



ALUMINUM CASTINGS

Custom Castings

Custom requirements can be quoted from a sketch or drawing. A faxed transmittal is sufficient most of the time. The quote will include a turn key project from creation of master patterns, fabrication of tooling, to manufacturing of the final casting. Alloy Casting can quote on finishing, but history has shown that finishing closer to actual installation provides more control to the designer.

Custom projects typically take from 5-16 weeks with overall time a function of the time necessary to create the master pattern.

Basic Use: Aluminum castings can be used for architectural, ornamental, decorative and furniture applications. New custom castings can be easily created. The castings can be used in:

- Handrails
- Fences
- Gates
- Stairways
- Drapery rod enhancements
- Furniture legs/backseats
- Furniture ornaments
- Tree grates
- Plaques
- Awards
- Tables/benches/chairs
- Window enhancements
- Wall Sculptures

And it can consist of aluminum castings made as:

- Logos
- Ballisters
- Finials
- Rosettes
- Wall decorations
- Flanges
- Ballister collars
- Spear tops
- Picket castings
- Panel castings
- Furniture parts

Customization of Aluminum castings can occur in many ways. One way is to design a new casting for a common application. This could be: a new fence panel design, a new spear point, a new bench end, or a bas-relief sculpted plaque.

An alternative way of customizing is to cast a three dimensional logo onto existing designs.

A third method of customizing is to combine the two previous methods and add a unique logo to a newly created bench end, table, trash can holder, or other items. This method is commonly used and greatly enhances the common theme of a project.

Composition and Material:

Aluminum Castings are made by the green sand mold method. Castings are cleaned by sand blasting and parting lines are then cleaned and deburred.

Aluminum Grades: Aluminum Association alloys 319, 356, and 514 are available on a certified basis. Other alloys can be cast upon request. A standard blended alloy is available for non-critical, non-certified applications.

Sizes: Castings range from 1"x 1"x 1" (0.1 lb.) to 48"x48"x2" (350 lbs.). Cores are used for horizontal holes and tight fit applications.

Finishes: The surface has an "as cast" texture. The surface can be sanded, ground, and polished with different grits and wire sizes. Castings are readily painted and coated via:

- Fluoropolymers
- Powder coats
- Paints
- Antiquing
- Electroplating

Limitations: Caution should be used in coastal applications where salt spray can cause electrolysis between dissimilar metals. Aluminum

castings also provide poor anodizing characteristics.

Physical and Chemical Properties: Aluminum Association Chemical specifications certified as needed for specific applications. See Table 1.

Welding/Fabrication: Aluminum castings can be welded to other forms of aluminum (i.e., tubing, plate, sheet), but cannot be welded directly to steel. To overcome this limitation a steel tab or stub can be cast into the aluminum. That insert can then be welded to steel.

In addition to welding aluminum to aluminum, or steel inserts to steel, the castings can easily be drilled and threaded for bolt type attachments. Aluminum is easily sawed with a band saw and is easily machined.

Packaging and Shipping: Fiberboard drums and boxes from 100 lbs. to 300 lbs. Pallet boxes of 40"x48"x26" strapped to pallets for shipments of 800-1200 lbs. Shipping is via UPS and common carrier.

Maintenance: Surface Maintenance requirements are determined by the coating manufacturer. Aluminum will not rust and with a coherent contact coating it will not corrode, even in a sea coast environment.

Technical Services:

A metallurgical engineer is on staff to answer any questions. Matchplate tooling is fabricated in-house. Local subcontractors have been educated to provide the proper drafts and dimensions for original wood carvings and master patterns.

TABLE 1
SAND CASTING-AS CAST STRUCTURE
(F-TEMPER)

		ALUMINUM ALLOY		
		319	356	514
Tensile Strength (1000 PSI)		23.0	19.0	22.0
Yield Strength (1000 PSI)		13.0	-	9.0
Major Alloying Elements Nominal %	Silicon	6.0	7.0	--
	Copper	3.5	0.3	--
	Magnesium	--	--	4.0
Characteristics (1 is Better)				
Corrosion Resistance		3	2	1
Machinability		3	3	1
Polishing		4	4	1
Weldability		2	1	3
Cost		1	2	4

Other alloys are available upon request.
Information source: Aluminum Association Standards 11th edition, 1989