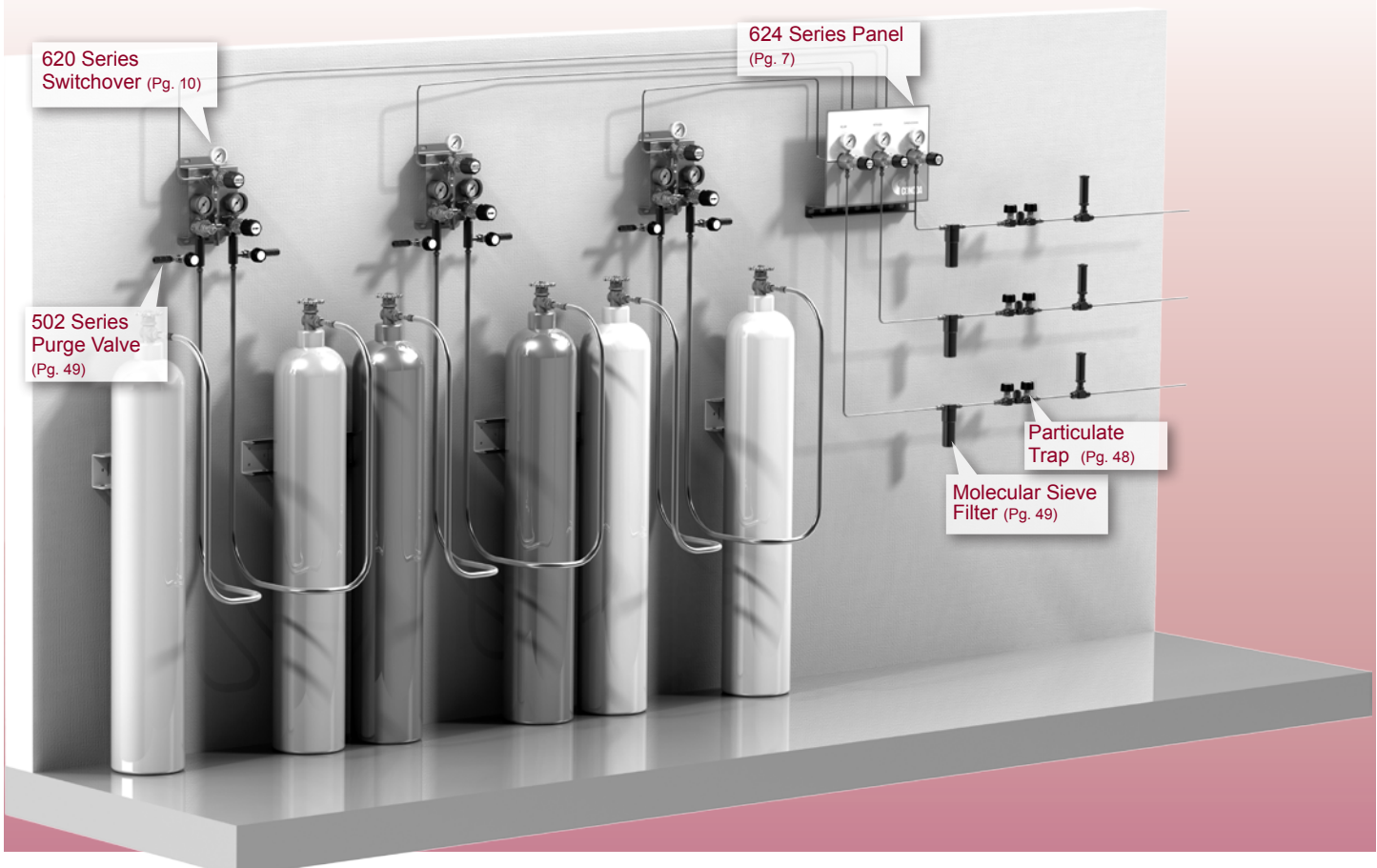


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CONCOA laser gas controls are designed to meet the unique requirements of carbon dioxide lasers that use a gas mixture of helium, nitrogen, and CO₂. The lasing principles are similar for all CO₂ lasers. Different designs employ various methods of exciting 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 contaminants reduces power output and distorts beam quality. Out-gassing is the process in which the material (such as a neoprene regulator diaphragm) releases contaminants such as plasticizers into the gas stream. 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

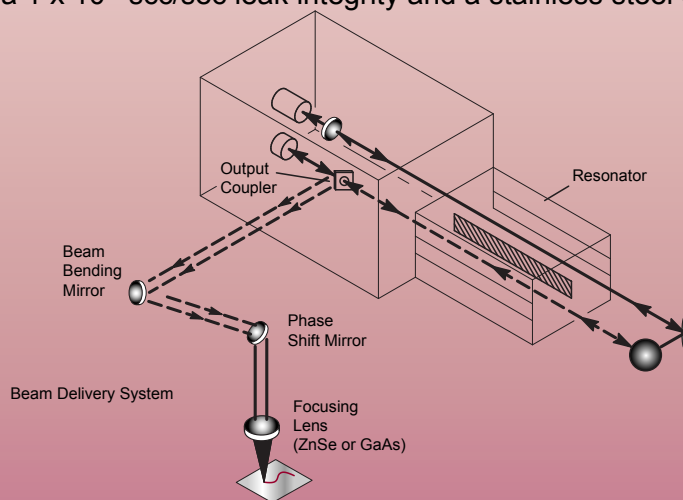
The beam delivery system is comprised of a mechanical bellows that provides a clean, dry atmosphere for the beam after it leaves the resonator output coupler to be transferred by reflective optics to the work piece. The laser beam itself must be protected when being transmitted from one mirror to another. 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

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 1×10^{-8} scc/sec leak integrity and a stainless steel diaphragm.



Assist Gas System

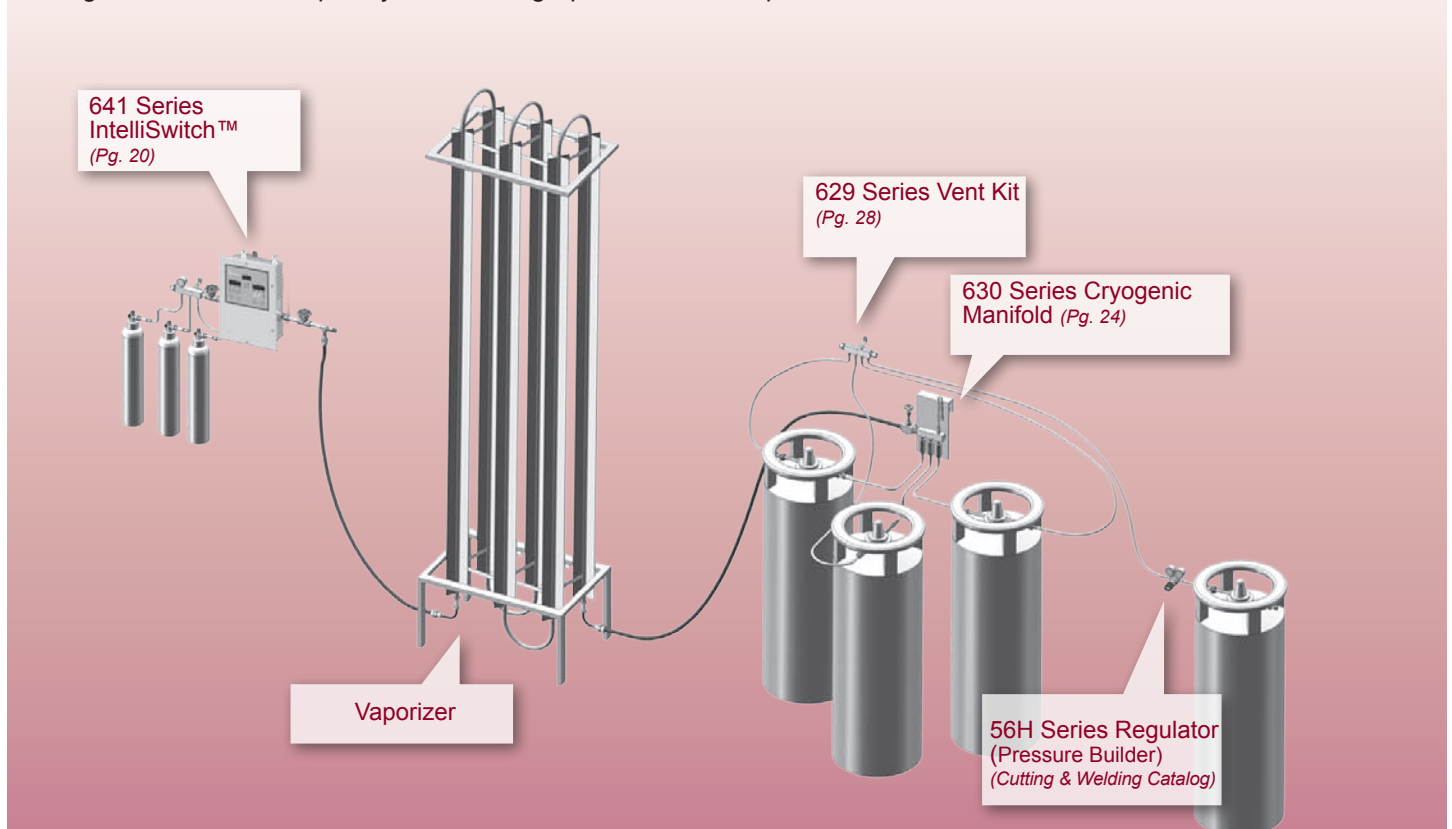
CONCOA process gas systems enhance the performance of lasers used in cutting, welding, cladding, and marking applications. The type of gas will vary according to the process material. To achieve the best performance, the process gas must be delivered instantaneously and precisely at the specified pressures 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 gas 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 CO₂ 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 be cut with either oxygen or nitrogen. Oxygen will "burn" the cut edge while nitrogen will leave nitrides 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; 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 1×10^{-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 and 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 and 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 regulators are 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.



625 SERIES

Resonator Gas Supply

625 SERIES LASER GAS STATION



6255265-01-1 shown

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 3- or 6-foot long, flexible hose with armor casing.

Advanced Features & Specifications

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
GAS BLOCK	Brass barstock
HOSE	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® or EPDM
MAXIMUM INLET PRESSURE	3000 PSIG (210 BAR)
TEMPERATURE RANGE	-40 to 140°F (-40 to 60°C)
WEIGHT (5260 LESS HOSE)	8.3 lbs. (2.76 kg)

Ordering Information

Part Number	Description
625526X-01-1 or 625526X-01-72	5260 Series Liquid Cylinder Regulator, Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose. Replace the "X" with the last number of the regulator required. -72 indicates 72" (1800mm) hose instead of 36" (900mm)
625527X-01-1	5270 Series Dual Stage Regulator, Flowmeter Regulator Gas Station with 36" (900mm) armor-jacketed, stainless steel hose.
8307706-01-1	Laser Gas Station with 72" (1800mm) armor-jacketed, stainless steel hose and CGA 540 connection. (Regulator sold separately.)
8307707-01-1	Laser Gas Station with 72" (1800mm) armor-jacketed, stainless steel hose and CGA 580 connection. (Regulator sold separately.)
8307708-01-1	Laser Gas Station with 72" (1800mm) armor-jacketed, stainless steel hose and CGA 320 connection. (Regulator sold separately.)
8307709-01-1	Laser Gas Station with 72" (1800mm) armor-jacketed, stainless steel hose and CGA 350 connection. (Regulator sold separately.)
8307710-01-1	Laser Gas Station with 72" (1800mm) armor-jacketed, stainless steel hose and CGA 590 connection. (Regulator sold separately.)
8307334-01-1	Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose and CGA 540 connection. (Regulator sold separately.)
8307335-01-1	Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose and CGA 580 connection. (Regulator sold separately.)
8307336-01-1	Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose and CGA 320 connection. (Regulator sold separately.)
8307340-01-1	Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose and CGA 350 connection. (Regulator sold separately.)
8307342-01-1	Laser Gas Station with 36" (900mm) armor-jacketed, stainless steel hose and CGA 590 connection. (Regulator sold separately.)

Resonator

Gas Supply

624 SERIES

624 SERIES GAS PANELS



6242112-01-001 shown

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

Advanced Features & Specifications

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 REAL INLET CONNECTIONS	Maximum installation flexibility
BODIES	Brass barstock
DIAPHRAGMS	316L stainless steel
SEATS	PTFE
FILTERS	10-micron sintered bronze
WEIGHT	10.5 lbs. (4.73 kg)
MAXIMUM INLET PRESSURE	3000 PSIG (210 BAR)
TEMPERATURE RANGE	-40 to 140°F (-40 to 60°C)
GAUGES	2" diameter chrome-plated brass
HELIUM LEAK INTEGRITY	1 x 10 ⁻⁸ scc/sec
CV	0.1

Ordering Information

624	A	B	C	D
Series 624	Max Outlet Pressure	Inlet Connection	Outlet	Assembly/Gauges
	1: 30 PSIG (2 BAR)	0: ¼" FPT port	0: ¼" FPT port	1: Standard assembly (PSIG/kPA)
	2: 100 PSIG (7 BAR)	1: ¼" stainless steel compression tube	1: ¼" stainless steel compression tube	2: Standard assembly (BAR/PSIG)
	4: 200 PSIG (14 BAR)	2: 36" (900mm) flexible 316 stainless steel hose		
		3: Diaphragm valve with ¼" NPT		
		4: Diaphragm valve with stainless steel compression tube		
		5: Diaphragm valve with inlet tee purge		

621 SERIES

Resonator Gas Supply

621 SERIES AUTOSWITCH



6213000-01-001 shown

The 621 Series Laser Gas Switchover system provides continuous gas delivery from 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 through lights on the front panel 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 BRASS 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

Internal Seals PTFE
Pressure Gauges Brass (socket) Bronze (bourdon tube) Stainless steel (case)
Check Valves Brass with Viton® seals

Specifications

Maximum Inlet Pressure 3000 PSIG (210 BAR) 4500 PSIG (310 BAR)
Temperature Range -40°F to 140°F (-40°C to 60°C)
Maximum Flow (Nitrogen) 600 SCFH (283 lpm) @ 100 PSIG (7 BAR)
Inlet Connection ½" FPT
Outlet Connection ¼" stainless steel compression tube
Helium Leak Integrity 1 x 10 ⁻⁹ scc/sec
Weight 40 lbs. (18 kg)

Resonator

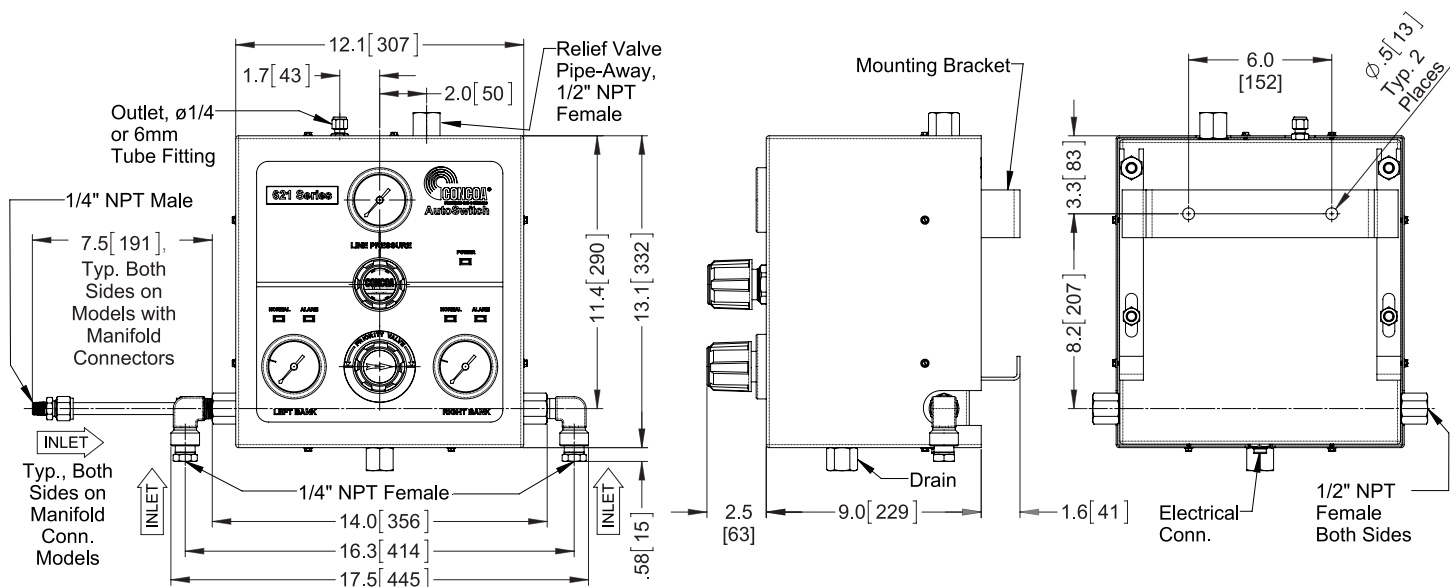
Gas Supply

Resonator

Gas Supply

621 SERIES

Installation Dimensions



Ordering Information

621	A	B	C	D	CON	Options
Series 621	Max Delivery Pressure	Inlet Connection	Cylinders Per Side	Max Inlet Pressure	Inlet	Installed Options
	3: 100 PSIG (7 BAR)	0: ¼" FPT port*	0: 1 cylinder (¼" FPT inlet)	0: 3000 PSIG (210 BAR) with alarm capability	Please specify inlet connection CGA DIN 477 BS 341 and others available	C: Compact manifolds
	5: 350 PSIG (14 BAR)	1: Manifold connector†	1: 1 cylinder ‡	1: 3000 PSIG (210 BAR) with Advantium 2 alarm		M: 6mm tube fitting outlet
	7: 150 PSIG (10 BAR)	2: Manifold connector with master valves†	2: 2 cylinders	8: 4500 (310 BAR) with alarm capability		N: Compact manifold and 6mm tube fitting outlet
		3: Diaphragm valve with ¼" FPT port*†	3: 3 cylinders			
		6: Tea purge and diaphragm valve with ¼" FPT port†	4: 4 cylinders			
		7: Tee purge and diaphragm valve with manifold connector †	5: 5 cylinders			
			6: 6 cylinders			

*Valid with C=0 or C=1

†Manifold connector required with multiple cylinders per side. Each manifold station includes a 36" (900mm) stainless steel-lined hose.

‡Includes 36" (900mm) stainless steel-lined hoses if manifold connectors are not selected.

Available Options

Advantium 8	5295310-01-001 (110 Volt) 5295311-01-001 (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.
Advantium 2	5750023-01-000 (110/220 Volt)	Remote alarm (universal input) provides audible remote alarm for a single 621 Switchover.
Vent Extension Kit	8299962	Four cylinder vent manifold extension block with mounting hardware
Manifold Floor Stand	8307437	Single manifold floor stand provides support for up to two consecutive manifold extensions
Floor Stand	8307439	AutoSwitch floor stand

620 SERIES

Resonator Gas Supply

620 SERIES SWITCHOVER



6203008-01-000 shown

The 620 Series Laser Gas Switchover is an automatic system designed to provide a continuous supply of laser purity gas. The system comes with either flexible hoses 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 HOSE** Prevents contamination and backflow

Applications	Materials	Specifications
Laser Pure Resonator Gases Helium Nitrogen Carbon Dioxide	Bodies Brass barstock Diaphragms 316L stainless steel Seats PTFE Filters 10-micron sintered bronze Internal Seals PTFE	Maximum Inlet Pressure 3000 PSIG (210 BAR) Temperature Range -40°F to 140°F (-40°C to 60°C) Gauges 2" (50mm) diameter dual-scale brass Outlet Connection ¼" stainless steel compression tube Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec Cv 0.2
Laser Mixed Resonator Gases Three gas premix Four gas premix Five gas premix		

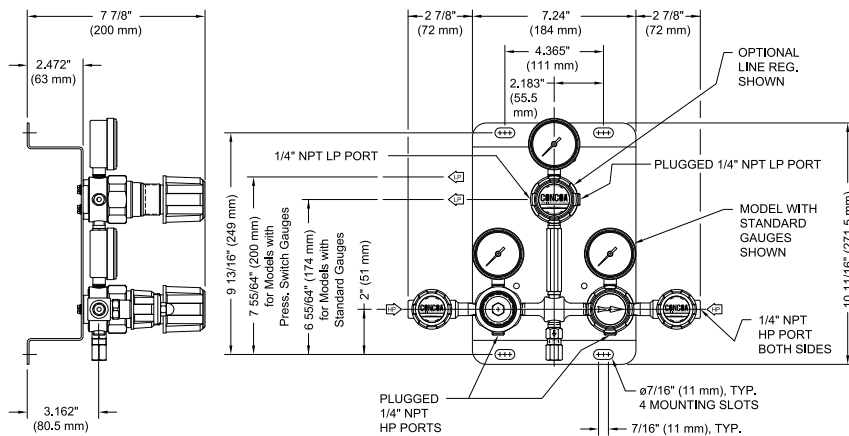
Resonator

Gas Supply

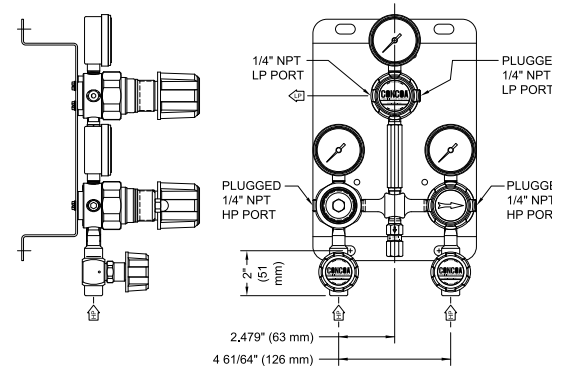
620 SERIES

Installation Dimensions

Diaphragm Valves on Side Ports



Diaphragm Valves on Bottom Ports



Ordering Information

620	A	B	C	D	CON	Options
Series 620	Max Delivery Pressure	Inlet Connection	Cylinders Per Side	Assembly/Gauges	Inlet	Installed Options
	2: 70 PSIG (5 BAR)	0: 1/4" FPT port	0: 1 cylinder (1/4" FPT inlet)	2: No line regulator (BAR/PSIG gauges) and no alarm capability	Please specify inlet connection CGA DIN 477 BS 341 and others available	C: Compact manifolds
	3: 100 PSIG (7 BAR)	1: Manifold connector	1: 1 cylinder†	3: No line regulator (BAR/PSIG gauges) and with alarm capability		M: 6mm tube fitting outlet
	4: 200 PSIG (14 BAR)	2: Manifold connector with master valves*	2: 2 cylinders	7: Line regulator (BAR/PSIG gauges) and with alarm capability		N: Compact manifolds and 6mm tube fitting outlet
		3: Diaphragm valve (with 1/4" FPT port)	3: 3 cylinders	8: Line regulator (BAR/PSIG gauges) and no alarm capability		
		6: Tee purge & diaphragm valve (with 1/4" FPT port)	4: 4 cylinders			
		7: Tee purge & diaphragm valve (with manifold connector)	5: 5 cylinders			
			6: 6 cylinders			
			7: 7 cylinders			
			8: 8 cylinders			
			9: 9 cylinders			

*Manifold connector required with multiple cylinders per side. Each manifold station includes a 36" (900mm) stainless steel-lined hose.

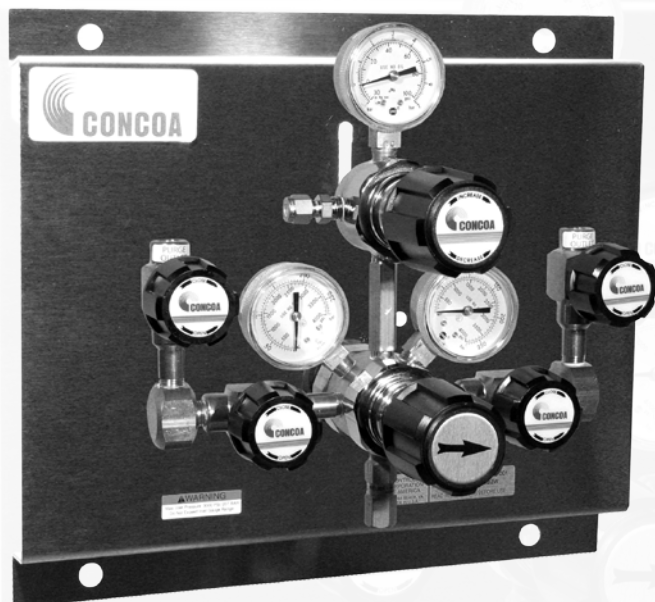
†Includes 36" (900mm) stainless steel-lined hoses if manifold connectors are not selected

Available Options

Option	Part No.	Description
Advantium 8	5295310-01-001 (110 Volt) 5295311-01-001 (220 Volt)	Remote alarm provides power for indicator lights up to four 620 Switchovers, audible and visual alarm at remote unit, RS-232 computer interface, and supports optional telephone dialers.
Advantium 2	5750023 (110/220 Volt)	Remote alarm (universal input) provides audible remote alarm for a single 620 Switchover.
Vent Extension Kit	8299962	Four cylinder vent manifold extension block with mounting hardware
Manifold Floor Stand	8307437	Single manifold floor stand provides support for up to two consecutive manifold extensions
Floor Stand	8307439	AutoSwitch floor stand

619 SERIES Resonator Gas Supply

619 SERIES SWITCHOVER



6192001-01-001M shown

The 619 Series is an automatic pressure differential switchover that delivers a continuous supply of resonator gas without compromising purity. Low internal volume coupled with an optional inlet micro-purge virtually eliminates gas contamination. In addition, the stainless steel diaphragms and double seal relief valve enable the 619 to achieve 1×10^{-8} He cc/sec leak integrity.

Advanced Features

MACHINED BRASS BARSTOCK BODY	Smooth surface finish
LOW WETTED SURFACE AREA	Minimal purge requirements
CONVOLUTED 316L DIAPHRAGM	No inboard diffusion
OPTIONAL MICRO-PURGE	Low dead volume space
INTERNAL 10-MICRON FILTRATION	Low particulate
METAL TO METAL SEALS	No leaks
DOUBLE SEAL RELIEF	No permeation
OPTIONAL INTEGRAL DUAL MANIFOLD	Small foot print

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

Body

Machined brass barstock

Bonnet

Machined brass barstock

Seat

PTFE
PCTFE

Filter

10-micron sintered bronze

Diaphragm

316L stainless steel

Specifications

Maximum Inlet Pressure

3000 PSIG (210 BAR)
4500 PSIG (310 BAR)

Temperature Range

-40°F to 140°F (-40°C to 60°C)

Gauges

2" (50mm) diameter BAR/PSIG

Inlet Connection

1/4" FPT

Helium Leak Integrity

1×10^{-9} scc/sec

CV

0.1

Weight

8.25 lbs. (3.71 kg)

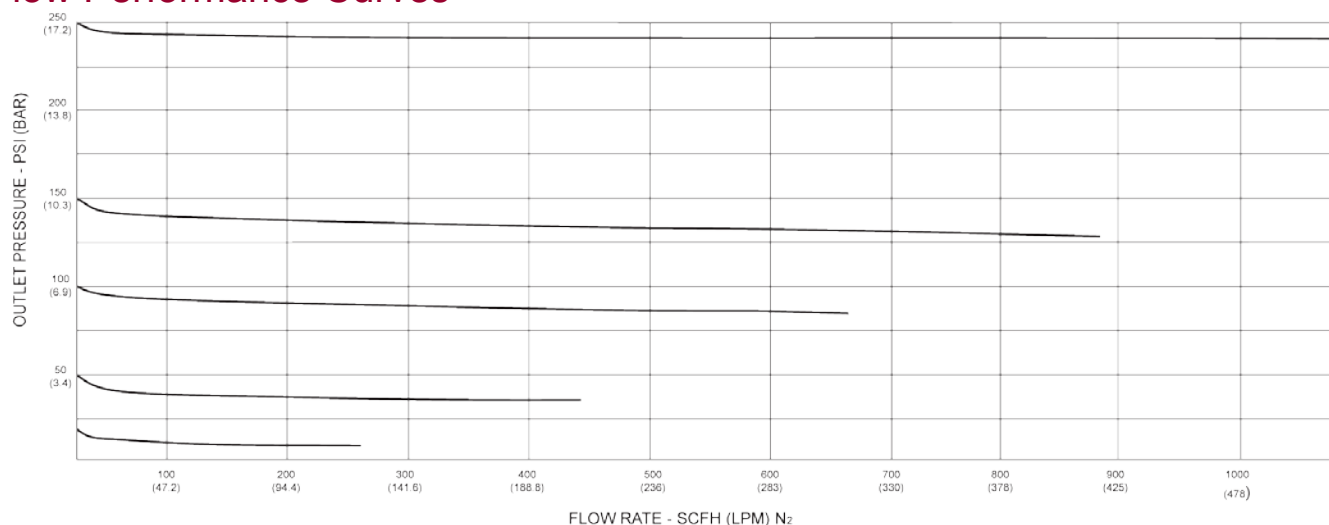
Resonator

Gas Supply

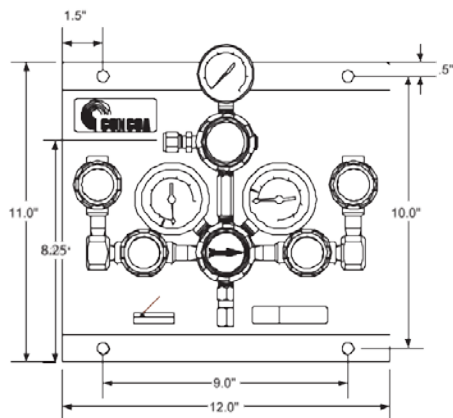
619 SERIES

Resonator Gas Supply

Flow Performance Curves



Installation Dimensions



Ordering Information

619	A	B	C	D	CON	Options
Series 619	Max Delivery Pressure	Inlet Connection	Cylinders Per Side	Assembly/Gauges	Inlet	Installed Options
	2: 50 PSIG (3.4 BAR)	0: 1/4" FPT port	0: 1 cylinder (1/4" FPT inlet)	1: Line Regulator 3000 PSIG (210 BAR) No Alarm Capability	Please specify inlet connection	M: 6mm tube fitting outlet
	3: 100 PSIG (7 BAR)	1: Diaphragm valve (with 1/4" FPT inlet port)	1: 1 cylinder (hose inlets)	4: Line Regulator 3000 PSIG (210 BAR) with Alarm Capability		

Available Options

Option	Part No.	Description
Advantium 8	5295310-01-001 (110 Volt) 5295311-01-001 (220 Volt)	Remote alarm provides power for indicator lights up to four 619 Switchovers, audible and visual alarm at remote unit, RS-232 computer interface, and supports optional telephone dialers.
Advantium 2	5750023-01-000 (110/220 Volt)	Remote alarm (universal input) provides audible remote alarm for a single 619 Switchover.
Single Switchover Stand	5181625	Appropriate support for a single switchover with one cylinder per side.
Multi Switchover Stand	5181725	Appropriate support for three switchovers with one cylinder per side.

601 SERIES Resonator Gas Supply

601 SERIES REGULATOR



6012324-01-320 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.

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

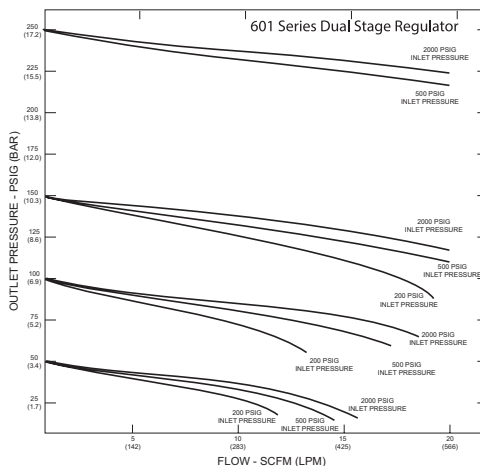
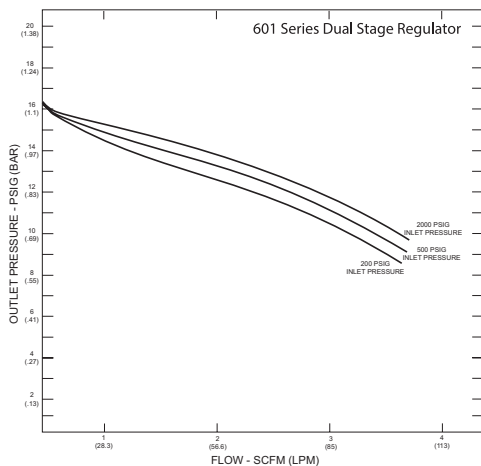
Applications	Materials	Specifications
Laser Pure Resonator Gases Helium Nitrogen Carbon Dioxide	Bodies Machined brass barstock Bonnet Chrome-plated die cast zinc	Maximum Inlet Pressure 3000 PSIG (210 BAR) 4500 PSIG (310 BAR) Temperature Range -40°F to 140°F (-40°C to 60°C) Gauges 2" (50mm) diameter dual-scale
Laser Mixed Resonator Gases Three gas premix Four gas premix Five gas premix	Seats PTFE Filters 10-micron sintered bronze	Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec Cv 0.1
Laser Purging Gases Zero Air Nitrogen	Diaphragm 316L stainless steel	Weight 4.8 lbs. (2.16 kg)
Maintenance Nitrogen		

Resonator

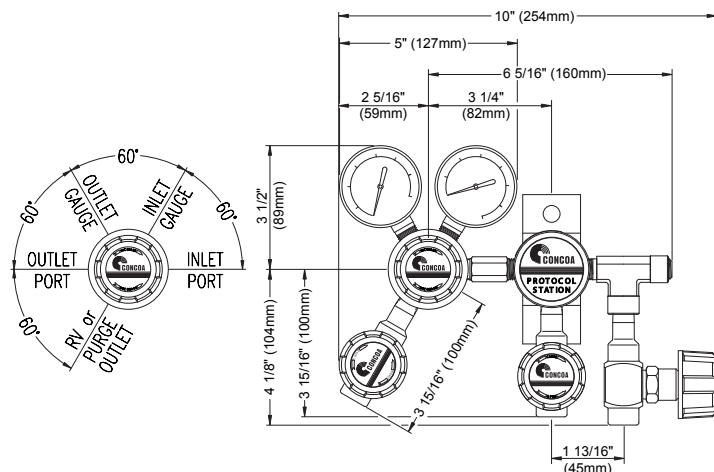
Gas Supply

601 SERIES

Flow Performance Curves



Installation Dimensions



Shown with optional purge and laser gas switchover station.

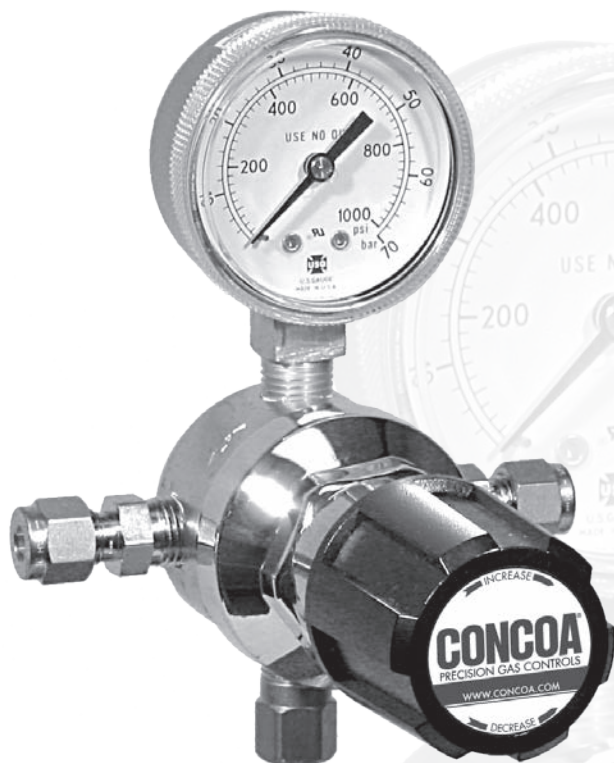
Ordering Information

601	A	B	C	D	CON	Options	
Series 601	Outlet Pressure	Outlet Gauge	Inlet Gauge	Outlet Assemblies	Assembly/Gauges	Inlet	Installed Options
	1: 0-50 PSIG (0-3.5 BAR)	0-100 PSIG (0-7 BAR)	0: None	0: ¼" FPT port	1: Standard assembly (PSIG/kPA gauges)	000: ¼" FPT	B: Laser gas alarm station†
	2: 0-100 PSIG (0-7 BAR)	0-200 PSIG (0-14) BAR	3: 0-4000 PSIG (0-275 BAR)	1: ¼" MPT	2: Standard assembly (BAR/PSIG gauges)	TF2: ⅛" tube	C: Laser gas switchover station
	3: 0-150 PSIG (0-10 BAR)	0-200 PSIG (0-14) BAR	8: 0-6000 PSIG (0-405 BAR)	2: ¼" tube fitting	3: Integral purge (PSI/kPA gauges)	TF4: ¼" tube	M: Laser gas station
	4: 0-250 PSIG (0-17 BAR)	0-400 PSIG (0-27 BAR)		6: ⅝" tube fitting	4: Integral purge (BAR/PSIG gauges)	TF6: ⅝" tube	N: Regulator CGA check valve*
				7: ⅝" BSP right hand fitting	5: Integral purge with fitting* (PSIG/kPA gauges)	M06: 6mm tube	P: Inlet pressure cycle purge†
				A: ⅝" BSP right hand fitting	6: Integral purge with fitting* (BAR/PSIG gauges)	CGA DIN 477	*Valid with CGA cylinder connections
				M: 6mm tube fitting	8: Integral purge with muffler (PSIG/BAR gauges)*	BS 341 and others available	†Not valid with 4500 PSIG (300 BAR) max inlet
					9: Integral purge with muffler (BAR/PSIG gauges)		

*Fitting matches outlet assembly

5230 SERIES Resonator Gas Supply

5230 SERIES REGULATOR



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 tolerated.

Advanced Features

BRASS BARSTOCK BODY	Smooth surface finish
REAR PANEL MOUNTABLE	Easy installation
PRESSURE RANGES 0-100 TO 0-500 PSIG (0-7 BAR TO 0-34 BAR)	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

8065230-01-1 shown

Materials

Laser Gases from Pipeline

Nitrogen
Helium
Carbon Dioxide

Shielding Gases for Laser

Argon
Helium

Body

Brass barstock

Bonnet

Chrome-plated die cast zinc

Seat

PTFE

Filter

10-micron sintered bronze

Diaphragm

316 stainless steel

Internal Seals

PTFE

Specifications

Maximum Inlet Pressure

3000 PSIG (210 BAR)

Temperature Range

-40°F to 140°F (-40°C to 60°C)

Gauge

2" (50mm) diameter dual-scale brass

Ports

1/4" FPT

Helium Leak Integrity

1 x 10⁻⁸ scc/sec

CV

0.2

Weight

2.8 lbs. (2.16 kg)

Inlet

1/4" stainless steel compression tube fitting

Outlet

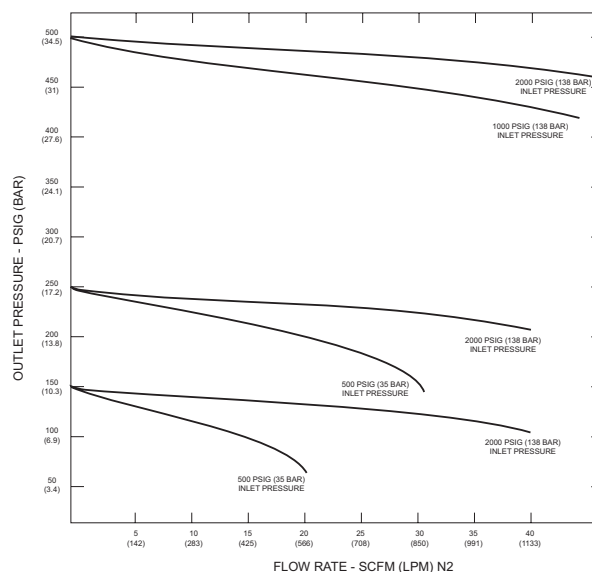
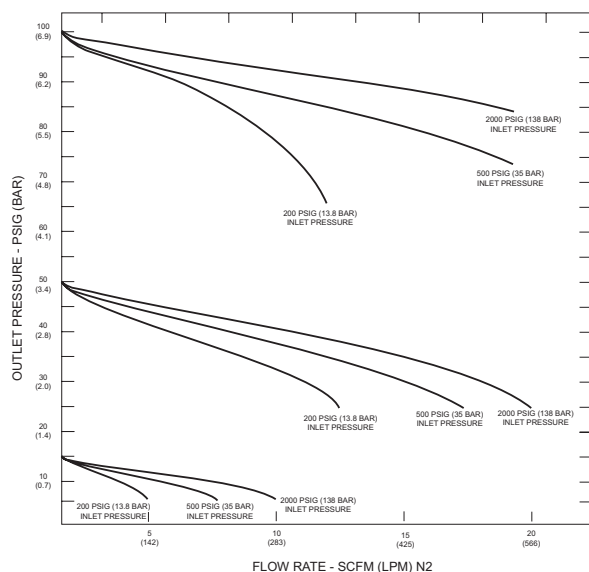
1/4" stainless steel compression tube fitting

Resonator

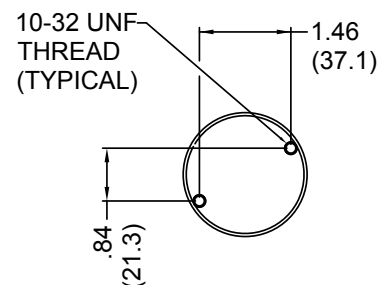
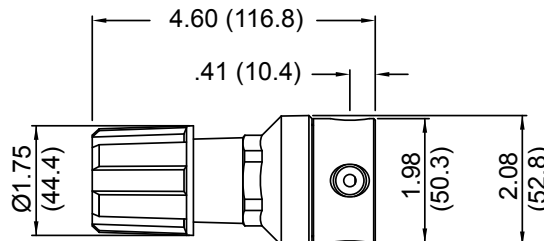
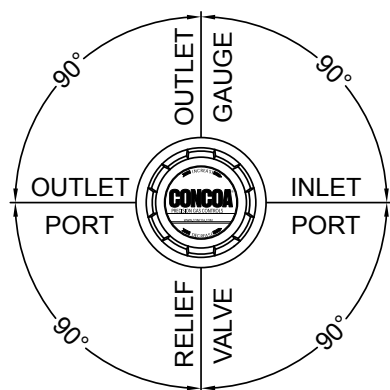
Gas Supply

5230 SERIES

Flow Performance Curves



Installation Dimensions



Ordering Information

Part Number	Delivery	Gas Service
8065230-01-1	0-500 PSIG (0-35 BAR)	Any non-corrosive gas
8065232-01-1	0-250 PSIG (0-18 BAR)	Any non-corrosive gas
8065233-01-1	0-100 PSIG (0-7 BAR)	Any non-corrosive gas
8065237-01-1	0-60 SCFH (28.3 LPM) - Argon 0-200 SCFH (94.4 LPM) - Helium	Argon or Helium

Available Options

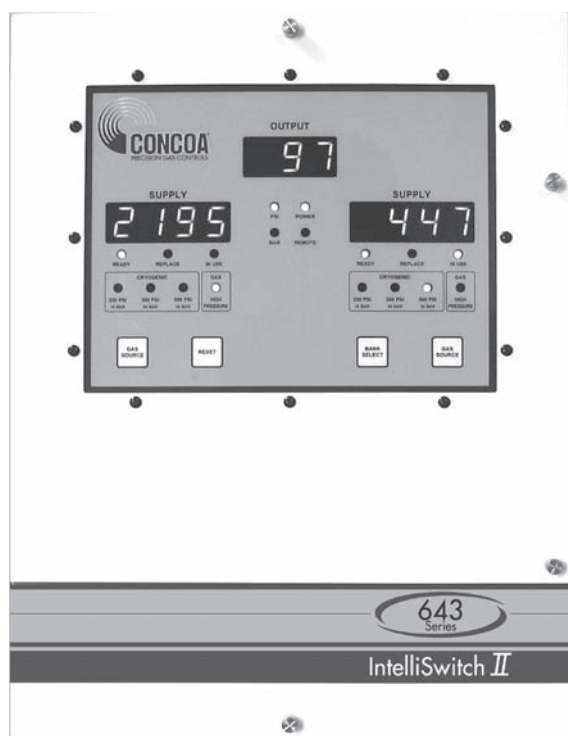
Laser Panels	See page 7	Three gas panel delivery systems for the laser gases (Helium, Nitrogen, and Carbon Dioxide)
Purge Devices	See page 49	Tee and straight purge configurations to satisfy all requirements
Mounting Bracket	8350204	Rear panel mount bracket kit

643 SERIES

Assist

Gas Supply

643 SERIES INTELLISWITCH



The Web-based IntelliSwitch II™ Gas Switchover is CONCOA's solution for integrated gas management systems. IntelliSwitch II offers continuous pressure and flow control from liquid or high-pressure cylinder sources, selectable by a simple push of a button or remotely via CONCOA's proprietary I-LINK™ communication. On-board software enables remote diagnostics and real time process control. CONCOA's proven software logic lowers yearly gas costs by eliminating liquid cylinder vent loss and excess residual return, which makes the IntelliSwitch II the right choice for process and metal fabrication industries.

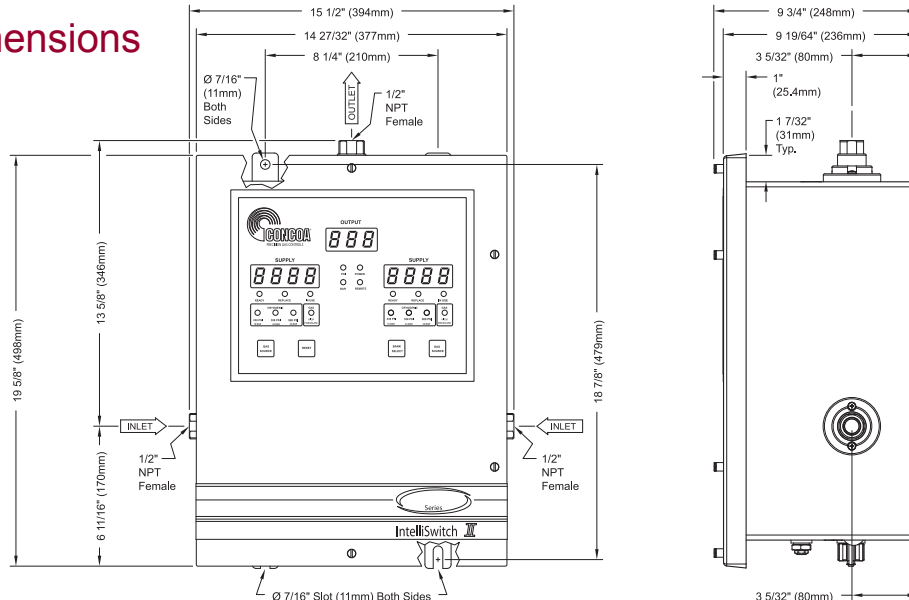
Advanced Features

INTEGRAL WEB SERVER	Enables remote access
INTEGRATED ETHERNET CONNECTIVITY	Seamless network integration
INTEGRAL EMAIL NOTIFICATION	24/7 system monitoring
LOW LOSS TECHNOLOGY	Reduces residual return
ELECTRONIC ECONOMIZER	Eliminates liquid cylinder vent loss
NEMA-4 ENCLOSURE	Flexible installation
INTERNAL BALANCE STEM LINE REGULATOR	Ensures total process control

6435007-01-1010 shown

Applications	Materials	Specifications
Primary Steel Industry Argon Nitrogen Oxygen	Regulator and Valve Bodies Brass barstock Valve Seats Neoprene and Viton®	Power Requirements 90-269 VAC (CE marked) Filter 40-micron
Metal Fabrication Argon Carbon Dioxide Nitrogen Oxygen	Seals PTFE and Viton	Maximum Inlet Pressure 3000 PSIG (210 BAR)
Chemical and Refining Industry Nitrogen Oxygen	Enclosure (NEMA-4) Powder-coated steel	Temperature Range 0°F to 100°F (18°C to -38°C)
Defense and Aerospace Argon Carbon Dioxide Nitrogen Helium	Flexible Hoses Stainless steel braided, PTFE-lined	Mechanical Connections ½" FPT inlet and outlet Cv 1.0 Weight 67 lbs (30.4 kg)

Installation Dimensions



Ordering Information

643	A	B	C	D	E	F	G	H
Series 643	Delivery Pressure	Inlet Connection	Switchover Pressure Settings	Assembly	Left Bank Inlet	Left Bank No. of Stations	Right Bank Inlet	Right Bank No. of Stations
	3: 100 PSIG (7 BAR)	0: No inlet connection	0: Factory default	7: 3000 PSIG (210 BAR)	1: 1/2" FPT port*	0: No hose	1: 1/2" FPT port *	0: No hose
	4: 200 PSIG (14 BAR)	1: CGA 580 (Inert)	1: 100 PSIG (7 BAR)		2: Single 72" (1800mm) hose	1: One station	2: Single 72" (1800mm) hose	1: One station
	5: 400 PSIG (28 BAR)	2: CGA 320 (CO ₂)	2: 150 PSIG (10 BAR)		3: Master valve with single 72" (1800mm) hose	2: Two stations	3: Master valve with single 72" (1800mm) hose	2: Two stations
		3: CGA 540 (Oxygen)	3: 200 PSIG (14 BAR)		4: MicroManifold with 72" (1800mm) hose	3: Three stations	4: MicroManifold with 72" (1800mm) hose†	3: Three stations
		4: CGA 346 (Air)	4: 250 PSIG (17 BAR)		5: Master valve with MicroManifold and 72" (1800mm) hose	4: Four stations	5: Master valve with MicroManifold and 72" (1800mm) hose	4: Four stations
		5: CGA 590 (Industrial Air)	5: 300 PSIG (21 BAR)		6: 628 manifold with 36" (900mm) hose	5: Five stations	6: 628 manifold with 36" (900mm) hose	5: Five stations
		6: DIN 477 #6 (Inert & CO ₂)	6: 350 PSIG (24 BAR)		*Valid with F=0 only	6: Six stations	*Valid with H=0 Only	6: Six stations
		7: DIN 477 #9 (Oxygen)	7: 400 PSIG (28 BAR)			7: Seven stations		7: Seven stations
		8: DIN 477 #10 (Nitrogen)	8: 425 PSIG (30 BAR)			8: Eight Stations		8: Eight Stations
		9: BS 341 #3 (Air, Inert)						
		A: BS 341 #3 (CO ₂)						
		C: TH0 - No inlet connection with tethered hose						

641 SERIES

Assist
Gas Supply

641 SERIES INTELLISWITCH



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 the simple push of a button. Proprietary software logic lowers yearly gas costs by eliminating liquid cylinder vent loss and excess residual return.

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

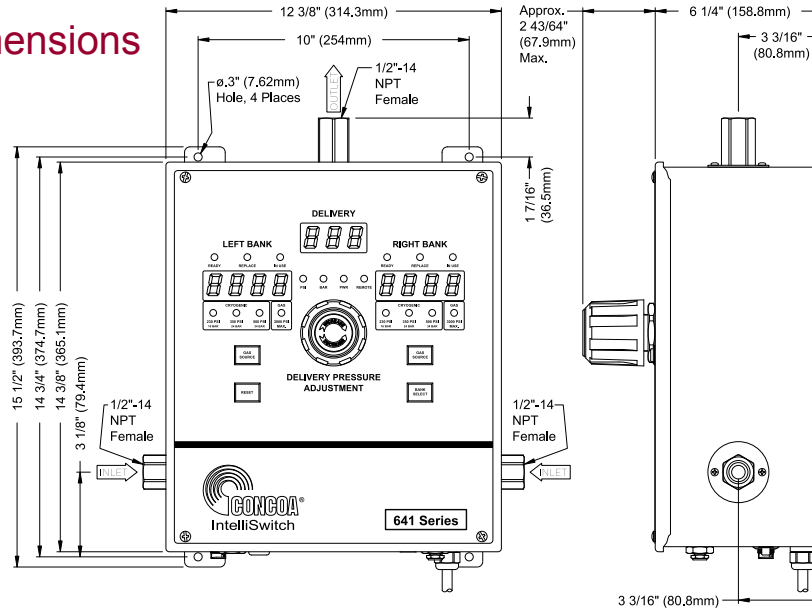
LOW LOSS TECHNOLOGY Reduces residual return

ELECTRONIC ECONOMIZER Eliminates liquid cylinder vent loss

6415002-01-1010 shown

Applications	Materials	Specifications
Assist Gas Delivery from Liquid Cylinder Supply Nitrogen Oxygen	Bodies Brass barstock	Power Requirements 110 or 220 VAC
Assist Gas Delivery from High Pressure Supply Air Nitrogen Oxygen	Seats PTFE or Viton®	Maximum Inlet Pressure 3000 PSIG (210 BAR) 4500 PSIG (310 BAR)
Assist Gas Delivery from Micro-Bulk or Bulk Supply Nitrogen Oxygen	Seals Viton® and PTFE	Temperature Range 0°F to 100°F (18°C to -38°C)
Laser Welding Shielding Gases Argon Carbon Dioxide Helium	Enclosure Powder coated steel	Filter 40-micron
	Flexible Hoses Stainless steel braided, PTFE-lined (3000 PSIG/210 BAR max) Armor-cased, stainless steel-lined (4500 PSIG/310 BAR max)	Mechanical Connections ½" FPT inlet and outlet ⅛" FPT (external pilot inlet)
		Cv 2.0 - 3000 PSIG (210 BAR) max 1.0 - 4500 PSIG (310 BAR) max
		Weight 67 lbs (30.4 kg)

Installation Dimensions



Ordering Information

641	A	B	0	D	E	F	G	H
Series 641	Delivery Pressure	Inlet Connection		Assembly	Left Bank Inlet	Left Bank No. of Stations	Right Bank Inlet	Right Bank No. of Stations
	3: 100 PSIG (7 BAR)	0: No inlet connection		2: 3000 PSIG (210 BAR)/ 110 VAC internal pilot	1: 1/2" FPT port*	0: No hose	1: 1/2" FPT port*	0: No hose
	4: 200 PSIG (14 BAR)	1: CGA 580 (Inert)		3: 3000 PSIG (210 BAR)/ 220 VAC internal pilot	2: Single 72" (1800mm) hose	1: One station	2: Single 72" (1800mm) hose	1: One station
	5: 400 PSIG (28 BAR)	2: CGA 320 (CO ₂)		4: 4500 PSIG (310 BAR)/ 110 VAC external pilot*	3: Master valve with single 72" (1800mm) hose	2: Two stations	3: Master valve with single 72" (1800mm) hose	2: Two stations
		3: CGA 540 (Oxygen)		5: 4500 PSIG (310 BAR)/ 220 VAC external pilot*	4: MicroManifold with 72" (1800mm) hose	3: Three stations	4: MicroManifold with 72" (1800mm) hose	3: Three stations
		4: CGA 346 (Air)		*Regulator for external source not included	5: Master valve with MicroManifold and 72" (1800mm) hose	4: Four stations	5: Master valve with MicroManifold and 72" (1800mm) hose	4: Four stations
		5: CGA 590 (Industrial Air)			6: 628 manifold with 36" (900mm) hose†	5: Five stations	6: 628 manifold with 36" (900mm) hose†	5: Five stations
		A: CGA 680 (Inert Gas)			*Valid with F=0 only	6: Six stations	*Valid with H=0 Only	6: Six stations
		B: CGA 347 (Air)			†Not valid with 4500 PSIG (310 BAR) max inlet	7: Seven stations	†Not valid with 4500 PSIG (310 BAR) max inlet	7: Seven stations
		Foreign inlets available upon request.				8: Eight Stations		8: Eight Stations

Available Options

Remote Alarm	Advantium Series	Provides audible and visual notification of a depleted supply bank to a remote location
Vent Manifold Kit	629 Series	Wall-mounted manifold designed to equalize liquid cylinder head pressure
AutoSwitch Floor Stand	8307439	Support AutoSwitch Enclosure
Manifold Floor Stand	8307437	Supports 2 standard length (12") manifold extensions installed consecutively

639 SERIES

Assist
Gas Supply

639 SERIES AUTOSWITCH



The 639 Series Assist Gas Switchover is a primary-reserve 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 hoses for connections to bulk high pressure sources.

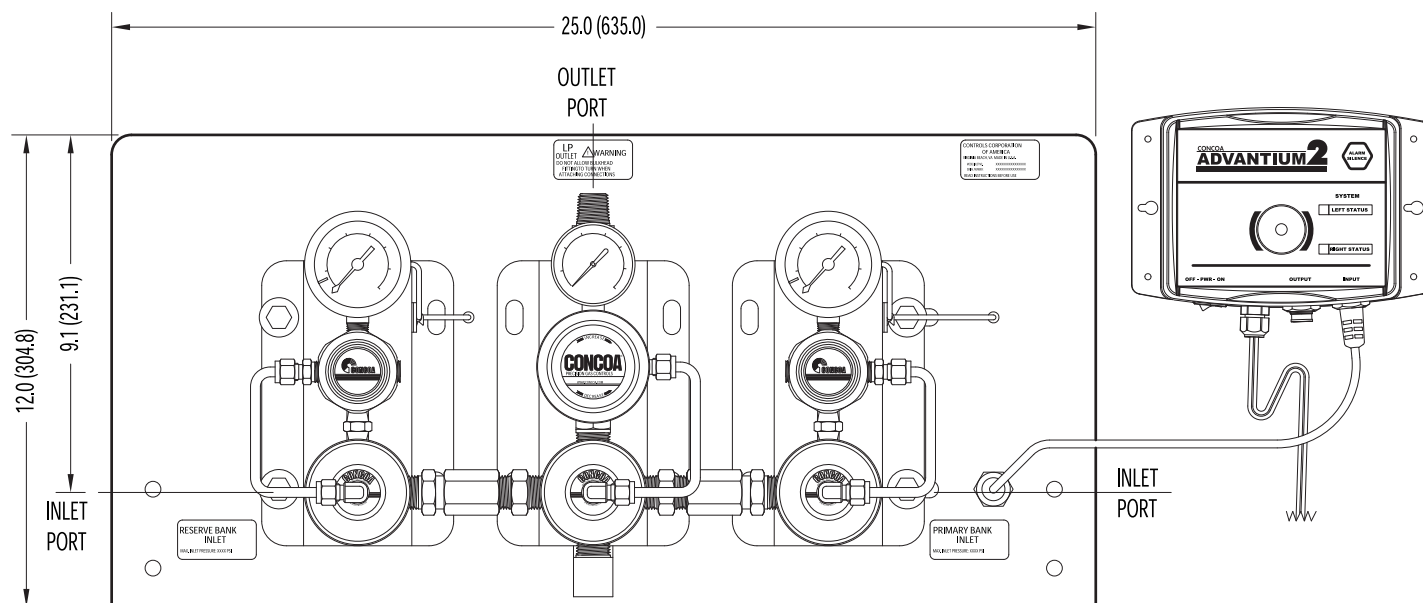
Advanced Features

PRIMARY AND RESERVE BANK	Automatically switches to reserve when depleted
OPTIONAL ALARM	Visual and audible notification
HIGH FLOW CAPACITY	Flows up to 9000 SCFH (4200 lpm)
CARTRIDGE SENSOR	Precise pressure control

6397003-01-42 shown

Applications	Materials	Specifications
Laser Assist Gases Helium Nitrogen Oxygen Argon	Body Brass barstock body and bonnet Seats PTFE* seat or PCTFE† seat Seat PTFE and Viton® Filter 40-micron sintered bronze Pressure Gauges Brass (socket) Bronze (bourdon tube) Brass (case) Flexible Hoses (Optional) Armor-case stainless steel-lined *3000 PSIG (210 BAR) inlet †4500 PSIG (310 BAR) inlet	Maximum Inlet Pressure 3000 PSIG (210 BAR) 4500 PSIG (310 BAR) Temperature Range -40°F to 140°F (-40°C to 60°C) Gauge 2" (50mm) diameter dual-scale brass Ports 1/4" FPT Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec Cv 0.2 Weight 124 lbs. (56 kg)

Installation Dimensions



Shown with line regulator and remote alarm (sold separately).

Ordering Information

639	A	B	C	D	E	F
Series 639	Nominal Max Out (Primary Supply)	Primary Supply Inlet Configuration	Reserve Supply Inlet Configuration	Max Inlet Pressure/ Assembly	Gas Service	Final Pressure Control
	4: 250 PSIG/17 BAR (500 PSIG/35 BAR)	0: No hose assembly	0: No hose assembly	3: 3000 PSIG (210 BAR) with no alarm capability	0: Oxygen	1: Line regulator not included
	5: 400 PSIG/28 BAR (650 PSIG/45 BAR)	5: 6ft (1800mm) hose	5: 6ft (1800mm) hose	4: 3000 PSIG (210 BAR) with alarm capability	4: Inert (Argon, Nitrogen, and Helium)	2: Integral line regulator*
	7: 600 PSIG/41 BAR (850 PSIG/60 BAR)	6: 12ft (3700mm) hose	6: 12ft (3700mm) hose	8: 4500 PSIG (310 BAR) with no alarm capability		*If A=4, Not available
		9: 12ft (3700mm) tube trailer*	9: 12ft (3700mm) tube trailer*	9: 4500 PSIG (310 BAR) with alarm capability		If A=5, 0-400 (0-27 BAR)
				Select alarm from options listed below		If A=7, 0-600 (0-40 BAR)

*Not available with 4500 PSIG (310 BAR) inlet

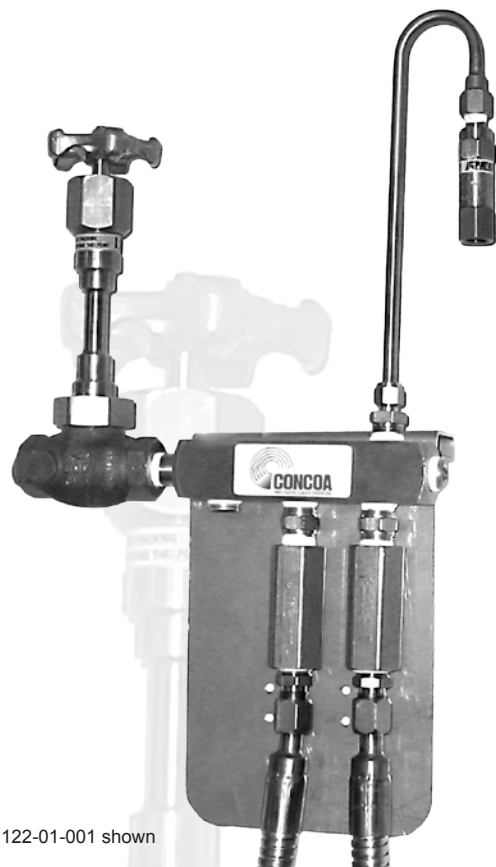
Available Options

Switchover Stand	5181625	Appropriate support for switchover with one cylinder per side
Advantium 8 Alarm	5295310-01-001 (110 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.
Mounting Bracket	8350204	
Advantium 2 Plus Alarm	5750023	Rear panel mount bracket kit

630 SERIES

Assist
Gas Supply

630 SERIES AUTOSWITCH



6301122-01-001 shown

The 630 Series Manifold allows the cryogenic supply of four liquid cylinders to be safely combined. The modular design system may be expanded to accommodate additional liquid cylinders. When coupled with the 629 Vent Kit, users can significantly extend the flow range of common cylinders. The 630 is ideal for laser, furnace blanketing, and other high-flow applications

Advanced Features

PIPE AWAY RELIEF (OPTIONAL) Prevents overpressurization

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 PSIG (31 BAR) in excess of 4000 SCFH (890 lpm)

Applications

Cryogenic Laser Assist
Nitrogen
Oxygen

High Flow Blanketing
Carbon Dioxide
Inert Gases

Gas Blending
Argon primary supply

Materials

Body
Brass barstock

Master Valve
PCTFE (seat)
Bronze (body)
Stainless steel (stem, spring, and washer)
PTFE (seals)

Cryogenic Check Valves
Brass (body)
Stainless steel (seat, spring, and piston)

Flexible Hose
Stainless steel (core, casing, and fittings)

Specifications

Maximum Inlet Pressure
550 PSIG (38 BAR)

Temperature Range
-320°F to 165°F (-195°C to 74°C)

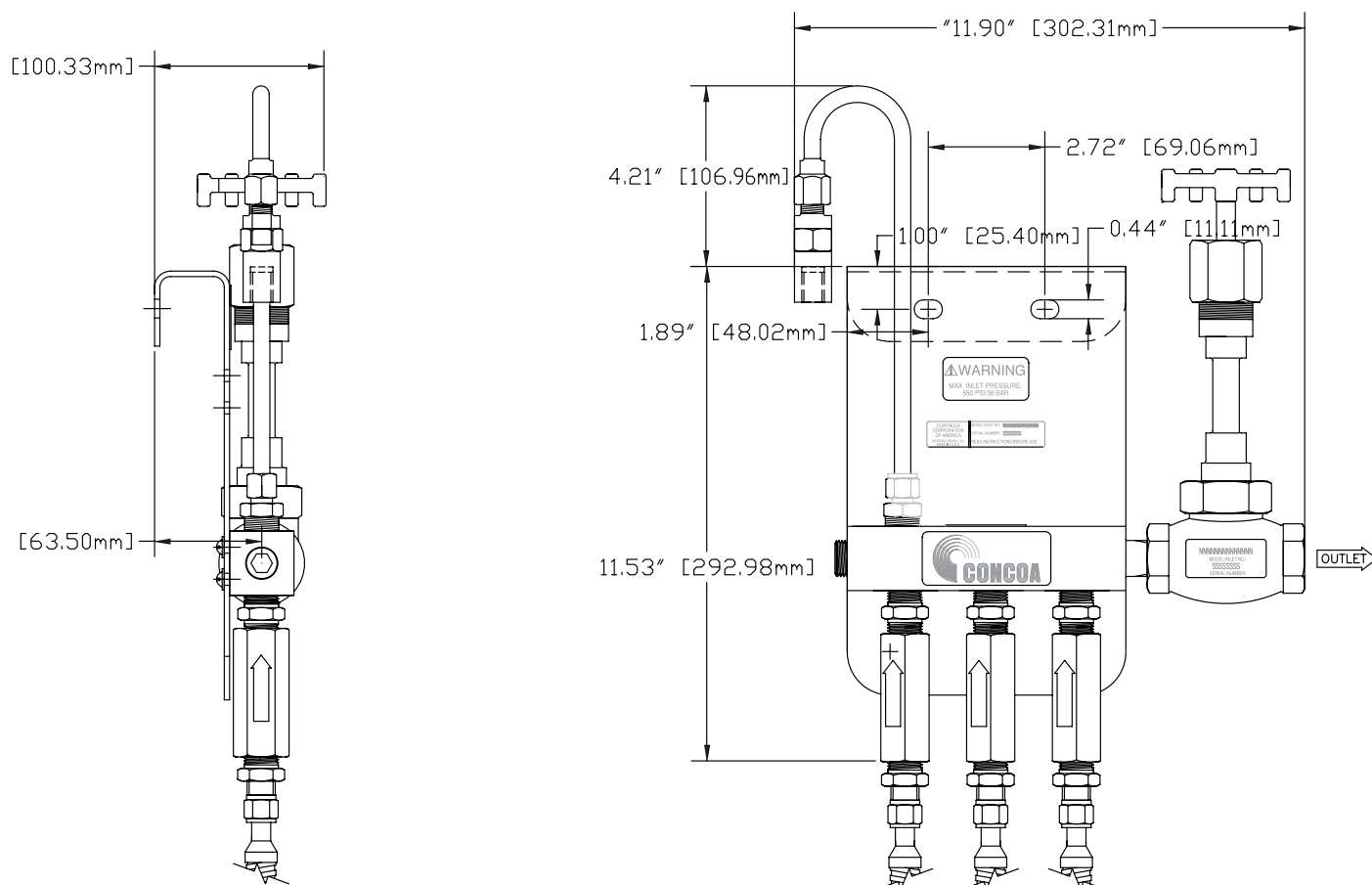
Inlet Connections
CGA 295
CGA 440

Outlet Connections
½" FPT

Helium Leak Integrity
1 x 10⁻⁸ scc/sec

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

Installation Dimensions



Ordering Information

630	A	B	C	D	E	CON	F
Series 630	Manifold Type	Arrangement	Hose Style and Cylinder Connections	No. of Stations	Mounting Style	linlet	Options
	1: Liquid manifold	0: Right-hand (simplex)	1: 48" (1200mm) stainless steel CGA 295	1: One station	01: Wall mounting bracket	001	P: Pipe away option
		1: Left-hand (simplex)	2: 48" (1200mm) stainless steel CGA 440	2: Two stations	02: Tank mount bracket		
		2: Left and right-hand (duplex)	4: 72" (1800mm) stainless steel CGA 295	3: Three stations			
			5: 72" (1800mm) stainless steel CGA 440	4: Four stations			
				5: Five stations			
				6: Six stations			

Related Options

Option	Stock No.	Description
Cryogenic Liquid Hoses	See page 55	Liquid transfer hoses
Brass Nipple	830-6435	½" MPT x 1" MPT nipple, brass
Cryogenic Check Valve	835-0034	½" FPT, brass

629 SERIES

Assist
Gas Supply

629 SERIES MANIFOLD



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 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.

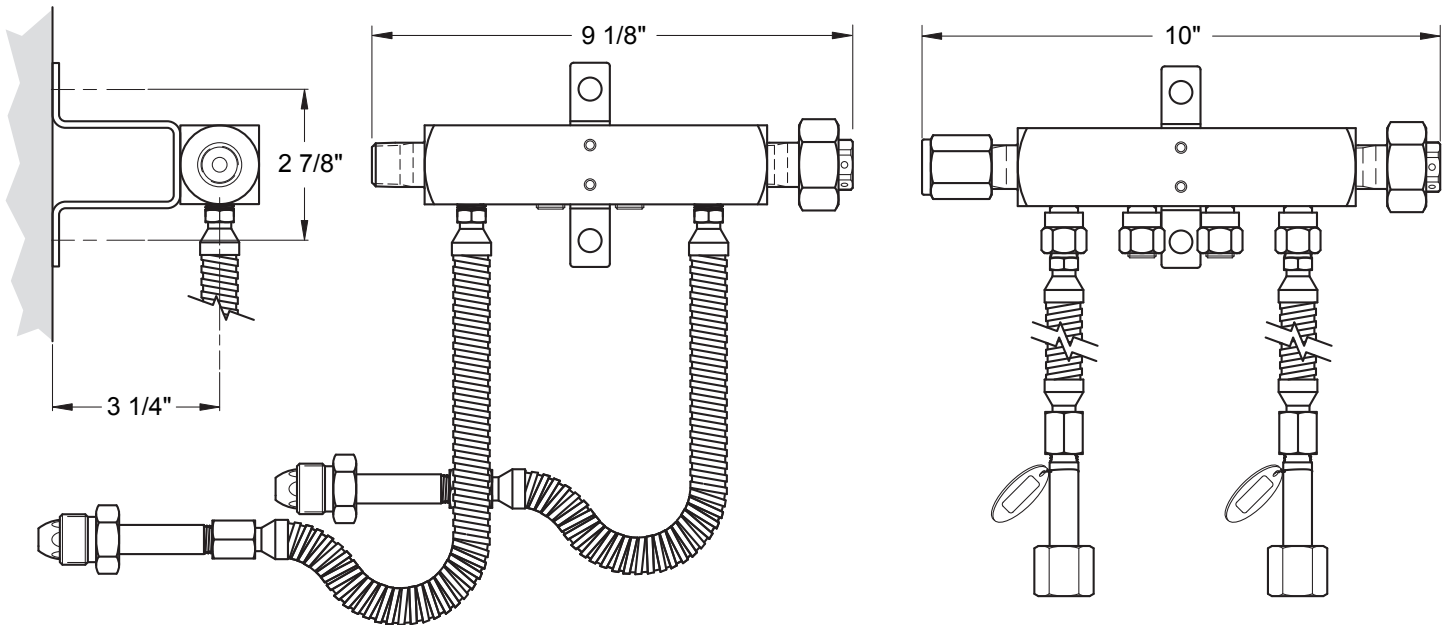
Advanced Features

VENT MANIFOLD EXCESS FLOW ORIFICES	Prevents hose 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 623 Series delivery systems

6291163-01-580 shown

Applications	Materials	Specifications
Assist Gas Delivery from Liquid Cylinder Supply Nitrogen Oxygen	Body Brass barstock	Maximum Inlet Pressure 4500 PSIG (310 BAR)
Assist Gas Delivery from High Pressure Supply Air Nitrogen Oxygen		Temperature Range 0°F to 140°F (-17°C to 60°C)
Metal Fabrication On-Site Mixing Systems Argon Carbon Dioxide Helium Nitrogen Oxygen		Inlet Connections Four ¼" FPT One ½" FPT Outlet Connections ½" MPT

Installation Dimensions



6291151-580 MicroManifold

62921A2-001 Vent MicroManifold

Ordering Information

629	A	B	C	D	CON	Options
Series 629	Manifold Type (Gauge)	Orientation	Hose Style	Cylinder Per Side	Inlet	Options
	1: MicroManifold (No gauges)	0: Right-hand (simplex)	1: No pigtails	1: One	Please specify inlet connection (Use -001 for hose option 0).	F: Integral hose flashback arrestor
	2: Vent MicroManifold (No gauges)	1: Left-hand (simplex)	2: 36" (900mm) rigid brass	2: Two	CGA	
	3: MicroManifold (400 PSIG/42 BAR)	2: Left and right-hand (duplex)	3: 72" (1800mm) flexible stainless steel core and armor cased	3: Three	DIN 477	
	4: MicroManifold (600 PSIG/4100 kPa)	3: Right-hand with pressure switch (simplex)*	4: 24" (600mm) flexible stainless steel armor with PTFE lining	4: Four	BS 341 and others available	
	5: MicroManifold (4000 PSIG/2700 kPa)	4: Left-hand with pressure switch (simplex)*	5: 36" (900mm) flexible stainless steel core and armor cased	5: Five		
	6: MicroManifold (4000 PSIG/280 BAR)	5: Right and left-hand with pressure switch*	6: 36" (900mm) flexible stainless steel armor with PTFE lining	6: Six		
	7: MicroManifold (6000 PSIG/41000 kPa)		7: 24" (600mm) flexible stainless steel core and armor cased	7: Seven		
	8: MicroManifold (6000 PSIG/415 BAR)		9: 72" (1800mm) flexible stainless steel armor with PTFE lining	8: Eight		
	*Required for alarm capability		A: 72" (1800mm) flexible stainless steel-braided with PTFE lining (vent manifolds only)	0: Zero		
			C: 24" (600mm) flexible stainless steel-braided with PTFE core			
			D: 36" (900mm) flexible stainless steel-braided with PTFE core			
			E: 72" (1800mm) stainless steel-braided with PTFE core			
			K: 72" (1800mm) flexible stainless steel core and armor cased (4500 PSIG/310 BAR)			
			L: 36" (900mm) flexible stainless steel core and armor cased (4500 PSIG/310 BAR)			

628 SERIES

Assist
Gas Supply

628 SERIES MANIFLEX HF

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, allowing many combinations which will adapt to any physical environment. Optional flashback 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
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

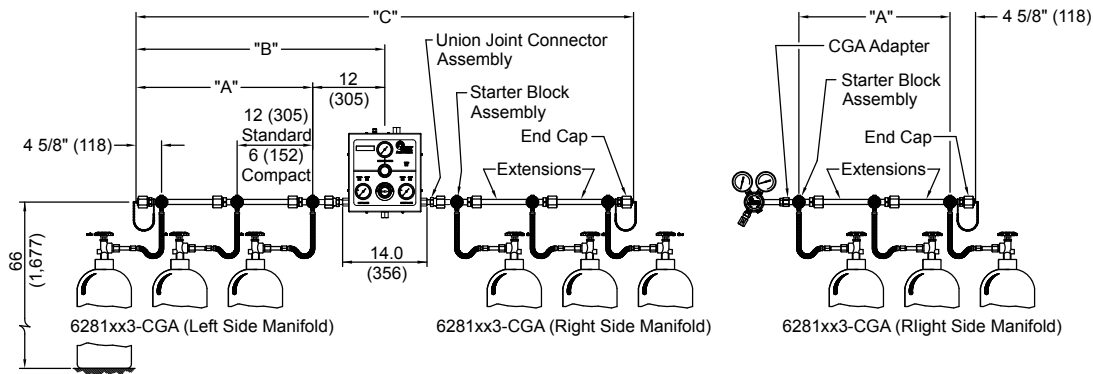
Step One	Choose a material from those available in column A.
Step Two	Select an orientation from those available in column B. Standard manifold headers space cylinders 12" (305mm) apart. "Right" means that the extension connects to the right inlet side of a regulator or switchover. A single row manifold has one cylinder hose attached at each valve station; a double row manifold has two cylinder hoses attached at each valve station on opposite sides of the valve.
Step Three	Choose a hose style from those available in column C. Please note that all hoses include a check valve with the inlet connection. For most CGA cylinder connections, the check valve is in the inlet gland.
Step Four	Determine the number of cylinders that will be used with the extension.
Step Five	Specify the connection type for the hose. Flammable and fuel gas connections are only available on hoses with integral flashback arrestors.
Step Six	To connect the outlet of the manifold system to a regulator, order the appropriate optional cylinder connection adapter from the accessories listed on page 29

Specifications

Maximum Inlet Pressure	3000 PSIG (210 BAR)
Temperature Range	-40 to 140°F (-40 to 60°C)
Inlet Connections	¼" FPT
Outlet Connections	½" MPT
Header	0.875" (22mm) OD x 0.188" (4.8mm) 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.) - in(mm)

Cylinder per Extension	1	2	3	4	5	6	7	8	9	10
A. Standard	4.6(117)	16.6 (422)	28.6(726)	40.6(1031.2)	52.6(1336)	64.6(1640)	76.6(1945)	88.6(2250)	100.6(2555)	12.6(320)
B. Standard	16.6 (422)	28.6 (726)	40.6(1031)	52.6(1336)	64.6(1640)	76.6(1945)	88.6(2250)	100.6(2555)	112.6(2860)	124.6(3164)
C. Standard	33.2 (840)	57.2 (1453)	81.2(2062)	105.2(2672)	129.2(3281)	153.2(3891)	177.2(4500)	201(5105)	225.2(5720)	244.2(6202)
Weight Compact lbs(kg)	5.7 (2.6)	11.8(5.3)	17.9(8.12)	24.0(10.9)	31.1(14.1)	36.2(16.4)	42.3(19.2)	48.4(21.9)	54.5(24.8)	60.6(27.2)
A Compact	4.6(117)	10.6(269)	16.6(421)	22.6(574)	28.6(726)	34.6(878)	40.6(1031)	46.6(1183)	52.6(1336)	58.6(1488)
B Compact	16.6 (422)	22.6 (574)	28.6(726)	34.6(878)	40.6(1031)	46.6(1183)	52.6(1336)	58.6(1488)	64.6(1640)	70.6(1793)
C Compact	32.2 (818)	45.2(1148)	57.2(1452)	69.2(1757)	81.2(2062)	93.2(2367)	105.2(2672)	117.2(2976)	129.2(3281)	141.2(3586)
Weight compact lbs(kg)	5.7(2.6)	11.2(5.1)	16.7(7.6)	22.2(10.1)	27.7(12.6)	33.2(15)	38.7(15.1)	44.2(20.04)	49.7(22.5)	55.2(25.03)



Ordering Information

628	A	B	C	D	F	G
Series	Material	Orientation	Hose Style	Number of Stations	Hose Connection	Installed Options
628	1: Brass	1: Standard single row (right)	0: None	1. One station	Please specify inlet connection.	F: Integral hose flash arrestor
		2: Standard single row (left)	1: 36" (900mm) rigid brass	2: Two stations	PTFE-lined	
		3: Standard double row	2: 24" (600mm) rigid copper	3: Three stations	hose for oxygen service includes accumulator	
		4: Compact single row (right)	3: 72" (1800mm) flexible armor-cased stainless steel core	4: Four stations	extensions to prevent ignition from adiabatic compression.	
		5: Compact single row (left)	4: 24" (600mm) stainless steel-braided with PTFE lining	5: Five stations	Not for use with Helium or Hydrogen.	
		6: Compact double row	5: 36" (900mm) flexible stainless steel core & armor cased	6: Six stations		
			6: 36" (900mm) flexible stainless steel-braided with PTFE lining	7: Seven stations		
			7: 24" (600mm) flexible stainless steel core & armor cased	8: Eight stations		
			8: 36" (900mm) rigid brass with flash arrestors (CGA 300, 400, & 510 Acet.. only)	9: Nine stations		
			9: 72" (1800mm) flexible stainless steel-braided with PTFE lining	0: Ten stations		
			A: 36" (900mm) flexible stainless steel armor with PTFE lining	A: Eleven stations		
				B: Twelve stations		
				C: Thirteen stations		
				D: Fourteen stations		
				E: Fifteen stations		

Maniflex Accessories

Option	Order No.	Description
Manifold Floor Stand	8307437	Supports two standard length (12") 305mm manifold extensions installed consecutively
Cylinder Connection Adapter for Regulator	5290008-CON	Brass (1/2" MPT x cylinder connection)
1/2" Union Joint Connector	8291839	Union Gland
	8291840	Union Nut
	8306498	Unions Connector

623 SERIES

Assist
Gas Supply

623 SERIES DELIVERY SYSTEM



The 623 Series is an ultra high flow gas delivery system for laser assist 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.

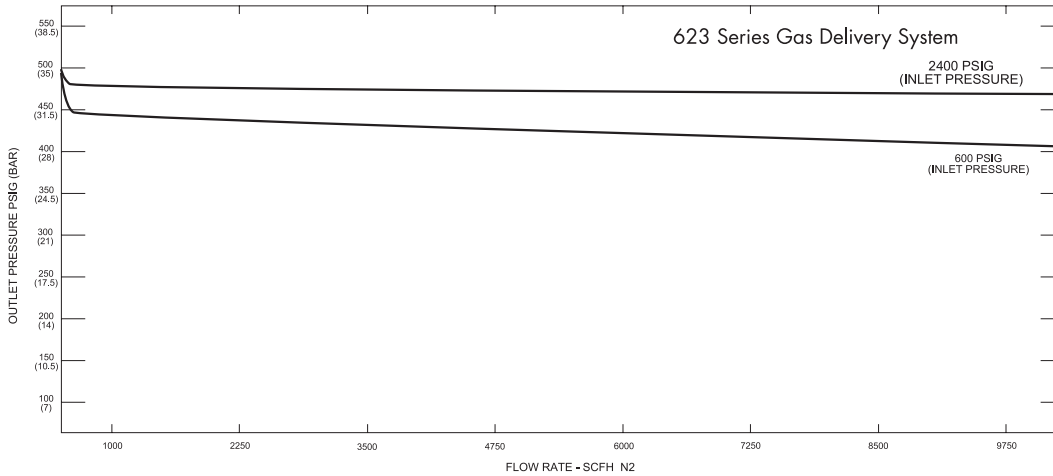
Advanced Features

UP TO 4500 PSIG (310 BAR)	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 (0-35 BAR)	Lower static loss yields better performance for cryogenic applications

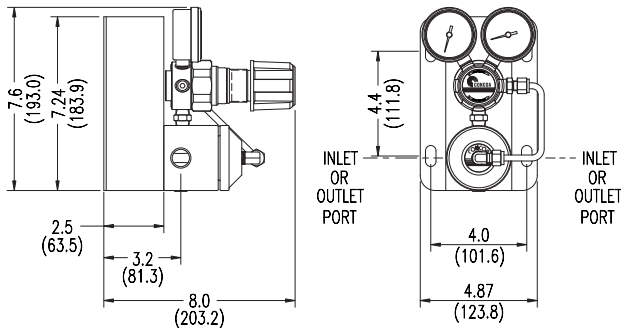
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Applications	Materials	Specifications
Assist Gases from Cryogenic Supply Nitrogen and Oxygen (Use low inlet models for MVE Laser-Cyl™, TW™ VHP liquid cylinder, MVE Trfecta™, CTR Laser Maid™, and TW™ Laser Pak Systems)	Delivery Regulator Brass barstock body and bonnet PTFE seat* or PCTFE seat† PTFE and Viton® (internal)	Maximum Inlet Pressure 4500 PSIG (310 BAR)
Assist Gas Delivery from High Pressure Supply Air Nitrogen Oxygen	Pilot Regulator Brass barstock body and bonnet PTFE seat* or PCTFE seat† PTFE and Viton® (internal)	Temperature Range -40 to 140°F (-40 to 60°C)
Metal Fabrication On-Site Mixing Systems Argon Carbon Dioxide Helium Nitrogen Oxygen	Tubing and Tube Fittings 316L stainless steel	Maximum Flow (Nitrogen) 10,000 SCFH (4700 lpm)
	Pressure Gauges (PSIG/BAR Dual Scale) Brass (socket) Bronze (bourdon tube) Brass (case)	Inlet Connections ½" FPT
	*3000 PSIG (208 BAR) †4500 PSIG (310 BAR)	Outlet Connections ½" MPT
		Weight 12.6 lbs. (5.7 kg)

Flow Performance Curves



Installation Dimensions



Ordering Information

623	A	B	C	D
Series 623	Outlet Pressure	Inlet Connection	Outlet Connection	Assembly Orientation/ Maximum Inlet Pressure
	2: 0-2000 PSIG (0-136 BAR)	0: ½" FPT port	0: ½" FPT Port	0: Right hand inlet 600 PSIG (42 BAR)
	5: 0-500 PSIG (0-35 BAR)	1: ½" stainless steel compression tube	1: ½" stainless steel compression tube	1: Left hand inlet 600 PSIG (42 BAR)
	7: 0-725 PSIG (0-50 BAR)	2: Master Valve with ½" FPT	2: Diaphragm valve with ½" FPT	2: Right hand inlet 3000 PSIG (210 BAR)
		3: Master Valve with ½" Tube	3: Diaphragm valve with ½" tube	3: Left hand inlet 3000 PSIG (210 BAR)
		4: 36" (900mm) hose	4: 3/8"-37° JIC male flare	4: Right hand inlet 4500 PSIG (310 BAR)
		5: Master Valve with 36" (900mm) hose		5: Left hand inlet 4500 PSIG (310 BAR)
		6: 72" (1800mm) hose		A: Right hand inlet 600 PSIG (42 BAR)*
		7: Master Valve with 72" (1800mm) hose		B: Left hand inlet 600 PSIG (42 BAR)*
		8: Manifold connector		C: Right hand inlet 3000 PSIG (210 BAR)*
		9: Manifold connector with Master Valve		D: Left hand inlet 3000 PSIG (210 BAR)*

*Includes Neoprene seat suitable for Carbon Dioxide and Nitrous Oxide service.

Related Options

Option	Series	Description
Cryogenic liquid hoses	See page 55	Supply liquid gas to vaporizers
Tube trailer hoses	See page 53	Connection from high pressure tube trailer to gas delivery systems

622 SERIES

Assist
Gas Supply

622 SERIES DELIVERY SYSTEM

The single-body design of the 622 offers high flow in a compact purge regulator assembly. The dome-loaded seat offers excellent flow capacity, which enables the 622 to transition into a point-of-use regulator of a bulk installation.



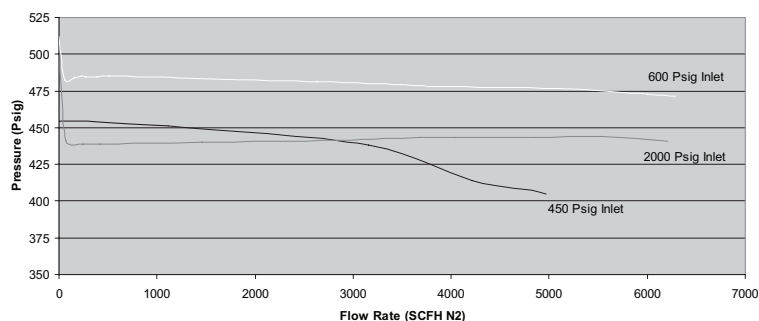
Advanced Features

UP TO 4500 PSIG (310 BAR)	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

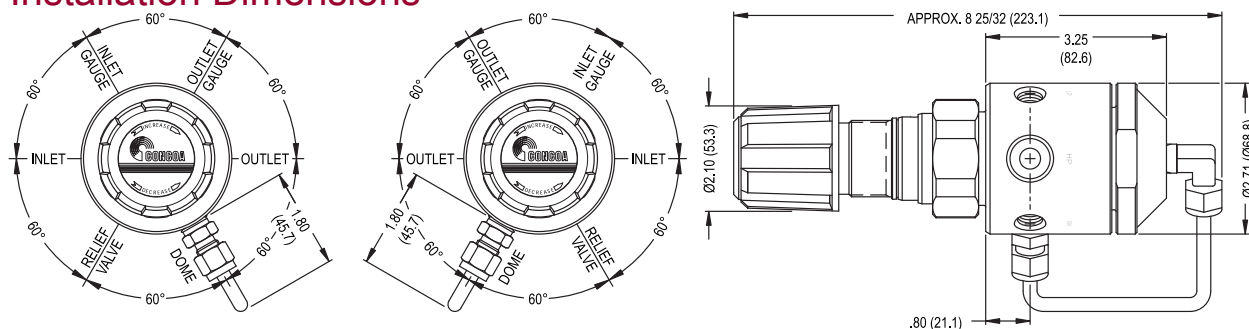
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Applications	Materials	Specifications
Assist Gases from Cryogenic Supply Nitrogen and Oxygen (Use low pressure inlet models for MVE Laser-Cyl™, TW™ VHP liquid cylinder, MVE Trfecta™, CTR Laser Maid™, and TW™ Laser Pak Systems)	Delivery Regulator Brass 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)	Maximum Inlet Pressure 600 PSIG (42 BAR) 3000 PSIG (210 BAR) 4500 PSIG (310 BAR) Temperature Range -40 to 140°F (-40 to 60°C)
Assist Gas Delivery from High Pressure Supply Nitrogen and Oxygen (Use high pressure inlet models with "Gas Paks", cradles, and tube trailers)	Tubing and Tube Fittings 316L stainless steel Pressure Gauges (PSIG/BAR Dual Scale) Brass (socket) Bronze (bourdon tube) Brass (case) *3000 PSIG (210 BAR) †4500 PSIG (310 BAR)	Maximum Flow (Nitrogen) 5200 SCFH (2454 lpm) Inlet Connections ½" FPT Outlet Connections ½" MPT Weight 5.4 lbs. (3.5 kg)

Flow Performance Curves



Installation Dimensions



Ordering Information

622	A	B	C	D	CON	Options
Series 622	Outlet Pressure	Inlet Connection	Outlet Connection	Assembly Orientation/ Maximum Inlet Pressure	Inlet	Options
	1: 0-100 PSIG (0-0.7 BAR)	0: ½" FPT Port	0: ½" FPT Port	0: Right hand inlet/ 600 PSIG (42 BAR)	Please specify inlet connection	W: Wall mount kit
	2: 0-250 PSIG (0-17 BAR)	1: ½" stainless steel tube fitting	1: ½" stainless steel compression tube	1: Left hand inlet/ 600 PSIG (42 BAR)	CGA DIN 477 BS 341 and others available	B: Two cylinders*
	3: 0-500 PSIG (0-34 BAR)	2: 12mm tube fitting	2: 12mm stainless steel compression tube	2: Right hand inlet/ 3000 PSIG (210 BAR)		C: Three cylinders*
		3: Diaphragm valve ½" FPT	3: Diaphragm valve ½" FPT	3: Left hand inlet/ 3000 PSIG (210 BAR)		D: Four cylinders
		4: Diaphragm valve ½" Tube	4: Diaphragm valve ½" tube	4: Right hand inlet/ 4500 PSIG (310 BAR)		E: Five cylinders*
		5: Cylinder connection	5: 3/8" FPT port	5: Left hand inlet/ 4500 PSIG (310 BAR)		F: Six cylinders*
		6: MicroManifold with 72" hose	6: 3/8" 37° JIC male flare			G: Seven cylinders*
		7: MicroManifold with Master Valve and 72" Hose				H: Eight cylinders*
		8: MicroManifold with P/S and 72" hose				*Valid if B=6, 7, 8 or 9
		9: MicroManifold with Master Valve, P/S and 72" hose				

Related Options

Option	Series	Description
Front Panel Mount Kit	5500002	Pilot regulator panel mount nut and washer
RH Wall Mount Kit	8309772	Wall mount bracket with pilot regulator panel mount nut and washer
LH Wall Mount Kit	8309773	Wall mount bracket with pilot regulator panel mount nut and washer

605 SERIES

Assist
Gas Supply

605 SERIES MANIFOLD REGULATOR

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.

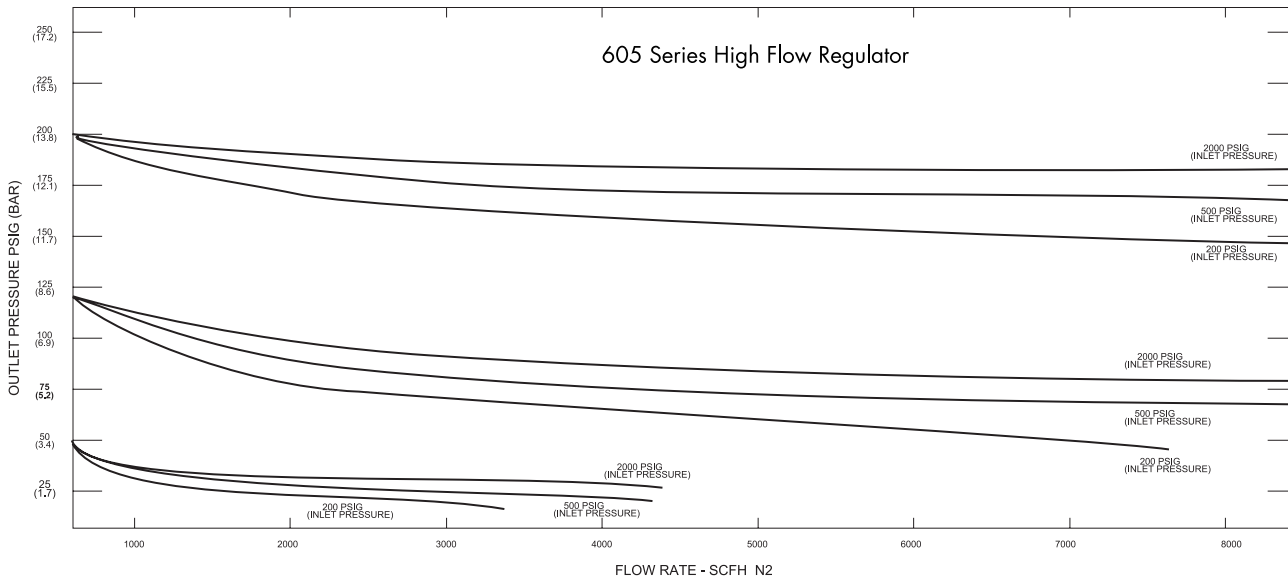
Advanced Features

UP TO 3000 PSIG (210 BAR)	Liquid or high pressure use
HIGH FLOW DELIVERY REGULATOR	ISOFLOW™ seat design
BALANCE STEM SEAT	Eliminates decaying inlet pressure fluctuation
STAINLESS STEEL DIAPHRAGM	High purity design

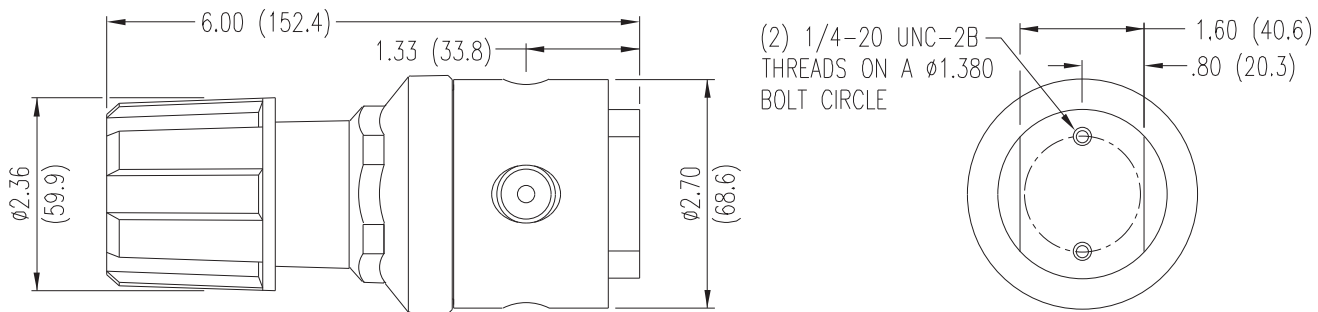
6053311-01-580 shown

Applications	Materials	Specifications
Liquid or High Pressure Cylinder Use Beam Purge Nitrogen or Oxygen assist	Body Brass barstock	Maximum Inlet Pressure 3000 PSIG (210 BAR)
Bulk Gas Distribution Systems	Bonnet Chrome-plated die cast zinc	Temperature Range -40°F to 140°F (-40°C to 60°C)
Laser Welding Shielding Gases Carbon Dioxide Argon Helium	Seat PTFE	Gauges 2" diameter brass
	Filter 40-micron 316L stainless steel mesh	Ports ½" FPT (inlet/outlet) ¼" FPT (gauges)
	Diaphragm 316L stainless steel	Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec
	Internal Seals PTFE	

Flow Performance Curves



Installation Dimensions



Ordering Information

605	A	B	C	D	CON	Options	
Series	Outlet Pressure	Outlet Gauge	Inlet Gauge	Outlet Assemblies	Assembly/Gauges	Inlet	Installed Options
605	1: 0-15 PSIG (0-1 BAR)	0-30 PSIG (0-2 BAR)	3: 0-4000 PSIG (0-275 BAR)	0: ½" FPT port	1: Right hand inlet (PSIG/kPA gauges)	000: ½" FPT	B: Laser gas alarm station (110/220V)
	2: 0-40 PSIG (0-2.8 BAR)	0-60 PSIG (0-4 BAR)	9: 0-600 PSIG (0-41 BAR)	1: ½" stainless steel compression tube fitting	2: Right hand inlet (BAR/PSIG gauges)	M12: 12mm tube fitting	C: Laser gas switchover station
	3: 0-120 PSIG (0-8 BAR)	0-200 PSIG (0-14 BAR)		2: 12mm stainless steel compression tube fitting	6: Left hand inlet (PSIG/kPA gauges)	TF8: ½" tube fitting	H: Laser gas switchover station with alarm (210V)
	4: 0-200 PSIG (0-14 BAR)	0-400 PSIG (0-27 BAR)			7: Left hand inlet (BAR/PSIG gauges)	CGA DIN 477 BS 341 and others available	M: Laser gas station
	5: 0-250 PSIG (0-17 BAR)	0-400 PSIG (0-27 BAR)					

Related Options

Option	Series	Description
Laser Panels	See Page 7	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	See Page 49	Tee and Straight Purge configurations to satisfy all requirements
Laser Gas Station	Add Letter "M" after inlet	Wall mount bracket, including stainless steel hose with check valve in the inlet gland
Mounting Bracket	8350204	Rear panel mounting kit

603 SERIES

Assist
Gas Supply

603 SERIES LINE REGULATOR

The 603 Series regulators are intended for secondary pressure control of pipeline applications with requirements up to 250 PSIG (17 BAR).

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 Ultra high purity design



6033011-01-580 shown

Applications

Laser Assist Gases

Air
Nitrogen
Oxygen

Microbulk or Bulk Supply Systems

Membrane Systems Assist or Beam Purge

Nitrogen and Clean Dry Air with Requirements Greater than 1000 CFH

Laser Welding Pipeline Shielding Gases

Carbon Dioxide
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
3000 PSIG (210 BAR)

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

Gauges
2" diameter brass

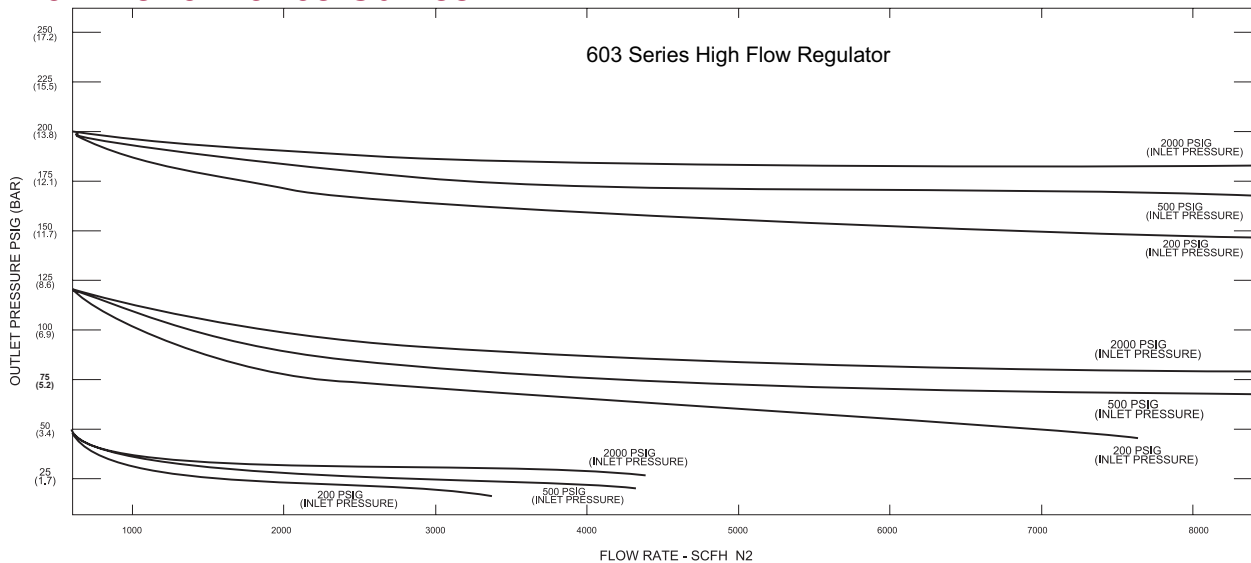
Ports
½" FPT (inlet/outlet)
¼" FPT (gauges)

Helium Leak Integrity
1 x 10⁻⁸ scc/sec

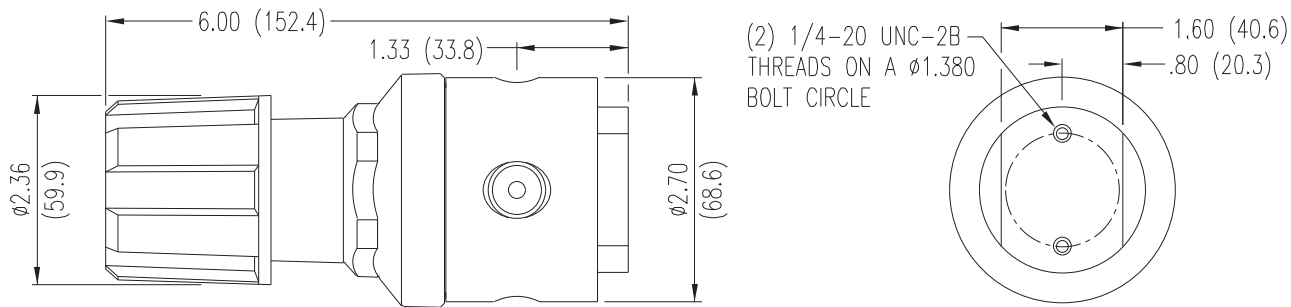
Cv
1.0

Weight
4.4 lbs. (2 kg)

Flow Performance Curves



Installation Dimensions



Ordering Information

603	A	B	C	D	Inlet	
Series 603	Outlet Pressure	Outlet Gauge	Inlet Gauge	Outlet Assemblies	Assembly/Gauges	Connection
	1: 0-15 PSIG (0-1 BAR)	0-30 PSIG (0-2 BAR)	0: None	0: ½" FPT port	1: Right hand inlet (PSIG/kPA gauges)	000: ½" FPT
	2: 0-40 PSIG (0-2.8 BAR)	0-60 PSIG (0-4 BAR)		1: ½" stainless steel compression tube fitting	2: Right hand inlet (BAR/PSIG gauges)	M12: 12mm stainless steel compression tube fitting
	3: 0-120 PSIG (0-8 BAR)	0-200 PSIG (0-14 BAR)		P: 12mm stainless steel compression tube fitting	6: Left hand inlet (PSIG/kPA gauges)	TF8: ½" stainless steel compression tube fitting
	4: 0-200 PSIG (0-14 BAR)	0-400 PSIG (0-27 BAR)			7: Left hand inlet (BAR/PSIG gauges)	
	5: 0-250 PSIG (0-17 BAR)	0-400 PSIG (0-27 BAR)				

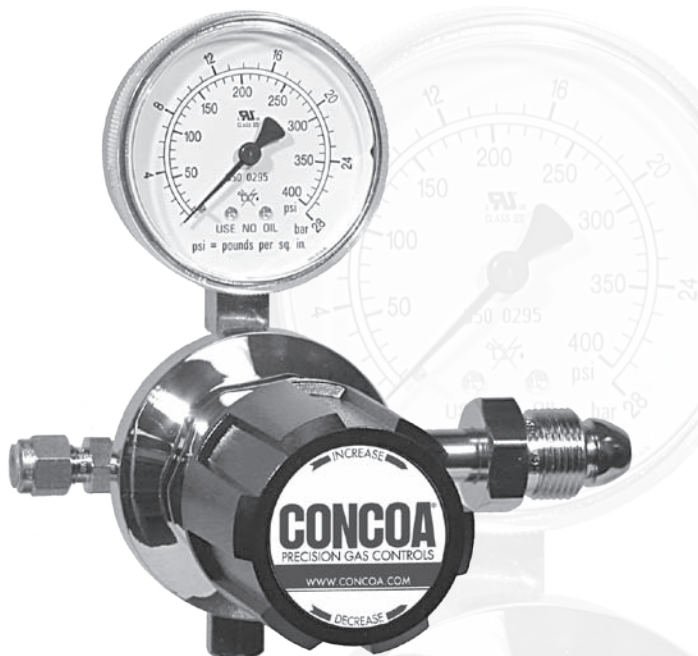
Related Options

Option	Series	Description
Laser Panels	See Page 7	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	See Page 49	Tee and Straight Purge configurations to satisfy all requirements
Mounting Bracket	8350204	Rear panel mounting kit

5260 SERIES

Assist
Gas Supply

5260 SERIES REGULATOR



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 1500 SCFH (708 lpm) and medium pressure flow up to 200 PSIG (14 BAR) 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

3000 PSIG (210 BAR) INLET PRESSURE RATING

Safe for use with high pressure cylinders

FIELD ADJUSTABLE PRESSURE LIMIT

Safeguard downstream equipment

CONVOLUTED DIAPHRAGM

Smooth pressure changes

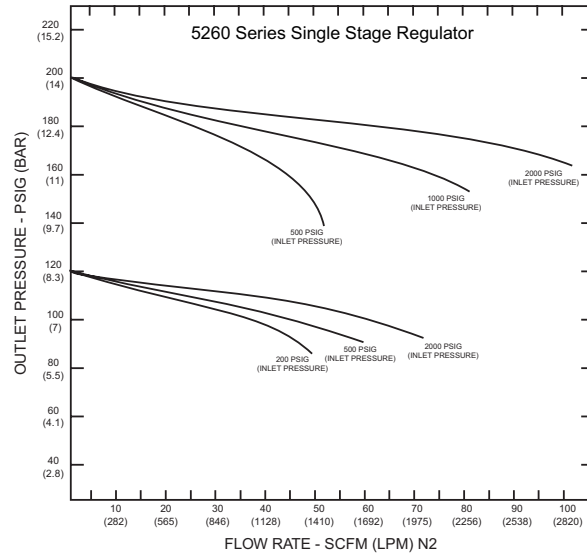
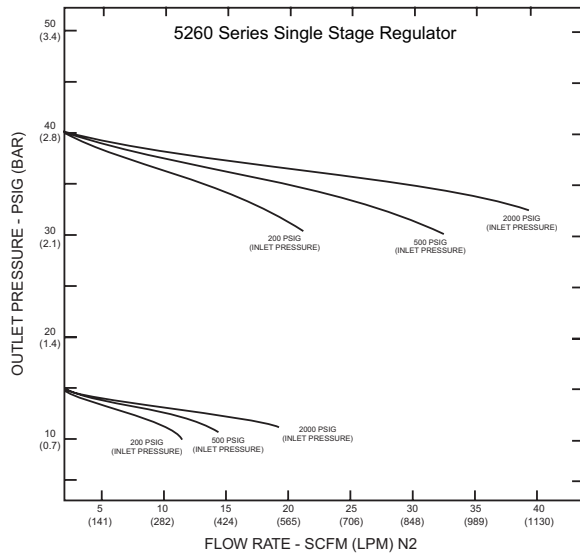
STANDARD RELIEF VALVE

Diaphragm and gauge protection

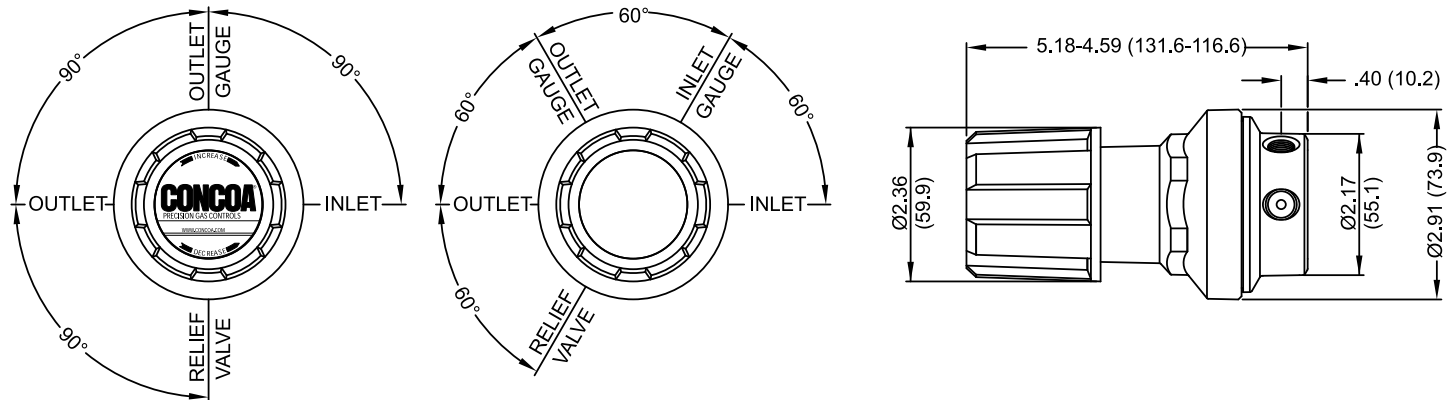
8065265-01-1 shown

Applications	Materials	Specifications
Laser Assist Gages from Liquid Cylinders Nitrogen and Oxygen from liquid cylinders with flows up to 1500 SCFH (708 lpm) and 325 or 500 PSIG (22 or 34 BAR) cylinder heads	Body Chrome-plated forged brass	Maximum Inlet Pressure 3000 PSIG (210 BAR)
Laser Assist Gases from Pipeline Nitrogen Oxygen	Bonnet Chrome-plated die cast zinc	Temperature Range -40°F to 140°F (-40 to 60°C)
Laser Beam Purge Nitrogen or clean, dry air from a generator or cryogenic source requiring up to 1000 SCFH (472 lpm)	Seat PTFE	Gauges 2" diameter dual-scale brass
	Filter 40-micron sintered bronze	Ports 1/4" FPT
	Diaphragm 316L stainless steel	Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec
	Internal Seals PTFE	Cv 0.28

Flow Performance Curves



Installation Dimensions



Ordering Information

5260	Part Number	Inlet	Delivery Pressure	Gas Service	Outlet
Series 5260	8065260-01-1	½" tube inlet	0-200 PSIG (0-14 BAR)	Universal line regulator	¼" stainless steel compression tube fitting
	8065261-01-1	CGA 320	0-200 PSIG (0-14 BAR)	Carbon Dioxide	¼" stainless steel compression tube fitting
	8065265-01-1	CGA 580	0-200 PSIG (0-14 BAR)	Inert Gases (Nitrogen, Argon, and Helium)	¼" stainless steel compression tube fitting
	8065266-01-1	CGA 540	0-200 PSIG (0-14 BAR)	Oxygen	¼" stainless steel compression tube fitting
	8065267-01-1	CGA 540	0-200 PSIG (0-14 BAR)	Oxygen with 4000 PSIG (275 BAR) inlet gauge	¼" stainless steel compression tube fitting
	8065268-01-1	CGA 580	0-200 PSIG (0-14 BAR)	Inert with 4000 PSIG (275 BAR) inlet gauge	¼" stainless steel compression tube fitting
	8065263-01-1	¼" FPT	0-200 PSIG (0-14 BAR)	Universal line regulator	¼" stainless steel compression tube fitting

Related Options

Option	Series	Description
Laser Panels	See Page 7	Three Gas Panel delivery systems for the Laser Gases (Helium, Nitrogen and Carbon Dioxide)
Purge Devices	See Page 49	Tee and Straight Purge configurations to satisfy all requirements

652 SERIES Laser Welding Supply

652 SERIES BLENDMASTER 1000



6521202-01-000 shown

The 652 Series BlendMaster is designed to supply two component blended shielding gases for laser welding applications. The blender provides 1000 SCFH (472 lpm) 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 cylinder, microbulk, bulk)
INTEGRAL LINE REGULATOR	Supports flowmeter and regulator plus flowmeter installations
EQUIBLEND™ TECHNOLOGY	Exceeds 1000 SCFH (472 lpm) 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
7 gal. (26.5 liters)

Pressure Control Mechanism
Brass barstock
Gas piloted

Specifications

Flow Capacity
1000 SCFH (472 lpm)

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)

Temperature Range
32°F to 100°F (0°C to 38°C)

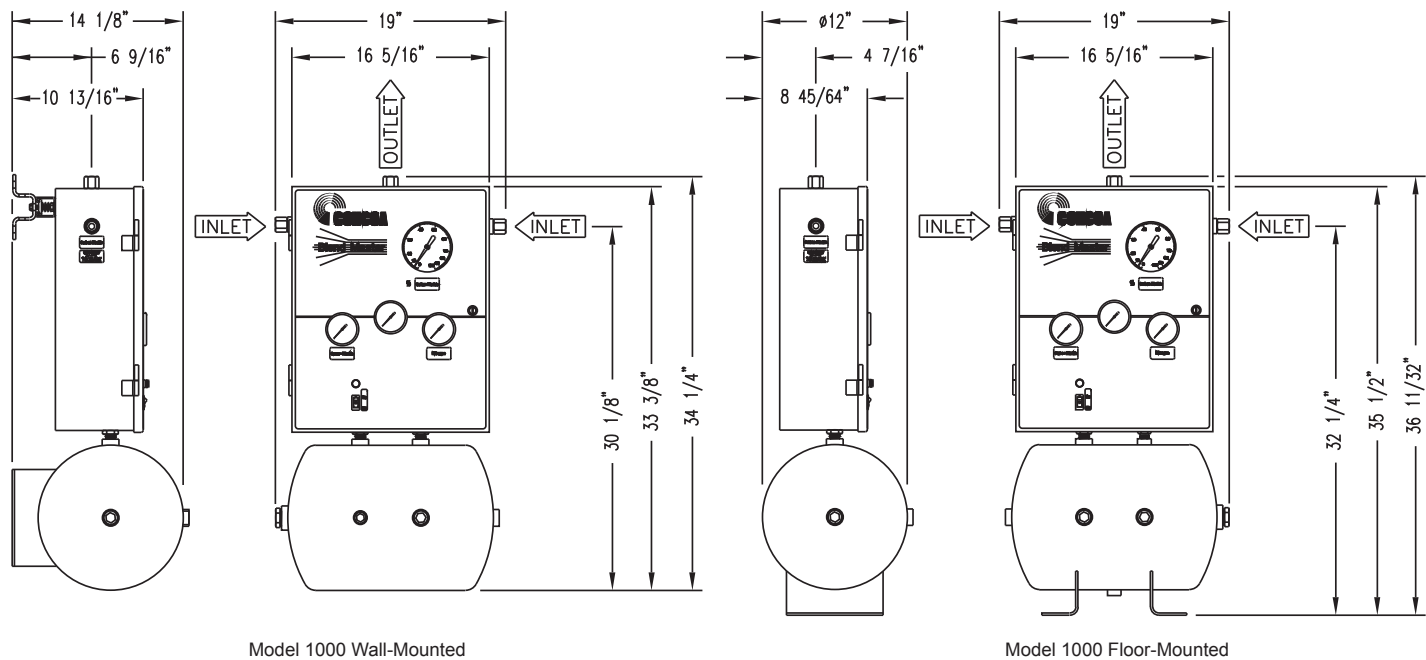
Accuracy
± 1.5%

Weight
102 lbs. (46.27 kg)

Laser Welding Supply

652 SERIES

Installation Dimensions



Laser Welding Supply

Ordering Information

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

*Alarm sold separately

Related Options

Option	Series	Description
Advantium 2 Plus Remote Alarm	5750023-01-000 (100-240V)	Provides audible and visual notification of a depleted supply bank to a remote location

636 SERIES Laser Welding Supply

636 SERIES AUTOSWITCH HF



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

6362000-01-000 shown

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 and Viton seals

Specifications

Maximum Inlet Pressure

3000 PSIG (210 BAR)

Temperature Range

-40°F to 140°F (-40°C to 60°C)

Maximum Flow

6000 SCFH (2830 lpm)

Inlet Connection (Enclosure)

½" FPT

Outlet Connection

½" FPT

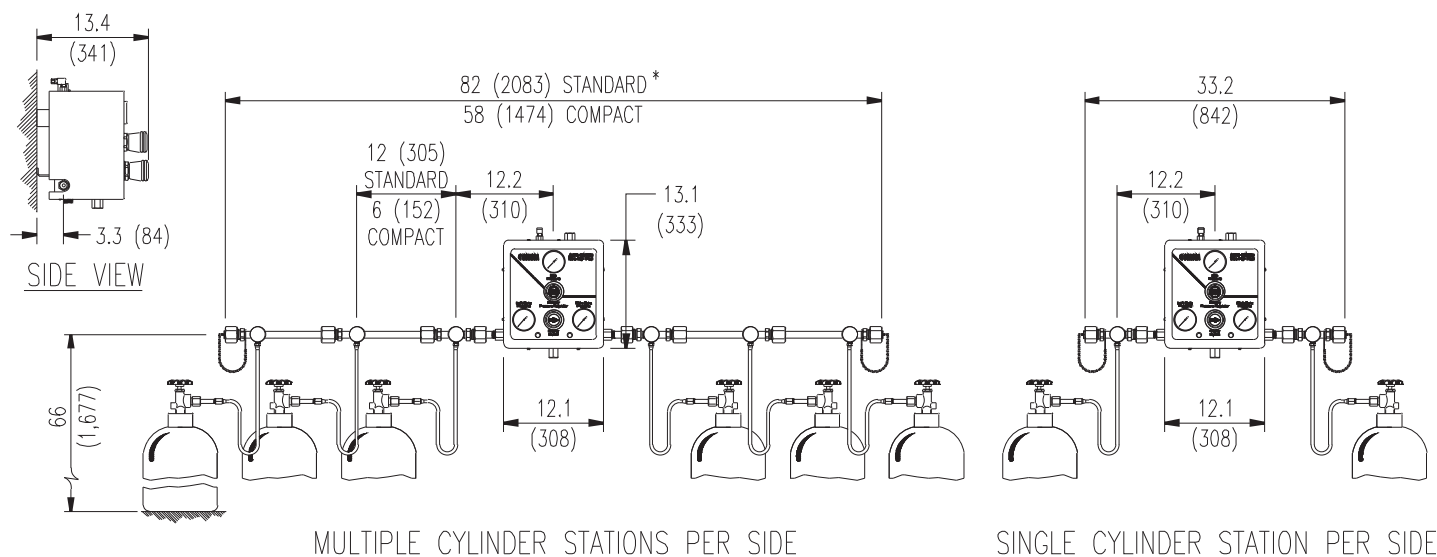
Weight

54 lbs. (25 kg)

Laser Welding Supply

636 SERIES

Installation Dimensions



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

Ordering Information

636	A	B	C	D	CON
Series 636	Outlet Pressure	Manifold Style	Hose Style	Stations/Side	Inlet
	1: 0-15 PSIG (0-1 BAR)	0: No manifolds	0: No hoses	0: No stations	Please specify inlet connection CGA DIN 477 BS 341 and others available
	2: 0-40 PSIG (0-3 BAR)	1: Standard length (12" between stations) with one cylinder per station	2: 24" (600mm) Rigid copper	1: One station	
	3: 0-120 PSIG (8 BAR)	3: Standard length (12" between stations) with two cylinders per station	3: 72" (1800mm) Flexible stainless steel-lined	2: Two stations	
		4: Compact length (6" between stations) with one cylinder per station	4: 24" (600mm) Flexible stainless steel-braided	3: Three stations	
		6: Compact length (6" between stations) with two cylinders per station	5: 36" (900mm) Flexible stainless steel-lined	4: Four stations	
			6: 36" (900mm) Flexible stainless steel-braided with PTFE lining	5: Five stations	
			7: 24" (600mm) Flexible stainless steel-lined	6: Six stations	
			9: 72" (1800mm) Flexible stainless steel-braided with PTFE lining	7: Seven stations	
				8: Eight stations	
				9: Nine stations	

Related Options

Option	Series	Description
Advantium 2 Plus Remote Alarm	5750023-01-000 (110V/220V)	Provides audible and visual notification of a depleted supply bank to a remote location
Advantium 8	5295310-01-001 (110V) 5295311-01-001 (220V)	Provides audible and visual notification of a depleted supply bank to a remote location
Manifold Floor Stand	830-7437	Single manifold floor stand provides support for up to two consecutive manifold extensions
Floor Stand	830-7439	AutoSwitch floor stand

5270 SERIES Laser Welding Supply

5270 SERIES REGULATOR

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 CO₂ 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

8065275-01-1 shown

Applications

CO₂ 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 Argon/
30-200 SCFH He flow tubes

Materials

Body

Chrome-plated brass barstock

Bonnet

Chrome-plated die cast zinc

Seat

PTFE 3000 PSIG (210 BAR) max
PCTFE 4500 PSIG (310 BAR) max

Filter

10-micron sintered bronze

Diaphragm

316L stainless steel

Internal Seals

PTFE

Specifications

Maximum Inlet Pressure

3000 PSIG (210 BAR)
4500 PSIG (310 BAR) model 5278

Temperature Range

-40°F to 140°F (-40°C to 60°C)

Gauge

2" diameter dual-scale brass

Ports

1/4" FPT
1/8" FPT (Flowmeter inlet)

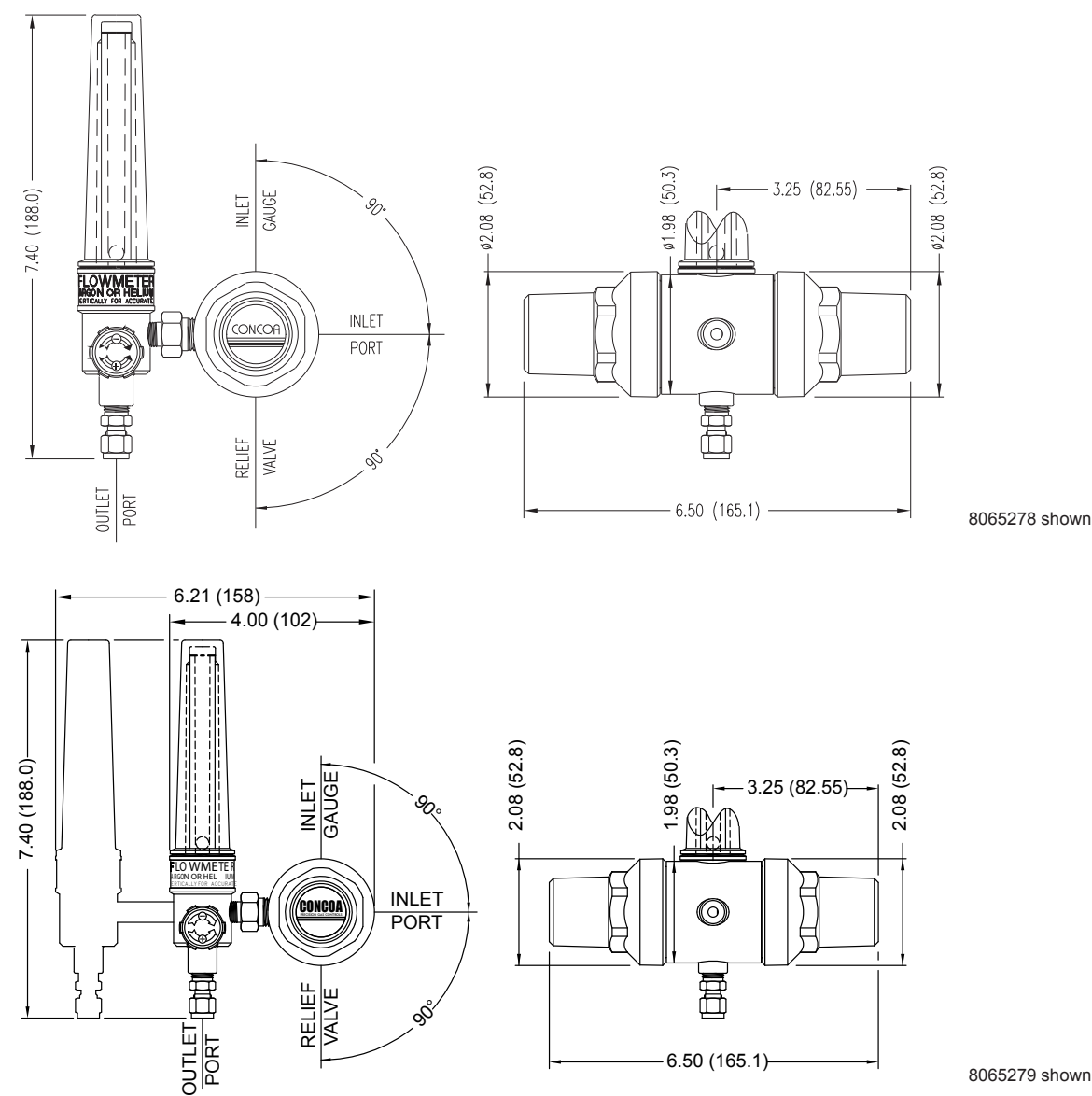
Flowtube

10-60 SCFH Argon/
30-200 SCFH Helium dual-scale

Laser Welding Supply

5270 SERIES

Installation Dimensions



Ordering Information

5270 Series	Part Number	Inlet	Flowmeter	Gas Service	Outlet
5270 Series	8065275-01-1	CGA 580	Single (Argon/Helium)	Inert Gases 3000 PSIG (210 BAR)	1/8" stainless steel compression tube fitting
	8065278-01-1	CGA 680	Single (Argon/Helium)	Inert Gases 4500 PSIG (310 BAR)	1/8" stainless steel compression tube fitting
	8065279-01-1	CGA 580	Dual (Argon/Helium)	Inert Gases 3000 PSIG (210 BAR)	1/8" stainless steel compression tube fitting

Related Options

Option	Series	Description
Laser Gas Stations	See page 6	Convenient regulator wall mount, including tee, bracket, and flexible stainless steel hose with check valve in the inlet gland
Laser Panels	See page 7	Three gas panel delivery systems for the laser gases (Helium, Nitrogen, and Carbon Dioxide)
Purge Devices	See page 49	Tee and straight purge configurations to satisfy all requirements

5237 SERIES Laser Welding Supply

5237 SERIES POINT-OF-USE REGULATOR



The 5237 Point-of-Use Regulator is designed to control Argon or Helium shielding gas flow in laser welding applications. The regulator/flowmeter combination provides precise flow control while maintaining the purity of the gas, making the 5237 the right choice for plasma suppression and shielding.

Advanced Features

CHROME-PLATED BRASS BODY	Economical high purity design
316L STAINLESS STEEL DIAPHRAGMS	No inboard gas diffusion
DUAL RANGE FLOW CONTROL	Argon and Helium flow scales
HIGH INLET PRESSURE DESIGN	Flexible gas sources
PRECISION METERING VALVE	Precise flow control
CAPSULE® SEAT ASSEMBLY	Increased life and serviceability

8065237-01-1 shown

Applications

CO2 Laser Welding
Helium flow control
30-200 SCFH

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

Materials

Body
Chrome-plated brass barstock

Bonnet
Chrome-plated die cast zinc

Seat
PTFE 3000 PSIG (210 BAR) max inlet

Filter
10-micron sintered bronze

Diaphragm
316L stainless steel

Specifications

Maximum Inlet Pressure
3000 PSIG (210 BAR)

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

Ports
¼" stainless steel compression fitting (inlet)
⅛" stainless steel compression fitting (outlet)

Flowtube
10-60 SCFH
30-200 SCFH

Weight
4.4 lbs. (2 kg)

Ordering Information

Part Number	Description
8065237-01-1	Point-of-User Regulator Flowmeter
8350204	Rear Mounting Bracket Kit

Beam Purge

Supply

5239 SERIES

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.

8065239-01-1 shown

Regulator	Diaphragm Valve	Specifications
Body Brass barstock	Body Chrome-plated brass	Maximum Inlet Pressure 3000 PSIG (210 BAR)
Bonnet Chrome-plated die cast zinc	Diaphragms Elgiloy®	Temperature Range -40°F to 140°F (-40°C to 60°C)
Seat PTFE	Seats PCTFE	Gauge (PSIG/BAR) 2" diameter brass
Filter 10-micron stainless steel	Seals Metal to Metal	Connections 1/4" stainless steel compression tube fitting
Diaphragm 316L stainless steel		Helium Leak Integrity 1 x 10 ⁻⁸ scc/sec
		Cv 0.17

Ordering Information

Part Number	Description
8065239-01-1	Beam Purge Assembly including regulator and diaphragm valve
8350204	Rear panel mounting bracket kit

6000 SERIES Accessories

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 cost caused by contaminants in brazed or tapped piping systems. The tee filter design offers a quick-change replacement element to minimize downtime.



5806001

Application: Resonator

Filtration efficiency: 2-micron

Material of construction: Brass

Maximum working pressure:
1000 PSIG (70 BAR)

Maximum flow capacity:
140 SCFH (66 lpm) N₂ with
100 PSIG (7 BAR) inlet and a pressure
drop of 10 PSIG (0.7 BAR)



5806002

Application: Assist

Filtration efficiency: 40-micron

Material of construction: Brass

Maximum working pressure:
2000 PSIG (137 BAR)

Maximum flow capacity:
4500 SCFH (127 lpm) N₂ with
450 PSIG (31 BAR) inlet and a pressure
drop of 10 PSIG (0.7 BAR)



5806003

Application: Assist

Filtration efficiency: 40-micron

Material of construction: 316L stainless steel

Maximum working pressure:
4500 PSIG (310 BAR)

Maximum flow capacity:
4500 SCFH (127 lpm) N₂ with
450 PSIG (31 BAR) inlet and a pressure
drop of 10 PSIG (0.7 BAR)

Related Options

Part Number	Description
5806001-01-001	Resonator 2-micron brass tee filter assembly with 1/4" tube fittings, isolation valve on the inlet and outlet 1000 PSIG (70 BAR) max.
5806001-01-M06	Resonator 2-micron brass tee filter assembly with 6mm tube fittings, isolation valve on the inlet and outlet 1000 PSIG (70 BAR) max.
5806002	Assist 40-micron brass tee filter assembly with 1/2" FPT valve inlet and 1/2" MPT outlet 2000 PSIG (137 BAR) max.
5806003	Assist 40-micron stainless tee filter assembly with 1/2" FPT 90° elbow inlet and 1/2" MPT outlet 4500 PSIG (310 BAR) max.
8300317	2-micron brass tee filter with 1/4" MPT inlet and outlet 1000 PSIG (70 BAR) max.
8300318	Replacement 2-micron filter element for 580-6001 and 830-0317
8308989	Replacement 40-micron filter element for 580-6002, 580-6003, 830-8990 and 830-9830
8308990	Assist 40-micron stainless tee filter with 1/2" MPT inlet and outlet 6000 PSIG (413 BAR) max.
8308999	Replacement 40-micron filter element for 580-6001 and 830-0317
8309830	Assist 40-micron brass tee filter with 1/2" MPT inlet and outlet 2000 PSIG (137 BAR) max.

Accessories

FILTERS & VALVES

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.



5801701 shown

Materials & Specifications

Housing

Brass barstock

Seals

Buna-N®

Inlet and Outlet Fittings

Brass 1/4" FPT

Pressure Drop

2.4 PSIG (0.16 BAR) at 3 SCFM (85 lpm) Air

Efficiency

99% original

Maximum Inlet Pressure

3000 PSIG (210 BAR)

500 PSIG (34 BAR)

Weight

4.4 lbs. (2 kg)

Ordering Information

Part Number	Catalyst	Removal Capacity
5801701	Housing	N/A
5801723	13X Mole Sieve (removes CO ₂ and water)	5.4 grams H ₂ O
5801733	4A Mole Sieve (removes water)	6.5 grams H ₂ O
5801753	Activated Carbon (removes C ₃ and up)	7.2 grams C ₃
5801743	Sintered Bronze (removes 5µm particle)	99.5% efficiency

MOLECULAR SIEVE FILTER

5021002-01-001
Straight Purge



5022003-01-320 Tee Purge

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 ensure 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 cycling 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 & Specifications

Seat

PCTFE

Diaphragms (Purge and Center Valves)

Elgiloy®

Check Valve Seat

Viton®

Cv

0.27

Maximum Pressure

3000 PSIG (210 BAR)

Ordering Information

Part Number	Material	Purge Type	Weight
5021002-01-001	Brass barstock	Straight Purge	1.2 lbs. (0.54 kg)
5022003-01-CON	Brass barstock	Tee Purge	2.5 lbs. (1.12 kg)
5022010-01-000	Brass barstock	Right Manifold Tee Purge	2.5 lbs. (1.12 kg)
5022011-01-000	Brass barstock	Left Manifold Tee Purge	2.5 lbs. (1.12 kg)

VALVES

Accessories

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.



5333029-01-001 shown

Materials & Specifications

Housing

Brass barstock

Seals

Buna-N®

Inlet and Outlet Fittings

Brass 1/4" FPT

Pressure Drop

2.4 PSIG (0.16 BAR) at 3 SCFM (85 lpm) Air

Efficiency

99% original

Maximum Inlet Pressure

3000 PSIG (210 BAR)
500 PSIG (34 BAR)

Weight

4.4 lbs. (2 kg)

Ordering Information

533-3	B	C	D
Series	Flow Control	Material	Connection
533-3	0: Multi-turn right to left	2: Brass	0: 1/4" FPT x 1/4" FPT
	2: Multi-turn left to right*	4: 316L stainless steel	1: 6mm tube fitting x 6mm tube fitting
		9: Chrome-plated brass	2: 1/4" tube fitting x 1/4" tube fitting
			3: 1/4" MPT (extended leg) x 1/4" tube fitting
			4: 1/4" MPT x 1/4" MPT
			7: 1/4" MPT x 6mm tube fitting
			8: 1/4" MPT (extended leg) x 1/8" tube fitting
			9: 1/4" MPT (extended leg) x 1/4" FPT

*Only for D=3, 8, & 9

RELIEF VALVES

The 9400 Series Gas Phase Relief Valves offer excellent discharge capacity and field adjustability. The captive seat design minimizes the wetted 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 a gooseneck design that enables a safe discharge.



8309413 shown

Materials & 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 PSIG (255 BAR)

Ordering Information

Part Number	Description	Connections	Materials
8309412	Preset at 220 PSIG: range 130 - 310 PSIG (8.9 - 21 BAR)	1/2" MPT x 1/2" FPT	Brass body, Viton® seat
8309413	Preset at 420 PSIG: range 260 - 600 PSIG (17 - 41 BAR)	1/2" MPT x 1/2" FPT	Brass body, Viton seat
8309414	Preset at 100 PSIG: range 80 - 120 PSIG (5 - 8.2 BAR)	1/4" MPT x 1/2" FPT	Brass body, Neoprene seat
8309415	Preset at 20 PSIG: range 8 - 34 PSIG (0.5 - 2.3 BAR)	1/2" MPT x 1/2" FPT	Brass body, Neoprene seat
5802039	750 PSIG Cryogenic Relief	Male x female CGA 440 (3/8" Flare)	Stainless steel
5802040	750 PSIG Cryogenic Relief	Male x female CGA 295 (1/2" Flare)	Stainless steel

ADVANTIUM 8 ALARM



Designed for use with all CONCOA automatic switchover systems, 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.

Features

High Profile Visible and Audible Notification

Audible Alarm Silence Function

Thirteen Input and Output Channels
Eight input and five output

Dry Contact Relay Output
Four discrete or one general

RS232 Data Interface

NO or NC Switch Capability

Auto-Reset when Cylinders are replenished

Custom configure one to four systems

Specifications

Sound

93 db audible alarm

Power

120V or 220V

Relay Contact

Single pole, double throw (SPDT)

Relay Contact Rating

.5 A@24 VDC

RS232 Serial Port

No parity
9600 baud rate

Dimensions

9 ¹⁹/₃₂ " x 5 ³¹/₆₄ " x 2 ⁶¹/₆₄ "

Power Fuses

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

System Fuses

Internal resettable poly-fuse

Connections

Input connector (D25)
Relay output connector (D15)
RS232 serial output connector (D9)

Ordering Information

Part Number	Description
5295310-01-001	Multi-Station Remote Alarm (120V)
5295311-01-001	Multi-Station Remote Alarm (220V)
5295312	Intrinsic Safety Barriers for 620 Series Switchover Systems (required for flammable gas or hazardous environments)
5295296	Intrinsic Safety Barriers for 621 Series AutoSwitch Systems (required for flammable gas or hazardous environments)
5295316-XX	Cable Available in 3', 10', 25', 50' and 100' lengths. "XX" in part number specifies length.
5295314	Advantium 8 D25 x 4-pin female adapter cable
5295315	Advantium 8 D25 x 6-pin female adapter cable

ALARMS

Accessories

ADVANTIUM 1&2 PLUS REMOTE ALARMS



5750013-01-000 shown

5750023-01-000 shown

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.

Features

Two Input Channels (Advantium 2 PLUS)

Monitors both primary and reserve banks

One Input Channel (Advantium 1 PLUS)

Monitors one source

Dry Contact Relay Outputs

Connect to building or auxiliary systems

NO or NC Switch Compatibility

Customize system signals

Auto-reset on Cylinder Replenishment

No button to push

Ability to “Daisy Chain” Multiple Alarms

Notify multiple users of alarm

Switch Selectable 40-Minute Alarm Delay

Allow for transient events

CE Marked

Conforms to EU directives

Materials

Enclosure

Polycarbonate injection molding

Flame retardant

UV stabilized with mold release

RoHS compliant

Specifications

Audio

93db audible alarm

Power Input

90~264 VAC, 47-63 Hz (US, UK European, Australian, and Chinese adapters included)

Outputs

2 channels (Advantium 2 PLUS)

1 channel (Advantium 1 PLUS)

Dry contacts

Normally open/normally closed (selectable)

Contact rating .5A 24V

Inputs

2 channels

Accepts normally open/normally closed contact closure (selectable)

Resettable fuse protection

Dimensions

4.75 x 7.5" x 2.625"

(120.65mm x 190.5mm x 66.675mm)

Ordering Information

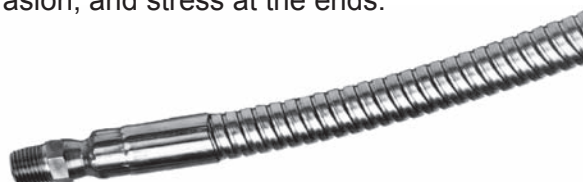
Part Number	Description
5750023-01-000	Advantium 2 PLUS remote alarm (universal input)
5750013-01-000	Advantium 1 PLUS remote alarm (universal input)
5295316-XX	Input Cable Assembly available in 3', 10', 25', 50' and 100' lengths. "XX" in order number denotes length.
5295329-XX	Interconnect Cable Assembly available in 3', 10', 25', 50' and 100' lengths. "XX" in order number denotes length.
5295312	Intrinsic safety Barriers for 515, 526 and 527 Series switchover systems and 529 protocol alarm station
5295296	Intrinsic safety Barriers for 522, 523, 537 Series switchover systems
5295319-XX	Cables for intrinsic safety Barriers (two required)

Accessories

HOSES

TUBE TRAILER HOSE

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 stainless steel 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 & 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

3500 PSIG (245 BAR)

Minimum Burst Pressure

14,000 PSIG (980 BAR)

Centerline Bend Radius

5.0"

Temperature Range

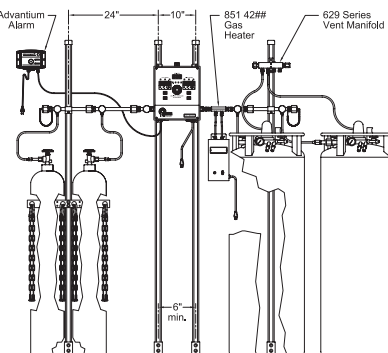
-450°F to 1500°F (-265°C to 815°C)

Ordering Information

Part Number	Length	Weight
5290260	12" (3.7m)	11.5 lbs (5 kg)
5290261	18" (5.5mm)	23 lbs (10 kg)
5290262	12" (3.7m)	34.5 lbs (16 kg)

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 5181625 and 5181725 offer a unique header plate to mount single cylinder per side switchover configurations.



Materials & Specifications

Materials of Construction

Plated steel

Ordering Information

Part Number	Description	Dimensions (LxWxH)
5181625	Single Switchover Floor Stand with Storage for Two 12" (300mm) Cylinders	28" (700mm) x 12" (300mm) x 72" (1800mm)
5181725-01-001	Multiple Switchover Floor Stand with Storage for Six 12" (300mm) Cylinders	24" (600mm) x 48" (1200mm) x 72" (1800mm)
8307437 (Single Port)	Manifold Extension Floor Stand Designed to Provide Support Every 24" from a Pressure Control Device	6" (152mm) x 6" (152mm) 84" (2100mm)
8307439 (Dual Port)	Switchover Floor Stand Designed to Provide Support with Dual Vertical Posts	(300mm) x 12" (300mm) 84" (2100mm)

Accessories HOSES

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.

The non-porous characteristics of stainless steel and its chemically inert properties coupled with zero maintenance requirements make these high pressure flexible hoses 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 & Specifications

Maximum Working Pressure

3000 PSIG (210 BAR)

4500 PSIG (310 BAR)

Materials of Construction

316L (inner core)

304 stainless steel (braid)

304 stainless steel (armor casing)

316L stainless steel (end fittings)

Bend

3" (braided)

4" (armor casing)

Temperature Range

-100°F to 450°F (-73°C to 232°C)

Oxygen Service

Cleaned to CGA G4.1 specifications

Ordering Information

Part Number	Connections	Length	Weight	Core	Casing
5290031-01-CON	1/4" MPT x CON*	36" (900mm)	0.9 (0.4kg)	Stainless Steel	Stainless Steel Armor
5290044-01-CON	1/4" MPT x CON*	36" (900mm)	0.9 (0.4kg)	PTFE	Stainless Steel Braid
5290088-01-CON	1/4" MPT x CON*	36" (900mm)	0.9 (0.4kg)	PTFE	Stainless Steel Armor
5290055-01-CON	1/4" MPT x CON*	72" (1800mm)	1.8 (0.8kg)	PTFE	Stainless Steel Armor
5290094-01-CON	1/4" MPT x CON*	72" (1800mm)	1.8 (0.8kg)	Stainless Steel	Stainless Steel Armor
5290272-01-CON	1/4" MPT x CON*	72" (1800mm)	1.8 (0.8kg)	PTFE	Stainless Steel Armor
5290256-01-CON	1/4" MPT x CON*	144" (3700mm)	3.6 (1.6kg)	Stainless Steel	Stainless Steel Armor
5290058-01-CON	1/4" MPT x CON	36" (900mm)	0.9 (0.4kg)	Stainless Steel	Stainless Steel Armor
5290258-01-CON	1/4" MPT x CON	72" (1800mm)	1.8 (0.8kg)	Stainless Steel	Stainless Steel Armor
5290259 01-CON	1/4" MPT x CON	144" (3700mm)	3.6 (1.6kg)	Stainless Steel	Stainless Steel Armor

*Please specify cylinder connection; CGA, DIN 471, BS 341, and others available

†Maximum working pressure 4500 PSIG (310 BAR)

Accessories

LIQUID CYLINDER HOSES



Materials & Specifications

Materials of Construction

316L (inner core)
304 stainless steel (braid)
304 stainless steel (armor casing)
316L stainless steel (end fittings)

Diameter

.500" inner diameter
1.00" outside diameter

Maximum Operating Pressure

1000 PSIG (70 BAR)

Minimum Bend Radius

6" (0.15mm)

Temperature Range

-450°F to 1500°F (-265°C to 815°C)

Oxygen Service

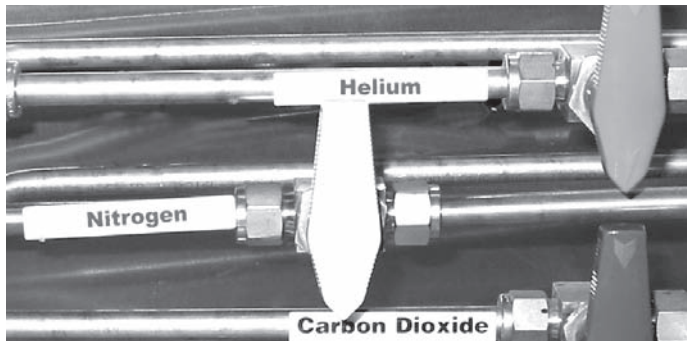
Cleaned to CGA G4.1 specifications

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. Low profile corrugations provide faster filling, lower pressure drop and less product loss. Full armor casing protects the hose from abrasion and damage.

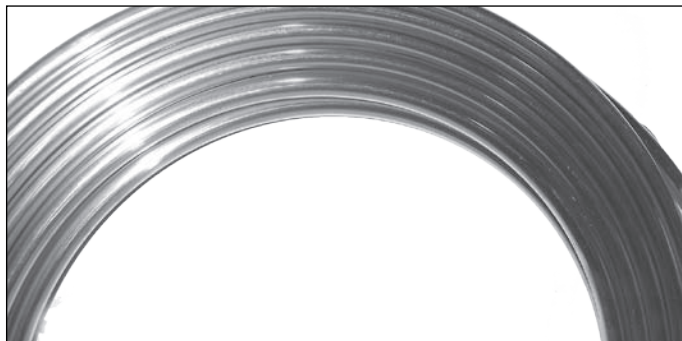
Ordering Information

Part Number	Connections	Length	Weight
5290245	CGA 440 (5/8" Flare) liquid Oxygen	48" (1200mm)	2.2lbs (1 kg)
5290246	CGA 440 (5/8" Flare) liquid Oxygen	60" (1500mm)	2.8lbs (1.3kg)
5290247	CGA 440 (5/8" Flare) liquid Oxygen	72" (1800mm)	3.4lbs (1.5kg)
5290248	CGA 440 (5/8" Flare) liquid Oxygen	120" (3000mm)	5.8lbs (2.6kg)
5290249	CGA 440 (5/8" Flare) liquid Oxygen	144" (3600mm)	7.0lbs (3.1kg)
5290250	CGA 295 (1/2" Flare) liquid Nitrogen and Argon	48" (1200mm)	2.2lbs (1 kg)
5290251	CGA 295 (1/2" Flare) liquid Nitrogen and Argon	60" (1500mm)	2.8lbs (1.3kg)
5290252	CGA 295 (1/2" Flare) liquid Nitrogen and Argon	72" (1800mm)	3.4lbs (1.5kg)
5290253	CGA 295 (1/2" Flare) liquid Nitrogen and Argon	120" (3000mm)	5.8lbs (2.6kg)
5290254	CGA 295 (1/2" Flare) liquid Nitrogen and Argon	144" (3600mm)	7.0lbs (3.1kg)

RESONATOR AND ASSIST GAS TUBING



CONCOA's cleaned and capped, annealed ½" copper tubing is ideal for initial laser assist set up and production. The .035" wall thickness permits 650-700 PSI maximum working pressure at 100°F for both nitrogen and oxygen. In the annealed state, the 50' coiled tubing facilitates ease of installation with mechanical tube fittings. The tubing can be easily formed to minimize right angle bends in order to maximize flow capacity. This makes CONCOA's assist gas tubing the right choice for laser assist performance.



CONCOA's zero permeation 316L ¼" stainless steel seamless tubing meets the laser industry's hydrocarbon free specification. The resonator grade tubing goes a step further by eliminating all halocarbons as a result of the cold finished bright annealed processing. The cold drawn process produces a seamless surface finish that eliminates leak paths (flat spots) associated with welded tubing. The high surface finish reduces surface tension thereby preventing particulate adhesion and off-gassing.

Resonator Tubing

Material

316L stainless steel

Diameter

¼" outside diameter
.035" wall thickness

Length

50 ft (15m)

Maximum Working Pressure

6500 PSIG (524 BAR)

Assist Gas Tubing

Material

ASTM B280 grade copper
Cleaned, capped with N₂ purge

Diameter

¼" outside diameter
.035" wall thickness

Length

50 ft (15m)

Maximum Working Pressure

650-700 PSIG (45-48 BAR) @ 100°F (38°C)

Options

Part Number	Description
9080035	50" (1270mm) 316L ¼" stainless coiled tube
9080032	50" (1270mm) ½" O.D. annealed coiled tube cleaned and capped