Designation: D3295 – 20

Standard Specification for PTFE Tubing, Miniature Beading and Spiral Cut Tubing[1]

This standard is issued under the fixed designation D3295; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This specification covers PTFE tubing, miniature beading and spiral cut tubing-manufactured from PTFE resin produced from dispersion specified in Specification D4895.

NOTE 1—PTFE tube and rod manufactured from resin specified in Specification D4894 are covered in Specification D1710.

1.2 The values stated in SI units are to be regarded as standard. The inch-pound units given in parentheses are for information only.

1.3 The following hazard caveat pertains only to the test method portion, Section 8, of this specification: *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 As PTFE resin produced from dispersion is not a true thermoplastic material, any reuse for the specification referenced above is impossible. However, markets do exist for non-virgin PTFE as additives and fillers.

NOTE 2—This standard and ISO 13000-1/-2 address some of the same subject matter, but differ in technical content.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D618 Practice for Conditioning Plastics for Testing

D638 Test Method for Tensile Properties of Plastics

D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D883 Terminology Relating to Plastics

D1600 Terminology for Abbreviated Terms Relating to Plastics

D1675 Test Methods for Polytetrafluoroethylene Tubing

D1708 Test Method for Tensile Properties of Plastics by Use of Microtensile Specimens

D1710 Specification for Extruded Polytetrafluoroethylene (PTFE) Rod, Heavy Walled Tubing and Basic Shapes

D3892 Practice for Packaging/Packing of Plastics

D4894 Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials

D4895 Specification for Polytetrafluoroethylene (PTFE) Resin Produced From Dispersion

2.2 *ISO Standards:*[3]

ISO 13000-1 Plastics—Polytetrafluoroethylene (PTFE) Semi-Finished Products, Part 1: Requirements and Designation

ISO 13000-2 Plastics—Polytetrafluoroethylene (PTFE) Semi-Finished Products, Part 2: Preparation of Test Specimens and Determination of Properties

3. Terminology

3.1 *Definitions*—The terminology given in Terminologies D883 and D1600 is applicable to this specification.

3.2 *Description of Term Specific to This Standard:*

3.2.1 *lot*—a single production run, or a uniform blend of two or more production runs.

4. Classification

4.1 This specification provides for five groups of PTFE tubing, miniature beading and spiral cut tubing, differentiated by size and type. The groups are further subdivided into classes based on wall thickness.

4.1.1 *Group 01*—Tubing based upon the American Wire Gage (AWG) sizes.

4.1.2 *Group 02*—Tubing based upon fractional inch sizes.

[1] This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.15.12).

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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.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

***A Summary of Changes section appears at the end of this standard**

4.1.3 *Group 03*—Tubing specified by inner diameter and wall thickness in Table 6 referred to as "Custom or Metric."

4.1.4 *Group 04*—Tubing cut to form spiral wrap as in Table 7.

4.1.5 *Group 05*—Miniature beading having diameters as listed in Table 8.

4.2 The types are further differentiated in accordance with increasing wall thickness as follows:

4.2.1 *Class 1*—Tubing having walls tabulated in Table 1 listed as light wall.

4.2.2 *Class 2*—Tubing having walls of greater thickness than Class 1 listed as thin wall.

4.2.3 *Class 3*—Tubing having walls tabulated in Table 2 listed as standard wall.

4.2.4 *Class 4*—Tubing having walls tabulated in Table 3 listed as chemical tubing.

TABLE 1 Dimensions and Tolerances for Group 01 PTFE Tubing, mm (in.) (Classes 1 and 2)

AWG Size Grade	Inside Diameter		Class 1 Light Wall		
	min	max	nom	min	max
30	0.25 (0.010)	0.38 (0.015)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
28	0.33 (0.013)	0.46 (0.018)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
26	0.41 (0.016)	0.53 (0.021)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
24	0.51 (0.020)	0.66 (0.026)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
22	0.64 (0.025)	0.81 (0.032)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
20	0.81 (0.032)	1.01 (0.040)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
19	0.91 (0.036)	1.12 (0.044)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
18	1.02 (0.040)	1.25 (0.049)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
17	1.14 (0.045)	1.37 (0.054)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
16	1.30 (0.051)	1.55 (0.061)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
15	1.45 (0.057)	1.70 (0.067)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)
14	1.65 (0.064)	1.88 (0.074)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
13	1.83 (0.072)	2.08 (0.082)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
12	2.06 (0.081)	2.31 (0.091)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
11	2.31 (0.091)	2.57 (0.101)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
10	2.59 (0.102)	2.85 (0.112)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
9	2.90 (0.114)	3.15 (0.124)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
8	3.28 (0.129)	3.58 (0.141)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)
7	3.66 (0.144)	4.01 (0.158)	0.20 (0.008)	0.15 (0.005)	0.25 (0.011)
6	4.12 (0.162)	4.52 (0.178)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
5	4.62 (0.182)	5.03 (0.198)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
4	5.18 (0.204)	5.69 (0.224)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
3	5.82 (0.229)	6.33 (0.249)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
2	6.55 (0.258)	7.06 (0.278)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
1	7.34 (0.289)	7.90 (0.311)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
0	8.26 (0.325)	8.81 (0.347)	0.25 (0.012)	0.22 (0.009)	0.38 (0.015)
AWG Size Grade	Inside Diameter		Class 2 Thin Wall		
	min	max	nom	min	max
30	0.25 (0.010)	0.38 (0.015)	0.23 (0.009)	0.19 (0.007)	0.28 (0.011)
28	0.33 (0.013)	0.48 (0.019)	0.23 (0.009)	0.18 (0.007)	0.28 (0.011)
26	0.41 (0.016)	0.56 (0.022)	0.23 (0.009)	0.18 (0.007)	0.28 (0.011)
24	0.51 (0.020)	0.69 (0.027)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
22	0.64 (0.025)	0.81 (0.032)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)
20	0.81 (0.032)	1.01 (0.040)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
19	0.91 (0.036)	1.11 (0.044)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
18	1.02 (0.040)	1.25 (0.049)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
17	1.14 (0.045)	1.38 (0.054)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
16	1.30 (0.051)	1.55 (0.061)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
15	1.45 (0.057)	1.70 (0.067)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
14	1.63 (0.064)	1.88 (0.074)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
13	1.83 (0.072)	2.08 (0.082)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
12	2.06 (0.081)	2.31 (0.091)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
11	2.31 (0.091)	2.57 (0.101)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
10	2.59 (0.102)	2.85 (0.112)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)
9	2.90 (0.114)	3.15 (0.124)	0.38 (0.015)	0.31 (0.012)	0.46 (0.018)
8	3.28 (0.129)	3.58 (0.141)	0.38 (0.015)	0.31 (0.012)	0.46 (0.018)
7	3.66 (0.144)	4.01 (0.158)	0.38 (0.015)	0.31 (0.012)	0.46 (0.018)
6	4.12 (0.162)	4.52 (0.178)	0.38 (0.015)	0.31 (0.012)	0.46 (0.018)
5	4.62 (0.182)	5.03 (0.198)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)
4	5.18 (0.204)	5.69 (0.224)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)
3	5.82 (0.229)	6.33 (0.249)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)
2	6.55 (0.258)	7.06 (0.278)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)
1	7.34 (0.289)	7.90 (0.311)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)
0	8.26 (0.325)	8.81 (0.347)	0.38 (0.015)	0.35 (0.012)	0.46 (0.018)

TABLE 2 Dimensions and Tolerances for Group 01 PTFE Tubing, mm (in.) (Classes 3 and 4)

AWG Size Grade	Inside Diameter		Class 3		
			Standard Wall		
	min	max	nom	min	max
30	0.25 (0.010)	0.38 (0.015)	0.23 (0.009)	0.18 (0.007)	0.28 (0.011)
28	0.33 (0.013)	0.48 (0.019)	0.23 (0.009)	0.18 (0.007)	0.28 (0.011)
26	0.41 (0.016)	0.56 (0.022)	0.23 (0.009)	0.18 (0.007)	0.28 (0.011)
24	0.51 (0.020)	0.67 (0.027)	0.31 (0.012)	0.25 (0.010)	0.36 (0.014)
22	0.64 (0.025)	0.81 (0.032)	0.31 (0.012)	0.25 (0.010)	0.36 (0.014)
20	0.81 (0.032)	1.02 (0.040)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
19	0.91 (0.036)	1.11 (0.044)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
18	1.02 (0.040)	1.25 (0.049)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
17	1.14 (0.045)	1.37 (0.054)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
16	1.30 (0.051)	1.55 (0.061)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
15	1.45 (0.057)	1.70 (0.067)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
14	1.63 (0.064)	1.88 (0.074)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
13	1.83 (0.072)	2.08 (0.082)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
12	2.06 (0.081)	2.31 (0.091)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
11	2.31 (0.091)	2.57 (0.101)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
10	2.59 (0.102)	2.85 (0.112)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
9	2.90 (0.114)	3.15 (0.124)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
8	3.28 (0.129)	3.58 (0.141)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
7	3.66 (0.144)	4.01 (0.158)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
6	4.12 (0.162)	4.52 (0.178)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
5	4.62 (0.182)	5.03 (0.198)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
4	5.18 (0.204)	5.69 (0.224)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
3	5.82 (0.229)	6.33 (0.249)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
2	6.55 (0.258)	7.06 (0.278)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
1	7.34 (0.289)	7.90 (0.311)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
0	8.26 (0.325)	8.81 (0.347)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
AWG Size Grade	Inside Diameter		Class 5		
			Heavy Wall		
	min	max	nom	min	max
24	0.51 (0.020)	0.69 (0.027)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
22	0.64 (0.025)	0.81 (0.032)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
20	0.81 (0.032)	1.02 (0.040)	0.46 (0.018)	0.38 (0.015)	0.53 (0.021)
19	0.91 (0.036)	1.12 (0.044)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
18	1.02 (0.040)	1.25 (0.049)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
17	1.14 (0.045)	1.37 (0.054)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
16	1.30 (0.051)	1.55 (0.061)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
15	1.45 (0.057)	1.70 (0.067)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
14	1.63 (0.064)	1.88 (0.074)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
13	1.83 (0.072)	2.08 (0.082)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
12	2.06 (0.081)	2.31 (0.091)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
11	2.31 (0.091)	2.57 (0.101)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)
10	2.59 (0.102)	2.85 (0.112)	0.64 (0.025)	0.51 (0.020)	0.76 (0.030)
9	2.90 (0.114)	3.15 (0.124)	0.64 (0.025)	0.51 (0.020)	0.76 (0.030)
8	3.28 (0.129)	3.58 (0.141)	0.76 (0.030)	0.64 (0.025)	0.89 (0.035)
7	3.65 (0.144)	4.01 (0.158)	0.76 (0.030)	0.64 (0.025)	0.89 (0.035)
6	4.12 (0.162)	4.52 (0.178)	0.76 (0.030)	0.64 (0.025)	0.89 (0.035)
5	4.62 (0.182)	5.03 (0.198)	0.81 (0.032)	0.69 (0.027)	0.94 (0.037)

4.2.5 *Class 5*—Tubing having walls tabulated in Table 2 and Table 3 listed as heavy wall.

4.3 A one-line system may be used to specify materials covered by this specification. The system uses predefined cells to refer to specific aspects of this specification, as illustrated below.

	Specification			
Standard Number: Block	Group:	Class:	Grade:	Special Notes
Example: Specification D3295 – 01	01	1	24	

For this example, the line callout would be Specification D3295 – 01, 01124 and would specify tubing having walls listed as light wall that has all the properties listed for that group, class and grade in the appropriate specified properties, tables, or both, in the specification identified. These shall be based on AWG size within the group and class. Grade will be the AWG size designation. Only Groups 01 and 02 shall have requirements for Class and no separator is needed.

5. Physical Properties

5.1 The tubing and miniature beading shall be made of PTFE meeting the requirements of Specification D4895. A maximum of two mass percentage of additive is allowed.

5.2 The melting point for all Groups of tubing, and miniature beading shall be 327 ± 10°C (621 ± 18°F) when measured in accordance with 8.1.4.

5.3 The inside diameter, wall thickness, pitch and tolerances of the tubing, miniature beading and spiral cut tubing shall be as shown in Tables 1-3 and Tables 6-8 when determined in accordance with 8.1.3.1 and 8.1.3.2.

TABLE 3 Dimensions and Tolerances for Group 02 PTFE Tubing, mm (in.)

Fractional Sizes	Inside Diameter			Wall Thickness								
	Class 1, 2, 3			Class 1			Class 2			Class 3		
	nom	min	max	nom	min	max	nom	min	max	nom	min	max
0.79 (1/32)	0.79 (0.031)	0.74 (0.031)	0.84 (0.033)	0.15 (0.006)	0.10 (0.004)	0.20 (0.008)	0.25 (0.010)	0.20 (0.008)	0.31 (0.012)	0.31 (0.012)	0.25 (0.010)	0.36 (0.014)
1.6 (1/16)	1.7 (0.066)	1.6 (0.063)	1.85 (0.072)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
2.4 (3/32)	2.4 (0.094)	2.3 (0.091)	2.5 (0.099)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)	0.41 (0.016)	0.33 (0.013)	0.48 (0.019)
3.2 (1/8)	3.2 (0.126)	3.1 (0.122)	3.3 (0.130)	0.20 (0.008)	0.15 (0.006)	0.25 (0.010)	0.38 (0.015)	0.28 (0.011)	0.48 (0.019)	0.51 (0.020)	0.40 (0.016)	0.61 (0.024)
4.8 (3/16)	4.7 (0.185)	4.6 (0.181)	5.0 (0.198)	0.25 (0.010)	0.18 (0.007)	0.33 (0.013)	0.38 (0.015)	0.28 (0.011)	0.48 (0.019)	0.51 (0.020)	0.40 (0.016)	0.61 (0.024)
6.4 (1/4)	6.5 (0.255)	6.4 (0.252)	6.6 (0.260)	0.24 (0.009)	0.18 (0.007)	0.33 (0.013)	0.38 (0.015)	0.28 (0.011)	0.48 (0.019)	0.51 (0.020)	0.40 (0.016)	0.61 (0.024)
7.9 (5/16)	8.1 (0.319)	8.0 (0.315)	8.2 (0.332)	0.31 (0.012)	0.23 (0.009)	0.38 (0.015)	0.38 (0.015)	0.28 (0.011)	0.48 (0.019)	0.51 (0.020)	0.40 (0.016)	0.61 (0.024)
9.5 (3/8)	9.7 (0.381)	9.5 (0.374)	9.8 (0.385)	0.38 (0.015)	0.31 (0.012)	0.46 (0.018)	0.38 (0.015)	0.30 (0.012)	0.46 (0.018)	0.64 (0.025)	0.48 (0.019)	0.79 (0.031)
11.1 (7/16)	11.3 (0.445)	11.1 (0.437)	11.7 (0.460)	0.46 (0.018)	0.38 (0.015)	0.53 (0.021)	0.46 (0.018)	0.36 (0.014)	0.56 (0.022)	0.64 (0.025)	0.48 (0.019)	0.79 (0.031)
12.7 (1/2)	12.9 (0.508)	12.7 (0.500)	13.3 (0.523)	0.46 (0.018)	0.38 (0.015)	0.53 (0.021)	0.46 (0.018)	0.36 (0.014)	0.56 (0.022)	0.64 (0.025)	0.48 (0.019)	0.79 (0.031)
15.9 (5/8)	15.2 (0.598)	15.9 (0.624)	16.6 (0.653)	0.07 (0.002)	0.38 (0.015)	0.64 (0.025)	0.51 (0.020)	0.41 (0.016)	0.61 (0.024)	0.76 (0.030)	0.60 (0.024)	0.91 (0.036)
19.0 (3/4)	19.3 (0.760)	19.0 (0.748)	20.0 (0.787)	0.51 (0.020)	0.38 (0.015)	0.64 (0.025)	0.64 (0.025)	0.51 (0.020)	0.76 (0.030)	0.89 (0.035)	0.68 (0.027)	1.09 (0.043)
22.2 (7/8)	22.4 (0.881)	22.2 (0.874)	23.1 (0.909)	...	...	...	...	...	...	0.89 (0.035)	0.68 (0.027)	1.09 (0.043)
25.4 (1)	25.6 (1.08)	25.4 (1.000)	26.3 (1.035)	...	...	...	...	...	...	0.89 (0.035)	0.68 (0.027)	1.09 (0.043)
31.8 (1 1/4)	32.1 (1.264)	31.8 (1.250)	32.7 (1.287)	...	...	...	...	...	...	1.02 (0.040)	0.81 (0.032)	1.22 (0.048)
38.1 (1 1/2)	38.6 (1.552)	38.1 (1.500)	39.4 (1.551)	...	...	...	...	...	...	1.02 (0.045)	0.81 (0.038)	1.22 (0.048)

Fractional Sizes	Inside Diameter		Wall Dimensions	
	Class 4		Class 4	
	max	min	Thickness	Tolerance
3.2 (1/8)	3.3 (0.130)	3.05 (0.120)	0.762 (0.030)	±0.127 (±0.005)
4.8 (3/16)	4.9 (0.193)	4.65 (0.183)	0.762 (0.030)	±0.127 (±0.005)
6.4 (1/4)	6.5 (0.257)	6.17 (0.243)	0.762 (0.030)	±0.127 (±0.005)
9.5 (5/16)	8.13 (0.320)	7.72 (0.304)	0.762 (0.030)	±0.127 (±0.005)
11.1 (3/8)	9.73 (0.383)	9.32 (0.367)	0.762 (0.030)	±0.127 (±0.005)
(7/16)	11.4 (0.448)	10.9 (0.428)	0.762 (0.030)	±0.127 (±0.005)
(1/2)	(0.510)	(0.490)	(0.030)	(±0.006)
(9/16)	(0.572)	(0.552)	(0.030)	(±0.006)
(5/8)	(0.637)	(0.613)	(0.030)	(±0.006)
(11/16)	(0.700)	(0.676)	(0.032)	(±0.006)
(3/4)	(0.764)	(0.736)	(0.040)	(±0.007)
(7/8)	(0.891)	(0.859)	(0.045)	(±0.007)
(1)	(1.020)	(0.980)	(0.050)	(±0.008)
(1 1/4)	(1.270)	(1.230)	(0.040)	(±0.008)
(1 1/2)	(1.525)	(1.475)	(0.040)	(±0.008)

Fractional Sizes	Inside Diameter		Wall Dimensions	
	Class 5		Class 5	
	max	min	Thickness	Tolerance
3.2 (1/8)	3.2 (0.125)	2.79 (0.110)	1.57 (0.062)	±0.250 (±0.005)
6.35 (1/4)	6.35 (0.250)	5.84 (0.230)	1.5 (0.062)	±0.250 (±0.005)
9.5 (3/8)	9.53 (0.375)	8.85 (0.350)	1.5 (0.062)	±0.250 (±0.005)

5.4 The specific gravity of the tubing and miniature beading shall be as specified in Table 4 when determined in accordance with 8.1.5.

5.5 The weight loss of the tubing and miniature beading shall not exceed 0.05 % when determined in accordance with 8.1.6.