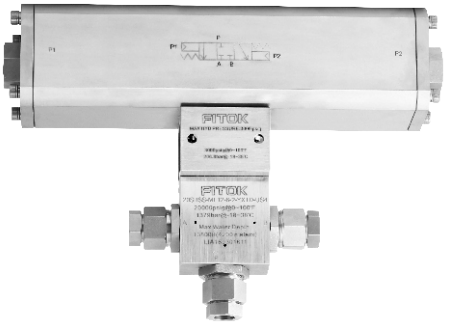
Subsea Hydraulic Ball Valves

Features

- Working pressure up to 20,000 psig (1379 bar)
- Maximum external pressure: 6,000 psig (414 bar)
- Hydraulic supply pressure: 3,000 psig (207 bar)
- Working temperature: 0 to 200°F (-17.8 to 93°C)
- High tensile 316 stainless steel or S17400 stainless steel for valve body and S17400 for hydraulic actuator
- FKM O-ring and PEEK seal provide excellent resistance against chemicals, heat and abrasion
- Three types of hydraulic actuators (YC, YO, YXTD) available
- Maximum water depth: 13,800 ft. (4200 m)

Subsea Hydraulic Ball Valves (2-Way)



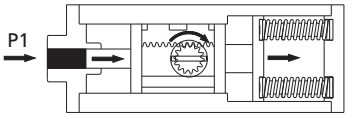
Subsea Hydraulic Ball Valves (3-Way)

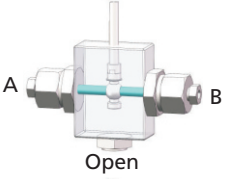
Working Principle

2-way (90° on-off)

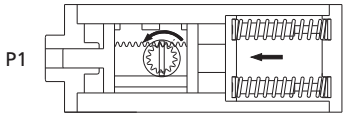
YC: Hydraulic to open, single acting with spring return (Normally Closed)

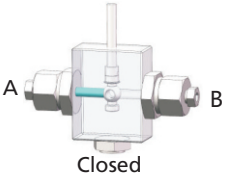
Hydraulic pressure applied to port P1 forces the piston to move towards right and compress the spring, causing a clockwise rotation by 90 degrees. The valve fully opens.





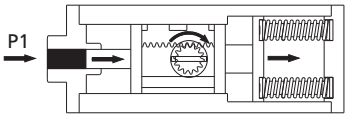
Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve closes.

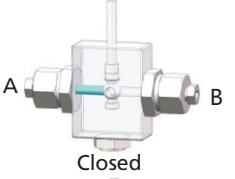




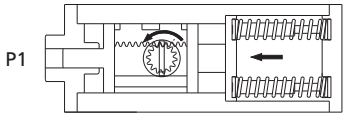
YO: Hydraulic to closed, single acting with spring return (Normally Open)

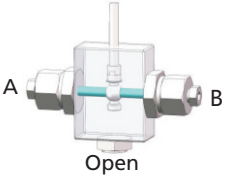
Hydraulic pressure applied to port P1 forces the piston to move towards right and compress the spring, causing a clockwise rotation by 90 degrees. The valve closes.





Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve fully opens.

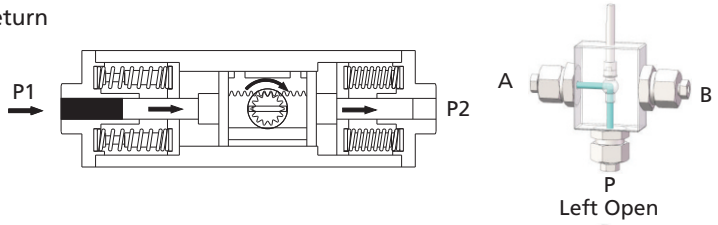




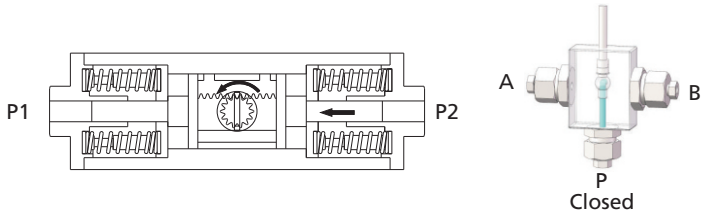
3-way (180° switching)

YXTD: 180° Normally Closed, double acting with spring return

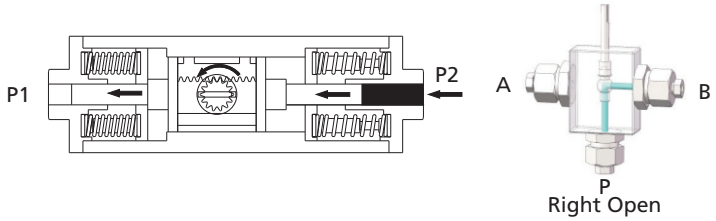
Hydraulic pressure applied to port P1 forces the piston to move towards right and compress the spring, causing a clockwise rotation by 90 degrees. The flow is allowed from bottom inlet port P to outlet A.



Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve closes.



Hydraulic pressure applied to port P2 forces the piston to move towards left and compress the spring, causing a counterclockwise rotation by 90 degrees. The flow is allowed from bottom inlet port P to outlet B.



Ordering Number Description

15SBSS - MF6 - 6VI - 1 - YC - FNS4

Series	Body Material	Connection	Orifice No.	O-Ring Material	Flow Pattern	Hydraulic Actuator	Hydraulic Connection Type	Hydraulic Connection Size

Series	
10SB	
15SB	
20SB	

Body Material	
4P	S17400
SS	316SS

Connection	
For 10SB Series	
FNS12	3/4" Female NPT
FNS16	1" Female NPT
MF12	3/4" Female Medium Pressure
MF16	1" Female Medium Pressure
For 15SB Series	
DFF4	1/4" Female 20D Series
DFF6	3/8" Female 20D Series
FNS4	1/4" Female NPT
FNS6	3/8" Female NPT
FNS8	1/2" Female NPT
For 20SB Series	
MF4	1/4" Female Medium Pressure
MF6	3/8" Female Medium Pressure
MF9	9/16" Female Medium Pressure
MF12	3/4" Female Medium Pressure
HF4	1/4" Female High Pressure
HF6	3/8" Female High Pressure

Orifice No.	
For 2-Way	
4	1/4"
6	3/8"
For 3-Way	
4	3/16"
6	3/8"

O-Ring Material	
	NBR
VI	FKM

Flow Pattern	
1	2-Way Straight Valves
2	3-Way Valves, 180° Turn
2D	3-Way Valves, 90° Turn

Hydraulic Actuator	
For 2-way, 3-way	
YC	90° Normally Closed Hydraulic Actuator
YO	90° Normally Open Hydraulic Actuator
YXTD	180° Spring Return Double Acting Hydraulic Actuator

Hydraulic Connection Type	
FNS	Female NPT
US	Female SAE O-Ring

Hydraulic Connection Size	
4	1/4"
7	7/16"-20
8	1/2"

Notes: 1. For more details regarding 20D Series and Medium/High Pressure connections, please see **Connection Information** on A-02.
2. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.