

rotork® Controls

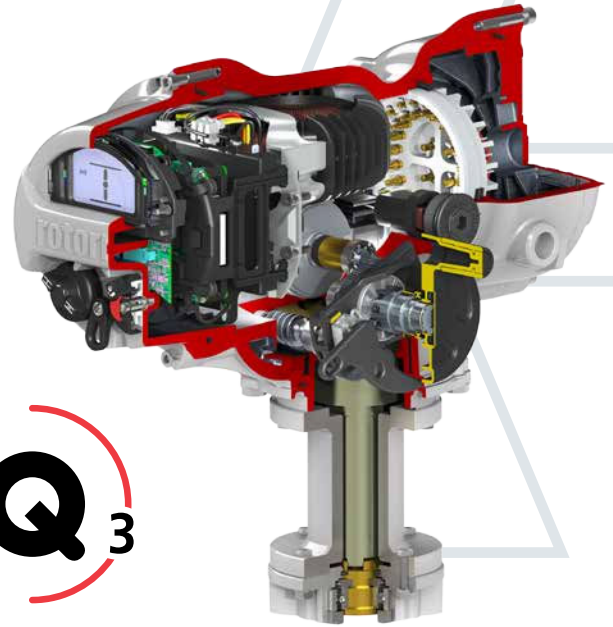
The IQTF actuator, part of the 3rd Generation IQ actuator range, is engineered for choke and control valve applications. The IQTF provides the reliability, accuracy and high resolution movement required in arduous applications associated with oil and gas field and general process control.

IQTF actuators have low output speeds for increased positional accuracy and are designed for limited turn or stroke valve applications such as control valves. IQTF is available with output options for rising stem linear valves, valves requiring a multi-turn output actuator and also part-turn valves requiring more than 90° such as 180° and 270° diverter valves.

The IQTF benefits from the advanced design of the IQ range multi-turn and part-turn actuators, resulting in a light weight, compact and resilient actuator designed for long life applications in the field.

Design Features and Benefits

- Rotary, linear and rising stem valve drive outputs to ISO/MSS standards
- Rotork double-sealed, IP66/68 20 m for 10 days
- Non-intrusive set-up using Rotork *Bluetooth*® Setting Tool
- Clear user-friendly controls and indication
- Position control by absolute encoder
- Datalogging and asset management as standard
- Fieldbus, analogue and hardwired I/O control options
- Low power AC 1-phase, 3-phase
- Ultra low power resting consumption with 24 VDC supply option
- Handwheel for manual operation without electrical power



IQTF Range

Electric full output turn actuators
for choke and control valve applications

Performance

- Adjustable speed, including slow mode for accurate positioning
- High accuracy and high resolution micro-step movement
- Adjustable torque/thrust protection
- Extended duty cycle for modulating applications
- 1,800 starts/hour at 75% rated torque/thrust
- 0.1% resolution
- 0.3% accuracy

Overall accuracy and resolution will be a function of the control method used and valve characteristics.



Keeping the World Flowing

Introduction



For sixty years, our customers have relied upon Rotork for innovative, dependable solutions to manage the flow of liquids, gases and powders.

Rotork products and services are used in the oil & gas, water & waste water, power, marine, mining, food, pharmaceutical and chemical industries around the world to improve efficiency, assure safety and protect the environment.

Keeping the World Flowing – The production of virtually everything that contributes to our lifestyle and improved environment – from clean water to fuel, electricity and pollution free beaches – relies on Rotork's innovative flow control products somewhere in the process.

Rotork's global network of over 850 manufacturing sites, service centres, offices and agents, operating in some of the most remote and challenging environments, provides truly worldwide customer support.

Research and development occurs in all our facilities, where Rotork engineers focus on solving customer challenges, and developing new solutions, with levels of engineering skill and creativity that our competitors cannot match.

With every product that Rotork develops, you can be sure that quality and reliability are an integral part.

Rotork Support

- Dedicated valve actuator manufacturing for over 65 years
- Global presence with over 850 manufacturing, sales, service and agent outlets
- On-site and distance field support
- Tailor made client support programmes
- Corporate member of the Institute of Asset Management



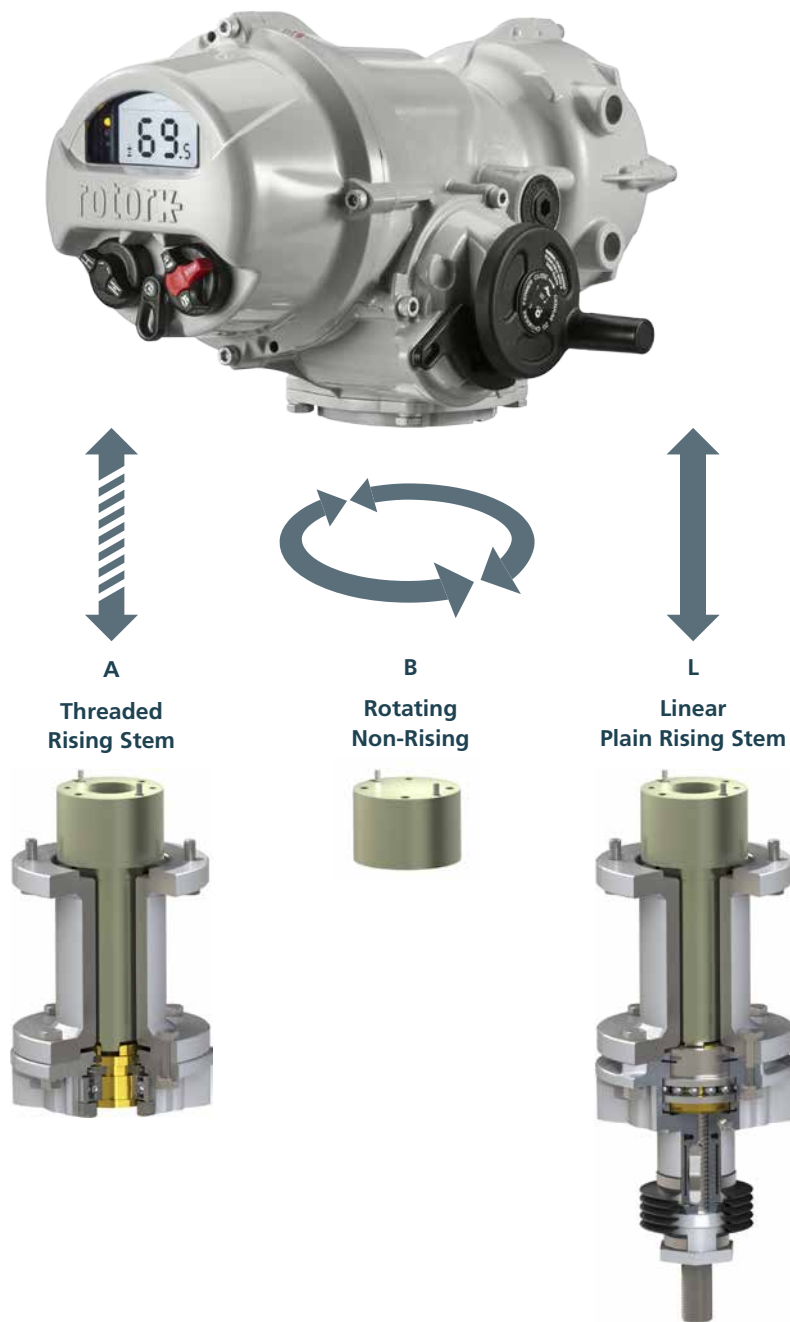
Drive Output

To meet all the requirements of choke and control valve drive mechanisms, three drive outputs are available conforming to actuator interface standards EN ISO 5210 for multi-turn and BS EN 15714-2 for linear.

- **A – Threaded rising stem; torque and thrust**
- **B – Rotating non-rising; no thrust**
- **L – Linear plain rising stem; thrust only**

Drive outputs A, B and L have been extensively tested and have a long installed pedigree with IQ actuators. Optimised for choke and control application, they provide reliable and flexible drives for all valve types.

The performances for the IQTF choke and control actuator with drives A, B and L are shown on page 6-7. Where higher operating times or longer strokes are required, please refer to Rotork.



IQTF Features

1 Environmental sealing IP66/68 20 m / 10 days

Water ingress protection, not reliant on terminal cover or cable gland sealing – double-sealed to IP66/68 20 m for 10 days. 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, intrinsically safe setting tool is suitable for use in hazardous environments. The setting tool can be used to download datalogger and configuration data wirelessly for analysis and asset management.

4 Position control

The unique Rotork patented absolute position sensor is highly accurate and can measure up to 22 output turns when used with a full-turn IQTF. With only two active parts it is very simple and robust, providing reliable position sensing, independent 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 Compact and efficient motor and gear drive

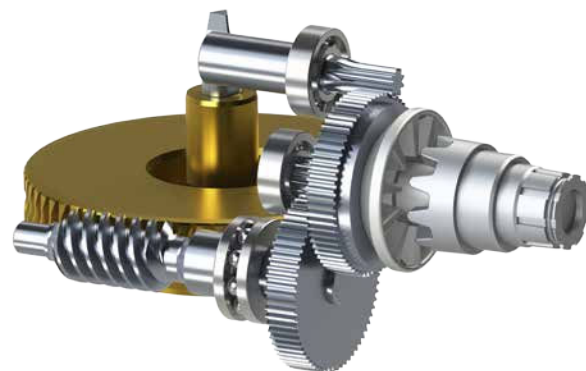
The compact drive train and motor uses the proven Rotork part-turn design principles employed for over 30 years. Simple, reliable and robust, the components are oil bath lubricated (for life).

7 Oil bath gearing lubrication

Sealed for life oil internal lubrication system. This oil performs in temperatures of -50 to +70 °C (-58 to +158 °F). A food grade oil option is available.

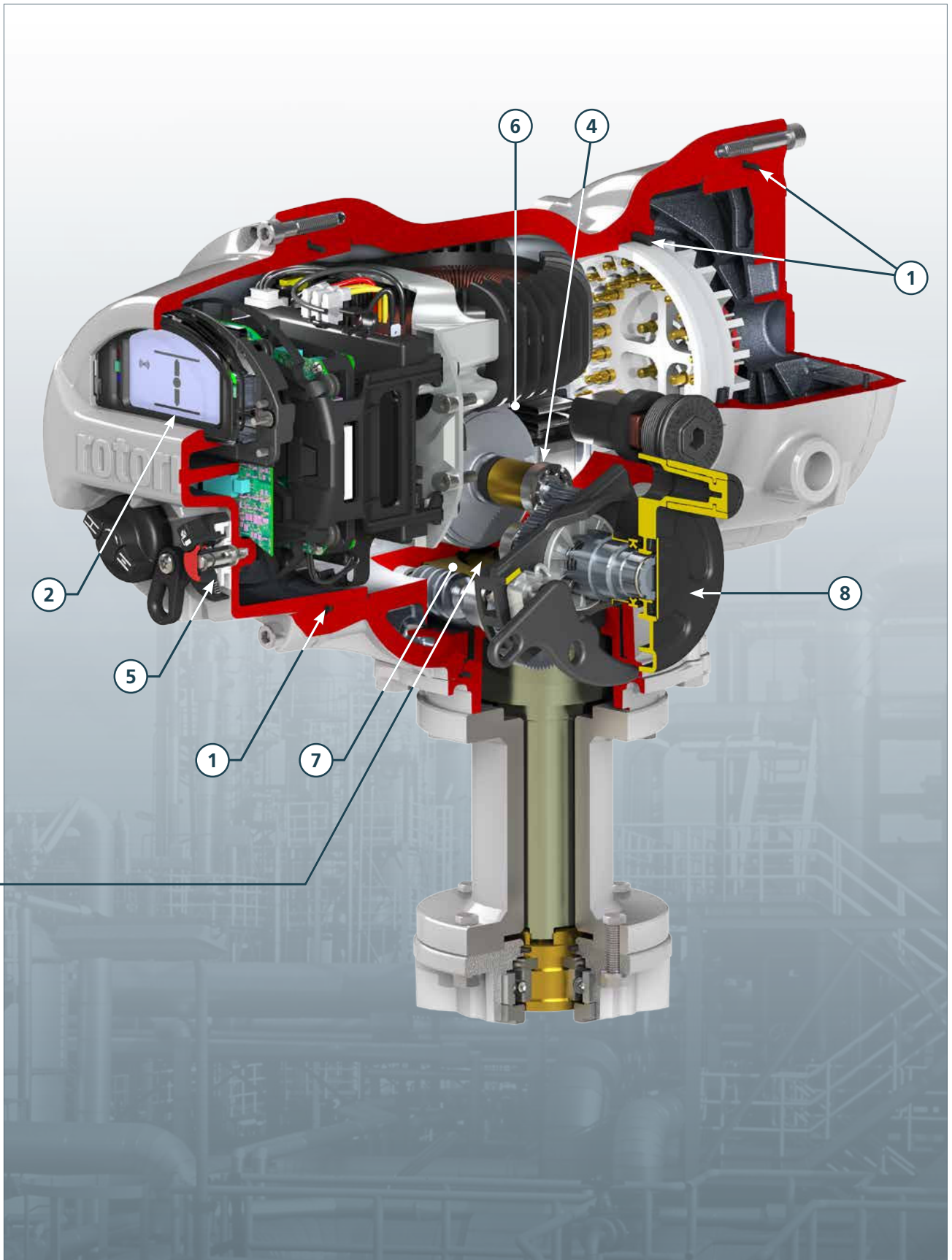
8 Hand operation

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'.



IQTF full turn gear wheel and drive train

The IQTF multi-turn 360° gear wheel provides multi-turn operation for limited turns applications.



Performance and Mechanical Data

IQTF choke and control – A output: torque and thrust

Drive designed for rising, threaded stem valve types. Torque and thrust.

Size nomenclature example: IQTF50 F10A

A – F10 / F14. Detachable aluminium bronze drive bush supplied blank for machining. Minimum 3 times thrust overload rating.



Coupling Acceptance	Rated Thrust		Rising Max Diameter	
	kN	lbf.ft	mm	in
F10	44	10,000	32	1.25
F14	100	22,480	38	1.5

Size	Turns	Stroke	RPM		Rated Torque		Base
	Max	Max (mm / in)	Max	Min	Nm	lbf.ft	
IQTF50 A	20	153/6	10	2.5	50	36.9	F10
IQTF100 A	20	153/6	6	1.5	100	73.8	F10
IQTF125 A	20	153/6	3	0.75	125	92.3	F14
IQTF250 A	20	153/6	1.88	0.47	250	184.5	F14

Torque is adjustable within the range 40% to 100% rated torque in 1% increments.

IQTF choke and control - B output: torque only

Drive designed for non-rising stem valves or part-turn/rotary input valves. Torque only.

Size nomenclature example: IQTF50 F10B4

B – F05 / F07 / F10. Detachable plated steel drive bush supplied blank for machining. Coupling BX available. BX is extended to allow coupling where intermediate mounting adaptation is required - apply for details.



Coupling Acceptance	Bore & Key Max		Square AF Max	
	mm	in	mm	in
F05	22	0.87	14	0.56
F07	28	1.1	19	0.75
F10	42	1.65	32	1.25
F14	60	2.36	41	1.62

Size	Turns	RPM		Rated Torque		Base		
	Max	Max	Min	Nm	lbf.ft	STD	Option 1	Option 2
IQTF50 B	20	10	2.5	50	37	F10	F05	F07
IQTF100 B	20	6	1.5	100	74	F10	F05	F07
IQTF125 B	20	3	0.75	125	92	F10	F05	F07
IQTF250 B	20	1.88	0.5	250	185	F10	F07	–
IQTF500 B	15	1	0.25	500	369	F10	–	–
IQTF1000 B	8	0.5	0.125	1,000	738	F12	F14	–
IQTF2000 B	4	0.25	0.125	2,000	1,476	F14	–	–
IQTF3000 B	4	0.25	0.125	3,000	2,214	F16	–	–

Torque is adjustable within the range 40% to 100% rated torque in 1% increments.

Performance and Mechanical Data

IQTF choke and control - L output: thrust only

Drive designed for rising, plain stem valve types. Thrust only.

Size nomenclature example: IQTF50 F10L

L – F10 / F14. Threaded male coupling valve stem interface.

Drives include anti-rotation keys, protection bellows and grease point. Factory greased using Total Multis MS2 high temperature grease.



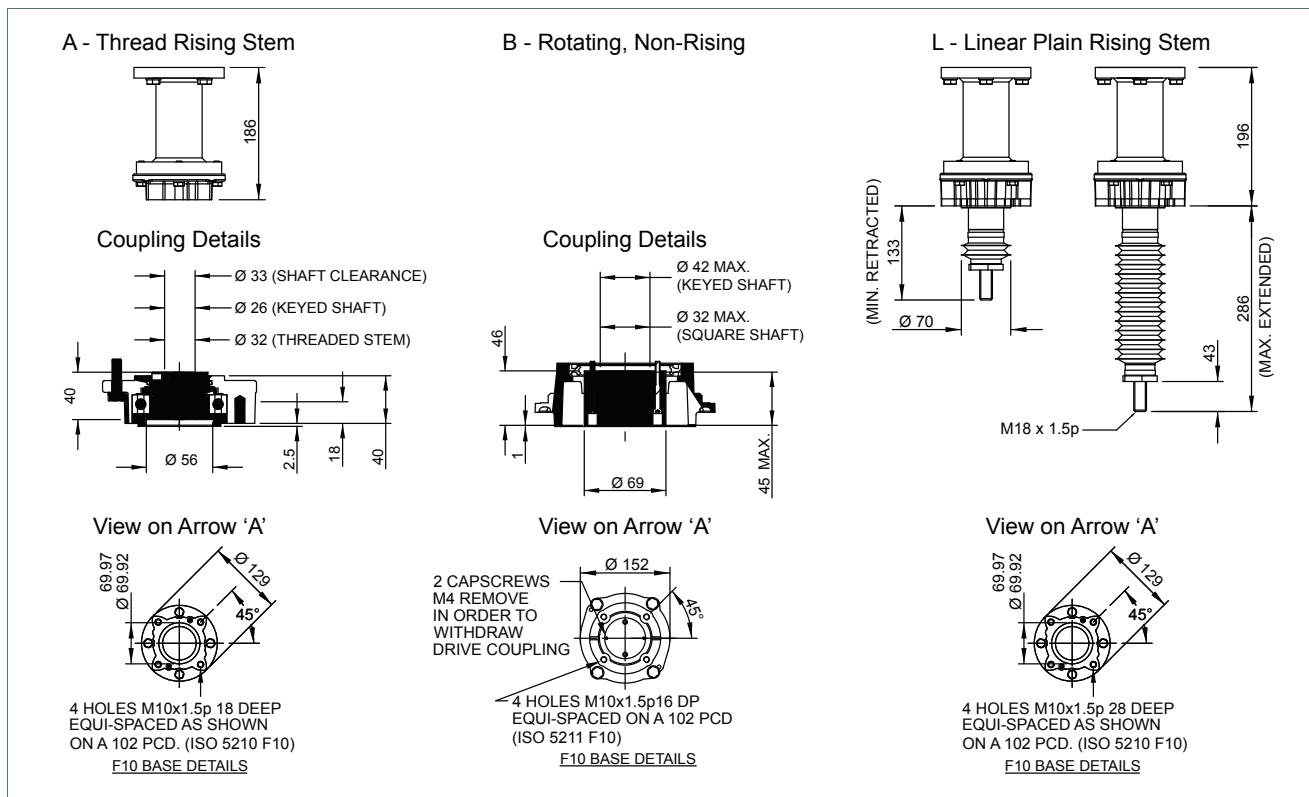
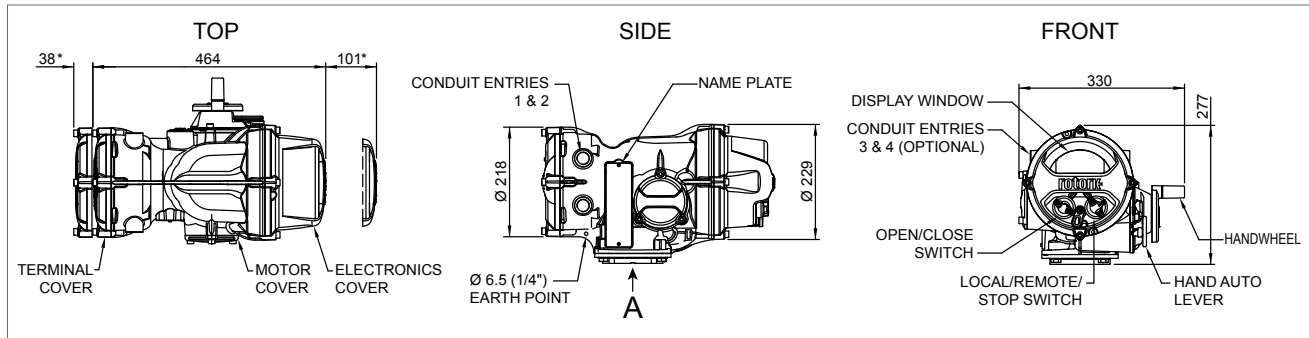
Size	Stem Lead	Base	Coupling	Rated Thrust		Max Stroke	mm /sec	
	mm			lbf	kN		mm	Max
IQTF50 L	3	F10	M18 x 1.5	5,271	23.45	60	0.5	0.13
IQTF50 L	5	F10	M18 x 1.5	4,695	20.88	100	0.83	0.21
IQTF50 L	7	F10	M18 x 1.5	4,232	18.82	140	1.17	0.29
IQTF100 L	3	F10	M18 x 1.5	10,543	46.90	60	0.3	0.08
IQTF100 L	5	F10	M18 x 1.5	9,389	41.77	100	0.50	0.13
IQTF100 L	7	F10	M18 x 1.5	8,463	37.65	140	0.70	0.18
IQTF125 L	5	F14	M30 x 2	8,518	37.89	100	0.25	0.06
IQTF125 L	7	F14	M30 x 2	7,891	35.10	140	0.35	0.09
IQTF125 L	10	F14	M30 x 2	7,107	31.61	153	0.50	0.13
IQTF125 L	15	F14	M30 x 2	6,077	27.03	153	0.75	0.19
IQTF250 L	5	F14	M30 x 2	17,036	75.78	100	0.16	0.04
IQTF250 L	7	F14	M30 x 2	15,783	70.21	140	0.22	0.05
IQTF250 L	10	F14	M30 x 2	14,214	63.23	153	0.31	0.08
IQTF250 L	15	F14	M30 x 2	12,154	54.06	153	0.47	0.12

Thrust is adjustable in the range 40% to 100% rated thrust in 1% increments.

IQTF choke and control – A, B and L output: weights

Nominal Weight	F10		F14	
	kg	lbs	kg	lbs
IQ A	30	66	35	77
IQ B	23	51	23	51
IQ L	32	71	37	82

Dimensional Data



Note: A and B couplings are removable and supplied blank for machining. For full detailed drawings visit www.rotork.com

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

www.rotork.com

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