CLASSIFICATION OF FUNCTION IN FIRE
FIRES-CR-061-16-AUPE

Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH(ekw), JE-H(St)H

Reg. No. 041/S-159

The Experts on Fire Safety

CLASSIFICATION OF FUNCTION IN FIRE IN ACCORDANCE WITH DIN 4102-12: 1998-11

with direct field of application

FIRES-CR-061-16-AUPE

Name of the product:	Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH(ekw), JE-H(St)H
Sponsor:	Celina Bitner Zaklady Kablowe BITNER ul. Józefa Friedleina 3/3 30-009 Kraków Poland
Prepared by:	FIRES, s.r.o. Osloboditeľov 282 059 35 Batizovce Slovak Republic
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Test method:	DIN 4102 – 12
Type of test:	Accredited
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1. INTRODUCTION

This classification report defines the function in fire classification assigned to element Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH, JE-H(St)H at cable bearing system in accordance with the procedures given in DIN 4102-12: 1998-11.

This products have already been classified by FIRES, s.r.o. and number of previous classification of function in fire is FIRES-CR-210-07-AUPE, issued on 03. 12. 2007 with validity until 03. 12. 2012.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH(ekw), JE-H(St)H at cable bearing system, is defined as a power and communication cables with integrity maintenance in case of fire.

2.2 PRODUCT DESCRIPTION

Product comprised from fire resistant halogen free power and communication cables at cable bearing system.

Power cables NHXH, (N)HXH, NHXCH, (N)HXCH - safety cables are used in all locations where a special protection against fire and fire damage is necessary for human life and equipment and where strict safety regulations have to be met and where large emergency running time is necessary. They may be used indoor and outdoor, but not directly in earth and water. They are considered as protectively insulated.

Communication cables HTKSH(ekw), JE-H(St)H – safety installations cables are used for transmission od signals and measuring data in control circuits, in locations where a particular protection against fire and fire damage for human life and equipment is necessary. Installation cables are not admissible for power installation purposes and direct burial.

Used cables and cable bearing system by test:

Used cables by test:	NHXH - 4x1,5 RE E90 MICA	(4 x)
	NHXH - 4x50 RM E90 MICA	(8 x)
	(N)HXH - 4x1,5 RE E90 CERAMIC	(2 x)
	(N)HXCH - 4x1,5 RE/1,5 E90 MICA	(2 x)
	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	(4 x)
	(N)HXCH - 4x50 RM/25 E90 MICA	(2 x)
	JE-H(St)H - 2x2x0,8 E90 MICA	(12 x)
	JE-H(St)H - 2x2x0,8 E90 CERAMIC	(4 x)
	HTKSH(ekw) - 2x1 FE180/PH90	(2 x)

Used bearing systems by tests:

Bearing system BAKS – ceiling ledges SDOC with clips UKO1, clips UEF and cable holder OZMO with accessories (dowels etc.). Producer BAKS Kazimierz Sielski, Poland.

Bearing system OBO Bettermann – trays WDK-H 40060 and cable clips 1015 with accessories (dowels etc.). Producer OBO Bettermann GmbH (Germany).

Bearing system Niedax – cable clips SAS with accessories (dowels etc.). Producer Niedax GmbH & Co. KG (Germany).

Bearing system CABLOFIL® – cable mesh trays CF with accessories (consoles, booms, hangers, threaded rods, dowels etc.). Producer CABLOFIL® (France).

More detailed information about product construction is shown in the drawings which form an integral part of test reports [1]. Drawings were delivered by sponsor.

3. TEST REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS

No.	Name of laboratory	Name of sponsors	Test report No.	Date of the test	Test method
[1]	Fires s.r.o., Batizovce, SR	Celina Bitner Zaklady Kablowe BITNER Kraków, Poland	FIRES-FR-202-07-AUNE	25. 10. 2007	DIN 4102 – 12: 1998-11

3.2 TEST RESULTS

Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	1	NHXH - 4x1,5 RE E90 MICA	12	90 minutes no failure / interruption
	2	NHXH - 4x1,5 RE E90 MICA	12	86 minutes
	3	NHXH - 4x50 RM E90 MICA	12	90 minutes no failure / interruption
	4	NHXH - 4x50 RM E90 MICA	12	90 minutes no failure / interruption
	5	NHXCH - 4x50 RM/25 E90 MICA	9	90 minutes no failure / interruption
	6	NHXCH - 4x50 RM/25 E90 MICA	9	90 minutes no failure / interruption
	7	NHXH - 4x50 RM E90 MICA	8	81 minutes
	8	NHXH - 4x50 RM E90 MICA	8	79 minutes
	9	NHXCH - 4x1,5 RE/1,5 E90 MICA	7	90 minutes no failure / interruption
	10	NHXCH - 4x1,5 RE/1,5 E90 MICA	7	90 minutes no failure / interruption
	11	NHXH - 4x1,5 RE E90 MICA	6	90 minutes no failure / interruption
	12	NHXH - 4x1,5 RE E90 MICA	6	78 minutes
	13	NHXH - 4x50 RM E90 MICA	4	63 minutes
	14	NHXH - 4x50 RM E90 MICA	4	90 minutes no failure / interruption
	15	NHXH - 4x50 RM E90 MICA	3	90 minutes no failure / interruption
	16	NHXH - 4x50 RM E90 MICA	3	73 minutes
	17	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	3	69 minutes
	18	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	3	68 minutes
	19	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	2	40 minutes
	20	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	2	47 minutes
	21	(N)HXH - 4x1,5 RE E90 CERAMIC	1	90 minutes no failure / interruption
	22	(N)HXH - 4x1,5 RE E90 CERAMIC	1	90 minutes no failure / interruption
	52	bundle of six cables JE-H(St)H - 2x2x0,8 E90 MICA	13	90 minutes no failure / interruption
	53			90 minutes no failure / interruption
	54			90 minutes no failure / interruption
	55			90 minutes no failure / interruption
	56			90 minutes no failure / interruption
	57			90 minutes no failure / interruption
	58	JE-H(St)H - 2x2x0,8 E90 MICA	12	90 minutes no failure / interruption
	59	JE-H(St)H - 2x2x0,8 E90 MICA	12	90 minutes no failure / interruption
	60A	HTKSH(ekw) - 2x1 FE180/PH90	11	47 minutes
	60B	HTKSH(ekw) - 2x1 FE180/PH90	11	15 minutes
	61	JE-H(St)H - 2x2x0,8 E90 MICA	10	90 minutes no failure / interruption
	62	JE-H(St)H - 2x2x0,8 E90 MICA	10	90 minutes no failure / interruption
	63	JE-H(St)H - 2x2x0,8 E90 MICA	5	90 minutes no failure / interruption
	64	JE-H(St)H - 2x2x0,8 E90 MICA	5	90 minutes no failure / interruption
	65	JE-H(St)H - 2x2x0,8 E90 CERAMIC	3	34 minutes
	66	JE-H(St)H - 2x2x0,8 E90 CERAMIC	3	57 minutes
	67	JE-H(St)H - 2x2x0,8 E90 CERAMIC	2	81 minutes
	68	JE-H(St)H - 2x2x0,8 E90 CERAMIC	2	88 minutes

[1] The test was discontinued in 92nd minute at the request of test sponsor.

Specimens S1 – S22 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
Specimens S52 – S68 were tested by one-phase voltage supply 1 x 110V with LED diodes 3V /0,03W.
Circuit breakers with rating 3 A were used.

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 3.2 of DIN 4102 – 12: 1998-11.

4.2 CLASSIFICATION

The element, Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH(ekw), JE-H(St)H at cable bearing system is classified according to the following combinations of performance parameters and classes as appropriate.

Used cables by test [1] are classified as follows:

Cable	**Type of tested cable, single cross-sections and number of conductors**	**Arrangement**	**Classification for type of tested cable** (by cross-sections and number of conductors)	**Classification for cable**
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC	Cable bearing system BAKS. Cable clips UEF. Clips fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. **Track No. 1.**	**E 90**	**Without classification**
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	Cable bearing system BAKS. Cable holders OZMO Holders fixed by dowels SRO M6x30. Holders in spacing of 300 mm. Ceiling mounting. **Track No. 2.**	**E 30**	**Without classification**
JE-H(St)H E90 CERAMIC	JE-H(St)H - 2x2x0,8 E90 CERAMIC		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 60**
NHXH E90 MICA	NHXH - 4x50 RM E90 MICA	Cable bearing system BAKS. Cable clips UKO1 in the ledges SDOC 600. Ledges fixed by dowels PRSO M8x75. Clips and ledges in spacing of 300 mm. Ceiling mounting. **Track No. 3.**	**E 60**	**Without classification**
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC		**E 60**	**Without classification**
JE-H(St)H E90 CERAMIC	JE-H(St)H - 2x2x0,8 E90 CERAMIC		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 30**
NHXH E90 MICA	NHXH - 4x50 RM E90 MICA	Cable bearing system Niedax. Clips SAS. Clips fixed by dowels DAM M6x50. Clips in spacing of 300 mm. Ceiling mounting. **Track No. 4.**	**E 60**	**Without classification**
NHXH E90 MICA	NHXH - 4x1,5 RE E90 MICA	Cable bearing system Niedax. Clips SAS. Clips fixed by dowels DAM M6x50. Clips in spacing of 600 mm. Ceiling mounting. **Track No. 5, 6, 7, 8 and 9.**	**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXH - 4x50 RM E90 MICA		**E 60**	
(N)HXCH E90 MICA	(N)HXCH - 4x1,5 RE/1,5 E90 MICA		**E 90**	n x ≥1,5/1,5 mm^2 n ≥ 2 **E 90**
	(N)HXCH - 4x50 RM/25 E90 MICA		**E 90**	
JE-H(St)H E90 MICA	JE-H(St)H - 2x2x0,8 E90 MICA		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 90**

Cable	Type of tested cable, single cross-sections and number of conductors	Arrangement	Classification for type of tested cable (by cross-sections and number of conductors)	Classification for cable
HTKSH(ekw) FE180/PH90	HTKSH(ekw) - 2x1 FE180/PH90	Cable bearing system OBO Bettermann. Cable plastic trays WDK-H 40060 with cable clips 1015 fixed by dowels FNA II 6. Clips in spacing of 600 mm. Ceiling mounting. **Track No. 10 and 11.**	**Without classification**	**Without classification**
JE-H(St)H E90 MICA	JE-H(St)H - 2x2x0,8 E90 MICA		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 90**
NHXH E90 MICA	NHXH - 4x1,5 RE E90 MICA	Cable bearing system CABLOFIL. Cable mesh trays CF54/300. Consoles combined of supporting profiles RCSN 400 and two threaded rods M8 with hangers PA23 fixed to steel profiles. Consoles in spacing of 1200 mm. Loading 20 $kg.m^{-1}$. **Track No. 12.**	**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXH - 4x50 RM E90 MICA		**E 90**	
JE-H(St)H E90 MICA	JE-H(St)H - 2x2x0,8 E90 MICA		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 90**
JE-H(St)H E90 MICA	bundle of six cables JE-H(St)H - 2x2x0,8 E90 MICA	Cable bearing system CABLOFIL. Cable mesh trays CF30/50. Consoles combined of hangers CEQ100 with holders CAT30 and threaded rods M6 fixed to dowels HKD-S6x40. Consoles in spacing of 1200 mm. Loading 2 $kg.m^{-1}$. **Track No. 13.**	**E 90**	n x 2 x ≥ 0,8 mm n ≥ 2 **E 90**

The element, Power and communications cables Celina Bitner Zaklady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, HTKSH(ekw), JE-H(St)H at cable bearing system are classified to classes according to achieved test results of tested cables at tracks. Other classification is not allowed.

4.3 FIELD OF APPLICATION

This classification is valid for the following end use applications:

- § throughout the period during which circuit integrity is to be maintained, neighbouring building components shall not have a negative effect on circuit integrity;
- § classification for type of cable (by cross-sections and number of conductors) is valid only for tested cable types, number and cross-sections of conductors;
- § classification for cable is valid for all numbers and cross-sections of tested cable type;
- § although testing is only carried out on cables arranged horizontally, test results also apply to cables arranged either diagonally or vertically (e.g. risers), as long as the cable system is supported in transitional areas (i.e. where it switches from a horizontal to a vertical arrangement) in such a manner that the cables will not slip or kink at corners;
- § test results of function in fire test of cables tested at standard supporting construction are also applicable for tested standard supporting construction of other producers;
- § test results of function in fire test of cables tested at standard supporting construction are also applicable for cables of other producers tested at standard supporting construction;
- § test results of function in fire test of cables at nonstandard supporting construction are valid only for tested construction with particular tested cable type and are also applicable for supporting construction with smaller spacing of consoles and smaller loading;
- § test results of cables tested in cable trays or ladders are applicable also for cable trays and ladders with particular construction with smaller width as tested with particular smaller loading;
- § test results of cables tested at cable trays or ladders are applicable also for another products trays and ladders (cross, elbow, T-bend, bends and etc.);
- § maximal length of increasing routing shall be 3500 mm with consistent horizontal placing of cable with minimal length of 300 mm (apart from cable bending) and with maximal spacing of clips of 300 mm, eventually the cables are stabilized by cable transmissions at floor or ceiling with particular fire resistance;
- § for vertical systems, the test results obtained for cables mounted singly on the ceiling using single clips apply**.** Brackets of proven suitability may also be used, as long as their spacing is equal to that of the single clips tested;
- § results of testing single cables on the ceiling apply also to cables mounted horizontally on walls;
- § results of testing bunched cables on a ladder or tray also apply to support construction attached to a wall. However, such constructions required proof of suitability by means of a test certificate or other document issued by an accredited testing laboratory;
- § test results are applicable only for systems without connection elements (e.g. junction box, branch bar).

5. LIMITATIONS

Load-bearing construction elements for fixing of cable systems must be proved for at least the same fire resistance compare to classified function in fire of cable system.
The construction contractor is solely responsible for proper preparation.

This classification document does not represent type approval or certification of the product.

The classification is valid provided that the product, field of application and standards and regulations are not changed.

Approved:

Ing. Štefan Rástocký
leader of the testing laboratory

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The Experts on Fire Safety
-1-

Signed:

Miroslav Hudák
technician of the testing laboratory