Disassembly and Repair of Type SX® Thermal Oil 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 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.

NOTE: For applications using thermal oil, see “General Guidelines for Using Rotary Joints Used with Thermal Oil”.

NOTE: Do not use anti-seize or petroleum-based products on o-rings. Only lubricate the o-rings with the silicone lubricant supplied with the Kadant Johnson repair kit. Prior to handling lubricants, consult MSDS information.

Please consult Kadant Johnson if you have any questions.

REPAIR KITS ARE AVAILABLE CONSISTING OF:

<table>
<thead>
<tr>
<th>Item #</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>Seal Ring</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Spring</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>Gasket</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Inboard Guide</td>
</tr>
<tr>
<td>10A</td>
<td>1</td>
<td>Outboard Guide</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>Retaining Ring</td>
</tr>
</tbody>
</table>

*Only 1 required when not using an assembly plate.

Hot oil rotary joints should only be serviced by factory trained personnel.

REMOVAL:

STEP 1.
Close the inlet and outlet valves and allow the rotary joint to cool down. Disconnect the flexible hose from the rotary joint.

STEP 2.
Remove the hex nuts from the studs at “Q” nipple flange (5).

STEP 3.
The rotary joint is now free to be removed from the machine.

STEP 4.
If equipped with a horizontal pipe, unscrew it and set aside.

STEP 5.
Set the rotary joint upright on a workbench as shown in Figure 1.

STEP 6.
Remove cap screws (2A) freeing the head (2). Caution is advised as this item may retain the internal spring force. Set the head aside.

STEP 7.
If using an assembly plate (31), remove the two round head cap screws (31A) and lockwashers (31B) holding assembly plate onto the body (1). Caution is advised as this item retains the internal spring force. You may have to apply some force to break the gasket loose.

STEP 8.
Remove the internal items – spring (7), inboard guide (10), nipple (4), and seal ring (6). Discard all items except the nipple.

STEP 9.
Turn body (1) over and remove retaining ring (25) and outboard guide (10A) and discard. The rotary joint is now fully disassembled.

STEP 10.
Clean the nipple (4) wear surface. Do not scratch the wear surface.

NOTE: Wear surfaces are metal and will rust. If the parts are rusted, they must be replaced.

STEP 11.
Inspect the nipple’s (4) wear surface for wear and scratches and replace if necessary.
STEP 12.
Clean the body (1). Take special care when cleaning the wear surface. Do not scratch the wear surface.

STEP 13.
Inspect the body (1) wear surface for wear and scratches. If necessary, replace. Remove all oil deposits, caked oil, and any residue from usage.

STEP 14.
Clean all gasket surfaces and parts to be reused.

REASSEMBLY:
STEP 15.
Place new outboard guide (10A) into body (1) and secure in place with retaining ring (25).

STEP 16.
Wipe body (1) wear surface and entire seal ring (6) with acetone.

STEP 17.
All wear surfaces, seal ring (6) and body (1), must be free of any contaminants.

STEP 18.
Insert a new seal ring (6) into the body (1) convex side down.

STEP 19.
Wipe nipple (4) wear surface with acetone and insert nipple, wear surface down.

STEP 20.
Install inboard guide (10) with its spring groove facing outward over the nipple (4) end and down into the body (1). Make sure to not contaminate the seal area.

STEP 21.
Place spring (7) into the machine groove in the end of the inboard guide.

STEP 22.
Using a new gasket (8), set assembly plate (31) over the spring and fasten in place with the two round head cap screws (31A) and lockwashers (31B).

STEP 23.
Using the second gasket (8), fasten head (2) to the body (1) with cap screws (2A).

STEP 24.
Thread the horizontal pipe into the head (2).

STEP 25.
For quick release style connections to your journal; place a new metal gasket (8Q) into the journal flange. Slide the quick release nipple flange (5) over the nipple (4) with its taper facing outward. Place the two split taper wedges (55) into recess of the nipple and then slide the quick release flange over them. Lift the rotary joint up and slide the nipple into the journal flange recess and secure to the studs with nuts provided, tightening evenly. Note that the quick release nipple flange (5) will not seat tightly against the face of the journal flange. When tight, there will be a 1/8” to 3/16” (3 mm to 5 mm) space between the two flanges.

If the rotary joint has a threaded nipple connection, thread it into the journal.

STEP 26.
Connect piping to rotary joint using Kadant Johnson flexible metal hose. The hose(s) should be long enough so there is no binding or tension causing the rotary joint to move off the centerline of the roll. The rotary joint must be free to move outward to compensate for carbon seal ring wear.

IMPORTANT: Connect the hose directly to the rotary joint. Minimize the use of fitting and pipe, as the increased weight can affect the performance of the rotary joint. Provide suitable support for the pipe and fitting beyond the hose.

STEP 27.
Install anti-rotation rods in the anti-rotation rod holes using Schedule 80 pipe. It is recommended that no more than two rotary joints be joined with one rod. Secure the rod in the rod hole of one rotary joint using cotter pins and let the rod float in the rod hole of the second rotary joint. This will absorb the torque generated by the rotary joint, and prevent premature hose failure by reducing stresses.

STEP 28.
The seal must be run “dry” to establish a matched fit with the metal parts. Run the rotary joint for five minutes, with no fluid or pressure, at 50 RPM. Do not exceed 100 RPM or damage will result.

NOTE: Never apply oil or grease to Kadant Johnson rotary joints. The saturated steam, condensate, or liquid passing through it is the only lubrication required for the carbon-graphite parts.

Minimize running Kadant Johnson rotary joints dry. Excessive seal wear may occur.

Dimensions are for reference only and subject to change. Certified drawings are available on request. Please refer to Kadant Johnson Drawing Number A37640 for torque specifications.