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Designation: A269 – 13

StandardSpecification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service[1]

This standard is issued under the fixed designation A269; 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 Department of Defense.

1. Scope*

1.1 This specification covers grades of nominal-wall-thickness, stainless steel tubing for general corrosion-resisting and low- or high-temperature service, as designated in Table 1.

1.2 The tubing sizes and thicknesses usually furnished to this specification are ¼ in. (6.4 mm) in inside diameter and larger and 0.020 in. (0.51 mm) in nominal wall-thickness and heavier.

1.3 Mechanical property requirements do not apply to tubing smaller than ⅛ in. (3.2 mm) in inside diameter or 0.015 in. (0.38 mm) in thickness.

NOTE 1—Additional testing requirements may apply for use in ASME B31.3 applications.

1.4 Optional supplementary requirements are provided and, when one or more of these are desired, each shall be so stated in the order.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A480/A480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip

A632 Specification for Seamless and Welded Austenitic Stainless Steel Tubing (Small-Diameter) for General Service

A1016/A1016M Specification for General Requirements for Ferritic Alloy Steel, Austenitic Alloy Steel, and Stainless Steel Tubes

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.2 *ASME Piping Code:*

ASME B31.3 Process Piping[3]

2.3 *Other Standard:*

SAE J1086 Practice for Numbering Metals and Alloys (UNS)[4]

3. Ordering Information

3.1 Orders for material under this specification should include the following, as required, to describe the desired material adequately:

3.1.1 Quantity (feet, metres, or number of lengths),

3.1.2 Name of material (seamless or welded tubes),

3.1.3 Grade (Table 1),

3.1.4 Size (outside diameter and nominal wall thickness),

3.1.5 Length (specific or random),

3.1.6 Optional requirements (heat treatment, see Section 6; hydrostatic or nondestructive electric test, see Section 10),

3.1.7 Test report required (see Section on Inspection of Specification A1016/A1016M),

3.1.8 Specification designation, and

3.1.9 Special requirements and any supplementary requirements selected.

4. General Requirements

4.1 Material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A1016/A1016M, unless otherwise provided herein.

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.10 on Stainless and Alloy Steel Tubular Products.

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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 Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990, http://www.asme.org.

[4] Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, http://www.sae.org.

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

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TABLE 1 Chemical Requirements %

Grade	Composition, %															
	TP 201	TP 201LN	TP 304	TP 304L	TP 304LN	TP 316	TP 316L	TP 316LN	TP 317	TP 321	TP 347	TP 348	TP XM-10	TP XM-11	TP XM-15	TP XM-19
UNS Designation[A]	S20100	S20153	S30400	S30403	S30453	S31600	31603	S31653	S31700	S32100	S34700	S34800	S21900	S21904	S38100	S20910
Carbon	0.15 max	0.03 max	0.08 max	0.035 max[B]	0.035 max[B]	0.08 max	0.035 max[B]	0.035 max[B]	0.08 max	0.08 max	0.08 max	0.08 max	0.08 max	0.04 max	0.08 max	0.06 max
Manganese, max[C]	5.5–7.5	6.4–7.5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	8.00–10.00	8.00–10.00	2.00	4.0–6.0
Phosphorus, max.	0.060	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.030	0.045
Sulfur, max.	0.030	0.015	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Silicon[C]	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.50–2.50	1.00
Nickel	3.5–5.5	4.0–5.0	8.0–11.0	8.0–12.0	8.0–11.0	10.0–14.0	10.0–15.0	10.0–13.0	11.0–15.0	9.0–12.0	9.0–12.0	9.0–12.0	5.5–7.5	5.5–7.5	17.5–18.5	11.5–13.5
Chromium	16.0–18.0	16.0–17.5	18.0–20.0	18.0–20.0	18.0–20.0	16.0–18.0	16.0–18.0	16.0–18.0	18.0–20.0	17.0–19.0	17.0–19.0	17.0–19.0	19.0–21.5	19.0–21.5	17.0–19.0	20.5–23.5
Molybdenum	. . .	. . .	. . .	. . .	. . .	2.00–3.00	2.00–3.00	2.00–3.00	3.0–4.0	. . .	. . .	. . .	. . .	. . .	. . .	1.50–3.00
Titanium	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	[D]	. . .	. . .	. . .	. . .	. . .	. . .
Columbium	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	10 × C min 1.10 max	[E]	. . .	. . .	. . .	0.10–0.30
Tantalum, max	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	0.10	. . .	. . .	. . .	. . .
Nitrogen[F]	0.25	0.10–0.25	. . .	. . .	0.10–0.16	. . .	. . .	0.10–0.16	. . .	. . .	. . .	. . .	0.15–0.40	0.15–0.40	. . .	0.20–0.40
Vanadium	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .			. . .	0.10–0.30
Copper	. . .	1.00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Others	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	Co 0.20 max	. . .	. . .	. . .	. . .

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