

To Design and Develop Portable Compression Moulding Machine -A Review

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ABSTRACT:

This review involves design and over view of plastic compression moulding machine. The machine employs the principle of heating and pressing. The machine is designed using locally available raw material which make it cheap and easy to maintain. This machine requires ability to understand operations, electrical skill and welding skill.

Thierry, et al [1] the mold for manufacturing plastic products, includes press plate and movable block. These works in a direction that reduces a volume of the molding chamber in an opposite direction.

Depending upon the shape of die different products can be made. The machine helps in bringing down the plastic wastes in land fields which is primarily responsible for environmental pollution.

Trevor, et al [11] the plastic product which we use are non-bio degradable and hence after use, these are ultimately used for filling our land fields.

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I. INTRODUCTION:

“we cannot re-do but re-use”. We are using re-cycled plastic in our machine to enhance the environmental factor. We are delivering a product which is compact, less expensive and which is very easy to use and control. The plastic waste is available in different segregate. These segregates are PETE, HDPE, PVC, LDPE, PPE and PS. These plastic segregates melting point is ranging from 115°C to 320°C.

We are using HDPE (High density polyethylene) as raw plastic. This plastic waste will be in the form of small granules which makes melting process faster. This HDPE plastic can be found from our common products as well as from recycled products.

Amaresh, et al [9] thermoset plastic can be melted and formed, but once they take shape after they have solidified, they stay solid and, unlike thermoplastic cannot be re-melted. These include multilayer and laminated plastics. Looking at the plastic waste produced in India, there is urgent need for proper plastic waste management. This work center on plastic waste management via compression moulding. This is well known

technique to develop variety of products. It is a closed moulding process with pressure application solid plastic waste can be recycled by the process of compression moulding and this will not only reduce environmental pollution as a result of plastic waste but it will also lead to production of useful plastic materials for both home and industrial use.

The machine used oven type heater for melting waste plastic with help of temperature controller. The mechanism is also simple because of carjack, it lifts the mould to the press plate. This plate applies pressure on the melted plastic which helps to get desired shape according to the mould used.

II. LITERATURE SURVEY:

Trevor, et al [11] over the past decade, plastic waste has become a major issue, both on land and at sea. To solve the problem of indestructible waste plastic by recycling this hazardous polymer into useful product. So that we can get rid of the malicious material and obtain stainable balance between the generation and destruction of these plastic waste, which is able to provide safe environment for humans along with the various

species of the earth by making a more economical.

Thierry, et al [1] has suggested that during the compression moulding, the system for adjusting the volume of the moulding chamber within one of the element (fixed or movable) of the mould can be used to vary the volume of the moulding chamber at a given time, and to apply a moulding pressure to surface greater than that of the material added in the mould before compression, so as not to start compressing the material when the mould is closed, and to prevent the implementation parameters from impairing the final properties of the material of the part produced. This system for adjusting the volume of the moulding chamber also allows the plastic material to expand substantially, continuously and without sudden variations in volume, which favors progressive shaping of the plastic material by conforming to the shape of the moulding chamber. The inner moulding surface of the movable block is generally the same size as the moulding surface of the part with which it is in contact. In some situation for example in a method of compression moulding a movable block having a smaller area of contact with the part can be used to produce a local variation in volume of the moulding chamber.

Aron, et al [6] the present invention relates to a plastic moulding apparatus and method. More particularly, the present invention relates to a suspended multi-port flow controller and apparatus which dispenses and disperses molten plastic

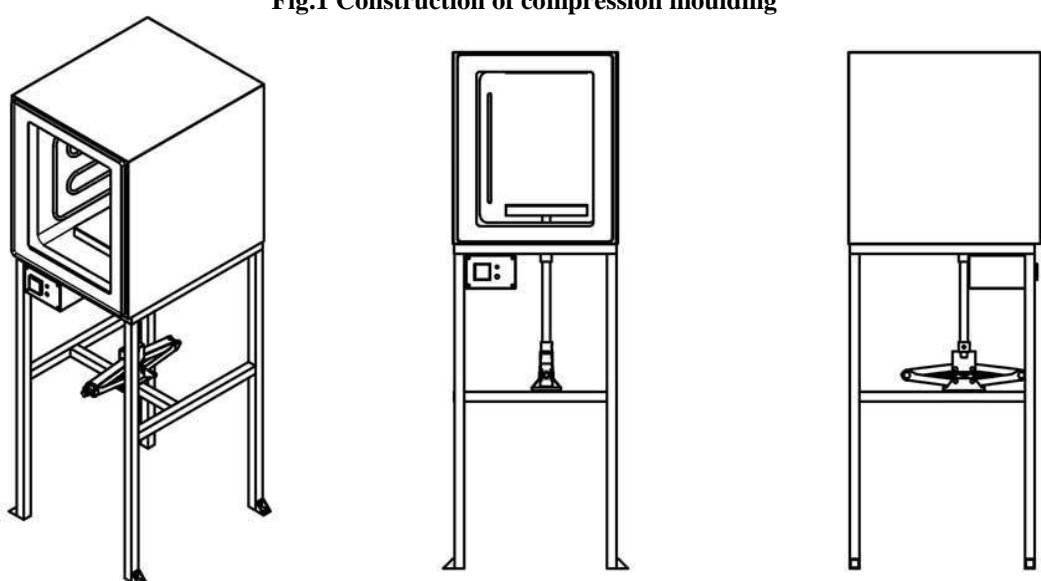
material in a preselected manner to facilitate complete and rapid filling of a product mould. Moulded plastic components are generally formed by creating a mould having a hollow cavity of the desired configuration. The mould section may be opened and the lower portion maybe filled with molten plastic material in the form of fillet, or the mould closed.

Sarah, et al [10] in the compression moulding process, the heated matched mould is mounted on a large press plate. A pre weighed charge of moulding compound is loaded into the mould and the press is closed. Under the pressure and temperature of the tool set the material cures rapidly.

Many organization have chosen compression moulding to produce parts and frankly there are a lot of benefits of using compression moulding machine as well as there are also some limitation in every man made machine in the world. The temperature controller plays an important role as well as the circuit diagram. If we already have the correct circuit diagram, we need to know the controller setting or else the system will not working. The heating plate will continuously being heated until the relay is off as the function of relay is to cut off voltage when the temperature controller reached the setting temperature.

[4] Below fig shows construction of machine.

Fig.1 Construction of compression moulding



III. CONCLUSION:

This project aims at effectively converting waste plastic into useful goods such as writing pad, plastic bowl and so on. It is environment friendly and cheap to build. Different types of mold can be

used in this machine to get different plastic products. Large scale industries have large machines, which are very costly and bulky. This compression moulding machine is easy to use and manipulate.

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