

Direct and Indirect Acting Solenoid Valves Models FP03P, FP06P, FP10P, FP12P, SJ06, S06/S09/S12 & SPR



Superior Performance Throughout the Full Operational Range

- SIL 3 Third Party Certified
- Solenoid Free to Rotate Through 360°
- 316 Stainless Steel Solenoid Housing and Valve
- Arctic Service Options to -60°C
- Worldwide Solenoid Approvals
Ex d, Ex ia, Ex emb, explosion proof
- Low Power
- High Flow
- Up to 35 bar Working Pressure

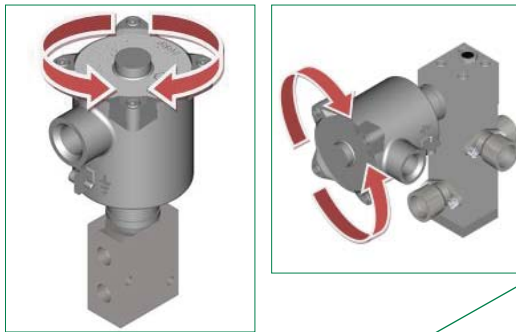


Features & Benefits

Worldwide Approvals



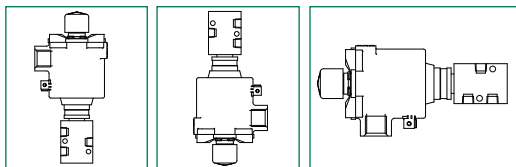
Solenoid Housing is Free to Rotate 360°



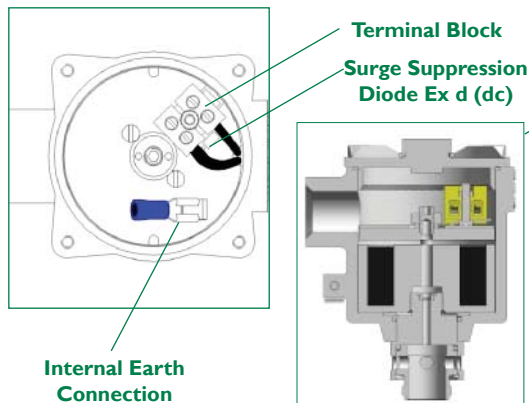
Widest Range of Override Options



Valve can be Mounted in any Orientation



Spacious Enclosure for Ease of Wiring



Equipment Design & Build

- Worldwide Approvals.
- Solenoid housing is free to rotate 360° allowing for an easy cable layout and ease of connection wiring. Solenoid internals rotate with housing and prevent cables being pulled out of terminal block.
- Widest range of override options (Auto Reset, Spring Return Manual Override, Stayput Manual Override, Manual Reset, Tamperproof Manual Latch, Latch Energised).
- Worldwide technical and field support.
- Solenoid valve can be mounted in any orientation to simplify installation.

Commissioning and Maintenance Benefits

- Tropicalised solenoid design - all stainless steel construction including magnetic parts. Fully encapsulated coil.
- Spacious solenoid enclosure for ease of wiring.
- No time penalty for heat dissipation before removing solenoid cover.
- No special high temperature cable requirements.

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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design, etc., without prior notice.

Features & Benefits

SIL certified, FMEA, extensive qualification testing coupled with 100% Computerised Diagnostic Test Procedures.



State of the Art Testing




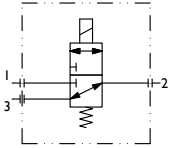

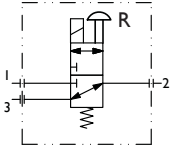

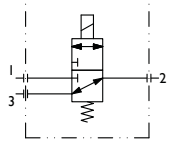

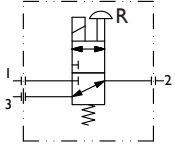
Simple Maintenance



Safety and Environmental Benefits

- SIL third party certified to IEC 61508, FMEA, extensive qualification testing (valve models FP03P, FP06P & FP10P. Note: FP03P fitted as the pilot stage operator on SJ06, S06/S09/S12 & SPR).
- Balanced valve with high safety factors to de-energise at all pressures in Normally Open and Normally Closed configurations.
- 100% computerised diagnostic testing to ensure each solenoid valve is proven along with confirmed safety factors.
- Bifold has state of the art testing and qualification equipment including endurance, environment, climatic, performance, function and leakage testing.
- The solenoid design incorporates an armature plate coil holder mechanism which ensures the valve will operate in damp conditions and reducing the risk of corrosion to internal components. Other solenoid valve designs incorporate a solenoid core tube design that will only operate in dry air conditions!
- Tolerant to moist air in control lines.
- Genuine and proven arctic service low temperature performance.
- Products are manufactured, inspected, assembled and tested in our state of the art production facilities.
- Large clearances, metal back up to seals and no knife edge sealing to prevent long term valve sticking.
- Dry armature to prevent armature corrosion affecting safe shut down.
- Simple maintenance - Removable transient suppression diode and solenoid coil without removing valve from the tubing.


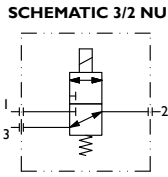

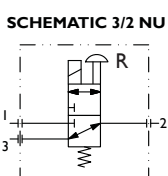

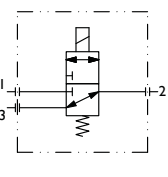

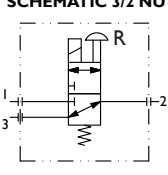
DIRECT ACTING SOLENOID VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>FP03P</p>	<p>SCHEMATIC 3/2 NC</p> 	14	FP03P-02-32-NC-V-74A-24D-36-XX	1/8" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Auto Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEEx Ex emb IIC T3 Gb 3.6 Watt, Cv 0.1, 10 bar.
			FP03P-02-32-NC-V-77A9-24D-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEEx Ex d IIC T6 3.0 Watts, Cv 0.1, 10 bar.
			FP03P-02-32-NC-V-78A9-370-XX	ATEX II 1 GD, Ex ia IIC T6 Ga IECEEx Ex ia IIC T6 Ga 370 Ohms, Cv 0.1, 10 bar. †
 <p>FP03P Manual Reset</p>	<p>SCHEMATIC 3/2 NC</p> 	14	FP03P-02-32-NC-V-74A-24D-ML-36-XX	1/8" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Manual Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEEx Ex emb IIC T3 Gb 3.6 Watt, Cv 0.1, 10 bar.
			FP03P-02-32-NC-V-77A9-24D-ML-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEEx Ex d IIC T6 3.0 Watt, Cv 0.1, 10 bar.
			FP03P-02-32-NC-V-78A9-24D-ML-370-XX	ATEX II 1 GD, Ex ia IIC T6 Ga IECEEx Ex ia IIC T6 Ga 370 Ohms, Cv 0.1, 10 bar. †
 <p>FP06P</p>	<p>SCHEMATIC 3/2 NU</p> 	15	FP06P-SI-04-32-NU-V-74A-24D-44-XX	1/4" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Auto Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEEx Ex emb IIC T3 Gb 4.4 Watt, Cv 0.5, 10 bar.
			FP06P-SI-04-32-NU-V-74A-24D-68-XX	6.8 Watt, Cv 0.75, 10 bar.
			FP06P-SI-04-32-NU-V-77A9-24D-35-XX	3.5 Watt, Cv 0.5, 10 bar.
FP06P-SI-04-32-NU-V-77A9-24D-57-XX	5.7 Watt, Cv 0.75, 10 bar.			
 <p>FP06P Manual Reset</p>	<p>SCHEMATIC 3/2 NU</p> 	15	FP06P-SI-04-32-NU-V-74A9-24D-ML-36-XX	1/4" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Manual Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEEx Ex emb IIC T3 Gb 3.6 Watt, Cv 0.75, 10 bar.
			FP06P-SI-04-32-NU-V-77A9-24D-ML-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEEx Ex d IIC T6 3.0 Watt, Cv 0.75, 10 bar.


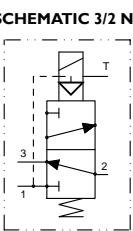

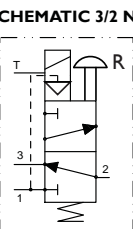

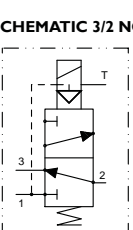
† Solenoid must be used in conjunction with a correctly matched, Intrinsically Safe (IS) solenoid driver. The valve installer is responsible for a correct and safe IS system.

Selection Table

DIRECT ACTING SOLENOID VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>FP10P</p>	<p>SCHEMATIC 3/2 NU</p> 	16	<p>FP10P-SI-04-32-NU-V-74A-24D-44-XX FP10P-SI-04-32-NU-V-74A-24D-68-XX</p>	<p>1/4" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Auto Reset.</p> <p> ATEX II 2 GDc, Ex emb IIC T3 IECEX Ex emb IIC T3 Gb 4.4 Watt, Cv 0.5, 10 bar. 6.8 Watt, Cv 0.75, 10 bar. </p>
			<p>FP10P-SI-04-32-NU-V-77A9-24D-35-XX FP10P-SI-04-32-NU-V-77A9-24D-57-XX</p>	<p> ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 3.5 Watt, Cv 0.5, 10 bar. 5.7 Watt, Cv 0.75, 10 bar. </p>
 <p>FP10P Manual Reset</p>	<p>SCHEMATIC 3/2 NU</p> 	16	<p>FP10P-SI-04-32-NU-V-74A9-24D-ML-36-XX</p>	<p>1/4" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Manual Reset.</p> <p> ATEX II 2 GDc, Ex emb IIC T3 IECEX Ex emb IIC T3 Gb 3.6 Watt, Cv 0.75, 10 bar. </p>
			<p>FP10P-SI-02-32-NU-V-77A9-24D-ML-30-XX</p>	<p> ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 3.0 Watt, Cv 0.75, 10 bar. </p>
 <p>FP12P</p>	<p>SCHEMATIC 3/2 NU</p> 	17	<p>FP12P-SI-08-32-NU-V-77A9-24D-120-XX</p>	<p>1/2" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Auto Reset.</p> <p> ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 12 Watt, Cv 2.5, 10 bar. </p>
 <p>FP12P Manual Reset</p>	<p>SCHEMATIC 3/2 NU</p> 	17	<p>FP12P-SI-08-32-NU-V-74A9-24D-ML-65-XX</p>	<p>1/2" NPT Ports, 3 way 2 position, direct acting, Normally Universal, 24Vdc, Manual Reset.</p> <p> ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 6.5 Watt, Cv 2.5, 10 bar. </p>

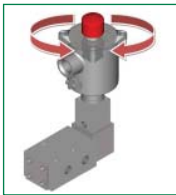
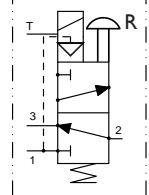




INDIRECT ACTING SOLENOID VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 SJ06		18	SJ06-EI-32-NC-00-74A-24D-36-XX	1/4" NPT Ports, 3 way 2 position, pilot operated, Normally Closed, 24Vdc, Auto Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEx Ex emb IIC T3 Gb 3.6 Watt, Cv 0.7, 10 bar.
			SJ06-EI-32-NC-00-77A9-24D-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEx Ex d IIC T6 3.0 Watt, Cv 0.7, 10 bar.
			SJ06-EI-32-NC-00-78A9-370-XX	ATEX II 1 GD, Ex ia IIC T6 Ga IECEx Ex ia IIC T6 Ga 370 Ohms, Cv 0.7, 10 bar. †
 SJ06 Manual Reset		18	SJ06-E5-32-NC-00-74A-24D-ML-36-XX	1/4" NPT Ports, 3 way 2 position, pilot operated, Normally Closed 24Vdc, Manual Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEx Ex emb IIC T3 Gb 3.6 Watt, Cv 0.7, 10 bar.
			SJ06-E5-32-NC-00-77A9-24D-ML-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEx Ex d IIC T6 3.0 Watt, Cv 0.7, 10 bar.
			SJ06-E5-32-NC-00-78A9-370-ML-XX	ATEX II 1 GD, Ex ia IIC T6 Ga IECEx Ex ia IIC T6 Ga 370 Ohms, Cv 0.7, 10 bar. †
 SI2		19	SI2-EI-32-NC-00-74A-24D-36-XX	1/2" NPT Ports, 3 way 2 position, pilot operated, Normally Closed, 24Vdc, Auto Reset. ATEX II 2 GDc, Ex emb IIC T3 Gb IECEx Ex emb IIC T3 Gb 3.6 Watt, Cv 1.7, 10 bar.
			SI2-EI-32-NC-00-77A9-24D-30-XX	ATEX II 2 GD, Ex d IIC T6 IECEx Ex d IIC T6 3.0 Watt, Cv 1.7, 10 bar.
			SI2-EI-32-NC-00-78A9-370-XX	ATEX II 1 GD, Ex ia IIC T6 Ga IECEx Ex ia IIC T6 Ga 370 Ohms, Cv 1.7, 10 bar. †

† Solenoid must be used in conjunction with a correctly matched, Intrinsically Safe (IS) solenoid driver.
 The valve installer is responsible for a correct and safe IS system.

Selection Table

INDIRECT ACTING SOLENOID VALVES - PREFERRED RANGE

Product	Schematic Representation	Page Number	Product Code	Product Description
 <p>S12 Manual Reset</p>	<p>SCHEMATIC 3/2 NC</p> 	19	<p>S12-E5-32-NC-00-74A-24D-ML-36-XX</p>	<p>1/2" NPT Ports, 3 way 2 position, pilot operated, Normally Closed, 24Vdc, Manual Reset.</p> <p>ATEX II 2 GDc, Ex emb IIC T3 Gb IECEX Ex emb IIC T3 Gb 3.6 Watt, Cv 1.7, 10 bar.</p>
			<p>S12-E5-32-NC-00-77A9-24D-ML-30-XX</p>	<p>ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 3.0 Watt, Cv 1.7, 10 bar.</p>
			<p>S12-E5-32-NC-00-78A9-370-ML-XX</p>	<p>ATEX II 1 GD, Ex ia IIC T6 Ga IECEX Ex ia IIC T6 Ga 370 Ohms, Cv 1.7, 10 bar.</p> <p>†</p>
 <p>SPRI2</p>	<p>SCHEMATIC 3/2 NC</p> 	20	<p>SPRI2-EI-32-NC-00-74A-24D-36-XX</p>	<p>1/2" NPT Ports, 3 way 2 position, pilot operated, Normally Closed 24Vdc, Auto Reset.</p> <p>ATEX II 2 GDc, Ex emb IIC T3 Gb IECEX Ex emb IIC T3 Gb 3.6 Watt, Cv 3.0, 10 bar.</p>
			<p>SPRI2-EI-32-NC-00-77A9-24D-30-XX</p>	<p>ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 3.0 Watt, Cv 3.0, 10 bar.</p>
			<p>SPRI2-EI-32-NC-00-78A9-370-XX</p>	<p>ATEX II 1 GD, Ex ia IIC T6 Ga IECEX Ex ia IIC T6 Ga 370 Ohms, Cv 3.0, 10 bar.</p> <p>†</p>
 <p>SPRI2 Manual Reset</p>	<p>SCHEMATIC 3/2 NC</p> 	20	<p>SPRI2-E5-32-NC-00-74A9-24D-ML-36-XX</p>	<p>1/2" NPT Ports, 3 way 2 position, pilot operated, Normally Closed, 24Vdc, Manual Reset.</p> <p>ATEX II 2 GDc, Ex emb IIC T3 Gb IECEX Ex emb IIC T3 Gb 3.6 Watt, Cv 3.0, 10 bar.</p>
			<p>SPRI2-E5-32-NC-00-77A9-24D-ML-30-XX</p>	<p>ATEX II 2 GD, Ex d IIC T6 IECEX Ex d IIC T6 3.0 Watt, Cv 3.0, 10 bar.</p>
			<p>SPRI2-E5-32-NC-00-78A9-370-ML-XX</p>	<p>ATEX II 1 GD, Ex ia IIC T6 Ga IECEX Ex ia IIC T6 Ga 370 Ohms, Cv 3.0, 10 bar.</p> <p>†</p>

† Solenoid must be used in conjunction with a correctly matched, Intrinsically Safe (IS) solenoid driver. The valve installer is responsible for a correct and safe IS system.

Overview

Materials of Construction

Solenoid housing and valve manufactured from 316L stainless steel as standard.
Valve seals are supplied in Viton as standard. Alternative elastomers available for extreme conditions and to suit media.
Springs are manufactured from 302S26 & 316S42 stainless steel as standard.
Fasteners are metric A4 18/10 grade stainless steel; equivalent to 316 grade stainless steel.

Technical Data

Operating Performance for FP03P, FP06P, FP10P, FP12P, SJ06, S06/S09/S12 & SPR

Duty cycle 100% continuously rated/energised.
Surge suppression diode is fitted on all Ex d dc solenoid coils as standard.
Response times - pull in <100ms, drop out <70ms.
Solenoid Insulation - Class H.
Pull-in volts to 85% of nominal. (Checked at FAT to be within specified limits to guarantee safety factors).
Maximum volts at 110% of nominal.
Drop-out volts typically 10 - 20% of nominal (higher Volt options for line monitoring). (Checked at FAT to be within specified limits to guarantee safety factors).
Temperature rating -20°C to upper limit of solenoid classification (standard). Arctic service option to -60°C.
IP66 & IP67 Ingress Protection to IEC 60529 and NEMA 4X.
Bifold solenoid valves must be installed, operated and maintained in accordance with the relevant Bifold installation, operating and maintenance instructions, relevant installation rules, regulations and codes of practice.

Product Options

Certification & Approval options available



SIL 3, Safety Integrity Level, third party certification to IEC 61508 (Valve models FP03P, FP06P & FP10P. Note: FP03P fitted as the pilot stage operator on SJ06, S06/S09/S12 & SPR).

Valves can be mounted in any orientation. Solenoids can be rotated relative to the pilot stage valve body to suit cable entry.

Working pressure up to 35 bar. Maximum working pressure according to valve model.

Operating media - Filtered lubricated or unlubricated air, inert gas, sweet (natural) and sour gas options, water, water glycol mixtures and mineral, oil. Maximum viscosity 65 cSt (mm²/s).

For operating temperature range, please see solenoid valve type and seal options.

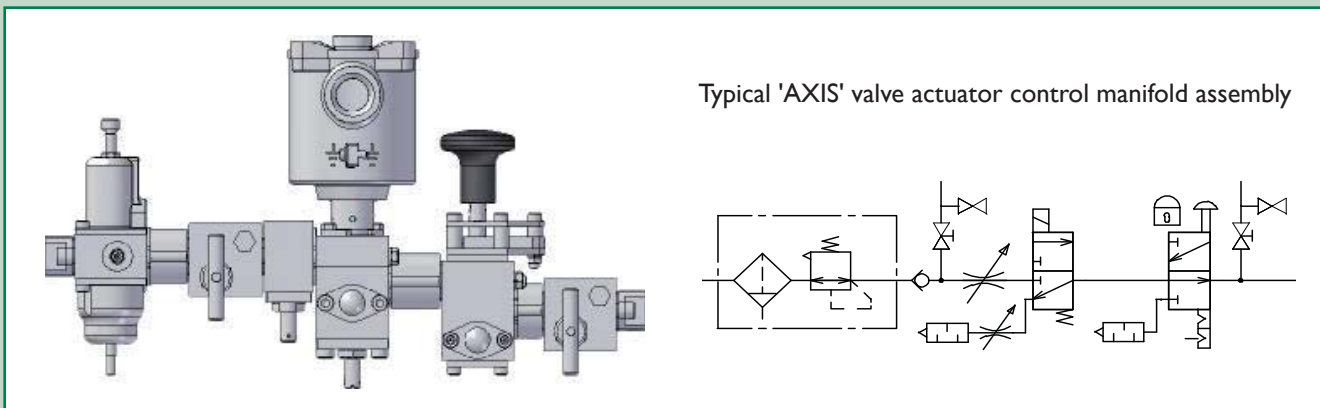
Higher voltage options available for line monitoring.

Manual Reset, Manual Override and Manual Latch operator options.

Arctic Service options to -60°C.

These products can be incorporated within our 'AXIS' valve actuator control manifold systems.

See catalogue 03: - AXIS Manifold System.



Certification Details

Certification & Approval Details

Type 74 Solenoid

ATEX, Certificate Number Baseefa 09ATEX0040X.
 II 2GD c Ex emb IICT3 Gb Tamb -25°C to +40°C.
 II 2GD c Ex emb IICT3 Gb Tamb -25°C to +55°C.

IECEx, Certificate Number IECEx Bas 09.0012X.
 Ex emb IICT3 Gb Tamb -25°C to +40°C.
 Ex emb IICT3 Gb Tamb -25°C to +55°C.

Dual Labelled/Marked

Type 77 Solenoid

ATEX, Certificate Number Baseefa 10ATEX0026.
 II 2 GD Ex d IIC T6 (Tamb -60°C to +40°C).
 II 2 GD Ex d IIC T5 (Tamb -60°C to +55°C).
 II 2 GD Ex d IIC T4 (Tamb -60°C to +90°C).

IECEx, Certificate Number IECEx Bas 10.0008.
 Ex d IIC T6 (Tamb -60°C to +40°C).
 Ex d IIC T5 (Tamb -60°C to +55°C).
 Ex d IIC T4 (Tamb -60°C to +90°C).

Dual Labelled/Marked

Type 78 Solenoid

ATEX, Certificate Number Baseefa 02ATEX0124X.
 II 1 GD Ex ia IICT6 Ga (Tamb = -60°C to +60°C).
 II 1 GD Ex ia IICT4 Ga (Tamb = -60°C to +95°C).

IECEx, Certificate Number IECEx Bas 09.0092X.
 Ex ia IIC T6 Ga (Tamb = -60°C to +60°C).
 Ex ia IIC T4 Ga (Tamb = -60°C to +95°C).

Dual Labelled/Marked

Type 77 Solenoid

CSA (US), Certificate Number I 398692
 Class I, Division I, Groups B, C & D for both
 US Canada & USA.
 Ex d IIC for Canada, AEx d IIC for USA.
 T85°C -60°C to +40°C ambient.
 T100°C -60°C to +55°C ambient.
 T135°C -60°C to +90°C ambient.

Type 77 Solenoid

ATEX, Certificate Number Baseefa 10ATEX0026.
 II 2GD Ex d IIC T6 (Tamb -60°C to +40°C).
 II 2GD Ex d IIC T5 (Tamb -60°C to +55°C).
 II 2GD Ex d IIC T4 (Tamb -60°C to +90°C).

Dual Labelled/Marked

Type 77 Solenoid

INMETRO, Certificate Number CEP-EX-097/2003X.
 BR-Ex d IIC T6 -60°C to +40°C ambient.
 BR-Ex d IIC T5 -60°C to +55°C ambient.
 BR-Ex d IIC T4 -60°C to +90°C ambient.

Type 78 Solenoid

INMETRO, Certificate Number CEP-EX-532/05.
 BR-Ex ia IIC T6 -60°C to +40°C ambient.
 BR-Ex ia IIC T4 -60°C to +95°C ambient.

Type 77 Solenoid

GOST, Certificate Number B00763, RTN.
 Ex d IIC T6 -60°C to +40°C ambient.
 Ex d IIC T5 -60°C to +55°C ambient.
 Ex d IIC T4 -60°C to +90°C ambient.

Type 78 Solenoid

GOST, Certificate Number B00015, RTN.
 Permit Number PPC 00-28504.
 Ex ia IIC T6 -60°C to +40°C ambient.
 Ex ia IIC T5 -60°C to +55°C ambient.
 Ex ia IIC T4 -60°C to +90°C ambient.

Type 87 Solenoid

NEPSI, Certificate Number GYJ08101 I.
 Ex d IIC T6 up to 40°C ambient.
 Ex d IIC T5 up to 55°C ambient.
 Ex d IIC T4 up to 95°C ambient.

Type 77 & 78 Solenoid

GOST K, GG TN K Permit, Kazakhstan,
 BIF 7727 2.

Please note that operation ambients are dependant upon seal types.
 For solenoid type 87 please note that the solenoid housing is fixed.
 For solenoid type 74 the maximum permissible ambient temperature is subject to the coil wattage. Please see page 11.

Port Connections

Port Connections (FP03P Only)

PORT CONNECTIONS TABLE			
Configuration	Pressure	Service	Vent
Normally Closed	1	2	3

For port connections please refer to selection chart ordering example. Page 14.

Port Connections for (FP06P, FP10P, FP12P, SJ06, S06/S09/S12 & SPR)

PORT CONNECTIONS TABLE			
Configuration	Pressure	Service	Vent
Normally Closed	1	2	3
Normally Open	3	2	1
Selector	1 & 3	2	N/A
Diverter	2	1 & 3	N/A

For port connections please refer to selection chart ordering example. Pages 15, 16, 17, 18, 19 & 20.

Product Weights

Approximate Standard Product Weights

PRODUCT WEIGHTS	
Product	Approximate Weight (Kg)
FP03P	1.75
FP06P	2.1
FP10P	2.5
FP12P	3.0
SJ06	2.7
S06/S09/S12	3.4
SPR	3.2

For more information, please contact Bifold Sales Department.

Seal Repair Kit

Seal Repair Kit Selection Chart - Ordering Example (FP03P, FP06P, FP10P & FP12P)

SRK		Seal Repair Kit
FP03P FP06P FP10P FP12P		Model Code
S Nitrile (-20°C to +130°C) V Viton (Standard) (-20°C to +180°C) AG Silicone (-60°C to +180°C) AL Fluorosilicone (-60°C to +180°C)		O-ring Material
	XX	Revision Number
SRK-FP06P-V-XX		Ordering Example

For SJ06, S06/S09/S12 & SPR, please contact Bifold Sales Department.

Solenoid Coil Spare

Solenoid Coil Spare Selection Chart - Ordering Example (FP03P, FP06P, FP10P & FP12P)

109		Coil Type
XXX Voltage	74 (Ex emb) 24 & 48 Vdc 77 (Ex d) 12, 24, 48 & 110 Vdc 77 (Ex d) 110 & 240 Vac	Voltage
XX Power (W)	74 (Ex emb) 1.8, 3.6, 4.4 & 6.8 Watts 77 (Ex d) 3.0, 3.5, 5.7 & 12 Watts	Power
109-24DC-30		Ordering Example

For solenoid operator Type 78 (Ex ia), the coil spare ordering code is shown below:-

109-12-370 Ohms













For solenoid operator Type 77 (Ex d) Vac, the coil spare ordering example is shown below:-

109-110AC-57

For detailed information, please contact Bifold Sales Department.

Ex emb Options

Options Table I 74 (Ex emb)

SOLENOID OPTIONS TABLE I 74 (Ex emb)									
Product Type	Solenoid Order Code	Typical Apparatus Code	Standard Voltage	Power Consumption (W)	CV Rate	Temperature Range (°C)	Ingress Protection	Cable Entry Connection	Certification Options
 FP03P	74	Ex emb II T3	24 Vdc	1.8	0.1	Media # -20°C to +40°C -25°C to +40°C -20°C to +55°C -25°C to +55°C Ambient -25°C to +40°C (T3) -25°C to +55°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	3.6		Media # -20°C to +40°C -25°C to +40°C Ambient -25°C to +40°C (T3)			
 FP06P	74	Ex emb II T3	24 Vdc	4.4	0.5	Media # -20°C to +40°C -25°C to +40°C Ambient -25°C to +40°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	6.8	0.75				
 FPI0P	74	Ex emb II T3	24 Vdc	4.4	0.5	Media # -20°C to +130°C -20°C to +180°C Ambient -25°C to +40°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	6.8	0.75				
 SJ06	74	Ex emb II T3	24 Vdc	1.8	0.7	Media # -20°C to +40°C -25°C to +40°C -20°C to +55°C -25°C to +55°C Ambient -25°C to +40°C (T3) -25°C to +55°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	3.6	0.7	Media # -20°C to +40°C -25°C to +40°C Ambient -25°C to +40°C (T3)			
 S06/S09/S12	74	Ex emb II T3	24 Vdc	1.8	1.0 (S06) 1.7 (S09) 1.7 (S12)	Media # -20°C to +40°C -25°C to +40°C -20°C to +55°C -25°C to +55°C Ambient -25°C to +40°C (T3) -25°C to +55°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	3.6	1.0 (S06) 1.7 (S09) 1.7 (S12)	Media # -20°C to +40°C -25°C to +40°C Ambient -25°C to +40°C (T3)			
 SPR	74	Ex emb II T3	24 Vdc	1.8	3.0	Media # -20°C to +40°C -25°C to +40°C -20°C to +55°C -25°C to +55°C Ambient -25°C to +40°C (T3) -25°C to +55°C (T3)	IP66 IP67 NEMA 4X	M20 x 1.5 (½" NPT Option)	
			48 Vdc	3.6	3.0	Media # -20°C to +40°C -25°C to +40°C Ambient -25°C to +40°C (T3)			















For detailed information on certification please see page 9.

Other Wattages available upon request.

Permissible media operating temperatures are dependent upon the selected O-Ring material. Please refer to the product selection charts on pages 14 to 20.

Ex d Options

Options Table 2 77 (Ex d)

SOLENOID OPTIONS TABLE 2 77 (Ex d)										
Product Type	Solenoid Order Code*	Typical Apparatus Code	Standard Voltage	Power Consumption (W)	CV Rate	Temperature Range (°C)		Ingress Protection	Cable Entry Connection	Certification Options
						Media	Ambient			
 FP03P	77	Ex d IIC T6, T5 or T4	12 Vdc 24 Vdc 48 Vdc 110 Vdc	1.5 ~	0.1	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz			3.0							
 FP06P	77	Ex d IIC T6, T5 or T4	12 Vdc 24 Vdc 48 Vdc 110 Vdc	3.5	0.5	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz			5.7							
 FP10P	77	Ex d IIC T6, T5 or T4	24 Vdc 48 Vdc 110 Vdc	3.5	0.5	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz			5.7							
 FP12P	77	Ex d IIC T6, T5 or T4	24 Vdc 48 Vdc 110 Vdc	12	2.5	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
 Sj06	77	Ex d IIC T6, T5 or T4	24 Vdc 48 Vdc 110 Vdc	1.5 ~	0.7	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz			3.0							
 S06/S09/S12	77	Ex d IIC T6, T5 or T4	24 Vdc 48 Vdc 110 Vdc	1.5 ~	1.0 (S06) 1.7 (S09) 1.7 (S12)	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz			3.0	1.0 (S06) 1.7 (S09) 1.7 (S12)						
 SPR	77	Ex d IIC T6, T5 or T4	24 Vdc 48 Vdc 110 Vdc	1.5 ~	3.0	Media # -20°C to +90°C (T4) -60°C to +90°C (T4)	Ambient -60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
110 Vac 240 Vac 50 or 60 Hz	3.0									

For detailed information on certification please see page 9.

Other wattages available upon request.

Permissible media operating temperatures are dependent upon the selected O-Ring material. Please refer to the product selection charts on pages 14 to 20.

* For China, please note that the solenoid operator is Type 87.

~ Non standard low power option.









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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design, etc., without prior notice.

Ex ia Options

Options Table 3 78 (Ex ia)

SOLENOID OPTIONS TABLE 3 78 (Ex ia)						
Product Type	Solenoid Order Code	Typical Apparatus Code	Temperature Range	Ingress Protection	Cable Entry Connection	Certification Options
 FP03P	78 †	Ex ia IIC T6 or T4 Intrinsic Safety	Media # -20°C to +95°C (T4) -60°C to +95°C (T4) Ambient -60°C to +60°C (T6) -60°C to +95°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
 SJ06	78 †	Ex ia IIC T6 or T4 Intrinsic Safety	Media # -20°C to +95°C (T4) -60°C to +95°C (T4) Ambient -60°C to +60°C (T6) -60°C to +95°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
 S06/S09/S12	78 †	Ex ia IIC T6 or T4 Intrinsic Safety	Media # -20°C to +95°C (T4) -60°C to +95°C (T4) Ambient -60°C to +60°C (T6) -60°C to +95°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	
 SPR	78 †	Ex ia IIC T6 or T4 Intrinsic Safety	Media # -20°C to +95°C (T4) -60°C to +95°C (T4) Ambient -60°C to +60°C (T6) -60°C to +95°C (T4)	IP66 IP67 NEMA 4X	M20 x 1.5 (1/2" NPT Option)	

For detailed information on certification please see page 9.

† Solenoid must be used in conjunction with a correctly matched, Intrinsically Safe (IS) solenoid driver. The valve installer is responsible for a correct and safe IS system.

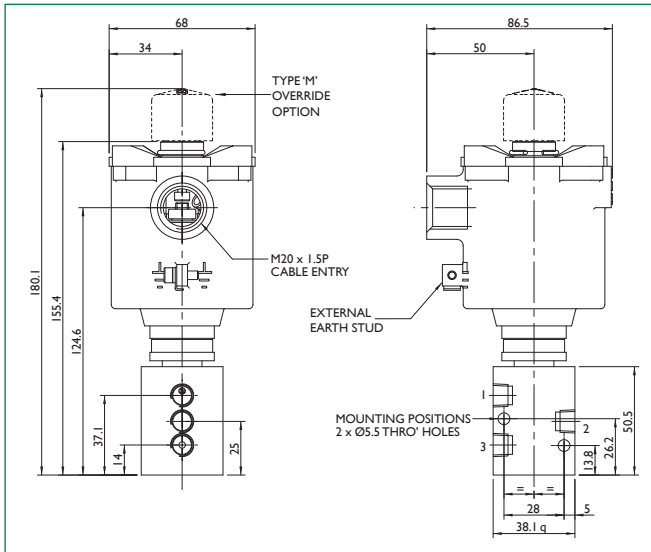
Permissible media operating temperatures are dependent upon the selected O-Ring material. Please refer to the product selection charts on pages 14 to 20.

Safety Parameters

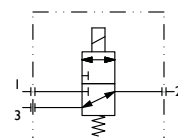
U_i = 31 V, I_i = 210 mA, P_i = 1.5 W, C_i = 0 µF, L_i = 0 mH
Coil Resistance : 370 Ohm ± 5%
Minimum Current @ solenoid coil = 32 mA

FP03P

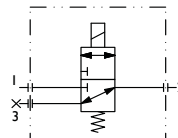
Dimensional Drawings



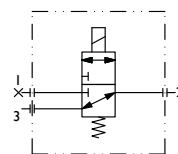
SCHMATIC 3/2 NC



SCHMATIC 2/2 NC

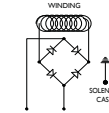
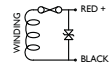


SCHMATIC 2/2 NO



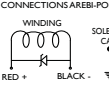
Wiring Diagrams

74 SOLENOID (EExemb)

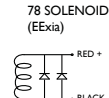


77 SOLENOID (EExd)

CONNECTIONS ARE BI-POLAR



78 SOLENOID (EExia)



FP03P Selection Chart - Ordering Example

FP03P				Model Code
M1	Manifold mount - For use with Axis Manifold System Only			Connections
M7	Manifold mount stacker - For use with Axis Manifold System Only			
02	1/8" NPT body ported - Shown above			
32	3-way, 2-position			Valve Configuration
NC	Normally Closed			O-ring Material
V	Viton (Standard)	(-20°C to +180°C)	For maximum operating temperatures see 'T' Rating Limitations for Ex emb, Ex d & Ex ia on pages 11, 12 & 13.	
AL	Fluorosilicone	(-60°C to +180°C)		
XX	Refer to Solenoid options tables.		74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2 78 (Ex ia) Page 13 - Table 3	Solenoid **
A	ATEX/IECEX Dual Certified/Labelled		74(Ex emb) ✓ 77(Ex d) ✓ 78(Ex ia) ✓	Solenoid Approval
G	GOST		X ✓ ✓	
I	INMETRO		X X ✓	
N	NEPSI*		X ✓ X	
U	CSA (US) ATEX Dual Certified/Labelled		X ✓ X	
3	T4 IIC	77 (Ex d)	See 'T' Rating Limitations for Ex emb, Ex d & Ex ia on pages 11, 12 & 13.	T-Rating & Gas Group
6	T5 IIC	77 (Ex d)		
9	T6 IIC	77 (Ex d)		
XXX	Voltage, refer to Solenoid option tables.		74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2 78 (Ex ia) Page 13 - Table 3	Voltage
M	Electrical to switch or temporary manual override			Options
ML	Electrical and manual required to latch or temporary manual override (3.0 Watts Ex d Only)			
MLT	Electrical and manual required to latch - tamperproof			
XX	Power (W) 74 (Ex emb)- 1.8 & 3.6Watts		Page 11 - Table 1	Power
	77 (Ex d) - 1.5 & 3.0Watts		Page 12 - Table 2	
XX	Resistance (Ω) 78 (Ex ia) - 370 Ohms		Page 13 - Table 3	Resistance
K6	BSPP Ports			Option
K85	1/2" NPT cable entry			Option
XX				Revision Number
FP03P-02-32-NC-V-77 A 9-24D-ML-30-K6-K85-XX				Ordering Example

For green block sections, please refer to the same colour section on pages 11, 12 or 13.

* For China, please note that the solenoid operator is Type 87.

** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

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.

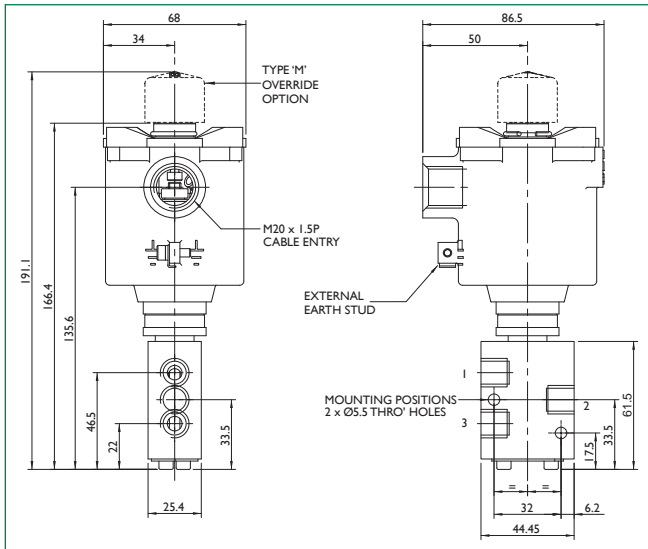
When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

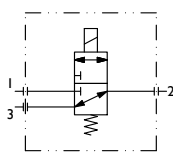


FP06P

Dimensional Drawings

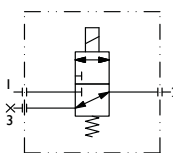


SCHEMATIC 3/2 NU



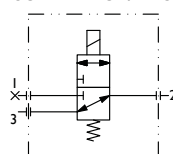
NU Normally Universal offered as standard.

SCHEMATIC 2/2 NC



Valve suitable for Universal operation 2/2 & 3/2. Normally Open and Normally Closed. Plug port 3 for 2/2 Normally Closed function. (Plugs available as a line item). Plug port 1 for 2/2 Normally Open function. (Plugs available as a line item).

SCHEMATIC 2/2 NO



FP06P Selection Chart - Ordering Example

FP06P		Model Code	
S1	10 bar maximum valve pressure	Operator	
S2	16 bar maximum valve pressure (For AC Coils = 6.5 Watts)	Connections	
04	1/4" NPT body ported	Valve Configuration	
32	3-way, 2-position		
NU	Normally Universal		
S	Nitrile (-20°C to +130°C)	O-ring Material	
V	Viton (Standard) (-20°C to +180°C)		
AG	Silicone (-60°C to +180°C)		
AL	Fluorosilicone (-60°C to +180°C)		
XX	Refer to Solenoid options tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2	Solenoid * **
A	ATEX/IECEX Dual Certified/Labelled	74(Ex emb) 77(Ex d)	Solenoid Approval
G	GOST	X ✓	
I	INMETRO	X ✓	
N	NEPSI*	X ✓	
U	CSA (US) ATEX Dual Certified/Labelled	X ✓	
3	T4 IIC	77 (Ex d)	T-Rating & Gas Group
6	T5 IIC	77 (Ex d)	
9	T6 IIC	77 (Ex d)	
XXX	Voltage, refer to Solenoid option tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2	Voltage
M	Electrical to switch or temporary manual override	Options	
ML	Electrical and manual required to latch or temporary manual override (3.0 Watts Ex d Only)		
MLT LE	Electrical and manual required to latch - tamperproof Latched Energised (NO/NC Only) (6.5 Watts Ex d Only)		
XX	Power (W)	74 (Ex emb) - 4.4 & 6.8 Watts Page 11 - Table 1 77 (Ex d) - 3.5 & 5.7 Watts Page 12 - Table 2	Power
K6	BSPP Ports		Option
K85	1/2" NPT cable entry		Option
XX			Revision Number

FP06P-S2-04-32-NU-V-77 A 9-24D-ML-35-K6-K85-XX Ordering Example

For green block sections, please refer to the same colour section on pages 11, 12 or 13.

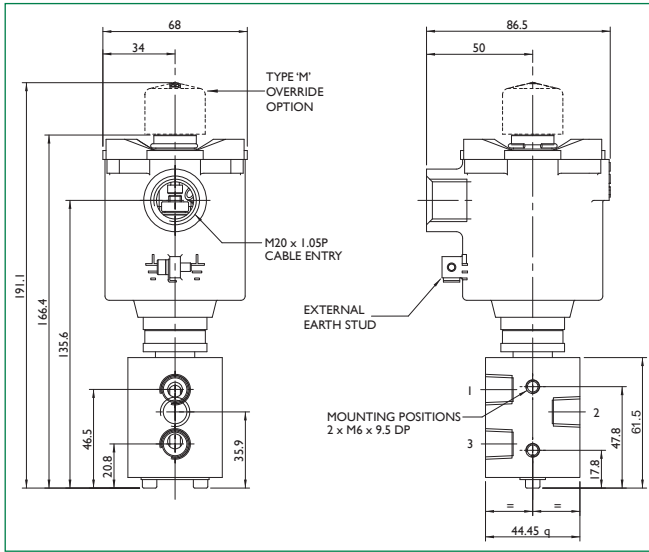
* For China, please note that the solenoid operator is Type 87.

** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

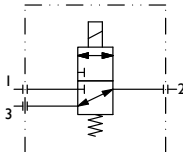
FPI0P



Dimensional Drawings

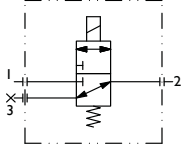


SCHEMATIC 3/2 NU



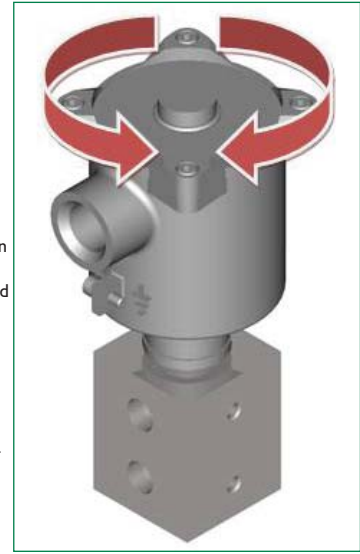
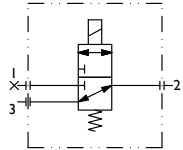
NU Normally Universal offered as standard.

SCHEMATIC 2/2 NC



Valve suitable for Universal operation 2/2 & 3/2. Normally Open and Normally Closed. Plug port 3 for 2/2 Normally Closed function. (Plugs available as a line item). Plug port 1 for 2/2 Normally Open function. (Plugs available as a line item).

SCHEMATIC 2/2 NO



FPI0P Selection Chart - Ordering Example

FPI0P			Model Code
S1	10 bar maximum valve pressure		Operator
S2	16 bar maximum valve pressure (For AC Coils = 6.5 Watts)		
S3	35 bar maximum valve pressure - 1/4" only standard temperature (Typically 0.4 CV)		
04	1/4" NPT body ported		Connections
06	3/8" NPT body ported		
08	1/2" NPT body ported		
32	3-way, 2-position		Valve Configuration
NU	Normally Universal		
S	Nitrile (-20°C to +130°C)	For maximum operating temperatures	O-ring Material
V	Viton (Standard) (-20°C to +180°C)	see 'T' Rating Limitations for Ex emb	
AG	Silicone (-60°C to +180°C)	& Ex d on pages 11 & 12.	
AL	Fluorosilicone (-60°C to +180°C)		
XX	Refer to Solenoid options tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2	Solenoid **
A	ATEX/IECEx Dual Certified/Labelled	74(Ex emb) 77(Ex d)	Solenoid Approval
G	GOST	X X	
I	INMETRO	X X	
N	NEPSI*	X X	
U	CSA (US) ATEX Dual Certified/Labelled	X X	
3	T4 IIC	77 (Ex d)	T-Rating & Gas Group
6	T5 IIC	77 (Ex d)	
9	T6 IIC	77 (Ex d)	
XXX	Voltage, refer to Solenoid option tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2	Voltage
M	Electrical to switch or temporary manual override		Options
ML	Electrical and manual required to latch or temporary manual override (3.0 Watts Ex d Only)		
MLT LE	Electrical and manual required to latch - tamperproof Latched Energised (NO/NC Only) (6.5 Watts Ex d Only)		
XX	Power (W)	74 (Ex emb) - 4.4 & 6.8 Watts Page 11 - Table 1 77 (Ex d) - 3.5 & 5.7 Watts Page 12 - Table 2	Power
K6	BSPF Ports		Option
K85	1/2" NPT conduit entry		Option
XX			Revision Number

FPI0P-S2-08-32-NU-V-77 A 9-24D-ML-35-K6-K85-XX

Ordering Example

For green block sections, please refer to the same colour section on pages 11, 12 or 13.

* For China, please note that the solenoid operator is Type 87.

** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

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.

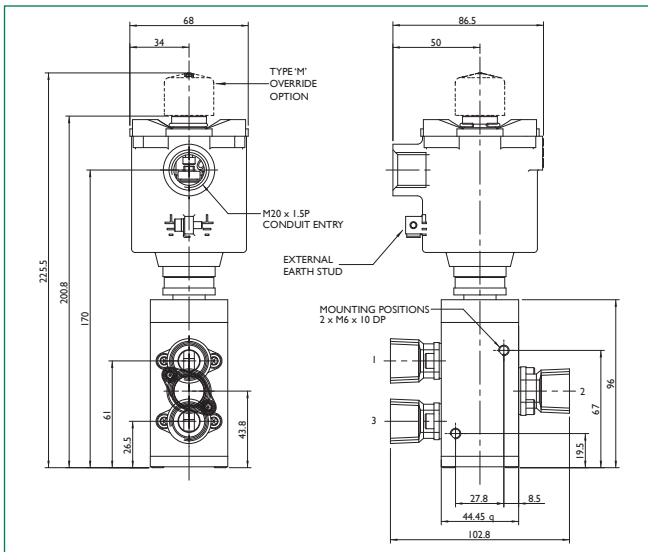
When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

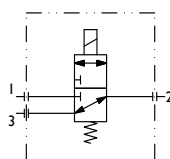


FPI2P

Dimensional Drawings

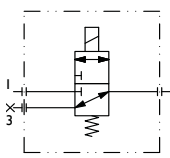


SCHEMATIC 3/2 NU



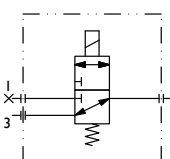
NU Normally Universal offered as standard.

SCHEMATIC 2/2 NC

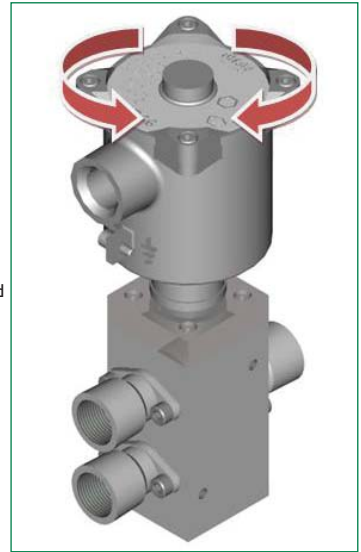


Valve suitable for universal operation 2/2 & 3/2. Normally Open and Normally Closed. Plug port 3 for 2/2 Normally Closed function. (Plugs available as a line item).

SCHEMATIC 2/2 NO



Plug port 1 for 2/2 Normally Open function. (Plugs available as a line item).



FPI2P Selection Chart - Ordering Example

FPI2P		Model Code
SI	10 bar maximum valve pressure - standard	Operator
08	1/2" NPT body ported	Connections
32	3-way, 2-position	Valve Configuration
NU	Normally Universal	
S	Nitrile (-20°C to +130°C)	For maximum operating temperatures see 'T' Rating Limitations for Ex d on page 12.
V	Viton (standard) (-20°C to +180°C)	
AG	Silicone (-60°C to +180°C)	
AL	Fluorosilicone (-60°C to +180°C)	
XX	Refer to Solenoid options tables. 77 (Ex d) Page 12 - Table 2	Solenoid *
A	ATEX/IECEX Dual Certified/Labelled	77(Ex d)
G	GOST	✓
I	INMETRO	✓
N	NEPSI*	✓
U	CSA (US) ATEX Dual Certified/Labelled	✓
3	T4 IIC 77 (Ex d)	See 'T' Rating Limitations for Ex d on page 12.
6	T5 IIC 77 (Ex d)	
9	T6 IIC 77 (Ex d)	
XXX	Voltage, refer to Solenoid 77 (Ex d) Page 12 - Table 2 option tables	Voltage
M	Electrical to switch or temporary manual override	Options
ML	Electrical and manual required to latch or temporary manual override (3.0Watts Ex d Only)	
MLT	Electrical and manual required to latch - tamperproof	
120	12 Watts - auto reset Page 12 - Table 2	Power
65	6.5 Watts - manual reset only (ML)	
K6	BSP ports	Option
K85	1/2" NPT conduit entry	Option
XX		Revision Number

FPI2P-SI-08-32-NU-V-77 A 9-24D-ML-65-K6-K85-XX Ordering Example

For green block sections, please refer to the same colour section on page 12.

* For China, please note that the solenoid operator is Type 87.

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.

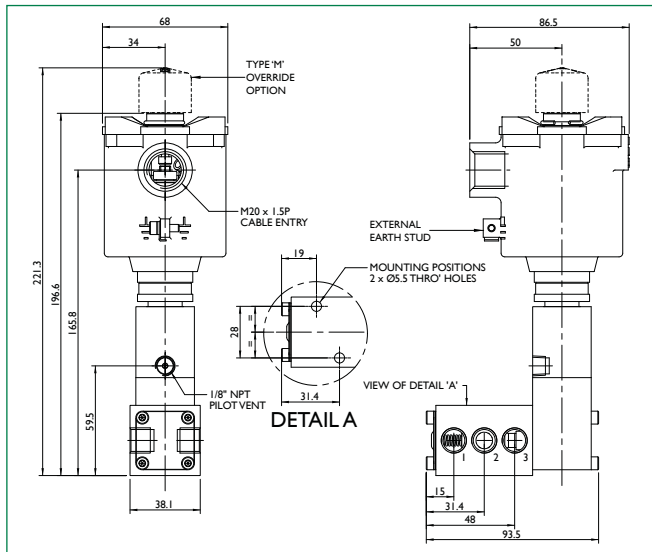
Quality Assurance

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 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 10204.3.1.8 where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

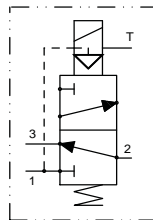
SJ06



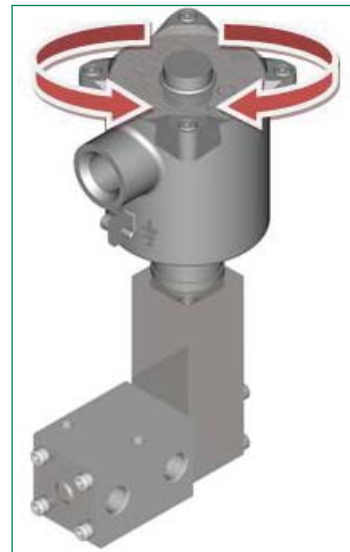
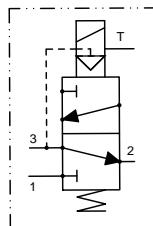
Dimensional Drawings



SCHMATIC 3/2 NC



SCHMATIC 3/2 NO



SJ06 Selection Chart - Ordering Example

SJ06	1/4" NPT								Model Code
ASJ06	1/4" NPT Low Temperature								
E1	Internal Pilot - Auto Reset	E4	External Pilot - Manual Override						Primary Actuator
E2	External Pilot - Auto Reset	E5	Manual reset - Electrical AND manual required to latch OR temporary manual override						
E3	Manual Override - Electrical to switch OR temporary manual override	E6	External Pilot - Manual Reset						
32	3-way, 2-position								Valve Configuration
NC	Normally closed								
NO	Normally open								
00	Spring return end cap	03	Spring cap with mechanical latch						Secondary Actuator
02	Spring cap with microswitch plunger	EI	Internal Pilot						
XX	Refer to Solenoid options tables.	74 (Ex emb)	Page 11 - Table 1						Solenoid **
		77 (Ex d)	Page 12 - Table 2						
		78 (Ex ia)	Page 13 - Table 3						
A	ATEX/IECEx	Dual Certified/Labelled	74(Ex emb)	77(Ex d)	78(Ex ia)				Solenoid Approval
G	GOST		X	✓	✓				
I	INMETRO		X	✓	✓				
N	NEPSI*		X	✓	X				
U	CSA (US)	ATEX Dual Certified/Labelled	X	✓	X				
3	T4 IIC	77 (Ex d), 78 (Ex ia)	See 'T' Rating Limitations for Ex emb, Ex d & Ex ia on pages 11, 12 & 13.						T-Rating & Gas Group
6	T5 IIC	77 (Ex d)							
9	T6 IIC	77 (Ex d), 78 (Ex ia)							
XXX	Voltage, refer to Solenoid option tables	74 (Ex emb)	Page 11 - Table 1						Voltage
		77 (Ex d)	Page 12 - Table 2						
M	Electrical to switch or temporary manual override								Options
ML	Electrical and manual required to latch or temporary manual override (3.0 Watts Ex d Only)								
MLT	Electrical and manual required to latch - tamperproof								
XX	Power (W)	74 (Ex emb) - 1.8 & 3.6Watts	Page 11 - Table 1						Power
		77 (Ex d) - 1.5 & 3.0Watts	Page 12 - Table 2						
XX	Resistance (Ω)	78 (Ex ia) - 370 Ohms	Page 13 - Table 3						Resistance
K6	BSPP Ports								Option
K85	1/2" NPT conduit entry								Option
XX	Revision Number								Revision Number

SJ06 - EI - 32 - NC - 00 - 77 A 9 - 24D - ML - 30 - K6 - K85 - XX Ordering Example

For green block sections, please refer to the same colour section on pages 11, 12 or 13.

* For China, please note that the solenoid operator is Type 87.

** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

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.

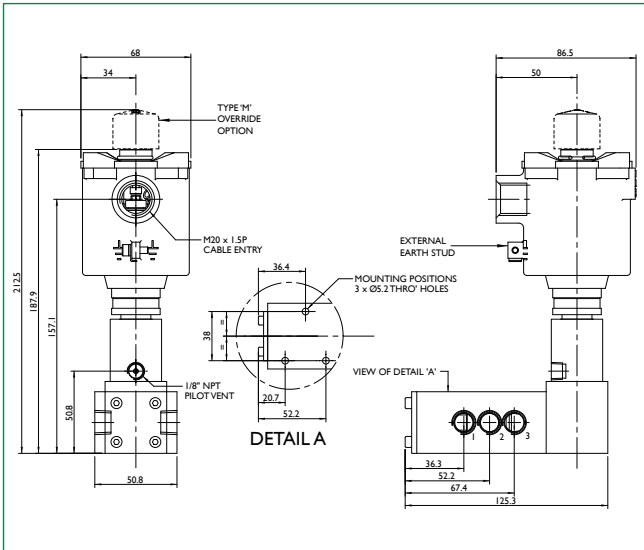
When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.8 where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

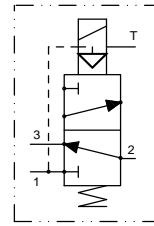


S06/S09/S12

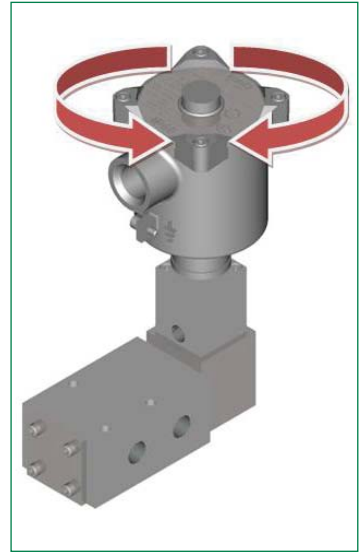
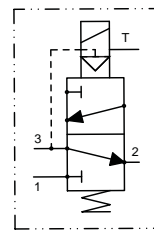
Dimensional Drawings



SCHEMATIC 3/2 NC



SCHEMATIC 3/2 NO



S06/S09/S12 Selection Chart - Ordering Example

S06 S09 S12	1/4" NPT 3/8" NPT 1/2" NPT				Model Code
E1 E2 E3	Internal Pilot - Auto Reset External Pilot - Auto Reset Manual Override - Electrical to switch OR temporary manual override	E4 E5 E6	External Pilot - Manual Override Manual reset - Electrical AND manual required to latch OR temporary manual override External Pilot - Manual Reset		Primary Actuator
22 52 32	2 - way, 2 - position 5 - way, 2 - position 3 - way, 2 - position				Valve Configuration
NC XX	Normally Closed 52 Valves Only	NO	Normally Open		Valve Configuration
00 02	Spring return end cap Spring cap with microswitch plunger	03 E1	Spring cap with mechanical latch Internal Pilot		Secondary Actuator
XX	Refer to Solenoid options tables.	74 (Ex emb) 77 (Ex d) 78 (Ex ia)	Page 11 - Table 1 Page 12 - Table 2 Page 13 - Table 3		Solenoid * **
A G I N U	ATEX/IECEX Dual Certified/Labelled GOST INMETRO NEPSI* CSA (US) ATEX Dual Certified/Labelled	74(Ex emb) 77(Ex d) 78(Ex ia)	77(Ex d) 78(Ex ia)	78(Ex ia)	Solenoid Approval
3 6 9	T4 IIC 77 (Ex d), 78 (Ex ia) T5 IIC 77 (Ex d) T6 IIC 77 (Ex d), 78 (Ex ia)				T-Rating & Gas Group
XXX	Voltage, refer to Solenoid option tables.	74 (Ex emb) 77 (Ex d)	Page 11 - Table 1 Page 12 - Table 2		Voltage
M ML MLT	Electrical to switch or temporary manual override Electrical and manual required to latch or temporary manual override (3.0 Watts Ex d Only) Electrical and manual required to latch - tamperproof				Options
XX	Power (W)	74 (Ex emb) - 1.8 & 3.6 Watts 77 (Ex d) - 1.5 & 3.0 Watts	Page 11 - Table 1 Page 12 - Table 2		Power
XX	Resistance (Ω)	78 (Ex ia) - 370 Ohms	Page 13 - Table 3		Resistance
K6	BSPF ports				Option
K85	1/2" NPT conduit entry				Option
XX					Revision Number
S06 - E1 - 32 - NC - 00 - 77 A 9 - 24D-ML-30-K6-K85-XX					Ordering Example

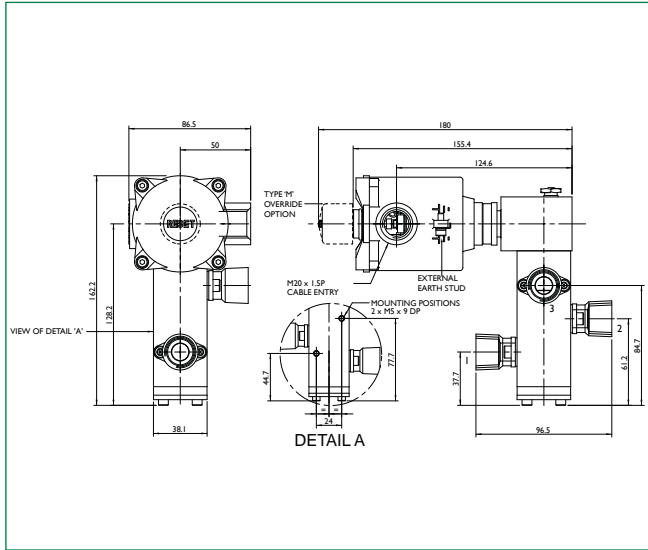
For green block sections, please refer to the same colour section on pages 11, 12 or 13.

* For China, please note that the solenoid operator is Type 87.

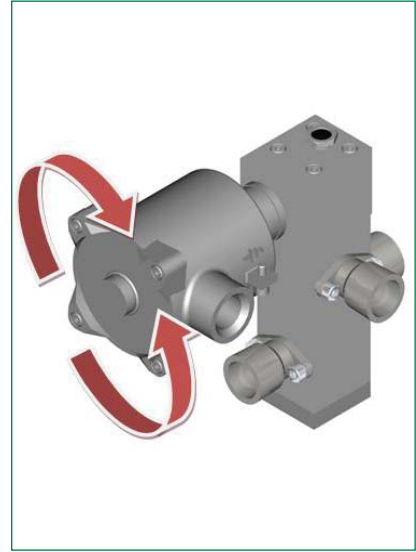
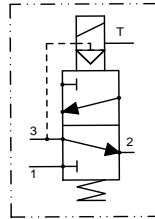
** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

SPR

Dimensional Drawings



SCHEMATIC 3/2 NU



SPR Selection Chart - Ordering Example

SPR 12 1/2" NPT SPR 19 3/4" NPT SPR 25 1" NPT ASPR 12 1/2" NPT - Low Temperature Service ASPR 19 3/4" NPT - Low Temperature Service ASPR 25 1" NPT - Low Temperature Service		Model Code
E1 Internal Pilot - Auto Reset E2 External Pilot - Auto Reset E3 Manual Override - Electrical to switch OR temporary manual override E4 External Pilot - Manual Override E5 Manual reset - Electrical AND manual required to latch OR temporary manual override E6 External Pilot - Manual Reset		Primary Actuator
32 3 - way, 2 - position 52 5 - way, 2 - position		Valve Configuration
NU Normally Universal XX 52 Valves Only		Valve Configuration
00 Spring return end cap EI Internal Pilot		Secondary Actuator
XX Refer to Solenoid options tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2 78 (Ex ia) Page 13 - Table 3	Solenoid * **
A ATEX/IECEx Dual Certified/Labelled G GOST I INMETRO N NEPSI* U CSA (US) ATEX Dual Certified/Labelled	74(Ex emb) 77(Ex d) 78(Ex ia) ✓ ✓ ✓ X ✓ ✓ X ✓ ✓ X ✓ X	Solenoid Approval
3 T4 IIC 77 (Ex d), 78 (Ex ia) 6 T5 IIC 77 (Ex d) 9 T6 IIC 77 (Ex d), 78 (Ex ia)		T-Rating & Gas Group
XXX Voltage, refer to Solenoid options tables.	74 (Ex emb) Page 11 - Table 1 77 (Ex d) Page 12 - Table 2	Voltage
M Electrical to switch or temporary manual override ML Electrical and manual required to latch or temporary manual override (3.0Watts Ex d Only) MLT Electrical and manual required to latch - tamperproof		Options
XX Power (W)	74 (Ex emb) - 1.8 & 3.6 Watts Page 11 - Table 1 77 (Ex d) - 1.5 & 3.0 Watts Page 12 - Table 2	Power
XX Resistance (Ω)	78 (Ex ia) - 370 Ohms Page 13 - Table 3	Resistance
K6 BSPP ports		Option
K85 1/2" NPT conduit entry		Option
XX		Revision Number
SPR - EI - 32 - NC - 00 - 77 A 9 - 24D - ML - 30 - K6 - K85 - XX		Ordering Example

For green block sections, please refer to the same colour section on pages 11, 12 or 13.

* For China, please note that the solenoid operator is Type 87.

** Special conditions for safe use - The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

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 EN ISO 9001:2008. Functional test certificates, letter of conformity and copies of original mill certificates, providing total traceability are available on request, to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

Options

Product Options

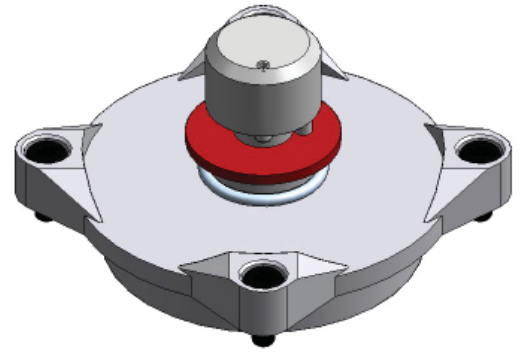
The range of products displayed in this brochure, are designed to accommodate all the options shown below. If the style or arrangement required for your application is not shown, please contact our office with full description and specification details.



Type M - Electrical to Switch or Temporary Manual Override

Manual Override Type M

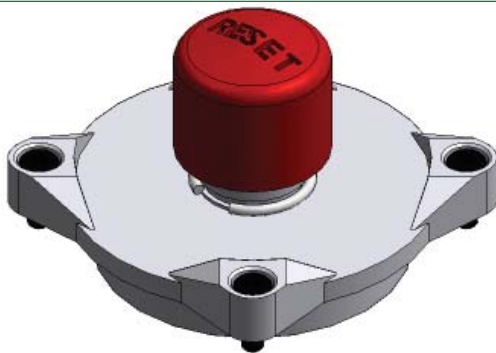
The solenoid valve switches on and off with the electrical supply. The manual override button can be pressed to operate the valve when the solenoid is in the electrically de-energised position. The manual override is non-detented, i.e. does not latch in position. When the button is released, the valve spring returns.



Type MOR - Electrical to Switch or Temporary Manual Rotary Override

Manual Rotary Override Type MOR

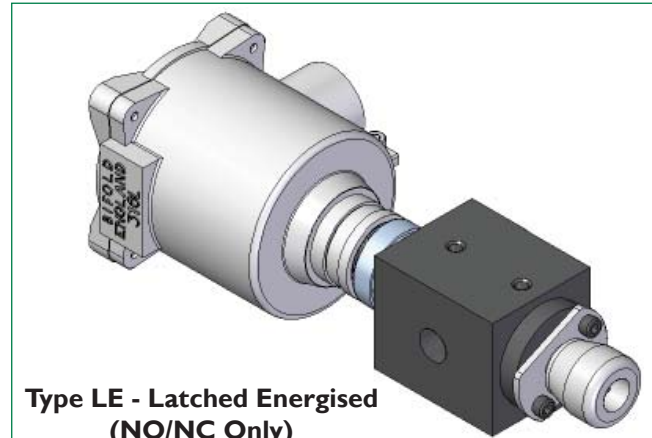
The solenoid valve switches on and off with the electrical supply. The manual override rotary operator can be turned to operate the valve when the solenoid is in the electrically de-energised position. The manual override is detented, i.e. does latch in position.



Type ML - Electrical and Manual Required to Switch or Temporary Manual Override
Type MLT - As above - Tamperproof

Manual Reset Type ML & MLT

For Types ML and MLT, apply the electrical signal and press the reset button. With type ML, the valve moves to the energised position and will not de-energise until the electrical supply is removed. The manual reset button also acts as a manual override, when the valve is in the de-energised position and the electrical supply is off. The manual reset is non-detented, spring return, i.e. does not latch in position. With type MLT, the valve cannot be moved to the energised position by pressing the button if there is no electrical supply to the solenoid.



Type LE - Latched Energised (NO/NC Only)

Latch Energised Type LE

Designed specifically for Deluge systems. The solenoid valve can be used in the electrically de-energised condition. When an electrical signal is applied to the valve, the valve shifts to the energised position and stays in this position, even if the electrical signal is removed, and until the valve is manually moved back to the de-energised position by pressing the reset button. The valve can only be manually reset after the electrical signal is removed. The reset button is fitted at the base of the valve.

**Instrument, Process,
Directional Control Valves,
and Pumps**

Bifold® Group

**Pneumatic and
Instrumentation Valves**

Hydraulic Valves

Subsea Valves

**Hydraulic Pumps,
Intensifiers and Valves**

Bifold®

Bifold FluidPower®

Bifold® Subsea

Bifold®  Marshalsea

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.

Quality Assurance

All Bifold products are manufactured to a most stringent QA programme. Every care is taken at all stages of manufacture to ensure that every product will give optimum performance and reliability. We are third party certified to EN ISO 9001:2008. Functional test certificate, letter of conformity and copies of original mill certificates, providing total traceability are available on request to BSEN 10204.3.1.B where available. We reserve the right to make changes to the specifications and design etc., without prior notice.

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.

Bifold, Bifold Fluidpower, Bifold Subsea and Marshalsea Hydraulics Ltd are all members of the Bifold Group. Registered No. 1787729 in England. Registered Office: Greenside Way, Middleton, Manchester, M24 1SW.

UK Office
Bifold Fluidpower Ltd
Greenside Way,
Middleton, Manchester,
M24 1SW. UK.
Tel: +44 (0) 161 345 4777
Fax: +44 (0) 161 345 4780
Email: marketing@bifold.co.uk
Web: www.bifold.co.uk

Marshalsea Hydraulics Limited
Marshalsea House, Venture Way
Priorswood Industrial Estate
Taunton, Somerset, TA2 8DE. UK.
Tel: +44 (0) 1823 331081
Fax: +44 (0) 1823 323382
Email: info@marshalsea.co.uk
Web: www.bifold.co.uk

USA Office
Bifold Fluidpower Ltd
11490 Westheimer,
Suite 850,
Houston, TX, 77077.
Tel: +1 (713) 783 4253
Fax: +1 (713) 783 0067
Email: marketing@bifold.co.uk
Web: www.bifold.co.uk

Singapore Office
Bifold Fluidpower Ltd
Toa Payoh Industrial Park,
Lorong 8 #07-1475,
Singapore, 3109075.
Tel: +65 6735 1323
Fax: +65 6735 1367
Email: marketing@bifold.co.uk
Web: www.bifold.co.uk

**Innovative and Reliable
Valve Solutions**

www.bifold.co.uk