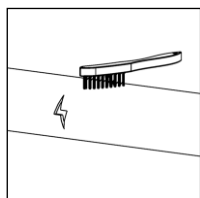


# Installation Instructions

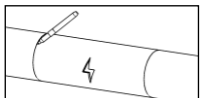
## 221, 226, 227, 228, 229, 238, 239, 256, & 257

### Full Circle® Repair Clamp (Cast Lugs)



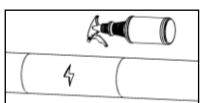
#### STEP 1

Thoroughly clean the pipe where the clamp will be installed. Be sure to remove any scale, dirt, or debris that could affect the gasket seal.



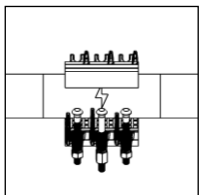
#### STEP 2

Mark the pipe in both directions a measured distance from the center of the break or damaged area.



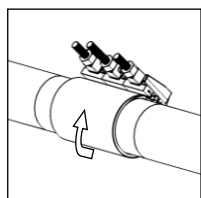
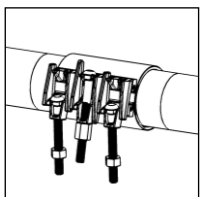
#### STEP 3

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 a suitable lubricant.



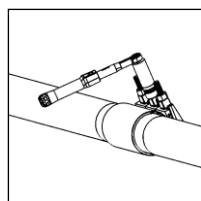
#### STEP 4

Tuck the gasket flap in place and mesh the lug fingers. Engage the centermost bolt(s) in the open-slot lugs and tighten hand-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.



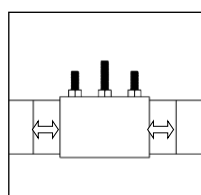
#### STEP 5

Rotate the clamp away from gasket taper to ensure proper seating of the gasket, and position the bolts and nuts for convenient tightening.



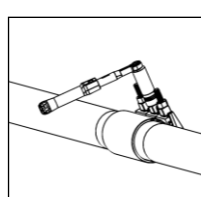
#### STEP 6

Tighten the nuts working from the center outward without exceeding torque values listed below. Note: Completely tightening the center nut(s) will usually stop or sufficiently slow the leakage to simplify completion of the installation.



#### STEP 7

When the nuts have been tightened sufficiently to stop the leakage, check reference marks to assure clamp is still properly centered over break or damaged area. Loosen nuts and reposition clamp if necessary. For multi-band clamps, maintain similar gaps between bands while tightening.



#### STEP 8

Recheck the tightness, and torque the nuts as evenly as possible to the recommended torque values listed below. **NOTE:** Use of a calibrated torque wrench is recommended!

#### PRE-INSTALL NOTES

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

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. Use of a clamp that extends 3" past the sheet metal on both sides axially is required.

#### Recommended Torque Values

Pipe Size	Torque
Through 4.73" O.D.	50 ft-lb
Above 4.73" O.D.	70 ft-lb
*Do not exceed recommended torque*	

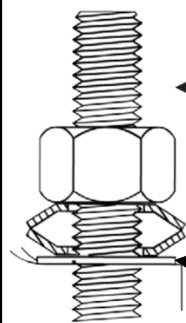
#### 238/239 INSTALL NOTES

Do not tap through clamps. These products are intended for use on repair applications and applications involving a pre-drilled pipe.

# Installation Instructions

## 221, 226, 227, 228, 229, 238, 239, 256, & 257 Full Circle® Repair Clamp (Cast Lugs)

### Special Installation Notes for Installation of Type(s) 226, 227, 238, 239, 256, and 257 Full Circle® Repair Clamps on Polyethylene Pipe [Not for Gas Service]



Smith-Blair® Belleville washers (p/n 150115-000) must be used on PE pipe installations. Use of any other type of spring washer may cause product failure. Do not remove flat washers.

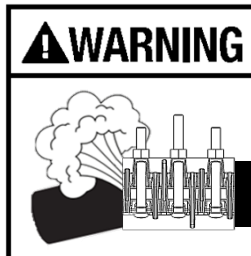
flat washer

See Smith-Blair's HDPE Application Guide for recommended size(s) and DR(s) these clamps are approved for use on.

#### WARNING

DO NOT EXCEED TORQUES LISTED BELOW

- Through 3.50" O.D. = 25 ft-lb
- Above 4.00" O.D. = 45 ft-lb



**THIS PRODUCT DOES NOT RESTRAIN PIPE MOVEMENT.** Proper anchoring is required to prevent pipe pull out. Failure to anchor or improper anchoring can result in dangerous pipe content escape, property damage, serious injury, and/or death. Read the product installation instructions prior to installing this product.

#### WARRANTY

Smith-Blair, Inc. warrants its products to be free of defects in materials and workmanship for a period of one (1) year from the date of shipment by Smith-Blair, Inc. (the "Warranty Period"). Dated proof of purchase, such as a bill of sale, is required to establish warranty eligibility. If a product fails to perform due to a defect in materials or workmanship during the Warranty Period, Smith-Blair, Inc. will repair or, at Smith Blair, Inc.'s option, replace the product with the same or comparable item. In the event that the product cannot be repaired and a suitable replacement item is not available, Smith-Blair, Inc. will refund the original purchase price shown on the proof of purchase. In all cases, the customer is responsible for returning the allegedly defective product to the factory or warehouse designated by Smith-Blair, Inc.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHER WARRANTY OF QUALITY, OR THOSE ARISING FROM A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. THE REMEDIES PROVIDED IN THIS LIMITED WARRANTY STATEMENT ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL SMITH-BLAIR, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY, AND WHETHER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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#### CORROSION & PRODUCT SELECTION NOTICE

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 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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