CLASSIFICATION OF FUNCTION IN FIRE
FIRES-CR-104-14-AUPE

Power and communication cables of Fabryka Kabli ELPAR at cable bearing system BAKS

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-104-14-AUPE

Name of the product:	Power and communication cables of Fabryka Kabli ELPAR at cable bearing system BAKS
Sponsor:	Fabryka Kabli ELPAR Sp. z o.o. Ul. Laskowska 1 Parczew 21-200 Poland
Prepared by:	FIRES, s.r.o. Osloboditeľov 282 059 35 Batizovce Slovak Republic
Tested property:	Function in fire
Test method:	STN 92 0205
Type of test:	Accredited
Task No.:	PR-14-0229
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FIRES, s.r.o., Osloboditeľov 282, 059 35 Batizovce, Slovak Republic
tel. 00421 52 775 22 98, fax. 00421 52 788 14 12, www.fires.sk
Notified Body No. 1396, Approved Body No. SK01, Member of EGOLF

1. INTRODUCTION

This classification report defines the function in fire classification assigned to element Power and communication cables of Fabryka Kabli ELPAR at cable bearing system BAKS in accordance with the procedures given in DIN 4102-12: 1998-11.

This test was carried out according to standard STN 92 0205: 2012 and meets requirements of DIN 4102-12: 1998-11. Basic deviation in process and carrying out of test between these standards is in measuring and in control of temperature in the test furnace. According to STN 92 0205: 2012, plate thermometers according to EN 1363-1 are used. According to DIN 4102-12: 1998-11, common thermocouples of construction which was used for this measurement till issue of EN 1363-1 are used. Measurement by plate thermometers acc. to EN 1363-1 can be considered as stricter method of temperature control in test furnace in compare with thermocouples used till issue of EN 1363-1. Therefore, it is possible to use results of test according to STN 92 025: 2012 for classification of tested cables according to DIN 4102-12: 1998-11, but not conversely.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Power and communication cables of Fabryka Kabli ELPAR at cable bearing system BAKS, 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. Cables are used for the transport of energy and the transmission of signals and controls for electrical equipment when you need maximum security against fire, such as emergency lighting and alarm systems, automatic fire detection, fire extinguishing equipment, automatic opening doors, ventilation systems and conditioning, emergency telephone systems. Cables are assigned for fixed indoor installation in dry or wet environments and temporarily outdoor. Cables can be installed on platforms, pipes, conduits and similar systems.

Used cables and cable bearing system by test:

Power cables:

NHXH 0,6/1kV 4x1,5RE mm^2 E90	(14x)
NHXH 0,6/1kV 4x50RM mm^2 E90	(14x)
NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	(14x)
NHXCH 0,6/1kV 4x50/25RM mm^2 E90	(14x)
(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	(18x)
(N)HXH 0,6/1kV 4x50RM mm^2 E90	(16x)
(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	(16x)
(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	(26x)

Communication cables:

HDGs 300/500V 2x1 mm^2 E90 PH90	(26x)
HTKSH FE180/PH90 240V 1x2x0,8 mm	(14x)

The length of cables was 5,2 m and 4,0 m from that was exposed to fire.

Cable bearing system:
BAKS Kazimierz Sielski, ul. Jagodne 5, 05-480 Karczew, Poland.

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

3. TEST REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method
[1]	FIRES, s.r.o., Batizovce, SR	Fabryka Kabli ELPAR Sp. z o.o. Parczew 21-200, Poland	FIRES-FR-143-14-AUNE	31. 07. 2014	STN 92 0205
[2]	FIRES, s.r.o., Batizovce, SR	BAKS Kazimierz Sielski, 05 - 480 Karczew, Poland	FIRES-FR-156-14-AUNE	21. 08. 2014	STN 92 0205

3.2 TEST RESULTS

No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] STN 92 0205	1	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	10	41 minutes
	2	2 cables (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	3	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	8	46 minutes
	4	2 cables (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	5	2 cables (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	12	90 minutes no failure / interruption
	6	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	7	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	8	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90	9	90 minutes no failure / interruption
	9	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	10	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		83 minutes
	11	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	12	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90	7	90 minutes no failure / interruption
	13	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	14	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	15	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	16	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	12	55 minutes
	17	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		56 minutes
	18	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	19	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	20	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	6	39 minutes
	21	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		38 minutes
	22	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	23	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	24	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90	5	90 minutes no failure / interruption
	25	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	26	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		80 minutes
	27	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	28	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	4	90 minutes no failure / interruption
	29	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	30	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	31	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	32	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	2	90 minutes no failure / interruption
	33	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		44 minutes
	34	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		78 minutes
	35	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		83 minutes

No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] STN 92 0205	36	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	11	90 minutes no failure / interruption
	37	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	38	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	39	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	40	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90	3	90 minutes no failure / interruption
	41	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		74 minutes
	42	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	43	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	44	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90	1	90 minutes no failure / interruption
	45	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	46	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	47	cable (N)HXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	48	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	11	52 minutes
	49	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	50	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	51	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	52	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	12	90 minutes no failure / interruption
	53	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	9	47 minutes
	54	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	7	28 minutes
	55	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	5	17 minutes
	56	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	11	85 minutes
	57	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	3	90 minutes no failure / interruption
	58	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	1	40 minutes
[2] STN 92 0205	1	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90	11	79 minutes
	2	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		42 minutes
	3	2 cables NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		65 minutes
	4	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	10	71 minutes
	5	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	6	2 cables NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		87 minutes
	7	2 cables NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	13	90 minutes no failure / interruption
	8	2 cables NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	9	2 cables (N)HXH 0,6/1kV 4x1,5RE mm^2 E90	9	86 minutes
	10	2 cables NHXH 0,6/1kV 4x50RM mm^2 E90		43 minutes
	11	2 cables NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	12	2 cables NHXH 0,6/1kV 4x50RM mm^2 E90	8	36 minutes
	13	2 cables NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	14	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	13	56 minutes
	15	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	16	2 cables NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	17	2 cables (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	7	44 minutes
	18	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90		83 minutes
	19	2 cables NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		73 minutes
	20	2 cables (N)HXH 0,6/1kV 4x1,5RE mm^2 E90	6	82 minutes
	21	2 cables NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	22	2 cables NHXH 0,6/1kV 4x1,5RE mm^2 E90		51 minutes
	23	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90	5	85 minutes
	24	2 cables NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption

No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
	25	2 cables NHXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	26	cable NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	**4**	79 minutes
	27	cable NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		75 minutes
	28	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	29	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90	**3**	90 minutes no failure / interruption
	30	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		89 minutes
	31	cable (N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		90 minutes no failure / interruption
	32	cable NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		87 minutes
	33	cable NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90	**12**	86 minutes
	34	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		87 minutes
	35	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		85 minutes
	36	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	37	cable (N)HXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	38	cable NHXH 0,6/1kV 4x50RM mm^2 E90	**2**	90 minutes no failure / interruption
	39	cable NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	40	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		52 minutes
	41	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	42	cable NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	43	cable NHXH 0,6/1kV 4x50RM mm^2 E90	**1**	90 minutes no failure / interruption
	44	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	45	cable NHXH 0,6/1kV 4x1,5RE mm^2 E90		90 minutes no failure / interruption
	46	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	47	cable (N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	48	cable NHXCH 0,6/1kV 4x50/25RM mm^2 E90	**12**	90 minutes no failure / interruption
	49	cable NHXCH 0,6/1kV 4x50/25RM mm^2 E90		90 minutes no failure / interruption
	50	cable NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	51	cable NHXH 0,6/1kV 4x50RM mm^2 E90		90 minutes no failure / interruption
	52	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**13**	90 minutes no failure / interruption
	53	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**9**	26 minutes
	54	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**8**	40 minutes
	55	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90		42 minutes
	56	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	**7**	9 minutes
	57	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**6**	40 minutes
	58	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	**5**	29 minutes
	59	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	**3**	43 minutes
	60	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	**12**	85 minutes
	61	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm		84 minutes
	62	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**2**	29 minutes
	63	2 cables HTKSH FE180/PH90 240V 1x2x0,8 mm	**1**	41 minutes
	64	2 cables HDGs 300/500V 2x1 mm^2 E90 PH90	**9**	35 minutes

[1] The test was discontinued in 94th minute at the request of test sponsor.
Specimens S1 – S51 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
Specimens S52 – S58 were tested by one-phase voltage supply 1 x 110V with LED diodes 3V /0,03W.

[2] The test was discontinued in 94th minute at the request of test sponsor.
Specimens S1 – S51 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
Specimens S52 – S64 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 ACCORDING TO DIN 4102-12: 1998-11

The element, Power and communication cables of Fabryka Kabli ELPAR at cable bearing system BAKS, is classified according to the following combinations of performance parameters and classes as appropriate.

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 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Cable trays KCP/KCOP300H60. Consoles WPCB700, brackets WWS/WWSO400, holders UPW/UPWO, ceiling holders USV/USOV, threaded rods PG M10. Loading 10kg.m^{-1}. Consoles in spacing of 1200 mm. **Track No. 1.** [1] **Tracks No. 1, 3 and 4.** [2]	**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
(N)HXCH E90 [2]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
HDGs E90 PH90 [2]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 30**	n x ≥ 1,0 mm^2 n ≥ 2 **E 30**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**
(N)HXH E90 [1], [2]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90 [1]	Cable ladders DGOP400H60. Consoles WPCB700, brackets WWS/WWSO400, holders UPW/UPWO, ceiling holders USV/USOV, threaded rods PG M10. Loading 20kg.m^{-1}. Consoles in spacing of 1200 mm. **Tracks No. 3 and 4.** [1] **Tracks No. 2 and 5.** [2]	**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90 [2]		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 30**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
(N)HXCH E90 [1]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 60**	
HDGs E90 PH90 [1]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 90**	n x ≥ 1,0 mm^2 n ≥ 2 **E 90**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**Without classification**	**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)HXH E90 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Cable mesh trays KDS/KDSO400H60. Consoles combined of assembling profiles CWP40H40/05, threaded rods PG M10. Loading 20kg.m^{-1}. Consoles in spacing of 1500 mm. **Tracks No. 5 and 6.** [1] **Tracks No. 6 and 7.** [2]	**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 30**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
(N)HXCH E90 [1]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 30**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 60**	
HDGs E90 PH90 [1]	HDGs 300/500V 2x1 mm^2 E90 PH90		**Without classification**	**Without classification**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**
(N)HXH E90 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Cable trays KGJ/KGOJ400H60. Consoles combined of assembling profiles CWP40H40/05, threaded rods PG M10. Loading 20kg.m^{-1}. Consoles in spacing of 1500 mm. **Tracks No. 7 and 8.** [1] **Tracks No. 8 and 10.** [2]	**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 30**	
(N)HXCH E90 [1], [2]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90 [1]		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90 [2]		**E 60**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
HDGs E90 PH90 [2]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 30**	n x ≥ 1,0 mm^2 n ≥ 2 **E 30**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**

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 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Cable ladders DUOP400H60. Consoles combined of assembling profiles CWP40H40/05, threaded rods PG M10. Loading 20kg.m^{-1}. Consoles in spacing of 1500 mm. **Tracks No. 9 and 10.** [1] **Tracks No. 9 and 11.** [2]	**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 30**	
(N)HXCH E90 [1]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 30**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 60**	
HDGs E90 PH90 [1]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 30**	n x ≥ 1,0 mm^2 n ≥ 2 **E 30**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**Without classification**	**Without classification**
(N)HXH E90 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Assembling profiles SDOP400 fixed to ceiling in spacing of 300 mm. Cables are fixed by cable clamps UK1/UKO1. **Track No. 11.** [1] **Track No. 12.** [2]	**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
(N)HXCH E90 [1], [2]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90 [1]		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90 [2]		**E 90**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 60**	n x ≥1,5 mm^2 n ≥ 2 **E 60**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
HDGs E90 PH90 [2]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 60**	n x ≥ 1,0 mm^2 n ≥ 2 **E 60**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 60**

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 [1]	(N)HXH 0,6/1kV 4x1,5RE mm^2 E90	Track is made of single cable clips UDF fixed to ceiling by expansion screws MKR (∅ 6 x 32) mm in spacing of 300 mm. **Track No. 12.** [1] **Track No. 13.** [2]	**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	(N)HXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
NHXH E90 [2]	NHXH 0,6/1kV 4x1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	NHXH 0,6/1kV 4x50RM mm^2 E90		**E 90**	
(N)HXCH E90 [1]	(N)HXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 30**
	(N)HXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 30**	
NHXCH E90 [2]	NHXCH 0,6/1kV 4x1,5/1,5RE mm^2 E90		**E 90**	n x ≥1,5 mm^2 n ≥ 2 **E 90**
	NHXCH 0,6/1kV 4x50/25RM mm^2 E90		**E 90**	
HDGs E90 PH90 [1]	HDGs 300/500V 2x1 mm^2 E90 PH90		**E 90**	n x ≥ 1,0 mm^2 n ≥ 2 **E 90**
HTKSH FE180/PH90 [2]	HTKSH FE180/PH90 240V 1x2x0,8 mm		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**

4.3 FIELD OF APPLICATION

- § throughout the period during which circuit integrity is to be maintained, neighbouring building components shall not have a negative effect on circuit integrity;
- § 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;
- § 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.

5. LIMITATIONS

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: Signed:

Ing. Štefan Rástocký
leader of the testing laboratory

Bc. Dávid Šubert
technician of the testing laboratory