



## BL Series – Latching Valve

- ▶ 3-Way or 2-Way Valves
- ▶ Low Power Requirements
- ▶ MOPD: 240 PSI (12.4 bar)
- ▶ Dual Diode Protection Optional

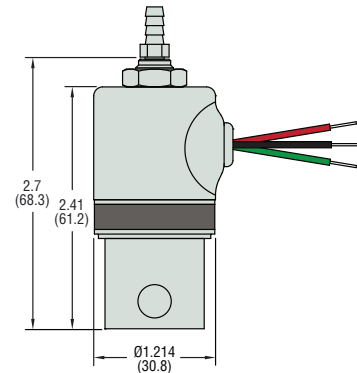
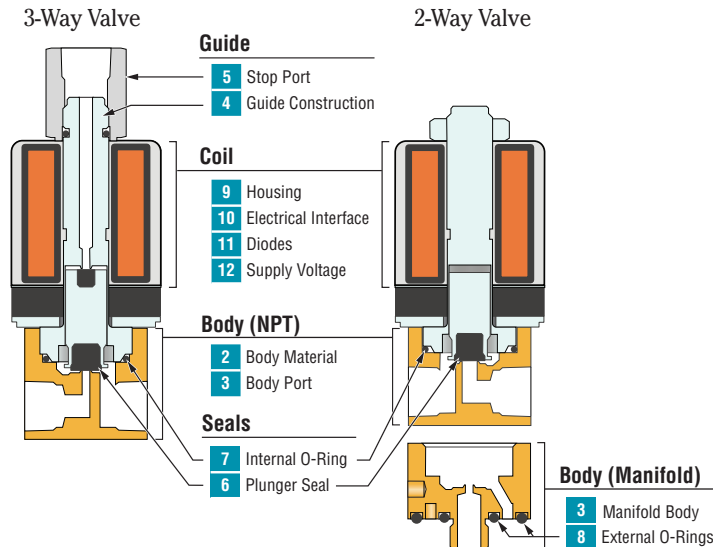
The BL series latching valve allows the user to pulse the valve and have it change state. The voltage does not need to be constantly applied in order to hold it in a state. These valves are ideal for controlling larger pneumatic valves in remote applications where power is limited or when the temperature of the media cannot be impacted as it flows through the valve. The larger pneumatic valves can close and open large pipes and these latching valves control them. The term Latch refers to the valve in the open state where supply pressure goes to the external valve. The unlatched state is when the supply is cut off and the external valve is exhausted to ambient.



### Typical Applications

- Natural Gas Plunger Lifts
- Natural Gas Separators
- Gas Chromatography
- Irrigation Systems

### Reference



### Example Shown

Part Number: BL311-01LC-18B-VBX-GPBD-2  
From How to Order example below.

### How To Order

Valve Part Numbers are built from a series product codes. Use the **Bold** product codes from the choices listed on the following page to construct a complete Part Number.

BL	311	-	01	LC	-	1	8B	-	V	B	X	-	G	PB	D	-	2
Series	1		2	3		4	5		6	7	8		9	10	11		12
	Function		Body Material	Body Port		Guide Construction	Stop Port		Plunger Seal	Internal O-Ring	External O-Ring		Housing	Electrical Interface	Diodes		Supply Voltage

### Product Description from Example Shown Above:

#### BL311-01LC-18B-VBX-GPBD-2

- BL311 = BL Series with 3-Way Latching Valve **Function** (Orifice Body/Stop: 1/32" / 3/64");
- 01LC = 303 SS **Body Material**; 1/8" FNPT **Body Port**;
- 18B = 303 SS 1-piece **Guide Construction**; 1/8" Barb **Stop Port**;
- VBX = Viton® **Plunger Seal**; Nitrile (Buna-N) **Internal O-Ring**;
- GPBD = Grommet **Housing Construction**; Positive Pulse, Black Common **Electrical Interface**; With **Diodes**;
- 2 = 12 VDC **Supply Voltage**

## LATCHING VALVES

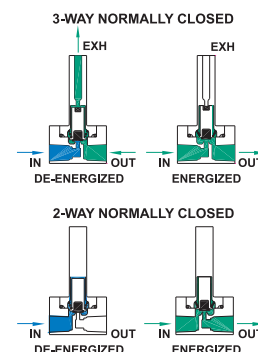
### BL Series – Part Number Build

Build a Valve Part Number by filling in the boxes below using the related code numbers on this page.

BL	-	-	-	-	-	-
1	2	3	4	5	6	7
			8	9	10	11
						12

#### 1 Valve Function and Orifice Size

Valve Function	Code	Orifice				MOPD		C <sub>v</sub>		K <sub>v</sub>	
		Body		Stop		psi	bar	Body	Stop	Body	Stop
		inches	mm	inches	mm						
3-WAY Normally Closed	311	1/32	0.79	3/64	1.19	100	6.9	0.018	0.040	0.0153	0.034
	313	1/16	1.59	1/16	1.59	50	3.4	0.070	0.070	0.060	0.060
2-WAY Normally Closed	201	1/16	1.59	—	—	240	12.4	0.065	—	0.056	—
	202	5/64	1.98	—	—	180	10.3	0.09	—	0.078	—
	203	3/32	2.38	—	—	150	8.3	0.155	—	0.134	—
	204	7/64	2.78	—	—	120	6.2	0.2	—	0.173	—
	205	1/8	3.18	—	—	60	4.1	0.24	—	0.208	—
	206	5/32	3.97	—	—	50	2.1	0.3	—	0.259	—
	207	3/16	4.76	—	—	15	1	0.43	—	0.372	—



#### 2 Body Material

- 01 303 Stainless Steel
- 03 Brass
- 05 316 Stainless Steel

#### 3 Body Port

- LC 1/8" Female NPT
- LB 1/4" Female NPT
- M3 Manifold Mount – 5/16" Thread Stud
- OB Omit Body (Operator Style)

#### 4 Guide Construction

- 1 303 Stainless Steel 1-Piece

#### 5 Stop Port

- BS #10-32 Internal (Recommended for Free Venting)
- 8B 1/8" Brass Barb Fitting
- AC 1/8" Female NPT Adaptor
- AB 1/4" Female NPT Adaptor
- XX Not Applicable (All 2-Way Valves)

#### 6 Plunger Seal Material

- H Hydrin®
- V Viton®
- P Perfluoroelastomer

#### 7 O-Ring Material (Internal)

- B Nitrile (Buna-N)
- V Viton®
- P Perfluoroelastomer

#### 8 O-Ring Material (Manifold Mount External)

- B Nitrile (Buna-N)
- V Viton®
- P Perfluoroelastomer
- X Not Applicable

#### 9 Housing Construction

- C Conduit
- G Grommet

#### 10 Electrical Interface

- PB Positive Pulse, Black Common
- NB Negative Pulse, Black Common
- NW Negative Pulse, White Common

#### 11 Diodes

- N No Diode
- D Diode

#### 12 Supply Voltage

Unlatch voltage should not exceed 25% rated voltage to ensure change of state.

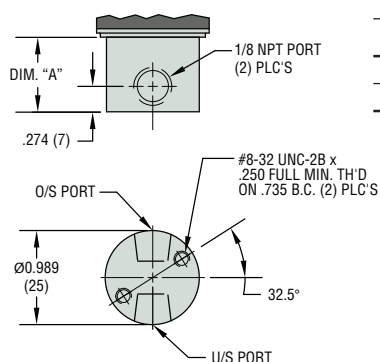
- 2 12 VDC, 9 Watts Latching, 7 Watts Unlatching
- 4 24 VDC, 7 Watts Latching, 9 Watts Unlatching
- 6 6 VDC, 7 Watts Latching, 5 Watts Unlatching

Additional ordering details on following pages.

## BL Series – Additional Component Details & Dimensions

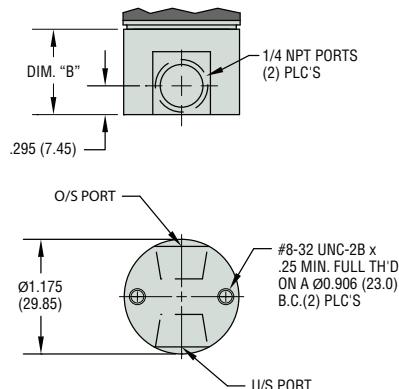
### 3 Body Port

#### 1/8" NPT Port (LC)



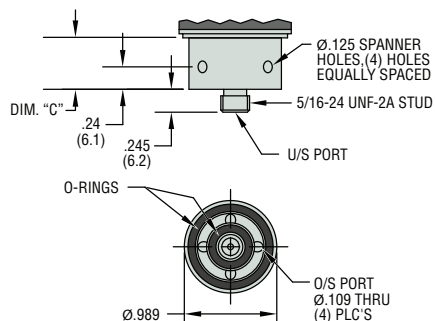
Valve Type	Dim. "A"
3-Way	.900 (22.9)
2-Way	.795 (20.2)

#### 1/4" NPT Port (LB)



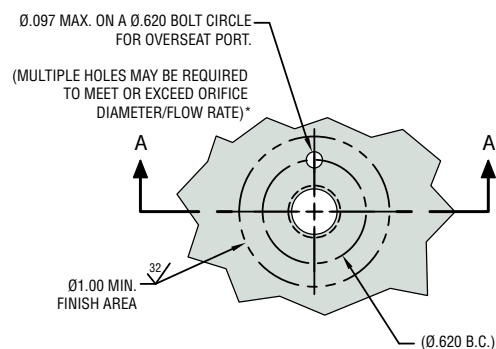
Valve Type	Dim. "B"
3-Way	.980 (24.9)
2-Way	.875 (22.2)

#### Manifold Mount Body (M3)

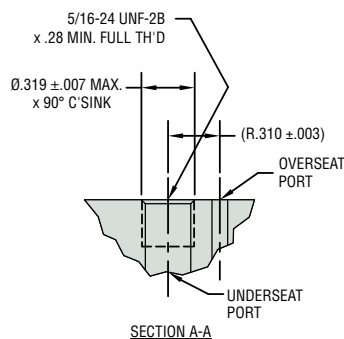


Valve Type	Dim. "C"
3-Way	.610 (15.5)
2-Way	.550 (13.9)

#### Manifold Preparation



\*IF THE TOTAL AREA OF OVERSEAT PORT IS LESS  
THAN THE ORIFICE DIAMETER, THEN THE OVERSEAT  
IS THE RESTRICTOR.



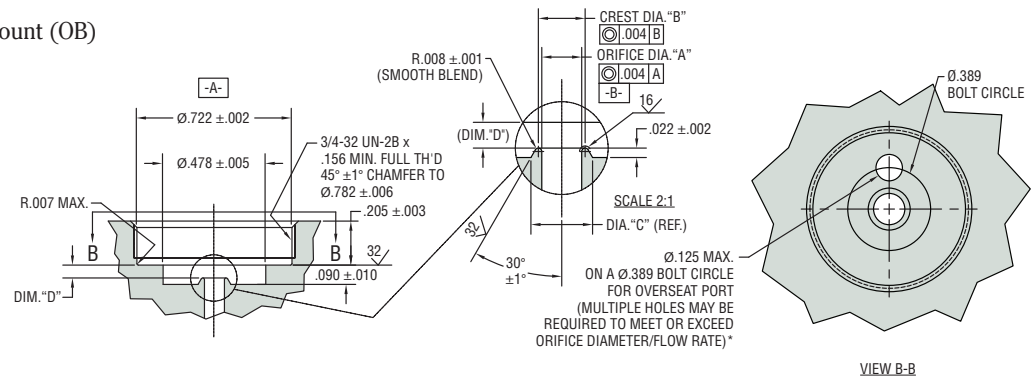
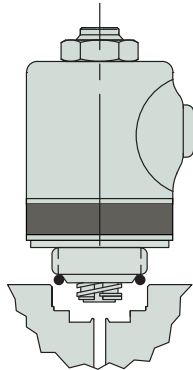
Valve Type	Overseat Port	Underseat Port
2-Way N.C.	IN	OUT
3-Way N.C.	CYL	IN

## LATCHING VALVES

### BL Series – Additional Component Details & Dimensions, cont.

#### Omit Body Manifold Mount (OB)

##### 2-Way



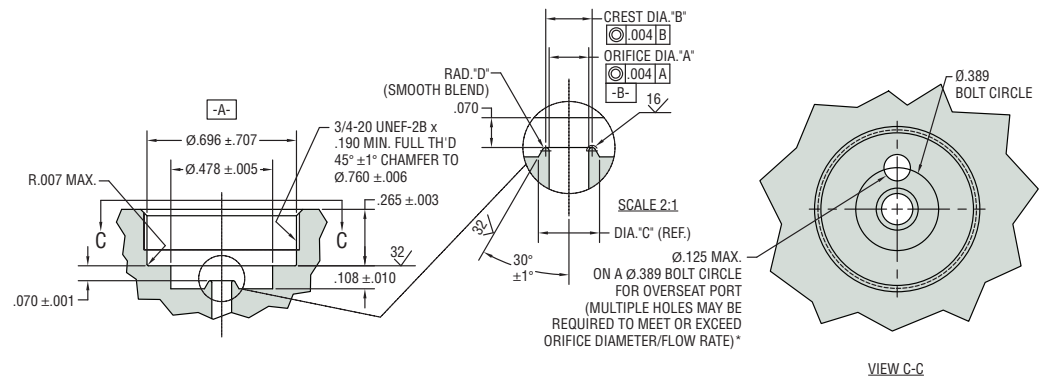
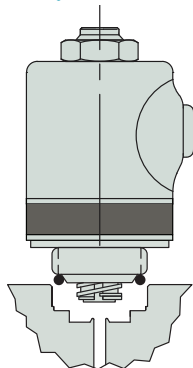
Note: All diameters to be concentric to datum -A- within .003 T.I.R.

\* If the total area of overseat port is less than the orifice diameter, then the overseat is the restrictor.

#### Dimensions

Valve Prefix (Code 1)	Orifice Dia. "A" ±.001	Crest Dia. "B" ±.002	Base Dia. "C" Ref.	Orifice Depth Dim. "D" ±.001
BL201	.062	.078	.1126	.052
BL202	.078	.094	.1286	.056
BL203	.093	.109	.1436	.060
BL204	.109	.125	.1596	.064
BL205	.120	.136	.1706	.067
BL206	.148	.164	.1986	.074
BL207	.176	.192	.2266	.081

##### 3-Way



Note: All diameters to be concentric to datum -A- within .003 T.I.R.

\* If the total area of overseat port is less than the orifice diameter, then the overseat is the restrictor.

#### Dimensions

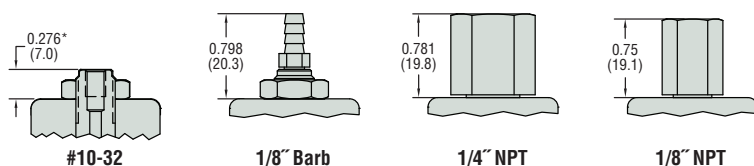
Valve Prefix (Code 1)	Orifice Dia. "A" ±.001	Crest Dia. "B" ±.002	Base Dia. "C" Ref.	Rad. "D" ±.001
BL311	.040	.052	.0843	.006
BL313	.062	.078	.1126	.008



## LATCHING VALVES

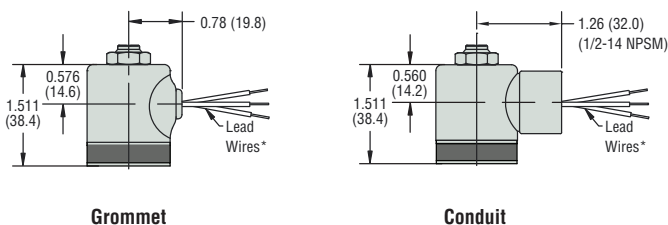
### BL Series – Additional Component Details & Dimensions, Cont.

#### 5 Stop Port (3-Way Only)



\* Dimension is same for 2-way valves.

#### 9 Housing Construction

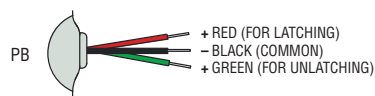


\* **Lead Wires**  
- #20 AWG PTFE  
- 18" Length

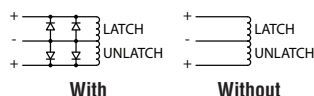
#### 10 Electrical Interface

#### 11 Diodes

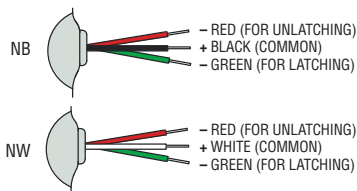
##### Positive



##### Diodes



##### Negative



##### Diodes

