

# THE LIFE CYCLE OF ALUMINUM EXTRUSIONS

## History of aluminum

Aluminum is the most abundant mineral in the earth's crust. Although it was first isolated in 1808 A.D., it was not until 1886 that an economical method of producing aluminum for commercial purposes was discovered. Many years of work by the inventors - Charles Martin Hall in the US, and Paul Heroult in France - working independently and completely unaware of the other's work, each discovered the basic process by which aluminum is still produced today.

Before their discovery, aluminum had been produced in very small quantities at great cost. A French King was an avid collector of aluminum. He had the "Siam" element as he called it, and he had it made in France - working independently and completely unaware of the other's work, each discovered the basic process by which aluminum is still produced today.

## Aluminum is...

Aluminum is the lightweight, light strength metal of choice for thousands of products. This recyclable, non-toxic metal is found in a variety of alloys and chemical forms that give it the strength and corrosion resistance of steel. Other metals may be mixed with the aluminum to produce special alloys required for some applications. It is also cast into ingot, log or billet form.

Recycled aluminum is melted and cast into ingots, ready for use again. Up to 95% of the recycled metal is used, and the remaining 5% is used to produce new aluminum. The recycling process is a closed loop, and the aluminum produced is as strong as the original. Recycled aluminum is used in a wide variety of products, and it is one of the most recycled materials in the world.

## The extrusion process

Extruding aluminum is the most innovative forming process for the materials world, allowing designers almost unlimited creativity and imagination to specify profiles to meet their exact, specialized needs.

The process begins with creation of a mold die which precisely matches the profile of the shape required by the designer. Aluminum ingots or large preformed extrusion ingots are heated and forced under great pressure through the die. The process is quite similar to squeezing toothpaste from a tube. The variety of shapes is virtually endless, and profiles are produced in exact quantities, with very close tolerances.

Once the profile is extruded, it can be further fabricated - cut to length, machined, drilled, punched, stretched, bent and assembled into a complete product. An extruded tube can even be "finished" to produce a variety of exact diameters and outside dimensions. Profiles can be painted, anodized, brushed or polished, depending upon the desired finish.

## Advantages of Extruded Aluminum

- Lightweight
- Stable
- Corrosion resistant
- Recyclable
- High strength
- Wide variety of finishes
- Wide variety of shapes
- Wide variety of sizes
- Wide variety of colors
- Wide variety of textures
- Wide variety of finishes
- Wide variety of textures

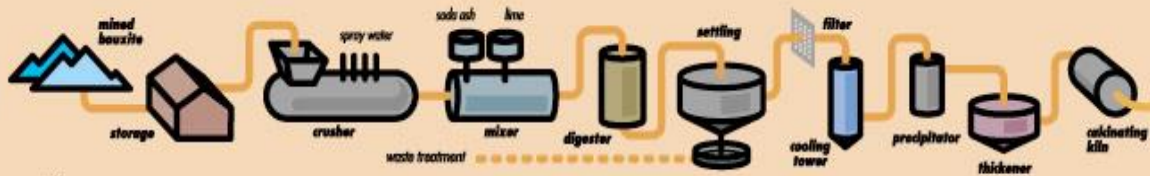
## Familiar Uses of Aluminum Profiles

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ALUMINUM EXTRUSIONS COUNCIL  
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## REFINING



## SMELTING ALLOYING



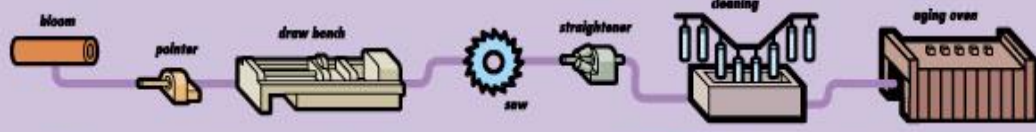
## DESIGN



## EXTRUSION



## EXTRUDED TO DRAWN TUBE



## FABRICATION



## FINISHING



## RECYCLING

aluminum extrusions' life never ends!

## ALUMINA

## INGOT

## LOG/BILLET

## EXTRUSION PROCESS

HIGH HEAT PRESSURE PROFILE

## PRODUCTS



## SHIPPING

## END-USER

