ISO 19642-5:2019 (E)

Road vehicles — Automotive cables — Part 5: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. single core copper conductor cables

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Specifications

- 4.1 General test conditions
- 4.2 Safety concerns
- 4.3 Voltage ratings
- 4.4 Temperature classes
- 4.5 Conductor material
- 4.6 Conductors
- 4.7 Insulation thickness
- 4.8 Cable outside diameter
- 4.9 Representative conductor sizes for testing
- 4.10 Reference and requirements for the tests according to ISO 19642-2

5 Requirements

- 5.1 General
- 5.2 Dimensional tests
- 5.2.1 Cable outside diameter
- 5.2.2 Insulation thickness
- 5.2.3 Conductor diameter
- 5.2.4 Cross sectional area (CSA)
- 5.2.5 In-process cable outside diameter
- 5.3 Electrical tests
- 5.3.1 Conductor resistance
- 5.3.2 Determination of temperature coefficients
- 5.3.3 Withstand voltage
- 5.3.4 Withstand voltage after environmental testing
- 5.3.5 Insulation faults
- 5.3.6 Insulation volume resistivity
- 5.4 Mechanical tests
- 5.4.1 Strip force
- 5.4.2 Abrasion
- 5.4.2.1 General
- 5.4.2.2 Sandpaper abrasion test
- 5.4.2.3 Scrape abrasion test
- 5.4.3 Breaking force of the finished cable
- 5.4.4 Cyclic bending
- 5.4.5 Flexibility
- 5.5 Environmental tests
- 5.5.1 Test specimen preparation and winding tests
- 5.5.2 Long term heat ageing, 3 000 h at temperature class rating
- 5.5.3 Short term heat ageing, 240 h at temperature class rating +25 °C
- 5.5.4 Thermal overload, 6 h at temperature class rating +50 °C
- 5.5.5 Pressure test at high temperature

5.5.6 Shrinkage by heat
5.5.7 Low temperature winding
5.5.8 Cold impact
5.5.9 Temperature and humidity cycling
5.5.10 Resistance to hot water
5.5.11 Resistance to liquid chemicals
5.5.12 Durability of cable marking
5.5.13 Stress cracking resistance
5.5.14 Resistance to ozone
5.5.15 Resistance to flame propagation

Annex A (informative) ISO conductor sizes, number of strands and strand diameter

A.1 Conductors — Existing stranding configurations
A.2 Conductors — Preferred stranding configurations

Annex B (informative) Harness and cable colours

Page count: 18