CASTING

The molten material is poured into a mold or cavity to get the desired shape.

CASTING PROPERTIES OF MATERIAL:

Casting material should be selected according to its physical, mechanical properties & and chemical properties like melting point, corrosion resistance & and tensile strength.

The metal used for casting is characterized by its casting properties:

* Fluidity: Ability of a metal to flow and fill all areas of the mold before solidifying. Influenced by the casting temperature, the type of metal, and its quality.
* Shrinkage: Reduction in size or volume of cast metal or alloy as it cools and solidifies. As the metal cools, its atoms arrange themselves into a more ordered, condensed structure, leading to a decrease in volume and resulting in shrinkage
* Machinability: The ease with which a metal casting can be machined to remove the unwanted material occurs due to overflow of metal or to achieve the surface finish and precision.
* Surface Finish: Different metals produce different surface finish qualities, ranging from rough to glossy smooth.
* Pouring temperature: Temperature at which metal is poured into the mold. The pouring temperature should be more than 50 to 100% of the melting temperature.
* Draft: A small angle is applied on all the vertical walls of the pattern that helps the component to easily come out from the mold without damaging its walls.

1. Die casting: Molten material is forcibly injected into a metal mold (die) under high pressure.
2. Investment Casting (or Lost Wax Process): The wax pattern is coated with refractory material to create a mold and molten metal is poured and melted into the wax pattern to get the desired shape.
3. Permanent Mold Casting: Molten materials are poured into a reused, permanent mold typically made of metal to get the desired shape.
4. Centrifugal Casting: Used for cylindrical shapes, Molten material is poured into a continuously rotating permanent mold centrifugal force pushes the material towards the mold walls and helps to get the desired shape.
5. Plaster Mold Casting: Similar to sand casting, but instead of sand uses a mold made from a plaster mixture.