



Standard Guide for Selection and Use of Full-Encirclement-Type Band Clamps for Reinforcement or Repair of Punctures or Holes in Polyethylene Gas Pressure Pipe¹

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1. Scope

1.1 This guide specifically addresses the design and installation of full-encirclement-type band clamps for repair of gouges, punctures, or holes, and for reinforcement of polyethylene plastic pipe. Guidelines are provided for selecting and using clamps in pipe sizes 2 in. nominal (60 mm) and larger.

1.1.1 A test method is also provided for the user to assess the applicability of the repair clamp. Under appropriate circumstances, this type of clamp offers a convenient, effective, and safe means of restoring the integrity of an in-service pipeline, without cutting out a section of pipe (see [Note 1](#)). The pipe to be repaired cannot be backed by a stiffener for internal support and cross-sectional dimensional control. Satisfactory use of this type of clamp must rely on the crush resistance of the pipe itself and a fitting design concept, which retains the cross-sectional pipe configuration while minimizing compressive forces required to obtain an effective leakage seal.

NOTE 1—The appropriateness for use of this type of clamp should be determined by using the information contained in this guide and from consultation with, and recommendations of, both the pipe and clamp manufacturers. The basic premise for use of this type of clamp is that it is recommended by the manufacturer for this specific application and that step-by-step installation instructions are available for that application. It is important in the development of this type of clamp that prototype testing be conducted to evaluate performance expectations because of the physical limitations encountered when designing it for use with plastic pipe.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[F1041 Guide for Squeeze-Off of Polyolefin Gas Pressure Pipe and Tubing](#)

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *creep*—the time-dependent part of strain resulting from stress, that is, dimensional change caused by the application of load over and above the elastic deformation and with respect to time.

4. Significance and Use

4.1 Full-encirclement-type band clamps are recommended for repairs only where the pipe is able to maintain its structural integrity. These clamps are not recommended for permanent repair of pipe where the damage could propagate outside the clamp under anticipated field conditions (see [5.1.1](#) for repair limitations). In such situations, cut out and replace the damaged pipe with a new piece.

4.2 These clamps may be used to cover holes left in the pipe from abandoned service line connections, purge points, and accidental punctures.

4.3 These clamps may be used to reinforce the pipe where the wall thickness has been reduced because of gouges or other irregularities.

4.4 Some users reinforce polyethylene pipe after it has been squeezed-off as a precaution against pipe damage that may have occurred during the squeeze-off process and as a means of ensuring that the pipe will not be squeezed-off again at the same location. Consult with the polyethylene pipe manufacturer as to the appropriateness of squeeze-off for their product, and for circumstances when reinforcement is recommended. See Guide [F1041](#).

¹ This guide is under the jurisdiction of ASTM Committee [F17](#) on Plastic Piping Systems and is the direct responsibility of Subcommittee [F17.60](#) on Gas.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.