



Manifold Products

Innovator
Gas Manifold Systems



Global Gas Management Technology

Enterprises | **Innovator** | Medica | Westwinds

www.westernenterprises.com

TABLE OF CONTENTS

INDUSTRIAL MANIFOLDS

• DS1000 Series	4-5
• BI Series	6-7
• LC, LA Series	8-9
• MD, MS Series	10-11
• SD, SDLA Series	12-13
• Industrial Manifold Replacement Pigtails	14

HEALTHCARE MANIFOLDS

• FHM2 Series	16-17
• AGM2 Series	18-19
• MLC Series	20-21
• MCLA Series	22
• Dual Line Regulator Assemblies	23
• Transfill Systems	24-27
• Healthcare Manifold Replacement Pigtails	28

SPECIALTY GAS MANIFOLDS

• HBAC2 Series	30-31
• HBCS Series	32-33
• Specialty Gas Manifold Replacement Pigtails	34

ACCESSORIES

• Cylinder Brackets, Manifold Bracket & Mounting Hardware, Gas Heaters	36
• Flashback Arrestors, Fuel Gas Safety Kits, Fuel Gas Alarm Kits	37
• Pressure Switches, Remote Alarm Panels & Power Supplies	38
• Station Drops, Line Station Regulators, Flowmeters	39
• Manifold Regulators, In-Line Regulators	40
• Packless Diaphragm Valves, Bypass Valve Assembly, Header Valves	41
• 1/4 Turn Ball Valves, Master Valves, Line Station Valves	42
• Union Adaptors, Tailpieces & Nuts, Pipeline Check Valves, Check Valve Outlets, Relief Valves	43-44
• Header Components; Brass Pipe, Pipe Tees	45
• Header Components; Pipe Elbows, Pipe Crosses, Pipe Thread Caps & Plugs	46
• Western Innovator Manifold Header Configurations	47

MERIAM

• Gauges and Transmitters	48
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ORDERING MADE EASY

E-MAIL

Send orders via e-mail to:
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Your order will be processed immediately.

PHONE

800-783-7890 U.S. Toll Free
Outside U.S. call: 1-440-871-2160
Press #1 to speak with a member of our customer service team. Please have your:

- Account number
- Part numbers, price and purchase order number
- Name of contact to answer any questions
- Special shipping instructions

This catalog is for informational purposes. Specific information regarding the use of these products is contained in the Operating Instructions provided with each product. User/Installer is responsible for insuring installation has been done in accordance with federal, state, and local codes.



*Western Innovator's
Industrial Gas Manifolds are:*

- *Supported by a dedicated engineering staff and knowledgeable customer service representatives who are ready to help you customize a system built to your specific requirements.*
- *Cleaned and tested for the indicated gas service.*
- *1 year limited warranty.*

INDUSTRIAL MANIFOLDS

WESTERN INNOVATOR INDUSTRIAL GAS MANIFOLDS

Western Innovator Industrial Gas Manifolds offer the flexibility to meet your customer's individual manifold needs in today's competitive market. Our full line of Industrial Gas Manifolds provides the best value and highest quality in the industry.

DS1000

Western Innovator DS1000 Digital Manifolds provide fully automatic system control. An Integrated Circuit Board monitors cylinder bank pressure electronically, controlling changeover and eliminating the need to manually reset

levers or valves. Easy-to-read digital displays show the delivery and individual bank pressures. A series of lights for each bank indicates whether the bank is "in service", "ready for use", or "bank depleted".

specifications

- Fully Automatic Digital System—no levers to reset
- CSA Approved Power Source included
- LED Indicators provide system status for each bank. Lights will indicate "in service", "ready for use", or "bank depleted"
- Large digital display provides constant readout of bank pressure and delivery pressure
- Displays readout in psig, kPa or Bar
- Micro controller monitors all functions and controls changeover
- Maximum Inlet pressure: 3000 psig (2000 psig for DS1000HL)
- Delivery Pressure:

DS1000	40–100 psig
DS1000HL	40–100 psig
DS1000HP	100–190 psig
- Maximum Flow:

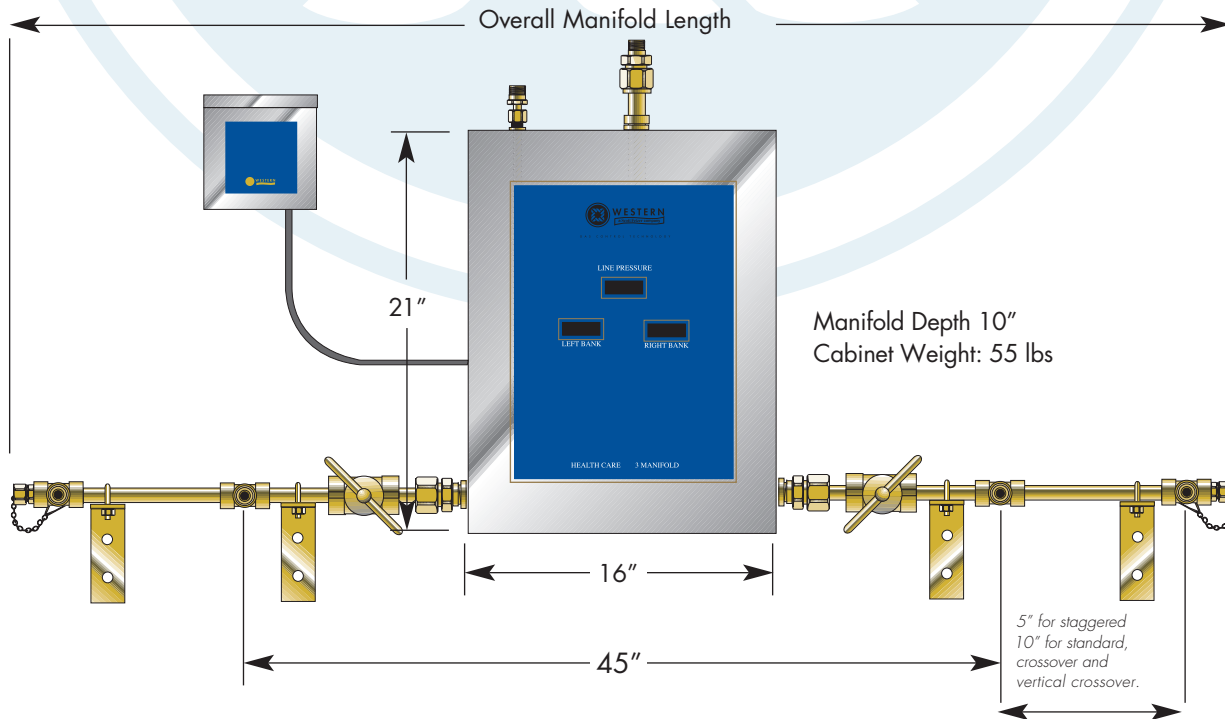
DS1000	2000 scfh
DS1000	35 scfh
(CO ₂ & N ₂ O)	
DS1000 HL	500 scfh
(CO ₂ & N ₂ O with heater)	
DS1000HP	2500 scfh
- Manifold Outlet: 1/2" NPT male
- Relief Valve Outlet: 1/2" NPT male
- 1/2" brass, silver brazed headers
- 24" flexible stainless steel braided pigtails with check valves
- Connects to remote alarm systems (Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

To Order: Specify—Model # (V)—Gas Service (W)—# of			
MODEL # (V)	GAS SERVICE (W)		# OF CYL'S (X)
DS1000 (40–100 psig)	(2) Air	CGA-346	
DS1000HL (40–100 psig) (For CO ₂ and N ₂ O -includes 500 scfh heater)	(3) Argon	CGA-580	
	(4) Carbon Dioxide	CGA-320	
	(5) Helium	CGA-580	
DS1000HP (100–190 psig)	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Example: DS1000-9-4=Oxygen (9=CGA-540) Manifold for 4 cylinders

*Not for hospital applications. Does not meet NFPA-99 requirement for hospital use.
See Western Innovator model FHM2, Fully Automatic Changeover Manifold.*

Cylinders (X)–Header Configuration (Y)–Mounting (Z)		
	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK –Standard 10" on Center S –Staggered 5" on Center V –Vertical crossover 10" on Center C –Crossover (Floor Mount Only) Standard 10" on Center	BLANK = Wall mount F = Floor mounted (Floor Stand option required with Crossover option)

Western Innovator BI Series Analog Manifolds are specifically designed to regulate and provide uninterrupted gas supply for industrial applications. Factory-set functional components are protected inside a tamper-resistant case. A green light indicates the service bank is functioning and

the reserve bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted (except on fuel gas units). A simple rotation of the control lever resets the unit.

specifications

- Automatic Analog System
- CSA Approved Power Supply Included
- Maximum inlet pressure:

BI	3000 psig
BI (CO ₂ & N ₂ O)	2000 psig
BI (Acetylene, LPG)	400 psig
BIHL (CO ₂ & N ₂ O)	2000 psig
BIHP	3000 psig
BIHP (CO ₂ & N ₂ O)	2000 psig
- Maximum flow rate:

BI	1200 scfh
BI (Acetylene)	300 scfh
BI (LPG)	400 scfh
BI (CO ₂ & N ₂ O)	35 scfh
BIHL (CO ₂ & N ₂ O)	500 scfh
BIHP	1200 scfh
- Internal adjustable line regulator:

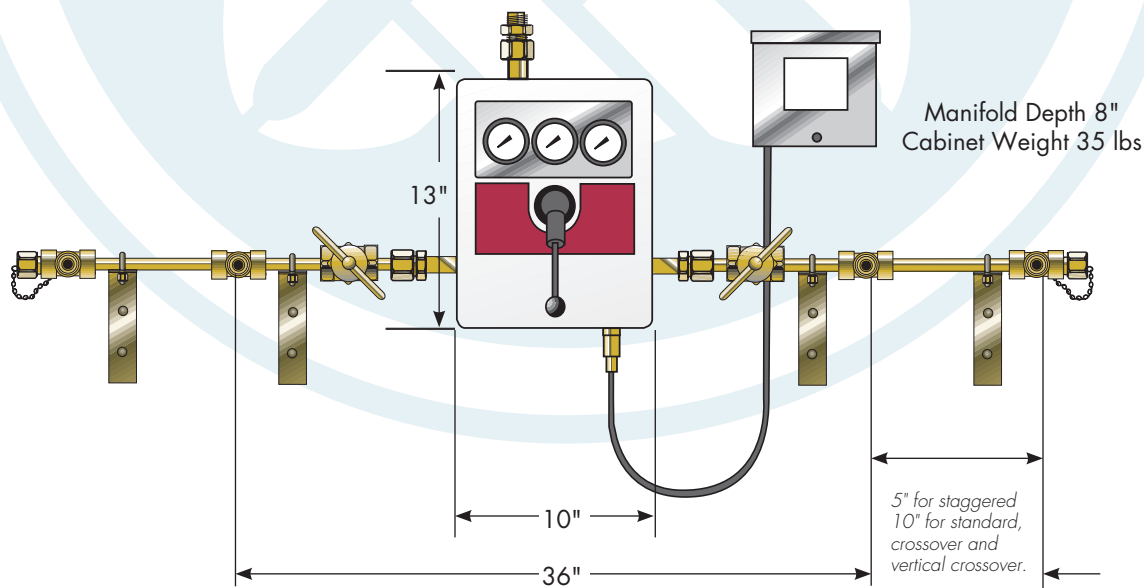
BI & BIHL	30–125 psig
Acetylene	0–15 psig
LPG	0–30 psig
BIHP	50–200 psig
- Manifold outlet: 1/2" NPT male
- Relief valve outlet: 3/4" NPT male
- 24" flexible stainless steel braided pigtailed with check valves
- 1/2" Brass, silver brazed headers
- Individual header valves at each cylinder location (units with 4 cylinders or larger—all gases except Oxygen). Oxygen units shipped with check valve outlets in place of header valves to provide added safety from heat of recompression
- Acetylene systems include: 300 scfh flashback arrestor and piping. Pigtailed with individual flashback arrestors and check valves
- Fuel gas units do not include visual alarm, power supply, or any electrical components. Fuel gas alarm kits are available as an option.
- Connects to remote alarms systems (Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

Specify: Control Type (V)–Service (W)–Number of Cylinders (X)			
Example 1: BI-9-12V represents BI with oxygen gas service and a vertical control.			
Example 2: BIHP-7-6 represents BIHP with nitrogen gas service with a standard control.			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
BI (30 to 125 psig) Acetylene (0–15 psig) LPG (0–30 psig) BIHL (30 to 125 psig) (500 scfh heater included in HL model for CO ₂ and N ₂ O) BIHP (50 to 200 psig) (Higher delivery pressure—to 235 psig available upon request)	(1)	Acetylene (POL)	CGA-510
	(1A)	Acetylene (Commercial)	CGA-300
	(2)	Air	CGA-346
	(3)	Argon	CGA-580
	(4)	Carbon Dioxide	CGA-320
	(5)	Helium	CGA-580
	(6)	Hydrogen	CGA-350
	(6A)	Argon/Methane Mixtures	CGA-350
	(7)	Nitrogen	CGA-580
	(7A)	Industrial Air/Nitrogen OP	CGA-590
	(8)	Nitrous Oxide	CGA-326
	(9)	Oxygen	CGA-540
	(10)	Liquefied Fuel Gases (LPG)	CGA-510

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Example: BI-9-4 = Oxygen (9=CGA-540) Manifold for 4 Cylinders

Design Lengths

TOTAL NO. OF CYLINDERS	2	4	6	8	10	12	16
Standard (10" CENTERS) Overall Manifold Length	2'-0" (0.61m)	5'-5" (1.65m)	7'-1" (2.16m)	8'-9" (2.67m)	10'-5" (3.18m)	11'-9" (3.58m)	15'-3" (4.65m)
Staggered Design (5" CENTERS) Overall Manifold Length	2'-0" (0.61m)	4'-7" (1.40m)	5'-5" (1.65m)	6'-3" (1.91m)	7'-1" (2.16m)	7'-11" (2.4m)	9'-7" (2.92m)
Vertical Crossover (10" CENTERS) Overall Manifold Length	N/A	3'-9" (1.14m)	N/A	5'-5" (1.65m)	N/A	7'-1" (2.16m)	8'-9" (2.67m)
Crossover (10" CENTERS) Overall Manifold Length	N/A	3'-9" (1.14m)	N/A	5'-5" (1.65m)	N/A	7'-1" (2.16m)	8'-9" (2.67m)
Acetylene Manifold (13" CENTERS) Overall Manifold Length	2'-0" (0.61m)	5'-9" (1.75m)	8'-0" (2.44m)	10'-2" (3.10m)	12'-4" (3.76m)	14'-5" (4.40m)	16'-7" (5.06m)

Cylinders (X)-Header Configuration (Y)-Mounting (Z)

Standard crossover bank of 6 cylinders per side which is mounted on the wall.
Standard header configuration of 3 cylinders per side which is mounted on the wall.

	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK -Standard 10" on Center 13" on Center for Acetylene & LPG S -Staggered 5" on Center 6.5" on Center for Acetylene & LPG V -Vertical crossover Standard 10" on Center 13" on Center for Acetylene & LPG C -Crossover (Floor Mount Only) Standard 10" on Center 13" on Center for Acetylene & LPG U-Shaped -Drawing Required L-Shaped -Drawing Required	BLANK = Wall mount F = Floor mounted

A self-contained alarm system alerts the user to the system's current status. A green light indicates the service bank is functioning and the reserve bank is ready for service. A red light signals that the system has changed over and one or both banks are depleted.

- Automatic Analog System
- Gas withdrawal from Liquid Dewars
- CSA Approved Power Source Included
- Maximum inlet pressure: 350 psig
- Maximum flow rate:

LC	750 scfh
LCHP	800 scfh
- Adjustable line regulator:

LC	40–85 psig
LCHP	40–180 psig
- Manifold outlet: 1/2" NPT male
- Relief valve outlet: 1/4" NPT male
- 72" Cryogenic pigtails with check valves
- Minimum inlet pressure:

LC	125 psig
LCHP	250 psig
- LC Series for use with 235 psig relief valve Dewars
- LCHP Series for use with 350 psig relief valve Dewars
- Connects to remote alarms systems
(Up to 3 amps 30 VDC or 2 amps 250 VAC)



Example: LC-7-2 = Nitrogen (7=CGA-580)
Manifold for 2 Liquid Cylinders.

Specify: Control Type (V)–Service (W)–Number of Cylinders (X)–Mounting (Z)				
Example: LC-3-4 represents LC with Argon gas service for 2 cryogenic cylinders per side which is mounted on the wall.				
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)	MOUNTING (Z)
LC (40–85 psig)	(3)	Argon	CGA-580	BLANK = Wall mount F = Floor mounted
	(4)	Carbon Dioxide	CGA-320	
LCHP (40–180 psig)	(5)	Helium	CGA-580	
(Nitrogen units only are adjustable – 40–210 psig)	(7)	Nitrogen	CGA-580	
	(8)	Nitrous Oxide	CGA-326	
	(9)	Oxygen	CGA-540	

Note: To maximize flow performance when more than one cylinder is used, pigtails should be used to connect the vent lines to ensure equalized cylinder pressure.

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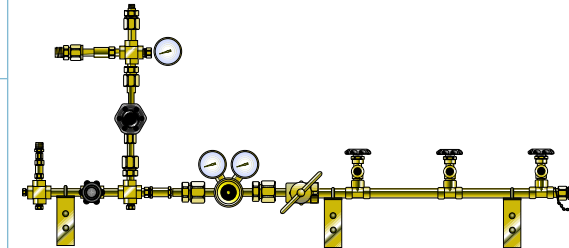
LA (Cryogenic Cylinder-Gas Withdrawal X High Pressure)

Western Innovator LA manifolds are designed for applications using cryogenic cylinders as a primary gas source, but usage is insufficient to warrant liquid as a reserve. This LA series manifold will automatically switch over from service to reserve bank without any interruption of service. Line pressure will remain

constant within a variation of $\pm 2\%$ throughout the changeover cycle. An alarm can be added to signal changeover from service to reserve banks by adding items: WME-4-9 pressure switch, WMS-1-97 orificed adaptor, WMS-9-25C power supply box and BIA-3 remote audio visual alarm.

specifications

- Automatic L x HP System
- Gas withdrawal from Liquid Dewars
- Maximum working pressure for high pressure reserve system: 3000 psig
- Maximum flow capacity: 750 scfh-Model LA
750 scfh-Model LAMP
800 scfh-Model LAHP
- Adjustable cryogenic line regulator: 40-85 psig on LA Series
40-130 psig on LAMP Series
40-210 psig on LAHP Series
- Manifold outlet: 1/2" NPT male
- 24" flexible stainless steel braided pigtails with check valves, for high pressure bank
- Cryogenic side includes 72" cryogenic pigtails with check valves (nylon inner core with polyester braid). Maximum working pressure 1375 psig
- Inlet pressures from each liquid cylinder must be the same*
- Individual header valves at each cylinder location (units with 2 cylinders or larger-all gases except Oxygen). Oxygen units shipped with check valve outlets in place of header valves to provide added safety from heat of recompression
- 1/2" Brass, silver brazed headers



Example: LA-7-2-3 = Nitrogen (7=CGA-580)
Manifold for 2 Liquid Cylinders and 3 H.P. Cylinders.

Minimum inlet pressure for LA 125 psig (860 kPa)*

Minimum inlet pressure for LAMP 160 psig (1100 kPa)*

Minimum inlet pressure for LAHP 250 psig (1700 kPa)*

HOW TO ORDER¹

Specify: Control Type (U)-Service (V)-No. of Liq. (W)-No. of HP (X)-Header (Y)-Mounting (Z)					
Example: LA-7-2-3 represents LA with Nitrogen gas service for 2 liquid cylinders and 3 H.P. cylinders, mounted on the wall.					
CONTROL TYPE (U)	GAS SERVICE (V)	# OF LIQUID VESSELS (W)	# OF CYL'S (X)	HEADER CONFIGURATION (Y)	MOUNTING (Z)
LA (40-85 psig) LAMP (40-130 psig) LAHP (40-210 psig)	(3) Argon CGA-580 (4) Carbon Dioxide CGA-320 (5) Helium CGA-580 (7) Nitrogen CGA-580 (8) Nitrous Oxide CGA-326 (9) Oxygen CGA-540			BLANK -Standard 10" on Center S -Staggered 5" on Center V -Vertical crossover Standard 10" on Center C -Crossover (Floor Mount Only) Standard 10" on Center	BLANK = Wall mount F = Floor mounted

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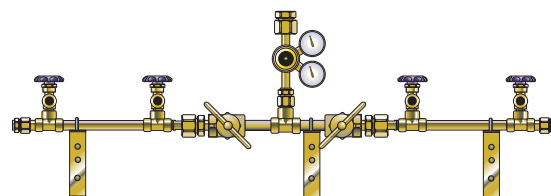
MD, MS Manual Manifold Systems

Manual manifolds are designed to regulate compressed gases in high pressure cylinders (up to 3,000 psig) and are ideal for manifold applications not requiring automatic changeover from the service to the secondary bank. The MD Series duplex manifold is designed for manual

changeover of 2 banks of cylinders. The MS series simplex manifold system allows manifolding of an unlimited number of cylinders in a single bank. This system is often used as a high pressure reserve for bulk, portable bulk and gas generator systems.

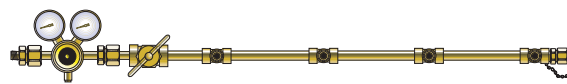
specifications

- Manual Systems
- Maximum working pressure: 3000 psig
- Manifold Outlet: 1/2" NPT male
- 24" flexible stainless steel braided pigtails with check valves. Check valve is at header end of pigtail for all gases except Oxygen. Note: Helium and Hydrogen manifolds shipped with synthetic fiber braided pigtails
- Individual header valves at each cylinder location (units with 4 cylinders or larger-all gases except Oxygen)
- Headers constructed of 1/2" brass pipe and tees
- Acetylene manifolds shipped complete with dry flashback arrestor, relief valve and connecting piping. Hydraulic Flashback arrestors are available as an option for an additional charge
- Optional safety kits, flash arrestor and relief valve available for Liquefied Fuel gases
- Heater Kits available for Carbon Dioxide and Nitrous Oxide gases
- Model RM regulator included for most gas services. Note: RDM Series used for Oxygen
- An alarm can be added to non fuel gas MD systems to signal changeover from service to reserve banks by adding items WME-4-9 pressure switch, WMS-1-97 adaptor, WMS-9-25C power source and BIA-3 remote A/V alarm.



MD-4-4

Example: MD-4-4 = CO₂ (4=CGA-320)
Manifold for 4 Cylinders



MS-9-4

Example: MS-9-4 = Oxygen (9=CGA-540)
Manifold for 4 cylinders

HOW TO ORDER¹

Specify: Control Type (V)-Service (W)-Number of		
Example 1: MD-9-12V represents MD with oxygen gas service and a v Example 2: MSHP-7-6 represents MSHP with nitrogen gas service with a		
CONTROL TYPE (V)	GAS SERVICE (W)	# OF CYL'S (X)
MD / MS Most gases: 20-160 psig Acetylene: (0-15 psig) LPG: (0-45 psig)	(1) Acetylene (POL)	CGA-510
	(1A) Acetylene (Commercial)	CGA-300
MDHP / MSHP (only available for non-fuel gas services) Most gases: 140-300 psig Oxygen: 140-450 psig	(2) Compressed Air	CGA-346
	(3) Argon	CGA-580
	(4) Carbon Dioxide	CGA-320
	(5) Helium	CGA-580
	(6) Hydrogen	CGA-350
	(6A) Argon/Methane Mixtures	CGA-350
	(7) Nitrogen	CGA-580
	(7A) Industrial Air/Nitrogen OP	CGA-590
	(8) Nitrous Oxide	CGA-326
	(9) Oxygen	CGA-540
	(10) Liquefied Fuel Gases (LPG)	CGA-510

Note: Different regulators may be substituted to achieve higher delivery pressures on all control types.

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Design Lengths

TOTAL NO. OF CYLINDERS	2	3	4	5	6	7	8
MS- Standard (10" Centers) Overall Manifold Length	2'-9" (.84m)	3'-7" (1.09m)	4'-5" (1.35m)	5'-3" (1.60m)	6'-1" (1.85m)	7'-0" (2.13m)	7'-10" (2.39m)
MS- Staggered Design (5" Centers) Overall Manifold Length	2'-4" (.74m)	2'-9" (.84m)	3'-2" (.97m)	3'-7" (1.09m)	4'-0" (1.22m)	4'-5" (1.35m)	4'-10" (1.47m)
MS- Vertical Crossover and Crossover (10" Centers) Overall Manifold Length	1'-11" (.58m)	N/A	2'-9" (.84m)	N/A	3'-7" (1.09m)	N/A	4'-5" (1.35m)
MS- Standard (13" Centers) Overall Manifold Length	3'-0" (.91m)	4'-1" (1.22m)	5'-2" (1.57m)	6'-3" (1.91m)	7'-4" (2.24m)	8'-5" (2.57m)	9'-6" (2.90m)
MS- Staggered Design (6.5" Centers) Overall Manifold Length	2'-5.5" (.75m)	3'-0" (.91m)	3'-6.5" (1.08m)	4'-1" (1.25m)	4'-7.5" (1.41m)	5'-2" (1.57m)	5'-8.5" (1.74m)
MS- Vertical Crossover and Crossover (13" Centers) Overall Manifold Length	1'-11" (.58m)	N/A	3'-0" (.91m)	N/A	4'-1" (1.25m)	N/A	5'-2" (1.57m)
TOTAL NO. OF CYLINDER	2	4	6	8	10	12	14
MD- Standard (10" Centers) Overall Manifold Length	2'-4" (.71m)	4'-4" (1.32m)	6'-0" (1.83m)	7'-8" (2.34m)	9'-4" (2.85m)	11'-0" (3.35m)	12'-8" (3.86m)
MD- Staggered Design (5" Centers) Overall Manifold Length	2'-4" (.71m)	3'-6" (1.07m)	4'-4" (1.32m)	5'-2" (1.57m)	6'-0" (1.83m)	6'-10" (2.08m)	7'-8" (2.34m)
MD- Vertical Crossover and Crossover (10" Centers) Overall Manifold Length	N/A	2'-8" (.81m)	N/A	4'-4" (1.32m)	N/A	6'-0" (1.83m)	N/A
MD- Standard (13" Centers) Overall Manifold Length	2'-4" (.71m)	4'-9" (1.471m)	7'-0" (2.13m)	9'-2" (2.79m)	11'-4" (3.45m)	13'-6" (4.11m)	15'-8" (4.77m)
MD- Staggered Design (6.5" Centers) Overall Manifold Length	2'-4" (.71m)	3'-9" (1.14m)	4'-10" (1.47m)	5'-11" (1.80m)	7'-0" (2.13m)	8'-1" (2.46m)	9'-2" (2.79m)
MD- Vertical Crossover and Crossover (13" Centers) Overall Manifold Length	N/A	2'-8" (.81m)	N/A	4'-10" (1.47m)	N/A	7'-0" (2.13m)	N/A



Cylinders (X)-Header Configuration (Y)-Mounting (Z)

*Vertical crossover bank of 6 cylinders per side which is mounted on the wall.
Standard header configuration of 6 cylinders which is mounted on the wall.*

	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK -Standard 10" on Center 13" on Center for Acetylene & LPG S -Staggered 5" on Center 6.5" on Center for Acetylene & LPG V -Vertical Crossover 10" on Center or 13" on Center for Acetylene & LPG C -Crossover (Floor Mount Only) 10" on Center or 13" on Center for Acetylene & LPG	BLANK = Wall mount F = Floor mounted

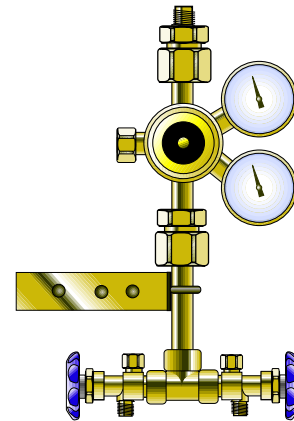
SD Manual System

Manual manifolds are designed to regulate compressed gases in high pressure cylinders (up to 3,000 psig) and are ideal for manifold applications not requiring automatic changeover from the service to the secondary bank. The SD

series simple duplex manifold is specifically designed as an economical system for a total capacity of two cylinders-one per side. Cylinders may be used one at a time maintaining a reserve or both at the same time for higher flow capacity.

specifications

- Manual 2 cylinder System
- Maximum working pressure: 3000 psig
- Adjustable Line Regulator
 - SD 20-160 psig (most gases)
 - SDHP 140-300 psig (most gases)
- Model RM regulator included for most gas services
Note: RDM Series used for Oxygen
- Model RS-300-MAN regulator included for SDHP series manifolds
- Manifold Outlet: 1/2" NPT male
- 24" flexible stainless steel braided pigtails
- High quality header shut-off valves
- An alarm can be added to non fuel gas SD systems by adding items WME-4-9 pressure switch, WMS-1-97 adaptor, WMS-9-25C power source and BIA-3 remote A/V alarm.



SD-7-2

HOW TO ORDER¹

Specify: Model # (X)-Gas Service (Y)-Number of Cylinders (Z)			
MODEL # (X)	GAS SERVICE (Y)		# OF CYL'S (Z)
SD Most Gases: 20 - 160 psig Acetylene: 0 - 15 psig LPG: 0 - 45 psig	(1) Acetylene (POL)	CGA-510	Always 2
	(1A) Acetylene (Commercial)	CGA-300	
	(2) Compressed Air	CGA-346	
	(3) Argon	CGA-580	
	(4) Carbon Dioxide	CGA-320	
	(5) Helium	CGA-580	
	(6) Hydrogen	CGA-350	
	(6A) Argon/Methane Mixtures	CGA-350	
	(7) Nitrogen	CGA-580	
	(7A) Industrial Air/Nitrogen OP	CGA-590	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	
	(10) Liquefied Fuel Gases (LPG)	CGA-510	
SDHP: Only available for non-fuel gas service Most Gases: 140 - 300 psig Oxygen: 140 - 450 psig			

Note: Helium and Hydrogen manifolds shipped with synthetic fiber braided pigtails.

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

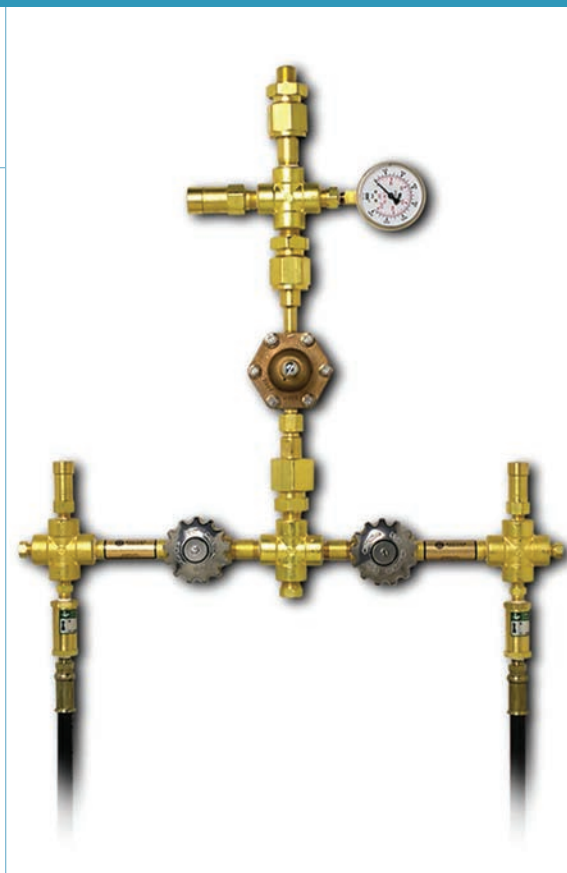
SDLA Manual (Cryogenic Cylinder–Gas Withdrawal) System

Western Innovator SDLA Manual Changeover Manifolds are designed for applications requiring gas withdrawal from cryogenic cylinders. The SDLA manifolds are designed for use with up to

4 cylinders, 2 per bank, and can flow from both banks or one bank can be kept in reserve. An alarm can be added to signal when your primary bank is nearly depleted.

specifications

- Manual System
- Minimum inlet pressure:
SDLA 125 psig
SDLAHP 250 psig
- Maximum inlet pressure:
SDLA 350 psig
SDLAHP 350 psig
- Adjustable Line Regulator:
SDLA 40–100 psig
SDLAHP 80–210 psig
- Maximum Flow:
SDLA 750 scfh
SDLAHP 800 scfh
- SDLA series for use with 235 psig relief valve Dewars
- SDLAHP series for use with 350 psig relief valve Dewars
- Manifold Outlet: 1/2" NPT male
- Line relief valve outlet: 1/2" NPT female
- 72" Cryogenic pigtails with check valves
- Includes high quality cryogenic master valves for low temperature operation
- Constructed of brass pipes and tees, labeled for indicated gas usage
- Wall mounting brackets included
- Options: Alarm Kit Part # SDLA-AK
Floor stand



HOW TO ORDER¹

Specify: Model (W)–Gas Service (X)–Number of Cylinders (Y)–Mounting (Z)				
MODEL # (W)	GAS SERVICE (X)		# OF CYL'S (Y)	MOUNTING (Z)
SDLA (40–100 psig) SDLAHP (80–210 psig)	(3) Argon (4) Carbon Dioxide (5) Helium (7) Nitrogen (8) Nitrous Oxide (9) Oxygen	CGA–580 CGA–320 CGA–580 CGA–580 CGA–326 CGA–540	4 Maximum	BLANK = Wall mount F = Floor mounted

Note: To maximize flow performance when more than one cylinder is used, pigtails should be used to connect the vent lines to ensure equalized cylinder pressure.

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INDUSTRIAL MANIFOLD REPLACEMENT PIGTAILS

DS1000, BI, SD, MD, MS, CLA, LA (high pressure side):

GAS	24"	36"
Acetylene (CGA 510) ¹	PF-15CVFA-24R	PF-15CVFA-36R
Acetylene (CGA 300) ¹	PF-16CVFA-24R	PF-16CVFA-36R
Compressed Air (CGA 346) ¹	PF-346CV-24R	PF-346CV-36R
Argon (CGA 580) ¹	PF-92CV-24R	PF-92CV-36R
Carbon Dioxide (CGA 320) ¹	PF-320CV-24R	PF-320CV-36R
Helium (CGA 580) ¹	PFS-92CV-24R	PFS-92CV-36R
Hydrogen (CGA 350) ¹	PFS-83CV-24R	PFS-83CV-36R
Argon/Methane (CGA 350) ¹	PF-83CV-24R	PF-83CV-36R
Nitrogen (CGA 580) ¹	PF-92CV-24R	PF-92CV-36R
Industrial Air (CGA 590) ¹	PF-93CV-24R	PF-93CV-36R
Nitrous Oxide (CGA 326) ¹	PF-326CV-24R	PF-326CV-36R
Oxygen (CGA 540) ¹	PF-63CV-24R	PF-63CV-36R
LPG (CGA 510) ¹	PF-15CV-24R	PF-15CV-36R

LC, SDLA, LA (liquid cylinder side), (available in 72" length only)

GAS	72"
Argon (CGA 580) ¹	WMH-2-8
Carbon Dioxide (CGA 320) ¹	WMH-2-5
Nitrogen (CGA 580) ¹	WMH-2-8
Nitrous Oxide (CGA 326) ¹	WMH-2-6
Oxygen (CGA 540) ¹	WMH-2-7

¹  **WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



*Western Innovator
Healthcare Manifolds are:*

- *Specifically designed to meet a wide variety of healthcare applications that require uninterrupted gas service. Systems automatically switch from the primary gas supply to the secondary gas supply.*
- *Designed and manufactured to meet NFPA-99 2012 safety and performance requirements.*
- *Cleaned and tested for the indicated gas service.*
- *1 year limited warranty.*

HEALTHCARE MANIFOLDS

WESTERN INNOVATOR HEALTHCARE MANIFOLD SYSTEMS

Western Innovator Healthcare Manifolds offer an extensive range of standard features, proven performance, outstanding value, and customization to meet special requirements.

FHM2

Western Innovator FHM2 Healthcare Gas Manifolds provide fully automatic system control. An integrated circuit board monitors cylinder bank pressure electronically, controlling change-over and eliminating the need to manually reset levers or valves.

FHM2 Healthcare Manifolds meet NFPA-99 2012 safety and performance requirements. Easy-to-read digital displays show the line and individual bank pressures. A series of lights for each bank indicates whether the bank is "in service", "ready for use", or "bank depleted".

specifications

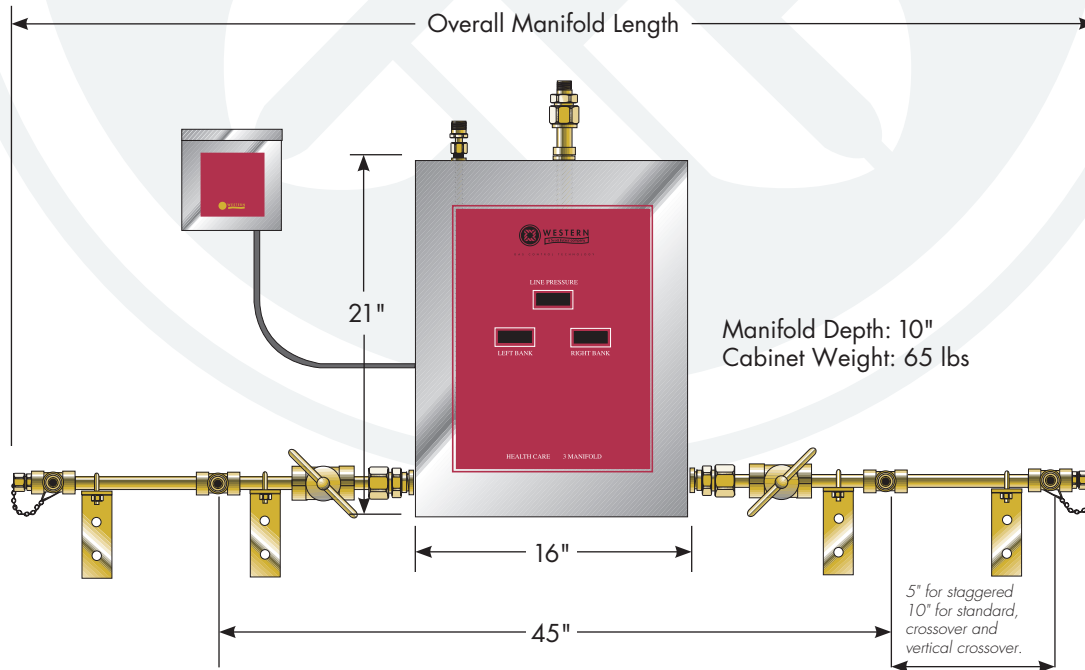
- NFPA Compliant, Fully Automatic Digital System
- CSA Approved Power Supply included
- Maximum inlet pressure: 3000 psig (2000 for CO₂ & N₂O systems)
- Maximum Flow Rate:
 - FHM2 2000 scfh
 - FHM2 (CO₂ & N₂O) 35 scfh
 - FHM2HL (CO₂ & N₂O) 500 scfh
 - FHM2HP 3000 scfh
- Internal adjustable dual line regulators
 - FHM2 & FHM2HL 30-70 psig
 - FHM2HP 100-190 psig
- Manifold outlet: 1/2" NPT male
- Relief valve outlet: 1/2" NPT male
- 1/2" Brass, silver brazed headers
- Oxygen Pigtails: NFPA 99 compliant, rigid copper, with check valves,
Other Gas Pigtails: NFPA 99 compliant, 24" flexible stainless steel with check valves
- Digital readout can display psig, kPa or Bar
- Connects to remote alarms systems (Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

Specify: Control Type (V)–Service (W)–Number of Cyls (X)			
Example 1: FHM2HP-7-6 represents FHM2HP with nitrogen gas service with a standard 6 cylinder manifold			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
FHM2 (30 to 70 psig)	(2) Air	CGA-346	
FHM2HL (30 to 70 psig) (For CO ₂ and N ₂ O—includes 500 scfh heater)	(4) Carbon Dioxide	CGA-320	
	(5) Helium	CGA-580	
	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	
FHM2HP (100 to 190 psig)			

¹ ⚠️ **WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Example: FHM2-9-4-Oxygen (9=CGA-540) Manifold for 4 Cylinders

Design Lengths

TOTAL NO. OF CYLINDERS	4	6	8	10	12	16	20
Standard (10" Centers) Overall Manifold Length	5'-11" (1.80m)	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)	12'-7" (3.84m)	15'-11" (4.85m)	19'-3" (5.87m)
Staggered Design (5" Centers) Overall Manifold Length	5'-1" (1.55m)	5'-11" (1.80m)	6'-9" (2.06m)	7'-7" (2.31m)	8'-5" (2.57m)	10'-1" (3.07m)	11'-9" (3.58m)
Vertical Crossover (10" Centers) Overall Manifold Length	4'-3" (1.30m)	N/A	5'-11" (1.80m)	N/A	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)
Crossover (10" Centers) Overall Manifold Length	4'-3" (1.30m)	N/A	5'-11" (1.80m)	N/A	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)

Cylinders (X)-Header Configuration (Y)-Mounting (Z)

Standard header configuration of 3 cylinders per side which is mounted on the wall.

HEADER CONFIGURATION (Y)	MOUNTING (Z)
BLANK -Standard 10" on Center V -Vertical crossover 10" on Center S -Staggered 5" on Center C -Crossover 10" on Center U-Shaped - Drawing Required L-Shaped - Drawing Required	BLANK = Wall mount F = Floor mounted

AGM2

Western Innovator AGM2 Manifolds are designed and manufactured according to NFPA-99 2012 safety and performance requirements. Easy-to-read analog gauges indicate the line and individual bank pressures.

A green light means the service bank is functioning and the reserve bank is ready for service. A red light alerts the user that one or both banks are depleted. A simple rotation of the control lever resets the unit.

specifications

- NFPA Compliant, Automatic Analog System
- CSA Approved Power Supply included
- Maximum inlet pressure: 3000 psig (2000 for CO₂ & N₂O systems)
- Maximum Flow Rate:

AGM2	1200 scfh
AGM2	35 scfh
(CO ₂ & N ₂ O)	
AGM2HL	500 scfh
(CO ₂ & N ₂ O)	
AGM2HP	1200 scfh
- Internal adjustable dual line regulators

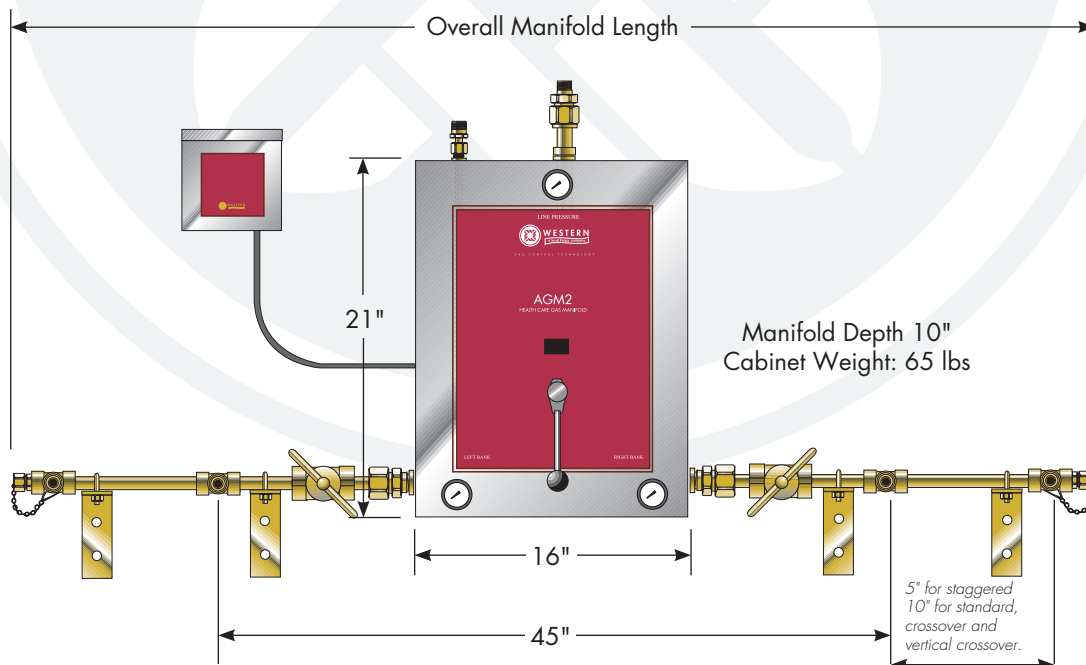
AGM2 & AGM2HL	30–55 psig
AGM2HP	100–200 psig
- Manifold outlet: 1/2" NPT male
- Relief valve outlet: 1/2" NPT male
- Oxygen Pigtails: NFPA 99 compliant, rigid copper, with check valves
Other Gas Pigtails: NFPA 99 compliant, 24" flexible stainless steel with check valves
- 1/2" Brass, silver brazed headers
- Digital readout can display psig, kPa or Bar
- Connects to remote alarms systems (Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

Specify: Control Type (V)–Service (W)–Number of Cyls (X)			
Example 1: AGM2-7-6 represents AGM2 with nitrogen gas service with a standard 6 cylinder manifold			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
AGM2 (30 to 55 psig)	(2) Air	CGA-346	
	(4) Carbon Dioxide	CGA-320	
AGM2HL (30 to 55 psig)	(5) Helium	CGA-580	
(For CO ₂ and N ₂ O– includes 500 scfh heater)	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
AGM2HP (100 to 200 psig)	(9) Oxygen	CGA-540	

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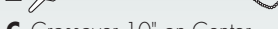
AGM2-9-4 = Oxygen (9=CGA-540) Manifold for 4 Cylinders

Design Lengths

TOTAL NO. OF CYLINDERS	4	6	8	10	12	16	20
Standard (10" Centers) Overall Manifold Length	5'-11" (1.80m)	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)	12'-7" (3.84m)	15'-11" (4.85m)	19'-3" (5.87m)
Staggered Design (5" Centers) Overall Manifold Length	5'-1" (1.55m)	5'-11" (1.80m)	6'-9" (2.06m)	7'-7" (2.31m)	8'-5" (2.57m)	10'-1" (3.07m)	11'-9" (3.58m)
Vertical Crossover (10" Centers) Overall Manifold Length	4'-3" (1.30m)	N/A	5'-11" (1.80m)	N/A	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)
Crossover (10" Centers) Overall Manifold Length	4'-3" (1.30m)	N/A	5'-11" (1.80m)	N/A	7'-7" (2.31m)	9'-3" (2.82m)	10'-11" (3.33m)

Cylinders (X)-Header Configuration (Y)-Mounting (Z)

Standard header configuration of 3 cylinders per side which is mounted on the wall.

HEADER CONFIGURATION (Y)	MOUNTING (Z)
BLANK -Standard 10" on Center  V -Vertical crossover 10" on Center  S -Staggered 5" on Center  C -Crossover 10" on Center  U-Shaped - Drawing Required L-Shaped - Drawing Required	BLANK = Wall mount F = Floor mounted



MLC – Liquid X Liquid with High Pressure Reserve

Western Innovator MLC and MLC Hybrid Manifolds are designed to regulate and monitor vaporized gas from cryogenic cylinders. The system automatically changes over when the primary cylinder bank is depleted. A simple rotation of the control lever resets the unit.

When used with Western's MCLA series high pressure reserve healthcare manifolds, dual line regulator assembly, pressure switches and check valves, the systems meet NFPA-99 2012 requirements.

specifications

- NFPA Compliant, Analog Automatic System
- CSA Approved Power Source included
- Adjustable line regulator
 - MLC 40–85 psig
 - MLCHP 40–180 psig
 - MLCMP 40–120 psig
- Maximum flow: MLC 750 scfh
MLCHP 800 scfh
- Maximum inlet pressure: 350 psig (MLC)
- Manifold outlet: 1/2" NPT male
- Relief valve outlet: 1/4" NPT male
- 72" Cryogenic pigtails with check valves
- Minimum inlet pressure: MLC 125 psig
MLCHP 250 psig
MLCMP 160 psig
- MLC Series for use with 235 psig relief valve Dewars (MLCMP)
- MLCHP Series for use with 350 psig relief valve Dewars
- Connects to remote alarms systems
(Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

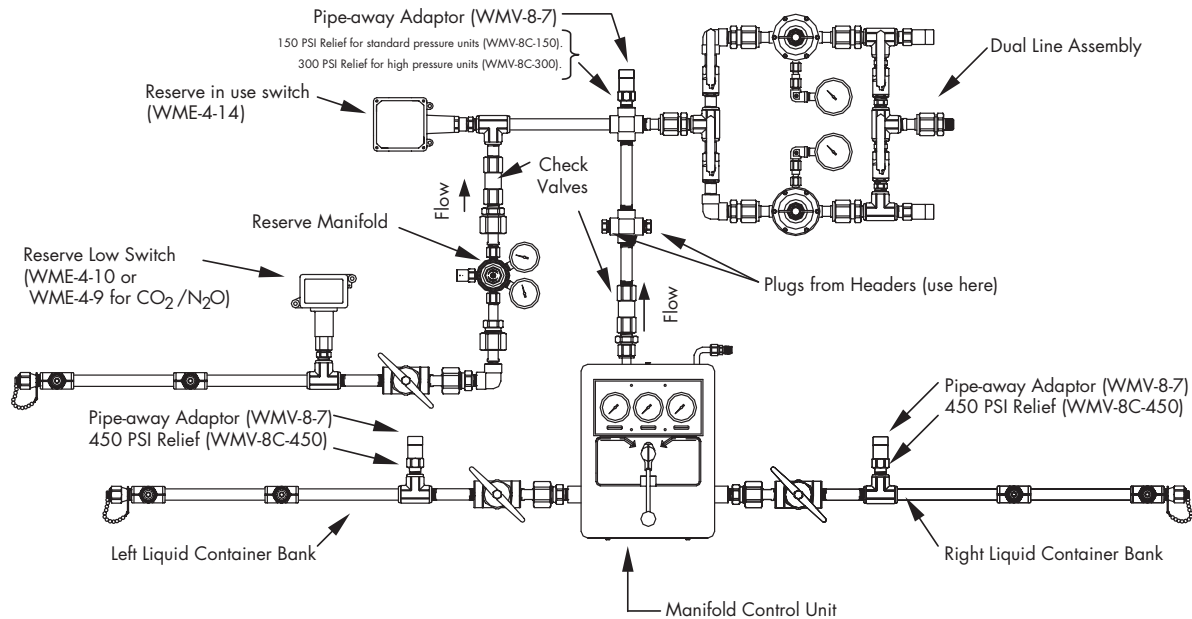
Specify: Control Type (V)–Service (W)–Number of Liquid Cylinders (X) Number of Reserve H.P. Cylinders (Y)–Number of Secondary H.P. Cylinders (Z)				
Example: MLC-9-2-6 represents MLC with Oxygen gas service for 1 liquid cylinder per side, 6 HP Reserve Cylinders.				
CONTROL TYPE (V)	GAS SERVICE (W)	# OF LIQUID CYL'S (X)	# OF RESERVE HIGH PRESSURE CYLINDERS (Y)	# OF SECONDARY HIGH PRESSURE CYLINDERS (Z)*
MLC (40–85 psig)	(3) Argon CGA-580			
	(4) Carbon Dioxide CGA-320			
MLCHP (40–180 psig)	(7) Nitrogen CGA-580			
(Nitrogen units only are adjustable - 40–210 psig)	(8) Nitrous Oxide CGA-326			
	(9) Oxygen CGA-540			

*Hybrid only, Hybrid systems are designed for High Pressure cylinders as the secondary supply.

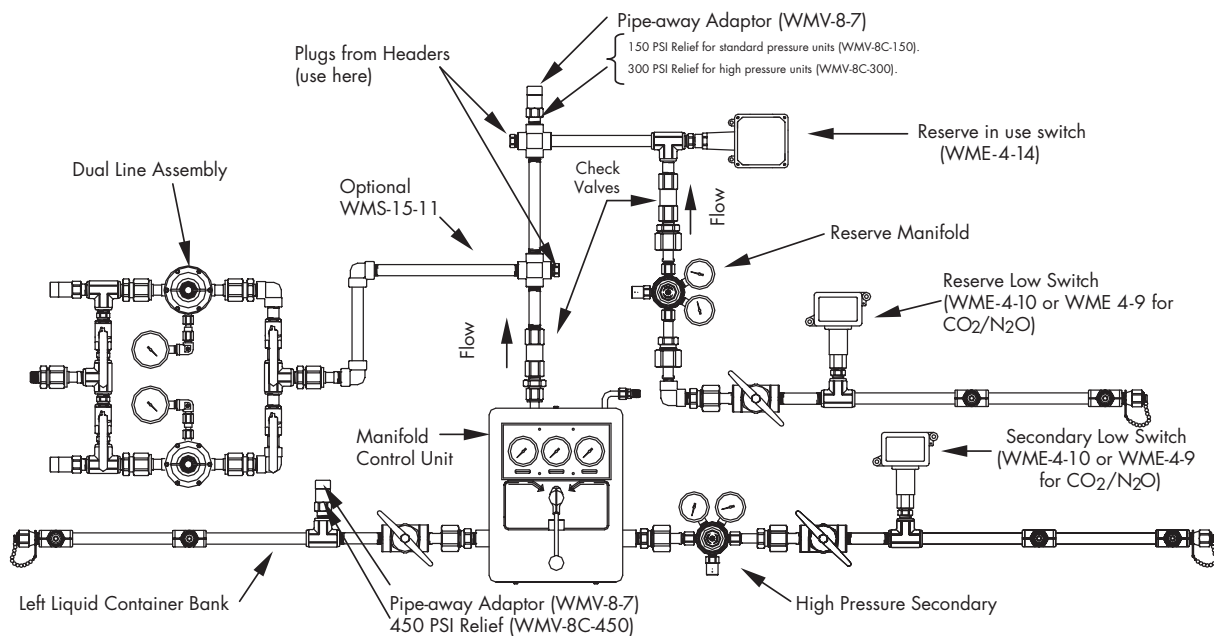
Note: Manifold system flow is limited by the max. flow capacity of the liquid cylinder. Consult cylinder manufacturer for flow data. System flow capacity may be increased with the addition of liquid cylinders.

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

MLC Hybrid-Liquid X High Pressure¹ with High Pressure Reserve



MODEL: MLC(HP)-W-X-YL



MODEL: Hybrid MLC(HP)-W-X-Y-Z

NOTE: Optional WMS-15-11 used in this assembly.

*Other configurations possible

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

MCLA

Western Innovator MCLA high pressure reserve manifolds are specifically designed for healthcare facilities requiring

an emergency back-up gas supply to meet NFPA-99 2012 requirements. (See page 23 for drawings)

specifications

- 1/2" plugged tee, for "reserve low" pressure switch (Western part number WME-4-10 and adaptor WMS-1-97)
- Maximum inlet pressure: 3000 psig
- Adjustable regulator
MCLA 20-160 psig
MCLAHP 40-300 psig
- Manifold outlet: 1/2" NPT male
- Oxygen Pigtails: NFPA 99 compliant, rigid copper, with check valves
Other Gas Pigtails: NFPA 99 compliant, 24" flexible stainless steel with check valves



Design Lengths

TOTAL NO. OF CYLINDERS	3	4	5	6	7	8	9
MCLA- Standard (10" Centers) Overall Manifold Length	4'-5" (1.35m)	5'-3" (1.60m)	6'-1" (1.85m)	7'-0" (2.13m)	7'-10" (2.39m)	8'-8" (2.64m)	9'-6" (2.90m)
MCLA- Staggered (5" Centers) Overall Manifold Length	3'-2" (0.97m)	3'-7" (1.09m)	4'-0" (1.22m)	4'-5" (1.35m)	4'-10" (1.47m)	5'-3" (1.60m)	5'-8" (1.73m)
MCLA- Vertical Crossover (10" Centers) Overall Manifold Length	N/A	3'-7" (1.09m)	N/A	4'-5" (1.35m)	N/A	5'-3" (1.60m)	N/A

HOW TO ORDER¹

CONTROL TYPE (W)	GAS SERVICE (X)			# OF CYL'S (Y)	HEADER CONFIGURATION (Z)
MCLA (20 to 160 psig)	(2) Breathing Air	CGA-346			Blank – Standard 10" on Center S – Staggered 5" on Center V – Vertical Crossover 10" on Center
	(4) Carbon Dioxide	CGA-320			
	(7) Nitrogen	CGA-580			
MCLAHP (40 to 300 psig)	(8) Nitrous Oxide	CGA-326			
	(9) Oxygen	CGA-540			

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DUAL LINE REGULATOR ASSEMBLIES

Western dual line regulator assemblies are designed for use in medical piping systems to meet NFPA-99 requirements (See page 23 for drawings).

The dual line regulator assembly is intended for breathing air, oxygen, nitrous oxide medical breathing mixtures, nitrogen and carbon dioxide applications.

specifications

- Maximum inlet pressure: 350 psig
- Outlet pressure ranges: 30–70 psig or 70–200 psig
- Inlet port: 1/2" NPT male
- Outlet port: 1/2" NPT male
- Relief valve outlet port: 1/2" NPT female



DLA-4

Ordering Information

PART NUMBER	SIZE	DESCRIPTION	RELIEF VALVE SETTING
DLA-4	1/2" NPTM	Dual line regulator for N ₂ , N ₂ O, CO ₂ , or O ₂ , 30–70 psig delivery pressure ¹	75 psig
DLA-5	1/2" NPTM	Dual line regulator for Nitrogen 70–200 psig delivery pressure ¹	250 psig



¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

OXYGEN TRANSFILL SYSTEMS

TS9 Transfill systems are available in a wide range of configurations to meet most Oxygen Transfill needs.

Contact Western Enterprises Customer Service for additional information on available configurations.

specifications

- Cost effective filling of aluminum or steel cylinders up to 2000 psi.
- A wide range of system configurations available
- Most systems may be expanded to meet future requirements
- Detailed Installation and Operation instructions
- Documentation for FDA Compliance included
- Other gases available

Western Transfill Systems are designed and manufactured to be a safe, cost effective means of transfilling medical oxygen. A typical system consists of a header for the supply cylinders, a regulator for controlling the fill pressure, a vacuum regulator for the evacuation of the fill cylinders, and a fill header which includes gauges, flow control orifices, and valves for each cylinder being filled. The systems are also designed to allow for expansion to meet future requirements. A vacuum pump and an oxygen analyzer may be purchased separately or as part of the PK Kit option in order to meet FDA regulations.

The transfer of gas from one cylinder to another must be carried out under carefully controlled conditions and requires appropriate equipment and properly trained and qualified personnel. Oxygen used for medical purposes is considered a drug by the FDA and requires the application of FDA regulations. Department of Transportation (DOT), Occupational Safety and Health Admin. (OSHA) and other regulations may also apply.



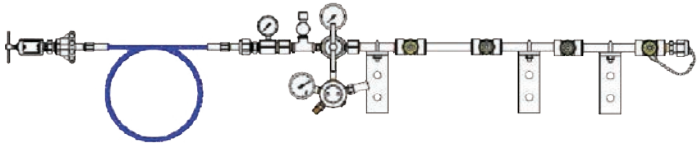
HOW TO CONFIGURE AND ORDER A TS9 TRANSFILL SYSTEM¹

1. Determine the number of cylinders desired to supply the system. ("Supply Cylinders")
2. Determine the number of cylinders to be filled at any one time. ("Fill Cylinders")

Specify: TS9-Number of Supply Cylinders-Number of Fill Cylinders		
Example:		
TS9 Transfill System	5 Supply Cylinders	3 Fill Cylinders
TS9	5	3
Order Part Number: TS9 - 5 - 3		

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

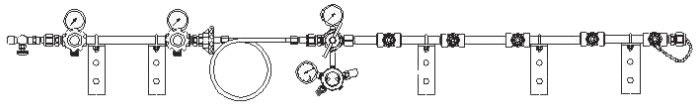
OTHER COMMON CONFIGURATIONS AVAILABLE INCLUDE:



Includes:

- Supply side header with check valves
- 24" Supply side pigtails with check valves
- 60" Fill side pigtail with handtight CGA 540
- Pressure Control Regulator
- CGA 870 yoke adaptor

TS9-3-1	3 cylinder Supply to 1 cylinder Fill ¹
TS9-4-1	4 cylinder Supply to 1 cylinder Fill ¹
TS9-5-1	5 cylinder Supply to 1 cylinder Fill ¹



Includes:

- Supply side header with check valves
- 60" Supply-to-fill pigtail
- 24" Supply side pigtails with check valves
- 24" Fill side pigtails with CGA 540
- Pressure Control Regulator
- Fill side header with content gauges, fill port shut-off valves, and restrictors
- Vacuum Regulator



TS9-5-3

The TS9-5-3 is a complete starter system designed for transfilling 3 cylinders at a time from a supply bank of 5 large cylinders. This system includes:

PART NUMBER	DESCRIPTION
TSS-9-5	Supply Side Header W/Check Valves ¹
TSF-9-3	Fill Side Header W/Contents Gauges, Restrictors and Shut-Off Valves at Fill Ports ¹
PF-63CV-24	24" Supply Side Pigtails W/Check Valves ¹
TSREG-9A	Pressure Control Regulator Assembly ¹
PF-63-870-24	24" Fill Side Pigtails ¹
PF-63HT-60	60" Supply-To-Fill Pigtail ¹
VV100	Vacuum Regulator ¹
PX-1025	Cylinder Rack (optional) ²

¹ **⚠️ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

² **⚠️ WARNING:** This product can expose you to chromium (hexavalent compounds), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

OXYGEN TRANSFILL SYSTEM ACCESSORIES

TS9 Transfill systems are available in a wide range of configurations to meet most Medical Oxygen Transfill

needs. Contact Western Enterprises Customer Service for additional information on available configurations.

CS-PK3 1/3 HP Vacuum Pump

- Oilless operation
- 28" Hg Vacuum max
- All wetted aluminum parts treated for corrosion protection from moisture
- Rugged motor shell construction
- 115 - 60 - 1 power



CS-PK3 Vacuum Pump

TR-104 Oxygen Analyzer

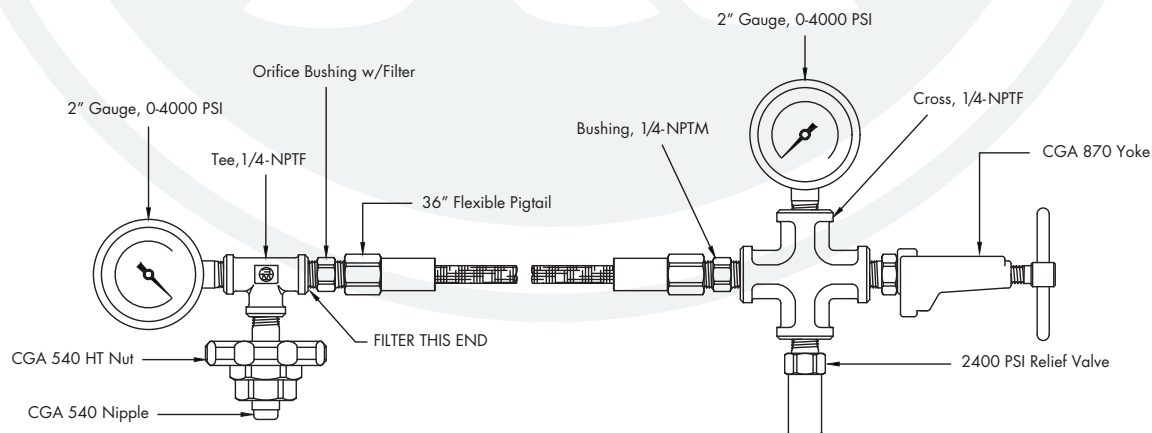
- Portable Bench Top Gas Analyzer for analyzing the composition of Oxygen for transfilling applications.
- Accurate, reliable and component specific giving confidence that observed values are credible.
- Innovative construction gives robust unit with a space saving foot print.
- Full scale range: 0-100% oxygen



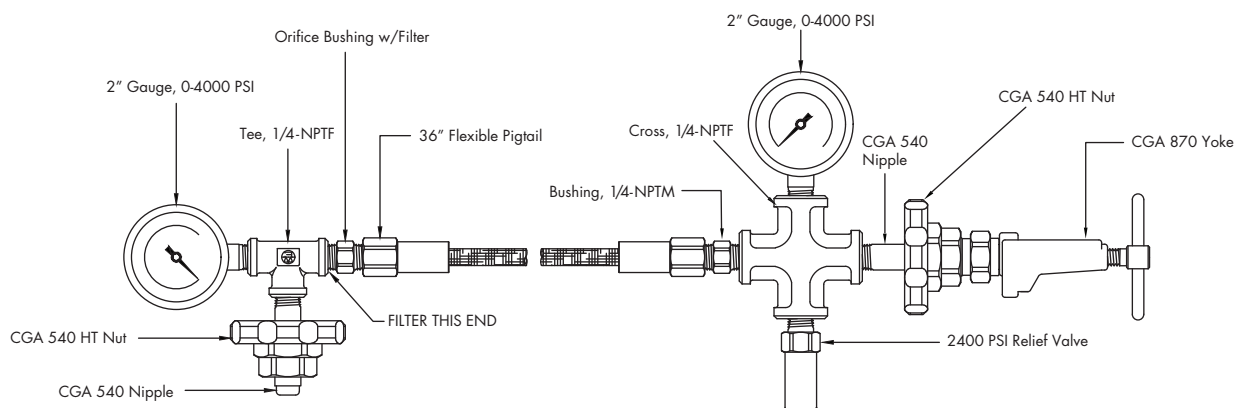
TR-104 Oxygen Analyzer

PART NUMBER	DESCRIPTION
TR-104	Oxygen Analyzer
CS-PK3	Vacuum Pump
MSH15580	Nitrogen Calibration Regulator ¹
MSH15540	Oxygen Calibration Regulator ¹
G-544A	Oxygen Contents Test Gauge ¹
BULK A60019	FULL, IN-USE and EMPTY Tags
MPV-4027	Post Valve Seal Holder
LT00	Leak Test Solution 4 oz. bottle
MTT-1K	PTFE Thread Tape, 1/4" x 520' roll

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



MODEL: PX-2000



MODEL: PX-2001



PX STYLE	MOBILE TRANSFILL ASSEMBLIES
PX-2000	36" SS braided pigtail with orifice adaptor bushing, filters, supply & contents gauge, handtight CGA 540 inlet with CGA 870 outlet, relief valves ¹
PX-2001	36" SS braided pigtail with orifice adaptor bushing, filters, supply & contents gauge, handtight CGA 540 inlet with CGA 870 outlet, relief valves.(optional CGA 540 and CGA 870 on outlet) ¹
PX-2002	36" Nylon braided poly wrapped pigtail with the same features of the PX Oxygen Transfill Hoses but for Helium & Nitrogen Service. ¹

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.


HEALTHCARE MANIFOLD REPLACEMENT PIGTAILS NFPA 99 COMPLIANT

FHM2, HGM2, AGM2, MCLA, MLC (high pressure side & reserve manifold)

GAS	24"	36"
Breathing Air (CGA 346) ¹	PFP-346CV-24	PFP-346CV-36
Carbon Dioxide (CGA 320) ¹	PFP-320CV-24	PFP-320CV-36
Nitrogen (CGA 580) ¹	PFP-92CV-24	PFP-92CV-36
Nitrous Oxide (CGA 326) ¹	PFP-326CV-24	PFP-326CV-36
Oxygen (CGA 540) ¹	WPR-63CW	WPR-63CW-36

MLC (liquid cylinder side, available in 72" length only)

GAS	72"
Carbon Dioxide (CGA 320) ¹	P-320-72-TW375
Nitrogen (CGA 580) ¹	P-580-72-TW375
Nitrous Oxide (CGA 326) ¹	P-326-72-TW375
Oxygen (CGA 540) ¹	P-540-72-TW375

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Western Innovator High Purity, Specialty Gas Manifolds offer you:

- Flexibility to meet your customer's individual manifold needs in today's competitive market.
- The best value and highest quality in the industry.
- Systems that are designed and tested to pass a leak test of 2×10^{-6} scc/sec. and are cleaned and tested for the indicated gas service.
- 1 year limited warranty.

SPECIALTY GAS MANIFOLDS

WESTERN INNOVATOR'S HIGH PURITY SPECIALTY GAS MANIFOLDS

Western Innovator High Purity Specialty Gas Manifolds are designed and manufactured to meet the specific requirements of high purity gas applications including laser gas, gas chromatography, mass spectrometry and atomic absorption.

HBAC2

Western Innovator HBAC2 manifolds are designed and manufactured for high-purity gas delivery applications requiring uninterrupted gas flow and greater cylinder capacities. User friendly and easy to operate, a simple rotation of the control knob resets the unit.

Factory-set functional components are protected inside a tamper-resistant case. A self-contained alarm system clearly indicates the system status. A green light means the system is ready for service. A red light alerts the user that the unit has changed over. Dry contacts in the unit's power supply box allow connection to remote alarms systems.

specifications

- High Purity Automatic Analog System
- CSA Approved Power Source included
- Stainless steel diaphragm regulators
- Helium leak rate integrity: 2×10^{-6} scc/sec
- Maximum inlet pressure: 3000 psig (2000 psig for CO₂ & N₂O systems)
- Maximum flow rate:

HBAC2	250 scfh
Acetylene	20 scfh
- Delivery pressure range:

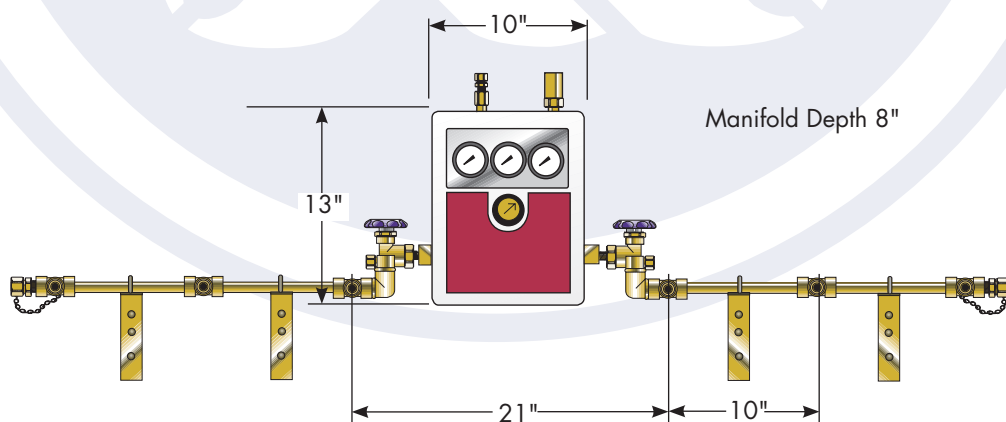
HBAC2	30–100 psig
Acetylene	0–15 psig
HBAC2HP	50–200 psig
- Manifold outlet: 1/4" OD tube fitting
- 1/2" Brass, silver brazed headers
- 24" flexible stainless steel lined pigtailed with check valves
- Relief Valve outlet port: 1/2 NPT female
- Fuel gas units do not include visual alarm, power supply, or any electrical components. Fuel gas alarm kits are available as an option
- Connects to Remote Alarm systems (Up to 3 amps 30 VDC or 2 amps 250 VAC)



HOW TO ORDER¹

Specify: Control Type (V)–Service (W)–Number of Cylinders (X)			
Example: HBAC2-5-6 = Model HBAC2, Helium service, 5 cylinders			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
HBAC2 (30–100 psig)	(1) Acetylene (POL)	CGA-510	
	(1A) Acetylene (Commercial)	CGA-300	
HBAC2HL (30–100 psig) (includes heater)	(2) Compressed Air	CGA-346	
	(2A) Zero Air	CGA-590	
	(3) Argon	CGA-580	
HBAC2HP (50–200 psig)	(4) Carbon Dioxide	CGA-320	
	(5) Helium	CGA-580	
	(6) Hydrogen	CGA-350	
	(6A) Argon/Methane Mixtures	CGA-350	
	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	

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Example: HBAC2-9-6 = Oxygen (9=CGA-540) Manifold for 6 Cylinders

Design Lengths HBAC2

TOTAL NO. OF CYLINDERS	2	4	6	8	10	12	16	20
HBAC2 Standard (10" Centers) Overall Manifold Length	2'-3" (.7m)	3'-11" (1.2m)	5'-7" (1.7m)	7'-3" (2.21m)	8'-11" (2.72m)	10'-7" (3.23m)	13'-11" (4.24m)	17'-3" (5.26m)
HBAC2 Staggered Design (5" Centers) Overall Manifold Length	2'-3" (.7m)	3'-1" (.94m)	3'-11" (1.2m)	4'-9" (1.45m)	5'-7" (1.7m)	6'-5" (1.96m)	8'-1" (2.46m)	9'-9" (2.97m)
HBAC2 Vertical Crossover (10" Centers) Overall Manifold Length	N/A	2'-3" (.7m)	N/A	3'-11" (1.2m)	N/A	5'-7" (1.7m)	7'-3" (2.21m)	8'-11" (2.72m)
HBAC2 Standard (13" Centers) (Acetylene) Overall Manifold Length	2'-3" (.7m)	4'-5" (1.35m)	6'-7" (2m)	8'-9" (2.7m)	10'-11" (3.3m)	13'-1" (4m)	17'-5" (5.31m)	21'-9" (6.63m)
HBAC2 Staggered Design (10" Centers) (Acetylene) Overall Manifold Length	2'-3" (.7m)	3'-4" (1m)	4'-5" (1.35m)	5'-6" (1.67m)	6'-7" (2m)	7'-8" (2.34m)	9'-10" (3.00m)	12'-9" (3.66m)

Cylinders (X)-Header Configuration (Y)-Mounting (Z)

for 6 total cylinders 10 inches on center, wall mounted.

	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK -Standard 10" on Center 13" on Center for Acetylene & LPG S -STAGGERED 5" on Center 6.5" on Center for Acetylene & LPG V -VERTICAL CROSSOVER Standard 10" on Center or 13" on Center for Acetylene & LPG C -CROSSOVER (Floor Mount Only) Standard 10" on Center or 13" on Center for Acetylene & LPG U-Shaped -Drawing Required L-Shaped -Drawing Required	BLANK = Wall mount F = Floor mounted

HBCS

The Western Innovator HBCS automatic manifold is designed for High Purity gas applications where a constant uninterrupted supply of gas is critical while maintaining gas purity. The HBCS may be configured to meet almost any lab application requirements. The compact manifold headers

allow multiple gas cylinders, up to 4 per bank, to supply gas to the manifold. In order to maintain system purity and provide isolation, the headers also include a packless diaphragm valve. All systems include an adjustable outlet regulator with a choice of outlet pressure ranges.

specifications:

- High Purity Automatic Analog System
- Chrome plated brass bar stock regulators
- 316L Stainless steel diaphragms
- Designed for gas purity levels up to grade 5.5 (99.9995%)
- Outlet Pressure Ranges: 0–50, 0–125 psig
- Maximum inlet pressure 3000 psig
- Switchover pressure
R to L–180 psig
L to R–160 psig
- PTFE seats and seals
- 10 micron sintered bronze filters

Manifold Features

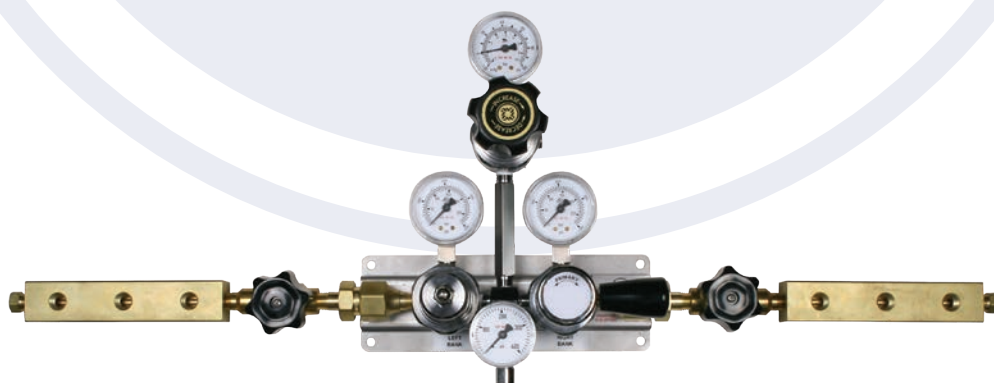
- 180 degree lever indicates active cylinder side
- 2" dual scale inlet pressure and outlet pressure gauges
- 1-3/4" intermediate pressure gauge
- External threaded relief valve
- Stainless steel wall mounting panel

Header Features

- Compact design
- Universal left or right
- Includes a packless diaphragm valve
- Designed to accept up to 4 pigtails
- Wall mounting brackets included
- 1/4" NPT female inlets, 2 plugged
- CGA specific outlet adaptor supplied

Pigtail Features

- 1/4" Stainless steel inner core
- Stainless steel outer sleeve
- Check valve on inlet
- CGA inlet / 1/4" NPT outlet
- 24" in length
- Pressure rating–3000 psig



HOW TO ORDER¹

(1) Select Changeover unit according to desired outlet pressure (2) Select Header Kit according to CGA (gas)*–Ordered Separately (sold as pairs only) (3) Select Pigtails according to CGA (gas)–HPF style–Ordered Separately							
(1) CHANGEOVER			GAS SERVICE		(2) HEADER KIT	(3) PIGTAILS	
HBCS-050	(0–50 psig)		(2)	Air	CGA-346	HBCSH-2	HBCSP-2
HBCS-125	(0–125 psig)		(2A)	Zero Air	CGA-590	HBCSH-2A	HBCSP-2A
			(4)	Carbon Dioxide	CGA-320	HBCSH-4	HBCSP-4
			(6)	Hydrogen	CGA-350	HBCSH-6	HBCSP-6
			(7)	Nitrogen, Argon, Helium	CGA-580	HBCSH-7	HBCSP-7
			(8)	Nitrous Oxide	CGA-326	HBCSH-8	HBCSP-8
			(9)	Oxygen	CGA-540	HBCSH-9	HBCSP-9

*No header kit is needed for a standard 1 x 1 configuration

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SPECIALTY GAS MANIFOLD REPLACEMENT PIGTAILS

HBAC2 (Stainless Steel Flexible)

GAS	24"	36"
Acetylene (CGA 510) ¹	HPF-15CVFA-24	HPF-15CVFA-36
Acetylene (CGA 300) ¹	HPF-16CVFA-24	HPF-16CVFA-36
Air (CGA 346) ¹	HPF-346CV-24	HPF-346CV-36
Zero Air (CGA 590) ¹	HPF-590CV-24	HPF-590CV-36
Argon (CGA 580) ¹	HPF-92CV-24	HPF-92CV-36
Carbon Dioxide (CGA 320) ¹	HPF-320CV-24	HPF-320CV-36
Helium (CGA 580) ¹	HPF-92CV-24	HPF-92CV-36
Hydrogen (CGA 350) ¹	HPF-83CV-24	HPF-83CV-36
Argon/Methane (CGA 350) ¹	HPF-83CV-24	HPF-83CV-36
Nitrogen (CGA 580) ¹	HPF-92CV-24	HPF-92CV-36
Nitrous Oxide (CGA 326) ¹	HPF-326CV-24	HPF-326CV-36
Oxygen (CGA 540) ¹	HPF-63CV-24	HPF-63CV-36

HBCS

GAS	24"
Air (CGA 346) ¹	HBCSP-2
Zero Air (CGA 590) ¹	HBCSP-2A
Carbon Dioxide (CGA 320) ¹	HBCSP-4
Hydrogen (CGA 350) ¹	HBCSP-6
Argon, Helium, Nitrogen (CGA 580) ¹	HBCSP-7
Nitrous Oxide (CGA 326) ¹	HBCSP-8
Oxygen (CGA 540) ¹	HBCSP-9

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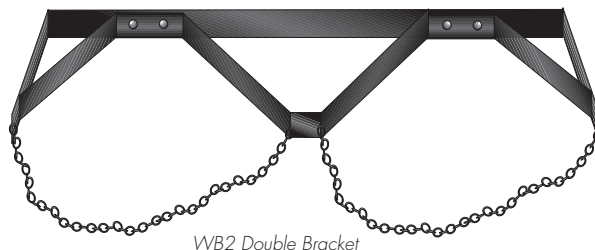
ACCESSORIES

MOUNTING ACCESSORIES, GAS HEATERS

CYLINDER BRACKETS

Wall mount cylinder holders are an essential accessory to all manifolds. For safe containment of cylinders not greater than 9" – 12" in diameter. Equipped with plated safety chain. Painted black.

PART NUMBER	DESCRIPTION
WB1	One cylinder wall bracket with chain ²
WB2	Two cylinder wall bracket with chain ²

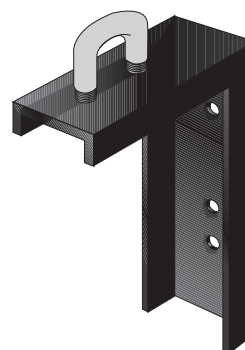


WB2 Double Bracket

MANIFOLD BRACKET & MOUNTING HARDWARE

L-shaped steel wall bracket, painted black, 5/16" holes pre-drilled. Dimensions: 1-1/2" wide, 5-3/4" high and 4" deep. Zinc plated steel U-bolt, inside diameter is 1", center to center width is 1-3/8". Center line to mounting surface is 2-1/2". Includes strap and nuts.

PART NUMBER	DESCRIPTION
WMC-6-2	Bracket ²
WMC-6-13B	U-bolt, Strap and Nuts ²



GAS HEATERS

Western's automatic gas heaters are designed to prevent regulator freeze-up and assure uniform temperature with constant gas flow at all times. All units are completely automatic and can be used with pressure up to 3000 psig. Highly recommended for use with Carbon Dioxide and Nitrous Oxide when withdrawal rates exceed 35 scfh. Requires 115 volts (AC).

PART NUMBER	DESCRIPTION	GAS SERVICE	CAPACITY
WME-3-4	Gas Heater ¹	Carbon Dioxide (CGA-320)	1,000 scfh
WME-3-7	Gas Heater ¹	Nitrous Oxide (CGA-326)	1,000 scfh
WHS-11	Manifold Adapter ¹	Carbon Dioxide (CGA-320)	
WHS-12	Manifold Adapter ¹	Nitrous Oxide (CGA-326)	

Note: To connect the heater to most Western manifold headers, manifold adapter WHS-11 or WHS-12 required.



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FUEL GAS ACCESSORIES

FLASHBACK ARRESTORS

Dry and hydraulic flashback arrestors are designed for use on Acetylene or Fuel Gas manifold systems, as well as station drops, to protect the main fuel gas supply from the dangers of reverse flow and flashbacks. A safety relief valve is included with each arrestor and is installed on the outlet side. In the event excessive pressure does occur, the gas is vented away to a safe location. All models are UL listed.

VENT PART NUMBER	GAS	CAPACITY SCFH	INLET/OUTLET	RELIEF VALVE SET PRESSURE (psig)
TYPE: DRY				
WEM-1-25 ¹	Acetylene	300	1/2" NPT	20 psig
WEM-1-26 ¹	LPG/Hydrogen	300	1/2" NPT	35 psig

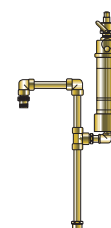
Note: Flashback arrestor fluid not included with hydraulic arrestor. Available from most industrial supply stores. (Use Ethleneglycol).



FUEL GAS SAFETY KITS

Fuel gas safety kits are available as an option for use with any of Western's industrial fuel gas manifolds. The fuel gas safety kit includes either a dry or hydraulic flashback arrestor and the proper piping to connect the flashback arrestor to your Western manifold.

MANIFOLD TYPE	MD SERIES	BI SERIES	MS SERIES	FLOW CAPACITY	RELIEF VALVES
LPG/H ₂ /Dry ¹	DM-FKD	BI-FKD	MS-FKD	300 scfh	35 psig



Dry Fuel Gas Safety Kit

FUEL GAS ALARM KITS

These kits are designed specifically for Western Manifold units for use with Acetylene, Hydrogen or Liquefied Fuel Gases. These kits are cleaned, tested and built following National Fire Protection Association, Compressed Gas Association, Canadian Standards Association and OSHA guidelines. Each fuel gas alarm kit consists of an explosion proof (Class 1 Division 2) pressure switch, a 24 VAC transformer assembly (WMS-9-25C), an audio visual alarm (BIA-3), rated NEMA 1, and all fittings required for installation. These alarm kits will signal to a remote location that the manifold primary supply bank has been depleted and the secondary supply is now in use.

PART NUMBER	DESCRIPTION
FGAK-A	BI-Acetylene models ¹
FGAK-H	BI-Hydrogen models ¹
FGAK-L	BI-LPG models ¹
HFGAK-A	HBAC2-Acetylene models ¹
HFGAK-H	HBAC2-Hydrogen models ¹



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PRESSURE SWITCHES, REMOTE ALARMS AND POWER SUPPLIES

PRESSURE SWITCHES

Designed for use with gas pressure manifolds to activate remote alarm systems. Operates when cylinder/line pressure is below minimum pressure setting. High/Low switches have two activation points. Available for explosion proof or general purpose service. Electrical rating for all switches is SPDT 15 amps 24/125/250/480 VAC resistive. CSA approved. Pressure port connection 1/4" NPT female.



Specifications and Ordering Information Guidelines

PART NUMBER	DESCRIPTION	PRESSURE RANGE (psig)	MAXIMUM INLET (psig)	WETTED MATERIALS	ENCLOSURE CLASSIFICATIONS	ELECTRICAL CONNECTION
WME-4-5	Explosion Proof ^{1,2}	30-300	800	S.S. Bellows	NEMA 4, 7, 9, IP66	3/4" NPT
WME-4-6	Explosion Proof ^{1,2}	5-50	75	Brass Bellows	NEMA 4, 7, 9, IP66	3/4" NPT
WME-4-9	General Purpose ^{1,2}	100-1000	10,000	S.S. Piston & BUNA "N" o-ring	NEMA 4	1/2" NPT
WME-4-10	General Purpose ^{1,2}	200-3000	10,000	S.S. Piston & BUNA "N" o-ring	NEMA 4	1/2" NPT
WME-4-13	High/Low Switch ^{1,2}	0-300	350	Phosphor Bronze Bellows	NEMA 4	7/8" Dia. Knockout
WME-4-14	General Purpose ^{1,2}	20-200	250	Phosphor Bronze Bellows	NEMA 4	1/2" NPT & 7/8 Dia. Knockout
WME-4-16	General Purpose ^{1,2}	20-200	250	316 S.S. Bellows	NEMA 4	1/2" NPT Female
WME-4-18	High/Low Switch ^{1,2}	20-200	250	316 S.S. Bellows	NEMA 4	7/8" Dia. Knockouts

Note: Switches may be wired "normally open" or "normally closed".

REMOTE ALARM PANELS

Visual Alarm Panel - Contains green LED to indicate "service" side is in use and red LED to indicate control unit has switched to "secondary" side. Audio/Visual Alarm Panel - Contains red and green alarm lights and buzzer with "squench" button. Green light remains illuminated while "service" bank is in use. When "service" bank is exhausted, green light is extinguished, red light is lighted plus buzzer, rated 75 decibels within 100 centimeters, is activated to ensure notice of the alarm conditions. A touch of the squench button silences the buzzer, but the red alarm light will remain illuminated until the exhausted bank has been replaced. Two Gas Audio/Visual Alarm Panel - As above, but warning alarm lights and buzzer for two gases in a single box, i.e. Oxygen and Nitrogen, etc.

All panels may be for either exposed or flush mounting. Available in 24 VAC service only. Alarm dimensions: 4-3/4"H x 2-9/16"W x 1-5/8"D. For open style manifolds, a 115/24 VAC power supply part number WMS-9-25C is required.



Model BIA-3

PART NUMBER	DESCRIPTION
BIA-1	Visual Alarm, 24 VAC
BIA-2	Two Gas Audio/Visual Alarm, 24 VAC
BIA-3	Audio/Visual Alarm, 24 VAC

POWER SUPPLIES

Utilized with remote alarm panels, reduces 115 VAC to 24 VAC. A circuit board in the power supply isolates remote alarms regardless of voltage (up to 3 amps 30 VDC or 2 amps 250 VAC). Dimensions: 6-1/4" x 4". Rated NEMA 3R, CSA approved.



PART NUMBER	DESCRIPTION
WMS-9-25C	For use with SD, MS, MD, and LA ^{1,2}
8570D	For use with BI, LC, cabinet style manifolds ^{1,2}

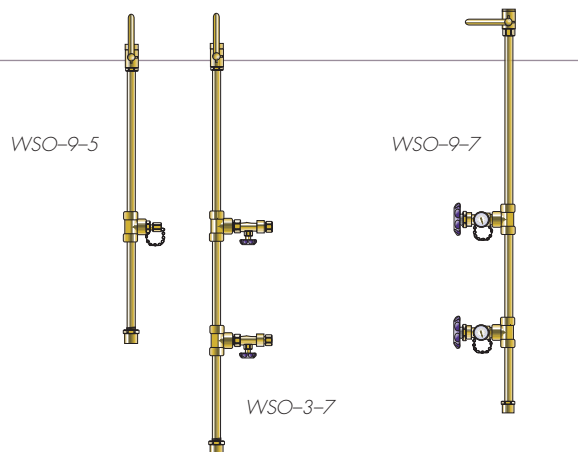
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STATION DROPS

STATION DROPS

Western station drops are equipped with an in-line shut-off valve, drip leg and outlet cap and chain. All drops are labeled for the indicated gas service. No assembly required. Available in 1/2" or 3/4"; single or double outlet. Double outlet station drops shipped complete with shut-off valves. All single outlet drops for fuel gas or oxidizer gas service equipped with a check valve.

GAS SERVICE (X)	OUTLET CONNECTION
(1) Acetylene	7/8"-14 LH
(2) Compressed Air	9/16"-18 RH
(3) Argon	5/8"-18 RH
(4) Carbon Dioxide	5/8"-18 RH
(5) Helium	5/8"-18 RH
(6) Hydrogen	7/8"-14 LH
(7) Nitrogen	5/8"-18 RH
(8) Nitrous Oxide	7/8"-14 RH
(9) Oxygen	7/8"-14 RH
(10) LPG	7/8"-14 LH



How To Order: Insert (X) = gas service

MODEL #	OUTLET	LENGTH
WSO-(X)-5	1/2" Single outlet ¹	25"
WSO-(X)-6	3/4" Single outlet ¹	25"
WSO-(X)-7	1/2" Double outlet ¹	35"
WSO-(X)-8	3/4" Double outlet ¹	35"

LINE STATION REGULATORS

The Western line station regulators utilize a large diaphragm for high sensitivity and provide extremely accurate delivery pressure.

Note: Maximum inlet pressure 200 psig.

MODEL	APPLICATION	DELIVERY PRESSURE	CAPACITY SCFH	INLET CONNECTION	OUTLET CONNECTION
WSR-1-1 ¹	Oxygen ¹	0-125 psig	760	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022
WSR-1-2	Acetylene ¹	0-15 psig	420	7/8"-14 LH, CGA-025	9/16"-18 LH, CGA-023
WSR-1-3	Fuel Gases ¹	0-50 psig	640	7/8"-14 LH, CGA-025	9/16"-18 LH, CGA-023
WSR-1-5	Oxygen ¹	0-100 psig	475	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022
WSR-1-6	Oxygen ¹	0-200 psig	475	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022



FLOWMETERS

Precision flow control for MIG and TIG gas welding operations, laboratory use and many industrial applications. Use Western fittings AVV-14A and AVV-3 to attach flowmeters to station drops.

Note: Maximum inlet pressure 50 psig.

PART NUMBER	GAS SERVICE	RANGE
RWS-2-7	Nitrogen ¹	0-100 scfh
RWS-2-13	Argon/Carbon Dioxide ¹	0-70 scfh
FM601	Air ¹	0-1.5 LPM



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MANIFOLD REGULATORS, IN-LINE REGULATORS

MANIFOLD REGULATORS

The RM Series manifold regulator is a pressure compensated single stage design (oxygen is two-stage) and is able to maintain stable delivery pressure performance equal to a two-stage design. The unique cartridge in this regulator permits easy, single-unit replacement of vital parts in minutes. Seats, nozzle, filter, spring, seals and built-in check-relief valve can be replaced without special tools and without breaking the bonnet-to-body seal. The cartridge can be removed and a new one installed without costly down time or removing the regulator from the pipeline.

Note: Maximum inlet pressure 3000 psig (Acetylene 400 psig).



How To Order

PART NUMBER	DESCRIPTION	DELIVERY RANGE (psig)	INLET CONNECTION	OUTLET CONNECTION	REPLACEABLE CARTRIDGE NO.
RM-1-1	Acetylene ¹	1-15	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-59
RM-2-4	Compressed Air ¹	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
RM-4-4	Carbon Dioxide ¹	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
RM-6-4	Hydrogen ¹	20-160	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-49
RM-7-4	Nitrogen, Helium & Argon ¹	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
RM-8-4	Nitrous Oxide ¹	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
RDM-9-4	Oxygen ¹	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RK-1178
RM-10-2	LPG Fuel Gases ¹	0-45	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-59
RS-300-MAN	Nitrogen ¹	40-300	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RK-1020 (Repair Kit)

IN-LINE REGULATORS

Designed for installation in pipe lines where a large gas volume is required.

Note: 400 psi maximum inlet pressure.

PART NUMBER	INLET/OUTLET CONNECTION (Female)	DELIVERY PRESSURE (psig)	SCFH AIR AT 50 psig 100 psig INLET	SCFH AIR AT 100 psig 250 psig INLET	GAUGE PRESSURE RANGE
VMR-2-2	1/2" NPT ¹	0-50	3000	3000	0-100
VMR-2-3	3/4" NPT ¹	50-125	11,000	21000	0-200
VMR-2-4	1/2" NPT ¹	50-125	5000	10000	0-200
VMR-2-6	3/4" NPT ¹	100-200	6000	20000	0-400
VMR-2-8	1" NPT ¹	100-200	6000	20000	0-400



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VALVES

PACKLESS DIAPHRAGM VALVES

specifications

- Diaphragm: 316L Stainless Steel
- Cv: 0.13
- Seat: PCTFE
- Working Temperature Range: -40°F to 140°F
- Body: Brass or 316L Stainless Steel
- Leakage: $<2 \times 10^{-8}$ scc/sec Helium
- Seals: Metal-to-metal with Fluoroelastomer o-ring backup
- Operating Pressure: 3,000 psig (207 bar)

PART #	DESCRIPTION
DV-4	1/4" NPT female x 1/4" NPT female-Brass ¹

PART #	DESCRIPTION
DV-4SS	1/4" NPT female x 1/4" NPT female-Stainless Steel ²
DV-5SS	1/4" NPT male x 1/4" NPT female-Stainless Steel ²



BYPASS VALVE ASSEMBLY

Ideal for piping reserve manifold into primary gas supply line. Allows shut down of primary gas supply permitting routine maintenance and repair to be accomplished without an interruption of gas service. **Note:** Maximum pressure 600 psig.

PART NUMBER	DESCRIPTION
BVA-8	1/2" NPT Female Connections ¹
BVA-12	3/4" NPT Female Connections ¹



HEADER VALVES - 1/2" NPT & 3/4" NPT

High pressure CGA outlet valves for manifolding. Features controlled flow seat design with easy low torque shut-off.

1/2" NPT MALE X CGA			3/4" NPT MALE X CGA		
PART #	GAS SERVICE & CGA NUMBER		PART #	GAS SERVICE & CGA NUMBER	
WMV-2-3	Argon, Helium, Nitrogen ¹	CGA-580	WMV-2-35	Carbon Dioxide	CGA-320
WMV-2-4	Compressed Air ¹	CGA-346	WMV-2-36	Nitrous Oxide	CGA-326
WMV-2-7	Carbon Dioxide ¹	CGA-320	WMV-2-37	Compressed Air	CGA-346
WMV-2-8	Oxygen ¹	CGA-540	WMV-2-38	Hydrogen	CGA-350
WMV-2-14	Nitrous Oxide ¹	CGA-326	WMV-2-39	Oxygen	CGA-540
WMV-2-19	Hydrogen ¹	CGA-350	WMV-2-40	Argon, Helium, Nitrogen	CGA-580
WMV-2-30	Acetylene ¹	CGA-510	WMV-2-43	Industrial Air	CGA-590
WMV-2-32	Industrial Air ¹	CGA-590			



¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

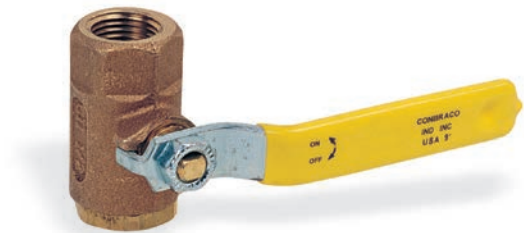
² **⚠ WARNING:** This product can expose you to chromium (hexavalent compounds), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

1/4 TURN BALL VALVES

specifications

- Forged Bronze Body
- PTFE Seals
- Chrome Plated Ball
- Steel Handle (plastic coated)
- 600 psig Maximum Working Pressure
- Cleaned for Oxygen

PART NUMBER	DESCRIPTION
WMV-5-11	1/4" NPT female ¹
WMV-5-8	1/2" NPT female ¹
WMV-5-9	3/4" NPT female ¹



MASTER VALVES

Designed specifically for high pressure compressed gas manifold piping requirements. Large tee handle for easy operation. For use with non-corrosive gases.

PART NUMBER	DESCRIPTION
WMV-2-16	1/2" NPT female inlet & outlet ¹
WMV-2-11	3/4" NPT female inlet & outlet ¹



LINE STATION VALVES

Western's line station valves are designed for use with Oxygen, Acetylene, Inert gases and Liquefied Fuel Gases at station outlets of line distribution systems. The 7/8 - 14 outlets follow CGA E-1 specifications (CGA-024 RH for Oxygen and CGA-025 LH for Fuel Gases). These valve outlets and the mating regulator inlet nuts prevent the danger of possible attachment of a station regulator to a high pressure cylinder.

PART NUMBER	DESCRIPTION
WSV-1-1P	Plain valve, Oxygen & Inert Gases ¹
WSV-1-2P	Plain valve, Fuel Gases ¹
WSV-1-1	With gas tight cap & chain, Oxygen & Inert Gases ¹
WSV-1-2	With gas tight cap & chain, Fuel Gases ¹
WSV-1-1DC	With dust cap & chain, Oxygen & Inert Gases ¹
WSV-1-2DC	With dust cap & chain, Fuel Gases ¹



¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

UNION ADAPTORS, TAILPIECES & NUTS - WORKING PRESSURES TO 3000 psig

UNION NUTS ¹			
Figure	Female Thread	Length	Part Number
1	1" — 11-1/2" NPS RH	1.75"	WHF-3-29
1	1" — 11-1/2" NPS LH	1.75"	WHF-3-30

UNION ADAPTORS ¹					w/ Nickle Plated Phosphorous Bronze Filter
Figure	Outlet	Inlet	Length	Part Number	
2	1/2" NPT	1" — 11-1/2" NPS RH	2.187"	WHF-3-31	WMS-1-40
2	1/2" NPT	1" — 11-1/2" NPS LH	2.187"	WHF-3-32	WMS-1-41
2	3/4" NPT	1" — 11-1/2" NPS RH	2.230"	WHF-3-33	WMS-1-42
2	3/4" NPT	1" — 11-1/2" NPS LH	2.230"	WHF-3-34	WMS-1-43
2	3/8" NPT	1" — 11-1/2" NPS RH	3.125"	WHF-3-37	WMS-1-44
2	3/8" NPT	1" — 11-1/2" NPS LH	3.125"	WHF-3-38	WMS-1-45

TAILPIECES ¹			
Figure	Male Thread	Length	Part Number
3	3/8" NPT	2.40"	WHF-3-36
3	1/2" NPT	2.94"	WHF-3-35



PIPELINE CHECK VALVES

Ideal for installation downstream of the manifold, designed for high flow rates and working pressures up to 3,000 psig. These brass body, female by female check valves are cleaned for use with oxygen.

PART NUMBER	INLET	OUTLET	SEAT MATERIAL
CVF-8F	1/2" NPT Female ¹	1/2" NPT Female	EPDM
CVF-12F	3/4" NPT Female ¹	3/4" NPT Female	Neoprene



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CHECK VALVE OUTLETS - CGA X 1/2" NPT MALE

For added safety, check valve outlets are assembled in the oxygen manifold headers. Check valve outlets are safer than conventional header valves; they minimize the danger of "heat of recompression" associated with oxygen by discharging the heat. Check valves provide automatic gas shut off if a pigtail ruptures, preventing possible injury to the operator.

PART NUMBER	CGA NUMBER AND GAS SERVICE	WORKING PRESSURE
WMS-1-53	CGA-540 Oxygen, RH Male ¹	3000 psig
WMS-1-54	CGA-580 Helium, RH Female ¹	3000 psig
WMS-1-59	CGA-326 Nitrous Oxide, RH Male ¹	3000 psig
WMS-1-60	"C" Size-7/8-14 RH-Inert Gases ¹	200 psig
WMS-1-61	"C" Size-7/8-14 LH Water and Industrial Air ¹	200 psig
WMS-1-62	CGA-346 Compressed Air, RH Male ¹	3000 psig
WMS-1-65	CGA-320 Carbon Dioxide, RH Male ¹	3000 psig
WMS-1-67	CGA-300 Acetylene, LH Male ¹	500 psig
WMS-1-99	CGA-350 Hydrogen, LH Male ¹	3000 psig
WMS-1-100	CGA-510 Acetylene, LH Female ¹	500 psig



RELIEF VALVES - 1/4" NPT & 1/2" NPT¹

Ideal for cryogenic pressure vessel (vapor area), manifolds and other demanding applications. Not recommended for corrosive gases or liquid cryogenic applications. *CO₂ Models

1/4" NPT (WITH WEEP HOLE)	1/4" NPT (WITHOUT WEEP HOLE)	1/2" NPT (WITHOUT WEEP HOLE)
WMV-4-22	WRV-4-100	WMV-8-60
WMV-4-35	WRV-4-125	WMV-8-75
WMV-4-50	WRV-4-200	WMV-8-100
WMV-4-100	WRV-4-230	WMV-8-150
WMV-4-125	WRV-4-235	WMV-8-200
WMV-4-200	WRV-4-250	WMV-8-250
WMV-4-235	WRV-4-300	WMV-8C-300*
WMV-4-250	WRV-4-350	WMV-8-300
WMV-4-300	PIPE AWAY ADAPTOR: WMV-4-7	WMV-8-350
WMV-4-350		WMV-8-375
WMV-4C-350*		WMV-8-450
WMV-4-400		PIPE AWAY ADAPTOR : WMV-8-7
WMV-4C-400*		
WMV-4C-450*		



¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

HEADER COMPONENTS

BRASS PIPE¹

PART NO.	LENGTH	SIZE	PART NO.	LENGTH	SIZE
*(1/2" PIPE WALL THICKNESS - .196") * (3/4" PIPE WALL THICKNESS - .230") THREADED PIPE NIPPLES					
WHF-3-1	1-1/2"	1/2" NPT	WHF-3-9	1-1/2"	3/4" NPT
WHF-3-2	2"	1/2" NPT	WHF-3-10	2"	3/4" NPT
WHF-3-3	4"	1/2" NPT	WHF-3-11	4"	3/4" NPT
WHF-3-19	6"	1/2" NPT	WHF-3-21	6"	3/4" NPT
WHF-3-5	8-1/2"	1/2" NPT	WHF-3-13	8-3/8"	3/4" NPT
WHF-3-7	11-1/2"	1/2" NPT	WHF-3-16	11-3/8"	3/4" NPT

PART NO.	LENGTH	SIZE	PART NO.	LENGTH	SIZE
WHF-3-120	6'	1/2" Nom	WHF-3-122	6'	3/4" Nom
WHF-3-17	12'	1/2" Nom	WHF-3-18	12'	3/4" Nom

Note: 12 Foot Lengths Must Ship Via Common Carrier

MANIFOLD PIPE & PIPE FITTINGS, BRASS

BRASS ALLOY 360,
Pressures to 3000 psig (20,700 kPa)



PIPE NIPPLE LENGTH

NOMINAL PIPE LENGTHS

BRASS ALLOY 360,
PRESSURES TO 3000 psig (20,700 kPa)



SHORT PIPE LENGTH

PIPE TEES - FEMALE¹

PART NO.	REF A	REF B	REF C	REF E	TEES
*(1/2" PIPE WALL THICKNESS-.196") * (3/4" PIPE WALL THICKNESS-.230") THREADED PIPE NIPPLES					
WHF-4-7	1/2" NPT	1/2" NPT	1/2" NPT	2-1/2"	FIGURE 1
WHF-4-10	3/4" NPT	3/4" NPT	3/4" NPT	2-3/4"	FIGURE 1
WHF-4-14	.843"-.847"	.843"-.847"	1/2" NPT	2-1/2"	FIGURE 2
WHF-4-18	1.053"-.1.057"	1.053"-.1.057"	3/4" NPT	2-3/4"	FIGURE 2
WHF-4-13	1/2" NPT	1/2" NPT	.843"-.847"	2-1/2"	FIGURE 3
WHF-4-21	.843"-.847"	1/2" NPT	1/2" NPT	2-3/4"	FIGURE 4
WHF-4-22	1.053"-.1.057"	3/4" NPT	3/4" NPT	2-1/2"	FIGURE 4
WHF-4-1	1.053"-.1.057"	1.053"-.1.057"	1.053"-.1.057"	2-3/4"	FIGURE 5
.843"—.847" = 1/2" Pipe Slip* 1.053"—1.057" = 3/4" Pipe Slip					

PIPE TEES, FEMALE

PRESSURES TO 3000 psig (20,700 KPA)

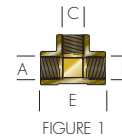


FIGURE 1

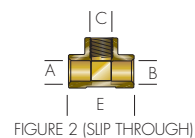


FIGURE 2 (SLIP THROUGH)

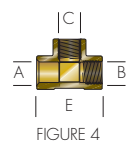


FIGURE 3

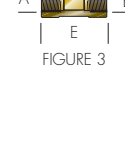


FIGURE 4



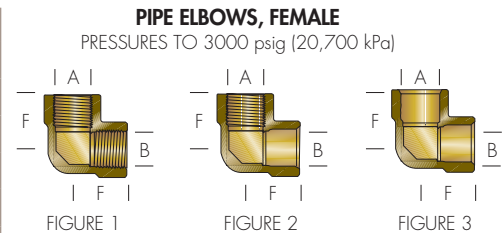
FIGURE 5 (SLIP THROUGH)

¹ **WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

HEADER COMPONENTS, CAPS & PLUGS

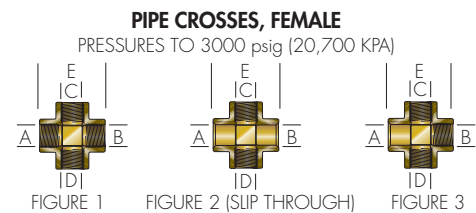
PIPE ELBOWS – FEMALE¹

PART NO.	REF A	REF B	REF F	ELBOWS
WHF-4-8	1/2" NPT	1/2" NPT	1 1/4"	FIGURE 1
WHF-4-11	3/4" NPT	3/4" NPT	1 3/8"	FIGURE 1
WHF-4-15	1/2" NPT	.843"-.847"	1 1/4"	FIGURE 2
WHF-4-19	3/4" NPT	1.053"-1.057"	1 3/8"	FIGURE 2
WHF-4-2	.843"-.847"	.843"-.847"	1 1/4"	FIGURE 3
.843"-.847" = 1/2" Pipe Slip* 1.053"-1.057" = 3/4" Pipe Slip				



PIPE CROSSES – FEMALE¹

PART NO.	REF A	REF B	REF C & D	REF E	CROSSES
WHF-4-9	1/2" NPT	1/2" NPT	1/2" NPT	2-1/2"	FIGURE 1
WHF-4-12	3/4" NPT	3/4" NPT	3/4" NPT	2-3/4"	FIGURE 1
WHF-4-16	.843"-.847"	.843"-.847"	1/2" NPT	2-1/2"	FIGURE 2
WHF-4-23	.843"-.847"	1/2" NPT	1/2" NPT	2-1/2"	FIGURE 3
.843"-.847" = 1/2" Pipe Slip					



PIPE THREAD CAPS & PLUGS

PART NO.	DESCRIPTION	MATERIAL	HEX
PRESSURES TO 3000 psig (20,700 kPa)			
PC-2HP	Cap, 1/8" NPT F ¹	Brass	5/8"
PC-4HP	Cap, 1/4" NPT F ¹	Brass	3/4"
PC-6HP	Cap, 3/8" NPT F ¹	Brass	7/8"
PC-8HP	Cap, 1/2" NPT F ¹	Brass	1-1/8"
P-4HP	Hex Plug, 1/4" NPT M ¹	Brass	5/8"
P-6HP	Hex Plug, 3/8" NPT M ¹	Brass	7/8"
P-8HP	Hex Plug, 1/2" NPT M ¹	Brass	1-1/8"
PRESSURES TO 6000 psig (41,300 kPa)			
P-4SS	Hex Plug, 1/4" NPT ²	Stainless Steel	5/8"

PIPE THREAD CAPS & PLUGS



- ¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
- ² **⚠ WARNING:** This product can expose you to chromium (hexavalent compounds), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Western Innovator Manifold Header Configurations

Standard



10" on Centers
(13" for Acetylene & LPG)

Staggered



5" on Centers
(6.5" for Acetylene & LPG)

Vertical Crossover



10" on Centers
(13" for Acetylene & LPG)

Crossover
Floor Stand Required



10" on Centers
(13" for Acetylene & LPG)

Note: Custom L-Shaped and U-Shaped also available, customer supplied dimensional drawing required.



meriGauge® Plus Digital Gauge

The meriGauge® plus is a breakthrough digital pressure gauge with modular sensors. This new gauge is Meriam's latest offering in the pressure measurement line. The meriGauge® plus is unique in that it features the capability to support detachable sensors to meet all of your range requirements.

This modular system allows you to purchase only the pressure ranges you need, for less than the cost of a stand-alone pressure gauge. To add to the efficiency of this gauge, the small sensors contain the calibration and they are easily exchanged for calibration so the gauge itself is never "out for calibration."

The meriSense sensors have been specifically designed to compliment this product and will be compatible with all of Meriam's future measurement and calibration equipment. They are available in various types and ranges. The sensor label indicates the type of range. The meriSense sensors support 32 pressure units.

specifications

- Compound 0% to 20% of Range: \pm (0.02% of Full Scale) 20% to 100% of Range: \pm (0.1% of Reading)
- Vacuum⁺: \pm (0.02% of Full Scale) +Vacuum = -14.5 psi
- Ranges 15 psi to 3000 psi
- Icon based, simple buttons
- Gauge works with all meriSense sensors
- Portable or fixed installation, even in narrow spaces
- Concisely displays more info at a glance
- High visibility from a distance
- Crisp digital readout in any or no light



DESCRIPTION	
DISPLAY	6-digit main height, 17.8 mm (0.701 in), 10-character height, 7.65 mm (0.301 in), White LED backlight (3 intensities and O), Red (beacon) error backlight
KEYBOARD	5-dedicated keys, plus information key. Intuitive, icon-based keys for internationalization
BODY	Powder coated T6 aluminum, 120.7 mm x 167.3 mm x 40.1 mm (4.75 in x 6.59 in x 1.58 in) body only Approx. weight with batteries 0.608 kg (1.34 lbs) ¹
meriSense RECEPTACLE	Easy insertion/removal without tools Impossible to insert meriSense incorrectly Industrial stainless-steel release pin. O-rings for alignment and vibration isolation. Gold connection pins good for >1M cycles
POWER AND BATTERY LIFE	4 x 1.5 V AA alkaline Approx. 350+ hours with alkaline (no backlight)
COMMUNICATION	USB mini 2.0 compliant, for configuration, update, user calibration and data log
STORAGE	Data Log Pro*** provides a maximum 128 files or 100,000 data points Real-time clock calendar w/7 year battery backup
FEATURES	Modes: Min, Max, Accuracy, Tare, Average, Rate of change, DataLog Lite**, Ambient temperature/time Fully configurable via merilink* PC Software Update rate, 5 measurements per second
OPERATING CONDITIONS	Conditions: -10°C to 50°C (14 °F to 122 °F)
SHOCK CONDITIONS	Tested to survive a 39.4 inch [1 m] drop onto concrete
INGRESS PROTECTION	IP66
INTRINSICALLY SAFE	CE 0539 Ex II 1G, DEMKO 16 ATEX 1809X, Ex ia IIC T4 Ga
ENVIRONMENTAL PROTECTION	RoHS, WEEE
EMC COMPATIBILITY	For Hand held Class A device

¹ **⚠ WARNING:** This product can expose you to lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

This catalog provides a comprehensive source of information on Western's line of products used in the control, transmission and storage of compressed gases for industrial and other related applications. Product descriptions include information on available gas services, sizes, operating pressures, applications and optional features, as appropriate. Additional information is available through Western's customer service department at 1-800-783-7890.

Western adheres to the necessary organizational mandates and regulatory bodies to ensure safe quality products are delivered to the consumer. Where applicable, all products meet the Compressed Gas Association (CGA) guidelines.

In conjunction with other applications, Western products can co-mingle with the requirements of various related agencies (as listed below).

Western manufactures products under the stringent controls to assure that safe products are delivered to the marketplace. Users of Western products must adhere to the instructions provided with certain products. For more information on the safe handling and proper installation of compressed gas equipment, contact the following agencies or Western's customer service department.

Compressed Gas Association 14501 George Carter Way Suite 103 Chantilly, VA 20151 703-788-2700 www.cganet.com	Food & Drug Administration 5600 Fishers Lane Rockville, MD 20857 1-800-INFOFDA www.fda.gov	National Fire Protection Association One Batterymarch Park Quincy, MA 02269 617-770-3000 www.nfpa.org	OSHA Occupational Safety & Health Administration 200 Constitutional Ave. Washington, DC 20210 www.osha.gov	Underwriter Laboratories Incorporated 333 Pfingsten Road Northbrook, IL 60062-2096 1-877-UL HELPS www.ul.com
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For more information on Western's other product portfolios, contact Customer Service at 1-800-783-7890.

- MEDICAL EQUIPMENT PORTFOLIO** Medical regulators, portable oxygen systems, flowmeters, fittings and transfill systems, homecare products, emergency oxygen units
- INDUSTRIAL EQUIPMENT PORTFOLIO** Regulators, flowmeters, cylinder adaptors, CGA fittings, flash arrestors, hotspotters, hose repair kits, valves, pigtails
- INFLATION EQUIPMENT PORTFOLIO** High quality helium equipment including inflators, filling stations, cylinders, manifolds, accessories and replacement parts

For 60 years, Western has been supplying innovative solutions in gas management systems to the industrial, medical and helium gas markets.







Manifold Products



Global Gas Management Technology

Enterprises | **Innovator** | Medica | Westwinds

875 Bassett Road, Westlake, OH 44145

Toll Free (800)783.7890 / Phone (440)871.2160 / Fax (440)835.8283

ISO 9001/ISO 13485 Registered Quality System

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