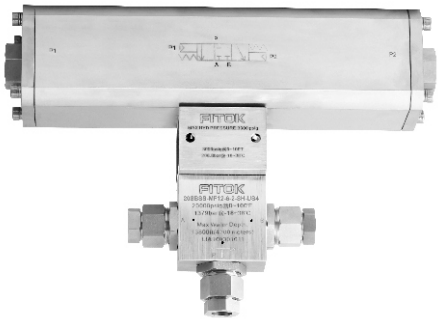
Subsea Hydraulic Ball Valves

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
- Fluorocarbon FKM O-ring and PEEK seal provide excellent resistance against chemicals, heat and abrasion
- Three types of hydraulic actuators (HTO, HTC, SH) available
- Maximum water depth: 13,800 ft. (4200 m)

Subsea Hydraulic Ball Valves (2-way)



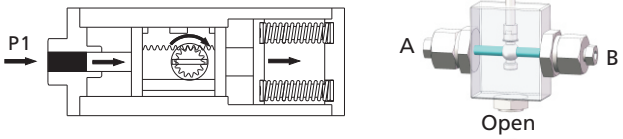
Subsea Hydraulic Ball Valves (3-way)

Working Principle

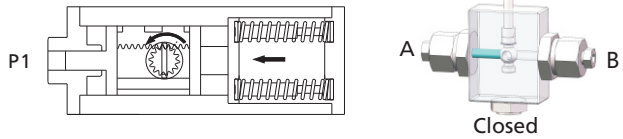
2-way (90° on-off)

HTO: 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.

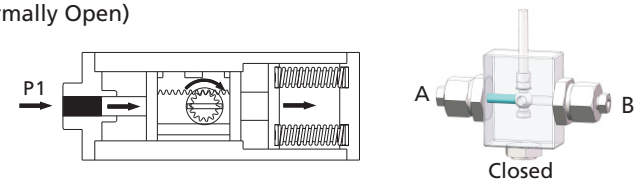


Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve closes.

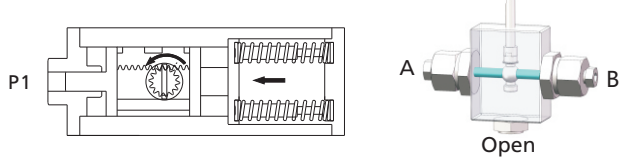


HTC: Hydraulic to closed, single acting with spring return (Normally Open)

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.



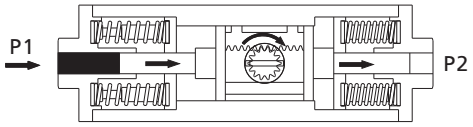
Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve fully opens.

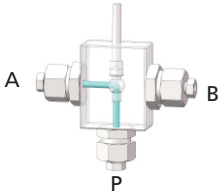


3-way (180° switching)

SH: 180° Normally Closed, single acting with spring return

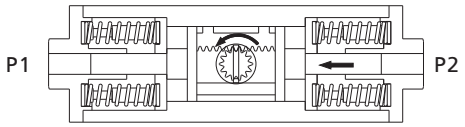
Hydraulic pressure applied to port P1 forces the piston to move towards right and compress the spring, causing a clockwise rotation by 90 degrees. The flow is allowed from bottom inlet port P to outlet A.

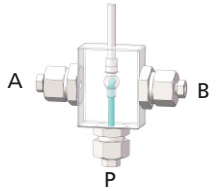




Left Open

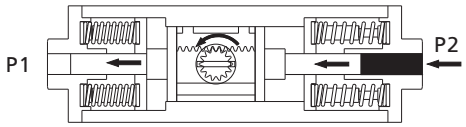
Following loss of hydraulic pressure on port P1, the compressed spring forces the piston to move towards left, causing a counterclockwise rotation by 90 degrees. The valve closes.

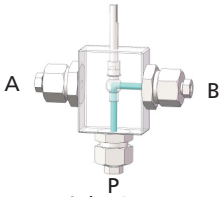




Closed

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.





Right Open

Ordering Number Description

15SBSS – MF6 – 6 – 2 – HTO – FNS4

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

10SB	
15SB	
20SB	

4P	S17400
SS	316SS

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

For 2-way	
4	1/4"
6	3/8"
For 3-way	
4	3/16"
6	3/8"

1	2-way Straight Valves
2	3-way Valves, 180° Turn
2D	3-way Valves, 90° Turn

FNS	Female NPT
US	Female SAE O-ring

4	1/4"
7	7/16"-20
8	1/2"

For 2-way, 3-way	
HTO	Hydraulic to open (Normally closed)
HTC	Hydraulic to closed (Normally open)
SH	180° Normally closed, single acting with spring return

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