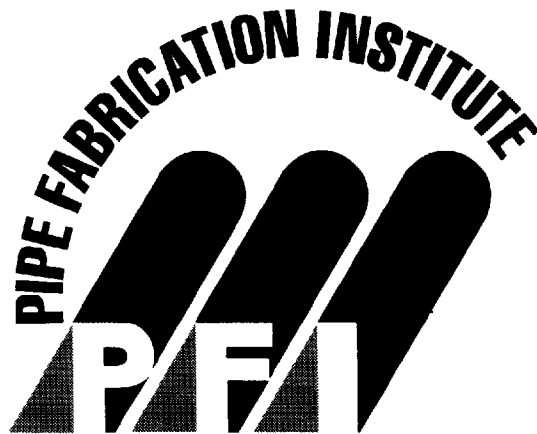


PFI Standard ES-39
February 1994
(Reaffirmed March 1997)

FABRICATED TOLERANCES FOR GROOVED PIPING SYSTEMS

Prepared by
Pipe Fabrication Institute Engineering Committee



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PFI neither endorses, approves, or recommends any specific product by issuance of this standard.

METRIC CONVERSIONS

The conversion of quantities between systems of units involves a determination of the number of significant digits to be retained. All conversions depend upon the intended precision of the original quantity and are rounded to the appropriate accuracy.

Pipe sizes together with applicable wall thickness' are not shown with metric equivalents.

The SI (Metric) values where included with the customary U.S. values in this Standard are the rounded equivalents of the US values and are for reference only.

Metric units were derived utilizing the following conversion factor:

<u>Conversion</u>	<u>Factor</u>
inches to millimeter	25.4

1.0 Scope

- 1.1 This standard covers general pipe shop fabricating tolerances for prefabricated grooved piping assemblies.
- 2.4 Due to the cumulative effects of tolerances on fittings or flanges, when joined without intervening pipe segments, deviations in excess of those specified in paragraph 2.2 and 2.3 may occur.

2.0 Linear Tolerances

- 2.1 The tolerances on linear dimensions (intermediate or overall) apply to the face to face, face to end, and end to end measurements of fabricated straight pipe and headers; center to end or center to face of nozzles or other attachments; or center to face of bends; as illustrated on Fig. 1. These tolerances are not accumulative.
- 2.2 Linear tolerances on "A" are $\pm 1/8"$ (3.0 mm) for sizes 10" and under, $\pm 3/16"$ (5.0 mm) for sizes 12" through 24" and $\pm 1/4"$ (6.0 mm) for sizes over 24" through 36".
- 2.3 Linear tolerances on "A" for sizes over 36" are subject to tolerances of $\pm 1/4"$ (6.0 mm), increasing by plus or minus $1/16"$ (2.0 mm) for each 12" in diameter over 36".

3.0 Groove Dimensions and Tolerances

- 3.1 Grooves used to join piping assemblies with mechanical pipe joint couplings may be of the rolled or cut groove type as specified by the purchaser's engineer. All grooves shall comply with ANSI/AWWA C606-87, AWWA Standard for grooved and shouldered joints.

4.0 Closer Tolerances

- 4.1 When closer tolerances than those given in paragraphs 2.2, 2.3, and 3.1 are absolutely necessary, they shall be subject to agreement between the Purchaser and Fabricator.

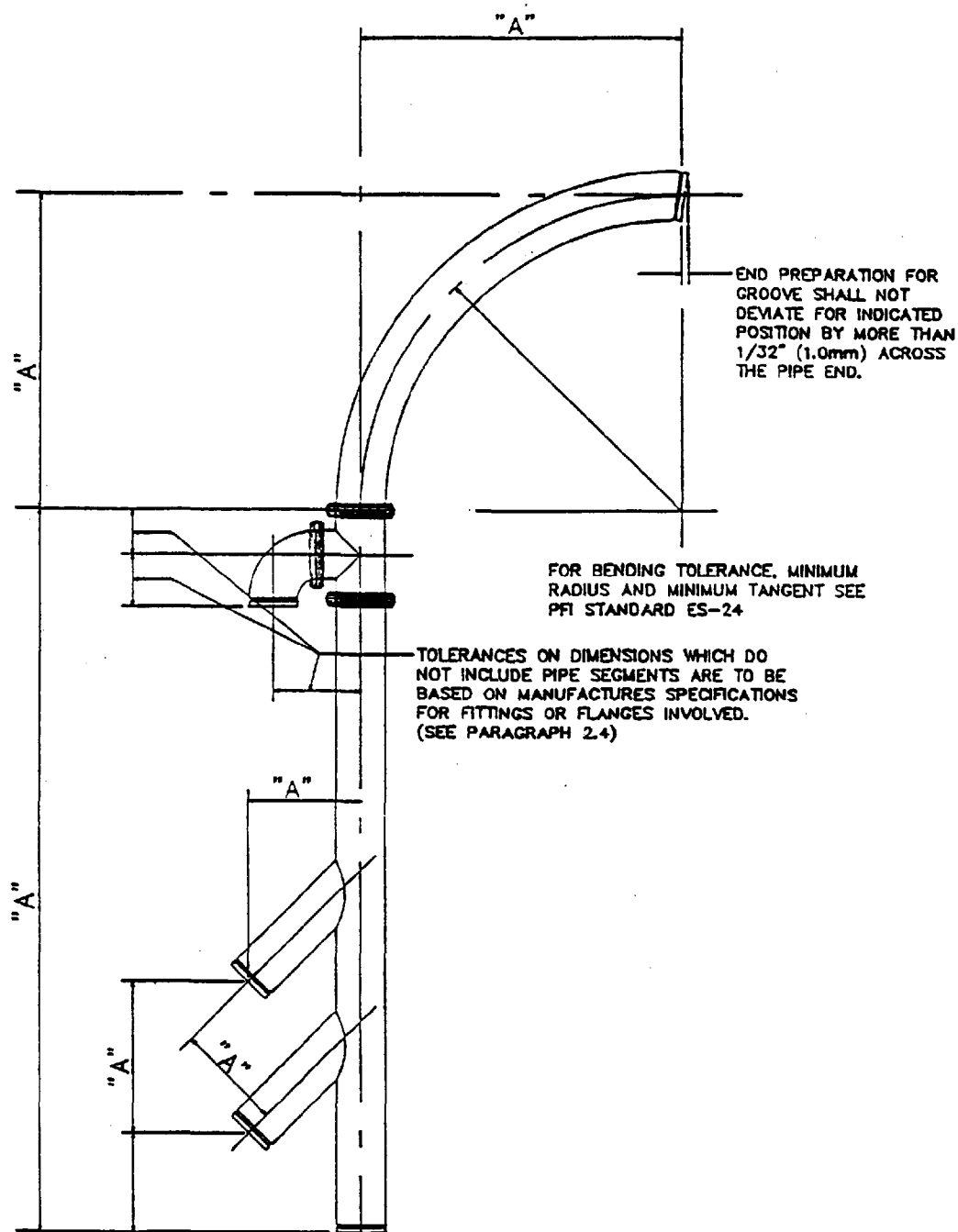


FIGURE 1

APPLICATION OF PIPE FABRICATION TOLERANCES

A current index of the latest revised ES Standards and Technical Bulletins is available from the Pipe Fabrication Institute.

PFI Standards and Technical Bulletins are published to serve proven needs of the pipe fabricating industry at the design level and in actual shop operations. Hence, such needs are continually considered and reviewed by the Engineering Committee of the Pipe Fabrication Institute to provide recommended procedures which have been demonstrated by collective experiences to fulfill requirements in a manner for Code compliance. However, as the PFI Standards are for minimum requirements the designer or fabricator always has the option of specifying supplementary conditions in the form of requirements beyond the scope of the PFI publications.