



SURFACE VEHICLE STANDARD

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High Strength, 304/304L Stainless Steel Tubing

RATIONALE

Users and manufacturing committees have requested an SAE document to standardize stainless steel bulk tubing. This document is created to support the SAE need for a stainless steel, bulk tubing standard, which provides users with information and requirements regarding tubing material, dimensions, performance, and recommended attachment methods.

1. SCOPE

This SAE standard covers both “welded and cold drawn” and “seamless” stainless steel pressure tubing in the as-cold-drawn high strength condition intended for use as high pressure hydraulic lines and other applications requiring corrosion resistance. Welding, brazing, or other thermal processing methods that subject the tube material or assembly to elevated temperatures may compromise the strength of the tubing.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J533	Flares for Tubing
SAE J1453-1	Specification for O-Ring Face Seal Connectors: Part 1 - Tube Connection Details and Common Requirements for Performance and Tests

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A249/A249M	Standard Specification for Welded Austenitic Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
ASTM A1016/A1016M	Standard Specification for General Requirements for Ferritic Alloy Steel, Austenitic Alloy Steel, and Stainless Steel Tubes

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2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

Tubing to this specification is similar to that required by AMS5564, AMS5566, and AMS5569.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS5564	Steel, Corrosion Resistant, Tubing, 19Cr - 10Ni (SAE 30304), High- Pressure Hydraulic, Welded Plus Ultrasonically Tested or Seamless Cold Drawn, One Eighth - Hard Temper
AMS5566	Steel, Corrosion Resistant, Seamless or Welded Hydraulic Tubing, 19Cr - 10Ni (304), High Pressure, Cold Drawn
AMS5569	Steel, Corrosion and Heat Resistant, Seamless and Welded Hydraulic Tubing, 19Cr - 9.5Ni - 0.03C Max, Cold Drawn, 1/8 Hard Temper

3. MANUFACTURE

Tubing shall be cold drawn to produce a finished product and shall meet all requirements of this document. The specified tensile properties shall be obtained by cold working and not by heat treatment. The tubes may be either seamless or welded and drawn.

Including cold drawn process that reduces both OD and wall thickness, as last draw pass or prior to final draw pass.

Surface finish may be either pickled or bright annealed prior to the last cold draw pass. No thermal treatment is allowed after the final draw pass.

Centerless grinding is not permitted; however, a light polish to improve surface appearance is permitted after the last cold draw pass. Polished tubing shall be subsequently passivated.

4. DIMENSIONS AND TOLERANCES

4.1 Outside Diameter Tolerance

The tolerances applicable to the tubing outside diameter are shown in Table 1.