CLASSIFICATION OF FUNCTION IN FIRE
FIRES-CR-066-16-AUPE

Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw

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-066-16-AUPE

Name of the product:	Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw
Sponsor:	TECHNOKABEL S.A. ul. Nasielska 55 04-343 Warszawa Poland
Prepared by:	FIRES, s.r.o. Osloboditeľov 282 059 35 Batizovce Slovak Republic
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 Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw at cable bearing system BAKS 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-047-07-NUPE, issued on 12. 04. 2007 with validity until 12. 04. 2012.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw 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 communication cables at cable bearing system.

Communication cables HTKSH, HTKSHekw – fire resistant and halogen free cables are intended for installation in alarm, signalling, transmission, sound warning and similar systems, also for data processing systems and for analogue or digital data transmission in industrial electronics and control applications in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.
Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.
Functions of the cables are maintained – data are transmitted and power is supplied to equipment which must operate in fire conditions and during firefighting (e.g. emergency lighting). The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

Used cables and cable bearing system by test:

Used cables by test:	HTKSHekw 1x2x2,3 FE180 PH90/E30	(22 x)
	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	(22 x)
	HTKSH 4x2x0,8 FE180 PH90/E30-E60	(22 x)
	HTKSH 4x2x0,8 FE180 PH90/E30-E90	(22 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.

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	TECHNOKABEL S.A., Warszawa, Poland	FIRES-FR-040-07-AUNE	22. 02. 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	HTKSHekw 1x2x2,3 FE180 PH90/E30	12	88 minutes
	2	HTKSHekw 1x2x2,3 FE180 PH90/E30	12	54 minutes
	3	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	12	62 minutes
	4	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	12	72 minutes
	5	HTKSHekw 1x2x2,3 FE180 PH90/E30	11	56 minutes
	6	HTKSHekw 1x2x2,3 FE180 PH90/E30	11	56 minutes
	7	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	11	61 minutes
	8	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	11	67 minutes
	9	HTKSHekw 1x2x2,3 FE180 PH90/E30	10	60 minutes
	10	HTKSHekw 1x2x2,3 FE180 PH90/E30	10	77 minutes
	11	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	10	60 minutes
	12	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	10	54 minutes
	13	HTKSHekw 1x2x2,3 FE180 PH90/E30	7	69 minutes
	14	HTKSHekw 1x2x2,3 FE180 PH90/E30	7	65 minutes
	15	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	7	54 minutes
	16	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	7	69 minutes
	17	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	8	90 minutes no failure / interruption
	18	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	8	67 minutes
	19	HTKSHekw 1x2x2,3 FE180 PH90/E30	8	64 minutes
	20	HTKSHekw 1x2x2,3 FE180 PH90/E30	8	72 minutes
	21	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	6	79 minutes
	22	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	6	59 minutes
	23	HTKSHekw 1x2x2,3 FE180 PH90/E30	6	65 minutes
	24	HTKSHekw 1x2x2,3 FE180 PH90/E30	6	58 minutes
	25	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	5	78 minutes
	26	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	5	67 minutes
	27	HTKSHekw 1x2x2,3 FE180 PH90/E30	5	59 minutes
	28	HTKSHekw 1x2x2,3 FE180 PH90/E30	5	30 minutes
	29	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	3	66 minutes
	30	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	3	62 minutes
	31	HTKSHekw 1x2x2,3 FE180 PH90/E30	3	62 minutes
	32	HTKSHekw 1x2x2,3 FE180 PH90/E30	3	56 minutes
	33	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	4	78 minutes
	34	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	4	70 minutes
	35	HTKSHekw 1x2x2,3 FE180 PH90/E30	4	72 minutes
	36	HTKSHekw 1x2x2,3 FE180 PH90/E30	4	66 minutes
	37	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	1	48 minutes
	38	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	1	59 minutes
	39	HTKSHekw 1x2x2,3 FE180 PH90/E30	1	51 minutes
	40	HTKSHekw 1x2x2,3 FE180 PH90/E30	1	45 minutes
	41	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	2	77 minutes
	42	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60	2	66 minutes
	43	HTKSHekw 1x2x2,3 FE180 PH90/E30	2	59 minutes
	44	HTKSHekw 1x2x2,3 FE180 PH90/E30	2	51 minutes

Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	52A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	12	84 minutes
	52B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	12	83 minutes
	53A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	12	90 minutes no failure / interruption
	53B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	12	90 minutes no failure / interruption
	54A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	11	86 minutes
	54B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	11	90 minutes no failure / interruption
	55A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	11	90 minutes no failure / interruption
	55B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	11	90 minutes no failure / interruption
	56A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	7	90 minutes no failure / interruption
	56B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	7	90 minutes no failure / interruption
	57A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	7	90 minutes no failure / interruption
	57B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	7	38 minutes
	58A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	9	90 minutes no failure / interruption
	58B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	9	90 minutes no failure / interruption
	59A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	9	84 minutes
	59B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	9	90 minutes no failure / interruption
	60A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	8	90 minutes no failure / interruption
	60B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	8	90 minutes no failure / interruption
	61A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	8	90 minutes no failure / interruption
	61B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	8	90 minutes no failure / interruption
	62A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	6	90 minutes no failure / interruption
	62B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	6	90 minutes no failure / interruption
	63A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	6	90 minutes no failure / interruption
	63B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	6	90 minutes no failure / interruption
	64A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	5	30 minutes
	64B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	5	39 minutes
	65A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	5	90 minutes no failure / interruption
	65B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	5	90 minutes no failure / interruption
	66A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	3	90 minutes no failure / interruption
	66B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	3	90 minutes no failure / interruption
	67A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	3	90 minutes no failure / interruption
	67B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	3	90 minutes no failure / interruption
	68A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	4	53 minutes
	68B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	4	51 minutes
	69A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	4	90 minutes no failure / interruption
	69B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	4	90 minutes no failure / interruption
	70A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	1	90 minutes no failure / interruption
	70B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	1	90 minutes no failure / interruption
	71A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	1	90 minutes no failure / interruption
	71B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	1	88 minutes
	72A	HTKSH 4x2x0,8 FE180 PH90/E30-E90	2	90 minutes no failure / interruption
	72B	HTKSH 4x2x0,8 FE180 PH90/E30-E90	2	90 minutes no failure / interruption
	73A	HTKSH 4x2x0,8 FE180 PH90/E30-E60	2	90 minutes no failure / interruption
	73B	HTKSH 4x2x0,8 FE180 PH90/E30-E60	2	90 minutes no failure / interruption

[1] The test was discontinued in 102nd minute at the request of test sponsor.

Specimens S1 – S44 were tested by three-phase voltage supply 1 x 230 V with bulbs 240V / 60 W.
Specimens S52 – S73 were tested by one-phase voltage supply 1 x 110 V 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, Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw 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.) 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**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable trays KCOP 400H60/3N. Consoles WPCO 800 fixed by dowels PSRO M10x80. Booms WMCO 400 with holders UPWO and threaded rods PGM10 with holders USOV. Consoles in spacing of 1500 mm. Loading 10 kg.m^{-1}. **Track No. 1.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 60**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable ladders DGOP 400H60/3N. Consoles WPCO 800 fixed by dowels PSRO M10x80. Booms WMCO 400 with holders UPWO and threaded rods PGM10 with holders USOV. Consoles in spacing of 1500 mm. Loading 20 kg.m^{-1}. **Track No. 2.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable clips UEF fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. **Track No. 3.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **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
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable clips UEF fixed by dowels SRO M6x30. Clips in spacing of 600 mm. Ceiling mounting. **Track No. 4.**	**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 30**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable clips UDF fixed by dowels SRO M6x30. Clips in spacing of 300 mm. Ceiling mounting. **Track No. 5.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 30**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable clips UDF fixed by dowels SRO M6x30. Clips in spacing of 600 mm. Ceiling mounting. **Track No. 6.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable holders OZMO Holders fixed by dowels SRO M6x30. Holders in spacing of 300 mm. Ceiling mounting. **Track No. 7.**	**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 30**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable holders OZMO Holders fixed by dowels SRO M6x30. Holders in spacing of 600 mm. Ceiling mounting. **Track No. 8.**	**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **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
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable holders OZO Holders fixed by dowels SRO M6x30. Holders in spacing of 600 mm. Ceiling mounting. **Track No. 9 and 10.**	**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 60**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	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. 11.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 60**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
HTKSHekw FE180 PH90/E30	HTKSHekw 1x2x2,3 FE180 PH90/E30	Cable clips UKO1 in the ledges SDOC 600. Ledges fixed by dowels PSRO M8x75. Ledges in spacing of 300 mm. Clips in spacing of 600 mm. Ceiling mounting. **Track No. 12.**	**E 30**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 30**
HTKSHekw FE180 PH90/E30-E60	HTKSHekw 1x2x2,3 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 2,3 mm n ≥ 1 **E 60**
HTKSH FE180 PH90/E30-E60	HTKSH 4x2x0,8 FE180 PH90/E30-E60		**E 60**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 60**
HTKSH FE180 PH90/E30-E90	HTKSH 4x2x0,8 FE180 PH90/E30-E90		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**

The element, Communications cables TECHNOKABEL, type – HTKSH and HTKSHekw 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.) 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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Signed:

Miroslav Hudák
technician of the testing laboratory