

# spirax sarco®

## Type PF51G-NO (Normally Open) Piston Actuated On/Off Valves

### Description

A 2-port normally open pneumatically actuated on/off bronze valve for use on water, air, oil and gases and can also be used for lower specification steam applications. The valves are not suitable for vacuum conditions.

The valve is designed for flow under the seat (port 2 to 1) suitable for anti-waterhammer liquid applications.

A pneumatic signal acts above the actuator piston to close the valve. A spring acts below the piston to open the valve. The valve plug has a PTFE soft seal to provide tight shut-off. A valve position indicator is included on standard and flow regulator models.

### Available types

PF51G-1NO normally open with 45 mm diameter actuator

PF51G-2NO normally open with 63 mm diameter actuator

PF51G-3NO normally open with 90 mm diameter actuator

### Sizes and pipe connections

PF51G-1NO 1/2", 3/4" and 1" NPT

PF51G-2NO 1/2", 3/4", 1", 1-1/4", 1-1/2" and 2" NPT

PF51G-3NO 1", 1-1/4", 1-1/2" and 2" NPT

### Options

#### Travel switch

Relays an electrical signal to indicate open or closed position of the valve. Maximum rating: Voltage (V) = 500 V, Current (I) = 0.5 A, Power (P) = 30 VA. Available on 63 mm and 90 mm actuators with nomenclature suffix 'I'. i.e. PF51G-2NO-I-1" NPT

#### Stroke regulator

Limits valve lift to regulate maximum flow. Available on 63 mm and 90 mm actuators with nomenclature suffix 'R'. i.e. PF51G-2NC-R-1" NPT

#### Pilot Solenoid Valves

For direct mounting, use type "DM" Pilot Solenoid Valves.

(see TI-P373-04US for details)

For remote mounting for a series of PAV's, use type "DMD" banked Pilot Solenoid Valves. (see TIS 8.500 US for details)

For remote mounting for individual PAV's, at a panel or separate location, consult SSI for options.

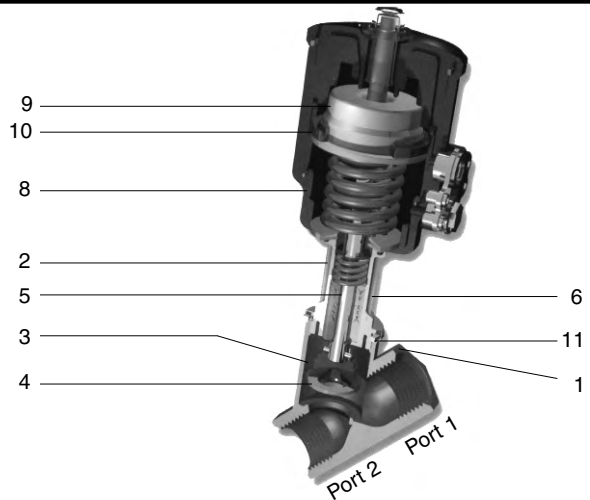
All Pilot Solenoid Valves are available in 240, 120, 24 VAC and 24 VDC voltages. (see applicable TI sheets)

### Technical details

Leakage	PTFE soft seal	ANSI class VI	
Flow characteristic	Fast opening	on / off	
Flow direction	Flow over seat	port 2 to 1	
Pilot media	Air, water or inert gas	(140°F max.)	
Actuator housing rotation	360°		
	Pilot connection	Max. pilot pressure	
Actuator size	45 mm (1-3/4")dim.	1/8" BSP	150 psig
	63 mm (2-1/2")dim.	1/4" BSP	150 psig
	90 mm (3-9/16")dim.	1/4" BSP	120 psig

### Limiting conditions

Maximum design temperature	356°F
Minimum design temperature	14°F
Maximum differential pressure	See table overleaf



### Materials

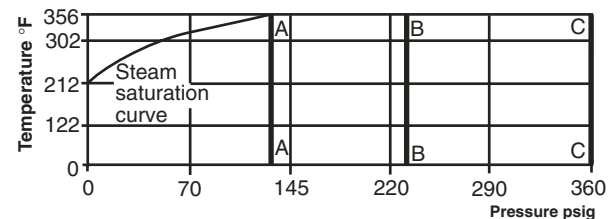
No.	Part	Material
1	Body	Bronze EN 1982 CC491K
2	Bonnet	Bronze EN 12165 CW617N
3	Plug	Stainless steel AISI 316L
4	Plug seal	PTFE
5	Valve stem	Stainless steel AISI 316
6	Stem seals	PTFE chevrons
*7	Stem 'O' ring	Viton
8	Actuator housing	Glass filled polyamide
9	Piston	Glass filled polyamide
10	Piston lip seal	Viton
11	Gasket	PTFE
12	'O' ring	Viton

\* not shown

### C<sub>Vs</sub> values

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
C <sub>V</sub>	4.7	8.8	19.6	29.4	45.5	57.8

### Operating range



A-A	Maximum operating pressure on saturated steam	130 psig
B-B	Maximum operating pressure on gas & liquids sizes 1-1/4" to 2"	230 psig
C-C	Maximum operating pressure on gas & liquids sizes 1/2" to 1"	360 psig

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.

In the interests of development and improvement of the product, we reserve the right to change the specification.

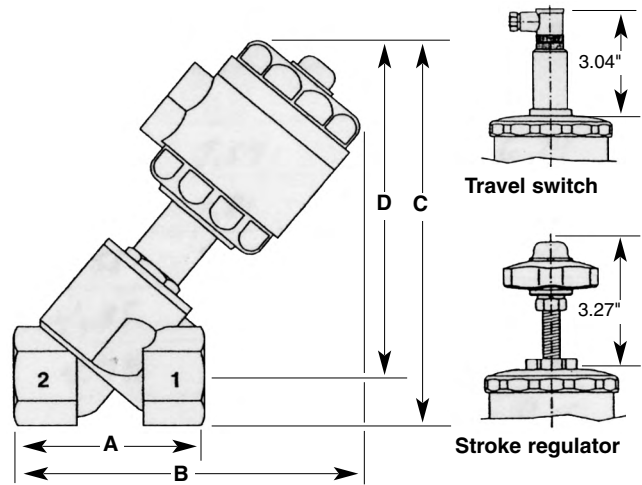
TI-P373-08-US 08.03

# Type PF51G-NO (Normally Open) Piston Actuated On/Off Valves

**Dimensions / weight** (approximate) in inches and lbs.

Port size (NPT)	Actuator Diameter inches	A inches	B inches	C inches	D inches	Bronze Weight pounds
1/2"	1-3/4" (45mm)	2.56	5.67	5.36	4.85	1.1
3/4"	1-3/4" (45mm)	2.96	6.11	5.63	5.12	1.8
1"	1-3/4" (45mm)	3.55	6.60	5.79	6.74	2.6
1/2"	2-1/2" (63mm)	2.56	7.57	7.25	6.74	2.0*
3/4"	2-1/2" (63mm)	2.96	7.81	7.57	6.94	2.9*
1"	2-1/2" (63mm)	3.55	8.36	8.08	7.29	3.5*
1-1/4"	2-1/2" (63mm)	4.35	8.87	8.55	7.61	4.4*
1-1/2"	2-1/2" (63mm)	4.73	9.06	8.87	7.81	5.3*
2"	2-1/2" (63mm)	5.91	9.78	9.50	8.16	6.0*
1"	3-9/16" (90mm)	3.55	8.76	8.44	7.67	4.6*
1-1/4"	3-9/16" (90mm)	4.34	9.27	8.94	7.96	5.5*
1-1/2"	3-9/16" (90mm)	4.73	9.42	9.26	8.16	6.2*
2"	3-9/16" (90mm)	5.91	10.13	9.85	8.51	7.1*

\* Plus 0.5 lbs. for travel switch or stroke regulator option

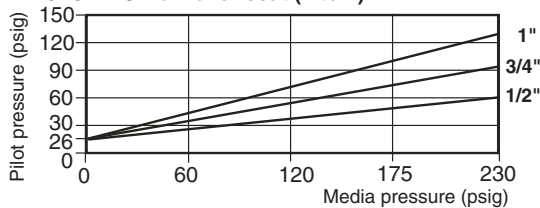


## Differential pressures for PF51G-NO (Normally open) piston actuated valves

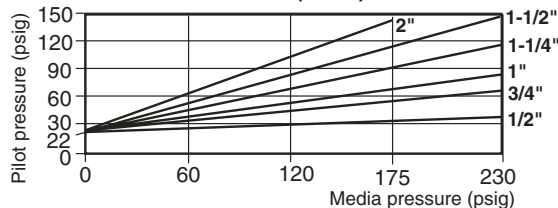
Model	Port size (NPT)	Actuator diameter (mm)	Flow direction (2 to 1)	Max diff.pres.(psig) gas & liquid	Max diff.pres.(psig) steam	Pilot pressure min(psig) max.(psig)
PF51G-1NO	1/2"	45	under seat	230	130	26 150
PF51G-1NO	3/4"	45	under seat	230	130	26 150
PF51G-1NC	1"	45	under seat	230	130	26 150
PF51G-2NO	1/2"	63	under seat	230	130	22 150
PF51G-2NO	3/4"	63	under seat	230	130	22 150
PF51G-2NO	1"	63	under seat	230	130	22 150
PF51G-2NO	1-1/4"	63	under seat	230	130	22 150
PF51G-2NO	1-1/2"	63	under seat	230	130	22 150
PF51G-2NO	2"	63	under seat	175	130	22 150
PF51N-3NO	1	90	under seat	230	130	15 115
PF51G-3NO	1-1/4"	90	under seat	230	130	15 115
PF51N-3NO	1-1/2"	90	under seat	230	130	15 115
PF51G-3NO	2"	90	under seat	230	130	15 115

## Pilot / media pressure relationship

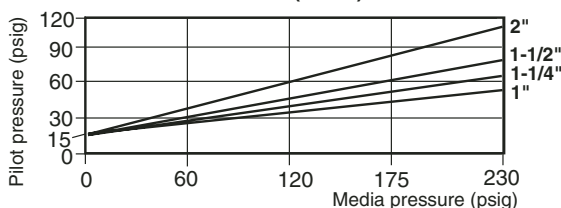
PF51G-1NO flow over seat (2 to 1)



PF51G-2NO flow over seat (2 to 1)



PF51G-3NO flow over seat (2 to 1)



## Installation

The valve can be installed in any position with the direction of flow as indicated on the inlet/outlet ports by the connection numbers 1 to 2.

To simplify mounting of the pilot pressure lines or solenoid valves, the actuator can be rotated through 360°.

The pipework should be supported to prevent the valve body being stressed.

Installation and Maintenance Instructions are provided with the valve.

## How to order

<b>Standard Valve</b>	<b>1 - PF51G-2NO-1" NPT</b>
<b>Valve with travel switch</b>	<b>1 - PF51G-2NO-I-1" NPT</b>
<b>Valve with stroke regulator</b>	<b>1 - PF51G-2NO-R-1" NPT</b>

## Spare parts

A seal kit is available for all valve and actuator sizes comprising: piston lip seal, actuator stem 'O' ring, plug soft seal (PTFE), body seal and 'O' ring.

## How to order spare seal kits

Always order spares by specifying the valve size, type and date code (given on actuator label i.e. 401=week 40, year 2001).

Example: 1-seal kit for PF51G-2NO-1" NPT date code 401