

# Ball Valves

BF, BFH, BG, BH, BO, BP, BR, BRC,  
BV, BK and BU Series

Ball Valves  
Plug Valves



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## Important Information about Ball Valves

- ⦿ FITOK ball valves are designed to be used in fully open or fully closed position.
- ⦿ Packing adjustment may be required during the service life of the valve (except for BF, BFH and BU series).
- ⦿ For better quality maintenance, FITOK ball valves should be kept in fully open position in warehouse.
- ⦿ Valves that have not been actuated for a period of time may have a higher initial actuation torque.

# Hex Bar Stock Ball Valves

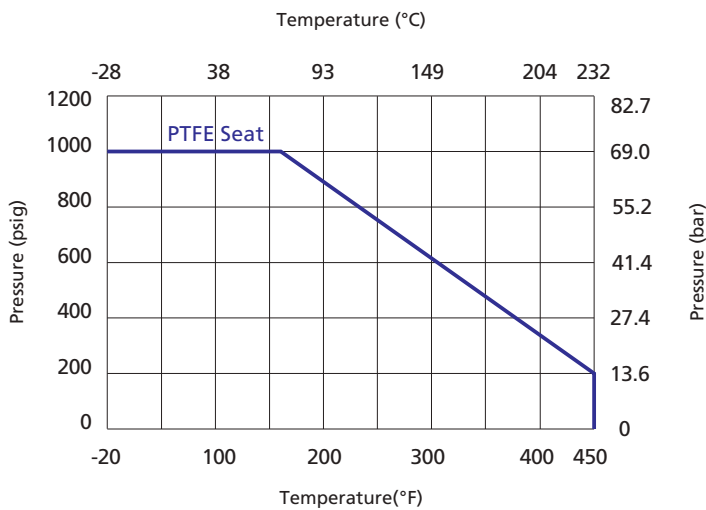
## BR Series

### Features

- Working pressure up to 1000 psig (69.0 bar)
- Working temperature: -20°F to 450°F (-28°C to 232°C)
- Compact and economical ball valve designed for industrial applications
- Blowout-proof stem minimizes the risk of valve failure due to stem displacement or loosening
- Free-floating ball design allows the ball to be pushed against the seat by fluid pressure, ensuring a tight and reliable seal
- Bidirectional flow
- Low-torque handle enables easy and smooth operation
- A variety of end connections available
- Handle color options available
- Each valve is tested for internal and external leakage using nitrogen or compressed air at rated working pressure before shipment



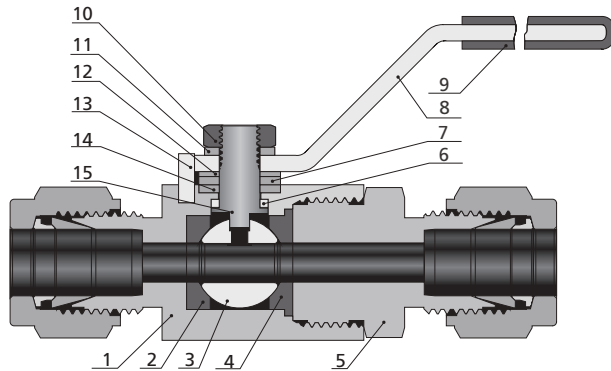
### Pressure vs. Temperature



## Standard Materials of Construction

### Bar Stock Body

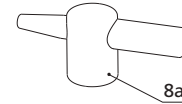
Ball Valves  
Plug Valves



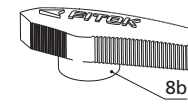
#### Handle Options



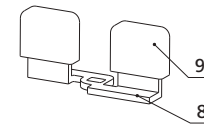
Lever Handle



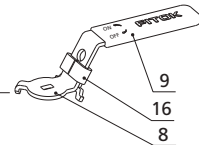
Aluminium Handle (-U)



Nylon Handle (-NY)



Butterfly Handle (-T)



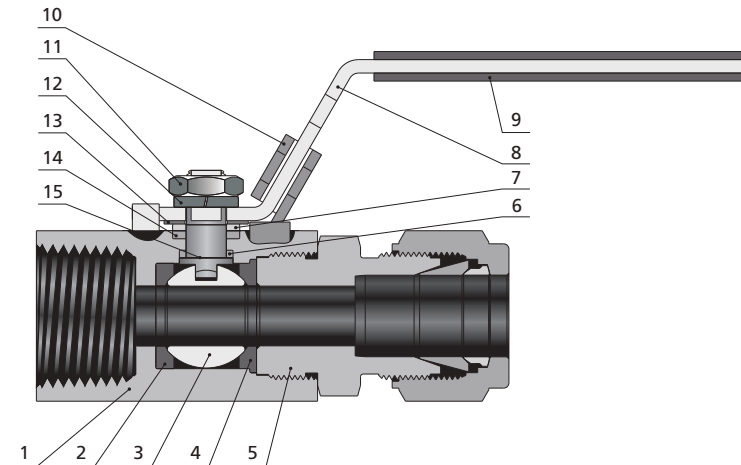
Handle with Locking Device 1 (-LB)

Item	Component	Material/Specification		
1	<i>Body</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>	<i>Brass C36000/B16</i>
2	<i>Front Seat</i>	<i>PTFE/D1710</i>		
3	<i>Ball</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>	<i>316 SS/A479</i>
4	<i>Back Seat</i>	<i>PTFE/D1710</i>		
5	<i>End Connection</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>	<i>Brass C36000/B16</i>
6	<i>Lower Packing</i>	<i>PTFE/D1710</i>		
7	Washer	316 SS/A479		
8	Handle	304 SS/A240		
8a		Aluminium		
8b		Nylon with 304 SS insert		
9	Sleeve	Vinyl ester		
10	Stem Nut	Stainless steel		
11	Gasket	Stainless steel		
12	Coned-disc Spring	S17700/A693		
13	Stop Pin <sup>①</sup>	Stainless steel		
14	<i>Upper Packing</i>	<i>PTFE/D1710</i>		
15	<i>Stem</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>	<i>316 SS/A479</i>
16	Lock Block	304 SS/A240		

Note: Wetted components are listed in italics.

① A handle with a locking device does not include a stop pin.

## Cast Body (When the valve has a handle with locking device 2)



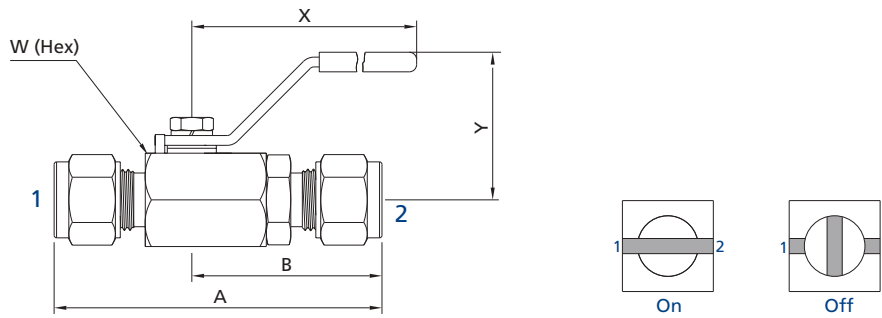
Item	Component	Material/Specification
1	<i>Body</i>	<i>CF8M/A351</i>
2	<i>Front Seat</i>	<i>PTFE/D1710</i>
3	<i>Ball</i>	<i>316 SS/A479</i>
4	<i>Back Seat</i>	<i>PTFE/D1710</i>
5	<i>End Connection</i>	<i>316 SS/A479</i>
6	<i>Lower Packing</i>	<i>PTFE/D1710</i>
7	Washer	316 SS/A479
8	Handle	304 SS/A240
9	Sleeve	Vinyl ester
10	Lock Block	304 SS/A240
11	Stem Nut	Stainless steel
12	Gasket	Stainless steel
13	Coned-disc Spring	S17700/A693
14	<i>Upper Packing</i>	<i>PTFE/D1710</i>
15	<i>Stem</i>	<i>316 SS/A479</i>

Notes: 1. Wetted components are listed in italics.

2. The standard models listed in this catalog feature a two-piece construction. However, due to the impact of connection types and orifice sizes, some models may have a three-piece construction. Please refer to the sales drawing for details.

## Dimensions

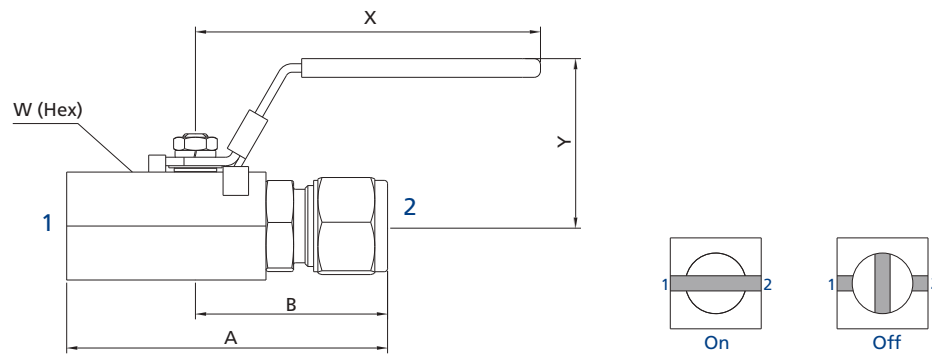
### Bar Stock Body



Basic Ordering Number	Connection Type and Size Connection 1/2	Orifice in. (mm)	Cv	Dimensions, in. (mm)				
				A	B	W	X	Y
BR□□-ML6-05	6 mm FITOK	0.19 (4.8)	1.25	2.57 (65.2)	1.50 (38.1)	3/4 (19.05)	2.36 (60)	1.18 (30)
BR□□-ML8-05	8 mm FITOK			2.63 (66.8)	1.53 (38.8)			
BR□□-FL4-05	1/4" FITOK			2.57 (65.2)	1.50 (38.1)			
BR□□-FL5-05	5/16" FITOK			2.63 (66.8)	1.53 (38.8)			
BR□□-FNS2-05	1/8 Female NPT			1.85 (47.0)	1.08 (27.4)			
BR□□-FRP2-05	1/8 Female BSPP			2.00 (50.0)	1.14 (29.0)			
BR□□-FRP4-05	1/4 Female BSPP			2.00 (50.0)	1.14 (29.0)			
BR□□-FNS4-05	1/4 Female NPT			1.85 (47.0)	1.08 (27.4)			
BR□□-ML10-07	10 mm FITOK	0.28 (7.1)	2.50	2.87 (72.9)	1.68 (42.7)	7/8 (22.23)	2.36 (60)	1.26 (32)
BR□□-FL6-07	3/8" FITOK			2.03 (51.6)	1.18 (30.0)			
BR□□-FRP6-07	3/8 Female BSPP			2.03 (51.6)	1.18 (30.0)			
BR□□-FNS6-07	3/8 Female NPT	0.35 (8.9)	5.30	3.15 (80.0)	1.83 (46.5)	1 1/16 (27.0)	3.15 (80)	1.54 (39)
BR□□-ML14-10	14 mm FITOK			3.24 (82.2)	1.87 (47.5)			
BR□□-FL8-10	1/2" FITOK			3.15 (80.0)	1.83 (46.5)			
BR□□-FL10-10	5/8" FITOK			3.24 (82.2)	1.87 (47.5)			
BR□□-FRP8-10	1/2 Female BSPP			2.08 (53.0)	1.12 (28.5)	15/16 (24.0)		
BR□□-FNS8-10	1/2 Female NPT			2.08 (53.0)	1.12 (28.5)			
BR□□-ML16-13	16 mm FITOK	0.47 (12.0)	8.60	3.50 (88.9)	2.00 (50.8)	1 1/4 (31.75)	3.94 (100)	2.03 (51.7)
BR□□-ML18-13	18 mm FITOK			2.48 (63.0)	1.30 (33.0)			
BR□□-FL12-13	3/4" FITOK			2.39 (60.7)	1.20 (30.5)			
BR□□-FRP12-13	3/4 Female BSPP			2.39 (60.7)	1.20 (30.5)			
BR□□-FNS12-13	3/4 Female NPT	0.63 (16.0)	17.35	3.96 (100.6)	2.24 (56.8)	1 1/2 (38.1)	3.94 (100)	2.15 (54.8)
BR□□-ML22-16	22 mm FITOK			4.31 (109.5)	2.42 (61.5)			
BR□□-ML25-16	25 mm FITOK			3.25 (82.6)	1.63 (41.3)			
BR□□-FL16-16	1" FITOK			3.00 (76.5)	1.50 (38.1)			
BR□□-FRP16-16	1 Female BSPP			3.00 (76.5)	1.50 (38.1)			
BR□□-FNS16-16	1 Female NPT			3.00 (76.5)	1.50 (38.1)			

1. FITOK means FITOK double ferrule tube fittings.
2. Sizes and types listed are standard. Other sizes and types are available upon request, please contact FITOK Group or our authorized distributors.
3. Dimensions are shown with FITOK tube fitting nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

## Cast Body



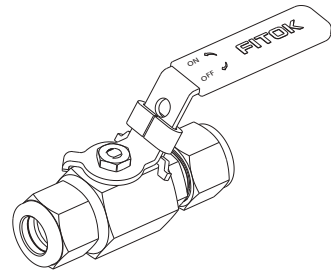
Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)				
	Connection 1	Connection 2			A	B	W	X	Y
BRSS-FNS6-07-L	3/8" Female NPT	3/8" Female NPT	0.28 (7.1)	2.5	2.03 (51.6)	1.19 (30.1)	7/8 (22.23)	2.40 (61.2)	1.25 (31.8)
BRSS-FNS6-FL6-07-L	3/8" Female NPT	3/8" FITOK			2.53 (64.2)	1.68 (42.7)			
BRSS-FNS8-10-L	1/2" Female NPT	1/2" Female NPT	0.35 (8.9)	5.3	2.08 (52.8)	1.08 (27.5)	1 (25.4)	3.20 (81.2)	1.56 (39.6)
BRSS-FNS8-FL8-10-L	1/2" Female NPT	1/2" FITOK			2.78 (70.5)	1.78 (45.2)			
BRSS-FNS12-13-L	3/4" Female NPT	3/4" Female NPT	0.47 (12.0)	8.6	2.39 (60.6)	1.21 (30.6)	1 1/4 (31.75)	3.80 (96.4)	1.93 (48.9)
BRSS-FNS12-FL12-13-L	3/4" Female NPT	3/4" FITOK			3.19 (80.9)	2.00 (50.9)			
BRSS-FNS16-16-L	1" Female NPT	1" Female NPT	0.63 (16.0)	17.35	3.78 (96)	2.28 (57.8)	1 1/2 (38.1)		2.05 (52.1)
BRSS-FNS16-FL16-16-L	1" Female NPT	1" FITOK			3.92 (99.6)	2.42 (61.4)			

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3. Dimensions are shown with FITOK tube fitting nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

## Locking Device

### Locking Device 1 (-LB)

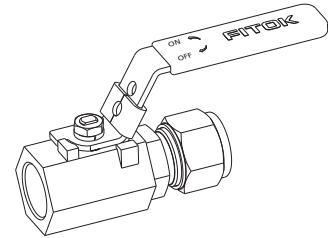
Body Material	Orifice	Locking Hole Diameter in. (mm)	Example
A variety of optional materials (bar stock)	05	0.19 (4.8)	BRSS-ML12-10-LB
	07		
	10	0.24 (6.2)	
	13		
	16		



Locking Device 1

### Locking Device 2 (-L)

Body Material	Orifice	Locking Hole Diameter in. (mm)	Example
CF8M (cast)	07	0.19 (4.8)	BRSS-FNS8-10-L
	10		
	13	0.22 (5.7)	
	16		



Locking Device 2

Note: The locking device is only applicable to lever handles. For other handle types requiring a locking device, please contact FITOK Group or our authorized distributors.

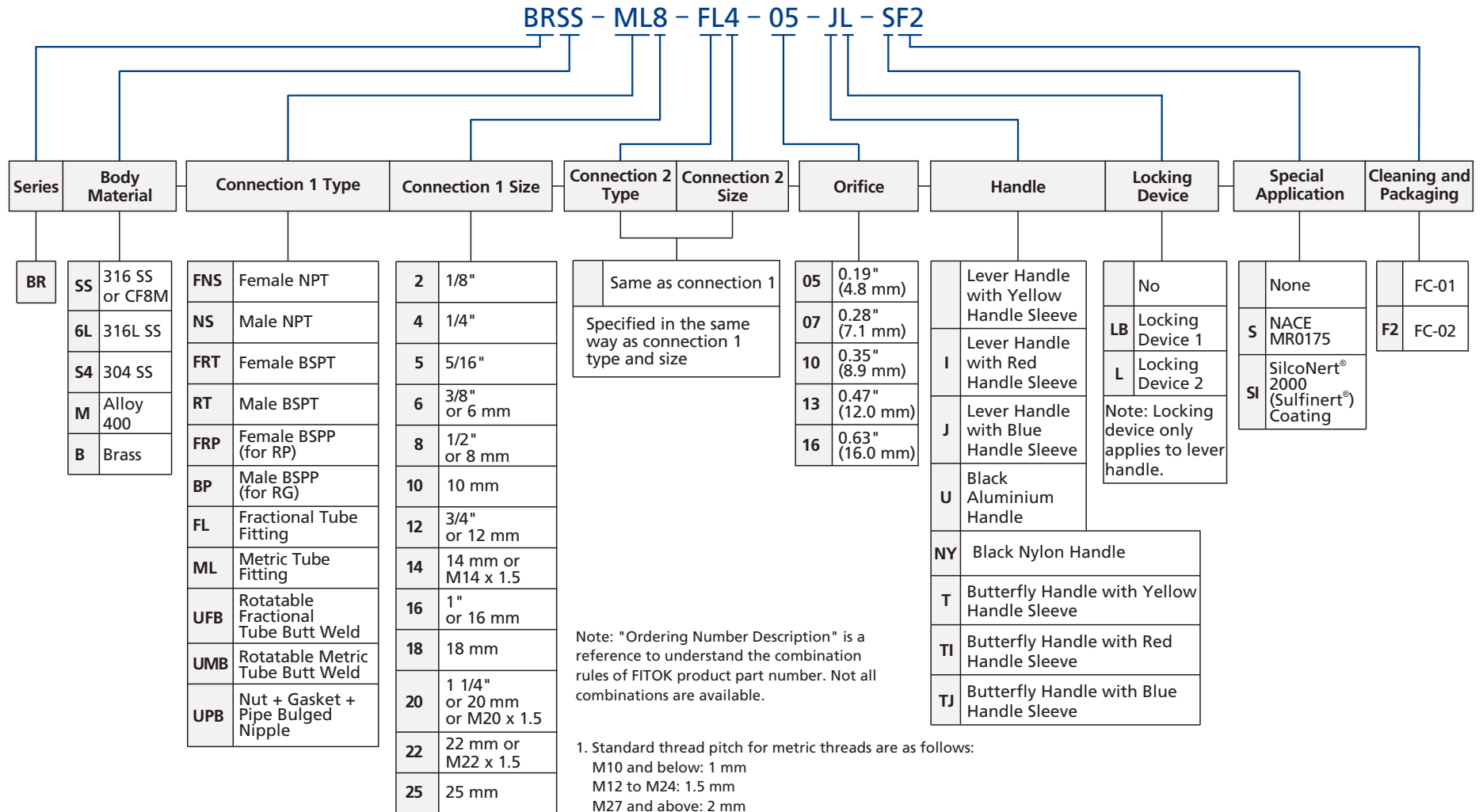
## Seal Kits

Valve Orifice	Basic Seal Kit Ordering Number	Content
05	BRSS-05-RK	Front seat, back seat, ball, lower packing, upper packing, instructions
07	BRSS-07-RK	
10	BRSS-10-RK	
13	BRSS-13-RK	
16	BRSS-16-RK	

1. Seal kit components are the same materials and grades listed in materials of construction.
2. The listed basic seal kit ordering numbers specify 316 stainless steel material. To order kits with other materials, such as 304 stainless steel material, replace "SS" with "S4" in the ordering number.  
Example: BRSS4-05-RK



# Ordering Number Description



Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Standard thread pitch for metric threads are as follows:  
 M10 and below: 1 mm  
 M12 to M24: 1.5 mm  
 M27 and above: 2 mm  
 Standard thread pitch should be omitted in the ordering number, others should be specified.
- For oxygen-enriched environment or hazardous media service, contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:  
 FC-01: Standard cleaning and packaging for general industrial procedures.  
 FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleaning requirement of ASTM G93 Level C.
- SilcoNert® 2000 (Sulfinert®) Coating: Wetted metal components SilcoNert® 2000 (Sulfinert®) coated.

# Hex Bar Stock Ball Valves

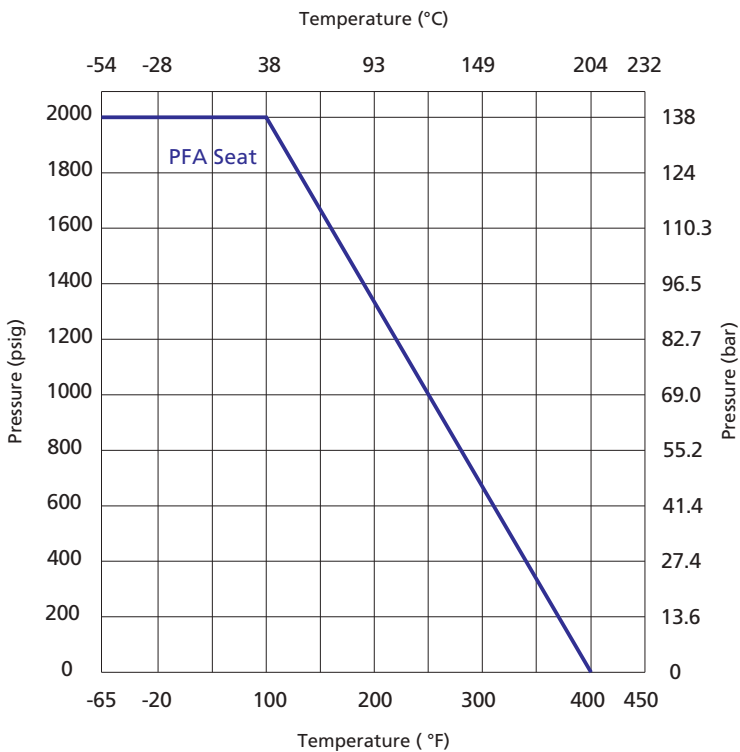
## BRC Series

### Features

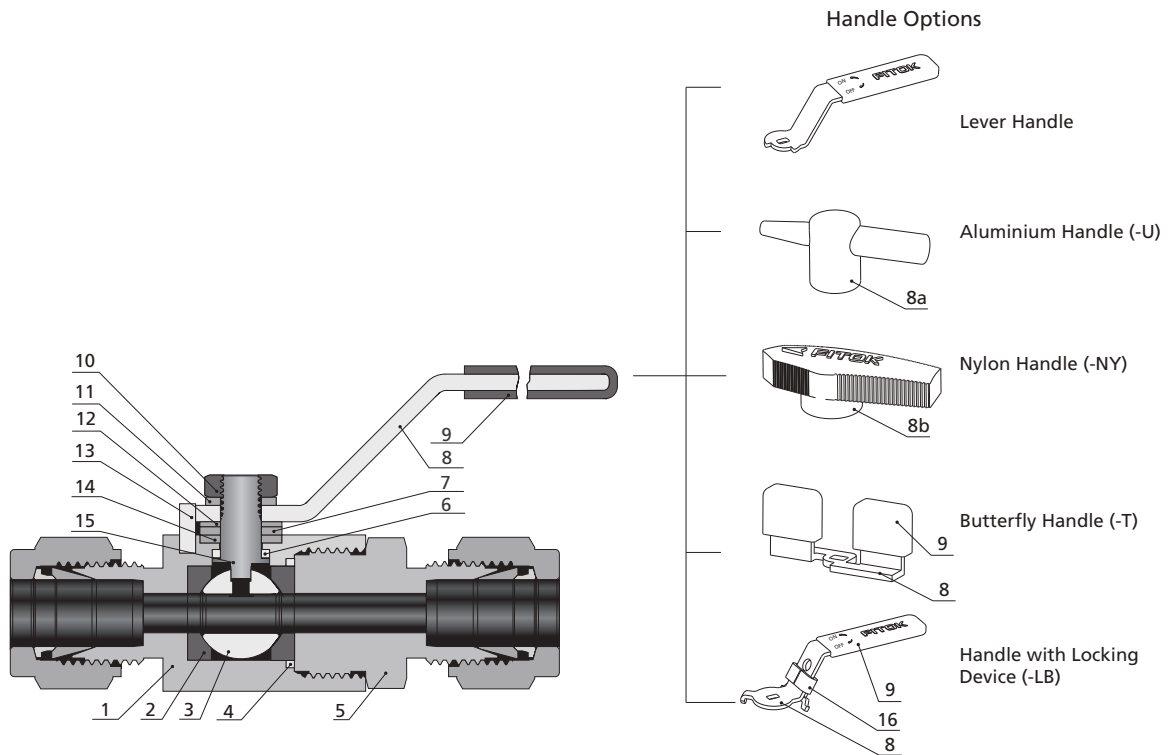
- ⦿ Working pressure up to 2000 psig (138 bar)
- ⦿ Working temperature: -65°F to 400°F (-54°C to 204°C)
- ⦿ Compact and economical ball valve designed for industrial applications
- ⦿ Blowout-proof stem minimizes the risk of valve failure due to stem displacement or loosening
- ⦿ Free-floating ball design allows the ball to be pushed against the seat by fluid pressure, ensuring a tight and reliable seal
- ⦿ Bidirectional flow
- ⦿ Low-torque handle enables easy and smooth operation
- ⦿ A variety of end connections available
- ⦿ Handle color options available
- ⦿ Each valve is tested for internal and external leakage using nitrogen or compressed air at rated working pressure before shipment



### Pressure vs. Temperature



## Standard Materials of Construction



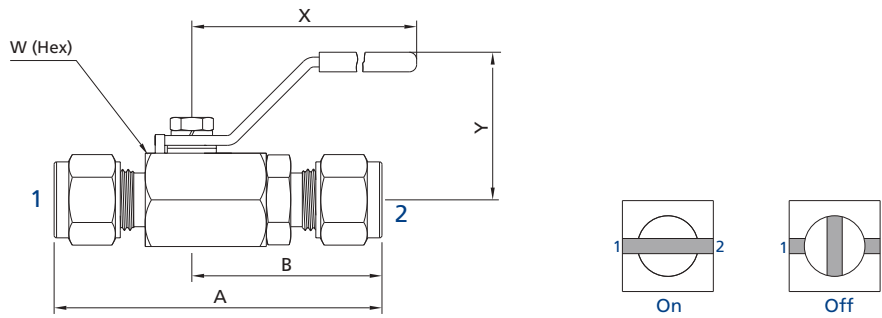
Ball Valves  
Plug Valves

Item	Component	Material/Specification	
1	<i>Body</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>
2	<i>Seat</i>	<i>PFA/D3307</i>	
3	<i>Ball</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>
4	<i>Sealing Gasket</i>	<i>316L SS/A269</i>	<i>Alloy 400/B164</i>
5	<i>End Connection</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>
6	<i>Lower Packing</i>	<i>PTFE/D1710</i>	
7	<i>Washer</i>	<i>316 SS/A479</i>	
8	Handle	<i>304 SS/A240</i>	
8a		Aluminium	
8b		Nylon with 304 SS insert	
9	Sleeve	Vinyl ester	
10	Stem Nut	Stainless steel	
11	Gasket	Stainless steel	
12	Coned-disc Spring	S17700/A693	
13	Stop Pin <sup>①</sup>	Stainless steel	
14	<i>Upper Packing</i>	<i>PTFE/D1710</i>	
15	<i>Stem</i>	<i>316 SS/A479</i>	<i>Alloy 400/B164</i>
16	Lock Block	304 SS/A240	

Note: Wetted components are listed in italics.

① A handle with a locking device does not include a stop pin.

## Dimensions



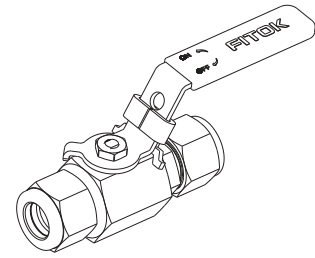
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimensions, in. (mm)				
				A	B	W	X	Y
BRC□□-ML6-05	6 mm FITOK	0.19 (4.8)	1.25	2.57 (65.2)	1.50 (38.1)	3/4 (19.05)	2.36 (60)	1.18 (30)
BRC□□-ML8-05	8 mm FITOK			2.63 (66.8)	1.53 (38.8)			
BRC□□-FL4-05	1/4" FITOK			2.57 (65.2)	1.50 (38.1)			
BRC□□-FL5-05	5/16" FITOK			2.63 (66.8)	1.53 (38.8)			
BRC□□-FNS2-05	1/8 Female NPT			1.85 (47.0)	1.08 (27.4)			
BRC□□-FRP2-05	1/8 Female BSPP			2.00 (50.0)	1.14 (29.0)			
BRC□□-FRP4-05	1/4 Female BSPP			2.00 (50.0)	1.14 (29.0)			
BRC□□-FNS4-05	1/4 Female NPT			1.85 (47.0)	1.08 (27.4)			
BRC□□-ML10-07	10 mm FITOK	0.28 (7.1)	2.50	2.87 (72.9)	1.68 (42.7)	7/8 (22.23)	2.36 (60)	1.26 (32)
BRC□□-FL6-07	3/8" FITOK			2.03 (51.6)	1.18 (30.0)			
BRC□□-FRP6-07	3/8 Female BSPP			2.03 (51.6)	1.18 (30.0)			
BRC□□-FNS6-07	3/8 Female NPT	0.35 (8.9)	5.30	3.15 (80.0)	1.83 (46.5)	1 1/16 (27.0)	3.15 (80)	1.54 (39)
BRC□□-ML12-10	12 mm FITOK			3.24 (82.2)	1.87 (47.5)			
BRC□□-ML14-10	14 mm FITOK			3.15 (80.0)	1.83 (46.5)			
BRC□□-FL8-10	1/2" FITOK			3.24 (82.2)	1.87 (47.5)			
BRC□□-FL10-10	5/8" FITOK			2.08 (53.0)	1.12 (28.5)	15/16 (24.0)		
BRC□□-FRP8-10	1/2 Female BSPP			2.08 (53.0)	1.12 (28.5)			
BRC□□-FNS8-10	1/2 Female NPT	0.47 (12.0)	8.60	3.50 (88.9)	2.00 (50.8)	1 1/4 (31.75)	3.94 (100)	2.03 (51.7)
BRC□□-ML16-13	16 mm FITOK			3.13 (79.5)	1.95 (49.5)			
BRC□□-ML18-13	18 mm FITOK			3.13 (79.5)	1.95 (49.5)			
BRC□□-FL12-13	3/4" FITOK			3.96 (100.6)	2.24 (56.8)	1 1/2 (38.1)		
BRC□□-FRP12-13	3/4 Female BSPP			4.31 (109.5)	2.42 (61.5)			
BRC□□-FNS12-13	3/4 Female NPT	3.68 (93.4)	2.14 (54.3)					
BRC□□-ML22-16	22 mm FITOK	3.43 (87.1)	2.01 (51.1)					
BRC□□-ML25-16	25 mm FITOK	0.63 (16.0)	17.35	4.31 (109.5)	2.42 (61.5)	1 1/2 (38.1)	3.94 (100)	2.15 (54.8)
BRC□□-FL16-16	1" FITOK			3.68 (93.4)	2.14 (54.3)			
BRC□□-FRP16-16	1 Female BSPP			3.43 (87.1)	2.01 (51.1)			
BRC□□-FNS16-16	1 Female NPT			3.43 (87.1)	2.01 (51.1)			

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3. Dimensions are shown with FITOK tube fitting nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

## Locking Device

### Locking Device (-LB)

Body Material	Orifice	Locking Hole Diameter in. (mm)	Example
A variety of optional materials (bar stock)	05	0.19 (4.8)	BRCSS-ML12-10-LB
	07		
	10	0.24 (6.2)	
	13		
	16		



Locking Device

Note: The locking device is only applicable to lever handles. For other handle types requiring a locking device, please contact FITOK Group or our authorized distributors.

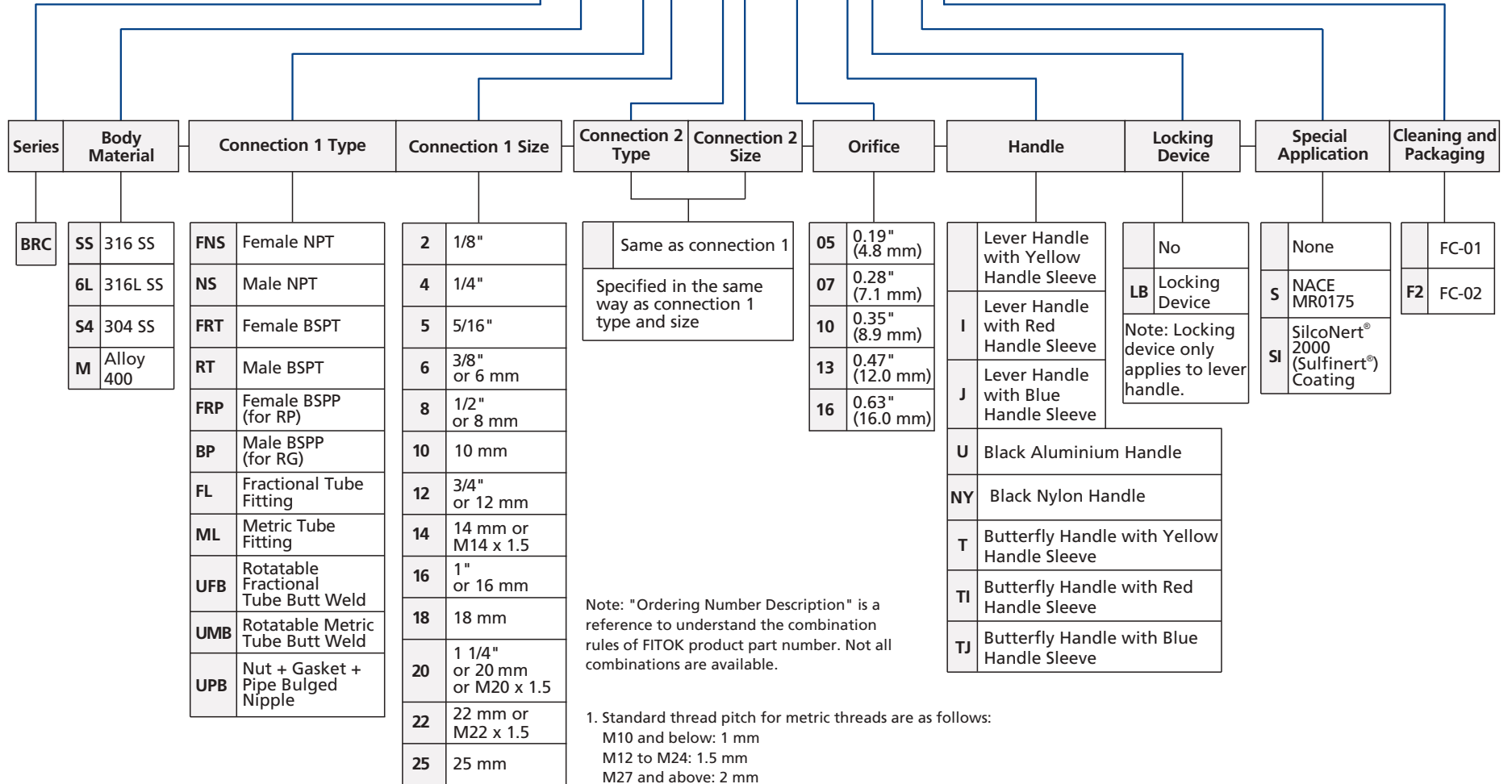
## Seal Kits

Valve Orifice	Basic Seal Kit Ordering Number	Content
05	BRCSS-05-RK	Seat, sealing gasket, ball, lower packing, upper packing, instructions
07	BRCSS-07-RK	
10	BRCSS-10-RK	
13	BRCSS-13-RK	
16	BRCSS-16-RK	

1. Seal kit components are the same materials and grades listed in materials of construction.
2. The listed basic seal kit ordering numbers specify 316 stainless steel material. To order kits with other materials, such as 304 stainless steel material, replace "SS" with "S4" in the ordering number.  
Example: BRCSS4-05-RK

# Ordering Number Description

**BRCSS - ML8 - FL4 - 05 - JLB - SF2**



Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Standard thread pitch for metric threads are as follows:  
M10 and below: 1 mm  
M12 to M24: 1.5 mm  
M27 and above: 2 mm  
Standard thread pitch should be omitted in the ordering number, others should be specified.
- For oxygen-enriched environment or hazardous media service, contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:  
FC-01: Standard cleaning and packaging for general industrial procedures.  
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleaning requirement of ASTM G93 Level C.
- SilcoNert® 2000 (Sulfinert®) Coating: Wetted metal components SilcoNert® 2000 (Sulfinert®) coated.