



TAC
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Three-Way Globe Valve Assemblies with 60 and 133 in-lb (7 and 15 N-m) Spring Return TAC DuraDrive Actuators

- ☐ **VA-731X-5XX Series**
- ☐ **VF-731X-5XX Series**
- ☐ **VS-731X-5XX Series**

Submittal Sheet



VA, VF, and VS-731X Series Linked Globe Valve Assemblies

The TAC VA, VF, and VS-731X-5XX series Linked Three-Way Globe Valve Assemblies are complete actuator/valve assemblies that accept two position, floating, or proportional control, respectively, from a DDC system or from a thermostat, for control of hot water and chilled water coils. These valve assemblies consist of spring return actuators linked to 1" to 2" (25 mm to 50 mm) three-way globe valve bodies. Three-way assemblies with MX41-707X and MX41-715X actuators are available for mixing applications only. A rack and pinion translates the rotary motion of the actuator into the linear motion of the valve stem.

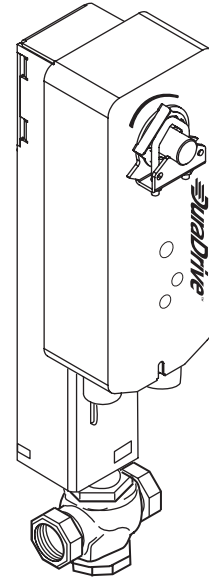
Application

Typical applications include hot and chilled water coils in air handling units, and unit ventilators.

Linkage Kit (AV-602) is available separately for field mounting of TAC DuraDrive actuators.

Features

- ISO 9001 Certification
- Thermal isolation
- Optional built-in auxiliary switches
- 3 ft. (91 cm) appliance cables, 1/2" conduit connectors
- NEMA 1 enclosure. NEMA 2 (IEC IP54) when conduit connector is in down position.
- Overload protection throughout rotation
- Visual position indicator
- Corrosion resistant zinc plated steel and brass linkage
- 250 psig valve body static pressure rating per ANSI Standards (B16.15—1985) for threaded cast bronze fittings
- Tight close-off to ANSI III (0.1% of rated Cv)
- Valve sizes 1" to 2" and 25 mm to 50 mm (NPT, Metric Rp)
- Spring-loaded TFE packing
- Manual override mechanism



VX-731X-5XX Series
Three-Way Globe Valve Assembly

Specifications

Valve

Applications	Chilled or hot water
Type of End Fitting	NPT, Rp threaded
Size	1 in. through 2 in. (25 mm through 50 mm)
Action	Mixing
Valve Assembly Series	VX-73XX-XXX-4-P
Flow Type	Linear
Nominal Rangeability	500 to 1
Material	
Body	Bronze
Stem	316 stainless steel
Packing	Spring-loaded TFE
Seat	Bronze (metal to metal seating)
Plug	Brass
Linkage Materials	
Housing	Corrosion resistant zinc plated steel
Rack and Pinion	Corrosion resistant zinc plated steel
ANSI Pressure Class	250 psig (1723 kPa), up to 400 psig (2757 kPa) below 150°F (66°C) ^a
Pressure Class (VB-7XX5)	PN16
Seat Leakage Class	ANSI III (0.1% of rated Cv)
Fluid Temperature - Minimum	20 °F (-7 °C) non-freezing
Fluid Temperature - Maximum	281 °F (138 °C)
Allowable Differential Pressure^b	35 psi (241 (kPa) max. for normal lifespan.

^a Do not apply the above valve pressure rating to the piping system.

^b Maximum recommended differential pressure. Do not exceed the recommended differential pressure (pressure drop) or the integrity of valve parts may be affected. Exceeding the maximum recommended differential pressure voids the product warranty.

Specifications

Actuator

Inputs

- Control Signal**
- ☐ **MA41-707X** and ☐ **MA41-715X-502**—On-off, SPST control contacts or Triacs (500 mA rated).
 - ☐ **MF41-7073** and ☐ **MF41-7153-502**—Floating point control, 24 Vac.
 - ☐ **MS41-7073** and ☐ **MS41-7153-502**—Proportional, 2 to 10 Vdc or 4 to 20 mAdc with 500Ω resistor.

Power Requirements

All 24 Vac circuits are Class 2. Circuits 30 Vac and above are Class 1.

Part Number	Voltage 50/60 Hz	Running					Holding	
		50 Hz		60 Hz		DC Amps	50 Hz	60 Hz
		VA	W	VA	W		W	W
☐ MA41-7153 (502)	24 Vac ± 20% 22-30 Vdc	9.8	7.5	9.7	7.5	0.29	2.8	2.8
☐ MS41-7153 (502)	24 Vac ± 20% 22-30 Vdc	9.8	7.4	9.7	7.4	0.28	2.9	2.9
☐ MF41-7153 (502)	24 Vac ± 20% 22-30 Vdc	9.8	7.7	9.7	7.7	0.30	3.3	3.3
☐ MA41-7150 (502)	120 Vac ± 10%	11.7	8.8	10.0	8.4	—	3.6	5.0
☐ MA41-7151 (502)	230 Vac ± 10%	15.5	9.5	10.6	8.5		4.6	3.3
☐ MA41-7073 (502)	24 Vac ± 20% 22-30 Vdc	4.8	3.2	4.8	3.2	0.13	0.8	0.8
☐ MS41-7073 (502)	24 Vac ± 20% 22-30 Vdc	5.8	4.6	5.8	4.6	0.17	2.3	2.3
☐ MF41-7073 (502)	24 Vac ± 20% 22-30 Vdc	6.2	4.8	6.2	4.8	0.18	2.8	2.8
☐ MA41-7070 (502)	120 Vac ± 10%	10.7	4.2	5.6	3.6	—	2.0	1.2
☐ MA41-7071 (502)	230 Vac ± 10%	17.0	5.1	8.0	4.0		2.7	1.4

Connections

3 ft. (91 cm) long, appliance cable.

Motor Type

- Brush—☐ **MA41-707X**
- Brushless DC—☐ **MF41-7073 (502)**, ☐ **MS41-7073 (502)**, ☐ **MA41-715X (502)**,
☐ **MF41-715X (502)**, ☐ **MS41-7153 (502)**.

Outputs

Electrical

Two auxiliary switches available with ☐ **MX41-7151-502**, ☐ **MX41-7071-502**, ☐ **MX41-7150-502** or ☐ **MX41-7070-502**, SPDT 7A resistive @ 250 Vac, one fixed @ 5° and one adjustable 0 to 90° (25° to 85° scale). Switch meets VDE requirements for 7 (2.5)A, 250 Vac.

Two auxiliary switches available with ☐ **MX41-7153-502** or ☐ **MX41-7073-502**, SPDT 7A resistive @ 24 Vac, one fixed @ 5° and one adjustable 0 to 90° (25° to 85° scale). Switch meets VDE requirements for 6 (1.5)A, 24 Vac.

Control mode switch provided for selection of direct/reverse acting control mode on proportional models.

Position feedback voltage “AO”: 2 to 10 Vdc (maximum 0.5 mA) output signal for position feedback or operation of up to four slave actuators.

Mechanical

Stroke: Full stroke of valve, with mechanical stop.

Output rating: See Table-1 for close-off pressure.

Position indicator: Visual indicator with a scale numbered from -5 to 90° (-5° is the normal or spring return position).

Rotation: Manual override mechanism.

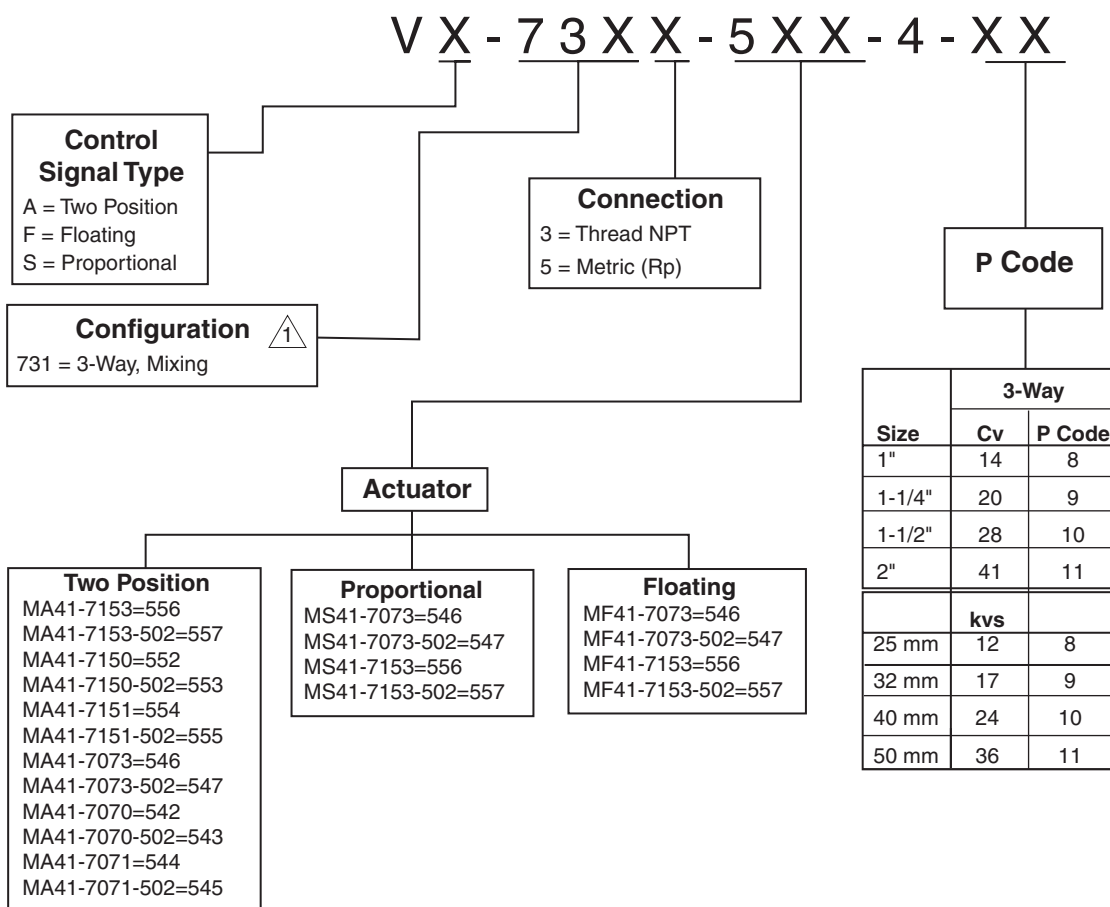
Timing: ☐ **MA41-707X**—80 seconds, ☐ **MF41-7073** and
☐ **MS41-7073**—195 seconds, ☐ **MX41-715X**—190 seconds.

Environment	
Temperature Limits	Shipping and storage: -40 to 160 °F (-40 to 71 °C) ambient. Operating Minimum allowable valve fluid temperature: 20 °F (-7 °C) non-freezing. Maximum allowable ambient: 115 °F (46 °C) at maximum valve fluid temperature.
Humidity	5 to 95% RH, non-condensing.
Locations	NEMA Type 2 (IEC IP54) with conduit connector in the down position.
Agency Listings (Actuator)	
UL	UL 873, Underwriters Laboratories (File #9429 Category Temperature-Indicating and Regulating Equipment).
European Community	EMC Directive (89/336/EEC). Low Voltage Directive (72/23/EEC).
CUL	CSA Standard C22.2 No. 24.
Australia	This product meets requirements to bear the C-Tick Mark according to the terms specified by the Communications Authority under the Radio Communications Act 1992.

Globe Valve Assembly Part Numbering System

Linked Globe Valve Assemblies

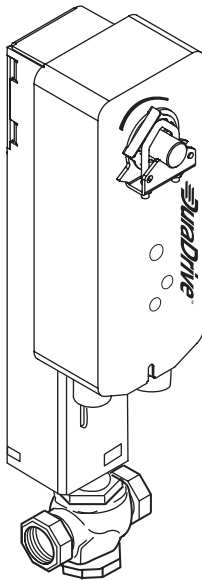
V (Control Type) - 7 (Configuration) (Connection) - (Actuator) - 4 - (Port Code)



¹ The configuration of the valve assembly determines the valve stem position and flow, as shipped from the factory. See the table below.

Valve Assemblies	Valve Body Action	Factory Shipped Position		Action
		Valve Stem	Flow	
VX-731X-XXX-4-P	3-Way Mixing	Up	B to AB	A to AB Flow increases as actuator rotates CW B to AB Flow decreases as actuator rotates CW

Table-1 Selection Chart.

Spring Return Three-way Linked Globe Valve Assemblies 						Actuator Torque Rating (minimum)	
						60 lb-in (7 N-m)	133 lb-in (15 N-m)
						Actuator Model (Actuator Code)	
						60 in-lb (7Nm)	133 in-lb (15 Nm)
						Two-Position ☐ MA41-7070 (542) ☐ MA41-7070-502 (543) ☐ MA41-7071 (544) ☐ MA41-7071-502 (545) ☐ MA41-7073 (546) ☐ MA41-7073-502 (547)	Two-Position ☐ MA41-7150 (552) ☐ MA41-7150-502 (553) ☐ MA41-7151 (554) ☐ MA41-7151-502 (555) ☐ MA41-7153 (556) ☐ MA41-7153-502 (557)
						Linkage Kit Part Number	
						AV-602	AV-602
Valve Assembly Part Number ^a		P Code	Valve Size in (mm)	C_v ^b	k_{vs} ^b	Close-off Pressure psig^c	
☐ VA ☐ VF ☐ VS	☐ 7313-5XX-4-P ☐ 7315-5XX-4-P ^d	☐ 8	1 (25)	14	12.0	180	—
		☐ 9	1-1/4 (32)	20	17.1	120	—
		☐ 10	1-1/2 (40)	28	24.2	75	140
		☐ 11	2 (50)	41	34.6	40	80

^a To determine a specific part number, see the Globe Valve Assembly Part Numbering System.

^b $k_{vs} = m^3/h$ ($\Delta P = 100$ kPa) $k_{vs} = C_v / 1.156$ $C_v = k_{vs} \times 1.156$

^c Close-off ANSI III (0.1%) for metal-to-metal seats with differential pressure between ports A and B.

^d Metric thread 25 to 50 mm (Rp 1 to Rp 2).

Dimensions

Valve Assembly Part Number	Valve Size in.	Valve Dimensions in inches (millimetres)		
		Three-Way		
		A	C	E
NPT/Metric Thread VX-731X-5XX-4-P	1	4-5/8 (117)	1-3/4 (44)	13-13/16 (351)
	1-1/4	4-5/8 (117)	1-7/8 (48)	14 (356)
	1-1/2	5-3/8 (137)	1-5/8 (41)	14-1/2 (368)
	2	6-1/8 (156)	1-15/16 (49)	14-1/4 (362)

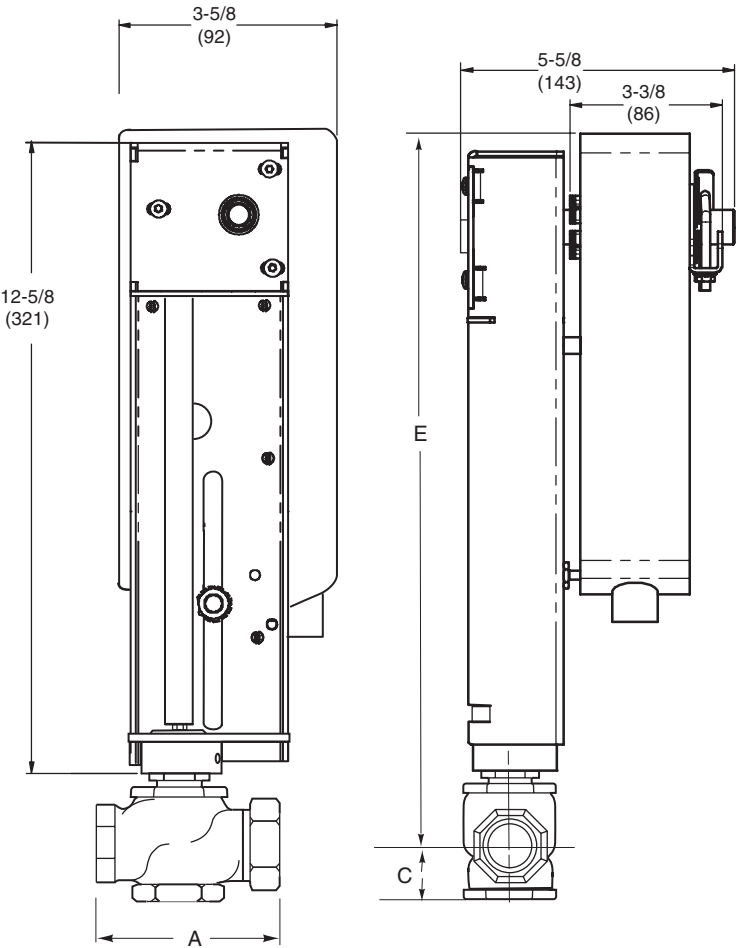


Figure-1 MX41-707X or MX41-715X with Three-Way Globe Valve.

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