

ML6874 Valve Actuator

PRODUCT DATA



FEATURES

- Allows the use of one common transformer power supply for multiple actuators and controllers
- Self-contained, motorized valve linkage
- Linkage self-adjusts to valve stroke of up to 19mm (3/4")
- Multipose mounting
- Strong valve seat closing force 710 Newton (160 lbs.)
- Compact size for easy installation in confined area
- Field-configurable DIP switches for Direct/Reverse action
- One device for either Vac or Vdc power supply application
- Electronic current sensing provides internal protection and positive full closing force
- Field-addable auxiliary switches available

GENERAL

The ML6874 is a self-contained, self-adjusting, linear motorized linkage that mounts directly onto V5011 two-way or V5013 three-way valves and provides up to 19 mm (3/4") of linear travel (stem lift). For use with low voltage 3-wire SPDT Series 20 (on-off) or Series 60 (floating) controllers.

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IMPORTANT:

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, an individual unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions and some minor differences in performance can be expected if those conditions are changed.

Ambient Rating:

Operating Temperature:
0°C to 55°C (32°F to 131°F)
Shipping Temperature:
-40°C to +65°C (-40°F to 150°F)
Relative Humidity:
15% to 95% at 40°C (104°F)

Acoustic Noise:

55 dBA max. Sound Pressure Level at 1 m (39") distance.

Electrical Ratings:

Power supply/consumption:
24V (Nominal), 50/60Hz or
24 to 28 Vdc
6VA(Running), 12VA(Valve seating)

Shipping Weight:

Approx. 1 kg (2.2 lbs)

Accessories/Parts:

272630A--Auxiliary switch assembly (1-SPDT)
272630B--Auxiliary switch assembly (2-SPDT)
272775-- Replacement motor brush kit
40003793-003--Mounting hardware bag assembly

Mechanical Ratings:

Stroke--19mm (3/4") or less
Stroke timing-- Approx. 63 seconds for 3/4" stroke
Closing Force-- 710N (160 lbs.) Nominal*

*Rating applies to both directions.

Performance Specifications:

Life Expectancy-- (at rated load and power conditions)
50,000 full stroke cycles plus 1,000,000 repositions at
10% stem travel or 10 years, whichever occurs first.

Note: rapid cycling/repositioning will result in reduced service life of the actuator.

Ordering Information

When purchasing replacement and modernization products from your wholesaler or distributor, refer to the price sheets for complete ordering number, or specify--

1. Model number.
2. Valve body type and model number.
3. Accessories, if desired.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

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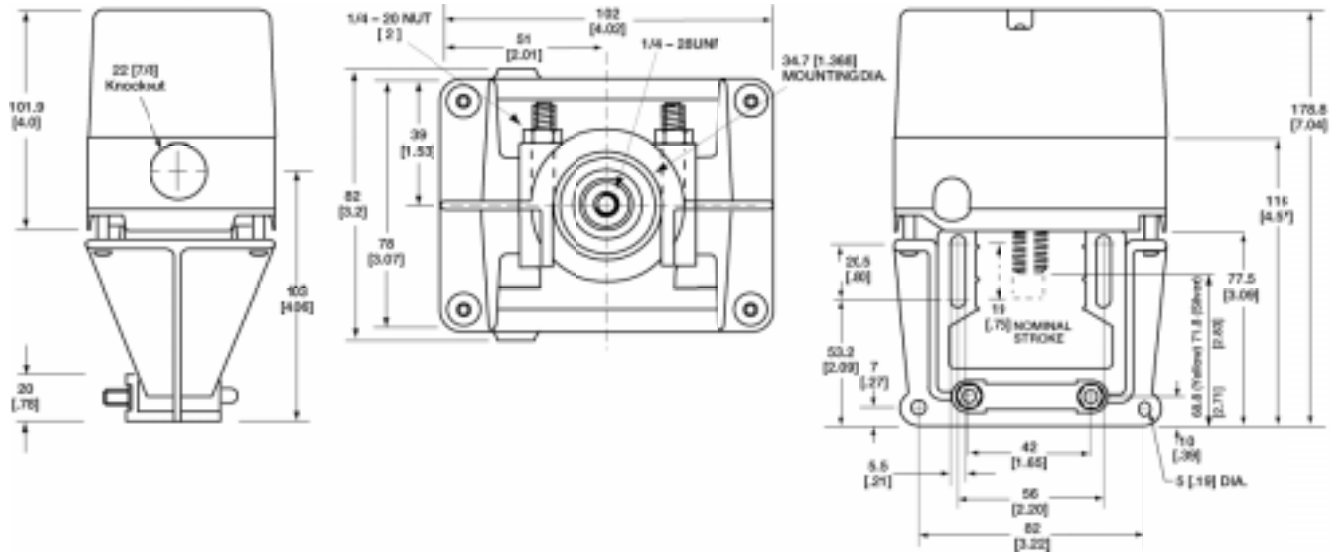


FIG. 1 -- DIMENSIONS OF ML6874 VALVE ACTUATOR IN MM (INCHES).

Installation

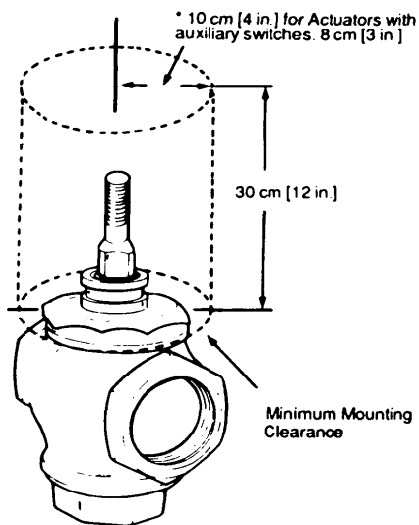


FIG.2 -- MINIMUM MOUNTING CLEARANCE.



CAUTION

1. Installer must be a trained service technician.
2. **DO NOT electrically operate the ML6874 before assembly to the valve because damage not apparent to the installer may occur.**

Mounting:

1. Ensure that the valve body is installed correctly, that is, the arrow points in the direction of the flow.
2. Although the actuator can be mounted in any position, it is preferable that the ML6874 is mounted above the valve body. This will minimize the risk of damage to the ML6874 in the event of condensation or a valve gland leak.
3. Remove the stem button (Fig. 3) from the valve stem. Save the set screw inside the stem button for later installation. The button itself is not needed.
4. Slide the position indicator (plastic disk or rubber O-ring) over the valve stem. (See inset, Fig. 3) Indicator will self-align to the marking on the yoke after one complete operating cycle.

Assembly of ML6874 to the valve:

1. The drive shaft of the ML6874 has a threaded hole to link with the valve stem. Slide the yoke over the valve bonnet (Fig. 4)
2. Thread the ML6874 drive shaft onto the valve stem **all the way**, until it is **completely attached (with no threads showing)**, by turning the valve actuator in a clockwise direction, as viewed from above (depending on the valve models, use a pin or wrench to keep valve stem from turning). Note that the valve actuator is shipped with drive shaft in the mid-position.
3. Care should be exercised when using tools on the valve stem during tightening. (Fig.4) **DO NOT** damage the threads or other parts of the stem.
4. Orient the conduit hole to the most desirable direction, then tighten the LOCKNUTS on the U-bolt.

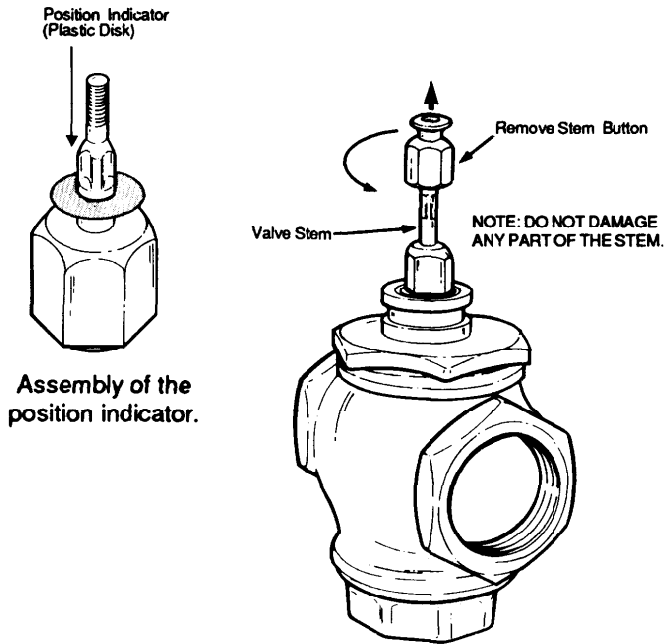


FIG.3 -- PREPARATION FOR VALVE ASSEMBLY.

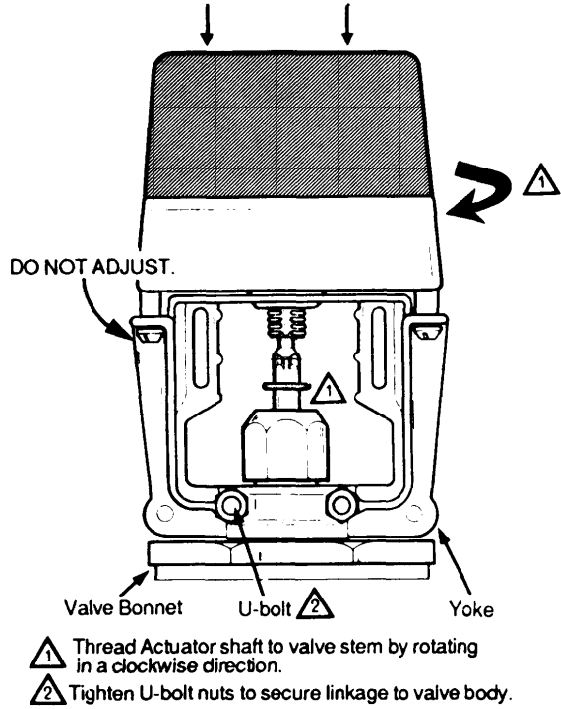


FIG. 4 -- ASSEMBLY OF ML6874A TO VALVE.

- Remove the plastic cover from the ML6874 by loosening the two screws located on the top (Note: These screws are captive. Rotate three complete revolutions to remove cover). Drop either Slot Headed or Allen Hex type of set screw (both are included in the plastic bag) into the top of the shaft, slotted/Hexed side up. Or use the set screw from the valve stem button.
- Depending on which type of set screw was used, with a 5 mm (3/16") Slotted screwdriver or 1/8"x 6" Allen wrench (included in the plastic bag), **tighten the set screw to lock valve stem in place** (Fig. 6).

⚠ WARNING

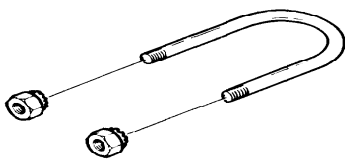


FIG. 5 -- U-BOLT ASSEMBLY.

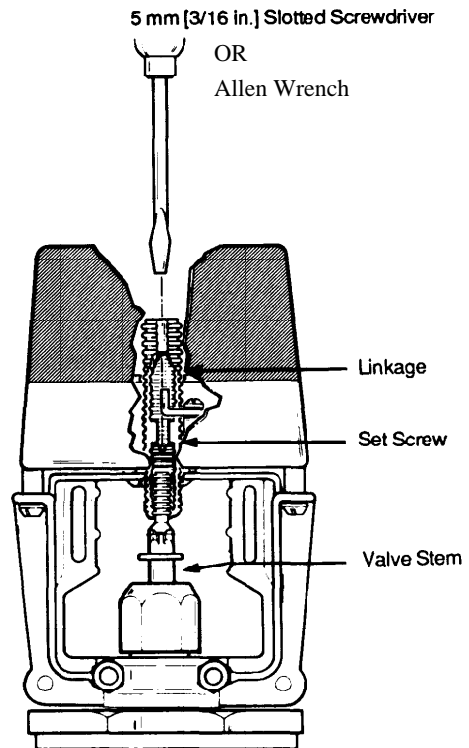
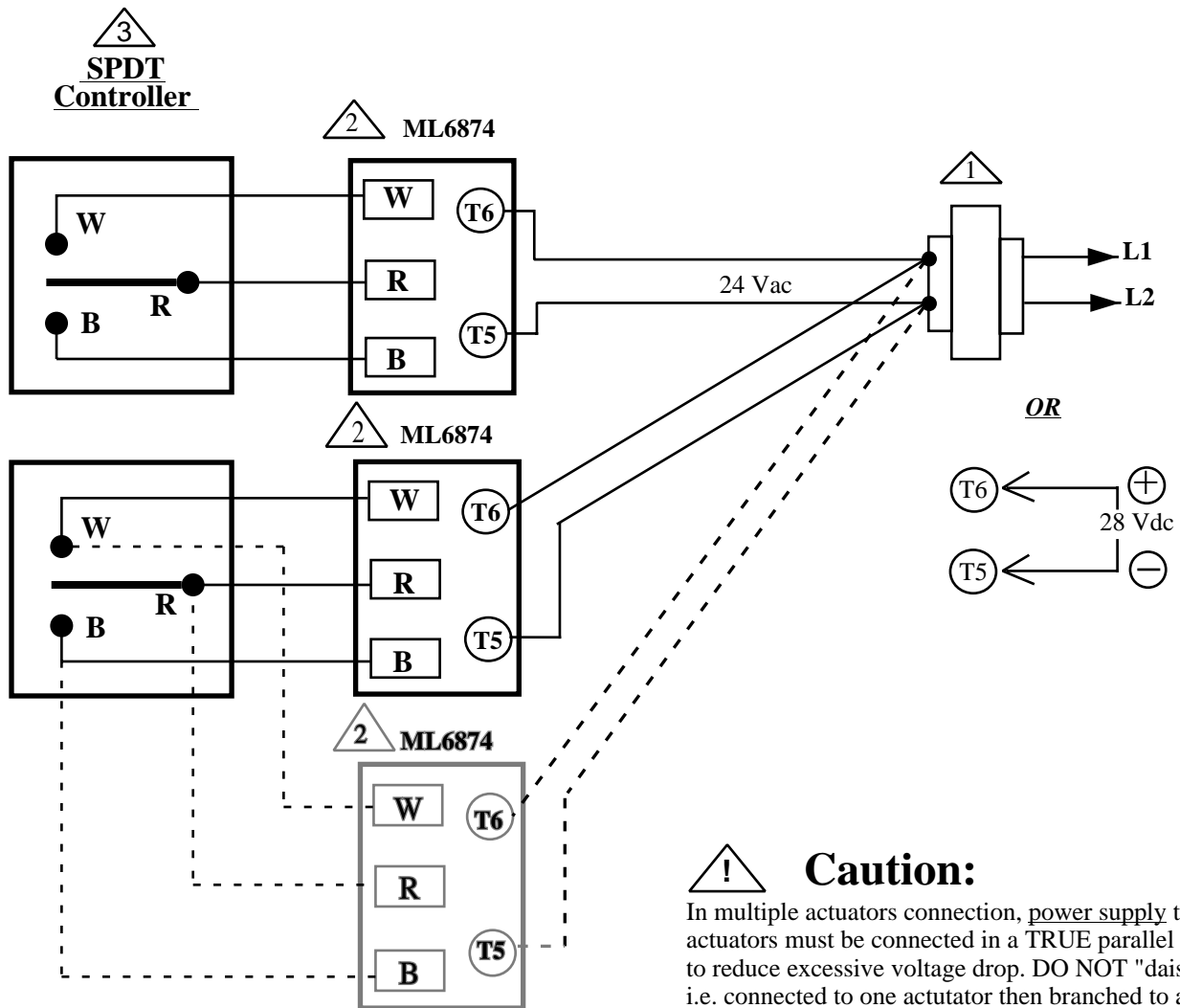


FIG. 6. -- LOCKING ML6874A DRIVE SHAFT TO VALVE STEM



- ⚠ Allow 0.5 amps maximum for each device. Actuators and controller can share same transformer providing the VA rating of the transformer is not exceeded and proper phasing is observed.
- ⚠ Use configuration DIP switches to select device functions: Direct acting function (actuator stem moves upwards with R & B closed) or Reverse acting function (actuator stem moves downwards with R & B closed). DO NOT reverse wiring.
- ⚠ SPDT controller can be a low voltage Series 20 "on-off " or Series 60 "floating" (center-off) type.

**Configuration
DIP switches
located adjacent
to the input
terminal block**

FUNCTION	DIP SWITCH CONFIGURATION															
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NOTE:
Turn power off before setting the DIP switches.

Fig. 7 Wiring for SPDT controller to ML6874 actuators

Operation:

The recommended valve actuator power source is a class 2, 24V transformer or 28Vdc across terminals T5 & T6. Internal circuitry provides dc power for the electronic sensing and drive motor circuits.

The motor is controlled by a microprocessor. Connecting B to R tells the microprocessor to cause the actuator to drive open, i.e. UP, in the Direct Acting Mode. Connecting W & R will cause the actuator to drive closed, i.e. DOWN, in the Direct Acting Mode. For "floating" control, if R remains open, the actuator will remain in the last position. The DIP switches are scanned only on power up, and tell the microprocessor if Direct or Reverse mode is desired. Changes in the DIP switch setting will only take effect if the power is off while the change is made.

At the end of the valve stroke, the actuator will develop the necessary force for positive valve close-off. As forces are developed, the current to the motor increases. The microprocessor stops the actuator automatically when the motor current, and forces reach the predetermined level.



CAUTION:

1. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage.
2. All wiring must comply with applicable local electrical codes, ordinances and regulations.
3. Make certain that the voltage and frequency of the power supply correspond to the rating of the device.
4. DO NOT connect 24 Vac between any signal input terminals.
5. **DO NOT electrically operate the ML6874 before assembly to the valve because damage not apparent to the installer may occur.**

GENERAL NOTE:

1. For correct valve operation, the ML6874 must be **field configured** with the DIP switches which are located beside the terminal block, see wiring diagrams for details. **Turn power off before setting the DIP switches .**
2. There is a short delay in actuator response upon every signal change. It is to screen any unwanted incoming signals.
3. For proper operation, voltage on the T5 & T6 **must not be less than** 22Vac or 24Vdc during running or force generating stages.

REPLACEMENT NOTE:

1. The **old** ML684 actuators cannot be used with **new** ML6874 valve actuators in the same circuitry, unless they are isolated by an isolation relay to prevent cross-talking.
2. The ML6874 is a direct replacement for the old ML684A1025 (160 lbs) in single actuator hook-up, except when replacing the old reverse acting models, the signal input wires to the new devices are no longer needed to be reversed. Just set the DIP switch as shown in Fig.7.
3. DO NOT replace the ML684A1009 (80 lbs) with this new ML6874 on the V5045 valve.

Checkout:(see General & Replacement Note)

1. Make sure the valve stem is completely screwed into the actuator drive shaft with no threads showing.
2. Make sure the valve stem is locked in place with the set screw.
3. Check DIP switches for proper setting for Direct or Reverse Acting mode.
4. Connect R & B. Valves stem should move up, in Direct Acting mode.
5. Connect R & W. Valves stem should move down, in Direct Acting mode.
6. For Floating operation, open R connection. Valve stem should remain in position.
7. Operate the system (valve, actuator and controller) for several cycles to ensure proper installation.
8. When checkout is complete, return the controller to the desired setting.

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