

Electro Hydraulic/ Low Pressure Logic Arctic Service Range -50°C

World leading supplier of control valves
for low temperature



Superior performance
throughout the full
operational range

Features:

- Worldwide solenoid approvals ATEX, CSA, SAA, INMETRO & GOST
- Providing one of the widest range of low temperature valves and manifolds
- 316L Stainless steel
- World-wide product and system support
- Extensive applications reference list of proven products for arctic service
- State of the art testing facilities to -70°C for qualification and performance optimisation of control valves and systems





Introduction

Bifold Fluidpower was established over a century ago as a manufacturer of valves for hazardous environments and is currently a leading manufacturer of electro-hydraulic and pneumatic directional control valves for the oil and gas industry. Through a commitment to innovation and value engineering, Bifold Fluidpower offers leading technical solutions whilst providing excellent service and technical support to customers around the world.

Bifold Fluidpower design, develop and manufacture arctic service products for the former Soviet Union, the Caspian region, Canada and Alaska.



Wide Range of Low Temperature Valves and Manifolds

See individual product brochures for details. A summary is shown below:-

Product Series:-	AXIS Manifold
Pressure :-	0 - 10 bar
Size Range:-	1/4" to 1"
Solenoid Power/Type:-	1.5 to 6.5W
Explosion Protection:-	EExd, EExemb, EExia
Primary Applications:-	Wellhead, Process and ESD valve actuator control

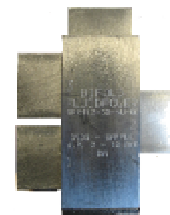
Product Series:-	Junior ASJJ06 Series
Pressure :-	0 - 8 bar
Size Range:-	1/4"
Primary Applications:-	Wellhead and process valve control system logic valves

Product Series:-	ASPR Series sealed spool
Pressure :-	0 - 10 bar
Size Range:-	1/4" to 1"
Solenoid Power/Type:-	3.5 to 6.5W / indirect acting
Explosion Protection:-	EExd, EExemb, EExia
Primary Applications:-	High flow actuator control valves

Product Series:-	FP06PA, FP10PA, FP12PA *
Pressure :-	0 - 16 bar
Size Range:-	1/4" to 1/2"
Solenoid Power/Type:-	1.5 to 6.5W / direct acting
Explosion Protection:-	EExd
Primary Applications:-	Wellhead, Process and ESD valve actuator control

Product Series:-	SVP8x08
Pressure :-	0 - 250 bar
Size Range:-	8 litres per minute nominal
Solenoid Power/Type:-	5.7W / direct acting
Explosion Protection:-	EExd
Primary Applications:-	Process, ESD and choke valve actuator control

* pending summer 2007





Product Series:-
Pressure :-
Size Range:-
Solenoid Power/Type:-
Explosion Protection:-
Primary Applications:-

FP01 (-36°C minimum)
0 - 690 bar
1 litre per minute nominal
0.9 to 3.7W / direct acting
EExd, EExemb, EExia
SSSV, Process, ESD, Choke Valve and Ballast System actuator controls



Product Series:-
Pressure :-
Size Range:-
Solenoid Power/Type:-
Explosion Protection:-
Primary Applications:-

FP15
0 - 690 bar (pilot stage); 0 - 1035 bar (main stage)
15 litres per minute nominal
0.9 to 5.7W / indirect acting
EExd (-50°C), EExemb (-36°C), EExia (-36°C)
Wellhead, Process, ESD, Choke, Ballast, Turret and Mooring System actuator controls.

Product Series:-
Pressure :-
Size Range:-
Solenoid Power/Type:-
Explosion Protection:-
Primary Applications:-

FP50, FP100 & FP200
0 - 345 bar (FP50)
0 - 250 bar (FP100, FP200)
50, 100, 200 litres per minute nominal
0.9 to 5.7W / indirect acting
EExd (-50°C), EExemb (-36°C), EExia (-36°C)
Process, ESD and HIPPS valve actuator control



Product Series:-
Pressure :-
Size Range:-
Solenoid Power/Type:-
Explosion Protection:-
Primary Applications:-

SV/SVI Series
0 - 690 bar (pilot stage); 0 - 1380 bar (main stage)
40 litres per minute nominal
0.9 to 5.7W / indirect acting
EExd (-50°C), EExemb (-36°C), EExia (-36°C)
Special applications for high pressure, high temperature and contaminated control fluids

Product Series:-
Pressure :-
Size Range:-

Quick Exhaust Valves - Hydraulic / Pneumatic
0 - 345 bar Hydraulic ; 0 - 12 bar Pneumatic
1/4" - 1/2" Hydraulic ; 1/4" - 1" Pneumatic



Product Series:-
Pressure :-
Size Range:-

Thermal Relief Valves
0 - 1380 bar
1/4" to 1/2"



Product Series:-
Pressure :-
Size Range:-

Pressure Relief Valves
0 - 12 bar
1/4" to 1/2"



Product Series:-
Pressure :-
Size Range:-

ASH Series Air Preparation
0 - 40 bar
1/4" to 1"

Product Series:-
Pressure :-
Size Range:-

Ancillary Valves (Flow Control, Check Valves, Port Flow Regulators)
0 - 1035 bar (subject to product type)
1/4" to 1"



Product Series:-
Pressure :-
Size Range:-
Primary Applications:-

PSV5A - Flowline Pilot Range
0 - 690 bar sensing; 0-16 bar control
5 litres per minute nominal
Process valve actuator control systems, Wellhead control logic valves



Solenoid Approvals

Bifold Fluidpower present valves certified by a wide range of international approved bodies

International Approvals

- GOST (Russian hazardous area approval), GGTN (export licence to Russia), Expert Analysis report supporting the GGTN permit.
- CSA (Canadian and United States of America hazardous area approval).
- ATEX (European hazardous area approval)
- INMETRO (Brazilian hazardous area approval).
- SAA (Australian hazardous area approval).



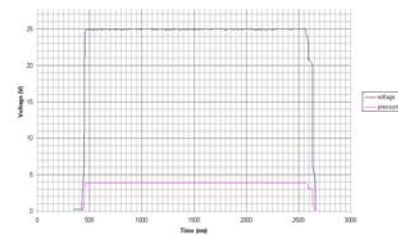
Approval Testing

In obtaining the range of approvals Bifold Fluidpower has subjected valves to an onerous range of tests accredited by external bodies.

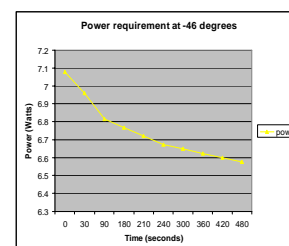
- Endurance testing to 600,000 cycles at the extremes of the operating temperature envelope.
- Environmental testing from -55°C to $+90^{\circ}\text{C}$
- Full function testing, leak rate monitoring, proof testing 1.5 to 5 times operating pressure (dependent on approval body)
- Maximum and minimum pull-in voltage testing
- Response time testing
- Dielectric strength and insulation strength testing

State of the Art Testing and Qualification Facilities

- State of the art climatic test facilities (-70°C to $+180^{\circ}\text{C}$).
- Single valve or complete control system testing capability including the process valve actuator – avoid discovering a problem in the field.
- Full data logging and analysis of temperature, pressure, and response time.



Temp	Stroke	min. sec					
		Tested Time	Corrected Time	Tested Time	Corrected Time		
-20	FB	6.4	9.2	6.24	8.88	6.29	9.05
	Anul	6.23	9.54	6.14	9.4	6.11	9.34
-40	FB	13.31	18.55	10.54	15.16	13	18.12
	Anul	12.21	19.09	14.45	22.52	10.18	15.98
20	FB	4.36	6.26	4.35	6.25	4.30	6.29
	Anul	4.02	6.15	4.05	6.2	4.07	6.23





Valve Performance Testing

Bifold Fluidpower offer full qualification testing facilities open for external and customer witness testing free of charge when significant valve package orders are placed. Bifold Fluidpower has invested in state of the art climatic testing facilities. Valves are tested to the extremes of the environment required. Testing from simple valve operation to variations in actuator opening times, and pressure surges due to fluid thermal expansion as a result of a rapid temperature rise.

Sakhalin Island and the Caspian region (40° latitude)

- -35°C to -55°C for 1-2 days in winter to +40°C in summer.
- Rapid temperature rises from -40°C to -20°C.
- Products and systems must be tested at both temperature extremes and tested to simulate rapid night to day temperature changes.

Prudoe Bay (70° latitude)

- Long periods below -40°C.
- Exposed parts freeze up.
- Products must be held at -40°C for at least 10 days (dependent on the thermal hysteresis of the valve mass and materials).

World-wide Support and Service

With over 95% of production for export, Bifold Fluidpower provides product and technical support for over 4000 valve products world-wide from the offices in the UK, Houston and Singapore. Bifold Fluidpower has invested in state of the art machining centres ensuring close tolerances, all thread milled ports and a rapid turnaround capability.

The end user can be sure that Bifold Fluidpower has the product portfolio and the technical and production capability to provide the right solution for your pneumatic and hydraulic system requirements.

Project References

- Sakhalin Island –Shell/Sakhalin Energy. Over 1500 electro-pneumatic and hydraulic control valves, air-preparation and accessory valves and manifold systems supplied on most of the packages.
- Baku to Ceyhan Pipeline –BP. All electro-hydraulic directional control valve packages.
- Tengiz – Tengizchevroil. Electro-hydraulic and pneumatic directional control valves, air preparation and accessory valves. Used on well control, HIPPS valves, and actuated valve packages.
- Shnoevhit –Statoil. Electro-hydraulic directional control valves for well control.
- Shah Deniz –BP. Electro-hydraulic solenoid and accessory valves for HIPPS, wellhead controls and actuated valve packages.
- Karachaganak –Karachaganak Int.Org. Solenoid, pilot, accessory and interface valves for well control packages.
- Terra Nova –Petro Canada. Pneumatic and hydraulic control valves.
- Hibernia – Petro Canada. Pneumatic and hydraulic control valves
- Many other minor projects.

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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.

