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Fastener World

Editorial

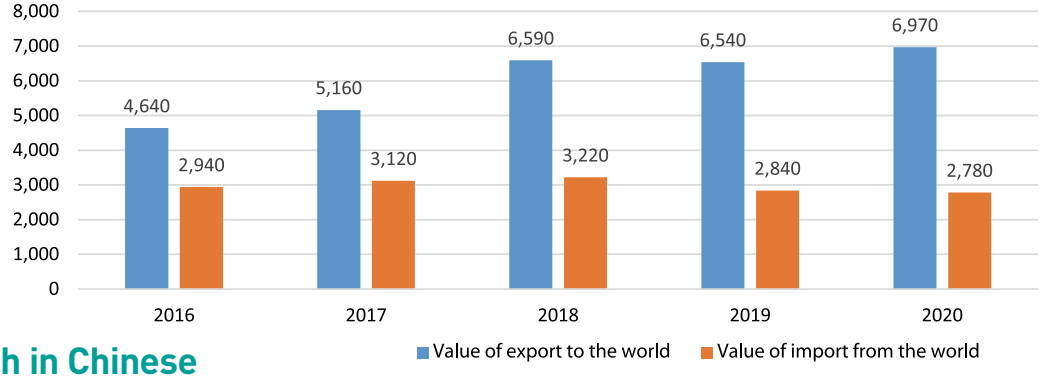
Year in Review on Chinese Fastener Trade and Electric Vehicle Market

1. 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, 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 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.

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.

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



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

2. 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 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

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

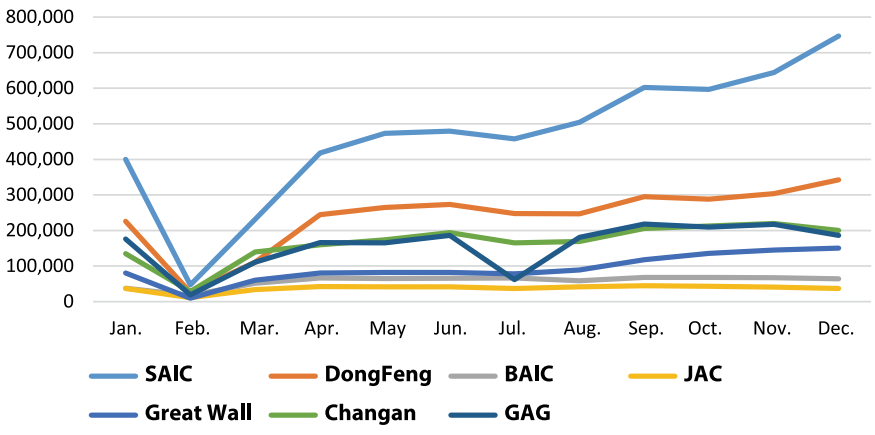
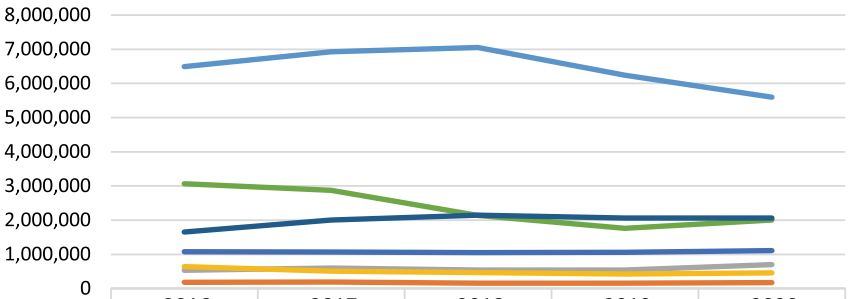


Fig. 3. **Chinese Automaker Sales Trend in 2016-2020** (Unit: Vehicle)



	2016	2017	2018	2019	2020
SAIC	6,488,867	6,930,123	7,051,734	6,237,950	5,600,482
DongFeng	179,844	189,522	154,017	160,117	172,608
BAIC	531,109	600,816	545,007	540,005	696,223
JAC	643,307	510,892	462,447	421,241	453,361
Great Wall	1,074,471	1,070,161	1,053,039	1,060,298	1,111,598
Changan	3,063,403	2,872,456	2,137,785	1,759,971	2,003,663
GAG	1,650,095	2,001,036	2,147,892	2,062,160	2,062,160

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

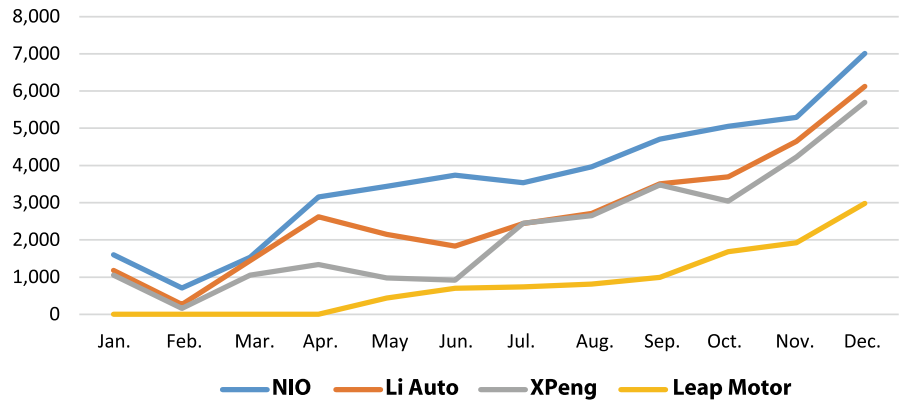
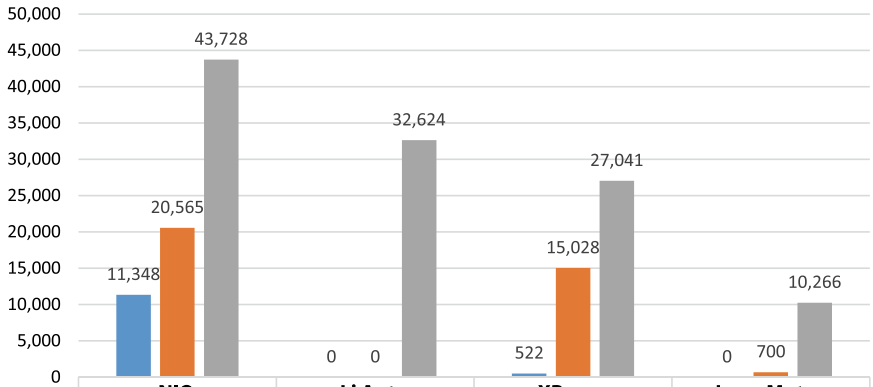


Fig. 5. **Chinese Electric Vehicle Makers' Delivery in 2018 to 2020** (Unit: Vehicle)



	NIO	Li Auto	XPeng	Leap Motor
2018	11,348	0	522	0
2019	20,565	0	15,028	700
2020	43,728	32,624	27,041	10,266

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 have sales higher than the January level.

As long as no more massive lockdown comes up in China in the foreseeable future, the Chinese automotive market will continue its gradual restoration. However, we cannot overlook the winter and spring in 2020 when global positive tests and deaths 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.

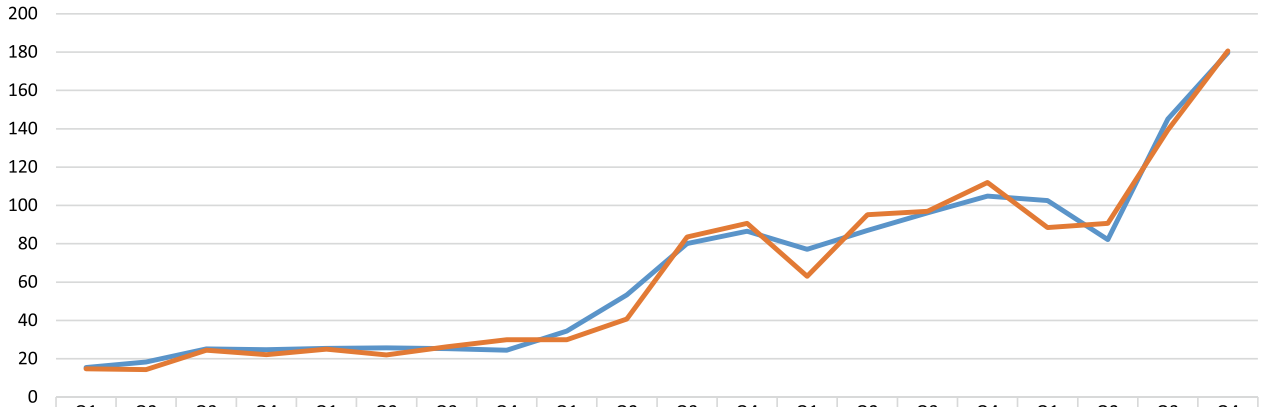
3. Electric Vehicles to be on a High-speed Growth Track in China and the World Propelled by the Pandemic

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 raise 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, and it foretells that the Chinese electric vehicle market was just about to turn hot under the pandemic.

With Tesla founder 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 delivery 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

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



	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Manufacturing Output	15.5	18.3	25.1	24.8	25.4	25.7	25.3	24.5	34.4	53.3	80.1	86.5	77.1	87	96.1	104.9	102.6	82.2	145	179.7
Delivery	14.8	14.4	24.5	22.2	25	22	26.2	29.9	30	40.7	83.5	90.7	63	95.2	97	112	88.4	90.7	139.3	180.6

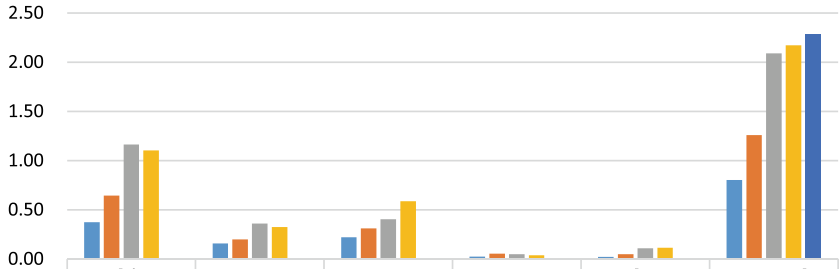
quarter of 2019. The second surge occurred in the third quarter of 2020, followed by another record peak in the fourth quarter, reaching 180 thousand vehicles. In the whole year of 2020, Tesla produced 509 thousand vehicles and delivered 499 thousand vehicles, barely reaching the 500 thousand target range set by Musk.

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

The world's electric vehicle market share increased nearly 3 percent in the last 5 years. The sales increase 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 startup electric vehicle makers in China, the largest and most evident growth market of electric vehicles is China. The U.S and Europe is growing steadily year by year, and Japan is relatively at the start phase **(Fig. 7)**. At the writing of this article, respective country's electric vehicle sales figures for 2020 had not come up. Despite the pandemic disruption, NIO, Li Auto, XPeng and Leap Motor still have robust sales momentum and Tesla the electric vehicle mogul's sales grow 12 times in five years. The electric vehicle sales from 2020 onwards still look promising.

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



	China	U.S.	Europe	Japan	Others	World
2016	0.37	0.16	0.22	0.03	0.02	0.80
2017	0.65	0.20	0.31	0.05	0.05	1.26
2018	1.17	0.36	0.40	0.05	0.11	2.09
2019	1.10	0.33	0.59	0.04	0.11	2.17
2020						2.28

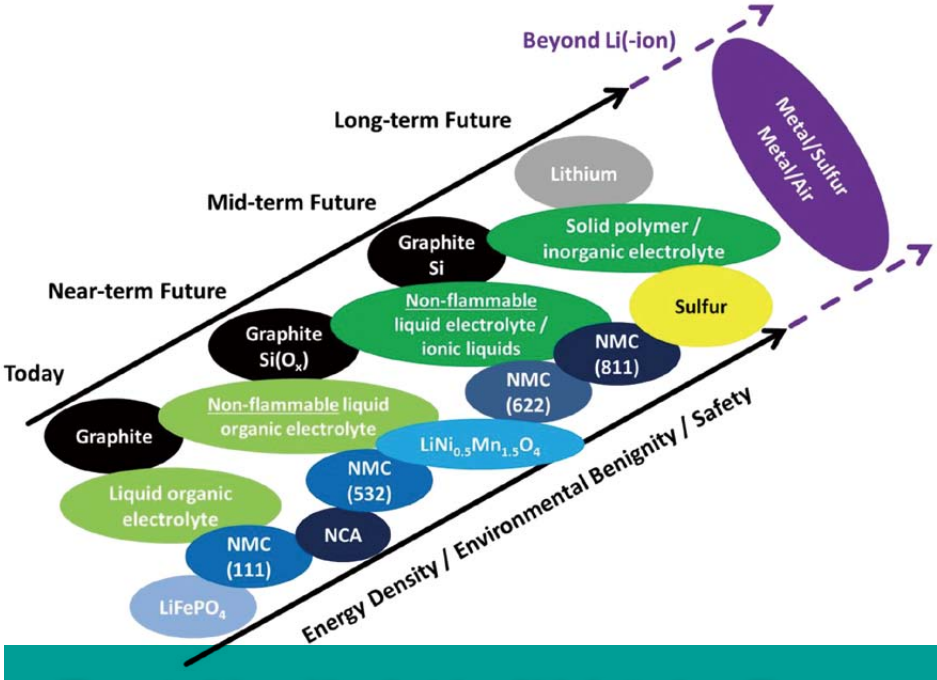
4. New Target for the Fastener Industry: Electric Vehicles

Out of all automotive components, the heaviest include battery set, motor, transmission, and these items 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 three 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 vehicle popularization is coming into existence as we are speaking. Fastener companies must catch up with new trends under the pandemic, and pre-deploy product development for the electric vehicle fastener market to make a head start as the booming of electric vehicles comes.



The material used for electric vehicle batteries will go from graphite to lithium, emphasizing on energy density, environmental benignity and safety.