



IS 2062 : 2011 Hot Rolled Medium And High Tensile Structural Steel — Specification

Structural steel is a category of steel specifically designed for use in construction and engineering structures due to its high **strength, weldability, ductility, durability and ability to withstand heavy loads**. It is widely used in buildings, bridges, industrial structures and other infrastructure projects. Structural steel is generally manufactured in standardized shapes like beams, channels, angles, plates, and bars, which can be easily assembled and welded into complex structures.

Following are the key expectations of customers while procuring structural steel:

- 1. Consistent Mechanical Properties** – should have sufficient **tensile and yield strength** to withstand the loads and stresses it will face. It should be **ductile** enough to deform under high loads without **cracking or breaking**, which is critical for withstanding **seismic or impact forces**.
- 2. Uniformity and Dimensional Precision** – should have precise and uniform dimensions, thicknesses, and tolerances to ensure ease of assembly, consistent performance, and **proper load distribution** in structures.
- 3. Weldability and Formability** - should be weldable without compromising its mechanical properties, allowing it to be shaped and joined as required. Good formability ensures the steel can be cut, bent, and formed into various shapes, which is essential for custom structures and complex designs.
- 4. Surface Quality and Finish** – should have a clean, smooth surface free from defects like cracks, rust, or scale, which can weaken the material.

Indian Standard **IS 2062: 2011**, specifies requirements for structural steel such as plates, strips, shapes and sections (angles, tees, beams, channels, etc), flats, bars, etc, used in structural work. IS 2062 includes steel in nine grades ranging from **E250 to E650**, which correspond to different levels of chemical composition, tensile strength and yield stress. Within each grade, there are different subqualities (A, BR, B0, C) specifying the requirement of impact test and mode of de-oxidation.

The standard provides requirements for Chemical composition and Mechanical test. It specifies maximum percentages for elements like carbon, manganese, sulphur, phosphorus, and silicon to ensure quality. Lower carbon content generally leads to better weldability. It also sets minimum values for yield strength, tensile strength, and elongation for each grade and quality.

The standard also provides specific guidelines for the weldability of steel, indicating which qualities of steel are more suitable for welding applications. It also specifies acceptable tolerances for thickness, width, length, and mass, important for ensuring consistent quality which is fit for structural applications. IS 2062 also provides requirements for surface quality, ensuring steel is free from harmful defects such as cracks, seams, or laminations, which could compromise structural integrity.

The product is covered under the mandatory certification by virtue of which galvanised structural steel sold, manufactured, or imported in India must comply with IS 2062 and the BIS Standard Mark is displayed, ensuring high-quality, structural steel being used for Indian infrastructure projects. IS 2062 provides assurance that the structural steel that is being bought are safe, durable, and of high quality. Next time you purchase, look for the BIS mark to ensure they meet these standards, giving you satisfaction that the product fulfils the quality for which is cost is being paid.