



Honeywell M7410F Series 3000 Non-Spring Return Valve Actuators User Manual

[Home](#) » [Honeywell](#) » Honeywell M7410F Series 3000 Non-Spring Return Valve Actuators User Manual 

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Contents

- [1 Introduction](#)
- [2 FEATURES](#)
- [3 SPECIFICATIONS](#)
- [4 Dimensions](#)
- [5 TYPICAL SPECIFICATION](#)
- [6 Customer Service](#)
- [7 Documents / Resources](#)
- [8 Related Posts](#)

Introduction

M6410A and M7410F Series 3000 Non-Spring Return Valve Actuators provide floating or modulating control of V5862A and V5863A Series 3000 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.

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.
- Low-maintenance plastic housing.
- Conduit connector standard.
- No separate linkage required.
- M6410A provides 3-position floating control without proportional feedback.
- M7410F receives 0 to 10 Vdc or 2 to 10 Vdc input signal, selectable at the site.
- M7410F includes direct/reverse acting switch.
- 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.

Valves

- V5862A is a two-way female NPT valve.
- V5863A is a three-way female NPT mixing valve.
- Pressure-balanced plug.
- Soft valve seat provides low leakage rate.

- Valve inserts are changeable with the insert replacement tool.
- Threaded plastic cover allows manual operation.
- Brass body and stainless steel stem.

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 the smaller (1/2 in. and 3/4 in.) valves.



CAUTION

- Electrical Shock or Equipment Damage Hazard.
- Can shock individuals or short equipment circuitry.
- Disconnect power supply before installation

IMPORTANT

- A low-force (40.5 lb [180 N]) actuator installed on a valve larger than 3/4 in. cannot operate the valve.
- Install high-force actuators (67.5 lb) only on large valves (1 in., 1-1/4 in., 1-1/2 in.).

Models:

- M6410A: Non-Spring Return Valve Actuator. Provides floating control of the V5862A and V5863A Valves.
- M7410F: Non-Spring Return Valve Actuator. Provides modulating control of V5862A and V5863A Valves.
- V5862A: Two-way NPT Valves.
- V5863A: Three-way NPT Mixing Valves.

Control Modes:

- M6410A: Floating.
- M7410F: 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).

Weight:

- M6410A: 5 oz (0.15 kg).
- M7410F: 5.6 oz (0.16 kg).

Mounting:

- Actuator screws onto valve body.

Connections:

- M6410A, M7410F: 4.9 ft (1.5m) cable.

Electrical Ratings:

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

Stroke:

- 1/4 in. (6.5 mm).

Running Time:

- At 50 Hz: 150 seconds.
- At 60 Hz: 125 seconds.

Stem Force:

- 67.5 lb (300 N).

Suitable Medium:

- Water with maximum 50% glycol.

Controlled Water Temperature:

- 36° to 230°F (2° to 110°C).

Rangeability:

- Two-way Valve: 50:1.

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

Flow Characteristic:

- Linear

Valve Cv Rating:

- See Table 1.

NOTE: To determine the capacity index (Cv) needed for your application, use the following formula: $Cv = \text{gallons per minute} \div \sqrt{\text{pressure drop across the valve when the valve is fully open}}$.

Body Material:

- Brass.

Stem and Plug Assembly:

- Stem: Stainless steel.
- Plug: Brass.

Actuator Required:

- M6410A: Non-Spring Return Valve Actuator (3-position floating).
- M7410F: 0 to 10 Vdc or 2 to 10 Vdc Electronic Actuator.
- Valve inserts are provided as spare parts. See Table 2.

Leakage Rate:

- $\leq 0.05\%$ of Cv.

Valve Close-off Ratings:

- See Table 1.

Approvals (Actuators):

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

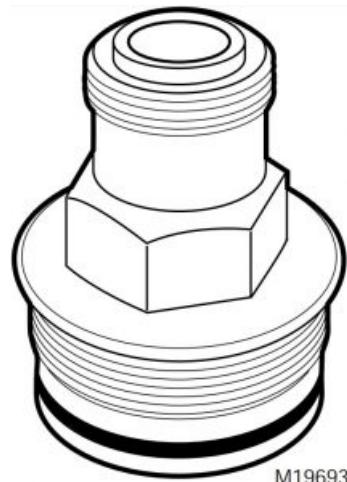
Table 1. Valve Close-off Ratings.

Pipe Size in in. (mm)	Cv	Close-off Rating (psi)	
		Two-way	Three-way
1 (25)	5.5	232	232
	7.8		
	11		
1-1/4 (32)	18	174	174
1-1/2 (38)	25	145	145

Accessories and Replacement Parts:

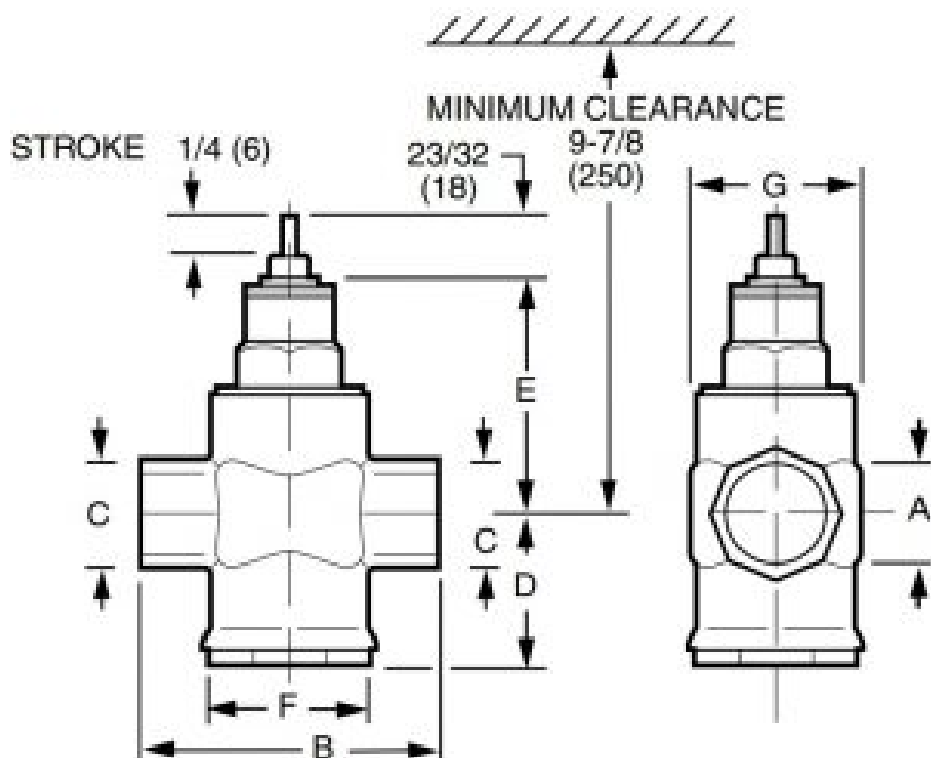
- WV3000R Insert Replacement Tool, for replacing cartridge insert.

Table 2. Valve Insert Replacement Parts.

Diameter (in.)	For Valve	Cv	Part Number	
Two-Way				
1	V5862A3003	5.5	0903827	
	V5862A3011	7.8		
	V5862A3029	11		
1-1/4	V5862A3037	18	0903828	
1-1/2	V5862A3045	25	0903829	
Three-Way				
1	V5863A3002	5.5	0903827	
	V5863A3010	7.8		
	V5863A3028	11		
1-1/4	V5863A3036	18	0903828	
1-1/2	V5863A3044	25	0903829	

Dimensions

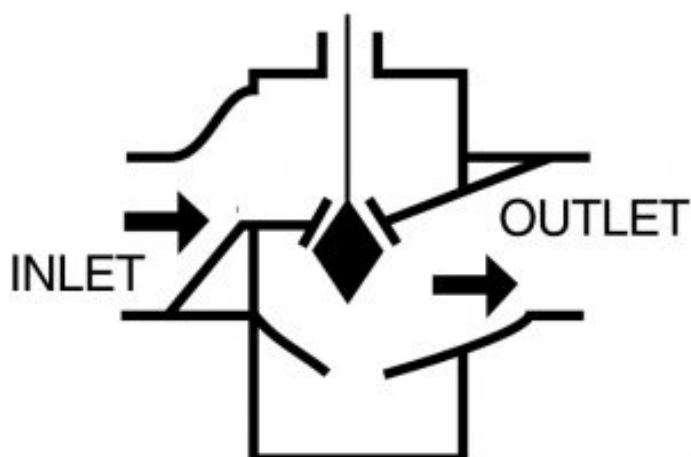
Dimensions in in. (mm):



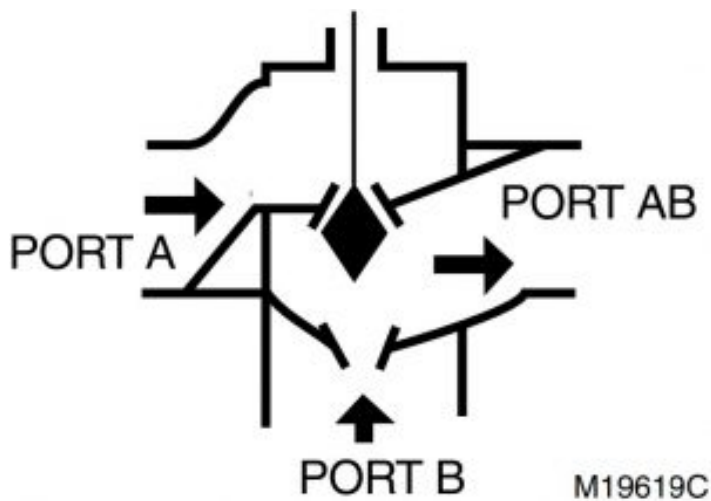
VALVE SIZE A (mm)	B	C	D	E	F	G
1 (25)	4-1/8 (105)	1-5/8 (41)	2-1/16 (53)	3-5/8 (92)	2 (50)	2-5/16 (58)
1-1/4 (32)	4-15/16 (125)	2 (50)	2-7/16 (62)	3-5/8 (92)	2-3/16 (55)	2-5/16 (58)
1-1/2 (38)	5-1/8 (130)	2-3/16 (55)	2-9/16 (65)	3-7/8 (98)	2-9/16 (65)	2-11/16 (69)

FLOW DIAGRAM FOR 1, 1-1/4 AND 1-1/2 INCH VALVES

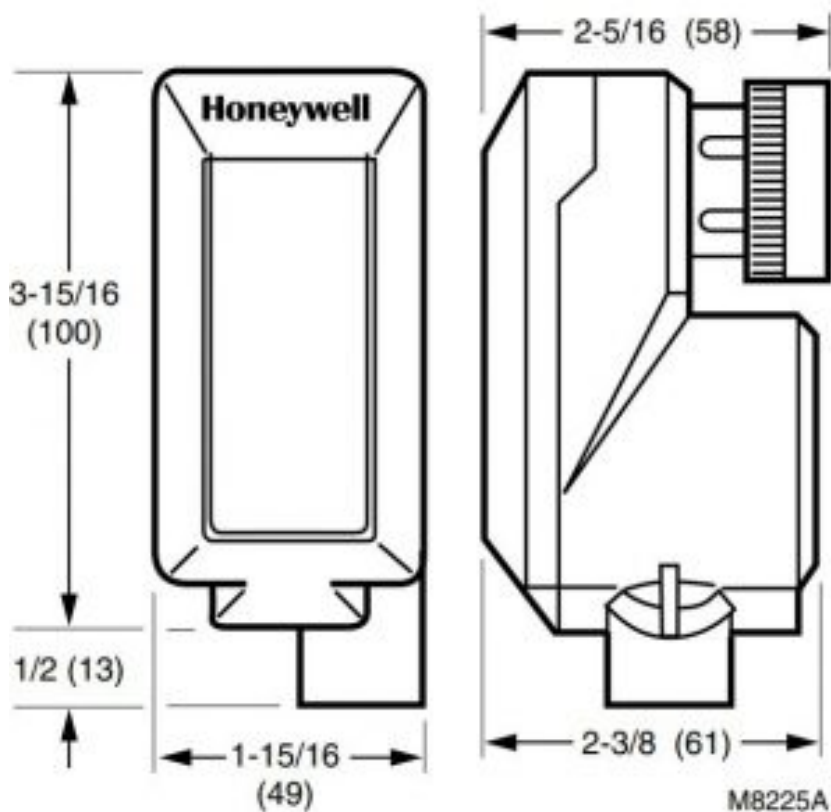
• V5862A3 FLOW



• V5863 FLOW



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 range ability of 50:1 or better. Valves must have a leakage rating less than 0.05% of the Cv.

Valves 1 in. or larger must be pressure balanced.

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.

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. Actuators shall have an ambient temperature rating of 32 to 122 degrees Fahrenheit

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Customer Service

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Documents / Resources

	<p>Honeywell M7410F Series 3000 Non-Spring Return Valve Actuators [pdf] User Manual M6410A, M7410F, V5862A, V5863A, Series 3000, Non-Spring Return Valve Actuators</p>
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