FUNCTIONAL RESISTANCE IN FIRE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION FIRES-JR-137-18-NURE

Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB

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FUNCTIONAL RESISTANCE IN FIRE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION IN ACCORDANCE WITH DIN 4102-12: 1998-11

FIRES-JR-137-18-NURE

Name of the product: Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB

Sponsor:
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Linz am Rhein D-53545
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1. INTRODUCTION

This expert judgement report with classification defines the functional resistance in fire classification assigned to element Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB in accordance with the classes given in DIN 4102-12: 1998-11.

Test was carried out according to standard STN 92 0205 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, 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 0205 for classification of tested cables according to DIN 4102-12: 1998-11, but not conversely. Identified deviation results in stricter course of test and it can lead to reduced classification of tested cables what is accepted as enhanced security in practice.

This expert judgement report defines field of application which is outside the field of direct application according test standard or outside the field of extended application according to relevant extended application standard. This expert judgement expresses the opinion of the FIRES and is based on the experience or internal rules of FIRES.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB, is defined as a cable supporting system for power and communication halogen free cables with circuit integrity maintenance.

2.2 PRODUCT DESCRIPTION

Product comprised of cable supporting system NIEDAX (cable trays, mesh trays, ladders with accessories) with halogen-free power and communication cables PRAKAB.

Cable supporting system of Niedax:

Cable tray RLVC 60
Cable tray is made of steel sheet thickness 0,75 mm, 0,8 mm or 0,9 mm thick. Height of side wall is 60 mm and maximum tested width is 400 mm. Trays are fixed together by integrated plug-in connectors and nut bolts (FLM 6x12) or alternatively by connectors RVV50 with nut bolts. Maximum tested loading is 20kg.m^{-1}. Tested cable trays are RLVC 60.100 and RLVC 60.400.

Cable tray RL 110
Cable tray is made of steel sheet thickness 0,8 mm, 0,9 mm or 1,0 mm thick. Height of side wall is 110 mm and maximum tested width is 400 mm. Trays are fixed together by connectors (RV 110.400) with nut bolts (FLM 6x12). Maximum tested loading is 20kg.m^{-1}. Tested cable tray is RL 110.400.

Cable mesh tray MTC 54
Cable mesh tray is made of longitudinal steel wires either ø 3,9 mm or ø 4,8 mm and transverse steel wires ø 3,9 mm, ø 4,8 mm or ø 5,8 mm. Height of side wall is 54,0 mm and maximum tested width of cable mesh tray is 400 mm. Mesh trays are fixed together by integrated plug-in connectors or alternatively by nut bolts GRHKM 6x15. Maximum tested loading is 15kg.m^{-1}. Tested mesh tray is MTC 54.400.

Cable ladder KL 60
Cable ladder is made of steel sheet thickness 1,5 mm and spacing of transoms is 150 mm. Cross-section dimensions of transoms are (30 x 15 x 1,5) mm. Height of side wall is 60 mm and maximum tested width of cable ladder is 600 mm. Cable ladders are fixed together by two side connectors (KLVB 60/4) with nut bolts (FLM8x13, 4 pcs per connector). Maximum tested loading is 20kg.m^{-1}. Tested ladders are KL 60.415 and KL 60.615.

Cable ladder STL 60
Cable ladder is made of steel sheet thickness 1,5 mm and spacing of transoms is 300 mm. Cross-section dimensions of transoms are (30 x 15 x 1,5) mm. Height of side wall is 60 mm and maximum tested width of cable ladder is 400 mm. Cable ladders are fixed together by two side connectors (KLVB 60/4) with nut bolts (FLM8x13, 4 pcs per connector). Maximum tested loading is 20kg.m^{-1}. Tested ladder is STL 60.403.

C-profile 2970
Profile with dimensions (30 x 15) mm is made of bent steel sheet 1,5 mm thick.
Profile is used for fixing of cables to ceiling and wall by cable clips.

C-profile 2987
Profile with dimensions (48 x 22) mm is made of bent steel sheet 1,75 mm thick.
Profile is used for suspension of trays and ladders.

C-profile 2986
Profile with dimensions (40 x 22) mm is made of bent steel sheet 2,0 mm thick.
Profile is used for suspension of trays and ladders.

Console HU 5050
Console consists of base plate with dimensions (140 x 80 x 5) mm and support with dimensions (50 x 50 x 2,5) mm. Console is used for gripping of brackets to ceiling.

Bracket KTA
Bracket consists of two parts – base plate (from 4,0 to 6,0 mm thick) and bent steel sheet (from 1,5 to 2,0 mm thick) welded together. Brackets are used for fixation of trays and ladders.

Support TAH
Support consists of two parts and is made of bent steel sheet 4,0 mm thick and 30 mm wide.
Support is used for suspension of trays and ladders.

Trapezoidal hanger DBT 40
Hanger is made of bent steel sheet 1,5 mm thick.

Spacer HDS
Spacer is made of bent steel sheet 1,5 mm thick with dimensions (80 x 43) mm. Spacers are used for reinforcement of consoles at place of brackets fixation.

Adjustable connection bracket AWG 110/140
Bracket with dimensions (140 x 110) mm is made of steel sheet 4,0 mm thick and is used in combination with U-profile for fixation of cable trays/ladders to wall.

U-profile U 5050
Profile with dimensions (50 x 50) mm is made of perforated bent steel sheet 2,5 mm thick.

U-profile U 50/…
Profile with dimensions (50 x 22) mm is made of perforated bent steel sheet 2,0 mm thick.

Corner angle WWU 150/8
Corner angle with dimensions (60 x 60) mm is made of bent steel sheet 5,0 mm.

Support bracket WA
Bracket with dimensions (52 x 52) mm is made of bent steel sheet 2,0 mm thick.

Cable clip SAS
Cable clip consists of two parts made of bent steel sheet from 1,2 to 2,0 mm thick and is used for fixation of cables to ceiling or wall.

Barrier strip RW 35
Barrier strip with dimensions (24 x 30) mm is made of bent steel sheet 0,75 mm thick and is used for separation of cables at cable ladders.

Cable clamps "B"
Cable clamp consists of two parts made of bent steel sheet from 1,5 to 2,0 mm thick and is used for fixation of cables to ceiling or wall.

Cable hanger SHS
Closed cable hanger with dimensions (105 x 129 x 82) mm is made of steel sheet 1,25 mm thick and is used for fixation of cables to wall or ceiling.

All parts of cable supporting systems are made of galvanized steel according to EN ISO 1461.

Steel chains were used for additional loading of tracks.

Cables
Halogen-free cables are used for applications in public buildings, where fire would present a significant hazard to human life as a result of emission of toxic gasses and dense smoke hampering the evacuation or when the losses caused by the corrosive acid gasses would be higher than other damage caused by fire.

Cables used by test:

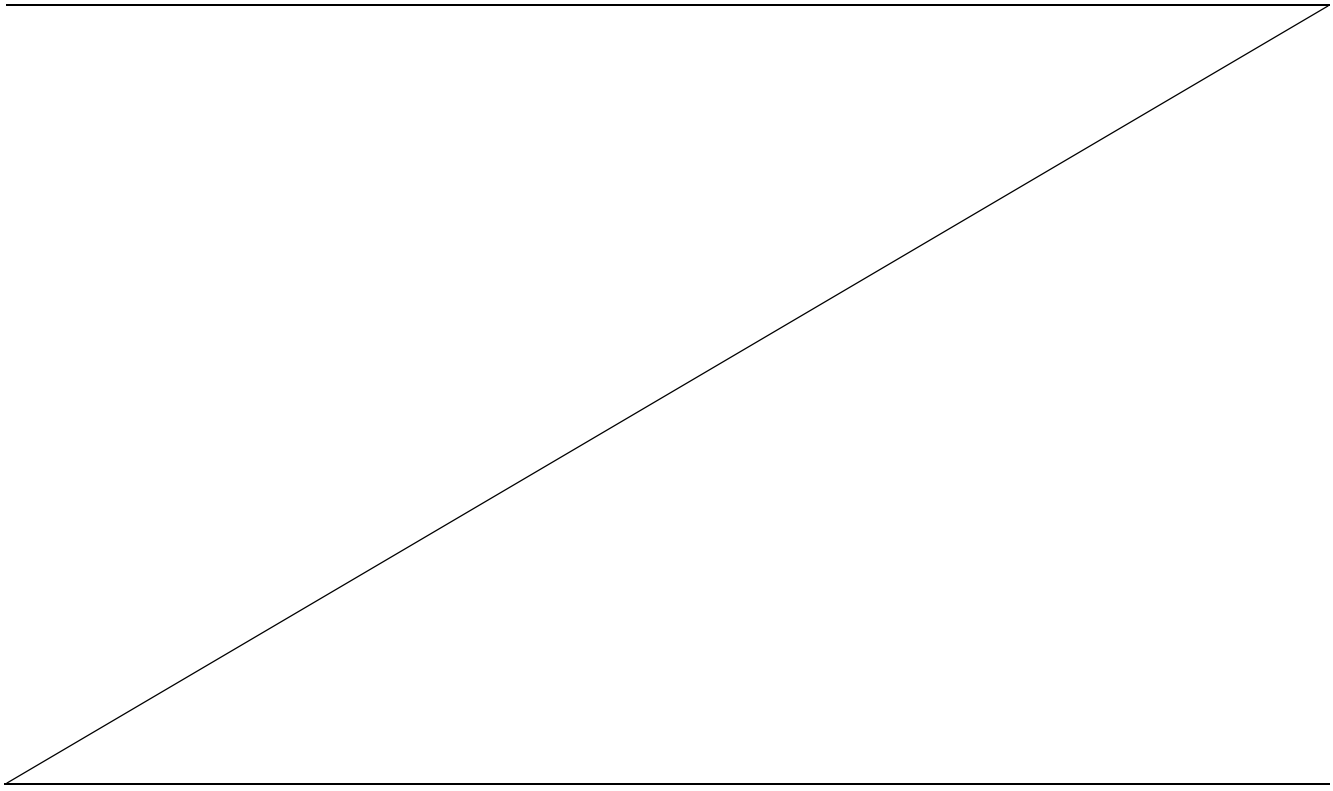
Power cables:
PRAFlaDur 90 (N)HXH FE180 E 90, E 90, E90 0.6/1 kV
PRAFlaDur 1-CSKH-V180 P15-R - E 60, PH 120-R, P75090-R, PS15 - PS60, 0.6/1 kV

Communication cables:
PRAFlaGuard F SSKFH-V180 P15-R - E 90, PH 120-R, P75090-R, PS15 - PS90
PRAFlaGuard FTP TCSPKFH-V180 P15-R - E 90, PH 120-R, P75090-R, PS15 - PS90
PRAFlaGuard SPF TCSPKFH-V180 P15-R - E 90, PH 120-R, P75090-R, PS15 - PS90

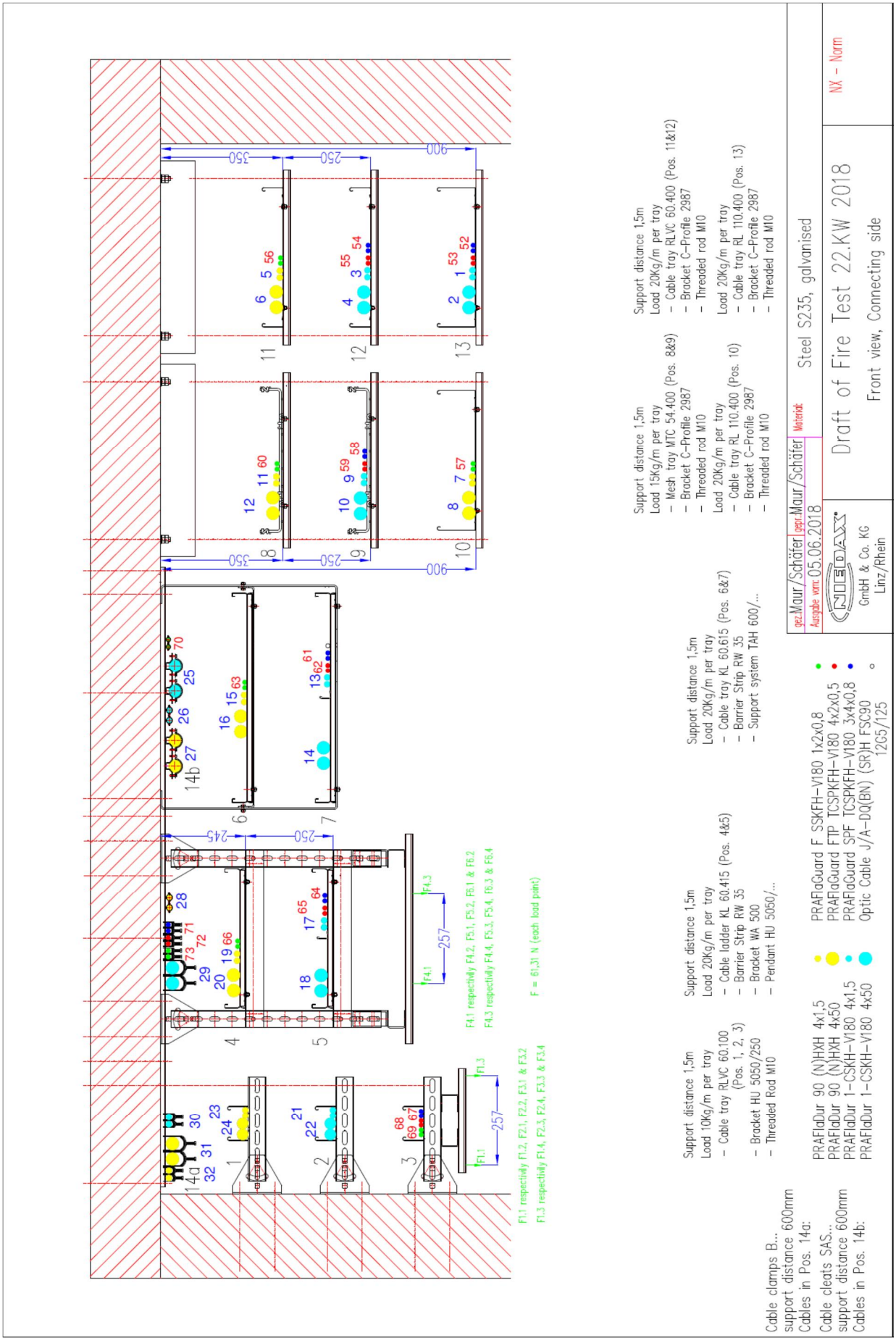
The length of cables was 5,2 m and 4,0 m from that was exposed to fire.

Cable penetration through the wall of test furnace was sealed by mineral wool and sprayed insulation material Tecwool.

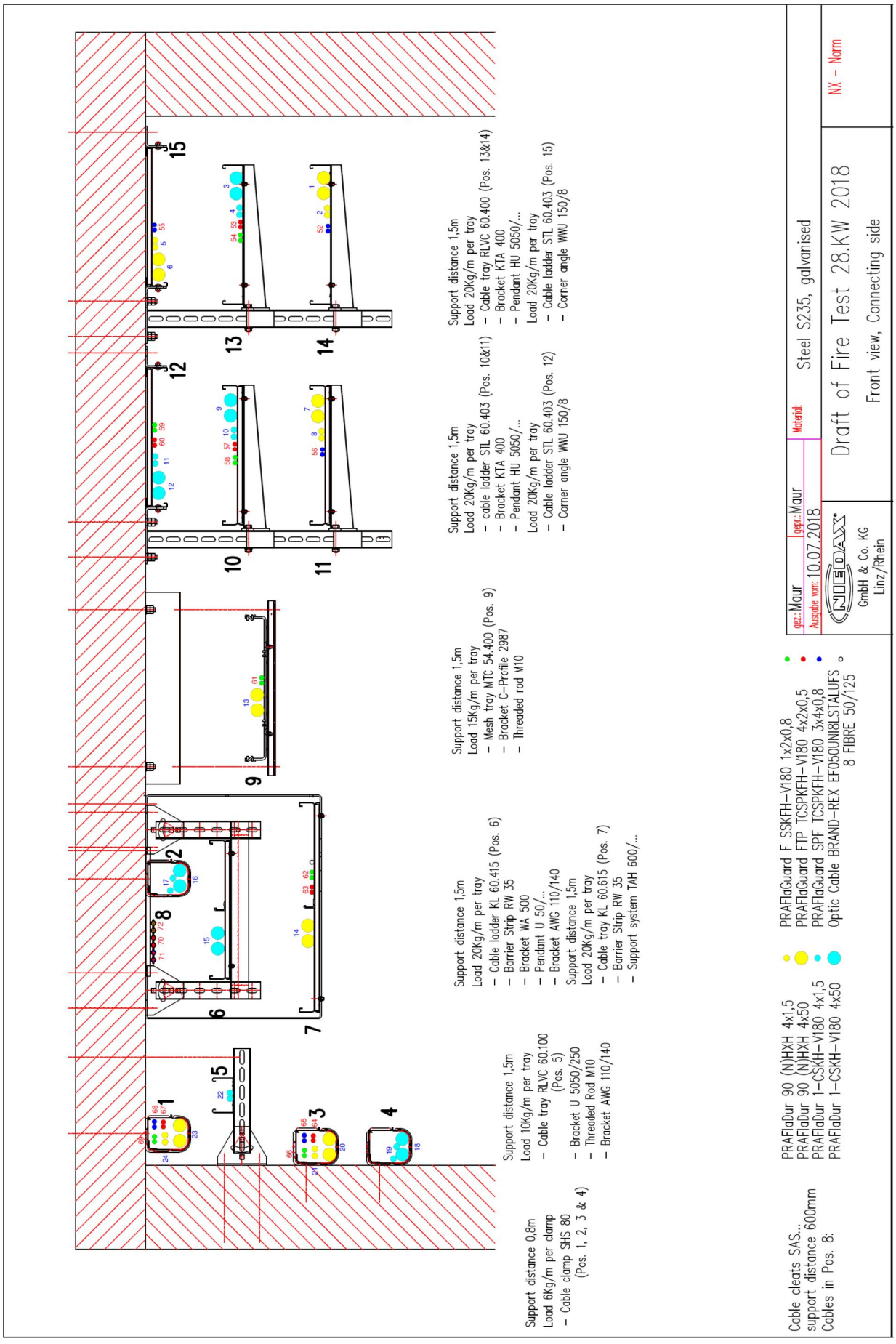
More detailed information about product construction is shown in test reports [1] and [2].



Constructions tested by test [1]:



Constructions tested by test [2]:



3. TEST REPORTS AND EXTENDED APPLICATION REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS AND EXTENDED APPLICATION REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method
[1]	FIRES, s.r.o., Batizovce, SR	Niedax GmbH & Co. KG, Linz am Rhein, DE	FIRES-FR-112-18-AUNE	31. 05. 2018	STN 92 0205
[2]			FIRES-FR-150-18-AUNE	12. 07. 2018	

3.2 TEST RESULTS

No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] STN 92 0205: 2014	1	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	13	90 minutes no failure / interruption
	2	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	3	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	12	90 minutes no failure / interruption
	4	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	5	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	11	90 minutes no failure / interruption
	6	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	7	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	10	90 minutes no failure / interruption
	8	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	9	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	9	90 minutes no failure / interruption
	10	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		76 minutes
	11	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	8	90 minutes no failure / interruption
	12	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		60 minutes
	13	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	7	66 minutes
	14	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	15	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	6	90 minutes no failure / interruption
	16	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		59 minutes
	17	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	5	90 minutes no failure / interruption
	18	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		59 minutes
	19	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	4	90 minutes no failure / interruption
	20	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	21	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	2	45 minutes
	22	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	23	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV	1	90 minutes no failure / interruption
	24	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	25	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	14b	90 minutes no failure / interruption
	26	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	27	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	28	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	29	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	14a	90 minutes no failure / interruption
	30	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	31	2 cables PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	32	2 cables PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption

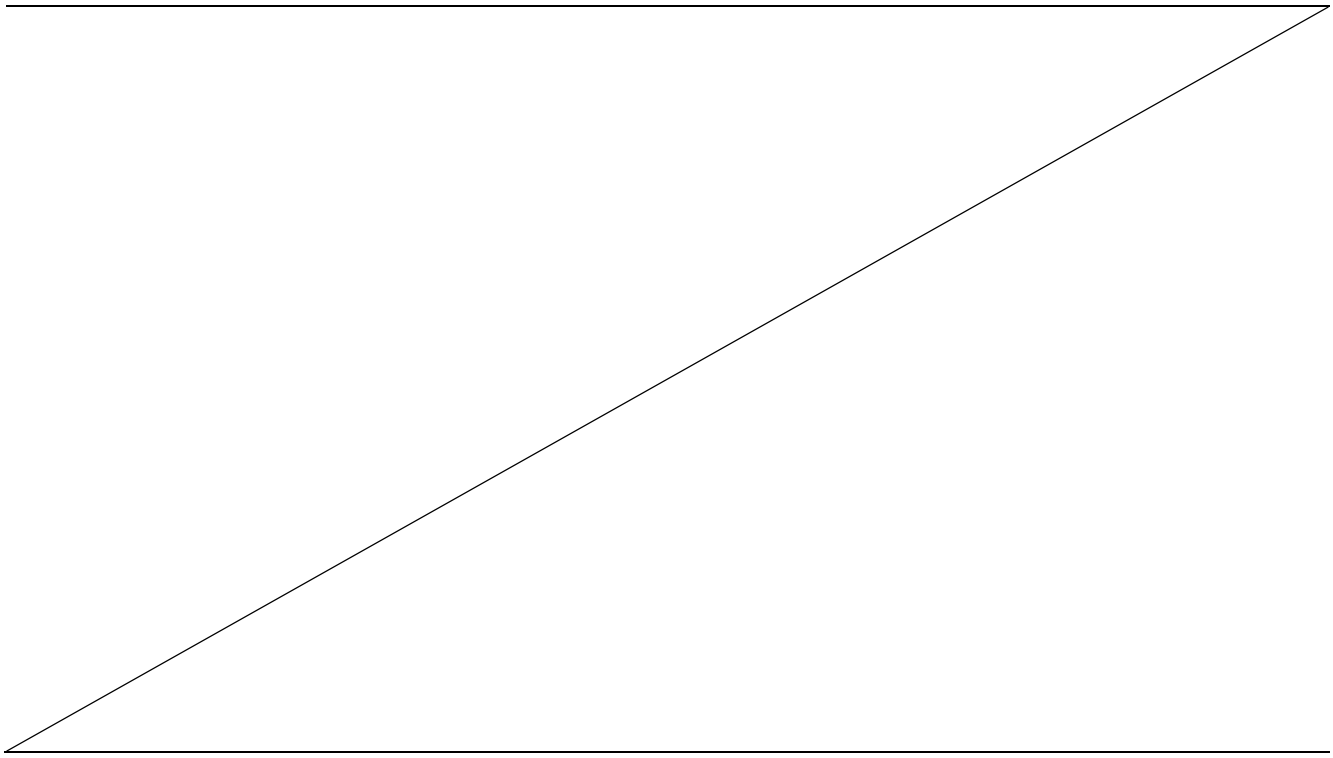
No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] STN 92 0205: 2014	52	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**13**	90 minutes no failure / interruption
	53	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	54	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**12**	90 minutes no failure / interruption
	55	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	56	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**11**	90 minutes no failure / interruption
	57	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**10**	90 minutes no failure / interruption
	58	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**9**	90 minutes no failure / interruption
	59	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	60	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**8**	67 minutes
	61	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**7**	90 minutes no failure / interruption
	62	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		9 minutes
	63	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**6**	22 minutes
	64	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**5**	90 minutes no failure / interruption
	65	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	66	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**4**	90 minutes no failure / interruption
	67	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**3**	90 minutes no failure / interruption
	68	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	69	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		90 minutes no failure / interruption
	70	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**14b**	35 minutes
	71	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**14a**	90 minutes no failure / interruption
	72	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8		90 minutes no failure / interruption
	73	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		90 minutes no failure / interruption
[2] STN 92 0205: 2014	1	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**14**	51 minutes
	2	2 cables PRAFlaDur 90 (N)HXH 4x1,5 RE 0.6/1 kV		53 minutes
	3	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	**13**	90 minutes no failure / interruption
	4	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	5	2 cables PRAFlaDur 90 (N)HXH 4x1,5 RE 0.6/1 kV	**15**	90 minutes no failure / interruption
	6	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV		43 minutes
	7	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**11**	30 minutes
	8	2 cables PRAFlaDur 90 (N)HXH 4x1,5 RE 0.6/1 kV		61 minutes
	9	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	**10**	90 minutes no failure / interruption
	10	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		85 minutes
	11	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	**12**	90 minutes no failure / interruption
	12	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV		90 minutes no failure / interruption
	13	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**9**	90 minutes no failure / interruption
	14	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**7**	90 minutes no failure / interruption
	15	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	**6**	90 minutes no failure / interruption
	16	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	**2**	90 minutes no failure / interruption
	17	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	18	2 cables PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV	**4**	90 minutes no failure / interruption
	19	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV		76 minutes
	20	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**3**	36 minutes
	21	2 cables PRAFlaDur 90 (N)HXH 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption
	22	2 cables PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV	**5**	90 minutes no failure / interruption
	23	2 cables PRAFlaDur 90 (N)HXH 4x50 RM 0.6/1 kV	**1**	42 minutes
	24	2 cables PRAFlaDur 90 (N)HXH 4x1,5 RE 0.6/1 kV		90 minutes no failure / interruption

No./ Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[2] STN 92 0205: 2014	52	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**14**	90 minutes no failure / interruption
	53	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5	**13**	90 minutes no failure / interruption
	54	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		37 minutes
	55	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**15**	90 minutes no failure / interruption
	56	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8	**11**	90 minutes no failure / interruption
	57	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5	**10**	90 minutes no failure / interruption
	58	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		25 minutes
	59	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**12**	20 minutes
	60	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5		90 minutes no failure / interruption
	61	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**9**	90 minutes no failure / interruption
	62	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8	**7**	8 minutes
	63	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5		8 minutes
	64	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5	**3**	90 minutes no failure / interruption
	65	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8		34 minutes
	66	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		36 minutes
	67	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5	**1**	51 minutes
	68	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8		90 minutes no failure / interruption
	69	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		57 minutes
	70	2 cables PRAFlaGuard FTP TCSPKFH-V180 4x2x0,5	**8**	90 minutes no failure / interruption
	71	2 cables PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8		90 minutes no failure / interruption
	72	2 cables PRAFlaGuard F SSKFH-V180 1x2x0,8		90 minutes no failure / interruption

[1], [2] The tests were discontinued in 94th minute upon request of the 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 CLASSIFICATION

The element, **Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB**, 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
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable tray RLVC 60.100. Adjustable connection bracket AWG 1140/140, profile U5050 and threaded rod M10. Plastic distance plates used between bracket and wall. Brackets in spacing of 1500 mm. Maximum loading 10kg.m^{-1}. Wall installation. **Non-standard tracks: No. 1 – 3 [1].** [1)] **No. 5 [2].**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable ladder KL 60.415. Consoles combined of two connection brackets AWG 110/140, two profiles U 50/… and horizontal bracket WA 500. Consoles suspended to ceiling. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 4 and 5 [1].** [2)] **No. 6 [2].**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**

1) Additional supporting construction for lighting devices is constructed under track. Construction consists of two U-profiles (U 5050) fixed longitudinally with track to brackets by nut bolts (FLM 10x25). Profiles are fixed together by 12 nut bolts (FLM 10x25) and reinforced by steel plates 2,0 mm thick. Maximum weight of lighting device 25kg.

2) Additional supporting construction for lighting devices is constructed under track. Construction consists of two U-profiles (U 5050) fixed longitudinally with track to consoles by nut bolts (FLM 10x25) and shelf bracket (TRV 40). Profiles are fixed together by 12 nut bolts (FLM 10x25) and reinforced by steel plates 2,0 mm thick. Maximum weight of lighting device 25kg.

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
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable ladder KL 60.615. Consoles TAH-D 600 fixed to ceiling through plastic plates. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 6 and 7 [1]. No. 7 [2].**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 60**	n x ≥ 1,5 mm^2 n ≥ 2 **E 60**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable mesh tray MTC 54.400. Consoles combined of C-profile 2986 and threaded rods M10. Consoles suspended to supporting construction [1)] by trapezoidal hangers DBT40 and threaded rods M8. Consoles in spacing of 1500 mm. Maximum loading 15kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 8 and 9 [1] No. 9 [2]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 60**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 60**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [2]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable tray RLVC 60.400. Consoles combined of C-profile 2986 and threaded rods M10. Consoles suspended to supporting construction [1)] by trapezoidal hangers DBT40 and threaded rods M8. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 11 and 12 [1]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**

1) Supporting construction is made of segments of steel sheets 1,2 mm thick bent to wave 550 mm long. Individual segments are fixed to ceiling by 4 pcs of anchors in spacing of 1500 mm.

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
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Cable tray RLVC 60.400. Consoles combined of C-profile 2987 and threaded rods M10. Consoles suspended to ceiling. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. **Non-standard tracks: No. 10 and 13 [1]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Track is made of C-profiles 2970 fixed to ceiling in spacing of 600 mm. Cables are fixed to profiles by cable yoke clamps type "B". **Non-standard track: No. 14a [1]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [1]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [1]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [1]	Track is made of C-profiles 2970 fixed to ceiling in spacing of 600 mm. Cables are fixed to profiles by cable clips SAS. **Non-standard tracks: No. 14b [1] No. 8 [2]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [1]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [1]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [2]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 90**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**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
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [2]	Tracks are made of closed cable hangers SHS 80 fixed to ceiling in spacing of 800 mm. Maximum loading 6kg.m^{-1}. **Non-standard tracks: No. 1 and 2 [2]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 30**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 30**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [2]		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 30**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [2]	Tracks are made of closed cable hangers SHS 80 fixed to wall in spacing of 800 mm. Maximum loading 6kg.m^{-1}. **Non-standard tracks: No. 3 and 4 [2]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 30**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 30**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 60**	n x ≥ 1,5 mm^2 n ≥ 2 **E 60**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [2]		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 30**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 30**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [2]	Cable ladder STL 60.403. Consoles HU 5050, brackets KTA 400 and spacers HDS 5050. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 10 and 11 [2]**	**E 60**	n x ≥ 1,5 mm^2 n ≥ 2 **E 30**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 30**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 60**	n x ≥ 1,5 mm^2 n ≥ 2 **E 60**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**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
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [2]	Cable tray RLVC 60.400. Consoles HU 5050, brackets KTA 400 and spacers HDS 5050. Consoles in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Suspended installation. **Non-standard tracks: No. 13 and 14 [2]**	**E 30**	n x ≥ 1,5 mm^2 n ≥ 2 **E 30**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 30**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard F SSKFH-V180	PRAFlaGuard F SSKFH-V180 1x2x0,8 [2]		**E 30**	n x 2 x ≥ 0,8 mm n ≥ 1 **E 30**
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**
PRAFlaDur 90 (N)HXH FE180 0,6/1 kV	PRAFlaDur 90 (N)HXH FE180 4x1,5 RE 0.6/1 kV [2]	Cable ladder STL 60.403 fixed to ceiling at up-side down position by corner angles WWU 150/8. Cables fixed to ladder by cable clamps type B spaced each 300 mm. Fixation in spacing of 1500 mm. Maximum loading 20kg.m^{-1}. Ceiling installation. **Standard tracks: No. 12 and 15 [2]**	**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 30**
	PRAFlaDur 90 (N)HXH FE180 4x50 RM 0.6/1 kV [2]		**E 30**	
PRAFlaDur 1-CSKH-V180 0,6/1 kV	PRAFlaDur 1-CSKH-V180 4x1,5 RE 0.6/1 kV [2]		**E 90**	n x ≥ 1,5 mm^2 n ≥ 2 **E 90**
	PRAFlaDur 1-CSKH-V180 4x50 RM 0.6/1 kV [2]		**E 90**	
PRAFlaGuard SPF TCSPKFH-V180	PRAFlaGuard SPF TCSPKFH-V180 3x4x0,8 [2]		**E 90**	n x 4 x ≥ 0,8 mm n ≥ 3 **E 90**
PRAFlaGuard FTP TCSPKFH-V180	PRAFlaGuard FTP TCSPKFH-V180 4x2x0,8 [2]		**E 90**	n x 2 x ≥ 0,8 mm n ≥ 4 **E 90**

The element, **Cable supporting system NIEDAX with power and communication halogen-free cables PRAKAB** with circuit integrity maintenance classes are classified to classes according to achieved test results of tested cables at tracks. Other classification is not allowed.

4.2 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;
- 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;
- if the standard support construction specified here is used for testing, test results also apply to other types of tested support construction;
- where risers are used, circuit integrity classification only applies if the cable is effectively supported (i.e. with a spacing of supports of 3500 mm or less). Cables may also be stabilized by a seal at penetrations in floors, provided that the sealant material is of a suitable material class, or using clips of proven suitability. The suitability of any design other than that shown in DIN 4102-12, figure 5 may only be assessed by an accredited test laboratory;

- for vertical systems, the test results obtained for cables mounted singly on the ceiling using single clips or clamps apply. In practice, 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 require proof of suitability by means of a test certificate or other document issued by an accredited testing laboratory.

- *results from tests carried out on cable trays and cable ladders are applicable to all cable trays and cable ladders of identical construction of smaller width than tested;*
- *in case of test specimens of support structures made according to EN 61537 of steel with a finishing the test results are directly applicable also to support structures of the same type and made of stainless steel but not vice versa;*
- *test results of a test specimen of cable system with cable trays or cable ladders are directly applicable to all cable system parts used for changing of direction or dimension or for termination of lengths provided that individual disposition has been assessed by an accredited testing laboratory;*

  NOTE 1 – Typical examples of cable system are: elbows, fittings of shape T, cross elements.

  NOTE 2 – In case of cable trays RLVC 60 (RES 60 – 90° elbow; RTS 60 – tee; RTA 60 – extension tee; RBA 60 – 45° elbow; RKS 60 – cross and RGV 60 – connector/joint for vertical offset.

  NOTE 3 – In case of cable mesh trays MTC 54 (MTCE 54 - 90° elbow).
- *test specimens of cable system with cable trays or cable ladders were tested with joining point positioned in the middle of distance between supporting constructions, allowance of ± 5%. The test results are directly applicable to any position of joining point between supporting constructions;*
- *test results of a test specimen of cable system with cable trays or cable ladders may be directly applied also in case of finishing by means of a coloured paint or spray representing a non-substantial component according to EN 13501 + A1; this painting or spraying may be realised only by manufacturer of cable trays or ladders. If the thickness of finishing layer is greater than given in EN 13501-1 + A1 a test according this standard shall be carried out;*
- *test results obtained from test of specimen of cable system with cable clips/clamps are directly applicable also to attachment of a number of cable products into one cable clip but maximal of three. For arrangement of more than 3 cables into one clip it a test shall be carried out;*
- *for vertical cable system with cable clips/clamps it is allowed to arrange more than one cable product into one clip but maximum of 3. For arrangement of more than 3 cable products into one clip it is necessary to carry out test with a method of effective fixing of cable products;*
- *test results obtained from testing of individual cable clips/clamps attached to profile ledges are applicable to an attachment of individual clips directly into an element of building construction;*
- *test results obtained from test with specimen of cable system with cable clips/clamps are directly applicable also to usage of protective tube for mechanical protection of cable product. Different application of protective tube is considered as non-standard support structure; such structure shall be tested according to this standard and test result may be directly applied only to a horizontal arrangement;*
- *based on the test results of cable supporting systems with cable trays or ladders it is allowed to use the cables, which are not used to permanent electric power distribution if are laid:*
  - *at separate cable tray or ladder on same consoles;*
  - *in same cable tray or ladder with cables with circuit integrity in fire, whereupon the cables shall be physically separated on whole length by partition;*

  This application is valid for standard and non-standard supporting constructions. Maximum allowed loading of constructions shall be observed. Cable tray or ladder with cables which are not used for permanent electric power distribution shall be placed underneath of cable trays/ladders with fire resistance cables if the tracks are installed on the same consoles.

4.3 LABELING OF CABLE TRACK

The contractor shall always label the cable track at the accessible place and by permanent way. Label contains following information:

- the name of individual or legal person whose workers have installed the system;
- indication of cable bearing system which is stated in classification report;
- class of function in fire, number of classification report;
- year of installation of cable bearing system.

If the track is long, it is appropriate to repeat the labelling approximately every 50 m.

5. LIMITATIONS

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

The classification is valid until 23. 01. 2024 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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FIRES
The Experts on Fire Safety
-1-

Signed:

Dávid Šubert
technician of the testing laboratory