

Spring Return TAC DuraDrive® Proportional Actuator

TAC DuraDrive Linear Actuators are designed to mount directly onto two-way or three-way globe valves without the use of linkages. They provide linear travel to operate globe valves from 1/2 to 2 in.

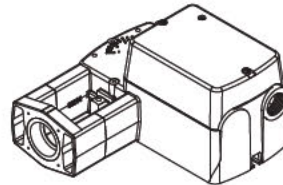
VB-7xxx valves, discontinued 1/2 to 1-1/4 in.

VB-9xxx valves, 2-1/2 to 4 in. VB-9xxx valves, and 2-1/2 to 5 in. VB-8xxx valves in chilled water, hot water and steam applications up to 366°F (186°C).

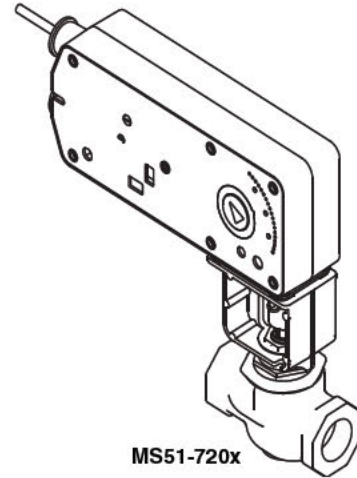
Linear spring return actuators provide control of valves in HVAC systems.

Features:

- Proportional models controlled by 0 to 3 Vdc, 6 to 9 Vdc, 0 to 10 Vdc, 0 to 20 mAdc, 2 to 0 Vdc, or 4 to 20 mAdc. Control function direct/reverse action is jumper selectable.
- 105 lbf (467 N) with 1/2 in. (13 mm) nominal linear stroke. 220 lbf (979 N) with 5/8 in. (16 mm) or 1-1/6 in. (27 mm) linear stroke.
- Rugged die cast or polymer housings rated for up to NEMA 2/IP54.
- Polymer housing rated for plenum use.
- Overload protection throughout stroke.
- Automatically sets input span to match valve travel.
- Compact size to allow installation in limited space.
- Manual override to allow positioning of valve and preload.
- Spring return operation to valve stem up position.
- Direct mount to valves without separate linkage.



MS51-7103



MS51-720x



MS51-7103 Series, MSx1-7203 Series

Model Chart																					
Part No.	Control Action	Actuator Power Input							Linear Stroke Inches	Approximate Timing in Seconds @ 70°F (21°C) ^a		Output Force Rating lb.-in. (N-m)		Valve Size inches							
		Voltage	Running				Holding			Powered	Spring Return	Min.	Max. Stall								
			50 Hz		60 Hz		DC Amps	50/60 Hz													
			VA	W	VA	W									W						
MS51-7103-000 ^b	2 to 10 Vdc Proportional ^c	24 Vac ± 20% 20 to 30 Vdc							1/2 in. nominal	60	16	105	215	1/2 to 2							
MS51-7103-100 ^b																					
MS51-7103-020 ^b	0 to 3 Vdc Proportional		6.6	4.2	6.6	4.2	0.14	1.5													
MS51-7103-120 ^b																					
MS51-7103-030 ^b	6 to 9 Vdc Proportional		7.8	4.9	7.8	4.9	0.16	3.4													
MS51-7103-130 ^b																					
MS51-7103-040 ^{b,d}																					
MS51-7103-140 ^{b,d}	0 to 10 Vdc Proportional		6.6	4.2	6.6	4.2	0.14	1.5													
MS51-7103-050 ^b																					
MS51-7103-150 ^b																					
MS51-7103-060 ^b																					
MS51-7103-160 ^b	4 to 20 mAdc																				
MS51-7203	2 to 10 Vdc	24 Vac ± 20% 22 to 30 Vdc	9.8	7.4	9.7	7.4	.28	2.9	5/8	<100	<35	220 (919)	495 (2202)	1-1/4 to 2 ^e							
MS51-7203-040 ^f	6-9 Vdc								1-1/16	<190	<40										
MS51-7203-050	0-10 Vdc																				
MS61-7203	2 to 10 Vdc																				2-1/2 to 4 or 5 ^g
MS61-7203-040 ^f	6-9 Vdc																				
MS61-7203-050	0-10 Vdc																				

^a Timing was measured with no load applied to the actuator.

^b Proportional (MS) models shipped with RA/DA jumper set for DA (actuator extends with increasing signal).

^c 4 to 20 mAdc with AM-708 500 ohm field-installed resistor.

^d Has 20 Vdc 25 mA power supply for TAC System 8000 applications.

^e Current VB-7xxx Series valves and discontinued VB-9xxx Series valves (1-1/4 in. only).

^f 20 Vdc 25 mA power supply included (replaces position feedback wires).

^g Current VB-9xxx Series valves (2-1/2 to 4 in.), current VB-8xxx (2 to 5 in.) Series valves, and discontinued VB-9xxx (1-1/2 to 2 in.) Series valves.

Specifications

Inputs	
Control signal	See Model Chart for actuator models and control type.
Power	See Model Chart. All 24 Vac circuits are Class 2. All circuits 30 Vac and above are Class 1. Half wave device.
Connections	Models with -0xx have 3 ft. (91 cm) appliance wire connections. Models with -1xx have 3 ft. (91 cm) plenum wire connections. Enclosure accepts 1/2 in. (13 mm) conduit connectors. For M20 Metric connector, use AM-756 adaptor.
Outputs	
Electrical	Position Feedback Voltage: For voltage ranges, the feedback signal is the same range as the input signal. The 4 to 20 mAdc current input range have a 2 to 10 Vdc position feedback signal. The position feedback signal can supply up to 0.5 mAdc to operate up to four additional slave actuators. The MS51-7103-040 and -140, MS51-7203-040, MS61-7203-040 do not have feedback.
Mechanical	Linear Stroke: See Model Chart. Approximate Stroke Timing: See Model Chart. Manual Override: Allows positioning of valve and preload using manual crank.
Environment	
Ambient temperature limits	Shipping and Storage: -40 to 160°F (-40 to 71°C). MS51-720x and MS61-720x: -40 to 180°F (-40 to 82°C). Operating: -22 to 140°F (-30 to 60°C). MS51-720x and MS61-720x: 0 to 140°F (-18 to 60°C) Temperature Restrictions: For maximum ambient 140°F (60°C) the maximum allowable fluid temperature should not exceed valve rating. See F-27252 Selection Guide for specific ratings.
Humidity	MS51-7103: 5 to 95% RH, non-condensing. MS51-7203 and MS61-7203: 15 to 95% RH, non-condensing.
Locations	NEMA 1. NEMA 2 (enclosure is air plenum rated), UL Type 2 (IEC IP54) with customer supplied water tight conduit connections.
Dimensions	MS51-7103: 6-5/16 H x 6-49/64 W x 3-1/2 D in. (160 x 172 x 89 mm). MS51-7203: 7 H x 10-5/8 W x 2-9/16 D in. (178 x 270 x 65 mm). MS61-7203: 9-9/16 H x 10-5/8 W x 2-9/16 D in. (243 x 270 x 65 mm).
Agency Listings	
UL 873	Underwriters Laboratories (File #E9429 Category Temperature-Indicating and Regulating Equipment).
CUL	UL Listed for use in Canada by Underwriters Laboratories. Canadian Standards C22-2 No. 24-93
European Community	EMC Directive (89/336/EEC). Low Voltage Directive (72/23/EEC).
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.

Accessories

Model No.	Description
AM-703	Input rescaling module, adjust signals to 2 to 10 Vac, zero and span adjust.
AM-704	Interface, pulse width modulation (PWM).
AM-705	Positioner (NEMA 4 housing).
AM-706	Min and/or manual positioner for flush panel mount.
AM-708	500 ohm resistor for 4 to 20 mA control signal.
AM-756	Metric conduit adapter M20 x 1.5 to 1/2 in. NPT.
MS51-7103	
AM-764	Linkage kit for damper applications.
AM-770	Replacement valve linkage parts kit.
MS51-71xx, MS51-72xx, and MS61-72xx	
AM-731	Mounting kit - MS51-720x (stem extension, lock washer, jam nut, connecting pin; included with actuator).
AM-732	Mounting kit - MS61-720x (stem extension, lock washer, jam nut, connecting pin; included with actuator).
AM-733	Retrofit kit - discontinued VB-9xxx 1-1/2 to 2 in. valves after 9404 date code.
AM-734	Retrofit kit - discontinued VB-9xxx 1-1/2 to 2 in. valves prior to 9404 date code.
AM-756	Metric conduit adaptor M20 x 1.5 to 1/2 in. NPT.
AM-763	1/8 in. Hex crank for manual override.