

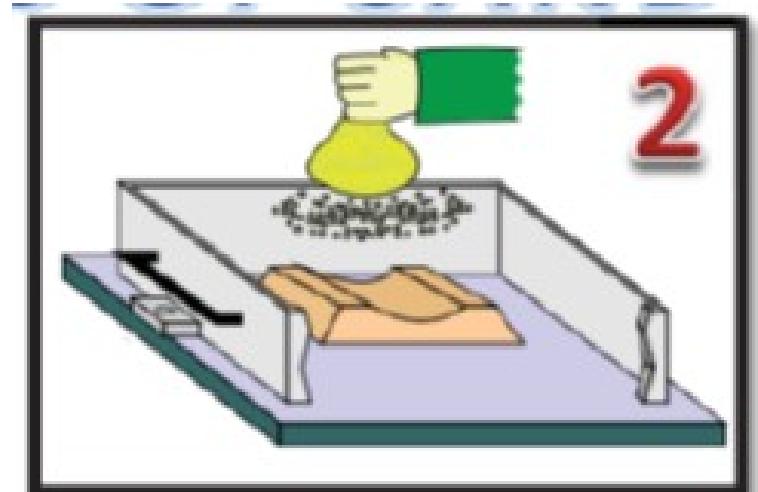
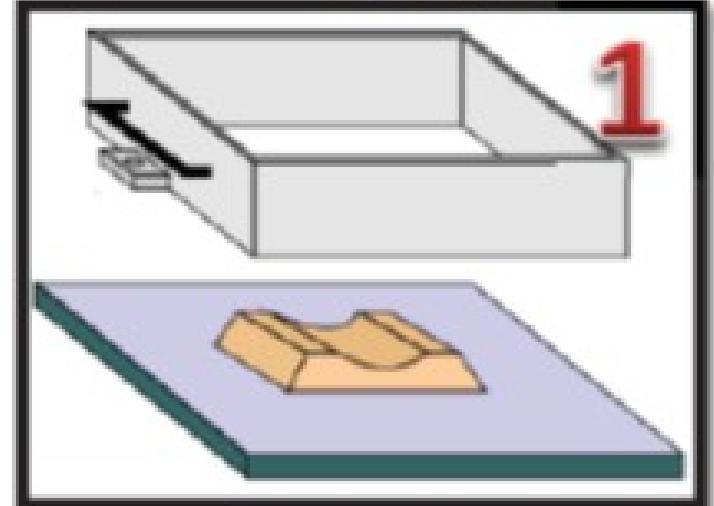
MECHANICAL ENGINEERING SCIENCE

Manufacturing Techniques

SAND MOULDING PROCEDURE

The procedure for making a typical sand mould is described in the following steps -

- First a bottom board is placed either on the moulding platform or on the floor, making the surface even.
- The drag moulding flask is kept upside down on the bottom board along with the drag part of the pattern at the centre of the flask on the board.
- Dry facing sand is sprinkled over the board and pattern to provide a non-sticky layer.

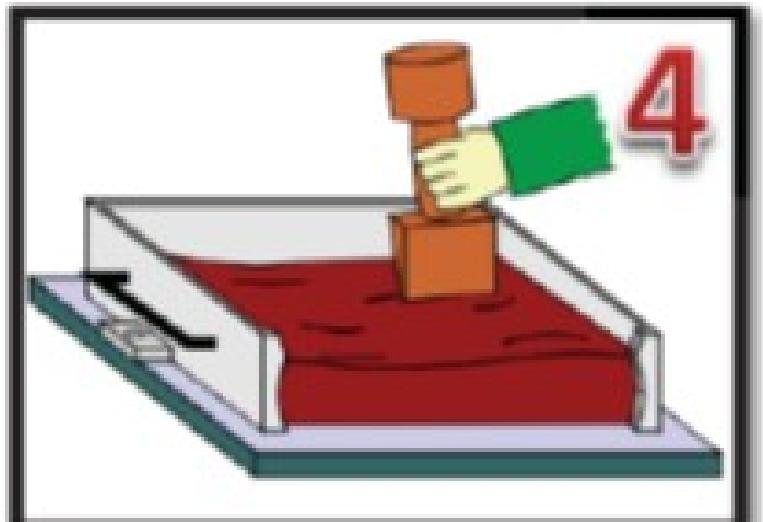
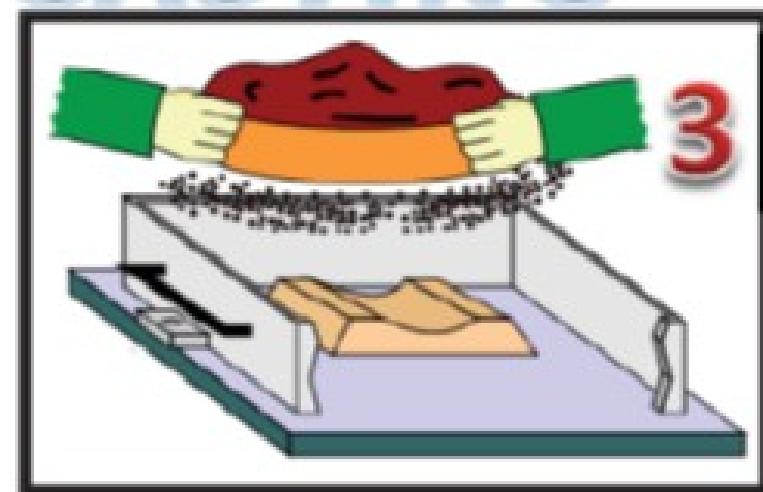


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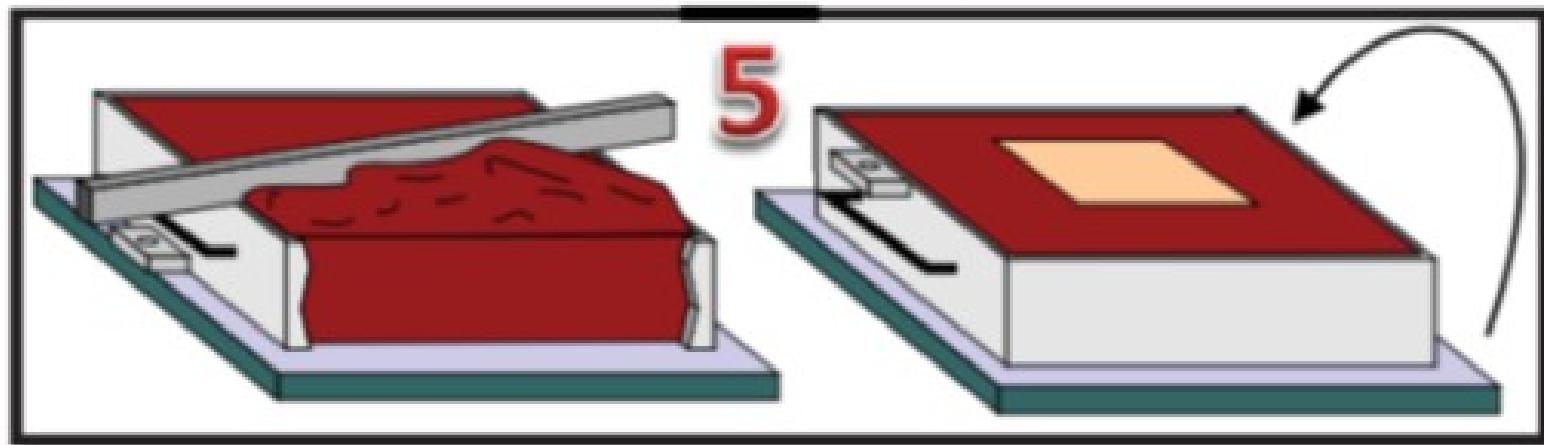
SAND MOULDING PROCEDURE

- Freshly prepared moulding sand of requisite quality is now poured into the drag and on the pattern to a thickness of 30 to 50 mm.
- Rest of the drag flask is completely filled with the backup sand and uniformly rammed to compact the sand.
- The ramming of the sand should be done properly, neither to compact it too hard which makes the escape of gases difficult, nor too loose, so that mould would not have enough strength.



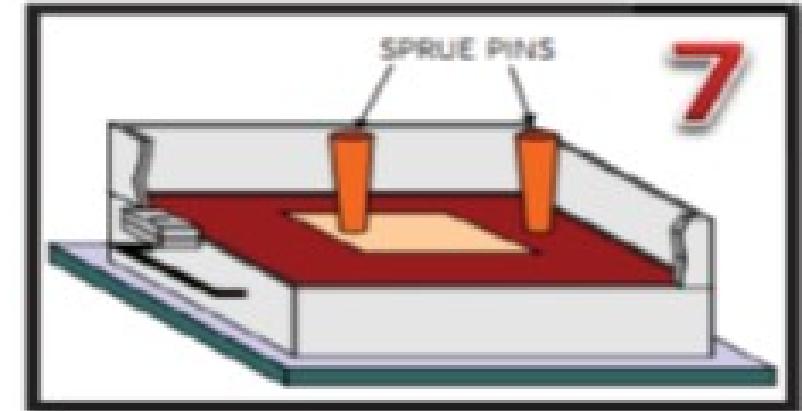
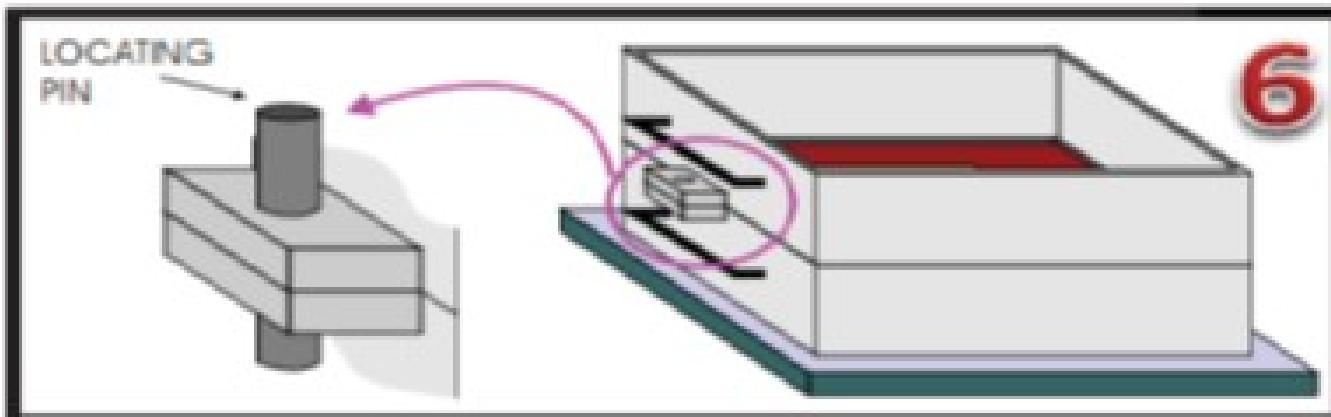
SAND MOULDING PROCEDURE

- After the ramming is over, the excess sand in the flask is completely scrapped using a flat bar to the level of the flask edges.
- Now, with a vent wire, which is a wire of 1 to 2 mm diameter with a pointed end, vent holes are made in the drag to the full depth of the flask as well as to the pattern to facilitate the removal of gases during casting solidification. This completes the preparation of the drag.
- The finished drag flask is now rolled over to the bottom board exposing the pattern.



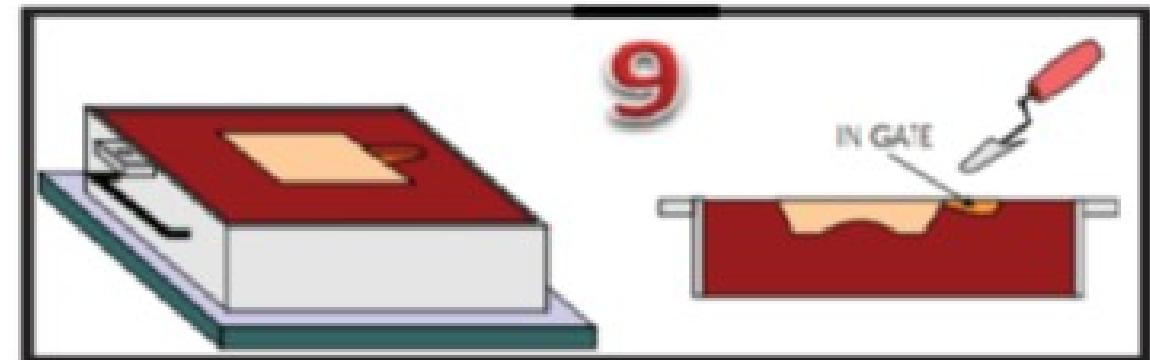
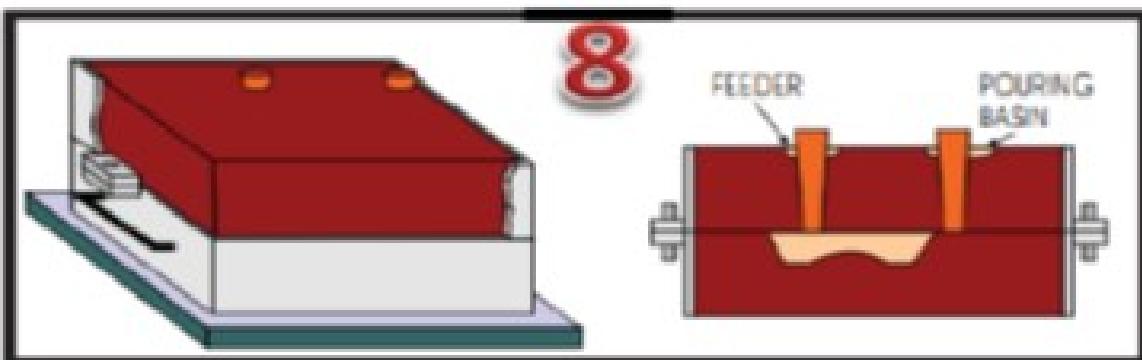
SAND MOULDING PROCEDURE

- Using a slick, the edges of sand around the pattern is repaired and cope half of the pattern is placed over the drag pattern, aligning it with the help of dowel pins.
- The cope flask on top of the drag is located aligning again with the help of the pins. The dry parting sand is sprinkled all over the drag and on the pattern.
- A sprue pin for making the sprue passage is located at a small distance of about 50 mm from the pattern. Also a riser pin, if required, is kept at an appropriate place.



SAND MOULDING PROCEDURE

- Freshly prepared moulding sand similar to that of the drag along with the backing sand is sprinkled. The sand is thoroughly rammed, excess sand scraped and vent holes are made all over in the cope as in the drag.
- The sprue pin and the riser pin are carefully withdrawn from the flask. Later the pouring basin is cut near the top of the sprue.
- The cope is separated from the drag and any loose sand on the cope and drag interface of the drag is blown off with the help of bellows.



SAND MOULDING PROCEDURE

- Now the cope and the drag pattern halves are withdrawn by using the draw spikes and rapping the pattern all around to slightly enlarge the mould cavity so that the mould walls are not spoiled by the with drawing pattern.
- The runners and the gates are cut in the mould carefully without spoiling the mould.
- The cope is replaced on the drag taking care of the alignment of the two by means of the pins. A suitable weight is kept on the cope to take care of the upward metallostatic force during the pouring of molten metal. The mould now is ready for pouring.

