

Table 1. Close-off ratings for ML6420, ML7420 Electric Linear Valve Actuators and Honeywell Valves (psi).

Type	Valve	1/2 in.	3/4 in.	1 in.	1-1/4 in.	1-1/2 in.	2 in.	2-1/2 in.	3 in.
Flange	V5011A	—	—	—	—	—	—	28	16
	V3350/3351/3450/3451	—	—	—	—	—	—	21	14
	V5013B,C; V3360/3361/3460/3461	—	—	—	—	—	—	21 ^a	14 ^a
NPT	V5011F,G	150 ^b	150 ^b	150 ^b	134 ^b	77	49	28	16
	V5011H,J	150	150	150	145	—	—	—	—
	V5011N1xxx, V5011N3xxx, V5013N	230	230	163	104	67	37		
	V5011N2xxx	100	100	100	100				
	V5013F	150	150	150	126	77	49		

^aRepresents maximum pressure difference between the outlet and either of the two inlets.

^bDo not exceed 100 psi with V5011G valves used in steam applications.

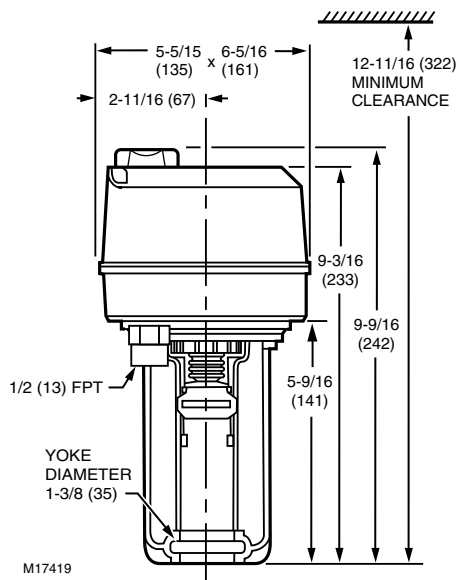


Fig. 1. Approximate dimensions of ML6420, ML7420 Electric Linear Valve Actuator in in. (mm).

INSTALLATION

When Installing this Product...

1. Read instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check ratings and description given in the specifications to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.



CAUTION

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

Location

Install the actuator in a location that allows enough clearance for mounting accessories and for servicing.



CAUTION

Equipment Damage Hazard.
Can damage actuator due to condensation or a valve gland leak.
Install the actuator in a position above horizontal.

Mounting

1. Place the actuator on the valve with the U-bolt around the valve collar. See Fig. 2.
2. Place the U-bolt against the valve collar and secure the actuator to the valve by turning each U-bolt nut clockwise.

NOTE: To assure even pressure on the collar, first tighten the nuts finger-tight and then alternate turning each U-bolt nut until both are snug.

3. Push aside the stem button retaining clip and hold. See Fig. 3.
4. Lift valve stem until the head of the valve stem button is inside the large slot of the stem button retaining clip on the actuator.
5. Release the stem button retaining clip to secure the stem button. Check to make certain the stem button is secured by the retaining clip.
6. Remove the cover from the actuator using a Phillips or crosspoint screwdriver. See Fig. 4.

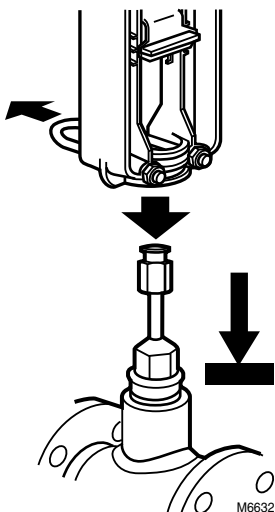


Fig. 2. Attaching actuator to valve collar.

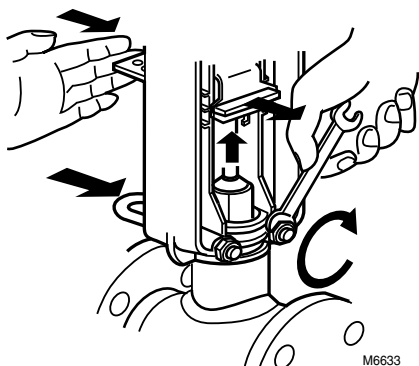


Fig. 3. Securing actuator to valve.

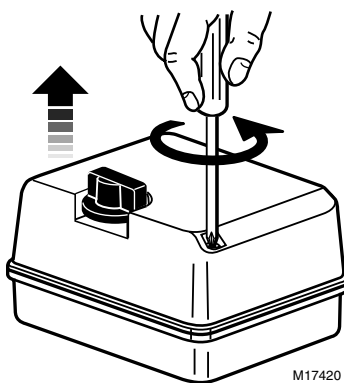


Fig. 4. Removing actuator cover.

Wiring



CAUTION

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

All wiring must comply with local electrical codes, ordinances and regulations. Voltage and frequency of the transformer used with the actuator must correspond with the power supply and actuator characteristics. See Fig. 6 through 11 for typical wiring hookups.

1. Feed power and control wires through the conduit connector located on the bottom of the actuator case. See Fig. 5.



CAUTION

Equipment Damage Hazard.

Conduit connection or removal can break an unsupported connector.

When removing or attaching conduit, use a wrench to support the motor connector.

2. Using the wiring diagram in Fig. 6, connect power and control wires. Make sure that all wiring is correct.
3. For ML7420 only: Check the selector plugs for proper settings. See Signal Input Failure section for details.
4. When wiring is complete, replace the actuator cover. See Fig. 7.
5. Apply power and control signals to the actuator.

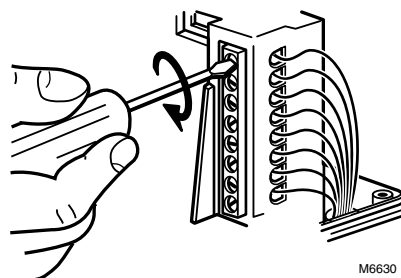


Fig. 5. Connecting power and control wiring.

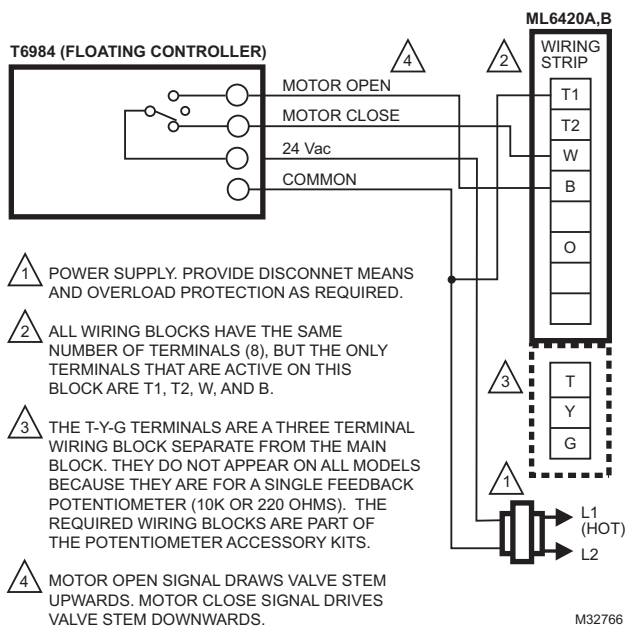


Fig. 6. ML6420 wiring.

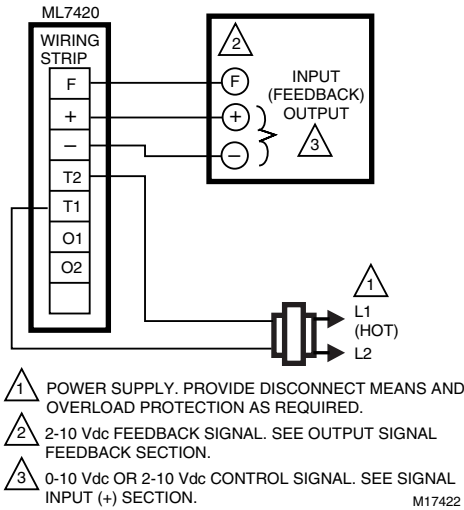


Fig. 7. ML7420 wiring using feedback output from a controller with a common transformer.

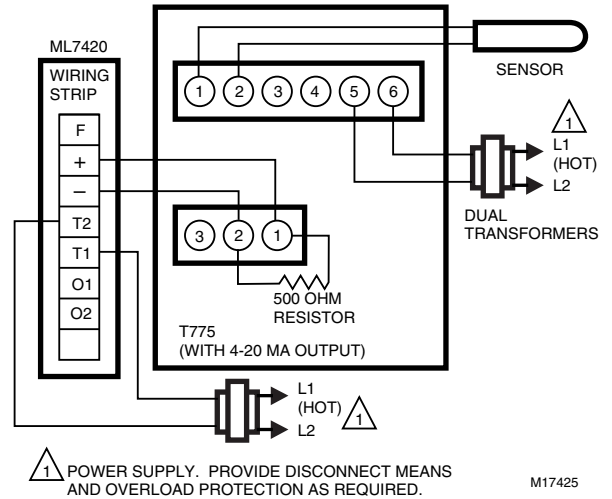


Fig. 10. ML7420 wiring using a 4 to 20 mA control signal and separate transformers.

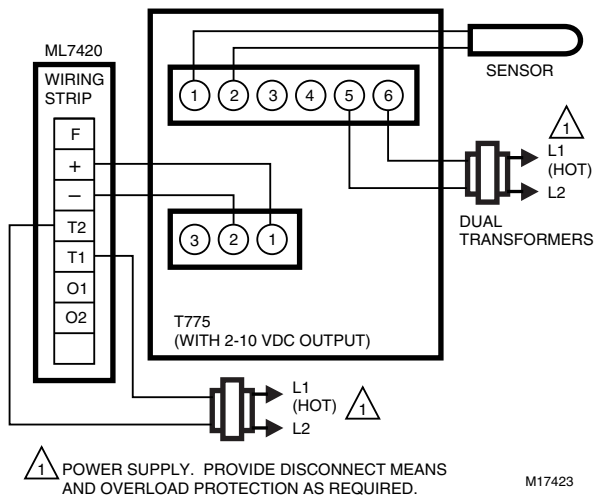


Fig. 8. ML7420 wiring using a 2 to 10 Vdc control signal and separate transformers.

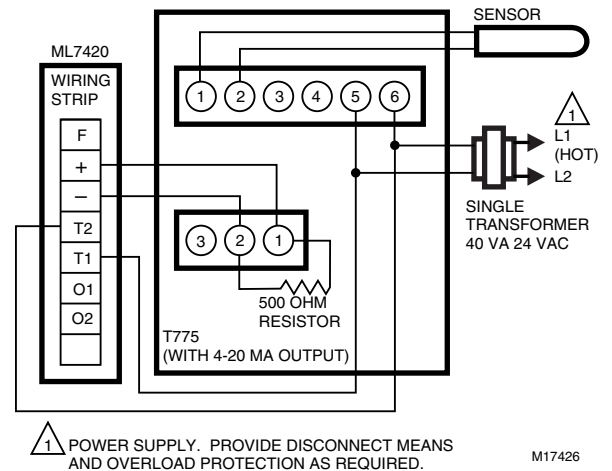


Fig. 11. ML7420 wiring using a 4 to 20 mA control signal and a common transformer.

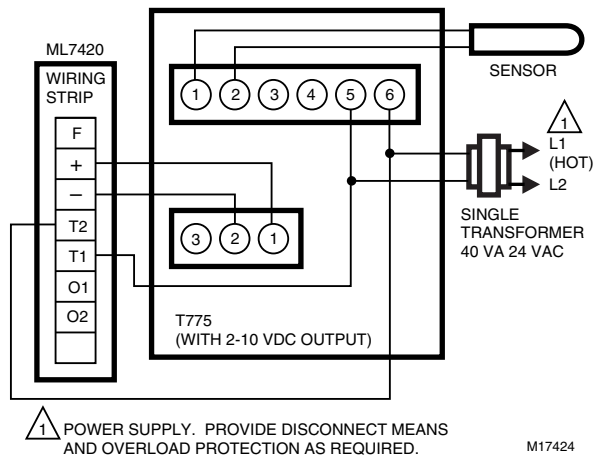


Fig. 9. ML7420 wiring using a 2 to 10 Vdc control signal and a common transformer.

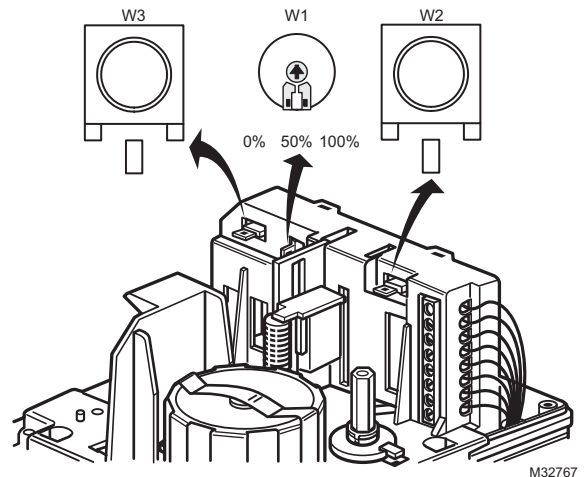


Fig. 12. Location of W1, W2, and W3 selector plugs.

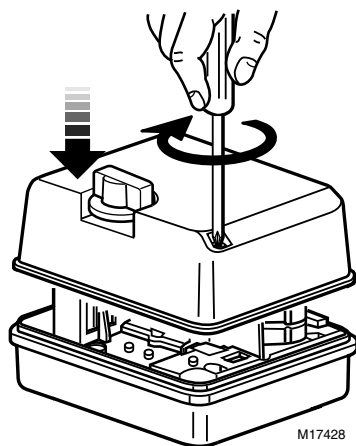


Fig. 13. Replacing actuator cover.

Auxiliary Potentiometers

The 43191679 Auxiliary Potentiometers can be used as feedback potentiometers and to provide remote indication of valve position. See the Installation Instructions packed with the potentiometers.

Auxiliary Switches

The 43191680 Dual Auxiliary Switch can be used on both the ML6420 and ML7420 Electric Linear Valve Actuators. Switching points are adjustable over the full length of the actuator stroke; for example, the switch can be used to switch pumps or to provide remote indication of any stroke position. See the Installation Instructions packed with the auxiliary switch.



CAUTION

Equipment Damage Hazard.
Improper voltage damages the auxiliary switch beyond repair.

Use the 43191680 Dual Auxiliary Switch only with 24 Vac applications.

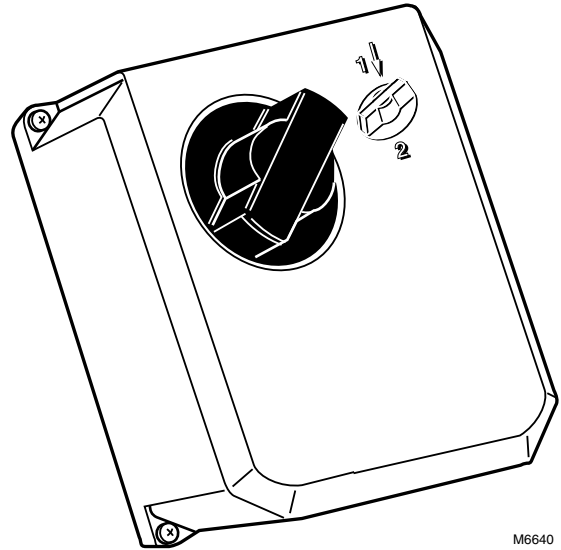


Fig. 14. Manual operator knob.

OPERATION

General

In the actuator, the drive of a synchronous motor is converted into the linear motion of the actuator stem by using a spur gear transmission. A button retainer clip connects the actuator stem to the valve stem.

Manual Operation

The ML6420 and ML7420 are equipped with a manual operator knob (see Fig. 14) to open or close the valve in the event of power failure:

1. Turn off or disconnect the power supply before manually operating the actuator.
2. Push down on the manual operator knob and turn the knob:
 - a. Counterclockwise to drive the stem downward.
 - b. Clockwise to draw the stem upward.

IMPORTANT

Manual operation allows very high closing force that can jam the actuator spindle, exceed the force switch ratings, and stop the motor. After a manual valve close-off operation, release the spindle one turn by turning the manual operator knob. This will ensure automatic disengagement of the manual operator upon power resumption.

NOTE: If the manual operator knob is not pushed in while turned, it will rotate only a short distance before disengaging without power resumption.

ML7420

Signal Input (+)

The analog input signal (+) range is set at the factory to 0 to 10 Vdc. Changing the position of the W2 selector plug sets the range to 2 through 10 Vdc. Selector plugs W1, W2, and W3 are positioned on the back side of the printed circuit board. See Fig. 12 for location of the selector plugs.

Signal Input Failure

Using the potentiometer, the actuator can be set to run to any position in event of a signal failure (ML7420/25 only). ML6420 does not have any input signal failure jumpers or potentiometers.

Output Signal Feedback (F)

An analog output signal (2 to 10 Vdc) that represents the actual actuator stem position is available at terminal F. It can be used for remote indication of the stem position. When the actuator stem is fully downward, the output signal is 10 Vdc.

When the valve stem is up, the output signal is 0 or 2 Vdc. The output of the signal does not change when the action of the actuator is reversed using W3. See Direction of Action.

Actuator Override

To override the control signal (for freeze protection or similar applications), connect the 24 Vac common (T2) to either terminal O1 or O2. Connecting to terminal O1 fully extends the actuator stem. Connecting to O2 fully retracts the actuator stem.

The control signal (+) is ignored when the override signal is applied to terminal O1 or O2. This override can be achieved with a switch or a relay. See Fig. 15.