



Vacuum Casting Plastic Parts Prototype The Complete Explanation For Sports Device

Our Product Introduction

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Basic Information

- Place of Origin: China Shenzhen
- Brand Name: Sports Device Prototype
- Certification: Polishing, Anodizing, Painting, Chrome Plating, Silkscreen
- Model Number: ABS, PC, PMMA, POM, PA, PTFE, PEEK
- Minimum Order Quantity: 1 piece
- Price: USD 50 piece
- Packaging Details: Carton, Plywood Box
- Payment Terms: T/T, Paypal
- Supply Ability: 1 piece per day



Product Specification

- Functions: Step Counting, Distance Tracking, Heart Rate Monitoring
- Type: Wearable
- Lead Time: 5 Days
- Surface Treatment: Anodize Any Color
- Cmm Equipment: Yes
- Drawing Format: STP, IGS, X-T
- Material: Plastic
- Inspection Report: Sports Device Prototype
- Highlight: plastic vacuum casting parts, heart rate vacuum casting parts, heart rate vacuum casting plastic parts



Product Description

What Materials Are Used In Vacuum Casting?

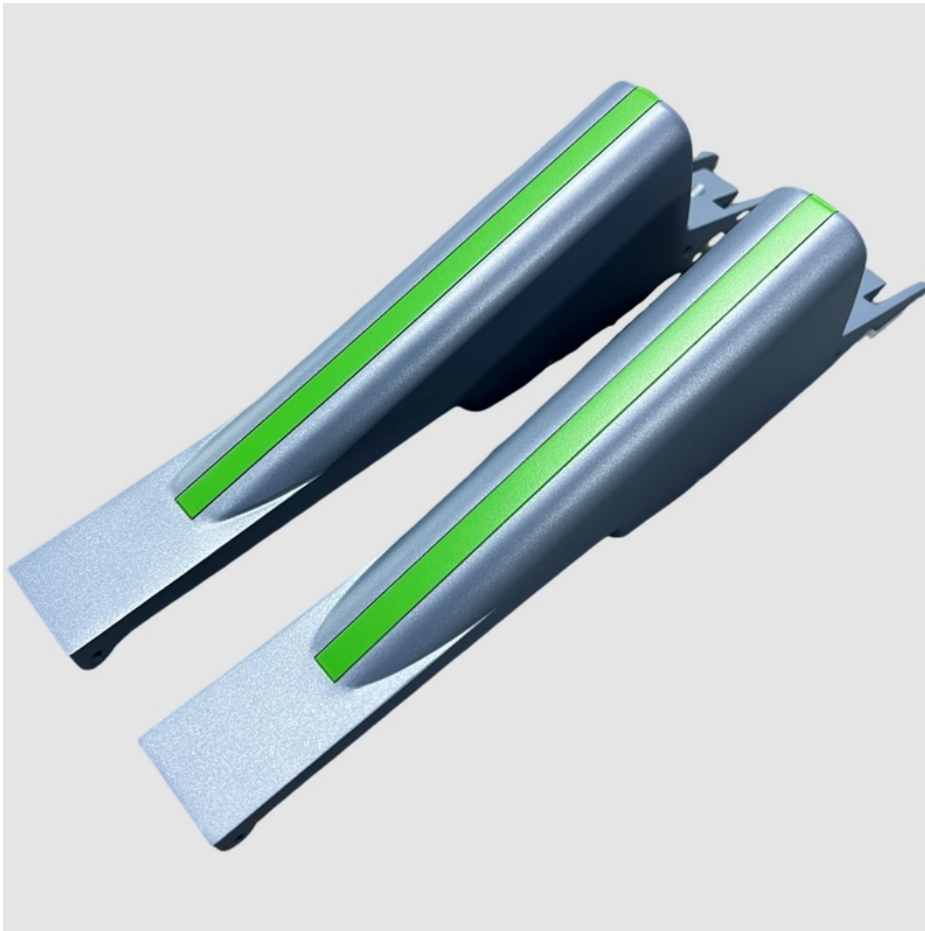
In vacuum casting, a variety of materials can be used to create prototypes or low-volume production parts. The choice of material depends on the desired properties, appearance, and functional requirements of the final product. Here are some commonly used materials in vacuum casting:

Polyurethane (PU) Resins: Polyurethane resins are widely used in vacuum casting due to their versatility and ability to simulate a range of thermoplastic properties. PU resins come in different formulations, offering options for rigid, flexible, transparent, or elastomeric parts. They can replicate the mechanical properties of materials such as ABS, polypropylene (PP), polycarbonate (PC), and more.



Epoxy Resins: Epoxy resins are another popular choice for vacuum casting. They offer excellent dimensional stability, high temperature resistance, and good mechanical properties. Epoxy resins can be used to create prototypes or parts that require high strength, chemical resistance, or thermal stability.

Silicone Rubber: Silicone rubber is used to create the molds for vacuum casting. It is a flexible and durable material that can capture intricate details and undercuts of the master pattern. Silicone molds can be reused multiple times, allowing for efficient production of replicas.



Polypropylene (PP) Resins: Polypropylene resins are frequently used in vacuum casting to simulate the properties of this common thermoplastic material. PP replicas can exhibit good chemical resistance, low density, and reasonable mechanical properties.

Acrylic Resins: Acrylic resins can be used in vacuum casting to create transparent or translucent parts. They offer clarity, good impact resistance, and weatherability, making them suitable for applications requiring optical clarity or visual inspection.

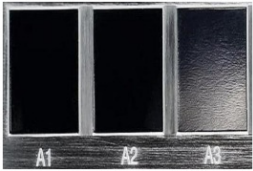
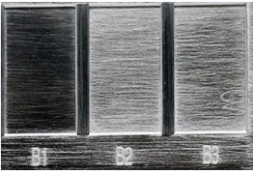
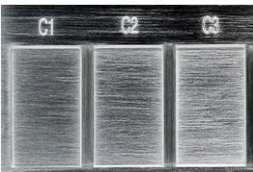


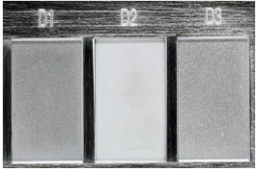
Rubber-Like Materials: Vacuum casting can replicate rubber-like materials, such as elastomers or flexible rubbers. These materials provide excellent flexibility, resilience, and vibration-damping properties. They are commonly used for gaskets, seals, grips, or any application that requires a soft or cushioning component.

Specialty Resins: Depending on specific requirements, specialty resins can be used in vacuum casting. These may include flame-retardant resins, high-temperature-resistant resins, electrically conductive resins, or other custom formulations tailored to particular needs.



It's important to note that the availability of materials may vary among different vacuum casting service providers. Each provider may offer a selection of materials with varying properties and characteristics. When considering vacuum casting, it's advisable to consult with the service provider to determine the most suitable material for your specific project.

Surface Finishes for Vacuum Casting		
Barana Rapid can build unique surface layers for your vacuum casting parts using a wide range of surface finishes. These finishes assist you in meeting the aesthetic, toughness, and chemical resistance needs of your products. We can provide the following surface finishes based on your material selection and part application:		
	Name	Description
Glossy		A grade finishes are made using a diamond buffing process and yield shiny and glossy surfaces on injection molded parts.
	Semi-glossy	B grade finishes use grit sandpaper to produce parts with a slightly rougher finish than grade A parts. Custom molded plastic parts that undergo B grade finishing have a matte surface texture.
	Matte	C grade finishes use grit sanding stones to produce a rough, uneven surface. Injection plastic parts that undergo C grade finishing have a matte surface texture.

	Textured	D grade finishes use grit and dry glass beads or oxide to produce a very rough textured finish. Depending on the type of material used, products can have a satin or dull finish.
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CNC turning as a form of precision machining where material is removed by a cutter that makes contact with a spinning workpiece. The movement of the machinery is controlled by computer instructions, ensuring precise and repeatable results.

CNC turning differs from CNC milling in that the cutting tool rotates and is directed at the stationary workpiece from multiple angles. In CNC turning, the workpiece is rotated in a chuck, allowing for the creation of round or tubular shapes. This process is particularly effective in achieving accurate rounded surfaces that may be challenging to achieve with CNC milling or other methods.



A CNC lathe machine used for turning typically has a turret where the tooling is mounted. This turret can be programmed to execute specific movements and remove material from the raw materials, ultimately forming the desired 3D model or part.

Similar to CNC milling, CNC turning is suitable for both rapid prototyping and the production of end-use parts. Its precision and efficiency make it a valuable process for manufacturing components with round or tubular geometries.





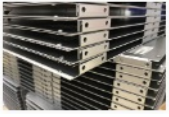




By utilizing CNC turning, manufacturers can achieve high-quality results, optimize production time, and produce prototypes or final parts with accuracy and repeatability.

CNC turning as a subtractive manufacturing process where a stationary cutting tool removes material by making contact with the spinning workpiece to shape it according to the desired specifications.



In CNC turning, a blank bar of stock material is securely held in the chuck of the spindle and rotated along with the spindle itself. The cutting tool, which remains stationary, then removes material from the workpiece to create the desired shape. The movement of the machinery is precisely controlled by computer instructions, ensuring accuracy and repeatability in the manufacturing process.

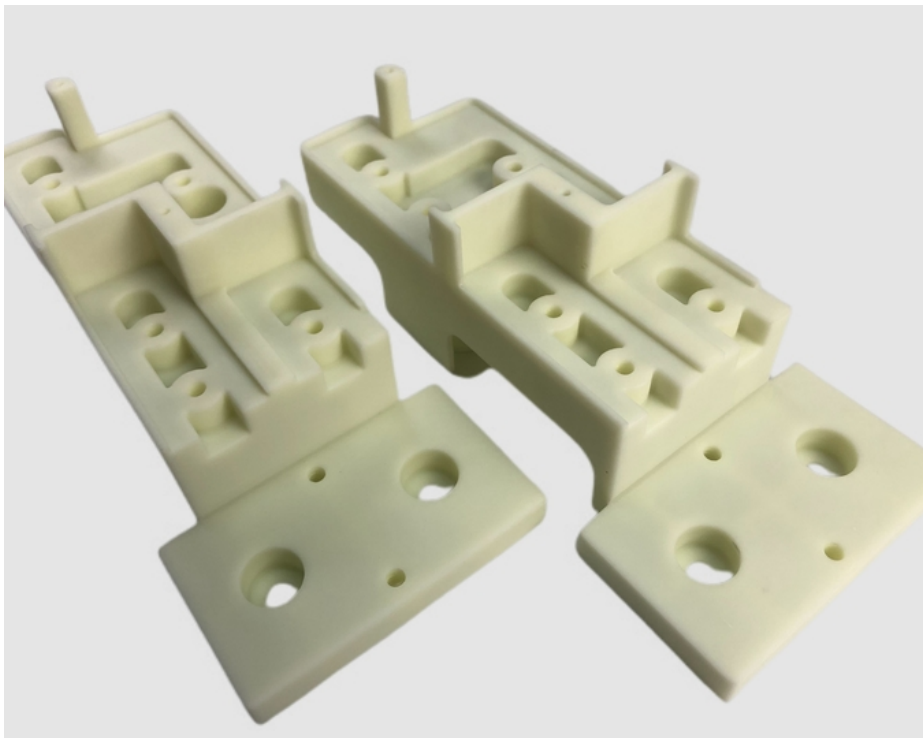
CNC turning is particularly suited for creating round or tubular shapes and achieving highly accurate rounded surfaces. The rotational nature of the process allows for the creation of cylindrical components, such as shafts, cylinders, and other rotational symmetry parts, with excellent precision.

Our Low-Volume Manufacturing Processes		
Barana Rapid has more than ten years of experience in small-batch manufacturing, an excellent team, and strong suppliers to meet all your small-batch manufacturing needs. Based on our many years of experience in small batch molding and excellent engineers, we will effectively execute all your projects involving small batch machining. This is due to the strong supply chain and advanced small-batch manufacturing equipment for different manufacturing technologies. You can rest assured that we will ensure the wholesale price is lower than that of our peers, strictly control the product quality standards, assist customers in optimizing the design, select the appropriate CNC processing technology, reduce costs, and achieve rapid mass production, to ensure that you will finally receive economic and high-precision products.		
CNC Machining		High-speed, automated cutting can precisely form different shapes to reflect your designs on the metal or plastic material for low volume cnc machining.
Plastic Injection Molding		Plastic injection molding can turn thermoplastic materials into specific plastic parts, whether it is mass production or low volume production.
Sheet Metal Fabrication		Sheet metal fabrication is a subtractive manufacturing process that can be applied for low volume manufacturing and prototyping of metal parts.
Vacuum casting		Vacuum casting is a custom manufacturing method used for the production of small series of functional plastic parts.
Die Casting		Die casting is a manufacturing process in which molten metal is poured or forced into steel molds, allowing for small volume production of quality metal injection molded parts with low cost.
Aluminum Extrusion		Vacuum casting is a custom manufacturing method used for the production of small series of functional plastic parts.
3D Printing		We offer a wide variety of 3D printing services, such as SLA 3D printing (Stereolithography) and SLS 3D printing (Selective Laser Sintering). Our engineers and project managers will collaborate with you to confirm your CAD designs, product functions, dimensional tolerances, etc.

Comparatively, CNC milling involves the rotation of the cutting tool while the workpiece remains stationary, allowing for the creation of more complex shapes and features. CNC milling is typically used for producing parts with intricate geometries, such as slots, pockets, and complex 3D profiles.

Understanding the difference between CNC milling and CNC turning is valuable in determining the appropriate machining process based on the desired outcome and the specific requirements of the part or component.

If you're looking for further information on the distinctions between CNC milling and CNC turning, you can refer to the link you provided or explore additional resources that delve into the topic in more detail.



What Separates Barana Rapid's Inspection Processes from the Rest?

Careful measurement, inspection and testing are necessary to ensure the conformance of your parts. We perform multiple inspections at every step of the product development journey, from incoming material verification to final 3D scanning. You will receive complete digital files and Certificates of Compliance so you can meet your own regulatory and performance goals.

An International Team with Unparalleled Experience

Quality inspection relies not only upon using advanced digital equipment but also having highly trained personnel with years of experience. As parts become more complex and tolerances more demanding for advanced applications, precision measurements conducted by professionals are the only way to ensure perfection.

Inspections and Review for Every Stage of Production

To ensure quality from start to finish, Barana Rapid provides the following inspection and review services:

- Extensive incoming materials verification
- Design for manufacturing reviews for all quotes provided
- Contract reviews upon receipt of POs
- First article and in-process inspections
- Final inspections and testing with reports and certifications as required



Visual inspection



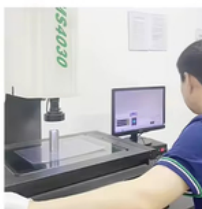
Touch test



Dimension inspection



High gauge



2D image
measuring equipment



Hardness
tester



Tensile
tester



Salt-spray
testing machine

Packing



Bubble bag



Bubble bags



Cartons



Customized packing
as custom request



Carton



Pallet carton



Wooden case



Shipping



Barana Rapid Technology Limited

86 137 2889 6282

baranarm@baranarm.com

cncmachining-prototype.com

RM502 Block B Floor 5th LiTong Semiconductor industrial park ShaPuWei Community SongGang Street Baoan
District Shenzhen, Guangdong, China, ZipCode 518105