

1070 Aluminum Alloy Sheet

A member of the 1000 series of aluminum sheets, the 1070 aluminum alloy sheet has moderate strength but great plasticity, anti-corrosion, electrical conductivity, and strong thermal conductivity. And without heat treatment, the machinability is poor. It is suitable for gas welding.

A brief introduction to 1070 aluminum alloy

Aluminum element, which typically makes up more than 99.7% of the alloy, is the primary component of 1070 aluminum. Aluminum is an inexpensive, lightweight, corrosion-resistant metal with excellent electrical and thermal conductivity as well as great ductility.

Electronics, electrical, construction, and aerospace are among the many industries that employ 1070 aluminum alloy. Examples include wire cores, protective netting for cables and wires, pieces for aircraft ventilation systems, and ornamental components.

EN AW-1070 is the European standard.

The UNS code is A91070.

Al99.7 is the EN chemical name.

The pure aluminum alloy 1070 is a member of the 1000 series. The alloy has a more than 99% aluminum composition and is identical to 1050, 1060, and 1100 aluminum alloys.

1070 aluminum alloy chemical composition

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Ni	Other	AL
1070	0.20	0.25	0.03	0.03	0.03	—	0.07	0.03	—	0.03	99.70

The 1070 aluminum alloy has a trace quantity of impurity elements in addition to aluminum. Iron, silicon, manganese, and copper are the most common of these impurity elements.

The most significant impurity element is iron, which typically makes up less than 0.25%. Iron can increase the material's resistance to corrosion, but it will decrease the aluminum alloys' strength and fluidity.

Typically, silicon makes up less than 0.20% of the total. Aluminum alloys can become stronger and harder when silicon is included.

Manganese often makes up less than 0.03% of the composition. Manganese can increase an aluminum alloy's resistance to corrosion.

Typically, the copper concentration is below 0.04%. Copper can increase the aluminum alloys' strength and malleability.

Along with the primary elements listed above, trace quantities of other elements like magnesium, zinc, titanium, chromium, etc., may also be present in 1070 aluminum alloy. These components have extremely little content—typically less than 0.03%—and have minimal effect on the material's performance.

Specifications of 1070 aluminum alloy

Alloy	1070 aluminum sheet
Temper	F, O, H14, H16, H18, H19, H22, H24, H26, H28, H111, H112, H114, etc.
Thickness (mm)	0.1-500
Width (mm)	20-2650
Length (mm)	500-16000
Typical application	Radiators, charging piles, anti-corrosion insulation, protective nets for wires and cables, aluminum busbars, electronic products, oxidized materials, etc.

1070 aluminum plate mechanical properties

≥ 55 is the tensile strength σ_b (MPa).

Strength of conditional yield $\sigma_{0.2}$ (MPa): ≥ 15

Note: Room temperature longitudinal mechanical characteristics of rods

Rod diameter (square, hexagonal, or inscribed circular) ≤ 150 is the sample size.

Temper: Extruded rods of aluminum and aluminum alloy (≤ 150 mm, H112 status)

1070 hot-rolled aluminum plate heat treatment process

1. Complete annealing involves heating to 390–430°C, holding for 30–120 minutes, then cooling in a furnace at a rate of 30–50°C per hour to 300°C before air cooling.
2. Rapid annealing: heating to 350–370°C, holding for 30–120 minutes, then chilling with either air or water, depending on the material's effective thickness
3. Quenching and aging: natural aging at ambient temperature for 120 hours; artificial aging at 95–105°C for 3 hours; and quenching at 500–510°C with air cooling

Mechanical properties of 1070 aluminum alloy at different temper

Alloy	Temper	Thickness (mm)	tensile strength (Mpa)		Elongation (%)
			National standard	Internal control	
1070	O	>0.2-0.3	55-95	55-95	≥ 15
		>0.3-0.5			≥ 20
		>0.5-0.8			≥ 25
		>0.8-1.3			≥ 30
		>1.3-4.5			≥ 35
	H22	>0.2-0.5	10-100	100-125	≥ 12
		>0.5-1.0			≥ 15
		>1.0-4.5			≥ 18
	H24	>0.2-0.5	85-120	120-150	≥ 6
		>0.5-1.0			≥ 8
		>1.0-4.5			≥ 10
	H26	>0.2-0.5	110-155	140-170	≥ 2
		>0.5-1.0			≥ 4
		>1.0-4.5			≥ 6
	H18	>0.2-0.5	≥ 120	≥ 170	≥ 2
		>0.5-1.0			≥ 3
		>1.0-5.5			≥ 4

1070 aluminum alloy performance advantages

1. 1070 aluminum plate has excellent electrical and thermal conductivity;
2. It is industrially pure aluminum with low density, good plasticity, and resistance to corrosion;
3. Capable of spot welding, gas welding, and argon arc welding.
4. The oxide coating on the aluminum surface is more continuous and resistant to corrosion when there are fewer impurities present.
5. Resistant to corrosion, suitable for gas and contact welding.
6. Heat treatment cannot make it stronger. Cold deformation can be used to increase the

strength. Annealing is the only type of heat treatment.

7. High recycling value, cheap cost, and a long service life.

1070 aluminum plate packaging and delivery

1. To guarantee that the metal plate's surface is undamaged and free of scratches, clamp paper or film onto it;
2. To keep the aluminum plates clean and clear of dirt throughout transit, plastic or kraft paper packaging is utilized to keep out moisture and rain (each box contains a moisture-proof desiccant to maintain the product quality of our products in East and South China, where there is more rain);
3. To prevent accidents during transit and guarantee that the aluminum plate's geometric shape doesn't alter, install hardwood pallets and strengthen them with steel strips;
4. Wooden boxes and pallets with fumigation markings are used to package export goods;
5. Packaging in accordance with additional client packaging specifications;

1070 aluminum alloy applications

Because of its many applications, 1070 aluminum is used in a wide range of industries. Common applications include automotive components like bumpers and wheels, aircraft components like fuselage frames, marine components like boat hulls, industrial fasteners like bolts, food containers, medical equipment, sporting goods, and more!

Car parts

Because of its excellent strength-to-weight ratio, affordability, and resistance to corrosion, 1070 aluminum is frequently used for automobile components. It is capable of producing crankshafts, connecting rods, pistons, cylinder heads, engine blocks, and other components that need to be strong and long-lasting. Additionally, aluminum 1070 is frequently utilized in the production of wheels because of its lightweight nature.

Building applications

In construction, alloy 1070 is also frequently utilized for roof panels, curtain walls, door frames, and window frames. Its corrosion resistance guarantees that it will survive for many years without maintenance or repairs, and its small weight makes it simple to install and move. Furthermore, AL1070's superior thermal insulation qualities aid in keeping buildings cool during hot weather.

Electrical components

1070 aluminum is frequently utilized in the production of electrical components like switches and circuit breakers because of its exceptional electrical conductivity. Due to its low cost, the metal is frequently used for huge projects that need hundreds or thousands of components, such transmission towers and power lines. UNS A91070 can also be utilized to construct solar cells for photovoltaic systems because to its effective light absorption capabilities.

Food processing equipment

Because of its non-toxic qualities and resistance to corrosion from acids like vinegar or lemon juice, alloy AL 1070 is frequently used in the production of food processing equipment including cookware and conveyor belts. The metal is portable and lightweight, making it ideal for use in big warehouses or industries that often produce food.

Marine applications

Aluminum A91070 is perfect for maritime applications including boat hulls and propellers because of its exceptional resistance to salt water corrosion. Because of its strength-to-weight ratio, the metal is also perfect for ship masts, which need to be both lightweight and sturdy enough to hold sails in choppy waters. AL Alloy 1070 is also readily polished, which makes it perfect for luxury ships where appearance is crucial.