

LOW PRESSURE VALVES, FITTINGS AND TUBING

BuTech Low Pressure Valves are designed for liquid and gas flow control in petroleum, chemical, power generating and general industrial applications.

Available in a variety of body styles, the valves are designed for operation at temperatures ranging from -100° to +600°F (-73° to +315°C). Optional packings and/or extended stuffing boxes increase the range to -423° to +1200°F (-253° to +648°C).

Their rugged construction provides assurance of fail-safe operation at pressures ranging to 15,000 PSI (1030 bar).

Note: BuTech Pressure Systems does not recommend compression sleeve connections below 0°F (-18°C) or above 650°F (343°C).

Needle Valve Features:

- Non-rotating stem prevents galling and scoring
- Five stem styles:
 - Vee
 - Metering
 - Regulating
 - Micro-Metering
 - Soft Tip
- 17-4PH Stem for longer service life. 316 wetted parts are also available by specifying option **-316WP** (see page LP-3)
- Glass-filled PTFE packing for temperatures up to 600°F (315°C)
- Integral through holes for bracket mounting, a panel-mounting option is also available (see page LP-3)
- Wide range of options allow customizing of valve
- Positive gland locking device

Materials of Construction

Standard materials of construction include 316 cold-worked stainless steel, 17-4PH, Ampco 45, and glass-filled PTFE. All BuTech equipment may also be produced in any machinable metal. Some of the more common exotic materials used are:

- Hastelloy™
- Inconel™
- Titanium
- Monel 400™

Tube Sizes: 1/16" through 1/2"
Pressures to 15,000 PSI (1030 bar)
Type: L/P Single Ferrule Compression

Tube O.D.	Connection	Orifice	Cv*	MAWP+
1/16"	1/16" L/P	0.042" (1.1 mm)	0.06	15,000 PSI 1030 bar
1/8"	1/8" L/P	0.094" (2.4 mm)	0.12	15,000 PSI 1030 bar
1/4"	1/4" SL/P	0.125" (3.2 mm)	0.20	11,500 PSI 790 bar
3/8"	3/8" SL/P	0.125" (3.2 mm)	0.20	7,500 PSI 520 bar
1/2"	1/2" L/P	0.375" (9.5 mm)	1.90	5,500 PSI 380 bar

*Cv values listed are for 2-way straight pattern valves excluding metering valves.

For 2-way angle pattern valves, increase Cv value by 50%.

For Metering Valves: Cv=.004, Port size=0.062" (1.57 mm)

+Maximum allowable working pressure at 72° F (22° C)

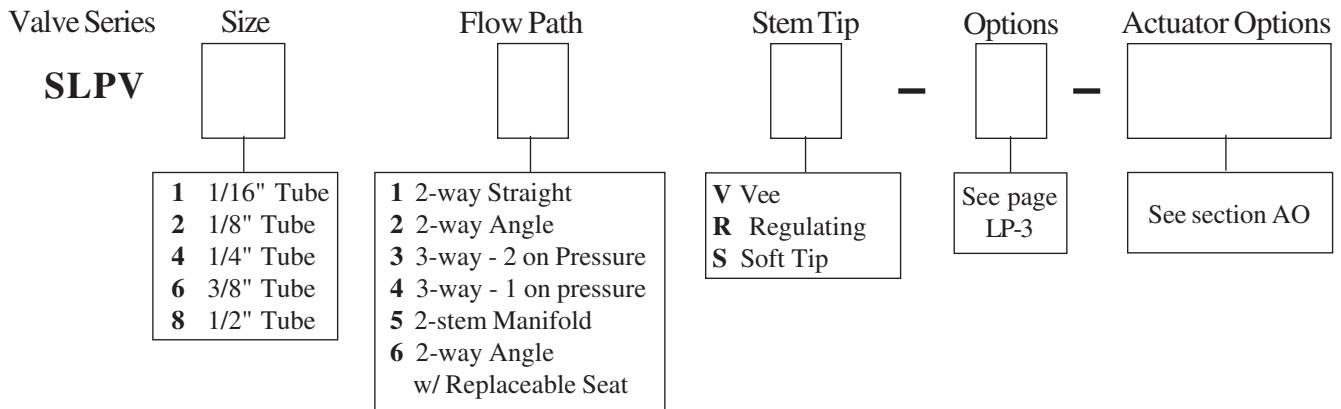
Equipment	Page
Bulkhead Couplings	LP-11
Caps	LP-9
Check Valves	LP-12
Couplings	LP-11
Crosses	LP-10
Elbows	LP-10
Ferrules	LP-9
Filters	LP-13
Glands	LP-9
Metering and Needle Valves, 1/16"	LP-4
Metering and Needle Valves, 1/8"	LP-5
Metering and Needle Valves, 1/4"	LP-6
Metering and Needle Valves, 3/8"	LP-7
Needle Valves, 1/2"	LP-8
Options	LP-3
Plugs	LP-9
Safety Heads	LP-14
Tees	LP-10
Tubing	LP-9

Ferrules and Glands included with all valves and fittings

All dimensions are for reference only and are subject to change.
 Dimensions in parentheses are millimeters (mm)



ORDERING INFORMATION & REPLACEMENT PARTS



Examples:

SLPV42V specifies a 2-way angle valve for 1/4" tube with a Vee stem

SLPV81R-PM specifies a 2-way straight valve for 1/2" tube with regulating stem and panel-mount packing gland option

Replacement Parts

BuTech offers replacement parts in a variety of packages so you can purchase just the parts you need.

Replacement Stem Kit contains just the stem

Replacement Packing Kit contains all soft packing rings

Repair Kits contain stem, stem sleeve, stem nuts and washers, packings and packing washers (replacement seat where applicable)

Valve Series	Repair Kits		Replacement Stem	Replacement Packings	Replacement Valve Body
	All others	Replaceable Seat			
SLPV1	RK-SLPV1*	RK-SLPV16*	LPS1*	LPPK1	SLPV1+
SLPV2	RK-SLPV2*	RK-SLPV26*	LPS2*	LPPK2	SLPV2+
SLPV4	RK-SLPV4*	RK-SLPV46*	LPS4*	LPPK4	SLPV4+
SLPV6	RK-SLPV6*	RK-SLPV66*	LPS6*	LPPK6	SLPV6+
SLPV8	RK-SLPV8*	RK-SLPV86*	LPS8*	LPPK8	SLPV8+

*Complete catalog number by adding the following:

V, R or **S** for stem type

Suffix for special packing materials (see page LP-3)
(ex. **-GR** for Grafoil packings)

Suffix for special materials
(ex. **-HC** for Hastelloy)

-LT or **-HT** for cryogenic or high-temperature service

-WAO for a valve fitted with an actuator

+Complete catalog number by adding the flow path designator:

- 1** 2-way straight
- 2** 2-way angle
- 3** 3-way, 2 connections on pressure
- 4** 3-way, 1 connection on pressure
- 5** 2-stem manifold
- 6** 2-way angle with replaceable seat

NEEDLE VALVE OPTIONS

Packing and Stem Materials

- GR Grafoil packings for service to 800°F (426°C)
- TFE Virgin PTFE packing for service to 450°F (232°C)
- 316WP 316 wetted parts
- STS Stellite tipped stem
- SRS Stellite replaceable seat (Replaceable seat valves only)

Handle Options

- PH Round plastic handle in place of aluminum
- SS Stainless steel handle in place of aluminum
- EXT_ Handle extended above valve body, specify number of inches of extra height desired (Ex: **EXT6** is a 6" extension)

Security Options

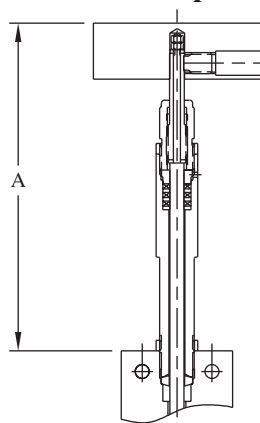
- HLD Handle locking device (prevents unauthorized opening/closing of valve)
- SLD Stem locking device (prevents stem from turning due to vibration)

Extreme Service

- O2 Cleaned for oxygen service
- HT Extended stuffing box, graphite packing, and materials for high-temperature service to 1200°F (648°C)
- HTF Finned extended stuffing box, graphite packing, and materials for high-temperature service to 1200°F (648°C)
- LT Extended stuffing box, PTFE packing, and materials for cryogenic service to -423°F (-251°C)
- LTF Finned extended stuffing box, PTFE packing, and materials for cryogenic service to -423°F (-251°C)

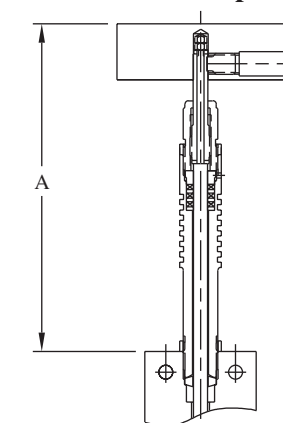
Valve Model	A
SLPV1	N/A
SLPV2	N/A
SLPV4	5.82" (147.8)
SLPV6	5.82" (147.8)
SLPV8	7.22" (183.4)

-HT or -LT Options



Cylindrical Bonnet

-HTF or -LTF Options

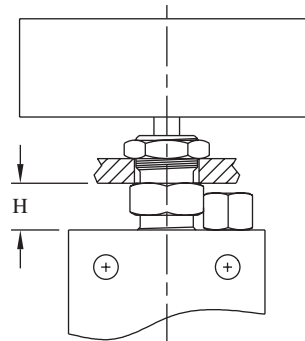


Finned Bonnet

Panel Mount

- PM Panel-mount packing gland

Valve Model	Panel Hole Size	Max Panel Thickness	H
SLPV1	0.47" (11.9)	0.25" (6.4)	0.41" (10.4)
SLPV2	0.47" (11.9)	0.25" (6.4)	0.41" (10.4)
SLPV4	0.66" (16.8)	0.25" (6.4)	0.54" (13.7)
SLPV6	0.66" (16.8)	0.25" (6.4)	0.54" (13.7)
SLPV8	0.78" (19.8)	0.44" (11.2)	0.50" (12.7)



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NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

1/16" L/P TUBE, SINGLE FERRULE COMPRESSION

2-way Straight

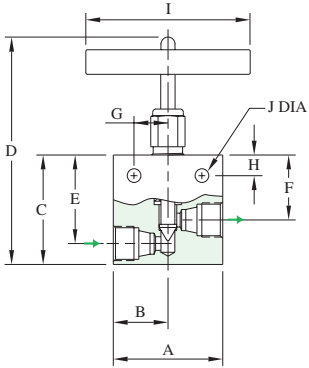


Figure 1

2-way Angle

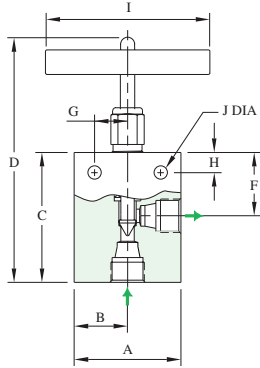


Figure 2

3-way Two on Pressure

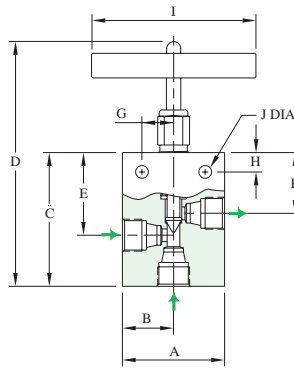


Figure 3

3-way One on Pressure

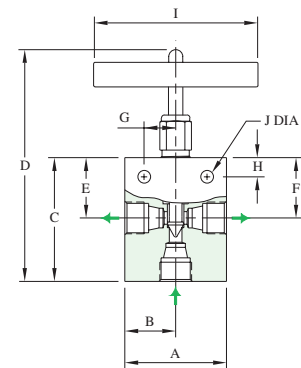


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SLPV11V SLPV11R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	1.38" (35.1)	3.82" (97.0)	1.06" (26.9)	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	---	---	0.62" (15.7)	1
SLPV12V SLPV12R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	1.56" (39.6)	4.00" (101.6)	---	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	---	---	0.62" (15.7)	2
SLPV13V SLPV13R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	1.69" (42.9)	4.13" (104.9)	1.06" (26.9)	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	---	---	0.62" (15.7)	3
SLPV14V SLPV14R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	1.56" (39.6)	4.00" (101.6)	0.81" (20.6)	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	---	---	0.62" (15.7)	4
SLPV15V SLPV15R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	2.25" (57.2)	7.13" (181.1)	1.12" (28.4)	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	---	---	0.62" (15.7)	5
SLPV16V SLPV16R	Vee Reg	1/16" L/P Tube	1.50" (38.1)	0.75" (19.1)	1.69" (42.9)	4.13" (104.9)	---	0.81" (20.6)	0.50" (12.7)	0.31" (7.9)	2.37" (60.2)	0.17" (4.3)	0.50" (12.7)	0.63" (16.0)	0.62" (15.7)	6
SLPMV16V	Meter	1/16" L/P Tube	1.38" (35.1)	0.87" (22.1)	1.56" (39.6)	5.40" (137.2)	---	0.94" (23.9)	0.19" (4.8)	0.44" (11.2)	2.37" (60.2)	0.16" (4.1)	0.56" (14.2)	0.72" (18.3)	0.75" (19.1)	7
SLPMMV16V	Micro-Meter	1/16" L/P Tube	1.38" (35.1)	0.87" (22.1)	1.56" (39.6)	5.42" (137.7)	---	0.94" (23.9)	0.19" (4.8)	0.44" (11.2)	2.37" (60.2)	0.16" (4.1)	0.56" (14.2)	0.72" (18.3)	0.75" (19.1)	8

See page LP-1 for orifice and Cv

2-stem Manifold

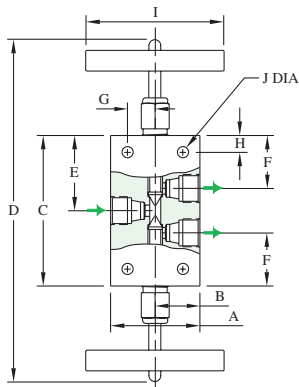


Figure 5

Replaceable Seat

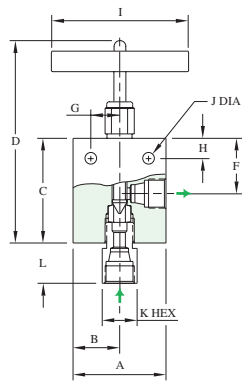


Figure 6

Metering

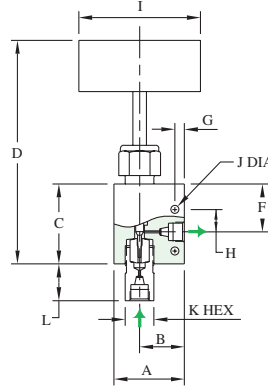


Figure 7

Micro-Metering

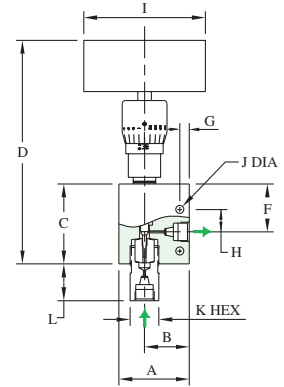


Figure 8

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NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

1/8" L/P TUBE, SINGLE FERRULE COMPRESSION

2-way Straight

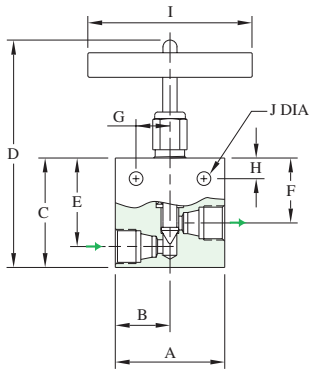


Figure 1

2-way Angle

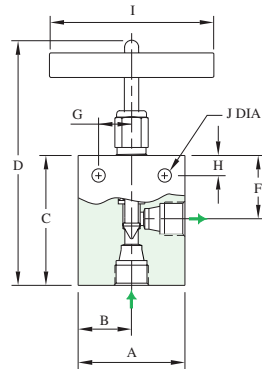


Figure 2

3-way Two on Pressure

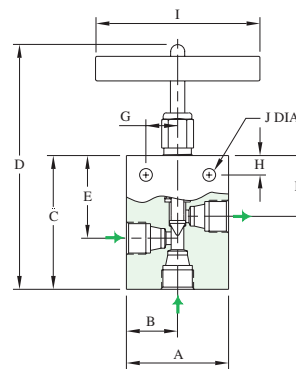


Figure 3

3-way One on Pressure

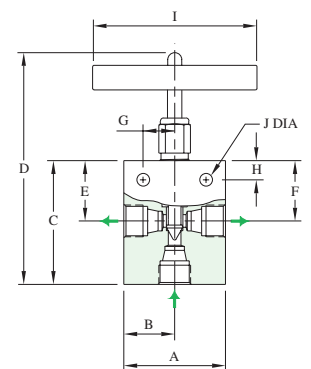


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SLPV21V	Vee	1/8" L/P	1.50"	0.75"	1.38"	3.82"	1.06"	0.81"	0.50"	0.31"	2.37"	0.17"	---	---	0.62"	1
SLPV21R	Reg	Tube	(38.1)	(19.1)	(35.1)	(97.0)	(26.9)	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	---	---	(15.7)	
SLPV22V	Vee	1/8" L/P	1.50"	0.75"	1.56"	4.00"	---	0.81"	0.50"	0.31"	2.37"	0.17"	---	---	0.62"	2
SLPV22R	Reg	Tube	(38.1)	(19.1)	(39.6)	(101.6)	---	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	---	---	(15.7)	
SLPV23V	Vee	1/8" L/P	1.50"	0.75"	1.69"	4.13"	1.06"	0.81"	0.50"	0.31"	2.37"	0.17"	---	---	0.62"	3
SLPV23R	Reg	Tube	(38.1)	(19.1)	(42.9)	(104.9)	(26.9)	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	---	---	(15.7)	
SLPV24V	Vee	1/8" L/P	1.50"	0.75"	1.56"	4.00"	0.81"	0.81"	0.50"	0.31"	2.37"	0.17"	---	---	0.62"	4
SLPV24R	Reg	Tube	(38.1)	(19.1)	(39.6)	(101.6)	(20.6)	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	---	---	(15.7)	
SLPV25V	Vee	1/8" L/P	1.50"	0.75"	2.25"	7.13"	1.12"	0.81"	0.50"	0.31"	2.37"	0.17"	---	---	0.62"	5
SLPV25R	Reg	Tube	(38.1)	(19.1)	(57.2)	(181.1)	(28.4)	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	---	---	(15.7)	
SLPV26V	Vee	1/8" L/P	1.50"	0.75"	1.69"	4.13"	---	0.81"	0.50"	0.31"	2.37"	0.17"	0.50"	0.63"	0.62"	6
SLPV26R	Reg	Tube	(38.1)	(19.1)	(42.9)	(104.9)	---	(20.6)	(12.7)	(7.9)	(60.2)	(4.3)	(12.7)	(16.0)	(15.7)	
SLPMV26V	Meter	1/8" L/P	1.38"	0.87"	1.56"	5.40"	---	0.94"	0.19"	0.44"	2.37"	0.16"	0.56"	0.72"	0.75"	7
SLPMV26R	Reg	Tube	(35.1)	(22.1)	(39.6)	(137.2)	---	(23.9)	(4.8)	(11.2)	(60.2)	(4.1)	(14.2)	(18.3)	(19.1)	
SLPMMV26V	Micro-Meter	1/8" L/P	1.38"	0.87"	1.56"	5.42"	---	0.94"	0.19"	0.44"	2.37"	0.16"	0.56"	0.72"	0.75"	8
SLPMMV26R	Reg	Tube	(35.1)	(22.1)	(39.6)	(137.7)	---	(23.9)	(4.8)	(11.2)	(60.2)	(4.1)	(14.2)	(18.3)	(19.1)	

See page LP-1 for orifice and Cv

2-stem Manifold

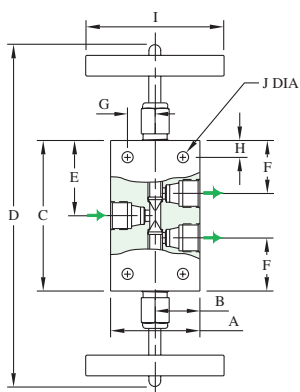


Figure 5

Replaceable Seat

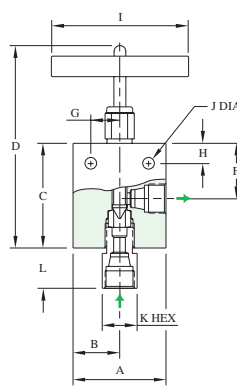


Figure 6

Metering

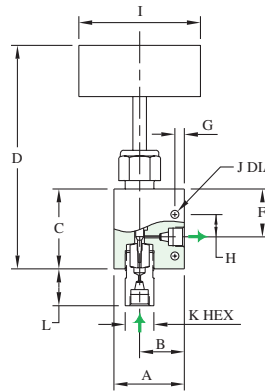


Figure 7

Micro-Metering

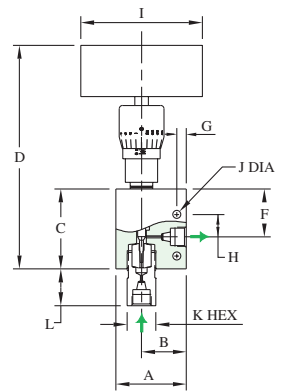


Figure 8



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NEEDLE VALVES FOR 11,500 PSI (790 BAR)

1/4" SL/P TUBE, SINGLE FERRULE COMPRESSION

2-way Straight

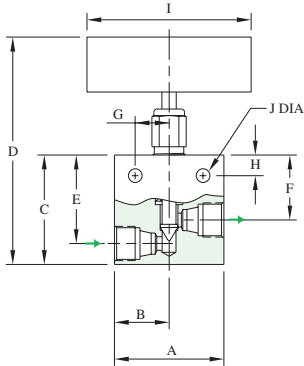


Figure 1

2-way Angle

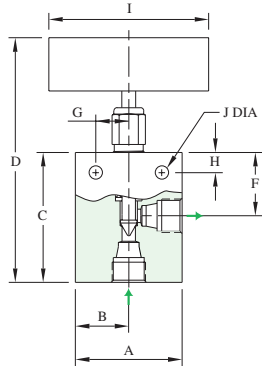


Figure 2

3-way Two on Pressure

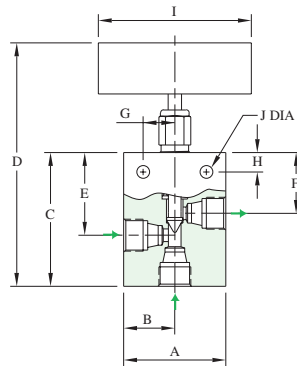


Figure 3

3-way One on Pressure

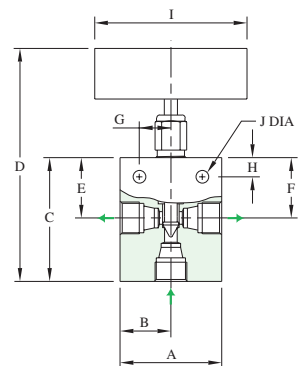


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SLPV41V	Vee	1/4" SL/P	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	1
SLPV41R	Reg	Tube	(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SLPV42V	Vee	1/4" SL/P	2.00"	1.00"	2.44"	4.94"	---	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	2
SLPV42R	Reg	Tube	(50.8)	(25.4)	(62.0)	(125.5)	---	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SLPV43V	Vee	1/4" SL/P	2.00"	1.00"	2.62"	5.12"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	3
SLPV43R	Reg	Tube	(50.8)	(25.4)	(66.5)	(130.0)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SLPV44V	Vee	1/4" SL/P	2.00"	1.00"	2.44"	4.94"	1.19"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	4
SLPV44R	Reg	Tube	(50.8)	(25.4)	(62.0)	(125.5)	(30.2)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SLPV45V	Vee	1/4" SL/P	2.00"	1.00"	3.38"	8.38"	1.68"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	5
SLPV45R	Reg	Tube	(50.8)	(25.4)	(85.9)	(212.9)	(42.7)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SLPV46V	Vee	1/4" SL/P	2.00"	1.00"	2.25"	4.75"	---	1.19"	0.62"	0.38"	3.00"	0.25"	0.50"	0.63"	0.75"	6
SLPV46R	Reg	Tube	(50.8)	(25.4)	(57.2)	(120.7)	---	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	(12.7)	(16.0)	(19.1)	
SLPMV46V	Meter	1/4" SL/P	2.50"	1.25"	2.62"	6.69"	---	1.31"	0.69"	0.38"	3.00"	0.25"	0.75"	1.03"	1.00"	7
	Tube		(63.5)	(31.8)	(66.5)	(169.9)	---	(33.3)	(17.5)	(9.7)	(76.2)	(6.4)	(19.1)	(26.2)	(25.4)	
SLPMMV46V	Micro-Meter	1/4" SL/P	2.50"	1.25"	2.62"	7.33"	---	1.31"	0.69"	0.38"	2.35"	0.25"	0.75"	1.03"	1.00"	8
	Tube		(63.5)	(31.8)	(66.5)	(186.2)	---	(33.3)	(17.5)	(9.7)	(59.7)	(6.4)	(19.1)	(26.2)	(25.4)	

See page LP-1 for orifice and Cv

2-stem Manifold

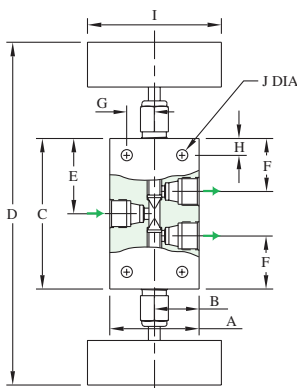


Figure 5

Replaceable Seat

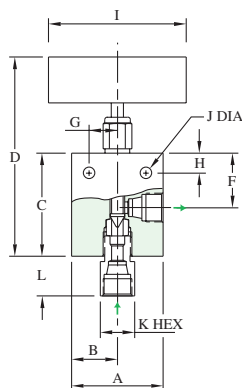


Figure 6

Metering

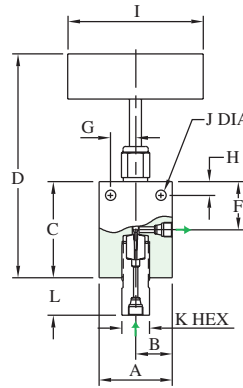


Figure 7

Micro-Metering

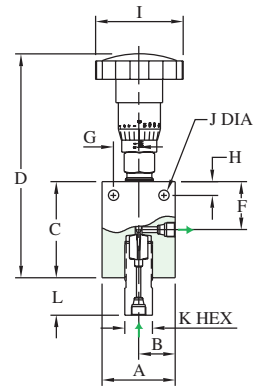


Figure 8

All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

NEEDLE VALVES FOR 7,500 PSI (520 BAR)

3/8" SL/P TUBE, SINGLE FERRULE COMPRESSION

2-way Straight

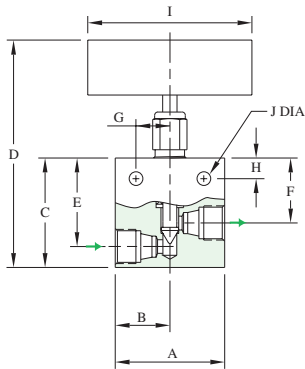


Figure 1

2-way Angle

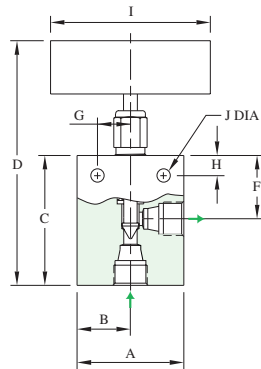


Figure 2

3-way Two on Pressure

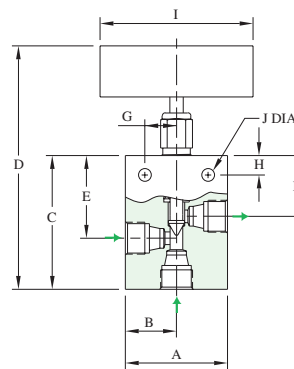


Figure 3

3-way One on Pressure

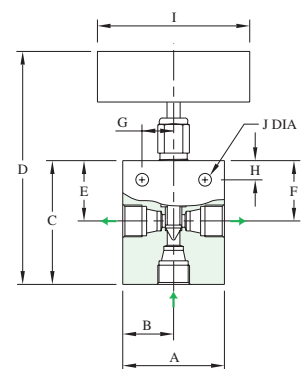


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SLPV61V SLPV61R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	2.00" (50.8)	4.50" (114.3)	1.62" (41.1)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	1
SLPV62V SLPV62R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	2.44" (62.0)	4.94" (125.5)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	2
SLPV63V SLPV63R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	2.62" (66.5)	5.12" (130.0)	1.62" (41.1)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	3
SLPV64V SLPV64R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	2.44" (62.0)	4.94" (125.5)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	4
SLPV65V SLPV65R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	3.38" (85.9)	8.38" (212.9)	1.68" (42.7)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	5
SLPV66V SLPV66R	Vee Reg	3/8" SL/P Tube	2.00" (50.8)	1.00" (25.4)	2.25" (57.2)	4.75" (120.7)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	0.50" (12.7)	0.63" (16.0)	0.75" (19.1)	6
SLPMV66V	Meter	3/8" SL/P Tube	2.50" (63.5)	1.25" (31.8)	2.62" (66.5)	6.69" (169.9)	---	1.31" (33.3)	0.69" (17.5)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	0.75" (19.1)	1.03" (26.2)	1.00" (25.4)	7
SLPMMV66V	Micro-Meter	3/8" SL/P Tube	2.50" (63.5)	1.25" (31.8)	2.62" (66.5)	7.33" (186.2)	---	1.31" (33.3)	0.69" (17.5)	0.38" (9.7)	2.35" (59.7)	0.25" (6.4)	0.75" (19.1)	1.03" (26.2)	1.00" (25.4)	8

See page LP-1 for orifice and Cv

2-stem Manifold

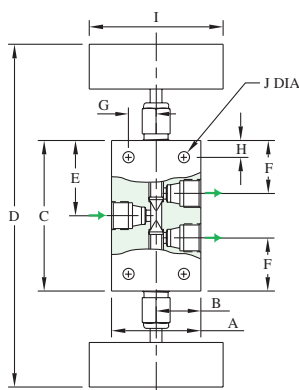


Figure 5

Replaceable Seat

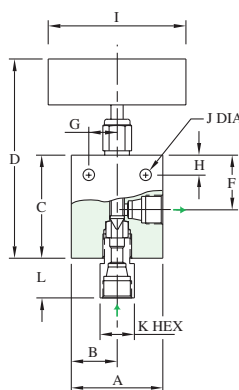


Figure 6

Metering

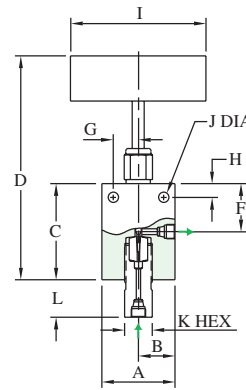


Figure 7

Micro-Metering

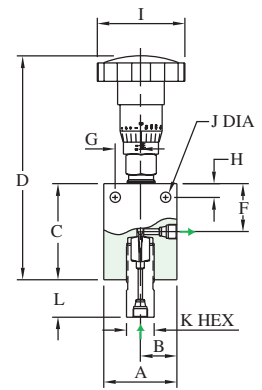


Figure 8



All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

NEEDLE VALVES FOR 5,500 PSI (380 BAR)

1/2" L/P TUBE, SINGLE FERRULE COMPRESSION

2-way Straight

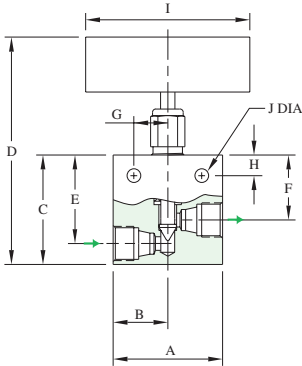


Figure 1

2-way Angle

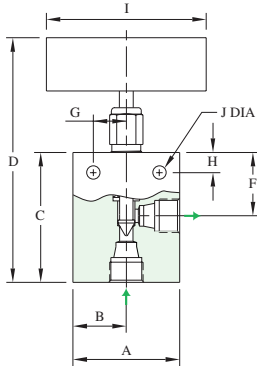


Figure 2

3-way Two on Pressure

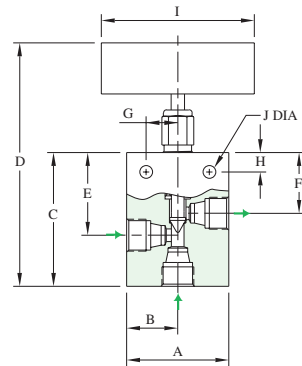


Figure 3

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SLPV81V	Vee	1/2" L/P	2.50"	1.25"	2.88"	6.32"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	1
SLPV81R	Reg	Tube	(63.5)	(31.8)	(73.2)	(160.5)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SLPV82V	Vee	1/2" L/P	2.50"	1.25"	3.38"	6.82"	---	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	2
SLPV82R	Reg	Tube	(63.5)	(31.8)	(85.9)	(173.2)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SLPV83V	Vee	1/2" L/P	2.50"	1.25"	3.62"	7.06"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	3
SLPV83R	Reg	Tube	(63.5)	(31.8)	(91.9)	(179.3)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SLPV84V	Vee	1/2" L/P	2.50"	1.25"	3.38"	6.82"	1.75"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	4
SLPV84R	Reg	Tube	(63.5)	(31.8)	(85.9)	(173.2)	(44.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SLPV85V	Vee	1/2" L/P	2.50"	1.25"	5.12"	12.00"	2.56"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	5
SLPV85R	Reg	Tube	(63.5)	(31.8)	(130.0)	(304.8)	(65.0)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SLPV86V	Vee	1/2" L/P	2.50"	1.25"	3.25"	7.72"	---	1.75"	0.69"	0.50"	4.00"	0.34"	0.75"	0.63"	1.00"	6
SLPV86R	Reg	Tube	(63.5)	(31.8)	(82.6)	(196.1)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	(19.1)	(16.0)	(25.4)	

See page LP-1 for orifice and Cv

3-way One on Pressure

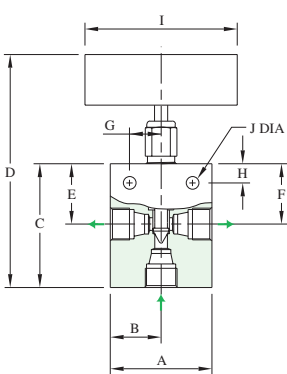


Figure 4

2-stem Manifold

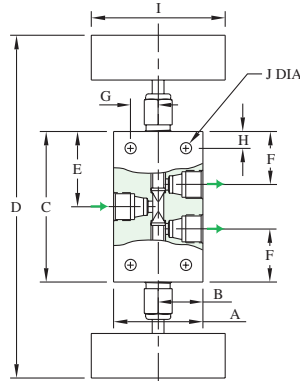


Figure 5

Replaceable Seat

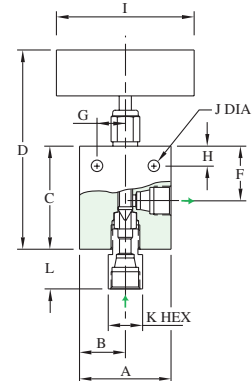


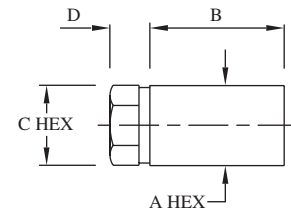
Figure 6

All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

LOW PRESSURE CONNECTION COMPONENTS & TUBING

Connection Components

All BuTech valves and fittings are supplied with glands and ferrules. To order these components separately, use catalog numbers listed below. When using a plug, the ferrule is not required.



Tube Size	Ferrule	Gland	Plug
1/16" L/P	LPF1	LPG1	LPP1
1/8" L/P	LPF2	LPG2	LPP2
1/4" SL/P	LPF4	SLPG4	LPP4
3/8" SL/P	LPF6	SLPG6	LPP6
1/2" L/P	LPF8	LPG8	LPP8

Cap	A	B	C	D
LCA1	0.50" (12.7)	1.25" (31.8)	0.50" (12.7)	0.31" (7.9)
LPCA2	0.50" (12.7)	1.25" (31.8)	0.50" (12.7)	0.31" (7.9)
LPCA4	0.63" (16.0)	1.62" (41.1)	0.81" (20.6)	0.56" (14.2)
LPCA6	0.75" (19.1)	1.00" (25.4)	0.81" (20.6)	0.62" (15.7)
LPCA8	1.00" (25.4)	1.25" (31.8)	0.75" (19.1)	0.53" (13.5)

Tubing

Catalog Number	Connection	O.D.	I.D.	MAWP
LP062-031-*	1/16" L/P	0.062" (1.6)	0.031" (0.8)	15,000 PSI 1030 bar
LP125-062-*	1/8" L/P	0.125" (3.2)	0.062" (1.6)	15,000 PSI 1030 bar
LP250-125-*	1/4" L/P	0.250" (6.4)	0.125" (3.2)	11,500 PSI 790 bar
LP375-250-*	3/8" L/P	0.375" (9.5)	0.250" (6.4)	7,500 PSI 520 bar
LP500-334-*	1/2" L/P	0.500" (12.7)	0.334" (8.5)	7,000 PSI 480 bar
LP500-375-*	1/2" L/P	0.500" (12.7)	0.375" (9.5)	5,500 PSI 380 bar

*Complete catalog number by adding suffix **316** for 316 stainless steel or suffix **304** for 304 stainless steel. Other materials are also available, please consult factory.

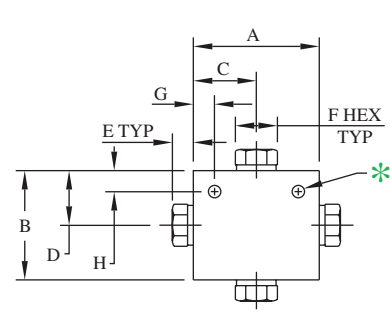
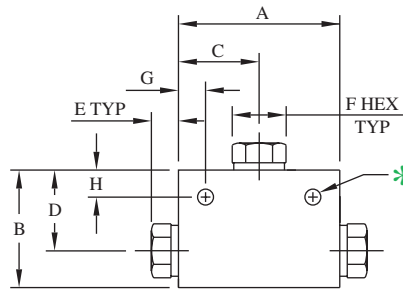
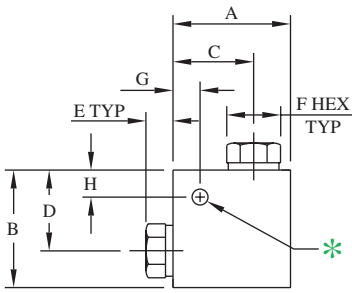
BuTech Pressure Systems offers a complete selection of annealed seamless stainless steel tubing for high pressure applications where both high strength and corrosion resistance are desired. Tubing is available in standard 20-24 foot lengths (6-7 meters), however, longer lengths are available on request.



See Section T for Tube Benders and Tube Vises!

All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

LOW PRESSURE EQUIPMENT



ELBOWS

Catalog Number	Connection	Port	MAWP	A	B	C	D	E	F	Block Thickness	Mounting Holes*		
											G	H	Dia.
LPL1	1/16" L/P Tube	0.042" (1.1)	15,000 PSI 1030 bar	1.00" (25.4)	1.00" (25.4)	0.75" (19.1)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.50" (12.7)	0.30" (7.6)	0.31" (7.9)	0.21" (5.3)
LPL2	1/8" L/P Tube	0.094" (2.4)	15,000 PSI 1030 bar	1.00" (25.4)	1.00" (25.4)	0.75" (19.1)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.50" (12.7)	0.30" (7.6)	0.31" (7.9)	0.21" (5.3)
LPL4	1/4" SL/P Tube	0.187" (4.7)	11,500 PSI 790 bar	1.19" (30.2)	1.19" (30.2)	0.88" (22.4)	0.88" (22.4)	0.56" (14.2)	0.81" (20.6)	0.62" (15.7)	0.31" (7.9)	0.31" (7.9)	0.22" (5.6)
LPL6	3/8" SL/P Tube	0.250" (6.4)	7,500 PSI 520 bar	1.38" (35.1)	1.38" (35.1)	1.00" (25.4)	1.00" (25.4)	0.62" (15.7)	0.81" (20.6)	0.75" (19.1)	0.31" (7.9)	0.31" (7.9)	0.28" (7.1)
LPL8	1/2" L/P Tube	0.437" (11.1)	5,500 PSI 380 bar	1.75" (44.5)	1.75" (44.5)	1.25" (31.8)	1.25" (31.8)	0.53" (13.5)	0.75" (19.1)	1.00" (25.4)	0.50" (12.7)	0.50" (12.7)	0.28" (7.1)

TEES

Catalog Number	Connection	Port	MAWP	A	B	C	D	E	F	Block Thickness	Mounting Holes*		
											G	H	Dia.
LPT1	1/16" L/P Tube	0.042" (1.1)	15,000 PSI 1030 bar	1.50" (38.1)	1.00" (25.4)	0.75" (19.1)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.62" (15.7)	0.30" (7.6)	0.31" (7.9)	0.21" (5.3)
LPT2	1/8" L/P Tube	0.094" (2.4)	15,000 PSI 1030 bar	1.50" (38.1)	1.00" (25.4)	0.75" (19.1)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.62" (15.7)	0.30" (7.6)	0.31" (7.9)	0.21" (5.3)
LPT4	1/4" SL/P Tube	0.187" (4.7)	11,500 PSI 790 bar	1.75" (44.5)	1.19" (30.2)	0.88" (22.4)	0.88" (22.4)	0.56" (14.2)	0.81" (20.6)	0.62" (15.7)	0.25" (6.4)	0.25" (6.4)	0.28" (7.1)
LPT6	3/8" SL/P Tube	0.250" (6.4)	7,500 PSI 520 bar	2.00" (50.8)	1.38" (35.1)	1.00" (25.4)	1.00" (25.4)	0.62" (15.7)	0.81" (20.6)	0.75" (19.1)	0.31" (7.9)	0.31" (7.9)	0.28" (7.1)
LPT8	1/2" L/P Tube	0.437" (11.1)	5,500 PSI 380 bar	2.50" (63.5)	1.75" (44.5)	1.25" (31.8)	1.25" (31.8)	0.53" (13.5)	0.75" (19.1)	1.00" (25.4)	0.50" (12.7)	0.50" (12.7)	0.28" (7.1)

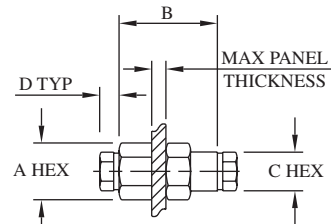
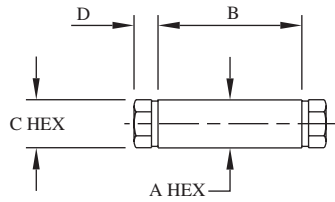
CROSSES

Catalog Number	Connection	Port	MAWP	A	B	C	D	E	F	Block Thickness	Mounting Holes*		
											G	H	Dia.
LPX1	1/16" L/P Tube	0.042" (1.1)	15,000 PSI 860 bar	1.38" (35.1)	1.50" (38.1)	0.69" (17.5)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.62" (15.7)	0.24" (6.1)	0.31" (7.9)	0.21" (5.3)
LPX2	1/8" L/P Tube	0.094" (2.4)	15,000 PSI 860 bar	1.38" (35.1)	1.50" (38.1)	0.69" (17.5)	0.75" (19.1)	0.31" (7.9)	0.50" (12.7)	0.62" (15.7)	0.24" (6.1)	0.31" (7.9)	0.21" (5.3)
LPX4	1/4" SL/P Tube	0.187" (4.7)	11,500 PSI 790 bar	1.75" (44.5)	1.75" (44.5)	0.88" (22.4)	0.88" (22.4)	0.56" (14.2)	0.81" (20.6)	0.62" (15.7)	0.25" (6.4)	0.25" (6.4)	0.21" (5.3)
LPX6	3/8" SL/P Tube	0.250" (6.4)	7,500 PSI 520 bar	2.00" (50.8)	2.00" (50.8)	1.00" (25.4)	1.00" (25.4)	0.62" (15.7)	0.81" (20.6)	0.75" (19.1)	0.31" (7.9)	0.38" (9.7)	0.28" (7.1)
LPX8	1/2" L/P Tube	0.437" (11.1)	5,500 PSI 380 bar	2.50" (63.5)	2.50" (63.5)	1.25" (31.8)	1.25" (31.8)	0.53" (13.5)	0.75" (19.1)	1.00" (25.4)	0.50" (12.7)	0.50" (12.7)	0.28" (7.1)

*Mounting holes provided when the catalog number is suffixed by "-MH" when ordering.

All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

LOW PRESSURE EQUIPMENT



See bulkhead table below
for panel hole drill size

COUPLINGS

Catalog Number	Connection	Port	MAWP	A	B	C	D
LPC1	1/16" L/P Tube	0.042" (1.1)	15,000 PSI 1030 bar	0.50" (12.7)	1.25" (31.8)	0.50" (12.7)	0.31" (7.9)
LPC2	1/8" L/P Tube	0.094" (2.4)	15,000 PSI 1030 bar	0.50" (12.7)	1.25" (31.8)	0.50" (12.7)	0.31" (7.9)
LPC4	1/4" SL/P Tube	0.187" (4.7)	11,500 PSI 790 bar	0.62" (15.7)	1.62" (41.1)	0.81" (20.6)	0.56" (14.2)
LPC6	3/8" SL/P Tube	0.250" (6.4)	7,500 PSI 520 bar	0.75" (19.1)	1.75" (44.5)	0.81" (20.6)	0.62" (15.7)
LPC8	1/2" L/P Tube	0.437" (11.1)	5,500 PSI 380 bar	1.00" (25.4)	2.00" (50.8)	0.75" (19.1)	0.53" (13.5)

BULKHEADS

Catalog Number	Connection	Port	MAWP	A	B	C	D	Panel Hole	Panel Thickness
LPBF1	1/16" L/P Tube	0.042" (1.1)	15,000 PSI 1030 bar	0.75" (19.1)	1.75" (44.5)	0.50" (12.7)	0.31" (7.9)	0.62" (15.7)	0.38" (9.7)
LPBF2	1/8" L/P Tube	0.094" (2.4)	15,000 PSI 1030 bar	0.75" (19.1)	1.75" (44.5)	0.50" (12.7)	0.31" (7.9)	0.62" (15.7)	0.38" (9.7)
LPBF4	1/4" SL/P Tube	0.187" (4.7)	11,500 PSI 790 bar	1.00" (25.4)	1.88" (47.8)	0.81" (20.6)	0.56" (14.2)	0.88" (22.4)	0.38" (9.7)
LPBF6	3/8" SL/P Tube	0.250" (6.4)	7,500 PSI 520 bar	1.00" (25.4)	1.88" (47.8)	0.81" (20.6)	0.62" (15.7)	0.88" (22.4)	0.38" (9.7)
LPBF8	1/2" L/P Tube	0.437" (11.1)	5,500 PSI 380 bar	1.38" (35.1)	2.38" (60.5)	0.75" (19.1)	0.53" (13.5)	1.25" (31.8)	0.50" (12.7)



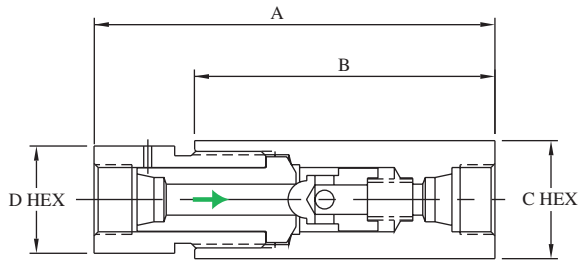
All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)

LOW PRESSURE CHECK VALVES

BuTech ball check valves prevent reverse flow where leak-tight shutoff is not necessary. Standard materials of construction are 316 stainless steel with 17-4PH poppet for long life, and 300 series stainless steel spring.

Note: For 316 stainless steel wetted parts, add **-316WP** to the catalog number.

Cracking pressure: 15 PSI (1 bar) approximate
 Operating Temperature Range:
 -420° to +1200°F
 (-251° to +648°C)

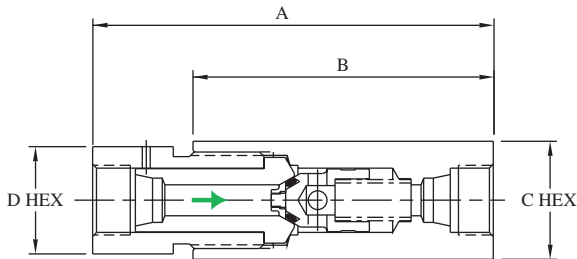


BALL CHECK VALVES

Catalog Number	Connection	MAWP	Cv	A	B	C	D
LPBC2	1/8" L/P Tube	15,000 PSI 1030 bar	0.15	2.38" (60.5)	1.88" (47.8)	0.50" (12.7)	0.62" (15.7)
LPBC4	1/4" SL/P Tube	11,500 PSI 790 bar	0.63	3.24" (82.3)	2.62" (66.5)	0.75" (19.1)	0.81" (20.6)
LPBC6	3/8" SL/P Tube	7,500 PSI 520 bar	1.70	4.44" (112.8)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)
LPBC8	1/2" L/P Tube	5,500 PSI 380 bar	3.40	4.67" (118.6)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)

To order a valve with a cracking pressure other than the standard 15 PSI, add the cracking pressure to the end of the catalog number. Example: A LPBC8 with 50 PSI cracking pressure would be ordered as **LPBC8-50**.

Cracking pressures available up to 100 PSI (7 bar)



BuTech o-ring check valves reliably prevent backflow where leak-tight shutoff for liquids or gases is required. Standard materials of construction are 316 stainless steel with Buna-N o-ring and 300 series stainless steel spring.

Cracking pressure: 15 PSI (1 bar) approximate
 Operating Temperature Ranges:

O-ring Material	Operating Temperature Range	Catalog Suffix
Buna-N	-65° to +250°F (-54° to +121°C)	----
Viton	-40° to +500°F (-40° to +260°C)	-VA
PTFE	-320° to +400°F (-195° to +204°C)	-TFE
Kalrez	-20° to +550°F (-29° to +288°C)	-HT

O-RING CHECK VALVES

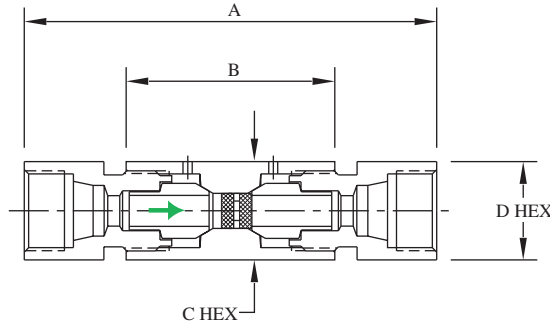
Catalog Number	Connection	MAWP	Cv	A	B	C	D
LPSC2	1/8" L/P Tube	15,000 PSI 1030 bar	0.15	2.38" (60.5)	1.88" (47.8)	0.50" (12.7)	0.62" (15.7)
LPSC4	1/4" SL/P Tube	11,500 PSI 790 bar	0.63	3.31" (84.1)	2.62" (66.5)	0.75" (19.1)	0.81" (20.6)
LPSC6	3/8" SL/P Tube	7,500 PSI 520 bar	1.70	4.44" (112.8)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)
LPSC8	1/2" L/P Tube	5,500 PSI 380 bar	3.40	4.67" (118.6)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)

To order a valve with a cracking pressure other than the standard 15 PSI, add the cracking pressure to the end of the catalog number. Example: A LPSC4 with 40 PSI cracking pressure would be ordered as **LPSC4-40**.

Cracking pressures available up to 100 PSI (7 bar)

All dimensions are for reference only and are subject to change.
 Dimensions in parentheses are millimeters (mm)

LOW PRESSURE FILTERS



BuTech line filters are used in system lines to remove contaminating particles from the system fluid. Upstream filter of larger micron rating than downstream filter to prevent clogging of downstream filter.

Standard materials of construction are 316 stainless steel with 300 series stainless steel filter discs. Available in nominal ratings of: 0.5, 2, 5, 10, 20, 40, and 100 micron.

LINE FILTERS

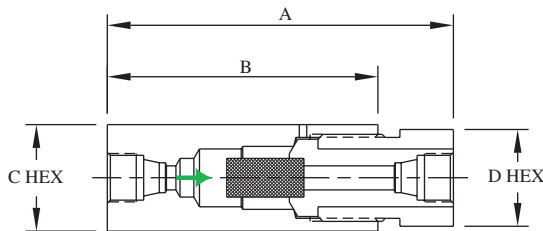
Catalog Number	Connection	MAWP	Area*	A	B	C	D
LPLF2	1/8" L/P Tube	15,000 PSI 1030 bar	0.06 in ² 39 mm ²	3.62" (91.9)	1.75" (44.5)	0.75" (19.1)	0.62" (15.7)
LPLF4	1/4" L/P Tube	11,500 PSI 790 bar	0.15 in ² 97 mm ²	4.12" (104.6)	2.12" (53.8)	1.00" (25.4)	0.88" (22.4)
LPLF6	3/8" L/P Tube	7,500 PSI 520 bar	0.15 in ² 97 mm ²	4.12" (104.6)	2.12" (53.8)	1.00" (25.4)	0.88" (22.4)
LPLF8	1/2" L/P Tube	5,500 PSI 380 bar	0.15 in ² 97 mm ²	4.19" (106.4)	2.12" (53.8)	1.00" (25.4)	1.00" (25.4)

*Effective area of filter element

Micron rating of filter must be specified. To order, complete the catalog number with the desired micron rating, upstream first:

LPLF4-40/20

specifies a line filter with 1/4" L/P connections, a 40 micron filter upstream and 20 micron downstream.



BuTech sintered cup filters offer maximum filtration surface area for removal of contaminating particles from the fluid system. They may be used in systems which require high flow rates with minimum pressure drop.

Standard materials of construction are 316 stainless steel with 300 series stainless steel filter discs. Available in nominal ratings of: 5, 10, 20, 40, and 100 micron.

SINTERED CUP FILTERS

Catalog Number	Connection	MAWP	Area*	A	B	C	D
LPSCF2	1/8" L/P Tube	15,000 PSI 1030 bar	0.54 in ² 348 mm ²	2.38" (60.5)	1.88" (47.8)	0.50" (12.7)	0.62" (15.7)
LPSCF4	1/4" SL/P Tube	11,500 PSI 790 bar	0.49 in ² 316 mm ²	3.24" (82.3)	2.62" (66.5)	0.75" (19.1)	0.81" (20.6)
LPSCF6	3/8" SL/P Tube	7,500 PSI 520 bar	1.47 in ² 948 mm ²	4.44" (112.8)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)
LPSCF8	1/2" L/P Tube	5,500 PSI 380 bar	1.47 in ² 948 mm ²	4.67" (118.6)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)

*Effective area of filter element

Micron rating of filter must be specified. To order, complete the catalog number with the desired micron rating:

LPSCF4-20

specifies a line filter with 1/4" L/P connections and a 20 micron filter.

All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)



LOW PRESSURE SAFETY HEADS & RUPTURE DISCS

BuTech safety head assemblies serve as holders for standard rupture discs (sold separately). Safety heads with rupture discs are used as simple and inexpensive overpressure relief devices. System pressure is relieved as a result of rupture of the replaceable disc.

The safety head assemblies shown are designed for use in high pressure systems up to 15,000 PSI (1030 bar). They can be installed directly into any of our standard couplings, elbows, tees, or crosses. Their versatility also allows direct installation into a standard 3-way valve. The result is a combination valve/safety head with beneficial cost and space advantages.

Standard material of construction is 316 stainless steel.

Safety head assemblies and rupture discs are available in two styles:

The **1/4A** style features a 1/4" blow-out diameter, an angular seat and can be ordered in pressures from 900 to 60,000 PSI (62 to 4140 bar)

The **1/2F** style features a 1/2" blow-out diameter, a flat seat and can be ordered in pressures from 500 to 10,000 PSI (34 to 689 bar). This style also has a reversible hold-down ring which greatly reduces the possibility of premature disc failure associated with installation errors inherent in some designs.

Rupture discs are available in a wide range of burst ratings. Factors such as corrosion, fatigue and temperature may affect the burst pressure of the disc and cause premature failure. This problem may sometimes be overcome by frequent replacement of the disc. All discs rated over 500 PSI (34 bar) have a manufacturing tolerance of 3% under to 6% over the specified rupture pressure rating.

Rupture Discs are not included in the safety head assembly. To order discs separately, use the following part numbering system:

Style	Material	Pressure:
4=1/4" Angled	AL=Aluminum	List desired pressure at 72°F
8=1/2" Flat	IN=Inconel	(21°C) in KSI.
	MO=Monel	
	NI=Nickel	
	SI=Silver	
	SS=316SS	
	TI=Titanium	

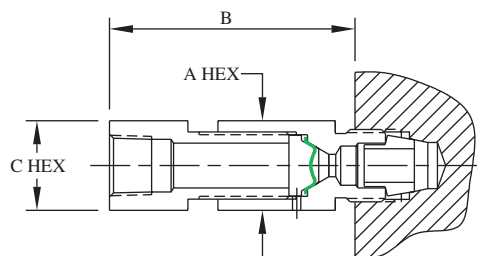
Examples:

An Inconel disc rated for 12,000 PSI in 1/4" Angled style would be ordered as **4IN12.00**

An Aluminum disc rated for 750 PSI in 1/2" Flat style would be ordered as **8AL0.75**

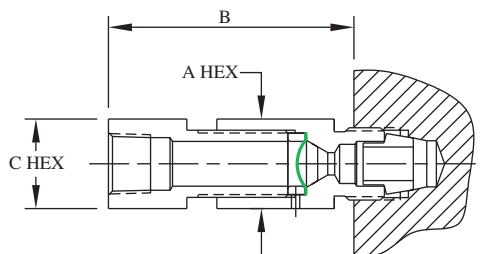
SAFETY HEADS - 1/4" ANGLED DISC

Catalog Number	Connection	MAWP	A	B	C	Discharge
LPSH2-1/4A	1/8" L/P Tube	15,000 PSI 1030 bar	1.00" (25.4)	2.83" (71.9)	1.00" (25.4)	3/8" FNPT
LPSH4-1/4A	1/4" SL/P Tube	11,500 PSI 790 bar	1.00" (25.4)	2.81" (71.4)	1.00" (25.4)	3/8" FNPT
LPSH6-1/4A	3/8" SL/P Tube	7,500 PSI 520 bar	1.00" (25.4)	2.76" (70.1)	1.00" (25.4)	3/8" FNPT
LPSH8-1/4A	1/2" L/P Tube	5,500 PSI 380 bar	1.00" (25.4)	2.87" (72.9)	1.00" (25.4)	3/8" FNPT



SAFETY HEADS - 1/2" FLAT DISC

Catalog Number	Connection	MAWP	A	B	C	Discharge
LPSH2-1/2F	1/8" L/P Tube	10,000 PSI 689 bar	1.00" (25.4)	2.62" (66.5)	1.00" (25.4)	3/8" FNPT
LPSH4-1/2F	1/4" SL/P Tube	10,000 PSI 689 bar	1.00" (25.4)	2.87" (72.9)	1.00" (25.4)	3/8" FNPT
LPSH6-1/2F	3/8" SL/P Tube	7,500 PSI 520 bar	1.00" (25.4)	2.87" (72.9)	1.00" (25.4)	3/8" FNPT
LPSH8-1/2F	1/2" L/P Tube	5,500 PSI 380 bar	1.00" (25.4)	2.68" (68.1)	1.00" (25.4)	3/8" FNPT



All dimensions are for reference only and are subject to change.
Dimensions in parentheses are millimeters (mm)