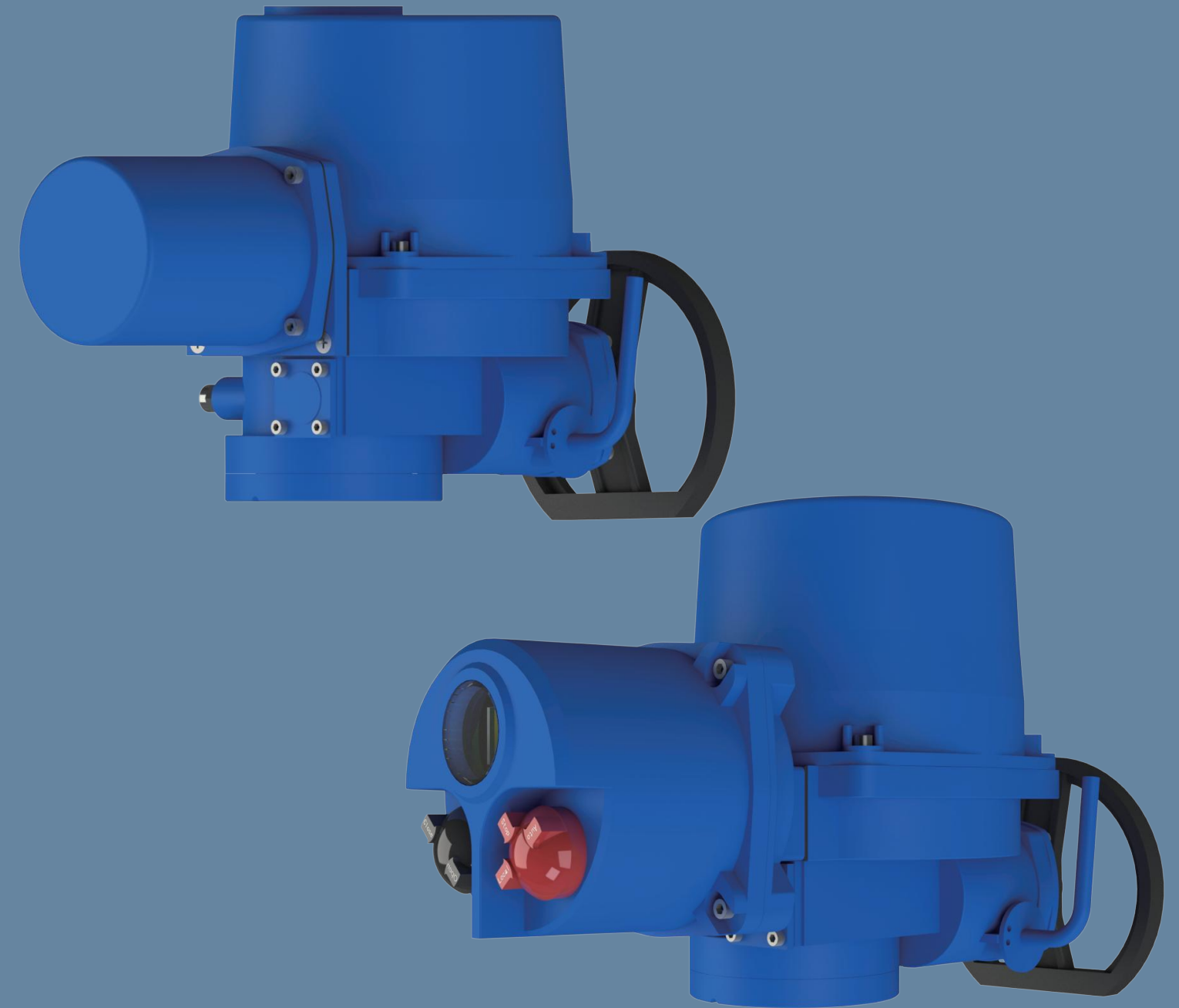




FREYA ELECTRIC ACTUATOR
For Industrial Valve Automation

FRY · 弗瑞亚
Electric Actuator



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**FRY SERIES
POWER-OFF RESET ACTUATOR**

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Founded in 2014, Freya specializes in fluid control products and services such as valves, actuators, electric valve actuators, and electric valves. It focuses on the process industry and has long been committed to providing services to process industries such as power, steel, building materials, and water treatment to provide professional fluid control solutions. Based on the actual working conditions, through necessary on-site surveying and technical explanations, we provide customers with safe, economical and environmental-friendly selection and design, supply in strict accordance with contract requirements and guide installation and debugging, and hand over for use if standards are met. Thanks to the trust of the vast number of users, through long-term and large-scale on-site services, and the effective accumulation of technical experience, the company has an accurate understanding of the real needs and pain points of users and the market, as well as expectations for equipment manufacturers.

The company based on its own patent R & D and production of intelligent electric actuators, reliable, durable, easy to use, cost-effective and guaranteed service. Being close to users, providing full-process services, cover-all services, repair and maintenance value-added services, and escorting users' production are our differentiating advantages. Freya intelligent electric actuator and electric valve actuator provide a two-year warranty and lifetime free after-sales service after installation and commissioning. Technical quality and commercial credit are the two foundations on which the company relies to survive and drive the development of the company. Users feel reassured, worry-free and happy, which are the only criteria to evaluate the effectiveness of our work and demonstrate the value of our existence.

QUALIFICATIONS



PRODUCT OVERVIEW

FRY-QTR series power-off reset electric valve actuator is used to control valves with a rotation of 0°~90° and other similar products, such as butterfly valves, ball valves, dampers, plug valves, louver valves, etc. It uses AC110V, 220V, 380V AC power supply and DC24V DC power supply as the driving power supply. The actuator has its own power supply.

It can be widely used in petroleum, chemical industry, electricity, metallurgy, pharmaceutical, papermaking, energy, water treatment, shipbuilding, textile, food processing, building automation and other fields. At the same time, it has many advantages such as small size, light weight, exquisite appearance, unique structure, compactness, quick opening and closing, easy installation, small operating torque, convenient operation, digital display of valve position, no maintenance required, safe and convenient use, etc.

PRODUCT DESCRIPTION

- Torque range: 60~1500Nm
- Provide IP67 explosion-proof housing (ATEX type optional)
- Basic control method:
 - On-off type
 - Modulating type
 - Continuous modulating type
- Provide different control methods according to customer requirements:
 - Ordinary on-off type
 - Ordinary modulating type
 - Non-invasive integrated type
 - Intelligent type
 - Fieldbus type

WORKING ENVIRONMENT

Sealing protection.....According to GB/4208-2017 standard, IP67 (standard, all connection surfaces are sealed with O-rings), optional IP68 (connection surfaces are equipped with double O-rings).

Explosion-proof grade.....According to GB/3836, IEC, CU-TR standards, ExdII design. ATEX certification, meeting all potential explosive environments (such as oil, natural gas, chemical, electric power, metallurgy and emerging gas industries, etc.).

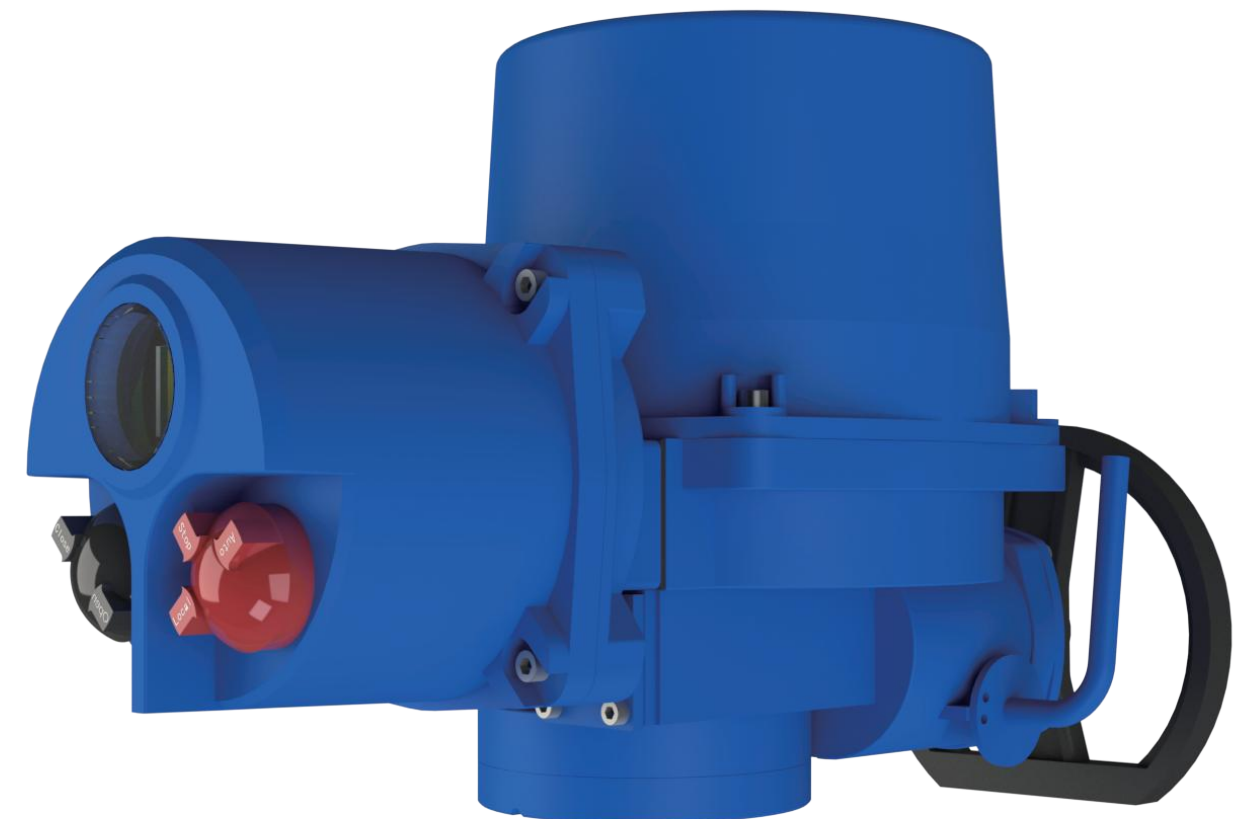
Anti-corrosion protection.....After anodizing and polyester powder coating, it has strong corrosion resistance and is suitable for industrial corrosion environments (chemical, alumina plants) or marine corrosion environments (offshore).

Ambient temperature.....Standard: ordinary on-off type, ordinary modulating type (-30°C--+75°C)

Intelligent type, non-invasive integrated type (-25°C--+70°C)

Low temperature: ordinary on-off type, ordinary modulating type (-60°C--+50°C)

Intelligent type, non-invasive integrated type (-40°C--+60°C)



BASIC CONTROL METHOD

In order to meet different application conditions and design requirements, it is divided into the following three basic control methods.

On-off type

The actuator drives the valve from fully open to fully closed or fully closed to fully open.

Modulating type

The actuator drives the valve to any position (fully open, halfway position and fully closed).

Continuously modulating type

The actuator frequently drives the valve to any position between fully open and fully closed.

For continuously modulating actuators, the number of permissible starts and load conditions are additional reference characteristics. The on-off type or modulating type is selected according to the different mechanical loads of the actuator. Therefore, each actuator type can be used for various operating modes.

		On-off type	Modulating type	Continuously modulating type
Working cycle		S2-15min/30min	S2-15min/30min	S4-25%/50%
	Model naming			
	Bus type	ICU+single card/dual card+bus name		Continuously adjustable
	Intelligent type	ICU		Continuously adjustable
	Non-invasive integrated type	SICU	SRCU	/
	Ordinary type	Ordinary on-off type	PCU	Continuously adjustable

Note: The number after the model number "1" represents the voltage AC 1ph; "2" represents the voltage AC 3ph; "3" represents the voltage DC, such as: SICU2 (AC 3ph non-invasive integrated on-off type)

SPECIAL PERFORMANCE

When the reset is set to reset on or reset off during use, in the case of abnormal power failure, the power-off reset series electric actuator can immediately give the valve a power-off reset command to make the valve work to the full open/full closed state, realizing the power-off reset function. It is widely used in power plants, chemical plants, environmental protection equipment and other places.

Intelligent type

The intelligent control system has comprehensive configuration capabilities and can realize all actuator control functions, covering non-invasive integrated functions, and can also have:

Intelligent on-off/modulating integrated design

- With on-off and modulating functions

LCD liquid crystal display

- Chinese menu display, digital display of opening percentage, accurate to 0.1%

Infrared remote control (standard)

- Convenient remote control operation, various functions can be set

Independent wiring chamber

- Double seal 3 cable enteris NPT 3/4", NPT 1", NPT 1-1/2" optional

ESD function

- In an emergency, the ESD signal can override any on-site or remote signal, forcing the actuator to close or open the valve.

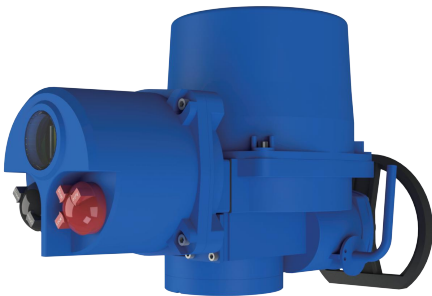
Status indicator

- End position close

- End position open

Fieldbus control (optional)

Various fieldbus systems such as: Profibus, Modbus, Hart, etc.



Non-invasive integrated type

When the application requires adaptive control functions, configurable user interfaces or intelligent diagnostic functions (SICU: non-invasive integrated on-off type, SRCU: non-invasive integrated on-off/modulating type), then choosing the non-invasive integrated function will be the perfect solution.

LCD display

- Digital display of opening percentage

Infrared remote control (optional)

- Convenient remote control operation, various functions can be set

Local operation/local control

- Operation: The selector switch can be locked in the three positions of LOCAL-OFF-REMOTE

- Open and close buttons

Independent wiring chamber

- Double seal 3 cable entries NPT 3/4", NPT1", NPT 1-1/2" optional

No need to open the cover for debugging

- Menu settings can be made through the on-site control button or remote control

Absolute encoder

- No battery support required, high-precision recording of valve position

Status indicator

- End position open

- End position close

Ordinary modulating type

Independent wiring chamber

- Double seal 3 cable entries NPT3/4", NPT1", NPT 1-1/2" optional

Signal setting

- Input (setting) and output (feedback) signals are completely isolated.

- Input/output: 4-20mA (standard) input impedance 160Ω

- Input/output: 0-10V, 1-5V, 0-20mA, etc. (optional)

Analog output

- Current: Maximum acceptable load is 750Ω when powered by 24VDC

- Voltage: Minimum acceptable load is 50KΩ (shunt resistance 500Ω)

Adjustment accuracy

- Factory standard accuracy 0.7%

- Customizable accuracy 0.2%~0.5%

Ordinary on-off type

When the power fails, the valve position is set according to the factory. It uses large-capacity, long-life, high-power rechargeable lithium batteries, which take a short time to charge and can be charged continuously for 5W times. It is green, environmentally friendly, efficient and energy-saving.

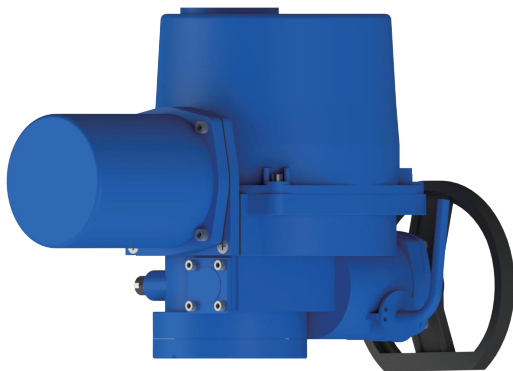
Independent wiring chamber

- Double-sealed 3 cable entries NPT3/4", NPT 1", NPT 1-1/2" optional

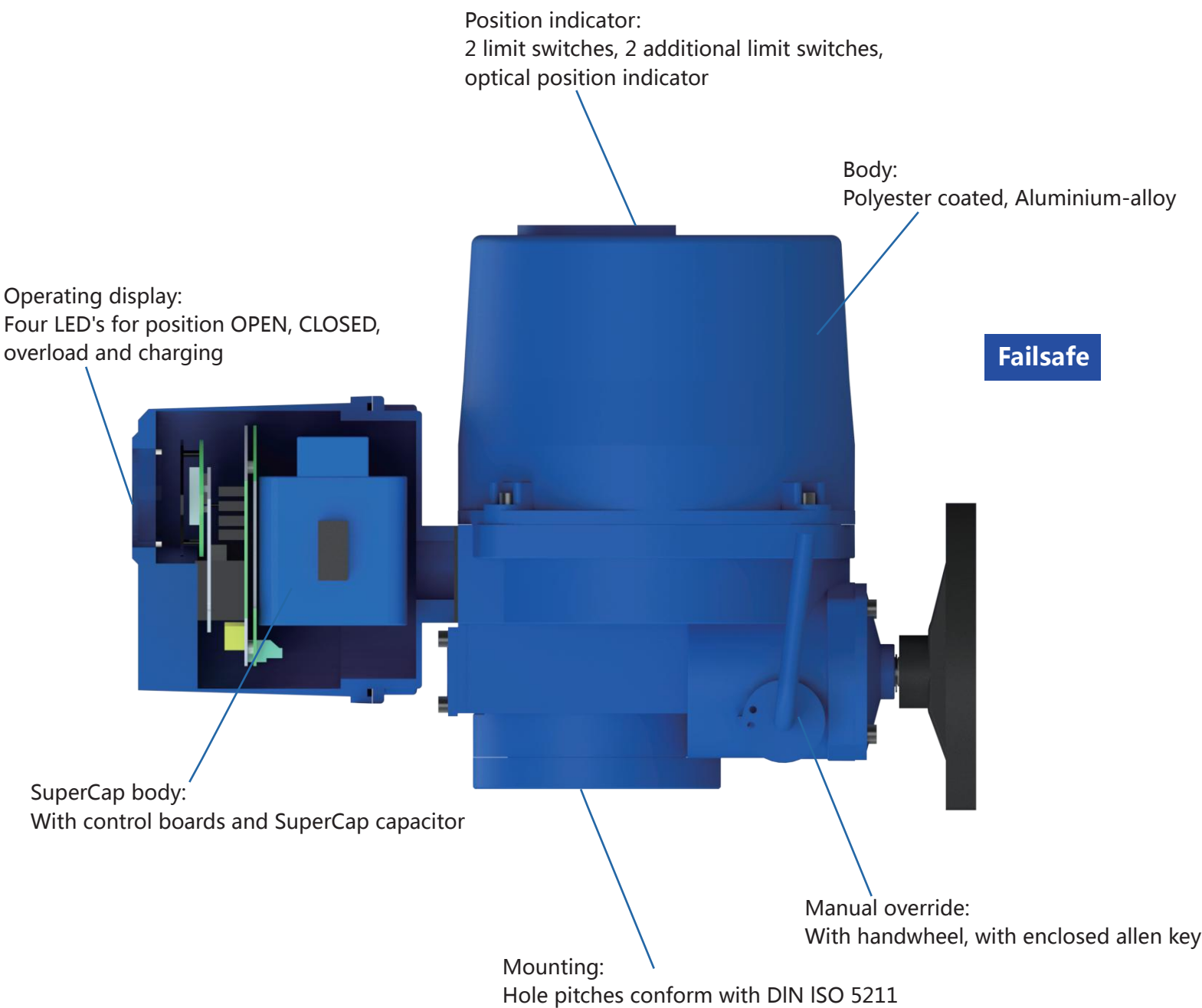
Backup power supply

- High-performance lithium battery

In addition to the above functions, if you have other needs, please contact our company.



PRODUCT FEATURES



PRODUCT PARAMETERS

General specifications	
Torque range	60-1500Nm
Shell material	Die-cast aluminum
Position indicator	Even in the case of power failure, the valve position dial can display continuous position changes
Sealing	
External corrosion protection	Coating system
	Polyester powder coating complies with GBT18593-2001 standard
	Optional protection against highly corrosive conditions
The tightening screws are all stainless steel screws	
Stroke/limit	
Stroke	90° standard (90°~270° optional)
Limit switch	2x Open/Close, SPDT, 250V AC 10A
Auxiliary limit switch	2x Open/Close, SPDT, 250V AC 10A
Torque switch	On/Off, SPDT, 250V AC10A
Mechanical limit	2 external adjustment bolts
Mechanical specifications	
Self-locking device	Worm gear and worm mechanism provide self-locking
Output flange	ISO5211 standard
Output shaft	The drive shaft bushing can be removed and processed as needed, with strong adaptability. It can be installed vertically or horizontally.
Anti-vibration performance	XYZ10g, 0.2~34Hz, 30 minutes
Lubrication	Aluminum base grease
Manual operation	Mechanical clutch mechanism
Handwheel	Reliable, labor-saving and small in size.
Electrical specifications	
Motor power supply	110/220V AC 1Phase, 380/440V AC 3Phase, 50/60Hz.±10%
Control power supply	110/220V AC 1Phase, 50/60 Hz, +10%
Motor	Squirrel cage asynchronous motor
Failsafe/Operating temp.	Built-in thermal protection, open 120°C+5°C/close 97°C±5°C
Dryer	30W (220V AC) Anti-condensation
Cable entry	3 cable entries NPT 3/4", NPT1", NPT 1-1/2" optional
EC directive	
Conformity with EC directives	The actuator complies with the following requirements: ·2014/30/EU Electromagnetic compatibility ·2014/35/EU Low voltage
	The following harmonized standards: ·General emission standard for industrial environments EN61000-6-4 ·General anti-interference standard for industrial environments EN61000-6-4 ·Rotating motor standard EN 60034-1

PRODUCT SPECIFICATIONS

Model	Spec.	Output torque (N·m)	Output speed (r/min)	Maximum stem diameter (mm)	Motor power (Kw)	Travel time (s)	Reference weight (KG)
QTR1	QTR06-1	60	1	22	0.025	15	9
	QTR09-1	90			0.025		
QTR2	QTR05-1	50	1	22	0.025	18	10
	QTR10-1	100	1		0.025	18	10
	QTR10-2		2		0.04	9	12
	QTR15-1	150	1	32	0.04	18	12
	QTR15-2		2		0.06	9	13
	QTR20-1	200	1		0.06	18	
	QTR20-2		2		0.06	9	
QTR3	QTR30-0.5	300	0.5	32	0.06	24	17
	QTR30-1		1		0.06	12	
	QTR30-2		2		0.09	6	
	QTR40-0.5	400	0.5		0.09	24	18
	QTR40-1		1		0.09	12	
	QTR40-2		2		0.09	6	
QTR4	QTR60-0.5	600	0.5	42	0.12	28	22
	QTR60-1		1			14	
	QTR60-2		2			7	
	QTR80-0.5	800	0.5		0.18	28	25
	QTR80-1		1			14	
	QTR80-2		2			7	
	QTR100-0.5	1000	0.5			28	
	QTR100-1		1			14	
QTR4/JS	QTR150-0.3	1500	0.3	50	0.18	45	48

Charge control

Charge LED flashing:

Condensers need to be charged.

Only for DC actuators: Input power should be 24..26.5V DC for proper operation. Failure to do so will result in insufficient charge or damage to the actuator or condensers.

The charging LED is off: The charging process of the condensers is completed . The actuator is ready for operation.

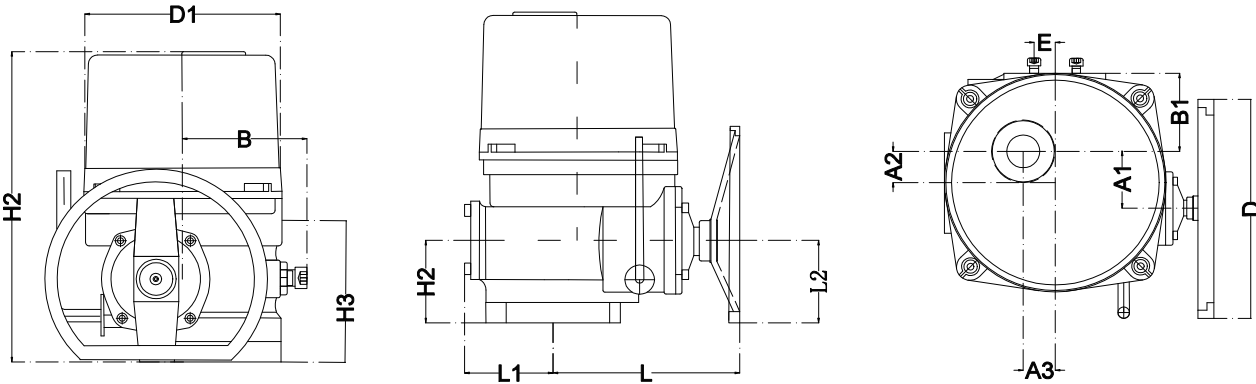
Advice

The power supply of the DC actuator must be limited to a maximum current of 10A.

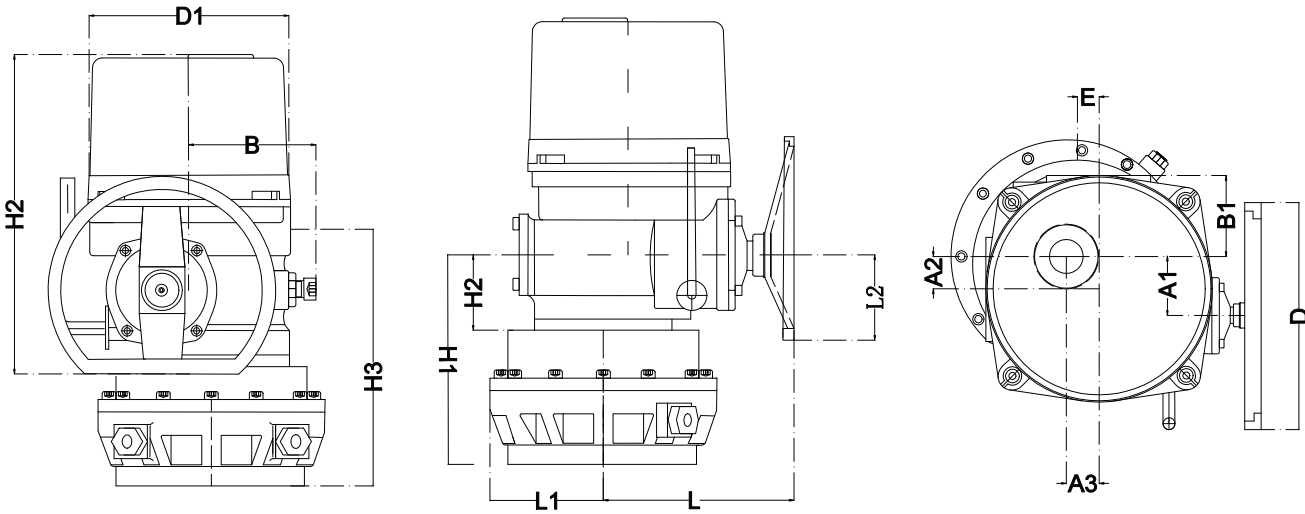
The corresponding current limiter must be connected in advance.

PRODUCT DIMENSIONS

QTR1-3 Ordinary type

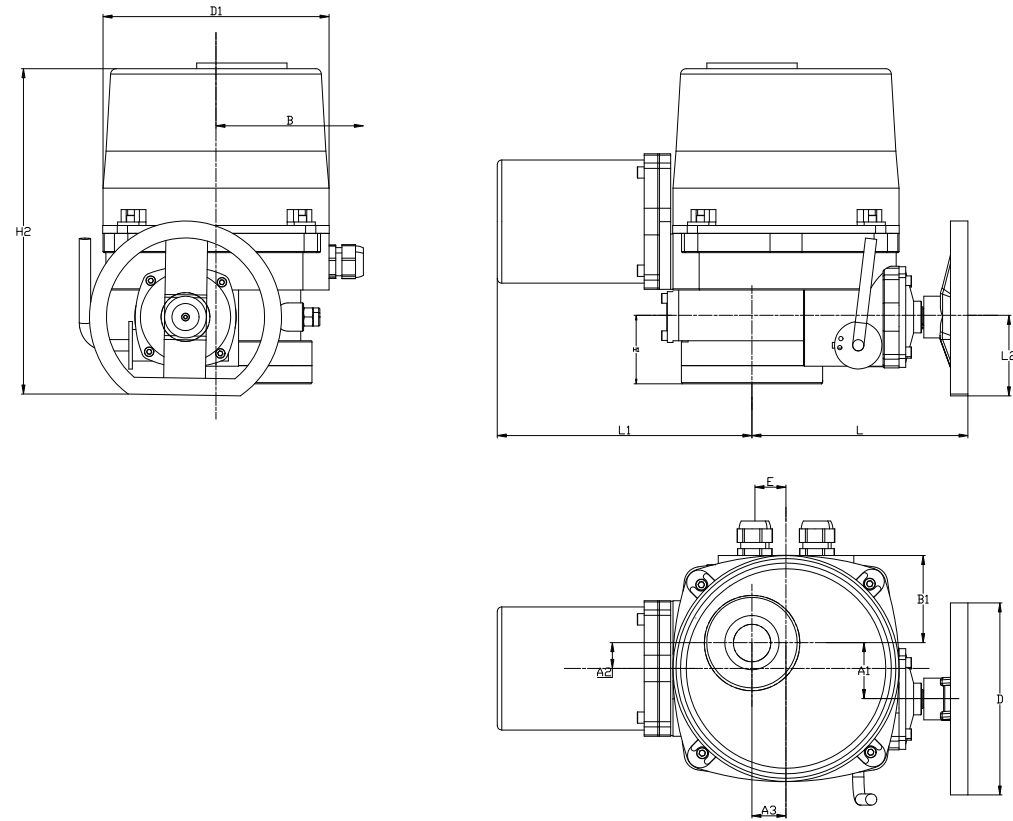


QTR4-5 Ordinary type

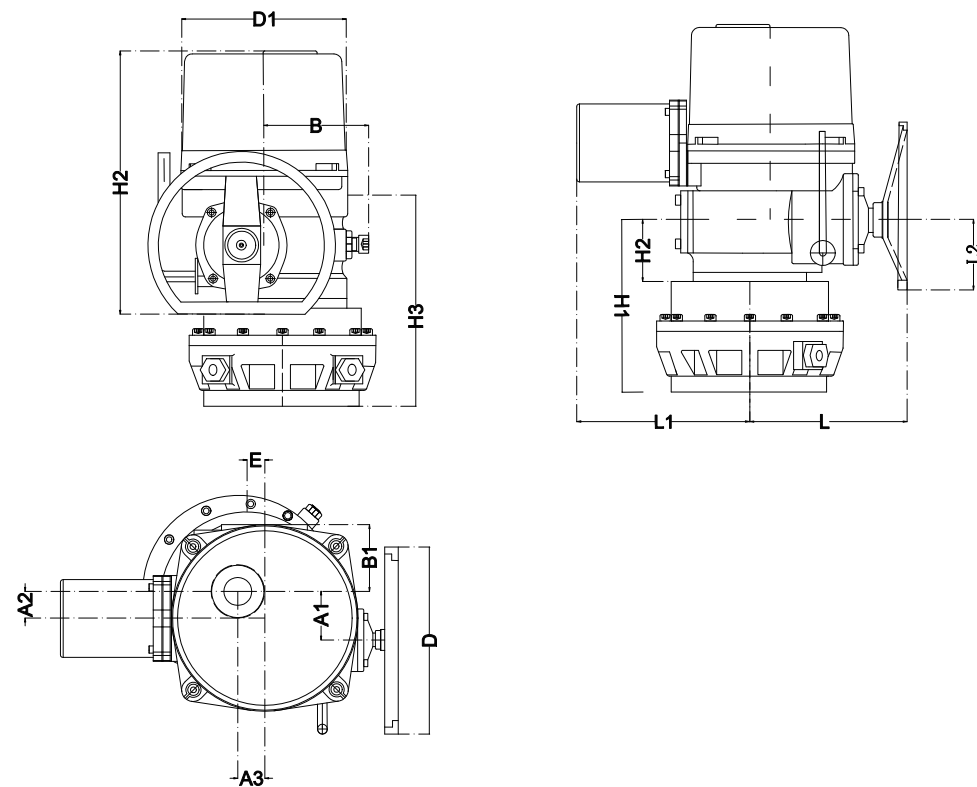


Model	A1	A2	A3	B	B1	D	D1	D2	E	H	H1	H2	H3	L	L1	L2	L3
QTR1	44	17	36	75	68	102	170	166		126	60	256	109	179	62	60	300
QTR2	49.5	22.5	30	85	77.5	200	200	166		130	64	263	113	187	85	76	320
QTR3	60	33	35	100	77	250	220	166	27.5	136	70	298	119	202	88	76	323
QTR4	70	43	38	115	87	250	260	166	/	144	78	342	127	225	106	76	341
QTR5	70	43	38	130	130	250	260	166	/	234	185	449	234	225	130	76	341

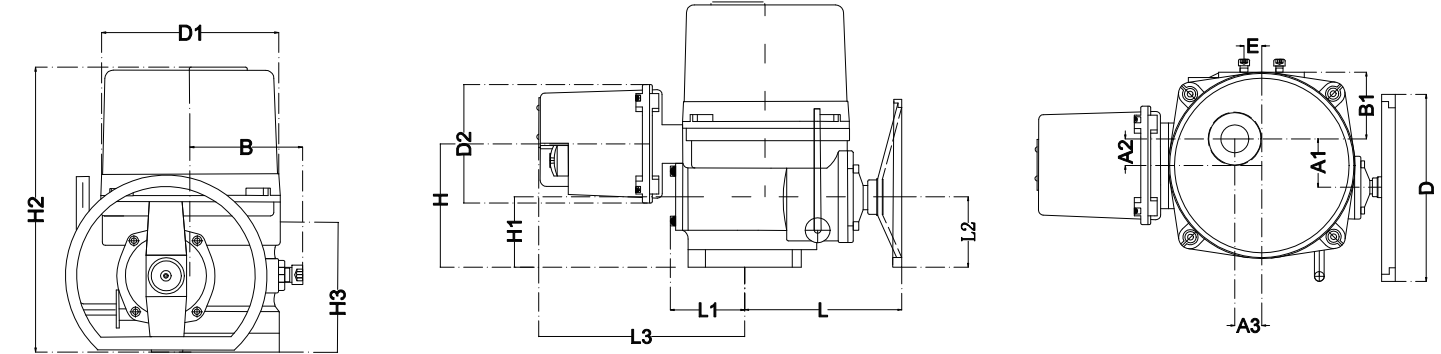
QTR1-3 Ordinary power-off reset type



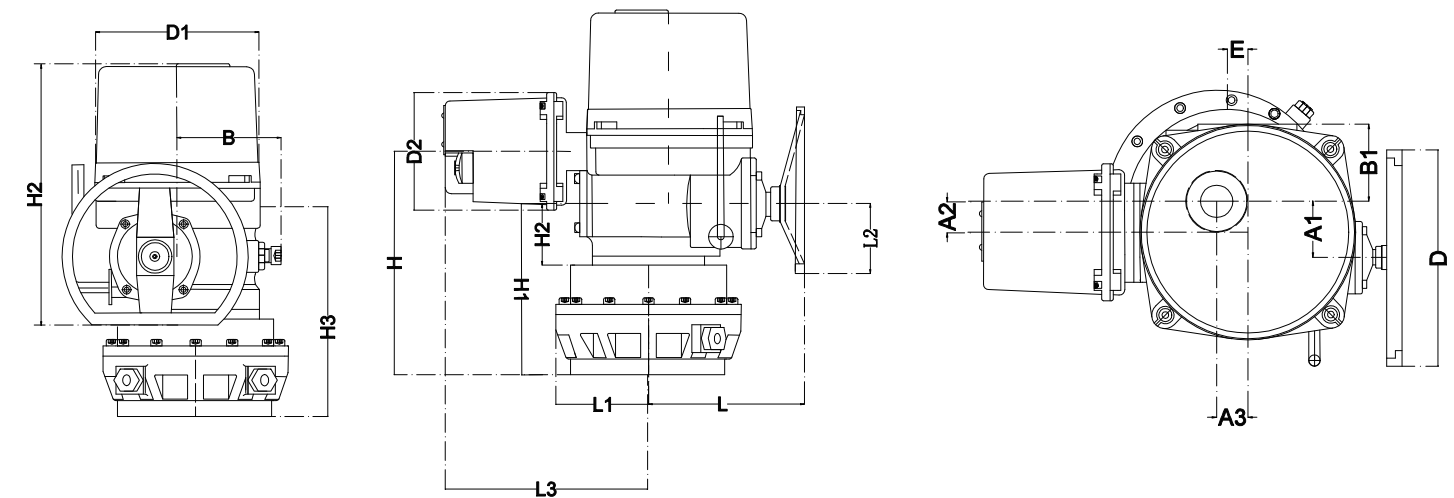
QTR4-5 Ordinary power-off reset type



QTR1-3 Intelligent power-off reset type



QTR4-5 Intelligent power-off reset type



Model	A1	A2	A3	B	B1	D	D1	D2	E	H	H1	H2	H3	L	L1	L2	L3
QTR1	44	17	36	75	68	102	170	166		126	60	256	109	179	215	60	300
QTR2	49.5	22.5	30	85	77.5	200	200	166		130	64	263	113	187	238	76	320
QTR3	60	33	35	100	77	250	220	166	27.5	136	70	298	119	202	241	76	323
QTR4	70	43	38	115	87	250	260	166	/	144	78	342	127	225	259	76	341
QTR5	70	43	38	130	130	250	260	166	/	234	185	449	234	225	283	76	341

WIRING DIAGRAM

