



Precision Prototype Vacuum Cast Parts Fast And Affordable Way To Create Accurate Cast Copies

Our Product Introduction

Basic Information

- Place of Origin: Polishing, Anodizing, Painting, Chrome Plating, Silkscreen
- Brand Name: China Shenzhen
- Certification: CNC Precision Machining
- Model Number: ABS, PC, PMMA, POM, PA, PU Rubber
- Minimum Order Quantity: 1 piece
- Price: USD 50 piece
- Packaging Details: Cartons, Plywood Box
- Delivery Time: 3 - 5 Days
- Payment Terms: T/T, Paypal
- Supply Ability: 1 piece per day



Product Specification

- Type: Silicone Mold
- Usage: Automotive Product Parts
- Application: Rapid Prototyping
- Payment: T/T
- Drawing Format: STP, IGS, X-T
- Surface Treatment: De Burr, Painting
- Surface Finish: Smooth
- Advantages: Low Cost, Fast Production, High Accuracy
- Highlight: Barana vacuum cast parts fast, precision vacuum cast parts, precision vacuum casting parts



Product Description

What Is Vacuum Casting?

Polyurethane vacuum casting is a specialized technique for making high-fidelity copies of master patterns using inexpensive silicone molds and pourable casting resins. Copies made in this way demonstrate the same quality as plastic injection molded parts while taking only a fraction of the time and expense to produce.

Advantages Of Vacuum Casting

Low cost for molds

Molds can be made in a few days

Many types of polyurethane resins are available for casting, including overmolding

Cast copies are highly accurate with excellent surface texture

Molds are durable for 20 or more copies

Perfect for engineering models, samples, rapid prototypes, bridge to production



Vacuum Casting Service

We provide a comprehensive turnkey solution for generating master patterns and cast replicas from your CAD designs. Our services extend beyond crafting high-quality molds; we also offer an extensive range of finishing services, including painting, sanding, pad printing, and more. Our expertise will assist you in creating components for showroom-quality display models, engineering test samples, crowdfunding campaigns, and beyond.

Are you in need of high-quality plastic prototypes swiftly? Polyurethane vacuum casting could be your perfect choice. Barana Rapid is celebrated for its vacuum casting service that delivers showroom-quality display models, engineering prototypes, crowdfunding samples, and more. Naturally, all parts are meticulously finished with professional painting, printing, and machining.

**Advantages of Vacuum Casting**

Cost-Effectiveness: Molds are inexpensive to produce.

Quick Turnaround: Molds can be created in just a few days.

Material Diversity: A wide range of polyurethane resins are available, suitable for various applications including overmolding.

High Accuracy and Quality: Cast copies boast excellent accuracy and surface texture.

Durability: Molds are robust, capable of producing 20 or more copies.

Ideal for Prototypes: This method is perfect for engineering models, samples, rapid prototypes, and as a bridge to full production.



Tolerance of Vacuum Casting



Our Vacuum Casting Tolerances	
Barana Rapid offers a range of vacuum casting tolerances to meet your complex custom requirements. Depending on the master model and part geometry, we can achieve dimensional tolerances between 0.2 – 0.4 m. Below are the technical specifications for our custom vacuum casting services.	
Type	Information
Accuracy	Highest precision to reach ± 0.05 mm
Max Part Size	+/- 0.025 mm +/- 0.001 inch
Minimum wall thickness	1.5mm 2.5mm
Quantities	20-25 copies per mold
Color & Finishing	Color and texture can be customized
Typical Lead Time	Up to 20 parts in 15 days or less

Material of Vacuum Casting

Vacuum casting offers a wide range of material options, including various polyurethane (PU) and epoxy resins. These materials can simulate the properties of different thermoplastics, elastomers, and even rigid or flexible rubbers. Material selection can be tailored to meet specific requirements such as mechanical strength, flexibility, transparency, or heat resistance.

Materials for Vacuum Casting
You can choose a wide range of vacuum casting materials depending on the peculiarities of your project. Here are some choices for you:

Image	Materials	Description
	ABS	ABS is a thermoplastic polymer, is widely used due to its exceptional resistance to impact, temperature, and chemicals. It also offers a sleek surface finish and is easy to produce and handle.
	POM	POM, also known as acetal or Delrin, is a type of engineering thermoplastic that boasts exceptional dimensional stability, stiffness, temperature resistance, and impact resistance.
	PP(Polypropylene)	Polypropylene (PP) is a material that is typically white and translucent and is resistant to corrosion while also possessing good toughness. Its most notable characteristic is its versatility, as it is suitable for use in a variety of processing methods and applications.
	PE(Polyethylene)	Polyethylene is odorless, non-toxic, feels like wax, has excellent low-temperature resistance (minimum operating temperature can reach -100~-70°C), has good chemical stability, and can withstand most acid and alkali erosion (not resistant to oxidation) nature acid)
	PC(Polycarbonate)	Polycarbonate (PC) is an amorphous thermoplastic known for its exceptional transparency and impact resistance. It also possesses strong electrical insulating properties and moderate chemical resistance.
	PMMA(Polymethylmethacrylate)	Polymethylmethacrylate, also named Acrylic. Acrylic is a highly versatile material known for its exceptional transparency, chemical stability, and resistance to heat, cold, and corrosion.
	PEEK	PEEK boasts exceptional mechanical strength, self-lubrication, impact resistance, and flame retardancy. It is also highly resistant to acid, alkali, and other chemical corrosion, hydrolysis, wear, fatigue, stripping, and radiation.
	Nylon	Nylon is impressive mechanical properties such as heat and wear resistance, chemical resistance, and self-lubrication, polyamide fiber also possesses flame retardancy, a low coefficient of friction, and is easy to manufacture.

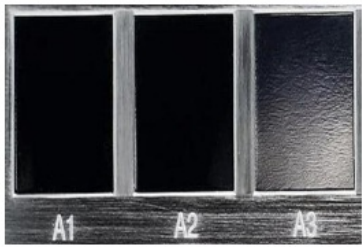
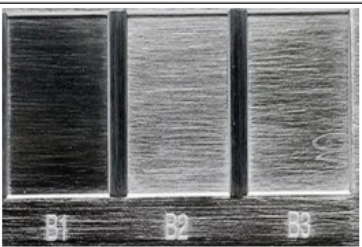
	PS (Polystyrene)	Polystyrene (PS) is a polymer made from the monomer styrene, a liquid hydrocarbon that is commercially manufactured from petroleum. At room temperature, PS is normally a solid thermoplastic but can be melted at higher temperatures for molding or extrusion, and then resolidified. High-impact strength, low-cost resin with a wide range of options.
	Elastomer	Elastomers are polymers with viscosity and elasticity and therefore are known as viscoelasticity. The molecules of elastomers held together by weak intermolecular forces generally exhibit low Young's modulus and high yield strength or high failure strain. Examples are Natural rubber, Silicone Polyurethanes, and Polybutadiene, Polyurethane plastic resin.

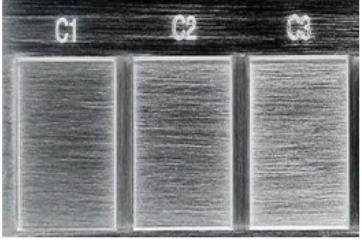
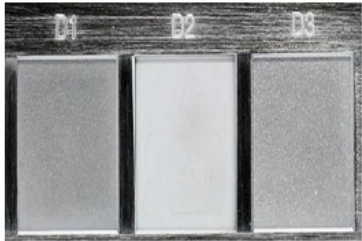
Functional Prototyping: Vacuum casting allows for the production of functional prototypes that closely mimic the performance of the final product. Parts can be manufactured with similar mechanical properties, such as strength, flexibility, and impact resistance, enabling testing and validation before investing in full-scale production.

Reduced Design Constraints: Vacuum casting can accommodate complex geometries, thin walls, and intricate details that may be challenging or expensive to achieve through traditional manufacturing methods. This flexibility in design allows for greater creativity and innovation in product development.

Overmolding Capabilities: Vacuum casting can also facilitate overmolding, where multiple materials are combined to create parts with different properties or layered structures. This technique is useful for adding soft-touch grips, gaskets, or multi-colored features to the final product.

Confidentiality and Intellectual Property Protection: Vacuum casting services often prioritize confidentiality and can help protect sensitive design information. This is especially crucial during the prototyping or pre-production stages when maintaining the secrecy of new product designs is essential.

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.

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



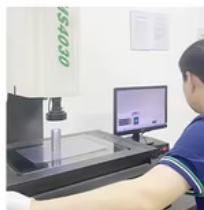
Touch test



Dimension inspection



High gauge



2D image
measuring equipment



Hardness
tester

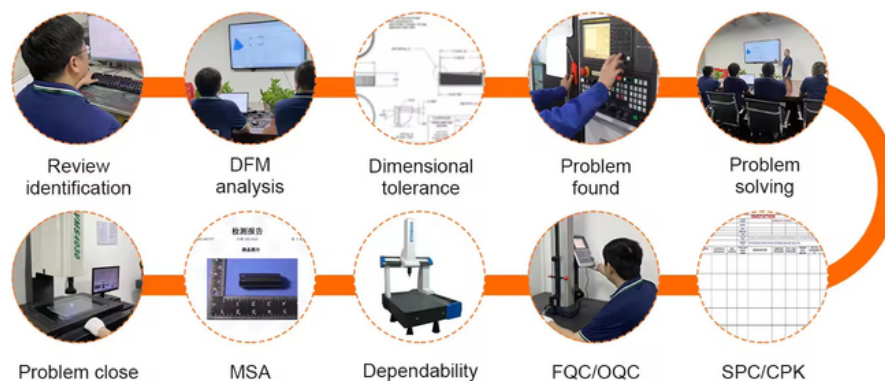


Tensile
tester



Salt-spray
testing machine

Quality Inspection





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