

Metal Forging

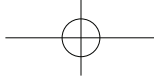
Why Forging?

Forging is the process by which metal is heated and shaped by elastic deformation under tightly controlled force and temperature conditions. With Forging, parts can be designed to meet the specific application demands and maximize the critical performance which is unattainable by other forming methods.

Forging Advantages:

- **Metallurgical grain refine** - Maximum impact strength, superior fatigue resistance, and improved mechanical properties
- **Structural strength** – Unmatched structural integrity, which eliminates internal porosity, voids, inclusions and other defects that may cause field failures.
- **Design integrity** – Enabling one stronger part with complex shape to be designed to reduce number of components compared to weldments and fabrications
- **High strength-to-weight ratio** - Thinner cross-sections, making for lighter weight and less mass
- **Cost reduction** – Net-shape design with less metal thickness, minimizes the material usage and reduces secondary machining processes.

Process	Aluminum Forging		Steel Forging	
	Open Die forging for large size parts Precision forging medium and small size parts		Open Die forging for large size parts Precision forging medium and small size parts	
Main Devices	<ul style="list-style-type: none"> ● Pneumatic hammer Forging Press ● Hydraulic Hammer Forging Presses ● Ring Rolling Forging Machines 	<ul style="list-style-type: none"> ● Hydraulic Presses 630T, 500T, 450T, 300T ● Friction Screw Presses 1000T, 800T, 630T, 500T ● Induction Furnaces 	<ul style="list-style-type: none"> ● Pneumatic hammer Forging Press ● Hydraulic Hammer Forging Presses ● Ring Rolling Forging Machines 	<ul style="list-style-type: none"> ● Production lines with Friction Presses tonnage rating 1600T, 1000T, 630T, 400T, 300T ● Induction Furnaces
Weight Range	5kg to 200 kg	10g to 5kg	20kg to 2000kg	100g to 15kg
Typical Surface Finish	100 ~ 250 RMS	32 ~ 63 RMS	100 ~ 250 RMS	32 ~ 63 RMS
Typical Applied Alloy Variety	<ul style="list-style-type: none"> ● Al-Mg-Si Alloys 6061, 6063 ● Al-Mg Alloys 5083, 5086, 5383, 5456 ● Al-Si Alloys 4032 ● Al-Mn Alloy 3003 ● Al-Cu Alloys 2014, 2024, 2219, 2618 ● Pure Al Alloys 1100 	<ul style="list-style-type: none"> ● Al-Mg-Si Alloys 6061, 6063 ● Al-Mg Alloys 5052, 5083, 5086, 5383, 5456 ● Al-Cu Alloys 2014, 2024, 2219, 2618 ● Pure Al Alloys 1100 	<ul style="list-style-type: none"> ● Carbon Steel ● Alloy Steel ● Stainless Steel 	<ul style="list-style-type: none"> ● Carbon Steel ● Alloy Steel ● Stainless Steel
Typical Secondary Processes and Finishes	<ul style="list-style-type: none"> ● Heat Treatment (T6 Quenching & Aging) ● Finishes: anodizing, e-coating, powder coating, painting 	<ul style="list-style-type: none"> ● Heat Treatment (T6 Quenching & Aging) ● Finishes: sand blasting, anodizing, e-coating, satin finish, polishing, powder coating, painting 	<ul style="list-style-type: none"> ● Heat Treatment (Quenching, annealing, carburizing and tempering) ● Surface finishes: Tumbling, e-plating, polishing, passivation, power coating, painting 	<ul style="list-style-type: none"> ● Heat Treatment (Quenching, annealing, carburizing and tempering) ● Surface finishes: Tumbling, e-plating, polishing, passivation, power coating, painting
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Surface Finish	100 ~ 250 RMS	32 ~ 63 RMS	100 ~ 250 RMS	32 ~ 63 RMS
Application Reference	Forged rings and hubs for marine	Forged wheel and door hinge for car	Forged rings and flanges for pressure vessels	Forged cranks and cams for car



CNBSolutions can provide cold forging and hot forging solutions for our global customers from numerous industries, including:

- Aerospace
- Automobile and Motorcycle
- Food and Chemical
- Mining Machinery
- Marine
- Power Generation
- Construction
- Semiconductor

Open Die Al Forgings	Open Die Steel Forgings
 <p data-bbox="467 1261 688 1310">Large Size Al Forgings (OD1215mm)</p>	 <p data-bbox="1094 1261 1315 1310">Large Size Steel Forgings (OD1566mm)</p>
Close Die Forgings	Close Die Steel Forgings
 <p data-bbox="444 2109 664 2133">Medium Size Al Forgings</p>	 <p data-bbox="1076 2109 1340 2133">Medium Size Steel Forgings</p>

