Series EMVII-6400SS Electric Motor Valves

Sizes: 2½"– 3" (65 – 80mm)

Installation, Operation and Maintenance Instructions

The Watts EMVII-6400SS motor valve is an electrically actuated standard port bronze ball valve with 316 stainless steel ball and stem. The 2½" and 3" (65 and 80mm) valves have a reversing actuator with a 75% duty cycle NEMA 4, 7 and 9 enclosure. The installation section of this manual is broken into two parts 1-valve and 2-electrical. Prior to installation it is important to familiarize yourself with both sections so that the unit is properly installed.

Valve Installation

A. The stem seals on your EMVII-6400SS valve may require periodic adjustment during its normal service life, therefore, installations that prevent access to the valve for maintenance must be avoided. Further, it is important to understand that no valve's stem seals will function indefinitely. Eventually stem seals will require adjustments. At this point the external leakage would start off as a slight seepage and if left unattended, could become significant.

B. All Watts EMVII-6400SS's utilize bidirectional valves and as such, can be installed to shut off flow in either direction.

C. When piping up the valve, be sure that the threads on the mating pipe are free of excessive grit, dirt or burrs. Take care to assure that any pipe sealants used are not so excessively applied to the pipe threads that the valve cavity becomes fouled.

D. The unit can be installed with the actuator portion in either the vertical or horizontal plane, however for steam or high temperature applications see Section E.

E. For installations for steam or other high temperature services your Watts EMVII-6400SS features an electric actuator with a maximum ambient temperature rating of 150°F (66ºC). Higher temperatures will result in a significant reduction of the duty cycle rating and/or damage to electrical components.

Some steam or other high temperature applications may require that the actuator be installed horizontal to the pipe (on horizontal piping) to protect the unit from radiant heat. All piping in which units are installed and any adjacent piping must be insulated to further reduce the effects of piping radiant heat.

Electrical Installation

Note: Prior to making wiring connections, be sure that all external wiring and electrical components have been properly selected to suit the power consumption levels of your particular unit.

Table 1 - Power Consumption

VALVE SIZE		VOLTAGE AND	MAX AMPERAGE
in.	mm	CYCLE TIME	DRAW
2½"- 3"	(65 – 80mm)	115 VAC-25 Second	1.0
2½"- 3"	(65 – 80mm)	24 VAC-25 Second	3.0

Note: Not all voltage/cycle time combinations are available for every valve size. For specific model combinations consult your Watts distributor or representative.

1. Wire per the diagram included inside the cover of the unit. Note that the diagram reflects the actuator depicted in the open position. In order to maintain enclosure integrity, proper conduit connections for your application (general purpose, weatherproof, explosion-proof or proof) must be used. (Per various electrical codes there is a green screw on the actuator base plate for grounding purposes).

2. Replace the cover and tighten all eight hex head bolts. Apply power to the unit alternately in both directions to assure that the valve is traveling from its fully open to its fully closed position (on/off applications). If the unit does not travel a full 90° or if resultant rotation of the valve results in lack of full open or full closed position, it may be necessary to adjust travel by adjusting limit switch cams.

Maintenance

During its' normal service life the only maintenance that may be required by your EMVII-6400SS should be periodic stem seal adjustment. It is important that stem seal leaks to not go unattended as failure to adjust stem packing could significantly reduce seal life. To adjust stem seals, simply tighten the stem gland nut.

Do Not Over-Tighten, as in doing so you may over-compress stem seals which could result in excessive stem seal loading and reduction of seal life.

Switch Setting (Travel Limits)

When shipped from the factory the actuator will typically be in the "valve open" position (counterclockwise extreme of travel). This means that the valve open circuit travel has been completed and the circuit is open.

1. Disconnect Power supply.

2. Loosen set screw in declutching knob, and remove knob.

3. Remove the hex head cover bolts located around the flange of the unit.

4. To set open travel limit switch:

a. Using the declutchable manual override, place valve in its fully closed position.

b. Loosen the top cam's set screws and rotate cam until a "click" is heard from the top unit switch. This "click" indicates that the switch circuit has opened and thus defines the unit's open travel stop point.

c. Tighten cam set screws taking care not to over tighten.

5. To set close travel limit switch:

a. Using the declutchable manual override, place the valve in its fully closed position.

b. Loosen the bottom cam's set screws and rotate cam until a "click" is heard from the bottom limit switch. This "click" indicates that the switch circuit has opened and thus defines the units closed travel stop point.

c. Tighten cam set screws taking care not to over tighten.

6. Replace cover and test the unit. It may be necessary to repeat step(s) 4 and/or 5.

7. Replace and tighten all cover flange bolts.

8. Replace and properly secure declutching knob.

9. Unit is now ready for operation.

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Operational Characteristics and Ratings

1. Valve type - Quarter-turn ball valve, bronze body, 316SS ball and stem, reinforced Teflon® seats, standard port.

2. Valve Ratings: 2½" - 3" (65 – 80mm)
400 WOG; 100psi (6.9 bar) WSP

3. Valve end connections: All sizes NPTF.

4. Max. actuator ambient temperature rating: 150°F (66ºC).

5. Max. amperage rating of aux. switch - 10 AMPS @ 115 VAC.

Terminal Function 2½" - 3" (65 – 80mm)

2½"and 3" (65 – 80mm) motor valves are supplied with wire terminal strips having 16 terminals. Terminals 1, 2 and 3 operate the motor valve. Terminals 4 and 5 are for customer provided indicator lights

Note: 24 VAC or 115 VAC models, the following terminal explanation will always apply.

Table 2

VALVE SIZE	C_V
2½" (65mm)	200.0
3" (80mm)	300.0

Table 3 - Steam Flow (#hr)-Full Open Valve

VALVE SIZE	10 psi INITIAL		15 psi INITIAL		25 psi INITIAL	
	1 psi ΔP	10 psi ΔP	1 psi ΔP	15 psi ΔP	1 psi ΔP	25 psi ΔP
2½" (65mm)	2920	6260	4500	6920	8100	11.060
3" (80mm)	4380	9390	203	311	12.150	16.590

Wiring Diagram #1 for 2½" - 3" (65 – 80mm)

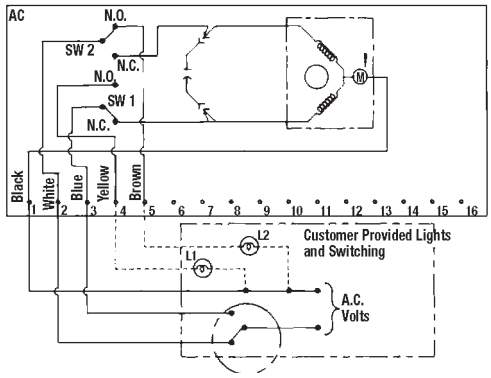
Actuator shown in counterclockwise extreme of travel, or "Open" position.

Notes:

1. 2½" and 3" (65 – 80mm) motor valves are supplied with wiring terminal strips having 16 terminals.

2. Each actuator must be powered through its own individual switch contacts to avoid cross feed.

3. Motor has a thermal protector as shown in diagram.



Terminal No.	Function
Operating Terminal #1	When power is applied, valve will open.
Operating Terminal #2	When power is applied, valve will close.
Operating Terminal #3	Makes when valve is fully closed.
Operating Terminal #3	Makes when valve is fully open.

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
(California law requires this warning to be given to customers in the State of California.)
For more information: www.watts.com/prop65

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