



400 Series

Electric Actuators – EX Proof

400 Series electrical actuators use the reliable Planetary Torque Control System (PTCS), providing a highly efficient actuator. 400-ATEX actuators are a robust, mechanical and ATEX certified solution for your application.

The mechanical design of 400-ATEX actuators ensures long service life. With no electronic components, 400-ATEX actuators can operate in adverse conditions across many industries to minimise process downtime and maximise productivity.

Features of 400 Series actuators

- Electric actuators designed to meet the needs of diverse actuation applications:
 - Multi-turn torque from 15 to 4,000 Nm
 - Part-turn torque from 280 to 350,000 Nm
 - Linear thrust from 7 to 200 kN
- PTCS patented planetary gearing system controlling the applied torque with high mechanical efficiency
- Mechanically configurable torque, 60-100% of rated torque
- Mechanical switch mechanism (MSM)
 - Adjustable stroke: 2 - 1,500 turns
 - Extended stroke: 2 - 15,000 turns
- 2 DPDT torque switches
- 2 DPDT position limit switches
- 1 moving status blinker switch
- Additional signal options providing extra switches, potentiometer or 4-20 mA position transmitter
- Integral manual override with padlock mode restriction and motor drive priority
- Modular design to accommodate only the necessary functions required for the application
- Watertight and dustproof to IP67 according to EN60529

400 Series – EX Proof

Key benefits

- Highly efficient drive train reduces power consumption, greatly reducing environmental impact
- Simple mechanical design ensures robust and reliable operation
- Lubricated for life to reduce maintenance requirements
- Electrical torque and position limit protection in addition to mechanical PTCS protection to prevent valve damage
- Designed to work efficiently and effectively under harsh conditions
- Compact size and low weight, ideal for installation in confined spaces
- User friendly commissioning and operation

Motor design

400 Series actuators include a low inertia, high torque motor, designed specifically for precise and reliable positioning.

1-phase or 3-phase supply

S2 Isolating Duty or S4 Modulating Duty

Position and torque measurement

400 Series actuators are fitted with a mechanical switch mechanism (MSM) that measures torque and position mechanically. The MSM includes IP67 rated micro switches for end of travel position indication plus torque trip indication.



40A-40B Series

PTCS – the patented planetary gearing system

- High mechanical efficiency (>95%)
- Precise control of the applied output torque/thrust
- Highly compact, light weight design
- Reliable mechanical protection against:
 - Overloading the valve
 - Failure of electrical torque or limit switch
 - Delays or failure in the switching control system

Environmental sealing and protection

- IP67 according to EN60529 (optional IP68 6m / 72 hours)
- Paint protection coatings suitable for use up to C5-M
- Double sealing option to maintain IP rating when cover is removed
- ATEX explosion protection directive for 40A/41A/40B/41B/40G/41G/40H/41H actuators
- ATEX certified according to EC-Type Examination Certificate number LOM 03ATEX2126 X
- Operating temperature range:
 - Standard: -25 to +70 °C (-13 to +158 °F)
 - High temperature option: 0 to 120 °C (+32 to +248 °F)
 - Low temperature option: -40 to +60 °C (-40 to +140 °F)

Mounting coupling

400 Series actuators meet attachment standards ISO 5210, 5211 and DIN3338. This ensures compatibility with a wide variety of valve shafts.

Electrical connection

Wiring connections on 400 Series actuators have been simplified for fast and efficient installation. Tension clamp connectors are used to guarantee a robust wiring connection during excessive vibration. Three conduit entries are provided as standard to suit various gland requirements:

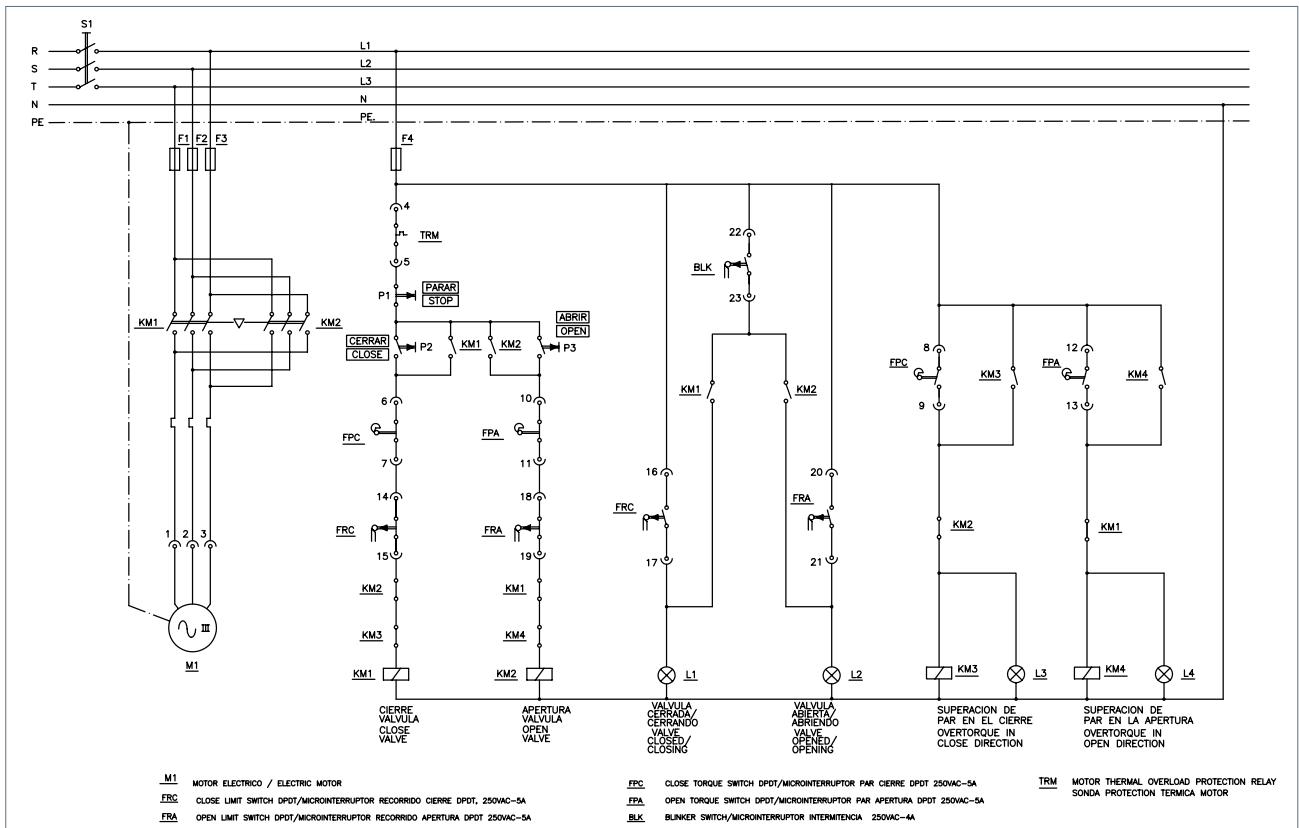
- Standard: 2 x M25 x 1.5p, 1 x M20 x 1.5p
- Optional: 2 x 3/4" NPT, 1 x 1/2" NPT
- Special conduit entry thread sizes are available

Manual operation

The integral manual handwheel facilitates override operation during emergency conditions. Motor drive will automatically re-engage and take priority after manual operation occurs. Unauthorised manual operation can be prevented by using a padlock on the engagement lever.

400 Series – EX Proof

Wiring diagram



400 Series applications

Valve types	Movement	
Knife valve Gate valve Globe valves Diaphragm valves Pinch valve	Multi-turn direct drive Multi-turn with Spur Gearbox Multi-turn with Bevel Gearbox	
	Multi-turn + Linear Adaption Multi-turn + Spur Gearbox Multi-turn + Bevel Gearbox	
Plug valves Ball valves Butterfly valves	Multi-turn + Worm Gearbox	

Performance

Electric Actuator Model		Output Speed rpm	Maximum Torque Nm (lbf.in)	Maximum Thrust kN (lbf)	Flange
S2 duty	S4 duty				
40A (G)	41A (G)				
40A-001	41A-001	22, 28, 44, 56, 88, 112, 175, 224	15 (11)	40 (8,992)	F10
40A-003	41A-003	11, 14, 22, 28, 44, 56, 88, 112, 175, 224	30 (22)	40 (8,992)	F10
40A-006	41A-006	11, 14, 22, 28, 44, 56, 88, 112, 175, 224	60 (44)	40 (8,992)	F10
40A-012	41A-012	11, 14, 22, 28, 44, 56, 88, 112, 175, 224	120 (89)	70 (15,737)	F10
40A-025	41A-025	22, 28, 44, 56, 88, 112, 175, 224	250 (184)	160 (35,969)	F14

Electric Actuator Model		Output Speed rpm	Maximum Torque Nm (lbf.in)	Maximum Thrust kN (lbf)	Flange
S2 duty	S4 duty				
40B (H)	41B (H)				
40B-003	41B-003	11, 14, 22, 28, 44, 56, 88, 112, 175, 224	30 (22)	40 (8,992)	F10
40B-006	41B-006	5, 7, 11, 14, 22, 28, 44, 56, 88, 112, 175, 224	60 (44)	40 (8,992)	F10
40B-012	41B-012	3, 4, 5, 7, 11, 14, 22, 28, 44, 56, 88, 112	120 (89)	40 (8,992)	F10
40B-025	41B-025	3, 4, 5, 7, 11, 14, 22, 28, 44, 56, 88, 112	250 (184)	70 (15,737)	F14
40B-050	41B-050	3, 4, 5, 7, 11, 14, 22, 28, 44, 56, 88, 112	500 (369)	160 (35,969)	F14
40B-100	41B-100	11, 14, 44, 56	1,000 (738)	250 (56,202)	F16
40B-200	41B-200	5, 7, 22, 28	2,000 (1,475)	380 (85,427)	F25

Actuators with code A/B offer 'Ex e' protection. Actuators with code G/H offer 'Ex de' protection. G type actuators match A type performance. H type actuators match B type performance.

Coupling Details

		Flange Size – ISO 5210 (F) & MSS P-102 (FA) – mm (in)			
		F10 / FA10	F14 / FA14	F16 / FA16	F25 / FA25
Type 'A' Coupling	Rising Stem*	40 (1 5/8)	57 (2 1/4)	75 (3)	86 (3 3/8)
Type 'B' Coupling	Type 'B3' (Fixed bore)	20 (3/4)	30 (1 1/8)	-	-
	Type 'B4' (Blank)*	28 (1 1/8)	45 (1 3/4)	60 (2 1/4)	75 (3)

* This coupling type requires machining to match the valve or gearbox stem. Dimensions given for this coupling are maximum values.

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

www.rotork.com

Corporate Headquarters
Rotork plc
tel +44 (0)1225 733200
fax +44 (0)1225 333467
email mail@rotork.com

Controls

Electric Actuators and Control Systems

Fluid Systems

Fluid Power Actuators and Control Systems

Gears

Gearboxes and Gear Operators

Instruments

Precision Control and Indication

Site Services

Projects, Services and Retrofit