CLASSIFICATION OF FUNCTION IN FIRE
FIRES-CR-073-16-AUPE

Fire resistant cables – Flame-X 950, type: (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski

Reg. No. 041/S-159

The Experts on Fire Safety

CLASSIFICATION OF FUNCTION IN FIRE IN ACCORDANCE WITH ZP-27/2008

with direct field of application

FIRES-CR-073-16-AUPE

Name of the product:	Fire resistant cables – Flame-X 950, type: (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski
Sponsor:	Tele-Fonika Kable sp. z o.o. S.K.A., ul. Wielicka 114, 30-630 Kraków, Poland BAKS Kazimierz Sielski, ul. Jagodne 5, 05-480 Karczew, Poland
Prepared by:	FIRES, s.r.o. Osloboditeľov 282 059 35 Batizovce Slovak republic
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Test method:	STN 92 0205
Type of test:	Accredited
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1. INTRODUCTION

This classification report defines the function in fire classification assigned to product: Fire resistant cables – Flame-X 950, type (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski in accordance with the procedures given in ZP-27/2008.

This products have already been classified by FIRES, s.r.o. and number of previous classification of function in fire is FIRES-CR-114-11-AUPE, issued on 08. 07. 2011.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The product, Fire resistant cables – Flame-X 950, type (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski is defined as a bearing system with cables with circuit integrity maintenance.

2.2 PRODUCT DESCRIPTION

Product comprised from fire resistant halogen free cables – Flame-X 950, type (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski – cable trays, cable mesh trays, cable ladders, cable holders OZSO-F, OZO-F and clips KSA with accessories (supports CWOP, PMC400, holders WKSO60, WPPOV, UPWO, threaded rods, dowels etc.).

Cables

Fire resistant security cables are application for installation everywhere where high safety requirements have a special significance e.g., in industrial complexes, power stations, public buildings, hotels, underground railway systems, hospitals etc.

Used cables by test:	NHXH 1x240 / test	(2 x)
	NHXH 5x50 / test	(2 x)
	(N)HXH-J Easy strip FE180 PH90/E90 4x1,5 RE	(2 x)
	(N)HXH-J FE180 PH90/E90 4x1,5 RE	(18 x)
	(N)HXH-J FE180 PH90/E90 4x50 RM	(14 x)
	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	(18 x)
	(N)HXCH FE180 PH90/E90 4x50/25 RM	(14 x)
	N2XH FE180 PH90/E90 4x1,5 RE	(4 x)
	N2XH FE180 PH90/E90 4x50 RM	(4 x)
	HDGs FE180 PH90/E90 2x1,0 mm^2	(16 x)
	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	(16 x)
	HTKSH FE180 PH90/E90 2x2x0,8 mm	(16 x)

More detailed information about product construction is shown in drawings which form an integral part of test report. 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, Slovak republic	Tele-Fonika Kable sp. z o.o. S.K.A., Kraków, Poland BAKS Kazimierz Sielski, Karczew, Poland	FIRES-FR-126-11-AUNE	09. 06. 2011	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	cable N2XH FE180 PH90/E90 4x50 RM	12	90 minutes no failure / interruption
	2	cable N2XH FE180 PH90/E90 4x50 RM	12	90 minutes no failure / interruption
	3	cable N2XH FE180 PH90/E90 4x1,5 RE	12	90 minutes no failure / interruption
	4	cable N2XH FE180 PH90/E90 4x1,5 RE	12	90 minutes no failure / interruption
	5	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	12	80 minutes
	6	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	12	61 minutes
	7	cable (N)HXH-J FE180 PH90/E90 4x50 RM	12	90 minutes no failure / interruption
	8	cable (N)HXH-J FE180 PH90/E90 4x50 RM	12	90 minutes no failure / interruption
	9	cable N2XH FE180 PH90/E90 4x50 RM	11	90 minutes no failure / interruption
	10	cable N2XH FE180 PH90/E90 4x50 RM	11	90 minutes no failure / interruption
	11	cable N2XH FE180 PH90/E90 4x1,5 RE	11	90 minutes no failure / interruption
	12	cable N2XH FE180 PH90/E90 4x1,5 RE	11	90 minutes no failure / interruption
	13	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	11	90 minutes no failure / interruption
	14	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	11	90 minutes no failure / interruption
	15	cable (N)HXH-J FE180 PH90/E90 4x50 RM	11	90 minutes no failure / interruption
	16	cable (N)HXH-J FE180 PH90/E90 4x50 RM	11	90 minutes no failure / interruption
	17	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	10	90 minutes no failure / interruption
	18	cable (N)HXH-J FE180 PH90/E90 4x1,5 RE	10	90 minutes no failure / interruption
	19	cable (N)HXH-J FE180 PH90/E90 4x50 RM	10	90 minutes no failure / interruption
	20	cable (N)HXH-J FE180 PH90/E90 4x50 RM	10	90 minutes no failure / interruption
	21	cable (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	9	74 minutes
	22	cable (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	9	72 minutes
	23	cable (N)HXCH FE180 PH90/E90 4x50/25 RM	9	46 minutes
	24	cable (N)HXCH FE180 PH90/E90 4x50/25 RM	9	43 minutes
	25	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	8	90 minutes no failure / interruption
	26	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	8	66 minutes
	27	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	7	90 minutes no failure / interruption
	28	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	7	90 minutes no failure / interruption
	29	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	15	90 minutes no failure / interruption
	30	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	15	90 minutes no failure / interruption
	31	2 cables (N)HXH-J FE180 PH90/E90 4x50 RM	15	90 minutes no failure / interruption
	32	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	15	56 minutes
	33	2 cables (N)HXH-J Easy strip FE180 PH90/E90 4x1,5 RE	14	14 minutes
	34	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	14	90 minutes no failure / interruption
	35	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	16	90 minutes no failure / interruption
	36	2 cables NHXH 1x240 / test (jointed with connector company CELLPACK	16	90 minutes no failure / interruption
	37	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	6	40 minutes
	38	2 cables (N)HXH-J FE180 PH90/E90 4x50 RM	6	42 minutes
	39	2 cables NHXH 5x50 / test (cables fixed with clips UKO2)	5	77 minutes
	40	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	5	90 minutes no failure / interruption
	41	2 cables (N)HXH-J FE180 PH90/E90 4x50 RM	5	86 minutes
	42	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	4	90 minutes no failure / interruption
	43	2 cables (N)HXH-J FE180 PH90/E90 4x50 RM	4	90 minutes no failure / interruption
	44	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	3	90 minutes no failure / interruption
	45	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	3	57 minutes
	46	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	2	90 minutes no failure / interruption
	47	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	2	90 minutes no failure / interruption
	48	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	1	90 minutes no failure / interruption
	49	2 cables (N)HXCH FE180 PH90/E90 4x50/25 RM	1	90 minutes no failure / interruption
	50	2 cables (N)HXH-J FE180 PH90/E90 4x1,5 RE	13	90 minutes no failure / interruption
	51	2 cables (N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	13	90 minutes no failure / interruption
	52A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	10	90 minutes no failure / interruption
	52B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	10	90 minutes no failure / interruption
	53A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	9	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	53B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	9	90 minutes no failure / interruption
	54	cable HTKSH FE180 PH90/E90 2x2x0,8 mm	9	90 minutes no failure / interruption
	55	cable HTKSH FE180 PH90/E90 2x2x0,8 mm	9	90 minutes no failure / interruption
	56A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	9	90 minutes no failure / interruption
	56B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	9	90 minutes no failure / interruption
	57A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	8	90 minutes no failure / interruption
	57B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	8	90 minutes no failure / interruption
	58	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	8	90 minutes no failure / interruption
	59A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	8	90 minutes no failure / interruption
	59B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	8	90 minutes no failure / interruption
	60A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	7	90 minutes no failure / interruption
	60B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	7	90 minutes no failure / interruption
	61	cable HTKSH FE180 PH90/E90 2x2x0,8 mm	7	90 minutes no failure / interruption
	62	cable HTKSH FE180 PH90/E90 2x2x0,8 mm	7	90 minutes no failure / interruption
	63	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	14	90 minutes no failure / interruption
	64A	2 cables HDGs FE180 PH90/E90 2x1,0 mm^2	16	90 minutes no failure / interruption
	64B	2 cables JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	16	90 minutes no failure / interruption
	65A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	6	58 minutes
	65B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	6	59 minutes
	66A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	5	71 minutes
	66B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	5	70 minutes
	67A	cable HDGs FE180 PH90/E90 2x1,0 mm^2	4	90 minutes no failure / interruption
	67B	cable HDGs FE180 PH90/E90 2x1,0 mm^2	4	90 minutes no failure / interruption
	68	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	3	90 minutes no failure / interruption
	69A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	3	90 minutes no failure / interruption
	69B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	3	90 minutes no failure / interruption
	70	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	2	90 minutes no failure / interruption
	71A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	2	90 minutes no failure / interruption
	71B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	2	90 minutes no failure / interruption
	72	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	1	90 minutes no failure / interruption
	73A	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	1	90 minutes no failure / interruption
	73B	cable JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	1	90 minutes no failure / interruption
	74	2 cables HTKSH FE180 PH90/E90 2x2x0,8 mm	13	90 minutes no failure / interruption
	75A	2 cables JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	13	90 minutes no failure / interruption
	75B	2 cables HDGs FE180 PH90/E90 2x1,0 mm^2	13	90 minutes no failure / interruption

[1] The fire 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 – S75 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 11 of ZP-27/2008 PAVUS.

4.2 CLASSIFICATION

The product, Fire resistant cables – Flame-X 950, type (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski – cable trays, cable mesh trays, cable ladders, cable holders OZSO-F, OZO-F and clips KSA with accessories (supports CWOP, PMC400, holders WKSO60, WPPOV, UPWO, threaded rods, 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)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable mesh trays KDSO 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 1.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 90-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable ladders DGOP 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 2.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 90-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable trays KCOP 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 10 kg/m. Consoles in spacing of 1500 mm. **Track No. 3.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 30-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 30-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**

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-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE	Cable mesh trays KDSO 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 4.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 90-R**	
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE	Cable ladders DGOP 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 5.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 60-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 60-R**	
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 60-R**	n x ≥ 1,0 mm n ≥ 2 **P 60-R**
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE	Cable trays KCOP 400H60/3F. Consoles combined of hanger PSUN-F with supports CWOP40H40/F which were fixed to ceiling by dowels PSRO M10x80. Booms WMCO 400 with threaded bar PGM 10 and holder WPPOV. Loading 10 kg/m. Consoles in spacing of 1500 mm. **Track No. 6.**	**P 30-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 30-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 30-R**	
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 30-R**	n x ≥ 1,0 mm n ≥ 2 **P 30-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable mesh trays KDSO 400H60/3L (polyurethane powder coating). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 7.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 90-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable ladders DGOP 400H60/3L (polyurethane powder coating). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 8.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 60-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 60-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**

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
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm	Cable ladders DGOP 400H60/3L (polyurethane powder coating). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Consoles in spacing of 1500 mm. Loading 20 kg/m. **Track No. 8.**	**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable trays KCOP 400H60/3L (polyurethane powder coating). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 10 kg/m. Consoles in spacing of 1500 mm. **Track No. 9.**	**P 60-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 30-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 30-R**	
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE	Cable mesh trays KDSO 400H60/3L (disperse water-soluble paint). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 10.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 90-R**	
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**
N2XH FE180 PH90/E90	N2XH FE180 PH90/E90 4x1,5 RE	Cable ladders DGOP 400H60/3L (disperse water-soluble paint). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 20 kg/m. Consoles in spacing of 1500 mm. **Track No. 11.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	N2XH FE180 PH90/E90 4x50 RM		**P 90-R**	
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE		**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 90-R**	
N2XH FE180 PH90/E90	N2XH FE180 PH90/E90 4x1,5 RE	Cable trays KCOP 400H60/3L (disperse water-soluble paint). Consoles combined of supporting profiles CWOP40H40/L and three threaded rods PGM10 which were fixed to ceiling by dowels TRSO M10x40. Loading 10 kg/m. Consoles in spacing of 1500 mm. **Track No. 12.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	N2XH FE180 PH90/E90 4x50 RM		**P 90-R**	
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE		**P 60-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 60-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 90-R**	

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 FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable holders OZSO-F. Holders fixed by dowels SRO M6x30 in spacing of 600 mm. Ceiling mounting. **Track No. 13.**	**P 90-R**	**Without classification**
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE		**P 90-R**	**Without classification**
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2		**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable mesh trays KDSO 60H60/3F. Consoles combined of hanger WKSO 60F and threaded rods PGM6x200 which were fixed to ceiling by dowels TRSO M6x30. Consoles in spacing of 1500 mm. Loading 1,5 kg/m. **Track No. 14.**	**P 90-R**	**Without classification**
HTKSH FE180 PH90/E90	HTKSH FE180 PH90/E90 2x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 2 **P 90-R**
(N)HXCH FE180 PH90/E90	(N)HXCH FE180 PH90/E90 4x1,5/1,5 RE	Cable holders OZO-F. Holders fixed by dowels SRO M6x30 in spacing of 600 mm. Ceiling mounting. **Track No. 15.**	**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 30-R**
	(N)HXCH FE180 PH90/E90 4x50/25 RM		**P 30-R**	
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE		**P 90-R**	n x ≥ 1,5 mm^2 n ≥ 2 **P 90-R**
	(N)HXH-J FE180 PH90/E90 4x50 RM		**P 90-R**	
(N)HXH-J FE180 PH90/E90	(N)HXH-J FE180 PH90/E90 4x1,5 RE	Cable mesh trays KDSO 400H60/3N. Consoles combined of supporting profiles PMC400 and two threaded rods PGM8 which were fixed to ceiling by dowels TRSO M8x30. Consoles in spacing of 1500 mm. Loading 15 kg/m. **Track No. 16.**	**P 90-R**	**Without classification**
JE-H(St)H FE180 PH90/E90	JE-H(St)H FE180 PH90/E90 1x2x0,8 mm		**P 90-R**	n x 2 x ≥ 0,8 mm n ≥ 1 **P 90-R**
HDGs FE180 PH90/E90	HDGs FE180 PH90/E90 2x1,0 mm^2	Cable mesh trays KDSO 400H60/3N and clips KSA fixed to threaded rods PGM8 and ceiling. Consoles combined of supporting profiles PMC400 and two threaded rods PGM8 which were fixed to ceiling by dowels TRSO M8x30. Consoles in spacing of 1500 mm. Loading 15 kg/m. **Track No. 16.**	**P 90-R**	n x ≥ 1,0 mm n ≥ 2 **P 90-R**

The element, Fire resistant cables – Flame-X 950, type (N)HXH FE180 PH90/E90, (N)HXCH FE180 PH90/E90, N2XH FE180 PH90/E90, HDGs FE180 PH90/E90, JE-H(St)H FE180 PH90/E90 and HTKSH FE180 PH90/E90 with cable bearing system BAKS Kazimierz Sielski – cable trays, cable mesh trays, cable ladders, cable holders OZSO-F, OZO-F and clips KSA with accessories (supports CWOP, PMC400, holders WKSO60, WPPOV, UPWO, threaded rods, 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, neighboring 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;
- § results gained during tests of cable bearing system exposed to higher temperature are valid also for the cable trays exposed to lower temperature;
- § if a set of at least two pieces of four-conductor cable with the smallest allowed nominal cross-section and two pieces of four-conductor cable with nominal cross-section of 50 mm2 or larger is tested and the cables with the smallest and the largest section achieve required function in fire classification, the test result is valid for all cross-sections of cable of particular construction type and particular ways of installation;
- § if the limit conductor cross-section of tested set of cables differs from above stated, the test result is valid only for such defined range of cable cross-sections of particular cable type and way of installation;
- § if only cables with the smallest or largest section achieve the required function in fire classification, the test results are valid only for the particular section and way of installation;
- § if minimal two pieces of communication cables with the smallest allowed number of conductors, pairs and diameters (cross-sections) are tested, the test results are valid for all diameters (cross-sections), pairs, number of conductors of cable of particular construction type and particular ways of installation;
- § if cables with larger number of conductors or pairs than the smallest allowed number are tested, the test results are valid for all construction types of cable with the same or larger number of conductors, eventually pairs of particular construction type of cable and particular ways of installation;
- § if the widest considered cable tray or cable ladder is tested, the test results are valid for all narrower cable trays or cable ladders of the same construction;
- § if the standard support construction acc. to ZP-27/2008 is used for testing, test results also apply to other types of tested support 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;
- § the classification of upward tracks is valid only under the condition, that cables are supported effectively by means of couple of individual clips (distance of supports ≤ 3500 mm) or the cable transmissions with appropriate fire resistance or special fixation system with demonstrated fire resistance is used. Different design has to be judged by approval authority;
- § for vertical cable tracks, the arrangement and results from tests under the ceiling with individual clips are valid. Tested clips may be used as fixation elements if the spacing of individual clips correspond the spacing of individual clips;
- § test results of single cables on the ceiling are applicable also for cables mounted horizontally on walls;
- § test results of cables at ladders or in trays attached at ceiling are applicable also for cables placed in bearing system fixed to wall.

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