

# test report

**BS 6387: 1994**  
**Specification for performance**  
**requirements for cables**  
**required to maintain circuit**  
**integrity under fire conditions**

**WF Report Number:**

**147709**

**Test Sponsor:**

**FTC - Fabbrica Trentina**  
**Conduttori Srl**

**Date:**

**9<sup>th</sup> August 2005**

**Warringtonfire Report No. 147709**

**BS 6387: 1994  
Specification for performance  
requirements for cables required to  
maintain circuit integrity under fire  
conditions**

**Sponsored By**

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



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## Test Details

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**Purpose of test** To determine the performance of a specimen of a cable when it is subjected to the conditions of test specified in BS6387: 1994 "Specification for performance requirements for cables required to maintain circuit integrity under fire conditions".

**Scope of test** BS 6387: 1994 specifies methods of test for resistance to fire, resistance to fire with water and resistance to fire and mechanical shock. The specification recommends three test categories which are as follows :-

Resistance to fire alone (Section D.2): Tests are carried out at:

	<u>Category</u>
650 <sup>0</sup> C for 3 hours	A
750 <sup>0</sup> C for 3 hours	B
950 <sup>0</sup> C for 3 hours	C
950 <sup>0</sup> C for 20 minutes	S

Resistance to fire with water (Section D.3): W

Resistance to fire and mechanical shock (Section D.4): Tests are carried out at:

	<u>Category</u>
650 <sup>0</sup> C	X
750 <sup>0</sup> C	Y
950 <sup>0</sup> C	Z

At the request of the sponsor, tests in accordance with the procedures defined in Section D.2 (at a temperature of 950°C and rated voltage of 500V-rms for a period of three hours), Section D.3 and Section D.4 (at a temperature of 950°C and rated voltage of 500V-rms for a period of fifteen minutes) of the standard have been performed to determine compliance with the requirements of Categories C, W & Z.

**Instruction to test** The tests were conducted on the 29<sup>th</sup> & 30<sup>th</sup> June 2005 at the request of FTC – Fabbrica Trentina Conduttori S.r.l., the sponsor of the test.

**Provision of test specimens** The specimens were supplied on 19<sup>th</sup> June 2005 by the sponsor of the test. Warringtonfire was not involved in any selection or sampling procedure.



## Description of Test Specimen

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

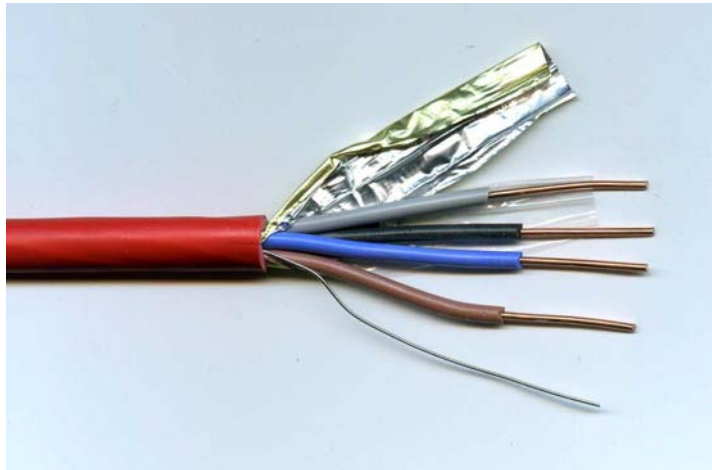


Plate 1 – Detail of test specimen

Product reference		'Eurosafte'
Cable function		Fire systems connections
Number of cores x core size		4 x 1.50 mm <sup>2</sup>
Voltage rating		300 / 500 V
Overall diameter		9.3 mm
Conductors	Composition	Solid plain annealed copper wire
	Cross-sectional area of each conductor	1.50 mm <sup>2</sup>
	Weight per unit length	13.52 kg/km
	Name of manufacturer	<i>See Note 1 below</i>
Conductor insulation	Composition	Silicon rubber
	Colours	Brown, Blue, Grey & Black
	Thickness	0.6 mm
	Density or weight per unit length	1.23 kg/dm <sup>3</sup>
	Name of manufacturer	FTC Fabbrica Trentina Conuttori S.r.l.
	Details of flame retardant	The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component
Clear tape (surrounding the four conductors)	Composition	Polyester
	Colour	Transparent
	Thickness	12 µm
	Weight per unit area	<i>See Note 1 below</i>
	Name of manufacturer	<i>See Note 1 below</i>
	Details of flame retardant	<i>See Note 1 below</i>



Drain wire	Composition	Solid tinned copper
	Cross-sectional area	0.28 mm <sup>2</sup>
	Weight per unit length	2.5 kg/km
	Name of manufacturer	<i>See Note 1 below</i>
Electrostatic screen	Composition	Aluminium / polyester laminate tape
	Thickness	25 µm
	Weight per unit area	<i>See Note 1 below</i>
	Name of manufacturer	<i>See Note 1 below</i>
	Details of flame retardant	<i>See Note 1 below</i>
Outer sheath	Composition	<i>See Note 1 below</i>
	Colour reference	Red
	Average thickness	0.9 mm
	Density or weight per unit area	1.48 kg/dm <sup>3</sup>
	Name of manufacturer	FTC Fabbrica Trentina Conuttori S.r.l.
	Details of flame retardant	<i>See Note 1 below</i>
	Cable markings	None
Brief description of manufacturing process		The conductor wires are insulated by extrusion of a continuous silicon rubber layer, which has been high temperature cross-linked. The cores are then twisted together and then screened. The sheathing is then applied by a semi-compression extrusion process.

Note 1 – The sponsor was unwilling to provide this information



## Test Results

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### Test results

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

#### Resistance to fire alone (Section D.2, Category C)

When tested in accordance with the procedures specified in Section D.2 of the standard, for a period of 3 hours at a temperature of 950°C and a rated voltage of 500V-rms, the cable maintained its circuit integrity and consequently satisfied the performance requirements specified in BS 6387: 1994.

#### Resistance to fire with water (Section D.3, Category W)

When tested in accordance with the procedures specified in Section D.3 of the standard, for a period of 30 minutes at a temperature of 650°C and a rated voltage of 500V-rms, the cable maintained its circuit integrity and consequently satisfied the performance requirements specified in BS 6387: 1994.

#### Resistance to fire and mechanical shock (Section D.4, Category Z)

When tested in accordance with the procedures specified in Section D.4 of the standard, for a period of 15 minutes at a temperature of 950°C and a rated voltage of 500V-rms, the cable maintained its circuit integrity and consequently satisfied the performance requirements specified in BS 6387: 1994.

### Applicability of test result

The test results relate only to the specimen of the cable 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.

### Conclusion

**When tested in accordance with BS 6387: 1994: Section D.2, D.3 and D.4 the cable meets the criteria for Categories C, W and Z.**



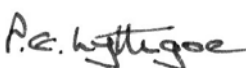
## Validity & Signatories

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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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Responsible Officer P Webb*


Authorised P E Lythgoe*

\* For and on behalf of warringtonfire.

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Warrington Fire Research Centre Ltd - Holmesfield Road - Warrington - Cheshire - UK - WA1 2DS  
t: +44 (0) 1925 655116 - f: +44 (0) 1925 655419 - w: [warringtonfire.net](http://warringtonfire.net)