

LOW PRESURE DIE CASTING – GENERAL DESCRIPTION

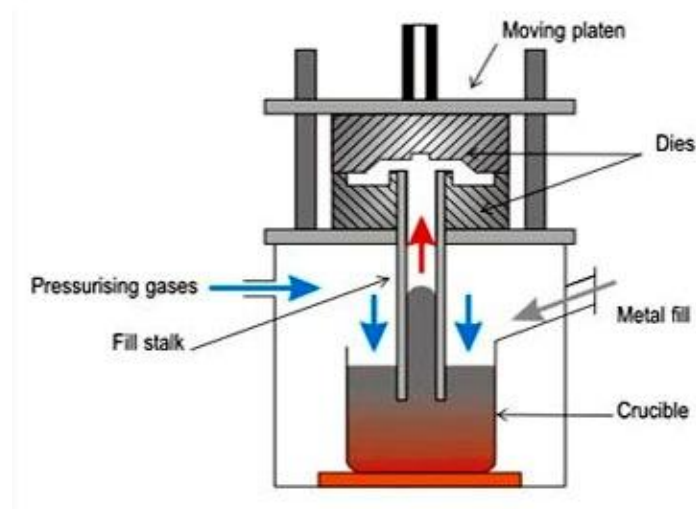
High quality castings, of aluminium alloys, along with magnesium and other low melting point alloys, are usually produced through this process. Castings of aluminium in the weight range of 2-150 kg are a common feature.

The process works like this: first a metal die is positioned above a sealed furnace containing molten metal. A refractory-lined riser extends from the bottom of the die into the molten metal. Low pressure air (15 - 100 kPa, 2- 15 psi) is then introduced into the furnace. This makes the molten metal rise up the tube and enter the die cavity with low turbulence. After the metal has solidified, the air pressure is released . This makes the metal still in the molten state in the riser tube to fall back into the furnace. After subsequent cooling, the die is opened and the casting extracted.

With correct die design it is possible to eliminate the need of the riser also. This is because of the directional freezing of the casting. After the sequence has been established, the process can be controlled automatically using temperature and pressure controllers to oversee the operation of more than one diecasting machine.

Casting yield is exceptionally high as there is usually only one ingate and no feeders.

Low Pressure Die Casting Process



Application of Pressure Die Casting

- Automotive parts like wheels, blocks, cylinder heads, manifolds etc.
- Aerospace castings.
- Electric motor housings.
- Kitchen ware such as pressure cooker.
- Cabinets for the electronics industry.
- General hardware appliances pump parts, plumbing parts.