

## BIW - Body In White | Haomei Aluminum

Body in white or BIW refers to the stage in automotive design and manufacturing at which a car body's sheet metal components have been welded together. BIW is defined as the stage prior to painting and before moving parts (doors, bonnets, tailgates and hatch back doors, as well as bumpers), the engine, chassis sub-assemblies, or trim (glass, seats, upholstery and electronics) have been assembled in the frame structure.

While aluminium has been able to conquer the drive train, heat exchanger the chassis, body and general equipment and fittings areas of lightweight vehicle build construction. The key issues have revolved around optimising the design to exploit the advantages of aluminium and, at the same time, be cost-effective. The body-in-white (BIW) accounts for about 27% of the weight of the entire average car.

### Specification of Body In White:

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		

### Properties of Car Body In White:



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

### Advantage of Automotive Body In White:

Reduced vehicle mass directly reduces fuel consumption and CO2.

Further mass reductions and lower fuel consumption are generated in a multiplier effect by enabling, for example, smaller engines, wheels and brakes.

A lower vehicle center of gravity improves handling and safety.

