

# 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 (with reinforced end rings)

### 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.

NOMINAL PIPE SIZE	OD TOLERANCE		ROUNDNESS
	+	-	MIN/MAX <sup>1</sup>
1/2" TO ≤ 16"	0.06"	0.06"	1/8"
> 16" TO ≤ 24"	0.08"	0.08"	1/8"
> 24" TO ≤ 42"	0.10"	0.10"	1/8"
> 42" TO ≤ 120"	0.12"	0.06"	1/8"

<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.

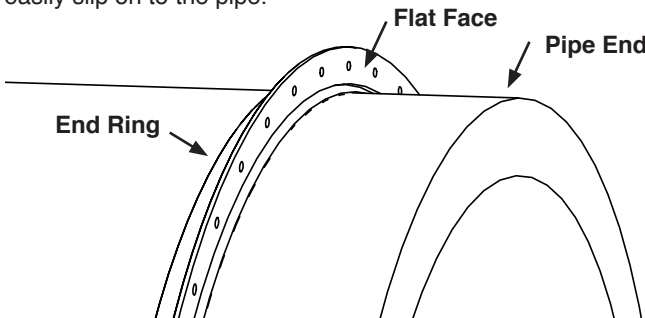
Measure the pipe diameter at four places 45° apart. If the difference is greater than specified, make corrections by rounding the pipe with trench jacks or suitable wooden posts and wedges. All out of roundness shall be in the form of a smooth oval that can be jacked round. Maintain roundness until joint 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. Clean pipe ends for a distance of 2" greater than the length of the coupling.

### ASSEMBLY

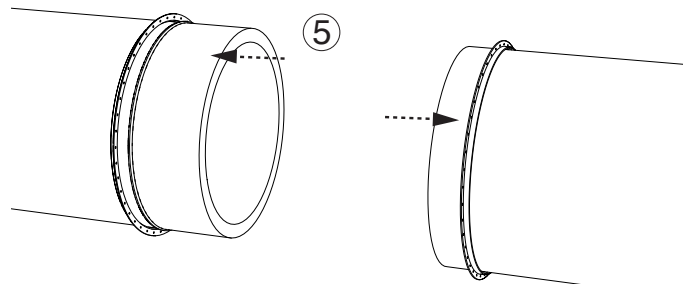
**Step 3 •** Place a reference mark on pipe an equal distance from each pipe end for centering the coupling over the pipe ends. These marks should be back far enough from the pipe ends to be visible after the coupling is centered. If the coupling has anchor pins, see Anchor Pin Installation Guide for pipe insertion.

**Step 4 •** Place end rings on the pipe and position them so that the flat face is towards the pipe end. The end rings should easily slip on to the pipe.

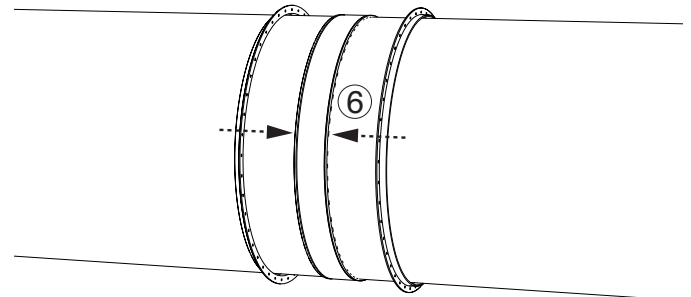


If a boot gasket is to be used for insulation, it should be slipped on the pipe end at this time. Pull the boot gasket onto the pipe until the welt of the boot gasket is against the end of the pipe. It may be helpful to wet the gaskets with water to make installation easier. If a boot gasket is used,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

**Step 5 •** Once gaskets are inspected, clean, and free from damage and debris, place gaskets on the pipe ends next to the end rings with the beveled edge towards pipe ends.



**Step 6 •** 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 the table below.



### RECOMMENDED GAP BETWEEN PIPE ENDS

Center Ring Length	Straight-Run Pipe*	Deflected Joints**	Maximum Permissible In-Service Centerline Gap*
5"	0.5"	1"	2"
7"	1"	1.5"	3"
10"	1"	2.25"	4.5"

\*Recommended gap between pipe ends that is not expected or able to deflect greater than 25% of stated deflection values. See Romac Catalog Page 2-25, "400 Coupling Options."

\*\*Recommended gap between pipe ends to achieve maximum deflection. The maximum allowable deflection should only be used when the pipes will not move in service.

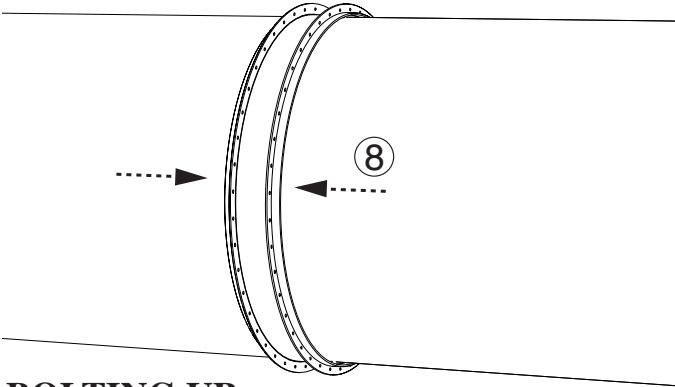
**IMPORTANT:** The clearance between the outside of the pipe and the inside of the center ring is to be distributed as equally as possible. The center ring can be supported from below, or wood shingle wedges may be used to help make the clearance equal if access to the I.D. of the pipe is available. 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)

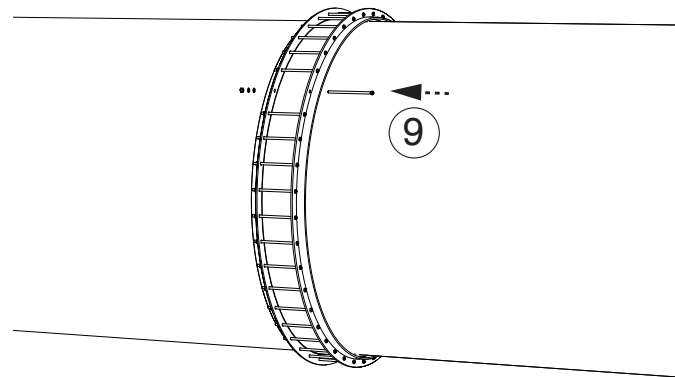
**Step 7** • Be sure that the gasket cavity in the coupling is free from wood, dirt, metal, and other field debris. Lubricate gasket and/or pipe surface with a suitable gasket lubricant.

**Step 8** • Push end rings against the gasket, and rotate one end ring until the bolt holes line up.



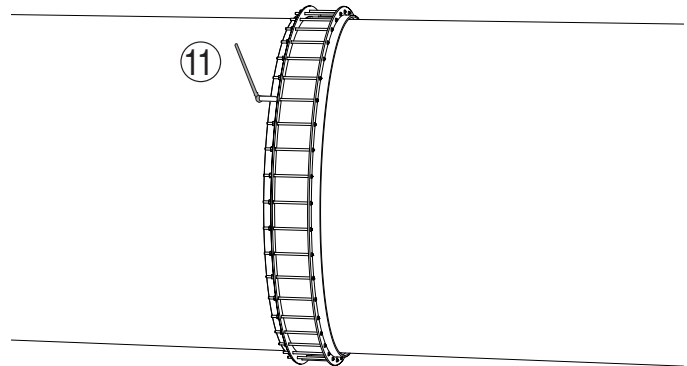
### BOLTING UP

**Step 9** • 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 10** • 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 11** • 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 60 - 70 ft-lbs. for  $\frac{5}{8}$ " bolts or 85 - 95 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 12** • After final torque has been achieved, remove all jacks and posts needed to round up the pipe.

### TIGHTENING OF BOLTS

**Step 13** • After 24 hours, it may be necessary to retighten the bolts.  $\frac{5}{8}$ " bolts re-tighten to 60 - 70 ft-lbs.,  $\frac{3}{4}$ " bolts to 85 - 95 ft-lbs.

**Step 14** • If leaks should develop during the testing procedure, tighten bolts as necessary to stop leaks. Check all bolts for torque. Pressure test to 1.5 X working pressure.



**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.