

# INSTALLATION INSTRUCTIONS

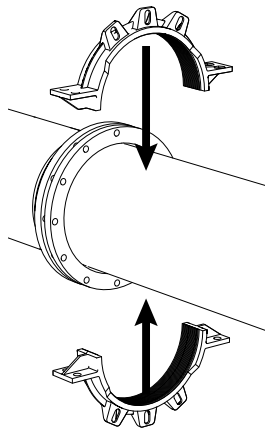
Read installation instructions first before installing. Check parts to ensure that no damage has occurred during transit and that no parts are missing. Also check the diameter of the pipe and the size marked on the restrainer to ensure you have the right product.

## 14" - 36" 612 Restrainer for Mechanical Joints

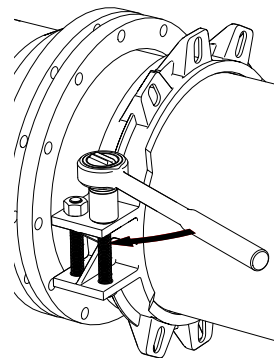
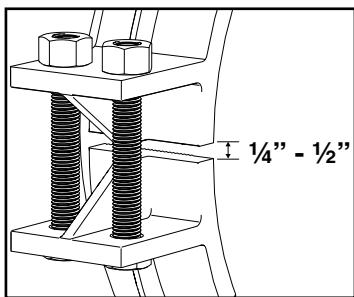
**NOTE: For use on C905.**

**Step 1** • Assemble the mechanical joint without fasteners installed.

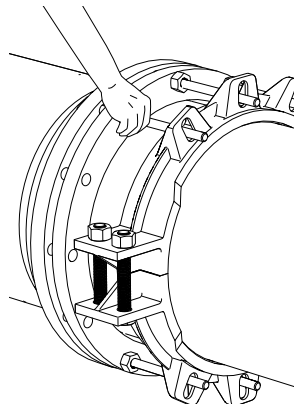
**Step 2** • Assemble a pair of style 600 half rings on the spigot pipe approximately 4 inches behind the MJ gland. The flat side of the restrainer ear should face away from the fitting to insure proper direction of the angled serrations. Align the restraining ears with the MJ gland bolt circle so that the T-bolts will run parallel to the pipe.



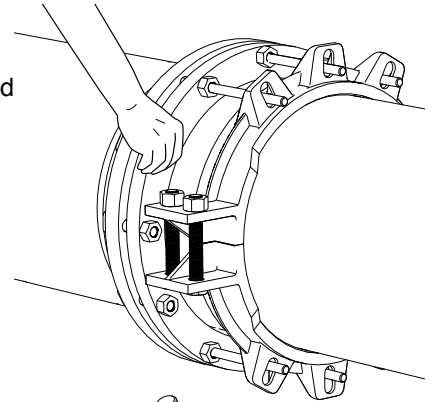
**Step 3** • Insert the clamping bolts. Tighten the side clamping nuts of the style 600 evenly to 130 ft-lbs. Expect a 1/4" to 1/2" gap on each side of the restrainer.



**Step 4** • Insert long T-bolts from the back side of the MJ bell through the MJ gland. Place a nut on the end and thread on until it is hand tight. At this point the remaining portion of the T-head should now be through the restraining ear of the style 600.

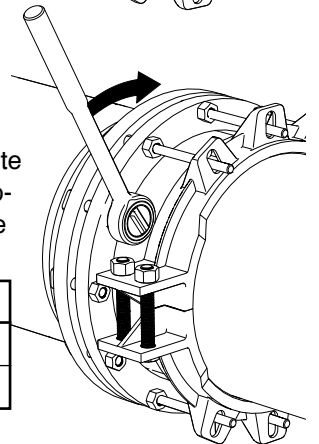


**Step 5** • Place the remaining shorter T-bolts in MJ gland and hand tighten.

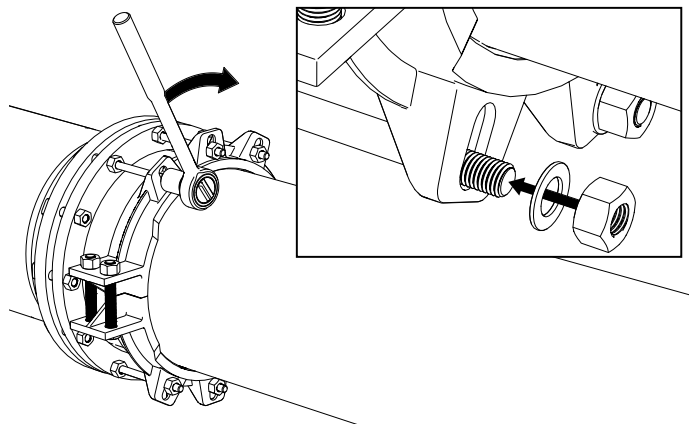


**Step 6** • Tighten nuts evenly, alternating to diametrically opposite positions to bring bolts to the recommended torque shown in the table below.

| SIZE      | TORQUE            |
|-----------|-------------------|
| 14" - 24" | 75 - 90 ft-lbs.   |
| 30" - 36" | 100 - 120 ft-lbs. |



**Step 7** • Place a washer & nut behind each restrainer ear and snug all of the tie rod nuts. Do not over-tighten, approximately one turn with a wrench.



## 14" - 36" 612 Restrainer for Mechanical Joints

| PRESSURE RATINGS     |      |      |      |        |      |      |
|----------------------|------|------|------|--------|------|------|
| NOMINAL<br>PIPE SIZE | C905 |      |      |        |      |      |
|                      | DR18 | DR21 | DR25 | DR32.5 | DR41 | DR51 |
| 14                   | 235  | 200  | 165  | 125    | 100  | -    |
| 16                   | 235  | 200  | 165  | 125    | 100  | -    |
| 18                   | 235  | 200  | 165  | 125    | 100  | 80   |
| 20                   | 235  | 200  | 165  | 125    | 100  | 80   |
| 24                   | 235  | 200  | 165  | 125    | 100  | 80   |
| 30                   | 235  | 200  | 165  | 125    | 100  | 80   |
| 36                   | 235  | 200  | 165  | 125    | 100  | 80   |

### PRECAUTIONS

1. Confirm diameter of pipe and pipe material, to make sure you are using the correct product.
2. Clean pipe to remove as much dirt, coatings, and corrosion as possible from the surface.
3. Make sure no foreign materials become lodged between the restrainer halves or between the restrainer and pipe.
4. Avoid loose fitting wrenches, or wrenches so short that achieving proper torque is difficult.
5. Keep threads free of foreign material to allow proper tightening.
6. Bolts are often not tightened enough when a torque wrench is not used. Take extra care in this situation to make sure bolts are properly tightened.
7. Over-tightening the restraining rod nuts can dislodge the mechanical joint fitting and bottom out the pipe in the fitting. This can put excessive stress on the system.
8. Pressure test for leaks before backfilling.
9. Backfill and compact carefully around pipe and fittings.
10. 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

### COMMON INSTALLATION ERRORS

1. Not enough torque on clamping bolts.
2. Debris lodged between restrainer halves or between restrainer and pipe.
3. Dirty threads on bolts or nuts.
4. Not using the proper size restrainer for the pipe.
5. Forgetting to tighten clamping bolts and/or coupling bolts.

### IF RESTRAINER MUST BE REMOVED

1. Make sure pipe is not pressurized. Removing the restrainer could cause the pipe joint to separate.
2. Make sure a restraining system is in place before re-pressurizing pipe.