



M6410A, M7410F, M6435A, M7435F Actuators V5852A, V5853A, V5862A, V5863A Valves

40.5 LB (180N) NON-SPRING/SPRING RETURN ACTUATORS AND 1/2 INCH, 3/4 INCH CARTRIDGE GLOBE VALVES

M6410A and M7410F Series 1000 Non-Spring Return Valve Actuators provide floating or modulating control of Series 1000 and 2000 V5852A, V5853A, V5862A and V5863A Cartridge Globe Valves.

M6435A and M7435F Series 1000 Spring Return Valve Actuators provide floating or modulating control of Series 1000 and 2000 V5852A, V5853A, V5862A and V5863A Cartridge Globe Valves.

The actuators are used in electronic temperature control systems, which use hot and/or cold water (with glycol up to 50 percent) as the controlled medium in variable air volume (VAV) terminal units, fan-coil units, small reheaters and recoolers.

The V5852A, V5853A, V5862A, V5863A Series 1000 and 2000 Cartridge Globe Valves can also be controlled by MP958A Pneumatic Valve Actuators.

SPECIFICATIONS



CAUTION

Equipment Damage Hazard.
Installing a high-force (67.5 lb [300 N]) actuator on 1/2 or 3/4 in. valve can damage the valve beyond repair.

Use only Series 1000 (40.5 lb [180 N]) actuators with these smaller (1/2 in. and 3/4 in.) valves.

IMPORTANT

- Complete valve body soldering (V5852, V5853) before installing cartridge inserts.
- Install low-force actuators (40.5 lb) only on small valves (1/2 in., 3/4 in.).

Models:

- M6410A: Non-Spring Return Valve Actuator. Provides floating control of the V5852A, V5853A, V5862A, V5863A Valves.
- M6435A: Spring Return Valve Actuator. Provides floating control of V5852A, V5853A, V5862A, V5863A Valves. Stem retracts upon power failure.
- M7410F: Non-Spring Return Valve Actuator. Provides modulating control of V5852A, V5853A, V5862A, V5863A Valves.
- M7435F: Spring Return Valve Actuator. Provides modulating control of V5852A, V5853A, V5862A, V5863A Valves. Stem retracts upon power failure.
- V5852A: Two-way Sweat Valves.
- V5853A: Three-way Sweat Mixing Valves.
- V5862A: Two-way NPT Valves.
- V5863A: Three-way NPT Mixing Valves.

SPECIFICATION DATA

FEATURES

- Small size allows installation in limited space.
- Long stroke allows wider range of control.

Actuators

- Low power consumption.
- Synchronous motor.
- No mounting tools required (including the MP958).
- Low-maintenance plastic housing.
- Conduit connector standard.
- No separate linkage required.
- M64XXA provides 3-position floating control without proportional feedback.
- M74XXF receives 0 to 10 Vdc or 2 to 10 Vdc input signal, selectable at the site.
- M74XXF includes direct/reverse acting switch.

Non-Spring Return (M6410A, M7410F)

- Especially suitable for Excel[®] Controller or Individual Room Controller (IRC) System.
- Internal valve position indicator.
- Magnetic coupling for torque limitation independent of voltage supply, and self-adjustment of close-off port.
- Ready-to-wire connecting cable.

Spring Return (M6435A, M7435F)

- Force-limiting end switches.
- No calibration required.

Valves

- V5852A is a two-way female sweat valve.
- V5853A is a three-way female sweat mixing valve.
- V5862A is a two-way female NPT valve.
- V5863A is a three-way female NPT mixing valve.
- Soft valve seat provides low leakage rate.
- Valve inserts are changeable without draining valve when used with the insert replacement tool.
- Threaded plastic cover allows manual operation.
- Brass body and stainless steel stem.

Control Modes:

- M6410A, M6435A: Floating.
- M7410F, M7435F: Modulating.



Ambient Ratings:

- Operating Temperature Range: 32° to 122°F (0° to 50°C).
- Storage Temperature Range: -40° to 158°F (-40° to 70°C).
- Humidity Range: 5 to 95% RH (noncondensing).

Electrical Ratings:

- Input Power:
 - M6410A, M7410F: 24 Vac, +10/-30 percent, 50/60 Hz.
 - M6435A, M7435F: 24 Vac, +20/-15 percent, 50/60 Hz.
- Power Consumption:
 - M6410A: 0.7 VA.
 - M7410F: 1.4 VA.
 - M6435A: 10 VA.
 - M7435F: 5 VA.
- Input Signal (M7410F, M7435F): Modulating 0 to 10V, 2 to 10V (adjustable), 0.1 mA.
- Input Impedance (M7410F, M7435F): 100K ohms.

Mounting:

- Actuator screws onto valve body.

Connections:

- M6410A, M7410F: 4.9 ft (1.5m) cable.
- M6435A, M7435F: 1.5 sq mm terminals.

Weight:

- M6410A: 5 oz (0.15 kg).
- M7410F: 5.6 oz (0.16 kg).
- M6435A, M7435F: 17.6 oz (0.5 kg).

Stroke:

- 1/4 in. (6.5 mm).

Running Time:

- At 50 Hz:
 - M6410A, M7410F: 150 seconds.
 - M6435A, M7435F: 60 seconds.
- At 60 Hz:
 - M6410A, M7410F: 125 seconds.
 - M6435A, M7435F: 50 seconds.

Spring Return Time:

- 10 seconds.

Stem Force:

- 40.5 lb (180 N).

Suitable Medium:

- Water with maximum 50% glycol.

Controlled Water Temperature:

- 36° to 230°F (2° to 110°C).

Leakage Rate:

- <0.02% of Cv.

Actuator Required:

- M6410A: Non-Spring Return Valve Actuator (3-position floating).
- M6435A: Spring Return Valve Actuator (3-position floating; stem retracts upon power failure).
- M7410F: 0 to 10 Vdc or 2 to 10 Vdc Electronic Actuator, or
- M7435F: Spring Return Valve Actuator (modulating control; stem retracts upon power failure).
- MP958: Pneumatic Valve Actuator.
- Valve inserts are provided as spare parts. See Table 2.

Rangeability:

- Two-way Valve: 50:1.
- Three-way Valve: 50:1 for controlled port (A to AB).

Flow Characteristic:

- V5853, V5863:
 - A to AB: Equal Percentage.
 - B to AB: Linear.
- V5852, V5862: Equal percentage.

Valve Cv Rating:

- See Table 1.

NOTE: To determine the capacity index (Cv) needed for your application, use the following formula: Cv = gallons per minute divided by the square root of the pressure drop across the valve when the valve is fully open.

Valve Close-off Ratings:

- See Table 1.

Body Material:

- Red Brass:
 - 1/2 in., three-way.
 - 3/4 in., two- and three-way.
- Yellow Brass: 1/2 in., two-way.

Stem and Plug Assembly:

- Stem: Stainless steel.
- Plug: Brass.

Table 1. Valve Close-off Ratings.

Pipe Size in in. (mm)	C _v ^a	Close-off Rating (psi)	
		Two-way	Three-way
1/2 (13)	0.19	232	—
	0.29	232	116
	0.47		
	0.74	232	36
	1.2	174	
	1.9	174	34
3/4 (19)	2.9	58	34 ^b or 15 ^c
	4.9		

^a The Cv for the bypass port (B) on all three-way valves is reduced by one Cv level. Example: A Port Cv = 0.47; B Port Cv = 0.29. This feature eliminates the need for a balancing valve with the load matched to the proper Cv.

^b For V5853A1XXX and V5863A1XXX Valves (Series 1000).

^c For V5853A2XXX and V5863A2XXX Valves (Series 2000).

IMPORTANT

Mount all valve types in return flow. When delta p-values exceed 8.70 psi (60 kPa), noise can develop.

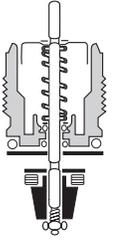
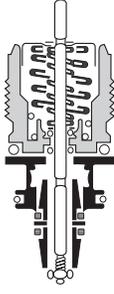
Approvals (Actuators):

- Underwriters Laboratories Inc. listed for plenum use (UL94-5V).

Accessories and Replacement Parts:

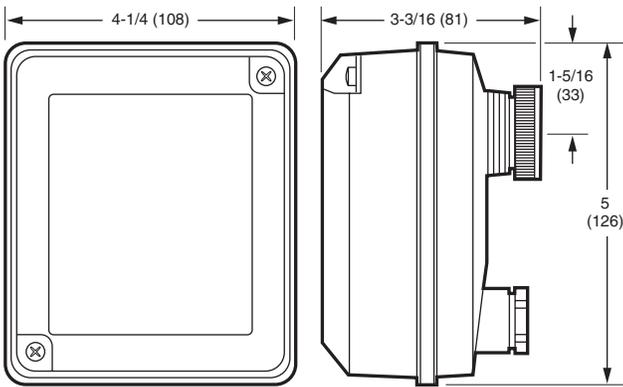
- WV108B Brush Tool for valve seat cleaning (used with WV108M tool).
- WV108M Insert Replacement Tool, for replacing cartridge insert without draining system.

Table 2. Valve Insert Replacement Parts.

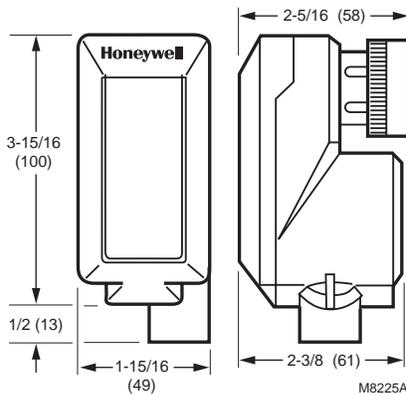
Diameter (in.)	For Valve	Cv	Part Number	Interchangeable With	
Two-Way					
1/2	V5852A2007, V5862A2005	0.19	0902812	0902809, 0902810, 0902811	
	V5852A2015, V5862A2013	0.29	0902811	0902809, 0902810, 0902812	
	V5852A2023, V5862A2021	0.47	0902810	0902809, 0902811, 0902812	
	V5852A2031, V5862A2039	0.74	0902809	0902810, 0902811, 0902812	
	V5852A2049, V5862A2047	1.20	0902808	0902807	
	V5852A2056, V5862A2054	1.90	0902807	0902808	
3/4	V5852A2064, V5862A2062	2.90	0902814	0902815	
	V5852A2072, V5862A2070	4.90	0902815	0902814	
Three-Way					
1/2	V5853A2006, V5863A2004	0.29	0902821	0902822, 0902823, 0902824	
	V5853A2014, V5863A2012	0.47	0902822	0902821, 0902823, 0902824	
	V5853A2022, V5863A2020	0.74	0902823	0902821, 0902822, 0902823	
	V5853A2030, V5863A2038	1.20	0902824	0902821, 0902822, 0902824	
	V5853A2048, V5863A2046	1.90	0902825	None	
3/4	V5853A2055, V5853A1008, V5863A1006, V5863A2053	2.90	0902827	None	
	V5853A2063, V5853A1016, V5863A1014, V5863A2061	4.90	0902827	None	

M8296

Dimensions in in. (mm):



**Spring Return Actuators
(M6435A, M7435F)**



**Non-Spring Return Actuators
(M6410A, M7410F)**

TYPICAL SPECIFICATION

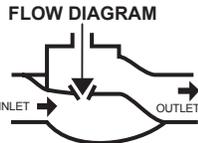
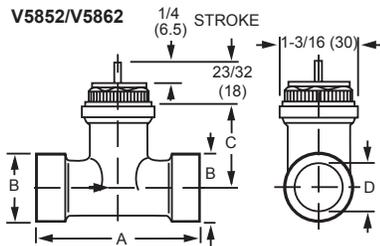
Cartridge Globe Valves

Cartridge globe valve supplier must be Honeywell. Valves shall be available in two- and three-way mixing models with brass bodies and stainless steel stem. Valves must have nominal rangeability of 50:1 or better. Valves must have a leakage rating less than 0.02% of the Cv.

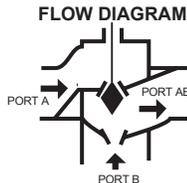
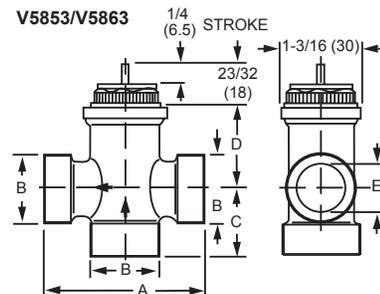
Valves shall be usable with hot water, chilled water, or glycol solutions up to 50 percent. Valves must have available insert replacement tools to facilitate changing the cartridge without draining the valve.

Cartridge Globe Valve Actuators

Cartridge globe valve actuator supplier must be Honeywell. Electric actuators shall provide either floating or modulating control of two- and three-way cartridge globe valves. Actuator will operate at 24 Vac (+10/-30%) and 50/60 Hz. Actuator must screw onto compatible valve body without the aid of mounting tools. Actuator must be available in both spring return and non-spring return models. Actuators shall have an ambient temperature rating of 32 to 122 degrees Fahrenheit.



VALVE SIZE	A	B	C	D (NPT)	D (SWEAT)
1/2 (13)	3 (77)	3/4 (19)	1-5/16 (34)	1/2 (13)	5/8 (16)
3/4 (19)	3-1/2 (88)	1 (25)	1-1/4 (32)	3/4 (19)	7/8 (22)



VALVE SIZE	A	B	C	D	E (NPT)	E (SWEAT)
1/2 (13)	3 (77)	3/4 (19)	1-5/16 (34)	1-5/16 (34)	1/2 (13)	5/8 (16)
3/4 (19)	3-1/2 (88)	1 (25)	1-1/2 (38)	1-1/4 (32)	3/4 (19)	7/8 (22)

NOTE: SOLDER ENDS CONFORM TO ANSI B16-18.

M7559A

Honeywell

