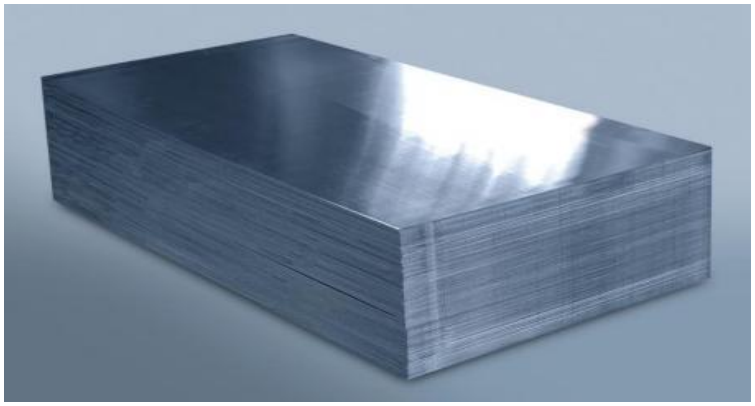
Aluminium composite material for EV Battery cooling plate



Wanjia new material is a leading manufacturer for Brazing Aluminium Alloy composite material, after years of accumulation, the group have formed a complete Aluminium alloy reseash and developments,production system,can meet different technical requirements.

Currently, we produce and offer a full range of rolled aluminuim products for heat exchanger ,Radiator, evaporators in Automobile, industry and machnining industry

Our cladding plates or strips are widely used in automotive, construction machine,micro-channel condensors,evaporators,power plant, air-conditioner for residents and business, and battery case/foil for new energy vehicle.monthly capacility of about 4000mts

Here we mainly indroduce our aluminium cladding plates which are used in EV Battery cooling plates

Aluminium cladding plate used in EV b attery cooling plates are made of core material and cladding material, or non-clading material

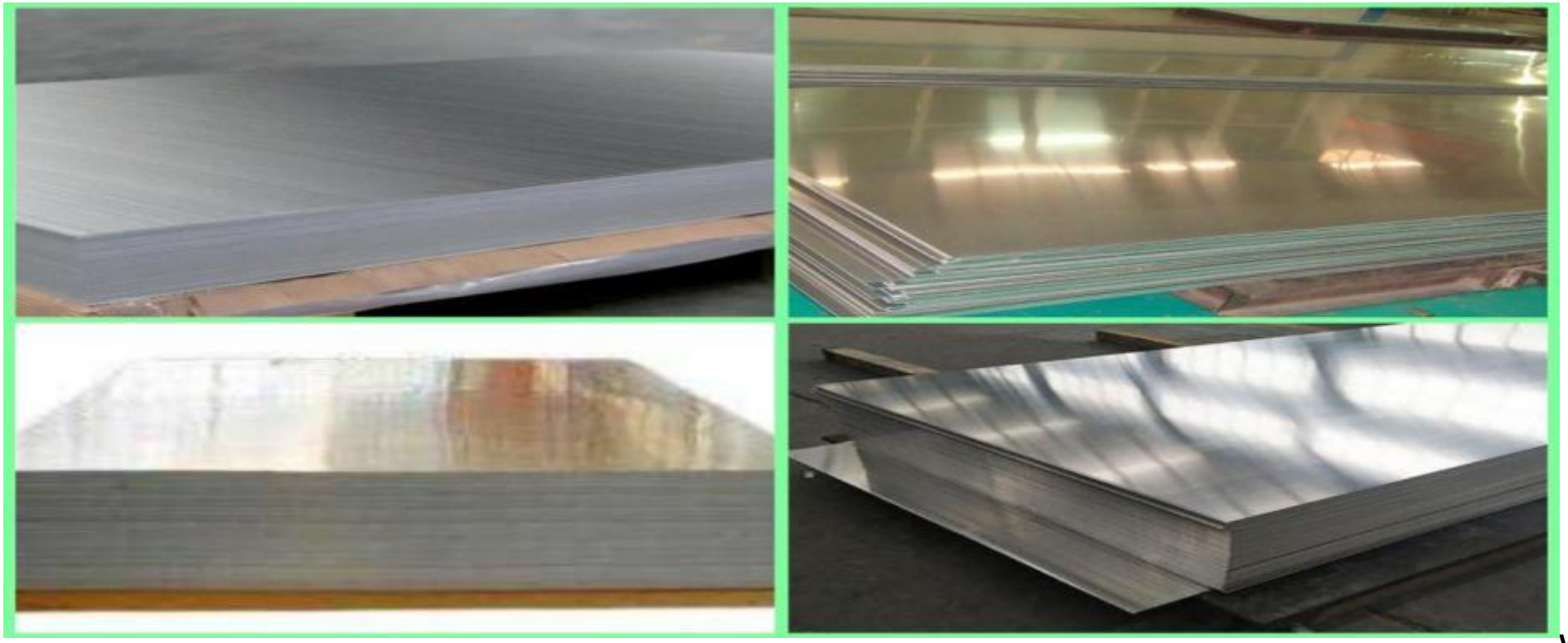
Core material or non-clading material: AA3003,AA3003MOD, AA3003+Zn or enhanced AA3003

Cladding material: AA4343,7072,4045

Main specification of our aluminium cladding sheets used in EV battery cooling Plates

Item	Product	Alloy	strength	Temper	Cladding Rate（%）	thickness(mm)	width（mm）	Length (mm)
1	Cooling bottomplate	3003	Normal	0	/	**0.5～4.0**	200～1240	600～2000
		3003MOD1	middle	0				
		7072/3003MOD1			3～13			
		3003MOD2	high	0、H24	/			
		3003MOD3						
		7072/3003MOD2			3～13			
		7072/3003MOD3						
2	Cooling Runner plate	4343/3003	Normal	0	3～13	**0.5～4.0**	200～1240	600～2000
		4045/3003						
		4343/3003MOD1	Middle					
		4045/3003MOD1						
		4343/3003MOD1/7072						
		4045/3003MOD1/7072						
		4343/3003MOD2	High					
		4045/3003MOD2						
		4343/3003MOD3						
		4045/3003MOD3						
		4343/3003MOD2/7072						
		4045/3003MOD2/7072						
		4343/3003MOD3/7072						
		4045/3003MOD3/7072						

NOte1：7072 belong to sacrificial anti-corrosion layer， 4XXX belong to brazing layer ， 3XXXis core material
Note2：Alloy grade comfirm to stipulation of GB/T 27675, width can be min.200mm
Note3：both sides can decide and discussion if customer need special grade, temper, cladding rate etc and stipulated in the ordert



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Tolerance of aluminium alloy cladding plates for EV Batter cooling plate

Thickness tolerance for EV battery cooling Plates

Thickness/mm	Thickness tolerance /mm
0.50～0.59	±0.015
0.60～0.79	±0.025
0.80～1.50	±0.030
1.51～2.00	±0.050

Width tolerance for EV battery cooling Plates

Width /mm	Width Tolerance/mm
200-600	±1.0
>600- 1300	±1.5
>1300-2000	±2.0

Length tolerance for EV battery cooling Plates

Length /mm	Length tolerance /mm
600～1000	±2.0
>1000～2000	±2.5
>2000～3000	±3.0

Diagonal tolerance of EV Battery cooling plates

Length mm	Diagonal tolerance mm
600～1000	≤ 3
>1000～2000	When width ≤1000mm， ≤3 , when width ＞1000-1500mm， ≤4 When width ＞1500-2000mm， ≤5
>2000～3000	Width ≤1500mm， ≤4 width ＞1500-2000mm， ≤6

Flatness of EV Battery cooling plates

Thickness mm	Flatness mm
0.5～1.0	≤3
>1.0～2.0	≤5

Curve of EV Battery cooling plates

Width mm	Side curve allowance mm
200～600	Length ≤1000mm，≤1 Length ＞1000-2000mm，≤1.5 Length＞2000-3000mm 时，≤2
>600～1000	Length ≤1000mm 时，≤1 Length ＞1000-2000mm，≤1.5 Length ＞2000-3000mm，≤2
>1000～2000	Length ≤1000mm 时，≤1.5 Length ＞1000-2000mm，≤2 Length ＞2000-3000mm，≤2.5

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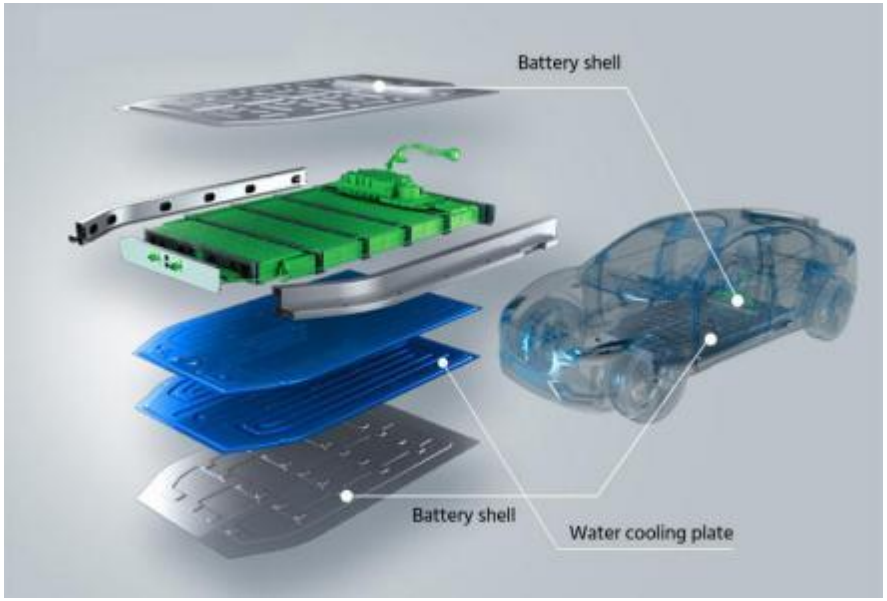

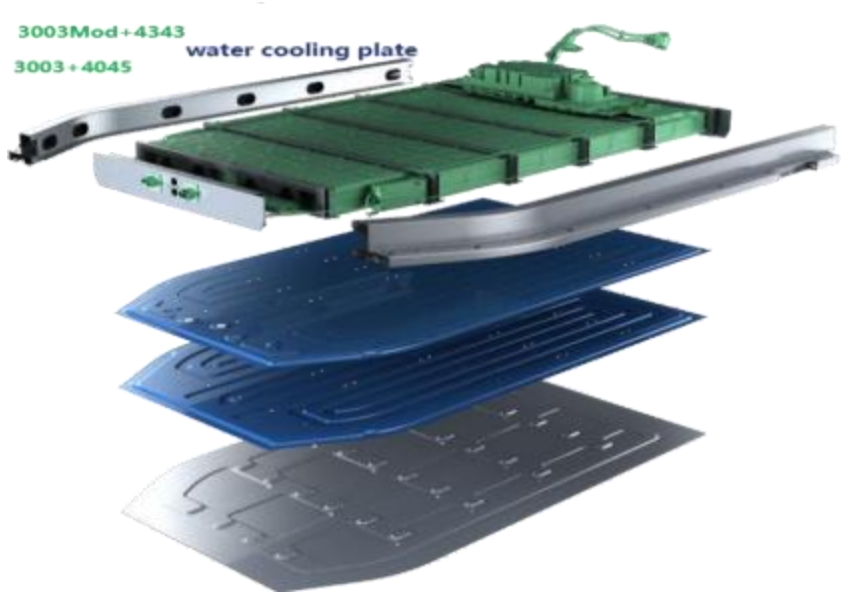

Chemical composition of aluminium cladding plates for EV Battery cooling Plates

Alloy	Chemical composition (%)									
	Si	Fe	Cu	Mn	Mg	Zn	Ti	Others		Al
								single	all	
3003	≤0.6	≤0.7	0.02-0.20	1.0-1.5	≤0.05	≤0.1	≤0.05	≤0.05	≤0.15	rest
3003MOD1	≤0.6	≤0.7	0.4-0.6	1.0-1.5	≤0.05	≤0.1	≤0.25	≤0.05	≤0.15	rest
3003MOD2	0.5-0.9	≤0.7	0.4-0.6	1.3-1.8	≤0.05	≤0.1	≤0.25	≤0.05	≤0.15	rest
3003MOD3	0.5-0.9	≤0.7	0.65-1.0	1.3-1.8	≤0.05	≤0.1	≤0.25	≤0.05	≤0.15	rest
4343	6.8-8.2	≤0.8	≤0.25	≤0.1	≤0.05	≤0.2	≤0.05	≤0.05	≤0.15	rest
4045	9.0-11.0	≤0.8	≤0.30	≤0.05	≤0.05	≤0.10	≤0.20	≤0.05	≤0.15	rst
7072	Si+Fe≤0.7		≤0.10	≤0.10	≤0.10	0.8-1.3	≤0.05	≤0.05	≤0.15	rest

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Physical properties of aluminium cooling plates at room temerature and after cladding/brazing

strength	Alloy	Temper	Physicals at room temperature			Physicals after brazing		
			U. T.S (MPa)	Yield strength (MPa)	Elogation (%)	U.T.S (MPa)	Yield strength (MPa)	Elogation (%)
standard	3003	O	95-135	≥35	≥20	95-135	≥35	/
	4343/3003							
	4045/3003							
middle	3003MOD1	O	130-150	≥45	≥20	≥140	≥45	/
	7072/3003MOD1							
	4343/3003MOD1							
	4045/3003MOD1							
	4343/3003MOD1/7072							
	4045/3003MOD1/7072							
high	3003MOD2	H24	180-240	≥160	≥8	≥150	≥50	/

Product features of auto brazing composite aluminum coil

High strength: due to the harshness of the environment in which the car is used, the brazed composite aluminum coil for the car needs to have high strength to withstand the pressure of high-speed driving and sudden impact. Alloy The core layer is a high-strength aluminum alloy that provides the strength and durability needed.

Good corrosion resistance: cars are often driven in harsh environments, such as high temperature, high humidity, rain, etc. Therefore, automotive brazing composite aluminum coils need to have good corrosion resistance to prevent oxidation and corrosion. Aluminum-silicon alloy cladding provides good corrosion resistance and makes brazed joints more durable.

Excellent thermal conductivity: the heat dissipation system of a car requires efficient heat dissipation to ensure the normal operation of the engine and other critical components. Automotive Brazed Clad Aluminum Coil has excellent thermal conductivity, allowing heat to be transferred quickly to the environment.

Excellent formability: auto brazing composite aluminum coils can be processed in a variety of ways, such as curling, bending, cutting, etc., and can be customized according to the needs of different auto parts.

Lightweight: brazing composite aluminum coils for automobiles have low density and good strength, which can achieve the purpose of lightweight automobiles, thereby improving the fuel economy and environmental protection of automobiles.