



LESSON 01 - PROCESS OVERVIEW

What?



Rotational molding is a low pressure, high temperature manufacturing method for producing hollow one-piece plastic parts. The molding process dates back hundreds of years to the Swiss use of the method to make hollow chocolate eggs. The technology involves aspects ranging from mould design to mould heating and cooling, and remolding methods. Not all materials are suitable for the process - resin and additive selection are critical.

Plus



Rotational molding is a very competitive alternative to blow molding, thermoforming and injection molding for the manufacture of hollow plastic parts. It offers designers the chance to produce stress-free articles, with uniform wall thickness and complex shapes. Typical molded parts include bulk containers, tanks, canoes, toys, medical equipment, automotive parts and ducts.

How?



Rotational molding is a process whereby a hollow mold is filled with a powder resin and then rotated bi-axially in an oven until the resin coats the inside of the mold and cures. The mold is then cooled and the part removed.

There are many advantages to this process. A primary advantage over other processes is size, some of the largest ovens now incorporate a 5.5m swing. Entire boat hulls and automobile bodies are being rotomolded in one piece.



Another advantage is unrestricted design. Complex geometry is easily to incorporate into a one-piece product design. The application of solid modeling and CNC tools enables the molder to produce virtually any design. The moulds are relatively simple and cheap, because the process is low pressure, unlike injection molding. The wall thickness of parts is more uniform and it is possible to alter the wall thickness without changing the mould.