

IQT 3rd Generation – Part of the IQ3 Intelligent Electric Actuator Range



Outstanding Reliability

Valve operation must be reliable. Rotork IQT actuators are designed to meet the toughest applications and engineered for a lifetime of uninterrupted service. Built on the Rotork part-turn drive train, proven for over 30 years, 3rd generation IQT actuators feature numerous enhancements including:

- Advanced absolute position measurement
- Simplified solid state electronics and reduced wiring by use of a CAN bus system
- Non-intrusive local controls
- Independent torque and position limit sensing
- Oil bath lubrication
- High immunity from spurious signals
- Configurable motor drive "enable" input which prevents the actuator operating unless a signal is applied
- Casing material selection and coatings designed for improved corrosion protection

Reliability of equipment depends on the protection provided by its enclosure. IQT retains the Rotork developed double o-ring sealed, non-breathing, non-intrusive enclosure proven to maximise operational reliability.

Asset Management

With an advanced dual stacked display, position, torque, status and configuration data is clear and immediate. Data available:

- Running time
- Average torque
- Starts
- Vibration
- Temperature

In addition, the valve, actuator and process data is available on screen or in the control room. Valve stroke torque/thrust graphs, duty trend logs, vibration levels and valve & actuator manufacturing data can be extracted by the user and stored as the basis for planned maintenance and operational activities, process performance characteristics and comparison.

Commissioning and configuring 3rd generation IQT actuators is faster and simpler than ever. In addition to a new and intuitive user interface, entire operations can now be carried out in moments and datalogger data downloaded using the supplied Rotork Bluetooth® Setting Tool Pro.

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Technological Advances

Position

Reliable valve position sensing is critical. The Rotork IQT absolute encoder is contactless and has only one moving part. Unlike existing absolute encoder designs, this technological breakthrough increases position sensing reliability with no loss of position even without power.

Display

The dual stacked display allows large segment character position displays down to -50 °C while the matrix display provides detailed setting, status and diagnostic multilingual screens. Overall the display is 30% bigger, is backlit and is protected by a toughened glass window. An optional protective clip-in cover is available where high UV levels or abrasive environments are present.

Torque sensing

Now enhanced to provide increased integrity and performance, torque sensing is simple, accurate with high resolution and extremely reliable over the life of the actuator.

Indication power

With the absolute encoder, a battery is not required for position sensing. As all configuration and datalogger data is stored in non-volatile EEPROM memory, all settings are safe when no power is available. However, to maintain the display and ensure remote indication is kept updated, and to allow data logging and power off commissioning, an indication battery is included as standard.

Optimised for preventative maintenance

All IQT actuators incorporate a sophisticated datalogger, which can provide comprehensive data capture and analysis for planned maintenance and troubleshooting issues with valves and processes. They capture:

- Valve torque profiles
- Operational starts profiles
- Operational, vibration and temperature trend logs
- Event log

In addition, asset management data regarding the actuator and the valve is stored within the actuator and available for download. Specific asset management information includes:

- Running time
- Average torque
- Starts
- Life statistics

As part of the ongoing commitment to improving asset management and providing reliable data for optimised preventative maintenance, the 3rd generation IQT now includes configurable service / maintenance alarms.

The alarm parameters can be set in the assets section of the setup menus and include:

- Open torque levels
- Close torque levels
- Starts/Hr
- Total starts
- Total turns
- Service intervals
- Vibration levels

With 3rd generation IQT actuators this data can be viewed in realtime using the large dual stacked display. In addition, the data can be downloaded wirelessly with the Rotork *Bluetooth*® Setting Tool Pro or directly to a PC and analysed using the Rotork Insight 2 software.

Safe manual operation

In case of an emergency, power outage or failure of the control network, IQT actuators can be operated by hand. A manual clutch and handwheel allow an operator to disengage the motor and operate the valve independently, without risk of damage or injury.

Where the location requires it, the clutch can be padlocked into position to prevent accidental or unauthorised manual operation.

Manual movements of the valve are recorded and logged by the actuator. Position sensing in Rotork IQT actuators is highly reliable (power on or off) thanks to the unique robust and simple design of the absolute encoder.

Network system connectivity

With the addition of an appropriate option card, the IQT actuator can be incorporated into a number of different fieldbus control systems. The IQT actuator can be utilised within the Rotork *Pakscan*™ control system, either wired or wirelessly, and the major open Fieldbus protocols including Profibus®, Foundation Fieldbus®, Modbus® and HART®.



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1 Environmental sealing

The Rotork double o-ring sealed (IP66/IP68) terminal compartment results in the actuator enclosure being completely sealed even when terminal cover is removed. Using the supplied Rotork *Bluetooth*® Setting Tool Pro, no covers need to be removed for commissioning, adjusting, analysis or accessing the actuator data log.

2 Display

The advanced dual stacked display is significantly larger and clearer with a wide viewing angle making it easily legible from a distance. In normal mode the LCD display indicates valve position and can operate from -50 °C up to 70 °C.

Using the Rotork *Bluetooth*® Setting Tool Pro, this display provides instant access to vast amounts of graphical data and information about the process, all presented locally on the actuator with no need to transfer data to another device before viewing.

All display elements are protected by a 13 mm toughened glass window with an optional shield for protection against abrasive media such as sand and UV light.

3 Rotork *Bluetooth*® Setting Tool Pro

The dual *Bluetooth*® and IR secure and intrinsically safe setting tool is suitable for use in hazardous environments. The setting tool can be used to download data wirelessly and to remotely configure multiple actuators.

4 Position control

The unique Rotork patented absolute position sensor is highly accurate and can measure up to 22 output turns when used as a full-turn IQTF. With only one active part it is very simple and robust, providing the most reliable position sensing regardless of the availability of electrical power.

5 Non-intrusive local controls

Local Open/Close and lockable Local/Stop/Remote selectors are coupled magnetically to the designated switches and therefore do not penetrate the control cover. This further enhances the non-intrusive protection of the IQT.

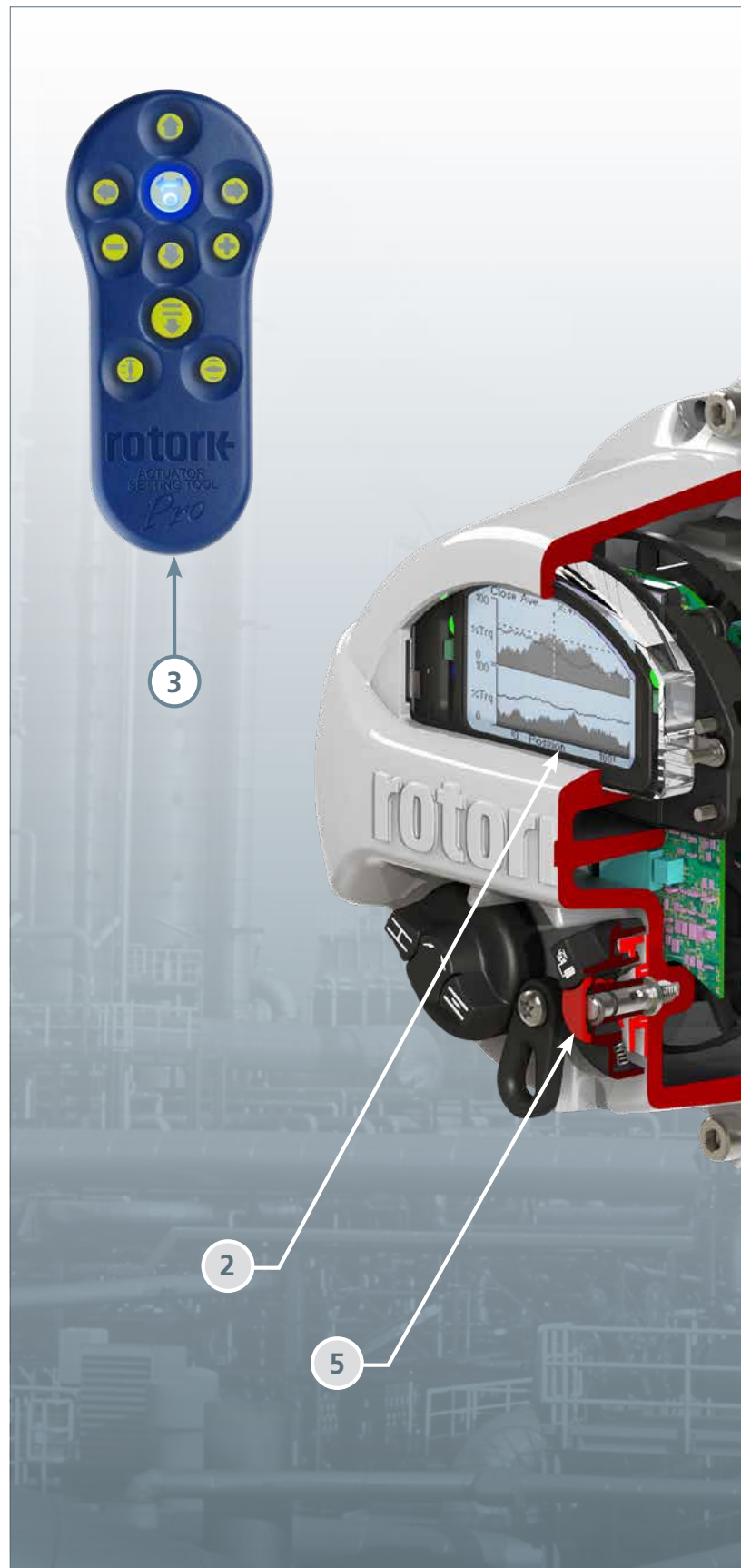
6 Proven drive train

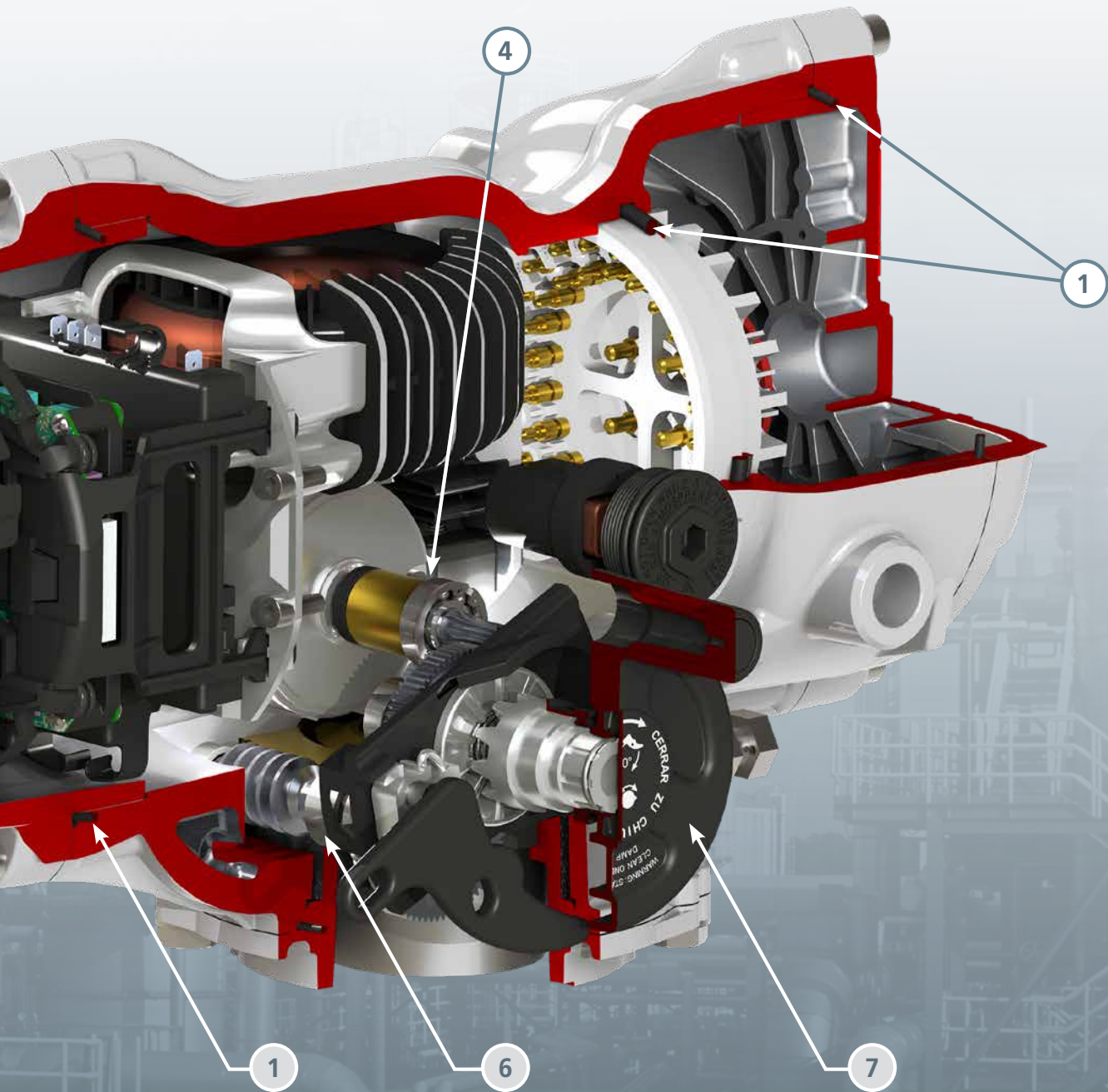
The drive train and motor uses the proven Rotork part-turn design principles employed for over 30 years. Simple, reliable and robust, the components are oil bath lubricated (for life).

7 Hand operation

Geared handwheel sized for effective manual operation of the valve. Handwheel drive is independent of the motor drive and is selected with a lockable hand/auto lever for safe operation even when the motor is running.

Motor operation always has preference unless the hand/auto lever is purposely locked into 'hand drive'.





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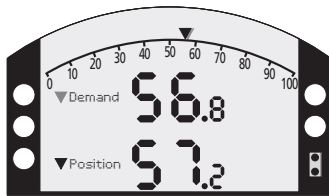
Local diagnostics and setup

The large dual stacked, hi-resolution display, with positional characters that are 25 mm high, is unrivalled in visibility for all lighting conditions and orientations. Consisting of a static, high-contrast positional display and a fully configurable dot-matrix LCD behind, the IQT offers the easiest user-friendly configuration and data analysis ever seen in the actuation world.

Configurable home-screens

With a mixture of the static and dot-matrix displays, there are now four configurable home-screens available to the user. The four screens reflect the parameters most commonly required to analyse operation at-a-glance.

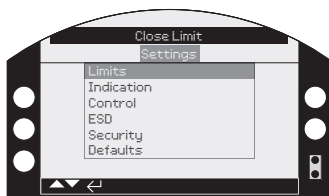
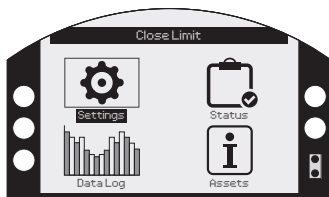
For example: Positional information with input demand (digital and analogue)



Using the Rotork *Bluetooth*[®] Setting Tool Pro, each of these screens can be easily accessed with a press of a button. Alternatively you can select one of the four screens to be continually displayed in the setup menu.

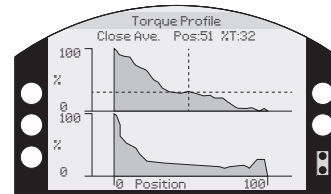
User friendly setup menus

A single press of a button on the Rotork *Bluetooth*[®] Setting Tool Pro takes you into the user-friendly setup menu. This menu has been designed and structured to reduce reliance on having a written manual to hand. With large clear characters available in many languages, setup and configuration has never been so easy.



Graphical datalogger

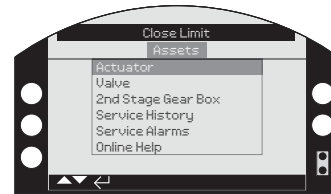
Greater amounts of data and analytical screens are now available in the datalogger and viewable locally. The datalogger screens are displayed on a 168 x 132 pixel dot-matrix display and can display anything from a torque vs position graph to statistical operational data.



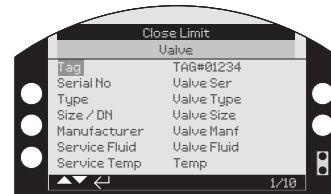
Asset management

Not only can you store information relating to the actuator, but also the valve and gearbox. This includes data about build (class, size, ratio and tag numbers) along with service information (commission date, service date etc).

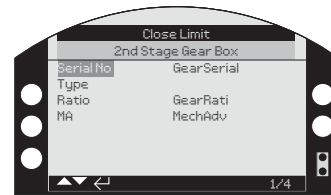
- Actuator data



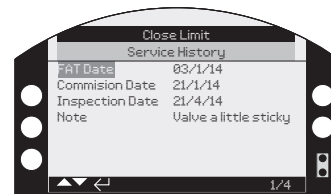
- Valve data



- Gearbox data



- Service history



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Features of the 3rd generation IQT include:

- Automatic limit setting
- Direct drive part-turn output
- Three-phase, direct current and single-phase variants
- Watertight and hazardous area enclosures
- Double o-ring sealing
- Handwheels for emergency and ease-of-use operation
- Oil bath lubrication
- Advanced multilingual display for status and setup
- Detailed datalogging
- Setting and data capture using the supplied Rotork *Bluetooth*® Setting Tool Pro
- Insight 2 PC software for valve performance analysis
- Highly intuitive user interface
- Comprehensive configuration and flexibility

IQT

IQT part-turn 3-phase, 1-phase and DC electric actuators are designed for isolation or regulation duties (S2 & S3/Class A & B) of up to 60 starts per hour.

Direct torque output range from 50 Nm (37 lbf.ft) to 3,000 Nm (2,214 lbf.ft).

IQTM

The modulating version of the IQT electric actuator has a solid state reversing starter. They feature fast-response remote control circuits for rapid control.

IQTM is suitable for up to 1,800 starts per hour (S4/Class C).

IQTF

The part-turn IQT is also available with a full worm wheel capable of multi-turn (max 22 turns) non-rising output. This option is typically used for slow, high torque applications such as Choke and Multi-port valves. For more information refer to PUB002-006.

Special Designs

If you require an IQT actuator for duties that are not covered by our standard range, we are happy to discuss custom solutions.

	Electrical Supply	Actuator Type	Duty Cycle	Torque Range
IQT	3-phase Single-phase DC	Part-turn isolating/regulating duty on-off & inching	60 starts/hour S2/S3 - 25% duty Class A+B	50 - 3,000 Nm
IQTM	3-phase Single-phase DC	Part-turn modulating duty	up to 1,800 starts/hour S4 - 50% duty Class C	50 - 3,000 Nm
IQTF	3-phase Single-phase DC	Full-turn modulating duty	up to 1,800 starts/hour S4 - 50% duty Class C	50 - 3,000 Nm

rotork®

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A full listing of the Rotork sales and service network is available on our website.

www.rotork.com

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