

# INSTRUMENT

## Hex Ball Valves VB1



# Hex Ball Valves VB1

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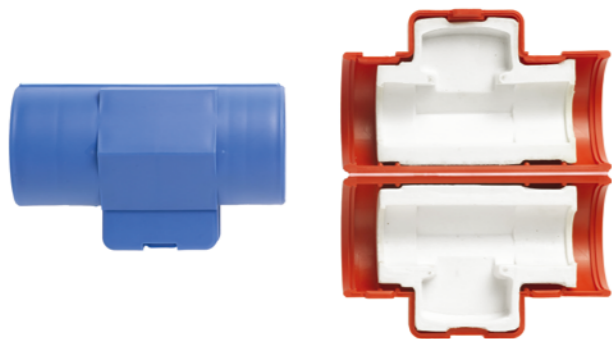
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## Application

Steam, water, air lines in onshore and offshore application  
Utility lines in semiconductor and display panel industries.

## Protection Cover

Maintain the temperature of fluids, keep handle position and distinguish in-out lines visually, to keep the temperature of flow and to distinguish the line.  
VB1 series ball valve with both 3/4" UNILOK end connection and plastic bar handle. 1/2" is available only with the different size of inner cover.



## Features

- Pressure rating up to 1000psig (69bar) with PTFE seats and 2000psig(137bar) with TFM only for VB1F series ball valves with lever handle Easy to operate owing to low torque quarter turn actuation
- All valve body's made from 316SS bar stock to secure the high integrity
- Compact designed one piece hexagonal body
- Micro finished 316SS balls not to occur the leakage
- Blow-out proof design with internally loaded stem
- Various selection of handles
- Wide choice of end connections : UNILOK tube fittings, Female NPT or ISO7/1(PT) threads, Weld Systems

## Type of Handle



Bar handles offer visual distinguishment of in-out lines at high purity applications.



## Testing

Every valve is 100% factory tested with air and nitrogen at 1000psig(69bar) for leakage at the seat and packing. Each test is performed to a maximum allowable leak rate of 0.1scc/min.

## Cleaning

UNILOK valves are free from machine oils, loose particles and grease throughout the close cleaning process.  
The special cleaning for high purity application is available upon request.

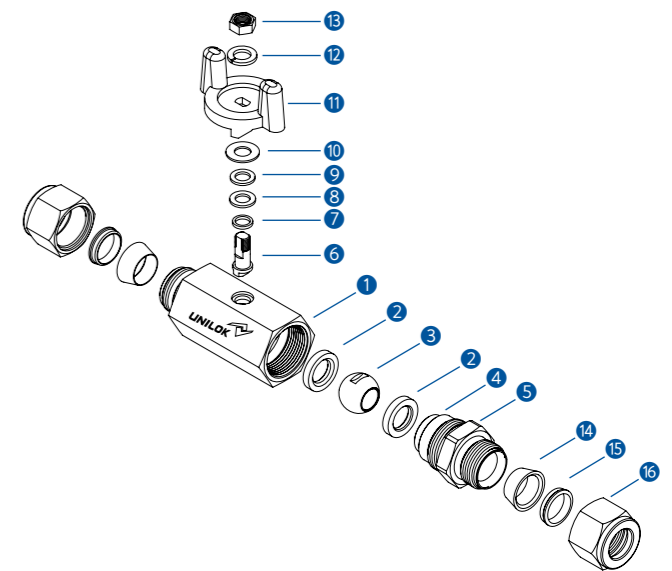
## Important Notification

UNILOK ball valves are designed to be operated in a fully open or fully closed position.  
The packing adjustment may be required during the valve's service life.  
Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.

## Materials of Construction

| No. | Description   | Materials       |
|-----|---------------|-----------------|
| 1   | Body          | 316SS           |
| 2   | Ball Seat     | Reinforced PTFE |
| 3   | Ball          | 316SS           |
| 4   | O-Ring        | Viton           |
| 5   | Connector     | 316SS           |
| 6   | Stem          | 316SS           |
| 7   | Inner Packing | PTFE            |
| 8   | Outer Packing | PTFE            |
| 9   | Gland         | 316SS           |
| 10  | Washer        | 316SS           |
| 11  | Handle        | Zinc            |
| 12  | Spring Washer | 304SS           |
| 13  | Nut           | 304SS           |
| 14  | Front Ferrule | 316SS           |
| 15  | Back Ferrule  | 316SS           |
| 16  | Nut           | 316SS           |

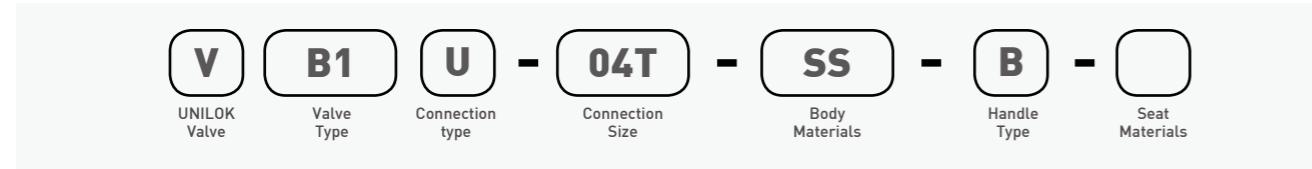
Handle Materials :  
Lever - 304SS+PVC Coat  
Bar - Nylon



## How To Order

UNILOK VB1 series ball valves are ordered by part number as shown below.

**Example:** The following part number, *VB1U-04T-SS-B* is designated for VB1 series ball valve with both 1/4" UNILOK tube fitting, 316SS, PTFE seat, butterfly handle.



| Connection Type |                          |
|-----------------|--------------------------|
| U               | UNILOK Tube Fitting      |
| F               | Female NPT or ISO7/1(PT) |
| WB-*T           | Butt Weld-Tube           |
| WB-*P           | Butt Weld-Pipe           |

| Connection Size                        |      |      |      |       |       |       |
|--|------|------|------|-------|-------|-------|
| Fractional(Inch) Tube O.D. Designation |      |      |      |       |       |       |
| Tube O.D.                              | inch | 1/4  | 3/8  | 1/2   | 3/4   | 1     |
|  | mm   | 6.35 | 9.52 | 12.70 | 19.05 | 25.40 |
| Designator                             |      | 04T  | 06T  | 08T   | 12T   | 16T   |

| Metric Tube O.D. Designation |            |      |      |      |      |      |
|------------------------------|------------|------|------|------|------|------|
| Tube O.D.                    | mm         | 6    | 8    | 10   | 12   | 25   |
|                              | Designator | M06T | M08T | M10T | M12T | M25T |

| Pipe Size O.D. Designation |        |      |      |      |
|----------------------------|--------|------|------|------|
| Pipe O.D.                  | Normal | 15A  | 20A  | 25A  |
|                            | mm     | 21.7 | 27.2 | 34.0 |
| Designator                 |        | 15A  | 20A  | 25A  |

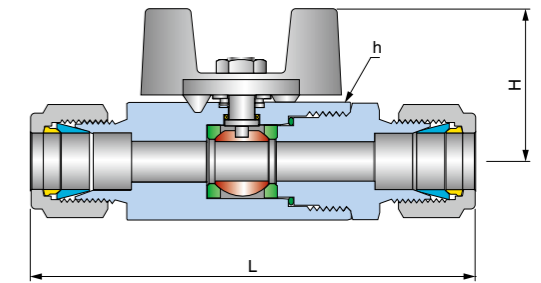
| Pipe Size Designation (NPT or ISO7/1-PT) |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|
| Pipe Size                                | 1/8   | 1/4   | 3/8   | 1/2   | 3/4   | 1     |
| Designator                               | 02N/R | 04N/R | 06N/R | 08N/R | 12N/R | 16N/R |

| Handle Type |                  |
|-------------|------------------|
| None        | Lever Handle     |
| B           | Butterfly Handle |
| PR          | Red              |
| PS          | Blue             |
| PB          | Black            |

| Seat Materials |      |
|----------------|------|
| None           | PTFE |
| TFM            | TFM  |
| PK             | PEEK |

## VB1U series (Both UNILOK Tube Fittings)

- Max Operating Pressure  
1000psig (69bar) at 38 °C(100 °F) with PTFE seat  
1000psig(69bar) at 170 °C(338 °F) with PEEK seat
- Connection Type  
Both UNILOK tube fittings
- Handle Type  
Lever, Butterfly and Bar



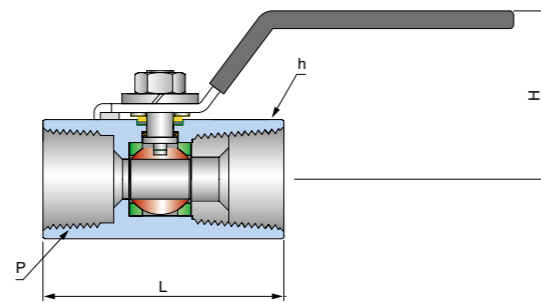
## Ordering Information & Dimensions

| Part No. | End Connections |             | Orifice | Dimensions (mm) |       |      |
|----------|-----------------|-------------|---------|-----------------|-------|------|
|          | Inlet           | Outlet      |         | h(Hex)          | L     | H    |
| VB11     | U-04T-          | 1/4" UNILOK | 5.0     | 17.46           | 79.0  | 26.5 |
|          | U-M06T-         | 6mm UNILOK  |         |                 | 82.0  |      |
|          | U-M08T-         | 8mm UNILOK  |         |                 |       |      |
| VB12     | U-06T-          | 3/8" UNILOK | 7.5     | 22.22           | 89.5  | 32.5 |
|          | U-M10T-         | 10mm UNILOK |         |                 |       |      |
| VB13     | U-08T-          | 1/2" UNILOK | 9.0     | 26.98           | 101.6 | 35.0 |
|          | U-M12T-         | 12mm UNILOK |         |                 |       |      |
| VB14     | U-12T-          | 3/4" UNILOK | 12.5    | 31.75           | 107.5 | 37.5 |
| VB15     | U-16T-          | 1" UNILOK   | 16.0    | 38.10           | 132.6 | 44.5 |
|          | U-M25T-         | 25mm UNILOK |         |                 |       |      |

Dimensions are for reference only and are subject to change without prior notice.

## VB1F series (Both Female Threads)

- Max Operating Pressure  
1000psig (69bar) at 38 °C(100 °F) with PTFE seat  
2000psig(138bar) at 38 °C(100 °F) with TFM seat
- PEEK seats not applicable
- Connection Type  
Both NPT or ISO7/1(PT) female threads
- Handle Type  
Lever, Butterfly and Bar



### Ordering Information & Dimensions

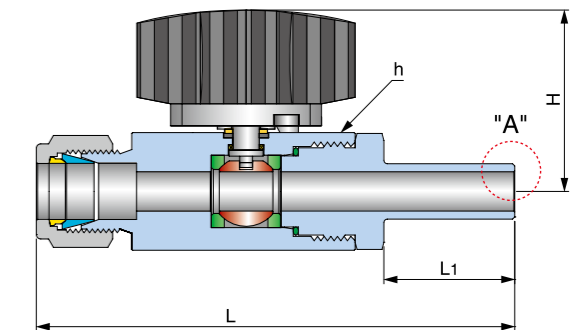
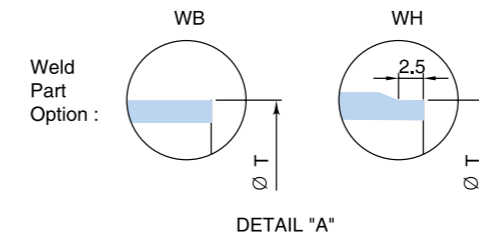
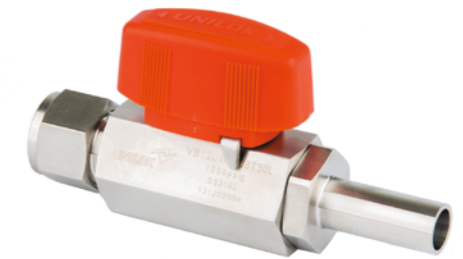
| Part No. |        | End Connections "P" |        | Orifice | Dimensions (mm) |      |      |
|----------|--------|---------------------|--------|---------|-----------------|------|------|
|          |        | Inlet               | Outlet |         | h(Hex)          | L    | H    |
| VB11     | F-04N- | 1/4" Female NPT     |        | 5.0     | 17.46           | 40.0 | 29.0 |
| VB12     | F-06N- | 3/8" Female NPT     |        | 7.5     | 22.22           | 45.0 | 35.7 |
| VB13     | F-08N- | 1/2" Female NPT     |        | 9.0     | 26.98           | 54.5 | 38.1 |
| VB14     | F-12N- | 3/4" Female NPT     |        | 12.5    | 31.75           | 61.0 | 44.5 |
| VB15     | F-16N- | 1" Female NPT       |        | 16.0    | 38.10           | 75.0 | 48.0 |

Female ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VB1F series valves.  
Add "R" as a suffix instead of "N".

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## VB1W series (Pipe or Tube Butt Weld and UNILOK Tube Fitting)

- Max Operating Pressure  
1000psig (69bar) at 38 °C(100 °F) with PTFE seat
- Connection Type  
Pipe Butt or Tube Butt Weld and  
UNILOK Tube Fitting
- Handle Type  
Lever, Butterfly and Bar



### Ordering Information & Dimensions

| Part No. |         | End Connections |             | Orifice | Dimensions (mm) |       |                |      |
|----------|---------|-----------------|-------------|---------|-----------------|-------|----------------|------|
|          |         | Inlet           | Outlet      |         | h(Hex)          | L     | L <sub>1</sub> | H    |
| VB13     | UWB-08T | 1/2" Tube       | 1/2" UNILOK | 9.0     | 26.98           | 109.7 | 30.0           | 41.6 |
| VB14     | UWB-12T | 3/4" Tube       | 3/4" UNILOK | 12.5    | 31.75           | 129.2 | 43.0           | 44.2 |
| VB15     | UWB-16T | 1" Tube         | 1" UNILOK   | 16.0    | 38.10           | 137.3 | 30             | 53.8 |

Length of L<sub>1</sub> can be adjusted upon the customer's request

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# VB1 Protection Cover

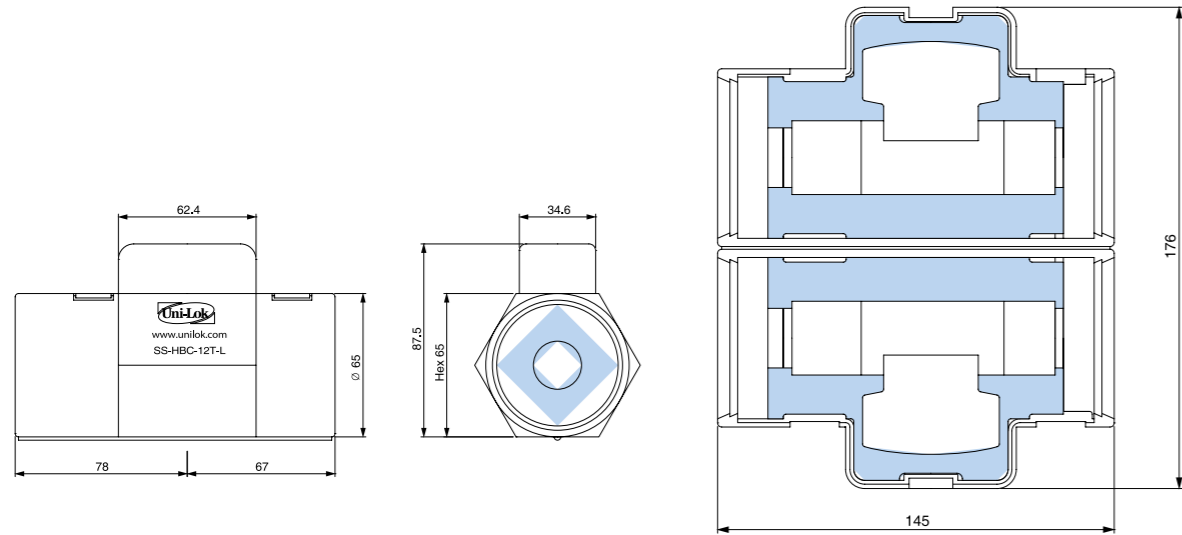
Maintain the temperature of fluids, keep handle position and distinguish in-out visually.

VB1 series ball valve with both 3/4" UNILOK end connection and plastic bar handle. 1/2" is available only with the different size of inner cover.

Ordering Number

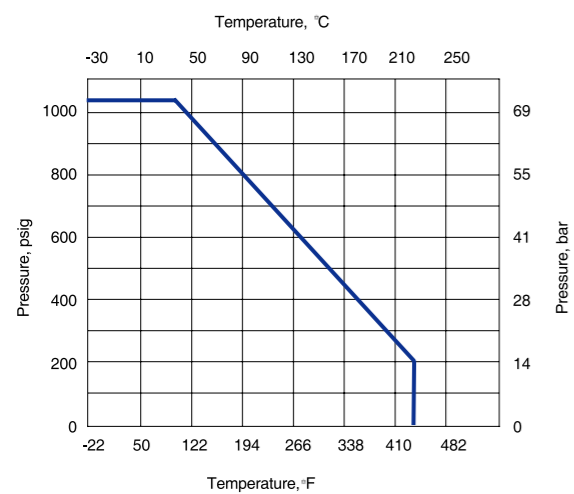
VB1-PC-R : Red

VB1-PC-S : Blue

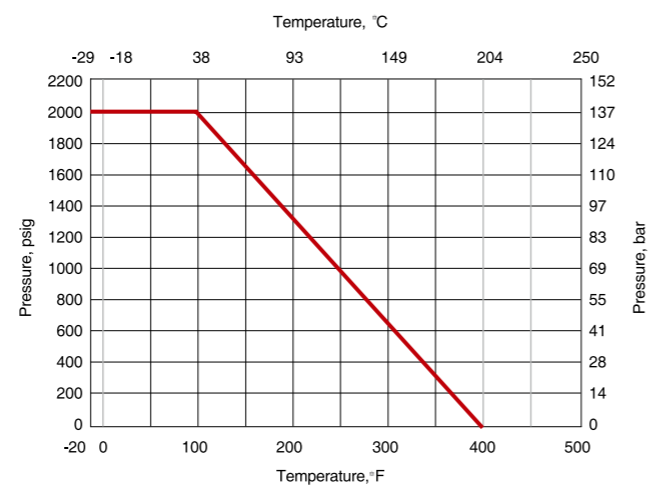


## Pressure - Temperature Ratings

PTFE Seat



TFM Seat



Dimensions are for reference only and are subject to change without prior notice.