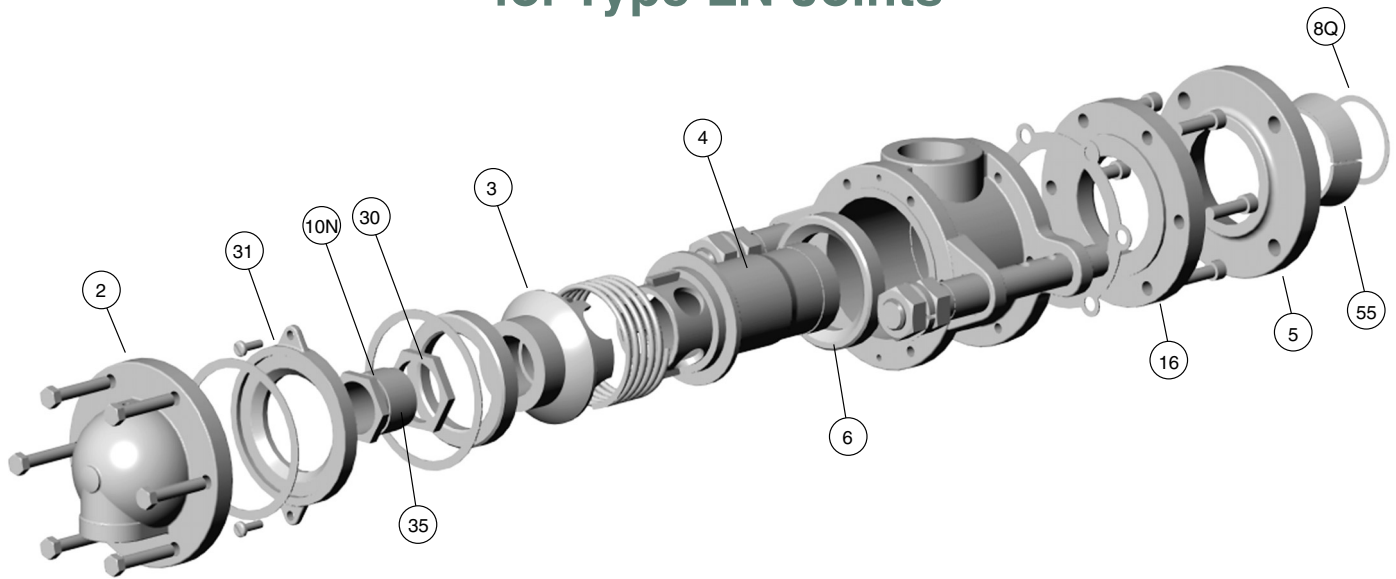


# Installation Instructions for Type LN Joints



## Type LNARQ

**NOTE:** Please follow your company's safety procedures whenever working on Kadant Johnson Rotary Joints and read all of the instructions completely before proceeding.

Please refer to the assembly drawings supplied with your Kadant Johnson Rotary Joint for part identification.

### STEP 1.

Check to make sure that all core sand, dirt, weld beads, pipe turnings, metal dust and other foreign matter has been removed from the piping, roll, dryer or cylinder before installing joint. This will help eliminate carbon seal ring scoring and damage to internal joint parts which could cause unnecessary downtime and maintenance.

### STEP 2.

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.

**IMPORTANT:** THE INNER PIPE MUST BE STRAIGHT, TRUE AND ATTACHED WITHIN THE ROLL SO IT ROTATES WITHOUT WOBBLING. THIS WILL PREVENT STRAINING INTERNAL JOINT PARTS WHICH COULD CAUSE LEAKAGE AND CARBON SEAL RING BREAKAGE.

### 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 inner rotating syphon pipe, being careful when the pipe passes through the opening in the thrust collar (3) not to damage either part. The inner rotating pipe should extend slightly beyond the gland (approximately 10mm).

### 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 3mm – 5mm space between the flanges. Gage the gap.

### STEP 7.

Using the packing (35) furnished, repack the internal pipe in the thrust collar (3). Tighten the packing gland (10N) just enough to seal (approximately 40 Nm.), but not so tight as to lock on the pipe. Then tighten the locknut (30) against the thrust collar.

**IMPORTANT:** THE ROTARY JOINT MUST BE FREE TO MOVE OUTWARD ALONG THE PIPE TO COMPENSATE FOR CARBON 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. Gage the running clearance between the nipple (4) and renewable wear plate (16). Refer to Table 3.

### STEP 9.

Reattach the head (2) to the joint.

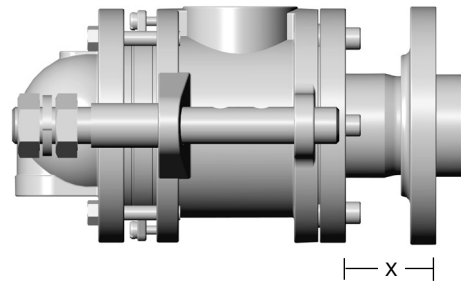
### STEP 10.

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 tending to move the joint off the journal centerline of the roll. The joint must be reasonably 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.

**IMPORTANT:** CONNECT THE HOSE AS CLOSE TO THE JOINT AS POSSIBLE. MINIMIZE THE USE OF FITTINGS AND PIPE, AS THIS INCREASED WEIGHT CAN AFFECT THE PERFORMANCE OF THE JOINT. PROVIDE SUITABLE SUPPORT FOR THE PIPE AND FITTING BEYOND THE HOSE.

**NEVER APPLY OIL OR GREASE TO THIS SERIES OF KADANT JOHNSON JOINTS. THE SATURATED STEAM, CONDENSATE OR LIQUID PASSING THROUGH IS THE ONLY LUBRICATION REQUIRED FOR THE CARBON-GRAPHITE PARTS.**

**MINIMIZE RUNNING KADANT JOHNSON JOINTS DRY. EXCESSIVE CARBON SEAL WEAR MAY OCCUR.**



**PROCEDURE FOR DETERMINING CARBON SEAL RING WEAR.**

**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 carbon seal ring should be replaced.

**TABLE 1**

Joint Size	Seal Wear (mm)
3/4"	6,5
1"	9,0
1-1/4"	10,2
1-1/2"	8,0
2"	9,0
2-1/2"	10,2
3"	11,1
3-1/2"	11,1
4"	14,3
5"	14,3
6"	11,1
7-1/2"	17,5
8"	20,6

*Specification and 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 (mm)
1/4"	200
3/8"	250
1/2"	250
3/4"	300
1"	380
1-1/4"	450
1-1/2"	450
2"	530
2-1/2"	610
3"	690

**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	C Sealing Ring/ Body ID
3/4" - 2200	1,60	0,80	2,40	1,60	1,60
1" - 2300	2,40	1,60	2,40	1,60	2,40
1-1/4" - 2400	1,60	0,80	2,40	1,60	3,20
1-1/2" - 2500	4,80	3,20	4,00	3,20	3,20
2" - 2550	3,20	2,40	3,20	2,40	4,80
2-1/2" - 2600	3,20	2,40	4,00	3,20	3,20
3" - 2700	3,20	2,40	3,20	2,40	3,20
3-1/2" - 2750	3,20	2,40	8,00	6,35	8,00
4" - 2800	6,35	4,80	6,35	4,80	6,35
5" - 950	12,70	9,50	11,10	9,50	12,70
6" - 1000	6,35	4,80	8,75	4,80	6,35
7-1/2" - 1075	3,20	2,40	12,70	11,10	6,35
8" - 1100	6,35	4,80	6,35	4,80	8,00

**NOTES:**

1. Dimensions are per side, not diameter.
2. 'A' is maximum offset allowable before interference of rotating parts and stationary parts will occur.
3. Maximum recommended eccentricity of joint nipple run-out in relation to joint body is  $\pm 1/16$  T.I.R.
4. For Trunion driven dryers, vertical movement should be allowed for due to thermal expansion.
5. Centerline of support rods must be parallel with centerline of dryer journal  $\pm 1^\circ$  during operation.
6. 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.
7. 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.

