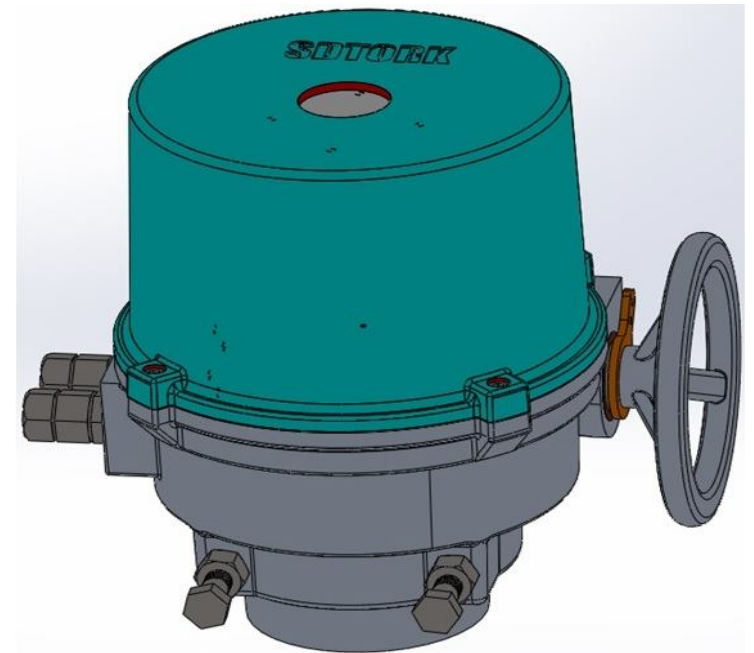


OPERATING INSTRUCTIONS MANUAL FOR

SDTORK BRAND SINGLE PHASE QUARTER-TURN FLAME PROOF ELECTRICAL ACTUATOR

Model – FSD-1001-20/40/50



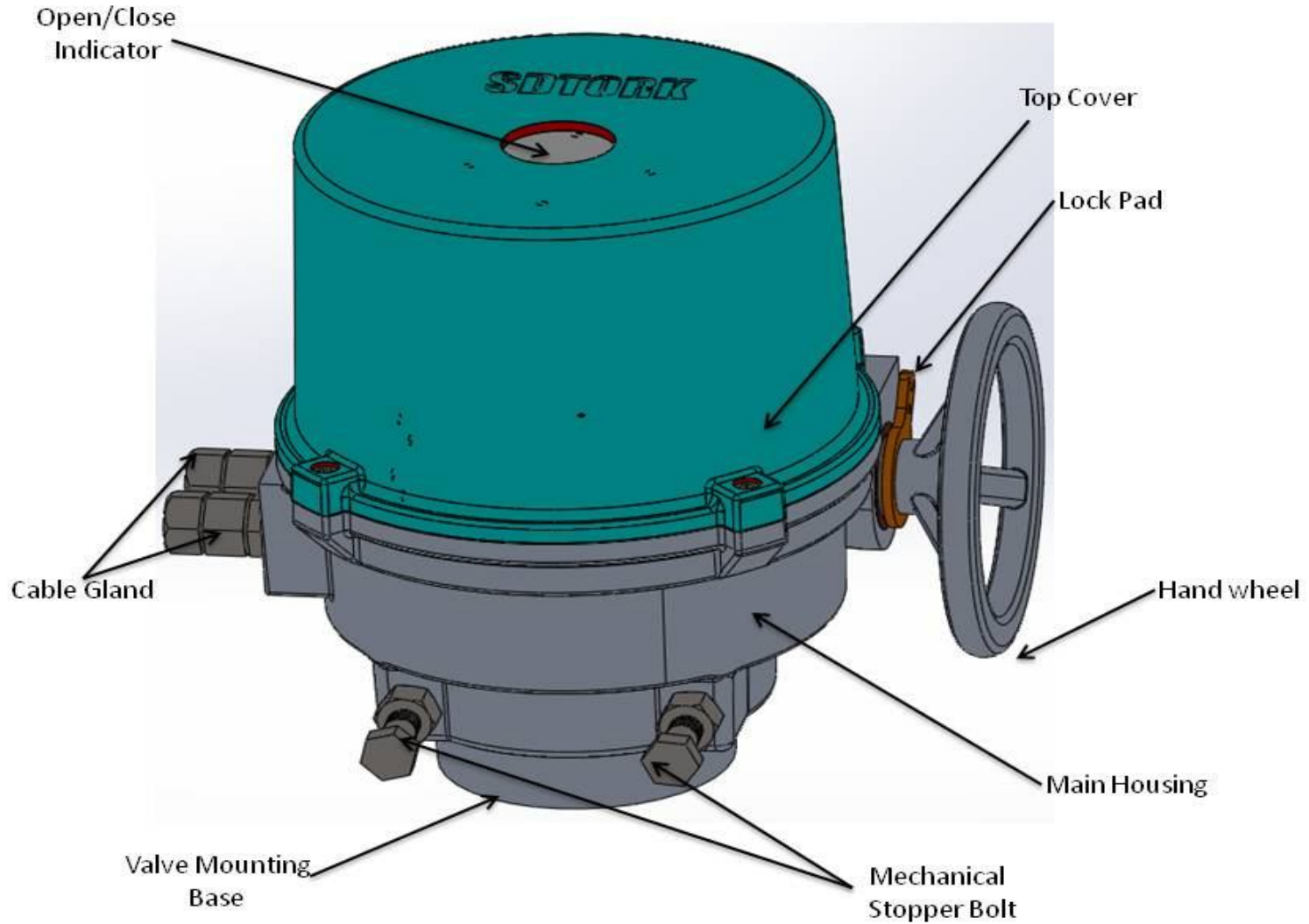
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NOTE: It is advisable & recommended to cover the actuator by a canopy to protect it from rain water & heating by sun.

BLOCK DIAGRAM OF FSD-1001-20/40/50 - SDTORK ACTUATOR



STEPS TO BE TAKEN TO INSTALL & COMMISSION THE ACTUATOR

I. INSPECTIONS AND KNOWING THE PRODUCT:

1. After receiving the unit inspect for physical damages.
2. Check the model specifications given on the actuator name plate & test report with respect to order and its expected functions.
3. Read all instructions carefully.
4. Check correctness of wiring diagram, terminal numbers and various functions with respect to application requirement.

The actuators are provided with following accessories.

- A) Travel limit switches: 1NO + 1NC - Qty. 2 + 2 = 4 Nos. (Two for opening & other two for closing direction).
- B) Torque limit switches: 1NO + 1NC - Qty. 1+1 = 2 Nos. (One for opening & other one for closing direction).
- C) Local position indicator.
- D) Hand wheel for manual operation.
- E) Adjustable mechanical end stoppers to prevent over-run of the final control element.

II. NO LOAD FUNCTIONAL TEST OF ACTUATOR:

1. Check the desired functions of travel & torque switches by means of continuity tester / Multimeter as per wiring diagram.
2. Do the connection of Actuator with proper supply voltage.
3. Check the movement of the output shaft by rotating the hand wheel and also confirm the rotation of the local position-indicating dial for opening and closing direction.
4. Bring actuator at 50% position of complete travel. This can be done through Hand Wheel.

III. INSTALLATION AND COMMISSIONING: (Refer Product Catalogue for overall dimensions)

1. Check the mounting and coupling dimensions of the actuator with respect to final control element (Valve/Damper).
2. Check the position of the key way in the actuator bore and also on the shaft of final control element. As the movement is restricted to only 90° , the keyway position should synchronise in both the items to get the desired functions. The above requirement also stands for any other form of coupling, instead of keyway, for the actuator and final control element. Bring the actuator and also the final control element to about 50% open position and couple them together by using proper hardware. Rotate the actuator through hand wheel while tightening the mounting bolts to ensure proper alignment and less loss of Power in friction etc.

SETTING OF TRAVEL LIMIT SWITCHES:

Close the valve / damper through the hand wheel operation of actuator. At this point the travel switch in the closed direction should also get operated by the cam, if it does not, loosen the Cam by the Allen key and "JUST" operate the closing travel switch by the cam and tighten the same properly. Check the switching operation by giving the electric supply.

In closing direction, it is necessary to note the movement of the cam while closing operation and also to identify the closing switch before making the above adjustments. Repeat the above operation for open limit switch Functions. Repeat the above operation for auxiliary travel limit switches to operate them in the desired position.

SETTING OF TORQUE LIMIT SWITCHES:

Torque Limit Switches are factory setted as per actuator model.

During the operation under load conditions if the actuator trips due to torque switches, the torque Setting can be increased as per requirements; however the setting should not exceed the maximum Value. The positions of torque switches and torque bracket should not be disturbed. Adjust only Cam for torque setting.

LUBRICATION:

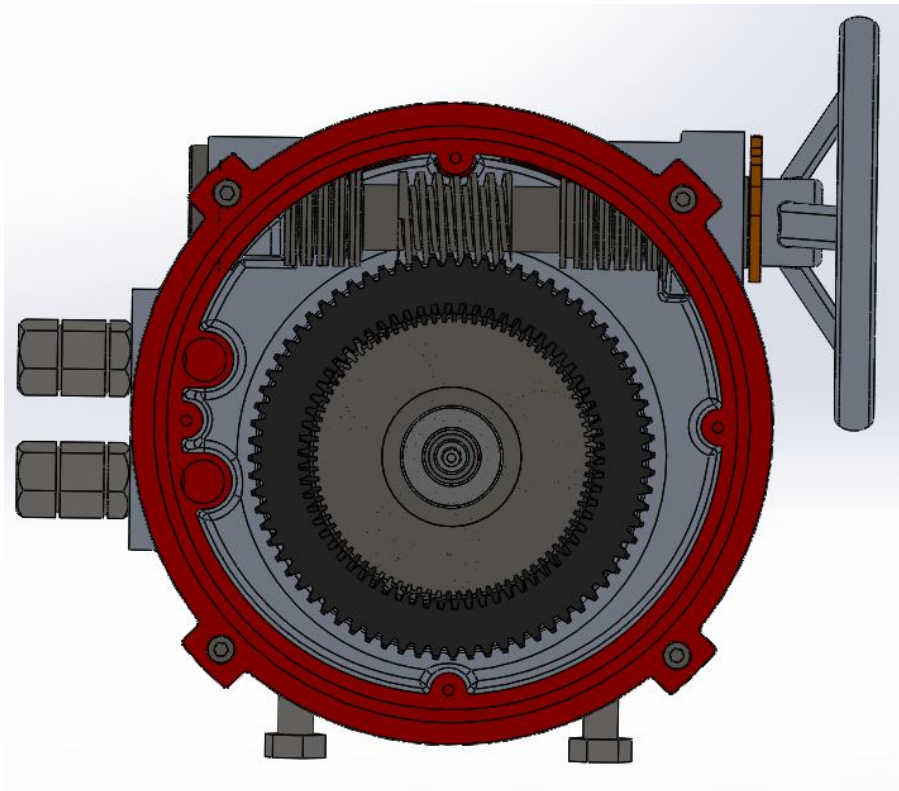
All units are provided with lubricating grease which is sufficient for about 15000 operations under normal working conditions.

For second charging of grease, remove the mechanical end stopper bolt and insert about 0.5 Kg. of grease type Lithon-3 of Hindustan petroleum or equivalent through the bolt hole and replace the bolt in proper position.

SETTING OF MECHANICAL END STOPPERS:

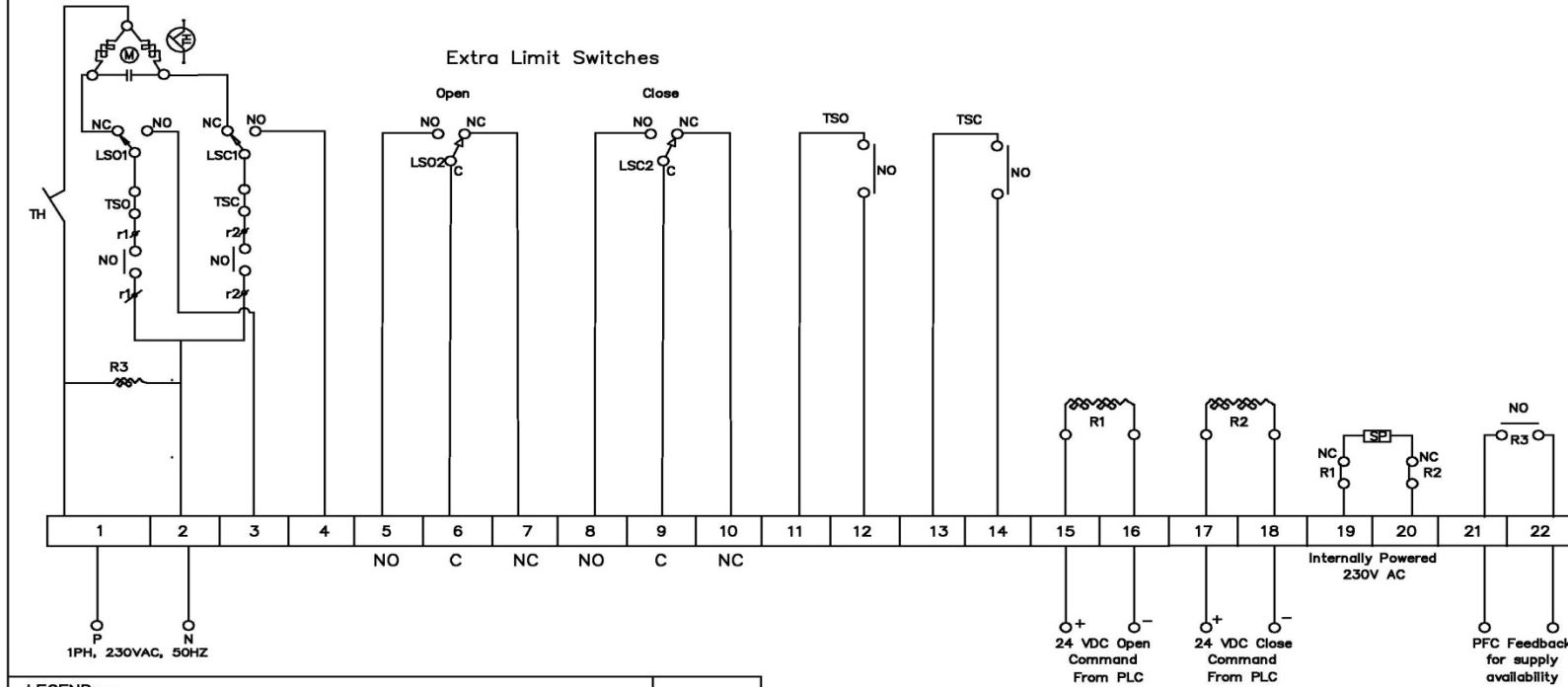
Mechanical end stoppers are provided as a back-up protection to prevent over travel of the actuator in case of failure of limit switches. The worm wheel at the output side provided in the actuator, is in the form of a Sector,

Hence after the completion of 90 Deg Movement and a Margin of 10 Deg it will rest on a projecting bolt provided as an end stopper. After the actuator has reached a fully closed position adjust the insertion of the stopper bolt in such a way that there is a slight gap between the worm wheel face and the bolt face so that the bolt will touch only in the event of overrun of the worm wheel. Repeat the above operation for open direction of the actuator.



TERMINAL WIRING DIAGRAM

SD-1001-TWD-SP-002-R3



LEGEND:-	
LSO-TRAVEL LIMIT SWITCHES IN OPEN POSITION HAVING(1NO + 1NC)	2 nos.
LSC- TRAVEL LIMIT SWITCHES IN CLOSE POSITION HAVING(1NO + 1NC)	2 nos.
TSO- TORQUE LIMIT SWITCH IN OPEN POSITION.	1 nos.
TSC- TORQUE LIMIT SWITCH IN CLOSE POSITION.	1 nos.
R1 - 24VDC RELAY FOR OPEN COMMAND 2CO	1 nos.
R2 - 24VDC RELAY FOR CLOSE COMMAND 2CO	1 nos.
R3 - 230VAC RELAY FOR SUPPLY STATUS FEEDBACK, 2CO	1 nos.
SP - SPACE HEATER (WIRE WOUND RESISTOR 12KΩ ±5% 10W)	1 nos.
TH - THERMOSTAT EMBEDDED IN MOTOR WINDING	1 nos.
M - SINGLE PHASE INDUCTION MOTOR	

⚠ Remote open & close command shall be electrically interlock at a time give only one command

sdtork		<i>SDTORK CONTROLS PVT.LTD</i>	
	SCALE	1:1	TITLE-
R3	26-9-2016	DRAWN	C.A PATEL
R2	13-9-2016	CHECKED	A.B.C
R1	9-9-2016	APPROVED	S.P.K.
TERMINAL DRAWING			DATE: 30.01.2015
			DRG.NO.
			SD-1001-TWD-SP-002-R3
			SHEET 1 OF 1



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