

Description

These three-way, diverting, globe zone valves are available in 1/2" through 1" line sizes. They are designed to regulate hot or chilled water in VAV terminal unit reheat coils, fan coil units, and induction units. For limited pressures, the valves can also be used in mixing applications. The compact size allows easy installation in small enclosures.

The actuator determines the fail position. Actuators have position indication and manual override. Replacement actuators can be installed on the valve bodies without tools.

Models

Use this chart to select the desired model of valve:

VEZ-44 YYY MB Z

Actuator

A: 10–0 VDC (0 V = AB-A) Proportional (MEP-3516)

B: 0–10 VDC (0 V = AB-B) Proportional (MEP-3511)

F: Tri-State, 24 VAC, Floating (MEP-3510)

M: Fail AB-A, 2-position, 24 VAC, (MEP-3503)

N: Fail AB-B, 2-position, 24 VAC, (MEP-3501)

P: Fail AB-A, 2-position, 120 VAC, (MEP-3504)

Q: Fail AB-B, 2-position, 120 VAC, (MEP-3502)

(NOTE: 2-position actuators are spring return fail-safe, and others are fail-in-place)

Size/Cv

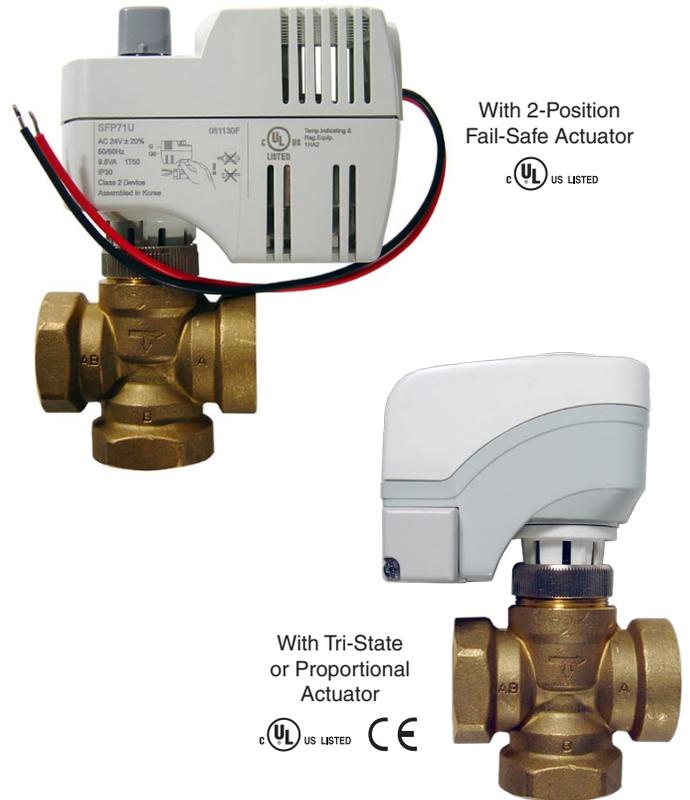
02A: 1/2"; 1.0 Cv

02B: 1/2"; 2.5 Cv

02C: 1/2"; 4.0 Cv

03A: 3/4"; 4.1 Cv

04A: 1"; 7.0 Cv



Features

- ◆ Choice of tri-state/floating or proportional fail-in-place or two-position (NO or NC) spring-return fail-safe
- ◆ Compact size
- ◆ Spring-return actuators feature easy manual override, visual position indication, UL listing for plenum installations, and heat-resistant lead wires
- ◆ Non-fail-safe actuators feature manual override (with 3 mm hex wrench), visual position indication, and are CE compliant and UL listed

⚠ 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).

Specifications

Valve Body

Service	Hot or chilled water, up to 50% glycol
Connections	Female NPT
Seat Style	Metal to metal
Valve Body Rating	ANSI Class 125
Max. Inlet Pressure	125 psig (862 kPa)
Max. Close-Off	(AB-A) 1/2 to 3/4" = 44 psi (303 kPa); 1" = 22 psi (152 kPa)
Close-Off Ratings	According to ANSI/FCI 70-2 (AB-A)
Leakage Rating	ANSI Class III (AB-A)
Flow Characteristics	Linear

Material

Body	Brass
Body Trim	Brass
Stem	Stainless steel ASTM A582 Type 303
Packing	Ethylene propylene O ring

Actuators

All	24 in-lbs. (105 N•m) torque
Proportional	24 VAC Power, 50/60 Hz, 2.5 VA, 34 sec. running time, 9 oz. (0.25 kg)
Tri-State	24 VAC, 50/60 Hz, 0.8 VA, 150 sec. running time, 9 oz. (0.25 kg)
2-Position	24 VAC or 120 VAC, 60 Hz, 9.8 VA, 35 sec. running time, 1.18 lb. (0.54 kg)

General

Mounting Location	NEMA 1 (interior only)
Temperature Limits	
Medium	34 to 230° F (1 to 110° C)
Ambient	41 to 122° F (5 to 50° C) @ 0 to 90% RH (non-condensing)
Shipping	-13 to 158° F (-25 to 70° C)
Approvals	UL 873 cUL certified to Canadian Standard C22.2 No. 24-93 CE compliant (non-spring return actuators)

Accessories/Repair Parts

NOTE: The last digit of valve model number represents the type of actuator.

Replacement Block Cover and Terminal Plug

HPO-5062	For proportional actuator "A/B"
HPO-5061	For tri-state actuator "F"

Replacement Actuators

MEP-3501	"N" (NC, 2-position, 24 VAC, spring return)
MEP-3502	"Q" (NC, 2-position, 120 VAC, spring return)
MEP-3503	"M" (NO, 2-position, 24 VAC, spring return)
MEP-3504	"P" (NO, 2-position, 120 VAC, spring return)
MEP-3510	"F" (Tri-State, 24 VAC, floating)
MEP-3511	"B" (0-10 VDC proportional)
MEP-3516	"A" (10-0 VDC proportional)

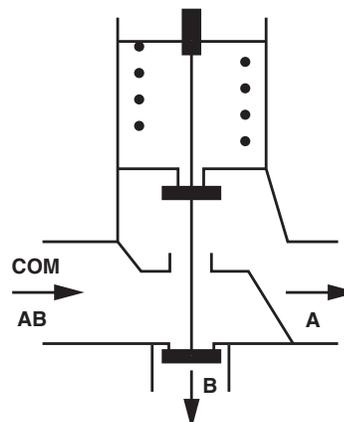
Replacement Valve Bodies

VFZ-4402AM	3-way, 1/2", 1.0 Cv
VFZ-4402BM	3-way, 1/2", 2.5 Cv
VFZ-4402CM	3-way, 1/2", 4.0 Cv
VFZ-4403AM	3-way, 3/4", 4.1 Cv
VFZ-4404AM	3-way, 1", 7.0 Cv

Applications

Diverting

As the valve stem moves downward, the flow through ports AB-A decreases and the flow through ports AB-B increases. As the valve stem moves upward, the flow through ports AB-A increases and the flow through ports AB-B decreases. If power fails, a spring-return actuator determines whether the valve fails with flow to port A or port B.



(Diverting) Maximum Water Capacity—U.S. Gallons per Minute

Valve Size (inches)	Pressure Differential (psi)																psi
	Cv/1	2	3	4	5	6	8	10	15	20	25	30	40	50	60	75	
0.5	1.0	1.4	1.7	2.0	2.2	2.4	2.8	3.2	3.9	4.4	5.0	5.5	6.3	4.1	7.7	8.7	gpm
0.5	2.5	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	11.2	12.5	13.7	15.8	17.7	19.4	21.7	
0.5/0.75	4.1	5.8	7.1	8.2	9.2	10.0	11.6	13.0	15.9	18.3	20.5	22.5	25.9	29.0	31.8	35.5	
1.00	7.0	9.9	12.1	14.0	15.7	17.1	19.8	22.1	27.1	31.3	35.0	38.3	44.3	49.5	54.2	60.6	

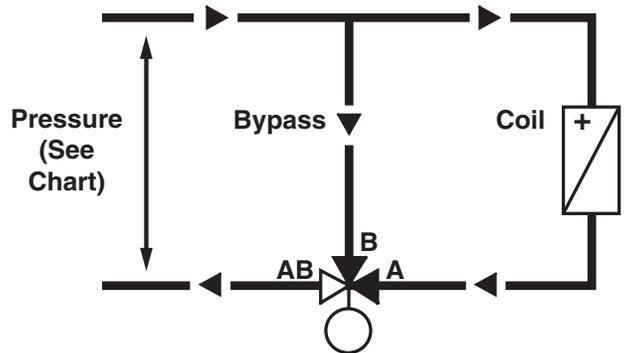
(Diverting) Maximum Water Capacity—Cubic Meters per Hour (m³/hr)

Valve Size (mm)	Pressure Differential (kPa)															kPa
	1	10	20	30	40	50	60	80	Kvs/100	150	200	300	400	500		
15	0.9	0.27	0.38	0.47	0.54	0.60	0.66	0.76	0.85	1.04	1.20	1.47	1.70	1.90	m ³ /hr	
15	0.21	0.68	0.96	1.17	1.35	1.51	1.66	1.91	2.15	2.60	3.00	3.70	4.30	4.80		
15/20	0.35	1.12	1.59	1.94	2.24	2.51	2.75	3.17	3.50	4.34	5.01	6.14	7.09	7.93		
25	0.60	1.91	2.71	3.32	3.83	4.28	4.69	5.41	6.00	7.41	8.56	10.48	12.11	13.54		

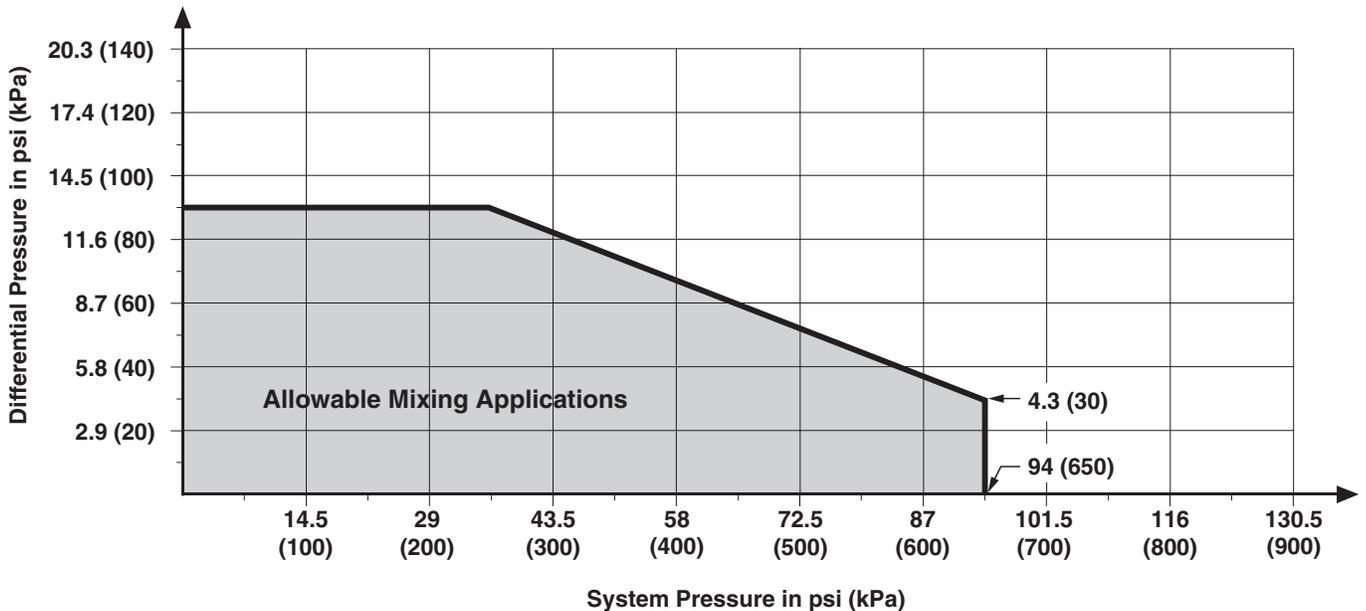
(See also the VEZ-41/42/43 Series Data Sheet for an additional pressure vs. flow rate vs. valve size chart.)

Mixing

These three-way zone valves are diverting valves. However, they may be used as mixing valves when connected in the return flow as shown in the diagram at the right and if system and differential pressures are within the gray area of the chart below.



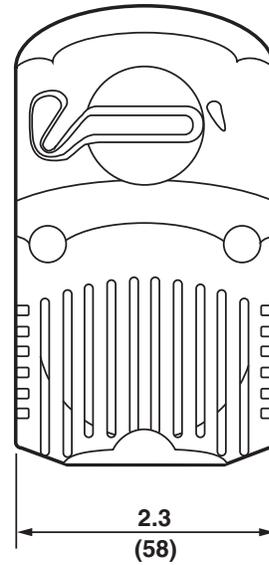
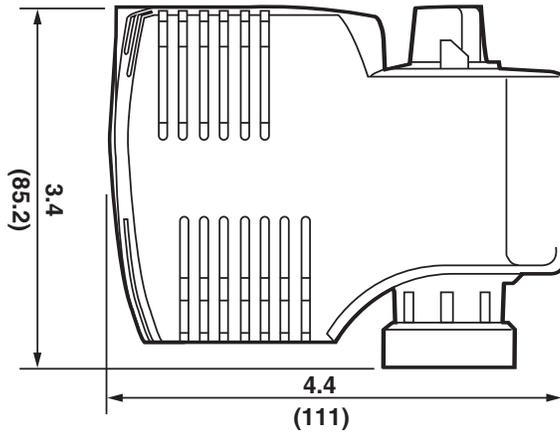
Three-Way Valve in Return Flow



Dimensions

Dimensions in inches (mm) and weight in pounds (kg)

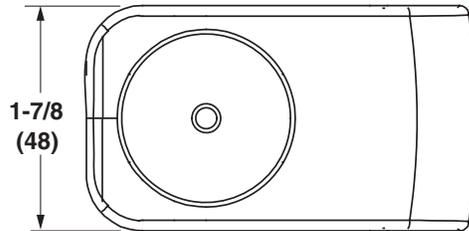
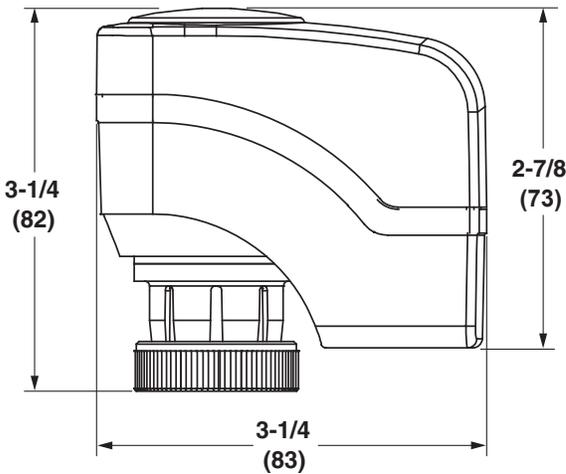
Two-Position
Fail-Safe
Actuator



Actuator
Weight
lbs. (kg)

1.18
(0.54)

Tri-State or
Proportional
Actuator

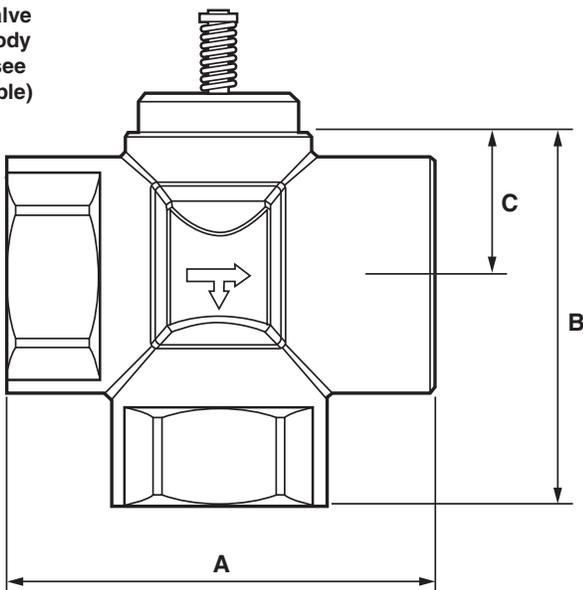


Actuator
Weight
lbs. (kg)

0.56
(0.25)

NOTE: Minimum access space recommended is 8-inches (200 mm) above the actuator and beside the terminal plug.

Valve
Body
(see
table)



Valve Size Inches (mm)	A	B	C	Weight lbs. (kg)
0.5 (15)	2.76 (70)	2.34 (59.5)	1.00 (25.4)	1.08 (0.49)
0.75 (20)	2.76 (70)	2.34 (59.5)	1.00 (25.4)	1.26 (0.57)
1.0 (25)	3.50 (89)	2.85 (67.3)	1.00 (25.4)	2.14 (0.97)

KMC Controls, Inc.

19476 Industrial Drive, New Paris, IN 46553

574.831.5250

www.kmcccontrols.com; info@kmcccontrols.com