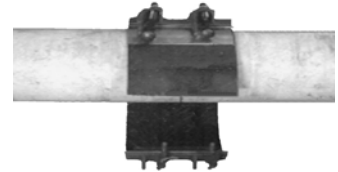


1. Clean and scrape pipe. Remove any dirt or debris that would interfere with the complete sealing of the gasket around the pipe. Lubricate the pipe with soapy water. **Do not use oil base pipe lubricant.** *Trick of the Trade: Place a mark on the pipe to each side of the damaged area equal to the width of the clamp. This presents a visual mark to center the repair clamp over the damage area (1/2 of this distance is center).*



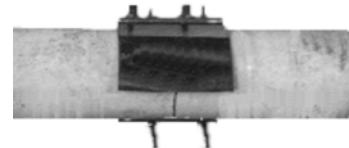
2. Inspect pipe for integrity, size and outside diameter. Confirm the proper size and range of repair clamp.



101, 103

**For Models 101, 103** - Place clamp on pipe and center over damaged area.

**For Models 102, 104** - Place clamp half without bolts on pipe so that gasket flap is on top facing you.



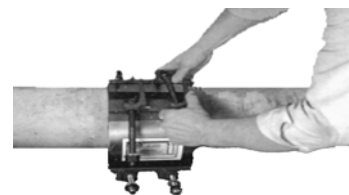
102, 104

3. **For Models 101, 103** - Tuck tapered gasket in place, mesh finger lugs and rotate clamp in direction of arrow to smooth tapered gasket flap. Engage bolts and tighten finger tight to hold in place.



101, 103

**For Models 102, 104** - Take half with bolts and turn gasket side up so that bolts slide back out of the way of fingers. Feed bottom tapered gasket end into place, mesh top lug fingers and engage bolts. Rotate clamp in direction of arrow to smooth gasket flaps Engage remaining bolts and tighten finger tight to hold in place. NOTE: Gaps between lugs should be approximately even on both sides.



102, 104

4. Tighten all bolts evenly to the following torque values:

**5/8" Bolts to 70 Foot Pounds**

**3/4" Bolts to 90 Foot Pounds**



5. Complete installation of fitting and confirm minimum bolt torque levels have been maintained. For JCM 103 and 104 Tapped Clamps, proceed with tapping process.



**Note:** Universal Clamp Couplings do not provide restraint of pipe ends. For applications in which pipe may pull out of clamp, external restraint must be provided.

Years of field experience, special applications and product testing have revealed many subtleties regarding application and installation of repair clamps. For maximum performance under adverse conditions take advantage of the JCM “Tricks of the Trade.”

- Always clean and lubricate pipe with water or soapy water. This will help overcome friction when rotating the clamp to smooth the gasket. Do not use oil base pipe lubricant.
- Place a reference mark on the pipe back from the damaged area to help in centering clamp over break. Clamp provide maximum performance when centered over damage area.
- Breaks involving deflected pipe require a wider clamp. JCM lugs will articulate, permitting clamp to better conform to pipe.
- Damage involving large holes or massive pitted areas - use stainless steel or galvanized metal plate over large holes (under repair clamp) to provide the gasket something to seal against.
- Drill holes in the ends of splits or cracks to relieve forces which could cause splits to continue.
- Clamp performance drops when gap between pipe ends is larger than 1/2". Use a stainless steel spacer to fill or to place over gap.
- Leave sufficient pressure on a broken line to prevent intrusion of foreign matter to prevent excessive line contamination.
- With pressure reduced, spraying water will cease as soon as water level rises above break.
- Lubricating clamp bolts will ease clamp installation and assure proper torquing of bolts.

### **Making Larger Clamp From Smaller Clamps**

Longer than normal gasket tapers permit joining of Universal Clamp Couplings of like width and type to make a larger clamp. For instance, a 6" and 8" clamp can be joined to make a 14" clamp. This provide you with “on hand” capability to make repairs on larger pipe sizes.

- Determine which clamps are available to make needed clamp, usually 2 or 3 clamps are sufficient. It is recommended that clamps to be joined be not more than one nominal size apart. Join clamps with ranges that when combined include O.D. of pipe to be repaired. For Example: Required clamp is 14" to fit 16.44 O.D. Combining a 101-0905-12 (range 8.99 to 9.39) and a 101-0690-12 (range 6.84 to 7.25) will make a clamp with a range of 15.84 to 16.64.
- Prior to joining clamps, reduce the curvature of the recessed bridge plate (as shown in photo) to slightly less than curvature of pipe to be repaired. This is done by laying bridge plate between two 2" x 4"s and hitting with a small sledge hammer.
- Install as a multi-band clamp, making sure to tighten bolts evenly keeping gaps between lugs approximately even.

