



Steels



- Steels are alloys of iron and carbon .
- However steels contain other elements like silicon, manganese, sulphur, phosphorus, nickel etc.

• **Classification of steels:**

- 1. Plain carbon steels.
 - (i) Low carbon steels
 - (ii) Medium carbon steels
 - (iii) High Carbon steels
- 2. Alloy Steels
 - (i) Low alloy steels
 - (ii) High alloy steels



Low carbon Steels (Carbon- Less than 0.25%)



✿ Characteristics:

- ✓ Its Relatively soft
- ✓ The possess formability and Weldability





Medium carbon Steels (Carbon- 0.25% to 0.60%)



- **Applications:**
- ✓ Railway wheels
- ✓ Railway tracks
- ✓ Gears
- ✓ Cranks shafts

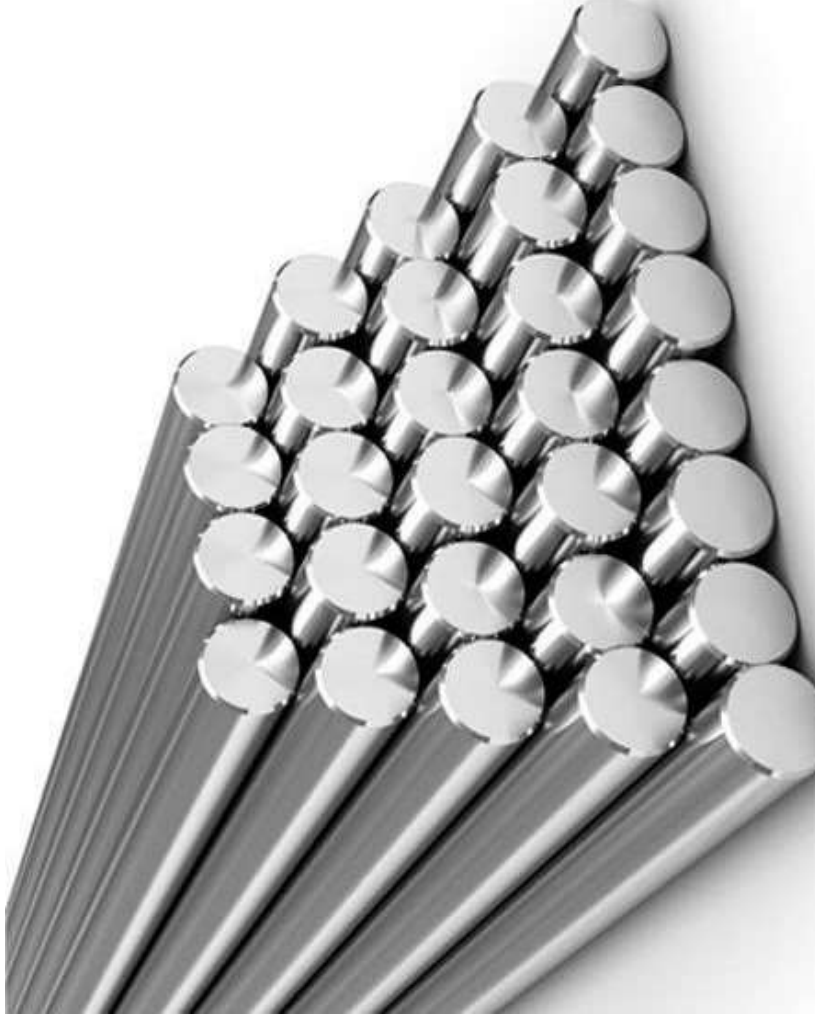




Alloy Steels



- Any steels other than carbon steels
- The steels products manual defines alloy steels as that exceed one or more of the following limits





Low Alloy Steels



- 1) AISI Steels
- 2) HSLA Steels





High Alloy Steels



- 1) Tool and die Steels
- 2) Stainless Steels





Cast Irons

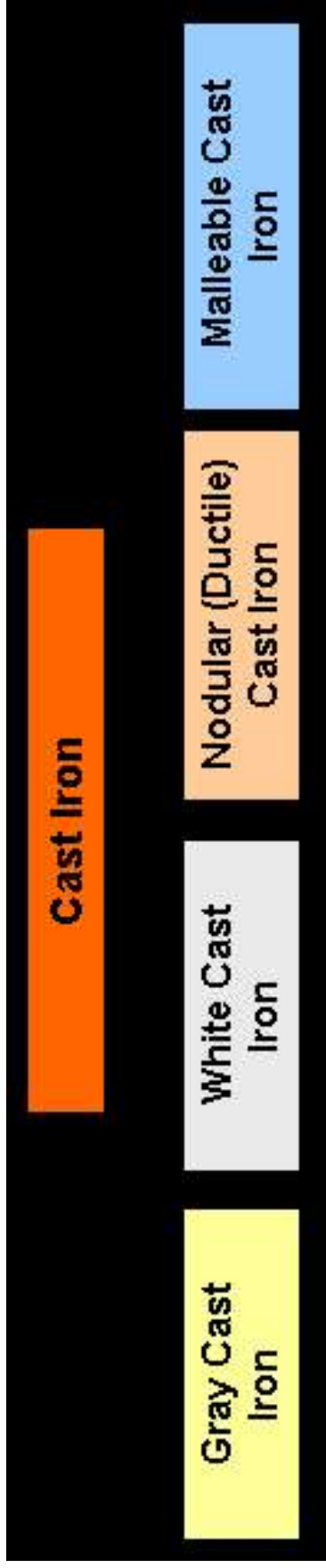


- ✱ Carbon – Greater than 2% carbon
- ✱ Its also Contain small amounts of silicon, sulphur, manganese and phosphorous
- ✱ **Features of cast iron**
 - ✓ Least expensive . Plentiful resources next to aluminium
 - ✓ Good mechanical rigidity and good strength under compression
 - ✓ Good machinability can be achieved



Composition of Cast Irons

- Carbon -3.0 to 4.0%
- Silicon- 1.0 to 3.0%
- Manganese – 0.5 to 1.0%
- Sulphur- upto 0.1%
- Phosphorus – upto 1.0%



Cast Irons

