

Test Report

WARRES No. 129583

IEC 60331- 21: 1999

Tests for Electric Cables Under Fire Conditions –
Circuit Integrity –
Part 21: Procedures and Requirements –
Cables of rated voltage up to and including 0.6/1.0 kV

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Sponsored By

MESC
Second Industrial Area
Phase 3
P.O.Box 585
Riyadh 11383
K.S.A

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1 Purpose Of Test

To determine the performance of a specimen of a cable when it is subjected to a test in accordance with the procedures defined in IEC 60331-21: 1999. Tests for electric cables under fire conditions – Circuit integrity – Part 21: Procedures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV.

2 Scope Of IEC 60331-21:1999

IEC 60331-21: 1999 details a procedure and performance requirements, including a recommended flame application time, for cables of rated voltage up to and including 0.6/1.0 kV required to maintain circuit integrity when subjected to fire under specified conditions

3 Description Of Test Specimen

The description of the specimen given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

The product was a 25.6mm thick, twelve core cable, which was constructed utilising the following components:

1. Twelve 2.5mm² tinned copper conductors, each stranded contains 7X 0.67mm conductor
2. 0.12mm thick mica tape
3. Cross linked polyethylene insulation (colour reference "black"), having a thickness of 0.8mm
4. 0.035mm thick clear polyester tape.
5. Flame retardant, low smoke, halogen free inner sheath (product reference "Megalon S-500", colour reference "red"), having a thickness of 1.10mm
6. Steel wire armour having a diameter of 1.25mm.
7. Flame retardant, low smoke, halogen free outer sheath (product reference "Megalon S-500", colour reference "red"), having a thickness of 2.01mm.

The outer sheath of the cable was marked as follows:

"POWER CABLE CU/XLPE/SWA/LSHF 12CX2.5MM2 600/1000V MESC 2002 IEC 60502, IEC 60331 (H6F)"

The cable specimen was supplied by the sponsor of the test on the 13th January 2003. Warrington Fire Research Centre was not involved in any selection or sampling procedure.

4 Date Of Test

The test was performed on the 17th January 2003.

5 Test Procedure

The test was performed in accordance with the procedures defined in IEC 60331-21: 1999 utilising the ribbon burner at an applied flame temperature of 750°C and a rated voltage of 1kV.

IEC 60331-21: 1999 states that the flame application duration shall be as specified in the relevant cable standard. In the absence of such a cable specification, IEC 60331-21: 1999 recommends a 90 minute flame application.

For the purpose of this test, a flame application time of 90 minutes (as recommended in Clause 7 of IEC 60331-21: 1999) was utilised.

This test report should be read in conjunction with IEC 60331-21: 1999.

6 Test Results

The test results relate only to the behaviour of the specimen of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimen of the product in the form in which it was tested. Small differences in the composition of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product, which is supplied or used, is fully represented by the specimen, which was tested.

No fuse was ruptured during the 90 minute flame application

7 Conclusion

In accordance with Clause 7 of IEC 60331-21: 1999, when subjected to a recommended flame application time of 90 minutes, the specimen of cable tested meets the requirements for circuit integrity (i.e. no fuse failed, no circuit breaker was interrupted or no lamp was extinguished).

8 Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

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Tested By



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Technical Assistant

Approved



S RAMALINGAME
Laboratory Supervisor
For and on behalf of
WARRINGTON FIRE RESEARCH
CENTRE

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