

CLASSIFICATION OF FUNCTION IN FIRE FIRES-CR-072-16-AUPE

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

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CLASSIFICATION OF FUNCTION IN FIRE IN ACCORDANCE WITH DIN 4102-12: 1998-11 with direct field of application

FIRES-CR-072-16-AUPE

Name of the product: Power and communications cables Celina Bitner Zakłady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, JE-H(St)H

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Tested property: Function in fire
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 Zakłady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, JE-H(St)H at cable bearing system BAKS and NIEDAX 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-246-07-AUPE, issued on 21. 12. 2007 with validity until 21. 12. 2012.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Power and communications cables Celina Bitner Zakłady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, JE-H(St)H at cable bearing system BAKS and NIEDAX, 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, NHXCH, (N)HXH, (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 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:

<u>Used cables by test:</u>	(N)HXH - 4x1,5 RE E30 CERAMIC	(2 x)
	(N)HXH - 4x1,5 RE E90 CERAMIC	(12 x)
	(N)HXH - 4x50 RM E90 CERAMIC	(2 x)
	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	(8 x)
	(N)HXCH - 4x10 RE/10 E90 CERAMIC	(4 x)
	(N)HXCH - 4x50 RM/25 E90 CERAMIC	(4 x)
	NHXH - 4x1,5 RE E90 MICA	(4 x)
	NHXCH - 4x10 RE/10 E90 MICA	(2 x)
	NHXH - 4x50 RM E90 MICA	(6 x)
	NHXCH - 4x50 RM/25 E90 MICA	(2 x)
	JE-H(St)H - 2x2x0,8 E30 CERAMIC	(4 x)
	JE-H(St)H - 2x2x0,8 E90 CERAMIC	(12 x)
	JE-H(St)H - 2x2x0,8 E90 MICA	(2 x)

Used bearing systems by tests:

Bearing system BAKS – cable trays KCOP, cable ladders DGOP, ceiling ledges SDOC with clips UKO1, clips UDF, UEF, cable holder OZMO and OZO with accessories (consoles, booms, hangers, threaded rods, dowels etc.). Producer BAKS Kazimierz Sielski, Poland.

Bearing system NIEDAX – cable trays LLK 26.030 and LLK 60.100 with cover and with accessories (junction, dowels etc.). Producer NIEDAX GmbH & Co. KG, Germany.

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- 030-07-AUNE	24. 11. 2006	DIN 4102 – 12: 1998-11

3.2 TEST RESULTS

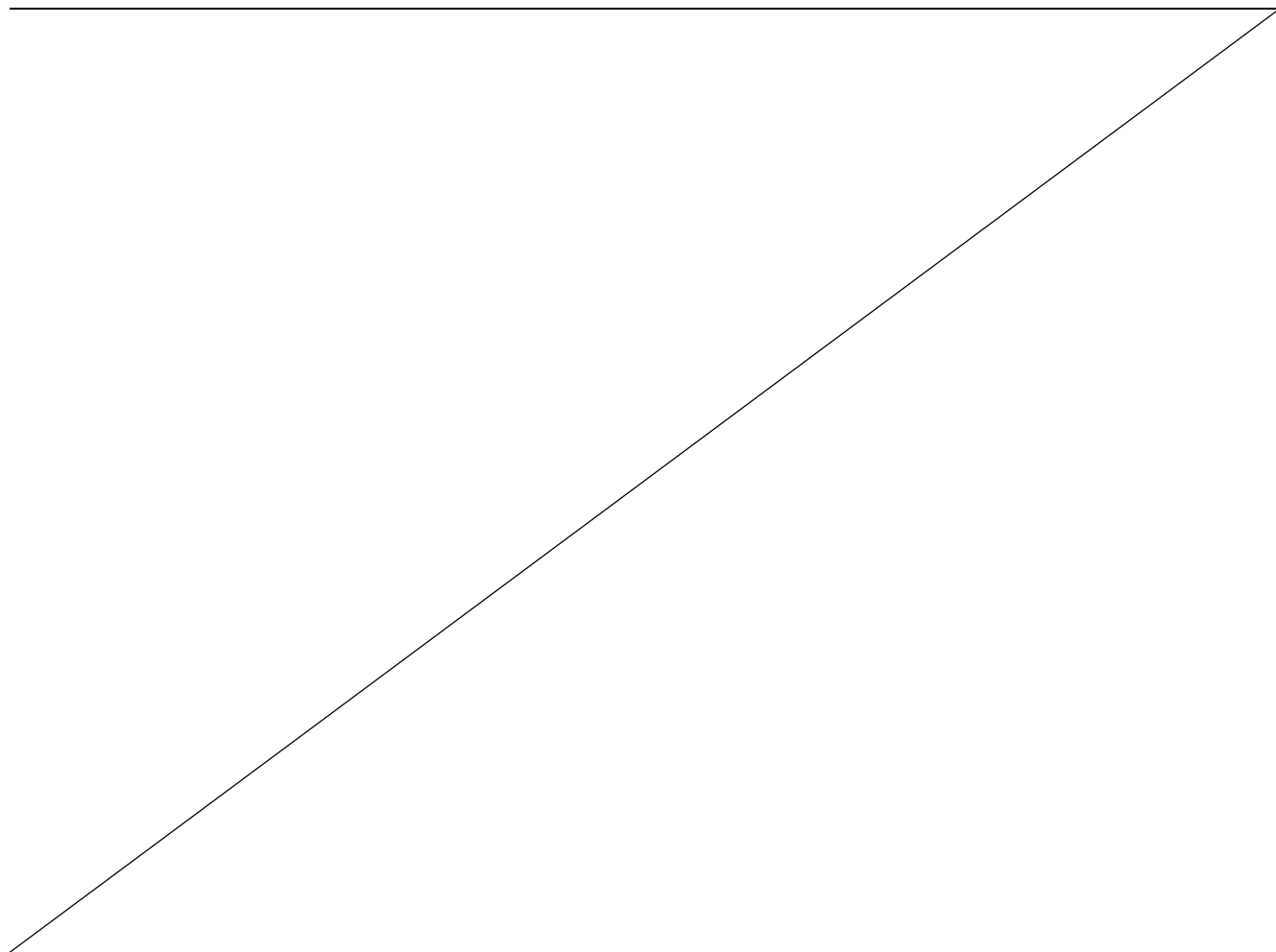
Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	1	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	9	90 minutes no failure / interruption
	2	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	9	40 minutes
	3	(N)HXH - 4x1,5 RE E90 CERAMIC	9	90 minutes no failure / interruption
	4	(N)HXH - 4x1,5 RE E90 CERAMIC	9	90 minutes no failure / interruption
	5	NHXH - 4x50 RM E90 MICA	9	31 minutes
	6	NHXH - 4x50 RM E90 MICA	9	25 minutes
	7	(N)HXH - 4x1,5 RE E30 CERAMIC	5	46 minutes
	8	(N)HXH - 4x1,5 RE E30 CERAMIC	5	62 minutes
	9	(N)HXH - 4x1,5 RE E90 CERAMIC	5	90 minutes no failure / interruption
	10	(N)HXH - 4x1,5 RE E90 CERAMIC	5	46 minutes
	11	(N)HXCH - 4x10 RE/10 E90 CERAMIC	5	34 minutes
	12	(N)HXCH - 4x10 RE/10 E90 CERAMIC	5	48 minutes
	13	(N)HXH - 4x1,5 RE E90 CERAMIC	6	14 minutes
	14	(N)HXH - 4x1,5 RE E90 CERAMIC	6	15 minutes
	15	(N)HXCH - 4x10 RE/10 E90 CERAMIC	6	90 minutes no failure / interruption
	16	(N)HXCH - 4x10 RE/10 E90 CERAMIC	6	90 minutes no failure / interruption
	17	(N)HXH - 4x1,5 RE E90 CERAMIC	7	16 minutes
	18	(N)HXH - 4x1,5 RE E90 CERAMIC	7	16 minutes
	19	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	7	16 minutes
	20	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	7	16 minutes
	21	(N)HXCH - 4x50 RM/25 E90 CERAMIC	8	90 minutes no failure / interruption
	22	(N)HXCH - 4x50 RM/25 E90 CERAMIC	8	90 minutes no failure / interruption
	23	(N)HXH - 4x50 RM E90 CERAMIC	8	90 minutes no failure / interruption
	24	(N)HXH - 4x50 RM E90 CERAMIC	8	90 minutes no failure / interruption
	25	NHXH - 4x50 RM E90 MICA	8	32 minutes
	26	NHXH - 4x50 RM E90 MICA	8	36 minutes
	27	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	2	17 minutes
	28	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	2	17 minutes
	29	NHXH - 4x1,5 RE E90 MICA	2	90 minutes no failure / interruption
	30	NHXH - 4x1,5 RE E90 MICA	2	22 minutes
	31	(N)HXH - 4x1,5 RE E90 CERAMIC	2	18 minutes
	32	(N)HXH - 4x1,5 RE E90 CERAMIC	2	18 minutes
	33	NHXH - 4x50 RM E90 MICA	2	90 minutes no failure / interruption
	34	NHXH - 4x50 RM E90 MICA	2	90 minutes no failure / interruption
	35	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	1	31 minutes
	36	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	1	23 minutes
	37	(N)HXH - 4x1,5 RE E90 CERAMIC	1	23 minutes
	38	(N)HXH - 4x1,5 RE E90 CERAMIC	1	33 minutes
	39	NHXCH - 4x50 RM/25 E90 MICA	4	90 minutes no failure / interruption
	40	NHXCH - 4x50 RM/25 E90 MICA	4	90 minutes no failure / interruption
	41	(N)HXCH - 4x50 RM/25 E90 CERAMIC	3	22 minutes
	42	(N)HXCH - 4x50 RM/25 E90 CERAMIC	3	90 minutes no failure / interruption
	43	NHXH - 4x1,5 RE E90 MICA	wall	90 minutes no failure / interruption
	44	NHXH - 4x1,5 RE E90 MICA	wall	90 minutes no failure / interruption



Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	45	NHXCH - 4x10 RE/10 E90 MICA	wall	90 minutes no failure / interruption
	46	NHXCH - 4x10 RE/10 E90 MICA	wall	90 minutes no failure / interruption
	52	JE-H(St)H - 2x2x0,8 E90 CERAMIC	9	38 minutes
	53	JE-H(St)H - 2x2x0,8 E90 CERAMIC	9	34 minutes
	54	JE-H(St)H - 2x2x0,8 E90 CERAMIC	5	39 minutes
	55	JE-H(St)H - 2x2x0,8 E90 CERAMIC	5	37 minutes
	56	JE-H(St)H - 2x2x0,8 E30 CERAMIC	6	35 minutes
	57	JE-H(St)H - 2x2x0,8 E30 CERAMIC	6	27 minutes
	58	JE-H(St)H - 2x2x0,8 E90 CERAMIC	6	13 minutes
	59	JE-H(St)H - 2x2x0,8 E90 CERAMIC	6	17 minutes
	60	JE-H(St)H - 2x2x0,8 E90 CERAMIC	7	17 minutes
	61	JE-H(St)H - 2x2x0,8 E90 CERAMIC	7	38 minutes
	62	JE-H(St)H - 2x2x0,8 E30 CERAMIC	4	23 minutes
	63	JE-H(St)H - 2x2x0,8 E30 CERAMIC	4	22 minutes
	64	JE-H(St)H - 2x2x0,8 E90 CERAMIC	4	26 minutes
	65	JE-H(St)H - 2x2x0,8 E90 CERAMIC	4	28 minutes
	66	JE-H(St)H - 2x2x0,8 E90 CERAMIC	3	30 minutes
	67	JE-H(St)H - 2x2x0,8 E90 CERAMIC	3	31 minutes
	68	JE-H(St)H - 2x2x0,8 E90 MICA	wall	90 minutes no failure / interruption
69	JE-H(St)H - 2x2x0,8 E90 MICA	wall	90 minutes no failure / interruption	

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

Specimens S1 – S46 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Specimens S52 – S69 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, JE-H(St)H at cable bearing system BAKS - cable trays KCOP, cable ladders DGOP, ceiling ledges SDOC with clips UKO1, clips UDF, UEF, cable holder OZMO and OZO with accessories (consoles, booms, hangers, threaded rods, dowels etc.) and bearing system NIEDAX – cable trays LLK 26.030 and LLK 60.100 with cover and with accessories (junction, dowels etc.) 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 trays KCOP 300H60/3N. Consoles WPCE 800 fixed by dowels PSRO M10x80. Booms WMCO 300 with holders UPWO and threaded rods PGM10 with holders USOV. Consoles in spacing of 1200 mm. Loading 10 kg.m ⁻¹ . Track No. 1 and 3.	Without classification	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC		Without classification	Without classification
	(N)HXCH - 4x50 RM/25 E90 CERAMIC		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
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC	Cable ladders DGOP 400H60/3N. Consoles WPCE 800 fixed by dowels PSRO M10x80. Booms WMCO 400 with holders UPWO and threaded rods PGM10 with holders USOV. Consoles in spacing of 1200 mm. Loading 20 kg.m ⁻¹ . Track No. 2 and 4.	Without classification	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC		Without classification	Without classification
NHXH E90 MICA	NHXH - 4x1,5 RE E90 MICA		Without classification	Without classification
	NHXH - 4x50 RM E90 MICA		E 90	
NHXCH E90 MICA	NHXCH - 4x50 RM/25 E90 MICA		E 90	Without classification
JE-H(St)H E30 CERAMIC	JE-H(St)H - 2x2x0,8 E30 CERAMIC		Without classification	Without classification
JE-H(St)H E90 CERAMIC	JE-H(St)H - 2x2x0,8 E90 CERAMIC		Without classification	Without classification
(N)HXH E30 CERAMIC	(N)HXH - 4x1,5 RE E30 CERAMIC		Cable clips UEF fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. Track No. 5.	E 30
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC	E 30		Without classification



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)HXCH E90 CERAMIC	(N)HXCH - 4x10 RE/10 E90 CERAMIC	Cable clips UEF fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. Track No. 5.	E 30	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
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC	Cable clips UDF fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. Track No. 6.	Without classification	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x10 RE/10 E90 CERAMIC		E 90	Without classification
JE-H(St)H E30 CERAMIC	JE-H(St)H - 2x2x0,8 E30 CERAMIC		Without classification	Without classification
JE-H(St)H E90 CERAMIC	JE-H(St)H - 2x2x0,8 E90 CERAMIC		Without classification	Without classification
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC		Cable holders OZMO Holders fixed by dowels SRO M6x30. Holders in spacing of 300 mm. Ceiling mounting. Track No. 7.	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC	Without classification		Without classification
JE-H(St)H E90 CERAMIC	JE-H(St)H - 2x2x0,8 E90 CERAMIC	Without classification		Without classification
(N)HXH E90 CERAMIC	(N)HXH - 4x50 RM E90 CERAMIC	Cable holders OZO Holders fixed by dowels SRO M6x30. Holders in spacing of 300 mm. Ceiling mounting. Track No. 8.	E 90	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x50 RM/25 E90 CERAMIC		E 90	Without classification
NHXH E90 MICA	NHXH - 4x50 RM E90 MICA		E 30	Without classification
(N)HXH E90 CERAMIC	(N)HXH - 4x1,5 RE E90 CERAMIC	Cable clips UKO1 in the ledges SDOC 600. Ledges fixed by dowels PSRO M8x75. Clips and ledges in spacing of 300 mm. Ceiling mounting. Track No. 9.	E 90	Without classification
(N)HXCH E90 CERAMIC	(N)HXCH - 4x1,5 RE/1,5 E90 CERAMIC		E 30	Without classification
NHXH E90 MICA	NHXH - 4x50 RM E90 MICA		Without classification	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 - 4x1,5 RE E90 MICA		Cable trays LLK 60.100 with cover. Trays fixed by dowels in spacing of 500 mm. Wall mounting.	E 90
NHXCH E90 MICA	NHXCH - 4x10 RE/10 E90 MICA	E 90		Without classification
JE-H(St)H E90 MICA	JE-H(St)H - 2x2x0,8 E90 MICA	Cable trays LLK 26.030 with cover. Trays fixed by dowels in spacing of 500 mm. Wall mounting.	E 90	n x 2 x ≥ 0,8 mm n ≥ 2 E 90



The element, Power and communications cables Celina Bitner Zakłady Kablowe BITNER, type – NHXH, NHXCH, (N)HXH, (N)HXCH, JE-H(St)H at cable bearing system BAKS - cable trays KCOP, cable ladders DGOP, ceiling ledges SDOC with clips UKO1, clips UDF, UEF, cable holder OZMO and OZO with accessories (consoles, booms, hangers, threaded rods, dowels etc.) and bearing system NIEDAX – cable trays LLK 26.030 and LLK 60.100 with cover and with accessories (junction, dowels etc.) 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



Signed:

Miroslav Hudák
technician of the testing laboratory