



## Keeping the World Flowing for Future Generations

IQT3F Pro range actuators benefit from the advanced design of the IQ range multi-turn and part-turn actuators, resulting in a lightweight, compact and resilient actuator designed for long life applications in the field.

IQT3F Pro provides the reliability, accuracy and high resolution movement required in arduous applications associated with oil and gas field and general process control.

IQT3F Pro actuators have low output speeds for increased positional accuracy and are designed for limited turn or stroke valve applications such as control valves. Output options are available for rising stem linear valves, valves requiring a multi-turn output actuator and part-turn valves requiring more than 90° such as 180° and 270° diverter valves.

- › Explosionproof to international standards
- › Independent speed settings for clockwise and anti-clockwise rotation
- › Optional high-speed build available for sizes 50, 100 and 125
- › Closed-loop control available
- › Water ingress protection, not reliant on terminal cover or cable gland sealing – double-sealed to IP66/68 7 m for 72 hours
- › Rapid and secure commissioning even without power, via non-intrusive and intrinsically safe Bluetooth® setting tool, Rotork app and manual setup via local control knobs
- › Safe, motor-independent, handwheel operation available at all times
- › Continuous position tracking at all times, even without power
- › Oil bath lubrication provides extended life and the ability to mount in any orientation
- › Real time valve and actuator performance, trend analysis and diagnostic information viewable on screen and available for asset management
- › Backed by Rotork Site Services (RSS)



## IQT3F Pro range

Full-turn intelligent electric choke and control valve actuators

- IQTF-A optimised for rising stem applications
- IQTF-B optimised for non-rising stem applications
- IQTF-L optimised for direct drive linear applications

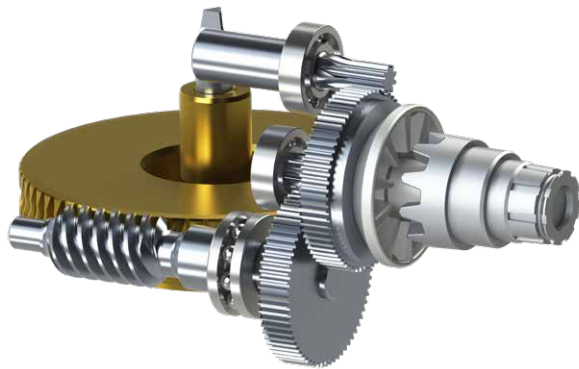


# IQT3F Pro range

## Performance

- Adjustable speed, including slow mode for accurate positioning and high speed option where faster speeds are required for IQTF50/100/125
- Independent speeds allowed for clockwise and anti-clockwise rotation
- 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
- Optional closed-loop control using a choice of methods. See [PUB002-040](#) for details

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



### IQT3F Pro full turn gear wheel and drive train

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

## Drive outputs

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

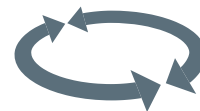
- **A – Threaded rising stem; torque and thrust**
- **B – Rotating non-rising; torque only**
- **L – Linear plain rising stem; thrust only**

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 IQT3F Pro choke and control actuator with drives A, B and L are shown on the following pages. Where higher operating times or longer strokes are required, please refer to Rotork.



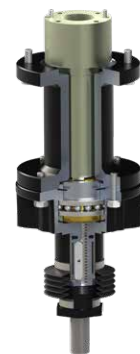
**A**  
**Threaded**  
**rising stem**



**B**  
**Rotating**  
**non-rising**



**L**  
**Linear**  
**plain rising stem**



## Performance and mechanical data

### IQTF performance data

Actuator	IQTF50	IQTF100	IQTF125	IQTF250	IQTF500	IQTF1000	IQTF2000	IQTF3000
Seating torque	Torque		Nm	lbf.ft				
	50	100	125	250	500	1,000	2,000	3,000
	37	74	92	185	369	738	1,476	2,214

### Modulating torque

	25	50	63	125	250	500	1,000	1,000
	19	37	46	93	185	369	738	738

### Operating speed

rpm (standard)	2.5 - 10	1.5 - 6	0.8 - 3	0.5 - 1.88	0.25 - 1	0.125 - 0.5	0.125 - 0.5	0.125 - 0.5
rpm (DC extended speed)	2.6 - 13	1.8 - 9	0.8 - 4	–	–	–	–	–
rpm (AC extended speed)	3.2 - 16	2.4 - 12	1 - 5	–	–	–	–	–
max turns, min rpm	22	22	12	7.5	3.75	1.88	1.88	1.88
max turns, max rpm	22	22	22	22	15	8	4	4

IQTF actuator output torque is configurable to 40 - 100% of seating torque.  
Operating speed of IQTF 24 VDC actuators will vary with load.

### IQTF L performance data

Actuator size	Stem lead	Rated thrust		Max stroke		Standard	Max speed		Min speed
	mm	kN	lbf	mm	in	mm/sec	DC extended speed mm/sec	AC extended speed mm/sec	mm/sec
IQTF50 L	3	23.45	5,271	66	2.60	0.50	0.65	0.80	0.13
	5	20.88	4,695	110	4.33	0.83	1.08	1.33	0.22
	7	18.82	4,232	153	6.02	1.17	1.52	1.87	0.37
IQTF100 L	3	46.90	10,543	66	2.60	0.30	0.45	0.60	0.08
	5	41.77	9,389	110	4.33	0.50	0.75	1.00	0.13
	7	37.65	8,463	153	6.02	0.70	1.05	1.40	0.18
IQTF125 L	5	37.89	8,518	110	4.33	0.25	0.33	0.42	0.07
	7	35.10	7,891	153	6.02	0.35	0.47	0.58	0.09
	10	31.61	7,107	153	6.02	0.50	0.67	0.83	0.13
	15	27.03	6,077	153	6.02	0.75	1.00	1.25	0.20
IQTF250 L	5	75.78	17,036	110	4.33	0.16	n/a	n/a	0.04
	7	70.21	15,783	153	6.02	0.22	n/a	n/a	0.06
	10	63.23	14,214	153	6.02	0.31	n/a	n/a	0.08
	15	54.06	12,154	153	6.02	0.47	n/a	n/a	0.13

In accordance with ISO 22153, thrust is calculated using a constant value coefficient of friction (CoF). CoF can vary with load, speed and lubrication. Refer to PUB002-065 for the recommended lubrication routine.

Linear speeds are subject to rounding and speed/stem tolerances.

### IQTF mechanical data

Actuator	IQTF50	IQTF100	IQT125 IQTF125 IQTM125	IQT250 IQTF250 IQTM250	IQT500 IQTF500 IQTM500	IQT1000 IQTF1000 IQTM1000	IQT2000 IQTF2000 IQTM2000	IQT3000 IQTF3000 IQTM3000
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### Approximate weight

kg	22	22	22	22	22	37	37	39
lbs	49	49	49	49	49	82	82	86

### Handwheel details

Turns for 90°	26	26	88	88	88	83	83	83
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### Type B coupling - torque only

Bore & key max mm	F05*	F07*	F10	F05*	F07*	F10	F05*	F07*	F10	F07*	F10	F10	F12	F14	F14	F16
Bore & key max in	FA05*	FA07*	FA10	FA05*	FA07*	FA10	FA05*	FA07*	FA10	FA07*	FA10	FA10	FA12	FA14	FA14	FA16
Shaft height max mm	14	19	32	14	19	32	14	19	32	19	32	32	41	41	46	
Shaft height max in	0.56	0.75	1.25	0.56	0.75	1.25	0.56	0.75	1.25	0.75	1.25	1.25	1.62	1.62	1.81	
Square AF max mm	22	28	42	22	28	42	22	28	42	28	42	42	60	60	60	
Square AF max in	0.87	1.1	1.65	0.87	1.1	1.65	0.87	1.1	1.65	1.1	1.65	1.65	2.36	2.36	2.36	
Shaft height max mm	65	65	45	65	65	45	65	65	45	65	45	45	65	65	80	
Shaft height max in	2.56	2.56	1.77	2.56	2.56	1.77	2.56	2.56	1.77	2.56	1.77	1.77	2.56	2.56	3.15	

\* Optional flanges F05, FA05, F07 and FA07 use a base adapter plate. Required base type must be specified.

### Type A coupling - torque and thrust

ISO 5210	F10	F10	F14	F14
MSS SP-101	FA10	FA10	FA14	FA14
Thrust rating kN	44	44	100	100
Thrust rating lbf	10,000	10,000	22,480	22,480
Max rising stem diameter mm	32	32	44	44
Max rising stem diameter in	1.25	1.25	1.7	1.7
Extra weight kg	10	10	25	25
Extra weight lbs	22	22	55	55



### Type L coupling - linear thrust

ISO 5210	F10	F10	F14	F14
Coupling	M20 x 1.5	M20 x 1.5	M36 x 3	M36 x 3
Extra weight kg	10	10	25	25
Extra weight lbs	22	22	55	55

The linear drive coupling is available with an additional yoke if required. F10 linear drive with yoke is 13 kg (28.7 lbs). F14 linear drive with yoke is 33 kg (72.8 lbs).

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

[www.rotork.com](http://www.rotork.com)

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