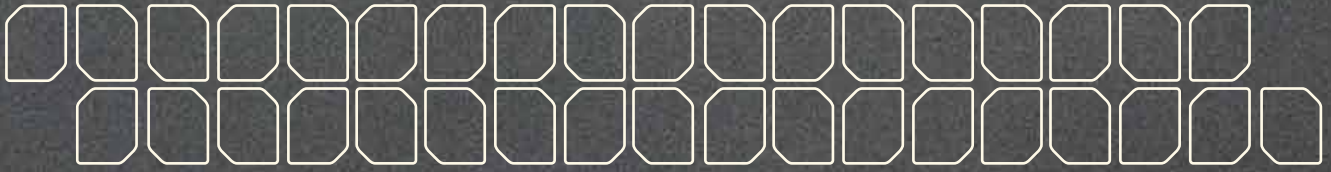




THE BEST VALVE CONTROL SOLUTION IN THE WORLD REPRESENTING **TRUE INNOVATION**



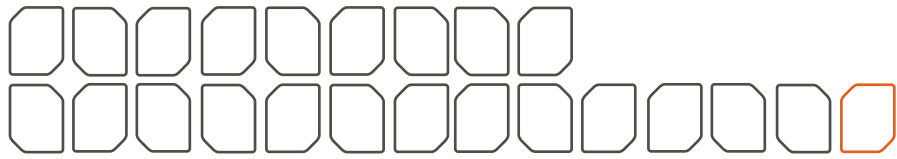


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01

ABOUT THE COMPANY

TRUE INNOVATION

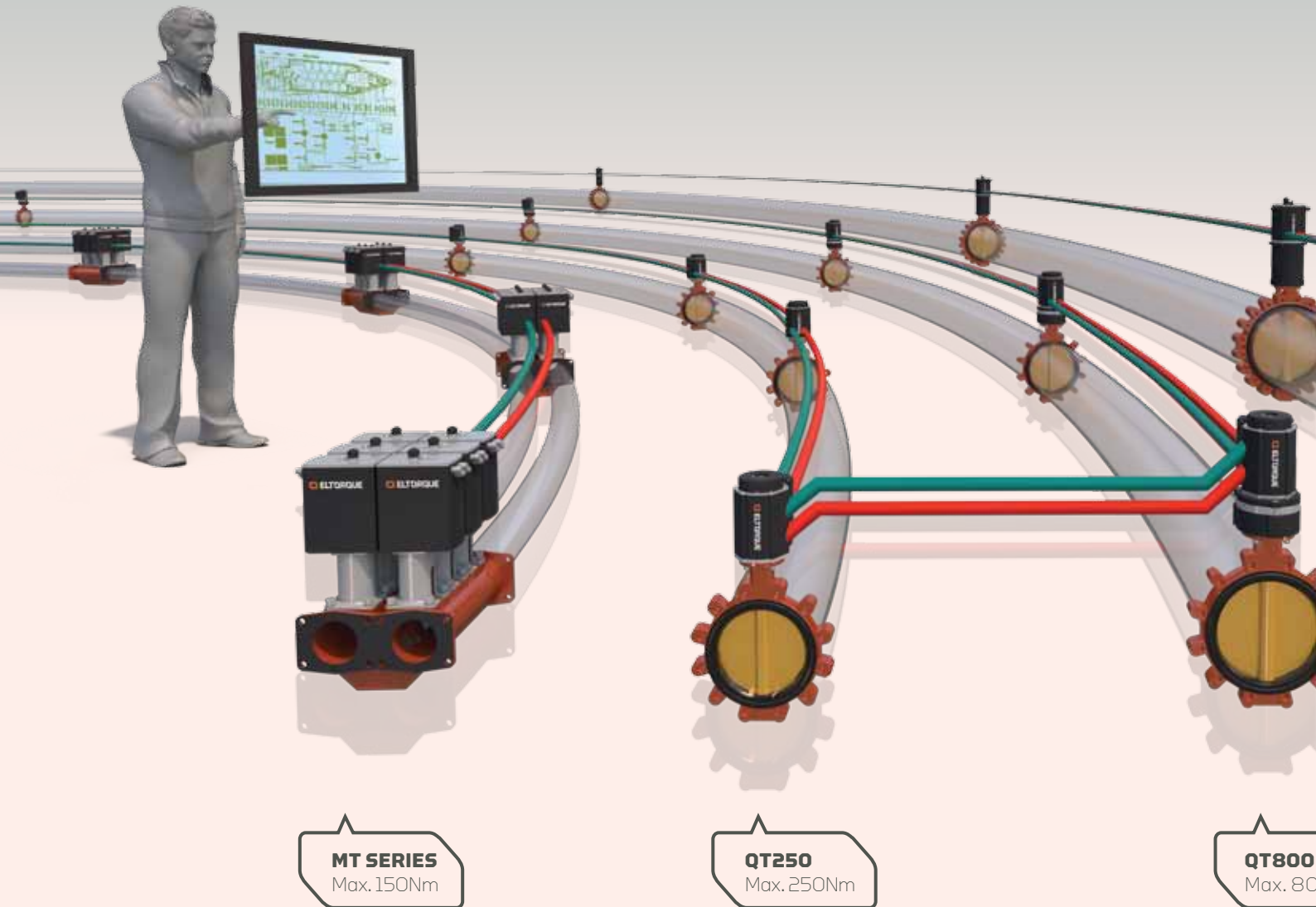
ELTORQUE develops and manufactures electric actuators and flow control systems for the international shipbuilding industry and for the onshore market.

In 1994 Eltorque AS invented and developed an electric motor design based on permanent magnet (PM) technology, suitable for high torque low rpm purposes. Eltorque's concept was to develop, manufacture and market electromechanical machines for positioning and controlled rotational movement. In 1999 the company introduced Eltorque actuator to the market with 40 units on the trawler "Smaragd". Since then the vessel has been at service with a high performing valve control system. After that, Eltorque actuators have been installed on more than 300 vessels with installations of up to 350 units.

Eltorque offers a 100% maintenance free actuator, specially designed for ship- and offshore installations. Through a radical idea and intensive effort, Eltorque has been able to introduce the world's finest mass produced electrical actuator.

Having the actuator as the core of our systems, we also develop Flow Control System, custom made according to project specifications. We focus on the operator's needs for simplicity when time pressure is high, and offer a control system with easy access to the control functions and a clear view of the important monitoring parameters.

ELTORQUE FLOW CONTROL SYSTEM allows full control of valves and pumps, monitoring and calculation of different parameters.



MT SERIES
Max. 150Nm

QT250
Max. 250Nm

QT800
Max. 800Nm

ELTORQUE valve actuators are easily installed and where other actuators require expensive and troublesome air- or oilpiping, Eltorque actuators only need a power supply and a control signal cable. It has a compact design with an excellent torque to weight ratio. The actuator is 100% maintenance free, there is no concern about air or oil leakage.

OUR PRODUCTS

CABINETS for distributed or centralized interface to actuators, operator station and other equipment



- BILGE AND BALLAST SYSTEM
- FUEL SYSTEM
- FRESH WATER SYSTEM
- COOLING WATER SYSTEM
- LIQUID MUD SYSTEM
- BULK HANDLING SYSTEM
- BRINE SYSTEM
- FIRE SYSTEM
- SANITARY SYSTEM
- OVERFLOW AND SLUDGE SYSTEM
- ANTI-HEELING SYSTEM
- CROSS FLOODING SYSTEM
- OTHER SYSTEMS

ELTORQUE consists of a series of electric actuators that distinguish themselves by high torque at low rpm. The actuators offer a high level of precision in the control of valves, and are easily programmed with respect to torque, speed and turning angle.

THE QT- SERIES of actuators cover a range of valves between DN50 and DN600, that represent the majority of the required quarter turn valves.

THE MT-SERIES of actuators cover a range of Rolls Royce Marine's multi-turn bilge and crossover valve manifolds from DN50 to DN150.

QT2500

Max.2500Nm

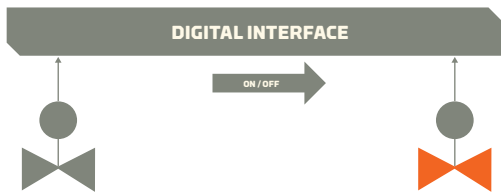
00Nm

ELTORQUE actuators have a low power consumption, since there is no need for air compressors and oil pumps. With continuous electric supply or battery backup the Eltorque actuators function even with sudden loss of electricity. In case of power failure, the actuators can be manually operated. They will even give exact feedback of valve position when power returns.

HOW IT WORKS

01 DIGITAL INTERFACE

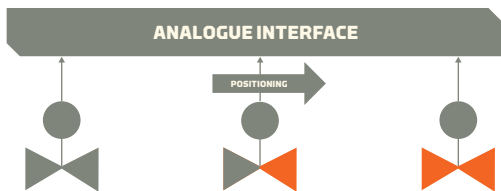
The QT Digital Interface allows simple Open & Close operation of valves, i.e. you can command the actuator to Close or Open the valve. The actuator provides feedback when the valve reach OPEN or CLOSED and any failure triggers the ALARM function.



Actuators with digital interface can be controlled directly from a conventional panel with buttons/ switches and indicator lamps. Alternatively, it can be controlled from a PLC with digital inputs and outputs.

02 ANALOGUE INTERFACE

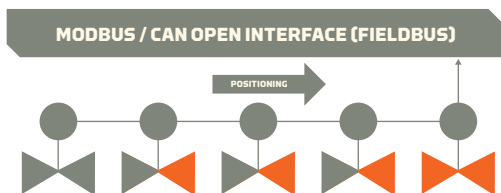
The QT Analogue Interface allows control of regulating valves where positioning of the valve is needed. The actuator provides continuous feedback of its actual position, for comparison between desired and actual position.



Both positioning and feedback signals are analogue 4-20 mA. The control interface also has a digital Alarm output, which is triggered by failures in actuator.

03 FIELDBUS INTERFACE

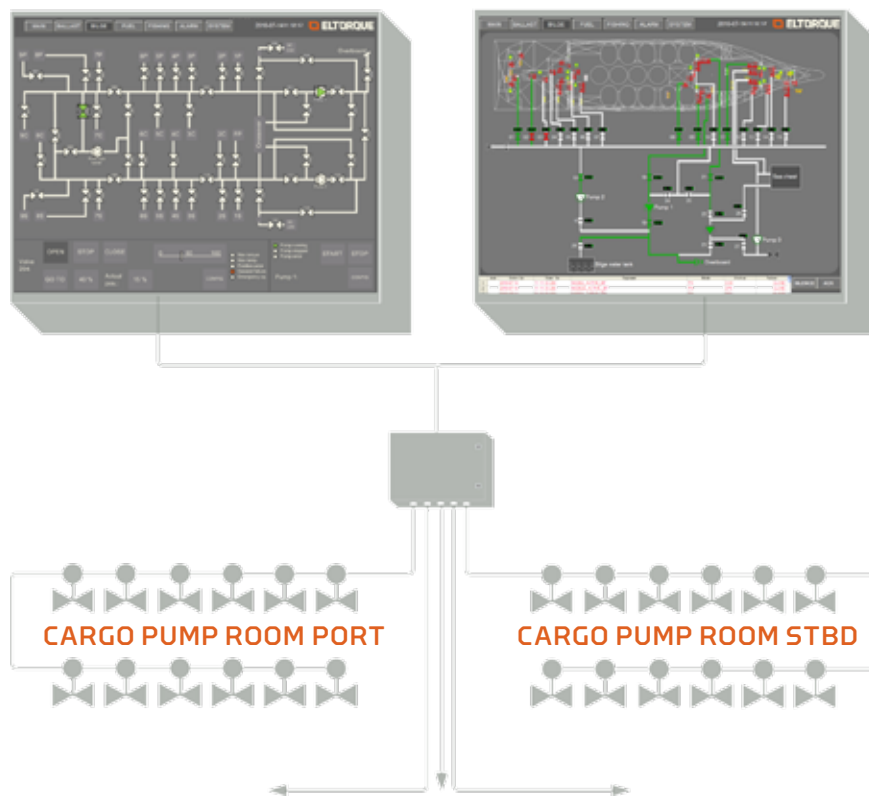
A fieldbus is an industrial computer network for real-time distributed control of various devices. When Eltorque valve actuators are controlled by fieldbus, the functionality is extended in terms of positioning, commands, feedback and configuration. In addition to extended control possibilities, the major advantage of fieldbus is simplified cabling.



The Eltorque Modbus interface is using RS-485 serial communication utilizing the Modbus RTU protocol. Modbus allows communication with max 30 actuators connected to the same "master-slave" network. The Eltorque CANopen interface is using the CAN (Controller Area Network) communications standard. CANopen allows communication between max 127 actuators connected to the same network, but this might be limited by the CANopen controller. Compared to Modbus, CANopen offers more reliable communication and extended functionality.

FLOW CONTROL SYSTEM

ELTORQUE Flow Control System allows full control of valve position and running of pumps. It can include monitoring of tank level, manifold pressure, temperatures and draft. Interface to other systems through various types of communication is also available.



Analogue I/O

- Tank Gauging
- Draft
- Temperature
- Pressure
- Other

Digital I/O

- Pump start/stop
- Level switch
- Other

Other interfaces

- Loading Computer
- Submerged hydraulic actuators
- Other systems

DATASHEETS



QTSERIES
BY ELTORQUE

QT250 QUARTER-TURN ACTUATOR

COMPACT QUALITY

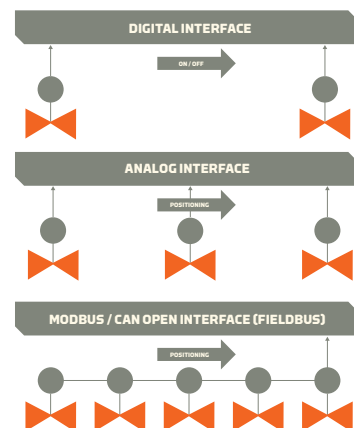
QT250 is the smallest quarter-turn actuator from Eltorque. It is suitable for a wide range of small to medium sized butterfly- and ball valves with an operating torque of 50-250 Nm.

ELTORQUE offers a high level of precision in the control of valves. Excellent controlling possibilities, low cost of installation and operation, and no need of maintenance make ELTORQUE the future solution.

FEATURES:

QT250 1.0 & QT250 2.1 Ex:

- Max torque: 250 Nm
- Valve range: DN50-DN200
- Absolute position feedback (true feedback)
- Available with Ex Zone 1 - approval
- Removable cover for hand wheel protection
- IP68 enclosure
- Available applications: On/off and positioning
- 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



ELTORQUE

QT250 SPECIFICATIONS

Art. no: 900-050/November 2011 • Copyright Eltorque 2011 ©

	QT250 1.0	QT250 2.1 Ex
MAX-MIN TORQUE ¹	50 - 250 Nm	
MIN-MAX CLOSING TIME 0-100% / 0-90 °	13 - 60 sec	
VALVE SPINDLE ADAPTER	SQ17	
VALVE FLANGE	F05, F07, F10 (According to ISO5211)	
VALVE APPLICATIONS	Butterfly or ball valves with part-turn operation. Examples butterfly valves: DN50-DN200 PN16	
PHYSICAL PROPERTIES		
WEIGHT	12 kg	
DIMENSIONS H/W/D	229/156/209 mm	
ENCAPSULATION	IP68 (10m 72hr) - Corrosion protected aluminium enclosure	
COLOR	Black	Silver
OPERATING CONDITIONS	-25 - 55 °C	-25 - 70 °C
	Not designed for use on open deck of ships, outdoor close to salt water or exposure to corrosive chemicals.	Approved for use on open deck, check details with Eltorque agent.
TEMPERATURE PROTECTION	Motor current is switched off in case of over-temperature. Stator coils utilized as heating elements in case of low temperatures.	
ELECTRICAL AND CONTROL PROPERTIES		
POWER SUPPLY	230 V AC - 50-60 Hz - 1A Max 100W - Standby 20W	
CABLE GLANDS	Up to 5 pcs 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.	
CONTROL INTERFACE	<p>Digital: 2 DI (Open - Close) & 3 DO (Open - Closed - Alarm)</p> <p>Analogue: AI (Set position), AO (Feedback position) & DO (Alarm). 4-20 mA AI/AO signal.</p> <p>Modbus Fieldbus: Max 31 nodes per network.</p> <p>CANopen Fieldbus: Max 127 nodes per network. Fieldbus allows positioning and other extended control of actuator. Number of nodes will be limited by control system.</p>	
POSITION SENSOR	Resolution 0,39% / 0,35° & range 360° Absolute position sensor, provides correct feedback even after a power failure.	
CONFIGURATION	USB connection to PC with Eltorque Manager 2	
CONFIGURABLE PARAMETERS	Open and Closed positions . Actuator speed, torque and valve position regions. Inverted IO or fieldbus parameters depending on control interface	
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. Protects mechanism against mechanical damage and ingress of foreign objects or liquids.	
NUMBER OF TURNS	21 for 0-100% / 0-90° valve operation	
CERTIFICATIONS/TYPE APPROVAL ²	CE-marked Type approved by DNV, Germanischer Lloyds, CCS	

¹ Configurable using Eltorque Manager software.

² Special conditions apply, check details with Eltorque agent.

DATASHEETS



QTSERIES
BY ELTORQUE

QT800 QUARTER-TURN ACTUATOR

COMPACT QUALITY

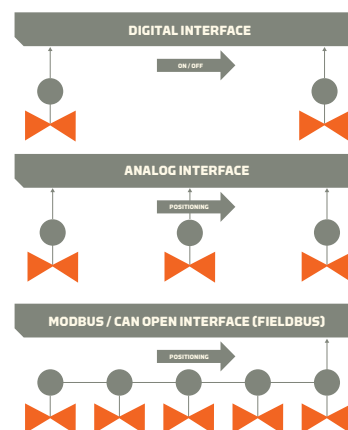
QT800 quarter-turn actuator is suitable for medium sized butterfly- and ball valves with an operating torque of 250-800 Nm.

ELTORQUE offers a high level of precision in the control of valves. Excellent controlling possibilities, low cost of installation and operation, and no need of maintenance make ELTORQUE the future solution.

FEATURES:

QT800 1.0 & QT800 2.1 Ex:

- Max torque: 800 Nm
- Valve range: DN250-DN350
- Absolute position feedback (true feedback)
- Available with Ex Zone 1 - approval
- Removable cover for hand wheel protection
- IP68 enclosure
- Available applications: On/off and positioning
- 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



ELTORQUE

QT800 SPECIFICATIONS

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	QT800 1.0	QT800 2.1 Ex
MAX-MIN TORQUE ¹	250 - 800 Nm	
MIN-MAX CLOSING TIME 0-100% / 0-90 °	45 - 180 sec	
VALVE SPINDLE ADAPTER	SQ27	
VALVE FLANGE	F10 & F12 (According to ISO5211)	
VALVE APPLICATIONS	Butterfly or ball valves with part-turn operation. Examples butterfly valves: DN250-DN350 PN16	
PHYSICAL PROPERTIES		
WEIGHT	21 kg	
DIMENSIONS H/W/D	333/200/239 mm	
ENCAPSULATION	IP68 (5m 1hr) - Corrosion protected aluminium enclosure	
COLOR	Black	Silver
OPERATING CONDITIONS	-25 - 55 °C Not designed for use on open deck of ships, outdoor close to salt water or exposure to corrosive chemicals.	-25 - 70 °C Approved for use on open deck, ckeck details with Eltorque agent.
TEMPERATURE PROTECTION	Motor current is switched off in case of over-temperature. Stator coils utilized as heating elements in case of low temperatures.	
ELECTRICAL AND CONTROL PROPERTIES		
POWER SUPPLY	230 V AC - 50-60 Hz Max100W - Standby 20W	
CABLE GLANDS	Up to 5 pcs 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.	
CONTROL INTERFACE	<p>Digital: 2 DI (Open - Close) & 3 DO (Open - Closed - Alarm)</p> <p>Analogue: AI (Set position), AO (Feedback position) & DO (Alarm). 4-20 mA AI/AO signal.</p> <p>Modbus Fieldbus: Max 31 nodes per network.</p> <p>CANopen Fieldbus: Max 127 nodes per network. Fieldbus allows positioning and other extended control of actuator. Number of nodes will be limited by control system.</p>	
POSITION SENSOR	Resolution 0,39%/ 0,35° & range 360° Absolute position sensor, provides correct feedback even after a power failure.	
CONFIGURATION	USB connection to PC with Eltorque Manager 2	
CONFIGURABLE PARAMETERS	Open and Closed positions . Actuator speed, torque and valve position regions. Inverted IO or fieldbus parameters depending on control interface	
EMERGENCY AND SAFETY		
MANUAL OPERATION	Standard feature using fixed hand-wheel. Mechanical valve position indicator.	
COVER OF HAND WEEL	Can be removed and refitted without tools. Protects mechanism against mechanical damage and ingress of foreign objects or liquids.	
NUMBER OF TURNS	74 for 0-100% / 0-90° valve operation	
CERTIFICATIONS/TYPE APPROVAL ²	CE-marked Type approved by DNV, Germanischer Lloyds, CCS	

¹ Configurable using Eltorque Manager software.

² Special conditions apply, check details with Eltorque agent.

DATASHEETS



QTSERIES
BY ELTORQUE

QT2500 QUARTER-TURN ACTUATOR

COMPACT QUALITY

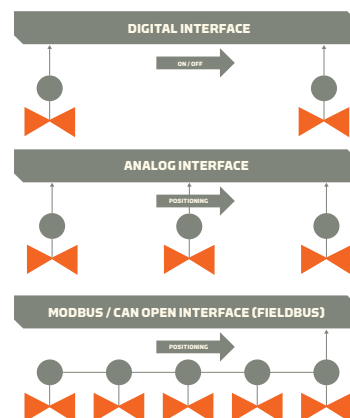
QT2500 is the largest quarter-turn actuator from Eltorque. It is suitable for butterfly- and ball valves with an operating torque of 800-2500 Nm.

ELTORQUE offers a high level of precision in the control of valves. Excellent controlling possibilities, low cost of installation and operation, and no need of maintenance make ELTORQUE the future solution.

FEATURES:

QT2500 1.0:

- Max torque: 2500 Nm
- Valve range: DN400-DN600
- Absolute position feedback (true feedback)
- Removable cover for hand wheel protection
- IP68 enclosure
- Available applications: On/off and positioning
- 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



ELTORQUE

QT2500 SPECIFICATIONS

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QT2500 1.0	
MAX-MIN TORQUE ¹	800 - 2500 Nm
MIN-MAX CLOSING TIME 0-100% / 0-90°	30 - 120 sec
VALVE SPINDLE ADAPTER	SQ36 ²
VALVE FLANGE	F12 & F14 (According to ISO5211)
VALVE APPLICATIONS	Butterfly or ball valves with part-turn operation. Examples butterfly valves: DN400-DN600 PN16
PHYSICAL PROPERTIES	
WEIGHT	78 kg
DIMENSIONS H/W/D	583/247/273 mm
ENCAPSULATION	IP68 (5m 1hr) - Corrosion protected aluminium enclosure
COLOR	Black
OPERATING CONDITIONS	-25 - 55 °C
TEMPERATURE PROTECTION	Not designed for use on open deck of ships, outdoor close to salt water or exposure to corrosive chemicals. Motor current is switched off in case of over-temperature. Stator coils utilized as heating elements in case of low temperatures.
ELECTRICAL AND CONTROL PROPERTIES	
POWER SUPPLY	110-240 V AC/DC - 50/60 Hz - 4A(110 V)/ 2A (240V) Max 200W - Standby 25W
CABLE GLANDS	Up to 4 pcs 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.
CONTROL INTERFACE	Digital: 2 DI (Open - Close) & 3 DO (Open - Closed - Alarm) Analogue: AI (Set position), AO (Feedback position) & DO (Alarm). 4-20 mA AI/AO signal. Modbus Fieldbus: Max 31 nodes per network. CANopen Fieldbus: Max 127 nodes per network. Fieldbus allows positioning and other extended control of actuator. Number of nodes will be limited by control system.
POSITION SENSOR	Resolution 0,39%/ 0,35° & range 360° Absolute position sensor, provides correct feedback even after a power failure.
CONFIGURATION	USB connection to PC with Eitorque Manager 3
CONFIGURABLE PARAMETERS	Open and Closed positions . Actuator speed, torque and valve position regions. Inverted IO or fieldbus parameters depending on control interface
EMERGENCY AND SAFETY	
MANUAL OPERATION	Standard feature using ergonomic crank handle. Mechanical valve position indicator. Visual status indication by LED when actuator is powered
COVER OF HAND WHEEL	Can be removed and refitted without tools. Safety fuction disables motor in case of manual operation while actuator is powered.
NUMBER OF TURNS	103 for 0-100% / 0-90° valve operation
CERTIFICATIONS ³	CE-marked, DNV and CCS type approval

¹ Configurable using Eitorque Manager software.

² Valve flange and adapter are replaced and can be customized on request.

³ Special conditions apply, check details with Eitorque agent.

DATASHEETS



MTSERIES
BY ELTORQUE

MT Series MULTI-TURN ACTUATOR

COMPACT QUALITY

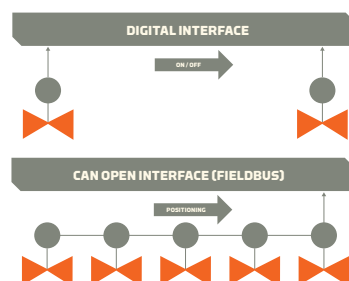
Eltorque MT Series are electrical multi-turn actuators suitable for new installation and retrofit on Rolls-Royce/Ulstein valve manifolds.

ELTORQUE offers a high level of precision in the control of valves. Excellent controlling possibilities, low cost of installation and operation, and no need of maintenance make ELTORQUE the future solution.

FEATURES:

MT50 & MT150:

- Multi-turn valve positioning and control
- Connection to multi-turn valves with rising stem
- Material: corrosion protected aluminium
- Easy retro-fit on manual valves
- Control interfaces: CANopen and Digital
- Configurable torque and speed
- 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



REFERENCES

ISLAND COMMANDER



DESIGN: UT 776 CD Multipurpose
YARD: STX Brevik
OWNER: Island Offshore

TIDEWATER ENABLER



DESIGN: STX PSV 06 ROV
YARD: STX Brevik
OWNER: Crimson Fleet Limited

OCEANIC VEGA



DESIGN: Ulstein SX120 Seismographic
YARD: Ulstein Verft AS
OWNER: Eidesvik Seismic Vessels AS

SIEM PEARL



DESIGN: VS 491 CD AHTS
YARD: Kleven Verft AS
OWNER: Siem Offshore Rederi AS

GOLAR FREEZE



DESIGN: Moss Maritime LNG Tanker
YARD: Keppel Shipyard
OWNER: Sovereign Freeze Ltd. (Golar LNG)

SEAJACKS LEVIATHAN



DESIGN: GustoMSC NG2500-X Jack-Up
YARD: Lamprell plc
OWNER: Seajacks UK Ltd.

SEA INSTALLER

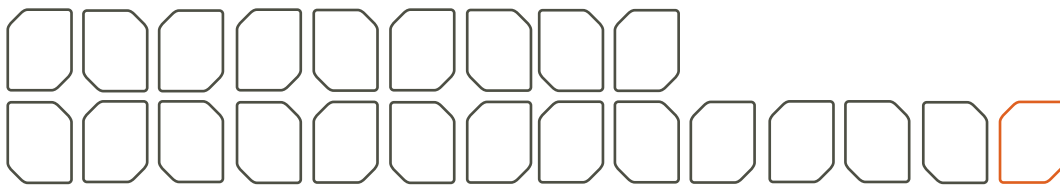


DESIGN: Wind turbine installation vessel
YARD: COSCO (Nantong) Shipyard Co. Ltd
OWNER: A2SEA a/s

COOEC

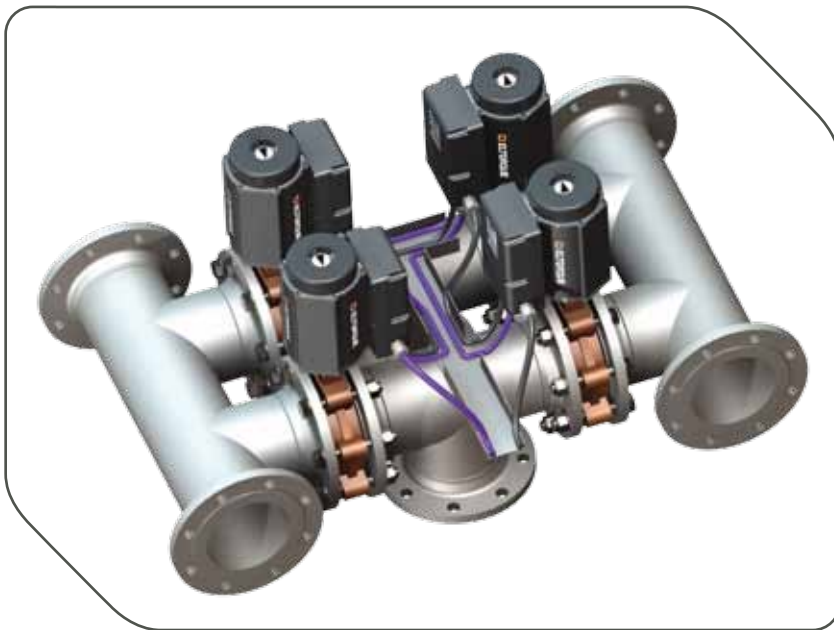


DESIGN: MARIC Heavy lift vessel
YARD: CMIH
OWNER: COOEC

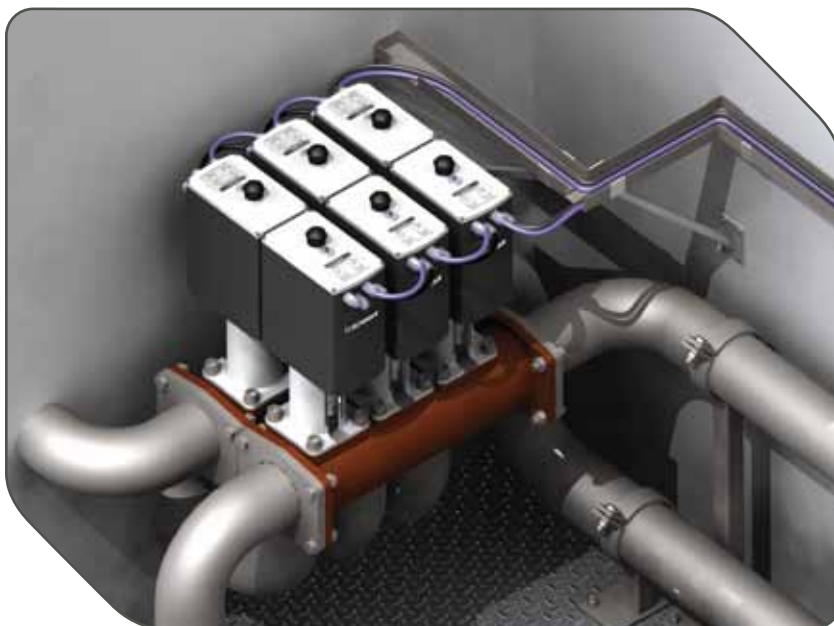


VALVE CHEST MANIFOLDS

INNOVATIVE SOLUTION by Eltorque QT and MT series



QT actuator on butterfly valves.



MT actuator on Rolls-Royce Marine valve manifolds.

CERTIFICATES



GL CERTIFICATE



CCS CERTIFICATE



DNV CERTIFICATE



ISO9001 CERTIFICATE



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