

IMPORTANT : READ THIS MANUAL THOROUGHLY BEFORE INSTALLATION OR SERVICING

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1. DESCRIPTION :

The El-o-matic MO series declutch able gear operators offer simple and reliable manual positioning of the valves, dampers and other quarter turn devices when overriding exiting pneumatic or hydraulic rotary actuators. All El-o-matic MO units combine rugged construction, light weight and modular design to provide the most efficient and cost effective solution to a full range of manual override requirements.

The self locking SGI / Bronze on steel worm gear design means safe and easy operation, positive manual positioning and extremely long life the MO can be adapted to any quarter turn actuator and may even be installed in the field on existing valves.

2. SPECIFICATION :

MAKE	:	EL-O-MATIC			
MODEL	:	MO0.5	MO-I	MO-II	MO-III
MAX. INPUT AT THE RIMN	:	82	400	400	400
MAXIMUM OUTPUT TORQUE (N.M.)	:	100	500	1600	5200

NO. OF TURNS

OPEN TO CLOSE	:	9.5	10	20	22
WEIGHT (KG)	:	2	5	12	40

TEMPERATURE : -20° TO 80° C

MOVEMENT : 0° TO 90°

MATERIAL

BODY	:	CAST ALUMINIUM
WORM WHEEL	:	SGI / BRONZE
WORM	:	STEEL

SPECIAL FEATURES

STROKE ADJUSTMENT : 10° AT EACH END

CLUTCH ARRANGEMENT
FOR ENGAGEMENT AND
DISENGAGEMENT.

POSSIBILITY OF
PROVISION OF HAND
WHEEL AT EITHER END
OF WORM SHAFT.

3. OPERATION :

When 'ON' mark on the indicator plate is aligned with the arrow mark on the label plate. Operation of the wheel will actuate the process valve. In case of aligning of 'OFF' mark, the wheel will move the spindle of the manual override freely as the unit would be de-clutched.

To engage manual operation, first pull out the spring loaded locking pin, then rotate the clutch lever clockwise until the locking pin re-engages. Anti-clockwise lever movement disengages manual operation and returns the system to automatic operation.

Instructions given on the label plate should be followed.

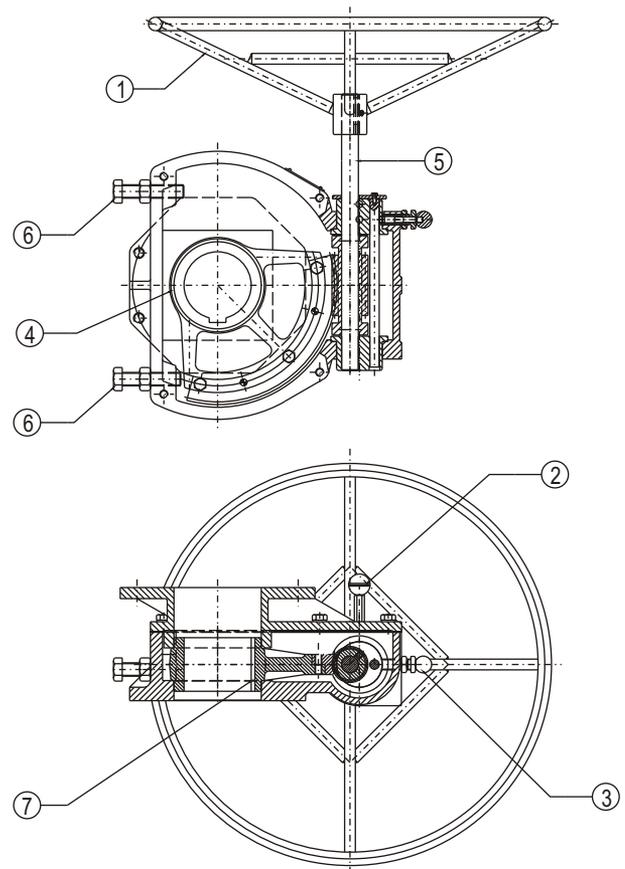
If the turning of the clutch lever happens to be tight, turn the hand wheel a little to make the clutch lever movement free.

The manual override also has a limit Stop arrangement by which it is possible to control the stroke by 10° from either range. This can be achieved by adjusting two stroke limiting screws to the extent desired. For normal operation of the valve, ensure the screws to be set in the extreme out position.

Note : When under normal control the valve remains locked in the last set position.

4. INSTALLATION :

The MO unit is installed by sandwiching them between the valve and actuator. The drive sleeve of the MO accepts the valve shaft from one end and the actuator drive adapter from the other end. The bottom flange of the MO is bolted to the valve flange and the top flange of the MO is bolted to the base pad of the actuator.



1.	HAND WHEEL
2.	LOCKING PIN
3.	CLUTCH LEVER
4.	WORM WHEEL
5.	WORM SHAFT
6.	LIMIT STOP ARRANGEMENT
7.	DRIVE SLEEVE

SPECIAL INSTRUCTIONS

- ➔ Keep the equalizing valve in "OPEN" position for manual operation (rotate the knob anti-clockwise direction to open) and "CLOSE" position for auto mode (rotate the knob in clockwise direction to close).
- ➔ Never operate manual overrides beyond adjusted stroke of actuators fitted with limit stop screws. Stop Rotation of hand wheels when rotation becomes hard. Never use extra levers to operate hand wheels.

4. TROUBLE SHOOTING :

IMPORTANT : READ THESE GUIDE LINES BEFORE ATTEMPTING TO ANY REPAIRS

SL NO.	FAULT	PROBABLE CAUSE	REMEDIAL ACTION
1.	Valve not opening / closing even when handwheel is rotated	Clutch lever not engaged properly. Worm to shaft locking pin broken due to over loading. Handwheel to shaft locking failed, key shared / missing.	Engage clutch properly by shifting clutch lever to manual position (ON). See instruction label on Actuator Open gear box and replace locking pin / grub screws. Check handwheel to shaft joint and replace key / pin if broken
2.	Clutch lever not rotating / getting engaged.	Broken locking pin. Broken clutch lever Bend worm shaft due to excess loading.	Open gear box, remove broken piece, fit fresh locking pin. Replace broken piece and fit Fresh lever on gear box. Open check worm shaft. Replace, if bend or damaged.
3.	Full open / closing of valve not achieved / obtained.	Improper adjustment of limit stop screw on MO. Fixing bolts between valve and MO loose. Play between the joint. Excessive play in adaptor linkage / keyway.	Re-adjust limit stop screws and lock in position. Check mounting between valve and MO. Tighten nuts after aligning in correct position. Check linkage between valve and shaft and gear box. Replace key, if required.
4.	Valve opening / closing found to be more than 90°. Over closing / over opening.	Improper adjustment of limit stop screws.	Loosen locknuts. Adjust stopper screws to the desired opening / closing and tighten locknuts.
5.	Excessive force required for handwheel rotation.	Excessive valve torque. MO not selected properly. Trapped air inside Actuator chamber	Check valve torque and replace with higher size MO, if required. Open equalizing valve. if provided. Provide equalizing valve if not provided already for DA Actuators.