

# LOMAS

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## JYL Electric Actuator





## Product Characteristic

1. Strong Functions: available for every type, including intelligent regulation, proportion, switch and signal output types
2. Compact and light: only approximately 35% of the volume and weight of traditional products
3. Beautiful appearance: a housing with aluminum alloy die casting, being beautiful and smooth with less electromagnetic interference
4. Reliable performance: use imported brand-name products for key parts like bearings and electric elements
5. High-standard protection: tested as per the IP68 high-standard protection level
6. Precision and anti-wear: the worm gear output shaft is integrated and forged with special copper alloy, featuring high strength and strong wear resistance
7. Minimal hysteresis: the integrated structures avoids key gap clearances and features high transmission accuracy
8. Safety assurance: 1500V withstand voltage testing, F-class insulation motor and CE certified to ensure safety
9. Easy matching: use single phase power supply and simple external circuit, or optional for 380V and DC power supply
10. Easy to use: free of oiling and spot check, water-proof, rust-proof and available for any angle of installation
11. Multi-speed: the whole-process time is optional for 9, 13, 15, 30, 50, 100 or 150 seconds (the factory default has been set)
12. Intelligent numerical control: the intelligent control module is integrated inside the motor actuator body, unnecessary for any external localizer, featuring digital setting and tuning, high precision, self-diagnosis and multiple functions

JYL-10A/30S/AC220V/F05-07/GC

Heating dehumidifier, being "N" if not selected

Overtorque protection function, being "N" if not selected

Installation mode: F for upright installation (ISO5211) and B for standard installation

Power supply type

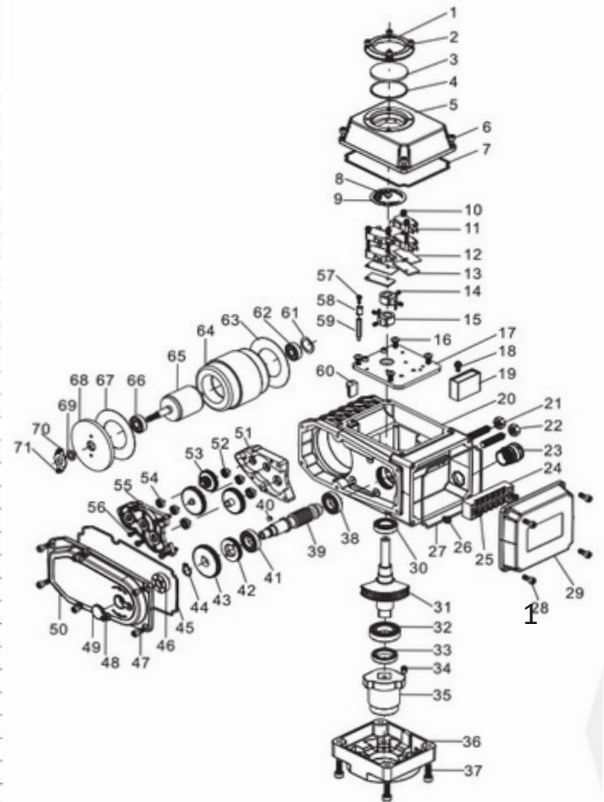
0~90° opening/closing time

Control circuit form

Actuator output torque +10

Electric actuator series model

1	1	Indication window hood	37	4	Hexagon socket head cap screw
2	4	Hexagon socket head cap screw	38	1	Bearing
3	1	Sight glass	39	1	Worm
4	1	O-ring	40	1	Flat key
5	1	Electric actuator - top cover	41	1	Bearing
6	4	Anti-loose hexagon socket head cap screw	42	1	Locknut
7	1	O-ring	43	1	Screw gear
8	1	Phillips screw	44	1	Shaft collar
9	1	Dial	45	1	O-ring
10	4	Phillips screw (assembly)	46	1	Oil seal
11	4	Travel switch	47	6	Anti-loose hexagon socket head cap screw
12	2	Insulating shield	48	1	Phillips screw (assembly)
13	2	Insulating pad	49	1	Dustproof plug
14	4	Hexagon socket set screws	50	1	Electric actuator - front cover
15	2	Travel stopper	51	1	Electric actuator - deceleration box 1
16	4	Phillips screw (assembly)	52	3	Bearing
17	1	Electric actuator - top cover	53	3	Electric actuator - reduction gear assembly
18	1	Phillips screw (assembly)	54	3	Bearing
19	1	Capacitor	55	1	Electric actuator - deceleration box 2
20	1	Electric actuator - housing	56	5	Phillips screw (assembly)
21	2	Limit bolt	57	1	Phillips screw (assembly)
22	2	External hexagon nut	58	1	Dial pointer
23	1	Waterproof cable joint	59	1	Pointer pole
24	1	Connecting terminal	60	1	Rubber plug
25	2	Phillips screw	61	1	Wavy spring gasket
26	1	Phillips screw	62	1	Bearing
27	1	O-ring	63	1	Insulating isolation plate
28	4	Anti-loose hexagon socket head cap screw	64	1	Motor stator
29	1	Electric actuator - incoming line cover	65	1	Motor rotor
30	1	Bearing	66	1	Bearing
31	1	Worm gear	67	1	Insulating isolation plate
32	1	Bearing	68	1	Motor cover
33	1	Oil seal	69	1	Oil seal
34	1	Hexagon socket set screws	70	1	Oil seal shield
35	1	Connecting bushing (ISO5211)	71	2	Phillips screw (assembly)
36	1	Mounting seat (ISO5211)			



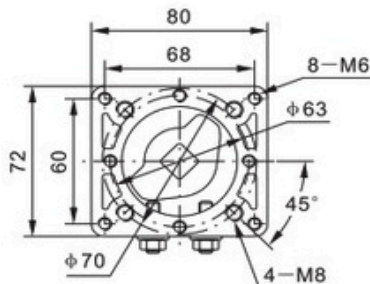
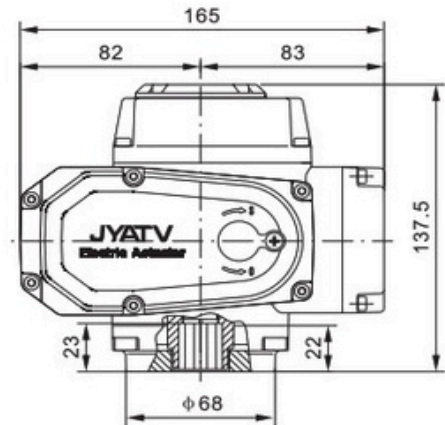
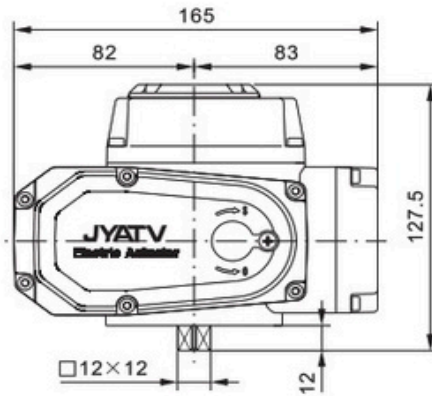
## Overall Dimensions and Performance Parameters of JYL-05 Series



Performance	Model		JYL-05				
	Power supply	DC12V	DC24V	DC220V	AC24V	AC110V	AC380V
Motor power	20W			10W			
Rated current	3.8A	2A	0.21A	2.2A	0.48A	0.15A	0.24A
Output torque	30Nm/50Nm			15Nm/30Nm/50Nm			
Service time	6S/10S			10S/20S/30S			
Control circuit	Types A, B, C, D, E, F, G and H						
Rotation angle	0~360°adjustable						
Total weight	2.4Kg						
Insulation resistance	100MΩ/300VDC			100MΩ/500VDC			
Withstand voltage class	500VAC/1minutes			1500VAC/1minutes			
Protection class	IP67						
Ambient temperature	-25°C~+60°C (customized for other temperatures)						
Installing angle	1			360° any angle installation			
Shell material	Aluminum alloy precision die casting						
Optional functions	Heating dehumidifier						

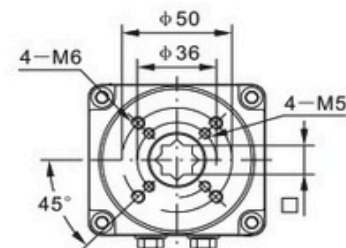
Standard type

Upright installation type (ISO5211)



Parameters of upright installation type (ISO5211)

Internal square core	□9×9 □11×11
Flange	F03 F05
Stem	Height ≤20mm



## Overall Dimensions and Performance Parameters of JYL-10 Series



Standard type

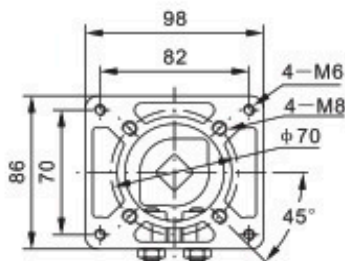
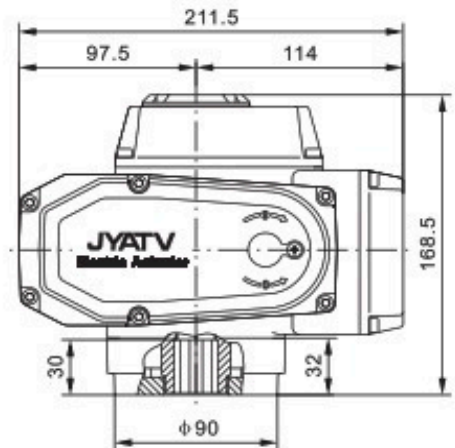
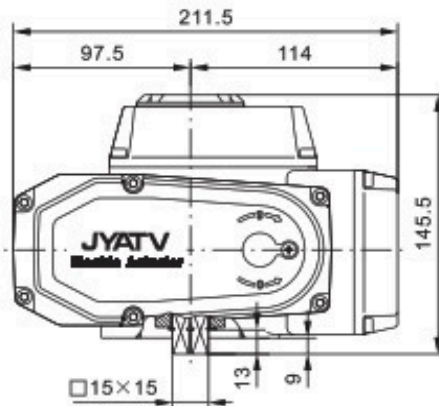
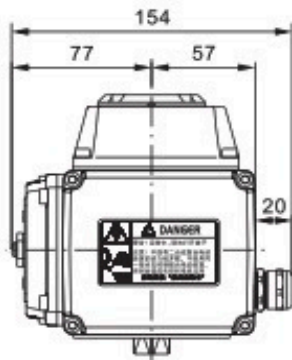


Upright installation type (ISO5211)

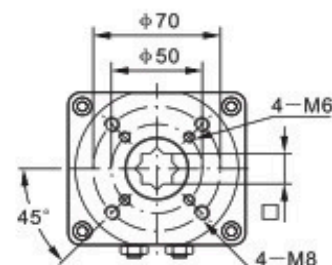
Performance	Model		JYL-10					
	Power supply	DC12V	DC24V	DC220V	AC24V	AC110V	AC380V	AC220V
Motor power		40W			23W			
Rated current	4.8A	2.4A	0.32A	3A	0.64A	0.19A	0.32A	
Output torque	100Nm			50Nm/60Nm/100Nm				
Service time	10S			13S/15S/20S/30S				
Control circuit	Types A, B, C, D, E, F, G and H							
Rotation angle	0~90°adjustable							
Total weight	4.2Kg							
Insulation resistance	100MΩ/300VDC			100MΩ/500VDC				
Withstand voltage class	500VAC/1minutes			1500VAC/1minutes				
Protection class	IP67							
Ambient temperature	-25°C~+60°C (customized for other temperatures)							
Installing angle	360° any angle installation							
Shell material	Aluminum alloy precision die casting							
Optional functions	Over torque protection, Heating dehumidifier							

Standard type

Upright installation type (ISO5211)



Parameters of upright installation type (ISO5211)	
Internal square core	□9×9 □11×11 □14×14 □17×17
Flange	F03 F07
Stem	Height≤28mm



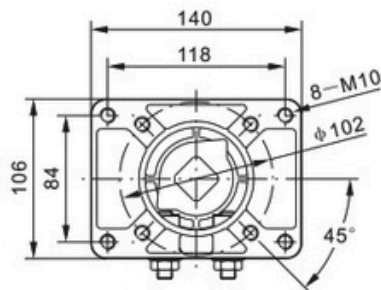
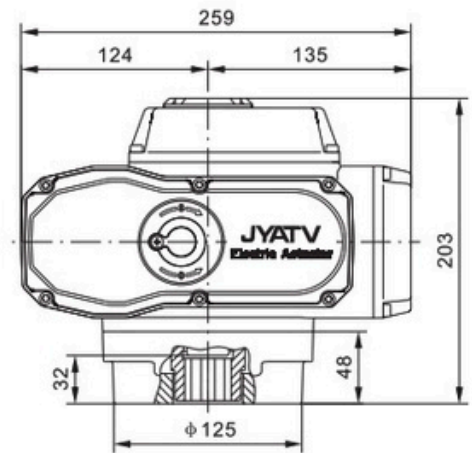
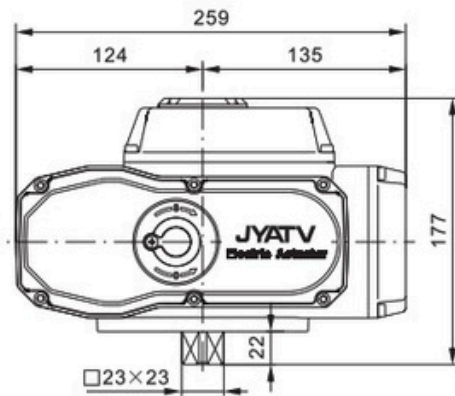
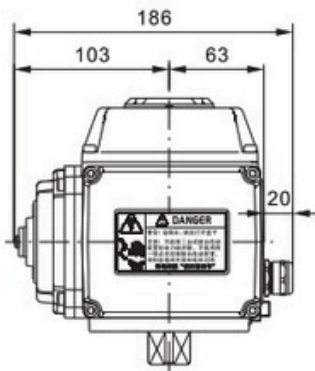
## Overall Dimensions and Performance Parameters of JYL-20/40 Series



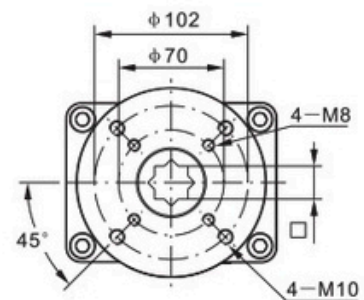
Performance	Model JYL-20/40						
	Power supply		DC24V	DC220V	AC24V	AC110V	AC380V
Motor power	40W/60W						
Rated current	8A	0.35A	5A	0.9A	0.25A	0.48A	
Output torque	200Nm		200Nm/400Nm				
Service time	10S		15S/30S/60S				
Control circuit	Types A, B, C, D, E, F, G and H						
Rotation angle	0~90°adjustable						
Total weight	7.2Kg						
Insulation resistance	100MΩ/300VDC		100MΩ/500VDC				
Withstand voltage class	500VAC/1minutes		1500VAC/1minutes				
Protection class	IP67						
Ambient temperature	-25°C~+60°C (customized for other temperatures)						
Installing angle	360° any angle installation						
Shell material	Aluminum alloy precision die casting						
Optional functions	Over torque protection, Heating dehumidifier						

Standard type

Upright installation type (ISO5211)



Parameters of upright installation type (ISO5211)	
Internal square core	□14×14 □22×22 □17×17 □27×27
Flange	F07 F10
Stem	Height≤30mm



## Overall Dimensions and Performance Parameters of JYL-50/60 Series



Standard type

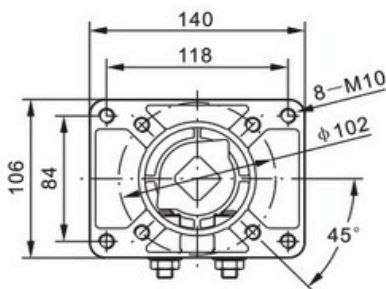
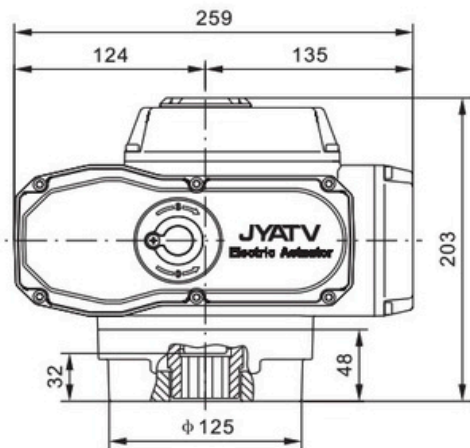
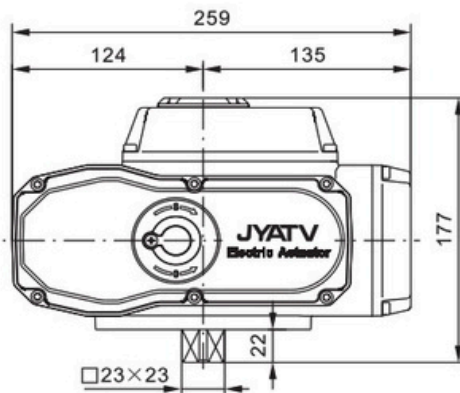
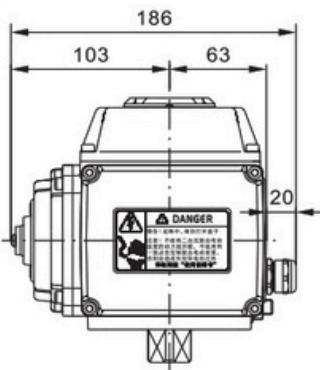


Upright installation type (ISO5211)

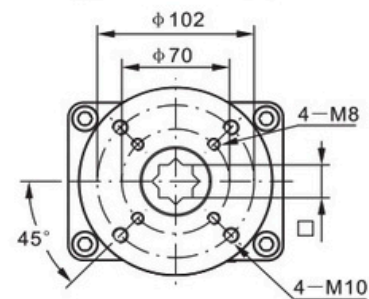
Performance	Model		JYL-50/60			
	DC24V	DC220V	AC24V	AC110V	AC380V	AC220V
Motor power	90W					
Rated current	7A	0.9A	8A	2A	0.45A	0.92A
Output torque	500Nm/600Nm					
Service time	15S/30S/60S					
Control circuit	Types A, B, C, D, E, F, G and H					
Rotation angle	0~90°adjustable					
Total weight	8Kg					
Insulation resistance	100MΩ/300VDC		100MΩ/500VDC			
Withstand voltage class	500VAC/1minutes		1500VAC/1minutes			
Protection class	IP67					
Ambient temperature	-25°C~+60°C (customized for other temperatures)					
Installing angle	360° any angle installation					
Shell material	Aluminum alloy precision die casting					
Optional functions	Over torque protection, Heating dehumidifier					

Standard type

Upright installation type (ISO5211)



Parameters of upright installation type (ISO5211)	
Internal square core	□14×14 □22×22 □17×17 □27×27
Flange	F07 F10
Stem	Height≤30mm



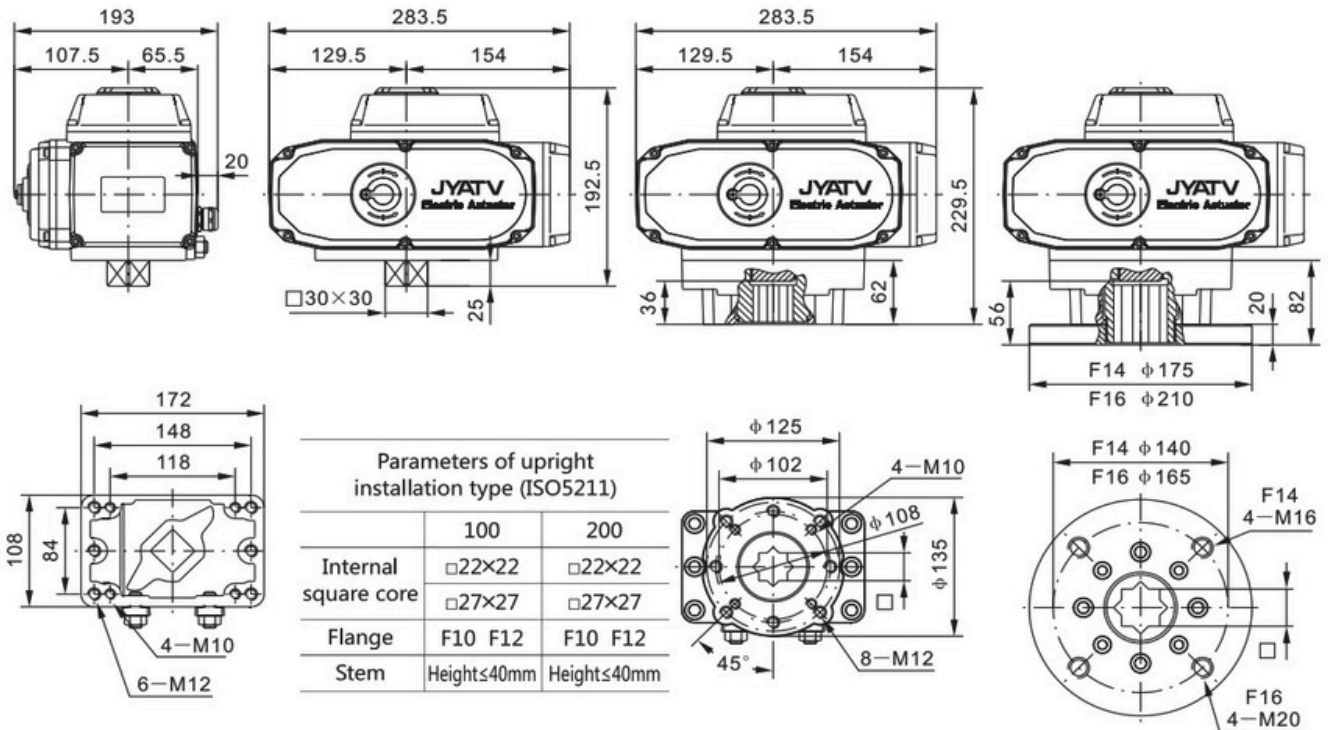
## Overall Dimensions and Performance Parameters of JYL-100/200 Series



Model Power supply	JYL-100				JYL-200			
	AC24V	AC110V	AC380V	AC220V	AC24V	AC110V	AC380V	AC220V
Performance								
Motor power	100W							
Rated current	9A	2.2A	0.48A	1.2A	9A	2.2A	0.48A	1.2A
Output torque	300Nm/800Nm/1000Nm				2000Nm			
Service time	15S/30S/60S				100S			
Control circuit	Types A, B, C, D, E, F, G and H							
Rotation angle	0~90°adjustable							
Total weight	11.5Kg				12.1Kg			
Insulation resistance	100MΩ/500VDC							
Withstand voltage class	1500VAC/1minutes							
Protection class	IP67							
Ambient temperature	-25°C~+60°C (customized for other temperatures)							
Installing angle	360° any angle installation							
Shell material	Aluminum alloy precision die casting							
Optional functions	Over torque protection, Heating dehumidifier							

Standard type

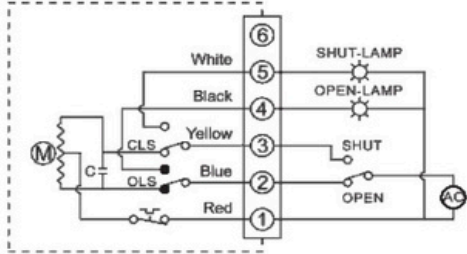
Upright installation type (ISO5211)



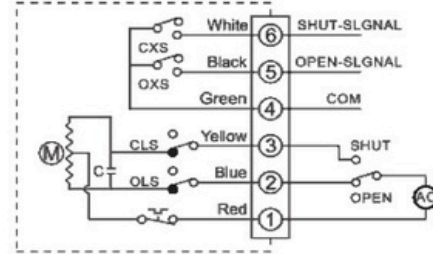


## Performance Parameters of Intelligent Regulation Type (Type E)

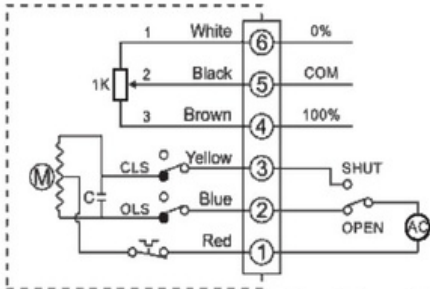
Model	JYL-05E	JYL-10E	JYL-20E	JYL-40E	JYL-50E	JYL-60E	JYL-100E	JYL-200E
Parameters Power supply	DC12V, DC24V, DC220V, AC24V, AC110V, AC220V, AC380V ; 50/60Hz							
Performance								
Motor power	10W	23W	40W	40W	90W	90W	100W	100W
Rated current	0.24A (AC220V)	0.32A (AC220V)	0.48A (AC220V)	0.48A (AC220V)	0.92A (AC220V)	0.92A (AC220V)	1.0A (AC220V)	1.2A (AC220V)
Output torque	50Nm	100Nm	20Nm	400Nm	500Nm	600Nm	1000Nm	2000Nm
Service time	30S	30S	30S	30S	30S	30S	50S	100S
Rotation angle	0~90°	0~90°	0~90°	0~90°	0~90°	0~90°	0~90°	0~90°
Total weight	2.4Kg	4.2Kg	7.2Kg	7.2Kg	8Kg	8Kg	11.5Kg	12.1Kg
Input signal	4~20mADC, 1~5VDC and 0~10VDC (the factory setting is available for other options)							
Output signal	4~20mADc (the factory setting is available for other options)							
Intrinsic error	Not more than ±1%							
Hysteresis	Less than 0.3%							
Dead zone	0.4%~1.5% adjustable							
Damping characteristic	0次							
Mechanism repeatability error	0%							
Insulation resistance	DC24V: 100MΩ/300VDC			100MΩ/500VDC				
Withstand voltage class	DC24V: 500VAC/1minutes			1500VAC/1minutes				
Protection class	IP67							
Ambient temperature	-25°C~+60°C (customized for other temperatures)							
Installing angle	360 any angle installation							
Shell material	Aluminum alloy precision die casting							
Optional functions	Overtorque protection, heating dehumidifier and passive contact type							



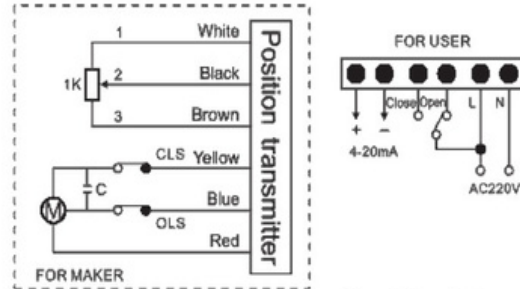
The valve's opening or closing operations are achieved through the switching circuit, with outputs of a set of active position signals indicating the valve's full opening or closing.



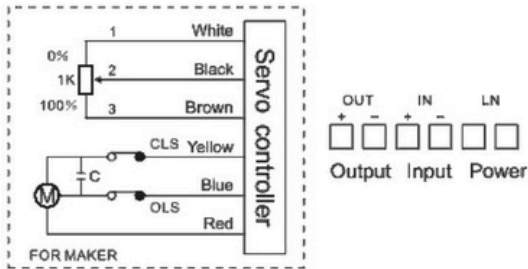
The valve's opening or closing operations are achieved through the switching circuit, with outputs of a set of passive position signals indicating the valve's full opening or closing.



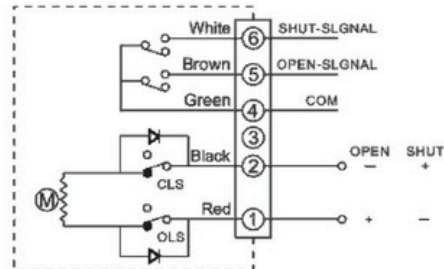
The valve's opening or closing operations are achieved through the switching circuit, with outputs of resistance signals corresponding to the opening positions.



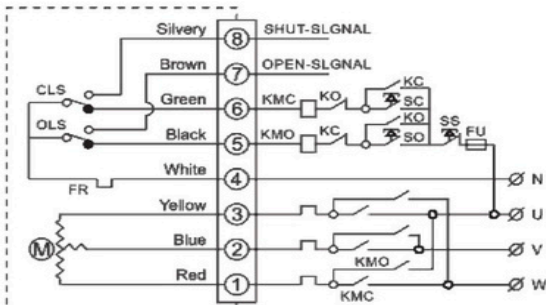
The valve's opening or closing operations are achieved through the switching circuit, with simultaneous outputs of current signals corresponding to the valve's opening/closing angles.



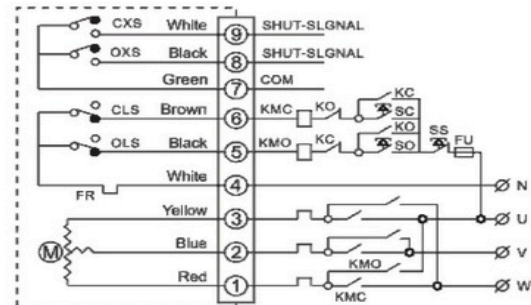
The valve's opening/closing angles are controlled by standard input signals from an external computer or industrial instrument, with synchronous feedbacks and outputs of corresponding standard signals.



The valve's "Open" and "Close" operations are achieved through positive/negative polarity switching of an external DC power supply, with simultaneous outputs of a set of passive contact signals indicating the valve's full opening or closing.



The valve's opening or closing operations are achieved through the switching circuit, with outputs of a set of active position signals indicating the valve's full opening or closing.

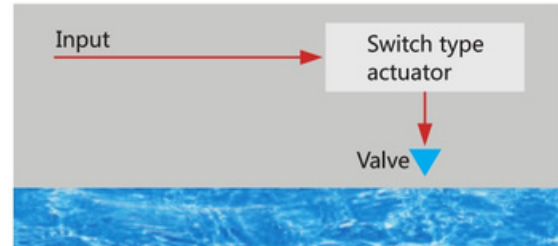


The valve's opening or closing operations are achieved through the switching circuit, with outputs of a set of passive position signals indicating the valve's full opening or closing.

## A-Type, B-Type, F-Type, G-Type and H-Type Control Circuit

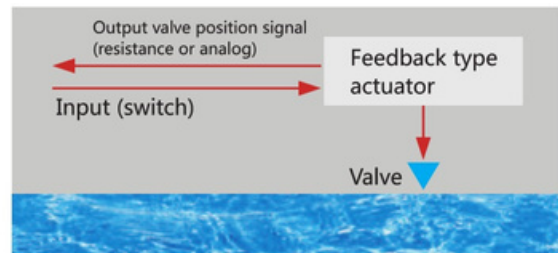
The switch type has the fully-open and fully-closed limit positions only: after receiving appropriate commands, the actuator will drive the valve to the fully-open or fully-closed position.

When using the S2 short-time working system, the continuous operation duration should not exceed 15 minutes.



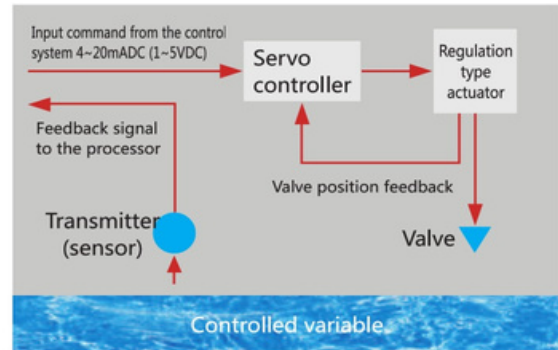
In the process of driving the valve, the actuator feeds back the valve position signals to the central control system for the whole process. Type C feeds back the resistance valve position signals while Type D the analog valve position signals.

When using the S2 short-time working system, the continuous operation duration should not exceed 15 minutes.



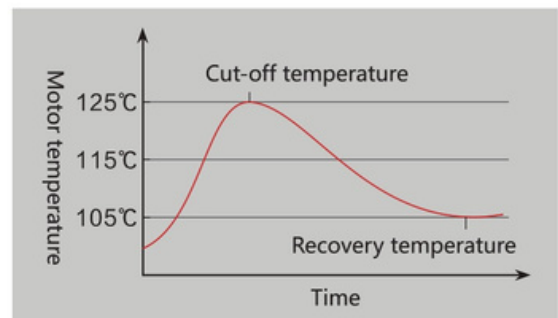
The intelligent module is inside the actuator, and drives the valve to appropriate opening positions on receiving commands from the central control system based on changes in the controlled variables (flow, pressure, temperature and liquid level) in the pipeline.

It adopts the S4 intermittent working system, with the working frequency per hour up to 1,200 times.



Due to the valve's work characteristics, the actuator is required to have a full-load starting capacity at the valve's opening, closing and any intermediate position, which requires that the actuator's motor should have a high starting torque. In addition, the motor must have a small moment of inertia as required by flow (opening) regulation. JYL series' electric actuator motor adopts a special design to meet those requirements.

When the actuator's running is blocked, the motor's temperature will rise rapidly. When the motor's temperature rises to 125°C, the PTC overheat protector embedded in the motor winding will cut off the data circuit to protect the motor and the control system. When the motor's temperature drops to 90~150°C, the circuit will be connected again.



## Configuration And Functions



Featured by its unique circuit design, fully imported industrial electronic components, intelligent signal acquisition control module centering the industrial SCM, JYL integrates signal acquisition, processing feedback and control. With an advanced hybrid integrated circuit, it boasts good stability and control precision as high as 1/1000. Compact and Easy for installation and operation

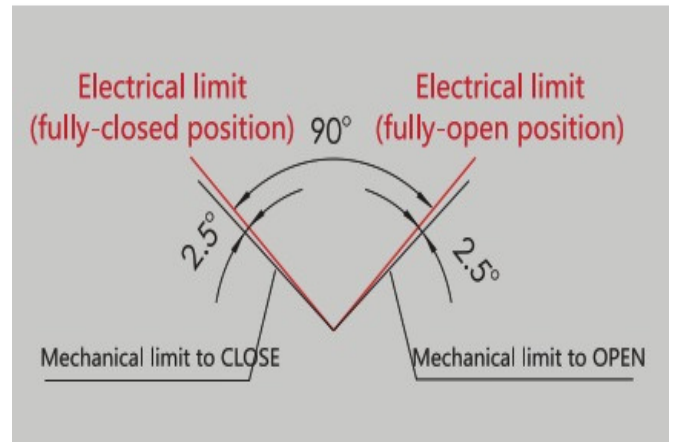


Each JYL series actuator is delivered along with a handle which can be inserted directly into the manual operation port to drive the valve in case of power failure for on-site control our unloaded to be stored separately and fixed with a dustproof rubber plug screw when the handle is not used.

Electrical travel limit function: when the actuator reaches the fully-open or fully-closed limit position, a built-in electric limit switch will cut off the circuit to protect the actuator

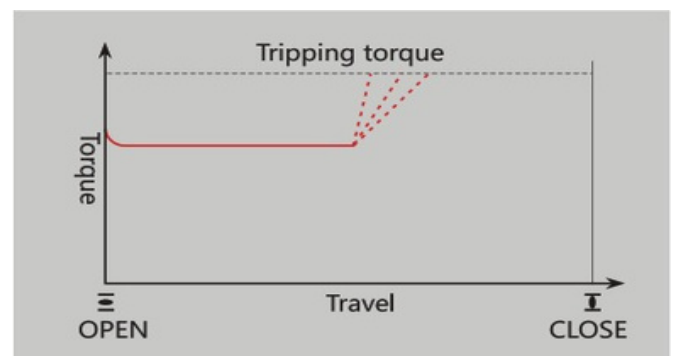
Output shaft mechanical limit function: When the electrical travel limit function fails, the actuator's output shaft will be locked by the mechanical limit device to protect the valve from being damaged

The figure shows a position relationship between electrical and mechanical limits



### Overtorque Protection Function (Optional)

When the valve is clogged during operation (intermediate position) due to debris or foreign objects in the pipeline or any other reason, the actuator's output torque will increase rapidly until it reaches the set value (tripping torque) so that the torque switch will break the circuit to protect the valve and the actuator from being damaged



### Electric Valve Selection and Configuration Table

Actuator model	Standard	Optional	Power supply	Soft seal butterfly valve	Hard seal butterfly valve	Ventilation butterfly valve	Ball valve	
	Time/torque	Time/torque		≤1.0MPa	≤1.6MPa	≤0.1MPa	≤1.6MPa	
JYL-05	30S/50N.m	10S/15N.m	AC24V AC110V AC220V AC380V DC12V DC24V DC220V	DN25~DN65	DN40	DN50~DN80	DN15~DN32	
		20S/30N.m						
JYL-10	30S/100N.m	15S/50N.m	AC24V AC110V AC220V AC380V DC12V DC24V DC220V	DN80~DN125	DN40~DN65	DN100~DN200	DN40~DN50	
		20S/60N.m						
JYL-20	30S/200N.m	9S/80N.m	AC24V AC110V AC220V AC380V DC24V DC220V	DN150~DN200	DN80~DN125	DN250~DN300	DN65~DN80	
		15S/100N.m						
		60S/200N.m						
JYL-40	30S/400N.m		AC24V AC110V AC220V AC380V DC24V DC220V	DN200~DN250	DN125~DN150	DN350~DN400	DN80~DN100	
JYL-50	30S/500N.m	9S/150N.m		AC24V AC110V AC220V AC380V DC24V DC220V	DN250~DN300	DN150~DN200	DN400~DN500	DN100~DN125
		15S/250N.m						
		20S/300N.m						
		60S/500N.m						
JYL-60	30S/600N.m			DN300	DN200	DN500~DN600	DN125	
JYL-100	50S/100N.m	15S/300N.m	AC24V AC110V AC220V AC380V	DN300~DN350	DN250	DN600~DN800	DN125~DN150	
		30S/800N.m						
JYL-200	100S/2000N.m			DN400~DN500	DN300~DN400	DN800~DN1000	DN200~DN250	

Note: The actuator-valve matching data in the table are for reference only, and the actual data are subject to the manufacturer's torque values.

Due to a great variety of valves, even the same specification and model of valves have different torque values due to differences in manufacturers' manufacturing processes, quality level, structural types and valve body materials. Also in actual use, the valve opening and closing torques always vary greatly due to the system's pressure fluctuations, medium types, site environment, operating characteristics and other factors. To ensure the actuator's stable and reliable operation, it's recommended to reserve an adequate safety factor in type selection, namely: Safety factor = Actuator Output Torque or Valve Pressure Test Torque  $\geq 1.2-1.3$  times.





Electric 3PC welding ball valve



Electric 3-way thread ball valve



Electric 3PC thread ball valve



Electric flange ball valve



Electric flange ball valve



Electric flange ball valve



Electric plastic flange ball valve



Electric plastic double by order ball valve



Electric valve controller



Electric middle butterfly valve



Electric plastic butterfly valve



Electric three eccentric hard sealing butterfly valve



Electric middle butterfly valve



Electric middle butterfly valve



Electric middle butterfly valve



Electric middle butterfly valve



Electric three eccentric hard sealing butterfly valve