

MANUFACTURE OF PROTOTYPE OF COMPRESSION MOULDING MACHINE

INTRODUCTION

COMPRESSION MOULDING PROCESS

Compression molding is among the oldest materials processing techniques. In commercial use, compression molding is the most simple and reliable process. Due to its simplicity and availability, it is most widely used process. Product areas are lighting and electrical devices, closures, transportation, and appliances. Specific items are electrical wall switch plates and receptacles, circuit breakers, bottle caps, buttons, packaging, containers, covers, protective helmets, pump components, gears, brake parts, frames, pulleys, vehicle panels, dishware, and appliance housings, bases, handles, and knobs.

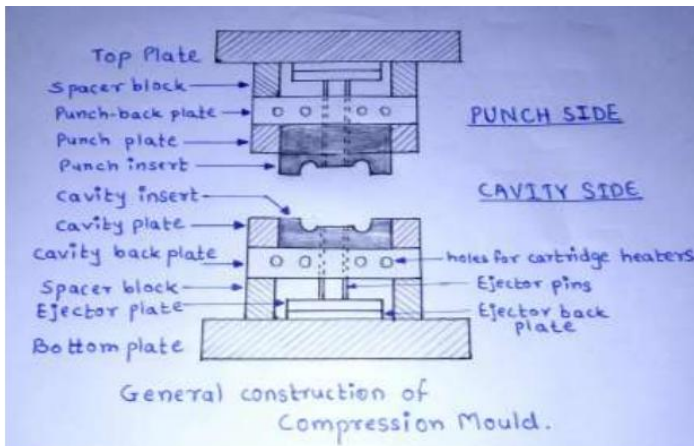


Fig.1 : General Construction Of Mould

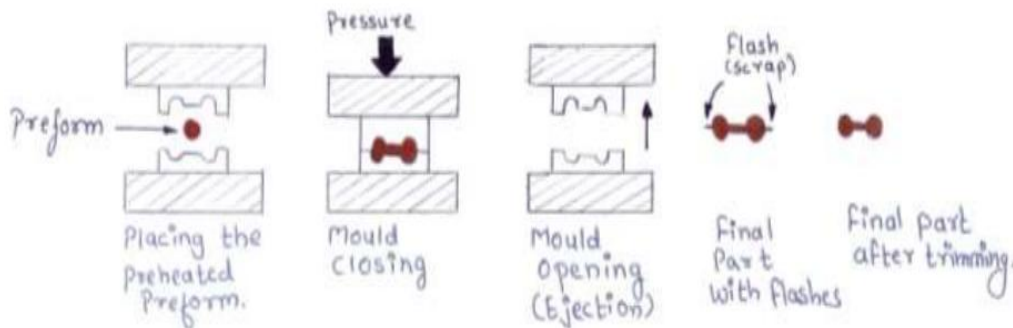
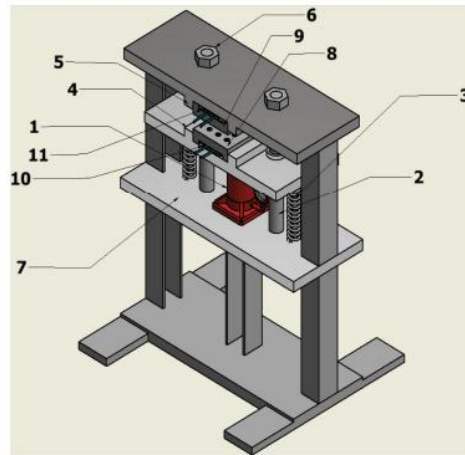


Fig. 2 : Step Wise Process Of Compression Moulding

PROPOSED DESIGN - Mini Hydraulic Compression Moulding Machine

- A low-cost, manually or semi-automated hydraulic compression moulding machine for forming composite or soft metal parts under controlled pressure and temperature conditions.
- Uses a Hydraulic Jack for compression
- Designed for moulding a plastic bottle cap .
- Springs are attached for retraction of the jack .
- A cartridge heater for heating process .
- A strong frame for enduring compression stress .



Note: 1. Bottle jack with 2 Ton pressure gauge; 2. Shaft; 3. Spring; 4. Bottom mold holder; 5. Top mold holder; 6. Locking Bolts Shaft; 7. Tables; 8. Bottom mold; 9. Top mold; 10. Bottom mold heater; 11. Top mold heater

PROPOSED DESIGN 3D MODEL

MACHINE COMPONENTS

1) HYDRAULIC JACK



2) PUNCH AND MOULDING DIE



3) CARTRIDGE HEATER



4) SPRING



5) BASE PLATE



6) GUIDE PINS



7) STEEL FRAME



WORKING OF THE MACHINE

The machine works on the principle of **applying pressure and heat** to a polymer material placed inside a mould cavity to form a bottle cap. The material softens under heat and pressure and takes the shape of the mould. Once cooled, it retains the cap shape.

Follow the link for a demonstration video of machine : [Link](#)

