



Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging¹

This standard is issued under the fixed designation C 450; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice provides tables of dimensions of preformed insulation that may be used in fabricating covers for use on valves, ells, tees, flanges, and vessels in the pressure range from 150 to 1500 psi (1 to 10 MPa). These tables, which are part of this standard, are published separately as the ASTM Recommended Dimensional Standards for Fabrication of Thermal Insulation Fitting Covers for NPS Piping, and Vessel Lagging. The tables provide dimensions for use in forming pipe fitting covers for NPS pipe operating at high temperature and low temperature. The tables also include dimensions for use in forming thermal insulation into curved segments, and lagging, for application on vessels. This practice does not apply to reflective-type insulation.

1.2 *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.*

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information purposes only.

2. Referenced Documents

2.1 ASTM Standards:

C 585 Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)²

2.2 ASTM Adjuncts:

ADJC0450 Recommended Dimensional Standards for Fabrication of Thermal Insulating Fitting Covers for NPS Piping and Vessel Lagging³

3. Significance and Use

3.1 This system of dimensions provides a guide for forming

thermal insulation in advance of field application. Forming may be done by cutting, grinding, milling, or molding, depending upon the method most suitable for the thermal insulation being fabricated. It is equally applicable for all temperature ranges.

4. Apparatus

4.1 Thermal insulation can be formed into shapes by numerous methods. In general, insulations may be cut by circular or band saws, shaped by grinders or millers, or molded. Each method has certain advantages and disadvantages, depending upon the material to be formed, number of cuts required, material waste permissible, and quantity of fittings being produced. Adhesives and fabrication cements can be applied from dip pots, rollers, doctor blades, brush, or trowel, depending upon the materials being used. For these reasons, although standardized equipment may be devised for certain forming functions, no completely standardized equipment recommendation can be suggested.

5. Basis of Design

5.1 All dimensions presented are based on the use of pipe insulation manufactured to Practice C 585 and to the Basic Dimensional Standards for Pipe Insulation as given in Tables 1 and Tables 2 of the ASTM Recommended Dimensional Standards for Prefabrication and Field Fabrication of Thermal Insulation Fitting Covers for NPS Piping, and Vessel Lagging.³

5.2 The tables provide dimensions for insulation fitting covers for installation on nominal pipe size (NPS) pipe operating at high and low temperatures.

5.3 Dimensions presented for cutting beveled blocks from preformed thermal insulation (lags) are based on blocks 6 in. (152 mm) wide by the thickness required.

5.4 Dimensions given for flanged pairs, flanged fittings, and flanged valves do not allow for flange bolt removal. When bolt removal is required, the covering length over the flange shall be increased as specified by the purchaser.

6. Fabrication

6.1 The main body of the insulation fitting may be cut from standard pipe size pipe covering of the proper size and same thickness tolerance as the pipe insulation.

6.2 Where two insulations of different temperature ratings

¹ This practice is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.20 on Homogeneous Inorganic Thermal Insulations.

Current edition approved July 10, 2002. Published November 2002. Originally published as C 450 – 60 T. Last previous edition C 450 – 99¹.

² *Annual Book of ASTM Standards*, Vol 04.06.

³ Available at a nominal cost from ASTM Headquarters. Order Adjunct: ADJC0450.