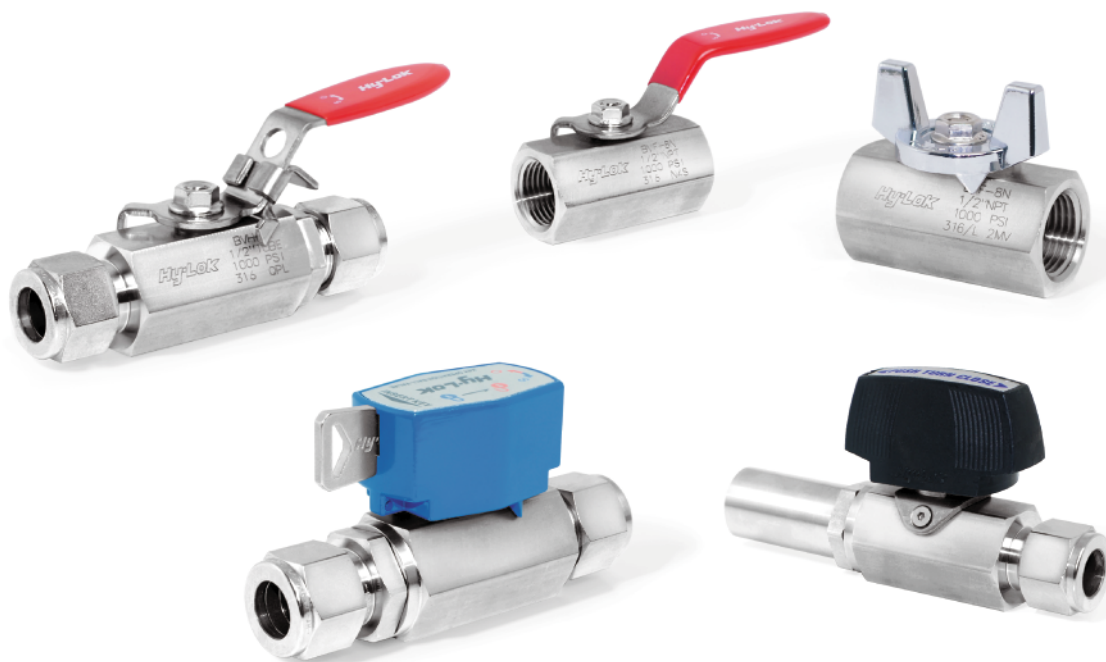




Catalog No. H-110BV  
Jul. 2021

# 110 Series Ball Valves

General Service



Max allowable working pressure up to 3000 psig (206 bar) at 100°F (38°C)  
Material available in 316 SS, Brass, Monel Alloy 400, Hastelloy® C-276, Super Duplex  
Size from 1/4" to 2" (Tube & Pipe Thread)

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## INTRODUCTION

110 Series ball valve is designed for most of the instrumentation. This ball valve is the economical type and becomes very basic valve in most industrial work. 110 Series ball valve is a moderate-pressure valve for general service.

## GENERAL

### Max Pressure & Temperature

Max allowable working pressure : 1000 psig (69bar) at 100°F (38°C) with PTFE seat  
 3000 psig (206bar) at 100°F (38°C) with PEEK seat (1/4" to 1")

Max allowable temperature : 450°F (232°C) with PTFE seat  
 450°F (232°C) with PEEK seat

### Size & Range

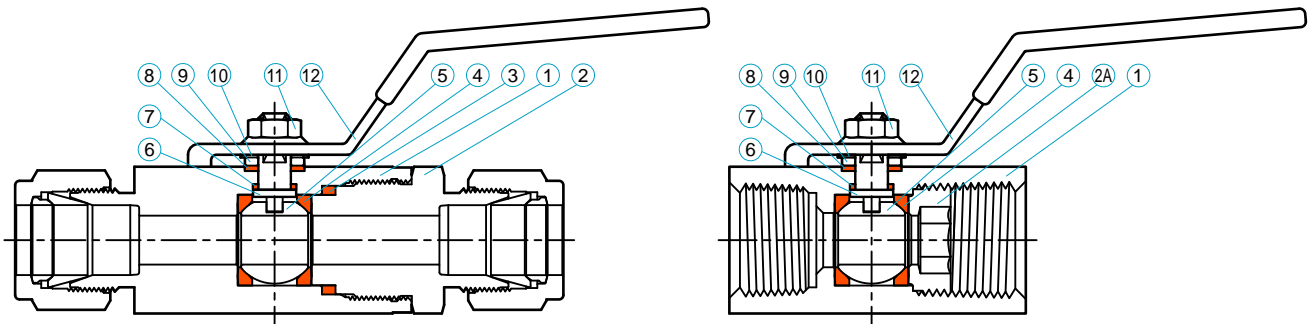
Hy-Lok Tube End : 1/4" to 1" ( 6mm to 25mm )  
 Pipe Thread End : 1/4" to 2"

### Material

Valve body : 316 Stainless Steel, Brass, Monel Alloy 400, Hastelloy® C-276, Super Duplex

### Features

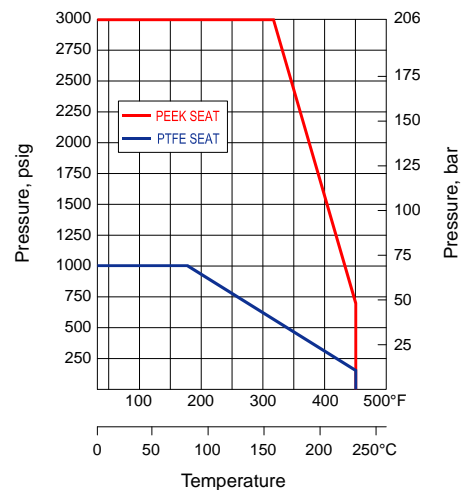
- Leak-tight shut-off, Low torque for easy operation
- Blow-out proof stem, Bi-directional flow
- Compact and economical design
- Variety of end connections
- Variety of Handle options : Butterfly, Oval, Push Turn, Self Locking, Key Lock Handle



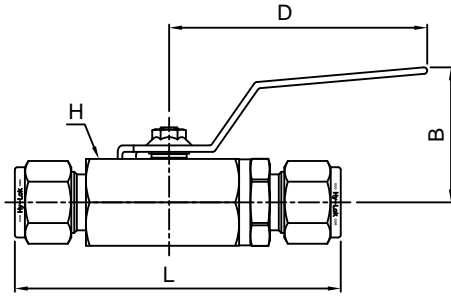
### Materials of Construction

Item	Description	Grade / ASTM Specification	
		316 SS	Brass
1	Body	316 SS / A479	Brass
2	End Connection	316 SS / A479	Brass
2A	Insert	316 Stainless Steel	
3	End Packing	Reinforced PTFE	
4	Seat	Reinforced PTFE or PEEK	
5	Ball	316 Stainless Steel	Size 1/4" ~ 1" : Brass Size 1 1/4" ~ 2" : 316 SS
6	Stem	316 Stainless Steel	
7	Inner Packing	Reinforced PTFE	
8	Outer Packing	Reinforced PTFE	
9	Gland	Stainless Steel	
10	Gland Washer	Stainless Steel	
11	Lock Nut	Stainless Steel	
12	Lever Handle	Stainless Steel with PVC Coated(Red)	

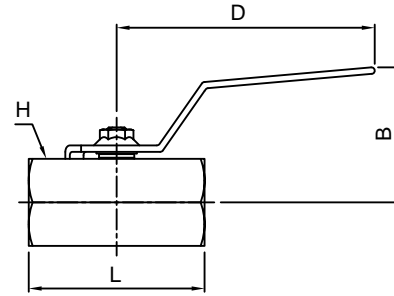
### Pressure-Temperature Rating



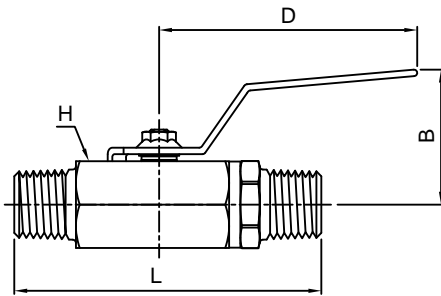
Hy-Lok Tube Fitting Ends



Female Thread Ends



Male Thread Ends



Male to Female Thread Ends

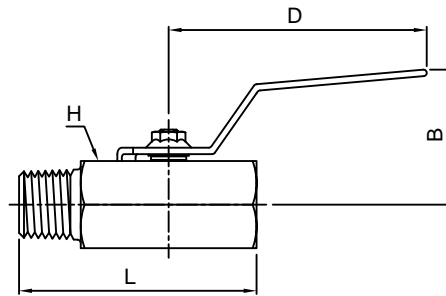


Table of Dimensions

Basic Part No.	Valve Size	Orifice (mm)	Cv	End Connections	Dimensions(mm)				Weight (kg)
					L	H(Hex.)	B	D	
BVH-6M	1/4	5.0	0.84	6mm Hy-Lok	79.5	17.0	31	60.0	0.12
BVH-4T				1/4" Hy-Lok	79.5				0.12
BVF-4N				1/4" Female NPT	40.0				0.07
BVM-4N				1/4" Male NPT	68.4				0.12
BVMF-4N				1/4" Male to Female NPT	48.2				0.08
BVH-8M				3/8	7.5				4.20
BVH-10M	10mm Hy-Lok	90.0	0.21						
BVH-6T	3/8" Hy-Lok	90.0	0.21						
BVF-6N	3/8" Female NPT	45.0	0.12						
BVM-6N	3/8" Male NPT	72.2	0.18						
BVMF-6N	3/8" Male to Female NPT	56.2	0.15						
BVH-12M	1/2	9.0	6.50	12mm Hy-Lok	99.0	27.0	42	80.0	0.34
BVH-8T				1/2" Hy-Lok	99.0				0.34
BVF-8N				1/2" Female NPT	54.5				0.21
BVM-8N				1/2" Male NPT	96.1				0.35
BVMF-8N				1/2" Male to Female NPT	68.0				0.26
BVH-16M				3/4	12.5				8.00
BVH-10T	5/8" Hy-Lok	109.0	0.49						
BVF-12N	3/4" Female NPT	61.0	0.31						
BVH-12T	3/4" Hy-Lok	110.0	0.50						
BVM-12N	3/4" Male NPT	96.1	0.49						
BVMF-12N	3/4" Male to Female NPT	71.0	0.36						
BVH-25M	1	16.0	25.00	25mm Hy-Lok	134.0	38.1	55	100.0	0.86
BVH-16T				1" Hy-Lok	134.0				0.86
BVF-16N				1" Female NPT	76.0				0.48
BVM-16N				1" Male NPT	119.8				0.83
BVMF-16N				1" Male to Female NPT	91.0				0.61
BVF-20N				1 1/4	21.0				-
BVF-24N	1 1/2	24.0	-	1 1/2" Female NPT	95.0	55.0	68	151.0	1.25
BVF-32N	2	32.0	-	2" Female NPT	110.0	70.0	73	151.0	2.22

Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

All dimensions are in millimeters reference only, subject to change

### Handle Option

#### ■ Butterfly & Oval Handle



Butterfly & Oval Handle available for better installation in a restricted space.  
 - Handle Material : Butterfly - Zinc with Nickel Plated  
 Oval - Dielectric Nylon(Black)

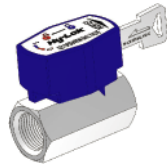
#### ■ Self Locking Handle

The handle can be self locked in the open and closed position.  
 - Handle Material : Stainless Steel with PVC(Red)



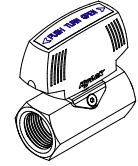
#### ■ Key Lock Handle

The Master key shall be inserted into the handle to operate the valve. It can prevent any incidents and accidents occurred by incorrect operation of an unskilled or unauthorized person during the installation and checking the pipeline.  
 - Handle Material : Aluminum with Painted(Blue)

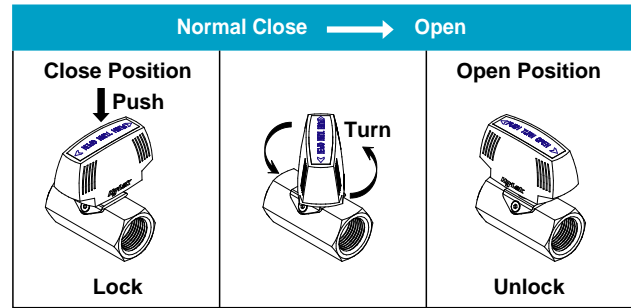


#### ■ Push Turn Handle

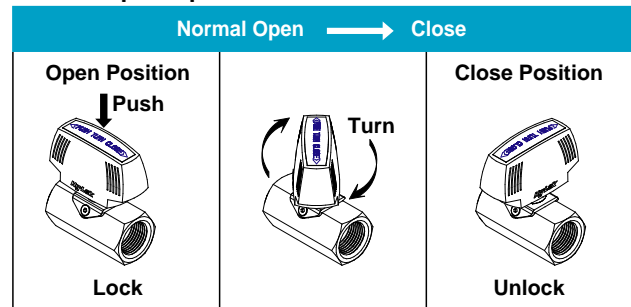
Locked in normal position(open or close) for safety. The handle is not operated unless it is pushed down at the normal position.  
 - Handle Material : Dielectric Nylon(Black)



#### Normal Close Operation



#### Normal Open Operation



#### Option of Locking Function

Option	Locking Function	
	Open Position	Close Position
Open/Close (Standard)	Lock	Lock
Normal Close	Unlock	Lock
Normal Open	Lock	Unlock

#### ■ Ordering Number for Handle Kits

Valve Size	Lever	Butterfly	Oval	Self Locking	① Key Lock	① Push Turn
1/4	BVHD-1/4	BVBHD-1/4	KIT-BVNHD-1/4	XBVHD-1/4-SL	-	-
3/8	BVHD-3/8	BVBHD-3/8	KIT-BVNHD-3/8	XBVHD-3/8-SL	-	-
1/2	BVHD-1/2	BVBHD-1/2	KIT-BVNHD-1/2	XBVHD-1/2-SL	KIT-BVKHD-1/2-XX	KIT-BVPTH-1/2-XX
3/4	BVHD-3/4	BVBHD-3/4	KIT-BVNHD-3/4	XBVHD-3/4-SL	KIT-BVKHD-3/4-XX	-
1	BVHD-1	BVBHD-1	KIT-BVNHD-1	XBVHD-1-SL	KIT-BVKHD-1-XX	-
1 1/4	BVHD-20	-	-	XBVHD-20-SL	-	-
1 1/2	BVHD-24	-	-	XBVHD-24-SL	-	-
2	BVHD-32	-	-	XBVHD-32-SL	-	-

Note : This is not interchangeable with other option handles.  
 For locking option as per handle position [ XX : Nil(Standard), NC(Normal Close), NO(Normal Open) ], Example : KIT-BVKHD-1/2-NO  
 For locking option as per handle position [ XX : NC(Normal Close), NO(Normal Open) ], Example : KIT-BVPTH-1/2-NC

### Ordering Information

<p><b>VBV</b></p> <p>Valve Designator</p>	<p><b>H</b></p> <p>End Connector Designator</p> <ul style="list-style-type: none"> <li>• H - Hy-Lok Tube Fitting</li> <li>• F - Female Pipe Thread</li> </ul>	<p><b>6T</b></p> <p>Size Designator</p> <p><b>Tube</b></p> <ul style="list-style-type: none"> <li>• 4T - 1/4"</li> <li>• 8T - 1/2"</li> <li>• 16T - 1"</li> <li>• 6M - 6mm</li> <li>• 12M - 12mm</li> <li>• 25M - 25mm</li> </ul> <p><b>NPT</b></p> <ul style="list-style-type: none"> <li>• 4N - 1/4"</li> <li>• 8N - 1/2"</li> <li>• 12N - 3/4"</li> <li>• 16N - 1"</li> <li>• 24N - 1 1/2"</li> <li>• 32N - 2"</li> </ul>	<p><b>PK</b></p> <p>Seat Material Designator</p> <ul style="list-style-type: none"> <li>• Nil - PTFE</li> <li>• PK - PEEK</li> </ul>	<p><b>B</b></p> <p>Handle Designator</p> <ul style="list-style-type: none"> <li>• Nil - Lever Handle</li> <li>• B - Butterfly Handle</li> <li>• N - Oval Handle</li> <li>• SL - Self Locking Handle</li> <li>• KXX - Key Lock Handle ( K : Standard, KNC : Normal Close, KNO : Normal Open )</li> <li>• PTXX - Push Turn Handle ( PTNC : Normal Close, PTNO : Normal Open )</li> </ul>	<p><b>SOG</b></p> <p>Sour Gas Designator</p> <ul style="list-style-type: none"> <li>• Nil - without(Standard)</li> <li>• SOG - NACE MR-01-75</li> </ul>	<p><b>S316</b></p> <p>Body Material Designator</p> <ul style="list-style-type: none"> <li>• S316 316 Stainless Steel</li> <li>• BRAS Brass</li> <li>• MONE Monel Alloy 400</li> <li>• C276 Hastelloy® C-276</li> <li>• F53 Super Duplex</li> </ul>
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Catalog No. H-110BV  
Jan. 2021

# 110 Series Ball Valves

General Service



Max allowable working pressure up to 3000 psig (206 bar) at 100°F (38°C)  
Material available in 316 SS, Brass, Monel Alloy 400, Hastelloy® C-276, Super Duplex  
Size from 1/4" to 2" (Tube & Pipe Thread)

**HY-LOK CORPORATION**

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## INTRODUCTION

110 Series ball valve is designed for most of the instrumentation. This ball valve is the economical type and becomes very basic valve in most industrial work. 110 Series ball valve is a moderate-pressure valve for general service.

## GENERAL

### ■ Max Pressure & Temperature

Max allowable working pressure : 1000 psig (69bar) at 100°F (38°C) with PTFE seat  
 3000 psig (206bar) at 100°F (38°C) with PEEK seat (1/4" to 1")

Max allowable temperature : 450°F (232°C) with PTFE seat  
 450°F (232°C) with PEEK seat

### ■ Size & Range

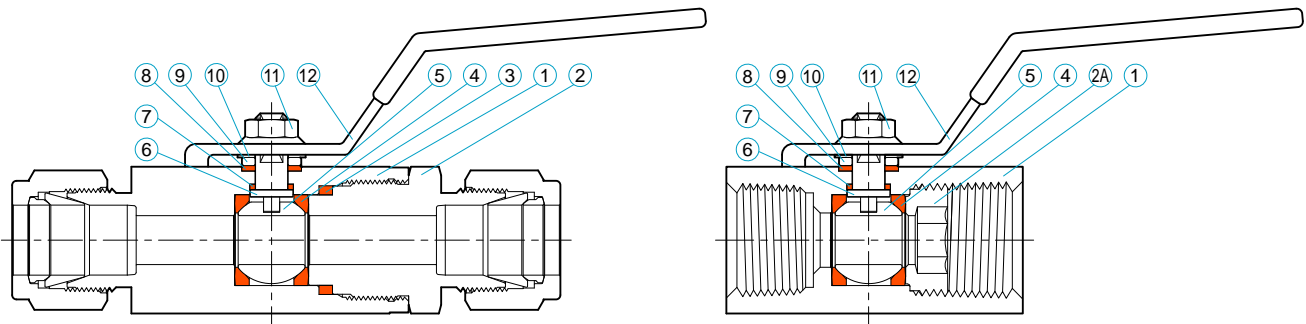
Hy-Lok Tube End : 1/4" to 1" ( 6mm to 25mm )  
 Pipe Thread End : 1/4" to 2"

### ■ Material

Valve body : 316 Stainless Steel, Brass, Monel Alloy 400, Hastelloy® C-276, Super Duplex

### ■ Features

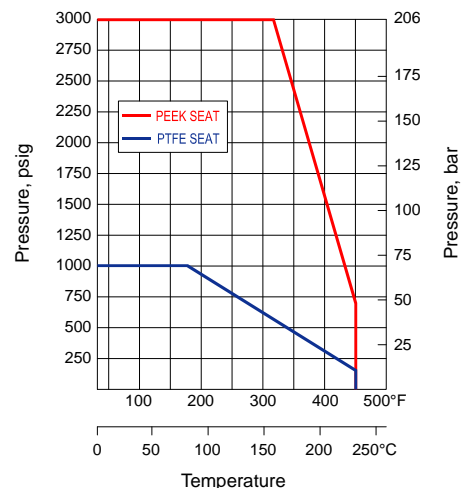
- Leak-tight shut-off, Low torque for easy operation
- Blow-out proof stem, Bi-directional flow
- Compact and economical design
- Variety of end connections
- Variety of Handle options : Butterfly, Oval, Push Turn, Self Locking, Key Lock Handle



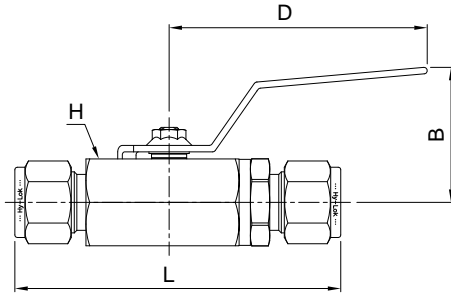
### ■ Materials of Construction

Item	Description	Grade / ASTM Specification	
		316 SS	Brass
1	Body	316 SS / A479	Brass
2	End Connection	316 SS / A479	Brass
2A	Insert	316 Stainless Steel	
3	End Packing	Reinforced PTFE	
4	Seat	Reinforced PTFE or PEEK	
5	Ball	316 Stainless Steel	
6	Stem	316 Stainless Steel	
7	Inner Packing	Reinforced PTFE	
8	Outer Packing	Reinforced PTFE	
9	Gland	Stainless Steel	
10	Gland Washer	Stainless Steel	
11	Lock Nut	Stainless Steel	
12	Lever Handle	Stainless Steel with PVC Coated(Red)	

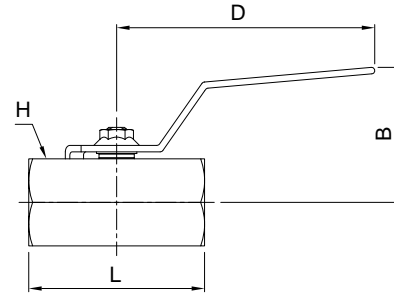
### ■ Pressure-Temperature Rating



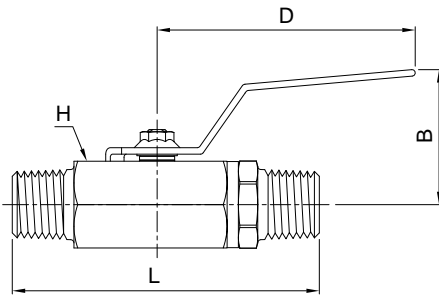
Hy-Lok Tube Fitting Ends



Female Thread Ends



Male Thread Ends



Male to Female Thread Ends

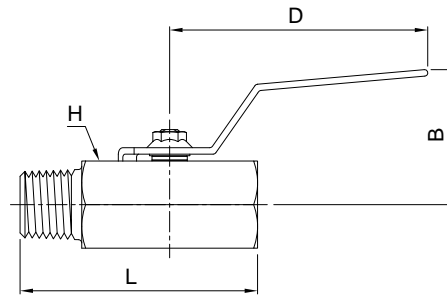


Table of Dimensions

Basic Part No.	Valve Size	Orifice (mm)	Cv	End Connections	Dimensions(mm)				Weight (kg)
					L	H(Hex.)	B	D	
BVH-6M	1/4	5.0	0.84	6mm Hy-Lok	79.5	17.0	31	60.0	0.12
BVH-4T				1/4" Hy-Lok	79.5				0.12
BVF-4N				1/4" Female NPT	40.0				0.07
BVM-4N				1/4" Male NPT	68.4				0.12
BVMF-4N				1/4" Male to Female NPT	48.2				0.08
BVH-8M				3/8	7.5				4.20
BVH-10M	10mm Hy-Lok	90.0	0.21						
BVH-6T	3/8" Hy-Lok	90.0	0.21						
BVF-6N	3/8" Female NPT	45.0	0.12						
BVM-6N	3/8" Male NPT	72.2	0.18						
BVMF-6N	3/8" Male to Female NPT	56.2	0.15						
BVH-12M	1/2	9.0	6.50	12mm Hy-Lok	99.0	27.0	42	80.0	0.34
BVH-8T				1/2" Hy-Lok	99.0				0.34
BVF-8N				1/2" Female NPT	54.5				0.21
BVM-8N				1/2" Male NPT	96.1				0.35
BVMF-8N				1/2" Male to Female NPT	68.0				0.26
BVH-16M				3/4	12.5				8.00
BVH-10T	5/8" Hy-Lok	109.0	0.49						
BVF-12N	3/4" Female NPT	61.0	0.31						
BVH-12T	3/4" Hy-Lok	110.0	0.50						
BVM-12N	3/4" Male NPT	96.1	0.49						
BVMF-12N	3/4" Male to Female NPT	71.0	0.36						
BVH-25M	1	16.0	25.00	25mm Hy-Lok	134.0	38.1	55	100.0	0.86
BVH-16T				1" Hy-Lok	134.0				0.86
BVF-16N				1" Female NPT	76.0				0.48
BVM-16N				1" Male NPT	119.8				0.83
BVMF-16N				1" Male to Female NPT	91.0				0.61
BVF-20N				1 1/4	21.0				-
BVF-24N	1 1/2	24.0	-	1 1/2" Female NPT	95.0	55.0	68	151.0	1.25
BVF-32N	2	32.0	-	2" Female NPT	110.0	70.0	73	151.0	2.22

Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

All dimensions are in millimeters reference only, subject to change

### Handle Option

#### ■ Butterfly & Oval Handle



Butterfly & Oval Handle available for better installation in a restricted space.  
 - Handle Material : Butterfly - Zinc with Nickel Plated  
 Oval - Dielectric Nylon(Black)

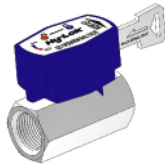
#### ■ Self Locking Handle

The handle can be self locked in the open and closed position.  
 - Handle Material : Stainless Steel with PVC(Red)



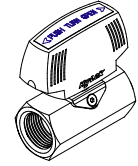
#### ■ Key Lock Handle

The Master key shall be inserted into the handle to operate the valve. It can prevent any incidents and accidents occurred by incorrect operation of an unskilled or unauthorized person during the installation and checking the pipeline.  
 - Handle Material : Aluminum with Painted(Blue)

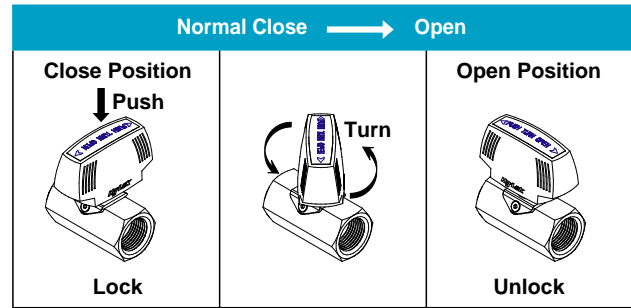


#### ■ Push Turn Handle

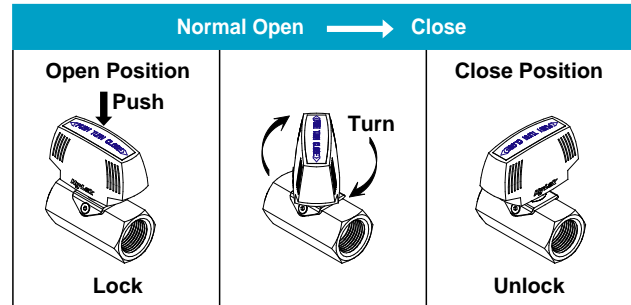
Locked in normal position(open or close) for safety. The handle is not operated unless it is pushed down at the normal position.  
 - Handle Material : Dielectric Nylon(Black)



#### Normal Close Operation



#### Normal Open Operation



#### Option of Locking Function

Option	Locking Function	
	Open Position	Close Position
Open/Close (Standard)	Lock	Lock
Normal Close	Unlock	Lock
Normal Open	Lock	Unlock

### ■ Ordering Number for Handle Kits

Valve Size	Lever	Butterfly	Oval	Self Locking	① Key Lock	① Push Turn
1/4	BVHD-1/4	BVBHD-1/4	KIT-BVNHD-1/4	XBVHD-1/4-SL	-	-
3/8	BVHD-3/8	BVBHD-3/8	KIT-BVNHD-3/8	XBVHD-3/8-SL	-	-
1/2	BVHD-1/2	BVBHD-1/2	KIT-BVNHD-1/2	XBVHD-1/2-SL	KIT-BVKHD-1/2-XX	KIT-BVPTH-1/2-XX
3/4	BVHD-3/4	BVBHD-3/4	KIT-BVNHD-3/4	XBVHD-3/4-SL	KIT-BVKHD-3/4-XX	-
1	BVHD-1	BVBHD-1	KIT-BVNHD-1	XBVHD-1-SL	KIT-BVKHD-1-XX	-
1 1/4	BVHD-20	-	-	XBVHD-20-SL	-	-
1 1/2	BVHD-24	-	-	XBVHD-24-SL	-	-
2	BVHD-32	-	-	XBVHD-32-SL	-	-

Note : This is not interchangeable with other option handles.  
 For locking option as per handle position [ XX : Nil(Standard), NC(Normal Close), NO(Normal Open) ], Example : KIT-BVKHD-1/2-NO  
 For locking option as per handle position [ XX : NC(Normal Close), NO(Normal Open) ], Example : KIT-BVPTH-1/2-NC

### Ordering Information

<p><b>VBV</b></p> <p>Valve Designator</p>	<p><b>H</b></p> <p>End Connector Designator</p> <ul style="list-style-type: none"> <li>• H - Hy-Lok Tube Fitting</li> <li>• F - Female Pipe Thread</li> </ul>	<p><b>6T</b></p> <p>Size Designator</p> <p><b>Tube</b></p> <ul style="list-style-type: none"> <li>• 4T - 1/4"</li> <li>• 8T - 1/2"</li> <li>• 16T - 1"</li> <li>• 6M - 6mm</li> <li>• 12M - 12mm</li> <li>• 25M - 25mm</li> </ul> <p><b>NPT</b></p> <ul style="list-style-type: none"> <li>• 4N - 1/4"</li> <li>• 8N - 1/2"</li> <li>• 12N - 3/4"</li> <li>• 16N - 1"</li> <li>• 24N - 1 1/2"</li> <li>• 32N - 2"</li> </ul>	<p><b>PK</b></p> <p>Seat Material Designator</p> <ul style="list-style-type: none"> <li>• Nil - PTFE</li> <li>• PK - PEEK</li> </ul>	<p><b>B</b></p> <p>Handle Designator</p> <ul style="list-style-type: none"> <li>• Nil - Lever Handle</li> <li>• B - Butterfly Handle</li> <li>• N - Oval Handle</li> <li>• SL - Self Locking Handle</li> <li>• KXX - Key Lock Handle ( K : Standard, KNC : Normal Close, KNO : Normal Open )</li> <li>• PTXX - Push Turn Handle ( PTNC : Normal Close, PTNO : Normal Open )</li> </ul>	<p><b>SOG</b></p> <p>Sour Gas Designator</p> <ul style="list-style-type: none"> <li>• Nil - without(Standard)</li> <li>• SOG - NACE MR-01-75</li> </ul>	<p><b>S316</b></p> <p>Body Material Designator</p> <ul style="list-style-type: none"> <li>• S316 316 Stainless Steel</li> <li>• BRAS Brass</li> <li>• MONE Monel Alloy 400</li> <li>• C276 Hastelloy® C-276</li> <li>• F53 Super Duplex</li> </ul>
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# Hy-Lok SO Series

## Swing Out Ball Valves

Catalog No. H-SOBV  
Fed. 2004



### Design & Engineering

- Positive leak tight shut off
- Live loaded design
  - Compensates for wear, pressure and temperature changes
- Swing-out three piece design
  - Easy and fast replace seats, seals and ball without major disruption in-line.

### Application

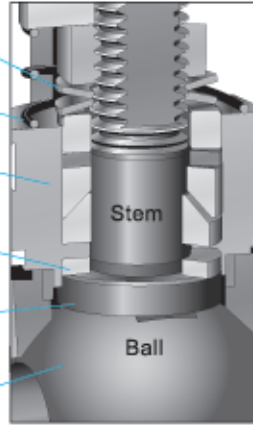
- Chemical Processing
- Oil & Gas Production
- Pharmaceutical
- Power and Utilities
- Biotech
- Food and Beverage

**Hy-Lok**

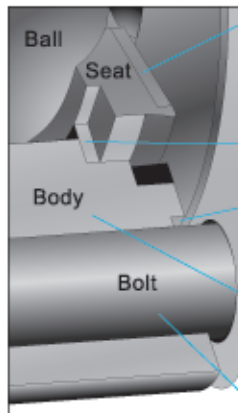
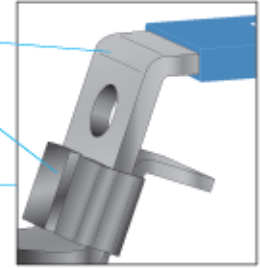
**HY-LOK CORPORATION**

## Features and Benefits

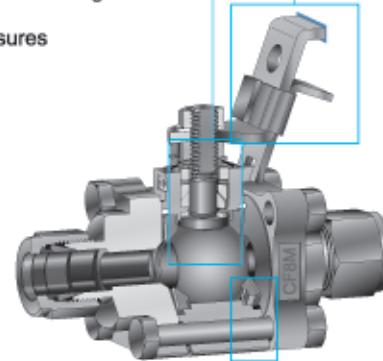
- **Stem disc spring** compensates for temperature/ pressure changes
- **Ground spring** for Anti static
- **Chevron Stem Packing**
  - low operating torque
  - compensates for wear
- **Stem Bearing** is PEEK standard
- **Stem**
  - prevent stem blow-out
  - open/close indication
- **Precision machined ball** reduces torque & increases sealing



- **Lever Handle**
  - oval or extended handle option
  - low operation torque
- **Self-Locking device & pad lock**



- **Disc Spring & Seat**
  - compensates for wear and pressure / temperature changes
  - protects seats from pressure surge
  - allows leak-tight operation under various pressures
- **Support Ring** prevents seat bulging and wear
- **End packing with PTFE**
  - allows leak tight sealing between center
  - body and end connection flange
- **Center Body**
  - Swing-out design
  - available 3-Way (Switching)
- **High-strength 4-Bolt & Nut**



## Specification

- Pressure Rating up to 3000 psig(206bar) @ 100°F(38°C)  
 Temperature Range from -20°F(-28°C) to 450°F(232°C)  
 Size Range
- Hy-Lok ends : 1/4" to 1" (6mm to 25mm)
  - Screwed ends : 1/8" to 1" (NPT, BSPT)
  - Butt-weld ends : 1/4" to 1" (Pipe)
  - Socket weld ends : 1/4" to 1" (Tube and Pipe)
  - ZCO O-Ring Face Seal ends : 1/4" to 1/2"
  - ZCR Metal Gasket Seal ends : 1/4" to 1/2"

## Testing

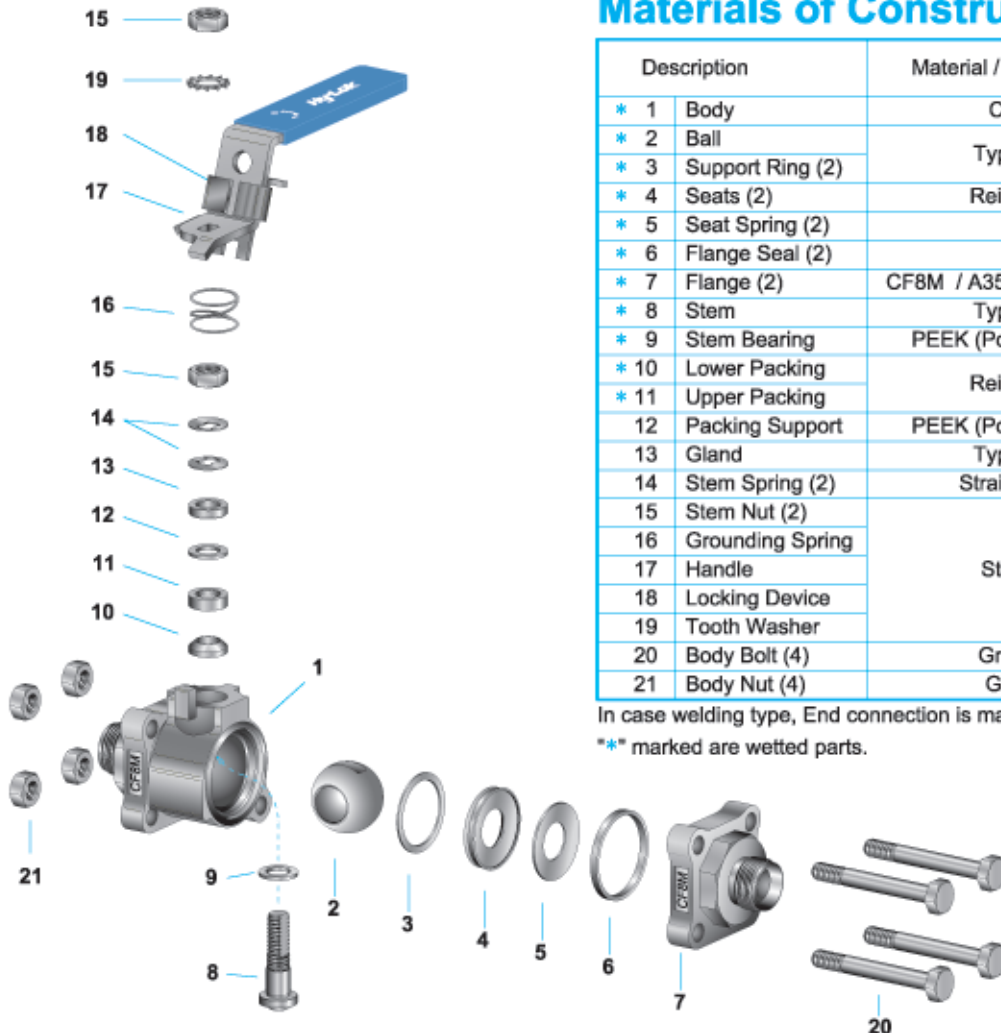
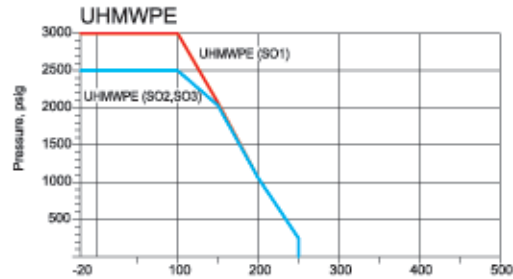
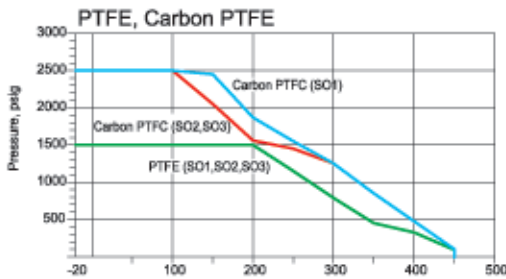
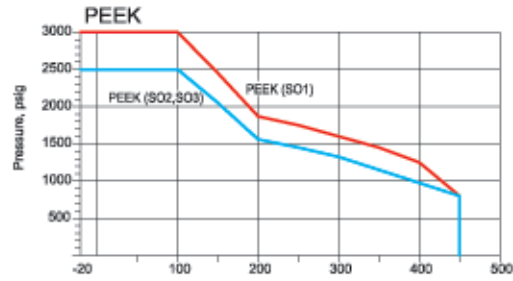
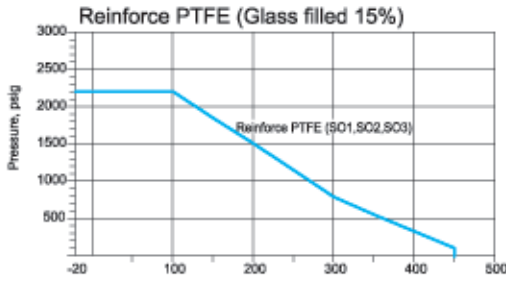
- Each valve is tested with nitrogen @ 1000 psig (69 bar) to Max. leak rate of 0.1 SCCM.
- Hydrostatic shell test is performed at 1.5 times the working pressure as an option.
- Other tests are upon request.

## Pressure and Temperature Rating

Seat Material	Valve Series	Pressure Rating at -20 °F to 100 °F (-28 °C to 38 °C) psig (bar)	Pressure Max. Temperature
Reinforced PTFE (Standard)	SO1B	2200 (151)	100 psig at 450 °F ( 7 bar at 232 °C )
	SO2B		
	SO3B		
PTFE	SO1B	1500 (103)	100 psig at 450 °F ( 7 bar at 232 °C )
	SO2B		
	SO3B		
UHMWPE (Polyethylene)	SO1B	3000 (206)	250 psig at 250 °F ( 17 bar at 121 °C )
	SO2B SO3B	2500 (172)	
Carbon PTFE	SO1B	2500 (172)	100 psig at 450 °F ( 7 bar at 232 °C )
	SO2B		
	SO3B		
PEEK	SO1B	3000 (206)	800 psig at 450 °F ( 55 bar at 232 °C )
	SO2B		
	SO3B		

**Note**  
 Pressure rating of switching valve is 1000psig(69bar) @ -20 °F to 100 °F (-28 °C to 38 °C)

## Pressure & Temperature of Seat Material



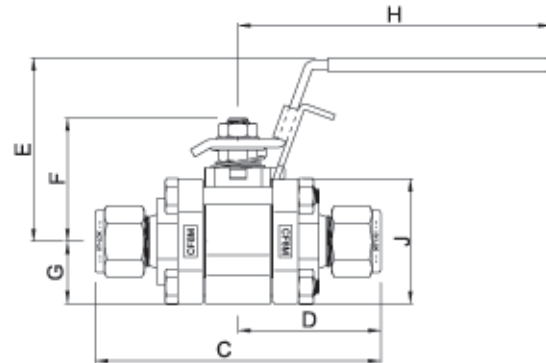
## Materials of Construction

Description	Material / ASTM Specification
* 1 Body	CF8M / A351
* 2 Ball	Type 316 / A479
* 3 Support Ring (2)	Type 316 / A479
* 4 Seats (2)	Reinforced PTFE
* 5 Seat Spring (2)	17-7PH
* 6 Flange Seal (2)	PTFE
* 7 Flange (2)	CF8M / A351 or Type 316L / A479
* 8 Stem	Type 316 / A479
* 9 Stem Bearing	PEEK (Polyetheretherketone)
* 10 Lower Packing	Reinforced PTFE
* 11 Upper Packing	Reinforced PTFE
12 Packing Support	PEEK (Polyetheretherketone)
13 Gland	Type 316 / A479
14 Stem Spring (2)	Strain Hardned 316
15 Stem Nut (2)	Strain Hardned 316
16 Grounding Spring	Strain Hardned 316
17 Handle	Stainless Steel
18 Locking Device	Stainless Steel
19 Tooth Washer	Stainless Steel
20 Body Bolt (4)	Gr. B8M / A193
21 Body Nut (4)	Gr. 8M / A194

In case welding type, End connection is made of A479 TYPE 316L  
 "\*" marked are wetted parts.

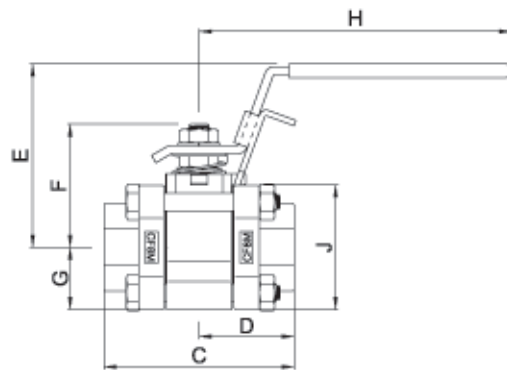
## Dimensions 2-Way (Shut-off)

### Hy-Lok Tube End Connections



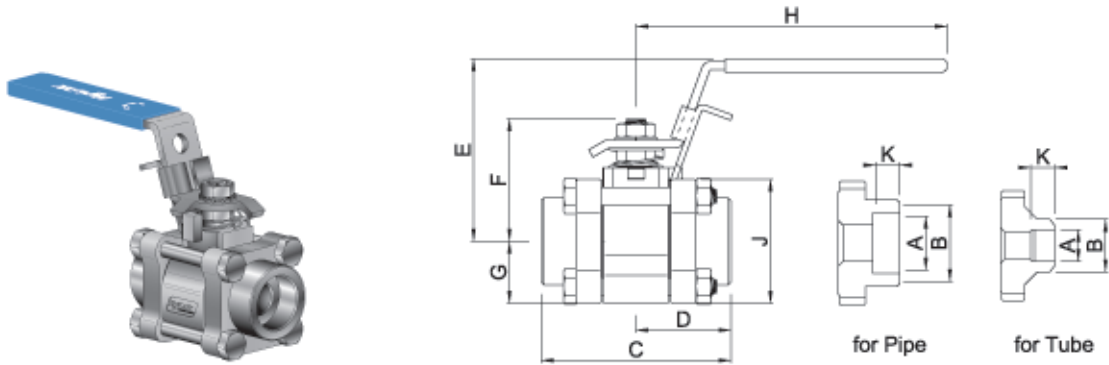
Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)							
		in.	mm		C	D	E	F	G	H	J	
<b>Fractional</b>												
SO1BH- 4T	1/4"	0.188	4.8	1.2	80.8	40.40	47.7	31.8	16.75	57.2	33.0	
SO1BH- 6T	3/8"	0.281	7.1	3.8								
SO2BH- 8T	1/2"	0.411	10.4	7.5	103.8	51.90	64.8	44.2	22.25	111.0	44.5	
SO2BH-12T	3/4"	0.516	13.1	13.6								
SO3BH-16T	1"	0.875	22.2	40.0	136.7	68.35	79.0	61.9	31.00	149.4	62.0	
<b>Metric</b>												
SO1BH- 6M	6mm	0.188	4.8	1.2	80.8	40.40	47.7	31.8	16.75	57.2	33.0	
SO1BH- 8M	8mm	0.250	6.4	2.5								
SO1BH-10M	10mm	0.281	7.1	3.8	103.8	51.90	64.8	44.2	22.25	111.0	44.5	
SO2BH-12M	12mm	0.411	10.4	7.5								
SO3BH-25M	25mm	0.875	22.2	40.0	136.7	68.35	79.0	61.9	31.00	149.4	62.0	

### Female Pipe Thread End Connections



Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)							
		in.	mm		C	D	E	F	G	H	J	
<b>Female NPT (ASME B1.20.1)</b>												
SO1BF- 2N	1/8" NPT	0.281	7.1	3.8	55.4	27.70	47.7	31.8	16.75	57.2	33.0	
SO1BF- 4N	1/4" NPT			12.0								
SO2BF- 6N	3/8" NPT	0.516	13.1	12.0	68.9	34.45	64.8	44.2	22.25	111.0	44.5	
SO2BF- 8N	1/2" NPT			31.0								
SO3BF-12N	3/4" NPT	0.875	22.2	31.0	92.0	46.00	79.0	61.9	31.00	149.4	62.0	
SO3BF-16N	1" NPT			38.0								
<b>Female ISO Tapered</b>												
SO1BF- 4R	1/4" ISO Tapered	0.281	7.1	3.8	55.4	27.70	47.7	31.8	16.75	57.2	33.0	
SO2BF- 8R	1/2" ISO Tapered			12.0								
SO3BF-12R	3/4" ISO Tapered	0.875	22.2	31.0	92.0	46.00	79.0	61.9	31.00	149.4	62.0	
SO3BF-16R	1" ISO Tapered			38.0								

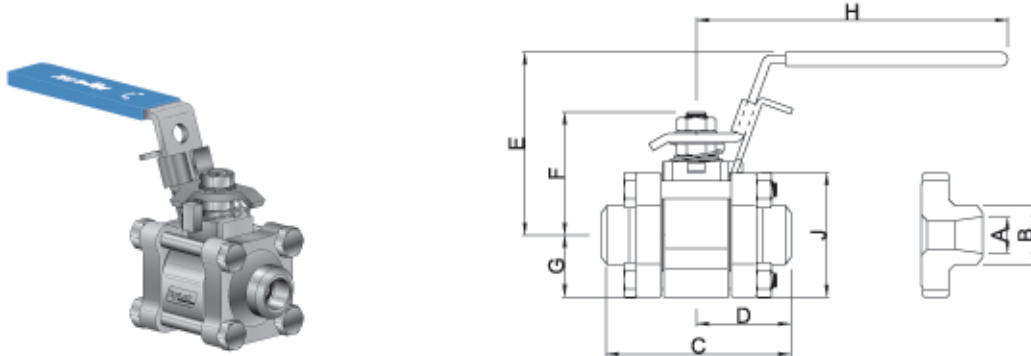
**Pipe & Tube Socket Weld End Connections**



**Tube Socket Weld**

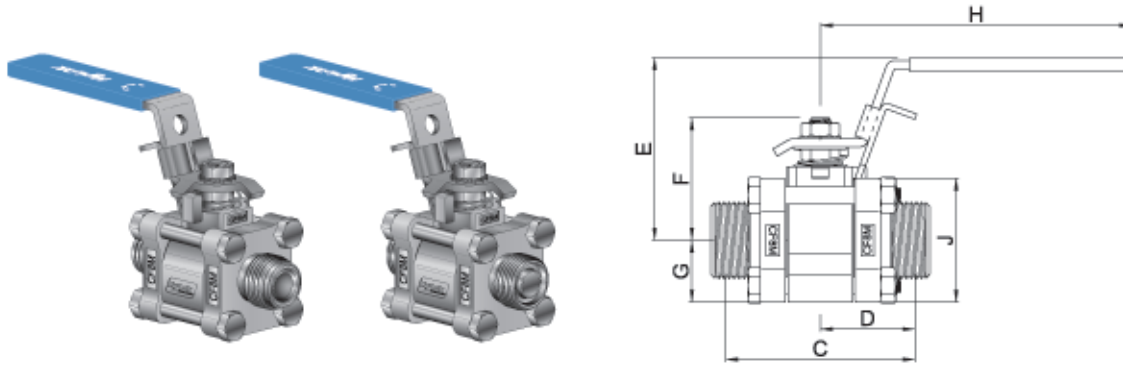
Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)									
		in.	mm		A	B	C	D	E	F	G	H	J	K
<b>Tube Socket Weld</b>														
SO1BSW- 4T	1/4"	0.188	4.8	1.2	6.50	13.70	55.4	27.70	47.7	31.8	16.75	57.2	33.0	7.1
SO1BSW- 6T	3/8"	0.281	7.1	3.8	9.70	17.10								7.9
SO2BSW- 8T	1/2"	0.411	10.4	7.5	12.90	21.30	68.9	34.45	64.8	44.2	22.25	111.0	44.5	9.7
SO2BSW-12T	3/4"	0.516	13.1	13.6	19.20	26.70								11.2
SO3BSW-16T	1"	0.875	22.2	40.0	25.65	33.40	92.0	46.00	79.0	61.9	31.00	149.4	62.0	16.0
<b>Pipe Socket Weld</b>														
SO2BSW- 8P	1/2"	0.516	13.1	15.0	21.80	31.20	68.9	34.45	64.8	44.2	22.25	111.0	44.5	9.7
SO3BSW-12P	3/4"	0.875	22.2	36.0	27.20	42.16	92.0	46.00	79.0	61.9	31.00	149.4	62.0	12.7
SO3BSW-16P	1"			42.0	33.90	45.30								

**Pipe Butt Weld End Connections**



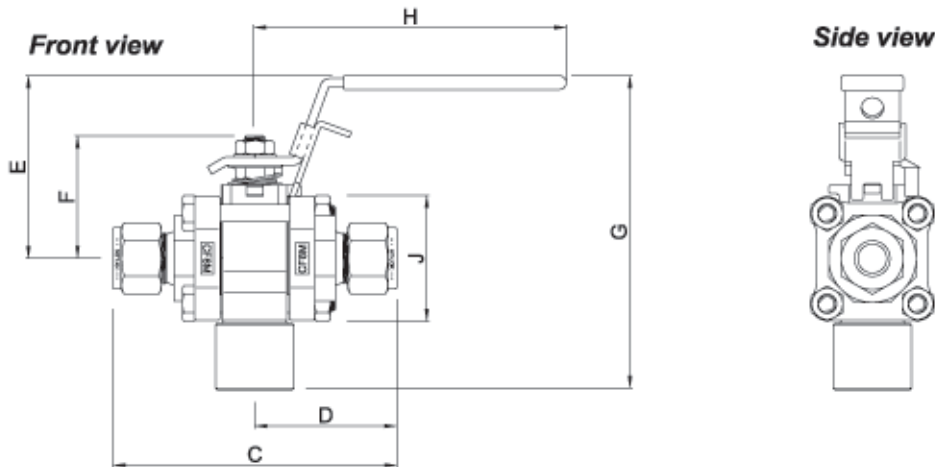
Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)								
		in.	mm		A	B	C	D	E	F	G	H	J
<b>Schedule 10</b>													
SO1BBW- 4P-S10	1/4"	0.188	4.8	1.2	10.40	13.70	52.4	26.20	47.7	31.8	16.75	57.2	33.0
SO2BBW- 8P-S10	1/2"	0.516	13.1	15.0	17.10	21.30	68.9	34.45	64.8	44.2	22.25	111.0	44.5
SO3BBW-12P-S10	3/4"	0.875	22.2	36.0	22.45	26.67	92.0	46.00	79.0	61.9	31.00	149.4	62.0
SO3BBW-16P-S10	1"			40.0	27.90	33.40	88.9	44.45					
<b>Schedule 40</b>													
SO1BBW- 4P-S40	1/4"	0.188	4.8	1.2	9.20	13.70	52.4	26.20	47.7	31.8	16.75	57.2	33.0
SO2BBW- 8P-S40	1/2"	0.516	13.1	15.0	15.80	21.30	68.9	34.45	64.8	44.2	22.25	111.0	44.5
SO3BBW-12P-S40	3/4"	0.875	22.2	36.0	20.93	26.67	92.0	46.00	79.0	61.9	31.00	149.4	62.0
SO3BBW-16P-S40	1"			40.0	26.60	33.40	88.9	44.45					
<b>Schedule 80</b>													
SO1BBW- 4P-S80	1/4"	0.188	4.8	1.2	7.70	13.70	52.4	26.20	47.7	31.8	16.75	57.2	33.0
SO1BBW- 6P-S80	3/8"	0.281	7.1	3.8	10.70	17.10							
SO2BBW- 8P-S80	1/2"	0.411	10.4	7.5	13.90	21.30	68.9	34.45	64.8	44.2	22.25	111.0	44.5
SO2BBW-12P-S80	3/4"	0.516	13.1	13.6	18.80	26.70							
SO3BBW-16P-S80	1"	0.875	22.2	40.0	23.90	33.40	88.9	44.45	79.0	61.9	31.00	149.4	62.0

Zero Clearance Face Seal End Connections



Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)							
		in.	mm		C	D	E	F	G	H	J	
<b>O-Ring Face Seal</b>												
SO1BZCO-4	1/4" ZCO	0.188	4.8	1.2	66.6	33.3	47.7	31.8	16.75	57.15	33.0	
SO2BZCO-8	1/2" ZCO	0.411	10.4	7.5	82.8	41.4	64.8	44.2	22.25	111.00	44.5	
<b>Metal Gasket Face Seal</b>												
SO1BZCR-4	1/4" ZCR	0.188	4.8	1.2	63.6	31.8	47.7	31.8	16.75	57.15	33.0	
SO2BZCR-8	1/2" ZCR	0.406	10.3	7.5	92.0	46.0	64.8	44.2	22.25	111.00	44.5	

3-Way (Switching)



Basic Order No.	End Connection Size	Orifice		Cv	Dimensions (mm)							
		in.	mm		C	D	E	F	G	H	J	
<b>Hy-Lok Tube Connections</b>												
SO1B3H-4T	1/4"	0.188	4.8	1.2	80.8	40.40	47.7	31.8	90.1	57.2	33.0	
SO2B3H-6T	3/8"	0.281	7.1	3.8	98.8	49.40	64.8	44.2	109.8	111.0	44.5	
SO2B3H-8T	1/2"	0.411	10.4	7.5					112.8			
<b>Female NPT (ASME B1.20.1)</b>												
SO1B3F- 4N	1/4" NPT	0.281	7.1	3.8	55.4	27.70	47.7	31.8	84.2	57.2	33.0	
SO2B3F- 8N	1/2" NPT	0.516	13.1	12.0	68.9	34.45	64.8	44.2	104.8	111.0	44.5	
SO3B3F-12N	3/4" NPT	0.875	22.2	31.0	92.0	46.00	79.0	61.9	141.5	149.4	62.0	
SO3B3F-16N	1" NPT			38.0								
<b>Female ISO Tapered</b>												
SO1B3F- 4R	1/4" ISO Tapered	0.281	7.1	3.8	55.4	27.70	47.7	31.8	84.2	57.2	33.0	
SO2B3F- 8R	1/2" ISO Tapered	0.516	13.1	12.0	68.9	34.45	64.8	44.2	104.8	111.0	44.5	
SO3B3F-12R	3/4" ISO Tapered	0.875	22.2	31.0	92.0	46.00	79.0	61.9	141.5	149.4	62.0	
SO3B3F-16R	1" ISO Tapered			38.0								114.3

## Option

### Oval Handle

Oval handle as an option. For the ordering number of the oval handle, refer to the ordering information (page 8)



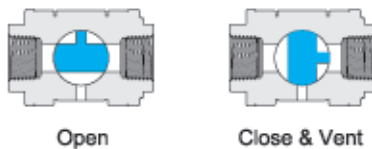
### Vent Option

2-way valve is available with both internal or external vent and down stream or upstream vent

- Ball design for internal & external vent



- Downstream & Upstream vent



For the ordering number of downstream & upstream, refer to the ordering information (page 8)

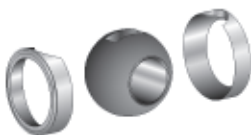
### Sour Gas Service

Valves are available in materials which comply with standard NACE MR-01-75 latest revision relating to metallic materials offering optimum resistance to sulfide stress cracking

### Low Dead Space Inserts

2-Way is available with low dead space inserts. It prevents fluid entrapment around the ball and stem during operation.

Low dead space insert is made of reinforced PTFE. Not suitable for steam, thermal and fire service.



Ordering Number  
KIT- \*\*\*\* -LDSI

- \* For a complete ordering number, insert the desired series designator as a suffix to the Low dead space insert kit basic ordering number. e.g : KIT-SO2B-LDSI

### Mounting Bracket

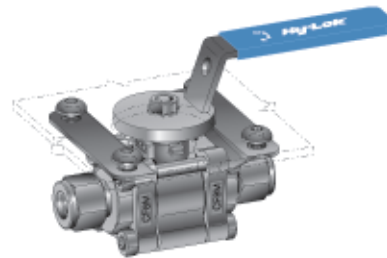
panel mounting kit contains panel mounting bracket, body bolt for mounting, Round hex. socket head screw, cover plate.

- Horizontal and vertical mounting
- SO1B series - 3/16 in. (4.8mm)
- SO2B, SO3B series - 1/4 in. (6.4mm)
- Templets for panel drilling will be supplied.

Ordering Number

KIT- \*\*\*\* -PNM

- \* For a complete ordering number, insert the desired series designator as a suffix to the panel mounting kit basic ordering number. e.g : KIT-SO2B-PNM



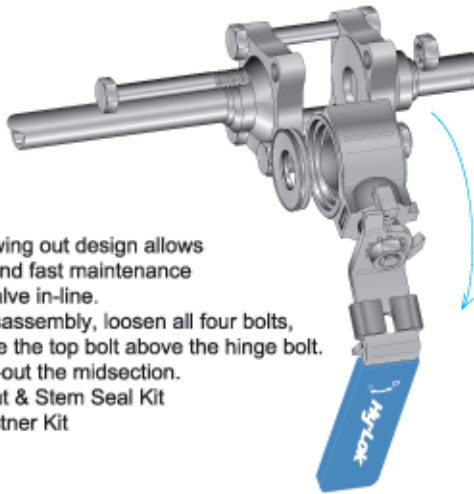
### Actuator

So Series Ball Valves are available with Pneumatic Actuator and Electric Actuator.

So Series Ball Valves can be supplied with Actuator and Mounting Bracket used to connect Valves to Actuators.

For Actuator option, contact your local distributors.

### Maintenance kits



The swing out design allows easy and fast maintenance with valve in-line.

For disassembly, loosen all four bolts, remove the top bolt above the hinge bolt. Swing-out the midsection.

- Seat & Stem Seal Kit
- Fastner Kit

### Seat & Stem Seal Kits

Seat & stem seal kits contain components as below.

Basic Ordering No.	Seat Material	Component
KIT- **** -SEAL	RTFE	Seats, Seat springs, Support rings, End Packing,
	PTFE	Stem bearings, Packings, Packing supports, Gland
	RTFC	
	PEEK	
	UHMW	

\* For a complete ordering number, insert the desired series designator as a suffix to the seal kit basic ordering number e.g : KIT-SO2B-SEAL / RTFC (Vee tip, Carbon filled seat)

### Fastner Kits

Fastner kit contains valve component as below.

Basic Ordering No.	Bolt Material	Component
KIT- **** -FST	B8M	4-Hex. bolt & Nut, Stem nut

\* For a complete ordering number, insert the desired series designator as a suffix to the fastner kit basic ordering number e.g : KIT-SO2B-FST



### Ordering Information

<b>SO2B</b>	<b>3</b>	<b>H</b>	<b>8T</b>	<b>PK</b>	<b>M</b>	<b>O</b>	<b>DV</b>	<b>SOG</b>	<b>S316</b>
<b>Body Pattern Designator</b> • Nil - Straight (Standard) • 3 - Switching			<b>Panel Mounting Option*</b> • Nil - without • M - with			<b>Handle Option*</b> • Nil - Lever (standard) • O - Oval with stop plate		<b>Body Material Designator</b> • S316 - Stainless Steel A351 CF8M	
<b>Valve Series Designator</b> • SO1B - 7.1mm Orifice • SO2B - 13.1mm Orifice • SO3B - 22.2mm Orifice			<b>Seat Material Designator*</b> • Nil-Reinforce PTFE(Standard) • PK-PEEK • RC-Carbon PTFE • UH-UHMWPE			<b>Sour Gas Option*</b> • Nil - without (standard) • SOG - NACE MR-01-75		<b>Vent Option*</b> • Nil - without (standard) • DV - Downstream vent • UV - Upstream vent	
<b>End Connection Designator</b> • H - Hy-Lok Tube Fittings • F - Female Thread • M - Male Thread • SW - Socket Weld • BW - Butt Weld • ZCO - O-Ring Face Seal Fittings • ZCR - Metal Gasket Face Seal Fittings			<b>Size Designator</b>						

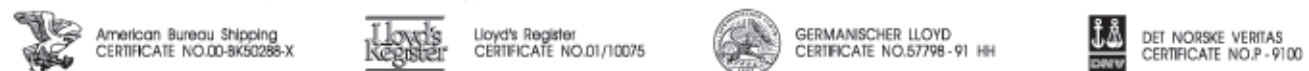
Size	Hy-Lok Tube Fitting & Tube Socket Weld	NPT (ISO/BSP)	Pipe Socket/Butt Weld	ZCO O-Ring & ZCR Metal Gasket Face Seal
1/8	3mm 2T 3M	2N (R)	2P	-
1/4	6mm 6T 6M	4N (R)	4P	4
3/8	10mm 4T 20M	12N (R)	12P	-
1/2	12mm 8T 25M	16N (R)	16P	8
3/4	20mm 12T 10M	6N (R)	6P	-
1	25mm 16T 12M	8N (R)	8P	-

**Note\*** : No designator is required for standard e.g. SO2B3H-8T - S316

### QUALITY SYSTEM CERTIFICATES



### TYPE APPROVALS (for Hy-Lok Tube Fittings)



### SAFETY in VALVE SELECTION

Proper installation, materials compatibility, operation and maintenance of these valves is the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety



Distributed by :



# Hy-Lok 115 Series

## Ball Valves to DIN Standard

Catalog No. H-115BV  
Jun. 2003

### Handle

- can be fitted in 8 positions with 45° increment
- is available in cast stainless steel (standard) and zinc plated carbon steel (optional)

### Variety of End Connections

- include DIN 2353 'L' & 'S' series, Male & Female DIN/ISO/BSP and NPT.

### Rugged Body Construction

- is machined from bar stock
- is available in stainless steel and zinc plated carbon steel.

## Features

- **Pressure rating** up to 500bar @ 21°C
- **Temperature rating** from -20°C to 100°C with POM and NBR standard.
- **Conforms to DIN standard**
- **Compact design** with max orifice
- **100% factory tested.**

### Locking Device

- is available as option.
- ### Indicator on Washer
- allows easy identification of flow direction.

### Stem and End Seals

- include NBR (standard), Viton and EPDM(optional).

### Orifice

- is maximized for minimal pressure drop
- ranges from DN 4 to DN 25.
- is available up to DN80 upon request.

### Ball Seats

- are available in POM-MoS<sub>2</sub>(standard) and PTFE(optional).

### Floating Ball

- is machined from bar stock
- is available in stainless steel and hard chrome plated carbon steel.



**HY-LOK CORPORATION**

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## Tables of Dimensions

### DIN 2353 Light Series Tube (L)

Basic Part No.	Tube O.D.	DN <sup>(1)</sup>	PB <sup>(2)</sup>	B	H	h	h <sub>1</sub>	L	l	l <sub>1</sub>	R	Thread T	Weight (kg)
BVDT - 6L	6	4	315	26	33	13.5	83	67	40	10	115	M12 × 1.5	0.4
BVDT - 8L	8	6	315	26	33	13.5	83	67	40	10	115	M14 × 1.5	0.4
BVDT - 10L	10	6	315	26	33	13.5	83	74	40	11	115	M16 × 1.5	0.5
BVDT - 12L	12	10	315	32	38	17.5	88.5	74	43	11	115	M18 × 1.5	0.6
BVDT - 15L	15	13	315	35	40	19	90	82	48	12	115	M22 × 1.5	0.7
BVDT - 18L	18	13	315	35	40	19	90	82	48	12	115	M26 × 1.5	0.8
BVDT - 22L	22	20	160	49	57	24.5	113	101	62	14	159	M30 × 2.0	2.1
BVDT - 28L	28	25	160	58	65	29.5	121	108	66.2	14	159	M36 × 2.0	2.3
BVDT - 35L	35	25	160	58	65	29.5	121	112	66.2	16	159	M45 × 2.0	2.3

### DIN 2353 Heavy Series Tube (S)

Basic Part No.	Tube O.D.	DN <sup>(1)</sup>	PB <sup>(2)</sup>	B	H	h	h <sub>1</sub>	L	l	l <sub>1</sub>	R	Thread T	Weight (kg)
BVDT - 8S	8	4	500	26	33	13.5	83	73	40	12	115	M16 × 1.5	0.4
BVDT - 10S	10	6	500	26	33	13.5	83	73	40	12	115	M18 × 1.5	0.4
BVDT - 12S	12	6	500	32	38	17.5	88.5	76	43	12	115	M20 × 1.5	0.5
BVDT - 14S	14	10	500	32	38	17.5	88.5	80	43	14	115	M22 × 1.5	0.6
BVDT - 16S	16	13	400	35	40	19	90	86	48	14	115	M24 × 1.5	0.7
BVDT - 20S	20	13	400	35	40	19	90	90	48	16	115	M30 × 2.0	0.8
BVDT - 25S	25	20	315	49	57	24.5	113	109	62	18	159	M36 × 2.0	2.1
BVDT - 30S	30	25	315	58	65	29.5	121	120	66.2	20	159	M42 × 2.0	2.3
BVDT - 38S	38	25	315	58	65	29.5	121	124	66.2	22	159	M52 × 2.0	2.3

### Female DIN / ISO 228 / BSP

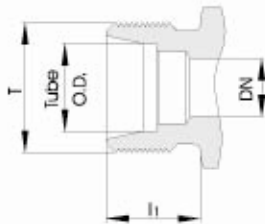
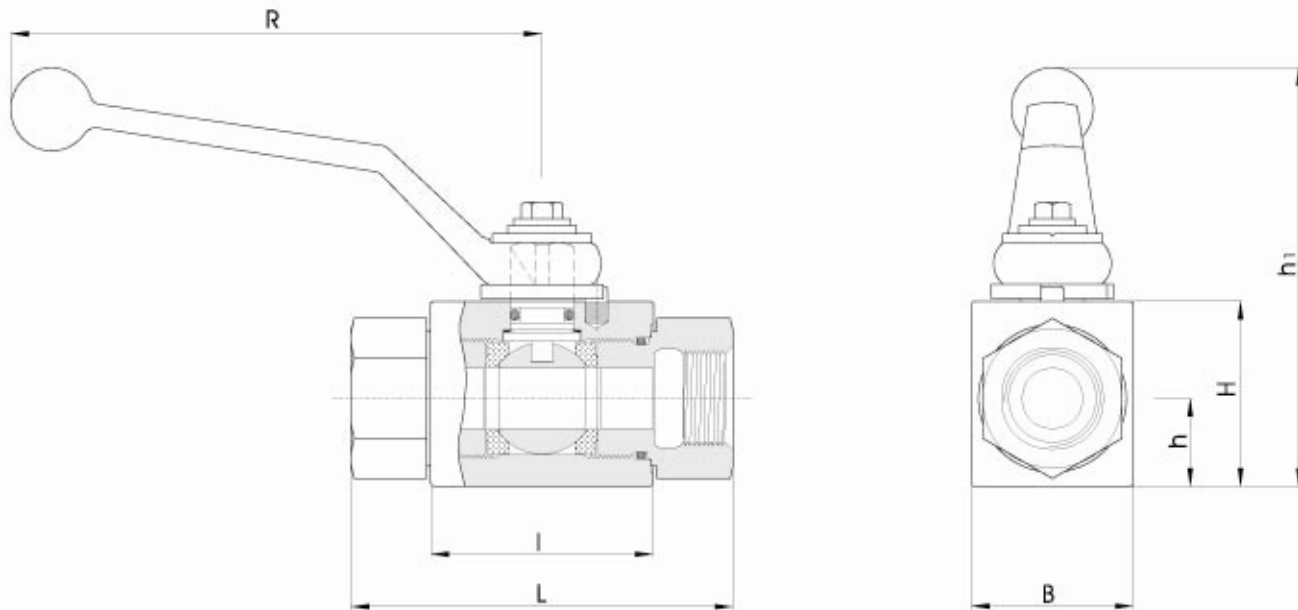
Basic Part No.	DN <sup>(1)</sup>	PB <sup>(2)</sup>	B	H	h	h <sub>1</sub>	L	l	l <sub>1</sub>	R	Thread T	Weight (kg)
BVDF - 2G	6	500	26	33	13.5	83	68.8	40	10	115	PF 1/8"	0.4
BVDF - 4G	6	500	26	33	13.5	83	68.8	40	14	115	PF 1/4"	0.4
BVDF - 6G	10	500	32	38	17.5	88.5	71.9	43	14	115	PF 3/8"	0.6
BVDF - 8G	13	500	35	40	19	90	82.3	48	16.5	115	PF 1/2"	0.7
BVDF - 12G	20	315	49	57	24.5	113	95.4	62	18	159	PF 3/4"	1.6
BVDF - 16G	25	315	58	65	29.5	121	112.7	66.2	20	159	PF 1"	2.3
BVDF - 20G	25	315	58	65	29.5	121	120	66.2	22	159	PF 1 1/4"	2.3

### Female NPT (ANSI / ASME B1.20.1)

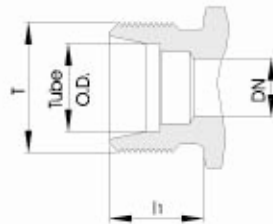
Basic Part No.	DN <sup>(1)</sup>	PB <sup>(2)</sup>	B	H	h	h <sub>1</sub>	L	l	l <sub>1</sub>	R	Thread T	Weight (kg)
BVDF - 4N	6	500	26	33	13.5	83	68.8	40	15	115	NPT 1/4"	0.4
BVDF - 6N	10	500	32	38	17.5	88.5	78	43	15	115	NPT 3/8"	0.6
BVDF - 8N	13	500	35	40	19	90	104	48	20.5	115	NPT 1/2"	0.7
BVDF - 12N	20	315	49	57	24.5	113	102	62	21.5	159	NPT 3/4"	1.6
BVDF - 16N	25	315	58	65	29.5	121	119	66.2	25.4	159	NPT 1"	2.3
BVDF - 20N	25	315	58	65	29.5	121	130	66.2	25.4	159	NPT 1 1/4"	2.3

**Note :** (1) DN is the max orifice.  
 DN is available up to DN80 upon request.  
 Please consult local authorized Hy-Lok representative  
 (2) PB in bar with a safety factor of 1.5.

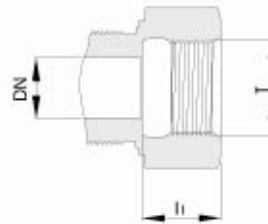
All dimensions are in millimeters.  
 Tube connections complete with sleeves and nuts.



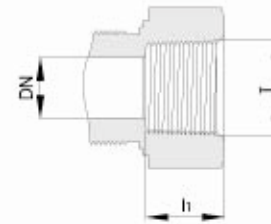
Tube Connection  
DIN 2353  
Light Series(L)



Tube Connection  
DIN 2353  
Heavy Series(S)



Female Thread  
BSP  
DIN / ISO 228 / BSP



Female Thread  
NPT  
ASME / ANSI B1.20.1

## Technical Data

### Materials of Construction

Description	Specification / Grade			
	Valve Body Materials			
	SS316		Carbon Steel	
	ASTM	DIN	ASTM	DIN
Body				
End Connector	A479 / SS316	17440 / 1.4571	A108 / 12L14	1651 / 9SMn28K
Stem				
Ball	316 Stainless Steel			
Ball Seats*	POM - MoS <sub>2</sub> (Standard)			
Stem & End Seals*	NBR (Standard)			
Handle	SS316		Carbon Steel	
Locking Device	Stainless Steel			

Note : \*-\*marked are wetted parts. Lubricant is silicone based.

### Temperature Rating

#### Seals

Materials	Temperature Rating
NBR(Buna N)	-23 °C to 121 °C
Viton	-23 °C to 200 °C
EPDM	-46 °C to 149 °C

#### Ball Seats

Materials	Temperature Rating
POM - MoS <sub>2</sub>	-30 °C to 100 °C
PTFE	-54 °C to 65 °C

## General Information

### Applications

- Hydraulic fluids, compressed air, lubricants, and fuel oil systems

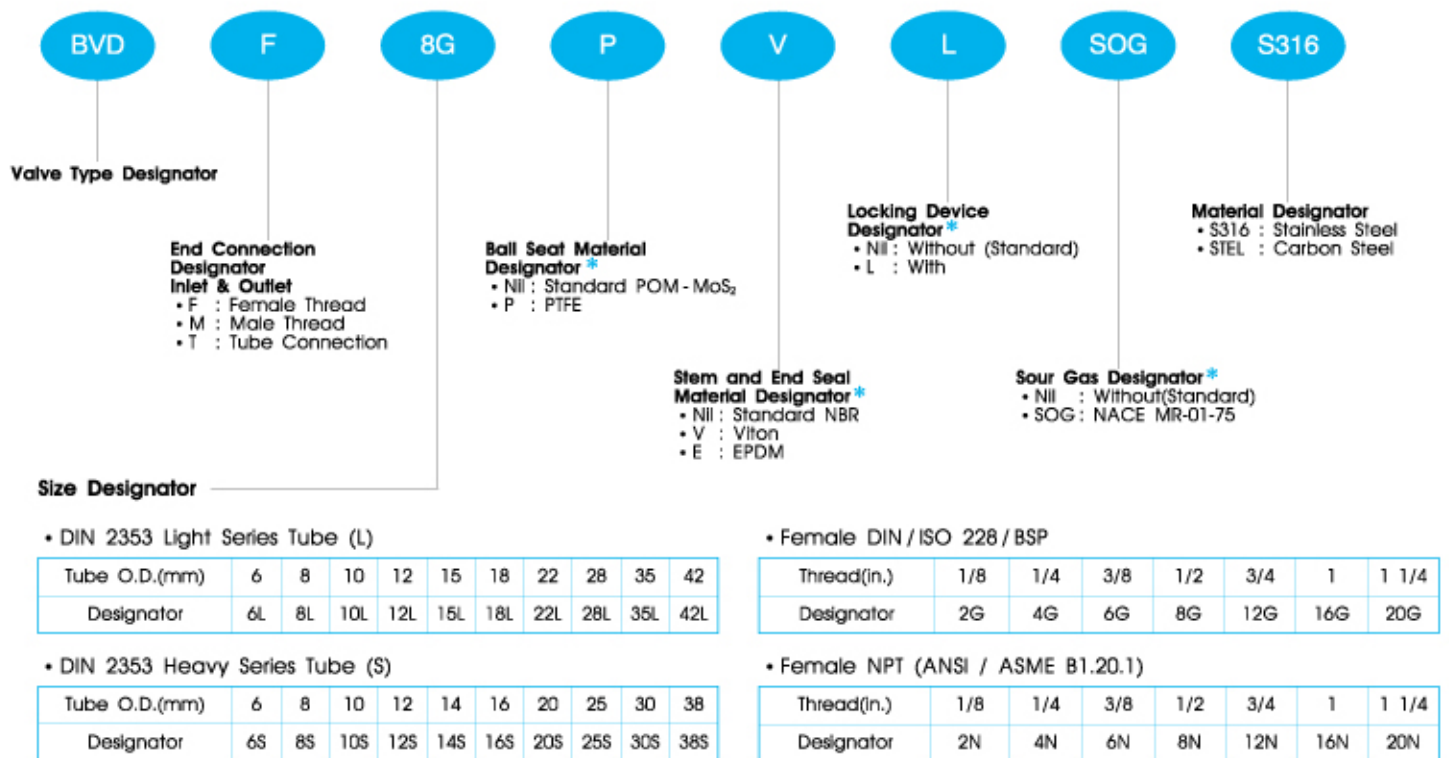
### Sour Gas Service

- Is provided to meet NACE Standard MR-01-75.

### Testing

- Each valve is tested with nitrogen @ 1000psig(69bar) to max leak rate of 0.1SCCM.
- Hydrostatic shell test is performed at 1.5 times the working pressure as an option.
- Optional tests are available upon request.

## Ordering Information



**Note\*:** No designator is required for standard, e.g. BVDF-8G-S316.

## SAFETY in VALVE SELECTION

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.

### ■ QUALITY SYSTEM CERTIFICATES



ISO 9001  
CERTIFICATE NO.GQC 212

ASME SECT III (MO)  
CERTIFICATE NO. GSC 584

### ■ TYPE APPROVALS (For DIN 2353 Tube Fittings)



American Bureau Shipping  
CERTIFICATE NO.00-8K50258-X



Lloyd's Register  
CERTIFICATE NO.01/10076



GERMANISCHER LLOYD  
CERTIFICATE NO.40297-01 HH



DET NORSKE VERITAS  
CERTIFICATE NO.P-10967



Distributed by :

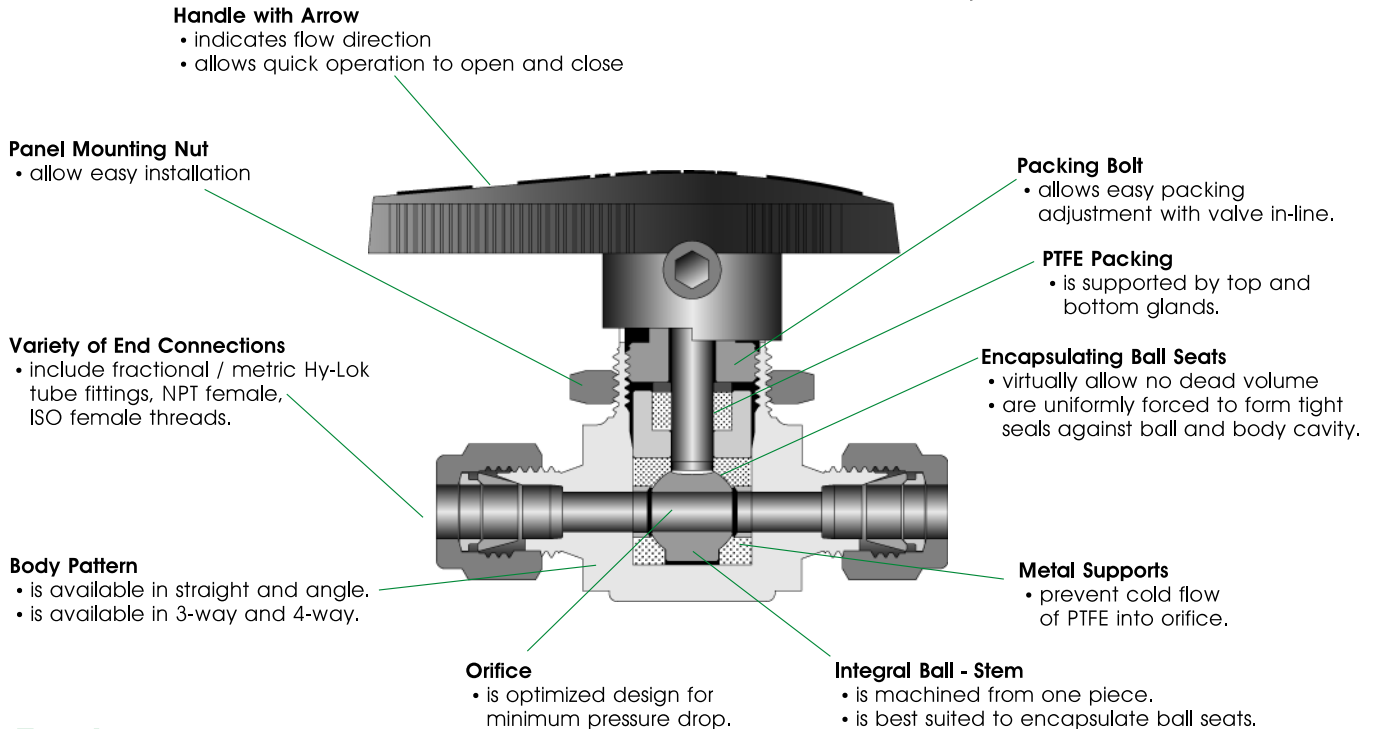
www.hy-lok.com

# Hy-Lok 112 Series

## Ball Valves



Catalog No. H - 112BV  
Sep. 2016



## Features

- **Pressure rating** up to 3000psig (206bar) at 70°F(21°C)
- **Temperature rating** from 50°F to 150°F (10°C to 65°C) with PTFE seat and packing
- **Vent to atmosphere available**
- **Both straight and angle, 3 - way and 4 - way patterns** available
- **Body materials** available in 316 stainless steel, brass, and alloy 400.
- **100% factory tested**

## Technical Data

### Materials of Construction

#### ■ 2 - WAY & 3 - WAY

Description	Grade / ASTM Specification		
	Valve Body Materials		
	SS316	Brass	Alloy 400
Handle	Black Nylon		
Mounting Nut	Stainless Steel	Brass	Stainless Steel
Packing Bolt	TP316 / A479	Brass	TP316 / A479
Packing*	PTFE		
Packing Gland	316 Stainless Steel		
Encapsulating Ball Seats*	PTFE		
Supports*	Stainless Steel		
Ball Stem*	TP316 / A479	N04400 / B164	
Body	TP316 / A479 or A182	Brass / B16	N04400 / B164

Note : "\*" marked are wetted parts. Lubricant is silicone based.

### Pressure Rating @ 50°F to 150°F(10°C to 65°C) for the valve with standard seat and packing

Valve Designator	Straight 2 - way	Angle 2 - way	Switching 3 - way
B 1 V	2500 psig (172 bar)	2500 psig (172 bar)	2500 psig (172 bar)
B 2 V	3000 psig (206 bar)	2500 psig (172 bar)	2500 psig (172 bar)
B 3 V	2500 psig (172 bar)	1500 psig (103 Bar)	1500 psig (103 bar)
B 4 V	2500 psig (172 bar)	1500 psig (103 bar)	1500 psig (103 bar)

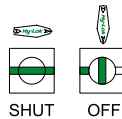
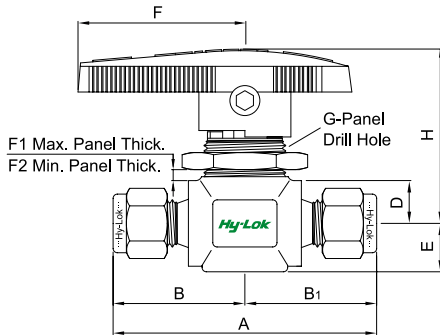


**HY-LOK CORPORATION**

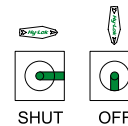
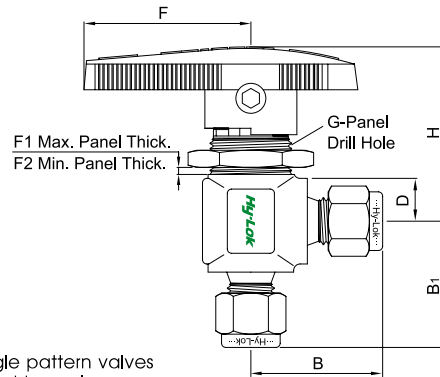
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## 2 - way (Shut - Off Valve)

### Straight Pattern



### Angle Pattern



For the dimension B & B1 of angle pattern valves see the dimension of 3-way switching valves

### Table of Dimensions

Basic Part No.	Orifice		CV	End Connection		Dimensions (mm)									
	mm	inch		Inlet & Outlet	A	B	B1	D	E	F	F1	F2	G	H	W
B1VH - 1T	1.3	0,052	0.1	1/16 Hy-Lok	42.6	21.3	21.3	9.5	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1VH - 3M	2.4	0,093	0.2	3mm Hy-Lok	50.8	25.4	25.4	9.5	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1VH - 2T			0.2	1/8 Hy-Lok											
B1VF - 2N	3.2	0,125	0.5	1/8 Female NPT	41.2	20.6	20.6	9.5	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1VH - 6M			0.6	6mm Hy-Lok											
B1VH - 4T			0.6	1/4 Hy-Lok											
B2VF - 2N			1.2	1/8 Female NPT											
B2VF - 4N	4.8	0,187	0.9	1/4 Female NPT	52.4	26.2	26.2	11.3	10.0	39.0	6.0	2.5	20.0	41.2	21.0
B2VF - 4R			0.9	1/4 ISO Female Tapered											
B2VM - 4N			1.2	1/4 Male NPT											
B2VMH - 4N4T			1.6	1/4 Male NPT   1/4 Hy-Lok	55.6	25.4	30.2								
B2VH - 6M			2.4	6mm Hy-Lok											
B2VH - 4T			2.4	1/4 Hy-Lok											
B2VH - 8M			1.5	8mm Hy-Lok	62.0	31.0	31.0								
B2VH - 6T			1.5	3/8 Hy-Lok	65.0	32.5	32.5								
B3VF - 4N	7.1	0,281	3.0	1/4 Female NPT	63.6	31.8	31.8	17.5	14.3	51.0	9.0	3.0	28.0	52.8	33.0
B3VF - 6N			2.6	3/8 Female NPT											
B3VF - 6R			2.6	3/8 ISO Female Tapered											
B3VH - 6T			6.0	3/8 Hy-Lok											
B3VH - 10M			6.0	10mm Hy-Lok											
B4VF - 8N	10.3	0,406	6.3	1/2 Female NPT	79.2	39.6	39.6	22.0	17.5	77.0	10.0	3.0	39.0	67.0	41.0
B4VF - 8R			6.3	1/2 ISO Female Tapered											
B4VH - 12M			12.0	12mm Hy-Lok											
B4VH - 8T			12.0	1/2 Hy-Lok	100.0	50.0	50.0								
B4VH - 12T			6.4	3/4 Hy-Lok											

All dimensions are in millimeters. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable

### Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in psi		Cv														
		0.1	0.2	0.5	0.6	0.9	1.2	1.5	1.6	2.4	2.6	3.0	6.0	6.3	6.4	12.0
Air SCFM @70°F(21°C)	10	1.1	2.7	6.9	8.3	12.0	17.0	21.0	22.0	33.0	36.0	41.5	83.0	87.2	88.6	166.0
	50	3.0	7.6	19.1	23.0	34.0	46.0	57.0	61.0	92.0	99.5	115.0	230.0	241.0	245.0	459.0
	100	5.3	14.0	33.9	40.7	61.0	81.0	100.0	110.0	160.0	176.0	203.0	407.0	427.0	434.0	814.0
Water US GPM @70°F(21°C)	10	0.3	0.6	1.6	1.9	2.8	3.7	4.7	5.0	7.5	8.2	9.5	19.0	19.9	20.2	37.9
	50	0.7	1.4	3.5	4.2	6.3	8.4	11.0	11.0	17.0	18.4	21.2	42.3	44.5	45.3	84.9
	100	1.0	2.0	5.0	6.0	9.0	12.0	15.0	16.0	24.0	26.0	30.0	60.0	63.0	64.0	120.0

The Cv is for the straight pattern valves. Cvs of angle pattern valves are the same as those of 3-way valves

### 3 - way (Switching Valves)

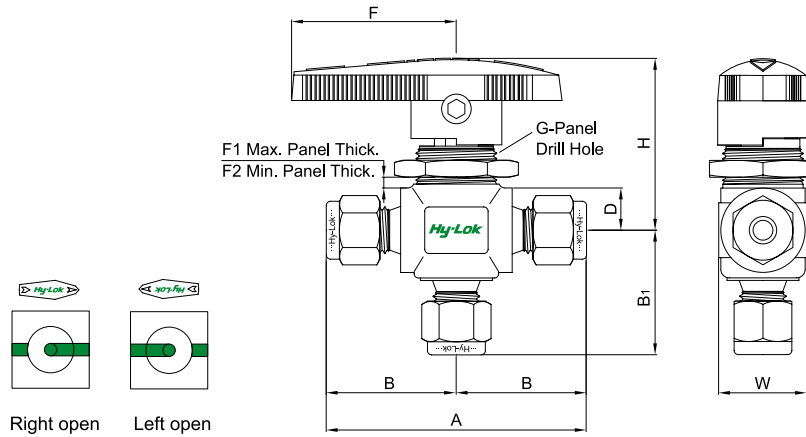


Table of Dimensions

Basic Part No.	Orifice		Cv	End Connection		Dimensions (mm)									
	mm	inch		Side port	Bottom port	A	B	B1	D	F	F1	F2	G	H	W
B1V3H -1T	1.3	0.052	0.08	1/16 Hy-Lok		42.6	21.3	20.6	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1V3H -3M	2.4	0.093	0.15	3mm Hy-Lok		50.8	25.4	24.6	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1V3H -2T			1/8 Hy-Lok												
B1V3F -2N	3.2	0.125	0.30	1/8 Female NPT		41.2	20.6	20.6	8.8	28.0	5.5	2.0	15.0	34.0	19.0
B1V3H -6M			6mm Hy-Lok												
B1V3H -4T			1/4 Hy-Lok												
B2V3F -4N			1/4 Female NPT												
B2V3F -4R	4.8	0.187	0.75	1/4 ISO Female Tapered		52.4	26.2	26.2	10.0	39.0	6.0	2.5	20.0	41.2	21.0
B2V3H -6M			6mm Hy-Lok												
B2V3H -4T			1/4 Hy-Lok												
B2V3HM -4T4N			1/4 Hy-Lok	1/4 Male NPT	60.4	30.2	29.5								
B2V3H -8M	7.1	0.281	0.80	8mm Hy-Lok		62.0	31.0	30.2	14.5	51.0	9.0	3.0	28.0	52.8	30.0
B3V3F -4N			1/4 Female NPT												
B3V3F -6N			3/8 Female NPT												
B3V3F -6R			3/8 ISO Female Tapered												
B3V3H -6T			3/8 Hy-Lok												
B3V3H -10M			10mm Hy-Lok												
B4V3F -8N	10.3	0.406	3.5	1/2 Female NPT		79.2	39.6	39.6	17.5	77.0	10.0	3.0	39.0	67.0	41.0
B4V3F -8R			1/2 ISO Female Tapered												
B4V3H -12M			12mm Hy-Lok												
B4V3H -8T			1/2 Hy-Lok												
B4V3H -12T			3/4 Hy-Lok												

All dimensions are in millimeters. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable

### Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in psi		Cv												
		0.08	0.15	0.30	0.35	0.75	0.8	0.9	1.5	1.7	2.0	3.5	3.8	4.6
Air SCFM @70°F(21°C)	10	0.9	2.0	4.2	4.8	10.0	11.0	12.0	20.8	23.5	27.7	48.4	52.6	63.7
	50	2.4	5.7	11.5	13.4	29.0	31.0	34.0	57.4	65.0	76.5	134.0	145.0	176.0
	100	4.3	10.1	20.3	23.7	51.0	54.0	61.0	102.0	115.0	136.0	237.0	258.0	312.0
Water US GPM @70°F(21°C)	10	0.3	0.4	0.9	1.1	2.3	2.5	2.8	4.7	5.4	6.3	11.1	12.0	14.5
	50	0.6	1.0	2.1	2.5	5.3	5.6	6.3	10.6	12.0	14.1	24.7	26.9	32.5
	100	0.8	1.5	3.0	3.5	7.5	8.0	9.0	15.0	17.0	20.0	35.0	38.0	46.0

## Testing

- Each valve is tested with nitrogen @ 1000psig(69bar) to max leak rate of 0.1SCCM.
- Optional tests are available upon request.

## Sour Gas Service

- is provided to meet NACE Standard MR - 01 - 75.

## Packing Adjustment

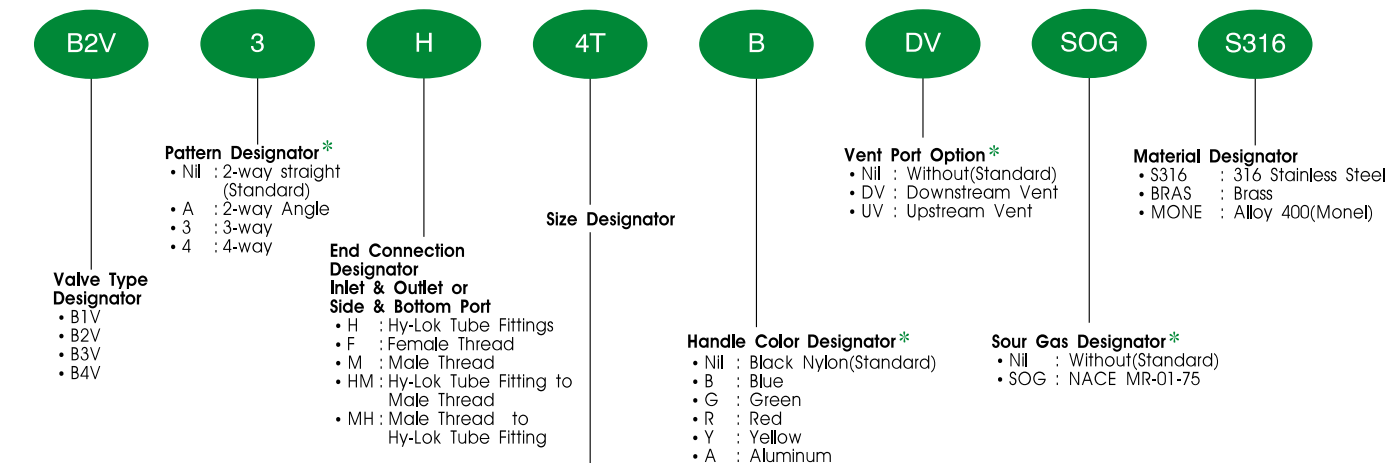
- Valves are factory adjusted for 1000psig service at 70°F(21°C).
- For services at higher pressure, the packing must be readjusted. This can be done with the valve in - line. Untighten the hex key to remove the handle. Tighten the packing bolt clockwise with the increment of **a quarter of a quarter** turn (22.5°) until leaktight seal is obtained. And then reassemble.
- Exposure of valves to varying temperature can affect the initial packing load. You may need check leak and readjust packing bolt.

## For 3-way (Switching Valves)

### ⚠ Attention

- 1) Check the flow direction
- 2) Do not use quarter turn the handle for block (Only guarantee the 180° turn the handle)

## Ordering Information



- NPT (ISO/BSP)

Thread(in.)	1/8	1/4	3/8	1/2	3/4
Designator	2N(R)	4N(R)	6N(R)	8N(R)	12N(R)

- Tube

Fractional Tube	O.D(in.)	1/16	1/8	1/4	3/8	1/2	5/8	3/4
	Designator	1T	2T	4T	6T	8T	10T	12T
Metric Tube	O.D(mm)	3	6	8	10	12	16	20
	Designator	3M	6M	8M	10M	12M	16M	20M

**Note \*:** No designator is required for standard, black nylon handle, e.g. B2VH-4T-S316.

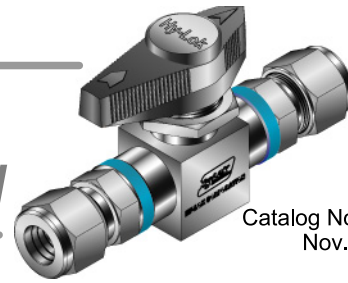
## SAFETY in VALVE SELECTION

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.



# Hy-Lok T Series

## Trunnion Ball Valves for General



Catalog No. H-100TBV  
Nov. 2013

### Panel mounting nut

- allow ease installation (standard)

### Blowout-proof stem

- bottom-loaded
- provides enhanced safety.

### Variety of end connections

- including Hy-Lok tube fittings, male / female ISO, male / female NPT

### Rugged Body

- is machined from barstock
- is available in 2-way and 3-way

### Handle with arrow

- indicates flow direction.
- low torque and quick operation
- available in black (standard) and colored nylon handle (on request)

### Stem bearing

- is PEEK standard

### Blowout-proof trunnion ball

- PTFE coated standard

### Spring - loaded seats

- ensure positive sealing in pressure and temp. cycling.

## Features

- **Pressure rating** up to 10000psig(689 bar) at 100°F (37°C)
- **End connections** available Hy-Lok tube fittings and female NPT
- **Compact, maximum flow design**
- **Low operating torque**
- **2-way "Shut-Off" and 3-way "Switching" models**
- **Body materials** available in 316 stainless steel and Alloy 400
- **100% factory tested**



The flow direction is indicated on top of the stem for reference purposes when the handle is removed for panel mounting

## Technical Data

### Pressure-Temperature Rating

Seat Material	Temperature Rating	Pressure Rating at 100°F(37°C)	
		Stainless Steel	Alloy 400
T Series			
PCTFE	0°F to 250°F (-17°C to 121°C)	6000 psig (413 bar)	5000 psig (344 bar)
PEEK	0°F to 450°F (-17°C to 232°C)	1500 psig (103 bar)	
PTFE			
TH Series			
PEEK	0°F to 450°F (-17°C to 232°C)	10000 psig (689 bar) depending on end Connection	-

### Testing

- Each valve is tested with nitrogen @1000psig(69 bar) to max. leak rate of 0.1SCCM.
- Hydrostatic shell test is performed at 1.5 times the working pressure as an option.
- Other tests are available upon request.

### T Series

Body Material	SS316			Alloy 400		
	Seat Material PCTFE	PEEK	PTFE	PCTFE	PEEK	PTFE
Temperature, °F(°C)						
Working Pressure, psig(bar)						
0(-17) to 100(37)	6000(413)	6000(413)	1500(103)	5000(344)	5000(344)	1500(103)
150(65)	3000(206)	5800(399)	1125(77.5)	3000(206)	4690(323)	1125(77.5)
200(93)	2000(137)	5000(344)	750(51.6)	2000(137)	4390(302)	750(51.6)
250(121)	1000(68.9)	4100(282)	625(43.0)	1000(68.9)	4100(282)	625(43.0)
300(148)	-	3200(220)	500(34.4)	-	3200(220)	500(34.4)
350(176)	-	2300(158)	375(25.8)	-	2300(158)	375(25.8)
400(204)	-	1400(96.4)	250(17.2)	-	1400(96.4)	250(17.2)
450(232)	-	500(34.4)	125(8.6)	-	500(34.4)	125(8.6)

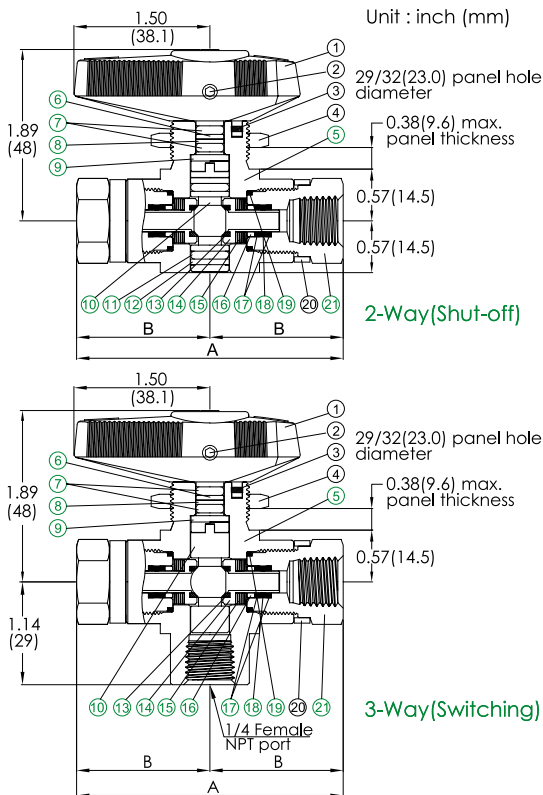
### TH Series

Body Material	SS316					
	End Connection Female 1/8", 1/4" Hy-Lok 1/4", 6mm	Hy-Lok 8mm	Hy-Lok 12mm	Hy-Lok 3/8"	Hy-Lok 1/2"	Hy-Lok 10mm
Temperature, °F(°C)						
Working Pressure, psig(bar)						
0(-17) to 100(37)	10000(689)	7500(516)	6600(454)	6500(447)	6700(461)	6000(413)
150(65)	7500(516)	7500(516)	6600(454)	6500(447)	6700(461)	5900(406)
200(93)	5000(344)	5000(344)	5000(344)	5000(344)	5000(344)	5000(344)
250(121)	4100(282)	4100(282)	4100(282)	4100(282)	4100(282)	4100(282)
300(148)	3200(220)	3200(220)	3200(220)	3200(220)	3200(220)	3200(220)
350(176)	2300(158)	2300(158)	2300(158)	2300(158)	2300(158)	2300(158)
400(204)	1400(96.4)	1400(96.4)	1400(96.4)	1400(96.4)	1400(96.4)	1400(96.4)
450(232)	500(34.4)	500(34.4)	500(34.4)	500(34.4)	500(34.4)	500(34.4)



# HY-LOK CORPORATION

## T Series (up to 6000 psig)



## Material of Construction

No.	Component	Valve Body Material			
		Stainless Steel		Alloy 400	
		2-Way	3-Way	2-Way	3-Way
Material Grade / ASTM Specification					
1	Handle	Nylon 6/6 with Brass Insert			
2	Set Screw	Stainless Steel			
3	Stop Pin <small>(2-Way; 2, 3-Way: 1)</small>	Stainless Steel			
4	Panel Nut	316 Stainless Steel			
5	Body	TP316 / A479 or A182		N04400 / B164	
6	Stem	TP316 / A479		N04400 / B164	
7	Stem O-Ring	FKM			
8	Stem Backup Ring	PTFE			
9	Stem Bearing	PEEK			
10	Trunnion Ball	TP316 / A479		N04400 / B164	
11	Ball O-Ring	FKM	-	FKM	-
12	Ball Back-up Ring	PTFE	-	PTFE	-
13	Seat	PCTFE / PTFE / PEEK			
14	Seat Carrier	TP316 / A479		N04400 / B164	
15	Seat Spring <small>(10 with PTFE; 12 with all others)</small>	Alloy X-750			
16	Seat Carrier Guide	TP316 / A479		N04400 / B164	
17	Seat Carrier Back-up Ring	PTFE			
18	Seat Carrier O-Rings	FKM			
19	End Packing	PTFE			
20	Identification Ring	Nylon			
21	End Connection	TP316 / A479		N04400 / B164	

Wetted parts numbered in green.  
Molybdenum disulfide and fluoro-carbon based lubricant is used.

## Table of Dimensions

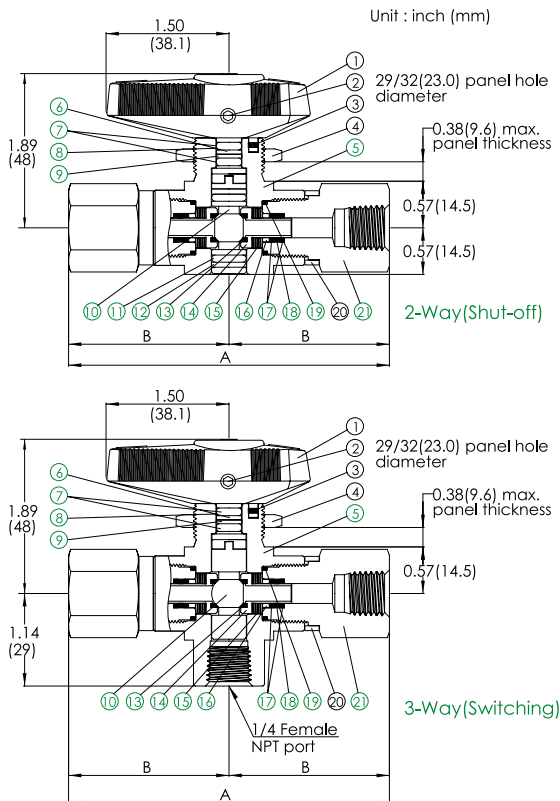
Basic Part Number		Orifice in. (mm)	Flow Coefficient (Cv)	End Connections		Dimensions, in. (mm)	
				Inlet & Outlet		A	B
2-way  T	F - 2N	0.188 (4.8)	1.2	1/8 Female NPT		2.94 (74.7)	1.47 (37.35)
	F - 4N			1/4 Female NPT			
	H - 4T			1/4 Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 6T			3/8 Hy-Lok		4.39 (111.2)	2.19 (55.6)
	H - 8T			1/2 Hy-Lok		4.60 (116.8)	2.30 (58.4)
	H - 6M			6mm Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 8M			8mm Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 10M			10mm Hy-Lok		4.40 (111.8)	2.20 (55.9)
	H - 12M			12mm Hy-Lok		4.60 (116.8)	2.30 (58.4)
3-way  T3	F - 4N2N	0.188 (4.8)	0.75	1/8 Female NPT	2.94 (74.7)	1.47 (37.35)	
	F - 4N			1/4 Female NPT			
	FH - 4N4T			1/4 Hy-Lok	4.14 (105.2)	2.07 (52.6)	
	FH - 4N6T			3/8 Hy-Lok	4.39 (111.2)	2.19 (55.6)	
	FH - 4N8T			1/2 Hy-Lok	4.60 (116.8)	2.30 (58.4)	
	FH - 4N6M			6mm Hy-Lok	4.14 (105.2)	2.07 (52.6)	
	FH - 4N8M			8mm Hy-Lok	4.14 (105.2)	2.07 (52.6)	
	FH - 4N10M			10mm Hy-Lok	4.40 (111.8)	2.20 (55.9)	
	FH - 4N12M			12mm Hy-Lok	4.60 (116.8)	2.30 (58.4)	

All dimensions in inches and millimeters are for reference only, subject to change. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

## Flow Rate @ 70 °F (21 °C)

Pressure Drop to Atmosphere (Δp) in psi (bar)		2-Way Flow Coefficient (Cv)						3-Way Flow Coefficient (Cv)
		1.0	1.2	1.3	1.4	1.5	1.6	0.75
Air SCFM (std L/min)	10 (0.68)	11.0 (311)	14.0 (396)	15.0 (424)	16.0 (453)	17.0 (481)	18.0 (509)	8.0 (226)
	50 (3.4)	30.0 (849)	36.0 (1019)	39.0 (1104)	42.0 (1189)	45.0 (1274)	48.0 (1359)	23.0 (651)
	100 (6.8)	53.0 (1500)	64.0 (1812)	69.0 (1953)	74.0 (2095)	80.0 (2265)	85.0 (2406)	40.0 (1132)
Water U.S. GPM (std L/min)	10 (0.68)	3.2 (12.1)	3.8 (14.3)	4.1 (15.5)	4.4 (17.8)	4.7 (17.8)	5.1 (19.3)	2.4 (9.0)
	50 (3.4)	7.1 (26.8)	8.5 (32.1)	9.2 (34.8)	9.9 (37.4)	10.6 (40.1)	11.3 (42.7)	5.3 (20.0)
	100 (6.8)	10.0 (37.8)	12.0 (45.4)	13.0 (49.2)	14.0 (53.0)	15.0 (56.7)	16.0 (60.5)	7.5 (28.3)

## TH Series (up to 10000 psig)



### Material of Construction

No.	Component	Valve Body Material	
		Stainless Steel	
		2-Way	3-Way
Material Grade / ASTM Specification			
1	Handle	Nylon 6/6 with Brass Insert	
2	Set Screw	Stainless Steel	
3	Stop Pin (2-Way: 2, 3-Way: 1)	Stainless Steel	
4	Panel Nut	316 Stainless Steel	
5	Body	TP316 / A479 or A182	
6	Stem	TP316 / A479	
7	Stem O-Ring	FKM	
8	Stem Backup Ring	PTFE	
9	Stem Bearing	PEEK	
10	Trunnion Ball	TP316 / A479	
11	Ball O-Ring	FKM	-
12	Ball Backup Ring	PTFE	-
13	Seat	PEEK	
14	Seat Carrier	TP316 / A479	
15	Seat Spring	Alloy X-750	
16	Seat Carrier Guide	TP316 / A479	
17	Seat Carrier Backup Ring	PTFE	
18	Seat Carrier O-Rings	FKM	
19	End Packing	PTFE	
20	Identification Ring	Nylon	
21	End Connection	TP316 / A479	

Wetted parts numbered in green.  
Molybdenum disulfide and fluoro-carbon based lubricant is used.

## Table of Dimensions

Basic Part Number		Orifice in. (mm)	Flow Coefficient (Cv)	End Connections		Dimensions, in. (mm)	
				Inlet & Outlet		A	B
2-way	F - 2N	0.188 (4.8)	1.2	1/8 Female NPT		2.94 (74.7)	1.47 (37.35)
	F - 4N			1/4 Female NPT		3.93 (99.8)	1.97 (49.9)
	H - 4T			1/4 Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 6T			3/8 Hy-Lok		4.39 (111.2)	2.19 (55.6)
	H - 8T			1/2 Hy-Lok		4.60 (116.8)	2.30 (58.4)
	H - 6M			6mm Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 8M			8mm Hy-Lok		4.14 (105.2)	2.07 (52.6)
	H - 10M			10mm Hy-Lok		4.40 (111.8)	2.20 (55.9)
	H - 12M			12mm Hy-Lok		4.60 (116.8)	2.30 (58.4)
3-way	F - 4N2N	0.188 (4.8)	0.75	1/4 Female NPT (bottom port)	1/8 Female NPT	2.94 (74.7)	1.47 (37.35)
	F - 4N				1/4 Female NPT	3.93 (99.8)	1.97 (49.9)
	FH - 4N4T				1/4 Hy-Lok	4.14 (105.2)	2.07 (52.6)
	FH - 4N6T				3/8 Hy-Lok	4.39 (111.2)	2.19 (55.6)
	FH - 4N8T				1/2 Hy-Lok	4.60 (116.8)	2.30 (58.4)
	FH - 4N6M				6mm Hy-Lok	4.14 (105.2)	2.07 (52.6)
	FH - 4N8M				8mm Hy-Lok	4.14 (105.2)	2.07 (52.6)
	FH - 4N10M				10mm Hy-Lok	4.40 (111.8)	2.20 (55.9)
	FH - 4N12M				12mm Hy-Lok	4.60 (116.8)	2.30 (58.4)

All dimensions in inches and millimeters are for reference only, subject to change. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

### Flow Rate @ 70 °F (21 °C)

Pressure Drop to Atmosphere (Δp) in psi (bar)	2-Way Flow Coefficient (Cv)						3-Way Flow Coefficient (Cv)	
	1.0	1.2	1.3	1.4	1.5	1.6	0.75	
Air SCFM (std L/min)	150 (10.3)	76 (2152)	92 (2805)	99 (2803)	107 (3029)	115 (3256)	122 (3454)	57 (1614)
	600 (41.3)	285 (8070)	340 (9627)	371 (10505)	399 (11298)	428 (12119)	456 (12912)	210 (5946)
Water U.S. GPM (std L/min)	1000 (68.9)	470 (13308)	570 (16140)	610 (17272)	660 (18688)	700 (19821)	750 (21321)	350 (9912)
	150 (10.3)	12 (45.4)	15 (56.7)	16 (60.5)	17 (64.3)	18 (68.1)	19.6 (74.1)	9.2 (34.8)
600 (41.3)	25 (94)	29 (109)	32 (121)	34 (128)	37 (140)	39 (147)	41 (154)	18 (69.1)
	1000 (68.9)	38 (143)	38 (143)	41 (155)	44 (166)	47 (178)	50 (189)	24 (90.8)

## Option

### T Series Vent Option

T series 2-way valves are available of using in a downstream or an upstream vent on customer's request. A path of the vent in the ball does not intersect the main flow passage so that it is ensuring no leakage of system media from the vent port. In case "open" position of the valve, flow is straight through. The pressure rating with a ball vent is reduced to 500 psig (34.4 bar).

### Downstream (DV) Vent

In case close position of a downstream-vented valve, full shutoff occurs at the upstream seat. Downstream line media passes through vent hole penetrated through the bottom of the trunnion and vents to atmosphere.

### Upstream (UV) Vent

In case close position of the upstream-vented valve, full shutoff occurs at the downstream seat. Upstream line media passes through vent hole penetrated through the bottom of the trunnion and vents to atmosphere.

## Accessories

### Spare Kits

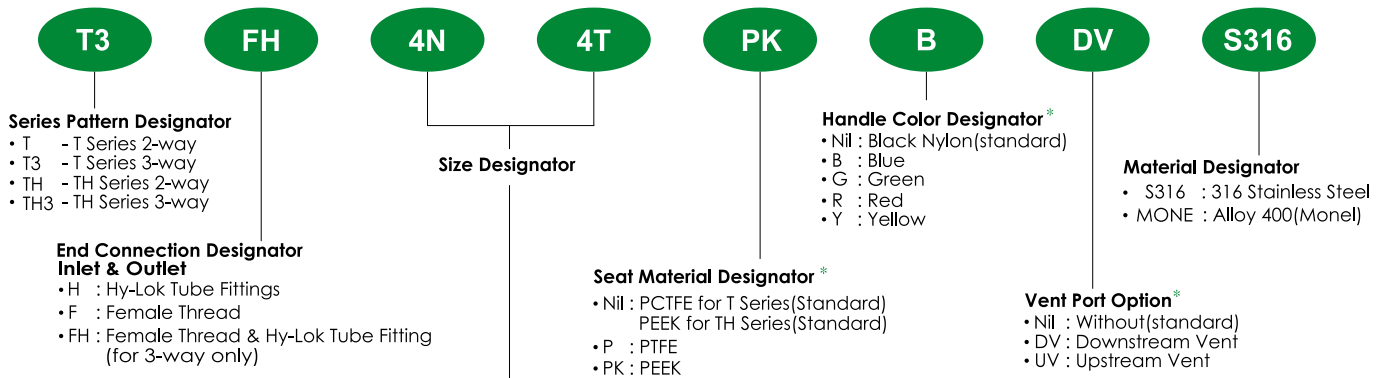
Valve Series	Basic Ordering No.	Kit Contains
T Series 2-Way Kit	KIT-T-SET	Instructions, trunnion ball subassemblies (ball(1), O-ring(2) and back-up ring(2)), stem subassemblies (stem(1), stem bearing(1), O-ring(2) and back-up ring(1)), seat subassemblies (seat(2) and seat carriers(2)), seat spring (10 with PTFE seat, 12 with all others), seat carrier guide(2), seat carrier O-ring(2), seat carrier back-up ring(4), end screw seats(2)
T Series 3-Way Kit	KIT-T3-SET	Instruction, trunnion ball(1), stem subassemblies (stem(1), bearing(1), O-ring(2) and back-up ring(1)), seat subassemblies (seat(2) and seat carriers(2)), seat spring (10 with PTFE seat, 12 with all others) seat carrier guide(2), seat carrier O-ring(2), seat carrier back-up ring(4), end screw seats(2)

Valve Series	Basic Ordering No.	Kit Contains
TH Series 2-Way Kit	KIT-TH-SET	Instructions, trunnion ball subassemblies (ball(1), O-ring(2) and back-up ring(2)), stem subassemblies (stem(1), stem bearing(1), O-ring(2) and back-up ring(1)), seat subassemblies (seat(2) and seat carriers(2)), seat spring(12), seat carrier guide(2), seat carrier O-ring(2), seat carrier back-up ring(4), end screw seats(2)
TH Series 3-Way Kit	KIT-TH3-SET	Instruction, trunnion ball(1), stem subassemblies (stem(1), bearing(1), O-ring(2) and back-up ring(1)), seat subassemblies (seat(2) and seat carriers(2)), seat spring (12), seat carrier guide(2), seat carrier O-ring(2), seat carrier back-up ring(4), end screw seats(2)

Spare kits contain components of the same material as new components. See Material of Construction, page 2 and 3. For a complete ordering number, add the desired seat material designator and body material designator as a suffix to the basic spare kit ordering number. Example : KIT-T-SET-P-MONE

Body components and seat material of THB Series are made of only stainless steel and PEEK respectively.

## Ordering Information



### • Pipe Thread Designation NPT

Nom. Size	1 / 8	1 / 4
Designation	2N	4N

### • Tube O.D. Designation

Fractional Tube	Tube O.D.	1 / 4	3 / 8	1 / 2	
	Designation	4T	6T	8T	
Metric Tube	Tube O.D.	6mm	8mm	10mm	12mm
	Designation	6M	8M	10M	12M

**Note \*** : No designator is required for standard. e.g. T3-FH-4N4T-S316

### ⚠ CAUTION

T Series Ball Valve shall not be used for CNG System.

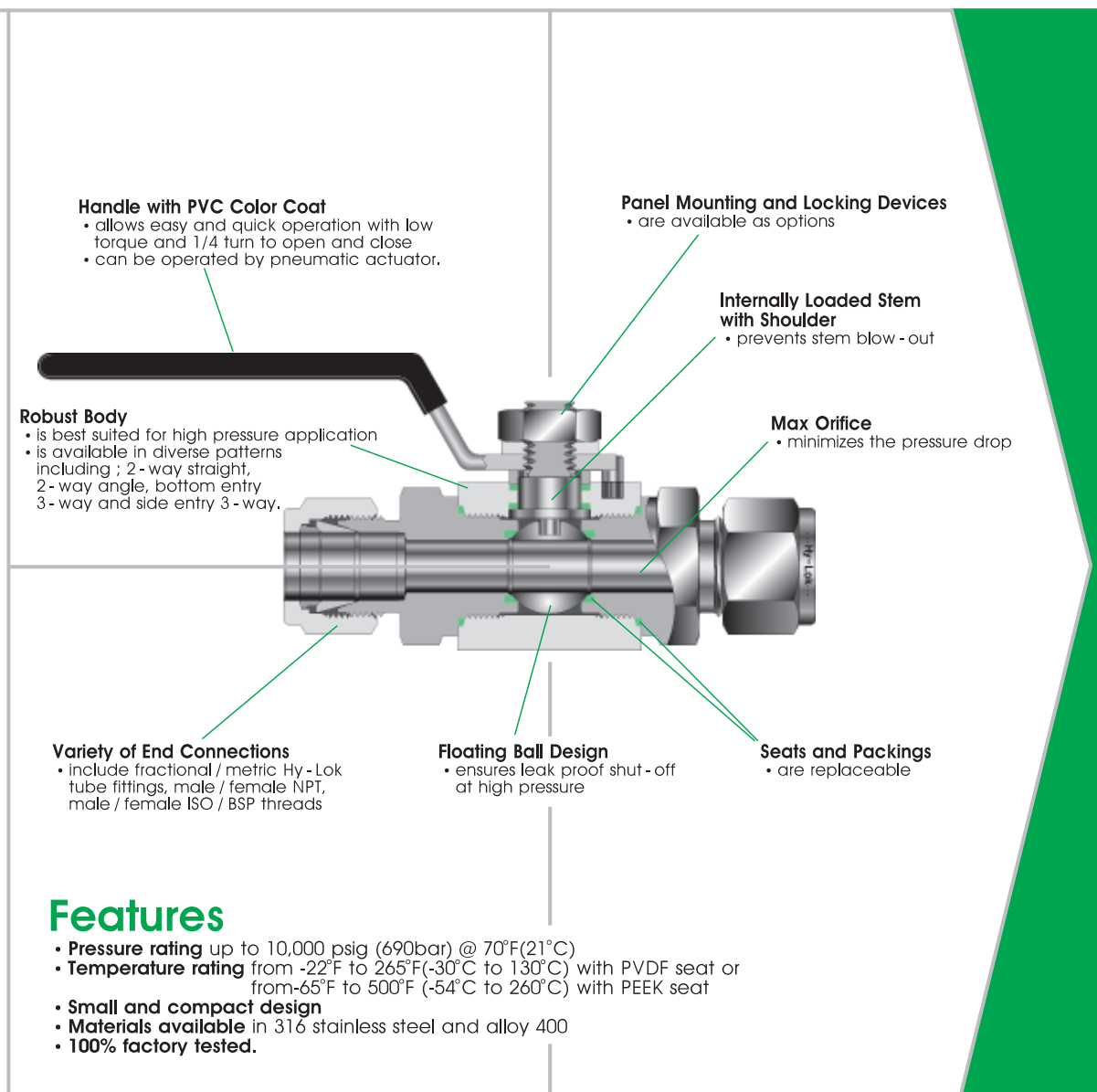
### SAFETY in VALVE SELECTION

Proper installation, material 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.

# Hy-Lok 105 Series

## High Pressure Ball Valves for General Service

Catalog No. H-105BV  
Dec. 2012



**Handle with PVC Color Coat**

- allows easy and quick operation with low torque and 1/4 turn to open and close
- can be operated by pneumatic actuator.

**Panel Mounting and Locking Devices**

- are available as options

**Internally Loaded Stem with Shoulder**

- prevents stem blow-out

**Max Orifice**

- minimizes the pressure drop

**Robust Body**

- is best suited for high pressure application
- is available in diverse patterns including ; 2-way straight, 2-way angle, bottom entry 3-way and side entry 3-way.

**Variety of End Connections**

- include fractional / metric Hy-Lok tube fittings, male / female NPT, male / female ISO / BSP threads

**Floating Ball Design**

- ensures leak proof shut-off at high pressure

**Seats and Packings**

- are replaceable

### Features

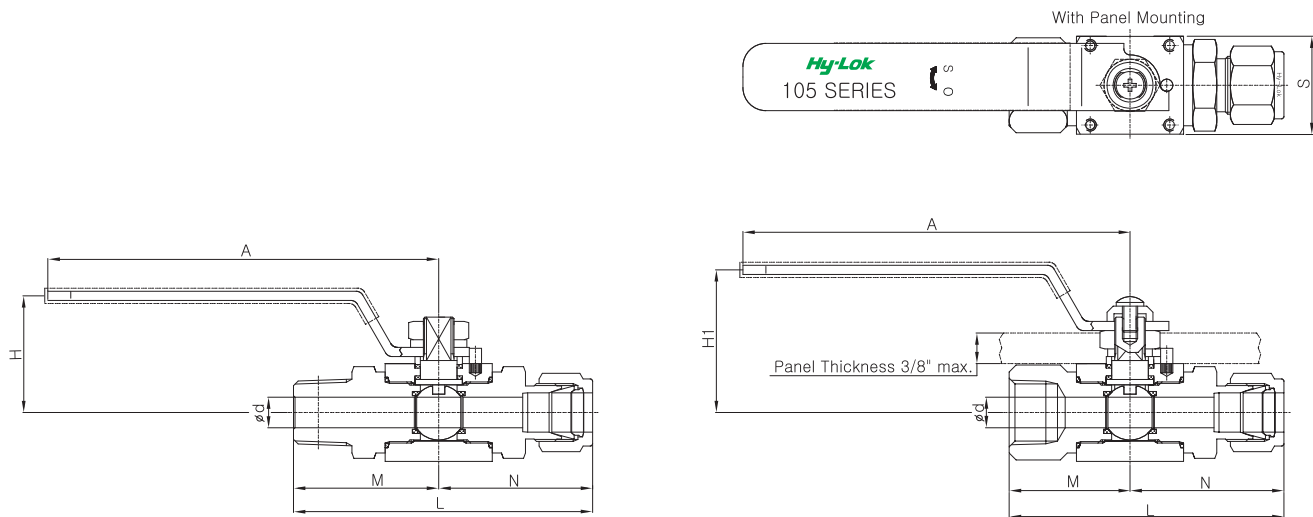
- **Pressure rating** up to 10,000 psig (690bar) @ 70°F(21°C)
- **Temperature rating** from -22°F to 265°F(-30°C to 130°C) with PVDF seat or from -65°F to 500°F (-54°C to 260°C) with PEEK seat
- **Small and compact design**
- **Materials available** in 316 stainless steel and alloy 400
- **100% factory tested.**



**HY-LOK CORPORATION**

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## 2-Way

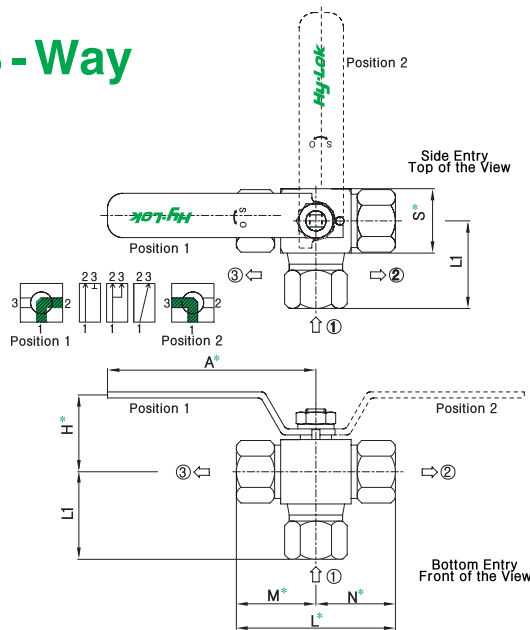


## Table of Dimensions

Basic Part No.	Orifice	Cv	End Connections Inlet & Outlet	d Min.	Dimensions										
					M	N	L	H	A	H1	S				
H1B	- H - 4 T	10.0	1.2	1/4" Hy-Lok	4.8	45.8	45.8	91.6	38.0	126.5	46.7	32.0			
	- H - 6 T		3.7	3/8" Hy-Lok	7.11	47.3	47.3	94.6							
	- H - 8 T		7.5	1/2" Hy-Lok	10.0	49.8	49.8	99.6							
	- F - 4 N			1/4" Female NPT		32.0	32.0	64.0							
	- F - 6 N			3/8" Female NPT		35.5	35.5	71.0							
	- F - 8 N		1/2" Female NPT	39.5	39.5	79.0									
	- M - 4 N		3.7	1/4" Male NPT	7.11	42.7	42.7	85.4							
	- M - 6 N		7.2	3/8" Male NPT	9.65	42.7	42.7	85.4							
	- M - 8 N		7.5	1/2" Male NPT	10.0	47.6	47.6	95.2							
H2B	- F - 8 N	12.7	10.0	1/2" Female NPT	12.7	45.0	45.0	90.0	50.8	162.0	60.6	40.0			
	- F - 12 N			3/4" Female NPT		45.0	45.0	90.0							
	- M - 12 N			3/4" Male NPT		52.6	52.6	105.2							
	- H - 10 T			5/8" Hy-Lok		55.3	55.3	110.6							
	- H - 12 T			3/4" Hy-Lok		55.3	55.3	110.6							
H3B	- F - 12 N	19.0	30.0	3/4" Female NPT	20.0	45.0	45.0	90.0	55.6	162.0	65.6	50.0			
	- F - 16 N			1" Female NPT		49.1	49.1	98.2							
	- H - 12 T			3/4" Hy-Lok		58.3	58.3	116.6							
	- H - 16 T			1" Hy-Lok		64.9	64.9	129.8							
	- M - 12 N			3/4" Male NPT		57.6	57.6	115.2							
	- M - 16 N			1" Male NPT		62.4	62.4	124.8							

All dimensions in millimeters. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

## 3 - Way



\*\*\*marked dimensions are the same as of 2 - way valve.

## Table of Dimensions

Basic Part No.	Orifice	End Connections		d† Min.	L1
		Inlet & Outlet			
H1B	10.0	1/4" Hy-Lok		10.0	4.8
		3/8" Hy-Lok			7.11
		1/2" Hy-Lok			54.0
		1/4" Female NPT			36.5
		3/8" Female NPT			40.0
		1/2" Female NPT			44.0
H2B	12.7	5/8" Hy-Lok		12.7	65.3
		3/4" Hy-Lok			65.3
		1/2" Female NPT			49.5
		3/4" Female NPT			55.0
H3B	19.0	3/4" Hy-Lok		20.0	69.8
		1" Hy-Lok			69.8
		3/4" Female NPT			56.5
		1" Female NPT			60.6

All dimensions in millimeters. Dimensions shown with Hy-Lok nuts in finger tight position, where applicable.

† See dimension table on page 2

\* See ordering information on page 4

## Technical Data

### Materials of Construction

Description	Grade/ASTM Specification	
	Valve Body Material	
	SS316	Alloy 400
Handle	Stainless Steel with PVC Coating	
Lock Nut	Stainless Steel with Washer	
Pin	Stainless Steel	
Stem	SS316/A276	Alloy 400/B164
Stem Packing*	PTFE	
Ball*	SS316/A276	Alloy 400/B164
Seats*	PVDF (standard)	
End Connector	SS316/A276	Alloy 400/B164
End Seals*	PTFE/Viton	
Body	SS316/A479	Alloy 400/B164

Note : "\*" marked are wetted parts.  
Lubricant is silicone based.

### Handle

- Handle is made of stainless steel with PVC coat in yellow.
- Other colors are available upon request.

### Sour Gas Service

- is provided to meet NACE Standard MR - 01 - 75.

### Testing

- Each valve is tested with nitrogen @ 1000psig(69bar) to max leak rate of 0.1SCCM.
- Hydrostatic shell test is performed at 1.5 times the working pressure.
- Optional tests are available upon request.

### Pressure and Temperature Rating

#### ■ H1B Types

Materials			Pressure Rating @ -65°F ~ 70°F (-54°C ~ 21°C)	Temperature Rating
Seat	Stem Packing	End Seal		
PVDF (standard)	PTFE	PTFE	6,000 psig (410 bar)	-22°F~265°F (-30°C~130°C)
PCTFE				-22°F~355°F (-30°C~180°C)
PEEK			10,000 psig (690 bar)	-65°F~500°F (-54°C~260°C)

#### ■ H2B, H3B Types

Materials			Pressure Rating @ -65°F ~ 70°F (-54°C ~ 21°C)	Temperature Rating
Seat	Stem Packing	End Seal		
PVDF (standard)	PTFE	Viton	5,000 psig (340 bar)	-10°F~375°F (-23°C~191°C)
PCTFE				6,000 psig (410 bar)
PEEK			6,000 psig (410 bar)	

#### Note

1. The above pressure rating is for 2 - way straight pattern valves. 80% of the above rating shall be applicable to 2 - way angle pattern valves and 3 - way valves.
2. The rated pressure shown above is the maximum allowable pressure to the seat. If the system requires higher pressure to test, the valve must be in open position before and during test so as not to damage the seat.
3. When valves with Hy - Lok Fitting end connections are connected to tubing, the working pressure of tubing must be considered in the calculation of total system working pressure.

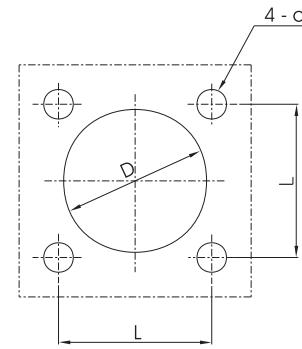
# High Pressure Ball Valves

# 105 Series

## Panel Mounting

Valve Type	Orifice	d	D	L x L
H1B	10.0	5.0	30.0	26 x 26
H2B	12.7	5.0	38.0	34 x 34
H3B	19.0	5.0	38.0	44 x 44

All dimensions in millimeters.



Screw Holes in valves are M4 x 6mm Depth

## Torque for Turning Handle (N · m)

Valve Type	Orifice	Working Pressure - psig										
		0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
H1B	10.0	1.6	1.4	1.4	1.6	2.1	2.3	2.7	2.9	3.3	3.7	4.0
H2B	12.7	3.3	2.9	3.8	4.3	5.0	5.2	5.6	-	-	-	-
H3B	19.0	3.2	3.1	4.2	6.5	8.0	8.6	9.6	-	-	-	-

## Ordering Information

H1B

3

MH

8N8T

PC

M

O

L

SOG

S316

**Valve Type Designator**

- H1B : 10.0mm Orifice
- H2B : 12.7mm Orifice
- H3B : 19.0mm Orifice

**Pattern Designator\***

- Nil : 2-way Straight
- A : 2-way Angle
- 3S : 3-way Side Entry
- 3B : 3-way Bottom Entry

**End Connection Designator**

- H : All Ends Hy-Lok Tube Fitting,
- F : All Ends Female Thread,
- M : All Ends Male Thread.

**Size Designator**

Thread(in)	1/4	3/8	1/2	3/4	1
Designator	4N(R)	6N(R)	8N(R)	12N(R)	16N(R)

• NPT (ISO/BSP)

**Seat Material Designator\***

- Nil : PVDF (Standard)
- PC : PCTFE
- PK : PEEK

**Panel Mounting Option\***

- Nil : Without
- M : With

**Locking Device Option\***

- Nil : Without
- L : with

**Handle Option\***

- Nil : Lever(Standard)
- O : Oval Aluminum (Applicable only for H1B)

**Sour Gas Designator\***

- Nil : Without (Standard)
- SOG : NACE MR-01-75

**Material Designator**

- S316 : 316 Stainless Steel
- MONE : Alloy 400(Monel)

**Note\*:** No designator is required for standard items, e.g. H1B - F - 6N - S316.

**CAUTION**

105 Series Ball Valve shall not be used for CNG System.

### QUALITY SYSTEM CERTIFICATES



ISO 9001  
CERTIFICATE NO. GQC 212

ASME SECT III (MO)  
CERTIFICATE NO. QSC 584

### TYPE APPROVALS (for Hy-Lok Tube Fittings)



American Bureau Shipping  
CERTIFICATE NO. 00-BK50288-X



Lloyd's Register  
CERTIFICATE NO. 01/10075



GERMANISCHER LLOYD  
CERTIFICATE NO. 57798-91 HH



DET NORSKE VERITAS  
CERTIFICATE NO. P-9100

## SAFETY in VALVE SELECTION

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.



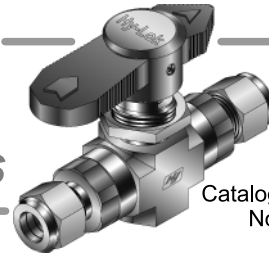
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# Hy-Lok 102 Series

## Forged High Pressure Ball Valves



Catalog No. H-102BV  
Nov. 2013

### Packing bolt and Stem packing

- allow easy packing adjustment with valve in-line
- chevron packing standard for positive leak tight

### Handle with arrow

- indicates flow direction
- low torque and quick operation
- available in black (standard) and colored nylon handle (option)

### Retainer seal

- is positive leak tight and prevents to wear for seat

### Panel mounting nut

- allow easy installation (standard)

### Seat retainer

- with PCTFE seats standard
- is standard for easier replacement

### End packing

- is machined PTFE standard

### Variety of End connections

- include Hy-Lok tube fittings, male & female NPT, male & female ISO threads

### Orifice

- is optimized for min. pressure drop
- ranges from 4.2mm (0.16") to 10.3mm (0.4")

### Floating ball design

- ensures leak proof shut-off in pressure and switching (2-way and 3-way)

### Forged body

- is available in straight (2-way) and switching (3-way)

## Features

- **Pressure rating** up to 6000psig (413 Bar) @70°F (21°C) with PCTFE seats
- **Temperature rating** from -65°F to 350°F (-54°C to 177°C) with standard PCTFE seat
- **Compact design**
- **Straight through design** for max flow rate
- **Body materials** available in 316 stainless steel and brass
- **100% factory tested**

## Technical Data

### Seats and Body Materials vs 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°F to 300°F (-54°C to 148°C)	6000 psig (413 bar)	3000 psig (207 bar)	1000psig@300°F (68.9bar@148°C)	700psig@300°F (48bar@148°C)
PEEK	-65°F to 450°F (-54°C to 232°C)	6000 psig (413 bar)	3000 psig (207 bar)	700psig@400°F (48bar@200°C)	
PTFE	-65°F to 300°F (-54°C to 148°C)	1500 psig (103 bar)	1500 psig (103 bar)	250psig@300°F (17.2bar@148°C)	

### ⚠ Caution :

Pressure Rating with 3-way side ports of as inlet : 150 psig (10bar)

### Testing

- Each valve is tested with nitrogen @1000psig (69 bar) to max.leak rate of 0.1SCCM.
- Optional tests are available upon request.

### Material of construction

Description	Material Grade / ASTM Specification	
	Stainless Steel	Brass
* Body	Gr.316/A182	Brass
* End Connector	TP316 / A479	Brass
* Ball	TP316 / A479	
* Seat Retainer	TP316 / A479	
* Seat	PCTFE, PEEK, PTFE	
* Retainer Seal	PTFE	
* Stem	TP316 / A479	
Packing bolt	TP316 / A479	
Panel Nut	316 Stainless Steel	
* Stem Washer	316 Stainless Steel	
* Stem packing	PTFE	
* End Packing	PTFE	
Handle Set Screw	Stainless Steel	
Handle	Black nylon standard	

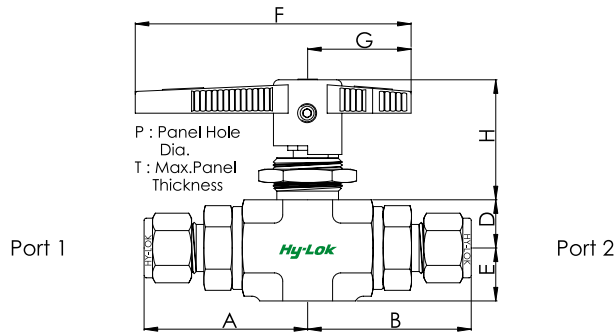
Note : "\*" marked are wetted parts  
Lubricant is silicone based.



# HY-LOK CORPORATION

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## 2-Way (Shut-Off Valve)



## Table of Dimensions

Basic Part No.	Orifice in. (mm)	Flow Coefficient (Cv)	End Connections	Dimensions, in. (mm)									
				Port1 & Port2	A	B	D	E	H	G	F	P	T
HB1	H - 1T	0.052 (1.3)	0.06	1/16" Hy-Lok	1.30 (33.0)	1.30 (33.0)	0.33 (8.5)	0.39 (10.0)	0.91 (23.2)	0.71 (18.0)	1.85 (47.0)	0.64 (16.3)	0.13 (3.3)
	H - 2T	0.093 (2.4)	0.21	1/8" Hy-Lok	1.36 (34.5)	1.36 (34.5)							
	F - 2N	0.165 (4.2)	0.93	1/8" Female NPT	1.07 (27.2)	1.07 (27.2)							
	M - 2N			1/8" Male NPT	1.18 (29.9)	1.18 (29.9)							
	H - 4T			1/4" Hy-Lok	1.48 (37.6)	1.48 (37.6)							
	M - 4N			1/4" Male	1.35 (34.3)	1.35 (34.3)							
	H - 3M	0.086 (2.2)	0.18	3mm Hy-Lok	1.37 (34.8)	1.37 (34.8)							
HB2	H - 2T	0.093 (2.4)	0.26	1/8" Hy-Lok	1.65 (41.9)	1.65 (41.9)	0.48 (12.3)	0.55 (14.0)	1.47 (37.4)	1.26 (32.0)	3.15 (80.0)	0.77 (19.6)	0.25 (6.4)
	H - 4T	0.189 (4.8)	1.04	1/4" Hy-Lok	1.74 (44.2)	1.74 (44.2)							
	F - 4N	0.250 (6.4)	2.34	1/4" Female NPT	1.51 (38.4)	1.51 (38.4)							
	M - 4N			1/4" Male NPT	1.62 (41.1)	1.62 (41.1)							
	H - 6T			3/8" Hy-Lok	1.80 (45.7)	1.80 (45.7)							
	M - 6N	0.188 (4.8)	1.04	3/8" Male NPT	1.62 (41.1)	1.62 (41.1)							
	H - 6M			6mm Hy-Lok	1.75 (44.5)	1.75 (44.5)							
	H - 8M			8mm Hy-Lok	1.78 (45.2)	1.78 (45.2)							
H - 10M	0.250 (6.4)	2.34	10mm Hy-Lok	1.81 (46.0)	1.81 (46.0)								
HB3	F - 6N	0.406 (10.3)	6.42	3/8" Female NPT	1.95 (49.5)	1.95 (49.5)	0.7 (17.8)	0.77 (19.5)	1.74 (44.2)	1.50 (38.1)	4.00 (101.6)	1.02 (26.0)	0.38 (9.7)
	F - 8N			1/2" Female NPT	2.15 (54.6)	2.15 (54.6)							
	H - 8T			1/2" Hy-Lok	2.34 (59.4)	2.34 (59.4)							
	M - 8N	1/2" Male NPT	2.22 (56.4)	2.22 (56.4)									
	H - 12T	3/4" Hy-Lok	2.33 (59.2)	2.33 (59.2)									
	H - 12M	0.375 (9.5)	5.57	12mm Hy-Lok	2.33 (59.2)	2.33 (59.2)							
	H - 16M	0.406 (10.3)	6.42	16mm Hy-Lok	2.33 (59.2)	2.33 (59.2)							

Dimensions in inches and (millimeters) are for reference only, subject to change. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

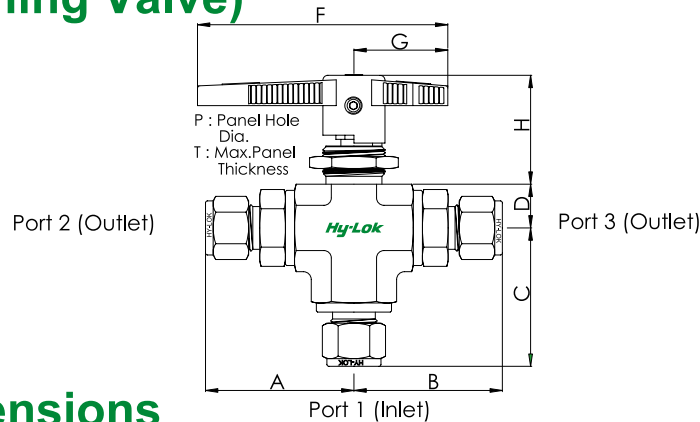
## Flow Rate

Pressure Drop ( $\Delta p$ ) to Atmosphere in psi	Cv														
	0.06	0.18	0.21	0.26	0.63	0.7	0.87	0.93	1.04	2.34	3.46	3.62	5.57	6.42	
Air@70°F(21°C) SCFM	10	5.9	17.7	20.7	25.6	62.0	68.9	85.6	91.5	102.4	230.3	340.6	356.3	548.2	631.9
	50	13.2	39.6	46.2	57.2	138.7	154.1	191.5	204.7	228.9	515.0	761.5	796.7	1225.9	1413.0
Water@60°F (16°C)US GPM	10	0.2	0.6	0.7	0.8	2.0	2.2	2.8	2.9	3.3	7.4	10.9	11.5	17.6	20.3
	50	0.4	1.3	1.5	1.8	4.5	4.9	6.2	6.6	7.4	16.5	24.5	25.6	39.4	45.4
100	0.6	1.8	2.1	2.6	6.3	7.0	8.7	9.3	10.4	23.4	34.6	36.2	55.7	64.2	

\* Flow rate calculated with 1000psig(69bar) inlet pressure.

\* To determine m<sup>3</sup>/hr, multiply GPM by 0.227 and SCFM by 1.69.

## 3-Way (Switching Valve)



## Table of Dimensions

Basic Part No.	Orifice in. (mm)	Flow Coefficient (Cv)	End Connections			Dimensions, in. (mm)							
			Port1 & Port2 & Port3	A	B	C	D	H	G	F	P	T	
HB1B3	H - 1T	0.052 (1.3)	0.06	1/16" Hy-Lok	1.30 (33.0)	1.30 (33.0)	1.33 (33.7)	0.33 (8.5)	0.91 (23.2)	0.71 (18.0)	1.85 (47.0)	0.64 (16.3)	0.13 (3.3)
	H - 2T	0.093 (2.4)	0.21	1/8" Hy-Lok	1.36 (34.5)	1.36 (34.5)	1.43 (36.4)						
	F - 2N	0.165 (4.2)	0.63	1/8" Female NPT	1.07 (27.2)	1.07 (27.2)	1.18 (29.9)						
	M - 2N			1/8" Male NPT	1.18 (29.9)	1.18 (29.9)	1.18 (29.9)						
	H - 4T			1/4" Hy-Lok	1.48 (37.6)	1.48 (37.6)	1.46 (37.2)						
	M - 4N			1/4" Male	1.35 (34.3)	1.35 (34.3)	1.18 (29.9)						
	H - 3M			3mm Hy-Lok	1.37 (34.8)	1.37 (34.8)	1.43 (36.4)						
HB2B3	H - 2T	0.093 (2.4)	0.21	1/8" Hy-Lok	1.65 (41.9)	1.65 (41.9)	1.56 (39.6)	0.48 (12.3)	1.47 (37.4)	1.26 (32.0)	3.15 (80.0)	0.77 (19.6)	0.25 (6.4)
	H - 4T	0.189 (4.8)	0.70	1/4" Hy-Lok	1.74 (44.2)	1.74 (44.2)	1.59 (40.3)						
	F - 4N	0.250 (6.4)	0.87	1/4" Female NPT	1.51 (38.4)	1.51 (38.4)	1.30 (33.0)						
	M - 4N			1/4" Male NPT	1.62 (41.1)	1.62 (41.1)	1.30 (33.0)						
	H - 6T			3/8" Hy-Lok	1.80 (45.7)	1.80 (45.7)	1.59 (40.3)						
	M - 6N	3/8" Male NPT	1.62 (41.1)	1.62 (41.1)	1.30 (33.0)								
	H - 6M	0.188 (4.8)	0.70	6mm Hy-Lok	1.75 (44.5)	1.75 (44.5)	1.59 (40.4)						
	H - 8M	0.250 (6.4)	0.87	8mm Hy-Lok	1.78 (45.2)	1.78 (45.2)	1.59 (40.5)						
H - 10M	10mm Hy-Lok			1.81 (46.0)	1.81 (46.0)	1.60 (40.6)							
HB3B3	F - 6N	0.406 (10.3)	3.62	3/8" Female NPT	1.95 (49.5)	1.95 (49.5)	1.85 (47.0)	0.7 (17.8)	1.74 (44.2)	1.50 (38.1)	4.00 (101.6)	0.90 (22.9)	0.38 (9.7)
	F - 8N			1/2" Female NPT	2.15 (54.6)	2.15 (54.6)	1.85 (47.0)						
	H - 8T			1/2" Hy-Lok	2.34 (59.4)	2.34 (59.4)	2.25 (57.1)						
	M - 8N			1/2" Male NPT	2.22 (56.4)	2.22 (56.4)	1.85 (47.0)						
	H - 12T			3/4" Hy-Lok	2.33 (59.2)	2.33 (59.2)	2.25 (57.1)						
	H - 12M	0.375 (9.5)	3.46	12mm Hy-Lok	2.33 (59.2)	2.33 (59.2)	2.25 (57.1)						
	H - 16M	0.406 (10.3)	3.62	16mm Hy-Lok	2.33 (59.2)	2.33 (59.2)	2.25 (57.1)						

Dimensions in inches and (millimeters) are for reference only, subject to change. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

## Flow Rate

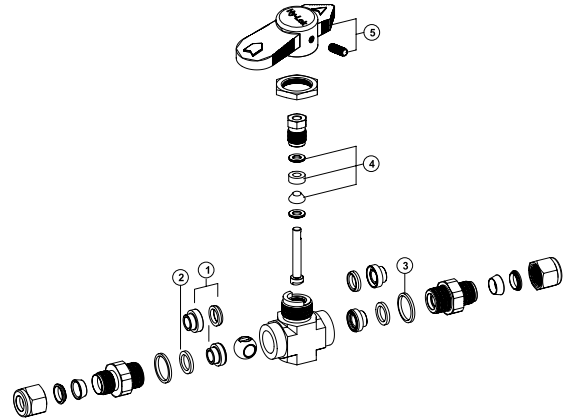
Pressure Drop (Δp) to Atmosphere in psi	Cv														
	0.06	0.18	0.21	0.26	0.63	0.7	0.87	0.93	1.04	2.34	3.46	3.62	5.57	6.42	
Air@70°F(21°C)	10	5.9	17.7	20.7	25.6	62.0	68.9	85.6	91.5	102.4	230.3	340.6	356.3	548.2	631.9
SCFM	50	13.2	39.6	46.2	57.2	138.7	154.1	191.5	204.7	228.9	515.0	761.5	796.7	1225.9	1413.0
	100	18.7	56.0	65.4	80.9	196.1	217.9	270.8	289.5	323.7	728.3	1077.0	1126.8	1733.7	1998.3
Water@60°F(16°C) US GPM	10	0.2	0.6	0.7	0.8	2.0	2.2	2.8	2.9	3.3	7.4	10.9	11.4	17.6	20.3
	50	0.4	1.3	1.5	1.8	4.5	4.9	6.2	6.6	7.4	16.5	24.5	25.6	39.4	45.4
	100	0.6	1.8	2.1	2.6	6.3	7.0	8.7	9.3	10.4	23.4	34.6	36.2	55.7	64.2

\* Flow rate calculated with 1000psig(69bar) inlet pressure.  
 \* To determine m<sup>3</sup>/hr, multiply GPM by 0.227 and SCFM by 1.69.

## Spare Kits

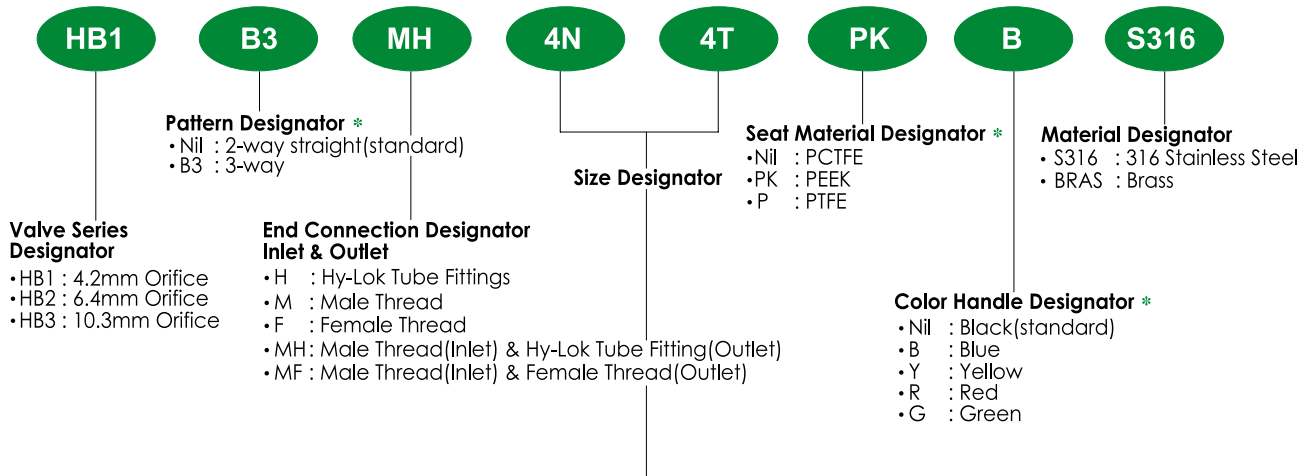
• available for maintenance as below.

Kits	Components	Basic Ordering No.
HB Set ① ② ③ ④ ⑤	two PTFE end packing and retainer seal, two retainer with PCTFE seats, one set stem packing and stem washer, one handle set	KIT -* - SET
Seat Retainer ①	two retainer with PCTFE seats	KIT -* - SR - PC
	two retainer with PEEK seats	KIT -* - SR - PK
	two retainer with PTFE seats	KIT -* - SR - P
Retainer Seal ②	two PTFE retainer seal	KIT -* - RS
End Packing ③	two PTFE end packing	KIT -* - EP
Stem Packing ④	one PTFE stem packing sets, two stem washer	KIT -* - SP
Handle ⑤	handle with screw	KIT -* - HD- **



For a complete ordering number, substitute desired valve series and pattern designator for "\*", color handle designator for "\*\*", (see ordering information)  
e.g. KIT - HB2HD - B ( HB2 series blue color handle kit)

## Ordering Information



• Pipe Thread Designation NPT

Nom. Size	1 / 8	1 / 4	3 / 8	1 / 2	3 / 4
Designation	2N	4N	6N	8N	12N

• Tube O.D. Designation

Fractional Tube	Tube O.D.	1 / 16	1 / 8	1 / 4	3 / 8	1 / 2	3 / 4
	Designation		1T	2T	4T	6T	8T
Metric Tube	Tube O.D.	3mm	6mm	8mm	10mm	12mm	16mm
	Designation		3M	6M	8M	10M	12M

\* No designator is required for standard.  
eg. HB1MH-4N4T-S316

### SAFETY in VALVE SELECTION

Proper installation, material 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.

# Hy-Lok P Series

## Plug Valves



Catalog No. H-P100  
Nov. 2013

**Rugged Body**  
• is machined from bar stock

**Handle with Arrow**  
• indicates flow direction.  
• allows quick operation with 1/4 turn.  
• requires minimum torque.  
• is available in Black(standard) and colored nylon(option).

**Variety of End Connections**  
• include Hy-Lok tube fittings, Male & Female ISO threads, Male & Female NPT.

**Stainless Steel Retaining Ring**  
• installed in both top & bottom.  
• prevents plug blow out.

**PTFE Coated Viton Seal**  
• is used for maximum service life.  
• is replaceable.

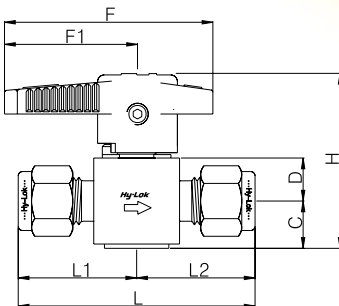
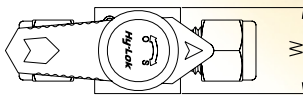
**PTFE Coated Plug**  
• is replaceable.  
• has throttling function.

**Orifice for Cv 1.4 to 7.0**  
• is maximized for minimum pressure drop.

## Features

- **Pressure rating** up to 3000psig(206 bar) @70°F(21°C)
- **Temperature rating** from -10°F to 400°F(-23°C to 204°C) with PTFE coated Viton Seal
- **Small and compact design**
- **Easy maintenance and cleaning**
- **Sizes** available up to 1/2" tube and pipe
- **Body materials** available in 316 stainless steel and brass
- **100% factory tested**

## Table of Dimensions



Series	Basic Part No.		Plug Orifice in (mm)	Cv	End Connection Inlet / Outlet	Dimensions									
	H	M				L	L <sub>1</sub>	L <sub>2</sub>	C	D	H	F	F <sub>1</sub>	W	
P1V	H - 2T	M - 2N	0.172 (4.4)	0.2	1/8 Hy-Lok	50.6	25.3	25.3	12.5	10	41.5	47	30	20	
	F - 2N	H - 4T			MH- 4N4T	1/8 Male NPT	39.4	19.7							19.7
	M - 4N	F - 4R			1/8 Female NPT	45.2	22.6	22.6							
	F - 4N	MF - 4N	1.4	1.4	1/4 Hy-Lok	55.2	27.6	27.6							
	H - 6M	H - 4N			1/4 Male NPT / 1/4 Hy-Lok	51.8	24.2	27.6							
	F - 4R	H - 4N	0.9	0.9	1/4 Male NPT	48.4	24.2	24.2							
	MF - 4N	F - 4N			1/4 Female NPT	53.0	26.5	26.5							
	H - 6M	H - 4N	1.4	1.4	1/4 Female ISO Tapered	56.0	28.0	28.0							
	F - 4N	H - 4N			1/4 Male / 1/4 Female NPT	50.7	24.2	26.5							
	H - 6T	H - 4N	0.281 (7.2)	3.6	6mm Hy-Lok	55.4	27.7	27.7							
H - 8T	H - 4N	1/4 Female NPT			60.4	30.2	30.2								
M - 8N	H - 4N	2.3	7.0	3/8 Hy-Lok	68.4	34.2	34.2								
F - 8N	H - 4N			1/2 Hy-Lok	74.0	37.0	37.0								
F - 8R	H - 4N	5.7	4.0	1/2 Male NPT	68.2	34.1	34.1								
H - 10M	H - 4N			1/2 Female NPT	73.2	36.6	36.6								
H - 12M	H - 4N	4.3	5.7	1/2 Female ISO Tapered	79.8	39.9	39.9								
H - 12M	H - 4N			10mm Hy-Lok	68.6	34.3	34.3								
H - 12M	H - 4N		12mm Hy-Lok	74.2	37.1	37.1									

All dimensions in millimeters. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.



# HY-LOK CORPORATION

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# Plug Valves

# P Series

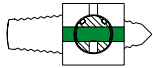
## Material of Construction

Description	Material/ASTM Specification	
	Handle	316 Stainless Steel
Pin	Black Nylon Standard	
Retaining Ring	Stainless Steel	
Plug	TP 316 / A479	Brass
	with PTFE Coated	
O-ring	FKM Standard	
Body	TP 316 / A479	Brass

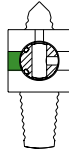
## Pressure / Temperature Rating

Series	Materials	Pressure Rating @70°F(21°C)	Temperature Rating
P1V	SS316 & Brass	3000 psig (206 bar)	-10°F to 400°F (-23°C to 204°C) with PTFE coated Viton Seal.
P2V	SS316	3000 psig (206 bar)	
	Brass	2000 psig (137 bar)	

## Downstream Vent



Open Condition



Closed & Vent Condition

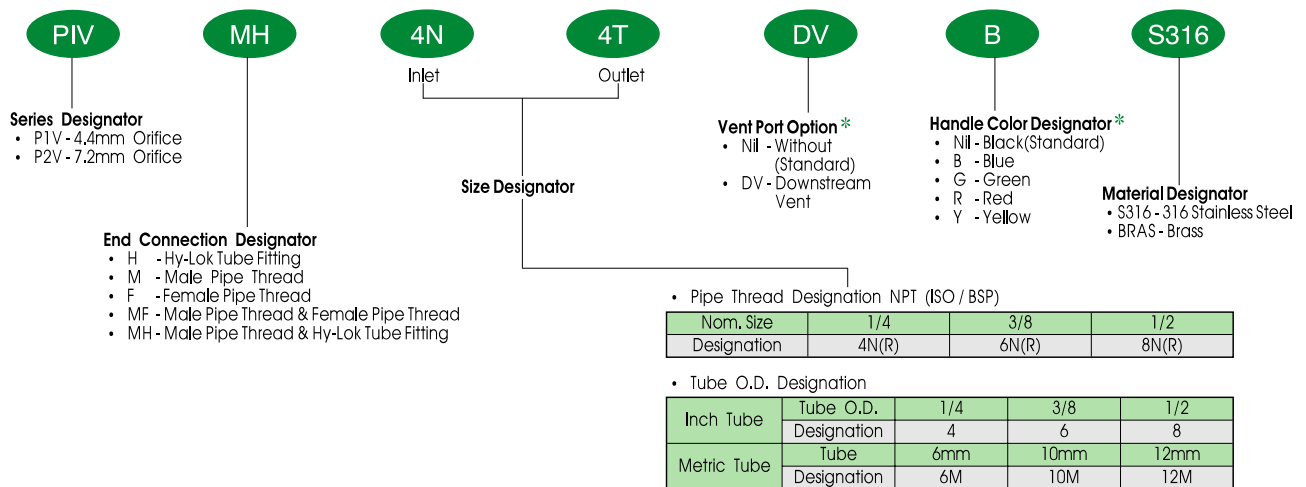
## Testing

Every Valve is factory tested for shut off at 600psig(41 bar)

## Flow Rate

Ordering Number		Cv	Pressure drop Atmosphere(Δp)psi						Ordering Number		Cv	Pressure drop Atmosphere(Δp)psi					
			Air std ft <sup>3</sup> /min. 70°F(21°C)			Water U.S. gal/min. @70°F(21°C)						Air std ft <sup>3</sup> /min. 70°F(21°C)			Water U.S. gal/min. @70°F(21°C)		
Series	Part. No.		10	50	100	10	50	100	Series	Part. No.		10	50	100	10	50	100
P1V	H - 2T	0.2	2.26	6.00	10.64	0.63	1.41	2.00	P2V	F - 4N	3.6	40.68	108.03	191.51	11.38	25.46	36.00
	M - 2N	1.0	11.30	30.01	53.20	3.16	7.07	10.00		H - 6T	7.0	79.09	210.6	372.39	22.14	49.50	70.00
	F - 2N		11.30	30.01	53.20	3.16	7.07	10.00		H - 8T	4.0	45.20	120.03	212.79	12.65	28.28	40.00
	H - 4T	1.4	15.82	42.01	74.48	4.43	9.90	14.00		M - 8N	2.3	25.99	69.02	122.36	7.27	16.26	23.00
	MH- 4N4T		15.82	42.01	74.48	4.43	9.90	14.00		F - 8N		25.99	69.02	122.36	7.27	16.26	23.00
	M - 4N	0.9	10.17	27.01	47.88	2.85	6.36	9.00		F - 8R	25.99	69.02	122.36	7.27	16.26	23.00	
	F - 4N		10.17	27.01	47.88	2.85	6.36	9.00		H -10M	5.7	64.40	171.06	303.23	18.02	40.31	57.00
	F - 4R		10.17	27.01	47.88	2.85	6.36	9.00		H -12M	4.3	48.59	129.03	228.75	13.60	30.41	43.00
	MF - 4N		10.17	27.01	47.88	2.85	6.36	9.00									
	H - 6M	1.4	25.99	69.02	122.36	7.27	16.26	23.00									

## Ordering Information



NOTE \*: No designator is required for standard. e.g. P1V-4T-S316