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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-WW-T-700/2

Issued JUL 2001

Tube, Aluminum, Alloy, Drawn, Seamless, 3003

NOTICE

This document has been taken directly from U.S. Military Specification WW-T-700/2E, and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace WW-T-700/2E. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

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The complete requirements for procuring seamless tube drawn from aluminum alloy 3003 described herein shall consist of this document and the latest issue of WW-T-700/GEN (see 2.1).

1. SCOPE AND CLASSIFICATION:

1.1 Scope:

This specification covers the specific requirements for seamless tube drawn from aluminum alloy 3003.

1.2 Classification:

1.2.1 Tempers: The drawn seamless tube shall be of the following tempers: 0, H12, H14, H16, H18, and F, as specified (see 6.2 and 6.3). The definitions of these tempers shall be as specified in WW-T-700/GEN.

1.2.2 Types: The tube shall be of the following types:

Type		Appearance
I	-	Round
II	-	Rectangular and square
III	-	Streamline
IV	-	Oval
V	-	Odd shapes

2. APPLICABLE DOCUMENTS:

The issues of the following documents, in effect on date of invitation for bids or solicitation for offers, form a part of this specification to the extent specified herein.

2.1 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

WW-T-700/GEN Tube, Aluminum and Aluminum Alloy, Drawn, Seamless, General Specification for

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions, as outlined under General Information in the Index of Federal Specifications, Standards and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

2.1 (Continued):

(Single copies of this specification and other Federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from the General Services Administration Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA.

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3. REQUIREMENTS:

3.1 Chemical composition:

The chemical composition shall conform to the requirements specified in Table I.

TABLE I. Chemical composition 1/

Element	Percent	
	Minimum	Maximum
Silicon	-	0.6
Iron	-	0.7
Copper	0.05	0.20
Manganese	1.0	1.5
Zinc	-	0.10
Other elements, each	-	0.05
Other elements, total 2/	-	0.15
Aluminum	Remainder	

1/ Except for "Aluminum" and "Others", analysis normally is made for elements for which specific limits are shown

2/ The sum of those "Others" metallic elements 0.010 percent or more each, expressed to the second decimal before determining the sum

3.2 Mechanical properties:

3.2.1 Tensile strength, yield strength and elongation properties: The tensile strength, yield strength and elongation mechanical properties parallel to the direction of drawing shall conform to the requirements specified in table II.

TABLE II. Tensile strength, yield strength and elongation properties

Temper	Wall thickness, inch	Tensile strength, minimum, ksi	Yield strength, minimum, ksi	Percent elongation in 2 inches or 4D 1/, minimum, kind of specimen	
				Full section	Cut-out
0	0.010-0.244 incl.	14.0	5.0	-	-
H12	0.010-0.599 incl.	17.0	12.0	-	-
H14	0.010-0.024 incl.	20.0	17.0	3	-
	0.260-0.500 incl.	20.0	17.0	-	-
H16	0.010-0.024 incl.	24.0	21.0	-	-
	0.260-0.500 incl.	24.0	21.0	-	-
H18	0.010-0.024 incl.	27.0	24.0	2	-
	0.260-0.500 incl.	27.0	24.0	-	-

1/ Round tube 2 inches or less in outside diameter and square tube 1-1/2 inches or less on a side shall be tested in full section unless the limitations of the testing machine preclude the use of such a specimen. For round tube over 2 inches in diameter, for square tube over 1-1/2 inches on a side, for all sizes of tube other than round or square, or in those cases when a full section specimen cannot be used, a cut-out specimen shall be used. D represents diameter of cut-out specimen.

2/ Maximum tensile strength is 19.0 ksi

3.2.2 Flattening: When specified (see 6.2), round tube (type 1) in 0, H12, H14 and H16 tempers shall withstand, without cracking, the flattening test or the alternative bend test specified in WW-T-700/GEN. The values for flattening factor "F" are specified in table III.

TABLE III. Flattening factor

Temper	Wall thickness, inch	F
0	0.025 to 0.500, incl.	2
H12	0.025 to 0.259, incl.	3
H14	Up to 0.259, incl.	6
H16	0.025 to 0.259, incl.	8

3.2.2.1 Alternative bending factor "N": The values for the alternative bending factor "N" are specified in table IV.