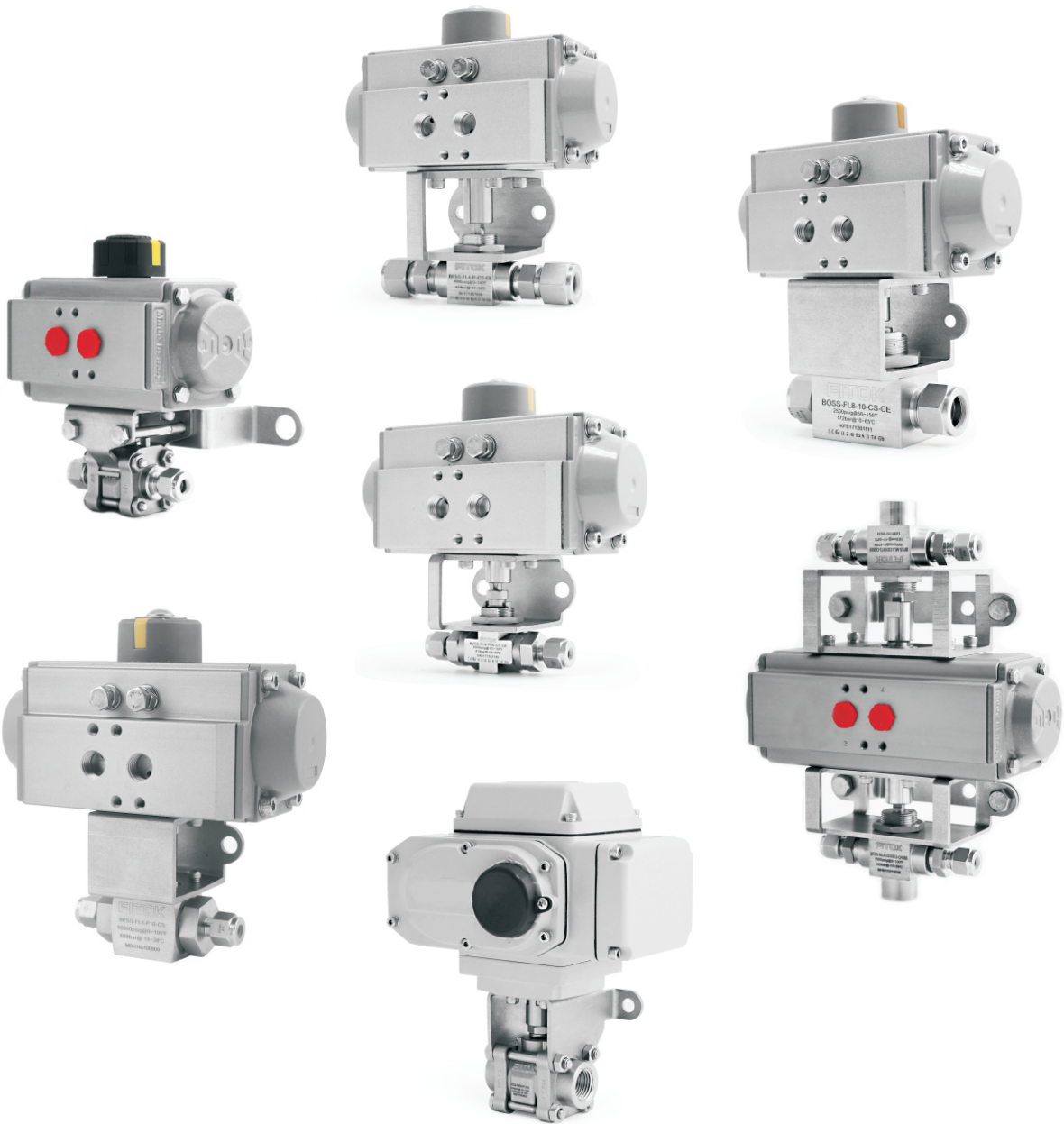


Automatic Control Ball Valves

BF, BFH, BH, BO, BP, BV Series

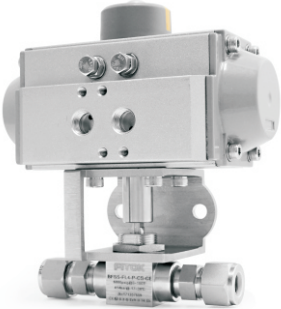
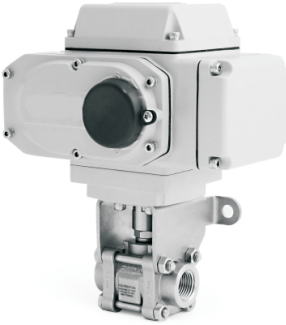


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Automatic Control Ball Valves

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Automatic Control Ball Valves

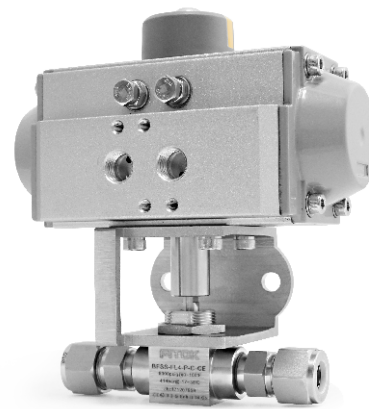
Suitable for BF, BFH, BH, BO, BP, BV Series Ball Valves

Available with pneumatic and electric actuation options

Pneumatically Actuated Ball Valves

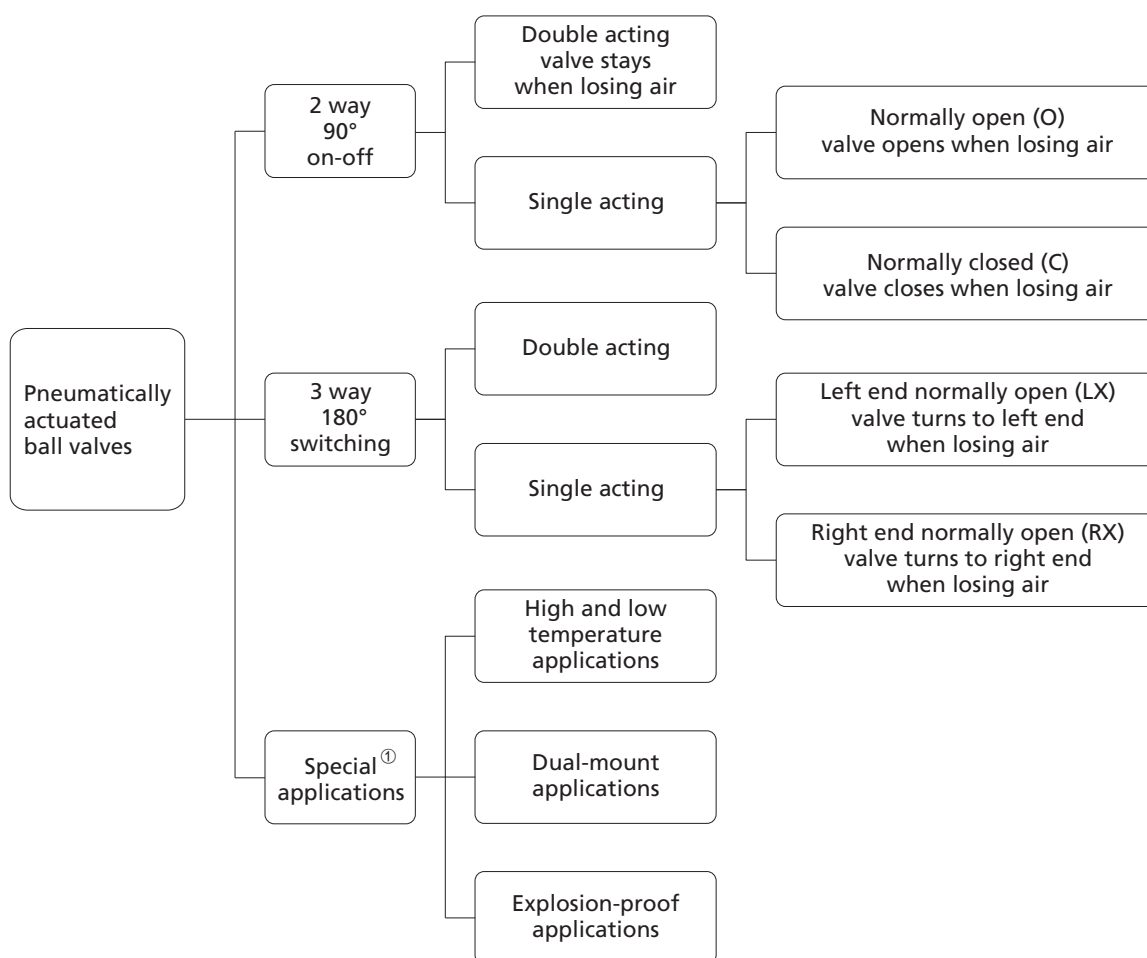
Features

- NPS: 1/8~2
- Medium working pressure up to 10,000 psig (690 bar). Actual working pressure available in *Ball Valves* catalog
- Medium temperature range: -65°F to 450°F (-54°C to 232°C). Actual temperature range available in *Ball Valves* catalog
- Air supply pressure as low as 87 psig (6 bar) with low air consumption
- Top indicator shows valve status
- With interfaces that meet ISO 5211, NAMUR, and VDI/VDE 3845 standards
- Available factory assembled or in kits for field assembly
- A variety of explosion-proof products with certification available



BF series pneumatic ball valve

Product Range



Note: ① For special applications, please contact FITOK.

Pneumatic Actuator Operating Conditions

1. Air source

- ⦿ Dry and clean compressed air

2. Air supply pressure

- ⦿ Recommended pressure: 87 psig (6 bar)
- ⦿ Maximum pressure: 116 psig (8 bar)
- ⦿ For other air supply pressures, contact FITOK

3. Working temperature

- ⦿ Working temperature of 2-way ball valve pneumatic actuator: 5°F to 176°F (-15°C to 80°C)
- ⦿ Working temperature of 3-way ball valve pneumatic actuator: -4°F to 176°F (-20°C to 80°C)
- ⦿ Please contact FITOK for other working temperatures

4. Lubrication

- ⦿ Factory lubricated for the life of actuator under normal working conditions

5. Installation

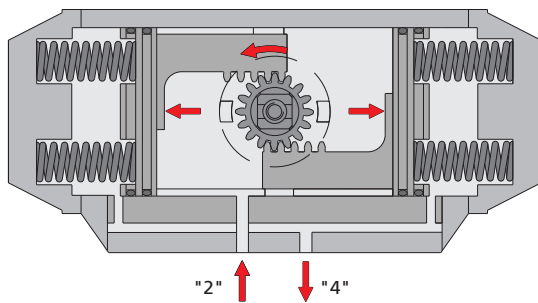
- ⦿ The actuator can be installed at any orientation indoors or outdoors

6. Opening and Closing Speed

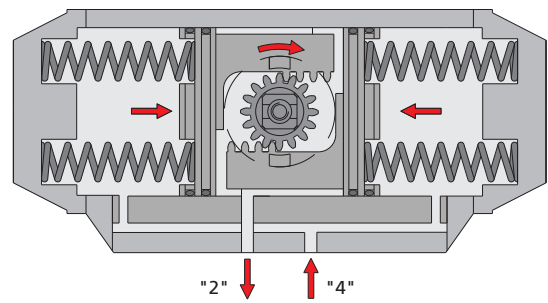
- ⦿ From open to close: ≤ 1 second
- From close to open: ≤ 1 second

Pneumatic Actuator Operating Principle

Single Acting Actuator

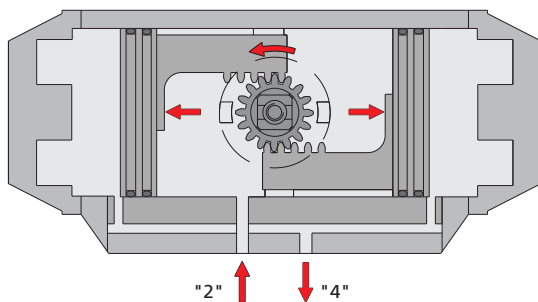


Air to port 2 forces the pistons to move toward the end caps, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port 4.

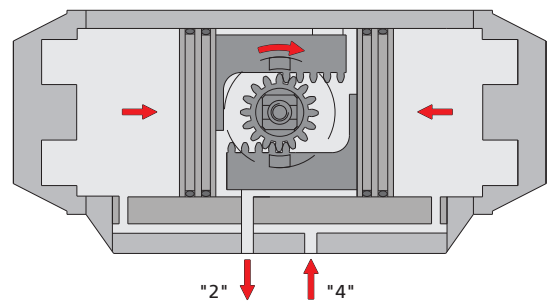


Following loss of air pressure on port 2, the stored energy in the springs forces the pistons to move toward the center. The pinion turns clockwise while air is being exhausted from port 2.

Double Acting Actuator



Air to port 2 forces the pistons to move toward the end caps, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port 4.



Air to port 4 forces the pistons to move toward the end caps, causing the springs to compress. The pinion turns clockwise while air is being exhausted from port 2.

Ordering Information

- ☉ Pneumatically Actuated Ball Valve Assembly, includes the pneumatic actuator, the mounting kit and the AM ball valve

To order,

- Select an applicable ball valve from *Ball Valves* catalog.
- Select the actuator type based on the required valve state after air loss.

Table 1

Type	2-way Valve	3-way Valve
Normally Closed	C	-
Normally Open	O	-
Double Acting	D	DX
Left End Normally Open	-	LX
Right End Normally Open	-	RX
Example	BHSS-FL8-10-C	BHSS-FL8-10-DX3

Refer to *Ball Valves* catalog for more information.

- ☉ PBK Assembly, includes actuator bracket, coupling, AM ball valve, fastener and Installation instructions

To order, select a kit ordering number from **Table 2**, page 4-5.

- ☉ Pneumatic Actuator

To order, select a pneumatic actuator ordering number from **Table 2**, page 4-5.

- ☉ Mounting Kit, includes the bracket, coupling, bolts and spring washer

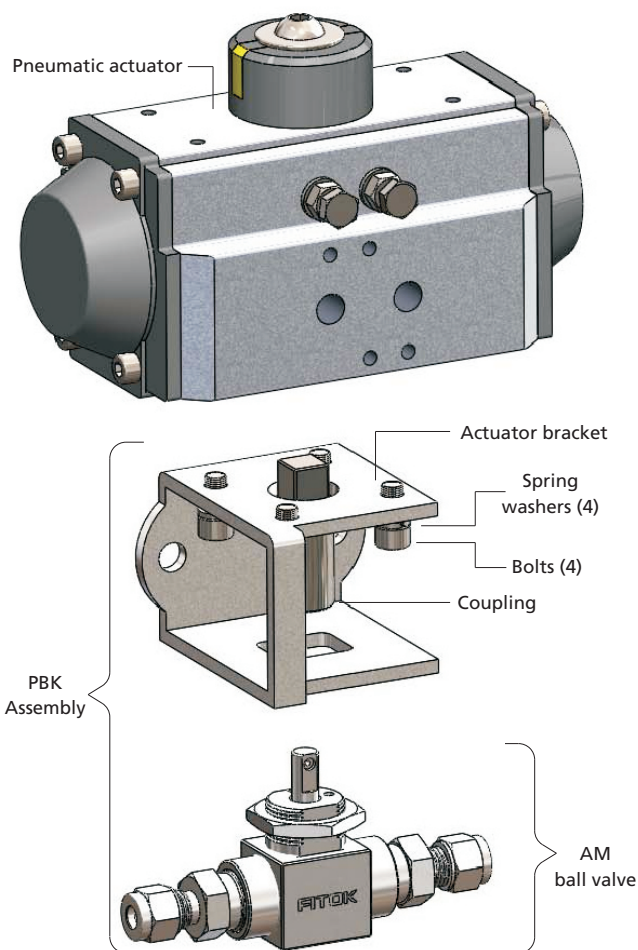
- ☉ AM Ball Valve is a ball valve without handle

To order, add -AM as a suffix to the ordering number

Example: BHSS-FL8-10-AM

Refer to **Table 2** on page 4-5 for more information.

Note: Improper alignment of the assembly and improper support may cause leakage or premature valve failure.



BF series pneumatically actuated ball valve (exploded view)

Table 2												
Valve Series & Code	Diameter Code	Ball Valve	Actuator Code		PBK Mounting Kit		Pneumatic Actuator ^①		AM Ball Valve	Ball Valve ^{②③} Max Torque (N·m)		
			Single Acting	Double Acting	Single Acting	Double Acting	Single Acting	Double Acting				
2-way valves												
BF	-	BF□□-□□-□	C/O	D	BF□□-□□-□-F05-11	BF□□-□□-□-F05-11	AL-S90-8	AL-D90-20	BF□□-□□-□-AM	3.4		
BFH	-	BFH□□-□□-□			BFH□□-□□-□-F05-11	BFH□□-□□-□-F05-11			BFH□□-□□-□-AM	5		
BH	05	BH□□-□□-□05			BH□□-□□-□05-F03-11	BH□□-□□-□05-F03-11			BH□□-□□-□05-AM	2		
	07	BH□□-□□-□07			BH□□-□□-□07-F03-11	BH□□-□□-□07-F03-11					BH□□-□□-□07-AM	
	10	BH□□-□□-□10			BH□□-□□-□10-F05-14	BH□□-□□-□10-F05-11	AL-S90-17	BH□□-□□-□10-AM	10.5			
	13	BH□□-□□-□13			BH□□-□□-□13-F05-14	BH□□-□□-□13-F05-11		BH□□-□□-□13-AM				
	22	BH□□-□□-□22			BH□□-□□-□22-F05-14	BH□□-□□-□22-F05-11	AL-S90-24	BH□□-□□-□22-AM	20			
	29	BH□□-□□-□29			BH□□-□□-□29-F07-17	BH□□-□□-□29-F07-14	AL-S90-35	AL-D90-41	BH□□-□□-□29-AM	30		
	32	BH□□-□□-□32			BH□□-□□-□32-F07-17	BH□□-□□-□32-F07-14			BH□□-□□-□32-AM			
	38	BH□□-□□-□38			BH□□-□□-□38-F07-17	BH□□-□□-□38-F07-14			BH□□-□□-□38-AM			
BO	00	BO□□-□□-□00			BO□□-□□-□00-F03-11	BO□□-□□-□00-F03-11	AL-S90-8	AL-D90-20	BO□□-□□-□00-AM	1.7		
	01	BO□□-□□-□01			BO□□-□□-□01-F03-11	BO□□-□□-□01-F03-11			BO□□-□□-□01-AM			
	02	BO□□-□□-□02			BO□□-□□-□02-F03-11	BO□□-□□-□02-F03-11			BO□□-□□-□02-AM			
	03	BO□□-□□-□03			BO□□-□□-□03-F03-11	BO□□-□□-□03-F03-11			BO□□-□□-□03-AM			
	05	BO□□-□□-□05			BO□□-□□-□05-F03-11	BO□□-□□-□05-F03-11			BO□□-□□-□05-AM	4.6		
	07	BO□□-□□-□07			BO□□-□□-□07-F03-11	BO□□-□□-□07-F03-11			BO□□-□□-□07-AM	5.7		
	10	BO□□-□□-□10			BO□□-□□-□10-F05-14	BO□□-□□-□10-F05-11			AL-S90-17	BO□□-□□-□10-AM	11.2	
	BP	10			BP□□-□□-□10	BP□□-□□-□10-F05-14			BP□□-□□-□10-F05-11	AL-S90-17	AL-D90-20	BP□□-□□-□10-AM
13		BP□□-□□-□13			BP□□-□□-□13-F05-14	BP□□-□□-□13-F05-11	BP□□-□□-□13-AM	10				
19		BP□□-□□-□19			BP□□-□□-□19-F05-14	BP□□-□□-□19-F05-11	AL-S90-35	AL-D90-41	BP□□-□□-□19-AM	15.9		
BV	02	BV□□-□□-□02			BV□□-□□-□02-F03-11	BV□□-□□-□02-F03-11	AL-S90-8	AL-D90-20	BV□□-□□-□02-AM	2		
	03	BV□□-□□-□03			BV□□-□□-□03-F03-11	BV□□-□□-□03-F03-11			BV□□-□□-□03-AM			
	04	BV□□-□□-□04			BV□□-□□-□04-F03-11	BV□□-□□-□04-F03-11			BV□□-□□-□04-AM			
	05	BV□□-□□-□05			BV□□-□□-□05-F03-11	BV□□-□□-□05-F03-11			BV□□-□□-□05-AM	4		
	06	BV□□-□□-□06			BV□□-□□-□06-F03-11	BV□□-□□-□06-F03-11			BV□□-□□-□06-AM			
	10	BV□□-□□-□10			BV□□-□□-□10-F05-14	BV□□-□□-□10-F05-11			AL-S90-17		BV□□-□□-□10-AM	10
	3-way valves											
BF	-	BF□□-□□-□	LX/RX	DX	BF□□-□□-□-3-F03-11	BF□□-□□-□-3-F05-11	AL-S180-7	AL-D180-24	BF□□-□□-□-3-AM	3.4		
BFH	-	BFH□□-□□-□			BFH□□-□□-□-3-F03-11	BFH□□-□□-□-3-F05-11			BFH□□-□□-□-3-AM	5		
BH	05	BH□□-□□-□05			BH□□-□□-□05-3-F03-11	BH□□-□□-□05-3-F03-11	AL-S180-13		BH□□-□□-□05-3-AM	2		
	07	BH□□-□□-□07			BH□□-□□-□07-3-F03-11	BH□□-□□-□07-3-F03-11					BH□□-□□-□07-3-AM	
	10	BH□□-□□-□10			BH□□-□□-□10-3-F05-14	BH□□-□□-□10-3-F05-11					BH□□-□□-□10-3-AM	10.5
	13	BH□□-□□-□13			BH□□-□□-□13-3-F05-14	BH□□-□□-□13-3-F05-11					BH□□-□□-□13-3-AM	
	22	BH□□-□□-□22			BH□□-□□-□22-3-F05-17	BH□□-□□-□22-3-F05-11	AL-S180-26		BH□□-□□-□22-3-AM	20		

Table 2										
Valve Series & Code	Diameter Code	Ball Valve	Actuator Code		PBK Mounting Kit		Pneumatic Actuator ^①		AM Ball Valve	Ball Valve ^{②③} Max Torque (N•m)
			Single Acting	Double Acting	Single Acting	Double Acting	Single Acting	Double Acting		
2-way valves										
BO	00	BO□□-□□-□00	LX/RX	DX	BO□□-□□-□00-3L-F04-11	BO□□-□□-□00-3L-F03-11	AL-S180-7	AL-D180-24	BO□□-□□-□00-3L-AM	1.7
	01	BO□□-□□-□01			BO□□-□□-□01-3L-F04-11	BO□□-□□-□01-3L-F03-11			BO□□-□□-□01-3L-AM	
	02	BO□□-□□-□02			BO□□-□□-□02-3L-F04-11	BO□□-□□-□02-3L-F03-11			BO□□-□□-□02-3L-AM	
	03	BO□□-□□-□03			BO□□-□□-□03-3L-F04-11	BO□□-□□-□03-3L-F03-11			BO□□-□□-□03-3L-AM	
	05	BO□□-□□-□05			BO□□-□□-□05-3L-F04-11	BO□□-□□-□05-3L-F03-11			BO□□-□□-□05-3L-AM	4.6
	07	BO□□-□□-□07			BO□□-□□-□07-3L-F04-11	BO□□-□□-□07-3L-F03-11			BO□□-□□-□07-3L-AM	5.7
	10	BO□□-□□-□10			BO□□-□□-□10-3L-F05-14	BO□□-□□-□10-3L-F05-11			AL-S180-13	BO□□-□□-□10-3L-AM
BP	10	BP□□-□□-□10			BP□□-□□-□10-3-F05-14	BP□□-□□-□10-3-F05-11	AL-S180-13		BP□□-□□-□10-3-AM	9
	13	BP□□-□□-□13			BP□□-□□-□13-3-F05-14	BP□□-□□-□13-3-F05-11			BP□□-□□-□13-3-AM	10
BV	02	BV□□-□□-□02			BV□□-□□-□02-3-F04-11	BV□□-□□-□02-3-F03-11	AL-S180-7		BV□□-□□-□02-3-AM	2
	03	BV□□-□□-□03			BV□□-□□-□03-3-F04-11	BV□□-□□-□03-3-F03-11			BV□□-□□-□03-3-AM	
	04	BV□□-□□-□04			BV□□-□□-□04-3-F04-11	BV□□-□□-□04-3-F03-11			BV□□-□□-□04-3-AM	
	05	BV□□-□□-□05			BV□□-□□-□05-3-F04-11	BV□□-□□-□05-3-F03-11			BV□□-□□-□05-3-AM	4
	06	BV□□-□□-□06			BV□□-□□-□06-3-F04-11	BV□□-□□-□06-3-F03-11			BV□□-□□-□06-3-AM	
	10	BV□□-□□-□10	BV□□-□□-□10-3-F05-14	BV□□-□□-□10-3-F05-11	AL-S180-13	BV□□-□□-□10-3-AM	10			

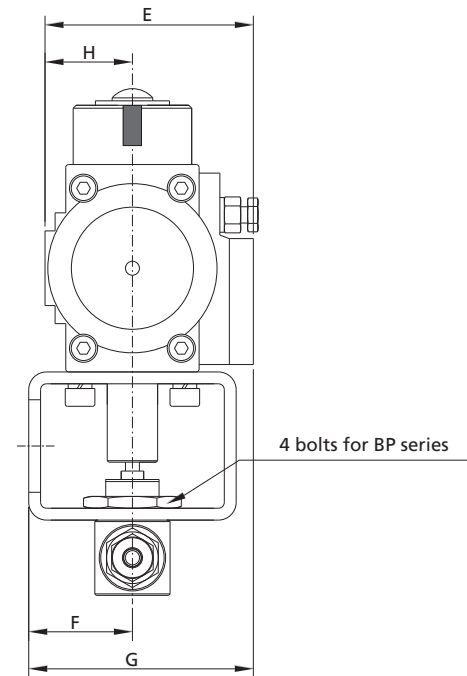
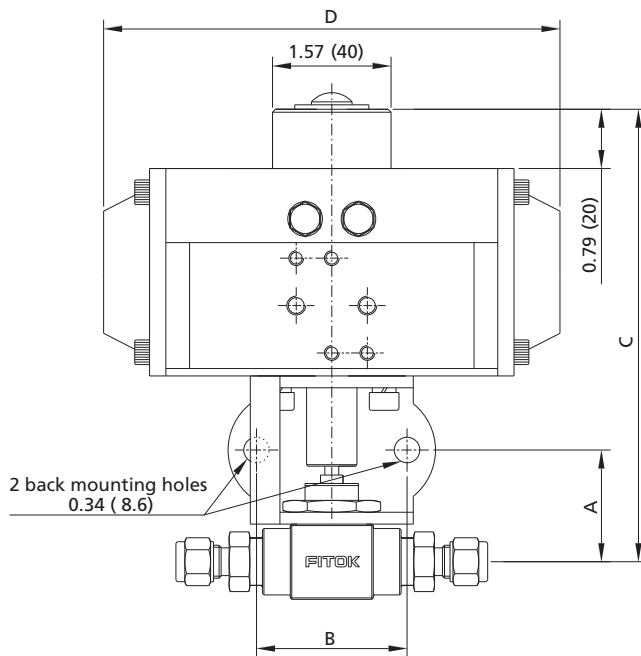
Notes: ① Recommended air supply pressure of pneumatic actuator is 87 psig (6 bar).

② Torque value is obtained during test with dry and clean Nitrogen or air at maximum working pressure and room temperature. Use water instead if the maximum working pressure > 6000 psig (414 bar).

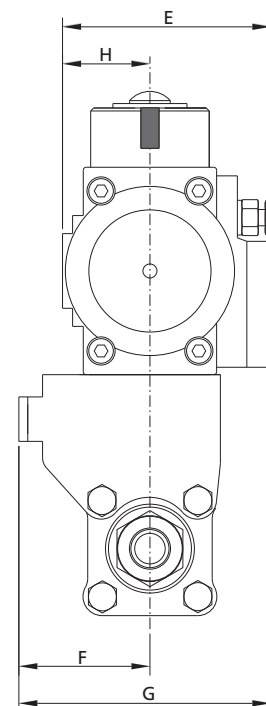
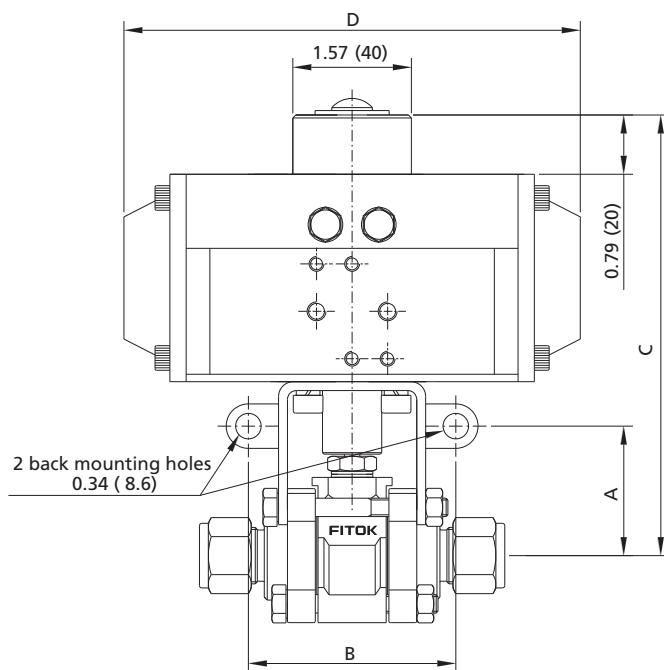
③ The required Torque is affected by the temperature, viscosity, cleanliness, medium property, etc.

Dimensions of Pneumatically Actuated Ball Valve Assembly

Dimensions in inches (mm) are for reference only and subject to change. For ball valve sizes, refer to *Ball Valves* catalog. For dimensions of special application pneumatic ball valves, please contact FITOK.



BF, BFH, BO, BP, BV series ball valves



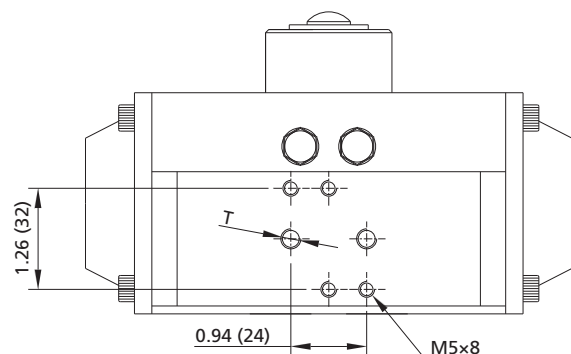
BH series ball valves

Table 3											
Valve Series & Code	Orifice Code	Actuator Type Code	Dimensions, in. (mm)								
			A	B	C	D	E	F	G	H	
2-way valves											
BF	-	C/O	1.48	2	6.01 (152.7)	6.06 (154)	2.78 (70.5)	1.38 (35)	3.01 (76.5)		
BFH		D	(37.7)	(50.8)							
BH	05/07	C/O	1.07	3.94	5.17 (131.2)	6.06 (154)	2.78 (70.5)	1.77 (45)	3.41 (86.5)	1.14 (29)	
		D	(27.2)	(100)							
	10/13	C/O	1.71	2.76	5.85 (148.5)	6.06 (154)	2.78 (70.5)	2.01 (51)	3.64 (92.5)		
		D	(43.5)	(70)							
	22	C/O	2	3.94	7.65 (194.3)	8.27 (210)	4.04 (102.5)	2.46 (62.5)	4.78 (121.5)	1.71 (43.5)	
		D	(50.8)	(100)	6.47 (164.3)	6.06 (154)	2.78 (70.5)		4.09 (104)	1.14 (29)	
	29/32	C/O	241	5	8.3 (210.9)	8.27 (210)	4.04 (102.5)	2.78 (70.5)	5.1 (129.5)	1.71 (43.5)	
		D	(61.2)	(127)	7.87 (199.9)	7.44 (189)	3.52 (89.5)		4.8 (122)	1.50 (38)	
	38	C/O	2.76	5.51	8.98 (228)	9.02 (229)	4.43 (112.5)	2.95 (75)	5.45 (138.5)	1.93 (49)	
		D	(70)	(140)	8.03 (204)	7.44 (189)	3.52 (89.5)		4.98 (126.5)	1.50 (38)	
BO	00/01/ 02/03	C/O	1.13	2	5.46 (138.6)	6.06 (154)	2.78 (70.5)	1.18 (30)	2.81 (71.5)	1.14 (29)	
		D	(28.6)								
	C/O	1.23	5.56 (141.2)								
	05	D	(31.2)		5.68 (144.2)						
		07	C/O		1.35						
	D		(34.2)								
	10	C/O	1.67	2.28	6.95 (176.5)	7.44 (189)	3.52 (89.5)		3.41 (86.5)	1.50 (38)	
		D	(42.5)	(58)	6.2 (157.5)	6.06 (154)	2.78 (70.5)		3.01 (76.5)	1.14 (29)	
BP	10	C/O	1.61	2.60	6.89 (175)	7.44 (189)	3.52 (89.5)	1.38 (35)	3.41 (86.5)	1.50 (38)	
		D	(40.9)		6.14 (156)	6.06 (154)	2.78 (70.5)		3.01 (76.5)	1.14 (29)	
	13	C/O	1.73		7.00 (178)	7.44 (189)	3.52 (89.5)		3.41 (86.5)	1.50 (38)	
		D	(44)		6.26 (159)	6.06 (154)	2.78 (70.5)		3.01 (76.5)	1.14 (29)	
	19	C/O	1.97		8.19 (208)	9.02 (229)	4.43 (112.5)		3.88 (98.5)	1.93 (49)	
		D	(50)		7.24 (184)	7.44 (189)	3.52 (89.5)		3.41 (86.5)	1.50 (38)	
BV	02/03/ 04	C/O	1.12	1.69	5.45 (138.5)	6.06 (154)	2.78 (70.5)	1.18 (30)	2.81 (71.5)	1.14 (29)	
		D	(28.5)	(42.8)							
	05/06	C/O	1.27	2	5.59 (142.2)	6.06 (154)	2.78 (70.5)				
		D	(32.2)								
	10	C/O	1.69		6.97 (177)	7.44 (189)	3.52 (89.5)	1.38 (35)	3.41 (86.5)	1.50 (38)	
		D	(43)		6.22 (158)	6.06 (154)	2.78 (70.5)	1.38 (35)	3.01 (76.5)	1.14 (29)	
3-way valves											
BF	-	LX/RX	1.48	2	5.97 (151.7)	10.16 (258)	2.8 (71)	1.38 (35)	3.01 (76.5)	1.14 (29)	
BFH		DX	(37.7)	(50.8)	6.09 (154.7)	8.39 (213)	2.81 (71.5)		3.01 (76.5)	1.18 (30)	
BH	05/07	LX/RX	1.07	3.94	5.17 (130.2)	10.16 (258)	2.8 (71)	1.77 (45)	3.41 (86.5)	1.14 (29)	
		DX	(27.2)	(100)	5.17 (133.2)	8.39 (213)	2.81 (71.5)			1.18 (30)	
	10/13	LX/RX	1.71	2.76	5.85 (147.5)	10.16 (258)	2.8 (71)	2.01 (51)	3.64 (92.5)	1.14 (29)	
		DX	(43.5)	(70)	5.85 (150.5)	8.39 (213)	2.81 (71.5)		3.64 (92.5)	1.18 (30)	
	22	LX/RX	2	3.94	7.73 (196.3)	15.2 (386)	3.66 (93)	2.46 (62.5)	4.51 (114.5)	1.67 (42.5)	
		DX	(50.8)	(100)	6.55 (166.3)	8.39 (213)	2.81 (71.5)		4.09 (104)	1.18 (30)	
BO	00/01/ 02/03	LX/RX	1.13	2	5.42 (137.6)	10.16 (258)	2.8 (71)	1.18 (30)	2.81 (71.5)	1.14 (29)	
		DX	(28.6)		5.54 (140.6)	8.39 (213)	2.81 (71.5)		2.81 (71.5)	1.18 (30)	
	05	LX/RX	1.23		5.52 (140.2)	10.16 (258)	2.8 (71)		2.81 (71.5)	1.14 (29)	
		DX	(31.2)		5.64 (143.2)	8.39 (213)	2.81 (71.5)		2.81 (71.5)	1.18 (30)	
	07	LX/RX	1.35		5.64 (143.2)	10.16 (258)	2.8 (71)		2.81 (71.5)	1.14 (29)	
		DX	(34.2)		5.76 (146.2)	8.39 (213)	2.81 (71.5)		2.81 (71.5)	1.18 (30)	
	10	LX/RX	1.67	2.28	6.79 (172.5)	11.46 (291)	3.33 (84.5)		3.23 (82)	1.42 (36)	
		DX	(42.5)	(58)	6.28 (159.5)	8.39 (213)	2.81 (71.5)		3.01 (76.5)	1.18 (30)	
	BP	10	LX/RX	1.61	2.60	6.73 (171)	11.46 (291)	3.33 (84.5)	1.38 (35)	3.29 (83.5)	1.42 (36)
			DX	(40.9)		6.22 (158)	8.39 (213)	2.81 (71.5)		3.01 (76.5)	1.18 (30)
13		LX/RX	1.73	6.85 (174)		11.46 (291)	3.33 (84.5)	3.29 (83.5)		1.42 (36)	
		DX	(44)	6.34 (161)		8.39 (213)	2.81 (71.5)	3.01 (76.5)		1.18 (30)	
BV	02/03/ 04	LX/RX	1.12	1.69	5.41 (137.5)	10.16 (258)	2.8 (71)	1.18 (30)	2.81 (71.5)	1.14 (29)	
		DX	(28.5)	(42.8)	5.53 (140.5)	8.39 (213)	2.81 (71.5)		2.81 (71.5)	1.18 (30)	
	05/06	LX/RX	1.27	2	5.60 (141.2)	10.16 (258)	2.8 (71)		2.81 (71.5)	1.14 (29)	
		DX	(32.2)		5.68 (144.2)	8.39 (213)	2.81 (71.5)		2.81 (71.5)	1.18 (30)	
	10	LX/RX	1.69		6.81 (173)	11.46 (291)	3.33 (84.5)	1.38 (35)	3.23 (82)	1.42 (36)	
		DX	(43)		6.30 (160)	8.39 (213)	2.81 (71.5)		3.01 (76.5)	1.18 (30)	

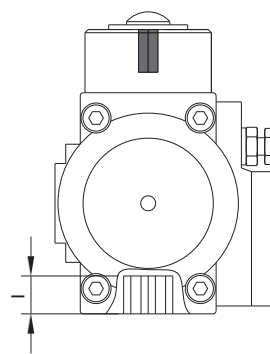
Pneumatic Actuator Dimensions

Dimensions in inches (mm) are for reference only and subject to change.

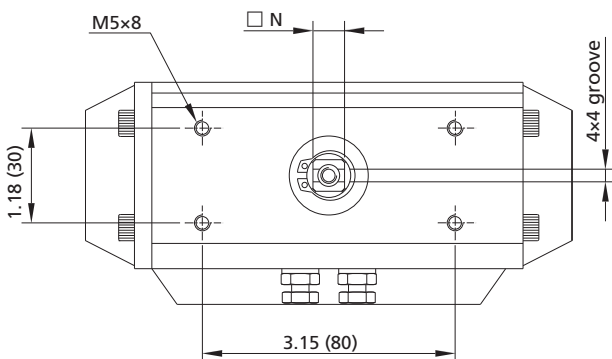
For dimensions of special application pneumatic actuator, please contact FITOK.



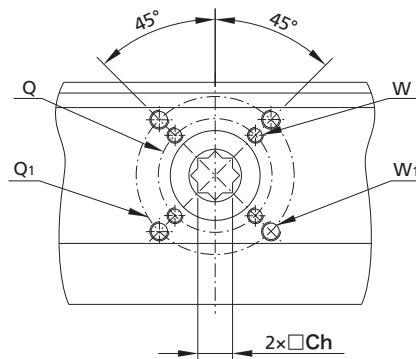
VDI/VDE 3845 (NAMUR)
(View from Front)



(View from Left)



VDI/VDE 3845 (NAMUR)
(View from Top)



ISO 5211
(View from Bottom)

Note: □ indicates square.

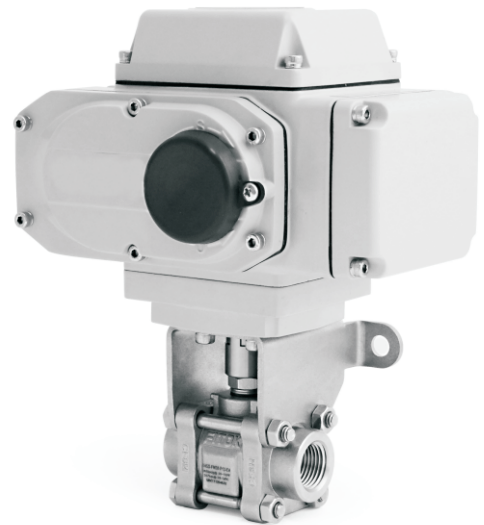
Table 4

Actuator Type Code	Pneumatic Actuator	ISO 5211 Flange Size	Dimensions, in. (mm)							
			Ch	I	Q	Q1	W	W1	T	N
90° actuator										
C/O	AL-S90-8	F03/F05	0.43 (11)	0.47 (12)	1.42 (36)	1.97 (50)	M5×7.5	M6×9	G1/4"	0.39 (10)
	AL-S90-17	F05/F07	0.55 (14)	0.63 (16)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/4"	0.39 (10)
	AL-S90-24	F05/F07	0.55 (14)	0.63 (16)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/4"	0.55 (14)
	AL-S90-35	F05/F07	0.67 (17)	0.75 (19)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/4"	0.55 (14)
D	AL-D90-20	F03/F05	0.43 (11)	0.47 (12)	1.42 (36)	1.97 (50)	M5×7.5	M6×9	G1/4"	0.39 (10)
	AL-D90-41	F05/F07	0.55 (14)	0.63 (16)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/4"	0.39 (10)
180° actuator										
LX/RX	AL-S180-7	F04	0.43 (11)	0.47 (12)	1.65 (42)	-	M5×8	-	G1/8"	0.43 (11)
	AL-S180-13	F05/F07	0.43 (11)	0.47 (12)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/8"	0.43 (11)
	AL-S180-26	F05/F07	0.67 (17)	0.75 (19)	1.97 (50)	2.76 (70)	M6×9	M8×12	G1/8"	0.67 (17)
DX	AL-D180-24	F03/F05	0.43 (11)	0.55 (14)	1.42 (36)	1.97 (50)	M5×8	M6×10	G1/4"	-

Electrically Actuated Ball Valves

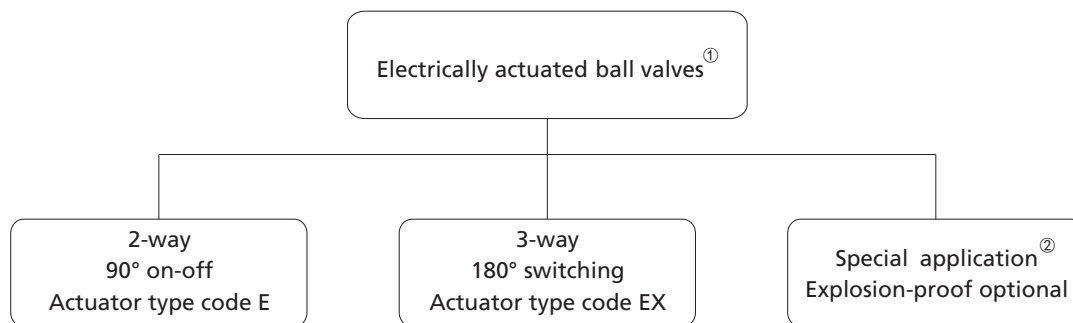
Features

- ⊙ NPS: 1/8~2
- ⊙ Medium working pressure up to 10,000 psig (690 bar). Actual working pressure available in *Ball Valves* catalog
- ⊙ Medium temperature range: -65°F to 450°F (-54°C to 232°C). Actual temperature range available in *Ball Valves* catalog
- ⊙ Power source: 24V DC
- ⊙ Top indicator shows valve status
- ⊙ Conform to industry interface standards: ISO 5211
- ⊙ Available factory assembled or in kits for field assembly
- ⊙ Output a group of passive contact signals corresponding to valve positions
- ⊙ IP67 rated and available with a variety of explosion-proof certifications



BH series 2-way electrically actuated ball valve

Product Range



Notes: ① The valve will stay in its current position where the actuator is de-energized.

② For special applications, please contact FITOK.

Electric Actuator Operating Conditions

1. Power source

- ⊙ Recommended power supply: 24V DC
- ⊙ For other supply voltage, please contact FITOK Group or our authorized distributors.

2. Working temperature

- ⊙ -22°F to 140°F (-30°C to 60°C)
- ⊙ For other temperature ranges, please contact FITOK Group or our authorized distributors.

3. Action time

- ⊙ 2-way electric actuator ball valve actuator: 4 seconds
- ⊙ 3-way electric actuator ball valve actuator: 8 seconds

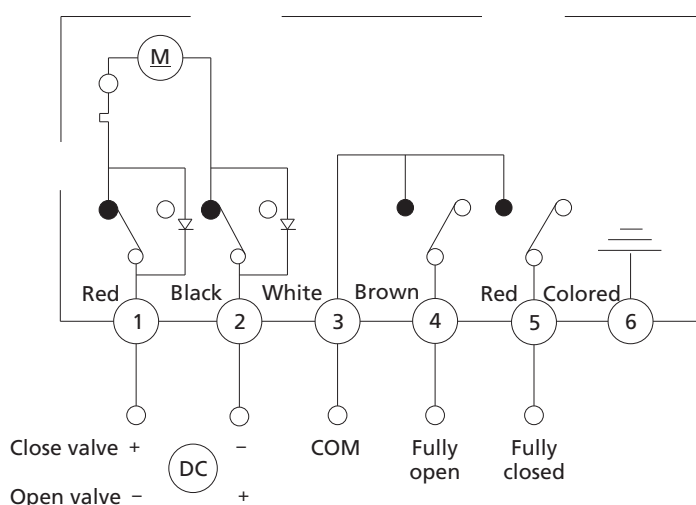
4. Lubrication

- ⊙ Factory lubricated for the life of actuator under normal working conditions.

5. Installation

- ⊙ The actuator can be installed at any orientation indoors or outdoors, avoiding direct sunlight or water splash.

Electric Actuator Operating Principle



- DC power supply supplies power to the actuator which can do "open" and "close" operations, outputs a set of 100% open and 100% close passive signals.
- Built-in overheat protection device protects the electric actuator from overheating.

Ordering Information

- Electrically Actuated Ball Valve Assembly, includes electric actuator, mounting kit and ball valve

To order, select an applicable ball valve from *Ball Valves* catalog, and based on the required valve status, select an actuator type:

Table 6		
Type	2-way 90°	3-way 180°
Actuator	-E	-EX
Example	BHSS-FL8-10-E	BHSS-FL8-P10-EX3

Refer to *Ball Valves* catalog for more information.

- PBK Assembly, includes actuator bracket, coupling, AM ball valve, fastener and installation instructions

To order, select a kit ordering number from **Table 7**, page 12.

- Electric Actuator

To order, select an electric actuator ordering number from **Table 7**, page 12.

- Mounting Kit, includes bracket, coupling, bolts and spring washer

- AM Ball Valve is a ball valve without handle

To order, add a suffix -AM.

Example: BHSS-FL8-10-AM.

Refer to the **Table 7** on page 12 for more information.

Note: Improper alignment of the assembly and improper support may cause leakage or premature valve failure.

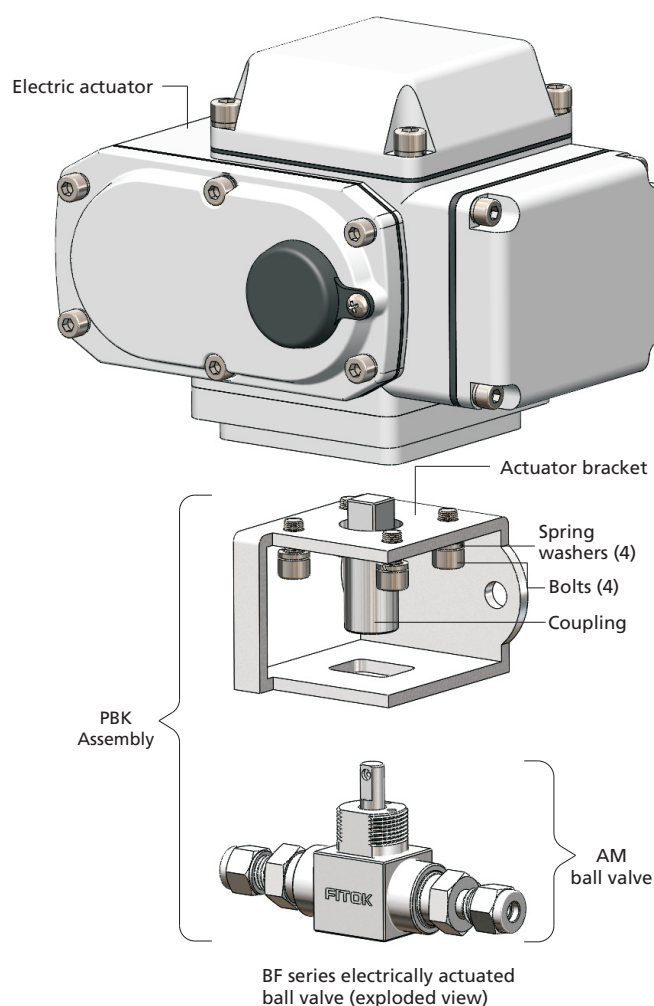


Table 7

Valve Series & Code	Orifice Code	Ball Valve	Actuator Type Code	PBK Mounting Kit	Electric Actuator	AM Ball Valve	Ball Valve Max Torque (N·m) ^{①②}	
2-way valves								
BF	-	BF□□-□□-□	E	BF□□-□□-□-F05-11	EA-10G-11 ^③	BF□□-□□-□-AM	3.4	
BFH	-	BFH□□-□□-□		BFH□□-□□-□-F05-11		BFH□□-□□-□-AM	5	
BH	05	BH□□-□□-□05		BH□□-□□-□05-F03-11		BH□□-□□-□05-AM	2	
	07	BH□□-□□-□07		BH□□-□□-□07-F03-11	BH□□-□□-□07-AM			
	10	BH□□-□□-□10		BH□□-□□-□10-F05-11	EA-20G-11	BH□□-□□-□10-AM	10.5	
	13	BH□□-□□-□13		BH□□-□□-□13-F05-11	BH□□-□□-□13-AM			
	22	BH□□-□□-□22		BH□□-□□-□22-F05-14	EA-50G-14	BH□□-□□-□22-AM	20	
	29	BH□□-□□-□29		BH□□-□□-□29-F07-14		BH□□-□□-□29-AM	30	
	32	BH□□-□□-□32		BH□□-□□-□32-F07-14		BH□□-□□-□32-AM		
	38	BH□□-□□-□38		BH□□-□□-□38-F07-14		BH□□-□□-□38-AM		
BO	00	BO□□-□□-□00		BO□□-□□-□00-F03-11	EA-10G-11 ^③ /EA-20G-11	BO□□-□□-□00-AM	1.7	
	01	BO□□-□□-□01		BO□□-□□-□01-F03-11		BO□□-□□-□01-AM		
	02	BO□□-□□-□02		BO□□-□□-□02-F03-11		BO□□-□□-□02-AM		
	03	BO□□-□□-□03		BO□□-□□-□03-F03-11		BO□□-□□-□03-AM		
	05	BO□□-□□-□05		BO□□-□□-□05-F03-11		BO□□-□□-□05-AM	4.6	
	07	BO□□-□□-□07		BO□□-□□-□07-F03-11		BO□□-□□-□07-AM	5.7	
	10	BO□□-□□-□10		BO□□-□□-□10-F05-11		BO□□-□□-□10-AM	11.2	
BP	10	BP□□-□□-□ 10		BP□□-□□-□10-F05-11	EA-50G-14	BP□□-□□-□10-AM	9	
	13	BP□□-□□-□13		BP□□-□□-□13-F05-11		BP□□-□□-□13-AM	10	
	19	BP□□-□□-□19		BP□□-□□-□19-F05-14		BP□□-□□-□19-AM	15.9	
BV	02	BV□□-□□-□02		BV□□-□□-□02-F03-11	EA-10G-11 ^③ /EA-20G-11	BV□□-□□-□02-AM	2	
	03	BV□□-□□-□03		BV□□-□□-□03-F03-11		BV□□-□□-□03-AM		
	04	BV□□-□□-□04		BV□□-□□-□04-F03-11		BV□□-□□-□04-AM		
	05	BV□□-□□-□05		BV□□-□□-□05-F03-11		BV□□-□□-□05-AM	4	
	06	BV□□-□□-□06		BV□□-□□-□06-F03-11		BV□□-□□-□06-AM		
	10	BV□□-□□-□10		BV□□-□□-□10-F05-11		BV□□-□□-□10-AM		10
3-way valves								
BF	-	BF□□-□□-□		EX	BF□□-□□-□-3-F05-11	EX-10G-11 ^③	BF□□-□□-□-3-AM	3.4
BFH	-	BFH□□-□□-□			BFH□□-□□-□-3-F05-11		BFH□□-□□-□-3-AM	5
BH	05	BH□□-□□-□05	BH□□-□□-□05-3-F03-11		BH□□-□□-□05-3-AM		2	
	07	BH□□-□□-□07	BH□□-□□-□07-3-F03-11		BH□□-□□-□07-3-AM			
	10	BH□□-□□-□10	BH□□-□□-□10-3-F05-11		EX-20G-11	BH□□-□□-□10-3-AM	10.5	
	13	BH□□-□□-□13	BH□□-□□-□13-3-F05-11		BH□□-□□-□13-3-AM			
	22	BH□□-□□-□22	BH□□-□□-□22-3-F05-14		EX-50G-14	BH□□-□□-□22-3-AM	20	
BO	00	BO□□-□□-□00	BO□□-□□-□00-3L-F03-11		EX-10G-11 ^③ /EX-20G-11	BO□□-□□-□00-3L-AM	1.7	
	01	BO□□-□□-□01	BO□□-□□-□01-3L-F03-11			BO□□-□□-□01-3L-AM		
	02	BO□□-□□-□02	BO□□-□□-□02-3L-F03-11			BO□□-□□-□02-3L-AM		
	03	BO□□-□□-□03	BO□□-□□-□03-3L-F03-11			BO□□-□□-□03-3L-AM		
	05	BO□□-□□-□05	BO□□-□□-□05-3L-F03-11			BO□□-□□-□05-3L-AM	4.6	
	07	BO□□-□□-□07	BO□□-□□-□07-3L-F03-11			BO□□-□□-□07-3L-AM	5.7	
	10	BO□□-□□-□10	BO□□-□□-□10-3L-F05-11			BO□□-□□-□10-3L-AM	11.2	
	BP	10	BP□□-□□-□10		BP□□-□□-□10-3-F05-11	EX-10G-11 ^③ /EX-20G-11	BP□□-□□-□10-3-AM	9
13		BP□□-□□-□13	BP□□-□□-□13-3-F05-11		BP□□-□□-□13-3-AM		10	
BV	02	BV□□-□□-□02	BV□□-□□-□02-3-F03-11		EX-10G-11 ^③ /EX-20G-11	BV□□-□□-□02-3-AM	2	
	03	BV□□-□□-□03	BV□□-□□-□03-3-F03-11			BV□□-□□-□03-3-AM		
	04	BV□□-□□-□04	BV□□-□□-□04-3-F03-11			BV□□-□□-□04-3-AM		
	05	BV□□-□□-□05	BV□□-□□-□05-3-F03-11			BV□□-□□-□05-3-AM	4	
	06	BV□□-□□-□06	BV□□-□□-□06-3-F03-11			BV□□-□□-□06-3-AM		
	10	BV□□-□□-□10	BV□□-□□-□10-3-F05-11			BV□□-□□-□10-3-AM		10

Notes: ① Torque value is obtained during test with dry and clean Nitrogen or air at maximum working pressure and room temperature.

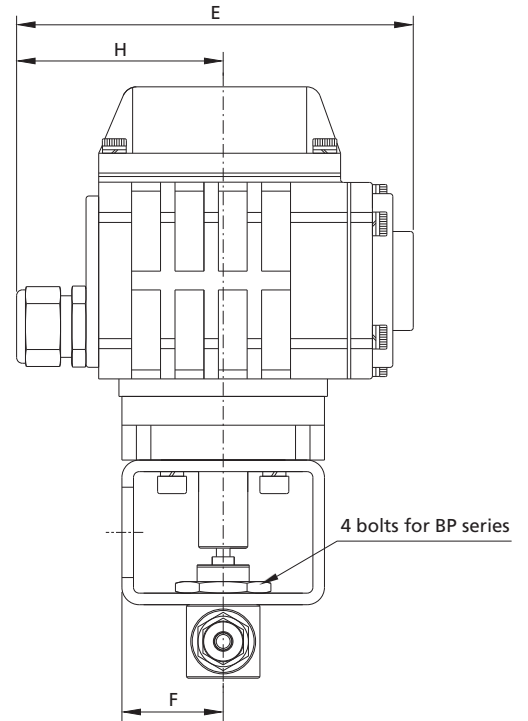
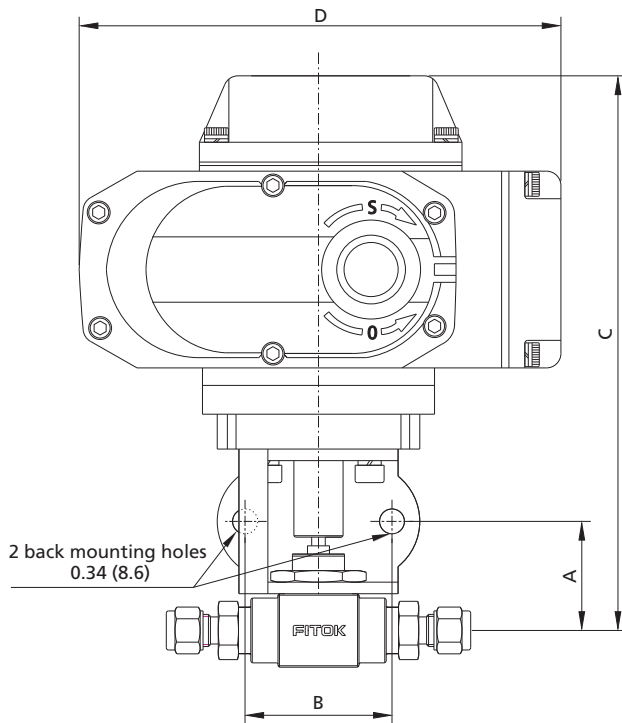
Use water instead if the maximum working pressure > 6000 psig (414 bar).

② The required Torque is affected by the temperature, viscosity, cleanliness, medium property etc.

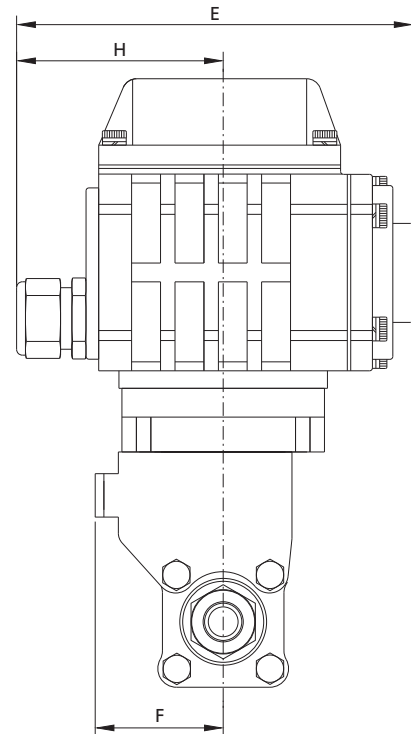
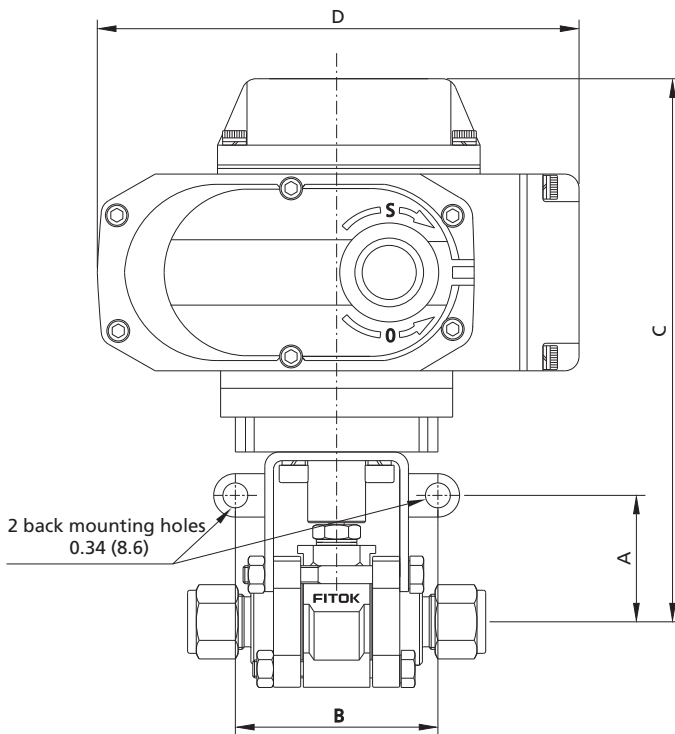
③ Different seat materials for ball valves will result in different operating torques. For specific part number selection, please contact FITOK group or our authorized distributors.

Dimensions of Electrically Actuated Ball Valve Assembly

Dimensions in inches (mm) are for reference only and subject to change.
For ball valve sizes, refer to *Ball Valves* catalog.



BF, BFH, BO, BP, BV series ball valves



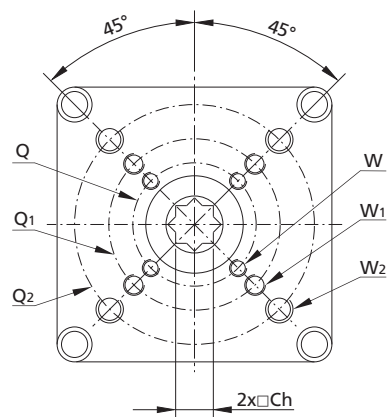
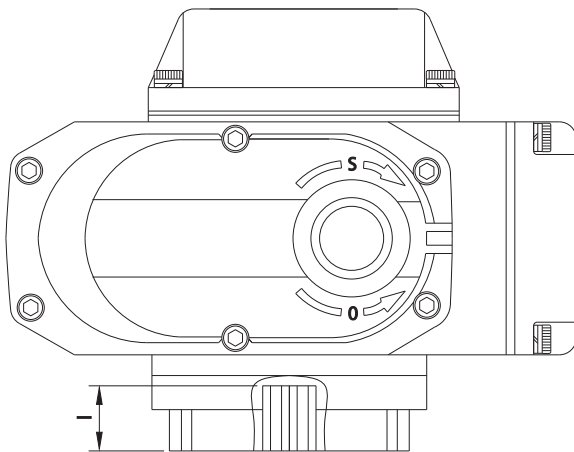
BH series ball valves

Table 8

Valve Series & Code	Orifice Code	Actuator Type Code	Dimensions, in. (mm)						
			A	B	C	D	E	F	H
2-way valves									
BF	-	E	1.48 (37.7)	2.00 (50.8)	7.55 (191.7)	6.56 (166.5)	5.43 (138)	1.38 (35)	2.87 (73)
BFH	-								
BH	05/07		1.07(27.2)	3.94(100)	6.70(170.2)			1.77(45)	
	10/13		1.71(43.5)	2.76(70)	7.38(187.5)	2.01(51)			
	22		2.00(50.8)	3.94(100)	8.00(234.8)	7.68 (195)	5.67 (144)	2.46(62.5)	2.83 (72)
	29/32		2.41(61.2)	5.00(127)	9.90(251.8)			2.78(70.5)	
38	2.76(70)		5.51(140)	10.06(255.5)	2.95(75)				
BO	00/01/02/03		1.13(28.6)	2.00 (50.8)	6.99(177.6)	6.56 (166.5)	5.43 (138)	1.18 (30)	2.87 (73)
	05		1.23(31.2)		7.09(180.2)				
	07		1.35(34.2)		7.21(183.2)				
	10		1.67(42.5)	2.28(58)	7.74(196.5)			1.38 (35)	
BP	10		1.61(40.9)	2.60 (66)	7.68(195)	7.68(195)	5.67(144)		2.83(72.0)
	13		1.73(44)		7.80(198)				
	19		1.97(50)		9.27(235.5)				
BV	02/03/04		1.12(28.5)	1.69(42.8)	6.99(177.5)	6.56 (166.5)	5.43 (138)	1.18 (30)	2.87 (73)
	05/06		1.27(32.2)	2 (50.8)	7.13(181.2)			1.38(35)	
	10		1.69(43)		7.76(197)				
3-way valves									
BF	-	EX	1.48 (37.7)	2.00 (50.8)	7.55 (191.7)	6.56 (166.5)	5.43 (138)	1.38 (35)	2.87 (73)
BFH	-								
BH	05/07		1.07(27.2)	3.94(100)	6.70(170.2)			1.77(45)	
	10/13		1.71(43.5)	2.76(70)	7.38(187.5)	2.01(51)			
	22		2.00(50.8)	3.94(100)	8.00(234.8)	7.68(195)	5.67(144)	2.46(62.5)	2.83(72)
BO	00/01/02/03		1.13(28.6)	2.00 (50.8)	6.99(177.6)	6.56 (166.5)	5.43 (138)	1.18 (30)	2.87 (73)
	05		1.23(31.2)		7.09(180.2)				
	07		1.35(34.2)		7.21(183.2)				
	10		1.67(42.5)	2.28(58)	7.74(196.5)			1.38 (35)	
BP	10		1.61(40.9)	2.60 (66)	7.68(195)				2.87 (73)
	13		1.73(44.0)		7.80(198)				
BV	02/03/04		1.12(28.5)	1.69(42.8)	6.99(177.5)	6.56 (166.5)	5.43 (138)	1.18 (30)	
	05/06		1.27(32.2)	2.00 (50.8)	7.13(181.2)			1.38(35)	
	10		1.69(43)		7.76(197)				

Electric Actuator Dimensions and Technical Parameters

Dimensions in inches (mm) are for reference only and subject to change.



ISO 5211
(View from Bottom)

Note: □ indicates square.

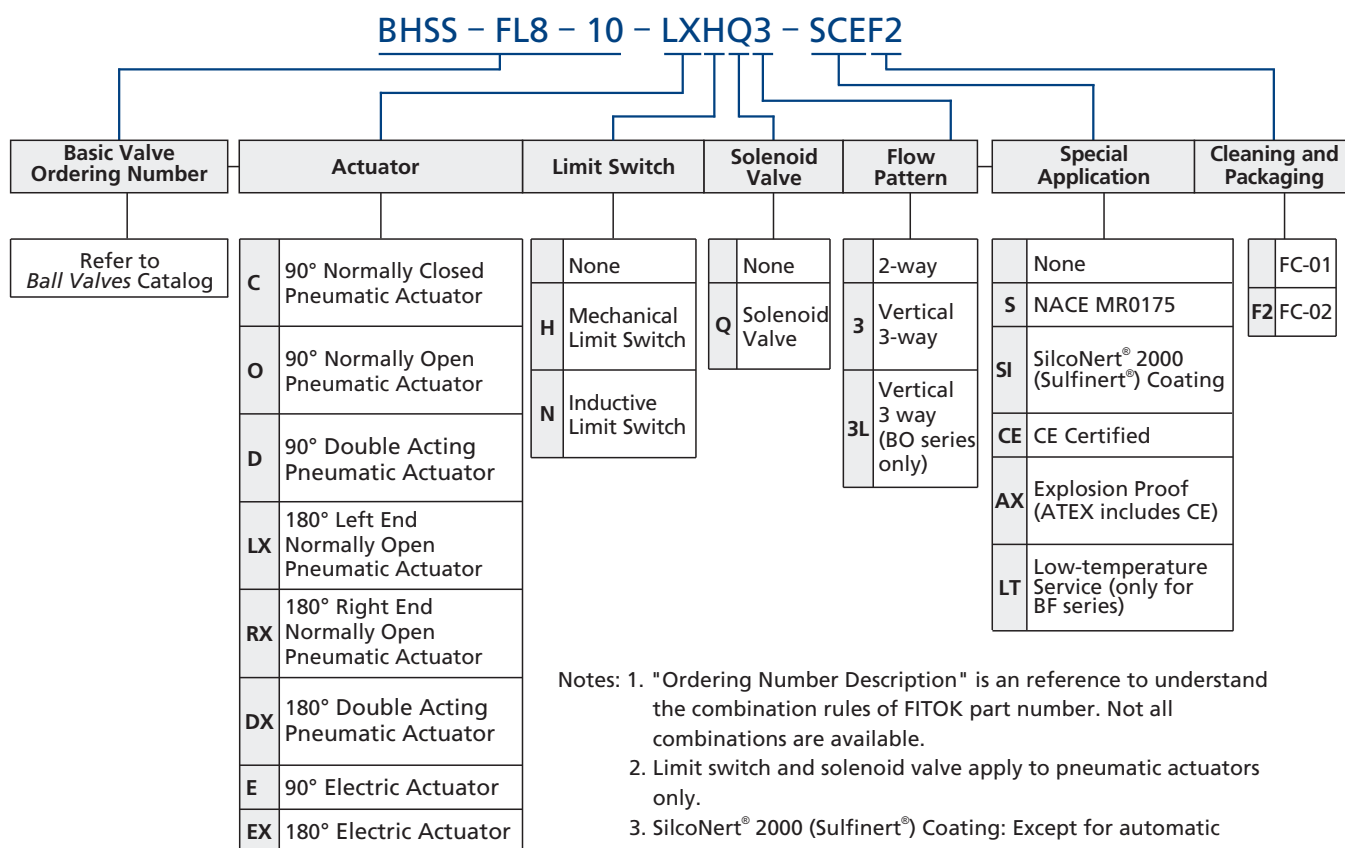
Table 9												
Actuator Code	Electric Actuator	ISO 5211 Flange	Dimensions, in. (mm)								Technical Parameters	
			I	Ch	Q	Q1	Q2	W	W1	W2	Voltage	Rated Current
90° actuator												
E	EA-10G-11	F03/F05/F07	0.75 (19)	0.43 (11)	1.42 (36)	1.97 (50)	2.76 (70)	M5	M6	M8	DC 24V	1.77A
	EA-20G-11	F03/F05/F07	0.75 (19)	0.43 (11)	1.42 (36)	1.97 (50)	2.76 (70)	M5	M6	M8	DC 24V	2.16A
	EA-50G-14	F05/F07	1.26 (32)	0.55 (14)	-	1.97 (50)	2.76 (70)	-	M6	M8	DC 24V	2.16A
180° actuator												
EX	EX-10G-11	F03/F05/F07	0.75 (19)	0.43 (11)	1.42 (36)	1.97 (50)	2.76 (70)	M5	M6	M8	DC 24V	1.77A
	EX-20G-11	F03/F05/F07	0.75 (19)	0.43 (11)	1.42 (36)	1.97 (50)	2.76 (70)	M5	M6	M8	DC 24V	2.16A
	EX-50G-14	F05/F07	1.26 (32)	0.55 (14)	-	1.97 (50)	2.76 (70)	-	M6	M8	DC 24V	2.16A

Notes: 1. The electric actuator is driven by a power source without using a solenoid valve.

2. Electric actuators have a signal output without using limit switches.

3. For explosion-proof electric actuators, contact FITOK.

Ordering Number Description for Automatic Control Ball Valves



Notes: 1. "Ordering Number Description" is an reference to understand the combination rules of FITOK part number. Not all combinations are available.

2. Limit switch and solenoid valve apply to pneumatic actuators only.

3. SilcoNert® 2000 (Sulfinert®) Coating: Except for automatic control ball valves with PEEK seat, wetted metal components SilcoNert® 2000 (Sulfinert®) coated.

4. For more information, please contact FITOK.

Application Questionnaire for Selection of Automatic Control Ball Valves

No.	Category	Specification					
1	Operating conditions	Medium					
2		Working pressure	_____ psig (_____ bar)				
3		Working temperature	_____ °F (_____ °C)				
4		Ambient temperature	_____ °F (_____ °C)				
5	Ball valve parameters	Body material	☐ 316SS ☐ 316L ☐ 304 ☐ Other _____				
6		Seat material	☐ PTFE ☐ PEEK ☐ PCTFE ☐ PVDF ☐ Other _____				
7		Orifice	_____ in. (_____ mm)				
8		Flow pattern	☐ 2-way ☐ Vertical 3-way ☐ Other _____				
9		Inlet/Outlet type and size	Inlet _____ Outlet _____				
10	Actuator parameters	Actuator type	☐ 90° Pneumatic	Air supply pressure _____ psig (_____ bar)			
				☐ Normally closed C (Close when spring returns) ☐ Normally open O (Open when spring returns) ☐ Double acting D (Stay in pre-air-loss position)			
			☐ 180° Pneumatic	Air supply pressure _____ psig (_____ bar)			
				☐ Left end normally open LX (Flow path turns to left end when spring returns) ☐ Right end normally open RX (Flow path turns to right end when spring returns) ☐ Double acting DX (Stay in pre-air-loss flow path position)			
☐ 90° Electric	Power supply	☐ DC 24V	☐ AC 220V		☐ Other _____		
	Switch type	DC switch G	☐ AC switch MS ☐ AC regulated PCU				
	☐ 180° Electric	Power supply	☐ DC 24V	☐ AC 220V			
		Switch type	DC switch G	☐ AC switch MS ☐ AC regulated PCU			
11	Pneumatic actuator accessories	Limit switch type	☐ Mechanical limit switch ☐ Inductive limit switch ☐ None _____				
12		Solenoid valve	☐ Yes ☐ No				
13	Other requirements	☐ F2 ☐ FOG ☐ NACE ☐ CE ☐ SI ☐ AX ☐ Other _____					
14	More information						

