



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-12068**

This is to certify that the
Electric Actuator

with type designation(s)
QT250 1.0/2.0, QT800 1.0/2.0, QT2500 1.0

Manufactured by
ELTORQUE AS
VANVIKAN, Norway

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards


Application
Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
QT250 1.0/2.0	D	B	A	B	D
QT800 1.0/2.0	D	B	A	B	D
QT2500 1.0	C	B	A	A	D


Høvik, 2010-11-25
for Det Norske Veritas AS



This Certificate is valid until
2012-12-31


Odd Magne Nesvåg
Head of Section

DNV local office:
Trondheim


Ståle Sneen
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: A-12068
 File No.: 897.30
 Job Id.: 262.1-004091-4

Product description

Electric quarter turn valve actuator

Power Supply,:	QT250, QT 800	230 V AC 50/60 Hz
	QT2500	110-240 V AC 50/60 Hz
Operating Torque:	QT250	Max. 250 Nm
	QT800	Max. 800 Nm
	QT2500	Max. 2500 Nm

Interface options as listed in table below.

Actuator	Interface boards
QT250 1.0	QT250 Digital 1.0 QT250 CANopen 1.0 QT250 Analogue 1.0 QT250 Modbus 1.0
QT250 2.0*	QT250 Digital 2.0 QT250 Digital 2.1 Ex QT250 CANopen 2.0 QT250 CANopen 2.1 Ex
QT800 1.0	QT800 Digital 1.0 QT800 CANopen 1.0 QT800 Analogue 1.0 QT800 Modbus 1.0
QT800 2.0*	QT800 Digital 2.0 QT800 Digital 2.1 Ex QT800 CANopen 2.0 QT800 CANopen 2.1 Ex
QT2500 1.0	QT2500 Digital 1.0 (Open-Close) QT2500 CANopen 1.0 (Fieldbus) QT2500 Analogue 1.0 (4-20 mA) QT2500 Modbus 1.0 (Fieldbus)

*Suitable for use on open deck.

Firmware versions:

Interface type	QT250, QT800	QT2500
Analogue (4-20 mA)	1.1.x	0.1.x
CANopen (Fieldbus)	1.1.x	0.1.x
Digital (Open – Close)	1.1.x	0.1.x
Modbus (Fieldbus)	1.1.x	0.1.x

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

- [I-1] Doc. no. 1000.127.1, dated 08.07.2005, ringbinder containing following documents:
- User manuals
 - DNV test report no. 2005-3200, dated 2005-06-06
 - DNV test report no. 2005-3296, dated 2005-06-24
 - Test report Electromagnetic Compatibility, Nemko 43316, dated 2005-06-30

Documents for renewal/extension 2009:

- [I-2] Firmware release notes
- [I-3] Revised technical manual, dated 2009-09-02
- [I-4] Assembly drawing no. 11.114 rev.1
- [I-5] TAC A-10575: Change from optical to magnetic absolute encoder in Eltorque™ actuators, dated 2009-10-28 (+ referred attachments)



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- [I-6] TAC A-10575: Reference between documentation for magnetic absolute encoder in Eltorque™ actuators and DNV test procedure 2.4, dated 2009-11-09
- [I-7] TAC A-10575: Comparison of magnetic and optical encoder, dated 2009-12-08

Documents for QT2500 extension 2010:

- [I-8] Nemko test report no. 10122.03, dated 2010-11-10
- [I-9] Nemko statement of conformity nos. 149622 and 149623, dated 2010-05-07
- [I-10] Product data sheet: QT2500, No. 900-052, dated 2010-09
- [I-11] User manual: QT2500 Electrical Part-turn Valve Actuator, dated 2010-09-29

DNV Trondheim Certificate retention survey report for A-11561, dated 2010-11-05.

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.
QT250 / QT800 tested for IP68 down to 5 m for 1 h according to IEC 60529:2001.
All models tested for IP68 down to 10 m for 30 min. according to IEC 60529:2001.

Marking of product

- Actuator model name
- Interface type
- Manufacturer name
- Serial number
- Input power ratings

Certificate retention survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the survey are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE