

Pneumatic Manifold System Model AXIS

Stacker, Compact & Booster Systems

Complex actuator
controls made simple

Features:

- Worldwide solenoid approvals ATEX, CSA, SAA, INMETRO NEPSI & GOST
- Booster Manifolds Available
- Patented Stacker System
- Compact low cost version
- High system flow
- Low cost solution
- Extensive weight reduction
- 316L stainless steel
- 3D modelling system design
- 360° fully rotational solenoid housing



Materials and Construction

- General construction - stainless steel 316L
- Fastenings - stainless steel 316L
- Ports - 1/4", 3/8", 1/2" & 1" thread milled NPT

Pressure Ratings

- Operating pressure range 0 - 10 bar as standard

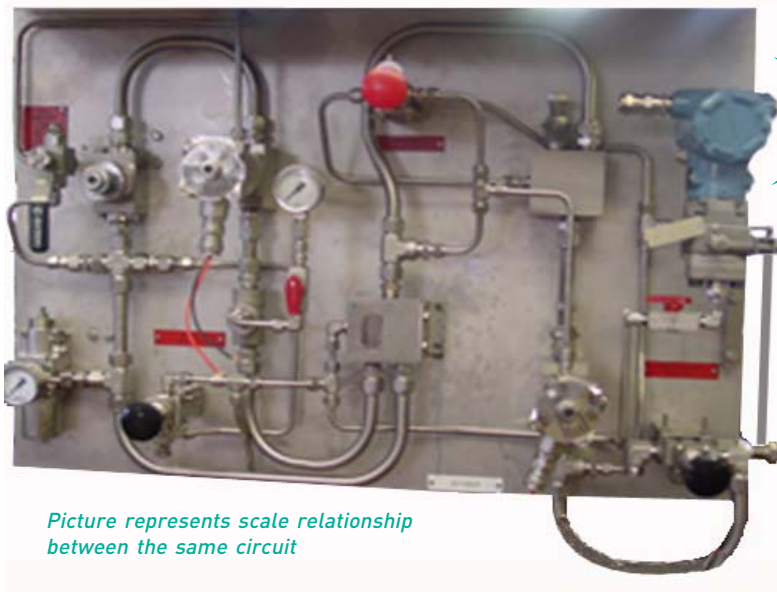
Solenoid Information

• For AXIS stacker type manifold systems, Bifold Fluidpower use direct acting solenoid valves instead of small orifice pilot stage solenoid valve. This ensures optimum system operation.

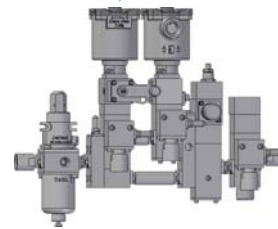
Solenoid Approvals

Solenoid valves satisfy all relevant EC directives

- ATEX Ex II 2GD
- ATEX Ex II 1GD T65°C
- ATEX Ex II 2G
- CSA AExd IIC (USA)
- CSA Exd IIC (Canada)
- INMETRO BR-Exd IIC T6, Exi IIC T6
- GOST 1Exd IIC T6 (T5,T4)
- GOST 0Exia IIC T6
- SAA Exd IIC T6 (T5,T4)
- SAA EEExia IIC T6
- NEPSI Exd IIC T6, Exi IIC T6
- Ingress protection IP66/IP67 to IEC 60529 / NEMA 4



Picture represents scale relationship between the same circuit



Circuit Flow Performance

- Calculate circuit Cv and flow rate (using BFP Cv calculator-contact Bifold's office for details)
- Calculate accurate actuator opening and closing time
- Select lowest cost components (save money while meeting system target performance)
- Cv 0.4 to 3.5 dependent on valve selection (50 to 300 SCFM at 6 bar with 1 bar dp)
- Flow improvements up to 400% (over systems conventionally piped with valves of similar port sizes)

Reduction in:

- Cost
 - Components (below cost of separate valves and fittings)
 - Panel (smaller panel/back plate required and fixings)
 - Labour (reduce labour cost of fabricating system)
- Weight
 - Eliminate fittings, tubing
 - Smaller mounting plate
 - Minimal mounting requirements

Installation

- Supplied with brackets to suit a range of mounting criteria
- Back plates and simple enclosures can be quoted on request

Volume Booster Systems

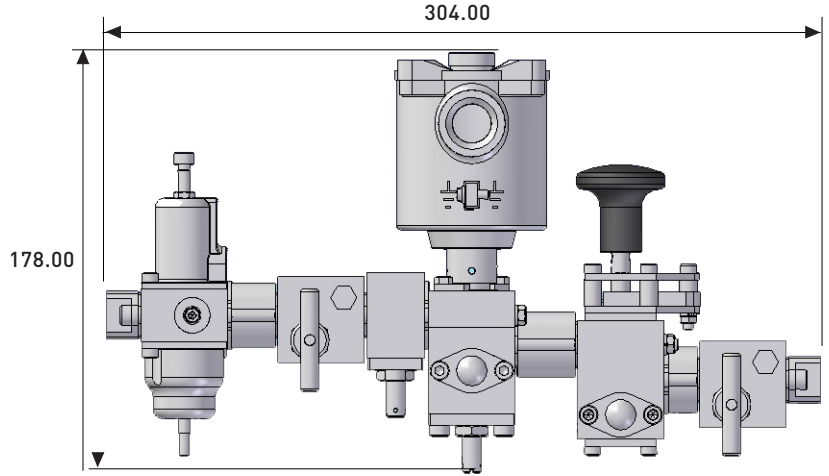
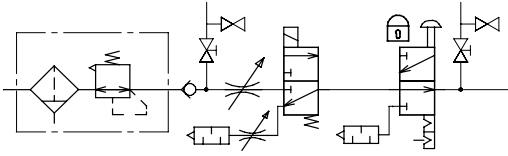
- Wide range of Manifolds available for positioner / DVC systems with Boosters incorporated into manifold

Increase in:

- Performance
 - Higher system flow (large bore valves and connections)
 - Better reliability (reduced number of leak paths)
 - Improved sealing integrity
 - Less maintenance
- Availability
 - 3 D modelling system design (reduced contractor engineering time incorporating controls onto actuator)

Compact Example

XSC1-06-GILMOR



Solenoid Options - For FP06P Operator on Linear Manifolds

Order Code	Apparatus Code	Power Conspmp	Standard Voltage	Voltage Tolerance	Temp Range		Protection	Cable Connection	Materials of Construction
					Media °C	Ambient °C			
58	EExia IIC T6 or T4	Consult Bifold Fluidpower		85% / 110%	-60°C to +60°C (T6) -60°C to +95°C (T4)		IP66	M20 gland	316L stainless steel
74	EExemb II T3 T120°C	6.8	24VDC		-20°C to +40°C	-20°C to +40°C			
77	EExd IIC T 85°C or T100°C or T135°C	3.5	12, 24, 48, 110 VDC		-60°C to +40°C (T6) -60°C to +55°C (T5) -60°C to +90°C (T4)				
		5.7							
		3.0							
		6.5	12, 24, 48, 110 VDC, 110-120, 220-240 VAC 50 or 60 Hz						
		12.0	12, 24, 48, 110 VDC						

* For alternative voltages consult Bifold Fluidpower

Solenoid Options - For FP03P Operator on Stacker Units

Order Code	Apparatus Code	Power Consumption	Standard Voltage	Voltage Tolerance	Temperature Range*		Protection	Cable Connection	Materials of Construction
					Media	Ambient			
78	EExia IIC T6 or T4	refer to solenoid drivers table below				-60°C to +60°C (T6) -60°C to +95°C (T4)	IP66	M20 x 1.5 (1/2" & 3/4" also available)	316 stainless steel
74	EExemb II T3 T120°C	1.8 Watts (low power) 3.6 Watts	24 VDC	+10% / -15%	-20°C to +40°C				
77 std	EExd IIC T85 or T100 or T135	3.0 Watts 1.5 Watts (low power)	12, 24, 48 & 110 VDC 110, 240 VAC 50 or 60 Hz	+10% / -15%	-60°C to +40°C (T85) -60°C to +55°C (100) -60°C to +90°C (T135)				

Intrinsically Safe Solenoid Drivers (solenoid type 78)

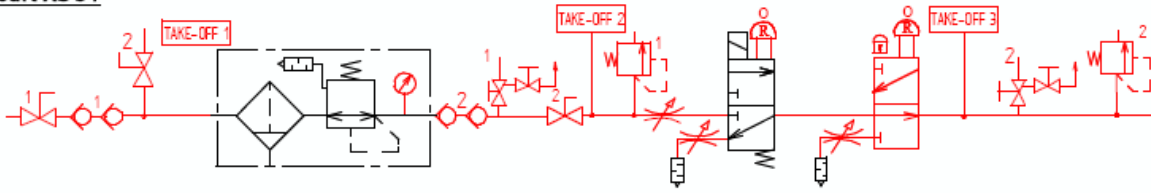
Interface Unit Typical Input Characteristics	Typical Output Characteristics Measured at Solenoid		
	Voltage (V)	Voltage (V)	Current (mA)
28.0	13.56	35.5	0.481
24.0	13.40	35.3	0.473
20.0	13.30	34.7	0.461

Interface Unit Manufacturer & Model Number	Apparatus Code	Solenoid Base model no.
PEPERL & FUCHS KFD2-SD-Ex1.48	EExia IIC	78

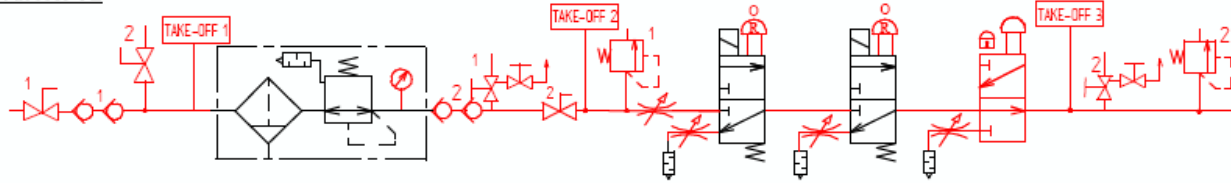
Selection table for Compact Manifold

Reliability and Innovation in directional control valves

Circuit XSC1



Circuit XSC2



Base System

Filter Reg and Solenoid Valve	1/4"	XSC1-06	3/8"	XSC1-09	1/2"	XSC1-12
Filter reg and 2 Solenoid Valves	1/4"	XSC2-06	3/8"	XSC2-09	1/2"	XSC2-12

Additional Items

1/4 turn ball valve		A	Take Off		J
Single Check Valve		B	Pressure Relief		K / K2 - Exh to atmosphere K1 / K3 - Captive / adj K2 & K3 located on outlet
Double Check Valve		C	Inlet Flow Control		L
1/4 turn ball valve		D	Block and Bleed		M
Gauge		E	No Breather		N
Take Off		F	Exhaust Flow Control		O
Single Check Valve		G	1 Manual Reset on Sol 1 2 Manual Reset on Sol 2 1 Manual Override on Sol 1 2 Manual Override on Sol 2		P1 P2 P3 P4
Double Check Valve		H	Push / pull valve for ESD function - padlock not supplied		R - Padlockable R1 - Non padlockable R6 - Padlockable - button forward R7 - Non - padlockable - forward R6 & R7 located on outlet
Block and Bleed		I	Take Off		Z

Supplementary Information

Solenoid	EExia IIC T6 (316)	58
	EExd IIC T6 (316)	77
	EExme II T3 T120	74
Approval	ATEX Ex II 2 GD	A
	INMETRO BR-Exd IIC T6 (T5,T4)	I
	GOST 1 Exd IIC T6 (T5,T4)	G
	SAA Exd IIC T6 (T5,T4)	S
	CSA (C,US) Class 1, Zone 1, AExd IIC T6	U
	CSA (C,US) Class 1, Div 1, Group B,C,D NEPSI Exd, Exi	N
T Rating / Gas Group	T4 IIC	3
	T5 IIC	6
	T6 IIC	9
Voltage	24 VDC	24D
	48 VDC (others available)	48D
Power	See Table on Page 3 (Watts)	XX
Resistance	See Table on Page 3 (Ohms)	135
Seals	Viton	V
Filter Regulator	0 to 10 bar - 25 micron element	10X3
	0 to 10 bar - 50 micron element	10X4
Gauges	40mm dry gauge - bar	X10
	40mm glycerine filled - bar	X11
Options	1/2" NPT conduit entry	K85
Pressure Relief	x.x = pressure setting, i.e. 6.2]	PRx.x

Examples

Requirements -

1/4" system with 10 bar, 25 micron filter regulator and 1 * autoreset 5.7 watt, 24VDC EExd solenoid:-

Code:- XSC1-06-E-77A9-24D-57-V-10X3-X10

Requirements -

1/4" system with ball valve (A), single check valve (B), 10 bar, 25 micron filter regulator, 40mm dry gauge (E), inlet flow control (L), 1 * manual reset (P1) 3.0 watt, 24VDC EExd solenoid:-

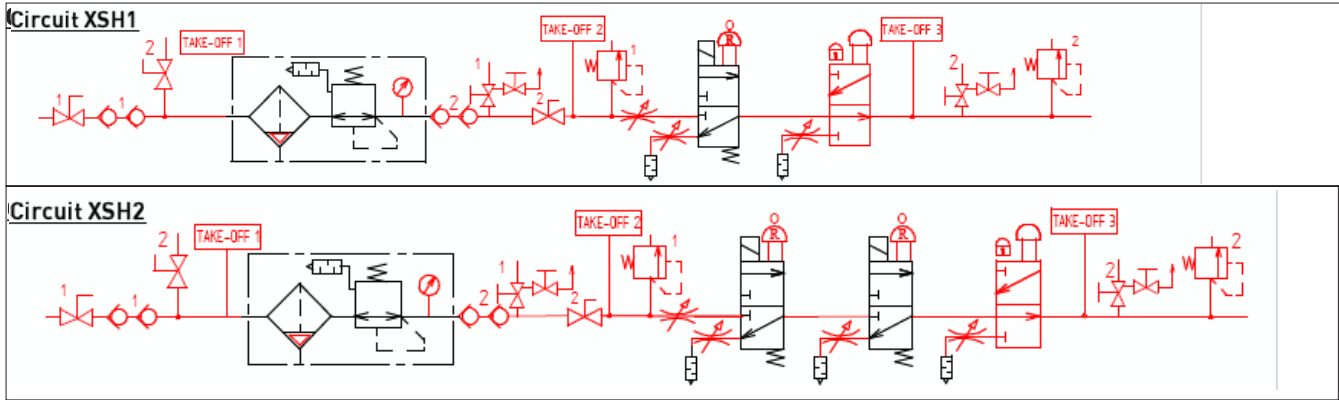
Code:- XSC1-06-ABELP1-77A9-24D-30-V-10X3-X10

Requirements -

1/2" system with ball valve (A), double check valve (C), 10 bar, 25 micron filter regulator, 40mm dry gauge (E), inlet flow control (L), 2 * manual reset (P1,P2) 3.0 watt, 24VDC EExd solenoid, 2 * exhaust flow control (O):-

Code:- XSC2-12-ACELOP1P2-77A9-24D-30-V-10X3-X10

Selection table for Linear Manifold - to be used for autodrain systems



Base System

Filter Reg and Solenoid Valve	1/4"	XSH1-06	3/8"	XSH1-09	1/2"	XSH1-12
Filter reg and 2 Solenoid Valves	1/4"	XSH2-06	3/8"	XSH2-09	1/2"	XSH2-12

Additional Items

1/4 turn ball valve		A	Take Off		J
Single Check Valve		B	Pressure Relief		K / K2 - Exh to atmosphere K1 / K3 - Captive / adj K2 & K3 located on outlet
Double Check Valve		C	Inlet Flow Control		L
1/4 turn ball valve		D	Block and Bleed		M
Gauge		E	No Breather		N
Take Off		F	Exhaust Flow Control		O
Single Check Valve		G	1 Manual Reset on Sol 1 2 Manual Reset on Sol 2 1 Manual Override on Sol 1 2 Manual Override on Sol 2		P1 P2 P3 P4
Double Check Valve		H	Padlock mountable push / pull valve for ESD function - padlock not supplied		R - Padlockable R1 - Non padlockable R6 - Padlockable - button forward R7 - Non - padlockable - forward R6 & R7 located on outlet
Block and Bleed		I	Auto Drain		Y
			Take Off		Z

Supplementary Information

Solenoid	EExia IIC T6 (316) EExd IIC T6 (316) EExme II T3 T120	58 77 74
Approval	ATEX Ex II 2 GD INMETRO BR-Exd IIC T6 (T5,T4) GOST 1 Exd IIC T6 (T5,T4) SAA Exd IIC T6 (T5,T4) CSA (C,US) Class 1, Zone 1, AExd IIC T6 CSA (C,US) Class 1, Div 1, Group B,C,D NEPSI Exd, Exi	A I G S U N
T Rating / Gas Group	T4 IIC T5 IIC T6 IIC	3 6 9
Voltage	24 VDC 48 VDC (others available)	24D 48D
Power	See Table on Page 3 (Watts)	XX
Resistance	See Table on Page 3 (Ohms)	135
Seals	Viton	V
Filter Regulator	0 to 10 bar - 25 micron element 0 to 10 bar - 50 micron element	10X3 10X4
Gauges	40mm dry gauge - bar 40mm glycerine filled - bar	X10 X11
Options	1/2" NPT conduit entry	K85
Pressure Relief	x.x = pressure setting, i.e. 6.2)	PRx.x

Examples

Requirements -
1/4" system with 10 bar, 25 micron autodrain filter regulator with gauge and 1 * autoreset 5.7 watt, 24VDC EExd solenoid:-

Code:- XSH1-06-EY-77A9-24D-57-V-10X3-X5

Requirements -
1/4" system with ball valve [A], single check valve [B], 10 bar, 25 micron filter regulator, 40mm dry gauge [E], inlet flow control [L], 1 * manual reset [P1] 3.0 watt, 24VDC EExd solenoid:-

Code:- XSH1-06-ABELP1-77A9-24D-30-V-10X3-X10

Requirements -
1/2" system with ball valve [A], double check valve [C], 10 bar, 25 micron filter regulator, 40mm dry gauge [E], inlet flow control [L], 2 * manual reset [P1,P2] 3.0 watt, 24VDC EExd solenoid, 2 * exhaust flow control [O):-

Code:- XSH2-12-ACELOOP1P2-77A9-24D-30-V-10X3-X10

Selection table for Stacker Manifold

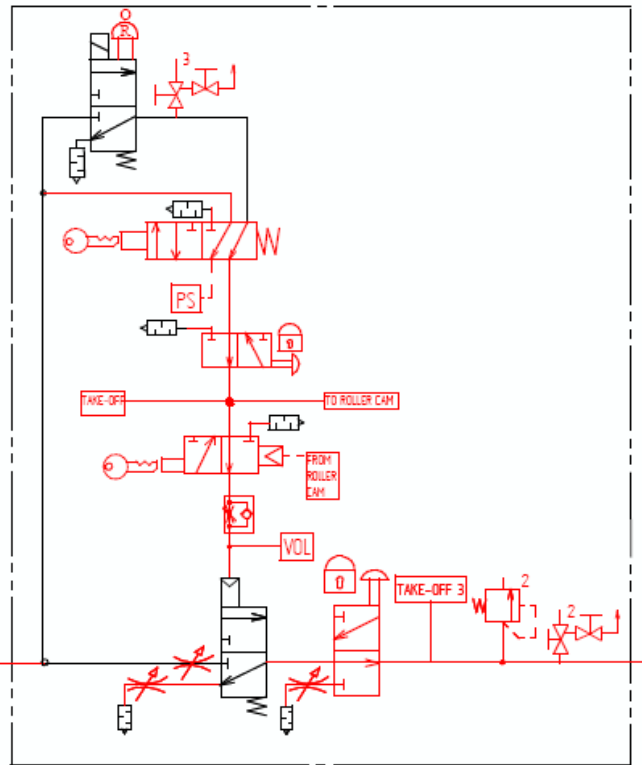
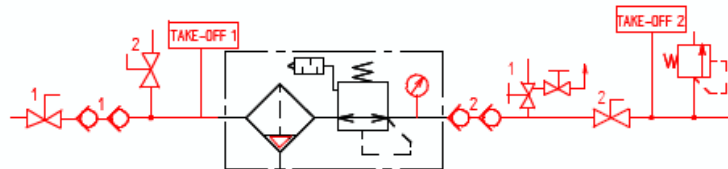
Single Acting Actuators

Circuit XS1 - as shown

Filter Regulator, 3/2 SPR poppet with 1 Solenoid Valve

Circuit XS2

Filter Regulator, 3/2 SPR poppet with 2 Solenoid Valves



Circuit XS1 shown

Double Acting Actuators

Circuit XS3

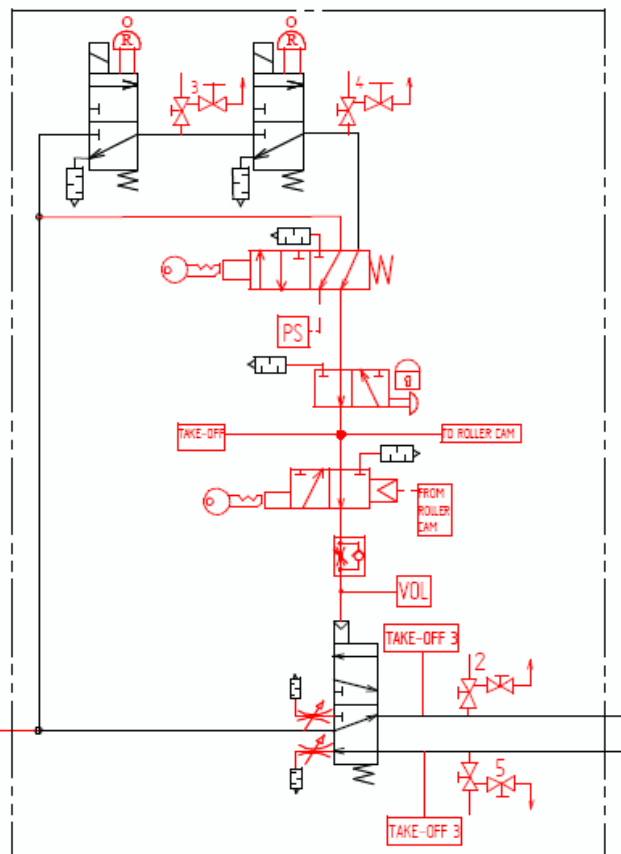
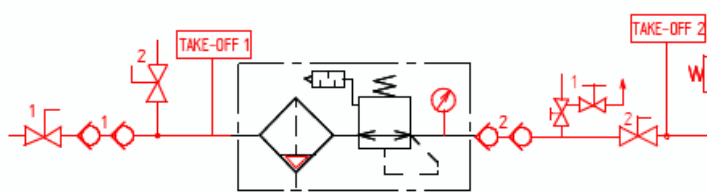
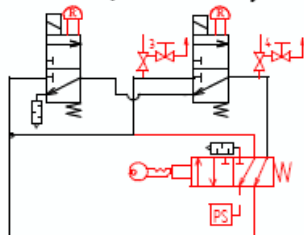
Filter Regulator, 5/2 SPR spool with 1 Solenoid Valve

Circuit XS4 - as shown

Filter Regulator, 5/2 SPR spool with 2 Solenoid Valve

Redundancy Functionality Circuit XSR2 or XSR4

Secondary Primary



Circuit XS4 shown

Base System			Redundancy Function (R)		Redundancy Function (R)		Redundancy Function (R)			
Single Acting Actuators										
Filter Reg and 3/2 pilot with 1 Solenoid Valve	1/4"	XS1-06			3/8"	XS1-09		1/2"	XS1-12	
Filter Reg and 3/2 pilot with 2 Solenoid Valves	1/4"	XS2-06	XSR2-06		3/8"	XS2-09	XSR2-09	1/2"	XS2-12	XSR2-12
Double Acting Actuators										
Filter reg and 5/2 pilot with 1 Solenoid Valves	1/4"	XS3-06			3/8"	XS3-09		1/2"	XS3-12	
Filter reg and 5/2 pilot with 2 Solenoid Valves	1/4"	XS4-06	XSR4-06		3/8"	XS4-09	XSR4-09	1/2"	XS4-12	XSR4-12
Main Flow line Items										
1/4 turn ball valve		A			Pressure Relief				K / K2 - Exh to atmosphere K1 / K3 - Captive / adj K2 & K3 located on outlet	
Single Check Valve		B			Inlet Flow Control				L	
Double Check Valve		C			Block and Bleed				M	
1/4 turn ball valve		D			No Breather				N	
Gauge		E			Exhaust Flow Control				O	
Take Off		F			Block and Bleed - 5/2 ONLY				P	
Single Check Valve		G			Push / pull valve for ESD function - padlock not supplied				R2 - Padlockable R3 - Non Padlockable R6 - Padlockable - button forward R7 - Non - padlockable - button forward	
Double Check Valve		H			3/2 only - located on main flow line					
Block and Bleed		I			Auto Drain				Y	
Take Off		J			Take Off				Z	
					Take Off (5/2 only)				Z1	
Pilot Line Items - all 1/4"					Supplementary Information					
5/2 Key Operated detented key return Solenoid By Pass Valve			Q - Detented Q1 - Spring Return		Solenoid	EExd IIC T6 T85/T100/T135 - 3 watts EExme II T3 T120 - 3.7 watts EExia IIC T6 or T4		77 74 78		
Push / pull valve for ESD function - padlock not supplied			R - Padlockable R1 - Non Padlockable R4 - Padlockable - button forward R5 - Non - padlockable - button forward		Approval	ATEX Ex II 2 GD INMETRO BR - Exd IIC T6 (T5,T4) GOST 1 Exd IIC T6 (T5,T4) SAA Exd IIC T6 (T5,T4) CSA (C,US) Class 1, Zone 1, AExd IIC T6 CSA (C,US) Class 1, Div 1, Group B,C,D NEPSI Exd, Exi		A I G S U N		
Key operated, pilot or key return for partial close system - includes take off to roller cam			S		T Rating / Gas Group	T4 IIC T5 IIC T6 IIC		3 6 9		
Block and Bleed			T		Voltage	24VDC 48VDC	Other voltages available	24D 48D		
Block and Bleed			U		Power (Watts)	See Table on Page 3		XX		
Manual Reset on sol 1 Manual Reset on sol 2			V1 V2		Resistance (Ohms)	370 Ohms Exia		370		
Manual Override on sol 1 Manual Override on sol 2			V3 V4		Seals	Viton Silicone (gas service) Arctic		V AG		
					Filter Regulator	0 to 10 bar - 25 micron element 0 to 10 bar - 50 micron element		10X3 10X4		
					Gauges	50mm dry gauge - bar 50mm dry gauge - bar/psi 50mm glycerine filled - bar 50mm glycerine filled - bar/psi		X5 X5pb X8 X8pb		
					Options	1/2" NPT conduit entry		K85		
					Pressure Relief	x.x = pressure setting, i.e. 6.2		PRx.x		

Examples

Requirements -

1/2" system with ball valve (A), single check valve (B), 10 bar, 25 micron filter regulator, 50mm dry gauge (E), inlet flow control (L), 1 * manual reset (V1) 3.0 watt, 24VDC EExd solenoid, partial stroking requirement (S):-

Code:- XS1-12-ABEL-SV1-77A9-24D-30-V-10X3-X5

1" systems available also - contact Bifold Fluidpower

Requirements -

1/2" system for double acting actuator with ball valve(A), double check valve (C), 10 bar, 25 micron filter regulator, 50mm dry gauge (E), 6.2 bar pressure relief (K), 1 * manual reset (V1) 3.0 watt, 24VDC EExd solenoid, exhaust flow control (O), by pass requirement for solenoid testing (Q):-

Code:- XS4-12-ACEK0-QV1-77A9-24D-30-V-10X3-X5-PR6.2

Selection Table
3/4" & 1" Stacker Manifold

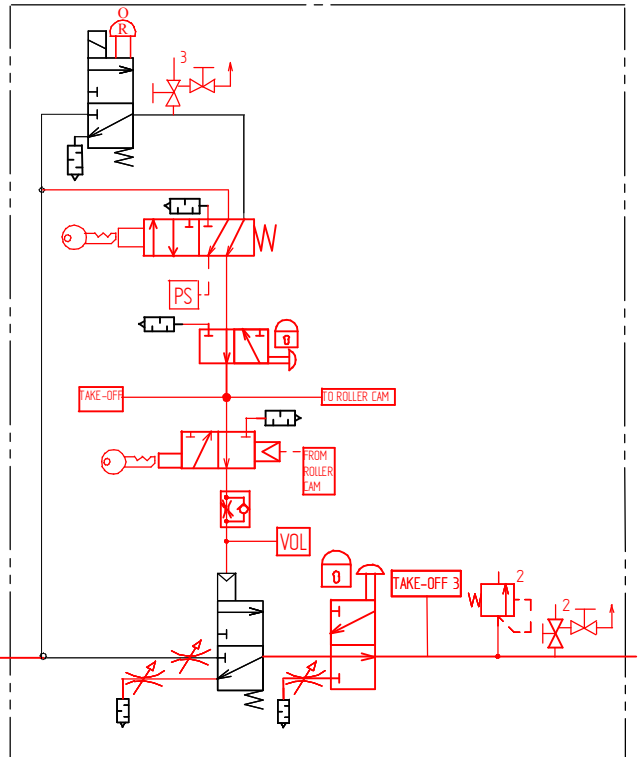
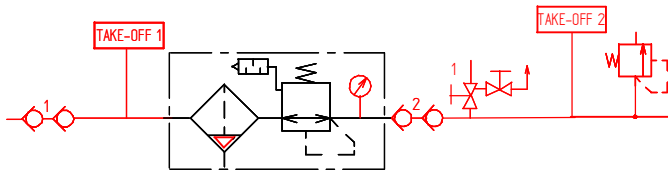
Single Acting Actuators

Circuit XS1 - as shown

Filter Regulator, 3/2 SPR poppet with 1 Solenoid Valve

Circuit XS2

Filter Regulator, 3/2 SPR poppet with 2 Solenoid Valves



Circuit XS1 shown

Double Acting Actuators

Circuit XS3

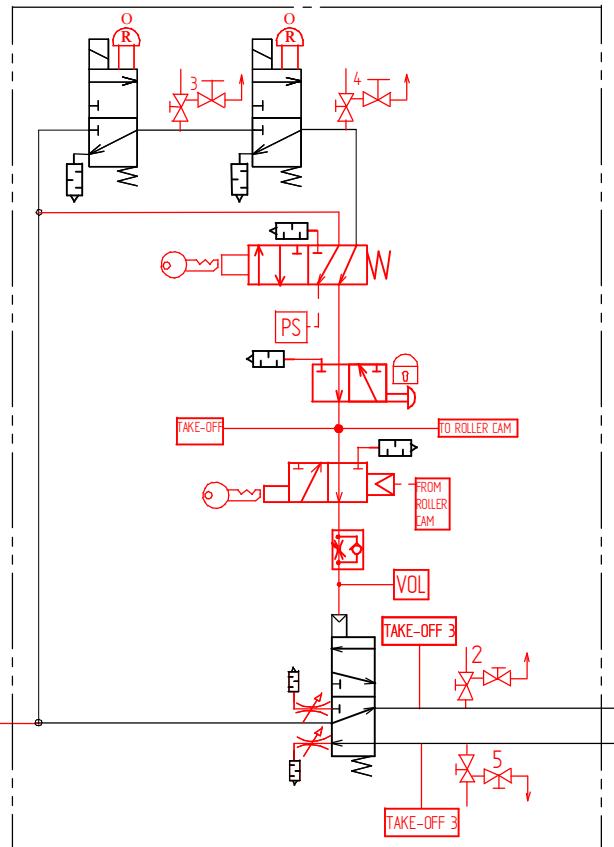
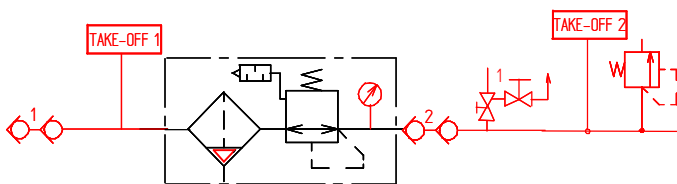
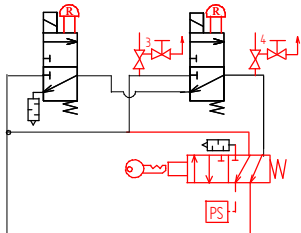
Filter Regulator, 5/2 SPR spool with 1 Solenoid Valve

Circuit XS4 - as shown

Filter Regulator, 5/2 SPR spool with 2 Solenoid Valve

Redundancy Functionality Circuit XSR2 or XSR4


















Secondary Primary

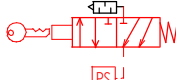
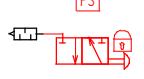
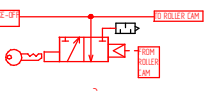









Circuit XS4 shown

Reliability and Innovation in directional control valves

Base System			Redundancy Function (R)	Redundancy Function (R)
Single Acting Actuators				
Filter Reg and 3/2 pilot with 1 Solenoid Valve	3/4"	XS1-19	1"	XS1-25
Filter Reg and 3/2 pilot with 2 Solenoid Valves	3/4"	XS2-19	XSR2-19	XS2-25 XSR2-25
Double Acting Actuators				
Filter reg and 5/2 pilot with 1 Solenoid Valves	3/4"	XS3-19	1"	XS3-25
Filter reg and 5/2 pilot with 2 Solenoid Valves	3/4"	XS4-19	XSR4-19	XS4-25 XSR4-25

Main Flow line Items					
Single Check Valve		B	Inlet Flow Control (integral on SPR)		L1 - 3/2 only
Double Check Valve		C	Block and Bleed		M
Gauge		E	No Breather		N
Take Off		F	Exhaust Flow Control		O
Single Check Valve		G	Block and Bleed - 5/2 ONLY		P
Double Check Valve		H	Push / pull valve for ESD function - padlock not supplied (3/2 only)		R3 - Non Padlockable R7 - Non Padlockable - button front
Block and Bleed		I	Auto Drain		Y
Take Off		J	Take Off (5/2 only)		Z
Pressure Relief		K1 - Captive / adjustable			Z1
		K3 - Captive / adjustable			

Pilot Line Items - all 1/4"				
5/2 Key Operated detented key return Solenoid By Pass Valve		Q - Detented Q1 - Spring Return		
Push / pull valve for ESD function - padlock not supplied		R - Padlockable R1 - Non Padlockable R4 - Padlockable - button front R5 - Non Padlockable - button front		
Key operated, pilot or key return for partial close system - includes take off to roller cam		S		
Block and Bleed		T		
Block and Bleed		U		
Manual Reset on sol 1		V1		
Manual Reset on sol 2		V2		
Manual Override on sol 1		V3		
Manual Override on sol 2		V4		
Time Delay		X		

Supplementary Information		
Solenoid	EExd IIC T6 T85/T100/T135 Exemb II T3 T120 EExia IIC T6 or T4	77 74 78
Approval	ATEX Ex II 2 GD Other approvals available - contact Bifold Fluidpower Ltd	A
T Rating / Gas Group	T4 IIC T5 IIC T6 IIC	3 6 9
Voltage	24VDC 48VDC Other voltages available	24D 48D
Power	3 Watt - EExd 77 solenoid 3.6 Watt - Exemb 74 solenoid	30 36
Resistance	370 ohms - EExia solenoid only typical for a nominal 32mA barrier	370
Seals	Viton Silicone (gas service) Arctic	V AG
Filter Regulator	0 to 10 bar - 50 micron element	10X4
Gauges	50mm dry gauge - bar 50mm dry gauge - bar/psi 50mm glycerine filled - bar 50mm glycerine filled - bar/psi	X5 X5pb X8 X8pb
Options	1/2" NPT conduit entry	K85
Pressure Relief	x.x = pressure setting, i.e. 6.2	PRx.x

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Quality Assurance

All Bifold Fluidpower 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 recognised to EN ISO 9001:2000. 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. The manufacturer reserves the right to make changes to the specifications and design etc., without prior notice

Accuracy of information

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

