



CNC Machining Service at XLproto

The good choice for prototyping & small batch trial production

ISO 9001:2015 | FAI Report | CMM Report

High Precise Part

Tolerance +/-0.02mm

Sufficient Capacity

CNC machines 50+

Reliable Quality

ISO 9001 2015

Flexible Timing

24 hours Operation

PRODUCTS

CNC Machining



3D Printing

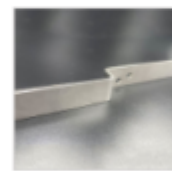


Sheet Metal Fabrication

Rapid tool



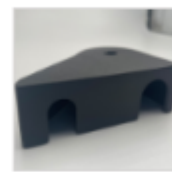
NEW PRODUCTS



Sheet metal
Aluminum Parts



CNC Milling Blue
Anodized Aluminum
Parts



Printing SLS Printed
PAParts

All new products

CNC milling is a machining method that uses tools to form workpieces on a generally movable desktop, although some milling machines also have movable tools. Milling was originally a manual operation performed by workers, but today, most milling is done by CNC milling machines that use computers to supervise the milling process. CNC milling can provide higher precision, accuracy and productivity, but in some cases, manual milling is still very useful. Manual milling requires a lot of technical skills and experience, thus shortening the turnaround time.



How CNC Milling Works?

Like most traditional mechanical CNC machining processes, the CNC milling process uses computer control to operate and manipulate the machine tool that cuts and shapes the blank. In addition, the process follows the same basic production stages as all CNC machining processes, including:

Design CAD model

Convert CAD model to CNC program

Setting up a CNC milling machine

Perform milling operations



Xlproto's 5axis, 4axis and 3axis

Most CNC milling machines can use 3 to 5 axes-usually along the XYZ axis and (if applicable) around the axis of rotation to provide performance. X axis and Y axis represent horizontal movement (movement left and right and back and forth on the plane, respectively), while Z axis represents vertical movement (up and down movement), and W represents horizontal movement. The axis represents the diagonal movement on the vertical plane. In a basic CNC milling machine, you can move horizontally on two axes (XY), while newer models allow additional motion axes, such as 3-axis, 4-axis and 5-axis CNC machine tools. Some characteristics of milling machines classified by the number of motion axes are summarized below.

3-axis

- Can meet most processing needs
- The machine is simple to set up.
- Only need a workstation
- Higher requirements for operator knowledge
- Low efficiency and quality

4 axis

- Better functions than 3-axis machine tools
- Higher precision and accuracy than three-axis machine tools
- Machine settings are more complicated than 3-axis machine tools
- More expensive than three-axis machine tools

5-axis

- Multiple axis configurations can be used (eg 4 + 1, 3 + 2 or 5)
- More powerful
- According to the configuration, it is more convenient to operate than three-axis and four-axis machine tools.
- Higher level of quality and precision
- Depending on the configuration, its running speed is slower than 3-axis and 4-axis machining
- More expensive than 3-axis and 4-axis machine tools

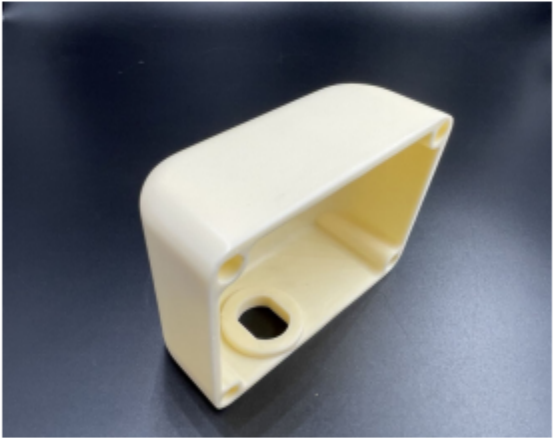
CNC Milling Capabilities

Our basic guidelines for CNC milling include important design considerations to help improve part manufacturability, enhance cosmetic appearance, and reduce overall production time.

Max Dimensions			
CNC Milling	Material	U3/in.	Metric/mm
3axis	Metals and Plastics(Acetal)	43.31in.*18.11in.*25.59in.	1100mm*460mm*650mm
4axis	Metals and Plastics(Acetal)	15.75in.*7.87in.*7.87in.	400mm*200mm*200mm
5axis	Metals and Plastics(Acetal)	11.81in.*11.81in.*3.94in.	300mm*300mm*100mm
Min Dimensions			
All	Metals and Plastics(Acetal)	0.25in.*0.25in.*0.04in.	6.35mm*6.35mm*1.02mm
Tolerance	+/-0.02mm		
Text	Minimum width of 0.018 in. (0.457mm), depth of 0.0118 in. (0.3mm).		

*（表格在最底部，此处用截图代替用于查看排版效果）

CNC Milling Material Options.



Plastics		Metals
ABS	PMMA	Aluminum
Acetal	PC	Brass
CPVC	PP	Copper
HDPE	POM	Stainless Steel
LDPE	PPSU	Steel Alloy
Nylon	PS	Mild Steel
PEEK	PSU	Titanium
PEI	PTFE	Magnesium
PET	PVC	

Obtain a [material properties comparison file](#) here for a better understanding of CNC plastic part material selection.

Post-Processing for CNC Milling Pasts

Typically, we break (debur) the edges on all machined parts. All machined plastic parts are left as-machined, which may leave visible tool marks. Some metal parts, on the other hand, allow more choice. Parts left with sharp edges should be handled with care.

Plastics

Polishing, Grinding, Painting, UV coating, Plating, Silk screening

Metals

Polishing, Grinding, Baking Painting, Anodizing, Plating, Laser Engraving,
Electrophoresis, Passivation



CNC Milling Video

VIDEO 视频

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