

TQ SERIES

Quarter-Turn Actuator

Ever-Reliable



KEPCO Trusted Partner
Korea Power Plant Group Corporate Partner

Ever-Reliable
enertork[®]

TQ SERIES : QUARTER-TURN ACTUATOR



TQ SERIES

QUARTER-TURN ACTUATOR

TQ Series represents our devoted technology over 30 years of experience in the valve actuation, offering customer the reliable, quality assured, and cost-effective product.





Features

- Light, compact and corrosion resistant [Aluminum alloy enclosure](#).
- [Double sealed](#) with V-shape ring and gasket to ensure IP68 grade, 8 meters under water for 72 hours.
- [Explosion proof](#) : Exd IIBT4-IEC-60079-0,-1
- Mechanically and electrically interlocked [Reversing Magnetic Contactor](#) to enhance the motor start-up.
- [2-wire fieldbus](#) communication protocols.
- [Non-intrusively set the position limit & torque](#), using remote control kit and push buttons respectively.

Structure

① Motor

The squirrel cage induction motor with embedded thermostat. The built-in thermostat accurately detects the increased temperature to prevent form motor damaging.

② Position Indicator

Dial indicator ranging from 0 ~ 100%

Option : LCD display is available for the model with integral control unit



③ Limit switch

Setting and adjusting is easy by using a screwdriver

④ Torque switch

Automatically stops the motor when the torque larger than the set value set is applied to the valve shaft



⑤ Potentiometer

Slip mechanism is provided for easy modification of zero points, achieved by rotating the potentiometer shaft with a screwdriver

⑥ Integral control unit

※ Non-penetrating push buttons are integrated with the actuator.

※ The inner circuit board is isolated from the remote command signals by the opto-isolator to withstand the surge.

※ Once the torque switch triggers, the actuator responds to no other command signals until the reset button is pushed to protect motor and valve.



⑦ Handwheel

Side-mounted for easy access to manual operation

⑧ Change lever

Automatically declutches to switch-over from manual to electric operation

⑨ Terminal block

9-1 Basic type : located inside the actuator body.

9-2 Integral control unit type : located at the rear of integral control unit which is double sealed with V-ring and gasket to prevent the ingress of foreign objects or substances even when the terminal cover is removed for on-site wiring.

9-3 As an option for basic type : additional double sealed terminal block is available separately.



⑩ Space heater : themistor type(PTC - 5)





Specification

Standard

| | |
|--------------------------|--|
| Enclosure | IP68 (under water, depth 8 meters for 72 hours) |
| Main Power | Single Phase 110/220V, Three Phase 220/380/440/460/480V, 50/60Hz |
| Control Power | Single Phase 110/220V |
| Motor | Squirrel caged induction motor, Class F, Duty S2, 10 minutes |
| Limit Switches | Open/Close 2ea respectively, Silver Alloy Contact 250VAC, 10A |
| Torque Switches | Open/Close 1ea respectively, Silver Alloy Contact 250VAC, 10A(TQ-010; N/A) |
| Rotating Angle | 90° ± 10° |
| Terminal | 26pins (TQ-010; 22pins) |
| Position Indicator | Dial indicator 0~100% |
| Space Heater | PTC thermistor type 5W, 110~240VAC |
| Cable Entry | PF 1"X3 (TQ-010, PF3/4"X3) |
| Manual/Electric Shifting | Automatic switch-over when motor starts up |
| Ambient Temperature | Basic/LED : -25°C~80°C LCD : -25°C~70°C |
| Lubricant | Grease EPO Class |
| Vibration/Shock | 1G within the range of 10~40Hz (0.5G for integral types), Shock : 30G |
| Lifespan | Minimum 10,000 cycles (EN15714-2) |
| External Painting | Polyester powder coating after anodizing (Munsell No. 2.5PB5/2) |

Option

| | |
|--|---|
| Integral Control Unit | Non-penetrating push buttons (Open/Stop/Close/Reset), Local/Off/Remote Selector, Open/Fault/Close LED lights, Reversing Contactor, Reverse phase detector, Monitor Relay, Double Sealed Terminal Block ※ Additional Option; Automatic Phase Correcting Function(TQ-010; N/A) |
| Potentiometer | 1kΩ |
| Position Transmitter | Output 4~20mA DC |
| Additional Switches (TQ-010; N/A) | Limit Switches Open/Close 2ea respectively, Torque Switches Open/Close 1ea respectively |
| Modulation | Input/Output 4~20mA DC (TQ-010; N/A) |
| Wide Traveling Angel | 120°, 180°, 270° (TQ-010; N/A) |
| Extra Terminal Box | Double Sealed Terminal Block for Basic Type (38 pins, TQ-010; N/A) |
| LCD | Digital Display of Valve Position, Open/Close/Fault Status |
| Self Diagnosis | Accumulated running times, number of actions, the number of operation of position/torque switch triggered, and thermostat errors |
| Fieldbus Controls | Profibus-DP, Modbus-RTU, FF-H1, HART |
| Explosion Proof | Exd II BT4 (FM, CSA, ATEX) |
| Optional Coating | Refer to Enertork |
| Torque Reset | |
| Non-intrusive position & torque setting, date logging(TQ-010; N/A) | |

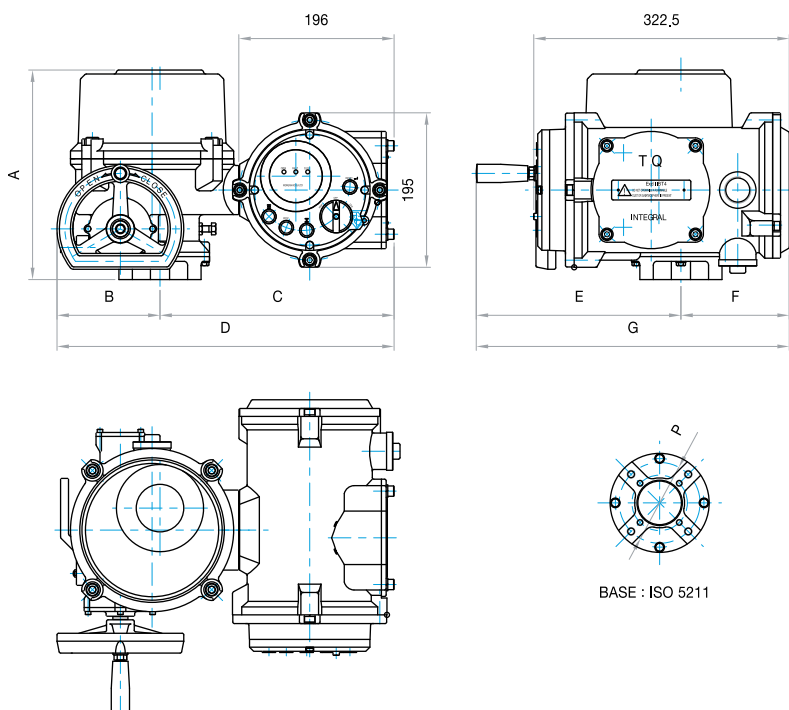
Technical details

Performance

| Model | Max. Output Torque | Operating Time(90°) 60/50Hz | Max. bore Diameter | Motor | | Rated Current (A) | | | | Hand Wheel turns | Weight |
|---------|--------------------|--------------------------------|--------------------|-------|-------|-------------------|------|---------|------|------------------|--------|
| | | | | Power | Frame | 1 Phase | | 3 Phase | | | |
| | | | | W | F | 110V | 220V | 380V | 440V | | |
| TQ-010 | 10 | 17/21 | 18 | 15 | 70 | 1.12 | 0.53 | N/A | N/A | 10 | 6.5 |
| TQ-020 | 20 | 17/21 | 30 | 40 | 80 | 1.86 | 0.94 | 0.30 | 0.29 | 10 | 19 |
| TQ-040 | 40 | 26/31 | 40 | 40 | 80 | 1.92 | 0.99 | 0.31 | 0.30 | 12.5 | 25 |
| TQ-060 | 60 | 26/31 | 40 | 90 | 90 | 3.78 | 1.46 | 0.48 | 0.44 | 12.5 | 25 |
| TQ-080 | 80 | 34/41 | 47 | 90 | 90 | 3.78 | 1.46 | 0.48 | 0.44 | 14.5 | 35 |
| TQ-0120 | 120 | 34/41 | 47 | 180 | 90 | 5.12 | 2.67 | 0.89 | 0.83 | 14.5 | 36 |

Dimension

| Model | Mounting flange | Tap/depth | A | B | C | D | E | F | G |
|--------|-----------------|-----------|-----|-----|-----|-----|-----|-----|-----|
| | ØP | | | | | | | | |
| TQ-010 | F05 | M6 | 217 | 117 | - | - | 236 | - | - |
| | Ø50 | 10 | | | | | | | |
| TQ-020 | F07/F10 | M8/M10 | 265 | 130 | 296 | 426 | 258 | 137 | 395 |
| | Ø70/Ø102 | 12/15 | | | | | | | |
| TQ-040 | F10/F12 | M10/M12 | 287 | 175 | 288 | 463 | 272 | 136 | 408 |
| | Ø102/Ø125 | 15/18 | | | | | | | |
| TQ-060 | F10/F12 | M10/M12 | 287 | 175 | 288 | 463 | 272 | 136 | 408 |
| | Ø102/Ø125 | 15/18 | | | | | | | |
| TQ-080 | F12/F14 | M12/M16 | 321 | 200 | 293 | 493 | 319 | 155 | 474 |
| | Ø125/Ø140 | 18/24 | | | | | | | |
| TQ-120 | F12/F14 | M12/M16 | 321 | 200 | 293 | 493 | 319 | 155 | 474 |
| | Ø125/Ø140 | 18/24 | | | | | | | |





LTMD-Q Series

Multi-turn actuator 0.2~37kW (Nuclear Power Plant)



MW Series

Gear reducer - Worm, Bevel 51 ~ 30,600kgf.m



LEC Series

Self-descending actuator (1 ~ 20 Ton) 0.1 ~ 2.2kW



TM Series

Multi-turn 0.2~37kW



Ever-Reliable
enertork®

Head Office & Factory: #344 Neungyeo-Ro, Neungseo-Myeon, Yeosu-Si, Gyeonggi-Do, Korea **Tel: 031)880-2800 Fax: 031)881-5860**

Seoul Office: 18F, Un-Ik B/D., #430, Eonju-ro, Gangnam-Gu, Seoul, Korea **Tel: 02)555-0883 Fax: 02)556-3026**

Daegu Office: 2F, 23-18 Industry Materials Circulation Center, 1629, Sangyuk 2-Dong, Buk-gu, Daegu, Korea

Tel: 053)604-1720 Fax: 053)604-1721

Website : www.enertork.com

E-mail : enertork@enertork.com

The name Enertork is a registered trademark. Enertork recognizes all registered trademarks. Published and produced in South Korea by Enertork Limited.