test report

Bodycote

BS EN 60332-1-2:2004

Test On Electric And Optical Fibre Cables Under Fire Conditions

WF Report Number

177603

Date:

14th November 2008

Test Sponsor:

FTC – Fabbrica Trentina Conduttori Srl

warringtonfire global safety

TESTING

UKAS TESTING

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BS EN 60332-1-2: 2004

Tests on electric and optical fibre cables under fire conditions

Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame

Sponsored By

FTC - Fabbrica Trentina Conduttori Srl
Sud Tirol Kabelwerke
Via Pineta 21B
38068 Rovereto (TN)
Italy

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Test Details

Purpose of test

To determine the performance of a specimen of a cable when it is subjected to the conditions of test specified in BS EN 60332-1-2:2004, "Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for resistance to vertical flame propagation for a single insulated cable – Procedures for 1kW pre-mixed flame.

The test was performed in accordance with the procedure specified in BS EN 60332-1-2:2004 and this report should be read in conjunction with that Standard.

The burner was applied for 60 seconds.

Scope of test

BS EN 60332-1-2:2004 specifies a method of test for resistance to vertical flame propagation for a single electrical insulated conductor or cable, or optical cable, under fire conditions. Part 1 specifies the test apparatus and Part 1-2 specifies the test procedures.

BS EN 60332-1-2:2004 specifies the use of a 1kW pre-mix flame and is for general use, except that the procedure specified may not be suitable for the testing of small single insulated conductors or cables of less than 0.5mm^2 total cross-section because the conductor melts before the test is completed, or for the testing of small optical fibre cables because the cable is broken before the test completed. In these cases, the procedure given in BS EN 60332-2 is recommended.

The performance requirements for a particular type or class of insulated conductor or cable should preferably be given in the individual cable standard. In the absence of any given requirement it is recommended that those given below should be taken as a minimum level.

The single insulated conductor or cable shall pass the test if the distance between the lower edge of the top support and the onset of charring is greater than 50mm. In addition, a failure should be recorded if burning extends downwards to a point greater than 540mm from the lower edge of the top support.

If a failure is recorded two more tests shall be carried out. If both tests result in passes the insulated conductor or cable shall be deemed to have passed the test.

Fire test study group/EGOLF

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.

Instruction to test

The test was conducted on the 4th November 2008 at the request of FTC - Fabbrica Trentina Conduttori Srl, the sponsor of the test.

Provision of test specimens

The specimens were supplied by the sponsor of the test. **Bodycote warrington**fire was not involved in any selection or sampling procedure.

Conditioning of specimens

The specimens were received on the 6th October 2008 and were conditioned at a temperature of (23±5)^{0}C for a minimum period of 16 hours at a relative humidity of (50±20)%.

Description of Test Specimens

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

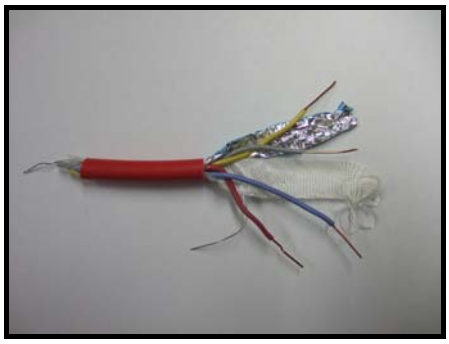

Plate 1 – Photograph of test specimen

Product reference		"Eurosafe E 30/60"
Cable marking		"EUROSAFE E 30/60 JE-H(ST)H 2x2x0.8 MM SCR. FIRE RESISTANT VDE 0815, DIN 4102, EN 50200 PH 120, EN 60332-1-2, EN 61034-2, FIPEC(EN)50339-2-1 CE 09/08"
Cable function		Fire systems data connections
Number of cores x core size		4 x 0.8mm^2
Voltage rating		300/500V
Overall diameter		8.2mm (stated by sponsor) 8.3mm (determined by **Bodycote warringtonfire**)
Overall weight per unit length		77.52kg/km (stated by sponsor)
Conductors	Product reference	"Solid Plain Annealed Copper Wire"
	Generic type	Solid copper wire
	Name of manufacturer	**See Note 1 below**
	Cross sectional area	0.8mm^2
	Weight per unit length	4.2kg/km
Insulation	Product reference	"Special Silicone Rubber"
	Generic type	Silicone rubber
	Name of manufacturer	FTC – Fabbrica Trentina Conduttori Srl
	Colour	"Yellow", "Grey", "Blue" and "Red"
	Thickness	0.6mm
	Weight per unit length	8.6kg/km
	Flame retardant details	**See Note 1 below**
Drain wire	Product reference	"Solid Tinned Copper Wire"
	Generic type	Solid tinned copper wire
	Name of manufacturer	**See Note 1 below**
	Cross sectional area	0.28mm^2
	Weight per unit length	2.5kg/km
Glass fibre tape (surrounding conductors	Product reference	"Glass Fibre"
	Generic type	Glass fibre tape
	Name of manufacturer	**See Note 1 below**
	Colour	"White"
	Thickness	0.12mm
	Density / weight per unit length	**See Note 1 below**
	Flame retardant details	**See Note 1 below**

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Foil tape (surrounding conductors and plastic tape)	Product reference	"Aluminium / Polyester Laminate Tape"
	Generic type	Aluminium / polyester
	Name of manufacturer	**See Note 1 below**
	Colour	"Blue / Silver"
	Thickness	25µm
	Density / weight per unit length	**See Note 1 below**
	Flame retardant details	**See Note 1 below**
Outer sheath	Product reference	"Special Halogen Free LSZH"
	Generic type	Low smoke zero halogen **See Note 1 below**
	Name of manufacturer	**See Note 1 below**
	Colour	"Red"
	Thickness	1mm
	Weight per unit length	39.6kg/km
	Flame retardant details	**See Note 1 below**
Brief description of manufacturing process		The conductor wires are insulated by extrusion of a continuous silicone rubber layer, which has been high temperature cross-linked. The cores are then separated into pairs, twisted together and shielded. Finally, the sheathing is applied by a semi-compression extrusion process.

Note 1. The sponsor of the test was unwilling to provide this or further information.

Test Results

Results of test

The distance between the lower edge of the top support and the upper onset of charring was 385mm.

The distance between the lower edge of the top support and the lower edge of charring was 500mm.

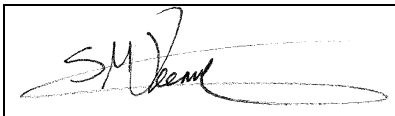
Conclusion

The specimen therefore meets the recommended performance requirements given in Annex A of BS EN 60332-1-2: 2004.

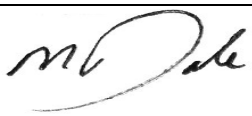
Validity

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.

Signatories



Responsible Officer
S. Deeming *



Approved
M. Dale *
Deputy Operations Manager

Authorised
C. Dean *
Operations Manager

* For and on behalf of **Bodycote warrington**fire.

Report Issued: 14th November 2008