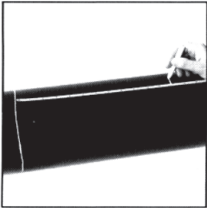
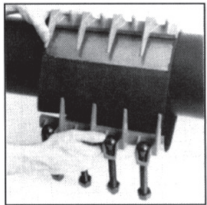


**Installation Instructions**  
**Type 221, 226, 227, 228, 229, 238, 239, 256 and 257**  
**Full Circle® Repair Clamps (Cast Lugs)**

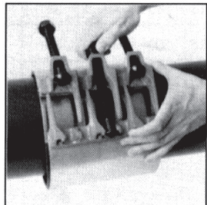


**Step 1**  
Thoroughly clean the pipe where the clamp will be installed.

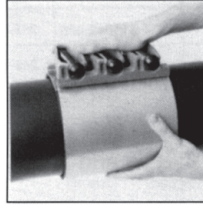


**Step 2**  
If conditions permit, place a reference mark on the pipe a measured distance from the center of the break or damaged area.

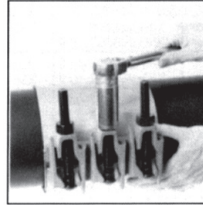
**Step 3**  
Place the clamp around the pipe, centered over the break or damaged area, with the gasket flap at the top. Note: For optimum product performance the fitting should be lubricated with soapy water or other suitable lubricant. For multi band clamps, the gap between bands is approximately 3/8 inch for pipe diameters near the bottom of the clamp O.D. range and approximately 1 1/4 inch for pipe diameters near the top of the clamp O.D. range.



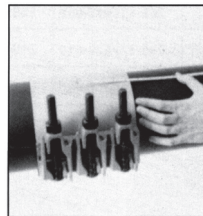
**Step 4**  
Tuck the gasket flap in place and mesh the lug fingers. Engage the centermost bolt(s) in the drop lugs and tighten finger tight. Note: The clamp may be assembled beside the break or damaged area and slid into position, if the pipe surface is wet or has been lubricated.



**Step 5**  
Rotate the clamp to ensure proper seating of the gasket, and position the bolts and nuts for convenient tightening.



**Step 6**  
Tighten the nuts working from the center outward. Completely tightening the center nut will usually stop or sufficiently retard the leakage to simplify completion of the installation.



**Step 7**  
When the nuts have been tightened sufficiently to stop the leakage, measure from the reference mark (Step 2) to the center of the clamp to see if the clamp is properly positioned over the break or damaged area. Loosen the nuts and reposition the clamp if necessary. For multi band clamps, always maintain the same gap for bands and between each end of bands.

**Step 8**  
Recheck the tightness, and torque the nuts as evenly as possible to the recommended torque values listed below. The use of a torque wrench is recommended.

**NOTE**

When a gap between the ends of the pipes are 1 inch or greater, a short section of pipe should be put in the opening or a thin strip of sheet metal wrapped around it to provide support to the gasket. Use discretion on larger pipe O.D.s.

**WARNING:**

**DO NOT EXCEED THE FOLLOWING NUT TORQUES:**

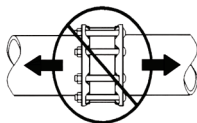
- Through 4.73 O.D. - 50 ft. lbs.
- Above 4.73 O.D. - 70 ft. lbs.

**NOTE**

When a section of pipe wall equal to 40% or more of the pipe circumference is broken away, a section of sheet metal should be placed over the opening to provide a sealing surface for the gasket.

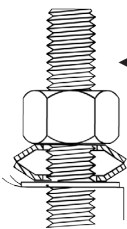


**WARNING:**  
These products do not restrain against axial pipe movement.



**Installation Instructions**  
**Type 221, 226, 227, 228, 238, 239, 256 and 257**  
**Full Circle® Repair Clamps (Cast Lugs)**

**Special Installation Notes for Installation of**  
**Type 226, 238 and 256 Full® Circle Repair Clamps**  
**on Polyethylene Pipe - No Gas Service**



**SPECIAL NOTE FOR USE ON**  
**POLYETHYLENE PIPE:**

Smith-Blair Belleville Washers (P/N 150115-000) must be used on P.E. pipe installations. Use of any other type of spring washer may cause product failure.

**WARNING:**

**DO NOT EXCEED THE FOLLOWING**  
**NUT TORQUES:**

- Through 3.50 O.D. - 25 ft. lbs.
- Above 4.00 O.D. - 45 ft. lbs.

See Smith-Blair's HDPE Application Guide for recommended sizes and DR thicknesses these clamps may be used on.

**WARRANTY**

Smith-Blair® warrants its products only against defects in materials and workmanship. Smith-Blair®'s liability and customer's exclusive remedy under this warranty or any warranty extends for a period of one (1) year from the date of Smith-Blair®'s ship date and is expressly limited to repayment of the purchase price, repair, or replacement, at Smith-Blair®'s option, during said period, upon proof satisfactory to Smith-Blair® and upon customer's returning and prepaying all charges on such products to factory or warehouse designated by Smith-Blair®.

This warranty is made expressly in lieu of all other warranties, expressed, implied or statutory, with respect to quality, merchantability or fitness for a particular purpose.

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**WARNING**

Metal products are subject to corrosion, particularly when used outdoors and/or underground. A large number of factors and local conditions affect the rate of corrosion. Consult a local corrosion expert to determine the life expectancy of this product when used with your pipeline content, soil, and environment. Also, consult your system designer to determine the suitability of this product in your piping system. Failure to determine the suitability of this product in your application, soil, and/or environment can result in premature product failure. Smith-Blair®, Inc. will provide additional information about this product's material specifications at your request. You may also obtain product information at [www.smith-blair.com](http://www.smith-blair.com).

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