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## INDUSTRY OVERVIEW

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*The information that appears in this Industry Overview contains information and statistics on the industry in which we operate. The information and statistics contained in this section have been derived partly from publicly available government and official sources. Certain information and statistics set forth in this section have been extracted from a market research report by Frost & Sullivan, an Independent Third Party which we commissioned. The information from official government sources has not been independently verified by us, the Sole Sponsor, the Sole Overall Coordinator, the Sole Global Coordinator, the Joint Bookrunners, the Joint Lead Managers, any of the Underwriters, any of our or their respective directors, supervisors, officers, employees, advisors, agents or representatives or any other party involved in the Global Offering and no representation is given as to its accuracy.*

### OVERVIEW OF GLOBAL AND CHINA AUTOMOBILE INDUSTRY

The global production volume of automobile world witnessed a consecutive 4 years of decline and decreased to 76.3 million units in 2020, mainly attributable to the weakening demand in Europe and China, the two largest automobile markets. In 2020, impacted by COVID-19 pandemic globally, the automobile industry saw a further sharp decrease. The global automobile production volume in 2020 decreased by 16% when compared to 2019. In 2021, due to the adverse impact of COVID-19, global automobile production remained at a very low level, achieving only a 3.6% year-on-year growth from 2020. In 2022, as most economies internationally have significantly eased their quarantine measures which were previously imposed due to COVID-19, it is expected that the global automobile production will recover at a fast pace and will rebound to pre-pandemic level in 2023. It is anticipated that the global production volume of automobile will maintain the recovery trend from 2022 to 2026 and will reach 97.6 million units in 2026, representing a CAGR of 4.3% from 2021 to 2026.

Driven by the global sales volume of automobiles maintaining at a high level in spite of fluctuations for the past several years, the global volume of automobiles in use grew from 1,375.1 million units in 2017 to 1,500.3 million units in 2021 at a CAGR of 2.2%. Impacted by COVID-19 pandemic globally, global demand for automobile consumption was suppressed in 2020. Both production and sales volume reached to a historical low point during the past 4 years since 2017 and the market will not recover to its 2019 level until 2023. The global volume of automobiles in use is expected to grow at a CAGR of 1.9% from 1,500.3 million units in 2021 to 1,649.9 million unit in 2026.

Similarly, in 2020 the COVID-19 outbreak significantly impacted the automobile production in China with many factories of automobile parts suppliers and OEMs shutting down. In the first two months of 2020, the automobile production and sales in China declined by 41.9% and 45.6% to 2.2 million units and 2.1 million units, respectively, on a year-to-year basis. However, the full-year production volume only experienced a 1.9% year-on-year decline and went back to upward trend in 2021, which was above market expectation. Major reasons include: (i) China had COVID-19 under effective control since the second quarter and economic activities resumed normal operation quickly; and (ii) continuous investment into infrastructure construction strongly stimulated the market demand for commercial automobiles. Going forward, driven by continuous growth of macro economy and urbanization process, recovery of automobile industry will regain its growth momentum, and the automobile production volume in China will reach 30.4 million units in 2026, representing a CAGR of 3.1% from 2021 to 2026.

Driven by the stable growing GDP, per capita annual disposable income and tremendous market potential originating from the relatively low penetration rate as compared with that of developed countries, especially

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strong demands from lower tier cities, the volume of automobiles in use in China soared from 217.4 million units in 2017 to 287.9 million units in 2021 with a CAGR of 7.3%. In the next five years, driven by the anticipated increase of annual sales volume of new automobile in China, the automobile in use in China will maintain a growth trend in the coming years. The volume of automobiles in use in China is expected grow from 287.9 million units in 2021 to 368.0 million units in 2026, representing a CAGR of 5.0% from 2021 to 2026.

### **Key Market Drivers of Global Automobile Industry**

The key drivers of the global automobile industry include: (1) strong governmental policy support to the industry in many countries, especially in the emerging and big markets, for instance, China and India, to support domestic automobile manufacturers and attract foreign investment respectively; (2) the globally increasing urbanization rate has led to increases in infrastructure investment and in turn result in stronger demand for vehicles and vehicle-related products and; (3) the rapid development of new energy vehicles (“NEV”) resulting from various governments’ environmental protection incentive. The increase in new automobile production is anticipated to mainly come from NEV as major economies have issued a series of stimulus policies to promote the consumption of NEV, including tax exemption, purchase subsidy, charging infrastructure and battery swapping station construction to lower the acquisition cost and make daily use of NEV more convenient. Lower cost and convenience of NEV will likely attract more potential customers and expand the automobile consumer base globally, making NEV the largest growth point of global automobile industry in the future.

### **Key Development Trends of Global Automobile Industry**

The key development trends of global automobile industry include: (1) the emerging of autonomous driving worldwide is expected to create an entire new ecosystem; (2) the further proliferation of electric vehicles underpinned by the government stimulus, increasing willingness and familiarity of electrical vehicles and advancement of battery technologies to address range anxiety issues, along with the deployment of critical charging infrastructure; (3) the development of more connected vehicles is considerably improving the user experience and enhancing the level of personalization throughout automobile manufacturing and driving experiences; (4) lightweight materials such as high-strength steel, magnesium (Mg) alloys, aluminum (Al) alloys are expected to replace the traditional materials to reduce vehicle weight and thus to further improve fuel economy; and (5) the boomed aftermarket e-retailers which are expected to replicate the same in automobile part sales, posing a major threat to traditional distributors/retailers leveraging on aftermarket e-retailers’ low margin and high volume strategy.

### **Key Market Drivers of Automobile Industry in China**

The main drivers of the automobile industry in China include: (1) strong demands from lower tier cities and rural areas, which have a much lower penetration rate and more market potentials compared with the first tier cities such as Beijing and Shanghai; (2) overall lower penetration rate as compared with that of developed countries; (3) government’s policies to stimulate consumption. For instance, on January 28, 2019, the PRC central government issued “the Implementation Plan for Promoting Steady Growing Consumption and Fostering a Huge Domestic Market through Further Carrying Out the Supply Side”, which has emphasized to improve vehicles sales by various means, including promoting incentives of scrapping vehicles, vehicle upgrade in rural areas, optimization of NEV subsidy policies and development of used car market; and (4) increasing number of car in use and changes in automobile usage habits and consumer preferences including increasing emphasis on personalized

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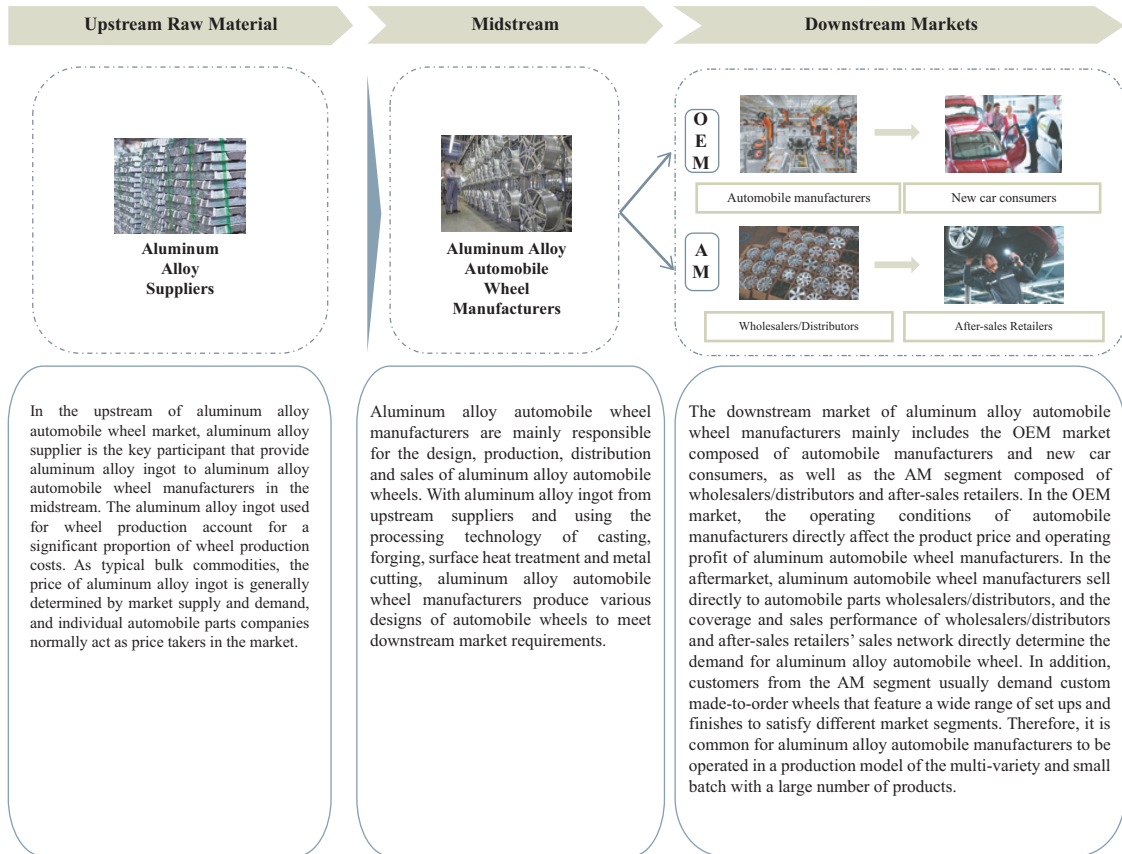
needs in automobile design, function and performance driven by the trend of modification culture, awareness related to vehicle maintenance and safety, as well as the rising income level have promoted the development of the aftermarket.

## Key Development Trends of Automobile Industry in China

The key development trends of the automobile industry in China include: (1) the accelerating growth of the automobile modification market; (2) the continuous development of NEVs; and (3) increasing cooperation with E-commerce platform.

## OVERVIEW OF GLOBAL AND CHINA ALUMINUM ALLOY AUTOMOBILE WHEEL MARKET

### Value Chain



*Source: Frost & Sullivan*

Aluminum alloy automobile wheel manufacturers are mainly responsible for the design, production, distribution and sales of aluminum alloy automobile wheels. With aluminum alloy ingot from upstream suppliers and utilizing the processing technology of casting, forging, surface heat treatment and metal cutting, aluminum alloy automobile wheel manufacturers produce various designs of automobile wheels to meet downstream market requirements.

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The aluminum alloy ingot used for wheel production account for a significant proportion of wheel production costs. As typical bulk commodities, price of aluminum alloy ingot is generally determined by market supply and demand, and individual automobile parts companies normally act as price takers in the market.

Based on customer type, the market of aluminum alloy automobile wheel market can be segmented into OEM segment which is driven by new car production, and aftermarket resellers segment which is driven by modification demands from passenger cars in operation. The downstream customers of aluminum alloy automobile wheel industry mainly include OEM market, composed of automobile manufacturers and new car consumers, as well as customers in the AM segment, composed of wholesalers, distributors and after-sales retailers. In the OEM market, the operating conditions of automobile manufacturers directly affect the product price and operating profit of aluminum automobile wheel manufacturers. In the aftermarket, aluminum automobile wheel manufacturers sell directly to automobile part wholesalers or distributors and the coverage and sales performance of such wholesalers or distributors and after-sales retailers' sales network directly determine the demand for aluminum alloy automobile wheels.

### **Classification and Characteristics**

An automobile wheel locates between the tire and the axle with its main structure consists of the rim and spokes. Wheel bears the vehicle's vertical load, driving torque and various stresses generated during driving process. Because the wheel is a high-speed rotary part, it requires high production accuracy with small deviation in balance. In terms of material properties, high stiffness and fatigue strength are required for wheels.

Depends on materials used, wheel products can be mainly divided into aluminum alloy automobile wheel and steel wheel. Aluminum alloy automobile wheels have the following advantages: (1) light weight and good fuel efficiency; (2) good heat dissipation performance; and (3) good anti-vibration performance and comfortable driving experience. Aluminum alloy automobile wheels have the following disadvantages: (1) weak impact resistance; and (2) complicated manufacturing process and high production cost. In terms of application, aluminum alloy automobile wheels are mainly applied on medium and premium passenger vehicles. Steel wheels have the following advantages: (1) good impact resistance; and (2) simple manufacturing process and low production cost. Steel wheels have the following disadvantages: (1) heavy weight and poor fuel efficiency; (2) low production size accuracy; and (3) poor anti-vibration performance and relatively uncomfortable experience. In terms of application, steel wheels are mainly applied on low-end passenger vehicles and commercial vehicles.

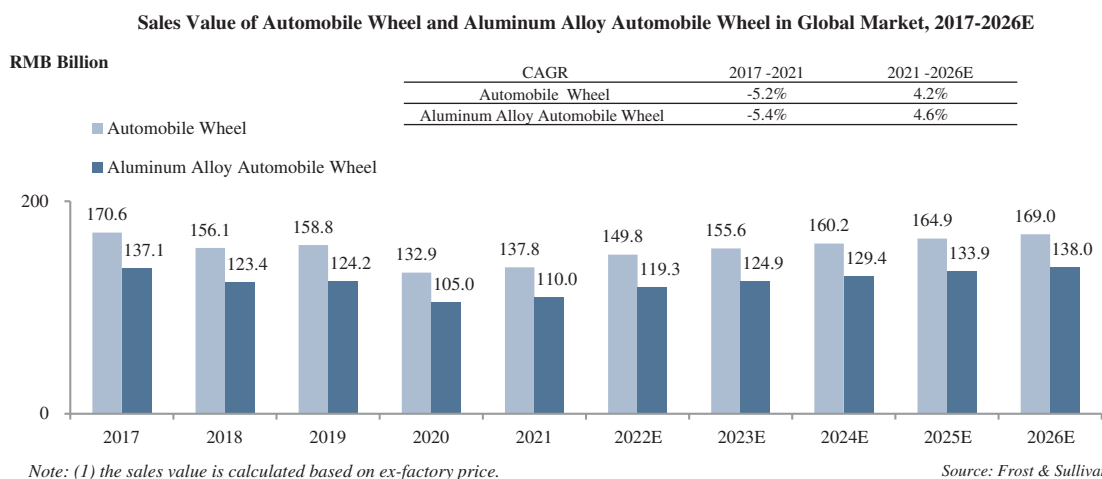
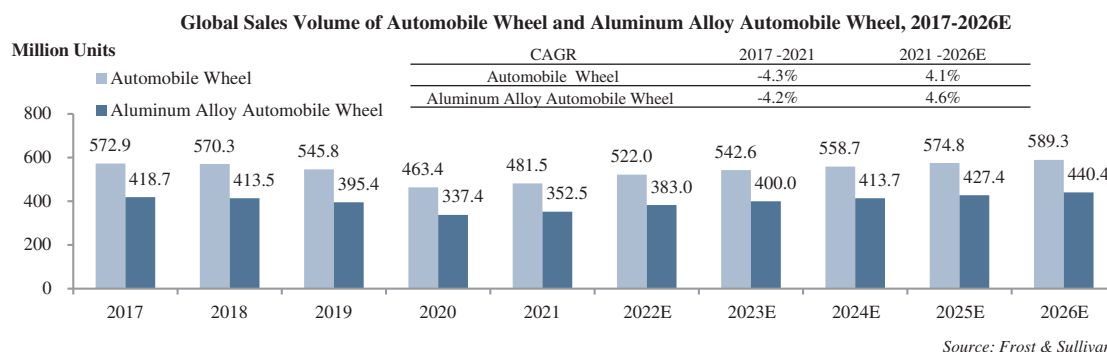
### **Global Automobile Wheel Industry**

Automobile wheels are essential components of all vehicles. Wheels made of aluminum alloy are widely used in passenger vehicles such as sedan and SUV (sport-utility vehicle). It is estimated that approximately 80% of new automobiles are equipped with aluminum alloy automobile wheels globally during 2017 and 2021, and the percentage is expected to increase steadily with more households reaching income levels that allow them to purchase medium or premium passenger vehicles (medium and premium passenger vehicles are equipped with aluminum alloy automobile wheels). As such, the growth trend of aluminum alloy automobile wheel market is primarily attributed to new car production and percentage of new automobiles that are equipped with aluminum alloy automobile wheels. Also, the rise of automobile modification and customization has propelled the sales of aluminum alloy automobile wheel, as it is visually appealing with bright and shiny appearance.

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Impacted by COVID-19 in 2020, global production volume of automobiles decreased significantly and directly affected the demand for automobile wheels as well as aluminum alloy automobile wheels. The global sales volume of aluminum alloy automobile wheels decreased to 352.5 million units in 2021, representing a CAGR of -4.2% from 2017 to 2021. In light of the effective control of COVID-19 pandemic due to quarantine and vaccination, it is expected that the global automobile industry will recover and the sales volume of aluminum alloy automobile wheel is expected to reach 440.4 million units in 2026. Also impacted by COVID-19, the global sales value of aluminum alloy automobile wheels decreased from RMB137.1 billion in 2017 to RMB110.0 billion in 2021, representing a CAGR of -5.4%. Going forward, with the gradual recovery in global automobile production, the global sales value of aluminum alloy automobile wheels is expected to increase from RMB110.0 billion in 2021 to RMB138.0 billion in 2026, representing a CAGR of 4.6%.

### Global Sales Volume and Value of Automobile Wheel and Aluminum Alloy Automobile Wheel



### Global Sales Volume and Value of Aluminum Alloy Automobile Wheel by Customer Type

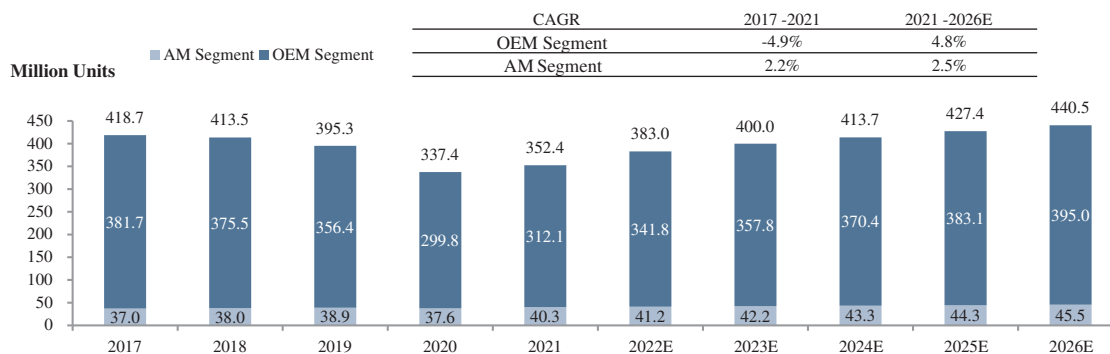
The global annual sales volume of aluminum alloy automobile wheel to the OEM segment decreased from 381.7 million units in 2017 to 312.1 million units in 2021 due to the impact of COVID-19, representing a CAGR of -4.9%. Such sales volume to the OEM segment is expected to recover to 395.0 million units in 2026. The global sales value of aluminum alloy automobile wheels in the OEM segment decreased from RMB118.0 billion in 2017 to RMB88.8 billion in 2021, representing a CAGR of -6.9%. The decline in sales value was primarily due to the decrease in new automobile production. In addition, due to weak market demand for

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automobile consumption, profitability of OEMs also declined and OEMs tend to control their cost more strictly by asking suppliers to lower the price of automobile parts, which led to falling prices of aluminum alloy automobile wheel sold to OEMs. The global sales value of aluminum alloy automobile wheels in the OEM segment is expected to increase from RMB88.8 billion in 2021 to RMB113.4 billion in 2026, representing a CAGR of 5.0%.

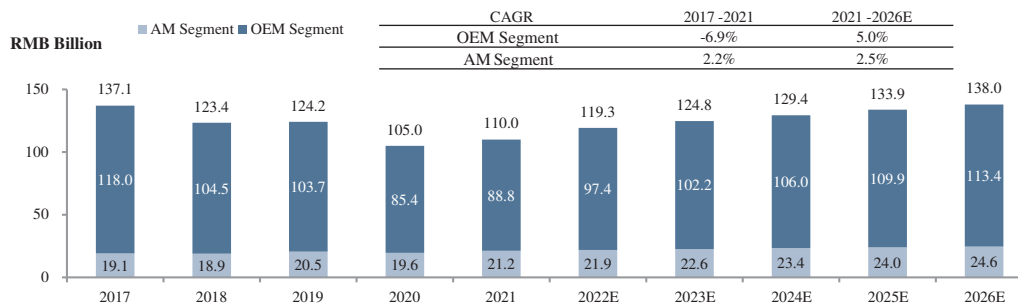
The global annual sales volume of aluminum alloy automobile wheel to the AM segment grew from 37.0 million units in 2017 to 40.3 million units in 2021, representing a CAGR of 2.2%. Such sales volume to the AM segment is expected to remain stable growth from 40.3 million units in 2021 to 45.5 million units in 2026, representing a CAGR of 2.5%. The global sales value of aluminum alloy automobile wheels in the AM segment grew from RMB19.1 billion in 2017 to RMB21.2 billion in 2021, representing a CAGR of 2.2%. The growth is expected to remain stable and shall reach RMB24.6 billion in 2026.

**Global Sales Volume of Aluminum Alloy Automobile Wheel, Breakdown by Customer Type, 2017-2026E**



Source: Frost & Sullivan

**Sales Value of Aluminum Alloy Automobile Wheel in Global Market, Breakdown by Customer Type, 2017-2026E**



Note: the sales value is calculated based on ex-factory price.

Source: Frost & Sullivan

### Market Drivers of Global Aluminum Alloy Automobile Wheel Market

#### *Global Procurement from Multinational Automobile Manufacturers*

As a result of globalization, a large number of multinational automobile manufacturers have implemented global procurement strategy of automobile wheels to optimize supply chain and reduce production costs. Through intense market competition and independent R&D, the manufacture level of automobile wheel industry in emerging market has gradually been recognized as global leading. Over the next few years, automobile wheel

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manufacturers in emerging market are expected to not only provide products for local automobile manufacturers but also act as important suppliers for the global automobile manufacturers.

### *Leading Automobile Wheel Manufacturers Have Strong Technological Capabilities*

Leading automobile wheel manufacturers have strong technological capabilities and can deeply participate in the new vehicle models development process of automobile OEMs. During wheel design, computer aided engineering analysis and simulation verification will be conducted with the help of advanced software and abundant engineering experience, which shortens development period, reduces development cost and improves user satisfaction. With strong technological capability and rapid new product development period, the global aluminum alloy automobile wheel industry will remain competitive and constantly develop further.

### **Development Trends of Global Aluminum Alloy Automobile Wheel Market**

#### *Increasing Level of Customization*

Wheels are important parts of vehicle's exterior and personalized wheels can make a vehicle more dynamic and distinctive. In the early development stage of automobile industry, it was a common practice for automobile manufacturers to use the same wheel type for multiple vehicle models. With the continuous progress of automobile industry, automobile manufacturers begin to assemble different styles of wheels for the same vehicle model to grant the vehicles personalized characteristics.

#### *Changes in Automobile Use Habits and Consumer Preferences*

The development of aftermarket has been stimulated in recent years by a number of factors, including increasing number of automobiles in use and proliferating consumer preference for comfort, aesthetics and fuel-efficiency. Aluminum alloy automobile wheels have replaced steel wheels in a large scale due to the benefits offered by the material including lower weight, superior heat conductivity and improved anti-corrosion properties. Modified wheels with excellent performance and appearance are becoming increasingly popular among young generations.

#### *Automatic Manufacturing*

Consistent with the global trend of automated manufacturing, wheel manufacturers are expected to upgrade old production lines and construct new production lines equipped with highly intelligent and automated production equipment to improve efficiency and precision of production process while reducing the labor costs.

### **China Automobile Wheel Industry**

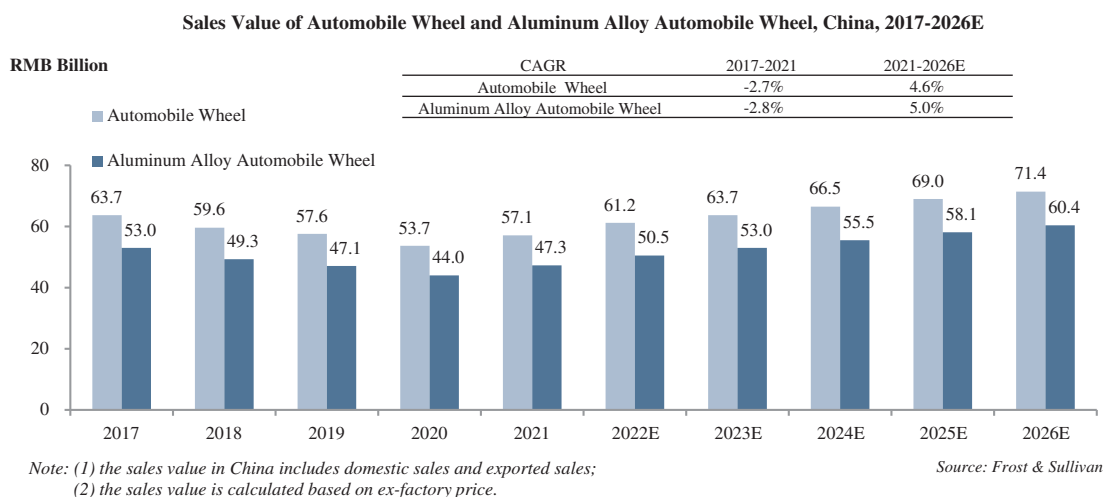
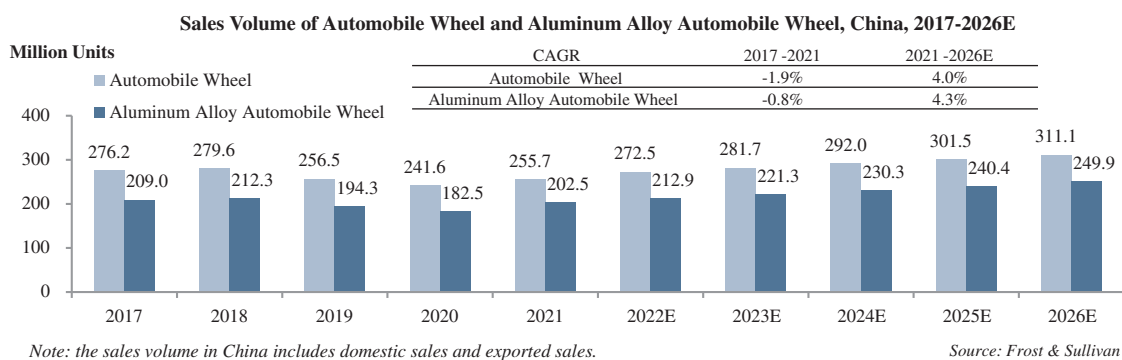
China is both the world's largest automobile market and largest automobile manufacturing country and has been increasingly gaining influence over market dynamics. With well-established industry clusters of automobile wheel manufacturing, China has produced millions of automobile wheels each year to meet huge demands from both the domestic market and the foreign market. The sales volume of automobile wheel in general and aluminum alloy automobile wheel, in particular in China, experienced a slight decline at a CAGR of -1.9% and -0.8%, respectively during 2017 and 2021, which is mainly attributable to the COVID-19 impact. Going forward, it is



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expected that the China automobile industry will start recovering and will stimulate the demand for wheels and also aluminum alloy automobile wheels. The sales value of aluminum alloy automobile wheel in China decreased from RMB53.0 billion in 2017 to RMB47.3 billion in 2021. Though impacted by COVID-19 in 2020, the China automotive industry showed strong resistance and the aluminum alloy automobile wheel market size only decreased slightly to RMB44.0 billion. With the gradual recovery in global automobile production, the sales value of aluminum alloy automobile wheel is expected to reach RMB60.4 billion in 2026. Though the trade tension between China and the U.S. has been causing uncertainty to aluminum alloy automobile wheel industry in China, it is not expected to have material long-term impact on the sales volume of aluminum alloy automobile wheel in China. The exported value of aluminum alloy automobile wheel of China remained at approximately USD4.04 billion in 2019, which was 4.4% higher than 2015 of USD3.87 billion. Meanwhile, increasing demands from other countries, including Mexico, South Korea, Brazil and Malaysia partly off set the negative impact of trade tension on China's aluminum alloy automobile wheel market in 2019.

### *China Sales Volume and Value of Automobile Wheel and Aluminum Alloy Automobile Wheel*



### *China Sales Volume and Value of Aluminum Alloy Automobile Wheel by Customer Type*

The sales volume of aluminum alloy automobile wheel to the OEM segment in China declined from 197.2 million units in 2017 to 186.3 million units in 2021, representing a CAGR of -1.4%. Such sales volume to the OEM segment is expected to reach at 228.9 million units in 2026. The sales value of aluminum alloy



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automobile wheels to the OEM segment in China declined from RMB48.2 billion in 2017 to RMB41.0 billion in 2021. Impacted by COVID-19 in 2020, the sales value of aluminum alloy automobile wheel to OEM segment decreased to RMB41.0 billion in 2021, representing a CAGR of -4.0% from 2017-2021. The sales value of aluminum alloy automobile wheels to the OEM segment is expected to increase from RMB41.0 billion in 2021 to RMB51.5 billion in 2026, representing a CAGR of 4.7%.

The sales volume of aluminum alloy automobile wheel to the AM segment in China grew steadily from 11.8 million units in 2017 to 16.2 million units in 2021, representing a CAGR of 8.2%. Sales volume to the AM segment is expected to reach 21.0 million units in 2026, primarily attributable to growing population of young drivers pursuing more aesthetic outlook of the vehicles and expected more relaxing policy on car modification in China. Similarly, the sales value of aluminum alloy automobile wheels to the AM segment in China grew from RMB4.8 billion in 2017 to RMB6.3 billion in 2021, representing a CAGR of 7.0%. The growth is expected to maintain and increase to RMB8.9 billion in 2026, representing a CAGR of 7.2%.

### *China Sales Volume and Value of Aluminum Alloy Automobile Wheel by Domestic Sales and Exported Sales*

The exported sales volume of aluminum alloy automobile wheel in OEM segment in China increased from 84.4 million units in 2017 to 85.1 million units in 2021, representing a CAGR of 0.2%. Going forward, driven by the recovery of automobile industry, such exported sales volume in OEM segment will grow and reach 110.5 million units in 2026, representing a CAGR of 5.4% from 2021. The exported sales value of aluminum alloy automobile wheel in OEM segment in China declined at a CAGR of -2.1% from RMB25.7 billion in 2017 to RMB23.6 billion in 2021 due to the decline of unit price of exported aluminum alloy automobile wheel and the weak overseas demand in 2021. Going forward, driven by the growth of exported volume of aluminum alloy automobile wheel, the total value of exported aluminum alloy automobile wheel in OEM segment in China will reach RMB26.9 billion in 2026, representing a CAGR of 2.7%.

The exported sales volume of aluminum alloy automobile wheel in AM segment in China is relatively small but realized a continuous growth from 8.2 million units in 2017 to 11.0 million units in 2021 due to the increasing scale of automobile in use, representing a CAGR of 7.6%. Going forward, such exported sales volume in AM segment will grow at a CAGR of 2.9% and reach 12.7 million units in 2026, driven by growing number of automobile in use globally and the increasing penetration rate of modified and customized automobiles. The exported sales value of aluminum alloy automobile wheel in AM segment in China grew from RMB3.3 billion in 2017 to RMB4.3 billion in 2021, representing a CAGR of 6.8%. Such exported sales value in AM segment in China is expected to increase to RMB5.4 billion in 2026 with a CAGR of 4.7%.

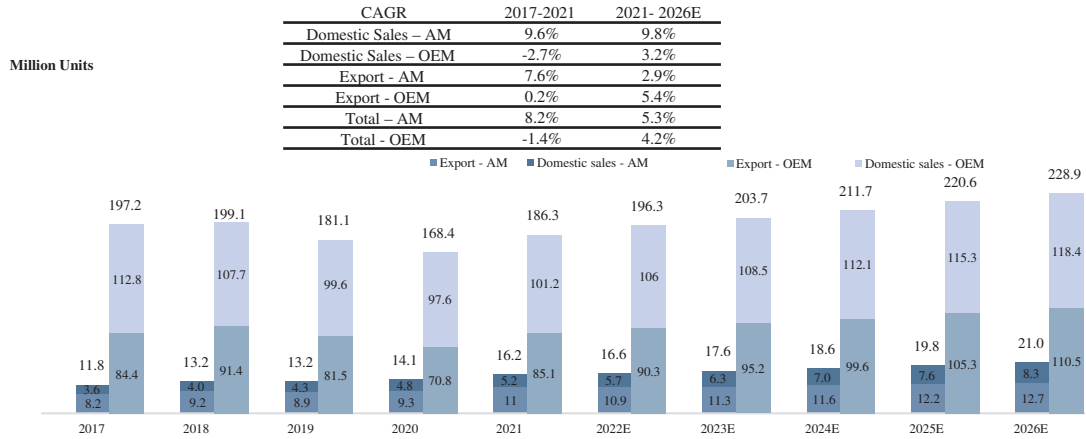
The domestic sales volume of aluminum alloy automobile wheel in OEM segment in China declined from 112.8 million units in 2017 to 101.2 million units in 2021, representing a CAGR of -2.7%. Such domestic sales volume in OEM segment in China is expected to grow at a CAGR of 3.2% and reach 118.4 million units in 2026, along with the recovery of automobile industry in China. Impacted by COVID-19, the domestic sales value of aluminum alloy automobile wheel in OEM segment in China declined at a CAGR of -6.2% from RMB22.5 billion in 2017 to RMB17.4 billion in 2021. Due to recovery of automobile industry in China, such domestic sales value in OEM segment in China is expected to increase at a CAGR of 7.2% and reach RMB24.6 billion in 2026.

The domestic sales volume of aluminum alloy automobile wheel in AM segment in China grew from 3.6 million units from 2017 to 5.2 million units in 2021, representing a CAGR of 9.6%, driven by the expanding

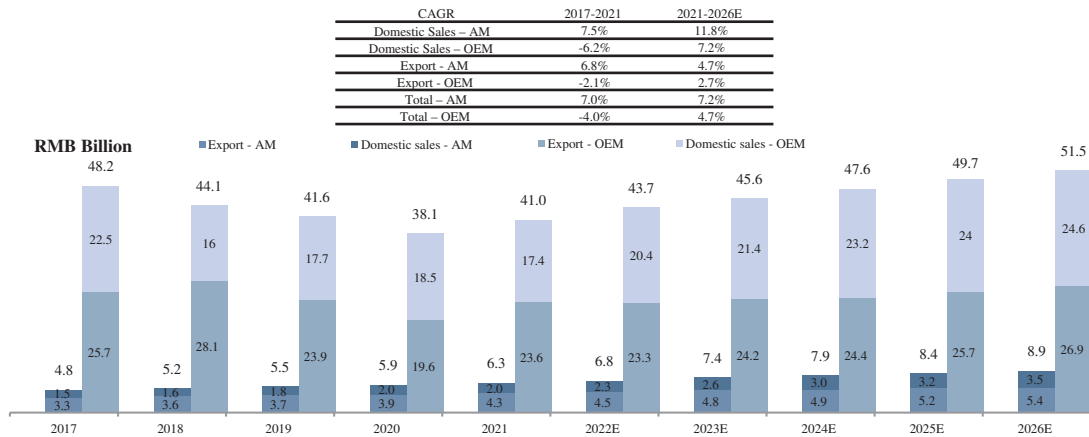
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production scale of automobile and scale of automobile in use. Such domestic sales volume in AM segment in China is expected to grow at a CAGR of 9.8% and reach 8.3 million units in 2026, along with the recovery of automobile industry in China. Similarly, the domestic sales value of aluminum alloy automobile wheel in AM segment in China grew from RMB1.5 billion in 2017 to RMB2.0 billion in 2021, representing a CAGR of 7.5%. Such domestic sales value in AM segment in China is expected to grow at a CAGR of 11.8% and reach RMB3.5 billion in 2026.

**Sales Volume of Aluminum Alloy Automobile Wheel in China, Breakdown by Domestic Sales and Exported Sales, 2017-2026E**



**Sales Value of Aluminum Alloy Automobile Wheel in China, Breakdown by Domestic Sales and Exported Sales, 2017-2026E**



Source: Frost & Sullivan

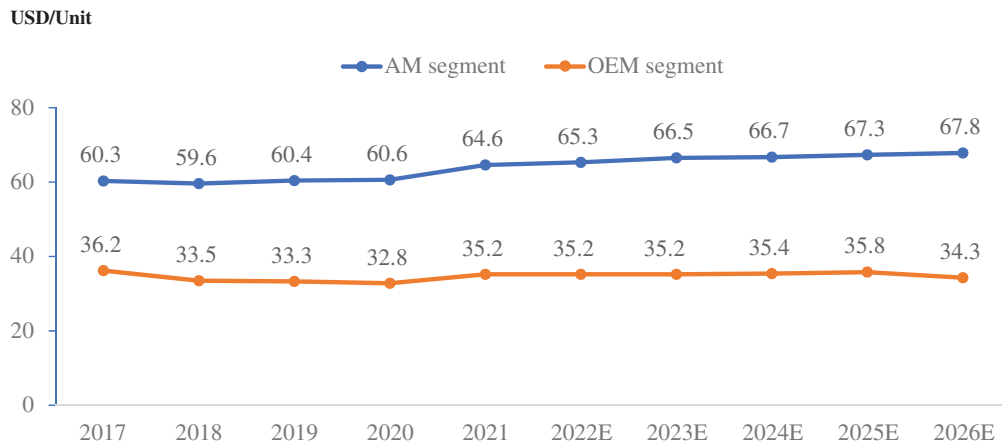
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The diagram below illustrates the historical and forecast trend on the selling price of aluminum alloy automobile wheel in China for the indicated periods.

**Average Price of Aluminum Alloy Automobile Wheel in China, 2017-2026E**



Source: The National Bureau of Statistics

### Market Drivers of Aluminum Alloy Automobile Wheel Market in China

#### *Competitiveness Improvement of Domestic Wheel Industry*

As domestic labor costs increase continuously and market competition from the multinational wheel manufacturers becomes more intense, domestic automobile wheel manufacturers have strengthened their technology development ability, expanded and upgraded their product portfolios. As a result, domestic wheel manufacturers are able to provide comprehensive and competitive wheel production to gain recognition by global customers and improve their market position in the global automobile wheel industry.

#### *International Expansion of Domestic Wheel Enterprises*

With strong promotion of “Belt and Road Initiative” strategy from the government, domestic wheel manufacturers try to seek opportunities of cooperation, merger and acquisition with overseas factories on a global scale, and recruit a large number of talents in the international market to expand their research and development capabilities. With the continuous expansion in the global market, China’s wheel manufacturers have a broad development prospect.

### Development Trends of Aluminum Alloy Automobile Wheel Market in China

#### *Lightweight and Upgraded Wheel*

Wheel weight reduction is an important area of automobile lightweight. Wheel manufacturers continue to optimize the wheel design and production process to reduce wheel weight, in order to reduce vehicle fuel consumption.

In recent years, large size wheels gradually grow into a mainstream wheel type. As a result, the popular sizes of wheel have changed from previous 14-15 inches to 17-18 inches today. For example, the 2008 model Jetta of Volkswagen was equipped with 14-inch wheels, while the new model Jetta of Volkswagen starts to introduce 17-inch wheels as standard.

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### *Adoption of Advanced Processing Technology*

In the future, an increasing number of aluminum alloy automobile wheel production will adopt CNC machining technology. This technology can greatly reduce the number of tooling, manufacturing complex shape of the wheel without the need for complex tooling. If the shape and size of wheel are changed, only the manufacture processing procedures need to be modified, which is quite suitable for new product development process. CNC machining technology has the advantage of stable product quality and high processing accuracy, which has made it a technology trend in the domestic aluminum alloy automobile wheel industry.

### COMPETITIVE LANDSCAPE OF ALUMINUM ALLOY AUTOMOBILE WHEEL MARKET IN CHINA

#### **Barriers to Entry**

##### *Technology Barrier*

The design and production of aluminum alloy automobile wheel involves a series of technologies such as material science, metal smelting, surface coating and product testing. With vehicle manufacturers continuously shortening development period, major vehicle manufacturers often require suppliers to have new product development ability and be able to participate in the development of new vehicle models. In this context, automobile wheel manufacturers need to have strong R&D capability to develop and manufacture new products in a limited period.

##### *Stringent qualification requirement of suppliers by OEMs*

With the continuous development of the automobile industry, vehicle manufacturers have increasingly higher requirements on the reliability, precision and environmental protection of the manufacturing process of aluminum alloy automobile wheels. In the selection of suppliers, technical strength, product quality, supply capacity and production costs are important consideration factors. For new enterprises to enter the automobile aluminum wheel industry, strict and complex certification standards and relatively long certification process are major barriers to enter the aluminum alloy automobile wheel supply system.

##### *Brand Barrier*

The aluminum alloy automobile wheel industry is highly specialized. Manufacturers in the industry have generally established long-term and stable cooperative relationship with their customers. Positive brand image is indispensable and beneficial to business development and customer base enlargement of market participants. The difficulty in building up brand recognition in a short period of time has contributed to the hinderance in customer acquisition activities for new entrants in the industry.

##### *Capital Barrier*

Aluminum alloy automobile wheel industry is a capital-intensive manufacturing industry, which requires substantial capital expenditure in manufacturing, machinery, research and development, product design, and marketing in order to meet both consumer preferences and regulatory requirements. At the same time, in the production process a large amount of working capital is also needed, in order to ensure the smooth raw material procurement and other daily business activities. Therefore, large capital investment for new entrants sets a high entry barrier.

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### Competitive Landscape

Over the past decade, approximately 150 new market participants entered the industry of aluminum alloy automobile wheel in China, of which approximately 110 and 40 were manufacturers and trading companies which exported aluminum alloy automobile wheels, respectively, as a result of growth of global automobile market and certain advantages in production, such as cheaper manufacturing cost, sufficient supply of aluminum, and skilled labor. There were 500 to 600 aluminum alloy automobile wheel manufacturers in China and there were more than 500 participants, including more than 300 manufacturers and approximately 200 trading companies which exported aluminum alloy automobile wheels for more than 1,000 units in China in 2021, which indicate an intense competition in a fragmented market. On the other hand, 18 out of the top 20 aluminum alloy automobile wheel exporters in China which exported aluminum alloy automobile wheels for more than 0.5 million units in China in 2021 are manufacturers, the market is dominated by a few major aluminum alloy automobile wheel manufacturers. The top ten manufacturers by exported volume amassed a combined market share of 47.6% in 2021. Within such competitive market, most aluminum alloy automobile wheel manufacturers tend to focus on particular customer segment, in particular, car manufacturer or automobile aftermarket parts reseller, in domestic and overseas markets.

The Group, as an aluminum alloy automobile wheel manufacturer, has developed diversified and long-term automobile aftermarket parts customers in overseas markets. In terms of exported volume of aluminum alloy automobile wheel, the Group had a 0.8% market share in 2021.

In terms of exported value of aluminum alloy automobile wheels, the Group took up approximately 1.0% market share and ranked the 19th in the aluminum alloy automobile wheel export market in PRC in 2021 with exported value of RMB291.5 million.

	Exported value in 2021 (RMB million)	Market share
1 CITIC Dicastal Co., Ltd. (中信戴卡股份有限公司) .....	3,656.4	13.1%
2 Shengwang Automobile Parts (Kunshan) Co., Ltd (盛旺汽車零部件(昆山)有限公司) .....	2,225.2	8.0%
3 Baoding Lizhong Wheel Manufacturing Co., Ltd. (保定市立中車輪製造有限公司) .....	1,610.3	5.8%
4 Zhejiang Wanfeng Automobile Wheel Co., Ltd. (浙江萬豐奧威汽輪股份有限公司) .....	1,490.4	5.3%
5 Guangzhou Yufengxu Aluminum Casting Co., Ltd (廣州馭風旭鋁鑄件有限公司) .....	930	3.3%
6 Liuhe Light Alloy (Kunshan) Co., Ltd (六和輕合金(昆山)有限公司) .....	941.5	3.4%
7 Lianyungang Qichuang Aluminum Products Manufacturing Co., Ltd (連雲港啟創鋁製品製造有限公司) .....	814.5	2.9%
8 Zhejiang Jinfei Kaida Wheel Co., Ltd. (浙江今飛凱達輪轂股份有限公司) .....	818.6	2.9%
9 Zhejiang Yue Ling Co., Ltd. (浙江躍嶺股份有限公司) .....	819.3	2.9%
10 Qinhuangdao Zhongqin Bohai Wheel Co., Ltd (秦皇島中秦渤海輪轂有限公司) .....	635.9	2.3%
Top 10 Market Players .....	13,942.1	50.0%
Others .....	13,957.9	50.0%
<b>TOTAL</b> .....	<b>27,900.0</b>	<b>100.0%</b>
The Group .....	291.5	1.0%

*Source: Frost & Sullivan*

## INDUSTRY OVERVIEW

The domestic market of aluminum alloy automobile wheel in China is highly concentrated. The top five manufacturers by domestic sales volume accounted for a combined market share of 87.2% in 2021, whereas the Group took up approximately 0.4% market share in the domestic market of aluminum alloy automobile wheel in China in 2021.

	<b>Domestic sales volume in 2021 (million units)</b>	<b>Market share</b>
1 CITIC Dicastal Co., Ltd. (中信戴卡股份有限公司) .....	50.2	47.2%
2 Zhejiang Jinfei Kaida Wheel Co., Ltd. (浙江今飛凱達輪轂股份有限公司) .....	14.2	13.3%
3 Baoding Lizhong Wheel Manufacturing Co., Ltd. (保定市立中車輪製造 有限公司) .....	13.4	12.6%
4 Zhejiang Wanfeng Automobile Wheel Co., Ltd. (浙江萬豐奧威汽輪股份 有限公司) .....	11.3	10.6%
5 Zhongnan Aluminum Alloy Wheel Hub Co., Ltd. (中南鋁車輪股份有限 公司) .....	3.7	3.5%
Top 5 Market Players .....	92.8	87.2%
Others .....	13.6	12.8%
<b>TOTAL</b> .....	<b>106.4</b>	<b>100.0%</b>
The Group .....	0.4	0.4%

*Source: Frost & Sullivan*

### Key Market Participants

#### Company Profile of Main Competitors

<u>Company</u>	<u>Year of establishment</u>	<u>Listed/Unlisted</u>	<u>Major product scope</u>	<u>Main business coverage</u>
CITIC Dicastal Co., Ltd.(中信 戴卡股份有限公司)	1988	Unlisted	<ul style="list-style-type: none"> <li>• Aluminum alloy automobile wheel</li> <li>• Automated manufacturing equipment (e.g. ID laser etching system, automatic and informationized low pressure casting line, automatic deburring system, etc.,)</li> <li>• Lightweight aluminum cast components</li> </ul>	Mainland China, Europe, North America, Japan, South Korea, and Australia
Shengwang Automobile Parts (Kunshan) Co., Ltd (盛旺汽 車零部件(昆山)有限公司)	1997	Unlisted	<ul style="list-style-type: none"> <li>• Aluminum alloy automobile wheel</li> <li>• Automobile seats</li> <li>• Automobile tires</li> <li>• Automobile engines</li> </ul>	Mainland China, Europe, North America and Asia
Baoding Lizhong Wheel Manufacturing Co., Ltd. (保 定市立中車輪製造有限公司)	1995	Unlisted	Aluminum alloy automobile wheel	Mainland China, USA, Europe, Japan and South Korea

## INDUSTRY OVERVIEW

Company	Year of establishment	Listed/Unlisted	Major product scope	Main business coverage
Zhejiang Wanfeng Automobile Wheel Co., Ltd. (浙江萬豐奧威汽輪股份有限公司)	1998	Listed	<ul style="list-style-type: none"> <li>• Aluminum alloy automobile wheel</li> <li>• Magnesium alloy wheel</li> </ul>	Mainland China, Japan, North America and Europe
Lianyungang Qichuang Aluminum Products Manufacturing Co., Ltd (連雲港啟創鋁製品製造有限公司)	2007	Unlisted	Aluminum alloy automobile wheel	Mainland China, North America, Europe, and Australia
Liuhe Light Alloy (Kunshan) Co., Ltd (六和輕合金(昆山)有限公司)	2000	Unlisted	<ul style="list-style-type: none"> <li>• Aluminum alloy automobile wheel</li> <li>• Magnesium Alloy Wheel</li> </ul>	Mainland China, North America and Europe
Guangzhou Yufengxu Aluminum Casting Co., Ltd (廣州馭風旭鋁鑄件有限公司)	2007	Unlisted	Aluminum alloy automobile wheel	Mainland China, North America and Europe
Zhejiang Jinfei Kaida Wheel Co., Ltd. (浙江今飛凱達輪轂股份有限公司)	1996	Listed	Aluminum alloy automobile wheel	Mainland China, North America and Europe
Zhejiang Yue Ling Co., Ltd. (浙江躍嶺股份有限公司)	1983	Listed	Aluminum alloy automobile wheel	Mainland China and North America
Qinhuangdao Zhongqin Bohai Wheel Co., Ltd (秦皇島中秦渤海輪轂有限公司)	2015	Unlisted	Aluminum alloy automobile wheel	Mainland China, North America and Europe
Zhongnan Aluminum Alloy Wheel Hub Co., Ltd. (中南鋁車輪股份有限公司)	1990	Unlisted	Aluminum alloy automobile wheel	Mainland China, North America and Europe

*Source: Frost & Sullivan*

### Competitive Strengths of the Company

#### *Strong and flexible design and production capability that cater to individualized customer needs*

The Group has enjoyed great flexibility in product design and production capability. After-sales automobile market is characterized by fast evolving and highly individualized customer demands. In order to quickly respond to frequent orders with small amount but diversified and customized needs in each order, the Group has designed various molds and developed an agile production. In addition, the Company has made significant investment in enhancing its product development capabilities to keep current with the rapid-upgrading technology.

#### *Advanced Production Technics*

The Group has continuously invested in improving its production techniques by purchasing further advanced producing equipment, such as automatic casting machines, to improve the level of automatic



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## INDUSTRY OVERVIEW

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manufacturing. The Company has obtained IATF 16949:2016 certificate for its quality management system in 2018, as well as the certificate issued by TÜV Rhineland Italia S.r.l. on its quality management system in 2013 and certification of accreditation issued by Japan Light Alloy Automobile Wheel Testing Council on quality testing equipment in 2016.

### *A Well-established Sales Network*

A well-established and extensive sales network is essential for aluminum alloy automobile wheel manufacturers. The Company has established its sales networks that covers around 30 countries and regions in North America, Europe and Japan. The proved quality and increasingly renowned brand allow the Company to deepen its presence in its target market. Moreover, the extensive worldwide sales networks can reduce risks and losses caused by single customer change.

### *A Well-recognized brand*

After years of development and substantial enhancement on brand recognition, the Group has earned brand recognition from customers in China and globally. The Group obtained certifications from relevant certification bodies in major automobile markets, including IATF 16949:2016 certificate for its quality management system in 2018, as well as the certificate issued by TÜV Rhineland Italia S.r.l. on its quality management system in 2013 and certification of accreditation issued by Japan Light Alloy Automobile Wheel Testing Council on quality testing equipment in 2016, which are among the most widely-recognized certificates in the aluminum alloy automobile wheel manufacturing industry. The Group was awarded “Certificate of Zhejiang Name Brand” (浙江名牌產品證書) and “Zhejiang Made” certification (浙江製造認證證書).

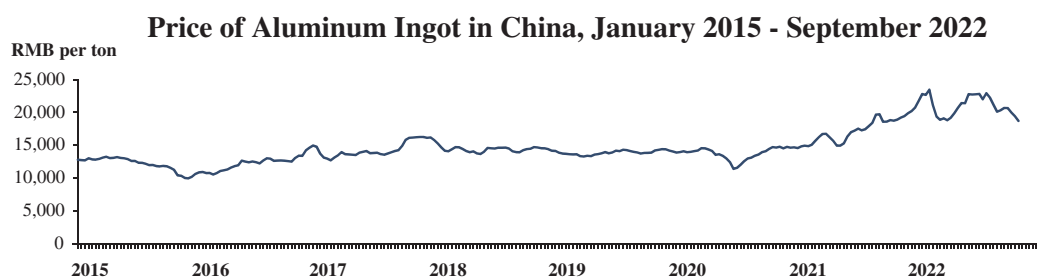
### **Price Trend of Major Raw Materials**

Aluminum alloy ingots are the main raw material for manufacturing aluminum alloy automobile wheels. The price of aluminum alloy ingot is highly correlated to the price of aluminum ingot. The average monthly price of aluminum ingot in China fluctuates significantly, and the fluctuations in the prices of raw materials are common in the industry. In 2015, the market price of aluminum ingot dropped sharply primarily due to the oversupply of aluminum ingot after years of rapid development in the market. The oversupply of aluminum ingot was primarily due to the Chinese government’s policy to increase the production capacity of aluminum ingot to achieve the goal of self-sufficiency by providing subsidies and tax cuts to support the development of the aluminum market. However, while China has remained self-sufficient for aluminum which helped facilitate the economic transformation, the Chinese government rolled out a supply-side reform in early 2016 with the aim of eliminating excess capacity of aluminum ingot. With gradual decline in the capacity of supply-side, the price of aluminum ingot has recovered continuously and reached a peak at RMB16,255.0 per ton on October 10, 2017, but followed by a downward trend afterwards until the second quarter of 2020. The dramatic decline in the first quarter of 2020 was mainly triggered by the unexpected outbreak of COVID-19. Subsequent to the initial outbreak of the COVID-19 pandemic in the PRC, the price of aluminum ingot increased significantly since the second quarter of 2020. Such increase was mainly due to (i) the recovery of business in the PRC as a result of relaxation of lock-down and isolation policies, prompting a surge in demand for aluminum ingot in various manufacturing industries; and (ii) the implementation of the carbon neutral policy by the PRC government in 2021 which deterred excess production of aluminum ingot in the PRC. As part of the PRC government’s long-term goal of lowering carbon emissions, the recent implementation of the carbon neutral

## INDUSTRY OVERVIEW

policy is expected to have a direct impact on the price of aluminum ingot as supply side manufacturers of aluminum products are restricted by the stringent emission standards which will prevent excessive production of aluminum ingot. In the last two months of 2021, due to the excessive aluminum inventory level, the price experienced a short-term sharp decline. In early 2022, aluminum ingot price increased significantly after a short-term decrease in the fourth quarter of 2021, which can be attributable to several reasons from both the supply and demand side. On the supply side, in February and March 2022, COVID-19 broke out in Baise City, Guangxi Province, the PRC, which is one of the most important production cities of bauxite and aluminum ingot, and large-scale lockdown of Baise City directly impacted the aluminum ingot delivery capability and drove the price to grow. Additionally, the increasing energy price also increases the cost of aluminum ingot given that energy is the largest component of aluminum ingot production cost. On the demand side, the new energy vehicle, infrastructure and real estate sectors have been heating up since early 2022, driving the increase of demand for aluminum products, which jointly pushed up the price of aluminum ingot. From May to September 2022, the average price of aluminum ingot went into a downward trend, primarily attributable to the COVID-19 outbreak in the PRC, including the two most developed cities Shanghai and Beijing. The outbreak led to large-scale lockdown and severely impacted the economy including manufacturing industry, and demand for aluminum ingot decreased significantly during the second and third quarter of 2022, which led to the drop of aluminum ingot price.

The diagram below illustrates prices of aluminum ingot in China for the indicated period:



*Source: The National Bureau of Statistics*

The table below lists out the average price of aluminum ingot in China in each quarter for the indicated periods:

	<b>Average price of aluminum ingot (RMB per ton)</b>			
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
The first quarter . . . . .	13,542.2	13,379.4	16,246.8	22,159.9
The second quarter . . . . .	14,062.3	13,025.6	18,646.2	20,569.6
The third quarter . . . . .	14,088.0	14,639.4	20,640.9	18,695.0
The fourth quarter . . . . .	14,080.5	15,697.6	20,270.6	—

*Source: The National Bureau of Statistics*

### SOURCE OF INFORMATION AND RESEARCH METHODOLOGY

We had commissioned Frost & Sullivan to provide information on the aluminum alloy automobile wheel industry in the PRC. We had agreed to pay a fee of RMB1,150,000 to Frost & Sullivan for the report. The Directors are of the view that the payment does not affect the fairness of the views and conclusions presented in the Frost & Sullivan Report.

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## INDUSTRY OVERVIEW

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In compiling and preparing the research reports, Frost & Sullivan conducted primary research including discussing the status of the industry with certain leading industry participants and secondary research which involved reviewing company reports, independent research reports and data based on its own database. Frost & Sullivan has obtained the figures for the estimated total market size from historical data analysis plotted against macroeconomic data as well as considered industry key drivers. Frost & Sullivan assumed that the social, economic and political environment in the globe and the PRC is expected to remain stable during the forecast period from 2022 to 2026. As the spread of COVID-19 pandemic is expected to be controlled with increasingly effective public health responses in 2020, this ensures the normalcy of the global and China's aluminum alloy automobile wheel market and related industries.

Frost & Sullivan is an independent global consulting firm founded in 1961. It offers industry research, market strategies and provides growth consulting and corporate training. Its industry coverage includes automotive and transportation, chemicals, materials and food, commercial aviation, consumer products, energy and power systems, environment and building technologies, healthcare, industrial automation and electronics and technology, media and telecom. The Frost & Sullivan Report includes information on data of the aluminum alloy automobile wheel industry in the PRC.