# One Piece Ball Valves

## IBL SERIES

- Maximum Working Pressure : 3,000 psig (206 bar) @ 100°F (37°C)
- Working Temperature Range : 50°F(10°C) to 150°F(65°C)

Every IBL Series ball valve is leak tested at 1,000PSIG before packaging.
And please contact TK-Fujikin or your authorized TK-Fujikin representative if your usage pressure of these valves exceeds 1,000PSIG.

TK-FUJIKIN CORPORATION
Fujikin Corp. Group

# ORDERING INFORMATION

| SS | – | IBL1 | A | D | – | 4SW | – | BL |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2 | 3 | 4 | | 5 | | 6 |

## 1. BODY MATERIAL

| Material | Designator |
|---|---|
| 316 SS | SS |

## 2. VALVE SERIES

| Orifice Size | Designator |
|---|---|
| 1.3mm, 2.4mm, 3.2mm | IBL1 |
| 4.8mm | IBL2 |
| 7.1mm | IBL3 |
| 10.3mm | IBL4 |

* The Orifice Size is determined using valves with TKF tube fitting end connections.
* For more details, See the Dimensions Table.

## 3. BODY PATTERN

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

## 4. VENT PORT OPTION

| Vent Port Option | Designator |
|---|---|
| Without | Blank |
| Downstream Vent | D |
| Upstream Vent | U |

## 5. INLET/OUTLET CONNECTION SIZE & TYPE

| Inlet/Outlet Connection Size | Designator |
|---|---|
| 1/16” | 1 |
| 1/8” | 2 |
| 1/4” | 4 |
| 3/8” | 6 |
| 1/2” | 8 |
| 3mm | 3M |
| 6mm | 6M |
| 8mm | 8M |
| 10mm | 10M |
| 12mm | 12M |

| Inlet/Outlet Connection Type | Designator |
|---|---|
| Lok | SW |
| Male NPT | NM |
| Female NPT | NF |
| Male ISO① Tapered | PTM |
| Female ISO① Tapered | PTF |
| MFS Male | VM |

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

## 6. HANDLE TYPE

| Handle Type | Designator |
|---|---|
| Black nylon Handle (Standard) | Blank |
| Blue nylon Handle | BL |
| Green nylon Handle | GR |
| Orange nylon Handle | OG |
| Red nylon Handle | RD |
| Yellow nylon Handle | YW |
| nylon Oval Handle | O |
| Metal Handle (Stainless Steel Bar) | S |
| Metal Handle (Aluminum Bar) | A |

# FEATURES

- Simple design with one piece body
- Tight and smooth, low torque and easy operation
- One - piece ball stem
- Panel mountable
- Variety of End Connections
- Straight, Angle and 3 - Way flow patterns
- Each and every valve is tested at the factory

# TECHNICAL DATA

## TEMPERATURE - WORKING PRESSURE RATING

| Series | Temperature, °F (°C) | Straight Pattern (2-Way) | Angle Pattern (2-Way) | Switching Pattern (3-Way) | Seat Material |
|---|---|---|---|---|---|
| IBL1 | 50 (10) ~ 150 (65) | 2,500 psig (172 bar) | 2,500 psig (172 bar) | 2,500 psig (172 bar) | PTFE |
| IBL2 | | 3,000 psig (206 bar) | 2,500 psig (172 bar) | 2,500 psig (172 bar) | |
| IBL3 | | 2,500 psig (172 bar) | 1,500 psig (103 bar) | 1,500 psig (103 bar) | |
| IBL4 | | 2,500 psig (172 bar) | 1,500 psig (103 bar) | 1,500 psig (103 bar) | |

## TEMPERATURE - WORKING PRESSURE RATING

| Flow Coefficient (Cv) | Pressure Drop Atmosphere (Δp), psi (bar) | | | | | |
|---|---|---|---|---|---|---|
| | 10 (0.68) | 50 (3.4) | 100 (6.8) | 10 (0.68) | 50 (3.4) | 100 (6.8) |
| | Air Flow std ft3 / min ( std L / min) | | | Water Flow U. S. gal / min (std L / min) | | |
| 0.05 | 0.6 (16) | 1.5 (42) | 2.6 (73) | 0.1 (0.3) | 0.3 (1.1) | 0.5 (1.8) |
| 0.06 | 0.7 (19) | 1.8 (50) | 3.2 (90) | 0.2 (0.7) | 0.4 (1.5) | 0.6 (2.2) |
| 0.07 | 0.8 (22) | 2.1 (59) | 3.7 (100) | 0.2 (0.7) | 0.5 (1.8) | 0.7 (2.6) |
| 0.08 | 0.9 (25) | 2.4 (67) | 4.3 (120) | 0.3 (1.1) | 0.6 (2.2) | 0.8 (3.0) |
| 0.1 | 1.1 (31) | 3.0 (84) | 5.3 (150) | 0.3 (1.1) | 0.7 (2.6) | 1.0 (3.7) |
| 0.15 | 1.7 (48) | 4.5 (120) | 8.2 (220) | 0.4 (1.5) | 1.0 (3.7) | 1.5 (5.6) |
| 0.2 | 2.3 (65) | 6.0 (160) | 11 (310) | 0.6 (2.2) | 1.4 (5.2) | 2.0 (7.5) |
| 0.3 | 3.4 (96) | 9.0 (250) | 16 (450) | 0.9 (3.4) | 2.1 (7.9) | 3.0 (11) |
| 0.35 | 4.0 (110) | 10 (280) | 19 (530) | 1.1 (4.1) | 2.4 (9.0) | 3.5 (13) |
| 0.5 | 5.6 (150) | 15 (420) | 27 (760) | 1.6 (6.0) | 3.5 (13) | 5.0 (18) |
| 0.6 | 6.8 (190) | 18 (500) | 32 (900) | 1.9 (7.1) | 4.2 (15) | 6.0 (22) |
| 0.7 | 7.9 (220) | 21 (590) | 37 (1,000) | 2.2 (8.3) | 4.9 (18) | 7.0 (26) |
| 0.75 | 8.5 (240) | 22 (620) | 40 (1,100) | 2.3 (8.7) | 5.3 (20) | 7.5 (28) |
| 0.8 | 9.0 (250) | 24 (670) | 42 (1,100) | 2.5 (9.4) | 5.6 (21) | 8.0 (30) |
| 0.9 | 10 (280) | 27 (760) | 48 (1,300) | 2.8 (10) | 6.4 (24) | 9.0 (34) |
| 1.2 | 14 (390) | 36 (1,000) | 64 (1,800) | 3.8 (14) | 8.5 (32) | 12 (45) |
| 1.4 | 16 (450) | 42 (1,100) | 74 (2,000) | 4.4 (16) | 9.9 (37) | 14 (52) |
| 1.5 | 17 (480) | 45 (1,200) | 80 (2,200) | 4.7 (17) | 11 (41) | 15 (56) |
| 1.6 | 18 (500) | 48 (1,300) | 85 (2,400) | 5.0 (18) | 11 (41) | 16 (60) |
| 1.7 | 19 (530) | 51 (1,400) | 90 (2,500) | 5.3 (20) | 12 (45) | 17 (64) |
| 2 | 22 (620) | 60 (1,600) | 100 (2,800) | 6.3 (23) | 14 (52) | 20 (75) |
| 2.4 | 27 (760) | 72 (2,000) | 120 (3,300) | 7.6 (28) | 17 (64) | 24 (90) |
| 2.6 | 29 (820) | 78 (2,200) | 140 (3,900) | 8.2 (31) | 18 (68) | 26 (98) |
| 3 | 34 (960) | 90 (2,500) | 160 (4,500) | 9.5 (35) | 21 (79) | 30 (110) |
| 3.5 | 39 (1,100) | 100 (2,800) | 180 (5,000) | 11 (41) | 25 (94) | 35 (130) |
| 3.8 | 43 (1,200) | 110 (3,100) | 200 (6,700) | 12 (45) | 27 (100) | 38 (140) |
| 4.6 | 52 (1,400) | 140 (3,900) | 240 (6,700) | 15 (56) | 33 (120) | 46 (170) |
| 6 | 68 (1,900) | 180 (5,000) | 320 (9,000) | 19 (71) | 42 (150) | 60 (220) |
| 6.3 | 71 (2,000) | 190 (5,300) | 330 (9,300) | 20 (75) | 45 (170) | 63 (230) |
| 6.4 | 72 (2,000) | 190 (5,300) | 340 (9,600) | 20 (75) | 45 (170) | 64 (240) |
| 12 | 130 (3,600) | 360 (10,000) | 640 (18,000) | 38 (140) | 85 (320) | 120 (450) |

# ONE PIECE BALL VALVES |

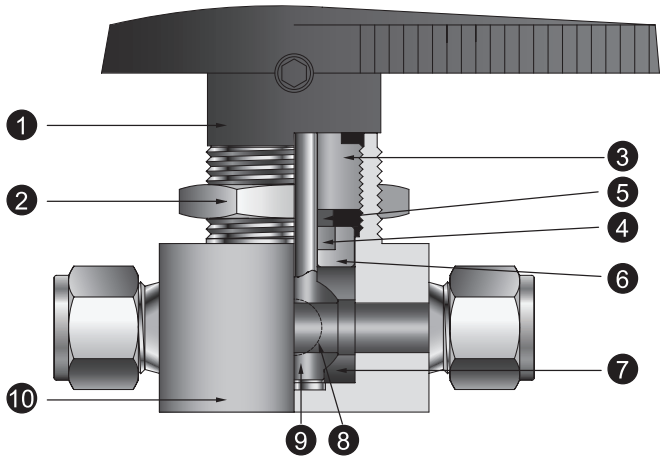
## TESTING

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)

## PACKING ADJUSTMENT

Packing is set for 1000psig (69 bar) service in the factory.
For service in pressure higher than test pressure, The packing must be readjusted to prevent leakage.
Before installation, Packing of the valve exposed to environmental conditions may lose initial packing load.
Therefore, packing adjustment may be recommended for service.

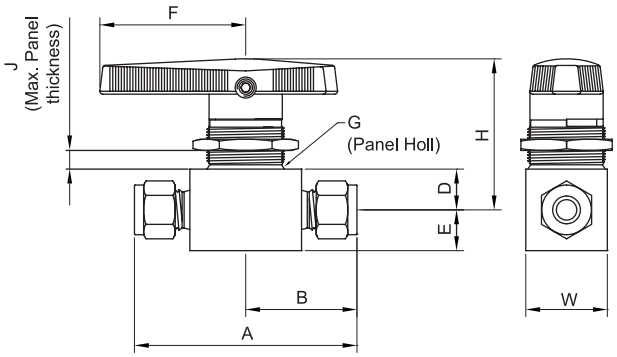
## MATERIALS OF CONSTRUCTION



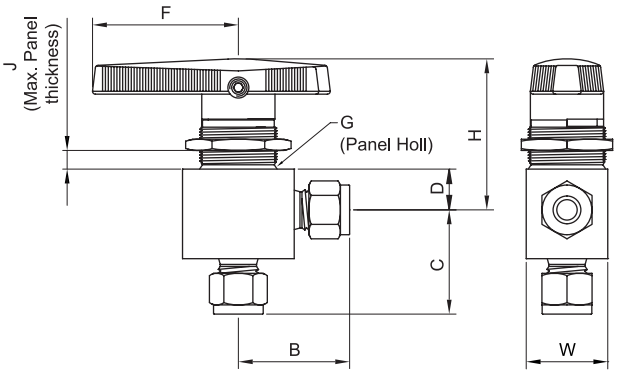

| No. | Material Grade / ASTM Specification | |
|---|---|---|
| | Description | Material |
| | | Stainless Steel |
| 1 | Handle | Nylon6 / ADC6 insert |
| 2 | Panel Nut | 304 SS / A276 |
| 3 | Packing Bolt | 316 SS / A276 |
| 4 | Gland Packing | PTFE |
| 5 | Packing Ring | 316 SS / A276 |
| 6 | Packing ARM | 316 SS / A276 |
| 7 | Seat1 / Seat2 | PTFE |
| 8 | Retainer1 | 316L SS |
| | Retainer2 | |
| 9 | Stem | 316 SS / A276 |
| 10 | Body | 316 SS / A479 |

# DIMENSIONS

## 2-WAY VALVE




Straight Pattern



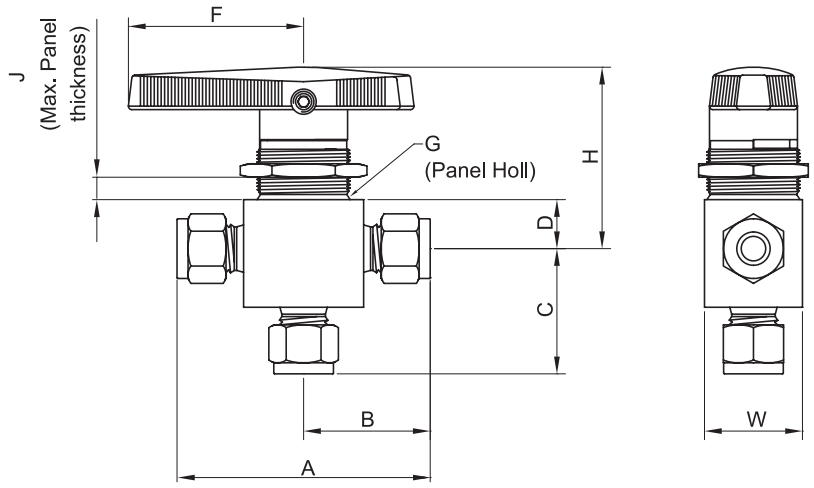

Angle Pattern

| Order Number | | Orifice in. (mm) | Cv | | End Connections | | Dimensions in. (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Series | Part No. | | Straight | Angle | Inlet | Outlet | A | B | C | D | E | F | G | J | H | W |
| IBL1 | 1SW | 0.051 (1.3) | 0.1 | - | 1/16" T-LOK | | 1.68 (42.7) | 0.84 (21.3) | - | 0.34 (8.6) | 0.28 (7.1) | 1.12 (28.4) | 0.59 (15.1) | 0.25 (6.4) | 1.37 (34.7) | 0.58 (14.7) |
| | 2SW | 0.094 (2.4) | 0.2 | 0.15 | 1/8" T-LOK | | 2.01 (51.1) | 1.00 (25.5) | 0.97 (24.6) | | | | | | | |
| | 3M SW | | 0.2 | 0.15 | 3mm T-LOK | | | | | | | | | | | |
| | 4SW | 0.126 (3.2) | 0.6 | 0.35 | 1/4" T-LOK | | 2.21 (56.1) | 1.10 (27.9) | 1.07 (27.2) | | | | | | | |
| | 6M SW | | 0.6 | 0.35 | 6mm T-LOK | | | | | | | | | | | |
| | 2NF | | 0.5 | 0.3 | 1/8" Female NPT | | 1.63 (41.4) | 0.81 (20.7) | 0.81 (20.6) | | | | | | | |
| IBL2 | 4SW | 0.189 (4.80) | 1.4 | 0.9 | 1/4" T-LOK | | 2.36 (59.9) | 1.18 (30) | 1.17 (29.7) | 0.44 (11.2) | 0.38 (9.7) | 1.53 (38.9) | 0.78 (19.8) | 0.19 (4.8) | 1.56 (39.6) | 0.78 (19.8) |
| | 6SW | | 1.5 | 0.9 | 3/8" T-LOK | | 2.58 (65.5) | 1.29 (32.8) | 1.29 (32.8) | | | | | | | |
| | 6M SW | | 1.4 | 0.9 | 6mm T-LOK | | 2.39 (60.7) | 1.20 (30.5) | 1.17 (29.7) | | | | | | | |
| | 8M SW | | 1.5 | 0.9 | 8mm T-LOK | | 2.46 (62.5) | 1.23 (31.2) | 1.20 (30.5) | | | | | | | |
| | 2NF | | 1.2 | 0.7 | 1/8" Female NPT | | 2.00 (50.8) | 1.00 (26.2) | 1.00 (25.4) | | | | | | | |
| | 4NF | | 0.9 | 0.75 | 1/4" Female NPT | | 2.06 (52.3) | 1.03 (26.2) | 1.03 (26.2) | | | | | | | |
| | 4PTF | | 0.9 | - | 1/4" Female ISO① | | 2.06 (52.3) | | - | | | | | | | |
| | 4NM | | 1.2 | 0.75 | 1/4" Male NPT | | 2.00 (50.8) | 1.00 (25.4) | 1.03 (26.2) | | | | | | | |
| | 4NM | 4SW | 1.6 | 0.75 | 1/4" Male NPT | 1/4" T-LOK | 2.20 (55.9) | 1.17 (29.8) | | | | | | | | |
| IBL3 | 6SW | 0.280 (7.1) | 6 | 2 | 3/8" T-LOK | | 3.05 (77.5) | 1.52 (38.7) | 1.43 (36.3) | 0.56 (14.2) | 0.56 (14.2) | 2.00 (50.8) | 1.13 (28.6) | 0.37 (9.5) | 2.07 (52.6) | 1.12 (28.4) |
| | 10M SW | | 6 | 2 | 10mm T-LOK | | 3.07 (78.0) | 1.54 (39.0) | | | | | | | | |
| | 4NF | | 3 | 1.7 | 1/4" Female NPT | | 2.5 (63.5) | 1.25 (31.8) - | 1.25 (31.8) | | | | | | | |
| | 6NF | | 2.6 | 1.5 | 3/8" Female NPT | | | | | | | | | | | |
| | 6PTF | | 2.6 | - | 3/8" Female ISO① | | | | | | | | | | | |
| IBL4 | 8SW | 0.406 (10.3) | 12 | 4.6 | 1/2" T-LOK | | 3.92 (99.6) | 1.96 (49.8) | 1.74 (44.2) | 0.69 (17.5) | 0.69 (17.5) | 3.00 (76.2) | 1.5 (38.1) | | 2.43 (61.7) | 1.50 (38.1) |
| | 12SW | | 6.4 | 3.8 | 3/4" T-LOK | | | | | | | | | | | |
| | 12M SW | | 12 | 4.6 | 12mm T-LOK | | | | | | | | | | | |
| | 8NF | | 6.3 | 3.5 | 1/2" Female NPT | | 3.12 (79.2) | 1.56 (39.6) | 1.56 (39.6) | | | | | | | |
| | 8PTF | | 6.3 | - | 1/2" Female ISO① | | | - | | | | | | | | |

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

# ONE PIECE BALL VALVES |

## 3-WAY VALVE




| Order Number | | Orifice in. (mm) | Cv | End Connections | | Dimensions in. (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Series | Part No. | | | Inlet | Outlet | A | B | C | D | F | G | J | H | W |
| IBL1 | 1SW | 0.051 (1.3) | 0.08 | 1/16" T-LOK | | 1.68 (42.7) | 0.84 (21.3) | 0.81 (20.6) | 0.34 (8.6) | 1.12 (28.4) | 0.59 (15.1) | 0.25 (6.4) | 1.37 (34.7) | 0.58 (14.7) |
| | 2SW | 0.094 (2.4) | 0.15 | 1/8" T-LOK | | 2.01 (51.1) | 1.00 (25.5) | 0.97 (24.6) | | | | | | |
| | 3M SW | | 0.15 | 3mm T-LOK | | | | | | | | | | |
| | 4SW | 0.126 (3.2) | 0.35 | 1/4" T-LOK | | 2.21 (56.1) | 1.10 (27.9) | 1.07 (27.2) | | | | | | |
| | 6M SW | | 0.35 | 6mm T-LOK | | | | | | | | | | |
| | 2NF | | 0.3 | 1/8" Female NPT | | 1.63 (41.4) | 0.81 (20.7) | 0.81 (20.6) | | | | | | |
| IBL2 | 4SW | 0.189 (4.80) | 0.9 | 1/4" T-LOK | | 2.36 (59.9) | 1.18 (30) | 1.17 (29.7) | 0.44 (11.2) | 1.53 (38.9) | 0.78 (19.8) | 0.19 (4.8) | 1.56 (39.6) | 0.78 (19.8) |
| | 6M SW | | 0.9 | 6mm T-LOK | | 0.39 (60.7) | 1.20 (30.5) | | | | | | | |
| | 8M SW | | 0.8 | 8mm T-LOK | | 2.46 (62.5) | 1.23 (31.2) | 1.20 (30.5) | | | | | | |
| | 4NF | | 0.75 | 1/4" Female NPT | | 2.06 (52.3) | 1.03 (26.2) | 1.03 (26.2) | | | | | | |
| | 4PTF | | 0.75 | 1/4" Female ISO① | | | | | | | | | | |
| | 4SW 4NM | | 0.8 | 1/4" Male NPT | 1/4" T-LOK | 2.2 (55.9) | 1.17 (29.8) | | | | | | | |
| IBL3 | 6SW | 0.280 (7.1) | 2 | 3/8" T-LOK | | 2.89 (73.4) | 1.43 (36.6) | 1.43 (36.3) | 0.56 (14.2) | 2.00 (50.8) | 1.13 (28.6) | 0.37 (9.5) | 2.07 (52.6) | 1.12 (28.4) |
| | 10M SW | | 2 | 10mm T-LOK | | 3.07 (78.0) | 1.25 (31.8) | | | | | | | |
| | 4NF | | 1.7 | 1/4" Female NPT | | 2.50 (63.5) | 1.25 (31.8) | 1.25 (31.8) | | | | | | |
| | 6NF | | 1.5 | 3/8" Female NPT | | | | | | | | | | |
| | 8PTF | | 1.5 | 3/8" Female ISO① | | | | | | | | | | |
| IBL4 | 8SW | 0.406 (10.3) | 4.6 | 1/2" T-LOK | | 3.48 (88.4) | 1.74 (44.2) | 1.74 (44.2) | 0.69 (17.5) | 3.00 (76.2) | 1.5 (38.1) | | 2.43 (61.7) | 1.50 (38.1) |
| | 12SW | | 3.8 | 3/4" T-LOK | | | | | | | | | | |
| | 12M SW | | 4.6 | 12mm T-LOK | | | | | | | | | | |
| | 8NF | | 3.5 | 1/2" Female NPT | | 3.12 (79.2) | 1.56 (39.6) | 1.56 (39.6) | | | | | | |

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