

II. CHEMICAL PROPERTIES AND TESTS

2. *Chemical Composition.* The steel shall conform to the following requirements as to chemical composition:

Carbon	0.08—0.18 per cent
Manganese	0.30—0.50 per cent.
Phosphorus	not over 0.04 per cent.
Sulphur	not over 0.045 per cent.

3. *Chemical Analyses.* (a) Analyses of two tubes in each lot of 250 or less may be made by the purchaser, which shall conform to the requirements specified in Section 2. Drillings for analyses shall be taken from several points around each tube.

(b) If the analyses of only one tube does not conform to the requirements specified, analyses of two additional tubes from the same lot shall be made, each of which shall conform to the requirements specified.

III. PHYSICAL PROPERTIES AND TESTS

4. *Flange Tests.* (a) A test specimen not less than 4 inches in length shall have a flange turned over at right angles to the body of the tubes without showing cracks or flaws. This flange as measured from the outside of the tube shall be $\frac{3}{8}$ inch wide for tubes $2\frac{1}{2}$ inches or less outside diameter, and $\frac{1}{2}$ inch wide for tubes larger than $2\frac{1}{2}$ inches outside diameter.

(b) In making the flange test, the flaring tool and die block as shown should be used.

5. *Flattening Tests.* A test specimen 4 inches in length shall stand hammering flat until the inside walls are in contact, without cracking at the edges or elsewhere. For lap-welded tubes, care should be taken that the weld is not located at the point of maximum bending.

6. *Crush Tests.* A test specimen $2\frac{1}{2}$ inches in length shall stand crushing longitudinally until the outside folds of metal are in contact, without showing cracks or flaws.

7. *Hydraulic Tests.* Tubes under 5 inches in diameter shall stand an internal hydraulic pressure of 1,000 pounds per square inch, and tubes 5 inches in diameter or over an internal hydraulic pressure of 800 pounds per square inch.

8. *Test Specimens.* (a) Test specimens shall consist of sections cut from tubes selected by the inspector representing the purchaser from the lot offered for shipment. They shall be smooth on the ends and free from burrs.

(b) All specimens shall be tested cold.