Global and China Automotive Wiring Harness Industry Report, 2021

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STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

Automotive wiring harness is often split into two types: main wiring harness and small wiring harness. As new energy vehicles emerge, automotive wiring harness is also divided into low-voltage and high-voltage types. Conventional fuel-powered vehicles use low-voltage harness while new energy vehicles employ the high-voltage harness.

The boom of new energy vehicles will fuel the demand for high-voltage wiring harness. On our estimate, the global new energy vehicle high-voltage wiring harness market was valued at RMB4.69 billion in 2020, 41.4% more than in the previous year, sharing roughly 3% of the entire automotive wiring harness market. In future, the new energy vehicles promoted by governments and automakers will see a rising sales share, which in turn will give a big boost to the high-voltage wiring harness market in the years to come.

Globally, there are four echelons of automotive wiring harness companies: the first-echelon players are Yazaki and Sumitomo Electric Industries; Aptiv, Leoni and Lear are typical second-echelon players; the third-echelon players are led by Draexlmaier, Kromberg & Schubert, Furukawa Electric, Yuratech, Kyungshin and Fujikura; players in the fourth echelon are a number of other small wiring harness firms.

In current stage, the global automotive wiring harness market is almost carved up by the first three echelons which have built stable supply relationships with automakers. Furthermore, international wiring harness manufacturers deploy the promising Chinese market by way of acquiring or establishing wholly-owned companies or joint ventures with local companies, hoping to support co-funded auto plants and homegrown automakers.

Supply Relationships Between Some International Automotive Wiring Harness Manufacturers and OEMs

	Yazaki	Sumitomo Electric Industries	Aptiv	Leoni	Lear	Fujikura	Furukawa Electric
VW	√	√	√	√	√	√	√
BMW		√	√	√	√		
Daimler		√	√	√			√
GM	√	√	√	√	√		√
Ford	√	√	√		√		√
Volvo					√		
Toyota	√	√				√	√
Honda	√	√				√	
Nissan	√	√	√		√	√	√
Mazda	√	√				√	√
Hyundai	√		√				
SAIC			√				
FAW		√					
Dongfeng Motor			√		√		
GAC		√					
Changan Auto		√			√		
Geely					√		
Great Wall Motor			√				
Chery			√		√		
JAC		√	√				

Source: ResearchInChina

Local companies edge into the supply chains of international automakers.

In China, typical automotive wiring harness companies include Kunshan Huguang Auto Harness Co., Ltd., THB Group, Shenzhen Deren Electronics Co., Ltd., Shanghai Jinting Automobile Harness Co., Ltd. (Jiangsu Etern Co., Ltd.), Mind Electronic Appliances Co., Ltd., Luxshare Precision Industry Co., Ltd., Shenzhen Qiaoyun Electronics Co., Ltd., Jiangsu Huakai Wire Harness Co., Ltd. and Keboda Technology Co., Ltd.

As more homemade auto parts tend to be purchased, some domestic harness companies with years of technical expertise and synchronous development experience have gained far more strength and edged into the supply chains of world-renowned automakers by virtue of timely and effective services and reliable products. Examples include THB Group, Kunshan Huguang Auto Harness Co., Ltd., Shanghai Jinting Automobile Harness Co., Ltd., Shenzhen Deren Electronics Co., Ltd. and Keboda Technology Co., Ltd.

The more functions are added in vehicles, the more wiring harnesses are demanded, which directly causes a surge in length and weight of wiring harnesses and further much heavier automobiles, and makes it too much harder to deploy wires. Optimizing wiring harnesses from quality to wiring is a must for meeting the soaring demand. We argue that automotive wiring harness will head in the following directions:

Trend 1: lightweight

Automotive wiring harness is a key component that makes up around 5% of vehicle curb weight. As vehicles become lighter, lightweight automotive wiring harness already holds the trend. Currently, there are mainly three ways to reduce the weight of automotive wiring harness: thinner wire insulation layer; improved process for smaller harness cross section; use of more lightweight materials.

Main Advantages of Measures to Reduce Weight of Automotive Wiring Harness

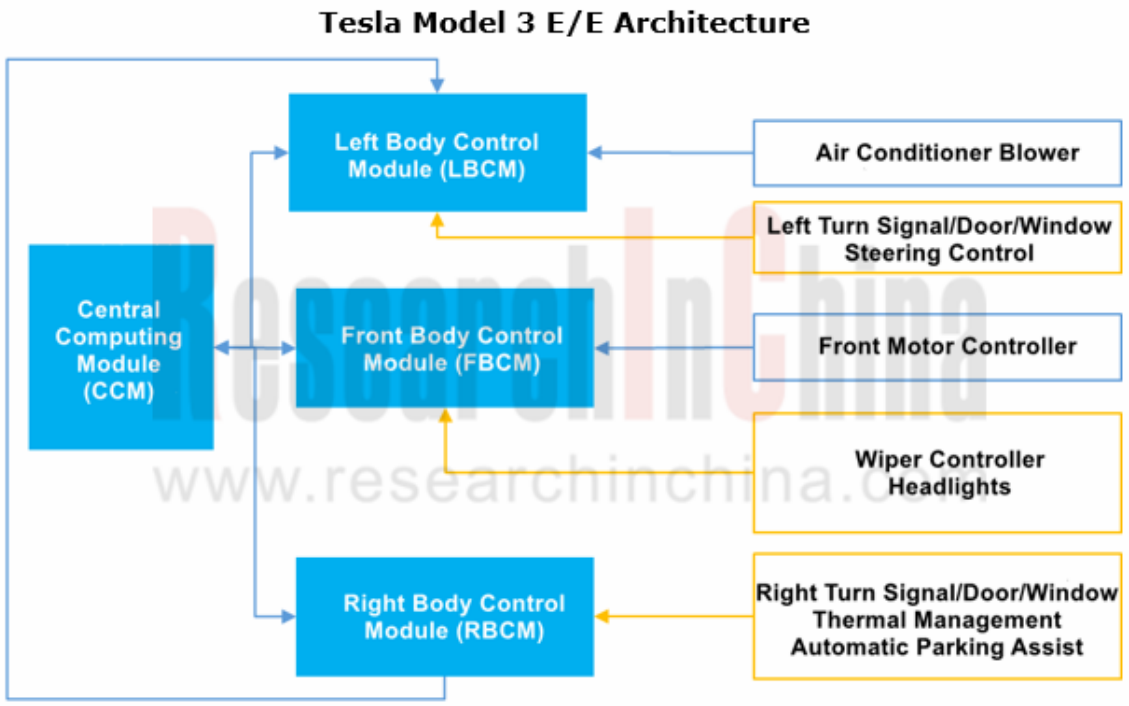
Measure	Main Advantages
Thinner wire insulation layer	In 0.35mm2 wire's case, the ultrathin insulation layer wire can reduce much more weight, with diameter 27% shorter, size 47% smaller and weight 30% lighter than thin insulation layer wire.
Smaller harness cross section	The use of alloy wire minimizes the weight and size of harness, and alloy wire outperforms pure copper wire in tensile strength and bending property.
Use of more lightweight materials	Replacing copper wire harness with aluminum wire harness can reduce a lot of cost, and weight by about 48%.

Source: ResearchInChina

Trend 2: E/E architecture design optimization

Lightweight automotive wiring harness can reduce weight, but fundamentally less use of harness will pay off more in optimizing harness. The adoption of new E/E architecture is a key to improving automotive wiring harness. A new architecture can lessen wires used for various vehicle functions through simplifying wiring design, also reduce weight to favor automated production and lower cost.

Take Tesla as an example. Its application of new E/E architecture leads to a sharp cut in harness length from 3km of Model S to 1.9km of Model 3. In addition, its patented technology released in 2019 upgrades the wiring layout where harness can be as short as 100m. Yet current Model Y falls short of the goal. In future, the mass adoption of flexible circuit boards to replace current wires may achieve the length cut goal.



Also, Aptiv announced its smart vehicle architecture (SVA) that allows for the integration of multiple ECUs into a small domain control unit. The architecture can thus save multiple microcontrollers, multiple power supply devices, and multiple housings and copper wiring harnesses but still maintain or even improve the vehicle computing power, which contributes to a 20% reduction in both harness weight, and the weight and size of computing-related hardware.

Trend 3: production process automation

Wiring harness is a typical labor-intensive industry where 95% harnesses are handmade products and productivity is low, because automotive wiring layout is complex. Labor cost therefore has been a critical constraint on capacity expansion and scale effect. At present, most automotive wiring harness manufacturers still rest on advanced equipment to automate just some production links. Intelligent manufacturing has not yet become widespread.

As automotive wiring harness tends to be integrated and production technology advances, intelligent manufacturing will have the potential to penetrate the whole process of automotive wiring harness from design, production, warehousing and logistics to management and service. Automotive wiring harness players such as Aptiv, Lear and Kunshan Huguang Auto Harness all are promoting the automated production process.

Trend 4: apply wireless communication to reduce the use of wiring harnesses

The application of wireless communication will reduce the use of wiring harnesses.
A patent Yazaki obtained in 2018 involves an extended system's electronic device and ECU that are configured to send and receive signals with each other via wireless communication. This avoids the necessary addition of communication circuits to the extended system, simplifying wiring layout and lessening harnesses.

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