

# INSTALLATION INSTRUCTIONS

Read installation instructions first before installing. Check parts to ensure that no damage has occurred during transit and that no parts are missing. Also check the diameter of the pipe and the range marked on the coupling to ensure you have the proper size.

## Style 400 Fabricated Steel Couplings (60" and Larger)

### PIPE ENDS

**Step 1 • Pipe End Preparation:** The pipe ends shall be free from indentations, projections or roll marks for a distance 2" greater than the length of the coupling. The pipe ends shall conform to the diameter and roundness tolerances stated in the table below.

PIPE END TOLERANCES (inches)			
NOMINAL PIPE SIZE	OD TOLERANCE		ROUNDNESS
	+	-	min/max <sup>1</sup>
60" - 72"	3/16	1/16	1/8
73" - 96"	1/4	1/16	3/16
120" and greater	1/4	1/16	1/4

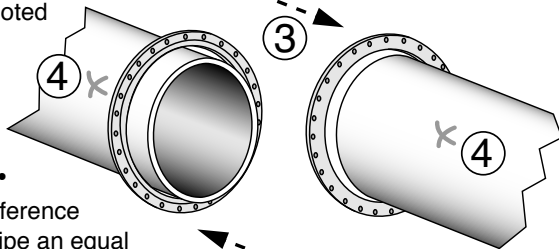
<sup>1</sup> Out of roundness conditions are required to be correctable so that the difference between the minimum and maximum diameters is not greater than this dimension.

Measure the pipe diameter at eight places 45° apart. If the difference is greater than specified, make corrections by rounding the pipe with trench jacks or suitable wooden posts and wedges. All out of roundness shall be in the form of a smooth oval that can be jacked round. Maintain roundness until joint is finished.

**Step 2 •** Pipe ends must be clean and free of all oil, dirt, loose scale, or rust. A thorough cleaning with a wire brush is recommended.

### ASSEMBLY

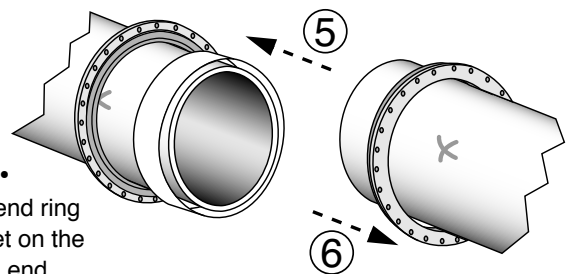
**Step 3 •** Place an end ring on each pipe end. If the ring does not easily slip on the pipe, correct pipe with jacks or posts as noted above.



**Step 4 •** Place a reference mark on pipe an equal distance from each pipe end for centering the coupling over the pipe ends. These marks should be back far enough from the pipe ends to be visible after the coupling is centered.

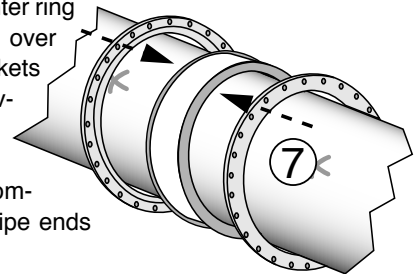
**If a boot gasket is to be used for insulation,** it should be slipped on the pipe end at this time. Pull the boot gasket onto the pipe until the welt of the boot gasket is against the end of the pipe. It may be helpful to wet the gaskets with water to make installation easier. If a boot gasket is used, the end ring and gasket should be placed over them.

**Step 5 •** Place an end ring, gasket and the center ring on one pipe end. The gaskets should be cleaned and inspected for damage from shipment and then placed next to the end rings, beveled edge away from end ring.



**Step 6 •** Place an end ring and gasket on the other pipe end.

**Step 7 •** Slide the center ring into position and center over the pipe ends. Slide gaskets into position with the beveled edge engaging the flared end of the center ring. Maintain the recommended gap between pipe ends as noted in Table 2..



**Table 2: Recommended Gap between Pipe Ends (inches)**

Center Ring Length	Gap Range	Max. Gap with Pipe Stops and No Pipe Movement
7	1/2 - 3/4	2
10	1/2 - 1 1/4	3 1/2

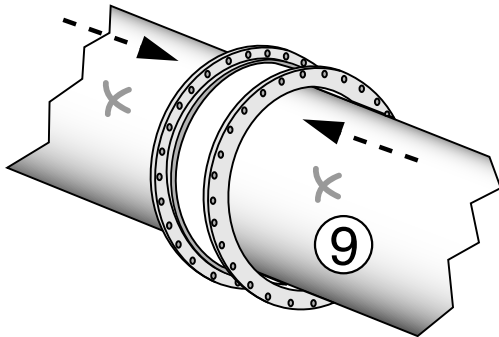
**IMPORTANT:** The clearance between the outside of the pipe and the inside of the center ring is to be distributed as equally as possible. No more than 1/8" opening at one place is permissible. The center ring can be supported from below, or wood shingle wedges may be used to help make the clearance equal if access to the I.D. of the pipe is available. Any wedges used in assembly should be removed after the coupling is assembled. The wedges must not protrude into the gasket cavity.

Installation Instructions continued on back

## Style 400 (Continued from front)

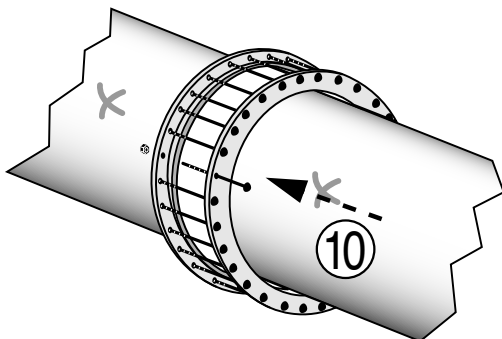
**Step 8** • Be sure that the gasket cavity in the coupling is free from wood, dirt, metal, and other field debris. Lubricate gasket and/or pipe surface with a suitable gasket lubricant.

**Step 9** • Push end rings against the gasket, and rotate one end ring until the bolt holes line up.



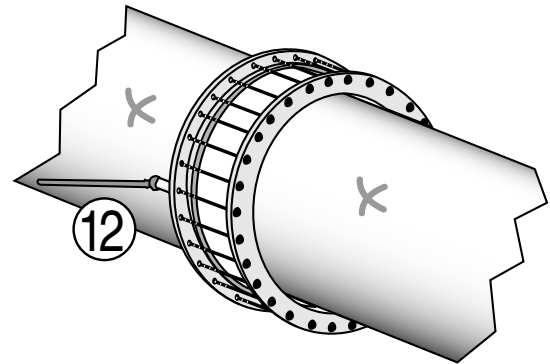
### BOLTING UP

**Step 10** • Insert and make all bolts finger-tight. It is convenient to tighten bolts by downhand wrenching. Insert the bolts so that the nuts are on the left-hand side as the installer faces the pipe.



**Step 11** • Be certain that the center ring is started into the end ring, and is not interfering. If necessary, wedges can be used to free the end ring from the edge of the center ring.

**Step 12** • Tighten to 30-35 ft-lbs., two or three times. Be certain that the end rings do not “cock” on the center ring as the bolts are tightened. Increase torque by 10-15 ft-lbs. to 70 ft-lbs. for  $\frac{5}{8}$ " bolts or 90 ft-lbs. for  $\frac{3}{4}$ " bolts. Before final tightening, it is good practice to strike each bolt head with a light sledge hammer to seat all parts. At the maximum torque, go around the coupling several times to make sure that all bolts are tight.



**Step 13** • On coupling 60" and larger, three or four men can best tighten. Space the men equally around the coupling, and have them all advance in the same direction as they tighten each nut.

**Step 14** • After final torque has been achieved, remove all jacks and posts needed to round up the pipe.

### TIGHTENING OF BOLTS

**Step 15** • After 24 hours, it may be necessary to retighten the bolts.  $\frac{5}{8}$ " bolts re-tighten to 70 ft-lbs.,  $\frac{3}{4}$ " bolts to 90 ft-lbs.

**Step 16** • If leaks should develop during the testing procedure, tighten bolts as necessary to stop leaks. Check all bolts for torque.



**CAUTION:** A pipe section should not be allowed to hang in the coupling either before or after making up the joint. Couplings are designed to “float” on the pipe ends. They are not designed to support the pipe.

**CAUTION:** Couplings with a step in the center ring have the potential for migrating along the pipe; therefore some form of restraint should be used.

**CAUTION:** When reinstalling parts with stainless steel hardware there may be a loss in pressure holding ability due to worn or damaged threads during the original installation.

**CAUTION:** Flexible couplings do not provide protection against axial force. Suitable anchorage should be provided.