5454 aluminum sheet plate

Common uses for aluminum sheet/plate 5454 include machine, automotive, marine, and fuel applications. 5454 aluminum metal sheets are stronger, have better formability, have good corrosion resistance, and are easier to work with than 1100 or 3003 aluminum. Full-size and custom-cut lengths are available for the majority of our 5454 plates and plate stocks.

Introduction of 5454 aluminum sheet

The 5000 series aluminum-magnesium alloy includes the 5454 aluminum sheet, which has a good anti-rust ability. Another alloy that cannot be heated is 5454 aluminum sheet, which may be made stronger by cold working. Compared to the medium-strength 5052 aluminum sheet, it is 20% stronger.

Aluminum 5454 resists corrosion quite well, especially when exposed to seawater and other environmental factors. Similar to ally 5754, it has medium to high strength and performs well at temperatures between 65 and 170 degrees Celsius. Its fatigue strength is great.

Excellent anti-rust qualities are possessed by the aluminum alloy 5454. As a result, 5454 aluminum sheets are frequently found in settings with strict anti-rust specifications, like pipelines in marine facilities, aluminum tank car bodies, car wheels, etc.

Aluminum 5454 aluminum sheet specifications

Aluminum alloy	5454
Material temper	F, O, H12, H16, H19, H28, H32, H34, H36, H38, H111, H112, H114, H116, H321
Thickness (mm)	0.4-500
Width (mm)	20-2650
Length (mm)	Customized
Delivery Terms	FOB, CFR, CIF

Chemical composition of 5454 aluminum sheet

Elements	Si	Cu	Mg	Fe	Mn	Cr	Ti	Zn	Others	Al
Content	≤0.25	≤0.10	2.4～3.0	0~0.4	0.50～1.0	0.05~0.2	≤0.2	≤0.25	0.05	Remain

The main ingredient that makes up the bulk of the alloy is aluminum (Al).

Magnesium (Mg): It increases resistance to corrosion and gives strength.

Particularly in maritime situations, chromium (Cr) helps to increase corrosion resistance.

A minor alloying ingredient that contributes to workability and strength is manganese (Mn).

Copper (Cu), silicon (Si), iron (Fe), and additional trace elements: Although they are not significant ingredients, their presence in trace levels can influence the alloy's characteristics.

5454 aluminum alloy physical properties

Property	Value
Density	2.69 Kg/m^3
Melting Point	645 °C
Thermal Expansion	23.6 x 10^{-6} /K
Modulus of Elasticity	70.5 GPa
Thermal Conductivity	135W/m.K

Electrical Resistivity	34% IACS

Alloy equivalent name

Aluminum alloy 5454 corresponds to the following standard designations and specifications (not directly equivalent): A5454, ISO Al Mg3MN and Al 2.7Mg 0.8Mn Cr.

The following specifications cover Aluminum 5454

ASTM B209 ASTM B221 ASTM B234 ASTM B241 ASTM B404 ASTM B547 ASTM B548 QQ A-200/6 QQ A250/10 SAE J454 UNS A95454

Tempers of 5454 aluminum

5454 aluminum is most frequently found in the following states:
O-soft
H111: Work hardening occurs throughout the forming process, but not to the degree needed for H11 tempering.
H22: Work is annealed to a quarter hardness after being rolled hard.
H32: Rolling hardens the work, and low temperature heat treatment stabilizes it to a quarter hardness.

5454 H22/H32 Mechanical properties at room temperature

Property	Value
Proof Strength	180 Min MPa
Tensile Strength	250 – 305 MPa
Hardness Brinell	74 HB

Features of 5454 aluminum sheet

5454 aluminum sheet has several advantageous qualities, including:
Corrosion Resistance: Its remarkable resistance to corrosion is one of its primary characteristics, which qualifies it for use in maritime applications.
Strength: Despite not being heat-treatable like some other alloys, 5454 aluminum has considerable strength. Cold working can be used to increase its strength.
Weldability: This alloy is ideal for a variety of manufacturing procedures because to its great weldability. It is easily welded using standard methods including TIG and MIG welding.
Formability: 5454 aluminum is adaptable to a variety of industrial techniques due to its ease of shaping and forming.
Machinability: Although it is more difficult to manufacture than certain other aluminum alloys, it is nevertheless possible to do so with the right equipment and methods.

Applications of 5454 aluminum sheet

5454 aluminum sheet is used in many different industries, such as:
Marine Industry: It is frequently utilized in the building of ship superstructure, boat hulls, and other marine components because of its exceptional resistance to corrosion.
Automotive Industry: Vehicle panels, including floor panels, inner and exterior panels, and fuel tanks, are made from this alloy.
Pressure Vessels: It may be used to make storage tanks and pressure vessels that need to be structurally sound and resistant to corrosion.
Transportation: Truck bodies, trailers, and other transportation equipment are made with 5454 aluminum.
Common Sheet Metal Fabrication: It is also used in a variety of common sheet metal applications that call for moderate strength and resistance to corrosion.

5454 aluminum sheet/plate typical applications

5454-O aluminum plate for tank truck body material

Coamings, anti-wave plates, tank mouths, and other components make up a tank truck's body. At the moment, carbon steel, stainless steel, and aluminum alloy materials are the most

widely utilized tank materials available. The use of aluminum alloys in tank trucks is steadily increasing as lightweight aluminum strip steel has gained popularity.

Aluminum plates that are often used for tank trucks on the market typically have lengths of less than 12.5 meters, widths of less than 2.2 meters, and thicknesses of 5, 6, 7, and 8 mm. 4-6 aluminum plates are typically needed to weld a whole tank truck body.

Typically, the tank is composed of materials like 5083 aluminum sheet and 5454 aluminum plate. The 5083-O state is used to make the partition (wave-proof plate) portion, and the O-state is softer. Typically rust-proof, 5454 aluminum plate has a high strength of 20% more than 5052 aluminum sheet.

In addition to greatly reducing the vehicle's weight and increasing transportation efficiency, aluminum alloy tank trucks are safer, more ecologically friendly, and have a long service life. Compared to conventional carbon steel tank trucks, aluminum alloy tank trucks generate more total profits throughout the course of its life cycle.

5454 marine aluminum plate

Internal pressure vessels, pipelines, speedboats, yachts, fishing boats, big cargo ships, and other parts are the primary applications for 5454 marine aluminum plates. Additionally, the 5454 ship plates needed for various ship structural components are in various conditions.

5454 marine aluminum plates are the specialty of GNEE Aluminum. Provide your specifications, and we will customize 5454 marine aluminum plates to meet your needs depending on your real usage circumstances.

Pressure tanks, pipelines, and hull structural components are the primary applications for 5454 marine aluminum plate. GNEE Aluminum created this aluminum plate specifically for the interior construction of ships since it is strong, resistant to corrosion, and has exceptional weldability.

What can we supply

Aluminum sheet/plate

Aluminum coil

Aluminum strip

Aluminum foil

Aluminum circle

Why choose GNEE Aluminum

One expert provider of 5454 aluminum sheets is GNEE Aluminum. It has the following five benefits:

1. 5454 aluminum broad sheets with a flat pattern and tidy trimming may be produced by the six-high cold rolling mill.
2. The "1+1" manufacturing process offers a solid basis for producing 5454 aluminum sheets on a wide scale and further ensures that the aluminum sheets will function well.
3. Using a multi-stage combination purification method, the melt's purity is guaranteed to satisfy aviation standards. It guarantees the production of premium aluminum sheet through ingot casting.
4. GNEE 5454 aluminum sheet/plate may be welded using a variety of techniques, including TIG, MIG, FSW, EBW, and others.
5. It can supply huge sheets of aluminum for tankers.
6. The width of an aluminum coil is 2650 mm, while the width of an aluminum sheet is 3800 mm. It is 2000–27000 mm long. The broad aluminum sheet can improve corrosion resistance and base metal strength by reducing welding seams.