



## ±0.1mm Precision Cnc Machining Plastic Acrylic PMMA For Your Production

### Our Product Introduction

#### Basic Information

- Place of Origin: China Shenzhen
- Brand Name: CNC Precision Machining
- Certification: Polishing, Anodizing, Painting, Chrome Plating, Silkscreen
- Model Number: ABS, PC, PMMA, PTFE, PVDF, PPS, POM, PA
- Minimum Order Quantity: 1 piece
- Price: USD 30/piece
- Packaging Details: Carton, Plywood Box
- Delivery Time: 3 - 5 Days
- Payment Terms: T/T, Paypal
- Supply Ability: 1 piece/day



#### Product Specification

- Material: ABS, PC, PMMA, PTFE, PVDF, PPS, POM, PA
- Tolerance: ±0.1mm, ±0.02, ±0.05,
- Surface Finish: Debur, Polishing, Anodizing, Painting, Chrome Plating, Silkscreen, Laser Etching
- Courier: DHL, FedEx, UPS
- Shipping: Express Or Air Freight
- Usage: Medical Device, Aerospace Prototype, Automotive Rapid Prototyping
- Machining Type: CNC Precision Machining
- Processing Time: 3-5 Days
- Highlight: **PMMA cnc machining plastic, ±0.1mm cnc machining plastic, Precision cnc machining acrylic**



## Product Description

### Top reasons to use CNC machining for plastic part production

CNC plastic machining refers to the process of using Computer Numerical Control (CNC) machines to shape and fabricate plastic components. It involves the precise removal of material from a plastic workpiece using cutting tools controlled by computer software.

Here are some key points about CNC plastic machining:

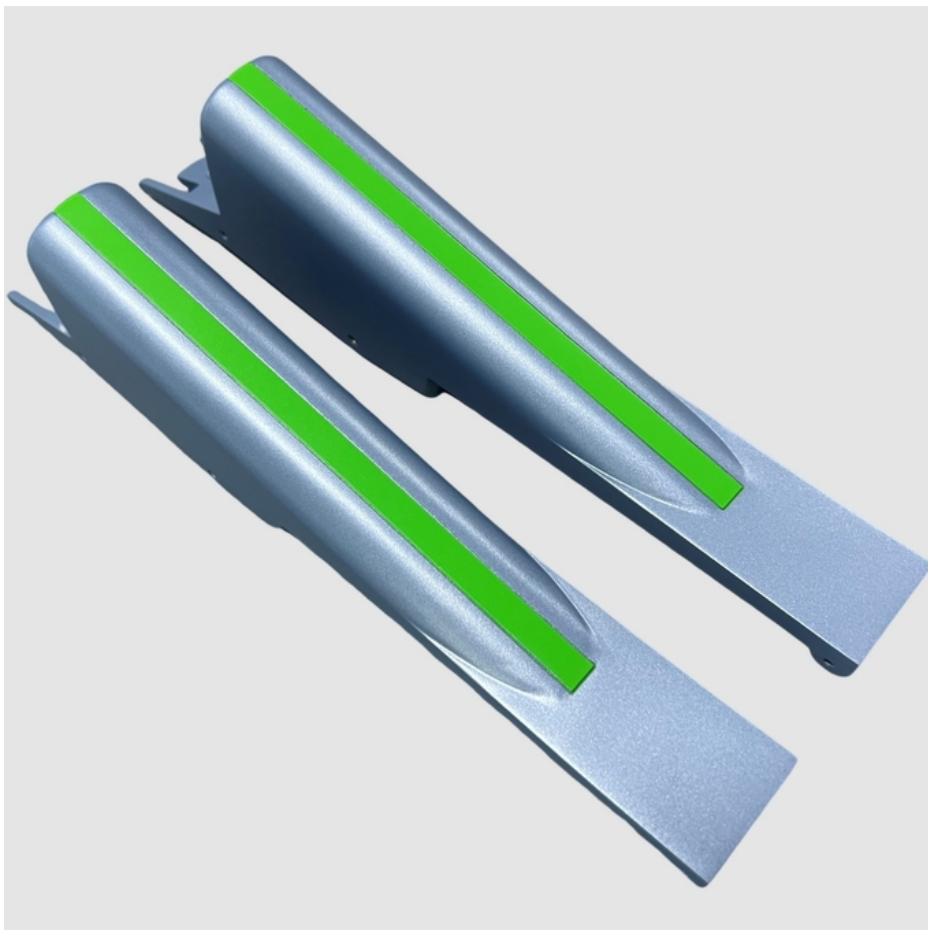
**CNC Machining Process:** CNC machining involves the use of computer-controlled machines, typically mills or lathes, to cut, drill, mill, and shape plastic materials. The CNC machine follows instructions from a computer program to execute precise movements and cutting paths.



**Plastic Material Compatibility:** CNC machining is compatible with a wide range of plastic materials, including but not limited to acrylic (PMMA), polycarbonate (PC), polyethylene (PE), polypropylene (PP), polyvinyl chloride (PVC), nylon, ABS, PEEK, and more. Each plastic material has its own properties and characteristics, such as hardness, heat resistance, and machinability, which need to be considered during the machining process.



**Design Considerations:** In preparing a plastic component for CNC machining, it is important to consider several design aspects. These encompass choosing suitable plastic materials, optimizing the part's geometry for machining, ensuring tool access and clearance, and reducing undercuts or complex features that could complicate the machining process.



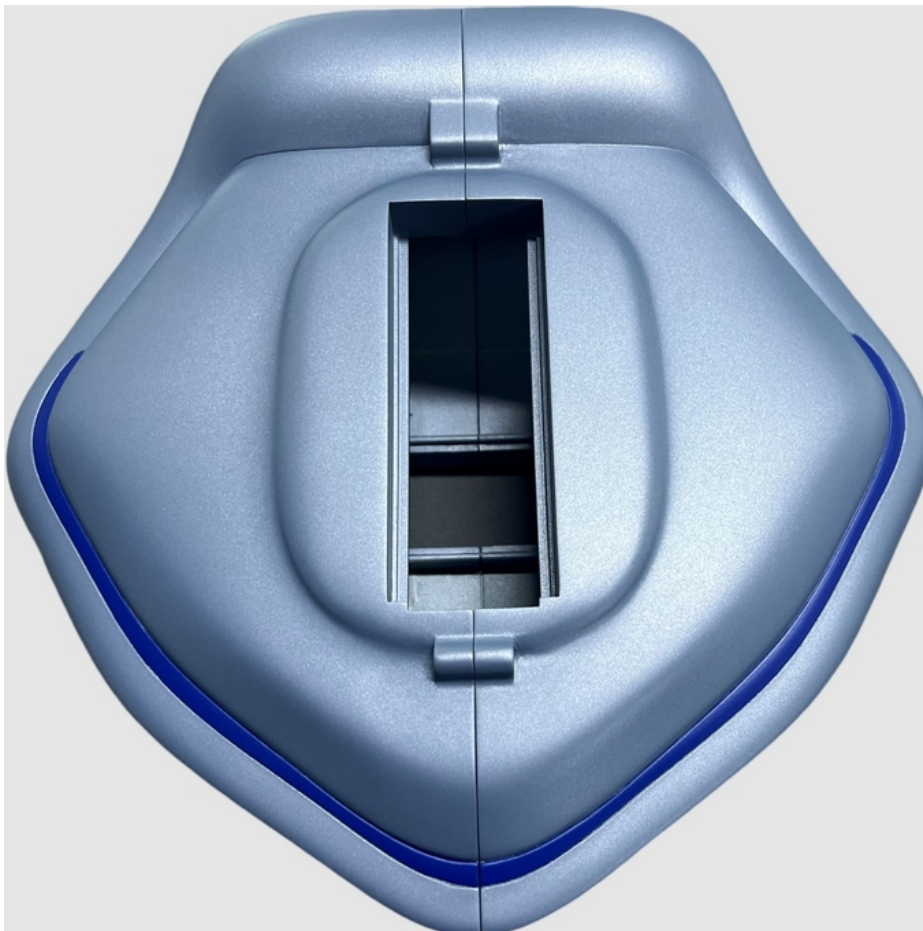
**Machining Operations:** CNC plastic machining encompasses a range of operations such as milling (3-axis, 4-axis, or 5-axis), drilling, turning, threading, and chamfering. These processes utilize specialized cutting tools like end mills, drills, taps, and

inserts to remove material from the plastic workpiece, shaping it as required.



**Finishing and Surface Treatments:** Following the machining process, further finishing procedures may be utilized to improve both the aesthetic and functional aspects of the plastic part. These procedures can encompass deburring, sanding, polishing, or the application of surface treatments such as painting, anodizing, or protective coatings.



**Applications:** CNC plastic machining is utilized across a diverse range of industries, such as automotive, aerospace, electronics, medical devices, consumer products, and others. It serves the purpose of creating precision-engineered plastic parts, prototypes, functional components, enclosures, housings, and bespoke plastic components with stringent tolerances.



CNC plastic machining offers a flexible and accurate approach to fabricating plastic components to specific requirements. The computerized aspect of this method ensures high precision, consistency, and the ability to create detailed features. This process is a highly efficient and reliable manufacturing technique for creating bespoke plastic parts with intricate shapes and stringent tolerances.

#### Materials for CNC Turning Parts

Our CNC turning services cater to a wide range of materials, including various machine-grade metals and plastics. Customized to meet your unique requirements, we offer precise rapid prototyping and low-volume manufacturing with an assortment of premium materials. Discover the common materials suitable for your CNC turning projects.

	<b>ALuminum</b>  Aluminum is an extremely ductile metal, which facilitates easy machining. It possesses an advantageous strength-to-weight ratio and comes in various forms suitable for numerous applications.		ALuminum
		Machinable Material Types	AL 6061, AL6063,AL6082,AL7075
		Lead Time	3 days
		Tolerances	±0.01mm
		Max part size	200 x 80 x 100 cm
	<b>Copper</b>  Copper displays excellent thermal conductivity, electrical conductivity and plasticity. It is also highly ductile, corrosion resistant and can be easily welded.		Copper
		Wall Thickness	0.75 mm
		Lead Time	3 days
		Tolerances	±0.01mm
		Max part size	200 x 80 x 100 cm
			Brass



	<b>Brass</b>  Brass has desirable properties for a number of applications. It is low friction, has excellent electrical conductivity and has a golden (brass) appearance.	Wall Thickness	0.75 mm
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		Tolerances	±0.01mm
		Max part size	200 x 80 x 100 cm
	<b>Stainless Steel</b>  Stainless steel is the low carbon steel that offers many properties that are sought after for industrial applications. Stainless steel typically contains a minimum of 10% chromium by weight.		Stainless Steel
		Wall Thickness	0.75 mm
		Lead Time	3 days
		Tolerances	±0.01mm
	<b>Titanium</b>  Titanium has a number of material properties that make it the ideal metal for demanding applications. These properties include excellent resistance to corrosion, chemicals and extreme temperatures. The metal also has an excellent strength-to-weight ratio.		Titanium
		Wall Thickness	0.75 mm
		Lead Time	3 days
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	<b>Plastics</b>  Plastics are also a very popular option for CNC machining because of its wide choices, relatively lower price, and significantly faster machining time needed. We provide all common plastics for CNC machining services.		Plastics
		Machinable Material Types	ABS,PC,PMMA,PTFE,PVDF,POM,PA
		Lead Time	3 days
		Tolerances	±0.01mm
	<b>Magnesium</b>  Magnesium is a silver-white metal with a density of 1.74 g/cm <sup>3</sup> . Its characteristics are small density, good ductility, high strength, large elastic modulus, good heat dissipation, good shock absorption, greater impact load capacity than aluminum alloy, and good corrosion resistance to organic substances and alkalis.		Magnesium
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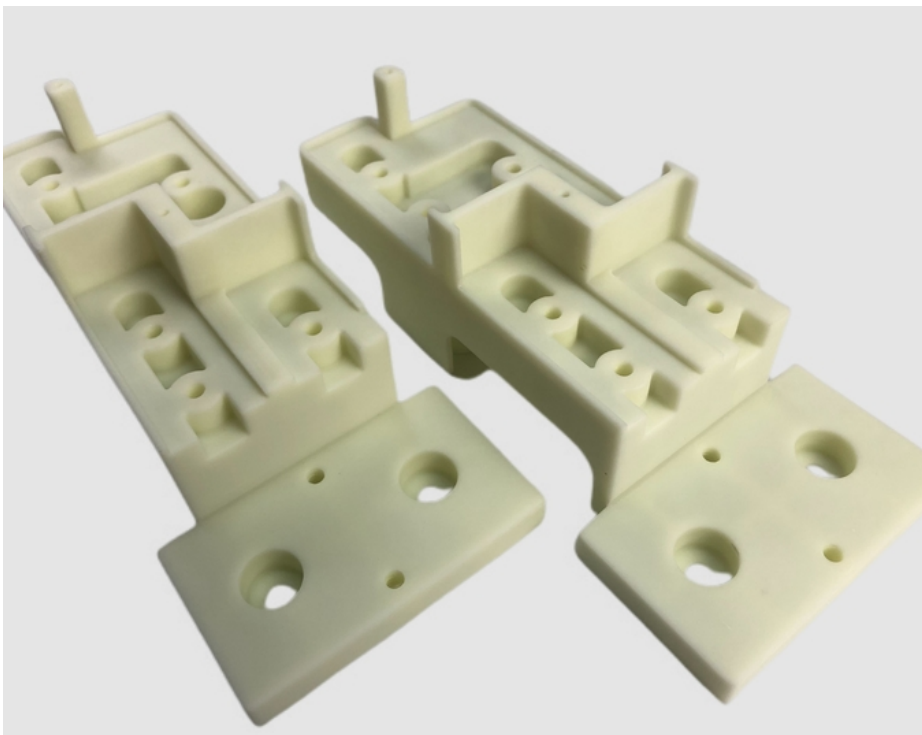
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**Design Considerations:** In preparing a plastic component for CNC machining, it's important to consider several design aspects. These include the selection of suitable plastic materials, the optimization of part geometry for efficient machining, the provision for tool access and clearance, and the reduction of undercuts or complex features that might complicate the machining process.

**Machining Operations:** CNC machining of plastic components can involve a variety of operations such as milling (3-axis, 4-axis, or 5-axis), drilling, turning, threading, chamfering, among others. These processes utilize specialized cutting tools like end mills, drills, taps, and inserts to remove material from the plastic workpiece and sculpt the intended shape.



**Finishing and Surface Treatments:** After the machining process, additional finishing operations may be employed to enhance the appearance and functionality of the plastic component. These can include deburring, sanding, polishing, or applying surface treatments like painting, anodizing, or applying a protective coating.

Applications: CNC plastic machining finds applications in various industries, including automotive, aerospace, electronics, medical devices, consumer goods, and more. It is used to produce precision plastic parts, prototypes, functional components, enclosures, housings, and custom plastic components with tight tolerances.



CNC plastic machining provides a versatile and precise method for shaping plastic materials into desired components. The computer-controlled nature of the process allows for high accuracy, repeatability, and intricate detailing. It is an efficient and effective manufacturing technique for producing custom plastic parts with complex geometries and tight tolerances.

**Common Plastic Materials for CNC Machining**

Plastic resins used for CNC milling and turning must be rigid enough to hold their shape while clamped. The following types of plastic resin have proven themselves over the years:

**ABS**  
Tough, impact-resistant, and resistant to chemicals and electrical current, ABS is commonly used in automotive components, power tools, toys, and sporting goods.

**Nylon**  
With greater tensile strength, Nylon is used for fabric, rope, and mechanical parts, often mixed with ABS resins for enhanced properties.




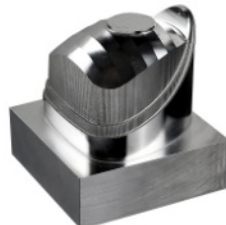

**PMMA Acrylic**  
Rigid and transparent, PMMA is used for clear optical parts, display screens, light pipes, lenses, enclosures, and food storage.


**PEEK**  
A high-strength and stable engineering plastic, PEEK is used for advanced medical, aerospace, and electronic components, known for its resistance to high temperatures.

**UHMWPE**  
Ultra high molecular weight polyethylene, known for its hardness, strength, chemical resistance, and slippery surface, is commonly used in joint replacements, marine environments, and gear trains.

Materials for Custom CNC Machining Parts		
A wide range of materials is available for CNC machines, offering versatility for rapid prototyping and custom production of intricate parts. We offer instant quotes for over 150 metals and plastics to meet your manufacturing requirements, allowing you to compare costs across various processed materials.		
		Aluminum



	<p>ALuminum</p> <p>Aluminum is a highly ductile metal, making it easy to machining. The material has a good strength-to-weight ratio and is available in many types for a range of applications.</p>	<table><tr><td colspan="2">Machinable Material Types</td></tr><tr><td colspan="2">AL6061-T6,AL6063-T6,AL6082 AL7075-T6,AL5052-H32</td></tr><tr><td>Lead Time</td><td>3 days</td></tr><tr><td>Tolerances</td><td>±0. 01mm</td></tr><tr><td>Max part size</td><td>200 x 80 x 100 cm</td></tr></table>	Machinable Material Types		AL6061-T6,AL6063-T6,AL6082 AL7075-T6,AL5052-H32		Lead Time	3 days	Tolerances	±0. 01mm	Max part size	200 x 80 x 100 cm
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	<b>Plastics</b>  Plastics are also a very popular option for CNC machining because of its wide choices, relatively lower price, and significantly faster machining time needed. We provide all common plastics for CNC machining services.	<b>Machinable Material Types</b>	Buff ABS, Black ABS, Clear ABS, 94V0 flame retarding ABS, ABS+PC, Black Polycarbonate, Transparent Polycarbonate, Acrylic, NYLON 6, NYLON 66, PA6+30%GF, HDPE, POM, PP, PP+20%GF, PE, TEFLON, PPS, PEEK, PPO, PPE, PEI
		<b>Lead Time</b>	3 days
		<b>Tolerances</b>	±0.01mm
		<b>Max part size</b>	200 x 80 x 100 cm

## 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

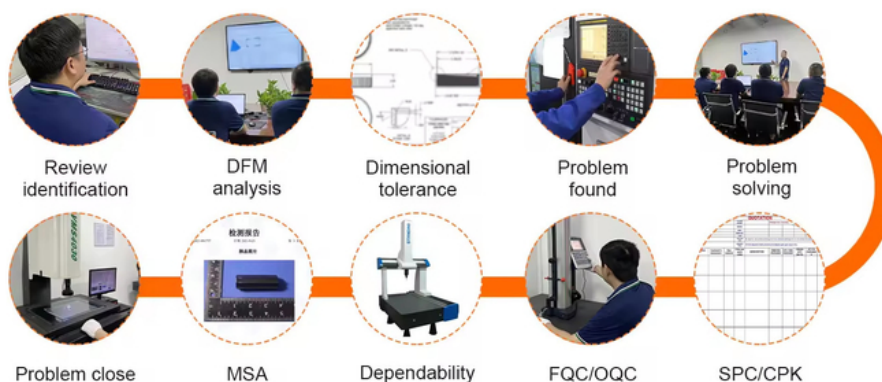
Contract reviews upon receipt of POs

First article and in-process inspections

Final inspections and testing with reports and certifications as required

Our First Article Inspection Process				
Upon receiving your order requirements, Barana Rapid will conduct a first article inspection service. In line with our company's policies, we offer this service to enhance the execution of your machining project when the order value meets or exceeds 3,000 US dollars, or the minimum order quantity is 300 pieces.				
	Step 1	Step 2	Step 3	Step 4
Barana Rapid	Offer first article inspection We offer first article inspection services for batch production.	Draft contract We review the project and contact customers for detailed information.	Produce sample We produce sample parts according to the FAI agreement and deliver them to you.	Full-scale production The full-scale production starts and finishes production within lead time.
Client	Request inspection You request first article inspection for a project that meets our FAI requirements.	Sign contract You sign the FAI agreement provided by us and agree on our Terms and Conditions.	Receive sample You receive and examine the parts, inform us of full-scale production may begin.	Receive products You receive your prototypes or production parts on the required lead time.

## Quality Inspection



## Packing



Bubble bag



Bubble bags



Cartons



Customized packing  
as custom request



Carton



Pallet carton



Wooden case



Shipping



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