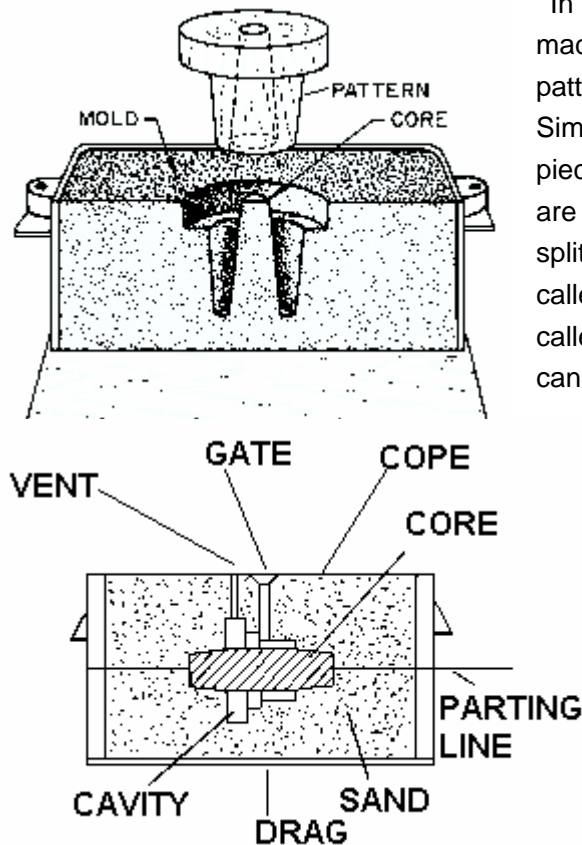


aluminum sand casting



In this aluminum sand casting a pattern is made in the shape of the desired part. This pattern is made out wood, plastic or metal. Simple designs can be made in a single piece or solid pattern. More complex designs are made in two parts, called split patterns. A split pattern has a top or upper section, called a cope, and a bottom or lower section called a drag. Both solid and split patterns can have cores inserted to complete the final part shape. Where the cope and drag separates is called the parting line. When making a pattern it is best to taper the edges so that the pattern can be removed without breaking the mold. The patterns are then packed in sand with a binder, which helps to harden the sand into a semi-permanent shape. Once the Sand mold is cured, the pattern is removed leaving a hollow space in the sand in the shape of the desired

part. The pattern is intentionally made larger than the cast part to allow for shrinkage during cooling. Sand cores can then be inserted in the mold to create holes and improve the casting's net shape. Simple patterns are normally open on top and melted metal poured into them. Two piece molds are clamped together and melted metal is then poured in to an opening, called a gate. If necessary, vent holes will be created to allow hot gases to to escape during the pour. The pouring temperature of the metal should be a few hundred degrees higher than the melting point to assure good fluidity, thereby avoiding prematurely cooling, which will cause voids and porosity. When the metal cools, the sand mold is removed and the metal part is ready for secondary operations, such as machining & plating. aluminum sand casting is the least expensive of all of the casting processes.