


✦ 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.

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Dear user,

It's our pleasure for your patronage and purchase of this 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”.

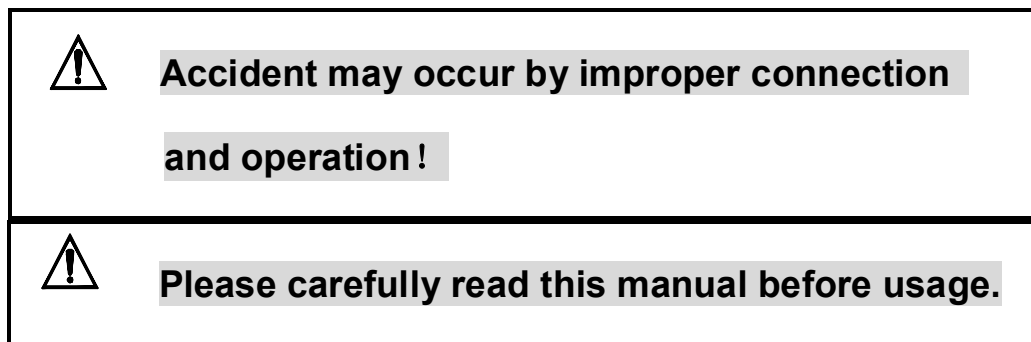
Technological Spot Service

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



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.

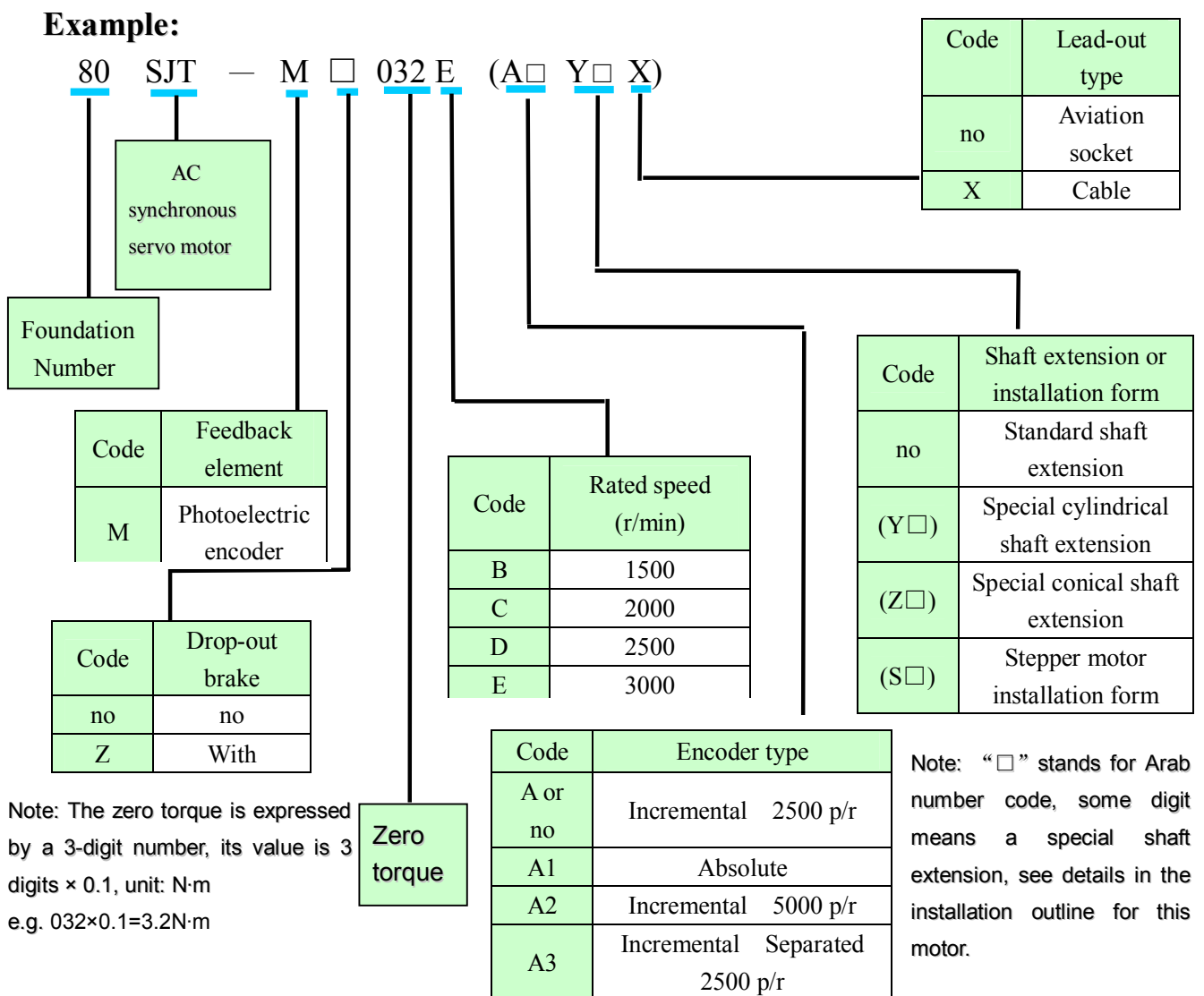
1. Product characteristics

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 $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$.
- 2.3 The relative humidity should be less than 90% (no condensing) .
- 2.4 AC steady voltage: $(1-15\% \sim 1+10\%) \times \text{AC rated voltage}$.

3. Motor Model



4. Main technical parameters

80SJT Series Motor Technical parameters(table1)

Table 1

Type Item	80SJT-M 024C	80SJT-M 024E	80SJT-M 032C	80SJT-M 032E
Rated power (kW)	0.5	0.75	0.66	1.0
Pole pairs	4			
Drive unit input voltage (V)	AC220 3-phase (or single)			AC220 3-phase
Rated current (A)	3	4.8	5	6.2
Zero torque (N·m)	2.4	2.4	3.2	3.2
Rated torque (N·m)	2.4	2.4	3.2	3.2
Max. torque (N·m)	7.2	7.2	9.6	9.6
Rated speed (r/min)	2000	3000	2000	3000
Max. speed (r/min)	2500	4000	2500	4000
Moment inertia (kg·m ²)	0.83×10 ⁻⁴	0.83×10 ⁻⁴	1.23×10 ⁻⁴	1.23×10 ⁻⁴
Weight (kg)	2.8	2.9	3.4	3.5
Insulation degree	F			
Vibration degree	R			
Protection degree	IP65			
Installation type	Flange			
Working mode	Continuous			
Imbedded encoder	Incremental 2500 p/r			
Brake	NO			

110SJT Series and 130SJT Series Motor Technical parameters(table 2)

Table 2

Type Item	110SJT-M 040D	110SJT-M 060D	130SJT-M 040D	130SJT-M 050D	130SJT-M 060D
Rated power (kW)	1.0	1.5	1.0	1.3	1.5

Pole pairs	4				
Drive unit input voltage (V)	AC220 3-phase (or single)	AC220 3-phase			
Rated current (A)	4.5	7	4	5	6
Zero torque (N·m)	4	6	4	5	6
Rated torque (N·m)	4	6	4	5	6
Max. torque (N·m)	12	12	10	12.5	18
Rated speed (r/min)	2500	2500	2500	2500	2500
Max. speed (r/min)	3000	3000	3000	3000	3000
Moment inertia (kg·m ²)	0.68×10 ⁻³	0.95×10 ⁻³	1.1×10 ⁻³	1.1×10 ⁻³	1.33×10 ⁻³
Weight (kg)	6.1	7.9	6.5	6.5	7.2
Insulation degree	F				
Vibration degree	R				
Protection degree	IP65				
Installation type	Flange				
Working mode	Continuous				
Imbedded encoder	Incremental 2500 p/r				
Brake	DC24V、4 N·m, 1.6kg is added to the corresponding motor		DC24V、12N·m, 2.9kg is added to the corresponding motor		

130SJT Series Motor Technical parameters(table3)

Table3

Type Item	130SJT-M 075D	130SJT-M 100B	130SJT-M 100D	130SJT-M 150B	130SJT-M 150D
Rated power (kW)	1.88	1.5	2.5	2.3	3.9
Pole pairs	4				
Drive unit input voltage (V)	AC220 3-phase				
Rated current (A)	7.5	6	10	8.5	14.5
Zero torque (N·m)	7.5	10	10	15	15

Rated torque (N·m)	7.5	10	10	15	15
Max. torque (N·m)	20	25	25	30	30
Rated speed (r/min)	2500	1500	2500	1500	2500
Max. speed (r/min)	3000	2000	3000	2000	3000
Moment inertia (kg·m ²)	1.85×10 ⁻³	2.42×10 ⁻³	2.42×10 ⁻³	3.1×10 ⁻³	3.6×10 ⁻³
Weight (kg)	8.1	9.6	9.7	11.9	12.7
Insulation degree	F				
Vibration degree	R				
Protection degree	IP65				
Installation type	Flange				
Working mode	Continuous				
Imbedded encoder	Incremental 2500 p/r				
Brake	DC24V、12N·m, 2.9kg is added to the corresponding motor				

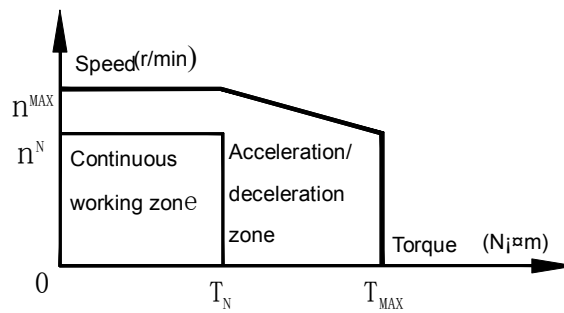
175SJT Series Motor Technical parameters(table4)

Table4

Type Item	175SJT-M180B	175SJT-M180D	175SJT-M220B	175SJT-M220D	175SJT-M300B	175SJT-M 300D
Rated power (kW)	2.8	3.8	3.5	4.5	3.8	6
Pole pairs	3					
Drive unit input voltage (V)	AC220 3-phase					
Rated current (A)	15	16.5	17.5	19	19	27.5
Zero torque (N·m)	18	18	22	22	30	30
Rated torque (N·m)	18	14.5	22	17.6	24	24
Max. torque (N·m)	36	29	44	35.2	48	48
Rated speed (r/min)	1500	2500	1500	2500	1500	2500
Max. speed (r/min)	2000	3000	2000	3000	2000	3000
Moment inertia (kg·m ²)	6.5×10 ⁻³	6.5×10 ⁻³	9.0×10 ⁻³	9.0×10 ⁻³	11.2×10 ⁻³	11.2×10 ⁻³
Weight	22.8	22.9	28.9	29.2	34.3	34.4

(kg)						
Insulation degree	F					
Vibration degree	R					
Protection degree	IP65					
Installation type	Flange					
Working mode	Continuous					
Imbedded encoder	Incremental 2500 p/r					
Brake	DC24V、32N·m, 7.7kg is added to the corresponding motor					

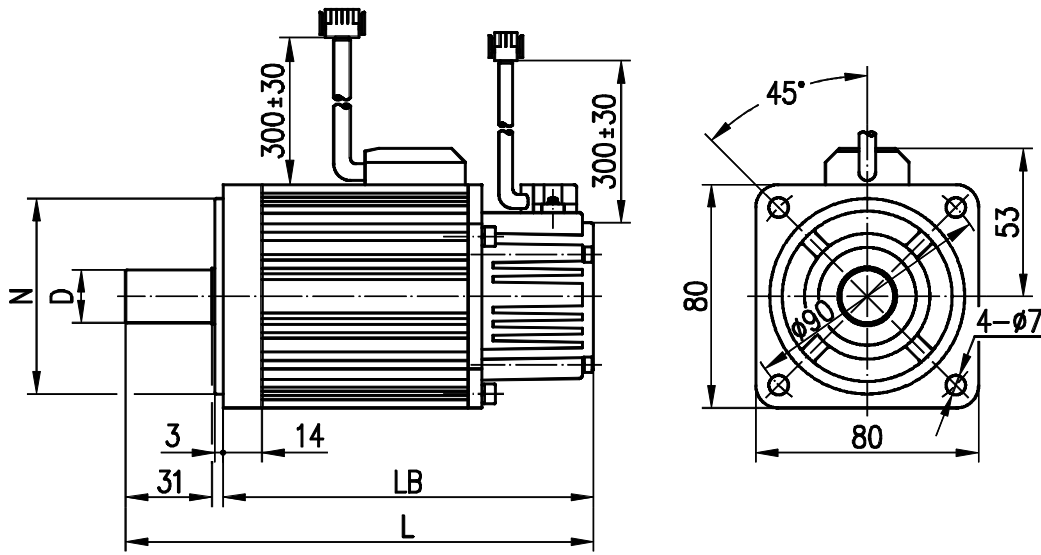
5. Mechanical Characteristic Curve



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 about the installation dimensions of 80SJT
Aviation socket:



Cable socket:

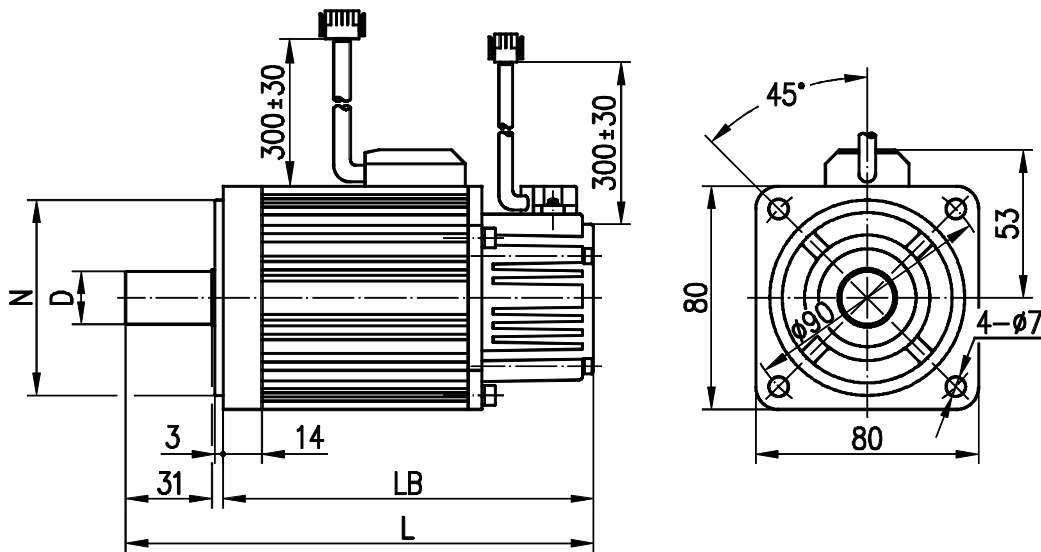


Fig1

Type	D(mm)	N(mm)	LB(mm)	L(mm)
80SJT-M024C	$\varphi 19^{0}_{-0.013}$	$\varphi 70^{0}_{-0.03}$	163	198
80SJT-M024E	$\varphi 19^{0}_{-0.013}$	$\varphi 70^{0}_{-0.03}$	163	198
80SJT-M032C	$\varphi 19^{0}_{-0.013}$	$\varphi 70^{0}_{-0.03}$	181	216
80SJT-M032E	$\varphi 19^{0}_{-0.013}$	$\varphi 70^{0}_{-0.03}$	181	216

6.2 See Fig.2 about the installation dimensions of 110SJT

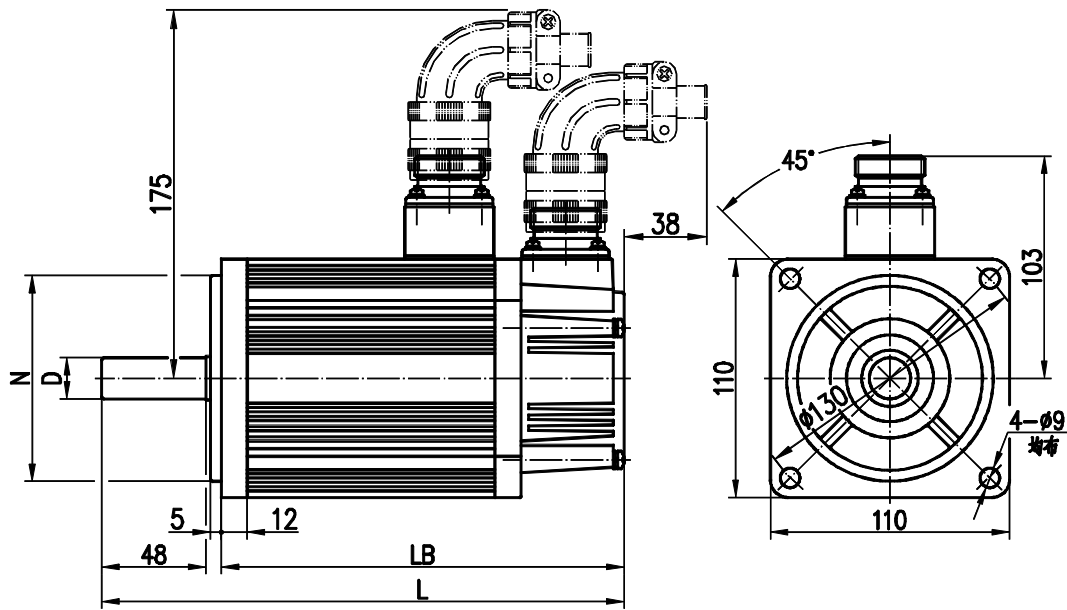


Fig.2

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
110SJT-M040D	$\phi 19_{-0.013}^0$	$\phi 95_{-0.035}^0$	186 (237)	241 (292)
110SJT-M060D	$\phi 19_{-0.013}^0$	$\phi 95_{-0.035}^0$	212 (263)	267 (318)

Note: The LB, L values in the brackets are lengths of the corresponding motors with power-down brake.

6.3 See Fig.3 about the installation dimensions of 130SJT

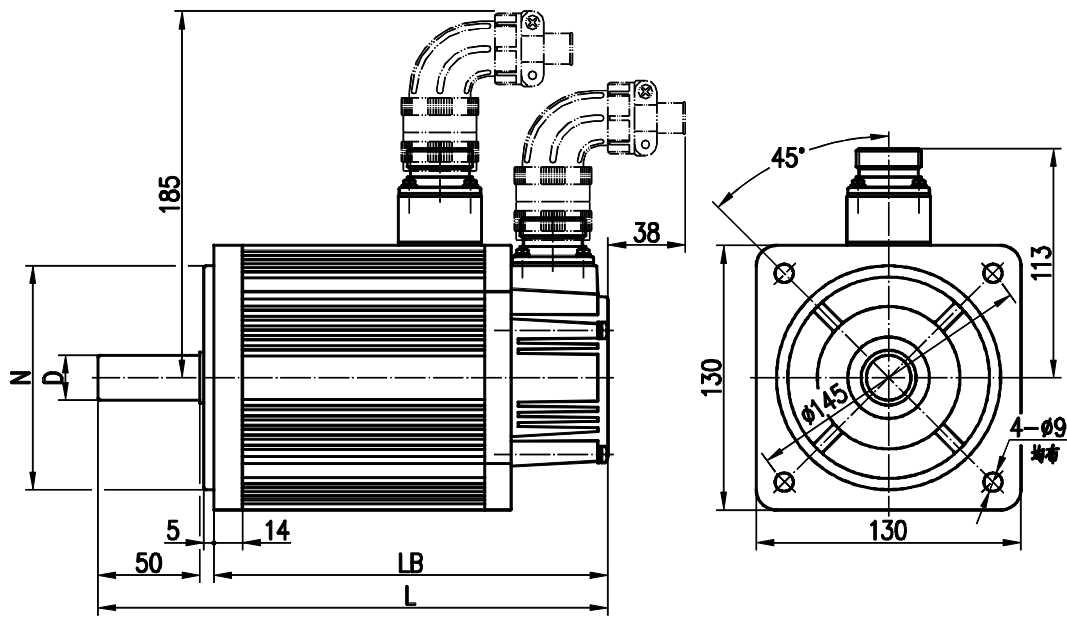


Fig. 3

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
130SJT-M040D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	168 (227)	225 (284)
130SJT-M050D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	168 (227)	225 (284)
130SJT-M060D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	176 (235)	233 (292)
130SJT-M075D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	188 (247)	245 (304)
130SJT-M100B	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	208 (267)	265 (324)
130SJT-M100D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	208 (267)	265 (324)
130SJT-M150B	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	238 (297)	295 (354)
130SJT-M150D	$\phi 22^{0}_{-0.013}$	$\phi 110^{0}_{-0.035}$	248 (307)	305 (364)

Note: The LB, L values in the brackets are lengths of the corresponding motors with power-down brake.

6.4 See Fig.4 about the installation dimensions of 175SJT

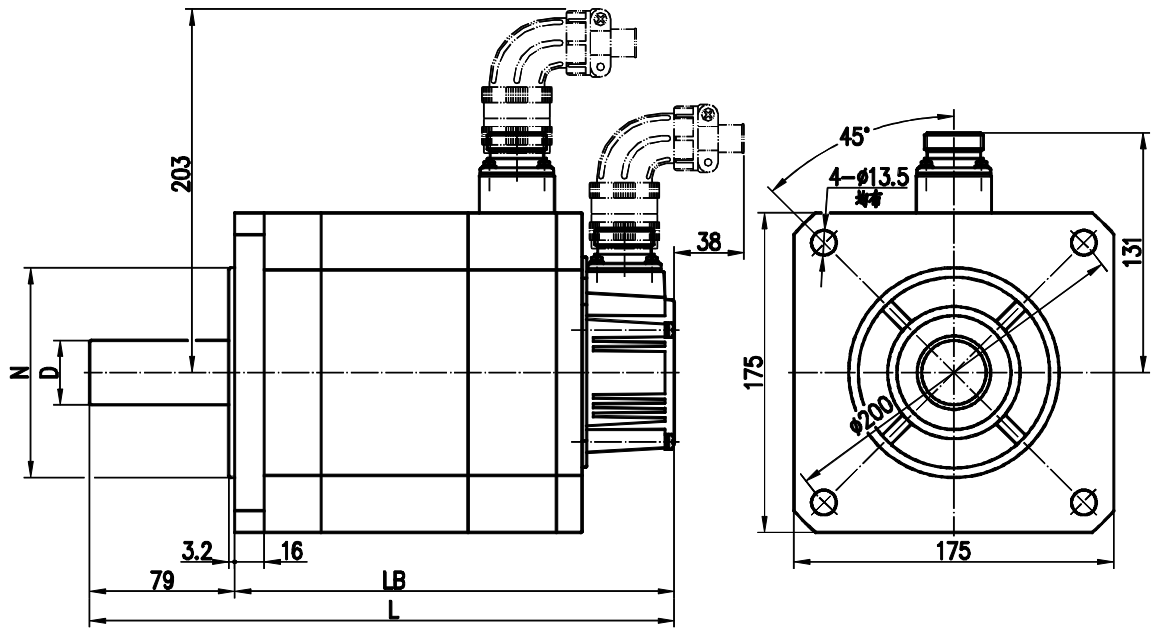


Fig. 4

Specification	D(mm)	N(mm)	LB(mm)	L(mm)
175SJT-M220D	$\phi 35_{0}^{+0.01}$	$\phi 114.3_{-0.025}^0$	279 (352)	358 (431)
175SJT-M300D	$\phi 35_{0}^{+0.01}$	$\phi 114.3_{-0.025}^0$	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.

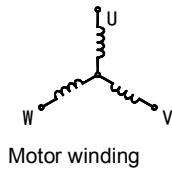
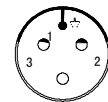


Table 5

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

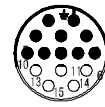


Socket (welded wire side)

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 6

Encoder lead wire	shell (grounding)		V_{CC}	GND	A	\bar{A}	B	\bar{B}
Socket No.	1		2	3	4	7	5	8
Encoder lead wire	Z	\bar{Z}	U	\bar{U}	V	\bar{V}	W	\bar{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 $-40^{\circ}\text{C} \sim +55^{\circ}\text{C}$ 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).

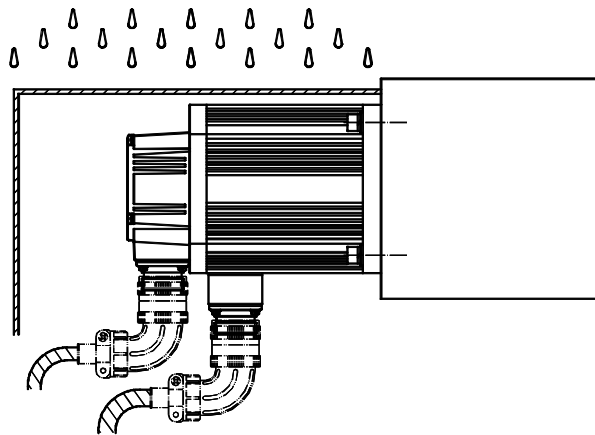
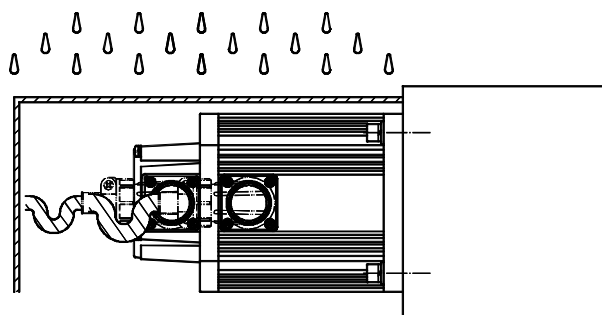


Fig. 5

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. 6



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).

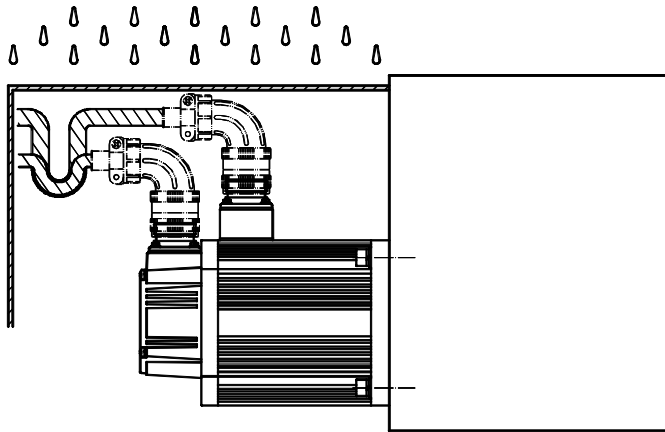


Fig. 7

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.