



## Standard Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Covers for NPS Piping, Vessel Lagging, and Dished Head Segments<sup>1</sup>

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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This practice provides tables of dimensions of pre-formed 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 Prefabrication and Field Fabrication of Thermal Insulation Fitting Covers for NPS Piping, Vessel Lagging, and Dished Head Segments. The tables provide dimensions for use in forming pipe fitting covers for NPS pipe operating at high temperature and low temperature and NPS pipe heat traced with tubing up to  $\frac{5}{8}$  in. (16 mm) in outside diameter. The tables also include dimensions for use in forming thermal insulation into curved segments, lagging, and dished heads 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)<sup>2</sup>

### 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, Vessel Lagging, and Dished Head Segments.<sup>3</sup>

5.2 The tables provide dimensions for insulation fitting covers for installation on nominal pipe size (NPS) pipe operating at high and low temperatures. Due to differences in application requirements in high and low temperature installations, it is necessary that fabrication of covers be different for each.

5.3 An additional set of tables are provided for nominal pipe size (NPS) pipe that is heat traced with parallel tubing or conduit attached to the pipe. This set of dimensions provides space for either air convection method or high conductive cement method or installing heat tracing tubing, pipe, or conduit not exceeding  $\frac{5}{8}$  in. (16 mm) in outside diameter to the NPS process pipe.

5.4 Dimensions given for fabrication of dished head covers are based on the use of 12 in. (305 mm) wide by 18 in. (457

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.20 on Homogeneous Inorganic Thermal Insulations.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.06.

<sup>3</sup> Available at a nominal cost from ASTM Headquarters. Order Adjunct: ADJC0450.