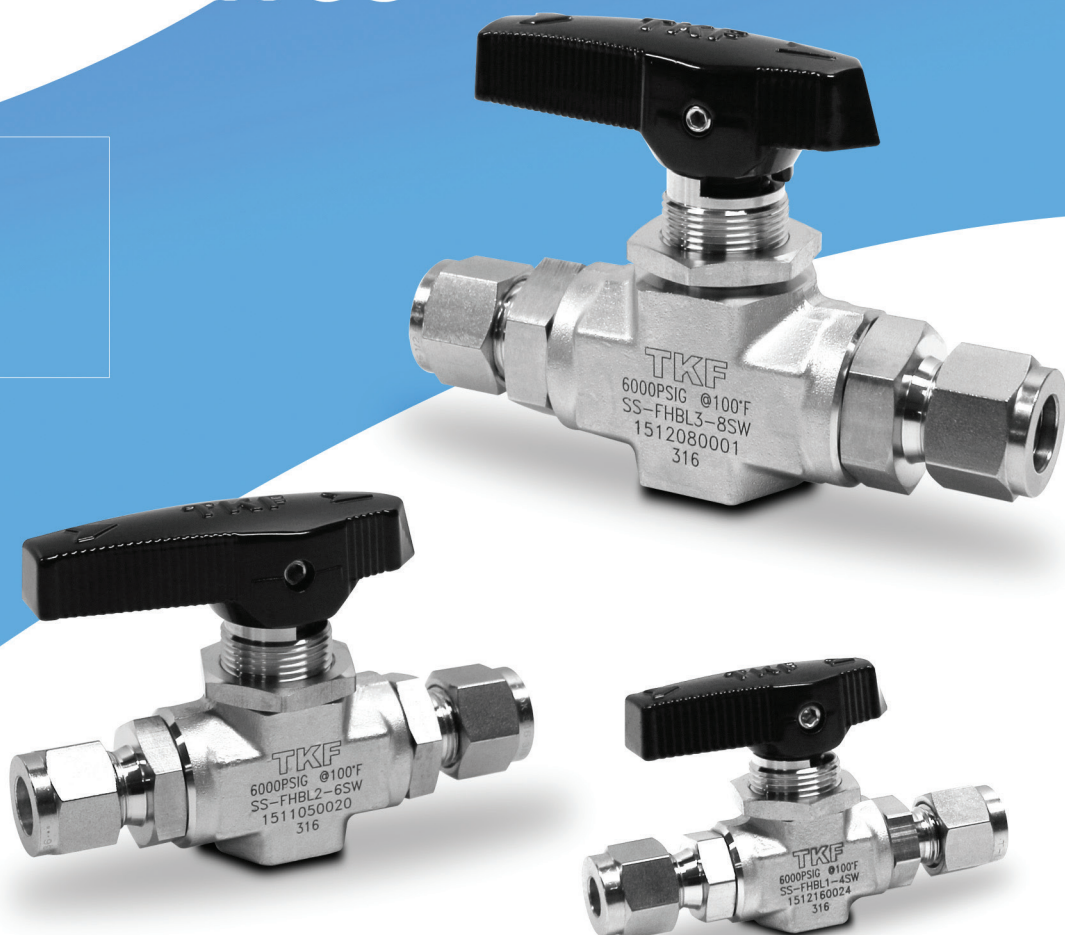


# Forged High Pressure Ball Valves



## FHBL SERIES

- Maximum Working Pressure :  
up to 6,000 psig (413bar) @ 70°F (21°C) with standard PCTFE seat
- Working Temperature Range :  
-63°F(-53°C) to 351°F (177°C) With standard PCTFE seat

## FEATURES

- Compact Design
- Low Operating Torques
- Panel Mountable
- Floating Ball Design

## TECHNICAL DATA

### SPECIFICATIONS

Body Material	316 SS/ A182
Port Connections	1/4" to 1/2"
Orifice	4.2mm to 10.3mm

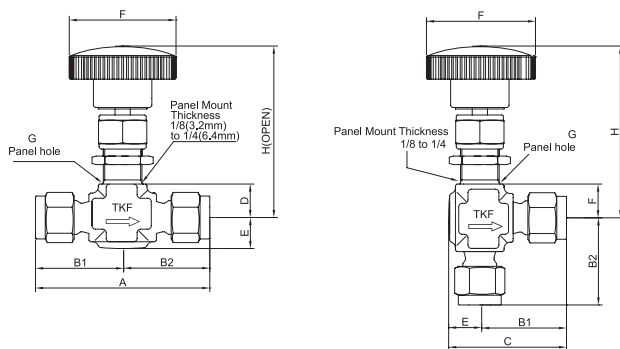
### SEAT MATERIAL VS TEMPERATURE AND PRESSURE RATING

Seat Material	TEMPERATURE RATING @ 100°F(38°C)	PRESSURE RATING @ 100°F(38°C)
PCTFE	-65 to 300°F (-54°C to 148°C)	6000psig(413bar)
PEEK	-65 to 450°F (-54°C to 232°C)	6000psig(413bar)
PTFE	-65 to 300°F (-54°C to 148°C)	1500psig(103bar)

## TESTING

For leakage, Each valve is tested with nitrogen at 1,000psig (69bar)  
 The leakage shall not exceed 0.1 std cc/min (Max. 0.1 std cc/min)

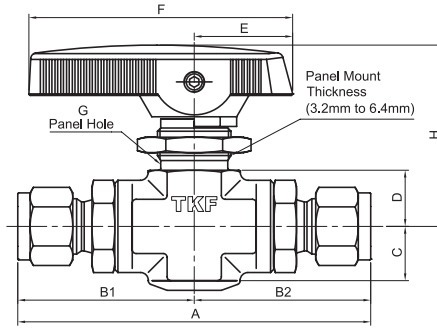
## MATERIALS OF CONSTRUCTION



No.	Description	Material
		Material Grade/ASTM Specification
1	Body	316 SS/A182
2	Stem	316 SS/A479
3	Ball	316 SS/A276
4	End Connection	316 SS/A479
5	End Connection Packing	PTFE
6	O-Ring	FKM
7	Seal Retainer	316 SS/A479
8	Ball Seat	Standard PCTFE(PEEK)
9	Lower Gland	PEEK
10	Lower Packing	PTFE
11	Upper Packing	PTFE
12	Upper Gland	316 SS/A276
13	Packing Bolt	316 SS/A479
14	Panel Nut	316 SS/A276
15	Handle	ADC12
16	Set Screw	304SS
17	Front Ferrule	316 SS/A276
18	Back Ferrule	316 SS/A276
19	Female Nut	316 SS/A276

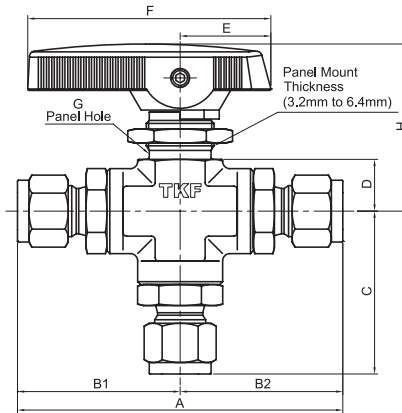
# DIMENSIONS

## 2-WAY VALVE



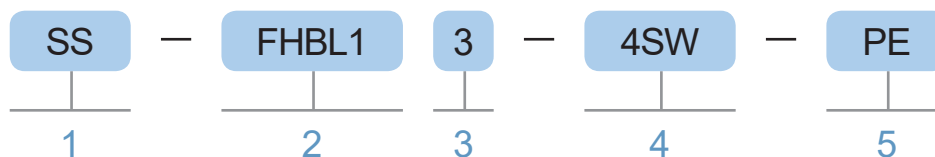
Ordering Number		Orifice in. (mm)	Cv	End Connections		Dimensions in. (mm)								
Series	Part No.			Inlet	Outlet	A	B1	B2	C	D	E	F	G	H
FHBL1	2SW	0.093(2.4)	0.21	1/8" Lok		2.94(74.7)	1.47(37.35)	1.47(37.35)	0.39 (10.0)	0.41 (10.5)	0.72 (18.3)	1.87 (47.5)	0.64 (16.3)	1.33 (33.8)
	4SW	0.165(4.2)	0.93	1/4" Lok		2.96(75.2)	1.48(37.6)	1.48(37.6)						
	3MSW	0.086(2.2)	0.21	3mm Lok		2.74(69.6)	1.37(34.8)	1.37(34.8)						
	2NM	0.165(4.2)	0.93	1/8" Male NPT		2.34(59.8)	1.17(29.9)	1.17(29.9)						
	4NM			1/4" Male NPT		2.7(68.6)	1.35(34.3)	1.35(34.3)						
2NF	1/8" Female NPT		2.14(54.4)	1.07(27.2)	1.07(27.2)									
FHBL2	4SW	0.189(4.8)	1.04	1/4" Lok		3.48(88.4)	1.74(44.2)	1.74(44.2)	0.55 (14.0)	0.57 (14.5)	1 (25.4)	2.67 (68.0)	0.77 (19.6)	1.84 (46.8)
	6SW	0.250(6.4)	2.34	3/8" Lok		3.60(91.6)	1.80(45.8)	1.80(45.8)						
	6MSW	0.189(4.8)	1.04	6mm Lok		3.50(89.0)	1.75(44.5)	1.75(44.5)						
	8MSW	0.250(6.4)	2.34	8mm Lok		3.56(90.4)	1.78(45.2)	1.78(45.2)						
	10MSW			10mm Lok		3.62(92.0)	1.81(46.0)	1.81(46.0)						
	4NM			1/4" Male NPT		3.23(82.2)	1.62(41.1)	1.62(41.1)						
	6NM			3/8" Male NPT		3.23(82.2)	1.62(41.1)	1.62(41.1)						
4NF	1/4" Female NPT			3.02(76.8)	1.51(38.4)	1.51(38.4)								
FHBL3	8SW	0.406(10.3)	6.42	1/2" Lok		4.67(118.8)	2.34(59.4)	2.34(59.4)	0.71 (18)	0.76 (19.3)	1.11 (28.2)	2.94 (74.7)	0.90 (22.9)	2.38 (60.5)
	12SW			3/4" Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)						
	12MSW	0.375(9.5)	5.57	12mm Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)						
	16MSW	0.406(10.3)	6.42	16mm Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)						
	8NM			1/2" Male NPT		4.44(112.8)	2.22(56.4)	2.22(56.4)						
	6NF			3/8" Female NPT		3.89(99.0)	1.95(49.5)	1.95(49.5)						
	8NF			1/2" Female NPT		4.30(109.2)	2.15(54.6)	2.15(54.6)						

## 3-WAY VALVE



Ordering Number		Orifice in. (mm)	Cv	End Connections		Dimensions in. (mm)								
Series	Part No.			Inlet	Outlet	A	B1	B2	C	D	E	F	G	H
FHBL13	2SW	0.093(2.4)	0.21	1/8" Lok		2.94(74.7)	1.47(37.35)	1.47(37.35)	1.44(36.5)	0.41 (10.5)	0.72 (18.3)	1.87 (47.5)	0.64 (16.3)	1.33 (33.8)
	4SW	0.165(4.2)	0.93	1/4" Lok		2.96(75.2)	1.48(37.6)	1.48(37.6)	1.55(39.6)					
	3MSW	0.086(2.2)	0.21	3mm Lok		2.74(69.6)	1.37(34.8)	1.37(34.8)	1.45(36.8)					
	2NM	0.165(4.2)	0.93	1/8" Male NPT		2.34(59.8)	1.17(29.9)	1.17(29.9)	1.26(31.9)					
	4NM			1/4" Male NPT		2.7(68.6)	1.35(34.3)	1.35(34.3)	1.43(36.3)					
2NF	1/8" Female NPT		2.14(54.4)	1.07(27.2)	1.07(27.2)	1.15(29.2)								
FHBL23	4SW	0.189(4.8)	1.04	1/4" Lok		3.48(88.4)	1.74(44.2)	1.74(44.2)	1.88(47.7)	0.57 (14.5)	1 (25.4)	2.67 (68.0)	0.77 (19.6)	1.84 (46.8)
	6SW	0.250(6.4)	2.34	3/8" Lok		3.60(91.6)	1.80(45.8)	1.80(45.8)	1.94(49.3)					
	6MSW	0.189(4.8)	1.04	6mm Lok		3.50(89.0)	1.75(44.5)	1.75(44.5)	1.89(48.0)					
	8MSW	0.250(6.4)	2.34	8mm Lok		3.56(90.4)	1.78(45.2)	1.78(45.2)	1.91(48.7)					
	10MSW			10mm Lok		3.62(92.0)	1.81(46.0)	1.81(46.0)	1.95(49.5)					
	4NM			1/4" Male NPT		3.23(82.2)	1.62(41.1)	1.62(41.1)	1.76(44.6)					
	6NM			3/8" Male NPT		3.23(82.2)	1.62(41.1)	1.62(41.1)	1.76(44.6)					
8NF	1/2" Female NPT			3.02(76.8)	1.51(38.4)	1.51(38.4)	1.65(41.9)							
FHBL33	8SW	0.406(10.3)	6.42	1/2" Lok		4.67(118.8)	2.34(59.4)	2.34(59.4)	2.68(68.1)	0.76 (19.3)	1.11 (28.2)	2.94 (74.7)	0.90 (22.9)	2.38 (60.5)
	12SW			3/4" Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)	2.67(67.9)					
	12MSW	0.375(9.5)	5.57	12mm Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)	2.67(67.9)					
	16MSW	0.406(10.3)	6.42	16mm Lok		4.66(118.4)	2.33(59.2)	2.33(59.2)	2.67(67.9)					
	8NM			1/2" Male NPT		4.44(112.8)	2.22(56.4)	2.22(56.4)	2.56(65.1)					
	6NF			3/8" Female NPT		3.89(99.0)	1.95(49.5)	1.95(49.5)	2.29(58.2)					
	8NF			1/2" Female NPT		4.30(109.2)	2.15(54.6)	2.15(54.6)	2.49(63.3)					

## ORDERING INFORMATION



### 1. BODY MATERIAL

Material	Designator
316 SS	SS

### 2. VALVE SERIES

Orifice Size	Designator
4.2mm	FHBL1
6.4mm	FHBL2
10.3mm	FHBL3

### 3. BODY PATTERN

Body Pattern	Designator
2-Way Straight (Standard)	Blank
3-Way	3

### 4. INLET/OUTLET CONNECTION SIZE & TYPE

Inlet/Outlet Connection Size	Designator
1/4"	4
3/8"	6
1/2"	8

### 5. SEAT MATERIAL

Seat Material	Designator
PCTFE	Blank
PEEK	PE
PTFE	PT

Inlet/Outlet Connection Type	Designator
Lok	SW
Male NPT	NM
Female NPT	NF
Male ISO® Tapered	PTM
Female ISO® Tapered	PTF

① Refer to specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.