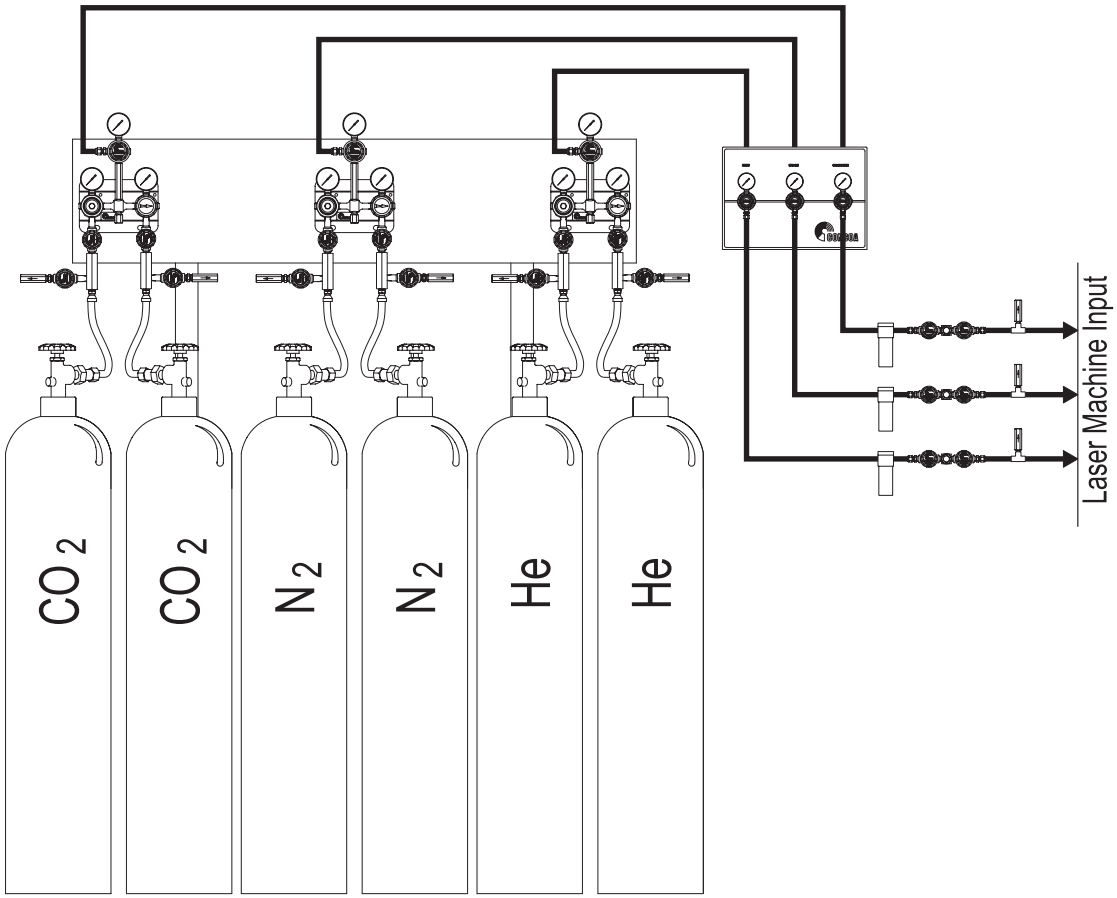
Table of Contents

Resonator Gas System

CONCOA laser gas controls are designed to meet the unique requirements of carbon dioxide lasers that use a gas mixture of Helium, Nitrogen, and CO_2. The lasing principles are similar for all CO_2 lasers. Different designs employ various methods of exciting and cooling the gas mixture in the resonator cavity. Other gases such as Carbon Monoxide and Hydrogen may be added to supplement the basic three-gas mixture.

The performance and integrity of the gas delivery system will affect the productivity and profitability of the laser. CONCOA zero permeation gas systems prevent atmospheric contamination during a cylinder exchange by incorporating check valves in the CGA glands and optional purge valves. The 620 and 621 Series Automatic Switchovers provide a continuous supply of gas that maintains the productivity gains of an automated material handling system.

CONCOA 601 Series Regulators, 620 and 621 Switchovers are manufactured using computer-controlled, watchmaking machinery that maintains tight tolerances, which is key to avoiding moisture diffusion and hydrocarbon out-gassing into the lasing cavity (i.e. resonator). Excessive optic thermal absorption caused by deposited contaminates reduces power output and distorts beam quality. Out-gassing is the process in which the material (such as a neoprene regulator diaphragm) releases contaminates such as plasticizers into the gas stream. For this reason, CONCOA laser-grade equipment is made from barstock bodies with stainless steel diaphragms and have a design leak rate of 1×10^{-8} scc/sec. CONCOA also offers moisture traps and 2-micron filters to meet the most demanding laser manufacture requirements. The following illustrates the basic components of a zero permeation resonator gas supply system.



Beam Purge Gas System

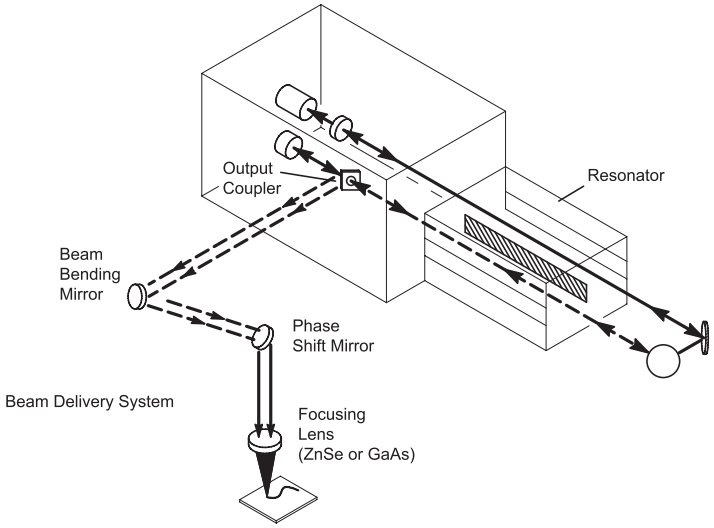
The beam delivery system is comprised of a mechanical bellows that provides a clean, dry atmosphere for the beam after it leaves the resonator output coupler to be transferred by reflective optics to the work piece. The laser beam itself must be protected when being transmitted from one mirror to another. Beam distortion may occur in the presence of airborne particles and vapors in the beam delivery tubes. This can be avoided by purging the tubes using a CONCOA 605 or 603 Series Regulator to deliver moisture and particle-free gas. Depending on the manufacturer and model of laser, the beam purge gas may be supplied by an oil-free compressor, on-site nitrogen supply or membrane system.

Typical Beam Purge Gas Requirements

Beam Purge Gas	Grade	Purity	Pressure	Flow Rate
Nitrogen (N_2)	4.5	99.995%	20 - 80 PSIG	100 - 1200 CFH
Air	Clean/Dry	Dew Point < 40°F	20 - 100 PSIG	100 - 1200 CFH

The use of "house air" can cause contamination of the beam delivery optics since the presence of oil, water, and dirt can be found in most shop-air lines. It is ideal that the laser has its own air supply system. This is important in the event the shop-air system is incapable of meeting the laser's demand and other processes at the same time. The use of filters and traps can be a time-consuming and expensive procedure to maintain the compressor air purity; CONCOA's 5239 Beam Purge Regulator is a good choice to deliver bulk nitrogen as an economical alternative.

Laser manufacturers are currently integrating membrane technology to not only supply clean, dry air but also nitrogen for process applications. Membranes offer several advantages such as modular design allowing future expansion, low maintenance costs (no moving parts), and low energy requirements. Membranes for gas separation are made of polymers in the form of hollow fibers. Gases pass through certain membrane materials at different rates, allowing selective separation. In the case of a beam purge system, a compressor supplies an air supply to the membrane in which dry air permeates through and moisture is evacuated. The effective flow rate out of the system is directly related to the pressure drop across the membrane, the type of polymer fibers, fiber thickness and solubility of the desired gas. A membrane system can be custom-designed to meet the purity requirements, flow capacity and type of gas output for either purging or assist gas applications. In either application, CONCOA's 603 Series Line Regulator meets the demand with a high-flow balanced stem seat. Purity is not sacrificed because the 5239 and 603 both offer a 1 x 10^{-8} scc/sec leak integrity and a stainless steel diaphragm.



Assist Gas System

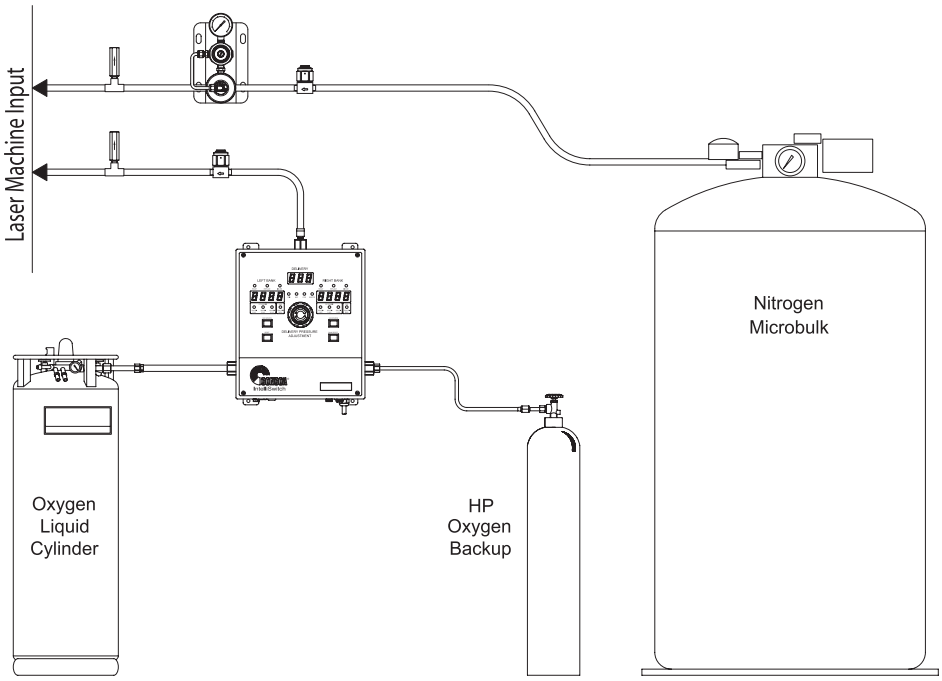
CONCOA process gas systems enhance the performance of lasers used in cutting, welding, cladding, and marking applications. The type of gas will vary according to the process material. To achieve the best performance, the process gas must be delivered instantaneously and precisely at the specified pressures and flows. For bulk installations, CONCOA's 623 is the ideal choice for quick response and balance stem seat that delivers flow rates in excess of 15,000 cfh. CONCOA's next generation 622 unibody dome-loaded regulator is the right choice for liquid cylinders, high-pressure twelve-packs, or as a point-of-use regulator. For continuous operation, an adequate supply of gases must be available at all times.

When cutting mild steel, an oxygen assist gas can be used; the oxygen creates an exothermic chemical reaction with the material that provides up to 30% of the heat input thereby requiring minimal pressures and flows. CONCOA's 600 Series Automatic Switchovers are the ideal choice for high pressure bundles or liquid sources where a continuous supply is necessary to maintain production. Higher powered CO_2 lasers (4-6 kW) may obtain greater cutting speeds with high-pressure nitrogen on thin gauge material. Nitrogen will also produce an oxide-free cut that is advantageous if the material cut is to be painted or powder-coated.

Stainless steel typically is processed with high-pressure nitrogen, but air may be used if moisture and oil levels are minimized. Nitrogen pressure and flow levels are much higher than those of oxygen. Pressures as high as 390 PSIG and flows of 5,300 cubic feet per hour may be required at the nozzle.

Materials such as titanium should not cut with either oxygen or nitrogen. Oxygen will "burn" the cut edge while nitrogen will leave nitrites in the material. The use of either argon or helium is recommended; the proper selections of the assist gas depend on material thickness and the power of the laser. Argon must be free of any oxygen; therefore the supply in cryogenic form is suggested. Helium also must be free of oxygen if used; a certificate of purity levels for either gas should be supplied.

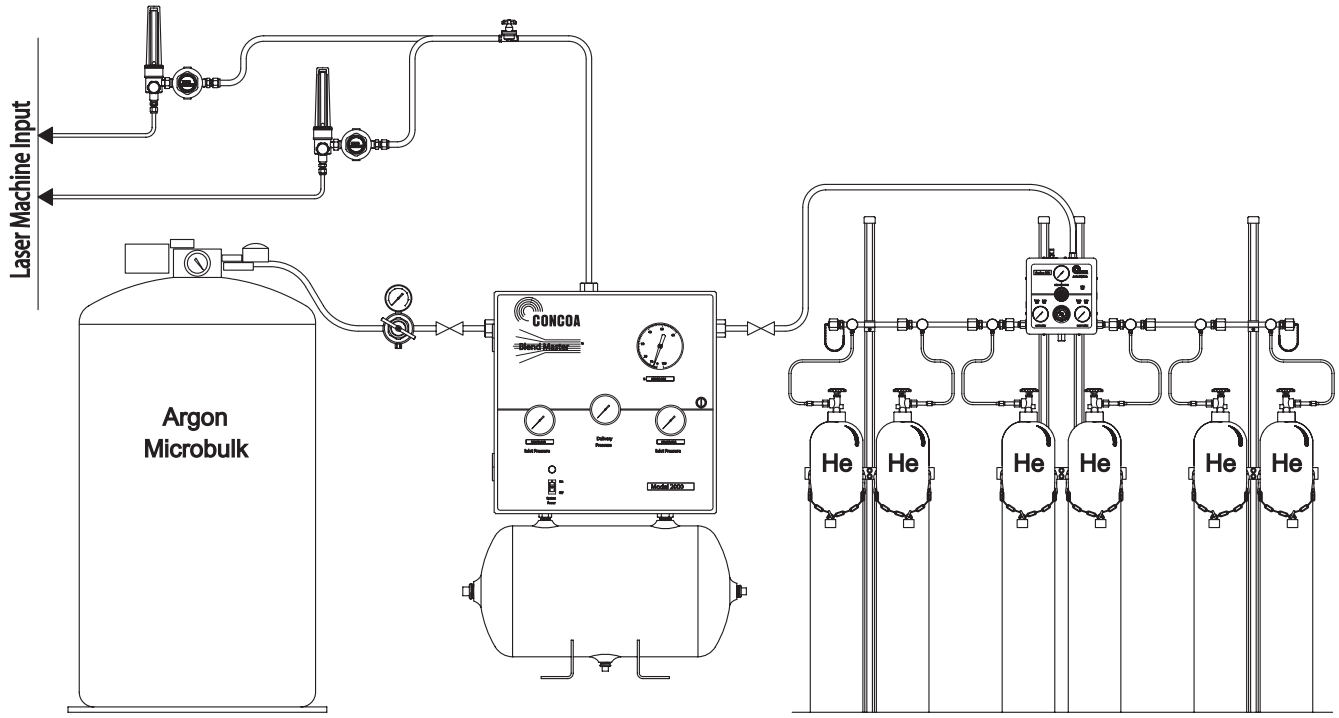
The 603 incorporates a stainless steel diaphragm and boasts a Helium leak rate of 1 x 10^{-8} scc/sec, both of which make it the ideal choice for bulk and microbulk Argon assist applications. The 605 encompasses the same features as the 603, but is designed to work with liquid cylinders or high-pressure twelve-packs.



Laser Welding Gas System

CONCOA welding shielding gas systems are designed to deliver sufficient flow to protect the cooling weld and maintain precise blend tolerances, which offer substantial cost savings over traditional Helium shielding applications. Once the plasma is established, the gas begins to distribute the heat radially toward the work piece. Gases with a low thermal conductivity, such as Argon, exhibit a narrow arc with a high inner core temperature that produces a deep funnel penetration profile. Gases with a higher thermal conductivity like Helium transfer more heat peripherally, which produces a wider but shallower penetration profile. CONCOA's BlendMaster 1000 offers infinite adjustment from 0-100%, which enables the operator to fine-tune the heat transfer and penetration characteristics of the shielding gas.

In hybrid welding applications, it may be necessary to supply a plasma suppression gas and a trailing gas. Argon is used for most metals. Argon offers smooth arc starting characteristics due to its low ionization potential. Helium is used in applications requiring better plasma suppression and heat transfer. Helium has a higher ionization potential than argon, therefore increasing the heat input for joining thicker and higher thermally conductive materials. Depending upon joint design and part fit-up, a mixture of Argon and Helium may be used because it offers the benefits of each gas. Series 5237 flowmeter regulators offer Argon flow rates of 0-60 SCFH and 0-200 CFH for Helium, which makes it the right choice for point-of-use pipe-line applications. Series 5270 is designed for local control from liquid cylinders or high-pressure 12-pack sources. The following illustrates a typical laser welding gas supply system for Helium/Argon mixtures.



626 Series AutoSwitch

Laser Gas Purity

Automatic Switchover System

Precise Pressure Control

The 626 Series AutoSwitch is designed to provide continuous gas delivery of resonator gases to a CO_2 industrial laser. Each switchover in the system automatically changes cylinder or bank priority from the primary source to a reserve supply without transmitting pressure fluctuations to the use line. A single remote alarm can report the need to replenish the cylinder supply of any or all gases. Additionally, software is included that allows remote monitoring and notification of system status from the convenience of a desktop computer.

Advanced Features

- *Integral Line Regulator*
  Stable line pressure during change over
- *Laser Quality Brass System Components*
  Capsule® seat
- *Metal to Metal Seals*
  No possibility of gas contamination
- *Advantium 8 Alarm*
  Provides visual and audible remote alarm notification
- *RS-232 Software*
  Email or fax notification
- *User-Friendly Priority Valve*
  One knob switches cylinder priority
- *Tee Purges Included*
  Maintain gas purity
- *On-Board LED*
  Local notification

Materials

Priority Valve
Brass barstock

Line Regulator
Brass barstock

Diaphragms
316L stainless steel

Seats
PTFE

Enclosure
Acrylic powder-coated steel

Tubing
316 stainless steel

Tube Fittings
316 stainless steel

Internal Seals
PTFE

Pressure Gauges
Brass (socket)
Bronze (Bourdon tube)
Stainless steel (case)

Pressure Switches
316 stainless steel (socket)
316 stainless steel (Bourdon tube)
316 stainless steel (case)

Check Valves
Brass with Viton® seals

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40°F to 140°F (-40°C to 60°C)

Maximum Flow (Nitrogen)
600 SCFH (283 lpm)

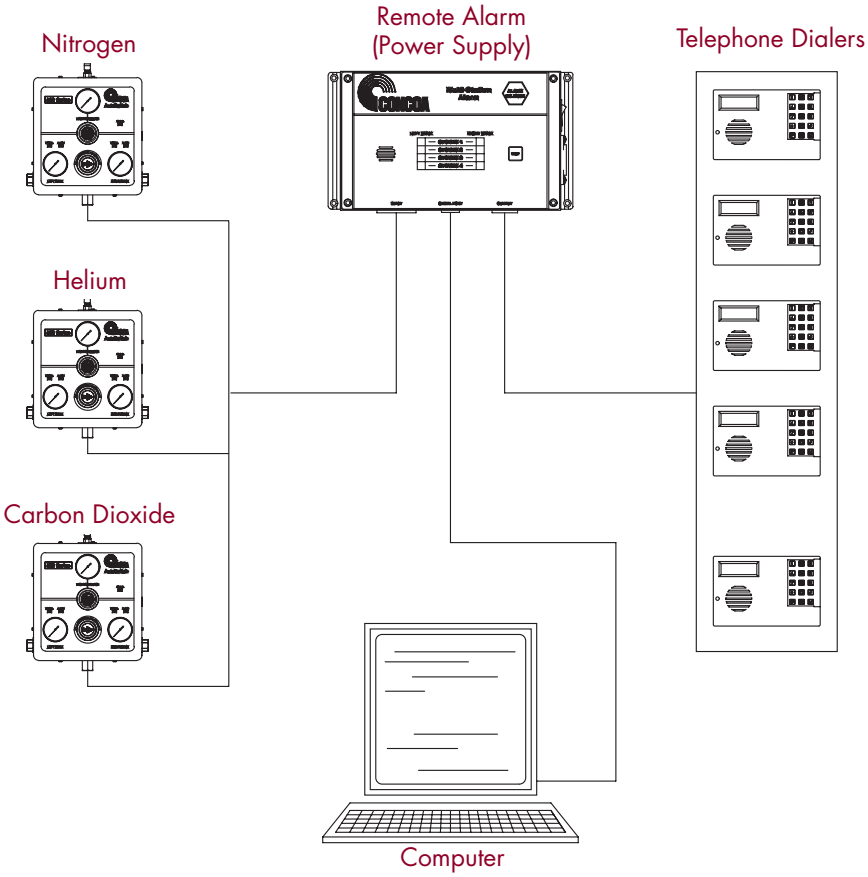
Inlet Connection
½" FPT

Outlet Connection
¼" compression tube

Helium Leak Integrity
1 x 10^{-8} scc/sec

Weight
40 lbs. (18 kg)

System Diagram



Ordering Information

626	A	B	C	D	E	F	G	J
Series 626	**Max Delivery Pressure** 3: 100 PSIG (7 BAR) 5: 350 PSIG (14 BAR) 7: 150 PSIG (10 BAR)	**Helium Cylinders/Side** 1: One cylinder 2: Two cylinders 3: Three cylinders 4: Four cylinders 5: Five cylinders 6: Six cylinders 7: Seven cylinders 8: Eight cylinders 9: Nine cylinders	**Nitrogen Cylinders/Side** 1: One cylinder 2: Two cylinders 3: Three cylinders 4: Four cylinders 5: Five cylinders 6: Six cylinders 7: Seven cylinders 8: Eight cylinders 9: Nine cylinders	**Carbon Dioxide Cylinders/Side** 1: One cylinder 2: Two cylinders 3: Three cylinders 4: Four cylinders 5: Five cylinders 6: Six cylinders 7: Seven cylinders 8: Eight cylinders 9: Nine cylinders	**Electrical Voltage** 1: 110 Volts AC 2: 220 Volts AC	**Assembly** 0: Standard Assembly	**Telephony** 0: No dialer 1: Single dialer 2: Two dialers 3: Three dialers 4: Four dialers	**Additional Options** M: 6mm tube fitting on box outlet

Related Options

Option	Order No.	Description
Laser Panels	*See Page 9*	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Filters	*See Pages 46 and 47*	Filters protect the purity of the gas stream
Additional Switchover	*See Page 10*	An additional switchover may be powered from the 626 remote alarm/power supply

625 Series Gas Station

The 625 Series Laser Gas Station is a regulator option designed to mount any CONCOA laser gas regulator. Wall mounting a regulator provides ease of use and convenience, prevents regulator damage, and improves safety. The 625 Series Laser Gas Station is available in brass barstock construction and comes complete with mounting bracket and either a 3- or 6-foot long, flexible pigtail with armor casing.

Features

Plugged Port in Gas Block
Purging or dual cylinder use

Integrated Check Valve at Inlet
No internal contamination during cylinder changes

Bracket Mounts
Attaches conveniently to any surface

Specifications

Gas Block
Brass barstock

Pigtail
316L stainless steel inner core
316L stainless steel braid (2 layers)
304 stainless steel armor casing

Inlet Connection
Brass barstock

Check Valve "O" Ring
Viton®

Maximum Inlet Pressure
3,000 PSIG (210 BAR) or
4,500 PSIG (310 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

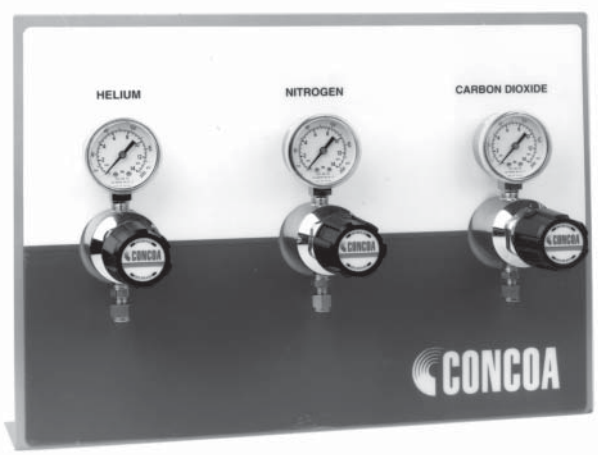
Weight (5260 less Pigtail)
8.3 lbs. (2.76 kg)

Ordering Information

Part Number	Description
625-526X-01-1 or 625-526X-01-72	5260 Series Liquid Cylinder Regulator, Laser Assist Gas Station with 36" armor jacketed, stainless steel pigtail. Replace the "X" with the last number of the regulator required. (-72 indicates 72" pigtail instead of 36")
625-527X-01-1 or 625-527X-01-72	5270 Series Dual Stage Regulator, Flowmeter Regulator Gas Station with 36" armor jacketed, stainless steel pigtail. Replace the "X" with the last number of the regulator required. (-72 indicates 72" pigtail instead of 36")
830-7706	Laser Gas Station with 72" armor jacketed, stainless steel pigtail and CGA 540 connection. (Regulator sold separately.)
830-7707	Laser Gas Station with 72" armor jacketed, stainless steel pigtail and CGA 580 connection. (Regulator sold separately.)
830-7708	Laser Gas Station with 72" armor jacketed, stainless steel pigtail and CGA 320 connection. (Regulator sold separately.)
830-7709	Laser Gas Station with 72" armor jacketed, stainless steel pigtail and CGA 350 connection. (Regulator sold separately.)
830-7710	Laser Gas Station with 72" armor jacketed, stainless steel pigtail and CGA 590 connection. (Regulator sold separately.)

624 Series Gas Panels

The 624 Series is a three-regulator point-of-use panel designed to supply lasing gases to multiple sites from a central source. Adding another panel to the central supply reduces the gas equipment cost of future laser additions. The inlets and outlets are labeled for resonator gases. The regulator outlets are equipped with stainless steel compression tube fittings to ensure purity requirements.



624-2012 shown

Features

Laser Quality Brass Regulators
Capsule® seat

Laser Quality Diaphragm and Seals
No possibility of gas contamination

User Friendly Panel
Easily identifies the gas service

Multiple Rear Inlet Connections
Maximum installation flexibility

Materials

Bodies
Brass barstock

Diaphragms
316L stainless steel

Seats
PTFE

Filters
10-micron sintered bronze

Internal Seals
PTFE

Weight
10.5 lbs. (4.73 kg)

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

Gauges
2" diameter chrome-plated brass

Outlet Connection
¼" stainless steel compression tube

Helium Leak Integrity
1 x 10^{-8} scc/sec

Cv
0.1

Ordering Information

624	A	B	C	D
Series 624	**Nominal Outlet Pressure** 1: 30 PSIG (2 BAR) 2: 100 PSIG (7 BAR) 4: 200 PSIG (14 BAR)	**Inlet Connection** 0: ¼" FPT Port 1: ¼" Stainless Steel Compression Tube 2: Flexible 316 Stainless Steel Pigtail (36") 3: Diaphragm Valve with ¼" NPT 4: Diaphragm Valve with Stainless Steel Compression Tube 5: Diaphragm Valve with Inlet Tee Purge	**Outlet** 0: ¼" FPT Port 1: ¼" Stainless Steel Compression Tube	**Assembly/Gauges** 1: Standard Assembly (PSI/kPa) 2: Standard Assembly (BAR/PSI)

621 Series AutoSwitch

Laser Purity Automatic Switchover System Brass Barstock

621-3000 shown

The 621 Series laser gas switchover system provides continuous gas delivery for laser resonator gases. The system will automatically change cylinder or bank priority without transmitting pressure fluctuations to the use line. Internal pressure switches indicate low supply pressure and the need to exchange depleted cylinders. Indicator lights may be powered by a remote alarm. The system is designed for single and multiple cylinder use per side.

Advanced Features

- *Integral Line Regulator*
  Stable line pressure during change over
- *Laser Quality System Components*
  Capsule® seat
- *Metal to Metal Seals*
  No possibility of gas contamination
- *Variable Line Pressure*
  Line pressure changeable on site
- *User-Friendly Priority Valve*
  One knob switches cylinder priority
- *Removable Enclosure Cover*
  Easy maintenance

Materials

Priority Valve
Brass barstock

Line Regulator
Brass barstock

Diaphragms
316L stainless steel

Seats
PTFE

Enclosure
Acrylic powder-coated steel

Tubing
316 stainless steel

Tube Fittings
316 stainless steel

Internal Seals
PTFE

Pressure Gauges
Brass (socket)
Bronze (Bourdon tube)
Stainless steel (case)

Pressure Switches
Brass (socket)
Bronze (Bourdon tube)
Stainless steel (case)

Check Valves
Brass with Viton® seals

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR) or
4,500 PSIG (310 BAR)

Temperature Range
-40°F to 140°F (-40°C to 60°C)

Maximum Flow (Nitrogen)
600 SCFH (283 lpm) @ 100 PSIG

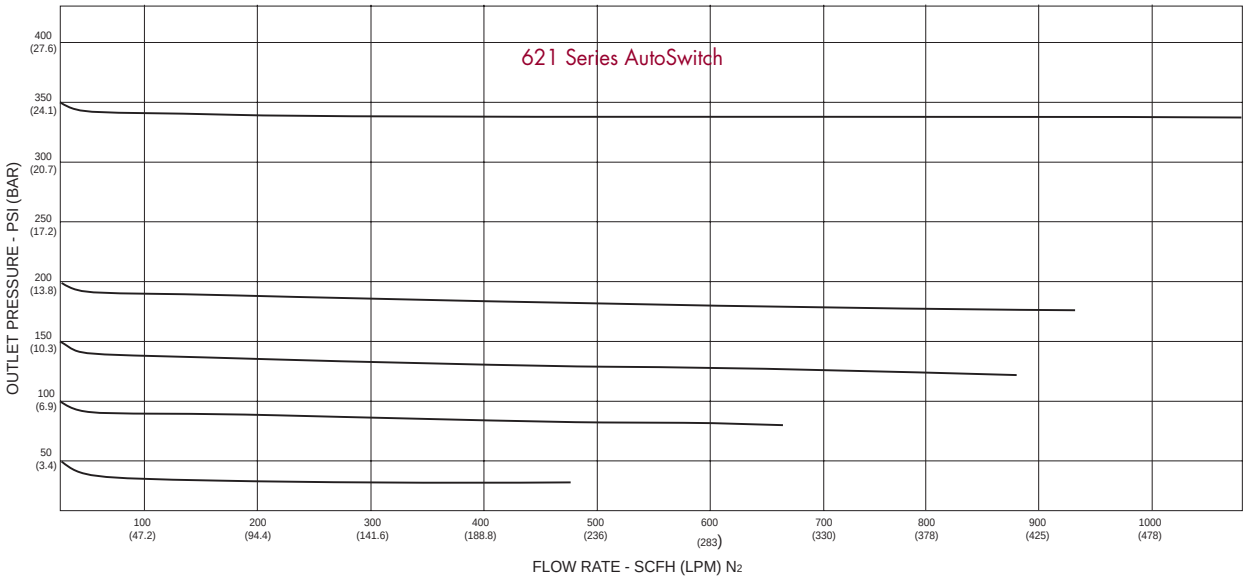
Inlet Connection
½" FPT

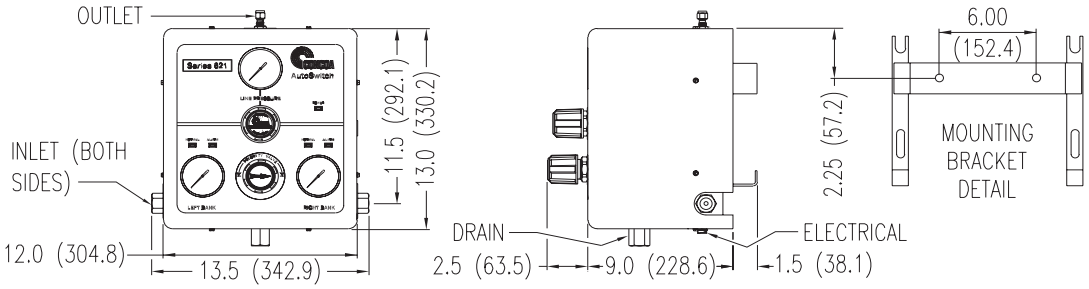
Outlet Connection
¼" stainless steel compression tube

Helium Leak Integrity
1×10^{-8} scc/sec

Weight
40 lbs. (18 kg)

Flow Performance Curves





Ordering Information

621	A	B	C	D	Inlet	Options
Series 621	**Max Delivery Pressure** 3: 100 PSIG (7 BAR) 5: 350 PSIG (14 BAR) 7: 150 PSIG (10 BAR)	**Inlet Connection** 0: ¼" FPT Port 1: Manifold Connector for Maniflex Header*† 2: Manifold Connector with Master Valves*† 3: Diaphragm Valve (with ¼" FPT Port)† 6: Tee Purge and Diaphragm Valve (with ¼" FPT Port)† 7: Tee Purge and Diaphragm Valve with Manifold Connector for Maniflex Header† **Manifold connector required with multiple cylinders per side. (Each manifold station includes a pigtail with CGA inlet for cylinder connection.)* *†Not available with 4,500 PSIG (310 BAR) inlet models.*	**Cylinders Per Side** 0: 1 Cylinder (¼" FPT Inlet) 1: 1 Cylinder (Pigtail Inlets) 2: 2 Cylinders 3: 3 Cylinders 4: 4 Cylinders 5: 5 Cylinders 6: 6 Cylinders	**Max Inlet Pressure** 0: 3,000 PSIG with alarm capability 8: 4,500 PSIG with alarm capability Select alarm from options listed below	**Connection** Please specify inlet connection CGA DIN 477 BS 341 and others available	**Installed Options** C: Compact Manifolds M: 6mm Tube Fitting Outlet N: Compact Manifolds and 6mm Tube Fitting Outlet

Remote Alarm Options

Option	Order No.	Description
Advantium 8	529-5310 (110 Volt) 529-5311 (220 Volt)	Remote alarm provides power for indicator lights up to four 621 Switchovers, audible and visual alarm at remote unit, RS-232 computer interface, and supports optional telephone dialers. Conforms to ANSI/AWS C7.2:1998 recommendations.
Advantium 2	529-5106-120 (110 Volt) 529-5106-220 (220 Volt)	Remote alarm provides audible remote alarm for a single 621 Switchover. Conforms to ANSI/AWS C7.2:1998 recommendations.
Floor Stand	830-7439	AutoSwitch floor stand
Manifold Floor Stand	830-7437	Single manifold floor stand provides support for up to two consecutive manifold extensions.

620 Series Switchover

Laser Purity

Automatic Switchover System

Brass Barstock

620-2308-000 shown

The 620 Series Laser Gas Switchover is a semi-automatic system designed to provide a continuous supply of laser purity gas. The system comes with either flexible pigtails for use with two cylinders (one per side), or manifolds for two or more cylinders per side. The switchover requires final pressure regulation, which may be ordered integrally to the system, or separately for installation at the point-of-use.

Advanced Features

- *Laser Quality Brass Regulators*
  Capsule® seat
- *Laser Quality Diaphragm and Seals*
  Limits possibility of contamination
- *User Friendly Priority Valve*
  One knob switches cylinder priority
- *Inlet Gland Check Valves on Pigtails*
  Prevents contamination and backflow

Applications

Laser Pure Resonator Gases
- Helium
- Nitrogen
- Carbon Dioxide

Laser Mixed Resonator Gases
- Three gas premix
- Four gas premix
- Five gas premix

Laser Purging Gases
- Zero Air
- Nitrogen

Materials

Bodies
Brass barstock

Diaphragms
316L stainless steel

Seats
PTFE

Filters
10-micron sintered bronze

Internal Seals
PTFE

Weight
8.25 lbs. (3.71 kg)

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

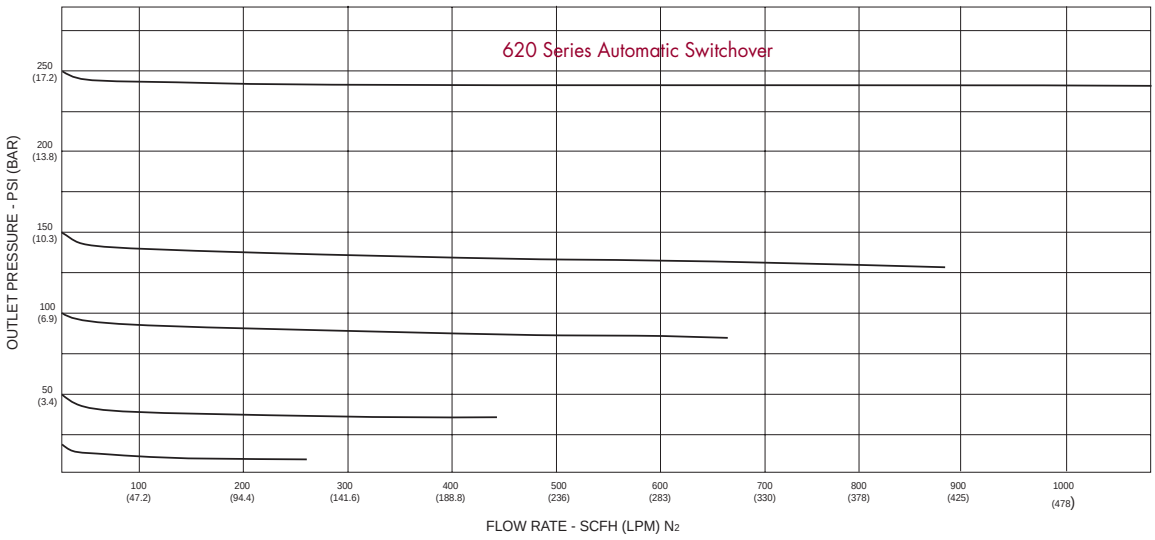
Gauges
2” diameter dual scale brass

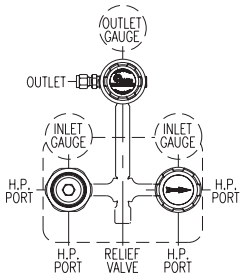
Outlet Connection
¼” stainless steel compression tube

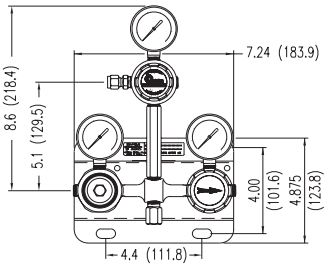
Helium Leak Integrity
1×10^{-8} scc/sec

Cv
0.2

Flow Performance Curves







Ordering Information

620	A	B	C	D	Inlet	Options
Series 620	**Max Delivery Pressure**	**Inlet Connection**	**Cylinders Per Side**	**Assembly/ Gauges**	**Connection**	**Installed Options**
	2: 70 PSIG (5 BAR) 3: 100 PSIG (7 BAR) 4: 200 PSIG (14 BAR)	0: ¼" FPT Port 1: Manifold Connector for Maniflex Header* 2: Manifold Connector with Master Valves* 3: Diaphragm Valve (with ¼" FPT Port) 6: Tee Purge & Diaphragm Valve (with ¼" FPT Port) 7: Tee Purge & Diaphragm Valve (with Manifold Connector) **Manifold connector required with multiple cylinders per side. (Each manifold station includes a pigtail with CGA inlet for cylinder connection.)*	0: 1 Cylinder (¼" FPT Inlet) 1: 1 Cylinder (Pigtail Inlets) 2: 2 Cylinders 3: 3 Cylinders 4: 4 Cylinders 5: 5 Cylinders 6: 6 Cylinders	2: No Line Regulator (BAR/PSI Gauges) no alarm capability 3: No Line Regulator (BAR/PSI Gauges) with alarm capability 7: Line Regulator (BAR/PSI Gauges) with alarm capability 8: Line Regulator (BAR/PSI Gauges) no alarm capability	Please specify inlet connection CGA DIN 477 BS 341 and others available	C: Compact Manifolds M: 6mm Tube Fitting Outlet N: Compact Manifolds and 6mm Tube Fitting Outlet

Remote Alarm Options

Option	Order No.	Description
Single Switchover Stand	518-1625	Appropriate support for a single switchover with one cylinder per side.
Multi Switchover Stand	518-1725	Appropriate support for three switchovers with one cylinder per side.
Advantium 2 Remote Alarm (110 Volt)	529-5106-120	Remote alarm provides audible/visual remote alarm for a single 620 Switchover. Conforms to ANSI/AWS C7.2:1998 recommendations.
Advantium 2 Remote Alarm (220 Volt)	529-5106-220	Remote alarm provides audible/visual remote alarm for a single 620 Switchover. Conforms to ANSI/AWS C7.2:1998 recommendations.
Advantium 8	529-5310, 529-5311	Remote alarm provides power for indicator lights up to four 621 Switchovers, audible and visual alarm at remote unit, RS-232 computer interface, and supports optional telephone dialers. Conforms to ANSI/AWS C7.2:1998 recommendations.

601 Series Regulator

M² Technology

Dual Stage

Brass Barstock Body

316L Stainless Steel Diaphragm

601-23M4 shown

The 601 Series dual-stage regulator was designed with beam-mode quality in mind. The 601 offers M² technology that virtually eliminates atmospheric contamination during a cylinder change. Low level moisture and hydrocarbon contents yield a more stable emission and higher resonator efficiencies which makes the 601 Series the right choice.

Advanced Features

- *Machined Brass Barstock Body*
  Smooth surface finish
- *Low Wetted Surface Area*
  Minimal purge requirements
- *Convoluted 316L Diaphragm*
  No inboard diffusion
- *Optional Integral Purge*
  Eliminates atmospheric contamination
- *10-Micron Filtration in Both Stages*
  Reduces particle contamination
- *Optional CGA Check Valve*
  Minimizes atmosphere exposure
- *Optional Pressure Cycle Purge*
  Eliminates dead-space contaminate
- *Capsule Seat*
  Increase serviceability and life

Applications

Laser Pure Resonator Gases
Helium
Nitrogen
Carbon Dioxide

Laser Mixed Resonator Gases
Three gas premix
Four gas premix
Five gas premix

Laser Purging Gases
Zero Air
Nitrogen

Maintenance Gases
Nitrogen

Body
Machined brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Internal Seals
PTFE

Maximum Inlet Pressure
3,000 PSIG (210 BAR)
4,500 PSIG (310 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

Gauges
2” diameter dual scale

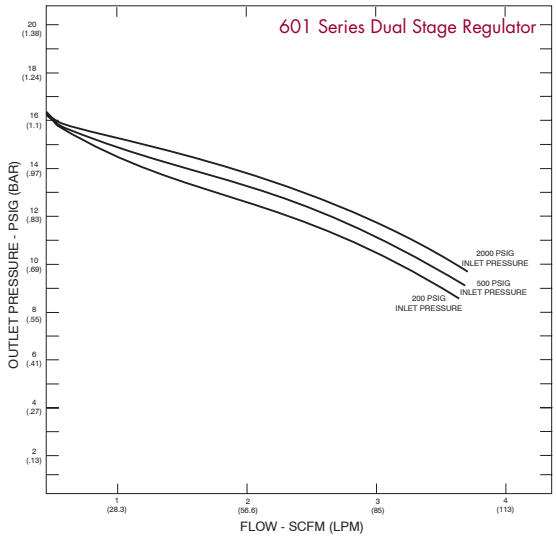
Ports
¼” FPT

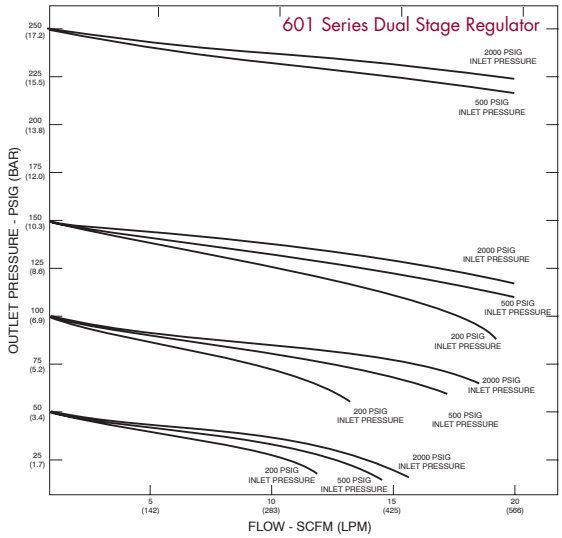
Helium Leak Integrity
1 x10^{-8} scc/sec

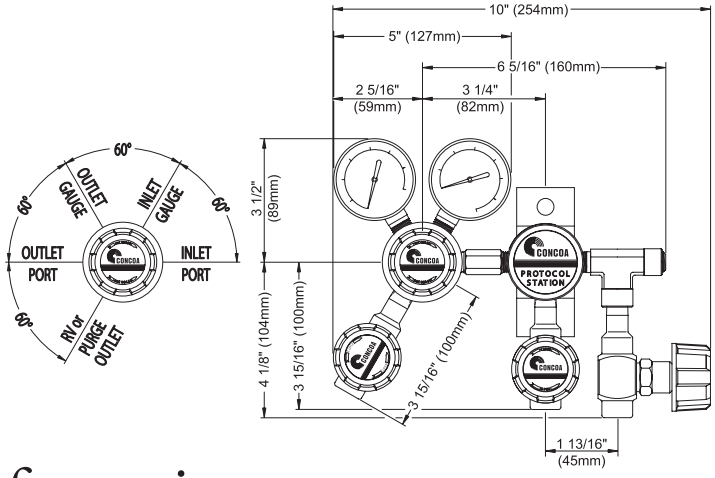
Cv
0.1

Weight
4.8 lbs. (2.16 kg)

Flow Performance Curves







Shown with optional purge and laser gas switchover station.

Ordering Information

601	A		B	C	D	Inlet	Options
Series 601	Outlet Pressure	Outlet Gauge	Inlet Gauge	Outlet Assemblies	Assembly/ Gauges	Inlet Connections	Installed Options
	1: 0-50 PSIG	0-100 PSI	0: None	0: 1/4" FPT Port	0: Bare Body	000: 1/4" FPT	A: Laser Gas Station Alarm (110V)
	2: 0-100 PSIG	0-200 PSI	3: 0-4000 PSI	1: 1/4" MPT	1: Standard Assembly (PSI/kPa Gauges)	TF2: 1/8" Tube	C: Laser Gas Switchover Station
	3: 0-150 PSIG	0-200 PSI	8: 0-6000 PSI*	2: 1/4" Tube Fitting	2: Standard Assembly (BAR/PSI Gauges)	TF4: ¼" Tube	M: Laser Gas Station
	4: 0-250 PSIG	0-400 PSI		6: 1/8" Tube Fitting	3: Integral Purge (PSI/ kPa Gauges)	TF6: 3/8" Tube	N: Regulator CGA Check Valve Gland
				7: 3/8" Tube Fitting	4: Integral Purge (BAR/PSI Gauges)	M06: 6mm Tube	P: Inlet Pressure Cycle Purge
				A: 3/8" BSP Right Hand Fitting	5: Integral Purge with Fitting* (PSI/kPa Gauges)	CGA DIN 477 BS 341 and others available	
				M: 6mm Tube Fitting	6: Integral Purge with Fitting* (BAR/PSI Gauges)		
			*Alarm option not available		*Fitting matches outlet assembly		

5230 Series Regulator

Single Stage

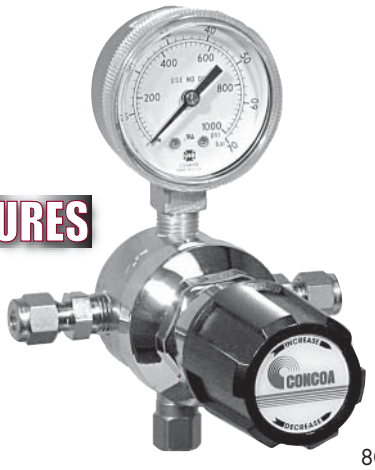
Brass Barstock Body

Four-Port Configuration

316L Stainless Steel Diaphragm

Line Use

CONCOA PRECISION GAS CONTROLS NEW FEATURES



806-5230 shown

The 5230 Series regulators are intended for primary pressure control of laser gases supplied from cryogenic liquid cylinders or other low pressure sources where pressure fluctuations can be accepted.

Advanced Features

- *Brass Barstock Body*
  Smooth surface finish
- *Rear Panel Mountable*
  Easy installation
- *Pressure Ranges 0-100 to 0-500 PSIG*
  Broad range of applications
- *3,000 PSIG Inlet Pressure Rating*
  Safe for use with high pressure cylinders
- *Capsule® Seat*
  Increased serviceability and life
- *316L Stainless Steel Diaphragm*
  No inboard diffusion
- *Low Wetted Surface Area*
  Minimal purge requirements
- *Field Adjustable Pressure Limit*
  Safeguard downstream equipment

Applications

Laser Gases from Pipeline
- Nitrogen
- Helium
- Carbon Dioxide

Shielding Gases for Laser Welding
- Argon
- Helium

Materials

Body
Brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Internal Seals
PTFE

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

Gauge
2” diameter dual scale brass

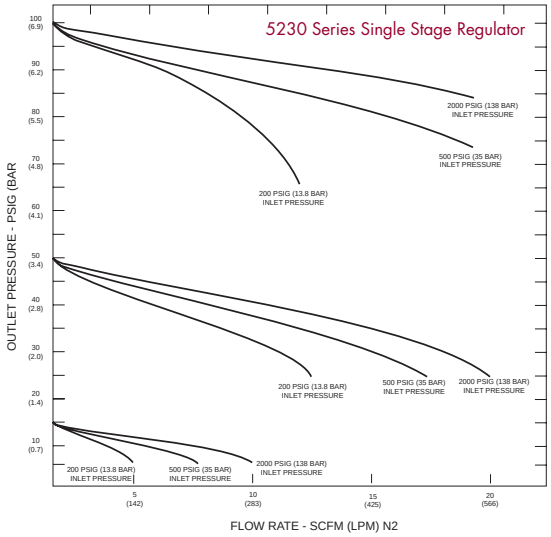
Ports
¼” FPT

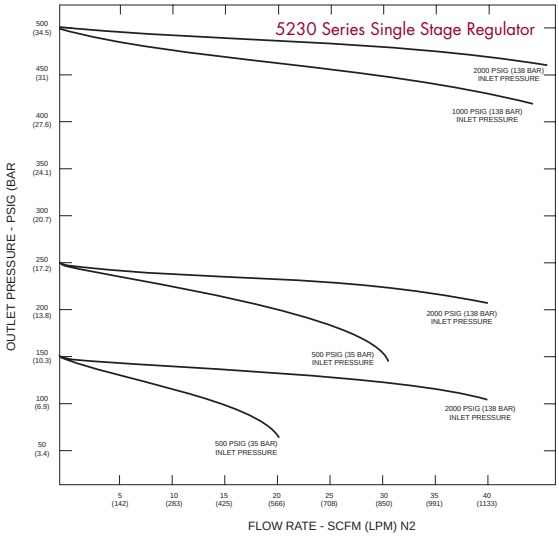
Helium Leak Integrity
1 x 10^{-8} scc/sec

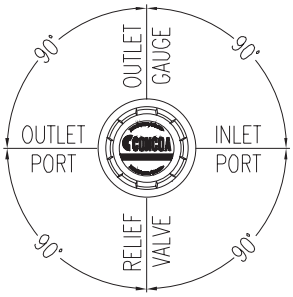
Cv
0.2

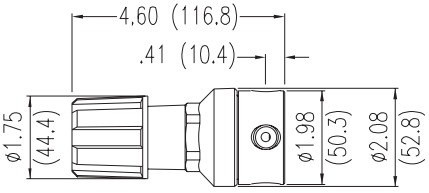
Weight
2.8 lbs. (2.16 kg)

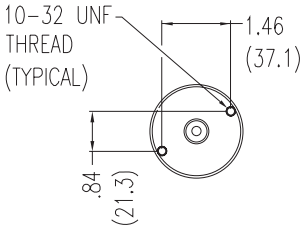
Flow Performance Curves











Ordering Information

5230	Part Number	Inlet	Delivery	Gas Service	Outlet
Series 5230	806-5230	¼" Tube	0-500 PSIG (0-35 BAR)	Any Non-Corrosive Gas	¼" Stainless Steel Compression Tube Fitting
	806-5232	¼" Tube	0-250 PSIG (0-18 BAR)	Any Non-Corrosive Gas	
	806-5233	¼" Tube	0-100 PSIG (0-7 BAR)	Any Non-Corrosive Gas	
	806-5237	¼" Tube	0-60 SCFH - Argon 0-200 SCFH - Helium	Argon or Helium	1/8" Stainless Steel Compression Tube Fitting

Related Options

Option	Order No.	Description
Laser Gas Stations	*See Page 8*	Convenient regulator wall mount, including tee, bracket and flexible stainless steel pigtail with check valve in the inlet gland (Check valve not available on CGA 680 inlet models)
Laser Panels	*See Page 9*	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	*See Page 47*	Tee and Straight Purge configurations to satisfy all requirements
Mounting Bracket	835-0204	Rear panel mount braket kit.

641 Series IntelliSwitch™

High Flow

Cryogenic or High Pressure Supply

Fully-Automatic Switchover

The fully-automatic IntelliSwitch™ gas switchover is CONCOA's next generation of gas management systems. The IntelliSwitch™ offers continuous pressure and flow control from liquid or high pressure cylinder sources. The end-user selects the ideal mode of supply by a simple push of a button. Proprietary software logic lowers yearly gas costs by eliminating liquid cylinder vent loss and excess residual return which makes the IntelliSwitch™ the perfect gas management system.

CONCOA PRECISION GAS CONTROLS NEW FEATURES

641-5002-1010 Shown
Patent Pending

Advanced Features

- *Micro-Processor Control*
  Fully automatic priority assignment
- *Field Adjustable Software*
  Enables process flexibility
- *On-Site Source Selection*
  Liquid cylinder or high-pressure service
- *Low Loss Technology*
  Reduces residual return
- *Electronic Economizer*
  Eliminates liquid cylinder vent loss
- *Process Gas or Air Actuated Pilot Valve*
  Simple installation
- *RS 232 or 485 Communication*
  Provides remote monitoring of supply

Applications

Assist Gas Delivery from Liquid Cylinder Supply
Nitrogen
Oxygen

Assist Gas Delivery from High Pressure Supply
Air
Nitrogen
Oxygen

Assist Gas Delivery from Micro-Bulk or Bulk Supply
Nitrogen
Oxygen

Laser Welding Shielding Gases
Argon
Carbon Dioxide
Helium

Materials

Bodies
Brass barstock

Seats
PCTFE or Viton®

Seals
Viton®, Neoprene, and PTFE

Enclosure
Powder Coated Steel

Specifications

Power Requirements
110 or 220 VAC

Maximum Inlet Pressure
3,000 PSIG (210 BAR) or
4,500 PSIG (310 BAR)

Temperature Range
0 to 140°F (-18° to 60°C)

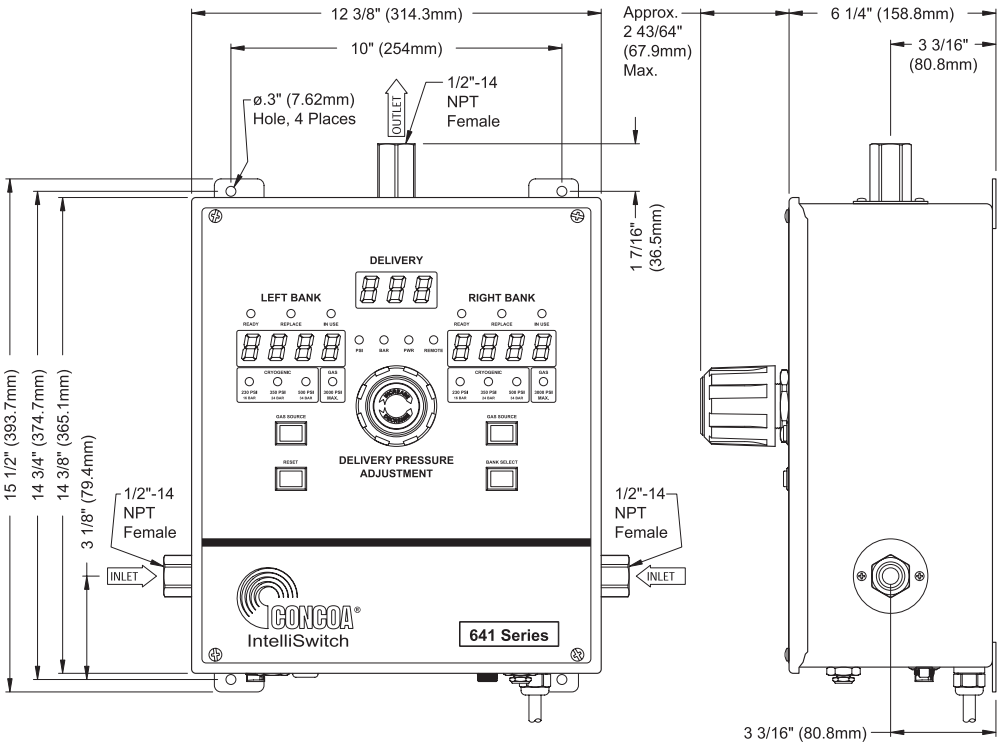
Filter
40-micron

Connections
1/2" FPT inlet and outlet
1/8" FPT (external pilot inlet)

Cv
2.0 (3,000 PSIG max)
1.0 (4,500 PSIG max)

Weight
67 lbs. (30.4 kg)

Installation Dimensions



Ordering Information

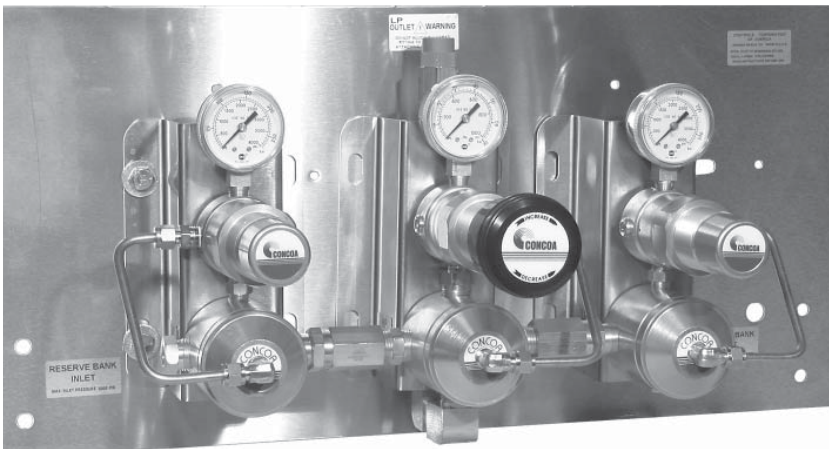
641-	A	B	0	D	E	F	G	H
Series 641	**Delivery Pressure** 3: 100 PSIG 4: 200 PSIG 5: 400 PSIG	**Inlet Connection** 0: No inlet connection 1: CGA 580 Inert Gas 3: CGA 540 Oxygen 4: CGA 346 Air 5: CGA 590 Industrial Air A: CGA 680 Inert Gas B: CGA 347 Air *Foreign inlets available upon request.*		**Assembly** 0: 3,000 PSIG/110 VAC External Pilot* 1: 3,000 PSIG/220 VAC External Pilot* 2: 3,000 PSIG/110 VAC Internal Pilot 3: 3,000 PSIG/220 VAC Internal Pilot 4: 4,500 PSIG/110 VAC External Pilot* 5: 4,500 PSIG/220 VAC External Pilot* 6: 3,000 PSIG/110 VAC Internal Pilot,NEMA 4 7: 3,000 PSIG/220 VAC Internal Pilot, NEMA 4 **Regulator for external source not included*	**Left Bank Inlet Connection** 1: ½" FPT Port* 2: Single 72" Pigtail† 3: Master Valve with Single 72" Pigtail† 4: MicroManifold with 72" Pigtails† 5: Master Valve with MicroManifold and 72" Pigtails† 6: 628 Manifold with 36" Pigtails†‡ **Valid with F=0 Only* *†PTFE Core Pigtails* *‡Not valid with 4,500 PSIG Max Inlet*	**Left Bank Numberof Stations** 0: ½" FPT Port 1: One Station 2: Two Stations 3: Three Stations 4: Four Stations 5: Five Stations 6: Six Stations 7: Seven Stations 8: Eight Stations	**Right Bank Inlet Connection** 1: ½" FPT Port* 2: Single 72" Pigtail† 3: Master Valve with Single 72" Pigtail† 4: MicroManifold with 72" Pigtails† 5: Master Valve with MicroManifold and 72" Pigtails† 6: 628 Manifold with 36" Pigtails†‡ **Valid with H=0 Only* *†PTFE Core Pigtails* *‡Not valid with 4,500 PSIG Max Inlet*	**Right Bank Numberof Stations** 0: ½" FPT Port 1: One Station 2: Two Stations 3: Three Stations 4: Four Stations 5: Five Stations 6: Six Stations 7: Seven Stations 8: Eight Stations

Related Options

Option	Order No.	Description
Remote Alarm	Advantium Series 629 Series	Provides audible and visual notification of a depleted supply bank to a remote location
Vent Manifold Kit	830-7439	Wall-mounted manifold designed to equalize liquid cylinder head pressure.
Floor Stand	830-7437	AutoSwitch floor stand
Manifold Floor Stand		Simple manifold floor stand provides support for up to two consecutive manifold extensions.

639 Series Switchover

Laser Assist Gas High Pressure Sources Semi-Automatic Switchover System



639-5003-02 Shown

The 639 Series Assist Gas Switchover is an automatic system designed to provide a continuous supply of laser assist gas from two high pressure sources. The system comes pre-mounted on a stainless steel panel complete with flexible pigtails for connections to bulk high pressure sources.

Advanced Features

- *Primary and Reserve Bank*
  Automatically switches to reserve when depleted
- *Optional Alarm*
  Visual and audio notification
- *High Flow Capacity*
  Flows up to 9,000 SCFH
- *Cartridge Sensor*
  Precise pressure control

Applications

Laser Assist Gases
- Helium
- Nitrogen
- Oxygen
- Argon

High Pressure Sources
- Tube Trailers
- Cylinder Cradles
- Bulk Stations

Materials

Bodies
Brass barstock body and bonnet

Seats
PTFE seat* or PCTFE seat†

Seals
PTFE and Viton® (internal)

Filters
40-micron sintered bronze*
40-micron stainless steel†

Pressure Gauges
Brass (Socket)
Bronze (Bourdon tube)
Brass (Case)

**3,000 PSIG (208 BAR) inlet*
†4,500 PSIG (310 BAR) inlet

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)
4,500 PSIG (310 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

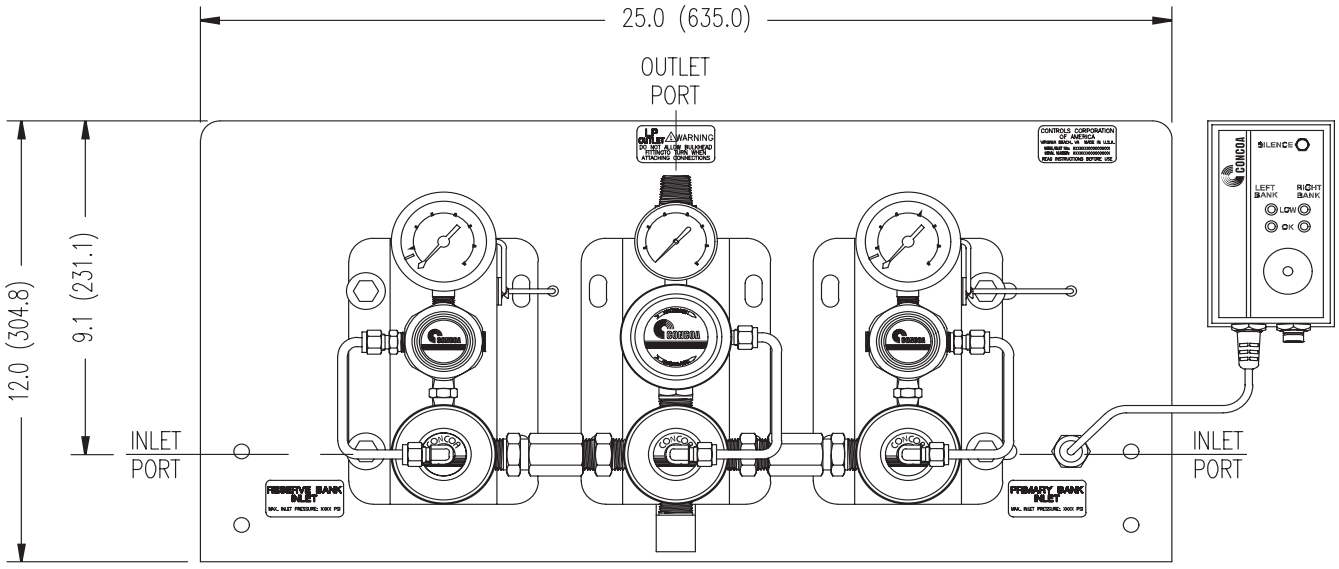
Gauges
2” diameter dual scale brass

Outlet Connection
½” FPT

Cv
2.0

Weight (stand and switchover)
124 lbs. (56 kg)

Installation Dimensions



Shown with line regulator and optional alarm.

Ordering Information

639	A	B	C	D	E	F
Series 639	**Reserve/Primary Switching Pressure** 4: 350 PSIG/500 PSIG 5: 400 PSIG/600 PSIG 7: 600 PSIG/800 PSIG	**Primary Supply Inlet Configuration** 0: No pigtail assembly 5: Pigtail (6 feet) 6: Pigtail (12 feet) 9: Tube Trailer (½" x ½") (12 feet)* **Not available with 4,500 PSIG inlet*	**Reserve Supply Inlet Configuration** 0: No pigtail assembly 5: Pigtail (6 feet) 6: Pigtail (12 feet) 9: Tube Trailer (½" x ½") (12 feet)* **Not available with 4,500 PSIG inlet*	**Max Inlet Pressure/ Assembly** 3: 3,000 PSIG No alarm capability 4: 3,000 PSIG With alarm capability 8: 4,500 PSIG No alarm capability 9: 4,500 PSIG With alarm capability Select alarm from options listed below	**Gas Service** 0: Oxygen 4: Inert (Argon, N_2, He)	**Final Pressure Control** 1: Line Regulator Not Included 2: Integral Line Regulator* **If A=4, Not Available* *If A=5, 0-400 PSIG* *If A=7, 0-600 PSIG*

Related Options

Option	Order No.	Description
Switchover Stand	518-1625	Appropriate support for switchover with one cylinder per side.
Multi-Interface Alarm	529-5310 (110 Volt) 529-5311 (220 Volt)	Remote alarm provides power for indicator lights for up to four 639 Switchovers, as well as audible and visual alarm at remote unit and RS-232 computer interface. The unit also supports optional telephone dialers.
Single-Interface Alarm	529-5106-120 (110 Volt) 529-5106-220 (220 Volt)	Remote alarm provides audible remote alarm for a single 639 Switchover.

630 Series Cryogenic Manifold

CONCOA PRECISION GAS CONTROLS
NEW PRODUCT

High Flow
Enhances Cryogenic Performance
Portable Asset

630-1122-02-001
Shown

The 630 series manifold when coupled with the 629 vent kit enables the user to extend the flow range of common liquid cylinders up to four times the rated gaseous flow capacity. Available with a wall or cylinder mount panel the 630 cryogenic manifold allow the user to respond quickly to the ever changing job shop environment. Rated up to 600 psi MWP the 630 has the flexibility to optimize 230, 350 as well as 500 psi rated liquid cylinders. This solution is ideal for laser, furnace blanketing and other high-flow applications.

Advanced Features

- *Pipe away relief*
  Prevents over-pressurization
- *Extended stem isolation valve*
  Positive shut-off under extreme temperatures
- *Spring-loaded check valves*
  Prevents excess flash loss
- Modular design
  Offers simple field expandability
- *Stainless panel mounted*
  Enables wall or portable mounting
- *Optional auxiliary pressure building kit*
  Maintains 450 psi in excess of 4000 cfh

Applications

Cryogenic Laser Assist
Nitrogen
Oxygen

High Flow Blanketing
Carbon dioxide
Inert gases

Gas Blending
Argon primary supply

Materials

Brass Barstock Body

Specifications

Maximum Inlet Pressure
600 psi (42 BAR)

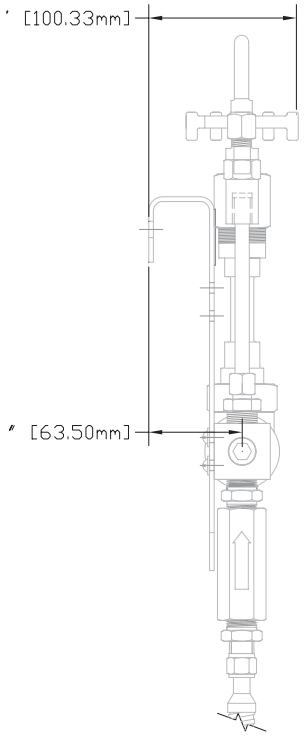
Temperature Range
-320 F to 165 F

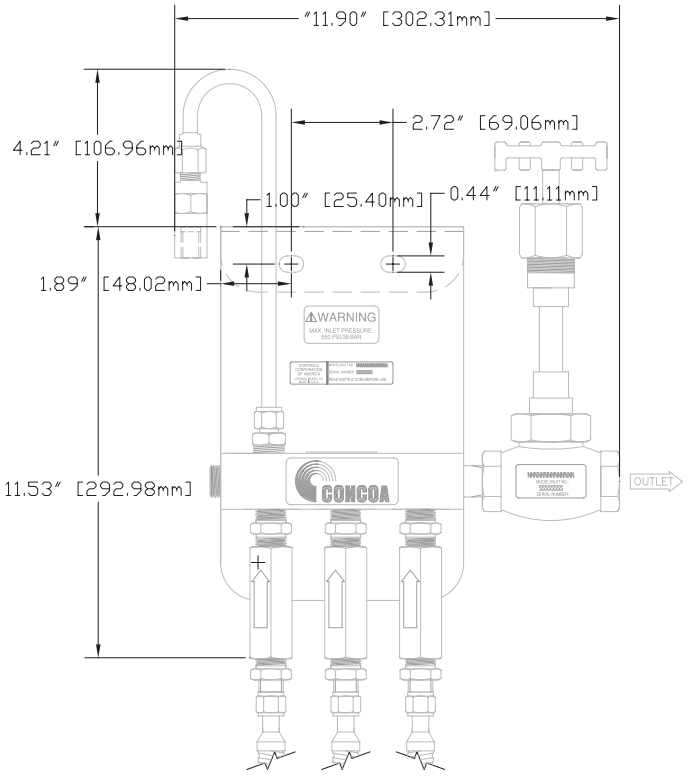
Inlet Connections
CGA 295
CGA 440

Outlet Connections
½" F-NPT

Weight (Manifold & bracket)
14.5 lbs. (6.58kg.)

Installation Dimensions





Ordering Information

630	A	B	C	D	-E	-F	G
Series	**Manifold Type**	**Arrangement**	**Pigtail Style**	**Number of Stations**	**Mounting Style**	**CGA**	**Options**
630	1: Liquid Manifold	0: Simplex RH 1: Simplex LH 2: Duplex RH & LH	1: 48" Stainless Steel CGA 295 2: 48" Stainless Steel CGA 440 4: 72" Stainless Steel CGA 295 5: 72" Stainless Steel CGA 440	1: One 2: Two 3: Three 4: Four 5: Five 6: Six 7: Seven	01: Wall Mounting Bracket 02: Tank Mount Bracket	001	P: Pipe Away Option

Related Options

Option	Stock No.	Description
Cryogenic Liquid Hoses	*See page 53*	Liquid Transfer Hoses
Inert Brass Adapter	550-0760	1/2" M-NPT and CGA 295, Brass
Oxygen Brass Adapter	835-0046	1/2" M-NPT and CGA 440, Brass
Brass nipple	830-6475	1/2" M-NPT by 1" Nipple, Brass
Cryogenic Check Valve	835-0034	1/2" F-NPT, Brass

629 Series MicroManifold

Maximize Liquid Cylinder Performance

High Flow Capacity

The 629 Series MicroManifold is a flexible gas distribution system that can be configured as a gas or vent manifold. Configured as a gas manifold, the 629 offers excellent gaseous flow capacity from either liquid cans or high-pressure cylinders to a CONCOA pressure control device. Configured as a vent manifold, the 629 equalizes the head space pressure of each liquid cylinder manifolded together. This allows each cylinder to withdraw equally and operate at maximum flow capacity with minimal losses.

629-1163-580 Shown

Advanced Features

- *Vent Manifold Excess Flow Orifices*
  Prevents pigtails from whipping
- *Safety Disk*
  Protects manifold from over-pressurization
- *Compact Modular Design*
  Provides simple field expandability
- *Multiple Cylinder Hose Options*
  Universal gas compatibility
- *Integrated ½" MPT Connector*
  Reduces potential leak sites
- *Flexible Design*
  Can be used with a 600 Series switchover or a 623 Series delivery system

Applications

Assist Gas Delivery from Liquid Cylinder Supply
- Nitrogen
- Oxygen

Assist Gas Delivery from High Pressure Supply
- Air
- Nitrogen
- Oxygen

Metal Fabrication On-Site Mixing Systems
- Argon
- Carbon Dioxide
- Helium
- Nitrogen
- Oxygen

Materials

Body
Brass barstock body

Specifications

Maximum Inlet Pressure
4,500 PSIG (310 BAR)

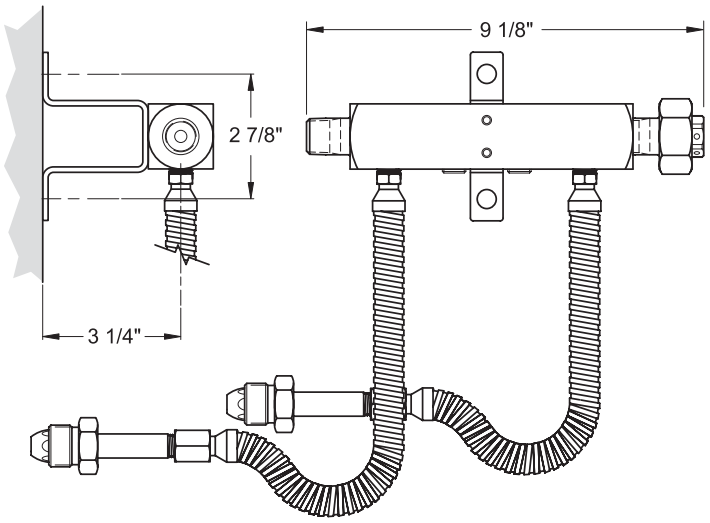
Temperature Range
0 to 140°F (-18 to 60°C)

Inlet Connection
Four ¼" FPT
One ½" FPT

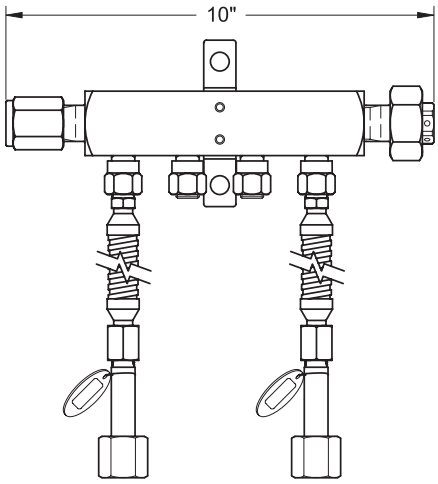
Outlet Connection
½" MPT

Weight (manifold and mounting bracket)
4.20 lbs. (1.91 kg)

Installation Dimensions



629-1151-580 MicroManifold



629-21A2-001 Vent MicroManifold

Ordering Information

629	A	B	C	D	CB	Inlet	Options
Series 629	**Manifold Type** 1: MicroManifold (No Gauges) 2: Vent MicroManifold (No Gauges) 3: MicroManifold (600 PSI/BAR Gauges) 4: MicroManifold* (600 PSI/BAR P/S Gauges) 5: MicroManifold (4,000 PSI/BAR Gauges) 6: MicroManifold* (4,000 PSI/BAR P/S Gauges) 7: MicroManifold (6,000 PSI/KPA Gauges) 8: MicroManifold* (6,000 PSI/BAR Gauges) **Required for Alarm Capability*	**Orientation** 0: Simplex (right bank) 1: Simplex (left bank 2: Duplex (right and left bank) 3: Simplex (right bank with P/S)* 4: Simplex (left bank with P/S)* 5: Duplex (right and left bank with P/S)* **Required for Alarm Capability*	**Pigtail Style** 0: No Pigtails 1: 36" Rigid Brass* 2: 24" Rigid Copper* 3: 72" Flexible Stainless Steel Core and Armor Cased* 4: 24" Flexible Stainless Steel-braided with PTFE lining* 5: 36" Flexible Stainless Steel Core and Armor Cased* 6: 36" Flexible Stainless Steel-braided with PTFE lining* 7: 24" Flexible Stainless Steel Core and Armor Cased* 9: 72" Flexible Stainless Steel-braided with PTFE lining* A: 72" Flexible Stainless Steel-braided with PTFE lining Inert or CO^2†† B: 72" Flexible Stainless Steel-braided with PTFE lining Oxygen†† C: 24" Flexible Stainless Steel-braided with PTFE Core* D: 36" Flexible Stainless Steel-braided with PTFE Core* E: 72" Flexible Stainless Steel-braided with PTFE Core* K: 72" Flexible Stainless Steel Core and Armor Cased 4,500 PSI† L: 36" Flexible Stainless Steel Core and Armor Cased 4,500 PSI† **Valid with A=1,3,4,5 and 6* *†Valid with A=1, 7 and 8* *††Valid with A=2*	**Cyls./Side** 1: One 2: Two 3: Three 4: Four 5: Five 6: Six 7: Seven 8: Eight		**Connection** Please specify inlet connection Use -001 for pigtail options 0, A or B CGA DIN 477 BS 341 and others available	**Options** F: Integral Pigtail flashback arrestor

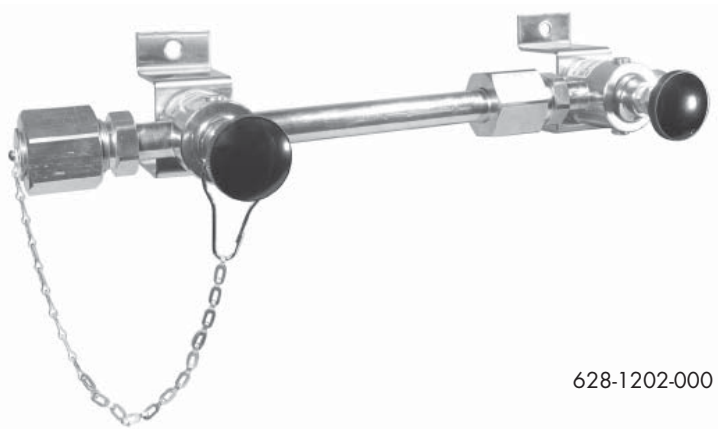
Related Options

Option	Order No.	Description
Burst Disk Kit	829-9960	½" MPT replacement burst disk kit
Floor Stand	830-7437	Single manifold floor stand provides support for up to two consecutive manifold extensions

628 Series Maniflex HF

Modular Gas Distribution System

High Flow



628-1202-000 shown

The 628 Series Maniflex Modular Gas Distribution System is a flexible modular system designed for centralized gas distribution regardless of facility constraints. The modules contained in the header are available in standard, compact, or double-row versions, virtually allowing many combinations which will adapt to any physical environment. Optional flashack arrestors are available for each hose to safely deliver fuel gas to a CONCOA pressure control device.

Advanced Features

- *Modular Design*
  Flexible field installation
- *Integral Diaphragm Valves*
  Leak-tight integrity
  No gas contamination
- *Brass*
  No possibility of gas contamination
- *Metal to Metal Field-Assembled Joints*
  Easy leak-tight field assembly
  Ease of transportation
- *Silver-Brazed Modules*
  Contamination-free installation

How to Order a Maniflex System

The Maniflex manifold systems are used either as a system with a regulator or as a part of a switchover system. Both options are depicted on page 25. Please note that switchover matrices already include Maniflex systems.

Step One Choose a material from those available in column A.

Step Two Select an orientation from those available in column B. Standard manifold headers space cylinders 12" apart; compact manifold headers space cylinders 6" apart. Right means that the extension connects to the right inlet side of a regulator or switchover. A single row manifold has one cylinder pigtail attached at each valve station; a double row manifold has two cylinder pigtails attached at each valve station.

Step Three Choose a pigtail style from those available in column C. Please note that all pigtails, except those with flashback arrestors, include an integral check valve in the inlet connection.

Step Four Determine the number of cylinders that will be used with the extension.

Step Five Specify the connection type for the pigtails. Flammable and fuel gas connections are only available on pigtails with integral flashback arrestors.

Step Six To connect the outlet of the manifold system to a regulator, order the appropriate optional CGA adapter from the accessories listed on page 25.

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40°F to 140°F (-40°C to 60°C)

Inlet Connections
¼" FPT

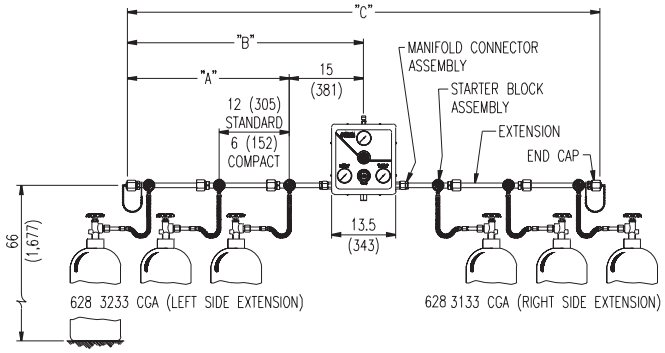
Outlet Connections
½" FPT

Header
0.875 OD x 0.125 wall (Brass)

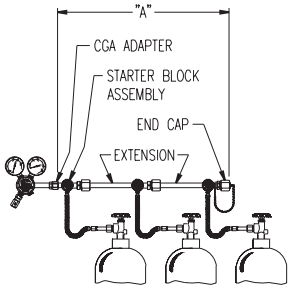
Diaphragm Valve
Brass barstock (Body)
PCTFE (Seat)
316 stainless steel (Stems)
316 stainless steel (Diaphragms)

Dimensions *("A", "B", and "C" refer to the lengths specified on the diagram below.)*

Cylinders per Extension	1	2	3	4	5	6	7	8	9	10
"A" Standard (Single Row)	6"	18"	30"	42"	54"	66"	78"	90"	102"	114"
"B" Standard (Single Row)	15"	27"	39"	51"	63"	75"	87"	99"	111"	123"
"C" Standard (Single Row)	30"	54"	78"	102"	126"	150"	174"	198"	222"	246"
Weight Standard (Single Row)	5.7 lbs	11.8 lbs	17.9 lbs	24.0 lbs	31.1 lbs	36.2 lbs	42.3 lbs	48.4 lbs	54.5 lbs	60.6 lbs
"A" Compact (Single Row)	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"
"B" Compact (Single Row)	15"	21"	27"	33"	39"	45"	51"	57"	63"	69"
"C" Compact (Single Row)	30"	42"	54"	66"	78"	90"	102"	114"	126"	138"
Weight Compact (Single Row)	5.7 lbs	11.2 lbs	16.7 lbs	22.2 lbs	27.7 lbs	33.2 lbs	38.7 lbs	44.2 lbs	49.7 lbs	55.2 lbs



Switchover System



Regulator System

Ordering Information

628	A	B	C	D	Inlet	Options
Series 628	**Material** 1: Brass	**Orientation** 1: Standard Single Row (right) 2: Standard Single Row (left) 3: Standard Double Row 4: Compact Single Row (right) 5: Compact Single Row (left) 6: Compact Double Row	**Pigtail Style** 0: None 1: 36" Rigid Brass 2: 24" Rigid Copper 3: 72" Flexible Stainless Steel Core and Armor Cased 4: 24" Flexible Stainless Steel-braided with PTFE lining 5: 36" Flexible Stainless Steel Core and Armor Cased 6: 36" Flexible Stainless Steel-braided with PTFE lining 7: 24" Flexible Stainless Steel Core and Armor Cased 8: 36" Rigid Brass with Flash Arrestor (CGA 300 and 510 Acetylene only) 9: 72" Flexible Stainless Steel-braided with PTFE lining A: 36" Flexible Stainless Steel Armor with PTFE lining	**Number of Stations** 1: One Station 2: Two Stations 3: Three Stations 4: Four Stations 5: Five Stations 6: Six Stations 7: Seven Stations 8: Eight Stations 9: Nine Stations 0: Ten Stations A: Eleven Stations B: Twelve Stations C: Thirteen Stations D: Fourteen Stations E: Fifteen Stations	**Pigtail Connection** Please specify inlet connection *PTFE-lined pigtails for oxygen service include accumulator extensions to prevent ignition from adiabatic compression. Not for use with Helium or Hydrogen.*	**Installed Options** F: Integral Pigtail Flash Arrestor

Maniflex Accessories

Option	Order No.	Description
Manifold Floor Stand	830-7437	Supports two standard length (12") manifold extensions installed consecutively
CGA Adapter for Regulator	529-0008-CGA	Brass (½" MPT x CGA)
½" Union Joint Connector	829 1839	Union Gland
	829-1840	Union Nut
	830-6498	Union Connector
12" Extension Kit	829-9998	628 Series brass 12" extension kit
6" Extension Kit	829-9999	628 Series brass 6" extension kit
Starter Block	829-9997	628 Series brass starter block kit

623 Series Delivery System

Laser Assist Gas
Dual Body Design
Ultra High Flow
Dome Loaded

623-5002 shown

The 623 is an Ultra High Flow gas delivery system for laser purity gases. Typically these gases are supplied from low pressure (less than 600 PSIG/42 BAR) cryogenic supply systems. The 623 is designed for direct installation to the external vaporizer. The dome-loaded, balanced stem seat design allows for full flow capacity that may be required for the assist or process gases and ensures constant delivery flow and pressure regardless of supply source inlet pressure fluctuations.

Advanced Features

- *Up to 4,500 PSIG Inlet Available*
  Liquid or high pressure use
- *High Flow Delivery Regulator*
  ISOFLOW™ seat design
- *40-Micron Internal Filter*
  Limits possibility of gas contamination
- *Variable Line Pressure*
  Line pressure adjustable on site
- *Wall Mounting Bracket*
  Easy installation
- *Right and Left Hand Inlets Available*
  Flexible installation options
- *0-500 PSIG Model*
  Lower static loss yields better performance for cryogenic applications

Applications

Assist Gases from Cryogenic Supply
Nitrogen and Oxygen
(Use low inlet models for MVE Laser-Cyl™*, TW™ VHP liquid cylinder*, MVE Trifecta™, CTR Laser Maid™, and TW™ Laser Pak Systems)

**Requires optional external ambient air vaporizers for maximum flow capacity.*

Assist Gases from High Pressure Supply
Nitrogen and Oxygen
(Use high inlet models with "Gas Paks", cradles, and tube trailers)

Materials

Delivery Regulator
Brass barstock body and bonnet
PTFE seat* or PCTFE seat†
PTFE and Viton® (internal)

Pilot Regulator
Brass barstock body and bonnet
PTFE seat* or PCTFE seat†
PTFE and Viton® (internal)

Tubing and Tube Fittings
316L stainless steel

Pressure Gauges (PSIG/BAR Dual Scale)
Brass (Socket)
Bronze (Bourdon tube)
Brass (Case)

**3,000 PSIG (208 BAR) inlet*
†4,500 PSIG (310 BAR) inlet

Specifications

Maximum Inlet Pressure
600 PSIG (42 BAR),
3,000 PSIG (210 BAR) or
4,500 PSIG (310 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

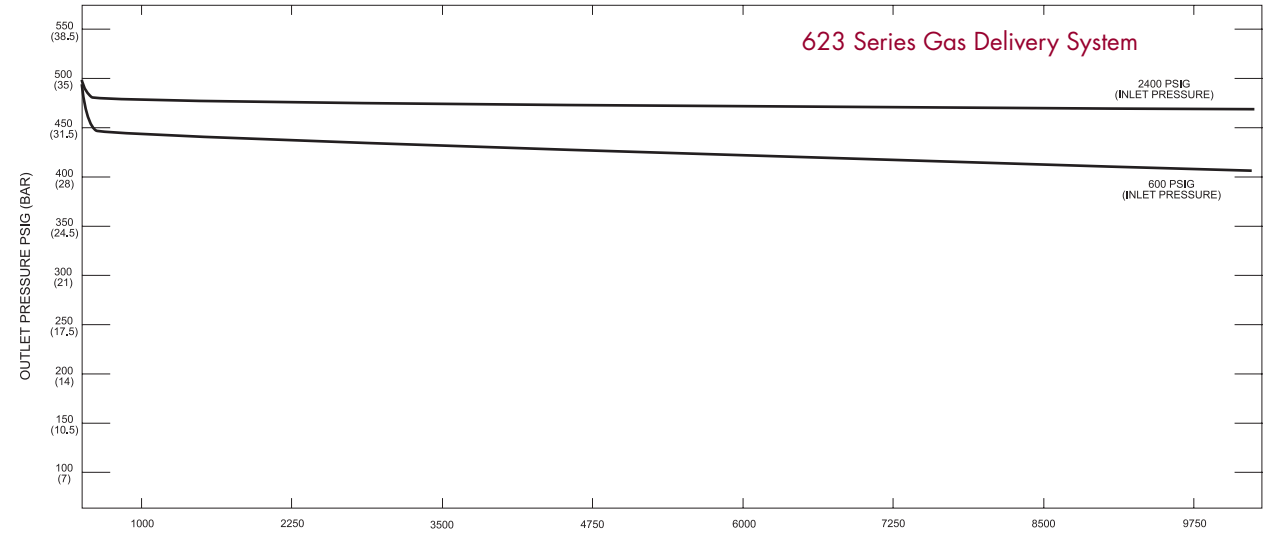
Maximum Flow (Nitrogen)
10,000 SCFH (4700 lpm)

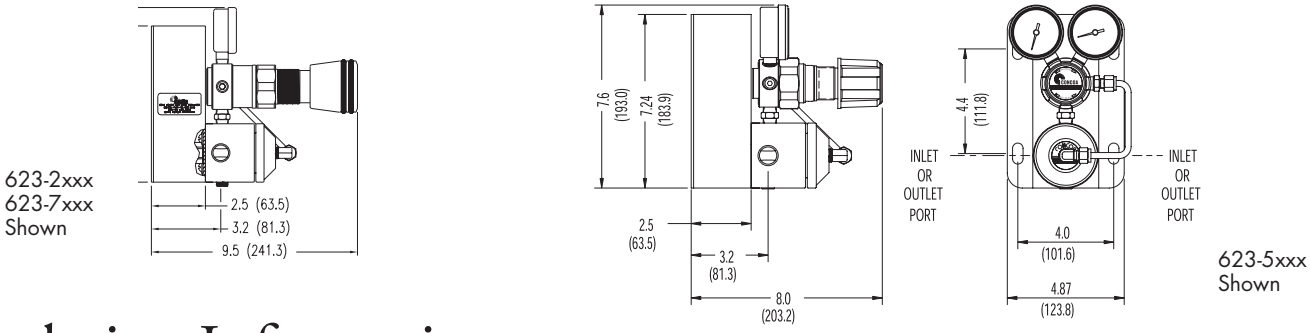
Inlet Connection
½" FPT

Outlet Connection
½" FPT

Weight
12.6 lbs. (5.7 kg)

Flow Performance Curves





Ordering Information

623-	A	B	C	D
Series 623	**Outlet Pressure** 2: 0-2,000 PSIG (0-136 BAR) 5: 0-500 PSIG (0-35 BAR) 7: 0-725 PSIG (0-50 BAR)	**Inlet Connection** 0: ½" FPT Port 1: ½" Stainless Steel Compression Tube 2: Diaphragm Valve ½" FPT 3: Diaphragm Valve ½" Tube 4: 36" Pigtail 5: Diaphragm Valve with 36" Pigtail 6: 72" Pigtail 7: Diaphragm Valve with 72" Pigtail 8: Manifold Connector* 9; Manifold Connector with Master Valve* **Not available with 4,500 PSIG inlet*	**Outlet Connection** 0: ½" FPT Port 1: ½" Stainless Steel Compression Tube 2: Diaphragm Valve ½" FPT 3: Diaphragm Valve ½" Tube 4: 3/8"-37° JIC Male Flare	**Assembly Orientation/ Maximum Inlet Pressure** 0: Right Hand Inlet 600 PSIG (42 BAR) 1: Left Hand Inlet 600 PSIG (42 BAR) 2: Right Hand Inlet 3,000 PSIG (210 BAR) 3: Left Hand Inlet 3,000 PSIG (210 BAR) 4: Right Hand Inlet 4,500 PSIG (310 BAR) 5: Left Hand Inlet 4,500 PSIG (310 BAR)

Related Options

Option	Series	Description
Cryrogenic liquid hoses	*See page 53*	Supply liquid gas to vaporizers
Tube trailer hoses	*See page 51*	Connection from high pressure tube trailer to gas delivery systems
Vaporizer	*See page 53*	Vaporizer specifically designed for use with the 623 gas delivery system

622 Series Delivery System

Laser Assist Gas

Single Body Design

High Flow

Dome Loaded

622-3503-580 shown

The single-body design of the 622 makes it a great choice for start-up installation using twelve-packs or liquid cylinders. The dome loaded seat offers excellent flow capacity, which enables the 622 to transition into a point-of-use regulator of a bulk installation.

Advanced Features

- *Up to 4,500 PSIG Inlet Available*
  Liquid or high pressure use
- *40-Micron Internal Filter*
  Limits possibility of gas contamination
- *Optional Wall Mounting Kit*
  Maintains flow capacity
- *Right and Left Hand Inlets Available*
  Flexible installation options

Applications

Assist Gases from Cryogenic Supply
Nitrogen and Oxygen
(Use low inlet models for MVE Laser-Cyl™*, TW™ VHP liquid cylinder*, MVE Trifecta™, CTR Laser Maid™, and TW™ Laser Pak Systems)

**Requires optional external ambient air vaporizers for maximum flow capacity.*

Assist Gases from High Pressure Supply
Nitrogen and Oxygen
(Use high inlet models with "Gas Paks", cradles, and tube trailers)

Materials

Delivery Regulator
Brass barstock body and bonnet
PTFE seat* or PCTFE seat†
PTFE and Viton® (internal)

Pilot Regulator
Brass barstock body and bonnet
PTFE seat* or PCTFE seat†
PTFE and Viton® (internal)

Tubing and Tube Fittings
316L stainless steel

Pressure Gauges (PSIG/BAR Dual Scale)
Brass (Socket)
Bronze (Bourdon tube)
Brass (Case)

** 3,000 PSIG (208 BAR) inlet*
†4,500 PSIG (310 BAR) inlet

Specifications

Maximum Inlet Pressure
600 PSIG (42 BAR),
3,000 PSIG (210 BAR) or
4,500 PSIG (310 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

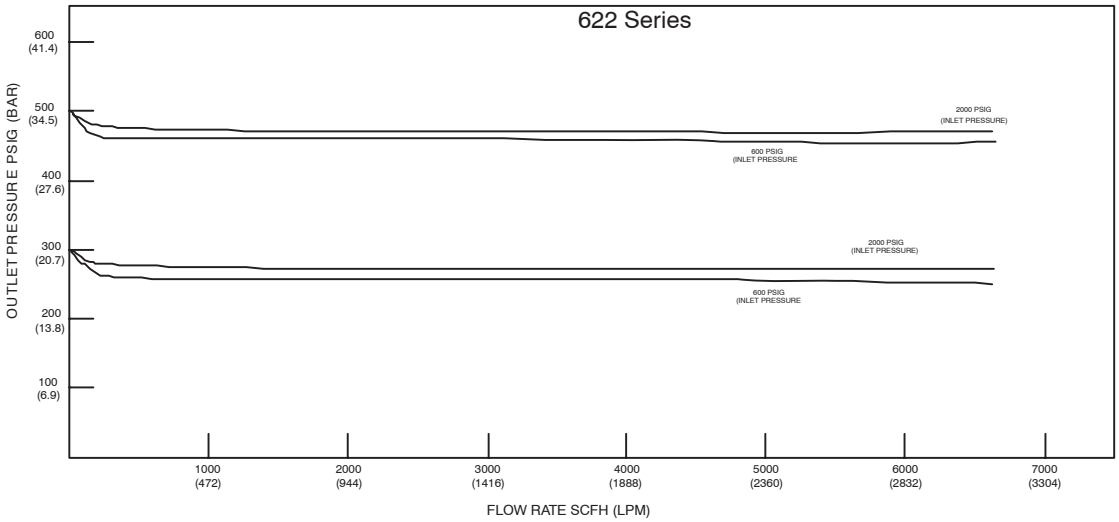
Maximum Flow (Nitrogen)
6,000 SCFH (2800 lpm)

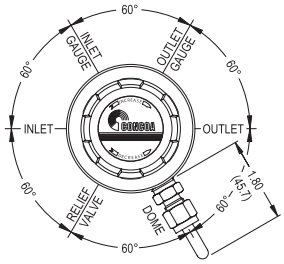
Inlet Connection
½" FPT

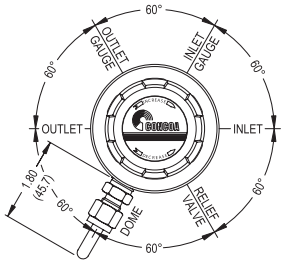
Outlet Connection
½" FPT

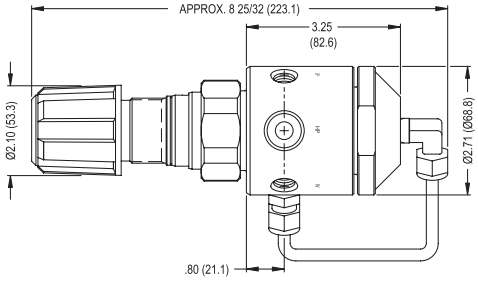
Weight
5.4 lbs. (3.5 kg)

Flow Performance Curves









Ordering Information

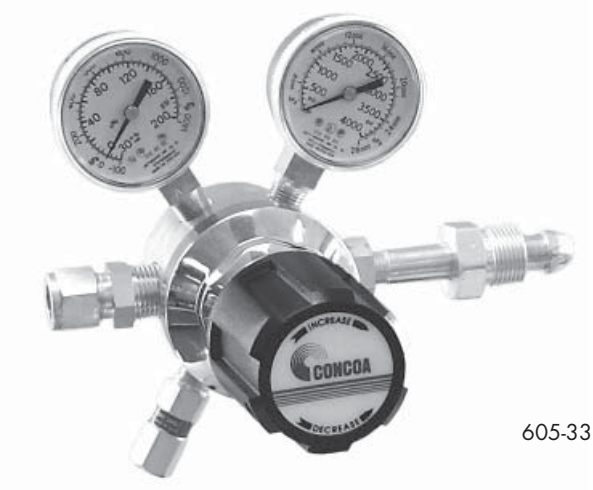
622-	A	B	C	D	Inlet	Options
Series 622	**Outlet Pressure**	**Inlet Connection**	**Outlet Connection**	**Assembly Orientation/ Maximum Inlet Pressure**	**Connection** Please specify inlet connection CGA DIN 477 BS 341 and others available	
	1: 0-100 PSIG 2: 0-250 PSIG 3: 0-500 PSIG	0: ½" FPT Port 1: ½" Stainless Steel Tube Fitting 2: 12mm Tube Fitting 3: Diaphragm Valve ½" FPT 4: Diaphragm Valve ½" Tube 5: Cylinder Connection 6: MicroManifold with 72" Pigtail 7: MicroManifold with Master Valve and 72" Pigtail 8: MicroManifold with P/S and 72" Pigtail 9: MicroManifold with Master Valve, P/S and 72" Pigtail	0: ½" FPT Port 1: ½" Stainless Steel Compression Tube 2: 12mm Stainless Steel Compression Tube 3: Diaphragm Valve ½" FPT 4: Diaphragm Valve ½" Tube 5: 3/8" FPT Port 6: 3/8" - 37° JIC Male Flare	0: Right Hand Inlet 600 PSIG (42 BAR) 1: Left Hand Inlet 600 PSIG (42 BAR) 2: Right Hand Inlet 3,000 PSIG (210 BAR) 3: Left Hand Inlet 3,000 PSIG (210 BAR) 4: Right Hand Inlet 4,500 PSIG (310 BAR) 5: Left Hand Inlet 4,500 PSIG (310 BAR)		W: Wall Mount Kit** B: Two Cylinders* C: Three Cylinders* D:.Four Cylinders E: Five Cylinders* F: Six Cylinders* G: Seven Cylinders* H: Eight Cylinders* *Valid if B=6, 7, 8 or 9 **Valid if B=0, 1, 2, 3, 4 or 5

Related Options

Option	Series	Description
Front Panel Mount Kit	550-0002	Pilot regulator panel mount nut and washer
RH Wall Mount Kit	830-9772	Wall mount bracket with pilot regulator panel mount nut and washer
LH Wall Mount Kit	830-9773	Wall mount bracket with pilot regulator panel mount nut and washer
Cryogenic liquid hoses	*See page 53*	Supply liquid gas to vaporizers
Tube trailer hoses	*See page 51*	Connection from high pressure tube trailer to gas delivery systems
Vaporizer	*See page 53*	Vaporizer specifically designed for use with the 622 gas delivery system

605 Series Manifold Regulator

ISOFLOW™
Seat Design
High Flow
High Purity



605-3311-580 shown

The 605 Series regulators are intended for pressure control at the source of either liquid or high pressure cylinders for applications with pressure requirements up to 250 PSIG.

Advanced Features

- *Up to 3,000 PSIG Inlet Available*
  Liquid or high pressure use
- *High Flow Delivery Regulator*
  ISOFLOW™ seat design
- *40-Micron Internal Filter*
  Limits possibility of gas contamination
- *Balance Stem Seat*
  Eliminates decaying inlet pressure fluctuation
- *Stainless Steel Diaphragm*
  UHP design

Applications

Liquid or High Pressure Cylinder Use
Beam Purge
N_2 or O_2 assist

Bulk Gas Distribution Systems

Laser Welding Shielding Gases
CO_2, Argon, Helium

Materials

Body
Brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE

Filter
40-micron 316L stainless steel mesh

Diaphragm
316L stainless steel

Internal Seals
PTFE

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40°F to 140°F (-40°C to 60°C)

Gauges
2" diameter brass

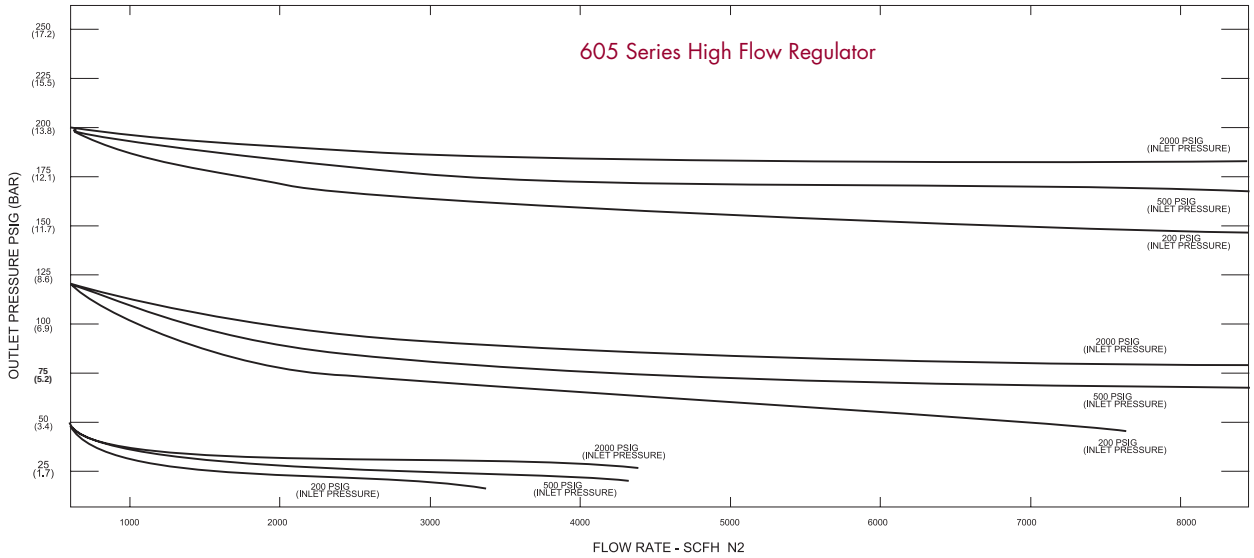
Ports
½" FPT (inlet/outlet)
¼" FPT (gauges)

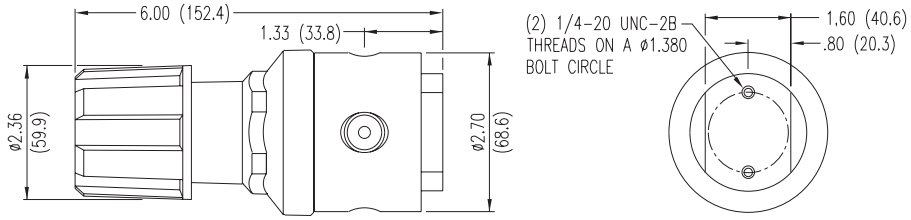
Helium Leak Integrity
1×10^{-8} scc/sec

Cv
1.0

Weight
4.4 lbs. (2 kg)

Flow Performance Curves





Ordering Information

605-	A		B	C	D	Inlet	Options
Series 605	**Outlet Pressure**	**Outlet Gauge**	**Inlet Gauge**	**Outlet Assemblies**	**Assembly/ Gauges**	**Connections**	**Installed Options**
	1: 0-15 PSIG	0-30 PSI	3: 0-4,000 PSI	0: ½" FPT Port	1: Standard Assembly (PSI/kPa Gauges)	000: ½" FPT	A: Laser Gas Alarm Station (110V)
	2: 0-40 PSIG	0-60 PSI	9: 0-600 PSI	1: ½" Tube Fitting	2: Standard Assembly (BAR/PSI Gauges)	M12: 12mm Tube Fitting	B: Laser Gas Alarm Station (220V)
	3: 0-120 PSIG	0-200 PSI		2: 12mm Tube Fitting		TF8: ½" Tube Fitting	C: Laser Gas Switchover Station
	4: 0-200 PSIG	0-400 PSI				CGA DIN 477 BS 341 and others available	G: Laser Gas Switchover Station with Alarm (110V)
	5: 0-250 PSIG	0-400 PSI					H: Laser Gas Switchover Station with Alarm (210V)
							M: Laser Gas Station

Related Options

Option	Order No.	Description
Laser Panels	*See Page 9*	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	*See Page 47*	Tee and Straight Purge configurations to satisfy all requirements
Laser Gas Station	*Add Letter "M" after inlet*	Wall mount bracket, including stainless steel pigtail with check valve in the inlet gland

603 Series Line Regulator

ISOFLOW™ Seat Design

High Flow

High Purity

603-3011-TF8 shown

The 603 Series regulators are intended for secondary pressure control of pipeline applications with requirements up to 250 PSIG.

Advanced Features

- *High Flow Delivery Regulator*
  ISOFLOW™ seat design
- *40-Micron Internal Filter*
  Limits possibility of gas contamination
- *Balance Stem Seat*
  Eliminates decaying inlet pressure fluctuation
- *Stainless Steel Diaphragm*
  UHP design

Applications

Laser Assist Gases
Air, Nitrogen, and Oxygen

Microbulk or Bulk Supply Systems

Membrane Systems Assist or Beam Purge

Nitrogen and Clean Dry Air with Requirements Greater than 1000 CFH

Bulk Beam Purge Supply
Nitrogen

Laser Welding Pipeline Shielding Gases
CO_2, Argon, Helium

Materials

Body
Brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PCTFE

Filter
40-micron 316L stainless steel mesh

Diaphragm
316L stainless steel

Internal Seals
PTFE

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40°F to 140°F (-40°C to 60°C)

Gauge
2” diameter brass

Ports
½” FPT (inlet/outlet)
¼” FPT (gauges)

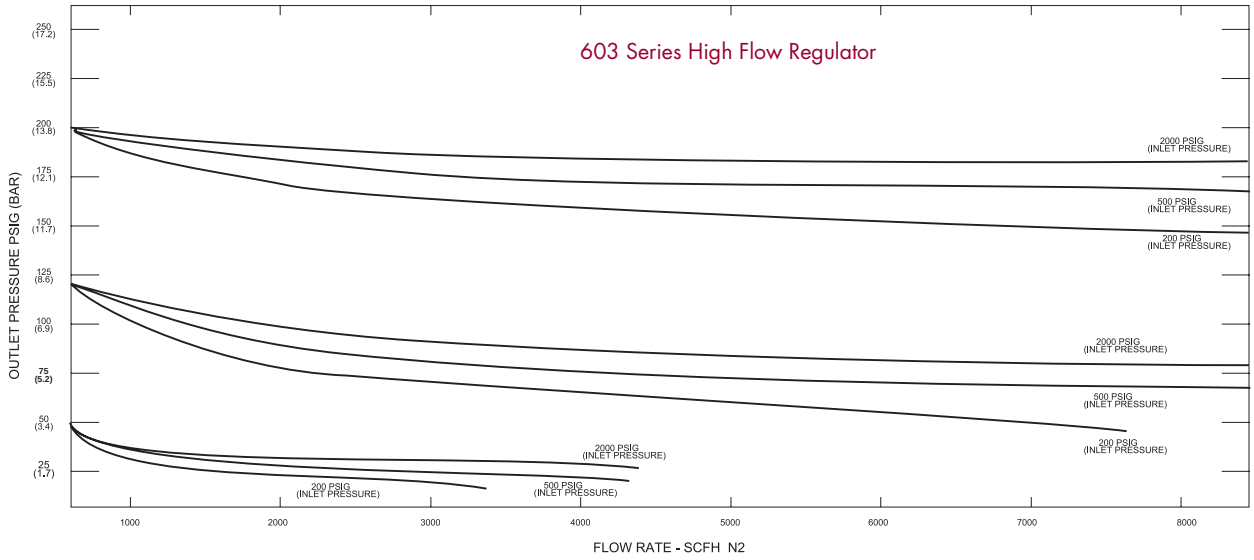
Helium Leak Integrity
1×10^{-8} scc/sec

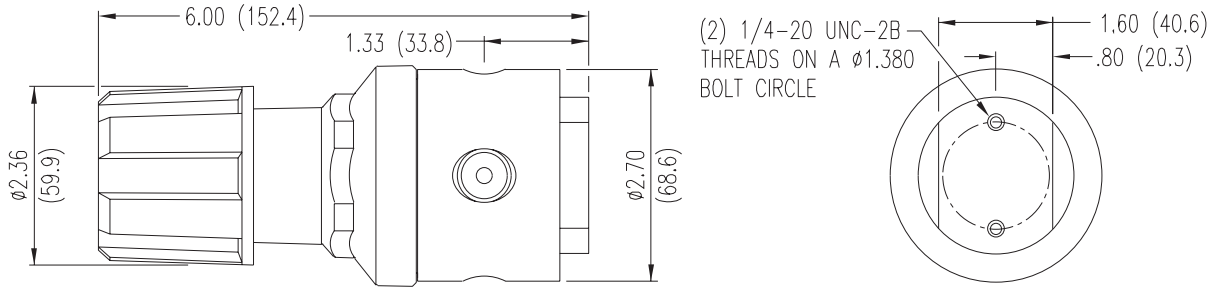
Cv
1.0

Weight
4.4 lbs. (2 kg)

Rear Panel Mountable

Flow Performance Curves





Ordering Information

603-	A		B	C	D	Inlet
Series	**Outlet Pressure**	**Outlet Gauge**	**Inlet Gauge**	**Outlet Assemblies**	**Assembly/Gauges**	**Connections**
603	1: 0-15 PSIG	0-30 PSI	0: None	0: ½" FPT Port	1: Right Hand Inlet (PSI/kPa Gauges)	000: ½" FPT
	2: 0-40 PSIG	0-60 PSI		1: ½" Tube Fitting	2: Right Hand Inlet (BAR/PSI Gauges)	M12: 12mm Tube Fitting
	3: 0-120 PSIG	0-200 PSI		P: 12mm Tube Fitting	6: Left Hand Inlet (PSI/kPa Gauges)	TF8: ½" Tube Fitting
	4: 0-200 PSIG	0-400 PSI			7: Left Hand Inlet (BAR/PSI Gauges)	
	5: 0-250 PSIG	0-400 PSI				

Related Options

Option	Order No.	Description
Laser Panels	*See Page 9*	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	*See Page 47*	Tee and Straight Purge configurations to satisfy all requirements
Mounting Bracket	835-0204	Rear panel mount bracket kit

5260 Series Regulator

Single Stage

Chrome-Plated Forged Brass Body

316L Stainless Steel Diaphragm

Liquid Cylinder

806-5265 shown

The 5260 Series regulators are designed specifically for primary pressure control of assist gases supplied from cryogenic liquid cylinders for use in medium flow (up to 1,500 SCFH) and medium pressure (up to 200 PSIG) applications. The line version can be used in piping systems for lasing.

Advanced Features

- *Designed for Low Inlet Pressures*
  Optimized flow with liquid cylinders
- *Large Capsule® Seat*
  Permits flow rates unobtainable with conventional regulators
- *3,000 PSIG Inlet Pressure Rating*
  Safe for use with high pressure cylinders
- *Field Adjustable Pressure Limit*
  Safeguard downstream equipment
- *Convoluted Diaphragm*
  Smooth pressure changes
- *Standard Relief Valve*
  Diaphragm and gauge protection

Applications

Laser Assist Gases from Liquid Cylinders
Nitrogen and Oxygen from liquid cylinders with flows up to 1,500 SCFH 325 or 500 PSIG cylinder heads

Laser Assist Gases from Pipeline
Nitrogen and Oxygen

Laser Beam Purge
Nitrogen or clean, dry air from a generator or cryogenic source requiring up to 1,000 CFH

Materials

Body
Chrome-plated forged brass

Bonnet
Chrome-plated die cast zinc

Seat
PTFE

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Internal Seals
PTFE

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

Gauge
2 ½" diameter dual scale brass

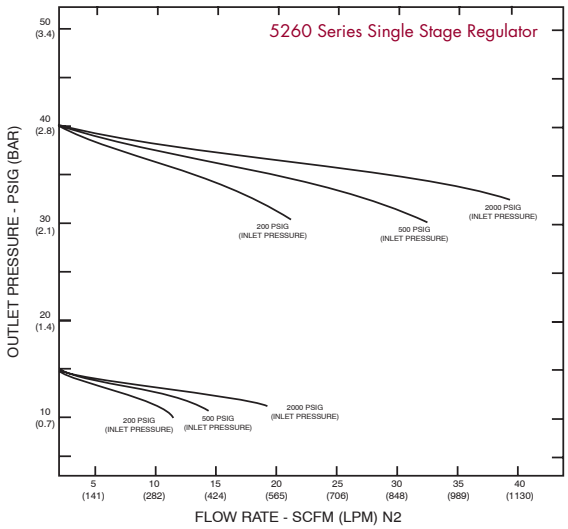
Ports
¼" FPT

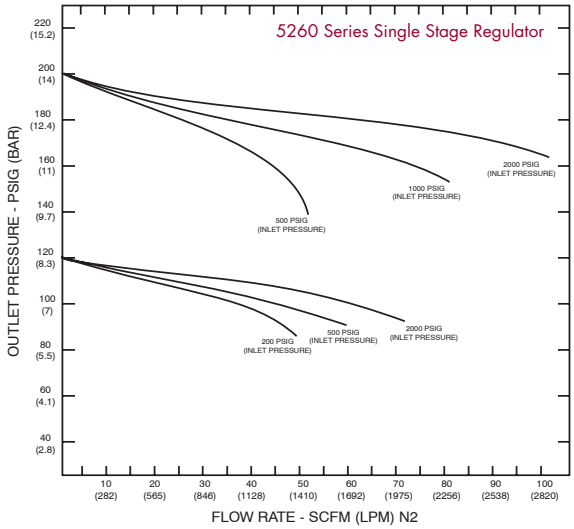
Helium Leak Integrity
1 x 10^{-8} scc/sec

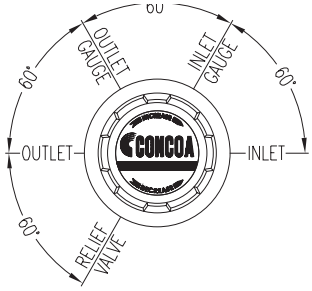
Cv
0.28

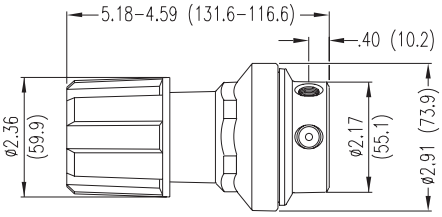
Weight
2.28 lbs. (1.26 kg)

Flow Performance Curves









Ordering Information

5260	Part Number	Inlet	Delivery Pressure	Gas Service	Outlet
Series 5260	806-5260	¼" Tube Inlet	0-200 PSIG (0-14 BAR)	Universal Line Regulator	¼" Stainless Steel Compression Tube Fitting
	806-5261	CGA 320	0-200 PSIG (0-14 BAR)	Carbon Dioxide	
	806-5265	CGA 580	0-200 PSIG (0-14 BAR)	Inert Gases (Nitrogen, Argon & Helium)	
	806-5266	CGA 540	0-200 PSIG (0-14 BAR)	Oxygen	
	806-5267	CGA 540	0-200 PSIG (0-14 BAR)	Oxygen with 4,000 PSI Inlet Gauge	
	806-5268	CGA 580	0-200 PSIG (0-14 BAR)	Inert with 4,000 PSI Inlet Gauge	
	806-5263	1/4" FPT	0-200 PSIG (0-14 BAR)	Universal Line Regulator	1/4" FPT

Related Options

Option	Order No.	Description
Laser Gas Stations	*See Page 8*	Convenient regulator wall mount, including tee, bracket and flexible stainless steel pigtail with check valve in the inlet gland (Check valve not available on CGA 680 inlet models)
Purge Devices	*See Page 47*	Tee and Straight Purge configurations to satisfy all requirements

652 Series BlendMaster 1000

Gas Blender for Laser and Hybrid Laser Welding

Infinite Ratio Adjustment

EquiBlend Technology

652-1201 shown

The 652 Series BlendMaster is designed to supply two-component blended shielding gases for laser welding applications. The blender provides 1,000 SCFH regardless of the blend ratio and the mixture may be changed without reducing capacity. Accurate mixing tolerances are maintained during the filling of bulk or microbulk supply sources.

Advanced Features

- *Lockable Enclosure*
  Process control
- *0 - 100% Ratio Adjustability*
  Process flexibility
- *Wall- or Bench-Mountable*
  Installation flexibility
- *100 - 125 PSIG (7 - 8.5 BAR) Inlet Range*
  Compatible with a variety of cryogenic sources (liquid can, microbulk, bulk)
- *Integral Line Regulator*
  Supports flowmeter and regulator plus flowmeter installations
- *EquiBlend™ Technology*
  Exceeds 1,000 SCFH for all mixes
- *Pressure Equalization System*
  Reduces the effects of inlet pressure fluctuations

Applications

On-site Shielding Gas Blending
Argon-Helium mixtures

Process Applications
Hybrid Laser Welding
Remote Laser Welding (RLW)

Materials

Case
Powder coated steel
Not designed for use outdoors

Surge Tank
Seven gallon (26.5 Liters)

Pressure Control Mechanism
Brass barstock
Gas piloted

Specifications

Flow Capacity
1,000 SCFH (28.3 M³/H)

Inlet Supply Pressure Requirements
100 - 125 PSIG (7 - 8.6 BAR)

Mixed Gas Outlet Pressure
10 - 45 PSIG (.7 - 3.1 BAR)

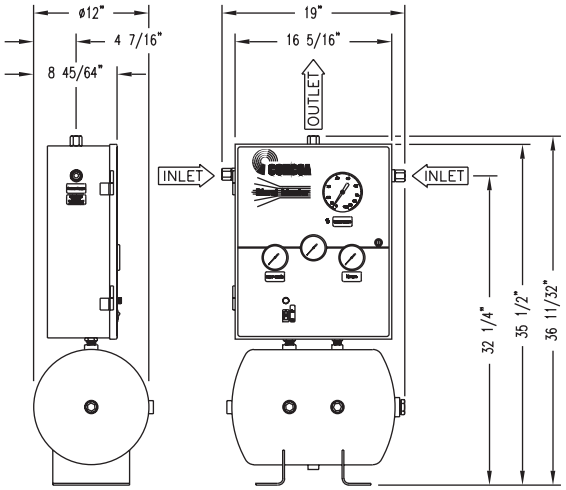
Power Requirements
110 or 220 VAC (50 - 60 Hz)

Ambient Atmosphere and Gas Supply Temperature
32°F to 100°F (0°C to 38°C)

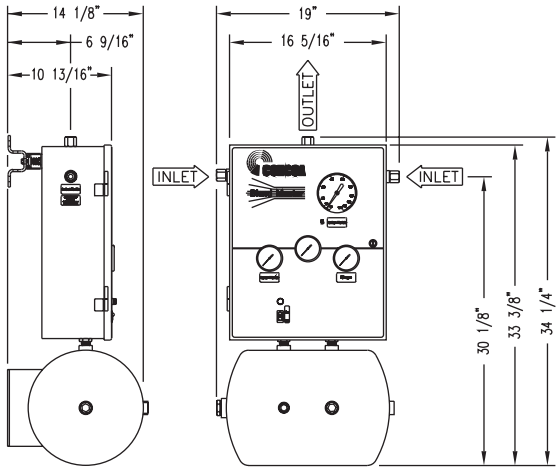
Accuracy
± 1.5%

Weight
102 lbs. (kg)

Available Mounting



Model 1000 Floor-Mounted



Model 1000 Wall-Mounted

Ordering Information

652	A	B	C	D	E	F
Series 652	**Primary Scale Major Gas** 1: Argon 5: Nitrogen	**Primary Scale Minor Gas** 1: Argon 2: Carbon Dioxide 3: Helium 5: Nitrogen	**Monitoring** 0: No Alarm 7: Low Pressure Alarm Capability* **Alarm sold separately*	**Assembly** 1: 110V, Floor Mount 2: 110V, Wall Mount 5: 220V, Floor Mount 6: 220V, Wall Mount	**Secondary Scale Major Gas** 0: None 1: Argon 5: Nitrogen	**Secondary Scale Minor Gas** 0: None 1: Argon 2: Carbon Dioxide 3: Helium 5: Nitrogen

Related Options

Option	Order No.	Description
Advantium 2 Remote Alarm	529-5106	Provides audible and visual notification of a depleted supply bank to a remote location
Advantium Monitoring Software	529-5390	Real-time systems monitoring with email or fax notification.

636 Series AutoSwitch HF

High Flow

Automatic Switchover System

Pressure Switches

636- 3xxx shown

The 636 Series AutoSwitch provides a continuous supply of nonflammable industrial gases at a constant delivery pressure from two high pressure banks. Standard pressure switches enable visual alarms and an optional remote alarm to notify the user of the need to replenish a depleted bank.

Advanced Features

- *Balanced Main Valve*
  High flow capacity
- *Integral Line Regulator*
  Stable line pressure during change over
- *Variable Line Pressure*
  Line pressure changeable on site
- *User-Friendly Priority Valve*
  One knob switches cylinder priority
- *Integral Manifold System*
  Easy installation

Applications

Purging Systems
Large flow capacity to remove contaminants

Argon or Helium Shielding Gas
High-pressure source

Materials

Priority Valve and Line Regulator
Brass barstock

Diaphragms
Fabric-reinforced neoprene

Enclosure
Acrylic powder-coated steel

Tubing and Fittings
316 stainless steel, brass, and copper

Internal Seals
PTFE

Seats
Neoprene, PTFE and Viton®

Pressure Gauges and Switches
Brass, bronze, stainless steel, and copper

Check Valves
Brass with Viton® seals

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

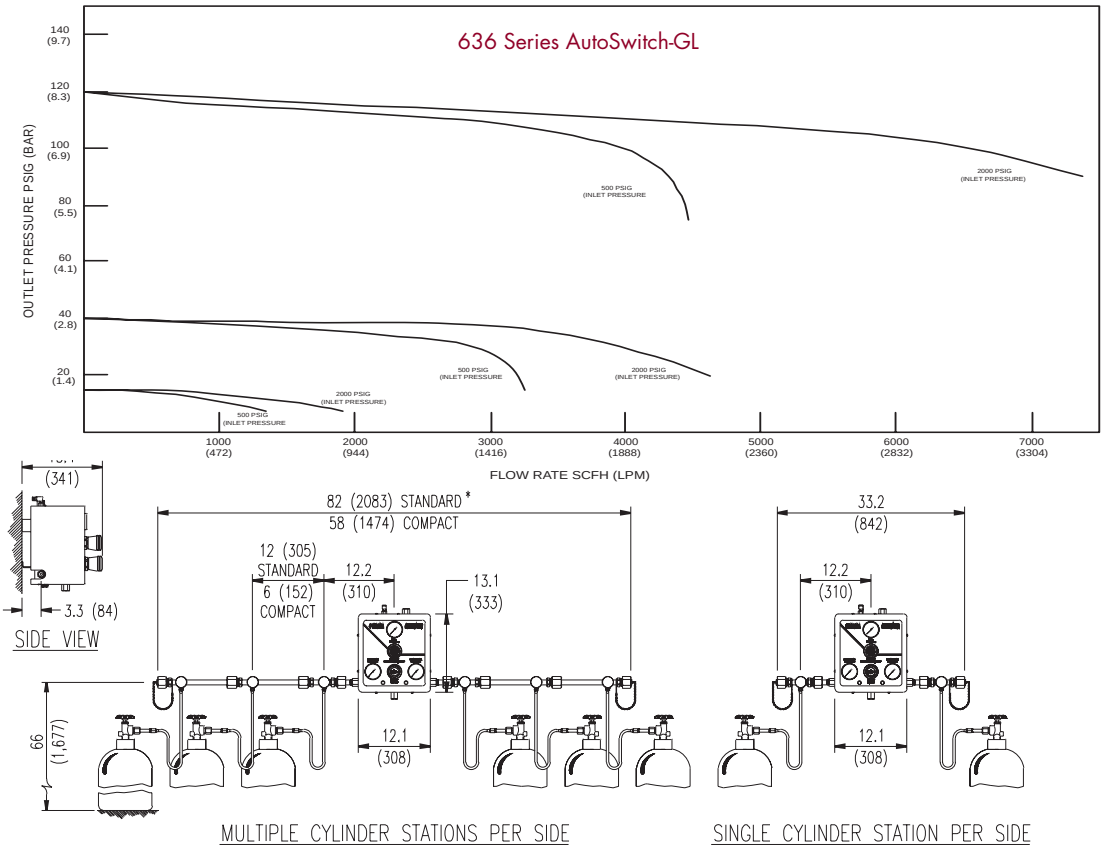
Maximum Flow
6,000 SCFH (2830 lpm)

Inlet Connection (Enclosure)
½" FPT

Outlet Connection
½" FPT

Weight
54 lbs. (25 kg)

Flow Performance Curves



**Additional standard manifold extensions add 12" (305 mm) per side;*
Additional compact manifold extensions add 6" (153 mm) per side.

Ordering Information

636	A	B	C	D	Inlet
Series 636	**Outlet Pressure** 1: 0-15 PSIG 2: 0-40 PSIG 3: 0-120 PSIG	**Manifold Style** 1: Standard Length (12" between stations) with One Cylinder/Station 3: Standard Length (12" between stations) with Two Cylinders/Stations 4: Compact Length (6" between stations) with One Cylinder/Station 6: Compact Length (6" between stations) with Two Cylinders/Stations	**Pigtail Style** 2: 24" Rigid Copper 3: 72" Flexible Stainless Steel-lined 4: 24" Flexible Stainless Steel-braided with PTFE lining 5: 36" Flexible Stainless Steel-lined 6: 36" Flexible Stainless Steel-braided with PTFE lining 7: 24" Flexible Stainless Steel-lined 9: 72" Flexible Stainless Steel-braided with PTFE lining	**Stations/Side** 1: One Station 2: Two Stations 3: Three Stations 4: Four Stations 5: Five Stations 6: Six Stations 7: Seven Stations 8: Eight Stations 9: Nine Stations	**Connection** Please specify inlet connection CGA DIN 477 BS 341 and others available

Related Options

Option	Order No.	Description
Remote Alarm	Advantium Series	Provides audible and visual notification of a depleted supply bank to a remote location
Manifold Floor Stand	830-7437	Supports two standard length (12") manifold extensions installed consecutively
AutoSwitch Floor Stand	830 7439	Supports AutoSwitch enclosure

5270 Series Regulator

Dual Stage Regulator

Dual Scale Flowmeter

Chrome-plated Brass Barstock Body

806-5275 shown

The 5270 Series of regulators are intended for primary pressure and flow control of laser welding gases supplied from high pressure cylinders. For use with both CO_2 and Nd:YAG laser welding, the 5270 provides gas flows for plasma suppression and trailing gas shield gases.

Advanced Features

- *Chrome-Plated Brass Body*
  Economical high purity design
- *316L Stainless Steel Diaphragms*
  No inboard gas diffusion
- *Stainless Steel Tube Outlet Connections*
  Leak-tight connections
- *Dual Range Flow Control*
  Argon and Helium flow scales
- *High Inlet Pressure Design*
  Flexible gas sources
- *Large Convoluted Diaphragm*
  Smooth pressure changes
- *Capsule® Seat Assembly*
  Increased life and serviceability

Applications

CO_2 Laser Welding
Helium flow control 30-200 SCFH

Nd:YAG Laser Welding
Argon flow control 10-60 SCFH

Double Flow Control (806-5279)
Dual 10-60 SCFH Ar flow tubes
Dual 30-200 SCFH He flow tubes

Materials

Body
Chrome-plated brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE (3,000 PSIG max inlet)
PCTFE (4,500 PSIG max inlet)

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Internal Seals
PTFE

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)
4,500 PSIG (310 BAR) model 5278

Temperature Range
-40 to 140°F (-40 to 60°C)

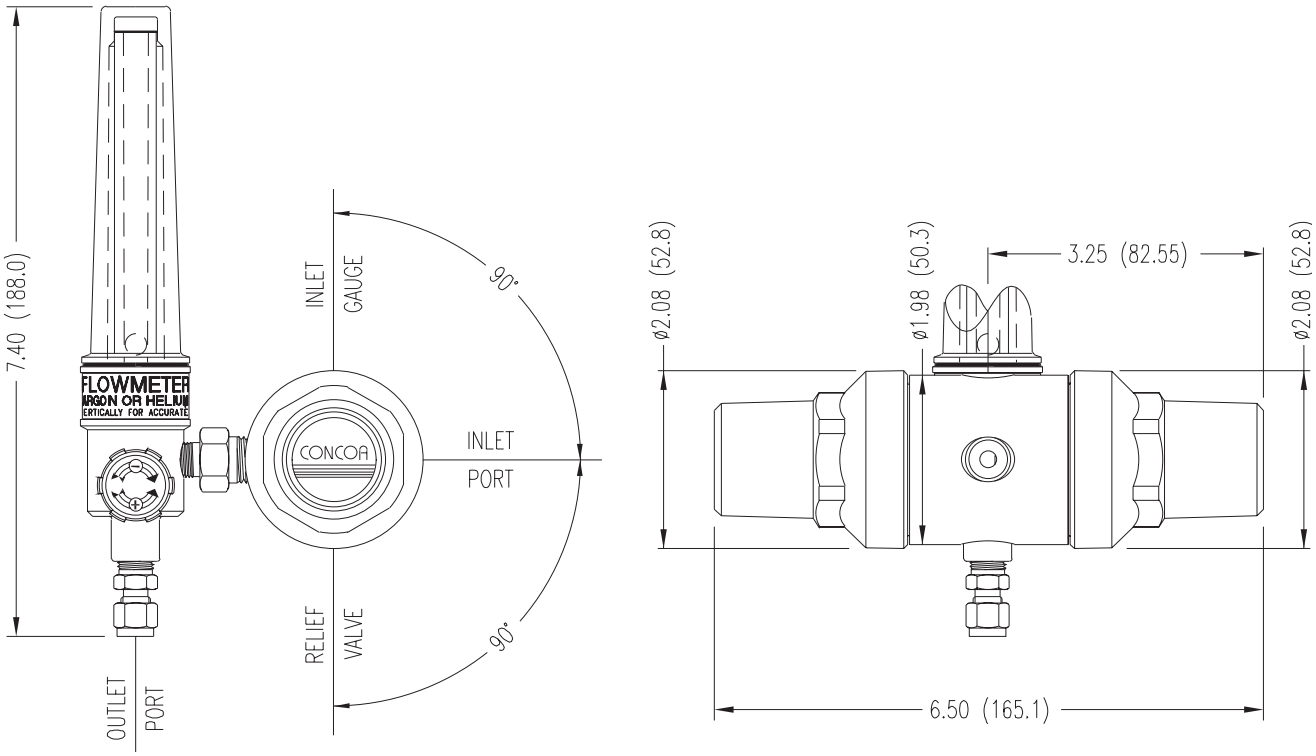
Gauge
2" diameter dual scale brass

Ports
¼" FPT
1/8" FPT (Flowmeter inlet)

Flowtube (CFH)
10 - 60 CFH Argon
10 - 200 CFH Helium

Weight
4.4 lbs. (2 kg)

Installation Dimensions



Ordering Information

Series	Part Number	Inlet	Flowmeter	Gas Service	Outlet
5270	806-5275	CGA 580	Single (Dual Scale)	Inert Gases (3,000 PSIG inlet)	1/8" Stainless Steel Compression Tube Fitting
	806-5278	CGA 680	Single (Dual Scale)	Inert Gases (4,500 PSIG inlet)	
	806-5279	CGA 580	Dual (Dual Scale)	Inert Gases (3,000 PSIG Inlet)	

Related Options

Option	Order No.	Description
Laser Gas Stations	*See Page 8*	Convenient regulator wall mount, including tee, bracket and flexible stainless steel pigtail with check valve in the inlet gland (Check valve not available on CGA 680 inlet models)
Laser Panels	*See Page 9*	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	*See Page 47*	Tee and Straight Purge configurations to satisfy all requirements

Multi-Gas Analyzer

CONCOA's Multi-Gas Analyzer is designed to monitor almost any binary gas mixture. This is ideal for a wide range of applications, such as metal fabrication, landfill, horticulture, brewing and food processing applications. Coupled with the BlendMaster gas mixer, CONCOA offers a complete system that ensures long-term quality.

830-9383 shown

Features

Thermal Conductivity Detector
No moving parts
Fast response
Temperature controlled cell

Digital read-out
± 1% Accuracy of Range

Specifications

Range
0 - 100%

Stability
± 1% of range over 12 months

Humidity
Unaffected

Relay Contact
Optional

Internal Pump
.5 to .9L/min @ atmospheric pressure

Power
115 VAC or 230 VAC selectable

Enclosure
NEMA12

Operating Temperature
0 - 50°C
32°F to 122°F

Ordering Information

Part Number	Description
830-9383	0 - 100% range, Multi-Gas Analyzer

Beam Purge Assembly

Designed to tap Nitrogen from a 623 Gas Delivery System, the 5239 Beam Purge Assembly supplies gas conveniently to purge the laser beam of a carbon dioxide industrial laser while ensuring the purity of the gas. The regulator with integral diaphragm valve may be connected directly to the low pressure port of a 623 or downstream of any high flow nitrogen source.

806-5239 shown

Regulator

Body
Brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Internal Seals
PTFE

Diaphragm Valve

Bodies and Fittings
Chrome-plated brass

Diaphragms
Elgiloy®

Seats
PCTFE

Seals
Metal to metal

Specifications

Maximum Inlet Pressure
3,000 PSIG (210 BAR)

Temperature Range
-40 to 140°F (-40 to 60°C)

Gauge (PSI/BAR)
2" diameter chrome-plated brass

Inlet Connection
¼" MPT

Outlet Connection
¼" stainless steel compression tube

Helium Leak Integrity
1 x 10^{-8} scc/sec

Cv
0.17

Ordering Information

Part Number	Description
806-5239	Beam Purge Assembly including regulator and diaphragm valve
835-0204	Rear panel mounting bracket kit

Particulate Filter Assembly

The 6000 Series Tee Filters are designed to remove 40-micron and 2-micron particulates from both assist and resonator gas supply systems respectively. Tee filters reduce laser maintenance costs caused by contaminates in brazed or tapped piping systems. The tee filter design offers a quick-change replacement element to minimize downtime.

580-6001 shown

580-6002 shown

580-6003 shown

580-6001

Application
Resonator

Filtration efficiency
2-micron

Material of construction
Brass

Maximum working pressure
1,000 PSIG

Maximum flow capacity
140 CFH N_2 with 100 PSIG inlet and a pressure drop of 10 PSIG

580-6002

Application
Assist

Filtration efficiency
40-micron

Material of construction
Brass

Maximum working pressure
2,000 PSIG

Maximum flow capacity
4,500 CFH N_2 with 450 PSIG inlet and a pressure drop of 10 PSIG

580-6003

Application
Assist

Filtration efficiency
40-micron

Material of construction
316L stainless steel

Maximum working pressure
4,500 PSIG

Maximum flow capacity
4,500 CFH N_2 with 450 PSIG inlet and a pressure drop of 10 PSIG

Ordering Information

Part Number	Description
580-6001	Resonator 2-micron brass tee filter assembly with ¼" tube fittings, isolation valve on the inlet and outlet (1,000 PSIG max)
580-6001-M06	Resonator 2-micron brass tee filter assembly with 6mm tube fittings, isolation valve on the inlet and outlet (1,000 PSIG max)
580-6002	Assist 40-micron brass tee filter assembly with ½" FPT valve inlet and ½" MPT outlet (2,000 PSIG max.)
580-6003	Assist 40-micron stainless tee filter assembly with ½" FPT 90º elbow inlet and ½" MPT outlet (4,500 PSIG max.)
830-0317	2-micron brass tee filter with ¼" MPT inlet and outlet (2,000 PSIG max.)
830-0318	Replacement 2-micron filter element for 580-6001 and 830-0317
830-8989	Replacement 40-micron filter element for 580-6002, 580-6003, 830-8990 and 830-9830
830-8990	Assist 40-micron stainless tee filter with ½" MPT inlet and outlet (6,000 PSIG max.)
830-8999	Replacement 40-micron filter element for 580-6001 and 830-0317
830-9830	Assist 40-micron brass tee filter with ½" MPT inlet and outlet (2,000 PSIG max.)

Molecular Sieve Filter

The 580-1700 Series Filters are designed for use in high pressure, high purity laser gas systems to prevent the possible introduction of moisture into lasing and purge gas streams.

Materials and Specifications

- *Housing*
  Brass barstock
- *Seals*
  Buna-N®
- *Inlet and Outlet Fittings*
  Brass ¼" FPT
- *Pressure Drop*
  2.4 PSIG at 3 scfm air
- *Efficiency*
  99% original
- *Maximum Operating Pressure*
  2,000 PSIG (138 BAR)
  500 PSIG Oxygen (33.3 BAR)
- *Weight*
  2.6 lbs. (1.2 kg)

Ordering Information

Part Number	Catalyst	Removal Capacity
580-1701	Housing	N/A
580-1723	13X Mole Sieve (removes oil and water)	5.4 grams H_2O
580-1733	4A Mole Sieve (removes water)	6.0 grams H_2O
580-1753	Activated Carbon (removes C_3 and up)	4.8 grams C_3
580-1743	Sintered Bronze (removes 5µm particle)	99.5% efficiency

Purge Valves

The 502 Series Purges are designed for use with Laser purity gases to ensure system integrity during the breakdown of components or during gas source changes. By preventing the release of gases into the workplace and by preventing air from infiltrating high purity systems, purges insure safety and gas quality.

The Tee Purge, installed at a regulator inlet connection, is an effective method for purging a regulator and the downstream system.

The Straight Purge, best suited for pressure cycle or dilution purging, connects to a regulator body through an auxiliary high pressure port. The purged gas is vented through the regulator body to a safe location downstream.

Materials and Specifications

- *Seat*
  PCTFE
- *Diaphragms (Purge and Center Valves)*
  Elgiloy®
- *Spring and Stem*
  304 stainless steel
- *Cv*
  0.27
- *Maximum Pressure*
  3,000 PSIG (210 BAR)

Ordering Information

Part Number	Material	Purge Type	Weight
502-1002	Brass Barstock	Straight Purge	1.2 lbs. (0.54 kg)
502-2003-CGA	Brass Barstock	Tee Purge	2.5 lbs. (1.12 kg)
502-2010	Brass Barstock	Right Manifold Tee Purge	2.5 lbs. (1.12 kg)
502-2011	Brass Barstock	Left Manifold Tee Purge	2.5 lbs. (1.12 kg)

Diaphragm Valves

The 533 Series Diaphragm Valves are ideal for use as the primary flow switch in high purity or corrosive gas systems. Springless design and low wetted surface area combine to minimize particle generation and the completely swept path minimizes entrapment.

The unique design of the 533 Series allows low torque operation with gas flow in either direction. Flow control is accomplished with the multi-turn model while the ¼ turn model is quick acting and indicates on/off position.

Materials and Specifications

- *Maximum Inlet Pressure*
  3,500 PSIG (240 BAR)
- *Temperature Range*
  -40°F to 140°F (-40°C to 60°C)
- *Helium Leak Integrity*
  1 x 10^{-9} scc/sec
- *Bodies and Fittings*
  Brass barstock
- *Diaphragms*
  Elgiloy®
- *Seats*
  PCTFE
- *Seals*
  Metal to metal
- *Cv*
  0.17
- *Weight*
  0.66 lbs. (0.3 kg)

Ordering Information

533-3	B	C	D
	Flow Control 0: Multi-Turn 1: ¼ Turn	**Material** 2: Brass	**Connection** 0: ¼" FPT x ¼" FPT 2: ¼" Tube x ¼" Tube 3: ¼" MPT (Extended Leg) x ¼" Tube 4: ¼" MPT x ¼" MPT 7: ¼" MPT x 6mm Tube 8: ¼" MPT (Extended Leg) x 1/8" Tube 9: ¼" MPT (Extended Leg) x ¼" FPT

For example, a 533-3120 is a bare body, brass diaphragm valve controlled by a ¼ turn handle.

Relief Valves

The 9400 Series Gas Phase Relief Valves offer excellent discharge capacity and field adjustability. The captive seat design minimizes the whetted surface area reducing possible contamination. The unique design also provides an accurate cracking pressure with zero leakage up to 98% of the nominal set pressure. Models 2039 and 2040 are designed for cryogenic on-line application and offer gooseneck design that enable a safe discharge.

Specifications

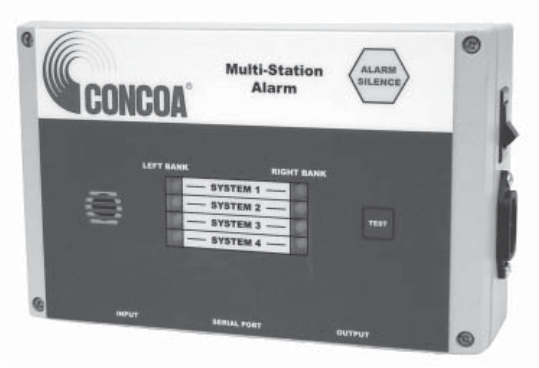
- *580-2039 and 580-2040 Temperature Range*
  -450°F to 1500°F
- *830-9412, 830-9413, and 830-9414 Temperature Range*
  Viton® Seat - 20°F to 400°F
  Neoprene - 40°F to 300°F
  Maximum Pressure - 3700 PSI

Ordering Information

Part Number	Description	Connections	Material
830-9412	Preset at 220 PSIG: (range 130 - 310 PSIG)	½" MPT x ½" FPT	Brass Body, Viton® Seat
830-9413	Preset at 420 PSIG: (range 260 - 600 PSIG)	½" MPT x ½" FPT	Brass Body, Viton® Seat
830-9414	Preset at 100 PSIG: (range 80 - 120 PSIG)	¼" MPT x ½" FPT	Brass Body, Neoprene Seat
830-9415	Preset at 20 PSIG: (range 8 - 34 PSIG)	½" MPT x ½" FPT	Brass Body, Neoprene Seat
580-2039	750 PSIG Cryogenic Relief	Male x Female CGA 440 (Flare)	Stainless Steel
580-2040	750 PSIG Cryogenic Relief	Male x Female CGA 295 (½ Flare)	Stainless Steel

Advantium 8 Alarm

Designed for use with all CONCOA automatic switchover and blender equipment, the new ADVANTIUM Series offers superior integration, protection, and convenience by allowing end-users to monitor normally open or closed contact devices with a single flip of a switch. Systems can be configured for inert or flammable gases utilizing CONCOA's innovative intrinsic safety barriers, allowing end-users to safely monitor flammable gas cylinder contents via a remote alarm on a CONCOA switchover or Protocol Station.



529-5310 shown

Features

- *High profile visual and audible notification*
- *Local audible alarm silence function*
- *13 Channels*
  Eight input and five output
- *Dry contact relay output*
  Four discrete or one general
- *Rs-232 data interface capability*
- *NO or NC switch compatibility*
- *Auto-reset when cylinders are replenished*
- *Custom configure one to four systems*

Specifications

Sound
80 db audible alarm

Power
115 VAC or 220 VAC

Relay Contact Rating
1A@24 VDC or .5A@115 VAC

RS-232 Serial Port
No parity
9600 baud rate

Dimensions
9 19/32"W x 5 31/64"L x 2 61/64"D

Fuses
120 VAC, .5A normal blow, type 3AG
220 VAC, .25A normal blow, type 3AG

Connections
Input connector D25
Relay output connector D15
RS-232 serial output connector D9

Ordering Information

Part Number	Description
529-5310	Multi-Station remote alarm (110V)
529-5311	Multi-Station remote alarm (220V)
529-5296	Intrinsic Safety Barriers for 529-5310 and 529-5311 alarms
529-5314	Advantium 8 D25 x four 6-pin female adapter cable
529-5315	Advantium 8 D25 x one 6-pin female adapter cable
529-5316-3	3' cable assembly 6-pin female x 6-pin female
529-5316-10	10' cable assembly 6-pin female x 6-pin female
529-5316-25	25' cable assembly 6-pin female x 6-pin female
529-5322	6' Male 6pin x dual Female 6 pin Adapter for 632 Series Switchover

Advantium 2 Remote Alarm

Features

- *High profile visual and audible notification*
- *Local audible alarm silence function*
- *Three channels*
  Two input and one output
- *Dry contact relay output*
  One general
- *NO or NC switch compatibility*
- *Auto-reset when cylinders are replenished*

Specifications

- *Audio*
  80 db audible alarm
- *Power*
  115 VAC or 220 VAC
- *Relay Contact Rating*
  1A@24 VDC or .5A@115 VAC
- *Dimensions*
  3 ¼"W x 6"L x 2"D
- *Fuses*
  120 VAC, .5A normal blow, type 3AG
  220 VAC, .25A normal blow, type 3AG
- *Connections*
  Input connector D6
  Relay output connector D4

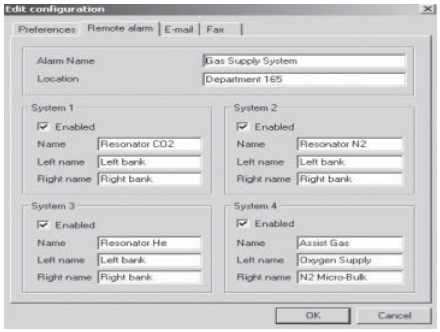
Ordering Information

Part Number	Description
529-5106-120	Single-system remote alarm (110V)
529-5106-220	Single-system remote alarm (220V)
529-5312	Intrinsic Safety Barriers for 529-5106 alarm
529-5316-3	3' cable assembly 6 pin female x 6 pin female
529-5316-10	10' cable assembly 6 pin female x 6 pin female
529-5316-25	25' cable assembly 6 pin female x 6 pin female

Advantium Monitoring Software

Features

- *Real Time Systems Monitoring*
- *Email Or Fax Notification*
- *24/7 Data Log*
- *Rs-232 Format*
- *Program Flexibility*



Specifications

- *Compatibility*
  Windows 98, ME, NT, 2000, or XP
- *Interface*
  RS-232 serial port
- *Email Function Requires Modem with Dial-up Connection or Network Card*

Ordering Information

Part Number	Description
529-5390	Advantium 8 RS232 Monitoring Software

AD2000

The AD 2000 auto-dialer provides remote telemetry notification of an alarm incident when used with either the Advantium Eight or Advantium Two alarm. The system may be customized to provide four separate voice or numeric messages. The AD 2000 lowers installation costs by using a common line, which is automatically captured in order to begin the dialing sequence. This makes CONCOA the ideal choice for automatic gas switchovers or gas blending systems in the laboratory, processing or metal fabrication industries.

Specifications

- *Programmable Functions*
  Dial 1-8 phone numbers per alarm incident
  1-9 dialing attempts per phone number
  Voice or numeric message
  Repeat message 1-3 times per connection
  Up to four separate input channels
  Up to four prerecorded messages
- *Input Channels*
  Four N.O. or N.C.
  Dry contact or voltage activation
- *Dimensions*
  6"W x 4"L x 1½"D
- *Operating Temperature Range*
  -0 to +130F (-18 to +55C)
- *Mounting Location*
  Wall or flat surface

Ordering Information

Part Number	Description
529-5306	AD2000 auto-dialer for use with 529-5106, 5310 or 5311 remote alarms

Tube Trailer Hoses

Specifically designed for use in tube trailer discharge or as a flexible line to cylinder manifolds, these zero permeation hoses meet the purity requirements of laser gases. The close-packed corrugated stainless steel inner core offers extreme flexibility, while a single piece extended braid ring and heavy duty 316L end fittings provide durable service and a long life. All hoses are cased in stainless steel armor to protect the hose from kinking, braid abrasion, and stress at the ends.

Materials and Specifications

- *Materials of Construction*
  316 stainless steel (inner core)
  304 stainless steel (double heavy duty braid)
  302 stainless steel (armor casing)
  316L stainless steel (end fittings)
- *End Connections*
  ½" MPT x ½" FPT
- *Diameter*
  .500 inches inner diameter
  1.25 inches outer diameter
- *Maximum Operating Pressure*
  3,500 PSIG (245 BAR)
- *Minimum Burst Pressure*
  14,000 PSIG (980 BAR)
- *Centerline Bend Radius*
  5.0"
- *Temperature Range*
  -450°F to 1500°F (-265°C to 815°C)
- *Oxygen Service*
  Cleaned to CGA G4.1 specifications

Ordering Information

Part Number	Length (Weight)
529-0260	12 feet (11.5 pounds)
529-0261	18 feet (23 pounds)
529-0262	24 feet (34.5 pounds)

Flexible Hoses

With an inner core and end fittings of 316L stainless steel, this metal hose provides an all-welded, zero permeation and flexible alternative to pipe and tubing in laser purity gas applications, even at cryogenic temperatures. The metal-lined hose is reinforced with two layers of type 321 stainless steel braid to provide maximum protection and flexibility. All hoses are encased in stainless steel armor to protect the hose from kinking, braid abrasion, and stress at the ends.

Materials and Specifications

- *Diameter*
  .250 inches inner diameter
  .72 inches outer diameter
- *Minimum Bend Radius*
  3.0”
- *Temperature Range*
  -450°F to 1500°F (-265°C to 815°C)
- *Oxygen Service*
  Cleaned to CGAG4.1 specifications
- *Maximum Working Pressure*
  3,000 PSIG (210 BAR)

Ordering Information

Part Number	Connections	Length (Weight)	Core	Casing
529-0031-CON	¼” MPT x CON (please specify)	36 inches (0.9 pounds)	Stainless Steel	Stainless Steel Armor
529-0044-CON	¼” MPT x CON(please specify)	36 inches (0.9 pounds)	PTFE	Stainless Steel Braid
529-0088-CON	¼” MPT x CON (please specify)	36 inches (0.9 pounds)	PTFE	Stainless Steel Armor
529-0089-540	¼” MPT x CON (please specify)	72 inches (1.8 pounds)	PTFE	Stainless Steel Armor
529-0055-CON	¼” MPT x CON (please specify)	72 inches (1.8 pounds)	Stainless Steel	Stainless Steel Armor
529-0094-CON	¼” MPT x CON (please specify)	72 inches (1.8 pounds)	PTFE	Stainless Steel Armor
529-0272-CON	¼” MPT x CON (please specify)	72 inches (1.8 pounds)	PTFE	Stainless Steel Braid
529-0256-CON	¼” MPT x CON (please specify)	144 inches (3.6 pounds)	Stainless Steel	Stainless Steel Armor

High Pressure Flexible Hoses

The non-porous characteristics of PTFE and its chemically inert properties coupled with zero maintenance requirements make it ideal for high pressure laser applications. Custom-machined end fittings with stainless steel locking collars and a 304 stainless steel reinforcing braid provide highly durable assembly with excellent flexibility. All hoses are encased in stainless steel armor to protect the hose from kinking, braid abrasion, and stress at the ends.

Materials and Specifications

- *Materials of Construction*
  316L (inner core)
  304 stainless steel (braid)
  304 stainless steel (armor casing)
  316L stainless steel (end fittings)
- *Diameter*
  .229 inches inner diameter
  .560 inches outer diameter
- *Minimum Bend Radius*
  3.0”
- *Temperature Range*
  -100°F to 450°F (-73°C to 232°C)
- *Oxygen Service*
  Cleaned to CGA G4.1 specifications
- *4,500 PSIG (310 BAR)*
  Maximum working pressure

Ordering Information

Part Number	Connections	Length (Weight)
529-0058-CON	¼” MPT x CON (please specify)	36 inches (0.24 pounds)
529-0258-CON	¼” MPT x CON (please specify)	72 inches (0.48 pounds)
529-0259-CON	¼” MPT x CON (please specify)	144 inches (0.96 pounds)
551-0310	¼” MPT x ¼” FPT	36 inches (0.24 pounds)
551-0323	¼” MPT x ¼” FPT	72 inches (0.48 pounds)
551-0318	¼” MPT x ¼” FPT	144 inches (0.96 pounds)

Liquid Transfer Hoses

Specifically designed to connect a liquid cylinder to an external vaporizer, these all- stainless hoses offer complete flexibility, durability, and fast cool-down. Machined end connections and a long collar extend the hose life, and low profile corrugations provide faster filling, lower pressure drop and less product loss. Full armor casing protects the hose from abrasion and damage.

Materials and Specifications

- *Materials of Construction*
  321 stainless steel (inner core)
  304 stainless steel (braid)
  304 stainless steel (armor casing)
  304L stainless steel (end fittings)
- *End Connections*
  CGA (flare) x CGA (flare)
- *Diameter*
  .500 inches inner diameter
  1.00 inches outside diameter
- *Maximum Operating Pressure*
  1,000 PSIG (70 BAR)
- *Minimum Burst Pressure*
  5,000 PSIG (350 BAR)
- *Minimum Bend Radius*
  3.25”
- *Temperature Range*
  -450°F to 1500°F (-265°C to 815°C)
- *Oxygen Service*
  Cleaned to CGA G4.1 specifications

Ordering Information

Part No.	Connections	Length (Weight)
529-0245	CGA 440 (5/8” Flare) Liquid Oxygen	48 inches (2.2 pounds)
529-0246	CGA 440 (5/8” Flare) Liquid Oxygen	60 inches (2.8 pounds)
529-0247	CGA 440 (5/8” Flare) Liquid Oxygen	72 inches (3.4 pounds)
529-0248	CGA 440 (5/8” Flare) Liquid Oxygen	120 inches (5.8 pounds)
529-0249	CGA 440 (5/8” Flare) Liquid Oxygen	144 inches (7.0 pounds)
529-0250	CGA 295 (½” Flare) Liquid Nitrogen and Argon	48 inches (2.2 pounds)
529-0251	CGA 295 (½” Flare) Liquid Nitrogen and Argon	60 inches (2.8 pounds)
529-0252	CGA 295 (½” Flare) Liquid Nitrogen and Argon	72 inches (3.4 pounds)
529-0253	CGA 295 (½” Flare) Liquid Nitrogen and Argon	120 inches (5.8 pounds)
529-0254	CGA 295 (½” Flare) Liquid Nitrogen and Argon	144 inches (7.0 pounds)

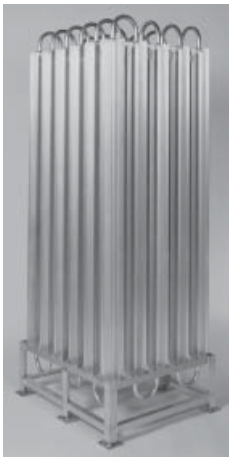
Vaporizers

Features

- *Severe Thermal Cycling Design*
  Satisfies demands of ANSI B31.3
- *Wind Load Design to 100 mph*
  Withstands high wind loads per UBC Chapter 23
- *Seismic/Earthquake Design*
  Mandatory in some states per UBC Chapter 23
- *Clean for Oxygen Service*
  Safe use
- *750 PSIG Test Pressure*
  Reliable delivery of assist gases

Specifications

- *Max Operating Pressure*
  600 PSIG (42 BAR)
- *Inlet Connection*
  ¾” MPT
- *Outlet Connection*
  ¾” MPT
- *Weight (550-0751 and 550-0752)*
  250 pounds (15.9 kg)
- *Weight (550-0753)*
  300 pounds (136.4 kg)



Ordering Information

Part Number	Nitrogen and Oxygen Service Rating (SCFH)							Dimensions
Vaporizer	8-24 Hour	3 Day	5-7 Day	10 Day	2 Weeks	18-21 Day	Total Draw	Length x Width x Height (inches)
550-0752	2150	1600	1350	1100	900	675	200 MSCF	21 x 21 x 165
550-0753	3185	2400	2000	1600	1350	1000	288 MSCF	21 x 33 x 147
550-0754	4250	3200	2670	2140	1785	1350	383.5 MSCF	21 x 45 x 147
550-0755	6500	5050	4175	3200	2670	2140	1785 MSCF	21 x 65 x 147

Fittings and Adaptors

Materials and Specifications

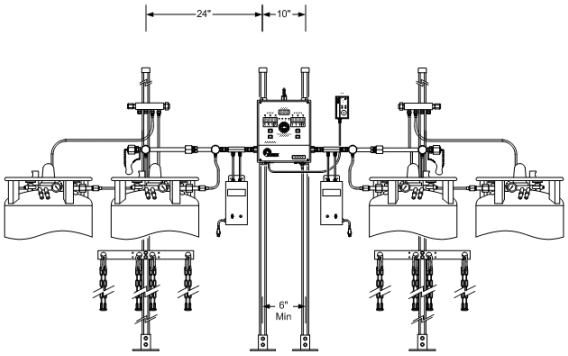
- *Temperature Range*
  -450°F to 1500°F (-265°C to 815°C)
- *Oxygen Service*
  Cleaned to CGA G4.1 specifications
- *Weight*
  1.5 ounces (550-0760 and 550-0761)
  1.5 ounces (550-0763)
  3.0 ounces (550-0762 and 550-0764)

Ordering Information

Part Number	Description	Connections	Body Material
529-0019	½" x ½" Manifold Connector	½" MPT x ½" MPT (3,000 PSIG max)	Stainless Steel
529-0024	½" x ¼" Manifold Connector	½" MPT x ¼" MPT (3,000 PSIG max)	Stainless Steel
529-0224	¼" x ¼" Manifold Connector	½" MPT x ¼" MPT (3,000 PSIG max)	Stainless Steel
550-0760	Male pipe to male tube	½" MPT x CGA 295 (liquid nitrogen and argon)	Brass
550-0761	Male pipe to male tube	" MPT x CGA 440 (liquid oxygen)	Brass
550-0762	90° elbow extension	CGA 440 x CGA 440 (liquid oxygen)	304 Stainless Steel
550-0764	90° elbow extension	CGA 295 x CGA 295 (liquid nitrogen and argon)	304 Stainless Steel
829-1839	Union Gland	½" MPT (3,000 PSIG max)	Brass
829-1840	Union Nut	1" (3,000 PSIG max)	Brass
830-6498	Union Connector	½" MPT (3,000 PSIG max)	Brass
830-6163	Reducing Adapter	½" MPT x ¼" FPT (3,000 PSIG max)	Brass
830-6164	Reducing Adapter	½" MPT x ¼" FPT (4,500 PSIG max)	Stainless Steel
830-9805	Reducing Adapter	½" MPT x " FPT (3,000 PSIG max)	Brass
830-6155	½" Tee	½" FPT (3,000 PSIG max)	Brass
830-6499	½" Male Nipple	½" MPT x " (3,000 PSIG max)	Brass

Manifold Floor Stands

CONCOA floor stands provide a convenient method to mount switchovers and manifolds where a permanent structure is unavailable. Each model comes with the necessary hardware to safely secure cylinders that otherwise are unable to support themselves. Models 518-1625 and 518-1725 offer a unique header plate to mount single cylinder per side switchover configurations.



Ordering Information

Part Number	Description	Dimensions (LxWxH)
518-1625	Single Switchover Floor Stand with Storage for Two 12" Cylinders	28" x 12" x 72"
518-1725	Multiple Switchover Floor Stand with Storage for Six 12" Cylinders	24" x 48" x 72"
830-7437	Manifold Extension Floor Stand Designed to Provide Support Every 24" from a Pressure Control Device	Base 6" x 6", Height 84"
830-7439	Switchover Floor Stand Designed to Provide Support with Dual Vertical Posts	Base 12" x 12" minimum, Height 84"

Materials and Specifications

- *Materials of Construction*
  Plated steel
- *Dimensions (830-7437)*
  12" x 12" (base)
  7' (height)
- *Dimensions (830-7439)*
  12" x 24" (base)
  7' (height)

Reference

Liquid Cylinder General Specifications

Always consult the equipment manufacturer

Dimensions					
Diameter	20 in. (51 cm)	20 in. (51 cm)	20 in. (51 cm)	22 in. (56 cm)	26 in. (66 cm)
Height	61 3/8 in. (156 cm)	64 5/8 in. (164 cm)	64 3/4 in. (164 cm)	60.25 in.(153 cm)	58 1/8 in. (148 cm)
Weight					
Empty	272 lbs (123 kg)	284 lbs. (129 kg)	310 lbs. (141 kg)	312 lbs. (142 kg)	465 lbs. (21 kg)
Liquid Capacity					
Maximum	46.5 gals. (176 L)	50 gals. (188 L)	50 gals. (188 L)	55 gals. (209 L)	65.25 gals. (247 L)
Usable	43.5 gals. (165 L)	46.5 gals. (176 L)	46.5 gals. (176 L)	52 gals. (196 L)	63.5 gals. (240 L)
Gas Withdrawal Rate					
Oxygen	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)
Nitrogen	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)
Argon	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)	350 SCFH (10 m^3/h)
Carbon Dioxide	150 SCFH (4.25 m^3/h)	150 SCFH (4.25 m^3/h)	150 SCFH (4.25 m^3/h)	150 SCFH (4.25 m^3/h)	150 SCFH (4.25 m^3/h)
Gaseous Capacity					
Oxygen	4350 ft^3 (123 m^3)	4651 ft^3 (132 m^3)	4397 ft^3 (124 m^3)	5170 ft^3 (146 m^3)	6100 ft^3 (173 m^3)
Nitrogen	3478 ft^3 (98 m^3)	3712 ft^3 (105 m^3)	3312 ft^3 (94 m^3)	4126 ft^3 (117 m^3)	4871 ft^3 (138 m^3)
Argon	4236 ft^3 (120 m^3)	4516 ft^3 (128 m^3)	4285 ft^3 (121 m^3)	5029 ft^3 (142 m^3)	5938 ft^3 (168 m^3)
Carbon Dioxide	3383 ft^3 (96 m^3)	3619 ft^3 (102 m^3)	3330 ft^3 (94 m^3)	4121 ft^3 (117 m^3)	4511 ft^3 (128 m^3)
Pressure Relief Setting	350 PSIG (25 BAR)	350 PSIG (25 BAR)	500 PSIG (35 BAR)	350 PSIG (25 BAR)	350 PSIG (25 BAR)

Flow Conversions

	cm^3/min	cm^3/sec	ft^3/hr	ft^3/min	m^3/hr	m^3/min	L/hr	L/min
				Multiply By				
cm^3/min	--------	1.66×10^{-2}	2.12×10^{-3}	3.53×10^{-5}	6×10^{-5}	1×10^{-6}	6.0×10^{-2}	1×10^{-2}
cm^3/sec	6×10^{1}	--------	1.27×10^{-1}	2.12×10^{-3}	3.6×10^{-3}	6×10^{-5}	3.6×10^{0}	6×10^{-2}
ft^3/hr	4.72×10^{2}	7.87×10^{1}	--------	1.67×10^{-2}	2.83×10^{-2}	4.72×10^{-4}	2.83×10^{1}	4.72×10^{-1}
ft^3/min	2.83×10^{4}	4.72×10^{2}	6.0×10^{1}	--------	1.7×10^{1}	2.83×10^{-2}	1.7×10^{-2}	2.83×10^{1}
m^3/hr	1.67×10^{4}	2.78×10^{2}	3.53×10^{1}	5.89×10^{-2}	--------	1.67×10^{-2}	1×10^{3}	1.67×10^{1}
m^3/min	1×10^{6}	1.67×10^{4}	2.12×10^{3}	3.53×10^{1}	6.0×10^{1}	--------	6.0×10^{4}	1×10^{3}
L/hr	1.67×10^{1}	2.78×10^{-1}	3.53×10^{-2}	5.89×10^{-4}	1×10^{-3}	1.67×10^{-5}	--------	1.67×10^{-2}
L/min	1×10^{3}	1.67×10^{1}	2.12×10^{0}	3.53×10^{-2}	6.0×10^{-2}	1×10^{-3}	6.0×10^{1}	--------

Temperature Conversions

	°C	°F	°K	°R
	Multiply By			
°C + 17.78	--------	1.8	--------	--------
°C + 273.16	--------	--------	1	--------
°F - 32	0.55556	--------	--------	--------
°F + 459.72	--------	--------	--------	1
°K + 273.16	1	--------	--------	--------
°R - 459.72	--------	1	--------	--------

Scientific Notation

Notation	Equivalent	Notation	Equivalent
1×10^{10}	10,000,000,000	1×10^{-1}	0.1
1×10^{9}	1,000,000,000	1×10^{-2}	0.01
1×10^{8}	100,000,000	1×10^{-3}	0.001
1×10^{7}	10,000,000	1×10^{-4}	0.0001
1×10^{6}	1,000,000	1×10^{-5}	0.00001
1×10^{5}	100,000	1×10^{-6}	0.000001
1×10^{4}	10,000	1×10^{-7}	0.0000001
1×10^{3}	1,000	1×10^{-8}	0.00000001
1×10^{2}	100	1×10^{-9}	0.000000001
1×10^{1}	10	1×10^{-10}	0.0000000001

Reference

Length

	Å	cm	ft	in	m	micron	mm	yd
Multiply By								
Å	--------	1×10^{-8}	3.28×10^{-9}	3.93×10^{-9}	1×10^{-10}	1×10^{-4}	1×10^{-7}	1.09×10^{-10}
cm	1×10^{8}	--------	3.28×10^{-2}	3.94×10^{-1}	1×10^{-2}	1×10^{4}	10	1.09×10^{-2}
ft	3.04×10^{9}	3.048×10^{1}	--------	1.2×10^{1}	3.04×10^{-1}	3.04×10^{5}	3.04×10^{2}	3.33×10^{-1}
in	2.54×10^{8}	2.54×10^{0}	8.33×10^{-2}	--------	2.54×10^{2}	2.54×10^{4}	2.54×10^{1}	2.77×10^{2}
m	1×10^{10}	1×10^{2}	3.281×10^{0}	3.93×10^{1}	--------	1×10^{6}	1×10^{3}	1.09×10^{0}
micron	1×10^{4}	1×10^{-4}	3.28×10^{-6}	3.93×10^{-5}	1×10^{-6}	--------	1×10^{-3}	1.09×10^{-6}
mm	1×10^{7}	1×10^{-3}	3.28×10^{-3}	3.93×10^{-2}	1×10^{-2}	1×10^{3}	--------	1.09×10^{-3}
yd	9.14×10^{9}	9.14×10^{1}	3×10^{0}	3.6×10^{1}	9.14×10^{-1}	9.14×10^{5}	9.14×10^{2}	--------

Pressure

	atm	BAR	Ft of H_2O	in of Hg	in of H_2O	kg/cm^2	kPa	mm of Hg	PSI
Multiply By									
atm	--------	1.013	33.932	29.921	407.183	1.033	101.317	760	14.696
BAR	0.987	--------	33.488	29.530	401.859	1.019	100	750.062	14.504
Ft. of H_2O	0.029	0.029	--------	0.883	12	0.030	2.989	22.419	0.433
in of Hg	0.033	0.034	1.134	--------	13.6	0.035	3.377	25.4	0.491
in of H_2O	0.002	0.002	0.083	0.074	--------	0.003	0.025	1.868	0.036
kg/cm^2	0.968	0.981	32.808	28.959	393.701	--------	98.039	735.559	14.223
kPa	0.009	0.010	0.335	0.296	4.015	0.010	--------	7.501	0.145
mm of Hg	0.001	0.001	0.045	0.039	0.535	0.001	0.133	--------	0.019
PSI	0.06805	0.06895	2.3089	2.0360	27.7085	0.07031	6.89465	51.175	--------

Volume

	cm^3 (ml)	ft^3	in^3	m^3	US gal.	L
Multiply By						
cm^3 (ml)	--------	3.53×10^{-5}	6.10×10^{-2}	1×10^{-6}	2.56×10^{-3}	1×10^{-3}
ft^3	2.83×10^{4}	--------	1.73×10^{3}	2.83×10^{-2}	7.48	2.83
in^3	1.64	5.79×10^{-6}	--------	1.64×10^{-5}	4.33×10^{-3}	1.64×10^{-2}
m^3	1×10^{6}	3.53	6.10×10^{4}	--------	2.64×10^{2}	1×10^{3}
US gal.	3.79×10^{3}	1.34×10^{-1}	2.31×10^{2}	3.79×10^{-3}	--------	3.79
L	1×10^{3}	3.54×10^{-1}	6.10×10^{1}	1×10^{-3}	2.64×10^{-1}	--------

Concentration

Concentration	Equivalent
1,000,000 ppm	100%
100,000 ppm	10%
10,000 ppm	1%
1,000 ppm	0.1%
100 ppm	0.01%
10 ppm	0.001%
1 ppm	0.0001%
1,000 ppb	1 ppm
100 ppb	0.1 ppm
10 ppb	0.001 ppm