Steel Testing

- **Bend Test:**
  This test helps in determining the ductility, but it cannot be considered as a quantitative means of predicting service performance in bending operations. The severity of the bend test is primarily a function of the angle of bend and inside diameter to which the specimen is bent, and of the cross-section of the specimen. These conditions are varied according to location and orientation of the test specimen and the chemical composition, tensile properties, hardness, type, and quality of the steel specified.

  Test Method: IS: 1599-1985, IS: 2329-2005, IS: 3600 (P-5,6)1983

- **Elongation:**
  The elongation is the increase in length of the gage length, expressed as a percentage of the original gage length. In reporting elongation values, give both the percentage increase and the original gage length.
  Test Method: IS: 3600 (P-3)1989, ASME 5EC-lX

- **Ultimate Tensile Strength:**
  This test helps in determining the maximum stress that a material can withstand while being stretched or pulled before necking, which is when the specimen's cross-section starts to significantly contract.
  Test Method: ASTM A36, IS: 1608-2005

- **0.2% Proof stress / Yield stress:**
  Yield strength is the lowest stress that produces a permanent deformation in a material. In some materials, like aluminium alloys, the point of yielding is hard to define, thus it is usually given as the stress required causing 0.2% plastic strain. This is called a 0.2% proof stress.
  Test Method: ASTM E8 M-09

- **Rebend Test:**

  The purpose of re-bend test is to measure the effect of strain ageing on steel.

  Test Method: IS: 1786-1986