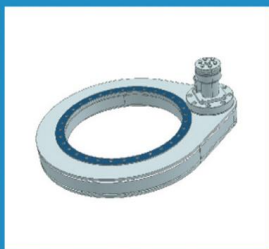


# 回转式减速机安装使用说明书

Slewing Drive Installation & Operating Manual



SE/WE系列SERIES

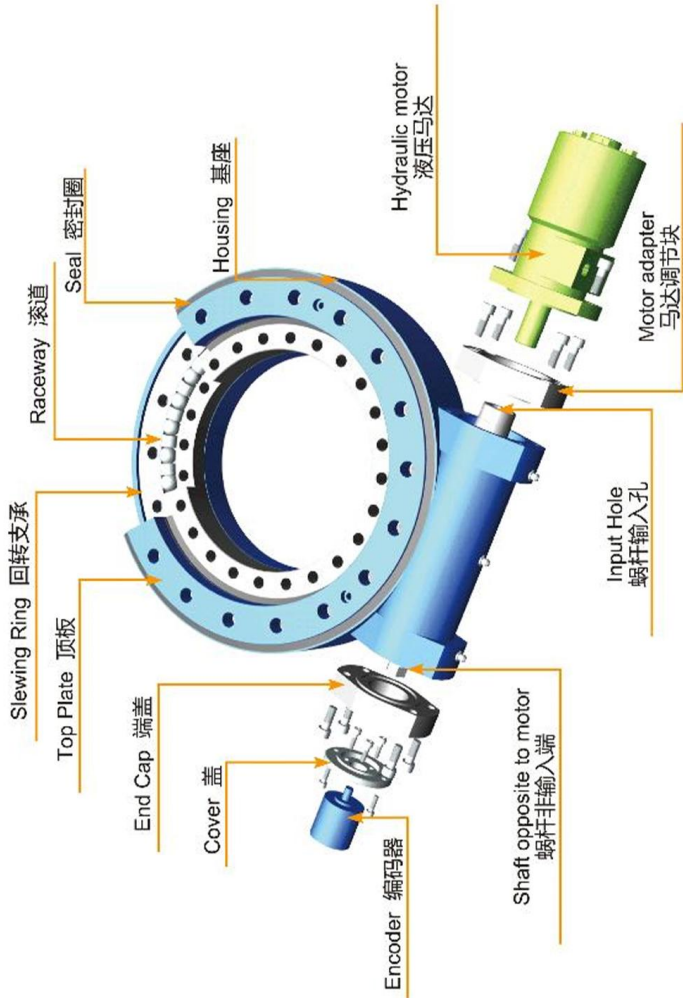


SPE系列SERIES



S系列SERIES

# Slewing drive structure schematic



公司概况：一工厂占地面积：118亩，专注于回转支承加工生产；二工厂占地面积：100亩，专注于回转减速机加工生产；

公司坚持“以人为本、科技引领、创新驱动”的技术发展理念，坚持“精益求精、塑造精品、持续改进、顾客满意”的质量方针，致力于为全球顾客提供最佳的回转减速机设计、制造方案；

体系认证：ISO9001:2015质量管理体系，ISO14001:2015环境管理体系，ISO45001:2018职业健康安全管理体系，中国船级社CCS型式认可证书等；

徐州万达支承回转减速机装置——给您多一种选择。

Company profile: Plant 1 covers an area of 78,666m<sup>2</sup>, focusing on the production of slewing bearings; Plant 2 covers an area of 66,666m<sup>2</sup>, focusing on the production of slewing drives.

System certification: ISO9001:2015 Quality Management System, ISO14001:2015 Environmental Management System, ISO45001:2018 Occupational Health and Safety Management System, China Classification Society (CCS) Type Approval Certificate, etc.

Xuzhou Wanda Slewing Bearing-provide one more choice for you!



## (1) Transportation, Handling and Storage

### 1. Transportation and Handling

Packed slewing drive must be positioned at indicated direction during transportation process, any collision is prohibited. Wearing safety gloves and carrying it in a careful way during handling time. Thread holes available on both outer and inner ring, thus can ensure safely lifting and handling.

### 2. Storage

Horizontal position storage is a must way for slewing drive and keep it in a enclosed room. Moisture is strongly prohibited. Duration of anti-corrosion is 5 months with an enclosed packing condition. Supposed longer storage time required, and special protective measures will be adopted

## (2) Installation and Maintenance

### 1. Preparation

- Make sure no physical damage;
- Clean slewing drive and Mounting structure;
- Remove all impurities from slewing bearing surface (e.g. iron scraps, burrs, paint, welding slag, etc. )

2. Please follow below steps to clean anti-rust oil on the mounting surface of slewing drive.

- Clean exterior mounting surface with cleaning solution (e.g. diesel, petrol etc) which will not destroy the performance of rubber seals;
- Please strictly follow the application instruction of the cleaning solution (manufacturer instruction, protection instruction, environment protection etc).

3. The positioning bolts in FIG. 2-3 must be firmly tightened during installation. Installation activity can be carried out after shipping bolts removed.

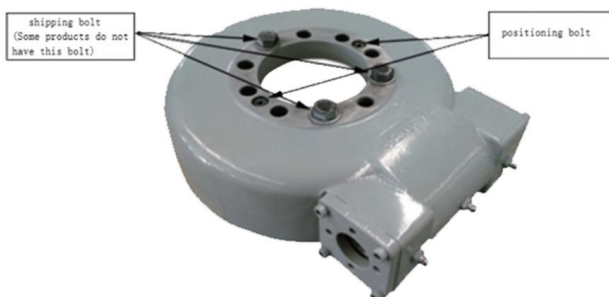


FIG. 2-3

4.Horizontal allowable error on mounting surface of connection with slewing drive during horizontal installation (refer to table 1)

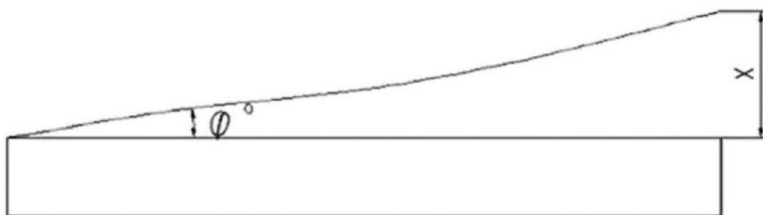
Table 1

Slewing drive model		3"	5"	7"	9"	12"	14"	17"	21"	25"
Perpendicularity Deviation	mm	0.07	0.09	0.11	0.16	0.23	0.26	0.32	0.42	0.49
Deviation in angle	Degree	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

5. Allowable flatness error of mounting surface connected with slewing driver(refer to table 2)

Table 2

Slewing drive model		3"	5"	7"	9"	12"	14"	17"	21"	25"
Permissible deviation in flatness	mm	0.04	0.1	0.1	0.12	0.15	0.15	0.15	0.2	0.2



$\phi$  – Angle Deviation  
 $\chi$  – Vertical deflection

The form must resemble a sine curve that gradually rises and falls

6. Mounting bolts selection

As a manufacturer, we do not recommend or provide mounting bolts. The following terms are for reference only.

- Please select the bolt specifications, models and grades correctly.
- The mounting bolts level shall not be lower than grade 10.9.
- The bolt length that screw into the hole is generally 2 times the nominal diameter of the bolt.
- Bolts are not allowed to screw out of the bolt hole, otherwise they will interfere and damage the machine parts.

If it does not meet the requirements, it may affect the performance, service life and tensile strength of the bolt connection of the slewing drive.

- Use a suitable high strength washer if the contact stress on the mounting surface is exceeded.
- Factory bolts are for handling only. Remove them during installation

## 6.1. Tightening Torque

- In general, the installation bolts need to be fixed by correct preloading load.
- Broken washer, flat washer, etc. are not allowed to be used.

Tightening torques and initial preload for mounting bolts (for reference only):

Table 3

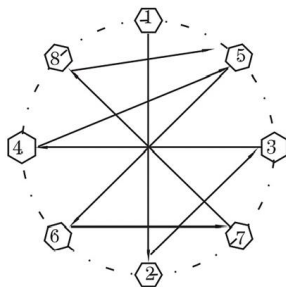
Bolt model	Metric bolt	
	Tightening torque (N.M)	
	Grade 10.9	Grade 12.9
M8	33±3	45±6
M10	72±6	90±10
M12	120±10	150±20
M16	305±25	380±50
M18	415±35	521±70
M20	600±50	750±100

## 7. Installation of Slewing Drive

- Clean up mounting structure, e.g. remove welding slag, galvanized residues, etc.
- The mounting structure and slewing drive are fixed with bolts, and a flat washer shall be provided at the bolt head.
- Slewing drive should be installed without load.

7.1. Please follow the following procedures to avoid internal stress and installation problems when bolts being tightened.

- Thread fastening glue is added to the thread.
- Pre-tightening bolts and washers should be cross-tightened; tightening sequence is shown in the following figure; from the inner ring or outer ring, all bolts should be angular tightened to 30% tightening moment, then repeated diagonal tightening to 50% tightening moment, and finally angular tightening to 100% tightening moment.



- All Installation bolts should be completely in place and should not be missed. If the bolt cannot be aligned in case of structural constraints, the bolt holes must be sealed with silica gel, otherwise water and dust will leak into the slewing drive.

- Thread meshing length must be taken into consideration once perform bolt installation, it has limited length, otherwise the rotation of slewing bearing will be affected or interference can be encountered; after bolt tightened, please make a mark on bolt head and its connected structure. It will be convenient to check whether the bolt is loose or not afterwards;

## 7.2 Repair painting

During the process of installation, Surface paint on slewing drive will inevitably be damaged by bumping. Therefore, after the system is assembled, it is necessary to repainting to improve the ability of anti-rust and anti-corrosion.

## 8.Maintenance, inspection and lubrication

### 8.1 Inspection of Installation Bolts

- It is necessary to re-tighten the bolt to the required tightening moment after the initial operation for about 100 hours; this inspection should be carried out once a year.
- Under special operating conditions, the inspection times can be increased accordingly. Please replace all bolts, nuts and washers immediately once the bolts are loosened.

### 8.2 Lubrication of slewing drive

All important parts of finished product have been lubricated before leaving factory. We recommend adding lubricating grease before installation according to the actual situation.

- Grease has been applied for raceway of slewing bearing before delivery;
- At the meshing point between worm and slewing bearing, it is necessary to refill lubrication grease before its operation;
- Tapered roller bearings are greased before delivery.

Greases used in normal application are shown in Table 4.

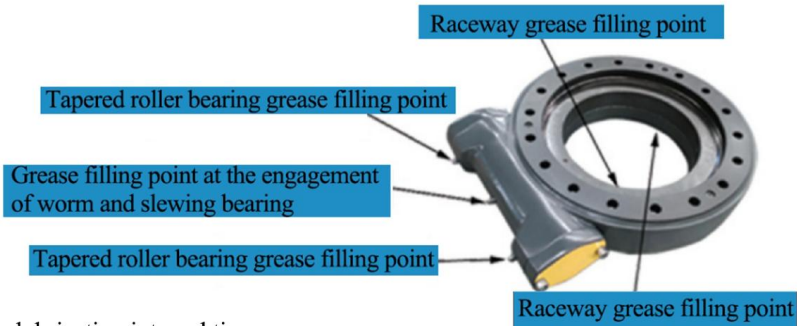
Parts needed to be lubricated	Taper bearing/Ring raceway/meshing point between Worm and slewing bearing
Recommended grease product name	Great Wall No. 2 EP lithium base grease
Applicable temp.Range in °C	-20~+120
Color	Hazel
Drop Point	196
Steel mesh oil separation(100°C, 24h),%	3.2
Working cone penetration/0.1mm	282

Lubrication grease is added to the oil nipple one by one. The recommended quantity is shown in Table 5

Parts needed to be lubricated	Injection quantity(unit g)								
	3"	5"	7"	9"	12"	14"	17"	21"	25"
Race way of slewing bearing	/	10-15	15-20	30-35	45-50	55-60	70-75	120-130	140-150
Meshing of worm and slewing bearing	33-35	50-60	55-65	90-100	100-110	100-110	110-120	130-140	130-140
Taper bearing	7±0.5	7±0.5	7±0.5	10±0.5	10±0.5	10±0.5	10±0.5	10±0.5	10±0.5

Must comply with manufacturer's lubrication regulations

- While rotating the slewing drive, lubricating grease is continuously injected into the oil nipple.



Re-lubrication interval time

- Re-lubrication interval time mainly depends on the current working and environmental conditions.
- The precise time interval of re-lubrication can only be determined by experiments under actual working conditions.
- In the absence of reference, refer to the table below.

Working condition	Relubrication Interval
Dry and clean workshop, industrial positioner (rotator / robot etc.)	Every 500 hours of continuous work/once a year
Wild outside conditions (Such as crane, wind device and solar power equipments, and aerial working platform etc.)	Once a year
Harsh environmental condition, marine/desert/polar climate/dirty environment/consecutive working hours exceeds 70 hours per week	every 150 working hours/ every 4 months
Extreme condition (tunnel boring machine, steel mill, oil field)	every 50 working hours, at least every two months

The following are normal working conditions:

- Slewing drive working temperature -20°C-- +60°C;
- Reducer output speed < 1.5rpm (The maximum speed value depends on the torque value in actual operation);
- Medium and low loads (not exceeding 70% of rated output torque);
- Improper lubrication is the most common cause of malfunction;
- Long-term storage of non-working machinery (e.g. cranes and construction machinery in winter).



### (3) Installation and application of power unit

#### 1. Hydraulic motor

- Check the tightening torque of mounting bolts according to Table 3.
- Connect tubing to hydraulic motor.
- Rotate the motor without load to make sure it rotates smoothly. Once the normal rotation is not possible, please check hydraulic system, connection joint, the worm etc.
- After no-load test, rotate under rated load.
- For special hydraulic motors, please read the manual carefully which packed together with slewing drive.
- The working pressure and flow rate of the hydraulic motor should refer to the parameters on the drawings provided by us.

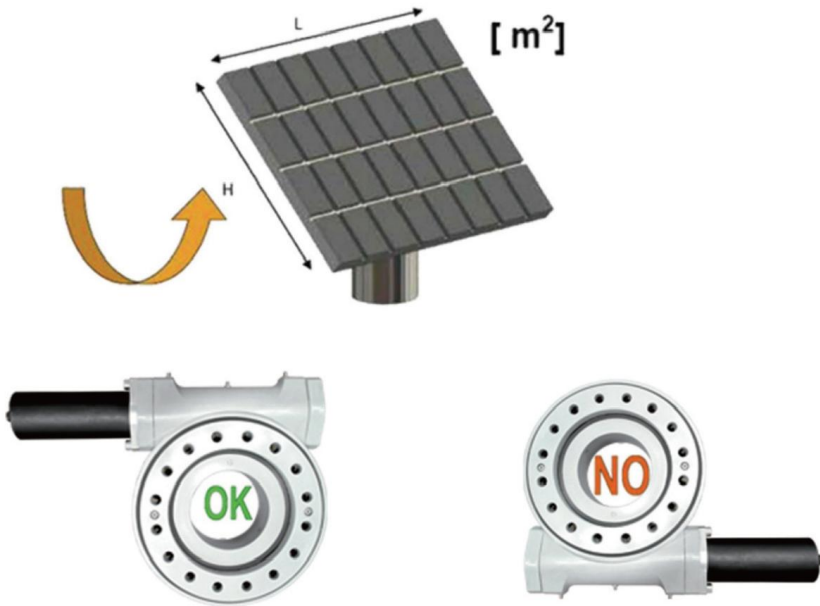
#### 2. Gear motor

- Two major selected gear motors are 24V and 380V. Refer to its connection & definition drawings. Energizing the motor, if motor and slewing drive rotate smoothly without load means every single device works well. If the assembly cannot rotate smoothly, cross-check power supply device, connection joints, slewing drive and gear motor etc. After no-load test, rotate under rated load.
- For special type of gear motor, please read the instructions provided by us.

#### General principle

- Every single slewing drive manufactured by our company meets the standard of JB/T 11993-2014.
  - Buyers are responsible for providing safety precautions and correct installation of adjacent equipment.
  - Before carry out installation, please read this manual carefully. Please strictly follow the guiding rules above, thus its working characteristics can be guaranteed.
  - This manual contains information needed for proper installation and maintenance for our slewing drive.
  - All of the above steps need to be operated by professionals.
  - If you have any technical problems, please contact our after-sales service immediately.
- This product service manual guides users how to install and maintain slewing drive correctly. This version will replace all earlier versions. Users can log on to [www.slew-bearing.com](http://www.slew-bearing.com) for download.

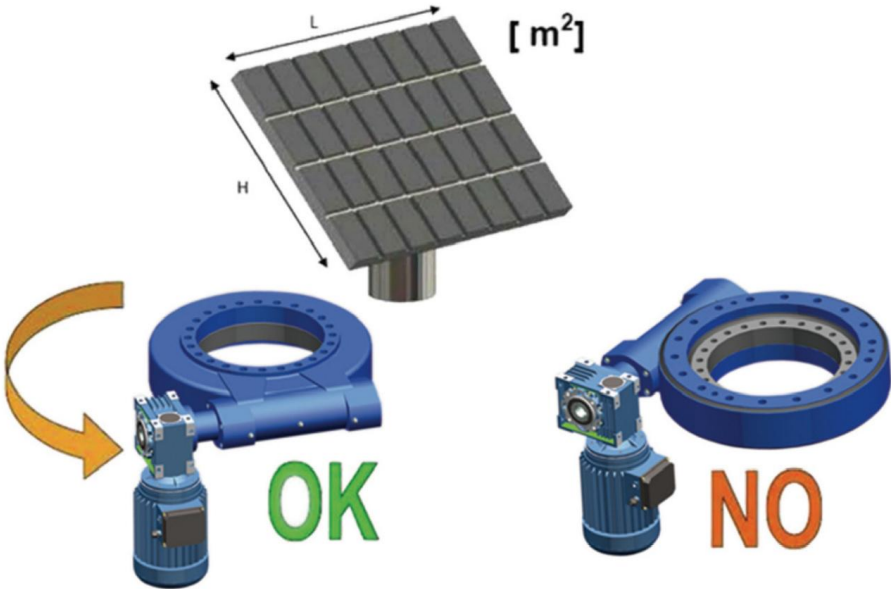
## Vertical Installation in Solar Energy Industry



- When slewing drive being used in the solar industry and has special requirements for the protection level, the vertical installation pattern should refer to the attached drawings.
- When slewing drive being used in other industries and there is no special requirement for the protection level, the installation method will be based on real working condition without any limit.

Friendly reminder:

## Horizontal installation in solar energy industry



- When slewing drive being used in the solar industry and has special requirements for the protection level, the horizontal installation needs to refer to the drawings, and the vertical installation needs additional protection measures.
- When slewing drive being used in other industries and there is no special requirement for the protection level, the installation method will be based on real working condition without any limit.

