

Innovator Gas Manifold Systems



G A S C O N T R O L T E C H N O L O G Y

TABLE OF CONTENTS

HEALTHCARE MANIFOLDS



• FHM2 Series	4 - 5
• HGM2 Series	6 - 7
• LC Series	8 - 9
• CLA Series	10
• Dual Line Regulator Assemblies	10

INDUSTRIAL MANIFOLDS



• BI Series	12 - 13
• LC Series	14 - 15
• MS, MD, SD Series	16 - 17
• Special Configurations	18

SPECIALTY GAS MANIFOLDS



• LAB Series	20 - 21
• High Purity Brass Manifolds	22 - 23
• High Purity Stainless Steel Manifolds	24 - 25
• Purge Assemblies	26

ACCESSORIES



• Cylinder Brackets, Manifold Bracket & Mounting Hardware, Floor Stands	28
• Flashback Arrestors, Fuel Gas Safety Kits, Fuel Gas Alarm Kits	29
• Pressure Switches, Remote Alarm Panels & Power Supplies	30
• Station Drops, Line Station Regulators, Flowmeters	31
• Manifold Regulators, In-Line Regulators	32
• Packless Diaphragm Valves, Bypass Valve Assembly, Header Valves	33
• Ball Valves, Master Valves, Line Station Valves	34
• Union Adaptors, Tailpieces & Nuts, Pipeline Check Valves, Check Valve Outlets	35
• Relief Valves	36
• Gas Heaters, Proportional Gas Mixers	37
• NFPA Drawings	38
• Technical Information	38



GAS CONTROL TECHNOLOGY



**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 1999 safety and performance requirements.*
- *Cleaned and tested for the indicated gas service. Factory-set functional components are protected inside a tamper-resistant case.*
- *Easy to install and use.*

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 changeover and eliminating the need to manually reset levers or valves. FHM2 Healthcare Manifolds meet NFPA-99 2002

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

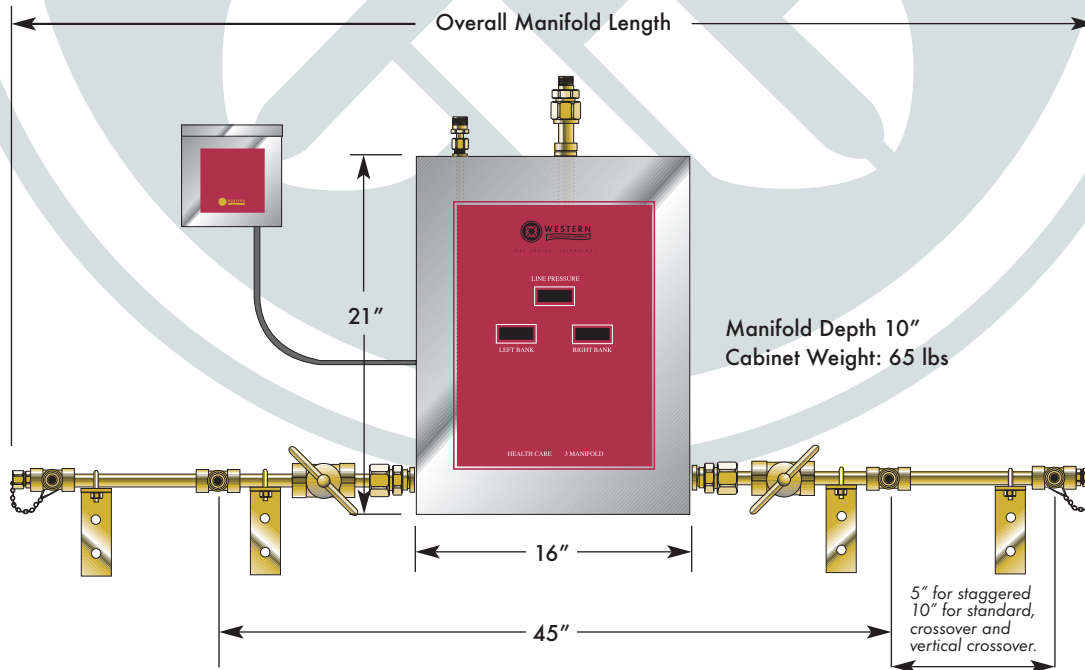
- Digital readout can display psig, KPa or Bar.
- Connects to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250 VAC)
- Maximum inlet pressure 3000 psig. (2000 for CO₂ & N₂O systems)
- Maximum Flow:

FHM2	2000 scfh
FHM2 (CO ₂ & N ₂ O)	35 scfh
FHM2HL (CO ₂ & N ₂ O)	500 scfh
FHM2HP	3000 scfh
- Internal adjustable dual line regulators. FHM2 & FHM2HL 30-70 psig FHM2HP 100-190 psig
- Manifold outlet: 1/2" NPT.
- Relief valve outlet: 1/2" NPT.
- 1/2" Brass, silver brazed headers.
- Oxygen pigtails rigid copper, with check valves, all other gases 24" flexible stainless steel pigtails with check valves.



HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number			
Example 1: FHM2-9-12VF represents FHM2 with oxygen gas service and a			
Example 2: FHM2HP-7-6 represents FHM2HP with nitrogen gas service with a			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
FHM2 (30 to 70 psig)	(2) Breathing Air	CGA-346	
	(4) Carbon Dioxide	CGA-320	
FHM2HL (30 to 70 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	
	(9) Oxygen	CGA-540	
FHM2HP (100 to 190 psig)			



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)

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

vertical crossover bank of 6 cylinders per side which is mounted on a floor stand.
standard header configuration of 3 cylinders per side which is mounted on the wall.

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

HGM2

Western Innovator HGM2 Manifolds are designed and manufactured according to NFPA-99 2002 safety and performance requirements. Easy-to-read digital displays 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

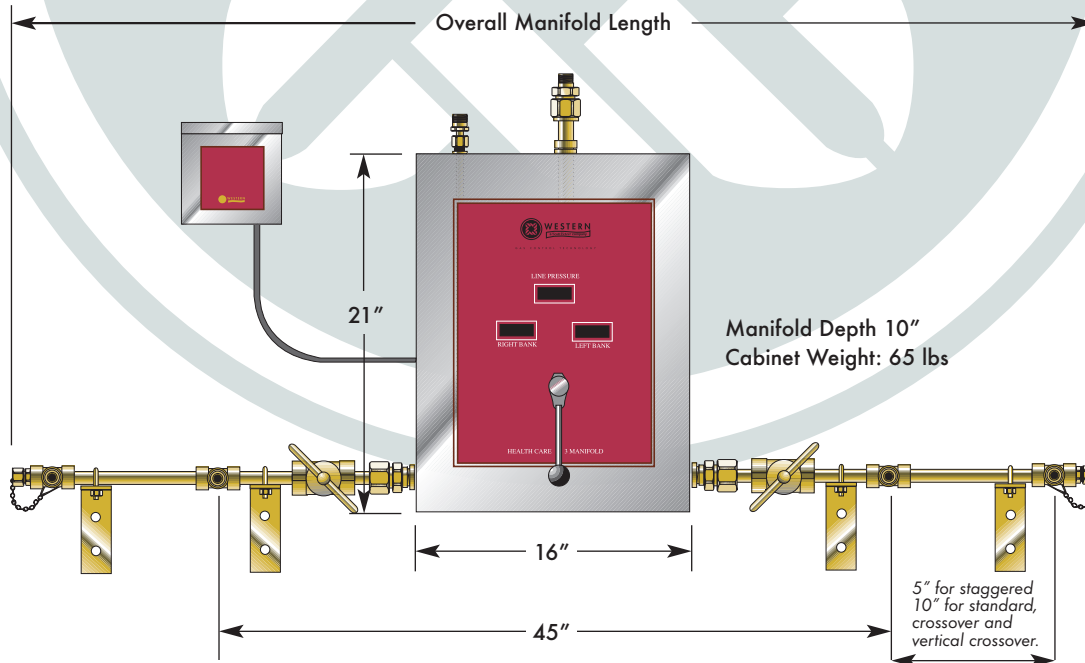
- Digital readout can display psig, KPa or Bar.
- Connects to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250 VAC)
- Maximum inlet pressure 3000 psig. (2000 for CO₂ & N₂O systems)
- Maximum Flow:

HGM2	1200 scfh
HGM2 (CO ₂ & N ₂ O)	35 scfh
HGM2HL (CO ₂ & N ₂ O)	500 scfh
HGM2HP	1200 scfh
- Internal adjustable dual line regulators. HGM2 & HGM2HL 30-55 psig HGM2HP 50-200 psig
- Manifold outlet: 1/2" NPT.
- Relief valve outlet: 1/2" NPT.
- Oxygen pigtails rigid copper, with check valves, all other gases 24" flexible stainless steel pigtails with check valves.
- 1/2" Brass, silver brazed headers.



HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number			
Example 1: HGM2-9-12VF represents HGM2 with oxygen gas service and a			
Example 2: HGM2HP-7-6 represents HGM2HP with nitrogen gas service with a			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
HGM2 (30 to 55 psig)	(2) Breathing Air	CGA-346	
	(4) Carbon Dioxide	CGA-320	
HGM2HL (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	
	(9) Oxygen	CGA-540	
HGM2HP (50 to 200 psig)			



Example: HGM2 - 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)

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

vertical crossover bank of 6 cylinders per side which is mounted on a floor stand.
standard header configuration of 3 cylinders per side which is mounted on the wall.

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

Western Innovator LC 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 CLA series high pressure reserve healthcare manifolds, dual line regulator assembly, pressure switches and check valves, the system meets NFPA-99 1999 requirements. (See page 37 for NFPA drawings)

specifications

- Connects to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250 VAC)
- Maximum inlet pressure 350 psig.
- Maximum flow:

LC 750 scfh

LCHP 800 scfh
- Adjustable line regulator.

LC 40-85 psig

LCHP 40-180 psig
- Manifold outlet: 1/2" NPT.
- Relief valve outlet: 1/4" NPT.
- 7/2" 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.

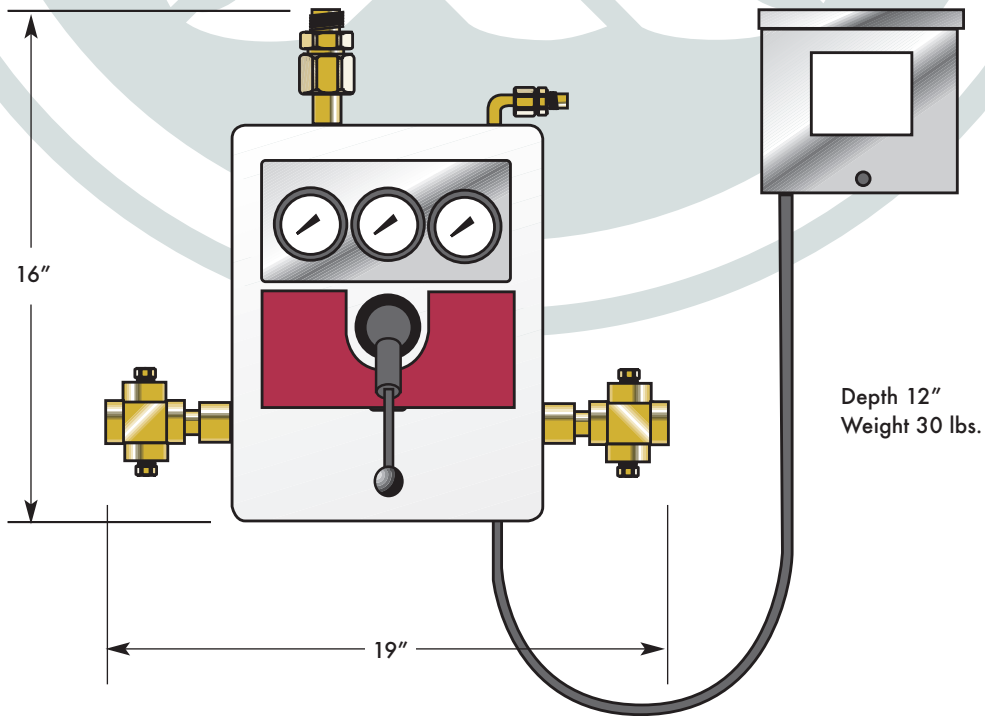


HOW TO ORDER

Specify: Control Type (V) - Service (W)

Example: LC - 3 - 4 represents LC with Argon gas service for

CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)	
LC (40 - 85 psig)	(3) Argon	CGA-580		
	(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		



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

- Number of Cylinders (X) Mounting (Z)	
2 cryogenic cylinders per side which is mounted on the wall.	
	MOUNTING (Z)
	BLANK = Wall mount F = Floor mounted

CLA

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

emergency back-up gas supply to meet NFPA-99 requirements. (See page 37 for NFPA drawings)

specifications

- 1/2" plugged tee, for "reserve low" pressure switch.
(Western part number WME-4-10)
- Maximum inlet pressure 3000 psig.
- Adjustable regulator.
CLA 20-160 psig
CLAHP 40-300 psig
- Manifold outlet: 1/2" NPT.
- 24" flexible stainless steel pigtails with check valves.
- 1/2" Brass, silver brazed headers.



Design Lengths

TOTAL NO. OF CYLINDERS	3	4	5	6	7	8	9
CLA 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)
CLA 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)
CLA 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 ORDER

CONTROL TYPE (W)	GAS SERVICE (X)		# OF CYL'S (Y)	HEADER CONFIGURATION (Z)
CLA (20 to 160 psig)	(2)	Breathing Air	CGA-346	Blank - Standard 10" on Center S - Staggered V - Vertical Crossover U - Shaped - Drawing Required L - Shaped - Drawing Required
	(4)	Carbon Dioxide	CGA-320	
	(7)	Nitrogen	CGA-580	
	(8)	Nitrous Oxide	CGA-326	
CLAHP (40 to 300 psig)	(9)	Oxygen	CGA-540	
	(11)	CO ₂ /O ₂ Mixture (CO ₂ not over 7%)	CGA-280	
	(12)	He/O ₂ Mixture (He not over 80%)	CGA-280	
	(13)	N ₂ /O ₂ Mixture (O ₂ not over 23.5%)	CGA-280	
	(14)	N ₂ O/O ₂ Mixture (N ₂ O 47.5 to 52.5%)	CGA-280	

DUAL LINE REGULATOR ASSEMBLIES

Western dual-line regulator assemblies are designed for use in medical piping systems to meet NFPA-1999 requirements (See page 37 for NFPA 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
DLA 1/2" NPT
WMS 1/4" NPT
- Outlet port
1/2" NPT
- Relief valve outlet: 1/2" NPT.



WMS-1-20



DLA-4

Ordering Information

PART NUMBER	SIZE	DESCRIPTION	RELIEF VALVE SETTING
WMS-1-20	1/4" NPT	Dual line regulator for N ₂ , CO ₂ , N ₂ O or O ₂ , 30-70 psig delivery pressure	75 psig
WMS-1-22	1/4" NPT	Dual line regulator for Nitrogen 70-200 psig delivery pressure	250 psig
DLA-4	1/2" NPT	Dual line regulator for N ₂ , N ₂ O, CO ₂ , or O ₂ , 30-70 psig delivery pressure	75 psig
DLA-5	1/2" NPT	Dual line regulator for Nitrogen 70-200 psig delivery pressure	250 psig





GAS CONTROL TECHNOLOGY



*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.*
- *Easy to install and use.*

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.

Convenient and easy to use, Western Innovator BI Series is 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.

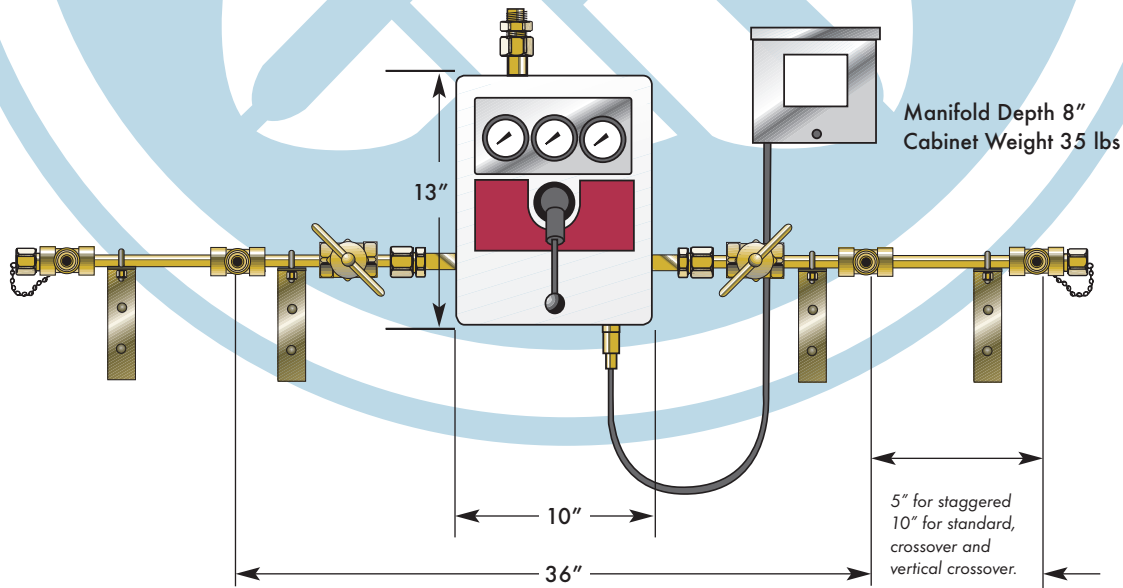
specifications

- Connects to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250 VAC)
- Maximum inlet pressure:
 - BI 3000 psig
 - BI (CO₂ & N₂O) 2000 psig
 - BI (Acetylene, LPG) 400 psig
 - BIHL (CO₂ & N₂O) 2000 psig
 - BIHP 3000 psig
 - BIHP (CO₂ & N₂O) 2000 psig
- Maximum flow rate:
 - BI 1200 scfh
 - BI (Acetylene) 300 scfh
 - BI (LPG) 400 scfh
 - BI (CO₂ & N₂O) 35 scfh
 - BIHL (CO₂ & N₂O) 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.
- Relief valve outlet: 3/4" NPT.
- 24" flexible stainless steel pigtails with check valves.
- 1/2" Brass, silver brazed headers.
- Acetylene systems include:
 - 300 scfh flashback arrestor and piping.
 - Pigtails with individual flashback arrestors and check valves.



HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number				
Example 1: BI-9-12VF represents BI with oxygen gas service and a vertical				
Example 2: BIHP-7-6 represents BIHP with nitrogen gas service with a standard				
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)	
BI (30 to 125 psig) Acetylene (0-15 psig) LPG (0-30 psig)	(1) Acetylene (POL)	CGA-510		
	(1A) Acetylene (Commercial)	CGA-300		
	(2) Compressed Air	CGA-346		
BIHL (30 to 125 psig) (500 SCFH heater included in HL model for CO ₂ and N ₂ O)	(3) Argon	CGA-580		
	(4) Carbon Dioxide	CGA-320		
	(5) Helium	CGA-580		
	(6) Hydrogen	CGA-350		
	(6A) Argon/Methane Mixtures	CGA-350		
BIHP (50 to 200 psig) (Higher delivery pressure - to 235 psig available upon request)	(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		



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)

of Cylinders (X) Header Configuration (Y) Mounting (Z)		
crossover bank of 6 cylinders per side which is mounted on a floor stand. header configuration of 3 cylinders per side which is mounted on the wall.		
	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK - Standard 10 inches on center 13 inches on center for Acetylene & LPG S - Staggered 5 inches on center 6.5 inches on center for Acetylene & LPG V - Vertical crossover Standard 10 inches on center 13 inches on center for Acetylene & LPG C - Crossover (Floor Mount Only) Standard 10 inches on Center 13 inches on center for Acetylene & LPG U-Shaped - Drawing Required L-Shaped - Drawing Required	BLANK = Wall mount F = Floor mounted



Western Innovator LC Manifolds are designed to regulate and monitor vaporized gas from cryogenic cylinders. Convenient and easy to use, the system automatically changes over when the primary cylinder bank is depleted. Simply rotate the control lever to reset the unit.

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.

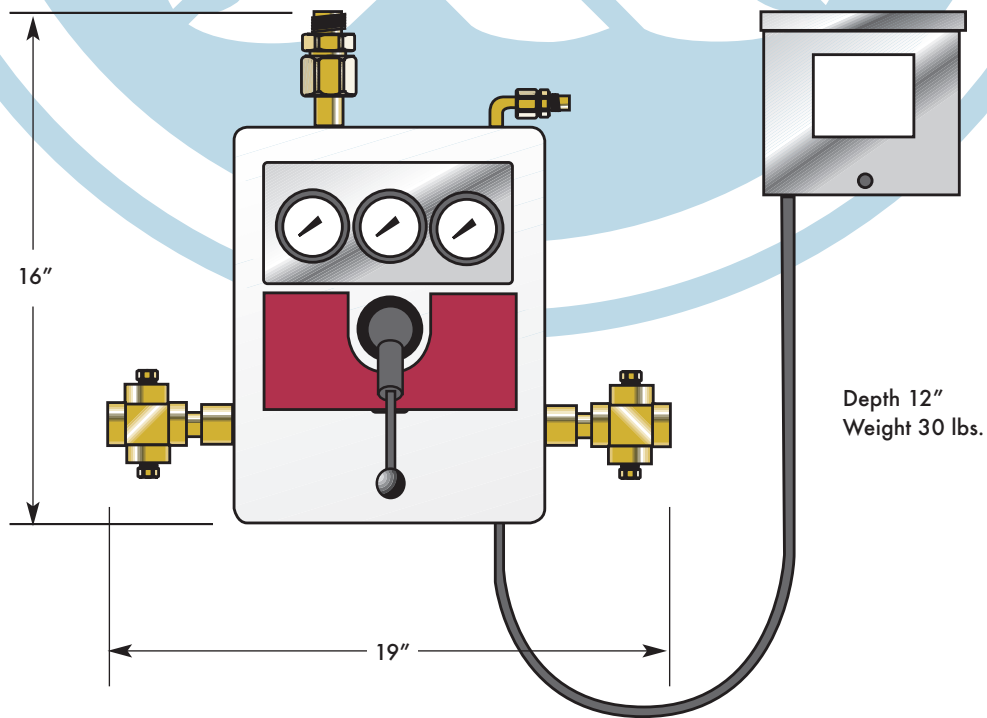
specifications

- Connects to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250 VAC)
- 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.
- Relief valve outlet: 1/4" NPT.
- 72" Cryogenic pigtailed with check valves.
- Minimum inlet:
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.



HOW TO ORDER

Specify: Control Type (V) - Service (W)			
Example: LC - 3 - 4 represents LC with Argon gas service for			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
LC (40 - 85 PSIG)	(3) Argon	CGA-580	
	(4) Carbon Dioxide	CGA-320	
LCHP (40 - 180 PSIG) (Nitrogen units only are adjustable - 40 - 210 PSIG)	(5) Helium	CGA-580	
	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	



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

- Number of Cylinders (X) Mounting (Z)	
2 cryogenic cylinders per side which is mounted on the wall.	
	MOUNTING (Z)
	BLANK = Wall mount F = Floor mounted



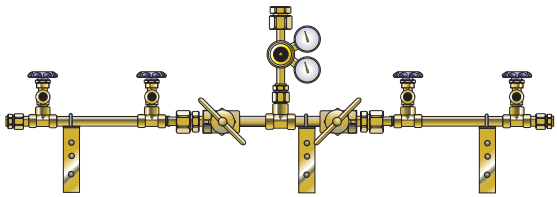
MS, MD & SD Manual Manifolds

Western Innovator's Manual Gas Manifolds are designed to regulate high pressure gas supplies. Ideal for applications not requiring uninterrupted gas service.

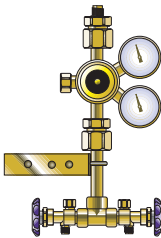
Western Innovator's

specifications

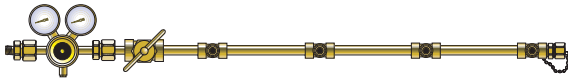
- Maximum inlet pressure 3000 psig.
- Includes adjustable line regulator.
MS, MD & SD 20-160 psig
Acetylene 0-15 psig
LPG 0-45 psig
MSHP, MDHP, SDHP 50-300 psig
- Manifold outlet: 1/2" NPT.
- 24" flexible stainless steel pigtails with check valves.
- 1/2" Brass, silver brazed headers.
- MS & MD Acetylene systems include:
300 scfh flashback arrestor and
pigtails with individual flashback arrestors
and check valves.



MD-4-4



SD-7-2



MS-9-4

HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number of				
Example 1: MD-9-12VF represents MD with oxygen gas service and a vertical				
Example 2: MSHP-7-6 represents MSHP with nitrogen gas service with a				
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)	
SD	(1)	Acetylene (POL)	CGA-510	
MS	(1A)	Acetylene (Commercial)	CGA-300	
MD	(2)	Compressed Air	CGA-346	
Standard delivery pressures for SD, MS & MD units	(3)	Argon	CGA-580	
Most gases 20-160 PSIG	(4)	Carbon Dioxide	CGA-320	
Acetylene (0-15 PSIG)	(5)	Helium	CGA-580	
LPG (0-45 PSIG)	(6)	Hydrogen	CGA-350	
MSHP	(6A)	Argon/Methane Mixtures	CGA-350	
(only available for non-fuel gas services)	(7)	Nitrogen	CGA-580	
Standard delivery pressure	(7A)	Industrial Air/Nitrogen OP	CGA-590	
All gases 40-300 PSIG	(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.

For more information, call Western Customer Service

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



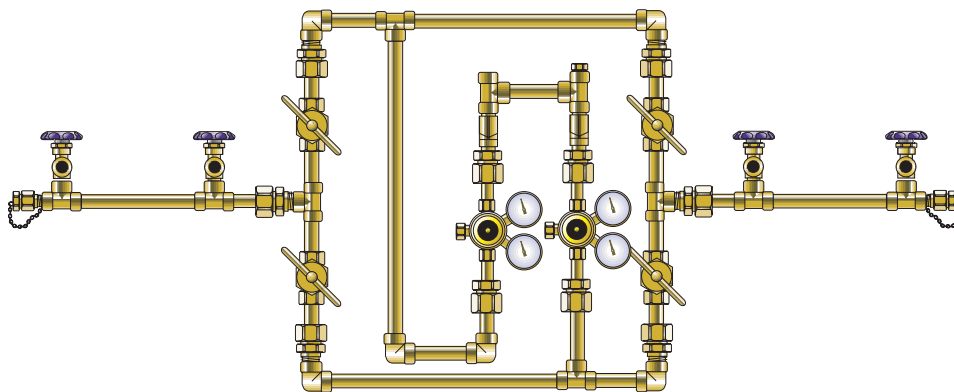
Cylinders (X) - Header Configuration (Y) - Mounting (Z)		
crossover bank of 6 cylinders per side which is mounted on a floor stand. standard header configuration of 6 cylinders which is mounted on the wall.		
	HEADER CONFIGURATION (Y)	MOUNTING (Z)
	BLANK - Standard 10 inches on center 13 inches on center for Acetylene & LPG S - Staggered 5 inches on center 6.5 inches on center for Acetylene & LPG V - Vertical crossover Standard 10 inches on center 13 inches on center for Acetylene & LPG C - Crossover (Floor Mount Only) Standard 10 inches on Center 13 inches on center for Acetylene & LPG U-Shaped - Drawing Required L-Shaped - Drawing Required	BLANK = Wall mount F = Floor mounted

SPECIAL CONFIGURATIONS

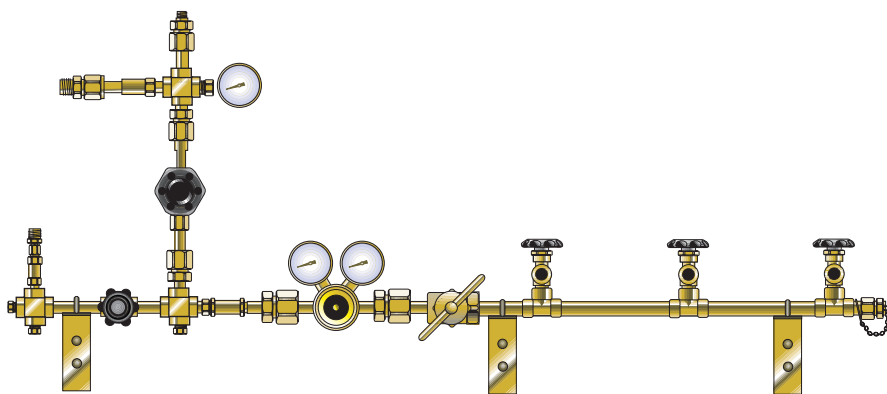
Whether your application requires special header configurations, customized pigtails, unique delivery pressures, or custom flow rates, Western Innovator's technical experts can help you find the right solution. Our systems are manufactured and assembled in-house, providing the flexibility to meet a wide range of special requirements.

Choose from hundreds of already designed customized units or work with our team of experts to design a manifold system that meets your special application. Either way, Western Innovator will deliver the right product for your job.

The Western Innovator AD Series manifolds are ideal for applications requiring automatic bank changeover.



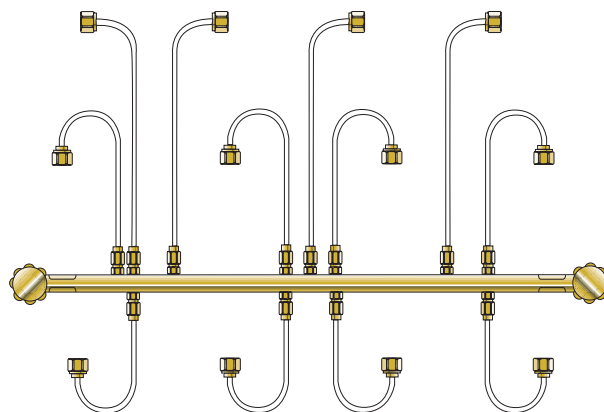
AD – Automatic Manifold



LA – Automatic Manifold

The Western Innovator LA Series manifolds are designed for applications warranting liquid gas usage for the primary gas source with high pressure back-up. The system will automatically switch over from the liquid supply to the high pressure back-up without interruption in service.

Western Innovator GM Series manifolds provide users with convenient hook-up of multiple high pressure cylinders where a stationary manifold is not applicable.



GM – Cradle Manifold



GAS CONTROL TECHNOLOGY



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.

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.**
- **Ease of installation and use.**

LAB

Western Innovator LAB Series manifolds are designed and built to provide and regulate uninterrupted gas supply for high purity applications. User friendly and easy to operate, a simple rotation of the control knob resets the unit.

Western
LAB Series

specifications

- Stainless steel diaphragm regulators.
- Packless diaphragm valves.
- Maximum inlet pressure 3000 psig. (2000 psi for CO₂ & N₂O systems)
- Maximum flow rate:
Most gases 250 scfh
CO₂ 35 scfh
N₂O 35 scfh
- Delivery pressure range:
LAB1 30-100 psig
Acetylene 0-15 psig
LAB1HP 50-200 psig
- Manifold outlet: 1/4" OD tube.
- Relief valve outlet: 1/2" OD tube.
- Rigid copper pigtails with check valves.



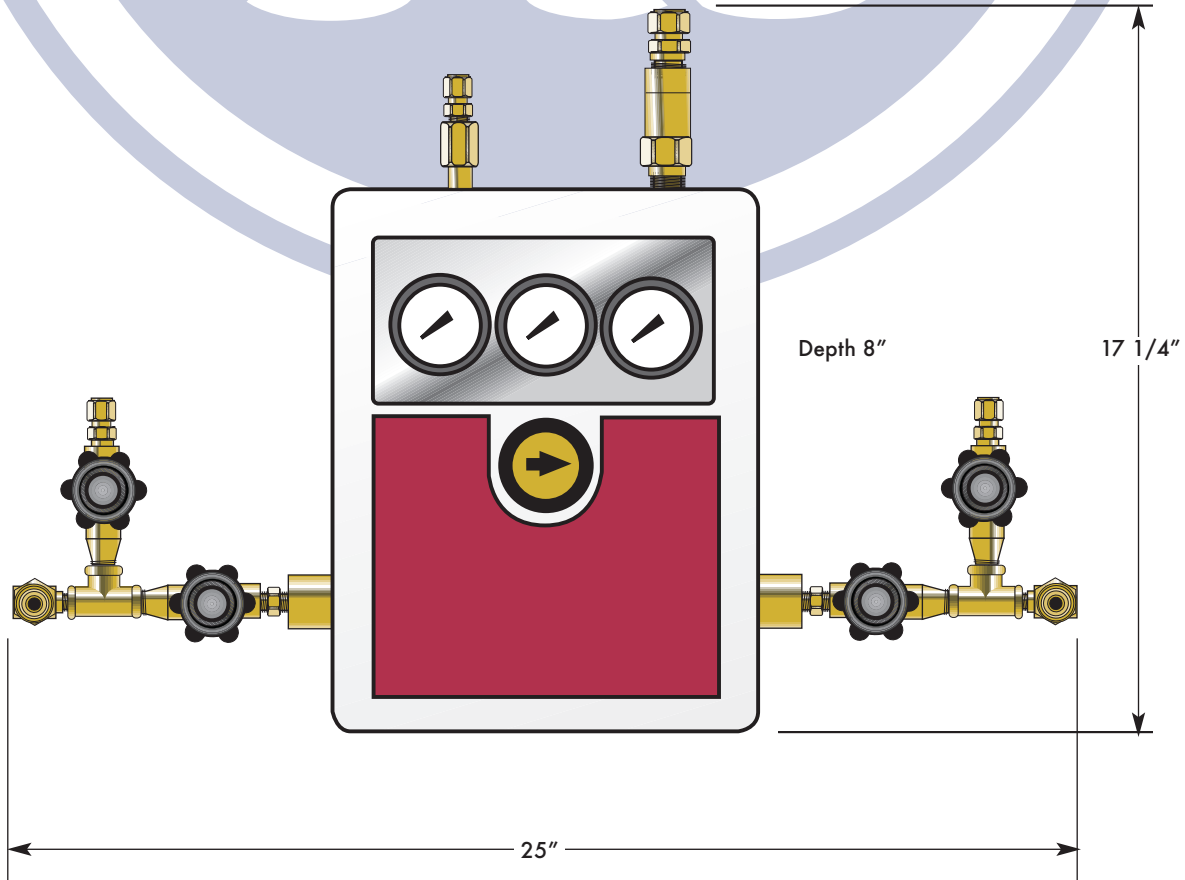
HOW TO ORDER

Specify: Control Type (V)			
Example : LAB1-3-F = Model LAB1			
CONTROL TYPE (V)	GAS SERVICE (W)		
LAB1 (30 - 100 psig) Acetylene (0 - 15 psig)	(1) Acetylene (POL)	CGA-510	
	(1A) Acetylene (Commercial)	CGA-300	
LAB1HP (50 - 200 psig)	(2) Zero Air	CGA-346	
	(2A) Zero Air	CGA-590	
	(3) Argon	CGA-580	
	(4) Carbon Dioxide	CGA-320	
	(5) Helium	CGA-580	
	(6) Hydrogen	CGA-350	
	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	
	(9) Oxygen	CGA-540	



WESTERN
a Scott Fetzer company

GAS CONTROL TECHNOLOGY



) - Service (W) - Mounting (Z)

, Argon service, with floor stand

MOUNTING (Z)

BLANK = Wall mount
F = Floor mounted

OPTIONS

HPF - Flexible Stainless
Lined Pigtails

HIGH PURITY BRASS MANIFOLDS

specifications

- Stainless steel diaphragm regulators.
 - Helium leak rate integrity
2 x 10⁻⁶ scc/sec.
 - Maximum inlet pressure 3000 psig.
(2000 psi for CO₂ & N₂O systems)
 - Maximum flow rate:

HBAC2

Acetylene

HBAD2 & HBMS2

250 scfh

20 scfh

200 scfh
- Delivery pressure range:

HBAC2

Acetylene

HBAC2HP

HBAD2

HBMS2

30-100 psig

0-15 psig

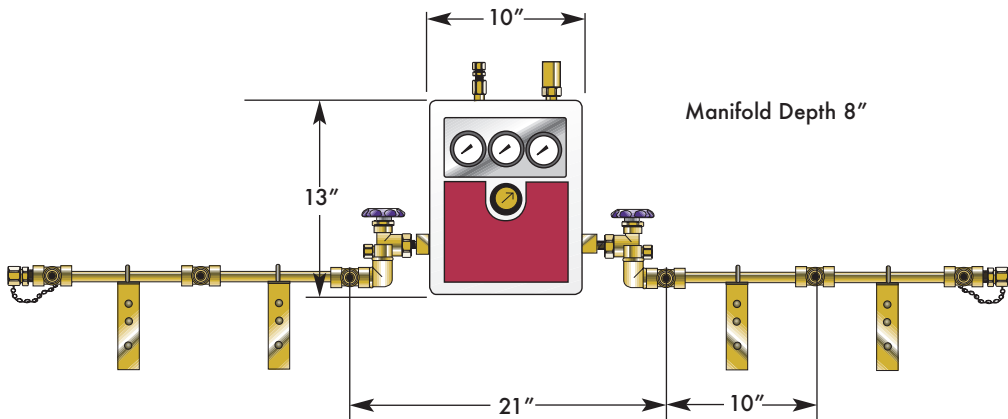
50-200 psig

50-100 psig

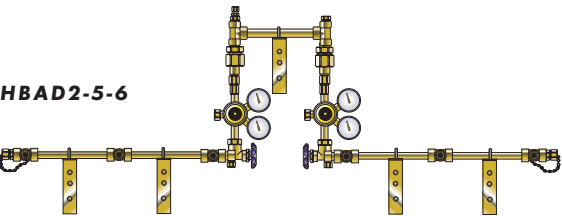
20-150 psig
- Manifold outlet: 1/4" OD tube.
 - 1/2" Brass, silver brazed headers.
 - 24" flexible stainless steel lined pigtails with check valves.

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

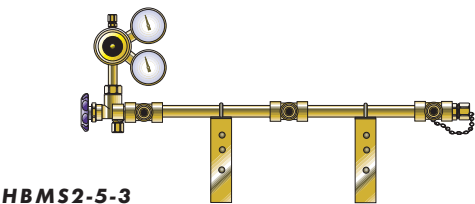
clearly indicates the system status. A green light means the service bank is functioning and the reserve bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted. Dry contacts in the unit's power supply box allow connection to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250VAC).



Western Innovator HBAD2 provides uninterrupted high purity gas flow at an economical price. A simple adjustment of the manifold regulator is required following the system's automatic changeover.



Western Innovator HBMS2 provides increased cylinder usage and high purity gas to applications not requiring uninterrupted flow.



HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number				
Example : HBAC2-5-6 = Model HBAC2, Helium service				
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 500 SCFH heater)	(2) Zero Air	CGA-346		
	(2A) Zero Air	CGA-590		
HBAC2HP (50 - 200 PSIG)	(3) Argon	CGA-580		
	(4) Carbon Dioxide	CGA-320		
HBAD2 (30 - 100 PSIG)	(5) Helium	CGA-580		
	(6) Hydrogen	CGA-350		
	(6A) Argon/Methane	CGA-350		
HBMS2 (20 - 150 PSIG)	(7) Nitrogen	CGA-580		
	(8) Nitrous Oxide	CGA-326		
	(9) Oxygen	CGA-540		
*Not available for HBAD				

Design Lengths HBAC2 / HBAD2 / HBMS2

TOTAL NO. OF CYLINDERS	2	4	6	8	10	12	16	20
HBAC2 Standard (10 inch 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 inch 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 inch 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 (6.5 inch 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)
TOTAL NO. OF CYLINDERS	2	3	4	5	6	7	8	
HBAD2 Standard (10 inch centers) Overall Manifold Length	1' - 6" (.46m)	N/A	3' - 2" (.97m)	N/A	4' - 0" (1.47m)	N/A	6' - 6" (1.98m)	
HBAD2 Staggered (5 inch centers) Overall Manifold Length	1' - 6" (.46m)	N/A	2' - 4" (.71m)	N/A	3' - 2" (.97m)	N/A	4' - 0" (1.96m)	
HBAD2 Vertical Crossover (10 inch centers) Overall Manifold Length	N/A	N/A	1' - 6" (.46m)	N/A	N/A	N/A	3' - 2" (.97m)	
TOTAL NO. OF CYLINDERS	2	3	4	5	6	7	8	
HBMS2 Standard (10 inch centers) Overall Manifold Length	1' - 5" (.43m)	2' - 3" (.69m)	3' - 1" (.84m)	3' - 11" (1.19m)	4' - 9" (1.45m)	5' - 7" (1.70m)	6' - 5" (1.96m)	
HBMS2 Staggered Design (5 inch centers) Overall Manifold Length	1' - 0" (.30m)	1' - 5" (.43m)	1' - 10" (.56m)	2' - 3" (.69m)	2' - 8" (.81m)	3' - 1" (.94m)	3' - 6" (1.07m)	
HBMS2 Vertical Crossover & Crossover (10 inch centers) Overall Manifold Length	1' - 5" (.43m)	N/A	2' - 3" (.69m)	N/A	3' - 1" (.84m)	N/A	3' - 11" (1.19m)	



of 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 inches on center 13 inches on center for Acetylene & LPG S - Staggered 5 inches on center 6.5 inches on center for Acetylene & LPG V - Vertical crossover Standard 10 inches on center 13 inches on center for Acetylene & LPG C - Crossover (Floor Mount Only) Standard 10 inches on Center 13 inches on center for Acetylene & LPG U-Shaped - Drawing Required L-Shaped - Drawing Required	BLANK = Wall mount F = Floor mounted

HIGH PURITY STAINLESS STEEL MANIFOLDS

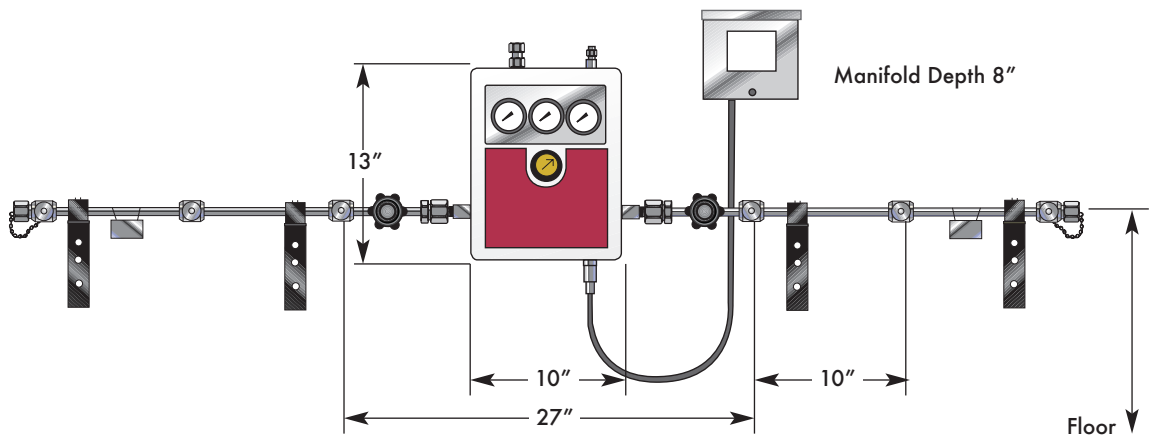
specifications

- Stainless steel diaphragm regulators.
- Helium leak rate integrity 2×10^{-6} scc/sec.
- Maximum inlet pressure 3000 psig. (2000 psi for CO₂ & N₂O systems)
- Maximum flow rate 95 scfh. (35 scfh for CO₂ & N₂O systems)
- Delivery pressure range
 - HSAC 30-100 psig
 - HSACHP 50-200 psig
 - HSAD2 50-100 psig
 - HSMS2 20-150 psig
- Manifold outlet: 1/4" OD tube.
- Stainless steel orbital welded headers.
- 24" flexible stainless steel lined pigtails with check valves.

Western Innovator HSAC 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 following the system's automatic changeover.

Factory-set functional components are protected inside a

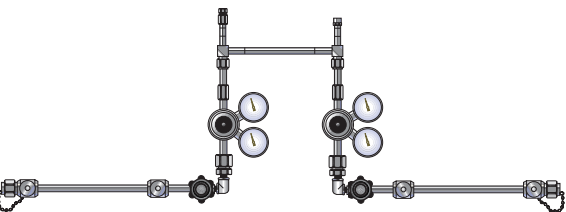
tamper-resistant case. A self-contained alarm system clearly indicates the system status. A green light shows the service bank is functioning and the reserve bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted. Dry contacts in the unit's power supply box allow connection to remote alarms systems. (Up to 3 amps 30 VDC or 2 amps 250VAC).



Western Innovator HSAD2 provides uninterrupted high-purity gas flow at an economical price. A simple adjustment of the manifold regulator is required following the system's automatic changeover.

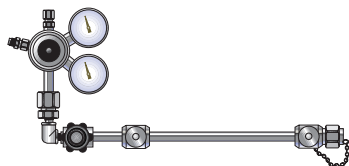
HOW TO ORDER

Specify: Control Type (V) - Service (W) - Number			
Example : HSAC-5-6 = Model HSAC, Helium service			
CONTROL TYPE (V)	GAS SERVICE (W)		# OF CYL'S (X)
HSAC (30 - 100 psig)	(2) Zero Air	CGA-346	
	(2A) Zero Air	CGA-590	
HSACHP (50 - 200 psig)	(3) Argon	CGA-580	
	(4) Carbon Dioxide	CGA-320	
HSAD2 (50 - 100 psig)	(5) Helium	CGA-580	
	(6) Hydrogen	CGA-350	
HSMS2 (20 - 150 psig)	(6A) Argon/Methane	CGA-350	
	(7) Nitrogen	CGA-580	
	(8) Nitrous Oxide	CGA-326	



HSAD2-5-4

Western Innovator's HSMS2 is designed to provide increased cylinder usage and high-purity gas to applications not requiring uninterrupted flow.



HSMS2-5-2

Design Lengths HSAC /HSMS2 / HSAD2

TOTAL NO. OF CYLINDERS	2	4	6	8	10	12	16
HSAC Standard (10" Centers) Overall Manifold Length	3' - 0" (.91m)	4' - 8" (1.42m)	6' - 4" (1.93m)	8' - 0" (2.44m)	9' - 8" (2.95m)	11' - 4" (3.45m)	14' - 8" (4.47m)
HSAC Staggered Design (5" Centers) Overall Manifold Length	3' - 0" (.91m)	3' - 10" (1.17m)	4' - 8" (1.42m)	5' - 6" (1.67m)	6' - 4" (1.93m)	7' - 2" (2.18m)	8' - 0" (2.44m)
TOTAL NO. OF CYLINDERS	2	3	4	5	6	7	8
HSMS2 Standard (10" Centers) Overall Manifold Length	1' - 9" (.53m)	2' - 7" (.79m)	3' - 5" (1.04m)	4' - 3" (1.30m)	5' - 1" (1.55m)	5' - 11" (1.80m)	6' - 9" (2.06m)
HSMS2 Staggered (5" Centers) Overall Manifold Length	1' - 4" (.41m)	1' - 9" (.53m)	2' - 2" (.66m)	2' - 7" (.79m)	3' - 0" (.91m)	3' - 5" (1.04m)	3' - 10" (1.17m)
TOTAL NO. OF CYLINDERS	2	3	4	5	6	7	8
HSAD2 Standard (10" Centers) Overall Manifold Length	2' - 3" (.69m)	N/A	3' - 11" (1.19m)	N/A	5' - 7" (1.70m)	N/A	7' - 3" (2.21m)
HSAD2 Staggered (5" Centers) Overall Manifold Length	2' - 3" (.69m)	N/A	3' - 1" (.94m)	N/A	3' - 11" (1.19m)	N/A	4' - 9" (1.45m)



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

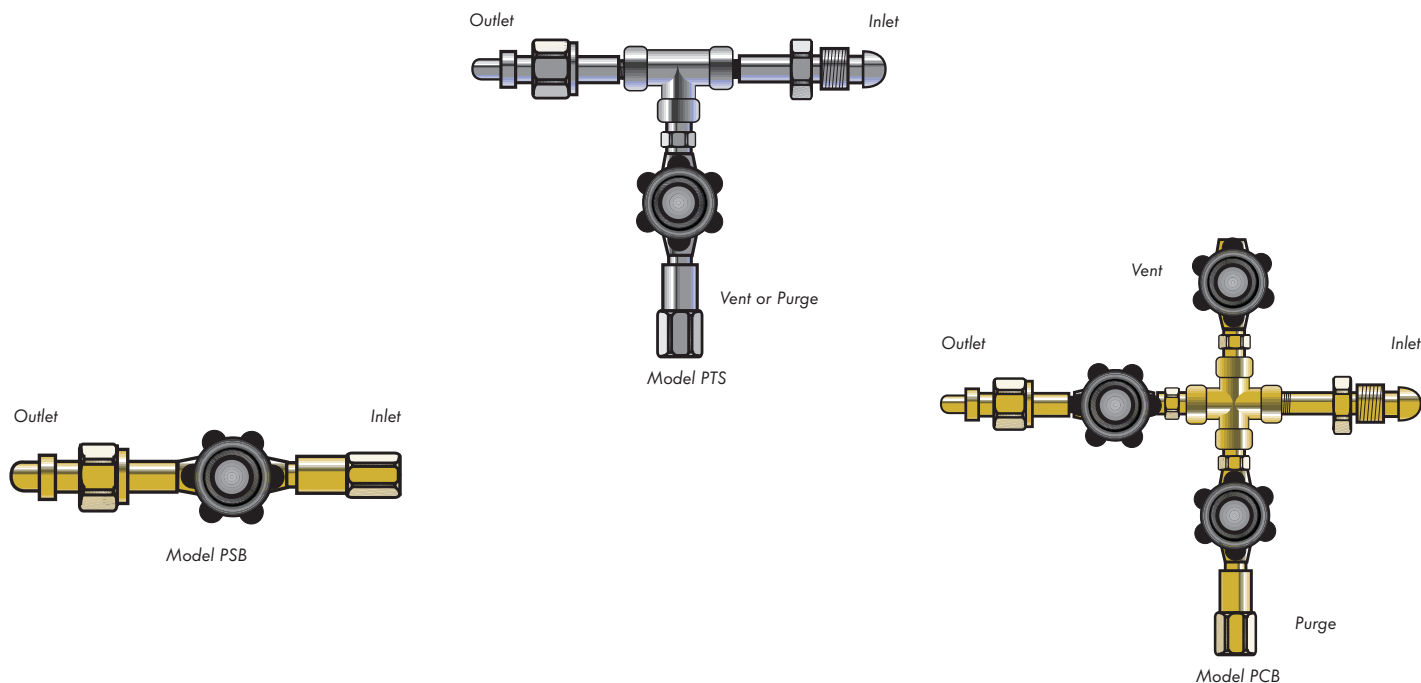
for six total cylinders 10" on center, wall mounted.

HEADER CONFIGURATION (Y)	MOUNTING (Z)
BLANK - Leave blank for STD 10 inch centers	BLANK = Wall mount F = Floor mounted
S - Staggered 5 inches on center	

PURGE ASSEMBLIES

Contamination cannot be tolerated in a high purity system. During cylinder change-out, oxygen and moisture from the atmosphere enter the manifold or regulator and become trapped. If allowed to remain, these impurities are swept into the system. Depending upon the flow rate, these impurities can disrupt the process for days or even weeks.

Designed for use with regulators and manifolds to allow purging of the system between cylinder change-outs. Each unit includes a check valve and shut-off valve to minimize possible back flow of cylinder gas into the purge source. Assembly instructions are included for PT and PC models. PS models are shipped pre-assembled.



HOW TO ORDER

MODEL #	ASSEMBLY MATERIAL (U)	CHECK VALVE SEAT MATERIAL (V)	INLET CONNECTION (W)	OUTLET CONNECTION (X)	PURGE CONNECTION (Y)	VENT CONNECTION (Z)
PS - Straight Purge	S - 316 L Stainless Steel	V - Viton (for most gases)	(1) 1/4" NPT Female (2) 1/4" NPT Male (3) 1/4" Compression		N/A	N/A
PT - Tee Purge	B - Brass	E - EPDM (for use w/ N ₂ O & CO ₂)	(4) To connect to HSAD & HSMS (old style) (5) CGA - 580 Valve Outlet (6) CGA - 580 Nut & Nipple (7) CGA - 346 Valve Outlet (8) CGA - 346 Nut & Nipple* (9) CGA - 350 Valve Outlet (10) CGA - 350 Nut & Nipple (11) CGA - 320 Valve Outlet (12) CGA - 320 Nut & Nipple (13) CGA - 326 Valve Outlet (14) CGA - 326 Nut & Nipple (15) CGA - 510 Valve Outlet (16) CGA - 510 Nut & Nipple (17) CGA - 540 Valve Outlet (Brass Only) (18) CGA - 540 Nut & Nipple (Brass Only) (19) CGA - 590 Valve Outlet (20) CGA - 590 Nut & Nipple			N/A
PC - Cross Purge						

*To connect to HSAD2, HSMS2 and HSAC





GAS CONTROL TECHNOLOGY



ACCESSORIES

MOUNTING ACCESSORIES

CYLINDER BRACKETS

Single (part number WB1) and double (part number WB2) wall mount cylinder holders are an essential accessory to all manifolds. An economical bench mounted single cylinder bracket (part number HWB3) attaches quickly to any counter top up to 2" thick. For safe containment of cylinders not greater than 9" - 12" in diameter. Equipped with plated safety chain. Painted black.



WB2 Double Bracket



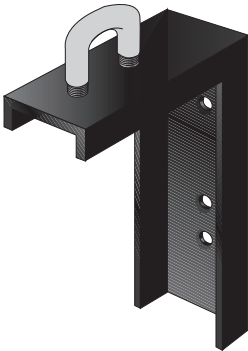
WB1 Single Bracket



HWB3 Counter Top 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.



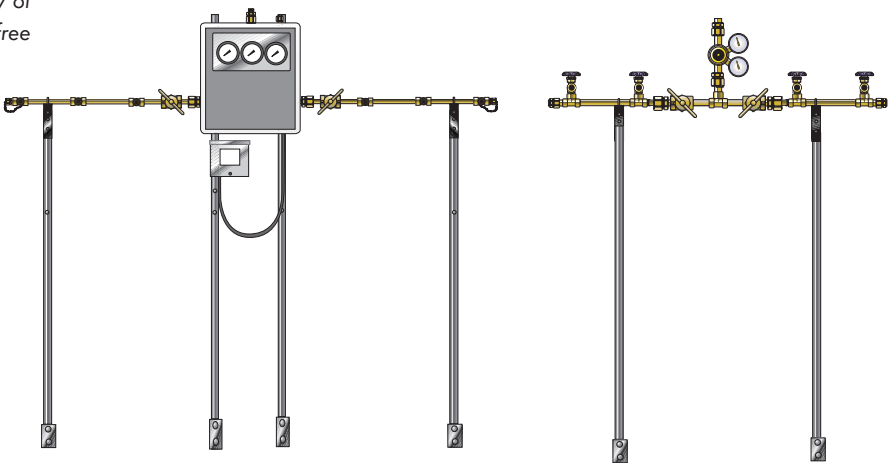
PART #	DESCRIPTION
WMC - 6 - 2	Bracket
WMC - 6 - 13B	U - bolt, Strap and Nuts
WMC - 3 - 3	Complete Assembly

FLOOR STANDS

Floor stands are available as an option for use with any of Western's Manifolds. The floor stand allows for a free standing manifold unit.

Ordering Information:

When ordering a floor stand, add the letter F to the end of the manifold part number.



Cabinet Style Floor Stand

Open Style Floor Stand

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.

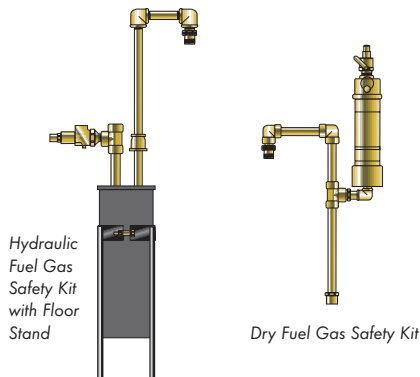
VENT PART NUMBER	GAS	CAPACITY SCFH	INLET/OUTLET	RELIEF VALVE SET PRESSURE (PSIG)
TYPE: HYDRAULIC				
WEM-1-17	Acetylene	300	1" NPT	20 psig
WEM-1-36	LPG/Hydrogen	300	1" NPT	40 psig
WEM-1-18	Acetylene	1000	1-1/2" NPT	20 psig
WEM-1-35	LPG/Hydrogen	1000	1-1/2" NPT	40 psig
WEM-1-22	Floor Stand	300		
WEM-1-23	Floor Stand	1000		
TYPE: DRY				
WEM-1-25	Acetylene	300	1/2" NPT	20 psig
WEM-1-26	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
Acetylene/Hydraulic	DM-FKA	BI-FKA	MS-FKA	300 scfh	20 psig
Hydraulic	DM-FK	BI-FK	MS-FK	300 scfh	40 psig
Dry	DM-FKD	BI-FKD	MS-FKD	300 scfh	35 psig

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 #	DESCRIPTION
FGAK - A	BI - Acetylene models
FGAK - H	BI - Hydrogen models
FGAK - L	BI - LPG models
HFGAK - A	HBAC2 - Acetylene models
HFGAK - H	HBAC2 - Hydrogen models
HSFGAK - H	HSAC - Hydrogen models
HSADFGAK - H	HSAD2 - Hydrogen models



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.



Specifications and Ordering Information Guidelines

PART NUMBER	DESCRIPTION	PRESSURE RANGE (PSIG)	MAXIMUM INLET (PSIG)	WETTED MATERIALS	ENCLOSURE CLASSIFICATIONS	ELECTERICAL CONNECTION
WME-4-5	Explosion Proof	30-300	800	S.S. Bellows	NEMA 4, 7, 9, IP66	3/4" NPT
WME-4-6	Explosion Proof	5-50	75	Brass Bellows	NEMA 4, 7, 9, IP66	3/4" NPT
WME-4-9	General Purpose	100-1000	10,000	S.S. Piston & BUNA "N" o-ring	NEMA 4	1/2" NPT
WME-4-10	General Purpose	200-3000	10,000	S.S. Piston & BUNA "N" o-ring	NEMA 4	1/2" NPT
WME-4-13	High/Low Switch	0-300	350	Phosphor Bronze Bellows	NEMA 4	7/8" Dia. Knockout
WME-4-14	General Purpose	20-200	250	Phosphor Bronze Bellows	NEMA 4	1/2" NPT & 7/8 Dia. Knockout
WME-4-15	High/Low Switch	0-100	125	Brass Bellows	NEMA 4, 7, 9, IP66	7/8" Dia. Knockout
WME-4-16	General Purpose	20-200	250	316 S.S. Bellows	NEMA 4	1/2" NPT Female
WME-4-17	General Purpose	100-1700	2500	316 S.S. Bellows	NEMA 4	1/2" NPT Female
WME-4-18	High/Low Switch	20-200	250	316 S.S. Bellows	NEMA 4	7/8" Dia. Knockouts
WME-4-20	High/Low Explosion Proof	0-100	125	Brass Bellows	NEMA 4, 7, 9, IP66	3/4" NPT Female

NOTE: 1/4" NPT female pressure connection. 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 squelch 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

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

PART NUMBER	DESCRIPTION
WMS - 9-25C	For use with SD, MS, MD, AD and LA
8570D	For use with BI, LC, HBAC2 and HSAC cabinet style manifold



STATION DROPS

Western station drops are equipped with an in-line shutoff 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 shutoff 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

WSO - 9 - 5

WSO - 9 - 7

WSO - 3 - 7

How To Order: Insert (X) = gas service

MODEL #	OUTLET	LENGTH
WSO-(X)-5	1/2" Single outlet	25"
WSO-(X)-6	3/4" Single outlet	25"
WSO-(X)-7	1/2" Double outlet	35"
WSO-(X)-8	3/4" Double outlet	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	Oxygen	0-125 psig	760	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022
WSR-1-2	Acetylene	0-15 psig	420	7/8"-14 LH, CGA-025	9/16"-18 LH, CGA-023
WSR-1-3	Fuel Gases	0-50 psig	640	7/8"-14 LH, CGA-025	9/16"-18 LH, CGA-023
WSR-1-4	Oxygen	0-50 psig	600	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022
WSR-1-5	Oxygen	0-100 psig	475	7/8"-14 RH, CGA-024	9/16"-18 RH, CGA-022
WSR-1-6	Oxygen	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 AW - 14A and AW - 3 to attach flowmeters to station drops.

PART #	GAS SERVICE	RANGE
RWS-2-5	Helium	0 - 90 scfh
RWS-2-7	Nitrogen	0 - 100 scfh
RWS-2-13	Argon/Carbon Dioxide	0 - 70 scfh
FM601	Air	0 - 15 LPM



MANIFOLD REGULATORS, IN - LINE 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.



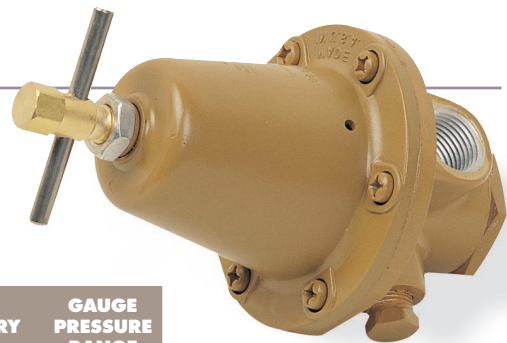
How To Order

PART NUMBER	DESCRIPTION	CAPACITY (SCFH) *			DELIVERY RANGE (PSIG)	INLET CONNECTION	OUTLET CONNECTION	REPLACEABLE CARTRIDGE NO.
		Delivery Lockup	Flowing Pressure	Gas Flow				
RM-1-1	Acetylene	15	10	850	1-15	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-59
RM-2-4	Compressed Air	50	45	960	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
			40	2100				
RM-4-4	Carbon Dioxide	50	45	960	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
			40	2100				
RM-6-4	Hydrogen	50	45	960	20-160	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-49
			40	2100				
RM-7-4	Nitrogen, Helium & Argon	50	45	960	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
			40	2100				
RM-8-4	Nitrous Oxide	50	45	960	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWC-3-49
			40	2100				
RDM-9-4	Oxygen	50	45	310	20-160	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RWD-2-19 1st STAGE
			40	950				RWD-2-36 2ndSTAGE
RM-10-2	LPG Fuel Gases	45	40	480	0-45	1-11 1/2" NPS EXT LH	1-11 1/2" NPS INT LH	RWC-3-59
			35	940				
RS-300-MAN	Nitrogen	170	160	800	40-300	1-11 1/2" NPS EXT RH	1-11 1/2" NPS INT RH	RK-1020 (Repair Kit)
			150	1422				

*Nitrogen @ 70°F

IN-LINE REGULATORS

Designed for installation in pipe lines where a large gas volume is required. *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 DELIVERY 250 PSIG INLET	GAUGE PRESSURE RANGE
WMR-2-2	1/2" NPT	0-50	3000	3000	0-100
WMR-2-3	3/4" NPT	50-125	11,000	21000	0-200
WMR-2-4	1/2" NPT	50-125	5000	10000	0-200
WMR-2-5	1/2" NPT	100-200	3500	12500	0-400
WMR-2-6	3/4" NPT	100-200	6000	20000	0-400
WMR-2-8	1" NPT	100-200	6000	20000	0-400



PACKLESS DIAPHRAGM VALVES

PART #	DESCRIPTION
DV - 4	1/4" NPT female x 1/4" NPT female - Brass
DV - 5NP	1/4" NPT male x 1/4" NPT female - Brass (nickel plated)

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

Specifications

- Diaphragm: Elgiloy®
- Seat: Kel-F®
- Body: Brass or 316L Stainless Steel
- Seals: Metal-to-metal with Viton® o-ring backup
- Cv: 0.17
- Working Temperature Range: - 40°F to 140°F
- Leakage: $<1 \times 10^{-8}$ scc/sec helium
- Operating Pressure: 3,000 psig (207 bar)



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.

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



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	CGA-580	WMV-2-35	Carbon Dioxide	CGA-320
WMV-2-4	Compressed Air	CGA-346	WMV-2-36	Nitrous Oxide	CGA-326
WMV-2-7	Carbon Dioxide	CGA-320	WMV-2-37	Compressed Air	CGA-346
WMV-2-8	Oxygen	CGA-540	WMV-2-38	Hydrogen	CGA-350
WMV-2-14	Nitrous Oxide	CGA-326	WMV-2-39	Oxygen	CGA-540
WMV-2-19	Hydrogen	CGA-350	WMV-2-40	Argon, Helium, Nitrogen	CGA-580
WMV-2-30	Acetylene	CGA-510	WMV-2-43	Industrial Air	CGA-590
WMV-2-31	Acetylene	CGA-300			
WMV-2-32	Industrial Air	CGA-590			



1/4 TURN BALL VALVES

Specifications

- Forged Bronze Body
- Teflon® Seals
- Chrome Plated Ball
- Steel Handle (plastic coated)
- 600 psig Maximum Working Pressure
- Cleaned for Oxygen
- Made in the USA



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

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
WMV-2-11	3/4" NPT female inlet & outlet

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. All valves are UL listed.



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

WORKING PRESSURES TO 3000 PSIG

UNION ADAPTORS, TAILPIECES & NUTS

UNION NUTS			
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					w/ Nickel 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			
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	1/2" NPT Female	EPDM
CVF-12F	3/4" NPT Female	3/4" NPT Female	Neoprene



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



RELIEF VALVES - 1/4" NPT & 1/2" NPT

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*		



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

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



PROPORTIONAL GAS MIXERS

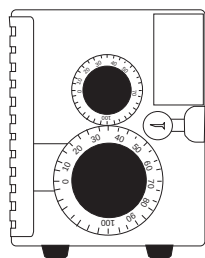
The Western Innovator proportional gas mixer is a pressure-flow device capable of blending two gases accurately in variable proportions from 0 - 100%. Two gas models are available to meet a wide range of MIG, TIG and Plasma applications in large industrial plants or small job shops. Western's gas proportioners eliminate the need for pre-mixed gases, thereby substantially reducing gas cost. For any selected proportion, the resultant gas mixture is maintained with $\pm 2\%$ of the full scale mixture setting. Mixture accuracy is unaffected by variations in inlet pressure, outlet pressure or flow rate.

INDUSTRIAL STANDARD CAPACITY MIXERS - 180 scfh

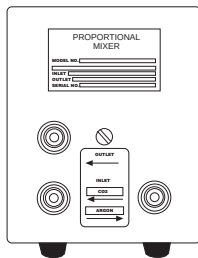
MODEL	GASES	ADJUSTMENT RANGE	MODEL	GASES	ADJUSTMENT RANGE
MX1	Argon & CO ₂	0-100% - 100-0%	MX14	Air & Helium	0-100% - 100-0%
MX2	Argon & Oxygen	0-100% - 100-0%	MX15	Air & Oxygen	0-100% - 100-0%
MX3	Argon & Helium	0-100% - 100-0%	MX17	Helium & Hydrogen	85-100% - 15-0%
MX4	Argon & Hydrogen	50-100% - 50-0%	MX18	Nitrogen & CO ₂	0-100% - 100-0%
MX5	Argon & Helium	50-100% - 50-0%	MX19	Nitrogen & Hydrogen	50-100% - 50-0%
MX6	Argon & Hydrogen (Max 50 SCFH)	50-100% - 50-0%	MX20	Nitrogen & Oxygen	0-100% - 100-0%
MX12	Argon & CO ₂	80-100% - 20-0%			
MX13	Argon & Oxygen	85-100% - 15-0%			

INDUSTRIAL HIGH CAPACITY MIXER - 700 scfh

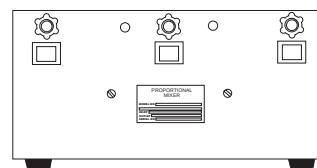
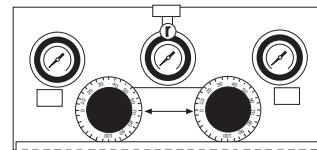
MODEL	GASES	ADJUSTMENT RANGE	MODEL	GASES	ADJUSTMENT RANGE
MX7	Argon & CO ₂	0-100% - 100%-0	MX10	Argon & Helium	0-100% - 100%-0
MX8	Argon & Oxygen	80-100% - 100%-0	MX11	Nitrogen & CO ₂	0-100% - 100%-0
MX9	Oxygen & CO ₂	0-100% - 100%-0%			



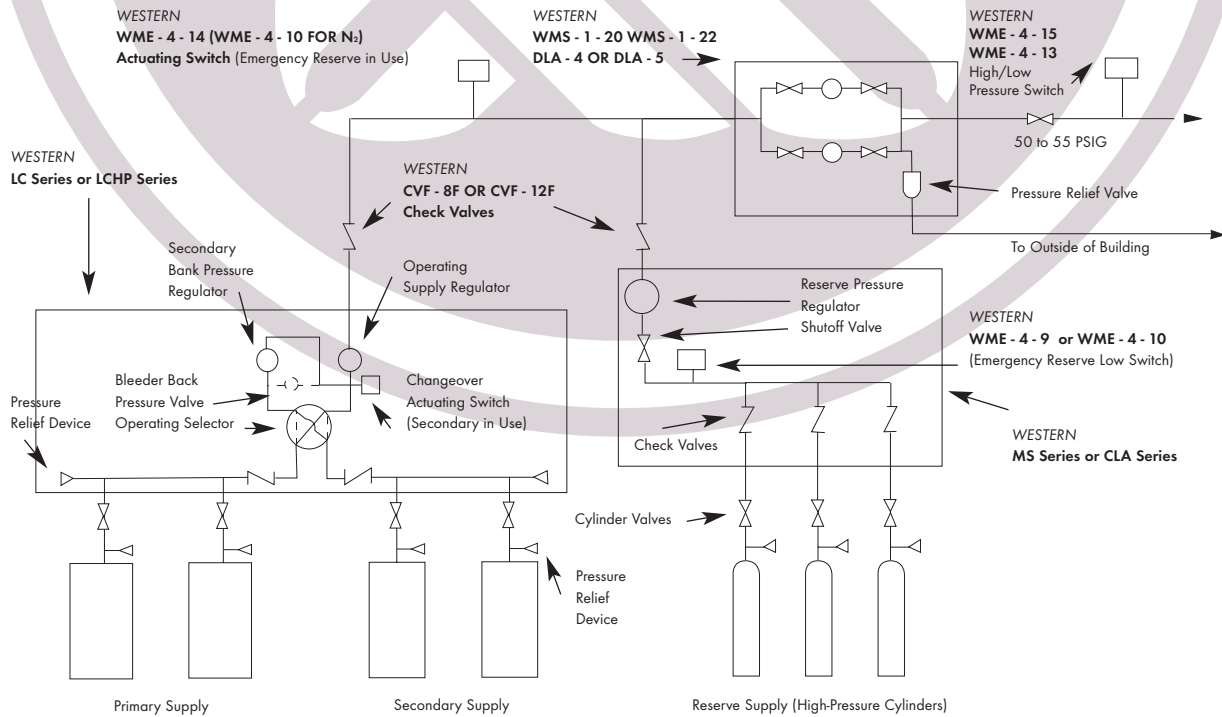
180 scfh Model



700 scfh Model

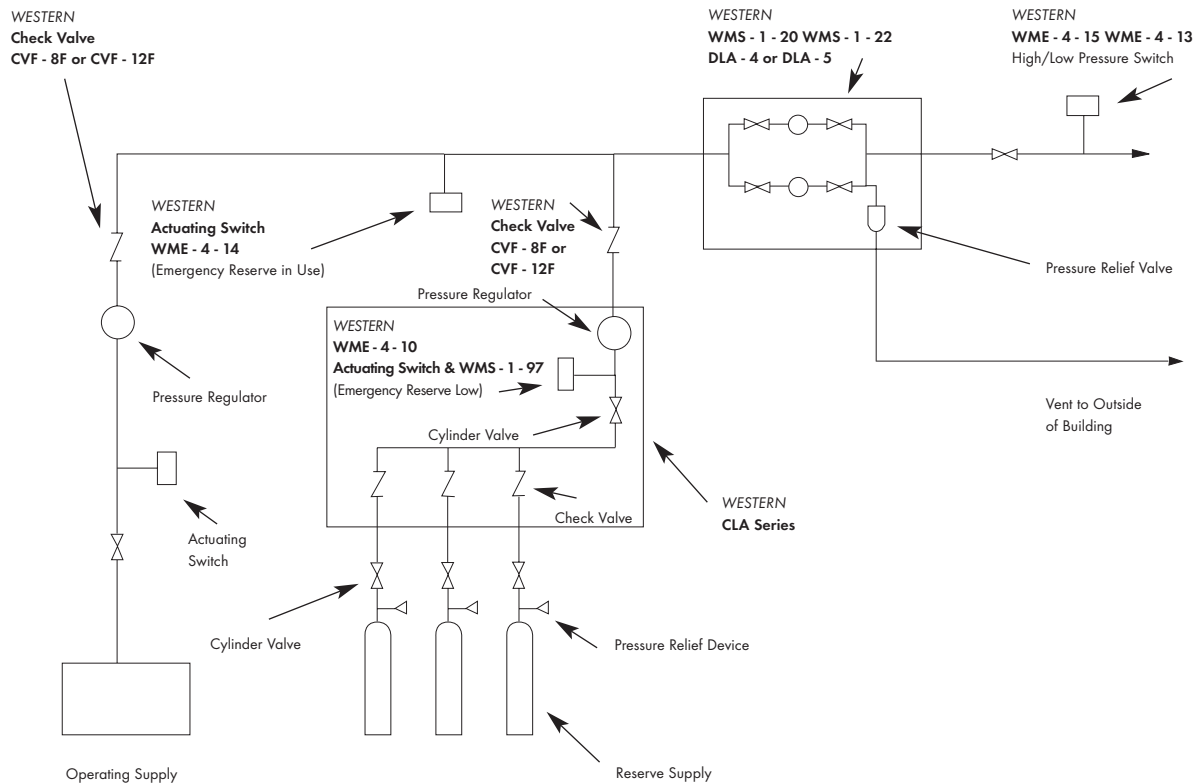


PORTABLE BULK SUPPLY WITH CYLINDER RESERVE SUPPLY



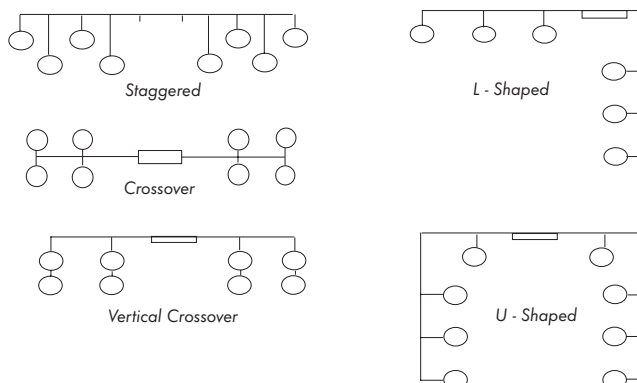
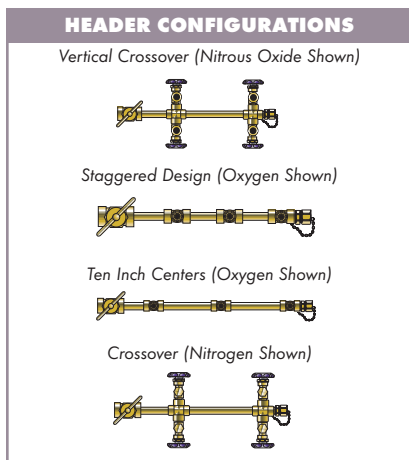
Note: Operating supply may consist of one or more supply units on each bank. (Liquid cylinders 250 PSIG)

BULK SUPPLY WITH CYLINDER RESERVE



TECHNICAL INFORMATION

Western specializes in the manufacture and design of specific manifolds to customers' applications. If you have a requirement for a unique manifold system or a unit to fit into limited room dimensions, contact a Western supplier for a custom designed system.



Nominal extra charge for U and L shapes. No extra charge for Staggered, Crossover and Vertical Crossover styles.

Pertinent Facts for Cylinder Gases

Acetylene-C₂H₂ - CGA 300* (Commercial) CGA 510* (POL) Highly flammable. Gas is dissolved in Acetone. Withdrawal rate should not exceed 1/10th of cylinder capacity per hour for intermittent use or 1/15th of the cylinder capacity per hour for full withdrawal on a continuous basis. Garlic like odor. Cylinder pressure 250 psig. **

Air-CGA 346* Non-flammable, odorless, tasteless, colorless. Supports combustion. Cylinder pressure 2,200 psig. **

Argon-Ar - CGA 580* Non-flammable, odorless, tasteless, colorless. Inert gas. Cylinder pressure 2,200 psig. **

Carbon Dioxide-CO₂ - CGA 320* Non-flammable, slight acidic odor and biting taste. Physical state in cylinder gas (32%) and liquid (68%). Recommended withdrawal rate should not exceed 50 scfh per cylinder to avoid cylinder "chill down". Cylinder pressure 837 psig. **

Helium-He - CGA 580* Non-flammable, odorless, tasteless, colorless. Inert gas. Cylinder pressure 2,200 psig. **

Hydrogen-H₂ - CGA 350* Highly flammable, odorless, tasteless, colorless. Cylinder pressure 2,200 psig. **

Nitrogen-N₂ - CGA 580* Non-flammable, odorless, tasteless, colorless. Inert gas. Cylinder pressure 2,200 psig. **

Nitrous Oxide-N₂O - CGA 326 Non-flammable, no color. Slightly sweet taste and odor. Physical state in cylinder gas (32%) and liquid (68%). Recommended withdrawal rates should not exceed 50 scfh per cylinder to avoid cylinder "chill down". Supports combustion. Keep away from grease and oil. Use only with equipment cleaned for oxygen service. Cylinder pressure 745 psig. **

Oxygen-O₂ - CGA 540* Non-flammable, odorless, tasteless, colorless. Supports combustion. Beware of "heat of recompression". Keep away from grease and oil. Use only with equipment cleaned for oxygen service. Cylinder pressure 2,200 psig. **

Propane-C₃H₈ - CGA 510* Highly flammable, no color. Natural gas smell. Physical state in cylinder is both gas and liquid. Cylinder pressure is a constant 109 psig ** until all liquid is vaporized. Recommended withdrawal rates should not exceed 100 CFH for a 100 pound cylinder.

* CGA - Compressed Gas Association

** Standard large cylinder at 70 degrees Fahrenheit.

Pertinent Facts for Portable Bulk Containers

Typical Vaporization Rates - Nitrous Oxide 80 scfh
Carbon Dioxide 110 scfh
Argon, Nitrogen, Oxygen 375 scfh

Outlet Pressure - Older models: Typically 125 psig. For use with Western LC series. Newer models: 250 psig. For use with LCHP series.

Evaporization Rate - 1% to 3% per day will vent to atmosphere.

Temperature - Vaporized gas is extremely cold, typically - 300 degrees Fahrenheit.

Western LC & LCHP manifolds are equipped with cryogenic regulators. This ensures no regulator freeze up, long regulator seat life and high flow rates.



For over 40 years, Western has been supplying products for the control, storage and transmission of high pressure gases to the industrial, medical and helium gas markets.

For more information on Western's other product lines, contact Customer Service at 1.800.783.7890



- **Enterprises** - Full line of industrial regulators, fittings, repair kits, quick connects, flashback arrestors and other welding parts and accessories



- **Medica** - Medical regulators, portable oxygen systems, conservers, flowmeters, fittings and transfill systems



- **Westwinds** - High quality helium equipment including inflators, filling stations, cylinders, manifolds and accessories





G A S C O N T R O L T E C H N O L O G Y

*Western products are manufactured
with care and pride
in the United States of America*



875 Bassett Road
Westlake, Ohio 44145 - 1142
440.871.2160
Fax: 440.835.8283
800.783.7890
www.westernenterprises.com