GF MILL GEAR SPINDLES

INSTALLATION, LUBRICATION, USE & MAINTENANCE MANUAL

GGT gear spindles are generally supplied assembled, unless otherwise specified. Sometimes, the pinion gear sleeve is packed separately, according to the Customer requirement. GGT gear spindles are supplied with no lubricant/grease on the working gear teeth, but the splines of the solid shaft. A proper surface protection coat OSYRIS 6000 is used for the turned surfaces, against corrosion Different anticorrosion treatments shall be required in the order.

HANDLING AND STORAGE

Before handling the spindles, check the weight of the units and their barycenter, looking up in the tables below or in the catalogue and/or in the drawings. Do not employ equipment and procedures that could damage the spindles and their components when handling them. To lift and handle the spindles and their components tighten the eyebolts in their holes, making sure that the equipment you are employing are adequate and that everything is always done in the maximum safety conditions. Avoid any kind of impact when handling and storing.

Store in a covered and dry place and never at direct contact with the floor. When storing for more than six months, check the status of protection on the non-painted parts and apply a new protection film.

SAFETY STANDARDS

Spindles in operation may be dangerous units so the user must provide for adequate protection devices complying with the work safety measures in force in the country of installation. The operations of handling, installation, lubrication and maintenance must be carried out by qualified personnel only. While performing the operations of handling, installation, lubrication and maintenance, wear garments which cannot get entangled with the mechanical components and employ appropriate individual protection devices. If any toxic chemical substances are employed to clean the spindles, provide for adequate protection to personnel and environment. Make sure the machines the spindle connects are off and cannot restart throughout the different operations. Never exceed, in operation, the load data agreed in the order (torque, speed, working angles etc.)

ASSEMBLY

In the preparation of the assembly, please make sure that the application data are confirmed, such as max rolling torque, angle, power, speed. Position the machines to be connected so that the distance between the shaft ends (D.B.S.E.) is according to and in tolerance with dimension (distance between shaft ends) shown in the catalogue or in the drawings.

Check the conditions of the spindles. Remove the seal retainer fasteners and dismount the spindles in the following components: ROLL END COUPLING BOX – INTERMEDIATE SOLID SHAFT WITH GEAR HUBS AND SEALING UNITS – PINION END COUPLING BOX.

Make sure that all the components are in perfect conditions. Clean with care the pinion shaft and in case of key-fitting, apply some grease on the shaft, before assembling. Remove the thrust plate from the gear sleeves, both sides, by a proper puller holes. Make sure not to damage the O-ring between the thrust plate and the sleeve, while disassembling.

PINION SIDE GEAR SLEEVE WITH KEY-FITTING

First take the pinion gear sleeve and put in oil or in an oven, to heat it, in order to obtain the necessary expansion for fitting onto the shaft. For a max fitting interference of 1/1000, it is required to heat the sleeve at a temperature of 180°C. Fit, then, the thrust plate inside the sleeve, after it is lubricated and after checking the correct position of the O-ring inside the groove. Apply the recommended grease on the gear teeth of the sleeve.

INSTALLATION

Assemble the bottom spindle first, then the top one. Make sure that the thrust button is fitted inside the shaft on the pinion side. Put and keep the intermediate assembly with the roll head in horizontal position. Fit the pinion gear end inside the pinion sleeve already fitted in the pinion stand. Fit the seal retainers, paying attention not to damage the seal lips and grease the sliding surface. Tighten the seal retainer fasteners at the torque shown in the drawing by a dynamometric wrench. The spindle now is completely assembled and supported by the spindle support and it is ready for the roll neck fitting. Check that the angular alignment of the sleeve bore complies with the roll neck ones. The alignment error must be contained in the extension of the lead-in chamfers placed on the bore edge. Check the effectiveness of any sleeve aligning device supporting the roll sleeve. Also check that the spindle support is properly adjusted on the spindles and allows easy and soft roll neck entry into the hub bore. Adjust the lead.in speed, as the movement must never be too fast, as it must allow air bleed, complete grease spreading, and the correct positioning of the sleeve. Grease the lead-in chamfers and the sleeve bore walls, as well as the roll neck surfaces with MoS_2 grease. Insert the roll neck in the sleeve with care, checking that their movement is constant and uniform. Once the spindles are installed and the spindle support is open, fill the two heads with grease. In case of telescopic spindles, put them, one after the other, in the minimum extended position and complete the grease filling of the telescopic shafts. Once the operation of greasing is concluded, carefully close every grease feed and drain plug. Check that the spindle support is totally disengaged from the spindles. Spindles in operation must never be in contact with the spindle support.

LUBRICATION

A CORRECT LUBRICATION IS ESSENTIAL FOR A LONG GEAR SPINDLE LIFETIME

GF mill gear spindles are supplied without lubricant, so they must be lubricated after they are installed in the application with the roll necks fitted into the gear sleeves and at working position. **GENERALLY, THE LUBRICATION MUST BE EFFECTED WITH THE SPINDLE COMPLETELY CLOSED.**

To be effective, gear sleeves, both sides, and telescopic shafts must be filled with proper grease, which has to be renewed quite frequently. Loss of lubrication capacity is influenced by high temperatures, pressure, effect of centrifugation, absorption of humidity and water, impurities.

Open the plug located on the seal retainer and pump grease through the grease nipples placed on the spindle shaft, close to the head. The operation is completed when the grease continuously comes out of the top plug. **Don't forget to close the plugs**, otherwise even with one missing plug, the grease will be lost after few minutes of rotation.

Telescopic shafts must be lubricated in the minimum extended position, completely filling with grease their back chamber. To let the grease in, open the plug located on the top and pump the grease through a grease nipple placed on the bottom. The operation is completed when grease continuously comes out of the top plug. Then, don't forget to close the plug, otherwise the grease will come out quickly. **GGT gear spindles are supplied with no lubricant.**

RECOMMENDED GREASE

Suitable lubricants for the proper functioning of GGT gear spindle respects the features indicated below:

LUBRICANT FEATURES:

• NLGI Grade	1 ÷ 0
• Thickener	lithium / complex lithium
• Grade of penetration	310 ÷ 385
• Flash point	170 ÷ 250°C
• Oil viscosity at 40°C	800 ÷ 1800 cSt
• Oil viscosity at 100°C	45 ÷ 150 cSt
• Additives	EP
• MoS2 mineral load	5 ÷ 10%
• Timken load	25 ÷ 95 kg
• Weld load	500 ÷ 800 kg
• Corrosion	negative

NEVER MIX DIFFERENT TYPES AND/OR DIFFERENT BRANDS OF GREASE. THEY MAY BE INCOMPATIBLE AND MAY LOSE THEIR LUBRICATING FEATURES. UNLESS OTHER-WISE INSTRUCTED, NEVER USE OIL TO LUBRICATE GEAR SPINDLES.

GREASE LUBRICATION FREQUENCY

While installing GF gear spindles, apply grease on the gear teeth. After 4 hours operation, add grease on the heads, if necessary. During the first month of operation, lubricate the heads twice a week and after the first month of operation, lubricate every week. The spline, in case of telescopic spindle, must be lubricated every 2 months.