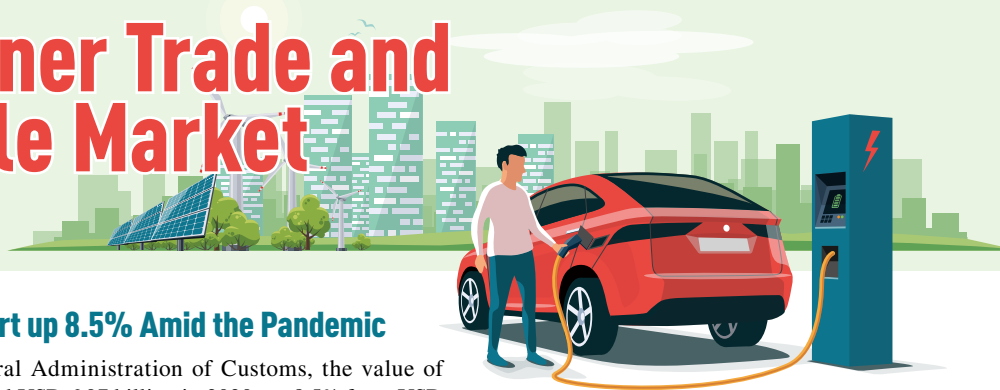


# 2020 in Review on Chinese Fastener Trade and Electric Vehicle Market

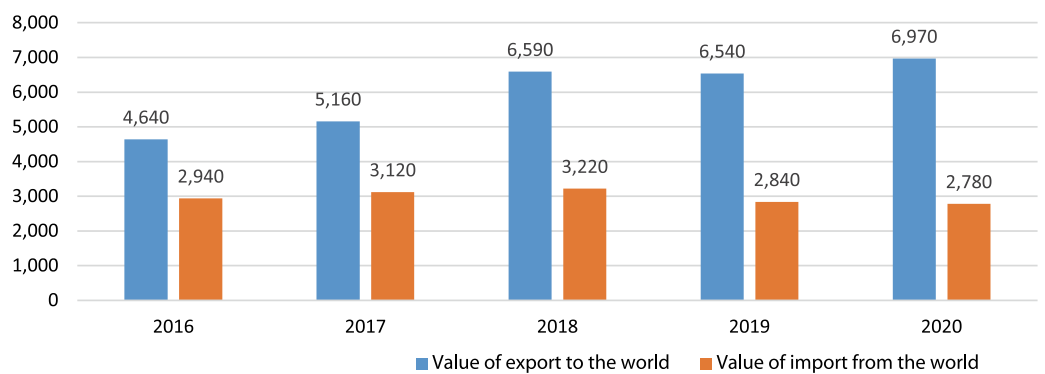
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## China's Worldwide Fastener Export up 8.5% Amid the Pandemic

According to statistics from China's General Administration of Customs, the value of fasteners exported from China to the world reached USD 6.97 billion in 2020, up 8.5% from USD 6.41 billion in 2019. China imported USD 2.78 billion worth of fasteners from the world, a minor 1.7% dip from USD 2.83 billion in 2019. The export value plunged 80.4% as a result of the lockdown in February 2020, but in March immediately rebounded to the January level, and peaked at USD 8.16 billion in June, while the import value remained within steady fluctuation. In the third quarter, the export value went back to the January level, and grew further towards the USD 8 billion mark. In regard to China's fastener export to the U.S., likewise the value plummeted by 80% during the lockdown and sporadically went back to the January level in April, November and December, while the import value remained within steady fluctuation.

Fig. 1. China's Global Fastener Import & Export from 2016 to 2020 (Unit: USD Million)



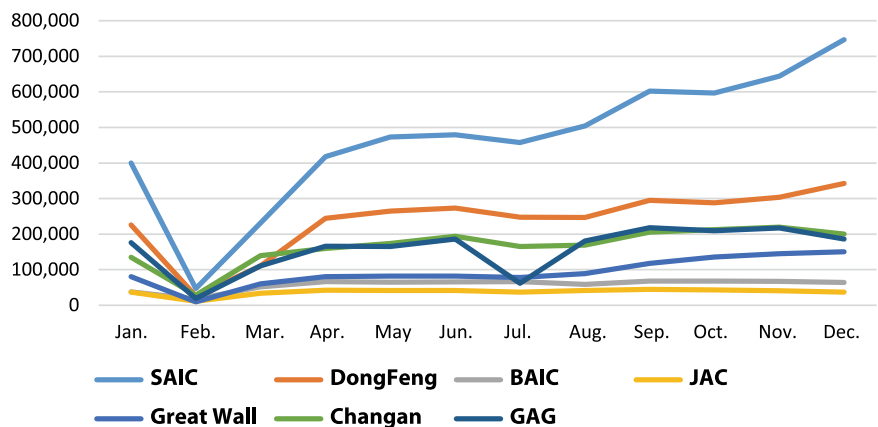
Fastener Export Value from China to the U.S.: USD 8.27 million ; Import Value from the U.S. to China: USD 3.15 million.

Overall, despite the impact from both the pandemic and the U.S./China tension, the rebound in China's fastener trade remains strong. Furthermore, the world's demand for China's fasteners increased instead (Fig. 1), and therefore the prospect for China's fastener export in 2021 is still expectable.

## Decelerated Growth in Chinese Automotive Market Expected to Continue This Year

The sales figures for 7 major Chinese automakers are presented in Figure 2. It is little effort to find their figures fluctuate with the development of the pandemic. Particularly in February 2020 when the pandemic in China peaked, over 80 percent drop in production and sales appeared in five out of the seven automakers. An apparent reduction in drop margin occurred in March on each of the said automakers. The figures basically went upwards starting in April. In May, most of the said automakers have restored sales to the January level and gone from negative to positive growth. Among them, FOTON's sales in May 2020 was higher by one fold than the sales in May 2019, and Chang'an Automobile saw 50% month-on-month sales growth. Between May and the yearend, the sales slightly fluctuated with the pandemic but did not impede the gradual growth trend. In December, most of the said automakers had sales higher than the January level.

Fig. 2. Chinese Automaker Sales Trend in 2020 (Unit: Vehicle)



As long as no more massive lockdown will be announced in China in the foreseeable future, the Chinese automotive market will continue its gradual restoration. However, we cannot overlook the winter in 2020 and spring in 2021 when global positive tested cases and death tolls accelerated at a record speed. The Chinese automotive market growth slowed in around 2018 (Fig. 3) and was met with the pandemic in 2020. It is a long way for China to achieve production and sales surge in 2021, but slower recovery is expectable.



## Electric Vehicles Propelled by the Pandemic to be on a High-speed Growth Track in China and the World

Chinese electric vehicle production and sales will grow at a high speed in 2021 and could breach 2 million vehicles. China produced 167 thousand vehicles (up 69.7%) and sold 160 thousand vehicles (up 104.5%) in October 2020, setting new records the fourth time. China announced the “Automotive Industry Development Plan (2021-2016)” in November 2020. The goal was to have electric vehicle sales take up 20% of new car sales and elevate the core technology of electric vehicles to the international level around the world.

The number of delivery for four electric vehicle makers in China, including NIO, Li Auto, XPeng and Leap Motor are shown in Fig.4. Even though electric vehicle sales plunged in February where the lockdown took place, in a full-year perspective, electric vehicles were hardly affected by the pandemic and went steadily upwards. NIO, Li Auto, XPeng and Leap Motor grew 5 folds in car delivery during the whole year. Leap Motor grew nearly 70% from May to the yearend. In 2018 to 2020 (Fig. 5), the said electric vehicle makers’ delivery grew by folds, showing that the Chinese electric vehicle market was just about to turn around for the better under the pandemic.

With Tesla's founder Elon Musk rising as the richest man in the world this January, it is not a far-fetched pipe dream to envisage the next 5 to 10 years as the heyday of the electric vehicle industry. In the 5 years from 2016 to 2020 (Fig. 6), Tesla’s sales went from 15 to 18 thousand vehicles, up 12 folds. The first surge began in the first quarter of 2018, breaching the 30 thousand mark, and through the 100 thousand mark for the first time in the fourth quarter of 2019. The second surge occurred in the third quarter of 2020, followed by another record peak in the fourth quarter, reaching 180 thousand vehicles. In the whole year of 2020, Tesla produced 509 thousand vehicles and delivered 499 thousand vehicles, barely reaching the 500 thousand target range set by Musk.

The world’s electric vehicle market share increased nearly 3 percent in the last 5 years. The sales increased from 800 thousand vehicles in 2016 to 2.28 million vehicles in 2020, up 185%. With Tesla’s plant in China, China’s supportive policy, and the emergence of multiple electric vehicle start-ups in China, the largest and most evident growth market of electric vehicles is China. The U.S and Europe are growing steadily year by year, and Japan is relatively at the starting point. At the writing of this article, respective country’s electric vehicle sales figures for 2020 had yet to come up. Despite the pandemic disruption, NIO, Li Auto, XPeng and Leap Motor still have robust sales momentum and Tesla the electric vehicle frontrunner’s sales grows 12 times in five years. The electric vehicle sales from 2020 onwards still look promising.

Fig. 3. Chinese Automaker Sales Trend in 2016-2020 (Unit: Vehicle)

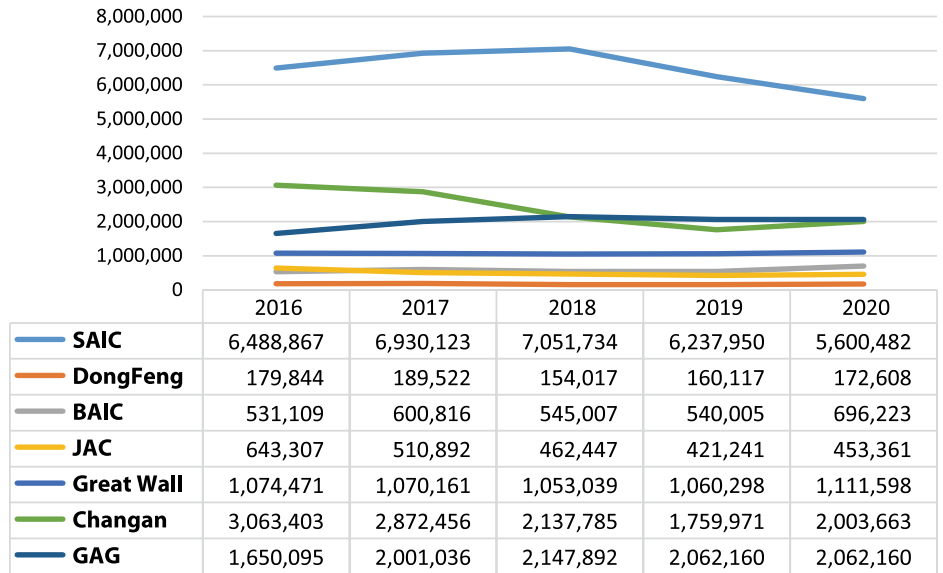


Fig. 4. Chinese Electric Vehicle Makers’ Delivery in 2020 (Unit: Vehicle)

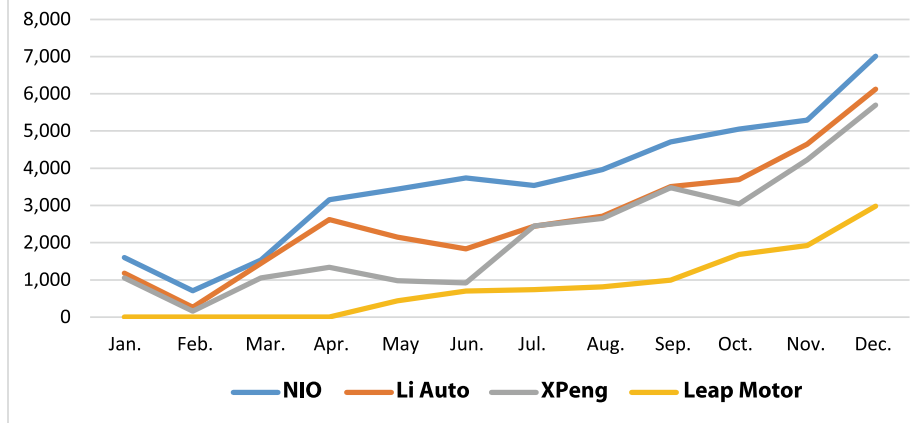


Fig. 5. Chinese Electric Vehicle Makers’ Delivery in 2018 to 2020 (Unit: Vehicle)

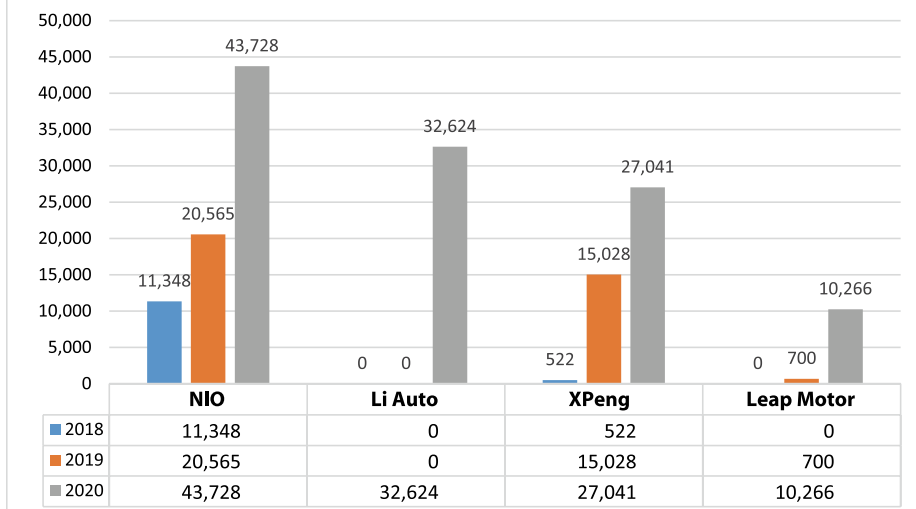
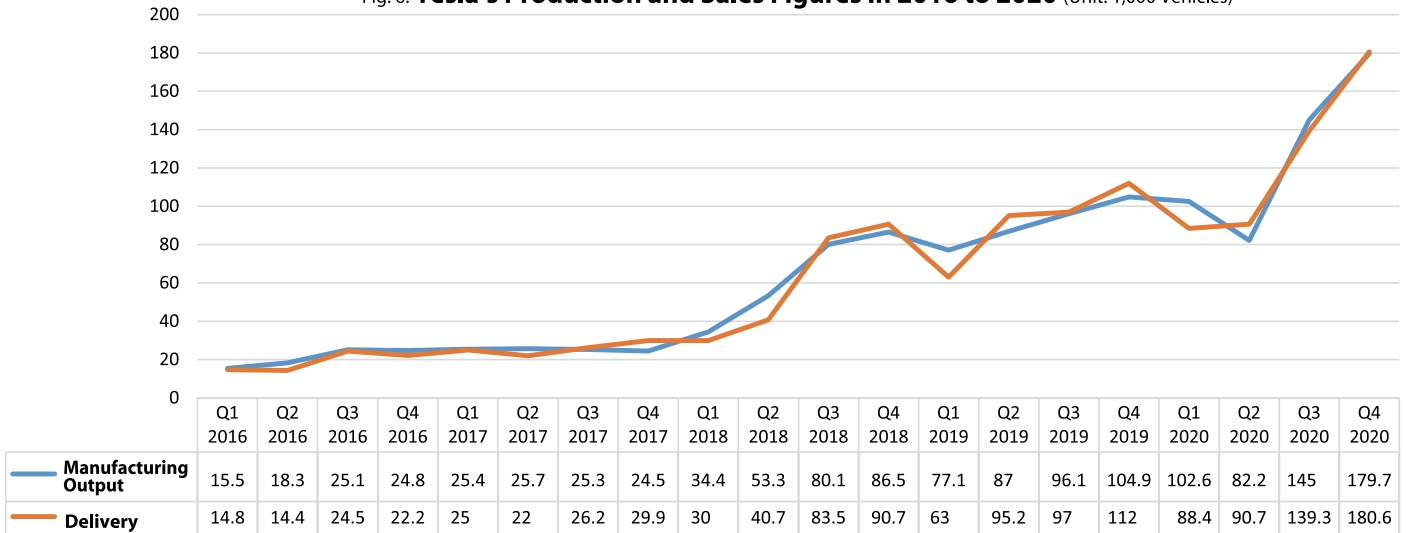


Fig. 6. Tesla's Production and Sales Figures in 2016 to 2020 (Unit: 1,000 Vehicles)



### A New Target for the Fastener Industry: Electric Vehicles

Among all the automotive components, those being the heaviest are battery sets, motors, transmissions, which are critical in electric vehicle development with the goal of reducing the weight of heavy components and extending service life through ground-breaking designs. In this way, future ideal electric vehicles will be eco-friendly, fuel-free, and more importantly, no longer need to go under maintenance at an automotive body shop. Fasteners as a critical automotive component must be lighter, used in a fewer amount, priced higher, and more durable to be in line with electric vehicle development.

The future electric vehicles will use the following critical types of fasteners:

- Fasteners with electrically isolating coatings
- Lightweight non-magnetic fasteners
- Battery retention bolts
- Sheet metal fasteners
- Thread-forming screws for plastics and metals
- Security fasteners

Furthermore, the future electric vehicles' battery design will go from graphite-based to lithium-based, and even further upwards to surpass lithium batteries, which could affect future automotive fastener design. All traces signify that electric vehicles have become more acceptable to the public, so to speak. Fastener companies must catch up with new trends under the pandemic, and pre-deploy product development for the electric vehicle fastener market to get a head start as the booming of electric vehicles comes.

Table 1. Tesla's Production and Sales Figures in 2016 to 2020 (Unit: Vehicles)

Year	Manufacturing Output	Delivery
2016	83,922	75,900
2017	101,027	103,100
2018	254,530	244,900
2019	365,284	367,200
2020	509,737	499,000

Fig. 7. Global Electric Vehicle Sales in 2016 to 2020 (Unit: Million Vehicles)

