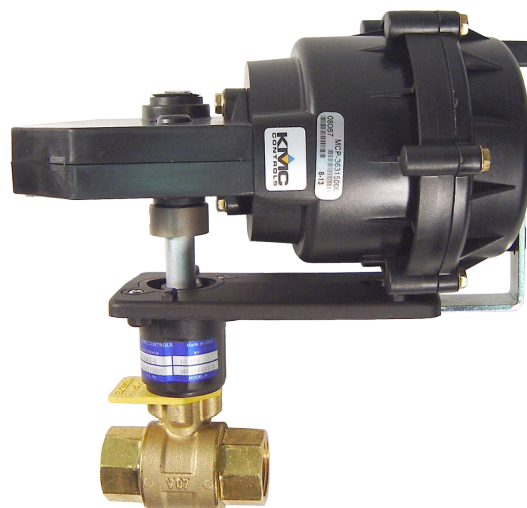


### Description

The VCB-41/42 series, two-way, NPT, ball valves are designed for the precise control of hot or chilled water in pneumatic HVAC applications. Valves range in size from 1/2 to 3 inches and feature an optimizing insert (except for indicated models), which reduces and characterizes the ball opening for equal percentage flow. This design allows the output at the coil to be linear when compared to the open area of the ball.

The valve's dual Teflon ball and stem seals and EPDM O-rings provide leak-proof shut off and meet both "packed" and "packless" construction specifications. The reduced torque seals and O-rings eliminate the need for high torque actuators. KMC's MCP-3631 series actuators work on all valve sizes.



### Features

- ◆ Fails to (as shipped) NC (VCB-42) or NO (VCB-41), but the actuator can be easily flipped over in the field to change the NO or NC operation
- ◆ Equal percentage flow characteristics with optimizer insert (except indicated models)
- ◆ Cv ratings similar to globe valves
- ◆ Field repairable valve stem design
- ◆ Leak-proof shutoff

### Accessories and Replacement Parts

HLO-1006	Replacement drive bushing
HLO-1009	Replacement push-on shaft retainer ring
HPO-0038	Replacement diaphragm
HPO-5072	Repair kit (bracket/linkage)

#### ⚠ CAUTION

Using mineral oil lubricants or other incompatible substances in system fluids may damage EPDM rubber seals in valves. Before using any lubricant or additive in a water or ethylene glycol base, consult the substance manufacturer for compatibility with EPDM (Ethylene Propylene Diene Monomer).

#### ⚠ CAUTION

Pneumatic devices must be supplied with clean, dry control air. Any other medium (e.g., oil or moisture contamination) will cause the device to fail.

### Models

See the charts below and the next page.

#### VCB-4 X XXX BF X

##### Fail To

- 1: NO
- 2: NC

##### Actuators

- E: MCP-3631-5000, 8 to 13 psi range
- F: MCP-3631-3000, 5 to 10 psi range

##### Pipe Size/Cv

02B: 1/2"/0.38 Cv	05K: 1-1/4"/36.5 Cv
02D: 1/2"/0.68 Cv	05L: 1-1/4"/41.1 Cv*
02F: 1/2"/1.3 Cv	06D: 1-1/2"/22.8 Cv
02H: 1/2"/2.6 Cv	06G: 1-1/2"/41.3 Cv
02K: 1/2"/4.7 Cv	06J: 1-1/2"/73.9 Cv*
02M: 1/2"/11.7 Cv*	08D: 2"/41.7 Cv
03G: 3/4"/2.4 Cv	08G: 2"/71.1 Cv
03K: 3/4"/4.3 Cv	08M: 2"/108.0 Cv*
03L: 3/4"/10.1 Cv	10C: 2-1/2"/55.0 Cv
03N: 3/4"/14.7 Cv*	10D: 2-1/2"/72.0 Cv
04J: 1"/9.0 Cv	10G: 2-1/2"/101.0 Cv
04M: 1"/15.3 Cv	12C: 3"/82.0 Cv
04Q: 1"/28.4 Cv*	12D: 3"/124.0 Cv
05F: 1-1/4"/14.9 Cv	

\* Full-port, no optimizer insert

NOTE: For more information, see the data sheet for the MCP-3631 series actuators (003-035-01).

## Specifications

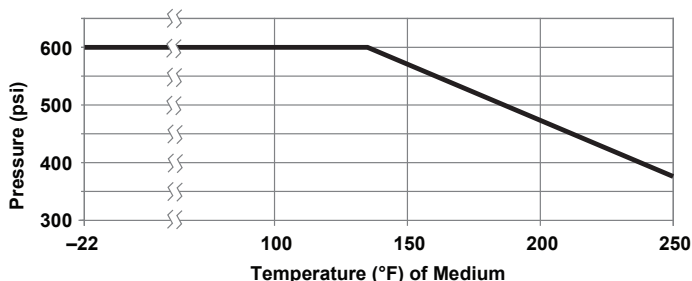
<b>Service</b>	Hot or chilled water, up to 50% glycol
<b>Connections</b>	Female NPT
<b>Flow Characteristics</b>	Equal percentage (with optimizer insert)
<b>Rangeability</b>	500:1
<b>Leakage</b>	ANSI Class IV (<0.01% of Cv)
<b>Max. Close Off</b>	1/2" to 1", 130 psi (896 kPa) 1-1/4" to 3", 100 psi (689 kPa)

### Temperature Limits

Medium	-22° to 250° F (-30° to 121° C)
Operating	-20° to 180° F (-29° to 82° C)
Shipping	-40° to 140° F (-40° to 60° C)

**NOTE:** If the application requires operation near the maximum temperature and maximum pressure, add a tubing restraint to the actuator connection.

**Body Rating** 360 to 600 psi (temperature dependent—see chart below)



### Valve Body Material

Body	Forged brass ASTM B283
Stem	Brass
Ball	Nickel-plated brass
Flow inserts	Glass filled polymer
Stem Seals	Dual Teflon & 1 EPDM O-ring
Ball Seals	Teflon seals w/ EPDM O-rings

### Actuator Material

Body	Glass-filled nylon
Diaphragm	Neoprene

### Normal Rotation

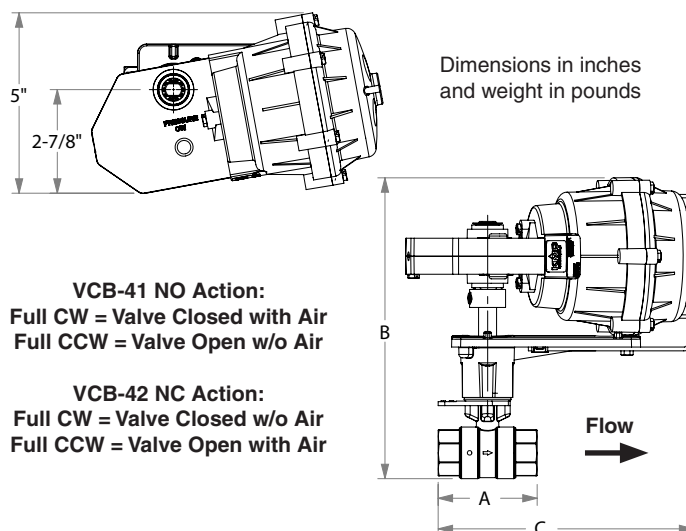
90°

### Supply Pressure

0 to 20 psig (138 kPa)  
operating; 30 psig (207 kPa)  
maximum (see NOTE under Temperature Limits)

**Supply Connection** 3/16" (5 mm) fitting for 1/4" (6 mm) OD polyethylene tubing

## Details



Line Size	Model Number		Cv	Dim. A	Dim. B	Dim. C	Weight (lbs.)
1/2"	VCB-4X02	BBFX	0.38	2.37	8.32	7.17	2.8
		DBFX	0.68				
		FBFX	1.3				
		HBFX	2.6				
		KBFX	4.7				
		MBFX	11.7				
3/4"	VCB-4X03	GBFX	2.4	2.41	8.32	7.17	3
		KBFX	4.3				
		NBFX	14.7	2.76	8.62		
		LBFX	10.1				
1"	VCB-4X04	JBFX	9	2.76	8.64	7.17	3
		QBFX	28.4				
		MBFX	15.3	3.04	8.96	7.25	3.3
1-1/4"	VCB-4X05	FBFX	14.9	3.01	9.02	7.23	3.3
		LBFX	41.1				
		KBFX	36.5	3.62	9.45	7.57	4.4
1-1/2"	VCB-4X06	DBFX	22.8	3.43	9.45	7.48	4.4
		JBFX	73.9				
		GBFX	41.3	4.06	10.02	7.79	5
2"	VCB-4X08	DBFX	41.7	3.98	10.02	7.73	5
		MBFX	108				
		GBFX	71.1	4.9	10.65	8.21	6.8
2-1/2"	VCB-4X10	CBFX	55	5.35	10.65	8.43	7.3
		DBFX	72				
		GBFX	101				
3"	VCB-4X12	CBFX	82	5.73	10.91	8.62	8.2
		DBFX	124				

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