BMT

# Key Operation Ball Valves

- SBVL210 Series
- SBVL360 Series

SUPERLOK®

# Key Operation Ball Valves

Key Operation Ball Valve (a ball valve that can be opened or closed with Master Key) was first developed by BMT in 2007.
Key Operation Ball Valve is secured against undesired manipulation that can lead to massive system failures,
leakage of hazardous gases or fluids, ultimately, catastrophic damages and losses.

## Features

- The valve can only be operated inserting Master Key into the handle.
- Applicable to various types of valves such as ball, needle, diaphragm, and bellows valves.
- Accidents caused by inadvertent or unauthorized operation can be prevented.
- Ideal to use in areas populated or opened to unauthorized individuals, preventing accidents resulted from undesired manipulation.

## Options

- **Standard type:** The locking function works at both open and closed positions as the Master Key is taken out from the handle.
- **Open-Free type:** At fully-opened position, it is impossible to close the valve without the insertion of the key. Suitable for systems where the stop of flow from inadvertent or unauthorized manipulation may lead to catastrophic results.
- **Close-Free Type:** At fully-closed position, it is impossible to open the valve without the insertion of the key. Suitable for systems where the start of fluid flow from inadvertent or unauthorized may lead to catastrophic results.

# Low Pressure Key Operation Ball Valves

## SBVL210 Series

### Features

- Locking handle in On and Off positions
- Compact design
- Low operating torques
- Variety of End connections

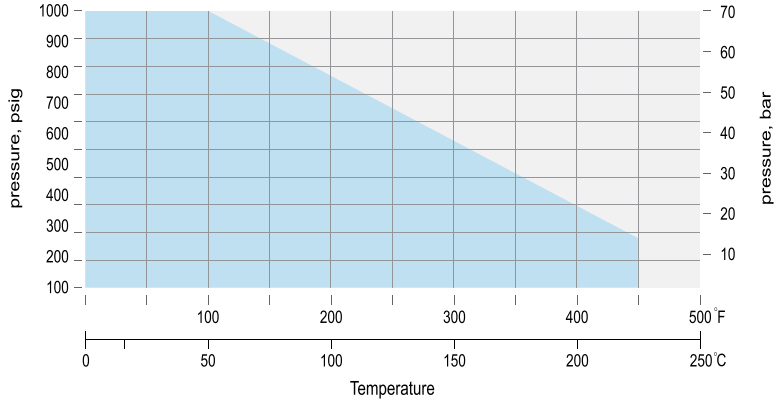
### Specifications

- Pressure rating: 1000psig (69bar) @70°F (21°C)
- Temperature rating: 32°F to 445°F(0°C to 232°C)
- Body material: 316 stainless steel
- Port Connections: 1/4 to 1 in. and 6 to 25mm
- Orifice: 5.0 to 16.0mm

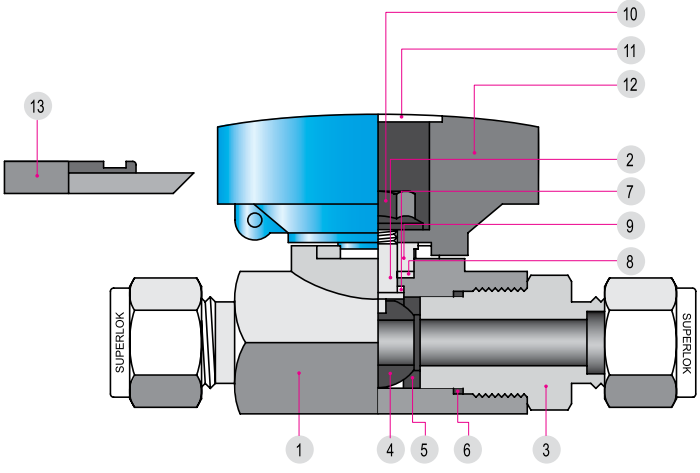
### Testing

- Each and every valve is tested with nitrogen at 1000psig (69bar).
- The valves have max allowable leak rate of 0.1 $cm^3$/min
- Shell testing can be performed upon request.

### Pressure-Temperature Rating




### Materials of Construction



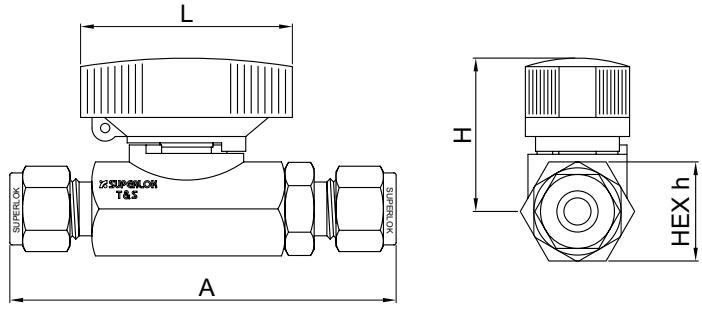

| No. | Component | Material Grade ASTM Specification |
|---|---|---|
| *1 | Body | A185-F316 / A276-316 / A351-CF8M |
| *2 | Stem | A276-316 |
| *3 | End Connector | A276-316 |
| *4 | Ball | A276-316 |
| *5 | Ball Seal | PTFE |
| *6 | Connector Seal | PTFE |
| *7 | Lower Stem Seal | PTFE |
| *8 | Upper Stem Seal | PTFE |
| *9 | Stem Washer | A276-304 |
| 10 | Nut | Stainless Steel |
| 11 | Handle Cap | Aluminum |
| 12 | Handle | Aluminum |
| 13 | Master Key | Zinc |

* Wetted components

- Components can limit the pressure and temperature ranges of the valve. Please consult BMT (SUPERLOK) sales representative for your specific application.

# Table of Dimensions

## SBVL210 Series




| Part No. | | Orifice | Cv | End Connection | Dimensions | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | h | A | H | L |
| SBVL 210 | S6M | 5.0 | 1.25 | 6mm SUPERLOK | 18.0 | 79.8 | 32.3 | 42.0 |
| | S4 | | | 1/4" SUPERLOK | | | | |
| | S10M | 7.0 | 2.5 | 10mm SUPERLOK | 22.2 | 91.5 | 35.6 | 50.0 |
| | S6 | | | 3/8" SUPERLOK | | | | |
| | S12M | 9.0 | 9.5 | 12mm SUPERLOK | 27.0 | 101.4 | 37.6 | 50.0 |
| | S8 | | | 1/2" SUPERLOK | | | | |
| | S16M | 12.5 | 12.7 | 16mm SUPERLOK | 31.8 | 107.0 | 40.4 | 60.0 |
| | S12 | | | 3/4" SUPERLOK | | | | |
| | S25M | 16.0 | 17.5 | 25mm SUPERLOK | 38.1 | 131.0 | 43.5 | 60.0 |
| | S16 | | | 1" SUPERLOK | | | | |

- Dimensions and Drawings are for reference only and are subject to change without prior notice.
- Unless otherwise specified, all dimensions are in millimeters.
- Sizes, pressure classes, and end connections not listed are available upon request.
- Dimensions shown with SUPERLOK nuts finger-tight, where applicable.

# Ordering Information

**Example :** **SBVL 210 - S8 - RD - OT**

1 — 2 3 — 4 — 5

## 1. Valve Series

□ **SBVL210**

## 2. End Connection

□ **S** = SUPERLOK Tube Fitting
□ **F** = Female Thread
□ **M** = Male Thread

## 3. End Connection Size

**Tube O.D**

| Tube O.D (inch) | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|---|
| Designator | **4** | **6** | **8** | **12** | **16** |
| Tube O.D (inch) | 6 | 10 | 12 | 16 | 25 |
| Designator | **6M** | **10M** | **12M** | **16M** | **25M** |

**Pipe Thread**

| Size (inch) | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|---|
| Screwed BSPT | **4R** | **6R** | **8R** | **12R** | **16R** |
| Screwed NPT | **4N** | **6N** | **8N** | **12N** | **16N** |

## 4. Handle Color

□ ***(Blank)***= Blue (Standard)
□ **RD** = Red
□ **BK** = Black

## 5. Valve Type*

□ ***(Blank)*** = Standard Type
□ **OT** = Open Free Type
□ **CT** = Close Free Type

* Please refer to 270 for the valve types.

※ For special sizes and configurations, please consult BMT (SUPERLOK) sales representative.

# High Pressure Key Operation Ball Valves

## SBVL360 Series

### Features

- Locking handle in On and Off positions
- High flow capacity in a compact design
- Low operating torques
- Positive handle stops
- Variety of End connections

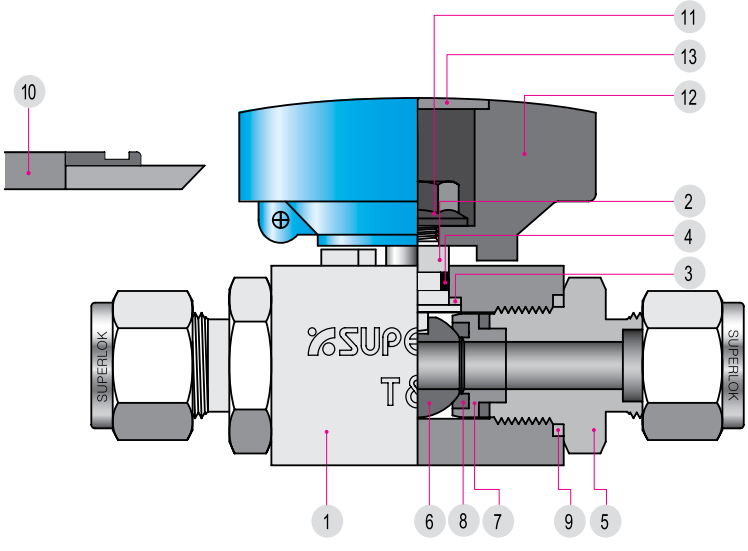
### Specifications

- Pressure rating: 6000psig (413bar) @70 °F(21 °C) with standard PCTFE seat
- Temperature rating: -65 to 350 °F (-54 to 177 °C) with standard PCTFE seat
- Body material: 316 stainless steel
- Port connections: 1/4 to 3/4 in. and 6 to 25mm

### Testing

- Each and every valve is tested with nitrogen at 1000psig (69bar).
- Valve have max allowable leak rate of 0.1 $cm^3$/min
- Shell testing is performed on demand.

### Materials of Construction



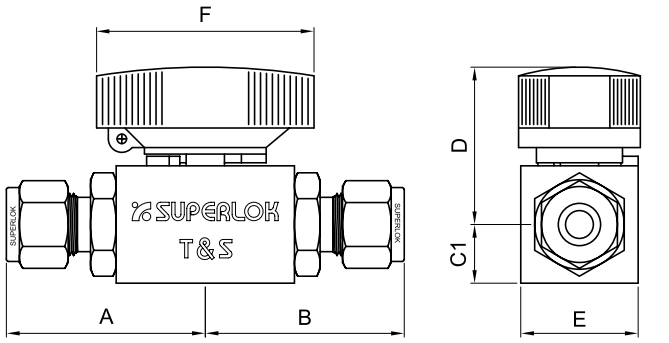

| No. | Component | Material Grade ASTM Specification |
|---|---|---|
| *1 | Body | A276-316 / A351-CF8M |
| *2 | Stem | SS316 / A276 |
| *3 | Thrust Washer | PEEK |
| *4 | O-Ring | NBR |
| *5 | End Connector | A276-316 |
| *6 | Ball | A276-316 |
| *7 | Seal Retainer | A276-316 |
| *8 | Ball Seal | PCTFE |
| *9 | Connector Seal | PTFE |
| 10 | Master Key | Zinc |
| 11 | Nut | Stainless Steel |
| 12 | Handle | Aluminum |
| 13 | Handle Cap | Aluminum |

* Wetted components

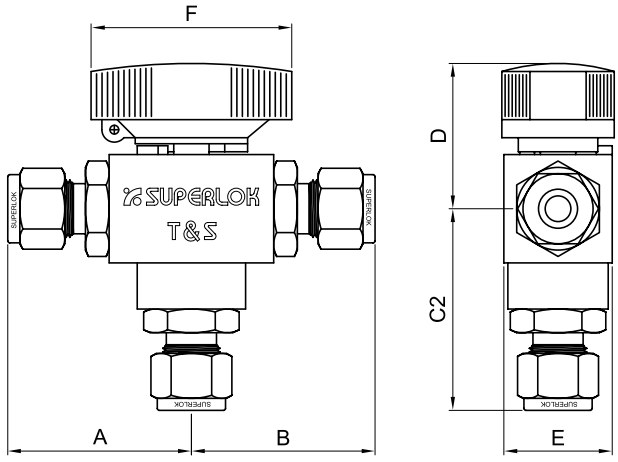
- Components can limit the pressure and temperature ranges of the valve. Please consult BMT (SUPERLOK) sales representative for your specific application.

# Table of Dimensions

## SBVL360




2 - way




3 - way

| Part No. | | Orifice | Cv | End Connection | Dimensions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | C1 | C2 | D | E | F |
| SBVL3601 or SBVL36013 | S6M | 4.8 | 1.04 | 6mm SUPERLOK | 43.8 | 43.8 | 12.0 | 43.8 | 33.7 | 24.0 | 42.0 |
| | S4 | | | 1/4″ SUPERLOK | 43.8 | 43.8 | | 43.8 | | | |
| | F2N | | | 1/8″ FEMALE NPT | 34.0 | 34.0 | | 34.0 | | | |
| | M4N | | | 1/4″ MALE NPT | 40.2 | 40.2 | | 40.2 | | | |
| SBVL3602 or SBVL36023 | S8M | 6.4 | 2.34 | 8mm SUPERLOK | 45.2 | 45.2 | 13.5 | 53.2 | 36.2 | 27.0 | 50.0 |
| | S10M | | | 10mm SUPERLOK | 46.0 | 46.0 | | 54.0 | | | |
| | S6 | | | 3/8″ SUPERLOK | 45.7 | 45.7 | | 53.7 | | | |
| | F4N | | | 1/4″ FEMALE NPT | 38.4 | 38.4 | | 46.4 | | | |
| | M4N | | | 1/4″ MALE NPT | 41.1 | 41.1 | | 49.1 | | | |
| | M6N | | | 3/8″ MALE NPT | 41.1 | 41.1 | | 49.1 | | | |
| SBVL3603 or SBVL36023 | S12M | 9.5 | 5.57 | 12mm SUPERLOK | 59.2 | 59.2 | 16.0 | 69.2 | 41.5 | 32.0 | 60.0 |
| | S16M | 10.3 | 6.42 | 16mm SUPERLOK | 59.2 | 59.2 | | 69.2 | | | |
| | S8 | | | 1/2″ SUPERLOK | 59.4 | 59.4 | | 69.4 | | | |
| | S12 | | | 3/4″ SUPERLOK | 59.2 | 59.2 | | 69.2 | | | |
| | F6N | | | 3/8″ FEMALE NPT | 49.5 | 49.5 | | 59.5 | | | |
| | F8N | | | 1/2″ FEMALE NPT | 54.6 | 54.6 | | 64.6 | | | |
| | M8N | | | 1/2″ MALE NPT | 56.4 | 56.4 | | 66.4 | | | |

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- Unless otherwise specified, all dimensions are in millimeters.
- Sizes, pressure classes, and end connections not listed are available upon request.
- Dimensions shown with SUPERLOK nuts finger-tight, where applicable.

# Technical Data

### Temperature and Pressure Rating

| Seat Material | Temperature Rating | Pressure Rating @ 100°F (38°C) | | Pressure Rating @ Max. Temperature | |
|---|---|---|---|---|---|
| | | Stainless Steel | Brass | Stainless Steel | Brass |
| PCTFE | -65 to 300°F (-54 to 148°C) | 6000psig (413 bar) | 3000psig (207 bar) | 1000psig@300°F (68.9bar@148°C) | 700psig@300°F (48bar@200°C) |
| PEEK | -65 to 450°F (-54 to 232°C) | 6000psig (413 bar) | 3000psig (207 bar) | 700psig@400°F (48bar@200°C) | |
| PTFE | -65 to 300°F (-54 to 148°C) | 1500psig (103 bar) | 1500psig (103 bar) | 250psig@300°F (17.2bar@148°C) | |

# Ordering Information

**Example :** **SBVL 3602 - S6 - PE - RD - OT**

1 2 3 4 5 6

### 1. Valve Series

**2-Way**
- □ **SBVL3601**
- □ **SBVL3602**
- □ **SBVL3603**

**3-Way**
- □ **SBVL36013**
- □ **SBVL36023**
- □ **SBVL30233**

### 2. End Connection

- □ **S** = SUPERLOK Tube Fitting
- □ **F** = Female Thread
- □ **M** = Male Thread

### 3. End Connection Size

**Tube O.D Designator**

| Tube OD (inch) | 1/4 | | 3/8 | | 1/2 | 3/4 |
|---|---|---|---|---|---|---|
| Designator | 4 | | 6 | | 8 | 12 |
| Tube OD (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
| Designator | 6M | 8M | 10M | 12M | 16M | 20M |

**Pipe Thread Designator**

| Size (inch) | 1/4 | 3/8 | 1/2 | 3/4 |
|---|---|---|---|---|
| Screwed BSPT | 4R | 6R | 8R | 12R |
| Screwed NPT | 4N | 6N | 8N | 12N |

### 4. Handle Color

- □ ***(Blank)***= PCTFE
- □ **PE** = PEEK
- □ **PT** = PTFE

### 5. Handle Color

- □ ***(Blank)***= Blue (Standard)
- □ **RD** = Red
- □ **BK** = Black

### 6. Valve Type*

- □ ***(Blank)*** = Standard Type
- □ **OT** = Open Free Type
- □ **CT** = Close Free Type
- □ **ST** = Special Type

* Please refer to page 296 for the valve types.

※ For special sizes and configurations, please consult BMT (SUPERLOK) sales representative.