



鋁合金汽車材料/Automotive Aluminium

■ 特點與應用/ Product Information

5xxx 鋁-鎂系 (Al-Mg alloys)

(1) 良好成形特性以及抗蝕特性 /Good formability and corrosion resistance.

(2) 可做汽車內板及電動機車結構件等用途 /Applied for inner body and electric scooter.

6xxx 鋁-鎂-矽系 (Al-Mg-Si alloys)

(1) 高強度及良好成形特性 /High strength and Good formability.

(2) 良好烘烤硬化特性 /High bake-hardened strength.

7xxx 鋁-鋅-鎂系 (Al-Zn-Mg alloys)

(1) 高強度/Higher strength.

(2) 可做汽車高強度結構件用途：汽車 A/B 柱 /Applied for body structures , such as A/B parts.



Outer Hood



Inner Hood



Fender



Inner Door





Bumper Beams



Brake Booster

■ 汽車鋁材總覽/Introduction

	 汽車零配件 Automotive Parts	 四門二蓋 Closures	 高強度結構件 Body Structure
典型產品 Standard Products	1050-O/3004-O 5083-H24 5754-O/H111 5182-O/H111 6016-T4 6111-T4	5182-O 6016-T4 6111-T4	7075-O / T6
特殊產品 Special Products	5RS2-O 6M02-T4	5RS2-O 6M02-T4	



■ 機械性質及可接單規範/ Mechanical Properties and Dimensions

分類 Status	合金 Alloy	調質度 Temper	降伏強度 YS (MPa)	抗拉強度 TS (MPa)	伸長率 EL (%)	烘烤後 YS PBYS (MPa)	烘烤後 TS PBTS (MPa)	應用 Application	可接單尺寸 Dimensions	
									厚度 Gauge (mm)	寬度(鋁捲) Width(Coil) (mm)
一般用途 Common usage	3004	O	60~80	170~190	16-23	—	—	隔熱鋁 Heat Insulator	0.4~1.0	850~2000
	5083	H24	270~290	360~370	≥10	—	—	保險桿 Bumper Beams	2.2~5.0	1000~1900
	7075	O	95~110	190~210	≥24	—	—	結構件 Body Structure	0.5~3.2	Max. 1250
	7075	T6	490~515	570~585	≥14	—	—	結構件 Body Structure	0.5~3.2	Max. 1250
客製化產品 Customized usage	5RS2	O/ H111	115~125	275~285	≥30	—	—	零配件 Parts	非外露件 Un-exposed: 0.7~4.0 外露件 Exposed: 0.8~1.2	1000~1900
	6M02	T4	95~130	≥200	≥25	≥210	≥275	內外鋁 Exterior Interior		
	6M02	T4	95~140	≥200	≥24	≥210	≥275	補強件 Reinforcement		
	6111	T4	105~140	≥220	≥25	≥230	≥300	內外鋁 Exterior Interior		
	6111	T4	120~165	≥215	≥21	≥230	≥290	補強件 Reinforcement		
OEM 認證 OEM Approved	5754	O/ H111	95~130	≥210	≥24	—	—	零配件 Parts	非外露件 Un-exposed: 0.7~4.0 外露件 Expose: 0.8~1.2	1000~1900
	5182	O/ H111	110~135	≥250	≥26	—	—	零配件 Parts		
	6016	T4	90~130	≥200	≥26	≥200	≥265	外鋁 Exterior		
	6016	T4	90~140	≥200	≥25	≥200	≥265	內鋁 Interior		

■ 尺寸公差/ Size tolerance

尺寸公差符合國際規範。/Size tolerance comply with international standard.

■ 表面特殊處理/Surface Treatment

粗糙度 Roughness	MF	Ra=0.3~0.6 μm
	EDT	Ra=0.7~1.3 μm
塗油 Lubrication	Dry Coat	0.4~1.2 g/m ² (Multidraw Drylube E1)
	Wet Coat	0.2~1.2 g/m ² (Ferrocote N6130)
皮膜處理 Pretreatment	Ti/Zr	2-8 mg/m ² for each side



車廠認證狀態/ OEM Qualification Status

	Grade	Alloy	Status
非外露件 Un-exposed Parts	GMW15192M-AI-S-5000-ST-85-U	5754	Approved
	FCA-MS.50005-AA5000-ST U	5754	Approved
	GS 93033-AL5-IIC	5754	Approved
	5754-ST	5754	Comply to OEM spec.
	GMW15192M-AI-S-5000-RSS-110-U	5182	Approved
	GMW15192M-AI-S-5000-S-110-U	5182	Approved
	FCA-MS.50005-AA5000-RS U	5182	Approved
	FCA-MS.50005-AA5000-S U	5182	Approved
	GS 93033-AL5-STD	5182	Approved
	GMW15192M-AI-S-6000-S-90-U	6016	Approved
	6016-IB	6M02	Comply to OEM spec.
6111-CR	6111	Comply to OEM spec.	
外露件 Exposed Parts	GMW15192M-AI-S-6000-IH-90-E	6016	Approved
	FCA-MS.50005-AA6000-IH EDT-E	6016	Approved
	AL6-OUT	6M02	In progress/(NDA)

應用技術能量/R&D Availability

成形技術 Forming	接合技術 Joining	塗裝技術 Painting
<p>Cross Member Forming CAE Simulation</p> <p>FLC (strain) - Zones by quality</p> <ul style="list-style-type: none"> Strong wrinkling (red) Insufficient stretching (yellow) Safe (green) Marginal zone (blue) Cracks (purple) <p>Thickness Distribution</p> <p>CSAC 5182-O</p> <p>CSAC 5RS2-O</p>	<p>SPFC980Y-1.0</p> <p>SCM415-4.5t</p> <p>HAZ</p> <p>Spot Welding</p> <p>MIG Welding</p> <p>Adhesive Bonding</p> <p>Self Pierce Rivet</p> <p>Laser Welding</p>	<p>Powder Coating System</p> <p>Electrocoat System</p>

