Disassembly and Repair of Type LJ™ Rotary Joints with ISSS™ Syphons

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.

**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.

**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**
Loosen and remove head bolts (Item 2A). Remove head (2). Remove gasket (8) and clean gasket surfaces.

**STEP 3**
Mark the end of the horizontal pipe (99) where it passes through the pressure plate (43) or measure and record the distance from the pressure plate to the end of the horizontal pipe. See Figure 1. Mark the top center of the horizontal pipe. The horizontal pipe must be reinstalled in its original position to maintain syphon clearances inside the dryer.

**STEP 4**
Remove pressure plate retaining bolts and washers (44 & 45) and remove pressure plate (43).

**STEP 5**
Remove split rings (42) by pulling the horizontal pipe (99). In some cases a horizontal pipe handling tool will need to be inserted into the center of the horizontal pipe. See drawing B5733 for 1" pipe and B5734 for 1 1/4" pipe. Insert the tool and tighten the nut on the all-thread rod. Once installed, the pipe can be moved as required. If necessary, the "U" bracket can be installed over the all-thread rod and used as a puller if the split rings are stuck.

**STEP 6**
Loosen and remove Q flange retaining nuts (5A). Remove the lock nuts from the support rods and slide rotary joint off the roll. Remove split wedges (55) and the Q flange (5). Sit the Q flange and split wedges aside for reuse. If the rotary joint is threaded to the roll, loosen the nipple (4) at the journal flange to remove the rotary joint.

**STEP 7**
Place the rotary joint into a hole in a work surface with the nipple (4) passing through the hole first so the rotary joint will rest on the wear plate (16).

Figure 1

Mark top center

Note: Horizontal pipe to pressure plate dimension
STEP 8
During this step, prepare to contain the spring force that is present within the rotary joint. Remove the wedge plate (40) along with the assembly plate (31) by removing two screws (31A). Inspect assembly plate. Replace if worn.

STEP 9
Remove the following: seal ring (6), thrust collar (3), spring (7), nipple (4) and seal ring (6).

STEP 10
Inspect the following items for scoring or excessive wear and replace as required: nipple (4), seal rings (6), spring (7), thrust collar (3), and wear plate (16). To replace the wear plate (16), remove wear plate bolts (16A) and separate wear plate from body (1). Clean gasket surfaces and install a new wear plate gasket (8R). Place wear plate on body and secure into position with wear plate bolts.

STEP 11
Place parts back into the rotary joint body in the following order: seal ring (6) with the flat face against the wear plate, nipple (4), spring (7), thrust collar (3), and seal ring (6) with the spherical face against the thrust collar (3).

STEP 12
Remove the O-rings (41) from the wedge plate (40). Clean and inspect O-ring grooves for steam cutting. Replace wedge plate if damaged. Lubricate two new O-rings (41) with silicone O-ring lubricant and install into O-ring grooves.

STEP 13
Place a new gasket (8) between the body (1) and the assembly plate (31). Place a new gasket (8) between the wedge plate (40) and the assembly plate (31). Compress the spring with the wedge plate and assembly plate, making sure the keyways in the thrust collar (3) are lined up with the keys on the nipple. Secure wedge plate/assembly plate to the body (1) using socket head cap screws (31A). Tighten cap screws evenly to 10 ft-lbs (14 Nm).

STEP 14
Place a new copper gasket (8Q) into the recess in the journal flange. Make sure the end of the horizontal pipe (99) is smooth and clean where it engages the O-rings (41) in the wedge plate (40). Install the rotary joint assembly back onto the roll by passing it over the horizontal pipe (99), making sure the horizontal pipe passes through the O-rings (41) in the wedge plate (40) while positioning the rotary joint assembly back onto the support rods. Secure to the roll using the Q flange (5) and split wedges (55) or thread the nipple (4) back into the roll and tighten. Tighten the Q flange evenly using a star pattern while making sure the gap between it and the journal flange is even. The gap should be approximately 1/8” (3 mm) around the circumference of the flange. The Q flange should not tighten against the journal flange surface. Check rotary joint alignment by making sure the nipple is centered in the wear plate and the body housing.

STEP 15
Set-up the rotary joint by pulling it away from the roll. Make sure the rotary joint is square and level to the machine. Install spacer collars (if required) and lock nuts on each rod. Run a nut down each of the support rods until the gap between the face of the nut and the lug on rotary joint equals the “X” dimension for your specific rotary joint. See Figure 2. Run a second nut down the support rod locking it with the first one while maintaining the “X” dimension.

STEP 16
Place split rings (42) into the recess in the wedge plate (40). Place pressure plate (43) over the split rings and loosely install screws and washers (44 and 45) that secure pressure plate.

STEP 17
Position syphon as it was in Step 3. Tighten pressure plate screws (45) evenly to 8 ft-lbs (11 Nm). Tap pressure plate with a soft-faced hammer to seat split wedges. Then tighten screws evenly to 16 ft-lbs (14 Nm).

STEP 18
Clean the gasket surface on the head (2). Place a new gasket (8) and position head onto the rotary joint body (1). Secure into position using head bolts (2A).

STEP 19
Connect steam and condensate hoses. The rotary joint is ready for service.

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.

<table>
<thead>
<tr>
<th>Rotary Joint Size</th>
<th>X Dimension</th>
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<tbody>
<tr>
<td>2”</td>
<td>1/3”</td>
</tr>
<tr>
<td>2-1/2”</td>
<td>3/8”</td>
</tr>
<tr>
<td>3”</td>
<td>7/16”</td>
</tr>
<tr>
<td>3-1/2”</td>
<td>7/16”</td>
</tr>
<tr>
<td>4”</td>
<td>9/16”</td>
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Table 1: Maximum Seal Ring Wear

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.

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