Disassembly and Repair of Type 1000LN Rotary Joints

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

Please refer to the Kadant Johnson assembly drawings 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.

REPAIR KITS ARE AVAILABLE CONSISTING OF:

<table>
<thead>
<tr>
<th>Item #</th>
<th>Qty.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2</td>
<td>Seal Ring</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Gasket</td>
</tr>
<tr>
<td>8Q</td>
<td>1</td>
<td>Metal Gasket</td>
</tr>
<tr>
<td>8R</td>
<td>2</td>
<td>Gasket - Full Face</td>
</tr>
<tr>
<td>35</td>
<td>3</td>
<td>Packing</td>
</tr>
</tbody>
</table>

REMOVAL:

STEP 1.
Release residual pressure in the system. Close the inlet and outlet valve. Allow the rotary joint to cool sufficiently and then disconnect the inlet and outlet piping from the rotary joint.

STEP 2.
Remove cap screws (2A) and hex nuts (2C), freeing head (2) from the body (1). Set the head aside for later use.

STEP 3.
Remove the packing gland cap screws (10A), the packing gland (10), and packing (35).

STEP 4.
Remove the hex nuts, securing the quick release nipple flange (5).

STEP 5.
Remove the hex nuts from the end of each support rod. In some cases, the support rods may have to be removed in order to remove the rotary joint.

STEP 6.
The rotary joint should now be free to slide out away from the machine. Discard metal gasket (8Q) from the journal flange.

STEP 7.
Remove quick release nipple flange (5) and its two split tapered wedges (55). Be sure to keep the split wedges for reuse.

The rotary joint is now ready for disassembly.

DISASSEMBLY:

STEP 8.
Position the rotary joint upright (see Figure 1) with nipple (4) extending down into a piece of pipe or through a hole in the workbench. In that position, the assembly will be resting on wear plate (16).

STEP 9.
Remove the assembly plate cap screws (31A). Note: The internal rotary joint spring force is contained by the assembly plate (31). Use caution while spring tension is released.

STEP 10.
Lift off assembly plate (31), exposing the internal parts. Remove the gasket (8).

STEP 11.
Remove the first seal ring (6A), thrust collar (3), spring (7), nipple (4), and the second seal ring (6B).

STEP 12.
Turn the rotary joint over on the workbench. Loosen and remove cap screws (16A) and remove the wear plate (16).

STEP 13.
Inspect the metal wear surfaces for scratches, grooving, and pitting. They are wear plate (16), nipple (4), thrust collar (3), and support rod (1).
and assembly plate (31). Replace any of these items if they are damaged. Clean all gasket surfaces.

**REASSEMBLY:**

**STEP 14.**
Install wear plate (16), using a new gasket (8R). Torque cap screws (16A) to 60 ft-lbs (81 Nm).

**STEP 15.**
Turn the body (1) over and place it over the hole in the workbench. Place a new seal ring (6B) into the body, flat side toward wear plate (16).

**STEP 16.**
Set nipple (4) into the body (1) followed by spring (7) and thrust collar (3).

**STEP 17.**
Place gasket (8) on body (1).

**STEP 18.**
Place a seal ring (6A) on top of thrust collar (3) followed by the assembly plate (31).

**STEP 19.**
Using a press, compress the spring (7). Be sure the keyways in the thrust collar (3) are aligned with the keys on the nipple (4). Use the body inlet opening as a viewing port. Attach assembly plate (31) to body (1) with the cap screws (31A).

**REINSTALLATION:**

**STEP 20.**
Place a new metal gasket (8Q) into the recess of the journal flange.

**STEP 21.**
Slide quick release nipple flange (5) onto the nipple (4) with its taper facing outward.

**STEP 22.**
Place the two tapered wedges (55) in the groove around nipple (4). Then slide quick release nipple flange (5) over them to hold in place.

**STEP 23.**
Lift the rotary joint up and slide it over the horizontal pipe until the nipple (4) seats against metal gasket (8Q) and quick release nipple flange (5) is aligned over the studs of the journal flange.

**STEP 24.**
Thread the hex nuts onto the journal flange studs tightening them evenly. The quick release nipple flange (5) will not seat flush against the journal flange. There will be a 1/16” to 1/8” (2 to 3 mm) gap. Measure the gap, it should be the same around the circumference of the flange.

**NOTE:** This style rotary joint is supported by external support rods and it is very important that the rotary joint be centered on the axis of the journal. Check for clearance at two locations: between the nipple (4) and wear plate (16) and between the thrust collar (3) and assembly plate (31). The nipple should be centered in the wear plate and centered in the assembly plate. The clearance should be 1/4” +/- .060” (6 mm +/- 1.5 mm) around the entire circumference of the parts in each location. If necessary, adjust support structure to align rotary joint.

**STEP 25.**
Once the rotary joint is in position and properly aligned, reset the wear indicators; i.e., set the hex nuts on each support rod 0.44” (11 mm) away from the support lugs (see Figure 2). As the seal rings (6A and 6B) wear, this space will decrease.

**PROCEDURE FOR DETERMINING SEAL RING WEAR**

**STEP 1.**
The LN rod-supported rotary joint allows for the use of hex nuts on each support rod to provide a visual seal ring wear indicator. See Figure 2.

**STEP 2.**
Set the location of the hex nut such that the wear indicator distance is 0.44” (11 mm). Using a lock washer and second hex nut, tighten the hex nuts in place. Measure the wear indicator distance again to confirm the measurement is 0.44” (11 mm).

**STEP 3.**
As the seal rings (6A and 6B) wear, the rotary joint assembly will move away from the roll to compensate for seal wear. When the rotary joint lug reaches the hex nut, it will no longer be able to move away from the roll, and any additional seal wear will result in a minor steam leak from the back of the rotary joint. When the rotary joint lug reaches the hex nut, the seal ring should be replaced.