Designation: C585 – 10 (Reapproved 2016)

Standard Practice for Inner and Outer Diameters of Thermal Insulation for Nominal Sizes of Pipe and Tubing [1]

This standard is issued under the fixed designation C585; 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 is intended as a dimensional standard for preformed thermal insulation for pipes and tubing.

1.2 This practice covers insulation supplied in cylindrical sections and lists recommended single layer inner and outer diameters of insulation having nominal wall thicknesses from ½ to 5 in. (13 to 127 mm) to fit over standard sizes of pipe and tubing.

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

1.4 *This standard does not purport to address 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]

C168 Terminology Relating to Thermal Insulation

C302 Test Method for Density and Dimensions of Preformed Pipe-Covering-Type Thermal Insulation

3. Terminology

3.1 *Definitions*—Definitions pertaining to insulation are defined in Terminology C168.

4. Significance and Use

4.1 The purpose of this practice is to ensure satisfactory fit on standard sizes, to accommodate radial expansion of pipes and tubes which are heated after being insulated, and to minimize the number of insulation sizes and thicknesses to be manufactured and stocked.

4.2 While it is possible to manufacturer insulation to these recommended dimensions, exercise care in attempting to nest layers of different materials, or layers supplied by different manufacturers. Individual manufacturing processes will operate at slightly different tolerances. While the product will fit the pipe, it is possible that it will not readily nest as the outer layer between the different materials, or with a different manufacturer, and possibly the same manufacturer. Exercise care to determine these differences before specifying or ordering nesting sizes.

4.3 The wide range of outer diameter dimensional tolerances will prevent many pipe and tube insulations from nesting for staggered joints or double layered applications, or both unless specified when ordered from the manufacturer, distributor, or fabricator.

4.4 Dimensions in accordance with this practice do not necessarily permit application of one thickness of pipe insulation over another (Nesting or Simplified Dimensional System) to obtain total thicknesses greater than those manufactured as single layer, or for multilayer application when desired.

5. Summary of Practice

5.1 This practice provides for each pipe and tubing sizes the inner diameters with tolerances for calcium silicate, cellular foam plastics, cellular glass, mineral fiber, and perlite preformed pipe and tubing insulation identified by Table 1 and Table 2.

5.2 This practice provides for each pipe and tubing sizes the outer diameters for calcium silicate, cellular foam plastics, cellular glass, mineral fiber, and perlite preformed pipe and tubing insulation identified by Table 3, Table 4, Table 5 and Table 6.

5.3 This practice provides for a range of pipe and tubing sizes the outer diameter tolerances for calcium silicate and perlite preformed pipe and tubing insulation identified by Table 3a, Table 4a, Table 5a, and Table 6a.

5.4 This practice provides for a range of pipe and tubing sizes the outer diameters tolerances for cellular foam plastics,

[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.

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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.

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cellular glass, and mineral fiber, preformed pipe and tubing insulations identified by Table 3b, Table 4b, Table 5b and Table 6b.

5.5 This practice provides for each pipe and tubing sizes the inner and outer diameters for flexible elastomeric cellular and polyolefin preformed pipe and tubing insulation identified by Table 7, Table 8, Table 9, and Table 10.

5.6 This practice provides for a range of pipe and tubing sizes the inner and outer diameter tolerances for flexible elastomeric and polyolefin cellular preformed pipe and tubing insulation identified by Table 7a, Table 8a, Table 9a, and Table 10a.

6. Procedure

6.1 *Measurement:*

6.1.1 Measurement of inner and outer diameters shall be made to the nearest 1/32 in. (0.8 mm) using a steel tape or rule.

6.1.1.1 *Uneven Insulation Inner & Outer Circumferential Surfaces*—Use Test Method C302, Procedure C. This method must be used, to duplicate fit for application on a pipe and tubing and to determine the final outside diameter when an outer metal jacket system is snugly applied.

6.1.1.2 *Half Sections*—The diameter reported for each half-section shall be the average of six measurements taken at three locations including two near the ends and one near the center (see Fig. 1a and Fig. 2a). Three of the six readings shall be taken in the longitudinal plane of the flat, cut surface: the other three shall each be twice a half-diameter in the longitudinal plane at right angles to that of the first three (see Fig. 1b and Fig. 2b).

6.1.1.3 *Hinged Sections*—The diameter reported for each hinged section shall be the average of four measurements taken at both ends of the section (two per end) (see Fig. 3). The two measurements at each end shall be at right angles.

6.2 *Recommended Inner Diameters:*

6.2.1 Inner diameters and tolerances for nominal sizes of insulation for pipe are shown in Table 1, Table 7. Table 7a Table 9 and Table 9a.

6.2.2 Inner diameters and tolerances for nominal sizes of tubing are shown in Table 2, Table 8. Table 8a Table 10 and Table 10a.

6.3 *Recommended Outer Diameters:*

6.3.1 Outer diameters for nominal sizes of pipe are shown in Table 3 and Table 4, Table 7 and Table 9 and tubing in Table 5 and Table 6, Table 8, and Table 10. All Tables 3-10 are not for nesting purposes. When a pipe or tubing insulation product is to be nested, it shall be so stated on order.

6.3.2 There are no maximum outer diameter tables provided for jacketing purposes because of the wide spread variations in the outside diameters with their plus or minus tolerances.

NOTE 1—Previous versions of C585 contained Tables for jacketing purposes only. These tables have been removed from this practice with the inclusion of variable outside diameters caused by the addition of outer diameter (OD) tolerances. It is recommended in order to calculate the maximum circumferences for jacketing purposes, determine the pipe or tube insulation's maximum outer diameters from the manufacturer. An alternative measure for finding the jacketing stretch-out numbers is to look up the outer diameter for the pipe or tubing insulation from the tables; add the applicable plus (+) outer diameter tolerance and twice the thickness of the jacketing to the insulation outer diameter number; multiply the added total times $p\bar{i}$ (3.14159) to arrive at the maximum circumference; add the necessary longitudinal overlap dimension to the maximum circumference; and the calculated answer will be the stretch-out requirement for cutting the outer jacketing to be applied over / around the pipe or tubing insulation's OD.

NOTE 2—NPS (Nominal Pipe Size) is a dimensionless designator that has been substituted in the customary units section for the previous term *inch nominal pipe size*.

NOTE 3—NTS (Nominal Tube Size) is a dimensionless designator that has been substituted in the customary units section for the previous term *inch nominal tube size*.

NOTE 4—DN (Diameter Nominal) is a dimensionless designator that has been substituted in the customary units section for the previous term SI (metric) system to describe *millimeter nominal pipe or tube size*.

7. Keywords

7.1 pipe thermal insulation diameter; pipe thermal insulation dimension; thermal insulating materials-pipe; thermal insulating materials-tubing; thermal insulation; tubing thermal insulation diameter; tubing thermal insulation dimension

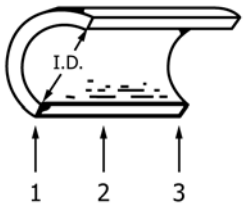

Fig. 1a Three Meaurement Locations

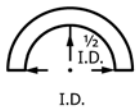

Fig. 1b Diameter and Half-Diameter Measurement Locations

FIG. 1 Inner Diameter Measurement Location

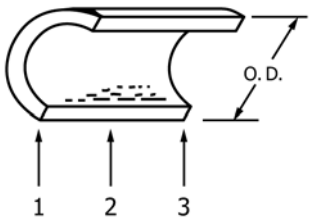

Fig. 2a Three Measurement Locations

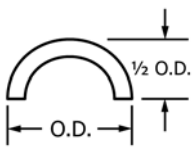

Fig. 2b Diameter and Half-Diameter Measurement Locations

FIG. 2 Outer Diameter Measurement Location

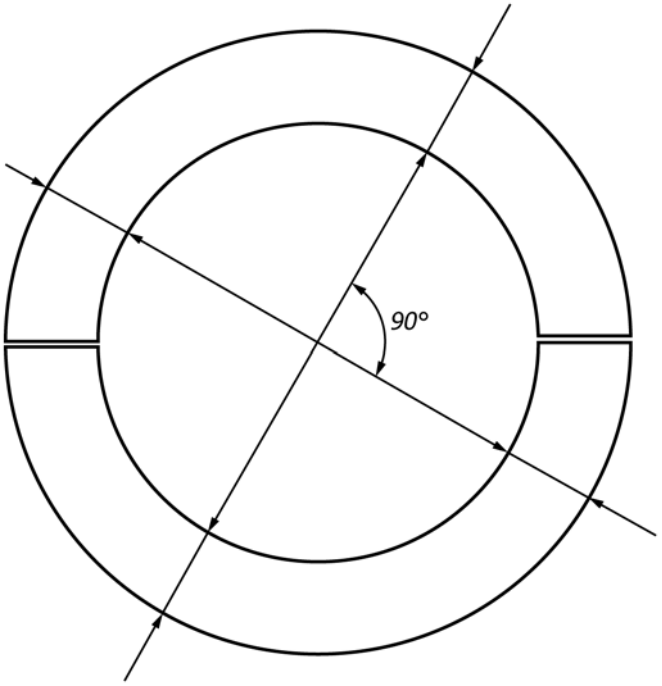

FIG. 3 Hinged Section Measurement Location

TABLE 1 Nominal Pipe Sizes with Inner Diameters and Tolerances for Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation

Customary and SI Units for Pipe				Insulation					
NPS Note 2	DN Note 4	Outer Diameter		Inner Diameter		Tolerance			
						Minus		Plus	
		in.	mm	in.	mm	in.	mm	in.	mm
½	15	0.840	21.3	0.86	22	0	0	0.063	1.6
¾	20	1.050	26.7	1.07	27	0	0	0.063	1.6
1	25	1.315	33.4	1.33	34	0	0	0.063	1.6
1¼	32	1.660	42.2	1.68	43	0	0	0.063	1.6
1½	40	1.900	48.3	1.92	49	0	0	0.063	1.6
2	50	2.375	60.3	2.41	61	0	0	0.094	2.4
2½	65	2.875	73.0	2.91	74	0	0	0.094	2.4
3	80	3.500	88.9	3.53	90	0	0	0.094	2.4
3½	90	4.000	101.6	4.03	102	0.031	0.8	0.094	2.4
4	100	4.500	114.3	4.53	115	0.031	0.8	0.094	2.4
4½	115	5.000	127.0	5.03	128	0.031	0.8	0.094	2.4
5	125	5.563	141.4	5.64	143	0.031	0.8	0.094	2.4
6	150	6.625	168.3	6.70	170	0.031	0.8	0.094	2.4
7	175	7.625	193.7	7.70	196	0.031	0.8	0.094	2.4
8	200	8.625	219.1	8.70	221	0.031	0.8	0.094	2.4
9	225	9.625	244.5	9.70	246	0.031	0.8	0.094	2.4
10	250	10.750	273.0	10.83	275	0.031	0.8	0.094	2.4
11	275	11.750	298.4	11.83	300	0.031	0.8	0.094	2.4
12	300	12.750	323.8	12.84	326	0.063	1.6	0.094	2.4
14	350	14.000	355.6	14.09	358	0.063	1.6	0.156	4.0

TABLE 2 Nominal Tube Sizes with Inner Diameter and Tolerances for Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation

Customary and SI Units for Tube				Insulation					
NTS Note 3	DN Note 4	Outer Diameter		Inner Diameter		Tolerance			
						Minus		Plus	
		in.	mm	in.	mm	in.	mm	in.	mm
⅜	10	0.500	12.7	0.52	13	0	0	0.063	1.6
½	15	0.625	15.9	0.64	16	0	0	0.063	1.6
¾	20	0.875	22.2	0.89	23	0	0	0.063	1.6
1	25	1.125	28.6	1.14	29	0	0	0.063	1.6
1¼	32	1.375	34.9	1.39	35	0	0	0.063	1.6
1½	40	1.625	41.3	1.64	42	0	0	0.063	1.6
2	50	2.125	54.0	2.16	55	0	0	0.063	1.6
2½	65	2.625	66.7	2.66	68	0	0	0.063	1.6
3	80	3.125	79.4	3.16	80	0	0	0.063	1.6
3½	90	3.625	92.1	3.66	93	0	0	0.063	1.6
4	100	4.125	104.8	4.16	106	0.031	0.8	0.094	2.4
5	125	5.125	130.2	5.16	131	0.031	0.8	0.094	2.4
6	150	6.125	155.6	6.20	157	0.031	0.8	0.094	2.4

TABLE 3 Outer Diameters for Nominal Pipe Sizes and Nominal Wall Thickness on Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation, inches

Pipe	Customary Units for Insulation, Nominal Thickness									
	in.	1	1½	2	2½	3	3½	4	4½	5
NPS Note 2	Outer Diameter, in.									
½		2.88	4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75
¾		2.88	4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75
1		3.50	4.50	5.56	6.62	7.62	8.62	9.62	10.75	11.75
1¼		3.50	5.00	5.56	6.62	7.62	8.62	9.62	10.75	11.75
1½		4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75	12.75
2		4.50	5.56	6.62	7.62	8.62	9.62	10.75	11.75	12.75
2½		5.00	6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00
3		5.56	6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00
3½		6.62	7.62	8.62	9.62	10.75	11.75	12.75	12.75	14.00
4		6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00	15.00
4½		7.62	8.62	9.62	10.75	11.75	12.75	14.00	14.00	15.00
5		7.62	8.62	9.62	10.75	11.75	12.75	14.00	15.00	16.00
6		8.62	9.62	10.75	11.75	12.75	14.00	15.00	16.00	17.00
7		...	10.75	11.75	12.75	14.00	15.00	16.00	17.00	18.00
8		...	11.75	12.75	14.00	15.00	16.00	17.00	18.00	19.00
9		...	12.75	14.00	15.00	16.00	17.00	18.00	19.00	20.00
10		...	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00
11		...	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00
12		...	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00
14		...	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00

TABLE 3a Outer Diameter Tolerances for Calcium Silicate and Perlite Preformed Pipe and Tubing Insulation, inches

Outside Diameter (O.D.) of Insulation, inches	Outside Diameters Tolerances (O.D.), inches
2.88 to 6.62	± 0.188
7.62 to 14.00	± 0.250
15.00 to 20.00	± 0.313
21.00 to 29.00	± 0.375
30.00 and larger	± 0.438

TABLE 3b Outer Diameter Tolerances for Cellular Foam Plastics, Cellular Glass, and Mineral Fiber Preformed Pipe and Tubing Insulation, inches

Outside Diameter (O.D.) of Insulation, inches	Outside Diameters Tolerances (O.D.), inches
2.88 to 6.62	± 0.188
7.62 to 14.00	± 0.250
15.00 to 20.00	± 0.313
21.00 to 29.00	± 0.375
30.00 and larger	± 0.438

TABLE 4 Outer Diameters for Nominal Pipe Sizes and Nominal Wall Thickness on Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation, millimeters

Pipe	Customary SI Units for Insulation, Nominal Thickness									
DN Note 4	mm	25	38	51	64	76	89	102	114	127
	Outer Diameter, mm									
15		73	102	127	168	194	219	244	273	298
20		73	102	127	168	194	219	244	273	298
25		89	114	141	168	194	219	244	273	298
32		89	127	141	168	194	219	244	273	298
40		102	127	168	194	219	244	273	298	324
50		114	141	168	194	219	244	273	298	324
65		127	168	194	219	244	273	298	324	356
80		141	168	194	219	244	273	298	324	356
90		168	194	219	244	273	298	324	356	381
100		168	194	219	244	273	298	324	356	381
115		194	219	244	273	298	324	356	381	406
125		194	219	244	273	298	324	356	381	406
150		219	244	273	298	324	356	381	406	432
175		...	273	298	324	356	381	406	432	457
200		...	298	324	356	381	406	432	457	483
225		...	324	356	381	406	432	457	483	508
250		...	356	381	406	432	457	483	508	533
275		...	381	406	432	457	483	508	533	559
300		...	406	432	457	483	508	533	559	584
350		...	432	457	483	508	533	559	584	610

TABLE 4a Outer Diameter Tolerances for Calcium Silicate and Perlite Preformed Pipe Insulation

Outside Diameter (O.D.) of Insulation, millimeters	Outside Diameters Tolerances (O.D.) millimeters
73 to 163	± 4.8
194 to 356	± 6.4
381 to 506	± 7.9
533 to 737	± 9.5
762 and larger	± 11.1

TABLE 4b Outer Diameter Tolerances for Cellular Foam Plastics, Cellular Glass, and Mineral Fiber Preformed Pipe Insulation

Outside Diameter (O.D.) of Insulation, millimeters	Outside Diameters Tolerances (O.D.) millimeters
73 to 163	± 4.8
194 to 356	± 6.4
381 to 506	± 7.9
533 to 737	± 9.5
762 and larger	± 11.1

TABLE 5 Outer Diameters for Nominal Tube Sizes and Nominal Wall Thickness on Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation, inches

Tube	Customary Units for Insulation, Nominal Thickness									
	in.	1	1½	2	2½	3	3½	4	4½	5
NTS Note 3	Outer Diameter, inches									
⅜		2.38	3.50	4.50	5.56	6.62	...	...	...	...
½		2.88	3.50	4.50	5.56	6.62	...	...	...	...
¾		2.88	4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75
1		2.88	4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75
1¼		3.50	4.50	5.56	6.62	7.62	8.62	9.62	10.75	11.75
1½		3.50	4.50	5.56	6.62	7.62	8.62	9.62	10.75	11.75
2		4.00	5.00	6.62	7.62	8.62	9.62	10.75	11.75	12.75
2½		4.50	5.56	6.62	7.62	8.62	9.62	10.75	11.75	12.75
3		5.00	6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00
3½		5.56	6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00
4		6.62	7.62	8.62	9.62	10.75	11.75	12.75	14.00	15.00
5		7.62	8.62	9.62	10.75	11.75	12.75	14.00	15.00	16.00
6		8.62	9.62	10.75	11.75	12.75	14.00	15.00	16.00	17.00

TABLE 5a Outer Diameter Tolerances for Calcium Silicate and Perlite Preformed Tube Insulation, inches

Outside Diameter (O.D.) of Insulation, inches	Outside Diameters Tolerances (O.D.) inches
2.38 to 6.62	± 0.19
7.62 to 14.00	± 0.25
Larger than 14.00	± 0.31

TABLE 5b Outer Diameter Tolerances for Cellular Foam Plastics, Cellular Glass, and Mineral Fiber Preformed Tube Insulation, inches

Outside Diameter (O.D.) of Insulation, inches	Outside Diameters Tolerances (O.D.) inches
2.38 to 6.62	± 0.19
7.62 to 14.00	± 0.25
Larger than 14.00	± 0.31

TABLE 6 Outer Diameters for Nominal Tube Sizes and Nominal Wall Thickness on Calcium Silicate, Cellular Foam Plastics, Cellular Glass, Mineral Fiber, and Perlite Preformed Insulation, millimeters

Tube	Customary Units for Insulation, Nominal Thickness									
	mm	25	38	51	64	76	89	102	114	127
DN Note 4	Outer Diameter, mm									
10		60	89	114	141	168	...	...	...	...
15		73	89	114	141	168	...	...	...	...
20		73	102	127	168	194	219	244	273	298
25		73	102	127	168	194	219	244	273	298
32		89	114	141	168	194	219	244	273	298
40		89	114	141	168	194	219	244	273	298
50		102	127	168	194	219	244	273	298	324
65		114	141	168	194	219	244	273	298	324
80		127	168	194	219	244	273	298	324	356
90		141	168	194	219	244	273	298	324	356
100		168	194	219	244	273	298	324	356	381
125		194	219	244	273	298	324	356	381	406
150		219	244	273	298	324	356	381	406	432

TABLE 6a Outer Diameter Tolerances for Calcium Silicate and Perlite Preformed Tube Insulation

Outside Diameter (O.D.) of Insulation, millimeters	Outside Diameters Tolerances (O.D.) millimeters
60 to 168	± 4.8
194 to 356	± 6.4
381 to 432	± 7.0

TABLE 6b Outer Diameter Tolerances for Cellular Foam Plastics, Cellular Glass, Mineral Fiber, Preformed Tube Insulation

Outside Diameter (O.D.) of Insulation, millimeters	Outside Diameters Tolerances (O.D.) millimeters
60 to 168	± 4.8
194 to 356	± 6.4
381 to 432	± 7.0

TABLE 7 Inner and Outer Diameters for Nominal Pipe Sizes for Nominal Wall Thickness on Flexible Elastomeric and Polyolefin Cellular Pipe Insulation, inches

Pipe	Pipe Outside Diameter	Insulation Inner Diameter	Insulation at Outside Diameter at Customary Units for Insulation Nominal Thickness						
NPS Note 2	inches	inches	½ inch	¾ inch	1 inch	1 ¼ inch	1 ½ inch	2 inch	3 inch
½	0.84	1.0	1.87	2.45	2.97	3.22	3.84	4.94	6.91
¾	1.05	1.13	2.05	2.65	3.13	3.38	4.05	5.13	7.13
1	1.315	1.44	2.44	3.00	3.44	3.69	4.44	5.44	7.44
1¼	1.660	1.78	2.78	3.38	3.78	4.03	4.78	5.78	7.78
1½	1.900	2.03	3.03	3.65	4.03	4.28	5.03	6.03	8.03
2	2.375	2.50	3.50	4.10	4.50	4.75	5.05	6.50	8.50
2½	2.875	3.00	4.00	4.60	5.00	5.25	6.00	7.00	9.00
3	3.500	3.70	4.80	5.30	5.76	6.01	6.86	7.82	9.88
3½	4.000	4.20	5.30	5.90	6.20	6.45	7.30	8.20	10.20
4	4.500	4.70	5.88	6.40	6.80	7.05	7.98	8.90	11.00
5	5.563	5.76	6.86	7.46	7.90	8.15	9.0	10.04	12.18
6	6.625	6.83	7.93	8.53	9.00	9.25	10.10	11.17	13.34
8	8.625	8.82	9.92	10.52	11.00	11.25	12.10	13.18	15.36

TABLE 7a Inner and Outer Diameter Tolerances for Elastomeric and Polyolefin Cellular Insulation, inches

Inner Diameters of Insulation, inches	Each Diameter Tolerances, inches
1.0 to 2.5	± 0.06
3.00 to 5.76	± 0.09
6.83 to 8.82	± 0.12
Outer Diameters of Insulation, inches	**Each Outer Diameter Tolerances, inches**
1.87 to 4.50	± 0.15
4.60 to 7.90	± 0.25
7.93 to 11.00	± 0.35
11.17 to 15.36	± 0.40

TABLE 8 Inner and Outer Diameters for Nominal Tubing Sizes for Nominal Wall Thickness on Flexible Elastomeric and Polyolefin Cellular Tube Insulation, inches

Tube	Tube Outside Diameter	Insulation Inner Diameter	Insulation at Outside Diameter at Customary Units for Insulation Nominal Thickness						
NTS Note 3	inches	inches	½ inch	¾ inch	1 inch	1 ¼ inch	1 ½ inch	2 inch	3 inch
⅜	0.500	.600	1.5	1.925	...	3.22	3.84	4.94	6.91
½	0.625	.750	1.65	2.15	2.75	3.38	4.05	5.13	7.13
¾	0.875	1.000	2.0	2.52	3.0	3.69	4.44	5.44	7.44
1	1.125	1.250	2.25	2.85	3.25	4.03	4.78	5.78	7.78
1¼	1.375	1.500	2.52	3.1	3.5	4.28	5.03	6.03	8.03
1½	1.625	1.750	2.77	3.35	3.75	4.75	5.05	6.50	8.50
2	2.125	2.250	3.27	3.85	4.25	5.25	6.00	7.00	9.00
2½	2.625	2.750	3.77	4.35	4.75	6.01	6.86	7.82	9.88
3	3.125	3.250	4.27	4.85	5.25	6.45	7.30	8.20	10.20
3½	3.625	3.750	4.88	5.4	5.9	7.05	7.98	8.90	11.00
4	4.125	4.250	5.4	5.95	6.4	8.15	9.0	10.04	12.18

TABLE 8a Inner and Outer Diameter Tolerances for Elastomeric and Polyolefin Cellular Insulation, inches

Inner Diameters of Insulation, inches.	Each Diameter Tolerances, inches
0.6 to 1.5	± 0.06
1.75 to 4.25	± 0.09
Outer Diameters of Insulation, inches	**Each Outer Diameter Tolerances, inches**
1.5 to 3.5	± 0.15
3.75 to 6.4	± 0.25
6.27 to 9.25	±0.35
10.2 to 10.7	±0.45

TABLE 9 Nominal Pipe Sizes and Wall Thickness for Inner and Outer Diameters for Nominal Wall Thickness on Flexible Elastomeric and Polyolefin Cellular Pipe Insulation, millimetres

Pipe	Pipe Outside Diameter	Insulation Inner Diameter	Insulation at Outside Diameter at Customary SI Units for Insulation Nominal Thickness						
DN Note 4	mm	mm	13 mm	19 mm	25 mm	31 mm	38 mm	51mm	76 mm
15	21.3	24.6	47.5	62.2	75.4	81.8	97.5	126	176
20	26.7	28.7	52.1	67.3	79.5	85.9	103	130	181
25	33.4	36.6	62.0	76.2	87.4	93.7	113	138	189
32	42.2	45.2	70.6	85.9	96.0	102	121	147	198
40	48.3	51.6	77.0	92.2	102	109	128	153	204
50	60.3	63.5	88.9	104	114	121	140	165	216
65	73.0	76.2	102	117	127	133	152	178	229
80	88.9	94.0	121	134	146	153	174	199	251
90	102	107	135	150	157	164	185	208	259
100	114	119	149	163	173	179	203	226	279
125	141	146	174	189	201	207	229	255	309
150	168	173	201	217	229	235	257	284	339
200	219	224	252	267	279	286	307	335	390

TABLE 9a Inner and Outer Diameter Tolerances for Flexible Elastomeric and Polyolefin Cellular Insulation, millimeters

Inner Diameters of Insulation, millimeters	Each Diameter Tolerances, millimeters
25.4 to 63.5	± 1.52
76.2 to 146	± 2.3
173 to 224	± 3.1
Outer Diameters of Insulation, millimeters	**Each Outer Diameter Tolerances, millimeters**
47.5 to 114	± 3.81
117 to 201	± 6.4
217 to 279	± 8.9
283 to 390	± 11.4

TABLE 10 Nominal Tube Sizes and Wall Thickness for Inner and Outer Diameters for Nominal Wall Thickness on Flexible Elastomeric and Polyolefin Cellular Tube Insulation, milimetres

Tube	Tube Outside Diameter	Insulation Inner Diameter	Insulation at Outside Diameter at Customary Units for Insulation Nominal Thickness						
DN Note 4	mm	mm	13 mm	19 mm	25 mm	31 mm	38 mm	51 mm	76 mm
10	12.7	15.2	38.1	48.9	...	...	...	...	...
15	15.9	19.1	41.9	54.6	69.9	82.6	92.7	121	172
20	22.2	25.4	50.8	64.0	76.2	88.0	102	127	178
25	28.6	31.8	57.6	72.4	82.6	95.3	108	133	184
32	35.0	38.1	64.0	78.7	88.9	102	115	140	191
40	41.3	44.5	70.4	86.0	95.3	108	121	146	197
50	54.0	57.2	83.1	97.8	108.0	121	134	159	210
65	66.7	69.9	95.8	111	121	133	147	172	222
80	79.4	82.6	109	123	133	146	159	184	235
90	92.1	95.3	124	137	150	163	179	205	259
100	104.8	108	137	151	163	175	192	217	272

TABLE 10a Inner and Outer Diameter Tolerances for Flexible Elastomeric and Polyolefin Cellular Insulation, millimeters

Inner Diameters of Insulation, millimeters	Each Diameter Tolerances, millimeters
15.2 to 38.1	± 1.52
44.5 to 108	± 2.3
Outer Diameters of Insulation, millimeters	**Each Outer Diameter Tolerances, millimeters**
38.1 to 88.9	± 3.8
95.3 to 163	± 6.4
159 to 235	± 8.9
259 to 272	±11.4

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