

Professional Rotational moulding services



Service Description

Rotational Molding, also commonly known as rotomolding, rotational casting and even roto-casting is a plastics manufacturing process for producing incredibly durable products with a nearly limitless lifespan. A variety of materials are available for rotomolding, with grades of polyethylene (PE) being the most commonly molded material.

The rotomolding process requires a mold or a tool, which can be produced by a number of methods including fabrication, casting or machining. Molds for the plastics manufacturing process are typically made from Aluminum, while some tools are fabricated from Stainless Steel or Carbon Steel. Many in the field of rotational molding prefer to see molds for rotomolding built from aluminum as it wears better when exposed to water in cooling cycles of the rotational molding process better than carbon steel, which typically rusts, providing the opportunity to transfer rust onto the molded products. Aluminum also is typically easier to modify and maintain in comparison carbon steel molds as well.



The rollers are designed with specific contours and shapes that gradually bend and shape the plastic material as it passes through. The rollers can be heated or cooled to help control the temperature of the plastic and achieve the desired properties of the finished product.

Rotational plastic technology is commonly used to produce a variety of products, including pipes, tubes, gutters, trim, and molding. The process is highly versatile and can be used with a wide range of plastic materials, including PVC, PET,

polycarbonate, and polypropylene.



Rotational plastic technology is also a cost-effective manufacturing process, as it requires minimal tooling and equipment compared to other molding processes. Additionally, the process can be easily automated, further reducing labor costs and increasing production efficiency.

One of the main advantages of rolling plastic technology is its ability to produce long, continuous shapes with consistent quality and precision. The process is also highly efficient, as it can produce large quantities of products quickly and with minimal waste.

Despite its many advantages, Rotational plastic technology does have some limitations. The process is best suited for producing simple, uniform shapes with consistent cross-sections. Complex shapes with varying cross-sections may require additional processing steps or alternative manufacturing processes.

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Characteristics and Pros and Cons of Rotational Molding Products:

Characteristics:

Design Flexibility: Rotational molding allows for a wide range of shapes and sizes to be produced, including complex geometries that are difficult to achieve with other manufacturing processes.

Durability: Products made using rotational molding are known for their strength, durability, and impact resistance.

Consistency: The process of rotational molding ensures that the thickness of the plastic material is uniform throughout the product, resulting in consistent strength and durability.

Low Cost: Rotational molding is a relatively low-cost manufacturing process, making it an attractive option for producing large, hollow plastic products.



Pros:

Lightweight: Products made using rotational molding are lightweight, making them easy to transport and handle.

Low Tooling Costs: The tooling costs for rotational molding are significantly lower than those for other manufacturing processes, making it an affordable option for small-scale production.

Customization: Rotational molding allows for customization of product design, including color, texture, and finish.

Eco-Friendly: Rotational molding is an eco-friendly manufacturing process that produces little waste and can use recycled materials.



Cons:

Limited Material Options: The range of materials that can be used for rotational molding is limited, which may restrict the applications for which it is suitable.

Limited Precision: Rotational molding may not be suitable for producing products with high precision or tight tolerances.

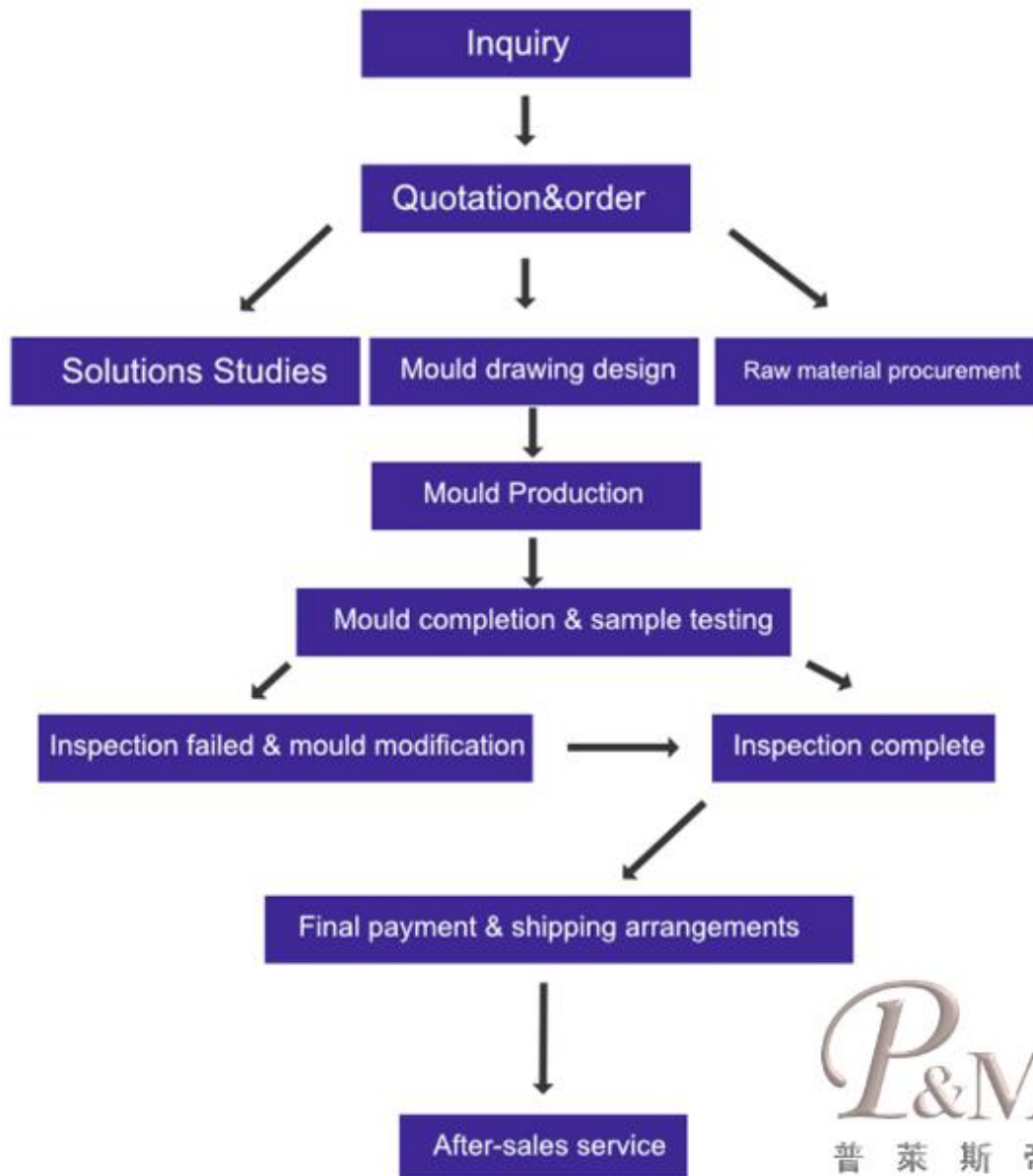
Long Production Times: The rotational molding process can be slow, which may not be suitable for time-sensitive projects.

Limited Scale: Rotational molding is generally limited to producing large, hollow objects, which may not be suitable for smaller products.

Service Process

The process of rotational molding is tedious and complicated, it seems to be simple and requires many processes behind the operation. The process mainly includes: accepting customer's custom requirements, engineering team mould design, mould manufacturing, mould inspection and trial mould, mould modification and repair, mould maintenance. The following Ningbo P&M will take you through the process one by one.

Mould customisation service process



1. Order confirm&preparation

Customer place the order, analysis of product structure, material and processing technology, decision on rotational molding machine equipment

Material Preparation: The first step in the rolling plastic process is to prepare the plastic material. This may involve extruding the material into a flat sheet or strip, or using pre-made sheets or strips.

Once the plastic material is prepared, it is loaded onto the roll forming machine. The machine consists of a series of rollers that gradually shape the material into the desired profile.



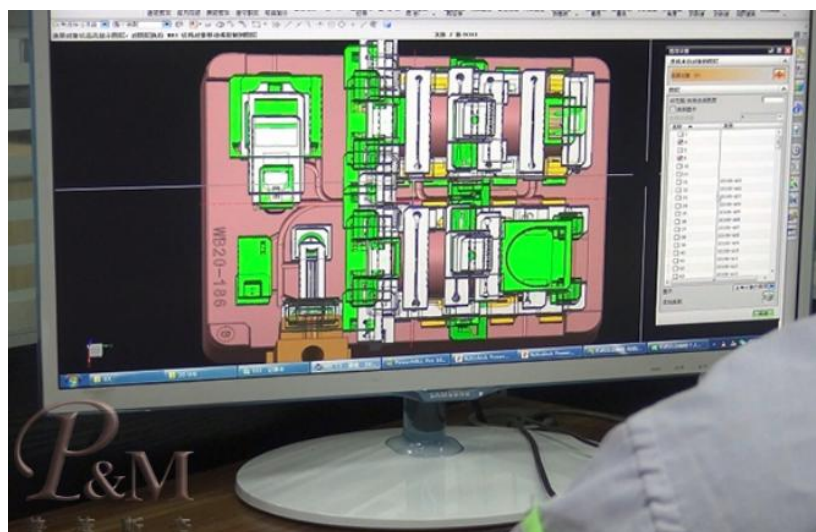
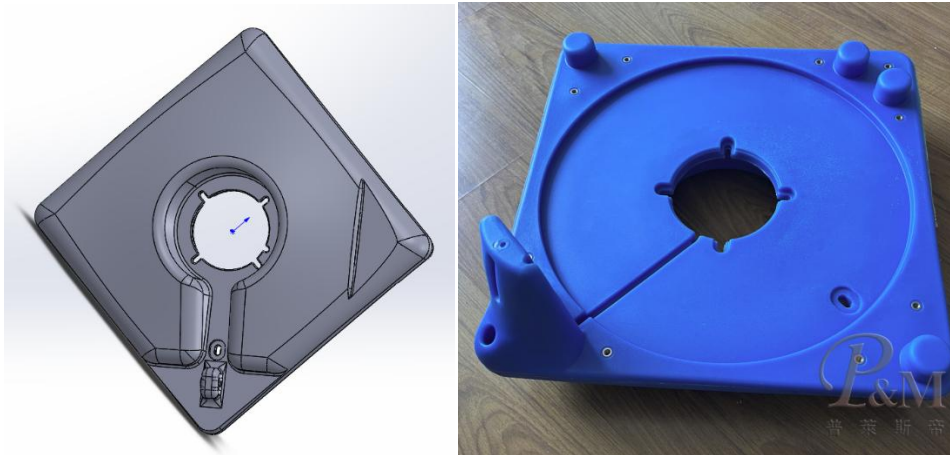
2. Design&making of Product&Roller

The product design process is a crucial stage in the development of a new product. Before a product can be manufactured, it is important to go through several steps to ensure that the design is viable and meets the needs of the intended users.

The first step in the product design process is to identify the problem or need that the product will address. This involves conducting market research and gathering feedback from potential customers to understand their needs and preferences.

Once the problem or need has been identified, the next step is to develop a concept for the product. This may involve sketching out ideas or creating 3D models to visualize the design.

Once the product specifications have been established, the next step is to create a prototype or mockup of the product. This can be done using various methods, such as 3D printing, CNC machining, or handcrafting.



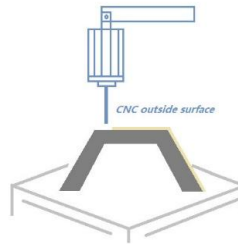
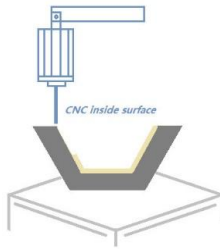
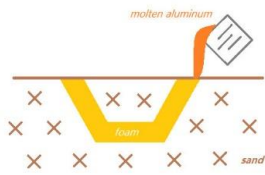
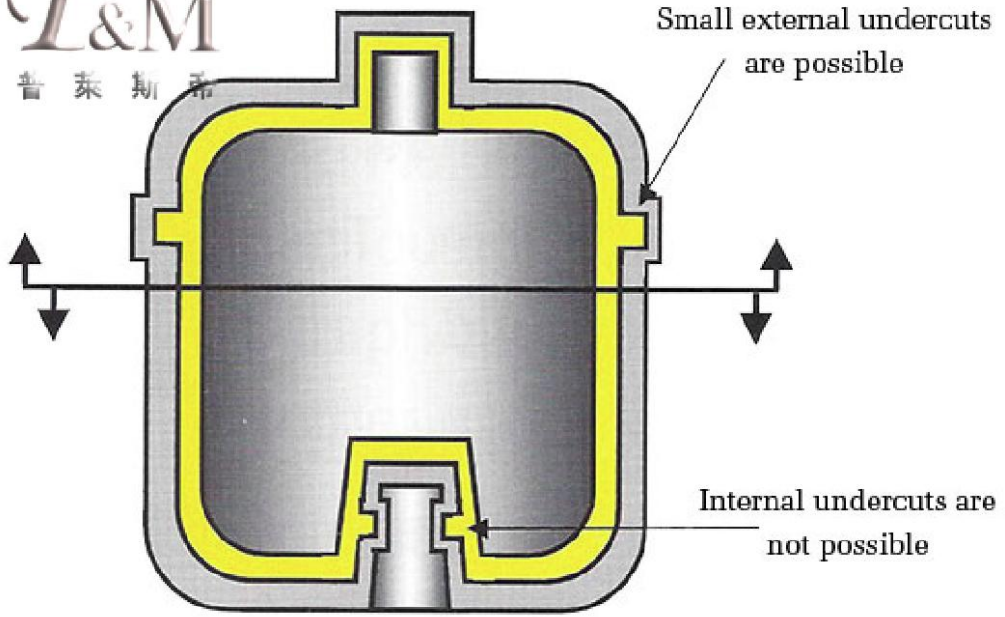
The rollers used in the roll forming machine are designed with specific contours and shapes that gradually bend and shape the plastic material as it passes through. The rollers can be heated or cooled to help control the temperature of the plastic and

achieve the desired properties of the finished product. The roller setup is adjusted based on the specific shape and dimensions of the finished product.

The principle of material selection is: based on the type of molded plastic, product shape, dimensional accuracy, product appearance, quality and usage requirements, production batch size, taking into account the cutting, polishing, welding, etching, deformation, wear resistance and other material properties, taking into account the economy and production conditions of the mold and processing methods, to choose different types of steel. There are many mold steels, and the choice of mold material can be determined by the nature of the product and the number of products.

Rotational molding machines are made in a wide range of sizes. They normally consist of molds, an oven, a cooling chamber, and mold spindles. The spindles are mounted on a rotating axis, which provides a uniform coating of the plastic inside each mold. Molds (or tooling) are either fabricated from welded sheet steel or cast. The fabrication method is often driven by part size and complexity; most intricate parts are likely made out of cast tooling. Molds are typically manufactured from stainless steel or aluminum. Aluminum molds are usually much thicker than an equivalent steel mold, as it is a softer metal. This thickness does not affect cycle times significantly since aluminum's thermal conductivity is many times greater than steel. Due to the need to develop a model prior to casting, cast molds tend to have additional costs associated with the manufacturing of the tooling, whereas fabricated steel or aluminum molds, particularly when used for less complex parts, are less expensive. However, some molds contain both aluminum and steel. This allows for variable thicknesses in the walls of the product. While this process is not as precise as injection molding, it does provide the designer with more options. The aluminum addition to the steel provides more heat capacity, causing the melt flow to stay in a fluid state for a longer period.

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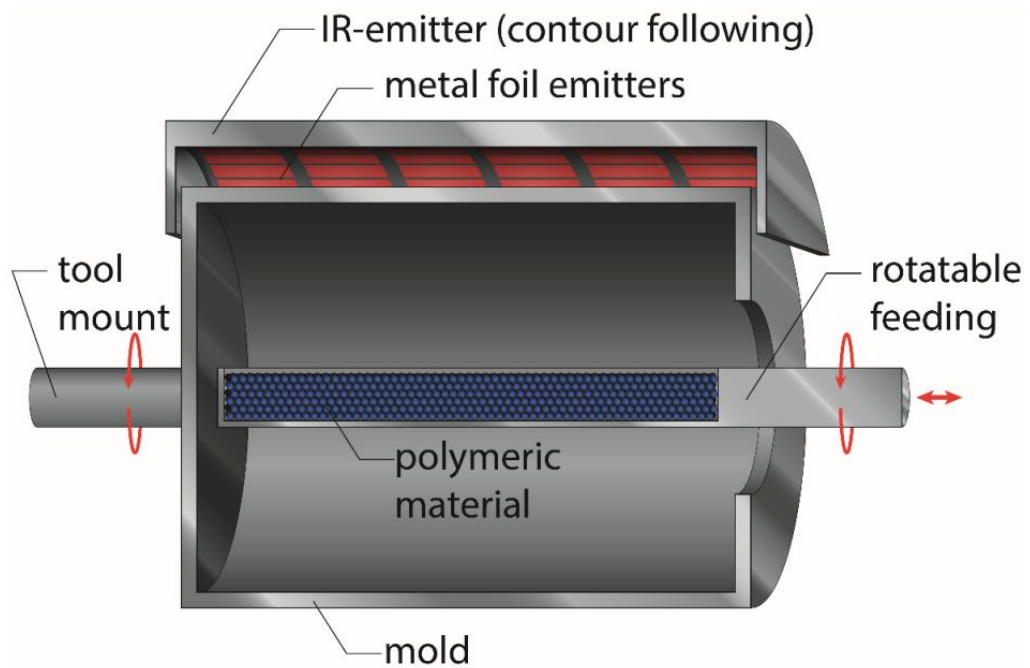
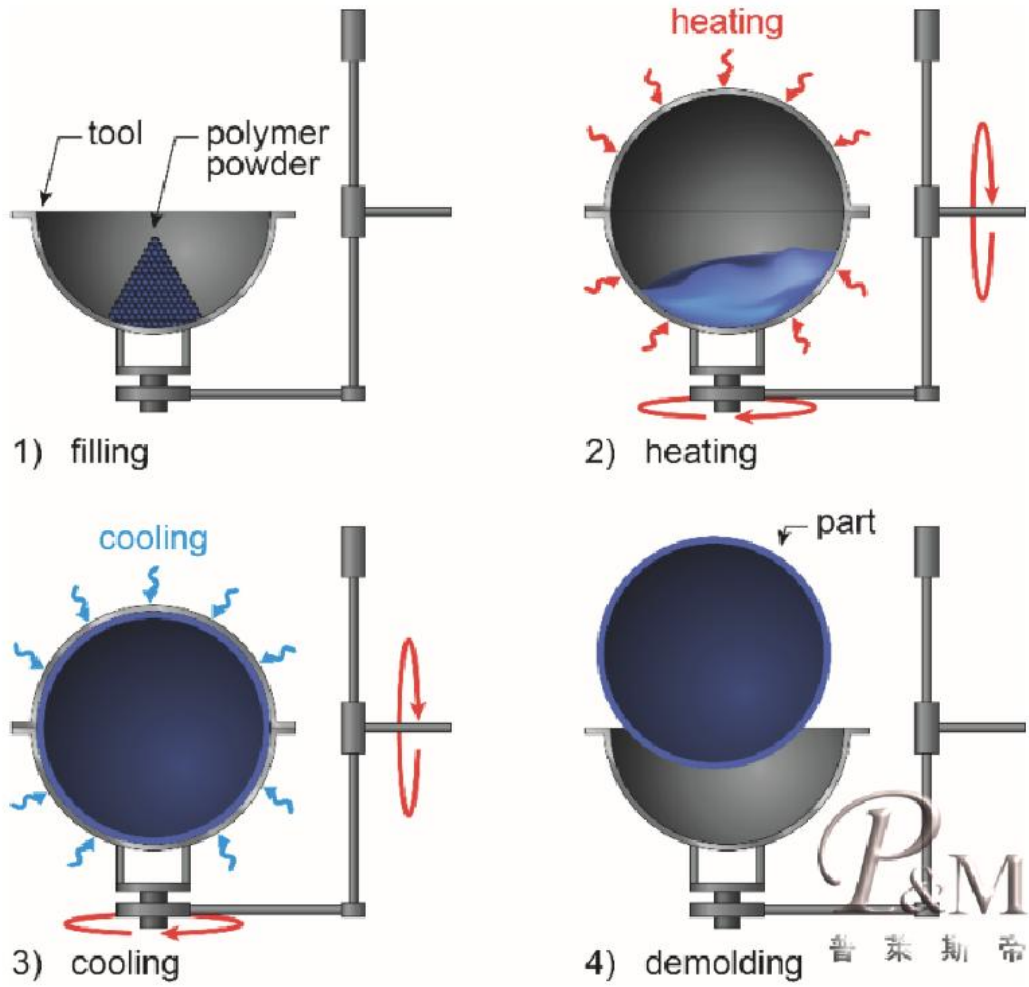




Manufacture of the rotational product

1. Forming the Plastic

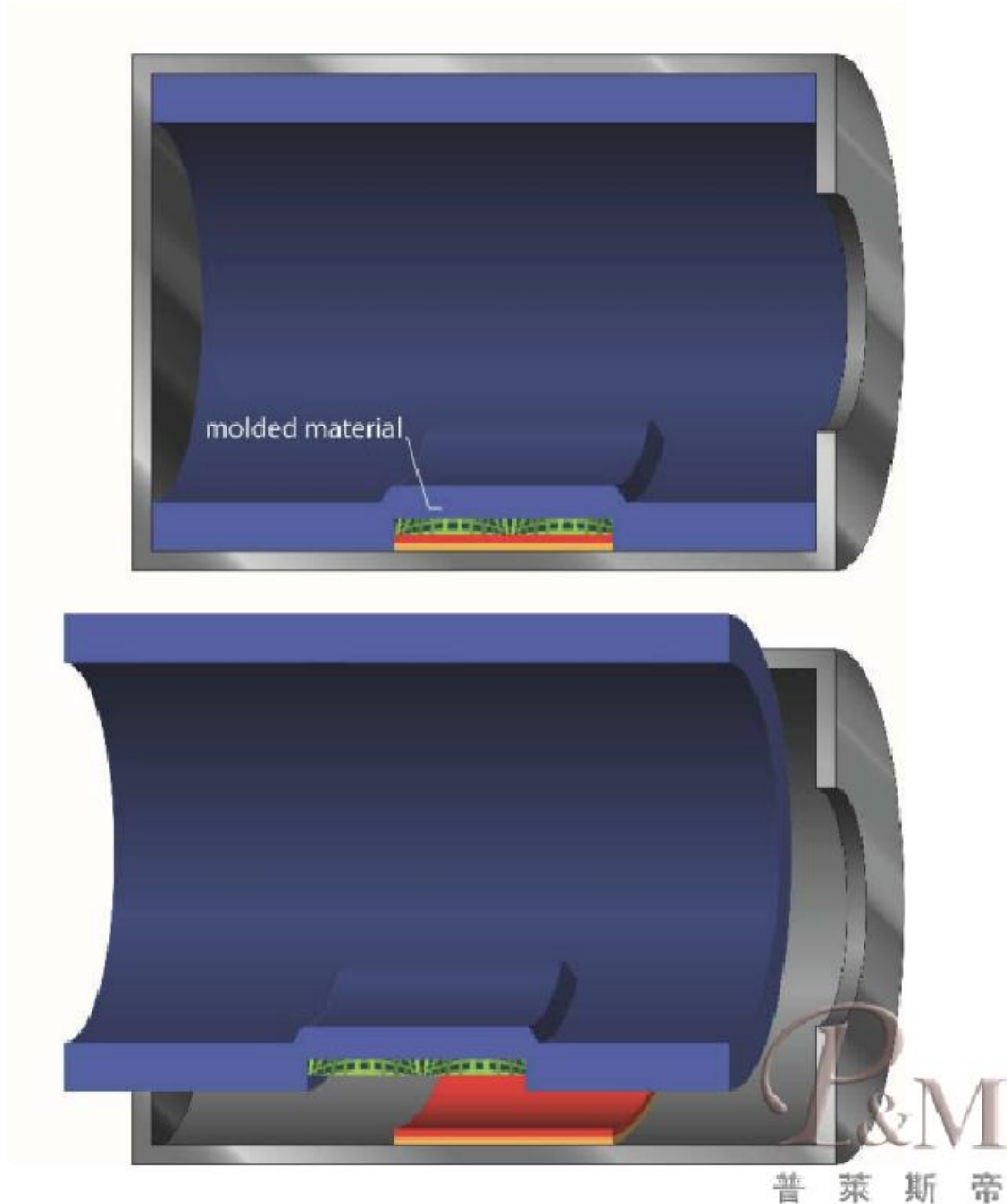
As the plastic material passes through the rollers, it is gradually formed into the desired shape. The rollers can be adjusted to achieve the desired cross-section and geometry of the finished product.



2. Cutting and Finishing

The parts that make up the product space are called molded parts (i.e., the mold as a whole) and the parts (of the mold) that form the outer surface of the product are called cavities (Cavity).

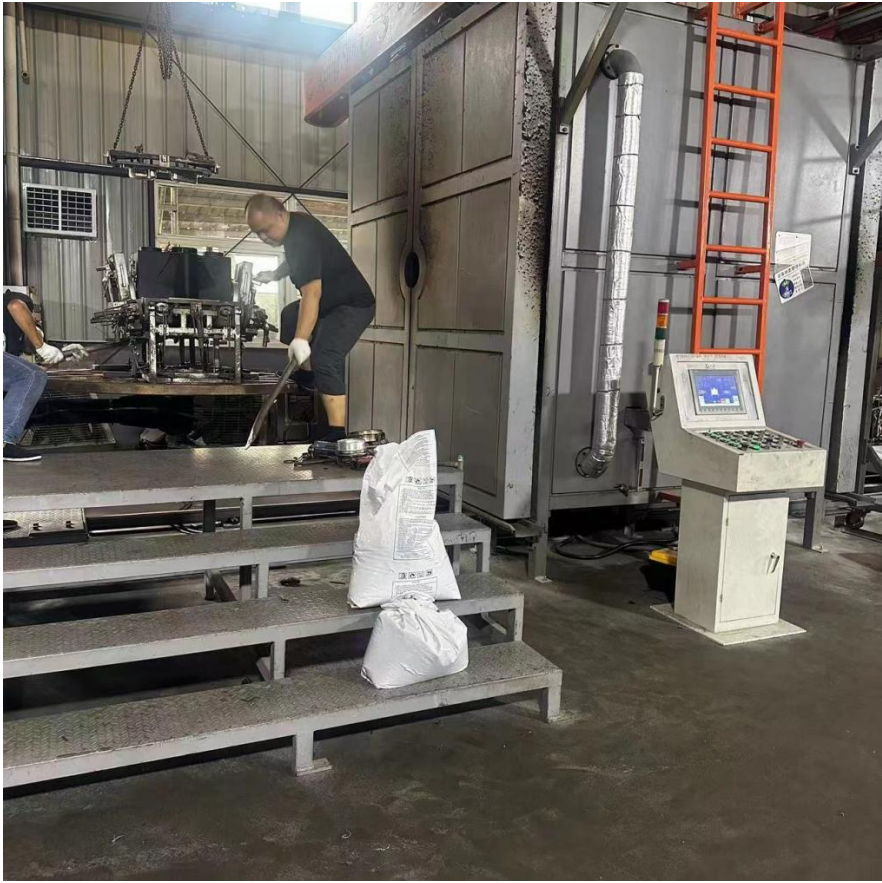
In general, a larger number of cavities in a mold means that it can produce more products in a single injection, i.e., a larger production volume. However, the cost of the mold will also increase, so the number of cavities in the mold must be rationalized according to the amount of production to be achieved.



3. Quality Control:

Throughout the rolling plastic process, quality control checks are performed to ensure that the finished product meets the required specifications. This may involve measuring the dimensions and inspecting the surface finish of the product.

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4. Packaging and Shipping: Once the finished product has been inspected and approved, it is packaged and shipped to the customer.





Through cheap and stable transportation channels, we guarantee that the mold will be delivered to the customer's designated location without any damage or delay.

6 After-sales service

Ningbo P&M has a complete sales and after-sales service team.

We offer a one-year mold warranty and complete after-sales service to ensure that our customers can purchase our custom mold service satisfactorily and without worries.

We provide a full range of consulting services prior to purchase so that our customers know what they need.

Our mold design philosophy is based on precision, high speed, durability, stability, energy saving and user-friendly operation, and we are committed to developing many types of precision injection molding machine models. In terms of mold quality control, in order to give users the best experience, we insist on using imported mold components and each assembly step is tested by engineers with precise measuring equipment to ensure that each structure works stably, smoothly and safely. In addition, in order to give you more precise suggestions for your needs, we will analyze your product characteristics, production output and the problems you are currently facing, evaluate all aspects of your situation and give you suitable suggestions. If you want to develop a new product but lack the plans to build a production line, we are also happy to help you by giving you the expertise and technical access to meet your needs.

We have a professional mold commissioning department to test the molds. In addition, we help our customers integrate automation equipment into their molds to ensure that every function runs smoothly, thus ensuring that the mold is delivered to your company ready to start operating immediately.

When you encounter problems during the operation of the mold, our online after-sales team is ready to provide repair services. You can contact us, describe the problem, and our technical specialists will give you a solution as soon as they understand the problem.

