

TEST REPORT FIRES-FR-098-14-AUNE

**Cable bearing system BAKS with cables business nkt cables s.r.o.
and PRAKAB PRAŽSKÁ KABELOVNA, s.r.o.**

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TEST REPORT

FIRES-FR-098-14-AUNE

Tested property: Function in fire
Test method: STN 92 0205: 2014 (ZP-27/2008, DIN 4102-12: 1998-11)
Type of test: Accredited
Date of issue: 27. 05. 2014

Name of the product: Cable bearing system BAKS with cables business nkt cables s.r.o. and PRAKAB PRAŽSKÁ KABELOVNA, s.r.o.

Manufacturer: BAKS Kazimierz Sielski, ul. Jagodne 5, 05 – 480 Karczew, Poland
producer of cable bearing system

nkt cables s.r.o., Průmyslová třída 1130, 272 01 Kladno, Czech Republic –
producer of cables

PRAKAB PRAŽSKÁ KABELOVNA, s.r.o., Ke Kablu 278, CZ-102 09 Praha 15,
Czech Republic – producer of cables

Sponsor: BAKS Kazimierz Sielski, ul. Jagodne 5, 05 - 480 Karczew, Poland

Test carried out: Fires, s.r.o., Testing laboratory
Task No.: PR-14-0177
Specimens received: 15. 05. 2014
Date of the test: 22. 05. 2014

Technician responsible for the technical side of this report Bc. Dávid Šubert

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1. INTRODUCTION

This test report contains the results of test carried out by laboratory of FIRES, s.r.o., Testing laboratory in Batizovce, accredited by SNAS for testing. Certificate of accreditation No.: S-159. The purpose of the test was to gain information for product classification.

Test of function in fire was carried out according to standard STN 92 0205. Similar standards and regulations for tests of function in fire are ZP-27/2008 PAVUS and DIN 4102-12: 1998-11.

Deviations from standard at the test according to ZP-27/2008: This test was carried out according to standard STN 92 0205 and meets also all requirements of ZP-27/2008 and test results can be directly used for classification of tested cables according to ZP-27/2008. There are no deviations identified in process and carrying out of test.

Deviations from standard at the test according to DIN 4102-12: 1998-11: This 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.

Representatives from the sponsor's side witnessing the test:

Mr. Tomasz Żukowski	BAKS Kazimierz Sielski
Mr. Dariusz Gowronski	BAKS Kazimierz Sielski
Mr. Marek Calta	Strader Čechy s.r.o.
Mr. Dušan Duda	Strader Čechy s.r.o.
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Mr. Milan Zach	PRAKAB PRAŽSKÁ KABELOVNA, s.r.o.
Mr. Martin Vališka	PRAKAB PRAŽSKÁ KABELOVNA, s.r.o.

test directed by	Ing. Marek Gorlický
test carried out by	Bc. Dávid Šubert
operator	Miroslav Hudák

2. MEASURING EQUIPMENT

Identification number	Measuring equipment	Note
F 90 004	Vertical test furnace for fire resistance testing	-
F 69 010	PLC system for data acquisition and control TECOMAT TC 700	-
F 40 017	Control and communication software to PLC TECOMAT TC 700	-
F 40 018	SW Reliance	-
F 40 019	Visual and calculating software to PLC TECOMAT TC 700	-
F 40 020	Driver Tecomat – Reliance (SW)	-
F 69 009	PLC system for data acquisition and climate control TECOMAT TC 604	-
F 60 001 - F 60 009	Sensors of temperature and relative air humidity	climatic conditions measuring



Identification number	Measuring equipment	Note
F 71 008, F 71 009	Transducer of differential pressure (-50 to + 150) Pa	pressure inside the test furnace
F 10 521 - F 10 528	Plate thermometers	temperature inside the test furnace, according to EN 1363-1
F 10 701	Sheathed thermocouple type K Ø 3 mm	ambient temperature
F 54 020	Digital calliper (0 to 200) mm	-
F 54 056	Racking meter	-
F 57 007	Digital stop-watch	-
F 96 015	Test signal panel	-

3. PREPARATION OF THE SPECIMENS

Testing laboratory didn't take off individual components of the specimens. Components take-off and its delivering to the testing laboratory were carried out by the test sponsor. Assembling of the supporting system into the test furnace and mounting of cables and weights into the supporting system was carried out by workers of BAKS Kazimierz Sielski, nkt cables s.r.o. and PRAKAB PRAŽSKÁ KABELOVNA, s.r.o. under supervision of laboratory technician.

4. PREPARATION OF THE TEST

4.1 DESCRIPTION OF THE SPECIMENS STRUCTURE

Test specimen comprised from cable bearing system BAKS Kazimierz Sielski company – cable trays, cable mesh trays, cable clips and clamps with accessories (consoles, supports, hangers etc.) and power and communication halogen free cables of nkt cables s.r.o. and PRAKAB PRAŽSKÁ KABELOVNA, s.r.o..

Cables

Used cables by test:

Power cables:

PRAKAB PRAŽSKÁ KABELOVNA, s.r.o.:

PRAFlaDur® 90 (N)HXH 4x50 RM	(24x)
PRAFlaDur® 90 (N)HXH 4x10 RE	(1x)
PRAFlaDur® 90 (N)HXH 4x6 RE	(1x)
PRAFlaDur® 90 (N)HXH 4x1,5 RE	(30x)

nkt cables s.r.o.

NOPOVIC NHXH 4x50 E90	(12x)
NOPOVIC NHXH 4x1,5 E90	(16x)

Communication cables:

PRAFlaGuard® F SSKFH-V 180 E90 1x2x0,8 (26x)

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

Cable bearing systems were made of following constructions:

Suspension tracks No. 1 and 2

Tracks are made of three consoles combined of assembling profiles (CWP40H22/04; length of profile 400 mm) and two threaded rods (PG M8) fixed to ceiling by anchors (TRSO M8) in spacing of 1500 mm. Non-standard supporting constructions.

Track No. 1:

Cable trays (KCL/KCOL300H60, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 15kg.m⁻¹. Cables are fixed to trays by cable clips (UDF).



Track No. 2:

Cable trays (KBL300H50, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 15kg.m⁻¹. Cables are fixed to trays by cable clips (UDF).

Suspension track No. 3

Track is made of three consoles combined of assembling profiles (CWP/CWOP40H40/05; length of profile 400 mm) and two threaded rods (PG M8) fixed to ceiling by anchors (TRSO M8) in spacing of 1500 mm. Non-standard supporting construction.

Cable trays (KCJ/KCOJ400H60, steel sheet thickness 0,9 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 15kg.m⁻¹. Cables are fixed to trays by cable clips UDF.

Suspension track No. 4 and 5

Tracks are made of three consoles (WPCW/WPCO) fixed to ceiling by anchors (PSRO M8x75) in spacing of 1500 mm. Brackets (WWS/WWSO400) are fixed to consoles by screws (SM M10x80). Holders (UPW/UPWO) are fixed at the end of brackets with screws (SGK M8x14). Brackets are fixed through holders by threaded rods (PG M8) with washers and nuts (M8) to ceiling by TRSOM8. Consoles are reinforced in place of fixing brackets by steel sheet (BR40). Non-standard supporting constructions.

Track No. 4:

Cable trays (KCJ/KCOJ400H60, steel sheet thickness 0,9 mm) fixed together by screws (SGK M6x12). Trays are fixed to brackets by screws (SGK M6x12) and loaded with 15kg.m⁻¹. Cables are fixed to trays by cable clips (UDF).

Track No. 5:

Cable mesh trays (KDS/KDSO400H60, steel wire Ø 4,5 mm) fixed together by junctions (USS/USSO). Mesh trays are fixed to brackets by junctions (ZS/ZSO) and loaded with 15kg.m⁻¹. Cables are fixed to mesh trays by cable clamps (UKZ1/UKZO1 – according to cable cross-section).

Suspension track No. 6 – 9

Tracks are made of three consoles (WPCW/WPCO) fixed to ceiling by anchors (PSRO M8x75) in spacing of 1500 mm. Brackets (WMC/WMCO300 – tracks no. 6, 7 and WWS/WWSO300 – tracks no. 8, 9) are fixed to consoles by screws (SM M10x80). Consoles are reinforced in place of fixing brackets by steel sheet (BR40). Non-standard supporting constructions.

Tracks No. 6 and 9:

Cable trays (KCL/KCOL300H60, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to brackets by screws (SGK M6x12) and loaded with 10kg.m⁻¹. Cables are fixed to trays by cable clips UDF.

Track No. 7:

Cable trays (KBL300H50, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 10kg.m⁻¹. Cables are fixed to trays by cable clips UDF.

Track No. 8:

Cable mesh trays (KDS/KDSO300H60, steel wire Ø 4,5 mm) fixed together by junctions (USS/USSO). Mesh trays are fixed to brackets by junctions (ZS/ZSO) and loaded with 10kg.m⁻¹. Cables are fixed to mesh trays by cable clamps (UKZ1/UKZO1 – according to cable cross-section).

Suspension tracks No. 10 and 11

Tracks are made of three consoles combined of assembling profiles (CWP40H22/04; length of profile 400 mm) and two threaded rods (PG M8) fixed to ceiling by anchors (TRSO M8) in spacing of 1200 mm. Non-standard supporting constructions.

Track No. 10:

Cable trays (KCL/KCOL300H60, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 15kg.m⁻¹. Cables are fixed to trays by cable clips (UDF).

**Track No. 11:**

Cable mesh trays (KDS/KDSO300H60, steel wire $\varnothing$ 4,5 mm) fixed together by junctions (USS/USSO). Mesh trays are fixed to brackets by junctions (ZS/ZSO) and loaded with 15kg.m^{-1} . Cables are fixed to mesh trays by cable clamps (UKZ1/UKZO1 – according to cable cross-section).

Suspension tracks No. 12 and 13

Tracks are made of three consoles combined of assembling profile (CWP40H22/04; length of profile 400 mm) and two threaded rods (PG M8) fixed to trapezoidal steel sheet on ceiling by hangers (WT/WTO120 M8) and threaded rods (PG M8) in spacing of 1200 mm. Standard supporting constructions.

Track No. 12:

Cable trays (KCL/KCOL300H60, steel sheet thickness 0,7 mm) fixed together by screws (SGK M6x12). Trays are fixed to profiles by screws (SGK M6x12) and loaded with 10kg.m^{-1} . Cables are fixed to trays by cable clips (UDF).

Track No. 13:

Cable mesh trays (KDS/KDSO300H60, steel wire $\varnothing$ 4,5 mm) fixed together by junctions (USS/USSO). Mesh trays are fixed to brackets by junctions (ZS/ZSO) and loaded with 10kg.m^{-1} . Cables are fixed to mesh trays by cable clamps (UKZ1/UKZO1 – according to cable cross-section).

Ceiling track No. 14 and 15

Tracks are made of single cable clips (UDF) fixed to ceiling by anchors (SRO M6x30) in spacing of 600 mm. Cables are connected to junction boxes (PMO1 – track no. 14 and PMO2 – track no. 15).

Ceiling tracks No. 16 and 17

Tracks are made of cable clamps (OZ/OZO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.

Ceiling tracks No. 16a and 17a

Tracks are made of cable clamps (OZS/OZSO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.

Ceiling tracks No. 16b and 17b

Tracks are made of cable clamps (OZM/OZMO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.

Ceiling track No. 18

Track is made of single cable clips (UDF) shoot by nails Hilti X-GHP 20 MX to ceiling in spacing of 600 mm.

Ceiling track No. 19

Track is made of single cable clips (UDF) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.

Ceiling track No. 20

Track is made of single cable clips (KSA) fixed to ceiling by anchors (SRBO M6x30) in spacing of 600 mm.

All bearing systems were from steel, galvanized according to the Sendzimir method PN-EN 10327:2005.

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

All the information about technical specifications of used materials and semi-products, information about their type sign were delivered by sponsor. This information was not subject of the inspection of specimens. Parameters which were checked are quoted in paragraph 4.3.



4.2 DESCRIPTION OF SPECIMENS FIXATION

The test specimens were fixed on the ceiling of the test furnace which was created from concrete panels made of common shocked concrete of class C 16/20, 150 mm thick – 4 pieces.

The type of specimen's fixation into the test furnace is shown in drawing documentation and it was selected by the sponsor.

4.3 INSPECTION OF SPECIMENS

Before and after the function in fire test, conformity of drawings and test specimens was checked. Specimens corresponded to the drawings which are part of this test report. Inspection of specimens consisted of visual review of the test specimens, used materials as well as size verification (number and cross sections of conductors, thickness, measurements of cables and trays) and also the way of specimens fixation to supporting construction was subject of inspection.

4.4 CLIMATIC CONDITIONING OF SPECIMENS

Test specimens were stored in the hall of testing laboratory under the following climatic conditions:

Ambient air temperature [°C]

mean	19,0
standard deviation	1,3

Relative air humidity [%]

mean	56,9
standard deviation	4,4

The humidity equilibrium state of test specimens was not determined. Test specimens did not comprise hygroscopic materials.

5. CARRYING OUT OF THE TEST

5.1 TEST GENERALLY

The test was carried out in horizontal test furnace with dimensions of (4000 x 3000 x 3000) mm (length x width x height).

5.2 CONDITIONS OF THE TEST

Conditions in the test furnace (temperature – standard temperature/time curve, pressure, content of O₂) as well as in the testing room (ambient temperature) corresponded to EN 1363-1 during the test. Detailed information is part of this test report, or in Quality records of the testing laboratory.

Values characterizing environment in the testing room directly before the test:

Relative air humidity [%]	Ambient air temperature [°C]
51,1	22,9

5.3 RESULTS OF THE TEST

Measured values are stated in this test report.

During the test there was no failure or damage of tracks – even during cooling down of the tracks after termination of the test.



6. CLOSING

Evaluation of the test:

Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
1	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	13	69 minutes
2	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		31 minutes
3	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	12	90 minutes no failure / interruption
4	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		90 minutes no failure / interruption
5	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	11	90 minutes no failure / interruption
6	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		32 minutes
7	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	10	90 minutes no failure / interruption
8	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		90 minutes no failure / interruption
9	2 cables NOPOVIC NHXH 4x50 E90	20	90 minutes no failure / interruption
10	2 cables NOPOVIC NHXH 4x1,5 E90		90 minutes no failure / interruption
11	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM	19	90 minutes no failure / interruption
12	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE		90 minutes no failure / interruption
13	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM	18	90 minutes no failure / interruption
14	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE		90 minutes no failure / interruption
15	2 cables NOPOVIC NHXH 4x1,5 E90	17	90 minutes no failure / interruption
16	2 cables NOPOVIC NHXH 4x50 E90		90 minutes no failure / interruption
17	2 cables NOPOVIC NHXH 4x1,5 E90	9	28 minutes
18	2 cables NOPOVIC NHXH 4x50 E90		90 minutes no failure / interruption
19	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	7	33 minutes
20	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		90 minutes no failure / interruption
21	2 cables NOPOVIC NHXH 4x1,5 E90	5	90 minutes no failure / interruption
22	2 cables NOPOVIC NHXH 4x50 E90		90 minutes no failure / interruption
23	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM	8	85 minutes
24	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE		90 minutes no failure / interruption
25	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM	6	90 minutes no failure / interruption
26	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE		90 minutes no failure / interruption
27	2 cables NOPOVIC NHXH 4x50 E90	4	90 minutes no failure / interruption
28	2 cables NOPOVIC NHXH 4x1,5 E90		90 minutes no failure / interruption
29	2 cables NOPOVIC NHXH 4x1,5 E90	17a	90 minutes no failure / interruption
30	2 cables NOPOVIC NHXH 4x1,5 E90	17b	90 minutes no failure / interruption
31	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	16b	90 minutes no failure / interruption
32	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	16a	90 minutes no failure / interruption
33	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	16	90 minutes no failure / interruption
34	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		52 minutes
35	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	3	90 minutes no failure / interruption
36	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		90 minutes no failure / interruption
37	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE	2	90 minutes no failure / interruption
38	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM		90 minutes no failure / interruption
39	2 cables NOPOVIC NHXH 4x50 E90	1	90 minutes no failure / interruption
40	2 cables NOPOVIC NHXH 4x1,5 E90		90 minutes no failure / interruption
41	cable PRAFlaDur [®] 90 (N)HXH 4x10 RE + junction boxes PMO2	15	90 minutes no failure / interruption
42	cable PRAFlaDur [®] 90 (N)HXH 4x1,5 RE + junction boxes PMO2		90 minutes no failure / interruption



Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
43	cable PRAFlaDur [®] 90 (N)HXH 4x6 RE + junction boxes PMO1	14	90 minutes no failure / interruption
44	cable PRAFlaDur [®] 90 (N)HXH 4x1,5 RE + junction boxes PMO1		90 minutes no failure / interruption
52	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	13	2 minutes
53	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	12	75 minutes
54	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	11	63 minutes
55	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	10	27 minutes
56	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	18	90 minutes no failure / interruption
57	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	7	74 minutes
58	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	8	48 minutes
59	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	6	90 minutes no failure / interruption
60	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	16b	90 minutes no failure / interruption
61	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	16a	90 minutes no failure / interruption
62	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	16	60 minutes
63	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	3	90 minutes no failure / interruption
64	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8	2	88 minutes

The fire test was discontinued in 93rd minute at the request of test sponsor.

Specimens S1 – S44 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
Specimens S52 – S63 were tested by one-phase voltage supply 1 x 110V with LED diodes 3V / 0,03W.

Circuit breakers with rating 3 A were used.



Measured values inside the test furnace

Time t [min]	Temperature [°C]											Deviation d _e [%]	Pressure p [Pa]
	Td1	Td2	Td3	Td4	Td5	Td6	Td7	Td8	Tave	Tn	To		
0	24,9	25,8	25,1	25,9	27,4	28,1	27,6	28,3	26,6	20,0	22,9	0,0	18,2
5	541,7	576,4	573,2	563,1	509,0	561,4	567,5	527,1	552,4	576,0	23,0	-5,4	19,9
10	716,2	737,0	729,3	661,5	677,9	720,0	707,9	655,6	700,7	678,0	23,0	-2,3	18,1
15	756,0	750,2	732,9	662,5	789,0	789,9	735,5	676,8	736,6	739,0	23,1	-0,9	18,6
20	793,4	783,6	768,1	701,9	831,3	823,3	768,9	713,2	773,0	781,0	23,1	-0,9	19,7
25	827,4	812,7	802,1	742,1	870,7	857,2	810,5	755,5	809,8	815,0	23,2	-0,9	19,5
30	859,0	843,8	829,6	770,1	901,5	880,5	822,6	779,7	835,9	842,0	23,2	-0,8	17,1
35	842,2	868,5	877,2	845,2	866,3	883,3	894,5	875,2	869,1	865,0	23,3	-0,5	18,3
40	854,4	881,4	902,4	873,2	875,0	890,1	918,5	895,1	886,3	885,0	23,3	-0,4	17,4
45	879,4	894,5	894,4	869,5	885,8	895,0	901,7	873,8	886,8	902,0	23,4	-0,4	17,8
50	917,3	897,9	890,7	869,7	932,2	911,7	903,4	886,4	901,2	918,0	23,4	-0,6	18,1
55	941,9	916,5	909,3	879,5	964,5	940,6	900,4	889,0	917,7	932,0	23,5	-0,7	19,1
60	954,8	936,8	926,2	902,8	980,5	961,4	932,8	916,0	938,9	945,0	23,5	-0,8	17,8
65	969,5	947,8	942,4	919,0	995,0	976,4	947,8	931,2	953,6	957,0	23,6	-0,7	18,7
70	980,1	954,1	948,5	929,8	1005,0	985,8	957,4	943,2	963,0	968,0	23,6	-0,7	18,2
75	994,8	966,5	960,2	941,1	1016,4	997,0	968,8	951,7	974,6	979,0	23,7	-0,7	18,9
80	1004,4	976,7	970,6	952,3	1027,3	1007,1	979,4	963,2	985,1	988,0	23,8	-0,7	17,1
85	1012,0	981,8	980,1	960,1	1038,0	1014,9	987,6	968,7	992,9	997,0	23,8	-0,7	18,6
90	1017,1	989,7	983,1	970,3	1047,8	1020,2	997,0	984,6	1001,2	1006,0	23,9	-0,7	19,0
91	1022,4	994,2	985,5	972,3	1046,0	1025,8	1001,0	985,5	1004,1	1008,0	23,9	-0,7	17,1
92	1020,7	990,9	986,1	975,7	1052,3	1021,8	1003,6	989,0	1005,0	1009,0	23,9	-0,7	17,4

Tave Average temperature in the test furnace calculated from plate thermometers

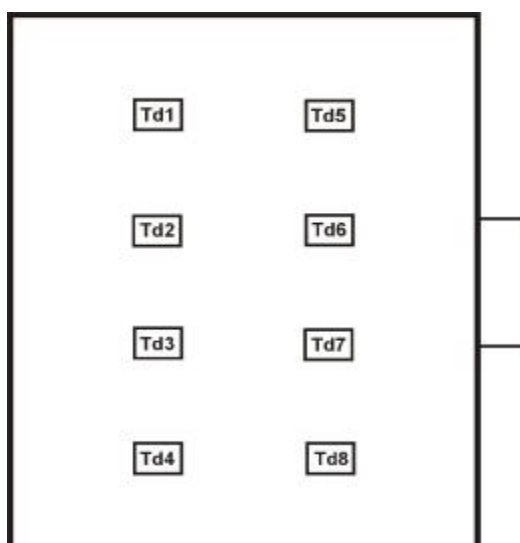
Tn Standard temperature in the test furnace laid down to test guideline

To Ambient temperature

d_e Deviation of the average temperature from the standard temperature calculated according to test guideline

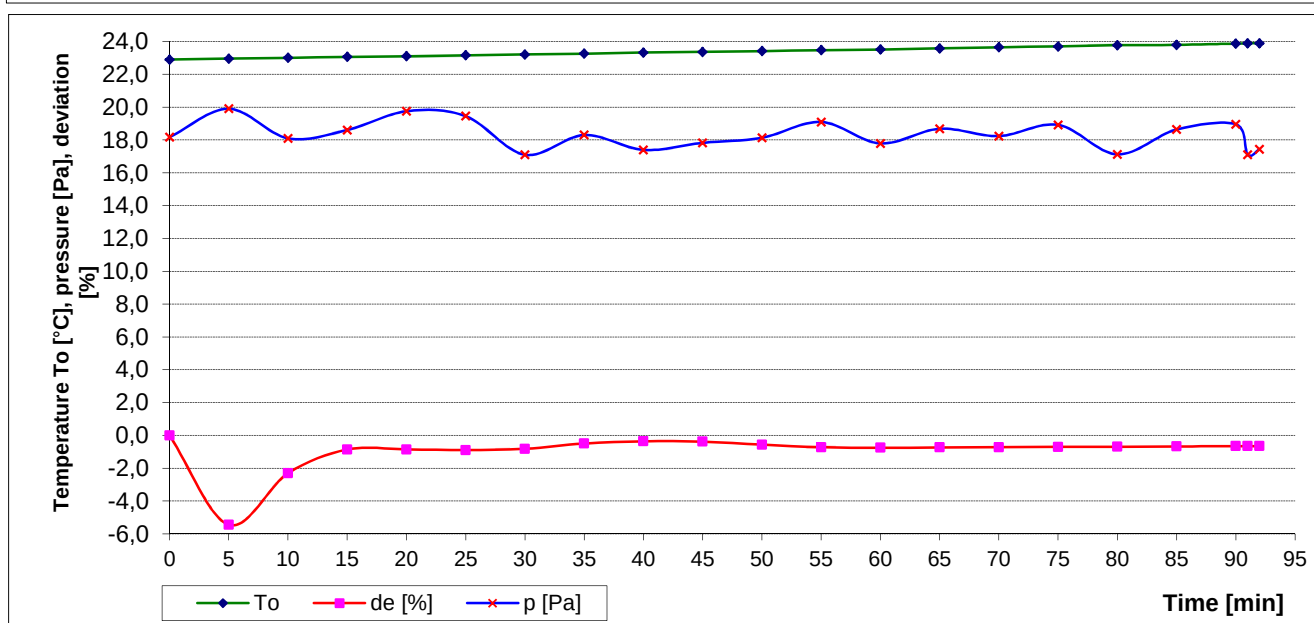
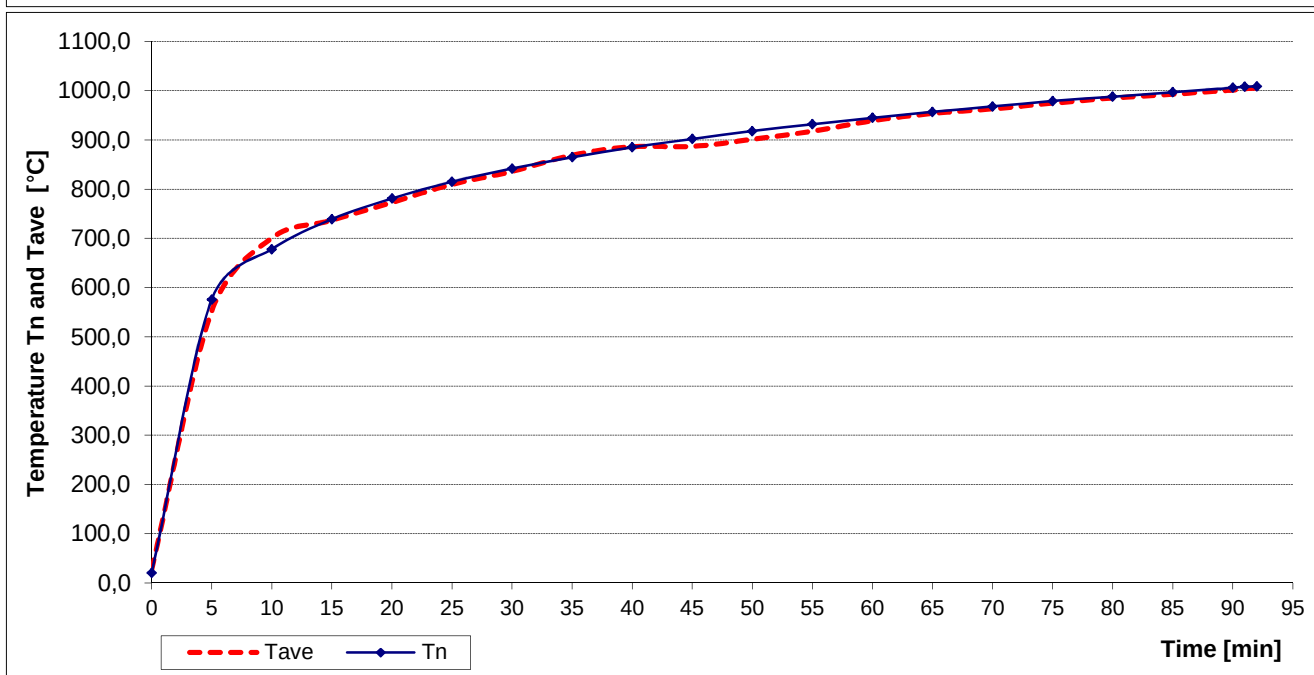
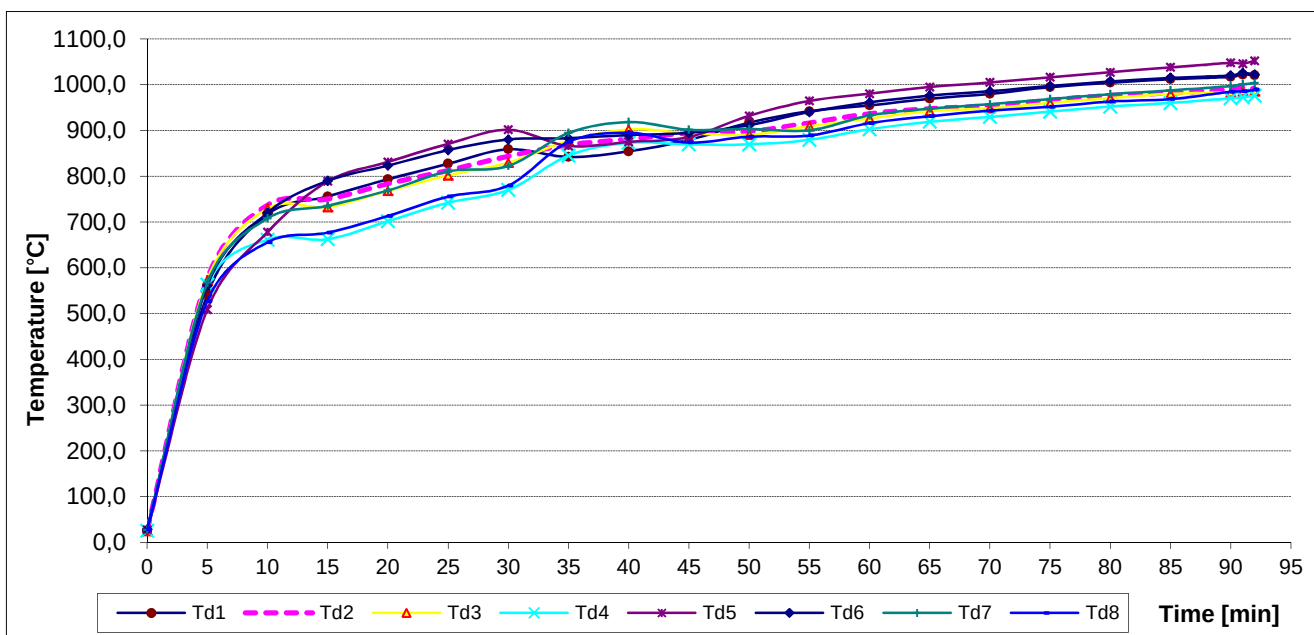
p Pressure inside the test furnace measured under the ceiling of the test furnace

Layout of measuring points inside the test furnace:





Measured values inside the test furnace /graph




Measured time of tested specimens from S1 to S10 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S1	1-L1	x
	2-L2	69:15
	3-L3	x
	4-PEN	x
S2	5-L1	x
	6-L2	31:19
	7-L3	x
	8-PEN	x
S3	9-L1	no failure / interruption
	10-L2	no failure / interruption
	11-L3	no failure / interruption
	12-PEN	no failure / interruption
S4	13-L1	no failure / interruption
	14-L2	no failure / interruption
	15-L3	no failure / interruption
	16-PEN	no failure / interruption
S5	17-L1	no failure / interruption
	18-L2	no failure / interruption
	19-L3	no failure / interruption
	20-PEN	no failure / interruption
S6	21-L1	x
	22-L2	32:10
	23-L3	x
	24-PEN	x
S7	25-L1	no failure / interruption
	26-L2	no failure / interruption
	27-L3	no failure / interruption
	28-PEN	no failure / interruption
S8	29-L1	no failure / interruption
	30-L2	no failure / interruption
	31-L3	no failure / interruption
	32-PEN	no failure / interruption
S9	33-L1	no failure / interruption
	34-L2	no failure / interruption
	35-L3	no failure / interruption
	36-PEN	no failure / interruption
S10	37-L1	no failure / interruption
	38-L2	no failure / interruption
	39-L3	no failure / interruption
	40-PEN	no failure / interruption

Specimen No.	Cables
1	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
2	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
3	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
4	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
5	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
6	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
7	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
8	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
9	2 cables NOPOVIC NHXH 4x50 E90
10	2 cables NOPOVIC NHXH 4x1,5 E90

- x Conductor was turned off manually after permanent interruption / failure of other conductors in the cable
 Power cables were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Circuit breakers with rating 3 A were used.


Measured time of tested specimens from S11 to S20 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S11	41-L1	no failure / interruption
	42-L2	no failure / interruption
	43-L3	no failure / interruption
	44-PEN	no failure / interruption
S12	45-L1	no failure / interruption
	46-L2	no failure / interruption
	47-L3	no failure / interruption
	48-PEN	no failure / interruption
S13	49-L1	no failure / interruption
	50-L2	no failure / interruption
	51-L3	no failure / interruption
	52-PEN	no failure / interruption
S14	53-L1	no failure / interruption
	54-L2	no failure / interruption
	55-L3	no failure / interruption
	56-PEN	no failure / interruption
S15	57-L1	no failure / interruption
	58-L2	no failure / interruption
	59-L3	no failure / interruption
	60-PEN	no failure / interruption
S16	61-L1	no failure / interruption
	62-L2	no failure / interruption
	63-L3	no failure / interruption
	64-PEN	no failure / interruption
S17	65-L1	28:21
	66-L2	x
	67-L3	x
	68-PEN	x
S18	69-L1	no failure / interruption
	70-L2	no failure / interruption
	71-L3	no failure / interruption
	72-PEN	no failure / interruption
S19	73-L1	x
	74-L2	x
	75-L3	33:18
	76-PEN	x
S20	77-L1	no failure / interruption
	78-L2	no failure / interruption
	79-L3	no failure / interruption
	80-PEN	no failure / interruption

Specimen No.	Cables
11	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
12	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
13	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
14	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
15	2 cables NOPOVIC NHXH 4x1,5 E90
16	2 cables NOPOVIC NHXH 4x50 E90
17	2 cables NOPOVIC NHXH 4x1,5 E90
18	2 cables NOPOVIC NHXH 4x50 E90
19	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
20	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM

- x Conductor was turned off manually after permanent interruption / failure of other conductors in the cable
 Power cables were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Circuit breakers with rating 3 A were used.


Measured time of tested specimens from S21 to S30 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S21	81-L1	no failure / interruption
	82-L2	no failure / interruption
	83-L3	no failure / interruption
	84-PEN	no failure / interruption
S22	85-L1	no failure / interruption
	86-L2	no failure / interruption
	87-L3	no failure / interruption
	88-PEN	no failure / interruption
S23	89-L1	x
	90-L2	x
	91-L3	85:06
	92-PEN	x
S24	93-L1	no failure / interruption
	94-L2	no failure / interruption
	95-L3	no failure / interruption
	96-PEN	no failure / interruption
S25	97-L1	no failure / interruption
	98-L2	no failure / interruption
	99-L3	no failure / interruption
	100-PEN	no failure / interruption
S26	101-L1	no failure / interruption
	102-L2	no failure / interruption
	103-L3	no failure / interruption
	104-PEN	no failure / interruption
S27	105-L1	no failure / interruption
	106-L2	no failure / interruption
	107-L3	no failure / interruption
	108-PEN	no failure / interruption
S28	109-L1	no failure / interruption
	110-L2	no failure / interruption
	111-L3	no failure / interruption
	112-PEN	no failure / interruption
S29	113-L1	no failure / interruption
	114-L2	no failure / interruption
	115-L3	no failure / interruption
	116-PEN	no failure / interruption
S30	117-L1	no failure / interruption
	118-L2	no failure / interruption
	119-L3	no failure / interruption
	120-PEN	no failure / interruption

Specimen No.	Cables
21	2 cables NOPOVIC NHXH 4x1,5 E90
22	2 cables NOPOVIC NHXH 4x50 E90
23	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
24	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
25	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
26	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
27	2 cables NOPOVIC NHXH 4x50 E90
28	2 cables NOPOVIC NHXH 4x1,5 E90
29	2 cables NOPOVIC NHXH 4x1,5 E90
30	2 cables NOPOVIC NHXH 4x1,5 E90

- x Conductor was turned off manually after permanent interruption / failure of other conductors in the cable
 Power cables were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Circuit breakers with rating 3 A were used.


Measured time of tested specimens from S31 to S40 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S31	121-L1	no failure / interruption
	122-L2	no failure / interruption
	123-L3	no failure / interruption
	124-PEN	no failure / interruption
S32	125-L1	no failure / interruption
	126-L2	no failure / interruption
	127-L3	no failure / interruption
	128-PEN	no failure / interruption
S33	129-L1	no failure / interruption
	130-L2	no failure / interruption
	131-L3	no failure / interruption
	132-PEN	no failure / interruption
S34	133-L1	x
	134-L2	x
	135-L3	52:52
	136-PEN	x
S35	137-L1	no failure / interruption
	138-L2	no failure / interruption
	139-L3	no failure / interruption
	140-PEN	no failure / interruption
S36	141-L1	no failure / interruption
	142-L2	no failure / interruption
	143-L3	no failure / interruption
	144-PEN	no failure / interruption
S37	145-L1	no failure / interruption
	146-L2	no failure / interruption
	147-L3	no failure / interruption
	148-PEN	no failure / interruption
S38	149-L1	no failure / interruption
	150-L2	no failure / interruption
	151-L3	no failure / interruption
	152-PEN	no failure / interruption
S39	153-L1	no failure / interruption
	154-L2	no failure / interruption
	155-L3	no failure / interruption
	156-PEN	no failure / interruption
S40	157-L1	no failure / interruption
	158-L2	no failure / interruption
	159-L3	no failure / interruption
	160-PEN	no failure / interruption

Specimen No.	Cables
31	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
32	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
33	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
34	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
35	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
36	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
37	2 cables PRAFlaDur [®] 90 (N)HXH 4x1,5 RE
38	2 cables PRAFlaDur [®] 90 (N)HXH 4x50 RM
39	2 cables NOPOVIC NHXH 4x50 E90
40	2 cables NOPOVIC NHXH 4x1,5 E90

- x Conductor was turned off manually after permanent interruption / failure of other conductors in the cable
 Power cables were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Circuit breakers with rating 3 A were used.


Measured time of tested specimens from S41 to S44 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S41	161-L1	no failure / interruption
	162-L2	no failure / interruption
	163-L3	no failure / interruption
	164-PEN	no failure / interruption
S42	165-L1	no failure / interruption
	166-L2	no failure / interruption
	167-L3	no failure / interruption
	168-PEN	no failure / interruption
S43	169-L1	no failure / interruption
	170-L2	no failure / interruption
	171-L3	no failure / interruption
	172-PEN	no failure / interruption
S44	173-L1	no failure / interruption
	174-L2	no failure / interruption
	175-L3	no failure / interruption
	176-PEN	no failure / interruption

Specimen No.	Cables
41	cable PRAFlaDur [®] 90 (N)HXH 4x10 RE + junction boxes PMO2
42	cable PRAFlaDur [®] 90 (N)HXH 4x1,5 RE + junction boxes PMO2
43	cable PRAFlaDur [®] 90 (N)HXH 4x6 RE + junction boxes PMO1
44	cable PRAFlaDur [®] 90 (N)HXH 4x1,5 RE + junction boxes PMO1

Power cables were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
Circuit breakers with rating 3 A were used.


Measured time of tested specimen S52 to S61 - communication cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S52A	209-L	02:52
	210-PEN	-
S52B	211-L	83:10
	212-PEN	-
S53A	213-L	no failure / interruption
	214-PEN	no failure / interruption
S53B	215-L	75:46
	216-PEN	-
S54A	217-L	no failure / interruption
	218-PEN	no failure / interruption
S54B	219-L	63:28
	220-PEN	-
S55A	221-L	27:40
	222-PEN	-
S55B	223-L	61:53
	224-PEN	-
S56A	225-L	no failure / interruption
	226-PEN	no failure / interruption
S56B	227-L	no failure / interruption
	228-PEN	no failure / interruption
S57A	229-L	74:39
	230-PEN	-
S57B	231-L	no failure / interruption
	232-PEN	no failure / interruption
S58A	233-L	48:54
	234-PEN	-
S58B	235-L	no failure / interruption
	236-PEN	no failure / interruption
S59A	237-L	no failure / interruption
	238-PEN	no failure / interruption
S59B	239-L	no failure / interruption
	240-PEN	no failure / interruption
S60A	241-L	no failure / interruption
	242-PEN	no failure / interruption
S60B	243-L	no failure / interruption
	244-PEN	no failure / interruption
S61A	245-L	no failure / interruption
	246-PEN	no failure / interruption
S61B	247-L	no failure / interruption
	248-PEN	no failure / interruption

Specimen No.	Cables
52	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
53	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
54	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
55	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
56	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
57	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
58	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
59	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
60	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
61	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8

Signal cables were tested by three-phase voltage supply 1 x 110V with LED diodes 3V / 0,03W.
Circuit breakers with rating 3 A were used.


Measured time of tested specimens from S62 to S64 - communication cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S62A	249-L	60:09
	250-PEN	-
S62B	251-L	no failure / interruption
	252-PEN	no failure / interruption
S63A	253-L	no failure / interruption
	254-PEN	no failure / interruption
S63B	255-L	no failure / interruption
	256-PEN	no failure / interruption
S64A	257-L	no failure / interruption
	258-PEN	no failure / interruption
S64B	259-L	88:03
	260-PEN	-

Specimen No.	Cables
62	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
63	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8
64	2 cables PRAFlaGuard [®] F SSKFH-V180 E90 1x2x0,8

Signal cables were tested by three-phase voltage supply 1 x 110V with LED diods 3V / 0,03W.
Circuit breakers with rating 3 A were used.



PHOTOS



Photo taken before the test.



Photo taken before the test.



Photo taken before the test.



PHOTOS



Photo taken before the test.

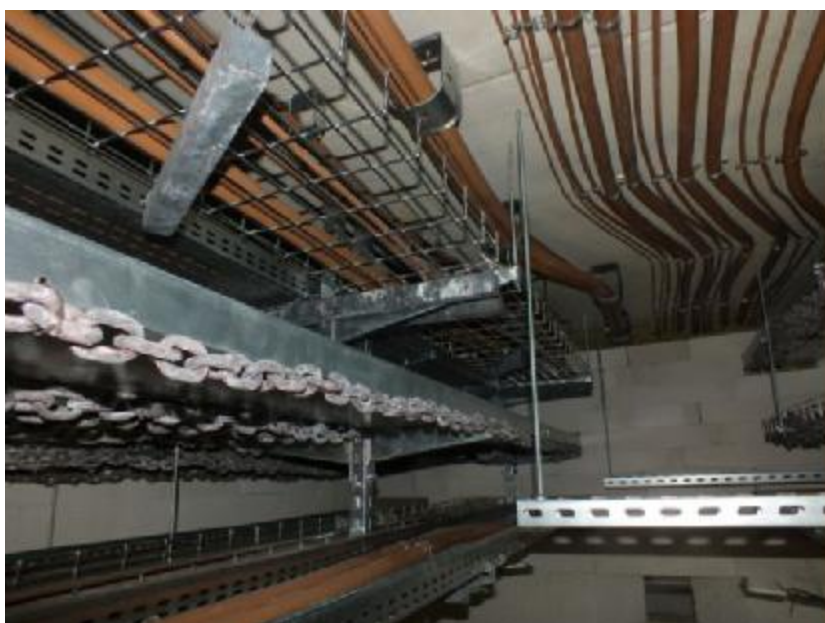


Photo taken before the test.



Photo taken before the test.



PHOTOS



Photo taken after the test.



Photo taken after the test.



Photo taken after the test.



PHOTOS



Photo taken after the test.

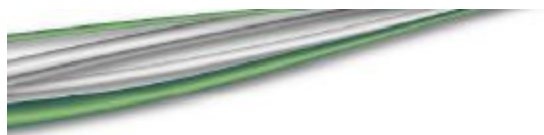


Photo taken after the test.



Photo taken after the test.

CABLES



MEMBER OF SKB-GROUP

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PRAKAB PRAŽSKÁ KABELOVNA

PRAFlaDur® 90 P90-R, P590 B2ca s1d0a1

Halogen-free energy cables with low heat released rate in case of fire with functional integrity of whole cable installation acc. ZP 27/2008, STN 92 0205

Standard: TP PRAKAB 04/08 – 2.edition**Usage:**

The cables are specified for stationary distribution of electrical energy in dry and damp premises. Since they are free from halogens and exhibit enhanced fire performance, these cables are used in those applications where in the event of fire, the negative effect on concentrations of people and valuable material goods must be minimized. Suitable for hotels, hospitals, underground railways, airport etc. to protect people and technical building equipment in the event of fire where there is requirement for maintaining the functional integrity all cable installation in the event of fire.

The cables develop in case of fire low heat released rate and smoke and no burning particles drop away during fire accident.

Functional integrity all cable installation in the event of fire is guaranteed only with use specified supporting member and cables grips.

The cables are not UV protected (UV protection available on request only).

**Construction:**

1. Copper conductor, round solid (RE), round stranded (RM)
2. Core insulation primary (silicon rubber)
3. Core insulation secondary (silicon rubber), cores are stranded in to the cable core
4. Inner covering (halogen-free polymer compound)
5. Sheath (halogen-free polymer compound, orange)

Rated voltage:

0,6/1 kV

Test voltage:

4 kV/50 Hz

Temperature range:

laying temperature min. -5 °C
 operating temperature -30 °C to +90 °C
 conductor temperature max. +90 °C
 short-circuit temperature max. +250 °C/5 sec

Core identification:

ČSN 33 0166 ed.2
 ČSN EN 50334

Bending radius (min.):

6x Ø of cable by Ø of cable < 20 mm
 12x Ø of cable by Ø of cable from 20 mm to 40 mm
 15x Ø of cable by Ø of cable > 40 mm

Fire properties:

flame retardant ČSN EN 60332-1-2
 halogen-free, no corrosive ČSN EN 50267-2-3
 combustion gases
 minimum smoke emission ČSN EN 61034-2
 reduced fire propagation ČSN EN 60332-3-22
 insulation integrity ČSN IEC 60331-21
 functional integrity ZP 27/2008
 STN 92 0205
 classification of the reaction to fire 2006/751/EC

Number of cores x nominal cross section [mm²]	Max. conductor resistance [Ω/km]	Current rating in the air [A]	Outer diameter [mm]	Total weight [kg/km]	Standard lenght / packing [m]
PRAFlaDur® 90					
4 x 1.5 RE	12.100	24	14.5	290	8 1000
4 x 6 RE	3.080	53	17.8	560	8 500
4 x 10 RE	1.830	74	20.0	815	8 500
4 x 50 RM	0.387	197	34.4	3030	8 500

Subject to technical changes.

CABLES



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PRAKAB PRAŽSKÁ KABELOVNA

PRAFlaGuard® F P15-R - P90-R, PH120-R P₇₅₀90-R, PS15 – PS 90 B2ca s1d0a1

Halogen-free low-frequency control cables with Al tape screening with low heat released rate in case of fire with functional integrity of whole cable installation acc. ZP 27/2008, STN 92 0205

Standard: TP PRAKAB 05/01 – 5.edition

Usage:

The cables are specified for transmission analog and digital dates as well as for control and regulating systems and related installation in dry and damp premises. Since they are free from halogens and exhibit enhanced fire performance, these cables are used in those applications where in the event of fire, the negative effect on concentrations of people and valuable material goods must be minimized. Suitable for hotels, hospitals, underground railways, airport etc. to protect people and technical building equipment in the event of fire where there is requirement for maintaining the functional integrity all cable installation in the event of fire. The cables develop in case of fire low heat released rate and smoke and no burning particles drop away during fire accident. Functional integrity all cable installation in the event of fire is guaranteed only with use specified supporting member and cables grips. The cables are not UV protected (on request).

**Construction:**

1. Copper conductor, round solid
2. Core insulation (silicone rubber), conductors pair stranded
3. Inner covering (halogen-free plastic tape)
4. Screen (plastic laminated aluminum tape with drain wire)
5. Inner covering (halogen-free polymer compound)
6. Sheath (halogen-free polymer compound, brown)

Rated voltage:

100 V

Test voltage:

core/core 1 kV/50 Hz

Temperature range:

laying temperature

-5 °C to +50 °C

operating temperature

-25 °C to +90 °C

Core identification:

ČSN 33 0165 ed.2:2002

Bending radius (min.):

15x Ø of cable

Fire properties:

flame retardant

ČSN EN 60332-1-2

halogen-free, no corrosive

ČSN EN 50267-2-3

combustion gases

minimum smoke emission

ČSN EN 61034-2

reduced fire propagation

ČSN EN 60332-3-22

insulation integrity

ČSN IEC 60331-23

functional integrity

ZP 27/2008

STN 92 0205

classification of the reaction to fire 2006/751/EC

Conductor diameter	[mm]	0.8
Loop resistance max.	[Ω/km]	75.0
Mutual capacitance, max.	[nF/km]	120
Capacitance unbalances k9, max.	[pF/500 m]	400
Insulation resistance, min.	[MΩ.km]	500

Number of pairs x nominal diameter [mm²]	Outer diameter [mm]	Total weight [kg/km]	Standard length/ packing [m]
PRAFlaGuard® F			
1 x 2 x 0.8	6.0	50	1000 D

Subject to technical changes.



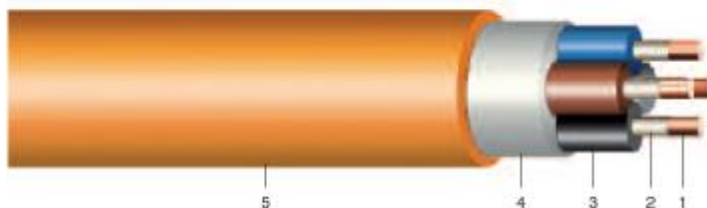
NOPOVIC® NHXH FE180 E90

HFFR kabely s funkční integritou kabelové trasy
/ HFFR cables with insulation integrity and circuit integrity



Technická specifikace
/ Technical specification

VDE 0266



Konstrukce:

1. Měděné jádro tř. 1 nebo 2
2. Přídavná izolace ze skloslidových pásek
3. Zesílená bezhalogenní izolace
4. HFFR výplň
5. HFFR plášť

Construction:

1. Copper conductor class 1 or 2
2. Supplementary insulation of glass/mica tape
3. Cross-linked halogen free insulation
4. HFFR bedding
5. HFFR sheath

	Jmenovité napětí U_0/U (kV) / Rated voltage	0,6/1		Samozhášivost jednoho kabelu ČSN EN 60332-1-2, HD 405.1 / Self-extinguishing of one cable IEC 60332-1, DIN VDE 0482-265
	Zkušební napětí (kV) / Test voltage	4		Samozhášivost ve svazku ČSN EN 50266-2-2, HD 405.3 / Self-extinguishing of bunched cables IEC 60332-3A a C, DIN VDE 0472-604C
	Maximální provoz. teplota při zkratu (°C) / Maximal short-circuit temperature	250		Dýmivost ČSN EN 61034-2 / Smoke density HD 606, IEC 61034, DIN VDE 0482-268
	Rozsah teplot při provozu (°C) / Temperature range for handling (°C)	-15 až +90 / -15 up to +90		Funkční schopnost izolace při požáru (-V) ČSN IEC 60331 / Circuit integrity in case of a fire (FE180) IEC 60331, DIN VDE 0472-814
	Min. teplota pokládky a manipulace s kabelem (°C) / Min. temperature for laying and manipulation with cable (°C)	-5		Funkční schopnost systému při požáru (P90-R)* ZP 27/2008 / System integrity in case of a fire (E90)* DIN 4102-12
	Min. teplota skladování (°C) / Min. storage temperature (°C)	-30		Korozivita zplodin ČSN EN 50267-2-3, HD 602 / Corrosivity of emitted gases IEC 60754-2, DIN VDE 0482-267
	Barva izolace / Color of insulation	HD 308 S2		Balení kabelové bubny / Packaging / cable drums
	Barva pláště / Color of sheath	oranžová / orange		Výrobní závod $\varphi \leq 6$ nkt cables Vrchlabí / Production site $\varphi \geq 10$ nkt cables Kladno

Poznámka: *) Funkční integrity systému kabelové trasy při požáru závisí na metodě instalace. / Note: *) System integrity in case of fire is dependent on installation method.

Použití:

Kabely jsou určeny pro pevné uložení v obyčejném popř. vlhkém prostředí dle ČSN 33 2000-3. Hodnota pH vody při krátkodobém mělkém ponoření 3 - 11. Jsou vhodné zejména pro použití na hořlavých podkladech a do prostředí s nebezpečím požáru, kde se vyžaduje funkční schopnost při požáru. Pokud je nutné uložit kabel do země, musí být opatřen ochrannou trubicí a uložen v pískovém loži (dle ČSN 33 2000-5-52). Kabely by neměly být dlouhodobě vystaveny přímému slunečnímu záření. Vhodné do míst s velkou koncentrací lidí - metra, letiště, nemocnice aj. nebo k ochraně technického vybavení budov v případě požáru.

Application:

Cables are designed for fixed installation in ordinary or possibly damp environments according to ČSN 33 2000-3. Value of water pH in short-term shallow immersion is 3-11. They are suitable, in particular, for use on an inflammable surface and in environments with fire hazards where maintenance of circuit integrity during a fire is required. If it is necessary to lay the cable in the ground, it has to be provided with a protection tube, and has to be laid in bed of sand (according to ČSN 33 2000-5-52). The cables could not be exposed to long-term direct sun radiation. They are suitable for places with high concentration of people such as underground, airports, and hospitals, or for protection of high-tech equipment in buildings in case of fire.

Počet a průřez žil (mm²)	Tvar jádra	Průměr (int.) (mm)	Hmotnost (int.) (kg/km)	Pokojný ohybu (mm)	Činný odpor vodičů (Ω/km)	Ekvivalentní zkrat. proud (kA)	Časová teplovodiv. konstanta (sec)	Zažehlostnost ne vzduchu (A)	Induktivnost (mH/km)	Obsah Cu (kg/km)
No. of cores & nominal cross-section (mm²)	Shape of the conductor	Cable diameter (appr.) (mm)	Cable mass (appr.) (kg/km)	Radius of bend (mm)	Effective resistance of conductors (Ω/km)	Short circuit current equiv. (kA)	Time heating constant (sec)	Current carrying capacity in air (A)	Cable inductivity (mH/km)	Content Cu (kg/km)
2x1,5	RE	12	174	144	12,1	0,21	24	29	-	27
2x2,5	RE	13	206	156	7,41	0,36	39	38	-	44
2x4	RE	14	260	168	4,61	0,57	56	51	-	72
2x6	RE	15	321	180	3,08	0,86	80	64	-	108
3x1,5	RE	12	196	144	12,1	0,21	36	24	-	41

CABLES



Počet a průřez žil (mm²)	Tvar žilky	Průměr (nit.) (mm)	Hmotnost (nit.) (kg/km)	Poloměr ohybu (mm)	Činný odpor V05, jader (Ω/km)	Ekvivalentní činný proud (kA)	Časová ohřevací konstanta (sec)	Zatížitelnost ve vzduchu (A)	Induktivnost (mH/km)	Obsah Cu (kg/km)
No. of cores & nominal cross-section (mm²)	Shape of the conductor	Cable diameter (appr.) (mm)	Cable mass (appr.) (kg/km)	Radius of bend (mm)	Effective resistance of conductors (Ω/km)	Short circuit current equiv. (kA)	Time heating constant (sec)	Current carrying capacity in air (A)	Cable inductivity (mH/km)	Content Cu (kg/km)
3x2,5	RE	13	240	156	7,41	0,36	55	32	-	66
3x4	RE	14	302	168	4,61	0,57	82	42	-	108
3x6	RE	15	381	180	3,08	0,86	117	53	-	162
3x10	RE	17	571	204	1,830	1,43	166	74	0,277	294
3x16	RE	19	785	228	1,150	2,28	242	96	0,261	470
3x25	RMV	24	1186	288	0,727	3,57	321	133	0,255	735
3x35	RMV	26	1539	312	0,524	5,00	424	162	0,247	1 029
3x50	RMV	30	2047	360	0,387	7,14	586	197	0,240	1 470
3x70	RMV	34	2816	408	0,268	10,00	713	250	0,238	2 058
3x95	RMV	38	3698	456	0,193	13,57	865	308	0,237	2 793
3x120	RMV	42	4600	504	0,153	17,14	1 016	359	0,233	3 528
3x150	RMV	47	5688	564	0,124	21,43	1 205	412	0,233	4 410
3x185	RMV	53	7111	636	0,099	26,43	1 379	475	0,232	5 439
3x240	RMV	58	9069	696	0,075	34,29	1 646	564	0,231	7 056
4x1,5	RE	13	227	160	12,100	0,21	36	24	-	55
4x2,5	RE	14	279	170	7,410	0,36	55	32	-	88
4x4	RE	16	363	186	4,610	0,57	82	42	-	144
4x6	RE	17	462	200	3,080	0,86	117	53	-	216
4x10	RE	19	698	228	1,830	1,43	166	74	0,300	392
4x16	RE	21	979	252	1,150	2,28	242	96	0,284	627
4x25	RMV	26	1493	312	0,727	3,57	321	133	0,278	980
4x35	RMV	29	1942	348	0,524	5,00	424	162	0,270	1 372
4x50	RMV	33	2609	396	0,387	7,14	586	197	0,270	1 960
4x70	RMV	38	3602	456	0,268	10,00	713	250	0,261	2 744
4x95	RMV	42	4722	504	0,193	13,57	865	308	0,260	3 724
4x120	RMV	46	5909	552	0,153	17,14	1 016	359	0,256	4 704
4x150	RMV	52	7282	624	0,124	21,43	1 205	412	0,256	5 880
4x185	RMV	58	9117	696	0,099	26,43	1 379	475	0,255	7 252
4x240	RMV	64	11609	768	0,075	34,29	1 646	564	0,254	9 408
5x1,5	RE	14	261	173	12,100	0,21	36	24	-	68
5x2,5	RE	16	328	186	7,410	0,36	55	32	-	110
5x4	RE	17	425	202	4,610	0,57	82	42	-	180
5x6	RE	18	540	220	3,080	0,86	117	53	-	270
5x10	RE	20	852	240	1,830	1,43	166	74	0,341	490
5x16	RE	23	1198	276	1,150	2,28	242	96	0,325	784
5x25	RMV	28	1617	336	0,727	3,57	321	133	0,320	1 225
5x35	RMV	31	2381	372	0,524	5,00	424	162	0,311	1 715
5x50	RMV	36	3213	432	0,387	7,14	586	197	0,311	2 450
5x70	RMV	42	4456	504	0,268	10,00	713	250	0,302	3 430
5x95	RMV	46	5899	552	0,193	13,57	865	308	0,301	4 655
7x1,5	RE	16	317	186	12,100	0,21	93	16	-	96
7x2,5	RE	17	402	200	7,410	0,36	129	21	-	155
12x1,5	RE	20	472	236	12,100	0,21	-	13	-	165
12x2,5	RE	22	622	259	7,410	0,36	-	17	-	267
19x1,5	RE	23	674	277	12,100	0,21	-	11	-	261
19x2,5	RE	25	886	301	7,410	0,36	-	16	-	421
24x1,5	RE	27	895	322	12,100	0,21	-	10	-	335

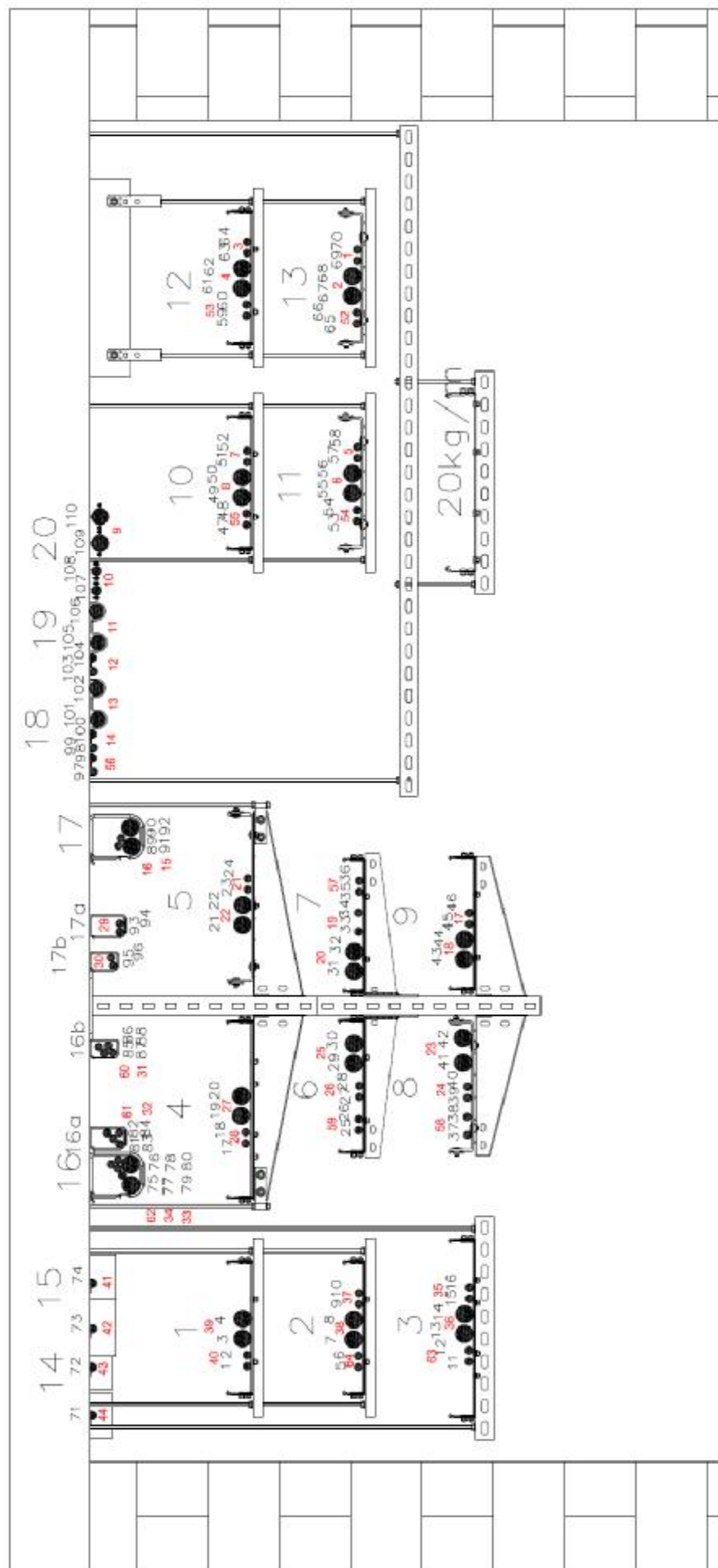
CABLES



Počet a průřez tří (mm ²)	Tvar jádra	Průměr (int.) (mm)	Hmotnost (int.) (kg/km)	Poloměr ohybu (mm)	Činný odpor vod. jáder (Ω/km)	Ekvivalentní zkrat. proud (kA)	Časová oteplovací konstanta (sec)	Zatížitelnost na vzduchu (A)	Induktivnost (mH/km)	Hmotn. Cu (kg/km)
No. of cores & nominal cross -section (mm ²)	Shape of the conductor	Cable diameter (appr.) (mm)	Cable mass (appr.) (kg/km)	Radius of bend (mm)	Effective resistance of conductors (Ω/km)	Short circuit current equiv. (kA)	Time heating constant (sec)	Current carrying capacity in air (A)	Cable inductivity (mH/km)	Conduct Cu (kg/km)
24x2,5	RE	29	1118	350	7,410	0,36	-	13	-	541

Číselné údaje jsou bez záruky a podléhají změnám bez předchozího oznámení. / Numerical data are not guaranteed, and they are subject to changes without notification.
 Vliv na životní prostředí: Výrobek neovlivňuje negativně životní prostředí. / Influence on the environment: The product does not have any negative influence on the environment.

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DRAWINGS

No.	No. Fires	Cable type	Position	Description of construction
1	40	NOPOVIC NHXH 4x1,5 E90	1	Cable trays KCL/KCOL 300H60/... B-300 1.5 m /15kg/m / steel sheet thickness 0,7 mm Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, anchors TRSOM8
2		NOPOVIC NHXH 4x1,5 E90		
3	39	NOPOVIC NHXH 4x50 E90		
4		NOPOVIC NHXH 4x50 E90		
5	64	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	2	Cable trays KBL 300H50/... B-300 1.5 m /15kg/m / steel sheet thickness 0,7 mm Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, anchors TRSOM8
6		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
7	38	PRAFlaDur® 90 (N)HXH 4x50 RM		
8		PRAFlaDur® 90 (N)HXH 4x50 RM		
9	37	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
10		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
11	63	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	3	Cable trays KCJ/KCOJ 400H60/... B-400 1.5 m /15kg/m / steel sheet thickness 0,9 mm Construction: Assembling profiles CWP/CWOP40H40/05, threaded rods PGM8, anchors TRSOM8
12		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
13	36	PRAFlaDur® 90 (N)HXH 4x50 RM		
14		PRAFlaDur® 90 (N)HXH 4x50 RM		
15	35	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
16		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
17	28	NOPOVIC NHXH 4x1,5 E90	4	Cable trays KCJ/KCOJ 400H60/... B-400/ 1.5 m / 15kg/m / steel sheet thickness 0,9 mm Construction: Consoles WPCW/WPCO, brackets WWS/WWSO400, threaded rods PG M8
18		NOPOVIC NHXH 4x1,5 E90		
19	27	NOPOVIC NHXH 4x50 E90		
20		NOPOVIC NHXH 4x50 E90		
21	22	NOPOVIC NHXH 4x50 E90	5	Cable mesh trays KDS/KDSO 400H60/... B-400/ 1.5 m / 15kg/m. Construction: Consoles WPCW/WPCO, brackets WWS/WWSO400, threaded rods PG M8
22		NOPOVIC NHXH 4x50 E90		
23	21	NOPOVIC NHXH 4x1,5 E90		
24		NOPOVIC NHXH 4x1,5 E90		
25	59	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	6	Cable trays KCL/KCOL 300H60/... B-300/ 1.5 m / 10kg/m / steel sheet thickness 0,7 mm. Construction: Consoles WPCW/WPCO, brackets WMC/WMCO300
26		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
27	26	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
28		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
29	25	PRAFlaDur® 90 (N)HXH 4x50 RM		
30		PRAFlaDur® 90 (N)HXH 4x50 RM		
31	20	PRAFlaDur® 90 (N)HXH 4x50 RM	7	Cable trays KBL 300H50/... B-300/ 1.5 m / 10kg/m / steel sheet thickness 0,7 mm. Construction: Consoles WPCW/WPCO, brackets WMC/WMCO300
32		PRAFlaDur® 90 (N)HXH 4x50 RM		
33	19	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
34		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
35	57	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
36		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
37	58	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	8	Cable mesh trays KDS/KDSO 300H60/... B-300/ 1.5 m / 10kg/m. Construction: Consoles WPCW/WPCO, brackets WWS/WWSO300
38		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
39	24	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
40		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
41	23	PRAFlaDur® 90 (N)HXH 4x50 RM		
42		PRAFlaDur® 90 (N)HXH 4x50 RM		



DRAWINGS

No.	No. Fires	Cable type	Position	Description of construction
43	18	NOPOVIC NHXH 4x50 E90	9	Cable trays KCL/KCOL 300H60/... B-300/ 1.5 m / 10kg/m / steel sheet thickness 0,7 mm. Construction: Consoles WPCW/WPCO, brackets WWS/WWSO300
44		NOPOVIC NHXH 4x50 E90		
45	17	NOPOVIC NHXH 4x1,5 E90		
46		NOPOVIC NHXH 4x1,5 E90		
47	55	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	10	Cable trays KCL/KCOL 300H60/... B-300 1.2 m /15kg/m / steel sheet thickness 0,7 mm. Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, anchors TRSOM8
48		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
49	8	PRAFlaDur® 90 (N)HXH 4x50 RM		
50		PRAFlaDur® 90 (N)HXH 4x50 RM		
51	7	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
52		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
53	54	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	11	Cable mesh trays KDS/KDSO 300H60/... B-300 1.2 m /15kg/m. Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, anchors TRSOM8
54		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
55	6	PRAFlaDur® 90 (N)HXH 4x50 RM		
56		PRAFlaDur® 90 (N)HXH 4x50 RM		
57	5	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
58		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
59	53	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	12	Cable trays KCL/KCOL 300H60/... B-300 1.2 m /10kg/m / steel sheet thickness 0,7 mm. Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, trapezoidal hangers WT120 M8 + PGM8/0,1
60		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
61	4	PRAFlaDur® 90 (N)HXH 4x50 RM		
62		PRAFlaDur® 90 (N)HXH 4x50 RM		
63	3	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
64		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
65	52	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	13	Cable mesh trays KDS/KDSO 300H60/...B-300 1.2 m /10kg/m. Construction: Assembling profiles CWP/CWOP40H22/04, threaded rods PGM8, trapezoidal hangers WT120 M8 + PGM8/0,1
66		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
67	2	PRAFlaDur® 90 (N)HXH 4x50 RM		
68		PRAFlaDur® 90 (N)HXH 4x50 RM		
69	1	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
70		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
71	44	PRAFlaDur® 90 (N)HXH 4x1,5 RE	14	Tracks are made of single cable clips (UDF) fixed to ceiling by anchors (SRO M6x30) in spacing of 600 mm. Cables are connected to junction boxes PMO1.
72	43	PRAFlaDur® 90 (N)HXH 4x6 RE		
73	42	PRAFlaDur® 90 (N)HXH 4x1,5 RE	15	Tracks are made of single cable clips (UDF) fixed to ceiling by anchors (SRO M6x30) in spacing of 600 mm. Cables are connected to junction boxes PMO2.
74	41	PRAFlaDur® 90 (N)HXH 4x10 RE		
75	62	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	16	Tracks are made of cable clamps (OZ/OZO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
76		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
77	34	PRAFlaDur® 90 (N)HXH 4x50 RM		
78		PRAFlaDur® 90 (N)HXH 4x50 RM		
79	33	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
80		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
81	61	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	16a	Tracks are made of cable clamps (OZS/OZSO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
82		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
83	32	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
84		PRAFlaDur® 90 (N)HXH 4x1,5 RE		



DRAWINGS

No.	No. Fires	Cable type	Position	Description of construction
85	60	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	16b	Tracks are made of cable clamps (OZM/OZMO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
86		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
87	31	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
88		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
89	16	NOPOVIC NHXH 4x50 E90	17	Tracks are made of cable clamps (OZ/OZO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
90		NOPOVIC NHXH 4x50 E90		
91	15	NOPOVIC NHXH 4x1,5 E90		
92		NOPOVIC NHXH 4x1,5 E90		
93	29	NOPOVIC NHXH 4x1,5 E90	17a	Tracks are made of cable clamps (OZS/OZSO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
94		NOPOVIC NHXH 4x1,5 E90		
95	30	NOPOVIC NHXH 4x1,5 E90	17b	Tracks are made of cable clamps (OZM/OZMO) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
96		NOPOVIC NHXH 4x1,5 E90		
97	56	PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	18	Track is made of single cable clips (UDF) shoot by nails Hilti X-GHP 20 MX to ceiling in spacing of 600 mm.
98		PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8		
99	14	PRAFlaDur® 90 (N)HXH 4x1,5 RE		
100		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
101	13	PRAFlaDur® 90 (N)HXH 4x50 RM		
102		PRAFlaDur® 90 (N)HXH 4x50 RM		
103	12	PRAFlaDur® 90 (N)HXH 4x1,5 RE	19	Track is made of single cable clips (UDF) fixed to ceiling by turbo - screws (7,5 x 52) mm in spacing of 600 mm.
104		PRAFlaDur® 90 (N)HXH 4x1,5 RE		
105	11	PRAFlaDur® 90 (N)HXH 4x50 RM		
106		PRAFlaDur® 90 (N)HXH 4x50 RM		
107	10	NOPOVIC NHXH 4x1,5 E90	20	Track is made of single cable clips (KSA) fixed to ceiling by anchors (SRBO M6x30) in spacing of 600 mm.
108		NOPOVIC NHXH 4x1,5 E90		
109	9	NOPOVIC NHXH 4x50 E90		
110		NOPOVIC NHXH 4x50 E90		

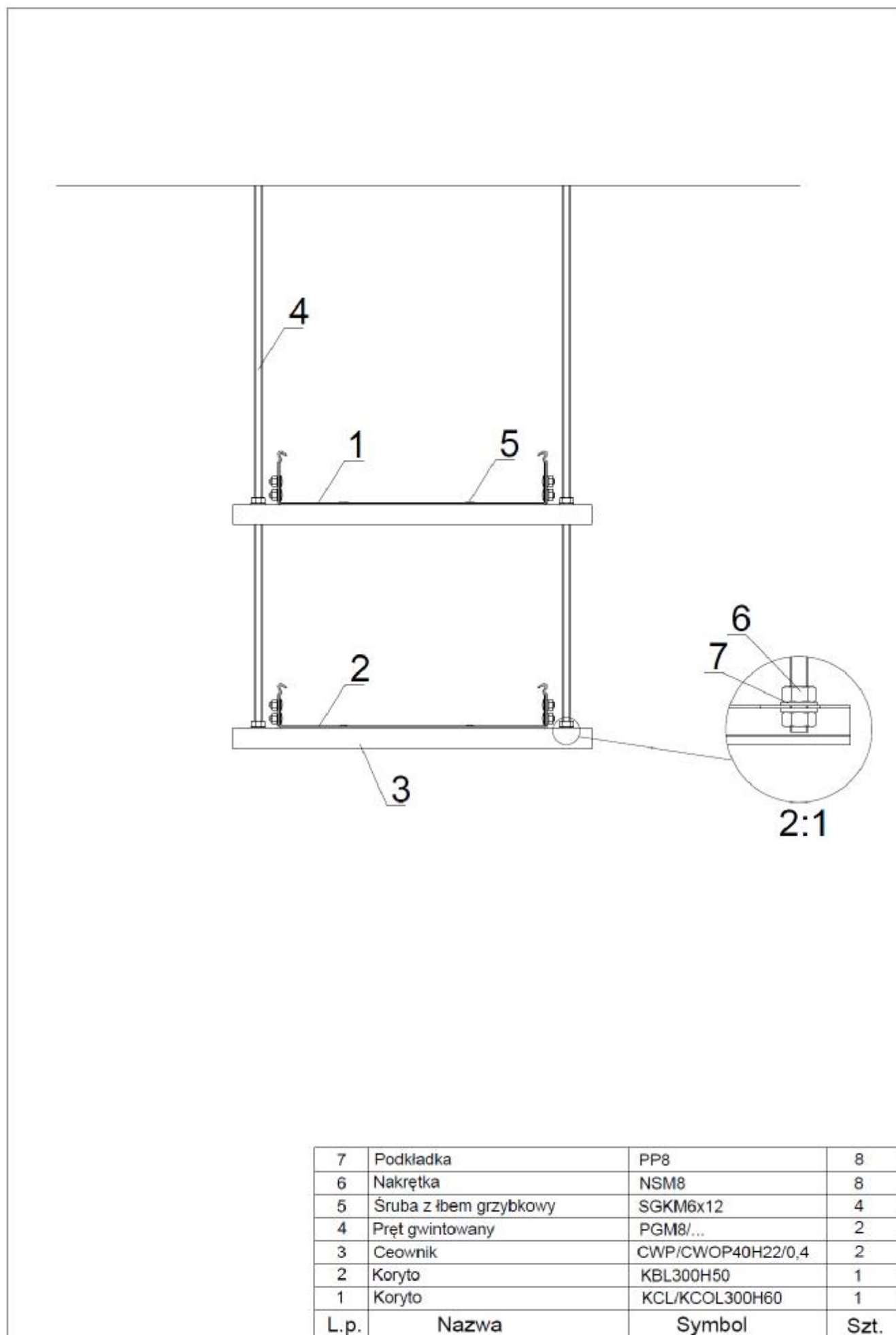
Cable type	Cross-section of cable approx. [mm]	Cable weight [kg/m], approx.	Count
PRAFlaDur® 90 (N)HXH 4x50 RM	34,4	3,03	24
PRAFlaDur® 90 (N)HXH 4x1,5 RE	14,5	0,29	30
PRAFlaDur® 90 (N)HXH 4x6 RE	17,8	0,56	1
PRAFlaDur® 90 (N)HXH 4x10 RE	20,0	0,82	1
NOPOVIC NHXH 4x1,5 E90	11,0	0,18	16
NOPOVIC NHXH 4x50 E90	33,5	2,68	12
PRAFlaGuard® F SSKFH-V180 E90 1x2x0,8	7,1	0,07	26
TOTAL			110

Power cables 84

Communication cables 26

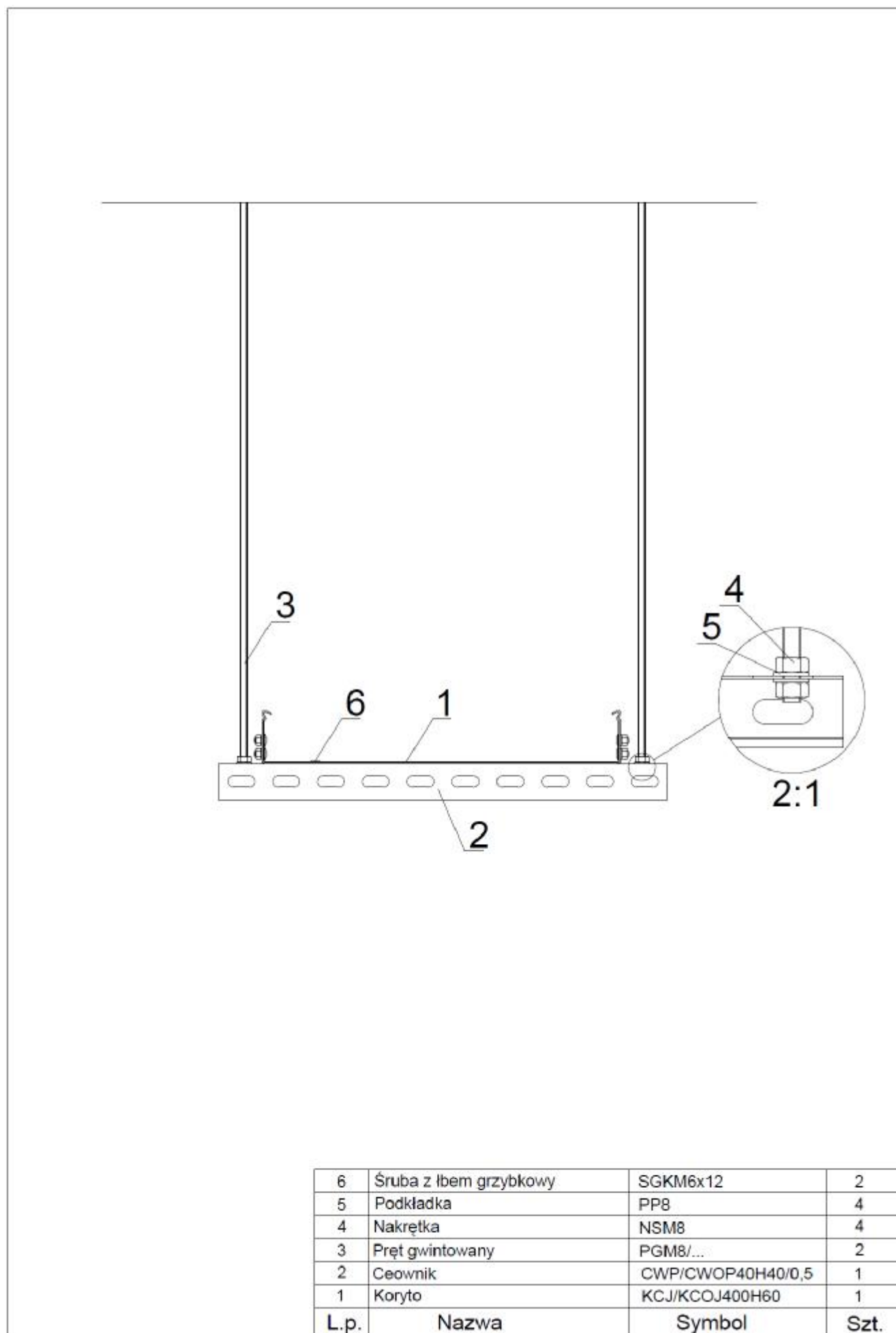


DRAWINGS



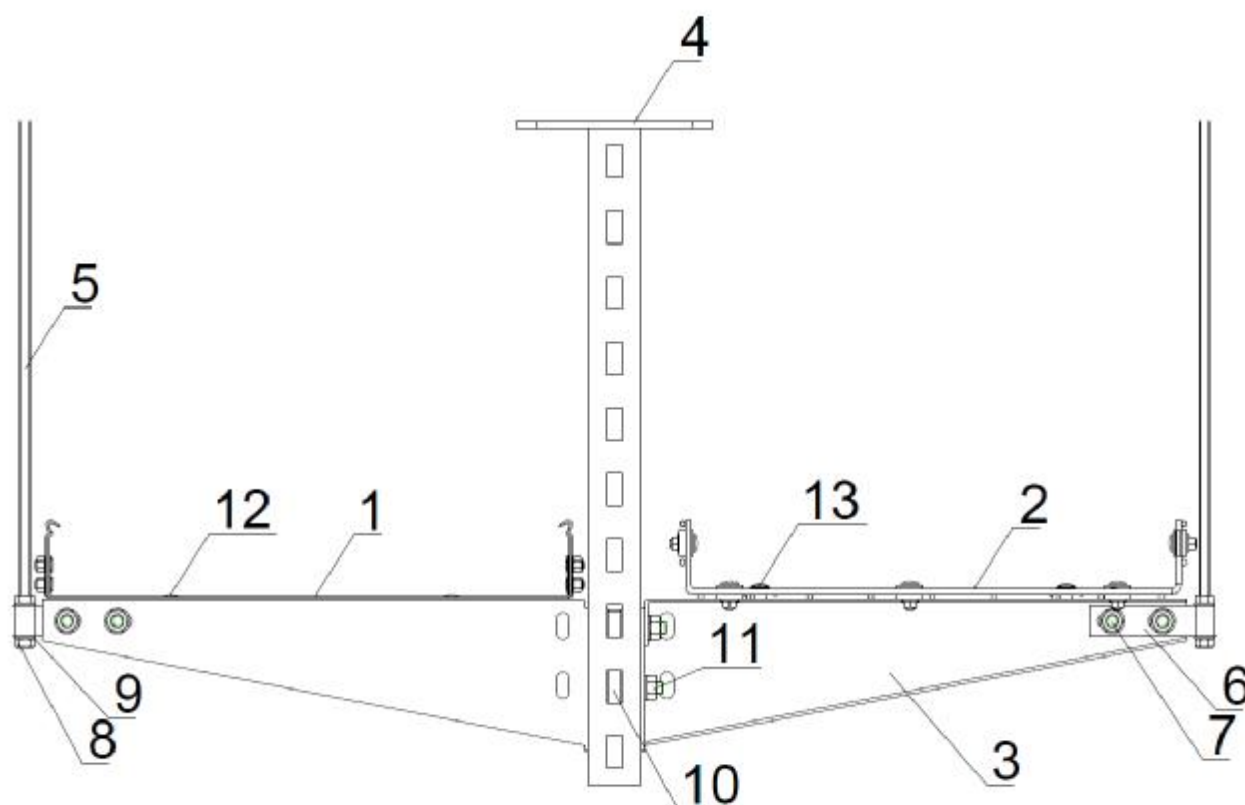


DRAWINGS





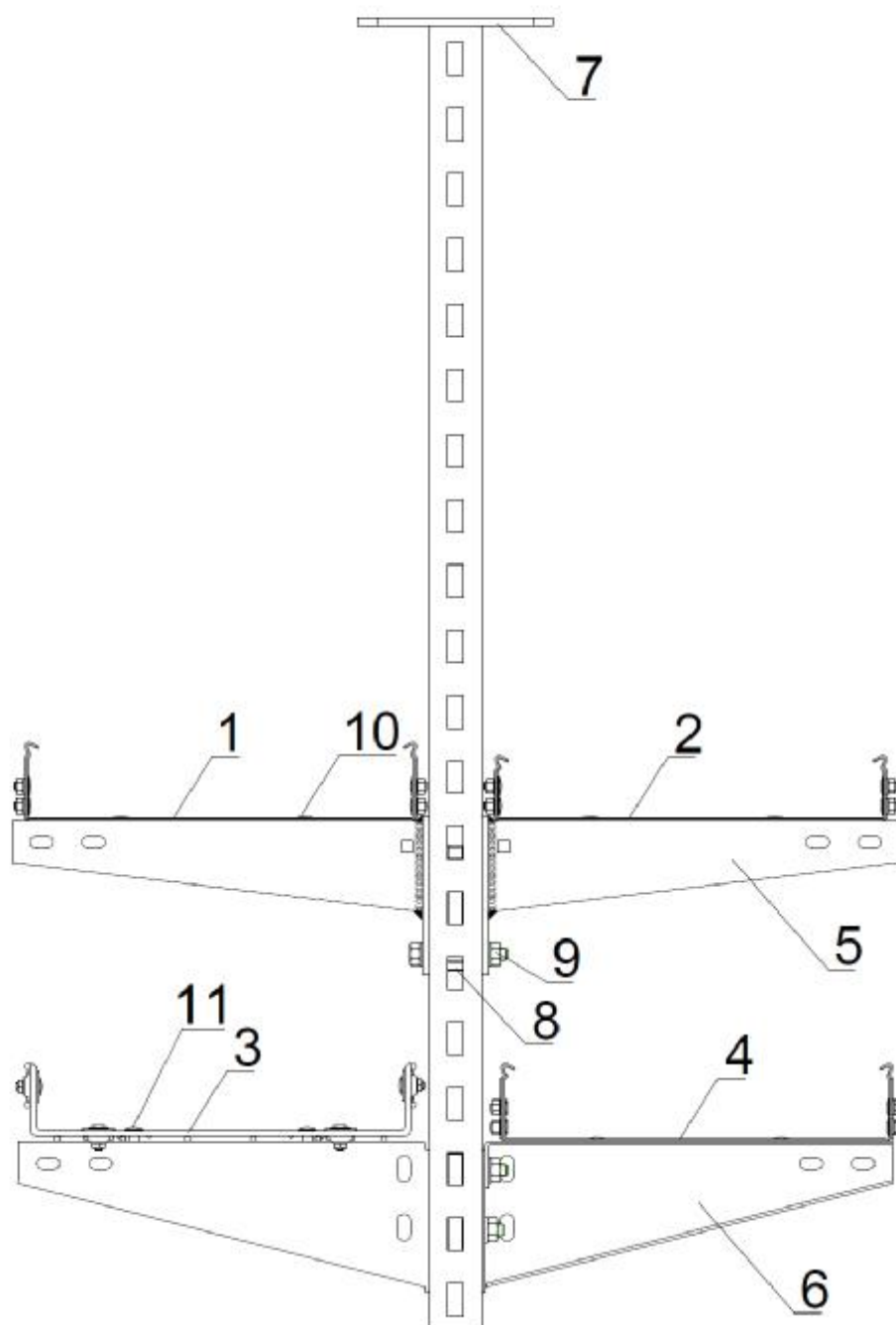
DRAWINGS



13	Zacisk śrubowy	ZS/ZSO	2
12	Śruba z łbem grzybkowy	SGKM6x12	2
11	Śruba	SM M 10x80	2
10	Blacha rozporowa	BR40	1
9	Podkładka	PP8	4
8	Nakrętka	NSM8	4
7	Śruba z łbem grzybkowy	SGKM8x14	4
6	Uchwyt	UPWK	2
5	Pręt gwintowany	PGM8/...	2
4	Wspornik sufitowy	WPCW/WPCO...	1
3	Wysięgnik	WWS400	2
2	Koryto siatkowe	KDS/KDSO400H60	1
1	Koryto	KCJ/KCOJ400H60	1
L.p.	Nazwa	Symbol	Szt.



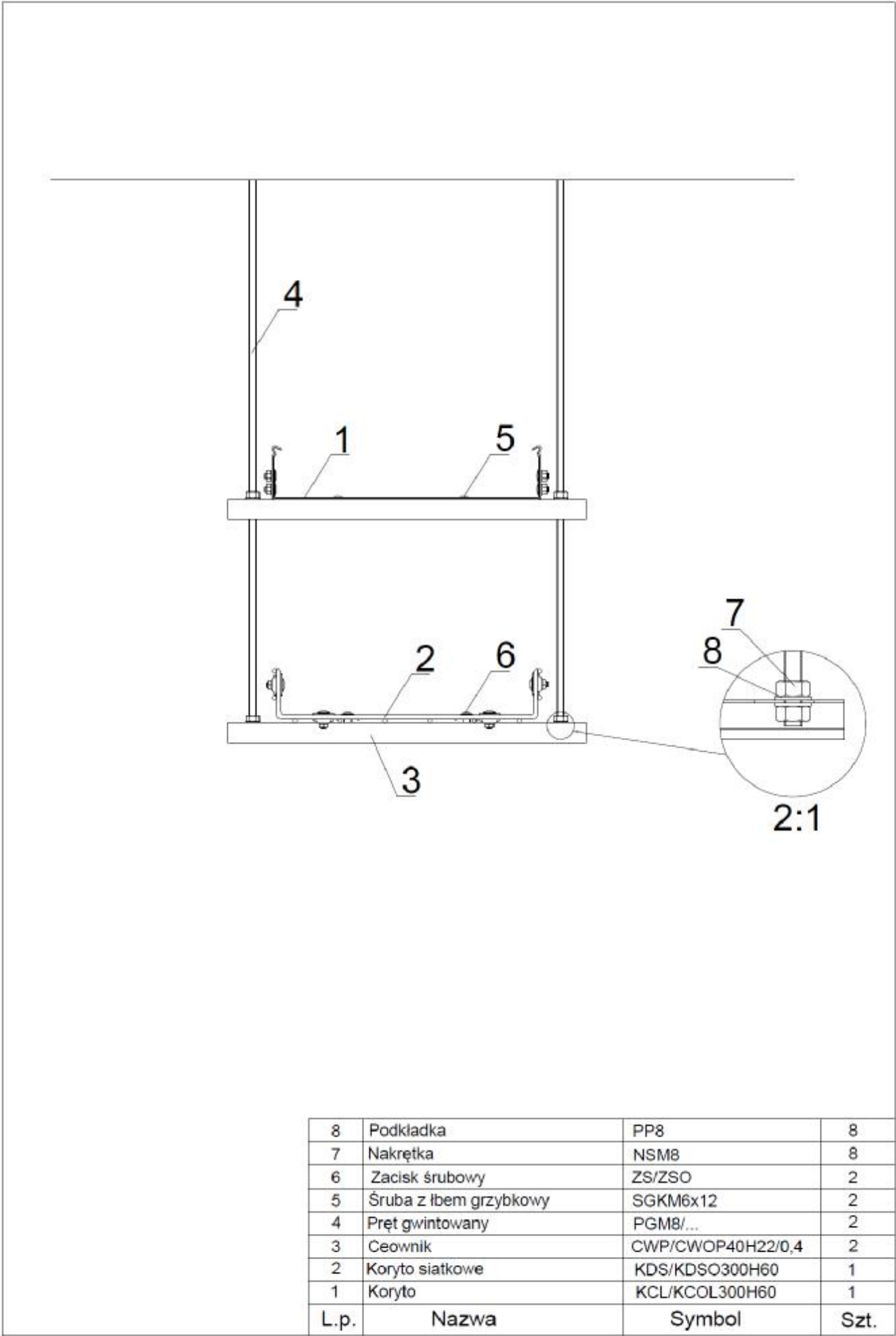
DRAWINGS



11	Zacisk śrubowy	ZS/ZSO	2
10	Śruba z łbem grzybkowy	SGKM6x12	6
9	Śruba	SM M 10x80	4
8	Blacha rozporowa	BR40	2
7	Wspornik sufitowy	WPCW/WPCO...	1
6	Wysięgnik	WWS300	2
5	Wysięgnik	WMC300	2
4	Koryto	KCL/KCOL300H60	1
3	Koryto siatkowe	KDS/KDSO300H60	1
2	Koryto	KBL300H50	1
1	Koryto	KCL/KCOL300H60	1
L.p.	Nazwa	Symbol	Szt.

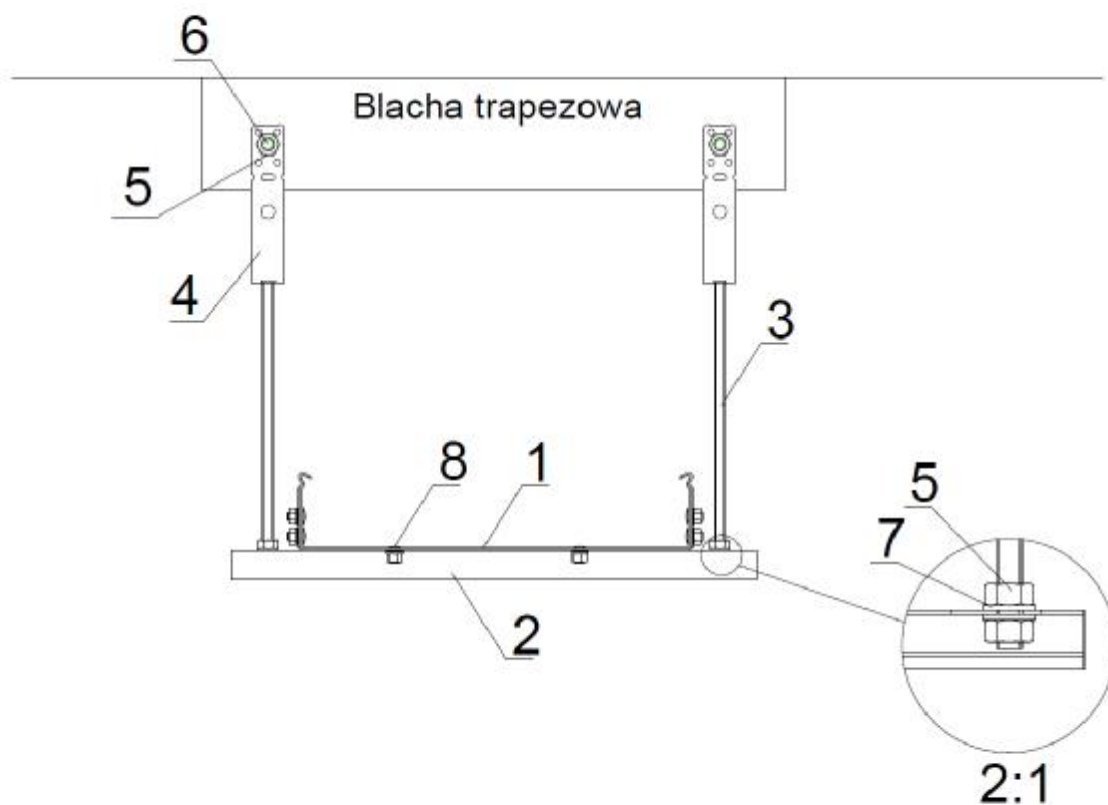


DRAWINGS





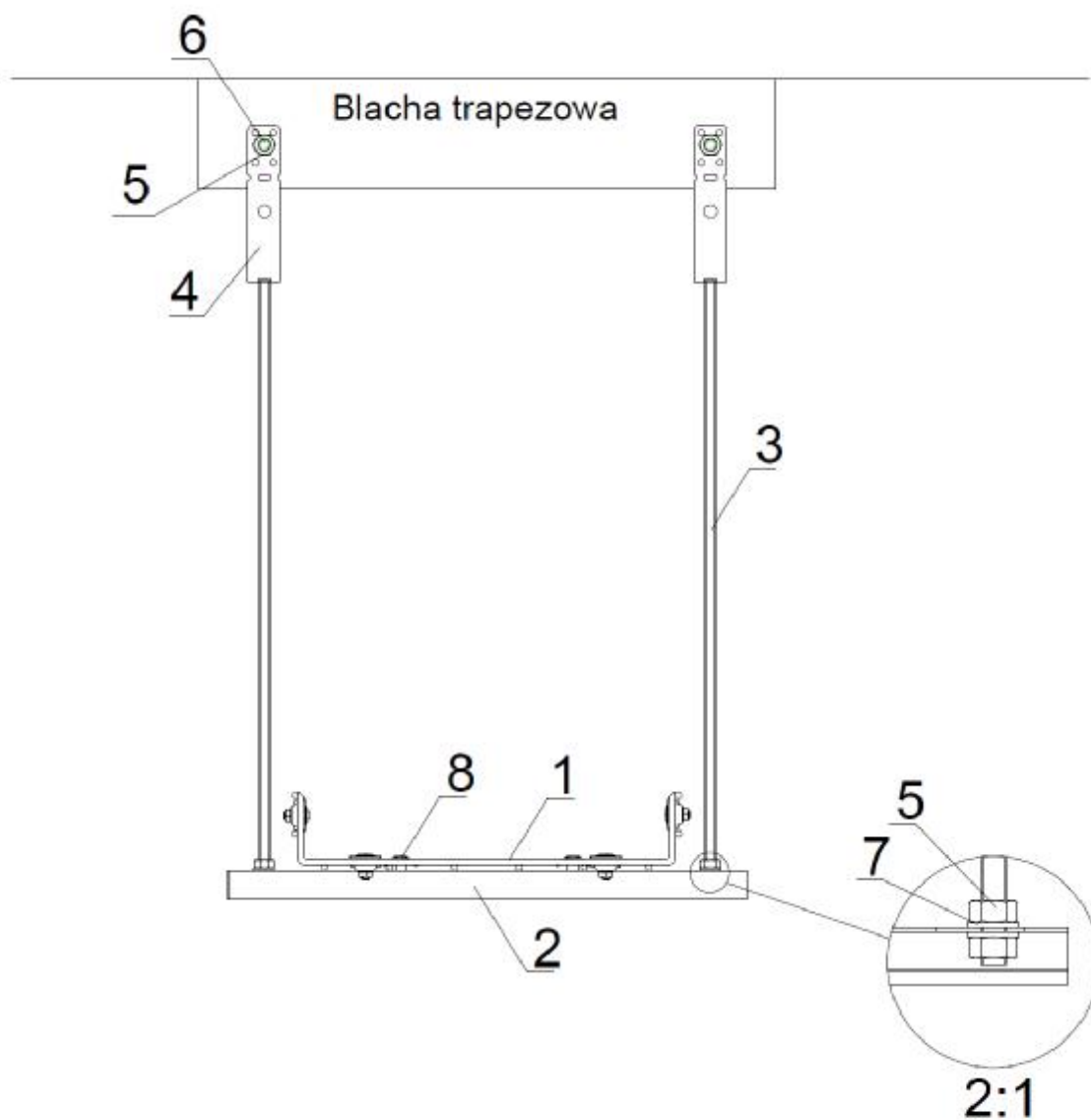
DRAWINGS



8	Śruba z łbem grzybkowy	SGKM6x12	2
7	Podkładka	PP8	4
6	Pręt gwintowany	PGM8/0,1	2
5	Nakrętka	NSM8	10
4	Wieszak trapezowy	WT120M8	2
3	Pręt gwintowany	PGM8/...	1
2	Ceownik	CWP/CWOP40H22/0,4	1
1	Koryto	KCL/KCOL300H60	1
L.p.	Nazwa	Symbol	Szt.



DRAWINGS



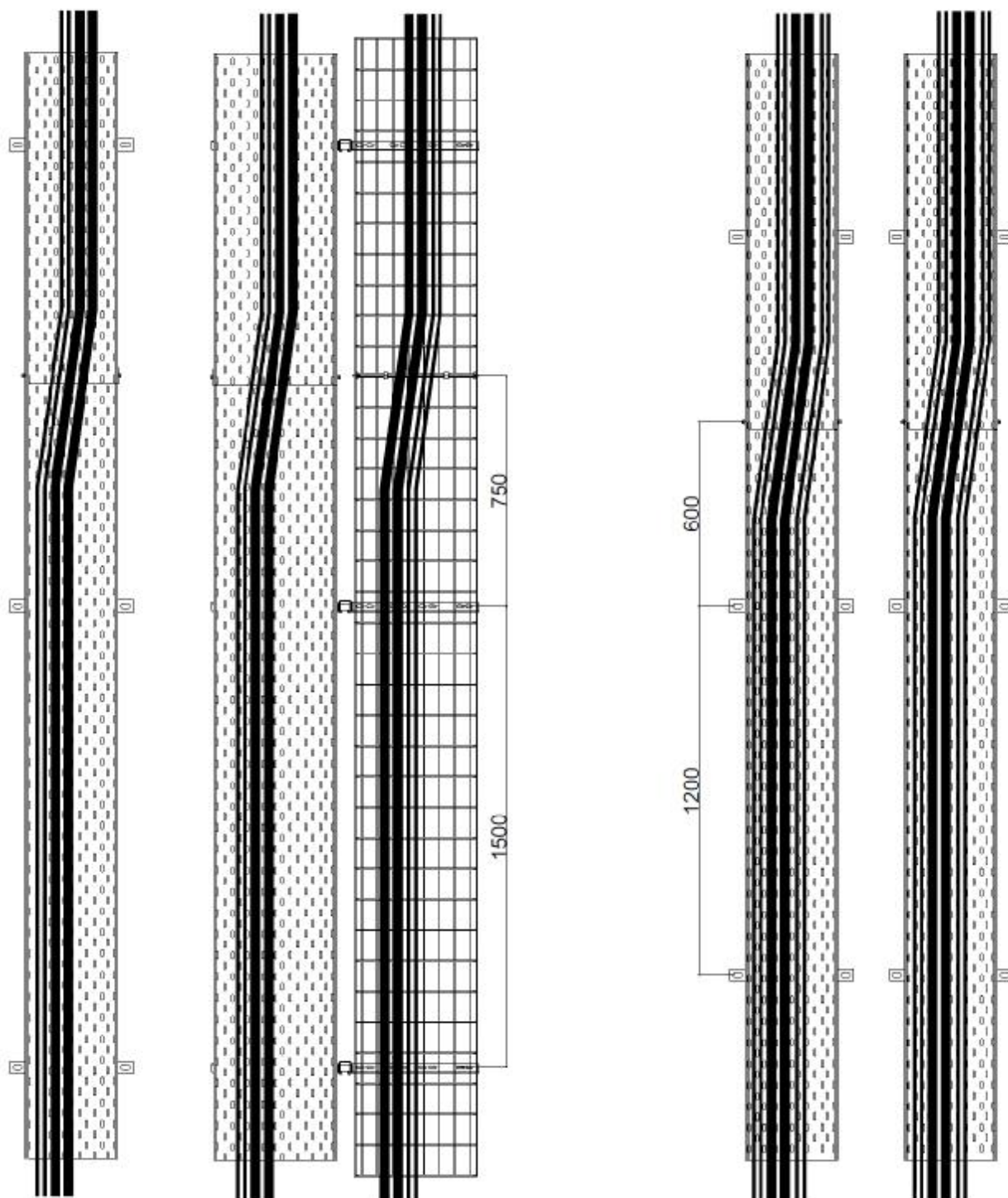
8	Zacisk mocujący	ZM/ZMO	2
7	Podkładka	PP8	4
6	Pręt gwintowany	PGM8/0,1	2
5	Nakrętka	NSM8	10
4	Wieszak trapezowy	WT120M8	2
3	Pręt gwintowany	PGM8/...	1
2	Ceownik	CWP/CWOP40H22/0,4	1
1	Koryto siatkowe	KDS/KDSO300H60	1
L.p.	Nazwa	Symbol	Szt.



DRAWINGS

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A-A

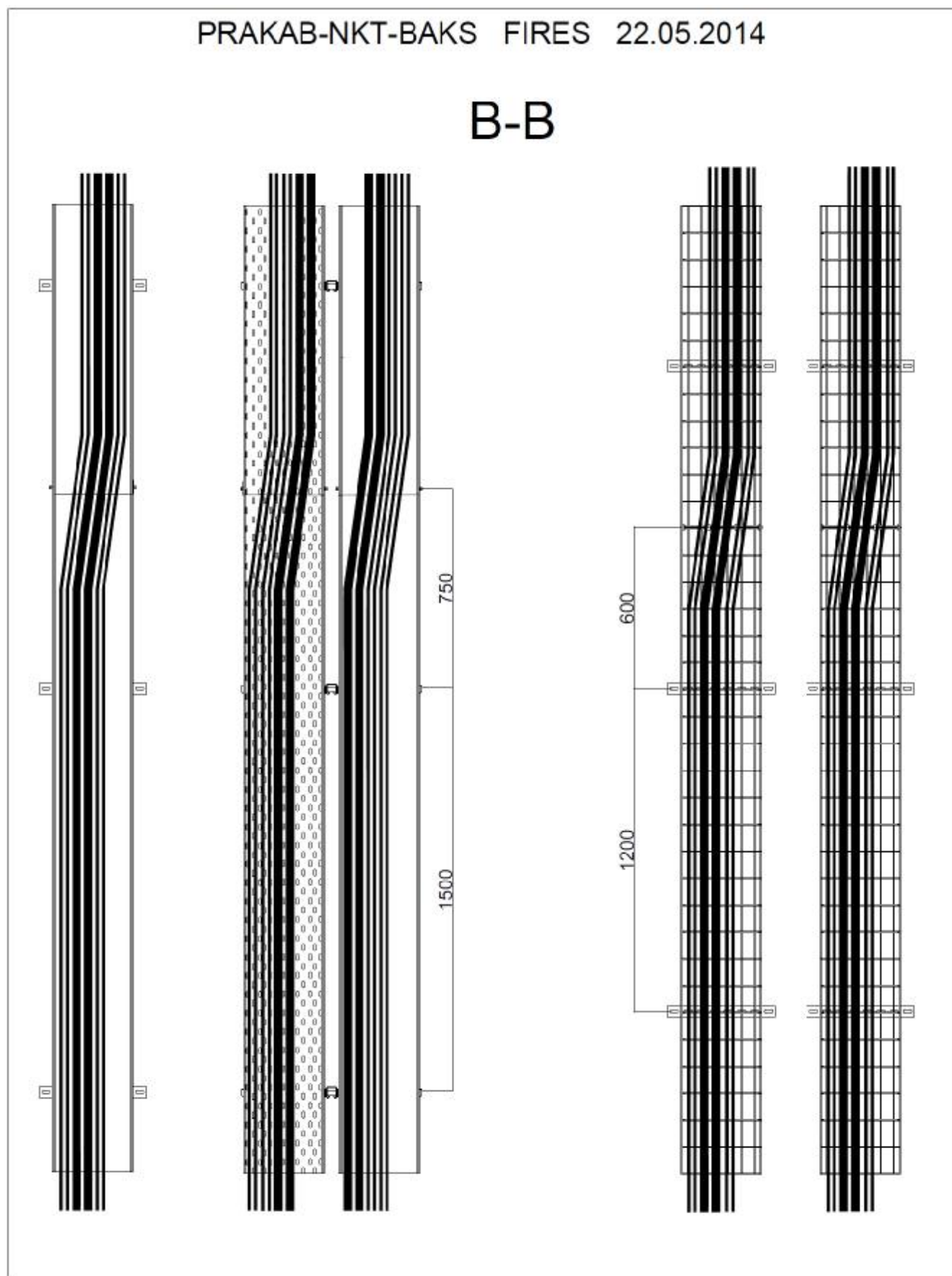




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

B-B

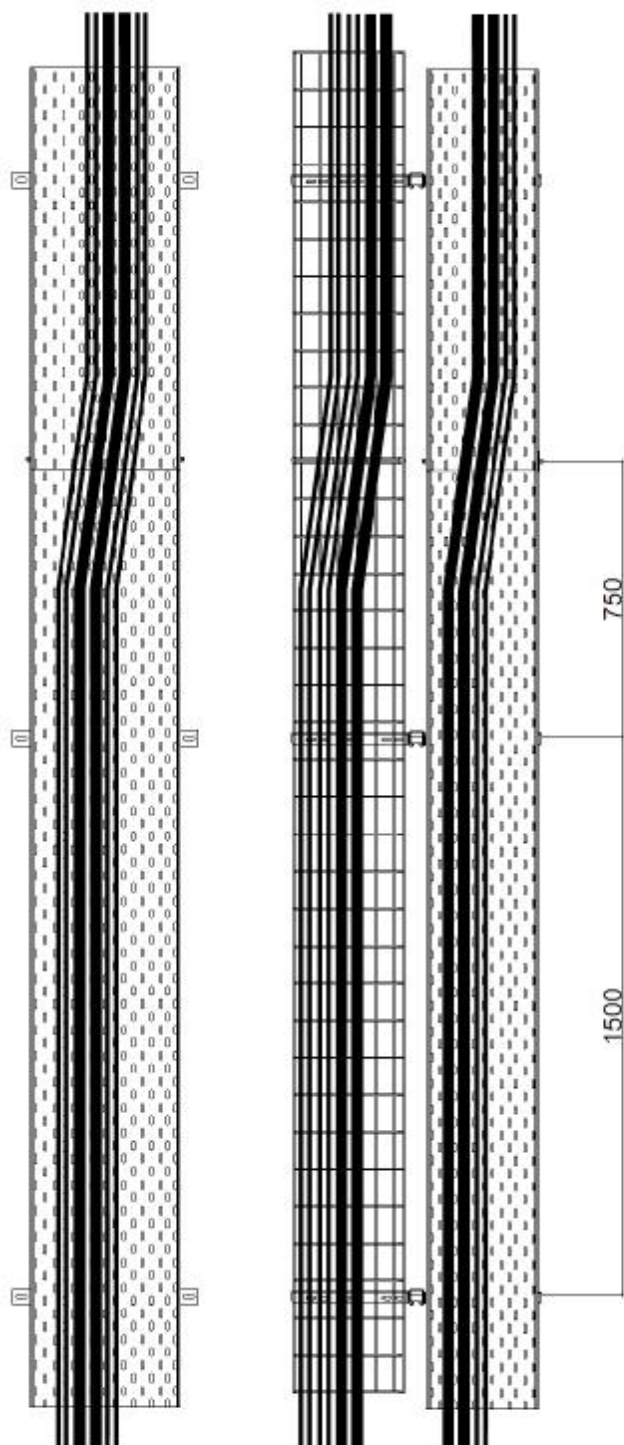




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

C-C

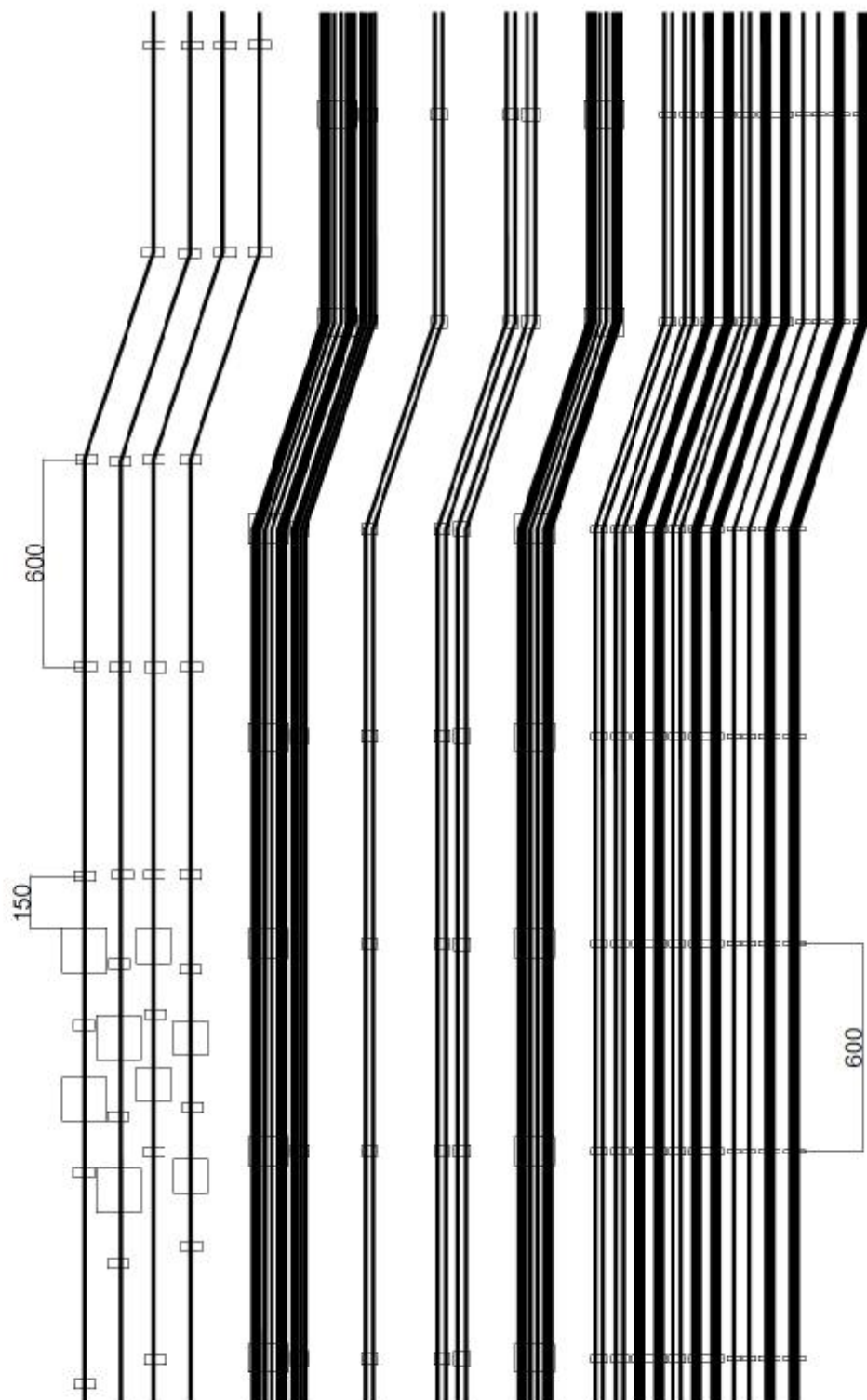




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

D-D

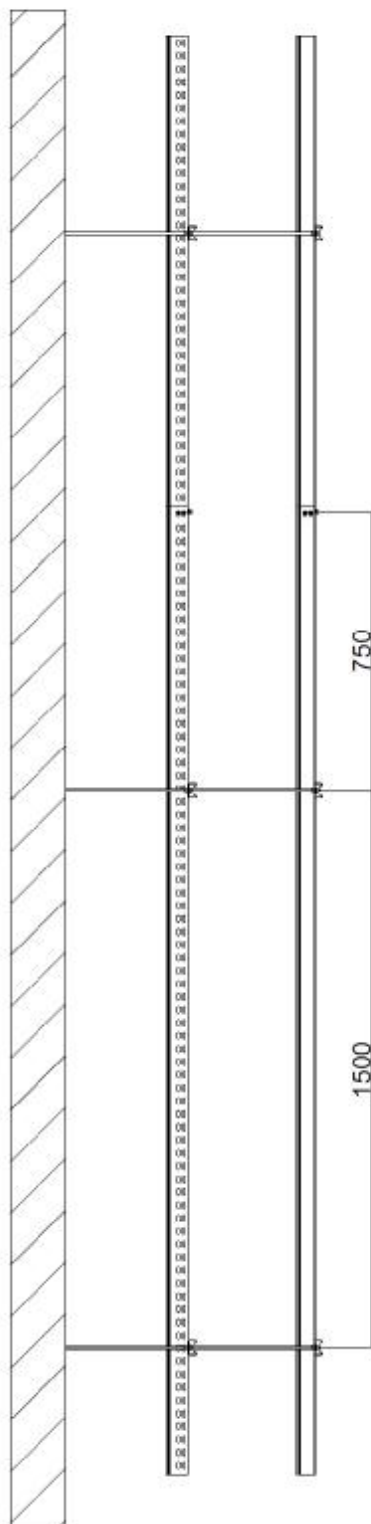




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PRAKAB-NKT-BAKS FIRES 22.05.2014

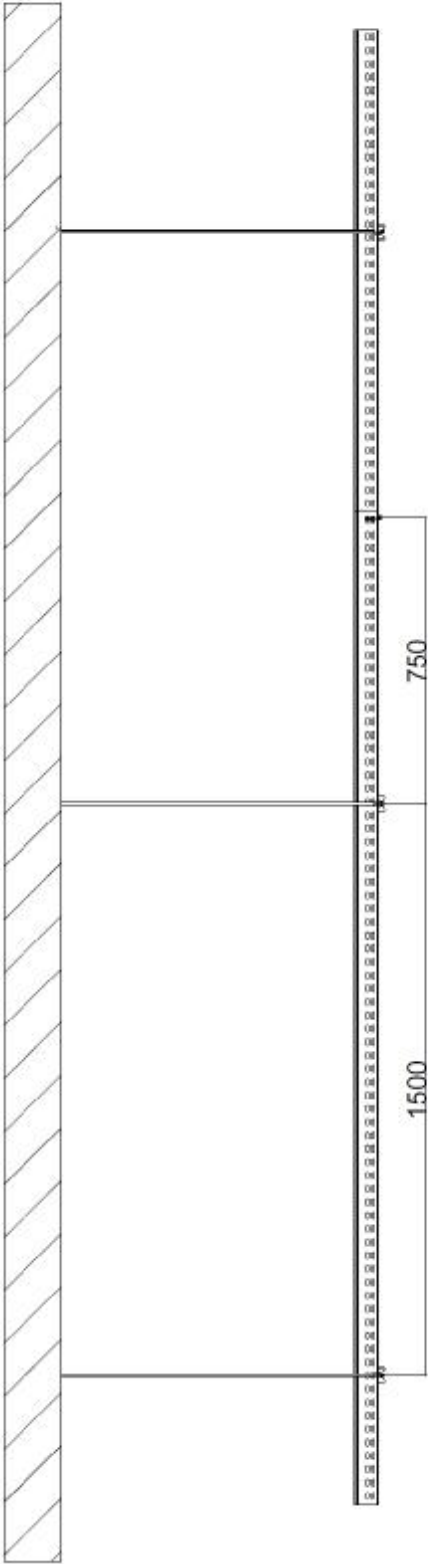
E'-E'





PRAKAB-NKT-BAKS FIRES 22.05.2014

E"-E"

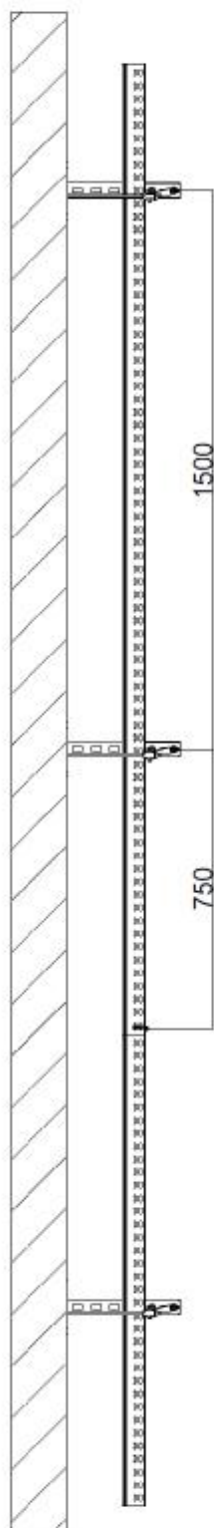




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

F'-F'

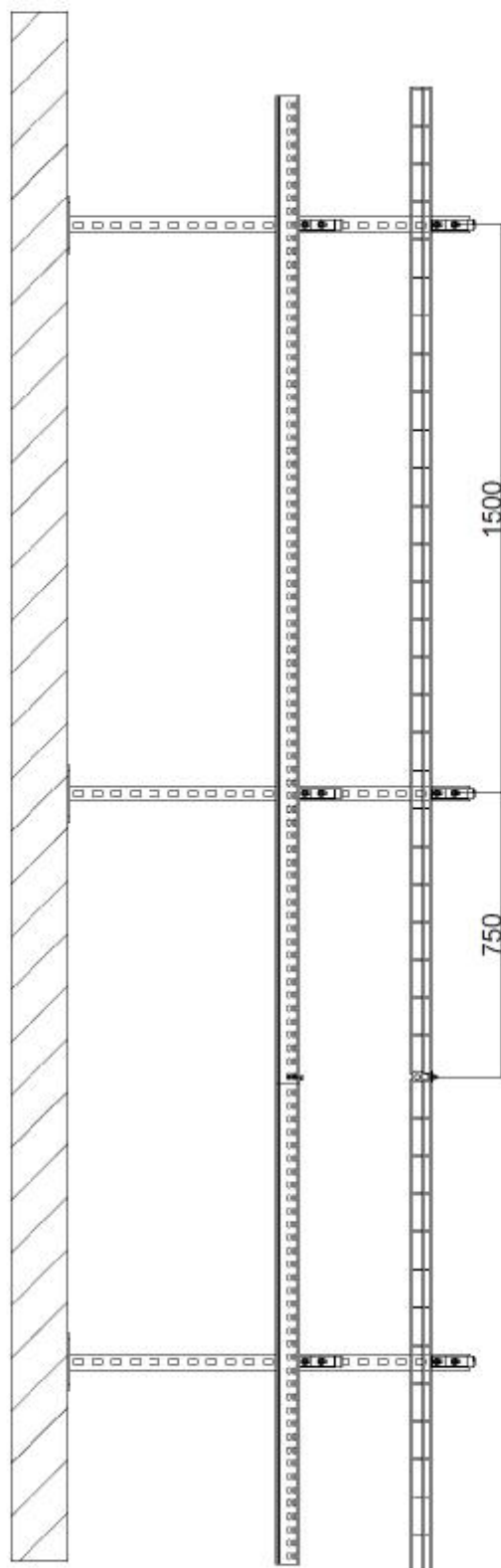




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

F"-F"

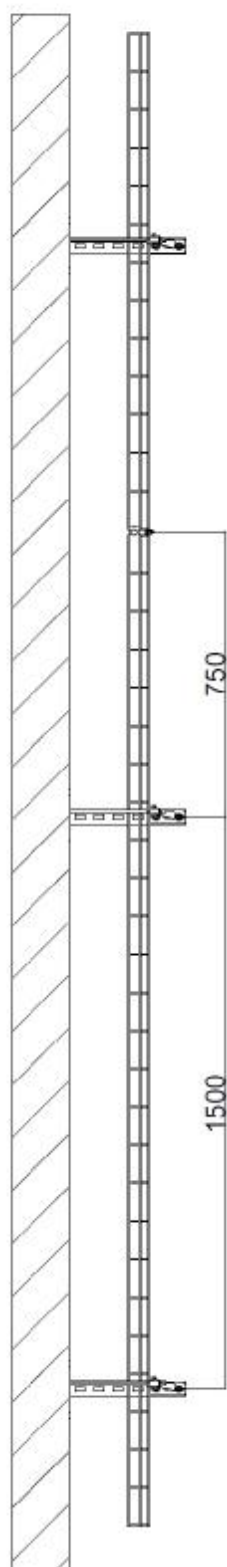




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

G'-G'

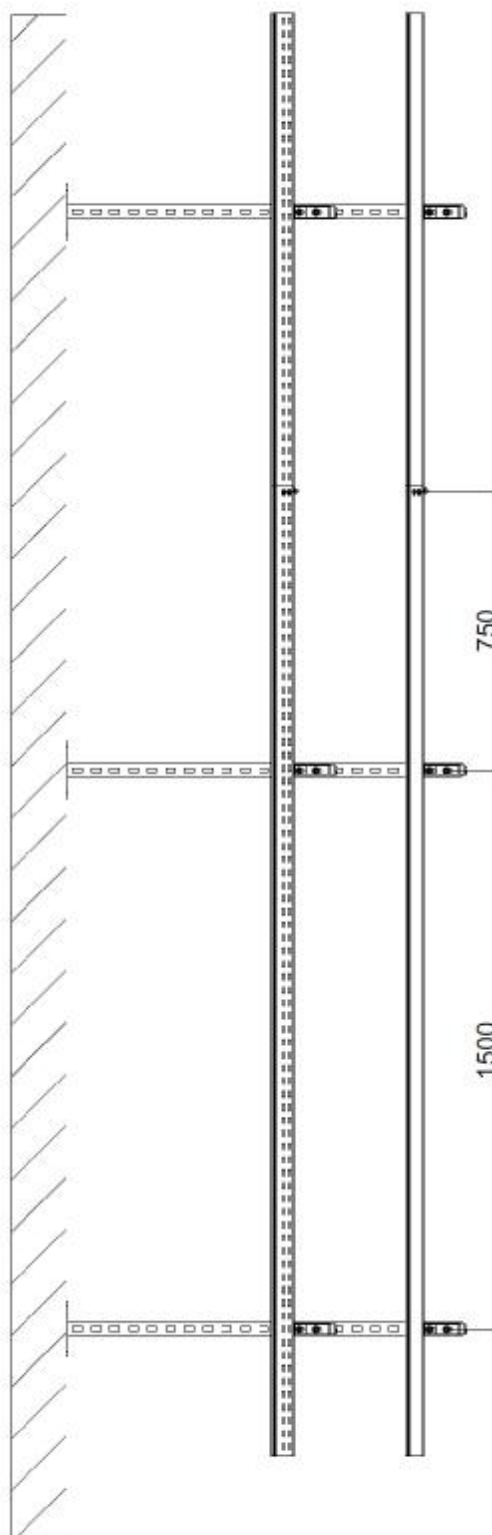




DRAWINGS

PRAKAB-NKT-BAKS FIRES 22.05.2014

G"-G"

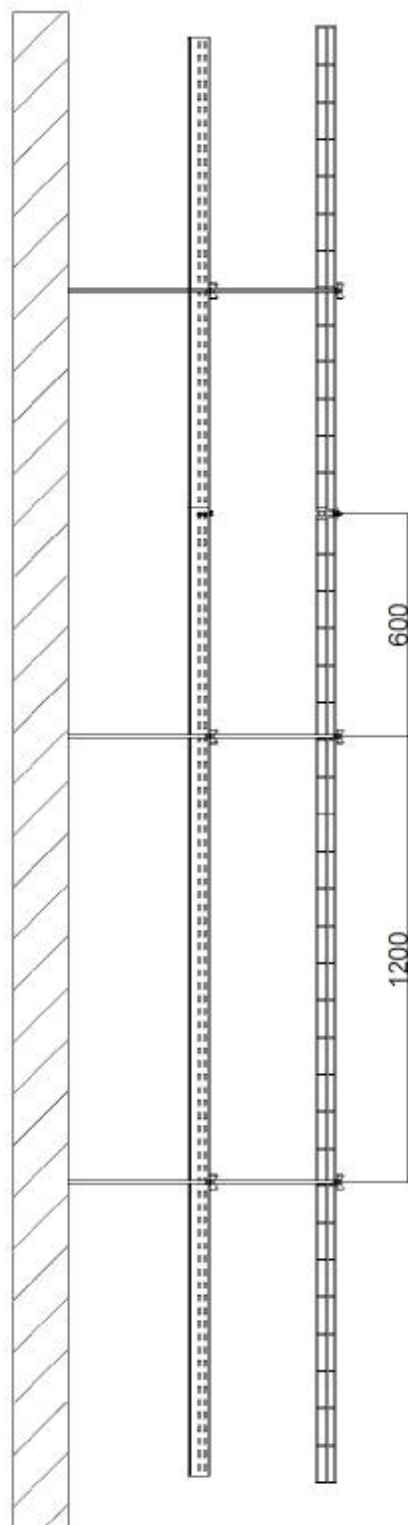




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PRAKAB-NKT-BAKS FIRES 22.05.2014

H-H

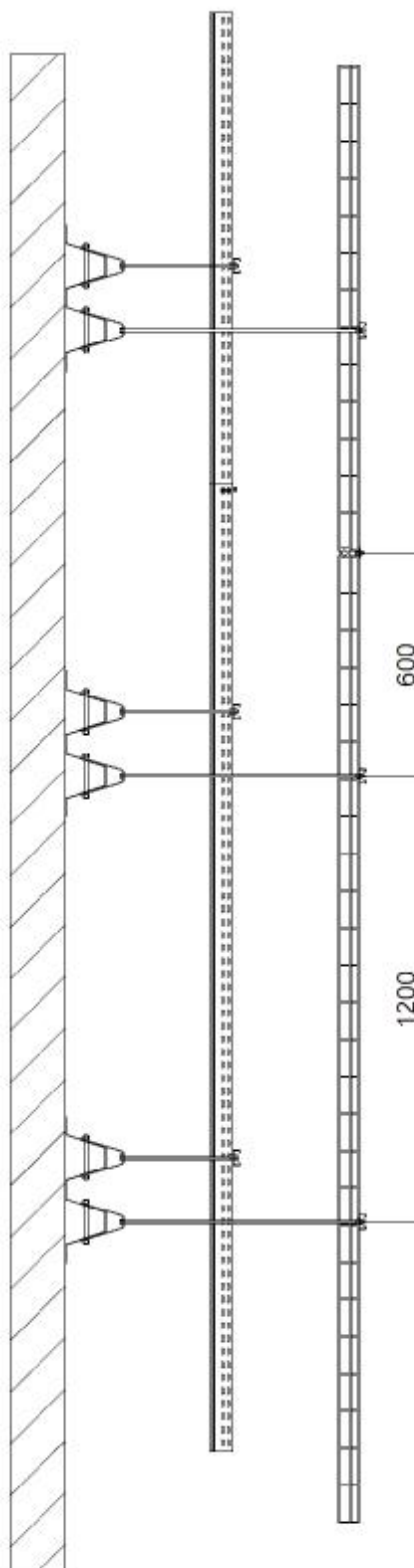




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PRAKAB-NKT-BAKS FIRES 22.05.2014

I-I





7. FINAL PROVISION

- § This report details the method of construction, the test conditions and results obtained when the specific element of construction described herein was following the procedure outlined in EN 1363-1, and where appropriate STN 92 0205. Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report.
- § Because of the nature of the fire resistance testing and consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.
- § The test results refer only to the tested subjects. This test report is not an approval of the tested product by the test laboratory or the accreditation body overseeing the laboratory's activities. The test was carried out on testing equipment that is the property of FIRES, s.r.o., Batizovce. Without the written permission of the test laboratory this test report may be copied and/or distributed only as the whole. Any modifications of the test report can be made only by the fire resistance test laboratory FIRES, s.r.o., Batizovce.

Approved by:

Prepared by:

Ing. Štefan Rástocký
leader of the testing laboratory



Bc. Dávid Šubert
technician of the testing laboratory

8. NORMATIVE REFERENCES

EN 1363-1: 2012	Fire resistance tests. Part 1: General requirements
STN 92 0205:2014	Fire behaviour of construction products and building constructions. Circuit integrity maintenance of cable systems. Requirements, testing and classification.
DIN 4102 – 2:1977-09	Fire behaviour of building materials and elements - requirements and testing
DIN 4102 – 12:1998-11	Fire resistance of electric cable systems required to maintain circuit integrity
ZP-27/2008 PAVUS	Test method for determination of functionality class of cables and cable loadbearing constructions - cable circuits in case of fire

THE END OF THE TEST REPORT