

INCH-POUND

MIL-DTL-25995C
22 November 2002
 SUPERSEDING
 MIL-P-25995B (USAF)
 2 March 1982

DETAIL SPECIFICATION

PIPE, ALUMINUM ALLOY, DRAWN OR EXTRUDED

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers requirements for drawn or extruded aluminum alloy pipe in the dimensions and weights specified, and a schedule of 5, 10, or 40 (standard), or 80 (extra heavy). (See 3.6 and table I).

1.2 Classification.1.2.1 Type.

	<u>Type designator</u>
Type I - Structural pipe for nonpressure applications	A
Type II -Seamless pipe for pressure applications	B

1.2.2 Alloys and tempers.

<u>Alloy/temper</u>	<u>Alloy/temper designator code</u>
3003-H18	1
3003-H112	2
6061-T6	3
6063-T6	4

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center, Columbus, DSCC-VAI, 3990 East Broad Street, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4710

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MIL-DTL-25995C

1.3 Part number (PIN). PINs are formed as specified in 6.3.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. None

2.3 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI H35.1 - Alloy and Temper Designation Systems for Aluminum

(Application for copies should be addressed to the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM B210 - Aluminum and Aluminum-Alloy Drawn Seamless Tubes
ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tube
ASTM B241 - Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
ASTM B429 - Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM B483 - Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications

(Applications for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken PA 19428-2959.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Type I. Structural pipe for non-pressure applications shall be in accordance with ASTM B429, ASTM B483, ASTM B221, or ASTM B210.

3.2 Type II. Seamless pipe for pressure applications shall be in accordance with ASTM B241.

MIL-DTL-25995C

3.3 Alloys and tempers. Pipe shall be of the following alloys and tempers as identified in ANSI H35.1.

Temper
 3003 - H18
 3003 - H112
 6061 - T6
 6063 - T6

3.4 Chemical composition. Chemical composition shall be in accordance with the ASTM Standards specified in 3.1 and 3.2 for the applicable type of pipe.

3.5 Tensile properties. Tensile properties shall be in accordance with the ASTM Standards specified in 3.1 and 3.2 for the applicable type of pipe.

TABLE I. - Nominal dimensions and weights of aluminum-alloy pipe.

Nominal pipe size (inches)	Size designator	Schedule designation	Outside diameter (inches)	Inside diameter (inches)	Wall thickness (inches)	Weight per foot (Lbs)	
			Nom	Nom	Nom	Nom	Max
.125	A	C	0.405	0.269	0.068	0.185	0.091
		D	0.405	0.215	0.095	0.109	0.117
.25	B	C	0.540	0.364	0.088	0.147	0.159
		D	0.540	0.302	0.119	0.185	0.200
.375	C	C	0.675	0.493	0.091	0.196	0.212
		D	0.675	0.423	0.126	0.256	0.276
.5	D	A	0.840	0.710	0.065	0.186	—
		B	0.840	0.674	0.083	0.232	—
		C	0.840	0.622	0.109	0.294	0.317
		D	0.840	0.546	0.147	0.376	0.406
.75	E	A	1.050	0.920	0.065	0.237	—
		B	1.050	0.884	0.083	0.297	—
		C	1.050	0.824	0.113	0.391	0.422
		D	1.050	0.742	0.154	0.510	0.550
1	F	A	1.315	1.185	0.065	0.300	—
		B	1.315	1.097	0.109	0.486	—
		C	1.315	1.049	0.133	0.581	0.627
		D	1.315	0.957	0.179	0.751	0.811
1.25	G	A	1.660	1.530	0.065	0.383	—
		B	1.660	1.442	0.109	0.625	—
		C	1.660	1.380	0.140	0.786	0.849
		D	1.660	1.278	0.191	1.037	1.120
1.5	H	A	1.900	1.770	0.065	0.441	—
		B	1.900	1.682	0.109	0.721	—
		C	1.900	1.610	0.145	0.940	1.015
		D	1.900	1.500	0.200	1.256	1.356
2	J	A	2.375	2.245	0.065	0.555	—
		B	2.375	2.157	0.109	0.913	—
		C	2.375	2.067	0.154	1.264	1.365
		D	2.375	1.939	0.218	1.737	1.876

MIL-DTL-25995C

TABLE I. - Nominal dimensions and weights of aluminum-alloy pipe - Continued.

Nominal pipe size (inches)	Size designator	Schedule designation	Outside diameter (inches)	Inside diameter (inches)	Wall thickness (inches)	Weight per foot (Lbs)	
			Nom	Nom	Nom	Nom	Max
2.5	K	A	2.875	2.703	0.083	.856	—
		B	2.875	2.635	0.120	1.221	—
		C	2.875	2.469	0.203	2.004	2.164
		D	2.875	2.323	0.276	2.650	2.862
3	L	A	3.500	3.334	0.083	1.048	—
		B	3.500	3.260	0.120	1.498	—
		C	3.500	3.068	0.216	2.621	2.830
		D	3.500	2.900	0.300	3.547	3.830
3.5	M	A	4.000	3.834	0.083	1.201	—
		B	4.000	3.760	0.120	1.720	—
		C	4.000	3.548	0.226	3.151	3.403
		D	4.000	3.364	0.318	4.326	4.672
4	N	A	4.500	4.334	0.083	1.354	—
		B	4.500	4.260	0.120	1.942	—
		C	4.500	4.026	0.237	3.733	4.031
		D	4.500	3.826	0.337	5.183	5.598
5	P	A	5.563	5.345	0.109	2.196	—
		B	5.563	5.295	0.137	2.688	—
		C	5.563	5.047	0.258	5.057	5.461
		D	5.563	4.813	0.375	7.188	7.763
6	Q	A	6.625	6.407	0.109	2.624	—
		B	6.625	6.357	0.134	3.213	—
		C	6.625	6.065	0.280	3.564	7.089
		D	6.625	5.761	0.432	9.884	10.67
8	R	A	8.625	8.407	0.109	3.429	—
		B	8.625	8.329	0.148	4.635	—
		C	8.625	7.981	0.322	9.878	10.67
		D	8.625	7.625	0.500	15.01	16.21
10	S	A	10.750	10.482	0.134	5.526	—
		B	10.750	10.420	0.165	6.453	—
		C	10.750	10.020	0.365	14.00	15.12
		D	10.750	9.564	0.593	22.25	24.03
12	T	A	12.750	12.438	0.156	7.268	—
		B	12.750	12.390	0.180	8.359	—
		C	12.750	11.938	0.406	18.52	20.000
		D	12.750	11.376	0.687	30.62	33.07

MIL-DTL-25995C

3.6 Schedule. The schedule size shall be 5, 10 or 40 (standard) or 80 (extra heavy).

3.6.1 Schedule designator - The schedule designator shall be as follows:

<u>Schedule size</u>	<u>Schedule designator</u>
5	A
10	B
40	C
80	D

3.7 Pipe size and weight. Pipe size and weight shall be in accordance with Table I.

3.7.1 Pipe tolerances. Pipe tolerances shall be in accordance with the ASTM standards specified in 3.1 and 3.2 for the applicable type of pipe.

3.8 Heat treatment. Heat treatment shall be in accordance with the ASTM standards specified in 3.1 and 3.2 for the applicable type of pipe. The heat treatment methods for the applicable type pipe shall be in accordance with the ASTM Standard for that type pipe. The method shall be as specified in the contract or order.

3.9 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle cost.

3.10 Hazardous substances. The use of hazardous substances, toxic chemicals, or Ozone Depleting Chemicals (ODCs) shall be avoided, whenever feasible.

3.11 Marking. When specified in the contract or order the PIN shall be permanently and legibly marked on the pipe.

3.12 Workmanship. The pipe shall be uniform in quality and temper. The exterior and interior surfaces shall be clean, smooth, and free from slivers, laminations, folds, grooves, cracks, and other defects within the limits consistent with best commercial practice. Discoloration due to thermal treatment is acceptable.

4. VERIFICATION

4.1 Inspection and testing. Inspection and testing shall be in accordance with the ASTM standards or specified in 3.1 and 3.2 for the applicable type of pipe.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department of Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

MIL-DTL-25995C

6. NOTES

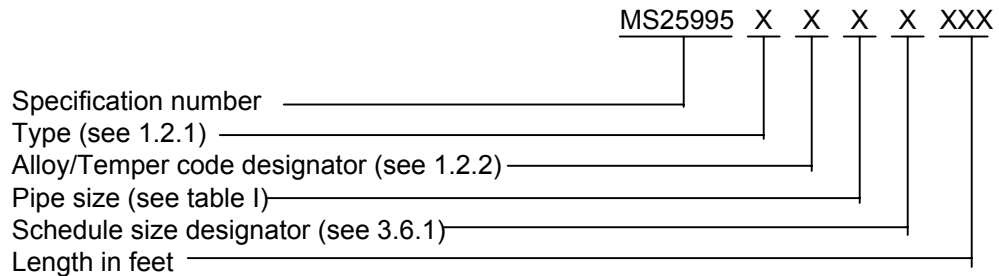
6.1 Intended use. Structural pipe is for use in structural application, and seamless pipe is utilized in pressure applications. Where structural applications are required, the procuring activity should specify structural pipe. The pipe's mechanical properties, composition, dimensions, etcetera, are the same, but because of lower production cost, it can generally be procured at a lower price. The military unique part number identification system (PIN) is retained to facilitate reprourement.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type (see 1.2.1).
- c. Alloy and temper (see 1.2.2).
- d. Nominal pipe size and schedule number (see Table I).
- e. Length in feet.
- f. Heat treatment method (3.8).
- g. Marking (see 3.11).
- h. Packaging requirements (see 5.1).

6.3 Part number (PIN). The PIN is formed by the various options for the pipe contribution and configuration, as follows:

PIN Formation

6.4 Key Words.

Structural aluminum pipe
 Non pressure aluminum pipe
 Pressure aluminum pipe
 Schedule 10 (standard)
 Schedule 40 (standard)
 Schedule 80 (extra heavy)

6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

MIL-DTL-25995C

Custodians:

Air Force - 99
Army - AT
Navy - SH
DSCC-CC

Preparing activity:

DLA - CC

(Project 4710-0280)

Review activities:

Air Force - 71, 06
Army - EA
Navy - SA