

INTRODUCTION

- Vacuum mold casting, also known in manufacturing industry as the V process, employs a sand mold that contains no moisture or binders.
- The internal cavity of the mold holds the shape of the casting due to forces exerted by the pressure of a vacuum.
- Vacuum molding is a casting process that was developed in Japan around 1970



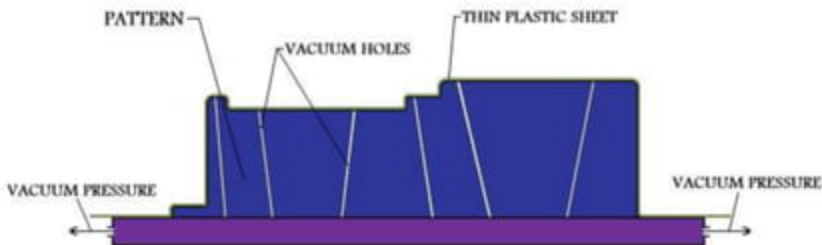
PROCESS DESCRIPTION

- A special pattern is used for the vacuum mold casting process.
- It is either a match-plate or a cope and drag pattern with tiny holes to enable a vacuum suction.
- Sequential steps of vacuum mold casting process are clearly described in following steps.



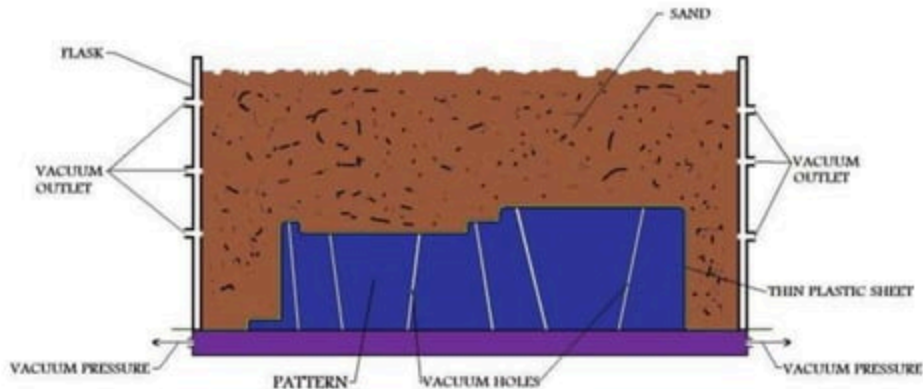
STEP - 1

- A thin plastic sheet is placed over the casting pattern and the vacuum pressure is turned on, causing the sheet to adhere to the surface of the pattern.



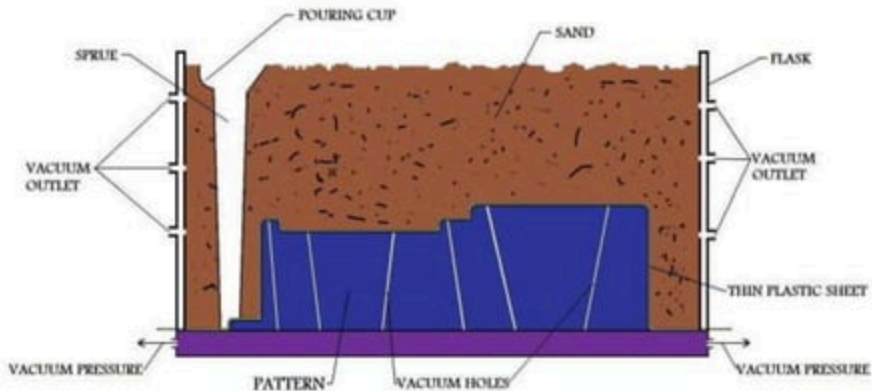
STEP - 2

- A special flask is used for this manufacturing process. The flask has holes to utilize vacuum pressure. This flask is placed over the casting pattern and filled with sand.



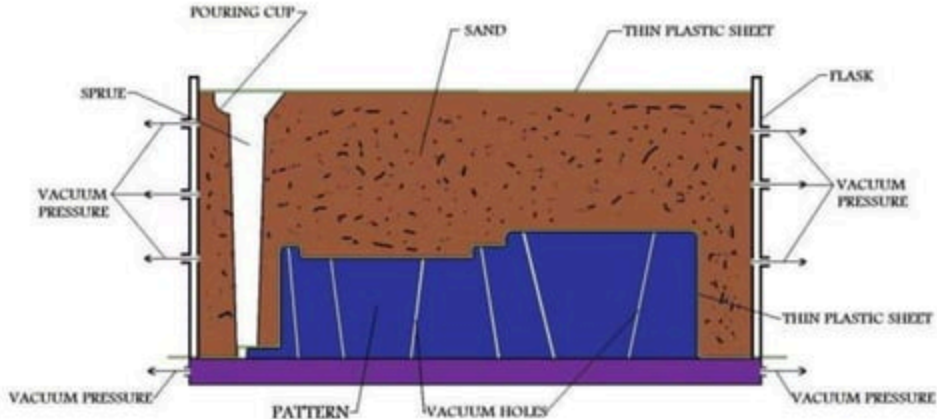
STEP - 3

- A pouring cup and sprue are cut into the mold for the pouring of the metal casting.



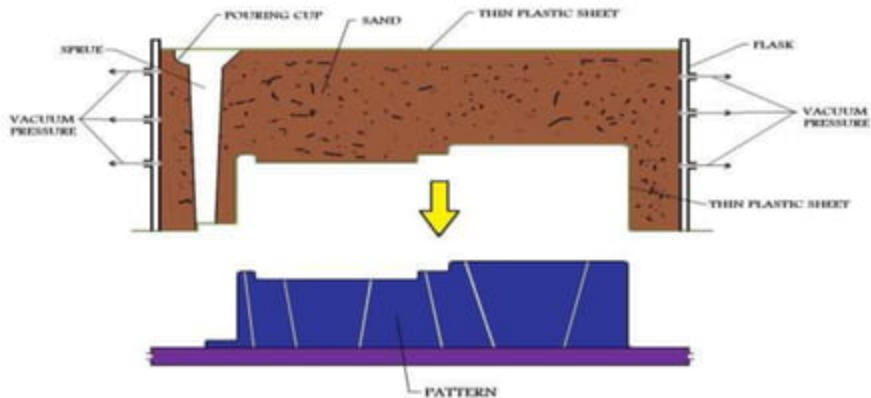
STEP - 4

- Next, another thin plastic sheet is placed over the top of the mold. The vacuum pressure acting through the flask is turned on, and the plastic film adheres to the top of the mold.



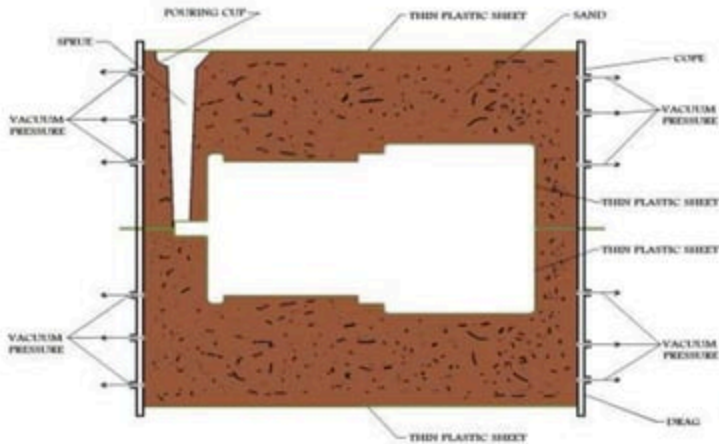
STEP - 5

- In the next stage pattern is turned off and the pattern is removed.
- The vacuum pressure from the flask is still on. This causes the plastic film on the top to adhere to the top and the plastic film formerly on the pattern to adhere to the bottom.
- The film on the bottom is now holding the impression of the casting in the sand with the force of the vacuum suction.



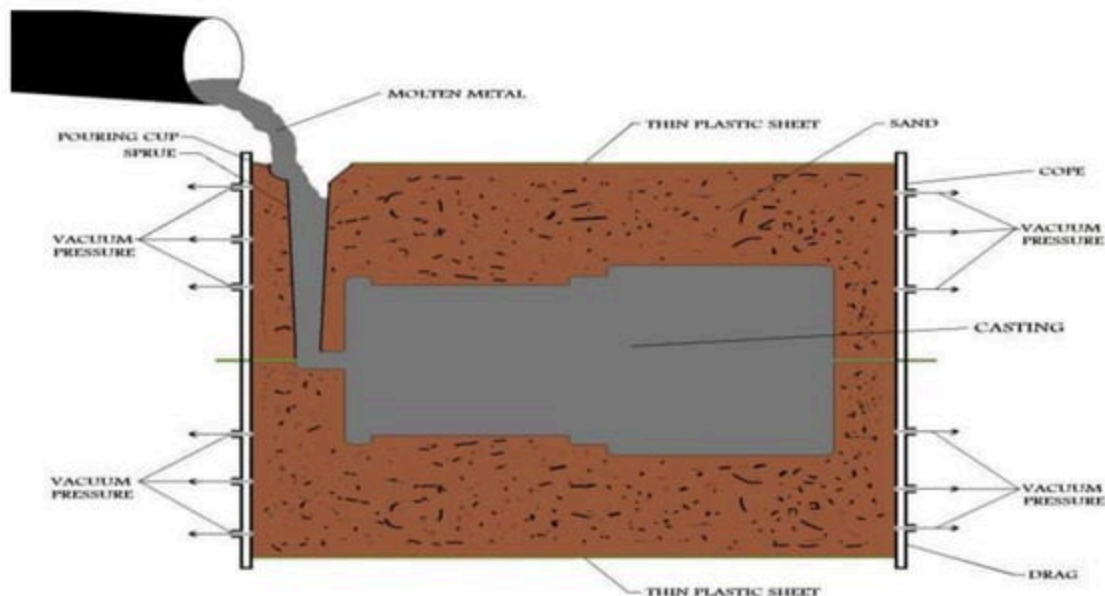
STEP - 6

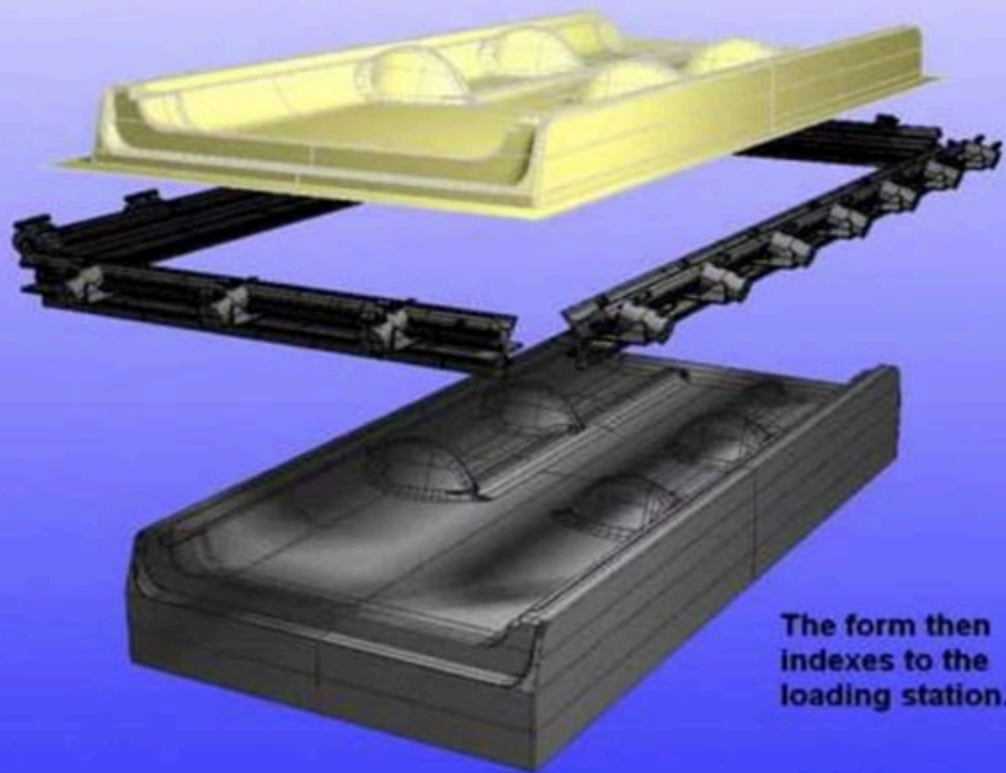
- The drag portion of the mold is manufactured in the same fashion. The two halves are then assembled for the pouring of the casting.
- Note that there are now 4 plastic films in use. One on each half of the internal casting cavity and one on each of the ou



STEP - 7

- During the pouring of the casting, the molten metal easily burns away the plastic.





The form then indexes to the loading station.

