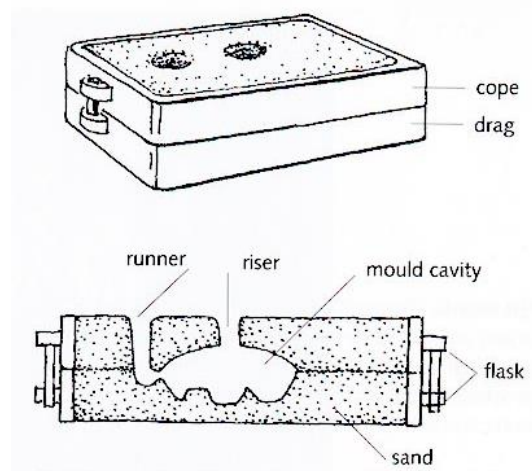


Casting

Sand casting:

1. Make a mould in the sand (using MDF)
2. Using 2 half moulds
3. Taper/no corners
4. Mould fixed/bolted together
5. Pour molten metal into the cast
6. Let it cool/remove mould/apply finishes

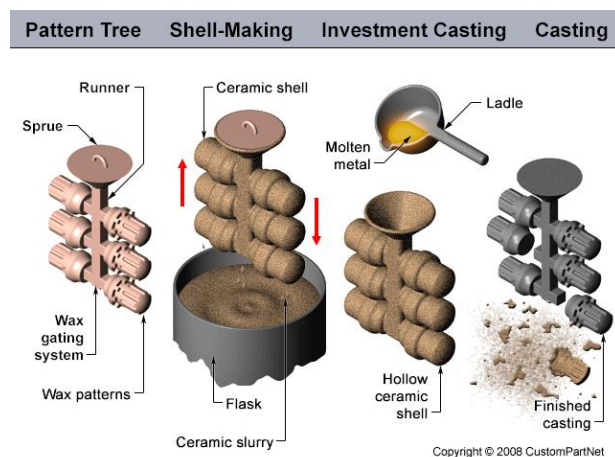


<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> • Inexpensive • Complex shapes can be produced • Large components can be produced 	<ul style="list-style-type: none"> • Sand moulds can only be used once • Surface finish not always good • Labour intensive • Slow production rate

Uses: Engine blocks, Garden furniture, Caterpillar tracks

Investment casting:

1. Cold wax mould made
2. Was assembled on the sprue before being dipped in liquid ceramic and stucco
3. Heated to remove wax and sprue
4. Molten metal poured in and allowed to set
5. Ceramic shell broken off revealing product

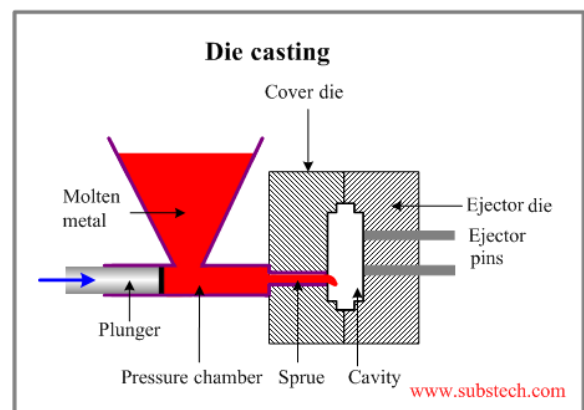


<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> • High quality surface finish • High dimensional accuracy • Very complex parts can be made • Any metal can be cast • No parting lines 	<ul style="list-style-type: none"> • Only small castings • Expensive • Labour intensive • Time consuming to create wax mould

Uses: Turbine blades, gears, machine parts

Die casting:

1. Create and lubricate mould
2. Molten metal shot under high pressure into the die
3. When the die is full, the pressure is sustained until the metal has solidified
4. Mould is removed/finishes



<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> • High production rate • Good surface finish • Economical • Precise parts can be made 	<ul style="list-style-type: none"> • High set up costs • Long lead time • Limited sizes • Must be large scale to be economical

Uses: Taps, Model cars

Resin casting:

1. Mould created
2. Liquid synthetic resin poured into mould
3. Resin hardens and mould is removed



<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Low cost• Quick/simple• Accurate• Quick setting	<ul style="list-style-type: none">• Toxic fumes can be released• Can be expensive to get moulds

Uses: Collectible toys, models, figures, small scale jewellery

Plaster of Paris casting (gypsum):

1. Mix formula with water
2. Pour into mould
3. Allow to set



<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none">• Low cost• Easy/simple• Durable• Smooth bubble free finish	<ul style="list-style-type: none">• Long set time• Irritant to skin

Uses: Bone casts, sculpturing