

Automatic Control Ball Valves

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





FITOK

www.fitokgroup.com

Contents

Automatic Control Ball Valves

| | | |
|---|---|----|
| Pneumatic Actuated Ball Valves  | Features | 01 |
| | Product Range | 01 |
| | Pneumatic Actuator Operating Conditions | 02 |
| | Pneumatic Actuator Operating Principle | 02 |
| | Ordering Information | 03 |
| | Pneumatic Actuated Ball Valve Dimensions | 05 |
| | Pneumatic Actuator Dimensions | 07 |
| | PBK Mounting Kit Dimensions | 08 |
| | Accessories | 08 |
| Electric Actuated Ball Valves  | Features | 09 |
| | Product Range | 09 |
| | Electric Actuator Operating Conditions | 09 |
| | Electric Actuator Operating Principle | 10 |
| | Ordering Information | 10 |
| | Electric Actuated Ball Valve Dimensions | 12 |
| | Electric Actuator Dimensions and Technical Parameters | 13 |
| | Accessories | 14 |
| Ordering Number Description | 14 | |
| Application Questionnaire for Selection of Automatic Control Ball Valves | 15 | |

Automatic Control Ball Valves

Suitable for BF, BFH, BH, BO, BP, BV Series
 Available with pneumatic and electric actuation options

Pneumatic Actuated Ball Valves

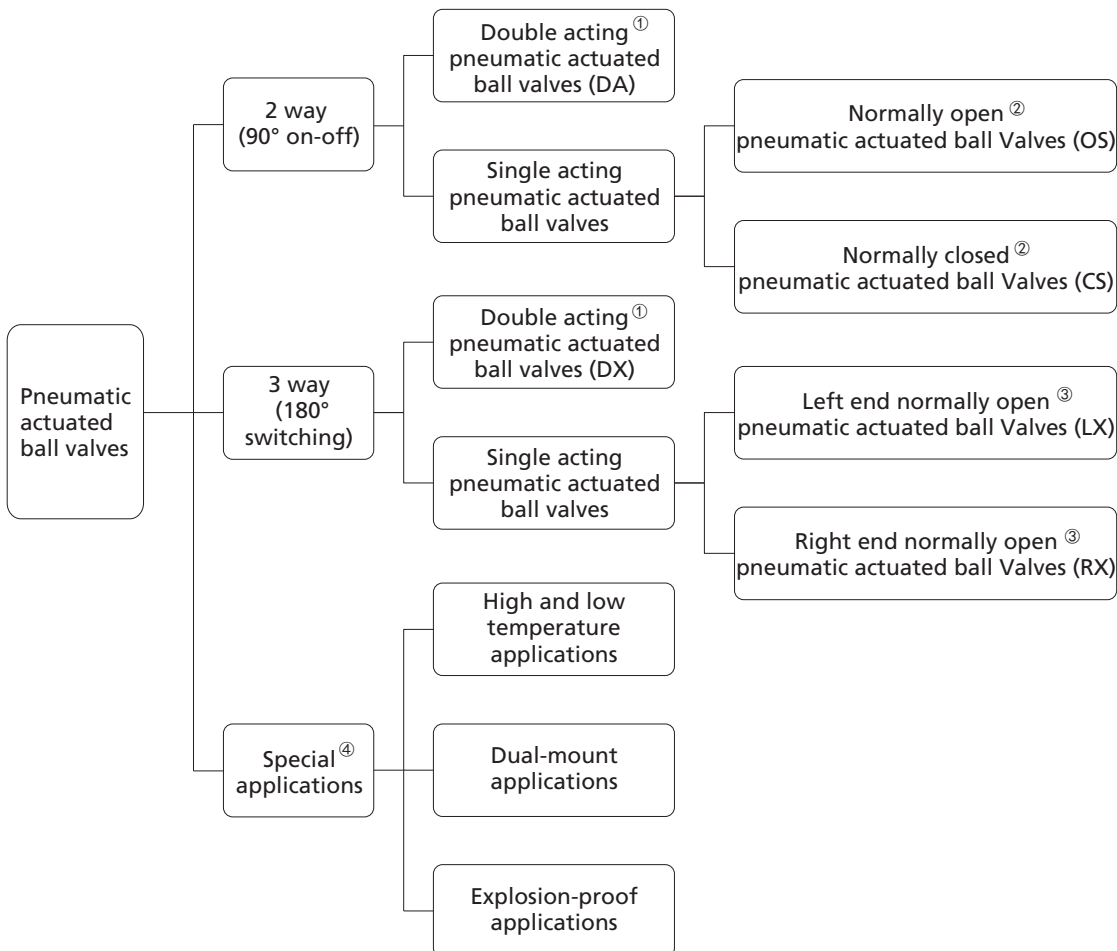
Features

- NPS: 1/8~2
- Medium working pressure up to: 10,000 psig (690 bar)
- Medium temperature range: -65°F to 450°F (-54°C to 232°C)
- Fast acting
- Air supply pressure as low as 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



BH series pneumatic ball valve

Product Range



NOTES: ① Air failure will cause the valve to stay at the position where the operation is disturbed.
 ② Air failure will cause to the valve to return to the original normally open or closed state.
 ③ Air failure will cause to the valve to return to the original left end/right end normally open state.
 ④ For special applications, please contact FITOK Group or our authorized distributors.

Pneumatic Actuator Operating Conditions

1. Air source

- dry and clean air

2. Air supply pressure

- Recommended pressure: 6 bar
- Maximum pressure: 8 bar
- For other air supply pressures, contact FITOK Group or our authorized distributors

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: -40°F to 176°F (-40°C to 80°C)
- Please contact FITOK Group or our authorized distributors for other working temperatures

4. Lubrication

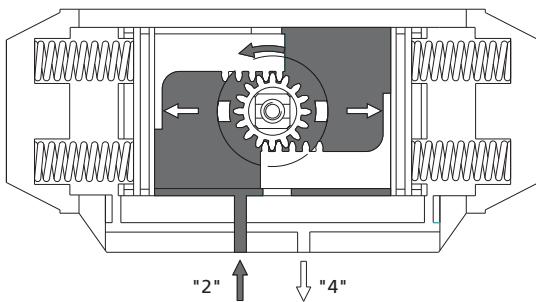
- Factory lubricated for the life of actuator under normal working conditions

5. Installation

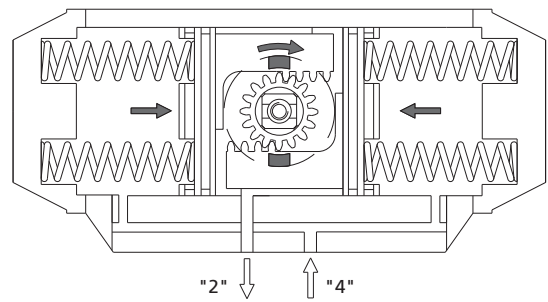
- The actuator can be installed at any orientation indoors or outdoors

Pneumatic Actuator Operating Principle

Single Acting Actuator

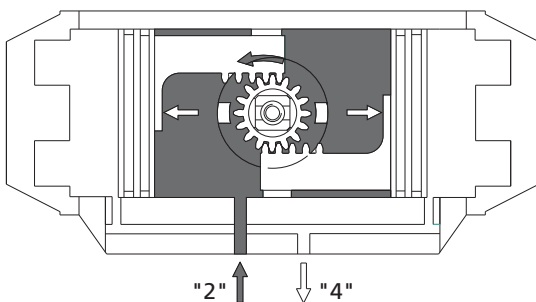


Air to port 2 forces the piston to move toward the end cap, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port 4.

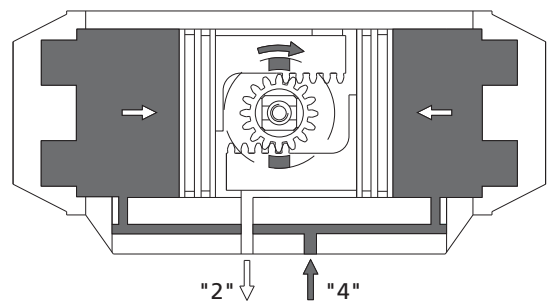


Following loss of air pressure on port 2, the stored energy in the springs forces the piston to move toward the center. The pinion turns clockwise while air is being exhausted from port 2.

Double Acting Actuator



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



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

Ordering Information

☉ Pneumatic Ball Valve

To order,

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

2-way valves:

CS for normally closed pneumatic actuated ball valve

OS for normally open pneumatic actuated ball valve

DA for double acting pneumatic actuated ball valve

Example: BHSS-FL8-10-CS

3-way valves:

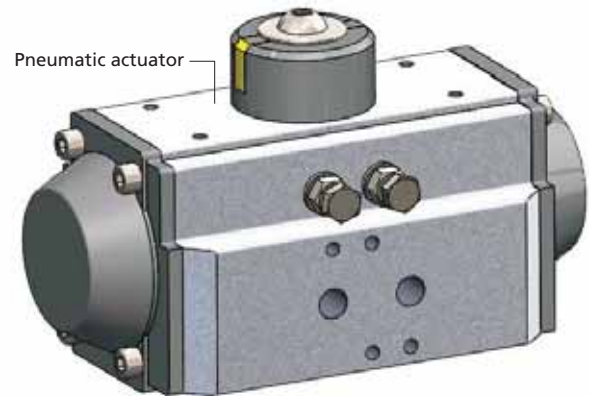
LX for left end normally open pneumatic actuated ball valve

RX for right end normally open pneumatic actuated ball valve

DX for double acting pneumatic actuated ball valve

Example: BHSS-FL8-10-DX3

Refer to *Ball Valves* catalog for more information.



☉ Pneumatic Actuator

To order, select a pneumatic actuator ordering number from **Ordering Information Table 1**, page 4.

☉ PBK Mounting Kit

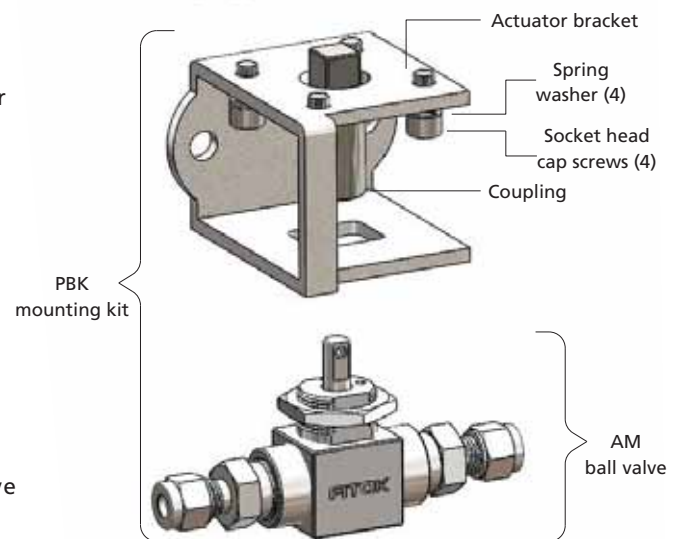
To order, select a kit ordering number from **Ordering Information Table 1**, page 4. The PBK mounting kit includes actuator bracket, coupling, AM ball valve, fastener and Installation instructions.

☉ AM Ball Valve

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

Example: BHSS-FL8-10-AM

Refer to **Ordering Information Table 1** on page 4 for additional information.



BF series pneumatic actuated ball valve (exploded view)

NOTE: The actuator assembly must be correctly aligned and supported. Incorrect alignment of the actuator assembly and improper support may cause leakage or premature valve failure.

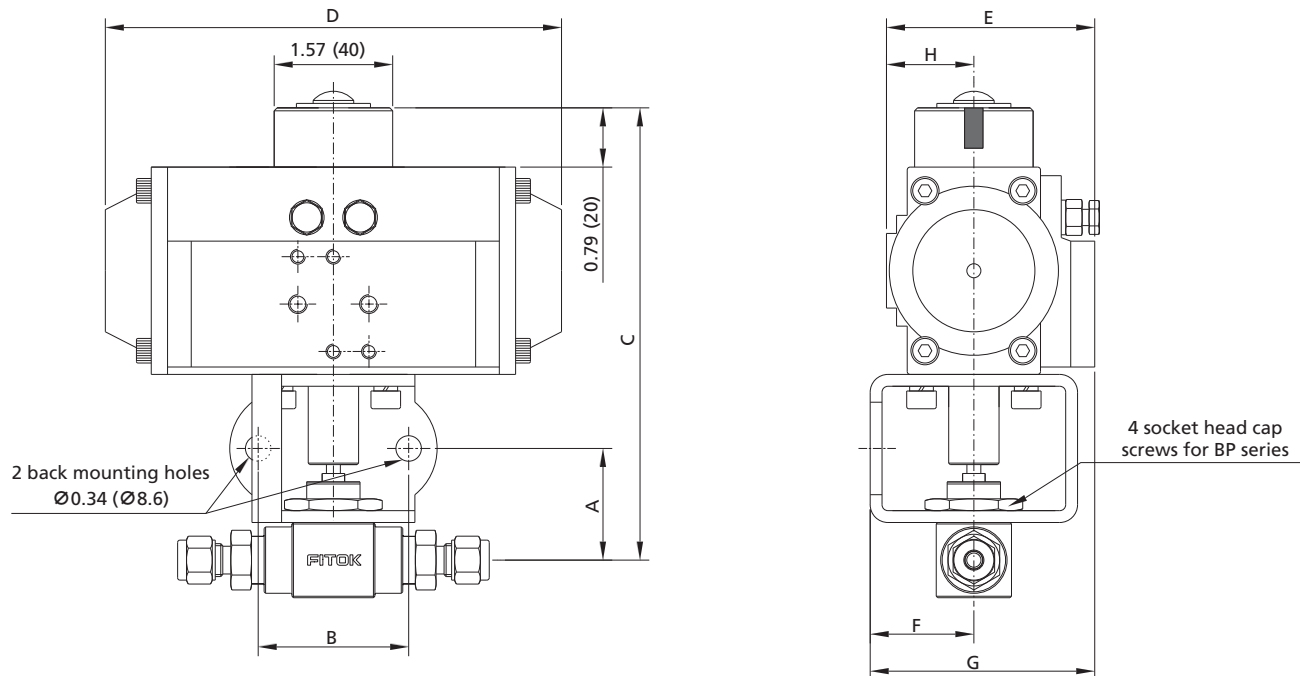
| Ordering Information Table 1 | | | | | | | | | | | | |
|------------------------------|---------------|----------------------|----------------------|---|----------------------|----------------------------------|----------------------|-------------------------------|-----------------------------------|-----------------------|-------------------|-----|
| Valve Series | Diameter Code | Actuator Code | | Pneumatic Actuator ^① Ordering Number | | PBK Mounting Kit Ordering Number | | AM Ball Valve Ordering Number | Maximum Torque (N·m) ^② | | | |
| | | Single Acting | Double Acting | Single Acting | Double Acting | Single Acting | Double Acting | | | | | |
| 2-way valves | | | | | | | | | | | | |
| BF | - | CS /OS | DA | AL-S90-8 | AL-D90-20 | BF□□-□□-□-F05-11 | | BF□□-□□-□-AM | 3.4 | | | |
| BFH | - | | | | | BFH□□-□□-□-F05-11 | | BFH□□-□□-□-AM | 5 | | | |
| BH | 05 | | | | | BH□□-□□-□05-F03-11 | | BH□□-□□-□05-AM | 2 | | | |
| | 07 | | | | | BH□□-□□-□07-F03-11 | | BH□□-□□-□07-AM | | | | |
| | 10 | | | | | BH□□-□□-□10-F03-11 | | BH□□-□□-□10-AM | | | | |
| | 13 | | | | | BH□□-□□-□13-F03-11 | | BH□□-□□-□13-AM | | | | |
| | 22 | | | | | AL-S90-24 | BH□□-□□-□22-F05-14 | BH□□-□□-□22-F05-11 | | BH□□-□□-□22-AM | 20 | |
| BH | 29 | | | | | AL-S90-35 | AL-D90-41 | BH□□-□□-□29-F07-17 | | BH□□-□□-□29-F07-14 | BH□□-□□-□29-AM | 30 |
| | 32 | | | | | | | BH□□-□□-□32-F07-17 | | BH□□-□□-□32-F07-14 | BH□□-□□-□32-AM | |
| | 38 | | | | | | | BH□□-□□-□38-F07-17 | | BH□□-□□-□38-F07-14 | BH□□-□□-□38-AM | |
| BO | 00 | | | | | AL-S90-8 | AL-D90-20 | BO□□-□□-□00-F03-11 | | BO□□-□□-□00-AM | 1.7 | |
| | 01 | | | | | | | BO□□-□□-□01-F03-11 | | BO□□-□□-□01-AM | | |
| | 02 | | | | | | | BO□□-□□-□02-F03-11 | | BO□□-□□-□02-AM | | |
| | 03 | | | | | | | BO□□-□□-□03-F03-11 | | BO□□-□□-□03-AM | | |
| | 05 | BO□□-□□-□05-F03-11 | | BO□□-□□-□05-AM | | | | | | | | |
| | 07 | BO□□-□□-□07-F03-11 | | BO□□-□□-□07-AM | | | | | | | | |
| BP | 10 | AL-S90-17 | AL-D90-20 | BP□□-□□-□10-F05-14 | | BP□□-□□-□10-F05-11 | BP□□-□□-□10-AM | 9 | | | | |
| | 13 | AL-S90-17 | | BP□□-□□-□13-F05-14 | | BP□□-□□-□13-F05-11 | BP□□-□□-□13-AM | 10 | | | | |
| | 19 | AL-S90-35 | | AL-D90-41 | BP□□-□□-□19-F05-17 | | BP□□-□□-□19-F05-14 | BP□□-□□-□19-AM | 15.9 | | | |
| BV | 02 | AL-S90-8 | AL-D90-20 | BV□□-□□-□02-F03-11 | | BV□□-□□-□02-AM | 2 | | | | | |
| | 03 | | | BV□□-□□-□03-F03-11 | | BV□□-□□-□03-AM | | | | | | |
| | 04 | | | BV□□-□□-□04-F03-11 | | BV□□-□□-□04-AM | | | | | | |
| | 05 | | | BV□□-□□-□05-F03-11 | | BV□□-□□-□05-AM | | | | | | |
| | 06 | | | BV□□-□□-□06-F03-11 | | BV□□-□□-□06-AM | | | | | | |
| 10 | AL-S90-17 | BV□□-□□-□10-F05-14 | | BV□□-□□-□10-F05-11 | BV□□-□□-□10-AM | 10 | | | | | | |
| 3-way valves | | | | | | | | | | | | |
| BF | - | LX /RX | DX | AL-S180-7 | AL-D180-24 | BF□□-□□-□-3-F04-11 | | BF□□-□□-□-3-F05-11 | BF□□-□□-□-3-AM | 3.4 | | |
| BFH | - | | | | | BFH□□-□□-□-3-F04-11 | | BFH□□-□□-□-3-F05-11 | BFH□□-□□-□-3-AM | 5 | | |
| BH | 05 | | | | | BH□□-□□-□05-3-F04-11 | | BH□□-□□-□05-3-F03-11 | BH□□-□□-□05-3-AM | 2 | | |
| | 07 | | | | | BH□□-□□-□07-3-F04-11 | | BH□□-□□-□07-3-F03-11 | BH□□-□□-□07-3-AM | | | |
| | 10 | | | | | BH□□-□□-□10-3-F04-11 | | BH□□-□□-□10-3-F03-11 | BH□□-□□-□10-3-AM | | | |
| | 13 | | | | | BH□□-□□-□13-3-F04-11 | | BH□□-□□-□13-3-F03-11 | BH□□-□□-□13-3-AM | | | |
| | 22 | | | | | AL-S180-26 | BH□□-□□-□22-3-F05-17 | | BH□□-□□-□22-3-F05-11 | | BH□□-□□-□22-3-AM | 20 |
| BO | 00 | | | | | AL-S180-7 | AL-D180-24 | BO□□-□□-□00-3L-F04-11 | | BO□□-□□-□00-3L-F03-11 | BO□□-□□-□00-3L-AM | 1.7 |
| | 01 | | | | | | | BO□□-□□-□01-3L-F04-11 | | BO□□-□□-□01-3L-F03-11 | BO□□-□□-□01-3L-AM | |
| | 02 | | | | | | | BO□□-□□-□02-3L-F04-11 | | BO□□-□□-□02-3L-F03-11 | BO□□-□□-□02-3L-AM | |
| | 03 | | | | | | | BO□□-□□-□03-3L-F04-11 | | BO□□-□□-□03-3L-F03-11 | BO□□-□□-□03-3L-AM | |
| | 05 | | | | | | | BO□□-□□-□05-3L-F04-11 | | BO□□-□□-□05-3L-F03-11 | BO□□-□□-□05-3L-AM | |
| | 07 | | | | | | | BO□□-□□-□07-3L-F04-11 | | BO□□-□□-□07-3L-F03-11 | BO□□-□□-□07-3L-AM | |
| BP | 10 | | | | | AL-S180-13 | BP□□-□□-□10-3-F05-14 | | BP□□-□□-□10-3-F05-11 | BP□□-□□-□10-3-AM | 11.2 | |
| | 13 | AL-S180-13 | BP□□-□□-□13-3-F05-14 | | BP□□-□□-□13-3-F05-11 | BP□□-□□-□13-3-AM | 9 | | | | | |
| | 19 | AL-S180-13 | BP□□-□□-□19-3-F05-14 | | BP□□-□□-□19-3-F05-11 | BP□□-□□-□19-3-AM | 10 | | | | | |
| BV | 02 | AL-S180-7 | AL-D180-24 | BV□□-□□-□02-3-F04-11 | | BV□□-□□-□02-3-F03-11 | BV□□-□□-□02-3-AM | 2 | | | | |
| | 03 | | | BV□□-□□-□03-3-F04-11 | | BV□□-□□-□03-3-F03-11 | BV□□-□□-□03-3-AM | | | | | |
| | 04 | | | BV□□-□□-□04-3-F04-11 | | BV□□-□□-□04-3-F03-11 | BV□□-□□-□04-3-AM | | | | | |
| | 05 | | | BV□□-□□-□05-3-F04-11 | | BV□□-□□-□05-3-F03-11 | BV□□-□□-□05-3-AM | | | | | |
| | 06 | | | BV□□-□□-□06-3-F04-11 | | BV□□-□□-□06-3-F03-11 | BV□□-□□-□06-3-AM | | | | | |
| 10 | AL-S180-13 | BV□□-□□-□10-3-F05-14 | | BV□□-□□-□10-3-F05-11 | BV□□-□□-□10-3-AM | 10 | | | | | | |

NOTES: ① Recommended air supply pressure of pneumatic actuator is 6 bar. If the supply pressure is lower than 6 bar, contact FITOK Group or our authorized distributors.

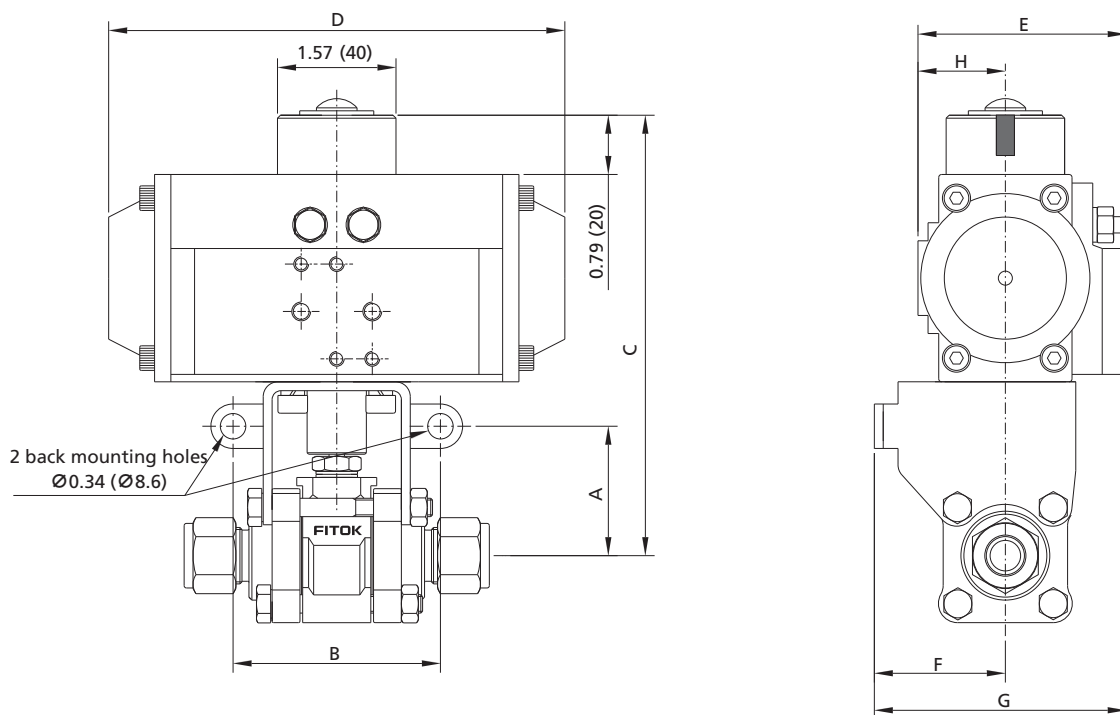
② Torque value is obtained during test with dry and clean Nitrogen or air at maximum working pressure and room temperature (if maximum working pressure is greater than 6000 psig, use water as test medium). Lower or higher temperatures, can cause increased operating torque. Different system fluids have varying viscosities, bringing about different levels of friction and affecting operating torque. Some lightweight oils may reduce operating torque. Dirty, abrasive, or highly viscous fluids may increase operating torque.

Pneumatic Actuated Ball Valve Dimensions

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 Group or our authorized distributors.



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



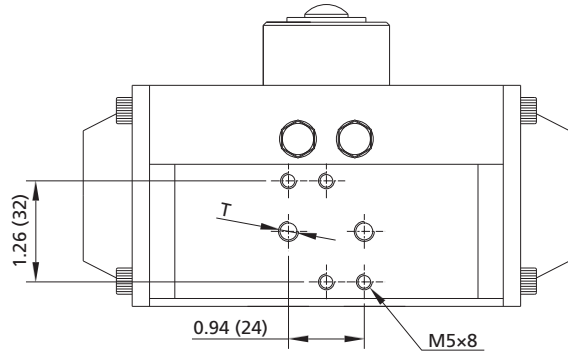
BH series ball valves

| Valve Series | Diameter Code | Actuator Code | Dimensions, in. (mm) | | | | | | | | | | | | |
|---------------------|-----------------|---------------|----------------------|------------|--------------|--------------|--------------|-------------|--------------|-------------|-------------|-------------|-----------|-------------|-----------|
| | | | A | B | C | D | E | F | G | H | | | | | |
| 2-way valves | | | | | | | | | | | | | | | |
| BF | - | CS/OS | 1.48 | 2 | 6.01 | 6.06 | 2.78 | 1.38 | 3.01 | 1.14 | | | | | |
| BFH | | DA | (37.7) | (50.8) | (152.7) | (154) | (70.5) | (35) | (76.5) | | | | | | |
| BH | 05/07 | CS/OS | 1.07 | 3.94 | 5.17 | 6.06 | 2.78 | 1.77 | 3.41 | 1.14 | | | | | |
| | | DA | (27.2) | (100) | (131.2) | (154) | (70.5) | (45) | (86.5) | | | | | | |
| | 10/13 | CS/OS | 1.71 | 2.76 | 5.85 | 6.06 | 2.78 | 2.01 | 3.64 | | | | | | |
| | | DA | (43.5) | (70) | (148.5) | (154) | (70.5) | (51) | (92.5) | | | | | | |
| | 22 | CS/OS | 2 | 3.94 | 7.65 (194.3) | 8.27 (210) | 4.04 (102.5) | 2.46 | 4.78 (121.5) | | 1.71 (43.5) | | | | |
| | | DA | (50.8) | (100) | 6.47 (164.3) | 6.06 (154) | 2.78 (70.5) | (62.5) | 4.09 (104) | | 1.14 (29) | | | | |
| | 29/32 | CS/OS | 2.41 | 5 | 8.3 (210.9) | 8.27 (210) | 4.04 (102.5) | 2.78 | 5.1 (129.5) | | 1.71 (43.5) | | | | |
| | | DA | (61.2) | (127) | 7.87 (199.9) | 7.44 (189) | 3.52 (89.5) | (70.5) | 4.8 (122) | | 1.50 (38) | | | | |
| | 38 | CS/OS | 2.76 | 5.51 | 8.98 (228) | 9.02 (229) | 4.43 (112.5) | 2.95 | 5.45 (138.5) | | 1.93 (49) | | | | |
| | | DA | (70) | (140) | 8.03 (204) | 7.44 (189) | 3.52 (89.5) | (75) | 4.98 (126.5) | | 1.50 (38) | | | | |
| BO | 00/01/ 02/03 | CS/OS | 1.13 | 2 | 5.46 | 6.06 (154) | 2.78 (70.5) | 1.18 (30) | 2.81 (71.5) | 1.14 (29) | | | | | |
| | | DA | (28.6) | | (138.6) | | | | | | | | | | |
| | 05 | CS/OS | 1.23 | | 5.56 | | | | | | | | | | |
| | | DA | (31.2) | | (141.2) | | | | | | | | | | |
| | 07 | CS/OS | 1.35 | | 5.68 | | | | | | | | | | |
| | | DA | (34.2) | | (144.2) | | | | | | | | | | |
| | 10 | CS/OS | 1.67 | | 6.95 (176.5) | | | | | | 7.44 (189) | 3.52 (89.5) | 1.38 (35) | 3.41 (86.5) | 1.50 (38) |
| | | DA | (42.5) | | 6.2 (157.5) | | | | | | 6.06 (154) | 2.78 (70.5) | | | |
| BP | 10 | CS/OS | 1.61 | 2.60 (66) | 6.89 (175) | 7.44 (189) | 3.52 (89.5) | 1.38 (35) | 3.41 (86.5) | 1.50 (38) | | | | | |
| | | DA | (40.9) | | 6.14 (156) | 6.06 (154) | 2.78 (70.5) | | | | | | | | |
| | 13 | CS/OS | 1.73 | | 7.00 (178) | 7.44 (189) | 3.52 (89.5) | | | | 3.41 (86.5) | 1.50 (38) | | | |
| | | DA | (44) | | 6.26 (159) | 6.06 (154) | 2.78 (70.5) | | | | | | | | |
| | 19 | CS/OS | 1.97 | | 8.19 (208) | 9.02 (229) | 4.43 (112.5) | | | | 3.88 (98.5) | 1.93 (49) | | | |
| | | DA | (50) | | 7.24 (184) | 7.44 (189) | 3.52 (89.5) | | | | | | | | |
| | BV | 02/03/04 | CS/OS | | 1.12 | 1.69 | 5.45 | | | | 6.06 | 2.78 | 1.18 (30) | 2.81 (71.5) | 1.14 (29) |
| | | | DA | | (28.5) | (42.8) | (138.5) | | | | (154) | (70.5) | | | |
| 05/06 | | CS/OS | 1.27 | 2 (50.8) | 5.59 | 6.06 | 2.78 | | | | | | | | |
| | | DA | (32.2) | | (142.2) | (154) | (70.5) | | | | | | | | |
| 10 | | CS/OS | 1.69 | | 6.97 (177) | 7.44 (189) | 3.52 (89.5) | 1.38 (35) | 3.41 (86.5) | 1.50 (38) | | | | | |
| | | DA | (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 | 3.01 (76.5) | 1.14 (29) | | | | |
| BFH | | DX | (37.7) | (50.8) | 6.09 (154.7) | 8.39 (213) | 2.81 (71.5) | (35) | 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 | 3.41 | 1.14 (29) | | | | | |
| | | DX | (27.2) | (100) | 5.17 (133.2) | 8.39 (213) | 2.81 (71.5) | (45) | (86.5) | 1.18 (30) | | | | | |
| | 10/13 | LX/RX | 1.71 | 2.76 | 5.85 (147.5) | 10.16 (258) | 2.8 (71) | 2.01 | 3.64 (92.5) | 1.14 (29) | | | | | |
| | | DX | (43.5) | (70) | 5.85 (150.5) | 8.39 (213) | 2.81 (71.5) | (51) | 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 | 4.51 (114.5) | 1.67 (42.5) | | | | | |
| | | DX | (50.8) | (100) | 6.55 (166.3) | 8.39 (213) | 2.81 (71.5) | (62.5) | 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) | 1.38 (35) | 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 (66) | 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 (50.8) | 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 | 3.23 (82) | 1.42 (36) | | | | |
| | | DX | (43) | | 6.30 (160) | 8.39 (213) | 2.81 (71.5) | | (35) | 3.01 (76.5) | 1.18 (30) | | | | |

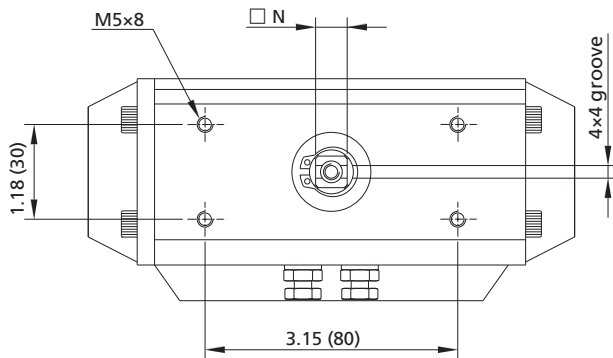
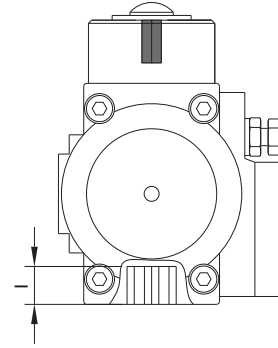
Pneumatic Actuator Dimensions

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

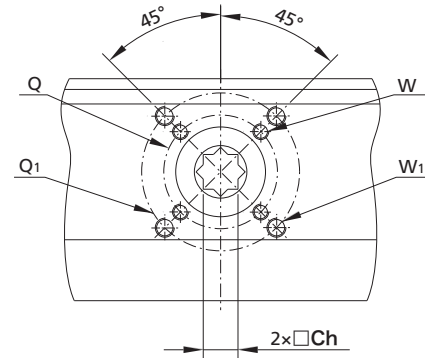
For dimensions of special application pneumatic actuator, please contact FITOK Group or our authorized distributors.



VDI/VDE 3845 (NAMUR)
(front view)



VDI/VDE 3845 (NAMUR)
(top view)

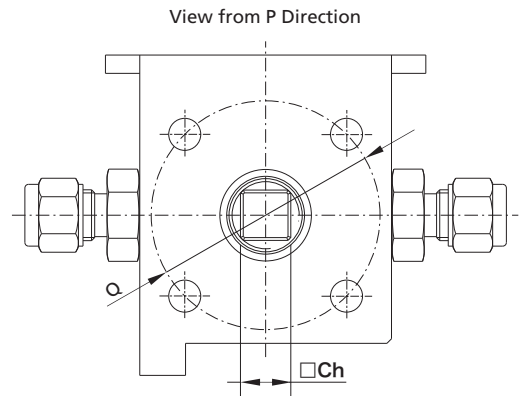
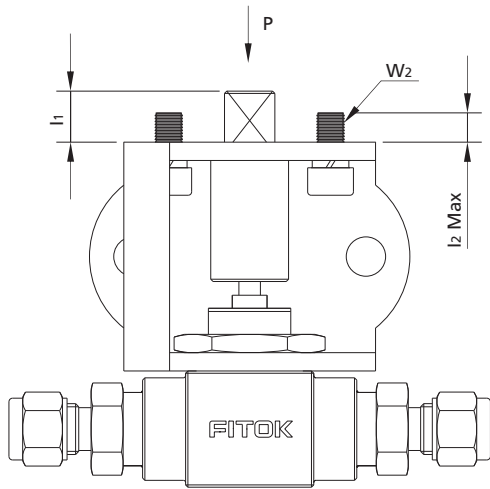


ISO 5211
(bottom view)

| Actuator Code | Pneumatic Actuator Ordering Number | ISO 5211 Flange Size | Dimensions, in. (mm) | | | | | | | |
|-----------------------------|------------------------------------|----------------------|----------------------|--------------|--------------|--------------|------------|-----------|-------|--------------|
| | | | Ch | I | Q | Q1 | W | W1 | T | N |
| 90° degree actuator | | | | | | | | | | |
| CS/OS | AL-S90-8 | F03/F05 | 0.43 (11) | 0.47 (12) | 1.42 (36) | 1.97 (50) | M5 x7.5 | M6x9 | G1/4" | 0.39 (10) |
| | AL-S90-17 | F05/F07 | 0.55 (14) | 0.63 (16) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/4" | 0.39 (10) |
| | AL-S90-24 | F05/F07 | 0.55 (14) | 0.63 (16) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/4" | 0.55 (14) |
| | AL-S90-35 | F05/F07 | 0.67 (17) | 0.75 (19) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/4" | 0.55 (14) |
| DA | AL-D90-20 | F03/F05 | 0.43 (11) | 0.47 (12) | 1.42 (36) | 1.97 (50) | M5 x7.5 | M6x9 | G1/4" | 0.39 (10) |
| | AL-D90-41 | F05/F07 | 0.55 (14) | 0.63 (16) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/4" | 0.39 (10) |
| 180° degree actuator | | | | | | | | | | |
| LX/RX | AL-S180-7 | F04 | 0.43 (11) | 0.47 (12) | 1.65 (42) | - | M5x8 | - | G1/8" | 0.43 (11) |
| | AL-S180-13 | F05/F07 | 0.43 (11) | 0.47 (12) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/8" | 0.43 (11) |
| | AL-S180-26 | F05/F07 | 0.67 (17) | 0.75 (19) | 1.97 (50) | 2.76 (70) | M6x9 | M8 x12 | G1/8" | 0.67 (17) |
| DX | AL-D180-24 | F03/F05 | 0.43 (11) | 0.55 (14) | 1.42 (36) | 1.97 (50) | M5x8 | M6 x10 | G1/4" | - |

PBK Mounting Kit Dimensions

Only mounting dimensions are available. For other dimensions, refer to **Pneumatic Actuated Ball Valve Dimensions**, page 5.



ISO 5211 mounting dimensions (top view)

| PBK Mounting Kit Ordering Number | ISO 5211 Flange Size | Dimensions, in. (mm) | | | | |
|----------------------------------|----------------------|----------------------|-----------|-------|-----------|-----------|
| | | Q | Ch | W2 | I1 | I2 (Max) |
| □□□□-□□-□□□□-□-□-□ F03-11 | F03 | 1.42 (36) | 0.43 (11) | M5×10 | 0.39 (10) | 0.28 (7) |
| □□□□-□□-□□□□-□-□-□ F05-11 | F05 | 1.97 (50) | 0.43 (11) | M6×12 | 0.39 (10) | 0.29 (8) |
| □□□□-□□-□□□□-□-□-□ F05-14 | F05 | 1.97 (50) | 0.55 (14) | M6×12 | 0.55 (14) | 0.29 (8) |
| □□□□-□□-□□□□-□-□-□ F05-17 | F05 | 1.97 (50) | 0.55 (14) | M6×12 | 0.67 (17) | 0.29 (8) |
| □□□□-□□-□□□□-□-□-□ F04-11 | F04 | 1.65 (42) | 0.43 (11) | M5×10 | 0.39 (10) | 0.28 (7) |
| □□□□-□□-□□□□-□-□-□ F07-14 | F07 | 2.76 (70) | 0.55 (14) | M8×16 | 0.47 (12) | 0.43 (11) |
| □□□□-□□-□□□□-□-□-□ F07-17 | F07 | 2.76 (70) | 0.67 (17) | M8×16 | 0.59 (15) | 0.43 (11) |

Accessories

Solenoid Valves

A solenoid valve can be attached to the pneumatic actuator to create an electropneumatically assembly.

Power source: 24V DC

Type: 2-position 3-way for single-acting pneumatic actuators
5-position 2-way for double-acting pneumatic actuators

Working temperature: 32°F to 122°F (0°C to 50°C)

Body material: Aluminum Alloy

Limit Switches

The limit switch can generate an electrical signal to indicate the current position of the actuator.

Power source: 24V DC

Type: Mechanical limit switch which generates electrical signals through contacts
Inductive limit switch which generates electrical signals through magnetic fields

Working temperature: -40°F to 185°F (-40°C to 85°C)

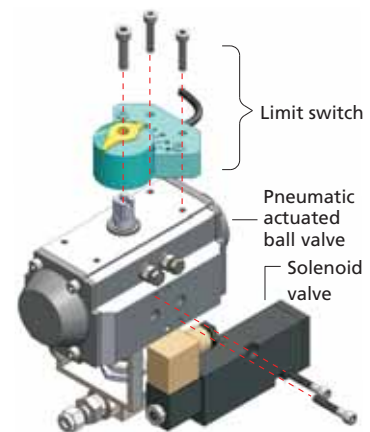
Body material: Engineering plastics

Explosion-proof Applications

If explosion-proof pneumatic actuators, solenoid valves and limit switches are required, please contact FITOK Group or our authorized distributors.

Dual-mount Applications

Two valves may be actuated with a single actuator.
For more details, please contact FITOK Group or our authorized distributors.



Pneumatic actuated ball valve with limit switch and solenoid valve (exploded view)



BF series pneumatic actuated ball valves mounted on a single actuator

Electric Actuated Ball Valves

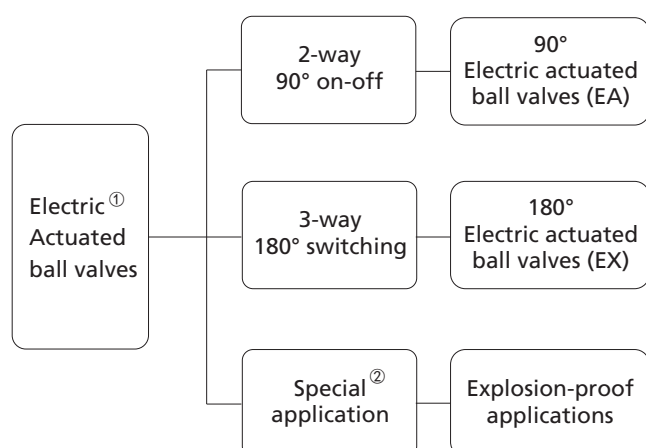
Feature

- ⊙ NPS: 1/8~2
- ⊙ Medium working pressure up to 10,000 psig (690 bar)
- ⊙ Medium temperature range: -65°F to 450°F (-54°C to 232°C)
- ⊙ Quick on-off operation
- ⊙ 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 electric actuated ball valve

Product Range



Note: ① The valve will stay in its current position where the actuator is de-energized. In such case, use the handle for manual operation instead.

② For special applications, please contact FITOK Group or our authorized distributors.

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

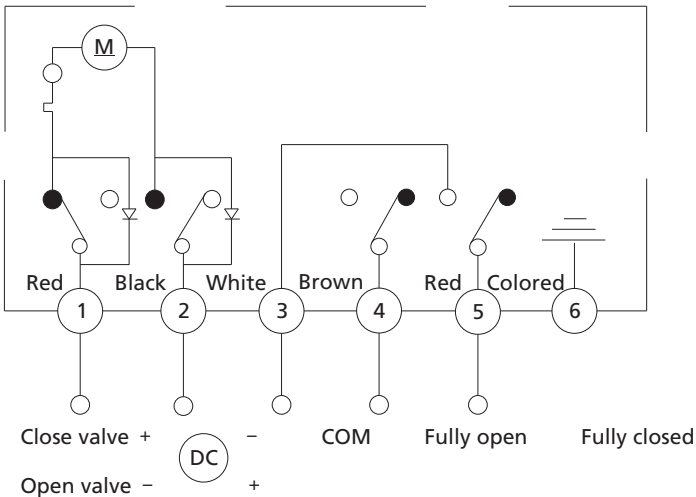
4. Lubrication

- ⊙ 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 rain splash

Electric Actuator Operating Principle



- ⦿ The opening and closing operation is realized by DC switching volume output from external DC power supply and outputs a groups of passive contact signals corresponding to fully open or fully closed positions.
- ⦿ Built-in overheat protection device protects the electric actuator from overheating.

Ordering Information

⦿ Electric Actuated Ball Valve

To order, select an applicable ball valve from *Ball Valves* catalog, and based on the required valve status, determine the actuator type:
 EA for 90° electric actuated 2-way ball valve
 Example: BHSS-FL8-10-EA
 EX for 180° electric actuated 3-way ball valve
 Example: BHSS-FL8-P10-EX3
 Refer to *Ball Valves* catalog for more information.

⦿ Electric Actuator

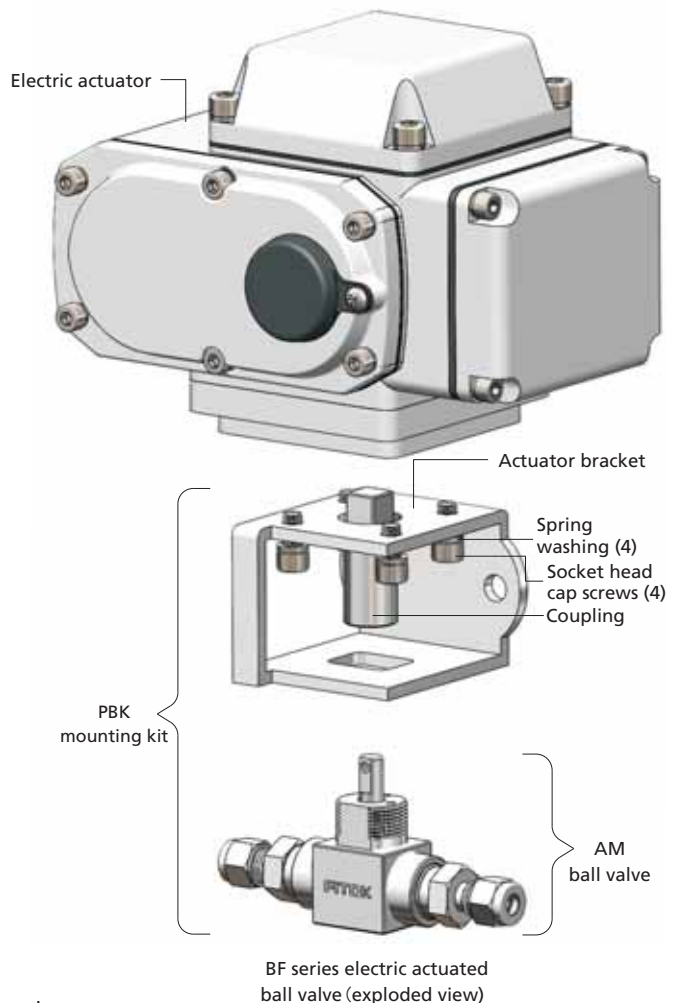
To order, select an electric actuator ordering number from **Ordering Information Table 2**, page 11.

⦿ PBK Mounting Kit

To order, select a kit ordering number from **Order Information Table 2**, page 11.
 PBK mounting kit includes actuator bracket, coupling, AM ball valve, fastener and installation instructions.

⦿ AM Ball Valve

To order, add a suffix -AM to the applicable ball valve ordering number.
 Example: BHSS-FL8-10-AM.
 Refer to the **Ordering Information Table 2** on page 11 for additional information.



Note: The actuator assembly must be properly aligned and supported. Improper alignment of the actuator assembly and improper support may cause leakage or premature valve failure.

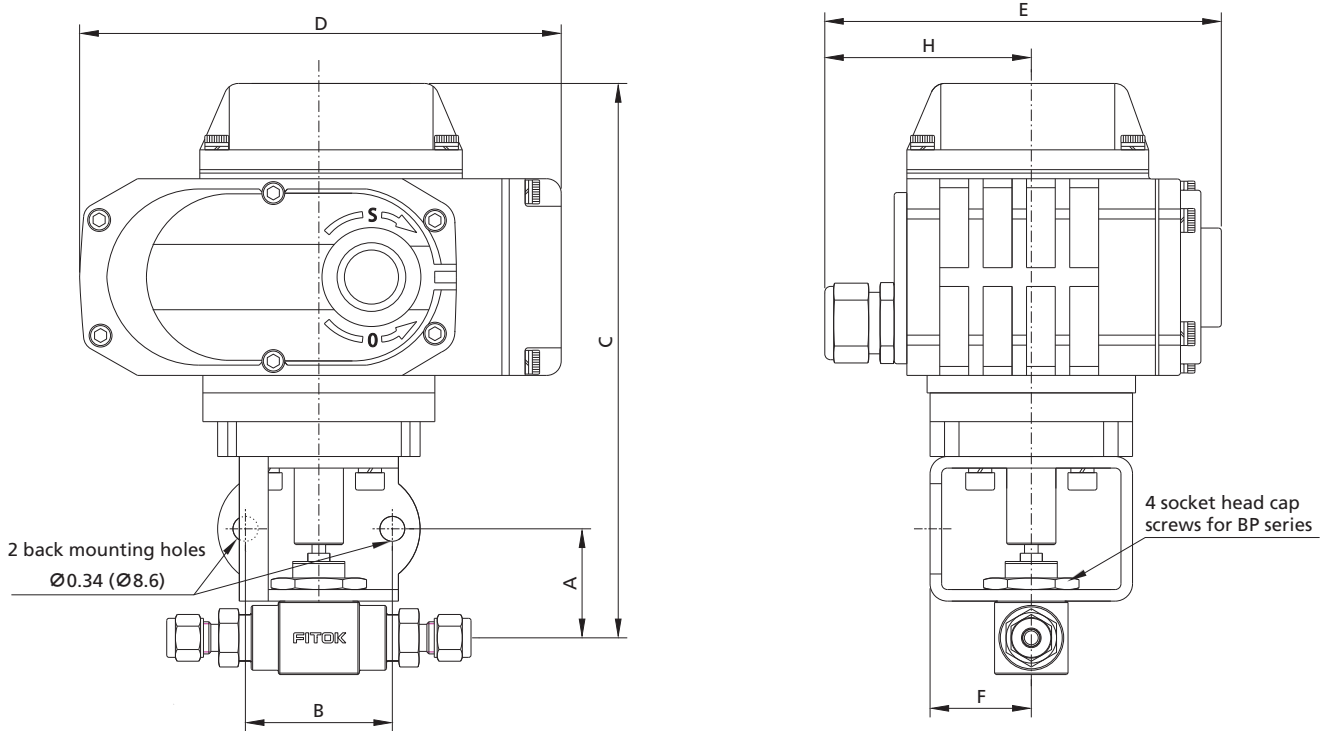
| Ordering Information Table 2 | | | | | | | |
|------------------------------|---------------|----------------------|---|----------------------------------|-------------------------------|-----------------------------------|-----|
| Valve Series | Diameter Code | Actuator Code | Pneumatic Actuator Ordering Number ^① | PBK Mounting Kit Ordering Number | AM Ball Valve Ordering Number | Maximum ^② Torque (N·m) | |
| 2-way valves | | | | | | | |
| BF | - | EA | EA-20G4 | BF□□-□□-□-F05-11 | BF□□-□□-□-AM | 3.4 | |
| BFH | - | | | BFH□□-□□-□-F05-11 | BFH□□-□□-□-AM | 5 | |
| BH | 05 | | | BH□□-□□-□05-F03-11 | BH□□-□□-□05-AM | 2 | |
| | 07 | | | BH□□-□□-□07-F03-11 | BH□□-□□-□07-AM | | |
| | 10 | | | BH□□-□□-□10-F03-11 | BH□□-□□-□10-AM | 7.5 | |
| | 13 | | | BH□□-□□-□13-F03-11 | BH□□-□□-□13-AM | | |
| | 22 | | | BH□□-□□-□22-F05-14 | BH□□-□□-□22-AM | | 20 |
| | 29 | | | BH□□-□□-□29-F07-14 | BH□□-□□-□29-AM | | |
| BO | 32 | | | BH□□-□□-□32-F07-14 | BH□□-□□-□32-AM | 30 | |
| | 38 | | | BH□□-□□-□38-F07-14 | BH□□-□□-□38-AM | | |
| | BO | | 00 | EA-20G4 | BO□□-□□-□00-F03-11 | BO□□-□□-□00-AM | 1.7 |
| | | | 01 | | BO□□-□□-□01-F03-11 | BO□□-□□-□01-AM | |
| 02 | | | BO□□-□□-□02-F03-11 | | BO□□-□□-□02-AM | | |
| 03 | | | BO□□-□□-□03-F03-11 | | BO□□-□□-□03-AM | | |
| 05 | | | BO□□-□□-□05-F03-11 | | BO□□-□□-□05-AM | | |
| 07 | | | BO□□-□□-□07-F03-11 | | BO□□-□□-□07-AM | | |
| 10 | | | BO□□-□□-□10-F05-11 | | BO□□-□□-□10-AM | | |
| BP | 10 | | EA-50G4 | BP□□-□□-□10-F05-11 | BP□□-□□-□10-AM | 9 | |
| | 13 | | | BP□□-□□-□13-F05-11 | BP□□-□□-□13-AM | 10 | |
| | 19 | | | BP□□-□□-□19-F05-14 | BP□□-□□-□19-AM | 15.9 | |
| BV | 02 | EA-20G4 | BV□□-□□-□02-F03-11 | BV□□-□□-□02-AM | 2 | | |
| | 03 | | BV□□-□□-□03-F03-11 | BV□□-□□-□03-AM | | | |
| | 04 | | BV□□-□□-□04-F03-11 | BV□□-□□-□04-AM | | | |
| | 05 | | BV□□-□□-□05-F03-11 | BV□□-□□-□05-AM | 4 | | |
| | 06 | | BV□□-□□-□06-F03-11 | BV□□-□□-□06-AM | | | |
| | 10 | | BV□□-□□-□10-F05-11 | BV□□-□□-□10-AM | | 10 | |
| | | | | | | | |
| 3-way valves | | | | | | | |
| BF | - | EX | EA-20G8 | BF□□-□□-□-3-F05-11 | BF□□-□□-□-3-AM | 3.4 | |
| BFH | - | | | BFH□□-□□-□-3-F05-11 | BFH□□-□□-□-3-AM | 5 | |
| BH | 05 | | | BH□□-□□-□05-3-F03-11 | BH□□-□□-□05-3-AM | 2 | |
| | 07 | | | BH□□-□□-□07-3-F03-11 | BH□□-□□-□07-3-AM | | |
| | 10 | | | BH□□-□□-□10-3-F03-11 | BH□□-□□-□10-3-AM | 7.5 | |
| | 13 | | | BH□□-□□-□13-3-F03-11 | BH□□-□□-□13-3-AM | | |
| | 22 | | | BH□□-□□-□22-3-F05-14 | BH□□-□□-□22-3-AM | | 20 |
| | | | | | | | |
| BO | 00 | | | EA-50G8 | BO□□-□□-□00-3L-F03-11 | BO□□-□□-□00-3L-AM | 1.7 |
| | 01 | | | | BO□□-□□-□01-3L-F03-11 | BO□□-□□-□01-3L-AM | |
| | 02 | | BO□□-□□-□02-3L-F03-11 | | BO□□-□□-□02-3L-AM | | |
| | 03 | | BO□□-□□-□03-3L-F03-11 | | BO□□-□□-□03-3L-AM | | |
| | 05 | | BO□□-□□-□05-3L-F03-11 | | BO□□-□□-□05-3L-AM | | |
| | 07 | | BO□□-□□-□07-3L-F03-11 | | BO□□-□□-□07-3L-AM | | |
| | 10 | | BO□□-□□-□10-3L-F05-11 | | BO□□-□□-□10-3L-AM | | |
| BP | 10 | | EA-20G8 | BP□□-□□-□10-3-F05-11 | BP□□-□□-□10-3-AM | 9 | |
| | 13 | | | BP□□-□□-□13-3-F05-11 | BP□□-□□-□13-3-AM | 10 | |
| | | | | | | | |
| BV | 02 | | EA-20G8 | BV□□-□□-□02-3-F03-11 | BV□□-□□-□02-3-AM | 2 | |
| | 03 | | | BV□□-□□-□03-3-F03-11 | BV□□-□□-□03-3-AM | | |
| | 04 | BV□□-□□-□04-3-F03-11 | | BV□□-□□-□04-3-AM | | | |
| | 05 | BV□□-□□-□05-3-F03-11 | | BV□□-□□-□05-3-AM | 4 | | |
| | 06 | BV□□-□□-□06-3-F03-11 | | BV□□-□□-□06-3-AM | | | |
| | 10 | BV□□-□□-□10-3-F05-11 | | BV□□-□□-□10-3-AM | | 10 | |
| | | | | | | | |

NOTES: ① The power supply voltage of the electric actuator is 24V DC.

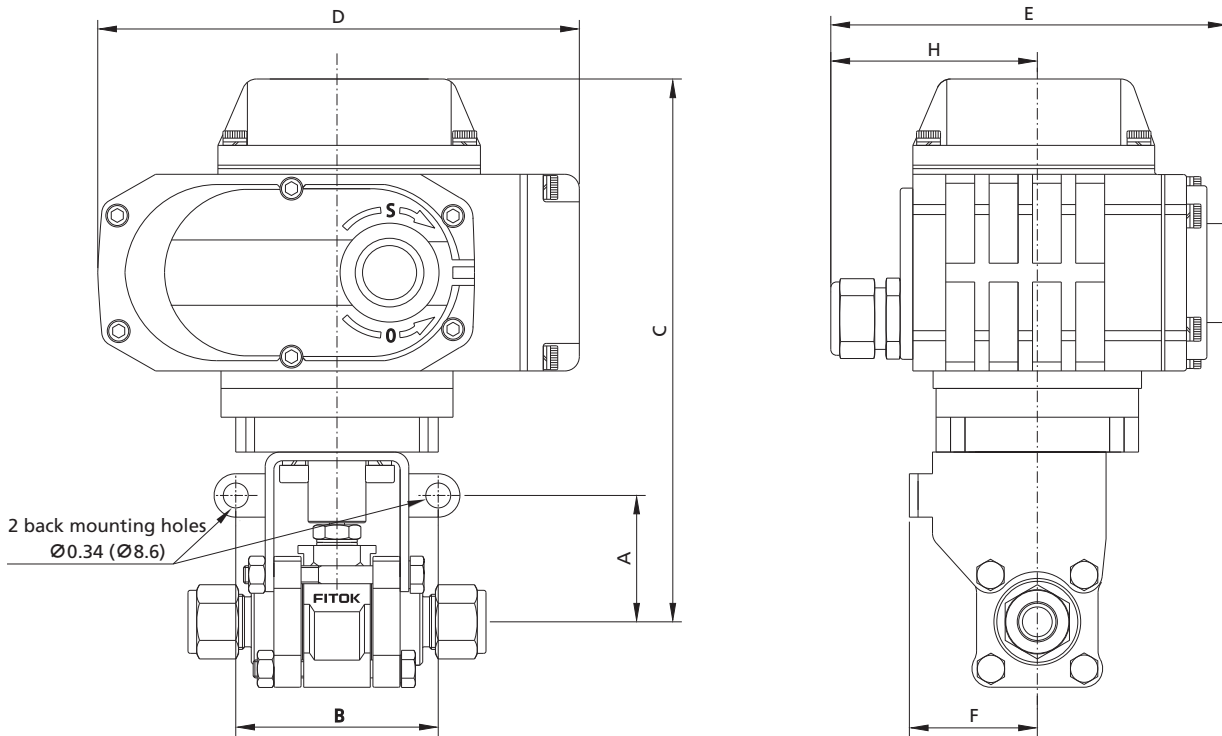
② Torque value is obtained during test with dry and clean Nitrogen or air at maximum working pressure and room temperature (if maximum working pressure is greater than 6000 psig, use water as test medium). Lower or higher temperatures, can cause increased operating torque. Different system fluids have varying viscosities, bringing about different levels of friction and affecting operating torque. Some lightweight oils may reduce operating torque. Dirty, abrasive, or highly viscous fluids may increase operating torque.

Electric Actuated Ball Valve Dimensions

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

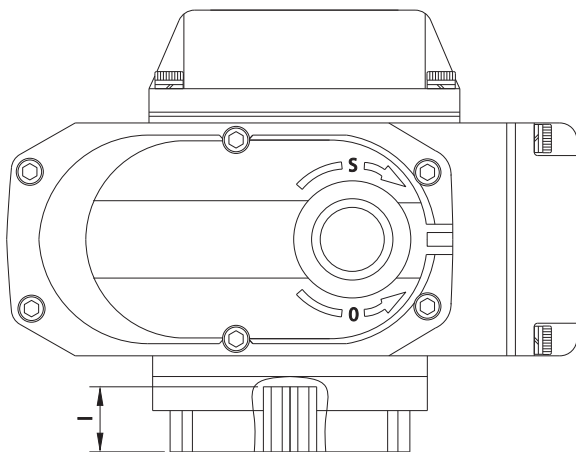


BH series ball valves

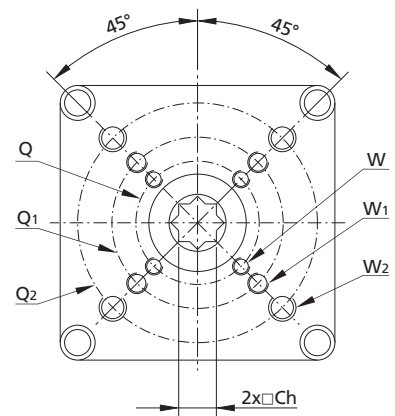
| Valve Series | Diameter Code | Actuator Code | Dimensions, in. (mm) | | | | | | |
|---------------------|---------------|---------------|----------------------|----------------|-----------------|-----------------|---------------|--------------|--------------|
| | | | A | B | C | D | E | F | H |
| 2-way valves | | | | | | | | | |
| BF | - | EA | 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 | - | | 1.07(27.2) | 3.94(100) | 6.70(170.2) | | | 1.77(45) | |
| BH | 05/07 | | 1.71(43.5) | 2.76(70) | 7.38(187.5) | 7.68 (195) | 5.67 (144) | 2.01(51) | 2.83 (72) |
| | 10/13 | | 2.00(50.8) | 3.94(100) | 8.00(234.8) | | | 2.46(62.5) | |
| | 22 | | 2.41(61.2) | 5.00(127) | 9.90(251.8) | | | 2.78(70.5) | |
| | 29/32 | | 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) | 1.38 (35) | | | | |
| | 10 | | 1.67(42.5) | 2.28(58) | | | | 7.74(196.5) | |
| BP | 10 | | 1.61(40.9) | 2.60 (66) | 7.68(195) | 7.68(195) | 5.67(144) | 1.38 (35) | 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 | - | | 1.07(27.2) | 3.94(100) | 6.70(170.2) | | | 1.77(45) | |
| BH | 05/07 | | 1.71(43.5) | 2.76(70) | 7.38(187.5) | 7.68(195) | 5.67(144) | 2.01(51) | 2.83(72) |
| | 10/13 | | 2.00(50.8) | 3.94(100) | 8.00(234.8) | | | 2.46(62.5) | |
| | 22 | | 2.41(61.2) | 5.00(127) | 9.90(251.8) | | | 2.78(70.5) | |
| 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) | 1.38 (35) | | | | |
| | 10 | | 1.67(42.5) | 2.28(58) | | | | 7.74(196.5) | |
| BP | 10 | | 1.61(40.9) | 2.60 (66) | 7.68(195) | 7.68(195) | 5.67(144) | 1.38 (35) | 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) | 2.87 (73) |
| | 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
(bottom view)



| Actuator Code | Electric Actuator Ordering Number | ISO 5211 Flange Size | Dimensions, in. (mm) | | | | | | | | Technical Parameters | |
|-----------------------------|-----------------------------------|----------------------|----------------------|--------------|--------------|--------------|--------------|----|----|----|----------------------|---------------|
| | | | I | Ch | Q | Q1 | Q2 | W | W1 | Q2 | Voltage | Rated Current |
| 90° degree actuator | | | | | | | | | | | | |
| EA | EA-20G4 | F03/F05/F07 | 0.75 (19) | 0.43 (11) | 1.42 (36) | 1.97 (50) | 2.76 (70) | M5 | M6 | M8 | DC 24V | 1.28A |
| | EA-50G4 | F05/F07 | 1.26 (32) | 0.55 (14) | - | 1.97 (50) | 2.76 (70) | - | M6 | M8 | DC 24V | 2.03A |
| 180° degree actuator | | | | | | | | | | | | |
| EX | EA-20G8 | F03/F05/F07 | 0.75 (19) | 0.43 (11) | 1.42 (36) | 1.97 (50) | 2.76 (70) | M5 | M6 | M8 | DC 24V | 1.28A |
| | EA-50G8 | F05/F07 | 1.26 (32) | 0.55 (14) | - | 1.97 (50) | 2.76 (70) | - | M6 | M8 | DC 24V | 2.03A |

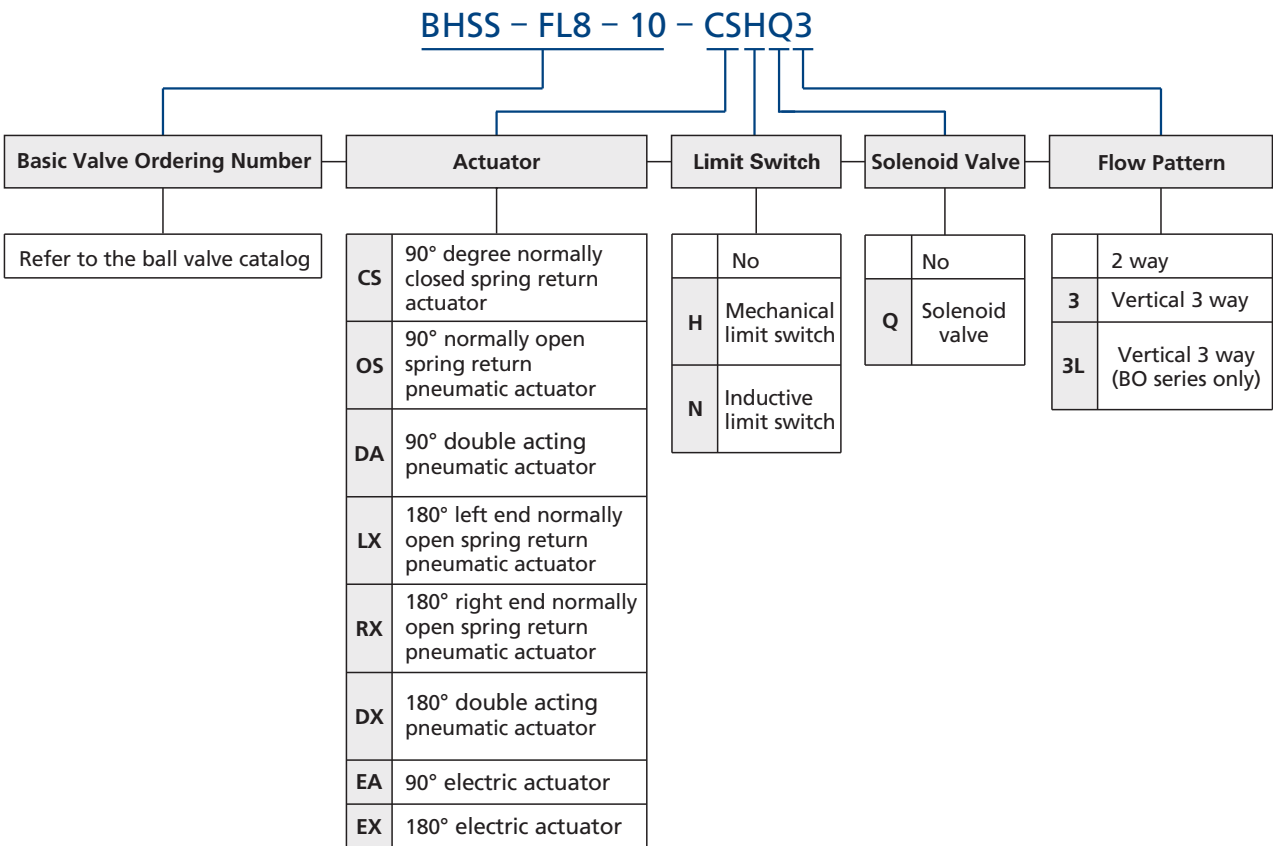
Accessories

The electric actuator is driven by a power source without using a solenoid valve. Electric actuators have a signal output without using limit switches.

Explosion-proof Applications

For explosion-proof electric actuators, contact FITOK Group or our authorized distributors.

Ordering Number Description



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.

Application Questionnaire for Selection of Automatic Control Ball Valves

Single Selection Checkable

| NO. | Category | Specification | |
|-----|--------------------------------|---|--|
| 1 | Operating conditions | Media | |
| 2 | | Working pressure | _____ psig (_____ bar) |
| 3 | | Working temperature | _____ °F (_____ °C) |
| 4 | Ball valve parameters | Body material | <input type="radio"/> 316SS <input type="radio"/> 304SS <input type="radio"/> Other _____ |
| 5 | | Seat material | <input type="radio"/> PTFE <input type="radio"/> PEEK <input type="radio"/> PCTFE <input type="radio"/> PVDF <input type="radio"/> Other _____ |
| 6 | | Orifice | _____ in. (_____ mm) |
| 7 | | Flow pattern | <input type="radio"/> 2-way <input type="radio"/> Vertical 3-way <input type="radio"/> Other _____ |
| 8 | | Inlet/Outlet type and size | Inlet _____ Outlet _____ |
| 9 | Actuator parameters | Actuator type | <input type="radio"/> Pneumatic actuator Air supply pressure _____ psig (_____ bar) Failure position <input type="radio"/> Stay in the current position <input type="radio"/> Other _____ |
| | | | <input type="radio"/> Electric actuator Power <input type="radio"/> DC 24V <input type="radio"/> AC 220V |
| 10 | Pneumatic actuator accessories | Limit switch type | <input type="checkbox"/> Mechanical limit switch <input type="checkbox"/> Inductive limit switch |
| 11 | | Solenoid valve | <input type="checkbox"/> Solenoid valve |
| 12 | Other requirements | <input type="checkbox"/> F2 <input type="checkbox"/> FOG <input type="checkbox"/> NACE <input type="checkbox"/> Other _____ | |
| 13 | Additional information | | |

FITOK Group

FITOK GmbH (Headquarter)

Sprendlinger Landstr. 115, 63069 Offenbach am Main, Germany
Tel.: +49 69 8900 4498 Fax: +49 69 8900 4495

FITOK, Inc.

13843 North Promenade Blvd., Suite 750, Stafford, Texas 77477, USA
Tel.: +1 281 888 0077 Fax: +1 281 582 4051

FITOK Incorporated

1-4F, Block C, Zone E, Yingtai Industrial Park, Dalang Street,
Longhua District, Shenzhen, 518109, China
Tel.: +86 755 2803 2500 Fax: +86 755 2803 2619

FITOK (Suzhou) Metal Products Co., Ltd.

No. 29 Changsheng Road, Yangyuan Industrial Park, Xinzhuang Town,
Changshu, Jiangsu 215562, China
Tel.: +86 512 5247 9001 Fax: +86 512 5247 9002

FITOK Middle East Oil Equipment Trading LLC

208-209, Makateb Building, P.O.Box 185412, Airport Road, Deira, Dubai, UAE
Tel.: +971 4 2959 853 Fax: +971 4 2959 854

FITOK Canada Inc.

5407 Roper Rd. Edmonton, Alberta, T6B 3L6, Canada
Tel.: +1 780 966 8895

info@fitokgroup.com
www.fitokgroup.com

FK-IC-GV-01-EN-190417