

Electric Actuator Instruction Manual



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Overview

1. Model Representation

Code — A B C — D

A: Represents product generation.

B: Represents product torque (number * 10): 05, 10, 15, 20, 40, 60, 100, 200.

C: Representation Control Circuit Form: A/B/C

D: Additional functions (220V, standard structure bracket coupling as Table 1)

C: Voltage DC 24V	E: Voltage AC 380V	F: Voltage AC 110V
L: Direct-mounted structure, bracket coupling integration, directly matching valves, valves are selected separately according to requirements.		
K: Fast opening series, turning time from 30s to 15s, or from 10s to 4s, torque from 30, 100, 200, 400 Nm to 20, 50, 100, 200 Nm.		
M: Slow-open series, turning time from 20s or 30s to 60s, the torque of 30, 100, 200, 400Nm output remains unchanged.		

(Table 1)

For example, 110A-E represents the company's first generation of electric actuators, with torque of 100 NM, control circuit of type A and voltage of 380 V.

Structure Drawings

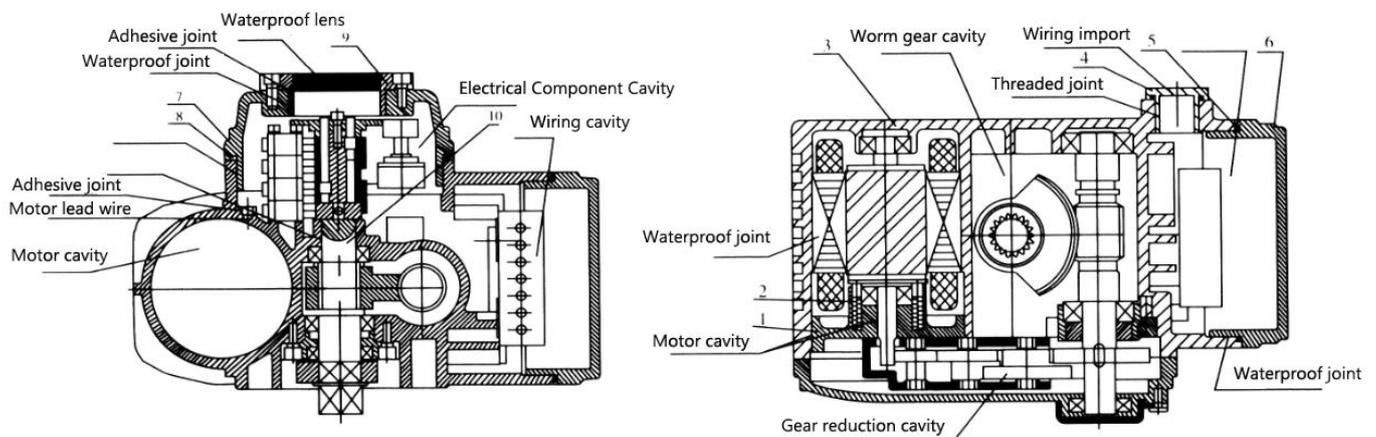


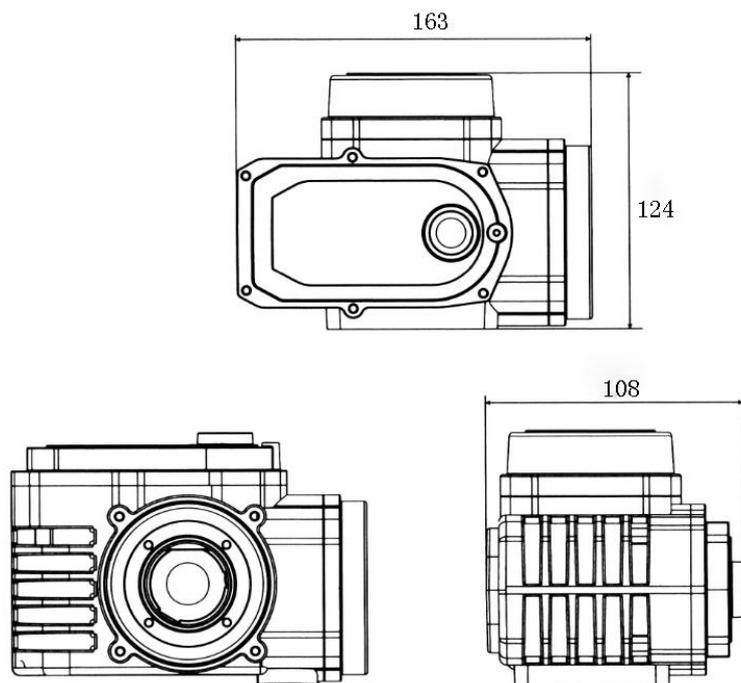
Fig 1

Parts List

No.	Name	Pcs	Materials
1	Motor cover	1	ADC12
2	Motor rotor shaft	1	40Cr
3	Box body	1	ADC12
4	Waterproof joint	2	Nickel plated brass
5	O-ring	1	Nitrile rubber

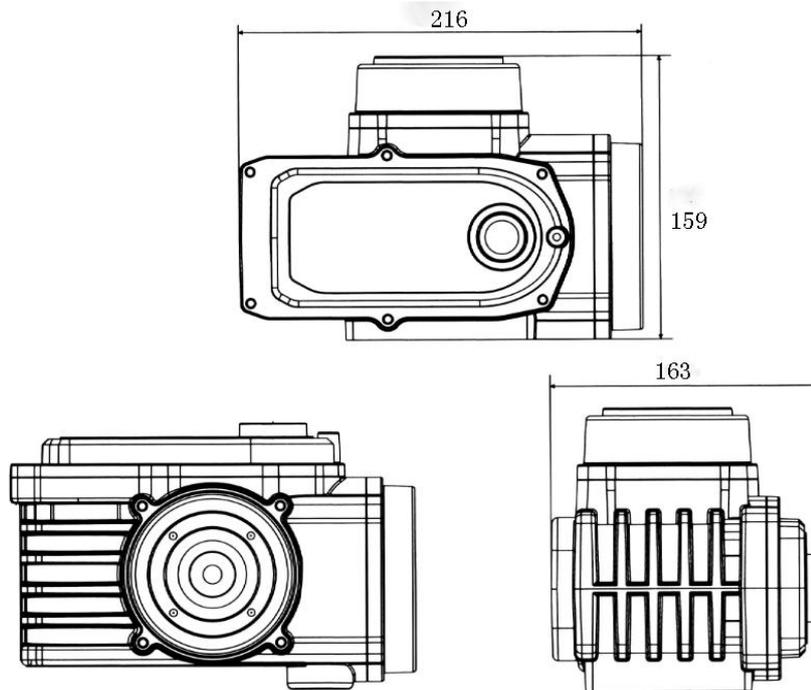
No.	Name	Pcs	Materials
6	Control cover	1	ADC12
7	Electric cover	2	ADC12
8	O-ring	1	Nitrile rubber
9	Waterproof lens	2	
10	Output shaft	1	40Cr nickeling

05 Series Dimension and Performance



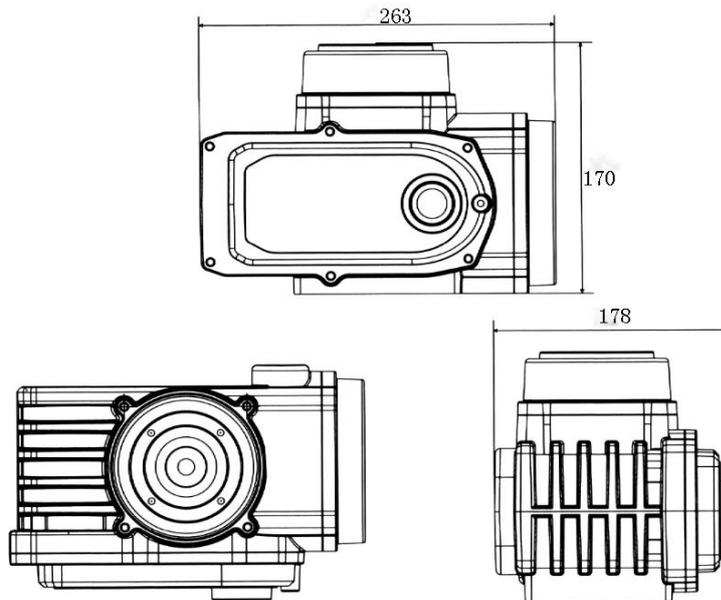
Model	SQ-05				
Power	DC24V	AC24V	AC110V	AC220V	AC380V
Motor power	13W	10W	10W	10W	6W
Rated current	1.28A	1.50A	0.24A	0.15A	0.07A
Standard Time/Output torque	20S/50N.M				
Optional Time/Output torque	4S/20N.M 10S/30N.M			4S/20N.M 10S/30N.M 60S/50N.M	
Rotary angle	0-90°				
Optional control circuit	A/B/C				
Weight	3.4KG				
Insulation resistance	AC24V:100MΩ/250VDC AC110V/AC220V/AC380V:100MΩ/500VDC				
Pressure grade	AC-DC24V:500VAC/ 1 minute AC110V AC220V:1500VAC/ 1 minute AC380V:1800VAC/ 1minute				
Protection grade	IP65(Optional IP67/IP68)				
Explosion-proof grade	None(Optional ExdIICT4)				
Installation angle	Any angle				
Electrical interface	2-G1/2 waterproof connector				
Ambient temperature	-20°C~ +60°C				
Optional Function	Power reset, Heating and dehumidifying, Overheat protection				

10/15 Series Dimension and Performance



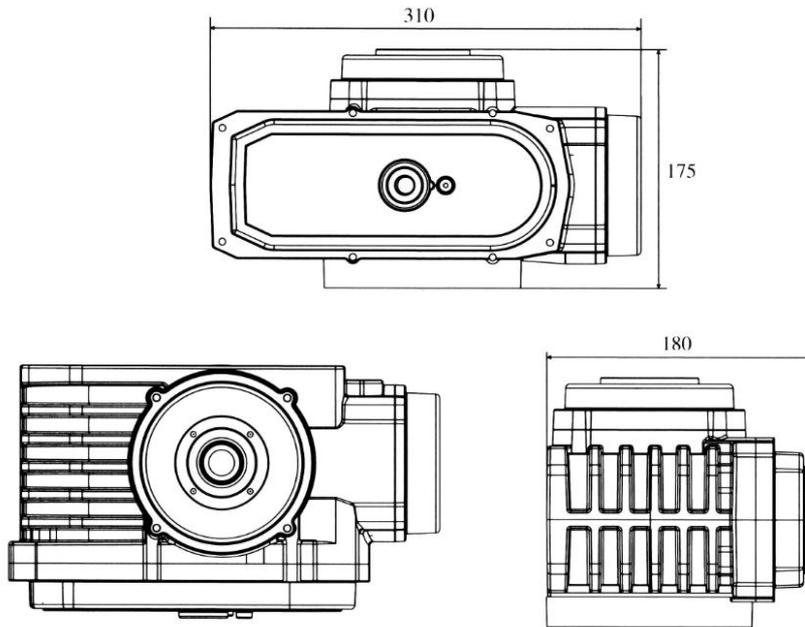
Model	SQ-10					SQ-15			
Power	DC24V	AC24V	AC110V	AC220V	AC380V	DC24V	AC24V	AC220V	AC380V
Motor power	25W	25W	25W	25W	15W	40W	40W	40W	30W
Rated current	2.03A	2.12A	0.57A	0.30A	0.10A	0.58A	0.63A	0.35A	0.19A
Standard Time/Output torque	30S/100N.M					30S/150N.M			
Optional Time/Output torque	15S/50N.M			15S/50N.M 60S/100N.M		15S/80N.M		15S/80N.M 60S/150N.M	
Rotary angle	0-90°								
Optional control circuit	A/B/C								
Weight	5.45KG					5.65KG			
Insulation resistance	AC24V: 100M Ω /250VDC AC110V/AC220V/AC380V: 100M Ω /500VDC								
Pressure grade	AC24V:500VAC/ 1 minute AC110V AC220V:1500VAC/ 1 minute AC380V:1800VAC/ 1minute								
Protection grade	IP65(Optional IP67/IP68)								
Explosion-proof grade	None (Optional:ExdIICT4)								
Installation angle	Any angle								
Electrical interface	2-G1/2 waterproof connector								
Ambient temperature	-20° C~60° C								
Optional Function	Power reset, Heating and dehumidifying, Overheat protection								

20/40/60 Series Dimension and Performance



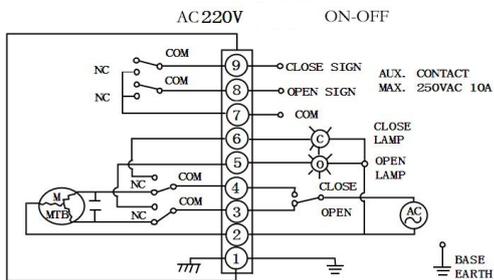
Model	SQ-20				SQ-40				SQ-60			
Power	DC24V	AC24V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V
Motor power	35W	40W	40W	30W	70W	90W	90W	40W	70W	90W	90W	40W
Rated current	3.57A	3.65A	0.35A	0.19A	5.13A	1.12A	0.64A	0.29A	6.04A	1.18A	0.67A	0.29A
Standard Time/Output torque	30S/200N.M				30S/400N.M				45S/600N.M			
Optional Time/Output torque	15s/100N.M		15s/100N.M 60s/200N.M		15s/200N.M		15s/200N.M 60s/400N.M					
Rotary angle	0-90°											
Control circuit	A/B/C											
Weight	9.3KG				9.5KG				9.7KG			
Insulation resistance	AC24V: 100M Ω /250VDC AC110V/AC220V/AC380V: 100M Ω /500VDC											
Pressure grade	AC24V:500VAC/ 1 minute AC110V AC220V:1500VAC/ 1 minute AC380V:1800VAC/ 1minute											
Protection grade	IP65(Optional IP67/IP68)											
Explosion-proof grade	None(Optional ExdIICT4)											
Installation angle	Any angle											
Electrical interface	2-G1/2 waterproof connector											
Ambient temperature	-20° C~60° C											
Optional Function	Power reset, Heating and dehumidifying, Overheat protection											

100/200 Series Dimension and Performance



Model	SQ-100							SQ-200				
	DC24V	DC220V	AC24V	AC110V	AC220V	AC380V	AC415V	DC24V	AC110V	AC220V	AC380V	AC415V
Power	100W							100W				
Motor power	100W							100W				
Rated current	8.5A	1.5A	9A	2.2A	1.2A	0.48A	0.53A	9A	2.2A	1.2A	0.48A	0.53A
Standard Time/Output torque	25S/1000N.M		50S/1000N.M			30S/1000N.M		100S/2000N.M			50S/2000N.M	
Optional Time/Output torque			15S/300N.M 30S/800N.M			15S/500N.M						
Rotary angle	0-90°											
Control circuit	A/B/C											
Weight	13.2KG							13.6KG				
Insulation resistance	DC24V AC24V: 100M Ω /300VDC AC110V AC220V AC380V: 100M Ω /500VDC											
Pressure grade	DC24V AC24V:500VAC/ 1 minute AC110V AC220V AC380V:1500VAC/ 1 minute											
Protection grade	IP65(Optional IP67/IP68)											
Explosion-proof grade	None (Optional ExdIICT4)											
Installation angle	Any angle											
Electrical interface	2-G1/2 waterproof connector											
Ambient temperature	-20° C~60° C											
Optional Function	Power reset, Heating and dehumidifying, Overheat protection											

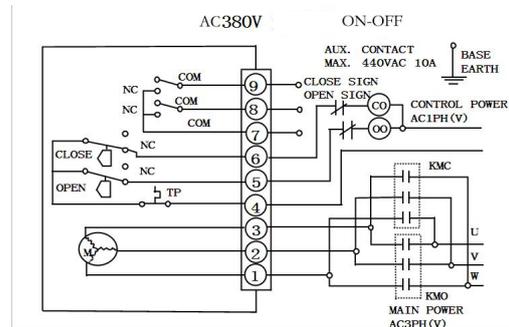
(1) AC220V on-off type wiring diagram



Type A

Function: Open and close operation through the switching wiring diagram, output a set of active AC220V feedback and a set of passive switching feedback.

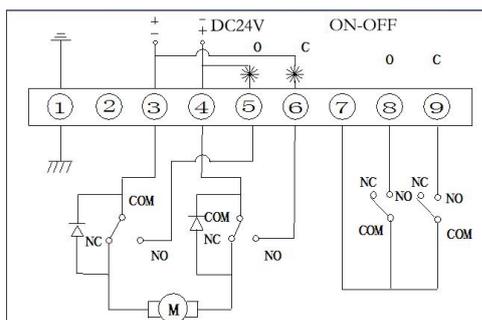
(2) AC380V on-off type wiring diagram



Type B

Function: Open and close operation is realized by external relay commutation, and output a set of passive switching feedback.

(3) DC24V on-off type wiring diagram



Type C

Function: Open and close operation is realized by switching the positive and negative poles of the external power supply, and output a set of active DC24V feedback and a set of passive switching feedback.

Operating Requirements

1. Installation Environment

- This product can be installed indoors or outdoors.
- This product is non-explosion-proof. Please take care to avoid flammable and easy coal.
- In the long-term rainwater, raw materials and other splashes and direct sunlight environment, it is necessary to install protective devices to protect the whole machine.
- Please reserve space for wiring, manual operation and other maintenance.
- Ambient temperature: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$

2. Working Medium Temperature

- When matched with the valve, the temperature of T working medium is transmitted to the upper part of the body, and the body temperature will rise.
- When the working medium is high temperature, the bracket connected with the valve reduces heat conduction.
- Standard bracket should be selected when working medium temperature is below 60°C .
- When working medium temperature is above 60°C , please choose high temperature bracket.

3. Power Requirements

- Provide corresponding on-site power according to the type of power supply used by the model ordered.
- on-site power supply and voltage should meet the following requirements:

AC380V \pm 10%	50/60HZ	AC220V \pm 10%	50/60HZ
AC110V \pm 10%	50/60HZ	AC24V \pm 10%	50/60HZ

4. Selection of Short Circuit Switch Fuse

Model \ Voltage Current	AC24V	AC110V	AC220V	AC380V
	05	5A	3A	2A
10/15	7A	5A	3A	2A
20/40/60		7A	5A	3A

Installation with Valve

Installation with Valve (Fig. 2)

1. Turn the valve manually to check for no abnormalities and to place the valve in the fully closed position.
2. Secure the bracket to the valve.
3. Place one end of the coupling over the valve mandrel.
4. Use the handle to drive the electric actuator to the fully closed position (the pointer is pointing to the SHUT, 0 scale), and insert the output shaft into the square hole of the coupling.
5. Tighten the connecting bolts between the bracket and the electric actuator and valve body.
6. Use the handle to drive the actuator to ensure smooth operation, no eccentricity, no skew, and check whether the valve can be fully closed and fully open in the range of actuator opening indication.
7. Note: Do not use excessive force, otherwise it will cause the actuator to overrun and cause damage.

Special tips

For users who have their own brackets and couplings, please note:

- Brackets and couplings shall be designed and processed by professional technicians and shall comply with the marking requirements of (Fig. 3).
- The machining of the shaft holes at both ends of the coupling should ensure the necessary precision and eliminate the transmission gap as much as possible to avoid the hysteresis in the valve operation.
- The position of the shaft hole at both ends of the coupling should be strictly guaranteed. Otherwise, it may exceed the working range of the actuator design, resulting in the valve not working properly because the actuator stroke cannot be adjusted.

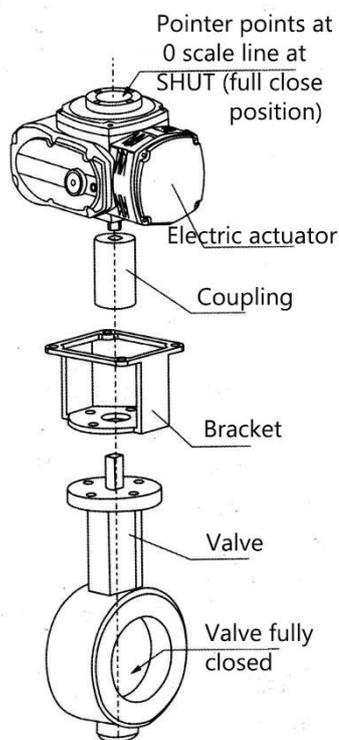


Fig 2

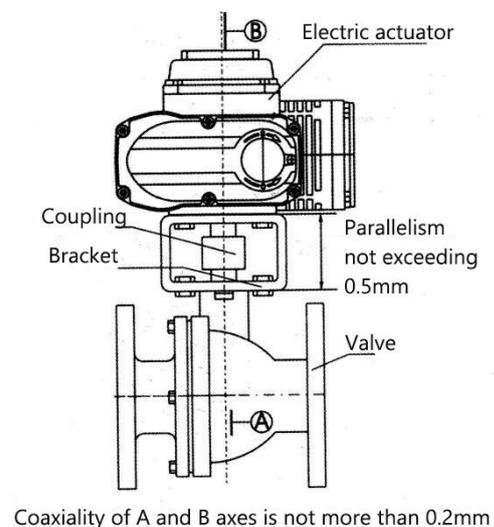


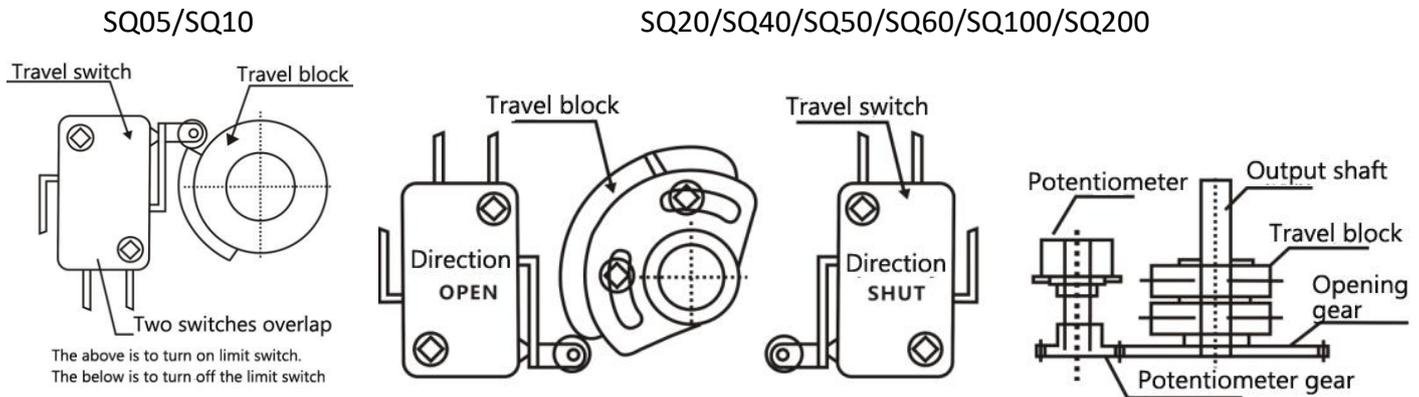
Fig 3

Electric Valve Debugging

1. Adjustment of Potential Limit

Release the screw of the travel block and tap the travel block with a screwdriver to adjust the angle of the travel block, thereby changing the opening and closing angle of the electrical limit. Finally, tighten the screw of the travel block.

Travel Block and Switch Layout



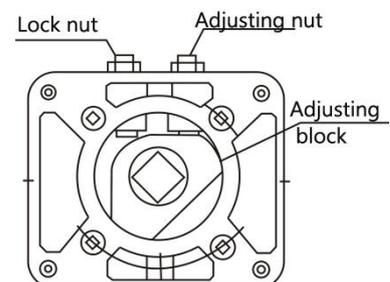
2. Potentiometer Adjustment (Opening type and Intelligent type)

- 1) The resistance value of the potentiometer is $1K\Omega$, $5K\Omega$.
- 2) Use the handle to turn the valve to the fully closed position.
- 3) Loosen the potentiometer, turn the potentiometer gear, measure the resistance between the 4-5 terminals with a universal meter, and make the resistance value between 4-5 below 5Ω , and tighten the potentiometer fixing screw. (If it is an intelligent seven-wire plug-in connector, please measure the resistance of the two RV and RS jacks)

Note: When operating manually, please do not exceed the limit of full opening and full closing. If the angle is too large, it will cause damage to its components. .

3. Adjustment of Mechanical Limit

- 1) Use the handle to turn to the fully open position.
- 2) Loosen the lock nut, turn the adjusting screw to release it from the mechanical stop, then rotate the screw half-circle in the opposite direction to lock the nut.
- 3) The same method can be used to adjust the mechanical block in the fully closed position.



4. Adjustment of other series

For debugging of integral switch type, integral regulator type, intelligent switch type and intelligent regulation type, see corresponding product module instructions for details.

1. Maintenance

Since high-grade molybdenum-based grease with long life and high-pressure resistance is used, it is not necessary to check and refuel.

When the valve is rarely used, drive the actuator periodically to check for any abnormalities.

The products comply with the relevant provisions of GB3836.13-1999, GR3836.15-2000, GB3836.16-2006 and GB50257-1996.

2. Failure and countermeasure

Failure	Reason	Countermeasure
Motor can't start	Not connected to the power supply	Connected to the power supply
	Broken wire, disconnection of joint and terminal	Repair the broken wire and connect the fastening terminal correctly
	The power supply voltage is incorrect or the voltage is too low	Check if the voltage is normal
	Overheat protector action (whether the ambient temperature is too high, the valve is stuck)	Reduce the ambient temperature and manually check whether the opening and closing of the valve is normal.
	Micro switch malfunction	Replace the micro switch
	Poor startup capacitance	Contact the manufacturer to replace the capacitor
The open and close indicators are not lit	The indicator is broken	Replace the indicator
	Poor operation of the micro switch	Replace the micro switch
The motor can't stop when it runs to the limit position.	Extreme micro switch malfunction	Replace the micro switch
	Three-phase AC power supply phase sequence reverse	Adjust the phase sequence of three-phase AC power
	Micro switch access control loop error	Adjustment wiring
	Mechanical limit advanced electrical limit action	Re-adjust the mechanical limit according to the adjustment instructions of the mechanical limit block
	Improper debugging of servo controller	Re-debugging according to the instructions