

## Vacuum Forming

Vacuum forming is used to make thin moulded sheets of plastic. A vacuum forming machine is used to do this. The thin plastic sheets used can be almost any **Thermoplastic** material, but the most common types are **Acrylic**, **Polystyrene** and **Polyethylene**.

In industry, this is usually a quick process, and can be used to mass-produce items such as chocolate box trays, food trays, plastic egg boxes, etc. Thicker plastic can be used to make cutlery trays, and even thicker plastic can be formed into baths.



### Vacuum Forming Machine

The vacuum former contains two main parts—the heating element, which softens the plastic, and a pump, which removes the air.

A **Mould** is needed to form the plastic around. The mould needs to have sloping sides, so that the plastic can be slipped off. They are usually made from **MDF** or plaster, etc. The mould is placed on the base of the machine. It is lowered down into the chamber.

A sheet of plastic is clamped over the chamber, (1) and the **Heating Element** is drawn over it. The plastic is left until it becomes soft and rubbery (2).

The **Mould** is raised up from the chamber using the handle. It will push into the soft plastic, lifting it up (3).

The **Pump** is then switched on. This sucks all of the air out of the chamber under the plastic. As the plastic is soft, it will pull down tightly over the mould, adopting its shape. (4)

Once the plastic is cool and hard again, the pump is switched off, the mould lowered into the chamber, and the plastic removed.

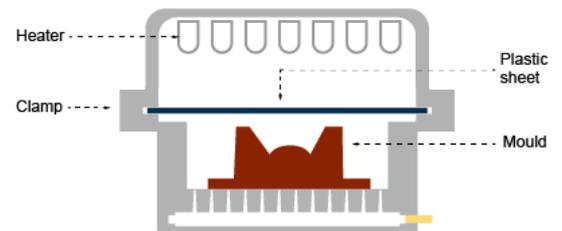
The edges of the plastic will need to be trimmed to the correct shape.

YouTube Video:

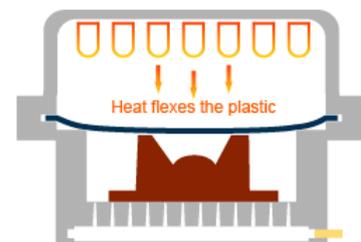
<https://www.youtube.com/watch?v=hukafUxglmE>



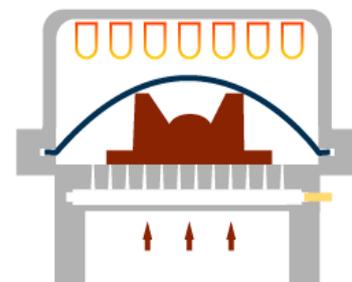
#### 1 Clamp plastic sheet



#### 2 Heat plastic sheet



#### 3 Pre-inflate plastic sheet and raise tool



#### 4 Vacuum plastic sheet against tool and cool

