TEST REPORT FIRES-FR-108-13-AUNE

Power cables of nkt cables at cable bearing system BAKS

Reg. No. 041/S-159

The Experts on Fire Safety

TEST REPORT

FIRES-FR-108-13-AUNE

Tested property:	Function in fire
Test method:	STN 92 0205: 2012 (ZP-27/2008, DIN 4102-12: 1998-11)
Date of issue:	12. 07. 2013
Name of the product:	Power cables of nkt cables at cable bearing system BAKS
Manufacturer:	Producers of cables: nkt cables a/s, Toftegårdsvej 25, DK-4550 Asnaæs, Denmark nkt cables s.r.o., Průmyslová 1130, 272 01 Kladno, Czech republic nkt cables Vrchlabí s.r.o., člen skupiny NKT, Českých bratří 509, 543 14 Vrchlabí, Czech republic BAKS Kazimierz Sielski, ul. Jagodne 5, 05 - 480 Karczew, Poland – producer of cable bearing system
Sponsor:	nkt cables a/s, Toftegårdsvej 25, DK-4550 Asnaæs, Denmark
Task No.:	PR-13-0213
Specimens received:	04. 07. 2013
Date of the test:	11. 07. 2013

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

Number of pages: 58
Test reports: 7 Copy No.: 3

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1. INTRODUCTION

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

Keld Veno Poulsen	nkt cables a/s, Denmark
Tonny Toft	nkt cables a/s, Denmark
Jan Musil	nkt cables, s.r.o., Czech Republic
Miroslaw Lazarek	nkt cables S. A., Poland
Anna Kondziolka	nkt cables S. A., Poland
Mr. Jacek Kliczek	BAKS Kazimierz Sielski
Mr. Dariusz Gowronski	BAKS Kazimierz Sielski

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 nkt cables, s.r.o., Czech Republic, nkt cables a/s, Denmark and BAKS Kazimierz Sielski under supervision of laboratory technician.

4. PREPARATION OF THE TEST

4.1 DESCRIPTION OF THE SPECIMENS STRUCTURE

Test specimen comprised from power halogen free cables of companies nkt cables a/s, Denmark and nkt cables, s.r.o., Czech Republic at cable bearing system BAKS Kazimierz Sielski company – cable trays, ladders, mesh trays and cable clips with accessories (consoles, supports, hangers etc.).

Cables
Used cables by test:

NOPOVIC NHXH 4x1,5 E90 Asneas (16x)
NOPOVIC NHXH 4x1,5 E30 Asneas (16x)
NOPOVIC NHXH 4x10 E90 Asneas (16x)
NOPOVIC NHXH 4x10 E30 Asneas (16x)

NOPOVIC NHXH 4x1,5 E90 nktcV (2x)
NOPOVIC NHXH 5x1,5 E90 nktcV (6x)

NOPOVIC NHXH 4x10 E90 nktcK (16x)
NOPOVIC NHXH 4x50 E90 nktcK (16x)

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

Cable bearing systems were made of following constructions:

Suspension tracks No. 1 - 4
Tracks are made of three consoles (WPCW/WPCO700) fixed to ceiling by threaded rods (PG M10) in spacing of 1200 mm. Brackets (WMC/WMCO300) are fixed to consoles by screws (SM M10x30). Holders (UPW/UPWO) are fixed at the end of brackets with screws (SGN M8x14). Brackets are fixed through these holders by threaded rods (PG M10) with washer and nuts (M10) to ceiling holders (USV/USOV).

Tracks No. 1 and 2:
Cable trays (KCP/KCOP300H60/B300, steel sheet thickness 1,5 mm) fixed together by two junctions (LPP/LPOP H60N) and screws (SGN M8x14) on sides and by junction (BL/BLO400N) and screws (SGN M6x12) on the bottom. Trays are fixed to supports by screws (type SGN M6x12) and loaded with 10kg.m^{-1}. Cables are fixed by cable clips (UDF).

Tracks No. 3 and 4:
Cable ladders (DGOP400H60/B400, steel sheet thickness 1,5 mm, spacing of transoms 150 mm) fixed together by two junctions (LDC/LDOCH60N) and screws (SGN M8x14) on sides. Ladders are fixed to supports by junctions (ZM/ZMO) and by screws (SGN M8x14) and loaded with 20kg.m^{-1}. Cables are fixed by cable hangers (UK/UKO1).

Suspension tracks No. 5 - 8
Tracks are made of three consoles combined of horizontal supports (CWP/CWOP40H40/05) and two threaded rods (PG M10) fixed to ceiling in spacing of 1500 mm.

Tracks No. 5 and 6:
Cable trays (KGJ/KGOJ400H60/3, steel sheet thickness 0,9 mm) fixed together by screws (SGK M6x12). Trays are fixed to supports by screws (SGK M6x12) and loaded with 20kg.m^{-1}. Cables are fixed by cable clips (UDF).

Tracks No. 7 and 8:
Cable mesh trays (KDS/KDSO400H60/3, steel wire ∅ 4,5 mm) fixed together by junctions (USSN/USSO). Mesh trays are fixed to supports by junctions (ZS/ZSO) and loaded with 20kg.m^{-1}. Cables are fixed by cable clips (UKZ/UKZO1).

Ceiling tracks No. 9 and 10
Tracks are made of ceiling profiles (SDOP 400) fixed to ceiling in spacing of 300 mm or 600 mm. Cables are fixed to ceiling profiles by cable hangers (UK/UKO1).

Ceiling tracks No. 11 and 12
Tracks are made of cable clips (UDF) fixed to ceiling by anchors (MKR 6 – FMD 6 FISCHER) in spacing of 300 mm or 600 mm.

Power and communication halogen free cables were fixed in the cable trays, ladders and mesh trays by steel clips in the points of allowed bending radius.

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 aerated concrete panels with dimensions (4000 x 600 x 240) mm – 7 pieces and fixed to side walls made of aerated concrete blocks YTONG, 250 mm thick. Ceiling panels were jointed by beam which provides balance deflection of the ceiling.
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	22,7
standard deviation	1,0

Relative air humidity [%]

mean	58,7
standard deviation	4,1

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 O_2) 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:

Date of the test	Relative air humidity [%]	Ambient air temperature [°C]
11. 07. 2013	64,3	20,8

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 NOPOVIC NHXH 4x1,5 E90 Asneas	**8**	90 minutes no failure / interruption
2	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas		46 minutes
3	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas	**6**	90 minutes no failure / interruption
4	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas		68 minutes
5	4 cables NOPOVIC NHXH 5x1,5 E90 nktcV	**6, 8**	75 minutes
6	2 cables NOPOVIC NHXH 4x50 E90 nktcK	**12**	90 minutes no failure / interruption
7	2 cables NOPOVIC NHXH 4x50 E90 nktcK		90 minutes no failure / interruption
8	2 cables NOPOVIC NHXH 4x10 E90 nktcK	**11**	90 minutes no failure / interruption
9	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
10	2 cables NOPOVIC NHXH 4x10 E30 Asneas		73 minutes
11	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption

Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
12	2 cables NOPOVIC NHXH 4x10 E30 Asneas	7	26 minutes
13	2 cables NOPOVIC NHXH 4x10 E90 Asneas		79 minutes
14	2 cables NOPOVIC NHXH 4x50 E90 nktcK		73 minutes
15	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
16	2 cables NOPOVIC NHXH 4x10 E30 Asneas	5	62 minutes
17	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
18	2 cables NOPOVIC NHXH 4x50 E90 nktcK		90 minutes no failure / interruption
19	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
20	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas	11	60 minutes
21	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
22	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
23	2 cables NOPOVIC NHXH 4x10 E30 Asneas		61 minutes
24	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption
25	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas		90 minutes no failure / interruption
26	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas	10	29 minutes
27	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption
28	2 cables NOPOVIC NHXH 4x10 E30 Asneas		80 minutes
29	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
30	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
31	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas		71 minutes
32	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption
33	2 cables NOPOVIC NHXH 4x1,5 E90 nktcV	4	26 minutes
34	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas		26 minutes
35	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption
36	2 cables NOPOVIC NHXH 4x10 E30 Asneas		24 minutes
37	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas	2	52 minutes
38	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas		90 minutes no failure / interruption
39	2 cables NOPOVIC NHXH 4x10 E30 Asneas		57 minutes
40	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
41	2 cables NOPOVIC NHXH 4x10 E30 Asneas	10	70 minutes
42	2 cables NOPOVIC NHXH 4x10 E90 Asneas		82 minutes
43	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
44	2 cables NOPOVIC NHXH 5x1,5 E90 nktcV	3	90 minutes no failure / interruption
45	2 cables NOPOVIC NHXH 4x10 E90 Asneas		90 minutes no failure / interruption
46	2 cables NOPOVIC NHXH 4x50 E90 nktcK		90 minutes no failure / interruption
47	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
48	2 cables NOPOVIC NHXH 4x50 E90 nktcK	1	90 minutes no failure / interruption
49	2 cables NOPOVIC NHXH 4x10 E90 nktcK		90 minutes no failure / interruption
50	2 cables NOPOVIC NHXH 4x50 E90 nktcK	9	90 minutes no failure / interruption
51	2 cables NOPOVIC NHXH 4x50 E90 nktcK		90 minutes no failure / interruption

The fire test was discontinued in 96th minute at the request of test sponsor.

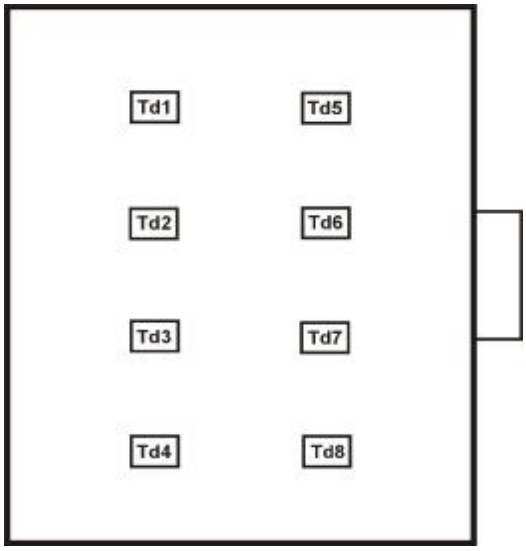
Specimens S1 – S51 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W. Circuit breakers with rating 3 A were used.

Measured values inside the test furnace

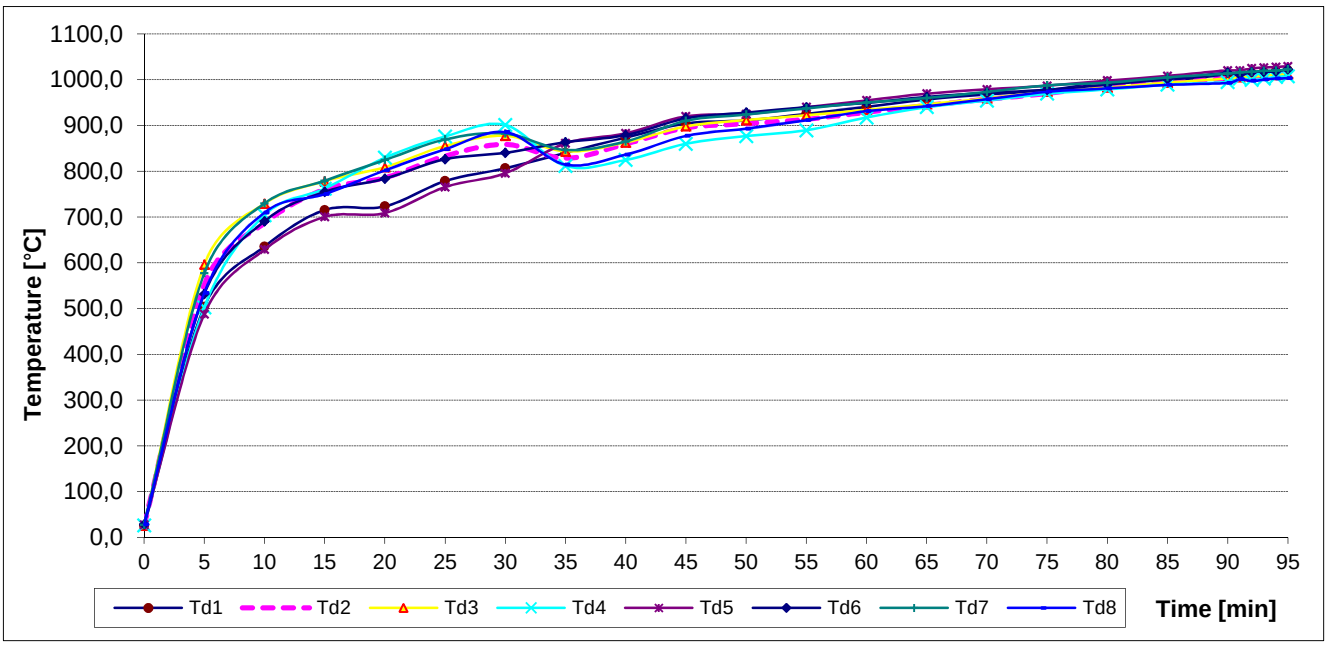
Time	Temperature [°C]											Deviation	Pressure
t [min]	Td1	Td2	Td3	Td4	Td5	Td6	Td7	Td8	Tave	Tn	To	d_e [%]	p [Pa]
0	25,7	26,5	25,7	26,5	28,0	28,5	27,9	28,3	27,1	20,0	20,8	0,0	17,7
5	504,1	553,2	596,1	502,5	487,7	531,9	577,4	534,3	535,9	576,0	20,9	-6,3	17,4
10	635,3	686,8	729,2	704,1	628,8	690,7	729,8	709,7	689,3	678,0	20,9	-1,6	17,2
15	715,4	760,8	778,3	762,1	700,4	755,1	779,3	750,1	750,2	739,0	21,0	-0,5	18,4
20	723,3	785,8	808,9	829,6	708,7	783,9	824,6	801,9	783,3	781,0	21,0	0,1	18,6
25	778,7	833,2	855,4	875,9	765,6	826,3	869,5	848,0	831,6	815,0	21,1	0,5	18,3
30	806,5	858,7	877,5	901,2	795,8	840,3	882,5	885,5	856,0	842,0	21,1	0,7	19,0
35	840,3	828,5	843,4	811,6	861,0	863,5	846,5	814,5	838,7	865,0	21,2	0,4	18,1
40	873,7	859,6	862,9	824,8	882,8	878,9	865,0	836,3	860,5	885,0	21,2	0,0	18,5
45	904,4	894,9	898,1	860,0	920,0	915,5	910,3	877,1	897,5	902,0	21,3	-0,2	19,3
50	911,2	903,8	911,8	876,8	924,8	928,3	923,9	893,1	909,2	918,0	21,3	-0,2	17,1
55	925,5	913,4	922,2	889,6	940,1	939,7	937,5	911,5	922,4	932,0	21,4	-0,3	17,0
60	940,6	928,9	934,2	917,3	954,8	949,2	950,2	931,4	938,3	945,0	21,4	-0,4	17,5
65	956,8	943,8	946,3	940,0	969,5	962,3	959,9	942,2	952,6	957,0	21,5	-0,4	18,1
70	967,7	957,5	959,2	954,5	978,9	971,5	973,4	957,4	965,0	968,0	21,5	-0,4	17,1
75	976,9	969,8	973,6	969,4	986,7	977,9	987,7	973,7	977,0	979,0	21,6	-0,4	17,0
80	994,8	988,7	982,9	978,9	998,1	989,4	993,5	980,9	988,4	988,0	21,6	-0,4	17,8
85	998,6	992,0	993,7	989,1	1008,4	1001,4	1005,1	988,6	997,1	997,0	21,7	-0,4	19,5
90	1011,0	1003,3	1002,7	995,1	1020,3	1014,8	1013,4	993,0	1006,7	1006,0	21,8	-0,3	17,9
91	1011,3	1005,1	1005,0	1002,4	1020,1	1011,1	1016,1	1001,2	1009,0	1008,0	21,7	-0,3	19,9
92	1014,3	1007,0	1006,8	1000,0	1024,6	1016,4	1017,5	997,3	1010,5	1009,0	21,7	-0,3	19,1
93	1016,2	1008,6	1009,0	1002,7	1026,6	1017,5	1019,4	1000,1	1012,5	1011,0	21,8	-0,3	19,2
94	1018,5	1010,5	1010,3	1006,2	1027,6	1017,7	1020,2	1002,7	1014,2	1012,0	21,8	-0,3	19,5
95	1020,4	1012,0	1012,6	1007,3	1029,4	1023,0	1022,6	1003,5	1016,4	1014,0	21,8	-0,3	17,6

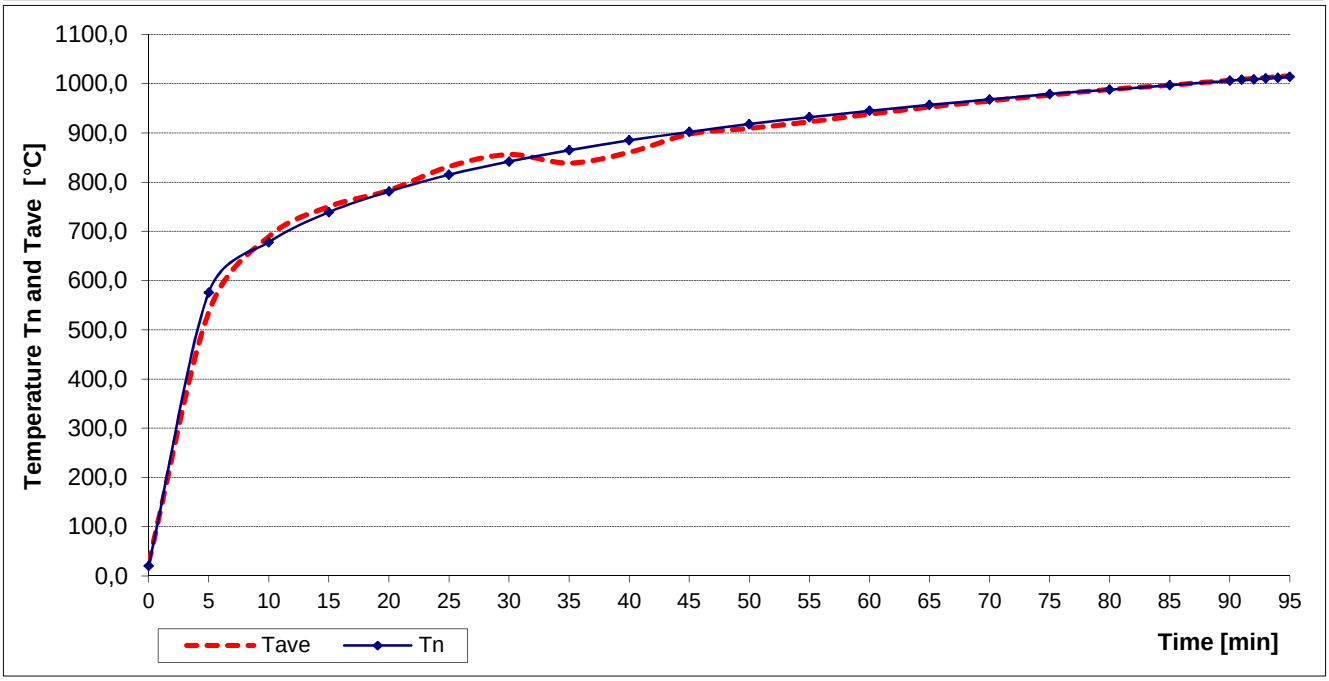
Tave Average temperature in the test furnace calculated from plate thermometers
Tn Standard temperature in the test furnace laid down to test guideline
To Ambient temperature
d_e Deviation of the average temperature from the standard temperature calculated according to test guideline
p Pressure inside the test furnace measured under the ceiling of the test furnace

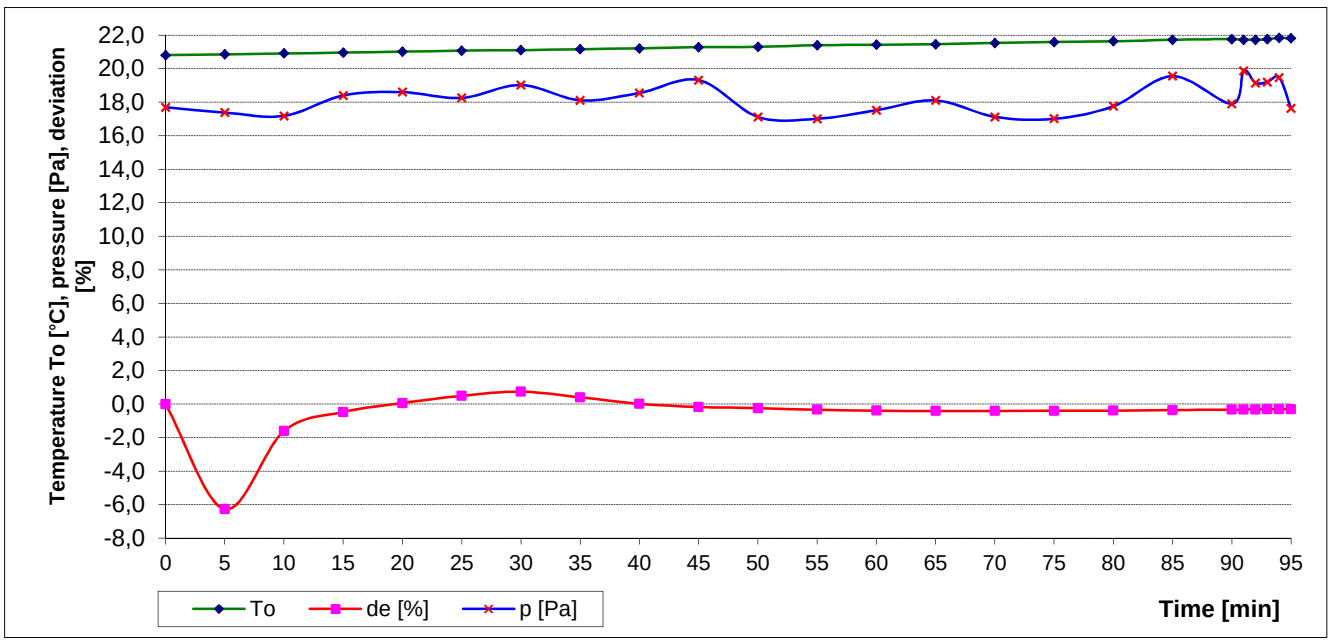
Layout of measuring points inside the test furnace:



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	no failure / interruption
	2-L2	no failure / interruption
	3-L3	no failure / interruption
	4-PEN	no failure / interruption
S2	5-L1	x
	6-L2	x
	7-L3	46:32
	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	68:33
	14-L2	68:33
	15-L3	68:33
	16-PEN	x
S5	17-L1	75:22
	18-L2	x
	19-L3	x
	20-PEN	x
S6	21-L1	no failure / interruption
	22-L2	no failure / interruption
	23-L3	no failure / interruption
	24-PEN	no failure / interruption
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	73:42
	38-L2	73:42
	39-L3	x
	40-PEN	x

Specimen No.	Cables
1	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
2	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
3	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
4	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
5	4 cables NOPOVIC NHXH 5x1,5 E90 nktcV
6	2 cables NOPOVIC NHXH 4x50 E90 nktcK
7	2 cables NOPOVIC NHXH 4x50 E90 nktcK
8	2 cables NOPOVIC NHXH 4x10 E90 nktcK
9	2 cables NOPOVIC NHXH 4x10 E90 Asneas
10	2 cables NOPOVIC NHXH 4x10 E30 Asneas

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	26:30
	46-L2	26:30
	47-L3	x
	48-PEN	x
S13	49-L1	x
	50-L2	x
	51-L3	79:54
	52-PEN	x
S14	53-L1	x
	54-L2	73:15
	55-L3	x
	56-PEN	x
S15	57-L1	no failure / interruption
	58-L2	no failure / interruption
	59-L3	no failure / interruption
	60-PEN	no failure / interruption
S16	61-L1	62:21
	62-L2	x
	63-L3	62:21
	64-PEN	x
S17	65-L1	no failure / interruption
	66-L2	no failure / interruption
	67-L3	no failure / interruption
	68-PEN	no failure / interruption
S18	69-L1	no failure / interruption
	70-L2	no failure / interruption
	71-L3	no failure / interruption
	72-PEN	no failure / interruption
S19	73-L1	no failure / interruption
	74-L2	no failure / interruption
	75-L3	no failure / interruption
	76-PEN	no failure / interruption
S20	77-L1	60:54
	78-L2	60:54
	79-L3	60:54
	80-PEN	x

Specimen No.	Cables
11	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
12	2 cables NOPOVIC NHXH 4x10 E30 Asneas
13	2 cables NOPOVIC NHXH 4x10 E90 Asneas
14	2 cables NOPOVIC NHXH 4x50 E90 nktcK
15	2 cables NOPOVIC NHXH 4x10 E90 nktcK
16	2 cables NOPOVIC NHXH 4x10 E30 Asneas
17	2 cables NOPOVIC NHXH 4x10 E90 Asneas
18	2 cables NOPOVIC NHXH 4x50 E90 nktcK
19	2 cables NOPOVIC NHXH 4x10 E90 nktcK
20	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas

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	61:24
	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	x
	102-L2	29:11
	103-L3	29:11
	104-PEN	x
S27	105-L1	no failure / interruption
	106-L2	no failure / interruption
	107-L3	no failure / interruption
	108-PEN	no failure / interruption
S28	109-L1	80:25
	110-L2	80:25
	111-L3	x
	112-PEN	x
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 4x10 E90 nktcK
22	2 cables NOPOVIC NHXH 4x10 E90 Asneas
23	2 cables NOPOVIC NHXH 4x10 E30 Asneas
24	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
25	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
26	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
27	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
28	2 cables NOPOVIC NHXH 4x10 E30 Asneas
29	2 cables NOPOVIC NHXH 4x10 E90 Asneas
30	2 cables NOPOVIC NHXH 4x10 E90 nktcK

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	71:40
	122-L2	x
	123-L3	x
	124-PEN	x
S32	125-L1	no failure / interruption
	126-L2	no failure / interruption
	127-L3	no failure / interruption
	128-PEN	no failure / interruption
S33	129-L1	26:39
	130-L2	26:39
	131-L3	x
	132-PEN	x
S34	133-L1	26:39
	134-L2	26:39
	135-L3	x
	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	x
	142-L2	24:44
	143-L3	24:44
	144-PEN	x
S37	145-L1	x
	146-L2	52:06
	147-L3	x
	148-PEN	x
S38	149-L1	no failure / interruption
	150-L2	no failure / interruption
	151-L3	no failure / interruption
	152-PEN	no failure / interruption
S39	153-L1	57:29
	154-L2	57:29
	155-L3	x
	156-PEN	x
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 NOPOVIC NHXH 4x1,5 E30 Asneas
32	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
33	2 cables NOPOVIC NHXH 4x1,5 E90 nktcV
34	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
35	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
36	2 cables NOPOVIC NHXH 4x10 E30 Asneas
37	2 cables NOPOVIC NHXH 4x1,5 E30 Asneas
38	2 cables NOPOVIC NHXH 4x1,5 E90 Asneas
39	2 cables NOPOVIC NHXH 4x10 E30 Asneas
40	2 cables NOPOVIC NHXH 4x10 E90 Asneas

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 S50 - power cables

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S41	161-L1	x
	162-L2	70:54
	163-L3	70:54
	164-PEN	x
S42	165-L1	82:24
	166-L2	x
	167-L3	x
	168-PEN	x
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
S45	177-L1	no failure / interruption
	178-L2	no failure / interruption
	179-L3	no failure / interruption
	180-PEN	no failure / interruption
S46	181-L1	no failure / interruption
	182-L2	no failure / interruption
	183-L3	no failure / interruption
	184-PEN	no failure / interruption
S47	185-L1	no failure / interruption
	186-L2	no failure / interruption
	187-L3	no failure / interruption
	188-PEN	no failure / interruption
S48	189-L1	no failure / interruption
	190-L2	no failure / interruption
	191-L3	no failure / interruption
	192-PEN	no failure / interruption
S49	193-L1	no failure / interruption
	194-L2	no failure / interruption
	195-L3	no failure / interruption
	196-PEN	no failure / interruption
S50	197-L1	no failure / interruption
	198-L2	no failure / interruption
	199-L3	no failure / interruption
	200-PEN	no failure / interruption

Specimen No.	Cables
41	2 cables NOPOVIC NHXH 4x10 E30 Asneas
42	2 cables NOPOVIC NHXH 4x10 E90 Asneas
43	2 cables NOPOVIC NHXH 4x10 E90 nktcK
44	2 cables NOPOVIC NHXH 5x1,5 E90 nktcV
45	2 cables NOPOVIC NHXH 4x10 E90 Asneas
46	2 cables NOPOVIC NHXH 4x50 E90 nktcK
47	2 cables NOPOVIC NHXH 4x10 E90 nktcK
48	2 cables NOPOVIC NHXH 4x50 E90 nktcK
49	2 cables NOPOVIC NHXH 4x10 E90 nktcK
50	2 cables NOPOVIC NHXH 4x50 E90 nktcK

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 specimen S51 - power cable

Specimen	Bulbs	Time to permanent failure / interruption [min:s]
S51	201-L1	no failure / interruption
	202-L2	no failure / interruption
	203-L3	no failure / interruption
	204-PEN	no failure / interruption

Specimen No.	Cables
51	2 cables NOPOVIC NHXH 4x50 E90 nktcK

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.

PHOTOS

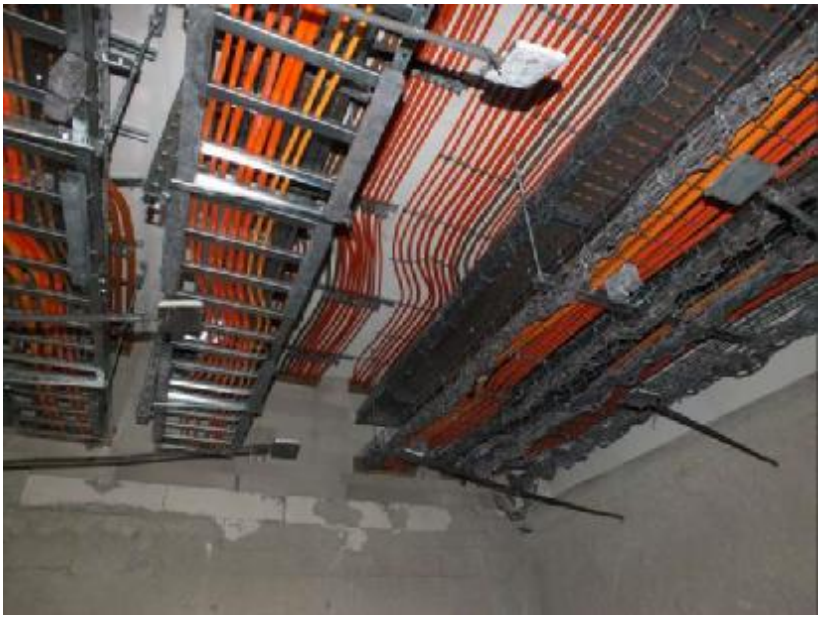


Photo taken before the test.

Photo taken before the test.

Photo taken before the test.

PHOTOS

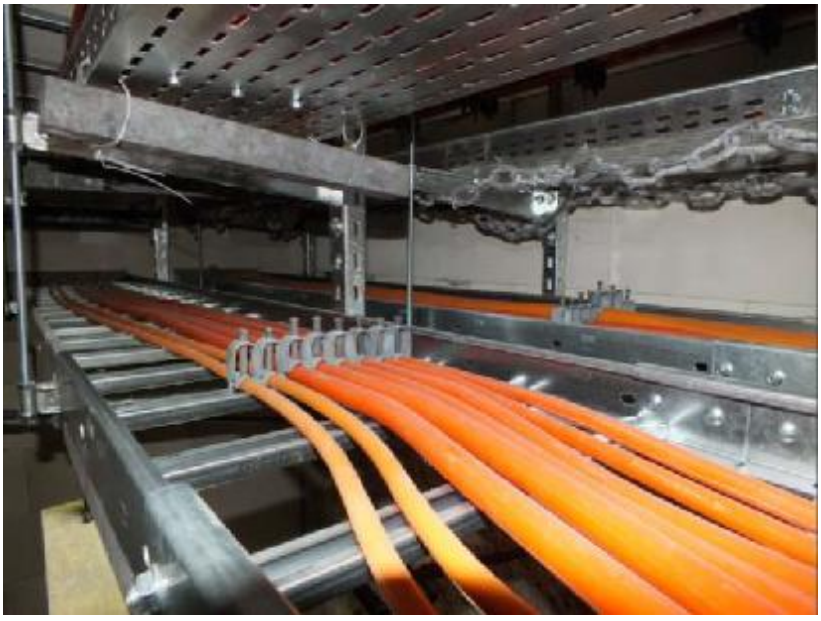


Photo taken before the test.

Photo taken before the test.

Photo taken before the test.

PHOTOS

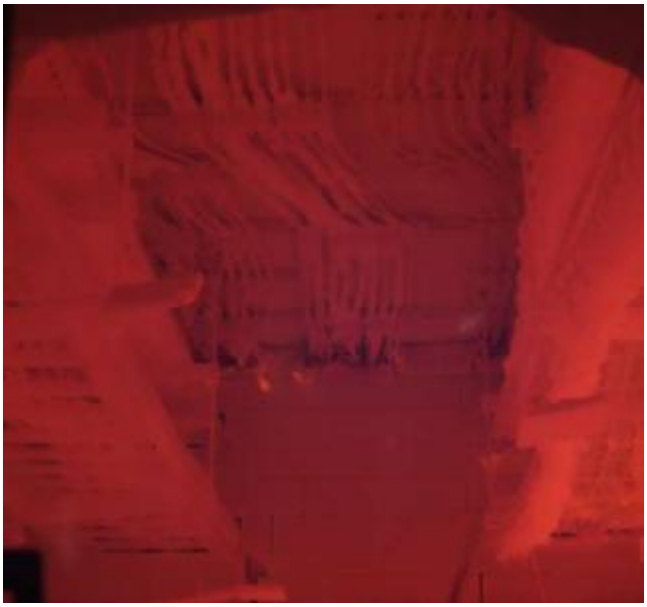


Photo taken during the test.

Photo taken during the test.

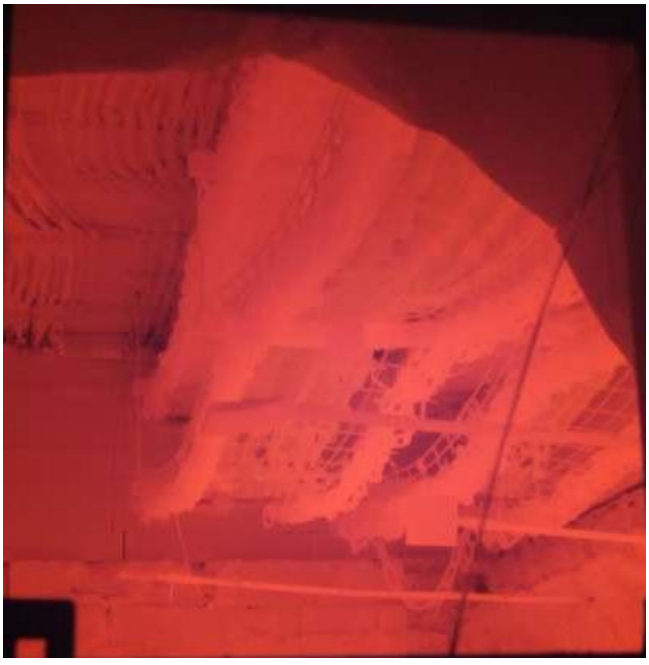


Photo taken during the test.

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.

Fire resistant, Halogen-free Power Cable
Type NHXH E30

Conductor:	Circular solid (cl. 1) or stranded (cl. 2) copper conductor IEC 60228
Tape over conductor:	1 layer of Mica tape
Insulation:	XLPE
Colour marking of cores:	With protecting earth (G) 1-core: Green/yellow 3-core: Green/yellow, blue, brown 4-core: Green/yellow, blue, brown, black 5-core: Green/yellow, blue, brown, black, grey 7-core: Green/yellow, blue, brown, black, grey - red and white > 7-leder: White with black numbers, green/yellow Without protecting earth (X) 4-core: Blue, brown, black, grey > 5-core: White with black numbers
Filler:	HFFR - Thermoplastic compound
Outer sheath:	HFFR - Thermoplastic compound, UV resistant
Tested according to:	Fire conditions: IEC 60332-3 Smoke density: IEC 61034 Emission of corrosive gases: IEC 60754-1 Conductivity-pH changes: IEC 60754-2 Insulation integrity: IEC 60331
Colour of sheath:	Orange
Rated voltage:	1 kV
Test voltage:	4 kV AC

Fire resistant, Halogen-free Power Cable
Type NHXH E30

Maximum conductor temperature:	**90°C**
Maximum short circuit temperature:	**250°C**
Minimum laying temperature:	**– 15°C**
Minimum bending radius:	**Single core cables - 12 x cable diameter** **Multi core cables - 10 x cable diameter**
Standard:	**According to VDE 0266**

Number of cores and cross section	Condoctor Type	Insulation thickness	Thickness of sheath	Outer diameter		Approx weight per km
		Nom.	Nom.	Nom.	Max.	
mm²	Cl.	mm	mm	mm	mm	kg
1x1,5	1	0,7	1,8	7,8	10,0	
2x1,5	1	0,7	1,8	11,0	13,0	
3x1,5	1	0,7	1,8	11,5	14,0	
4x1,5	1	0,7	1,8	12,3	14,5	
5x1,5	1	0,7	1,8	13,2	15,0	
1x2,5	1	0,7	1,8	8,2	10,0	
2x2,5	1	0,7	1,8	11,8	14,0	
3x2,5	1	0,7	1,8	12,4	14,5	
4x2,5	1	0,7	1,8	13,3	15,5	
5x2,5	1	0,7	1,8	14,3	16,5	
1x4	1	0,7	1,8	8,7	11,0	
2x4	1	0,7	1,8	12,8	15,0	
3x4	1	0,7	1,8	13,5	15,5	
4x4	1	0,7	1,8	14,5	16,5	
5x4	1	0,7	1,8	15,7	18,0	

Fire resistant, Halogen-free Power Cable
Type NHXH E30

Number of cores and cross section mm²	Condoctor Type Cl.	Insulation thickness Nom. mm	Thickness of sheath Nom. mm	Outer diameter Nom. mm	Outer diameter Max. mm	Approx weight per km kg
1x6	1	0,7	1,8	9,6	11,5	
2x6	1	0,7	1,8	14,5	16,5	
3x6	1	0,7	1,8	15,3	17,0	
4x6	1	0,7	1,8	16,6	18,5	
5x6	1	0,7	1,8	18,0	20,0	
1x10	1	0,7	1,8	10,5	12,5	
2x10	1	0,7	1,8	16,3	18,0	
3x10	1	0,7	1,8	17,3	19,0	
4x10	1	0,7	1,8	18,8	21,0	
5x10	1	0,7	1,8	20,4	22,5	

Fire resistant, Halogen-free Power Cable
Type NHXH E90

Conductor:	Circular solid (cl. 1) or stranded (cl. 2) copper conductor IEC 60228
Tape over conductor:	4 layer of Mica tape
Insulation:	XLPE
Colour marking of cores:	With protecting earth (G) 1-core: Green/yellow 3-core: Green/yellow, blue, brown 4-core: Green/yellow, blue, brown, black 5-core: Green/yellow, blue, brown, black, grey 7-core: Green/yellow, blue, brown, black, grey - red and white > 7-leder: White with black numbers, green/yellow Without protecting earth (X) 4-core: Blue, brown, black, grey > 5-core: White with black numbers
Filler:	HFFR - Thermoplastic compound
Outer sheath:	HFFR - Thermoplastic compound, UV resistant
Tested according to:	Fire conditions: IEC 60332-3 Smoke density: IEC 61034 Emission of corrosive gases: IEC 60754-1 Conductivity-pH changes: IEC 60754-2 Insulation integrity: IEC 60331
Colour of sheath:	Orange
Rated voltage:	1 kV
Test voltage:	4 kV AC
Maximum conductor temperature:	90°C

Fire resistant, Halogen-free Power Cable
Type NHXH E90

Maximum short circuit temperature:	250°C
Minimum laying temperature:	– 15°C
Minimum bending radius:	Single core cables - 12 x cable diameter Multi core cables - 10 x cable diameter
Standard:	According to VDE 0266

Number of cores and cross section	Condoctor Type	Insulation thickness	Thickness of sheath	Outer diameter		Approx weight per km
		Nom.	Nom.	Nom.	Max.	
mm²	Cl.	mm	mm	mm	mm	kg
1x1,5	1	0,7	1,8	8,2	10,0	
2x1,5	1	0,7	1,8	11,9	14,0	
3x1,5	1	0,7	1,8	12,5	14,5	
4x1,5	1	0,7	1,8	13,4	15,5	
5x1,5	1	0,7	1,8	14,4	16,5	
1x2,5	1	0,7	1,8	8,6	10,5	
2x2,5	1	0,7	1,8	12,7	15,0	
3x2,5	1	0,7	1,8	13,3	15,5	
4x2,5	1	0,7	1,8	14,4	16,5	
5x2,5	1	0,7	1,8	15,5	17,5	
1x4	1	0,7	1,8	9,1	11,0	
2x4	1	0,7	1,8	13,7	16,0	
3x4	1	0,7	1,8	14,4	16,5	
4x4	1	0,7	1,8	15,6	17,5	
5x4	1	0,7	1,8	16,9	19,0	

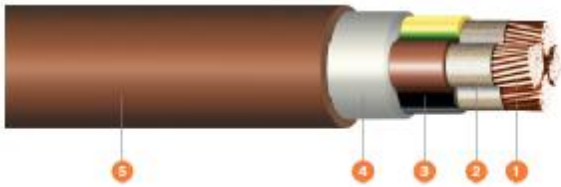
Fire resistant, Halogen-free Power Cable
Type NHXH E90

Number of cores and cross section	Condoctor Type	Insulation thickness	Thickness of sheath	Outer diameter		Approx weight per km
mm²	Cl.	Nom. mm	Nom. mm	Nom. mm	Max. mm	kg
1x6	1	0,7	1,8	10,0	12,0	
2x6	1	0,7	1,8	15,4	17,5	
3x6	1	0,7	1,8	16,3	18,5	
4x6	1	0,7	1,8	17,7	19,5	
5x6	1	0,7	1,8	19,2	21,0	
1x10	1	0,7	1,8	10,9	13,0	
2x10	1	0,7	1,8	17,2	19,0	
3x10	1	0,7	1,8	18,2	20,0	
4x10	1	0,7	1,8	19,9	22,0	
5x10	1	0,7	1,8	21,6	23,5	

NOPOVIC® 1-CXKH-V $B2_{ca}$s1d0 a1 FE180 E90 P90-R PS90

Kabely se sníženým požárním nebezpečím (LFHC kabely) se zachováním funkční integrity systému kabelové trasy P90-R

Low fire-hazard cables (LFHC cables) with system integrity in case of fire E90



Standard TP-NKT-04/09

Konstrukce:

Design:

1. Měděné jádro tř.1 nebo 2
   Copper conductor class 1 or 2
2. Přídavná izolace ze sklosl ídových pásek
   Supplementary insulation of glass/mica tape
3. Sesítěná bezhalogenní izolace
   Cross-linked halogen free insulation
4. HFFR výplň
   HFFR bedding
5. HFFR plášť
   HFFR sheath

Požárně technické charakteristiky:

Fire technical characteristics:

Kabel má třídu reakce na oheň $B2_{ca}$ s1 d0 a splňuje tedy požadavky pro jeho použití dle Vyhlášky MV č.23/2008 novelizované Vyhláškou MV č.268/2011. Může být tedy použit jako volně vedený kabel v prostorech, kde je vyžadována zvýšená ochrana osob, zvířat a majetku (zdravotnická zařízení, stavby s vnitřními shromažďovacími prostory, apod.) a také zajištění funkce a ovládání požárně bezpečnostních zařízení.
The cable is in accordance with EN 50399 (Construction product regulation - CPR) and matchs the requirements of improve safety during fire acc. to the category $B2_{ca}$, s1, d0.

Použití:

Application:

Kabely jsou určeny pro pevné uložení na kabelové nosné systémy (žebříky, žlaby, rošty, háky, apod.) v prostředí suchém nebo vlhkém. Přípustné je krátkodobé mělké ponoření do vody s pH 3 až 11. Pokud je nutné kabely uložit do země, musí být zamezeno trvalému vlivu vlhkosti na kabel. Instalace elektrického vedení musí být v souladu s požadavky ČSN 332000-5-52. Kabely by neměly být dlouhodobě vystaveny přímému slunečnímu záření. Vzhledem k chování kabelů při požáru jsou kabely vhodné zejména pro instalace v místech s velkou koncentrací lidí (metro, letiště, obchodního centra, nemocnice, apod.) nebo k ochraně technického vybavení budov v případě požáru.

Cables are designed for fixed installation in ordinary or possibly damp environments. 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. 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.

nkt cables

NOPOVIC® 1-CXKH-V $B2_{ca}$s1d0 a1 FE180 E90 P90-R PS90

Vlastnosti:

Properties:

Jmenovité napětí Uo/U (kV) *Rated voltage*	0.6/1
Zkušební napětí (kV) *Test voltage*	4
Maximální provoz. teplota při zkratu (°C) *Maximal short-circuit temperature*	+250
Rozsah teplot při provozu (°C) *Operating temperature range*	-40 až +90 *from -40 up to +90*
Min. teplota pokládky (°C) *Minimal temperature for laying*	-5
Min. teplota skladování (°C) *Minimal storage temperature*	-40
Barva izolace *Color of insulation*	HD 308 S2
Barva pláště *Color of sheath*	hnědá *brown*

Samozhášivost jednoho kabelu *Self-extinguishing of one cable*	ČSN EN 60332-1-2 IEC 60332-1-2, DIN VDE 0482-332-1-2
Samozhášivost ve svazku *Self-extinguishing of bunched cables*	ČSN EN 60332-3-22 IEC 60332-3-22 (catA), DIN VDE 0472-332-3-22
Propustnost světla *Light transmittance*	ČSN EN 61034-2 IEC 61034-2, DIN VDE 0482-1034-2
Celistvost obvodu v případě požáru dle ČSN IEC 60331-21 *Circuit integrity in case of fire acc.IEC 60331-21*	FE 180
Třída funkčnosti kabelové trasy dle ZP 27/2008 Třída funkčnosti kabelové trasy dle STN 92 0205 *System integrity in case of fire acc. DIN 4102-12*	P90-R PS90 E90
Korozivita zplodin *Corrosivity of emitted gases*	ČSN EN 50267-2-3 IEC 60754-2, DIN VDE 0482-267-2-3
Třída reakce na oheň dle EN 50399 (požadavek vyhlášky MV č.23/2008, č.268/2011) *Class of reaction-to-fire acc.EN 50399*	$B2_{ca}$ s1 d0
Balení *Packaging*	kabelové bubny *cable drums*

nkt cables

NOPOVIC® 1-CXKH-V $B2_{ca}$s1d0 a1 FE180 E90 P90-R PS90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žil/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (min.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová otopňovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
1x10	RE	9	162	135	1.83	1.429	87	102	-
1x16	RE	10	225	150	1.15	2.286	127	135	-
1x25	RMV / RF	12	326	180	0.727	3.572	170	183	-
1x35	RMV / RF	13	426	195	0.524	5.001	218	226	-
1x50	RMV / RF	14	553	210	0.387	7.114	304	273	-
1x70	RMV / RF	16	764	240	0.268	10.001	369	347	-
1x95	RMV / RF	18	1025	270	0.193	13.573	449	428	-
1x120	RMV / RF	19	1265	285	0.153	17.145	530	497	-
1x150	RMV / RF	22	1553	330	0.124	21.431	620	574	-
1x185	RMV / RF	24	1931	360	0.0991	26.432	700	667	-
1x240	RMV / RF	26	2481	390	0.0754	34.290	829	795	-
1x300	RMV / RF	29	3081	435	0.0601	42.862	955	926	-
1x400	RMV / RF	32	3896	480	0.0470	57.150	1236	1085	-
1x500	RMV	36	4954	540	0.0366	71.437	1364	1291	-
2x1.5	RE	10	133	115	12.1	0.21	24	29	-
2x2.5	RE	10	166	125	7.41	0.36	39	38	-
2x4	RE	11	216	137	4.61	0.57	56	51	-
3x1.5	RE	10	150	121	12.1	0.21	36	24	-
3x2.5	RE	11	191	132	7.41	0.36	55	32	-
3x4	RE	12	255	144	4.61	0.57	82	42	-
3x6	RE	13	333	158	3.08	0.86	117	53	-
3x10	RE	17	560	204	1.83	1.429	148	78	0.265
3x16	RE	19	795	228	1.15	2.286	216	104	0.251
3x25	RMV	23	1196	276	0.727	3.527	283	142	0.248
3x35	RMV	26	1568	312	0.524	5.001	362	175	0.239
3x50	SM	27	1835	324	0.387	7.114	544	204	0.206

nkt cables

NOPOVIC® 1-CXKH-V $B2_{ca}$s1d0 a1 FE180 E90 P90-R PS90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žíly/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (min.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
3x70	SM	30	2501	360	0.268	10.001	662	259	0.201
3x95	SM	34	3299	408	0.193	13.573	811	318	0.194
3x120	SM	37	4129	444	0.153	17.145	956	370	0.193
3x150	SM	41	5024	492	0.124	21.431	1115	428	0.193
3x185	SM	46	6250	552	0.0991	26.432	1270	495	0.193
3x240	SM	50	7995	600	0.0754	34.290	1519	587	0.189
3x35+16	SM	26	1654	312	0.524	5.001	366	175	0.236
3x50+25	SM	30	2232	360	0.387	7.144	500	213	0.232
3x70+35	SM	33	2938	396	0.268	10.001	622	268	0.228
3x70+50	SM	33	3074	396	0.268	10.001	623	267	0.228
3x95+50	SM	37	3886	444	0.193	13.573	756	329	0.219
3x120+70	SM	40	4924	480	0.153	17.145	903	381	0.217
3x150+70	SM	45	5860	540	0.124	21.431	1057	440	0.215
3x185+95	SM	50	7350	600	0.0991	26.432	1224	504	0.213
3x240+120	SM	55	9382	660	0.0754	34.290	1475	596	0.204
4x1.5	RE	11	178	132	12.100	0.21	36	24	-
4x2.5	RE	12	227	143	7.410	0.36	55	32	-
4x4	RE	13	309	156	4.610	0.57	82	42	-
4x6	RE	14	405	173	3.080	0.86	117	53	-
4x10	RE	18	693	216	1.83	1.429	138	81	0.286
4x16	RE	21	981	252	1.15	2.286	200	108	0.273
4x25	RMV	26	1513	312	0.727	3.572	263	147	0.270
4x35	SM	26	1817	312	0.524	5.001	366	175	0.236
4x50	SM	30	2405	360	0.387	7.144	500	213	0.232
4x70	SM	33	3279	396	0.268	10.001	616	269	0.227
4x95	SM	37	4355	444	0.193	13.573	748	331	0.218

nkt cables

NOPOVIC® 1-CXKH-V $B2_{ca}$s1d0 a1 FE180 E90 P90-R PS90

Rozměry kabelu a elektrické parametry:

Technical details for order:

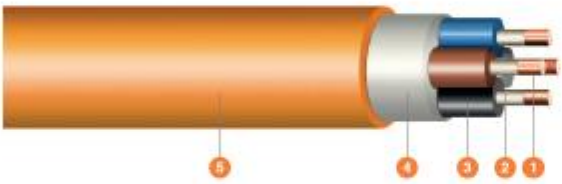
Počet x průřez žíla/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (min.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
4x120	SM	41	5414	492	0.153	17.145	890	383	0.216
4x150	SM	46	6619	552	0.124	21.431	1047	442	0.214
4x185	SM	51	8229	612	0.0991	26.432	1193	511	0.211
4x240	SM	57	10551	684	0.0754	34.290	1449	601	0.202
5x1.5	RE	12	202	142	12.100	0.21	36	24	-
5x2.5	RE	13	267	156	7.410	0.36	55	32	-
5x4	RE	14	364	173	4.610	0.57	82	42	-
5x6	RE	16	485	190	3.080	0.86	117	53	-
5x10	RE	20	847	240	1.83	1.429	129	84	0.296
5x16	RE	23	1195	276	1.15	2.286	186	112	0.282
5x25	RMV	28	1838	336	0.727	3.572	243	153	0.279
5x35	RMV	32	2426	384	0.524	5.001	311	189	0.269
5x50	SM	33	3025	396	0.387	7.144	455	224	0.238
5x70	SM	39	4140	468	0.268	10.001	546	286	0.229
5x95	SM	42	5455	504	0.193	13.573	688	345	0.220
5x120	SM	47	6838	564	0.153	17.145	807	403	0.224
7x1.5	RE	13	96	155	12.100	0.21	93	16	-
7x2.5	RE	14	155	169	7.410	0.36	129	21	-
12x1.5	RE	17	165	199	12.100	0.21	-	13	-
12x2.5	RE	18	267	221	7.410	0.36	-	17	-
19x1.5	RE	18	261	221	12.100	0.21	-	11	-
19.2.5	RE	22	421	258	7.410	0.36	-	16	-
24x1.5	RE	23	335	271	12.100	0.21	-	10	-
24x2.5	RE	25	541	301	7.410	0.36	-	13	-

nkt cables

NOPOVIC® NHXH FE180 E90

Kabely se sníženým požárním nebezpečím (LFHC kabely) se zachováním funkční integrity systému kabelové trasy E90

Low fire-hazard cables (LFHC cables) with system integrity in case of fire E90



Standard DIN VDE 0266

Konstrukce:

Design:

1. Měděné jádro tř. 1, 2 a 5
   Copper conductor class 1, 2 and 5
2. Přídavná izolace ze skloslídových pásek
   Supplementary insulation of glass/mica tape
3. Sesítěná bezhalogenní izolace
   Cross-linked halogen free insulation
4. HFFR výplň
   HFFR bedding
5. HFFR plášť
   HFFR sheath

Požárně technické charakteristiky:

Fire technical characteristics:

Kabel má třídu reakce na oheň $B2_{ca}$ s1 d0 a splňuje tedy požadavky pro jeho použití dle Vyhlášky MV č.23/2008 novelizované Vyhláškou MV č.268/2011. Může být tedy použit jako volně vedený kabel v prostorech, kde je vyžadována zvýšená ochrana osob, zvířat a majetku (zdravotnická zařízení, stavby s vnitřními shromažďovacími prostory, apod.) a také zajištění funkce a ovládání požárně bezpečnostních zařízení.
The cable is in accordance with EN 50399 (Construction product regulation - CPR) and matchs the requirements of improve safety during fire acc. to the category $B2_{ca}$, s1, d0.

Použití:

Application:

Kabely jsou určeny pro pevné uložení na kabelové nosné systémy (žebříky, žlaby, rošty, háky, apod.) v prostředí suchém nebo vlhkém. Přípustné je krátkodobé mělké ponoření do vody s pH 3 až 11. Pokud je nutné kabely uložit do země, musí být zamezeno trvalému vlivu vlhkosti na kabel. Instalace elektrického vedení musí být v souladu s požadavky ČSN 332000-5-52. Kabely by neměly být dlouhodobě vystaveny přímému slunečnímu záření. Vzhledem k chování kabelů při požáru jsou kabely vhodné zejména pro instalace v místech s velkou koncentrací lidí (metro, letiště, obchodního centra, nemocnice, apod.) nebo k ochraně technického vybavení budov v případě požáru.

Cables are designed for fixed installation in ordinary or possibly damp environments. 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. 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.

nkt cables

NOPOVIC® NHXH FE180 E90

Vlastnosti:

Properties:

Jmenovité napětí Uo/U (kV) *Rated voltage*	0,6/1
Zkušební napětí (kV) *Test voltage*	4
Maximální provoz. teplota při zkratu (°C) *Maximal short-circuit temperature*	+250
Rozsah teplot při provozu (°C) *Operating temperature range*	-40 až +90 *from -40 up to +90*
Min. teplota pokládky (°C) *Minimal temperature for laying*	-5
Min. teplota skladování (°C) *Minimal storage temperature*	-30
Barva izolace *Color of insulation*	HD 308 S2
Barva pláště *Color of sheath*	oranžová *orange*

Samozhášivost jednoho kabelu *Self-extinguishing of one cable*	ČSN EN 60332-1-2 IEC 60332-1-2, DIN VDE 0482-332-1-2
Samozhášivost ve svazku *Self-extinguishing of bunched cables*	ČSN EN 60332-3-22 IEC 60332-3-22 (catA), DIN VDE 0472-332-3-22
Hustota dýmu při hoření kabelu *Smoke density in case of fire*	ČSN EN 61034-2 IEC 61034-2, DIN VDE 0482-1034-2
Celistvost obvodu v případě požáru dle ČSN IEC 60331-21 *Circuit integrity in case of fire acc.IEC 60331-21*	FE 180
Třída funkčnosti kabelové trasy dle ZP 27/2008 *System integrity in case of fire acc. DIN 4102-12*	P90-R E90
Korozivita zplodin *Corrosivity of emitted gases*	ČSN EN 50267-2-3 IEC 60754-2, DIN VDE 0482-267-2-3
Třída reakce na oheň dle EN 50399 (požadavek vyhlášky MV č.23/2008, č.268/2011) *Class of reaction-to-fire acc.EN 50399*	$B2_{ca}$ s1 d0
Balení *Packaging*	kabelové bubny *cable drums*

nkt cables

NOPOVIC® NHXH FE180 E90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žil/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (max.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
1x10	RE	10	187	150	1.83	1.429	84	104	-
1x16	RE	11	252	165	1.15	2.286	123	138	-
1x25	RMV / RF	13	364	195	0.727	3.572	166	185	-
1x35	RMV / RF	14	468	210	0.524	5.001	214	228	-
1x50	RMV / RF	15	599	225	0.387	7.144	299	276	-
1x70	RMV / RF	17	816	255	0.268	10.001	365	349	-
1x95	RMV / RF	19	1073	285	0.193	13.573	444	430	-
1x120	RMV / RF	20	1318	300	0.153	17.145	528	498	-
1x150	RMV / RF	23	1611	345	0.124	21.431	620	574	-
1x185	RMV / RF	25	1984	375	0.0991	26.432	700	667	-
1x240	RMV / RF	27	2539	405	0.0754	34.290	829	795	-
1x300	RMV / RF	30	3130	450	0.0601	42.862	955	926	-
1x400	RMV / RF	33	3968	495	0.0470	57.150	1236	1085	-
1x500	RMV	37	5034	555	0.0366	71.437	1384	1291	-
2x1.5	RE	12	174	144	12.1	0.21	24	29	-
2x2.5	RE	13	206	156	7.41	0.36	39	38	-
2x4	RE	14	260	168	4.61	0.57	56	51	-
2x6	RE	15	321	180	3.08	0.86	80	64	-
2x10	RE	17	509	204	1.83	1.429	109	91	-
2x16	RE	19	680	228	1.15	2.286	158	121	-
2x25	RMV	23	1031	276	0.727	3.572	211	164	-
2x35	RMV	25	1316	300	0.524	5.001	270	203	-
3x1.5	RE	12	195	144	12.1	0.21	36	24	-
3x2.5	RE	13	240	156	7.41	0.36	55	32	-
3x4	RE	14	302	168	4.61	0.57	82	42	-
3x6	RE	15	381	180	3.08	0.86	117	53	-

nkt cables

NOPOVIC® NHXH FE180 E90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žíla/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (min.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
3x10	RE	18	611	216	1.83	1.429	147	79	0.265
3x16	RE	20	832	240	1.15	2.286	214	104	0.251
3x25	RMV	24	1265	288	0.727	3.572	282	142	0.248
3x35	RMV	27	1632	324	0.524	5.001	363	175	0.239
3x50	RMV	30	2128	360	0.387	7.144	500	213	0.237
3x70	RMV	35	2923	420	0.268	10.001	602	272	0.233
3x95	RMV	38	3833	456	0.193	13.573	732	335	0.227
3x120	RMV	42	4770	504	0.153	17.145	866	389	0.226
3x150	RMV	47	5904	564	0.124	21.431	1006	451	0.227
3x185	RMV	53	7366	636	0.0991	26.432	1130	525	0.226
3x240	RMV	58	9383	696	0.0754	34.290	1361	620	0.223
3x25+16	RMV	25	1453	300	0.727	3.572	274	144	0.270
3x35+16	RMV	28	1829	336	0.524	5.001	353	178	0.261
3x50+25	RMV	31	2421	372	0.387	7.144	487	216	0.258
3x70+35	RMV	36	3312	432	0.268	10.001	587	275	0.253
3x95+50	RMV	40	4359	480	0.193	13.573	719	338	0.246
3x120+70	RMV	44	5500	528	0.153	17.145	853	392	0.244
3x150+70	RMV	49	6612	588	0.124	21.431	1002	452	0.243
3x185+95	RMV	55	8350	660	0.0991	26.432	1141	522	0.240
3x240+120	RMV	61	10603	732	0.0754	34.290	1370	618	0.233
4x1.5	RE	13	227	160	12.100	0.21	36	24	-
4x2.5	RE	14	279	170	7.410	0.36	55	32	-
4x4	RE	16	363	186	4.610	0.57	82	42	-
4x6	RE	17	462	200	3.080	0.86	117	53	-
4x10	RE	20	739	240	1.83	1.429	137	81	0.286
4x16	RE	22	1032	264	1.15	2.286	200	108	0.273

nkt cables

NOPOVIC® NHXH FE180 E90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žíla/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (max.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
4x16	RMV	22	1058	264	1.15	2.286	190	111	0.269
4x25	RMV	27	1576	324	0.727	3.572	263	147	0.270
4x35	RMV	30	2039	360	0.524	5.001	337	182	0.261
4x50	RMV	33	2689	396	0.387	7.144	466	221	0.258
4x70	RMV	38	3708	456	0.268	10.001	561	282	0.253
4x95	RMV	42	4868	504	0.193	13.573	685	348	0.246
4x120	RMV	47	6078	564	0.153	17.145	814	401	0.244
4x150	RMV	52	7495	624	0.124	21.431	951	464	0.243
4x185	RMV	59	9369	708	0.0991	26.432	10084	536	0.240
4x240	RMV	65	11967	780	0.0754	34.290	1309	632	0.233
5x1.5	RE	14	261	173	12.100	0.21	36	24	-
5x2.5	RE	16	328	186	7.410	0.36	55	32	-
5x4	RE	17	425	202	4.610	0.57	82	42	-
5x6	RE	18	549	220	3.080	0.86	117	53	-
5x10	RE	21	897	252	1.83	1.429	128	84	0.296
5x16	RE	24	1251	288	1.15	2.286	186	112	0.282
5x25	RMV	29	1907	348	0.727	3.572	244	153	0.270
5x35	RMV	32	2488	384	0.524	5.001	312	189	0.269
5x50	RMV	37	3295	444	0.387	7.144	431	230	0.266
5x70	RMV	42	4565	504	0.268	10.001	520	293	0.260
5x95	RMV	47	6034	564	0.193	13.573	640	358	0.251
5x120	RMV	52	7491	624	0.153	17.145	764	414	0.246
7x1.5	RE	16	317	186	12.100	0.21	93	16	-
7x2.5	RE	17	402	200	7.410	0.36	129	21	-
12x1.5	RE	20	472	236	12.100	0.21	-	13	-
12x2.5	RE	22	622	259	7.410	0.36	-	17	-

nkt cables

NOPOVIC® NHXH FE180 E90

Rozměry kabelu a elektrické parametry:

Technical details for order:

Počet x průřez žil/stínění *No. of cores and crossection* (mm²)	Tvar jádra *Conductor shape*	Vnější průměr int. *Outer diameter approx.* (mm)	Hmotnost int. *Cable mass approx.* (kg/km)	Poloměr ohybu *Bending radius* (mm)	Činný odpor při 20°C *DC resistance at 20°C (min.)* (Ω/km)	Ekvivalentní zkratový proud *Short circuit current - equiv.* (kA)	Časová oteplovací konstanta *Time heating constant* (s)	Proudová zatížitelnost na vzduchu *Current ratings of cable on air* (A)	Indukčnost *Cable inductance* (mH/km)
19x1.5	RE	23	674	277	12.100	0.21	-	11	-
19x2.5	RE	25	886	301	7.410	0.36	-	16	-
24x1.5	RE	27	835	322	12.100	0.21	-	10	-
24x2.5	RE	29	1118	350	7.410	0.36	-	13	-

DRAWINGS

Nr.	FIRES Nr.	Cable label	Track	Cable system BAKS: Bearing construction, span length, loading kg/m
1	49	NOPOVIC NHXH 4x10 E 90 nktcK	1	Cable trays: Type: KCP/KCOP 300H60/3N, steel sheet thickness 1,5 mm Consoles WPC/WPCO1000, brackets WMC/WMCO400, threaded rods PG M10, ceiling hangers USV/USVO Spacing of consoles 1200 mm Loading 10 kg.m^{-1}
2		NOPOVIC NHXH 4x10 E 90 nktcK		
3	48	NOPOVIC NHXH 4x50 E 90 nktcK		
4		NOPOVIC NHXH 4x50 E 90 nktcK		
5	40	NOPOVIC NHXH 4x10 E 90 Asneas	2	
6		NOPOVIC NHXH 4x10 E 90 Asneas		
7	39	NOPOVIC NHXH 4x10 E 30 Asneas		
8		NOPOVIC NHXH 4x10 E 30 Asneas		
9	38	NOPOVIC NHXH 4x1,5 E 90 Asneas		
10		NOPOVIC NHXH 4x1,5 E 90 Asneas		
11	37	NOPOVIC NHXH 4x1,5 E 30 Asneas		
12		NOPOVIC NHXH 4x1,5 E 30 Asneas		
13	47	NOPOVIC NHXH 4x10 E 90 nktcK	3	Cable ladders: Type: DGOP 400H60/3N, steel sheet thickness 1,5 mm, spacing of transoms 150 mm Consoles WPC/WPCO1000, brackets WMC/WMCO400, threaded rods PG M10, ceiling hangers USV/USVO Spacing of consoles 1200 mm Loading 20 kg.m^{-1}
14		NOPOVIC NHXH 4x10 E 90 nktcK		
15	46	NOPOVIC NHXH 4x50 E 90 nktcK		
16		NOPOVIC NHXH 4x50 E 90 nktcK		
17	45	NOPOVIC NHXH 4x10 E 90 Asneas		
18		NOPOVIC NHXH 4x10 E 90 Asneas		
19	44	NOPOVIC NHXH 5x1,5 E 90 nkcV		
20		NOPOVIC NHXH 5x1,5 E 90 nkcV		
21	36	NOPOVIC NHXH 4x10 E 30 Asneas	4	
22		NOPOVIC NHXH 4x10 E 30 Asneas		
23	35	NOPOVIC NHXH 4x1,5 E 90 Asneas		
24		NOPOVIC NHXH 4x1,5 E 90 Asneas		
25	34	NOPOVIC NHXH 4x1,5 E 30 Asneas		
26		NOPOVIC NHXH 4x1,5 E 30 Asneas		
27	33	NOPOVIC NHXH 4x1,5 E 90 nktcV		
28		NOPOVIC NHXH 4x1,5 E 90 nktcV		
29	19	NOPOVIC NHXH 4x10 E 90 nktcK	5	Cable trays: Type: KGJ/KGOJ 400H60/3, steel sheet thickness 0,9 mm Consoles combined of horizontal supports CWP/CWOP40H40/05 and threaded rods PG M10. Spacing of consoles 1500 mm Loading 20 kg.m^{-1}
30		NOPOVIC NHXH 4x10 E 90 nktcK		
31	18	NOPOVIC NHXH 4x50 E 90 nktcK		
32		NOPOVIC NHXH 4x50 E 90 nktcK		
33	17	NOPOVIC NHXH 4x10 E 90 Asneas		
34		NOPOVIC NHXH 4x10 E 90 Asneas		
35	16	NOPOVIC NHXH 4x10 E 30 Asneas		
36		NOPOVIC NHXH 4x10 E 30 Asneas		
39	5	NOPOVIC NHXH 5x1,5 E 90 nktcV	6	
40		NOPOVIC NHXH 5x1,5 E 90 nktcV		
41	4	NOPOVIC NHXH 4x1,5 E 30 Asneas		
42		NOPOVIC NHXH 4x1,5 E 30 Asneas		
43	3	NOPOVIC NHXH 4x1,5 E 90 Asneas		
44		NOPOVIC NHXH 4x1,5 E 90 Asneas		

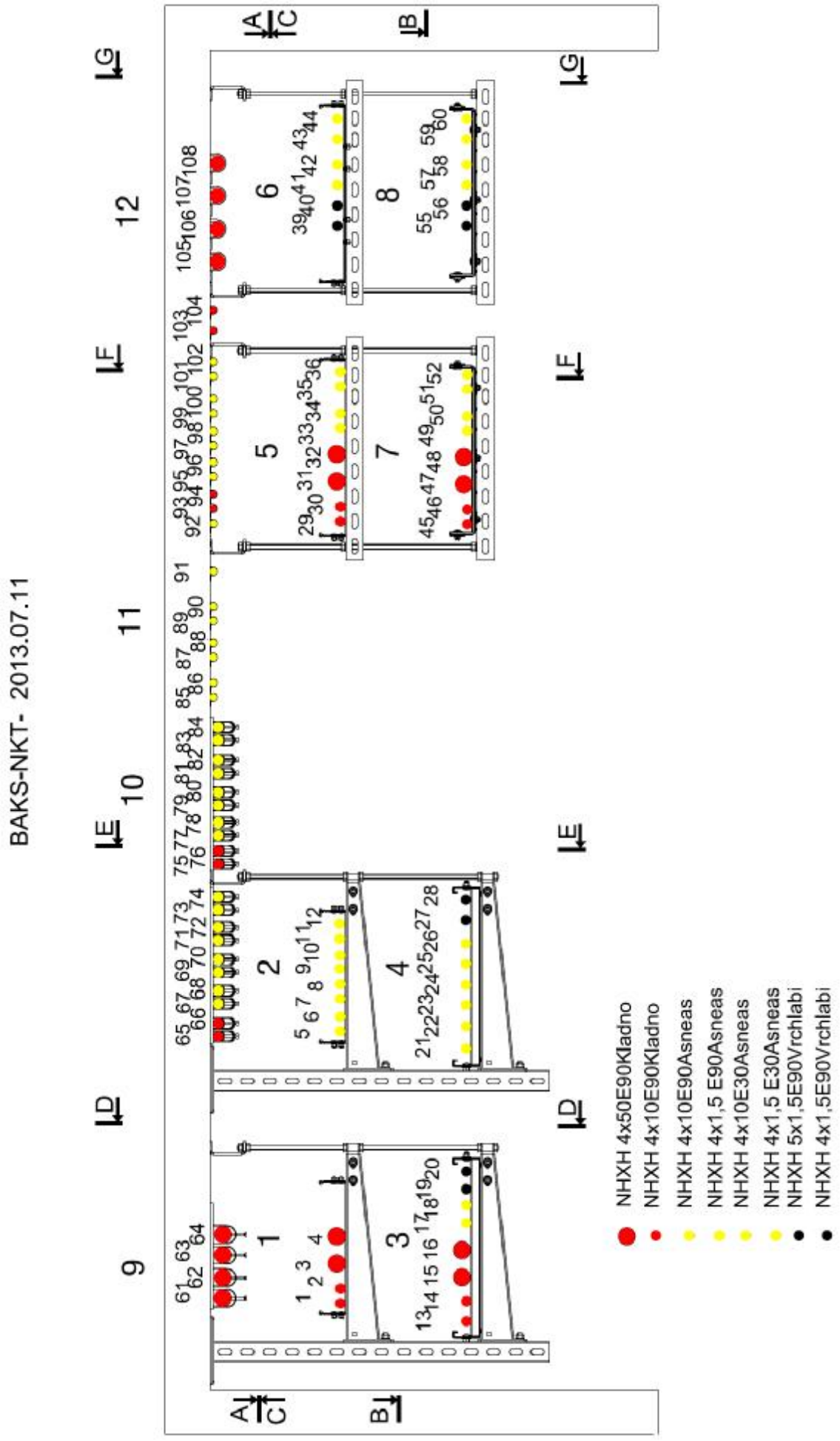
DRAWINGS

Nr.	FIRES Nr.	Cable label	Track	Cable system BAKS: Bearing construction, span length, loading kg/m
45	**15**	NOPOVIC NHXH 4x10 E 90 nktcK	**7**	Cable mesh trays: Type: KDS/KDSO 400H60/3, steel wire ∅ 4,5 mm Consoles combined of horizontal supports CWP/CWOP40H40/05 and threaded rods PG M10. Spacing of consoles 1500 mm Loading 20 $kg.m^{-1}$
46		NOPOVIC NHXH 4x10 E 90 nktcK		
47	**14**	NOPOVIC NHXH 4x50 E 90 nktcK		
48		NOPOVIC NHXH 4x50 E 90 nktcK		
49	**13**	NOPOVIC NHXH 4x10 E 90 Asneas		
50		NOPOVIC NHXH 4x10 E 90 Asneas		
51	**12**	NOPOVIC NHXH 4x10 E 30 Asneas		
52		NOPOVIC NHXH 4x10 E 30 Asneas		
55	**5**	NOPOVIC NHXH 5x1,5 E 90 nktcV	**8**	
56		NOPOVIC NHXH 5x1,5 E 90 nktcV		
57	**2**	NOPOVIC NHXH 4x1,5 E 30 Asneas		
58		NOPOVIC NHXH 4x1,5 E 30 Asneas		
59	**1**	NOPOVIC NHXH 4x1,5 E 90 Asneas		
60		NOPOVIC NHXH 4x1,5 E 90 Asneas		
61	**51**	NOPOVIC NHXH 4x50 E 90 nktcK	**9**	Cable hangers type UKO1 fixed to ceiling profiles SDP/SDOP400. Profiles in spacing of 300mm.
62		NOPOVIC NHXH 4x50 E 90 nktcK		
63	**50**	NOPOVIC NHXH 4x50 E 90 nktcK		Cable hangers type UKO1 fixed to ceiling profiles SDP/SDOP400. Profiles in spacing of 600mm.
64		NOPOVIC NHXH 4x50 E 90 nktcK		
65	**43**	NOPOVIC NHXH 4x10 E 90 nktcK	**10**	Cable hangers type UKO1 fixed to ceiling profiles SDP/SDOP400. Profiles in spacing of 300mm.
66		NOPOVIC NHXH 4x10 E 90 nktcK		
67	**42**	NOPOVIC NHXH 4x10 E 90 Asnaes		
68		NOPOVIC NHXH 4x10 E 90 Asnaes		
69	**41**	NOPOVIC NHXH 4x10 E 30 Asneas		
70		NOPOVIC NHXH 4x10 E 30 Asneas		
71	**32**	NOPOVIC NHXH 4x1,5 E 90 Asnaes		
72		NOPOVIC NHXH 4x1,5 E 90 Asnaes		
73	**31**	NOPOVIC NHXH 4x1,5 E 30 Asnaes		
74		NOPOVIC NHXH 4x1,5 E 30 Asnaes		
75	**30**	NOPOVIC NHXH 4x10 E 90 nktcK		Cable hangers type UKO1 fixed to ceiling profiles SDP/SDOP400. Profiles in spacing of 600mm.
76		NOPOVIC NHXH 4x10 E 90 nktcK		
77	**29**	NOPOVIC NHXH 4x10 E 90 Asnaes		
78		NOPOVIC NHXH 4x10 E 90 Asnaes		
79	**28**	NOPOVIC NHXH 4x10 E 30 Asneas		
80		NOPOVIC NHXH 4x10 E 30 Asneas		
81	**27**	NOPOVIC NHXH 4x1,5 E 90 Asnaes		
82		NOPOVIC NHXH 4x1,5 E 90 Asnaes		
83	**26**	NOPOVIC NHXH 4x1,5 E 30 Asnaes		
84		NOPOVIC NHXH 4x1,5 E 30 Asnaes		

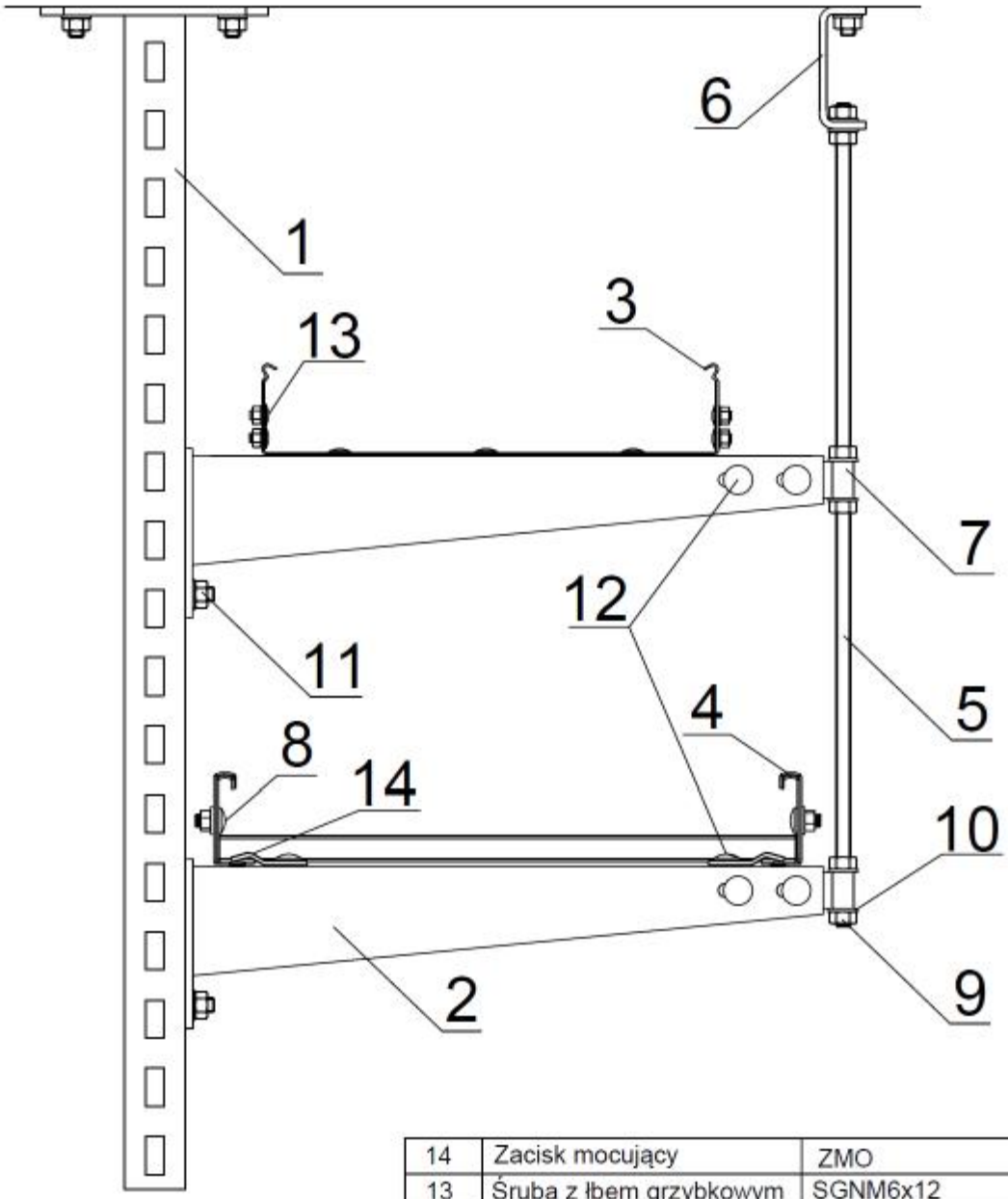
DRAWINGS

Nr.	FIRES Nr.	Cable label	Track	Cable system BAKS: Bearing construction, span length, loading kg/m
85	**25**	NOPOVIC NHXH 4x1,5 E 30 Asnaes	**11**	Cable clips type UDF fixed to ceiling in spacing of 300 mm by anchors MKR 6 – FMD 6 FISCHER.
86		NOPOVIC NHXH 4x1,5 E 30 Asnaes		
87	**24**	NOPOVIC NHXH 4x1,5 E 90 Asnaes		
88		NOPOVIC NHXH 4x1,5 E 90 Asnaes		
89	**23**	NOPOVIC NHXH 4x10 E 30 Asneas		
90		NOPOVIC NHXH 4x10 E 30 Asneas		
91	**22**	NOPOVIC NHXH 4x10 E 90 Asnaes		
92		NOPOVIC NHXH 4x10 E 90 Asnaes		
93	**21**	NOPOVIC NHXH 4x10 E 90 nktcK		
94		NOPOVIC NHXH 4x10 E 90 nktcK		
95	**20**	NOPOVIC NHXH 4x1,5 E 30 Asnaes		Cable clips type UDF fixed to ceiling in spacing of 600 mm by anchors MKR 6 – FMD 6 FISCHER.
96		NOPOVIC NHXH 4x1,5 E 30 Asnaes		
97	**11**	NOPOVIC NHXH 4x1,5 E 90 Asnaes		
98		NOPOVIC NHXH 4x1,5 E 90 Asnaes		
99	**10**	NOPOVIC NHXH 4x10 E 30 Asneas		
100		NOPOVIC NHXH 4x10 E 30 Asneas		
101	**9**	NOPOVIC NHXH 4x10 E 90 Asnaes		
102		NOPOVIC NHXH 4x10 E 90 Asnaes		
103	**8**	NOPOVIC NHXH 4x10 E 90 nktcK		
104		NOPOVIC NHXH 4x10 E 90 nktcK		
105	**7**	NOPOVIC NHXH 4x50 E 90 nktcK	**12**	Cable clips type UDF fixed to ceiling in spacing of 300 mm by anchors MKR 6 – FMD 6 FISCHER.
106		NOPOVIC NHXH 4x50 E 90 nktcK		
107	**6**	NOPOVIC NHXH 4x50 E 90 nktcK		Cable clips type UDF fixed to ceiling in spacing of 600 mm by anchors MKR 6 – FMD 6 FISCHER.
108		NOPOVIC NHXH 4x50 E 90 nktcK		

DRAWINGS

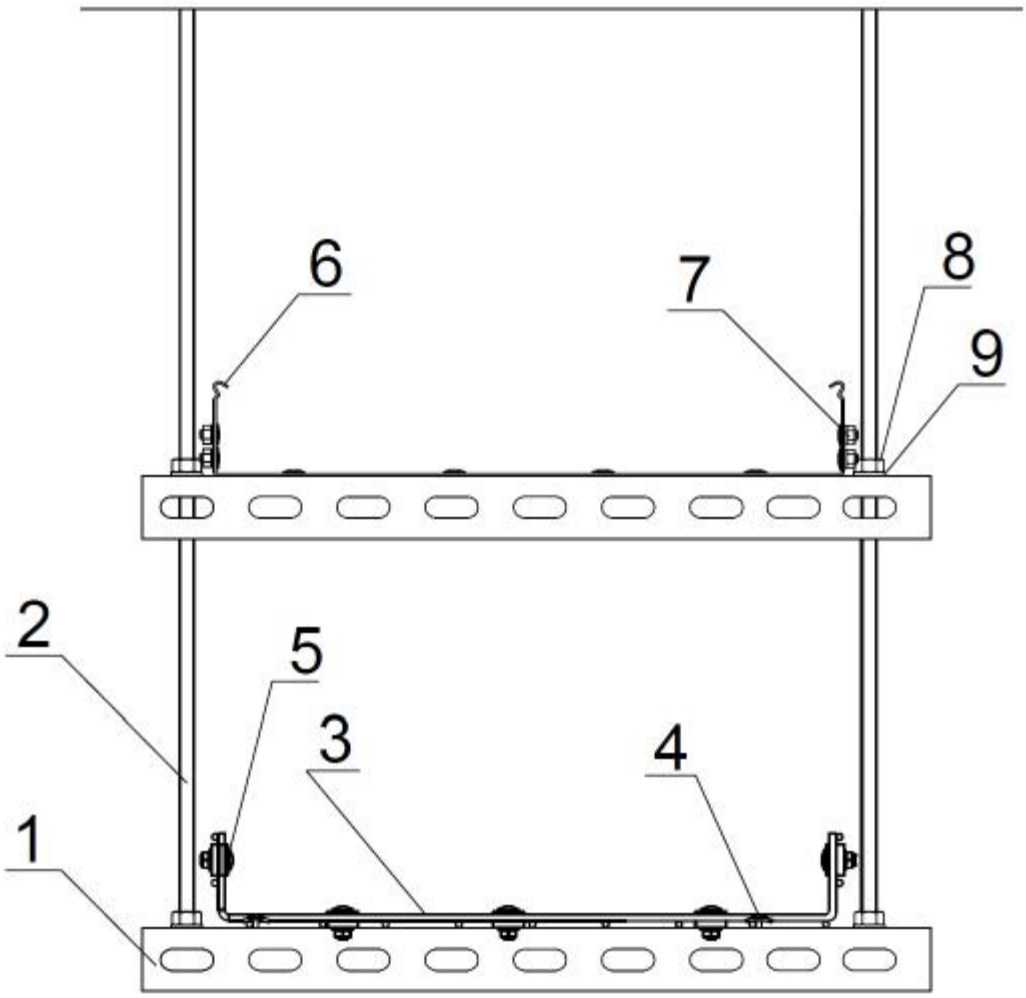

BAKS-NKT- 2013.07.11
9
10
11
12
NHXH 4x50E90Kladno
NHXH 4x10E90Kladno
NHXH 4x10E90Asneas
NHXH 4x1,5 E90Asneas
NHXH 4x10E30Asneas
NHXH 4x1,5 E30Asneas
NHXH 5x1,5E90Vrchlabi
NHXH 4x1,5E90Vrchlabi

DRAWINGS



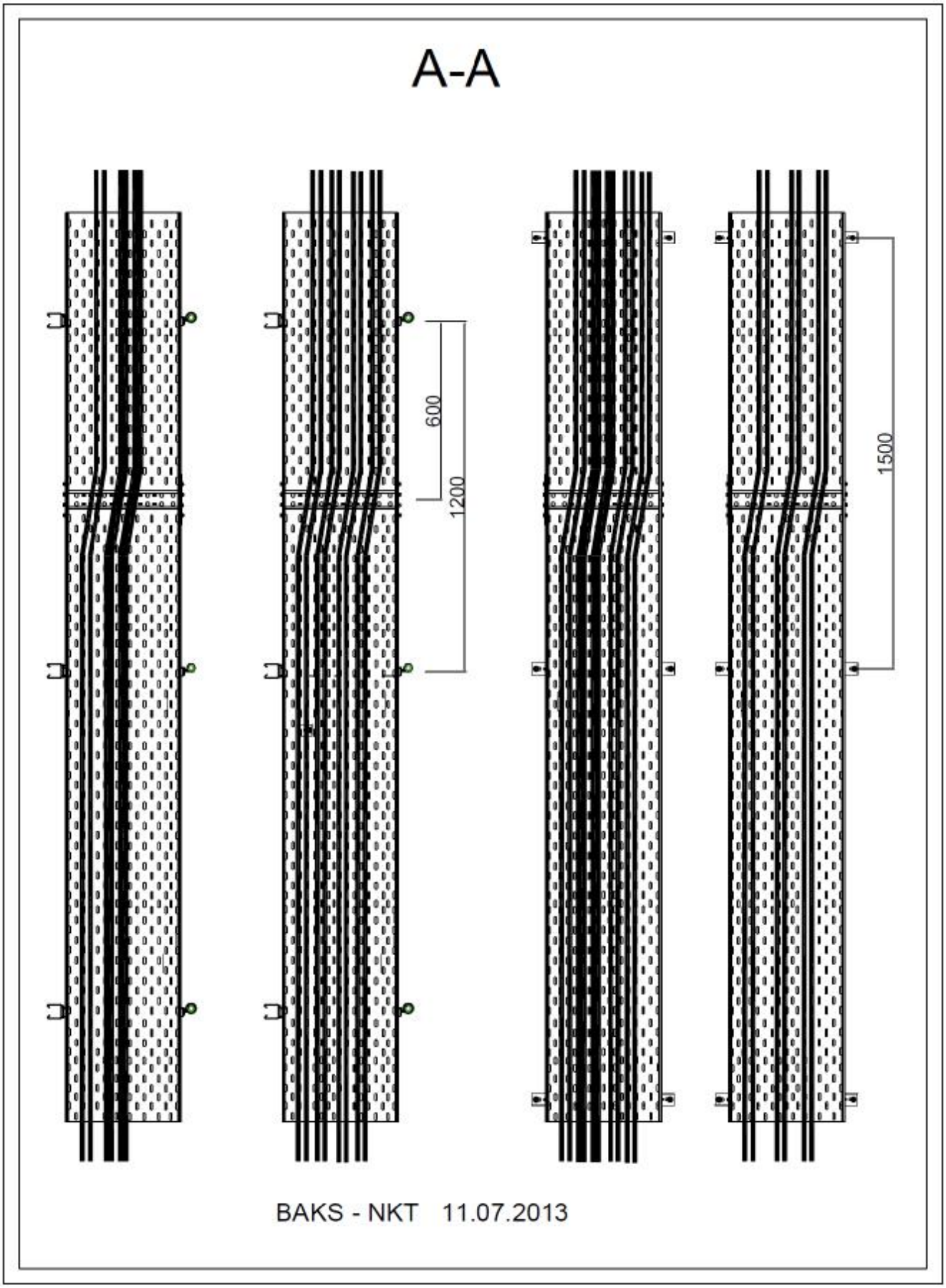
L.p.	Nazwa	Symbol	Szt.
14	Zacisk mocujący	ZMO	2
13	Śruba z łbem grzybkowym	SGNM6x12	8
12	Śruba z łbem grzybkowym	SGNM8x14	6
11	Śruba	SMM10x30	4
10	Podkładka	PP10	6
9	Nakrętka	NSM10	6
8	Śruba z łbem grzybkowym	SGNM8x14	4
7	Uchwyt	UPW/UPWO	2
6	Uchwyt sufitowy	USV/USOV	1
5	Pręt gwintowany	PGM10/...	1
4	Drabinka	DGOP400H60/3N	1
3	Korytko	KCP/KCOP300H60/3N	1
2	Wysięgnik	WMC/WMCO400	2
1	Wspornik sufitowy	WPCW/WPCO1000	1

DRAWINGS

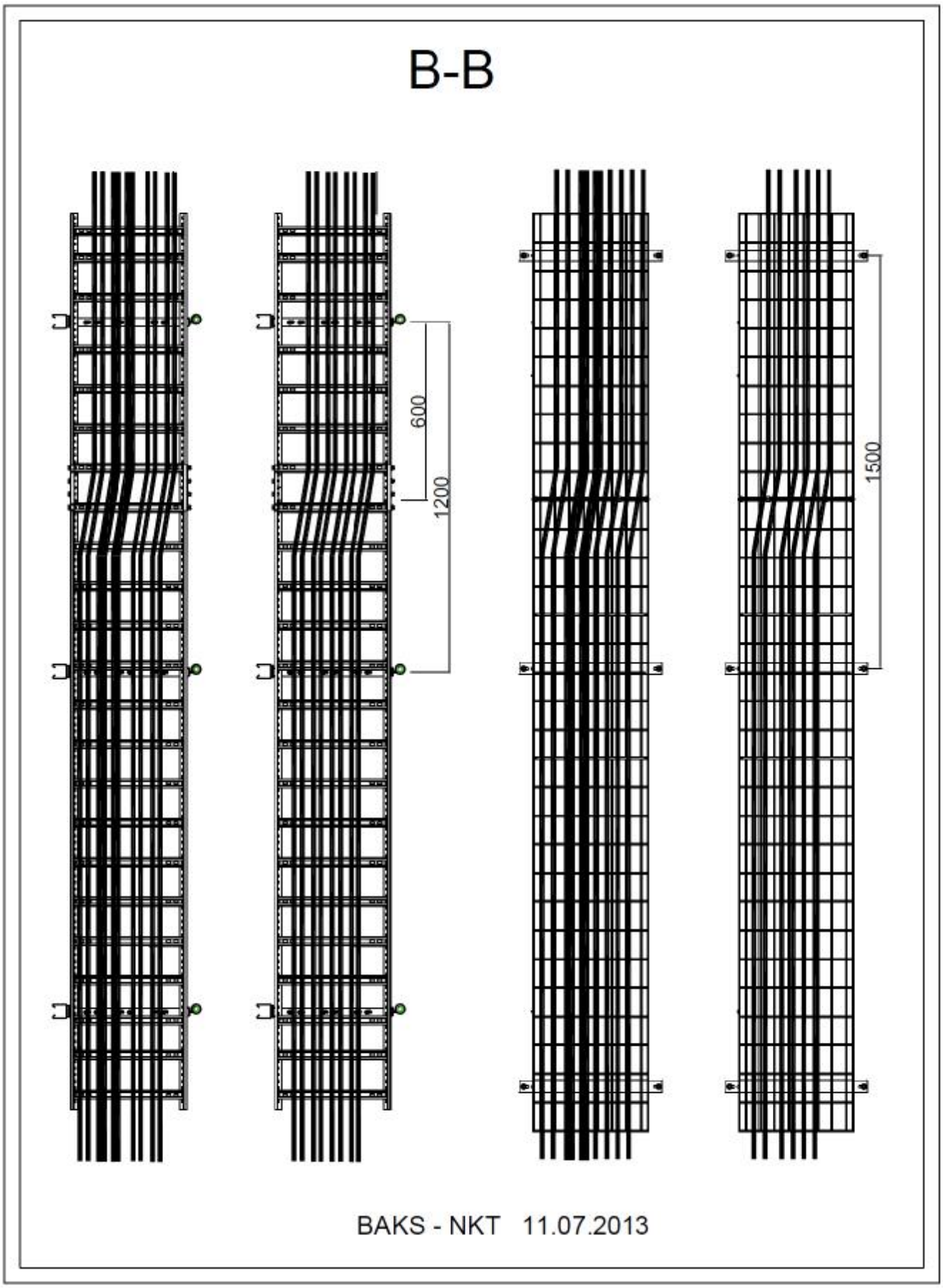


9	Podkładka	PW10	8
8	Nakrętka	NSM10	8
7	Śruba z łbem grzybkowym	SGKM6x12	7
6	Korytko kablowe	KGJ/KGOJ400H60/3	1
5	Uchwyt śrubowy	USSN/USSO	5
4	Zacisk śrubowy	ZS/ZSO	2
3	Korytko siatkowe	KDS/KDSO400H60/3	1
2	Pręt gwintowany	PGM10/...	2
1	Ceownik wzmocniony	CWP/CWOP40H40/05	2
L.p.	Nazwa	Symbol	Szt.

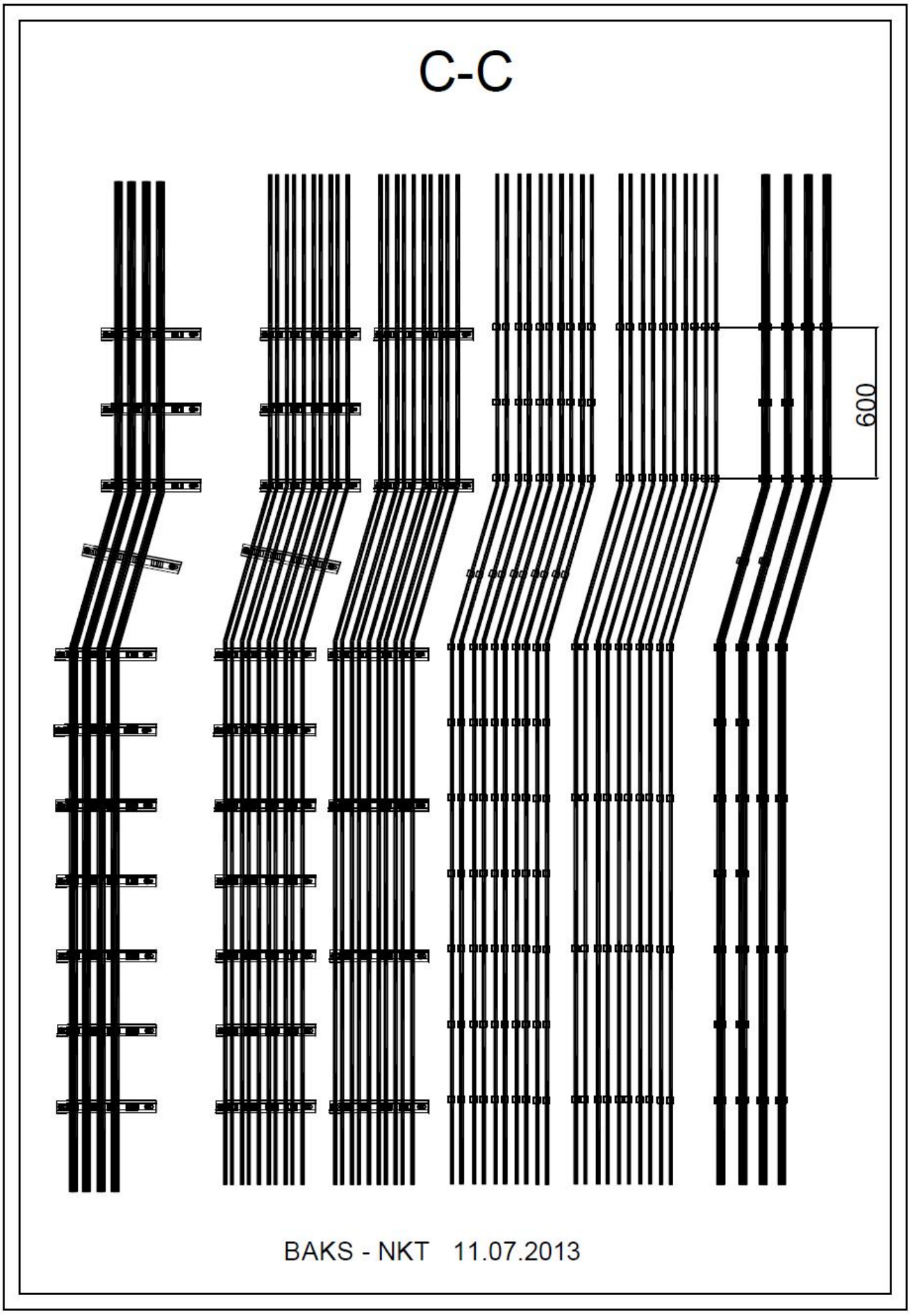
DRAWINGS



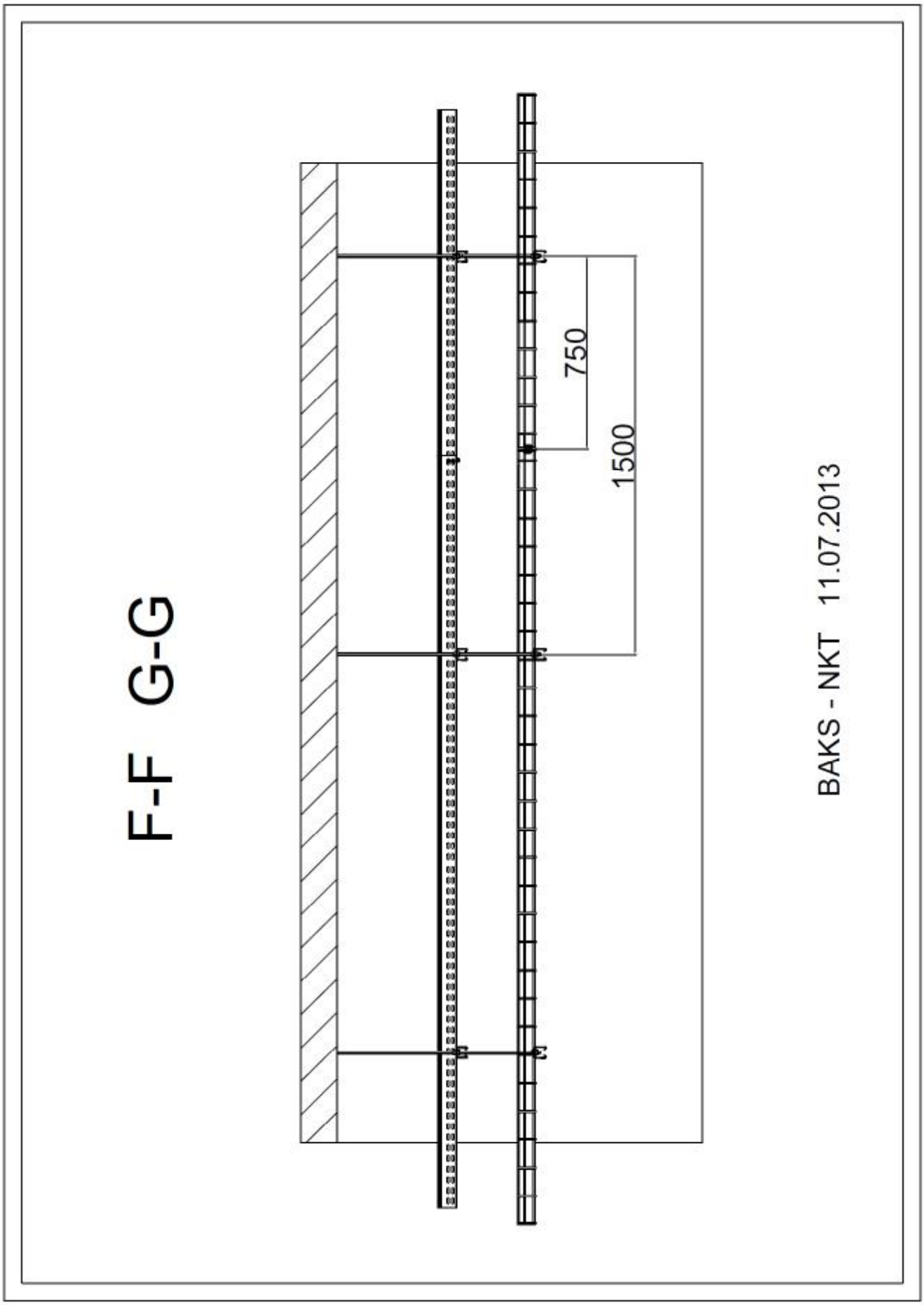
DRAWINGS



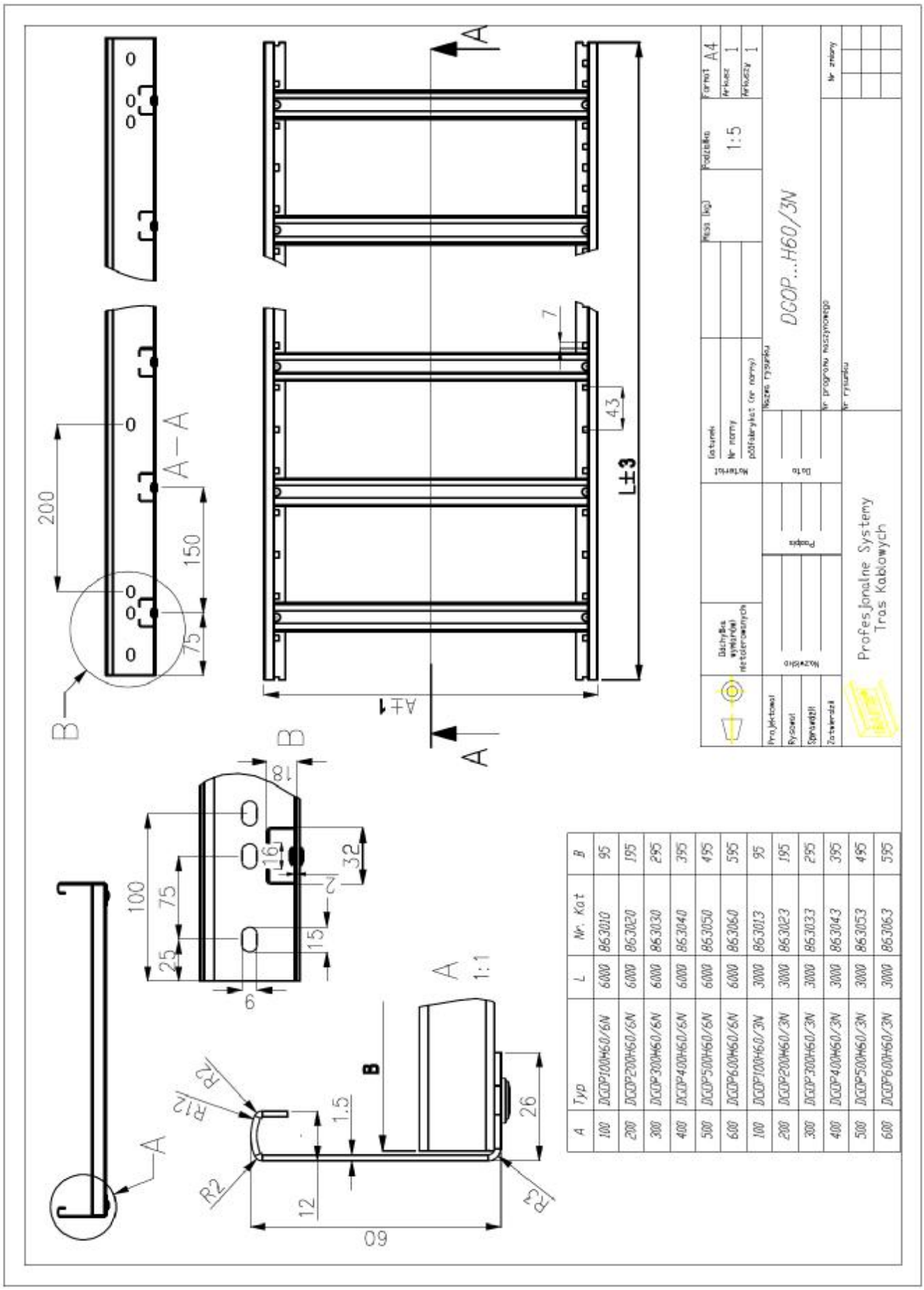
DRAWINGS



DRAWINGS

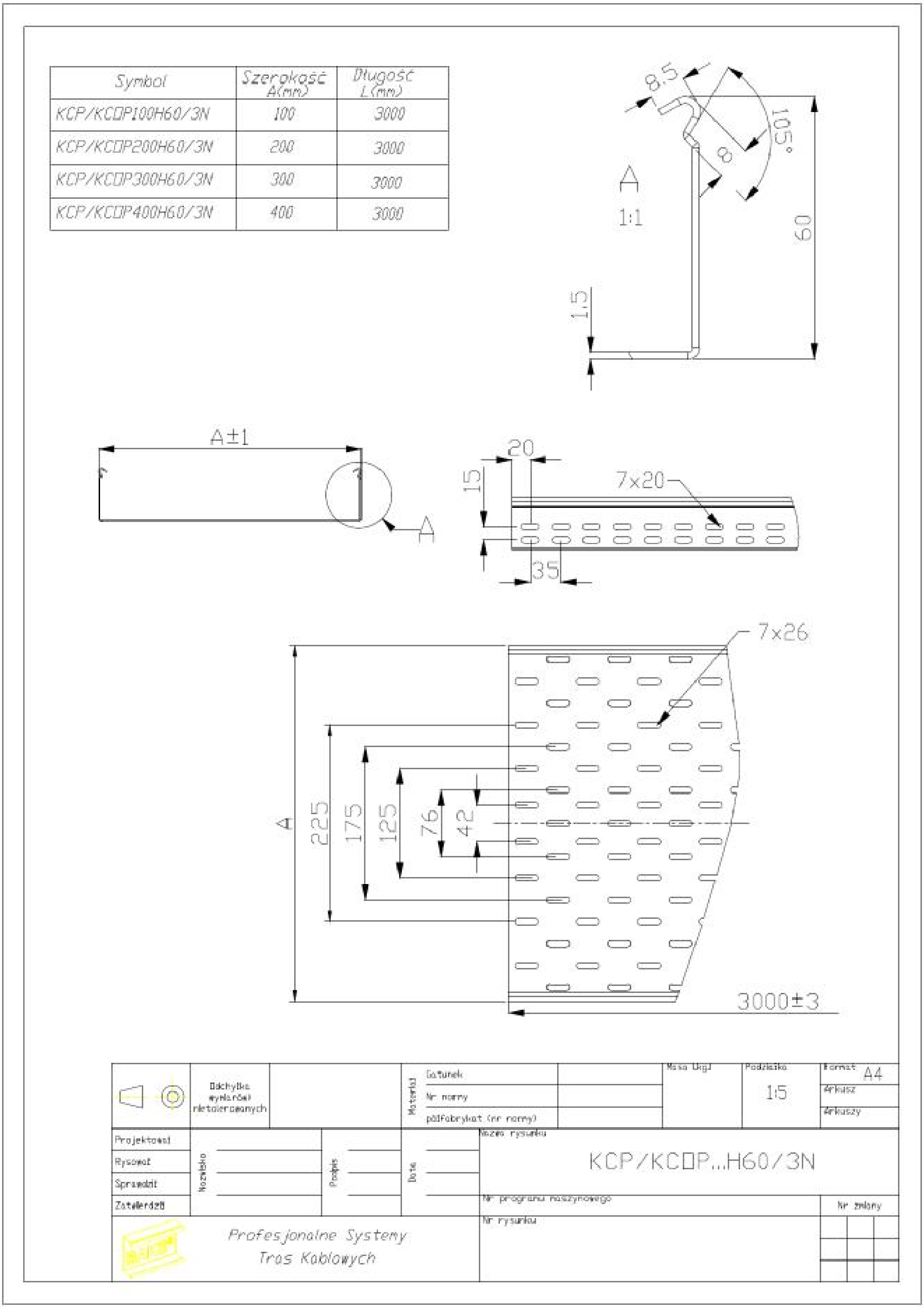


DRAWINGS

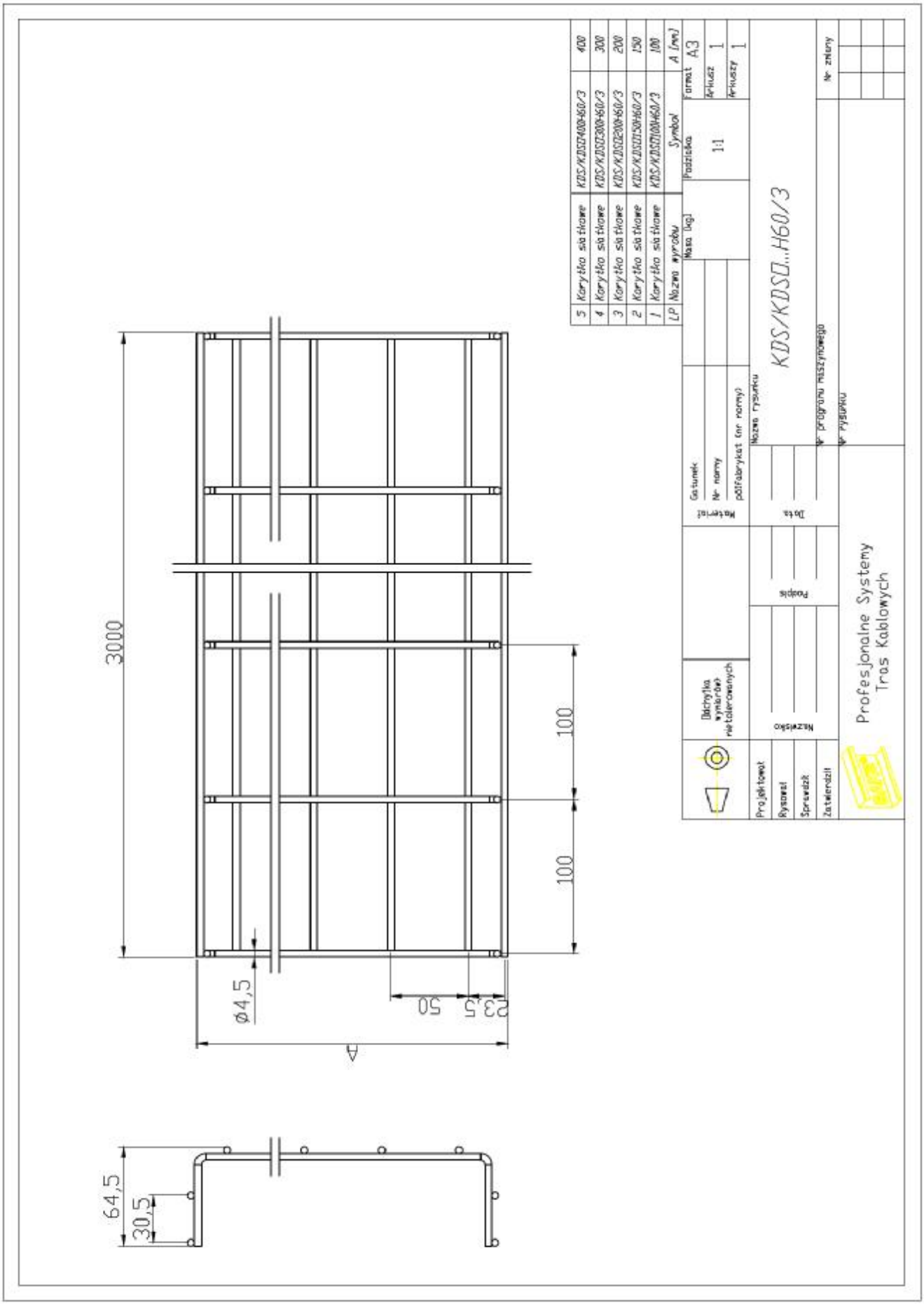


A	Typ	L	Nr. Kat	B
100	DCOP100H60/6N	6000	863010	95
200	DCOP200H60/6N	6000	863020	195
300	DCOP300H60/6N	6000	863030	295
400	DCOP400H60/6N	6000	863040	395
500	DCOP500H60/6N	6000	863050	495
600	DCOP600H60/6N	6000	863060	595
100	DCOP100H60/3N	3000	863013	95
200	DCOP200H60/3N	3000	863023	195
300	DCOP300H60/3N	3000	863033	295
400	DCOP400H60/3N	3000	863043	395
500	DCOP500H60/3N	3000	863053	495
600	DCOP600H60/3N	3000	863063	595

DRAWINGS

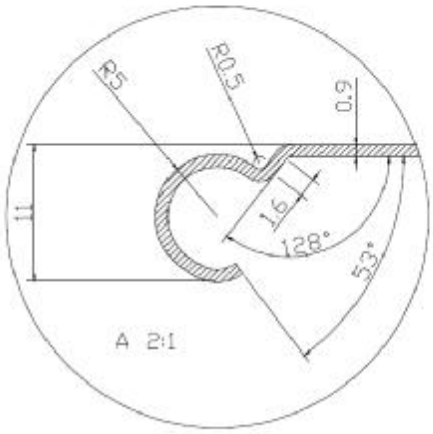

Symbol
Szerokość A(mm)
Długość L(mm)
KCP/KC□P100H60/3N 100 3000
KCP/KC□P200H60/3N 200 3000
KCP/KC□P300H60/3N 300 3000
KCP/KC□P400H60/3N 400 3000
8,5
105°
8
A
1:1
60
1,5
A±1
A
20
15
7x20
35
7x26
225
175
125
76
42
A
3000±3
Odchyłki wymiarów nietolerowanych
Materiał
Gatunek
Nr normy
półfabrykat (nr normy)
Masa [kg]
Podziałka
1:5
Format A4
Arkusz
Arkuszy
Projektował
Rysował
Sprawdził
Zatwierdził
Nazwisko
Podpis
Data
Nazwa rysunku
KCP/KC□P...H60/3N
Nr programu maszynowego
Nr zmiany
Nr rysunku
Profesjonalne Systemy Tras Kablowych

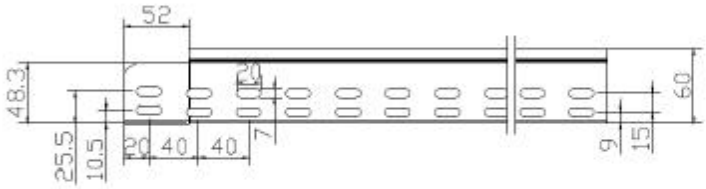
DRAWINGS

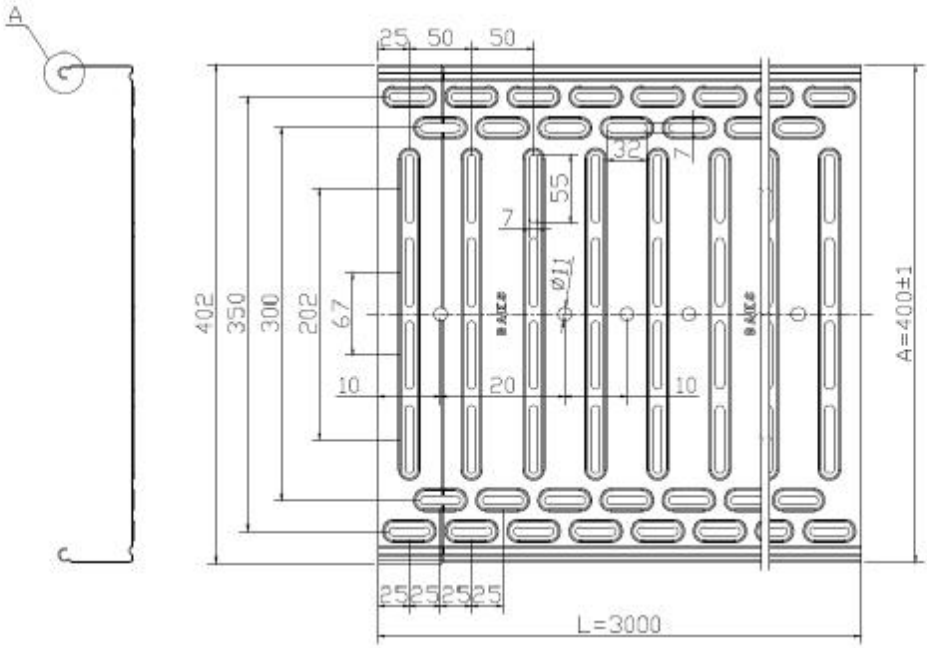

KDS/KDSD...H60/3
Profesjonalne Systemy Tras Kablowych
3000
100
100
ø4,5
50
25
23
64,5
30,5

DRAWINGS

Typ	Szerokość A(mm)	Długość L(mm)
KGJ/KGOJ100H60/3	100	3000
KGJ/KGOJ200H60/3	200	3000
KGJ/KGOJ300H60/3	300	3000
KGJ/KGOJ400H60/3	400	3000

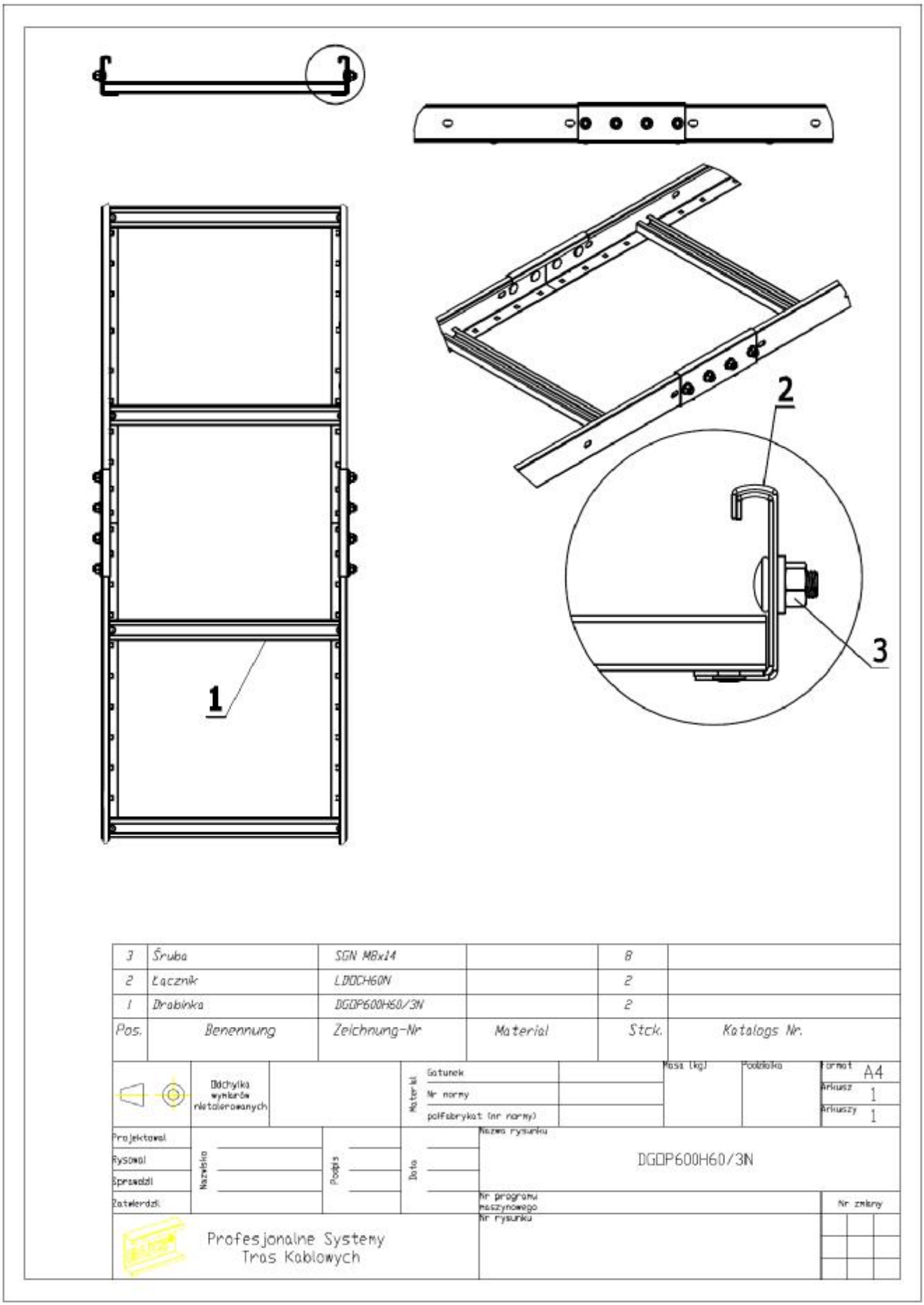






	Odchyłki wymiarów nietolerowanych		Materiał: Gatunek		Masa [kg]	Podziałka 1:5	Format A4
			Nr normy				Arkusz
			półfabrykat (nr normy)				Arkuszy
Projektował	Nazwisko	Podpis	Data	Nazwa rysunku: KGJ/KGOJ...H60/3			
Rysował							
Sprawdził							
Zatwierdził				Nr programu maszynowego			Nr zmiany
Profesjonalne Systemy Tras Kablowych				Nr rysunku			

DRAWINGS



Pos.	Benennung	Zeichnung-Nr	Material	Stck.	Katalogs Nr.
3	Śruba	SGN M8x14		8	
2	Łącznik	LDDCH60N		2	
1	Drabinka	DGDP600H60/3N		2	

Dachylka wymiarów nietolerowanych

Materiał: Gatunek; Nr normy; półfabrykat (nr normy)

Masa [kg] | Podziałka | Format A4 | Arkusz 1 | Arkuszy 1

Projektował | Rysował | Sprawdził | Zatwierdził

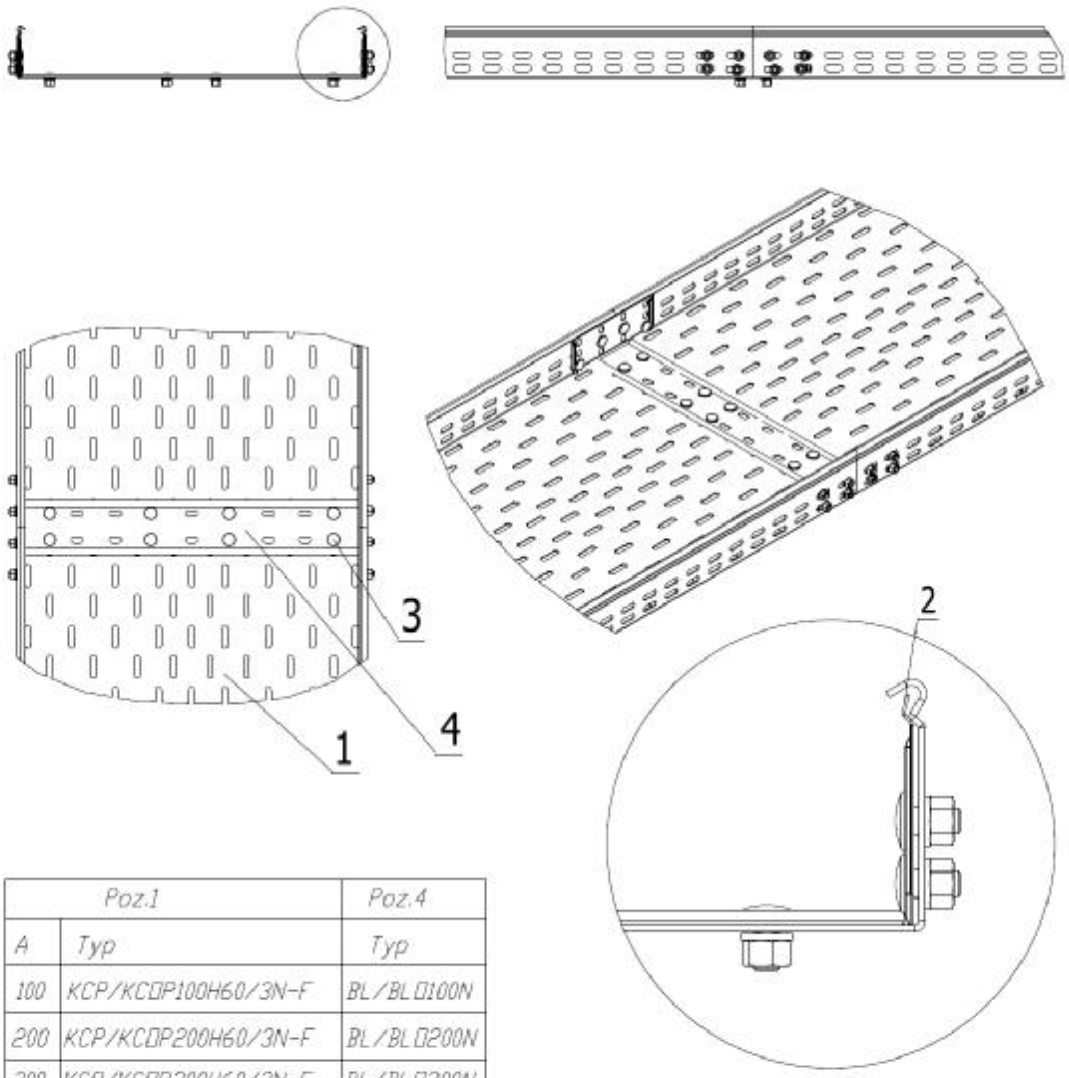
Nazwisko | Podpis | Data

Nazwa rysunku: DGDP600H60/3N

Nr programu maszynowego | Nr rysunku | Nr zmiany

Profesjonalne Systemy Tras Kablowych

DRAWINGS



Poz.1		Poz.4
A	Typ	Typ
100	KCP/KC□P100H60/3N-F	BL/BL□100N
200	KCP/KC□P200H60/3N-F	BL/BL□200N
300	KCP/KC□P300H60/3N-F	BL/BL□300N
400	KCP/KC□P400H60/3N-F	BL/BL□400N

Lp.	Nazwa	Symbol	Materiał	Szt.	Nr katalogowy
4	Blacha łącznikowa	BL/BL□400N		1	
3	Śruba z łbem grzybkowym	SGN M6x12		24	
2	Łącznik	LPP/LP□PH60N		2	
1	Koryto	KCP/KC□P400H60/3N		2	

Dachylka wymiarów nietolerowanych

Materiał: Gatunek; Nr normy; półfabrykat (nr normy)

Masa [kg] | Podziałka: 7:50 | Format: A4 | Arkusz: 1 | Arkuszy: 1

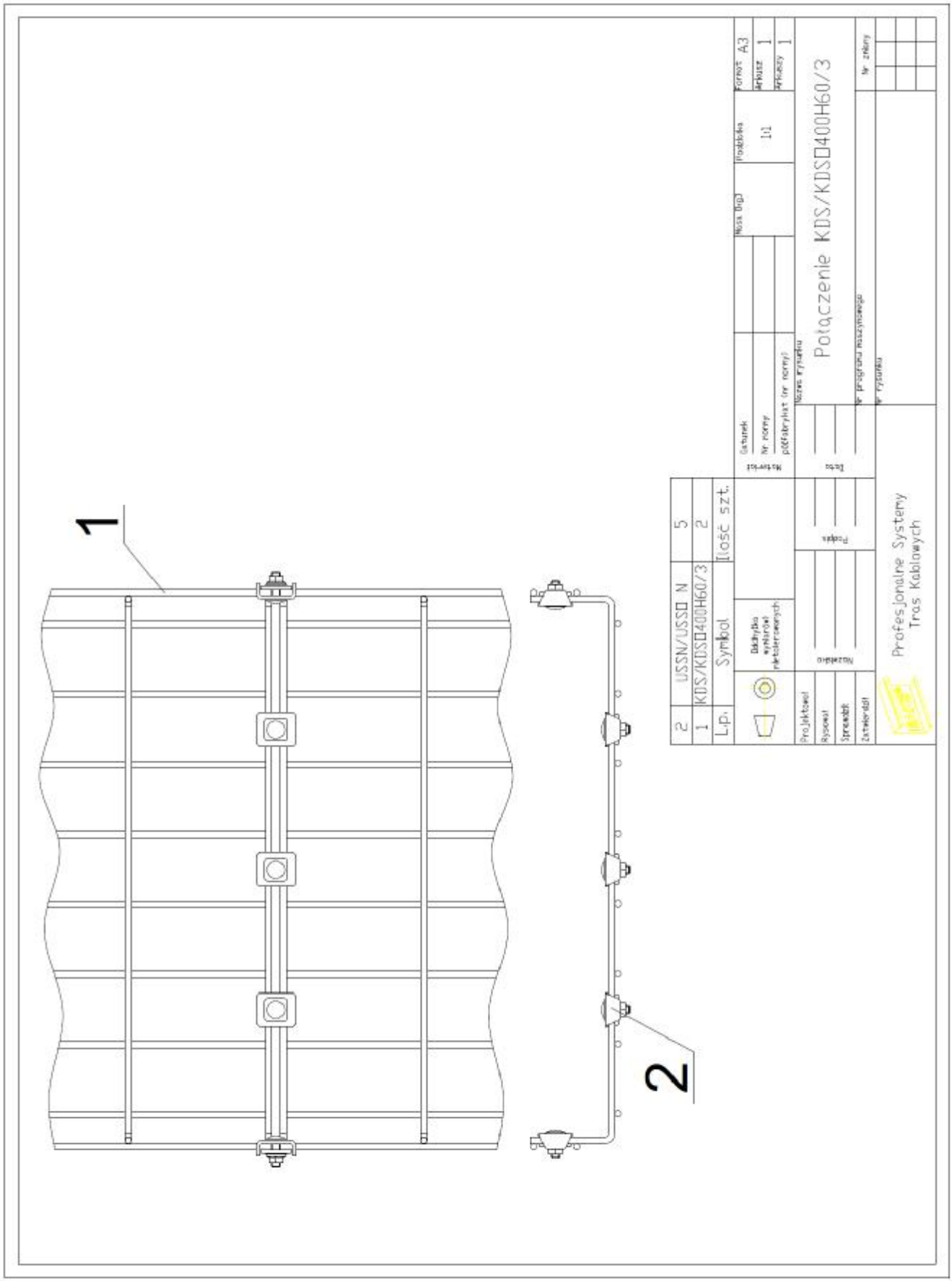
Projektował	Nazwisko: JGrochowski	Podpis	Data
Rysował			
Sprawdził			
Zatwierdził			

Nazwa rysunku: Połączenie KCP/KC□P400H60/3N

Nr programu maszynowego | Nr zeszytu | Nr rysunku

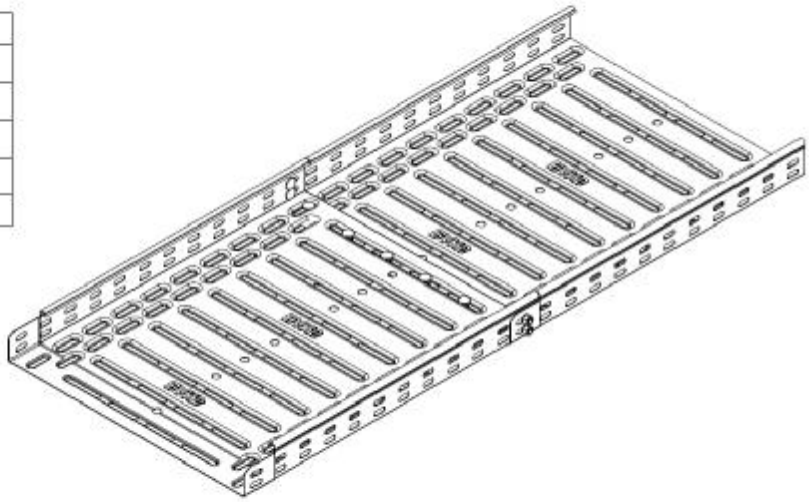
Profesjonalne Systemy Tras Kablowych

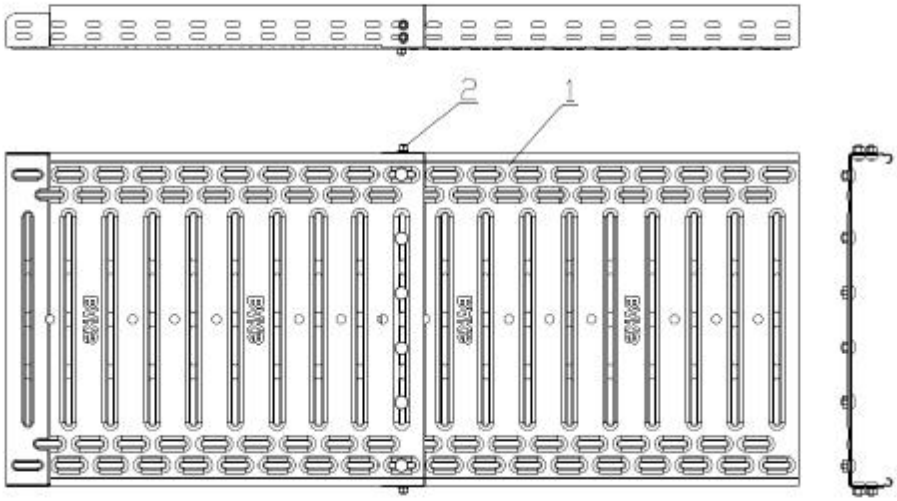
DRAWINGS


1
2
Połączenie KDS/KDS□400H60/3
Profesjonalne Systemy Tras Kablowych
Lp.
Symbol
Ilość szt.
2 USSN/USSO N 5
1 KDS/KDS□400H60/3 2

DRAWINGS

Poz.1		Poz.2
A	Typ	Ilość
100	KGJ/KGDJ100H60/3	6
200	KGJ/KGDJ200H60/3	7
300	KGJ/KGDJ300H60/3	8
400	KGJ/KGDJ400H60/3	10



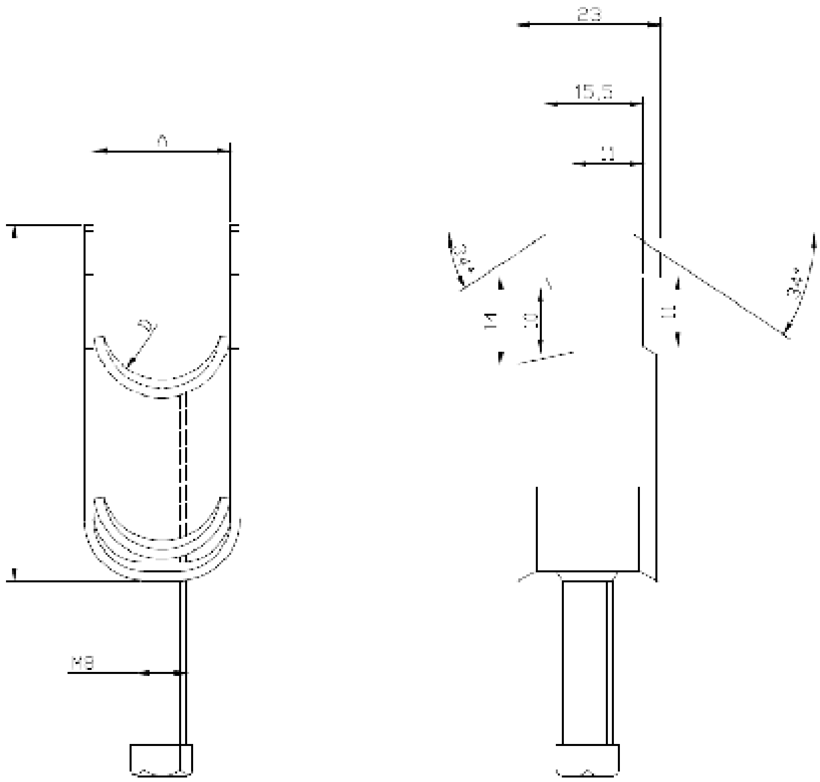


Lp.	Nazwa	Symbol	Materiał	Szt.	Nr katalogowy
2	Śruba z łbem grzybkowym	SGN M6x12		10	
1	Korytko	KGJ/KGDJ400H60/3		2	

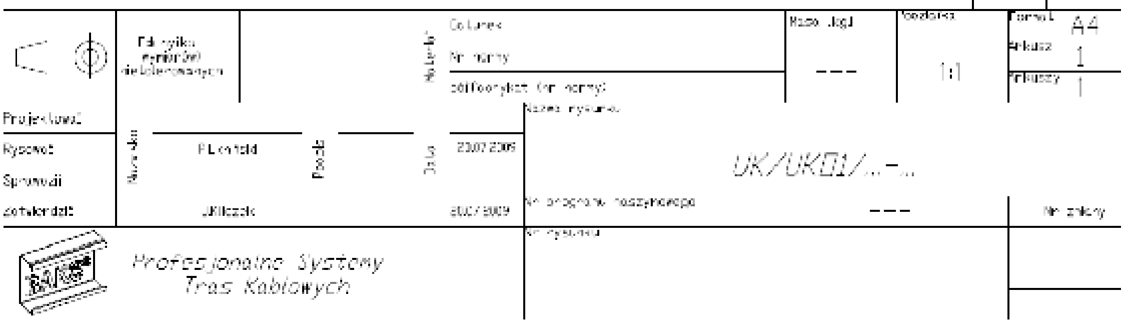
Połączenie KGJ/KGDJ400H60/3

Profesjonalne Systemy Tras Kablowych

DRAWINGS

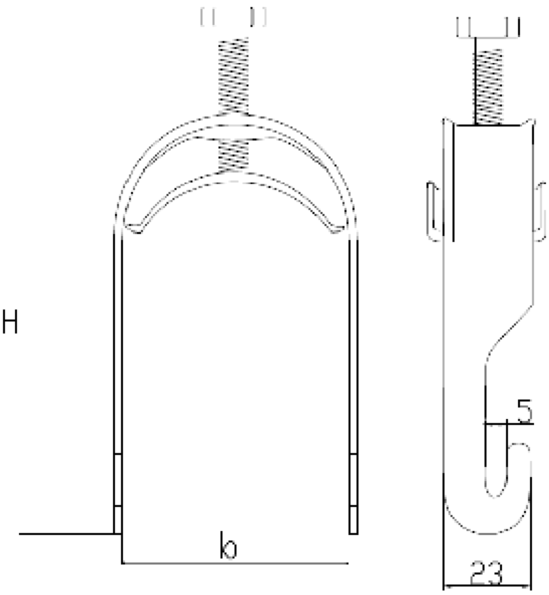


SYMBOL	A [mm]	[illegible] [mm]	D [mm]
UK/UKL1/64 70	72	116	70
UK/UKL1/58-64	66	103	64
UK/UKL1/46 52	54	97	52
UK/UKL1/40 46	48	86	46
UK/UKL1/34 40	42	78	40
UK/UKL1/28 34	36	71	34
UK/UKL1/22 28	30	61	28
UK/UKL1/16 22	24	57	22



DRAWINGS

L.p.	Symbol	a	H	Śruba
1.	UKZ/UKZU1/16-22	22mm	61,5mm	M8x40
2.	UKZ/UKZU1/22-28	28mm	68mm	M8x40
3.	UKZ/UKZU1/28-34	34mm	76mm	M8x40
4.	UKZ/UKZU1/34-40	40mm	84,5mm	M8x40
5.	UKZ/UKZU1/40-46	46mm	91,5mm	M8x50
6.	UKZ/UKZU1/46-52	52mm	102mm	M8x50
7.	UKZ/UKZU1/58-64	64mm	111mm	M8x50



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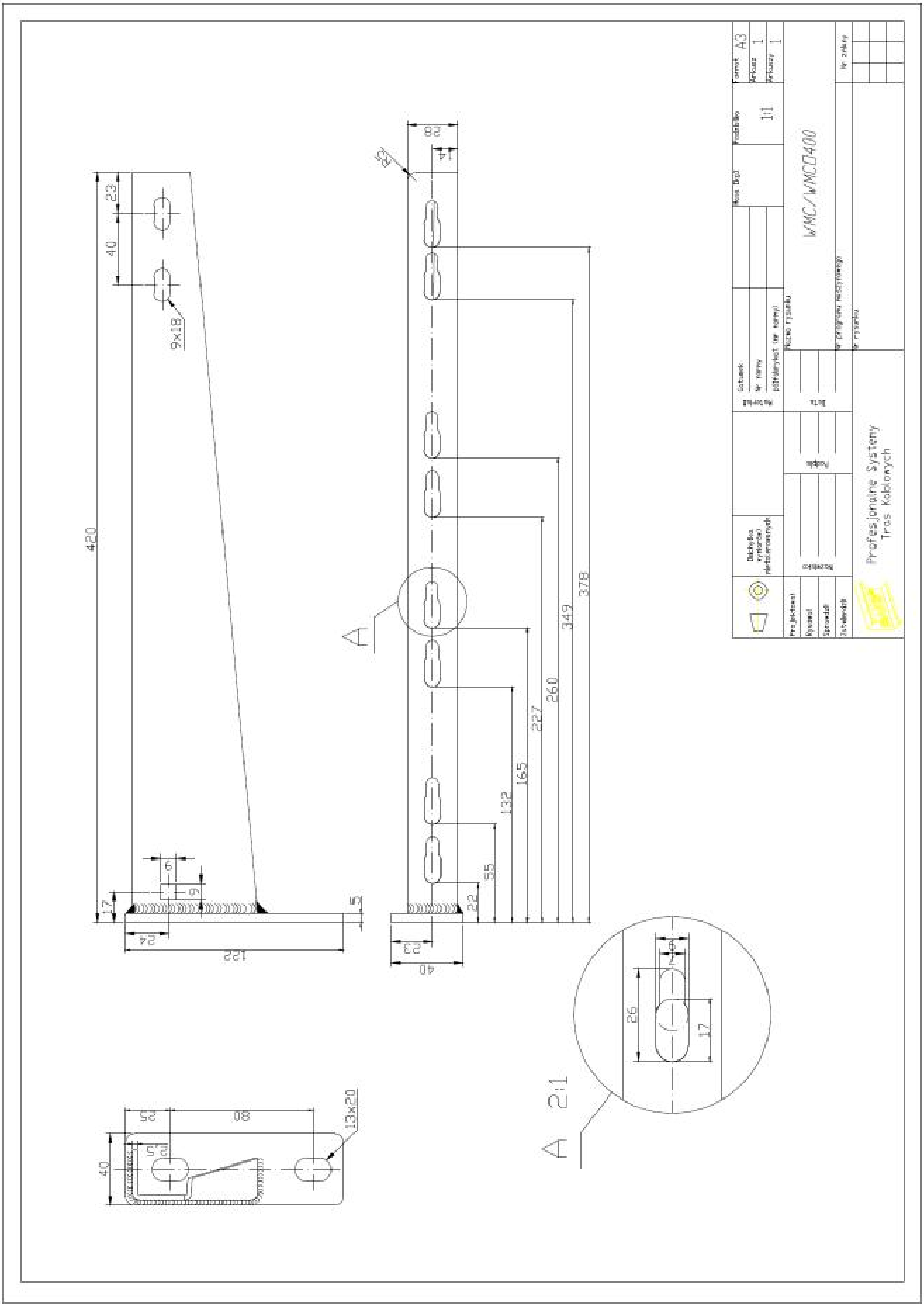
UKZ/UKZU1/...

DRAWINGS


420
23
40
9x18
17
24
122
6
9
5
28
14
R5
378
349
260
227
165
132
55
22
23
40
A
A 2:1
26
17
40
25
80
13x20
WMC/WMCO400
1:1
A3
Profesjonalne Systemy
Tras Kablowych

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 0205:2012. 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:

Ing. Štefan Rástocký
leader of the testing laboratory

Prepared by:

Bc. Dávid Šubert
technician of the testing laboratory

8. NORMATIVE REFERENCES

EN 1363-1: 2012	Fire resistance tests. Part 1: General requirements
STN 92 0205:2012	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