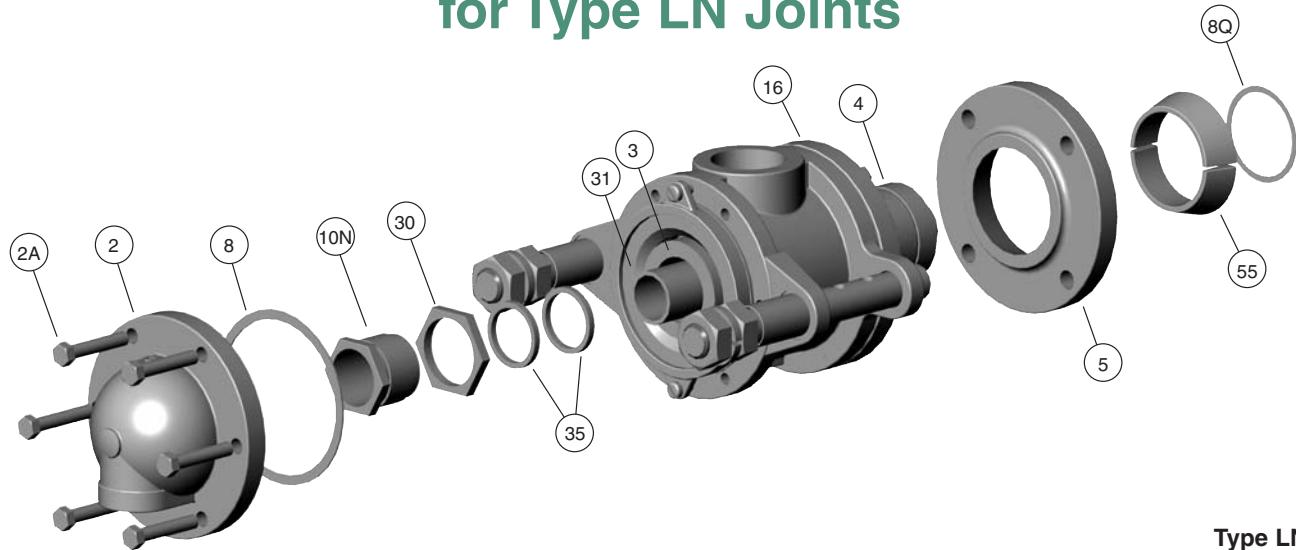


# Installation Instructions for Type LN Joints



**Type LNARQ**

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.

## STEP 1.

Check to make sure that all debris has been removed from the piping and roll before installing joint. This will eliminate seal ring scoring and damage to internal joint parts which could cause unnecessary downtime and maintenance.

## STEP 2.

Remove the head bolts (2A) and remove the head (2) from the joint, leaving the assembly plate (31) attached. Remove the packing gland (10N), locknut (30), and packing (35).

Make sure the pipe is clean and smooth where it seals in the packing gland.

**NOTE:** The horizontal pipe must be straight and true. This will prevent the pipe from breaking and excessive pipe wear.

## STEP 3.

Slide the quick release nipple flange (5) onto the rotary joint nipple (4) with its taper facing outward.

## STEP 4.

Place a new copper gasket (8Q) into the recess of the journal.

## STEP 5.

Slide the joint over the horizontal pipe, being careful when the pipe passes through the opening in the thrust collar (3) not to damage either part. The horizontal pipe should extend slightly beyond the gland, approximately 3/8" (10 mm).

## STEP 6.

Place the two split taper wedges (55) into the recess of the nipple (4). Slide the quick release nipple flange over the

wedges and secure to the journal flange studs with nuts provided. Tighten evenly. Note that the quick release nipple flange will not seat tightly against the face of the journal flange. When tight, there will be approximately a 1/8" to 3/16" (3 to 5 mm) space between the flanges. Measure this space to make sure it is equal around the circumference of the flange.

## STEP 7.

Using the packing (35) furnished, repack the internal pipe in the thrust collar (3). Tighten the packing gland (10N) to 30 ft-lbs (41 Nm). Then tighten the locknut (30) against the thrust collar (3).

**NOTE:** The rotary joint must be free to move outward along the horizontal pipe to compensate for seal ring wear.

## STEP 8.

Using a suitable support, mount the rotary joint to it. Make sure components are in alignment, and that the rotating nipple and thrust collar are aligned squarely with the wear plate and assembly plate. If necessary, loosen supports and re-align joint. Measure the clearance between the nipple (4) and renewable wear plate (16). Refer to Table 3 for specification.

## STEP 9.

Reattach the head (2) using gasket (8) to the joint. Tighten the head bolts using a star pattern and the proper torque. See Kadant Johnson Drawing Number A37640 for torque specifications.

## STEP 10.

Once the rotary joint is in position and properly aligned, set the wear indicator hex nuts (A & B) on each support rod to the prescribed distance (see Table 1 for specification) away from the rotary joints outboard lugs (see Fig. 1). As the seal rings wear this space will decrease.

## STEP 11.

Connect piping to joint using Kadant Johnson stainless steel flexible metal hose. The hose(s) should be long enough so there is no binding or tension causing the joint to move off the journal centerline. The joint must be free to move outward to compensate for seal ring wear. When flanged hose is used, spool pieces in place of the hose are recommended for fabrication purposes.

**NOTE:** Connect the hose as close to the joint as possible. Minimize the use of fittings and pipe. This increased weight can affect the performance of the joint. Provide suitable support for the pipe and fitting beyond the hose.

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

**NOTE:** Minimize running Kadant Johnson joints dry. Excessive seal wear may occur.

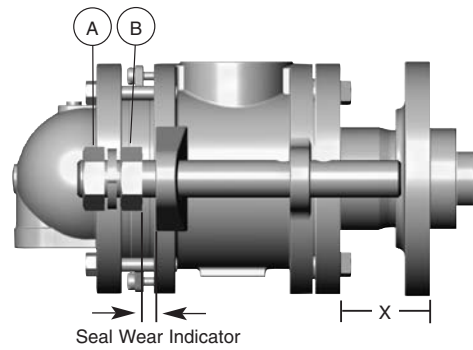


Figure 1

**ALTERNATE PROCEDURE FOR DETERMINING SEAL RING WEAR**

**CAUTION**

Check the rotary joint regularly for seal ring wear. Should the seal ring wear away completely, the metal nipple can wear into the joint body, and eventually through it. This will result in a leak, creating a hazardous condition, and will require replacement of the entire joint instead of just the seal ring.

**STEP 1.**

Measure from the face of the journal flange to the first machined/gasketed surface on the rotary joint (Dimension X).

**STEP 2.**

As the seal ring begins to wear, the joint moves away from the roll journal end (due to pressure).

**STEP 3.**

Reference Table 1 and determine the seal wear allowable for the joint size.

**STEP 4.**

Add the dimension found in Table 1 (Step 3) to Dimension X.

**STEP 5.**

As the seal ring wear takes place and the joint body begins to move away from the roll journal check Dimension X occasionally. When Dimension X equals the dimension found in Step 4, the seal ring should be replaced.

TABLE 1 MAXIMUM SEAL RING WEAR		
Joint Size	Seal Wear	
3/4"	1/4"	6 mm
1"	1/3"	9 mm
1-1/4"	3/8"	10 mm
1-1/2"	5/16"	8 mm
2"	1/3"	9 mm
2-1/2"	3/8"	10 mm
3"	7/16"	11 mm
3-1/2"	7/16"	11 mm
4"	9/16"	14 mm
5"	9/16"	14 mm
6"	7/16"	11 mm
7-1/2"	11/16"	18 mm
8"	13/16"	21 mm

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

TABLE 2 RECOMMENDED MINIMUM HOSE LENGTHS		
Hose Size	Minimum Length	
1/4"	8"	200 mm
3/8"	10"	250 mm
1/2"	10"	250 mm
3/4"	12"	300 mm
1"	15"	380 mm
1-1/4"	18"	450 mm
1-1/2"	18"	450 mm
2"	21"	530 mm
2-1/2"	24"	610 mm
3"	27"	690 mm

TABLE 3 ROTARY JOINT CLEARANCE RELATION CHART N-JOINTS									
Size	A (Inboard Nipple Wear Plate)		Gauge Size		B (Outboard Thrust Collar/Assembly Plate)		Gauge Size		
	inches	mm	inches	mm	inches	mm	inches	mm	
3/4"	2200	1/16	1.5	1/32	0.80	3/32	2.0	1/16	1.5
1"	2300	3/32	2.0	1/16	1.5	3/32	2.0	1/16	1.5
1-1/4"	2400	1/16	1.5	1/32	1.0	3/32	2.0	1/16	1.5
1-1/2"	2500	3/16	5.0	1/8	3.0	5/32	4.0	1/8	3.0
2"	2550	1/8	3.0	3/32	2.0	1/8	3.0	3/32	2.0
2-1/2"	2600	1/8	3.0	3/32	2.0	5/32	4.0	1/8	3.0
3"	2700	1/8	3.0	3/32	2.0	1/8	3.0	3/32	2.0
3-1/2"	2750	1/8	3.0	3/32	2.0	5/16	8.0	1/4	6.0
4"	2800	1/4	6.0	3/16	5.0	1/4	6.0	3/16	5.0
5"	950	1/2	12.0	3/8	10.0	7/16	11.0	3/8	10.0
6"	1000	1/4	6.0	3/16	5.0	11/32	9.0	3/16	5.0
7-1/2"	1075	1/8	3.0	3/32	2.0	1/2	12.0	7/16	11.0
8"	1100	1/4	6.0	3/16	5.0	1/4	6.5	3/16	5.0

**NOTES:**

- Dimensions are per side, not diameter.
- 'A' is maximum offset allowable before interference of rotating parts and stationary parts will occur.
- Maximum recommended eccentricity of joint nipple run-out in relation to joint body is  $\pm 1/16$  (1.5 mm) T.I.R.
- For Trunion driven dryers, vertical movement should be allowed for due to thermal expansion.
- Centerline of support rods must be parallel with centerline of dryer journal  $\pm 1^\circ$  during operation.
- The above are rounded off to the nearest lower fraction and are meant for reference only. Actual dimensions should be obtained from Kadant Johnson Engineering Drawings.
- Gauge clearance A & B with a welding rod gauge. You will have to remove head casting to check dimension B.

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.

