# Automotive Thin Insulation Wire for High-voltage Circuits

Under development
Scheduled to be installed in 2027

Thin insulation high-voltage wires that contribute to reducing size and weight of wire harnesses and carbon neutrality

## Background or assignment

- With a shift towards EVs and electrification, an increase in demand for high-voltage wires and larger diameters are expected
- YAZAKI has started the development of high-voltage wires with thin insulation as means to contribute to lower fuel and electricity consumption

## Solutions to Challenges

1. Wire harness weight reduction by using thinner insulation and sheaths ▶ Reduction of $CO_2$ emissions and improvement of fuel efficiency
2. International standard, ISO 19642 compliance ▶ Global expansion
3. Adoption of flexible conductors ▶ Improving wire routability in vehicles

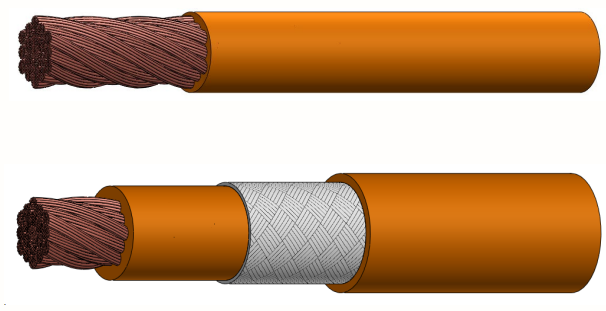
## Specifications

| | | |
|---|---|---|
| Conductor | Material - Copper/Aluminum | Structure - Flexible |
| Insulator | Material - Crosslinked Polyolefin | Structure - Thin insulation |
| Heat resistant class | Class D (-40˚C to 150˚C) | |
| Rated voltage | a.c 1,000V, d.c 1,500V | |
| Size | 95sq or less | |

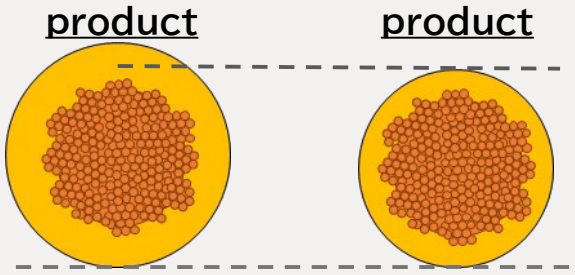
## Standards

| | |
|---|---|
| ISO 19642-5 | 2019 – Single core copper conductor wire |
| ISO 19642-6 | 2019 – Single core aluminum conductor wire |
| ISO 19642-9 | 2019 – Single core copper conductor shielded wire |
| ISO 19642-10 | 2019 – Single core aluminum conductor shielded wire |

## Product image



Example) 50sq




| | | | |
|---|---|---|---|
| Insulator thickness | 1.5mm | 0.9mm | ▲40% |
| Wire outer diameter | 13.1mm | 11.8mm | ▲10% |
| Mass | 530g/m | 500g/m | ▲ 6% |
| $CO_2$ emissions | 1,110g-$CO_2$ | 1,045g-$CO_2$ | ▲ 6% |

YAZAKI