Building Material & Technology
MARKET FORMS OF STEEL

14SA102  Aanal Sankesara
14SA124  Divya Pandya
14SA146  Maitri Shah
14SA171  Sagar Patel
14SA174  Saloni Dhimmar
FORMS OF STEEL AVAILABLE IN MARKET

- Mild/Carbon Steel
- Flat Carbon Steel
- Alloy Steel
  1. Stainless Steel
  2. Tool steel
  3. Eglin Steel
  4. Maraging Steel
  5. Weathering Steel
MILD/CARBON STEEL

• Also known as plain-carbon steel, is the most common form of steel because its price is relatively low while it provides material properties that are acceptable for many applications, more so than iron.

• Low-carbon steel contains approximately 0.05–0.320% carbon making it malleable and ductile.

• Mild steel has a relatively low tensile strength, but it is cheap and easy to form surface hardness can be increased through carburizing.

• It is often used when large quantities of steel are needed, for example as structural steel.
Forms of Steel Found in Mild Steel

- Angle Section
- Channel Section
- T-Section
- I-Section
- Flat Bars
- Square Bars
- Round Bars
- Plates
- Corrugated Sheets
- Tor Steel
- HYST Steel
Channel Section
T - Section
Flat Bars
Steel Plates
Corrugated Sheets
FLAT CARBON STEEL

- Major appliances
- Magnetic cores
- Interior & Exterior parts Of Trains and Cars
Alloy Steel

1. Stainless Steel
2. Tool steel
3. Eglin Steel
4. Maraging Steel
5. Weathering Steel
Stainless Steel

- Also known as inox steel or inox from French "inoxydable", is a steel alloy with a minimum of 10.5% chromium content by mass.
- Stainless steel does not readily corrode, rust or stain with water as ordinary steel does. However, it is not fully stain-proof in low-oxygen, high-salinity, or poor air-circulation environments.
- There are different grades and surface finishes of stainless steel to suit the environment the alloy must endure. Stainless steel is used where both the properties of steel and corrosion resistance are required.
- Stainless steel differs from carbon steel by the amount of chromium present.
Tool Steel

• It refers to a variety of carbon and alloy steels that are particularly well-suited to be made into tools.
• Their suitability comes from their distinctive hardness, resistance to abrasion and deformation and their ability to hold a cutting edge at elevated temperatures.
• As a result tool steels are suited for their use in the shaping of other materials.
• With a carbon content between 0.5% and 1.5%, tool steels are manufactured under carefully controlled conditions to produce the required quality.
Eglin Steel

• (ES-1) is a high-strength, high-performance, low-alloy, low-cost steel, developed for new generation of bunker buster type bombs, e.g. the Massive Ordnance Penetrator and the improved version of the GBU-28 bomb known as EGBU-28.

• It was developed in collaboration between the US Air Force and the Ellwood National Forge Company.

• The development of Eglin steel was commissioned to find a low-cost replacement for strong and tough but expensive super alloy steels such as AF-1410, Aermet-100, HY-180, and HP9-4-20/30.

• A high-performance casing material is required so the weapon survives the high impact speeds required for deep penetration. The material has a wide range of other applications, from missile parts and tank bodies to machine parts.
Maraging Steel

• These type of steel is (iron alloys) the one known for possessing superior strength and toughness without losing malleability, although they cannot hold a good cutting edge.

• Aging refers to the extended heat-treatment process. These steels are a special class of low-carbon ultra-high-strength steels that derive their strength not from carbon, but from precipitation of inter-metallic compounds.

• The principal alloying element is 15 to 25 wt.% nickel. Secondary alloying elements are added to produce intermetallic precipitates, which include cobalt, molybdenum, and titanium.
Weathering Steel

• The best-known under the trademark COR-TEN steel and sometimes written without the hyphen as "Corten steel", is a group of steel alloys which were developed to eliminate the need for painting, and form a stable rust-like appearance if exposed to the weather for several years.

• "Weathering" refers to the chemical composition of these steels, allowing them to exhibit increased resistance to atmospheric corrosion compared to other steels.
• This is because the steel forms a protective layer on its surface under the influence of the weather.

• The corrosion-retarding effect of the protective layer is produced by the particular distribution and concentration of alloying elements in it. The layer protecting the surface develops and regenerates continuously when subjected to the influence of the weather. In other words, the steel is allowed to rust in order to form the 'protective' coating.
CASE STUDY

At New V.V.Nagar GIDC
Milling Machine

Press Machine

Drill Machine
Thank You