Installation Instructions
For Type G Rotary Union
(GFR – GFL – GFS – GFP)

SAFETY WARNING
You will find safety and instruction icons in this manual. These have been included to ensure your safety.

⚠️ DANGER
Indicates hazard which, if not avoided, will result in serious injury or death.

⚠️ WARNING
Indicates hazard which, if not avoided, could result in serious injury or death.

⚠️ CAUTION
Indicates hazard which, if not avoided, could result in minor or moderate injury.

⚠️ NOTICE
“NOTICE” is reserved for instruction given to prevent property, product, or environmental harm.

⚠️ SAFETY INSTRUCTIONS
“SAFETY INSTRUCTION” indicates processes or procedures recommended to ensure safety.

Follow your company’s safety procedures whenever working on Johnson-Fluiten products. Read all of the instructions before proceeding with the installation or repair.

Please refer to the Johnson-Fluiten assembly drawing for part identification. Assembly drawings are available on request from Kadant Johnson.

Lubricate all fasteners with anti-seize compound. Tighten all fasteners in a star pattern. Torque specifications are listed on the product assembly drawing and are available from Kadant Johnson.

If you have any questions, or in case of any uncertainties, please contact your representative or Kadant Johnson prior to working with Johnson-Fluiten rotary unions.

PRELIMINARY ASSEMBLY (see Figure 1)
Clamp slightly the rotary union body.

Thread a 12˝ (300mm) or longer flexible metal hose into the rotary union port and tighten using a torque of 37 ft-lbs (50 Nm).

Connect the hose with a compressed air source and carry out three test cycles as defined below:
1. Close
2. Maintain the pressure for 30 seconds
3. Open

Verify there is no leakage through the hose fitting.

Check the spindle face: it must be clean and free from dents and chips to ensure a proper installation. Using a dial indicator, check the flatness of the spindle face and confirm it is perpendicular to the pilot bore centerline within 0.0002˝ (0.005 mm) TIR. The spindle pilot bore should be concentric to the centerline of the spindle within 0.0002˝ (0.005 mm) TIR.

⚠️ WARNING
It is important to connect the hose to the rotary union prior to installing it onto the spindle to prevent damage to the rotary union’s ball bearings races.

INSTALLATION
Connect the drain line to the rotary union with one of the drainage holes in the body using the drain fitting supplied together with the rotary union. Select a drain hole that will help gravity drainage.

Plug all remaining drain holes with the plugs provided.

Apply a minimum torque on plugs and drain fitting in order to avoid any deformation on the rotary union.

⚠️ NOTICE
It is suggested to use a transparent drainage line to monitor any leakage from the rotary union. It shall be bent downward and syphon curves shall be avoided to guarantee a satisfactory drainage (see Figure 1).

Lubricate the rotor O-ring with a non-petroleum based O-ring lubricant. Mount the rotary union rotor in its housing of the spindle and tighten with a torque of 44 ft-lbs (60Nm).

Connect the flexible hose to the coolant supply. Be sure to install the piping to avoid any side loading of the rotary union. Side loading, or other excessive forces, will lead to premature failure.

Final check of installation of rotary union, flexible hose, and drain line. Make sure the rotary union is able to move freely and there is no side loading from the flexible hose installation.

The installation is now complete.

PRELIMINARY TEST
Fit the rotary union onto the machinery, then manually rotate the shaft. Using a dial indicator (pos.A), verify the rotary union is within 0.0012˝ (0.03 mm) TIR.

Start the machine and verify, at maximum speed, there are no vibrations which could damage the rotary union.

This is a dry run test and should be carried out for just a few seconds.
FUNCTIONAL TEST WITH COOLANT
Introduce coolant into the rotary union (verify pressure and PV diagram accordingly to our catalog or table drawing if using a custom rotary union) and verify the correct operation of the rotary union. It shall be almost instantaneous, leakage during operation shall be as low as a few drops.

NOTICE
This test should last less than 5 minutes, then you can start with RUN-IN PROCEDURE.

WARNING
The temperature measured on the rotary union body shall not exceed 122°F (50°C) during the test. Eventual leakage shall not be more than 0.2ml/min or about 4 to 6 drops.

FUNCTIONAL TEST WITH AIR
Introduce air into the rotary union (verify pressure and PV diagram accordingly to our catalog or table drawing if using a custom rotary union).

NOTICE
This test should last less than 5 minutes, then you can start with RUN-IN PROCEDURE.

WARNING
The temperature measured on the rotary union body shall not exceed 122°F (50°C) during the test. Eventual leakage shall not be more than 0.2ml/min or about 4 to 6 drops.

RUN-IN PROCEDURE
After correctly mounting the rotary union, the ball bearings need to be run-in. Using the proper run-in procedure will maximize bearing and grease life.

Dimensions are for reference only and subject to change. Certified drawings are available on request.

- Figure 1. Proper Flexible Hose Installation

<table>
<thead>
<tr>
<th>Phase</th>
<th>Type</th>
<th>Run-In Speed</th>
<th>Conditions</th>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GFR/GFRA</td>
<td>15 minutes at 5,000 rpm</td>
<td>P = 0 psi</td>
<td>If the temperature exceeds 122°F (50°C) during run-in, stop rotation and wait until bearing temperature returns to ambient. Then repeat the phase.</td>
</tr>
<tr>
<td></td>
<td>GFL/GFLA</td>
<td></td>
<td>NO fluid</td>
<td>Do not run-in the bearings of the rotary union at higher rpm than the maximum operating conditions.</td>
</tr>
<tr>
<td></td>
<td>GFS/GFSA</td>
<td></td>
<td>Cool down rotary union to ambient temperature between each phase.</td>
<td>Reach to speed limit of each phase in about 2 minutes.</td>
</tr>
<tr>
<td></td>
<td>GFP/GFPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>GFR/GFRA</td>
<td>15 minutes at 10,000 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFL/GFLA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFS/GFSA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFP/GFPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GFL/GFLA</td>
<td>15 minutes at 15,000 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFS/GFSA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFP/GFPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>GFS/GFSA</td>
<td>15 minutes at 20,000 rpm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>High vibrations/noise</td>
<td>Rotor connection is not tight</td>
<td>Verify rotor and loosened rotor connection</td>
</tr>
<tr>
<td>Leaksage through drain holes</td>
<td>Wearing or damage of seal faces</td>
<td>Replace rotary union</td>
</tr>
<tr>
<td>Overheating</td>
<td>Lack of cooling liquid</td>
<td>Verify coolant is flowing to the rotary union. Dry running at highest speed could cause failure in short time</td>
</tr>
<tr>
<td></td>
<td>Damaged bearings</td>
<td>Replace rotary union</td>
</tr>
</tbody>
</table>

The Kadant Johnson Warranty
Kadant Johnson products are built to a high standard of quality. Performance is what you desire: that is what we provide. Kadant Johnson products are warranted against defects in materials and workmanship for a period of one year after date of shipment. It is expressly understood and agreed that the limit of Kadant Johnson’s liability shall, at Kadant Johnson’s sole option, be the repair or resupply of a like quantity of non-defective product.