



Tri-City Extrusion



Aluminum Grades & Properties

An aluminum extrusion alloy is simply a mixed metal, made from a predetermined mixture of one or more elements together with aluminum. Some of the common elements alloyed with aluminum include copper, magnesium, manganese, chromium, silicon, iron, nickel, and zinc. These alloying elements are usually added to aluminum in amounts ranging from 0.05 to 7.0 percent. Product performance is determined in part by the alloy composition and in part by the method of production. The production method, in turn, strongly influences the final temper of the alloy, which is obtained through various types of mechanical and thermal treatments. Structural and certain physical properties are influenced significantly by the choice of alloy and temper.

Alloying aluminum with elements such as manganese, magnesium, copper, silicon, and/or zinc, produces a variety of desirable characteristics, including corrosion-resistance, increased strength, or improved formability. The proper balance of alloying material depends on the intended application of the finished piece.

Various properties may make certain alloys particularly desirable:

- Very light weight (one-third the density of steel and concrete)
- High strength (comparable to steel and steel/concrete composites)
- Excellent low-temperature performance (strength and ductility as high or higher at sub-zero temperatures as at room temperature)
- Exceptional corrosion resistance (aluminum won't rust like common steel)
- Ease of fabrication by many techniques, (readily assumes unique structural configurations, has excellent weld ability, good machinability)

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