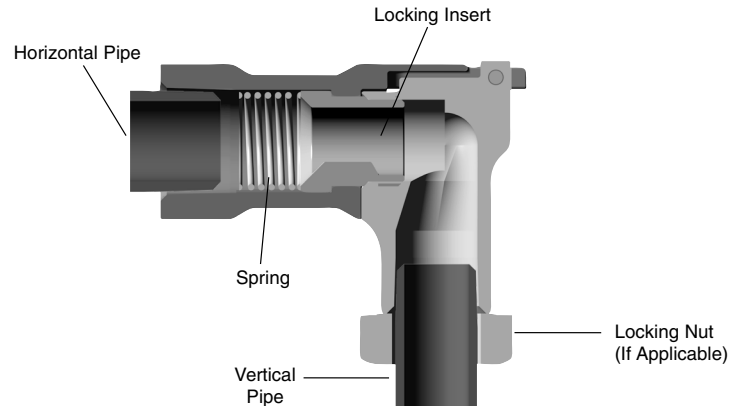


# Installation Instructions for 90° Locking Elbow



The Locking Elbow is hinged, so that the syphon pipe can be installed through the journal of the roll, then closed and locked in its 90-degree position. A locking insert is used to lock the two halves of the elbow together, once the syphon has been installed in the roll.

A special tool is required to close the elbow and to lock (or remove) the locking insert. This tool can be purchased from Kadant Johnson. Before proceeding with the installation, it is recommended that the installer practice using this tool to install the locking insert while the elbow is outside the roll.

Included with the Locking Elbow are two tubes of Loctite® 242. It is recommended that you apply this thread-locking sealant to all of the threaded connections (horizontal pipe, locking insert, and vertical pipe), as shown in the drawing above, before tightening the parts.

## STEP 1:

Apply Loctite 242 to the locking insert and place the insert into the recess in the long end of the Elbow. The locking insert is not to be tightened until the pipe and Locking Elbow have been inserted into the roll.

## STEP 2:

Insert the spring into the recess in the long end of the Elbow. This should be done before connecting the horizontal pipe to the elbow.

## STEP 3:

Apply Loctite 242 to the threads of the horizontal pipe, screw the pipe into the elbow (behind the spring), and tighten the pipe. This will set the thread-locking sealant for this pipe. It is generally easiest to attach the horizontal pipe to the head of the rotary joint at this point, following the recommendations of the rotary joint supplier.

## STEP 4:

Apply Loctite 242 to the threads of the vertical pipe, screw the pipe into the elbow, and tighten. Tapered pipe threads are recommended for the vertical pipe. If the vertical pipe has straight threads (rather than tapered pipe threads), then a locking nut should also be used and tightened. Tightening the pipe (and the locking nut, if used) will set the thread-locking sealant to hold the pipe in place.

## STEP 5:

Open the Locking Elbow so that the horizontal and vertical pipes are in-line, slide the complete syphon assembly into the roll journal, then **slowly** turn the pipe until the vertical pipe is pointing downward. Attach the head of the rotary joint to the body of the rotary joint and tighten, following the recommendations of the rotary joint supplier.

## STEP 6:

Slide the insert tool through the horizontal pipe until it contacts the insert. Apply pressure and turn clockwise. You will feel the tool engage the insert key. Turn the tool two more revolutions clockwise to ensure engagement. With pressure still applied, turn the tool to the left until the stamped mark (T) on the tool is straight up. With the mark up, pull the tool straight back (it should move approximately 1"), then push forward. Turn the tool to the right. This will now tighten the insert into the elbow. Tighten to 50 ft-lb. Pull the tool straight back to remove it from the roll.

## ALTERNATIVE TO STEPS 5 AND 6

When following the procedure outlined in Steps 5 and 6, the tang at the end of the insert tool will swing the vertical syphon pipe into the vertical position so the locking insert can be threaded into the Locking Elbow.

If the roll journal is very long, it takes some experience to get the tang to move the vertical syphon pipe into position. If this operation proves to be too difficult, a light string can be attached to the vertical syphon pipe and used to pull the pipe into position. This generally makes the installation much easier to perform.

This alternative installation procedure is outlined below:

1. When the Locking Elbow is installed in rolls *without* an internal support bushing:

Wrap the string around the vertical syphon pipe. It is best if the string has two wraps on the pipe. Open the Locking Elbow so that the horizontal and vertical syphon pipes are in-line. Hold on to both ends of the string and slide the complete syphon assembly into the roll journal, with the locking elbow hinge pin on the bottom. Slowly turn the pipe until the vertical syphon

pipe is pointing downward. Pull on both ends of the string at the same time, to swing the vertical syphon pipe into the vertical position. Slide the insert tool through the horizontal pipe until it contacts the insert. Continue to pull on the ends of the string and apply a slight pressure to hold the insert tool against the insert and turn the tool clockwise. You will feel the tool engage the insert key. Turn the insert into the Locking Elbow and tighten to 50 ft-lb. Pull on one end of the string and remove the string from the roll.

Complete the installation of the joint and recheck the torque on the locking insert.

2. When the Locking Elbow is installed in rolls with an internal support bushing:

A light string can also be used to swing the vertical syphon pipe into the vertical position when the Locking Elbow is supported by an internal (journal-supported) carbon bushing. There are two ways to do this.

1) Install the syphon pipe and Locking Elbow in the support tube. Wrap the string around the vertical pipe. It is best if the string has two wraps on the pipe. Open the Locking Elbow so that the horizontal and vertical pipes are in-line. Hold on to both ends of the string and slide the complete syphon assembly into the roll journal, with the string *outside* the support tube. Pull on both ends of the string to swing the vertical syphon pipe into the vertical position. Slide the insert tool through the horizontal pipe until it

contacts the insert. Apply a slight pressure to hold the insert tool against the insert and turn the tool clockwise. You will feel the tool engage the insert key. Turn the insert into the Locking Elbow and tighten snugly. Pull on one end of the string and remove the string from the roll. Bolt the support tube to the end of the journal, install the rotary joint, and tighten the insert to 50 ft-lb.

2) A slightly easier approach is: Drill a 12 mm diameter hole in the bottom of the bushing support tube, about two feet from the support bushing. Wrap the string around the vertical syphon pipe with two wraps. Route both ends of the string through the drilled hole in the support tube and out through the inside of the support tube. Then install the syphon pipe in the support tube, with the string wrapped twice around the vertical syphon pipe. Slide the entire assembly through the journal, with the string going through the drilled hole and passing through the inside the support tube. Bolt the support tube flange to the end of the journal. Pull on both ends of the string at the same time to close the Locking Elbow and then install the insert with the long tool. Tighten the insert, install the joint, and then tighten the locking insert to 50 ft-lb.

**NOTE:** To enhance condensate removal and improve the operation of the vertical syphon pipe, cut the end at a 30° angle rather than square. This permits blow-through steam and condensate to exit the vertical syphon pipe in the unlikely event the vertical leg contacts the cylinder.

---

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.

**KADANT**  
JOHNSON

[www.kadantjohnson.com](http://www.kadantjohnson.com)