

INCH-POUND

A-A-52047  
1 April 1992

## COMMERCIAL ITEM DESCRIPTION

TUBING, NONMETALLIC

(RUBBER AND PLASTIC)

The General Services Administration has authorized the use of this commercial item description as a replacement for Federal Specification ZZ-T-831.

Abstract. This commercial item description covers rubber and plastic tubing for laboratory and special use.

Salient characteristics.

Design and construction. The tubing shall be manufactured for use in laboratory procedures and special uses where softness and high purity are required and when electrical conductivity may be required. The tubing shall be provided, as specified, in the following sizes, types, and classifications:

Nominal Size:        1/8 inch  
                          3/16 inch  
                          1/4 inch  
                          5/16 inch  
                          3/8 inch  
                          1/2 inch  
                          5/8 inch  
                          3/4 inch  
                          1 inch

## Type I - Commercial Rubber Tubing

Class 1     Light Wall  
Class 2     Heavy Wall  
Class 3     Pressure  
Class 4     Gooch

## Type II - Synthetic Rubber Tubing

Class 1     Light Wall  
Class 2     Heavy Wall  
Class 3     Vacuum Connections

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent by letter to: Commander, US Army Belvoir Research, Development, and Engineering Center, ATTN: STRBE-TSE, Fort Belvoir, VA 22060-5606.

AMSC N/A

FSC 4720

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

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Type III - Natural Rubber Compounded Tubing (ID =  $\pm 0.062$ -inch,  
Wall Thickness =  $0.062 \pm 0.016$ -inch,  
Length = 3 feet  $\pm 1$  inch)

Type IV - Latex Tubing

Type V - Laboratory Pure Gum Natural Rubber or the Synthetic  
Equivalent Tubing

Class 1 Light Wall  
Class 2 Heavy Wall  
Class 3 Pressure  
Class 4 Gooch

Type VI - Plastic Tubing (Polyvinyl chloride as the base material)

Class 6 General Use  
Class 7 Pressure & Vacuum

Physical properties. The physical properties shall be as shown in  
table I:

TABLE I. Physical properties.

Property	Type I	Type II	Type III	Type IV	Type V	Type VI
Specific gravity (maximum)	1.40	---	---	---	0.97	---
Tensile strength: Initial (psi) (min)	2400	1100	1200	3500	3000	2000
After air heat aging (7 days) (% of initial) (minimum)	75	75	75	75 <u>1/</u>	75	---
After 14 days immersion in a 3% salt solution at 82 °F (28 °C) (psi) (min.)	---	---	---	---	---	2000
Ultimate elongation: Initial (%) (minimum)	650	450	400	750	700	300
After 14 days immersion in a 3% salt solution at 82 °F (28 °C) (%) (minimum)	---	---	---	---	---	300
Tensile stress at 100% elongation (psi) (maximum)	150	200	300	---	125	800

1/Except that type IV tubing, .125-inch inside diameter shall retain a minimum of 65 percent of its original strength.

Electrical conductivity. When specified, the tubing shall be electrically conductive. The maximum resistance value over a 3-foot section of electrically conductive tubing shall be 1.0 megohm.

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TABLE II. Dimensions, types I & V.

Nominal Size	Class 1, Light Wall		Class 2, Heavy Wall		Class 3, Pressure		Class 4, Gooch
	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside width measured flat $\pm 0.016$
(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inches)
1/8	.125	.031	.125	.062	.125	.188	1.250
3/16	.188	.047	.188	.094	.188	.188	1.500
1/4	.250	.062	.250	.094	.250	.188	1.750
5/16	.312	.062	.312	.094	.312	.188	
3/8	.375	.062	.375	.125	.375	.250	
1/2	.500	.094	.500	.125	.500	.250	
5/8	-	-	.625	.125	-	-	
3/4	-	-	.750	.125	-	-	
1	-	-	1.000	.125	-	-	

TABLE III. Dimensions, type II tubing.

Nominal size	Class 1, Light Wall		Class 2, Heavy Wall		Class 3, Vacuum Connections	
	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$
(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)
1/8	.125	.047	.125	.094	.188	.188
3/16	.188	.047	.188	.094	.250	.188
1/4	.250	.062	.250	.125	-	-
5/16	.312	.062	.312	.125	-	-
3/8	.375	.062	.375	.125	-	-
1/2	.500	.062	.500	.125	-	-
5/8	.625	.062	.625	.125	-	-
3/4	-	-	.750	.125	-	-
1	-	-	1.000	.125	-	-

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TABLE IV. Dimensions and tolerance, type IV tubing, inches.

Nominal size	Inside diameter	Tolerance plus or minus	Wall thickness	Tolerance plus or minus
1/8	.125	.016	.031	.008
3/16	.188	.016	.094	.016
1/4	.250	.016	.062	.016
5/16	.312	.016	.062	.016

TABLE V. Dimensions, type VI tubing.

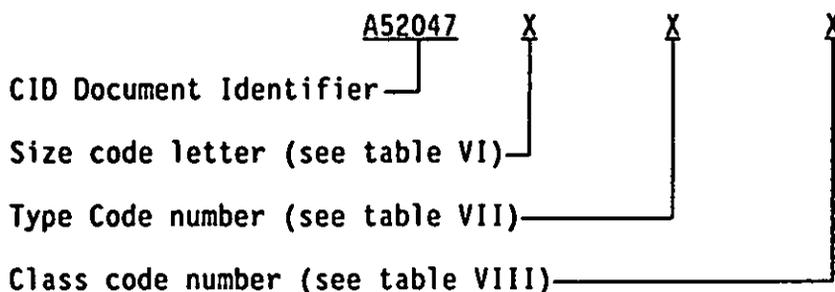
Nominal size	Class 6, general use		Class 7, pressure and vacuum connections	
	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$	Inside diameter $\pm 0.016$	Wall thickness $\pm 0.016$
(inch)	(inch)	(inch)	(inch)	(inch)
1/8	.125	.094	.125	.250
3/16	.188	.094	.188	.250
1/4	.250	.125	.250	.250
5/16	.312	.125	-	-
3/8	.375	.125	-	-
1/2	.500	.125	-	-
5/8	.625	.125	-	-
3/4	.750	.125	-	-
1	1.000	.125	-	-

Contractor certification. When required, the contractor shall certify that the product offered to the Government meets the salient characteristics of this description and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices and is the same product as the manufacturer's current product offered by the contractor in the commercial marketplace for at least one year preceding the solicitation. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract. All rubber tubing shall be no more than 12 months old on date of acceptance by the Government.

Preservation, packing, labeling, and marking. Preservation, packing, labeling, and marking shall be as specified in the contract or purchase order.

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CID-based part identification number. The following part identification numbering procedure is for Government purposes and does not constitute a requirement for the contractor. The PIN to be used for tubing acquired to this document are created as follows:

TABLE VI. Dimensions Codes.

SIZE	DIMENSION
A	3/16-inch
B	1/4-inch
C	5/16-inch
D	3/8-inch
E	1/2-inch
F	5/8-inch
G	3/4-inch
H	1-inch

TABLE VII. Material Codes.

TYPE	MATERIAL CODES
I	Commercial Rubber Tubing
II	Synthetic Rubber Tubing
III	Natural Rubber Compounded Tubing
IV	Latex Tubing
V	Laboratory Pure Gum Natural Rubber or Synthetic Equivalent Tubing
VI	Plastic Tubing

TABLE VIII. Attribute Classes.

CLASS	ATTRIBUTE
1	Light Wall
2	Heavy Wall
3	Pressure
4	Gooch
6	General Use
7	Pressure & Vacuum

Notes. The procuring agency should specify the preferred options permitted herein and include the following information in procurement documents:

1. Title, number, and date of this commercial item description.
2. Type and class of tubing required.
3. When electrical conductivity is required.
4. Color of tubing required.
5. Nominal size and length of tubing required.
6. Degree of preservation and packaging required.

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7. When certification that the tubing offered meets all requirements of this description is required.
8. When Part Identification Number (PIN) is required.

MILITARY INTERESTS:

Custodians:

Army - ME  
Navy - YD  
Air Force - 99

Review activities:

Army - AR, MD, MI, EA  
Air Force - 82  
DLA - CS

User activities:

Army - AT  
Navy - AS, MS, OS

PREPARING ACTIVITY

Army - ME

Civil Agency Coordinating  
Activities

GSA - FSS

VA - OSS

HEW - NIH

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