

BOSS® LPS Products

Low Pressure Systems

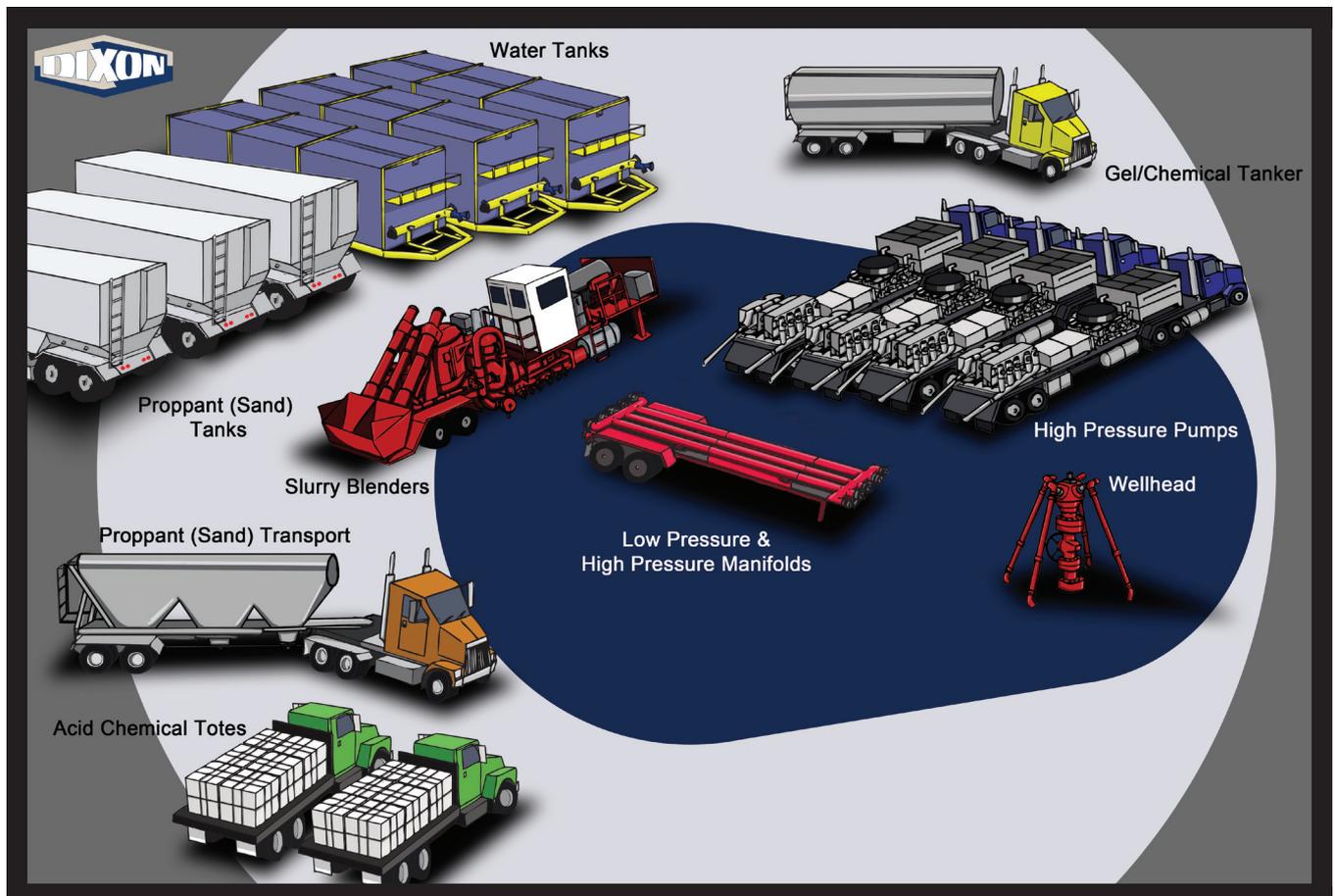
Products designed specifically for the oil and gas industry

Dixon® has been building a credible reputation for over 100 years, demonstrating that it is a responsible manufacturer producing safe, reliable and long lasting products! Open communication with customers and following through with solutions, strengthens trust as a supplier of both current and future products.



Hydraulic Fracturing Site

Boss® LPS (Low Pressure System) products are used in many of the applications found at hydraulic fracturing sites from the water source up to high pressure pumps.



One-Piece Suction Manifolds

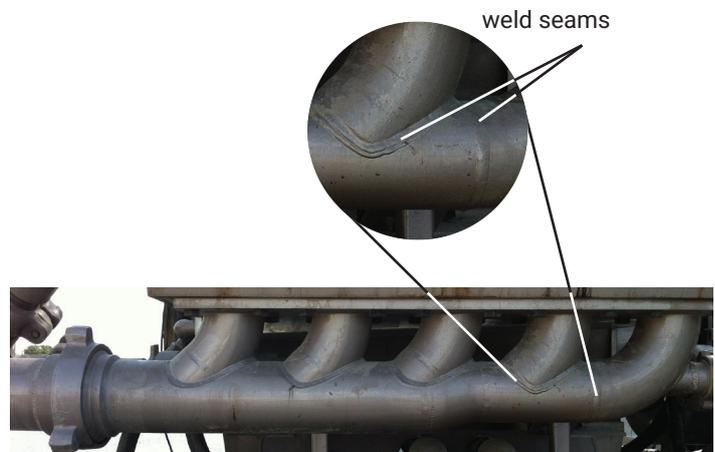
Dixon® developed its manifold design as a result of hydraulic fracturing companies experiencing pump cavitation due to proppant dropout and failing welds.

Customer feedback on traditional fabricated manifold designs:

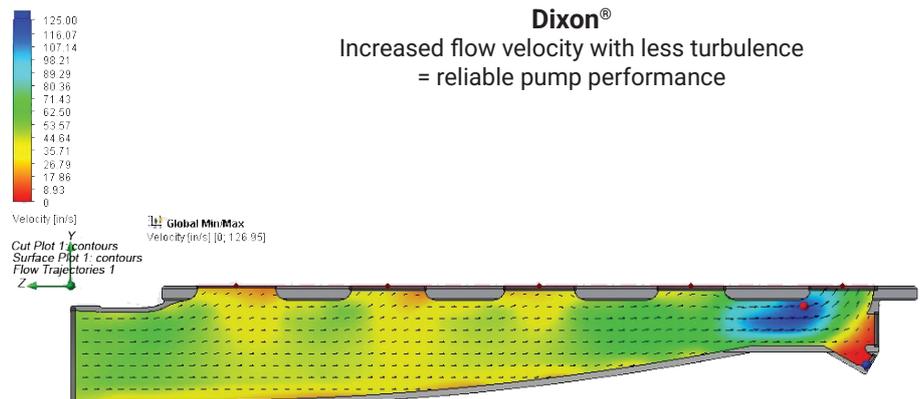
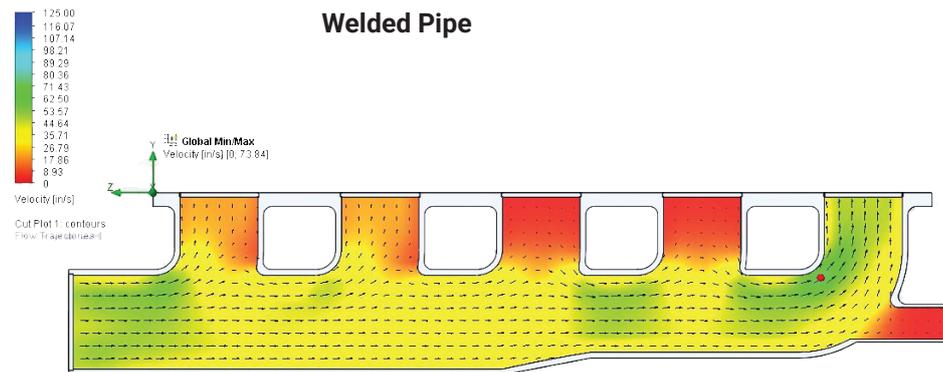
- Sand dropout causes flow restrictions and pump cavitation
- Welded pipe manifolds create turbulence, causing excessive abrasion on interior walls
- Leaks along the weld seams
- Acidizing well treatments attack weld seams causing leaks
- Regular repairs consisting of re-welding and/or using rubber washers with screws
- CO₂ transfers at -30°F (-34°C) temperatures causes performance issues

Intake Manifold Lab and Field Testing

Sand Drop Out and Weld Failure



Fluid Velocity Simulation (inches per second)



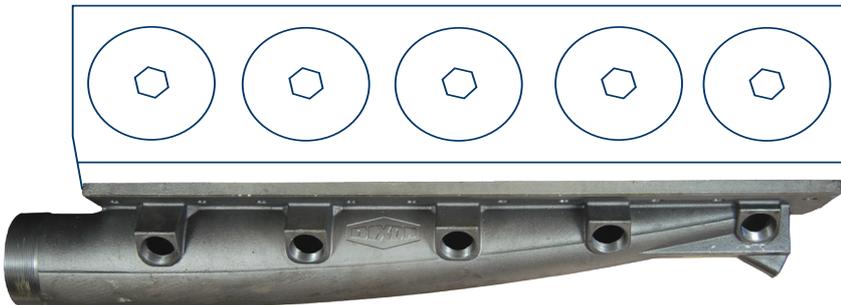
3 Port and 5 Port Intake Manifolds (non-dressed)

3 Port, 12" Spacing



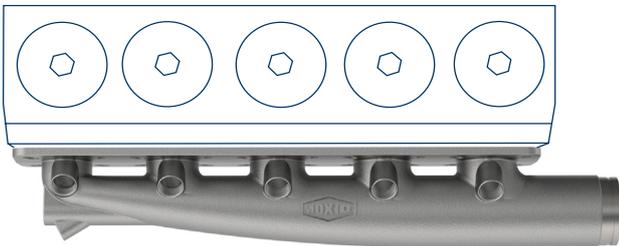
3PORTM-6T

5 Port, 10" Spacing

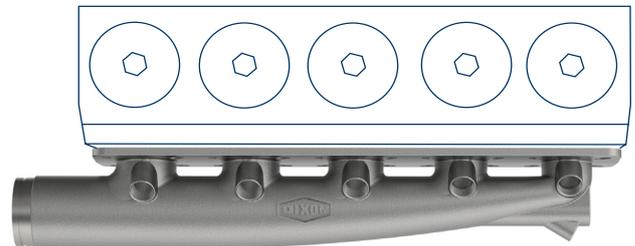


5PORTM-6T

5 Port, 10-1/2" Spacing

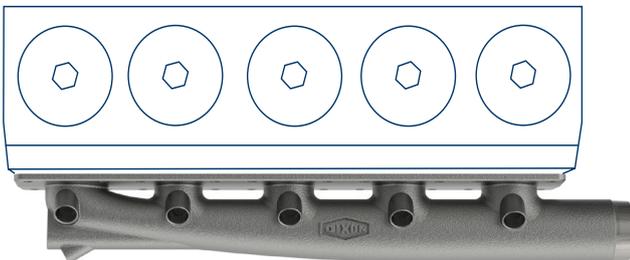


5PORT105M-6TL

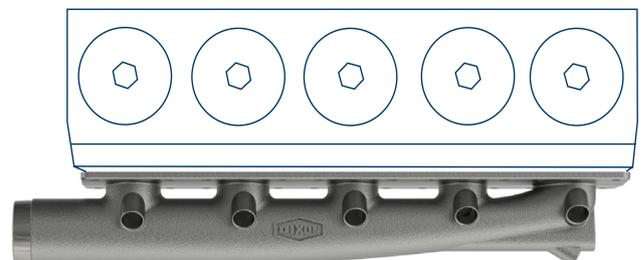


5PORT105M-6TR

5 Port, 12" Spacing



5PORT120M-6TL



5PORT120M-6TR

3 Port and 5 Port Intake Manifolds (non-dressed)

Applications

- Used at hydraulic fracturing sites for transfer of water, brine, water-based chemicals, water-based acids, CO², and gelatinous proppant (sand) slurry into pump fluid ends (FE)

Size

- 6" intake – threaded NPT, Figure 206 hammer union or grooved end connection
- Available in 3 port model with 12" port spacing, or 5 port model with 10", 10.5", or 12" port spacing

Features (all models)

- Manifold designed for efficient fluid flow, reduced turbulence, and reduction of pump cavitation caused by sand fallout
- Single cast unit with no welds to deteriorate causing premature leakage/failure
- Cold pressure and impacted testing completed at **-62°F (-52°C)** with no leaks, cracks, or damage
- Rear ports designed for inspection and instrumentation
- Side ports designed for easy pump cylinder inspection
- Reduced height for ease of installation
- O-rings included with all configurations
- Dressed assembly components are available hand-tight or with two-part epoxy bond
- Assembly serial number and fabrication date recorded on attached identification plate

Features (10.5" and 12" 5 Port models)

- Manifold allows for clean-out ports on either side, both sides, or with no clean-outs
- Fork lift pockets provided for easy installation

Materials

- Iron meeting ASTM standards
- Nitrile rubber O-rings

Specifications

- Base plates configured for commonly used frac fluid ends
- Assemblies rated at **350 PSI** WP, pressure tested at **700 PSI**
- Manifold is configurable (e.g. fully dressed, partially dressed, undressed, etc.)

Intake Manifolds (non-dressed)

| # of Ports | Port Spacing | Inlet Configuration | Part # | Description | Hardware Included |
|------------|--------------|---------------------|---------------|---|---|
| 3 | 12" | 6" Male NPT | 3PORTM-6T | 6" male NPT manifold with 2" female NPT ports (3 side and 1 end) and a 1" auxiliary port | 3 Nitrile O-rings; 12 steel socket head 7/8" cap screws |
| 3 | 12" | 6" Grooved | 3PORTM-6V | 6" grooved manifold with 2" female NPT ports (3 side and 1 end) and a 1" auxiliary port | 3 Nitrile O-rings; 12 steel socket head 7/8" cap screws |
| 5 | 10" | 6" Male NPT | 5PORTM-6T | 6" male NPT manifold with 2" female NPT ports (5 side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 10" | 6" Grooved | 5PORTM-6V | 6" manifold with grooved adapter and 2" female NPT ports (5 side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 10.5" | 6" Male NPT | 5PORT105M-6TL | 6" male NPT manifold with 2" female NPT ports (5 left side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings |
| 5 | 10.5" | 6" Male NPT | 5PORT105M-6TR | 6" male NPT manifold with 2" female NPT ports (5 right side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings |
| 5 | 10.5" | 6" Grooved | 5PORT105M-6VL | 6" manifold with grooved adapter and 2" female NPT ports (5 left side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings |
| 5 | 10.5" | 6" Grooved | 5PORT105M-6VR | 6" manifold with grooved adapter and 2" female NPT ports (5 right side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings |
| 5 | 12" | 6" Male NPT | 5PORT120M-6TL | 6" male NPT manifold with 2" female NPT ports (5 left side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" Male NPT | 5PORT120M-6TR | 6" male NPT manifold with 2" female NPT ports (5 right side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" Grooved | 5PORT120M-6VL | 6" manifold with grooved adapter and 2" female NPT ports (5 left side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" Grooved | 5PORT120M-6VR | 6" manifold with grooved adapter and 2" female NPT ports (5 right side and 1 end) and a 1" auxiliary port | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |

NOTE: Contact Dixon® for other options

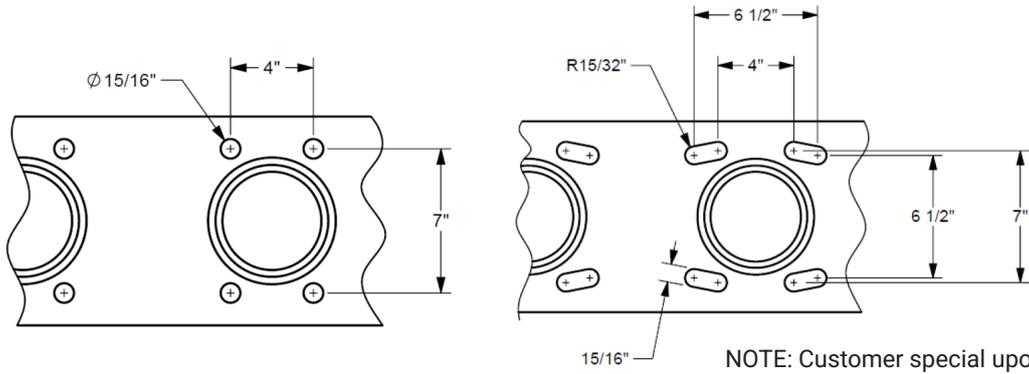
Intake Manifold Assemblies (dressed)

| # of Ports | Port Spacing | Inlet Configuration | Part # | Description | Hardware Included |
|------------|--------------|----------------------------|--------------|--|---|
| 3 | 12" | 6" figure 206 hammer union | 3PM6T-S5 | Dressed manifold with 6" hammer union, 2" side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 3 Nitrile O-rings; 12 steel socket head 7/8" cap screws |
| 3 | 12" | 6" Grooved | 3PM6V-S5 | Dressed manifold with 6" grooved end, 2" side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 3 Nitrile O-rings; 12 steel socket head 7/8" cap screws |
| 5 | 10" | 6" figure 206 hammer union | 5PORTM-6T | Dressed manifold with 10" port spacing, 6" hammer union inlet, 2" side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 10" | 6" Grooved | 5PORTM-6V | Dressed manifold with 10" port spacing, 6" grooved end inlet, 2" side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 10.5" | 6" figure 206 hammer union | 5P105M6T-S7R | Dressed manifold with 10.5" port spacing, 6" hammer union inlet, 2" left-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings |
| 5 | 10.5" | 6" figure 206 hammer union | 5P105M6T-S7L | Dressed manifold with 10.5" port spacing, 6" hammer union inlet, 2" right-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings |
| 5 | 10.5" | 6" Grooved | 5P105M6V-S7R | Dressed manifold with 10.5" port spacing, 6" grooved end inlet, 2" left-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings |
| 5 | 10.5" | 6" Grooved | 5P105M6V-S7L | Dressed manifold with 10.5" port spacing, 6" grooved end inlet, 2" right-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings |
| 5 | 12" | 6" figure 206 hammer union | 5P120M6T-S7L | Dressed manifold with 12" port spacing, 6" hammer union inlet, 2" left-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" figure 206 hammer union | 5P120M6T-S7R | Dressed manifold with 12" port spacing, 6" hammer union inlet, 2" right-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" Grooved | 5P120M6V-S7L | Dressed manifold with 12" port spacing, 6" grooved end inlet, 2" left-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |
| 5 | 12" | 6" Grooved | 5P120M6V-S7R | Dressed manifold with 12" port spacing, 6" grooved end inlet, 2" right-side port adapters with caps, 2" end plug, and 1" auxiliary port plugged, all epoxied in place | 5 Nitrile O-rings; 20 steel hex head 7/8" screws; 20 large flat washers |

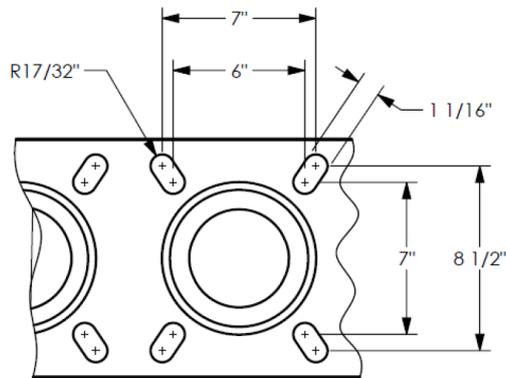
NOTE: Contact Dixon® for other options

Intake Manifold Bolt Patterns

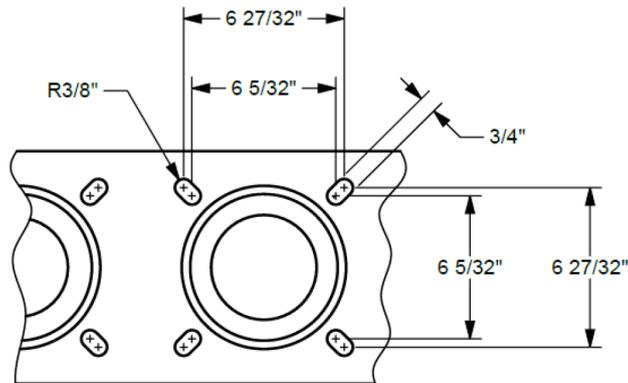
3 Port, 12" Spacing



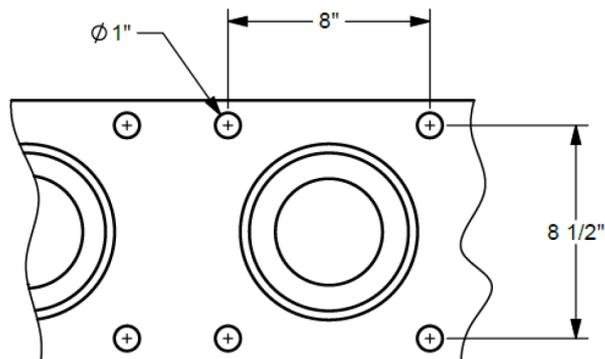
5 Port, 10" Spacing



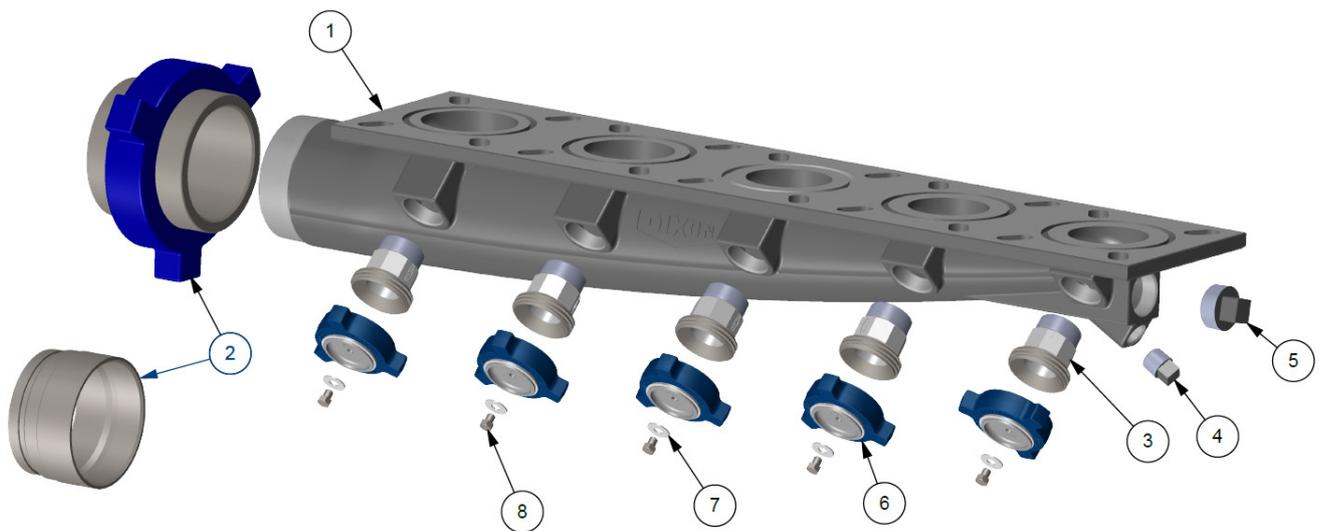
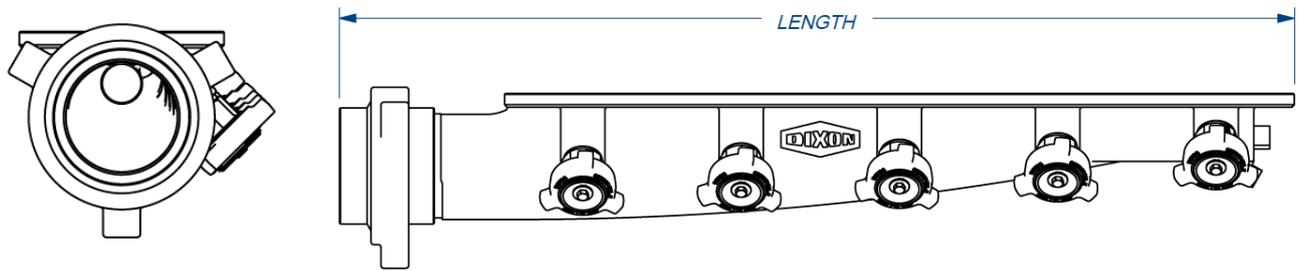
5 Port, 10-1/2" Spacing



5 Port, 12" Spacing



Typical Dressed Manifold BOM



| Item | Description | Material | Qty | Part # |
|----------------|--|--------------|-----|-------------|
| 1 ¹ | 5 port zoomie manifold with 6" male NPT inlet includes (5) O-rings | iron | 1 | Varies |
| 2 | 6" fig. 206 female NPT sub | steel | 1 | HU206600 |
| 2 | 6" grooved end adapter | steel | 1 | A716F |
| 3 | 2" 206 series male adapter | iron | 5 | HUF206200MT |
| 4 | 1" square head plug | forged steel | 1 | SHP100FS |
| 5 | 2" square head plug | forged steel | 1 | SHP200FS |
| 6 ¹ | 2" fig. 206 cap | iron/steel | 5 | HUC206200 |

¹ See pages 6 & 7 for supplied hardware

Additional Boss® LPS Products



Contact sales@dixonvalve.com or visit dixonvalve.com/bosslps for additional information.

Safety

Dixon® products are designed to work safely for their intended use. The selection of a product for the proper application is of utmost importance.

Users must consider the size, temperature, application, media, pressure, and manufacturer's recommendations when selecting the proper components. Dixon® recommends that all hose assemblies be tested in accordance with the Association for Rubber Products Manufacturer's (ARPM) recommendations and be inspected regularly (before each use) to ensure that they are not damaged or have become loose. Visit ARPMINC.com for more information.

Where safety devices are integral to the coupling, they must be working and utilized. The use of supplementary safety devices such as safety clips or safety cables are recommended.

If any problem is detected, products must be removed from service immediately.

Dixon® is available to consult, train and recommend the proper selection and application of all products we sell. We strongly recommend that distributors and end users make use of Dixon® testing and recommendation services. Call 877.963.4966 or click dixonvalve.com to learn more.

Limited Warranty

DIXON VALVE AND COUPLING COMPANY, LLC (herein called "Dixon") warrants the products described herein and manufactured by Dixon to be free from defects in material and workmanship for a period of one (1) year from date of shipment by Dixon under normal use and service. Its sole obligation under this warranty being limited to repairing or replacing, as hereinafter provided, at its option any product found to Dixon's satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Dixon's factory within three (3) months after discovery of the defect. The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to: (a) parts or products not manufactured by Dixon, the warranty of such items being limited to the actual warranty extended to Dixon by its supplier; (b) any product that has been subject to abuse, negligence, accident, or misapplication; (c) any product altered or repaired by others than Dixon; and (d) to normal maintenance services and the replacement of service items (such as washers, gaskets, and lubricants) made in connection with such services. To the extent permitted by law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of the warranty. No action may be brought against Dixon for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable law.

Other than the obligation of Dixon set forth herein, Dixon disclaims all warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose, and any other obligation or liability. The foregoing constitutes Dixon's sole obligation with respect to damages, whether direct, incidental, or consequential, resulting from the use or performance of the product.

Some products and sizes may be discontinued when stock is depleted or may require a minimum quantity for ordering.

About This Catalog and Our Products

This catalog is intended as a product offering. It is not intended to be a user or technical manual. Information in this catalog is subject to change without notice. All users and distributors of products sold through this catalog should contact Dixon with questions of use, compatibilities, coupling procedures, and life of product. Our full-time engineering and test staff are always available to recommend uses and to assist distributors and users with any questions.



Safety



Safety logos, which appear throughout our catalog, are used as a reminder that the user should carefully review for the appropriateness of the product for the media, application, and environment in which it will be used.

NOTE: Because of the health hazards associated with contamination and lead content in drinking water systems, Dixon couplings, unless otherwise specifically approved, are not recommended for potable water service and should not be used in applications where drinking water will contact the wetted surfaces of the coupling.

All Dixon products are shipped in cartons with the following warning:

"WARNING: This product contains lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm."

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