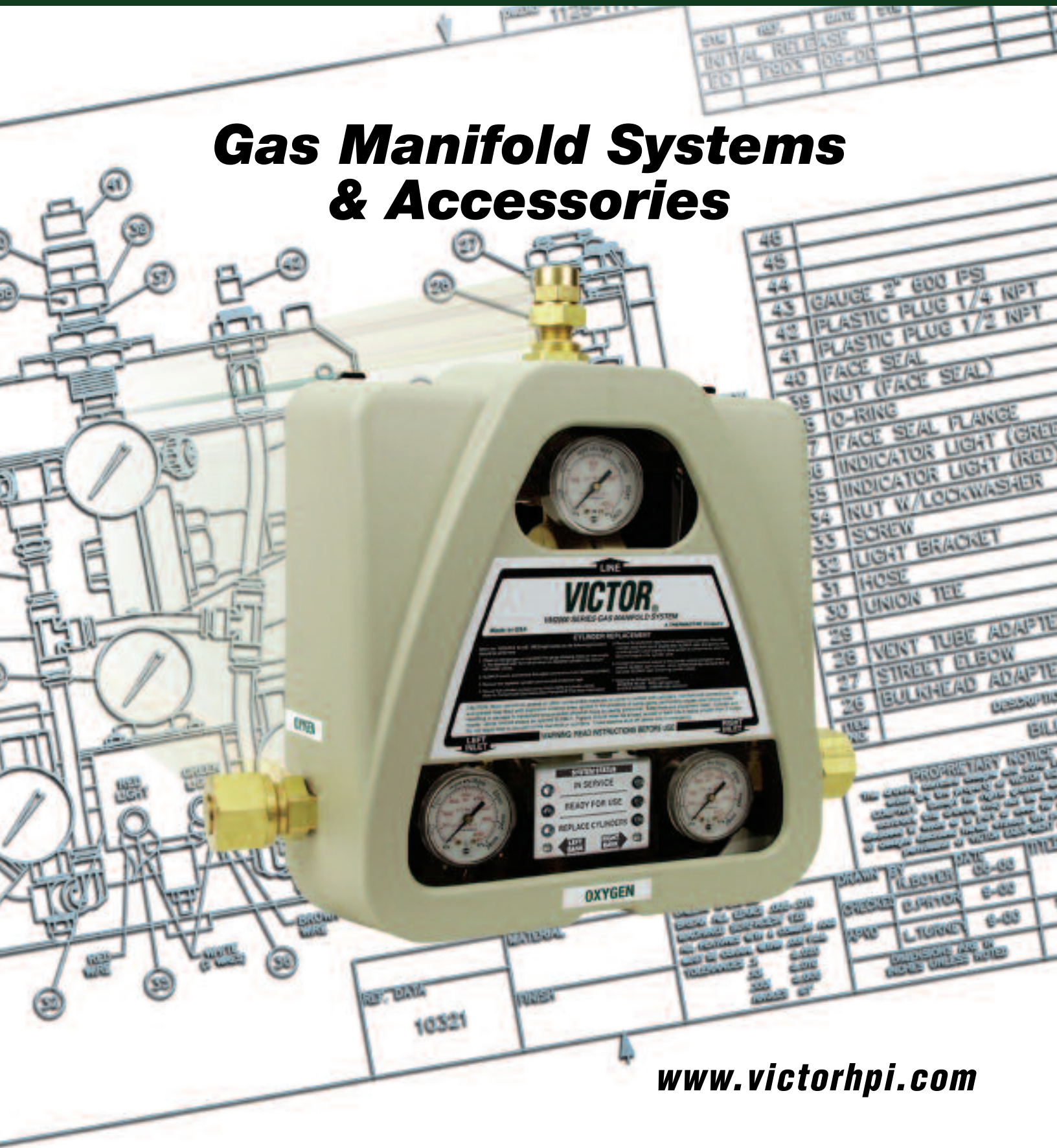
GENUINE Since 1913 APPARATUS™

VICTOR®
Specialty Products

Gas Manifold Systems & Accessories



www.victorhpi.com

Table of Contents

VICTOR® Specialty Products

Victor Manifold Systems meet or exceed the following industry standards:

Industry Standards

- Compressed Gas Association, Pamphlets V-1, E-1 and G-1
- American National Standards Institute, Pamphlet B-57.1
- Canadian Standards Association, Pamphlet B-96
- National Fire Protection Association, Pamphlets NFPA-51
- Underwriters Laboratories, Pamphlet UL407

Components which are U.L. Listed:

- Victor Manifolds *
- Primary Regulators
- Line Regulators
- Station Regulators
- Pressure Switches
- Flash Arrestors (in-line)
- Master Valves
- Alarm Systems (Pending)

Components which are FM Listed:

- Hydraulic Flash Arrestors
- Pressure Switches

Components which are CSA Approved:

- Pressure Switches

**Nitrous Oxide manifolds are UL listed, industrial use only.*

Victor® Standard / Features

- Easy to Order, User Friendly Model Number System.
- Brazed Connections on all piping where possible to minimize the risks of leaks through threaded connections.
- 100% Tested.
- Shipped Complete. All manifolds come complete with adjustable regulator, brazed brass headers, pigtails with check valves (rigid or flexible depending on gas service), relief valves, and wall brackets.
- All systems designed to provide expandability in the event of future growth requirements (except Dual systems).
- All manifolds cleaned for oxygen service.
- The accuracy and dependability of Victor Regulators.
- Two Year Warranty.
- Worldwide Field Sales and Technical Support.
- Manifolds greater than six (6) stations per header are shipped in six (*6 maximum*) station sections.

For Manifold questions call
1-800-569-0547

UNITED STATES CUSTOMER SERVICE
Phone: 1-800-569-0547 • FAX: 1-800-569-0549
For International & Canada see back cover.

Manifold Application

VICTOR® Specialty Products

MAKE A COPY OF THIS PAGE. KEEP THIS AS A MASTER.

Determining the right manifold for you application (Checklist)

1) What is the application that the manifold will service?_____
_____
2) What gas is required for your application?_____
(ie. Oxygen, Nitrogen, Acetylene, etc.)
3) What CGA connection is used for this gas service? _____
(ie. 540, 320, 510, etc.)
4) Do you require automatic or manual gas control? _____
5) What is the configuration required? Standard or Special? If Special, please indicate type and the actual dimensions of the area in which the manifold will be located._____
_____
6) Required line delivery pressure? (PSIG) _____
7) Volume Requirements:
SCFH per month:_____
Peak Flow Rate:_____
CF Size of Cylinders to be Used:_____
days required between cylinder change: _____
Total # of Cylinders on the manifold: (see below) _____
8) Installation: Inside or Outside? _____
(Systems used outside must be shielded from direct weather contact.)
9) Accessories Required:

_____	Pressure Switch	Type: _____
_____	Alarm System	Type: _____
_____	Hydraulic Flash Arrestor	_____
_____	Hydraulic Flash Arrestor Stand	_____
_____	Cylinder Brackets	Type: _____
_____	Gas Service Labels	Type: _____
_____	Line Regulators	Type: _____
_____	Station Regulators	Type: _____
_____	Flowmeters	Type: _____
_____	Station Drops	List: _____
_____	Other (s)	_____

Cylinder Formula

Cylinder Volume = CF of Cylinder Less Residual Gases.

CF/Day/Station = (CFH/Station) X (# Hours/Day) X Duty Cycle

CF/Day = (CF/Day/Station) X (# Stations)

$$\frac{\text{CF/Day}}{\text{Cylinder Volume}} = \text{Cylinders/Day}$$

$$\frac{\text{Planned Cylinders/Header}}{\text{Cylinder Day}} = \text{Days/Header X \# of Headers}$$

Maximum Days/Header X # of Headers Days Between Deliveries

How to Order Open Style Manifolds

VICTOR® Specialty Products

Victor Manifold Systems are designed to make your ordering experience simple and easy to understand. Despite a product line which appears to be complex, this ordering system will allow you to get the right product to you or your customer.

The key to ordering is having the right information on what your needs are for the particular application. We have thus provided a checklist (p. 4) of the key information you will need to make the ordering process trouble-free. Should you require additional information, please contact our Customer Service Department at (US) 1-800-569-0547.

Manifold Ordering Matrix

Gas Service	Center Section*	Regulator	Header (R)	Header (L)	Pigtail	Options
Acetylene Air Argon CO_2 Helium Hydrogen Nitrogen Methane Nitrous Oxide Oxygen Propane Proplene Propylene	**Dual** **SP LXR** (Right Inlet) **SP LXL** (Left Inlet) **SSIN** **SAM** **Liquid**	**Single Stage** SR450MD SR450ME SR452MD SR453MD SR460MA SR461MB **High Flow** SR700MD SR700ME SR710MA SR711MB SR711MD **Two Stage** VTS450MD VTS450ME VTS452MD VTS452ME **High Pressure** SR4MF-996 SR4MF-997 SR4MG-996 SR4MG-997 SR4MJ-996 SR4MJ-997	***Right Side Wall Mount*** (**RW** = right side wall mount) 1RW 2RW 3RW 4RW 5RW 6RW 7RW 8RW ***Stand Mount*** (**RS** = right side stand mount) 2RS 4RS 6RS 8RS 10RS 12RS	***Left Side Wall Mount*** (**LW** = left side wall mount) 1LW 2LW 3LW 4LW 5LW 6LW 7LW 8LW ***Stand Mount*** (**LS** = left side stand mount) 2LS 4LS 6LS 8LS 10LS 12LS	***See Page 26 for Details.***	**00** With Line Regulator **02** Without Pipe Line Relief **03** With Alarm & Switch **04** With Alarm Switch Visual Only **09** With Hydraulic Flash Arrestor **10** Without Hydraulic Flash Arrestor

*Refer to the manifold selection section (p. 6) for detailed descriptions of all Victor manifolds and their applications.

Step by Step Ordering Example

Step 1 Identify the gas service. (Ex. Acetylene)

Step 2 Center Section - locate the model in the catalog that best suits your needs.
(Ex. SSIN - one side in use with other in reserve. Service may be interrupted.)

Step 3 Select regulator for the flow rates and gas service.
(Ex. Acetylene - SR460MA, SR710MA are available for acetylene service.)

Step 4 Determine whether your needs require wall or stand mount and how many different cylinders per side (if applicable). (Ex. 2 RW & 2LW - 2 right hand wall mount and 2 left hand wall mount)

Step 5 Determine length of pigtail needed and CGA connection. Use chart on Page 26
(Ex. 510 x 24" pigtail flex with CV & FA.)

Step 6 Any options that are needed for the system. (Ex. With 300 SCFH flash arrestors and stand needed)

ORDERING EXAMPLE:

Acetylene - SSIN - SR460MA - 2RW-2LW - 510 - 24 FTCVFA - List Options

Applications

The Victor Dual manifold system is designed for those in need of basic manifolding.This manifold can provide two cylinder service for applications such as service stations, maintenance departments and other situations requiring simple manifolding. These are non-expandable systems with a maximum of two cylinders in service at one time.

Design and Construction

- Open Style Manifold
- Choice of Regulators - See page 31
- Individual Station Shut-off Valves
- 3/4" NPT(F) Outlet
- Headers (7/8" brass pipe with bar stock tees)
- Brazed construction for maximum leak prevention
- Pigtails (check valves are standard)
  - 24 inch rigid for Hydrogen, Helium & N_2O
  - 24 inch flexible for all other gases.
  - Acetylene models equipped with dry flash arrestors.
- Wall mount only
- 200 # Relief Valve to protect downstream piping (except fuel gas)

Performance Specifications

- Maximum inlet: 3000 PSIG
- Maximum Temperature Range: 140°F
- Minimum Temperature Range: 0° F

* Dimensional data see page 38

Basic Dual Model

Simplex Manifold- SPLXR & SPLXL

Applications

The Victor Simplex manifold system is designed to provide a single source of supply from one cylinder bank. Although these manifolds can be used as a primary source of gas, the typical application finds this model as a high pressure back-up system for liquid or bulk tank systems in industry and medical environments.

Design and Construction

- Open Style manifold
- Choice of Regulators - See page 31
- Master Shut-off Valve
- Individual Station Shut-off valves
- 3/4" NPT(F) Outlet
- Headers (7/8" Brass Pipe with Bar Stock Tees)
  - 10 inch centers for Oxygen, Inert Gases & Hydrogen
  - 13 inch centers for Acetylene & Fuel Gases
- Brazed construction for maximum leak prevention
- End capped to accommodate future expansion needs
- Pigtails (check valves are standard)
  - 24 inch rigid for Hydrogen, Helium, & N_2O
  - 24 inch flexible for all other gases.
  - Acetylene models equipped with dry flash arrestors.
- 200 # Relief Valve to protect piping (except fuel gas)
- Right & left hand inlets available
- Wall or stand mount available
- Acetylene and propane systems with two or more stations are shipped with a hydraulic flash arrestor-300 SCFH

Performance Specifications

- Maximum inlet: 3000 PSIG
- Maximum Temperature Range: 140°F
- Minimum Temperature Range: 0°F

* Dimensional data see page 38

Basic Simplex Model

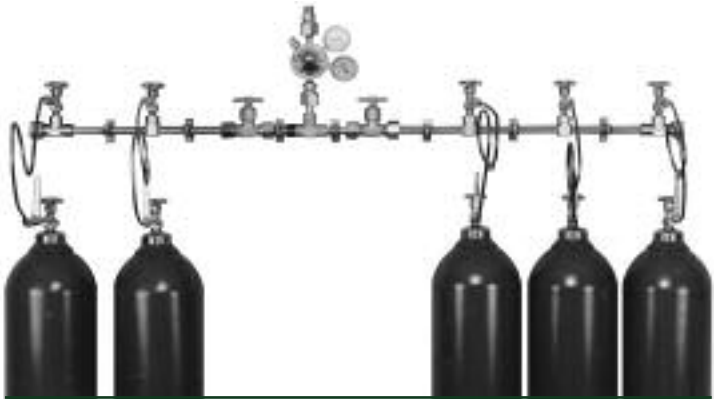
Applications

The Victor Single manifold system is designed to provide a dual source of supply via a primary and reserve bank of cylinders. This manifold can provide effective service to any application in which down-time is not a problem. Once the primary bank has been depleted the reserve bank can be manually activated to return the system to working status.

Design and Construction

- Open Style Manifold
- Choice of regulators - See page 31
- Master Shut-off Valves
- Individual Station Shut-off valves
- 3/4” NPT(M) Outlet
- Headers (7/8” brass pipe with bar stock tees)
  - 10 inch centers for Oxygen, Inert Gases & Hydrogen
  - 13 inch centers for Acetylene & Fuel Gases
- Brazed construction for maximum leak prevention
- End capped to accommodate future expansion needs
- Pigtails (check valves are standard)
  - 24 inch rigid for Hydrogen, Helium, & N_2O
  - 24 inch flexible for all other gases.
  - Acetylene models equipped with dry flash arrestors.
- Acetylene and propane systems with two or more stations, are shipped with a hydraulic flash arrestor - 300 SCFH
- Pressure switch port included,1/4" NPT(F)
- Wall or stand mount available
- 200 # Relief Valve to protect piping (except fuel gas)

* Dimensional data see page 38



Basic Single Model

Performance Specifications

- Maximum inlet: 3000 PSIG
- Maximum Temperature Range: 140°F
- Minimum Temperature Range: 0°F

Semi Automatic Manifold - SAM

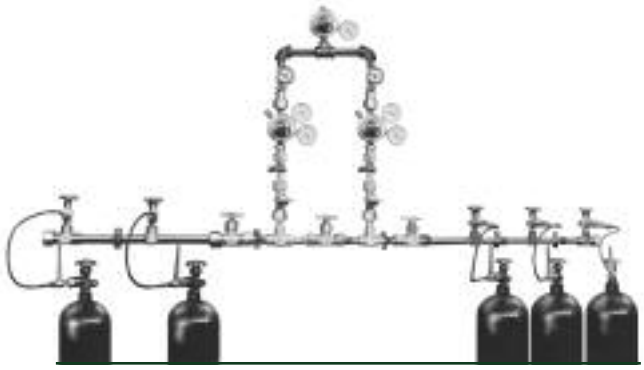
Applications

The Victor Semi-Automatic manifold system is designed to provide an uninterrupted supply to any application requiring no down-time. As the primary supply is depleted a reserve supply is waiting to automatically begin service. Through pressure differential the switchover takes place without interruption of service, once depleted the primary bank can be replaced and becomes the new reserve bank.

Design and Construction

- Open Style Manifold
- Choice of regulators - See page 31
- Adjustable Line Regulator (except for fuel gas)
- Master Shut-off Valves
- Individual Station Shut-off Valves
- 3/4” NPT(M) Outlet
- Headers (7/8” brass pipe with bar stock tees)
  - 10 inch centers for Oxygen, Inert Gases & Hydrogen
  - 13 inch centers for Acetylene & Fuel Gases
- Brazed construction for maximum leak prevention
- Low Pressure Side - Black Pipe
- End capped to accommodate future expansion needs
- Pigtails (check valves are standard)
  - 24 inch rigid for Hydrogen, Helium, & N_2O
  - 24 inch flexible for all other gases.
  - Acetylene models equipped with dry flash arrestors.
- Acetylene and propane systems with two or more stations, are shipped with a hydraulic flash arrestor - 300 SCFH
- Pressure switch port included, 1/4" NPT(F)
- Wall or stand mount available
- 200 # Relief Valve to protect piping (except fuel gas)

* Dimensional data see page 38



Basic SAM Model

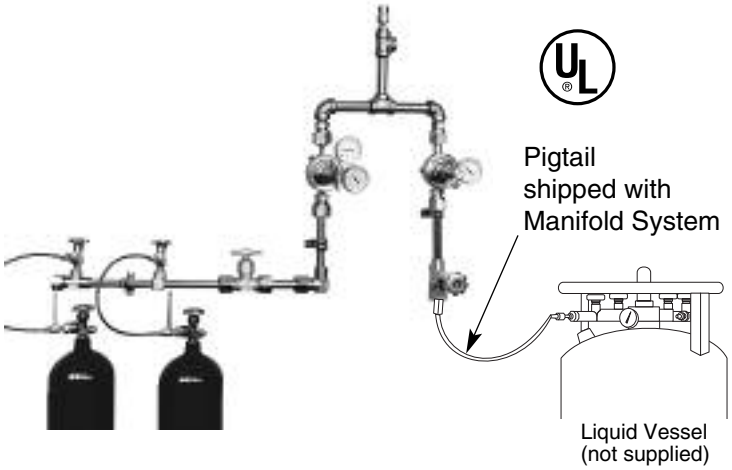
Performance Specifications

- Maximum inlet: 3000 PSIG
- Minimum pressure differential between primary & reserve bank is +/- 20 psig (+/- 5 PSIG Acetylene)
- Maximum Temperature Range: 140°F
- Minimum Temperature Range: 0°F

Designed for applications with “low flow rates”, this liquid/high pressure back-up manifold prevents excessive product loss. For applications with sufficient volume for liquid usage.

Design and Construction

- Open style manifold
- LC700 series regulator L.P. side See page 31
- SR450 series backup regulator H.P. side
- Adjustable Line Regulator downstream
- 3/4”NPT(F) Outlet
- High Flow Relief Valves
- Master shut off valve (H.P.)
- Individual station shut-off valves
- Headers (H.P.)
  (7/8" brass pipe with bar stock tees)
  - 10 inch centers for O_2 & other Inerts
- Brazed Construction for maximum leak protection
- Pressure switch port included on H.P. side, 1/4" NPT(F)
- End capped to accommodate future expansion needs
- 200# relief valve to protect piping



Model Shown: LIQ-IRW-2LW-580-36FTCV

Liquid is always on the right.

Performance Specifications

- Maximum Inlet: 400 PSIG low pressure bank
  3000 PSIG high pressure bank
- Maximum Delivery: 200 PSIG
- Minimum Pressure Differential +/- 20 PSIG
- Maximum Temperature: 140°F
- Minimum Temperature: 0°F

Dimension - Overall Length- Height 30 Inches				
# of Cylinders	Control Only	3 X 1	6 X 2	8 X 3
Inches	30.0	67.4	97.4	117.4
Centimeters	76.2	171.2	247.4	298.2

M0del No.	Gas Service	PSIG Delivery Range
LIQ	**540** OXYGEN	10 - 200
	580 INERTS	
	320 CO_2	

Portable Bulk Liquid Containers
What you need to know?

***Vaporization Rate:** Typically 250 to 350 SCFH

Outlet Pressure: Typically 125 PSIG
300 PSIG Models are also available

Evaporization Rate: Up to 3% per day will vent to atmosphere

Temperature: Vaporizing gas is very cold.
Approximately -300° Fahrenheit.

Warning:
Multiple liquid cylinder manifolds MUST have the pressure building regulator of each vessel set at the same pressure to insure proper cylinder withdrawal.

All Victor Manifolds are expandable to meet changing application requirements.
Victor header extensions are easy to add to your existing Victor manifold system.

Design and Construction

- 3000 PSIG Rated
- Brazed brass construction for maximum leak protection
- Right or left side expansions.
- 1" x 11½" NPS Connections
- End capped to accommodate future expansion needs. (Option #08)
- Pigtails (Check valves are standard)
  - 24 inch rigid for Hydrogen, Helium & N_2O
  - 24 inch flexible for all other gases
  - Acetylene models equipped with dry flash arrestors
  - High purity brass and stainless models also available. Contact Victor Customer Service.

Model Shown: HER-3* (Right Side)

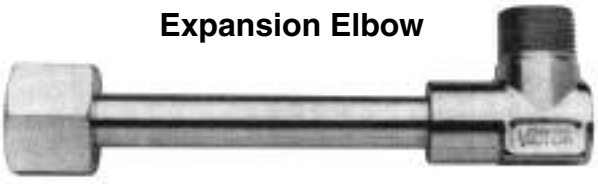
* Includes valves and pigtails as shown above

Looking at the manifold.

HEL = Left Side **HER =** Right Side

Dimension - Overall Length				
# of Cylinders	1	2	3	4
Inches	17.4	27.4	37.4	47.4
Centimeters	44.1	69.5	94.9	120.4

Expansion Elbow



EXPANSION ELBOW - 90° ANGLE 1"-1-1/2 NPS (F) X 1"-11-1/2 NPS (M)	
Part No.	**Length**
1109-0503	4-1/2" LONG
1109-0501	8-1/3" LONG
1109-0502	11-1/3" LONG

For Manifold questions call

1-800-569-0547

Victor offers Station drops in 3 various configurations - single, double, and quad systems.
Each system can be outfitted for various gas service with the proper station valve or outlet valve.

Single (18.5")

Double (30.5")

Quad (30.5")

Oxygen

Description	Model	Part Number
Single Station Drop with Station Valve 7/8" - 14 RH outlet CGA 024	SD - 1 - 024	1126 - 0003
Double Station Drop with Station Valve 7/8" - 14 RH outlet CGA 024	SD - 2 - 024	1126 - 0007
Quadruple Station Drop with Station Valve 7/8" - 14 RH outlet CGA 024	SD - 4 - 024	1126 - 0011
Single Station Drop with Ball Seat Valve 9/16" - 18 RH outlet CGA 022	SD - 1 - 022	1126 - 0018
Double Station Drop with Ball Seat Valve 9/16" - 18 RH outlet CGA 022	SD - 2 - 022	1126 - 0020
Quadruple Station Drop with Ball Seat Valve 9/16" - 18 RH outlet CGA 022	SD - 4 - 022	1126 - 0015

Fuel Gas

Description	Model	Part Number
Single Station Drop with Station Valve 7/8" - 14 LH outlet CGA 025	SD - 1 - 025	1126 - 0004
Double Station Drop with Station Valve 7/8" - 14 LH outlet CGA 025	SD - 2 - 025	1126 - 0008
Quadruple Station Drop with Station Valve 7/8" - 14 LH outlet CGA 025	SD - 4 - 025	1126 - 0012
Single Station Drop with Ball Seat Valve 9/16" - 18 LH outlet CGA 023	SD - 1 - 023	1126 - 0019
Double Station Drop with Ball Seat Valve 9/16" - 18 LH outlet CGA 023	SD - 2 - 023	1126 - 0021
Quadruple Station Drop with Ball Seat Valve 9/16" - 18 LH outlet CGA 023	SD - 4 - 023	1126 - 0016

W/ Station Valve

Description	Ordering Info	Part Number
Single Station Drop with Station Valve **CGA 034**	SD - 1 - 034	1126 - 0005
Double Station Drop with Station Valve **CGA 034**	SD - 2 - 034	1126 - 0009
Quadruple Station Drop with Station Valve **CGA 034**	SD - 4 - 034	1126 - 0013

W/ Ball Valve

Description	Ordering Info	Part Number
Single Station Drop with Ball Seat Valve 5/8" - 18F RH **CGA 032**	SD - 1 - 032	1126 - 0006
Double Station Drop with Ball Seat Valve 5/8" - 18F RH **CGA 032**	SD - 2 - 032	1126 - 0010
Quadruple Station Drop with Ball Seat Valve 5/8" - 18F RH **CGA 032**	SD - 4 - 032	1126 - 0014

Station Regulators and Flowmeters are available.

250 Series (Light Duty)

Oxygen	Delivery Range (psi)	Part Number
S 250 B - 024	0-40	0781-1261
S 250 D - 024	0-125	0781-1262

Fuel Gas	Delivery Range (psi)	Part Number
S 260A - 025 (Acet & LP)	0-15	0781-1263
S 261C - 025 (LP only)	0-80	0781-1264
S 261D - 025 (LP only)	0-125	0781-1265

350 Series (Medium / Heavy Duty)

Oxygen	Delivery Range (psi)	Part Number
S 350 BR - 024 (rear)	0-40	0781-2508
S 350 DR - 024 (rear)	0-125	0781-2509
S 350 B - 024 (side)	0-40	0781-2503
S 350 D - 024 (side)	0-125	0781-2502

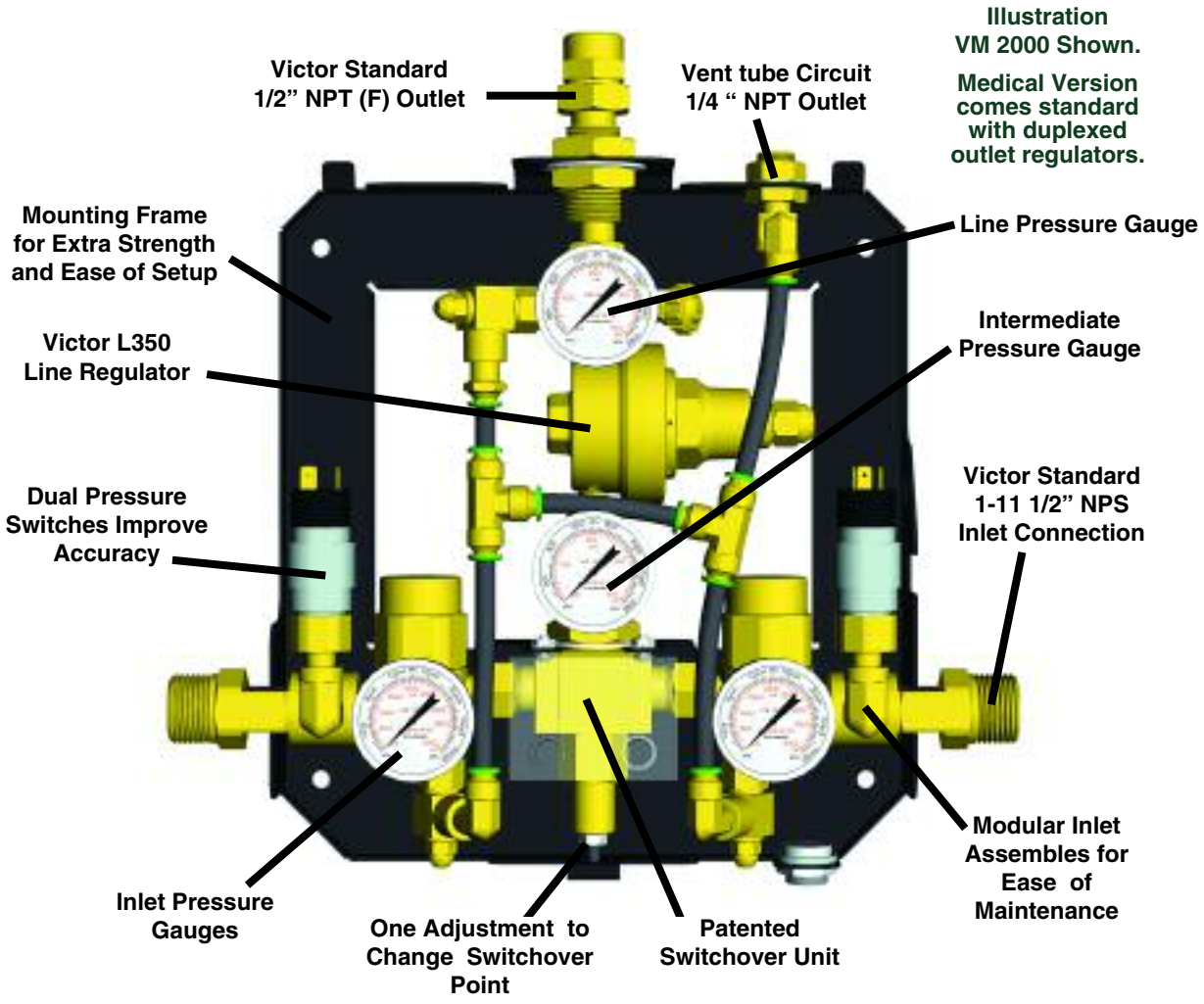
Fuel Gas - rear entry	Delivery Range (psi)	Part Number
S 360AR - 025 (Acet)	0-15	0781-2510
S 361BR - 025 (LP only)	0-40	0781-2511
S 361CR - 025 (LP only)	0-80	0781-2487
Fuel Gas - side entry		
S 360A - 025 (Acet)	0-15	0781-2504
S 361B - 025 (LP only)	0-40	0781-2501
S 361D - 025 (LP only)	0-125	0781-2513

700 Series (Extra Heavy Duty)

Oxygen	Delivery Range (psi)	Part Number
L 700 D - 750 (side) (3/4" NPT inlet)	0-125	0780-1299
L 700 E - 750 (side) (3/4" NPT inlet)	0-200	0780-1300

Fuel Gas - side entry	Delivery Range (psi)	Part Number
L 711 C - 750 (LP gas) (3/4" NPT inlet)	0-80	0780-1298

Other Line and Station regulators are available.
See page 28 & 29 for further selection.



Manifold Headers and Heater

VM Series Manifold Shown with Headers and Heater.

VM Series Manifold Shown with Compact Headers

Victor Manifold Systems are designed to make your ordering experience simple and easy to understand. Despite a product line which appears to be complex, this ordering system will allow you to get the right product to you or your customer.

The key to ordering is having the right information on what your needs are for the particular application. We have thus provided a checklist below of the key information you will need to make the ordering process trouble-free.

Should you require additional information, please contact our Customer Service Department at (US) 1-800-569-0547. Additionally, we offer a worldwide network of trained District and Regional Managers who would be glad to assist you.

VM Series Manifold Ordering

MODEL NUMBER SYSTEM

GAS XXXXX - XXX - XXX - XXX - XXXXXXX - XX

Gas Service	Center Section	Header (RIGHT)	Header (LEFT)	CGA	Length/Style	Options
Acetylene **Air** **Argon** **Carbon Dioxide** **Helium** **Hydrogen** **Nitrogen** **Methane** **Nitrous Oxide** **Oxygen** **Propane**	**VM2000** (Industrial) **VM2100** (Medical) **VM1000** (Industrial Liquid) **VM1100** (Medical Liquid) **VM2010** (C_2H_2) **VM2011** (LP) **VM2012** (H_2 Methane)	**Wall Mount** 1RW 2RW 3RW 4RW 5RW 6RW 7RW 8RW **Stand Mount** 2RS 4RS 6RS 10RS 12RS **VM1000/1100** 1RWC 2RWC 3RWC	**Wall Mount** 1LW 2LW 3LW 4LW 5LW 6LW 7LW 8LW **Stand Mount** 2LS 4LS 6LS 10LS 12LS **VM1000/1100** 1LWC 2LWC 3LWC	**Acetylene** 200, 300, 520, 510 **Air** (Industrial) 590 **Air** (Breathing) 346 **Argon** 580 **Carbon Dioxide** 320 **Helium** 580 **Hydrogen** 350 **Nitrogen** 580, **Methane** 350 **Nitrous Oxide** 326 **Oxygen** 540 **Propane** 510	**24FTCVFA** 24"Flexible Teflon Lined Check Valve Flash Arrestor **24FS** 24" Flexible ST. ST. Lined **24RC** 24" Rigid Copper **24RCCV** 24" Rigid Copper Check Valve **24FTL** 24" Flexible Teflon Lined **VM1000/1100 72FPCV** 72" Flexible Polyethylene Check Valve	**03** With Alarm & Switch (Audio & Visual) **05** With 500W Heater **06** With 1000W Heater **09** With 300 CFH Hydraulic Flash Arrestor **10** W/O Hydraulic Flash Arrestor **19** With 1000 CFH Hydraulic Flash Arrestor **20** Center Section Stand

Ordering Example #1:

Acetylene VM2000-2RW-2LW-580-24FTCV

VM2000 Manifold with 2 cylinders per side, CGA 580 connections on 24" flexible Teflon lined pigtails with check valves.

Ordering Example #2:

Oxygen VM1000-1RWC-1LWC-540-72FPCV

VM1000 Manifold with 1 cylinder per side, CGA 540 connections on 72" flexible pigtails with check valves.

VM2000 Series High Pressure Cylinder Automatic Manifold System

VICTOR® Specialty Products

The Victor VM2000 Series is designed to be a fully automatic system for use with high pressure cylinders. The manifold gives an uninterrupted supply of gas as the primary bank of cylinders is depleted. At a preset pressure, the manifold automatically switches to the reserve bank. The system eliminates the need for the operator to change switches or pressure upon cylinder depletion. The manifold comes with Victor's two-year warranty, while maintaining a five year warranty on the switchover mechanism itself.

VM2000 Industrial Shown

Safety Standards and Codes

- Compressed Gas Association (Pamphlets V-1, E-1, G-1)
- American National Standards Institute (Pamphlets B-57-1)
- National Fire Protection Association (Pamphlets NFPA-51)
- UL listed component regulators and valves
- Medical units comply with National Fire Protection Association (Pamphlets NFPA-99C)

Performance Specifications

Maximum Inlet	3000 PSIG
Maximum Temperature	140° F (degrees)
Minimum Temperature	0° F (degrees)

Design & Construction Features

- ***Frame mounted design with removable cover***
  - 12.8"W x 14.0"H x 5"D
  - Powder coated steel mounting frame
  - Durable ABS plastic cover
  - Cover draw latch is padlockable for security
  - Wall or stand mount available
  - 1/2" NPT (F) outlet connection
  - Inlet size: 1-11 1/2" NPS (M)
- ***Fully automatic changeover***
  - Patented switchover unit
  - Does not require power to change over
  - Dual pressure switch design prevents false readings
- ***Adjustable delivery pressure***
  - 0-200 PSIG for Oxygen, Air, Inert, CO_2
  - 0-70 PSIG for medical models except Nitrogen
  - Line, supply, reserve and intermediate pressure gauge
- ***High flow capacity***
  - 3500 SCFH air @ 70° F
- ***Ease of repair***
  - Removeable cover for easy access to internal components
- ***Electrical requirements***
  - 24 VAC service - cabinet lights and alarm
  - 115/24 VAC power supply included
  - In case of power failure system continues to operate.
- ***500W or 1000W heaters available***
  (500W standard for CO_2 and N_2O service)
- ***Models also available for Helium, Acetylene, LP Gas and Hydrogen/Methane***

Model	Description	Control Section Part Number
VM2000	Oxygen Fully Auto Cabinet	1125-1133
VM2000	Inert Gas Fully Auto Cabinet	1125-1134
VM2000	CO_2 Fully Auto Cabinet (w/500W heater)	1132-4189
VM2100	Medical Oxygen Fully Auto Cabinet	1125-1137
VM2100	Medical Nitrogen Fully Auto Cabinet	1125-1138
VM2100	Medical Compressed Air Fully Auto Cabinet	1125-1139
VM2100	Medical CO_2 Fully Auto Cabinet (w/500W heater)	1132-4190

The Victor VM1000 Series is designed to be a fully automatic system for use with liquid cylinders. The manifold gives an uninterrupted supply of gas as the primary bank of cylinders is depleted. At a preset pressure, the manifold automatically switches to the reserve bank. The system eliminates the need for the operator to change switches or pressure upon cylinder depletion. The manifold comes with Victor's two-year warranty, while maintaining a five year warranty on the switchover mechanism itself. The 1000 Series models include an economizer circuit to help prevent reserve cylinders from wasting gas due to venting to atmosphere.

VM1100 Medical Shown

Safety Standards and Codes

- Compressed Gas Association (Pamphlets V-1, E-1, G-1)
- American National Standards Institute (Pamphlets B-57-1)
- National Fire Protection Association (Pamphlets NFPA-51)
- UL listed component regulators and valves
- Medical units comply with National Fire Protection Association (Pamphlets NFPA-99C)

Performance Specifications

Maximum Inlet	500 PSIG
Maximum Temperature	140° F (degrees)
Minimum Temperature	0° F (degrees)

Design & Construction Features

- ***Frame mounted design with removable cover***
  - 12.8"W x 14.0"H x 5"D
  - Powder coated steel mounting frame
  - Durable ABS plastic cover
  - Cover draw latch is padlockable for security
  - Wall or stand mount available
  - 1/2" NPT (F) outlet connection
  - Inlet size: 1-11 1/2" NPS (M)
- ***Fully automatic changeover***
  - Patented switchover unit
  - Economizer circuit
  - Does not require power to change over
  - Dual pressure switch design prevents false readings
- ***Adjustable delivery pressure***
  - 0-200 PSIG for Oxygen, Air, Inert, CO_2 and N_2O
  - 0-70 PSIG for medical models except Nitrogen
  - Higher delivery pressures require higher inlet pressures
  - Line, supply, reserve and intermediate pressure gauge
- ***High flow capacity***
  - 3000 SCFH air @ 70° F

  Note: Flow rate is limited by the withdrawal rate of vaporized gas from liquid containers, as well as the number of containers in the system. Flow rate listed for reference only.
- ***Ease of repair***
  - Removeable cover for easy access to internal components
  - Face seal connections
- ***Electrical requirements***
  - 24 VAC service - cabinet lights and alarm
  - 115/24 VAC power supply included
  - Alarm system optional, not required for manifold to operate.
  - In case of power failure system continues to operate

Model	Description	Control Section Part Number
VM1000	Oxygen Fully Auto Cabinet	1125-1127
VM1000	Inert Gas Fully Auto Cabinet	1125-1128
VM1000	CO_2 Fully Auto Cabinet	1125-4129
VM1100	Medical Oxygen Fully Auto Cabinet	1125-1130
VM1100	Medical Nitrogen Fully Auto Cabinet	1125-1131
VM1100	Medical N_2O/CO_2 Fully Auto Cabinet	1125-1132

PDS 600 Switchover Manifold

VICTOR® Specialty Products

The **PDS 600** is an automatic switchover manifold system that changes between a primary side, or bank, and the secondary side using the pressure differential between the two sides of high pressure gas supply. The PDS 600 is designed to continuously supply the downstream process with high purity gas from two individual cylinders, or from two entire banks of cylinders manifolded together.

The PDS 600 is designed with an outlet regulator to maintain a constant downstream pressure. The PDS 600 is available with brass or with stainless steel bar stock regulators for use with high purity or corrosive gases.

PDS 600 Features

- Metal-to-metal diaphragm seals.
- Helium leak rate of $1x10^{-9}$ scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer.
- 2" dual scale gauges.
- Cartridge-type seat assemblies with 10 micron inboard filter.
- 180 degree lever with arrow indicates which side of the manifold is the active side.
- Rotating captured vent for remote venting of process gases (optional).
- Regulator bodies are mounted on rear bracket.
- Audible and visual alarms (optional).
- New control knob allows precise setting for maximum delivery. Locking is easily attained by pressing in the cap.

PDS 600 Specifications

Maximum inlet pressure	3000 psig
Maximum delivery flow rate	See Performance Data
Outlet pressure ranges	15 (2-15 psig) 40 (2-40 psig) 80 (4-80 psig) 125 (5-125 psig)
Switchover Pressures	Right to Left Bank: 200 psig Left to Right Bank: 165 psig
Inlet & Outlet ports	1/4" NPT (F)
Temperature Operating Range	-40 to 140°F (-40 to 60°C)
Outlet pressure rise	PDS 600: None
Flow coefficient	C_V = .05
Weight	12 lbs (5.4 kgs)
Mounting Hole Spacing	8.5W x 2.5H

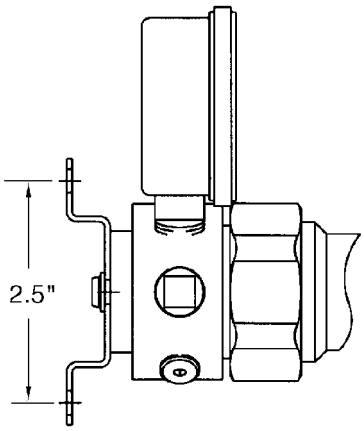
Materials of Construction

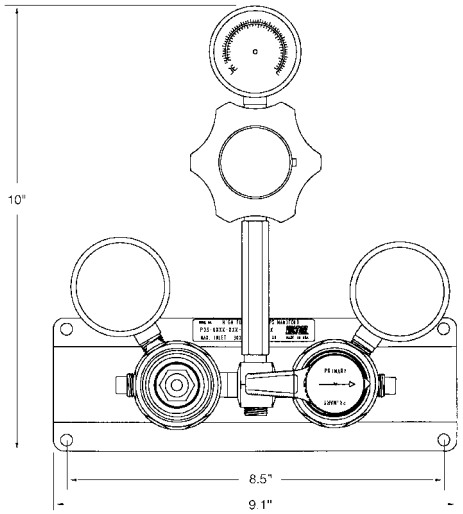
PDS 600 Brass

Body	Chrome-plated, Brass bar stock
Spring housing cap	Chrome-plated Brass
Diaphragm	316L Stainless Steel
Nozzle	Brass
Seat	PCTFE™
Seals	Viton™
Poppet	Brass bar stock
Inboard Filter	10 Micron Sintered S.S.
Seat Return Spring	316L Stainless Steel
Pressure Adjusting Spring	Heat-treated Spring Steel
Adjusting Knob	Polypropylene

PDS 600 Stainless Steel

Body	316L S.S. Bar Stock
Spring housing cap	Chrome-plated Brass
Diaphragm	316L Stainless Steel
Nozzle	316L Stainless Steel
Seat	PCTFE™
Seals	Teflon™
Poppet	316L Stainless Steel
Inboard Filter	10 Micron Sintered S.S.
Seat Return Spring	316L Stainless Steel
Pressure Adjusting Spring	Heat-treated Spring Steel
Adjusting Knob	Polypropylene



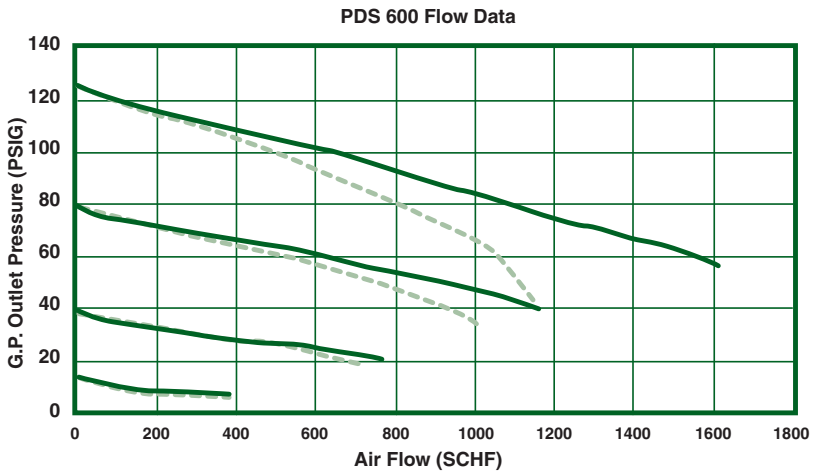


PDS 600 Performance Data

Flow vs Outlet Pressure

Inlet Pressure
(Air @ 70°F)

2000 psig
200 psig



ORDERING: Model Number System

XXXX — XXX — XXX — XXX — XXX — XX

Center Section	Delivery Pressure	Header Right	Header Left	CGA	Stainless Steel Pigtail
PDS 600B (Brass)	15	1 RW	1 LW	Brass	24", Flex
PDS 600S (Stainless)	40	2 RW	2 LW	580 320	36", Flex
	80	3 RW	3 LW	590 346	See note †
	125	4 RW	4 LW	350 540	
		6 RW	6 LW	Stainless Steel	
		See note *	See note *	240 660	
				330 705	

Ordering Example: PDS-600B-40-1RW-2LW-350-36

PDS 600B manifold w/ 40 psi delivery pressure, 1 header right, 2 header left, CGA 350 brass inlet, and 36" flex stainless steel pigtail

* Optional header configurations are available.

† Standard pigtails are stainless steel lined and include a check valve.

The **PDS 500** is an automatic switchover manifold system that uses the pressure differential between each side, or bank, of the manifold to determine which side is active. The PDS 500 is designed to continuously supply the downstream process with high purity gas from two individual cylinders, one primary and one secondary, or from a bank of cylinders manifolded together.

The PDS 500 is available with brass or stainless steel bar stock regulators for use with high purity or corrosive gases.

PDS 500 Features

- Metal-to-metal diaphragm seals.
- Helium leak rate of $1x10^{-9}$ scc/sec. All high purity regulators are inboard leak checked with a helium mass spectrometer.
- 2" dual scale gauges.
- Cartridge-type seat assemblies with 10 micron inboard filter.
- 2" brass bar stock body regulators with ports for high and low pressure transducers or alarm switches.
- 180 degree lever with arrow indicates which side of the manifold is the active side.
- 360° rotating captured vent for remote venting of process gases. (optional)
- Regulator bodies are mounted on rear bracket.
- Audible and visual alarms (optional).

PDS 500 Specifications

Maximum inlet pressure .....3000 psig

Maximum delivery flow rate .....See Performance Data

Outlet pressure ranges:
Right Bank as Primary: 250 psig max.
Right Bank as Secondary: 165 psig min.
Left Bank Preset: 200 psig

Switchover Pressures .....Right to Left Bank: 200 psig
Left to Right Bank: 165 psig

Inlet & Outlet Ports .....1/4" NPT (F)

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

Outlet pressure rise .....53 psig / 100 psig inlet decay

Flow coefficient ..... C_V = .083

Weight .....8.5 lbs (3.8 kgs)

Mounting Hole Spacing .....8.5W x 2.5W

Materials of Construction

PDS 500 Brass

Body.....Chrome-plated, Brass bar stock

Spring housing cap.....Chrome-plated Brass

Diaphragm .....316L Stainless Steel

Nozzle.....Brass bar stock

Seat.....PCTFE™

Seals.....Viton™

Poppet .....Brass bar stock

Inboard Filter .....10 Micron Sintered S.S.

Seat Return Spring .....316L Stainless Steel

Pressure Adjusting Spring .....Heat-treated Spring Steel

Adjusting Knob .....Polypropylene

PDS 500 Stainless Steel

Body .....316L S.S. Bar Stock

Spring housing cap.....Chrome-plated Brass

Diaphragm .....316L Stainless Steel

Nozzle.....316L Stainless Steel

Seat.....PCTFE™

Seals .....Teflon™

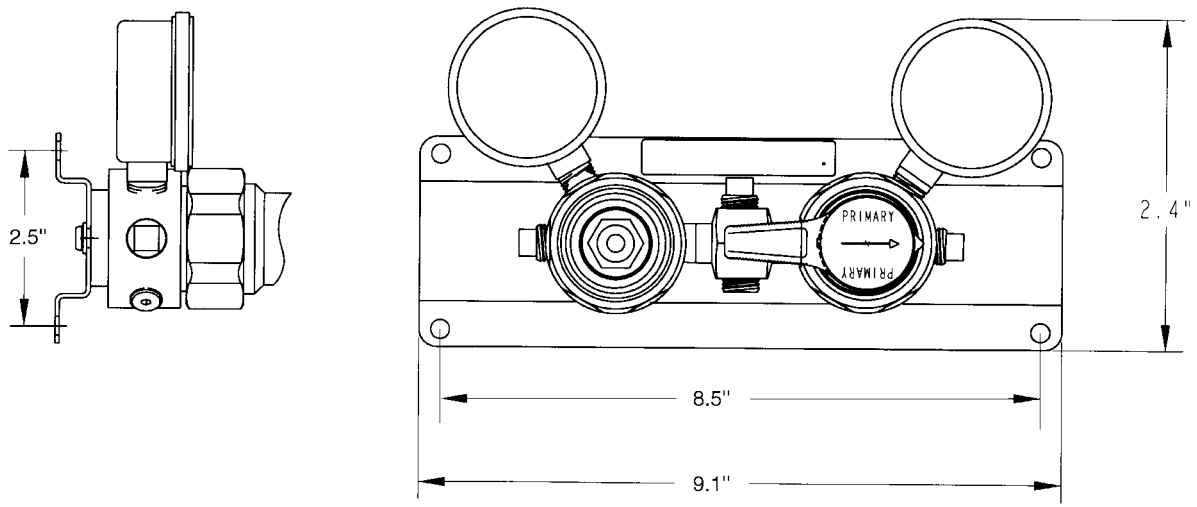
Poppet .....316L Stainless Steel

Inboard Filter .....10 Micron Sintered S.S.

Seat Return Spring .....316L Stainless Steel

Pressure Adjusting Spring .....Heat-treated Spring Steel

Adjusting Knob .....Polypropylene

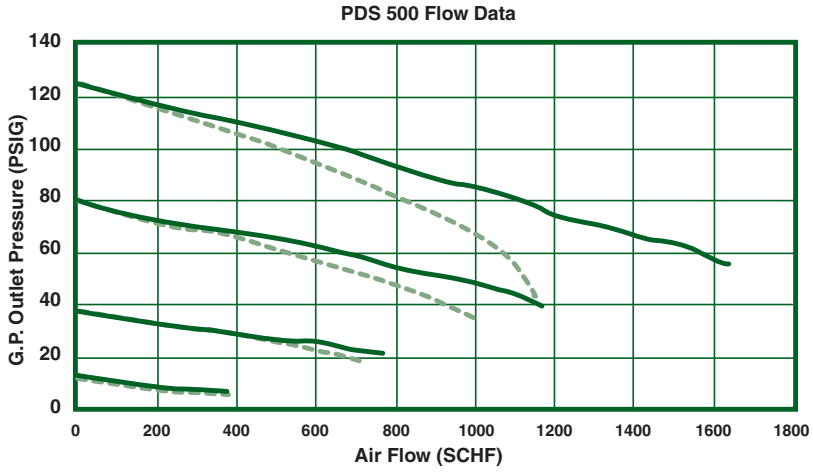


PDS 500 Performance Data

Flow vs Outlet Pressure

Inlet Pressure
(Air @ 70°F)

2000 psig
200 psig



ORDERING: Model Number System

XXXX — XXX — XXX — XXX — XX

Center Section	Header Right	Header Left	CGA	Stainless Steel Pigtail
PDS 500B (Brass)	1 RW	1 LW	Brass	24", Flex
PDS 500S (Stainless)	2 RW	2 LW	580 320	36", Flex
	3 RW	3 LW	590 346	See note †
	4 RW	4 LW	350 540	
	6 RW	6 LW	Stainless Steel	
	See note *	See note *	240 660	
			330 705	

Ordering Example: PDS-500B-40-1RW-2LW-350-36

PDS 500B manifold, 1 header right, 2 header left, CGA 350 brass inlet, and 36" flex stainless steel pigtail.

* Optional header configurations are available.

† Standard pigtails are stainless steel lined and include a check valve.

VHP 2100 manifold is a deluxe system for high purity gases. The system is highly recommended for laboratory and process plant applications where depletion of gas supply is unacceptable.
The VHP 2100 is designed with an outlet regulator to maintain a constant downstream pressure. The system is available in brass or 316L stainless steel. In service and reserve indicator lights are standard on the VHP 2100 manifold.

VHP 2000 manifold is the same manifold without the in service and reserve indicator lights.

VHP 2100/2000 Features

- 500 Series barstock regulators - High Purity for critical applications.
- In service and reserve indicator lights standard.†
- Metal-to-metal seals for low helium leak integrity.
- Adjustable line regulator for constant delivery.
- Line regulator enclosed in box for tamper - resistant protection.
- Easy 180° lever to select primary gas source.
- VHP 2100 Model incorporates pressure switches for remote alarm activation to indicate gas depletion.†

† *VHP 2100 model only*

VHP 2100/2000 Specifications

Maximum inlet pressure ..... 3000 psig

Outlet pressure ranges ..... 15 (2-15 psig)
40 (2-40 psig)
80 (4-80 psig)
125 (5-125 psig)

Switchover Pressures .....Right to Left Bank: 200 psig
Left to Right Bank: 165 psig

Inlet & Outlet ports ..... 1/4” NPT (F)

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

Outlet pressure rise ..... None

Flow coefficient ..... C_V = .05

Weight .....30 lbs

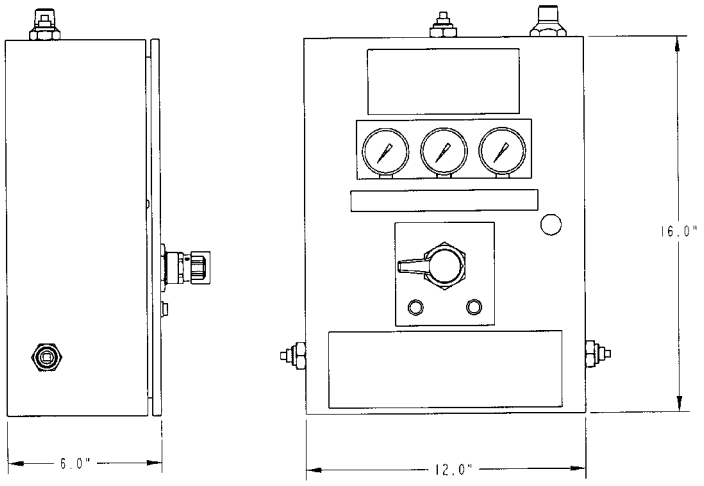
Materials of Construction

VHP 2100/2000B Brass

Body .....Chrome-plated, Brass bar stock
Spring housing cap ..... Chrome-plated Brass
Diaphragm..... 316L Stainless Steel
Nozzle ..... Brass
Seat ..... PCTFE™
Seals ..... Viton™
Poppet..... Brass bar stock
Inboard Filter ..... 10 Micron
Seat Return Spring..... 316L Stainless Steel
Pressure Adjusting Spring..... Heat-treated Spring Steel
Adjusting Knob ..... Polypropylene
Enclosure..... 16 Gauge Powder Coated
Tubing ..... 1/4” Copper
Fittings ..... Brass Tube

VHP 2100/2000S Stainless Steel

Body..... 316L S.S. Bar Stock
Spring housing cap ..... Chrome-plated Brass
Diaphragm..... 316L Stainless Steel
Nozzle ..... 316L Stainless Steel
Seat ..... PCTFE™
Seals..... Teflon™
Poppet..... 316L Stainless Steel
Inboard Filter ..... 10 Micron
Seat Return Spring..... 316L Stainless Steel
Pressure Adjusting Spring - Heat-treated Spring Steel
Adjusting Knob ..... Polypropylene
Enclosure..... 16 Gauge Powder Coated
Tubing ..... 1/4” Stainless Steel
Fittings..... Stainless Steel Tube

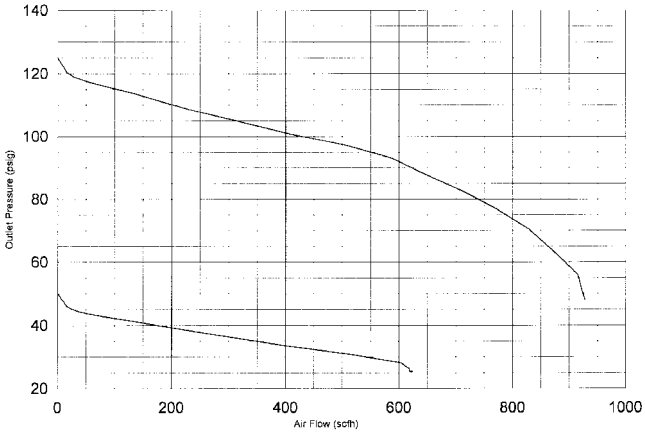


VHP 2100/2000 Performance Data

Flow vs Outlet Pressure

Inlet Pressure
(Air @ 70°F)

2000 psig



ORDERING: Model Number System

XXX – XXXX – XXX – XXX – XXX – XX

CGA	Center Section	Delivery Pressure	Header Right	Header Left	Stainless Steel Pigtail
580	VHP 2000B (Brass)	15	1 RW	1 LW	24", Flex
590		40	2 RW	2 LW	36", Flex
350	VHP 2000S (Stainless)	80	3 RW	3 LW	See note †
320		125	4 RW	4 LW	
346	VHP 2100B (Brass w/lights)	300	6 RW	6 LW	
540			See note *	See note *	
240	VHP 2100S (Stainless w/lights)				
330					
660					
705					

*** Optional header configurations are available.**
† Standard pigtails are stainless steel lined and include a check valve.

HPRB & HPLB

Brass Headers

Victor brass headers are designed for high purity non-corrosive gas applications where two or more cylinders are needed for supply critical processes.

The materials of construction will not off-gas and contaminate the gas stream. The design is highly resistant to inboard diffusion of atmospheric conditions. Flexible braided stainless steel pigtails, lined with stainless steel are standard.

HPRB & HPLB Features

- Brazed construction for maximum leak protection.
- 7/8" O.D. brass pipe with bar stock tees.
- DRK packless diaphragm shut off valves.
- Flexible braided stainless steel pigtails, lined with stainless steel, with check valves.
- Rated for hydrogen and helium service.
- Easily connected to PDS and VHP.

Materials of Construction

Pipe	Brass
Tees	Brass Bar Stock
Valves	Packless Diaphragm
Pigtails	Stainless Steel Braided, Stainless Steel Lined

HPRB & HPLB Specifications

Maximum inlet pressure .....3000 psig
Inlet connections are standard CGAs.
Outlet connections are standard CGAs.

Typical Applications

Gas Chromatography
Process Analyzers
Laser Gas Systems
High Purity Gas Systems
Non-Corrosive Gases
Corrosive Gases

ORDERING: Model Number System

XXX	— XXX	— XXX	— XXX	— XX
Header	Header Right	Header Left	CGA	Pigtails
HPRB (Right) HPLB (Left)	2RW 3RW 4RW 6RW See note *	2LW 3LW 4LW 6LW See note *	580 346 590 540 350 4F 320 4M	24FSCV

* Optional header configurations are available.

HPRS & HPLS

Stainless Steel Headers

Victor stainless steel headers are designed for corrosive and non-corrosive gas applications where cylinders are needed to supply critical processes.

The materials of construction will not off-gas and contaminate the gas stream. The design is highly resistant to inboard diffusion of atmospheric conditions. Victor DRK diffusion resistant shut off valves. Flexible braided stainless steel pigtails, lined with stainless steel are standard.

HPRS & HPLS Features

- Tig welded construction for maximum leak protection.
- 7/8" O.D. stainless steel pipe with forged tees.
- DRK packless diaphragm shut off valves.
- Flexible braided stainless steel pigtails, lined with stainless steel, with check valves.
- Rated for hydrogen and helium service.
- Easily connected to PDS and VHP.

Materials of Construction

Pipe ..... 303 Stainless Steel
Tees ..... 304 Forged Stainless Steel
Valves ..... Packless Diaphragm
Pigtails ..... Stainless Steel Braided, Stainless Steel Lined

HPRS & HPLS Specifications

Maximum inlet pressure .....3000 psig
Inlet connections are standard CGAs.
Outlet connections are standard CGAs.

Typical Applications

Gas Chromatography
Process Analyzers
Laser Gas Systems
High Purity Gas Systems
Non-Corrosive Gases
Corrosive Gases

ORDERING: Model Number System

XXX	— XXX	— XXX	— XXX	— XX
Header	Header Right	Header Left	CGA	Pigtail
HPRS (Right) HPLS (Left)	2RW 3RW 4RW 6RW See note *	2LW 3LW 4LW 6LW See note *	580 540 590 660 350 240 705 330 4F 4M	24FSCV

* Optional header configurations are available.

Pressure Switches

These pressure switches are designed to activate remote alarm systems on Victor manifold systems. Once your minimum pressure is set, the pressure switch will activate your remote alarm upon depletion. These are explosion proof models in 15 amp 125 / 250 / 480 VAC resistive design. Switches can be wired “normally opened” or “normally closed.”

CSA Listed
FM Approved

Part No.	Pressure Range (psig)	Maximum Inlet (psig)	Diaphragm Materials	Classification	Switch Output	Electrical Connections	Pressure Connections
1118-0068	1-20	500	316 SS	Explosion proof	SPDT	3/4” NPT(F)	1/4”NPT(F)
1118-0069	2-50	500	316 SS	Explosion proof	SPDT	3/4” NPT(F)	1/4”NPT(F)
1118-0070	125-3000	10,000	303 SS	Cleaned for oxygen	SPDT	1/2” NPT(F)	1/4”NPT(F)
1118-0071	30-575*	2500	Viton	Cleaned for oxygen	SPDT	1/2” NPT(F)	1/4”NPT(M)
1118-0072	0-300	350	316SS	Cleaned for oxygen	SPDT	7/8”	1/4”NPT(F)
1118-0074	50-1000	6000	316 SS	NEMA 4;7;9; IPGG	SPDT	3/4” NPT(F)	1/2”NPT(F)
1118-0075	250-3500	6000	316 SS	NEMA 4;7;9; IPGG	SPDT	3/4” NPT(F)	1/2”NPT(F)

* Factory set at 183 psig

Remote Alarms

Victor Alarm Systems are designed to provide a warning of service interruption when used on manifolds. Used in conjunction with a pressure switch, the Victor Alarm System will provide both visual or audio/visual warning of cylinder depletion. The Victor Alarm System is for use with one or two gas manifold systems. Once activated, a visual only alarm will change from a “green” indicator for normal operation to a “red” indicator for depleted cylinders. Once the system is repressurized, the indicator lights will return to the normal “green” position. For systems with the audio/visual feature and audible buzzer (alarm) is rated at 90 DB @ 2ft. Alarm will ring and signal that the primary bank of cylinders is depleted. A reset button conveniently located on the front of the unit will deactivate the buzzer. The "red" light will remain on until the exhausted bank has been replaced. Ideal for Industry, Medical and Specialty Gas use. Easy to wire and helps prevent downtime.

Design & Construction

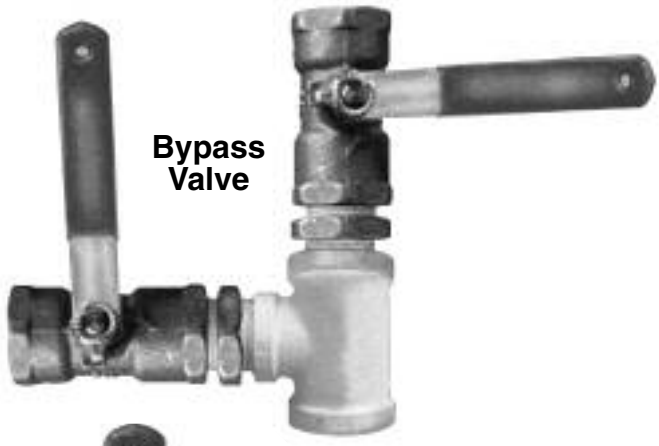
- Transformer (125 VAC X 15 VDC) with 6 foot cord included
- Panels may be flush or back mounted
- 125 VAC/15 VDC
- Durable plastic case
- High intensity LED's

Dimensions

- Visual: 5"Hx3"Lx2"D
- Audio/Visual: 6"Hx3"Wx2"D
- Two Gas: 6"Hx6"Wx2"D

Part no.	Model No.	Type	# of Gases
0265-0030	MA24-1V	VISUAL	1
0265-0031	MA24-1AV	AUDIO/VISUAL	1
0265-0032	MA24-2AV	AUDIO/VISUAL	2
0265-0033	MA115-1V	VISUAL	1
0265-0034	MA115-1AV	AUDIO/VISUAL	1
0265-0035	MA115-2AV	AUDIO/VISUAL	2

The Victor Bypass Valve is designed to allow shut-down of primary gas supply without interruption of gas service. These 1/2" and 3/4" bypass assemblies permit the user to shut off the primary supply and access a back-up or temporary gas source. This can be used to perform routine manifold maintenance and repair.



Bypass Valves

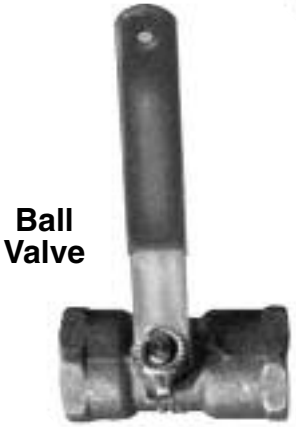
Design and Construction

- Ball Valves (2)
- 1/2" NPT and 3/4" NPT Models
- Brass bar stock tees and connections

Performance Specifications

- Maximum pressure: 400 psig

Bypass Valve Ordering Information	
Part No.	**Description**
1115-0000	1/2" Bypass Valve
1115-0001	3/4" Bypass Valve



Ball Valve Features

- Forged brass body
- Teflon seat
- Chrome plated ball
- Teflon seals
- Steel handle
- 400 psig rating
- Clean for Oxygen service

Ball Valves

Ball Valve Ordering Information	
Part No.	**Description**
0660-0032	1/2" Ball Valve
0660-0042	3/4" Ball Valve

Hydraulic Flash Arrestors

Required on manifolds with two or more Fuel Gas Cylinders. These units provide flashback protection at the source of the gas. These systems are designed to provide protection via the use of ethylene-glycol in the unit. Ethylene Glycol is provided with all units.

Included in each unit is a pressure relief valve which provides additional protection to the system in the event of over-pressurization. Maximum flow is 1000 SCFH for the FB-2A and 300 SCFH for the FB-1A. Hydraulic Arrestors are FM approved.

Part No.	Model no.	Gas Service
1116-0038	FB-2A	Acetylene
1116-0039	FB-2LPG	LPG
1116-0037	FB-S (Stand only)(1000)	All Gases
1116-0033	Pigtail-Dry Type	AC
1116-0045	FB-1A	Acetylene
1116-0046	FB-1LPG	LPG
1116-0044	Stand (only)(300)	All Gases

Wall Brackets Floor Stands, & Manifolds Stands

Every Victor system comes equipped with mounting brackets so the system can be permanently mounted to a wall. In the event that wall mounting is not feasible, all Victor systems can be Floor Mounted via our Floor Stand. This stand fits all Victor Manifolds and one is recommended for every 4 cylinders. Just attach the mounting brackets included with the floor stand and you are ready to go.

Chaining or bracketing cylinders is required. Therefore, Victor provides the following wall mount brackets or stands for use with your manifold system. Available in single or double cylinder designs, chain included.

Double

Single

Part No.	Mounts	No. of Cylinders	Types of Gas	Dimensions
1421-0045	Wall Mount	Single Cylinder	O_2 & Inerts	9" wide
1421-0046	Wall Mount	Single Cylinder	Acetylene & Fuel Gas	13" wide
1421-0047	Wall Mount	Two Cylinder	O_2 & Inerts	9" wide
1421-0048	Wall Mount	Two Cylinder	Acetylene & Fuel Gas	13" wide
1106-0100	Stand	Manifold Stand	Oxygen, Inerts, Acetylene & Fuel Gas	60-1/2" Tall (5'1/2")
1106-0016	Wall Mount	Manifold Brackets (1)		

Gas Service Labels & Placards

Safety in a manifold environment is Victor's number one concern. As a result we have made available the same labels that we use on our systems for use with your manifold and piping system.

These labels allow all piping to be labeled with the gas service contained in the pipe or system.

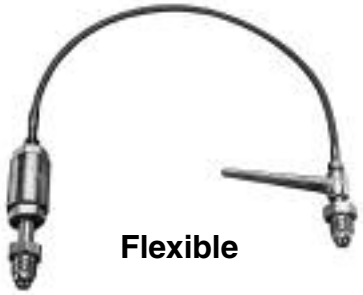
Part No.	Description
1415-0356	Oxygen
1415-0363	Argon
1415-0369	HELIUM
1415-0362	Nitrogen
1415-0364	Carbon Dioxide
1415-0368	Breathing Air
1415-0361	Compressed Air
1415-0365	Nitrous Oxide
1415-0373	Acetylene

Part No.	Description
1415-0357	Mapp
1415-0358	Propane
1415-0366	Propelyne Based Gas
1415-0359	Natural Gas
1415-0367	LP Gas (LPG)
1415-0360	Hydrogen
1415-0371	Argon-CO_2
1415-0372	Helium-Argon-CO_2
1415-0370	"Direction Arrow"

Pigtails

Replacement pigtails for Victor manifolds or applications requiring pigtails.
Rigid copper and stainless steel braided flexible models available.
Dry Flash Arrestor included.

Rigid



Flexible

Part No.	CGA & Gas Service	Length	Type	Check Valve
1123-0020	320 CO_2	24"	Flexible	Yes
1123-0078	300 Acetylene	24"	Flexible	Yes + FA
1123-0017	320 Carbon Dioxide	24"	Flexible	No
1123-0594	326 Nitrous Oxide	24"	Rigid	Yes
1123-0596	346 Breathing Air	24"	Flexible	Yes
1123-0016	350 Hydrogen Methane	24"	Rigid	No
1123-0597	350 Hydrogen Methane	24"	Rigid	Yes
1123-0009	510 Acetylene	24"	Flexible	Yes + FA
1123-0008	510 Acetylene, LP Gas	24"	Flexible	Yes
1123-0503	540 Oxygen	24"	Rigid	No
1123-0504	540 Oxygen	24"	Rigid	Yes
1123-0505	540 Oxygen	36"	Rigid	Yes
1123-0606	540 Oxygen	24"	Flexible	Yes
1123-0609	540 Oxygen	36"	Flexible	Yes
1123-0600	540 Oxygen	48"	Flexible	Yes
1123-0601	540 x 1/4"NPT(M) Oxygen	120"	Flexible	Yes
1123-0013	580 Inert Gas	24"	Flexible	No
1123-0599	580 Inert Gas	24"	Flexible	Yes
1123-0506	580 Inert Gas	48"	Flexible	Yes
1123-0507	580 Helium	24"	Rigid	Yes
1123-0014	590 Air	24"	Flexible	No

FA = Dry Flash Arrestor (Included)

Globe Valve

Master Valve

Module Valve

Valves

Part No.	Description	Inlet	Outlet
1113-0003	**Globe Valve**	3/4" NPT(F)	3/4" NPT(F)
1114-0000	**Module Valve** - Oxygen	CGA 540	1/2"NPT(M)
1114-0010	**Station Valve** - Oxygen with cap chain, check valve	1/2" NPT(M)	7/8"-14 RH
1115-0517	**Master Valve**	1"–11-1/2" NPS RH(M)	1"–11-1/2" NPS RH(M)
1115-0515	**Master Valve**	1/2 NPT(F)	1/2 NPT(F)
1190-0000	**Master Valve** - Repair Kit		

Adaptor

Nut

End Plug
with 1/4" NPT(F) Port

End Plug

Union Fittings & Adaptors

Part No.	Type	Description
0996-0018	**Adaptor**	3/4" NPT(M) X 1"-11-1/2" NPS RH *Use with 1113-0003
0996-0014	**Adaptor**	1/2" NPT(M) X 1"-11-1/2" NPS RH
0996-0020	**Adaptor**	1/4" NPT(M) X 1"-11-1/2" NPS RH
0997-0006	**Adaptor**	3/4" NPT(M) X 1"-11-1/2" NPS LH *Use with 1113-0003
0997-0007	**Adaptor**	1/2" NPT(M) X 1"-11-1/2" NPS LH
0997-0020	**Adaptor**	1/4" NPT(M) X 1"-11-1/2" NPS LH
0996-0004	**Nut**	1"-11-1/2" NPS RH (M) 996
0997-0004	**Nut**	1"-11-1/2" NPS LH (M) 997
1108-0592	**End Plug**	with 1/4" NPT(F) Port for Pressure Switch
0996-0005	**Swivel**	1/2" NPT(M) X 996/997
0996-0022	**Swivel**	1/4" NPT(M) X 996
0996-0031	**Swivel**	1/4" NPT(M) X 997 (*special; 125 orifice for Hydrogen)
0996-0012	**Bushing**	1"-11-1/2" NTS(RM) x 1"-11-1/2" NTS(RM)

Nut & Plug

Station Regulators - Not for Cylinder Use

See page 10 & 11 for station drop data

Regulator	Part No.	Model #	Inlet PSIG	Delivery (PSIG)	Gas Service	Connections	
						Inlet	Outlet
Light - Medium Flow Station Regulator • Side Inlet • Bottom Inlet	0781-1253	S250B-024	200	2-40	Oxygen	7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-1254	S250C-024	200	4-80		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-1255	S250D-024	200	5-125		7/8"-14 RH(F)	9/16"-18 RH (M)
	0781-1246	S250B-034	200	2-40	Inert-CO_2	7/8"-14 RH (M)	5/8"-18 (F)
	0781-1247	S250C-034	200	4-80		7/8"-14 RH(M)	5/8"-18 (F)
	0781-1248	S250D-034	200	5-125		7/8"-14 RH (M)	5/8"-18 (F)
	0781-1244	SFG250-034	200	10-40 SCFH	Flow Gauge Reg.	7/8"-14 RH (M)	5/8"-18 (F)
	0781-1245	S2570-034	200	5-70 SCFH	Station W/ Flow Gauge	7/8"-14 RH (M)	5/8"-18 (F)
	0781-1256	S260A-025	200	2-15	Acetylene	7/8"-14 LH (M)	9/16"-18 LH (M)
	0781-1257	S261C-025	200	4-80	Hydrogen& LP Gas	7/8"-14 RH (M)	9/16"-18 LH (M)
	0781-1258	S261D-025	200	5-125		7/8"-14 RH (M)	9/16"-18 LH (M)
Medium Heavy Flow Station Regulator • Rear Inlet • Bottom Inlet	0781-2458	S350BR-024	200	2-40	Oxygen	7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2459	S350CR-024	200	4-80		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2460	S350DR-024	200	5-125		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2463	S350BR-034	200	2-40	Inert-CO_2	7/8"-14 RH (M)	5/8"-18 (F)
	0781-2464	S350CR-034	200	4-80		7/8"-14 RH (M)	5/8"-18 (F)
	0781-2465	S350DR-034	200	5-125		7/8"-14 RH (M)	5/8"-18 (F)
	0781-2472	S360AR-025	200	2-15	Acetylene	7/8"-14 LH (F)	9/16"-18 LH (M)
	0781-2486	S361DR-025	200	5-125	Hydrogen& LP Gas	7/8"-14 LH (F)	9/16"-18 LH (M)
Medium Heavy Flow Station Regulator • Side Inlet • Bottom Inlet	0781-2490	S350A-024	200	2-15	Oxygen	7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2491	S350B-024	200	2-40		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2492	S350C-024	200	4-80		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2493	S350D-024	200	5-125		7/8"-14 RH (F)	9/16"-18 RH (M)
	0781-2495	S350B-034	200	2-40	Inert-CO_2	7/8"-14 RH (M)	5/8"-18 (F)
	0781-2496	S350C-034	200	4-80		7/8"-14 RH (M)	5/8"-18 (F)
	0781-2497	S350D-034	200	5-125		7/8"-14 RH (M)	5/8"-18 (F)
	0781-2500	S360A-025	200	2-15	Acetylene	7/8"-14 LH (F)	9/16"-18 LH (M)
	0781-2505	S361C-025	200	4-80	Hydrogen& LP Gas	7/8"-14 LH (F)	9/16"-18 LH (M)
	0781-2506	S361D-025	200	5-125		7/8"-14 LH (F)	9/16"-18 LH (M)
High Flow Station Regulator • Side Inlet • Bottom Inlet	0780-1268	S700B-996	350	2-40	Oxygen	1"-11-1/2 NPS (F)	7/8"-14 RH (M)
	0780-1273	S700D-996	350	5-125	Inert-CO_2	1"-11-1/2 NPS (F)	7/8"-14 RH (M)
	0780-1274	S710A-997	350	2-15	Acetylene	1"-11-1/2 NPS (F)	7/8"-14 LH (M)
	0780-1275	S711C-997	350	4-80	Hydrogen& LP Gas	1"-11-1/2 NPS (F)	7/8"-14 RH (M)

CGA Conversions

CGA 024 = 7/8" - 14 RH(F) Oxygen
CGA 025 = 7/8" - 14 LH(F) Acetylene & Fuel Gases
CGA 034 = 7/8" - 14 RH(M) Inert Gases
B Size = 9/16" - 18 RH Oxygen
B Size = 9/16" - 18 LH Acetylene & Fuel Gases
B Size = 5/8" - 18 RH Inert Gas

Line Regulators - Not for Cylinder Use

REGULATOR	PART#	MODEL #	MAX INLET	DELIVERY PSIG	GAS SERVICE	CONNECTIONS	
						INLET	OUTLET
Light Flow Line Regulator	0781-1249	L250D-250	350	5-125	Air, Inert O_2, CO_2, N_2O	1/4" NPT (F)	1/4" NPT (F)
	0871-1285	Panel Mount -Same as L250D-250					
	0781-1296	L261C-250	350	4-80	Hydrogen & LP Gas	1/4" NPT (F)	1/4" NPT (F)
	0781-1286	Panel Mount					
	0781-1260	L260A-250	350	2-15	Acetylene	1/2" NPT (F)	1/2" NPT (F)
	0781-1281	Panel Mount -Same as L260A-250					
Medium Flow Line Regulator	0781-2455	L350D-250	350	5-125	Air, Inert O_2, CO_2, N_2O	1/4" NPT (F)	1/4" NPT (F)
	0781-2480	L361C-250	350	4-80	Hydrogen & LP Gas	1/4" NPT (F)	1/4" NPT (F)
	0781-2481	L361D-250	350	5-125		1/4" NPT (F)	1/4" NPT (F)
	0781-2467	L360A-250	350	2-15	Acetylene	1/4" NPT (F)	1/4" NPT (F)
Heavy Flow Line Regulator	0780-1229	L700C-500	350	4-80	Air, Inert O_2, CO_2, N_2O	1/2" NPT (F)	1/2" NPT (F)
	0780-1207	L700D-500	350	5-125		1/2" NPT (F)	1/2" NPT (F)
	0780-1236	Panel Mount -Same as L700D-500					
	0780-1231	L700E-500	350	10-200		1/2" NPT (F)	1/2" NPT (F)
	0780-1199	L711D-500	350	5-125	Hydrogen & LP Gas	1/2" NPT (F)	1/2" NPT (F)
	0780-1233	L710A-500	350	2-15	Acetylene	1/2" NPT (F)	1/2" NPT (F)
	0780-1201	L710A-750	350	2-15		3/4" NPT(F)	3/4" NPT (F)
	0780-1220	L700C-750	350	4-80	Air, Inert O_2, CO_2, N_2O	3/4" NPT (F)	3/4" NPT (F)
	0780-1209	L700D-750	350	5-125			
	0780-1222	L700E-750	350	10-200			

Flowmeters - Not for Cylinder Use

Victor Flowmeters are precision, gas-flow measuring instruments designed for use in distribution systems, laboratories, MIG/TIG welding and a variety of other applications. Flowtubes and outer covers are made of impact resistant Lexan for maximum durability and service life.

Units with Single Gas Calibration

Part No.	Model #	Flow Range	Inlet Fitting	Outlet Fitting	Flowtube Only
1000-0253	FM133	5-40 SCFH Hydrogen	9/16"-18 LH F	9/16"-18 LH M	1015-0070
1000-0271	FM153	5-40 SCFH Hydrogen	1/4" NPT M	9/16" LH M	1015-0070
1000-0254	FM132	15-75 SCFH Hydrogen	9/16"-18 LH F	9/16"-18 LH M	1015-0071
1000-0270	FM152	15-75 SCFH Hydrogen	1/4" NPT M	9/16"-18 LH M	1015-0071
1000-0264	FM200	30-100 SCFH CO_2	1/4" NPT M	5/8"-18 RH F	1015-0066

Units with Two Gas Calibration

Part No.	Model #	Flow Range	Inlet Fitting	Outlet Fitting	Flowtube Only
1000-0251	FM130	10-60 SCFH Air 10-60 SCFH Nitrogen	9/16"-18 RH F	5/8"-18 RH F	1015-0060
1000-0268	FM150	10-60 SCFH Air 0-60 SCFH Nitrogen	1/4" NPT M	5/8"-18 RH F	1015-0060
1000-0255	FM135	4-18 SCFH Argon 10-50 SCFH Helium	9/16"-18 RH F	5/8"-18 RH F	1015-0063
1000-0256	FM145	4-18 SCFH Argon 0-50 SCFH Helium	5/8"-18 RH M	5/8"-18 RH F	1015-0063
1000-0257	FM155	4-18 SCFH Argon 10-50 SCFH Helium	1/4" NPT M	5/8"-18 RH F	1015-0063
1000-0261	FM137	15-65 SCFH Argon 40-200 SCFH Helium	9/16"-18 RH F	5/8"-18 RH F	1015-0064
1000-0262	FM147	15-65 SCFH Argon 40-200 SCFH Helium	5/8"-18 RH M	5/8"-18 RH F	1015-0064
1000-0263	FM157	15-65 SCFH Argon 40-200 SCFH Helium	1/4" NPT M	5/8"-18 RH F	1015-0064

Units with Three Gas Calibration

Part No.	Model #	Flow Range	Inlet Fitting	Outlet Fitting	Flowtube Only
1000-0258	FM370	5-40 SCFH CO_2 5-50 SCFH Argon 20-150 SCFH Helium	9/16"-18 RH F	5/8"-18 RH F	1015-0057
1000-0259	FM371	5-40 SCFH CO_2 5-50 SCFH Argon 20-150 SCFH Helium	5/8"-18 RH M	5/8"-18 RH F	1015-0057
1000-0182	FM372	5-50 SCFH ARGON 5-40 SCFH CO_2 20-150 SCFH Helium	1/4" NPT M	5/8"-18 RH F	1015-0057

NOTE: All Victor flowmeters are back pressure compensated to ensure accurate readings at all times, even if line restrictions are present. All flowmeters are calibrated to operate at 25 PSIG inlet pressure except the FM 200 which is calibrated to operate at 80 PSIG.

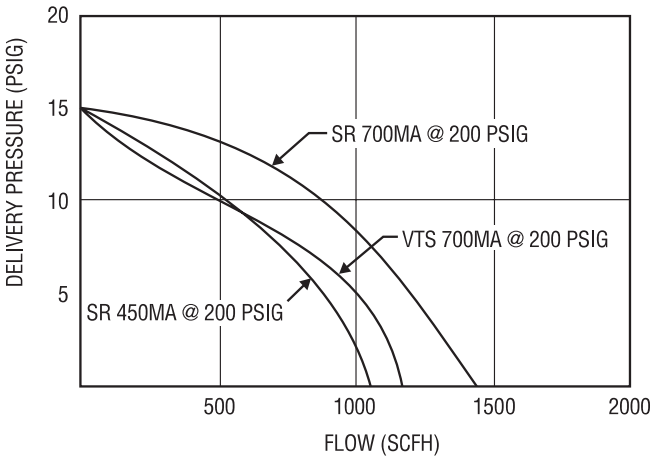
Manifold Regulator Chart

Description/Usage	Part no.	Model #	Delivery (PSIG)	Gas Service	Connections
SR 450 Series Heavy Duty, Single Stage Used in: DUAL, SPLX, SSIN, SAM, LIQ (HP)	0781-0622	SR452MA-997	A 2-15	Hydrogen	Inlet 1"-11 1/2" NPS(M) Outlet 1"-11 1/2" NPS(F)
	0781-0617	SR460MA-997	A 2-15	Acetylene	
	0781-0618	SR461MB-997	B 2-40	LP Gas	
	0781-0611	SR450MD-996	D 5-125	O_2 & Inerts	
	0781-0613	SR452MD-997	D 5-125	Hydrogen	
	0781-0615	SR453MD-996	D 5-125	N_2O, CO_2	
	0781-0619	SR461MD-997	D 5-125	LP Gas	
SR 700 Series High Flow, Single Stage Used in: SPLX, SSIN	0780-0806	SR710MA-997	A 2-15	Acetylene	Inlet 1"-11 1/2" NPS(M) Outlet 1"-11 1/2" NPS(F)
	0780-0807	SR711MB-997	B 2-40	LP Gas	
	0780-0797	SR700MD-996	D 5-125	O_2 & Inerts	
	0780-0798	SR700ME-996	E 10-200	O_2 & Inerts	
	0780-0803	SR702ME-997	E 10-200	Hydrogen	
	0780-0805	SR703ME-996	E 10-200	N_2O,CO_2	
SR 4 Series High Delivery, Single Stage Used in: SPLX	0781-1457	SR4MF-996	F 50-750	All Except	Inlet 1"-11 1/2" NPS(M) Outlet 1"-11 1/2" NPS(F)
	0781-1437	SR4MG-996	G 100-1500	Hydrogen	
	0781-1458	SR4MJ-996	J 200-3000	Methane	
	0781-1456	SR4MJ-997	J 200-3000		
	0781-1454	SR4TJ-996	J 200-3000	O_2 Transfill	
BSL-700 Series Liquid Cylinder Regulator	0780-1200	BSL700-500	E 10-200	CO_2 & Inerts	Inlet 1/2" NPT(F) Outlet 1/2" NPT(F)
LC-700 Series Liquid Cylinder Regulator Used in: LIQ	0780-1198	LC700-996	E 10-200	O_2 & Inerts	Inlet 1"-11 1/2" NPS(M) Outlet 1/2"NPT(F)
VTS 450 Series Two Stage	0781-3961	VTS452MD-997	D 5-125	Hydrogen	Inlet 1"-11 1/2" NPS(M) Outlet 1-11 1/2" NPS(F)
	0781-3962	VTS452ME-997	E10-200	Hydrogen	
VTS 700 Series Two Stage, High Flow UP TO 7000 SCFH	0780-1006	VTS710MA-997	A 2-15	Acetylene	Inlet 1"-11 1/2" NPS(M) Outlet 1/2" NPT(F)
	0780-1007	VTS711MB-977	B 2-40	LP Gas	
	0780-0997	VTS700MD-996	D 5-125	O_2 & Inerts	
	0780-1004	VTS703MD-996	D 5-125	CO_2	
	0780-0998	VTS700ME-996	E10-200	O_2 & Inerts	
	0780-1005	VTS703ME-996	E 10-200	CO_2	

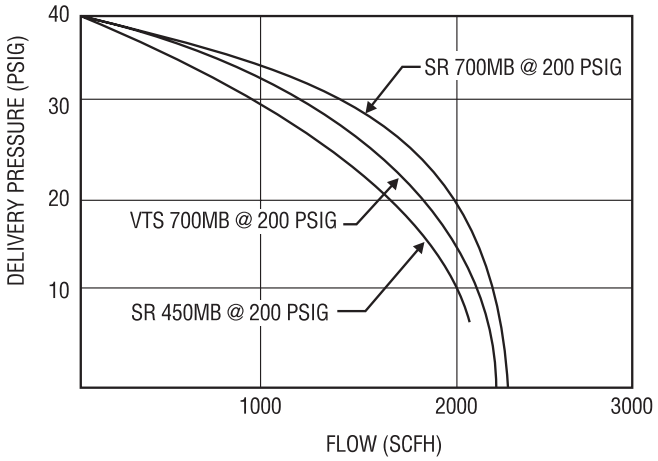
Special regulators can be requested for your application should the standard be inappropriate for your application. Please contact **Customer Service at 1-800-569-0547** for more information.

The following information is provided to show manifold delivery capability (SCFH) with **MINIMUM** (200 PSIG) cylinder pressure. Tests were conducted using air at 70 degrees Fahrenheit and with no flow restrictions.

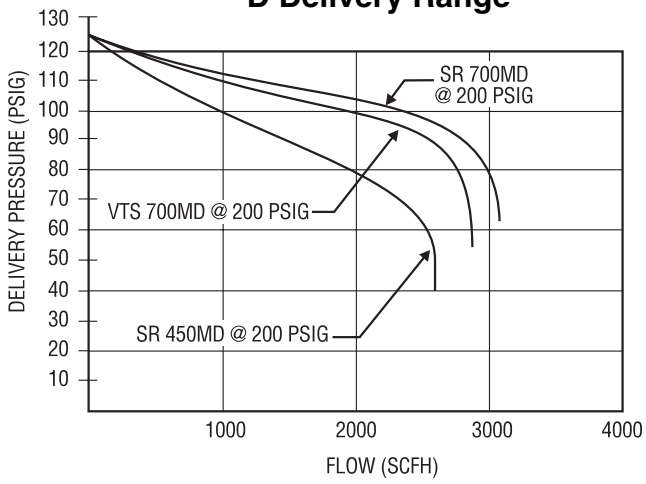
MA Models
A Delivery Range



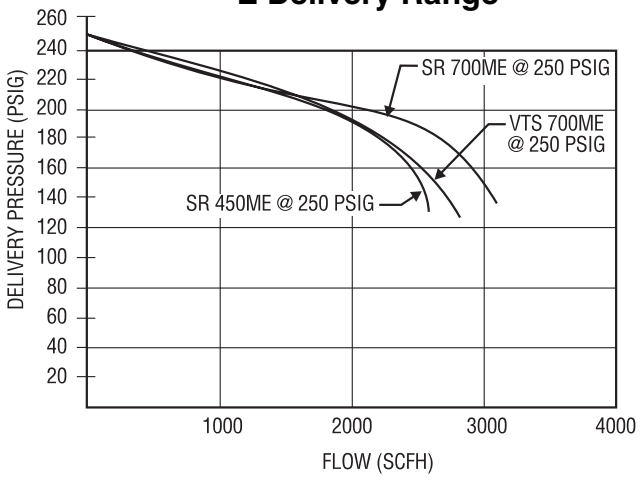
MB Models
B Delivery Range



MD Models
D Delivery Range



ME Models
E Delivery Range



Victor single stage regulators... are recommended for applications where slight delivery pressure changes due to decreasing cylinder pressures would not affect flow/pressure requirements.

How to read the Flow Data Charts on the following pages:

The regulator flow data is provided to assist in determining the proper regulator for the required application. The data is given for reference purpose only. If additional information is necessary, contact your local distributor or call Customer Service (U.S.) 1-800-569-0547.

The regulator flow data was established by connecting a valve to the regulator outlet. The valve was opened and the flow rates measured. The amount of pressure drop is shown on the curves (p. 22) as the flow increases.

Pressure Range	Static Pressure
A	15 PSIG
B	40 PSIG
C	80 PSIG
D	25 PSIG
E	200 PSIG
F	750 PSIG
G	1500 PSIG
J	3000 PSIG
K	4500 PSIG

With an inlet pressure of 200 PSIG and an initial setting of 125 PSIG, the regulator will flow 1000 SCFH with a pressure drop to 98 PSIG. At 2000 SCFH flow, the pressure will drop to 78 PSIG. If a delivery pressure other than the ones shown on the flow charts is required, use an average curve rate between the upper and lower pressures shown.

Cylinder Pressure Rise

Single Stage regulators have a rise (increase) in delivery pressure as the cylinder pressure decreases. Listed below is the amount of pressure rise (increase) per 100 PSIG decrease in cylinder (inlet) pressure.

SR 4 Series ..... G Range 2.4
SR 4 Series ..... J Range 4.8
SR 450 Series 0.6
SR 700 Series 1.2

The change in delivery pressure of a Two Stage regulator from full to empty cylinder (inlet) pressure is negligible.

For Conversion to Other Gases

All flow capacity information is given in SCFH of free air (1.00). For conversion to other gases multiply the air flow by the correction factor listed below.

Acetylene	1.05	Mapp®	.82
Argon	.85	Natural Gas	1.28
Carbon Dioxide	.81	Nitrogen	1.02
Helium	2.69	Oxygen	.95
Hydrogen	3.79	Propane	.80

For Manifold questions call
1-800-569-0547

How Many Cylinders Do I Need?

High Pressure

A typical large high pressure cylinder is 220 CF and actually contains 250 CF of gas due to a 10% overfill allowance. Using the formula below, the required number of cylinders for your application can be determined.

Example of Argon Mix Manifold System at a MIG Welding Shop:

(250 CF/Cylinder) less 20 CF left in Cylinder due to auto changeover leaves 230 CF/Cylinder. 250 CF if it's a manual changeover system.

(28 CFH/Station) x 6.5 Hours/Day x 50% Duty Cycle = 91.0 CF/Day/Station

91.0 CF/Day/Station x 8 Welding Stations = 728 CF/Day

$$\frac{\text{728 CF/Day}}{\text{230 CF/Cylinder}} = \text{3.16 Cylinders/Day}$$

$$\frac{\text{12 Cyls. per Header}}{\text{3.16 Cylinders/Day}} = \text{3.8 Days per Header x 2 Headers = Maximum 7.6 Days between deliveries}$$

Minimum Gas supply of 1 day required. Thus, in order to get gas delivery once a week (ie. every Wednesday) we need 24 cylinders delivered every seven days in order to have continuous, uninterrupted service with an automatic changeover manifold.

Formula on page 4 under "Determining the Right Manifold for your Application."

How To Select The Correct Number of Acetylene Cylinders

To determine the number of Acetylene cylinders required for proper manifold operation, follow the guidelines below:

1. The number of cylinders in the manifold is determined by the volume of gas in cubic feet per hour required. Determine the cubic feet per hour required for the largest tip used and multiply that by the number of torches, or stations, in operation at the same time. This will give you the total volume of each gas required per hour.
2. The manifold should have enough cylinders to provide a minimum of one day's requirements.
3. Maximum Acetylene withdrawal for continuous operation is 1/7* of each cylinder per hour. This chart is at a continuous withdrawal rate @ 70°F and 250 PSIG.

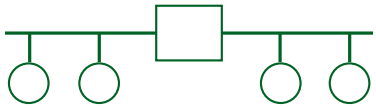
* CGA Pamphlet G-1

CFH Acetylene withdrawal per hour required	# of 300 CF cylinders per header continuous service
40	1
80	2
120	3
160	4
200	5
240	6
280	7
320	8
360	9
400	10
500	12
600	14
700	17
800	20
@ 70°F and 250 PSIG	

Manifold System Layouts

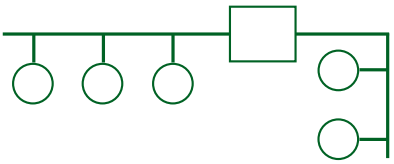
Whether it's a standard or special configuration, Victor has the system for you. All we need to know is the requirements (ie. sizes, shapes, etc.) and we can build it for you. It is that simple. The following are examples of the most common configuration requirements.

Standard



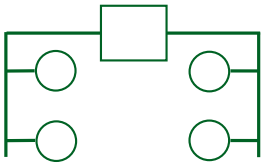
Wall Mount or Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

“L” Shaped



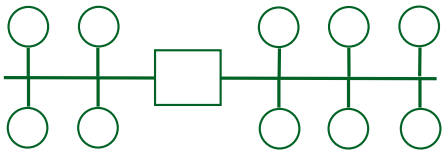
Wall Mount or Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

“U” Shaped



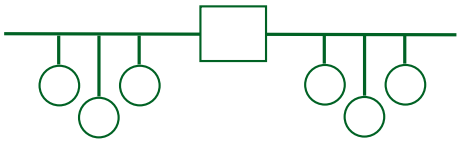
Wall Mount or Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

Crossover-Stand Mount



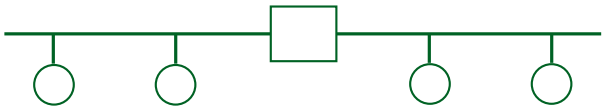
Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

Staggered or Short



Wall Mount or Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

Long



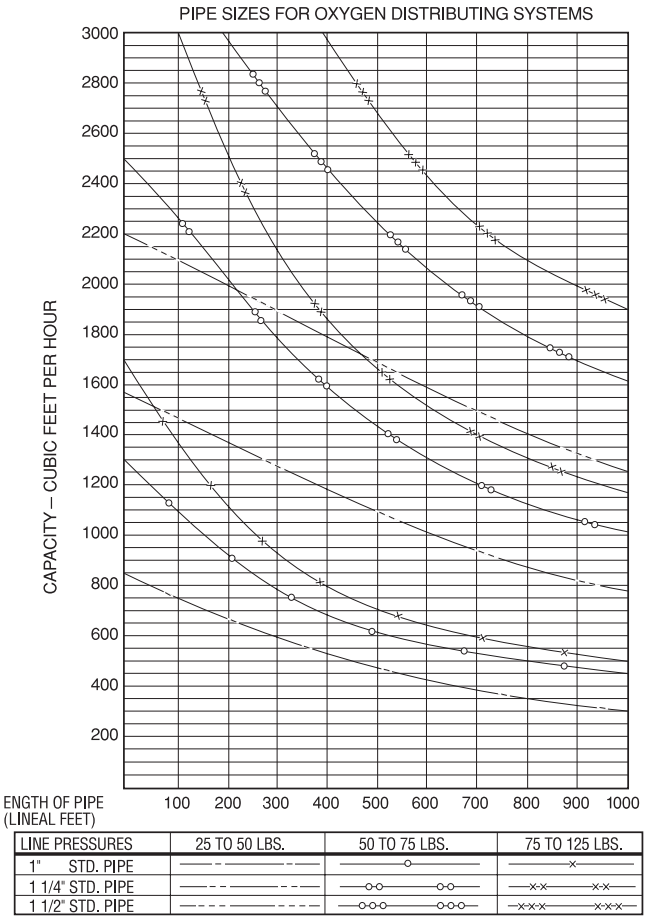
Wall Mount or Floor Stand Option
10” Centers O_2 & Inerts
13” Centers for Fuel Gases

NOTE: Special configuration manifolds are built to your specification. Victor will not build a unit unless details of required dimensions are provided by the customer. Should you require assistance please contact **Victor Customer Service 1-800-569-0547.**

The Victor Equipment Company would like to make the following recommendations when piping your shop. This obviously is a crucial element to the manifold system; listed below are some guidelines for choosing the right size pipe. Consult your contractor, plus your local fire and building codes when making any final decision. The following charts provide a guideline for selecting the correct pipe size for your system. Pressure drop information is on the next page.

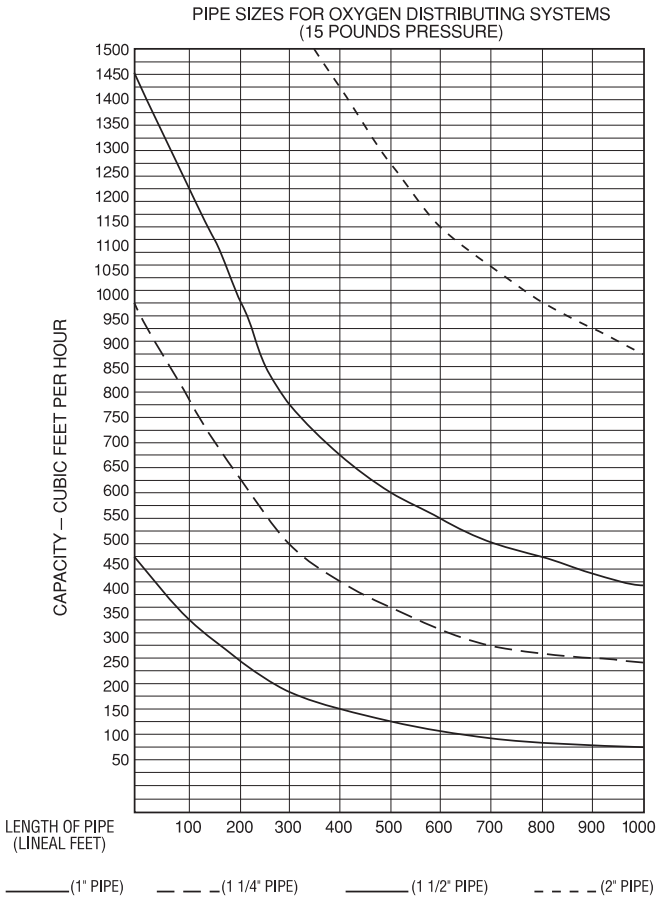
Oxygen Distributing Systems

Pipe Sizes



Acetylene Distributing Systems

Pipe Sizes (15 Pounds Pressure)



Consult your Contractor or Local Fire and Building Codes for more information pertinent to your particular locale.

Friction Loss of Air in Pipe Fittings

(Expressed in Terms of Feet of Straight Pipe)

Nominal Pipe sizes Inches	Schedule No.	GLobe Valve	Gate Valve	90° Standard Elbow	Standard Tee	
					Run of Tee	Side Outlet
1/2"	40	17.6	.7	1.6	1.0	3.1
3/4"	40	23.3	.9	2.1	1.4	4.1
1"	40	29.7	1.1	2.6	1.7	5.2
1-1/2"	40	45.5	1.7	4.0	2.7	8.1
2"	40	59	2.2	5.2	3.4	10.3

The performance of gas apparatus supplied by manifold and piping systems is largely dependent upon pressure stability and adequate gas flow. The following charts are provided to assist in determining the minimum size requirements for piping and hose needed to provide sufficient gas flow without excessive pressure drop.

Note: Values may vary ± 10% depending on operating conditions.

Pressure Drop in Pounds for Each 100 Feet of Straight Pipe

Nominal Pipe Size	SCFH Free Air	Line Pressure - PSIG							
		10	15	30	50	100	150	200	250
1/2" Schedule 40	500		1.50	1.00	.70	.40	.30	.20	.20
	750			2.10	1.40	.80	.60	.40	.40
	1,000			3.60	2.50	1.40	1.00	.80	.60
	1,500				5.40	3.10	2.10	1.60	1.30
	2,000					5.30	3.70	2.80	2.30
3/4" Schedule 40	500	.40	.40	.20	.20				
	1,000	1.60	1.30	.90	.60	.30	.20	.20	.20
	1,750			2.50	1.70	1.00	.70	.50	.40
	2,500			5.00	3.40	1.90	1.40	1.00	.80
	4,000					4.70	3.40	2.60	2.10
1" Schedule 40	1,000	.50	.40	.30	.20	.10			
	1,750	1.30	1.10	.70	.50	.30	.20	.20	.10
	2,500			1.40	1.00	.60	.40	.30	.20
	3,750			3.10	2.10	1.20	.80	.70	.50
	5,000				3.70	2.10	1.50	1.10	.90
	7,500					4.60	3.20	2.50	2.00
1-1/2" Schedule 40	2,500	.30	.30	.20	.10				
	3,700	.70	.50	.40	.30	.10	.10		
	5,000	1.10	.90	.60	.40	.20	.20	.10	.10
	7,500		2.00	1.40	.90	.50	.40	.30	.20
	10,000			2.40	1.60	.90	.60	.50	.40
	12,500			3.70	2.50	1.40	1.00	.80	.60
2" Schedule 40	3,750	.20	.20	.10					
	5,000	.30	.20	.20	.10				
	7,500	.70	.60	.40	.30	.20	.10		
	10,000	1.20	1.00	.70	.50	.30	.20	.10	.10
	12,500		1.50	1.00	.70	.40	.30	.20	.20
	15,000			1.50	1.00	.60	.40	.30	.30

How to calculate Pressure Drop (Loss) in Pounds for Other Pipe Lengths:

- **Shorter Than 100 Feet**

  The friction loss in pipe lengths shorter than 100 feet may be calculated proportional to the length.

  Example: For 50 feet, 1/2 the charted figure.

- **Over 100 Feet**

  In pipe runs of more than 100 feet, the same proportional method may be used providing the resultant friction loss does not exceed 10 PSIG.

  Example: For 150 feet, 1-1/2 times the charted figure.

Unit Conversions

Pressure

PSI = 14.5 X BAR
Pa = 6,894.757 x PSI
KPa = 6.894757 x PSI

$$PSI = \frac{Pa}{6894.757}$$

$$PSI = \frac{KPa}{6.894757}$$

Flow

SCFH = 2.118 x LPM
SCFH = 60 x SCFM

$$LPM = \frac{SCFH}{2.118}$$

Units

PSI: Pounds per Square Inch
Pa: Pascal
KPa: 1000 Pascal
SCFH: Standard Cubic Feet per Hour
SCFM: Standard Cubic Feet per Minute
LPM: Liters per Minute

Dimensions for Center Section and Headers

Manifold Type	Center Section Only	2 Headers	4 Headers	6 Headers
Dual	N/A	Fuel 26" All other 20" Fuel 65 cm All other 50 cm	N/A	N/A
Simplex (SPLX)	16.0 in 40.6 cm	Fuel 42" All other 36" Fuel 105.6 cm All other 90.6 cm	Fuel 68" All other 56" Fuel 170.6 cm All other 140.6 cm	Fuel 96" All other 76" Fuel 235.6 cm All other 190.6 cm
Single (SSIN)	16.0 in 40.6 cm	Fuel 42" All other 36" Fuel 105.6 cm All other 90.6 cm	Fuel 68" All other 56" Fuel 170.6 cm All other 140.6 cm	Fuel 96" All other 76" Fuel 235.6 cm All other 190.6 cm
Non-Cabinet (SAM)	32.0 in 81.2 cm	Fuel 58" All other 52" Fuel 146.2 cm All other 131.2 cm	Fuel 84" All other 72" Fuel 211.2 cm All other 181.2 cm	Fuel 110" All other 92" Fuel 276.2 cm All other 231.2 cm
Liquid (LIQ)	30.0 in 75 cm	Fuel 42" All other 36.5"	N/A	N/A
VM	13 in 33 cm	Fuel 38" All other 33" Fuel 97 cm All other 84 cm	Fuel 65" All other 53" Fuel 165 cm All other 135 cm	Fuel 91" All other 73" Fuel 231 cm All other 185 cm

For Manifold questions call
1-800-569-0547

UNITED STATES CUSTOMER SERVICE
Phone: 1-800-569-0547 FAX: 1-800-569-0549

For International & Canada see back cover.

Visit our Web Site:

http://www.thermadyne.com
http://www.victorhpi.com

U.S. Customer Care: 800-569-0547 / FAX 800-535-0557 • International Customer Care: 905-827-9777 / FAX 905-827-9797
www.victorhpi.com

THERMADYNE®

A Global Cutting & Welding Market Leader™

WORLD HEADQUARTERS: 16052 Swingley Ridge Road, Suite 300 • St. Louis, Missouri 63017 U.S.A.

THE AMERICAS

Denton, TX USA
U.S. Customer Care
Ph: (1) 800-426-1888
Fax: (1) 800-535-0557

West Lebanon, NH USA
Customer Care, Plasma
Ph: (1) 800-752-7621
Fax: (1) 800-221-4401

Miami, FL USA
Sales Office, Latin America
Ph: (1) 954-727-8371
Fax: (1) 954-727-8376

Oakville, Ontario, Canada
International Customer Care
Ph: (1) 905-827-9777
Fax: (1) 905-827-9797

Rio de Janeiro, Brazil
Customer Care
Ph: (55) 21-2485-8998
Fax: (55) 21-2485-8866

EUROPE

Chorley, United Kingdom
Customer Care
Ph: (44) 1257-261755
Fax: (44) 1257-224800

Milan, Italy
Sales Office
Ph: (39) 0236546801
Fax: (39) 0236546840

ASIA/PACIFIC

Cikarang, Indonesia
Customer Care
Ph: 62 21+ 8983-0011 / 0012
Fax: 62 21+ 893-6067

Osaka, Japan
Sales Office
Ph: 816-4809-8411
Fax: 816-4809-8412

Melbourne, Australia
Customer Care:
Ph: 1300-654-674
Fax: 613+ 9474-7391
International:
Ph: 613+ 9474-7508
Fax: 613+ 9474-7488

Rawang, Malaysia
Customer Care
Ph: 603+ 6092-2988
Fax: 603+ 6092-1085

Shanghai, China
Sales Office
Ph: 86 21+ 6280-1273
Fax: 86 21+ 3226-0955

Singapore
Sales Office
Ph: 65+ 6832-8066
Fax: 65+ 6763-5812

Form No. 81-2104 (4/17/07)

Printed in U.S.A.