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Offenbach, 2006-12-13

Your ref.  
Ozcan Bülbül

Your letter  
2006-08-11

Our ref. - please indicate  
5006187-9020-0001/78284-ae  
FG42/hz

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*Translation: In any case the German version shall prevail*

## Prüfbericht zur Information des Auftraggebers *Test Report for the Information of the applicant*

Dieser Prüfbericht enthält das Ergebnis einer einmaligen Untersuchung an dem zur Prüfung vorgelegten Erzeugnis. Ein Muster dieses Erzeugnisses wurde geprüft, um die Übereinstimmung mit den nachfolgend aufgeführten Normen bzw. Teilen von Normen festzustellen.

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Notified Body according to the EMC directive for the electromagnetic compatibility (EMC) of appliances.  
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Our reference 5006187-9020-0001/78284-ae  
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Date of receipt of test samples: 2006-08-31  
Date of performance of tests: 2006-11-06 up to 2006-11-10  
Testing laboratory: VDE Testing and Certification Institute  
Section FG 42  
Merianstraße 28  
63069 Offenbach

## Contents:

Clause 1	Description of test samples
Clause 2	Test procedure
Clause 3	Marking of the samples
Clause 4	Construction
Clause 5	Continuance of isolation effect under fire conditions

## 1 Description of test sample

The applicant supplied for the test about 10 m special cable

Type: LIHCH FE 180 2X1,5 mm<sup>2</sup>

## 2 Test procedure

By request of the applicant the following test was conducted:

- Testing of cables, wires and flexible cords;  
Continuance of isolation effect under fire conditions

according to DIN VDE 0472 Part 814:1991-01

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### 3 Marking of the sample

Sheath

BIRTAS KABLO LIHCH FE 180 2X1,5 mm<sup>2</sup> DIN EN pH 30 02/19190 00XX mt.

XXXX = metre marking

### 4 Construction

- Conductor: fine copper wires, bare,  
diameter of single wire 0,25 mm,
- Cores: plastic cores, white / brown
- Core stranding: two cores stranded
- Wrapping: one layer of helically- overlapped- plastic tape  
one layer of helically- overlapped- glass fibre tape
- Screen: wire braid, metal coated  
single wire diameter 0,13 mm
- Sheath: plastic material, orange  
outer diameter 8,3 mm

### 5. Continuance of isolation effect under fire conditions according to DIN DIN VDE 0472 Part 814

#### 5.1 Test parameters

- quantity of energy  
air (4500 ± 100) l/h  
propane (300 ± 20) l/h
- Flame temperature (800 ± 50) °C
- Test voltage U = 110 V; AC
- Cores under load 60 W incandescent lamps

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- |                               |   |
|-------------------------------|---|
| - Fuse                        | 3 A (for each circuit)                        |
| - Connection of the conductor | according to DIN VDE 0472 Part 814, picture 5 |
| - Flame application time      | 180 minutes                                   |

## 5.2 Test results

- |  |             |
|--|-------------|
| - Flame temperature<br>(before the test) | 810°C       |
| - Flame application time                 | 180 minutes |
| - energy consumption of burner<br>air    | 4,468 l/h   |
| propane                                  | 308 l/h     |

During a burning time of 180 minutes and after  $\geq 12$  hours no fuse tripped and no lamp extinguished.

After the test no conductor was broken.

## 5.3 Test requirements

The test is passed,

- if no fuse tripped
- if no lamp extinguished
- if no conductor is broken

***The test requirements for 180 minutes of isolation effect under fire conditions have been met***

Yours sincerely

VDE Testing and Certification Institute  
Department F4

Dietmar Banowski

Reinhard Herzog

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Clause 2	Test procedure
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Clause 4	Construction
Clause 5	Isolation effect in case of fire

## 1 Description of test sample

The applicant supplied for the test about 10 m special cable

Type: LIHCH FE 180 2X1,5 mm<sup>2</sup>

## 2 Test procedure

By request of the applicant the following test was conducted:

- Method of test for resistance to fire of unprotected small cables for use in emergency circuits according to DIN EN 50200 (VDE 0482 Part 1):2000-10

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### 3 Marking of the sample

Sheath

BIRTAS KABLO LIHCH FE 180 2X1,5 mm2 DIN EN pH 30 02/19190 00XX mt.

XXXX = metre marking

### 4 Construction

- Conductor: fine copper wires, bare,  
diameter of single wire 0,25 mm,
- Cores: plastic cores, white / brown
- Core stranding: two cores stranded
- Wrapping: one layer of helically- overlapped- plastic tape  
one layer of helically- overlapped- glass fibre tape
- Screen: wire braid, metal coated  
single wire diameter 0,13 mm
- Sheath: plastic material, orange  
outer diameter 8,3 mm

### 5. Isolation effect in case of fire according to DIN EN 50200 (VDE 0482 Part 1)

#### 5.1 Test parameters

- quantity of energy  
propane (5 ± 0,2) l/min  
air (80 ± 4) l/min

#### - Flame temperature

Over a period of 10 minutes the average temperature shall be (830 + 40 /- 0) °C.  
The temperature has to be recorded by two thermocouples every 30 s before the test.  
The difference of the average values shall not exceed 40°C.

- Flame temperature before the test

Energy consumption of burner	propane 5,10 l/min air 80,0 l/min
Thermocouple 1	848 °C (average /10 min)
Thermocouple 2	843 °C (average /10 min)
Difference	5 °C

- Shock producing

5 min ± 5 s after activation (ignition of the burner) and subsequently in intervals of 5 min ± 10 s

- Bending radius 125 mm (internal radius of each bend)

- Test wall

board material Isoplan 1100

- Clips for mounting the sample

copper P clips (thickness 1,5 mm, width 15 mm)

- Electric supply

ac voltage  $U_0 = 110$  V (phase to earth)  
current load of 0,18 A through the conductor  
connection of the conductor according to picture 9b (a-cores L1, b-cores L2)  
the phase of transformer output was protected by a 2 A fuse metal clips, drain wire and shield connected to earth

- Flame application time 180 minutes

## 5.2 Point of failure

wiring cable for telecommunication and data processing systems

- the voltage is not maintained during the test duration, as indicated by fuse failure or by interruption of the circuit breaker.

- a conductor ruptures during the test duration, as indicated by the lamp extinguishing



### 5.3 Test procedure

#### Test results

##### First test

- temperature in the test chamber: 21 °C ( before the test)
- energy consumption of burner: propane 5,16 l/min  
air 80,2 l/min

After a burning time of 180 minutes no fuse tripped and no lamp extinguished.

##### Second test

- temperature in the test chamber: 24 °C ( before the test)
- energy consumption of burner: propane 5,13 l/min  
air 80,8 l/min

After a burning time of 180 minutes no fuse tripped and no lamp extinguished.

***The test requirement for 180 minutes has been met.***

Yours sincerely

VDE Testing and Certification Institute  
Department F4



Dietmar Banowski



Reinhard Herzog

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