

§ 179.500-7 Physical tests.

(a) Physical tests shall be made on two test specimens 0.505 inch in diameter within 2-inch gauge length, taken 180 degrees apart, one from each ring section cut from each end of each forged or drawn tube before necking-down, or one from each prolongation at each end of each necked-down tank. These test specimen ring sections or prolongations shall be heat treated, with the necked-down tank which they represent. The width of the test specimen ring section must be at least its wall thickness. Only when diameters and wall thickness will not permit removal of 0.505 by 2-inch tensile test bar, laid in the transverse direction, may test bar cut in the longitudinal direction be substituted. When the thickness will not permit obtaining a 0.505 specimen, then the largest diameter specimen obtainable in the longitudinal direction shall be used. Specimens shall have bright surface and a reduced section. When 0.505 specimen is not used the gauge length shall be a ratio of 4 to 1 length to diameter.

(b) Elastic limit as determined by extensometer, shall not exceed 70 percent of tensile strength for class I steel or 85 percent of tensile strength for class II and class III steel. Determination shall be made at cross head speed of not more than 0.125 inch per minute with an extensometer reading to 0.0002 inch. The extensometer shall be read at increments of stress not exceeding 5,000 psi. The stress at which the strain first exceeds

stress (psi) /30,000,000 (psi) +0.005 (inches per inch)

shall be recorded as the elastic limit.

(1) Elongation shall be at least 18 percent and reduction of area at least 35 percent.

Note 1: Upon approval, the ratio of elastic limit to ultimate strength may be raised to permit use of special alloy steels of definite composition that will give equal or better physical properties than steels herein specified.

(2) [Reserved]

[Amdt. 179-8, 36 FR 18470, Sept. 15, 1971, as amended at 66 FR 45391, Aug. 28, 2001]