



SURFACE VEHICLE STANDARD

J525™

SEP2016

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Superseding J525 MAY1999

Welded and Cold Drawn Low-Carbon Steel Tubing Annealed for Bending and Flaring

RATIONALE

This five year review of the SAE J525 standard incorporates revisions requested by producers, fabricators and users of this material type. The updates include the following:

1. Added recommendation for the use of metric size materials.
2. Edited list of applicable publications.
3. Edited list of related publications.
4. Revised straightness note to comply with latest verbiage.
5. Revised tube end condition note to comply with latest verbiage.
6. Revised surface finish note to comply with latest verbiage.
7. Updated corrosion protection note to comply with latest verbiage.
8. Update packaging note to comply with latest verbiage.
9. Revised Sulfur and Phos. requirements in table 3 to harmonize with J403 document.
10. Revised section 6 "check analysis" to "product analysis."
11. Revised wording of test certificate requirement in section 9.

1. SCOPE

This SAE Standard covers normalized electric-resistance welded, cold-drawn, single-wall, low-carbon steel pressure tubing intended for use as pressure lines and in other applications requiring tubing of a quality suitable for bending, flaring, forming, and brazing.

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SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

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Documents
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In an effort to standardize within a global marketplace and ensuring that companies can remain competitive in an international market it is the intent to convert to metric tube sizes which will:

- Lead to one global system
- Guide users to preferred system
- Reduce complexity
- Eliminate inventory duplications

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 version 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 J403 Chemical Compositions of SAE Carbon Steels

SAE J409 Product Analysis - Permissible Variations from Specified Chemical Analysis of a Heat or Cast of Steel

SAE J1677 Tests and Procedures for Steel and Copper Nickel Tubing

2.2 Related Publications

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

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.

SAE J514 Hydraulic Tube Fittings

SAE J533 Flares for Tubing

SAE J1065 Nominal Reference Working Pressures for Steel Hydraulic Tubing

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

SAE J1453-2 Specification for O-Ring Face Seal Connectors: Part 2 – Requirements, Dimensions, and Tests For Steel Unions, Bulkheads, Swivels, Braze Sleeves, Braze-on Tube Ends, Caps, and Connectors with ISO 6149-2 Metric Stud Ends and ISO 6162 4-Bolt Flange Heads

SAE J1453-3 Specification for O-Ring Face Seal Connectors: Part 3 – Requirements, Dimensions, and Tests for Steel Unions, Bulkheads, Swivels, Braze Sleeves, Caps, and Connectors with SAE J1926-2 Inch Stud Ends

- SAE J2551-1 Recommended Practices for Fluid Conductor Carbon, Alloy and High Strength Low Alloy Steel Tubing Applications-Part 1: Design and Fabrication
- SAE J2551-2 Recommended Practices for Fluid Conductor Carbon, Alloy and High Strength Low Alloy Steel Tubing Applications-Part 2: General Specifications and Performance Requirements
- SAE J2551-3 Recommended Practice for Fluid Conductor Carbon, Alloy and High Strength Low Alloy Steel Tubing Applications-Part 3: Procurement
- SAE J2592 Carbon Steel Tubing for General Use - Understanding Nondestructive Testing for Carbon Steel Tubing

2.2.2 ISO and EN Publications

Copies of these documents are available online at <http://webstore.ansi.org/>

- ISO 3305 Plain end welded precision steel tubes - Technical conditions for delivery
- ISO 5598 Fluid power systems and components - Vocabulary
- ISO 8434-2 Metallic tube connections for fluid power and general use - Part: 2 37° flare fittings
- ISO 8434-3 Metallic tube connections for fluid power and general use - Part: 3 ORFS fittings
- ISO 10583 Hydraulic fluid power - Test methods for tube connections
- ISO 10763 Hydraulic fluid power - Plain-end, seamless and welded steel tubes - Dimensions and nominal working pressures
- ISO 19879 Metallic tube connections for fluid power and general use - Test methods for hydraulic fluid power connections
- EN 10305-2 Steel Tubes for Precision Applications-Technical Delivery Conditions, Part 2; Welded Cold Drawn Tubes rev 10 dated 2/28/2010
- EN 10305-6 Steel Tubes for Precision Applications-Technical Delivery Conditions, Part 6; Welded Cold Drawn Tubes for hydraulic and Pneumatic Systems; rev 5 dated 8/31/07

2.2.3 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 A 513 Electric-Resistance-Welded Carbon and Alloy Steel Tubing
- ASTM A 450/A 450M Standard Specifications for General Requirements for Carbon, Ferritic Alloy and Austenitic Alloy Steel Tubing
- ASTM E213-09 Standard Practice for Ultrasonic Testing of Metal Pipe and Steel Tube
- ASTM E309-11 Standard Practice for Eddy Current Examination of Steel Tubular Products using Magnetic Saturation
- ASTM E570-09 Standard Practice for Flux Leakage Examination of Ferromagnetic Steel Tubular Products