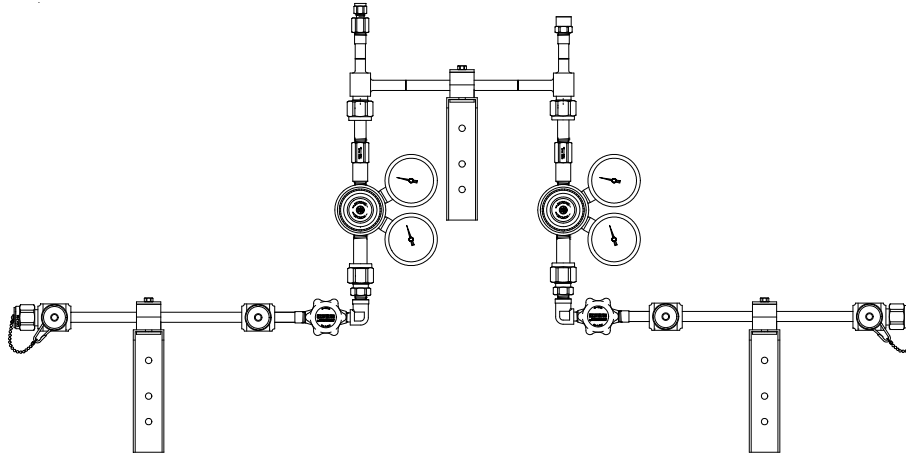


**HSAD2 - Series**

**High Purity Stainless Steel Open Style Automatic Changeover Manifold for High Pressure Cylinders**



The HSAD2 series manifold systems are cleaned, tested and prepared for the indicated gas service and are built accordance with the National Fire Protection Association and Compressed Gas Association. The HSAD2 manifold consists of a manifold control and two supply headers, one service and one reserve supply, to provide an uninterrupted supply of gas for the specific gas application. The HSAD2 control is designed and built with features providing automatic changeover from the depleted "Service" supply bank to the "Reserve" supply with a predetermined drop in delivery pressure. Pressure gauges show system status and alert the need to replace depleted cylinders. Features of the HSAD2 system includes stainless steel regulators with stainless steel diaphragms, stainless steel inner core braided flexible pigtails with check valves, stainless steel headers and complete mounting hardware.



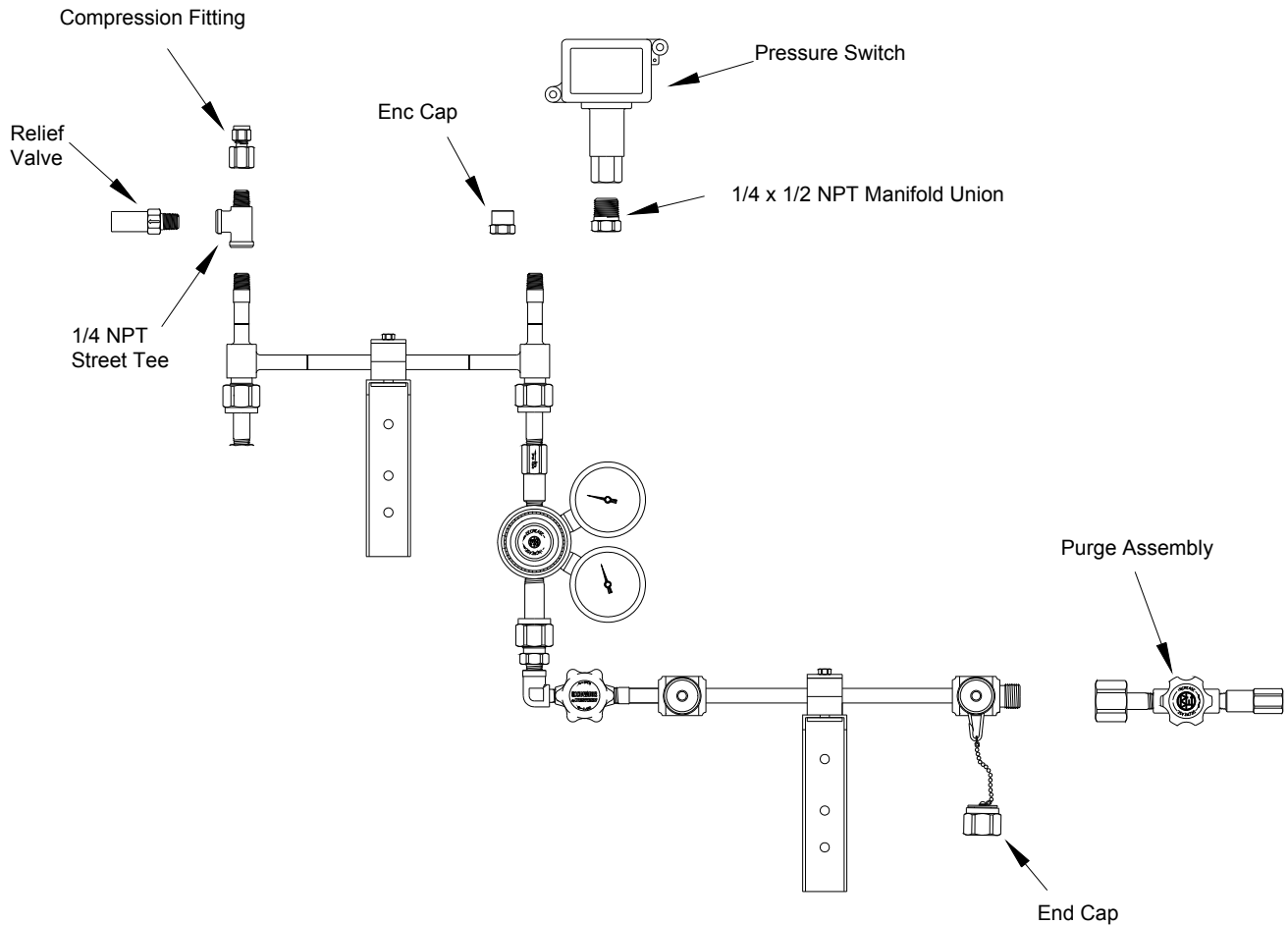
The HSAD2 series manifold should be installed in accordance with guidelines stated by the National Fire Protection Association, the Compressed Gas Association, the Occupational and Health Administration, and all applicable local codes. The carbon dioxide and nitrous oxide manifolds should not be placed in a location where the temperature will exceed 120° F (49° C) or fall below 20° F (-7° C). The manifold 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

**Features and Benefits**

- Maximum Inlet Pressure: 3,000 psig
- Delivery Pressure Range: 50 - 100 psig
- Inlet (Pigtails) Connections: CGA specific
- Cylinder Station Spacing: 10" or 5" center options
- Outlet Connections: 1/4" Compression
- Flow: 94 l/min. or 200 SCFH with 10 psig pressure drop Nitrogen, 35 SCFH max flow for CO<sub>2</sub> and N<sub>2</sub>O.
- The HSAD2 series eliminates costly downtime by providing a constant uninterrupted gas flow.
- Enhances safety by consolidating cylinders into a centralized location.
- Ensures system purity with compatible component selection.
- Check valve outlets and check valves provide added safety.
- 1/2" OD 316L tube and tee construction, orbital welded.
- Modular design - allows field installation of additional stations without brazing.
- Flexible stainless steel lined pigtails with check valves at cylinder end allow easy hook up and maintain gas purity

**Please Note: Oxygen & Acetylene manifold are not available for the HSAD2 series manifold.**

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**MANIFOLD OPERATION**

The manifold control includes the following components and features: orbital welded fittings, stainless steel regulator with stainless steel diaphragm, stainless steel pack-less master valves, flexible stainless steel inner core pigtails with check valves, headers designed to be easily expanded, port for an optional pressure switch, header constructions allows installation of purge assemblies, and automatic bank switching. The manifold is designed to use a line regulator (optional item) which can be mounted on the manifold outlet.

The cylinder bank that supplies the piping system is known as the “service” supply, while the cylinder bank on stand-by is referred to as the “reserve” supply. Gas flows through the manifold control to first the service primary regulator and then through the line regulator. Final delivery pressure is controlled by the line regulator that must be installed on the manifold outlet. This line regulator is not provided with the manifold.

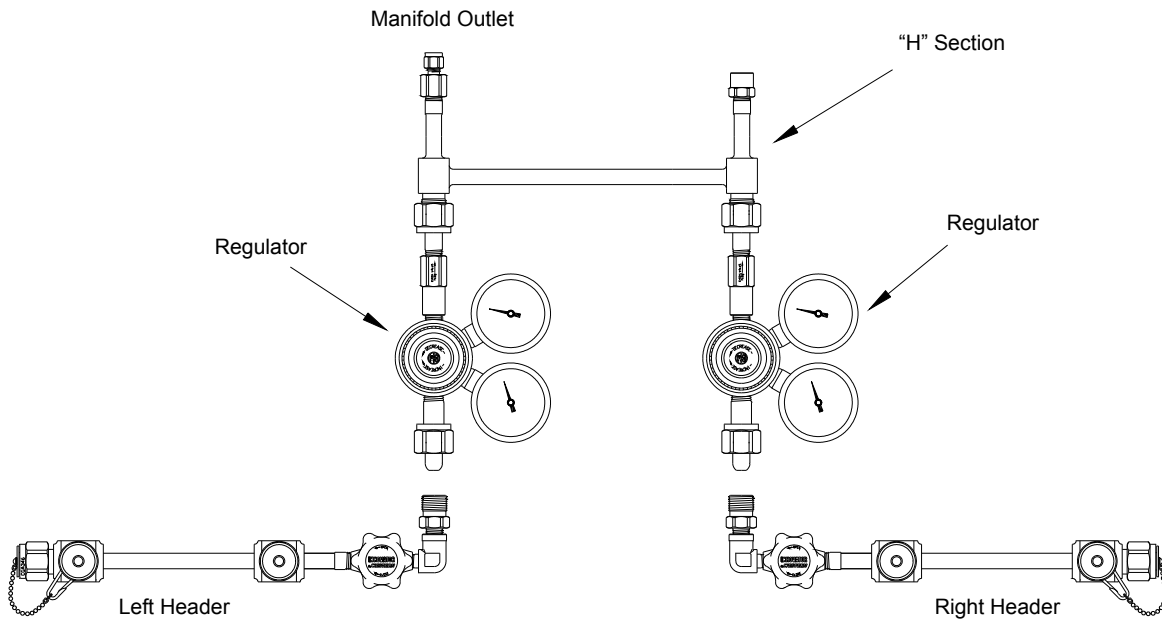
Changeover from the “service” to “reserve” side is accomplished when the “service side pressure falls below the set point of the reserve side regulator. When this pressure drops to the reserve regulator set point, the reserve side begins to flow, without any interruption of gas to the line regulator.

After change over the high pressure gauges on the regulators will indicate which bank should be changed.

After replacing empty cylinders, reset the regulator so that the reserve side is now the supply side. This will ensure that the reserve side is always full.

**HSAD2 - Series**

**High Purity Stainless Steel Open Style Automatic Changeover Manifold for High Pressure Cylinders**



**Material of Construction**

**Fittings and Tubing Materials**

Header Tubing: 1/2" OD 316L tube and tee construction, orbital welded

**Regulator**

Valve, Body and Nozzle: 316L stainless steel  
 Seat: Kel-F™  
 Diaphragm: 316 stainless steel  
 Seals: Viton™ (EPDM on CO<sub>2</sub> and N<sub>2</sub>O)  
 Spring Retainer: 316 stainless steel  
 Spring Valve: 316 stainless steel

**Pigtail Materials**

CGA Connections: 316L stainless steel  
 Tubing Material: 316L stainless (annular corrugated)  
 Check Valve Seat: Viton™ (EPDM for CO<sub>2</sub> and N<sub>2</sub>O)  
 Internal Components and Body: 316L stainless steel

**Master Valve**

Body: 316L stainless steel  
 Seat: Kel-F™  
 Diaphragm: Elgiloy™

**Regulator Outlet Check Valves**

Internal Components: 316L stainless steel  
 Seat: Viton™ (EPDM on CO<sub>2</sub> and N<sub>2</sub>O)

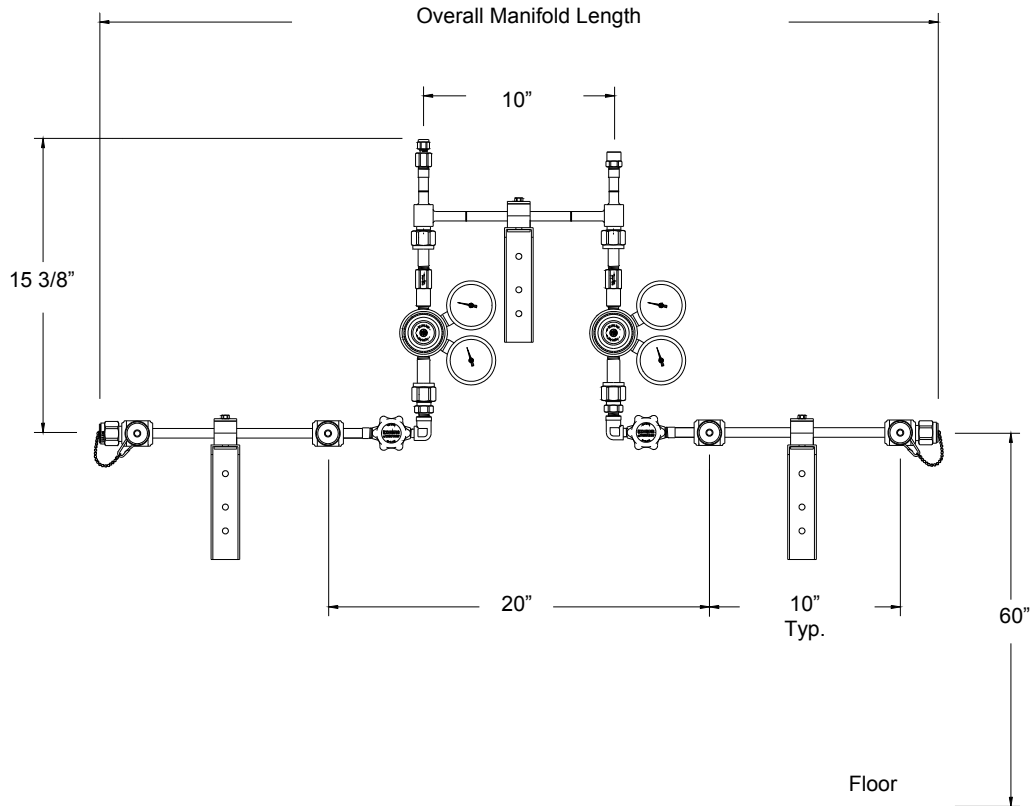
**Inlet Filter**

10 Micron sintered porous 316L stainless steel

**Pipe Thread Seal**

Teflon™ Tape

**HSAD2 - Series**  
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Total Number of Cylinders	2	4	6	8	10	12	16
Standard (10" Centers) Overall Manifold Length	2'-3" (.69m)	3'-11" (1.19m)	5'-7" (1.70m)	7'-3" (2.21m)	8'-11" (2.72)	10'-7" (3.23)	12'-3" (3.73)
Staggered Design (5" Centers) Overall Manifold Length	2'-3" (.69)	3'-1" (.94m)	3'-11" (1.19m)	4'-9" (1.45m)	5'-7" (1.70m)	6'-5" (1.96m)	7'-3" (2.21m)

**Optional Equipment**

**Pressure Switches**

- WME-4-5..... Explosion Proof: 30 - 300 psig pressure setting range (800 psig maximum inlet)
- WME-4-16 ..... General Purpose: 20 - 200 psig pressure setting range (250 psig maximum inlet)
- WME-4-17 ..... General Purpose: 100 - 1700 psig pressure setting range (2500 psig maximum inlet)
- WME-4-18 ..... High / Low Switch: 0 - 200 psig pressure setting range (350 psig maximum inlet)

**Power Supply**

- WMS-9-25C..... 24VAC Power Supply

**Remote Alarm Panels - 24 VAC service**

- BIA-1..... Visual - 1 Gas
- BIA-2..... Audio/Visual - 2 Gases
- BIA-3..... Audio/Visual - 1 Gas

**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