ASSIGNMENT NO:-2.

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Casting.

1) Types of casting.

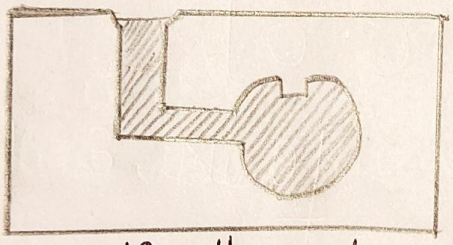
Sand casting :- Sand casting is also known as Sand molded casting. It is a metal casting process characterised by using sand as the mold material.

2) Advantages.

→ Can create very complex parts
→ Experimental cast is low
→ Almost all types of Alloys can be cast.

Disadvantages.

→ Creates high degree of porosity
→ Surface finish is poor



Casting through the gating system

The solidified casting

2) Die Casting

It is an automated casting process in which the liquid melt is pressed into a mold under high pressure (150-200 bar) & high filling speed (upto 540 km/h). The process consists of two blocks of heat resistant metals having cavities machined accurately to make the permanent mould.

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Types of Die Casting

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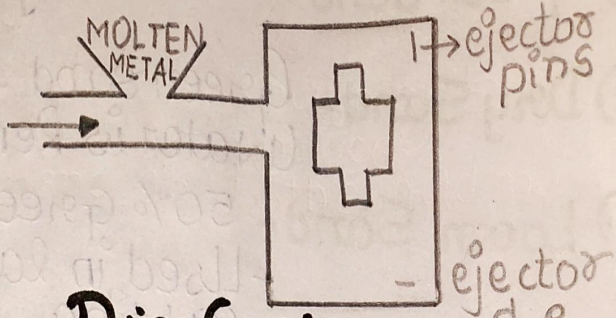
→ Gravity die casting

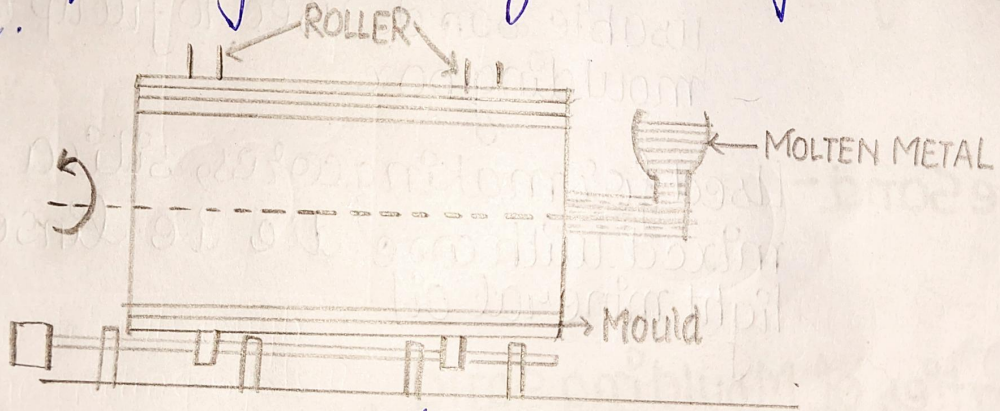
→ Pressure die casting



Die Casting

3) Centrifugal Casting :→ The molten metal is poured into the mould while it is rotating. The molten metal is poured at the centre of the mould.

The outer parts of the casting consists of dense & pure metal.



4) Investment Casting :→ Also known as wax process of precision casting. It is a manufacturing process in which wax pattern is coated with ceramic material

→ Once the ceramic material is hardened its internal geometry takes the shape of casting.

Advantages

→ Excellent surface finish.

→ Low material waste.

Disadvantages

Relatively high cost.

Requirement of skilled labour.

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Types of Moulding Sand.

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1) Green Sand - Mixture of silica sand - (18 to 30% Clay & 6-8% Water)

2) Dry Sand - Green sand is baked (Water is Removed)

3) Loam Sand - 50% Green & 50% dry sand.
- Used in large casting like skeletal casting.

4) Parting Sand - Dry silica sand, used to keep parting surface of the drag & cope to separate without clinging.

5) Backling Sand - Temporary mould, it is kind of usable sand, used to fill up the moulding box.

6) Core Sand - Used for making cores, silica sand mixed with core die i.e. linsed oil, light mineral oil

Properties of Moulding Sand.

1) Flowability or Plasticity :→
→ Ability to behave like fluid
→ To get a uniform density.

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2) Porosity or Permeability :→
→ Sand must be porous to provide a path of free escape of gases

3) Adhesiveness :→
→ Stick or adhere to another body i.e. cling to sides of

moulding box.

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4) Cohesiveness
→ Ability of sand particles to stick together
→ Due to this, mould retains its shape

5) Refractoriness
→ Withstand high temperature of molten material

6) Collapsibility
→ This will avoid tearing or contracting metal

Preparation of Mould Sand

→ The pattern whose casting is made is placed on the wooden board.
→ The drag is then placed on the board.
→ Parting sand is applied slightly on the pattern.
→ Sand is filled over the pattern & packed all over in the board.
→ Rances are used to tightly pack the sand.
→ The drag is then turned upside down & loose sand ~~Sto~~ is blown off
→ The cope box is now placed on drag & a vent rod is used for making the escape path for the gasses that comes out at the time of casting
→ Hole is widened to facilitate pouring metal
→ Pattern is removed & gate cutters are used to cut a gate.

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