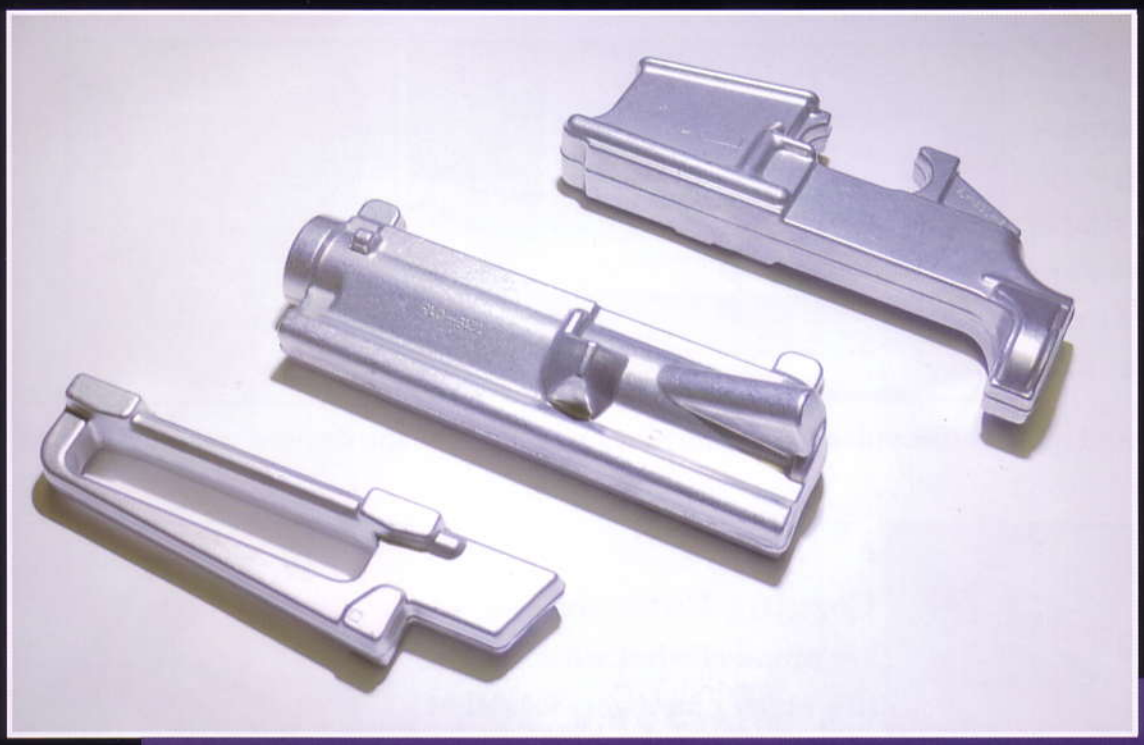
Brass Aluminum Forging Enterprises

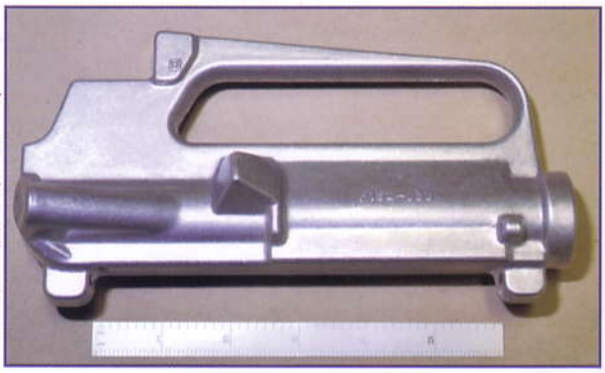


1351 Jarvis
Ferndale, Michigan 48220
Phone: (248) 542-9258 Fax: (248) 541-1780

Website: www.baforging.com Email: service@baforging.com

BA FE Brass Aluminum Forging Enterprises, L.L.C.
Phone: (248) 542-9258
Fax: (284) 541-1780

Brass Aluminum Forging Enterprises specializes in the production of brass, copper and aluminum forgings and has gained considerable experience in several diversified fields. Supplying a quality forging, is never due to chance. In manufacturing valve bodies, weapon components, air/hydraulic fittings, or even an architectural details, the requirements are different, yet with a common goal; to supply a product with the best ratio between the highest quality and a competitive price.



Co-operation with the customer – our partner in business – on a new project, helps to simplify what may have seemed impossible at first. Communication between sales, engineering, production and quality, provides vital information to achieve the desired outcome for the project.

At **Brass Aluminum Forging Enterprises,** we are proud of what we do and of the many improvements that have been implemented to better serve our customers.

Website: www.baforging.com Email: service@baforging.com

BA FE Brass Aluminum Forging Enterprises, L.L.C.
Phone: (248) 542-9258
Fax: (284) 541-1780

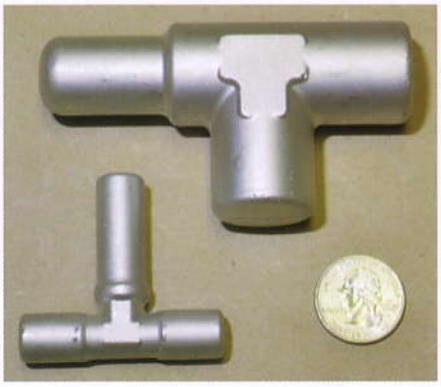
Brass Aluminum Forging Enterprises LLC has been providing its customers with quality products and services since 1934. From prototype parts to high production runs, the professionals at Brass Aluminum Forging can help meet your goals ... on time and within budget, with closed die forgings.

Our Mission ...

- To provide total customer satisfaction through price, delivery, service and quality.
- To continue to improve.
- To supply defect free products.

Major Markets Served

Appliance Parts
Automotive Parts
Decorative Hardware
Electrical Contacts
Military Components
Fire Extinguisher Valves
Gas and Liquid Valves
Marine Parts
Spray Paint Equipment
Welding Clamps
Medical Leg Braces
Pistons
Bicycle and Motorcycle Parts



Materials Forged

Aluminum - Series
2000, 4000, 6000 and 7000
Copper
Bronze
Naval Brass
Brass Alloys
Non Ferrous Materials

Specialty Services

Heat Treating/Hardening
Shot Peening/Blasting
Machining
Assembly
Anodizing
Tool & Die Making
Engineering Services

Customer Service

Brass Aluminum Forging Enterprises is driven to maintain a global reputation for providing quality brass, aluminum, and copper forgings. Our team has a proven record of dedication to customer service and on-time delivery, while providing creative solutions across a broad range of industries and products.

1351 Jarvis
Ferndale, Michigan 48220
Phone: (248) 542-9258 Fax: (248) 541-1780

Website: www.baforging.com Email: service@baforging.com

BA FE Brass Aluminum Forging Enterprises, L.L.C.
Phone: (248) 542-9258
Fax: (284) 541-1780

What Is Forging?

Forging is the shaping of hot metal completely within the walls or cavities of two dies that come together to enclose the work piece on all sides. The impression for the forging can be entirely in either die or divided between the top and bottom dies. Impression-die forging, often used interchangeably with the term closed-die forging, refers to a closed-die operation in which the dies contain a provision for controlling the flow of excess material, or flash, that is generated.

Forging Advantages vs. Other Processes

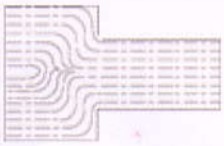
Forging vs.	*Advantages of Forging When Using A Similar Alloy*
Casting	❑ Stronger sections ❑ Pre-working refines internal defects ❑ More reliable, lower cost over life of component ❑ Better response to post-process heat treatment ❑ Adaptable to changes in customer demand
Welding/Fabricating	❑ Material savings, production economies ❑ Stronger ❑ Cost-effective design and inspection methods ❑ More consistent and better metallurgical properties ❑ Simplified production processes
Machining	❑ Broader size range of desired material grades ❑ Grain flow provides higher strength ❑ More economical use of material ❑ Yields lower process scrap ❑ Requires fewer secondary operations
Powdered Metal	❑ Stronger ❑ Higher integrity throughout component ❑ Requires fewer secondary operations ❑ Greater design flexibility ❑ Less costly materials

Directional Strength is a direct result of the forging process. In the forging process, controlled deformation results in greater metallurgical soundness and improved mechanical properties of the material. In most cases, forging stock has been pre-worked to remove porosity resulting from the solidification process. This produces directional alignment, or "grain flow", for important directional properties in strength, ductility, and resistance to impact and fatigue. These properties can be deliberately oriented in directions requiring maximum strength.

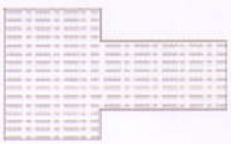
Grain Flow is defined as fiber-like lines appearing on the polished and etched sections of material that are caused by orientation of the constituents of the metal in the direction of working during forming. Grain flow produced by proper die design can improve the mechanical properties of forgings.

Grain Flow Comparison of Different Processes

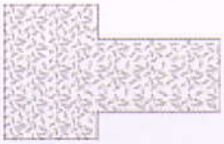
Forged Bar:
Directional alignment through the forging process has been deliberately oriented in a direction requiring maximum strength. This also yields ductility and resistance to impact and fatigue.



Machined Bar:
Unidirectional grain flow has been cut when changing contour, exposing grain ends. This renders the material more liable to fatigue and more sensitive to stress corrosion cracking.



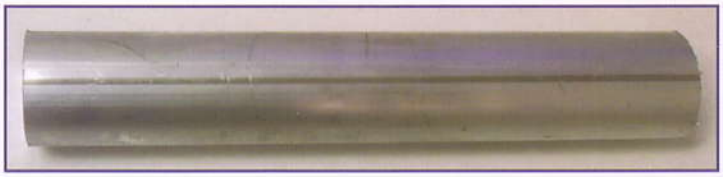
Cast Bar:
No grain flow or directional strength is achieved through the casting process.



BA FE Brass Aluminum Forging Enterprises, L.L.C.
Phone: (248) 542-9258
Fax: (284) 541-1780

Why use a forging?

Forging allows you to reduce your machining time and improve your part quality. By providing you with a shape that significantly reduces, or potentially, eliminates machining, your costs can be drastically reduced over other methods.



A. Billet Aluminum or Bar Stock

B. Forged Aluminum Motorcycle Triple Clamp

Wouldn't you rather machine the forging in picture B. to get to the final product shown in picture C.?

C. Finish Forged and Machined Motorcycle Triple Clamp

By using the forging (B.) rather than the billet (A.), you can drastically reduce your machining time and drive down your product costs.

Website: www.baforging.com Email: service@baforging.com

BA FE Brass Aluminum Forging Enterprises, L.L.C.

Phone: (248) 542-9258
Fax: (284) 541-1780

- ⇨ In House Engineering
- ⇨ Competitive Pricing
- ⇨ Short Lead Times
- ⇨ Machined Forgings
- ⇨ Brass, Aluminum & Copper Forgings
- ⇨ On Time Delivery
- ⇨ Quick Turn Around on Products Forged to Customer's Blue Print Specifications
- ⇨ Technical Support
- ⇨ Prototype or High Production Runs
- ⇨ First Class Customer Service
- ⇨ Quality Parts – ISO 9001-2008 Certified

Website: www.baforging.com Email: service@baforging.com