

# Plastic Blow Molding Services

## 一. Blow molding process introduction

Hollow blow molding (also known as blow molding) is a method of blowing the hot-melt parison closed in the mold to form a hollow product by means of gas pressure. It is the third most commonly used plastic processing method, and it is also a fast-growing method. A method of plastic molding

There are 3 types of blow molding processes:

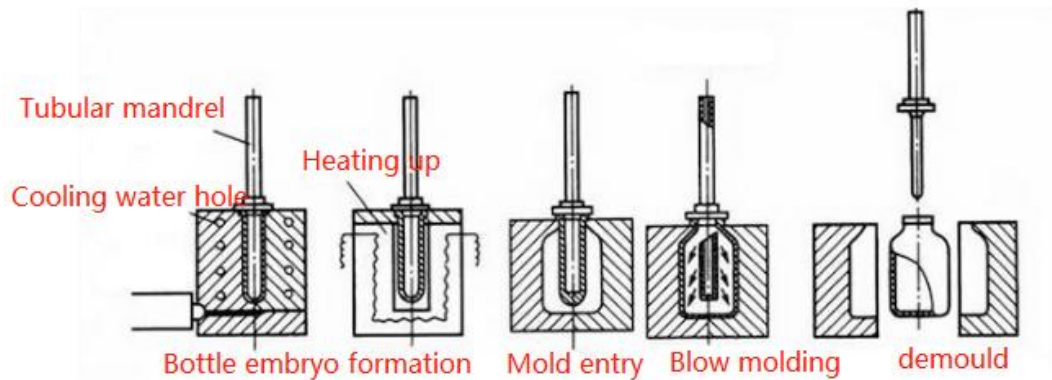
### 1. Injection Stretch Blow Molding (ISBM)

视频链接: <https://youtu.be/ZldhjowOFdk>

Stretch blow molding process refers to a blow molding process through biaxial directional stretching. The stretch blow molding process is developed on the basis of ordinary extrusion blow molding process and injection blow molding process. Firstly, the parison is made by extrusion or injection method, and then the parison is processed to the suitable stretching temperature of the plastic, and then longitudinally stretched by internal (by stretching mandrel) or external (by stretching clamp) mechanical force, at the same time or later by compressed air inflation for transverse stretching, and finally the product is obtained.

Injection stretch blow molding is commonly used for high-quality, high-clarity polyethylene terephthalate (PET) containers, such as water bottles. The injection process ensures a very precise finish, and the stretch ring produces high mechanical properties. This process is ideal for beverages, agrochemicals and personal care products.

Technical Description:



**In stage 1**

The same technique as the injection blow molding process is used, i.e. the preform is injection molded over a mandrel.

**In stage 2**

The mandrel in injection stretch blow molding is replaced by a stretch rod. The preform is inserted into the blow mold and clamped.

**In stage 3**

The preform is stretched longitudinally by blowing air into the mold via stretch rods.

**2. Extrusion Blow Molding (EBM)**

视频链接: <https://youtu.be/jkBEexcg6ycA>

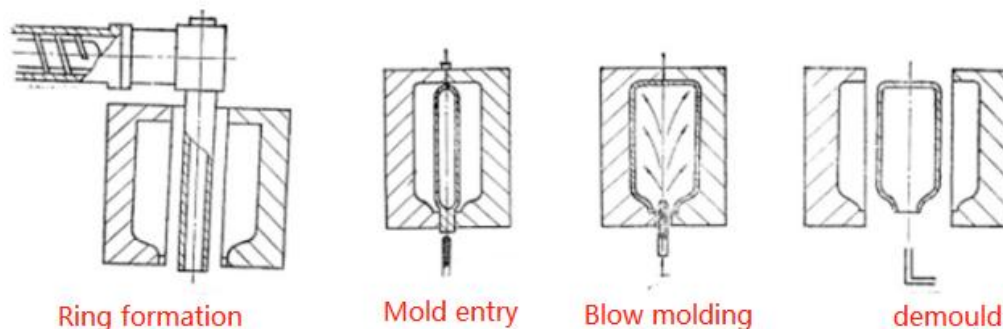
视频链接: <https://youtu.be/16py6Z-RCW4>

视频链接: <https://youtu.be/Lsnw4pw-s3Y>

视频链接: [https://youtu.be/oj8\\_wp\\_Z\\_9E](https://youtu.be/oj8_wp_Z_9E)

Extrusion blow molding is widely used and has low processing and running costs. It can be used to manufacture products of various shapes, and there are a variety of materials to choose from. The containers produced by this process can have integral handles and multi-layer thin walls.

Technical Description:



**In stage 1**

The plastic polymer is extruded into a mold using conventional extrusion components. The plastic polymer comes in the form of a circular tube on a mandrel, known as an extrusion parison. The extrusion process is continuous.

#### **In stage 2**

Once the extruded parison reaches the desired length, the dies on both sides are closed. At this time, a closed state is formed against the mold wall. Use a knife to cut off the top of the parison. Air is blown into the cavity with a blow pin, forcing the cavity to deform to the shape of the mold. Hot plastic. The base polymer solidifies in the cold tool.

#### **In stage 3**

When the part has cooled sufficiently, the mold is opened and the part is removed.

#### **In stage 4**

Use the trimmer to trim the edges

The main advantages of extrusion blow molding are the wide choice of materials during processing and the ability to manufacture products with complex shapes.

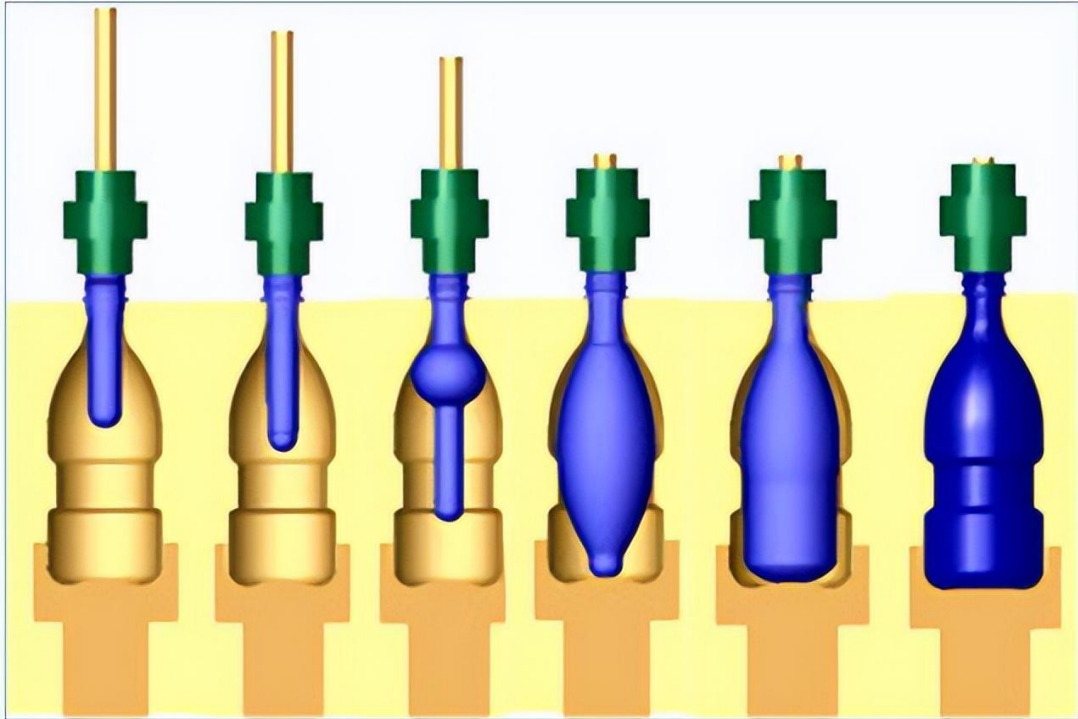
Injection stretch blow molding can produce containers with high transparency. The stretch preforming process is used in the process of process application, which can greatly enhance the strength of the component, and at the same time improve the airtightness and watertightness of the container, so this process can be used for packaging irritating food, concentrated liquid and chemicals.

### **3. Injection blow molding (IBM)**

视频链接: <https://youtube.com/shorts/arg8bsLqaOo>

Injection blow molding is a very precise process suitable for producing packaging for medical devices or cosmetics, but also for containers that require precise necks and wide openings.

Technical Description:



The injection blow molding process is performed on a rotary table that transfers the parts to each processing area.

**In stage 1**

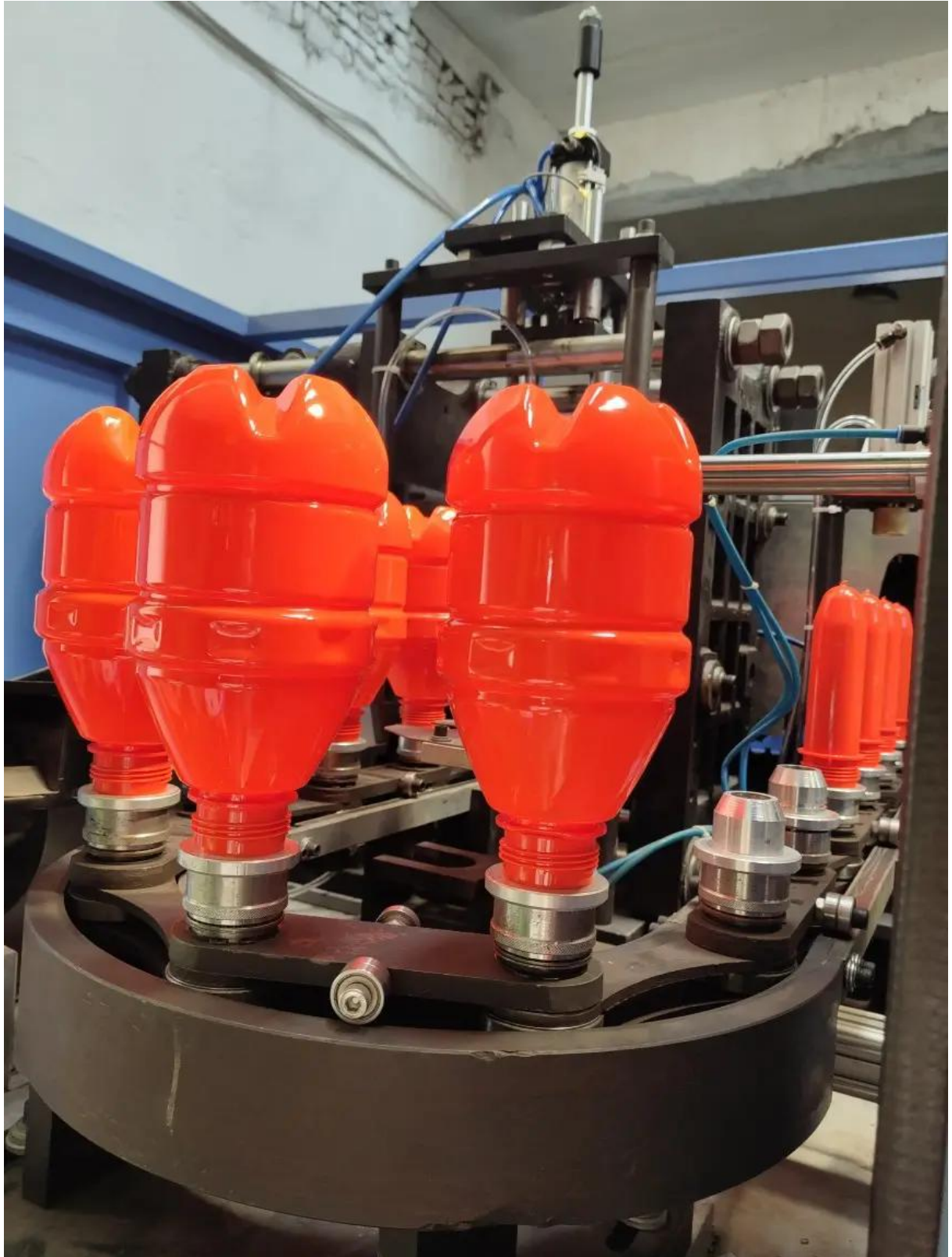
The molten billet is injected into the cavity of the preforming mold by the injection molding machine, and the central turntable rotates 120° to the blowing platform.

**In stage 2**

Air is blown into the preform mold, forcing the parison against the mold walls to form the desired shape.

**In stage 3**

After cooling to a suitable temperature, the part is rotated 120° and separated from the central turntable, the whole process does not require trimming and other treatments.



#### 4. Applicable material

All thermoplastics can be blow molded, but some materials may be better suited for a particular process. Typical materials that can be processed by

extrusion blow molding are polypropylene (PP), polyethylene (PE), PET and polyvinyl chloride (PVC). The suitable materials for injection blow molding are PP and high-density polyethylene (HDPE). Typical materials commonly used in injection stretch blow molding are PE and PET

## 5. Processing cost

Comparing processing costs, extrusion blow molding is the cheapest, injection blow molding is usually twice that of extrusion blow molding, and injection stretch blow molding is the most expensive.

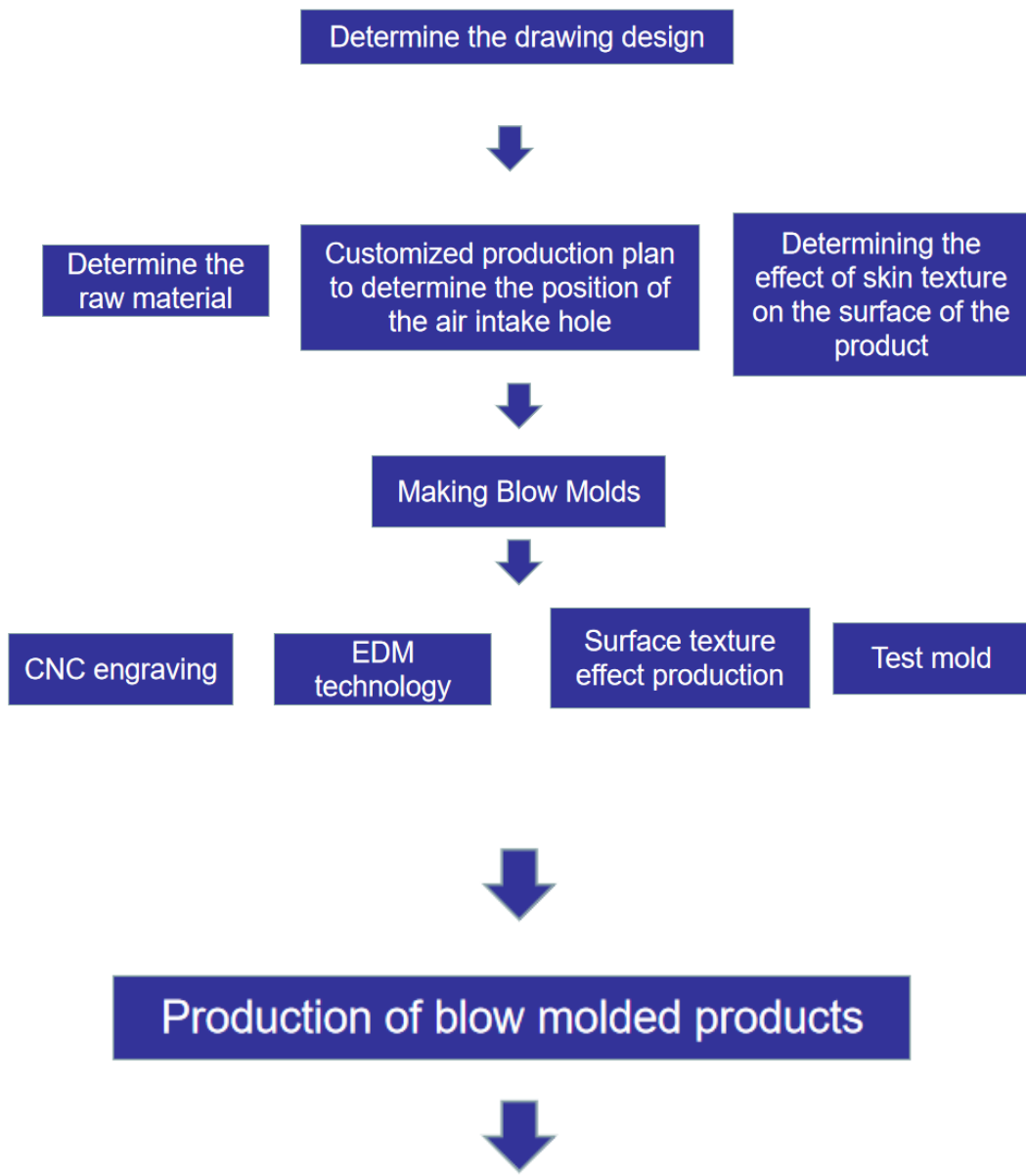
The processing cycle is very short, a single mold can include 10 or more cavities, and a cycle can be completed in 1 to 2 minutes.

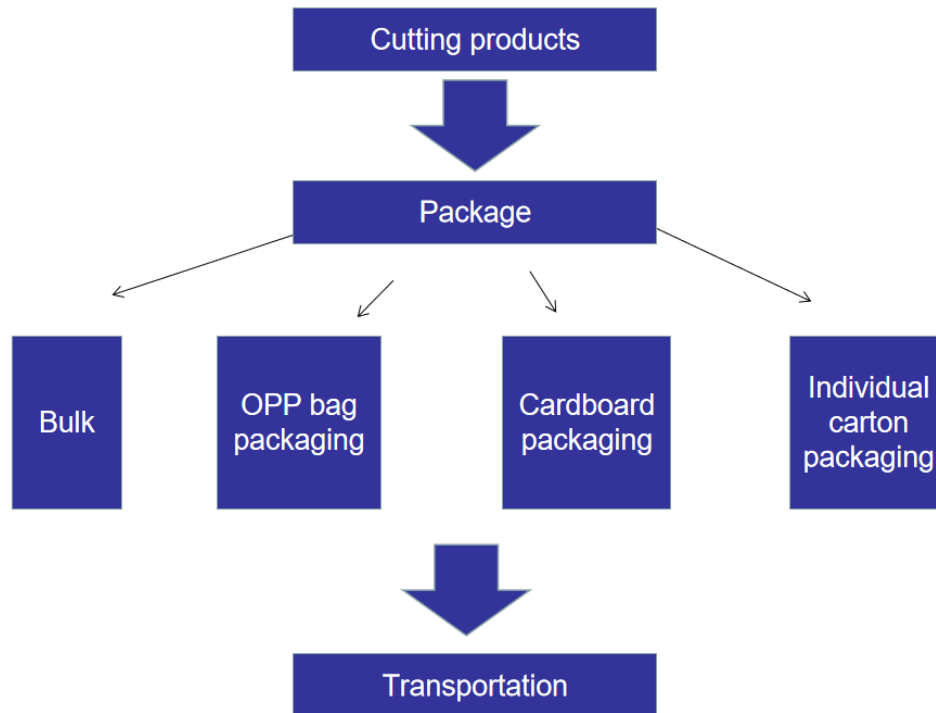
The labor cost is also relatively low, and the degree of automation is high, but the setting and adjustment costs are relatively high, so usually only the production and processing of a single product is carried out.

## 6. Environmental impact

All thermoplastics are recyclable and process waste can be recycled on site. Waste materials after use can also be remade into new products, for example, recycled PET is mainly used to produce some clothing. Plastic blowing is more energy efficient than glass blowing

## 二. Specific process of blow mold/product





### (一) Determine the drawing design

1. Blow molding products have some special features, and there needs to be enough space inside the blow molding products to complete the production of products. We need to discuss with the customer and determine whether the design of the drawing meets the requirements of blow molding
2. Determine what the raw material of the product is, some materials cannot be blow molded
3. The blow mold needs to have an air inlet, we need to discuss with the customer and determine the location of the air inlet.
4. Determine the skin texture effect on the surface of the product. Generally, the blow molded products choose matte skin texture effect, which is the best. We will give some case effects for customers to choose the surface texture effect.

### (二) Making Blow Molds

视频链接: [https://youtube.com/shorts/MVbsL\\_ybmLc](https://youtube.com/shorts/MVbsL_ybmLc)

1. We will first use CNC to engrave the shape of the product on the mold
2. We then use EDM technology to precisely process the mold
3. According to the requirements of customers to make the effect of skin texture on the surface of the product
4. Test the mold to produce products, and then adjust the mold

### (三) Production of blow molded products

视频链接: <https://youtu.be/rKNxjC-U-XrQ>

1. Choose the most suitable blow molding technology  
We choose the most suitable blow molding process (Injection Stretch Blow Molding, Extrusion Blow Molding, Injection blow molding) according to the product design and application range
2. The product is produced according to the selected blow molding process





#### (四) Cutting products.

设备视频链接: [https://youtu.be/KlI4klq1\\_O8](https://youtu.be/KlI4klq1_O8)

1. Cut the product by machine, (the product is produced with the material head, which requires the machine to cut. We have two kinds of machines, one is a semi-automatic machine, which requires manual cutting, and a certain fee is required. Labor costs. The other is a fully automatic machine, which is done by a robotic arm) (picture of the product just produced)



2. Pack the finished product in a carton and transport it to the factory warehouse for packaging.

**(五) Packaging (we will package according to the needs of customers)**



1. Bulk: We pack according to the characteristics of the product. If the product can be stacked, we will pack it by stacking. Our purpose is to make the packing size as small as possible, so as to reduce the customer's shipping cost.

2. Individually packaged: Individually packaged by OPP bag, with cardboard packaging, and individually packaged in carton.

① OPP bag packaging: It is to use an ordinary OPP bag to transfer the product. If the quantity is small, we will use manual individual packaging, if the quantity is large, we will use machine packaging.

② Cardboard packaging: A coated paper is used to jam the packaging of the product, and sometimes it is made into a blister package with a blister box.

③ Individual carton packaging: Customized carton packs the product individually, and the effect that customers want can be printed on the carton.

(The time for simple individual packaging is generally about 7-9 days, if the complex individual packaging needs the actual situation)

**(六) Transportation service (We will choose the best shipping method for customers according to their requirements)**



## 1. Air transport

Air freight generally can choose FedEx, UPS, DHL, Sagawa Express, TNT and other express transportation.

The time limit is generally about 9-12 days to arrive, (excluding tax)

## 2. Sea transportation

(1) DDP: DDP by sea is Door to door, tax is already included, and the time limit is expected to arrive in about 35-45 days

(2) CIF: We arrange the transportation of the goods to the destination port designated by the customer, and the customer needs to complete the customs clearance after arriving at the destination port.

(3) FOB: We transport the goods to designated ports in China and arrange customs declaration processing for the goods. The rest of the process requires the customer's designated freight forwarding arrangements.

## 3. land transport

Land transportation is to arrange truck transportation to customers. The countries that generally use this transportation method are: Vietnam, Thailand, Russia, etc. The time limit is generally about 15-25 days to arrive, including tax

## 4. Rail transport

Railway transportation is mainly used in European countries, and the time limit is about 45-60 days, including taxes.

## (七) 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.

## 三. Industry involved

### 1. Water engineering



## **2. Medical industry**



### **3. Children's toys industry**



#### 4. Sports equipment industry



#### 5. Folding seat



**6. Plastic container**





## **四. Processing equipment:**

视频链接: <https://youtu.be/FZIRHZ2oldg>

视频链接: <https://youtu.be/l3cUjK8D0-U>

视频链接: <https://youtu.be/u6rH2tyTh7Y>

**Our core blow molding factory area is 5000 square meters**

**Dozens of professional equipment**

**We have made thousands of blow molds**

**We have 15 years of experience in blow molding.**

**We offer a full range of machining technologies up to five-axis.**



**The software is suitable for all 2D, 3D, five-axis programming. It has the most complete categories and sizes of CNC milling, high-speed milling, EDM and other equipment. The use of digital technology has realized data collection, reminders for getting on and off the machine and digital factory management. 24 hours non-stop, in the urgent state, we use the backup emergency mechanism to ensure the delivery time**



