since regulators and tubing can be bunched together, it is easy to connect the wrong gas to the instrument, resulting in lost or degraded experiments or even damage to the instrument. Second, safety may be compromised since tubing, regulators and traps will not be adequately protected or marked. Third, operating and maintenance costs will increase as the difficulty of identifying and correcting the causes of problems.

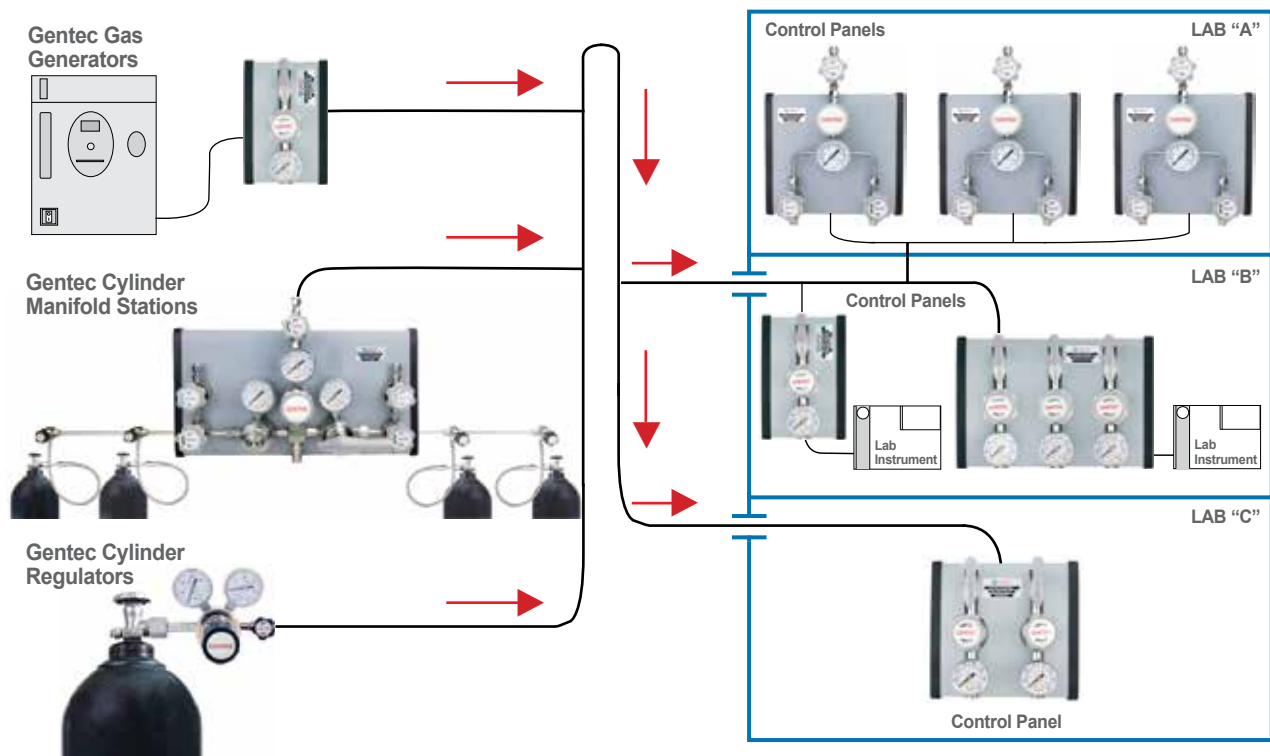
A more practical arrangement to eliminate or minimize these problems is to install point-of-use panels designed for dedicated gas service. A typical panel provides a means to control both delivery pressure and flowrate for a gas supplied to an instrument at the point of use. When required, traps can be included on panels as well. Where one instrument requires several gases, a panel can be designed to conveniently regulate the gases. The **4000/4200 Series** is an excellent solution.

## Gas Delivery Systems

Three key areas of design will determine the quality of the gas performance in a laboratory operation.

1. **Source** of Supply = Dewars, Gas Cylinders, and Gas Generators
2. **Distribution** of Gas = Piping System
3. **Point of Use** Control of Delivery = Terminal Points

Gentec Gas Delivery systems are designed to provide safe, efficient and convenient gas control to the laboratory environment.



# PSB/PSSL SERIES

Protocol Station

Specialty Gas Equipment



## » PSSL-WD-C320-01-CV-S

Note: Gas Regulator sold separately.

GENTEC® PSB/PSSL Series is designed to provide safe, fast and simple cylinder exchanges by eliminating the direct connection between the gas regulator and cylinder.

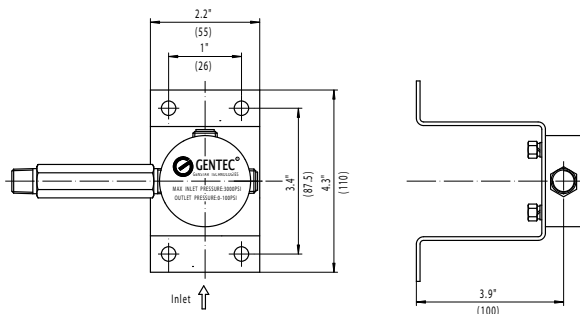
## Product Features

- Bracket Mount fits both Single and Dual-Stage Regulators
- Multipoint Station Blocks are available in 316L Stainless Steel
- 3 ft Pigtailed with integral check valve option. 6 ft Pigtailed available
- Maximum inlet pressure: 3000 psig

## Applications

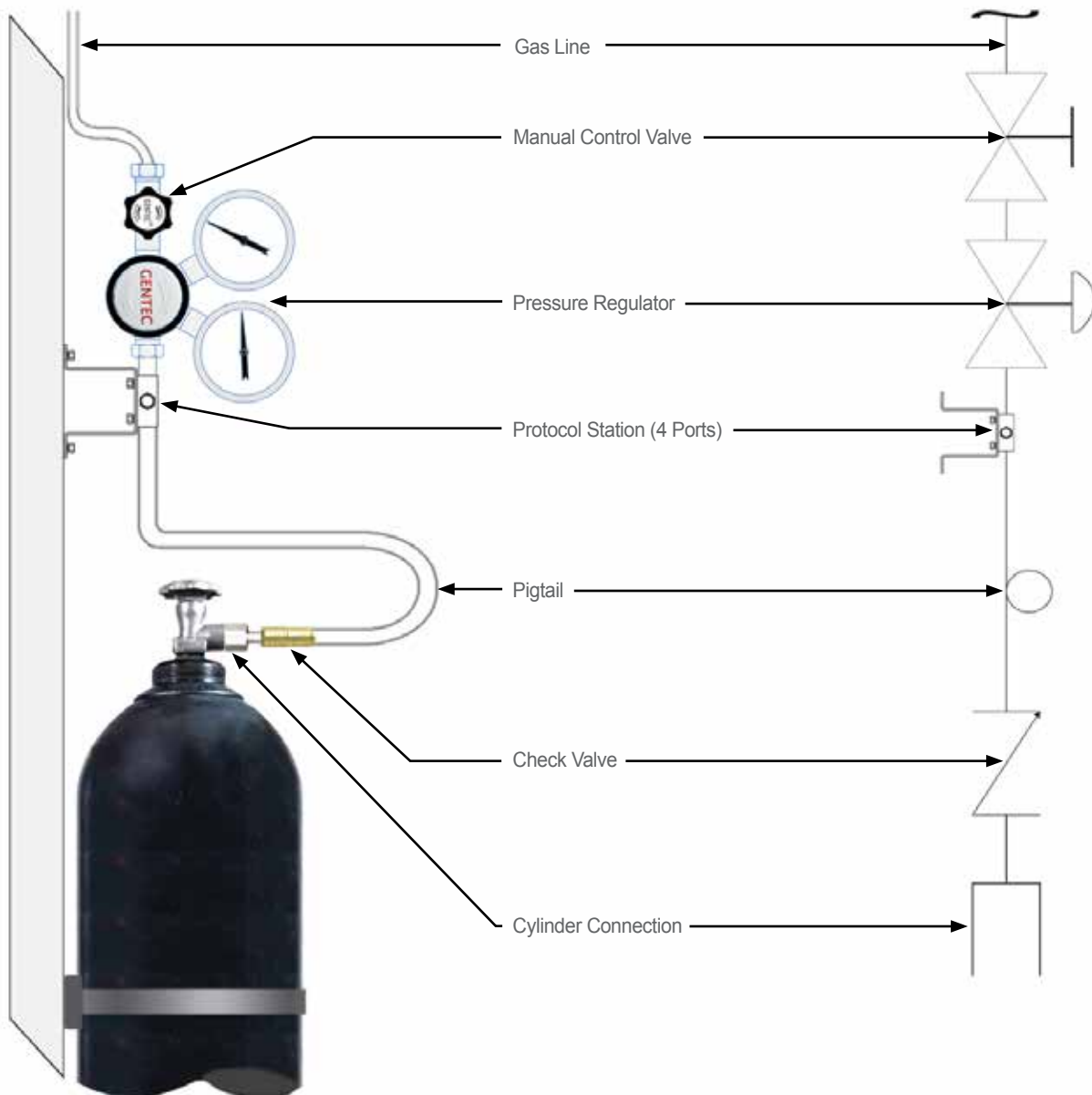
- Laboratories
- Supply of GC carrier gas/support gas
- Supply of calibration gases to on-line process analyzers, monitoring systems

## Panel Mount



EX:PSB Series	W Bracket Style	D - Inlet Pressure (max.)	C320 - Inlet Connection	01 - Outlet Connection (to regulator)	CV - Check Valve	S Pigtail Option
PSB: Brass PSSL: 316L	W: Wall-Mount	D: 3000 psi	Pigtail C320: CGA320 C330: CGA330 C350: CGA350 Other Connections are Available  No Pigtail 00: 1/4" NPT(M)	01: 1/4" NPT(M)  No Extension Bar 00: 1/4" NPT(F)	CV: Check Valve Leave blank for no check valve	S: 316L T: Teflon

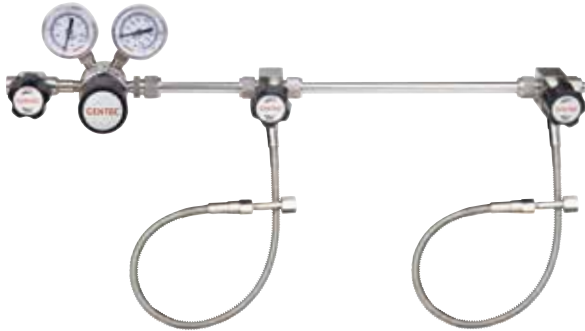
The PSB/PSSL Series Regulator Protocol Station can be modified to your needs. The special four (4) port manifold block enables one to configure a delivery system in a variety of ways.



# 110/120 SERIES

Single Header Manifold

Specialty Gas Equipment



## » SL110A-100D-2R-C580-S

### R21 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

### R22 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

GENTEC® 110/120 Series offers a safe efficient method of connecting multiple cylinders to a common gas supply line to provide centralized distribution of gas for high purity delivery requirements.

## Product Features

- 110 Series manifold system uses R21 regulator for low flow systems
- 120 Series manifold system uses R22 regulator for high flow systems
- Single line of cylinders, gas supply uninterrupted during cylinder change
- Piping is tested for pressure and leakage
- Wall mounts (optional)
- Diaphragm station valves (1 per cylinder station)
- 3 ft flex pigtail with integral check valve

## Applications

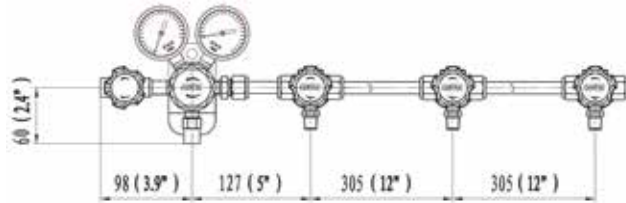
- Research Laboratories
- Manufacturing
- Pipeline

## Specifications

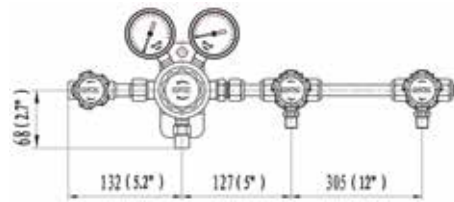
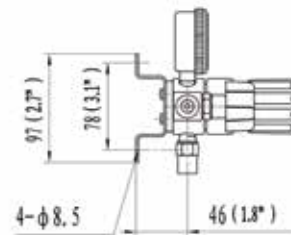
- **Maximum inlet pressure:** 3000 psig
- **Working temperature:** -40°F~165°F (-40°C~ 74°C)
- **Pipe:** 1/2" seamless stainless steel (BA grade)
- **Regulator leak rate:** 2 x 10<sup>-9</sup> atm cc/sec He

\* Regulator chosen at time of order

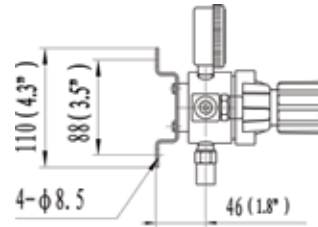
## Dimensions



B110 / SL110 - R21 Regulator



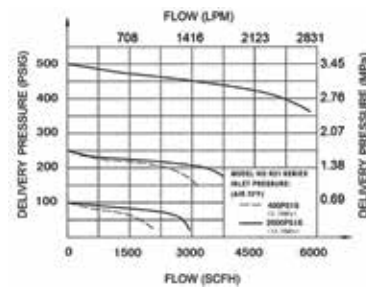
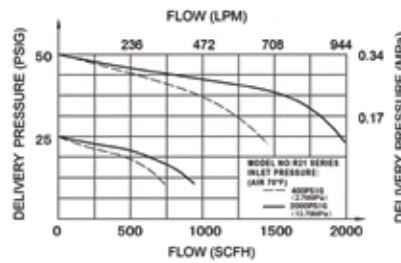
B120 / SL120 - R22 Regulator



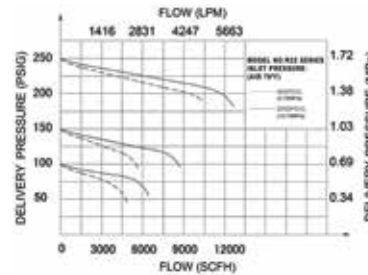
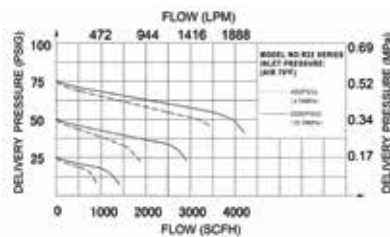
Note: Mounting Bracket (GB-R1), additional charge

## Flow Data

110 Series



120 Series



## Ordering Information

EX: SL110	A -	50	D -	2	R -	C580 -	S -	1
	Layout	Max. Outlet Pressure	Outlet Connection	Stations	Stations	Inlet Connections	Pigtail	Options
<ul style="list-style-type: none"> <li>• SL110</li> <li>• SL120</li> <li>• B110</li> <li>• B120</li> </ul>	A: 12" standard	50: 50 psig 100: 100 psig 250: 250 psig	D: Diaphragm Valve 1/4" NPT(F) Leave Blank for No Valve	1 2 3 4 5	L: Left Side R: Right Side	Pigtail C320: CGA320 C346: CGA346 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C590: CGA590 Other Connections are Available  No Pigtail 00: 1/4" NPT(M)	S: 316L T: Teflon	1: Alarm Box 2: Flashback Arrestors 3: Filter R: Relief Valve Leave blank for no option

# 150/160 SERIES

Dual Headers Manifold

Specialty Gas Equipment



## » SL150A-100D-2L-2R-580-S

### R21 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

### R22 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

GENTEC® 150/160 Series Manifold System is designed to supply High Purity Gas from one bank, then allow for manual switchover to the other bank after depletion of the bank. However, the switchover must be adjusted manually.

### Product Features

- 150 Series manifold system uses R21 regulator for low flow systems
- 160 Series manifold system uses R22 regulator for high flow systems
- Dual line of cylinders avoid down time during cylinder change
- Diaphragm header valve on each side for cylinder changeover
- Piping is tested for pressure and leakage
- Wall mounts (optional)
- Diaphragm station valves (1 per cylinder station)
- 3 ft SS flex pigtail with integral check valve

### Applications

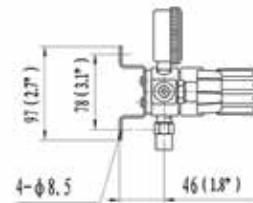
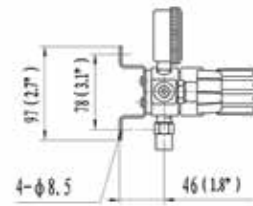
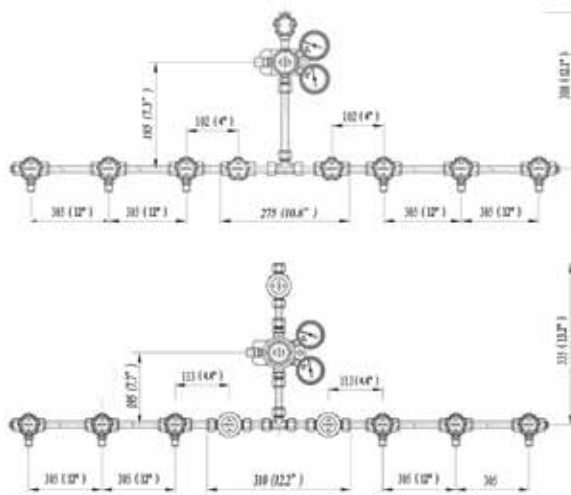
- Research Laboratory
- Test Laboratory
- Manufacturing

### Specifications

- **Maximum inlet pressure:** 3000 psig
- **Temperature range:** -40°F~140°F (-40°C~ 60°C)
- **Pipe:** 1/2" seamless stainless steel (BA grade)
- **Flow rate:** see flow chart
- **Regulators** leak rate:  $2 \times 10^{-9}$  scc/sec Helium



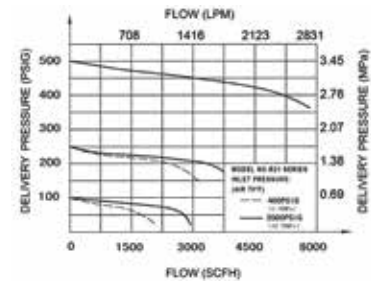
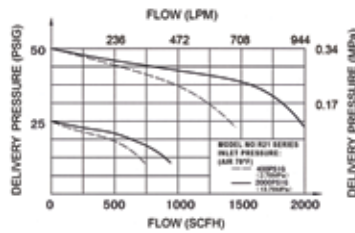
## Dimensions



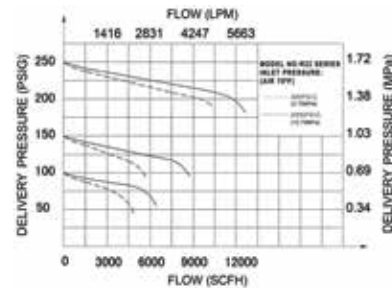
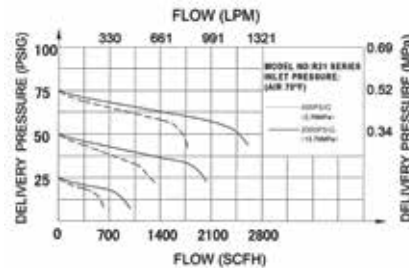
Note: Mounting Bracket (GB-R1), additional charge

## Flow Data

150 Series



160 Series



## Ordering Information

Series	Layout	Max. Outlet Pressure	Outlet Connections	Left Stations	Right Stations	Inlet Connections	Pigtail	Options
<ul style="list-style-type: none"> <li>B150</li> <li>B160</li> <li>SL150</li> <li>SL160</li> </ul>	A: 12" Standard	50: 50 psig 100: 100 psig 250: 250 psig 500: 500 psig	D: Diaphragm Valve 1/4" NPT(F) Leave Blank for No Valve	1 2 3 4 5	1 2 3 4 5	Pigtail C330: CGA330 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C660: CGA660 Other Connections are Available No Pigtail 00: 1/4" NPT(M)	S: 316L T: Teflon	1: Alarm 2: Flashback arrestors 3: Filter R: Relief Valve Leave blank for no options Can choose multiple options

# 210/220 SERIES

Semi-Automatic Switchover Manifold

Specialty Gas Equipment



## » SL210A-150-D-C580-S

Note: Pigtails shown without header manifold.

### R21 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

### R22 Regulator Materials

• Stage	Single
• Body	316L Stainless Steel, Nickel-Plated Brass
• Bonnet	304, Nickel-Plated Brass
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Spring	316

GENTEC® 210/220 Series Semi-Automatic Manifold is designed for a continuous supply of High Purity Gases. It consists of a primary bank and a reserve bank of cylinders. Because of the differential pressure between the primary and reserve banks, the changeover takes place automatically when the primary bank is depleted to provide a continuous supply of gas from the reserve bank. However, in order to activate the next switchover, the regulators on both banks need to be readjusted upon changing the cylinders using the arrow indicator. Stable pressure output is provided by the second pressure regulator on the main line.

### Product Features

- 210 series manifold system uses R21 regulator for low flow systems
- 220 series manifold system uses R22 regulator for high flow systems
- Pressure adjustment handle on regulator
- 3 ft flex pigtail with integral check valve
- Rear bracket mount

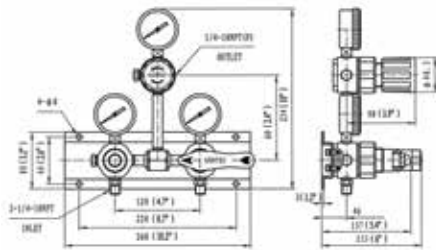
### Applications

- Research Laboratories
- Gas and Liquid Chromatography
- Laser Gas Systems
- Purging System
- Zero & Calibration Gases
- Hydrocarbon Services

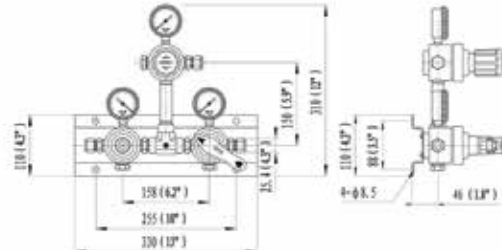
### Specifications

- **Maximum inlet pressure:** 3000 psig
- **Working temperature:** -40°F~140°F (-40°C~ 60°C)
- **Manifold Pipe:** 1/2" seamless stainless steel (BA grade)
- **Flow Rate:** See chart
- **Inboard leakage:** 2 x 10<sup>-9</sup> atm cc/sec He

## Dimensions

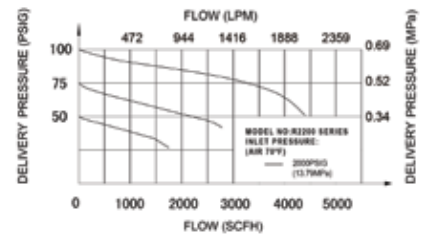
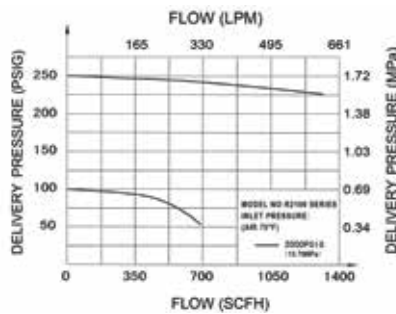
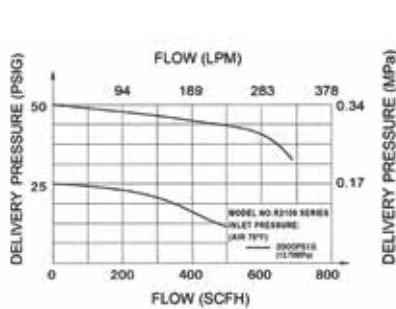


B210 / SL210



B220 / SL220

## Flow Data



## Ordering Information

EX:SL210	A -	150 -	D -			C580 -	S -	1
Series	Layout	Max. Outlet Pressure	Outlet Connection	Left Stations	Right Stations	Inlet Connections	Pigtail	Options
<ul style="list-style-type: none"> <li>B210</li> <li>B220</li> <li>SL210</li> <li>SL220</li> </ul>	A: 12" standard (Header Only)	50: 50 psig 100: 100 psig 150: 150 psig	D: Diaphragm Valve 1/4" NPT(F) Leave Blank for No Valve	1* 2 3 4 5	1* 2 3 4 5	Pigtail C320: CGA320 C350: CGA350 C540: CGA540 C580: CGA580 C590: CGA590 C660: CGA660 Other Connections are Available No Pigtail 00: 1/4" NPT(M)	S: 316L T: Teflon	1: Alarm 2: Flashback arrestors 3: Filter R: Relief valve Leave blank for no options Can choose multiple options

\*Header manifold

# P2400 SERIES

Semi-Automatic Switchover Manifold

Specialty Gas Equipment



## » P2400SP-DHK

Note: Pigtailed ordered separately. Please see page 121.

### Materials

• Body	Stainless Steel
• Seat	PU
• Panel	Aluminum
• Panel inlet connections	1/4" NPT
• Panel outlet connections	1/4" GENLOK

GENTEC® P2400 Series Specialty Gas Control Panel is a dual bank semi-automatic changeover system, providing a continuous supply without interrupting the system during cylinder(s) replacement. P2400 Series is designed with dual pressure reduction to provide steady outlet pressure and is applicable for purity gas usage in research laboratories, clean rooms and gas analyzing.

### Product Features

- Switchover regulator with relief valve
- Regulator and pipe all through pressure and leakage test
- Easy-to-read 2" stainless steel pressure gauges

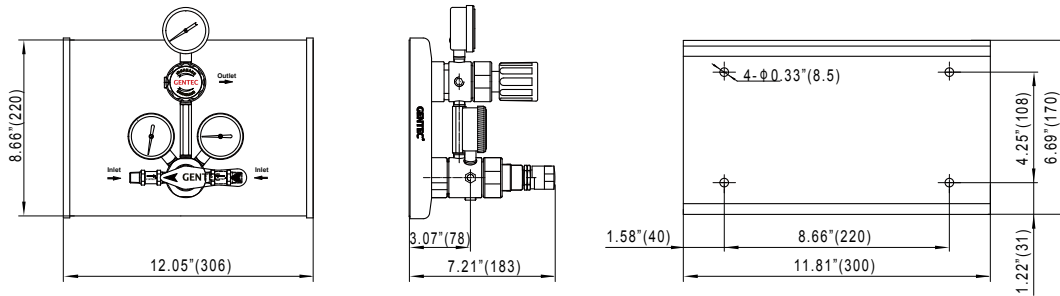
### Applications

- Research Laboratories
- Gas and Liquid Chromatography
- Laser Gas Systems
- Purging System
- Zero & calibration gases
- Hydrocarbon Services

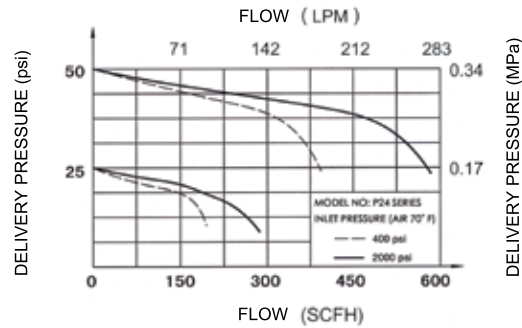
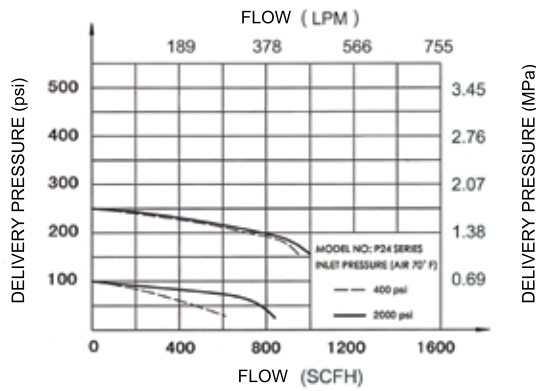
### Specifications

- **Maximum inlet pressure:** 3000 psig
- **Maximum outlet pressure:** 150 psig
- **Operating temperature range:** -40°C to 74°C or -40°F to 165°F
- **Leak rate:**  $2 \times 10^{-8}$  atm.cc/sec He
- **Cv:** 0.06

**Dimensions**



**Flow Data**



**Ordering Information**

EX:P2400 Series	S Body	P - Seat	D Max. Inlet Pressure	H Max. Outlet Pressure	K - Gauge	C Options
• P2400:	S: Stainless steel	P: PU	D: 3000 psig	L: 25 psig K: 50 psig I: 100 psig H: 150 psig	K: psig / kPa P: psig / bar	C: Contact Gauge

# PD3400 SERIES

Semi-Automatic Switchover Manifold

Specialty Gas Equipment



» **PD3416BK-DHK** (with optional vent valves)  
Note: Pigtails ordered separately. Please see page 121.

## Materials

• Body	Brass or Stainless Steel
• Seat	PCTFE
• Panel	Aluminum
• Panel inlet connections	1/4" MNPT
• Panel outlet connections	1/4" GENLOK

GENTEC® PD3400 Series Specialty Gas Control Panel is a Semi-Automatic Changeover System which provides for continuous gas supply without interrupting the system during cylinder changeout. When the primary bank is nearly depleted, a changeover will occur. The reserve bank will then begin to supply gas to the alternate cylinder. The inlet valve on each bank provides the user additional safety while replacing the cylinder(s) on the empty bank before the next changeover occurs. The HP vent valves may be used to purge the lines of any residual contamination. The line regulator executes a second stage pressure reduction, providing a consistent outlet pressure and flow. Available in both Brass and Stainless Steel.

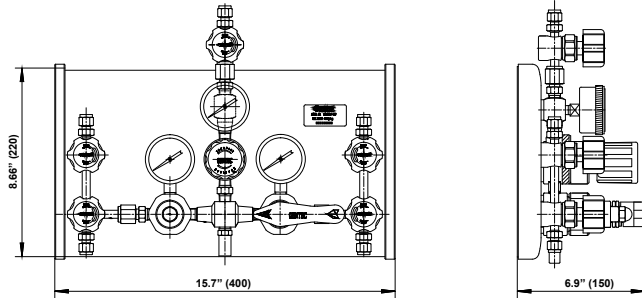
## Product Features

- Panel Mounted
- Semi-Automatic Changeover
- Dual-stage pressure reduction minimizes pressure and flow fluctuation
- All components are mounted on a single panel for easy maintenance
- Diaphragm valve connections are orbital welded to minimize contamination and leakage. (Note: Stainless steel models only)

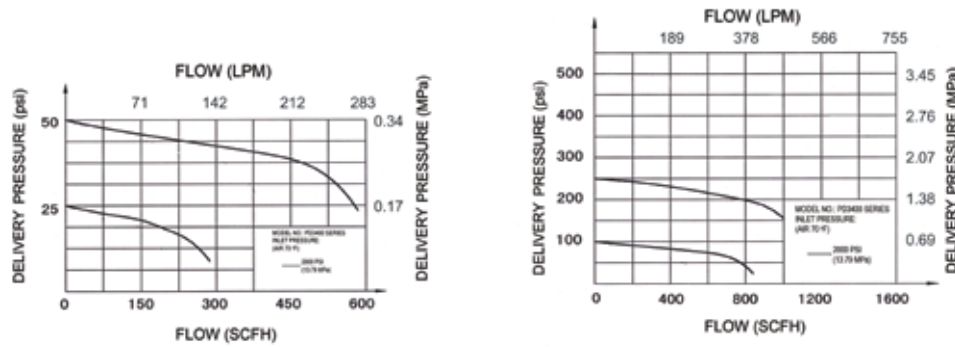
## Specifications

- **Maximum inlet pressure:** 3000 psig
- **Maximum outlet pressure:** 150 psig
- **Operating temperature range:** -40°C to 74°C or -40°F to 165°F
- **Leak rate:**  $2 \times 10^{-8}$  atm.cc/sec He
- **Cv:** 0.08

**Dimensions**



**Flow Data**



**Ordering Information**

EX: PD34	1	6	S -	K -	D -	H	K -	V
Series	Diaphragm Valve Configuration	Inlet Connection	Body	Seat	Max. Inlet Pressure	Max. Outlet Pressure	Gauge	Options
• PD34:	1: Inlet/outlet/vent 3: Inlet/outlet	6: 1/4" MNPT	B: Brass S: Stainless steel	K: PCTFE	D: 3000 psig	K: 50 psig I: 100 psig H: 150 psig	K: psig / kPa P: psig / bar	Blank: Standard V: Waste gas disposal

# SL250 SERIES

Automatic Switchover Manifold Systems

Specialty Gas Equipment



GENTEC® SL250 Series switchover system is designed with Gentec's R21SL Series pressure regulators to provide an uninterrupted supply of gas from two high pressure banks. The system automatically switches from the primary bank to the reserve bank without flow interruptions. An optional audible and visual alarm is available to power the indicator lights for the system.

## » SL250A-100-2L-2R-C350-S



## Product Features

- Weather proof enclosure
- R21SL Series Regulator
- Metal-to-Metal diaphragm of regulator
- Switch knob with arrow indicator
- Built-in relief valve
- 3 ft flex pigtail with integral check valve
- Optional Audible and Visual Alarm
- Wall mounts

## Applications

- Biotech
- Research Laboratories
- Gas Chromatography

## Regular Materials

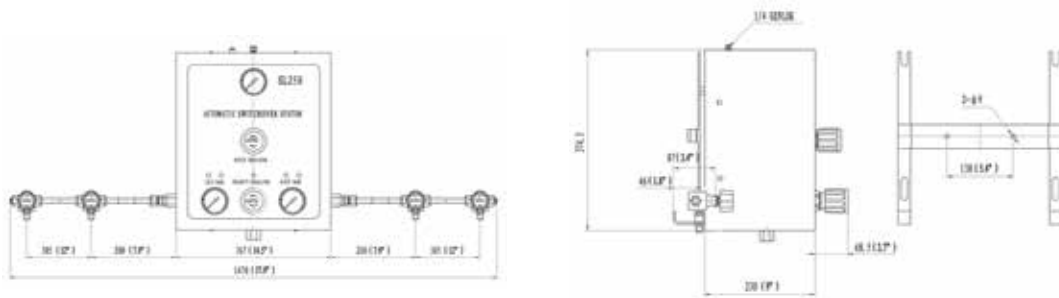
• Body, filter	316L
• Diaphragm	316L
• Bonnet	304
• Seat	PCTFE

## Specifications

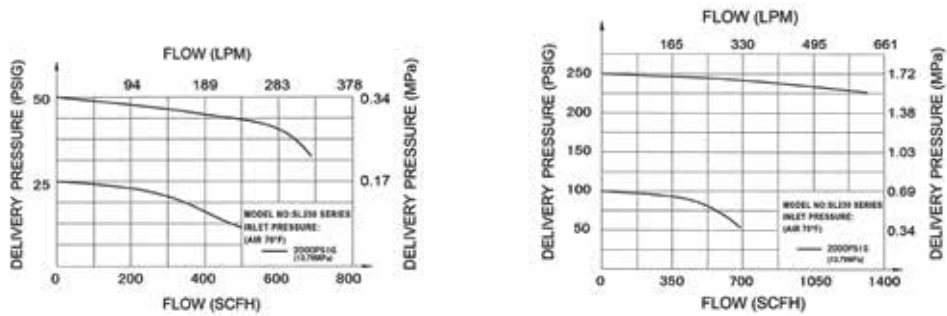
- **Maximum inlet pressure:** 3000 psig
- **Maximum outlet pressure:** 250 psig
- **Working temperature:** -40°F~140°F (-40°C~ 60°C)
- **Pipe:** 1/2" seamless stainless steel (BA grade)
- **Inboard leakage:**  $2 \times 10^{-9}$  atm cc/sec Helium



### Dimensions



### Flow Data



### Ordering Information

EX:SL250	A -	100 -		2L -	2R -	C350 -	S -	3
	Layout	Max. Outlet Pressure	Outlet Connection	Left Stations	Right Stations	Inlet Connections	Pigtail	Options
• SL250	A: 12" standard	50: 50 psig 100: 100 psig 250: 250 psig	D: Diaphragm Valve No Options: Blank	1 2 3 4 5 Blank for Box Only	1 2 3 4 5 Blank for Box Only	C320: CGA320 C350: CGA350 C540: CGA540 C580: CGA580 C590: CGA590 For other connections, please contact Gentec	S: 316L T: Teflon	1: Alarm 3: Flashback arrestors 4: Filter No options: Blank Can choose multiple options

# P3200 SERIES

Manual Single-Bank Manifold

Specialty Gas Equipment



## » P3216SK-DHK

Note: Pigtails ordered separately. Please see page 121.

### Materials

• Body	Brass or Stainless Steel
• Seat	PCTFE
• Panel	Aluminum
• Panel inlet connections	1/4" MNPT
• Panel outlet connections	1/4" GENLOK

GENTEC® P3200 Series Manual Single-Bank Manifold is designed to provide accurate control of a variety of gases used in research laboratories, laser gas systems, process analyzers, etc. Vent valves can be integrated for purging to ensure maximum purity of gas and minimize contaminants. A check valve located in between the inlet pressure gauge and regulator at both sides ensures additional safety for the user(s). Available in both stainless steel and brass.

### Product Features

- Single-bank gas supply
- 2" stainless steel pressure gauges
- All parts are mounted on a single panel for easy installation
- Inlet valve(s) for changing cylinder(s) are included. Outlet and Vent valves are optional
- Diaphragm valves include an easy to read status window (open/close)
- Integrated relief valve to ensure additional safety
- Diaphragm valve connections are orbital welded to minimize contamination and leakage. (Note: Stainless steel models only)

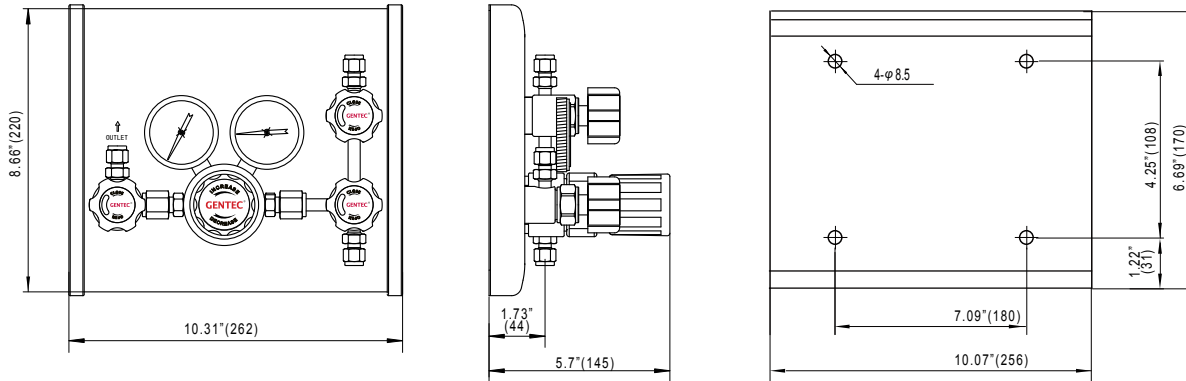
### Applications

- Research Laboratories
- Gas and Liquid Chromatography
- Laser Gas Systems
- Purging System
- Zero & calibration gases
- Hydrocarbon Services

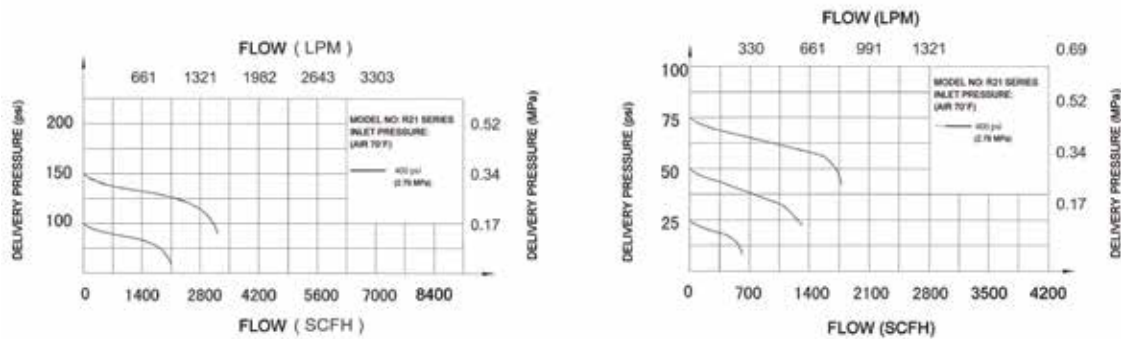
### Specifications

- **Maximum inlet pressure:** 3000 psig
- **Maximum outlet pressure:** 150 psig
- **Operating temperature range:** -40°C to 74°C or -40°F to 165°F
- **Leak rate:**  $2 \times 10^{-8}$  atm.cc/sec He
- **Cv:** 0.14

**Dimensions**



**Flow Data**



**Ordering Information**

EX:P32	1	6	S	K -	D	H	K -	V
	Diaphragm Valve Configuration	Inlet Connection	Body	Seat	Max. Inlet Pressure	Max. Outlet Pressure	Gauge	Options
• P32:	1: Inlet/outlet/vent 3: Inlet/outlet	6: 1/4" MNPT	B: Brass S: Stainless steel	K: PCTFE	D: 3000 psig	L: 25 psig K: 50 psig I: 100 psig H: 150 psig	K: psig / kPa P: psig / bar	Blank: Standard V: Waste gas disposal

# P3300 SERIES

Manual Dual-Bank Manifold

Specialty Gas Equipment



## » P3316SK-DHK

Note: Pigtailed ordered separately. Please see page 121.

### Materials

• Body	Brass or Stainless Steel
• Seat	PCTFE
• Panel	Aluminum
• Panel inlet connections	1/4" MNPT
• Panel outlet connections	1/4" GENLOK

GENTEC® P3300 Series Manual Dual-Bank Manifold is designed to provide accurate control of a variety of gases used in research laboratories, laser gas systems, process analyzers, etc. Vent valves can be integrated for purging to ensure maximum purity of gas and minimize contaminants. A check valve located in between the inlet pressure gauge and regulator at both sides ensures additional safety for the user(s). Available in both stainless steel and brass.

### Product Features

- Dual-bank gas supply
- 2" stainless steel pressure gauges
- All parts are mounted on a single panel for easy installation
- Inlet valve(s) for changing cylinder(s) are included. Outlet and vent valves are optional
- Diaphragm valves include an easy to read status window (open/close)
- Integrated relief valve to ensure additional safety
- Diaphragm valve connections are orbital welded to minimize contamination and leakage. (Note: Stainless steel models only)

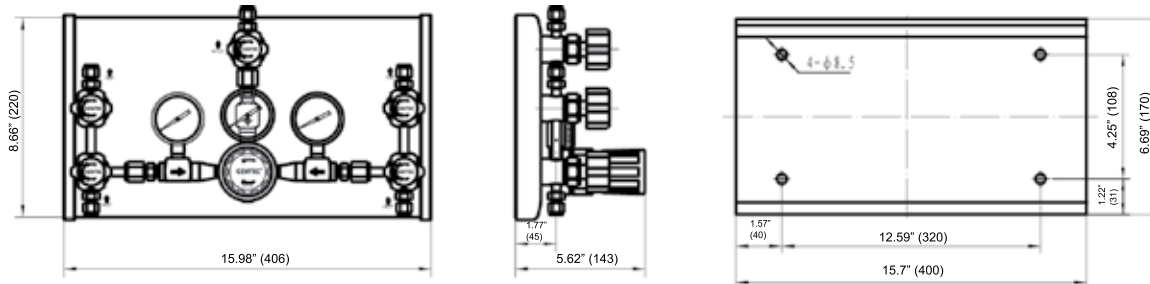
### Applications

- Research Laboratories
- Gas and Liquid chromatography
- Laser gas systems
- Purging system
- Zero & calibration gases
- Hydrocarbon services

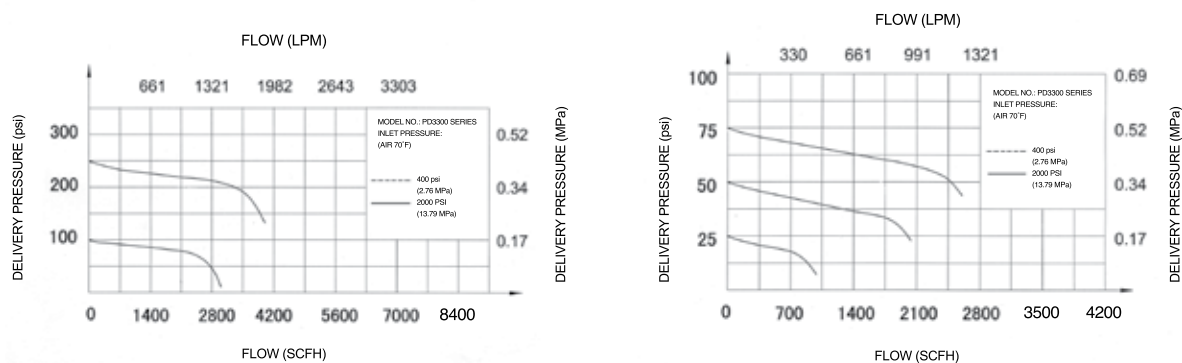
### Specifications

- **Maximum inlet pressure:** 3000 psig
- **Maximum outlet pressure:** 150 psig
- **Operating temperature range:** -40°C to 74°C or -40°F to 165°F
- **Leak rate:**  $2 \times 10^{-8}$  atm.cc/sec He
- **Cv:** 0.14

### Dimensions



### Flow Data



### Ordering Information

EX:P33	1	6	S	K -	D	H	K -	V
	Diaphragm Valve Configuration	Inlet Connection	Body	Seat	Max. Inlet Pressure	Max. Outlet Pressure	Gauge	Options
• P33:	1: Inlet/outlet/vent 3: Inlet/outlet	6: 1/4" MNPT	B: Brass S: Stainless steel	K: PCTFE	D: 3000 psig	L: 25 psig K: 50 psig I: 100 psig H: 150 psig	K: psig / kPa P: psig / bar	Blank: Standard V: Waste gas disposal

# P6210S SERIES

Gas Panel -1 Valve

Specialty Gas Equipment



## » P6210S-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Relief Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P6210 Series Panel offers a regulator, an on/off process valve, and a pipe away relief valve. The panel is designed for inert gases where purging is not required.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valve
- One Valve (1V) Panel
- Built-in relief valve
- All components mounted on an 11" H x 11" W Steel Panel
- Options: Excess Flow Valve (EFV), Emergency Shut Off Valve (ESO), Excess Flow Switch (EFS)

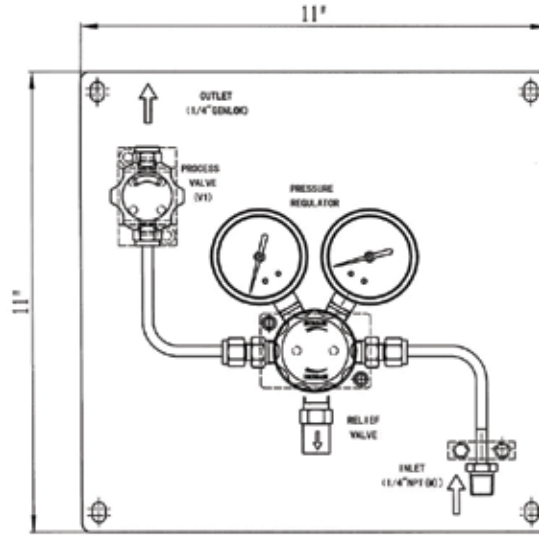
### Applications

- Research Laboratories
- Manufacturing
- Power Plants

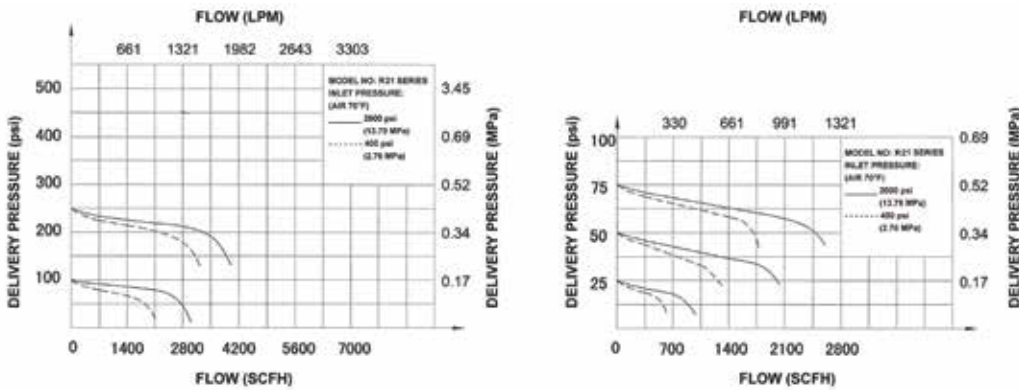
### Specifications

- **Inlet connection:** 1/4" NPT(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK)
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:**  $2 \times 10^{-8}$  atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS

## Dimensions



## Flow Data



## Ordering Information

EX:P6210S- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connections	S - Pigtail	11 - Outlet Connection	ESO Options
• P6210S	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C346: CGA346 C540: CGA540 C580: CGA580 C590: CGA590  No Pigtail 00: 1/4" NPT(M)	S: 316L T: Teflon	11: 1/4" GENLOK	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)

# P621TS SERIES

Gas Panel-1 Valve with T Purge

Specialty Gas Equipment



## » P621TS-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Relief Valve	Stainless Steel with Viton O-Rings
• Check Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P621T Series Panel offers a regulator, on/off process valve, and tee-purge. The panel is designed for inert gases where purging may be required. The tee-purge provides the ability to purge the panel with an inert gas before and after the cylinder exchange.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valves
- One (1V) Panel + Tee Purge
- Inlet Tee Purge designed to maintain purity in a system during cylinder change-out
- All components mounted on an 11" H x 11" W Steel Panel
- Options: EFV, ESO, EFS

### Applications

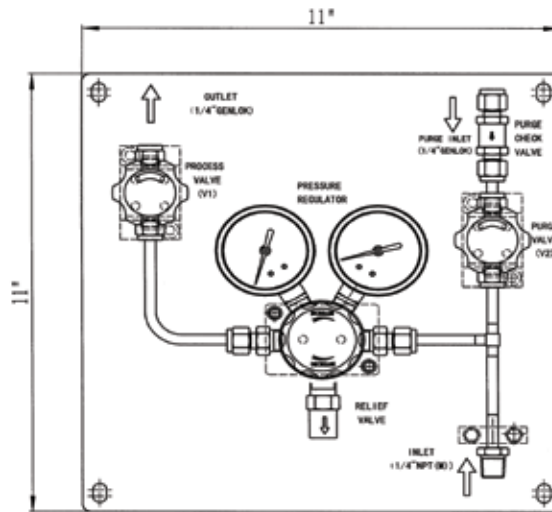
- Research Laboratories
- Manufacturing
- Power Plants

### Specifications

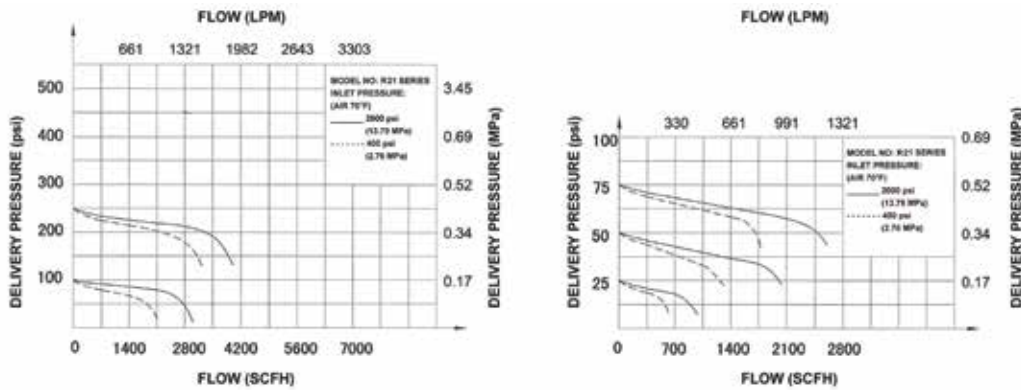
- **Inlet connection:** 1/4" NPT(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK)
- **Purge Inlet:** 1/4" OD Compression Fitting, SS (GENLOK)
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:**  $2 \times 10^{-8}$  atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS



## Dimensions



## Flow Data



## Ordering Information

EX:P621TS- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connections	S - Pigtail	11 - Purge/Outlet Connection	ESO Options
• P621TS	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C346: CGA346 C540: CGA540 C580: CGA580 C590: CGA590  No Pigtail 00: 1/4" NPT(M)	S: 316L T: Teflon	11: 1/4" GENLOK	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)

# P621CS SERIES

Gas Panel-2 Valve with Cross Purge

Specialty Gas Equipment



## » P621CS-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Check Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P621C Series Panel offers a regulator, on/off process valve, a pipe away relief valve and cross purge. The panel is designed for semi-corrosive gases where purging is required. The cross purge provides deep purge of the panel from cylinder to the outlet.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valves
- Two-Valve (2V) Panel + Cross Purge
- Inlet Cross Purge designed to maintain purity in a system during cylinder change-out
- All components mounted on an 11" H x 14" W Steel Panel
- Options: EFV, ESO, EFS

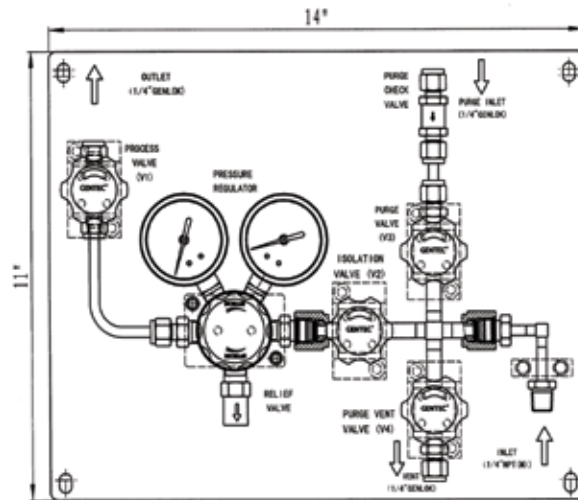
### Applications

- Research Laboratories
- Semiconductor
- Aerospace

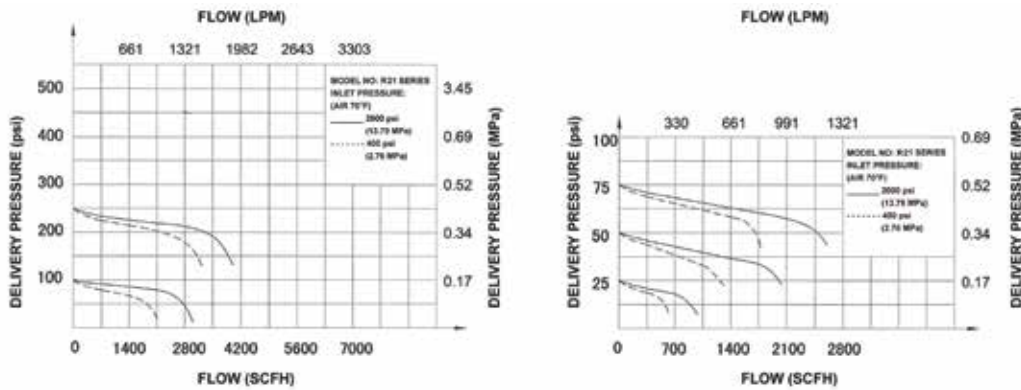
### Specifications

- **Inlet connection:** 1/4" NPT(M); Option 1/4" VCR(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Purge Inlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Vent outlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:**  $2 \times 10^{-8}$  atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS

## Dimensions



## Flow Data



## Ordering Information

EX:P621CS- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connection	S - Pigtail	11 - Purge/Outlet/Vent Connection	ESO Options
• P621CS	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C590: CGA590  No Pigtail 00: 1/4" NPT(M) 92: 1/4" VCR(M)	S: 316L T: Teflon	11: 1/4" GENLOK 92: 1/4" VCR(M)	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)

# P6230S SERIES

Gas Panel-3 Valve

Specialty Gas Equipment



## » P6230S-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Relief Valve	Stainless Steel with Viton O-Rings
• Check Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P6230 Series Panel offers a regulator, on/off process valve and a high pressure vent valve which provides purging contaminant caused by cylinder changes. The panel is designed for non-toxic, non-corrosive gases that require additional purging. The vent line is protected from back flow by a check valve downstream of the vent.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valves
- One (3V) Panel
- All components mounted on an 11" H x 11" W Steel Panel
- Options: EFV, ESO, EFS

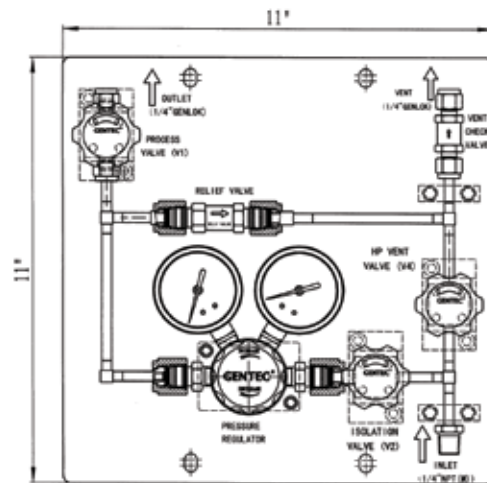
### Applications

- Research Laboratories
- Semiconductor
- Aerospace

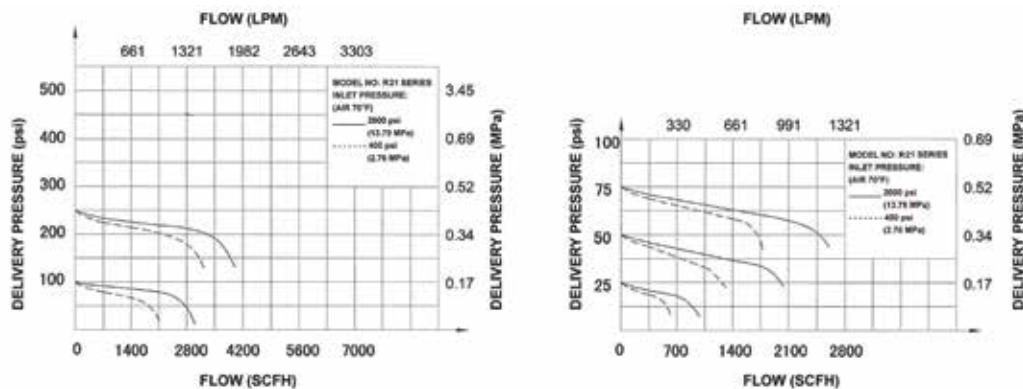
### Specifications

- **Inlet connection:** 1/4" NPT(M); Option 1/4" VCR(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Vent outlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:**  $2 \times 10^{-8}$  atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS

## Dimensions



## Flow Data



## Ordering Information

EX:P6230S- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connections	S - Pigtail	11 - Outlet/Vent Connection	ESO Options
• P6230S	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C590: CGA590  No Pigtail 00: 1/4" NPT(M) 92: 1/4" VCR(M)	S: 316L T: Teflon	11: 1/4" GENLOK 92: 1/4" VCR(M)	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)

# P6250S SERIES

Gas Panel-5 Valve

Specialty Gas Equipment



## » P6250S-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Relief Valve	Stainless Steel with Viton O-Rings
• Check Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P6250 Series Panel offers a regulator, on/off process valve, and low pressure and high pressure vent valves. The panel is designed for toxic, semi-corrosive and flammable gases that require additional purging. This 5V panel is the 3V panel with a low pressure vent valve, which provides extra safety during the purging process. The vent line is protected from back flow by a check valve downstream of the vent.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valves
- One (5V) Panel
- All components mounted on an 11" H x 14" W Steel Panel
- Options: EFV, ESO, EFS

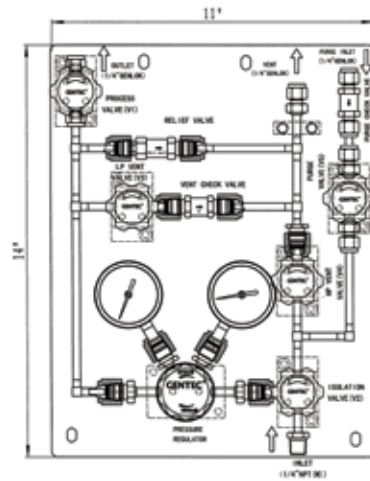
### Applications

- Research Laboratories
- Aerospace
- Semiconductor
- Laboratories

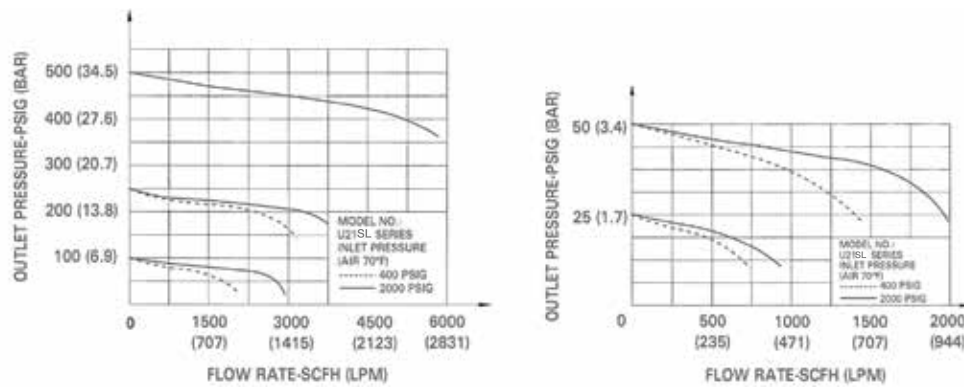
### Specifications

- **Inlet connection:** 1/4" NPT(M); Option 1/4" VCR(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Purge Inlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Vent outlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:** 2x10<sup>-8</sup> atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS

## Dimensions



## Flow Data



## Ordering Information

EX:P6250S- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connections	S - Pigtail	11 - Purge/Outlet/Vent Connection	ESO Options
• <b>P6250S</b>	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C330: CGA330 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C590: CGA590 C660: CGA660  No Pigtail 00: 1/4" NPT(M) 92: 1/4" VCR(M)	S: 316L T: Teflon	11: 1/4" GENLOK 92: 1/4" VCR(M)	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)

# P625VS SERIES

Gas Panel-5 Valve with Venturi

Specialty Gas Equipment



## » P625VS-DIP

### Materials

• Valves	Stainless Steel with PCTFE Seat, Diaphragm Type
• Relief Valve	Stainless Steel with Viton O-Rings
• Check Valve	Stainless Steel with Viton O-Rings
• Regulator	Stainless Steel with PCTFE Seat, Single Stage
• Gauges	Stainless Steel
• Tubing & Fittings	Stainless Steel
• Flex or Rigid Hose	Stainless Steel
• Back Plate	Aluminum Alloy

GENTEC® P625VS Series Panel offers a regulator, on/off process valve, and low pressure and high pressure vent valves. The panel is designed for toxic, semi-corrosive and flammable gases that require additional purging. This 5V panel is the 3V panel with a low pressure vent valve which provides extra safety during the purging process. The vent line is protected from back flow by a check valve downstream of the vent. The Venturi provides high flow vacuum evacuation during purging process.

### Product Features

- Material of construction: Stainless Steel
- Regulator: Stainless Steel with PCTFE Seat, Single Stage
- Full-Turn Diaphragm Valves
- One (5V) Panel + Venturi
- All components mounted on an 14" H x 11" W Steel Panel
- Options: EFV, ESO, EFS

### Applications

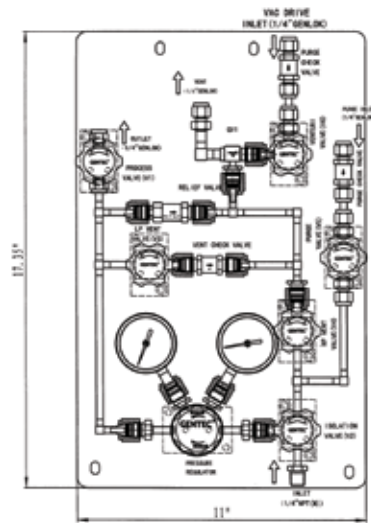
- Research Laboratories
- Semiconductor
- Laboratories

### Specifications

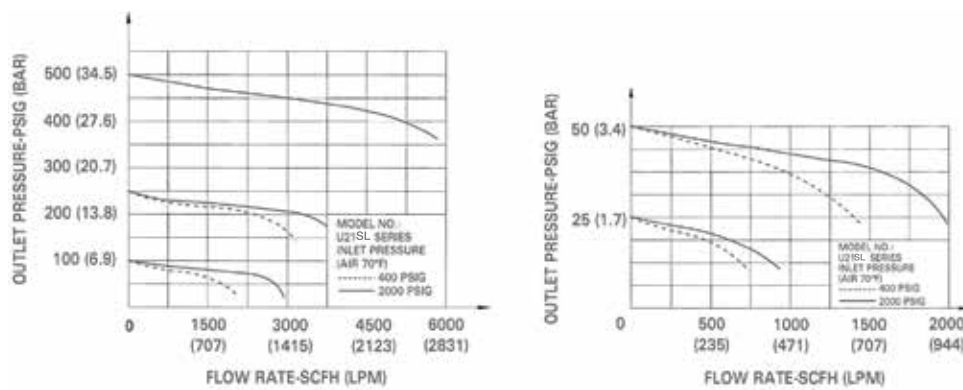
- **Inlet connection:** 1/4" NPT(M); Option 1/4" VCR(M)
- **Purge Inlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Outlet connection:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Vent outlet:** 1/4" OD Compression Fitting, SS (GENLOK); Option 1/4" VCR(M)
- **Venturi Inlet:** 1/4" OD Compression Fitting
- **Inlet:** 3000 psig maximum
- **Outlet:** 250 psig maximum
- **Operating Temp:** -40°F to 165°F
- **Leak Rate:**  $2 \times 10^{-8}$  atm cc/sec He
- **Cv:** 0.14
- **Options:** ESO, EFV, EFS



## Dimensions



## Flow Data



## Ordering Information

EX:P625VS- Series	D Inlet Pressure	I Delivery Pressure	P - Gauge Unit	C580 - Inlet Connections	S - Pigtail	11 - Purge/Outlet/Vent Connection	ESO Options
• <b>P625VS</b>	D: 3000 psig	L: 25 psig I: 100 psig G: 250 psig	K: psig / kPa P: psig / bar	Pigtail C320: CGA320 C326: CGA326 C330: CGA330 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C590: CGA590 C660: CGA660  No Pigtail 00: 1/4" NPT(M) 92: 1/4" VCR(M)	S: 316L T: Teflon	11: 1/4" GENLOK 92: 1/4" VCR(M)	Blank: None EFV* ESO** EFS***

\*Excess Flow Valve (EFV), \*\*Emergency Shut-off Valve (ESO), \*\*\*Excess Flow Switch (EFS)



**GC-7100**

**GC-7200**



**GC-7300**

**GENTEC® Gas Safety Cabinets** are designed for safety and ease of access to hazardous gases. The Gas Safety Cabinets meet or exceed Semiconductor S2-93 and International Fire Code (IFC) guidelines.

## Features

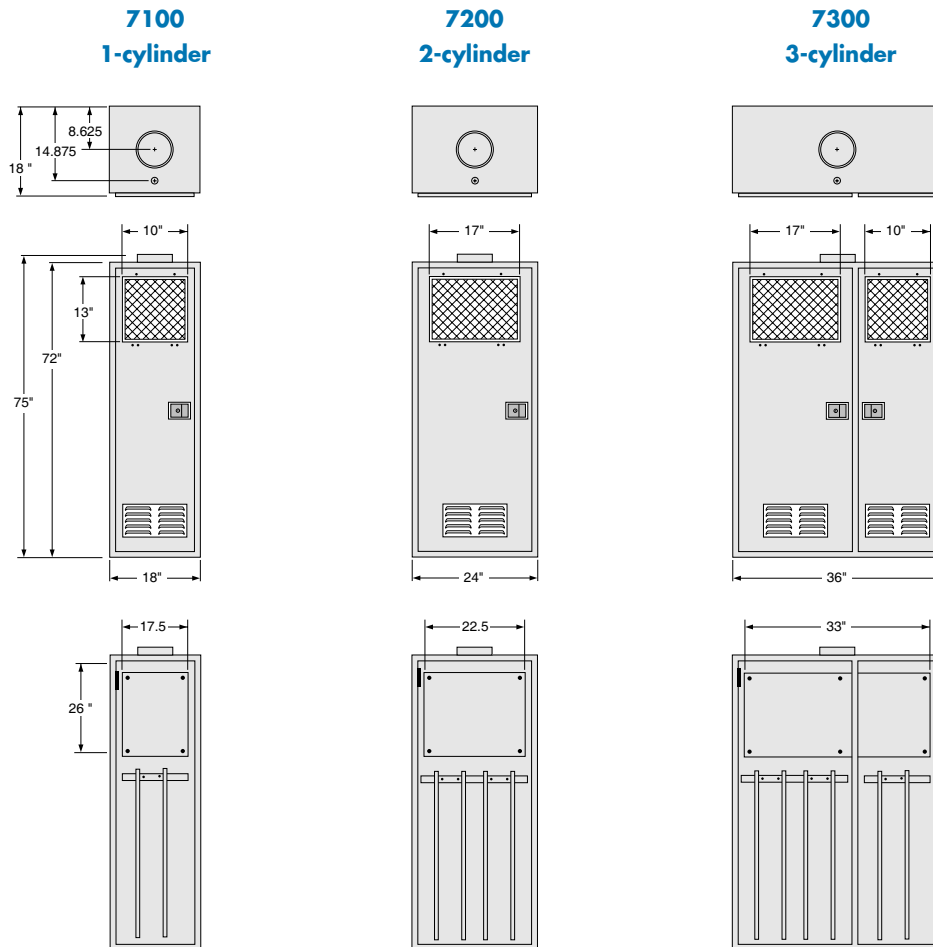
- Door and window latch and close automatically
- 1/4" wire reinforced safety glass
- All welded construction 11 Gauge steel
- Louvers at bottom of door
- Flush mounted stainless steel paddle latch
- Adjustable brackets for precise pigtail alignment
- Exhaust vent located on top of cabinet is 6" diameter x 3" high
- Removable white back panels mount to inside rear cabinet
- Cylinder brackets accommodate 7" to 9" diameter cylinders
- 165°F sprinkler head on top of cabinet with bees wax coating
- Epoxy painted exterior texture with smooth interior finish

## Specifications

Part Number	Cabinet	Height	Depth	Width	Exhaust Diameter*	Ship Weight
GC-7100	1 Cylinder	75"	18"	18"	6"	275 lbs
GC-7200	2 Cylinder	75"	18"	24"	6"	325 lbs
GC-7300	3 Cylinder	75"	18"	36"	6"	450 lbs

\*Please call Gentec® for custom exhaust sizes. Install and exhaust connection by others.

**Dimensions**



**Options**

- Adjustable shelves
- Keyed door latch
- Custom colors
- Dome roof configurations
- Air intake filter
- Rubber floor mat

# P4200 SERIES

Point-of-Use Gas Control Panel

Specialty Gas Equipment



## » P4231SL-IK-D12D12

Note: Pigtails ordered separately. Please see page 121.

### Materials

• Body	Stainless Steel
• Bonnet	316L
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Adjusting Knob	ABS Plastic

GENTEC® P4200 Series Point-of-Use Gas Control Panel is designed for accurate control of gases in downstream applications. Control panels come in configurations ranging from one outlet point to multiple outlet points.

### Product Features

- Designed for “Research Grade” terminal gas control
- Terminal gas regulation provides end-users with consistent pressure and flow
- Easy-to-read 2” stainless steel pressure gauges
- Single panel configuration for easy installation
- Valves are available in three types: ball valves, diaphragm valves, and needle valves

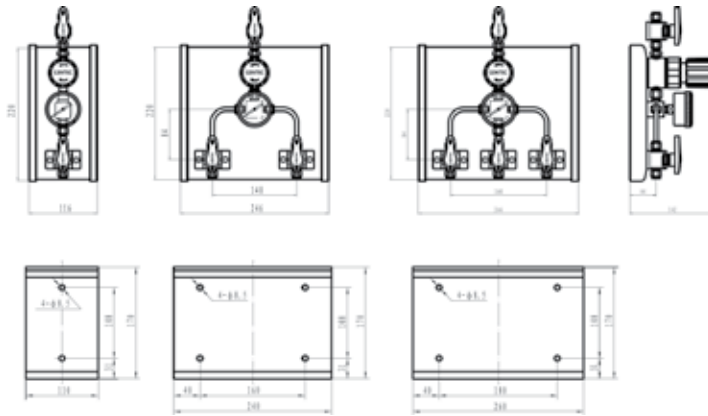
### Applications

- Research Laboratories
- Test Laboratories
- Gas Chromatography

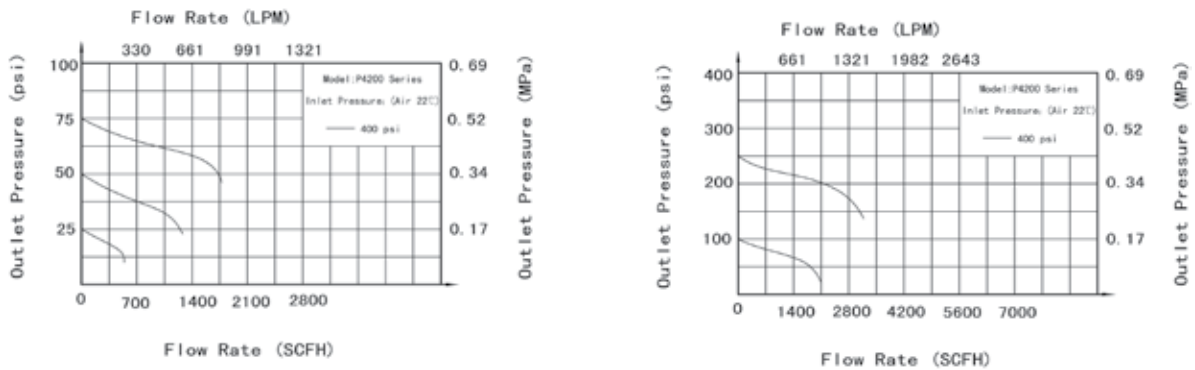
### Specifications

- Maximum outlet pressure: 100 psig
- Temperature range: -40°F~165°F (-40°C~ 74°C)
- Leakage across seat :  $2 \times 10^{-8}$  sccs He
- Cv: 0.14

**Dimensions**



**Flow Data**



**Ordering Information**

EX: P42	3	1-	SL-	I	K-	D	12	D	12
Series	Inlet / Outlet Connection	No. of Terminals	Material	Max. Pressure	Gauge	Inlet Valves	Inlet Connection Type	Outlet Valves	Outlet Connection Type
• P42	1: One inlet / one outlet 2: One inlet / two outlets 3: One inlet / three outlets	1: One	SL: Stainless steel	L: 25 psig K: 50 psig I: 100 psig	K: psig / kPa P: psig / bar	B: Ball D: Diaphragm N: Needle	11: 1/8" GENLOK 12: 1/4" GENLOK 31: 1/8" NPT(F) 32: 1/4" NPT(F)  More connections available upon request	B: Ball D: Diaphragm N: Needle	11: 1/8" GENLOK 12: 1/4" GENLOK 31: 1/8" NPT(F) 32: 1/4" NPT(F)  More connections available upon request

# P4400 SERIES

Point-Of-Use Gas Control Panel

Specialty Gas Equipment



## » P4412B-HK-B81W81

Note: Pigtails ordered separately. Please see page 121.

### Materials

• Body	Chrome-plated brass
• Bonnet	316L
• Seat	PCTFE
• Diaphragm	316L Stainless Steel
• Adjusting Knob	ABS Plastic

GENTEC® P4400 Series Point-Of-Use Gas Control Panel is designed for accurate control of gases in low flow applications. Regulator, pressure gauge, and ball valve have been forged as one piece to minimize the possibility of leaks. This series of control panels comes in one or multiple terminals to meet a wide range of requirements and applications. Please see ordering information for more options.

### Product Features

- Designed for downstream control
- Easy-to-read 2" stainless steel pressure gauges
- Single body minimizes point of leaks and contamination
- Adjustable outlet pressure
- Single panel configuration for easy installation

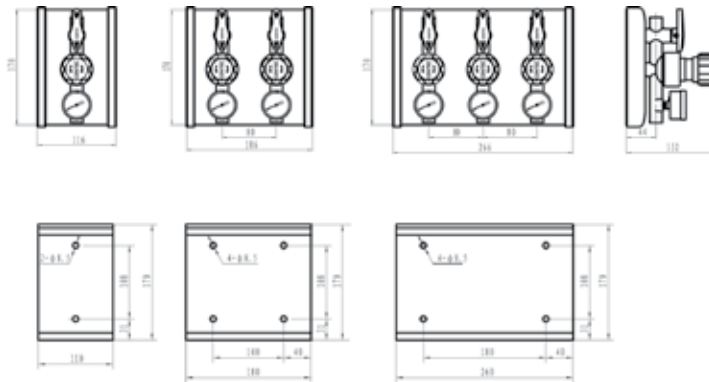
### Applications

- Research Laboratories
- Test Laboratories
- Gas Chromatography

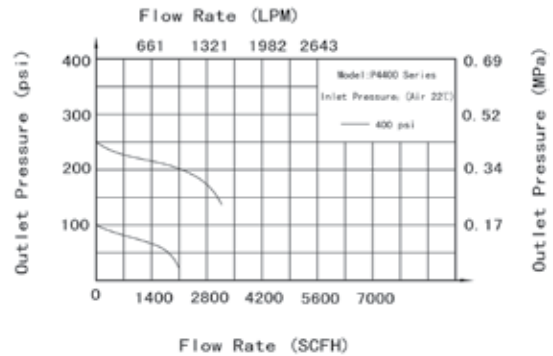
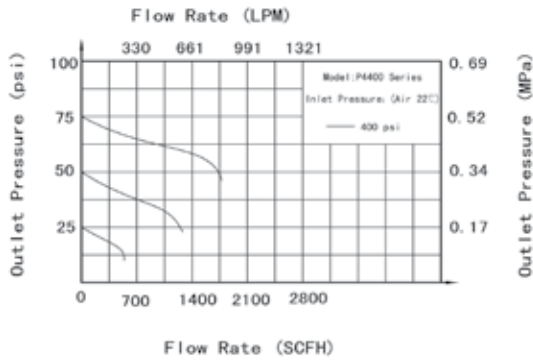
### Specifications

- **Maximum outlet pressure:** 50/100/150 psig
- **Temperature range:** -40°F~165°F (-40°C~ 74°C)
- **Leakage across seat :**  $2 \times 10^{-8}$  sccs He
- **Cv:** 0.14

**Dimensions**



**Flow Data**



**Ordering Information**

EX: P44	1	2	B -	H	K -	B	81	W	81
Series	Inlet / Outlet Connection	No. of Terminals	Material	Max. Pressure	Gauge	Inlet Valves	Inlet Connection Type	Outlet Valves	Outlet Connection Type
• P44	1: One inlet / one outlet	1: One 2: Two 3: Three	B: Chrome-plated brass	K: 50 psig I: 100 psig H: 150 psig	K: psig / kPa	B: Ball W: None	31: 1/8" NPT(F) 32: 1/4" NPT(F)  More connections available upon request	W: None	31: 1/8" NPT(F) 32: 1/4" NPT(F)  More connections available upon request

# HYDROGEN GENERATOR

G200, G400, G600

Specialty Gas Equipment



» G200

The G Series Hydrogen Generators are designed to offer a pure source of hydrogen for your GC Application, for Flame Ionization Detection (FID) or Carrier Gas.

## Product Features

**Safety** - Forced air ventilation and self-checks for internal leaks prevent hazardous situations. Automatic shut-down on pressure build-up

**High Purity** - Hydrogen suitable for FID and most carrier gas applications

**Reliable** - Advanced ion exchange membrane technology for a long and trouble-free generator life

**Mobile** - Flexibility to position generator where required

**Simple Installation** - Generator designed with touch screen display

## Savings

- Eliminate H<sub>2</sub> gas cylinders
- Eliminate cylinder rental fees
- Eliminate the use of flammable gas from a cylinder

## Specifications

Part Number	G200	G300	G600
Flow Rate*	200 cc/min	400 cc/min	600 cc/min
Technologies Employed	Proton Exchange Membrane (PEM) solid electrolyte, maintenance and caustic-free		
Output Pressure	2 to 8 barg / 30 to 116 psig		
Purity	99.9999% (H <sub>2</sub> O < 5 ppmv, O <sub>2</sub> < 1 ppmv)		
Water Supply	Deionized, ASTM Type II, > 1 MegOhm-cm (< 1 micro Siemen/cm)		
Electrical Supply	115 / 230VAC ± 10%, 50/60 Hz		
Ingres Protection Supply	IP 20		
Environmental Moisture	80%, no condensation		
Maximum Altitude	200 m / 6560 ft above sea level		
Dimensions	14.5" (H) x 20.5" (W) x 9" (D) / 36.8 cm (H) x 52 cm (W) x 5 cm (D)		
Weight	67 lbs / 30 kg		
Applications	Gas Chromatography, detector feed FID, NPD, FPD, TCD, HWD or supply carrier gas		

\* Measured at standard conditions





» **N341M**

The N341M Nitrogen Generator is proven solution for customers requiring nitrogen for their LCMS application. Extensive testing of the generator by Mass Spec manufacturers throughout the development process guarantees the best nitrogen solution for your LCMS.

### Product Features

**Independent** - No external compressor required

**Intelligent** - High Duty and service indication

**Quiet** - Insulated compressor compartment for minimum disruption

**Mobile** - The generator is supplied with caster wheels for easy mobility

**Economical** - More cost effective than any other gas supply method

**Convenient** - Gas on demand, no health hazards, no need to worry about running out of gas

### Specifications

Part Number	N341M
Flow Rate	up to 34 SLPM
Purity	up to 99.9%
Technologies Employed	Membrane
Output Pressure	7 barg / 100 psig
Suspended Liquids	None
Phthalates	Constructed with phthalate free material
Air Compressor	Yes
Electrical Supply	230 VAC $\pm$ 10%, 50/60 Hz
Ingres Protection Rating	IP20
Operating Temperature	40°F to 104°F / 5°C to 40°C
Ambient Humidity	$\leq$ 70%, non-condensing
Maximum Altitude	2000 m / 6560 ft above sea level
Dimensions	34" (H) x 20" (W) x 24" (D) / 86.4 cm (H) x 61 cm (W) x 61 cm (D)
Weight	200 lbs / 91 kg
Applications	LC-MS E, sample preparation

# NITROGEN GENERATOR

N34M, N60M, N120M

Specialty Gas Equipment



» N34M

The N34M Series Nitrogen Generator is designed specifically for use as flame gas for GC Applications, which require zero air for operation.

## Product Features

**Durable** - Few moving parts with minimum maintenance requirements

**Single Source Solution** - One generator can cater to the requirements of multiple applications

**Economical** - More cost effective than any other gas supply method

**Convenient** - Gas on demand, no health hazards, no need to worry about running out of gas

## Specifications

Part Number	N34M	N60M	N120M
Flow Rate	34 SLPM	60 SLPM	120 SLPM
Purity	up to 99.9%		
Technologies Employed	Membrane		
Output Pressure	7 barg / 100 psig		
Suspended Liquids	None		
Phthalates	Constructed with phthalate free material		
Index Protection Rating	IP 20		
Air Input Characteristics	Particulate $\leq 0.1 \text{ mg/m}^3$ ( $\leq 0.1 \mu\text{m}$ ) Oil vapors $\leq 0.01 \text{ mg / m}^3$ Moisture $\leq 3^\circ\text{C}$ dew point (ISO8573-12010, class 4) Minimum pressure 7.5 barg / 110 psig Maximum pressure 10 barg / 145 psig		
Air Compressor	No		
Operating Temperature	40°F to 104°F / 5°C to 40°C		
Ambient Humidity	$\leq 70\%$ , non-condensing		
Maximum Altitude	2000 m / 6560 ft above sea level		
Dimensions	36" (H) x 12" (W) x 7 1/2" (D) / 91.4 cm (H) x 30.5 cm (W) x 19.1 cm (D)		
Weight	43 lbs / 19.5 kg	46 lbs / 20.9 kg	57 lbs / 25.9 kg
Applications	LC-MS E, sample preparation		



» **AIR A5**

The Air A5 Zero Air Generator is proven solution for customers requiring nitrogen for their LCMS application. Extensive testing of the generator by mass spec manufacturers throughout the development process guarantees the best nitrogen solution for your LCMS.

### Product Features

**Mobile** - Flexibility to position generator where required, even under standard lab bench, the generator is supplied with caster wheels for easy mobility

**Economical** - More cost effective than any other gas supply method

**Convenient** - Gas on demand, no health hazards, no need to worry about running out of gas

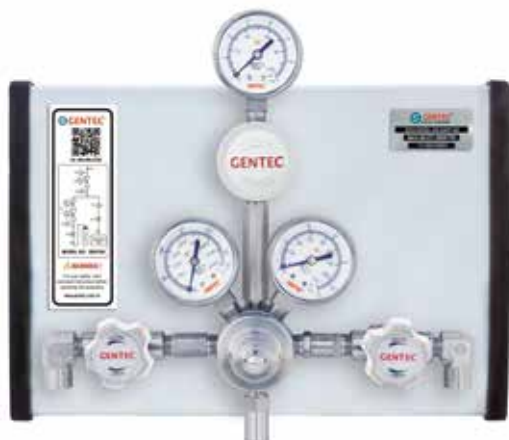
### Specifications

Part Number	A5	A20
Flow Rate	5 SLPM	20 SLPM
Technologies Employed	Catalytic Reactor	
Input/Output Pressure	0 to 10 barg / 0 to 145 psig	
Purity: Total Hydrocarbons Residual with Catalyser	< 1 ppm	
Air Input and Output Characteristics	Particle $\leq 0.1 \text{ mg/m}^3$ ( $\leq 0.01 \text{ }\mu\text{m}$ ) Oil Vapors $\leq 0.01 \text{ mg/m}^3$ Moisture $\leq 3^\circ\text{C}$ dew point in pressure	
Air Compressor	No	
Electrical Supply	230 VAC $\pm 10\%$ 50/60 Hz	
Ingres Protection Rating	IP 20	
Operating Temperature	40°F to 104°F / 5°C to 40°C	
Environmental Moisture	$\leq 80\%$ , no condensation	
Maximum Altitude	2000 m / 6560 ft above sea level	
Dimensions	13.8" (H) x 7.9" (W) x 6.3" (D) / 35 cm (H) x 20 cm (W) x 16 cm (D)	
Weight	13.2 lbs / 6 kg	
Applications	For GC FID, THC, NOX, BTX and SOX	

# BS3100 SERIES

Back-up Control Panel

Specialty Gas Equipment



## » BS3110SL-45-DKK-00

Note: Pigtails ordered separately. Please see page 121.

### Materials

• Body	Brass or Stainless Steel
• Regulator inlet/outlet port	1/4" NPT(F)
• Cylinder inlet connection	CGA
• Inlet valve body	Stainless Steel
• Check valve body	Stainless Steel

GENTEC® BS3100 Series Generator Back-up Control Panel, a hybrid control system, has the gas generator as the primary source of gas supply and the cylinder as the reserve. The automatic changeover provides a continuous gas supply without interrupting the system during generator maintenance. When the pressure of the generator drops below a preset value, the cylinder will begin to supply gas to the system. The line regulator executes a second stage pressure reduction, providing a consistent outlet pressure and flow. This series is available in both stainless steel and brass.

### Product Features

- Hybrid dual-bank gas supply and automatic changeover
- Dual-stage pressure reduction to minimize pressure and flow fluctuation
- Inlet valves allow the user to isolate either source of gas supply for maintenance
- The integrated check valve ensures system safety

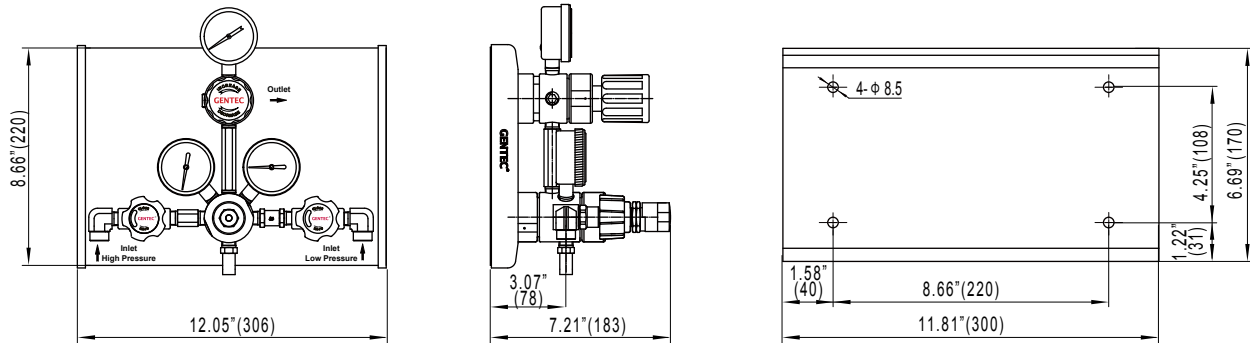
### Applications

- Gas Chromatography
- Test Laboratories

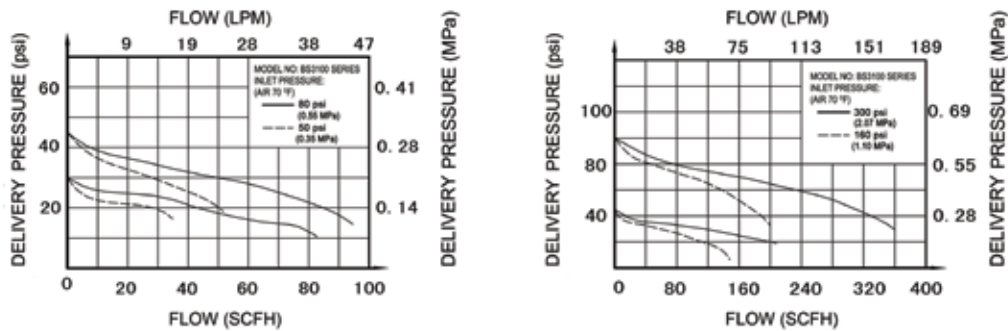
### Specifications

- **Maximum generator side inlet pressure:** 380 psig
- **Maximum cylinder side inlet pressure:** 3000 psig
- **Outlet pressure range:** 0-45 psig
- **Maximum flow:** 60 SLPM
- **Temperature range:** -40°F~165°F (-40°C~ 74°C)
- **Leakage across seat :**  $2 \times 10^{-8}$  atm.cc/sec He
- **Changeover pressure:** as selected by customer(s)

## Dimensions



## Flow Data



## Ordering Information

EX: BS31	1	0	SL -	45 -	D	K	K -	00
Series	Primary Supply Max. Pressure	Inlet / Outlet Connection	Material	Max. Outlet Pressure	Backup Cylinders Pressure	Preset Pressure	Gauge	Backup Cylinder Inlet Connection
• BS31	1: 85 psig 2: 180 psig 3: 380 psig	0: No vent valves 1: Vent valves	SL: Stainless Steel B: Brass	45: 45 psig	D: 3000 psig F: 500 psig	K: 50 psig L: 100 psig H: 150 psig	K: psig / kPa P: psig / bar	00: 1/4" NPT(F) C350: CGA350 C590: CGA590 More connections available upon request

# ACCESSORIES

Brackets and Pigtails

Specialty Gas Equipment

## Wall-Mount & Cylinder Brackets



**SS-GMB-7G**



**CB-1C**

**CB-1**



**GMB-R1**



**GMB-R6**

Model Number	
<b>CB-1</b>	Wall Bracket, Strap
<b>CB-1C</b>	Wall Bracket, Strap and Chain
<b>SS-GMB-7G</b>	Wall Mount Bracket: 1/2"
<b>SS-GMB-7H</b>	Wall Mount Bracket: 3/8"
<b>SS-GMB-7I</b>	Wall Mount Bracket: 1/4"
<b>GMB-R1</b>	R21, R22 Bracket
<b>GMB-R6</b>	R11, R12, R14, R15, R21, R22, R44 Bracket

Note: Use with Header Manifolds.

## Pigtails



- Designed for use between cylinder and piping system
- Max. Pressure: GFPT and GFPS Series, 3000 psi; GRPS Series, 4500 psi
- Temp. Range: GFPS and GRPS Series, -325°F to 850°F (-200°C to 454°C); GFPT, -65°F to 450°F (-53°C to 230°C)
- Oxygen Service: Meets CGA G4.1 Specifications for cleanliness

GRPS - Series	C330 - Inlet Connections	CV - Options	00 - Outlet Connections
<b>GRPS:</b> Stainless Steel Rigid Pigtail	00: 1/4" NPT(F) C330: CGA330 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C660: CGA660	Blank: None CV: with Check Valve* FA: with Flashback Arrestor	00: 1/4" NPT(F) VF: 1/4" Female FSR OD: 1/4" Tube

GFPT Series	24 - Length	C330 - Inlet Connections	CV - Options	00 Outlet Connections
<b>GFPT:</b> Stainless Steel Flexible Pigtail with Teflon Insert	24: 24" 36: 36"	00: 1/4" NPT(F) C330: CGA330 C350: CGA350 C510: CGA510 C540: CGA540 C580: CGA580 C660: CGA660	Blank: None CV: with Check Valve FA: with Flashback Arrestor	00: 1/4" NPT(F)
<b>GFPS:</b> Stainless Steel Flexible Pigtail with Stainless Steel Insert				

\* Check valve available with threaded pigtail assembly only.

## Gas Pressure Alarm

- Connect to a Pressure Switch or Contact Gauge
- LED display 1, 2, and 4 gases
- Audible alarm
- Visual alarm
- Mute button
- Connection cords for alarm
- Voltage: 110VAC or 220VAC (optional)



**SGPA-1-110**  
**Monitors One (1)**  
**Gas**



**SGPA-2-110**  
**Monitors Two (2)**  
**Gases**



**SGPA-4-110**  
**Monitors Four (4)**  
**Gases**

## Header Bars

- Modular design for easy installation and future expansion
- Outlet connections are available in both GENLOK tube fitting and FSR fittings
- Maximum inlet pressure of 3000 psi
- 100% tested to ensure there are no leaks

### Materials

- **Pipe** OD 1/2", 316L seamless stainless steel tubing (BA grade)
- **Connector** 316
- **Diaphragm valve** 316L diaphragm, PCTFE seat, 316L body



**GSM L-212D-FNT4-TF8-12**



**GSM R-212D-FNT4-TF8-12**

## Ordering Information

GSM Series	R Configuration L: Left	2 Stations	12 Station Spacing	D - Station Valve Configuration	FNT4 - Inlet Connection	TF8 - Outlet Connection	12 Spacer
GSM: Stainless Steel	R: Right L: Left	2/3/5	12:12" Custom made, please specify	W: None D: Diaphragm valve	FNT4*: 1/4" NPT(F) NT4: 1/4" NPT(M) VM4: 1/4" FSR(M)	FNT4: 1/4" NPT(F) NT8: 1/2" NPT(M) TF8: 1/2" GENLOK VSF8: 1/2" FSR(M)	6: 6" spacer 12: 12" spacer

# ACCESSORIES

Gauges & Electronic Contact Gauges

Specialty Gas Equipment

## Gauges



**G20SL**  
Low Mount (LM)



**GR20SL**  
Back Mount (BM)

- Designed for use with regulator
- Easy control of outlet flow

Series	Specs.	Wetted	Casing	Connection
G20P (LM)		Brass	Chrome-Plated Brass	1/4" NPT
G20SL (LM)		316L	316L	1/4" NPT
GR20SL (BM)		316L	316L	1/4" NPT

2", PSI/kPa Dual Scale, Lower Mount			
Model Number		Maximum Scale PSI/kPa	Entry
Chrome Plated Brass	Stainless Steel		
G20PV-30-P/K	G20SLV-30-P/K	-30in.Hg/30/200	LM
G20PV-60-P/K	G20SLV-60-P/K	-30in.Hg/60/400	LM
G20PV-100-P/K	G20SLV-100-P/K	-30in.Hg/100/700	LM
G20PV-150-P/K	G20SLV-150-P/K	-30in.Hg/100/1000	LM
G20PV-200-P/K	G20SLV-200-P/K	-30in.Hg/200/1400	LM
G20PV-300-P/K	G20SLV-300-P/K	-30in.Hg/300/2000	LM
G20P-30-P/K	G20SL-30-P/K	30/200	LM
G20P-60-P/K	G20SL-60-P/K	60/400	LM
G20P-100-P/K	G20SL-100-P/K	100/700	LM
G20P-160-P/K	G20SL-160-P/K	160/1100	LM
G20P-200-P/K	G20SL-200-P/K	200/1400	LM
G20P-300-P/K	G20SL-300-P/K	300/2000	LM
G20P-600-P/K	G20SL-600-P/K	600/4000	LM
G20P-1000-P/K	G20SL-1000-P/K	1000/7000	LM
G20P-1500-P/K	G20SL-1500-P/K	1500/10000	LM
G20P-2000-P/K	G20SL-2000-P/K	2000/14000	LM
G20P-3000-P/K	G20SL-3000-P/K	3000/20000	LM
G20P-4000-P/K	G20SL-4000-P/K	4000/28000	LM
G20P-6000-P/K	G20SL-6000-P/K	6000/40000	LM

2", PSI/bar Dual Scale, Lower Mount			
Model Number		Maximum Scale PSI/bar	Entry
Chrome Plated Brass	Stainless Steel		
G20PV-30-P/B	G20SLV-30-P/B	-30in.Hg/30/2	LM
G20PV-60-P/B	G20SLV-60-P/B	-30in.Hg/60/4	LM
G20PV-100-P/B	G20SLV-100-P/B	-30in.Hg/100/7	LM
G20PV-150-P/B	G20SLV-150-P/B	-30in.Hg/150/10	LM
G20PV-200-P/B	G20SLV-200-P/B	-30in.Hg/200/14	LM
G20PV-300-P/B	G20SLV-300-P/B	-30in.Hg/300/20	LM
G20P-30-P/B	G20SL-30-P/B	30/200	LM
G20P-60-P/B	G20SL-60-P/B	60/400	LM
G20P-100-P/B	G20SL-100-P/B	100/7	LM
G20P-160-P/B	G20SL-160-P/B	160/11	LM
G20P-200-P/B	G20SL-200-P/B	200/14	LM
G20P-300-P/B	G20SL-300-P/B	300/20	LM
G20P-600-P/B	G20SL-600-P/B	600/40	LM
G20P-1000-P/B	G20SL-1000-P/B	1000/70	LM
G20P-1500-P/B	G20SL-1500-P/B	1500/100	LM
G20P-2000-P/B	G20SL-2000-P/B	2000/140	LM
G20P-3000-P/B	G20SL-3000-P/B	3000/200	LM
G20P-4000-P/B	G20SL-4000-P/B	4000/280	LM
G20P-6000-P/B	G20SL-6000-P/B	6000/400	LM

2", PSI/bar Dual Scale, Back Mount		
Model Number	Maximum Scale PSI/bar	Entry
Stainless Steel		
GR20SLV-30-P/B	-30in.Hg/30/2	BM
GR20SLV-60-P/B	-30in.Hg/60/4	BM
GR20SLV-100-P/B	-30in.Hg/100/7	BM
GR20SLV-150-P/B	-30in.Hg/150/10	BM
GR20SLV-200-P/B	-30in.Hg/200/14	BM
GR20SLV-300-P/B	-30in.Hg/300/20	BM
GR20SL-30-P/B	30/200	BM
GR20SL-60-P/B	60/400	BM
GR20SL-100-P/B	100/7	BM
GR20SL-160-P/B	160/11	BM
GR20SL-200-P/B	200/14	BM
GR20SL-300-P/B	300/20	BM
GR20SL-600-P/B	600/40	BM
GR20SL-1000-P/B	1000/70	BM
GR20SL-1500-P/B	1500/100	BM
GR20SL-2000-P/B	2000/140	BM
GR20SL-3000-P/B	3000/200	BM
GR20SL-4000-P/B	4000/280	BM
GR20SL-6000-P/B	6000/400	BM

## Electronic Contact Gauges



**GA20SL**  
Lower Mount (LM)



**GRA20SL**  
Back Mount (BM)



**GE20SL**  
Lower Mount (LM)



**GRE20SL**  
Back Mount (BM)

- Normally open, switch gauge
- Switch closes on decreasing pressure (NC) / opens on increasing pressure
- Adjustable between 5 and 80% of the scale range
- Maximum power: 10 watts DC, 12 VAAC
- Maximum switch voltage: 28 V AC/DC
- Wetted area and casing: 316L
- Temperature: -40°F~158°F
- Connection: 1/4" NPT
- Accuracy: 3-2-3 (2%)
- Potential-free relay

2", Stainless Steel Contact Gauge, PSI/kPa Dual Scale				
Model Number				Maximum Scale PSI/kPa
Twist Cap		Fixed Cap		
Lower Mount	Back Mount	Lower Mount	Back Mount	
GA20SL-100-P/K	GRA20SL-100-P/K	GE20SL-100-P/K	GRE20SL-100-P/K	100/700
GA20SL-200-P/K	GRA20SL-200-P/K	GE20SL-200-P/K	GRE20SL-200-P/K	200/1400
GA20SL-300-P/K	GRA20SL-300-P/K	GE20SL-300-P/K	GRE20SL-300-P/K	300/2000
GA20SL-400-P/K	GRA20SL-400-P/K	GE20SL-400-P/K	GRE20SL-400-P/K	400/2800
GA20SL-600-P/K	GRA20SL-600-P/K	GE20SL-600-P/K	GRE20SL-600-P/K	600/4000
GA20SL-1500-P/K	GRA20SL-1500-P/K	GE20SL-1500-P/K	GRE20SL-1500-P/K	1500/10000
GA20SL-3000-P/K	GRA20SL-3000-P/K	GE20SL-3000-P/K	GRE20SL-3000-P/K	3000/20000
GA20SL-4000-P/K	GRA20SL-4000-P/K	GE20SL-4000-P/K	GRE20SL-4000-P/K	4000/28000

Note: Please consult factory on VCR/FSR gauges or Psi/bar and PSI/kPa dual scale ranges not listed.



## Needle Valves

- Designed for use with regulator
- Easy control of outlet flow



Series	Material	Max Working Pressure	Inlet / Outlet Connection
207C	Brass	500 psig	1/4" NPT(M) x 1/4" NPT(M)
207CP	Nickel-Plated Brass	500 psig	1/4" NPT(M) x 1/4" NPT(M)
SS-NV12-NT4	316	5000 psig	1/4" NPT(M) x 1/4" NPT(M)
SS-NV12-NT4-TF4	316	5000 psig	1/4" NPT(M) x 1/4" GENLOK

## Relief Valves

- Designed for use with regulator
- Relief pressure adjustable



Series	Material	Pressure Range	Inlet / Outlet Connection
RV11	B: Nickel-Plated Brass	20: 10-20 psig	1/4" NPT(M) x 1/4" NPT(F)
	SS: 316	100: 20-100 psig	1/4" NPT(M) x 1/4" NPT(F)
		250: 100-250 psig	1/4" NPT(M) x 1/4" NPT(F)
		500: 250-500 psig	1/4" NPT(M) x 1/4" NPT(F)
		750: 500-750 psig	1/4" NPT(M) x 1/4" NPT(F)

## Diaphragm Valves

- Designed for regulator outlet port



**SL-DV92-NT4-FNT4**

Series	Material	Cv	Max Working Pressure	Inlet / Outlet Connection
SL-DV92-NT4-FNT4	316	0.17	3500 psig	1/4" NPT(M) x 1/4" NPT(F)
BP-DV92-NT4-FNT4	Nickel-Plated Brass	0.17	3500 psig	1/4" NPT(M) x 1/4" NPT(F)

Please see "Valves" catalog for additional products

# ACCESSORIES

Check Valves, Filters & General Purpose Flashback Arrestors

Specialty Gas Equipment

## Check Valves



Please contact GENTEC® for additional sizes or cracking pressure available

Material: 316L | Pressure Rating: 3000 psig | Cracking Pressure: 1 psig or 3 psig | Viton® O-rings standard

Model	Inlet Connection	Outlet Connection
SS-CV11-TF2-VI-1	1/8" GENLOK	1/8" GENLOK
SS-CV11-NT2-VI-1	1/8" NPT(M)	1/8" NPT(M)
SS-CV11-FNT2-VI-1	1/8" NPT(F)	1/8" NPT(F)
SS-CV11-TF4-VI-1	1/4" GENLOK	1/4" GENLOK
SS-CV11-NT4-TF4-VI-1	1/4" NPT(M)	1/4" GENLOK
SS-CV11-NT4-VI-1	1/4" NPT(M)	1/4" NPT(M)
SS-CV12-FNT4-VI-1	1/4" NPT(F)	1/4" NPT(F)
SS-CV12-FNT4-NT4-VI-3	1/4" NPT(F)	1/4" NPT(M)

## Filters



INLINE FILTER

T-TYPE FILTER

Please see "F Series Filters" catalog for additional products

Material: 316 | Max. Working Pressure: 3000 psi for inline type, 6000 psi for T-type | Washer: 316L | Nominal Pore Size: 0.5-2 microns

Type	Model	Inlet Connection	Outlet Connection
Inline Type	SS-F4-FNT2	1/8" NPT(F)	1/8" NPT(F)
	SS-F4-TF4	1/4" GENLOK	1/4" GENLOK
	SS-F4-NT4	1/4" NPT(M)	1/4" NPT(M)
T-Type	SS-F4T-FNT2	1/8" NPT(F)	1/8" NPT(F)
	SS-F4T-TF4	1/4" GENLOK	1/4" GENLOK
	SS-F4T-NT4	1/4" NPT(M)	1/4" NPT(M)

## Flashback Arrestors



FA33SP



FA34P

- Designed for use with low pressure manifold piping
- Preventing flashbacks from low to high pressure piping

Model No.	Material	Gas Service	Working Pressure	Delivery Flow	Inlet Connection	Outlet Connection
FA33SP	Stainless Steel	Flammable	50 psi	1250 SCFH	1/4"NPT(F)	1/4"NPT(F)
FA34P	Brass	Flammable	50 psi	1050 SCFH	1/4"NPT(F)	1/4"NPT(F)

## Purge Tools

- Purge assembly is highly recommended for toxic, corrosive, or flammable gases.
- Purge assembly enables user to purge system of contamination.



### SL-P101

- Straight purge connection
- For connection to regulator high pressure inlet
- For regulator and downstream device
- Purge gases delivered from regulator downstream
- Suitable for circular purging



### SL-P102

- "T"-design purge connection
- For connection between regulator and cylinder
- Purge of whole gas system
- Purge gases delivered from regulator downstream
- Suitable for circular purging



### SL-P103

- Cross design purge connection
- For connection between regulator and cylinder
- Purge of whole gas system, diaphragm valve controls purging for cylinder valve
- Purge gases relieved from purged port of regulator's downstream

Series	Inlet Connections	Outlet Connections
SL-P101	00: 1/4" NPT(F)	00: 1/4" NPT(F)
SL-P102	01: 1/4" NPT(M)	01: 1/4" NPT(M)
SL-P103	C330: CGA330 C350: CGA350 C580: CGA580 C590: CGA590 C660: CGA660 Other connections are available	

## Vacuum Generator



- 316L stainless steel construction
- Cleaned, welded assembled, tested and packaged in Class 10 clean room
- Internal surface finish 0.4 um
- 660 mmHg (100 Torr) vacuum generated with a minimum source nitrogen pressure of 75 psig
- Helium-leak tested
- Used in gas delivery systems to assist in purging piping systems

EX: SL -	VG22 -	VM4 -	VM8 -	VSM4
Material	Serial No.	N2 Inlet	Vent Connection	Vacuum Connections
SL: 316L	VG22	VM4	VM8	VM4 VSM4 VSF4

Connections
VM4: 1/4" face seal male
VM8: 1/2" face seal male
VSM4: 1/4" face seal swivel male
VSF4: 1/4" face seal swivel female

## Tube Fittings



**SS-MC-TF4-NT4**



**SS-UE-TF4**



**SS-FC-TF4-FNT4**



**R952-5503**

Series	Material	Inlet/Outlet Connection
<b>R195-51P</b>	Nickel-Plated Brass	1/4" NPT(M) x 1/4" NPT(M), Connection
<b>R952-5503</b>	316 Stainless Steel	1/4" NPT(M) x 1/4" NPT(M), Connection
<b>SS-MC-TF4-NT4</b>	316 Stainless Steel	1/4" NPT(M) x 1/4" GENLOK, Connection
<b>SS-MC-TF6-NT4</b>	316 Stainless Steel	3/8" NPT(M) x 1/4" GENLOK, Connection
<b>SS-MC-TF8-NT4</b>	316 Stainless Steel	1/2" NPT(M) x 1/4" GENLOK, Connection
<b>SS-MC-TF8-NT8</b>	316 Stainless Steel	1/2" NPT(M) x 1/2" GENLOK, Connection
<b>SS-MC-TF12-NT12</b>	316 Stainless Steel	1/2" NPT(M) x 3/4" GENLOK, Connection
<b>SS-FC-TF2-FNT4</b>	316 Stainless Steel	1/4" NPT(F) x 1/8" GENLOK, Connection
<b>SS-FC-TF4-FNT4</b>	316 Stainless Steel	1/4" NPT(F) x 1/4" GENLOK, Connection
<b>SS-FC-TF6-FNT4</b>	316 Stainless Steel	1/4" NPT(F) x 3/8" GENLOK, Connection
<b>SS-FC-TF8-FNT4</b>	316 Stainless Steel	1/4" NPT(F) x 1/2" GENLOK, Connection
<b>R155-64JP</b>	Nickel-Plated Brass	1/2" NPT(M) x 3/8" NPT(F), Straight
<b>R155-64KP</b>	Nickel-Plated Brass	1/2" NPT(M) x 3/8" NPT(M), Straight
<b>R155-64EP</b>	Nickel-Plated Brass	1/2" NPT(M) x 1/2" NPT(M), Straight
<b>R982-5502</b>	316 Stainless Steel	1/2" NPT(M) x 3/8" NPT(F), Straight
<b>R982-5507</b>	316 Stainless Steel	1/2" NPT(M) x 3/8" NPT(M), Straight
<b>R982-5506</b>	316 Stainless Steel	1/2" NPT(M) x 1/2" NPT(M), Straight
<b>SS-UE-TF4</b>	316 Stainless Steel	1/4" GENLOK x 1/4" GENLOK, Elbow
<b>SS-UE-TF8</b>	316 Stainless Steel	1/2" GENLOK x 1/2" GENLOK, Elbow

Please see "Tube Fittings" catalog for additional products

## Cylinder Connection Table



- Nuts and nipples are designed for regulator inlet connections.

BS341	Model No.	Material	Nut	Nipple	Washer
NO. 3	SS-BS341-3	Stainless Steel	G5/8-14	3-1/2" Length	-
	BP-BS341-3A	Brass / Chrome-Plated	(Right Hand)	(1/4" NPT)	
NO. 4	SS-BS341-4	Stainless Steel	G5/8-14	3" Length	-
	BP-BS341-4	Brass / Chrome-Plated	(Left Hand)	(1/4" NPT)	
DIN477	Model No.	Material	Nut	Nipple	Washer
NO. 5	SS-DIN477-5	Stainless Steel	1"-11	2-1/2" Length	Nylon
	BP-DIN477-5	Brass / Chrome-Plated	(Left Hand)	(1/4" NPT)	
NO. 6	SS-DIN477-6	Stainless Steel	W21.8-14	2.35" Length	Nylon
	BP-DIN477-6	Brass / Chrome-Plated	(Right Hand)	(1/4" NPT)	
NO. 8	SS-DIN477-8	Stainless Steel	1"-11	2.35" Length	PTFE
	BP-DIN477-8	Brass / Chrome-Plated	(Right Hand)	(1/4" NPT)	
CGA	Model No.	Material	Nut	Nipple	Washer
330	SS-CGA330	Stainless Steel	0.830-14NGO	2" Length	Nylon
	BP-CGA330	Brass / Chrome-Plated	(Left Hand)	(1/4" NPT)	
350	SS-CGA350	Stainless Steel	0.830-14NGO	2-1/2" Length	-
	BP-CGA350	Brass / Chrome-Plated	(Left Hand)	(1/4" NPT)	
580	SS-CGA580	Stainless Steel	0.960-14NGO	3" Length	-
	BP-CGA580	Brass / Chrome-Plated	(Right Hand)	(1/4" NPT)	
590	SS-CGA590	Stainless Steel	0.960-14NGO	3" Length	Nylon
	BP-CGA590	Brass / Chrome-Plated	(Left Hand)	(1/4" NPT)	
660	SS-CGA660	Stainless Steel	1.035-14NGO	2" Length	Nylon
	BP-CGA660	Brass / Chrome-Plated	(Right Hand)	(1/4" NPT)	

\* Note: Please see "Cylinder Connections" catalog for additional products.

Pure Gases	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>ACETYLENE</b> • Atomic absorption 99.6%		G152		510
<b>AIR</b> • Dry • Hydrocarbon Free • Zero	HP152L R21B/HP152L HP152L	G152 R21B/R30B/HP152 HP152	G152T R31B/HP152T HP152T	590
<b>AMMONIA</b> • Anhydrous		R21SL	R31SL	705
<b>ARGON</b> • Research 99.9995% • U.H.P. 99.999% • Prepurified 99.998% • Zero 99.998% • High Purity 99.995%	R21B R21B/HP152L HP152L HP152L	R21B R21B/R30B/HP152 HP152 G152	R31B R31B/HP152T HP152T G152T	580
<b>BORON TRIFLUORIDE</b> • Minimum Purity 99.5%		R21SL	R31SL	330
<b>1.3 BUTADIENE</b> • Instrument 99.5% • C.P. 99.0%		G152 G152	G152T G152T	510
<b>N-BUTANE</b> • Research 99.9% • C.P. 99.0%		R21B G152	R31B G152T	510
<b>CARBON DIOXIDE</b> • Research 99.998% • Instrument (Coleman) 99.99% • C.P. 99.8%	R21B HP152L HP152L	R21B/R30B HP152 G152	R31B HP152T G152T	320
<b>CARBON MONOXIDE</b> • Ultra High Purity 99.9% • C.P. 99.0% • Commercial 98.0%		HP152 G152	HP152T G152T	350
<b>CHLORINE</b> • High Purity 99.5%		R21SL/R30SL	R31SL	660
<b>DEUTERIUM</b> • C.P. 99.5%		R21B/R30B	R31B	350
<b>DIMETHYL ETHER</b> • Purity 99.5%		R21B/R30B	R31B	510
<b>ETHANE</b> • Research 99.98% • C.P. 99.0% • Technical 98.55%		R21B/R30B G152 G152	R31B G152T G152T	350
<b>ETHYLENE</b> • Research 99.98% • C.P. 99.5% • Technical		R21B/R30B HP152 G152	R31B HP152T G152T	350
<b>HELIUM</b> • Research 99.9995% • Ultra High 99.999% • Zero 99.995% • High Purity 99.995%		R21SL/R30SL R21B/R30B R21B/R30B R21B/R30B	R31SL R31B R31B R31B	580

Pure Gases	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>HYDROGEN</b>				
<ul style="list-style-type: none"> <li>• Research 99.9999%</li> <li>• Ultra High 99.999%</li> <li>• Zero 99.99%</li> <li>• Prepurified 99.99%</li> <li>• Extra Dry 99.95%</li> </ul>		R21SL/R30SL R21B/R30B R21B/R30B HP152	R31SL R31B R31B HP152T	350
<b>HYDROGEN CHLORIDE</b>				
<ul style="list-style-type: none"> <li>• Chemical 99.0%</li> </ul>		R21SL/R30SL/R51SL	R31SL/R51SL	330
<b>KRYPTON</b>				
<ul style="list-style-type: none"> <li>• Research 99.995%</li> </ul>		R21SL/R30SL	R31SL	580
<b>METHANE</b>				
<ul style="list-style-type: none"> <li>• Research 99.99%</li> <li>• U.H.P. 99.97%</li> <li>• C.P. 99.0%</li> <li>• Technical 98.0%</li> <li>• Commercial 93.0%</li> </ul>		R21SL/R30SL R21B/R30B HP152 G152 G152	R31SL R31B HP152T G152T G152T	350
<b>NEON</b>				
<ul style="list-style-type: none"> <li>• Research 99.999%</li> <li>• U.H.P. 99.996%</li> <li>• Purified 99.89%</li> </ul>		R21SL/R30SL R21SL/R30SL R21SL/R30SL	R31SL R31SL R31SL	580
<b>NITROGEN</b>				
<ul style="list-style-type: none"> <li>• Research 99.9995%</li> <li>• Ultra High 99.999%</li> <li>• Prepurified 99.998%</li> <li>• Zero 99.998%</li> <li>• High Purity 99.99%</li> <li>• Oxygen Free 99.99%</li> <li>• Extra Dry 99.7%</li> </ul>	R21SL R21B R21B R21B R21B HP152	R21SL/R30SL R21B/R30B R21B/R30B R21B/R30B R21B/R30B G152	R31SL R31B R31B R31B R31B G152T	580
<b>NITROUS OXIDE</b>				
<ul style="list-style-type: none"> <li>• U.H.P. 99.99%</li> <li>• Atomic Absorption 99.0%</li> </ul>		R21B/R30B G152	R31B G152T	326
<b>OXYGEN</b>				
<ul style="list-style-type: none"> <li>• Research 99.995%</li> <li>• U.H.P. 99.99%</li> <li>• Zero 99.6%</li> <li>• Extra Dry 99.6%</li> </ul>		R21SL/R30SL R21B/R30B R21B/R30B R21B/R30B	R31SL R31B R31B R31B	540
<b>PROPANE</b>				
<ul style="list-style-type: none"> <li>• Research 99.99%</li> <li>• Instrument 99.5%</li> <li>• C.P. 99.0%</li> <li>• Natural 96.0%</li> </ul>		R21B/R30B R21B/R30B G152 G152	R31B R31B G152T G152T	510
<b>PROPYLENE</b>				
<ul style="list-style-type: none"> <li>• Research</li> <li>• C.P. 99.0%</li> </ul>		R21B/R30B G152	R31B G152T	510
<b>SULFUR HEXAFLUORIDE</b>				
<ul style="list-style-type: none"> <li>• Instrument 99.99%</li> <li>• C.P. 99.8%</li> </ul>		R21B/R30B G152	R31B G152T	590
<b>XENON</b>				
<ul style="list-style-type: none"> <li>• Research 99.995%</li> </ul>		R21SL/R30SL	R31SL	580

Mixed Gases	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>AMMONIA</b>				
• in Helium		R21SL/R30SL	R31SL	
• in Air		R21SL/R30SL	R31SL	705
• in Nitrogen		R21SL/R30SL	R31SL	
<b>ARGON</b>				
• in Helium		R21B/R30B	R31B	580
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	580
<b>BUTANE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	580
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	590
<b>CARBON DIOXIDE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	580
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	580
• in Oxygen		R21B/R30B	R31B	296
<b>CARBON MONOXIDE</b>				
• in Air		R21B/R30B	R31B	590
• in Argon		R21B/R30B	R31B	350
• in Helium		R21B/R30B	R31B	350
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>CHLORINE</b>				
• in Helium		R21SL/R30SL	R31SL	
• in Nitrogen		R21SL/R30SL	R31SL	660
<b>ETHANE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>ETHYLENE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>HELIUM</b>				
• in Argon		R21B/R30B	R31B	580
• in Nitrogen		R21B/R30B	R31B	580
<b>HEXANE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>HYDROGEN</b>				
• in Argon		R21B/R30B	R31B	350
• in Air		R21B/R30B	R31B	590
• in Nitrogen		R21B/R30B	R31B	350



Mixed Gases	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>HYDROGEN CHLORIDE</b>				
• in Nitrogen		R21SL/R30SL	R31SL	330
<b>HYDROGEN SULFIDE</b>				
• in Air		R21SL/R30SL	R31SL	660/330
• in Helium		R21SL/R30SL	R31SL	330
• in Nitrogen		R21SL/R30SL	R31SL	330
<b>ISOBUTANE</b>				
• in Air		R21B/R30B	R31B	590
• in Helium		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>METHANE</b>				
• in Air		R21B/R30B	R31B	590
• in Argon		R21B/R30B	R31B	350
• in Helium		R21B/R30B	R31B	350
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>NITRIC OXIDE</b>				
• in Argon		R21SL/R30SL	R31SL	660
• in Nitrogen		R21SL/R30SL	R31SL	
<b>NITROGEN</b>				
• in Argon		R21B/R30B	R31B	580
• in Helium		R21B/R30B	R31B	580
• in Oxygen		R21B/R30B	R31B	296
<b>NITROGEN DIOXIDE</b>				
• in Air		R21SL/R30SL	R31SL	660
• in Nitrogen		R21SL/R30SL	R31SL	
<b>OXYGEN</b>				
• in Argon		R21B/R30B	R31B	
• in Helium		R21B/R30B	R31B	580/590
• in Nitrogen		R21B/R30B	R31B	
<b>PROPANE</b>				
• in Air		R21B/R30B	R31B	590
• in Hydrogen		R21B/R30B	R31B	350
• in Nitrogen		R21B/R30B	R31B	350
<b>PROPYLENE</b>				
• in Air		R21B/R30B	R31B	590
• in Nitrogen		R21B/R30B	R31B	350
<b>SULFUR DIOXIDE</b>				
• in Air		R21SL/R30SL	R31SL	
• in Argon		R21SL/R30SL	R31SL	
• in Helium		R21SL/R30SL	R31SL	660
• in Nitrogen		R21SL/R30SL	R31SL	

Instrument Mixtures	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>CHROMATOGRAPH CARRIER GAS</b> 8.5% Hydrogen 91.5% Helium		R21B/R30B	R31B	350
<b>ELECTRON CAPTURE MIXTURE</b> P-5 Gas Mixture 5% Methane in Argon		R21B/R30B	R31B	350
<b>FLAME IONIZATION FUEL MIXTURES</b> 40% Hydrogen 60% Nitrogen		R21B/R30B	R31B	350
<b>FURNACE ATMOSPHERE MIXTURES</b> 40% Carbon Dioxide 60% Carbon Monoxide		R21B/R30B	R31B	350
<b>NUCLEAR COUNTER MIXTURE</b> 0.95% ISO Butane 99.05% Helium		HP152	HP152T	350
<b>LEAK DETECTION MIXTURE</b> 1-10% Helium in Nitrogen		R21B/R30B	R31B	580

Nuclear Counter Mixture	Line Regulator	Cylinder Regulators		
	Single Stage	Single Stage	Dual Stage	CGA Inlet
<b>P-10 GAS MIXTURE</b> 10% Methane 90% Argon		R21B/R30B	R31B	350
<b>PROPORTIONAL COUNTING MIXTURE</b> 4% ISO Butane 96% Helium		R21B/R30B/HP152	R31B	350
1.5% ISO Butane 98.5% Helium		R21B/R30B	R31B	350

Gas	Material											
	Aluminum	Brass	Copper	Monel	Stainless Steel	Carbon Steel	Neoprene	PCTFE (Kel-F)	Viton	Polyethylene	PVC	PTFE (Teflon)
Ammonia	●	○	○	●	●	○	●	●	○	○	●	●
Argon	●	●	●	●	●	●	●	●	●	●	●	●
CO <sub>2</sub>	●	●	●	●	●	●	●	●	●	●	●	●
Chlorine	○	○	○	●	●	●	○	●	●	●	○	●
Diborane	●	●	●	●	●	●	○	●	●	○	○	●
Helium	●	●	●	●	●	●	●	●	●	●	●	●
Hydrogen	●	●	●	●	●	●	●	●	●	●	●	●
HCl	○	○	○	●	●	○	●	●	●	●	●	●
H <sub>2</sub> S	●	○	○	●	●	○	○	●	●	●	●	●
Methane	●	●	●	●	●	●	●	●	●	●	●	●
Nitrogen	●	●	●	●	●	●	●	●	●	●	●	●
N <sub>2</sub> O	●	●	●	●	●	●	●	●	●	●	●	●
Oxygen	●	●	●	●	●	●	●	●	○	○	○	●
Phosphine	●	○	○	●	●	●	○	●	●	●	●	●
Silane	●	●	●	●	●	●	●	●	●	●	●	●
SO <sub>2</sub>	●	●	●	●	●	●	○	●	○	●	●	●
F <sub>6</sub> S	●	●	●	●	●	●	●	●	●	●	●	●
Arsine	○	●	○	●	●	●	●	●	●	●	●	●
Boron Trichloride	○	○	●	●	●	●	○	●	●	○	●	●
Boron Trifluoride	●	○	●	●	●	●	○	●	○	○	●	●
Dichlorosilane	○	○	○	●	●	●	○	●	○	○	○	●
Silicon Tetrachloride	○	○	○	●	●	●	○	●	○	○	○	●
Acetylene	●	●	○	●	●	●	●	●	○	●	○	●
Air	●	●	●	●	●	●	●	●	●	●	●	●
Butane	●	●	●	●	●	●	●	●	●	○	●	●
Carbon Monoxide	●	●	●	●	●	●	○	●	●	●	●	●
Cyclopropane	●	●	●	●	●	●	●	●	●	●	●	●
Ethane	●	●	●	●	●	●	●	●	●	●	●	●
Ethylene	●	●	●	●	●	●	●	●	●	●	○	●
Ethylene Oxide	●	●	●	●	●	●	○	●	○	○	○	●
Isobutane	●	●	●	●	●	●	●	●	●	○	●	●
Krypton	●	●	●	●	●	●	●	●	●	●	●	●
Methyl Chloride	○	○	●	●	●	●	●	●	●	●	○	●
Neon	●	●	●	●	●	●	●	●	●	●	●	●
NO	●	○	○	○	●	●	○	●	●	●	●	●
Propane	●	●	●	●	●	●	●	●	●	●	●	●
Xenon	●	●	●	●	●	●	●	●	●	●	●	●

● Recommended   ○ Not Recommended   ● Recommended only for dry-grades of gas

# ALLOCATION TABLE

Cylinder Connections Allocation Table

Specialty Gas Equipment

Gas	BSP	DIN	CGA	UHP CGA	JIS
Acetylene	BS341 nr. 2	==	510	==	==
Air	BS341 nr. 3	==	346	==	==
Ammonia	BS341 nr. 10	DIN6	705	720	22-R
Argon	BS341 nr. 3	DIN6	580	718	22-4 or 23-R
Arsine	==	==	350	632	22-L
Boron Trichloride	==	DIN8	660	634	==
Boron Trifluoride	==	DIN8	330	642	22-L
Butane	BS341 nr. 4	==	510	==	==
Carbon Dioxide	BS341 nr. 8	DIN6	320	716	==
Carbon Monoxide	BS341 nr. 4	DIN5	350	724	22-L
Cyclopropane	BS341 nr. 4	==	510	==	==
Diborane	==	==	350	632	22-L
Dichlorosilane	==	DIN5	678	636	==
Diethylzinc	==	==	510	726	==
Ethane	==	==	350	==	==
Ethyl Chloride	==	==	510	==	==
Ethylene	==	==	350	==	==
Ethylene Oxide	==	==	510	==	==
Germane	==	==	350 or 660	632	==
R11 (R116) / Halocarbon 11 (116)	==	==	660	716	==
R12 (R13, R23, R115) / Halocarbon 12 (13, 23, 115)	==	DIN6	660	716	==
R14 (Halocarbon 14)	==	DIN6	320 or 580	716	==
Helium	BS341 nr. 3	DIN6	580	718	22-R or 23-L
Hydrogen	BS341 nr. 2	DIN1	350	724	22-L
Hydrogen Chloride	==	DIN8	330	634	26-R
Hydrogen Fluoride	==	==	660 or 670	638	26-R
Hydrogen Sulfide	==	DIN5	330	722	==
Iso-Butane	==	==	510	==	==
Krypton	==	DIN6	580	718	22-R or 23-R
Methane	BS341 nr. 2	==	350	==	==
Methyl Chloride	==	==	660	==	==
Natural Gas	==	==	350	==	==
Neon	==	DIN6	580	718	22-R or 23-R
Nitric Oxide	==	==	660	==	==
Nitrogen	BS341 nr. 3	DIN10	580	718	22-R or 23-R
Nitrogen Trifluoride	==	DIN8	330 or 670	640	==
Nitrous Oxide	BS341 nr. 13	DIN9	326	712	==
Oxygen	BS341 nr. 3	DIN1	540	714	22-R or 23-R
Phosphine	==	==	350	632	==
Propane	BS341 nr. 4	==	510	==	==
Silane	==	==	350	632	==
Silicon Tetrachloride	==	==	330	636	==
Silicon Tetrafluoride	==	==	330	642	22-L
Sulfur Hexafluoride	==	DIN6	590	716	26-R
Tungsten Hexafluoride	==	DIN8	670	638	
Xenon	==	DIN6	580	718	22-R

\*Chart is for reference only



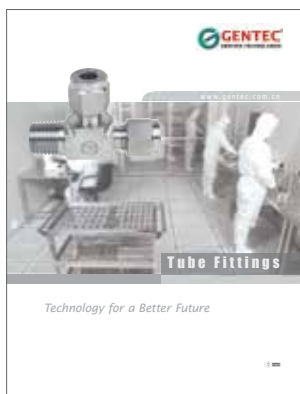
**Valves**

- Needle Valves
- Ball Valves
- Diaphragm Valves
- Cylinder Valves
- Gauge Valves
- Check Valves



**Gas Control Systems Overview**

- Manifold Systems
- Control Panels
- HP/UHP Regulators
- Pressure Gauges
- Valves & Fittings



**Tube Fittings**

- Male Connectors
- Male Elbows
- Male Adapters
- Female Connectors
- Female Elbows
- Unions
- Reducing unions



**F Series Filters**

- Inline Filter
- T-type Filter



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