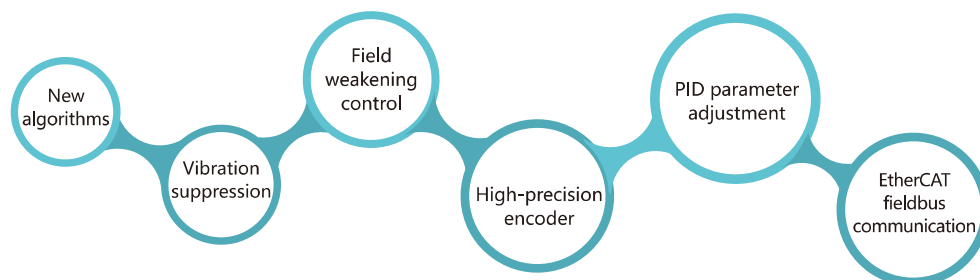


# AC Servo Driver

Simtach RS series AC servo driver, based on DSP+FPGA hardware platform, adopts a new generation of software control algorithm, and has better performance in terms of stability and high-speed response. The RS series supports 485 communication function, and the RSE series supports EtherCAT communication function, which can be applied to different application environments.



## AC servo related concepts

**Command bandwidth:** The fastest command frequency that each loop of the servo system can respond to, generally refers to the speed loop bandwidth

**Encoder type:** The accuracy of the encoder determines the speed and accuracy of the servo system to some extent; optical and magnetic, incremental and absolute types can be selected

**Communication control:** The control target is sent to the driver by means of a communication command. The driver executes the command and returns to the relevant status

**EtherCAT:** A high-speed real-time Ethernet fieldbus communication technology

**Out of tolerance alarm:** The difference between the encoder counting position and the input pulse is too big, usually due to wiring errors or system overload



## Naming of AC servo driver

RS 400 E  
1   2   3

1 Simtach AC servo driver

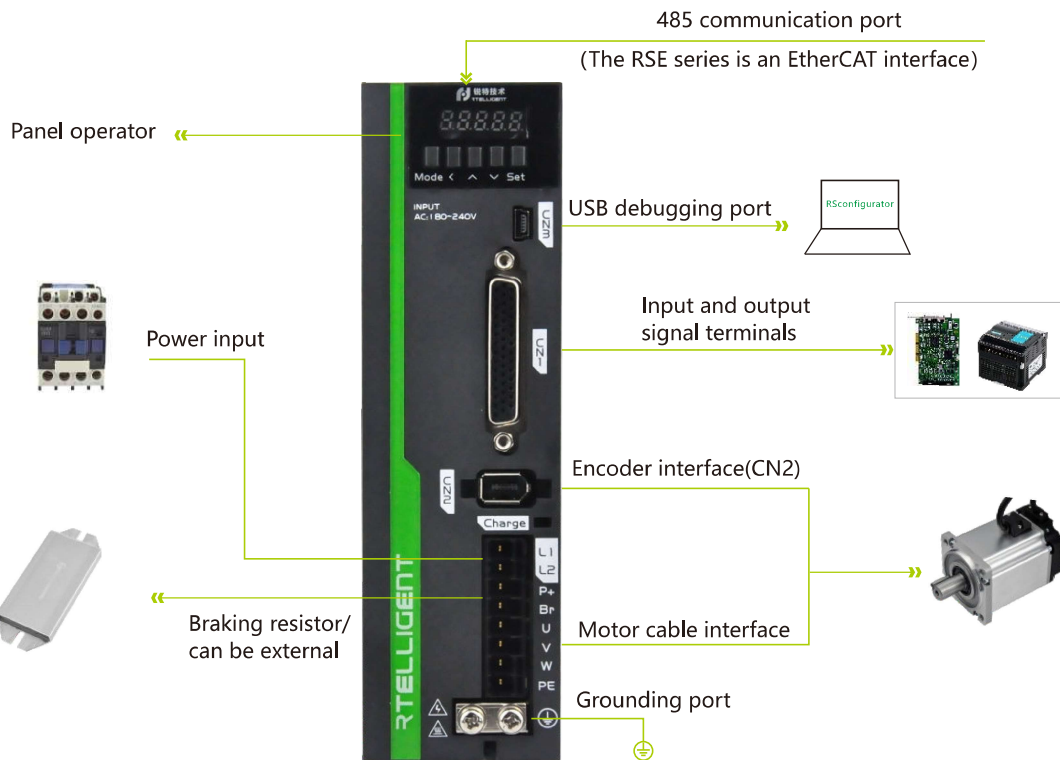
2 Output power of motor  
 400: 400W 3000: 3000W

3 FieldBus type  
 E: EtherCAT Communication

## Technical specifications

Model	Continuous current(A)	Maximum current(A)	Input power supply	Dimensions(mm)	Input and output	Matching motor(mm)
RS100	1.5	4.5	Single phase 220VAC	A: 175×157×40	2 analog 8 inputs 6 outputs	40
RS400	2.8	8.4	Single phase 220VAC	A: 175×157×40	2 analog 8 inputs 6 outputs	60
RS750	4.5	13.5	Single phase 220VAC	B: 175×157×50	2 analog 8 inputs 6 outputs	80
RS1000	6.0	18.0	Single phase 220VAC	B: 175×157×50	2 analog 8 inputs 6 outputs	80/110
RS2000	7.4	22.2	Single phase/3 phase 220VAC	C: 197×177×69	2 analog 8 inputs 6 outputs	110/130
RS3000	10.1	30.3	Single phase/3 phase 220VAC	C: 197×177×69	2 analog 8 inputs 6 outputs	130
RS100E	1.5	4.5	Single phase 220VAC	A: 175×157×40	8 inputs 6 outputs	40
RS400E	2.8	8.4	Single phase 220VAC	A: 175×157×40	8 inputs 6 outputs	60
RS750E	4.5	13.5	Single phase 220VAC	B: 175×157×50	8 inputs 6 outputs	80
RS1000E	6.0	18.0	Single phase 220VAC	B: 175×157×50	8 inputs 6 outputs	80/110
RS2000E	7.4	22.2	Single phase/3 phase 220VAC	C: 197×177×69	8 inputs 6 outputs	110/130
RS3000E	10.1	30.3	Single phase/3 phase 220VAC	C: 197×177×69	8 inputs 6 outputs	130

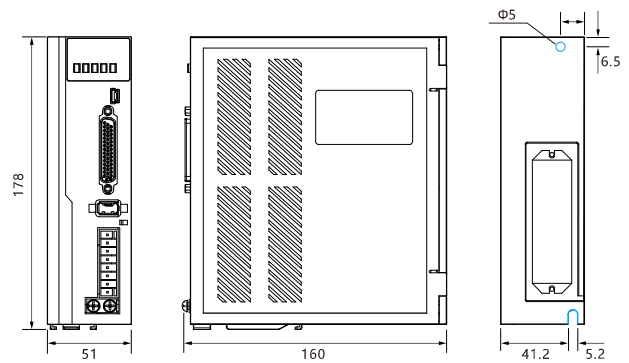
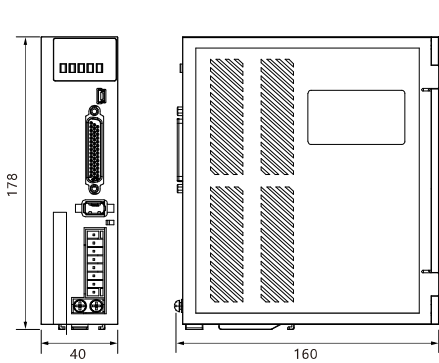
## RS series configuration schematic



## Servo driver dimension drawing

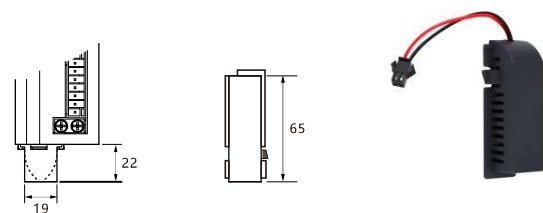
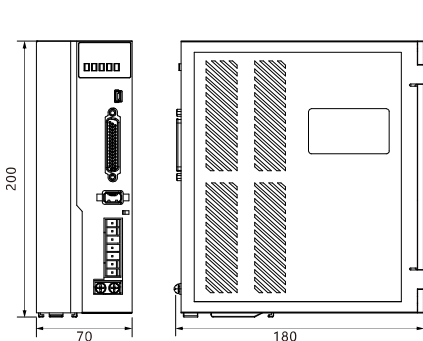
SizeA Below 400W

SizeB Below 1500W



SizeC Below 3000W

Absolute battery box dimensions



## List of standard model combinations

Motor base	Model	Rated power	Matching driver	Encoder cable	Power extension cable
40	RSM-M04J0130A	50W	RS100(E)	SES4-030	SMS-030
	RSM-M04J0330A	100W	RS100(E)	SES4-030	SMS-030
60	RSMA-M06J0630A	200W	RS200(E)	SES4-030	SMS-030
	RSMA-M06J1330A	400W	RS400(E)	SES4-030	SMS-030
80	RSMA-M08J2430A	750W	RS750(E)	SES4-030	SMS-030
	RSMA-M08J3230A	1KW	RS1000(E)	SES4-030	SMS-030
110	RSM-M11W4030A	1.2KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M11W5030A	1.5KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M11W6020A	1.2KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M11W6030A	1.8KW	RS2000(E)	SEH4-030	SMH-030
130	RSM-M13W5025A	1.3KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W6025A	1.5KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W7725A	2.0KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W10025A	2.5KW	RS3000(E)	SEH4-030	SMH-030
	RSM-M13W15015A	2.3KW	RS3000(E)	SEH4-030	SMH-030
	RSM-M13W15025A	3.8KW	RS3000(E)	SEH4-030	SMH-030

\* Driver with E is EtherCAT function

\*\* Cable is 3 meters as standard, other specifications please specify when ordering

## Servo cable list

### Naming of AC servo cables

**S** **E** **S** **4** **-030**

① ② ③ ④ ⑤

- ① Cable series  
S: 220V AC servo  
H: 380V high-voltage servo  
D: Low-voltage brushless servo
- ② Cable category  
E: Encoder cable  
M: Power extension cable
- ③ Plug category  
S: Plastic Amp Head  
H: Aviation plugs
- ④ Number of cable cores  
Power cable 4 cores can be omitted
- ⑤ Cable length  
Cable length is 3 meters

### Motor cable of 80mm and below

Motor cable SMS-030  
Color definition:

U	V	W	PE
Red	White	Black	Yellow&green

Encoder cable SES4-030



### Motor cable of 110mm/130mm

Motor cable SMH-030  
Color definition:

U	V	W	PE
Brown	Blue	Black	Yellow&green

Encoder cable SEH4-030



# RSM AC Servo Motor

Simtach RSM series AC servo motors, based on CAz optimized magnetic circuit design, use high magnetic density stator and rotor materials, and have high energy efficiency.



- Optional multiple types of encoders, including optical coding, magnetic coding, multiturn absolute value.
- The RSMA60/80 motor has an ultra-short body, saving installation space.
- Permanent magnet brake is optional, sensitive in action, suitable for Z-axis application environment.

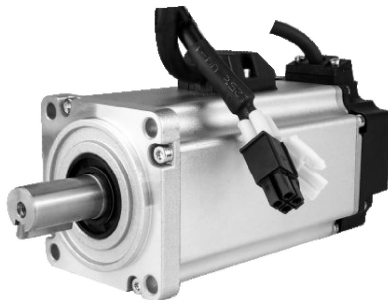
## Naming of AC servo motor

RSMA
M
06
J
13
30
A
-Z

①
②
③
④
⑤
⑥
⑦
⑧

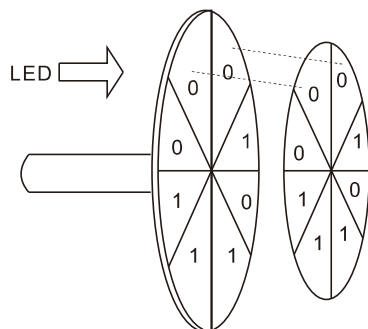
- |   |   |   |
|---|---|---|
| <p>① Simtach RSM AC servo motor A:<br/>Five pairs of poles, ultra-thin, silver<br/>None: Four pairs of poles, black</p> <p>② Motor inertia code<br/>S: Small inertia M: Medium inertia<br/>H: Large inertia</p> <p>③ Motor flange size<br/>06:60mm 13:130mm</p> | <p>④ Encoder resolution<br/>J: 17bit magnetic encoder<br/>H: 23bit optical encoder<br/>G: 17bit magnetic multiturn absolute encoder<br/>L: 23bit optical multiturn absolute encoder<br/>W:1000line optical encoder</p> <p>⑤ Motor rated torque<br/>13:1.3 Nm 150: 15 Nm</p> | <p>⑥ Motor rated speed<br/>30: 3000 rpm 15: 1500 rpm</p> <p>⑦ Is there an oil seal<br/>A: Yes B: None</p> <p>⑧ Brake code<br/>Z: With brake</p> |
|---|---|---|

## Motor with brake



- Servo motor with brake  
Suitable for Z-axis application environment,  
When the driver is powered off or alarms, the brake will be applied,  
Keep the workpiece locked and avoid free fall
- Permanent magnet brake  
Fast start and stop, low heating
- 24V DC power supply  
Can use driver brake output port control  
The output port can directly drive the relay to control the brake on and off

## Absolute encoder servo motor



- Absolute encoder servo motor  
Suitable for applications that accurately memorize the position after power failure  
The relative encoder loses position information due to power failure, causing the mechanical position to be externally affected and not at the initial position.
- Working principle  
By encoding each independent position on the encoder, the position is communicated to the driver.
- External power supply battery  
Provide working power for encoder  
Can still provide working power when the driver is powered off

# 40 Series AC Servo Motor

## General specifications

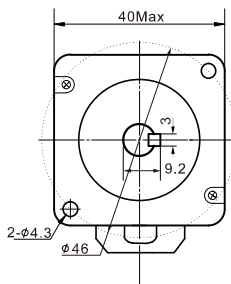
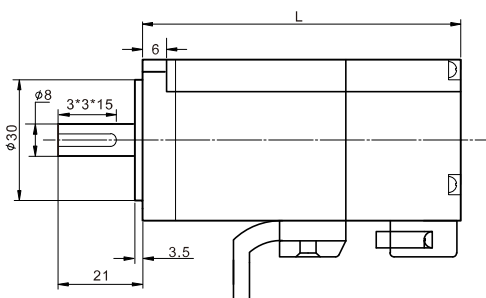
Number of pole pairs	4
Environment humidity	<90%>RH (no condensation)
Ambient temperature	-20 °C — +50 °C
Insulation class	F(155°C)
Withstand voltage	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Encoder line number	17bit magnetic encoder(23bit optical encoder, multiturn absolute encoder optional)



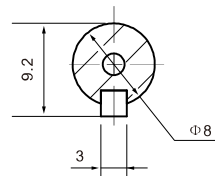
## 40 servo motor parameters

Motor model	RSM-M04J0230A	RSM-M04J0330A
Rated power (W)	50	100
Rated voltage (V)	220	220
Rated current (A)	1.2	1.1
Rated torque (N.m)	0.159	0.318
Rated speed (rpm)	3000	3000
Maximum speed (rpm)	6000	6000
Back EMF (V/1000rpm)	6.8	20.5
Torque constant (N.m/A)	0.13	0.286
Wire resistance (Ω)	5.2	14.3
D axis inductance (mH)	7.1	14.8
Q axis inductance (mH)	14.8	8.9
Rotor inertia (Kg.m <sup>2</sup> )	0.0414x10 <sup>-4</sup> Brake0.0446x10 <sup>-4</sup>	0.046x10 <sup>-4</sup> Brake0.049x10 <sup>-4</sup>
Weight (Kg)	0.30 Brake0.5	0.47 Brake0.56
Body length L (mm)	71.5 Brake111	79 Brake109

## The Size of 40 Motor(mm)



## The Size of Shaft End(mm)



# 60/80A Series AC Servo Motor

## General specifications

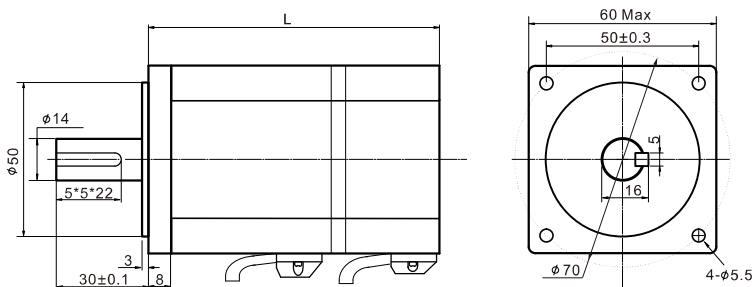
Number of pole pairs	5
Environment humidity	<90%>RH (no condensation)
Ambient temperature	-20 °C — +50 °C
Insulation class	F(155°C)
Withstand voltage	500VAC for one minut
Radial runout	0.06 Max. (450g-load)
Encoder line number	17bit magnetic encoder(23bit optical encoder, multiturn absolute encoder optional)



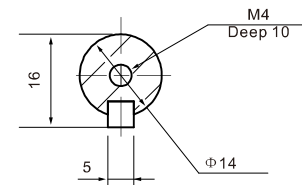
## 60/80A servo motor parameters

Motor model	RSMA-M06J0630A	RSMA-M06J1330A	RSMA-M08J2430A	RSMA-M08J3230A
Rated power (W)	200	400	750	1000
Rated voltage (V)	220	220	220	220
Rated current (A)	1.1	2.1	4.0	5.6
Rated torque (N.m)	0.64	1.27	2.39	3.2
Rated speed (rpm)	3000	3000	3000	3000
Maximum speed (rpm)	5000	5000	4500	4500
Back EMF (V/1000rpm)	26	35	36.6	35.6
Wire resistance (Ω)	10.63	7.2	1.65	1.1
Wire inductance(mH)	17.1	13.8	7.4	5.2
Rotor inertia (Kg.m <sup>2</sup> )	0.17x10 <sup>-4</sup> Brake0.19x10 <sup>-4</sup>	0.26x10 <sup>-4</sup> Brake0.30x10 <sup>-4</sup>	1.71x10 <sup>-4</sup> Brake2.26x10 <sup>-4</sup>	2.11x10 <sup>-4</sup> Brake2.76x10 <sup>-4</sup>
Weight (Kg)	0.88 Brake1.3	1.26 Brake1.7	2.4 Brake3.1	3.1 Brake3.8
Body length L (mm)	80 Brake109	98 Brake127	113 Brake144	128 Brake129

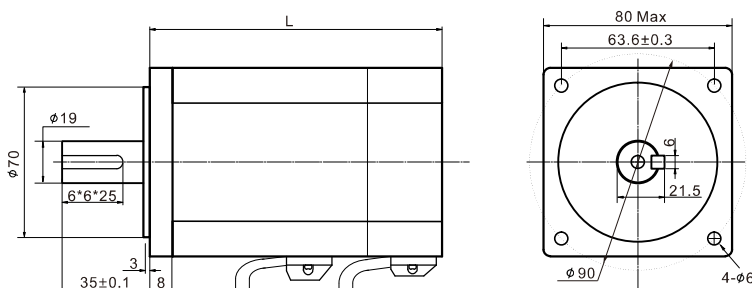
### The Size of 60 Motor(mm)



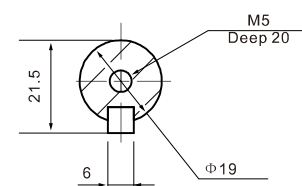
### The Size of 60 Motor Shaft End(mm)



### The Size of 80 Motor(mm)



### The Size of 80 Motor Shaft End(mm)



# 110 Series AC Servo Motor

## General specifications

Number of pole pairs	4
Environment humidity	<90%>RH (no condensation)
Ambient temperature	-20 °C — +50 °C
Insulation class	F(155°C)
Withstand voltage	500VAC for one minut
Radial runout	0.06 Max. (450g-load)
Encoder line number	10000line (17bit,23bit)



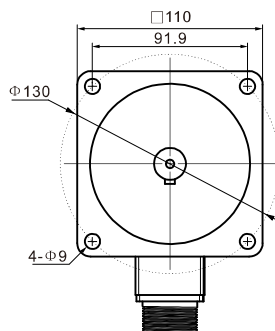
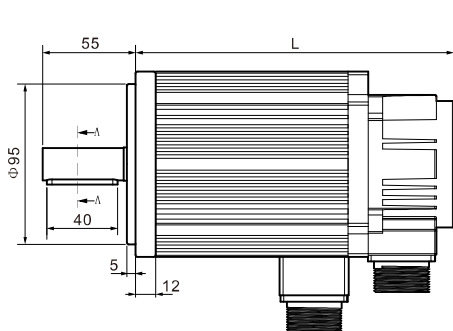
## 110 servo motor parameters

Motor model	RSM-M11W4030A	RSM-M11W5030A	RSM-M11W6020A	RSM-M11W6030A
Rated power (KW)	1.2	1.5	1.2	1.8
Rated line voltage (V)	220	220	220	220
Rated line current (A)	5.0	6.0	4.5	6.0
Rated speed (rpm)	3000	3000	2000	3000
Rated torque (N.M)	4	5	6	6
Peak torque (N.M)	12	15	18	18
Back EMF (V/1000rpm)	54	62	83	60
Torque constant (N.m/A)	0.8	0.83	1.3	1.0
Rotor inertia (Kg.m <sup>2</sup> )	0.54 X 10 <sup>-3</sup>	0.63 X 10 <sup>-3</sup>	0.76X 10 <sup>-3</sup>	0.76X 10 <sup>-3</sup>
Wire resistance (Ω)	1.09	1.03	1.46	0.81
Wire inductance (mH)	3.3	3.43	4.7	2.59
Electrical time constant (ms)	3.0	3.33	3.2	3.2
Weight (Kg)	6	6.8	7.9	7.9

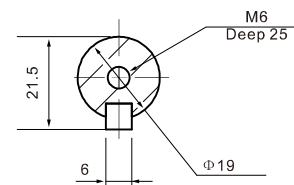
## 110 motor body length

Rated torque (N.m)	4N.m	5N.m	6N.m/2000rpm	6N.m/3000rpm
Without brake size (L)	189	204	219	219
With electromagnetic brake (L)	263	278	293	293
With permanent magnet brake (L)	245	260	275	275

## The size of 110 servo motor (mm)



## The Size of Shaft End(mm)



# 130 Series AC Servo Motor

## General specifications

Number of pole pairs	4
Environment humidity	<90%>RH (no condensation)
Ambient temperature	-20 °C — +50 °C
Insulation class	F(155°C)
Withstand voltage	500VAC for one minut
Radial runout	0.06 Max. (450g-load)
Encoder line number	10000line (17bit,23bit)



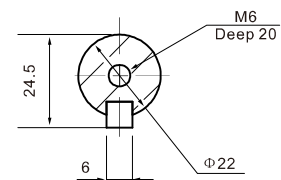
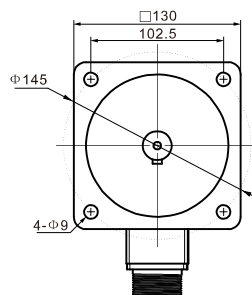
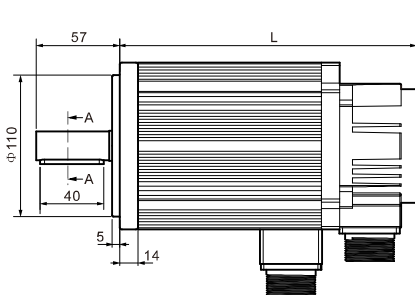
## 130 motor parameters

Motor model	RSM-M13W5025A	RSM-M13W6025A	RSM-M13W7725A	RSM-M13W10025A	RSM-M13W15015A	RSM-M13W15025A
Rated power (KW)	1.3	1.5	2.0	2.6	2.3	3.8
Rated line voltage (V)	220	220	220	220	220	220
Rated line current (A)	5.0	6.0	7.5	10	9.5	13.5
Rated speed (rpm)	2500	2500	2500	2500	1500	2500
Rated torque (N.M)	5.0	6	7.7	10	15	15
Peak torque (N.M)	15	18	22	25	30	30
Back EMF (V/1000rpm)	68	65	68	70	114	67
Torque constant (N.m/A)	1.0	1.0	1.03	1.0	1.58	1.11
Rotor inertia (Kg.m <sup>2</sup> )	1.06X10	1.26X10	1.53X10	1.94X10	2.77X10	2.77X10
Wire resistance (Ω)	1.84	1.21	1.01	0.73	1.1	0.49
Wire inductance (mH)	4.9	3.87	2.94	2.45	4.45	1.68
Electrical time constant (ms)	2.66	3.26	3.8	3.36	4.05	3.43
Weight (Kg)	6.6	7.4	8.3	9.8	12.6	11.7

## 130 motor body length

Rated torque (N.m)	5N.m	6N.m	7.7N.m	10N.m			15N.m	
				1000rpm	1500rpm	2500rpm	1500rpm	2500rpm
Without brake size (L)	171	179	192	213	209	241	231	
With electromagnetic brake (L)	228	236	249	294	290	322	312	
With permanent magnet brake (L)	241	249	262	283	279	311	301	

## 130 servo motor size(mm)



## The Size of Shaft End(mm)