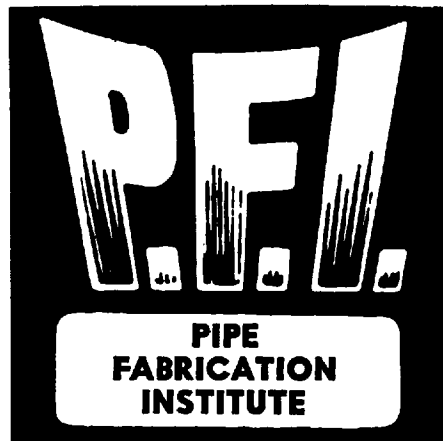


Standard For Protection of Ends of Fabricated Piping Assemblies

Prepared by
Pipe Fabrication Institute Engineering Committee



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STANDARD FOR PROTECTION OF ENDS OF FABRICATED PIPING ASSEMBLIES

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 thicknesses 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 U.S. values and are for reference only.

Metric units were derived utilizing the following conversion factor.

Conversion	Factor
inches to millimeter	25.4

1. Purpose

- 1.1 The purpose of this standard is to describe the minimum type of end protection the fabricator will provide on piping assemblies when the piping specification does not provide specific instructions and also to describe some of the various additional types of end protection that can be furnished when specified by the contractual documents.

2. Minimum End Protection Requirements

- 2.1 Surfaces that should always be protected are:

Flange faces

Male threaded ends

Special machined bevels (does not include standard beveled end with 1/16" (2 mm) land and 30° - 45° bevel)

2.1.1 Flange Protection

Flange faces shall be covered with a suitable protective material (i.e., wood, metal, plastic, hardboard disc, etc.), and shall be strapped, pressed, bolted, clipped, or taped in place. (See Figure 2-1.)

2.1.2 Male Threaded Ends

Male threads shall be protected by pressed on plastic or light metal caps, see Figure 2-2.

2.1.3 Special Machined Bevel Ends.

Bevels shall be protected by pressed on end protectors. See Figure 2-3.

3. Special End Protection

- 3.1 Any end protection beyond that specified in paragraph 2 is special and will be furnished only as a consequence of specific contractual agreement.

- 3.2 Some of the special protective devices that can be used when specified by the contractual documents are as follows:

3.2.1 Flange Protection

3.2.1.1 Flanges can be covered with a hardboard, plywood or light metal (10 GA) disc strapped in place, similar to that shown in Figure 2-1.

3.2.1.2 Flange covers can be bolted in place, instead of strapping. See Figure 3-1.

3.2.1.3 When flange covers must be sealed weather tight, use a rubber or vinyl disc between flange and cover, and bolt the cover in place with no less than (4) bolts.

3.2.2 Beveled End Protection

3.2.2.1 Machined beveled ends on carbon steel and low chrome alloy materials can be closed with a pressed on end protector, lined with a wood or hardboard disk, see Figure 2-3.

3.2.2.2 Beveled ends on stainless steels and non-ferrous metals can be closed with plastic pressed on end protectors or with metal pressed on end protector caps lined with wood or hardboard and polyethylene film as in Fig. 3-3.

3.2.2.3 When beveled ends must be sealed weather tight, it shall be accomplished by applying a minimum of (2) passes of waterproof sealing tape around the end of the cap and onto the pipe as in Figure 3-2 or in Figure 3-3.

3.2.2.4 When additional protection is required for "J" or long nose bevels, a carbon steel spacer ring can be slipped onto the weld prep before the end protector is pressed on. See Figure 3-4.

3.2.2.5 On carbon steel and low chrome alloy butt weld preparations for field welding, the beveled end can be coated with a weldable, rust preventative coating.

3.2.3 Socket Weld and Female Threaded Ends

3.2.3.1 Socket weld and female threaded ends can be closed by means of

pressed in plastic or light metal end protectors. See Figure 3-5.

3.2.3.2 When the socket weld end or female threaded end must be sealed weather tight, it shall be accomplished by a minimum of (2) passes of weatherproof sealing tape around the edge of the cap and the fitting. See Figure 3-5.

4. Installation of Desiccant Bags

4.1 When weather tight sealing is required, the contractual specifications will usually require that desiccant bags or other such materials, be inserted in the assemblies to remove free moisture from the air trapped in the assembly when it is sealed. When this requirement exists, it is imperative that the bags be securely attached to the protectors being used so that removal of the end protectors will also assure that the desiccant bags are removed. End caps may be marked with the number of bags installed. The required number of desiccant bags should be specified on the shop sketch. Figure 4-1 shows a method of attachment to flange protectors and Figure 4-2 shows an attachment to a bevel end protector.

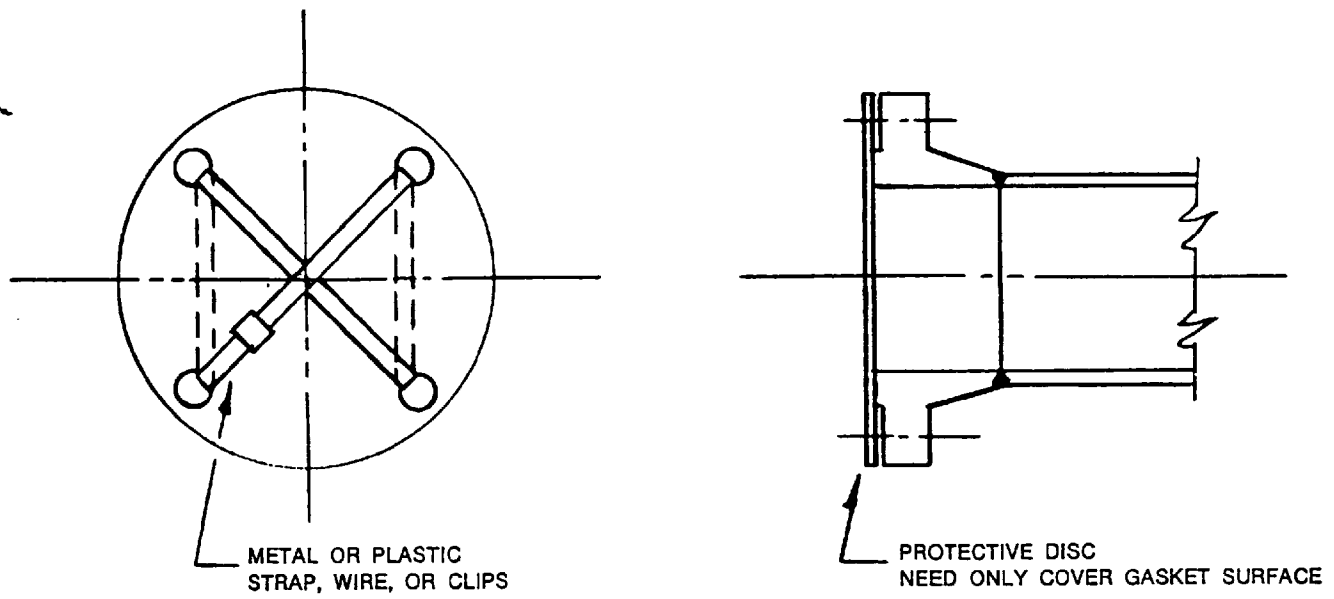


FIG. 2 - 1

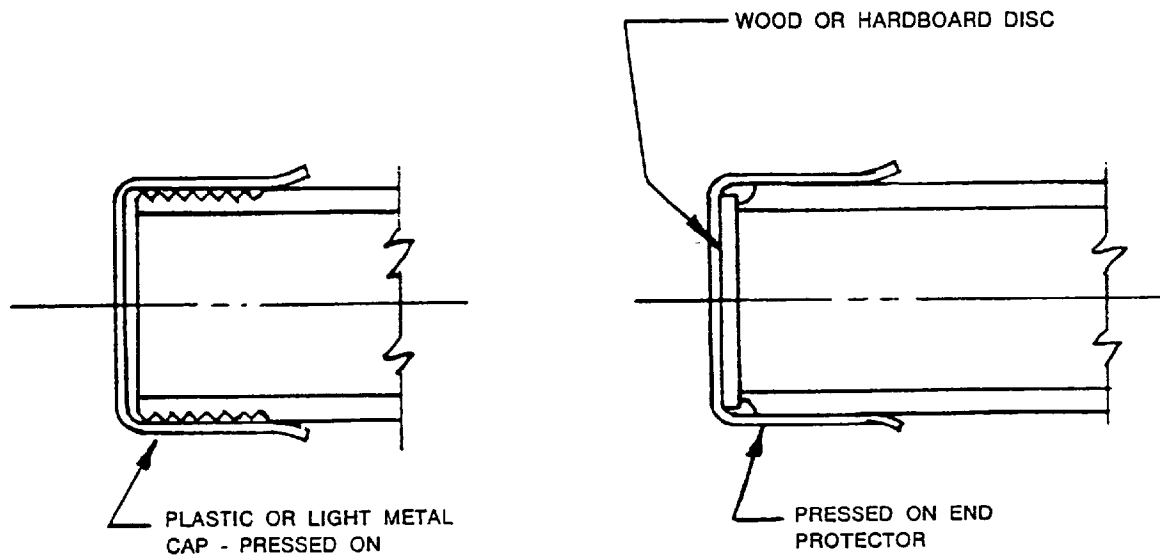


FIG. 2 - 2

FIG. 2 - 3

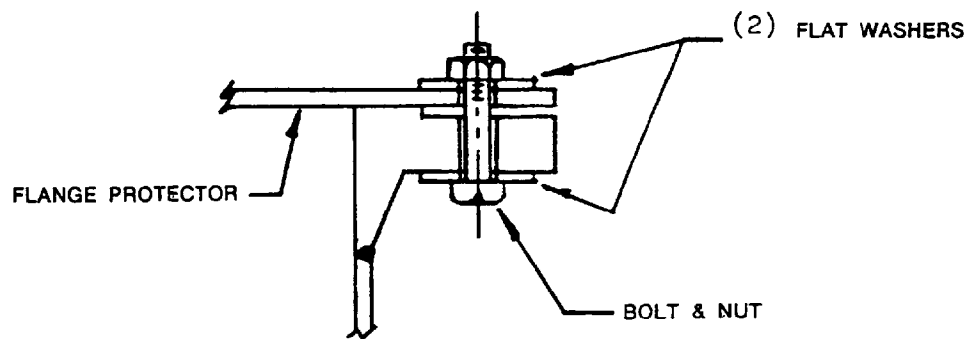


FIG. 3-1

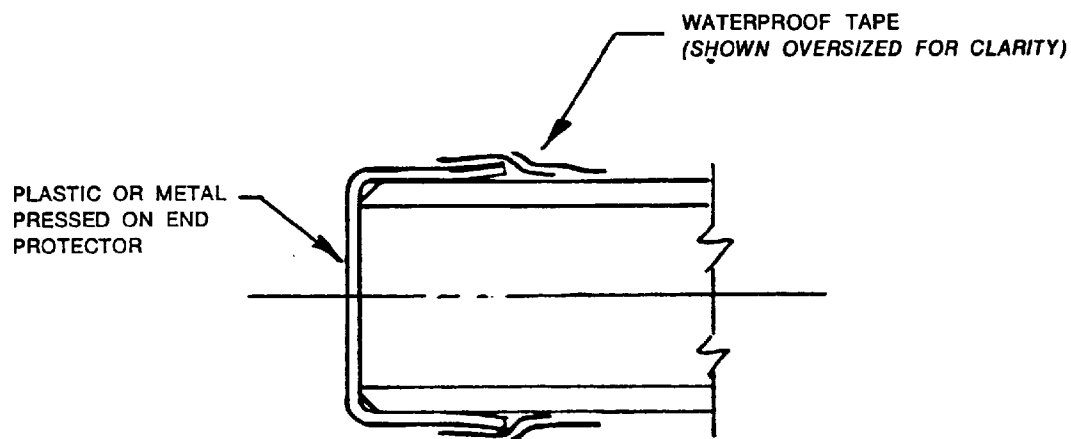


FIG. 3-2

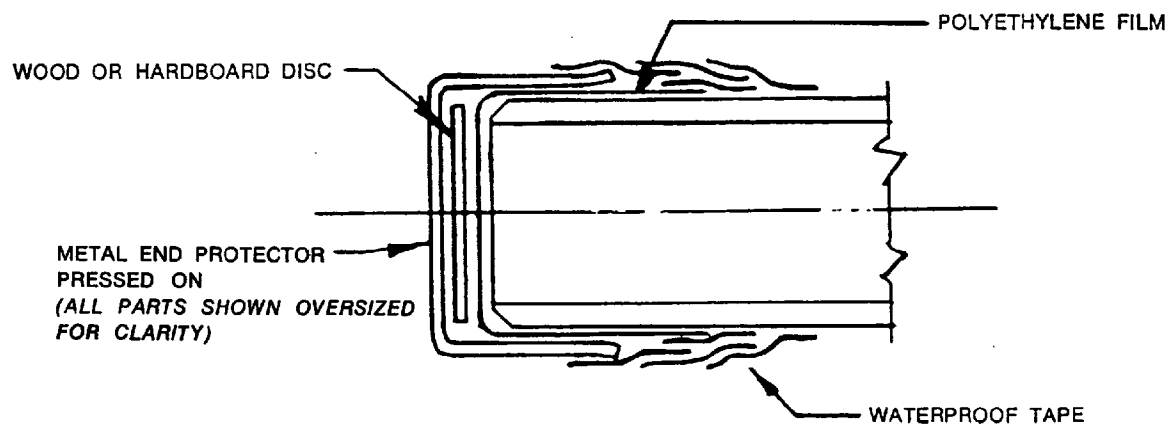


FIG. 3-3

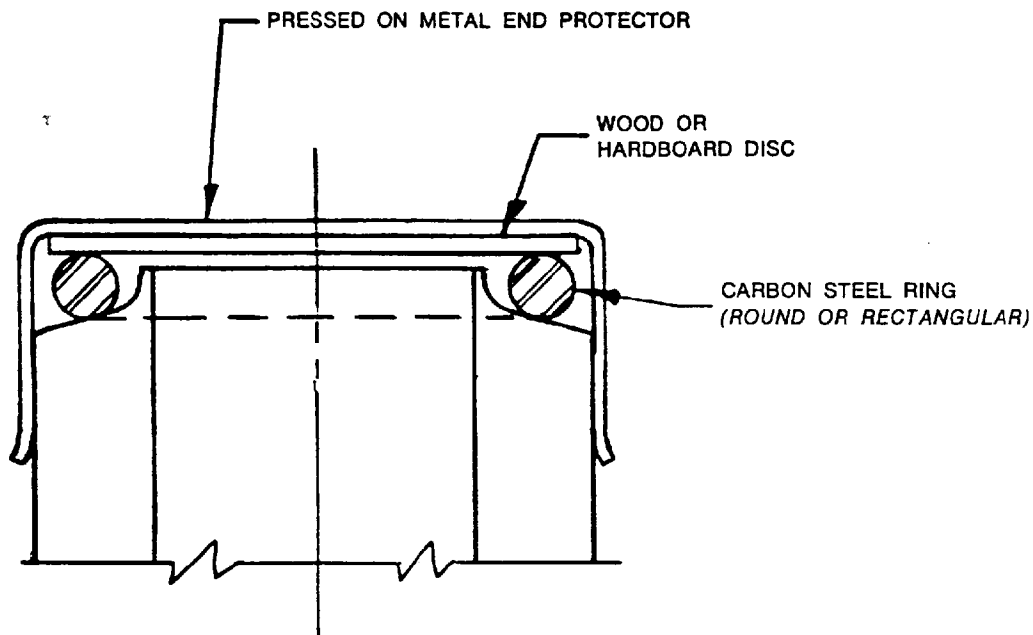


FIG. 3-4

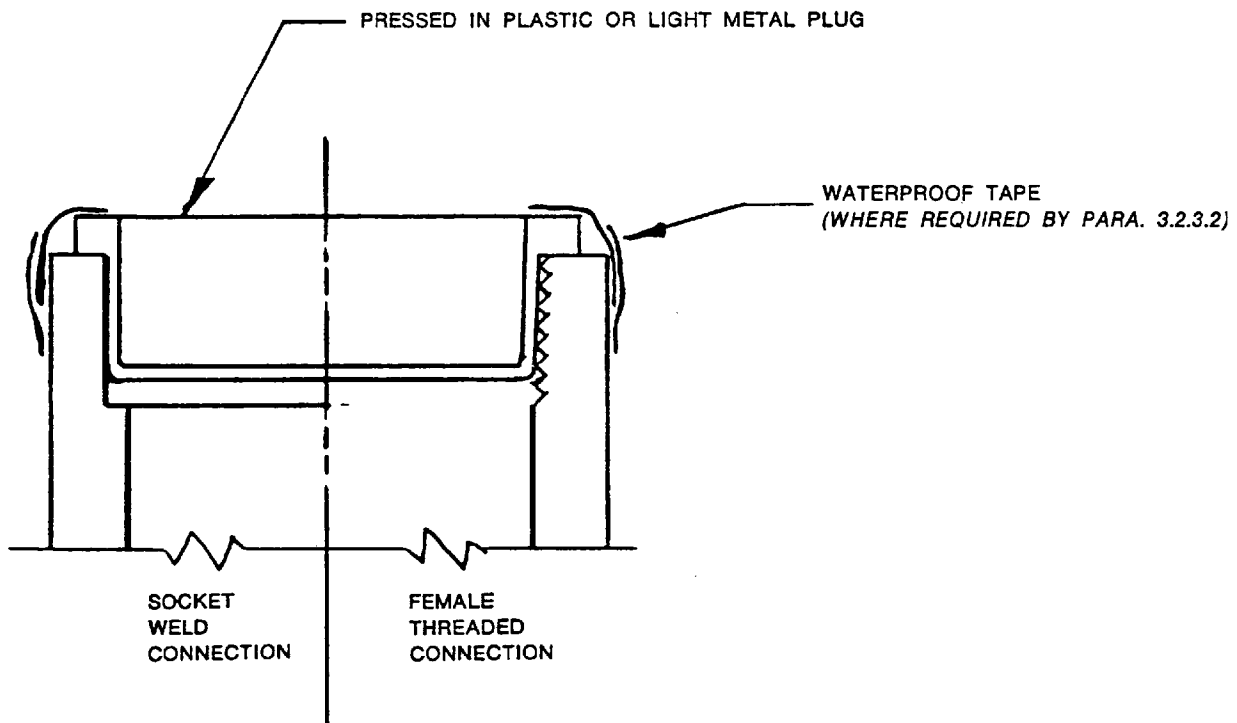


FIG. 3-5

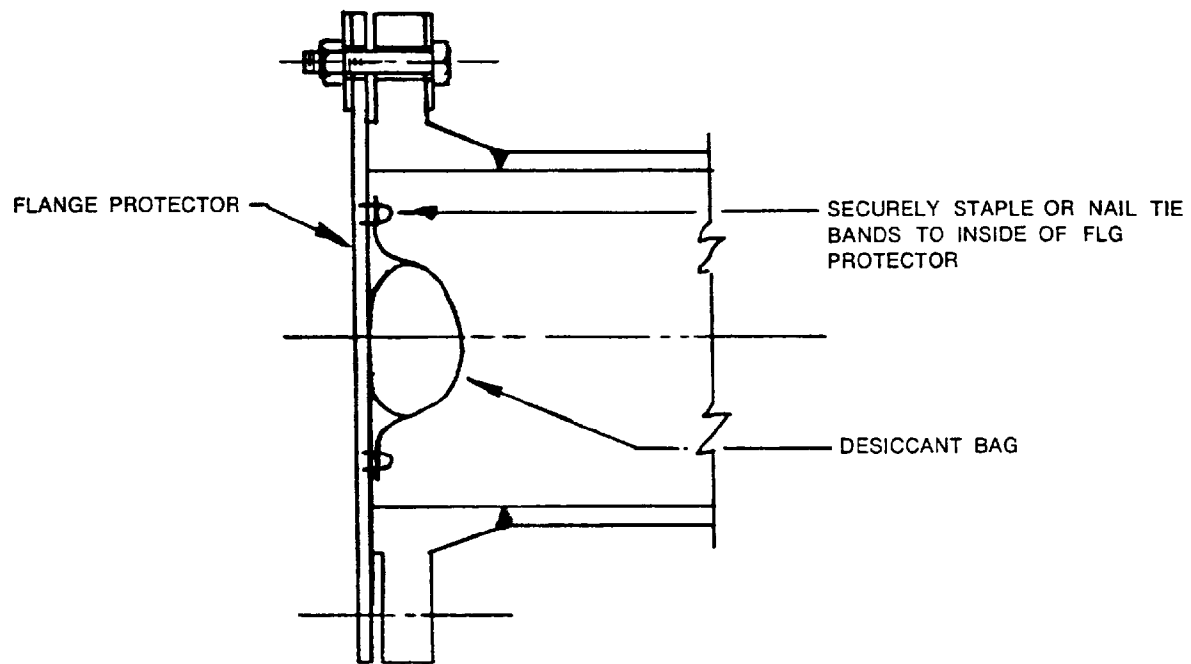


FIG. 4 - 1

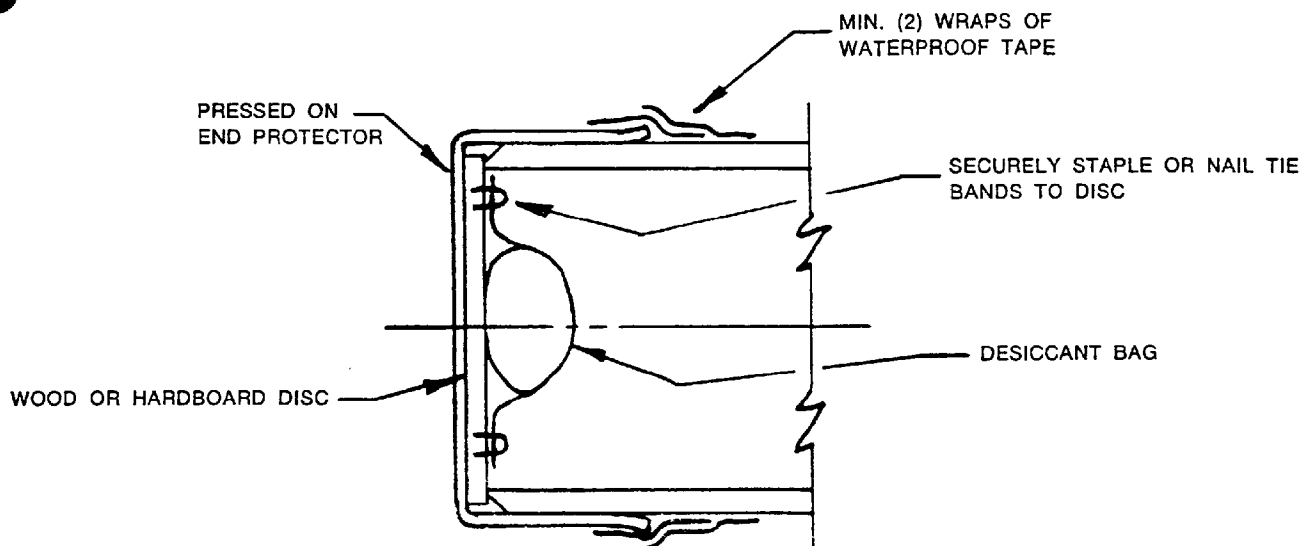


FIG. 4 - 2.

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