



Electric Actuator Selection Manual

Make Industrial Automation Simpler & More Reliable
Simplify Complexity | Innovate Continuously | Win-Win Cooperation



About Grat

Wuhan Grat Control Valve Co., Ltd. is a professional R & D and manufacturing enterprise specializing in industrial automation control valves and actuators. Founded in 2006 and located in Wuhan Optics Valley, the company holds independent import and export qualifications and offers products that comply with both international and domestic market standards.



Our Management

- ③ Certified with Integrated Management Systems (ISO 9001, ISO 14001, ISO 45001)
- ③ High - tech enterprise
- ③ Conducts over 100 process inspection items
- ③ Holds CE certification, explosion - proof certification, CCC certification
- ③ Adopts CRM and ERP systems for management
- ③ Holds SIL certification
- ③ Implements 6S management and conducts RoHS testing; holds TS certification



Customer Structure

- ③ Serves over 1,500 customers in the industrial sector.
- ③ More than 20% of these customers are listed companies and industry leaders.
- ③ Has customers distributed in over 20 countries in overseas markets.



Value Proposition

- ③ Simplify Complexity, Ensure Reliable Performance
- ③ 100,000 Fault-Free Operations with Maintenance-Free Design



Our Technology

- ③ Employs a professional R & D team with extensive industry experience
- ③ Adopts a dual - system talent training system
- ③ Secures an average of 2 new patents annually



Industry Channels

- ③ Environ-mental protection, water treatment, central air conditioning
- ③ Electric power, petroleum, natural gas, papermaking
- ③ Oil refining, food, brewing, beverages
- ③ Chemical industry, petrochemical industry, pharmaceutical industry, metallurgy
- ③ Clean energy, biological fermentation



Our Products

- ③ Industrial automatic control valves and actuators





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IoT Compact Electric Actuator

Product Introduction

The IoT Compact Electric Actuator is the latest ultra-compact electric actuation device developed by GRAT. It is designed for quarter-turn valves such as butterfly valves, ball valves, and damper valves, used to open, close, or regulate the opening degree of the valves.



WA-20 IoT Electric Actuator

The WA - 50 IoT electric actuator offers two control modes: on - off type and regulating type.



Regulating Type



On - off Type

Product Features

- Wide applicable voltage range: Works with AC220V/DC24V to flexibly meet the usage needs of most industrial automation industries and different scenarios, providing users with higher convenience and flexibility.
- Compact size: Its volume is 1/3 smaller than that of actuators with the same torque on the market. It is truly small, lightweight yet powerful.
- High torque output: Delivers a rated torque of 50N-m, providing more stable force output for controlling different valves.
- Low power consumption and high efficiency: Saves energy costs while operating efficiently and stably.
- Wide valve compatibility: Can be assembled with ball valves of DN40 and below, meeting the needs of different users.
- Stable speed regulation: Adopts PWM stepless speed regulation to ensure stable operation of the actuator and provide more stable control. (PWM is continuous stepless speed regulation, ensuring stable operation, but it has a slight impact on the output torque of the actuator. The lower the speed, the smaller the torque, and the adjustable range is 30% to 100%.)

Selection Instructions

IoT Compact
Electric Actuator

Output Torque

On-off Type /
Regulating Type

WA

—

20/50

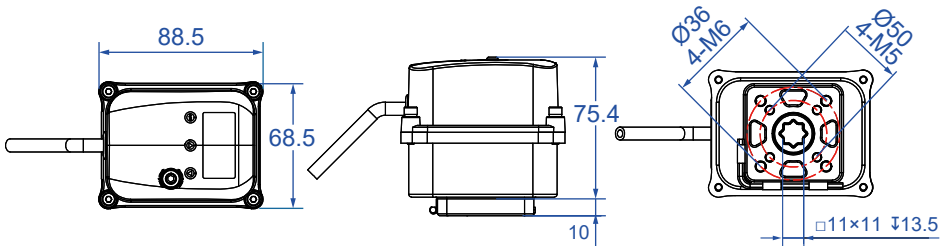
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MS/PCU

(WA 50 Optional)

Installation Dimension Drawing

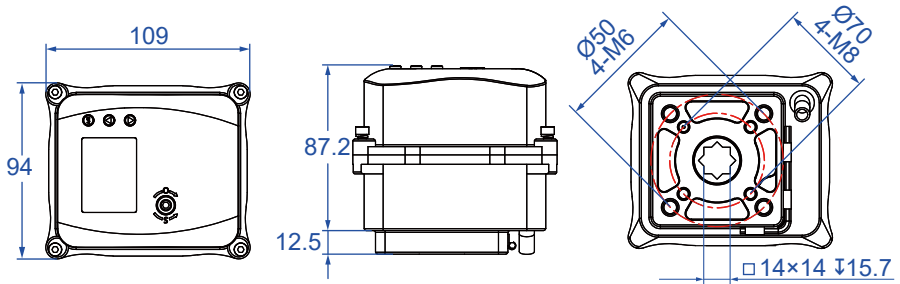
WA-20 Outline Dimension Drawing



Note: Octagonal.opt. □9×9, □11×11

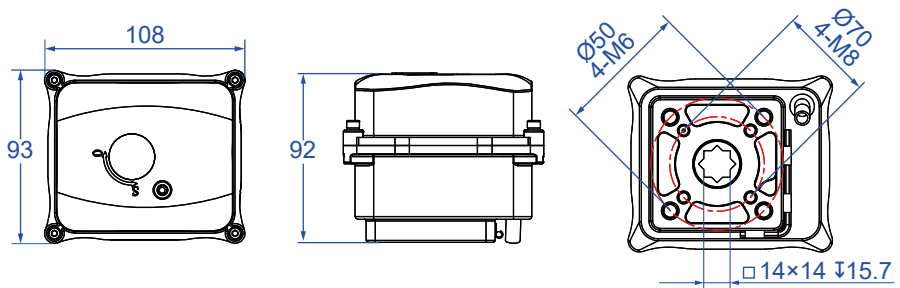
WA-50 Outline Dimension Drawing

Regulating Type:



Note: Octagonal.opt. □9×9, □11×11, □14×14

On - off Type:



Note: Octagonal.opt. □9×9, □11×11, □14×14

Electric Actuator

Product Introduction

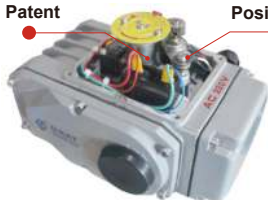
GRAT electric actuator is suitable for on-off and regulating control of various quarter-turn valves (ball valves, butterfly valves), as well as rotating mechanical positioning devices such as damper baffle dynamic balance valves, plug valves, and hydraulic couplers.



The electric actuator offers two control modes: on - off type and regulating type.

DDS Patent

Positioning Patent



On - off Type



Electronic Control Module

Regulating Type

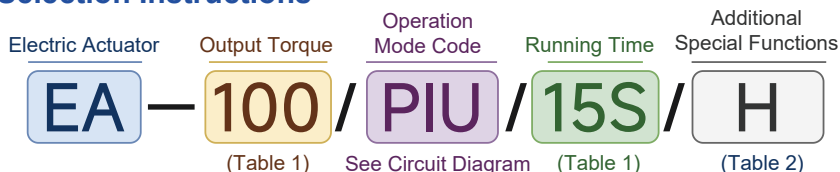
Product Features

The electric control valve is integrated with a control valve module featuring an electronic braking circuit. It communicates directly with control devices like PLCs via signals including 4-20mA and 0-10V, achieving a regulation accuracy of up to 300:1 and instant shutdown. It has passed a 1500V high-voltage resistance test with zero electrical leakage.

- Offers over 100,000 fault-free on-site operation cycles, ensuring reliable and worry-free system operation.
- PPD patented positioning technology completely resolves critical application issues such as poor positioning accuracy and reliability during long-term operation.
- Compact and lightweight design allows for multi-angle installation on pipelines, adapting to various complex pipeline and working condition requirements.
- Complies with the sealing standard where the entire actuator can be immersed in water without air bubble leakage, making it particularly suitable for outdoor open-air working conditions.

All electrical components and precision parts are imported to effectively guarantee the product's high quality and reliability.

Selection Instructions



© EA-100/PIU/4s/ATS indicates: It has an output torque of 100N·m, adopts an on-off operation mode that outputs a 0~1KΩ signal, is equipped with a torque limiting device, and has a stroke time of 4 seconds.

Quarter-Turn Electric Actuators

Product Introduction

In automatic control systems, the quarter-turn electric actuator rotates 0~90° to drive the valve and regulate its opening degree in response to changes in signals from control instruments.

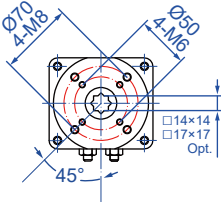
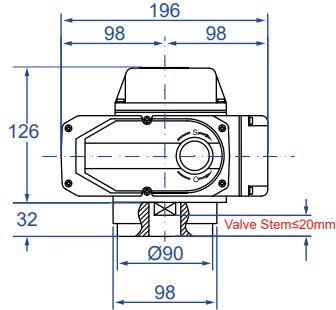
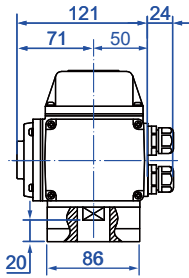
It uses AC or DC power and directly receives digital signals, 4-20mA DC, or 0-10V DC standard analog signals output by computers or instruments to realize intelligent control and precise positioning of electric valves.

Standard Models and Specifications of Electric Actuators

Model		EA-50	EA-100	EA-200	EA-400	EA-600	EA-1000	EA-1600	EA-2500
Output Torque		50N·m	100N·m	200N·m	400N·m	600N·m	1000N·m	1600N·m	2500N·m
Recommended Compatible Valve	Ball Valve	DN25-40	DN50-65	DN65-80	DN80-100	DN125-150	DN200-300	DN300	DN400
	Butterfly Valve	DN32-50	DN50-125	DN150-200	DN200-250	DN300	DN400-600	DN600	DN700-800
Actuation Time		15s/30s	15s/30s	15s/30s	30s	45s	30s	48s	60s/75s
Rotation Angle		0-90°	0-90°	0-90°	0-90°	0-90°	0-90°	0-90°	0-90°
		0-360°	0-360°						
Motor Power	AC110V	10W	25W	40W	90W	90W	210W	210W	220W
	AC220V	10W	25W	40W	90W	90W	210W	210W	220W
	AC380V	6W	15W	30W	40W	40W	300W	300W	320W
	DC24V	13W	25W	35W	70W	70W			
Rated Current	AC110V	0.24A	0.56A	0.69A	1.12A	1.20A	1.93A	1.75A	1.75A
	AC220V	0.16A	0.32A	0.35A	0.54A	0.64A	0.96A	0.98A	1.03A
	AC380V	0.07A	0.10A	0.15A	0.29A	0.29A	0.45A	0.46A	0.48A
	DC24V	1.28A	2.03A	3.57A	5.13A	6.04A			
Motor Lifespan	AC220V/380V	S2 Duty Cycle, Lifespan ≥ 100,000 Hours							
	DC24V	Lifespan: 600 Hours, Maximum Limit: 2000 Hours							
Overall weight		2.5kg	3.5kg	8kg	8.5kg	9kg	20kg	21kg	22kg
Power supply		AC 110V, AC 220V, AC 380V, DC 24V, DC 220V (optional)							
Accuracy		Hysteresis ≤ 0.5% Dead band ≤ 0.5% Feedback error ≤ 0.5%							
Insulation resistance		≥50MΩ/500VDC							
Withstand voltage rating		DC24V: 500V for 1 minute AC110V: 1000V for 1 minute AC220V: 1500V for 1 minute AC380V: 2000V for 1 minute							
Protection class		IP67							
Limit components		■ Electric operation: Full open/close limit switches ■ Manual operation: Mechanical stops							
Protection device		Protection device: Overheat protector (auto-reset type)							
Installation orientation		Installation orientation: 360° adjustable angle							
Electrical interface		Electrical interface: M20×1.5 waterproof cable gland ×2 (power line, signal line)							
Ambient temperature		Ambient temperature: -30°C~60°C (▲High-temperature resistant type: -50 °C ~ 125 °C)							
Testing standard		Testing standard: JB/T8219-2016							

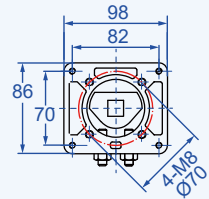
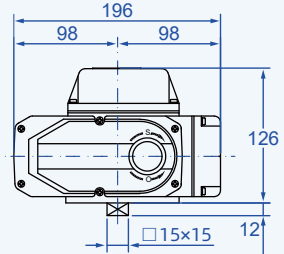
EA-100 Outline Dimension Drawing

Direct-Mount Type



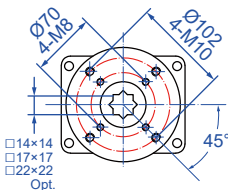
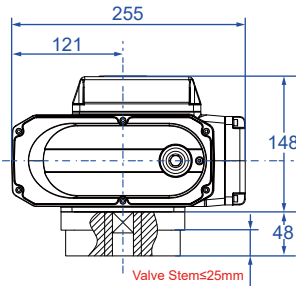
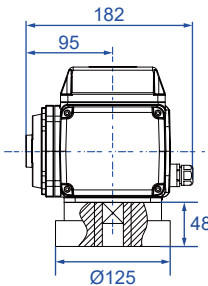
Direct-Mount Installation Dimensions	
Hollow Shaft with Inner Square	□14×14 □17×17
Center Distance of Mounting Holes	F05 F07
Stem Retraction Depth	Permissible Stem Insertion Depths ≤ 20

Standard Type



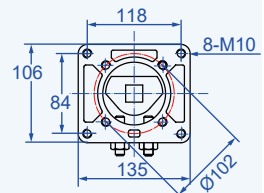
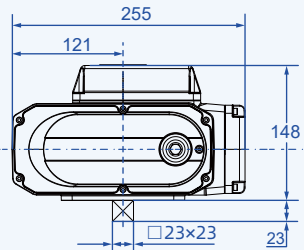
EA-200/400/600 Outline Dimension Drawing

Direct-Mount Type



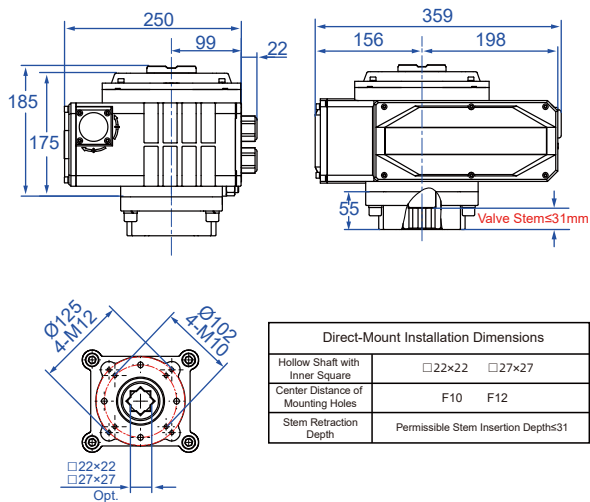
Direct-Mount Installation Dimensions	
Hollow Shaft with Inner Square	□14×14 □17×17 □22×22
Center Distance of Mounting Holes	F07 F10
Stem Retraction Depth	Permissible Stem Insertion Depths ≤ 25

Standard Type

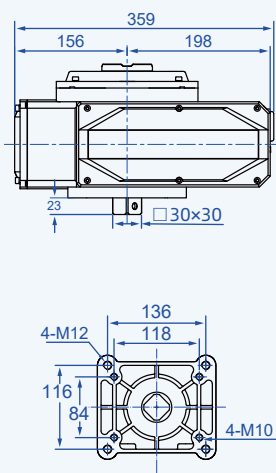


EA-1000/1600 Outline Dimension Drawing

Direct-Mount Type

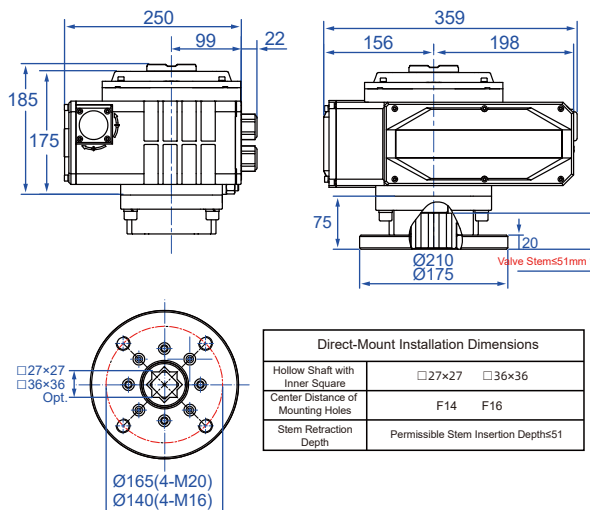


Standard Type

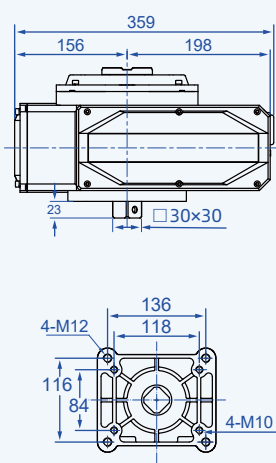


EA-2500 Outline Dimension Drawing

Direct-Mount Type



Standard Type



Quick-Acting Electric Actuators

Product Introduction

The EA Series integrated quick-on/off electric actuators deliver an output torque of 10N·m to 500N·m. They are designed for various rotary valves (e.g., ball valves, butterfly valves) and secondary positioning devices such as dampers and fluid couplings, supporting both on-off and regulating control.

Standard Models and Specifications of Electric Actuators

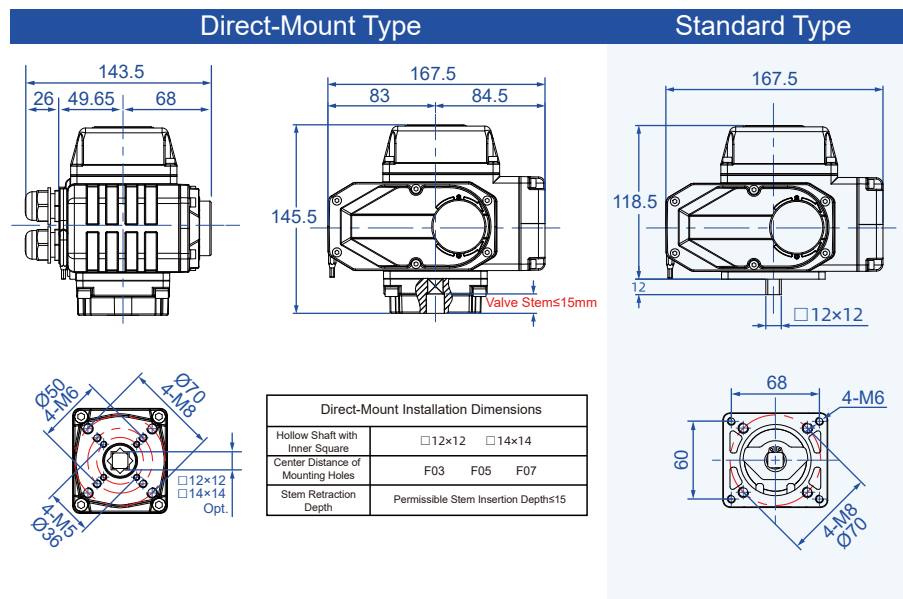
Output Torque		10N·m	20N·m	50N·m	75N·m	100N·m	200N·m	500N·m
Recommended Compatible Valve	Ball Valve	DN15	DN20	DN25-32	DN40	DN50-65	DN80-100	DN125-200
	Butterfly Valve	DN40	DN50-65	DN80-100	DN125	DN150	DN200	DN250-300
Actuation Time		3s/4s/6s	3s/4s/6s	4s/6s	6s/8s	6s/8s	6s/8s	8s
Rotation Angle		0-90°	0-90°	0-90°	0-90°	0-90°	0-90°	0-90°
Motor Power	AC220V	10W	25W	40W	90W	90W	120W	140W
	AC380V	6W	15W	30W	40W	40W	90W	120W
	DC24V	13W	25W	35W	70W	70W		
Rated Current	AC220V	0.16A	0.32A	0.35A	0.54A	0.64A	0.96A	1.03A
	AC380V	0.07A	0.10A	0.15A	0.29A	0.29A	0.45A	
	DC24V	1.28A	2.03A	3.57A	5.13A	3.04A		
Overall Weight		2.5kg	3.5kg	8kg	8.5kg	9kg	20kg	22kg
Power Supply		AC 110V, AC 220V, AC 380V, DC 24V, DC 220V (Optional)						
Accuracy		Hysteresis ≤ 1.5%, Feedback Error ≤ 1.5%						
Insulation Resistance		≥ 50MΩ / 500VDC						
Withstand Voltage Class		DC 24V: 500V for 1 minute; AC 110V: 1000V for 1 minute; AC 220V: 1500V for 1 minute; AC 380V: 2000V for 1 minute						
Protection Class		IP67						
Limit Assembly		For electric operation: Full-open and full-close limit switches. - For manual operation: Mechanical stops.						
Protection Device		Overheat Protector (Auto-recovery Type)						
Installation Orientation		360° Installation at Any Angle						
Electrical Interface		M20*1.5 Waterproof Cable Gland						
Ambient Temperature		-30℃ ~ 60℃ (▲ High-temperature Resistant Type: -50℃ ~ 125℃)						
Testing Standard		JB/T8219-2016						

|| (Table 2) Optional special functions per customer request

Special Function Options	Code	Picture
① Moment Limiting Device	ATS	
② Bracket and Bushing	ZT	
③ Remote Control Device	C	
④ Dehumidifying Heater	H	
⑤ Handwheel	SL	

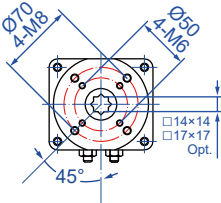
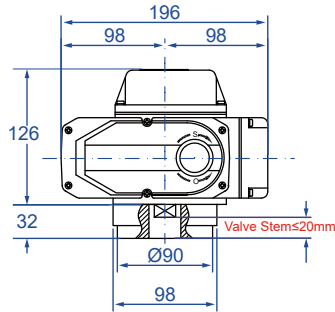
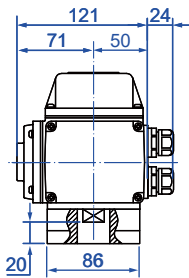
|| Installation Dimension Drawing

■ 10N·m Outline Dimension Drawing



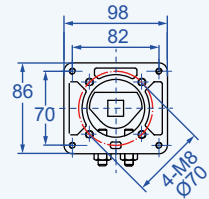
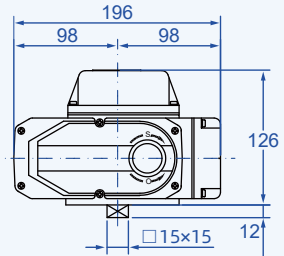
20N·m Outline Dimension Drawing

Direct-Mount Type



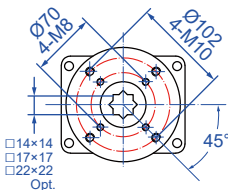
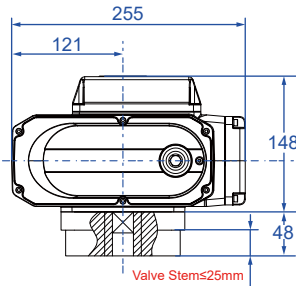
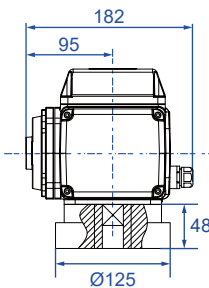
Direct-Mount Installation Dimensions	
Hollow Shaft with Inner Square	□ 14×14 □ 17×17
Center Distance of Mounting Holes	F05 F07
Stem Retraction Depth	Permissible Stem Insertion Depths ≤ 20

Standard Type



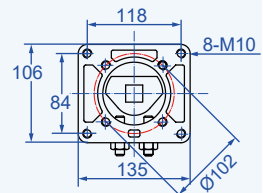
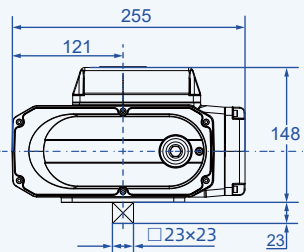
50/100 N·m Outline Dimension Drawing

Direct-Mount Type



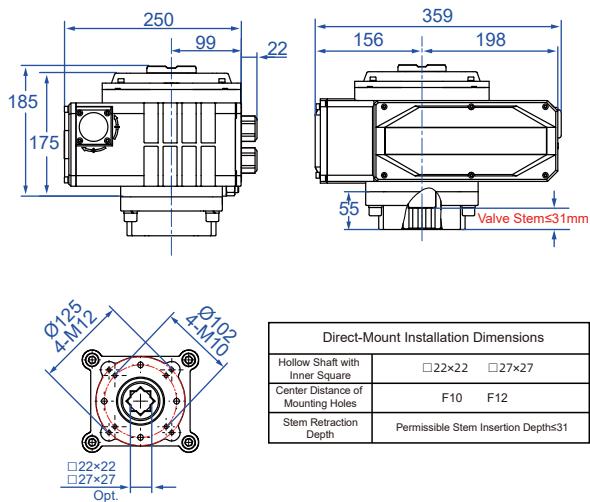
Direct-Mount Installation Dimensions	
Hollow Shaft with Inner Square	□ 14×14 □ 17×17 □ 22×22
Center Distance of Mounting Holes	F07 F10
Stem Retraction Depth	Permissible Stem Insertion Depths ≤ 25

Standard Type

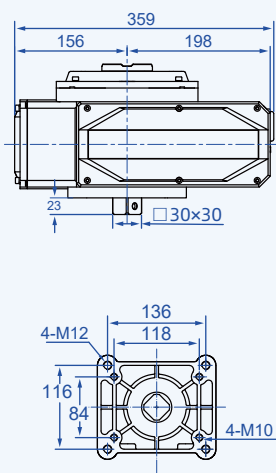


200 N·m Outline Dimension Drawing

Direct-Mount Type

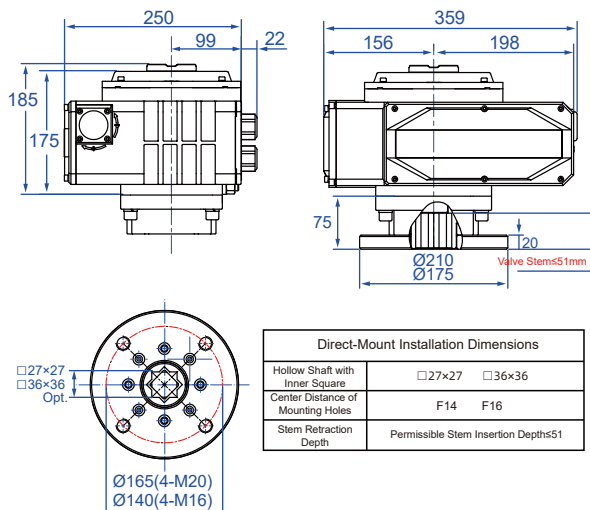


Standard Type

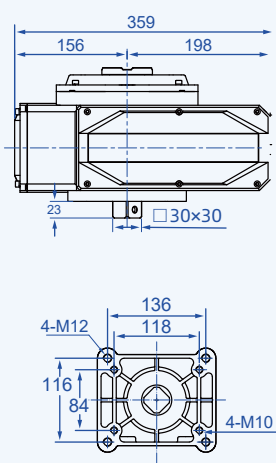


500 N·m Outline Dimension Drawing

Direct-Mount Type



Standard Type



Explosion-proof Electric Actuators

Product Introduction

The EA Series explosion-proof products feature an explosion-proof structure that complies with the requirements of GB/T 3836.1-2021 Explosive Atmospheres - Part 1: Equipment - General Requirements and GB/T 3836.2-2021 Explosive Atmospheres - Part 2: Equipment Protected by Flameproof Enclosures "d", and adopt an integral flameproof structure.

The explosion-proof enclosure, composed of various explosion-proof components, withstands the explosion pressure generated by the detonation of explosive gas mixtures inside the enclosure. It also prevents the propagation of internal explosions to the explosive gas atmosphere outside. Even if an explosion occurs inside the product, it will not spread to the outside or ignite the explosive gas mixture outside the enclosure.

The EA Series integrated electric actuators provide an output torque of 50N•m to 600N•m. They fit various rotary valves (e.g., ball valves, butterfly valves) and realize on-off and regulating control for rotary mechanical positioning devices like damper baffles and fluid couplings.



Standard Type



Direct Mounting Type

Product Features

- **Explosion-Proof Safety Guarantee:** The explosion-proof rating reaches Ex db IIC T6 Gb, the highest level in the industry, allowing the product to operate in flammable and explosive environments.
- **Structural Explosion-Proof Design:** The dimensions and gaps of flameproof joint surfaces meet specification requirements. Cable channels between chambers use epoxy resin potting. The integral flameproof structure effectively controls internal deflagration.
- **Systematic Quality Testing:** The product completes a series of tests including mechanical strength, pressure resistance, temperature variation, thermal stability, and protection rating. Equipment reliability undergoes strict verification, ensuring guaranteed quality.

Selection Instructions



- ◎ Output torque: N·m, including 50/100/200/400/600;
- ◎ EA-100-Ex indicates: an electric explosion-proof actuator with an output torque of 100 N·m.

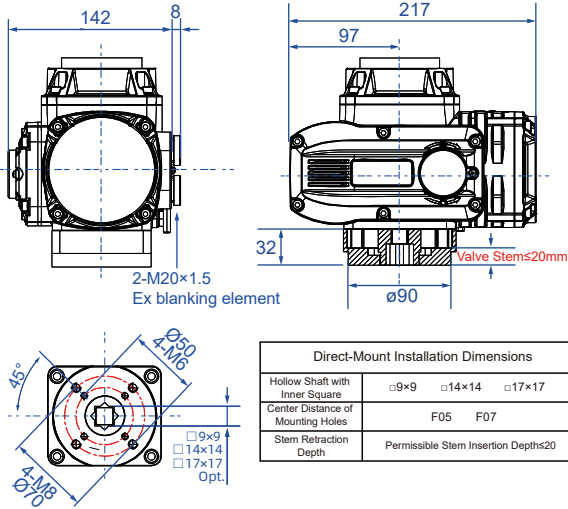
Standard Models and Specifications of Electric Actuators

Model		EA-50-Ex	EA-100-Ex	EA-200-Ex	EA-400-Ex	EA-600-Ex
Output Torque		50N·m	100N·m	200N·m	400N·m	600N·m
Recommended Compatible Valve Bodies	Ball Valve	DN15-40	DN50-65	DN65-80	DN100-125	DN125-150
	Butterfly Valve	DN32-50	DN50-125	DN150-200	DN200-250	DN300
Actuation Time		15S	30S	30S	30S	45S
Rotation Angle		0~90°	0~90°	0~90°	0~90°	0~90°
Motor Power	AC24V	10W	25W	75W	150W	150W
	AC110V	10W	25W	40W	90W	90W
	AC220V	10W	25W	40W	90W	90W
	AC380V	6W	15W	30W	40W	40W
	DC24V	13W	25W	40W	70W	70W
Rated Current	AC24V	1.5A	2.12A	3.14A	6.25A	6.25A
	AC110V	0.24A	0.57A	0.63A	1.12A	1.18A
	AC220V	0.15A	0.30A	0.35A	0.64A	0.67A
	AC380V	0.07A	0.10A	0.19A	0.29A	0.29A
	DC24V	1.28A	2.03A	3.12A	7.8A	8.0A
Total Machine Weight		4.5Kg	5.0Kg	9.0Kg	9.5Kg	10.0Kg
Insulation Resistance		≥50MΩ at 500VDC				
Withstand Voltage Rating		DC24V: 500V for 1 min AC110V: 1000V for 1 min AC220V: 1500V for 1 min AC380V: 2000V for 1 min				
Ingress Protection (IP)		IP67				
Explosion Protection Rating		Ex db IIC T6 Gb, Ex tb IIIC T80°C Db				
Installation Orientation		360° Adjustable				
Electrical Interface		2-M20x1.5 explosion-proof plugs: Users shall install corresponding explosion-proof cable glands according to the selected cables.				
Control Circuit		Type S / MS / PIU / SP / PCU / CPT / G / H				
Optional Functions		◆Dehumidifying Heater ◆Passive Contact Switch ◆Over-torque Protection ◆Field Protection Unit				
Testing Standard		JB/T8219-2016, GB/T 3836.1-2021, GB/T 3836.2-2021				

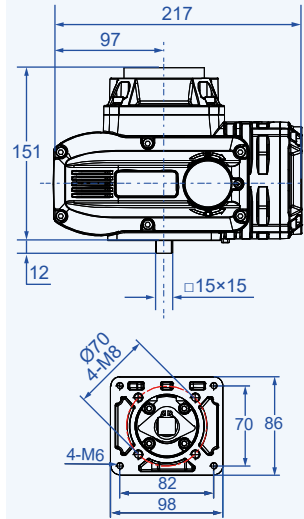
Installation Dimension Drawing

EA-50/100-Ex Explosion-proof Outline Dimension Drawing

Direct-Mount Type

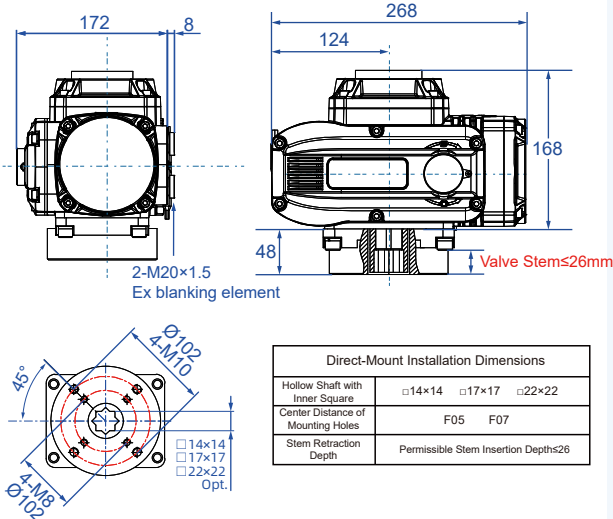


Standard Type

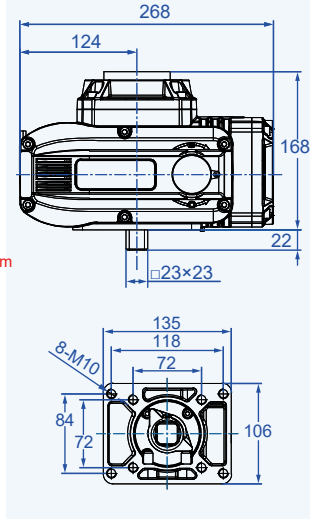


EA-200/400/600-Ex Explosion-proof Outline Dimension Drawing

Direct-Mount Type



Standard Type



Multi-Turn Explosion-Proof Electric Actuators

Product Introduction

The multi-turn explosion-proof electric actuator is the latest developed compact multi-turn explosion-proof electric actuation device.

It achieves the explosion-proof rating requirement of Ex db II B T4 Gb. The overall enclosure offers an IP68 protection rating, with a maximum number of rotation turns up to 25.

It incorporates multiple power supply designs to meet users' needs for multi-functional options such as on-off type, regulating type, feedback type, and integrated type.

With an exquisite and unique appearance, compact size, light weight, and stable and reliable performance, it serves as an ideal matching component for electric operation of small and medium-caliber gate valves, globe valves, diaphragm valves, plug valves, etc.

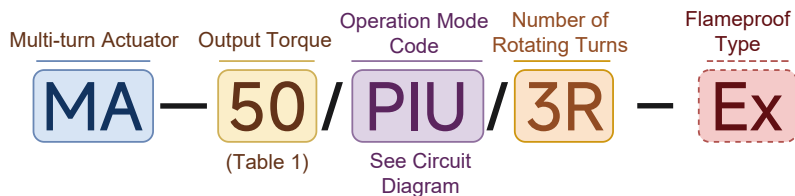


Standard Type



Direct Mounting Type

Selection Instructions



© MA-50/PIU/3R indicates: an actuator with an output torque of 50 N·m, an on-off operation mode that outputs a 0~1KΩ signal, and a multi-turn count of 3 revolutions.

Multi-turn Explosion-proof Electric Actuator: Models and Specifications

MA-50

Performance Parameters	Power Supply	MA-50				
		DC24V	AC24V	AC110V	AC380V	AC220V
Motor Power		50W	50W	50W	65W	50W
Rated Current		2.03A	2.12A	0.57A	0.10A	0.23A
Standard Output		50N·m 5r/min				
Alternative Output		80N·m 5r/min				
Number of Revolutions (Multi-turn)		25 revolutions				
Circuit Options		Type S / Type MS / Type PIU / Type SP / Type CPT / Type PCU / Type G / Type H				
Overall Weight		8 Kg				
Insulation Resistance		DC24V/AC24V: 100MΩ/250VDC; AC110V/AC220V/AC380V: 100MΩ/500VDC				
Withstand Voltage Level		DC24V/AC24V: 500VAC for 1 minute; AC110V/AC220V: 1500VAC for 1 minute; AC380V: 1800VAC for 1 minute				
Protection Class		IP68				
Explosion-proof Class		Ex db IIB T4 Gb				
Installation Method		360° arbitrary installation				
Electrical Interface		2-M20X1.5 explosion-proof plugs; users must select compliant cables and install corresponding explosion-proof cable glands during use				
Ambient Temperature		-30℃~+60℃				
Optional Functions		Over-torque protection, dehumidification heater, on-site operation unit				

MA-100

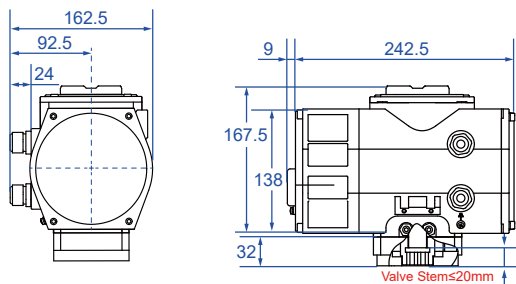
Performance Parameters	Power Supply	MA-100				
		DC24V	AC24V	AC110V	AC380V	AC220V
Motor Power		180W	180W	120W	180W	140W
Rated Current		7.8A	8.0A	1.12A	0.29A	0.68A
Standard Output		100N·m 5r/min				
Alternative Output						
Number of Revolutions (Multi-turn)		25 revolutions				
Circuit Options		Type S / Type MS / Type PIU / Type SP / Type CPT / Type PCU / Type G / Type H				
Overall Weight		13 Kg				
Insulation Resistance		DC24V/AC24V: 100MΩ/250VDC; AC110V/AC220V/AC380V: 100MΩ/500VDC				
Withstand Voltage Level		DC24V/AC24V: 500VAC for 1 minute; AC110V/AC220V: 1500VAC for 1 minute; AC380V: 1800VAC for 1 minute				
Protection Class		IP68				
Explosion-proof Class		Ex db IIB T4 Gb				
Installation Method		360° arbitrary installation				
Electrical Interface		2-M20X1.5 explosion-proof plugs; users must select compliant cables and install corresponding explosion-proof cable glands during use				
Ambient Temperature		-30℃~+60℃				
Optional Functions		Over-torque protection, dehumidification heater, on-site operation unit				

MA-200

Power Supply Performance Parameters	MA-200		
	AC110V	AC220V	AC380V
Motor Power	180W	220W	320W
Rated Current	1.75A	1.03A	0.48A
Standard Output	200N·m 5.6r/min		
Alternative Output	100N·m 11.2r/min		
Number of Revolutions (Multi-turn)	25 revolutions		
Circuit Options	Type S / Type MS / Type PIU / Type SP / Type CPT / Type PCU / Type G / Type H		
Overall Weight	20 Kg		
Insulation Resistance	DC24V/AC24V: 100MΩ/250VDC; AC110V/AC220V/AC380V: 100MΩ/500VDC		
Withstand Voltage Level	DC24V/AC24V: 500VAC for 1 minute; AC110V/AC220V: 1500VAC for 1 minute; AC380V: 1800VAC for 1 minute		
Protection Class	IP68		
Explosion-proof Class	Ex db IIB T4 Gb		
Installation Method	360° arbitrary installation		
Electrical Interface	2-M20X1.5 explosion-proof plugs; users must select compliant cables and install corresponding explosion-proof cable glands during use		
Ambient Temperature	-30℃→+60℃		
Optional Functions	Over-torque protection, dehumidification heater, on-site operation unit		

MA-50 Outline Dimension Drawing

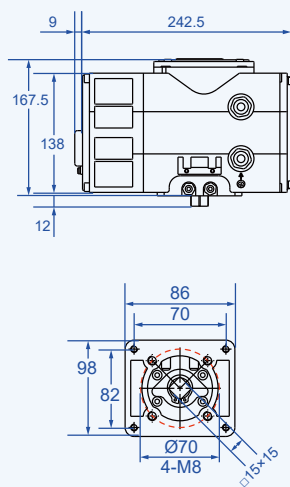
Direct-Mount Type



Direct Mounting Specifications		
Square	□11×11	□14×14 □17×17
Flange	F05	F07
Valve Stem	length ≤ 20mm	

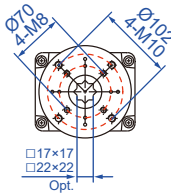
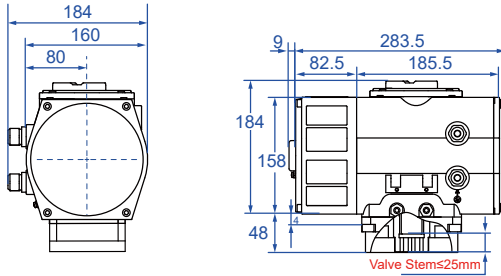
□11×11
□14×14
□17×17
Opt.

Standard Type



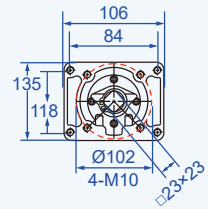
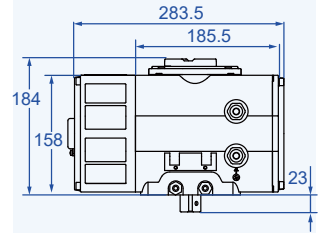
MA-100 Outline Dimension Drawing

Direct-Mount Type



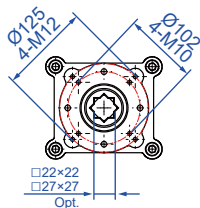
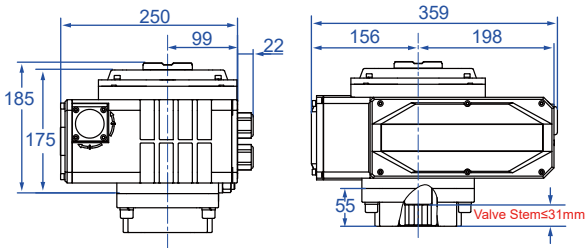
Direct Mounting Specifications		
Square	$\square 17 \times 17$	$\square 22 \times 22$
Flange	F07	F10
Valve Stem	length ≤ 25mm	

Standard Type



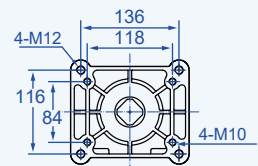
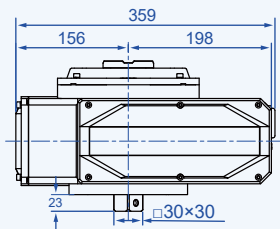
MA-200 Outline Dimension Drawing

Direct-Mount Type

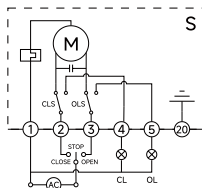


Direct-Mount Installation Dimensions		
Hollow Shaft with Inner Square	$\square 22 \times 22$	$\square 27 \times 27$
Center Distance of Mounting Holes	F10	F12
Stem Retraction Depth	Permissible Stem Insertion Depths 31	

Standard Type

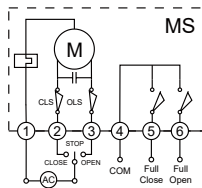


Circuit Diagram



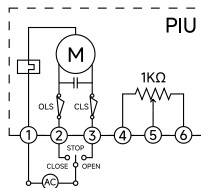
S

Switching Action Mode:
Switching operations (open/close) are achieved via AC switching signals, and a set of active position signals indicating fully open/fully closed status are output.



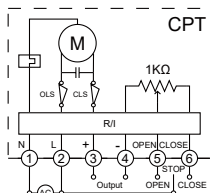
MS

Switching Action Mode: Outputs passive contact signals.
Structure: Equipped with two intermediate position switches.



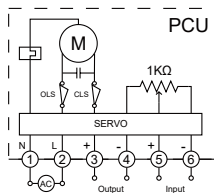
PIU

Switching Action Mode: Outputs 0~1000Ω feedback signal.
Structure: Equipped with 500Ω or 1kΩ potentiometer.



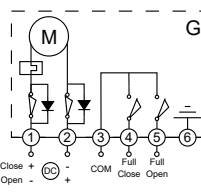
PCU

Regulating Action Mode: Accepts 4~20mA control signal input and outputs 4~20mA valve position feedback signal.
Structure: Integrated with 1kΩ potentiometer and control module (servo amplifier).



CPT

Switching Action Mode: Outputs 4~20mA valve position feedback signal.
Structure: Equipped with 1kΩ potentiometer and R/I converter.

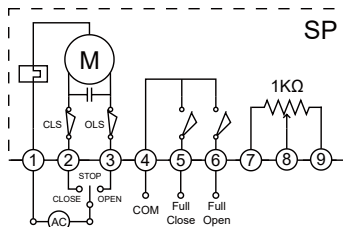


G

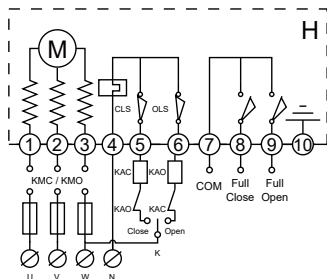
DC switching signals are output from the circuit via an external DC power supply to control the opening/closing program, and a set of passive contact signals corresponding to fully open/fully closed positions are provided.

SP

Switching Action Mode: Controls valve opening angle via switching circuit, corresponding to potentiometer resistance value, while enabling intermediate position control function.
Structure: Integrated with potentiometer and intermediate position switch.



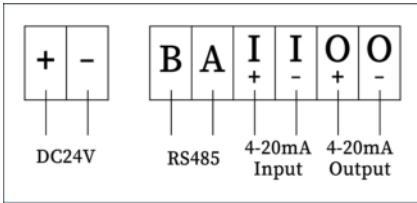
SP



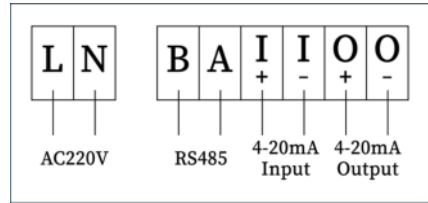
H

Three-phase AC switching signals are output through an external three-phase power phase-reversing circuit to control opening/closing operations, accompanied by a set of passive contact signals for fully open/fully closed position indication.

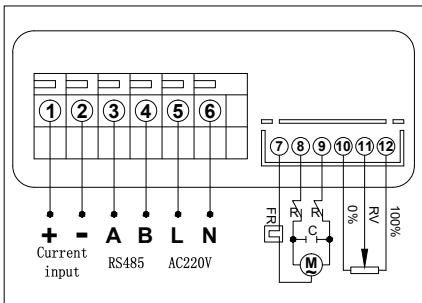
Wiring Diagrams for IoT Compact Series



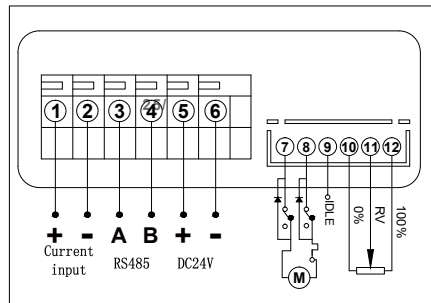
DC24V



AC220V



Digital Module - AC - Circuit Diagram



Digital Module - DC - Circuit Diagram



The product has passed factory debugging and is qualified. If no special angle adjustment is required, please directly power it on for use.
If you have any questions about debugging, please scan the QR code on the back of the product's wiring cover to watch the corresponding wiring video.

Configuration Function

Mounting Kit - Bracket & Adapter

- **Universal Connection:** Adapts electric actuators to various valve stems (square, flat, or keyed) for flexible customization.
- **Rigid Support:** Secures perfect shaft alignment and eliminates vibration or deformation during high-torque operation.
- **Wear Protection:** Absorbs direct mechanical friction to protect core components and extend equipment lifespan.



DKJ Bracket

- **Mode Switching:** Integrated mechanical switching on DKJ bracket enables precise motion mode conversion.
- **Cost Reduction:** Modular bracket fits various controlled devices without actuator replacement to cut retrofit cost.
- **Torque Transmission:** High mechanical efficiency ($\geq 80\%$) ensures effective output torque transfer to controlled equipment.



Dehumidifying Heater

- **Moisture Proofing:** Heating reduces internal humidity of actuator in damp conditions such as basements and rainy outdoors to stop condensation, preventing circuit short and metal corrosion.
- **Temperature Control:** Maintains proper internal temperature under low ambient temperature to secure normal operation of electronics like sensors and controllers against cold-induced performance degradation.
- **Insulation Protection:** Prevents insulation deterioration of motor windings and terminals from moisture erosion to avoid electric leakage and breakdown.



Remote Control

- **Remote Operation:** Adjust actuator via 4-20mA or fieldbus signals without on-site attendance to control valve/damper opening for automatic systems.
- **Centralized Management:** Connect to central control system for unified monitoring and operation of multiple actuators to improve process coordination.
- **Emergency Response:** Remote control avoids personal hazards in hazardous high-temp, high-pressure or toxic working conditions.



Handwheel

- **Emergency Operation:** Manually turn handwheel to drive actuator during power cut or motor fault for normal valve/damper switching and continuous system operation.
- **Commissioning & Calibration:** Manually adjust actuator stroke during installation or maintenance to accurately set valve opening and mechanical limit parameters.
- **Safety Assurance:** Enable manual intervention upon automatic control failure to prevent overpressure and medium leakage caused by stuck equipment.
- **Maintenance Assistance:** Manual positioning facilitates easy access to internal parts and simplifies overhaul work.



Custom Development of IoT Actuator

IoT Actuator Custom Requirement Form

Customer		Contact Information		Email	
Customer Company Address					

Product Requirements

Project Information	Sample Quantity			Delivery Quantity				
	Sample Date			Delivery Date			Others	
Technical Specifications	Operating Voltage		V	Power		V	Rated Speed	
	Rated Torque		N·m			N·m	Rotation Angle	°
	Temperature Range		°C	Noise Requirement ≤		°C		
Communication	Communication Mode			Interface Type			Others	
Expansion Module	4G			WIFI			Others	
Mechanism	Motor Requirements			Actuator Overall Dimensions			Controller Dimensions	
	Reduction Ratio		Shaft Diameter		Output Shaft Requirements			
LCD Display	Screen Size		Screen Color		Menu Setting Instructions			
	Key Description							
Controller	Overall Dimensions			IP Rating			Other Requirements	
Supplementary Remarks								

Honors & Qualifications



High-Tech Enterprise Certificate



SIL



ISO45001



ISO14001



ISO9001



CE (EMC)



CE (LVD)



CCS



RoHS



SETTC(Ball Valve)



SETTC(Butterfly Valve)



TTC



Salt Spray Test Certificate



CNEX



CCC



IP68



100,000 Cycles



More than **2** new patents are added every year.

TEL: +86-027-60706976
+86-027-60706977

Email: info@gratcv.com

Web: <https://www.gratcv.com>

Co.Addr: No. 62, Guanggu Avenue, Wuhan, Hubei, China.

Fty.Addr: B8-3-2, OVU, Wuhan, Hubei, China.



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