Gas Blending Systems

CONCOA PRECISION GAS CONTROLS

652 Series BlendMaster 1000

The BlendMaster 1000 Series mixer precisely blends binary mixtures for the metal fabrication industry. Carbon Dioxide and Helium minor component mixes are consistently delivered to those industrial applications requiring repeatability and control. Available in wall or floor mount and 120 volt or 220 volt configuration, the BlendMaster 1000 delivers the flexibility that yields a low cost of ownership.

Advanced Features

Pressure Equalization Technology
Maintains mix accuracy under fluctuating supply conditions

0-100% Ratio Adjustment
Ensures 1,000 SCFH for all mixes

Gas Piloted Dual-Dome Technology
Maintains mix accuracy by eliminating pressure decay at high-flows

6700 Series Line Regulator
Delivers stable pressure control at high-flows

Applications

Laser Welding
25-50% Argon, balance Helium
Enables higher travel speeds

GMAW (MIG) Welding
0-10% Carbon Dioxide Mild Steel
Deep penetrating spray transfer

15-25% Carbon Dioxide Mild Steel
Spatter-free short arc transfer

Materials

Case
Powder-coated steel

Surge Tank
Powder-coated steel

Regulator
Brass barstock

Seals
Neoprene

40-Micron Inlet Filter
316L stainless steel

Inlet and Outlet Fittings
Brass

Specifications

Flow Capacity
1000 SCFH (28.3 M³/H)

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

Mixed Gas Outlet Pressure
10 - 50 PSIG (.7 - 3.5 BAR)

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

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

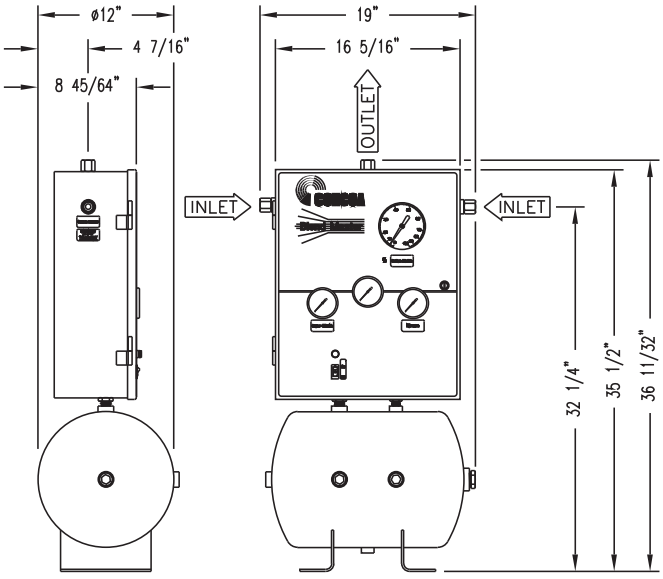
Accuracy
± 1.5%

Weight
102 lbs. (46 kg)

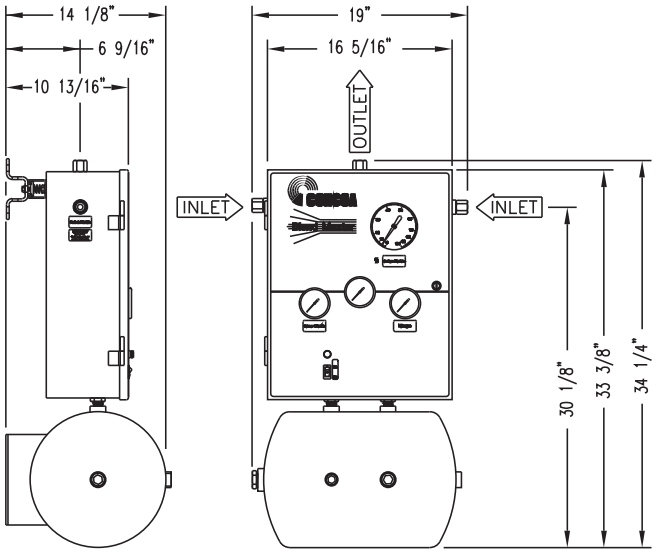
Surge Tank
7 gallon (26.5 liters)

Gas Blending Systems

Installation Dimensions



Floor-Mounted



Wall-Mounted

Ordering Information

Series	Major Gas	Minor Gas	Monitoring*	Assembly	Secondary Scale Major Gas	Secondary Scale Minor Gas
652	1: Argon	1: Argon	0: No Alarm	1: 110V Floor Mount	0: None	0: None
	5: Nitrogen	2: Carbon Dioxide	7: Low Pressure Alarm Capable*	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
			** Remote alarm not included*			5: Nitrogen

Related Options

Part Number	Option	Description
575 0025-01-000	Altos 2 Alarm	Provides real-time cylinder pressure, audible and visual notification of a depleted supply bank to a remote location. (See page 46 for full list of options)

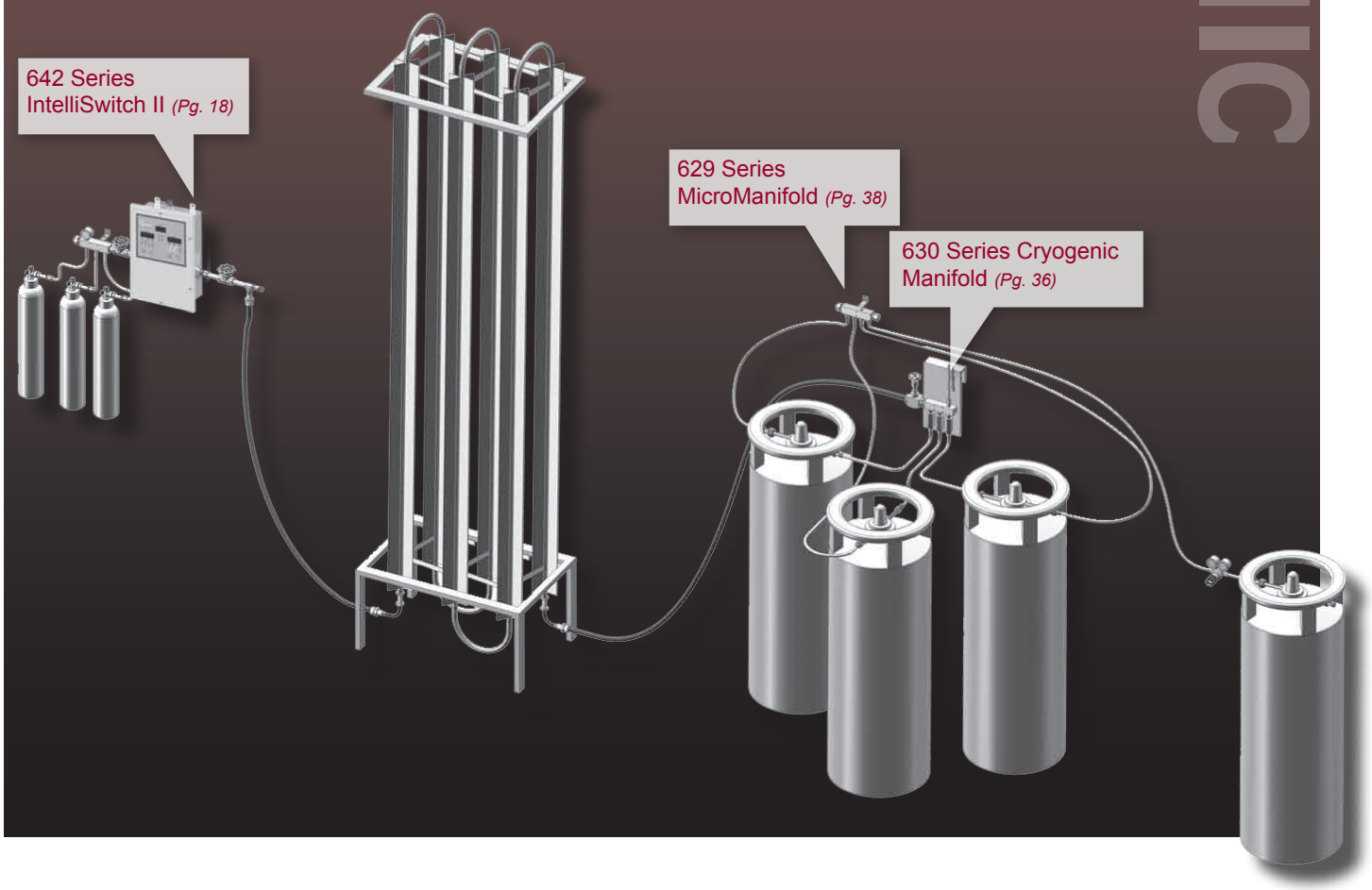
Designing a Cryogenic System

CONCOA
PRECISION GAS CONTROLS

CRYOGENIC

CONCOA cryogenic systems are designed to maintain the pressure and flow of demanding applications. Cryogenic liquid cylinder performance is often misunderstood. The liquid cylinder's specifications typically list gas phase withdrawal directly from the cylinder in the range of 350-400 SCFH. In practice, however, the maximum sustainable flow rate without pressure drop is only 200-250 SCFH. The limiting factor is often the cylinder's pressure-building coil circuit.

To overcome this condition, the user may use the liquid withdrawal valve connected to an external vaporizer. Flow rates of 700-800 SCFH are achievable for a couple of hours before the liquid cylinder's pressure-building circuit is saturated and pressure falls. As illustrated below, CONCOA has packaged the 630 series cryogenic manifold, 629 series vent kit and an auxiliary pressure-building circuit to extend the liquid cylinders' performance to over 4,000 SCFH. This is achievable by using the regulated gas phase from an additional cylinder to push liquid out of each supply can connected to the 630 manifold. Regardless of the volume of liquid pushed out of the cryogenic manifold, the vaporizer must be sized 1.5 times the desired flow capacity. Ambient temperature is vital to the vaporizer's performance, so location and geography must be considered. A continuous operation is achievable when coupled with CONCOA's IntelliSwitch™ series automatic switchovers.



MANIFOLDS

CONCOA PRECISION GAS CONTROLS

633 SERIES DUPLEX HF

The 633 Series Duplex high-flow switchover supports two banks of high-pressure cylinders for applications where manual control of gas supply is preferred. A heavy-duty valve manually controls the bank priority, and line or station regulators should be installed at the point of use to ensure constant delivery pressure. Use of Acetylene requires flashback arrestor on hoses.

Advanced Features

6700 Line Regulator
High-flow capacity

Pressure Ranges 0-15 to 0-200 PSIG
Broad range of applications

Integral Maniflex Manifold System
Easy installation and expansion

Left and Right Banks
Maintain reserve supply

Applications

Pipeline Supply Source
200 PSIG delivery pressure meets NFPA guidelines without compromising flow capacity (15 PSIG maximum for Acetylene)

Fuel Gases
Safely supply Acetylene and other fuel gases for cutting, heating or welding with OSHA regulation compliant manifold systems. Use of fuel gases require flashback arrestor on hoses.

Materials

Delivery Regulator Body
Brass barstock

Delivery Regulator Bonnet
Forged brass

Master Valve
Forged brass

Diaphragm
Fabric-reinforced neoprene

Internal Seals
PTFE and Neoprene

Seat
Neoprene and Viton®

Piping
Brass

Hose Core
Stainless steel
PTFE
Rigid copper

Hose Fittings
Brass

Hose Casing
Armored stainless steel
Stainless steel braid

Specifications

Maximum Inlet Pressure
3000 PSIG (210 BAR)

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

Maximum Flow
6000 SCFH (2830 LPM)

Outlet Connection
½" FNPT

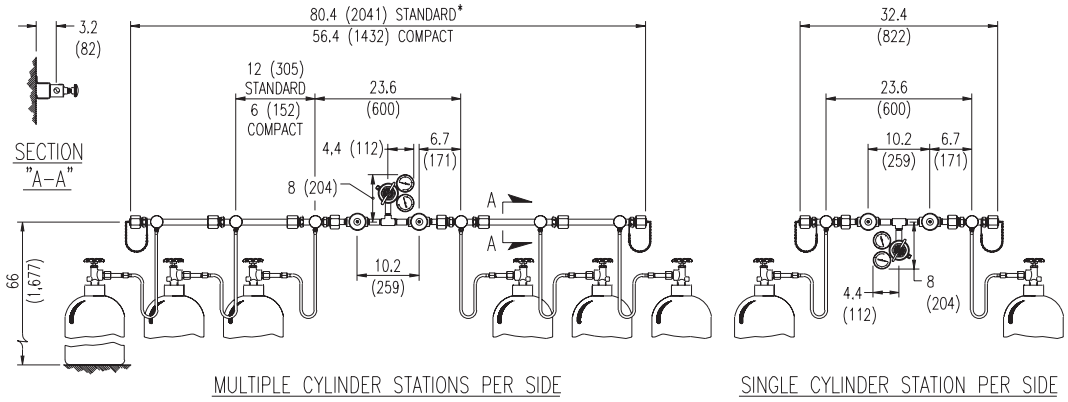
Weight
23 lbs. (10.4 kg)

CRN 0H15806.5

MANIFOLDS

CONCOA PRECISION GAS CONTROLS

Mounting and Dimensional Information for the 633 Series Duplex HF



Ordering Information

Series	Outlet Pressure	Manifold Style	Hose Style	Stations/Side	-Cylinder Connection	Options
633	2: 0-40 PSIG (0-3 BAR)	1: Standard Length (12" between stations) with One Cylinder/Station	2: 24" Rigid Copper	1: One Station	Inlet connection (if applicable) PTFE-lined hoses for Oxygen service include accumulator extensions to prevent ignition from adiabatic compression. PTFE-lined hoses not for use with Helium or Hydrogen.	C: Foreign Inlets Carbon Dioxide & Inert F: Arrestor for 300, 410, 510 R: Foreign Inlets Air, Hydrogen, Oxygen, Oxygen Mix
	3: 0-120 PSIG (0-8 BAR)	3: Standard Length (12" between stations) with Two Cylinder/Station	3: 72" Flexible Stainless Steel Armor Case with Stainless Steel Core	2: Two Stations		
	4: 0-200 PSIG (0-13 BAR)	4: Compact Length (6" between stations) with One Cylinder/Station	4: 24" Flexible Stainless Steel Braided with PTFE Core	3: Three Stations		
	5: 0-15 PSIG* (0-1 BAR)	6: Compact Length (6" between stations) with Two Cylinders/Station	5: 36" Flexible Stainless Steel Armor Case with Stainless Steel Core	4: Four Stations		
			6: 36" Flexible Stainless Steel Braided with PTFE Core	5: Five Stations		
			7: 24" Flexible Stainless Steel Armor Case with Stainless Steel Core	6: Six Stations		
			8: 36" Rigid Brass with Flash Arrestor (CGA 300 & 510 Acetylene only)	7: Seven Stations		
			9: 72" Flexible Stainless Steel Braided with PTFE Core	8: Eight Stations		
	** Outlet gauge redline for Acetylene service*			9: Nine Stations		

Related Options

Part Number	Option	Description
830 7437	Manifold Floor Stand	Supports two standard length (12") manifold extensions installed consecutively
See page 55	Station Regulators	Precise pressure delivery at the point of use
801 7011 801 7015	Flashback Arrestors	Use of Acetylene requires flashback arrestors on hoses. Meets OSHA and NFPA Std. 51 requirements and complies with ISO 5175 (heavy class) DIN 8521, and BS 6158. (See page 54)

Cylinder Regulators

CONCOA PRECISION GAS CONTROLS

6800 Series

High-flow Heavy Duty Heating and Cutting

The 6800 Series High-flow Heavy Duty heating and cutting regulator provides primary pressure control of industrial gas cylinders in applications requiring high-flow rates with delivery pressures up to 250 PSIG. The stainless steel diaphragm provides sensitive pressure control and reliable performance in cold climates while the large orifice seat and ½" process ports enable ultra-high-flow rates. Combined with robust materials of construction and a wide range of delivery pressures, the 6800 series is an ideal choice for heavy duty, high-flow heating and cutting applications.

806 6800 Shown

Features

½" Seat and Outlet Port
Ultra high-flow

Stainless Diaphragm Model
Cold climate performance

2 ½" PSIG/kPa Pressure Gauges
Excellent visibility

Materials of Construction

Body
Forged brass

Bonnet
Chrome-plated die-cast zinc

Seat
PTFE, PCTFE

Diaphragm
Stainless steel

25-Micron Inlet Filter
Bronze

Specifications

Max Inlet Pressure
PTFE 3000 PSIG
PCTFE 5500 PSIG

Temperature Range
PTFE -40 to 140° F (-40 to 66° C)
PCTFE -40 to 150° F (-40 to 66° C)

Cv
.28

Gauges
2-½" manufactured to ANSI/ASME B40.1

Conformances
CGA E-4

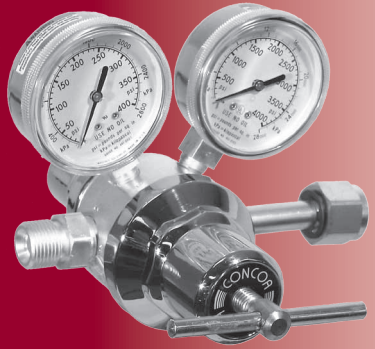
Ordering Information

Part Number	Gas Service	Inlet	Outlet Pressure	Outlet Fittings	Pressure Gauges
806 6800-01-1	Oxygen	CGA 540	0-250 PSIG (0-17 BAR)	⅞ -14 "C" RH Ext.	400 & 4000 PSIG
806 6866-01-1*	Oxygen	CGA 540	0-250 PSIG (0-17 BAR)	½" stainless tube	400 & 4000 PSIG
806 6806-01-1	Oxygen	CGA 540	0-125 PSIG (0-9 BAR)	⅞ -14 "C" RH Ext.	200 & 4000 PSIG
806 6802-01-1	Acetylene	CGA 300	0-15* PSIG (0-1 BAR)	⅞ -14 "C" LH Ext.	30 & 400 PSIG
806 6809-01-1	Acetylene	CGA 510	0-15* PSIG (0-1 BAR)	⅞ -14 "C" LH Ext.	30 & 400 PSIG
806 6832-01-1	Fuel Gas	CGA 510	0-40* PSIG (0-3 BAR)	⅞ -14 "C" LH Ext.	60 & 400 PSIG
806 6807-01-1	Hydrogen, Methane	CGA 350	0-250 PSIG (0-17 BAR)	⅞ -14 "C" LH Ext.	400 & 4000 PSIG
806 6813-01-1	Hydrogen, Methane	CGA 350	0-125 PSIG (0-9 BAR)	⅞ -14 "C" RH Ext.	200 & 4000 PSIG
806 6805-01-1	Argon, Nitrogen, Helium	CGA 580	0-250 PSIG (0-17 BAR)	⅞ -14 "C" RH Int.	400 & 4000 PSIG
806 6803-01-1	Argon, Nitrogen, Helium	CGA 580	0-125 PSIG (0-9 BAR)	⅞ -14 "C" RH Int.	200 & 4000 PSIG
806 6865-01-1*	Argon, Nitrogen, Helium	CGA 580	0-250 PSIG (0-17 BAR)	½" stainless tube	400 & 6000 PSIG
806 6808-01-1	Air	CGA 346	0-250 PSIG (0-17 BAR)	⅞ -14 "C" RH Ext.	400 & 4000 PSIG
806 6818-01-1	Air	CGA 346	0-125 PSIG (0-9 BAR)	⅞ -14 "C" RH Ext.	200 & 4000 PSIG
806 6868-01-1*	Argon, Nitrogen, Helium	CGA 680	0-250 PSIG (0-17 BAR)	½" stainless tube	400 & 6000 PSIG
806 6867-01-1	Air	CGA 347	0-250 PSIG (0-17 BAR)	½" FNPT	400 & 6000 PSIG

** Stainless steel diaphragm*

** Acetylene should not be used over 15 PSIG*

6800 Series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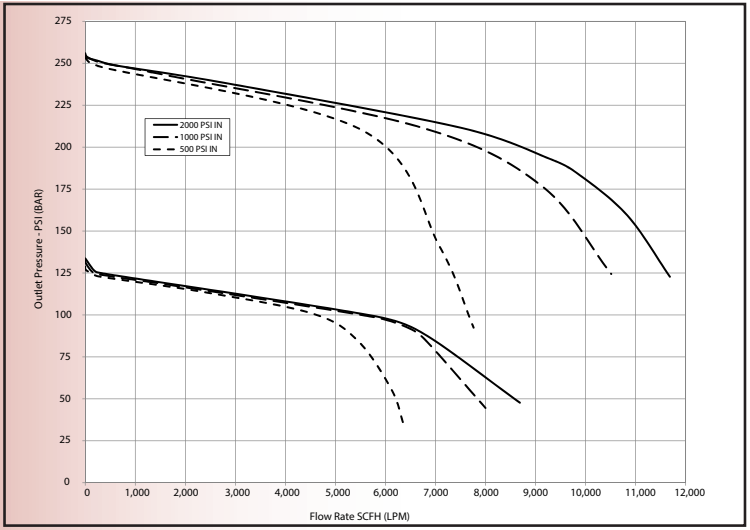
2000 PSI IN
1000 PSI IN
500 PSI IN
Outlet Pressure - PSI (BAR)
Flow Rate SCFH (LPM)
0
25
50
75
100
125
150
175
200
225
250
275
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
11,000
12,000