Technical Clauses

IQ3 SPECIFICATION - DESCRIPTION

IQ (3rd Generation) MULTI-TURN, THREE PHASE ELECTRIC ACTUATOR

This description provides the basic specification, please refer to the Schedule of Equipment for actuator size, mounting flange, area classification, power supply, wiring diagram and performance data. Remote control and indication functions are described under the Wiring Diagram. Additional options may also be found in the Extras Included section. Further technical details are provided in the IQ/IQT (3rd Generation) product range brochure PUB002-038 which is available at http://www.rotork.com/en/master-record/8923

• ENCLOSURE: Watertight to IEC/BS EN 60529, IP66/IP68 - 20 metres/10 days. Terminal compartment sealed internally and externally 'Double-Sealed'.
• TEMPERATURE: -20° C to 70° C (-22° F to 158° F) subject to hazardous area certification where applicable.
• MOTOR: Three phase low inertia squirrel cage motor, class F insulation, incorporating thermostat protection.
• SERVICE/DUTY RATING: Class A (On/Off), Class B (Inching), nominal 60 Starts at a rate not exceeding 600 starts per hour. 15 minutes rated based on a nominal torque of 33% of rated.
• STARTER: Integral electrically and mechanically interlocked reversing contactors.
• HAMMER BLOW: Drive incorporates lost motion 'hammer-blow', for releasing sticking valves.
• SYNCROPHASE: Auto Phase rotation correction and lost phase protection on three phase supplies.
• LOCAL CONTROLS: Black, Open/Close selector and Red, padlockable Local/Stop/Remote selector (stop remains available for site operational protection).
• LOCAL INDICATION: Integral illuminated, digital valve position indicator showing 0.1% increments in position with closed and open limit symbols, torque, alarms and other status data. 3 LED's; red-open, yellow-intermediate, green-closed (can reverse), blinker and alarms configurable.
• BATTERY SUPPORT - POWER OFF CONDITIONS: The battery is not required for position sensing it does however support the LCD display, operation of indication relays, commissioning and data logging functions in the absence of mains power.
• POSITION SENSOR: Absolute encoder provides continuous high resolution position measurement which is fully maintained during manual operation and without a power supply or battery support.
• ORIENTATION: Actuator can be mounted in any orientation, control cover including local controls and indication can be rotated in 90° increments to suit.
• MANUAL OVERRIDE: Padlockable clutch lever, Handwheel clockwise to close, automatically disengages when motor starts and non-rotating during electric operation.
• LUBRICATION: Gearcase oil filled for life – Castrol Aero HF585B (80%) + Texaco ATX/Dexron2 (20%).
• TORQUE SWITCHES: Adjustable electronic torque switches 40% to 100% of rated with start of travel bypass option.
• COMMISSIONING: Travel limit setting, configuration of relays, alarms and other actuator settings carried out non-intrusively via an Infra-red/Bluetooth Setting Tool (one supplied with every order). Settings can be password protected.
• DATA LOGGING/ASSET MANAGEMENT: Date/time stamped logging and display of operational events and trends, motor starts and valve torque profiles. Valve/actuator/gearbox data can be stored and service alarms configured. Data can also be downloaded via IrDA or Bluetooth to the supplied setting tool for upload to a PC and analysis using free InSight2 software.
• CABLE ENTRIES: 2x M25 + 1x M40 (alternatively 2x 1" + 1x 1.5" NPT or 2x PG16 + 1x PG29), 4 entry options also available. Cable glands not included in our scope of supply.
• TERMINALS: M5 power and M4 control terminals, screws and washers supplied. Designed for ring tag crimped field wiring conductors up to 16.0mm2 for power and 4.0mm2 for controls.
• PAINT FINISH: Polyester powder coating applied by electrostatic means to 100 micron nominal thickness. Top coat colour 00-A-05 (silver grey).

WIRING DIAGRAM

Wiring diagram 100B0000 is described in IQ/IQT Control and Monitoring publication (PUB002-041) and includes:

• CONTROL SUPPLY: 20 – 60VDC/40 – 120VAC or actuator derived 24VDC
• CONTROL INPUTS: 6 inputs for open, close, stop/maintain, ESD and interlock signals
• INDICATION CONTACTS: 4 volt-free (SPST) latching contacts (S1-S4), rated at 120VAC/30VDC, 5mA to 5A, each configurable NO or NC to signal one of the following; open/closed or intermediate positions, moving (continuous or pulsing), Handwheel operation, local selected, remote selected, open/close interlock active, ESD active, motor tripped on torque in mid travel/going open/going closed, valve jammed, loss of power/phase or control supply, battery low, internal failure detected, thermostat tripped, programmable service alarms.
• MONITOR AND AVAILABILITY RELAY: Independent relay with volt-free changeover contact, rated at 120VAC/30VDC, 5mA to 5A. De-energises in case of; loss of power/phase or control supply, local control or local stop selected (can be excluded), motor thermostat tripped or detected internal failure

COMMENTS:
Actuators offered will be provided with our standard paint finish suitable for onshore application and our basic colour. Please find attached the copy of the paint finish cycle. The standard paint finish is equivalent to epoxy base. If this does not meet your requirement, please contact us for a rev. quotation.

The drive sleeves are unmachined.

The quoted actuators are designed for up to 60 starts per hour (S2-15 min.), quarter- turn application.

Please note that the Stall torque for the quoted actuator will be 1.4 to 2 times torque rating, depending on speed and voltage.

Conduit entries
For IQ models three threaded conduit entries are provided tapped 1x M40 and 2x M25.

Cable Glands are not included in the a.m. price schedule.

Plastic plugs included for transport and storage only. Certified metal plugs are available on request.

COMMISSIONING SPARES
We will supply a commissioning spares bag free of charge with every Rotork actuator dispatched to make good losses on site. This will include terminal cover screws and O-rings, with barrel nuts and washers for power and control terminals.

Testing
We detail below full details of IQ tests carried out which are specific to the design of the IQ actuator and relevant to the squirrel cage induction motor used on the IQ, which we trust will be acceptable.

Every IQ actuator prior to despatch is fully tested within the Rotork ISO9001:2000 approved quality system and a copy of the test certificate is provided, which includes details of:

ACTUATOR SPECIFICATION
Size, base, coupling, enclosure, gearbox type, power supply, speed/operating time, wiring diagram number and paint.

ACTUATOR CONFIGURATION & OPTIONS
Closing direction, maintained local controls, ESD, signal priority, interlocks, power loss inhibit, insulation class, thermostat trip, turns set, handwheel ratio and details of the configurations of any of the optional extras supplied.