

Designing with Rotational Moulding

A process with a lot of strengths and possibilities

by Satish Gokhale, Design Directions Pvt. Ltd. - India



There are several processes for transforming plastic granules into plastic parts. Choosing an appropriate material and converting process depends on the application, end use, life expectancy, volume of production and many more parameters.

One of the processes is rotational moulding which is a low cost alternative to other processes with high product profile. Unfortunately, it is a comparatively lesser known plastic moulding process to designers and engineers. This process has a lot of strengths and possibilities.

Rotational moulding scores over several other processes due to its strengths:

- Low Tooling Cost
- High Design Flexibility
- Simple Tool Modification
- Wall Thickness Variability
- Seamless Hollow Parts
- No Internal Stresses
- Multi-Functionality
- Multi-layers Possibilities
- Fast Realization Time
- No or Minimal Production Waste
- Size Range - LARGE to Small Parts
- Design Flexibility & Freedom
- Complex Shapes & Contours
- Easy to Mould-in Inserts & Undercuts, In-Mould Graphics
- Consolidation of Parts
- Conversions
- Lower quantity production runs justified

Globally the rotational moulding industry is predominantly dominated by water storage and septic tank manufacturers. It is a myth that rotational moulding is way down in the spectrum of plastic processing. Of late some rotational moulders have started to look at custom products beyond water storage and septic tanks. Through design thinking, it is possible to open up new markets for applying the advantages of rotational moulding and add value to the product.

Irrespective of the process, design has to make sense on two levels. First - the emotional level of appealing directly to the customer's instincts and aspirations; and second - the technical level of designing new products which can be manufactured

and marketed successfully. When different manufacturers are competing with several identical products with the same intent of use and same specifications, the design is the only differentiating factor. A well designed product will create that WOW effect and also trigger sales. A well designed product will always stand out in the crowd.

Creating new rotationally moulded product is never a linear process. This is also true with most other manufacturing processes. Designers and engineers have to think out of the box and not limit themselves to predefined production rules - in fact they need to challenge with innovative technical solutions. Designers need to set new standards for the rotational moulding industry. A good design is a result of integration and dialogue between industrial designers, mould makers, resin suppliers and rotational moulders.

Both the client and designer/engineers should look for opportunities, have courage, take risks along the way and make good use of the opportunities the rotational moulding process offers. Designers should not just convert products made from different processes and materials blindly to rotational moulding, but should use the unique advantage the rotational moulding process offers - that of creating seamless hollow and large parts and that too with less initial money outflow.

Further to this the designers should also look at reducing the number of parts/components in assemblies or sub-assemblies by way of integrating different functionalities based on the product being designed and its intended use or function. This will lead to new and original designs and eventually add value.

Creating a product using rotational moulding technology means establishing a balanced synthesis between form and function. Design should not be just formal, but a fusion of an integrated solution, formed together with the necessary degree of practicality of the product. Good design will always lead to good business.

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