

Description

The VEP-43 Series, 3-way, **mixing or diverting**, NPT control ball valves are designed for the control of hot or chilled water in HVAC applications. Valves range in size from **1/2 to 2-1/2 inches** and most feature an optimizing insert, which reduces and characterizes the ball opening for lower Cv ratings similar to globe valves. The body design also provides a standard "T" pattern to simplify installation.

The VEP-43 includes a field-repairable blowout-proof stem and leak-proof shut-off. The reduced torque seals and O-rings eliminate the need for high torque actuators. The VEP-43 is designed to work with KMC's low-torque, MEP-4000/5000 series actuators on all valve sizes.



MEP-4003 Actuator



MEP-5372/5373 Actuator



With MEP-4002 Actuator Installed

Features

- ◆ Mixing or diverting
- ◆ Choice of tri-state (floating) or proportional inputs
- ◆ Choice of fail-safe (with switch-selectable direction) or non-fail-safe
- ◆ Equal percentage flow characteristics with optimizer insert (except indicated models)
- ◆ Cv ratings similar to globe valves
- ◆ Standard "T" pattern connections
- ◆ Field-repairable valve stem design

Accessories/Repair Parts

With All Actuators

HPO-5072 Ball valve to actuator repair kit

With MEP-5372/5373 Actuators (Only)

CME-1002 Single auxiliary switch
 CME-1004 Dual auxiliary switch
 HMO-4518 Snap-in connector for 1/2" flexible metal conduit
 HMO-4520 Compression connector for plenum cable
 HMO-4526 Female connector for 1/2" conduit

Models

Use this chart to select the desired model:

VEP-43 YY B YYY

Actuators

745: MEP-4002, 0–10 VDC
 756: MEP-4003, tri-state
 895: MEP-5372, 2–10 VDC, fail-safe
 906: MEP-5373, tri-state, fail-safe

Size / Cv

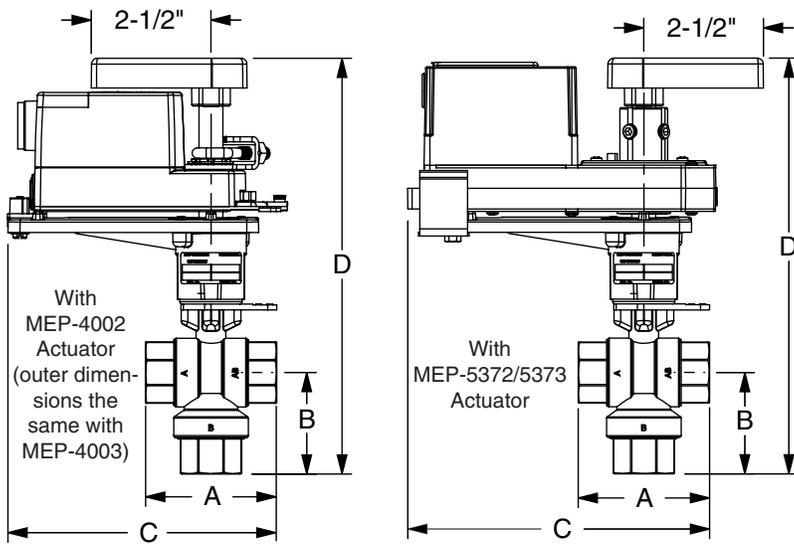
AB: 1/2" / 0.6 Cv	CH: 1" / 22.3 Cv
AC: 1/2" / 1.0 Cv	DC: 1-1/4" / 12.7 Cv
AD: 1/2" / 2.4 Cv	DF: 1-1/4" / 34.1 Cv*
AE: 1/2" / 4.3 Cv	EE: 1-1/2" / 23.5 Cv
AF: 1/2" / 8.0 Cv	EF: 1-1/2" / 61.1 Cv
BD: 3/4" / 2.4 Cv	FC: 2" / 38.2 Cv
BE: 3/4" / 3.8 Cv	FD: 2" / 108.5 Cv
BF: 3/4" / 11.0 Cv*	GC: 2-1/2" / 74.1 Cv
CG: 1" / 8.6 Cv	GB: 2-1/2" / 99.5 Cv*

* Full-port, no optimizer insert

To select a **valve body and linkage only** (and attach your own MEP-4000/5000 series actuator), specify **VFP-43 YY BX Z** with **Z** = 4 for MEP-4000s or 5 for MEP-5000s and **YY** the appropriate size and Cv (e.g., VFP-43ABB4).

Dimensions

Dimensions in inches and weight in pounds



DIVERTING Flow Action:
Full CCW = Port AB to A
Full CW = Port AB to B

MIXING Flow Action:
Full CCW = Port A to AB
Full CW = Port B to AB

Size NPT	Model	A	B	C (Overall Length)		D	Width (Not Shown)		Weight	
				MEP-4000	MEP-5000		MEP-4000	MEP-5000	MEP-4000	MEP-5000
1/2"	VEP-43A	2.64	2.02	5.63	6.62	8.20	2.60	4.00	2.7	4.1
3/4"	VEP-43B	2.62	2.00	5.61	6.6	8.18			2.7	4.1
1"	VEP-43C	3.06	2.43	5.84	6.83	8.75			3.4	4.8
1-1/4"	VEP-43D	3.62	2.83	6.12	7.11	9.38			4.6	6.0
1-1/2"	VEP-43E	4.06	3.18	6.34	7.33	10.25			6.3	7.7
2"	VEP-43F	4.90	3.87	6.76	7.75	11.25			6.3	7.7
2-1/2"	VEP-43G	5.30	4.10	6.96	7.95	11.48			10.2	11.6

Specifications

Service	Hot or chilled water, up to 50% glycol
Connections	Female NPT
Body Rating	360 psi (2482 kPa)
Max. Close-Off	1/2 to 1" = 50 psi (345 kPa); 1-1/4 to 2-1/2" = 40 psi (276 kPa)
Max. Differential Pressure	Same values as Max. Close-Off (see above)
Flow Characteristics	Equal percentage (with optimizer insert)
Rangeability	500 to 1
Leakage Rating	ANSI Class IV (0.01% of Cv)
Material	
Body	Forged brass ASTM B283
Stem	Brass
Ball	Nickel plated brass
Flow inserts	Glass filled polymer
Stem Seals	EPDM O-rings
Ball Seals	Teflon seals w/ EPDM O-rings

Temperature Limits

Medium	-22° to 250° F (-30° to 121° C)
Ambient	0° to 120° F (-18° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

Actuators

MEP-4002	40 in-lbs., 0-10 VDC
MEP-4003	40 in-lbs., tri-state
MEP-5372	50 in-lbs., 2-10 VDC, fail-safe
MEP-5373	50 in-lbs., tri-state, fail-safe

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).

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Description

The KMC VEP-45 series, two-way, NPT, ball valves are designed for the control of hot or chilled water in 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 heat output at the coil to be linear when compared to the open area of the ball.

The VEP-45 includes a field-repairable blowout-proof stem and leak-proof shut-off. The reduced torque seals and O-rings eliminate the need for high torque actuators. KMC's low-torque MEP-4000/5000 series actuators work on all valve sizes.

Features

- ◆ Choice of tri-state (floating) or proportional inputs
- ◆ Choice of fail-safe (with switch-selectable direction) or non-fail-safe
- ◆ Equal percentage flow characteristics with optimizer insert (except indicated models)
- ◆ Works with low-torque MEP-4000/5000 actuators
- ◆ Cv ratings similar to globe valves
- ◆ Leak-proof shutoff
- ◆ Field-repairable valve stem design

Accessories/Repair Parts

With All Actuators

HPO-5072 Ball valve to actuator repair kit

With MEP-5372/5373 Actuators (Only)

CME-1002 Single auxiliary switch
 CME-1004 Dual auxiliary switch
 HMO-4518 Snap-in connector for 1/2" flexible metal conduit
 HMO-4520 Compression connector for plenum cable
 HMO-4526 Female connector for 1/2" conduit

MEP-5372/5373 Actuator



MEP-4002 Actuator



With MEP-4003 Actuator Installed

Models

Use the chart below to select your model.

VEP-45 YY Y YYY

Actuators

745: MEP-4002, 0-10 VDC
 756: MEP-4003, tri-state
 895: MEP-5372, 2-10 VDC, fail-safe
 906: MEP-5373, tri-state, fail-safe

Stem/Ball

B: Brass stem and nickel-plated brass ball
 S: Stainless-steel stem and ball

Size/Cv

A1: 1/2" / 0.38 Cv
 A2: 1/2" / 0.68 Cv
 A3: 1/2" / 1.3 Cv
 A4: 1/2" / 2.6 Cv
 A5: 1/2" / 4.7 Cv
 A6: 1/2" / 11.7 Cv*
 B1: 3/4" / 2.4 Cv
 B2: 3/4" / 4.3 Cv
 B3: 3/4" / 14.7 Cv*
 B4: 3/4" / 10.1 Cv
 C1: 1" / 9.0 Cv
 C2: 1" / 28.4 Cv*
 C3: 1" / 15.3 Cv
 D1: 1-1/4" / 14.9 Cv

D2: 1-1/4" / 41.1 Cv*
 D3: 1-1/4" / 36.5 Cv
 E1: 1-1/2" / 22.8 Cv
 E2: 1-1/2" / 73.9 Cv*
 E3: 1-1/2" / 41.3 Cv
 F1: 2" / 41.7 Cv
 F2: 2" / 108.0 Cv*
 F3: 2" / 71.1 Cv
 G3: 2-1/2" / 55.0 Cv
 G4: 2-1/2" / 72.0 Cv
 G5: 2-1/2" / 101.0 Cv
 H3: 3" / 82.0 Cv
 H4: 3" / 124.0 Cv

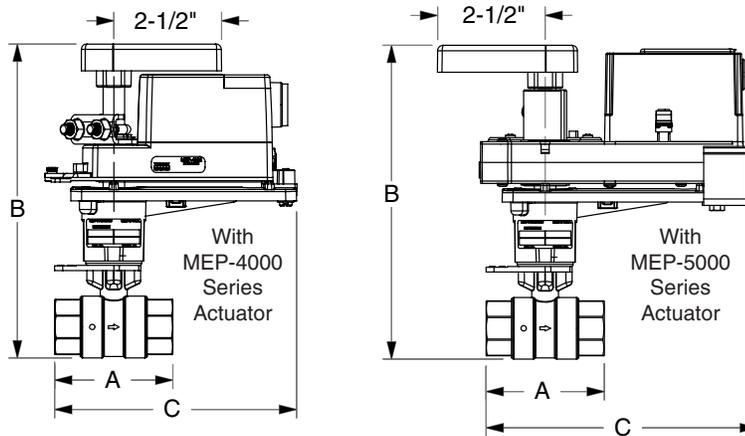
* Full-port, no optimizer insert

To select a **valve body and linkage only** (and attach your own MEP-4000/5000 series actuator), specify **VFP-45 YYY X Z** with **Z** = 4 for MEP-4000s or 5 for MEP-5000s and **YYY** the appropriate size, Cv, and stem/ball material (e.g., VFP-45A1BX4).

Details

Dimensions in inches and weight in pounds

ACTION:
Full CW = Valve Closed
Full CCW = Valve Open



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).

Size NPT	Model	A	B	C (Overall Length)		Width (Not Shown)		Weight	
				MEP-4000	MEP-5000	MEP-4000	MEP-5000	MEP-4000	MEP-5000
1/2"	VEP-45A1-A6	2.38	6.88	5.51	6.50	2.60	4.00	2.1	3.5
3/4"	VEP-45B1-B3	2.62	6.88	5.62	6.61			2.1	3.5
	VEP-45B4		7.06					2.1	3.5
1"	VEP-45C1,C2	2.77	7.06	5.69	6.68			2.1	3.5
	VEP-45C3	3.05	7.38	5.83	6.82			2.5	3.9
1-1/4"	VEP-45D1,D2	3.01	7.33	5.79	6.78			2.5	3.9
	VEP-45D3	3.62	7.98	6.12	7.11			3.5	4.9
1-1/2"	VEP-45E1,E2	3.43	7.98	6.01	7.00			3.5	4.9
	VEP-45E3	4.06	8.48	6.34	7.33			4.3	5.7
2"	VEP-45F1,F2	3.98	8.48	6.31	7.30			4.3	5.7
	VEP-45F3	4.91	9.28	6.76	7.75			6.1	7.5
2-1/2"	VEP-45G3-G5	5.3	9.28	6.96	7.95			6.6	8.0
3"	VEP-45H3,H4	5.73	9.43	7.17	8.16	7.0	8.4		

Specifications

Service	Hot or chilled water, up to 50% glycol
Connections	Female NPT
Body Rating	360 psi
Max. Close Off	1/2" to 1", 130 psi (896 kPa) 1-1/4" to 3", 100 psi (689 kPa)
Max. Differential Pressure	Same values as Max. Close-Off (see above)
Flow Characteristics	Equal percentage (with optimizer insert)
Rangeability	500 to 1
Leakage Rating	ANSI Class IV (0.01% of Cv)
Actuators	Refer to specific MEP actuator data sheets for more details
MEP-4002	40 in-lbs., 0-10 VDC
MEP-4003	40 in-lbs., tri-state
MEP-5372	50 in-lbs., 2-10 VDC, fail-safe
MEP-5373	50 in-lbs., tri-state, fail-safe

Temperature Limits

Medium	-22° to 250° F (-30° to 121° C)
Operating	0° to 120° F (-18° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

Material

Body	Forged brass ASTM B283
Stem	Brass (stainless steel optional)
Ball	Nickel-plated brass (stainless steel optional)
Flow inserts	Glass filled polymer
Stem Seals	EPDM O-rings
Ball Seals	Teflon seals w/ EPDM O-rings

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