

# QT70/QT250/QT400/QT800/QT1000 QUARTER-TURN ACTUATORS

**COMPACT QUALITY**

The QT generation 2.5 quarter-turn actuators are suitable for butterfly- and ball valves with an operating torque of 10-1000 Nm.

Excellent control options, low cost of installation and operation and no need for maintenance make **ELTORQUE** actuators the obvious choice.

## FEATURES:

- Max torque: 70 / 250 / 380 / 800 / 1000 Nm
- Valve range: DN50-DN400
- Absolute position feedback (true feedback)
- Removable cover for hand wheel protection
- IP68 enclosure
- Configurable torque, closing time and position
- Type approved
- Easy commissioning
- Savings on installation
- Compact design
- Maintenance free actuator
- Full valve control with positioning on IAS
- Low power consumption
- Manual emergency override as standard
- High efficiency, green solution

## OPTIONS:

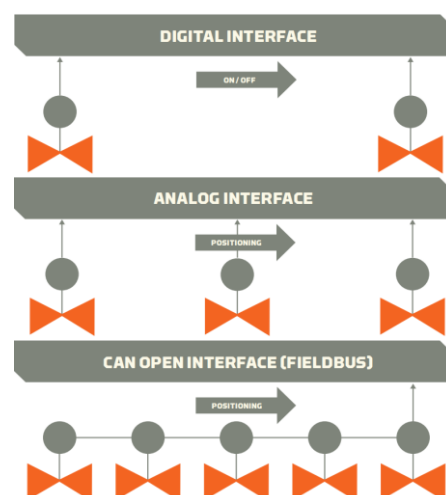
- Outdoor & Open Deck
- Dual Power, Failsafe



QT70 / QT250 / QT400



QT800 / QT1000



# QT70/QT250/QT400/QT800/QT1000

## SPECIFICATION

| GENERAL                              |                                                                                                                                                                    |                     |                     |                     |                     |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|
|                                      | QT70                                                                                                                                                               | QT250               | QT400               | QT800               | QT1000              |
| MIN-MAX TORQUE                       | 10 to 70 Nm                                                                                                                                                        | 50 to 250 Nm        | 50 to 380 Nm        | 250 to 800 Nm       | 250 to 1000 Nm      |
| MIN-MAX CLOSING TIME 0-100% / 0-90 ° | 3 - 8 s                                                                                                                                                            | 13 - 60 s           | 20 - 37 s           | 45 - 180 s          | 63 - 127 s          |
| VALVE SPINDLE ADAPTER                | SQ17<br>38 mm depth                                                                                                                                                | SQ17<br>38 mm depth | SQ22<br>38 mm depth | SQ27<br>45 mm depth | SQ27<br>45 mm depth |
| VALVE FLANGE (According to ISO5211)  | F05, F07, F10                                                                                                                                                      | F05, F07, F10       | F07, F10            | F10 & F12           | F10 & F12           |
| VALVE APPLICATIONS                   | Butterfly or ball valves with part-turn operation e.g., butterfly valves:<br>DN25 - DN80      DN50 - DN200      DN80 - DN300      DN250 - DN400      DN250 - DN400 |                     |                     |                     |                     |

| PHYSICAL PROPERTIES                        |                                                                                                                               |                                       |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|                                            | QT70 / QT250 / QT400                                                                                                          | QT800 / QT1000                        |
| WEIGHT [kg] / [lb]                         | 12 / 26.5                                                                                                                     | 21 / 44.1                             |
| DIMENSIONS H/W/D [mm] / [in]               | 229 x 156 x 209 / 9.01 x 6.14 x 8.23                                                                                          | 333 x 200 x 239 / 13.11 x 7.87 x 9.41 |
| HOUSING                                    | IP68 (10 m - 100 h) - Corrosion protected aluminum and steel enclosure<br>Corrosion protected aluminum and steel enclosure.   |                                       |
| COLOR                                      | Black                                                                                                                         |                                       |
| OPERATING CONDITIONS                       | -25 °C to 55 °C<br>Not designed for use on open deck of ships, outdoor or exposure to corrosive chemicals                     |                                       |
| TEMPERATURE PROTECTION                     | Motor current is switched off in case of over-heating.<br>Stator coils serve as heating elements in case of low temperatures. |                                       |
| STORAGE TEMPERATURE                        | 5 °C to 35 °C / 41 °F to 95 °F                                                                                                |                                       |
| OPERATING TEMPERATURE WITH FAILSAFE OPTION | -25 to 55°C / -13 to 131°F<br>0 to 45°C / 32 to 113°F                                                                         |                                       |

| ELECTRICAL AND CONTROL PROPERTIES                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| POWER SUPPLY                                                       | 110 - 240V AC/DC, 50/60 Hz, Max 240VA                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CABLE GLANDS                                                       | Up to five M20 glands allows serial connection of power supply and fieldbus wiring. Threaded holes in actuator capsule. Use IP68 glands for all wires, EMC type for fieldbus wiring.                                                                                                                                                                                                                                                                                                           |
| POWER CONSUMPTION OPENING AND CLOSING WITH MAX TORQUE <sup>1</sup> | 100 VA, PF 0.79                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| POWER CONSUMPTION STANDBY <sup>1</sup>                             | 9 VA, PF 0.37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| DUTY PERFORMANCE ACCORDING TO AN 15714-1 / IEC 60034-1             | Class A - 10 cycles per hour/52 - 15 min.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| POSITION SENSOR                                                    | Resolution 0,39% / 0,35° & range 360°<br>Absolute position sensor, provides correct feedback even after a power failure.                                                                                                                                                                                                                                                                                                                                                                       |
| CONFIGURATION                                                      | Connection to PC with Eltorque E3C software via USB adapter.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CONFIGURABLE PARAMETERS                                            | Open and Closed positions. Actuator speed, torque, and valve position regions.<br>Inverted IO or CAN bus parameters depending on control interface                                                                                                                                                                                                                                                                                                                                             |
| COMMUNICATION INTERFACE OPTIONS                                    | <b>CAN bus</b> communication allows positioning and other extended control of the actuator. The absolute maximum theoretical number of devices allowed on the bus is 127, but the actual number of nodes is limited by the baud-rate and the cable quality. Eltorque recommends a maximum of 80 nodes on 500 m/1660ft cable.<br><b>Digital</b> 2 DI (Open-Close) and 3 DO (Open-Close-Alarm.)<br><b>Analog</b> AI (Set position) AO (Feedback position) and DO (Alarm) (4-20 mA) AI/AO signal. |
| EMERGENCY AND SAFETY                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MANUAL OPERATION                                                   | Standard feature using fixed hand-wheel. Mechanical valve position indicator.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COVER OF HAND WHEEL                                                | Can be removed and refitted without tools.<br>Protects mechanism against mechanical damage and foreign objects.                                                                                                                                                                                                                                                                                                                                                                                |
| NUMBER OF TURNS                                                    | <b>7.3</b> (QT70) / <b>21</b> (QT250) / <b>29</b> (QT400) / <b>74</b> (QT800) / <b>103</b> (QT1000) for 0-100% / 0-90° valve operation                                                                                                                                                                                                                                                                                                                                                         |
| CERTIFICATIONS/TYPE APPROVAL <sup>2</sup>                          | CE-marked<br>Type approved by DNV, CCS, ABS (PRODUCT DESIGN ASSESSMENT - PDA), BV, TL                                                                                                                                                                                                                                                                                                                                                                                                          |
| SELF-LOCK                                                          | The actuators are equipped with a mechanical self-locking device that locks the valve to the target position when the actuator movement command is completed.                                                                                                                                                                                                                                                                                                                                  |

<sup>1</sup>Earlier version of the QT actuators have other values for power consumption, see User Manual Table 2: Product overview on page 8 for information on the correct documentation to consult.

<sup>2</sup>Special conditions apply, check detail with Eltorque agent.

## OPTIONS SPECIAL VARIANTS

### OPEN DECK OPTION

|                      |                                                                             |
|----------------------|-----------------------------------------------------------------------------|
| COLOUR               | Silver - reflective paint that prevents heat buildup from sunlight exposure |
| OPERATING CONDITIONS | -25 °C to 70 °C                                                             |

### FAILSAFE OPTION

| FAILSAFE OF HON              |                                                                                                                                                                                                                                                                                                                                              |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------|---------------------------|----------------|---------------------|----------------|------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|---------------------|---------------|------------------|---------------|-------------------|----------------|
| DIMENSIONS H/W/D             | QT70/250/400 with failsafe option<br>229x156x284 mm / 9.01 x 6.14 x 11.18 in                                                                                                                                                                                                                                                                 | QT800/1000 with failsafe option<br>333/200/284mm / 13.11 x 7.87 x 11.18 in |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| POWER SUPPLY                 | 110 - 240 V AC/DC, 50/60HZ, Max 240 VA, 100 VA while power consumption<br>Opening and closing with max torque, 9 VA while standby                                                                                                                                                                                                            |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| BATTERY LIFETIME             | <table><tr><th>BATTERY NOT CONNECTED</th><th>BATTERY LIFETIME</th></tr><tr><td>1) Shipping from Eltorque</td><td>Up to 6 months</td></tr><tr><td>2) External Storage</td><td>Up to 6 months</td></tr><tr><td>3) Installed on Vessel</td><td>Up to 6 months</td></tr></table>                                                                 | BATTERY NOT CONNECTED                                                      | BATTERY LIFETIME | 1) Shipping from Eltorque | Up to 6 months | 2) External Storage | Up to 6 months | 3) Installed on Vessel | Up to 6 months | <table><tr><th>BATTERY CONNECTED</th><th>BATTERY LIFETIME</th></tr><tr><td>1) Deep sleep state</td><td>Up to 50 days</td></tr><tr><td>2) Service state</td><td>Up to 12 days</td></tr><tr><td>3) Failsafe state</td><td>Up to 36 hours</td></tr></table> | BATTERY CONNECTED | BATTERY LIFETIME | 1) Deep sleep state | Up to 50 days | 2) Service state | Up to 12 days | 3) Failsafe state | Up to 36 hours |
| BATTERY NOT CONNECTED        | BATTERY LIFETIME                                                                                                                                                                                                                                                                                                                             |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 1) Shipping from Eltorque    | Up to 6 months                                                                                                                                                                                                                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 2) External Storage          | Up to 6 months                                                                                                                                                                                                                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 3) Installed on Vessel       | Up to 6 months                                                                                                                                                                                                                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| BATTERY CONNECTED            | BATTERY LIFETIME                                                                                                                                                                                                                                                                                                                             |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 1) Deep sleep state          | Up to 50 days                                                                                                                                                                                                                                                                                                                                |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 2) Service state             | Up to 12 days                                                                                                                                                                                                                                                                                                                                |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| 3) Failsafe state            | Up to 36 hours                                                                                                                                                                                                                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| OPERATIONAL STATES           | <b>Deep Sleep State:</b> non-operative state<br><b>Normal State:</b> The actuator is working and can receive commands from IAS/E3C.<br><b>Failsafe State:</b> The product will move its pre-defined position.<br><b>Service State:</b> Makes the actuator non-responsive to commands and failsafe triggers blocking commands to be executed. |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| AVAILABLE FAILSAFE PROTOCOLS | <b>Fail-maintain:</b> The actuator self-lock keeps the position<br><b>Fail-to-open:</b> The actuator moves to the valve open position<br><b>Fail-to-close:</b> The actuator moves to the valve closed position                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |
| Maintenance Note             | Recharging when mains AC power is reconnected<br>Smart battery control and monitoring<br>Annual inspection including a full discharge-recharge cycle<br>Min 36 hours service time, minimum 4 open/close cycles                                                                                                                               |                                                                            |                  |                           |                |                     |                |                        |                |                                                                                                                                                                                                                                                          |                   |                  |                     |               |                  |               |                   |                |

### DUAL POWER OPTION

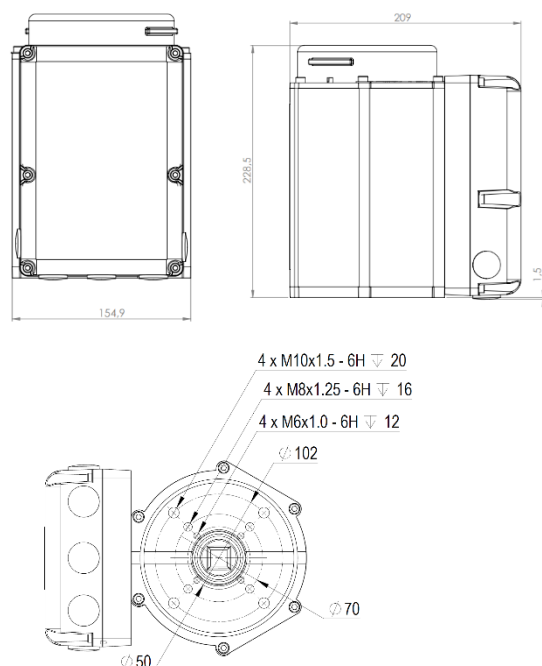
|              |                                                                                                                                                                                                                                                                                                                          |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESCRIPTION  | The Dual Power option is a functional extension of an actuator adding 24 VDC power input to standard 115-230 V AC. This feature might be combined with Single and Dual CAN configuration. To operate reliably the Dual Power actuator requires a minimum of 21 VDC on the terminals. Maximal current consumption is 3 A. |
| POWER SUPPLY | 24V DC                                                                                                                                                                                                                                                                                                                   |



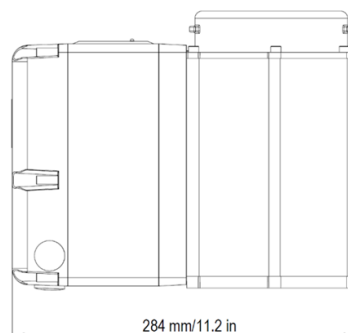
QT250 WITH FAILSAFE OPTION

## DRAWINGS

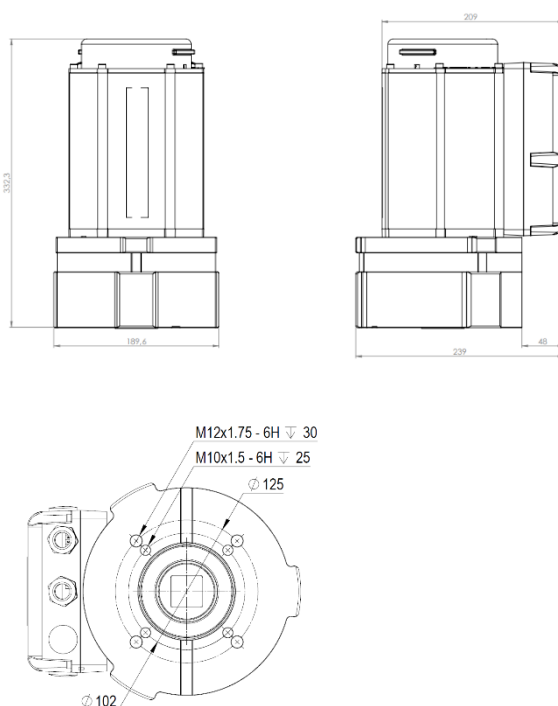
### QT70 / QT250 / QT 400



### WITH FAILSAFE OPTION



### QT800 / QT1000



### WITH FAILSAFE OPTION

