



Designation: A269/A269M – 24

Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service¹

This standard is issued under the fixed designation A269/A269M; 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.

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 $\frac{1}{4}$ 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 $\frac{1}{8}$ 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 either SI units or inch-pound units are to be regarded separately as standard. Within the text, SI units are shown in brackets. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. The inch-pound units shall apply unless the “M” designation of this specification is specified in the order.

1.6 *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.*

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. Referenced Documents

2.1 ASTM Standards:²

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

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 Piping³

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),

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, Two 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

TABLE 1 Chemical Requirements^C %

Grade	Composition, %																		
	TP 201	TP 201LN	TP 304	TP 304L	...	TP 304LN	TP 316	TP 316L	TP 316LN	TP ...	TP 317	TP S31730	TP S32100	TP S34700	TP 348	TP S21900	TP XM-11	TP XM-15	TP XM-19
UNS Designation ^A	S20100	S20153	S30400	S30403	S30416	S30453	S31600	S31603	S31653	S31655	S31700	S31730	S32100	S34700	S34800	S21900	S21904	S38100	S20910
Carbon	0.15 5.5–7.5	0.03 6.4–7.5	0.08 2.00	0.035 ^B 2.00	0.030 2.00	0.035 ^B 2.00	0.08 2.00	0.035 ^B 2.00	0.035 ^B 2.00	0.030 2.00	0.08 2.00	0.030 2.00	0.08 2.00	0.08 2.00	0.08 2.00	0.08 8.00–10.00	0.04 8.00–10.00	0.08 2.00	0.06 4.0–6.0
Phosphorus	0.060	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.040	0.045	0.045	0.045	0.045	0.045	0.030	0.045
Sulfur	0.030	0.015	0.030	0.030	0.015	0.030	0.030	0.030	0.030	0.015	0.030	0.010	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Silicon	1.00	0.75	1.00	1.00	0.80–2.00	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	9.0–11.0	8.0–11.0	10.0–14.0	10.0–15.0	10.0–13.0	8.0–9.5	11.0–15.0	15.0–16.5	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	17.5–19.5	18.0–20.0	16.0–18.0	16.0–18.0	16.0–18.0	19.5–21.5	18.0–20.0	17.0–19.0	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	...	...	...	...	0.40–0.80	...	2.00–3.00	2.00–3.00	2.00–3.00	0.5–1.5	3.0–4.0	3.0–4.0	...	...	...	...	...	...	1.50–3.00
Titanium	...	...	...	...	...	...	...	...	...	...	...	...	<i>D</i>	...	...	...	...	...	...
Columbium	...	...	...	...	...	...	...	...	...	...	...	...	...	10 × C min	<i>E</i>	...	...	...	0.10–0.30
Tantalum Nitrogen ^F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.10	...	...	...	...
Vanadium	...	0.10–0.25	...	...	0.10	0.10–0.16	...	...	0.10–0.16	0.14–0.25	...	0.45	...	...	...	0.15–0.40	0.15–0.40	...	0.20–0.40
Copper	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.10–0.30
Others	...	1.00	...	...	...	...	...	...	...	1.00	...	4.0–5.0	...	...	Co 0.20 max	...	...	...	...