ELEPHANT

Manufacturer of shut-off and control valves

TECHNICAL DATA SHEET

Electric quarter-turn actuator
ELEPHANT QT-N-xEM-O1-x-U1 HARK

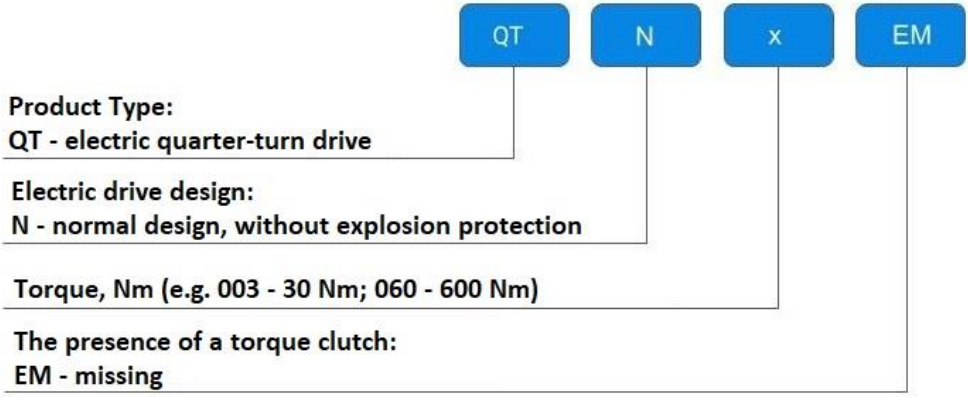
+34 900 433 073, sales@valveelephant.com
Carrer d'Aragó,264,3-1,08007 Barcelona, Spain

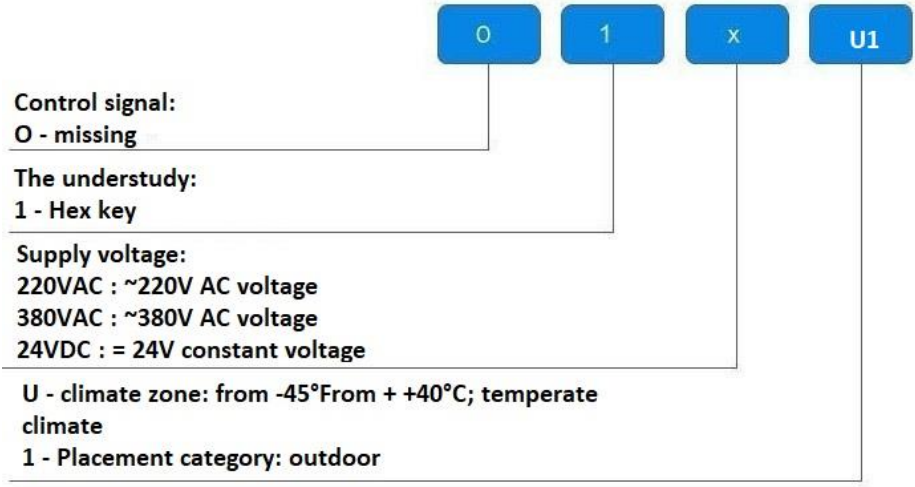
1. GENERAL PRODUCT INFORMATION

1.1. Product name: Electric quarter-turn actuator ELEPHANT QT-N-xEM-O1-x-U1 HARK.
1.2. Designation: Electric quarter-turn actuators are designed for remote and local control of shut-off pipeline valves having a quarter-turn shut-off valve. They are used in various branches of national economy: in gas, oil, metallurgy, food industry, housing and communal services, etc.

** the image may differ from the original*

1.3. Deciphering of the designation:





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2. BASIC TECHNICAL DATA AND CHARACTERISTICS

Table 1

Electric drive type	quarter-turn
Motor type	asynchronous
Swivel angle, °	90±5
Housing material	aluminum alloy, epoxy powder coated
Shaft material	alloy steel
Supply voltage	220V/AC, 50Hz 380V/AC, 50Hz 24V/DC
Cable gland	2xM18 gland
Connection type	ISO 5211
Self-locking device	self-locking worm and worm gear transmission
Automatic shut-off in open, closed and jammed positions	2 limit switches + 2 additional switches (dry contact);
Insulation class	F
Mechanical limitation of output shaft rotation rotation	2 external adjustable stops
Enclosure protection class	IP67
Noise level, dB	≤ 50
Ambient temperature, ° C	от -20 до +70
Ambient humidity	≤95% (25°C)
Enclosure explosion protection	no

3. MAIN DETAILS

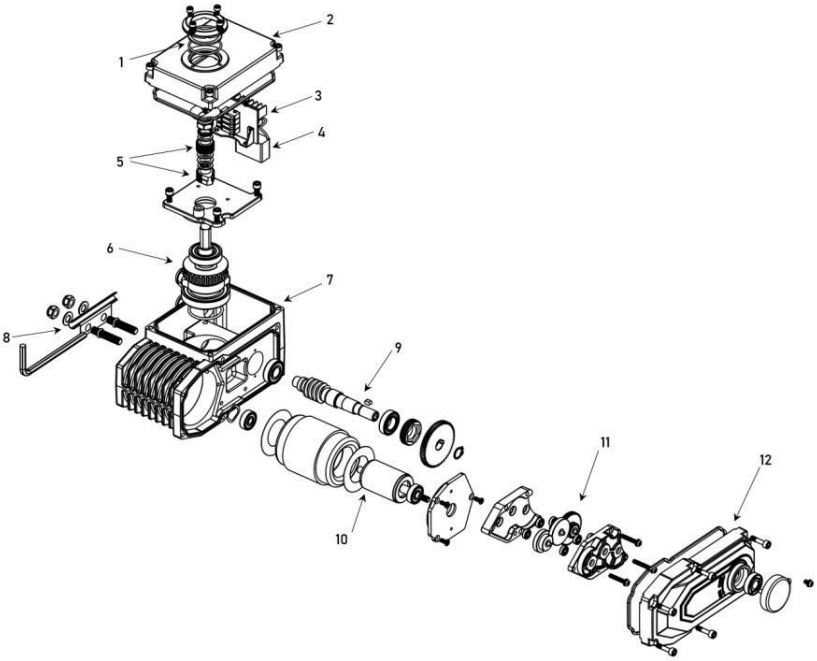

Table 2

№	Name
1	Position indicator
2	Top cover
3	Control board
4	Condenser
5	Pressure cams
6	Output shaft with worm wheel
7	Housing
8	Output shaft stroke limiters
9	Worm shaft
10	Electric motor
11	Gearbox
12	Gearbox cover

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4. OVERALL AND CONNECTION DIMENSIONS

4.1. Model 30 Nm

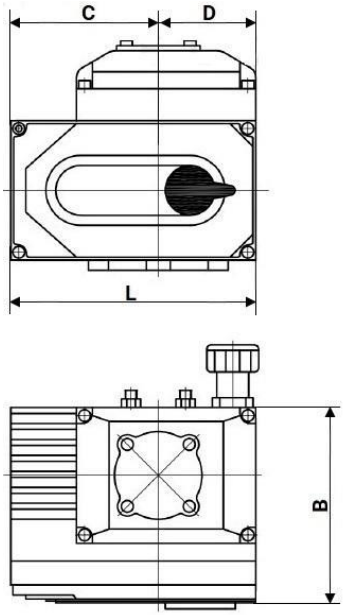

Table 3

Model	L	H	A	B	C	D	E	F	G
	mm								
QT-N-003EM-O1-24VDC-U1 HARK	123	115	101	98	74	49	34,5	35	5
QT-N-003EM-O1-220VAC-U1 HARK	123	115	101	98	74	49	34,5	35	5

Table 4

Model	**Stem size, square, mm**	**ISO 5211**
QT-N-003EM-O1-24VDC-У1 HARK	14x14	F05/F07
QT-N-003EM-O1-220VAC-У1 HARK	14x14	F05/F07

4.2. 20/30/40/60 Nm models

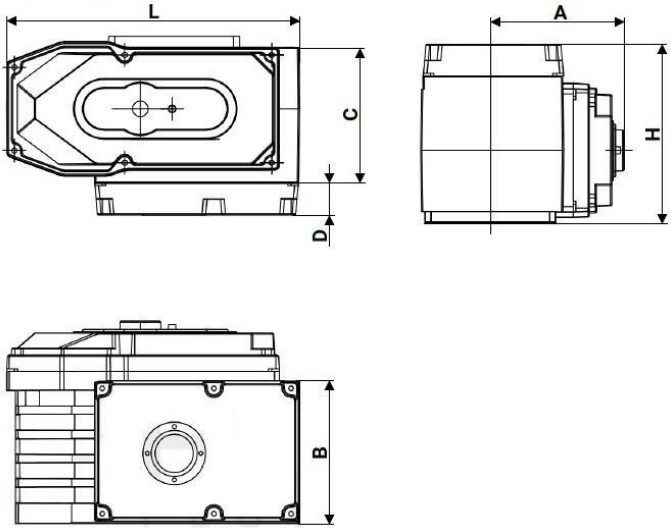

Table 5

Model	L	H	A	B	C	D
	mm					
QT-N-020EM-O1-24VDC-U1 HARK QT-N-020EM-O1-220VAC -U1 HARK QT-N-030EM-O1-220VAC -U1 HARK QT-N-060EM-O1-220VAC -U1 HARK QT-N-020EM-O1-380VAC -U1 HARK QT-N-040EM-O1-380VAC -U1 HARK QT-N-060EM-O1-380VAC -U1 HARK	241,8	157,5	119	118	112,3	26

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Table 6

Model	Stem size, square, mm	ISO 5211
QT-N-020EM-O1-24VDC-U1 HARK	22x22	F07/F10
QT-N-020EM-O1-220VAC -U1 HARK	22x22	F07/F10
QT-N-030EM-O1-220VAC -U1 HARK	22x22	F07/F10
QT-N-060EM-O1-220VAC -U1 HARK	22x22	F07/F10
QT-N-020EM-O1-380VAC -U1 HARK	22x22	F07/F10
QT-N-040EM-O1-380VAC -U1 HARK	22x22	F07/F10
QT-N-060EM-O1-380VAC -U1 HARK	22x22	F07/F10

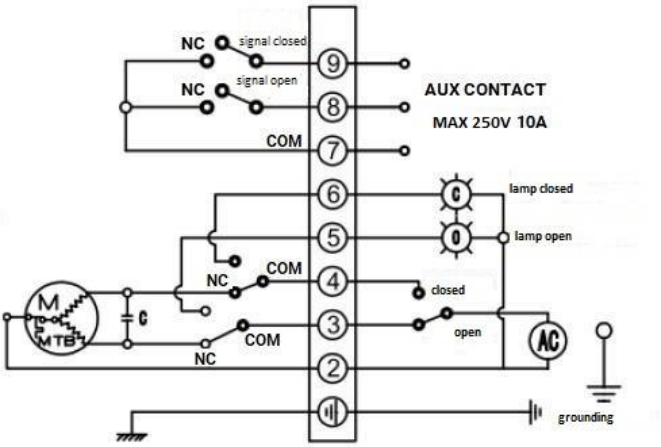
5. TECHNICAL CHARACTERISTICS

Table 7

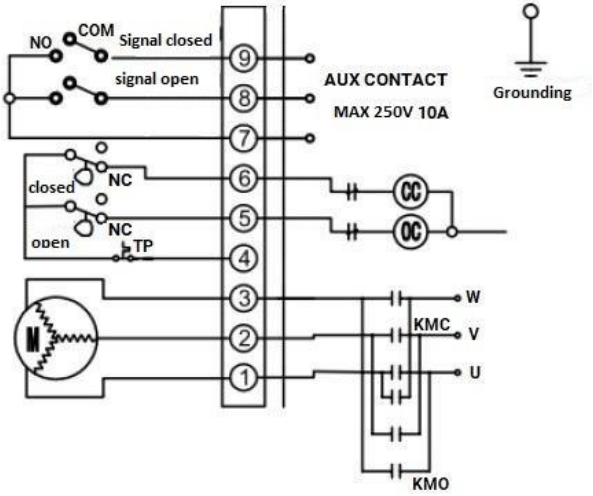
Модель	Torque , Nm	Cycle time, sec	Voltage, V	Power, W	Rated current, A	Weight, kg
QT-N-003EM-O1-24VDC-U1 HARK	30	10	24	6	1	2,1
QT-N-003EM-O1-220VAC-U1 HARK	30	10	220	6	0,24	2,1
QT-N-020EM-O1-24VDC-U1 HARK	200	13	24	40	6	8,9
QT-N-020EM-O1-220VAC -U1 HARK	200	30	220	40	0,5	8,9
QT-N-030EM-O1-220VAC -U1 HARK	300	30	220	40	0,5	8,9
QT-N-060EM-O1-220VAC -U1 HARK	600	30	220	90	0,9	9,3
QT-N-020EM-O1-380VAC -U1 HARK	200	30	380	40	0,5	8,9
QT-N-040EM-O1-380VAC -U1 HARK	400	30	380	45	0,55	8,9
QT-N-060EM-O1-380VAC -U1 HARK	600	30	380	90	0,9	9,3

6. WIRING DIAGRAMS

6.1. 220VAC



6.2. 380VAC



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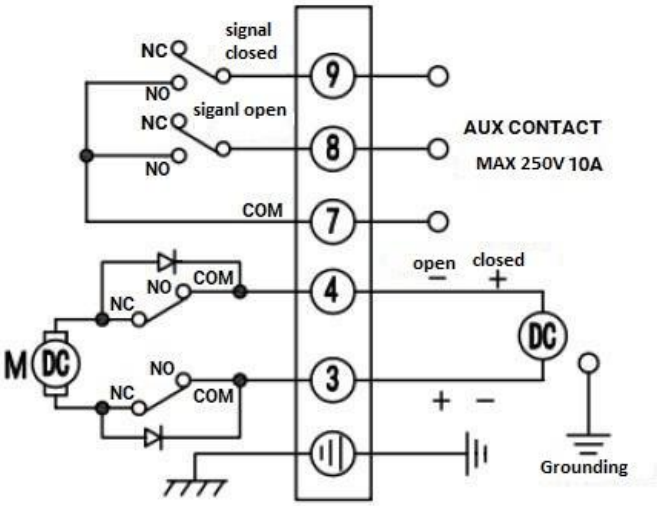
6.2. 24VDC


NC
signal
closed
NO
siganl open
NC
NO
COM
AUX CONTACT
MAX 250V 10A
9
8
7
4
3
open
closed
NO
COM
NC
M
DC
NO
NC
COM
DC
+
−
Grounding

7. INSTALLATION AND OPERATING INSTRUCTIONS

7.1. The actuator may be installed by personnel who have studied the actuator design, safety rules and requirements of this data sheet.
7.2 The operating position of the actuator is any.
7.3 When installing the actuator it is necessary to provide space for cable repair and manual work.
7.4 Before starting the actuator operation it is necessary to make sure that the manual mode is switched off (the socket of the manual doubler is fully depressed).
7.5 Mounting of the actuator is performed directly on the shut-off valve. When mounting, attention should be paid to correct alignment of the actuator seating flange and the mating seating flange on the actuator. Tight fit, backlashes, gaps between actuator and shut-off valve are not allowed. This leads to increased load on the actuator units and parts, accelerated wear and rapid failure of the actuator.
7.6 The actuator must have its own supports in case of its installation on the valve in a position other than horizontal. The actuator housing must be grounded.
7.7 Before starting the actuator, several cycles of valve opening-closing test operation should be performed using the actuator's handwheel. If the valve opens-closes normally when opened by the manual override, the valve should be connected to the supply and control networks and a number of test opening-closing cycles should be performed with the actuator.
ATTENTION! It is strictly forbidden to use the handwheel while the supply voltage is applied. Violation of this rule may result in personal injury and parts breakage.
7.8 Maintenance and operation of the actuator must be carried out in accordance with the “Rules of technical operation of electrical installations of consumers”.

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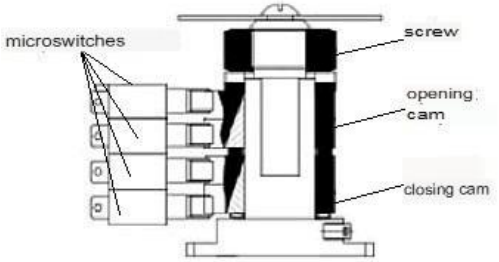
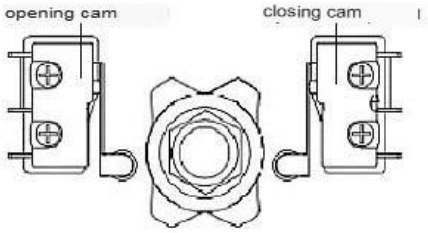
8. SETUP INSTRUCTIONS

8.1. Setting the limit switches

8.1.1. Disconnect power supply from the actuator.
8.1.2. Using the handwheel, move the actuator to the position corresponding to the fully closed gate.
8.1.3 Loosen the nut securing the cams on the actuator working shaft.

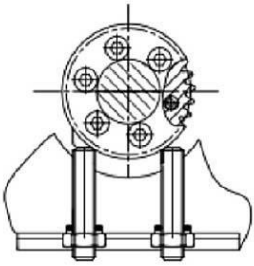




8.1.4. By turning the cams (yellow - opening, red - closing), set them in such a way that the cam clamps the required microswitch in the required position.
8.1.5. Move the electric actuator to the position corresponding to the fully open gate using the manual doubler.
8.1.6. Repeat the operation to set the fully open position.
8.1.7. Secure the cams with the clamping nut.

8.2. Adjusting the mechanical stops

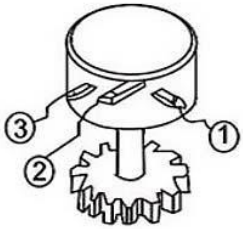
8.2.1. Loosen the mechanical stop nut and move the actuator to the fully closed position using the handwheel.
8.2.2 Turn the nuts of the mechanical stops until they touch the fan gear and then tighten them two turns.



8.2.3. Repeat the operation for the “open” position.

8.3. Adjusting the potentiometer

8.3.1. Connect the potentiometer as feedback output with 3 terminals: to the moving arm of the potentiometer (2); to the terminal whose resistance decreases between the moving arms when the actuator moves towards the open position (1); to the terminal whose resistance decreases between the moving arms when the actuator moves towards the closed position (3).



8.3.2. Turn the valve manually to the full open position until the limit switch moves, measuring the resistance with a multimeter, set the resistance between (2) and (1) 35 ohms ~ 60 ohms. If the value is incorrect, adjust it by turning the drive gear of the potentiometer.

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9. POSSIBLE MALFUNCTIONS AND REMEDIES

Table 8

Fault	Possible cause	Remedial action
Drive does not run	No power supply	Check the connection to the power supply
	Damaged wire, weak terminal fastening	Replace wire, tighten terminal fastening
	Power supply voltage does not match the required drive voltage	Adjust the supply voltage to the drive specifications
	Overheating protection tripped	Eliminate the cause of the protection trip
	Limit switch not functioning correctly	Replace limit switch
	Start capacitor destroyed	Replace the start capacitor and check the operating temperature of the actuator.
Drive does not stop	Incorrect supply voltage	Check and adjust the supply voltage to the actuator specifications
	Potentiometer fastening loosened	Check and tighten potentiometer screws

10. TRANSPORTATION AND STORAGE

10.1. The actuators can be transported by any type of transport in a way that prevents damage to the actuator in accordance with the procedure established at the enterprise.
10.2 The actuators are stored in the manufacturer's packaging in the warehouses ensuring safety and serviceability of the actuators in accordance with the procedure established at the enterprise.

11. UTILIZATION

11.1. The product is disposed of in accordance with the procedure established at the enterprise (remelting, burial, resale).

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12. WARRANTY OBLIGATIONS

12.1. Warranty period - 12 months from the date of commissioning, but not more than 18 months from the date of sale.
12.2. The warranty applies to equipment installed and used in accordance with the installation instructions and product specifications described in this data sheet.
12.3. The manufacturer guarantees compliance of the product with safety requirements, provided that the consumer complies with the rules of transport, storage, installation and operation.
12.4. The warranty covers all defects caused by the fault of the manufacturer.
12.5. The warranty does not apply:

- parts and materials of the product subject to wear and tear;
- for cases of damage caused by:
    - modifications to the original design of the product;
    - violation of general installation recommendations;
    - faults caused by improper maintenance and storage; improper operation and use of the equipment.

13. WARRANTY TERMS

13.1. Claims to the quality of the goods may be made during the warranty period.
13.2. Defective products are repaired or exchanged for new ones free of charge during the warranty period. ELEPHANT decides whether to replace or repair the product. The replaced product or its parts resulting from the repair shall become the property of ‘ELEPHANT’.
13.3. Costs related to dismantling, installation and transport of the defective product during the warranty period shall not be reimbursed to the Buyer.
13.4. If the claim is unfounded, the Buyer shall pay the costs of diagnostics and expertise of the product.
13.5. Products are accepted for warranty repair (as well as for return) fully assembled.

WARRANTY CARD №____

№	Product Name	Packs

Name and address of the trading organisation

_____

Date of sale _____ Seller's signature _____

Stamp or seal of the trading organisation Acceptance stamp

I agree with the terms and conditions of the warranty:
Buyer _____ (signature)

Warranty period - 12 months from the date of commissioning, but not more than 18 months from the date of sale.

For warranty repairs, complaints and product quality claims, please contact ELEPHANT at: Carrer d'Aragó,264,3-1,08007 Barcelona, Spain E-mail address: sales@valveelephant.com.

When making a complaint about the quality of goods, the buyer shall present the following documents:

1. A free-form application, which shall specify:
   - name of the organisation or full name of the buyer, actual address, contact telephone numbers;
   - name and address of the organisation that carried out the installation;
   - basic parameters of the system in which the product was used;
   - a brief description of the defect.
2. Document confirming the purchase of the product (delivery note, receipt)..
3. Act of hydraulic test of the system in which the product was installed.
4. This completed warranty card.

A note on the return or exchange of goods _____

Date: «___»_____202__yr. Caption _____

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