



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N. Y. 1000

AMS 5077B
Superseding AMS 5077A

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STEEL TUBING, WELDED 0.22 - 0.28C (SAE 1025)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. **COMPOSITION:**

Ø		min	max
	Carbon	0.22	0.28
	Manganese	0.30	0.60
	Phosphorus	--	0.040
	Sulfur	--	0.050
	Silicon	0.10	0.30

2.1 **Check Analysis:** Composition variations shall meet the requirements of the latest issue of AMS 2259.

3. **CONDITION:** As welded, normalized, or stress relieved and having a uniform fine grain size in all parts of the tubing.

4. **TECHNICAL REQUIREMENTS:**

4.1 **Tensile Properties:**

	Tensile Strength, psi	55,000 min
	Yield Strength at 0.2% Offset or at 0.0064	
Ø	in 2 In. Extension Under Load, (E = 30,000,000), psi	36,000 min
	Elongation, % in 2 In.	
	Full Tube	22 min
	Strip Specimen	15 min

4.1.1 For each 2,000 psi in excess of 55,000 psi tensile strength, a reduction in elongation of 1% to a minimum elongation of 10% for full tube, or to a minimum elongation of 8% for strip specimens, shall be allowed.

4.2 **Tensile Properties Normalized:** The tubing shall be capable of developing the tensile properties specified in 4.1 when normalized by heating to 1625 F \pm 10 (885 C \pm 5.6) followed by cooling in still air.

4.3 **Crushing Test:** One or more samples shall be selected from each 1,000 ft or less from each lot of tubing in the shipment. Test samples shall be a full cross section of the tube, with the length equal to 1-1/2 times the nominal OD; the ends shall be perpendicular to the axis. Specimens shall withstand crushing under a gradually applied axial load until the cross-sectional dimension is increased in one zone by 20%, or until one complete fold is formed, or until the specimen is reduced in length to 2/3 of its original length without failure of the weld.

4.4 Welds shall have no external or internal imperfections which are greater than 1/16 in. in length nor have a total depth equivalent to more than half the nominal wall thickness.

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