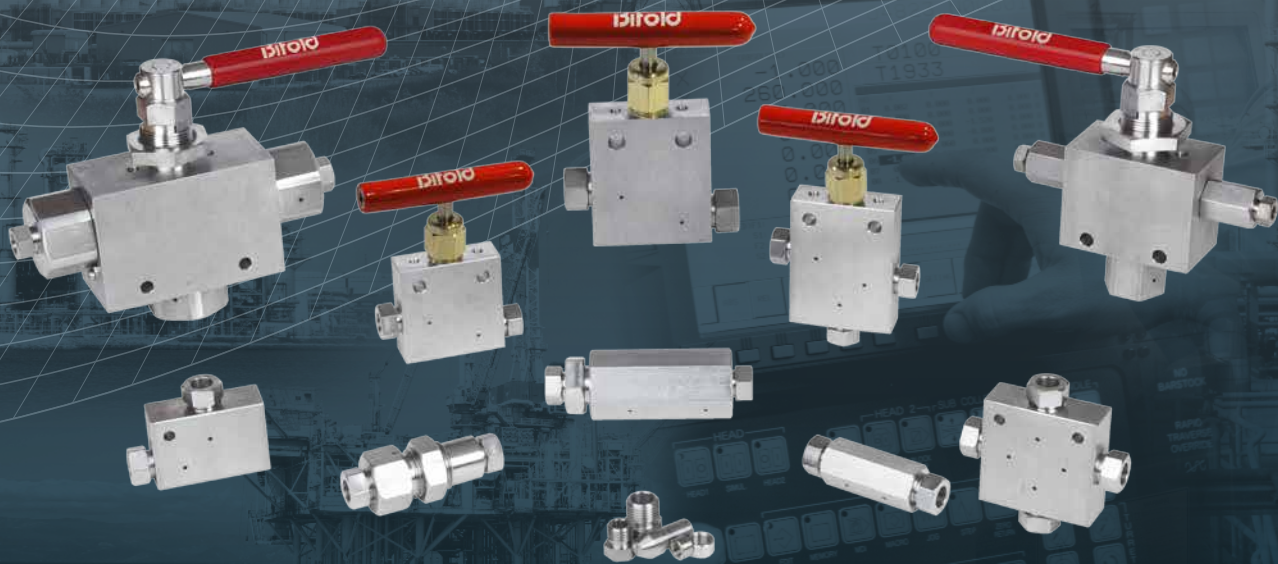


rotork[®]
Instruments

Medium Pressure Instrumentation Ball & Needle Valves, Fittings & Relief Valves

(Up to and including 20,000 psi / 1,379 bar)



Bifold[®]

Keeping the World Flowing

- **Black** - Instrumentation Ball and Needle Valves
- **Blue** - Marshalsea Relief Valves



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Product Portfolio

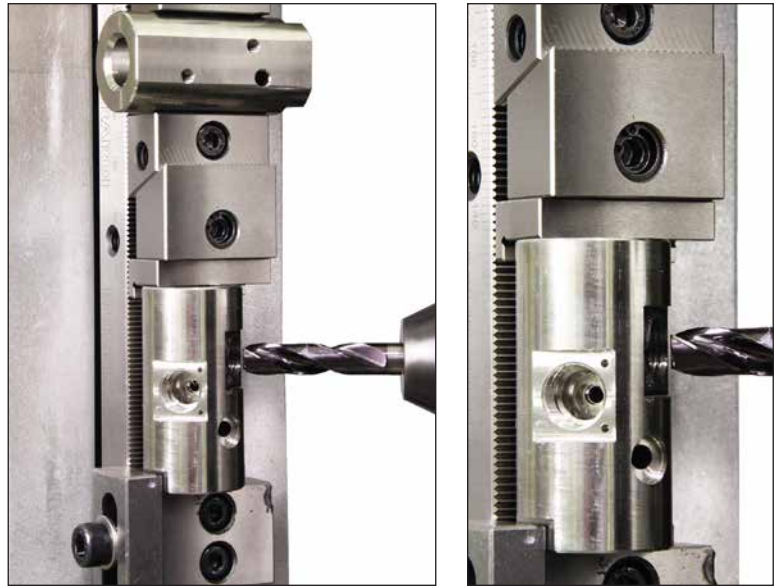


State of the Art Machining Centers

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, 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 of our Standard Range of Ball & Needle Valves

Bifold ISO9001 Product Certification and Specialist Testing Options Include

- Non destructive testing including Liquid Penetrant Inspection (LPI), Magnetic Particle Inspection (MPI), Positive Material Identification (PMI) and Ferrite testing.
- Hydrostatic & Pneumatic testing.
- Nitrogen gas testing.
- Nitrogen / Helium leak detection.
- Low temperature testing.
- Fugitive Emission testing.
- Hydrogen Induced Cracking (HIC) testing and other specialist material tests.



Installation Picture of our Standard Range of Ball & Needle Valves



Bifold has manufactured Ball & Needle valves with a maximum pressure of 20,000 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 the 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, Single Block & Bleed Manifolds, Double Block & Bleed Manifolds, Check Valves, Fittings and Adaptors.

The Medium Pressure valves are available in 1/4", 3/8", 9/16", 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.

Instrumentation 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 optimized designs throughout our product range.
- Constant vigorous research and development on all products, ensures that our valves represent the best of what we do.
- Our state of the art production facilities, allow our superior and innovative designs of components to be manufactured on site, assembled to the finished product and tested to rigorous quality standards.

Features & Benefits



Instrumentation 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.

Non 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 22,000 psi / 690 bar and pipe sizes from 1/4" through to 1".



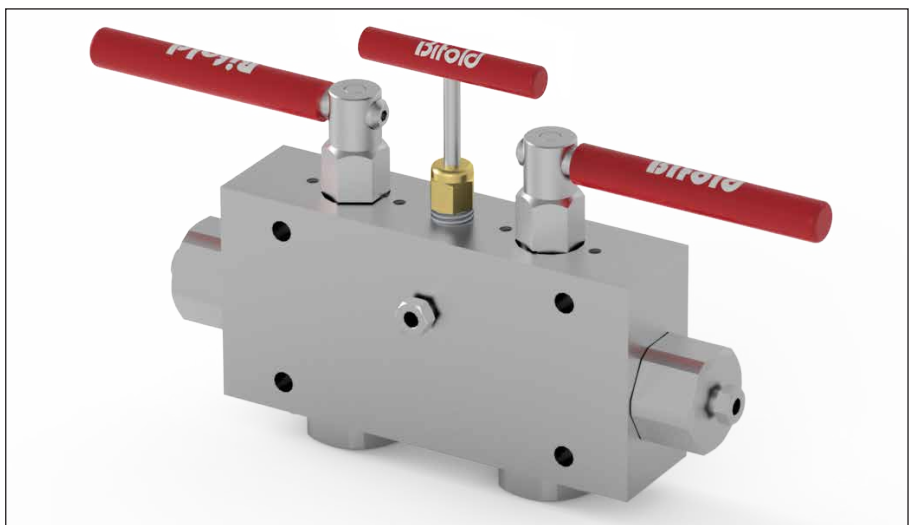
Medium Pressure Ball Valves

The Bifold range of ball valves are available 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 22,000 psi / 690 bar and pipe sizes from 1/4" through to 1".










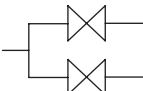


Medium Pressure Manifolds















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".



INSTRUMENTATION MEDIUM PRESSURE NEEDLE VALVES - PREFERRED RANGE


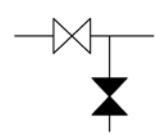

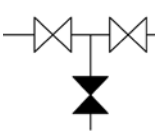
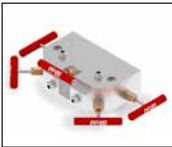
Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>MPN 2-Way Straight Needle Valves</p>		10 / 13	MPN-20-04-1-V	1/4" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-06-1-V	3/8" MP, 2-Way Straight, Needle Configuration, 20,000 psi / 1379 bar
			MPN-20-09-1-V	9/16" 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>MPN 2-Way Angle Needle Valves</p>		11 / 13	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	9/16" 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>MPN 3-Way, 2-On Pressure Needle Valves</p>		11 / 13	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	9/16" 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>MPN 3-Way, 1-On Pressure Needle Valves</p>		12 / 13	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	9/16" 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>MPN 2-Stem Manifold Needle Valves</p>		12 / 13	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	9/16" 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

MPN - Medium Pressure Actuated Needle Valve Range - for technical information, please refer to the product selection chart on page 13.


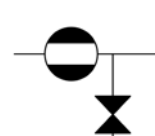

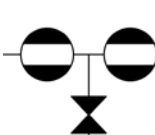
INSTRUMENTATION MEDIUM PRESSURE BALL VALVES - PREFERRED RANGE				
Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>MPBT 2-Way Trunnion Style Ball Valves</p>		15 / 18	MPBT-20-5-04-1-V	1/4" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-06-1-V	3/8" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-09-1-V	9/16" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <p>MPBT 3-Way Diverting Trunnion Style Ball Valves</p>	 <p>90° Operation</p>	16 / 18	MPBT-20-5-04-2-V	1/4" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-06-2-V	3/8" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-09-2-V	9/16" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <p>MPBT 3-Way Selecting Trunnion Style Ball Valves</p>	 <p>180° Operation</p>	16 / 18	MPBT-20-5-04-3-V	1/4" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-06-3-V	3/8" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
			MPBT-20-5-09-3-V	9/16" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 5mm Bore
 <p>MPBT 2-Way Trunnion Style Ball Valves</p>		17 / 18	MPBT-20-10-06-1-V	3/8" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			MPBT-20-10-09-1-V	9/16" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
 <p>MPBT 3-Way Diverting Trunnion Style Ball Valves</p>	 <p>90° Operation</p>	17 / 18	MPBT-20-10-06-2-V	3/8" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			MPBT-20-10-09-2-V	9/16" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			MPBT-20-10-12-2-V	3/4" MP, 3-Way Diverting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
 <p>MPBT 3-Way Selecting Trunnion Style Ball Valves</p>	 <p>180° Operation</p>	18	MPBT-20-10-06-3-V	3/8" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			MPBT-20-10-09-3-V	9/16" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
			MPBT-20-10-12-3-V	3/4" MP, 3-Way Selecting Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore
 <p>MPBT 2-Way Trunnion Style Ball Valves</p>		19	MPBT-20-13-12-1-V	3/4" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 13mm Bore
			MPBT-20-13-16-1-V	1" MP, 2-Way Trunnion Style, Ball Configuration, 20,000 psi / 1379 bar, 13mm Bore

MPBT - Medium Pressure Actuated Ball Valve Range - for technical information, please refer to the product selection chart on pages 18 & 19.


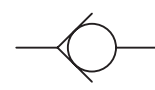
INSTRUMENTATION MEDIUM PRESSURE NEEDLE VALVE MANIFOLDS - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>MPNM Single Block & Bleed Needle Valve Manifolds</p>		21	MPNM-20-04-04-1	1/4" MP, Single Block & Bleed Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar, 1/4" MP Vent Bleed
			MPNM-20-06-04-1	3/8" MP, Single Block & Bleed Manifold, Needle - Needle Configuration, 20,000 psi / 1379 bar, 1/4" MP Vent Bleed
 <p>MPNM Double Block & Bleed Needle Valve Manifolds</p>		22	MPNM-20-04-04-2	1/4" MP, Double Block & Bleed Manifold, Needle - Needle - Needle Configuration, 20,000 psi / 1379 bar, 1/4" MP Vent Bleed
			MPNM-20-06-04-2	3/8" MP, Double Block & Bleed Manifold, Needle - Needle - Needle Configuration, 20,000 psi / 1379 bar, 1/4" MP Vent Bleed
 <p>MPM Double Block & Bleed Needle Valve Manifolds</p>		23	MPM-20-04-04-1-V	1/4" MP, Five Way Manifold, Needle Configuration, 20,000 psi / 1379 bar, 1/4" MP Vent Bleed
			MPM-20-06-06-1-V	3/8" MP, Five Way Manifold, Needle Configuration, 20,000 psi / 1379 bar, 3/8" MP Vent Bleed

INSTRUMENTATION MEDIUM PRESSURE BALL & NEEDLE VALVE MANIFOLDS - PREFERRED RANGE

 <p>MPBM Trunnion Style Single Block & Bleed Manifolds</p>		24	MPBM-20-10-04-04-1-H	1/4" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed
			MPBM-20-10-06-04-1-H	3/8" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed
			MPBM-20-10-09-04-1-H	9/16" MP, Trunnion Style Single Block & Bleed Manifold, Ball - Needle Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed
 <p>MPBM Trunnion Style Double Block & Bleed Manifolds</p>		25	MPBM-20-10-04-04-2-H	1/4" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed
			MPBM-20-10-06-04-2-H	3/8" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed
			MPBM-20-10-09-04-2-H	9/16" MP, Trunnion Style Double Block & Bleed Manifold, Ball - Needle - Ball Configuration, 20,000 psi / 1379 bar, 10mm Bore, 1/4" MP Vent Bleed

INSTRUMENTATION MEDIUM PRESSURE CHECK VALVES - PREFERRED RANGE

 <p>MPCV Check Valves</p>		26	MPCV-20-04-1	1/4" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			MPCV-20-06-1	3/8" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			MPCV-20-09-1	9/16" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			MPCV-20-12-1	3/4" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar
			MPCV-20-16-1	1" MP, Check Valve, Ball Configuration, 20,000 psi / 1379 bar

INSTRUMENTATION MEDIUM PRESSURE FITTINGS - PREFERRED RANGE

Product	Page Number	Product Code	Product Description
 Collar	27 / 38	MPF-##-C	Collar, 20,000 psi / 1379 bar
 Gland Nut	28 / 38	MPF-##-G	Gland Nut, 20,000 psi / 1379 bar
 Plug	28 / 38	MPF-##-P	Plug, 20,000 psi / 1379 bar
 Elbow	29 / 38	MPF-##-L	Elbow, 20,000 psi / 1379 bar
 Tee	29 / 38	MPF-##-T	Tee, 20,000 psi / 1379 bar
 Cross	30 / 38	MPF-##-X	Cross, 20,000 psi / 1379 bar
 Bulkhead Coupler	30 / 38	MPF-##-B	Bulkhead Coupler, 20,000 psi / 1379 bar
 Straight Coupler	31 / 38	MPF-##-S	Straight Coupler, 20,000 psi / 1379 bar
 Straight Coupler Replacement Seat	31 / 38	MPF-##-SR	Straight Coupler Replacement Seat, 20,000 psi / 1379 bar
 Tube Cap	32 / 38	MPF-##-TC	Tube Cap, 20,000 psi / 1379 bar
 Anti-Vibration Assemblies	33 / 38	MPF-##-AVA	Anti Vibration Assemblies, 20,000 psi / 1379 bar

MPF - Medium Pressure Fittings - for adaptors, threaded nipples and technical information, please refer to the product selection charts on pages 34 to 38.
- Denotes connection size.

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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.

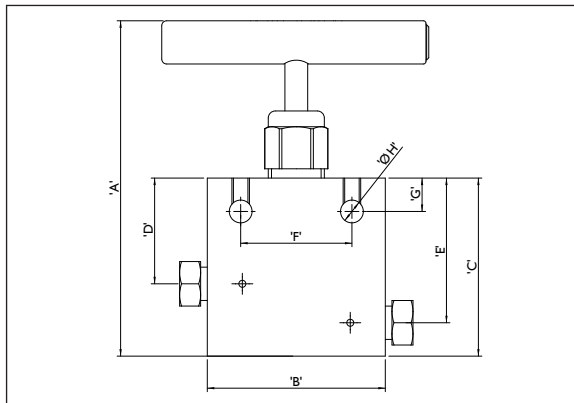
Features & Benefits

- Available in 5 configurations for a variety of applications.
- Maintenance Free Stem Sealing.
- Non rotating anti-galling tip as standard.
- Vee or Regulating options available.
- High tensile 316L CW stainless steel bodies as standard.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Standard operating temperature range of -4°F to +338°F as standard.
- Tube Sizes from 1/4" to 1".

MPN

2 Way Straight Needle Valves

Dimensional Drawing



SCHEMATIC



MPN - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPN-20-04-I-V	1/4" MP	20,000 psi / 1379 bar	4.17"	2.00"	2.00"	1.19"	1.63"	1.25"	0.38"	0.26"	0.75"	0.11"
MPN-20-06-I-V	3/8" MP	20,000 psi / 1379 bar	4.17"	2.00"	2.00"	1.19"	1.63"	1.25"	0.38"	0.26"	0.75"	0.20"
MPN-20-09-I-V	9/16" MP	20,000 psi / 1379 bar	5.98"	2.50"	2.88"	1.75"	2.38"	1.38"	0.50"	0.34"	1.00"	0.31"
MPN-20-12-I-V	3/4" MP	20,000 psi / 1379 bar	8.46"	3.00"	3.75"	2.25"	3.00"	1.75"	0.63"	0.45"	1.38"	0.44"
MPN-20-16-I-V	1" MP	20,000 psi / 1379 bar	9.84"	4.13"	4.75"	2.81"	3.75"	2.50"	1.13"	0.57"	1.75"	0.56"

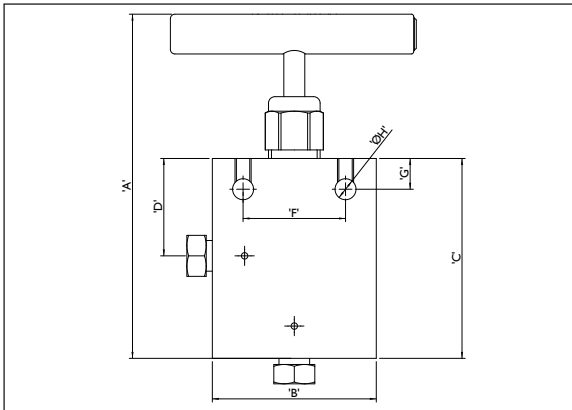
Hydraulic Medium Pressure Compact Direct Acting & Direct Acting Relief Valve Range

MPN

2 Way Angle Needle Valves



Dimensional Drawing



SCHEMATIC



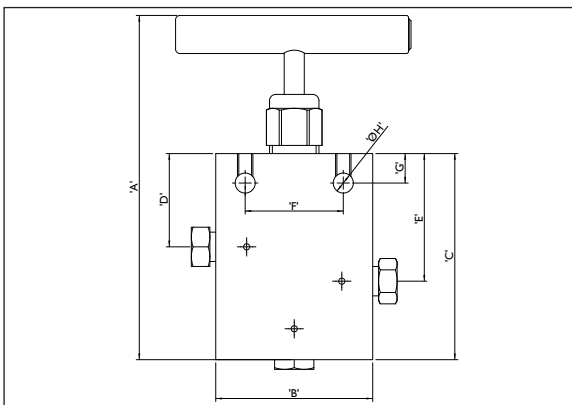
MPN - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPN-20-04-2-V	1/4" MP	20,000 psi / 1379 bar	4.61"	2.00"	2.44"	1.19"	1.25"	0.38"	0.26"	0.75"	0.11"
MPN-20-06-2-V	3/8" MP	20,000 psi / 1379 bar	4.61"	2.00"	2.44"	1.19"	1.25"	0.38"	0.26"	0.75"	0.20"
MPN-20-09-2-V	9/16" MP	20,000 psi / 1379 bar	6.50"	2.50"	3.38"	1.75"	1.38"	0.50"	0.34"	1.00"	0.31"
MPN-20-12-2-V	3/4" MP	20,000 psi / 1379 bar	9.21"	3.00"	10.56"	2.25"	1.75"	0.63"	0.45"	1.38"	0.44"
MPN-20-16-2-V	1" MP	20,000 psi / 1379 bar	10.59"	4.13"	5.50"	2.81"	2.50"	1.13"	0.57"	1.75"	0.56"

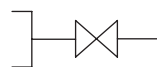
MPN

3 Way, 2 On Pressure Needle Valves

Dimensional Drawing



SCHEMATIC



MPN - SELECTION TABLE

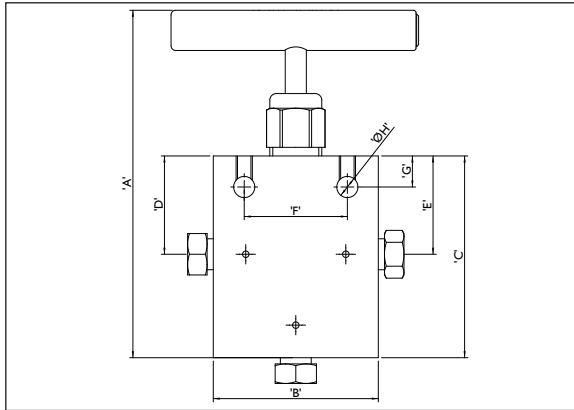
Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPN-20-04-3-V	1/4" MP	20,000 psi / 1379 bar	4.80"	2.00"	2.63"	1.19"	1.63"	1.25"	0.38"	0.26"	0.75"	0.11"
MPN-20-06-3-V	3/8" MP	20,000 psi / 1379 bar	4.80"	2.00"	2.63"	1.19"	1.63"	1.25"	0.38"	0.26"	0.75"	0.20"
MPN-20-09-3-V	9/16" MP	20,000 psi / 1379 bar	6.73"	2.50"	3.63"	1.75"	2.38"	1.38"	0.50"	0.34"	1.00"	0.31"
MPN-20-12-3-V	3/4" MP	20,000 psi / 1379 bar	9.72"	3.00"	5.00"	2.25"	3.00"	1.75"	0.63"	0.45"	1.38"	0.44"
MPN-20-16-3-V	1" MP	20,000 psi / 1379 bar	11.10"	4.13"	6.00"	2.81"	3.75"	2.50"	1.13"	0.57"	1.75"	0.56"

MPN

3 Way, 1 On Pressure Needle Valves



Dimensional Drawing



SCHEMATIC



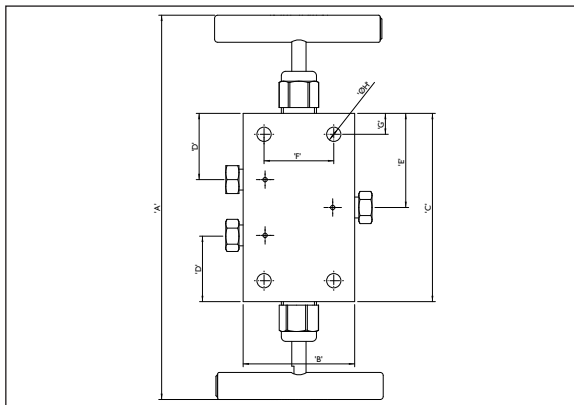
MPN - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPN-20-04-4-V	1/4" MP	20,000 psi / 1379 bar	4.61"	2.00"	2.44"	1.19"	1.19"	1.25"	0.38"	0.26"	0.75"	0.11"
MPN-20-06-4-V	3/8" MP	20,000 psi / 1379 bar	4.61"	2.00"	2.44"	1.19"	1.19"	1.25"	0.38"	0.26"	0.75"	0.20"
MPN-20-09-4-V	9/16" MP	20,000 psi / 1379 bar	6.50"	2.50"	3.38"	1.75"	1.75"	1.38"	0.50"	0.34"	1.00"	0.31"
MPN-20-12-4-V	3/4" MP	20,000 psi / 1379 bar	9.21"	3.00"	10.56"	2.25"	2.25"	1.75"	0.63"	0.45"	1.38"	0.44"
MPN-20-16-4-V	1" MP	20,000 psi / 1379 bar	10.59"	4.13"	5.50"	2.81"	2.81"	2.50"	1.13"	0.57"	1.75"	0.56"

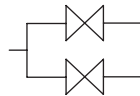
MPN

2 Stem Manifold Needle Valves

Dimensional Drawing



SCHEMATIC



MPN - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPN-20-04-5-V	1/4" MP	20,000 psi / 1379 bar	7.72"	2.00"	3.38"	1.19"	1.69"	1.25"	0.38"	0.26"	0.75"	0.11"
MPN-20-06-5-V	3/8" MP	20,000 psi / 1379 bar	7.72"	2.00"	3.38"	1.19"	1.69"	1.25"	0.38"	0.26"	0.75"	0.20"
MPN-20-09-5-V	9/16" MP	20,000 psi / 1379 bar	11.34"	2.50"	5.13"	1.75"	2.56"	1.38"	0.50"	0.34"	1.00"	0.31"
MPN-20-12-5-V	3/4" MP	20,000 psi / 1379 bar	16.42"	3.00"	7.00"	2.25"	3.50"	1.75"	0.63"	0.45"	1.38"	0.44"
MPN-20-16-5-V	1" MP	20,000 psi / 1379 bar	18.19"	4.13"	8.00"	2.81"	4.00"	2.50"	1.13"	0.57"	1.75"	0.56"

MPN Selection Chart - Ordering Example

MPN	Medium Pressure Needle Valve, 20,000 psi / 1379 bar	Model Code
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
04 06 09 12 16	1/4" MP 3/8" MP 9/16" MP 3/4" MP 1" MP	Connection Size
1 2 3 4 5	2 Way Straight 2 Way Angle 3 Way, 2 On Pressure 3 Way, 1 On Pressure 2 Stem Manifold	Configuration
V R	Vee Regulating	Tip
NO LETTER G	HNBR (Standard) Graphite	Seal Material
NO LETTER LK PM	316L Stainless Steel Handle as Standard Lockable Handle Panel Mount Gland	Options
NO LETTER 63	316L CW Super Duplex ASTM A479 UNS S32750 Other materials are available on request, for more information please contact Rotork Instruments	Material

MPN-20 - 04 - 3 - V - G - LK - 63

Ordering Example

Accuracy of information

We take care to ensure that product information in this catalogue is reasonably accurate and up-to-date. However, our products are continually developed and updated so to ensure accurate and up-to-date information please refer to the product catalogue issue list on our web site or contact a member of our sales team. 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 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.

MPN

Actuated 2 Way Straight Needle Valve



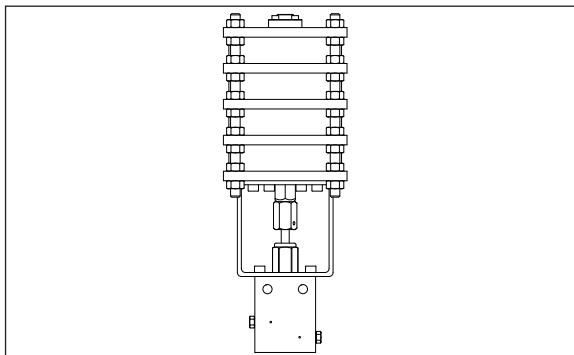
Product Description

The Bifold range of Medium Pressure Actuated Needle Valves have been developed to provide remote operation of both liquid and gas service applications up to 20,000 psi / 1379 bar. The pneumatic actuator is a modular solution utilizing stacked pistons providing a single design solution throughout the full needle valve range.

Features & Benefits

- All the actuated needle valves employ the features and benefits of the manual operated needle valves.
- A flexible coupling eliminates potential failures and leakage associated with installation misalignment.
- 72 psi / 5 bar pilot pressure as standard, optional pressures are available.
- The use of standard design elements provides ease of maintenance and spares management.
- Double acting and spring return options available.

Dimensional Drawing



SCHEMATIC



MPN - SELECTION TABLE

Product Code	Size	Rated	Full dimensions and additional details available on request.
MPN-20-04-I-V-ACTPSR-SO(5)	1/4" MP	20,000 psi / 1379 bar	
MPN-20-06-I-V-ACTPSR-SO(5)	3/8" MP	20,000 psi / 1379 bar	
MPN-20-09-I-V-ACTPSR-SO(5)	9/16" MP	20,000 psi / 1379 bar	
MPN-20-12-I-V-ACTPSR-SO(5)	3/4" MP	20,000 psi / 1379 bar	
MPN-20-16-I-V-ACTPSR-SO(5)	1" MP	20,000 psi / 1379 bar	

MPN Selection Chart - Ordering Example

MPN	Medium Pressure Actuated Needle Valve, 20,000 psi / 1379 bar	Model Code
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
04 06 09	1/4" MP 3/8" MP 9/16" MP	Connection Size
12 16	3/4" MP 1" MP	
1 2	2 Way Straight 2 Way Angle	Configuration
3 4	3 Way, 2 On Pressure 3 Way, 1 On Pressure	
V R	Vee Regulating	Tip
ACTPSR-SO ACTPSR-SC ACTPDA ACT	Aluminium Body Pneumatic Spring Return Actuator (Spring to Open) Aluminium Body Pneumatic Spring Return Actuator (Spring to Close) Aluminium Body Pneumatic Double Acting Actuator Bare Stem	Actuator Options
(5) ##	72 psi / 5 bar (Standard) Please contact Rotork Instruments for Pilot Pressure Options	Pilot Pressure
NO LETTER 63	316L CW Super Duplex ASTM A479 UNS S32750 Other materials are available on request, for more information please contact Rotork Instruments	Material
MPN-20 - 12 - I - V-ACTPSR-SC (5) - 63		Ordering Example

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.

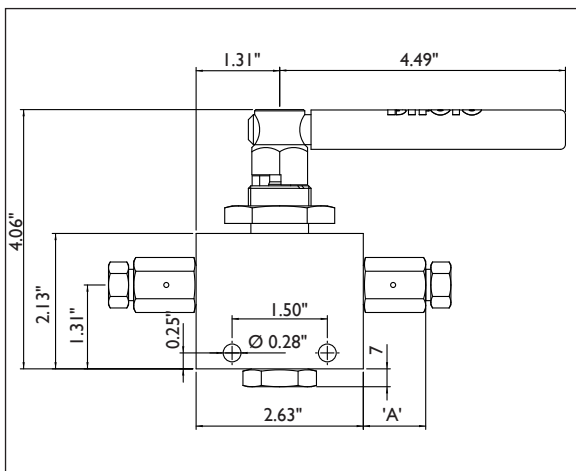
Features and Benefits

- 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 minimizing pressure drop.
- High tensile 316L CW stainless steel bodies as standard.
- Glass Reinforced PEEK seats as standard for excellent chemical resistance.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body, gland and collar.
- NACE MR-01-75 / ISO 15156 compliant materials of construction are available upon request.

MPBT

2 Way Trunnion Style Ball Valves, 5mm Bore

Dimensional Drawing



SCHEMATIC



MPBT - SELECTION TABLE

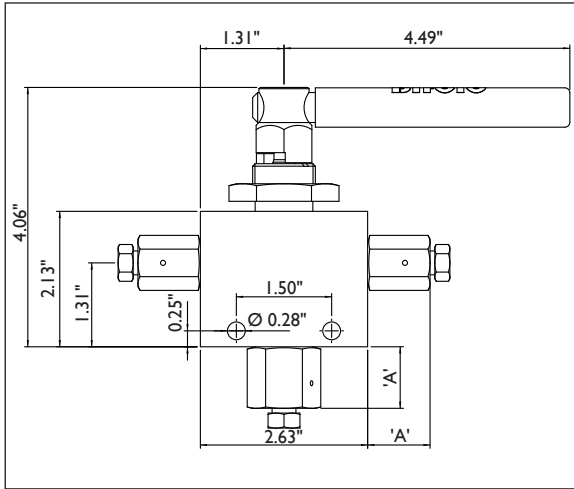
Product Code	Size	Rated	'A' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-5-04-1-V	1/4" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.11"
MPBT-20-5-06-1-V	3/8" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.20"
MPBT-20-5-09-1-V	9/16" MP	20,000 psi / 1379 bar	1.25"	1.50"	0.20"

MPBT

3 Way Diverting Trunnion Style Ball Valves, 5mm Bore



Dimensional Drawing



SCHEMATIC



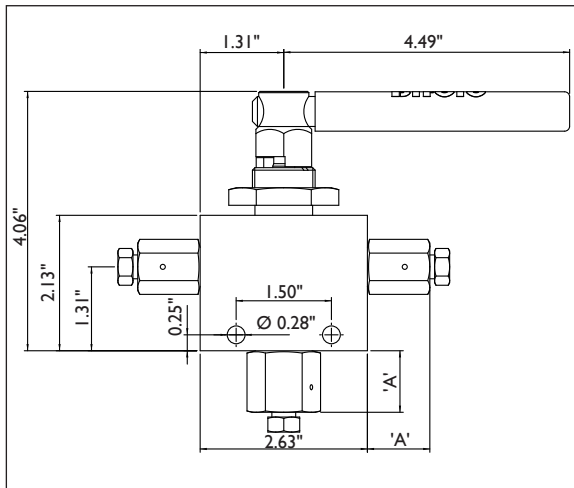
MPBT - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-5-04-2-V	1/4" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.11"
MPBT-20-5-06-2-V	3/8" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.20"
MPBT-20-5-09-2-V	9/16" MP	20,000 psi / 1379 bar	1.25"	1.50"	0.20"

MPBT

3 Way Selecting Trunnion Style Ball Valves, 5mm Bore

Dimensional Drawing



SCHEMATIC



MPBT - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-5-04-3-V	1/4" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.11"
MPBT-20-5-06-3-V	3/8" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.20"
MPBT-20-5-09-3-V	9/16" MP	20,000 psi / 1379 bar	1.25"	1.50"	0.20"

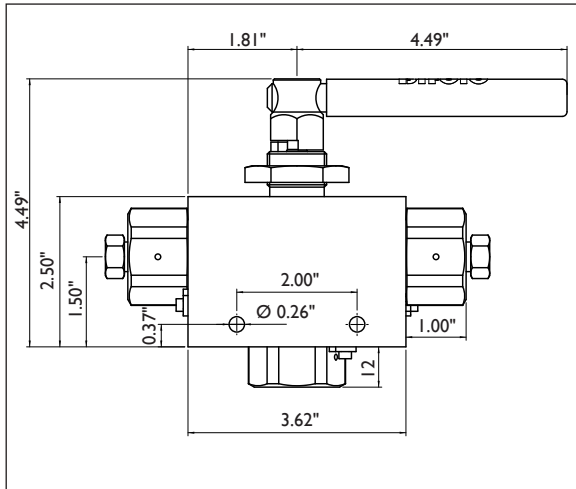
MPBT - Medium Pressure Trunnion Ball Valve Range

MPBT

2 Way Trunnion Style Ball Valves, 10mm Bore



Dimensional Drawing



SCHMATIC



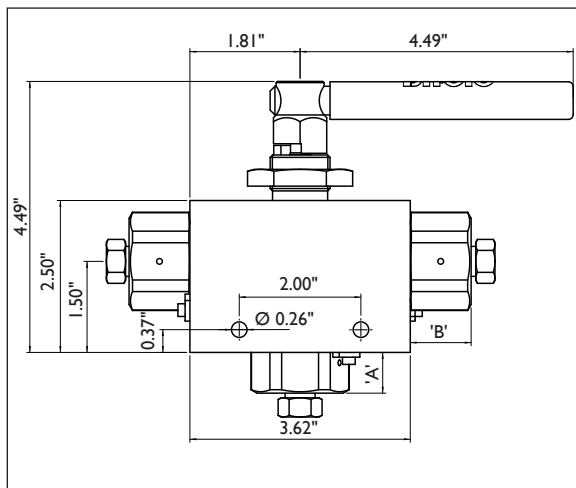
MPBT - SELECTION TABLE

Product Code	Size	Rated	Thickness (in)	Minimum Orifice Size
MPBT-20-10-06-1-V	3/8" MP	20,000 psi / 1379 bar	1.75"	0.20"
MPBT-20-10-09-1-V	9/16" MP	20,000 psi / 1379 bar	1.75"	0.31"

MPBT

3 Way Diverting Trunnion Style Ball Valves, 10mm Bore

Dimensional Drawing



SCHMATIC



90° Operation



MPBT - SELECTION TABLE

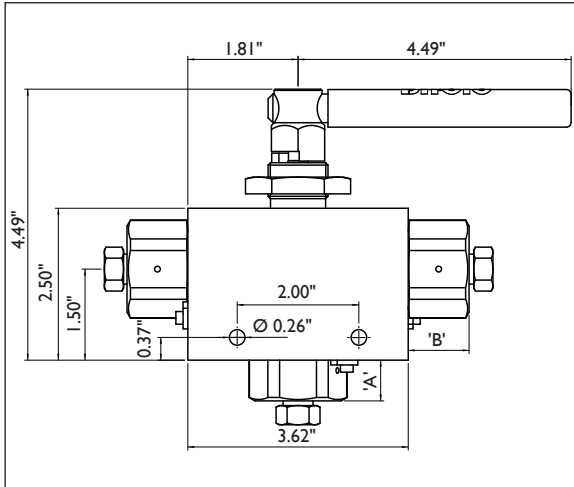
Product Code	Size	Rated	'A' (in)	'B' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-10-06-2-V	3/8" MP	20,000 psi / 1379 bar	0.67"	1.00"	1.75"	0.20"
MPBT-20-10-09-2-V	9/16" MP	20,000 psi / 1379 bar	1.00"	1.00"	1.75"	0.31"
MPBT-20-10-12-2-V	3/4" MP	20,000 psi / 1379 bar	1.18"	1.18"	1.75"	0.39"

MPBT

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



Dimensional Drawing



SCHEMATIC



MPBT - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-10-06-3-V	3/8" MP	20,000 psi / 1379 bar	0.67"	1.00"	1.75"	0.20"
MPBT-20-10-09-2-V	9/16" MP	20,000 psi / 1379 bar	1.00"	1.00"	1.75"	0.31"
MPBT-20-10-12-2-V	3/4" MP	20,000 psi / 1379 bar	1.18"	1.18"	1.75"	0.39"

MPBT Selection Chart - Ordering Example

MPBT	Medium Pressure Trunnion Style Ball Valve, up to 20,000 psi / 1379 bar	Model Code
10	10,000 psi / 690 bar, Maximum Cold Working Pressure	Pressure Rating
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	
5	5mm (9/16" Maximum)	Bore Size
10	10mm	
04	1/4" (5mm Bore Only)	Connection Size
06	3/8"	
09	9/16"	
12	3/4" (Connection size only available with a 3 way valve)	
16	1" (Connection size only available with a 3 way valve)	
NO LETTER	MP Female	Connection Type
1	2 Way	Configuration
2	3 Way Diverting	
3	3 Way Selecting	
V	Viton (90 Shore)	O-ring Material
V9	Endura V91A	
H	HNBR	
NO LETTER	316L Stainless Steel Handle as Standard	Options
LK	Lockable Handle	
NO LETTER	316L CW	Material
63	Super Duplex ASTM A479 UNS S32750	
Other materials are available on request, for more information please contact Rotork Instruments		

MPBT-20 - 10 - 06 - I - V - LK - 63

Ordering Example

MPBT - Medium Pressure Trunnion Ball Valve Range

MPBT

2 Way Trunnion Style Ball Valves, 13mm Bore



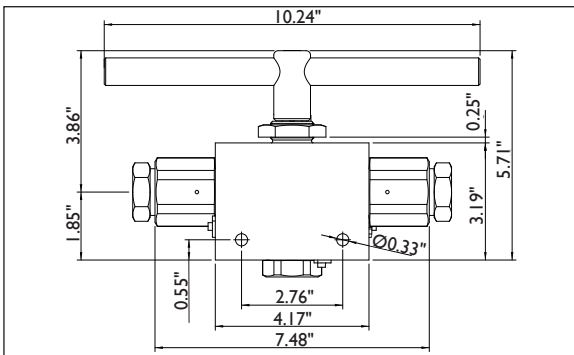
Product Description

The Bifold range of Medium Pressure Trunnion Ball Valves have been developed to the highest quality for uppermost performance. They are currently available in a 2 Way configuration 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.

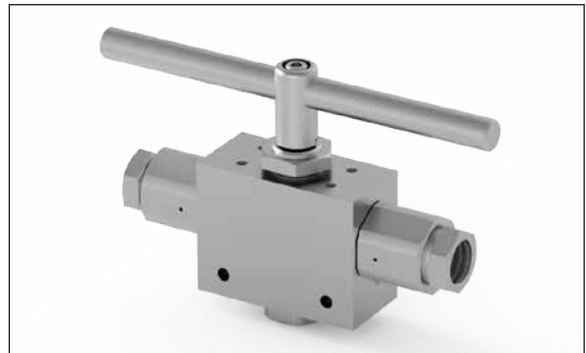
Features & Benefits

- 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 minimizing pressure drop.
- High tensile 17.4 PH stainless steel bodies as standard.

Dimensional Drawing



SCHEMATIC



MPBT - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	Thickness (in)	Minimum Orifice Size
MPBT-20-13-12-1-V	3/4" MP	20,000 psi / 1379 bar	1.00"	1.50"	0.44"
MPBT-20-13-16-1-V	1" MP	20,000 psi / 1379 bar	1.25"	1.50"	0.51"

MPBT Selection Chart - Ordering Example

MPBT	Medium Pressure 2 Way Trunnion Style Ball Valve, up to 20,000 psi / 1379 bar	Model Code
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
13	13mm	Bore Size
12	3/4"	Connection Size
16	1"	Connection Size
NO LETTER	MP Female	Connection Type
M	MP Male	
I	2 Way	Configuration
V	Viton (90 Shore)	O-ring Material
V9	Endura V91A	
H	HNBR	
NO LETTER	316L Stainless Steel Handle as Standard	Options
LK	Lockable Handle	
NO LETTER	17/4PH	Material

MPBT-20 - 13 - 12 - M - I - V - LK - 63

Ordering Example

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MPBT

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



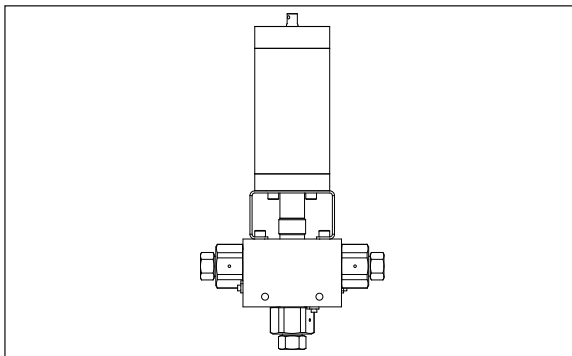
Product Description

The Bifold range of Actuated Trunnion Style Ball Valves have been developed to provide remote operation of both liquid and gas service applications up to 20,000 psi / 1379 bar. The pneumatic actuator delivers greater torque efficiency to maximum torque in a compact package.

Features & Benefits

- The pneumatic actuators compact size and superior torque efficiency makes it preferable in narrow spaces, skids structures, machines and more.
- Maintenance Free.
- Made from Stainless Steel for maximum Durability providing the user consistent performances.
- 72 psi / 5 bar pilot pressure as standard, optional pressures are available.
- Double acting and spring return options available.

Dimensional Drawing



SCHEMATIC



MPBT - SELECTION TABLE

Product Code	Size	Rated	Full dimensions and additional details available on request.
MPBT-20-10-06-1-V-ACTPSR-SO(5)	3/8" MP	20,000 psi / 1379 bar	
MPBT-20-10-09-1-V-ACTPSR-SO(5)	9/16" MP	20,000 psi / 1379 bar	
MPBT-20-10-12-1-V-ACTPSR-SO(5)	3/4" MP	20,000 psi / 1379 bar	

MPBT Selection Chart - Ordering Example

MPBT	Medium Pressure Trunnion Style Actuated Ball Valve, up to 20,000 psi / 1379 bar	Model Code
10	20,000 psi / 690 bar, Maximum Cold Working Pressure	Pressure Rating
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	
10	10mm	Bore Size
06	3/8"	Connection Size
09	9/16"	
12	3/4"	
NO LETTER	MP Female	Connection Type
1	2 Way	Configuration
2	3 Way Diverting	
3	3 Way Selecting	
V	Viton (90 Shore)	O-ring Material
V9	Endura V91A	
H	HNBR	
ACTPSR-SO	Aluminium Body Pneumatic Spring Return Actuator (Spring to Open)	Actuator Options
ACTPSR-SC	Aluminium Body Pneumatic Spring Return Actuator (Spring to Close)	
ACTPDA	Aluminium Body Pneumatic Double Acting Actuator	
ACT	Bare Stem	
(5)	72 psi / 5 bar (Standard)	Pilot Pressure
###	Please contact Rotork Instruments for Pilot Pressure Options	
NO LETTER	316L CW	Material
63	Super Duplex ASTM A479 UNS S32750	
Other materials are available on request, for more information please contact Rotork Instruments		

MPBT-20-10-09 - 1 - V-ACTPSR-SO(5) - 63 Ordering Example

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 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.

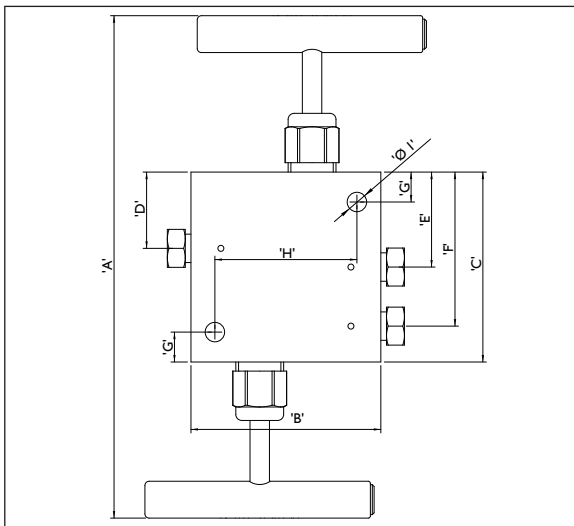
Features & Benefits

- 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.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Standard operating temperature range of -4°F to +338°F as standard.
- Tube Sizes from 1/4" to 1".

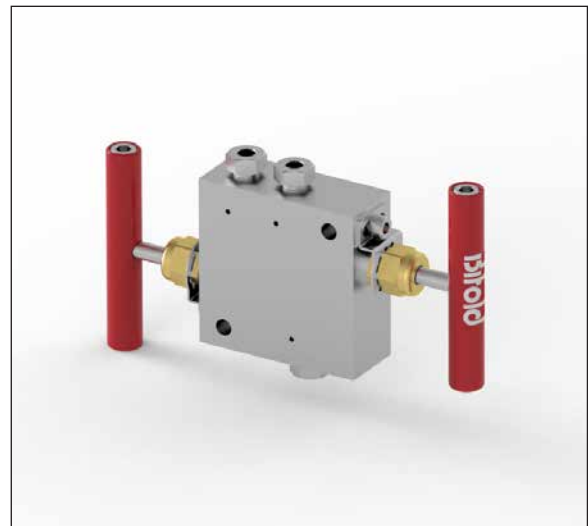
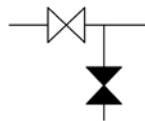
MPNM

Single Block & Bleed Needle Valve Manifolds

Dimensional Drawing



SCHEMATIC



MPNM - SELECTION TABLE

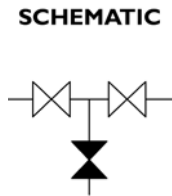
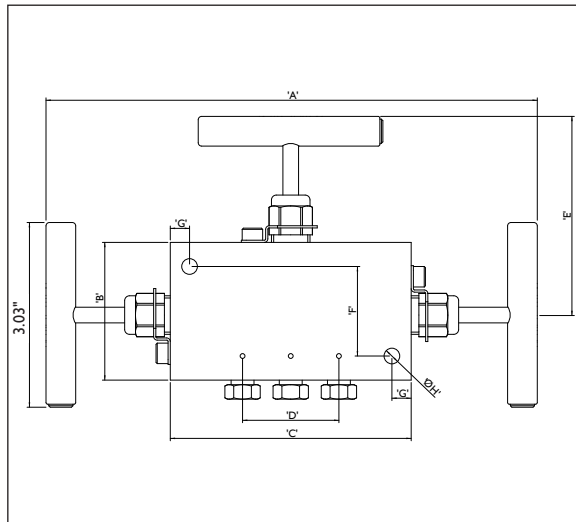
Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'H' (in)	'ØI' (in)	Thickness (in)	Minimum Orifice Size
MPNM-20-04-04-1	1/4" MP	20,000 psi / 1379 bar	7.40"	2.50"	2.50"	1.00"	1.25"	51,50	0.39"	49,30	0.26"	1.00"	0.11"
MPNM-20-06-04-1	3/8" MP	20,000 psi / 1379 bar	7.28"	2.95"	60,32	0.75"	1.19"	48,32	0.39"	61,00	0.26"	1.00"	0.20"

MPNM

Double Block & Bleed Needle Valve Manifolds



Dimensional Drawing



MPNM - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'E' (in)	'F' (in)	'G' (in)	'ØH' (in)	Thickness (in)	Minimum Orifice Size
MPNM-20-04-04-2	1/4" MP	20,000 psi / 1379 bar	8.82"	2.25"	3.94"	1.57"	3.62"	1.46"	0.31"	0.26"	1.00"	0.11"
MPNM-20-06-04-2	3/8" MP	20,000 psi / 1379 bar	9.61"	2.25"	4.72"	2.36"	3.62"	1.46"	0.31"	0.26"	1.00"	0.20"

MPNM Selection Chart - Ordering Example

MPNM Medium Pressure, Needle Valve Manifold, 20,000 psi / 1379 bar	Model Code
20 20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
04 1/4" 06 3/8" 09 9/16" 12 3/4" 16 1"	Connection Size
04 1/4" 06 3/8"	Vent Connection
1 Single Block & Bleed 2 Double Block & Bleed 3 Double Block 4 Double Block & Bleed (With Gauge Ports) 5 Single Block & Bleed (Inline Pattern) 6 Double Block & Bleed (Inline Pattern)	Configuration
NO LETTER HNBR (Standard) G Graphite	Seal Material
NO LETTER 316L Stainless Steel Handle as Standard LK Lockable Handle AV Anti Tamper Vent	Options
NO LETTER 316L CW 63 Super Duplex ASTM A479 UNS S32750 Other materials are available on request, for more information please contact Rotork Instruments	Material

MPNM-20-06-04-2-G-LK-63

Ordering Example

Other configurations available upon request.

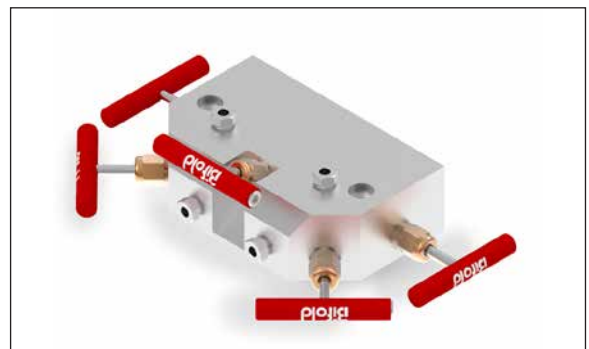
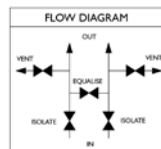
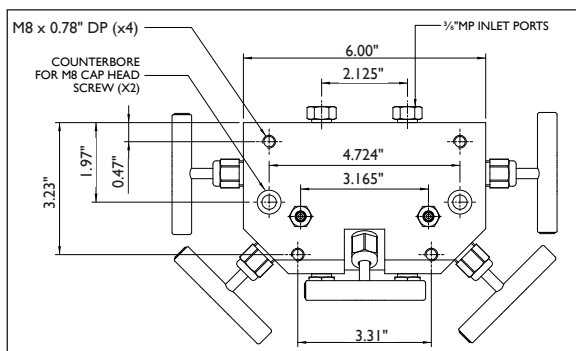
Product Description

The Bifold range of Medium Pressure Manifolds are an economical remote mount manifold solution for differential pressure transmitter applications up to 20,000 psi / 1379 bar. The manifolds house two isolation valves, two vent valves and one equalization valve. Reducing the number of possible leak paths and in turn reducing system costs and weight.

Features & Benefits

- 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.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body.

Dimensional Drawing



MPM - SELECTION TABLE

Product Code	Size	Rated	Minimum Orifice Size
MPM-20-04-04-1	1/4" MP	20,000 psi / 1379 bar	0.11"
MPM-20-06-06-1	3/8" MP	20,000 psi / 1379 bar	0.20"

MPM Selection Chart - Ordering Example

MPM	Medium Pressure, 5 Needle Valve Manifold, 20,000 psi / 1379 bar	Model Code
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
04	1/4"	Connection Size
06	3/8"	Vent Connection
04	1/4"	Configuration
06	3/8"	Seal Material
I	5 Valve Manifolds	Options
NO LETTER	HNBR (Standard)	Material
G	Graphite	
NO LETTER	316L Stainless Steel Handle as Standard	
LK	Lockable Handle (isolates and equalize)	
AV	Anti Tamper Vent	
NO LETTER	316L CW	
63	Super Duplex ASTM A479 UNS S32750	
	Other materials are available on request, for more information please contact Rotork Instruments	

MPM - 20 - 06 - 06 - I - G - LK - 63

Ordering Example

Other configurations available upon request.

Accuracy of information

We take care to ensure that product information in this catalogue is reasonably accurate and up-to-date. However, our products are continually developed and updated so to ensure accurate and up-to-date information please refer to the product catalogue issue list on our web site or contact a member of our sales team. 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.

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 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.

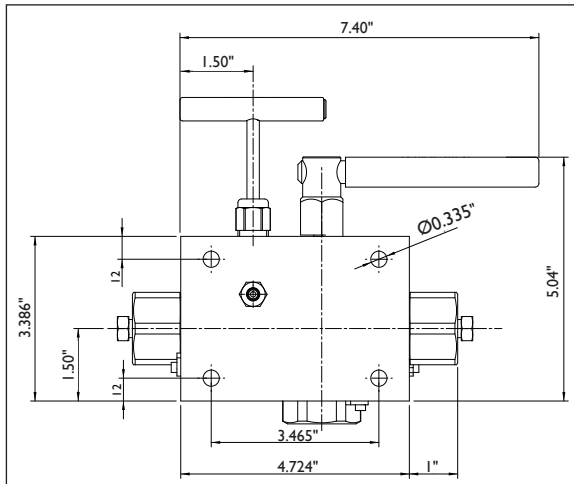
Features & Benefits

- Available in a number of configurations for a variety of applications.
- Maintenance free stem sealing.
- Bi-directional straight through flow path minimizing pressure drop.
- Non rotating anti-galling tip as standard.
- Vee tip vent valve.
- Compact design.
- High tensile 316L CW stainless steel bodies as standard.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Operating temperature range of -4°F to +320°F as standard.
- Tube Sizes from 1/4" to 1".

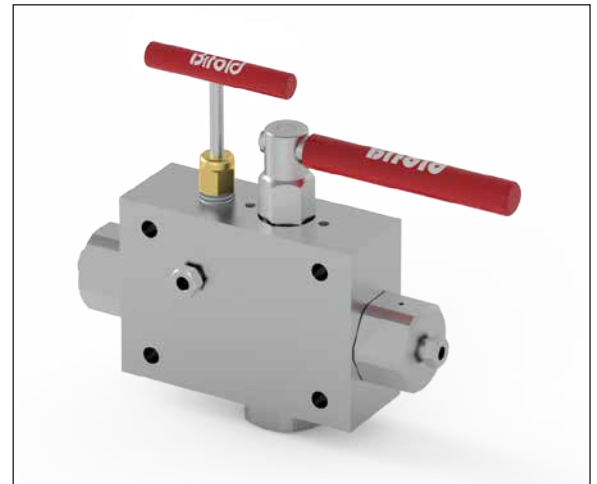
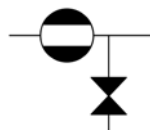
MPBM

Trunnion Style Single Block & Bleed Manifolds, 10mm Bore

Dimensional Drawing



SCHEMATIC



MPBM - SELECTION TABLE

Product Code	Size	Rated	Thickness	Minimum Orifice Size
MPBM-20-10-04-04-I-H	1/4" MP	20,000 psi / 1379 bar	1.75"	0.11"
MPBM-20-10-06-04-I-H	3/8" MP	20,000 psi / 1379 bar	1.75"	0.20"
MPBM-20-10-09-04-I-H	9/16" MP	20,000 psi / 1379 bar	1.75"	0.31"

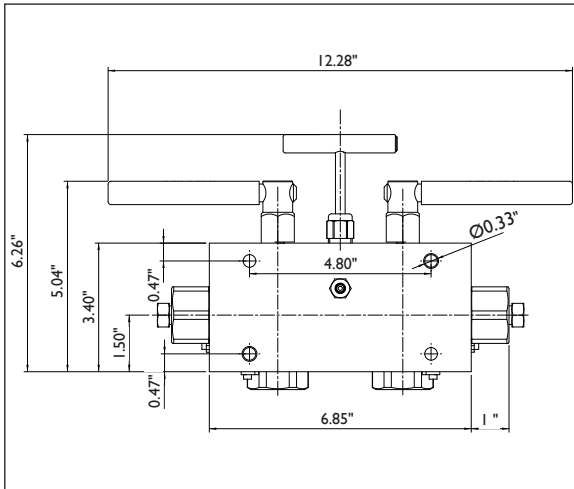
MPBM - Medium Pressure Trunnion Ball Valve Manifold Range

MPBM

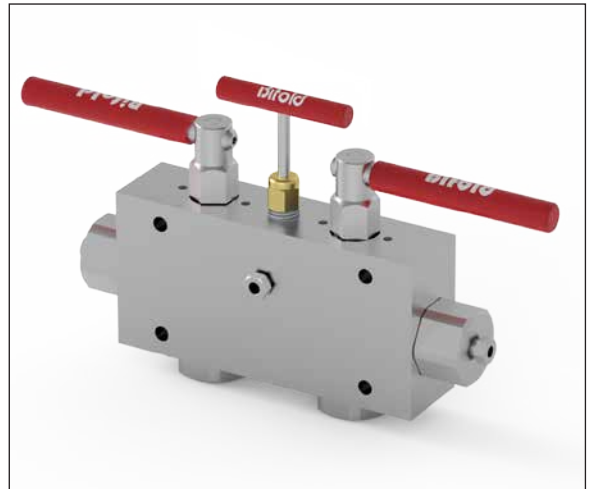
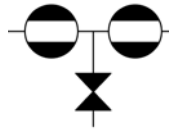
Trunnion Style Double Block & Bleed Manifolds,
10mm Bore



Dimensional Drawing



SCHEMATIC



MPBM - SELECTION TABLE

Product Code	Size	Rated	Thickness	Minimum Orifice Size
MPBM-20-10-04-04-2-H	1/4" MP	20,000 psi / 1379 bar	1.75"	0.11"
MPBM-20-10-06-04-2-H	3/8" MP	20,000 psi / 1379 bar	1.75"	0.20"
MPBM-20-10-09-04-2-H	9/16" MP	20,000 psi / 1379 bar	1.75"	0.31"

MPBM Selection Chart - Ordering Example

MPBM	Medium Pressure, Trunnion Ball Valve Manifold, 20,000 psi / 1379 bar	Model Code
20	20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
10	10mm	Bore Size
04	1/4"	Connection Size
06	3/8"	
09	9/16"	
12	3/4"	
16	1"	
04	1/4"	Vent Connection
06	3/8"	
1	Single Block & Bleed	Configuration
2	Double Block & Bleed	
3	Double Block	
4	Double Block & Bleed (With Gauge Ports)	
H	HNBR	Seal Material
NO LETTER	316L Stainless Steel Handle as Standard	Options
LK	Lockable Handle	
AV	Anti Tamper Vent	
NO LETTER	316L CW	Material
63	Super Duplex ASTM A479 UNS S32750	
Other materials are available on request, for more information please contact Rotork Instruments		

MPBM-20-10-09-04-2-H-LK-63

Ordering Example

Other configurations available upon request.

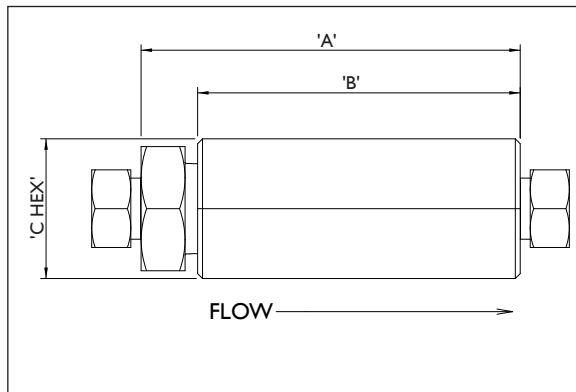
Product Description

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 shut off. Typical applications include Hydraulic Control Panels, Hydrostatic Testing Equipment, Chemical Injection Skids, Water Jet and other general industrial applications.

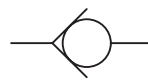
Features & Benefits

- 15 psi Nominal Cracking Pressure.
- Optimized Flow path.
- High tensile 316L CW stainless steel bodies as standard.
- Special materials available upon request.
- Traceability via a unique serial number stamped on the valve body.
- Tube Sizes from 1/4" to 1".

Dimensional Drawing



SCHEMATIC



MPCV - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C HEX' (in)	Minimum Orifice Size
MPCV-20-04-I	1/4" MP	20,000 psi / 1379 bar	2.74"	2.26"	1"	0.11"
MPCV-20-06-I	3/8" MP	20,000 psi / 1379 bar	3.06"	2.60"	1 1/8"	0.20"
MPCV-20-09-I	9/16" MP	20,000 psi / 1379 bar	4.31"	3.70"	1 3/8"	0.31"
MPCV-20-12-I	3/4" MP	20,000 psi / 1379 bar	6.10"	5.16"	1 3/4"	0.44"
MPCV-20-16-I	1" MP	20,000 psi / 1379 bar	6.85"	6.18"	2 1/8"	0.56"

MPCV Selection Chart - Ordering Example

MPCV Medium Pressure Check Valve, 20,000 psi / 1379 bar	Model Code
20 20,000 psi / 1379 bar, Maximum Cold Working Pressure	Pressure Rating
04 1/4" 06 3/8" 09 9/16" 12 3/4" 16 1"	Connection Size
1 Metal Seat 2 PEEK Seat	Configuration

MPCV-20 - 06 - 1

Ordering Example

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.

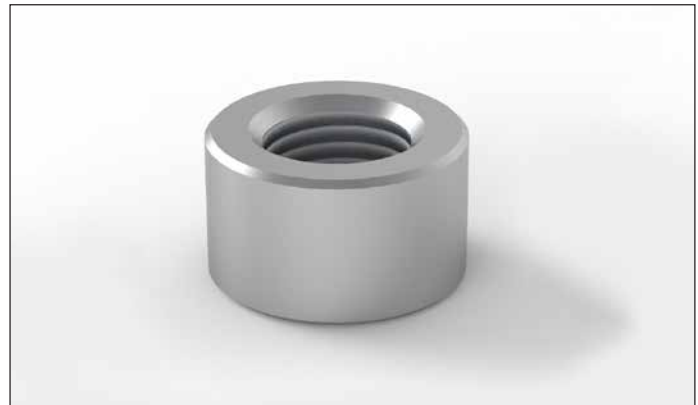
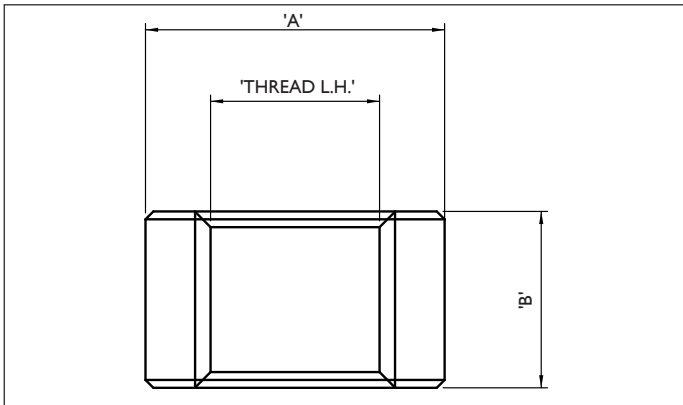
Features & Benefits

- Special materials available upon request.
- Tube Sizes from 1/4" to 1".
- Operating temperature range of -421.6°F to +1,200°F

MPF

Collar

Dimensional Drawing



MPF - SELECTION TABLE

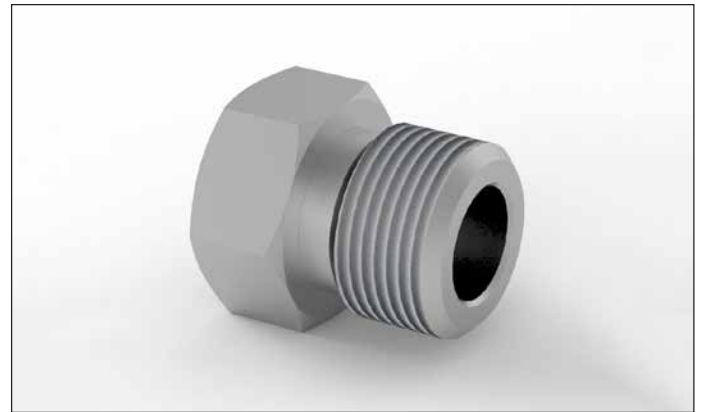
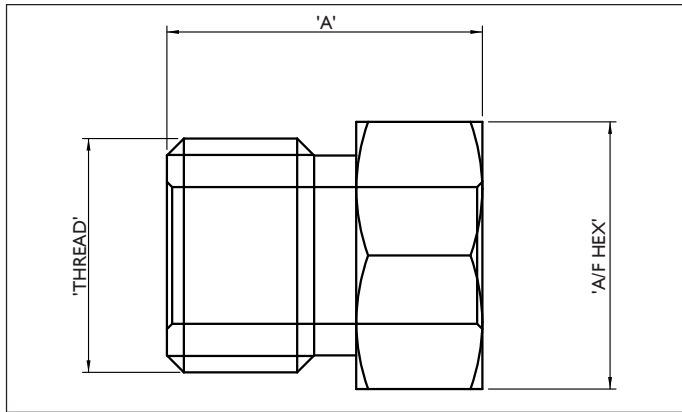
Product Code	Size	Rated	'A' (in)	'B' (in)	'Thread L.H'
MPF-04-C	1/4" MP	20,000 psi / 1379 bar	0.374"	0.220"	1/4" - 28 UNF
MPF-06-C	3/8" MP	20,000 psi / 1379 bar	0.468"	0.248"	3/8" - 24 UNF
MPF-09-C	9/16" MP	20,000 psi / 1379 bar	0.719"	0.311"	9/16" - 18 UNF
MPF-12-C	3/4" MP	20,000 psi / 1379 bar	0.937"	0.374"	3/4" - 16 UNF
MPF-16-C	1" MP	20,000 psi / 1379 bar	1.250"	0.500"	1" - 14 UN

MPF

Gland Nut



Dimensional Drawing



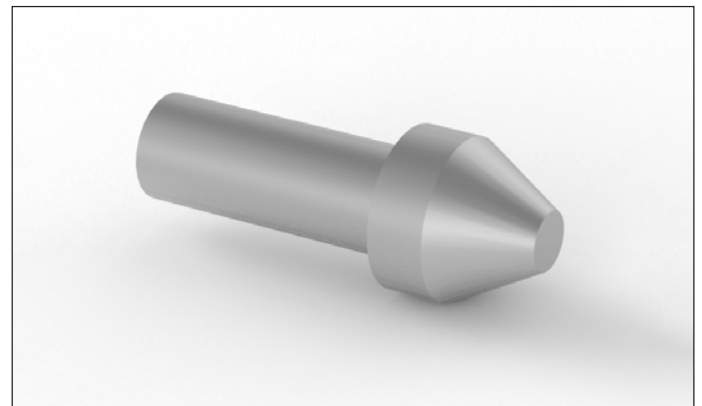
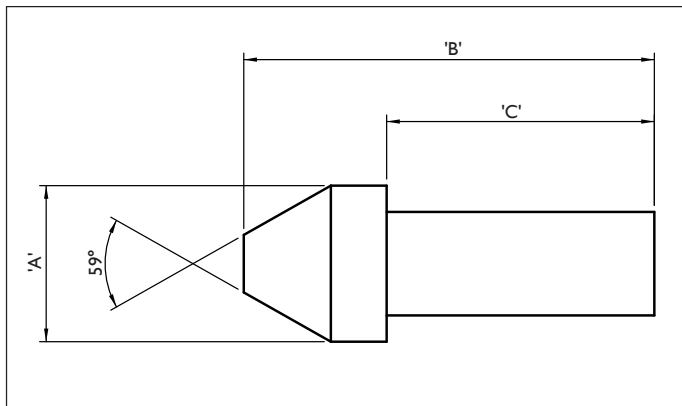
MPF - SELECTION TABLE

Product Code	Size	Rated	'A/F Hex' (in)	'A' (in)	'Thread'
MPF-04-G	1/4" MP	20,000 psi / 1379 bar	1/2"	0.59"	7/16" - 20 UNF
MPF-06-G	3/8" MP	20,000 psi / 1379 bar	5/8"	0.77"	9/16" - 18 UNF
MPF-09-G	9/16" MP	20,000 psi / 1379 bar	7/8"	1.00"	13/16" - 16 UN
MPF-12-G	3/4" MP	20,000 psi / 1379 bar	1 3/16"	1.024"	3/4" - 14 NPSM
MPF-16-G	1" MP	20,000 psi / 1379 bar	1 3/8"	1.417"	13/8" - 12 UNF

MPF

Plug

Dimensional Drawing



MPF - SELECTION TABLE

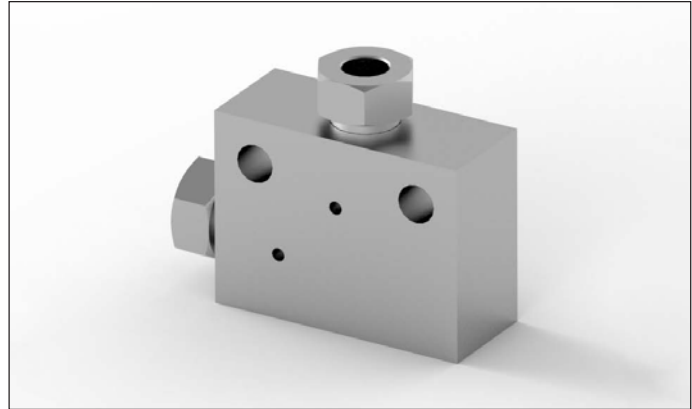
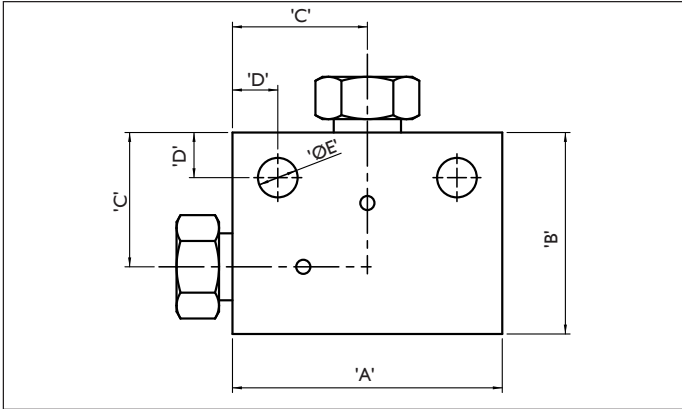
Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)
MPF-04-P	1/4" MP	20,000 psi / 1379 bar	0.374"	0.984"	0.642"
MPF-06-P	3/8" MP	20,000 psi / 1379 bar	0.468"	1.102"	0.661"
MPF-09-P	9/16" MP	20,000 psi / 1379 bar	0.719"	1.575"	1.075"
MPF-12-P	3/4" MP	20,000 psi / 1379 bar	0.937"	1.752"	1.126"
MPF-16-P	1" MP	20,000 psi / 1379 bar	1.250"	2.362"	1.551"

MPF

Elbow



Dimensional Drawing



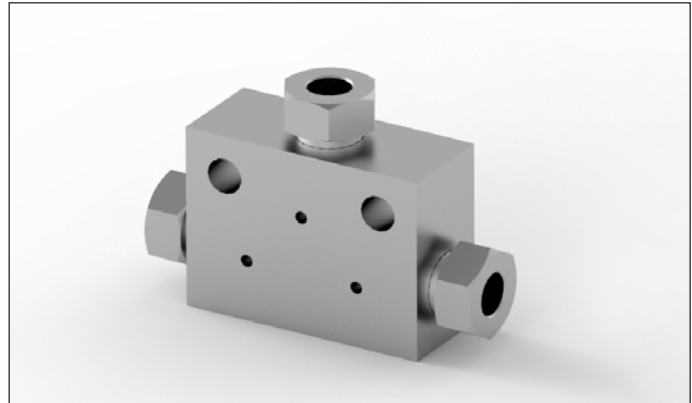
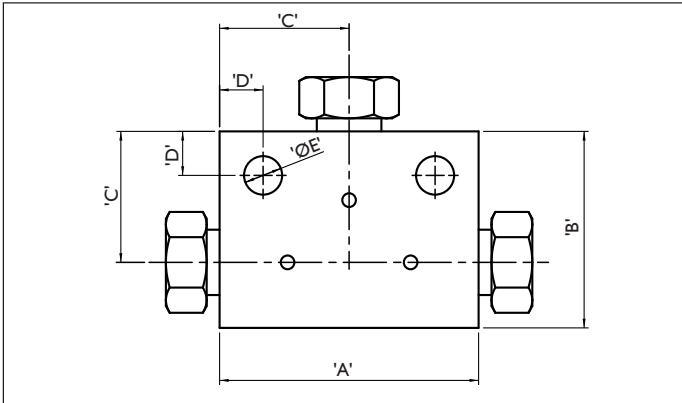
MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'ØE' (in)	Thickness (in)
MPF-04-L	1/4" MP	20,000 psi / 1379 bar	1.50"	1.126"	0.75"	0.252"	0.22"	0.622"
MPF-06-L	3/8" MP	20,000 psi / 1379 bar	2.00"	1.374"	1.00"	0.31"	0.22"	0.750"
MPF-09-L	9/16" MP	20,000 psi / 1379 bar	2.50"	1.748"	1.25"	0.50"	0.28"	1.000"
MPF-12-L	3/4" MP	20,000 psi / 1379 bar	3.00"	2.25"	1.50"	0.50"	0.338"	1.374"
MPF-16-L	1" MP	20,000 psi / 1379 bar	4.126"	3.00"	2.063"	0.689"	0.409"	1.750"

MPF

Tee

Dimensional Drawing



MPF - SELECTION TABLE

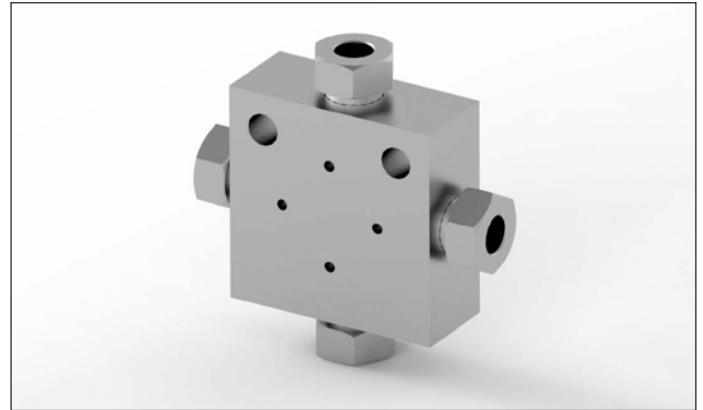
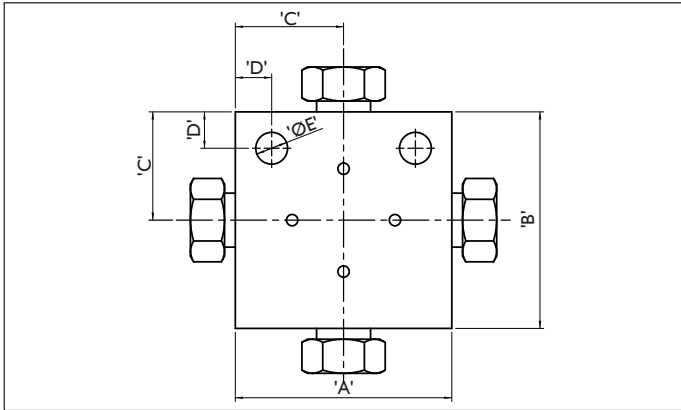
Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'ØE' (in)	Thickness (in)
MPF-04-T	1/4" MP	20,000 psi / 1379 bar	1.50"	1.126"	0.75"	0.252"	0.22"	0.622"
MPF-06-T	3/8" MP	20,000 psi / 1379 bar	2.00"	1.374"	1.00"	0.31"	0.22"	0.75"
MPF-09-T	9/16" MP	20,000 psi / 1379 bar	2.50"	1.748"	1.25"	0.50"	0.28"	1.00"
MPF-12-T	3/4" MP	20,000 psi / 1379 bar	3.00"	2.250"	1.50"	0.50"	0.338"	1.374"
MPF-16-T	1" MP	20,000 psi / 1379 bar	4.126"	3.000"	2.063"	0.689"	0.409"	1.75"

MPF

Cross



Dimensional Drawing



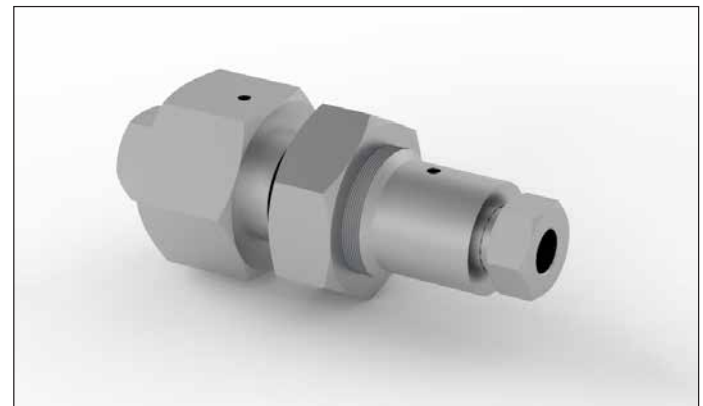
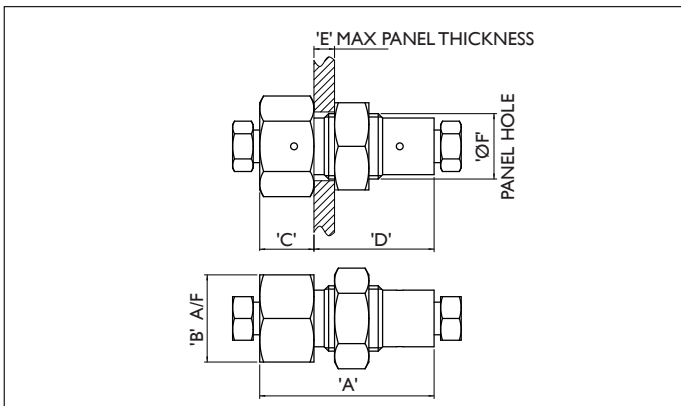
MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)	'C' (in)	'D' (in)	'ØE' (in)	Thickness (in)
MPF-04-X	1/4" MP	20,000 psi / 1379 bar	1.50"	1.50"	0.75"	0.252"	0.22"	0.622"
MPF-06-X	3/8" MP	20,000 psi / 1379 bar	2.00"	50.80	1.00"	0.31"	0.22"	0.750"
MPF-09-X	9/16" MP	20,000 psi / 1379 bar	2.50"	2.50"	1.25"	0.50"	0.28"	1.000"
MPF-12-X	3/4" MP	20,000 psi / 1379 bar	3.00"	3.00"	1.50"	0.50"	0.338"	1.374"
MPF-16-X	1" MP	20,000 psi / 1379 bar	4.126"	4.126"	2.063"	0.689"	0.409"	1.750"

MPF

Bulkhead Coupler

Dimensional Drawing



MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' A/F (in)	'C' (in)	'D' (in)	'ØF' (in)	'E' (in)
MPF-04-B	1/4" MP	20,000 psi / 1379 bar	2.00"	1"	0.622"	1.378"	0.787"	0.39"
MPF-06-B	3/8" MP	20,000 psi / 1379 bar	2.00"	1"	0.622"	1.378"	0.906"	0.39"
MPF-09-B	9/16" MP	20,000 psi / 1379 bar	2.626"	1 3/8"	0.874"	1.752"	1.102"	0.63"
MPF-12-B	3/4" MP	20,000 psi / 1379 bar	2.626"	1 7/8"	0.894"	1.732"	1.693"	0.51"
MPF-16-B	1" MP	20,000 psi / 1379 bar	3.504"	2 1/8"	1.496"	2.007"	1.929"	0.39"

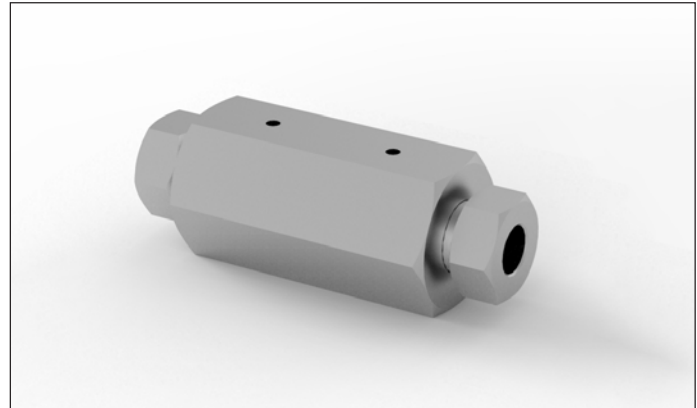
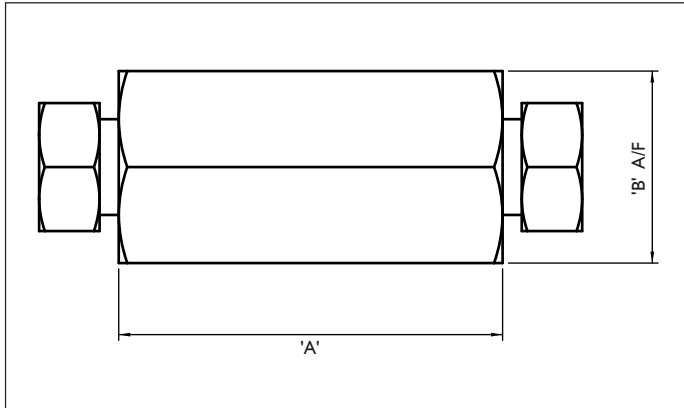
MPF - Medium Pressure Fitting Range

MPF

Straight Coupler



Dimensional Drawing



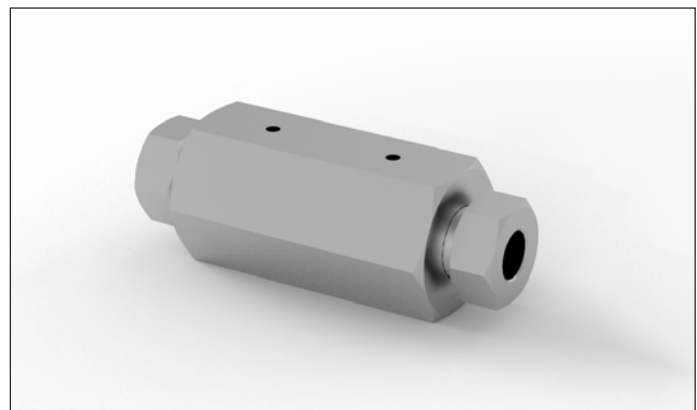
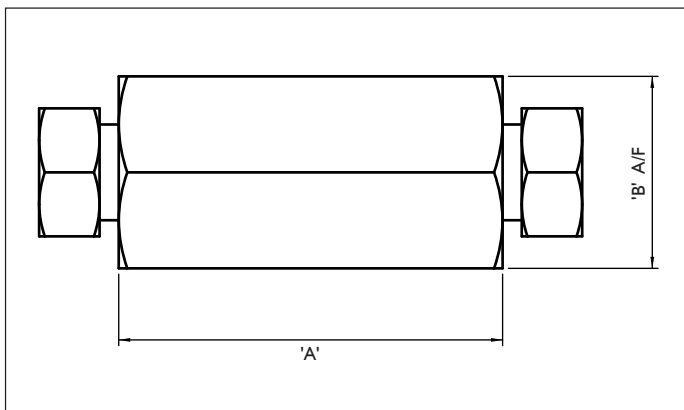
MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' A/F (in)
MPF-04-S	1/4" MP	20,000 psi / 1379 bar	1.500"	3/4"
MPF-06-S	3/8" MP	20,000 psi / 1379 bar	1.752"	3/4"
MPF-09-S	9/16" MP	20,000 psi / 1379 bar	2.126"	1"
MPF-12-S	3/4" MP	20,000 psi / 1379 bar	2.500"	1 3/8"
MPF-16-S	1" MP	20,000 psi / 1379 bar	3.500"	1 3/4"

MPF

Straight Coupler Replaceable Seat

Dimensional Drawing



MPF - SELECTION TABLE

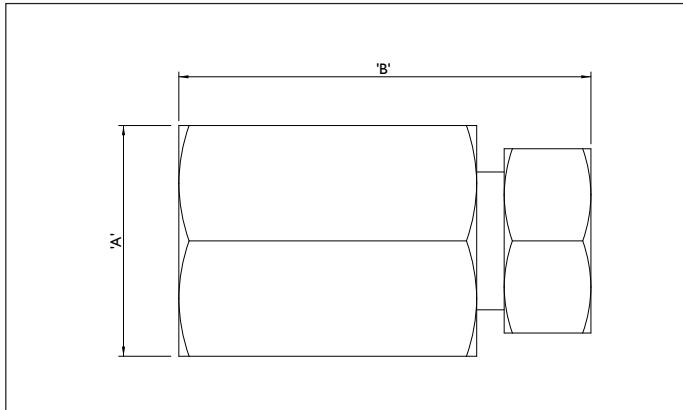
Product Code	Size	Rated	'A' (in)	'B' A/F (in)
MPF-04-SR	1/4" MP	20,000 psi / 1379 bar	1.500"	3/4"
MPF-06-SR	3/8" MP	20,000 psi / 1379 bar	1.752"	3/4"
MPF-09-SR	9/16" MP	20,000 psi / 1379 bar	2.126"	1"
MPF-12-SR	3/4" MP	20,000 psi / 1379 bar	2.500"	1 3/8"
MPF-16-SR	1" MP	20,000 psi / 1379 bar	3.500"	1 3/4"

MPF

Tube Cap



Dimensional Drawing



MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' (in)
MPF-04-TC	1/4" MP	20,000 psi / 1379 bar	5/8"	0.811"
MPF-06-TC	3/8" MP	20,000 psi / 1379 bar	3/4"	1.126"
MPF-09-TC	9/16" MP	20,000 psi / 1379 bar	1"	1.374"
MPF-12-TC	3/4" MP	20,000 psi / 1379 bar	1 3/8"	1.752"
MPF-16-TC	1" MP	20,000 psi / 1379 bar	1 3/4"	2.244"

MPF Selection Chart - Ordering Example

MPF Medium Pressure Fittings, up to and including 20,000 / 1379 bar		Model Code
04 1/4" MP 06 3/8" MP 09 9/16" MP 12 3/4" MP 16 1" MP		Connection Size
C Collar G Gland Nut P Plug L Elbow T Tee X Cross B Bulkhead Coupler S Straight Coupler SR Straight Coupler Replaceable Seat TC Tube Cap		Type
NO LETTER 316L CW 63 Super Duplex ASTM A479 UNS S32750 Other materials are available on request, for more information please contact Rotork Instruments		Material
WO Without Glands & Collars AP All Parts (special materials only) Special material glands and collars rather than the default of only wetted parts. AVA Anti Vibration Assemblies Anti vibration assemblies added to all ports in place of default collars & glands		Option

MPF - 04 - G - 63 - WO

Ordering Example

Other configurations available upon request.

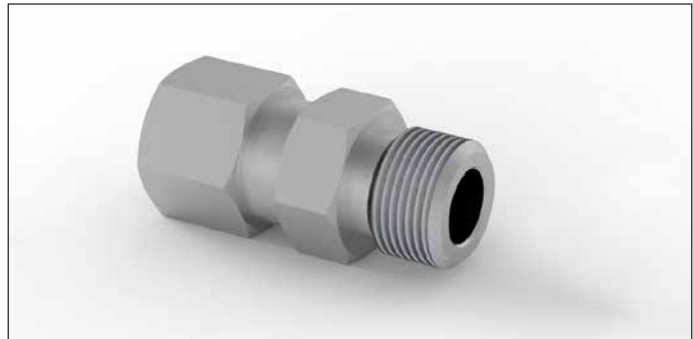
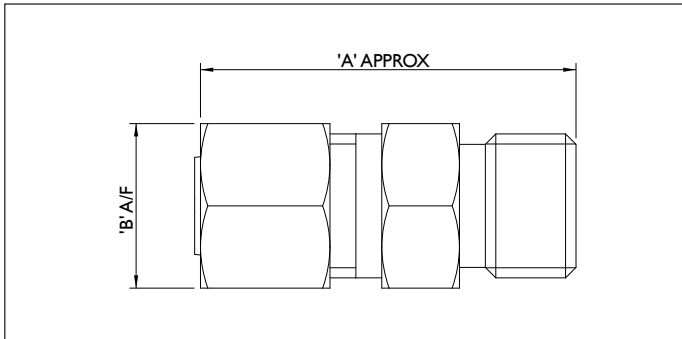
Product Description

Bifold offer Medium Pressure Tubing Fittings for systems which may be subjected to vibration and shock loading. With standard fittings these loads could potentially cause excessive stress on the threaded ends of the tubing; the Anti-Vibration Assembly (AVA) equivalents dramatically reduce these forces, reducing the potential for system leaks due to tubing failure.

Features & Benefits

- Increased tubing life for systems with vibration and/or shock loading
- Provides the same connection as our standard medium pressure fitting
- Tube sizes 1/4", 3/8", 9/16", 3/4" & 1"
- Operating temperature range of -421.6°F to +1,200°F
- High tensile 316L CW stainless steel with molybdenum disulphide coating as standard
- Special materials available upon request

Dimensional Drawing



MPF - SELECTION TABLE

Product Code	Size	Rated	'A' (in)	'B' A/F (in)
MPF-04-AVA	1/4" MP	20,000 psi / 1379 bar	1.142"	1/2"
MPF-06-AVA	3/8" MP	20,000 psi / 1379 bar	1.280"	5/8"
MPF-09-AVA	9/16" MP	20,000 psi / 1379 bar	1.610"	7/8"
MPF-12-AVA	3/4" MP	20,000 psi / 1379 bar	1.831"	1 3/16"
MPF-16-AVA	1" MP	20,000 psi / 1379 bar	2.421"	1 3/8" / 1 1/2"

MPF Selection Chart - Ordering Example

MPF	Medium Pressure Fittings, up to and including 20,000 / 1379 bar	Model Code
04	1/4" MP	Connection Size
06	3/8" MP	
09	9/16" MP	
12	3/4" MP	
16	1" MP	
AVA	Anti Vibration Assemblies	Type
NO LETTER	316L CW	Material
63	Super Duplex ASTM A479 UNS S32750	
Other materials are available on request, for more information please contact Rotork Instruments		

MPF - 04 - AVA - 63

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 & Benefits

- High tensile 316L CW stainless steel as standard.
- Operating temperature range of -421.6°F to +1,200°F
- Special 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	9/16" MP	3/4" MP	1" MP
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	9/16" 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
9/16" 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				
MALE		¼" MP	3/8" MP	9/16" MP	¾" MP	1" MP
	¼" NPT	MPF-04N-04-A	MPF-04N-06-A	MPF-04N-09-A	MPF-04N-12-A	MPF-04N-16-A
	3/8" 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				
MALE		¼" NPT	3/8" NPT	½" NPT	¾" NPT	1" NPT
	¼" MP	MPF-04-04N-A	MPF-04-06N-A	MPF-04-08N-A	MPF-04-12N-A	MPF-04-16N-A
	3/8" MP	MPF-06-04N-A	MPF-06-06N-A	MPF-06-08N-A	MPF-06-12N-A	MPF-06-16N-A
	9/16" MP	MPF-09-04N-A	MPF-09-06N-A	MPF-09-08N-A	MPF-09-12N-A	MPF-09-16N-A
	¾" MP	MPF-12-04N-A	MPF-12-06N-A	MPF-12-08N-A	MPF-12-12N-A	MPF-12-16N-A
	1" MP	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				
MALE		¼" MP	3/8" MP	9/16" MP	¾" MP	1" MP
	¼" MP	MPF-04-04-A	MPF-04-06-A	MPF-04-09-A	MPF-04-12-A	MPF-04-16-A
	3/8" MP	MPF-06-04-A	MPF-06-06-A	MPF-06-09-A	MPF-06-12-A	MPF-06-16-A
	9/16" 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

MPF Selection Chart - Ordering Example

MPF	Medium Pressure Fittings, up to and including 20,000 / 1379 bar	Model Code
04	1/4" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	Connection Size 1
06	3/8" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
09	9/16" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
12	3/4" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
16	1" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
04N	1/4" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
06N	3/8" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
08N	1/2" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
12N	3/4" NPT (6,000 psi / 690 bar, Maximum Cold Working Pressure)	
16N	1" NPT (6,000 psi / 690 bar, Maximum Cold Working Pressure)	
04K6	1/4" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
06K6	3/8" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
08K6	1/2" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
12K6	3/4" BSP (6,000 psi / 414 bar, Maximum Cold Working Pressure)	
16K6	1" BSP (6,000 psi / 414 bar, Maximum Cold Working Pressure)	
04	1/4" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
06	3/8" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
09	9/16" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
12	3/4" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
16	1" MP (20,000 psi / 1379 bar, Maximum Cold Working Pressure)	
04N	1/4" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
06N	3/8" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
08N	1/2" NPT (10,000 psi / 690 bar, Maximum Cold Working Pressure)	
12N	3/4" NPT (6,000 psi / 690 bar, Maximum Cold Working Pressure)	
16N	1" NPT (6,000 psi / 690 bar, Maximum Cold Working Pressure)	
04K6	1/4" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
06K6	3/8" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
08K6	1/2" BSP (10,000 psi / 414 bar, Maximum Cold Working Pressure)	
12K6	3/4" BSP (6,000 psi / 414 bar, Maximum Cold Working Pressure)	
16K6	1" BSP (6,000 psi / 414 bar, Maximum Cold Working Pressure)	
A	Male x Female Adaptors	Type
N	Male x Male Adaptors	

MPF - 04 - 04N - A Ordering Example

MPF - Medium Pressure Fitting Range

MPF

Threaded Nipples



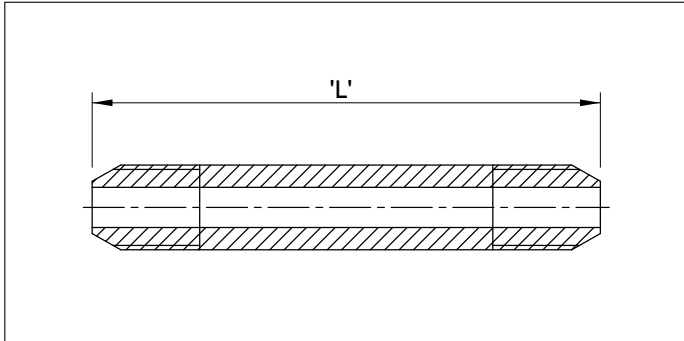
Product Description

Bifold offer Medium Pressure pre-cut coned and threaded nipples up to 12".

Features & Benefits

- 316 Stainless Steel.
- Provides a fast system build solution.
- Custom lengths available on request.

Dimensional Drawing



LENGTH - SELECTION TABLE

Size	2.75"	3"	4"	6"	8"	10"	12"	Rated
1/4"	MPF-04-TN-L2.75	MPF-04-TN-L3	MPF-04-TN-L4	MPF-04-TN-L6	MPF-04-TN-L8	MPF-04-TN-L10	MPF-04-TN-L12	20,000 psi / 1379 bar
3/8"		MPF-06-TN-L3	MPF-06-TN-L4	MPF-06-TN-L6	MPF-06-TN-L8	MPF-06-TN-L10	MPF-06-TN-L12	20,000 psi / 1379 bar
9/16"			MPF-09-TN-L4	MPF-09-TN-L6	MPF-09-TN-L8	MPF-09-TN-L10	MPF-09-TN-L12	20,000 psi / 1379 bar
3/4"				MPF-12-TN-L6	MPF-12-TN-L8	MPF-12-TN-L10	MPF-12-TN-L12	20,000 psi / 1379 bar
1"				MPF-16-TN-L6	MPF-16-TN-L8	MPF-16-TN-L10	MPF-16-TN-L12	20,000 psi / 1379 bar

MPF Selection Chart - Ordering Example

MPF	Medium Pressure Fittings, up to and including 20,000 / 1379 bar	Model Code
04	1/4" MP	Connection Size
06	3/8" MP	
09	9/16" MP	
12	3/4" MP	
16	1" MP	
TN	Threaded Nipples	Type
L2.75	2.75"	Length
L3	3"	
L4	4"	
L6	6"	
L8	8"	
L10	10"	
L12	12"	
Custom lengths are available on request, for more information please contact Rotork Instruments.		

MPF - 04 - TN - L3

Ordering Example

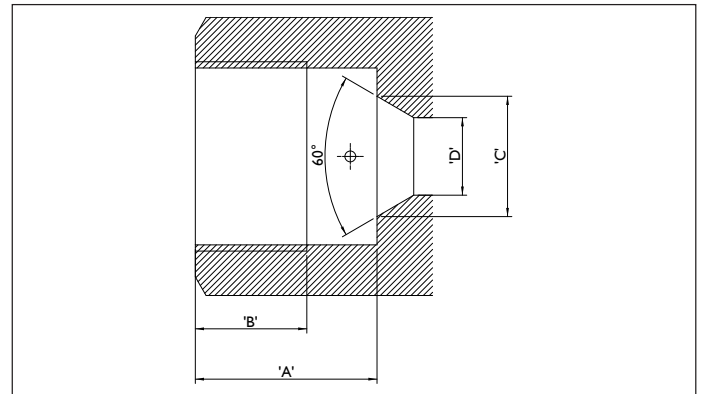
Contact Rotork Instruments for stock medium pressure tube enquiries.

Technical Data



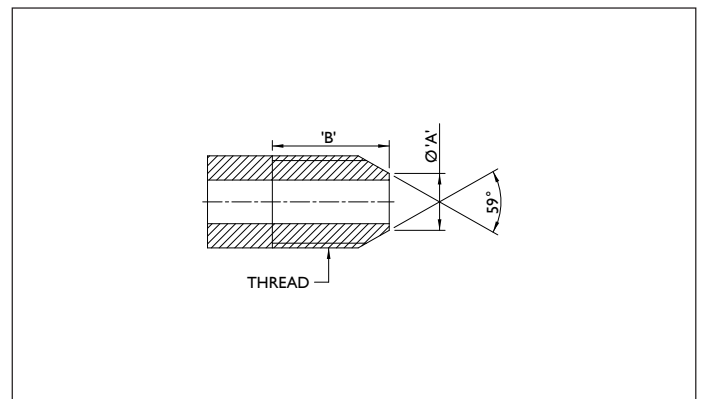
MEDIUM PRESSURE BODY CONNECTIONS

Connection	'A'	'B'	'C'	'D'	'Thread'
1/4" MP	0.50"	0.28"	0.19"	0.11"	7/16-20 UNF
3/8" MP	0.62"	0.38"	0.31"	0.21"	9/16-18 UNF
9/16" MP	0.75"	0.44"	0.50"	0.31"	13/16-16 UN
3/4" MP	0.94"	0.50"	0.62"	0.44"	3/4-14 NPSM
1" MP	1.31"	0.81"	0.88"	0.56"	1 3/8-12 UNF



MEDIUM PRESSURE TUBE CONNECTION

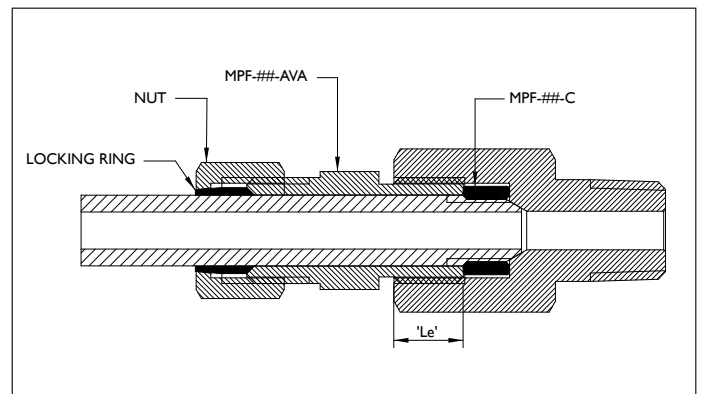
Connection	'A' Ø	'B'	'Thread L.H'
1/4" MP	0.138"	0.374"	1/4-28 UNF
3/8" MP	0.248"	0.433"	3/8-24 UNF
9/16" MP	0.406"	0.531"	9/16-18 UNF
3/4" MP	0.563"	0.630"	3/4-16 UNF
1" MP	0.719"	0.846"	1-14 UN



AVA GLAND ASSEMBLY TORQUE

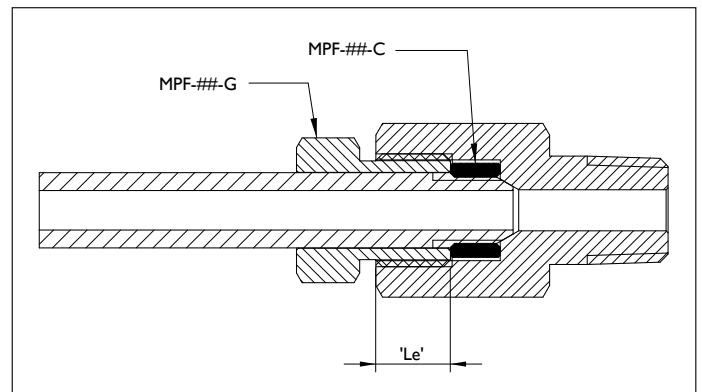
Size	Gland Minimum Thread Engagement Le (in)	Required Torque (Nm)	Nut
1/4"	0.079"	22	HT+1-1/4 Full Turns
3/8"	0.177"	30	HT+1-1/4 Full Turns
9/16"	0.213"	55	HT+1-1/4 Full Turns
3/4"	0.417"	95	HT+1-1/4 Full Turns
1"	0.650"	160	HT+1-1/4 Full Turns

HT = Hand Tight



GLAND ASSEMBLY TORQUE

Size	Gland Minimum Thread Engagement Le (in)	Required Torque (Nm)
1/4"	0.177"	30
3/8"	0.256"	42
9/16"	0.311"	76
3/4"	0.366"	125
1"	0.610"	200



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 also 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.

Fluid Relief Valves



Standard Valve Equipment Design & Build

- Manufactured from 316L grade stainless steel externals as standard. The valves are suited for offshore and other corrosive atmospheres. Materials can be supplied compliant to NACE MR-01-75. Low temperature elastomer seals are available for low temperature arctic service applications.

Fluid Proportional Relief Valves



Compact Relief Valve (Direct Acting)

- Direct acting relief valves are designed for fast response in irregular duty applications. They are often used as an efficient solution to clip pressure spikes.
- Limits the maximum permissible system pressure and diverts some or all of the pump's flow to tank when the pressure of the relief valve is reached.

Fluid Proportional Relief Valves




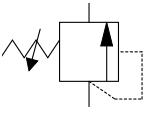
Hydraulic Precision Relief Valve

- Precision relief valves have very high sealing forces along with accurate and narrow dead bands. Precision relief valves should be used in preference to conventional direct acting relief valves where there is risk of vibration induced leakage or where low dead bands are important to system safety performance. Conventional direct acting 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.

Preferred Range


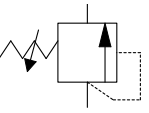


FLUID RELIEF VALVES - PREFERRED RANGE


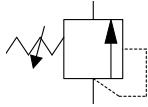

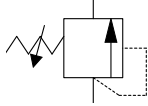

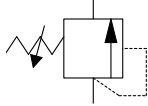

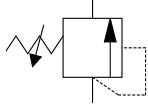

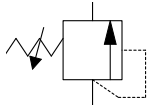
Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>VRCD Compact Fluid Proportional Relief Valves</p>		43 / 44	VRCD-NS-1380-020-M38F-N14F-N-S	<p>$\frac{3}{8}$" MP Female, Inlet Connection and $\frac{1}{4}$" NPT Female, Outlet Connection, Compact Direct Acting Relief Valve. 10,805 psi / 745 bar to 20,015 psi / 1380 bar, \varnothing 2mm Orifice.</p>
			VRCD-NS-1380-020-M38F-B14F-N-S	<p>$\frac{3}{8}$" MP Female, Inlet Connection and $\frac{1}{4}$" BSP Female, Outlet Connection, Compact Direct Acting Relief Valve. 10,805 psi / 745 bar to 20,015 psi / 1380 bar, \varnothing 2mm Orifice.</p>

Preferred Range

FLUID RELIEF VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>VRD Direct Acting Fluid Proportional Relief Valves</p>		45 / 46	VRD-SS-1380-025-M38F-N14F-N-S	<p>$\frac{3}{8}$" MP Female Inlet Connection and $\frac{1}{4}$" NPT Female Outlet Connection, Direct Acting Relief Valve. 14,503 psi / 1000 bar to 20,015 psi / 1380 bar, \varnothing 2.5mm Orifice.</p>
			VRD-SS-1380-025-M38F-B14F-N-S	<p>$\frac{3}{8}$" MP Female Inlet Connection and $\frac{1}{4}$" BSP Female Outlet Connection, Direct Acting Relief Valve. 14,503 psi / 1000 bar to 20,015 psi / 1380 bar, \varnothing 2.5mm Orifice.</p>

FLUID RELIEF VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>I4570 Fluid Precision Relief Valves</p>		47 / 48	I4570 - 09	9/16" MP Inlet Connection and 3/8" BSP Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>I4570 Fluid Precision Relief Valves</p>		47 / 48	I4570 - 11	9/16" MP, Inlet Connection and 9/16" MP, Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>I4570 Fluid Precision Relief Valves</p>		47 / 48	I4570 - 15	9/16" MP, Inlet Connection and 1/2" NPT, Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>I4580 Fluid Precision Relief Valves</p>		47 / 48	I4580 - 04	3/8" MP, Inlet Connection and 3/8" NPT, Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>I4580 Fluid Precision Relief Valves</p>		47 / 48	I4580 - 09	3/8" MP, Inlet Connection and 3/8" BSP, Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.


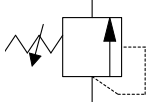

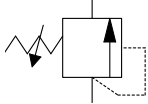

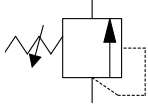

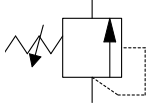

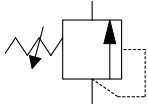
Accuracy of information

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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.

FLUID RELIEF VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>14580 Fluid Precision Relief Valves</p>		47 / 48	14580 - 11	3/8" MP Inlet Connection and 3/8" MP Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>14580 Fluid Precision Relief Valves</p>		47 / 48	14580 - 16	3/8" MP Inlet Connection and 1/4" NPT Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>14580 Fluid Precision Relief Valves</p>		47 / 48	14580 - 20	3/8" MP Inlet Connection and 1/2" NPT Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.
 <p>14580 Fluid Precision Relief Valves</p>		47 / 48	14580 - 22	1/4" MP Female Inlet Connection and 1/2" BSP Female Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 22,011 psi / 1518 bar, Ø 1/8" Orifice.
 <p>23800 Fluid Precision Relief Valves</p>		47 / 48	23800 - 04	3/4" MP Inlet Connection and 3/4" MP Outlet Connection, Precision Relief Valve. 8,702 psi / 600 bar to 20,015 psi / 1380 bar, Ø 1/8" Orifice.

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Product Description

The type VRCD fluid proportional relief valves have 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.

The relief valve weight is : 0.24 kg.

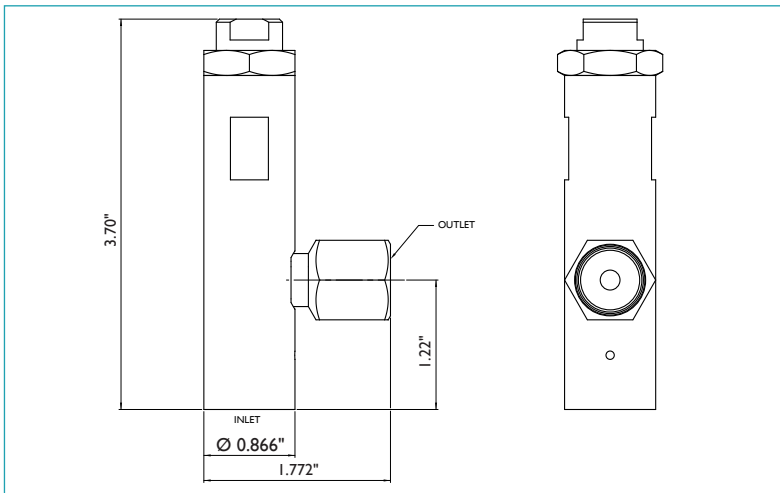
Features & Benefits

- Set Point Repeatability $\pm 3\%$.
- Set Point Range - user specified up to 1,380 bar.
- Sealing Re-Seat Pressure - Virtually zero leakage re-seat pressure $\geq 80\%$ of cracking pressure.
- Flow capacity - flow rates up to 0.07 scfm at 10% over pressure.
- Orifice Size: \varnothing 2.5mm, \varnothing 2mm & \varnothing 1.7mm.
- Operating Media - mineral oils, water glycol fluids and some chemicals. Consult Bifold Marshalsea for specific chemicals and synthetic oils compatibility.

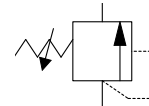
Materials

Body:	316L stainless steel	Nitrile (Standard)
Spring:	302S26 stainless steel	Viton
Seal Material:	Kalrez Nitrile (Low temperature)	Seat Material: Monel and Stainless Steel (Standard)

Dimensional Drawing



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Selection Chart - Ordering Example

VRCD - SELECTION TABLE				
Part Number	Pressure Range (psig)	Inlet Connection	Outlet Connection	Repair Kit
VRCD-NS-0345-040-M38F-N14F-N-S	725 - 5,000 psig	3/8" MP Female	1/4" NPT Female	RK VRCD-NS-0345-040-M38F-N14F-N-S
VRCD-NS-0800-040-M38F-N14F-N-S	4,785 - 11,600 psig	3/8" MP Female	1/4" NPT Female	RK VRCD-NS-0800-040-M38F-N14F-N-S
VRCD-NS-1380-020-M38F-N14F-N-S	10,805 - 20,015 psig	3/8" MP Female	1/4" NPT Female	RK VRCD-NS-1380-020-M38F-N14F-N-S
VRCD-NS-0345-040-M38F-B14F-N-S	725 - 5,000 psig	3/8" MP Female	1/4" BSP Female	RK VRCD-NS-0345-040-M38F-B14F-N-S
VRCD-NS-0800-040-M38F-B14F-N-S	4,785 - 11,600 psig	3/8" MP Female	1/4" BSP Female	RK VRCD-NS-0800-040-M38F-B14F-N-S
VRCD-NS-1380-020-M38F-B14F-N-S	10,805 - 20,015 psig	3/8" MP Female	1/4" BSP Female	RK VRCD-NS-1380-020-M38F-B14F-N-S

Selection Chart - Ordering Example

VR	Relief Valve	Product Group
CD	Compact Direct Acting	Model Code
M0000	Special Design (Marshalsea Variant Number)	Variant (Optional)
SS	316 Stainless	Body Material
NS	316 Stainless - NACE Compliant (Inlet Side Only)	
0345	507 - 5,000 psig (35 - 345 bar)	Maximum Working Pressure
0800	4,780 - 11,600 psig (330 - 800 bar)	
1380	10,800 - 20,000 psig (745 - 1380 bar)	
020	2mm Orifice (Only available with the 20,000 psig valve)	Orifice size
040	4mm Orifice	
M	Medium Pressure	Inlet Connection
14	1/4"	
38	3/8"	
12	1/2"	
916	9/16"	
F	Female	Outlet Connection
M	Medium Pressure	
14	1/4"	
38	3/8"	
12	1/2"	
916	9/16"	
F	Female	Seal Material
K	Kalrez (-13°F to +176°F)	
L	Nitrile (Low temperature) (-40°F to +176°F)	
N	Nitrile (Standard) (-4°F to +176°F)	
V	Viton (14°F to +176°F)	Seat Material
S	Stainless (Standard)	
0000		Set Pressure (Optional)

VR CD - SS-0345-040-N38F-N38F - N - S - Ordering Example

Approvals Details



This relief valve conforms to European Directive 2014/34/EU 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.

Product Description

The direct acting type VRD relief valve has been designed to provide accurate pressure relief for systems operating at pressures up to 20,015 psig. The relief valve weight is 2.80 lb.

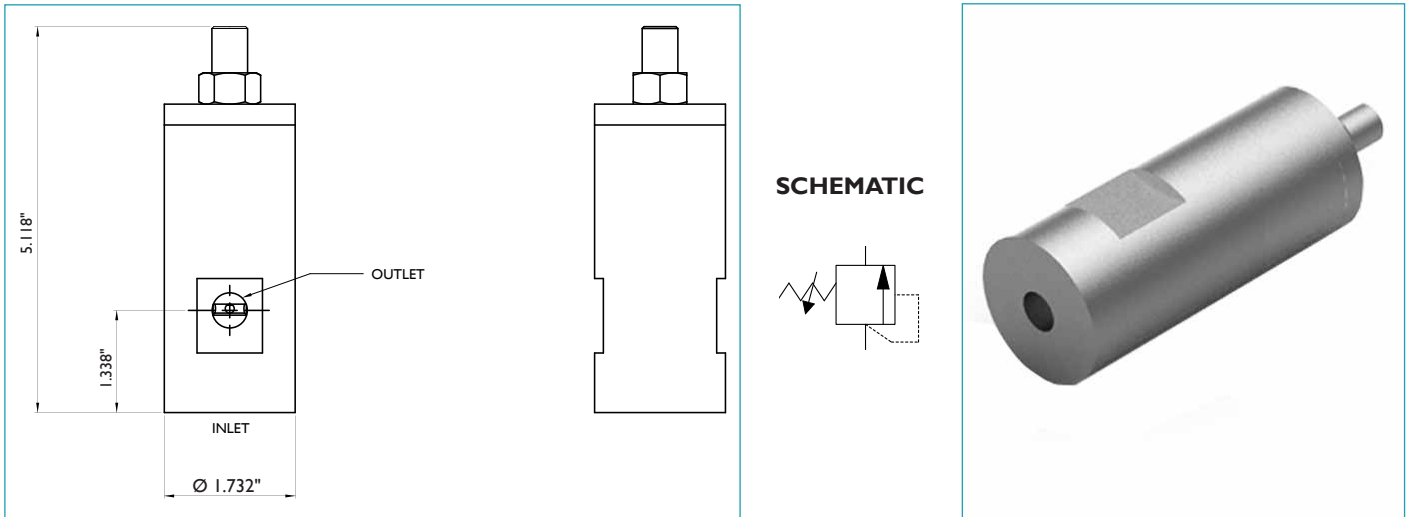
Features & Benefits

- Set Point Repeatability $\pm 3\%$.
- Set Point Range - user specified up to 20,000 psig.
- Sealing Re-Seat Pressure - Virtually zero leakage re-seat pressure $\geq 80\%$ of cracking pressure.
- Operating Media - Mineral oils, water-glycol, for additional options please contact Rotork Instruments.
- 316L stainless steel externals.

Materials

External & Wetted Parts - 316L stainless steel

Dimensional Drawing (mm)



Selection Chart - Ordering Example

VRD - SELECTION TABLE				
Part Number	Pressure Range (psig)	Inlet Connection	Outlet Connection	Repair Kit
VRD-SS-0850-032-M38F-N14F-N-S	6,500 - 12,300 psig	3/8" MP Female	1/4" NPT Female	RK VRD-SS-0850-032-M38F-N14F-N-S
VRD-SS-1040-032-M38F-N14F-N-S	10,150 - 15,080 psig	3/8" MP Female	1/4" NPT Female	RK VRD-SS-1040-032-M38F-N14F-N-S
VRD-SS-1380-025-M38F-N14F-N-S	14,500 - 22,000 psig	3/8" MP Female	1/4" NPT Female	RK VRD-SS-1380-025-M38F-N14F-N-S
VRD-SS-0850-032-M38F-B14F-N-S	6,500 - 12,300 psig	3/8" MP Female	1/4" BSP Female	RK VRD-SS-0850-032-M38F-B14F-N-S
VRD-SS-1040-032-M38F-B14F-N-S	10,150 - 15,080 psig	3/8" MP Female	1/4" BSP Female	RK VRD-SS-1040-032-M38F-B14F-N-S
VRD-SS-1380-025-M38F-B14F-N-S	14,500 - 22,000 psig	3/8" MP Female	1/4" BSP Female	RK VRD-SS-1380-025-M38F-B14F-N-S

Selection Chart - Ordering Example

VR	Relief Valve	Product Group
D	Direct Acting	Model Code
M0000	Special Design (Marshalsea Variant Number)	Variant (Optional)
SS	316 Stainless	Body Material
NS	316 Stainless - NACE Compliant (Inlet Side Only)	
DX	Duplex Stainless	
SX	Super Duplex Stainless	
0100	290 - 1,450 psig (20 - 100 bar)	Maximum Working Pressure
0360	1,160 - 5,220 psig (0 - 360 bar)	
0540	4,350 - 7,830 psig (300 - 540 bar)	
0850	6,526 - 12,328 psig (450 - 850 bar)	
1040	10,150 - 15,080 psig (700 - 1040 bar)	
1380	14,500 - 22,000 psig (1000 - 1380 bar)	
025	2.5mm Orifice (Only available with the 0850, 1040 and 1380 bar valves)	Orifice size
032	3.2mm Orifice	
M	Medium Pressure	Inlet Connection
14	1/4"	
38	3/8"	
12	1/2"	
916	9/16"	
F	Female	Outlet Connection
M	Medium Pressure	
14	1/4"	
38	3/8"	
12	1/2"	
916	9/16"	
F	Female	Seal Material
K	Kalrez (-13°F to +176°F)	
L	Nitrile (Low temperature)(-40°F to +176°F)	
N	Nitrile (Standard) (-4°F to +176°F)	
V	Viton (14°F to +176°F)	Seat Material
S	Stainless (Standard)	
0000		Set Pressure (Optional)
VR D - SS-0360 - 032-N38F-N38F-N - S		Ordering Example

Approvals Details



This relief valve conforms to European Directive 2014/34/EU 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.

Product Description

The Type 14520, 14530, 14570, 14580, 23600, 23700 & 23800 precision relief valve has been designed to provide accurate over pressure protection in systems operating at pressures of up to 17,404 psig and flows of up to 0.88 scfm.

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 that 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 a valve with a low pressure increase across the full range.

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

The relief valve weight is 2.14 lb.

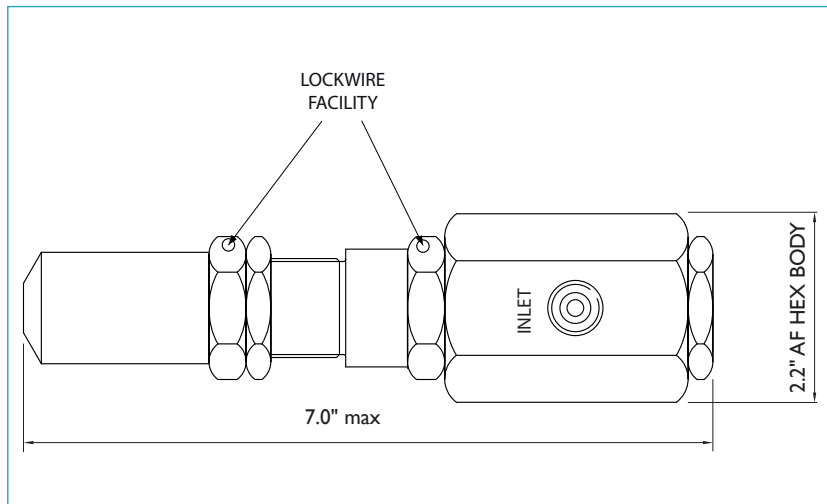
Features & Benefits

- Up to 22,000 psig, 0.882 scfm.
- Set Point Repeatability $\pm 3\%$.
- Sealing Re-Seat Pressure - Virtually zero leakage re-seat pressure $\geq 90\%$ of cracking pressure.
- Flow Capacity - at up to 10% overpressure: 0.882 scfm
- Orifice Size: $\varnothing \frac{1}{8}"$
- 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.

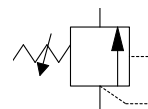
Materials

External & Wetted Parts:	316L stainless steel. M390.	
Seal Material:	Nitrile (Standard) Viton - Add suffix M089 eg. 14520 - 08 - M089 Nitrile (Low Temperature) - Add suffix M106 eg. 14520 - 08 - M106	(-4°F to +176°F). (14°F to +176°F).
Seat Material:	M340.	(-40°F to +176°F).

Dimensional Drawing



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Selection Chart - Ordering Example

14570, 14580 & 23800 - SELECTION TABLE

Part Number	Pressure Range (psig)	Inlet Connection	Outlet Connection	Repair Kit
14580 - 16	8,700 - 20,000	3/8" MP	1/4" NPT	RK 14580 - 16
14580 - 04	8,700 - 20,000	3/8" MP	3/8" NPT	RK 14580 - 04
14580 - 09	8,700 - 20,000	3/8" MP	3/8" BSP	RK 14580 - 09
14580 - 11	8,700 - 20,000	3/8" MP	3/8" MP	RK 14580 - 11
14580 - 20	8,700 - 20,000	3/8" MP	1/2" NPT	RK 14580 - 20
14580 - 22	14,500 - 22,000	1/4" MP Female	1/2" BSP Female	RK 23600 - 01
14570 - 09	8,700 - 20,000	9/16" MP	1/4" BSP	RK 14570 - 09
14570 - 11	8,700 - 20,000	9/16" MP	9/16" MP	RK 14570 - 11
14570 - 15	8,700 - 20,000	9/16" MP	1/2" NPT	RK 14570 - 15
23800 - 04	8,700 - 20,000	3/4" MP	3/4" MP	RK 23800 - 04

Approvals Details



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Keeping the World Flowing

Rotork Instruments
3920 West Point Blvd,
Winston-Salem, NC 27103.
USA

tel +1 336 659 3400
fax +1 336 659 9323
US-WS-CS@rotork.com
www.fairchildproducts.com

Bifold Fluidpower Ltd
Bifold Group
Broadgate, Oldham Broadway
Business Park, Chadderton,
Greater Manchester, OL9 9XA. UK.

tel +44 (0) 161 345 4777
fax +44 (0) 161 345 4780
marketing@bifold.co.uk
www.bifold.co.uk

www.rotork.com

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