FERROUS

Ferrous metals contain iron and are magnetic. They will rust easily.

NON-FERROUS

Non-ferrous metals do not contain iron, they are not magnetic and are more resistant to corrosion.

Tools used for metal

Engineers Square

Junior Hacksaw

Scriber

Centre Punch

Ball Pein Hammer

Tin Snips

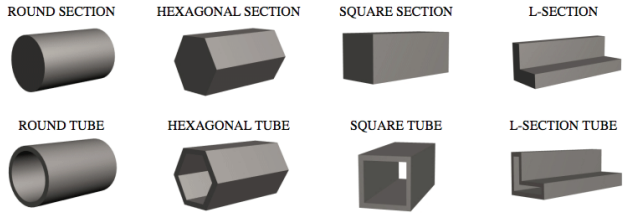
Joining metals - temporary

Adhesives such as Epoxy Resin can be used to join metals but the join will not be as strong as a permanent fixing technique.

Mining of Iron Ore

In order to **produce steel**, iron ore is required, in large quantities. **Iron ore is dug out of the ground from open cast mines or mined deep underground**. The ore is crushed into a fine powder, mixed with water, making a **slurry**. Clay is added to the slurry and the mixture shaped into pellets and baked, forming a hard shell. The pellets are sent to a steel mill in order to **extract the iron** which is normally **converted into steel**.

How metals are supplied

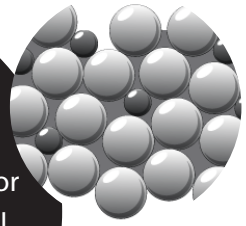


Metals can come in solid bars of different shapes or tubes. Most metals are also available as sheet metals.

Alloys are often stronger than the metals they contain.

ALLOYS

Alloys are a mixture of two or more metals. When a metal with certain properties is needed, metals can be combined .



Joining metals - permanent

Brazing

Soldering

Welding

Rivets & Screws

Brazing - melting a filler metal or alloy between the components you want to join.

Soldering - is a type of brazing which works at lower temperatures.

Welding - is different from soldering in that the two pieces of metal are themselves melted along the joints, fusing together as they cool.

Rivets & Machine Screws - with a rivet, a hole is drilled through both pieces of work, the rivet is placed through it, and its end beaten into a dome. With machine screws, the screw needs to be fitted in to a predrilled hole.

FERROUS METALS

cast iron, mild steel, high carbon steel and stainless steel.

NON-FERROUS METALS

aluminium, brass, copper, lead, zinc, titanium and tin.