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SLEWING DRIVE MANUAL

Jiangyin Sunslew Machinery Equipment Co.,Ltd

General

- The purchaser is responsible for protective measures and installation of all the products.
- Please read this manual carefully before installation, only complying with this manual, the performance can be ensured.
- The following instructions provide the information needed for correct installation and maintenance of the slewing drives.
- All the work steps listed below are to be executed by suitably qualified personnel.
- Please do not hesitate to contact our after-sales department for any assistance.
- The following documents guide users how to install and maintain the slewing drives correctly. The latest version is published on our homepage and can be downloaded from www.sunslew.com Please check that you are working with the latest revision!

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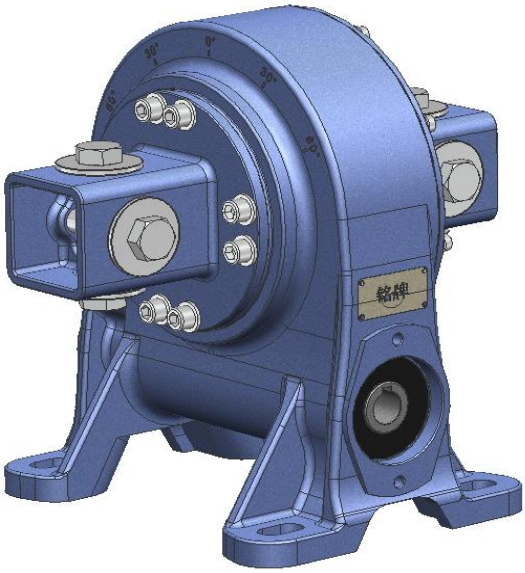
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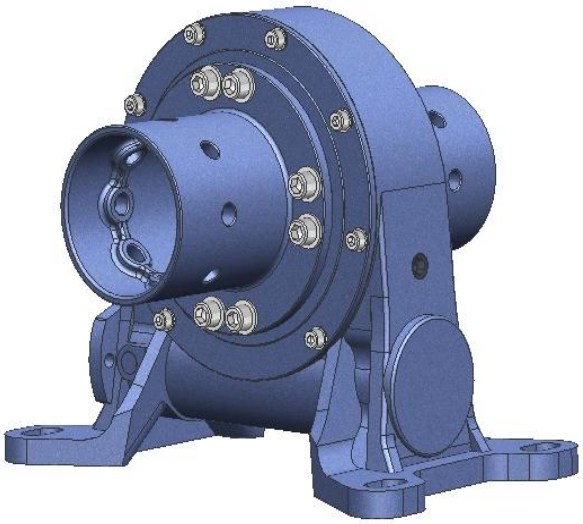
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Vertical Slewing Drives



Square tube output



Round tube output



Plane output

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1. Transportation, Handling and Storage

1.1. Transportation and Handling

Please keep the slewing drive in prescribed position. When handling the slewing drive, working gloves should be wore. While handling and hoisting, please take care of the motor in case of motor shaft damage.

1.2 Storage

The package of the slewing drives should be stored in ventilated and dry places. For original packaging, the surface corrosion protection holds for approx 12~15 months. Special protective measures, such as painting anti-rust oil or rust inhibitor on the surface of the slewing drives should be required for the longer storage.

2. Installation and Maintenance

2.1 Installation preparations

- Check the appearance of the slewing drive if there is any painting damage or oil leakage.
- Clean the slewing drive and the connecting structure of solar tracker, see Section 2.2.

2.2. Please clean the anti-rust oil of the slewing drives according to the following instructions:

- Clean the external of the mounting surfaces with cleaning fluid (e.g. diesel, gasoline) to avoid damaging the rubber seals.
- Please comply with the application regulations (e.g. local regulations, environmental protection).

2.3 Bolts selection

As a manufacturer, we do not recommend or provide the mounting bolts. Please refer to the following terms.

- Please select the correct specification, type and performance grade of the bolts.
- The length that bolts screwed is generally twice as its nominal diameter.
- Select the bolt length reasonably to avoid interference and mechanical damage. Otherwise, it may affect the performance, service life and tensile strength of the bolt connection of the slewing drive.
- If the pre-tightening force is beyond the allowable contact stress on the mounting surface, please use suitable high-strength washer.

2.3.1Tightening torques recommendation

- In general, installing bolts should be fixed with correct preload.
- Broken spring washers and flat washers are prohibited.

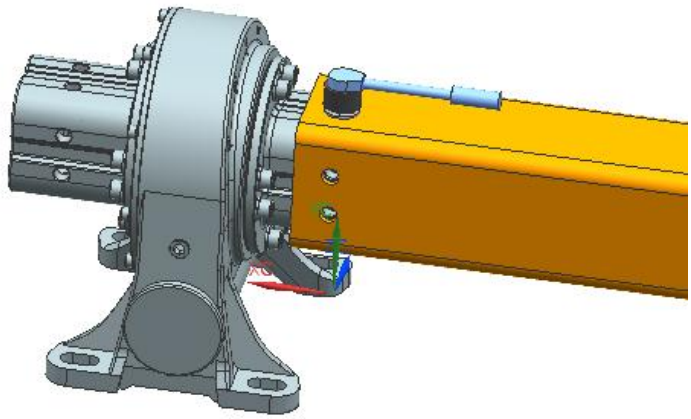
Tightening torque sheet for mounting bolts, for reference only.

Sheet3

Size	Carbon Steel Bolt				Stainless Steel Bolt	
	Tightening Torque（N.m）					
	Class 4.8	Class 8.8	Class 10.9	Class 12.9	A4-70	A4-80
M8	11±1	26±4	33±3	45±6	18	24
M10	22±2	52±7	72±6	90±10	36	47
M12	40±4	90±12	120±10	150±20	61	80
M16	100±10	225±35	305±25	380±50	148	196
M18	135±15	310±45	415±35	521±70	204	270
M20	190±20	410±50	600±50	750±100	287	380

2.3.2 Conventional vertical rotary reducer

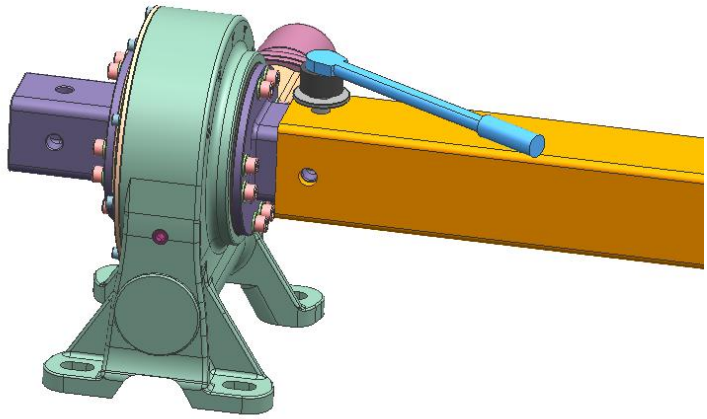
- The threaded hole on the flange is M16；



As shown in the figure above, when the thread on the flange is M16, the pre-tightening force of the torque wrench is：

Bolt specification	Carbon steel bolts				Stainless steel bolt	
	Tightening torque					
	Class4.8	Class8.8	Class10.9	Class12.9	A4-70	A4-80
M16	100±10	225±35	305±25	380±50	148	196

- The threaded hole on the flange is M20；



As shown in the figure above, when the thread on the flange is M20, the pre-tightening force of the torque wrench is：

	Carbon steel bolts				Stainless steel bolt	
Bolt specification	Tightening torque					
	Class4.8	Class8.8	Class10.9	Class12.9	A4-70	A4-80
M20	190±20	410±50	600±50	750±100	287	380

2.4 Installation of the slewing drives

- Clean the mounting structure, remove the welding slag, galvanized residue, etc..
- Use bolts to fix the slewing drive with structure, and the bolt head should be equipped with flat washers and spring washers.
- The slewing drive shall be mounted in unloaded condition.

2.4.1 The following procedures shall be observed to avoid internal stress and the installation problems when the bolts are tightened.

- Apply thread glue to threads.
- Please tighten crosswise when pre-tightening the bolts and washers. Start with inner or outer ring, all the bolts should be tightened to 30% tightening torque, and then repeat it to 50% of tightening torque. Finally tighten to 100% of the tightening torque.
- All the mounting bolts should not be omitted. In case of structural restrictions that bolts cannot be installed completely, threaded holes must be sealed, such as sealing with silica gel. Otherwise rain or dust will get into the slewing drive.
- Please choose suitable mounting bolts to avoid inference and mechanical damage.
- Once the screw tightened, please mark on the position of the screw head to the stationary structure.

2.4.2 Surface protection

During the installation of the slewing drive, the protection layer will be damaged inevitably. So after the whole system assembly completed, the slewing drives surface should be protected to improve the ability of anti-rust and anti-corrosion.

2.4.3 Site commissioning

When debugging, after the motor cable is unwound, the cable must be fixed; or after the debugging is completed, the cable must be re-bound and fixed to prevent the cable from being damaged.

2.5 Maintenance, inspection and lubrication

2.5.1 Check the mounting bolts

It is necessary to check if there is any displacement between the bolts and the mark after assembling about 100 hours. This inspection should be repeated annually. In case of the bolts loose, replace all bolts, nuts and washers immediately, re-tighten and mark them again.

2.5.2 Lubrication of the slewing drive

- All products have been lubricated at the bearin worm geag andring before delivery from manufacturer. According to the customers' different operating requirements of temperature and environment, sheet4 shows recommended grease.

Sheet 4

Brand and Type	Visual Color	Normal Temperature Condition（25℃）	Operating Temperature Range（℃）
※Mobilux EP 2	Brown	Cream shape	-30~130
Mobilux EP 023	Brown	Semi Fluid	-40~120
Mobilux EP 004	Brown	Semi Fluid	-40~120
Klubersynth GH6-460	Transparent	Liquid	-40~100
Klubersynth PEG 46-121	Brown	Cream shape	-50~150
Shell Omala S1 W680	Yellow	Cream shape	-20~100
Shell Omala S4 WE680	Yellow	Cream shape	-30~130

Note：※ for the factory default refueling oil type.

- Add grease into grease nipple one by one. Recommended injection quantity refers to Sheet 5：

Sheet5

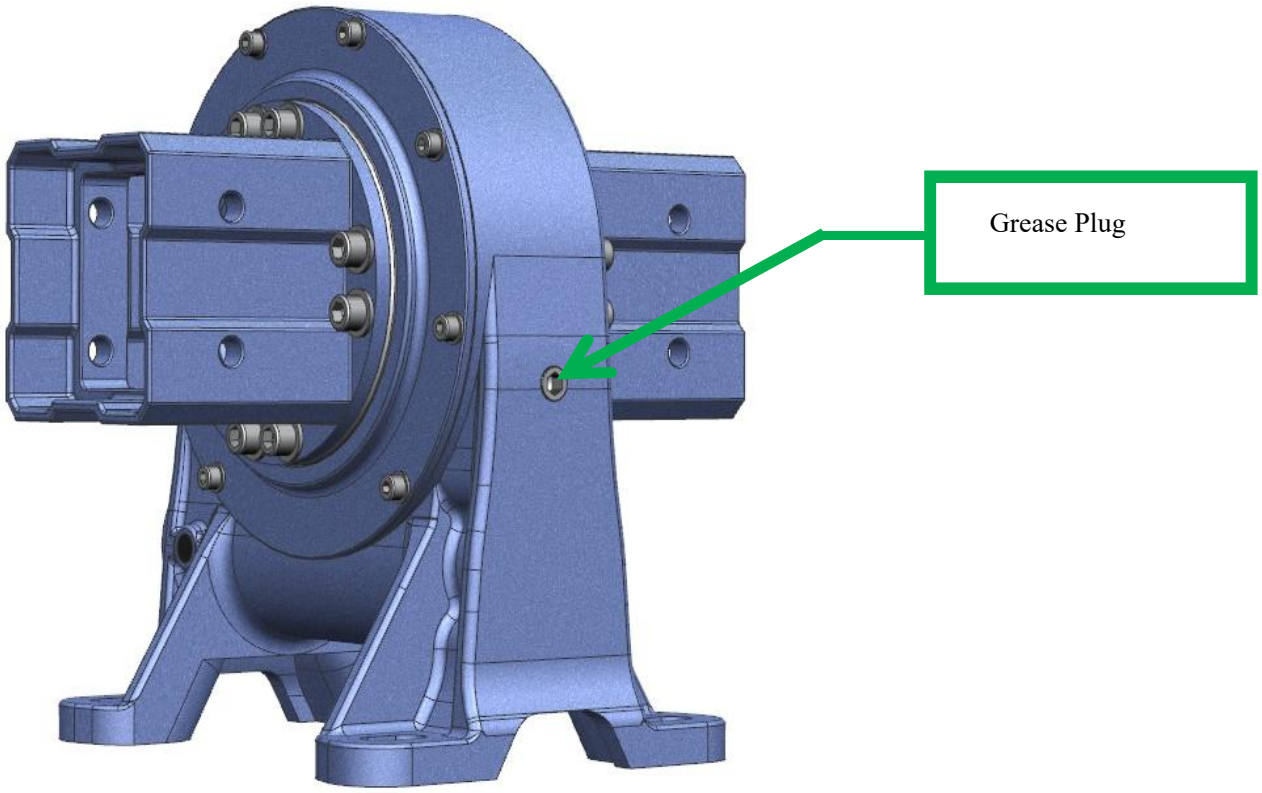
Product type	3"	5"	6"	7"	9"	12"	21"
Injection quantity（ml）	200	250	300	350	400	500	800

Note: Manufacturer provisions about handling the respective lubricants should be observed.

- While rotating the slewing drive, inject grease into all the grease plugs consecutively. Before filling grease, unscrew the plug by socket head wrench which matches the slewing drive's plug and add corresponding grease with injection syringe or other grease filling equipment. After filling, glue on the grease plug thread and fit the grease plug, and clean the remaining grease from the housing.

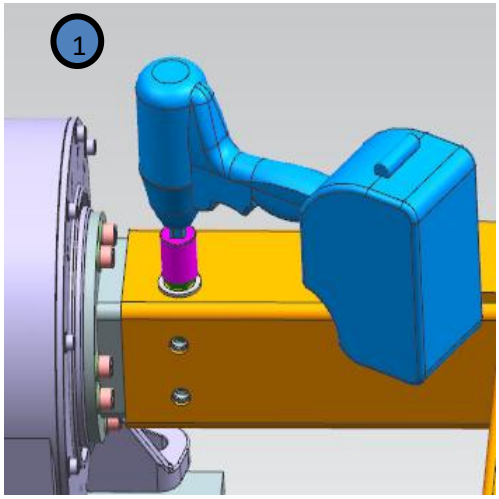
2.5.3 Lubrication interval time

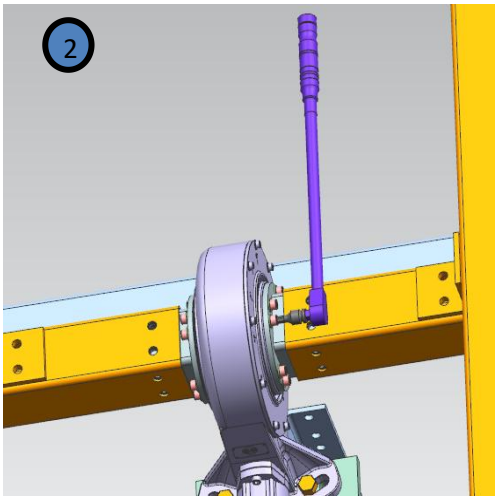
- The lubrication interval time depends mainly on the current work and environmental conditions.

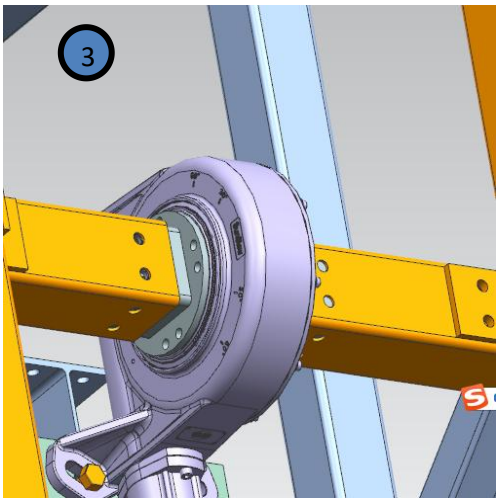


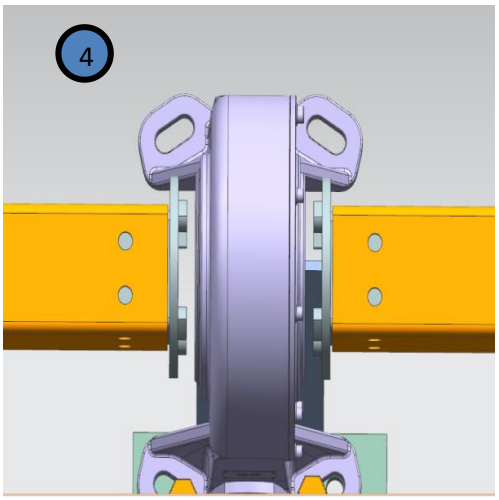
- The precise lubrication interval time can only determined by tests in actual operating conditions.
- At least once every two years.

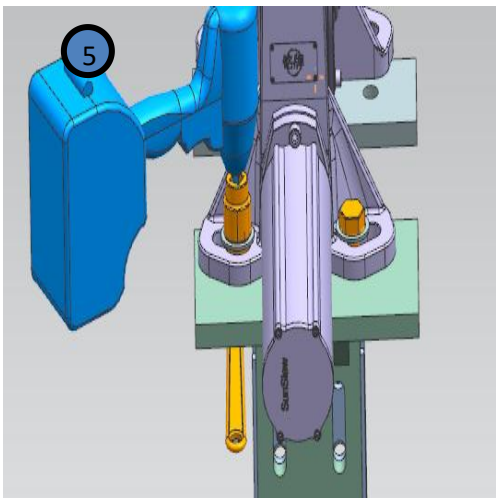
3. Disassemble the reducer on site (only for split flange)

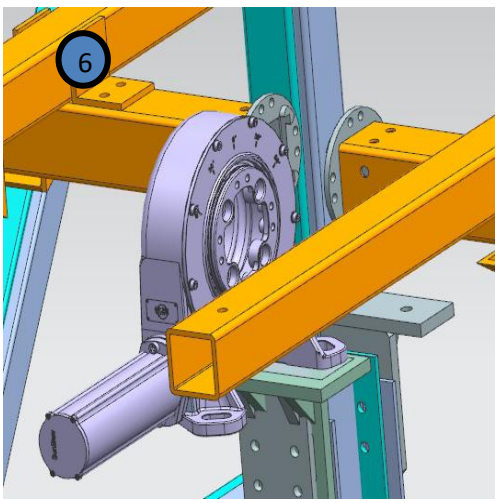












According to the above picture:

1. First remove the main beam and the screws at the flange connection;
2. Remove the M12 screws of the flanges on both sides;
3. The flange is disassembled and separated from the base (note that the main beam must be at least 10mm away from the bottom of the rotating square pipe flange to separate the flange from the rotation);
4. Remove the four screws of the base plate;
5. Bring out the reducer。

4. Others

4.1 Wiring diagram of conventional brushed DC motor

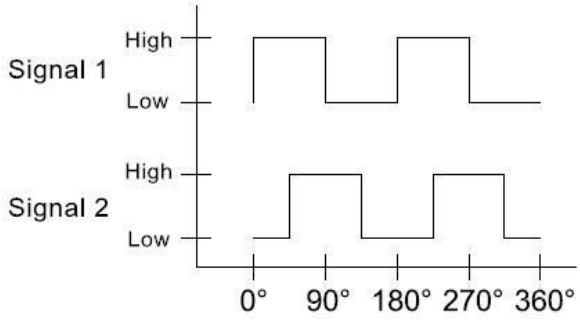
Definition			
With Hall function		Without Hall function	
Pin 1(Black)	Motor -	Pin 1(Black)	Motor -
Pin 2(Red)	Motor +	Pin 2(Red)	Motor +
Pin 3(Grey)	Hall -	Pin E(Green)	GND
Pin 4(Brown)	Hall +		
Pin 5(Blue)	Hall A		
Pin 6(Orange)	Hall B		
Pin E(Green)	GND		

Note: Please drive the motor and Hall sensors with separate power, otherwise the Hall sensor will be burnt.

4.2 Standard Magnetic Pulse Generator Parameters

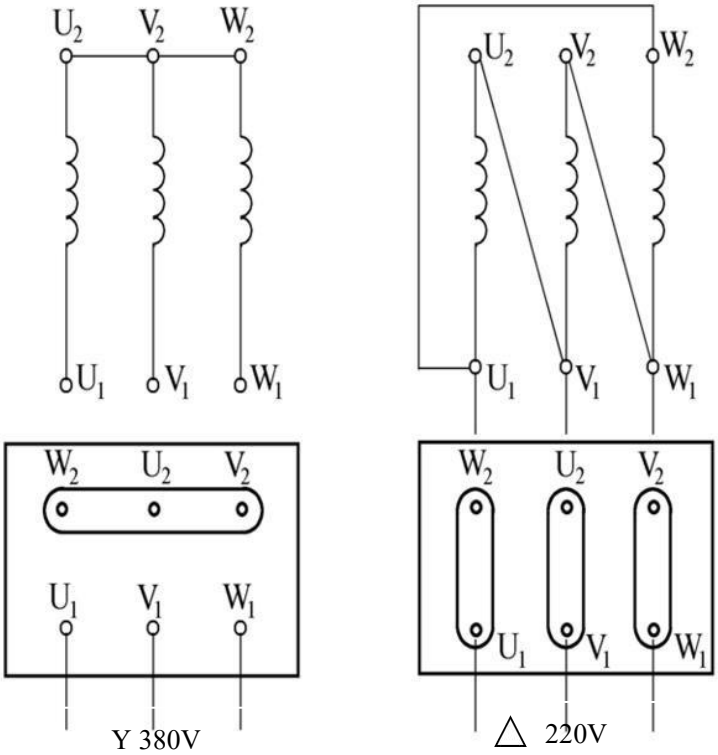
Standard Magnetic Pulse Generator Parameter		
Output type	-	Voltage output
Pull-up resistor	-	Yes
Output signal	-	2 square wave signal
Phase angle	-	90°
Impulses per revolution	ppr	2,channels A and B
Operating voltage	VDC	U_N=12(5...24)
Operating current	mA	Max.12(U=12V)
Deviation of pulse width	-	Max.15°
Deviation of phase shift	-	Max.15°
Output voltage （low level）	VDC	Max.0.4(20mA)
Signal rise time	ns	85
Signal decay time	ns	60
Operation temperature	℃	-40...+85

Output waveform



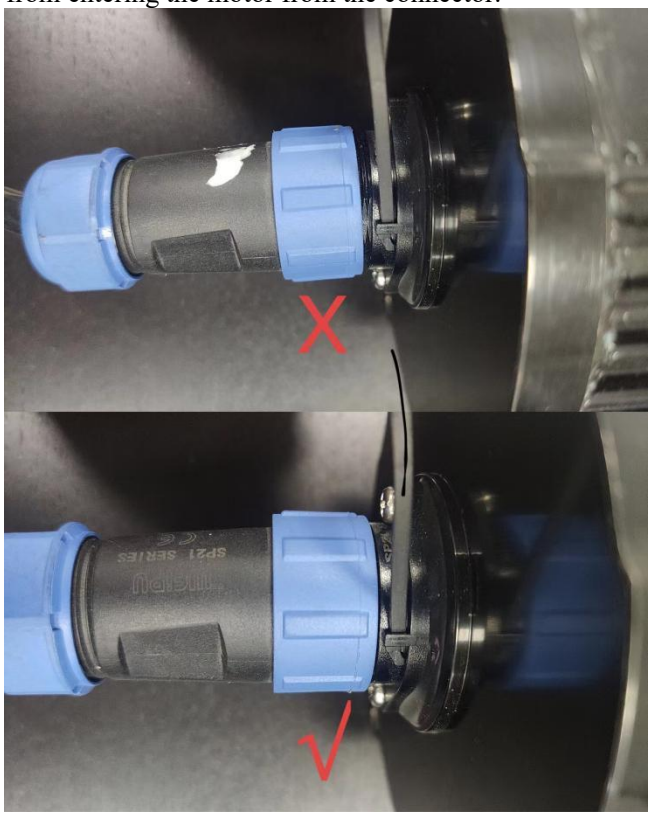
4.3 Note for conventional three phase asynchronous motor connection

The connection type can be identified by observing three wires with different colors after opening the motor terminal box. If those wires with different colors are connected end to end, it can be confirmed that the motor adopts delta connection method. If those wires with different colors are connected in parallel, it can be confirmed that the motor adopts star connection method. While the delta connection method is employed, the three-phase motors each receives a line voltage of 380V. While the star connection method is employed, the three-phase motors each receives a phase voltage of 220V. Under the circumstances of same motor power, the winding current of delta connection method is lower than the one of star connection method.



4.4 Cautions for the motor cable

- If the motor has a connector, you should install the matching connector first, and then apply threaded glue to prevent the connector from falling off, make sure to tighten it（Torque 1.5-2Nm）.Ensure that there is no visible gap between the aviation plug and the motor connection, and prevent water from entering the motor from the connector.



- After installation and debugging, the cables must be fixed and protected to prevent the cables from breaking due to wind or other factors.

Version	Date	Prepared By	Content
B	2022/3/7	XYB	Add detailed requirements for aviation plug installation

Note:

SunSlew is irresponsible for the following condition:

- Failure to submit the manual to the installation party.
- Non-compliance with the Installation and Maintenance Instructions.
- Other matters not mentioned in the manual.