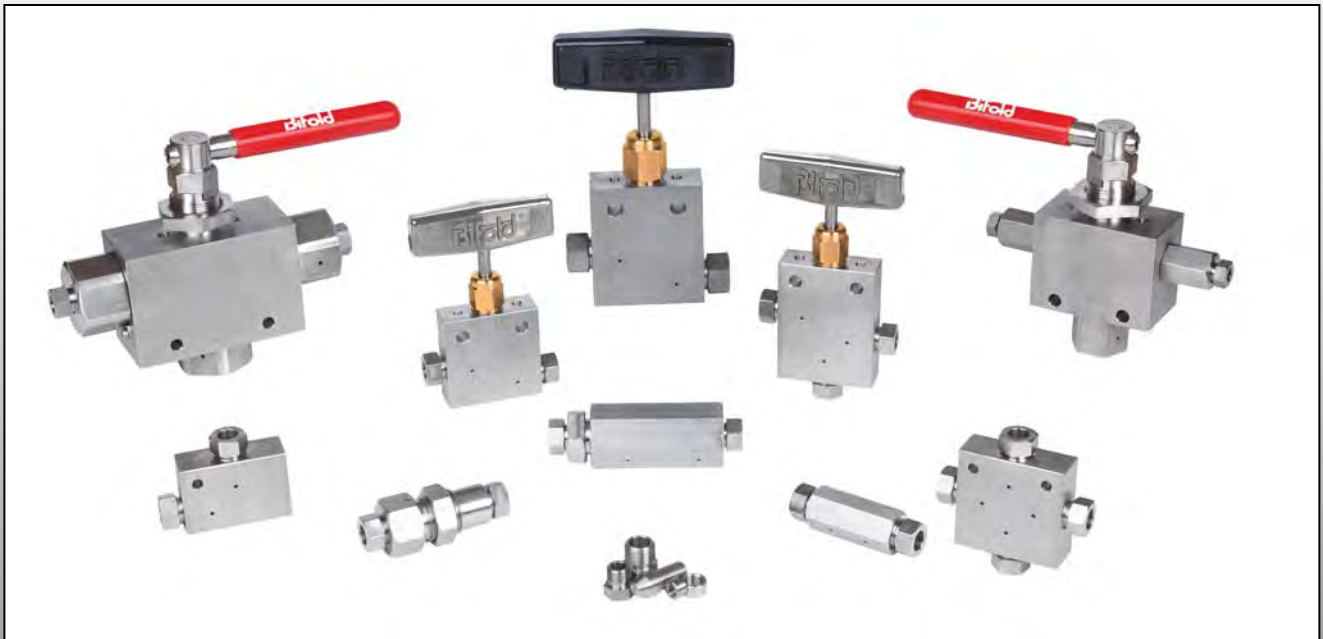


*Global Presence for  
Peace of Mind*

**Bifold®**

## **Medium Pressure Instrumentation Valves & Fittings (Up to and including 20,000 psi / 1379 bar)**



### **Superior Performance Throughout the Full Operational Range**

- State of the Art Design to Reduce Potential Leak Paths
- Maintenance Free Stem Sealing
- Non-Rotating, Anti-Galling Tip as Standard
- Stem Seal Design Prevents Galling and Contamination
- Available from 10,000 psi / 690 bar to 20,000 psi / 1379 bar

*Innovative and Reliable  
Valve Solutions*



[www.bifold.co.uk](http://www.bifold.co.uk)

Features & Benefits

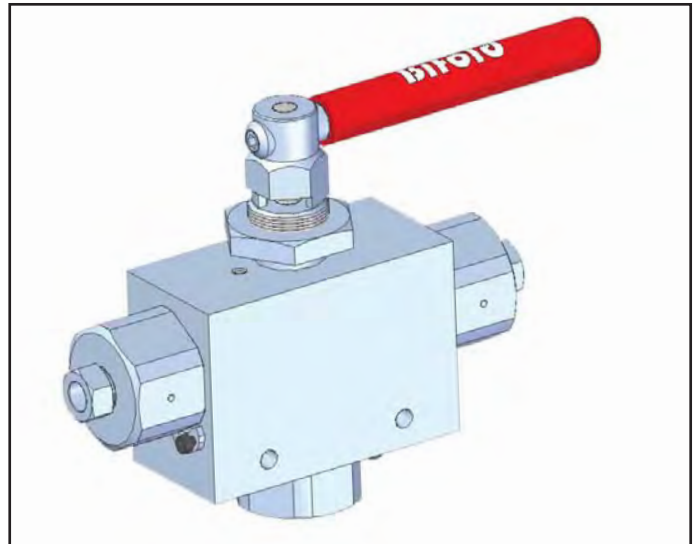
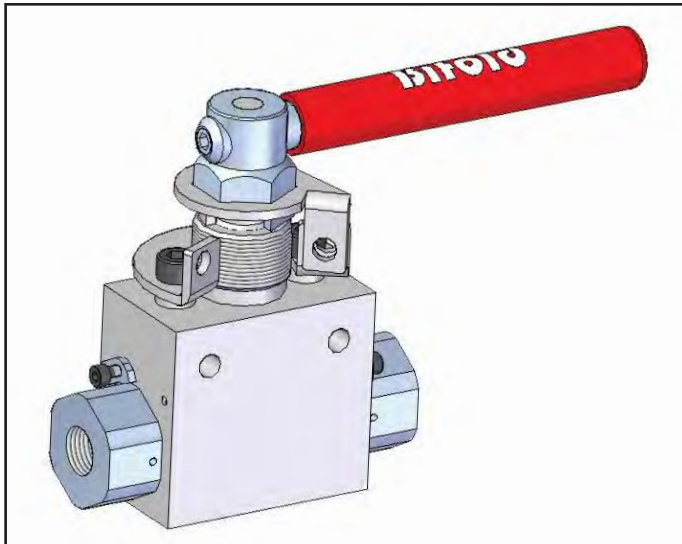
Bifold has manufactured Ball & Needle valves with a maximum pressure of 10,000 psi / 690 bar for more than 20 years. To add to this portfolio of valves, a range of Medium Pressure products have been developed, combining unique innovations with highest standards of quality already being provided.

The portfolio of Medium Pressure products allows for the safe and reliable implementation of 20,000 psi / 1379 bar pressure systems incorporating Needle Valves, Ball Valves (floating & trunnion styles), Single Block & Bleed Manifolds, Double Block & Bleed Manifolds, Check Valves, Fittings and Adaptors.

The Medium Pressure valves are available in 1/4", 3/8", 1/2", 3/4" and 1" tubing sizes comprising of a coned and threaded connection. This connection method allows for increased flow rates due to the larger bore sizes, common within this pressure range.

Bifold has incorporated unique product features within this range alongside the many standard features which makes the product far superior to conventional products on the market.

Ball Valves



Innovative Locking Device

- Bifold Medium Pressure Ball Valves can be supplied with or without a handle locking device. The innovative design allows the valve to maintain its through panel mount function.

Pressure Tested

- Pressure tested in accordance with API 598 & BS EN 12266-1. Proof tested to 1.5 times maximum working pressure.

Why Use Bifold?

- Innovatively progressed and optimised designs throughout our product range.
- Here at Bifold, we are constantly carrying out vigorous research and development on all of our products, ensuring that our valves represent the best of what we do.
- Our state of the art production facilities based in the UK, allow our superior and innovative designs of components to be manufactured on site, assembled to the finished product and tested to rigorous quality standards.

Accuracy of information  
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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

Quality Assurance  
All Bifold products are manufactured to a most stringent QA programme to ensure that every product will give optimum performance and reliability. We are third party certified to BS EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BS EN 10204 3.1 where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

## Features & Benefits

### Needle Valves



#### Maintenance Free Stem Sealing

- The unique stem seal design eliminates the loss of sealing integrity often experienced over the life time of traditional packing glands, reducing the risk of fugitive emissions.

#### None Wetted Threads

- Needle head threads are isolated from process fluid corrosion or contamination using a pre-thread stem seal and a secondary metal to metal bonnet seal.

#### Lower Torque to Operate

- The unique stem seal is designed to reduce the effects of friction resulting in a reduced operating torque throughout the full operational pressure range.

#### Secondary Metal To Metal Seal Reduces Potential Leak Paths

- The needle valve bonnet seal using the unique stem seal and also a secondary metal to metal seal provides further product advantages:

#### Fail Safe Open and Closed System

- In the unlikely event of a full stem seal failure, the valve can be made safe in either the open or closed state. Closing the valve will isolate process fluid at the primary seat preventing passage of any process fluid into the needle valve cavity, whilst fully opening against the inbuilt back seating feature will isolate the damaged stem seal from the process fluid.

#### Non Rotating Anti-Galling Tip as Standard

- The lower stem section is manufactured from 17/4 PH stainless steel and is assembled in such a way to prevent rotation whilst being operated. In turn this reduces the likelihood of galling on the valve seat.

#### Thread Rolled Stem

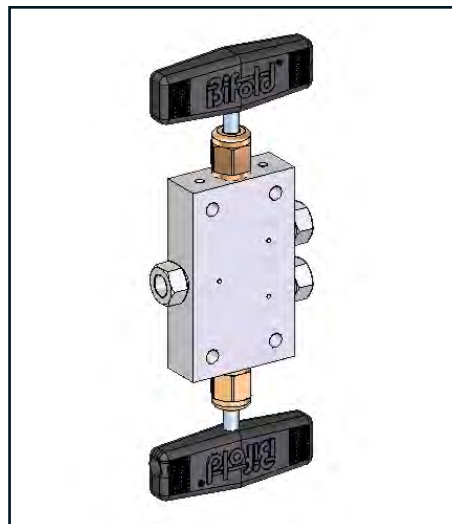
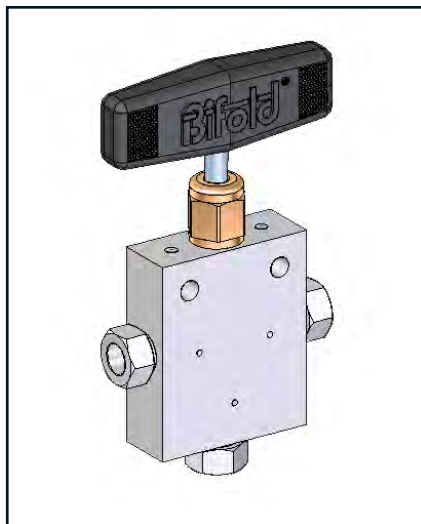
- The stem thread portion is manufactured using thread rolling techniques to help maintain the material strength.

Product Portfolio



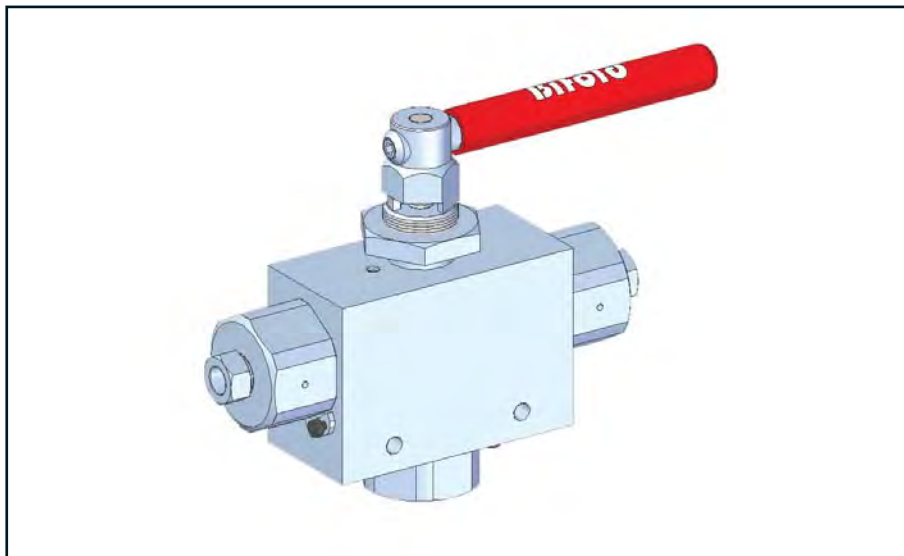
Medium Pressure Needle Valves

The Needle Valve range is a one piece body construction with a maximum working pressure of 20,000 psi / 1379 bar and tube sizes from 1/4" through to 1". Within the Needle Valve range, we also offer a standard instrumentation design with a maximum working pressure of 10,000 psi / 690 bar and pipe sizes from 1/4" through to 1".



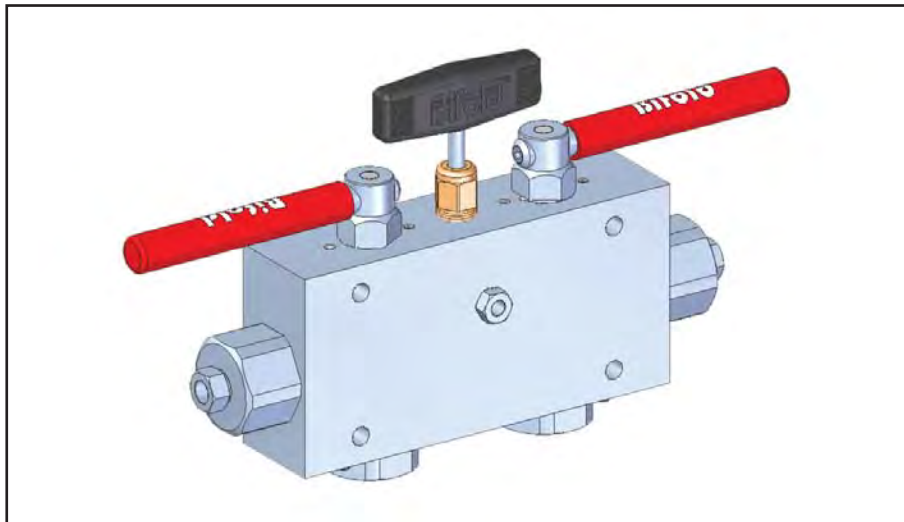
Medium Pressure Ball Valves

The Bifold range of Ball Valves are available in a floating style with a maximum working pressure of 10,000 psi / 690 bar, or a trunnion style with a maximum working pressure of 20,000 psi / 1379 bar. They are available in a variety of configurations to suit the specific application with tube sizes ranging from 1/4" through to 1". Within the Ball Valve range, we also offer a standard instrumentation design with a maximum working pressure of 10,000 psi / 690 bar and pipe sizes from 1/4" through to 1".



Medium Pressure Manifolds

The Manifold range includes standard configurations of Ball and Needle, Single Block and Bleed or Double Block and Bleed valves. We can also design custom manifolds to suit the application. Manifolds are rated up to pressures of 20,000 psi / 1379 bar in a variety of tube sizes ranging from 1/4" through to 1".



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**Product Portfolio**

**State of the Art Machining Centres**

Bifold is enhanced by an in house lean and integrated manufacturing policy, alongside a unique business model, effectively reducing lead times and providing peace of mind to contractors, installers and end users for over a century.

Our state of the art production facilities based in the UK, allow our superior and innovative designs of components to be manufactured on site, assembled to the finished product and tested to rigorous quality standards.

All Bifold valves have product traceability via a unique serial number stamped on all valve bodies, linking them with their testing and component certificates, materials of construction together with full manufacturers record book (MRB).



**Installation Picture using our Standard Range of Ball and Needle Valves**

**Bifold ISO9001 Product Certification and Specialist Testing Options Include**





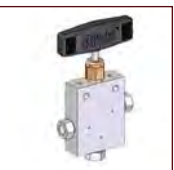
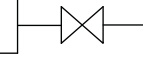



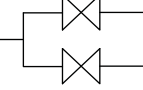


- Non destructive testing including LPI, MPI, PMI and Ferrite testing.
- Hydrostatic & Pneumatic testing.
- Nitrogen gas testing.
- Nitrogen / Helium leak detection.
- Low temperature testing.
- Fugitive Emission testing.
- HIC testing and other specialist material tests.



**Installation Picture using our Standard Range of Ball and Needle Valves**



Preferred Range

INSTRUMENTATION PRODUCTS - MPN NEEDLE VALVES (up to and Including 20,000 psi / 1379 bar)				
Product	Schematic Representation	Page Number	Product Code	Product Description
 <p><b>MPN</b> 2-Way Straight Needle Valves</p>		14 / 17	MPN-20-04-1-V	1/4" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-1-V	3/8" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-1-V	1/2" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-1-V	3/4" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-1-V	1" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
 <p><b>MPN</b> 2-Way Angle Needle Valves</p>		14 / 17	MPN-20-04-2-V	1/4" MP, 2-Way Angle, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-2-V	3/8" MP, 2-Way Angle, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-2-V	1/2" MP, 2-Way Angle, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-2-V	3/4" MP, 2-Way Angle, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-2-V	1" MP, 2-Way Angle, Needle Configuration, 20,000 psi / 1379 bar
 <p><b>MPN</b> 3-Way, 2-On Pressure Needle Valves</p>		14 / 17	MPN-20-04-3-V	1/4" MP, 3-Way, 2-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-3-V	3/8" MP, 3-Way, 2-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-3-V	1/2" MP, 3-Way, 2-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-3-V	3/4" MP, 3-Way, 2-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-3-V	1" MP, 3-Way, 2-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
 <p><b>MPN</b> 3-Way, 1-On Pressure Needle Valves</p>		14 / 17	MPN-20-04-4-V	1/4" MP, 3-Way, 1-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-4-V	3/8" MP, 3-Way, 1-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-4-V	1/2" MP, 3-Way, 1-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-4-V	3/4" MP, 3-Way, 1-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-4-V	1" MP, 3-Way, 1-On Pressure, Needle Configuration, 20,000 psi / 1379 bar
 <p><b>MPN</b> 2-Stem Manifold Needle Valves</p>		14 / 17	MPN-20-04-5-V	1/4" MP, 2-Stem Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-5-V	3/8" MP, 2-Stem Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-5-V	1/2" MP, 2-Stem Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-5-V	3/4" MP, 2-Stem Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-5-V	1" MP, 2-Stem Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar
 <p><b>MPN</b> Replaceable Seat Needle Valves</p>		14 / 17	MPN-20-04-6-V	1/4" MP, Replaceable Seat, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-6-V	3/8" MP, Replaceable Seat, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-6-V	1/2" MP, Replaceable Seat, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-12-6-V	3/4" MP, Replaceable Seat, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-16-6-V	1" MP, Replaceable Seat, Needle Configuration, 20,000 psi / 1379 bar


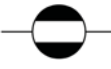
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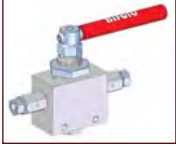






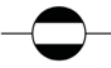
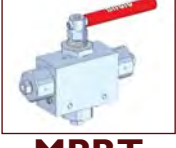



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Preferred Range

**INSTRUMENTATION PRODUCTS - MPBF BALL VALVES (up to and Including 10,000 psi / 690 bar)**

Product	Schematic Representation	Page Number	Product Code	Product Description
 <b>MPBF</b> 2-Way Floating Style Ball Valves		18	<b>MPBF-10-10-04-V</b>	1/4" MP, 2-Way Floating Style, Ball Configuration, 10,000 psi / 690 bar, 10mm Bore
			<b>MPBF-10-10-06-V</b>	3/8" MP, 2-Way Floating Style, Ball Configuration, 10,000 psi / 690 bar, 10mm Bore
			<b>MPBF-10-10-09-V</b>	9/16" MP, 2-Way Floating Style, Ball Configuration, 10,000 psi / 690 bar, 10mm Bore

**INSTRUMENTATION PRODUCTS - MPBT BALL VALVES (up to and Including 20,000 psi / 1379 bar)**

 <b>MPBT</b> 2-Way Trunnion Style Ball Valves		19 / 22	<b>MPBT-20-5-04-1-V</b>	1/4" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-06-1-V</b>	3/8" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-09-1-V</b>	9/16" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <b>MPBT</b> 3-Way Diverting Trunnion Style Ball Valves	 90° Operation	19 / 22	<b>MPBT-20-5-04-2-V</b>	1/4" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-06-2-V</b>	3/8" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-09-2-V</b>	9/16" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <b>MPBT</b> 3-Way Selecting Trunnion Style Ball Valves	 180° Operation	19 / 22	<b>MPBT-20-5-04-3-V</b>	1/4" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-06-3-V</b>	3/8" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			<b>MPBT-20-5-09-3-V</b>	9/16" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <b>MPBT</b> 2-Way Trunnion Style Ball Valves		19 / 22	<b>MPBT-20-10-04-1-V</b>	1/4" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-06-1-V</b>	3/8" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-09-1-V</b>	9/16" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
 <b>MPBT</b> 3-Way Diverting Trunnion Style Ball Valves	 90° Operation	19 / 22	<b>MPBT-20-10-04-2-V</b>	1/4" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-06-2-V</b>	3/8" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-09-2-V</b>	9/16" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
 <b>MPBT</b> 3-Way Selecting Trunnion Style Ball Valves	 180° Operation	19 / 22	<b>MPBT-20-10-04-3-V</b>	1/4" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-06-3-V</b>	3/8" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			<b>MPBT-20-10-09-3-V</b>	9/16" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore

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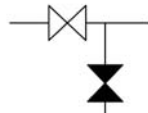

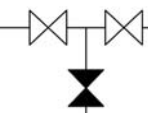
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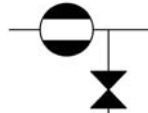

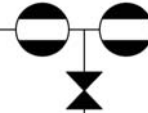


Preferred Range


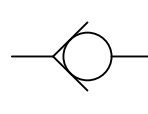
**INSTRUMENTATION PRODUCTS - MPNM NEEDLE VALVE MANIFOLDS (up to and including 20,000 psi / 1379 bar)**

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p><b>MPNM</b> Single Block &amp; Bleed Needle Valve Manifolds</p>		23 / 24	<b>MPNM-20-04-04-1</b>	¼" MP, Single Block & Bleed Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar, ¼" MP Vent Bleed
			<b>MPNM-20-06-04-1</b>	¾" MP, Single Block & Bleed Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar, ¼" MP Vent Bleed
 <p><b>MPNM</b> Double Block &amp; Bleed Needle Valve Manifolds</p>		23 / 24	<b>MPNM-20-04-04-2</b>	¼" MP, Double Block & Bleed Manifold, Needle - Needle - Needle Configuration, 20,000 psi / 1379 bar, ¼" MP Vent Bleed
			<b>MPNM-20-06-04-2</b>	¾" MP, Double Block & Bleed Manifold, Needle - Needle - Needle Configuration, 20,000 psi / 1379 bar, ¼" MP Vent Bleed

**INSTRUMENTATION PRODUCTS - MPBM TRUNNION BALL VALVE MANIFOLDS (up to and including 20,000 psi / 1379 bar)**

 <p><b>MPBM</b> Trunnion Style Single Block &amp; Bleed Manifolds</p>		25 / 26	<b>MPBM-20-10-04-04-1-V</b>	¼" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed
			<b>MPBM-20-10-06-04-1-V</b>	¾" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed
			<b>MPBM-20-10-09-04-1-V</b>	½" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed
 <p><b>MPBM</b> Trunnion Style Double Block &amp; Bleed Manifolds</p>		25 / 26	<b>MPBM-20-10-04-04-2-V</b>	¼" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed
			<b>MPBM-20-10-06-04-2-V</b>	¾" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed
			<b>MPBM-20-10-09-04-2-V</b>	½" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, ¼" MP Vent Bleed

**INSTRUMENTATION PRODUCTS - MPCV CHECK VALVES (up to and including 20,000 psi / 1379 bar)**

 <p><b>MPCV</b> Check Valves</p>		27	<b>MPCV-20-04-1</b>	¼" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			<b>MPCV-20-06-1</b>	¾" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			<b>MPCV-20-09-1</b>	½" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			<b>MPCV-20-12-1</b>	¾" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			<b>MPCV-20-16-1</b>	1" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar

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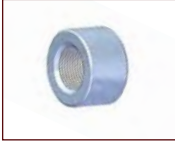


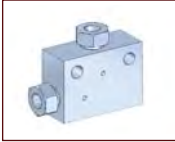

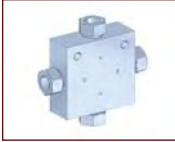


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## Preferred Range



## INSTRUMENTATION PRODUCTS - MPF (up to and including 20,000 psi / 1379 bar)

Product	Page Number	Product Code	Product Description
 <p>Collar</p>	28 / 32	MPF-04-C	1/4" MP, Collar, 20,000 psi / 1379 bar
		MPF-06-C	3/8" MP, Collar, 20,000 psi / 1379 bar
		MPF-09-C	1/2" MP, Collar, 20,000 psi / 1379 bar
		MPF-12-C	3/4" MP, Collar, 20,000 psi / 1379 bar
		MPF-16-C	1" MP, Collar, 20,000 psi / 1379 bar
 <p>Gland Nut</p>	28 / 32	MPF-04-G	1/4" MP, Gland Nut, 20,000 psi / 1379 bar
		MPF-06-G	3/8" MP, Gland Nut, 20,000 psi / 1379 bar
		MPF-09-G	1/2" MP, Gland Nut, 20,000 psi / 1379 bar
		MPF-12-G	3/4" MP, Gland Nut, 20,000 psi / 1379 bar
		MPF-16-G	1" MP, Gland Nut, 20,000 psi / 1379 bar
 <p>Plug</p>	28 / 32	MPF-04-P	1/4" MP, Plug, 20,000 psi / 1379 bar
		MPF-06-P	3/8" MP, Plug, 20,000 psi / 1379 bar
		MPF-09-P	1/2" MP, Plug, 20,000 psi / 1379 bar
		MPF-12-P	3/4" MP, Plug, 20,000 psi / 1379 bar
		MPF-16-P	1" MP, Plug, 20,000 psi / 1379 bar
 <p>Elbow</p>	28 / 32	MPF-04-L	1/4" MP, Elbow, 20,000 psi / 1379 bar
		MPF-06-L	3/8" MP, Elbow, 20,000 psi / 1379 bar
		MPF-09-L	1/2" MP, Elbow, 20,000 psi / 1379 bar
		MPF-12-L	3/4" MP, Elbow, 20,000 psi / 1379 bar
		MPF-16-L	1" MP, Elbow, 20,000 psi / 1379 bar
 <p>Tee</p>	28 / 32	MPF-04-T	1/4" MP, Tee, 20,000 psi / 1379 bar
		MPF-06-T	3/8" MP, Tee, 20,000 psi / 1379 bar
		MPF-09-T	1/2" MP, Tee, 20,000 psi / 1379 bar
		MPF-12-T	3/4" MP, Tee, 20,000 psi / 1379 bar
		MPF-16-T	1" MP, Tee, 20,000 psi / 1379 bar
 <p>Cross</p>	28 / 32	MPF-04-X	1/4" MP, Cross, 20,000 psi / 1379 bar
		MPF-06-X	3/8" MP, Cross, 20,000 psi / 1379 bar
		MPF-09-X	1/2" MP, Cross, 20,000 psi / 1379 bar
		MPF-12-X	3/4" MP, Cross, 20,000 psi / 1379 bar
		MPF-16-X	1" MP, Cross, 20,000 psi / 1379 bar
 <p>Bulkhead Coupler</p>	28 / 32	MPF-04-B	1/4" MP, Bulkhead Coupler, 20,000 psi / 1379 bar
		MPF-06-B	3/8" MP, Bulkhead Coupler, 20,000 psi / 1379 bar
		MPF-09-B	1/2" MP, Bulkhead Coupler, 20,000 psi / 1379 bar
		MPF-12-B	3/4" MP, Bulkhead Coupler, 20,000 psi / 1379 bar
		MPF-16-B	1" MP, Bulkhead Coupler, 20,000 psi / 1379 bar
 <p>Straight Coupler</p>	28 / 32	MPF-04-S	1/4" MP, Straight Coupler, 20,000 psi / 1379 bar
		MPF-06-S	3/8" MP, Straight Coupler, 20,000 psi / 1379 bar
		MPF-09-S	1/2" MP, Straight Coupler, 20,000 psi / 1379 bar
		MPF-12-S	3/4" MP, Straight Coupler, 20,000 psi / 1379 bar
		MPF-16-S	1" MP, Straight Coupler, 20,000 psi / 1379 bar

MPF - Medium Pressure Fittings - Adapters & Nipples, Please refer to the product selection charts on pages 33 & 34.

Features & Benefits



Bifold Marshalsea Product Range

Bifold Marshalsea provides pumps for use with fluids which include a variety of water-based, fire resistant and other media types. The properties of these fluids include a combination of high or low viscosity with either high or low lubricity.

Various pump models are available for use with water glycol and other calibration fluids.

Bifold Marshalsea provide Relief Valves for both gaseous and liquid service.

Bifold Marshalsea also provide surface and subsea Pressure Intensifiers for pressure boosting of water based or synthetic oil-based fluids.

Certification Details



This relief valve conforms to European Directive 94/9/EC relating to equipment intended for use in potentially explosive atmospheres and are ATEX compliant. This valve also conforms to the Pressure Equipment Directive 97/23/EC. All valves are CE marked and supplied with a test certificate plus a declaration of conformity.

Relief Valves



Hydraulic Thermal Relief Valve

- The special, removable lock down screw facility can be applied to override the relief valve during system pressure test without affecting the pre-set, set point.



Hydraulic Precision Relief Valve

- Precision relief valves have very high sealing forces along with accurate and narrow dead bands. Precision relief valves should be used in preference to sprung relief valves where there is risk of vibration induced leakage or where low dead bands are important to system safety performance. Sprung relief valves typically will have a narrow dead band when tested on a static dead weight tester but will have a much wider dead band under flowing conditions that will require a significant drop in system pressure to enable the valve to reset.

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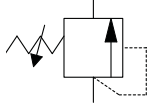

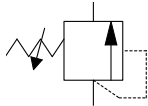

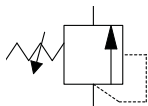

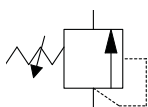

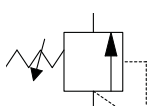
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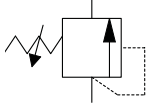

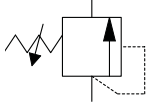

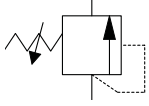

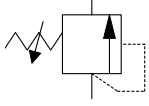

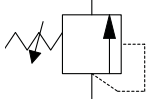
Selection Table



HYDRAULIC SERVICE PRODUCTS - THERMAL RELIEF VALVES I 4480 (up to 1300 bar set point)

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p><b>Hydraulic Service</b> Thermal Relief Valves Type I4480 - 55</p>		36 / 37	I4480 - 55	1/4" MP, Inlet Connection and 1/4" NPT, Outlet Connection. Thermal Relief Valve. 600 bar to 1300 bar; Ø 4 mm Orifice.
 <p><b>Hydraulic Service</b> Thermal Relief Valves Type I4480 - 47</p>		36 / 37	I4480 - 47	3/8" MP, Inlet Connection and 1/4" MP, Outlet Connection. Thermal Relief Valve. 600 bar to 1300 bar; Ø 4 mm Orifice.
 <p><b>Hydraulic Service</b> Thermal Relief Valves Type I4480 - 83</p>		36 / 37	I4480 - 83	3/8" MP, Inlet Connection and 3/8" NPT, Outlet Connection. Thermal Relief Valve. 600 bar to 1300 bar; Ø 4 mm Orifice.
 <p><b>Hydraulic Service</b> Thermal Relief Valves Type I4480 - 90</p>		36 / 37	I4480 - 90	5/16" MP, Inlet Connection and 1/4" NPT, Outlet Connection. Thermal Relief Valve. 600 bar to 1300 bar; Ø 4 mm Orifice.
 <p><b>Hydraulic Service</b> Thermal Relief Valves Type I4480 - 97</p>		36 / 37	I4480 - 97	5/16" MP, Inlet Connection and 3/8" NPT, Outlet Connection. Thermal Relief Valve. 600 bar to 1300 bar; Ø 4 mm Orifice.

**HYDRAULIC SERVICE PRODUCTS - PRECISION RELIEF VALVES 14580 (up to 1200 bar set point)**

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14580 - 16</p>		38 / 39	14580 - 16	3/8" MP, Inlet Connection and 1/4" NPT, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14580 - 04</p>		38 / 39	14580 - 04	3/8" MP, Inlet Connection and 3/8" NPT, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14580 - 09</p>		38 / 39	14580 - 09	3/8" MP, Inlet Connection and 3/8" BSP, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14580 - 11</p>		38 / 39	14580 - 11	3/8" MP, Inlet Connection and 3/8" MP, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14580 - 20</p>		38 / 39	14580 - 20	3/8" MP, Inlet Connection and 1/2" NPT, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar

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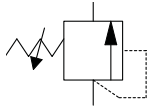

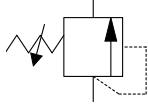

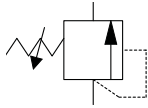

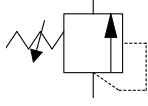
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Selection Table



HYDRAULIC SERVICE PRODUCTS - PRECISION RELIEF VALVES 14570 & 23800 (up to 1200 bar set point)

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14570 - 09</p>		38 / 39	14570 - 09	3/8" MP, Inlet Connection and 3/8" BSP, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14570 - 11</p>		38 / 39	14570 - 11	3/8" MP, Inlet Connection and 3/8" MP, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 14570 - 15</p>		38 / 39	14570 - 15	3/8" MP, Inlet Connection and 1/2" NPT, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar
 <p><b>Hydraulic Service</b> Precision Relief Valves Type 23800 - 04</p>		38 / 39	23800 - 04	3/4" MP, Inlet Connection and 3/4" MP, Outlet Connection. Precision Relief Valve. 600 bar to 1200 bar

MPN

Product Description

The Bifold range of Medium Pressure Needle Valves have been developed to provide the safe and reliable control of both liquid and gas service applications up to 20,000 psi / 1379 bar. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection skids, Water Jetting and other general industrial applications.

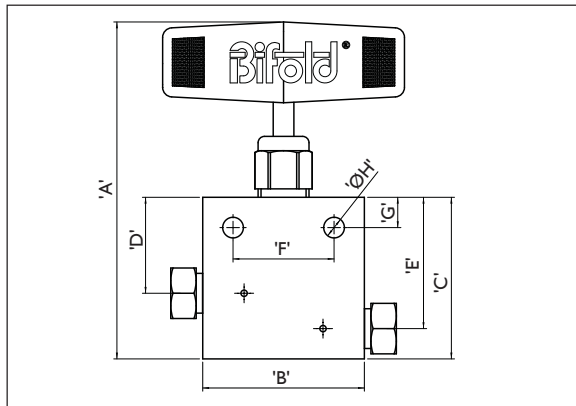
Features and Benefits

- Available in 6 body styles for a variety of applications.
- Maintenance Free Stem Sealing.
- Non rotating anti-galling tip as standard.
- Vee, Regulating or Soft Tip options available.
- High tensile 316L CW stainless steel bodies as standard.
- Exotic materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Available in a number of temperature ranges from -73°C to +315°C (-20°C to +170°C as standard).
- Tube Sizes from 1/4" to 1".

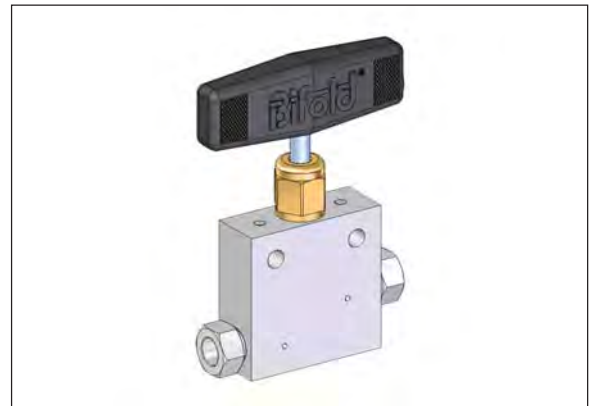
MPN

2-Way Straight Needle Valves

Dimensional Drawing



SCHEMATIC



PREFERRED RANGE MPN - SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'E' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPN-20-04-I-V	1/4" MP	20,000 psi / 1379 bar	106.00	50.80	50.80	30.16	41.28	31.75	9.53	6.50	19.05	2.80
MPN-20-06-I-V	3/8" MP	20,000 psi / 1379 bar	106.00	50.80	50.80	30.16	41.28	31.75	9.53	6.50	19.05	5.20
MPN-20-09-I-V	9/16" MP	20,000 psi / 1379 bar	152.00	63.50	73.03	44.45	60.33	34.93	12.70	8.70	25.4	7.90
MPN-20-12-I-V	3/4" MP	20,000 psi / 1379 bar	215.00	76.20	95.25	57.15	76.20	44.45	15.88	11.50	34.93	11.10
MPN-20-16-I-V	1" MP	20,000 psi / 1379 bar	250.00	104.78	120.65	71.44	95.25	63.5	28.58	14.50	44.45	14.30

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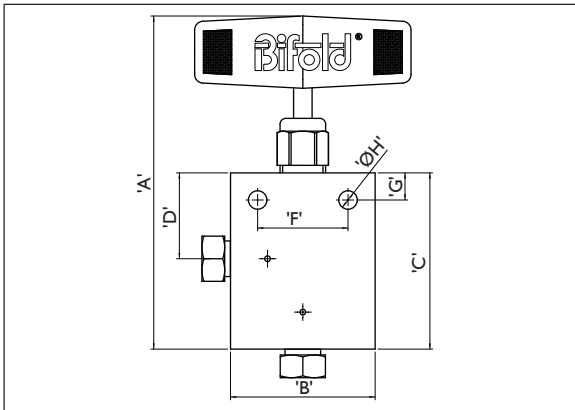
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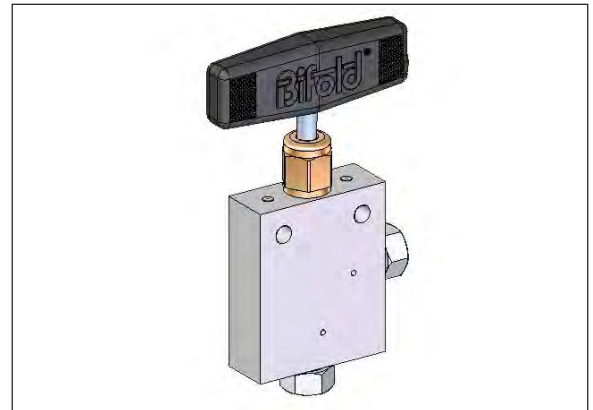
**MPN**

**2-Way Angle Needle Valves**

**Dimensional Drawing**



**SCHEMATIC**



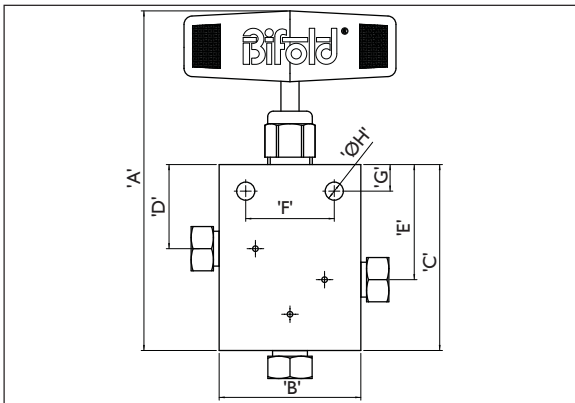
**PREFERRED RANGE MPN - SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPN-20-04-2-V	1/4" MP	20,000 psi / 1379 bar	117.00	50.80	61.91	30.16	31.75	9.53	6.50	19.05	2.80
MPN-20-06-2-V	3/8" MP	20,000 psi / 1379 bar	117.00	50.80	61.91	30.16	31.75	9.53	6.50	19.05	5.20
MPN-20-09-2-V	1/2" MP	20,000 psi / 1379 bar	165.00	63.50	85.73	44.45	34.93	12.70	8.70	25.40	7.90
MPN-20-12-2-V	3/4" MP	20,000 psi / 1379 bar	234.00	76.20	114.30	57.15	44.45	15.88	11.50	34.93	11.10
MPN-20-16-2-V	1" MP	20,000 psi / 1379 bar	269.00	104.78	139.70	71.44	63.50	28.58	14.50	44.45	14.30

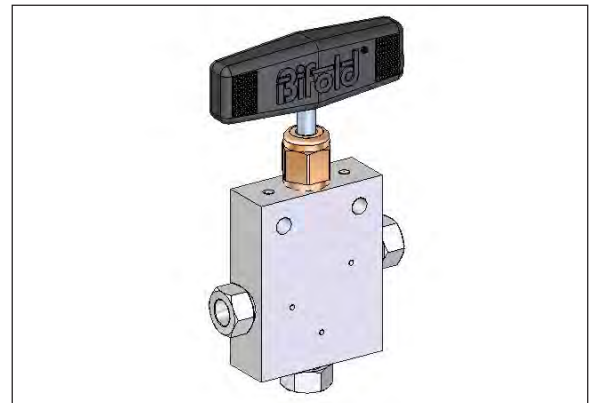
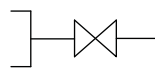
**MPN**

**3-Way, 2-On Pressure Needle Valves**

**Dimensional Drawing**



**SCHEMATIC**



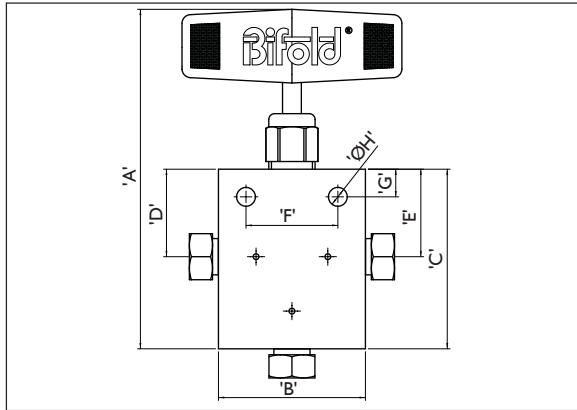
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Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'E' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPN-20-04-3-V	1/4" MP	20,000 psi / 1379 bar	122.00	50.80	66.68	30.16	41.28	31.75	9.53	6.50	19.05	2.80
MPN-20-06-3-V	3/8" MP	20,000 psi / 1379 bar	122.00	50.80	66.68	30.16	41.28	31.75	9.53	6.50	19.05	5.20
MPN-20-09-3-V	1/2" MP	20,000 psi / 1379 bar	171.00	63.50	92.08	44.45	60.33	34.93	12.70	8.70	25.40	7.90
MPN-20-12-3-V	3/4" MP	20,000 psi / 1379 bar	247.00	76.20	127.00	57.15	76.20	44.45	15.88	11.50	34.93	11.10
MPN-20-16-3-V	1" MP	20,000 psi / 1379 bar	282.00	104.78	152.40	71.44	95.25	63.50	28.58	14.50	44.45	14.30

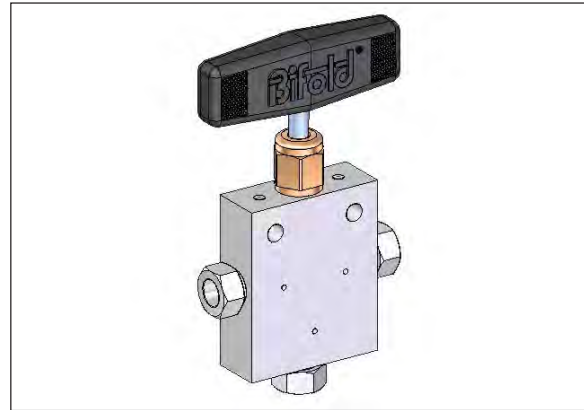
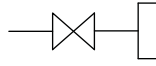
**MPN**

**3-Way, 1-On Pressure Needle Valves**

**Dimensional Drawing**



**SCHEMATIC**



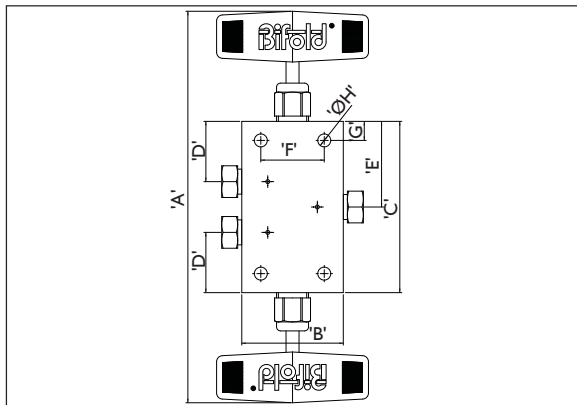
**PREFERRED RANGE MPN - SELECTION TABLE**

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MPN-20-04-4-V	1/4" MP	20,000 psi / 1379 bar	117.00	50.80	61.91	30.16	30.16	31.75	9.53	6.50	19.05	2.80
MPN-20-06-4-V	3/8" MP	20,000 psi / 1379 bar	117.00	50.80	61.91	30.16	30.16	31.75	9.53	6.50	19.05	5.20
MPN-20-09-4-V	1/2" MP	20,000 psi / 1379 bar	165.00	63.50	85.73	44.45	44.45	34.93	12.70	8.70	25.40	7.90
MPN-20-12-4-V	3/4" MP	20,000 psi / 1379 bar	234.00	76.20	114.30	57.15	57.15	44.45	15.88	11.50	34.93	11.10
MPN-20-16-4-V	1" MP	20,000 psi / 1379 bar	269.00	104.78	139.70	71.44	71.44	63.50	28.58	14.50	44.45	14.30

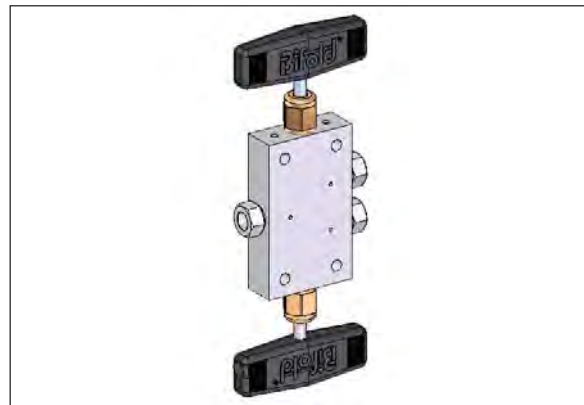
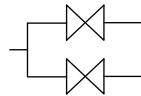
**MPN**

**2-Stem Manifold Needle Valves**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPN - SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'E' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPN-20-04-5-V	1/4" MP	20,000 psi / 1379 bar	196.00	50.80	85.73	30.16	42.86	31.75	9.53	6.50	19.05	2.80
MPN-20-06-5-V	3/8" MP	20,000 psi / 1379 bar	196.00	50.80	85.73	30.16	42.86	31.75	9.53	6.50	19.05	5.20
MPN-20-09-5-V	1/2" MP	20,000 psi / 1379 bar	288.00	63.50	130.18	44.45	65.09	34.93	12.70	8.70	25.40	7.90
MPN-20-12-5-V	3/4" MP	20,000 psi / 1379 bar	417.00	76.20	177.80	57.15	88.90	44.45	15.88	11.50	34.93	11.10
MPN-20-16-5-V	1" MP	20,000 psi / 1379 bar	462.00	104.78	203.20	71.44	101.60	63.50	28.58	14.50	44.45	14.30

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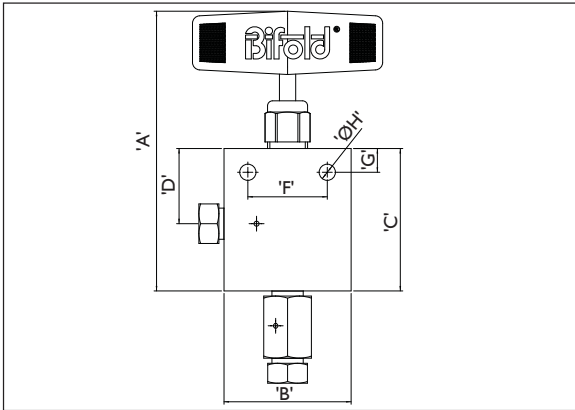




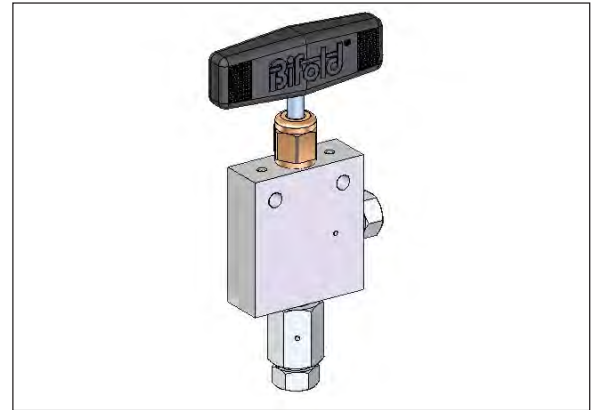
**MPN**

**Replaceable Seat Needle Valves**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPN - SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPN-20-04-6-V	1/4" MP	20,000 psi / 1379 bar	112.00	50.80	57.15	30.16	31.75	9.53	6.50	19.05	2.80
MPN-20-06-6-V	3/8" MP	20,000 psi / 1379 bar	112.00	50.80	57.15	30.16	31.75	9.53	6.50	19.05	5.20
MPN-20-09-6-V	9/16" MP	20,000 psi / 1379 bar	161.50	63.50	82.55	44.45	34.93	12.70	8.70	25.40	7.90
MPN-20-12-6-V	3/4" MP	20,000 psi / 1379 bar	215.00	76.20	95.25	57.15	44.45	15.88	11.50	34.93	11.10
MPN-20-16-6-V	1" MP	20,000 psi / 1379 bar	253.00	104.78	123.83	71.44	63.50	28.58	14.50	44.45	14.30

**MPN Selection Chart - Ordering Example**

<b>MPN</b>	Medium Pressure Needle Valve, 20,000 psi / 1379 bar	Model Code
<b>20</b>	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
<b>04</b> <b>06</b> <b>09</b> <b>12</b> <b>16</b>	1/4" MP 3/8" MP 9/16" MP 3/4" MP 1" MP	Connection Size
<b>1</b> <b>2</b> <b>3</b> <b>4</b> <b>5</b> <b>6</b>	2-Way Straight 2-Way Angle 3-Way, 2-On Pressure 3-Way, 1-On Pressure 2-Stem Manifold Replaceable Seat	Configuration
<b>V</b> <b>R</b> <b>S</b>	Vee Regulating Soft Tip	Tip
<b>NO LETTER</b> <b>V</b> <b>A</b> <b>G</b>	HNBR Viton Aflas Graphite	Seal Material
<b>NO LETTER</b> <b>S</b> <b>LK</b> <b>PM</b>	Stainless Steel Handle (Standard for 3/4" and 1" MP) Lockable Handle Panel Mount Gland	Options
<b>NO LETTER</b> <b>08</b> <b>26</b> <b>39</b> <b>42</b> <b>45</b> <b>49</b> <b>50</b> <b>89</b> <b>90</b>	316L CW (6MO) 254MO Duplex UNS S31803 Super Duplex UNS S32750/32760 Inconel 625 UNS N06625 Monel 400 UNS N04400 Inconel 825 UNS N08825 Hastelloy C276 Titanium Gr2 UNS R50400 Nickel 200 UNS N02200	Material
<b>MPN-20-04-3-V</b>		Ordering Example

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## MPBF

## 2-Way Floating Style Ball Valves, 10mm Bore



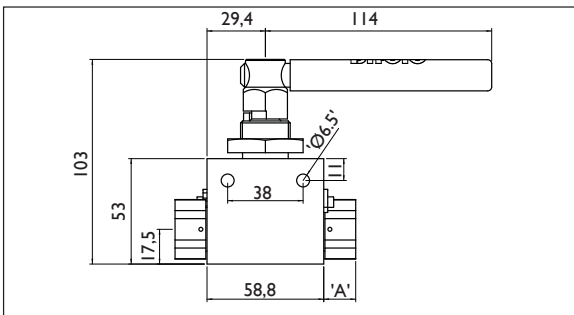
### Product Description

The Bifold range of Medium Pressure Floating Ball Valves are an economical, 2-way solution for most on/off liquid and gas service applications up to 10,000 psi / 690 bar. They are available in a wide range of seal arrangements and can be manufactured from exotic materials for extreme environments. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection skids and other general industrial applications.

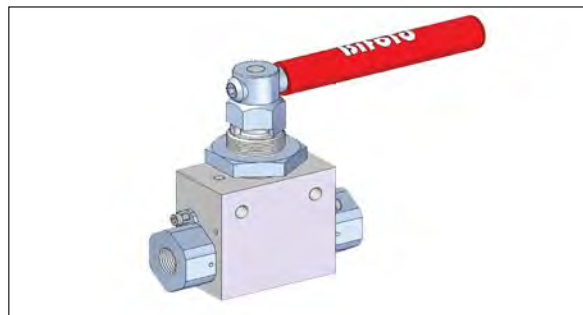
### Features and Benefits

- Low operating torque.
- Optional Handle Locking device that does not jeopardise through panel mounting.
- Bi-directional straight through flow path minimising pressure drop.
- High tensile 316L CW stainless steel bodies as standard.
- PEEK seats as standard.
- NACE MR-01-75 / ISO 15156 compliant materials of construction are available up on request.

### Dimensional Drawing



SCHEMATIC



### PREFERRED RANGE MPBF SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBF-10-10-04-V	1/4" MP	10,000 psi / 690 bar	25.40	38.10	2.80
MPBF-10-10-06-V	3/8" MP	10,000 psi / 690 bar	25.40	38.10	5.20
MPBF-10-10-09-V	9/16" MP	10,000 psi / 690 bar	31.80	38.10	7.90

### MPBF Selection Chart - Ordering Example

<b>MPBF</b>	Medium Pressure Floating Style Ball Valve, 10,000 psi / 690 bar	Model Code
<b>10</b>	10,000 psi / 690 bar, Maximum Cold Working Pressure	Pressure Rating
<b>5</b>	5mm	Bore Size
<b>10</b>	10mm	Bore Size
<b>04</b>	1/4"	Connection Size
<b>06</b>	3/8"	
<b>09</b>	9/16"	
<b>12</b>	3/4"	
<b>16</b>	1"	
<b>NO LETTER</b>	MP Female	Connection Type
<b>M</b>	MP Male	
<b>V</b>	Viton (80 Shore)	O-ring Material
<b>V9</b>	Endura V91A	
<b>S</b>	Nitrile	
<b>H</b>	HNBR	
<b>NO LETTER</b>	(Standard Handle)	Options
<b>LK</b>	Lockable Handle	
<b>NO LETTER</b>	316L CW	Material
<b>08</b>	(6MO) 254MO	
<b>26</b>	Duplex UNS S31803	
<b>39</b>	Super Duplex UNS S32750/32760	
<b>42</b>	Inconel 625 UNS N06625	
<b>45</b>	Monel 400 UNS N04400	
<b>49</b>	Inconel 825 UNS N08825	
<b>50</b>	Hastelloy C276	
<b>89</b>	Titanium Gr2 UNS R50400	
<b>90</b>	Nickel 200 UNS N02200	
<b>MPBF-10-10-06</b>	<b>- V</b>	Ordering Example

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**MPBT**

**Product Description**

The Bifold range of Medium Pressure Trunnion Ball Valves have been developed to the highest quality for uppermost performance. They are available in a wide range of configurations for most liquid service applications up to 20,000 psi / 1379 bar. An extensive range of seal materials available, which are suitable for extreme environments. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection skids, Water Jetting and other general industrial applications.

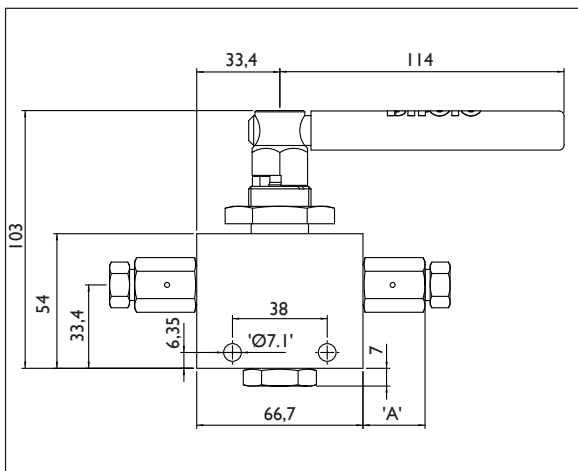
**Features and Benefits**

- Blow out proof stem design.
- Maintenance free stem sealing.
- Low operating torque.
- Pressure loaded seats creating a positive seal.
- Bi-directional straight through flow path minimising pressure drop.
- High tensile 316L CW stainless steel bodies as standard.
- Glass Reinforced PEEK seats as standard for excellent chemical resistance.
- Exotic materials available upon request.
- Traceability via a unique serial number stamped on the valve body, gland and collar.
- Available in a number of temperature ranges from -46°C to +225°C (-20°C to +180°C as standard).
- NACE MR-01-75 / ISO 15156 compliant materials of construction are available up on request.

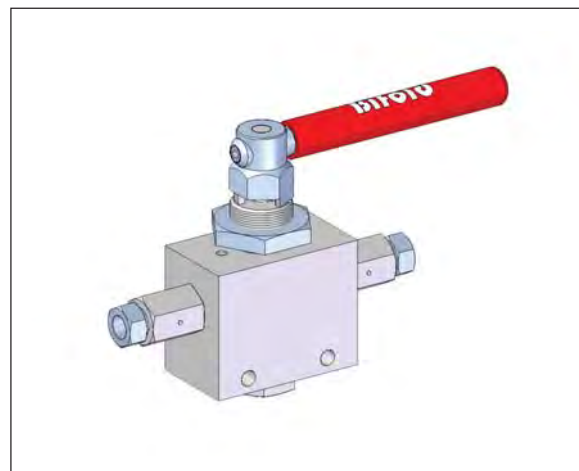
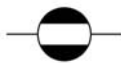
**MPBT**

**2-Way Trunnion Style Ball Valves, 5mm Bore**

**Dimensional Drawing**



SCHEMATIC



**PREFERRED RANGE MPBT SELECTION TABLE**

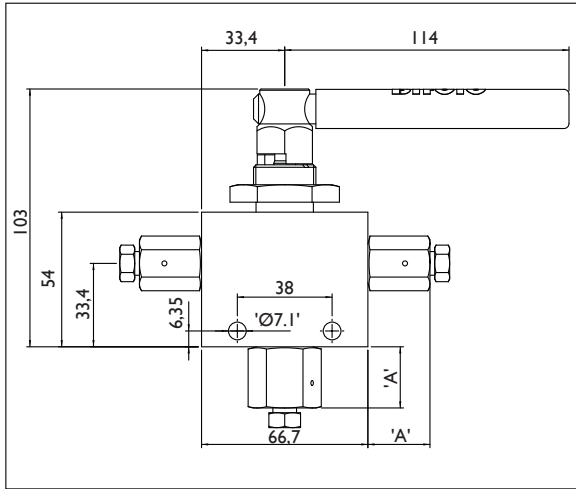
Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBT-20-5-04-I-V	1/4" MP	20,000 psi / 1379 bar	25.40	38.10	2.80
MPBT-20-5-06-I-V	3/8" MP	20,000 psi / 1379 bar	25.40	38.10	5.00
MPBT-20-5-09-I-V	9/16" MP	20,000 psi / 1379 bar	31.80	38.10	5.00

**MPBT**

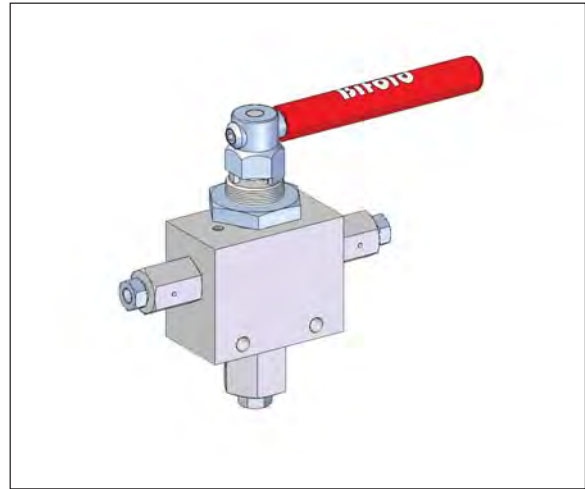
**3-Way Diverting Trunnion Style Ball Valves, 5mm Bore**



**Dimensional Drawing**



**SCHEMATIC**



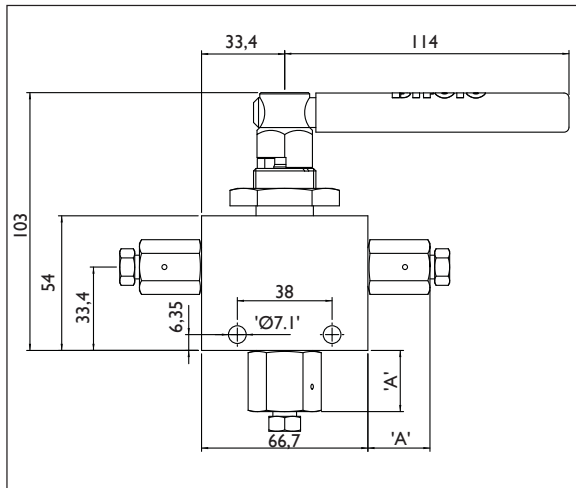
**PREFERRED RANGE MPBT SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBT-20-5-04-2-V	1/4" MP	20,000 psi / 1379 bar	25.40	38.10	2.80
MPBT-20-5-06-2-V	3/8" MP	20,000 psi / 1379 bar	25.40	38.10	5.00
MPBT-20-5-09-2-V	1/2" MP	20,000 psi / 1379 bar	31.80	38.10	5.00

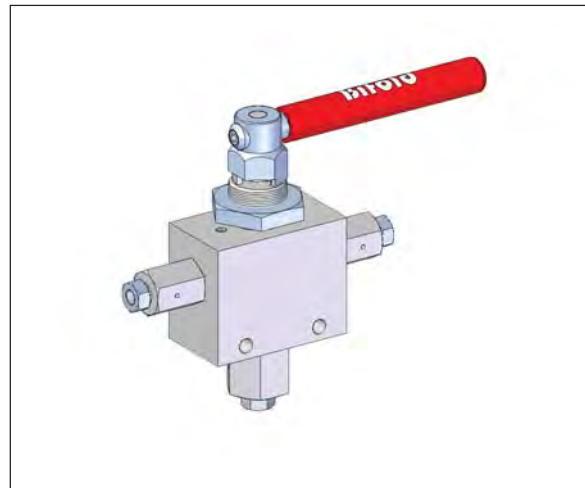
**MPBT**

**3-Way Selecting Trunnion Style Ball Valves, 5mm Bore**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPBT SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBT-20-5-04-3-V	1/4" MP	20,000 psi / 1379 bar	25.40	38.10	2.80
MPBT-20-5-06-3-V	3/8" MP	20,000 psi / 1379 bar	25.40	38.10	5.00
MPBT-20-5-09-3-V	1/2" MP	20,000 psi / 1379 bar	31.80	38.10	5.00

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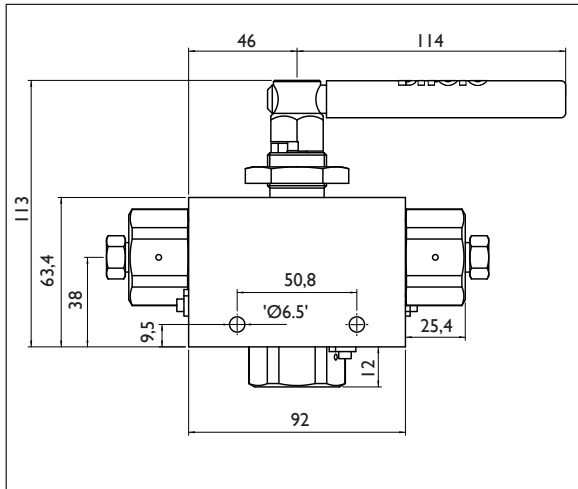
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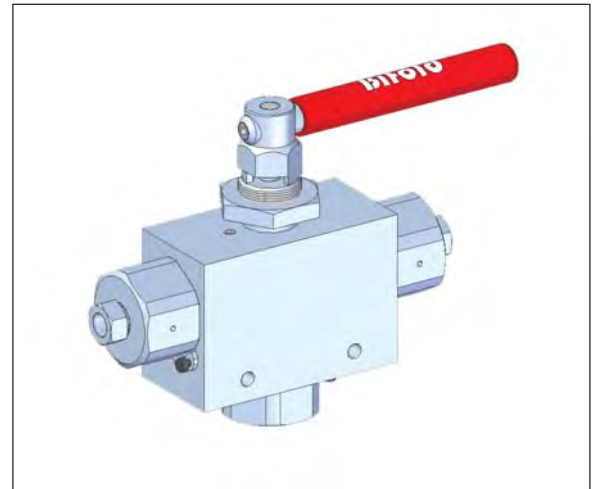
**MPBT**

**2-Way Trunnion Style Ball Valves, 10mm Bore**

**Dimensional Drawing**



**SCHEMATIC**



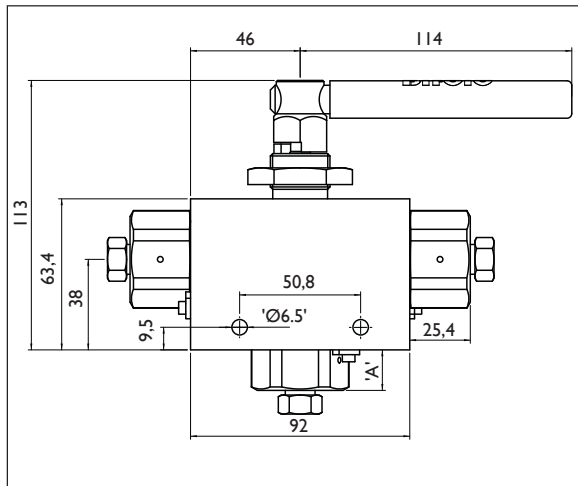
**PREFERRED RANGE MPBT SELECTION TABLE**

Product Code	Size	Rated	Thickness (mm)	Minimum Orifice Size
MPBT-20-10-04-1-V	1/4" MP	20,000 psi / 1379 bar	44.45	2.80
MPBT-20-10-06-1-V	3/8" MP	20,000 psi / 1379 bar	44.45	5.20
MPBT-20-10-09-1-V	1/2" MP	20,000 psi / 1379 bar	44.45	7.90

**MPBT**

**3-Way Diverting Trunnion Style Ball Valves, 10mm Bore**

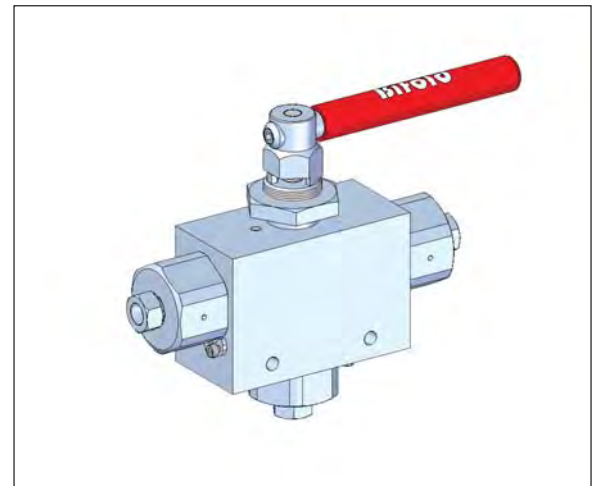
**Dimensional Drawing**



**SCHEMATIC**



90° Operation



**PREFERRED RANGE MPBT SELECTION TABLE**

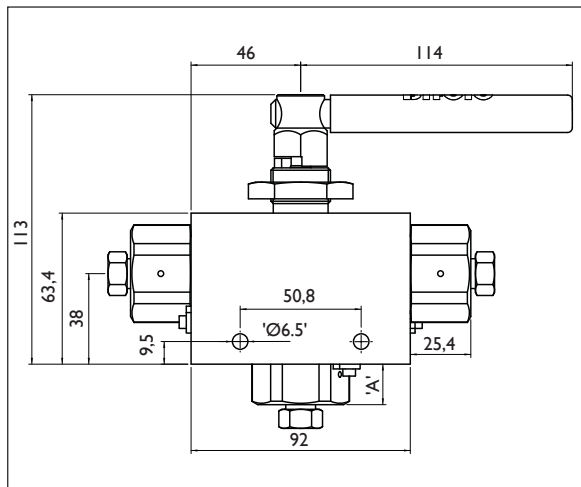
Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBT-20-10-04-2-V	1/4" MP	20,000 psi / 1379 bar	17.00	44.45	2.80
MPBT-20-10-06-2-V	3/8" MP	20,000 psi / 1379 bar	17.00	44.45	5.20
MPBT-20-10-09-2-V	1/2" MP	20,000 psi / 1379 bar	25.40	44.45	7.90

MPBT

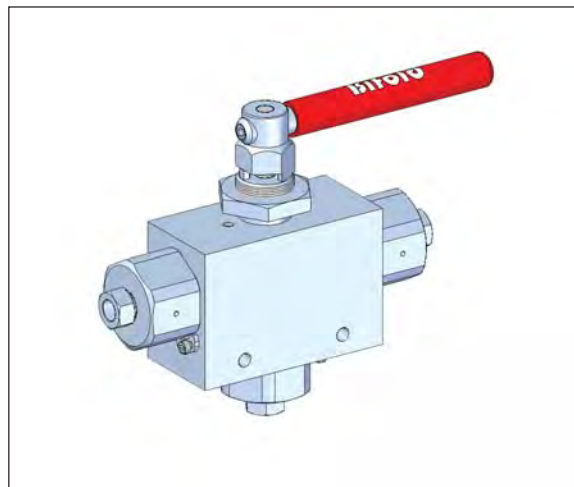
3-Way Selecting Trunnion Style Ball Valves, 10mm Bore



Dimensional Drawing



SCHEMATIC



PREFERRED RANGE MPBT SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	Thickness (mm)	Minimum Orifice Size
MPBT-20-10-04-3-V	1/4" MP	20,000 psi / 1379 bar	17.00	44.45	2.80
MPBT-20-10-06-3-V	3/8" MP	20,000 psi / 1379 bar	17.00	44.45	5.20
MPBT-20-10-09-3-V	1/2" MP	20,000 psi / 1379 bar	25.40	44.45	7.90

MPBT Selection Chart - Ordering Example

<b>MPBT</b>	Medium Pressure Trunnion Style Ball Valve, up to 20,000 psi / 1379 bar	Model Code
<b>10</b>	10,000 psi / 690 bar, Maximum Cold Working Pressure	Pressure Rating
<b>20</b>	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
<b>5</b>	5mm (3/16" Maximum)	Bore Size
<b>10</b>	10mm	Bore Size
<b>04</b>	1/4"	Connection Size
<b>06</b>	3/8"	
<b>09</b>	9/16"	
<b>12</b>	3/4"	
<b>16</b>	1"	
<b>NO LETTER</b>	MP Female	Connection Type
<b>M</b>	MP Male	
<b>1</b>	2-Way	Configuration
<b>2</b>	3-Way Diverting	
<b>3</b>	3-Way Selecting	
<b>4</b>	4-Way (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
<b>5</b>	5-Way (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
<b>V</b>	Viton (80 Shore)	O-ring Material
<b>V9</b>	Endura V91A	
<b>S</b>	Nitrile	
<b>H</b>	HNBR	
<b>NO LETTER</b>	(Standard Handle)	Options
<b>LK</b>	Lockable Handle	
<b>NO LETTER</b>	316L CW	Material
<b>08</b>	(6MO) 254MO	
<b>26</b>	Duplex UNS S31803	
<b>39</b>	Super Duplex UNS S32750/32760	
<b>42</b>	Inconel 625 UNS N06625	
<b>45</b>	Monel 400 UNS N04400	
<b>49</b>	Inconel 825 UNS N08825	
<b>50</b>	Hastelloy C276	
<b>89</b>	Titanium Gr2 UNS R50400	
<b>90</b>	Nickel 200 UNS N02200	
<b>MPBT-20-10-06</b>	<b>-1-V</b>	Ordering Example

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**MPNM**

**Product Description**

The Bifold range of Medium Pressure Needle Valve Manifolds have been developed to provide safe and reliable intervention and control of both liquid and gas service applications up to 20,000 psi / 1379 bar. They are available in a variety of configurations including single block & bleed and a double block & bleed designed for instrument calibration or repair. The manifolds house numerous needle valves, reducing the number of possible leak paths and in turn reducing system costs and weight.

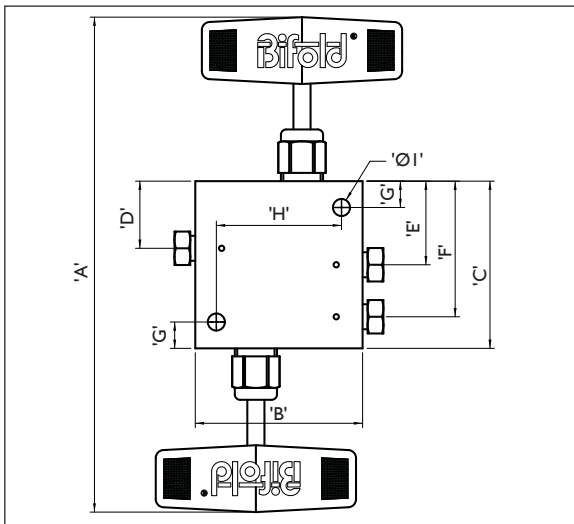
**Features and Benefits**

- Available in a number of configurations for a variety of applications.
- Maintenance free stem sealing.
- Non rotating anti-galling tip as standard.
- Vee tip stem.
- High tensile 316L CW stainless steel bodies as standard.
- Compact Design.
- Exotic materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Available in a number of temperature ranges from -73°C to +315°C (-20°C to +170°C as standard).
- Tube Sizes from 1/4" to 1".

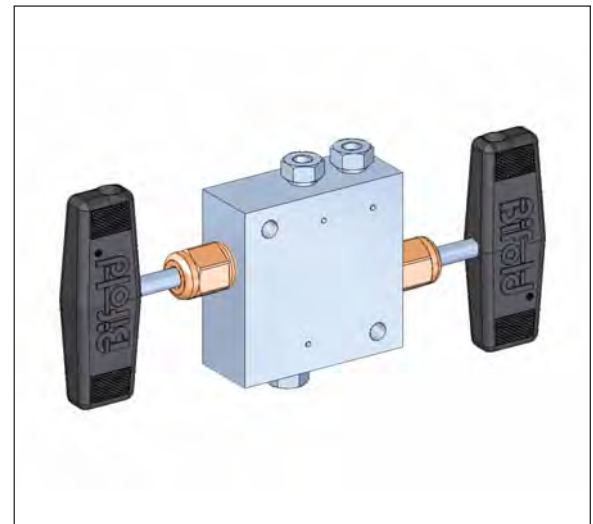
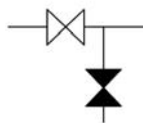
**MPNM**

**Single Block & Bleed Needle Valve Manifolds**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPNM SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'E' (mm)	'F' (mm)	'G' (mm)	'H' (mm)	'Ø1' (mm)	Thickness (mm)	Minimum Orifice Size
MPNM-20-04-04-I	1/4" MP	20,000 psi / 1379 bar	188.00	63.50	63.50	25.50	31.75	51.50	10.00	49.30	6.50	25.40	2.80
MPNM-20-06-04-I	3/8" MP	20,000 psi / 1379 bar	200.00	63.50	75.00	25.50	31.75	63.00	10.00	49.30	6.50	25.40	5.20

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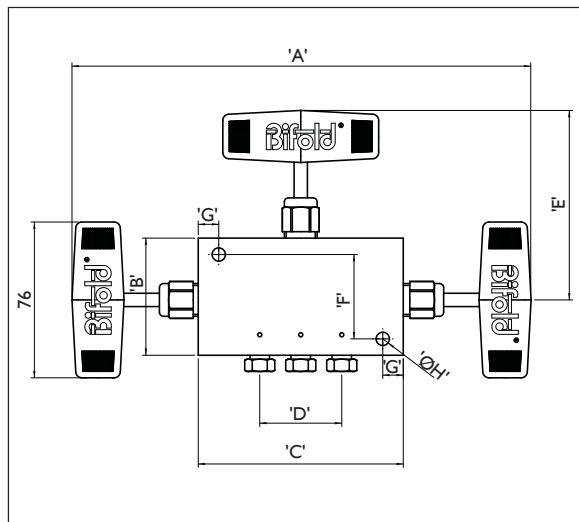
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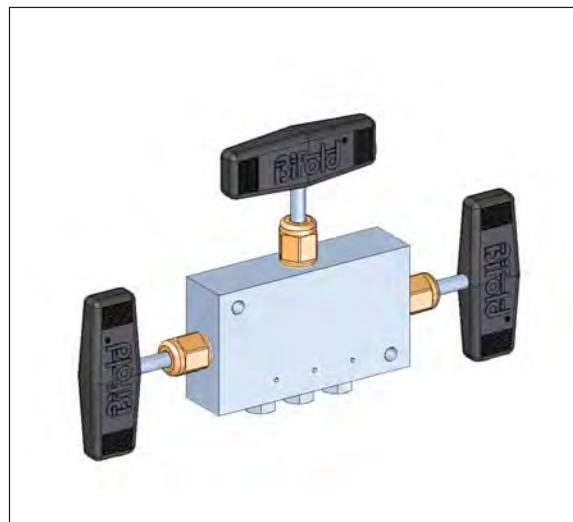
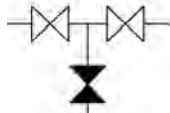
**MPNM**

**Double Block & Bleed Needle Valve Manifolds**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPNM SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'E' (mm)	'F' (mm)	'G' (mm)	'ØH' (mm)	Thickness (mm)	Minimum Orifice Size
MPNM-20-04-04-2	1/4" MP	20,000 psi / 1379 bar	224.00	57.20	100.00	40.00	92.00	37.20	8.00	6.50	25.40	2.80
MPNM-20-06-04-2	3/8" MP	20,000 psi / 1379 bar	244.00	57.20	120.00	60.00	92.00	37.20	8.00	6.50	25.40	5.20

**MPNM Selection Chart - Ordering Example**

<b>MPNM</b> Medium Pressure, Needle Valve Manifold, 20,000 psi / 1379 bar	Model Code
<b>20</b> 20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
<b>04</b> 1/4" <b>06</b> 3/8" <b>09</b> 9/16" <b>12</b> 3/4" <b>16</b> 1"	Connection Size
<b>04</b> 1/4" <b>06</b> 3/8"	Vent Connection
<b>1</b> Single Block & Bleed <b>2</b> Double Block & Bleed <b>3</b> Double Block <b>4</b> Double Block & Bleed (with Gauge Ports) <b>5</b> Single Block & Bleed (inline pattern) <b>6</b> Double Block & Bleed (inline pattern)	Configuration
<b>NO LETTER</b> HNBR -20°C to +170°C <b>V</b> Viton -20°C to +200°C <b>A</b> Aflas -20°C to +250°C <b>G</b> Graphite -73°C to +315°C	O-ring Material
<b>NO LETTER</b> (Standard Handle) <b>S</b> Stainless Steel Handle (Standard for 3/4" and 1" MP) <b>LK</b> Lockable Handle <b>AV</b> Anti Tamper Vent	Options
<b>NO LETTER</b> 316L CW <b>08</b> (6MO) 254MO <b>26</b> Duplex UNS S31803 <b>39</b> Super Duplex UNS S32750/32760 <b>42</b> Inconel 625 UNS N06625 <b>45</b> Monel 400 UNS N04400 <b>49</b> Inconel 825 UNS N08825 <b>50</b> Hastelloy C276 <b>89</b> Titanium Gr2 UNS R50400 <b>90</b> Nickel 200 UNS N02200	Material

**MPNM-20-06-04-2**

Ordering Example

Other configurations available upon request.

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**MPBM**

**Product Description**

The Bifold range of Medium Pressure Trunnion Ball Manifolds have been developed to provide safe and reliable intervention and control of liquid service applications up to 20,000 psi / 1379 bar. They are available in a variety of configurations including single block & bleed and a double block & bleed, designed for instrument calibration or repair. The manifolds consist of trunnion ball valve isolation valves and a needle valve vent, reducing the number of possible leak paths and in turn reducing system costs and weight.

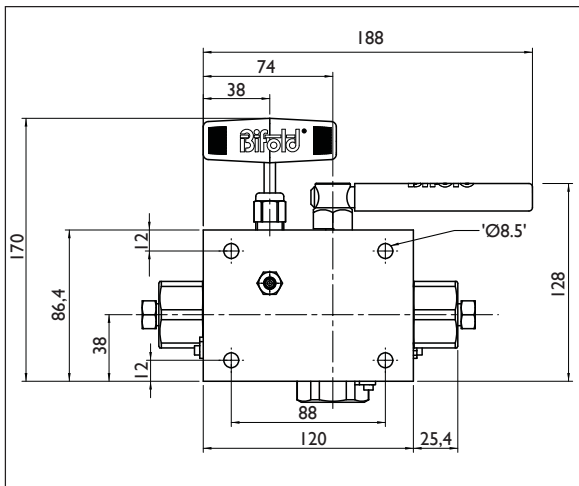
**Features and Benefits**

- Available in a number of configurations for a variety of applications.
- Maintenance free stem sealing.
- Bi-directional straight through flow path minimising pressure drop.
- Non rotating anti-galling tip as standard.
- Vee tip vent valve.
- Compact design.
- High tensile 316L CW stainless steel bodies as standard.
- Exotic materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Operating temperature range of -20°C to +170°C.
- Tube Sizes from 1/4" to 1".

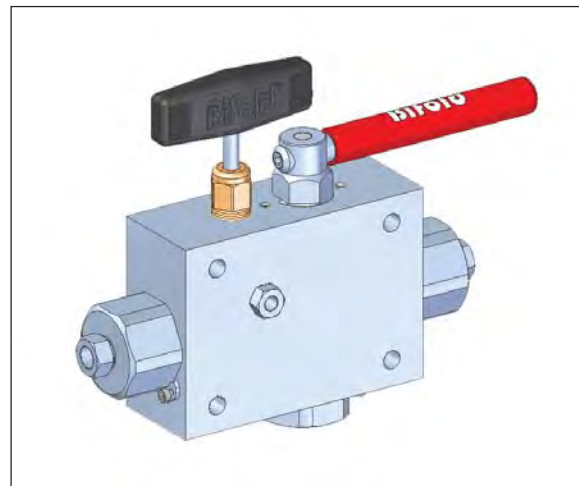
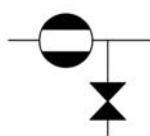
**MPBM**

**Trunnion Style Single Block & Bleed Manifolds, 10mm Bore**

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPBM SELECTION TABLE**

Product Code	Size	Rated	Thickness	Minimum Orifice Size
MPBM-20-10-04-04-1-V	1/4" MP	20,000 psi / 1379 bar	44.45	2.80
MPBM-20-10-06-04-1-V	3/8" MP	20,000 psi / 1379 bar	44.45	5.20
MPBM-20-10-09-04-1-V	9/16" MP	20,000 psi / 1379 bar	44.45	7.90

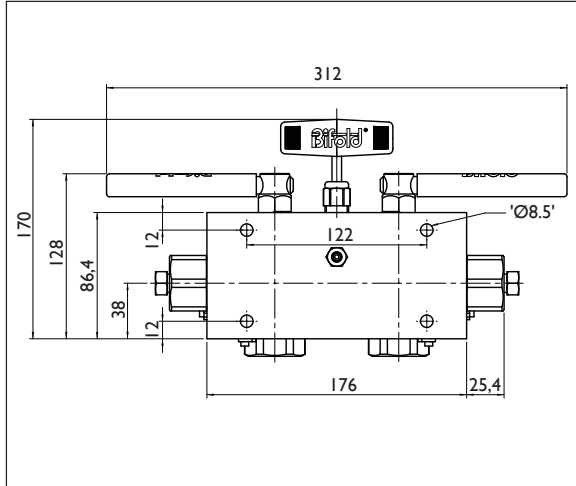


**MPBM**

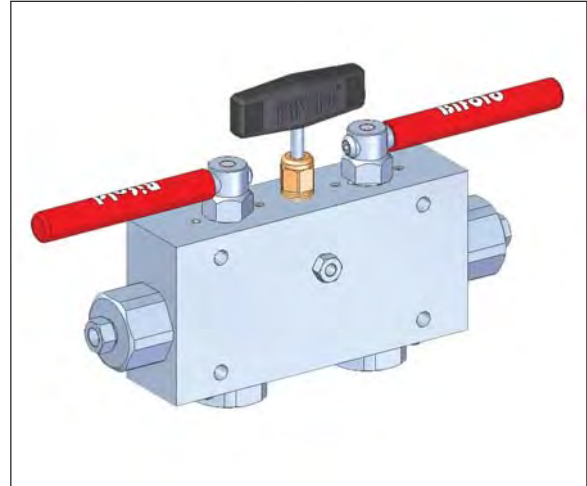
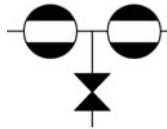
**Trunnion Style Double Block & Bleed Manifolds,  
10mm Bore**



**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPBM SELECTION TABLE**

Product Code	Size	Rated	Thickness	Minimum Orifice Size
MPBM-20-10-04-04-2-V	1/4" MP	20,000 psi / 1379 bar	44.45	2.80
MPBM-20-10-06-04-2-V	3/8" MP	20,000 psi / 1379 bar	44.45	5.20
MPBM-20-10-09-04-2-V	1/2" MP	20,000 psi / 1379 bar	44.45	7.90

**MPBM Selection Chart - Ordering Example**

<b>MPBM</b> Medium Pressure, Trunnion Ball Valve Manifold, 20,000 psi 1379 bar	Model Code
<b>20</b> 20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
<b>5</b> 5mm (3/16" Maximum)	Bore Size
<b>10</b> 10mm	
<b>04</b> 1/4" <b>06</b> 3/8" <b>09</b> 1/2" <b>12</b> 3/4" <b>16</b> 1"	Connection Size
<b>04</b> 1/4" <b>06</b> 3/8"	Vent Connection
<b>1</b> Single Block & Bleed <b>2</b> Double Block & Bleed <b>3</b> Double Block <b>4</b> Double Block & Bleed (with Gauge Ports)	Configuration
<b>V</b> Viton (80 Shore) -20°C to +170°C <b>V9</b> Endura V91A -20°C to +170°C <b>S</b> Nitrile -20°C to +120°C <b>H</b> HNBR -20°C to +160°C	O-ring Material
<b>NO LETTER</b> <b>LK</b> Lockable Handle <b>AV</b> Anti Tamper Vent	Options
<b>NO LETTER</b> 316L CW <b>08</b> (6MO) 254MO <b>26</b> Duplex UNS S31803 <b>39</b> Super Duplex UNS S32750/32760 <b>42</b> Inconel 625 UNS N06625 <b>45</b> Monel 400 UNS N04400 <b>49</b> Inconel 825 UNS N08825 <b>50</b> Hastelloy C276 <b>89</b> Titanium Gr2 UNS R50400 <b>90</b> Nickel 200 UNS N02200	Material

**MPBM-20-10-09-04-2-V**

Ordering Example

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**MPCV**

**Check Valves**

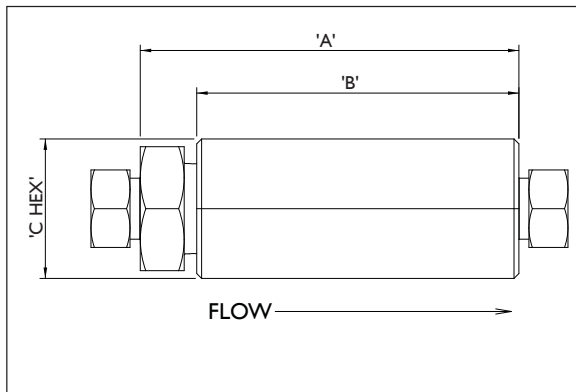
**Product Description**

The Bifold range of Check Valves have been developed using advanced sealing techniques from within the existing hydraulic control valve products. These sealing techniques ensure the ball check valve prevents reverse flow by providing a leak-tight shutoff. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection Skids, Water Jet and other general industrial applications.

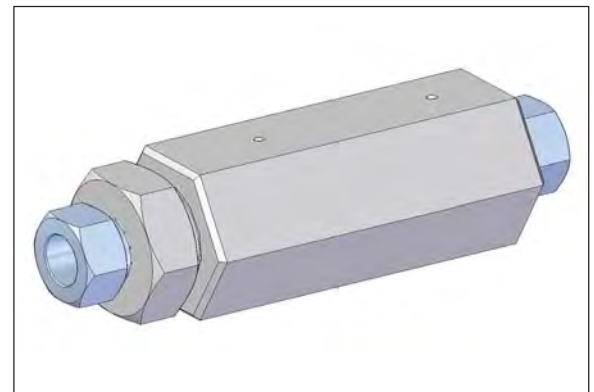
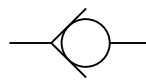
**Features and Benefits**

- 15 psi Nominal Cracking Pressure.
- Optimised Flow path.
- High tensile 316L CW stainless steel bodies as standard.
- Exotic materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Operating temperature range of -20°C to +120°C.
- Tube Sizes from 1/4" to 1".

**Dimensional Drawing**



**SCHEMATIC**



**PREFERRED RANGE MPCV SELECTION TABLE**

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C HEX' (mm)	Minimum Orifice Size
MPCV-20-04-I	1/4" MP	20,000 psi / 1379 bar	69.50	57.40	25.40	2.80
MPCV-20-06-I	3/8" MP	20,000 psi / 1379 bar	77.60	66.00	28.58	5.20
MPCV-20-09-I	9/16" MP	20,000 psi / 1379 bar	109.40	94.00	34.92	7.90
MPCV-20-12-I	3/4" MP	20,000 psi / 1379 bar	155.00	131.00	44.45	11.10
MPCV-20-16-I	1" MP	20,000 psi / 1379 bar	174.00	157.00	53.98	14.30

**MPCV Selection Chart - Ordering Example**

<b>MPCV</b>	Medium Pressure Check Valve, 20,000 psi / 1379 bar	Model Code
<b>20</b>	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
<b>04</b> <b>06</b> <b>09</b> <b>12</b> <b>16</b>	1/4" 3/8" 9/16" 3/4" 1"	Connection Size
<b>1</b> <b>2</b>	Ball Type Soft Seat Type	Configuration
<b>NO LETTER</b> <b>V</b> <b>S</b>	(for Ball Type only) Viton (80 Shore) Nitrile	O-ring Material
<b>MPCV-20 - 06 - 1</b>		Ordering Example

MPF

Product Description

The Bifold range of medium pressure valves also includes a range of fittings. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection Skids, Water Jet and other general industrial applications.

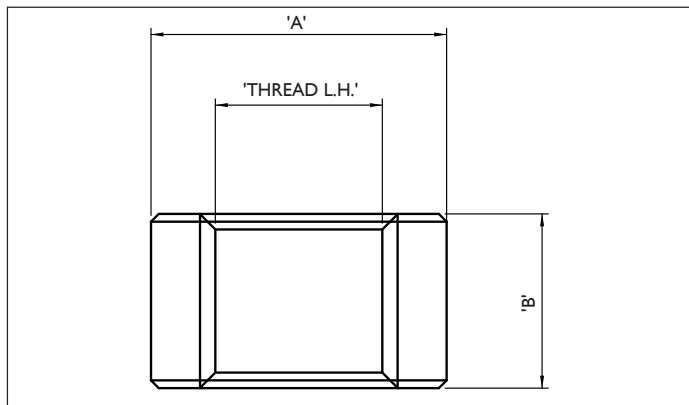
Features and Benefits

- High tensile 316L CW stainless steel as standard.
- Operating temperature range of -252°C to +649°C
- Exotic materials available upon request.
- Tube Sizes from 1/4" to 1".

MPF

Collar

Dimensional Drawing



PREFERRED RANGE MPF SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'Thread L.H'
MPF-04-C	1/4" MP	20,000 psi / 1379 bar	9.50	5.60	1/4" - 28 UNF
MPF-06-C	3/8" MP	20,000 psi / 1379 bar	11.90	6.30	3/8" - 24 UNF
MPF-09-C	9/16" MP	20,000 psi / 1379 bar	18.25	7.90	9/16" - 18 UNF
MPF-12-C	3/4" MP	20,000 psi / 1379 bar	23.80	9.50	3/4" - 16 UNF
MPF-16-C	1" MP	20,000 psi / 1379 bar	31.75	12.70	1" - 14 UN

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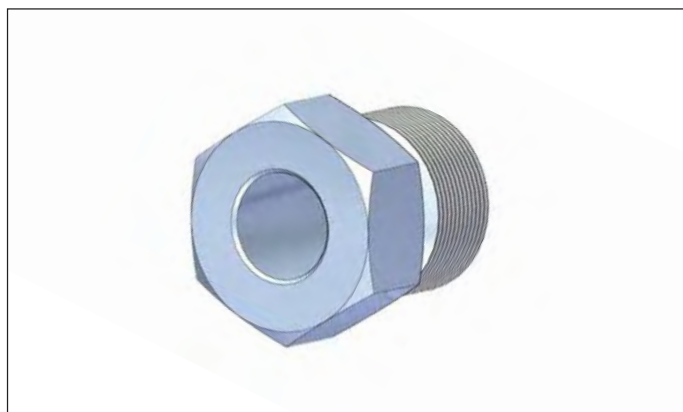
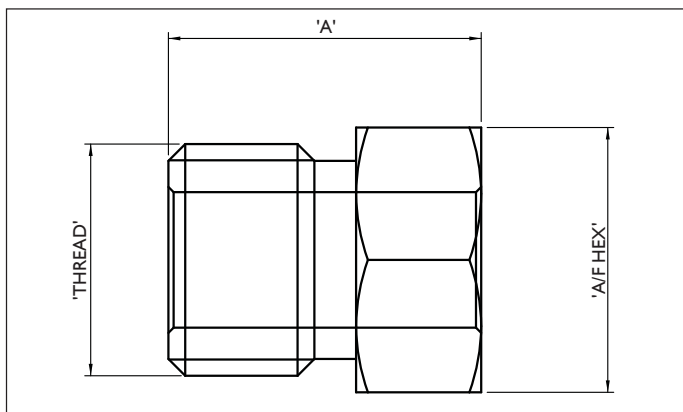
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**MPF**

**Gland Nut**

**Dimensional Drawing**



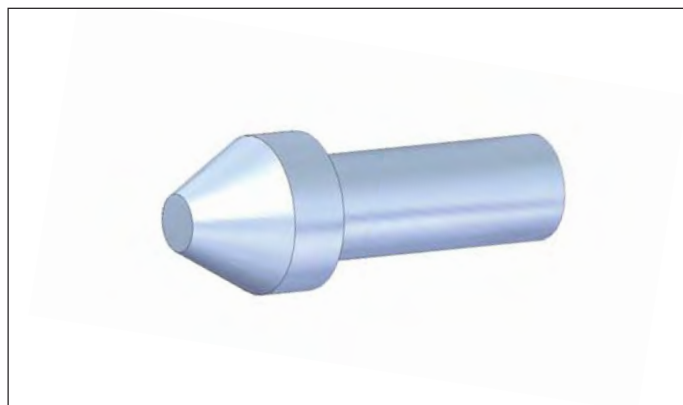
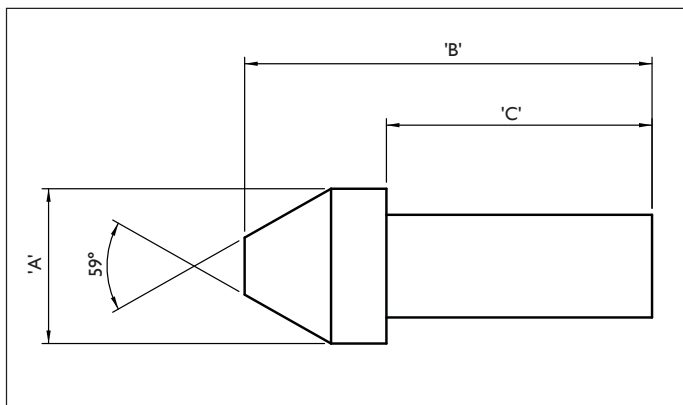
**PREFERRED RANGE MPF SELECTION TABLE**

Product Code	Size	Rated	'A/F Hex'	'A' (mm)	'Thread'
MPF-04-G	1/4" MP	20,000 psi / 1379 bar	12.70	15.00	7/16" - 20 UNF
MPF-06-G	3/8" MP	20,000 psi / 1379 bar	15.88	19.50	9/16" - 18 UNF
MPF-09-G	9/16" MP	20,000 psi / 1379 bar	22.22	25.40	13/16" - 16 UN
MPF-12-G	3/4" MP	20,000 psi / 1379 bar	30.00	26.00	3/4" - 14 NPSM
MPF-16-G	1" MP	20,000 psi / 1379 bar	35.00	36.00	1 3/8" - 12 UNF

**MPF**

**Plug**

**Dimensional Drawing**



**PREFERRED RANGE MPF SELECTION TABLE**

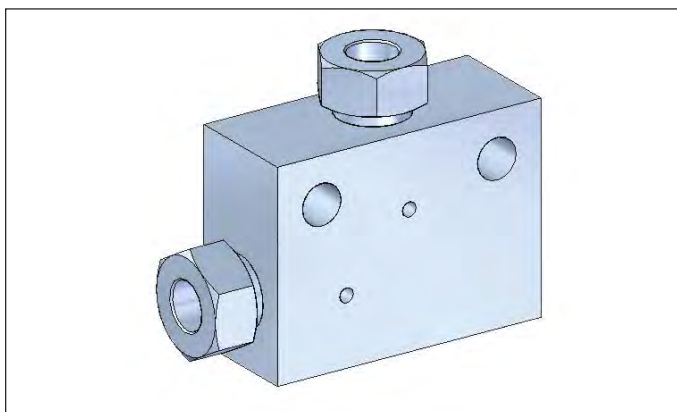
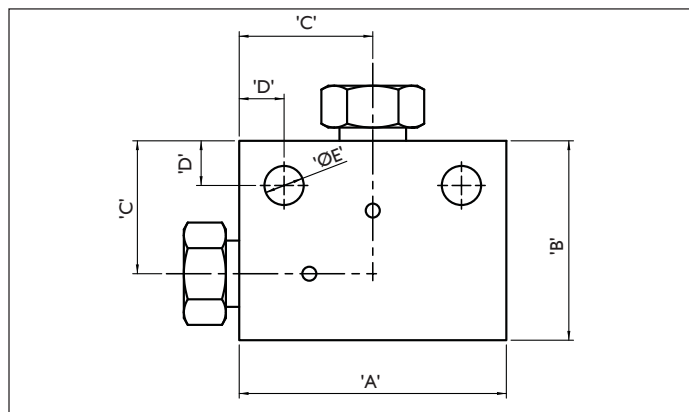
Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)
MPF-04-P	1/4" MP	20,000 psi / 1379 bar	9.50	25.00	16.30
MPF-06-P	3/8" MP	20,000 psi / 1379 bar	11.90	28.00	16.90
MPF-09-P	9/16" MP	20,000 psi / 1379 bar	18.25	40.00	27.30
MPF-12-P	3/4" MP	20,000 psi / 1379 bar	23.80	44.50	28.60
MPF-16-P	1" MP	20,000 psi / 1379 bar	31.75	60.00	39.40

MPF

Elbow



Dimensional Drawing



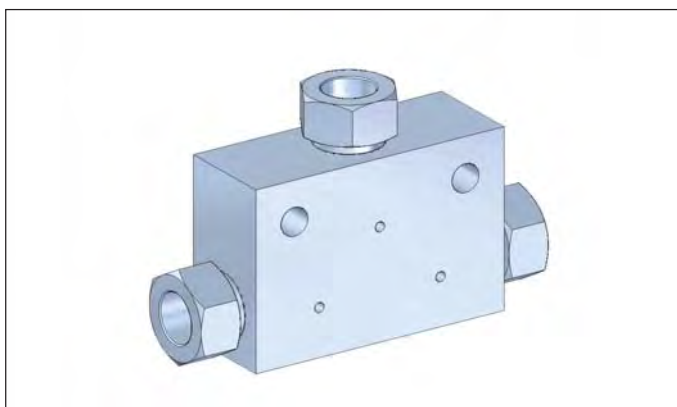
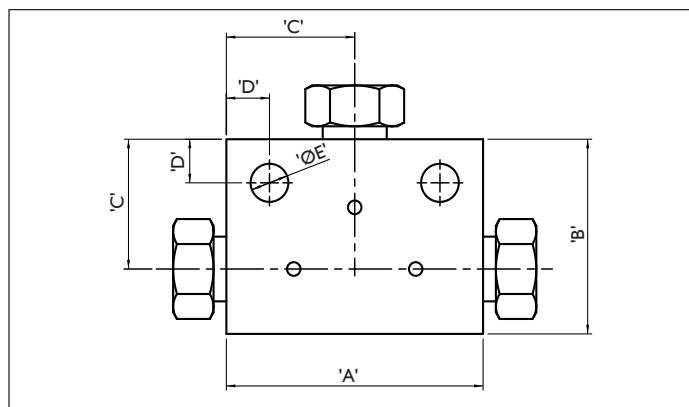
PREFERRED RANGE MPF SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'ØE' (mm)	Thickness (mm)
MPF-04-L	1/4" MP	20,000 psi / 1379 bar	38.10	28.60	19.05	6.40	5.60	15.80
MPF-06-L	3/8" MP	20,000 psi / 1379 bar	50.80	34.9	25.4	7.90	5.60	19.05
MPF-09-L	1/2" MP	20,000 psi / 1379 bar	63.50	44.40	31.75	12.70	7.10	25.4
MPF-12-L	3/4" MP	20,000 psi / 1379 bar	76.20	57.20	38.10	12.70	8.60	34.9
MPF-16-L	1" MP	20,000 psi / 1379 bar	104.80	76.2	52.40	17.50	10.40	44.45

MPF

Tee

Dimensional Drawing



PREFERRED RANGE MPF SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'ØE' (mm)	Thickness (mm)
MPF-04-T	1/4" MP	20,000 psi / 1379 bar	38.10	28.60	19.05	6.40	5.60	15.80
MPF-06-T	3/8" MP	20,000 psi / 1379 bar	50.80	34.90	25.40	7.90	5.60	19.05
MPF-09-T	1/2" MP	20,000 psi / 1379 bar	63.50	44.40	31.75	12.7	7.10	25.40
MPF-12-T	3/4" MP	20,000 psi / 1379 bar	76.20	57.20	38.10	12.7	8.60	34.90
MPF-16-T	1" MP	20,000 psi / 1379 bar	104.80	76.20	52.40	17.5	10.40	44.45

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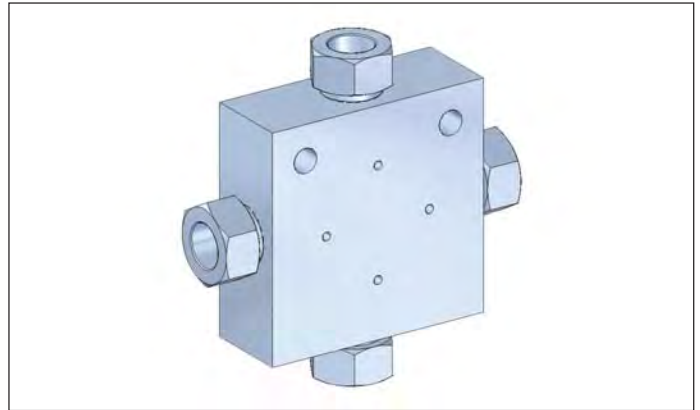
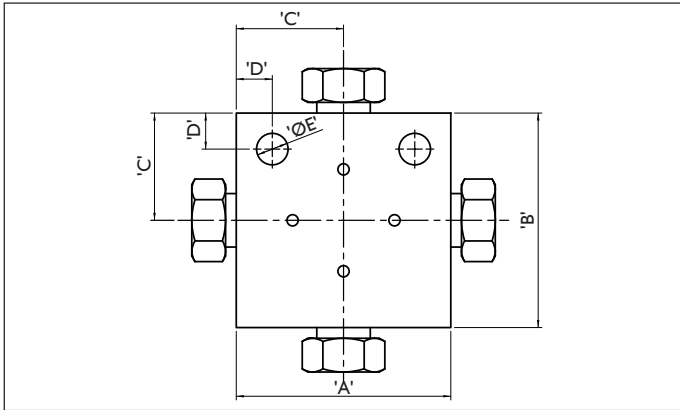
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**MPF**

**Cross**

**Dimensional Drawing**

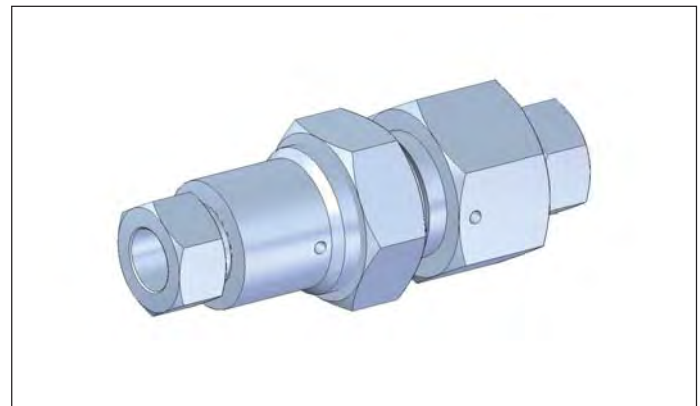
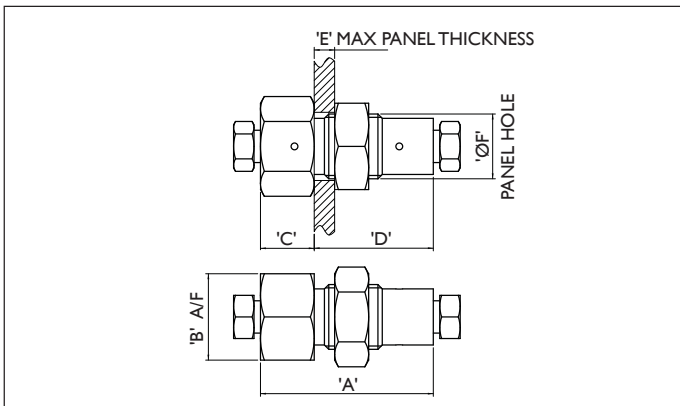


PREFERRED RANGE MPF SELECTION TABLE								
Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'ØE' (mm)	Thickness (mm)
MPF-04-X	1/4" MP	20,000 psi / 1379 bar	38.10	38.10	19.05	6.40	5.60	15.80
MPF-06-X	3/8" MP	20,000 psi / 1379 bar	50.80	50.80	25.40	7.90	5.60	19.05
MPF-09-X	1/2" MP	20,000 psi / 1379 bar	63.50	63.50	31.75	12.70	7.10	25.40
MPF-12-X	3/4" MP	20,000 psi / 1379 bar	76.20	76.20	38.10	12.70	8.60	34.90
MPF-16-X	1" MP	20,000 psi / 1379 bar	104.80	104.80	52.40	17.5	10.4	44.45

**MPF**

**Bulkhead Coupler**

**Dimensional Drawing**

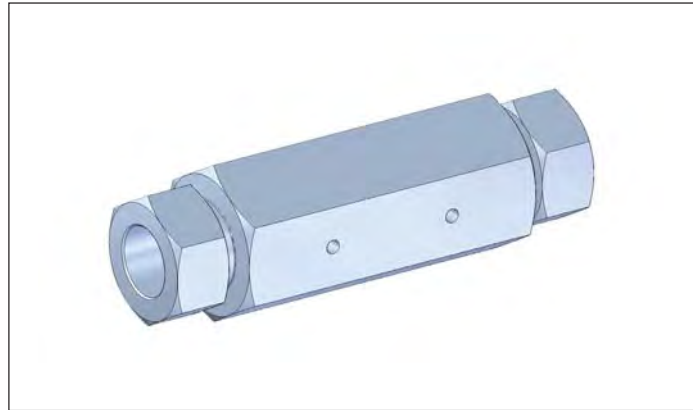
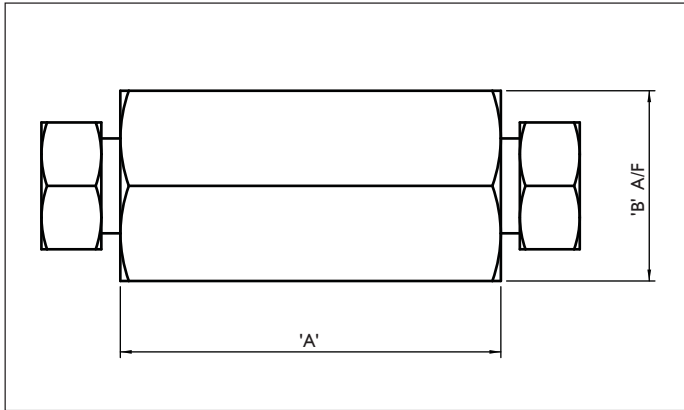


PREFERRED RANGE MPF SELECTION TABLE								
Product Code	Size	Rated	'A' (mm)	'B' (mm)	'C' (mm)	'D' (mm)	'ØF' (mm)	'E' (mm)
MPF-04-B	1/4" MP	20,000 psi / 1379 bar	50.80	25.40	15.80	35.00	20.00	10.00
MPF-06-B	3/8" MP	20,000 psi / 1379 bar	50.80	25.40	15.80	35.00	23.00	10.00
MPF-09-B	1/2" MP	20,000 psi / 1379 bar	66.70	34.90	22.20	44.50	28.00	16.00
MPF-12-B	3/4" MP	20,000 psi / 1379 bar	66.70	47.60	22.70	44.00	43.00	13.00
MPF-16-B	1" MP	20,000 psi / 1379 bar	89.00	54.00	38.00	51.00	49.00	10.00

MPF

Straight Coupler

Dimensional Drawing



PREFERRED RANGE MPF SELECTION TABLE

Product Code	Size	Rated	'A' (mm)	'B' (mm)
MPF-04-S	1/4" MP	20,000 psi / 1379 bar	38.10	19.05
MPF-06-S	3/8" MP	20,000 psi / 1379 bar	44.50	19.05
MPF-09-S	1/2" MP	20,000 psi / 1379 bar	54.00	25.40
MPF-12-S	3/4" MP	20,000 psi / 1379 bar	63.50	34.90
MPF-16-S	1" MP	20,000 psi / 1379 bar	88.90	44.45

MPF Selection Chart - Ordering Example

<b>MPF</b>	Medium Pressure Fittings, up to and including 20,000 / 1379 bar	Model Code
<b>04</b> <b>06</b> <b>09</b> <b>12</b> <b>16</b>	1/4" MP (Minimum Orifice Size 2.8) 3/8" MP (Minimum Orifice Size 5.2) 1/2" MP (Minimum Orifice Size 7.9) 3/4" MP (Minimum Orifice Size 11.10) 1" MP (Minimum Orifice Size 14.30)	Connection Size
<b>C</b> <b>G</b> <b>P</b> <b>L</b> <b>T</b> <b>X</b> <b>B</b> <b>S</b>	Collar Gland Nut Plug Elbow Tee Cross Bulkhead Coupler Straight Coupler	Type
<b>NO LETTER</b> <b>08</b> <b>26</b> <b>39</b> <b>42</b> <b>45</b> <b>49</b> <b>50</b> <b>89</b> <b>90</b>	316L CW (6MO) 254MO Duplex UNS S31803 Super Duplex UNS S32750/32760 Inconel 625 UNS N06625 Monel 400 UNS N04400 Inconel 825 UNS N08825 Hastelloy C276 Titanium Gr2 UNS R50400 Nickel 200 UNS N02200	Material
<b>WO</b> <b>AP</b> <b>AVA</b>	Without Glands & Collars All Parts* (exotic materials only) *Exotic material glands and collars rather than the default of only wetted parts. Anti Vibration Assemblies* *Anti vibration assemblies added to all ports in place of default collars & glands	Option

MPF-04 - G

Ordering Example

MPF

Adaptors



Product Description

The Bifold range of medium pressure valves also includes a range of adaptors. Typical applications include Hydraulic Control Panels, Hydrostatic testing equipment, Chemical Injection Skids, Water Jet and other general industrial applications.

Features and Benefits

- High tensile 316L CW stainless steel as standard.
- Operating temperature range of -252°C to +649°C
- Exotic materials available upon request.
- Tube Sizes from 1/4" to 1".

MPF

Adaptors

Adaptors Male NPT x Male MP

ADAPTORS MALE NPT x MALE MP SELECTION TABLE					
	1/4" MP	3/8" MP	1/2" MP	3/4" MP	1" MP
1/8" NPT	MPF-02N-04-N	MPF-02N-06-N	MPF-02N-09-N	MPF-02N-12-N	MPF-02N-16-N
1/4" NPT	MPF-04N-04-N	MPF-04N-06-N	MPF-04N-09-N	MPF-04N-12-N	MPF-04N-16-N
3/8" NPT	MPF-06N-04-N	MPF-06N-06-N	MPF-06N-09-N	MPF-06N-12-N	MPF-06N-16-N
1/2" NPT	MPF-08N-04-N	MPF-08N-06-N	MPF-08N-09-N	MPF-08N-12-N	MPF-08N-16-N
3/4" NPT	MPF-12N-04-N	MPF-12N-06-N	MPF-12N-09-N	MPF-12N-12-N	MPF-12N-16-N
1" NPT	MPF-16N-04-N	MPF-16N-06-N	MPF-16N-09-N	MPF-16N-12-N	MPF-16N-16-N

Adaptors Male MP x Male MP

ADAPTORS MALE MP x MALE MP SELECTION TABLE					
	1/4" MP	3/8" MP	1/2" MP	3/4" MP	1" MP
1/4" MP	MPF-04-04-N	MPF-04-06-N	MPF-04-09-N	MPF-04-12-N	MPF-04-16-N
3/8" MP	MPF-04-06-N	MPF-06-06-N	MPF-06-09-N	MPF-06-12-N	MPF-06-16-N
1/2" MP	MPF-04-09-N	MPF-06-09-N	MPF-09-09-N	MPF-09-12-N	MPF-09-16-N
3/4" MP	MPF-04-12-N	MPF-06-12-N	MPF-09-12-N	MPF-12-12-N	MPF-12-16-N
1" MP	MPF-04-16-N	MPF-06-16-N	MPF-09-16-N	MPF-12-16-N	MPF-16-16-N

**Adaptors Male NPT x Female MP**

		FEMALE				
		ADAPTORS MALE NPT x FEMALE MP SELECTION TABLE				
		¼" MP	⅜" MP	⅞" MP	¾" MP	1" MP
MALE	⅛" NPT	MPF-02N-04-A	MPF-02N-06-A	MPF-02N-09-A	MPF-02N-12-A	MPF-02N-16-A
	¼" NPT	MPF-04N-04-A	MPF-04N-06-A	MPF-04N-09-A	MPF-04N-12-A	MPF-04N-16-A
	⅜" NPT	MPF-06N-04-A	MPF-06N-06-A	MPF-06N-09-A	MPF-06N-12-A	MPF-06N-16-A
	½" NPT	MPF-08N-04-A	MPF-08N-06-A	MPF-08N-09-A	MPF-08N-12-A	MPF-08N-16-A
	¾" NPT	MPF-12N-04-A	MPF-12N-06-A	MPF-12N-09-A	MPF-12N-12-A	MPF-12N-16-A
	1" NPT	MPF-16N-04-A	MPF-16N-06-A	MPF-16N-09-A	MPF-16N-12-A	MPF-16N-16-A

**Adaptors Male MP x Female NPT**

		FEMALE					
		ADAPTORS MALE MP x FEMALE NPT SELECTION TABLE					
		⅛" NPT	¼" NPT	⅜" NPT	½" NPT	¾" NPT	1" NPT
MALE	¼" MP	MPF-04-02N-A	MPF-04-04N-A	MPF-04-06N-A	MPF-04-08N-A	MPF-04-12N-A	MPF-04-16N-A
	⅜" MP	MPF-06-02N-A	MPF-06-04N-A	MPF-06-06N-A	MPF-06-08N-A	MPF-06-12N-A	MPF-06-16N-A
	⅞" MP	MPF-09-02N-A	MPF-09-04N-A	MPF-09-06N-A	MPF-09-08N-A	MPF-09-12N-A	MPF-09-16N-A
	¾" MP	MPF-12-02N-A	MPF-12-04N-A	MPF-12-06N-A	MPF-12-08N-A	MPF-12-12N-A	MPF-12-16N-A
	1" MP	MPF-16-02N-A	MPF-16-04N-A	MPF-16-06N-A	MPF-16-09N-A	MPF-16-12N-A	MPF-16-16N-A

**Adaptors Male MP x Female MP**

		FEMALE				
		ADAPTORS MALE MP x FEMALE MP SELECTION TABLE				
		¼" MP	⅜" MP	⅞" MP	¾" MP	1" MP
MALE	¼" MP	MPF-04-04-A	MPF-04-06-A	MPF-04-09-A	MPF-04-12-A	MPF-04-16-A
	⅜" MP	MPF-06-04-A	MPF-06-06-A	MPF-06-09-A	MPF-06-12-A	MPF-06-16-A
	⅞" MP	MPF-09-04-A	MPF-09-06-A	MPF-09-09-A	MPF-09-12-A	MPF-09-16-A
	¾" MP	MPF-12-04-A	MPF-12-06-A	MPF-12-09-A	MPF-12-12-A	MPF-12-16-A
	1" MP	MPF-16-04-A	MPF-16-06-A	MPF-16-09-A	MPF-16-12-A	MPF-16-16-A

Other adaptors available upon request.

**Accuracy of information**  
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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

**Quality Assurance**  
All Bifold products are manufactured to a most stringent QA programme to ensure that every product will give optimum performance and reliability. We are third party certified to BS EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BS EN 10204 3.1 where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

Relief Valves



[www.bifold.co.uk](http://www.bifold.co.uk)

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Bifold Marshalsea  
 is a member of the  
**Bifold Group 35**  
 of companies

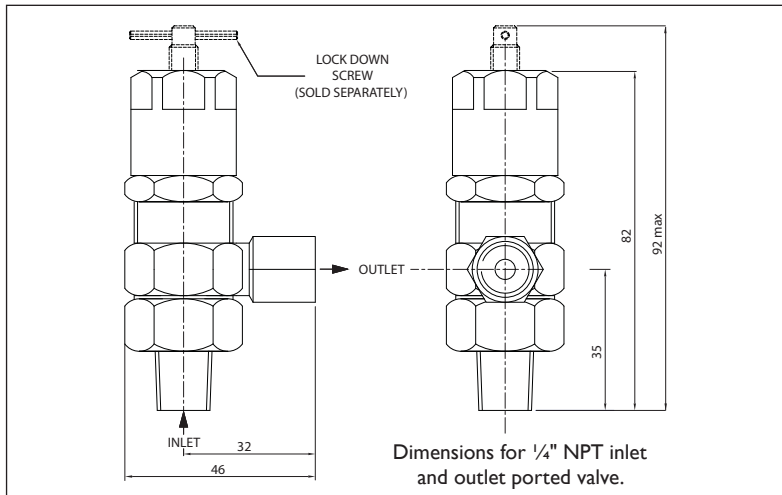


Hydraulic Service

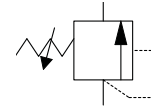


Thermal Relief Valves up to 1300 bar Set Point

Dimensional Drawing



SCHEMATIC



Features and Benefits

- No need to remove from the system for proof testing.
- Unique lock down screw facility.
- Set Point Repeatability  $\pm 2\%$ .
- Set Point Range - user specified up to 1300 bar.
- Sealing Re-Seat Pressure - Virtually zero leakage re-seat pressure  $\geq 90\%$  of cracking pressure.
- Proof Test - proof test pressure: 1000 bar. proof test pressure: 1700 bar.
- Orifice Size:  $\varnothing 4\text{mm}$ .
- Back Pressure - set point is not affected by vent back pressure. Maximum permissible back pressure 100 bar.
- Operating Media - mineral oils, water glycol fluids and some chemicals. Consult Bifold Marshalsea for specific chemicals and synthetic oils compatibility.
- Long Life and Repeatable Performance - are ensured through the use of hardened elements.

Materials

Body	- 316L stainless steel
Spring	- 316S42 and 302S26 stainless steel
Seal Material	- Nitrile
	- Viton
	- Silicone
	- Low Temp Nitrile
Seat Material	- PEEK, Stainless Steel, Polyurethane

Approvals Details



These relief valves conform to European Directive 94/9/EC relating to equipment intended for use in potentially explosive atmospheres and are ATEX compliant. These valves also conform to the Pressure Equipment Directive 97/23/EC. All valves are CE marked and supplied with a test certificate plus a declaration of conformity.

Product Description

The Type I4480 thermal relief valve has been designed primarily to provide over pressure protection in systems subject to fluid thermal expansion, but it can also be reliably used as the primary relief valve in systems with low volume pump flow rates.

A unique feature of this valve is the lock down facility that eliminates the need to remove or disconnect the valve during proof testing of the system. Provision is made in the cap for a special lock down screw to be inserted to disable the valve and hold it closed against the increasing pressures applied during testing of the system pipe work and components. This eliminates the

need to remove or disconnect the valve during test procedures. When the lock down screw is removed, the valve reverts to its as set condition without further adjustment or re-calibration.

The thread in the cap is a non-preferred size, thereby preventing unauthorised insertion of other types of screw. Lock down screws are not provided with each valve to prevent unauthorised use; they are available on request.

The relief valve weight is :- 0.24 Kg.

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Hydraulic Service



Selection Chart - Ordering Example

THERMAL RELIEF VALVE I4480 SPECIFICATIONS				
Part Number	Pressure Range (bar)	Inlet Connection	Outlet Connection	Repair Kit
I4480 - 24	7 - 50	1/4" NPT Female	1/4" NPT Female	RS I4480 - 24
I4480 - 25	50 - 200	1/4" NPT Female	1/4" NPT Female	RS I4480 - 25
I4480 - 26	200 - 600	1/4" NPT Female	1/4" NPT Female	RS I4480 - 26
I4480 - 27	600 - 800	1/4" NPT Female	1/4" NPT Female	RS I4480 - 27
I4480 - 20	7 - 50	1/4" NPT Female	1/4" NPT Female	RS I4480 - 20
I4480 - 03	35 - 345	1/4" NPT Female	1/4" NPT Female	RS I4480 - 03
I4480 - 21	50 - 200	1/4" NPT Female	1/4" NPT Female	RS I4480 - 21
I4480 - 22	200 - 600	1/4" NPT Female	1/4" NPT Female	RS I4480 - 22
I4480 - 04	345 - 690	1/4" NPT Female	1/4" NPT Female	RS I4480 - 04
I4480 - 23	600 - 800	1/4" NPT Female	1/4" NPT Female	RS I4480 -23
I4480 - 30	7 - 50	1/4" BSP Female	1/4" BSP Female	RS I4480 - 30
I4480 - 31	50 - 200	1/4" BSP Female	1/4" BSP Female	RS I4480 - 31
I4480 - 32	200 - 600	1/4" BSP Female	1/4" BSP Female	RS I4480 - 32
I4480 - 33	600 - 800	1/4" BSP Female	1/4" BSP Female	RS I4480 - 33
I4480 - 49	7 - 50	1/4" MP	1/4" NPT	RS I4480 - 49
I4480 - 50	35 - 345	1/4" MP	1/4" NPT	RS I4480 - 50
I4480 - 51	50 - 200	1/4" MP	1/4" NPT	RS I4480 - 51
I4480 - 52	200 - 600	1/4" MP	1/4" NPT	RS I4480 - 52
I4480 - 53	345 - 690	1/4" MP	1/4" NPT	RS I4480 - 53
I4480 - 54	600 - 800	1/4" MP	1/4" NPT	RS I4480 - 54
I4480 - 55	600 - 1300	1/4" MP	1/4" NPT	RS I4480 - 55
I4480 - 44	7 - 50	3/8" MP Female	1/4" MP Female	RS I4480 - 44
I4480 - 46	200 - 600	3/8" MP Female	1/4" MP Female	RS I4480 - 46
I4480 - 47	600 - 1300	3/8" MP Female	1/4" MP Female	RS I4480 - 47
I4480 - 56	7 - 50	3/8" NPT Female	1/4" NPT Female	RS I4480 - 56
I4480 - 57	35 - 345	3/8" NPT Female	1/4" NPT Female	RS I4480 - 57
I4480 - 58	50 - 200	3/8" NPT Female	1/4" NPT Female	RS I4480 - 58
I4480 - 59	200 - 600	3/8" NPT Female	1/4" NPT Female	RS I4480 - 59
I4480 - 60	345 - 690	3/8" NPT Female	1/4" NPT Female	RS I4480 - 60
I4480 - 61	600 - 800	3/8" NPT Female	1/4" NPT Female	RS I4480 - 61
I4480 - 62	600 - 1300	3/8" NPT Female	1/4" NPT Female	RS I4480 - 62
I4480 - 63	7 - 50	3/8" NPT	3/8" NPT	RS I4480 - 63
I4480 - 64	35 - 345	3/8" NPT	3/8" NPT	RS I4480 - 64
I4480 - 65	50 - 200	3/8" NPT	3/8" NPT	RS I4480 - 65
I4480 - 66	200 - 600	3/8" NPT	3/8" NPT	RS I4480 - 66
I4480 - 67	345 - 690	3/8" NPT	3/8" NPT	RS I4480 - 67
I4480 - 68	600 - 800	3/8" NPT	3/8" NPT	RS I4480 - 68
I4480 - 69	600 - 1300	3/8" NPT	3/8" NPT	RS I4480 - 69
I4480 - 70	7 - 50	3/8" BSP	3/8" BSP	RS I4480 - 70
I4480 - 71	35 - 345	3/8" BSP	3/8" BSP	RS I4480 - 71
I4480 - 72	50 - 200	3/8" BSP	3/8" BSP	RS I4480 - 72
I4480 - 73	200 - 600	3/8" BSP	3/8" BSP	RS I4480 - 73
I4480 - 74	345 - 690	3/8" BSP	3/8" BSP	RS I4480 - 74
I4480 - 75	600 - 800	3/8" BSP	3/8" BSP	RS I4480 - 75
I4480 - 76	600 - 1300	3/8" BSP	3/8" BSP	RS I4480 - 76
I4480 - 77	7 - 50	3/8" MP Female	3/8" NPT Female	RS I4480 - 77
I4480 - 78	35 - 345	3/8" MP Female	3/8" NPT Female	RS I4480 - 78
I4480 - 79	50 - 200	3/8" MP Female	3/8" NPT Female	RS I4480 - 79
I4480 - 80	200 - 600	3/8" MP Female	3/8" NPT Female	RS I4480 - 80
I4480 - 81	345 - 690	3/8" MP Female	3/8" NPT Female	RS I4480 - 81
I4480 - 82	600 - 800	3/8" MP Female	3/8" NPT Female	RS I4480 - 82
I4480 - 83	600 - 1300	3/8" MP Female	3/8" NPT Female	RS I4480 - 83
I4480 - 84	7 - 50	1/6" MP	1/4" NPT	RS I4480 - 84
I4480 - 85	35 - 345	1/6" MP	1/4" NPT	RS I4480 - 85
I4480 - 86	50 - 200	1/6" MP	1/4" NPT	RS I4480 - 86
I4480 - 87	200 - 600	1/6" MP	1/4" NPT	RS I4480 - 87
I4480 - 88	345 - 690	1/6" MP	1/4" NPT	RS I4480 - 88
I4480 - 89	600 - 800	1/6" MP	1/4" NPT	RS I4480 - 89
I4480 - 90	600 - 1300	1/6" MP	1/4" NPT	RS I4480 - 90
I4480 - 91	7 - 50	1/6" MP	3/8" NPT	RS I4480 - 91
I4480 - 92	35 - 345	1/6" MP	3/8" NPT	RS I4480 - 92
I4480 - 93	50 - 200	1/6" MP	3/8" NPT	RS I4480 - 93
I4480 - 94	200 - 600	1/6" MP	3/8" NPT	RS I4480 - 94
I4480 - 95	345 - 690	1/6" MP	3/8" NPT	RS I4480 - 95
I4480 - 96	600 - 800	1/6" MP	3/8" NPT	RS I4480 - 96
I4480 - 97	600 - 1300	1/6" MP	3/8" NPT	RS I4480 - 97

Lock Down Screw Part Number: I4489 - 01

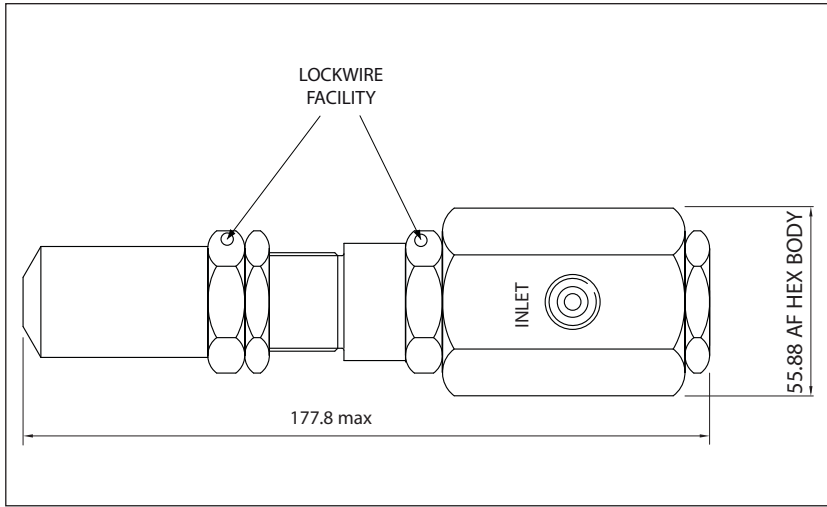
It is the responsibility of the system designer and user to select products that are suitable for their intended application of use.

Hydraulic Service

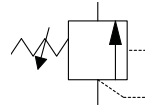


Dimensional Drawing

Relief Valves for Accurate Pressure Control up to 1200 bar Set Point



SCHEMATIC



Features and Benefits

- Up to 1200 bar, 25 l / m.
- Set Point Repeatability  $\pm 2\%$ .
- Sealing Re-Seat Pressure - Virtually zero leakage re-seat pressure  $\geq 90\%$  of cracking pressure.
- Proof Test - proof test pressure: 1000 bar.  
\* proof test pressure: 1350 bar.
- Flow Capacity - at up to 10% overpressure: 25 l / m.
- Orifice Size:  $\varnothing 1/8"$ .
- Important - Set point is affected by vent port back pressure and will DECREASE accordingly.
- The Main Spring Load - is not transmitted to the seat, thus reducing distortion and wear.

Materials

External & Wetted Parts	- 316L stainless steel	
	- M390	
Seal Material	- Nitrile	- standard
	- Viton	- add suffix M089 eg. I4520 - 08 - M089
	- Silicone	- add suffix M065 eg. I4520 - 08 - M065
	- Low Temp Nitrile	- add suffix M106 eg. I4520 - 08 - M106
Seat Material	- M340	

Working Temperature

Temperature Range:	
Viton -	(-20°C to +180°C)
Nitrile -	(-20°C to +80°C)
Fluorosilicone -	(-60°C to +60°C)
Acetal -	(-60°C to +60°C)

Approvals Details



These relief valves conform to European Directive 94/9/EC relating to equipment intended for use in potentially explosive atmospheres and are ATEX compliant. These valves also conform to the Pressure Equipment Directive 97/23/EC. All valves are marked and supplied with a test certificate plus a declaration of conformity.

Product Description

The Type I4520, I4530, I4580 and I4570 precision relief valve has been designed to provide accurate over pressure protection in systems operating at pressures of up to 1200 bar and flows of up to 25 l / m.

Precision relief valves have very high sealing forces along with accurate and narrow dead bands. Precision relief valves should be used in preference to sprung relief valves where there is risk of vibration induced leakage or where dead bands are important to system safety performance. Sprung relief valves typically will have a narrow dead band when tested on a static dead weight

tester but will have a much wider dead band under flowing conditions and will require a significant drop in system pressure to enable the valve to reseat. The floating poppet design enhanced by the use of linear bearings produces characteristics which are non flow dependent and ensures long life with repeatable performance.

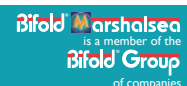
Installation and removal of system pipe work is simplified by the right angled porting configuration.

The relief valve weight is 0.97 Kg.

**Accuracy of information**  
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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

**Quality Assurance**  
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Hydraulic Service



Selection Chart - Ordering Example

PRECISION RELIEF VALVE I4520, I4530, I4580 & I4570 SPECIFICATIONS

Part Number	Pressure Range (bar)	Inlet Connection	Outlet Connection	Repair Kit
I4530 - 01	100 - 240	¼" NPT	¼" NPT	RS I4530 - 01
I4530 - 02	207 - 414	¼" NPT	¼" NPT	RS I4530 - 02
I4530 - 03	345 - 700	¼" NPT	¼" NPT	RS I4530 - 03
I4530 - 04	100 - 240	¼" BSP	¼" BSP	RS I4530 - 04
I4530 - 05	207 - 414	¼" BSP	¼" BSP	RS I4530 - 05
I4530 - 06	345 - 700	¼" BSP	¼" BSP	RS I4530 - 06
I4580 - 13	100 - 240	¾" MP	¼" NPT	RS I4580 - 13
I4580 - 14	207 - 414	¾" MP	¼" NPT	RS I4580 - 14
I4580 - 15	345 - 700	¾" MP	¼" NPT	RS I4580 - 15
I4580 - 16	600 - 1200	¾" MP	¼" NPT	RS I4580 - 16
I4520 - 01	100 - 240	¾" NPT	¾" NPT	RS I4520 - 01
I4520 - 02	207 - 414	¾" NPT	¾" NPT	RS I4520 - 02
I4520 - 03	345 - 700	¾" NPT	¾" NPT	RS I4520 - 03
I4520 - 04	100 - 240	¾" BSP	¾" BSP	RS I4520 - 04
I4520 - 05	207 - 414	¾" BSP	¾" BSP	RS I4520 - 05
I4520 - 06	345 - 700	¾" BSP	¾" BSP	RS I4520 - 06
I4580 - 01	100 - 240	¾" MP	¾" NPT	RS I4580 - 01
I4580 - 02	207 - 414	¾" MP	¾" NPT	RS I4580 - 02
I4580 - 03	345 - 700	¾" MP	¾" NPT	RS I4580 - 03
I4580 - 04	600 - 1200	¾" MP	¾" NPT	RS I4580 - 04
I4580 - 07	100 - 240	¾" MP	¾" BSP	RS I4580 - 07
I4580 - 08	207 - 414	¾" MP	¾" BSP	RS I4580 - 08
I4580 - 09	600 - 1200	¾" MP	¾" BSP	RS I4580 - 09
I4580 - 10	345 - 700	¾" MP	¾" BSP	RS I4580 - 10
I4580 - 11	600 - 1200	¾" MP	¾" MP	RS I4580 - 11
I4580 - 17	100 - 240	¾" MP	½" NPT	RS I4580 - 17
I4580 - 18	207 - 414	¾" MP	½" NPT	RS I4580 - 18
I4580 - 19	345 - 700	¾" MP	½" NPT	RS I4580 - 19
I4580 - 20	600 - 1200	¾" MP	½" NPT	RS I4580 - 20
23600 - 01	100 - 240	½" NPT	½" NPT	RS 23600 - 01
23600 - 02	207 - 414	½" NPT	½" NPT	RS 23600 - 02
23600 - 03	345 - 700	½" NPT	½" NPT	RS 23600 - 03
23600 - 04	600 - 1200	½" NPT	½" NPT	RS 23600 - 04
I4570 - 01	100 - 240	⅞" MP	¾" NPT	RS I4570 - 01
I4570 - 02	207 - 414	⅞" MP	¾" NPT	RS I4570 - 02
I4570 - 03	345 - 700	⅞" MP	¾" NPT	RS I4570 - 03
I4570 - 04	345 - 700	⅞" MP	¾" NPT	RS I4570 - 04
I4570 - 07	100 - 240	⅞" MP	¾" BSP	RS I4570 - 07
I4570 - 08	207 - 414	⅞" MP	¾" BSP	RS I4570 - 08
I4570 - 09	600 - 1200	⅞" MP	¾" BSP	RS I4570 - 09
I4570 - 10	345 - 700	⅞" MP	¾" BSP	RS I4570 - 10
I4570 - 11	600 - 1200	⅞" MP	⅞" MP	RS I4570 - 11
I4570 - 12	100 - 240	⅞" MP	½" NPT	RS I4570 - 12
I4570 - 13	207 - 414	⅞" MP	½" NPT	RS I4570 - 13
I4570 - 14	345 - 700	⅞" MP	½" NPT	RS I4570 - 14
I4570 - 15	600 - 1200	⅞" MP	½" NPT	RS I4573 - 15
23700 - 01	100 - 240	¾" NPT	¾" NPT	RS 23700 - 01
23700 - 02	207 - 414	¾" NPT	¾" NPT	RS 23700 - 02
23700 - 03	345 - 700	¾" NPT	¾" NPT	RS 23700 - 03
23700 - 04	600 - 1200	¾" NPT	¾" NPT	RS 23700 - 04
23800 - 01	100 - 240	¾" MP	¾" MP	RS 23800 - 01
23800 - 02	207 - 414	¾" MP	¾" MP	RS 23800 - 02
23800 - 03	345 - 700	¾" MP	¾" MP	RS 23800 - 03
23800 - 04	600 - 1200	¾" MP	¾" MP	RS 28700 - 04

It is the responsibility of the system designer and user to select products that are suitable for their intended application of use.

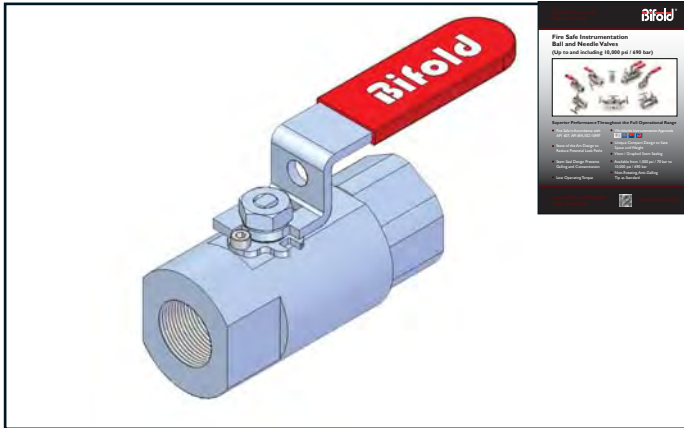


Product Range

These Products Do Not Fall Within The Medium Pressure Range

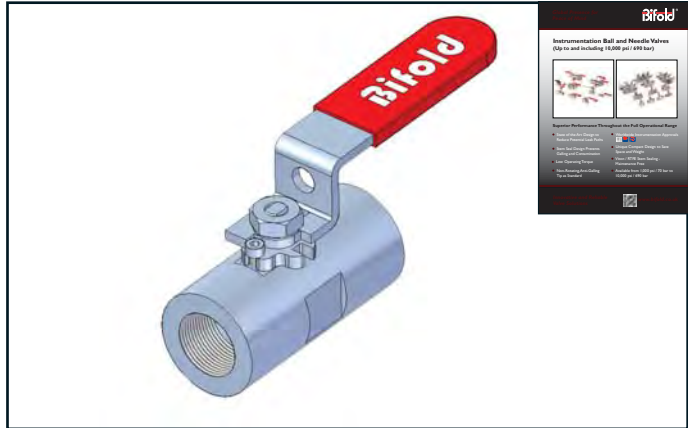


Fire Safe Instrumentation Valves



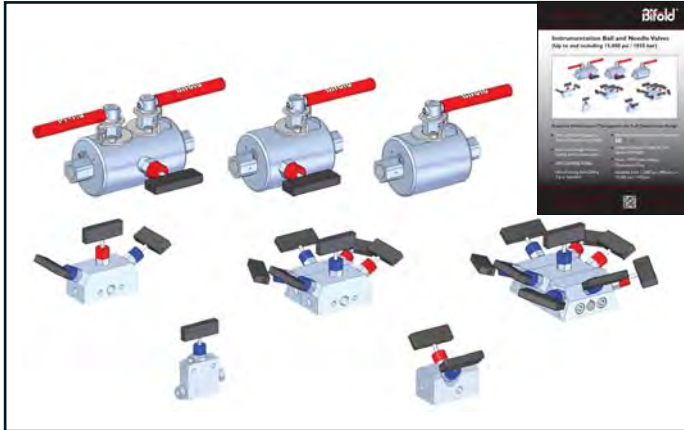
Please see the Ball and Needle Valve Fire Safe Catalogue for the full product range.

Instrumentation Valves



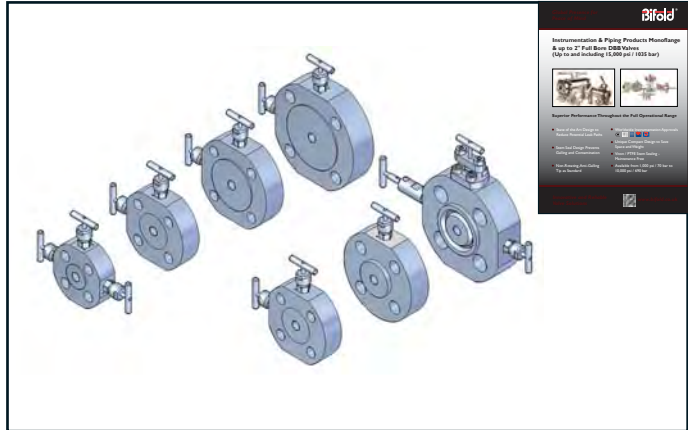
Please see the Instrumentation Ball and Needle Valve Catalogue for the full product range.

13K and 15K



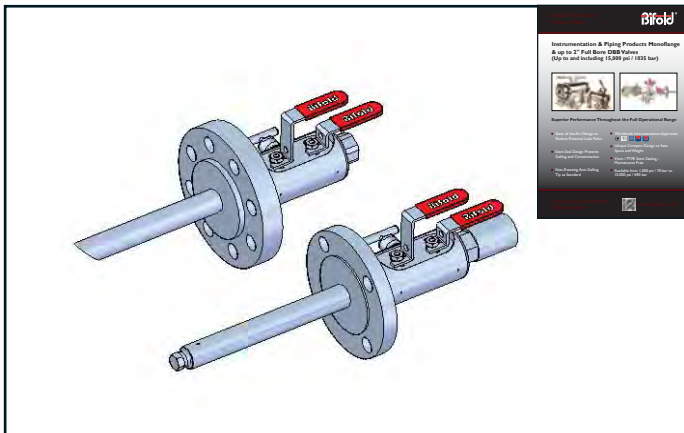
Please see the Instrumentation Ball and Needle Valve 13K and 15K Catalogue for the full product range.

Monoflanges



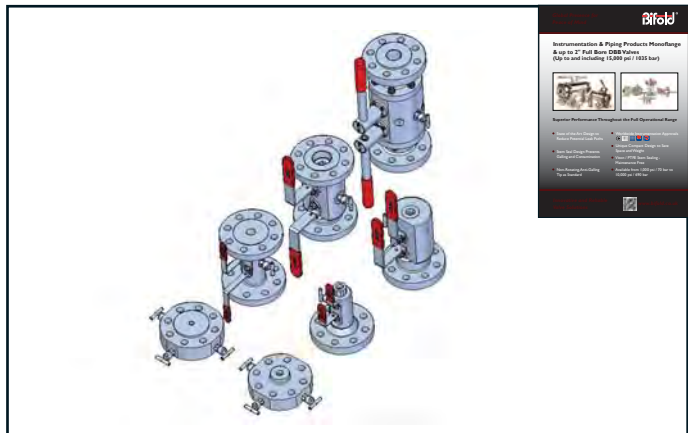
Please see the Instrumentation and Piping Catalogue for the full product range of monoflanges.

Double Block & Bleed Injection / Sampling Valves



Please see the Instrumentation and Piping Catalogue for the full product range of DBB Injection / Sampling Valves.

Double Block & Bleed Valves



Please see the Instrumentation and Piping Catalogue for the full product range of Double Block & Bleed Valves.

**Accuracy of information**  
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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

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All Bifold products are manufactured to a most stringent QA programme to ensure that every product will give optimum performance and reliability. We are third party certified to BS EN ISO 9001:2008. Functional test certificate, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BS EN 10204 3.1 where available. We reserve the right to make changes to the specifications and design etc., without prior notice.



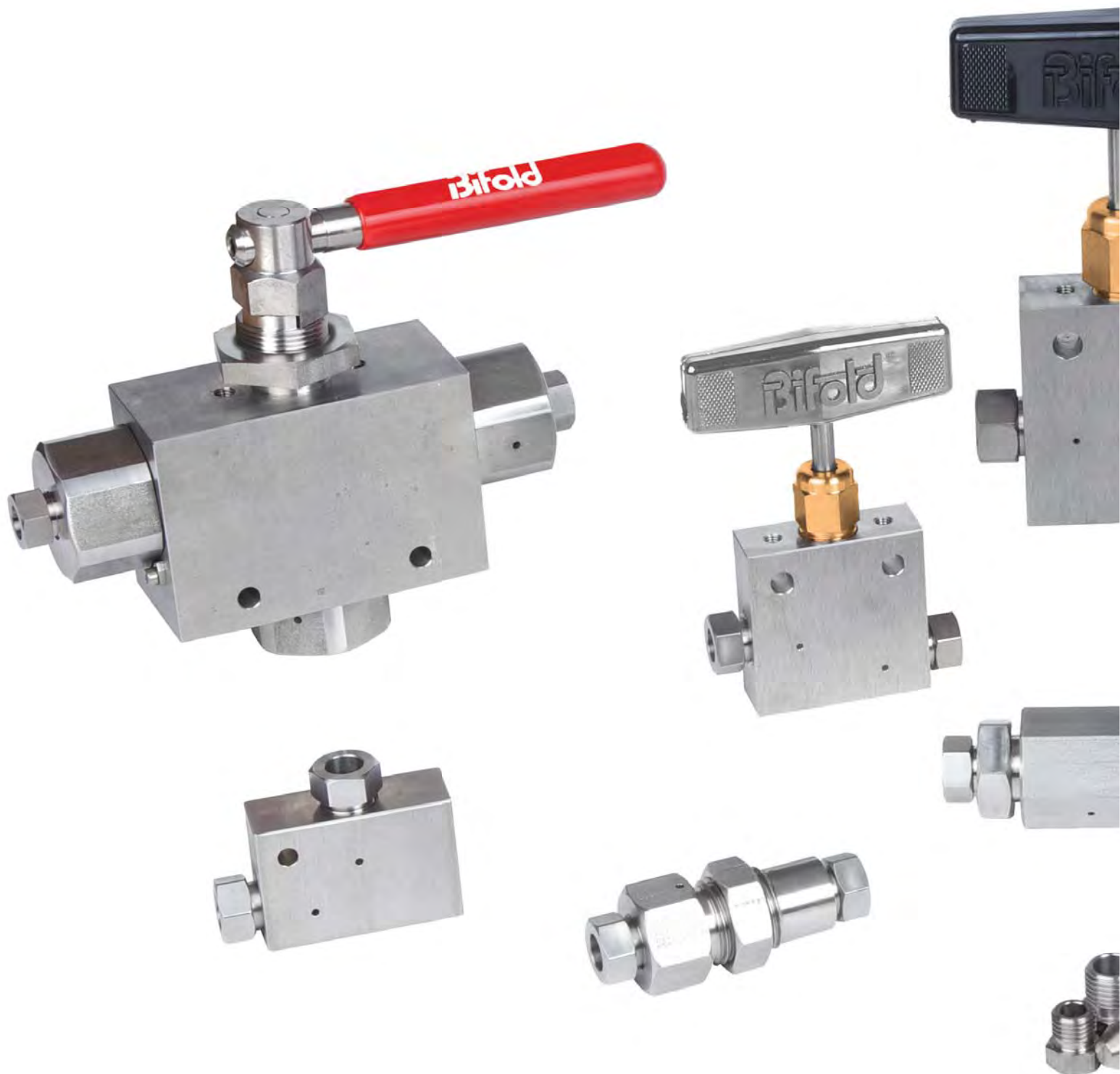
Notes



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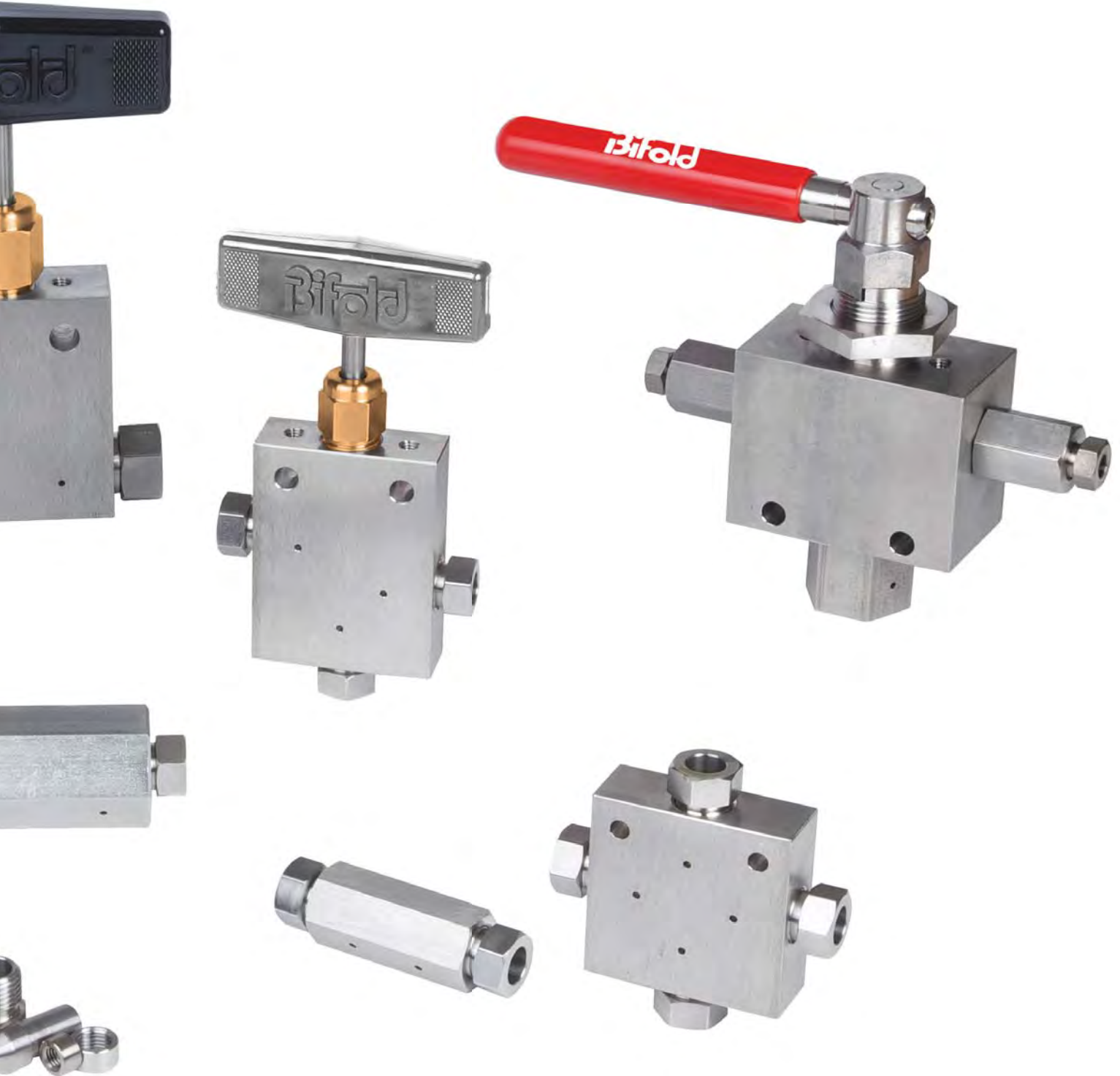


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Medium Pressure



[www.bifold.co.uk](http://www.bifold.co.uk)

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