

Auto Body Sheet Metal | Haomei Aluminum

In general terms, auto body sheet metal alloy should maintain significant levels of work hardening to high strains, preferably show positive strain rate sensitivity, and should not fail prematurely due to microstructural damage at heterogeneities.

Right now, the use of aluminium for Auto Body Sheet is largely limited to closures—doors, hoods, fenders, roofs. Closures get bolted onto the structure of the car, making it relatively easy to transition to aluminium. The application of aluminum panels for automotive use is nothing new. Hoods and deck lids have been made with aluminum for years.

The government continues to put stricter fuel economy requirements on cars. It's all about weight, so lightweight materials are going to become more and more common. Many popular manufacturers have chosen to use aluminum components in their vehicles make. This includes Tesla, Audi, BMW, Land Rover, Ford, Subaru, and many more.



Th Specification of Auto Body Sheet Metal 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		



The Properties of Aluminium Sheet Metal For Auto 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 Auto Body Sheet:

1. Car lightweighting. The proportion of aluminum is only one-third of that of stainless steel, which reduces the weight of the body and saves fuel.
2. Automotive aluminum alloys with special oxidation treatment have good corrosion resistance, uv resistance and scratch resistance. What is important is that the specific gravity is only one third of that of stainless steel, which reduces the weight of the body and saves fuel.
3. The surface of automotive aluminum alloys has an oxide film and does not require galvanizing.
4. When impacted by external force, it can absorb the impact force well and protect the safety of the driver and passengers to the greatest extent.
5. After the car is scrapped, automotive aluminum alloys can be recycled. The loss of aluminum is only about 5%, and its recycling performance is higher than other metals.

