The user manual describes all items concerning the operations of this AC servo motor in detail as much as possible. However, it's impractical to give particular descriptions for all unnecessary and/or unavailable operations on the motor due to the limit of the manual, specific operations of the product and other causes. Therefore, the operations not specified in this manual may be considered impossible or unallowable.

Dear user,

It's our pleasure for your patronage and purchase of this GSK GSK SJT series AC Servo Motor(hereinafter called "motor") made by GSK CNC Equipment Co., Ltd.

Company profile

GSK——GSK CNC Equipment Co,. Ltd is the largest production and marketing enterprise of the CNC system in China currently. It is the Numerical Control industrial base of South China, and the undertaking enterprise of the 863 national main project Industrialization Support Technology for Medium Numerical Control System as well as one of the 20 basic equipment manufacture enterprises in Guangdong province. It has been taking up the research and development, design and the manufacture of machine CNC system (CNC device, drive unit and servo motor) in recent 10 years. Now it has developed into a large high-tech enterprise integrated with research, education, industry and trade by enhancing the popularization and trade of CNC machine tools. There are more than 1400 staffs in this company that involves 4 doctors, more than 50 graduate students and 500 engineers and more than 50 among them are qualified with senior technical post titles. The high performance-cost ratio products of GSK are popularized in China and Southeast Asia. And the market occupation of GSK's product dominates first and the turnout and sale ranks the top in internal industry for successive 7 years from the year 2000 to 2006, which makes it the largest CNC manufacture base throughout China.

The main products provided by our company includes the NC equipments and devices such as GSK series turning machine, milling machine, machining center CNC system, DA98, DA98A, DA98B, DA98D series full digital stepper motor drive device, DY3 series compound stepper driver device, DF3 series response stepper motor driver device, GSK SJT series AC servo motors, CT-L NC slider and so on. The current national standard (and international standard), industry standard, as well as the enterprise standard (or enterprise internal standard) as a supplementary, are completely implemented in our production process. The capability of abundant technology development and complete production and quality system qualified by us will undoubtedly ensure the reliable product to serve our customers. 24~48 hours technological support and service can be

easily and promptly provided by our complete service mechanism and tens of service offices distributed in provinces around China and abroad. The pursuit of “excellent product and superexcellent service” has made the GSK what it is now, and we will spare no efforts to continue to consummate this South China NC industry base and enhance our national NC industry by our managerial concept of “century enterprise, golden brand”.

Technological Spot Service

You can ask for spot service if you have the problems that can’t be solved by telephone. We will send the engineers authorized to your place to resolve the technological problems for you.

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Warning and Precaution

⚠ **Accident may occur by improper connection and operation!**
⚠ **Please carefully read this manual before usage.**

1. There is photoelectric encoder inside the motor, the motor must not be hammered when it is installed; the photoelectric encoder must not be demounted and installed by user independently, otherwise the corresponding position (zero) of wind between the encoder and motor is damaged to cause that the motor cannot run. The motor will not run for the relative position(zero) changing of the encoder to the motor windings!
2. Under the normal environment, the insulated resistance of motor wind to shell measured by 500V Ohmmeter should be less than 20 MΩ.
3. The wirings of motor and driver must be properly connected, which are described in the manual and which can ensure the grounding is safe and fastened.
4. The motor can run with load after there is no noise and vibration when it runs without load from zero to max. speed.
5. Don't touch the shaft and shell of the motor which is running.
6. The motor can be debugged and maintained only by the qualified personnel.
7. Do not move the motor by dragging its wires (cables) or shaft.
8. We take no responsible for the motor changed by user and the warranty for the motor will be void for the changing.

1. Product characteristics

This sinusoidal AC magnetic synchronous servo motor, developed and manufactured independently by GSK CNC Equipment Co,. Ltd., is employed with high quality rare earth magnetic material, it has the characteristics of the high torque inertia ratio, low speed performance, strong overload capability and so on.

2. Working Environment

2.1 The altitude should be less than 1000m.

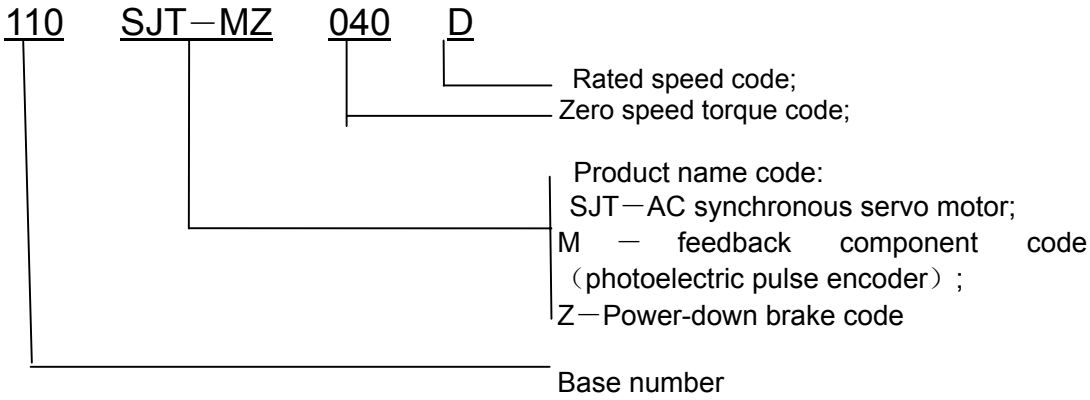
2.2 The environment temperature should be within -10℃ ~ +40℃.

2.3 The relative humidity should be less than 90%（no condensing）.

2.4 AC steady voltage: （1-15% ~1+10%）× AC rated voltage.

3. Motor Model

Sample:110SJT－MZ040D



- See the corresponding speed value in Table 1 for the rated speed code.

Table 1

Rated speed code	A	B	C	D	E
Speed value (r/min)	1000	1500	2000	2500	3000

- The torque is represented by a 3 digits and its value is 3 digits×0.1; unit: Nm.
- Power-down brake: “Z” code is remarked when the motor is with the power-down brake. The working power of power-down brake is 24VDC（-10% ~ +10 %）, 1A, and its interface is 3-core socket, the 3rd pin is the grounding (shell) terminal, the 1st and 2nd are the power terminals (no poles). If 24VDC power is connected to the 1st and 2nd pin of the 3-core socket, the brake is disabled; if the power is switched off, the brake is enabled and the time is less than 0.1s.

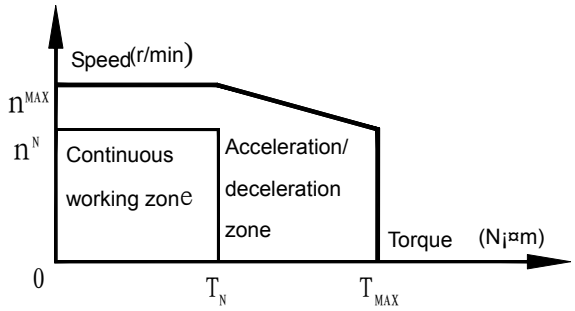
4. Main technical parameters

The main technical parameters are listed in Table 2

Table 2

Specification / Item	110SJT—M040D	110SJT—M060D	130SJT—M040D	130SJT—M050D
Rated power（kW）	1.0	1.5	1.0	1.3
Polar	4	4	4	4
Input voltage of driver（V）	AC220 3-phase（or single pahse）	AC220 3-phase	AC2203-phase	AC2203-phase
Rated current （A）	4.5	7	4	5
Zero speed torque（N·m）	4	6	4	5
Rated torque（N·m）	4	6	4	5
Max. torque（N·m）	12	12	10	12.5
Rated speed（r/min）	2500	2500	2500	2500
Max. speed （r/min）	3000	3000	3000	3000
Rotational inertia（$kg·m^2$）	$0.68×10^{-3}$	$0.95×10^{-3}$	$1.1×10^{-3}$	$1.1×10^{-3}$
Specification / Item	130SJT—M060D	130SJT—M075D	130SJT—M100B	130SJT—M100D
Rated power（kW）	1.5	1.88	1.5	2.5
Polar	4	4	4	4
Input voltage of driver（V）	AC220 3-phase	AC220 3-phase	AC220 3-phase	AC220 3-phase
Rated current （A）	6	7.5	6	10
Zero speed torque（N·m）	6	7.5	10	10
Rated torque（N·m）	6	7.5	10	10
Max. torque（N·m）	18	20	25	25
Rated speed（r/min）	2500	2500	1500	2500
Max. speed （r/min）	3000	3000	2000	3000
Rotational inertia（$kg·m^2$）	$1.33×10^{-3}$	$1.85×10^{-3}$	$2.42×10^{-3}$	$2.42×10^{-3}$
Specification / Item	130SJT—M150B	130SJT—M150D	175SJT—M220D	175SJT—M300D
Rated power（kW）	2.3	3.9	4.5	6
Polar	4	4	3	3
Input voltage of driver（V）	AC220 3-phase	AC220 3-phase	AC220 3-phase	AC220 3-phase
Rated current （A）	8.5	14.5	18	26
Zero speed torque（N·m）	15	15	22	30
Rated torque（N·m）	15	15	17.6	24
Max. torque（N·m）	30	30	44	60
Rated speed（r/min）	1500	2500	2500	2500
Max. speed （r/min）	2000	3000	3000	3000
Rotational inertia（$kg·m^2$）	$3.1×10^{-3}$	$3.6×10^{-3}$	$9.0×10^{-3}$	$11.2×10^{-3}$

5. Mechanical Characteristic Curve



T_N ——— Rated torque; T_{MAX} ——— Max. torque;
n_N ——— Rated speed; n_{MAX} ——— Max. speed;

6. Motor Contour and Installation Dimension

6.1 See Fig.1 and Table 3 about the installation dimensions of 110SJT

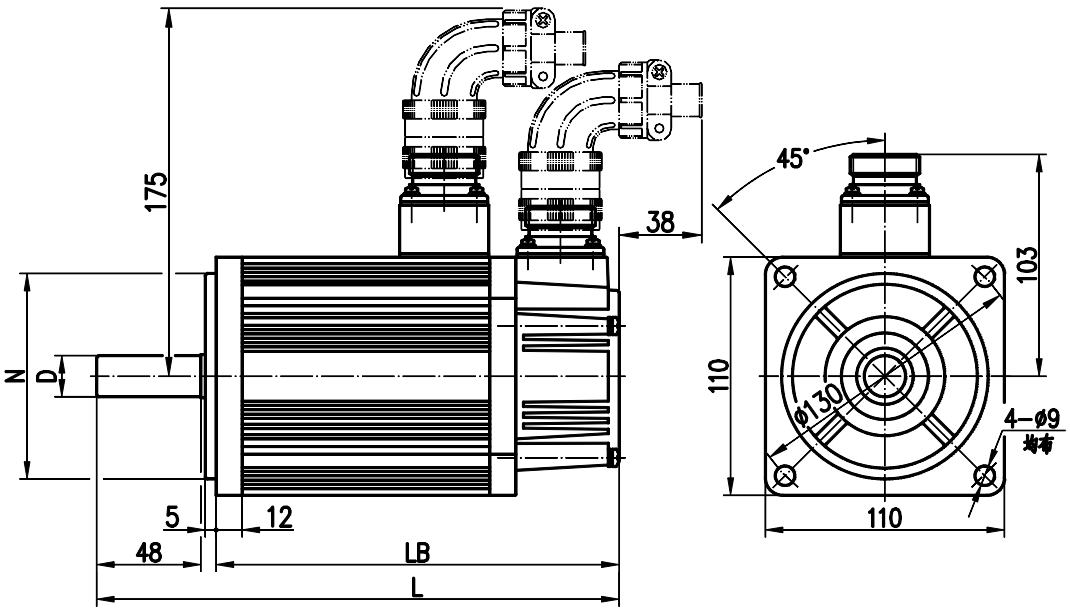


Fig. 1

Table 3

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
110SJT—M040D	$\varphi 19^{0}_{-0.013}$	$\varphi 95^{0}_{-0.035}$	186 (237)	241 (292)
110SJT—M060D	$\varphi 19^{0}_{-0.013}$	$\varphi 95^{0}_{-0.035}$	212 (263)	267 (318)
Note: The LB, L values in the brackets are lengths of the corresponding motors with power-down brake.				

6.2 See Fig.2 and Table 4 about the installation dimensions of 130SJT

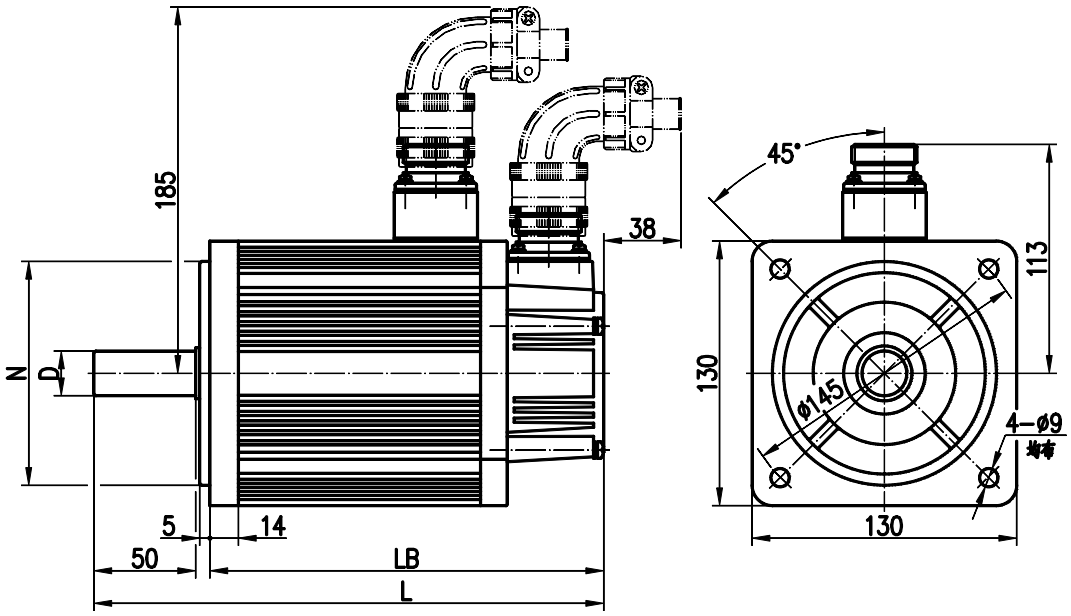


Fig. 2

Table 4

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
130SJT—M040D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	168 (227)	225 (284)
130SJT—M050D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	168 (227)	225 (284)
130SJT—M060D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	176 (235)	233 (292)
130SJT—M075D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	188 (247)	245 (304)
130SJT—M100B	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	208 (267)	265 (324)
130SJT—M100D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	208 (267)	265 (324)
130SJT—M150B	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	238 (297)	295 (354)
130SJT—M150D	$\varphi 22^{0}_{-0.013}$	$\varphi 110^{0}_{-0.035}$	248 (307)	305 (364)
Note: The LB, L values in the brackets are lengths of the corresponding motors with power-down brake.				

6.3 See Fig.3 and Table 5 about the installation dimensions of 175SJT

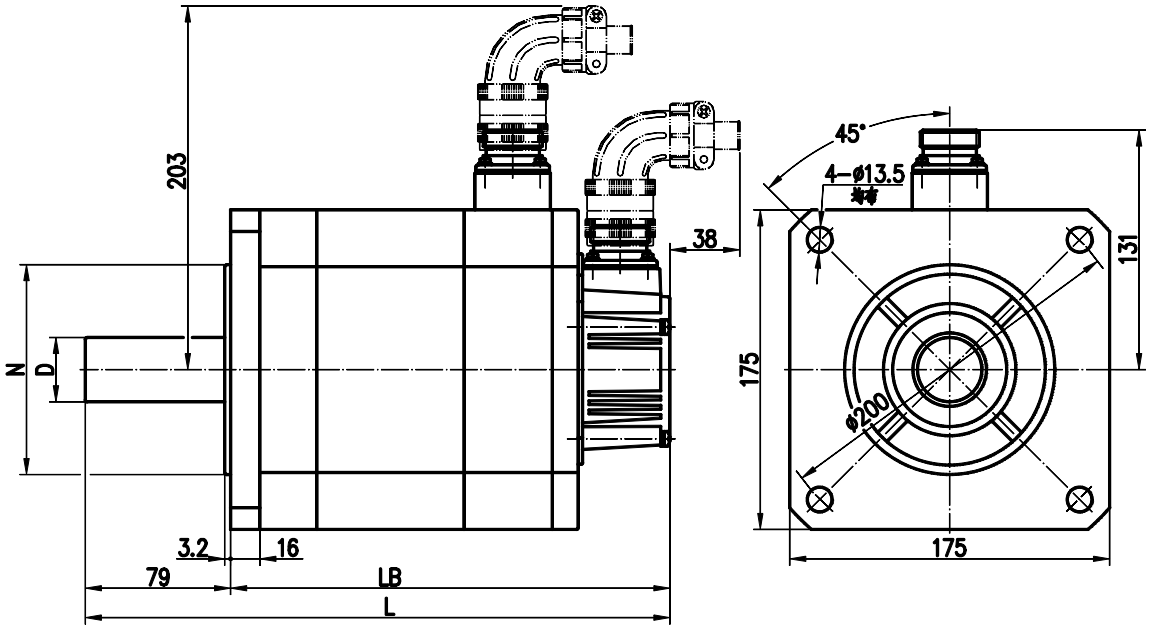


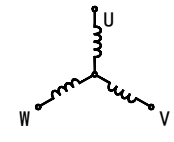
Fig. 3

Table 5

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
175SJT—M220D	$\varphi 35_{0}^{+0.01}$	$\varphi 114.3_{5}^{0}{}_{-0.02}$	279 (352)	358 (431)
175SJT—M300D	$\varphi 35_{0}^{+0.01}$	$\varphi 114.3_{5}^{0}{}_{-0.02}$	309 (382)	388 (461)
Note: The LB, L values in the brackets are lengths of the corresponding motors with power-down brake.				

7. Motor connecting with driver

7.1 The 3-phase windings U, V, W of the motor and the shell (grounding) are led out by a 4-core socket connector and the correspondence table is as Fig.6: U, V, W and the shell of the motor are connected with the circuit U, V, W, PE terminals of the driver respectively.



Motor winding

Table 6

Motor lead wire	U	V	W	shell （grounding）
Socket No.	2	3	4	1

Socket（welded wire side

7.2 The photoelectric encoder lead wires are led out by a 15-core connector shown in table 6. The

leading wires are connected with the plug of driver feedback signal CN2.

Table 7

Encoder lead wire	shell （grounding）		V_{CC}	GND	A	$\overline{A}$	B	$\overline{B}$
Socket No.	1		2	3	4	7	5	8
Encoder lead wire	Z	$\overline{Z}$	U	$\overline{U}$	V	$\overline{V}$	W	$\overline{W}$
Socket No.	6	9	10	13	11	14	12	15

Socket（welded wire side）

8. Motor storage

The motor should be stored in a clean and well ventilated place within -40℃~ +55℃ with the relative humidity less than 95% and without corrosive in air.

9. Motor transportation

Handle the motor with care in transportation to prevent the collision and impact from the motor and from the corrosive materials such as acid and alkaline.

10. Motor protection

10.1 The motor structure is protected by the IP65 degree in Chinese standard GB4208—1993 *SHELL PROTECTION DEGREE (IP CODE)*, it can prevent the personnel from touching the motor internal dangerous parts and external interferences to the motor, and ensure the motor running. As to the liquids such as cutting fluid, lubricant with strong penetration feature, if motor touches these materials for a long time, it may run abnormally and the motor life may be decreased. Therefore, proper protection should be made in motor mounting to prevent the motor from contacting those liquids, and don't soak the motor in the liquids (see Fig.4).

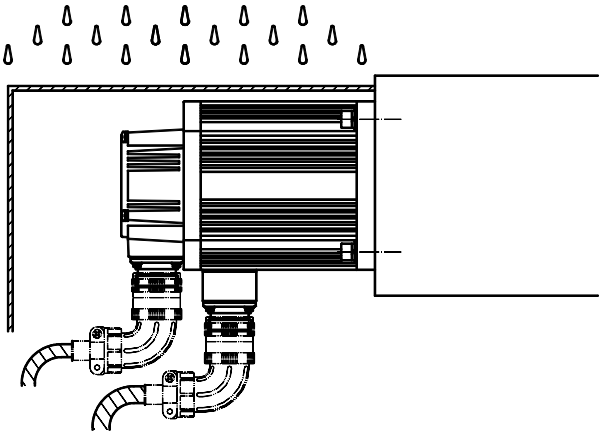
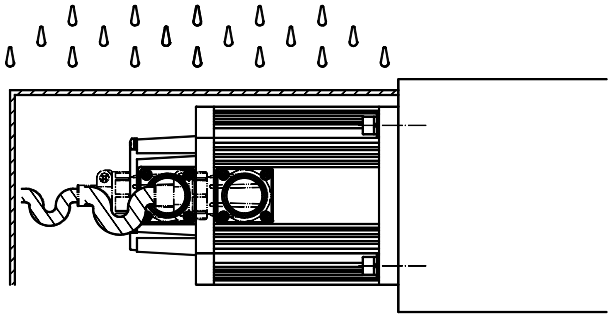


Fig. 4

10.2 If the motor cables are not properly distributed, some liquids like cutting fluid etc. may go along the cables and gathered on the socket connectors that may cause fault to the motor. So make the motor connector side downward as possible in mounting (see Fig.4).

10.3 If the motor connector side faces horizontal direction, the cable should be bent for streamline semi-circle before connecting with the socket connector (see Fig.5).

Fig. 5



10.4 Some protection measures should be taken if the motor socket connector side must face upward by the machine structure requirement (see Fig.6).

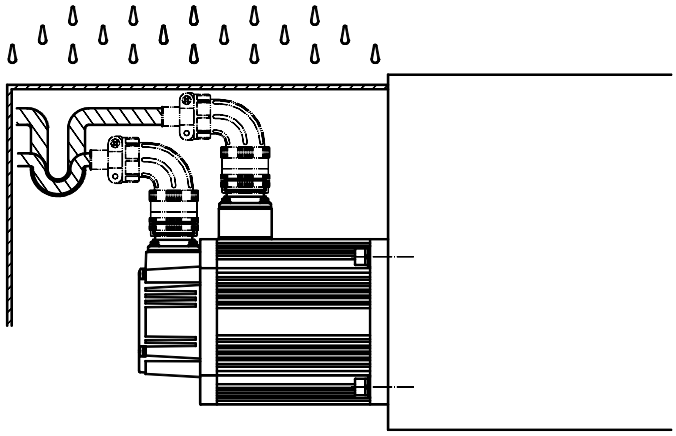


Fig. 6

11. Quality guarantee

We are responsible for the free reparation for the motor that can't run or damaged because of the inferior quality within 18 months after delivery date (by delivery credence) on the condition that the transportation, storage, installation, debugging, maintenance regulations for the motor usage are properly observed by user.

Order

- The motor listed in this manual are the recommended models that are applicable to most situations. Other models can be supplied by your special requirement.

- The shaft protrusion of the motor made by us is the column type without the keyway. Motors with different shaft protrusions are supplied by your requirement (marking in your order):
  Column shaft protrusion with keyway (refer to GB/ T 756-1990).
  Taper shaft protrusion (refer to GB/ T 757-1993).

  Some column shaft protrusion and taper shaft protrusion motors have been made by the special requirement of some clients. If you have some requirement for them, please ask for

some technical materials for your order reference from our sales department.

All specifications and design are subject to change without further notice.

Sincere thanks for your friendly patronage for the products made by GSK CNC Equipment Co,. Ltd.