

Car Aluminum Alloy | Haomei Aluminum

Car aluminum, also called **automotive aluminum**, is an aluminum alloy material used in automobiles. Automotive aluminum used in engines can reduce weight by 30%, aluminum body is 40% lighter than steel products, and aluminum wheels can reduce weight by about 30%.

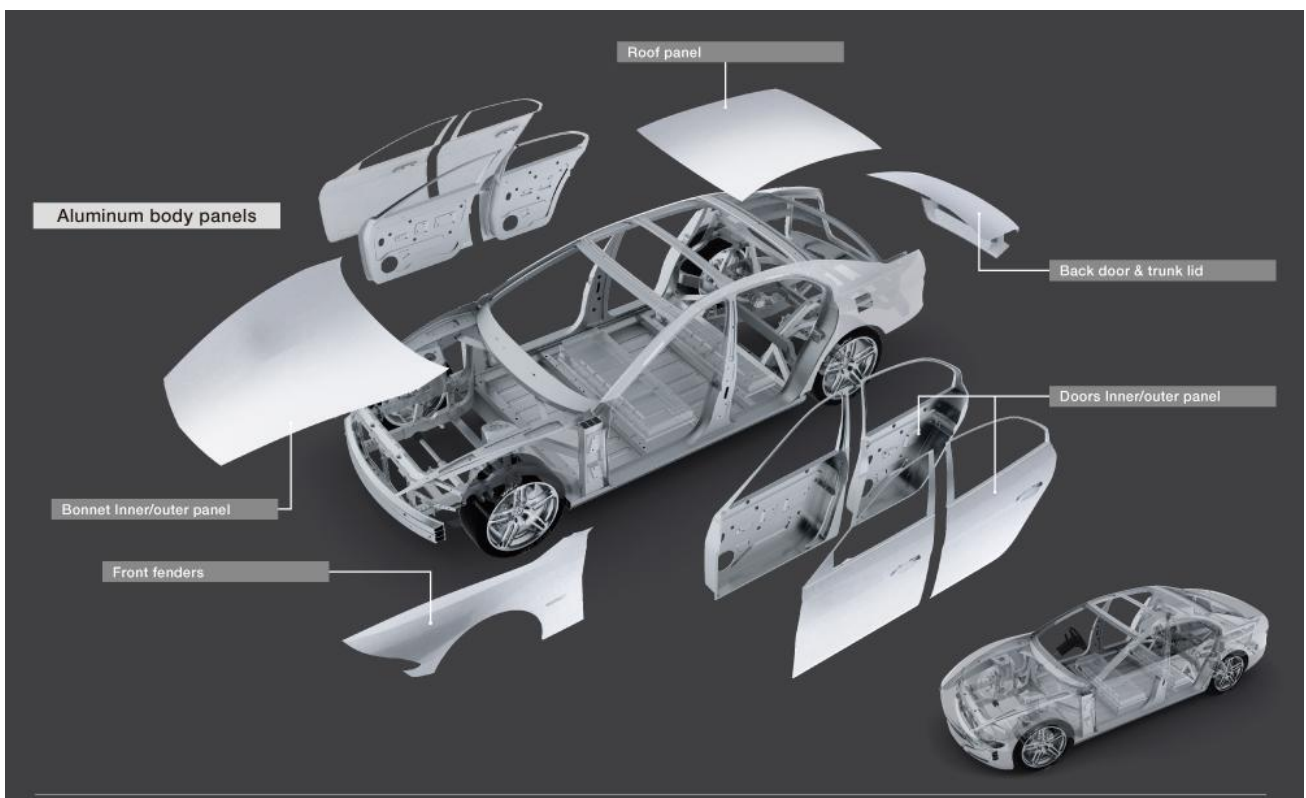
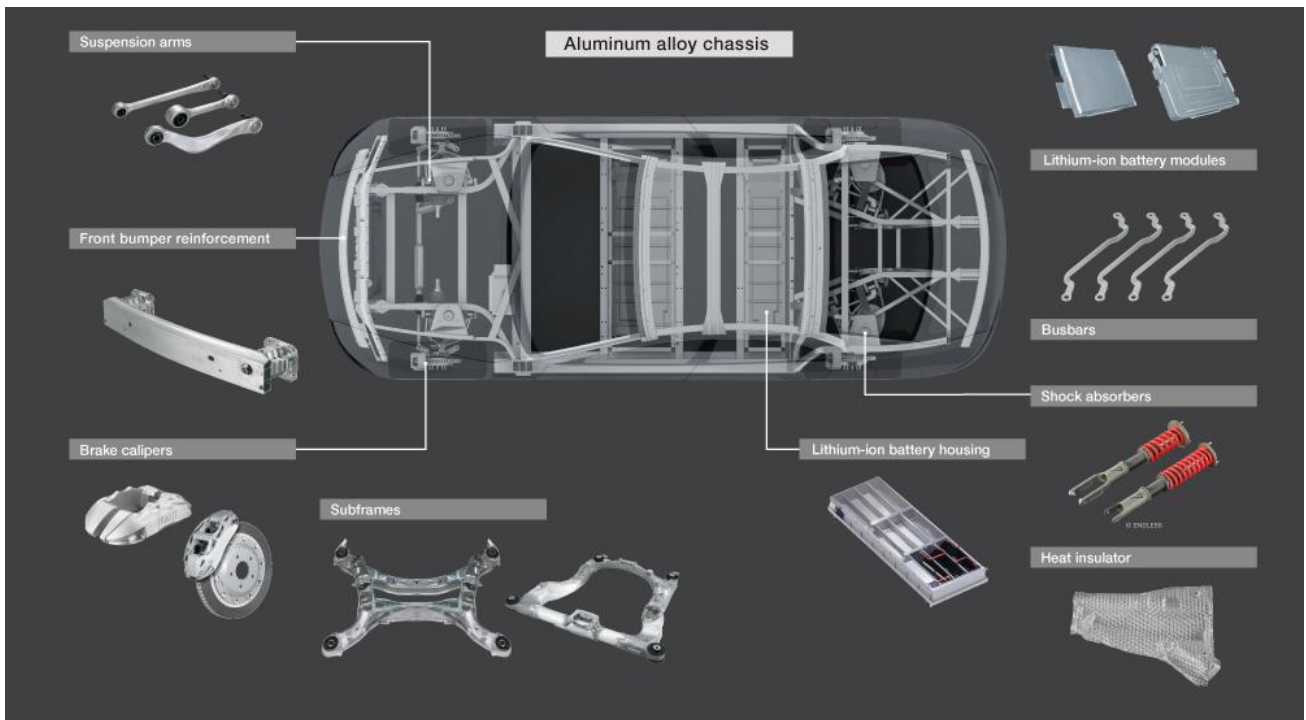
Automotive applications do not have the luxury of being pressurized, so panels need to be stamped from higher-strength alloys having a thickness typically greater than 1,000 microns (0.040 in.). AA5182 is used throughout the body structure, along with other grades from the 5XXX family. Although this grade provides the necessary strength, it cannot be used for skin panels because it is prone to stretcher-strain marks or Lüders lines, which print through a painted surface.

Products formed from the 6XXX series are not plagued by these visually unappealing features and have the added bonus of getting stronger when processed through a paint-curing cycle. This characteristic helps increase vehicle exterior denting resistance. Typical alloys from this family have additions of 0.75 percent Mg and 0.75 percent silicon (Si).

The Specification of car aluminum are:

Application	Auto Parts	Alloy	Thickness(mm)	Width(mm)
Car Body	Automotive door	5182	0.15-600	20-2600
	Front and rear cover			
	Automobile fender			
	Car lift			
	Automotive roof	5083		
		5754		
Chassis	Bottom guard	5083/5754	0.15-600	20-2600
	Wheel hub	6061	0.30-600	150-2600
	Battery bottom plate			
Power System	Fuel Tank	5083	0.15-600	150-2600
		5052		
	Gas Tank	5083		
		5052		
	Power Battery Shell Material	3003	0.20-4.5	20-2600





The Properties of aluminium alloy for car body are:

Alloy		Mechanical Properties				
		Ultimate Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	n-value	r-value
5000 Series	AA5022	275	135	30	0.3	0.67
	AA5023	285	135	33	-	-
	AA5182	265	125	28	0.33	0.8
	AA5052	190	90	26	0.26	0.66
	AA5754	212	90	22	0.34	-
6000 Series	AA6022	275	155	31	0.25	0.6
	AA6016	235	130	28	0.23	0.7
	AA6111	290	160	28	0.26	0.6

Advantages of aluminium alloy used in cars are:

It has been more than 130 years since the birth of the automobile. In the development process of more than a century, fuel saving has always been the direction of the efforts of automobile developers. Among them, work hard on light weight, which is an effective way to save fuel. According to industry statistics, if the overall weight of the car is reduced by 10%, it can save 6% -8% of fuel, reduce fuel consumption by 0.3-0.6 liters per 100 kilometers, and reduce carbon oxide emissions by 5-8g. This is all thanks to automotive aluminum made from aluminum alloys.

Automotive lightweight materials are divided into two major categories of metals and non-metals. Metal materials mainly include high-strength steel and aluminum alloys, magnesium alloys and so on. Among them, car aluminum has many advantages. Its density is 1/3 of steel; it has good extensibility, corrosion resistance and easy recycling; and it has good castability and can be processed into different shapes. It is currently one of the popular lightweight materials. Many models currently use all-aluminum bodies.

