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SURFACE VEHICLE STANDARD

SAE J526

REV.
FEB96

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Submitted for recognition as an American National Standard

(R) WELDED LOW-CARBON STEEL TUBING

1. Scope—This SAE Standard covers welded single-wall low-carbon steel tubing intended for general automotive applications and other similar uses.

2. References

2.1 Applicable Document—The following publication forms a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1677—Tests and Procedures for SAE Low-Carbon Steel and Copper Nickel Tubing

2.2 Related Publication—The following publications are provided for information purposes only and are not a required part of this document.

2.2.2 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J533—Flares for Tubing

3. Manufacture—The tubing shall be made from a single strip of steel shaped into a tubular form, the edges of which are joined and sealed by a suitable butt welding process. After welding, the bead shall be removed from the outside to provide a smooth round surface and the tubing shall be processed in such a manner as to produce a finished product which will meet all requirements of this document.

4. Dimensions and Tolerances—The standard nominal diameters and the applicable dimensions and tolerances are shown in Table 1.

5. Quality—Finished tubing shall be clean, smooth, and round, both inside and outside; and shall be free from scale and injurious defects. A slight weld bead and splatter on the inside surface shall be permissible but must be held to the minimum consistent with good welding practice. Surface imperfections such as handling marks, die marks, or shallow pits shall not be considered injurious defects provided such imperfections are within the tolerances specified for diameter and wall thickness.

6. Material—Tubing shall be made from low-carbon steel, such as UNS G10080 or UNS G10100.

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TABLE 1—TUBING DIMENSIONS AND TOLERANCES¹

Dash Size	Nominal Tubing OD mm	Outside Diameter ² Basic mm	Outside Diameter ² Tolerance ±mm	Wall Thickness ³ basic mm	Wall Thickness ³ Tolerance mm
-2	3.18	3.18	0.05	0.64	0.13
-3	4.76	4.78	0.08	0.71	0.13
-4	6.35	6.35	0.08	0.71	0.08
-5	7.94	7.92	0.08	0.71	0.08
-6	9.53	9.53	0.08	0.71	0.08
-7	11.11	11.13	0.10	0.76	0.08
-8	12.70	12.70	0.10	0.76	0.08
-8	12.70	12.70	0.10	0.89	0.09
-9	14.29	14.27	0.10	0.76	0.08
-10	15.88	15.88	0.10	0.89	0.09

¹ Other sizes may be specified by agreement between the supplier and the user.

² The actual outside diameter shall be the average of the maximum and minimum outside diameters as determined at any one cross section through the tubing.

³ The tolerances listed represent the maximum permissible deviation at any point.

7. Mechanical Properties—The finished tubing shall have mechanical properties as tabulated in Table 2.

TABLE 2—MECHANICAL REQUIREMENTS

Properties	Values
Yield Strength, min (0.2% offset)	170 MPa
Tensile Strength, min	290 MPa
Elongation in 50 mm	14% min
Hardness (Rockwell 30 T scale), max	65

8. Performance Requirements—The finished tubing shall satisfactorily meet the following performance tests. All tests are to be conducted in accordance with the procedures in SAE J1677. The section listed in the parentheses is for the SAE J1677 document.

8.1 Flaring Test—As Required (Double Flare 5.5.1)
(Single Flare 5.5.3)

8.2 Hardness Test—(5.6)

8.3 Bending Test—(5.3)

8.4 Pressure Proof Test—(5.8)—Where allowable unit stress of material(s) = 140 MPa.

8.5 Nondestructive Electric Test—(5.9)

9. Test Certificates—A certificate of compliance to the performance requirements shall be furnished to the purchaser by the producer if requested in the purchase agreement.

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10. Cleanliness—The inside of tubing shall be clean and free from any contamination which will impair the processing or serviceability of the tubing.

11. Corrosion Protection—The inside and outside of the finished tubing shall be protected against corrosion during shipment and normal storage. If a corrosion preventive compound is applied, it shall be such that after normal storage periods it can readily be removed by cleaning agents normally used in manufacturing.

Extended corrosion resistance coatings, such as tern coating, galvanizing, epoxy paint, etc., are available and can be supplied at the request of the user.

12. Notes

12.1 Marginal Indicia—The (R) is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

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