High-Precision and Scalable Production Aluminum CNC Parts with Superior Surface Finishes for OEMs in Various Industries

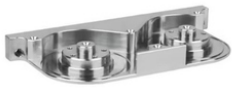
Our Product Introduction

Basic Information

- Place of Origin: Shenzhen China
- Brand Name: Xianheng
- Certification: ISO9001:2015
- Model Number: AL-CNC-087
- Minimum Order Quantity: 1 pcs
- Price: USD $0.1-$1.99
- Packaging Details: Carton, As Customers'packaging requirements
- Delivery Time: Samples 7-10 days, Mass production 20-25 days
- Payment Terms: T/T, Western Union, MoneyGram
- Supply Ability: 10000 pcs per week

Product Specification

- Cnc Machining Or Not: CNC Machining
- Type: Milling, Turning, Machining
- Material Capabilities: Copper, Aluminum, Bronze, Stainless Steel, Brass
- Surface Treatment: Anodizing, Brush, Anodized, Painting/Powder Coating/Sandblast/Color Anodize/Polish/Oxidation
- Application: Machinery, Automotive, Laptop, Industrial Equipment, Engineering
- Keyword: Aluminum Enclosure Box
- Tolerance: 0.01mm, 0.05 Mm, +/-0.005, 0.003-0.05mm
- Service: Customized OEM
- Sample: Acceptable



More Images

Our Product Introduction

for more products please visit us on cnc-metalmachining.com

Product Description

What We Can Provide

High-Precision and Scalable Production Aluminum CNC Parts with Superior Surface Finishes for OEMs in Various Industries

Description of High-Precision and Scalable Production Aluminum CNC Parts with Superior Surface Finishes for OEMs in Various Industries

For OEMs across aerospace, automotive, medical, and electronics, aluminum CNC parts with ultra-high precision, superior surface finishes, and scalable production are critical for achieving performance, reliability, and cost-efficiency. Leveraging advanced CNC machining technologies, these parts meet stringent requirements for tight tolerances, complex geometries, and aesthetic consistency, while enabling flexible batch sizes from prototyping to mass production.

Specification of High-Precision and Scalable Production Aluminum CNC Parts with Superior Surface Finishes for OEMs in Various Industries

CNC Capacity				
CNC Machining Center	3 / 4 / 5 axis CNC Machining Centers		40+ CNC Machines	
CNC Turning	φ0.5 - φ300 * 750 mm		DIN-2768-Fine +/-0.005 mm	
CNC Machining	1270×508×635 mm(max)		DIN-2768-Fine +/-0.005 mm	
CNC Stamping	1000 * 1000 mm(max)		DIN-2768-Fine +/-0.005 mm	
Drawing Format	IGS,STP,X_T ,DXF,DWG , Pro/E, PDF			
Inspection Equipments	Measurement Instrument, Projector, CMM, Altimeter, Micrometer, Thread Gages, Calipers, Pin Gauge etc.			
Material Available				
Stainless Steel	SS201,SS301, SS303, SS304, SS316, SS416, 17-4PH, etc.			
Steel	Mild steel, Carbon Steel, 4140, 4340, Q235, Q345B, 20#, 45# etc.			
Brass	HPb63, HPb62, HPb61, HPb59, H59, H68, H80, H90 etc.			
Copper	C11000,C12000,C12000 C36000 etc.			
Aluminum	AL6061, Al6063, AL6082, AL7075, AL5052, A380 etc.			
Iron	A36, 45#, 1213, 12L14, 1215 etc.			
Plastic	ABS, PC, PE, POM, Delrin, Nylon, Teflon, PP,PEI, Peek etc.			
Surface Finishing				
Aluminum Parts	**Stainless Steel Parts**	**Steel Parts**	**Copper /Brass**	**Plastic Parts**
Clear Anodized	Polishing	Zinc plating	Polishing	Painting
Color Anodized	Passivating	Oxide black	Passivation	Chrome plating
Sandblast Anodized	Sandblasting	Nickel plating	Galvanized	polishing
Chemical Film	Laser engraving	Chrome plating	Nickel Plating	Sandblast
Brushing		Carburized	Chrome plating	Laser engraving
Polishing		Heat treatment		
Chroming		Powder Coated		

Application Of Aluminum CNC Parts with Superior Surface Finishes and Scalable Production for OEMs with Advanced Machining Capabilities

1. Auto Components Hardware Parts Auto Parts
2. Communication Equipment
3. Industrial Equipment
4. Medical EquipmentsMechanical Parts
5. Ship Accessories
6. Electrical Equipment
7. Mechanical Equipment

Feature Of High-Precision and Scalable Production Aluminum CNC Parts with Superior Surface Finishes for OEMs in Various Industries

1. Good corrosion resistance
2. High strength and hardness
3. High thermal conductivity
4. Good finishing characteristics

Why Choose Us

Our advantages

1. Unmatched Precision and Surface Finish Quality
Tolerances as tight as ±0.001mm are achievable with 5-axis CNC milling and high-speed spindles, ensuring compatibility with mating components in aerospace and automotive applications.
Surface roughness (Ra) < 0.2μm is attainable through diamond-coated cutting tools and micro-milling techniques, eliminating the need for post-machining polishing in many cases.
Anodizing (hard or decorative), PVD coatings, and electroless nickel plating can be applied without distorting dimensions, enhancing corrosion resistance, hardness (up to 60 HRC), and wear resistance for medical implants or industrial tooling.
Case Study: A medical device OEM reduced surface defects by 90% by switching to CNC-machined aluminum housing with Ra 0.1μm finishes, eliminating rejection rates caused by manual polishing.
2. Scalable Production with Rapid Turnaround Times
Automated pallet changers and robotic loading enable 24/7 unmanned operation, reducing cycle times by 40–60% compared to traditional machining.
Flexible batch sizes from 1–100,000+ units are supported via program adjustments, eliminating costly hard tooling for low-volume runs.
Example: An automotive OEM cut lead times for aluminum engine blocks from 12 weeks to 3 weeks by adopting CNC machining with in-line inspection systems, achieving 99.5% first-pass yield.
Data-Driven Optimization: Real-time force feedback and AI-driven toolpath adjustments extend tool life by 200%, lowering per-part costs by 15–25% at scale.
3. Complex Geometries and Lightweighting Capabilities
5-axis CNC machining enables thin-walled structures (<0.3mm), internal cooling channels, and lattice frameworks impossible with casting or forging.
Material efficiency is maximized by optimized tool paths, reducing waste by 30–50% versus subtractive methods, critical for expensive aerospace-grade alloys like 7075-T6.
Industry Impact:
Aerospace: Aluminum CNC parts with integrated ribbing reduce aircraft weight by 20%, improving fuel efficiency.
Electronics: Heat sinks with micro-fin arrays (fin pitch <0.5mm) enhance thermal dissipation by 40% for high-power semiconductors.
4. Cost-Effective Customization and Rapid Iteration
Digital workflows (CAD/CAM integration) allow on-the-fly design modifications without retooling, accelerating product development cycles by 50–70%.
Economies of Scale: While unit costs for low-volume CNC parts are higher than injection molding, they decrease linearly with volume, making it viable for mid-batch production (1,000–50,000 units).
Example: A consumer electronics OEM reduced R&D costs by $500,000 by using CNC machining for aluminum prototype enclosures, avoiding mold rework and enabling 10+ design iterations in 4 weeks.

Factory Show

Factory Equipment


WEDM


Milling Machine


CNC Wire Cut

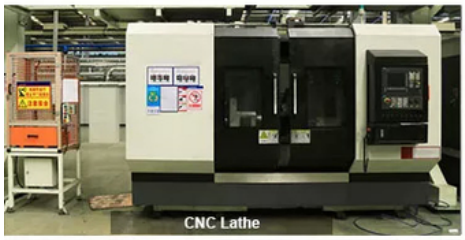

Coordinate measuring machine


CNC Bending Machine


Hydraulic Press Machine


SLS/SLA Machine


5-Axis CNC


CNC Lathe


Laser cutting Machine


CNC Punching Machine


Injection Molding machine

FAQ

Q: How can I customize my products ?
A: Please describe your project. Include the following information so that we can provide an accurate quote: Part Name, 3D CAD Drawing, Quantity, Material, Color, Finishing.

Q: How can I know my products going on ?
A: We will offer a detailed production schedule and send weekly reports with digital pictures and videos which show the production process.

Q: Can You sign a confidentiality greement ?
A: We can sign a confidentiality agreement according to your needs.

Q: What is your terms of payment ?
A: 30% in advance ,70% balance before shipment. Other terms negotiable.

Q: Are you a trading company or factory?
A: We are direct factory with 20 experienced engineers and more than 80 employees as well approximate 3,000 square meters workshop area.

Q: What shall we do if we do not have drawings?
A: Please send your sample to our factory,then we can copy or provide you better solutions. Please send us pictures or drafts with dimensions(Length, Height, Width), CAD or 3D file will be made for you if placed order.

Shenzhen Xianheng Technology Co.,Ltd

0086-13682614486 shawn@xianheng-tech.com cnc-metalmachining.com

Room 8-1409, Xingji jiayuan building 8-9#, HongXing community, Songgang street, Bao'an District, Shenzhen City China