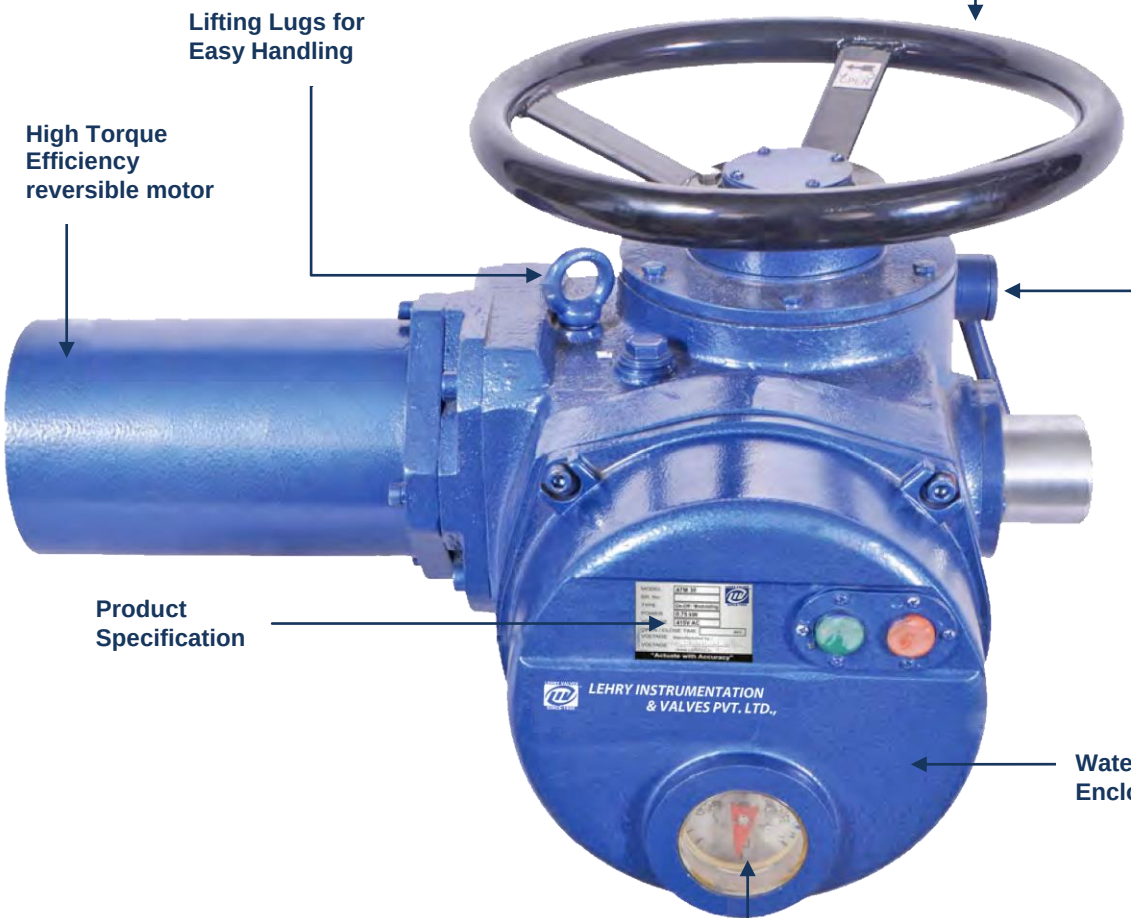
LEHRY

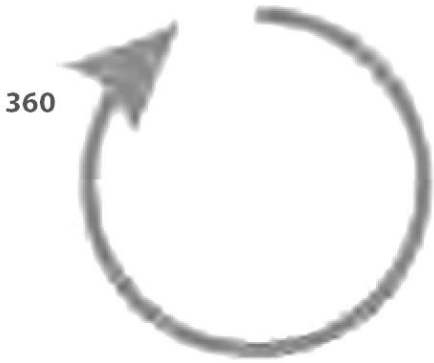
SINCE 1950

# ATM SERIES THREE PHASE MULTI - TURN



**Key Features : -**

**Actuate with Accuracy**




Multi-Turn Actuator

**SUPPLY VOLTAGE**

- 415 VAC- (+ 10%), 50/60 Hz
- 380 V AC, 460V AC (Available on request)

**ENCLOSURE - IP 67 / 68**

- Weatherproof- IS / IEC 60529
- Flameproof or Ex-Proof- IS / IEC 60079 I Zone II, Gas Group lib T4

**TORQUE RANGE**

- 50Nm - 2400Nm

**MANUAL OVERRIDE**

- Advanced design with Auto Deelutoh Mechanism to prevent user from injury

**INTEGRAL STARTER UNIT**

- Selector Switches — Open / Stop / Close; Auto / Manual or Remote / Local
- Indicator Lamps — Open / Close / Error

**VARIOUS OPTIONS**

- ON/OFF Type
- Modulating Control (Signal Input - 4 ~ 20mA/1 ~ 5V DC / 2 - 10V DC).
- Potentiometer Feedback (4 - 20mA).
- Auxiliary Limit Switches (2 Units).
- 2 Wire for ON/OFF Operation.

**Widely Used in Fields Such as : -**

- Water Treatment
- Municipal Water Supply Board
- Petroleum
- ChemLcaL Industry
- Power Plant
- Metallurgy
- Pharmacy
- Paper Industry
- Energy
- Textile
- Food Processing
- Automation etc...

**Motorized Valves : -**

- Gate Valves
- Knife Gate Vatves
- Globe Control Valves
- Pinch Valves

**MANUFACTURING STANDARDS : -**

- Actuator Manufacturing Standard
  IEC / EN 5714 - 2 (Electrical Actuator for Industrial Valves)
- Actuator Enclosure Standard - IP 67 / 68
  IS / IEC 60529 - 2009 (Degree of Protection provided by Enclosure)
- Actuator Motor Standard
  lEC-60034- 1 (Rotating Electrical Machines)
  IS-325 (Three Phase Induction Motor)
- Actuator Mounting Standard

  ISO 5211

**APPLICABLE DIRECTIVES**

- EC Machinery Directive - 2006 / 42 / EC
- Low Voltage Directive - 2006 / 95 / EC
- EMC Directive- 2004 / 105 / EEC

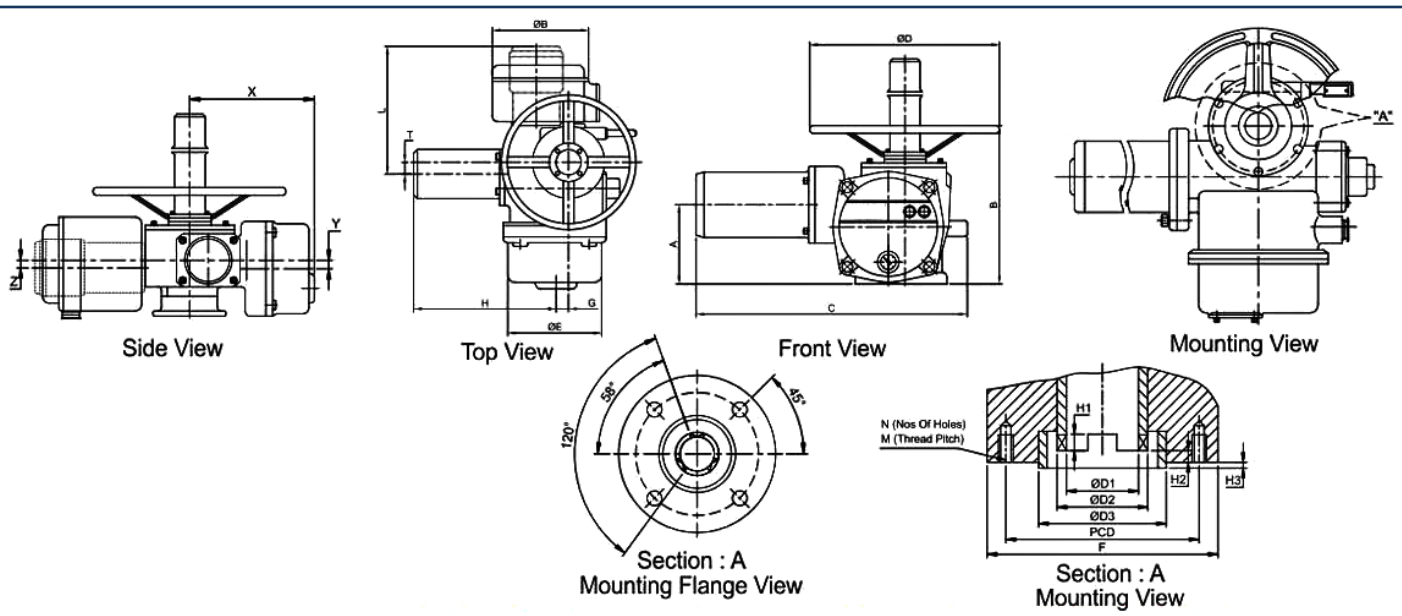
**TECHNICAL DATASHEET : -**

STANDARD SPECIFICATIONS

| Model No: | Max Torque NM | Motor Kw | Actuator RPM | 415 V AC Motor Current | | | Acceptable Stem Ø mm |
|---|---|---|---|---|---|---|---|
| | | | | START (A) | RUN (A) | LOCK (A) | |
| ATM 5 | 50 | 0.18 | 36 | 3.8 | 0.87 | 3.8 | 30 |
| ATM 10 | 100 | 0.25 | 18 | 5.2 | 1.2 | 5.2 | 34 |
| ATM 10 | 100 | 0.37 | 36 | 6.5 | 1.5 | 6.5 | 34 |
| ATM 20 | 200 | 0.55 | 18 | 8 | 2.2 | 8 | 36 |
| ATM 20 | 200 | 0.75 | 36 | 13.5 | 2.7 | 13.5 | 36 |
| ATM 20 | 200 | 1.1 | 72 | 17 | 3.1 | 17 | 36 |
| ATM 30 | 300 | 0.75 | 18 | 13.5 | 2.7 | 13.5 | 36 |
| ATM 30 | 300 | 1.1 | 36 | 17 | 3.1 | 17 | 36 |
| ATM 60 | 600 | 1.5 | 18 | 21 | 4.3 | 21 | 65 |
| ATM 60 | 600 | 2.2 | 36 | 28 | 6 | 28 | 65 |
| ATM 90 | 900 | 2.2 | 18 | 28 | 6 | 28 | 80 |
| ATM 90 | 900 | 3 | 36 | 32 | 8.5 | 32 | 80 |
| ATM 120 | 1200 | 3 | 18 | 32 | 8.5 | 32 | 80 |
| ATM 120 | 1200 | 4 | 36 | 55 | 13 | 55 | 80 |
| ATM 240 | 2400 | 5.5 | 18 | 80 | 13 | 80 | 100 |
| ATM 240 | 2400 | 7.5 | 36 | 105 | 16 | 105 | 100 |

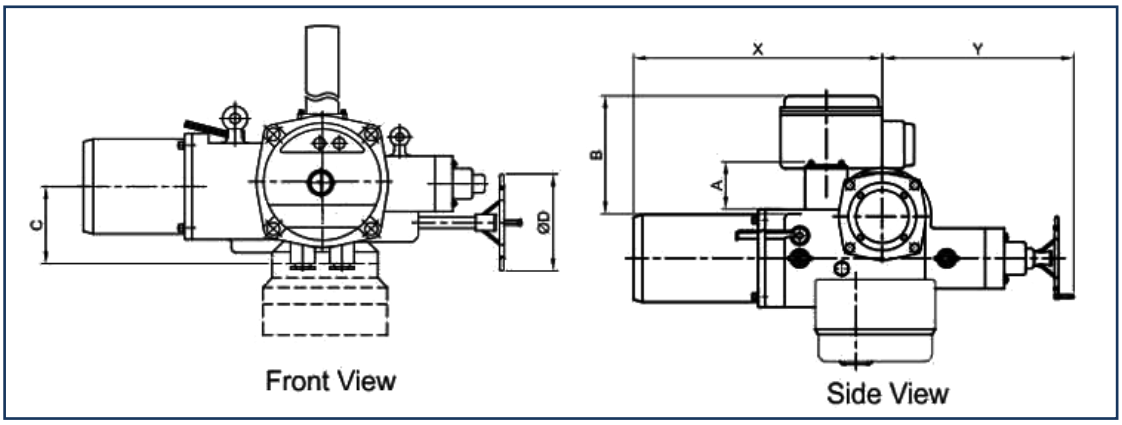
Note : Specification mentioned here are subject to revision without notice due to continuous product improvements. (Rev.-1)

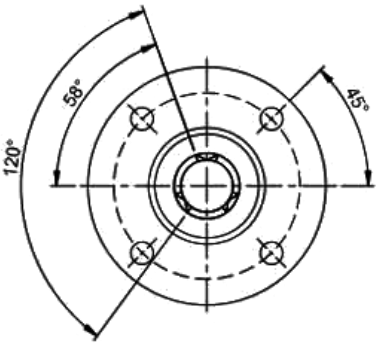
**DIMENSIONAL DETAILS : -**



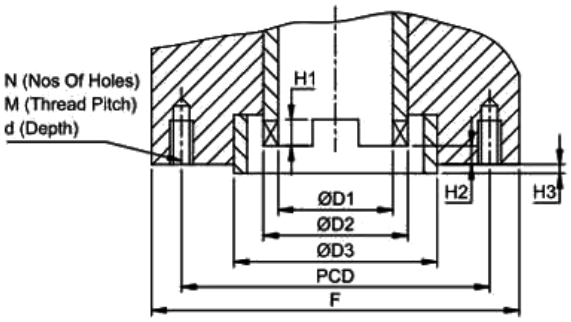

**(ALL DIMENSIONS ARE IN MM)**

| Model No: | A | B | C | ØD | X | Y | Z | ØB | L | T | H | G | ØE | ØD1 | ØD2 | ØD3 | F | PCD | H1 | H2 | H3 | N | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATM 05 | 137 | 300 | 552 | 305 | 244 | 30 | 44 | 216 | 181 | 30.5 | 391 | 23 | 200 | 38 | 50 | 70 | 125 | 102 | 7 | 2 | 3 | 4 | 10 |
| ATM 10 | 137 | 300 | 552 | 305 | 244 | 30 | 44 | 216 | 181 | 30.5 | 391 | 23 | 200 | 38 | 50 | 70 | 125 | 102 | 7 | 2 | 3 | 4 | 10 |
| ATM 20 | 137 | 300 | 552 | 305 | 244 | 30 | 44 | 216 | 181 | 30.5 | 391 | 23 | 200 | 38 | 50 | 70 | 125 | 102 | 7 | 2 | 3 | 4 | 10 |
| ATM 30 | 137 | 300 | 552 | 305 | 244 | 30 | 44 | 216 | 181 | 30.5 | 391 | 23 | 200 | 38 | 50 | 70 | 125 | 102 | 7 | 2 | 3 | 4 | 10 |





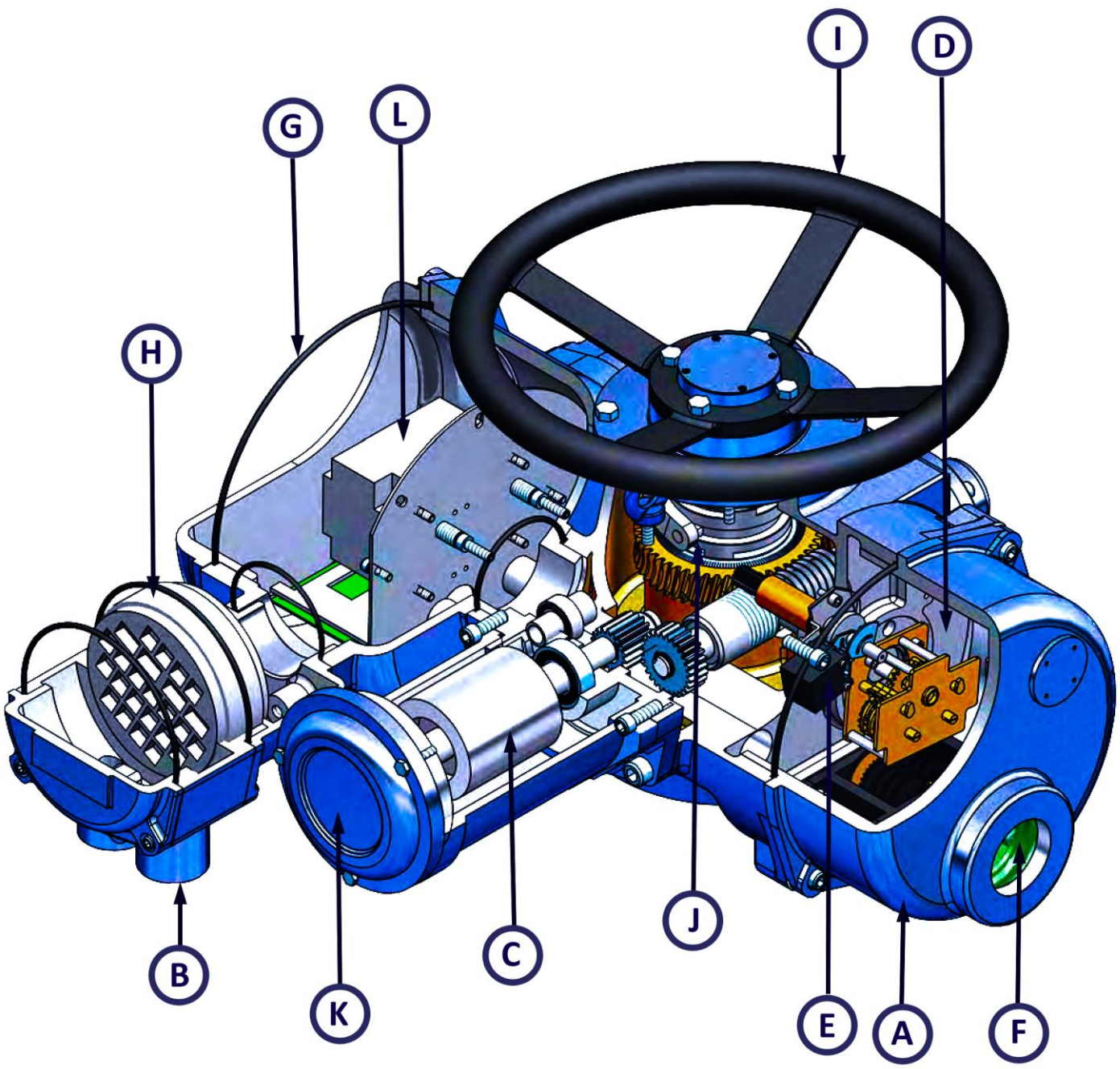

Section : A
Mounting Flange View




Section : A
Mounting View

**(ALL DIMENSIONS ARE IN MM)**

| Model No: | A | B | C | X | Y | ØD | ØD1 | ØD2 | ØD3 | F | PCD | H1 | H2 | H3 | N | M | d |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATM 60 | 107 | 280 | 144 | 545 | 386 | 305 | 67 | 84 | 100 | 175.0 | 140 | 9 | 6 | 3 | 4 | 16 | 25 |
| ATM 90 | 113 | 286 | 148 | 578 | 447 | 305 | 67 | 84 | 100 | 175.0 | 140 | 9 | 6 | 3 | 4 | 16 | 25 |
| ATM 120 | On Request | | | | | | | | | | | | | | | | |
| ATM 240 | On Request | | | | | | | | | | | | | | | | |



## A) ENCLOSURE

ATM series actuators are available in both Weather Proof and Flame Proof (Ex-Proof) enclosures. These enclosures are watertight to IP 67 / IP 68. The enclosures are hard enodized which provides resistance from high temperatures, acids, alkali and remain water proof and dust proof. All the joints On the enclosure are armed with a waterproofing seal making it suitable for mounting in extreme outdoor environment.
Enclosure types with ambient temperatures are indicated below:

| | | | |
|---|---|---|---|
| Weather Proof-(Standard} | Rating | | Ambient Temperature |
| Manufacturing Standard IE060529 | IP63 | | -30˚C to +70˚C |
| Flame Proof- (Ex-Proof) | Enclosure Code | Rating | Ambient Temperature |
| Manufacturing Standard IS/IEC 60079 | Exd IIB T4<br>Exd IIC T4 | IP63 | -20˚C to +70˚C |

## B) POWER SUPPLY

ATM series actuators are suitable for operation with the following Three Phase power supplies.

Standard Supply Voltages
415VAC : (± 10%), 50 / 60 Hz

Supply Voltages available on request
38O V AC : (±10%) 50/60 Hz
460 V AC : (± 10%). 50/60 Hz

Voltage Tolerance : ± 10% Applies for rated torque performance; duty cycle and speed not guaranteed
Frequency Tolerance : ± 5% Applies for rated torque performance; duly cycle and speed not guaranteed
Maximum Starting Voltage Drop : - 15% Actuator can start and run up to speed
Non Standard Tolerance : Available on request
UPC Systems : UPS systems should confirm to recognised supply standards such as EN60160 The above tolerances should not be exceeded

## C) MOTOR

ATM series actuators are fitted with specially designed motors integral to the actuator. These motors can be broadly classified on the basis of their duly.
On-Off Type I Modulating Type (proportionate control)

- Three phase capacitor / run start squirrel cage induction type synchronized motor
- Continuous duty (S2-15 mins).
- Class F insulation with temperature rise restricted to Class B.
- Thermostat protection : Thermostats embedded in the motor end windings will directly sense motor temperature Thermostats will open circuit when set temperature is reached, thereby de-energising the motor and auto reset to continue operation once the motor has cooled off.
- Low inertia design.
- Nominal 50 starts per hour, 15 minutes rated based on a nominal torque of 33% or rated torque.
- Micro-processor based modulating control card.

**Duty Rating**
On-Off / Inching
Modulating

## D) TORQUE SWITCH / SENSOR

Independent torque switches are provided, one for each direction of travel having 2NO + 2NC potential free contacts. Output torque is controlled by switching the motor off when the set torque limit has been reached, The entire torque switch drive assembly is individually replaceable.

## E) POSITION SWITCH / SENSOR

Independent limit switches are provided, one for each direction of travel having 2NO + 2NC potential free contacts. Limit switches are operated by gear driven cams. which are mechanically linked to the driving devices. Easy setting of limit switches (counter-wheel-mechanism). If the switching point of limit switch gear has been overturned inadvertently by manual operation, the switching point itself does not change. No resetting is therefore required. All actuators have a continuous local mechanical position indicator

## F) POSITION INDICATOR

Actuator are fitted with positon indicator, having high strength and sunlight resisitance making it suitable for outdoor environment. User can visualize position from any angle.

## G) SEALS

Actuators enclosures are sealed with superior quality rubber O-rings forming an air-tight seal.

## H) TERMINALS

ATM Series actuators are provided with a separately sealed terminal compartment Terminal screws and washers are supplied with the actuators.

## I) HANDWHEEL

Manual handwheel is provided to enable operation in case of power failure or during installation of actuator on valve.

## J) LUBRICATION

ATM Series actuators come with premium quality lubricants and enable smooth functioning of rotating components at a wide temperature range.

## K) FINISH

The actuators are powder coated with corrosion proof epoxy coating.

## L) CONTROL – LOCAL / REMOTE CONTROL

Selector switches : open / stop / close.
Selector switches : auto / manual or local / remote
Indicating lamps : open / close / error.
Enclosure : IP67 weather proof & dust proof.

- Blinking LED lamp indication during open / close operation.
- |Red - Fully Open | Green - Fully Closed.
- Automatic phase rotation correction and phase loss protection
- 24V DC voltage level is applied for remote control.
- Easy and flexible user connection way.
- Non-intrusive local control Smith with hall affect device to improve water proof feature.
- Five passive, contacts to indicate the working status of the electric actuator and facilitating the monitoring of the electric actuator by DOS system
- Operating mode select switch can be locked with ordinary lock to prevent improper operation.

## OPTIONAL

### FIELDBUS CONTROL OPTION

ATM seires actuators are available with the network interface cards to enable remote control and indication using digital ‘bus’ network systems communication to the control systems. Network, interface cards sucha as Modnus, Profilbus and Foundatiuon Fieldbus are compatible.

### FAIL POSITION OPTION

In the event of loss of power supply a battery provides power to the control module/motor to update the valve position.

# THREE PHASE MULTITURN VALVES

## Gate Valve Multi-Turn Electrical Actuator Operated

Body & Bonnet :
CI / WCB / WC 6 / WC 9 / SS 304 / SS 316 /SS 316L / Alloy Steel / Duplex
Trims :
13Cr. / 18Cr.8N / SS
Temperature :
-20˚C to 750˚C
Ends :
Flanged to 150# / 300# / 600# / 900# / 1500# / 2500#
Design & Manufacture STD. :
API 600 / BS 1414 / MSS-SP80 / BS5352

## Globe Valve Multi-Turn Electrical Actuator Operated

Body & Bonnet :
CI / WCB / WC 6 / WC 9 / SS 304 / SS 316 /SS 316L / Alloy Steel / Duplex
Trims / Plug :
13Cr. / 18Cr.8N / SS
Seat :
Teflon / Metal Seat (Class IV / VI)
Ends :
Flanged to 150# / 300# / 600# / 900# / 1500# / 2500#
Lugged to ANSI 16.5 RF (150#)
Design & Manufacture STD. :
API 600 / BS 1414 / MSS-SP80 / BS5352

## Pinch Valve Multi-Turn Electrical Actutaor Operated

Body & Bonnet :
CI / WCB / Aluminium / SS 304 / SS 316
Trims :
13Cr. / 18Cr.8N / SS
Temperature :
Upto 180˚C
Ends :
Flanged to DIN / ANSI / BS / IS
Elastomer Sleeve
Natural, Nitrile, EPDM, Neoprene, Hyplon
Medial :
Abrasive Corrosive Application, Alkaline, Slurries, Viscous Fluid , Sludge

## Knife Gate Valve Multi-Turn Electrical Actuator Operated

Body & Bonnet :
CI / WCB / SS 304 / SS 316 / Alloy Steel
Knife Plate :
CI / WCB / SS 304 / SS 316 / Alloy Steel
Seat :
Nitrile / Silicon / Metal to Metal
Ends :
Din PN 10 Flanged / Lugged to ANS 16.5 RF (150#)
Design & Manufacture STD. :
MSS SP-81
Packing :
PTFE / Graphite

## Slide Gate / Guillotine Damper Valve Multi-Turn Electrical Actutaor Operated

Body & Bonnet :
IS 2062 MS / SS400 Galvanised Steel
Seat :
Nitrile (NBR) / EPDM / VITON
Leakage :
Upto 99% Sealing Efficiency Class II/ III / IV ( As per FCI 70-2)
Temperature :
-20˚C to 750˚C
Ends :
Wafer / Double Flanged DIN 24154 PN 6 / PN 10 / PN 16

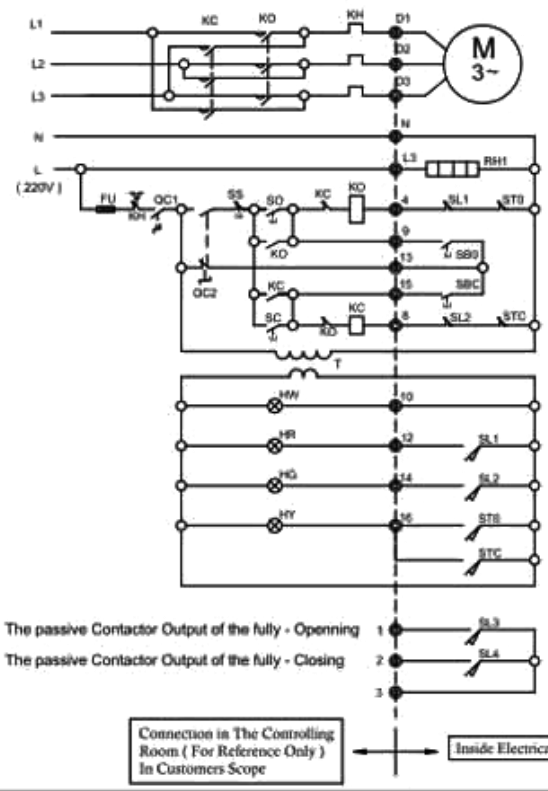
## Butterfly Valve with Multi-Turn Electrical Actuator (Worm Gear Box) Operated

Body & Bonnet :
CI / DI / WCB / SS 304 SS 316 /SS 316L / Alloy Steel / Duplex
Seat :
Nitrile (NBR) / EPDM / VITON PTFE
Ends :
Wafer / Double Flanged / Lug Type
Design & Manufacture STD. :
API 609 Category A / BS 5155 MSS SP-67 / AWWA C-504

# WIRING DIAGRAM

## On / Off Duty

**Basic Type** | **ATM - SERIES MULTI - TURN ELECTRICAL ACTUATOR WIRING DIAGRAM** | **415V AC**




**NOTES :-**

1. The Valve is the middle position in this diagram
2. Local / Remote witch QC2 is at the Local.

**Table 1**

**(1)** Terminal wiring Table ( Basic Type )

| Terminal No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | ..... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diagram No. | D1 | D2 | D3 | N | L3 | 1 | 2 | 3 | 4 | 5 | 6 | 10 | 12 | 13 | 14 | 15 | 16 | 19 | 20 | 21 | 22 | |

**Table 2**

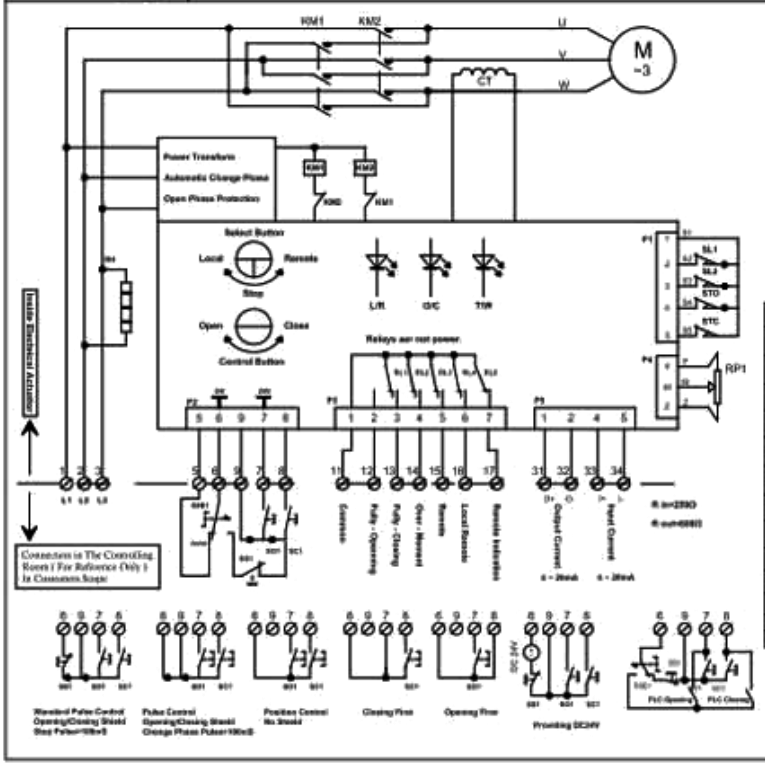
| No. | Symbol | Name | No. | Symbol | Name |
|---|---|---|---|---|---|
| 09 | T | Transformer | | | |
| 08 | HY | Over Moment Lamp | | | |
| 07 | HW HR HG | Indicating Lamp | | | |
| 06 | SBO SBC | Local Button | | | |
| 05 | SS SO SC | Remote Button | 14 | RH1 | Space Heater |
| 04 | OC2 | Local/Remote Witch | 13 | M | Motor ( AC 415V ) |
| 03 | FU | Fuse | 12 | OC1 | Power Switch |
| 02 | KH | Thermal Protection | 11 | SL3 SL4 | Limitation Switch |
| 01 | KO, KC | Open/Close AC Relay | 10 | STO STC | Over Moment Switch |

**BASIC TYPE, WITH LOCAL BUTTON, LIMIT SWITCH CONTACT**

SR.NO. 7021

## Modulating

**Modulating Type** | **ATM-IN-PRO SERIES MODULATING TYPE MULTI - TURN ELECTRICAL ACTUATOR WIRING DIAGRAM** | **415V AC**




**Note :-**

1. The Valve is at The Middle Position in This Diagram.
2. Ø : Wiring Terminals for User to Connect.

**Table : 1**

Terminal Wiring Table

| Terminal No. | 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electric Schematic No. | 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 31 | | | |
| Terminal No. | | | | | | | | | | | | | | | | | 18 | 19 | 20 |
| Electric Schematic No. | | | | | | | | | | | | | | | | | 32 | 33 | 34 |

**Table : 2**

| Component List | | | | | |
|---|---|---|---|---|---|
| 11 | RH | Space Heater | 11 | | |
| 10 | CT | Current Transformator | 10 | | |
| 9 | SL1-5 | State Relay | 9 | | |
| 8 | RP1 | Valve Position Feedback Potentiometer | 8 | | |
| 7 | TW | Over - Moment/Power Indicator Lamp | 7 | | |
| 6 | O/C | Valve Opening/Closing Indicator Lamp | 6 | | |
| 5 | L/R | Local/Remote Indicator Lamp | 5 | | |
| 4 | STO STC | Opening/Closing Moment Switch | 4 | SSE1 | Local/Remotes Witch |
| 3 | SL1 SL2 | Opening/Closing Limitation Switch | 3 | SC1 | Local Close Button |
| 2 | KM1-2 | Opening/Closing AC Relays | 2 | SO1 | Local Open Button |
| 1 | M | Valve Driving Motor (AC415V) | 1 | SS1 | Stop Button |
| No. | Sign | Name | No. | Sign | Name |
| At the Electric Valve | | | In The Control Room | | |

SR.NO. 7023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