

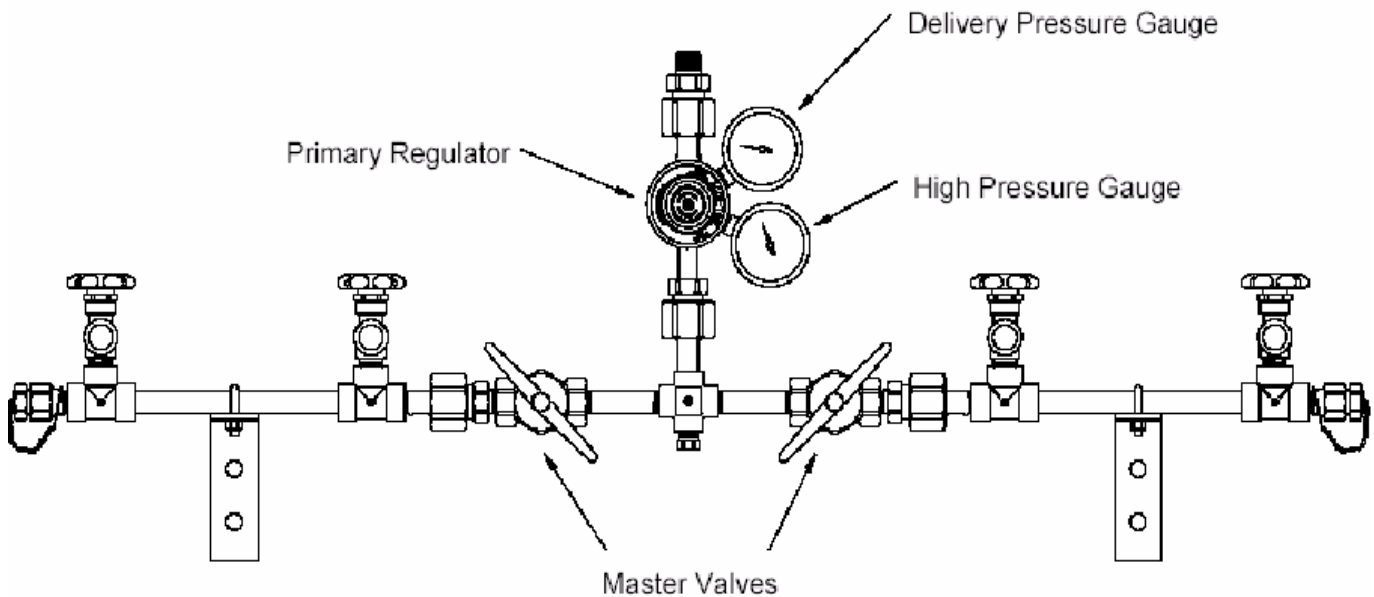
**MD - Series**

**Manual Changeover Manifolds for Industrial High Pressure Cylinders (up to 3,000 psig)**



The Western MD - series manifold systems are cleaned, tested and prepared for the indicated gas service and are built in accordance with the National Fire Protection Association and Compressed Gas Association guidelines. The manifold consists of a regulator and two headers, to provide an increased supply of gas for the specific gas application. The manifold is designed to allow expansion to meet future needs. Pressure gauges show system status and alert the need to replace depleted cylinders. Features of the manifold system include a regulator, flexible pigtails with check valves, wall-mounted headers with pressure port for optional alarm system, and complete header wall mounting hardware.

The MD - series manifold should be installed in accordance with guidelines stated by the National Fire protection Association, the Compressed Gas Association, OSHA, Canadian Standards Associations, and all applicable local codes. The Carbon Dioxide and Nitrous Oxide manifolds should not be placed in a location where the temperature will exceed 120°F (49°C) or fall below 20°F (-7°C). The manifolds for all other gases should not be placed in a location where the temperature will exceed 120°F (49°C) or fall below 0°F (-18°C). A manifold placed in an open location should be protected against weather conditions. During winter, protect the manifold from ice and snow. In summer, shade the manifold and cylinders from continuous exposure to direct rays of the sun.



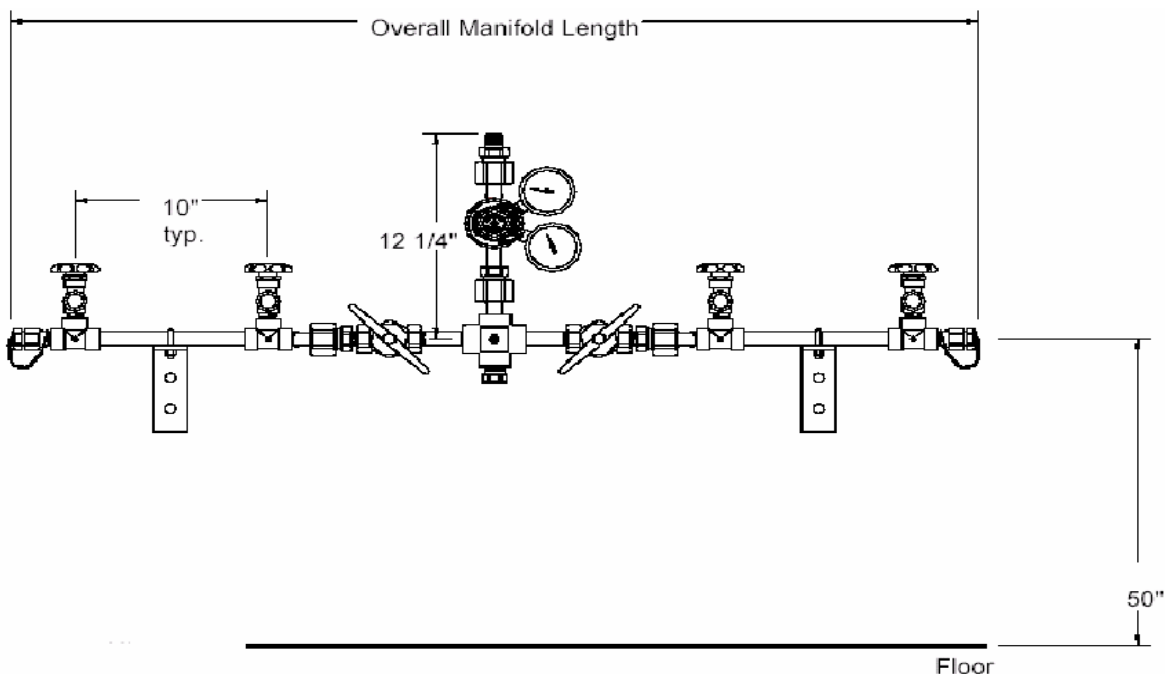
**Manifold Operation**

The MD manifold control includes the following components and features: regulator, flexible stainless steel braided pigtails with check valves, and headers designed to be easily expanded. The manifold is designed to use a line regulator (optional Item) which can be mounted on the outlet for delivery pressures less than 20 psig. Gas flows through the header into the master shut-off valve. The gas flows through the open valve to the regulator and then through the line regulator (if installed). Final delivery pressure is controlled by either the line regulator or by the manifold regulator should the application not require a line regulator. (A line regulator is not provided with the manifold, but an option). As cylinders deplete the high pressure gauge on the regulator along with any alarm systems installed will indicate that the bank of cylinders should be changed. Just before the supply bank goes empty the master valve on the reserve bank should be S-L-O-W-L-Y open. This will ensure that the delivery of gas to the application is not interrupted. Prior to replacing empty cylinders, close the master valve. This will hold your fresh cylinders in reserve until they are needed.

**Specifications**

- ◇ 24" Flexible stainless steel braided Teflon® lined pigtails with check valves (EPDM seat all gases, Argon/Methane mixtures use Viton) Check valve is at header end of pigtails except Oxygen. Note: Helium and Hydrogen manifolds shipped with synthetic fiber braided pigtails. Vertical Crossover and Staggered styles include half 24" and half 36" pigtails.
- ◇ MD 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.
- ◇ 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".
- ◇ Special header configurations available upon request, U-Shaped, L-Shaped, Staggered, Vertical Crossover, and Crossover (floor stand required). Dimensional sketch required for U-Shaped and L-Shaped designs.

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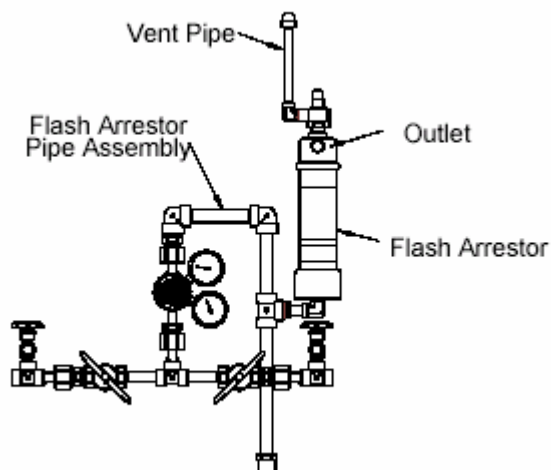
| Total Number of Cylinders  | 2               | 4                | 6                 | 8                 | 10                | 12                | 14                |
|--|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Standard (10" Centers) Overall Manifold Length                     | 2'-4"<br>(.71)  | 4'-4"<br>(1.32m) | 6'-0"<br>(1.83m)  | 7'-8"<br>(2.34m)  | 9'-4"<br>(2.85m)  | 11'-0"<br>(3.35m) | 12'-8"<br>(3.86m) |
| Staggered Design (5" Centers) Overall Manifold Length              | 2'-4"<br>(.71m) | 3'-6"<br>(1.07m) | 4'-4"<br>(1.32m)  | 5'-2"<br>(1.57m)  | 6'-0"<br>(1.83m)  | 6'-10"<br>(2.08m) | 7'-8"<br>(2.34m)  |
| Vertical Crossover (10" Centers) Overall Manifold Length           | N/A             | 2'-8"<br>(.81m)  | N/A               | 4'-4"<br>(1.32m)  | N/A               | 6'-0"<br>(1.83m)  | N/A               |
| Crossover (10" Centers) Overall Manifold Length                    | N/A             | 2'-8"<br>(.81m)  | N/A               | 4'-4"<br>(1.32m)  | N/A               | 6'-0"<br>(1.83m)  | N/A               |
| Acetylene Standard (13" Centers) Overall Manifold Length           | 2'-4"<br>(.71)  | 4'-9"<br>(1.47m) | 7'-0"<br>(2.13m)  | 9'-2"<br>(2.79m)  | 11'-4"<br>(3.45m) | 13'-6"<br>(4.11m) | 15'-8"<br>(4.77m) |
| Acetylene Staggered (6.5" centers) Overall Manifold Length         | 2'-4"<br>(.71)  | 3'-9"<br>(1.14m) | 4'-10"<br>(1.47m) | 5'-11"<br>(1.80m) | 7'-0"<br>(2.13m)  | 8'-1"<br>(2.46m)  | 9'-2"<br>(2.79m)  |
| Acetylene Vertical Crossover (13" centers) Overall Manifold Length | N/A             | 2'-8"<br>(.81m)  | N/A               | 4'-10"<br>(1.47m) | N/A               | 7'-0"<br>(2.13m)  | N/A               |
| Acetylene Crossover (13" centers) Overall Manifold Length          | N/A             | 2'-8"<br>(.81m)  | N/A               | 4'-10"<br>(1.47m) | N/A               | 7'-0"<br>(2.13m)  | N/A               |

**Fuel gas Manifolds - Flashback arrestors**

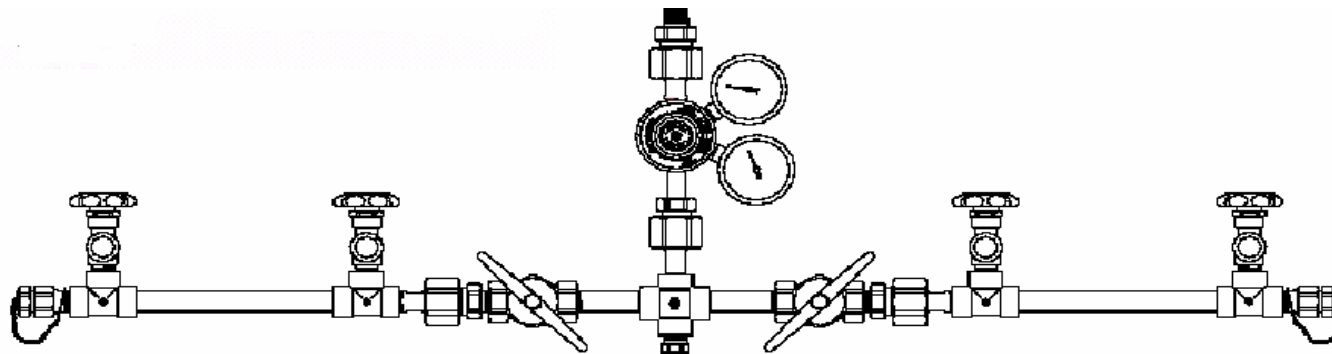
A dry flash arrestor is provided with all Western acetylene manifolds. A flash arrestor shall also be used on all fuel gas manifolds (not provided with manifold) used in applications with Oxygen. Installed in the main gas line, the arrestor protects the main gas supply from the dangers of reverse flow and flashbacks. The safety relief valve is installed on the outlet side of the flash arrestor. Should excessive pressure occur, the gas is then vented out and away to a safe location.

**Fuel Gas Safety Kit for MD Series**

| Fuel Gas Type       | MD Series | Flow Capacity | Relief Valves |
|---------------------|-----------|---------------|---------------|
| Acetylene/Hydraulic | DM-FKA    | 300 SCFH      | 20 PSIG       |
| Hydraulic           | DM-FK     | 300 SCFH      | 40 PSIG       |
| Dry                 | DM-FKD    | 300 SCFH      | 35 PSIG       |



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**How To Order:** Specify: Control Type (V) - Service (W) - Number of Cylinders (X) Header Configuration (Y) Mounting (Z)

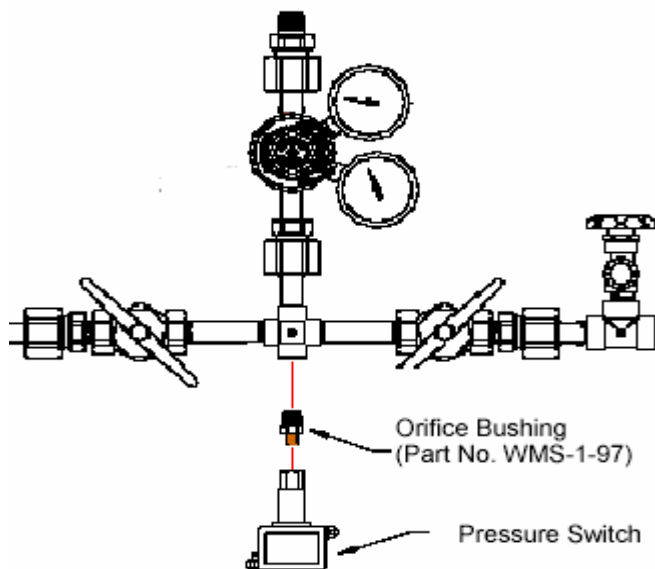
| Control Type (V)                          | Gas Service (W)           | Number of Cylinders (Y) | Header Configuration (Y)           | Mounting (Z)                |
|---|---------------------------|-------------------------|------------------------------------|-----------------------------|
| MD  | (1) Acetylene             | CGA-510                 | BLANK = STANDARD                   |                             |
| Most Gases: 20-160 psig                   | (1A) Acetylene            | CGA-300                 | 10" on center                      |                             |
| Acetylene: 0-15 psig                      | (2) Compressed Air        | CGA-346                 | 13" on center for acetylene & LPG  | Blank = Wall Mount Standard |
| LPG: 0-45 psig                            | (3) Argon                 | CGA-580                 | S = STAGGERED                      |                             |
|   | (4) Carbon Dioxide        | CGA-320                 | 5" on center                       |                             |
| MDHP                                      | (5) Helium                | CGA-580                 | 6.5" on center for acetylene & LPG | F = Floor Mount             |
| (only available for non-fuel gas service) | (6) Hydrogen              | CGA-350                 | V = VERTICAL CROSSOVER             |                             |
| Most Gases: 40-300 psig                   | (6A) Argon/Methane        | CAG-350                 | 10" on center                      |                             |
| Oxygen: 40-450 psig                       | (7) Nitrogen              | CGA-580                 | 13" on center for acetylene & LPG  |                             |
|   | (8) Nitrous Oxide         | CGA-326                 | C = CROSSOVER (Floor Mount)        |                             |
|   | (9) Oxygen                | CGA-540                 | 10" on center                      |                             |
|   | (10) Liquefied Fuel Gases | CGA-510                 | 13" on center for acetylene & LPG  |                             |

**Alarm Option for Non-Fuel Gases**

An alarm for non-fuel gases can be added to signal when the cylinders are depleted and the manual changeover should occur by adding the following items: WMS-4-9 pressure switch, WMS-1-97 orifice adaptor, WMS-9-25 Power supply box and BIA-3 remote audio/ visual alarm panel. Wiring diagrams for remote audio / visual alarms are included with the alarm. For alarms for fuel gases please contact Western for part numbers.

**Heater Option**

An heater can be added to prevent regulator freeze-up for Carbon Dioxide and Nitrous Oxide by adding the following items. Recommended whenever flow rate exceeds 35 SCFH.



| 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 Adaptor | Carbon Dioxide CGA-320 |            |
| WHS-12  | Manifold Adaptor | Nitrous Oxide CGA-326  |            |

**Warranty**

All Western manifold are warranted against defects in materials and workmanship for the period of one year from the date of shipment. For complete information on the warranty please see the back cover of the Installation and operations manual.