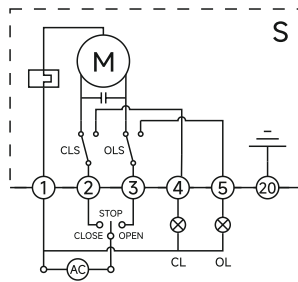




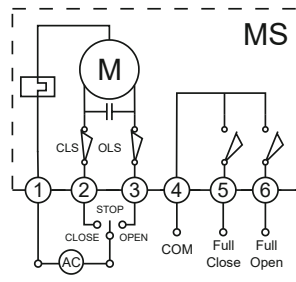
Quarter-turn Electric Actuator Selection Manual

Circuit Diagram



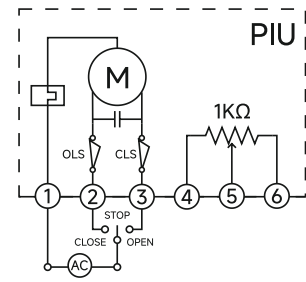
S

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.



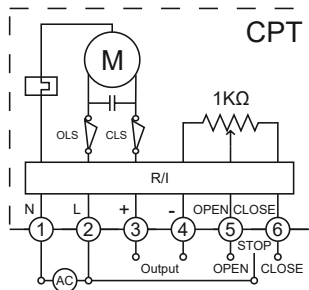
MS

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



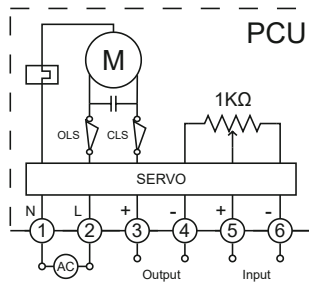
PIU

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



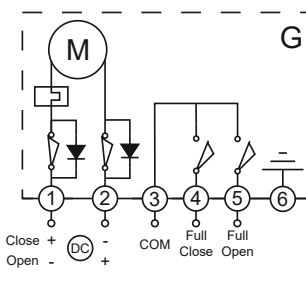
PCU

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.

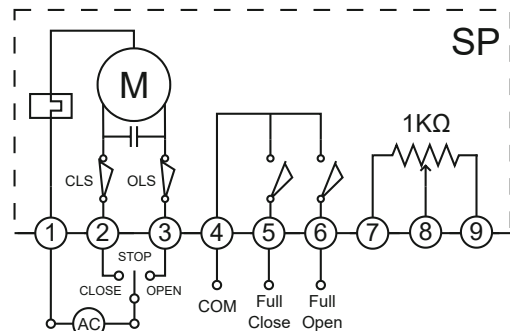


G

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.

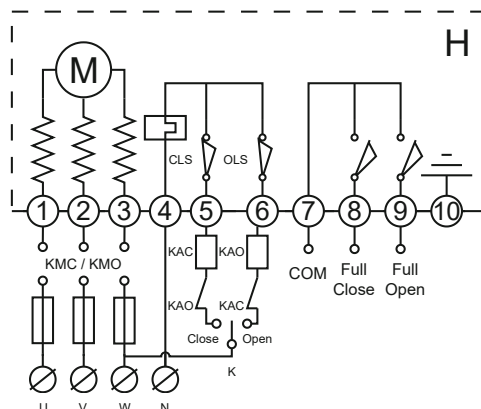
SP

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.



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.



Quarter-Turn Electric Actuator

EA-50~2500



Product Overview

GRAT electric actuators suit all rotary valves (ball, butterfly), air dampers, dynamic balancing valves, plug valves, fluid couplings and other rotary machinery for on-off and modulating positioning control.

The electric regulating actuator integrates a control valve module with electronic braking circuit. It directly communicates with PLC via 4–20 mA, 0–10 V signals, with up to 300:1 turndown ratio and instant stop function. It passes 1500 V high voltage withstand test without leakage.

Limit Function

Patented DDS switch adjustment technology: Rotate the top dial to easily calibrate electrical and mechanical positions after actuator-valve assembly.

Safe Operation

Class F insulated motor. Motor windings feature thermal protection at 130°C without built-in temperature switches to secure safe operation.

Corrosion Resistance

Housing coated with anti-corrosive epoxy powder coating featuring strong adhesion and corrosion resistance. All fasteners are stainless steel for outdoor use.

Temperature Resistance

Wide operating temperature range: standard -30°C~60°C; high-temperature resistant version -50°C~125°C. Smooth operation without jamming or failure under severe industrial conditions.

Position Indication

Flat pointer & scale display for compact valve position indication (3D indicator optional).

Excellent Sealing Performance

IP68 rating with long-life sealing rings for reliable waterproof performance.

Dehumidifying Heater

Built-in heater eliminates condensation to extend service life.

Easy Operation

Plug-in terminals for easy wiring.

Manual Override

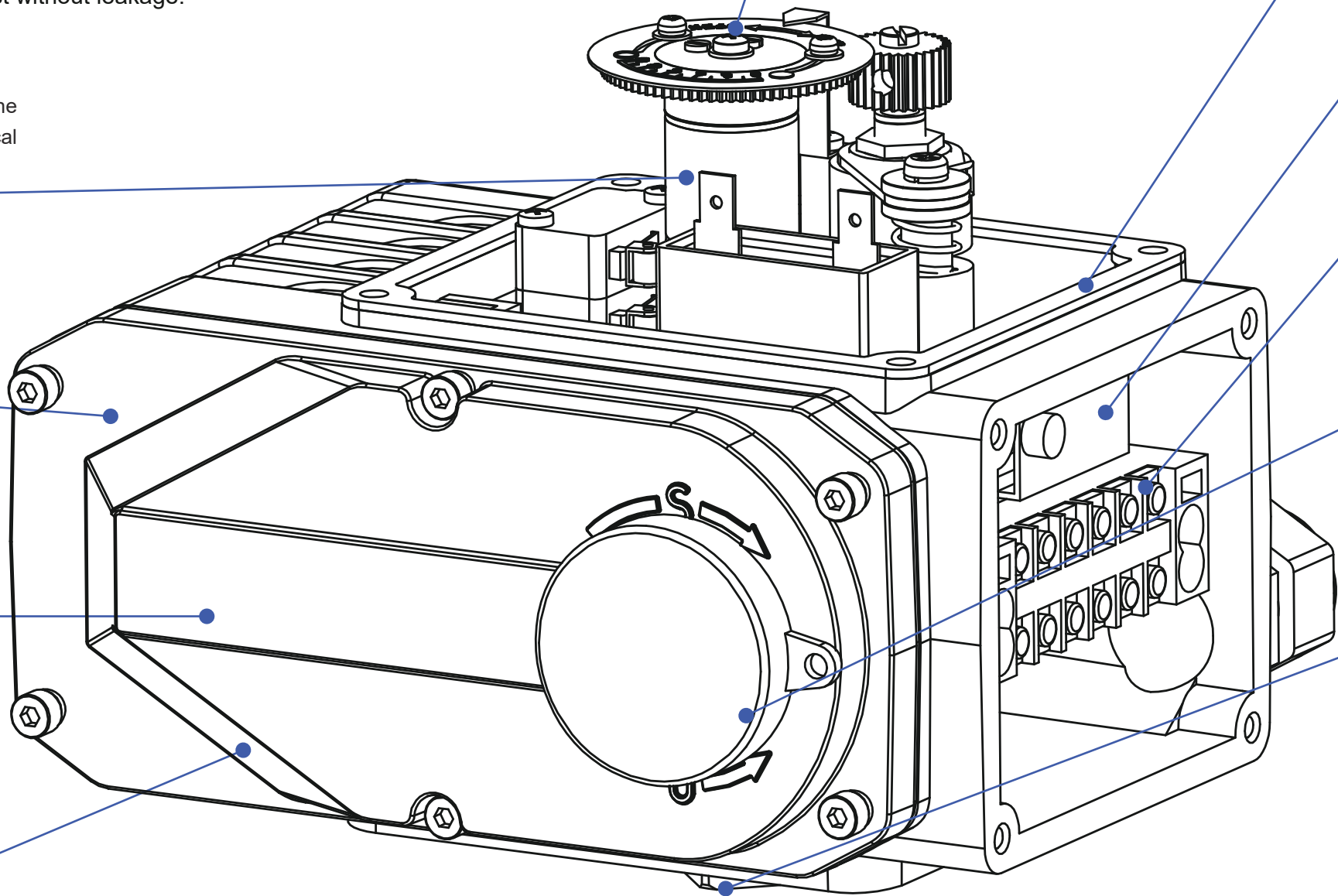
Upon power failure, remove rubber cover and insert supplied Z-wrench for manual valve open/close operation.

Mounting Flange

Bottom mounting interface complies with ISO5211 standard; adjustable mounting angles for matching various valve flanges.

Packaging Design

Packaged with EPE foam, passing ISO2248 drop test.



- Over 200,000 trouble-free on-site operations ensure stable and worry-free system performance.
- Patented PPD positioning technology fundamentally solves poor positioning accuracy and long-term operational reliability issues.
- Compact and lightweight design allows multi-angle installation on pipelines, suitable for complex piping and working conditions.
- Full submersion waterproof sealing standard with zero air bubble leakage, ideal for outdoor exposed environments.
- All electrical components and precision parts are imported to guarantee superior quality and reliability.

Selection Instructions

Electric Actuator	Output Torque	Operation Mode Code	Running Time	Additional Special Functions
EA	100	PIU	15S	H
	(Table 1)	See Circuit Diagram	(Table 1)	(Table 2)

© 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.



(Table 1) Electric Actuator Standard Models & Specs

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° 0-360°	0-90° 0-360°	0-90°	0-90°	0-90°	0-90°	0-90°	0-90°
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							

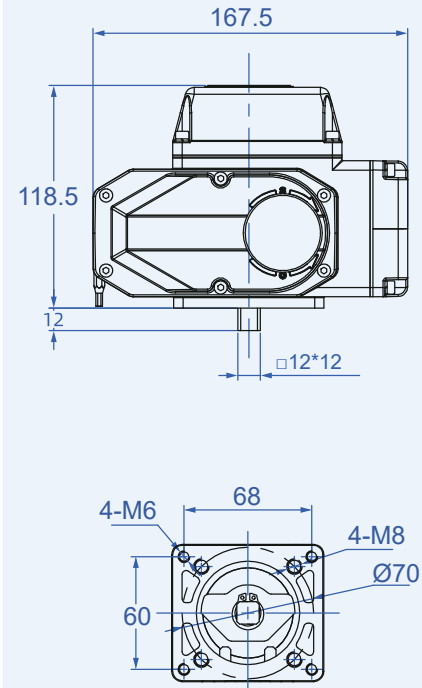
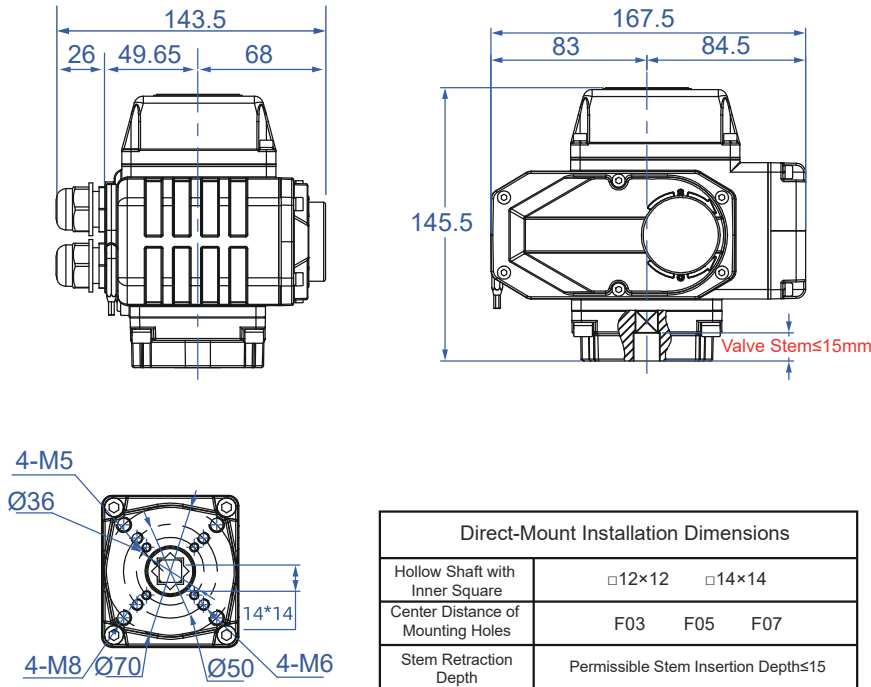
(Table 2) Custom Optional Special Functions

Special Function Options	Code	Picture
Torque Limiter	ATS	
Bracket & Bushing	ZT	
Remote Control Unit	C	
Dehumidifying Heater	H	
Handwheel	SL	

EA-50

Direct-Mount Type

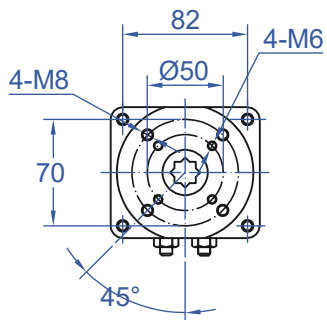
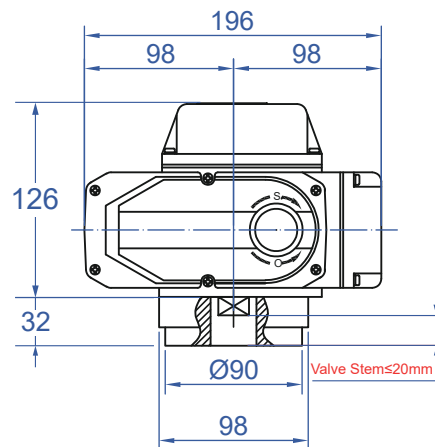
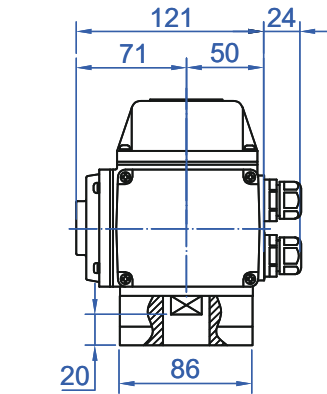
Standard Type



Model	EA-50			
Performance Parameters	DC24V	AC110V	AC220V	AC380V
Power Supply	DC24V	AC110V	AC220V	AC380V
Motor Power	13W	10W	10W	6W
Rated Current	1.28A	0.24A	0.16A	0.07A
Standard Output	50N·m/15s/30s			
Overall Weight	2.5 Kg			
Rotation Angle	0~90° Adjustable			
Circuit Options	Type S / MS / PIU / SP / CPT / PCU / G / H			
Insulation Resistance	≥50MΩ @ 500VDC			
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min			
Protection Class	IP67 / IP68			
Mounting Method	360° Omni-directional Mounting			
Electrical Interface	2 pcs M20×1.5 Waterproof Cable Glands (for Power & Signal Cables)			
Ambient Temperature	-30°C ~ 60°C (▲ High Temperature Resistant Type: -50°C ~ 125°C)			
Optional Functions	Dehumidifying Heater			

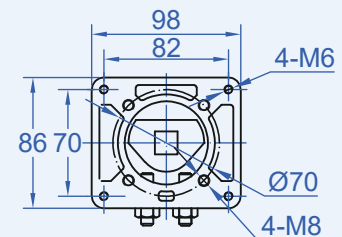
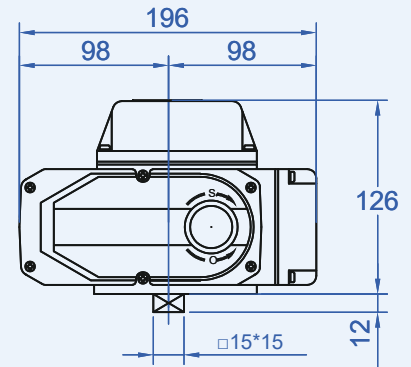
EA-100

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 Depth ≤ 20	

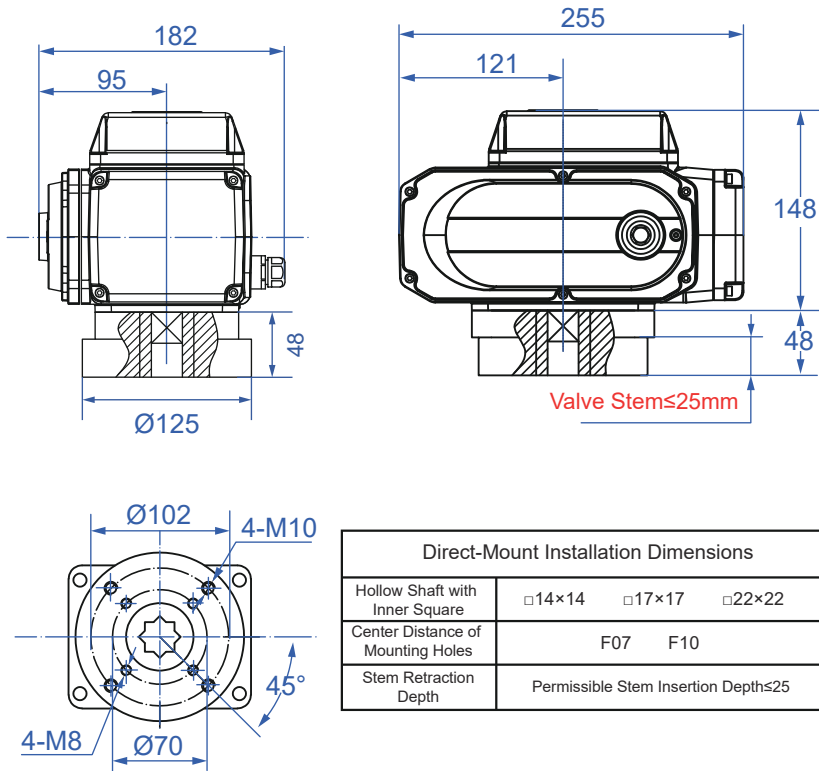
Standard Type



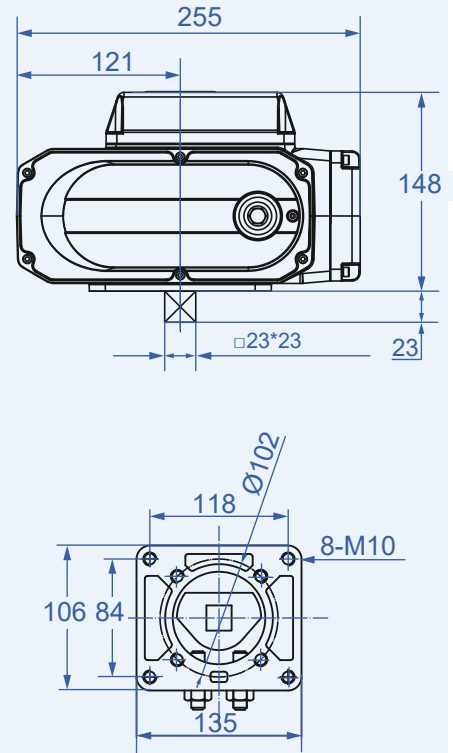
Model	EA-100			
Performance Parameters	DC24V	AC110V	AC220V	AC380V
Power Supply	DC24V	AC110V	AC220V	AC380V
Motor Power	25W	25W	25W	15W
Rated Current	2.03A	0.56A	0.32A	0.10A
Standard Output	100N·m/15s/30s			
Overall Weight	3.5 Kg			
Rotation Angle	0~90° Adjustable			
Circuit Options	Type S / MS / PIU / SP / CPT / PCU / G / H			
Insulation Resistance	≥50MΩ @ 500VDC			
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min			
Protection Class	IP67 / IP68			
Mounting Method	360° Omni-directional Mounting			
Electrical Interface	2 pcs M20×1.5 Waterproof Cable Glands (for Power & Signal Cables)			
Ambient Temperature	-30°C ~ 60°C (▲ High Temperature Resistant Type: -50°C ~ 125°C)			
Optional Functions	Dehumidifying Heater			

EA-200/400/600

Direct-Mount Type



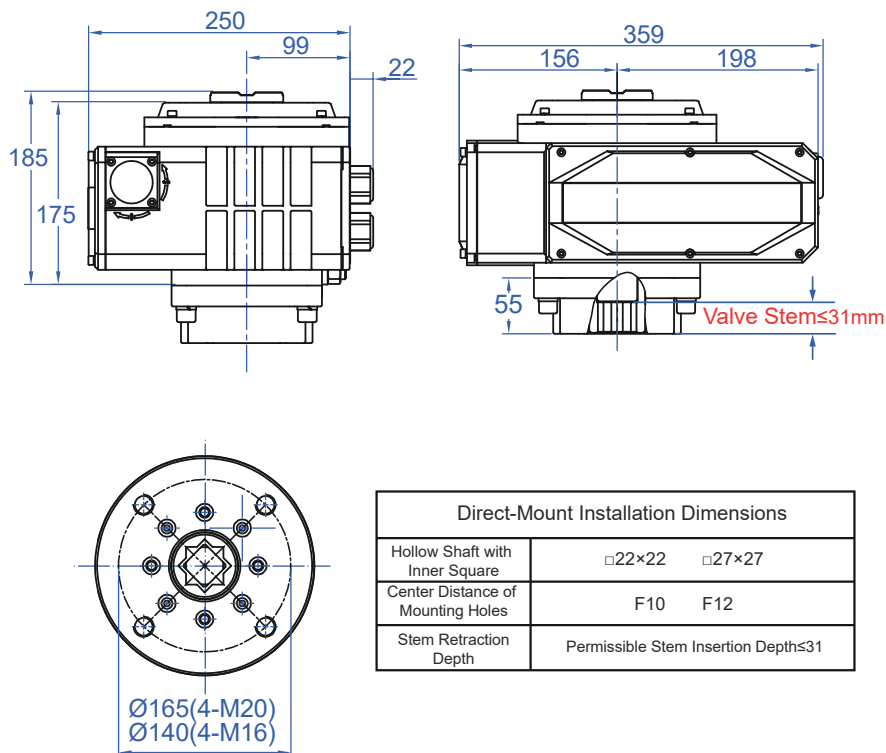
Standard Type



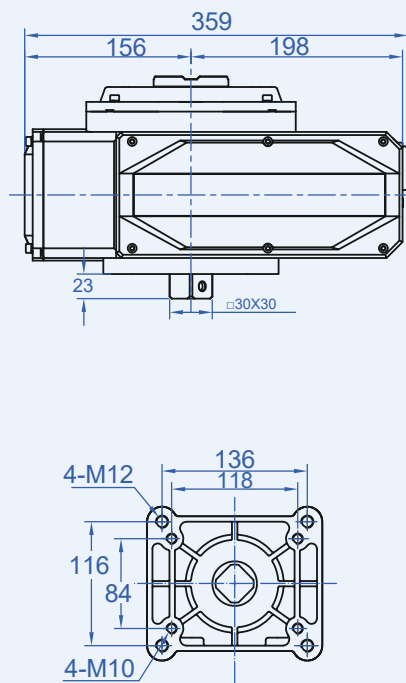
Model	EA-200				EA-400				EA-600			
Performance Parameters												
Power Supply	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V
Motor Power	35W	40W	40W	30W	70W	90W	90W	40W	70W	90W	90W	40W
Rated Current	3.57A	0.69A	0.35A	0.15A	5.13A	1.12A	0.54A	0.29A	6.04A	1.20A	0.64A	0.29A
Standard Output	200N·m/15s/30s				400N·m/30s				600N·m/45s			
Overall Weight	8 Kg				8.5 Kg				9 Kg			
Rotation Angle	0~90° Adjustable											
Circuit Options	Type S / MS / PIU / SP / CPT / PCU / G / H											
Insulation Resistance	≥50MΩ @ 500VDC											
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min											
Protection Class	IP67 / IP68											
Mounting Method	360° Omni-directional Mounting											
Electrical Interface	2 pcs M20×1.5 Waterproof Cable Glands (for Power & Signal Cables)											
Ambient Temperature	-30℃ ~ 60℃ (▲ High Temperature Resistant Type: -50℃ ~ 125℃)											
Optional Functions	Dehumidifying Heater											

EA-1000/1600

Direct-Mount Type



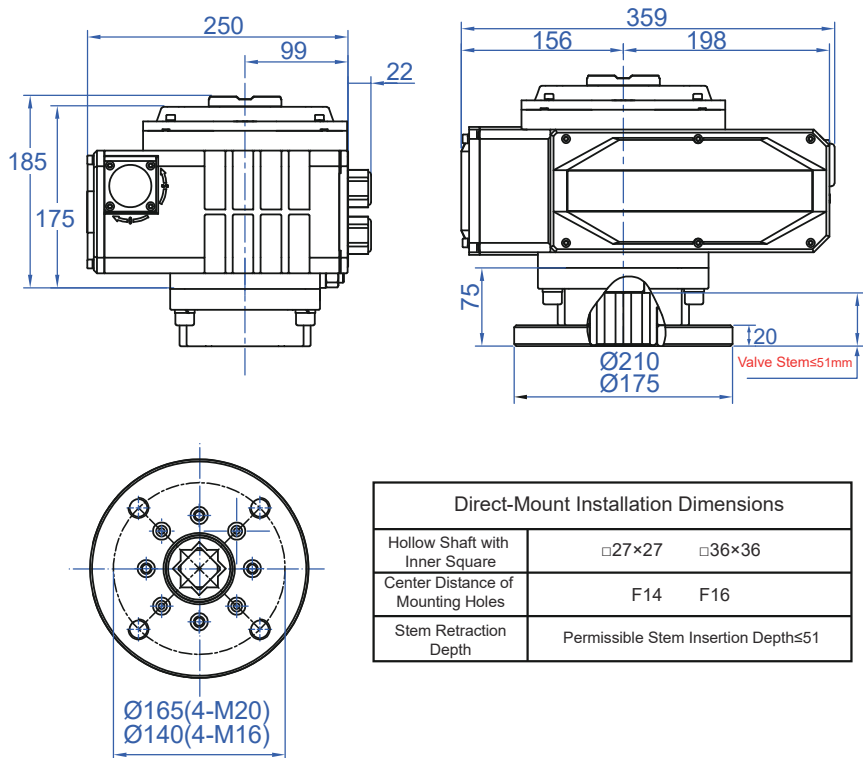
Standard Type



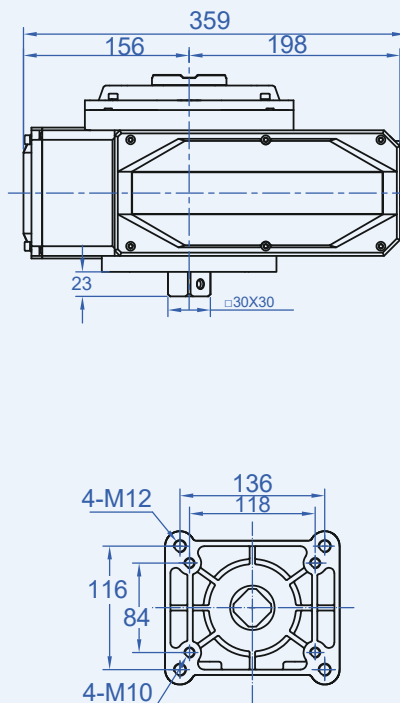
Model	EA-1000			EA-1600		
Performance Parameters						
Power Supply	AC110V	AC220V	AC380V	AC110V	AC220V	AC380V
Motor Power	210W	210W	300W	210W	210W	300W
Rated Current	1.93A	0.96A	0.45A	1.75A	0.98A	0.46A
Standard Output	1000N·m/30s			1600N·m/48s		
Overall Weight	20 Kg			21 Kg		
Rotation Angle	0~90° Adjustable					
Circuit Options	Type S / MS / PIU / SP / CPT / PCU / G / H					
Insulation Resistance	≥50MΩ @ 500VDC					
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min					
Protection Class	IP67 / IP68					
Mounting Method	360° Omni-directional Mounting					
Electrical Interface	2 pcs M20×1.5 Waterproof Cable Glands (for Power & Signal Cables)					
Ambient Temperature	-30°C ~ 60°C (▲ High Temperature Resistant Type: -50°C ~ 125°C)					
Optional Functions	Dehumidifying Heater					

EA-2500

Direct-Mount Type



Standard Type



Model	EA-2500		
Performance Parameters			
Power Supply	AC110V	AC220V	AC380V
Motor Power	220W	220W	320W
Rated Current	1.75A	1.03A	0.48A
Standard Output	2500N·m/60s/75s		
Overall Weight	0~90° 可调		
Rotation Angle	0~90° Adjustable		
Circuit Options	Type S / MS / PIU / SP / CPT / PCU / G / H		
Insulation Resistance	≥50MΩ @ 500VDC		
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min		
Protection Class	IP67 / IP68		
Mounting Method	360° Omni-directional Mounting		
Electrical Interface	2 pcs M20×1.5 Waterproof Cable Glands (for Power & Signal Cables)		
Ambient Temperature	-30°C ~ 60°C (▲ High Temperature Resistant Type: -50°C ~ 125°C)		
Optional Functions	Dehumidifying Heater		

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.



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official website