Automotive wire harnesses

- Key trends
- Industry outlook
- Supplier profiles
- Top products
Buyer’s Guide to sourcing automotive wire harnesses
An exclusive and in-depth report on automotive wire harnesses, including key trends, industry outlook, suppliers and top products

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Wire harnesses suppliers boost R&D, output for auto industry

The higher number and complexity of onboard electronics spur the release of smaller and lighter-weight interconnects.

Increasing emphasis on safety, comfort and environment friendliness is raising the requirement for automotive wire harnesses, encouraging China suppliers of the product to bolster development and manufacture. Companies target key applications infotainment and power systems, and are eyeing prospects in the expanding electric vehicle or EV market as well.

On the product agenda are types that are smaller in diameter and lighter in weight, besides having high electromagnetic compatibility and being RoHS-compliant, to match the trends in car electronics. The last include lighting, telematics, air bags, engine control, in addition to infotainment.

At present, copper is mainly used as conductor, although in some units, stainless steel is added to it for enhanced strength and reduced weight. Other kinds replace copper with aluminum, which is about 30 percent lighter. Advanced models for infotainment systems employ optical fiber. For improved performance and safety, most wire harnesses come with heat-shrinkable tubing for insulation and protection. More-compact plugs in 090, 040 and 025 sizes are widely adopted.

For the EV sector, local manufacturers are looking to turn out a greater number of high-voltage variants rated at 300V to suit its engine systems. The typical selection consists of 12V units.

The growing complexity of onboard electronics requires a higher number of wire harnesses. On average, more than 60 sets are used and this may exceed 70 in the future.

In China, the projected production expansion of the car industry doubles that of the world at 5.2 percent from 2015-18. As for EVs, there will be 3.2 times more units rolling out of factories this year than in 2014, or a total of 78,500 units. By 2016, this will surge to 200,000 units, according to the China Automobile Industry Association, presenting a huge opportunity for local interconnects suppliers.

From these developments, the global automotive wire harnesses market is anticipated to garner a sales value of $80.5 billion in 2021 from $45.4 billion in 2014, according to TMR. The CAGR approaches 9 percent.

The foreign versus China players

There are about 200 suppliers of automotive wire harnesses in China. Over two-thirds are local businesses but collectively own less than 30 percent of the domestic market. This is due to the domination of international companies with manufacturing facilities there, which include Sumitomo and Delphi.

The two together with Yazaki form the industry's triumvirate, which has an aggregate share surpassing 50 percent of the worldwide market. Leoni, Lear, Furukawa,
Fujikura and Coroplast are among the other major foreign makers. Based on shipment, Asia accounts for more than half of the total, and most comes from Japan companies.

In China, the key suppliers include the THB Group and Shenzhen Deren. The former, based in Hebi in Henan province, is the largest manufacturer of automotive wire harnesses.

The second, in cooperation with the Krombery & Schubert Group, formed Shenzhen Gaorun for $11.1 million. The new company focuses on the production of high-end automotive connectors and wire harnesses.

The majority of suppliers are also engaged in the production of other types of connectors and cable assemblies.

The production hubs are in the coastal provinces of Guangdong, Jiangsu and Zhejiang. The key city locations are Shenzhen and Dongguan in the first area, and Suzhou and Yueqing respectively in Jiangsu and Zhejiang.

**Typical range for automotive use**

China companies categorize products by wire sectional area. Units that are 0.5sqmm are mainly for indicator, door and top lights, and those with 0.75sqmm for license, front, back and brake lights. Variants for turning and fog lights have 1sqmm, and kinds for horns, 1.5sqmm. For engines, the options are 2.5 to 4sqmm.

**Companies target key applications infotainment and power systems, and are eyeing prospects in the expanding electric vehicle or EV market as well.**

Mainstream models have copper terminals plated with gold or nickel, and come in thermoplastic housings. In general, most suppliers emphasize customization capability, and generate 80 percent of business from OEM and ODM projects.

Makers source main materials such as copper, gold, nickel and thermoplastic from domestic providers, although some use imported versions, particularly of the last.

So far, the supply of manufacturing inputs remains stable and costs have not changed significantly, keeping price increases at bay in the past year. This trend is forecast to persist until 2016.
A selection of automotive wire harnesses from China

**Wire harness has microphone, CVBS, USB, amplifier wires**

**Dongguan Suonai Electronic Co. Ltd**

Dongguan Suonai’s model SN-091 automotive wire harness has microphone, CVBS, USB and amplifier wires, which are 80cm long. The product has a copper conductor and black PVC shell. It meets CCC, CE, RoHS, UL and VDE requirements. The cable length can be customized. The minimum order is 500 units, and the delivery lead time is 20 days.

**Wire harness for engines**

**Suntek Electronics Co. Ltd**

This wire harness, WH-20019-R1 model, from Suntek is for automotive engines. Its cable length and color can be customized. The minimum order is 100 units, and the delivery lead time is 45 days.

**Wire harness uses tinned or bare copper**

**Xiamen Oseisy Industry & Trade Co. Ltd**

Xiamen Oseisy’s model AU-0001 automotive wire harness has tinned- or bare-copper conductor with a nominal cross-sectional area of 0.5 to 8sqmm, and XLPE overmolding. The wire’s outer diameter is 1.8mm. The unit features a connector made of PBT with 15 percent glass fiber. Its rated temperature is 120 C. The product is UL-listed. The minimum order is 1,000 units.

**Copper-based wire harness**

**Yueqing Shangxin Plastic Co. Ltd**

Yueqing Shangxin’s model 1 wire harness for automotive applications has a copper conductor, and comes in custom cable lengths and colors. The supplier requires a minimum order of 500 units, and delivers within 7 days.
<table>
<thead>
<tr>
<th>Company</th>
<th>Year established</th>
<th>Main product lines</th>
<th>For automotive (% of output)</th>
<th>Total annual sales ($mn)</th>
<th>Total annual exports ($mn)</th>
<th>Top markets</th>
<th>Number of staff</th>
<th>OEM (%)</th>
<th>ODM (%)</th>
<th>Accepts small orders (units)</th>
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