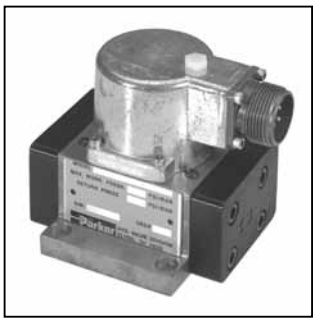
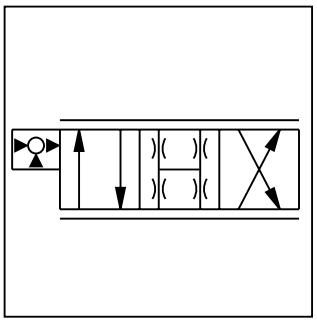
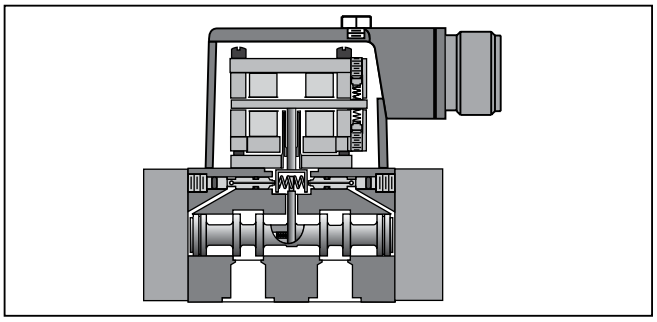
General Description

Series PH76 servovalves are high performance, two stage valves, with a range of rated flows from 3.8 to 57 LPM (1 to 15 GPM). The pilot stage is a symmetrical double-nozzle and flapper, driven by a double air gap, dry torque motor. A low current signal to the torque motor pilot stage results in a proportional flow from the output stage. The output stage is a 4-way, sliding spool which provides a mechanical feedback using an exclusive “no ball glitch” design.







C

Features

- Built to survive tank port pressure spikes.
- No ball glitch.
- Tool steel spool and body.
- Optional 5th port for external pilot.
- ISO 10372 standard 22.23 mm (0.875 in) port circle.

Specifications

Flow Rating ±10% @ 70 Bar (1000 PSID)	3.8, 9.5, 19, 28, 38, 57 LPM (1, 2.5, 5, 7.5, 10, 15 GPM)	**Threshold**	≤ 0.5%
Supply Pressure	10 – 210 Bar (145 – 3000 PSI)	**Null Shift** with temperature with pressure	≤ 2% per 55°C (100°F) ≤ 2% per 70 Bar (1000 PSI)
Tank Port Pressure	210 Bar (3000 PSI) Max. < 10 Bar (145 PSI) for best performance	**Pressure Gain** % change in pressure per 1% change in input command	30% minimum, 70% max.
Null Leakage Flow per 70 Bar (1000 PSID)	0.2 – 0.8 LPM (0.05 – 0.20 GPM)	**Step Response**	10 – 90%, < 6 ms
Pilot Flow @ 210 Bar (3000 PSID)	0.8 – 1.2 LPM (0.21 – 0.33 GPM)	**Fluid**	Mineral Oil, 60 – 225 SSU 1000 SSU maximum
Input Command	±50 mA std.	**Operating Temperature**	-1°C to +82°C (+30°F to +180°F)
Frequency Response @ 90° phase shift	> 90 Hz (See Performance Curves)	**Protection Class**	NEMA 4, IP65
Non-Linearity	≤ 10%	**Fluid Cleanliness**	ISO 4406 15/12 or better

PH76 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ ☐ ☐ ☐ ☐

Series | Pilot Source | Material Options | Coils | Wiring | Seal | Operating Pressure | Flows | Special Options | Factory Code for Special Options

Code	Description
C	External (5th port)
A	Internal

For internal pilot the 5th port is blocked internally.

Code	Description
A	Steel (standard)
Z	Special (specify)

Code	Description	Parallel	Series
D	200 ohm (Std.)	50 mA	25 mA
F	80 ohm	40 mA	20 mA
G	22 ohm	200 mA	100 mA
K	40 ohm	150 mA	75 mA
M	475 ohm	40 mA	20 mA
T	1000 ohm	8 mA	4 mA
Z	Special (Specify)		

Code	Connector over	Flow P to C2 with:
B	Port C2	(+) signal to A, C
A	Port C1	(+) signal to A, C
P	Port P	(+) signal to A, C
T	Port T	(+) signal to A, C

Code	Description
V	Fluorocarbon (std.)
N	Nitrile
E *	EPR
Z *	Special (specify)

* Consult factory for delivery.

Code	Description
A	210 Bar (3000 PSI)
B	450 Bar (5000 PSI)
Z	Special (specify)

Code	Description
1	3.8 LPM (1.0 GPM)
2.5	9.5 LPM (2.5 GPM)
5	19.0 LPM (5.0 GPM)
7.5	28.0 LPM (7.5 GPM)
10	38.0 LPM (10.0 GPM)
15	57.0 LPM (15.0 GPM)

Code	Description
Omit	Standard
D	(Specify) Consult factory for price, delivery, and availability of special options.

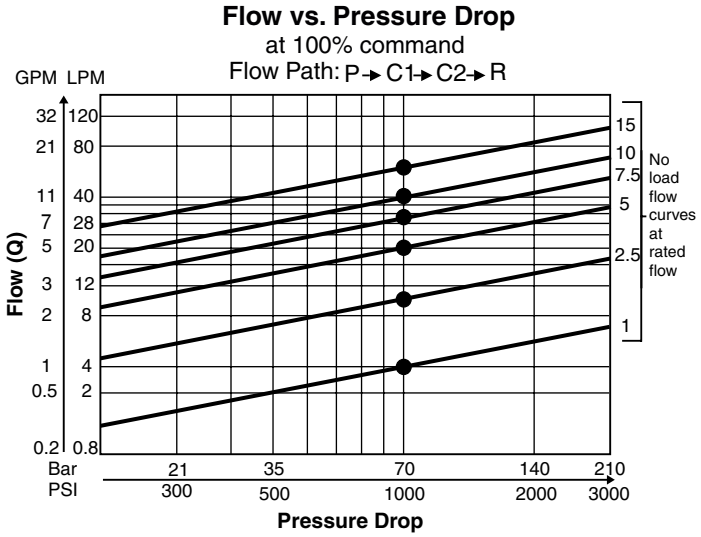
Weight: 1 kg (2.2 lb)
Cable with mating connector: EHC154S
Mating connector: MS3106E-14S-2S
Bolt kit: Included with valve. BK07 (4) 5/16-18x1"
Flushing valve: 1200127 (same for 4 or 5 port PH76 valve)
Subplate, 5 ports: 1402303 (4) #12 SAE side ports, (1) #4 SAE side port
Subplate, 4 ports: 810090-3 (4) #12 SAE side ports
Null adjust tool: 6522A13
Driver cards: 23-7030, BD90*, BD101*

When used in conjunction with Series BD90 and BD101 servo amplifiers or a motion controller, Series BD valves will provide accurate control of rotary and linear actuators.
* For output currents >15 mA

Flushing valve is rated for 3000 psi operation.

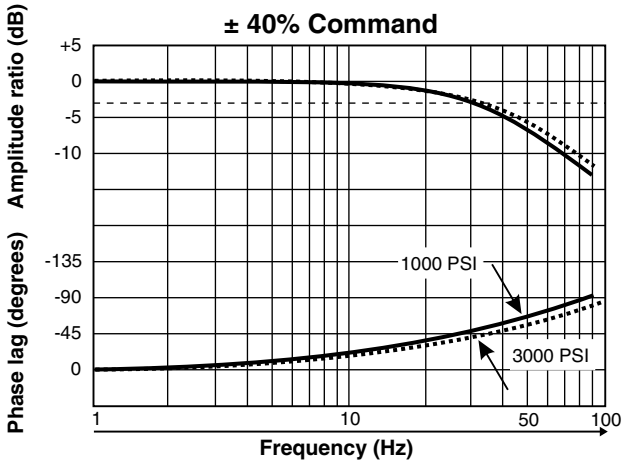
Performance Curves

Servovalve flow is proportional to the square root of the pressure drop through the valve. The nominal flow rating for the servovalves is based upon a 70 Bar (1000 PSI) pressure drop.



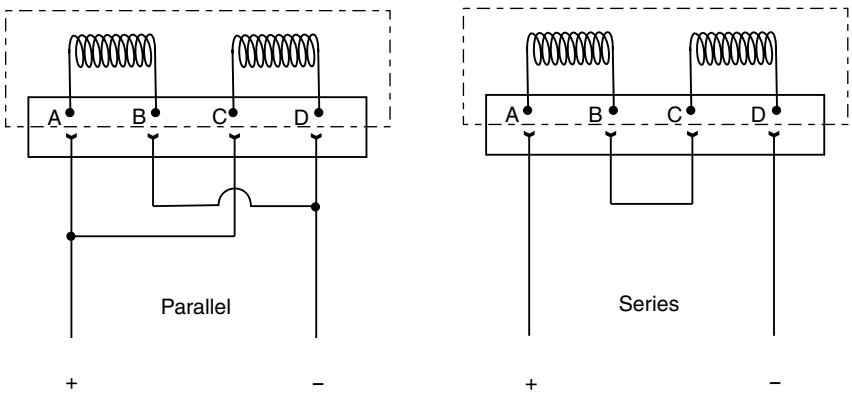
Frequency Response

The frequency response curves for the PH76 servovalves show no significant change for signal amplitudes between ±10% and ±40%. Frequency response is unaffected by changes in supply pressures above 70 Bar (1000 PSI).



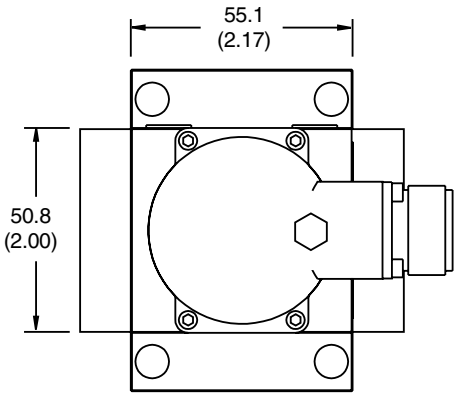
Installation Wiring Options

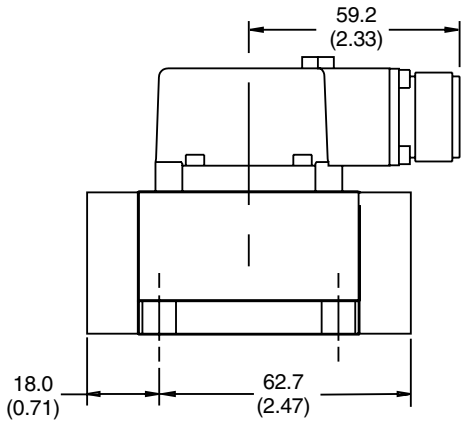
The PH76 servovalve has two coils. One is wired across pins A to B, the other across pins C to D. When connecting the valve to a drive amplifier, the user's external wiring may put the coils either in parallel or in series as needed. In either case, a positive voltage to pin A connects valve flow from ports P to C2 and ports C1 to R.



Polarity shown (+A, -B, +C, -D) connects flow from P to C2 port.

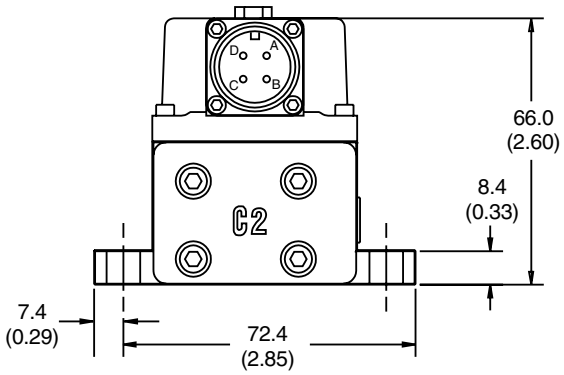
Inch equivalents for millimeter dimensions are shown in (**)





Connector shown over C2 port. See ordering information for other connector locations.

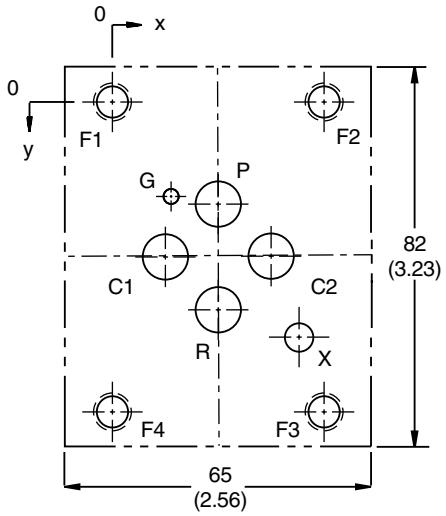
The connector location is factory set and is not field changeable.



Mounting Surface Dimensions

Metric Dimensions (millimeters)						± 0.1 mm				
Axis	**P**	**C1**	**R**	**C2**	**G**	**X**	**F1**	**F2**	**F3**	**F4**
	∅ 8.2 max.	∅ 8.2 max.	∅ 8.2 max.	∅ 8.2 max.	∅ 3.5 max.	∅ 5	M8	M8	M8	M8
X	22.2	11.1	22.2	33.3	12.3	49.5	0	44.4	44.4	0
Y	21.4	32.5	43.6	32.5	19.8	39	0	0	65	65

U.S. Dimensions (inches)						± .004 in				
Axis	P	C1	R	C2	G	X	F1	F2	F3	F4
	∅ 0.32 max.	∅ 0.32 max.	∅ 0.32 max.	∅ 0.32 max.	∅ 0.14 max.	∅ 0.2	5/16 - 18			
X	0.875	0.437	0.875	1.311	0.484	1.531	0	1.750	1.750	0.000
Y	0.846	1.280	1.717	1.280	0.780	1.950	0	0	2.562	2.562



Minimum depth of G is 2 mm (0.08 in)
Recommended full thread depth for bolt holes 22 mm (0.87 in)
Surface roughness: Ra < 0.8 µm (0.031 in) as specified in ISO 468 and 1302
Surface flatness: 0.025 mm (0.001 in) as specified in ISO 1101