



**TECHNOKABEL®**

Connecting since 1982

**FIRE RESISTANT  
AND HALOGEN FREE CABLES**



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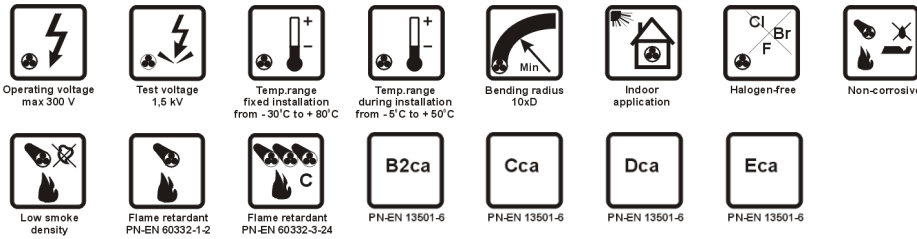
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## TECHNOFLAME HTKSH



### APPLICATIONS

HTKSH halogen free cables are intended for interconnections between switching and transmission equipment, for analogue or digital data transmission in industrial electronics and control applications all in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables are certified by **Scientific and Research Centre for Fire Protection - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB)** at Józefów.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- bare annealed copper single wire round conductors,
- halogen free compound insulation - colours in accordance with PN-92/T-90321 standard,
- insulated conductors twisted into pairs or quads,
- pairs laid-up into a cable core,
- cable core wrapped in a polyester tape,
- red cable sheath made of halogen free compound type HM2 according to EN 50290-2-27 and VDE 0250 214 standard.

### CHARACTERISTICS

Cable type		HTKSH							
Conductor diameter	mm	0.5	0.6	0.8	1.0	1.4	1.5	1.8	2.3
DC loop resistance at 20°C, maximum	Ω/km	195.6	135.8	75.0	48.0	24.5	24.0	14.9	9.3
Mutual capacitance at 1 kHz	maximum	nF/km	120	120	120	120	120	120	120
	average		60	60	60	70	70	70	70



Operating voltage U <sub>o</sub> /U	150 V
Operating voltage peak value	max. 300 V
Voltage test	1500 V rms
Insulation resistance, minimum	500 MΩ/km
Inductance, approximate	0.7 mH/km
<b>Operating temperature range</b>	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 50°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80% for s1a

Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	CNBOP-PIB- KOT-2019/0111-3701 edition 3, WT-TK-4
CPR – class reaction on fire (according to PN-EN 13501-6)	B2ca-s1a,d0,a1; Cca-s1a,d0,a1; Dca-s1a,d0,a1 ; Eca
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper	Cable
				index	weight
	mm	mm		kg/km	kg/km
0019 015	1 x 2 x 0,5	3.1	Eca	3.8	14
0019 009	2 x 2 x 0,5	4.3	Eca	7.5	23
0019 010	3 x 2 x 0,5	4.5	Eca	11.3	28
0019 012	4 x 2 x 0,5	5.1	Cca-s1a,d0,a1	15.1	44
0019 019	3 x 2 x 0,6	5.0	Cca-s1a,d0,a1	16.0	36
0019 020	4 x 2 x 0,6	5.3	Cca-s1a,d0,a1	21.7	42
0019 021	5 x 2 x 0,6	5.8	Cca-s1a,d0,a1	27.1	60
0019 022	6 x 2 x 0,6	6.3	Eca	32.6	59
0019 025	7 x 2 x 0,6	6.3	Eca	38.0	65
0019 023	8 x 2 x 0,6	6.7	Eca	43.4	73
0019 024	10 x 2 x 0,6	7.8	Eca	54.3	92
0019 008	1 x 2 x 0,8	4.0	Dca-s1a,d0,a1	9.7	24
0019 006	1 x 4 x 0,8	4.6	Eca	19.3	38
0019 002	2 x 2 x 0,8	5.9	B2ca-s1a,d0,a1	19.3	43
0019 005	3 x 2 x 0,8	6.2	B2ca-s1a,d0,a1	29.0	55
0019 007	4 x 2 x 0,8	6.8	Cca-s1a,d0,a1	38.6	69
0019 028	5 x 2 x 0,8	7.7	Cca-s1a,d0,a1	48.3	87
0019 029	6 x 2 x 0,8	8.4	Cca-s1a,d0,a1	57.9	102
0019 030	7 x 2 x 0,8	8.4	Cca-s1a,d0,a1	67.6	114
0019 031	8 x 2 x 0,8	8.9	Cca-s1a,d0,a1	77.2	128

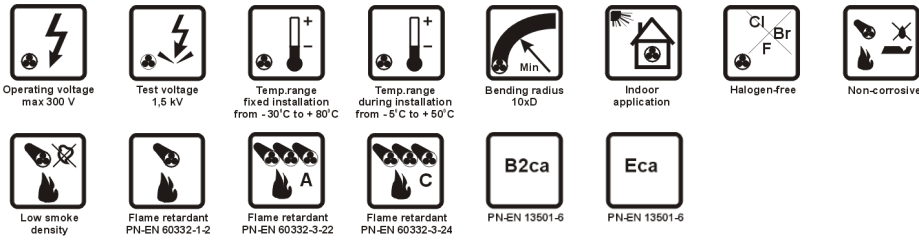
Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper	Cable
				index	weight
	mm	mm		kg/km	kg/km
0019 013	10 x 2 x 0,8	10.1	Cca-s1a,d0,a1	96.5	156
0019 001	1 x 2 x 1,0	4.3	B2ca-s1a,d0,a1	15.1	30
0019 026	1 x 4 x 1,0	5.1	B2ca-s1a,d0,a1	30.2	51
0019 003	2 x 2 x 1,0	6.5	B2ca-s1a,d0,a1	30.2	55
0019 032	3 x 2 x 1,0	6.9	B2ca-s1a,d0,a1	45.2	74
0019 033	4 x 2 x 1,0	7.8	B2ca-s1a,d0,a1	60.3	97
0019 034	5 x 2 x 1,0	8.6	Cca-s1a,d0,a1	75.4	117
0019 035	6 x 2 x 1,0	9.4	Cca-s1a,d0,a1	90.5	138
0019 036	7 x 2 x 1,0	9.4	Cca-s1a,d0,a1	105.6	155
0019 037	8 x 2 x 1,0	10.0	Cca-s1a,d0,a1	120.6	175
0019 038	10 x 2 x 1,0	11.6	Cca-s1a,d0,a1	150.8	220
0019 039	12 x 2 x 1,0	12.1	Cca-s1a,d0,a1	181.0	257
0019 040	14 x 2 x 1,0	12.9	Cca-s1a,d0,a1	211.1	294
0019 011	1 x 2 x 1,4	5.1	B2ca-s1a,d0,a1	29.6	46
0019 041	1 x 4 x 1,4	5.9	B2ca-s1a,d0,a1	59.1	80
0019 042	2 x 2 x 1,4	8.0	B2ca-s1a,d0,a1	29.1	91
0019 043	3 x 2 x 1,4	8.5	B2ca-s1a,d0,a1	88.7	159
0019 044	4 x 2 x 1,4	9.4	B2ca-s1a,d0,a1	118.2	158
0019 045	5 x 2 x 1,4	10.3	B2ca-s1a,d0,a1	147.8	192
0019 004	1 x 2 x 1,5	5.7	B2ca-s1a,d0,a1	33.9	53

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm	mm		kg/km	kg/km
0019 046	2 x 2 x 1,5	8.9	B2ca-s1a,d0,a1	67.9	105
0019 047	3 x 2 x 1,5	9.5	B2ca-s1a,d0,a1	101.8	143
0019 048	4 x 2 x 1,5	10.5	B2ca-s1a,d0,a1	135.7	182
0019 049	5 x 2 x 1,5	11.7	B2ca-s1a,d0,a1	169.6	227
0019 050	6 x 2 x 1,5	12.8	B2ca-s1a,d0,a1	203.6	268
0019 051	7 x 2 x 1,5	12.8	B2ca-s1a,d0,a1	237.5	304
0019 052	8 x 2 x 1,5	13.7	B2ca-s1a,d0,a1	271.4	344
0019 053	10 x 2 x 1,5	15.9	B2ca-s1a,d0,a1	339.3	432
0019 054	12 x 2 x 1,5	16.6	Cca-s1a,d0,a1	407.2	507
0019 055	14 x 2 x 1,5	17.8	Cca-s1a,d0,a1	475.0	584
0019 056	20 x 2 x 1,5	21.1	Cca-s1a,d0,a1	678.6	825
0019 057	25 x 2 x 1,5	23.8	Cca-s1a,d0,a1	848.2	1039

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm	mm		kg/km	kg/km
0019 058	1 x 2 x 1,8	6.6	Eca	48.9	75
0019 060	1 x 4 x 1,8	7.3	B2ca-s1a,d0,a1	97.7	124
0019 059	2 x 2 x 1,8	10.0	Eca	97.7	140
0019 061	3 x 2 x 1,8	10.8	B2ca-s1a,d0,a1	146.6	198
0019 062	4 x 2 x 1,8	11.9	B2ca-s1a,d0,a1	195.4	254
0019 063	5 x 2 x 1,8	13.2	B2ca-s1a,d0,a1	244.3	311
0019 064	1 x 2 x 2,3	7.8	Eca	79.8	109
0019 065	1 x 4 x 2,3	9.1	B2ca-s1a,d0,a1	159.5	195
0019 066	2 x 2 x 2,3	12.4	Eca	159.5	218
0019 067	3 x 2 x 2,3	13.2	B2ca-s1a,d0,a1	239.3	304
0019 068	4 x 2 x 2,3	14.9	B2ca-s1a,d0,a1	319.1	400
0019 069	5 x 2 x 2,3	16.4	B2ca-s1a,d0,a1	398.9	490

TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## TECHNOFLAME HTKSHekw



### APPLICATIONS

HTKSHekw halogen free cables are intended for interconnections between switching and transmission equipment, for analogue or digital data transmission in industrial electronics and control applications all in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpowazarowej - PIB) at Józefów.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

Cable circuits are protected by an overall electrostatic shield against external electric field interferences.

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- bare annealed copper single wire round conductors,
- halogen free compound insulation - colours in accordance with PN-92/T-90321 standard,
- insulated conductors twisted into pairs or quads,
- pairs laid-up into a cable core,
- cable core wrapped in a polyester tape,
- overall electrostatic shield incorporating a plastic laminated metal foil and a tinned copper drain wire,
- red cable sheath made of halogen free compound type HM2 according to EN 50290-2-27 and VDE 0250 214 standard.

### CHARACTERISTICS

Cable type		HTKSHekw					
Conductor diameter	mm	0.5	0.6	0.8	1.0	1.4	1.5
DC loop resistance at 20°C, maximum	Ω/km	195.6	135.8	75.0	48.0	24.5	24.0
Mutual capacitance at 1 kHz	maximum	200	200	200	200	200	200
	average	90	90	90	130	150	150



Operating voltage U <sub>o</sub> /U	150 V
Operating voltage peak value	max. 300 V
Voltage test	1500 V rms
Insulation resistance, minimum	500 MΩ/km
Inductance, approximate	0.7 mH/km
<b>Operating temperature range</b>	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 50°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80% for s1a

Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-22, IEC 60332-3-22, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	CNBOP-PIB- KOT-2019/0111-3701 edition 3, WT-TK-4
CPR – class reaction on fire (according to PN-EN 13501-6)	B2ca-s1a,d0,a1; Eca
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
0533 034	1 x 2 x 0,5	3,3	Eca	5,0	17
0533 008	2 x 2 x 0,5	4,5	Eca	8,7	26
0533 009	3 x 2 x 0,5	4,7	Eca	12,5	32
0533 029	4 x 2 x 0,5	5,1	Eca	16,3	38
0533 020	5 x 2 x 0,5	5,6	B2ca-s1a,d0,a1	20,1	44
0533 037	6 x 2 x 0,5	6,0	Eca	23,8	50
0533 038	7 x 2 x 0,5	6	Eca	27,6	55
0533 039	8 x 2 x 0,5	6,4	Eca	31,4	61
0533 040	10 x 2 x 0,5	7,2	Eca	38,9	74
0533 041	1 x 2 x 0,6	3,5	Eca	6,6	19
0533 021	2 x 2 x 0,6	5,1	B2ca-s1a,d0,a1	12,1	34
0533 022	3 x 2 x 0,6	5,1	B2ca-s1a,d0,a1	17,5	38
0533 023	4 x 2 x 0,6	5,5	B2ca-s1a,d0,a1	22,9	46
0533 025	5 x 2 x 0,6	6,0	B2ca-s1a,d0,a1	28,3	54
0533 024	6 x 2 x 0,6	6,5	B2ca-s1a,d0,a1	33,8	62
0533 030	7 x 2 x 0,6	6,5	Eca	39,2	68
0533 026	8 x 2 x 0,6	6,9	Eca	44,6	77
0533 027	10 x 2 x 0,6	8,0	Eca	55,5	97
0533 028	12 x 2 x 0,6	8,3	Eca	66,4	111
0533 002	1 x 2 x 0,8	4,2	B2ca-s1a,d0,a1	10,9	27

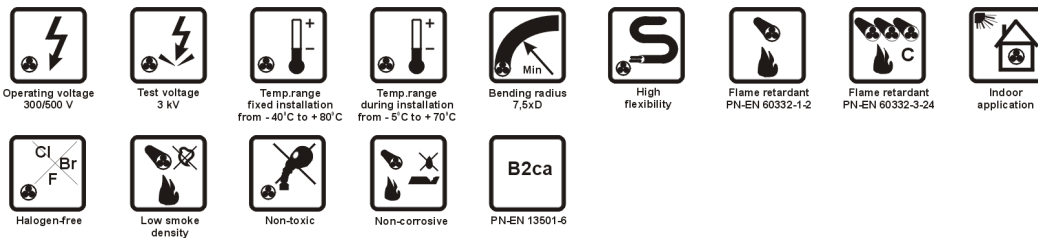
Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
0533 003	1 x 4 x 0,8	5,1	B2ca-s1a,d0,a1	20,5	45
0533 010	2 x 2 x 0,8	6,1	B2ca-s1a,d0,a1	20,5	46
0533 004	3 x 2 x 0,8	6,4	B2ca-s1a,d0,a1	30,2	59
0533 006	4 x 2 x 0,8	7,0	B2ca-s1a,d0,a1	39,8	74
0533 005	5 x 2 x 0,8	7,9	B2ca-s1a,d0,a1	49,5	92
0533 017	6 x 2 x 0,8	8,6	B2ca-s1a,d0,a1	59,1	107
0533 019	7 x 2 x 0,8	8,6	B2ca-s1a,d0,a1	68,8	119
0533 013	8 x 2 x 0,8	9,1	B2ca-s1a,d0,a1	78,4	133
0533 012	10 x 2 x 0,8	10,3	B2ca-s1a,d0,a1	97,7	162
0533 042	12 x 2 x 0,8	10,4	Eca	107,4	174
0533 018	14 x 2 x 0,8	11,8	Eca	136,3	220
0533 035	20 x 2 x 0,8	17,4	Eca	194,2	441
0533 001	1 x 2 x 1,0	5,1	B2ca-s1a,d0,a1	16,3	40
0533 031	1 x 4 x 1,0	5,2	B2ca-s1a,d0,a1	31,4	53
0533 007	2 x 2 x 1,0	6,7	B2ca-s1a,d0,a1	31,4	60
0533 043	3 x 2 x 1,0	7,1	B2ca-s1a,d0,a1	46,4	78
0533 014	4 x 2 x 1,0	8,0	B2ca-s1a,d0,a1	61,5	102
0533 044	5 x 2 x 1,0	8,8	B2ca-s1a,d0,a1	76,6	123
0533 045	6 x 2 x 1,0	9,6	B2ca-s1a,d0,a1	91,7	143
0533 046	7 x 2 x 1,0	9,6	B2ca-s1a,d0,a1	106,8	161

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm	mm		kg/km	kg/km
0533 047	8 x 2 x 1,0	10,2	B2ca-s1a,d0,a1	121,8	181
0533 015	10 x 2 x 1,0	11,8	B2ca-s1a,d0,a1	152,0	227
0533 048	12 x 2 x 1,0	12,3	B2ca-s1a,d0,a1	182,2	263
0533 049	14 x 2 x 1,0	13,1	Eca	212,3	302
0533 011	1 x 2 x 1,4	5,3	B2ca-s1a,d0,a1	30,8	50
0533 032	1 x 4 x 1,4	6,1	B2ca-s1a,d0,a1	60,3	83
0533 016	1 x 2 x 1,5	5,9	B2ca-s1a,d0,a1	35,1	57
0533 051	2 x 2 x 1,5	9,1	B2ca-s1a,d0,a1	69,1	110
0533 052	3 x 2 x 1,5	9,7	B2ca-s1a,d0,a1	103,0	149
0533 050	4 x 2 x 1,5	10,9	B2ca-s1a,d0,a1	136,9	194

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm	mm		kg/km	kg/km
0533 053	5 x 2 x 1,5	11,9	B2ca-s1a,d0,a1	170,9	235
0533 054	6 x 2 x 1,5	13,0	B2ca-s1a,d0,a1	204,8	276
0533 055	7 x 2 x 1,5	13,0	B2ca-s1a,d0,a1	238,7	312
0533 056	8 x 2 x 1,5	14,1	B2ca-s1a,d0,a1	272,6	359
0533 057	10 x 2 x 1,5	16,1	B2ca-s1a,d0,a1	340,5	442
0533 058	12 x 2 x 1,5	16,8	B2ca-s1a,d0,a1	408,4	517
0533 059	14 x 2 x 1,5	18,2	B2ca-s1a,d0,a1	476,2	604
0533 060	20 x 2 x 1,5	21,3	B2ca-s1a,d0,a1	679,8	837
0533 061	25 x 2 x 1,5	24,0	B2ca-s1a,d0,a1	849,4	1053

TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

**HSLH-JZ 300/500 V, HSLH-OZ 300/500 V,  
HSLH-JB 300/500 V, HSLH-OB 300/500 V**



**APPLICATIONS**

HSLH-JZ 300/500 V, HSLH-OZ 300/500 V, HSLH-JB 300/500 V and HSLH-OB 300/500 V are halogen free, flexible cables designed for wet or dry locations and intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSLH-OZ 300/500 V - black and white conductor number printed on it,  
HSLH-OB 300/500 V - colours in accordance with PN-HD 308 standard,  
green-yellow protective conductor located in the outer layer in HSLH-JZ 300/500 V and HSLH-JB 300/500 V cable,
- insulated conductors laid-up in layers,
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	7.5 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.5
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
<b>HSLH-JZ 300/500 V</b>				
1787 002	3 x 0,5	5.1	14.4	43
1787 025	3 x 0,75	5.4	21.6	51
1787 026	4 x 0,75	6.1	28.8	65
1787 048	3 x 1,0	6.0	28.8	65
1787 049	4 x 1,0	6.6	38.4	79
1787 071	3 x 1,5	7.0	42.2	90
1787 072	4 x 1,5	7.7	57.6	110
1787 073	5 x 1,5	8.4	72.0	135
1787 074	6 x 1,5	9.3	86.4	164
1787 076	8 x 1,5	10.1	115.1	184
1787 094	3 x 2,5	8.4	72.0	134
1787 095	4 x 2,5	9.4	96.0	169
1787 096	5 x 2,5	10.3	120.0	207
1787 097	6 x 2,5	11.2	144.0	247
1787 098	7 x 2,5	11.2	168.0	261
1787 099	8 x 2,5	12.4	192.0	309
1787 100	10 x 2,5	14.5	240.0	379
1787 101	12 x 2,5	15.2	288.0	440
1787 102	14 x 2,5	16.0	336.0	499
1787 117	3 x 4	9.7	115.2	189
1787 118	4 x 4	10.6	153.6	233
1787 119	5 x 4	11.6	192.0	287

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1787 120	7 x 4	12.9	268.8	372
1787 122	3 x 6	10.9	172.8	256
1787 123	4 x 6	12.2	230.4	325
1787 124	5 x 6	13.4	288.0	402
1787 125	7 x 6	14.6	403.2	514
1787 129	3 x 10	14.1	288.0	439
1787 134	4 x 10	15.7	384.0	555
1787 126	5 x 10	17.3	480.0	690
1787 141	7 x 10	19.2	672.0	900
1787 130	3 x 16	16.7	460.8	657
1787 135	4 x 16	18.6	614.4	833
1787 127	5 x 16	20.5	768.0	1035
1787 142	7 x 16	22.7	1075.2	1356
1787 131	3 x 25	20.3	720.0	980
1787 136	4 x 25	22.6	960.0	1243
1787 139	5 x 25	25.2	1200	1562
1787 143	7 x 25	27.8	1680	2043
1787 132	3 x 35	22.9	1008	1304
1787 137	4 x 35	25.5	1344	1659
1787 128	5 x 35	28.4	1680	2081
1787 144	7 x 35	31.4	2352	2737
1787 133	3 x 50	29.3	1440	1941
1787 138	4 x 50	32.7	1920	2459

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1787 140	5 x 50	36.3	2400.0	3085
1787 145	7 x 50	40.4	3360.0	4047
<b>HSLH-OZ 300/500 V</b>				
1788 001	2 x 0,5	5.1	9.6	39
1788 002	3 x 0,5	5.1	14.4	43
1788 006	2 x 0,75	5.2	14.4	44
1788 007	3 x 0,75	5.4	21.6	51
1788 008	4 x 0,75	6.1	28.8	65
1788 011	2 x 1,0	5.5	19.2	51
1788 012	3 x 1,0	6.0	28.8	65
1788 013	4 x 1,0	6.6	38.4	79
1788 016	2 x 1,5	6.7	28.8	76
1788 017	3 x 1,5	7.0	43.2	90
1788 018	4 x 1,5	7.7	57.6	110
1788 019	5 x 1,5	8.4	72.0	135
1788 021	2 x 2,5	7.9	48.0	109
1788 022	3 x 2,5	8.4	72.0	134
1788 023	4 x 2,5	9.4	96.0	169
1788 024	5 x 2,5	10.3	120.0	207
1788 025	7 x 2,5	11.2	168.0	261
1788 026	2 x 4	9.1	76.8	152
1788 027	3 x 4	9.7	115.2	189
1788 028	4 x 4	10.6	153.6	232
1788 029	5 x 4	11.6	192.0	287
1788 030	7 x 4	12.9	268.8	372
1788 031	2 x 6	10.2	115.2	203
1788 032	3 x 6	10.9	172.8	256
1788 033	4 x 6	12.2	230.4	325
1788 034	5 x 6	13.4	288.0	402
1788 035	7 x 6	14.6	403.2	514
1788 037	2 x 10	13.2	192.0	346
1788 041	3 x 10	14.1	288.0	439
1788 046	4 x 10	15.7	384.0	555
1788 051	5 x 10	17.3	480.0	690
1788 056	7 x 10	19.2	672.0	900
1788 038	2 x 16	15.6	307.2	510
1788 042	3 x 16	16.7	460.8	657
1788 047	4 x 16	18.6	614.4	833
1788 052	5 x 16	20.5	768.0	1035

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1788 057	7 x 16	22.7	1075.2	1356
1788 039	2 x 25	19.0	480.0	763
1788 043	3 x 25	20.3	720.0	980
1788 048	4 x 25	22.6	960.0	1243
1788 053	5 x 25	25.2	1200	1562
1788 058	7 x 25	27.8	1680	2043
1788 040	2 x 35	21.5	672	1012
1788 044	3 x 35	22.9	1008	1304
1788 049	4 x 35	25.5	1344	1659
1788 054	5 x 35	28.4	1680	2083
1788 059	7 x 35	31.4	2352	2737
1788 036	2 x 50	27.4	960.0	1519
1788 045	3 x 50	29.3	1440	1941
1788 050	4 x 50	32.7	1920	2459
1788 055	5 x 50	36.3	2400	3085
1788 060	7 x 50	40.4	3360	4047
<b>HSLH-JB 300/500 V</b>				
1789 001	3 x 0,5	5.1	14.4	43
1789 003	3 x 0,75	5.4	21.6	51
1789 005	3 x 1,0	6.0	28.8	65
1789 007	3 x 1,5	7.0	43.2	90
1789 008	5 x 1,5	8.4	72.0	135
1789 009	3 x 2,5	8.4	72.0	134
1789 010	5 x 2,5	10.3	120.0	207
1789 011	3 x 4	9.7	115.2	189
1789 012	5 x 4	11.6	192.0	287
1789 013	3 x 6	10.9	172.8	256
1789 014	5 x 6	13.4	288.0	402
1789 015	3 x 10	14.1	288.0	439
1789 020	5 x 10	17.3	480.0	690
1789 016	3 x 16	16.7	460.8	657
1789 021	5 x 16	20.5	768.0	1035
1789 017	3 x 25	20.3	720.0	980
1789 022	5 x 25	25.2	1200	1562
1789 018	3 x 35	22.9	1008	1304
1789 023	5 x 35	28.4	1680	2083
1789 019	3 x 50	29.3	1440	1941
1789 024	5 x 50	36.3	2400	3085

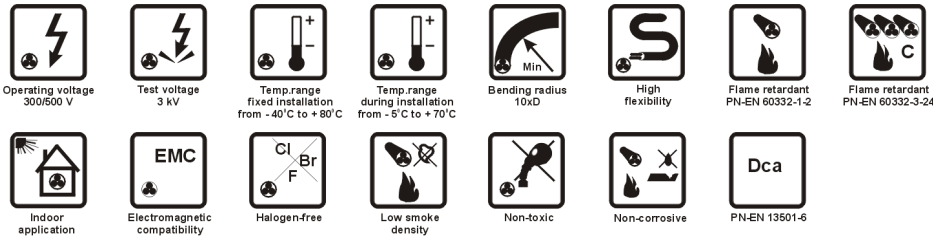
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
<b>HSLH-OB 300/500 V</b>				
1790 001	2 x 0,5	5.1	9.6	39
1790 003	2 x 0,75	5.2	14.4	44
1790 004	4 x 0,75	6.1	28.8	65
1790 005	2 x 1,0	5.5	19.2	51
1790 006	4 x 1,0	6.6	38.4	79
1790 007	2 x 1,5	6.7	28.8	76
1790 025	3 x 1,5	7.0	43.2	90
1790 008	4 x 1,5	7.7	57.6	110
1790 009	2 x 2,5	7.9	48.0	109
1790 010	4 x 2,5	9.4	96.0	169
1790 011	2 x 4	9.1	76.8	152
1790 012	4 x 4	10.6	153.6	232

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1790 013	2 x 6	10.2	115.2	203
1790 026	3 x 6	10.9	172.8	256
1790 014	4 x 6	12.2	230.4	325
1790 015	2 x 10	13.2	192.0	346
1790 020	4 x 10	15.7	384.0	555
1790 016	2 x 16	15.6	307.2	511
1790 021	4 x 16	18.6	614.4	833
1790 017	2 x 25	19.0	480.0	763
1790 022	4 x 25	22.6	960.0	1243
1790 018	2 x 35	21.5	672.0	1012
1790 023	4 x 35	25.5	1344	1659
1790 019	2 x 50	27.4	960.0	1519
1790 024	4 x 50	32.7	1920	2459

Other cross-sections and conductor counts available on request.

TECHNOKABEL SA reserves the right to change specifications without prior notice

**HSLCH-JZ 300/500 V, HSLCH-OZ 300/500 V,  
HSLCH-JB 300/500 V, HSLCH-OB 300/500 V**



**APPLICATIONS**

HSLCH-JZ 300/500 V, HSLCH-OZ 300/500 V, HSLCH-JB 300/500 V and HSLCH-OB 300/500 V are halogen free, flexible, overall shielded cables designed for wet or dry locations and intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The overall shield protects the cables against external electromagnetic interferences and prevents emission of interferences produced in the cables.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSLCH-OZ 300/500 V - black and white conductor number printed on it,  
HSLCH-OB 300/500 V - colours in accordance with PN-HD 308 standard,  
green-yellow protective conductor located in the outer layer in HSLCH-JZ 300/500 V and HSLCH-JB 300/500 V cable,
- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape,
- tinned copper wire braid shield of effective density coverage,
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2

pH	> 4.3
conductivity	< 2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	Dca -s1b, d0, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
<b>HSLCH-JZ 300/500 V</b>				
1795 002	3 x 0,5	5.6	22.5	47
1795 003	4 x 0,5	6.2	28.9	60
1795 004	5 x 0,5	6.7	33.7	70
1795 005	6 x 0,5	7.2	39.4	82
1795 006	7 x 0,5	7.2	44.2	85
1795 007	8 x 0,5	7.7	50.0	97
1795 008	10 x 0,5	9.1	65.9	124
1795 009	12 x 0,5	9.4	76.6	140
1795 010	14 x 0,5	9.8	87.0	155
1795 011	16 x 0,5	10.3	98.5	174
1795 012	18 x 0,5	10.8	108.7	193
1795 013	20 x 0,5	11.3	119.6	212
1795 014	21 x 0,5	11.3	124.4	214
1795 015	27 x 0,5	12.9	156.8	268
1795 016	30 x 0,5	13.3	172.3	291
1795 017	36 x 0,5	14.3	203.7	342
1795 018	40 x 0,5	14.8	224.1	371
1795 019	44 x 0,5	16.2	253.3	418
1795 020	48 x 0,5	16.5	273.8	448
1795 021	52 x 0,5	16.9	293.9	477
1795 022	56 x 0,5	17.4	314.7	509
1795 023	61 x 0,5	17.9	340.2	545
1795 025	3 x 0,75	6.1	30.0	59
1795 026	4 x 0,75	6.6	38.5	71

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1795 027	5 x 0,75	7.1	46.4	84
1795 028	6 x 0,75	7.7	54.8	100
1795 029	7 x 0,75	7.7	62.0	104
1795 030	8 x 0,75	8.3	74.0	123
1795 031	10 x 0,75	9.8	91.8	152
1795 032	12 x 0,75	10.1	106.9	171
1795 033	14 x 0,75	10.6	122.6	193
1795 034	16 x 0,75	11.1	138.3	216
1795 035	18 x 0,75	11.7	154.2	240
1795 036	20 x 0,75	12.4	169.9	270
1795 037	21 x 0,75	12.4	177.1	275
1795 038	27 x 0,75	14.0	224.5	338
1795 039	30 x 0,75	14.4	247.1	367
1795 040	36 x 0,75	15.8	300.1	448
1795 041	40 x 0,75	16.4	330.8	487
1795 042	44 x 0,75	17.6	363.2	530
1795 043	48 x 0,75	17.9	393.0	568
1795 044	52 x 0,75	18.6	423.3	616
1795 045	56 x 0,75	19.1	453.7	658
1795 046	61 x 0,75	19.7	491.5	706
1795 048	3 x 1,0	6.5	38.5	69
1795 049	4 x 1,0	7.1	48.8	84
1795 050	5 x 1,0	7.6	59.4	101
1795 051	6 x 1,0	8.3	74.0	123
1795 052	7 x 1,0	8.3	83.6	129

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1795 053	8 x 1,0	9.1	94.7	152
1795 054	10 x 1,0	10.5	117.7	182
1795 055	12 x 1,0	10.9	137.8	208
1795 056	14 x 1,0	11.4	158.8	234
1795 057	16 x 1,0	12.1	178.8	269
1795 058	18 x 1,0	12.8	199.9	300
1795 059	20 x 1,0	13.4	220.5	331
1795 060	21 x 1,0	13.4	230.1	336
1795 061	27 x 1,0	15.4	298.8	429
1795 062	30 x 1,0	15.9	329.2	467
1795 063	36 x 1,0	17.1	390.5	551
1795 064	40 x 1,0	17.7	430.8	600
1795 065	44 x 1,0	19.3	473.5	664
1795 066	48 x 1,0	19.6	512.8	712
1795 067	52 x 1,0	20.1	552.8	761
1795 068	56 x 1,0	20.7	593.0	815
1795 069	61 x 1,0	21.5	642.9	885
1795 071	3 x 1,5	7.5	54.4	89
1795 072	4 x 1,5	8.3	74.0	113
1795 073	5 x 1,5	9.2	91.0	143
1795 074	6 x 1,5	9.9	106.4	167
1795 075	7 x 1,5	9.9	120.8	175
1795 076	8 x 1,5	10.7	137.3	201
1795 077	10 x 1,5	12.6	170.5	248
1795 078	12 x 1,5	13.0	200.3	282
1795 079	14 x 1,5	13.6	230.6	319
1795 080	16 x 1,5	14.4	261.5	361
1795 081	18 x 1,5	15.4	298.8	416
1795 082	20 x 1,5	16.2	330.1	460
1795 083	21 x 1,5	16.2	344.5	467
1795 084	27 x 1,5	18.5	437.4	586
1795 085	30 x 1,5	19.1	482.5	639
1795 086	36 x 1,5	20.6	573.5	756
1795 087	40 x 1,5	21.5	633.3	833
1795 088	44 x 1,5	23.4	718.8	932
1795 089	48 x 1,5	23.8	778.0	999
1795 090	52 x 1,5	24.7	838.6	1082
1795 091	56 x 1,5	25.4	899.1	1155
1795 092	61 x 1,5	26.1	974.0	1238
1795 094	3 x 2,5	9.2	91.0	133

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1795 095	4 x 2,5	10.0	116.2	163
1795 096	5 x 2,5	10.9	142.6	200
1795 097	6 x 2,5	11.8	168.9	237
1795 098	7 x 2,5	11.8	192.9	250
1795 099	8 x 2,5	13.0	219.5	294
1795 100	10 x 2,5	15.4	279.6	368
1795 101	12 x 2,5	15.9	329.2	421
1795 102	14 x 2,5	16.7	379.7	478
1795 103	16 x 2,5	17.6	430.4	540
1795 104	18 x 2,5	18.8	481.5	614
1795 105	20 x 2,5	19.7	532.3	679
1795 106	21 x 2,5	19.7	556.3	689
1795 107	27 x 2,5	22.5	708.4	866
1795 108	30 x 2,5	23.5	805.6	969
1795 109	36 x 2,5	25.6	957.6	1159
1795 110	40 x 2,5	26.5	1057	1260
1795 111	44 x 2,5	29.1	1191	1420
1795 112	48 x 2,5	29.6	1290	1524
1795 113	52 x 2,5	30.6	1390	1647
1795 114	56 x 2,5	31.5	1491	1762
1795 115	61 x 2,5	32.4	1615	1890
1795 117	3 x 4	10.3	136.9	183
1795 118	4 x 4	11.2	177.0	228
1795 119	5 x 4	12.4	217.9	288
1795 120	7 x 4	13.5	297.6	366
1795 122	3 x 6	11.4	197.2	246
1795 123	4 x 6	12.7	257.5	318
1795 124	5 x 6	13.9	317.8	394
1795 125	7 x 6	15.5	443.2	522
1795 128	3 x 10	14.7	319.9	415
1795 133	4 x 10	16.4	426.8	545
1795 138	5 x 10	18.0	527.9	682
1795 143	7 x 10	19.9	725.0	895
1795 129	3 x 16	17.4	506.7	620
1795 134	4 x 16	19.3	665.5	805
1795 139	5 x 16	21.4	824.9	1020
1795 144	7 x 16	23.6	1161	1357
1795 130	3 x 25	21.0	776.4	909
1795 135	4 x 25	23.5	1046	1207
1795 140	5 x 25	26.1	1296	1525

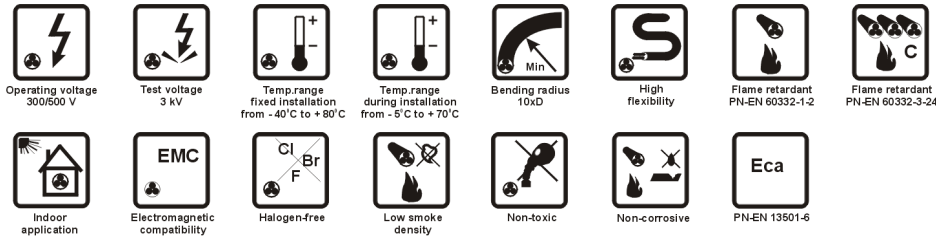
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1795 145	7 x 25	28.9	1814	2041
1795 131	3 x 35	23.8	1095	1228
1795 136	4 x 35	26.4	1441	1594
1795 141	5 x 35	29.5	1817	2050
1795 146	7 x 35	32.5	2504	2712
1795 132	3 x 50	30.6	1582	1816
1795 137	4 x 50	34.0	2079	2356
1795 142	5 x 50	37.8	2601	3008
1795 147	7 x 50	41.7	3561	3941
<b>HSLCH-OZ 300/500 V</b>				
1725 003	2 x 0,5	5.3	17.6	39
1725 004	3 x 0,5	5.6	22.5	47
1725 005	4 x 0,5	6.2	28.9	60
1725 006	5 x 0,5	6.7	33.7	70
1725 007	7 x 0,5	7.2	44.2	85
1725 008	2 x 0,75	5.7	22.5	46
1725 009	3 x 0,75	6.1	30.0	59
1725 010	4 x 0,75	6.6	38.5	71
1725 011	5 x 0,75	7.1	46.4	84
1725 012	7 x 0,75	7.7	62.0	104
1725 013	2 x 1,0	6.2	28.9	56
1725 014	3 x 1,0	6.5	38.5	69
1725 015	4 x 1,0	7.1	48.8	84
1725 016	5 x 1,0	7.6	59.4	101
1725 017	7 x 1,0	8.3	83.6	129
1725 018	2 x 1,5	7.2	39.4	71
1725 019	3 x 1,5	7.5	54.4	89
1725 020	4 x 1,5	8.3	74.0	113
1725 021	5 x 1,5	9.2	91.0	143
1725 022	7 x 1,5	9.9	120.8	175
1725 023	2 x 2,5	8.5	64.9	100
1725 024	3 x 2,5	9.2	91.0	133
1725 025	4 x 2,5	10.0	116.2	163
1725 026	5 x 2,5	10.9	142.6	200
1725 027	7 x 2,5	11.8	192.9	250
1725 028	2 x 4	9.7	96.3	140
1725 029	3 x 4	10.3	136.9	183
1725 030	4 x 4	11.2	177.0	228

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1725 031	5 x 4	12.4	217.9	288
1725 032	7 x 4	13.5	297.6	366
1725 033	2 x 6	10.8	137.5	185
1725 034	3 x 6	11.4	197.2	246
1725 035	4 x 6	12.7	257.5	318
1725 036	5 x 6	13.9	317.8	394
1725 037	7 x 6	15.5	443.2	522
<b>HSLCH-JB 300/500 V</b>				
1796 001	3 x 0,5	5.6	22.5	47
1796 002	5 x 0,5	6.7	33.7	70
1796 003	3 x 0,75	6.1	30.0	59
1796 004	5 x 0,75	7.1	46.4	84
1796 005	3 x 1,0	6.5	38.5	69
1796 006	5 x 1,0	7.6	59.4	101
1796 007	3 x 1,5	7.5	54.4	89
1796 008	5 x 1,5	9.2	91.0	143
1796 009	3 x 2,5	9.2	91.0	133
1796 010	5 x 2,5	10.9	142.6	200
1796 011	3 x 4	10.3	136.9	183
1796 012	5 x 4	12.4	217.9	288
1796 013	3 x 6	11.4	197.2	246
1796 014	5 x 6	13.9	317.8	394
<b>HSLCH-OB 300/500 V</b>				
1797 001	2 x 0,5	5.3	17.6	39
1797 002	4 x 0,5	6.2	28.9	60
1797 003	2 x 0,75	5.7	22.5	46
1797 004	4 x 0,75	6.6	38.5	71
1797 005	2 x 1,0	6.2	28.9	56
1797 006	4 x 1,0	7.1	48.8	84
1797 007	2 x 1,5	7.2	39.4	71
1797 008	4 x 1,5	8.3	74.0	113
1797 009	2 x 2,5	8.5	64.9	100
1797 010	4 x 2,5	10.0	116.2	163
1797 011	2 x 4	9.7	96.3	140
1797 012	4 x 4	11.2	177.0	228
1797 013	2 x 6	10.8	137.5	185
1797 014	4 x 6	12.7	257.5	318

Other cross-sections and conductor counts available on request.

TECHNOKABEL SA reserves the right to change specifications without prior notice

**HSL(St)CH-JZ 300/500 V, HSL(St)CH-OZ 300/500 V,  
HSL(St)CH-JB 300/500 V, HSL(St)CH-OB 300/500 V**



**APPLICATIONS**

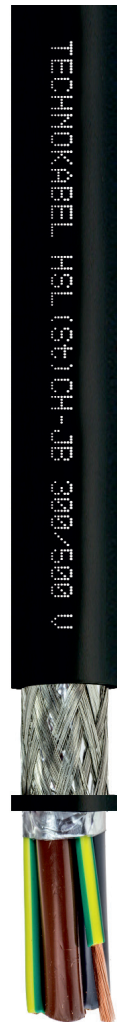
HSL(St)CH-JZ 300/500 V, HSL(St)CH-OZ 300/500 V, HSL(St)CH-JB 300/500 V and HSL(St)CH-OB 300/500 V are halogen free, flexible, overall double shielded cables designed for wet or dry locations and intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc. The overall shield protects the cables against external electromagnetic interferences and prevents emission of interferences produced in the cables.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Cable outer sheath is oil-resistant.



HALOGEN FREE SAFETY CABLES

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSL(St)CH-OZ 300/500 V - black and white conductor number printed on it,  
HSL(St)CH-OB 300/500 V - colours in accordance with PN-HD 308 standard,  
green-yellow protective conductor located in the outer layer in HSL(St)CH-JZ 300/500 V and HSL(St)CH-JB 300/500 V cable,
- insulated conductors laid-up in layers,
- collective shield incorporating aluminium-polyester tape under tinned copper wire braid shield of effective density coverage,
- cable sheath made of halogen free compound (HFFR), grey RAL 7001, other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386

Operating voltage U <sub>o</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
<b>HSL(St)CH-JZ 300/500 V</b>				
2026 015	3 x 0,5	5.6	21.2	47
2026 007	12 x 0,5	9.3	69.3	133
2026 011	18 x 0,5	10.8	105.0	190
2026 012	19 x 0,5	10.8	110.2	193
2026 013	25 x 0,5	12.9	142.4	259
2026 010	16 x 1,0	12.1	174.1	265
2026 001	5 x 1,5	9.1	83.4	142
2026 002	9 x 1,5	12.6	151.3	246
2026 006	10 x 1,5	12.6	166.3	256
2026 003	11 x 1,5	13.0	180.7	283
2026 008	12 x 1,5	13.0	195.1	292
2026 009	13 x 1,5	13.6	210.8	321
2026 004	19 x 1,5	15.3	300.7	435
2026 005	21 x 1,5	16.1	330.8	480
2026 014	25 x 1,5	18.4	393.0	585
<b>HSL(St)CH-OZ 300/500 V</b>				
2023 012	2 x 0,5	5.3	16.0	39
2023 003	5 x 0,5	6.7	32.1	69
2023 018	6 x 0,5	7.2	38.5	82
2023 002	8 x 0,5	7.7	48.1	96
2023 004	10 x 0,5	8.8	59.2	113

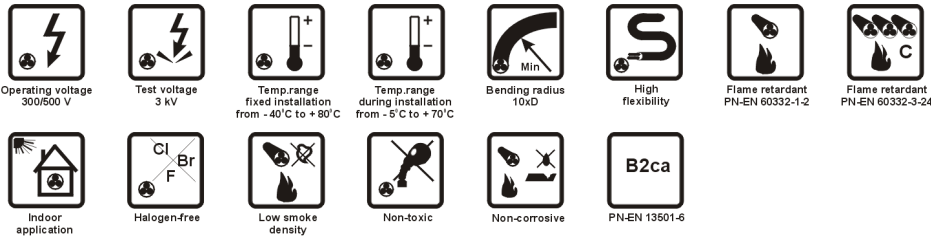
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2023 005	12 x 0,5	9.3	69.3	133
2023 006	16 x 0,5	10.3	93.9	171
2023 001	18 x 0,5	10.8	105.4	190
2023 007	20 x 0,5	11.3	115.2	208
2023 008	24 x 0,5	12.6	136.9	242
2023 013	2 x 0,75	5.7	20.9	45
2023 015	3 x 0,75	6.1	29.6	59
2023 019	7 x 0,75	7.7	60.1	103
2023 014	2 x 1,0	6.2	27.3	55
2023 016	4 x 1,0	7.1	46.9	83
2023 020	7 x 1,0	8.2	77.6	123
2023 009	14 x 1,0	11.4	153.8	230
2023 010	16 x 1,0	12.1	174.1	265
2023 011	25 x 1,0	15.3	268.0	407
2023 017	4 x 2,5	12.2	115.5	226
<b>HSL(St)CH-JB 300/500 V</b>				
2104 001	3 x 0,5	5.6	21.2	47
2104 002	5 x 0,5	6.7	32.4	70
2104 003	3 x 0,75	6.1	28.5	58
2104 004	5 x 0,75	7.1	44.5	84
2104 005	3 x 1,0	6.5	37.2	68
2104 006	5 x 1,0	7.6	58.2	101

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2104 007	3 x 1,5	7.5	53.4	92
2104 008	5 x 1,5	9.1	83.9	142
2104 009	3 x 2,5	9.1	83.9	135
2104 010	5 x 2,5	10.9	138.7	211
<b>HSL(St)CH-OB 300/500 V</b>				
2105 001	2 x 0,5	5.3	15.5	38
2105 002	4 x 0,5	6.2	26.2	58
2105 003	2 x 0,75	5.7	21.1	45

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2105 004	4 x 0,75	6.6	37.2	70
2105 005	2 x 1,0	6.2	26.2	54
2105 006	4 x 1,0	7.1	46.9	83
2105 007	2 x 1,5	7.2	37.4	72
2105 008	4 x 1,5	8.2	68.0	112
2105 009	2 x 2,5	8.4	58.6	100
2105 010	4 x 2,5	9.9	108.7	167

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## HSLH-Z 300/500 V



### APPLICATIONS

HSLH-Z 300/500 V are halogen free, flexible multipair/multitriples cables designed for wet or dry locations and intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

Paired/tripled structure decreases mutual influence between signals transmitted along the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code: black insulation and white conductor numbers printed on it for identification,
- for multipair construction:  
pair no 1: conductor no 1 and conductor no 2,  
pair no 2: conductor no 3 and conductor no 4, etc.,
- for multitriples construction:  
triple no 1: conductor no 1, conductor no 2 and conductor no 3,  
triple no 2: conductor no 4, conductor no 5 and conductor no 6, etc.,
- insulated conductors twisted into pairs/triples,
- pairs/triples laid-up in layers into a cable core,
- cable core wrapped in polyester tape,
- cable outer sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	79.6	53.0	39.8	27.1	16.28



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	B2ca -s1b,d2,a1
DoP declarations are available at	technokabel.com.pl

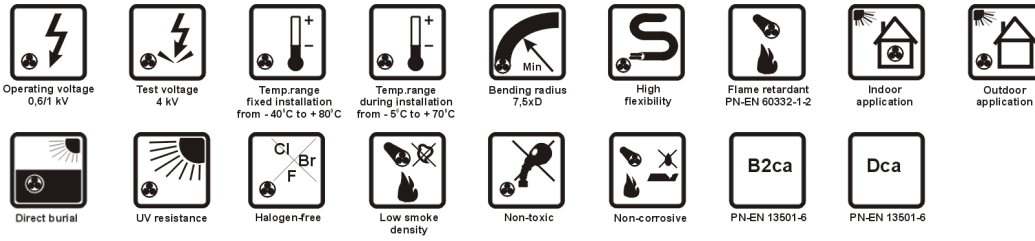
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs (x2) / triples (x3) x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
2091 002	2 x 2 x 0,5	7.4	19.2	76
2091 003	2 x 2 x 0,75	8.0	28.8	96
2091 004	2 x 2 x 1,0	8.6	38.4	112
2091 005	2 x 2 x 1,5	10.4	57.6	163
2091 007	3 x 2 x 1,5	11.1	86.4	213
2091 009	4 x 2 x 1,5	12.4	115.2	255
2091 011	5 x 2 x 1,5	13.6	144.0	294
2091 006	2 x 2 x 2,5	12.8	96.0	251
2091 008	3 x 2 x 2,5	13.6	144.0	327
2091 010	4 x 2 x 2,5	15.2	192.0	391
2091 012	5 x 2 x 2,5	16.7	240.0	453
2091 014	6 x 2 x 2,5	18.5	288.0	550
2091 015	7 x 2 x 2,5	18.5	336.0	582
2091 016	8 x 2 x 2,5	19.7	384.0	641
2091 001	10 x 2 x 2,5	22.7	480.0	796
2091 017	2 x 3 x 0,5	8.1	28.8	86
2091 018	2 x 3 x 0,75	8.8	43.2	103

Product No.	Number of pairs (x2) / triples (x3) x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
2091 022	3 x 3 x 0,75	9.5	64.8	124
2091 019	2 x 3 x 1,0	9.6	57.6	129
2091 023	3 x 3 x 1,0	10.2	86.4	151
2091 020	2 x 3 x 1,5	11.4	86.4	182
2091 024	3 x 3 x 1,5	12.4	129.6	220
2091 026	4 x 3 x 1,5	13.6	172.8	278
2091 028	5 x 3 x 1,5	15.3	216.0	345
2091 030	6 x 3 x 1,5	17.3	259.2	409
2091 021	2 x 3 x 2,5	14.0	144.0	273
2091 025	3 x 3 x 2,5	15.2	216.0	336
2091 027	4 x 3 x 2,5	16.7	288.0	428
2091 029	5 x 3 x 2,5	18.8	360.0	531
2091 031	6 x 3 x 2,5	21.5	432.0	641
2091 032	7 x 3 x 2,5	21.5	504.0	725
2091 033	8 x 3 x 2,5	23.0	576.0	835
2091 034	10 x 3 x 2,5	26.3	720.0	1015

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## HSLH-J 0,6/1 kV, HSLH-O 0,6/1 kV singlecore



### APPLICATIONS

HSLH-J 0,6/1 kV and HSLH-O 0,6/1 kV are halogen free, flexible cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Sheathing black halogen free material is resistant to UV radiation.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSLH-O 0,6/1 kV - black (other colours also available),  
HSLH-J 0,6/1 kV - green-yellow protective conductor,
- black cable sheath made of halogen free compound (HFFR).

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	2,5	4,0	6,0	10	16	25	35	50	70
DC conductor resistance at 20°C, maximum	Ω/km	7,98	4,95	3,30	1,91	1,21	0,780	0,554	0,386	0,272
Conductor cross-section	mm <sup>2</sup>	95	120	150	185	240	300	400	500	
DC conductor resistance at 20°C, maximum	Ω/km	0,206	0,161	0,129	0,106	0,0801	0,0641	0,0486	0,0384	



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 160°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	7.5 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2

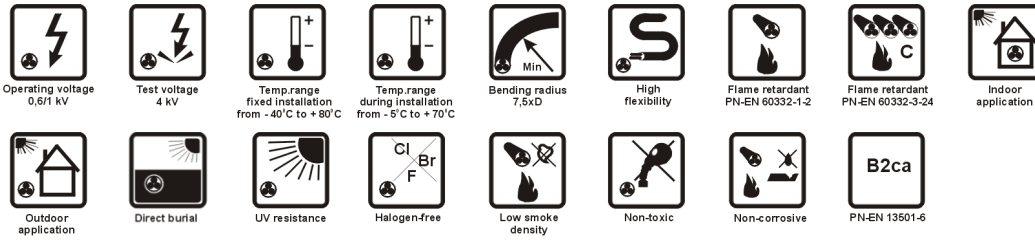
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	
<b>HSLH-J 0,6/1 kV</b>					
2129 001	1 x 2,5	6,6	24,0	70	Dca-s2,d2,a1
2129 013	1 x 4	7,1	38,4	88	Dca-s2,d2,a1
2129 002	1 x 6	7,7	57,6	111	Dca-s2,d2,a1
2129 003	1 x 10	9,1	96,0	168	Dca-s2,d2,a1
2129 004	1 x 16	10,2	153,6	233	B2ca-s1a,d0,a1
2129 005	1 x 25	11,7	240,0	329	B2ca-s1a,d0,a1
2129 006	1 x 35	12,9	336,0	426	B2ca-s1a,d0,a1
2129 007	1 x 50	16,1	480,0	616	B2ca-s1a,d0,a1
2129 014	1 x 70	18,8	672,0	862	B2ca-s1a,d0,a1
2129 008	1 x 95	20,1	912,0	1080	B2ca-s1a,d0,a1
2129 009	1 x 120	22,6	1152	1373	B2ca-s1a,d0,a1
2129 010	1 x 150	24,5	1440	1593	B2ca-s1a,d0,a1
2129 015	1 x 185	27,5	1776	2055	B2ca-s1a,d0,a1

pH	> 4.3
conductivity	< 2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Reference standards	WT-TK-50
CPR – class reaction on fire	B2ca -s1a, d0, a1 Dca -s2, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	
2129 011	1 x 240	31,3	2304	2689	B2ca-s1a,d0,a1
2129 012	1 x 300	33,5	2880	3128	B2ca-s1a,d0,a1
<b>HSLH-O 0,6/1 kV</b>					
2128 004	1 x 2,5	6,6	240	70	Dca-s2,d2,a1
2128 005	1 x 16	10,2	153,6	233	B2ca-s1a,d0,a1
2128 007	1 x 25	11,7	240,0	329	B2ca-s1a,d0,a1
2128 008	1 x 50	16,1	480,0	616	B2ca-s1a,d0,a1
2128 009	1 x 70	18,8	672,0	862	B2ca-s1a,d0,a1
2128 010	1 x 95	20,1	912,0	1080	B2ca-s1a,d0,a1
2128 001	1 x 120	22,6	1152	1373	B2ca-s1a,d0,a1
2128 002	1 x 150	24,5	1440	1593	B2ca-s1a,d0,a1
2128 011	1 x 185	27,5	1776	2055	B2ca-s1a,d0,a1
2128 003	1 x 240	31,3	2304	2688	B2ca-s1a,d0,a1
2128 006	1 x 300	33,7	2880	3132	B2ca-s1a,d0,a1

**HSLH-JZ 0,6/1 kV, HSLH-OZ 0,6/1 kV,  
HSLH-JB 0,6/1 kV, HSLH-OB 0,6/1 kV**



**APPLICATIONS**

HSLH-JZ 0,6/1 kV, HSLH-OZ 0,6/1 kV, HSLH-JB 0,6/1 kV and HSLH-OB 0,6/1 kV are halogen free, flexible cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Sheathing black halogen free material is resistant to UV radiation.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSLH-OZ 0,6/1 kV - black and white conductor number printed on it,  
HSLH-OB 0,6/1 kV - colours in accordance with PN-HD 308 standard,  
green-yellow protective conductor located in the outer layer in HSLH-JZ 0,6/1 kV and HSLH-JB 0,6/1 kV cable,
- insulated conductors laid-up in layers,
- black cable sheath made of halogen free compound (HFFR).

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 160°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	7.5 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	B2ca -s1b,d2,a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
<b>HSLH-JZ 0,6/1 kV</b>				
1791 002	3 x 0,5	7.9	14.4	88
1791 003	4 x 0,5	8.5	19.2	102
1791 004	5 x 0,5	9.1	24.0	119
1791 005	6 x 0,5	9.8	28.8	138
1791 025	3 x 0,75	8.3	21.6	100
1791 026	4 x 0,75	8.9	28.8	116
1791 027	5 x 0,75	9.6	36.0	138
1791 028	6 x 0,75	10.3	43.2	160
1791 048	3 x 1,0	8.7	28.8	113
1791 049	4 x 1,0	9.4	38.4	133
1791 050	5 x 1,0	10.1	48.0	158
1791 051	6 x 1,0	10.9	57.6	184
1791 052	7 x 1,0	10.9	67.2	190
1791 053	8 x 1,0	11.7	76.8	217
1791 071	3 x 1,5	9.3	43.2	136
1791 072	4 x 1,5	10.0	57.6	160
1791 073	5 x 1,5	10.8	72.0	191
1791 074	6 x 1,5	11.7	86.4	224
1791 075	7 x 1,5	11.7	100.8	233
1791 076	8 x 1,5	12.6	115.2	268
1791 077	10 x 1,5	14.5	144.0	325
1791 094	3 x 2,5	10.6	72.0	185

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1791 095	4 x 2,5	11.5	96.0	222
1791 096	5 x 2,5	12.5	120.0	269
1791 097	6 x 2,5	13.6	144.0	317
1791 098	7 x 2,5	13.6	168.0	332
1791 099	8 x 2,5	14.6	192.0	380
1791 100	10 x 2,5	17.1	240.0	468
1791 101	12 x 2,5	17.6	288.0	527
1791 102	14 x 2,5	18.5	336.0	595
1791 117	3 x 4	11.7	115.2	241
1791 118	4 x 4	12.7	153.6	292
1791 119	5 x 4	13.9	192.0	356
1791 120	7 x 4	15.0	268.8	442
1791 122	3 x 6	12.9	172.8	314
1791 123	4 x 6	14.1	230.4	385
1791 124	5 x 6	15.4	288.0	471
1791 125	7 x 6	16.8	403.2	596
1791 127	3 x 10	15.9	288.0	505
1791 128	4 x 10	17.5	384.0	625
1791 129	5 x 10	19.2	480.0	771
1791 130	7 x 10	21.0	672.0	985
1791 132	3 x 16	18.3	460.8	724
1791 133	4 x 16	20.1	614.4	901
1791 134	5 x 16	22.3	768.0	1128

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1791 135	7 x 16	24.4	1075	1452
1791 137	3 x 50	31.4	1440	2094
1791 138	4 x 50	34.9	1920	2634
<b>HSLH-OZ 0,6/1 kV</b>				
1792 001	2 x 0,5	7.6	9.6	79
1792 002	3 x 0,5	7.9	14.4	88
1792 003	4 x 0,5	8.5	19.2	102
1792 004	5 x 0,5	9.1	24.0	119
1792 006	2 x 0,75	7.9	14.4	88
1792 007	3 x 0,75	8.3	21.6	100
1792 008	4 x 0,75	8.9	28.8	116
1792 009	5 x 0,75	9.6	36.0	138
1792 011	2 x 1,0	8.3	19.2	99
1792 012	3 x 1,0	8.7	28.8	113
1792 013	4 x 1,0	9.4	38.4	133
1792 014	5 x 1,0	10.1	48.0	158
1792 015	7 x 1,0	10.9	67.2	190
1792 016	2 x 1,5	8.8	28.8	116
1792 017	3 x 1,5	9.3	43.2	136
1792 018	4 x 1,5	10.0	57.6	160
1792 019	5 x 1,5	10.8	72.0	191
1792 020	7 x 1,5	11.7	100.8	233
1792 021	2 x 2,5	10.1	48.0	158
1792 022	3 x 2,5	10.6	72.0	185
1792 023	4 x 2,5	11.5	96.0	222
1792 024	5 x 2,5	12.5	120.0	269
1792 025	7 x 2,5	13.6	168.0	332
1792 026	2 x 4	11.1	76.8	201
1792 027	3 x 4	11.7	115.2	241
1792 028	4 x 4	12.7	153.6	292
1792 029	5 x 4	13.9	192.0	356
1792 030	7 x 4	15.0	268.8	442
1792 031	2 x 6	12.2	115.2	257
1792 032	3 x 6	12.9	172.8	314
1792 033	4 x 6	14.1	230.4	385
1792 034	5 x 6	15.4	288.0	471
1792 035	7 x 6	16.8	403.2	596
1792 036	2 x 10	15.0	192.0	408
1792 037	3 x 10	15.9	288.0	505

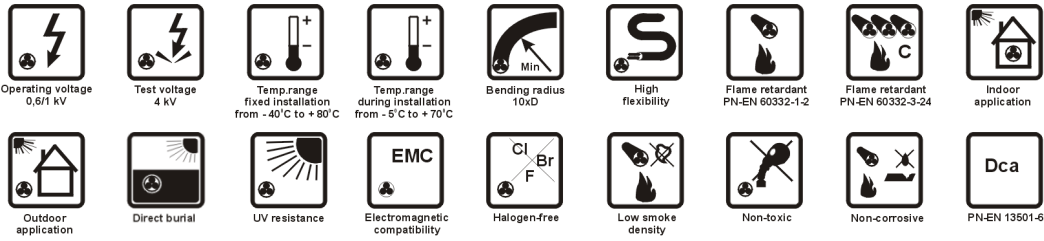
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1792 038	4 x 10	17.5	384.0	625
1792 039	5 x 10	19.2	480.0	771
1792 040	7 x 10	21.0	672.0	985
1792 041	2 x 16	17.2	307.2	574
1792 042	3 x 16	18.3	460.8	724
1792 043	4 x 16	20.1	614.4	901
1792 044	5 x 16	22.3	768.0	1128
1792 045	7 x 16	24.4	1075	1452
1792 046	2 x 50	29.2	960.0	1642
1792 047	3 x 50	31.4	1440	2094
1792 048	4 x 50	34.9	1920	2634
<b>HSLH-JB 0,6/1 kV</b>				
1793 001	3 x 0,5	7.9	14.4	88
1793 002	5 x 0,5	9.1	24.0	119
1793 003	3 x 0,75	8.3	21.6	100
1793 004	5 x 0,75	9.6	36.0	138
1793 005	3 x 1,0	8.7	28.8	113
1793 006	5 x 1,0	10.1	48.0	158
1793 007	3 x 1,5	9.3	43.2	136
1793 008	5 x 1,5	10.8	72.0	191
1793 009	3 x 2,5	10.6	72.0	185
1793 010	5 x 2,5	12.5	120.0	269
1793 011	3 x 4	11.7	115.2	241
1793 012	5 x 4	13.9	192.0	356
1793 013	3 x 6	12.9	172.8	314
1793 014	5 x 6	15.4	288.0	471
1793 015	3 x 10	15.9	288.0	505
1793 016	5 x 10	19.2	480.0	771
1793 017	3 x 16	18.3	460.8	724
1793 018	5 x 16	22.3	768.0	1128
1793 019	3 x 50	31.4	1440	2094
<b>HSLH-OB 0,6/1 kV</b>				
1794 001	2 x 0,5	7.6	9.6	79
1794 002	4 x 0,5	8.5	19.2	102
1794 003	2 x 0,75	7.9	14.4	88
1794 004	4 x 0,75	8.9	28.8	116
1794 005	2 x 1,0	8.3	19.2	99
1794 006	4 x 1,0	9.4	38.4	133
1794 007	2 x 1,5	8.8	28.8	116

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1794 008	4 x 1,5	10.0	57.6	160
1794 009	2 x 2,5	10.1	48.0	158
1794 010	4 x 2,5	11.5	96.0	222
1794 011	2 x 4	11.1	76.8	201
1794 012	4 x 4	12.7	153.6	292
1794 013	2 x 6	12.2	115.2	257
1794 014	4 x 6	14.1	230.4	385

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1794 015	2 x 10	15.0	192.0	408
1794 016	4 x 10	17.5	384.0	625
1794 017	2 x 16	17.2	307.2	574
1794 018	4 x 16	20.1	614.4	901
1794 019	2 x 50	29.2	960.0	1642
1794 020	4 x 50	34.9	1920	2634

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**HSLCH-JZ 0,6/1 kV, HSLCH-OZ 0,6/1 kV,  
HSLCH-JB 0,6/1 kV, HSLCH-OB 0,6/1 kV**



**APPLICATIONS**

HSLCH-JZ 0,6/1 kV, HSLCH-OZ 0,6/1 kV, HSLCH-JB 0,6/1 kV and HSLCH-OB 0,6/1 kV are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The overall shield protects the cables against external electromagnetic interferences and prevents emission of interferences produced in the cables.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Sheathing black halogen free material is resistant to UV radiation.

Cable outer sheath is oil-resistant.



**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
HSLCH-OZ 0,6/1 kV - black and white conductor number printed on it,  
HSLCH-OB 0,6/1 kV - colours in accordance with PN-HD 308 standard,  
green-yellow protective conductor located in the outer layer in HSLCH-JZ 0,6/1 kV and HSLCH-JB 0,6/1 kV cable,
- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape,
- tinned copper wire braid shield of effective density coverage,
- black cable sheath made of halogen free compound (HFFR).

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 160°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	Dca -s1b, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
<b>HSLCH-JZ 0,6/1 kV</b>				
1798 003	4 x 0,5	9.0	30.6	106
1798 004	5 x 0,5	9.7	40.4	128
1798 005	6 x 0,5	10.4	47.8	148
1798 006	7 x 0,5	10.4	52.6	150
1798 008	10 x 0,5	12.6	72.4	199
1798 026	4 x 0,75	9.4	41.0	120
1798 027	5 x 0,75	10.2	53.7	146
1798 028	6 x 0,75	10.9	62.7	168
1798 029	7 x 0,75	10.9	69.9	172
1798 030	8 x 0,75	11.7	79.3	196
1798 031	10 x 0,75	13.3	97.7	231
1798 048	3 x 1,0	9.2	40.6	115
1798 049	4 x 1,0	10.0	55.5	140
1798 050	5 x 1,0	10.7	67.0	166
1798 051	6 x 1,0	11.5	79.3	192
1798 052	7 x 1,0	11.5	88.9	198
1798 053	8 x 1,0	12.3	99.9	224
1798 054	10 x 1,0	14.1	123.7	266
1798 055	12 x 1,0	14.5	144.0	298
1798 071	3 x 1,5	9.9	60.1	139
1798 072	4 x 1,5	10.6	76.6	166

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1798 073	5 x 1,5	11.4	92.7	198
1798 074	6 x 1,5	12.3	109.5	231
1798 075	7 x 1,5	12.3	123.9	240
1798 076	8 x 1,5	13.2	140.6	274
1798 077	10 x 1,5	15.1	174.3	325
1798 078	12 x 1,5	15.6	204.4	368
1798 079	14 x 1,5	16.4	241.9	420
1798 094	3 x 2,5	11.2	92.2	180
1798 095	4 x 2,5	12.1	118.6	217
1798 096	5 x 2,5	13.1	145.2	263
1798 097	6 x 2,5	14.2	172.0	310
1798 098	7 x 2,5	14.2	196.0	323
1798 099	8 x 2,5	15.2	222.6	369
1798 100	10 x 2,5	17.8	284.6	451
1798 101	12 x 2,5	18.3	334.1	512
1798 102	14 x 2,5	19.2	384.9	578
1798 103	16 x 2,5	20.2	436.0	652
1798 104	18 x 2,5	21.3	487.4	727
1798 117	3 x 4	12.3	138.3	236
1798 118	4 x 4	13.3	179.3	289
1798 119	5 x 4	14.5	220.8	354
1798 120	7 x 4	15.6	300.4	441

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1798 122	3 x 6	13.5	199.0	303
1798 123	4 x 6	14.7	259.7	377
1798 124	5 x 6	16.1	327.4	471
1798 125	7 x 6	17.5	446.9	596
1798 130	3 x 10	16.7	329.4	486
1798 131	4 x 10	18.2	430.1	611
1798 129	5 x 10	19.9	531.4	761
1798 132	7 x 10	21.9	728.7	988
1798 133	3 x 16	19.0	509.6	684
1798 134	4 x 16	20.8	668.6	870
1798 135	5 x 16	23.1	830.7	1104
1798 136	7 x 16	25.6	1167	1463
1798 137	3 x 25	22.6	781.9	988
1798 138	4 x 25	25.3	1050	1299
1798 139	5 x 25	28.1	1327	1665
1798 140	7 x 25	30.7	1822	2160
1798 141	3 x 35	25.5	1099	1313
1798 142	4 x 35	28.4	1473	1725
1798 143	5 x 35	31.4	1826	2181
1798 144	7 x 35	34.7	2545	2894
1798 145	3 x 50	33.1	1626	1994
1798 146	4 x 50	36.7	2137	2580
1798 147	5 x 50	40.8	2632	3281
1798 148	7 x 50	45.3	3723	4391
<b>HSLCH-OZ 0,6/1 kV</b>				
1799 003	4 x 0,5	9.0	30.6	106
1799 004	5 x 0,5	9.7	40.4	128
1799 005	7 x 0,5	10.4	52.6	150
1799 038	10 x 0,5	12.7	72.2	206
1799 008	4 x 0,75	9.4	41.0	120
1799 009	5 x 0,75	10.2	53.7	146
1799 010	7 x 0,75	10.9	69.9	172
1799 040	8 x 0,75	11.7	79.4	202
1799 045	10 x 0,75	13.4	98.3	238
1799 012	3 x 1,0	9.2	40.6	115
1799 013	4 x 1,0	10.0	55.5	140
1799 014	5 x 1,0	10.7	67.0	166
1799 015	7 x 1,0	11.5	88.9	198
1799 041	8 x 1,0	12.3	100.1	231

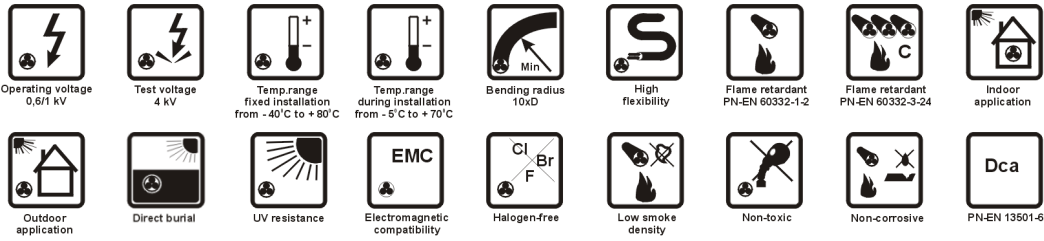
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1799 046	10 x 1,0	14.1	123.9	273
1799 047	12 x 1,0	14.5	144.0	307
1799 016	2 x 1,5	9.3	40.8	111
1799 017	3 x 1,5	9.9	60.1	139
1799 018	4 x 1,5	10.6	76.6	166
1799 019	5 x 1,5	11.4	92.7	198
1799 020	7 x 1,5	12.3	123.9	240
1799 039	8 x 1,5	13.2	140.6	281
1799 043	10 x 1,5	15.2	174.7	334
1799 048	12 x 1,5	15.7	204.8	378
1799 050	14 x 1,5	16.5	242.3	432
1799 021	2 x 2,5	10.7	67.0	147
1799 022	3 x 2,5	11.2	92.2	180
1799 023	4 x 2,5	12.1	118.6	217
1799 024	5 x 2,5	13.1	145.2	263
1799 025	7 x 2,5	14.2	196.0	323
1799 042	8 x 2,5	15.3	223.2	393
1799 044	10 x 2,5	17.8	284.7	477
1799 049	12 x 2,5	18.4	334.6	544
1799 051	14 x 2,5	19.3	385.6	615
1799 052	16 x 2,5	20.3	437.0	695
1799 053	18 x 2,5	21.4	488.4	777
1799 026	2 x 4	11.7	98.5	187
1799 027	3 x 4	12.3	138.3	236
1799 028	4 x 4	13.3	179.3	289
1799 029	5 x 4	14.5	220.8	354
1799 030	7 x 4	15.6	300.4	441
1799 031	2 x 6	12.8	139.6	235
1799 032	3 x 6	13.5	199.0	303
1799 033	4 x 6	14.7	259.7	377
1799 034	5 x 6	16.1	327.4	471
1799 035	7 x 6	17.5	446.9	596
1799 054	2 x 10	15.6	223.9	359
1799 055	3 x 10	16.7	329.4	486
1799 056	4 x 10	18.2	430.1	611
1799 057	5 x 10	19.9	531.4	761
1799 058	7 x 10	21.9	728.7	988
1799 059	2 x 16	17.9	352.3	505
1799 060	3 x 16	19.0	509.6	684

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1799 061	4 x 16	20.8	668.6	870
1799 062	5 x 16	23.1	830.7	1104
1799 063	7 x 16	25.6	1167	1463
1799 064	3 x 25	22.6	781.9	988
1799 065	4 x 25	25.3	1050	1299
1799 066	5 x 25	28.1	1327	1665
1799 067	7 x 25	30.7	1822	2160
1799 068	3 x 35	25.5	1099	1313
1799 069	4 x 35	28.4	1473	1725
1799 070	5 x 35	31.4	1826	2181
1799 071	7 x 35	34.7	2545	2894
1799 036	3 x 50	33.1	1626	1994
1799 072	4 x 50	36.7	2137	2580
1799 073	5 x 50	40.8	2632	3281
1799 074	7 x 50	45.3	3723	4391
<b>HSLCH-JB 0,6/1 kV</b>				
1800 002	5 x 0,5	9.7	40.4	128
1800 004	5 x 0,75	10.2	53.7	146
1800 005	3 x 1,0	9.2	40.6	115
1800 006	5 x 1,0	10.7	67.0	166
1800 007	3 x 1,5	9.9	60.1	139
1800 008	5 x 1,5	11.4	92.7	198
1800 009	3 x 2,5	11.2	92.2	180
1800 010	5 x 2,5	13.1	145.2	263
1800 011	3 x 4	12.3	138.3	236
1800 012	5 x 4	14.5	220.8	354
1800 013	3 x 6	13.5	199.0	303
1800 014	5 x 6	16.1	327.4	471
1800 015	3 x 10	16.7	329.4	486

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1800 016	5 x 10	19.9	531.4	761
1800 017	3 x 16	19.0	509.6	684
1800 018	5 x 16	23.1	830.7	1104
1800 019	3 x 25	22.6	781.9	988
1800 020	5 x 25	28.1	1327	1665
1800 021	3 x 35	25.5	1099	1313
1800 022	5 x 35	31.4	1826	2181
1800 023	3 x 50	33.1	1626	1994
1800 024	5 x 50	40.8	2632	3281
<b>HSLCH-OB 0,6/1 kV</b>				
1801 002	4 x 0,5	9.0	30.6	106
1801 004	4 x 0,75	9.4	41.0	120
1801 006	4 x 1,0	10.0	55.5	140
1801 007	2 x 1,5	9.3	40.8	111
1801 008	4 x 1,5	10.6	76.6	166
1801 009	2 x 2,5	10.7	67.0	147
1801 010	4 x 2,5	12.1	118.6	217
1801 011	2 x 4	11.7	98.5	187
1801 012	4 x 4	13.3	179.3	289
1801 013	2 x 6	12.8	139.6	235
1801 014	4 x 6	14.7	259.7	377
1801 016	2 x 10	15.6	223.9	359
1801 017	4 x 10	18.2	430.1	611
1801 018	2 x 16	17.6	352.3	505
1801 015	4 x 16	20.8	668.6	870
1801 019	4 x 25	25.3	1050	1299
1801 020	4 x 35	28.4	1473	1725
1801 021	4 x 50	36.7	2137	2580

TECHNOKABEL SA reserves the right to change specifications without prior notice

**HSL(St)H-OZ 0,6/1 kV, HSL(St)H-JZ 0,6/1 kV,  
HSL(St)H-OB 0,6/1 kV i HSL(St)H-JB 0,6/1 kV**



**APPLICATIONS**

HSL(St)H-JZ 0,6/1 kV, HSL(St)H-OZ 0,6/1 kV, HSL(St)H-JB 0,6/1 kV and HSL(St)H-OB 0,6/1 kV are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The cable circuits are protected by an overall electrostatic shield against external electric field interferences.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Sheathing halogen free material is resistant to UV radiation.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code:  
 HSL(St)H-OZ 0,6/1 kV - black and white conductor number printed on it,  
 HSL(St)H-OB 0,6/1 kV - colours in accordance with PN-HD 308 standard,  
 green-yellow protective conductor located in the outer layer in HSL(St)H-JZ 0,6/1 kV and HSL(St)H-JB 0,6/1 kV cable,
- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating a plastic laminated metal foil and a stranded annealed tinned copper drain wire,
- black cable sheath made of halogen free compound (HFFR).

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 160°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	WT-TK-50
CPR – class reaction on fire	Dca -s2, d0, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
<b>HSL(St)H-JZ 0,6/1 kV</b>				
2005 018	3 x 0,5	8.1	16.8	84
2005 019	4 x 0,5	8.7	21.6	99
2005 014	5 x 0,5	9.4	26.4	117
2005 020	6 x 0,5	10.1	31.2	136
2005 015	7 x 0,5	10.1	36.0	139
2005 021	8 x 0,5	10.7	40.8	157
2005 008	10 x 0,5	12.3	50.4	185
2005 022	12 x 0,5	12.6	60.0	206
2005 023	14 x 0,5	13.2	69.6	230
2005 024	16 x 0,5	13.9	79.2	258
2005 025	18 x 0,5	14.6	88.8	286
2005 026	20 x 0,5	15.2	98.4	314
2005 027	21 x 0,5	15.2	103.2	317
2005 012	3 x 0,75	8.5	26.4	98
2005 013	4 x 0,75	9.2	33.6	115
2005 028	5 x 0,75	9.9	40.8	137
2005 029	6 x 0,75	10.6	48.0	158
2005 016	7 x 0,75	10.6	55.2	162
2005 030	8 x 0,75	11.3	62.4	185
2005 031	10 x 0,75	13.0	76.8	218
2005 032	12 x 0,75	13.4	91.2	245

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
2005 033	14 x 0,75	14.0	105.6	274
2005 034	16 x 0,75	14.7	120.0	308
2005 035	18 x 0,75	15.5	134.4	342
2005 036	20 x 0,75	16.2	148.8	376
2005 037	21 x 0,75	16.2	156.0	380
2005 038	27 x 0,75	18.3	199.2	464
2005 039	3 x 1,0	8.9	33.6	109
2005 040	4 x 1,0	9.6	43.2	129
2005 041	5 x 1,0	10.4	52.8	155
2005 042	6 x 1,0	11.1	62.4	180
2005 043	7 x 1,0	11.1	72.0	186
2005 044	8 x 1,0	11.9	81.6	213
2005 045	10 x 1,0	13.7	100.8	252
2005 046	12 x 1,0	14.1	120.0	284
2005 047	14 x 1,0	14.8	139.2	320
2005 048	16 x 1,0	15.6	158.4	360
2005 049	18 x 1,0	16.4	177.6	401
2005 050	20 x 1,0	17.1	196.8	442
2005 051	21 x 1,0	17.1	206.4	447
2005 052	27 x 1,0	19.4	264.0	549
2005 053	30 x 1,0	20.0	292.8	598
2005 001	3 x 1,5	9.5	50.4	130

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2005 054	4 x 1,5	10.3	64.8	156
2005 055	5 x 1,5	11.1	79.2	187
2005 056	6 x 1,5	11.9	93.6	218
2005 017	7 x 1,5	11.9	108.0	227
2005 007	8 x 1,5	12.8	122.4	261
2005 057	10 x 1,5	14.8	151.2	309
2005 058	12 x 1,5	15.3	180.0	352
2005 009	14 x 1,5	16.0	208.8	397
2005 059	16 x 1,5	16.8	237.6	448
2005 060	18 x 1,5	17.7	266.4	499
2005 010	20 x 1,5	18.6	295.2	552
2005 061	21 x 1,5	18.6	309.6	561
2005 011	27 x 1,5	21.0	396.0	691
2005 062	30 x 1,5	22.0	439.2	766
2005 002	3 x 2,5	10.9	79.2	173
2005 063	4 x 2,5	11.8	103.2	211
2005 004	5 x 2,5	12.8	127.2	257
2005 064	6 x 2,5	13.8	151.2	304
2005 065	7 x 2,5	13.8	175.2	318
2005 066	8 x 2,5	14.9	199.2	368
2005 067	10 x 2,5	17.3	247.2	438
2005 068	12 x 2,5	17.9	295.2	503
2005 069	14 x 2,5	18.8	343.2	571
2005 070	16 x 2,5	19.8	391.2	648
2005 071	18 x 2,5	20.9	439.2	726
2005 072	20 x 2,5	22.1	487.2	815
2005 073	21 x 2,5	22.1	511.2	830
2005 074	27 x 2,5	25.3	655.2	1039
2005 075	30 x 2,5	26.2	727.2	1137
2005 076	36 x 2,5	28.5	871.2	1367
2005 077	40 x 2,5	29.5	967.2	1493
2005 078	44 x 2,5	32.2	1063	1642
2005 079	52 x 2,5	33.6	1255	1898
2005 003	3 x 4	11.9	124.8	225
2005 080	4 x 4	13.0	163.2	278
2005 005	5 x 4	14.1	201.6	341
2005 081	7 x 4	15.3	278.4	429
2005 082	3 x 6	13.1	182.4	290
2005 083	4 x 6	14.3	240.0	362

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2005 006	5 x 6	15.6	297.6	448
2005 084	7 x 6	17.0	412.8	572
2005 085	3 x 10	16.2	297.6	456
2005 086	4 x 10	17.7	393.6	577
2005 087	5 x 10	19.4	489.6	722
2005 088	7 x 10	21.2	681.6	934
2005 089	3 x 16	18.5	475.2	652
2005 090	4 x 16	20.3	628.8	833
2005 091	5 x 16	22.6	782.4	1060
2005 092	7 x 16	24.7	1090	1382
2005 093	3 x 25	22.1	734.4	944
2005 094	4 x 25	24.4	974.4	1215
2005 095	5 x 25	27.0	1214	1547
2005 096	7 x 25	29.8	1694	2044
2005 097	3 x 35	24.6	1022	1231
2005 098	4 x 35	27.3	1358	1606
2005 099	5 x 35	30.3	1694	2046
2005 100	7 x 35	33.4	2366	2714
2005 101	3 x 50	32.0	1464	1842
2005 102	4 x 50	35.6	1944	2401
2005 103	5 x 50	39.5	2424	3069
2005 104	7 x 50	43.8	3384	4069
<b>HSL(St)H-OZ 0,6/1 kV</b>				
1953 001	2 x 0,5	7.8	12.0	71
1953 010	3 x 0,5	8.1	16.8	84
1953 011	4 x 0,5	8.7	21.6	99
1953 027	5 x 0,5	9.4	26.4	117
1953 028	6 x 0,5	10.1	31.2	136
1953 029	7 x 0,5	10.1	36.0	139
1953 030	8 x 0,5	10.7	40.8	157
1953 012	10 x 0,5	12.3	50.4	184
1953 031	12 x 0,5	12.6	60.0	206
1953 032	14 x 0,5	13.2	69.6	230
1953 033	16 x 0,5	13.9	79.2	258
1953 034	18 x 0,5	14.6	88.8	286
1953 035	20 x 0,5	15.2	98.4	314
1953 036	21 x 0,5	15.2	103.2	317
1953 013	2 x 0,75	8.2	19.2	83
1953 037	3 x 0,75	8.5	26.4	98

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1953 038	4 x 0,75	9.2	33.6	115
1953 039	5 x 0,75	9.9	40.8	137
1953 040	6 x 0,75	10.6	48.0	158
1953 041	7 x 0,75	10.6	55.2	162
1953 042	8 x 0,75	11.3	62.4	185
1953 043	10 x 0,75	13.0	76.8	218
1953 044	12 x 0,75	13.4	91.2	245
1953 045	14 x 0,75	14.0	105.6	274
1953 046	16 x 0,75	14.7	120.0	308
1953 047	18 x 0,75	15.5	134.4	342
1953 048	20 x 0,75	16.2	148.8	376
1953 049	21 x 0,75	16.2	156.0	380
1953 050	27 x 0,75	18.3	199.2	464
1953 014	2 x 1,0	8.5	24.0	91
1953 051	3 x 1,0	8.9	33.6	109
1953 005	4 x 1,0	9.6	43.2	127
1953 052	5 x 1,0	10.4	52.8	155
1953 053	6 x 1,0	11.1	62.4	180
1953 008	7 x 1,0	11.1	72.0	185
1953 054	8 x 1,0	11.9	81.6	213
1953 055	10 x 1,0	13.7	100.8	252
1953 003	12 x 1,0	14.1	120.0	279
1953 056	14 x 1,0	14.8	139.2	320
1953 057	16 x 1,0	15.6	158.4	360
1953 004	18 x 1,0	16.4	177.6	393
1953 058	20 x 1,0	17.1	196.8	442
1953 059	21 x 1,0	17.1	206.4	447
1953 060	27 x 1,0	19.4	264.0	549
1953 007	30 x 1,0	20.0	292.8	596
1953 002	2 x 1,5	9.1	36.0	107
1953 009	3 x 1,5	9.5	50.4	129
1953 017	4 x 1,5	10.3	64.8	156
1953 061	5 x 1,5	11.1	79.2	187
1953 021	6 x 1,5	11.9	93.6	218
1953 022	7 x 1,5	11.9	108.0	227
1953 023	8 x 1,5	12.8	122.4	260
1953 024	10 x 1,5	14.8	151.2	309
1953 062	12 x 1,5	15.3	180.0	352
1953 063	14 x 1,5	16.0	208.8	397

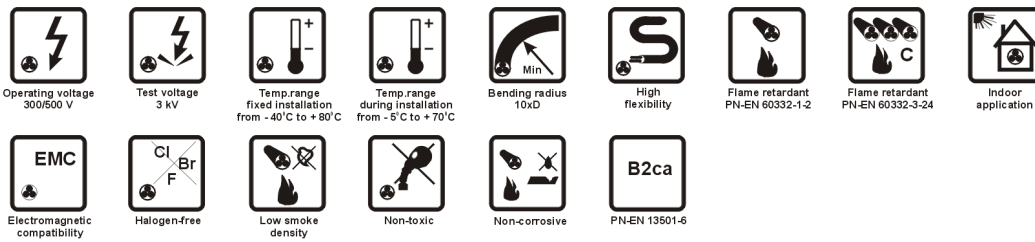
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1953 064	16 x 1,5	16.8	237.6	448
1953 025	18 x 1,5	17.7	266.4	498
1953 065	20 x 1,5	18.6	295.2	553
1953 066	21 x 1,5	18.6	309.6	561
1953 067	27 x 1,5	21.0	396.0	691
1953 068	30 x 1,5	22.0	439.2	766
1953 069	2 x 2,5	10.3	55.2	139
1953 015	3 x 2,5	10.9	79.2	172
1953 070	4 x 2,5	11.8	103.2	211
1953 018	5 x 2,5	12.8	127.2	256
1953 071	6 x 2,5	13.8	151.2	304
1953 072	7 x 2,5	13.8	175.2	318
1953 073	8 x 2,5	14.9	199.2	368
1953 074	10 x 2,5	17.3	247.2	438
1953 075	12 x 2,5	17.9	295.2	503
1953 076	14 x 2,5	18.8	343.2	571
1953 077	16 x 2,5	19.8	391.2	648
1953 026	18 x 2,5	20.9	439.2	725
1953 078	20 x 2,5	22.1	487.2	815
1953 079	21 x 2,5	22.1	511.2	830
1953 080	27 x 2,5	25.3	655.2	1039
1953 081	30 x 2,5	26.2	727.2	1137
1953 082	36 x 2,5	28.5	871.2	1367
1953 083	40 x 2,5	29.5	967.2	1493
1953 084	44 x 2,5	32.2	1063	1642
1953 085	52 x 2,5	33.6	1255	1898
1953 086	2 x 4	11.3	86.4	176
1953 016	3 x 4	11.9	124.8	224
1953 087	4 x 4	13.0	163.2	278
1953 019	5 x 4	14.1	201.6	340
1953 088	7 x 4	15.3	278.4	429
1953 089	2 x 6	12.4	124.8	222
1953 090	3 x 6	13.1	182.4	290
1953 091	4 x 6	14.3	240.0	362
1953 020	5 x 6	15.6	297.6	447
1953 092	7 x 6	17.0	412.8	572
1953 093	2 x 10	15.2	201.6	338
1953 094	3 x 10	16.2	297.6	456
1953 095	4 x 10	17.7	393.6	577

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1953 096	5 x 10	19.4	489.6	722
1953 097	7 x 10	21.2	681.6	934
1953 098	2 x 16	17.4	321.6	476
1953 099	3 x 16	18.5	475.2	652
1953 100	4 x 16	20.3	628.8	833
1953 101	5 x 16	22.6	782.4	1060
1953 102	7 x 16	24.7	1090	1382
1953 103	3 x 25	22.1	734.4	944
1953 104	4 x 25	24.4	974.4	1215
1953 105	5 x 25	27.0	1214	1547
1953 106	7 x 25	29.8	1694	2044
1953 107	3 x 35	24.6	1022	1231
1953 108	4 x 35	27.3	1358	1606
1953 109	5 x 35	30.3	1694	2046
1953 110	7 x 35	33.4	2366	2714
1953 006	3 x 50	32.0	1464	1838
1953 111	4 x 50	35.6	1944	2401
1953 112	5 x 50	39.5	2424	3069
1953 113	7 x 50	43.8	3384	4069
<b>HSL(St)H-JB 0,6/1 kV</b>				
2106 001	3 x 0,5	8.1	16.8	84
2106 002	5 x 0,5	9.4	26.4	117
2106 003	3 x 0,75	8.5	26.4	98
2106 004	5 x 0,75	9.9	40.8	137
2106 005	3 x 1,0	8.9	33.6	109
2106 006	5 x 1,0	10.4	52.8	155
2106 007	3 x 1,5	9.5	50.4	130
2106 008	5 x 1,5	11.1	79.2	187
2106 009	3 x 2,5	10.9	79.2	173
2106 010	5 x 2,5	12.8	127.2	257
2106 011	3 x 4	11.9	124.8	225
2106 012	5 x 4	14.1	201.6	342
2106 013	3 x 6	13.1	182.4	290

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2106 014	5 x 6	15.6	297.6	449
2106 015	3 x 10	16.2	297.6	456
2106 016	5 x 10	19.4	489.6	722
2106 017	3 x 16	18.5	475.2	652
2106 018	5 x 16	22.6	782.4	1060
2106 019	3 x 25	22.1	734.4	944
2106 020	5 x 25	27.0	1214	1547
2106 021	3 x 35	24.6	1022	1231
2106 022	5 x 35	30.3	1694	2046
2106 023	3 x 50	32.0	1464	1842
2106 024	5 x 50	39.5	2424	3069
<b>HSL(St)H-OB 0,6/1 kV</b>				
2107 001	2 x 0,5	7.8	12.0	72
2107 002	4 x 0,5	8.7	21.6	99
2107 003	2 x 0,75	8.2	19.2	83
2107 004	4 x 0,75	9.2	33.6	115
2107 005	2 x 1,0	8.5	24.0	91.0
2107 006	4 x 1,0	9.6	43.2	129
2107 007	2 x 1,5	9.1	36.0	107
2107 008	4 x 1,5	10.3	64.8	156
2107 009	2 x 2,5	10.3	55.2	139
2107 010	4 x 2,5	11.8	103.2	211
2107 011	2 x 4	11.3	86.4	176
2107 012	4 x 4	13.0	163.2	278
2107 013	2 x 6	12.4	124.8	222
2107 014	4 x 6	14.3	240.0	362
2107 015	2 x 10	15.2	201.6	338
2107 016	4 x 10	17.7	393.6	577
2107 017	2 x 16	17.4	321.6	476
2107 018	4 x 16	20.3	628.8	833
2107 019	4 x 25	24.4	974.4	1215
2107 020	4 x 35	27.3	1358	1606
2107 021	4 x 50	35.6	1944	2401

TECHNOKABEL SA reserves the right to change specifications without prior notice

## TECHNOKONTROL HKSLHekw-Nr 300/500 V, TECHNOKONTROL HKSLHekwżo-Nr 300/500 V



### APPLICATIONS

TECHNOKONTROL HKSLHekw-Nr 300/500 V and TECHNOKONTROL HKSLHekwżo-Nr 300/500 V are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment

Sheathing black halogen free material is resistant to UV radiation.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- black insulation made of halogen free compound (HFFR) and white conductor numbers printed on it for identification,
- insulated conductors laid-up in layers, green-yellow protective conductor located in the outer layer in TECHNOKONTROL HKSLHekwżo-Nr 300/500 V cable,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black cable sheath made of halogen free compound (HFFR), other colours also available.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
Conductor temperature limit	
in work conditions	+ 70°C
at short-circuit	+ 150°C
Operating temperature range	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1614 002	2 x 0,5	5.1	12.0	35
1614 003	3 x 0,5	5.1	16.8	39
1614 005	4 x 0,5	5.5	21.6	47
1614 014	5 x 0,5	6.0	26.4	57
1614 007	6 x 0,5	6.5	31.2	68
1614 022	7 x 0,5	6.5	36.0	71
1614 025	8 x 0,5	7.0	40.8	82
1614 043	10 x 0,5	8.1	50.4	97
1614 046	12 x 0,5	8.4	60.0	111
1614 030	14 x 0,5	8.8	69.6	126
1614 052	16 x 0,5	9.3	79.2	143
1614 008	2 x 0,75	5.2	19.2	40
1614 009	3 x 0,75	5.4	26.4	49
1614 011	4 x 0,75	5.9	33.6	59
1614 034	5 x 0,75	6.4	40.8	73
1614 020	6 x 0,75	7.0	48.0	87
1614 023	7 x 0,75	7.0	55.2	91
1614 039	8 x 0,75	7.5	62.4	104
1614 026	10 x 0,75	8.8	76.8	124
1614 028	12 x 0,75	9.1	91.2	143
1614 049	14 x 0,75	10.0	105.6	172
1614 053	16 x 0,75	10.5	120.0	194

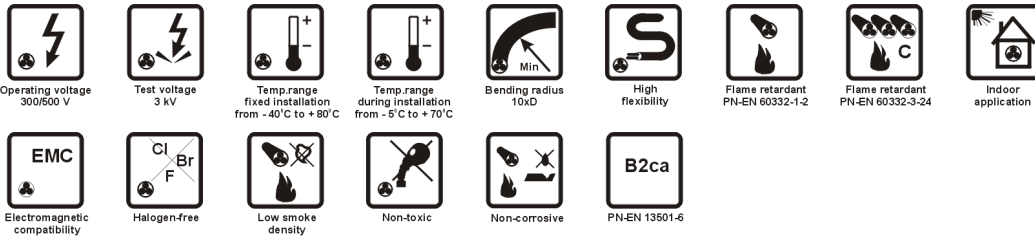
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1614 076	18 x 0,75	11.1	134.4	217
1614 057	20 x 0,75	11.6	148.8	240
1614 063	25 x 0,75	13.4	184.8	300
1614 004	3 x 1,0	5.8	33.6	57
1614 012	4 x 1,0	6.4	43.2	72
1614 015	5 x 1,0	6.9	52.8	88
1614 021	6 x 1,0	7.5	62.4	104
1614 024	7 x 1,0	7.5	72.0	110
1614 040	8 x 1,0	8.1	81.6	127
1614 044	10 x 1,0	9.9	100.8	161
1614 047	12 x 1,0	10.3	120.0	186
1614 050	14 x 1,0	10.8	139.2	211
1614 054	16 x 1,0	11.3	158.4	239
1614 077	18 x 1,0	12.2	177.6	274
1614 001	20 x 1,0	12.8	196.8	303
1614 060	21 x 1,0	12.8	206.4	309
1614 064	25 x 1,0	14.7	244.8	378
1614 067	32 x 1,0	15.8	312.0	461
1614 010	3 x 1,5	6.4	50.4	76
1614 013	4 x 1,5	7.0	64.8	95
1614 016	5 x 1,5	7.7	79.2	116
1614 035	6 x 1,5	8.3	93.6	138

Product No.	Number of conductors x conductors cross-section mm <sup>2</sup>	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
1614 037	7 x 1,5	8.3	108.0	147
1614 041	8 x 1,5	9.0	122.4	170
1614 045	10 x 1,5	11.0	151.2	214
1614 029	12 x 1,5	11.4	180.0	248
1614 051	14 x 1,5	12.2	208.8	288
1614 055	16 x 1,5	12.8	237.6	326
1614 058	20 x 1,5	14.4	295.2	412
1614 061	21 x 1,5	14.4	309.6	421
1614 065	25 x 1,5	16.3	367.2	505
1614 068	32 x 1,5	17.6	468.0	620
1614 070	37 x 1,5	18.5	540.0	702
1614 073	42 x 1,5	19.9	612.0	808
1614 006	3 x 2,5	7.3	79.2	105
1614 032	4 x 2,5	8.0	103.2	133
1614 017	5 x 2,5	8.8	127.2	165
1614 036	6 x 2,5	10.0	151.2	207
1614 038	7 x 2,5	10.0	175.2	222

Product No.	Number of conductors x conductors cross-section mm <sup>2</sup>	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
1614 042	8 x 2,5	10.9	199.2	257
1614 027	10 x 2,5	12.9	247.2	315
1614 048	12 x 2,5	13.4	295.2	366
1614 031	14 x 2,5	14.3	343.2	426
1614 056	16 x 2,5	15.0	391.2	484
1614 059	20 x 2,5	16.7	487.2	603
1614 062	21 x 2,5	16.7	511.2	617
1614 066	25 x 2,5	19.2	607.2	752
1614 069	32 x 2,5	20.7	775.2	927
1614 071	37 x 2,5	21.5	895.2	1040
1614 072	40 x 2,5	22.3	967.2	1125
1614 074	42 x 2,5	23.3	1015	1208
1614 075	50 x 2,5	25.5	1207	1414
1614 033	4 x 4	10.1	163.2	207
1614 018	5 x 4	11.1	201.6	258
1614 019	5 x 6	13.0	297.6	367

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOKONTROL HKSLHekw 300/500 V**  
**TECHNOKONTROL HKSLHekwżo 300/500 V**



**APPLICATIONS**

TECHNOKONTROL HKSLHekw 300/500 V and TECHNOKONTROL HKSLHekwżo 300/500 V are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Sheathing black halogen free material is resistant to UV radiation

Cable outer sheath is oil-resistant.



**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code in accordance with Technokabel's Identification System (see our Technical Guide),
- insulated conductors laid-up in layers, green-yellow protective conductor located in the outer layer in TECHNOKONTROL HKSLHekwżo 300/500 V cable,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black cable sheath made of halogen free compound (HFFR), other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30

Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	
				kg/km	kg/km
	mm <sup>2</sup>	mm	kg/km	kg/km	
2101 001	2 x 0,5	5.1	12.0	35	
1884 003	3 x 0,5	5.1	16.8	39	
1884 004	4 x 0,5	5.5	21.6	47	
1884 005	5 x 0,5	6.0	26.4	57	
1884 006	6 x 0,5	6.5	31.2	68	
1884 007	7 x 0,5	6.5	36.0	71	
1884 008	8 x 0,5	7.0	40.8	82	
1884 009	10 x 0,5	8.1	50.4	97	
1884 010	12 x 0,5	8.4	60.0	111	
1884 011	14 x 0,5	8.8	69.6	126	
1884 012	16 x 0,5	9.3	79.2	143	
2101 002	2 x 0,75	5.2	19.2	40	
1884 013	3 x 0,75	5.4	26.4	49	
1884 014	4 x 0,75	5.9	33.6	59	
1884 015	5 x 0,75	6.4	40.8	73	
1884 016	6 x 0,75	7.0	48.0	87	
1884 017	7 x 0,75	7.0	55.2	91	
1884 018	8 x 0,75	7.5	62.4	104	
1884 019	10 x 0,75	8.8	76.8	124	
1884 020	12 x 0,75	9.1	91.2	143	
1884 021	14 x 0,75	10.0	105.6	172	
1884 022	16 x 0,75	10.5	120.0	194	

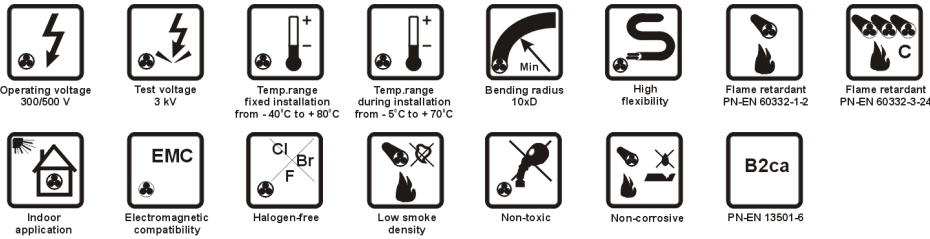
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	
				kg/km	kg/km
	mm <sup>2</sup>	mm	kg/km	kg/km	
1884 023	18 x 0,75	11.1	134.4	217	
1884 024	20 x 0,75	11.6	148.8	240	
1884 025	25 x 0,75	13.4	184.8	300	
1884 002	3 x 1,0	5.8	33.6	57	
1884 026	4 x 1,0	6.4	43.2	72	
1884 027	5 x 1,0	6.9	52.8	88	
1884 028	6 x 1,0	7.5	62.4	104	
1884 029	7 x 1,0	7.5	72.0	110	
1884 030	8 x 1,0	8.1	81.6	127	
1884 031	10 x 1,0	9.9	100.8	161	
1884 032	12 x 1,0	10.3	120.0	186	
1884 033	14 x 1,0	10.8	139.2	211	
1884 034	16 x 1,0	11.3	158.4	239	
1884 035	18 x 1,0	12.2	177.6	274	
1884 036	20 x 1,0	12.8	196.8	303	
1884 037	21 x 1,0	12.8	206.4	309	
1884 038	25 x 1,0	14.7	244.8	378	
1884 039	32 x 1,0	15.8	312.0	461	
1884 001	3 x 1,5	6.4	50.4	76	
1884 040	4 x 1,5	7.0	64.8	95	
1884 041	5 x 1,5	7.7	79.2	116	
1884 042	6 x 1,5	8.3	93.6	138	

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1884 043	7 x 1,5	8.3	108.0	147
1884 044	8 x 1,5	9.0	122.4	170
1884 045	10 x 1,5	11.0	151.2	214
1884 046	12 x 1,5	11.4	180.0	248
1884 047	14 x 1,5	12.2	208.8	288
1884 048	16 x 1,5	12.8	237.6	326
1884 049	20 x 1,5	14.4	295.2	412
1884 050	21 x 1,5	14.4	309.6	421
1884 051	25 x 1,5	16.3	367.2	505
1884 052	32 x 1,5	17.6	468.0	620
1884 053	37 x 1,5	18.5	540.0	702
1884 054	42 x 1,5	19.9	612.0	808
1884 055	3 x 2,5	7.3	79.2	105
1884 056	4 x 2,5	8.0	103.2	133
1884 057	5 x 2,5	8.8	127.2	165
1884 058	6 x 2,5	10.0	151.2	207
1884 059	7 x 2,5	10.0	175.2	222

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1884 060	8 x 2,5	10.9	199.2	257
1884 061	10 x 2,5	12.9	247.2	315
1884 062	12 x 2,5	13.4	295.2	366
1884 063	14 x 2,5	14.3	343.2	426
1884 064	16 x 2,5	15.0	391.2	484
1884 065	20 x 2,5	16.7	487.2	603
1884 066	21 x 2,5	16.7	511.2	617
1884 067	25 x 2,5	19.2	607.2	752
1884 068	32 x 2,5	20.7	775.2	927
1884 069	37 x 2,5	21.5	895.2	1040
1884 070	40 x 2,5	22.3	967.2	1125
1884 071	42 x 2,5	23.3	1015.2	1208
1884 072	50 x 2,5	25.5	1207.2	1414
1884 073	4 x 4	10.1	163.2	207
1884 074	5 x 4	11.1	201.6	258
1884 075	5 x 6	13.0	297.6	367

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOKONTROL HKSLHekw-P 300/500 V, TECHNOKONTROL HKSLHekw-P-Nr 300/500 V



### APPLICATIONS

TECHNOKONTROL HKSLHekw-P 300/500 V and TECHNOKONTROL HKSLHekw-P-Nr 300/500 V are halogen free, multipair flexible, overall shielded cables designed for control, protection and monitoring systems or power supply, all in power engineering.

Paired structure decreases mutual influence between signals transmitted along the cable.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code according to PN-92/T-90321 (compatible with IEC 60189-2) in TECHNOKONTROL HKSLHekw-P 300/500 V cable; black and brown PVC insulation and white pair numbers printed on it for identification in TECHNOKONTROL HKSLHekw-P-Nr 300/500 V cable,
- insulated conductors twisted into pairs,
- pairs laid-up in layers into a cable core,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black cable sheath made of halogen free compound (HFFR), other colours also available.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5
DC loop resistance at 20°C, maximum	Ω/km	79.6	53.0	39.8	27.1	16.28



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

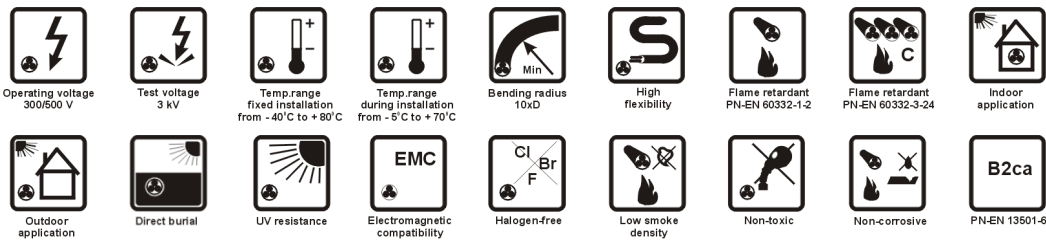
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1334 007	4 x 2 x 0,5	8.3	40.8	85
1334 020	5 x 2 x 0,5	9.1	50.4	101
1334 022	6 x 2 x 0,5	10.3	60.0	127
1334 023	7 x 2 x 0,5	10.3	69.6	141
1334 024	8 x 2 x 0,5	11.0	79.2	157
1334 003	10 x 2 x 0,5	12.7	98.4	197
1334 026	12 x 2 x 0,5	13.2	117.6	226
1334 028	14 x 2 x 0,5	14.3	136.8	264
1334 029	16 x 2 x 0,5	15.2	156.0	296
1334 053	18 x 2 x 0,5	15.9	175.2	326
1334 032	20 x 2 x 0,5	16.7	194.4	357
1334 033	24 x 2 x 0,5	18.1	232.8	418
1334 035	1 x 2 x 0,75	5.2	19.2	40
1334 015	4 x 2 x 0,75	9.0	62.4	108
1334 021	5 x 2 x 0,75	10.3	76.8	139
1334 037	7 x 2 x 0,75	11.2	105.6	179
1334 040	8 x 2 x 0,75	12.2	120.0	207
1334 041	10 x 2 x 0,75	13.8	148.8	251
1334 044	12 x 2 x 0,75	14.7	177.6	297
1334 047	14 x 2 x 0,75	15.7	206.4	338
1334 030	16 x 2 x 0,75	16.6	235.2	379

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1334 055	24 x 2 x 0,75	20.0	350.4	549
1334 036	5 x 2 x 1,0	11.1	100.8	169
1334 038	7 x 2 x 1,0	12.4	139.2	226
1334 004	8 x 2 x 1,0	13.2	158.4	253
1334 025	10 x 2 x 1,0	15.2	196.8	316
1334 027	12 x 2 x 1,0	15.9	235.2	365
1334 048	14 x 2 x 1,0	17.0	273.6	417
1334 031	16 x 2 x 1,0	18.0	312.0	469
1334 034	24 x 2 x 1,0	21.7	465.6	683
1334 039	7 x 2 x 1,5	13.7	208.8	299
1334 042	10 x 2 x 1,5	16.9	295.2	420
1334 045	12 x 2 x 1,5	17.7	352.8	489
1334 049	14 x 2 x 1,5	19.1	410.4	569
1334 051	16 x 2 x 1,5	20.3	468.0	641
1334 054	20 x 2 x 1,5	22.6	583.2	793
1334 056	24 x 2 x 1,5	24.5	698.4	931
1334 043	10 x 2 x 2,5	19.8	487.2	622
1334 046	12 x 2 x 2,5	20.8	583.2	727
1334 050	14 x 2 x 2,5	22.3	679.2	836
1334 052	16 x 2 x 2,5	23.8	775.2	952

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOKONTROL HvKSLHekw-Nr 300/500 V**  
**TECHNOKONTROL HvKSLHekwżo-Nr 300/500 V**



**APPLICATIONS**

TECHNOKONTROL HvKSLHekw-Nr 300/500 V and TECHNOKONTROL HvKSLHekwżo-Nr 300/500 V are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment. They can also for outdoor installation and direct earth burial.

Enhanced cable sheath is UV radiation and weather resistant.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- black insulation made of halogen free compound (HFFR) and white conductor numbers printed on it for identification,
- insulated conductors laid-up in layers, green-yellow protective conductor located in the outer layer in TECHNOKONTROL HvKSLHekwżo-Nr 300/500 V cable,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black enhanced cable sheath made of halogen free compound (HFFR), other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30



Operating voltage U <sub>o</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1869 002	2 x 0,5	6.6	12.0	57
1869 003	3 x 0,5	6.9	16.8	66
1869 024	4 x 0,5	7.3	21.6	76
1869 020	5 x 0,5	7.8	26.4	88
1869 031	6 x 0,5	8.3	31.2	101
1869 035	7 x 0,5	8.3	36.0	104
1869 039	8 x 0,5	8.8	40.8	117
1869 010	10 x 0,5	9.9	50.4	137
1869 047	12 x 0,5	10.2	60.0	153
1869 051	14 x 0,5	10.6	69.6	169
1869 055	16 x 0,5	11.1	79.2	188
1869 001	2 x 0,75	7.0	19.2	67
1869 018	3 x 0,75	7.2	26.4	78
1869 019	4 x 0,75	7.7	33.6	90
1869 028	5 x 0,75	8.2	40.8	105
1869 032	6 x 0,75	8.8	48.0	122
1869 036	7 x 0,75	8.8	55.2	126
1869 040	8 x 0,75	9.3	62.4	142
1869 011	10 x 0,75	10.6	76.8	167
1869 048	12 x 0,75	10.9	91.2	187
1869 052	14 x 0,75	11.4	105.6	209
1869 056	16 x 0,75	11.9	120.0	233

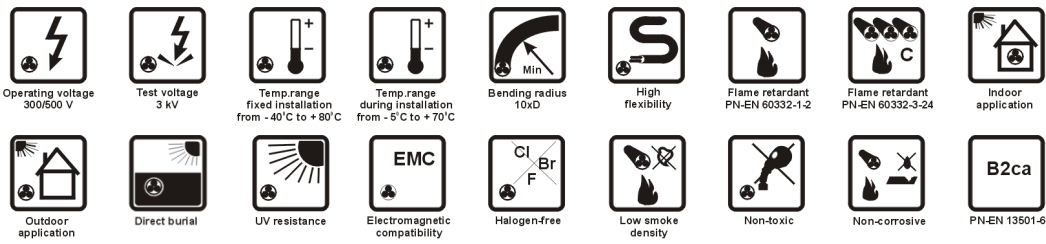
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1869 059	20 x 0,75	13.0	148.8	282
1869 065	25 x 0,75	14.6	184.8	342
1869 008	3 x 1,0	7.6	33.6	88
1869 025	4 x 1,0	8.2	43.2	105
1869 029	5 x 1,0	8.7	52.8	123
1869 033	6 x 1,0	9.3	62.4	142
1869 037	7 x 1,0	9.3	72.0	148
1869 041	8 x 1,0	9.9	81.6	168
1869 044	10 x 1,0	11.3	100.8	198
1869 049	12 x 1,0	11.7	120.0	224
1869 053	14 x 1,0	12.2	139.2	251
1869 057	16 x 1,0	12.7	158.4	281
1869 060	20 x 1,0	14.0	196.8	343
1869 062	21 x 1,0	14.0	206.4	349
1869 066	25 x 1,0	15.7	244.8	416
1869 005	3 x 1,5	8.2	50.4	109
1869 026	4 x 1,5	8.8	64.8	130
1869 021	5 x 1,5	9.5	79.2	154
1869 009	6 x 1,5	10.1	93.6	179
1869 022	7 x 1,5	10.1	108.0	188
1869 042	8 x 1,5	10.8	122.4	214
1869 045	10 x 1,5	12.4	151.2	255

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
	mm <sup>2</sup>			
1869 012	12 x 1,5	12.8	180.0	290
1869 013	14 x 1,5	13.4	208.8	327
1869 014	16 x 1,5	14.0	237.6	366
1869 015	20 x 1,5	15.4	295.2	449
1869 063	21 x 1,5	15.4	309.6	458
1869 016	25 x 1,5	17.3	367.2	547
1869 017	32 x 1,5	18.6	468.0	665
1869 069	37 x 1,5	19.3	540.0	740
1869 072	42 x 1,5	20.7	612.0	848
1869 004	3 x 2,5	9.1	79.2	142
1869 027	4 x 2,5	9.8	103.2	172
1869 030	5 x 2,5	10.6	127.2	208
1869 034	6 x 2,5	11.4	151.2	245
1869 038	7 x 2,5	11.4	175.2	259

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
	mm <sup>2</sup>			
1869 043	8 x 2,5	12.3	199.2	297
1869 046	10 x 2,5	14.1	247.2	355
1869 050	12 x 2,5	14.6	295.2	408
1869 054	14 x 2,5	15.3	343.2	463
1869 058	16 x 2,5	16.0	391.2	522
1869 061	20 x 2,5	17.7	487.2	646
1869 064	21 x 2,5	17.7	511.2	660
1869 067	25 x 2,5	20.0	607.2	791
1869 068	32 x 2,5	21.5	775.2	969
1869 070	37 x 2,5	22.5	895.2	1095
1869 071	40 x 2,5	23.3	967.2	1181
1869 073	42 x 2,5	24.1	1015	1256
1869 074	50 x 2,5	26.5	1207	1479

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOKONTROL HvKSLHekw 300/500 V**  
**TECHNOKONTROL HvKSLHekwżo 300/500 V**



**APPLICATIONS**

TECHNOKONTROL HvKSLHekw 300/500 V and TECHNOKONTROL HvKSLHekwżo 300/500 V are halogen free, flexible, overall shielded cables intended for control, protection and monitoring systems or power supply, all in power engineering. The cables are also intended for wiring industrial plants, such as production lines, air-conditioning equipment etc.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment. They can also for outdoor installation and direct earth burial.

Enhanced cable sheath is UV radiation and weather resistant.

Cable outer sheath is oil-resistant.



**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code in accordance with Technokabel's Identification System (see our Technical Guide),
- insulated conductors laid-up in layers, green-yellow protective conductor located in the outer layer in TECHNOKONTROL HvKSLHekwżo 300/500 V cable,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black enhanced cable sheath made of halogen free compound (HFFR), other colours also available

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30

Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
	mm <sup>2</sup>			
1633 002	2 x 0,5	6.6	12.0	57
1952 003	3 x 0,5	6.9	16.8	66
1952 004	4 x 0,5	7.3	21.6	76
1952 005	5 x 0,5	7.8	26.4	88
1952 006	6 x 0,5	8.3	31.2	101
1952 007	7 x 0,5	8.3	36.0	104
1952 008	8 x 0,5	8.8	40.8	117
1952 009	10 x 0,5	9.9	50.4	137
1952 010	12 x 0,5	10.2	60.0	153
1952 011	14 x 0,5	10.6	69.6	169
1952 012	16 x 0,5	11.1	79.2	188
1633 003	2 x 0,75	7.0	19.2	67
1952 013	3 x 0,75	7.2	26.4	78
1952 014	4 x 0,75	7.7	33.6	90
1952 015	5 x 0,75	8.2	40.8	105
1952 016	6 x 0,75	8.8	48.0	122
1952 017	7 x 0,75	8.8	55.2	126
1952 018	8 x 0,75	9.3	62.4	142
1952 019	10 x 0,75	10.6	76.8	167
1952 020	12 x 0,75	10.9	91.2	187
1952 021	14 x 0,75	11.4	105.6	209
1952 022	16 x 0,75	11.9	120.0	233
1952 023	20 x 0,75	13.0	148.8	282

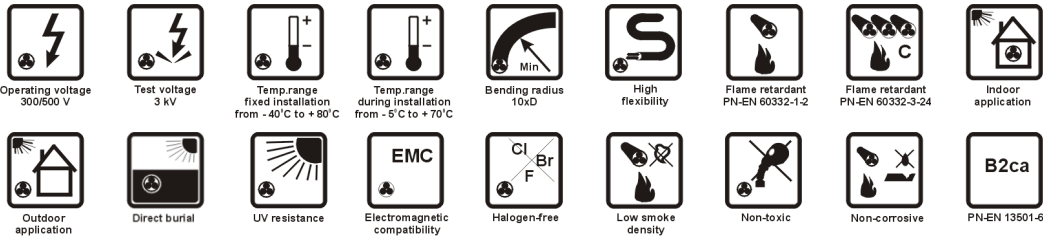
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.) mm	Copper index kg/km	Cable weight (appr.) kg/km
	mm <sup>2</sup>			
1952 024	25 x 0,75	14.6	184.8	342
1952 025	3 x 1,0	7.6	33.6	88
1952 026	4 x 1,0	8.2	43.2	105
1952 027	5 x 1,0	8.7	52.8	123
1952 028	6 x 1,0	9.3	62.4	142
1952 029	7 x 1,0	9.3	72.0	148
1952 030	8 x 1,0	9.9	81.6	168
1952 031	10 x 1,0	11.3	100.8	198
1952 032	12 x 1,0	11.7	120.0	224
1952 033	14 x 1,0	12.2	139.2	251
1952 034	16 x 1,0	12.7	158.4	281
1952 035	20 x 1,0	14.0	196.8	343
1952 036	21 x 1,0	14.0	206.4	349
1952 037	25 x 1,0	15.7	244.8	416
1952 001	3 x 1,5	8.2	50.4	109
1952 038	4 x 1,5	8.8	64.8	130
1952 039	5 x 1,5	9.5	79.2	154
1952 040	6 x 1,5	10.1	93.6	179
1952 041	7 x 1,5	10.1	108.0	188
1952 042	8 x 1,5	10.8	122.4	214
1952 043	10 x 1,5	12.4	151.2	255
1952 044	12 x 1,5	12.8	180.0	290
1952 045	14 x 1,5	13.4	208.8	327

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1952 046	16 x 1,5	14.0	237.6	366
1952 047	20 x 1,5	15.4	295.2	449
1952 048	21 x 1,5	15.4	309.6	458
1952 049	25 x 1,5	17.3	367.2	547
1952 050	32 x 1,5	18.6	468.0	665
1952 051	37 x 1,5	19.3	540.0	740
1952 052	42 x 1,5	20.7	612.0	848
1952 002	3 x 2,5	9.1	79.2	142
1952 053	4 x 2,5	9.8	103.2	172
1952 054	5 x 2,5	10.6	127.2	208
1952 055	6 x 2,5	11.4	151.2	245
1952 056	7 x 2,5	11.4	175.2	259
1952 057	8 x 2,5	12.3	199.2	297

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1952 058	10 x 2,5	14.1	247.2	355
1952 059	12 x 2,5	14.6	295.2	408
1952 060	14 x 2,5	15.3	343.2	463
1952 061	16 x 2,5	16.0	391.2	522
1952 062	20 x 2,5	17.7	487.2	646
1952 063	21 x 2,5	17.7	511.2	660
1952 064	25 x 2,5	20.0	607.2	791
1952 065	32 x 2,5	21.5	775.2	969
1952 066	37 x 2,5	22.5	895.2	1095
1952 067	40 x 2,5	23.3	967.2	1181
1952 068	42 x 2,5	24.1	1015	1256
1952 069	50 x 2,5	26.5	1207	1479

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOKONTROL HvKSLHekw-P 300/500 V**  
**TECHNOKONTROL HvKSLHekw-P-Nr 300/500 V**



**APPLICATIONS**

TECHNOKONTROL HvKSLHekw-P 300/500 V and TECHNOKONTROL HvKSLHekw-P-Nr 300/500 V are halogen free, multipair flexible, overall shielded cables designed for control, protection and monitoring systems or power supply, all in power engineering.

Paired structure decreases mutual influence between signals transmitted along the cable.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment. They can also for outdoor installation and direct earth burial.

Enhanced cable sheath is UV radiation and weather resistant.

Cable outer sheath is oil-resistant.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code according to PN-92/T-90321 (compatible with IEC 60189-2) in **TECHNOKONTROL HvKSLHekw-P 300/500 V** cable; black and brown PVC insulation and white pair numbers printed on it for identification in **TECHNOKONTROL HvKSLHekw-P-Nr 300/500 V** cable,
- insulated conductors twisted into pairs,
- pairs laid-up in layers into a cable core,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- black enhanced cable sheath made of halogen free compound (HFFR), other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	79.6	53.0	39.8	27.1	16.28



Operating voltage U <sub>o</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	DT 157/07/10
CPR – class reaction on fire	B2ca -s1a, d2, a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1868 053	1 x 2 x 0,5	6.6	12.0	57
1868 024	2 x 2 x 0,5	8.9	21.6	99
1868 037	3 x 2 x 0,5	9.3	31.2	106
1868 035	4 x 2 x 0,5	10.1	40.8	126
1868 040	5 x 2 x 0,5	10.9	50.4	146
1868 041	6 x 2 x 0,5	11.7	60.0	166
1868 042	7 x 2 x 0,5	11.7	69.6	179
1868 025	8 x 2 x 0,5	12.4	79.2	198
1868 044	10 x 2 x 0,5	13.9	98.4	237
1868 045	12 x 2 x 0,5	14.4	117.6	267
1868 070	14 x 2 x 0,5	15.3	136.8	301
1868 048	16 x 2 x 0,5	16.2	156.0	335
1868 009	1 x 2 x 0,75	7.0	19.2	67
1868 001	2 x 2 x 0,75	9.5	33.6	117
1868 010	3 x 2 x 0,75	10.0	48.0	128
1868 002	4 x 2 x 0,75	10.8	62.4	152
1868 006	5 x 2 x 0,75	11.7	76.8	177
1868 007	7 x 2 x 0,75	12.6	105.6	220
1868 003	8 x 2 x 0,75	13.4	120.0	245
1868 064	10 x 2 x 0,75	15.0	148.8	294
1868 068	12 x 2 x 0,75	15.7	177.6	335
1868 071	14 x 2 x 0,75	16.7	206.4	378
1868 004	16 x 2 x 0,75	17.6	235.2	421

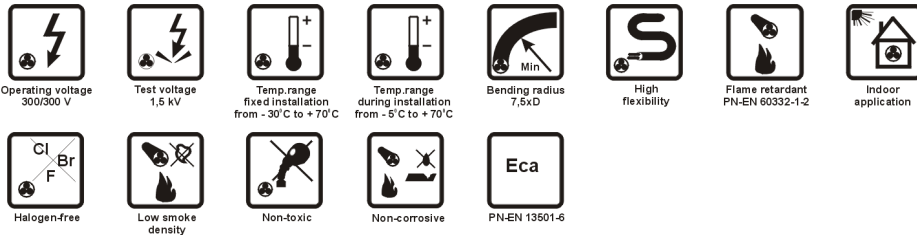
Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1868 005	24 x 2 x 0,75	20.8	350.4	590
1868 054	2 x 2 x 1,0	10.1	43.2	135
1868 012	2 x 2 x 1,5	11.1	64.8	167
1868 055	3 x 2 x 1,0	10.6	62.4	148
1868 057	4 x 2 x 1,0	11.5	81.6	179
1868 059	5 x 2 x 1,0	12.5	100.8	210
1868 062	7 x 2 x 1,0	13.6	139.2	265
1868 065	10 x 2 x 1,0	16.2	196.8	355
1868 069	12 x 2 x 1,0	16.9	235.2	406
1868 072	14 x 2 x 1,0	18.0	273.6	461
1868 074	16 x 2 x 1,0	19.0	312.0	515
1868 051	24 x 2 x 1,0	22.7	465.6	738
1868 038	3 x 2 x 1,5	11.6	93.6	186
1868 039	4 x 2 x 1,5	12.6	122.4	226
1868 060	5 x 2 x 1,5	13.8	151.2	268
1868 043	7 x 2 x 1,5	14.9	208.8	342
1868 066	10 x 2 x 1,5	17.9	295.2	463
1868 046	12 x 2 x 1,5	18.7	352.8	534
1868 047	14 x 2 x 1,5	19.9	410.4	608
1868 049	16 x 2 x 1,5	21.1	468.0	683
1868 075	20 x 2 x 1,5	23.4	583.2	839
1868 052	24 x 2 x 1,5	25.5	698.4	994
1868 056	3 x 2 x 2,5	13.2	151.2	253

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1868 058	4 x 2 x 2,5	14.4	199.2	312
1868 061	5 x 2 x 2,5	15.8	247.2	373
1868 063	7 x 2 x 2,5	17.1	343.2	484
1868 067	10 x 2 x 2,5	20.6	487.2	662

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1868 036	12 x 2 x 2,5	21.6	583.2	770
1868 073	14 x 2 x 2,5	23.3	679.2	892
1868 050	16 x 2 x 2,5	24.6	775.2	1000

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOTRONIK LiHH



### APPLICATIONS

TECHNOTRONIK LiHH are halogen free control cables intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all for industrial electronic applications.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility and small outer diameter combined with tensile strength. The cables are suitable for connecting fixed and movable equipment inside rail vehicles, subway trains, in trams, as well as for indoor installations.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code in accordance with DIN VDE 47100,
- insulated conductors laid-up in layers,
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

### AVAILABLE UPON REQUEST

TECHNOTRONIK IB-LiHH - specially designed intrinsically safe cable.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.14	0.25	0.34	0.5	0.75	1.0	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	144.0	79.0	57.0	39.0	26.0	19.5	13.3	7.98



Operating voltage U <sub>0</sub> /U	300/300 V
Voltage test	1.5 kV rms
Insulation resistance, minimum	20 MΩ/km
Inductance, approximate	0.7 mH/km
Impedance, approximate	80 Ω
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 70°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	7.5 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Reference standards	DIN VDE 0812, DIN VDE 0814, DT 105/01/07
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0453 065	2 x 0,14	3.0	2.7	14
0453 066	3 x 0,14	3.1	4.0	16
0453 067	5 x 0,14	3.7	6.7	23
0453 074	6 x 0,14	4.0	8.1	26
0453 010	2 x 0,5	4.0	9.6	27
0453 075	2 x 0,25	3.3	4.8	18
0453 076	3 x 0,25	3.5	7.2	21
0453 077	4 x 0,25	3.8	9.6	25
0453 069	6 x 0,25	4.5	14.4	36
0453 078	10 x 0,25	5.9	24.0	56
0453 070	12 x 0,25	6.0	28.8	62
0453 025	16 x 0,25	6.7	38.4	78
0453 079	40 x 0,25	10.2	96.0	181
0453 080	3 x 0,34	3.7	9.8	25
0453 081	4 x 0,34	4.0	13.1	31
0453 009	3 x 0,5	4.2	14.4	32
0453 026	4 x 0,5	4.6	19.2	39
0453 011	5 x 0,5	5.3	24.0	51
0453 027	6 x 0,5	5.8	28.8	61
0453 034	7 x 0,5	5.8	33.6	64
0453 012	8 x 0,5	6.2	38.4	73
0453 028	10 x 0,5	7.3	48.0	90
0453 035	12 x 0,5	7.5	57.6	102

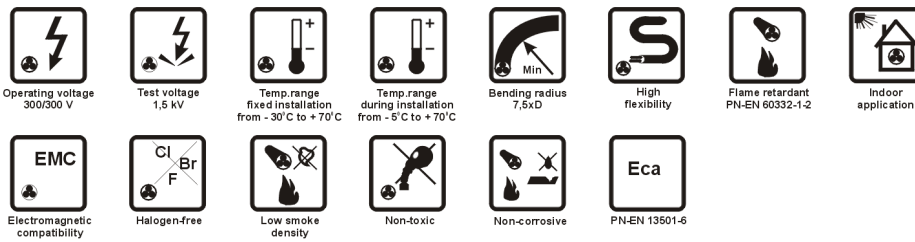
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0453 013	16 x 0,5	8.4	76.8	130
0453 036	20 x 0,5	9.7	96.0	171
0453 037	25 x 0,5	11.0	120.0	210
0453 072	27 x 0,5	11.0	129.6	215
0453 038	32 x 0,5	12.1	153.6	260
0453 039	34 x 0,5	12.6	163.2	280
0453 040	37 x 0,5	12.6	177.6	288
0453 041	44 x 0,5	14.3	211.2	347
0453 002	2 x 0,75	4.4	14.4	34
0453 004	3 x 0,75	4.6	21.6	41
0453 005	4 x 0,75	5.3	28.8	53
0453 003	5 x 0,75	5.8	36.0	66
0453 016	6 x 0,75	6.3	43.2	78
0453 014	7 x 0,75	6.3	50.4	82
0453 064	8 x 0,75	6.8	57.6	94
0453 017	10 x 0,75	8.0	72.0	116
0453 020	12 x 0,75	8.3	86.4	132
0453 022	16 x 0,75	9.6	115.2	179
0453 023	20 x 0,75	10.7	144.0	222
0453 042	25 x 0,75	12.3	180.0	278
0453 043	32 x 0,75	13.3	230.4	339
0453 044	34 x 0,75	14.0	244.8	371
0453 008	2 x 1,0	4.7	19.2	41

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0453 001	3 x 1,0	5.2	28.8	53
0453 006	4 x 1,0	5.7	38.4	65
0453 045	5 x 1,0	6.3	48.0	81
0453 046	6 x 1,0	6.8	57.6	96
0453 047	7 x 1,0	6.8	67.2	101
0453 048	10 x 1,0	8.7	96.0	144
0453 049	12 x 1,0	9.0	115.2	165
0453 018	16 x 1,0	10.5	153.6	224
0453 050	20 x 1,0	11.8	192.0	283
0453 051	25 x 1,0	13.5	240.0	350
0453 024	2 x 1,5	5.7	28.8	60
0453 015	3 x 1,5	6.0	43.2	73
0453 029	4 x 1,5	6.6	57.6	90
0453 030	5 x 1,5	7.3	72.0	112
0453 052	6 x 1,5	7.9	86.4	133
0453 053	7 x 1,5	7.9	100.8	142

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0453 054	10 x 1,5	10.6	144.0	213
0453 055	12 x 1,5	11.0	172.8	245
0453 056	16 x 1,5	12.4	230.4	321
0453 057	20 x 1,5	14.0	288.0	406
0453 058	25 x 1,5	15.9	360.0	500
0453 031	2 x 2,5	6.5	48.0	83
0453 007	3 x 2,5	6.9	72.0	105
0453 032	4 x 2,5	7.6	96.0	131
0453 033	5 x 2,5	8.4	120.0	163
0453 059	6 x 2,5	9.6	144.0	205
0453 060	7 x 2,5	9.6	168.0	219
0453 061	10 x 2,5	12.5	240.0	319
0453 062	12 x 2,5	13.0	288.0	367
0453 073	14 x 2,5	13.7	336.0	419
0453 063	16 x 2,5	14.6	384.0	482

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOTRONIK LiHCH



### APPLICATIONS

TECHNOTRONIK LiHCH are halogen free, overall shielded control cables intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all for industrial electronic applications.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

To achieve high analogue or digital data transmission performance the cable is protected against external electromagnetic interferences by an overall shield.

The cables are designed to offer high flexibility and small outer diameter combined with tensile strength.

The cables are suitable for connecting fixed and movable equipment inside rail vehicles, subway trains, in trams, as well as for indoor installations.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code in accordance with DIN VDE 47100,
- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape,
- tinned copper wire braid shield of effective density coverage,
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

### AVAILABLE UPON REQUEST

TECHNOTRONIK LiHCEH - cables with flexible drain wire stranded of tin-plated annealed copper wires, laid under a shield.

TECHNOTRONIK IB-LiHCH - specially designed intrinsically safe cable.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.14	0.25	0.34	0.5	0.75	1.0	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	144.0	79.0	57.0	39.0	26.0	19.5	13.3	7.98



Operating voltage U <sub>0</sub> /U	300/300 V
Voltage test	1.5 kV rms
Insulation resistance, minimum	20 MΩ/km
Inductance, approximate	0.7 mH/km
Impedance, approximate	80 Ω
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 70°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Reference standards	DIN VDE 0812, DIN VDE 0814, DT 105/01/07
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
0076 080	8 x 0,14	4.8	18.8	36
0076 016	2 x 0,25	3.8	10.2	21
0076 015	3 x 0,25	4.0	13.6	25
0076 071	4 x 0,25	4.3	16.0	29
0076 018	6 x 0,25	5.2	22.5	44
0076 031	8 x 0,25	5.5	27.6	50
0076 081	9 x 0,25	6.4	31.8	59
0076 019	10 x 0,25	6.4	34.2	61
0076 082	15 x 0,25	7.2	47.8	84
0076 083	25 x 0,25	9.0	79.8	131
0076 084	37 x 0,25	10.4	111.1	183
0076 085	40 x 0,25	10.8	119.5	198
0076 086	2 x 0,34	4.0	12.9	24
0076 087	4 x 0,34	4.5	21.1	36
0076 088	6 x 0,34	5.5	28.0	52
0076 089	7 x 0,34	5.5	31.2	55
0076 022	16 x 0,34	7.8	68.9	111
0076 090	25 x 0,34	10.1	130.3	174
0076 002	2 x 0,5	4.5	17.7	30
0076 003	3 x 0,5	4.7	22.4	37
0076 014	4 x 0,5	5.3	27.3	47
0076 023	5 x 0,5	5.8	33.7	57
0076 030	6 x 0,5	6.3	38.8	66
0076 046	7 x 0,5	6.3	43.6	69

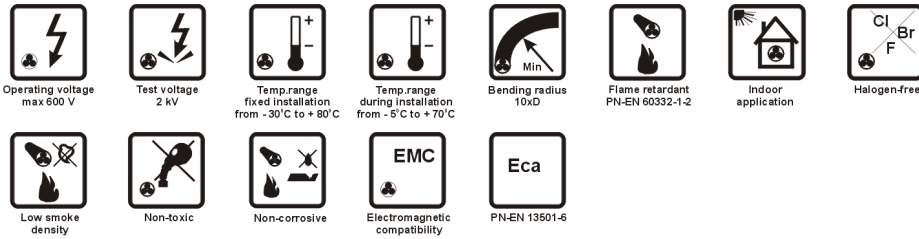
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
0076 072	8 x 0,5	6.7	49.2	79
0076 033	10 x 0,5	7.9	64.9	99
0076 035	12 x 0,5	8.1	75.0	112
0076 047	16 x 0,5	9.0	96.6	143
0076 048	20 x 0,5	10.3	118.1	186
0076 049	25 x 0,5	11.8	145.4	231
0076 050	32 x 0,5	12.7	181.3	278
0076 073	33 x 0,5	12.7	186.1	280
0076 051	34 x 0,5	13.2	192.2	298
0076 052	37 x 0,5	13.2	206.6	307
0076 074	43 x 0,5	15.0	246.0	370
0076 053	44 x 0,5	15.0	250.8	373
0076 009	2 x 0,75	4.9	22.4	36
0076 010	3 x 0,75	5.3	29.7	47
0076 011	4 x 0,75	5.8	38.5	58
0076 054	5 x 0,75	6.3	46.0	70
0076 012	6 x 0,75	6.8	54.2	83
0076 036	7 x 0,75	6.8	61.4	88
0076 017	8 x 0,75	7.3	69.6	101
0076 055	10 x 0,75	8.6	91.0	125
0076 037	12 x 0,75	8.9	105.9	143
0076 056	16 x 0,75	10.2	137.0	193
0076 075	18 x 0,75	10.8	153.0	215
0076 057	20 x 0,75	11.3	168.6	237

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0076 038	25 x 0,75	12.9	208.3	295
0076 058	32 x 0,75	14.1	261.3	364
0076 059	34 x 0,75	14.6	276.9	390
0076 004	1 x 1,0	3.2	14.4	22
0076 005	2 x 1,0	5.4	27.4	44
0076 006	3 x 1,0	5.7	38.5	57
0076 026	4 x 1,0	6.2	48.2	69
0076 027	5 x 1,0	6.8	59.0	86
0076 039	6 x 1,0	7.3	69.6	101
0076 028	7 x 1,0	7.3	79.2	107
0076 032	8 x 1,0	8.0	93.9	128
0076 040	10 x 1,0	9.7	116.5	162
0076 041	12 x 1,0	10.0	136.9	186
0076 060	16 x 1,0	11.1	178.0	238
0076 076	18 x 1,0	11.9	198.5	272
0076 029	20 x 1,0	12.4	219.1	299
0076 042	25 x 1,0	14.3	271.4	373
0076 077	28 x 1,0	14.9	308.2	417
0076 078	30 x 1,0	14.9	327.4	428
0076 079	1 x 1,5	3.6	19.8	29

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0076 020	2 x 1,5	6.2	38.6	58
0076 013	3 x 1,5	6.5	53.6	75
0076 007	4 x 1,5	7.1	69.2	94
0076 043	5 x 1,5	7.9	88.9	120
0076 061	6 x 1,5	8.5	105.4	143
0076 001	7 x 1,5	8.5	119.8	152
0076 021	10 x 1,5	11.2	168.4	222
0076 062	12 x 1,5	11.8	198.2	261
0076 063	16 x 1,5	13.0	258.9	335
0076 064	20 x 1,5	14.6	320.1	422
0076 065	25 x 1,5	16.6	404.6	524
0076 044	2 x 2,5	7.0	59.4	79
0076 024	3 x 2,5	7.4	84.2	105
0076 045	4 x 2,5	8.2	113.7	137
0076 066	5 x 2,5	9.0	139.8	170
0076 067	6 x 2,5	10.2	165.8	213
0076 025	7 x 2,5	10.2	189.8	228
0076 068	10 x 2,5	13.1	268.8	325
0076 069	12 x 2,5	13.6	318.1	376
0076 070	16 x 2,5	15.3	424.6	502

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## RD-H(St)H n x 2 x 0,5 mm<sup>2</sup> Bd



### APPLICATIONS

RD-H(St)H n x 2 x 0,5 mm<sup>2</sup> Bd are unit type control cables intended for analogue or digital data transmission up to 10 kHz.

Pair lay lengths are designed to ensure minimum near-end cross-talks in units.

An electrostatic shield protects the cables against interference by external electric fields.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are suitable for indoor installations connecting fixed and movable equipment.

The cable is also suitable for Maxi-Termi-Point jointing technique.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), regular construction 7 wires,
- insulation made of halogen free compound (HFFR),
- insulated conductors twisted into pairs, star-quad assembly in the case of two-pair cable, colour of insulated conductors:

pair number	“a” wire	“b” wire
1	blue	red
2	grey	yellow
3	green	brown
4	white	black

- four pairs stranded into a unit and bound up with a polypropylene binder marked with unit number,
- units laid-up into a cable core,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.5 mm<sup>2</sup> (7x0.3 mm),
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

### AVAILABLE UPON REQUEST

RD-H(St)HH n x 2 x 0,5 mm<sup>2</sup> Bd - cables with double HFFR sheath, suitable for outdoor installation and direct earth burial.



## CHARACTERISTICS

Operating voltage, peak value	600 V
<b>Voltage test</b>	
conductor/conductor	2.0 kV rms
conductor/screen	2.0 kV rms
DC loop resistance at 20°C, maximum	73.6 Ω/km
Insulation resistance, minimum	100 MΩ·km
Current-carrying capacity limit	6 A
Mutual capacitance at 800 Hz, maximum	100 nF/km (*)
<b>Near-end cross-talk</b>	
at 10 kHz, min.	60 dB/km
<b>Characteristic impedance, nominal</b>	
at 1 kHz	370 Ω
at 10 kHz	130 Ω
<b>Attenuation loss, nominal</b>	
at 1 kHz	1.2 dB/km
at 10 kHz	3.0 dB/km
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 80°C
for movable installation	from - 5 to + 70°C

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0217 003	2 x 2 x 0,5	5.8	26.0	60
0217 004	4 x 2 x 0,5	8.4	46.0	103
0217 001	8 x 2 x 0,5	12.6	86.0	195
0217 005	12 x 2 x 0,5	13.1	127.0	250

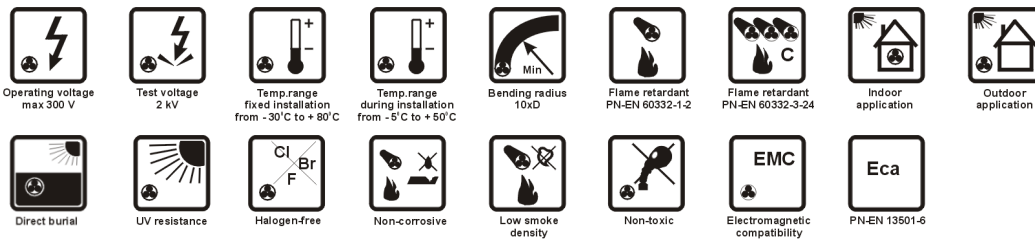
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free, PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Reference standards	DIN VDE 0815
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

(\*) this value can be higher by 20% in four or less pair cable  
 The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0217 006	16 x 2 x 0,5	15.0	167.0	310
0217 010	24 x 2 x 0,5	19.0	250.0	485
0217 007	32 x 2 x 0,5	20.9	331.0	615
0217 008	48 x 2 x 0,5	25.3	494.0	905

Other cross-sections and pair counts available on request.  
 TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## RE-2Y(St)Hv



### APPLICATIONS

RE-2Y(St)Hv are multipair, overall shielded cables intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all in industrial electronics applications.

High digital data transmission performance is achieved by polyethylene insulation and small capacitance of cable circuits.

The cable is protected by an overall electrostatic shield against external electric field interferences.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

Cable sheath is UV radiation and weather resistant.

The cable is suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 2 per EN 60228,
- polyethylene (PE) insulation - identification colour code:  
"a" wire – back insulation and white pair number printed on it,  
"b" wire – white insulation and black pair number printed on it,
- insulated conductors twisted into pairs,
- pairs and an orange communication conductor laid-up into a cable core
- cable core wrapped in a polyester tape,
- overall electrostatic shield incorporating a plastic laminated metal foil and a stranded annealed tinned copper drain wire,
- enhanced cable sheath made of halogen free compound (HFFR), black RAL 9005 or blue RAL 5015 (for intrinsically safe circuits).

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.3
DC loop resistance at 20°C, maximum	Ω/km	73.4	50.0	28.4
Capacitance between conductors at 1 kHz, appr.(*)	nF/km	60	65	75

(\*) this value may be 20% higher for cables with four pairs or less.



Operating voltage, peak value	300 V
Voltage test	2.0 kV rms
Insulation resistance, minimum	5 GΩ·km
Inductance, approximate	0.7 mH/km
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 80°C
for movable installation	from - 5 to + 50°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free, PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	DT 113/08/07, PN-EN 50288-7
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

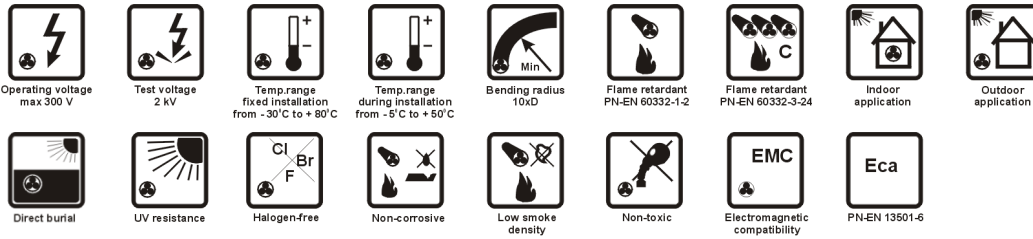
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2099 004	1 x 2 x 0,5	6.4	19.2	65
2099 005	2 x 2 x 0,5	8.6	28.8	95
2099 006	4 x 2 x 0,5	9.7	48.0	123
2099 007	6 x 2 x 0,5	11.3	67.2	158
2099 008	8 x 2 x 0,5	11.9	86.4	186
2099 009	10 x 2 x 0,5	13.3	105.6	220
2099 010	12 x 2 x 0,5	13.9	124.8	247
2099 011	16 x 2 x 0,5	15.5	163.2	305
2099 012	20 x 2 x 0,5	17.0	201.6	363
2099 013	24 x 2 x 0,5	18.3	240.0	418
2099 001	1 x 2 x 0,75	7.0	24.0	76
2099 014	2 x 2 x 0,75	9.6	38.4	120
2099 002	4 x 2 x 0,75	10.9	67.2	156
2099 015	6 x 2 x 0,75	12.7	96.0	205
2099 016	8 x 2 x 0,75	13.5	124.8	246
2099 003	10 x 2 x 0,75	15.2	153.6	294

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2099 017	12 x 2 x 0,75	15.8	182.4	333
2099 018	16 x 2 x 0,75	17.7	240.0	417
2099 019	20 x 2 x 0,75	19.4	297.6	499
2099 020	24 x 2 x 0,75	21.0	355.2	581
2099 021	1 x 2 x 1,3	8.0	34.6	97
2099 022	2 x 2 x 1,3	11.3	59.5	159
2099 023	3 x 2 x 1,3	11.9	84.5	185
2099 024	4 x 2 x 1,3	13.0	109.4	224
2099 025	6 x 2 x 1,3	15.3	159.4	302
2099 026	8 x 2 x 1,3	16.3	209.3	369
2099 027	10 x 2 x 1,3	18.4	259.2	446
2099 028	12 x 2 x 1,3	19.2	309.1	512
2099 029	16 x 2 x 1,3	21.9	409.0	661
2099 030	20 x 2 x 1,3	24.0	508.8	798
2099 031	24 x 2 x 1,3	26.2	608.6	944

Other cross-sections and pair counts available on request.  
 TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## RE-2Y(St)Hv PIMF



### APPLICATIONS

RE-2Y(St)Hv PIMF are multipair, pair and overall shielded cables intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all in industrial electronics applications.

High digital data transmission performance is achieved by polyethylene insulation and small capacitance of cable circuits.

Shielded pair structure substantially decreases mutual influence between signals transmitted along the cable.

The cable is protected by an overall electrostatic shield against external electric field interferences.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

Cable sheath is UV radiation and weather resistant.

The cable is suitable for indoor and outdoor installations in dry and wet locations, also for direct earth burial.

Cable outer sheath is oil-resistant.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 2 per PN-EN 60228,
- polyethylene (PE) insulation - identification colour code:  
"a" wire – black insulation and white pair number printed on it,  
"b" wire – white insulation and black pair number printed on it,
- insulated conductors twisted into pairs,
- pair shields incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- shielded pairs and an orange communication conductor laid-up into a cable core,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire,
- enhanced cable sheath made of halogen free compound (HFFR), black RAL 9005 or blue RAL 5015 (for intrinsically safe circuits).

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.3
DC loop resistance at 20°C, maximum	Ω/km	73.4	50.0	28.4
Capacitance between conductors at 1 kHz, appr.	nF/km	75	85	100



Operating voltage, peak value	300 V
Voltage test	2.0 kV rms
Insulation resistance, minimum	5 GΩ·km
Inductance, approximate	0.7 mH/km
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 80°C
for movable installation	from - 5 to + 50°C
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free, PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	DT 113/08/07, PN-EN 50288-7
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

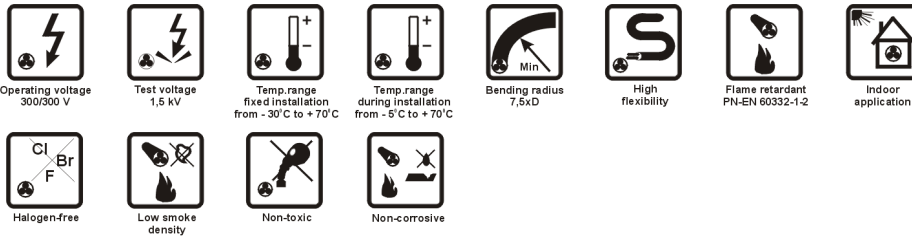
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2096 008	2 x 2 x 0,5	9.1	34.2	113
2096 009	4 x 2 x 0,5	10.4	58.8	147
2096 010	6 x 2 x 0,5	12.1	83.3	193
2096 011	8 x 2 x 0,5	12.8	107.9	231
2096 012	10 x 2 x 0,5	14.3	132.5	275
2096 013	12 x 2 x 0,5	14.9	157.1	312
2096 014	16 x 2 x 0,5	16.7	206.2	390
2096 015	20 x 2 x 0,5	18.3	255.4	467
2096 016	24 x 2 x 0,5	19.7	304.5	543
2096 002	2 x 2 x 0,75	10.1	43.8	133
2096 004	4 x 2 x 0,75	11.5	78	181
2096 005	6 x 2 x 0,75	13.5	112.1	242
2096 018	8 x 2 x 0,75	14.3	146.3	292
2096 019	10 x 2 x 0,75	16.1	180.5	352

Product No.	Number of pairs x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2096 006	12 x 2 x 0,75	16.8	214.7	401
2096 020	16 x 2 x 0,75	18.9	283	507
2096 021	20 x 2 x 0,75	20.7	351.4	611
2096 022	24 x 2 x 0,75	22.6	419.7	724
2096 024	2 x 2 x 1,3	11.8	64.9	177
2096 025	3 x 2 x 1,3	12.5	92.5	205
2096 026	4 x 2 x 1,3	13.6	120.2	250
2096 027	6 x 2 x 1,3	16.1	175.5	340
2096 028	8 x 2 x 1,3	17.1	230.8	418
2096 029	10 x 2 x 1,3	19.4	286.1	507
2096 030	12 x 2 x 1,3	20.2	341.4	583
2096 031	16 x 2 x 1,3	23.1	452	757
2096 032	20 x 2 x 1,3	25.6	562.6	925
2096 033	24 x 2 x 1,3	27.7	673.2	1083

Other cross-sections and pair counts available on request.  
 TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## LiH



### APPLICATIONS

LiH are hook-up wires intended for control and instrumentation circuits, for signal, monitoring and data processing systems, all for industrial electronic applications.

Halogen free wires, applied when higher safety in case of fire is required. The wires are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

They are designed for control cabinets, electronic devices and others as interconnection cables for electronic modules, equipment and instruments.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - coloured according to customer's requirement.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98

Operating voltage U <sub>0</sub> /U	300/300 V
Voltage test	1.5 kV rms
Insulation resistance, minimum	20 MΩ·km
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	6,8
Conductivity	0,4
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Operating temperature range	
for fixed installation	from - 30 to + 70°C
for movable installation	from - 5 to + 70°C

Minimum bending radius	7.5 x cable diameter
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2,
Reference standards	DIN VDE 0815

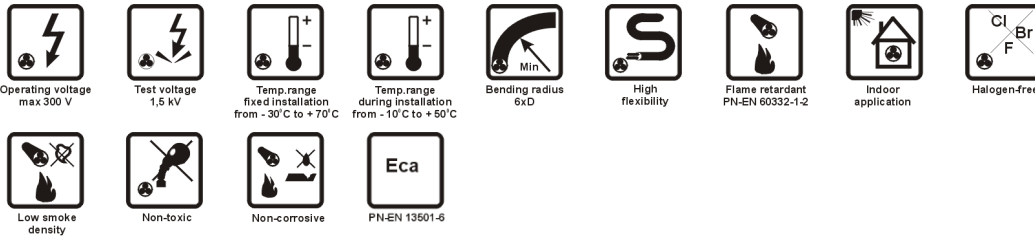
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0075 008	1 x 0,5	1.65	4.8	6.4
0075 007	1 x 0,75	1.83	7.2	8.5

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
0075 009	1 x 1,0	2.0	9.6	11.0
0075 010	1 x 1,5	2.3	14.4	15.5
0075 006	1 x 2,5	2.7	24.0	24.0

Other conductor cross-sections available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## IPG-HF



### APPLICATIONS

Loudspeaker cables with halogen free insulation IPG-HF are intended for connection between amplifiers and loudspeakers.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are made as flat with common halogen free insulation (eight shape) on two parallel conductors or as halogen free insulated and sheathed round cables.

The cables are suitable for indoor installations connecting fixed and movable equipment.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires,
- insulation made of halogen free compound (HFFR) - the colours of conductor insulation: black with white stripe, other colours also available - for flat cables, natural with black marking printed on it - for round cables,
- sheath made of halogen free compound (HFFR), only for round cable, coloured according to customer's requirement.

### AVAILABLE UPON REQUEST

IPG-HF OFC - cables with conductors made of oxygen-free copper (OFC).

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10
DC conductor resistance at 20°C, maximum	Ω/km	13.3	7.98	4.95	3.30	1.91
Inductance, approximate	mH/km	30	9	4	2	1.5



Operating voltage U <sub>0</sub> /U	300 V
Insulation resistance, minimum	200 MΩ·km
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH appr.	6.8
conductivity appr.	0.4 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
<b>Operating temperature range</b>	
for fixed installation	from - 30 to + 70°C
for movable installation	from - 10 to + 50°C

Minimum bending radius	6 x cable diameter
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2,
Reference standards	DT 101/11/06
CPR – class reaction on fire	Eca
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

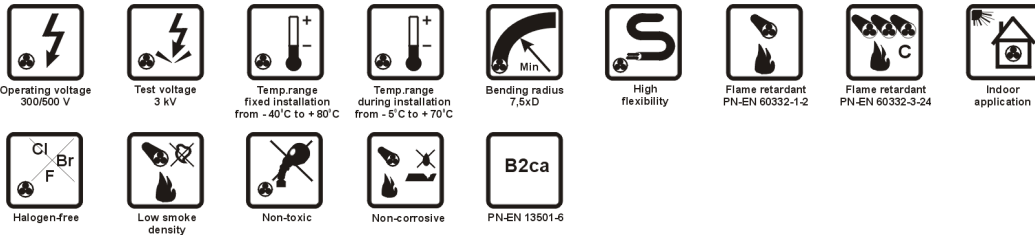
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable dimensions (appr.)	Copper index	Cable weight (appr.)
				kg/km
	mm <sup>2</sup>	mm	kg/km	kg/km
1114 003	2 x 2,5	3.4 x 6.9	48.0	59.0
1114 002	2 x 4	4.1 x 8.4	76.8	93.0
1114 004	2 x 6	5.8 x 11.7	115.2	166.0

Product No.	Number of conductors x conductors cross-section	Cable dimensions (appr.)	Copper index	Cable weight (appr.)
				kg/km
	mm <sup>2</sup>	mm	kg/km	kg/km
1114 005	2 x 10	6.8 x 13.8	192.0	257.0
1114 006	4 x 4	12.9	153.6	257.0
1114 007	4 x 6	14.8	230.4	362.0

Other conductor cross-sections available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## PGO-HSLH OFC 300/500 V



### APPLICATIONS

PGO-HSLH OFC 300/500 V is halogen free, flexible cables with conductors made of oxygen-free copper (OFC) designed for connections between low-frequency power amplifiers and loudspeakers. Dedicated to sound systems for large sports and entertainment venues, auditoriums etc.

Thanks to the special design and the use of very pure OFC copper, very good acoustic properties have been achieved. The OFC copper used for production - with a purity of 99.97% - has impurities in its structure at the level of 25 ppm (25 parts per million) and an oxygen content of no more than 3 ppm.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility combined with tensile strength.

The cables are suitable for indoor installations connecting fixed and movable equipment.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of copper wires made of oxygen-free copper (OFC), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR), identification colour code: black and red, other colours also available,
- insulated conductors laid-up in layers,
- cable sheath made of halogen free compound (HFFR), black (RAL 9005), other colours also available.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10
DC conductor resistance at 20°C, maximum	Ω/km	39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91



Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3.0 kV rms
Insulation resistance, minimum	20 MΩ/km
<b>Conductor temperature limit</b>	
in work conditions	+ 70°C
at short-circuit	+ 150°C
<b>Operating temperature range</b>	
for fixed installation	from - 40 to + 80°C
for movable installation	from - 5 to + 70°C
Minimum bending radius	7.5 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.5
conductivity	< 2.5 μS/mm

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2108 001	2 x 0,5	5.1	9.6	39
2108 002	2 x 0,75	5.2	14.4	44
2108 003	2 x 1,0	5.5	19.2	51
2108 004	2 x 1,5	6.7	28.8	76

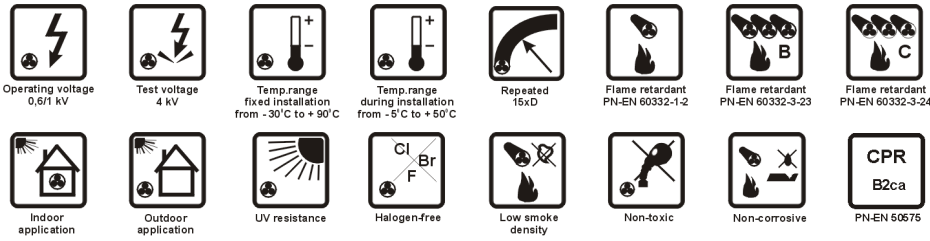
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60÷80 %
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-3N 60332-3-24, IEC 60332-3-24
Reference standards	DT 275/12/22
CPR – class reaction on fire	B2ca –s1b,d2,a1
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
2108 005	2 x 2,5	7.9	48.0	109
2108 006	2 x 4	9.1	76.8	152
2108 007	2 x 6	10.2	115.2	203
2108 008	2 x 10	13.2	192.0	346

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOPOWER N2XH-O B2ca 0,6/1 kV**  
**TECHNOPOWER N2XH-J B2ca 0,6/1 kV singlecore**



**APPLICATIONS**

TECHNOPOWER N2XH-O B2ca 0,6/1 kV and TECHNOPOWER N2XH-J B2ca 0,6/1 kV singlecore power cables are designed for electric power transmission. They are also applied in control, protection and monitoring systems in power engineering.

The cables are suitable for industrial applications, such as production plants or air-conditioning systems operating in dry and wet locations, also for outdoor installations. Cables can be laid in concrete. Laying cables in water or direct earth burial is only permitted if additional protection is used.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

**CONSTRUCTION**

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:  
RE - class 1 circular single-wire,  
RM - class 2 circular multi-wire,
- cross-linked polyethylene (XLPE) insulation, colours:  
black in TECHNOPOWER N2XH-O B2ca 0,6/1 kV cable,  
green-yellow in TECHNOPOWER N2XH-J B2ca 0,6/1 kV cable,
- inner covering made of halogen free compound (HFFR),
- cable sheath made of halogen free compound (HFFR), black, other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524
Conductor cross-section	mm <sup>2</sup>	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	100 MΩ·km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
Minimum bending radius	12 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 50399; PN-EN 60332-1-2, IEC 60332-1-2,
> 25 mm <sup>2</sup>	PN-EN 60332-3-23, IEC 60332-3-23
< 25 mm <sup>2</sup>	PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	PN-HD 604 S1, IEC 60502-1, DIN VDE 0276 part 604
CPR – class reaction on fire	B2ca – s1b,d2,a1
DoP declarations are available at	<a href="http://www.technokabel.com.pl">www.technokabel.com.pl</a>

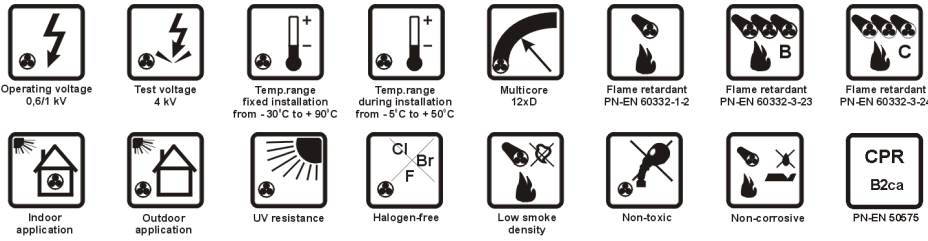
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
<b>N2XH-O B2ca</b>					
1897 091	1 x 16 RE	9.8	153.6	237	0.48
1897 084	1 x 25 RM	11.7	240.0	345	0.63
1897 092	1 x 35 RM	12.7	336.0	443	0.70
1897 085	1 x 50 RM	14.1	480.0	579	0.81
1897 086	1 x 70 RM	15.9	672.0	791	0.96
1897 087	1 x 95 RM	17.8	912.0	1094	1.13
1897 082	1 x 120 RM	19.5	1152	1299	1.29
1897 088	1 x 150 RM	22.4	1440	1669	1.80
1897 089	1 x 185 RM	24.8	1776	2065	2.13
1897 090	1 x 240 RM	27.2	2304	2636	2.44
1897 083	1 x 300 RM	29.4	2880	3190	2.81

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
<b>N2XH-J B2ca</b>					
1897 103	1 x 16 RE	9.8	153.6	237	0.48
1897 093	1 x 25 RM	11.7	240.0	345	0.63
1897 094	1 x 35 RM	12.7	336.0	443	0.70
1897 095	1 x 50 RM	14.1	480.0	579	0.81
1897 096	1 x 70 RM	15.9	672.0	791	0.96
1897 097	1 x 95 RM	17.8	912.0	1094	1.13
1897 098	1 x 120 RM	19.5	1152	1299	1.29
1897 099	1 x 150 RM	22.4	1440	1669	1.80
1897 100	1 x 185 RM	24.8	1776	2065	2.13
1897 101	1 x 240 RM	27.2	2304	2636	2.44
1897 102	1 x 300 RM	29.4	2880	3190	2.81

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOPOWER N2XH-O B2ca 0,6/1 kV**  
**TECHNOPOWER N2XH-J B2ca 0,6/1 kV multicore**



**APPLICATIONS**

N2XH-O B2ca 0,6/1 kV and N2XH-J B2ca 0,6/1 kV power cables are designed for electric power transmission. They are also applied in control, protection and monitoring systems in power engineering.

The cables are suitable for industrial applications, such as production plants or air-conditioning systems operating in dry and wet locations, also for outdoor installations. Cables can be laid in concrete. Laying cables in water or direct earth burial is only permitted if additional protection is used.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

**CONSTRUCTION**

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 circular single-wire,
  - RM - class 2 circular multi-wire,
- cross-linked polyethylene (XLPE) insulation, colours:
  - in accordance with PN-HD 308 standard,
  - or black and white conductor number printed on it;
  - green-yellow protective conductor in the outer layer in N2XH-J B2ca 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound (HFFR),
- cable sheath made of halogen free compound (HFFR), black, other colours also available.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524
Conductor cross-section	mm <sup>2</sup>	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	100 MΩ·km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
Minimum bending radius	12 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 50399; PN-EN 60332-1-2, IEC 60332-1-2,
> 25 mm <sup>2</sup>	PN-EN 60332-3-23, IEC 60332-3-23
< 25 mm <sup>2</sup>	PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	PN-HD 604 S1, IEC 60502-1, DIN VDE 0276 part 604
CPR – class reaction on fire	B2ca – s1b,d0,a1
DoP declarations are available at	<a href="http://www.technokabel.com.pl">www.technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
<b>N2XH-O B2ca</b>					
1897 001	2 x 1,5 RE	7.9	28.8	103	0.37
1897 002	2 x 2,5 RE	8.7	48.0	134	0.44
1897 003	2 x 4 RE	9.6	76.8	177	0.52
1897 004	2 x 6 RE	10.6	115.2	231	0.61
1897 005	2 x 10 RE	12.2	192.0	336	0.77
1897 006	2 x 16 RE	14.0	307.2	481	1.00
1897 007	2 x 25 RM	17.9	480.0	757	1.60
1897 008	2 x 35 RM	20.0	672.0	993	1.89
1897 009	2 x 50 RM	22.9	960.0	1335	2.45
1897 010	2 x 70 RM	26.8	1344	1876	3.30
1897 011	2 x 95 RM	30.3	1824	2581	4.09
1897 012	2 x 120 RM	34.1	2304	3160	5.20
<b>N2XH-J B2ca</b>					
1897 013	3 x 1,5 RE	8.5	43.2	125	0.41
1897 014	3 x 2,5 RE	9.3	72.0	163	0.47
1897 015	3 x 4 RE	10.3	115.2	220	0.56
1897 016	3 x 6 RE	11.4	172.8	292	0.66
1897 017	3 x 10 RE	13.1	288.0	431	0.83
1897 018	3 x 16 RE	15.1	460.8	628	1.04
1897 019	3 x 25 RM	19.3	720.0	982	1.64
1897 020	3 x 35 RM	21.8	1008	1311	2.02
1897 021	3 x 50 RM	24.7	1440	1752	2.53

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
1897 022	3 x 70 RM	28.8	2016	2463	3.29
1897 023	3 x 95 RM	32.8	2736	3441	4.11
1897 024	3 x 120 RM	36.4	3456	4133	5.18
1897 025	3 x 150 RM	41.0	4320	5235	6.54
1897 026	3 x 185 RM	46.0	5328	6551	8.12
1897 027	3 x 240 RM	51.3	6912	8453	10.07
<b>N2XH-J B2ca</b>					
1897 028	4 x 1,5 RE	9.6	57.6	159	0.51
1897 029	4 x 2,5 RE	10.5	96.0	209	0.59
1897 030	4 x 4 RE	11.6	153.6	283	0.69
1897 031	4 x 6 RE	12.8	230.4	376	0.83
1897 032	4 x 10 RE	14.7	384.0	556	1.04
1897 033	4 x 16 RE	17.1	614.4	819	1.30
1897 034	4 x 25 RM	21.8	960.0	1276	2.02
1897 035	4 x 35 RM	24.4	1344	1692	2.41
1897 036	4 x 50 RM	27.8	1920	2275	3.06
1897 037	4 x 70 RM	32.4	2688	3198	4.10
1897 038	4 x 95 RM	37.0	3648	4493	5.09
1897 039	4 x 120 RM	41.2	4608	5417	6.21
1897 040	4 x 150 RM	46.0	5760	6791	7.79
1897 041	4 x 185 RM	51.6	7104	8492	9.61
1897 042	4 x 240 RM	57.5	9216	10965	11.96

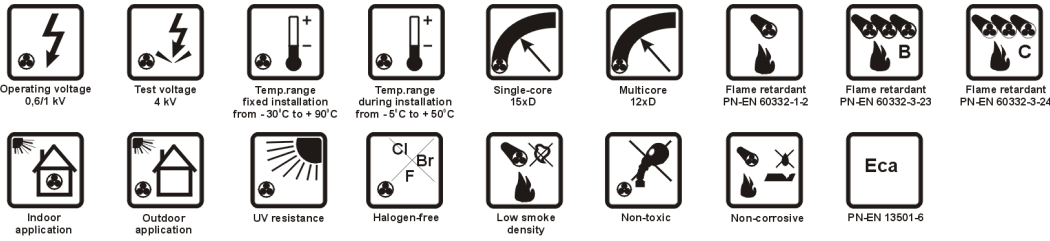
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m		mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
<b>N2XH-J B2ca</b>						1897 056	5 x 185 RM	58.9	8880	10761	12.72
1897 043	5 x 1,5 RE	11.1	72.0	211	0.70	1897 057	5 x 240 RM	65.7	11520	13894	15.41
1897 044	5 x 2,5 RE	12.1	120.0	275	0.80	1897 058	7 x 1,5	11.9	100.8	254	0.78
1897 045	5 x 4 RE	13.4	192.0	369	0.95	1897 059	7 x 2,5	13.0	168.0	335	0.89
1897 046	5 x 6 RE	14.7	288.0	485	1.10	1897 060	7 x 4	14.4	268.8	457	1.04
1897 047	5 x 10 RE	17.1	480.0	722	1.40	1897 061	7 x 6	15.9	403.2	610	1.19
1897 048	5 x 16 RE	19.5	768.0	1041	1.72	1897 062	7 x 10	18.5	672.0	920	1.51
1897 049	5 x 25 RM	24.8	1200	1617	2.63	1897 063	10 x 2.5	15.9	403.2	610	1.23
1897 050	5 x 35 RM	27.8	1680	2146	3.16	1897 064	10 x 4	18.0	384.0	647	1.49
1897 051	5 x 50 RM	31.9	2400	2901	4.11	1897 065	12 x 4	18.5	460.8	731	1.52
1897 052	5 x 70 RM	37.0	3360	4058	5.32	1897 066	14 x 4	19.4	537.6	824	1.64
1897 053	5 x 95 RM	42.3	4560	5697	6.75						
1897 054	5 x 120 RM	46.9	5760	6849	8.13						
1897 055	5 x 150 RM	52.7	7200	8633	10.40						

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## N2XH-O 0,6/1 kV i N2XH-J 0,6/1 kV



HALOGEN FREE SAFETY CABLES



### APPLICATIONS

N2XH-O 0,6/1 kV and N2XH-J 0,6/1 kV power cables are designed for electric power transmission. They are also applied in control, protection and monitoring systems in power engineering.

The cables are suitable for industrial applications, such as production plants or air-conditioning systems operating in dry and wet locations, also for outdoor installations. Cables can be laid in concrete. Laying cables in water or direct earth burial is only permitted if additional protection is used.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 circular single-wire,
  - RM - class 2 circular multi-wire,
  - SM - class 2 sector shaped multi-wire,
- cross-linked polyethylene (XLPE) insulation, colours:
  - in accordance with PN-HD 308 standard,
  - or black and white conductor number printed on it;
  - green-yellow protective conductor in the outer layer in N2XH-J 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound (HFFR),
- cable sheath made of halogen free compound (HFFR), black, other colours also available.

### AVAILABLE UPON REQUEST

Steel wire or steel tape armoured cables as above applied in locations where enhanced protection against mechanical damages is required.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	100 MΩ·km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
Minimum bending radius	
single wire cables	15 x cable diameter
multi wire cables	12 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 50399; PN-EN 60332-1-2, IEC 60332-1-2,
> 25 mm <sup>2</sup>	PN-EN 60332-3-23, IEC 60332-3-23
< 25 mm <sup>2</sup>	PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	PN-HD 604 S1, IEC 60502-1, DIN VDE 0276 part 604
CPR – class reaction on fire	Eca
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
<b>N2XH-O</b>					
0968 075	1 x 4 RE	6.2	38.4	75	0.22
0968 013	1 x 6 RE	6.7	57.6	97	0.25
0968 012	1 x 10 RE	7.5	96.0	139	0.30
0968 011	1 x 16 RE	8.4	153.6	198	0.36
0968 010	1 x 25 RM	10.3	240.0	296	0.50
0968 009	1 x 35 RM	11.3	336.0	389	0.57
0968 008	1 x 50 RM	12.7	480.0	517	0.71
0968 007	1 x 70 RM	14.5	672.0	718	0.83
0968 006	1 x 95 RM	16.4	912.0	1012	1.00
0968 005	1 x 120 RM	18.1	1152	1207	1.14
0968 027	1 x 150 RM	20.0	1440	1501	1.49
0968 025	1 x 185 RM	22.4	1776	1872	1.77
0968 004	1 x 240 RM	24.8	2304	2385	2.18
0968 093	1 x 300 RM	27.0	2880	2951	2.46
<b>N2XH-O</b>					
0968 078	2 x 1,5 RE	7.9	28.8	102	0.49
0968 036	2 x 2,5 RE	8.7	48.0	133	0.57
0968 074	2 x 4 RE	9.6	76.8	175	0.69
0968 023	2 x 6 RE	10.6	115.2	230	0.81

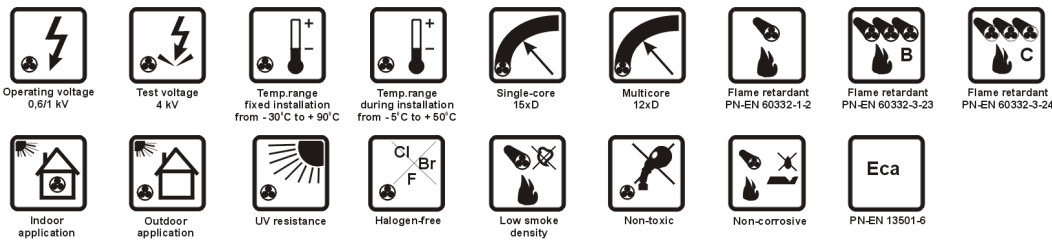
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
0968 076	2 x 10 RE	12.2	192.0	335	1.03
0968 002	2 x 16 RE	14.0	307.2	481	1.35
0968 081	2 x 25 RM	17.9	480.0	757	2.04
0968 094	2 x 35 RM	20.0	672.0	996	2.47
0968 097	2 x 50 RM	22.9	960.0	1338	3.30
0968 095	2 x 70 RM	26.8	1344	1882	4.11
0968 096	2 x 95 RM	30.3	1824	2594	5.16
0968 098	2 x 120 RM	34.1	2304	3179	6.02
<b>N2XH-J</b>					
0968 022	3 x 1,5 RE	8.3	43.2	117	0.52
0968 045	4 x 1,5 RE	9.0	57.6	139	0.59
0968 061	7 x 1,5	10.5	100.8	201	0.81
0968 039	10 x 1,5	13.0	144.0	280	1.11
0968 086	12 x 1,5	13.4	172.8	313	1.25
0968 040	14 x 1,5	14.1	201.6	351	1.38
0968 073	19 x 1,5	15.8	273.6	453	1.70
0968 064	24 x 1,5	18.3	345.6	565	2.21
0968 001	30 x 1,5	19.4	432.0	670	2.56
0968 108	40 x 1,5	21.9	576.0	950	3.20
0968 016	3 x 2,5 RE	9.1	72.0	155	0.60

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
0968 037	4 x 2,5 RE	9.9	96.0	186	0.69
0968 019	5 x 2,5 RE	10.7	120.0	234	0.78
0968 065	7 x 2,5	11.6	168.0	276	0.95
0968 062	10 x 2,5	14.5	240.0	389	1.34
0968 102	12 x 2,5	15.0	288.0	440	1.46
0968 103	14 x 2,5	16.0	336.0	504	1.62
0968 104	19 x 2,5	17.7	456.0	645	1.99
0968 105	24 x 2,5	20.8	576.0	819	2.60
0968 106	30 x 2,5	22.0	720.0	977	3.02
0968 066	40 x 2,5	24.6	960.0	1390	3.83
0968 015	3 x 4 RE	10.1	115.2	210	0.72
0968 049	4 x 4 RE	11.0	153.6	256	0.82
0968 020	5 x 4 RE	12.0	192.0	325	0.92
0968 077	7 x 4	13.0	268.8	390	1.12
0968 109	10 x 4	16.6	384.0	562	1.60
0968 107	12 x 4	17.1	460.8	638	1.74
0968 110	14 x 4	18.0	537.6	723	1.92
0968 111	19 x 4	20.0	729.6	936	2.42
0968 026	3 x 6 RE	11.2	172.8	281	0.84
0968 047	4 x 6 RE	12.2	230.4	344	0.95
0968 029	5 x 6 RE	13.3	288.0	440	1.08
0968 032	3 x 10 RE	12.9	288.0	419	1.05
0968 018	4 x 10 RE	14.1	384.0	519	1.22

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m
0968 021	5 x 10 RE	15.7	480.0	674	1.37
0968 033	3 x 16 RE	14.9	460.8	614	1.35
0968 017	4 x 16 RE	16.5	614.4	774	1.52
0968 028	5 x 16 RE	18.1	768.0	995	1.70
0968 034	3 x 25 RM	19.1	720.0	962	2.07
0968 055	4 x 25 RM	21.2	960.0	1211	2.31
0968 041	5 x 25 RM	23.4	1200	1569	2.60
0968 050	3 x 35 RM	21.6	1008	1290	2.41
0968 085	4 x 35 RM	23.8	1344	1619	2.68
0968 014	5 x 35 RM	26.4	1680	2104	3.07
0968 099	3 x 50 RM	24.5	1440	1725	3.24
0968 054	4 x 50 RM	27.2	1920	2184	3.59
0968 031	5 x 50 RM	30.1	2400	2834	4.10
0968 090	3 x 70 RM	28.6	2016	2431	3.94
0968 060	4 x 70 RM	31.8	2688	3085	4.44
0968 051	5 x 70 RM	35.6	3360	4043	5.04
0968 100	3 x 95 RM	32.6	2736	3409	4.85
0968 053	4 x 95 RM	36.4	3648	4364	5.42
0968 030	5 x 95 RM	40.5	4560	5671	6.09
0968 101	3 x 120 RM	36.4	3456	4133	5.71
0968 068	4 x 120 RM	40.6	4608	5266	6.28
0968 079	5 x 120 RM	45.1	5760	6845	7.05

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## N2XCH 0,6/1 kV



### APPLICATIONS

N2XCH 0,6/1 kV power cables are designed for electric power transmission. They are also applied in control, protection and monitoring systems in power engineering.

The cables are suitable for industrial applications, such as production plants or air-conditioning systems operating in dry and wet locations, also for outdoor installations. Cables can be laid in concrete. Laying cables in water or direct earth burial is only permitted if additional protection is used.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 circular single-wire,
  - RM - class 2 circular multi-wire,
  - SM - class 2 sector shaped multi-wire,
- cross-linked polyethylene (XLPE) insulation, colours:
  - in accordance with PN-HD 308 standard,
  - or black and white conductor number printed on it;
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound (HFFR),
- concentric conductor formed by bare copper wires with counter helix of copper tape,
- concentric conductor wrapped in polyester tape,
- cable sheath made of halogen free compound (HFFR), black, other colours also available.

### AVAILABLE UPON REQUEST

N2XCH EMC 0,6/1 kV - halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

### CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601



Operating voltage U <sub>o</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	100 MΩ·km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
<b>Minimum bending radius</b>	
single wire cables	15 x cable diameter
multi wire cables	12 x cable diameter
<b>Corrosivity of emitted gases per</b>	
	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60%
Cable combustibility	flame retardant
<b>Combustibility tests</b>	
	PN-EN 50399; PN-EN 60332-1-2, IEC 60332-1-2,
> 25 mm <sup>2</sup>	PN-EN 60332-3-23, IEC 60332-3-23
< 25 mm <sup>2</sup>	PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	PN-HD 604 S1, IEC 60502-1, DIN VDE 0276 part 604
CPR – class reaction on fire	Eca
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1235 016	2x1,5/1,5 RE	10.5	49.3	158
1235 008	2x2,5/2,5 RE	11.6	78.3	202
1235 009	2x4/4 RE	12.9	121.5	263
1235 070	2x6/6 RE	14.3	178.9	341
1235 071	2x10/10 RE	16.1	294.3	495
1235 072	2x16/16 RE	18.6	473.2	708
1235 073	2x25/16 RM	21.8	645.9	992
1235 074	2x35/16 RM	23.9	838.0	1236
1235 044	2x50/25 RM	27.5	1212	1691
1235 045	2x70/35 RM	31.5	1692	2349
1235 046	2x95/50 RM	36.0	2316	3265
1235 010	3x1,5/1,5 RE	10.9	63.9	175
1235 007	3x2,5/2,5 RE	12.0	102.1	226
1235 022	3x4/4 RE	13.0	159.7	299
1235 023	3x6/6 RE	14.5	236.5	394
1235 024	3x10/10 RE	16.8	390.1	588
1235 025	3x16/16 RE	19.5	626.7	853
1235 032	3x25/16 RM	23.0	885.9	1214
1235 026	3x35/16 RM	25.5	1174	1553
1235 047	3x50/25 RM	28.4	1692	2087

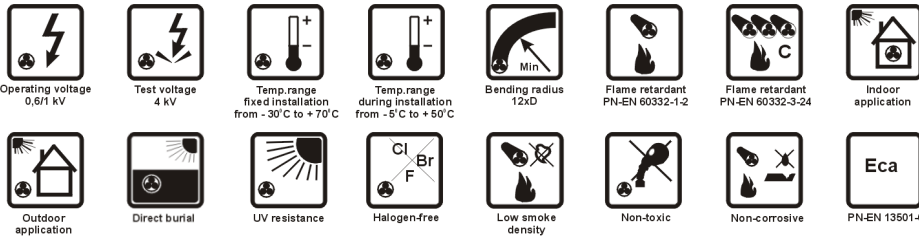
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1235 048	3x70/35 RM	33.7	2364	2945
1235 027	3x95/50 RM	38.1	3228	4081
1235 028	3x120/70 RM	42.0	4140	4999
1235 029	3x150/70 RM	46.7	5004	6125
1235 030	3x185/95 RM	51.8	6252	7677
1235 049	3x240/120 RM	57.5	8076	9806
1235 004	4x1,5/1,5 RE	11.5	78.1	199
1235 020	4x2,5/2,5 RE	12.6	126.1	261
1235 006	4x4/4 RE	13.9	198.3	350
1235 015	4x6/6 RE	15.7	294.1	471
1235 005	4x10/10 RE	18.0	492.3	695
1235 001	4x16/16 RE	20.4	780.4	1021
1235 031	4x25/16 RM	24.9	1126	1471
1235 003	4x35/16 RM	27.7	1510	1902
1235 002	4x50/25 RM	31.1	2172	2573
1235 014	4x70/35 RM	36.8	3036	3635
1235 012	4x95/50 RM	41.3	4140	5056
1235 011	4x120/70 RM	46.5	5292	6236
1235 050	4x150/70 RM	50.9	6444	7568
1235 051	4x185/95 RM	57.4	8028	9589

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1235 052	4x240/120 RM	63.3	10380	12316
1235 036	5x1,5/1,5 RE	12.2	92.7	223
1235 043	5x2,5/2,5 RE	13.4	150.3	297
1235 053	5x4/4 RE	15.1	236.7	408
1235 054	5x6/6 RE	16.8	351.7	541
1235 055	5x10/10 RE	19.4	588.4	807
1235 056	5x16/16 RE	22.0	933.0	1189
1235 057	5x25/16 RM	27.3	1366	1760
1235 058	5x35/16 RM	31.1	1846	2270
1235 059	5x50/25 RM	34.4	2652	3115
1235 060	5x70/35 RM	39.5	3708	4349
1235 061	5x95/50 RM	45.6	5052	6086
1235 075	5x120/70 RM	50.6	6444	7459
1235 076	5x150/70 RM	56.0	7884	9219
1235 062	5x185/95 RM	62.8	9804	11484
1235 063	5x240/120 RM	69.7	12684	14771
1235 017	7x1,5/2,5 RE	13.2	131.1	279
1235 021	7x2,5/2,5 RE	14.3	198.1	359

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1235 064	7x4/4 RE	16.1	313.5	499
1235 042	7x6/6 RE	17.6	467.1	660
1235 034	10x1,5/2,5 RE	15.9	174.3	377
1235 018	10x2,5/4 RE	17.6	284.7	505
1235 065	12x1,5/2,5 RE	16.3	202.9	411
1235 041	12x2,5/4 RE	17.9	338.8	554
1235 035	14x1,5/2,5 RE	17.0	231.7	453
1235 038	14x2,5/4 RE	18.7	386.8	615
1235 033	16x2,5/6 RE	19.7	453.9	703
1235 013	19x1,5/4 RE	18.5	324.3	568
1235 019	19x2,5/6 RE	20.8	526.0	797
1235 037	24x1,5/6 RE	21.4	415.5	715
1235 039	24x2,5/10 RE	24.1	684.4	1008
1235 066	30x1,5/6 RE	22.5	501.9	824
1235 067	30x2,5/10 RE	25.5	828.3	1190
1235 068	37x1,5/10 RE	24.4	641.1	998
1235 069	40x2,5/10 RE	28.6	1068	1527

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

**XnKSXSzo-Nr 0,6/1 kV**  
**XnKSXS-Nr 0,6/1 kV**



**APPLICATIONS**

XnKSXSzo-Nr 0,6/1 kV and XnKSXS-Nr 0,6/1 kV control cables are designed for control, protection and monitoring systems in power engineering, also for electric power distribution.

The cables are suitable for industrial applications, such as production plants or air-conditioning systems operating in dry and wet locations, also for outdoor installations, in cable ducts or for direct earth burial.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

**CONSTRUCTION**

- bare annealed copper conductors meeting requirements of class 1 per PN-EN 60228 standard,
- black cross-linked polyethylene (XLPE) insulation and white conductor number printed on it; a green-yellow protective conductor in the outer layer in XnKSXSzo-Nr 0,6/1 kV cable,
- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape,
- cable sheath made of halogen free compound (HFFR), black, other colours also available.

**AVAILABLE UPON REQUEST**

XnKSXSzo-Nr 0,6/1 kV and XnKSXS-Nr 0,6/1 kV - cables with inner covering extruded directly on a cable core, recommended for direct earth burial.

Steel wire or steel tape armoured cables as above applied in locations where enhanced protection against mechanical damages is required.

**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	1	1.5	2.5	4	6	10	16
DC conductor resistance at 20°C, maximum	Ω/km	18.1	12.1	7.41	4.61	3.08	1.83	1.15



Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, minimum	100 MΩ·km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 70°C
during installation	from - 5 to + 50°C
Minimum bending radius	15 x cable diameter
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2; IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
Reference standards	PN-HD 604 S1, IEC 60502-1, DIN VDE 0266
CPR – class reaction on fire	Eca
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

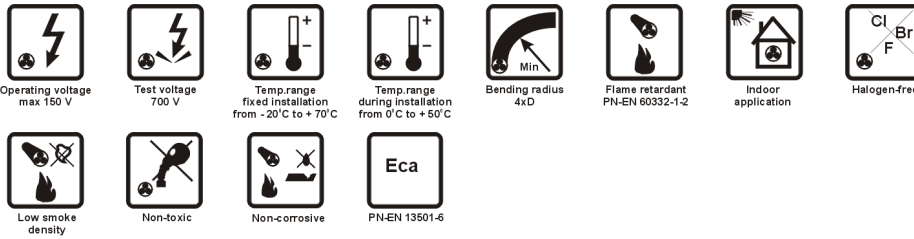
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1297 013	7 x 1,0	10.1	67.2	150
1297 006	10 x 1,0	12.4	96.0	202
1297 016	12 x 1,0	12.8	115.2	229
1297 005	14 x 1,0	13.4	134.4	257
1297 011	16 x 1,0	14.1	153.6	288
1297 017	19 x 1,0	14.8	182.4	326
1297 012	24 x 1,0	17.1	230.4	403
1297 007	30 x 1,0	18.0	288.0	480
1297 018	37 x 1,0	19.4	355.2	572
1297 014	48 x 1,0	22.2	460.8	732
1297 019	61 x 1,0	24.2	585.6	897
1297 001	7 x 1,5	10.9	100.8	189
1297 004	10 x 1,5	13.4	144.0	258
1297 020	12 x 1,5	13.8	172.8	294
1297 002	14 x 1,5	14.5	201.6	332
1297 021	16 x 1,5	15.2	230.4	373
1297 022	19 x 1,5	16.0	273.6	426
1297 010	24 x 1,5	18.5	345.6	528
1297 023	30 x 1,5	19.6	432.0	635
1297 024	37 x 1,5	21.1	532.8	761
1297 015	48 x 1,5	24.3	691.2	973
1297 025	61 x 1,5	26.6	878.4	1216
1297 026	7 x 2,5	12.0	168.0	260

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1297 027	10 x 2,5	14.9	240.0	359
1297 028	12 x 2,5	15.4	288.0	413
1297 029	14 x 2,5	16.2	336.0	470
1297 030	16 x 2,5	17.0	384.0	531
1297 031	19 x 2,5	17.9	456.0	610
1297 032	24 x 2,5	20.8	576.0	760
1297 003	30 x 2,5	22.2	720.0	932
1297 033	37 x 2,5	23.9	888.0	1118
1297 034	48 x 2,5	27.5	1152	1437
1297 035	7 x 4	13.4	268.8	367
1297 036	10 x 4	16.8	384.0	512
1297 037	12 x 4	17.3	460.8	590
1297 038	14 x 4	18.2	537.6	675
1297 039	16 x 4	19.2	614.4	765
1297 040	7 x 6	14.9	403.2	504
1297 041	10 x 6	18.8	576.0	706
1297 042	12 x 6	19.4	691.2	820
1297 043	14 x 6	20.4	806.4	941
1297 044	7 x 10	17.3	672.0	778
1297 045	10 x 10	22.2	960.0	1106
1297 046	7 x 16	20.0	1075	1167
1297 047	10 x 16	26.0	1536	1662

Other cross-sections and conductor counts available on request.

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## UTP-H cat.5e 4x2x0,5 mm



### APPLICATIONS

UTP-H kat.5e 4x2x0,5 mm cables are intended for multimedia computer networks (data, sound and HDTV transmission), including structural wiring of buildings, applied in industrial and other dedicated networks not sensitive to electromagnetic interferences.

The cables are also applied in computer networks of increased binary transfer where simultaneous transmission in both directions in all 4 symmetrical circuits is used (full duplex, Gigabit Ethernet technique).

Halogen free material sheathed cable is applied in locations where, in case of fire, higher safety for human beings and property is required. The cable is flame retardant and its smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- annealed copper single wire conductors of diameter 0.51 mm, 24 AWG,
- polyethylene (PE) insulation coloured: white-blue and blue, white-orange and orange, white-green and green, white-brown and brown,
- insulated conductors twisted into pairs,
- pairs laid-up into a cable core,
- cable sheath made of halogen free compound (HFFR), orange, other colours also available.



## CHARACTERISTICS

Characteristic impedance	100 ± 15 Ω	Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
Mutual capacitance of any pair at 1 kHz, approximate	50 nF/km	pH	>4.3
Capacitance unbalance of any pair to ground at 1 kHz, max.	1600 pF/km	conductivity	<2.5 μS/mm
Insulation resistance, minimum	5000 MΩ · km	Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Operating voltage	150 V	Light transmittance, minimum	60%
Voltage test	700 V rms	Operating temperature range	
Velocity of propagation	65%	during operation	from - 20 to + 70°C
Return loss, minimum at f=4 ± 10 MHz - min.	20+5lg(f) dB	during installation	from 0 to + 50°C
Return loss, minimum at f=10 ± 20 MHz - min.	25 dB	Minimum bending radius	4 x cable diameter
Return loss, minimum at f=20 ± 155 MHz - min.	25-7 lg(f/20) dB	Cable combustibility	flame retardant
DC loop resistance at 20°C, maximum	188 Ω/km	Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Resistance unbalance of any pair of conductors, max.	2%	Reference standards	PN-EN 50288-3-1, IEC 61156-5, ISO/IEC 11801, TIA/EIA 568 A
Phase delay dispersion of symmetrical circuits	45 ns/100 m	CPR – class reaction on fire	Eca
Phase delay T	534+36/√f ns/100 m	DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

## ATTENUATION LOSS – MAXIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
a [dB/100 m]	2.1	4.3	5.9	6.6	8.2	9.2	10.5	11.8	17.1	22	28.1

## NEAR END CROSS-TALK BETWEEN PAIRS – MINIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
NEXT [dB]	65.3	56.3	51.8	50.3	47.3	45.8	44.3	42.9	38.4	35.3	32.5
PSNEXT [dB]	62.3	53.3	48.8	47.3	44.3	42.8	41.3	39.9	35.4	32.3	29.5
ACR [dB]	68.3	57.2	51.0	48.8	44.0	41.5	38.9	36.2	26.4	18.3	4.4

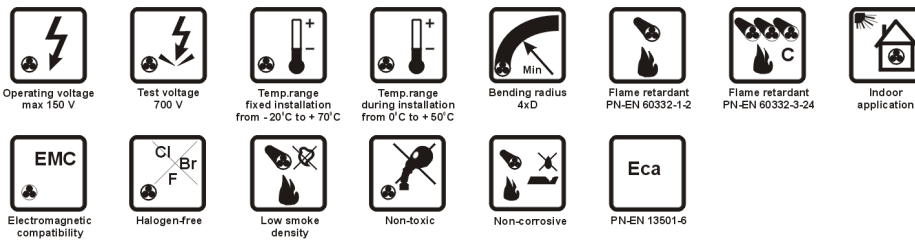
## FAR END CROSS-TALK BETWEEN PAIRS – MINIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
ELFEXT [dB]	63.8	51.7	45.7	43.8	39.7	37.7	35.8	33.9	27.8	23.8	19.9
PSELFEXT [dB]	60.8	48.7	42.7	40.8	36.7	34.7	32.8	30.9	24.8	20.8	16.9

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm	mm	kg/km	kg/km
0252 008	4 x 2 x 0,5	6.4	16.3	45

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## FTP-H cat.5e 4x2x0,5 mm



### APPLICATIONS

FTP-H cat.5e 4x2x0,5 mm cable is intended for multimedia computer networks (data, sound and HDTV transmission), including structural wiring of buildings, applied in industrial and other dedicated networks sensitive to electromagnetic interferences.

The cable is protected by an overall electrostatic shield against external electric interferences and prevents emission of interferences produced in the cable.

The cables are also applied in computer networks of increased binary transfer where simultaneous transmission in both directions in all 4 symmetrical circuits is used (full duplex, Gigabit Ethernet technique).

Halogen free material sheathed cable is applied in locations where, in case of fire, higher safety for human beings and property is required. The cable is flame retardant and its smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- annealed copper single wire conductors of diameter 0.51 mm, 24 AWG,
- polyethylene (PE) insulation coloured: white-blue and blue, white-orange and orange, white-green and green, white-brown and brown,
- insulated conductors twisted into pairs,
- pairs laid-up into a cable core,
- collective shield, incorporating aluminium-polyester tape and annealed tinned copper single drain wire of diameter 0.5 mm,
- cable sheath made of halogen free compound (HFFR), grey RAL 7035, other colours also available.

### CHARACTERISTICS

Characteristic impedance	100 ± 15 Ω
Mutual capacitance of any pair at 1 kHz, approximate	50 nF/km
Capacitance unbalance of any pair to ground at 1 kHz, maks.	1600 pF/km
Insulation resistance, minimum	5000 MΩ · km
Operating voltage	150 V
Voltage test	700 V rms
Velocity of propagation	65%

Return loss, minimum at f=4 ± 10 MHz - min.	20+5lg(f) dB
Return loss, minimum at f=10 ± 20 MHz - min.	25 dB
Return loss, minimum at f=20 ± 155 MHz - min.	25-8.6lg(f/20)dB
Tłumienność screenowania at częstotliwości f=30 ± 1000 MHz - min.	50 dB
Shielding impedance at 10 MHz, maximum	100 mΩ/m



DC loop resistance at 20°C, maximum	188 Ω/km
Resistance unbalance of any pair of conductors, max.	2%
Phase delay dispersion of symmetrical circuits	45 ns/100 m
Phase delay T	534+36/√f ns/100 m
Corrosivity of emitted gases per	very low, halogen free, PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
<b>Operating temperature range</b>	
during operation	from - 20 to + 70°C
during installation	from 0 to + 50°C

Minimum bending radius	4 x cable diameter
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	PN-EN 50288-2-1, IEC 61156-5, ISO/IEC 11801, TIA/EIA 568 A
CPR – class reaction on fire	Eca
DoP declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

### ATTENUATION LOSS – MAXIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
a [dB/100 m]	2.1	4.3	5.9	6.6	8.2	9.2	10.5	11.8	17.1	22	28.1

### NEAR END CROSS-TALK BETWEEN PAIRS - MINIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
NEXT [dB]	65.3	56.3	51.8	50.3	47.3	45.8	44.3	42.9	38.4	35.3	32.5
PSNEXT [dB]	62.3	53.3	48.8	47.3	44.3	42.8	41.3	39.9	35.4	32.3	29.5
ACR [dB]	68.3	57.2	51.0	48.8	44.0	41.5	38.9	36.2	26.4	18.3	4.4

### FAR END CROSS-TALK BETWEEN PAIRS - MINIMUM

f [MHz]	1	4	8	10	16	20	25	31.25	62.5	100	155
ELFEXT [dB]	63.8	51.7	45.7	43.8	39.7	37.7	35.8	33.9	27.8	23.8	19.9
PSELFEXT [dB]	60.8	48.7	42.7	40.8	36.7	34.7	32.8	30.9	24.8	20.8	16.9

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm	mm	kg/km	kg/km
0503 002	4 x 2 x 0,5	6.1	17.6	46.2

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## LON BUS-H 1x2x16 AWG (equivalent: BELDEN 8471NH)



### APPLICATIONS

LON BUS-H 1x2x16 AWG cable is intended for wiring LONWORKS bus in automation systems. The cables are suitable for indoor installations connecting fixed and movable equipment. Cable outer sheath is oil-resistant.

### CONSTRUCTION

- 16 AWG flexible multiwire conductors, stranded of annealed tin-plated copper wires (19x0.29 mm),
- insulation made of halogen free compound (HFFR), identification colour code: white, black,
- insulated conductors twisted into pair,
- cable sheath made of halogen free compound (HFFR), grey RAL 7037, other colours also available.

### CHARACTERISTICS

Operating voltage	300 V
Mutual capacitance at 1 kHz, maximum	80 nF/km
Insulation resistance, minimum	100 MΩ·km
Inductance, approximate	0.6 mH/km
Voltage test	1500 V rms
DC loop resistance at 20°C, maximum	29.6 Ω/km
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2 IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm

Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60 %
Operating temperature range:	from -20 to +80 °C
Minimum bending radius	15 x cable diameter
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
Reference standards	DT 117/01/08, IEC 61158, PN-EN 50170
CPR – class reaction on fire	Eca
DoP declarations are available at <a href="http://technokabel.com.pl">technokabel.com.pl</a>	

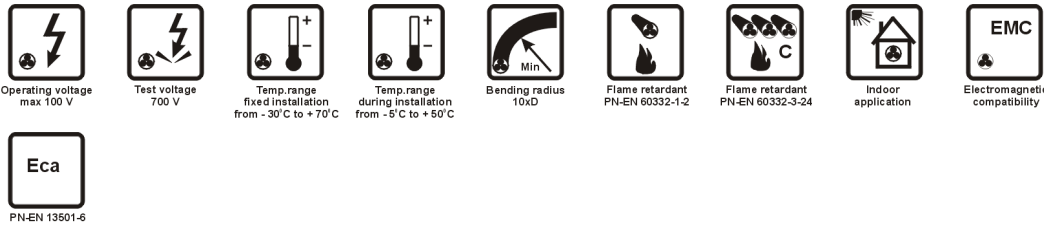
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor size	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	AWG	mm	kg/km	kg/km
0901 002	1 x 2 x 16	6.9	25.8	62

TECHNOKABEL SA reserves the right to change specifications without prior notice.



## BUS O2YS(St)CH 1x2x0,64/2,6 mm



### APPLICATIONS

BUS O2YS(St)CH 1x2x0,64/2,6 mm is cable intended for industrial PROFIBUS DP control systems.

For proper transmission of digital and analogue signals the cable is protected by a specially designed and highly effective collective shield against external electromagnetic interferences.

Cables pass combustibility test according to EN 60332-3 standard.

Cable is applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required. The cable is flame retardant and its smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- bare annealed copper single wire conductors of diameter 0.64 mm (22 AWG),
- foam-skin polyethylene insulation - identification colour code: red and green,
- insulated conductors twisted into a pair,
- collective shield incorporating an aluminium-polyester tape under a tinned copper wire braid,
- cable sheath made of halogen free compound, black RAL 9005, other colours also available.

### AVAILABLE UPON REQUEST

BUS O2YS(St)CYv 1x2x0,64/2,6 mm - cable of enhanced and oil resistant PVC sheath, suitable for outdoor installations and direct earth burial.

BUS O2YS(St)CY2Y 1x2x0,64/2,6 mm - cable with additional polyethylene (PE) sheath, suitable for outdoor installations and direct earth burial.



## CHARACTERISTIC

Impedance, approximate	150 ± 15 Ω
Mutual capacitance at 1 kHz, approximate	30 nF/km
Insulation resistance, minimum	5 GΩ·km
Operating voltage	100 V
Attenuation loss, maximum at 38.4 MHz	4 dB/km
Attenuation loss, [dB/100m] max - at frequency [MHz]:	
1	1.2
4	2.2
10	3.2
16	4.2
Transfer impedance at 30 MHz, maximum	50 mΩ/m
DC loop resistance at 20°C, maximum	110 Ω/km
DC shield resistance at 20°C, maximum	9.7 Ω/km
Voltage test	700 V rms
Operating temperature range:	
during operation	from - 30 to + 70 °C
during installation	from - 5 to + 50 °C

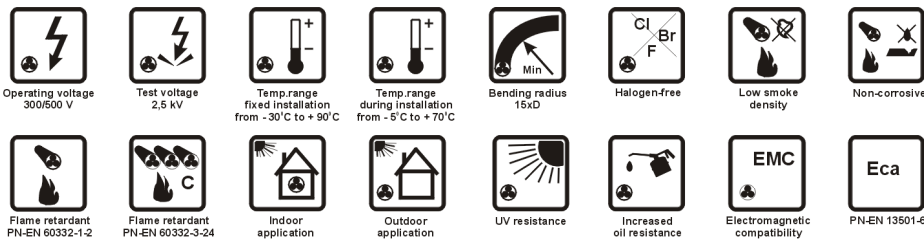
Minimum bending radius	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	low smoke density, PN-EN 61034-2, I EC 61034-2
Light transmittance,	min. 60%
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Reference standards	DT 220/05/16, DIN 19245 T3, EN 50170
CPR – class reaction on fire	Eca
DoP declarations are available at	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage directive 2014/35/EU

Product No.	Cable type	Number of conductors x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
		mm	mm	kg/km	kg/km
0182 005	O2YS(St)CH	1x2x0,64/2,6	8.0	20.0	70

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## EG SF SHX, EG FA SHX



### APPLICATIONS

EG SF SHX and EG FA SHX instrumentation cables are intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all in industrial electronics applications, allowing particularly for conditions met in chemical, petrochemical and paper industries.

The cables are protected by an overall electrostatic shield against external electric interferences.

Steel tape armour in **EG FA SHX** cables offers enhanced protection against mechanical damages and rodent attack.

The cables can also be used for power supply to small auxiliary devices on condition that current-carrying capacity limit (see our Technical Guide) is not exceeded.

The cables are suitable for fixed indoor and outdoor installations.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are oil-resistant and offer enhanced resistance to aliphatic hydrocarbons.

### CONSTRUCTION

- bare annealed copper wire conductors,
  - 05 – 0.50 mm<sup>2</sup> (1x0.8 mm),
  - 09 – 0.88 mm<sup>2</sup> (7x0.4 mm),
  - 15 – 1.50 mm<sup>2</sup> (7x0.52 mm),
- insulation made of cross-linked halogen free compound,
- insulated conductors twisted into:
  - pairs **IP** - colour code: white and red insulation and pair number printed on it,
  - triads **IT** - colour code: white, red and blue insulation and triad number printed on it,
  - quads **IQ** - colour code: white, red, blue and yellow insulation for identification,
- pairs, triads or quads laid-up in layers,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.22 mm<sup>2</sup> (7x0.2 mm),
- cable sheath made of cross-linked halogen free compound, blue (RAL 5012), other colours also available,
- steel tape armour for **EG FA SHX** cable,
- cable covering made of cross-linked halogen free compound, blue (RAL 5012), other colours also available.



## CHARACTERISTICS

### DC loop resistance at 20°C, maximum:

conductor 0.50 mm <sup>2</sup>	75.0 Ω/km
conductor 0.88 mm <sup>2</sup>	42.8 Ω/km
conductor 1.50 mm <sup>2</sup>	24.2 Ω/km

### Resistance unbalance, maximum:

conductor 0.50 mm <sup>2</sup>	1.120 Ω/km
conductor 0.88 mm <sup>2</sup>	1.070 Ω/km
conductor 1.50 mm <sup>2</sup>	0.605 Ω/km

<b>Operating voltage U<sub>o</sub>/U</b>	300/500 V
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### Voltage test

conductor/conductor	2500 V rms
conductor/screen	2000 V rms

<b>Insulation resistance, min.</b>	500 MΩ·km
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### Mutual capacitance, max. (this value may be 30% higher for one pair or triad):

conductor 0.50 mm <sup>2</sup>	145 nF/km
conductor 0.88 mm <sup>2</sup>	160 nF/km
conductor 1.50 mm <sup>2</sup>	150 nF/km

### Operating temperature range

during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C

<b>Minimum bending radius</b>	15 x cable diameter
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<b>Corrosivity of emitted gases per</b>	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
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pH	>4.3
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conductivity	<2.5 μS/mm
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<b>Smoke density</b>	low smoke density PN-EN 61034-2, IEC 61034-2
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<b>Light transmittance, minimum</b>	60%
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<b>Resistance to aliphatic hydrocarbons</b>	NF M 87-202 Annex A
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<b>Oil resistance</b>	PN-EN 60811-404
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<b>Cable combustibility</b>	flame retardant
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<b>Combustibility tests</b>	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
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<b>Reference standards</b>	DT 68/06/05, NF M 87-202
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<b>CPR – class reaction on fire</b>	Eca
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<b>DoP declarations are available at</b>	<a href="http://www.technokabel.com.pl">www.technokabel.com.pl</a>
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The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Cable type	Number of pairs/triads/quads x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	
					mm <sup>2</sup>	mm
1713 001	03 IP 05 EG SF SHX	3 x 2 x 0,5	8.4	31.0		84.0
1713 002	07 IP 05 EG SF SHX	7 x 2 x 0,5	10.9	70.0		157.0
1713 003	12 IP 05 EG SF SHX	12 x 2 x 0,5	13.9	118.0		255.0
1713 004	19 IP 05 EG SF SHX	19 x 2 x 0,5	17.1	185.0		388.0
1713 005	27 IP 05 EG SF SHX	27 x 2 x 0,5	19.0	262.0		510.0
1713 006	07 IT 05 EG SF SHX	7 x 3 x 0,5	12.4	103.0		219.0
1713 007	12 IT 05 EG SF SHX	12 x 3 x 0,5	15.9	175.0		366.0

Product No.	Cable type	Number of pairs/triads/quads x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	
					mm <sup>2</sup>	mm
1713 008	01 IP 09 EG SF SHX	1 x 2 x 0,88	6.6	20.0		60.0
1713 009	03 IP 09 EG SF SHX	3 x 2 x 0,88	10.3	53.0		126.0
1713 010	07 IP 09 EG SF SHX	7 x 2 x 0,88	13.7	121.0		252.0
1713 011	12 IP 09 EG SF SHX	12 x 2 x 0,88	17.5	205.0		412.0
1713 012	19 IP 09 EG SF SHX	19 x 2 x 0,88	21.3	324.0		621.0
1713 013	27 IP 09 EG SF SHX	27 x 2 x 0,88	25.1	459.0		864.0
1713 014	01 IT 09 EG SF SHX	1 x 3 x 0,88	7.0	28.0		70.0

Product No.	Cable type	Number of pairs/triads/quads x conductor	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
		cross-section	mm	kg/km	kg/km
1713 015	07 IT 09 EG SF SHX	7 x 3 x 0,88	15.8	180.0	363.0
1713 016	12 IT 09 EG SF SHX	12 x 3 x 0,88	20.0	307.0	595.0
1713 017	01 IQ 09 EG SF SHX	1 x 4 x 0,88	7.5	36.0	85.0
1713 018	01 IP 15 EG SF SHX	1 x 2 x 1,5	7.9	30.9	99.0
1714 001	03 IP 05 EG FA SHX	3 x 2 x 0,5	11.2	31.0	191.0
1714 002	07 IP 05 EG FA SHX	7 x 2 x 0,5	13.9	70.0	300.0
1714 003	12 IP 05 EG FA SHX	12 x 2 x 0,5	17.1	118.0	441.0
1714 004	19 IP 05 EG FA SHX	19 x 2 x 0,5	20.5	185.0	624.0
1714 005	27 IP 05 EG FA SHX	27 x 2 x 0,5	24.0	262.0	810.0
1714 006	07 IT 05 EG FA SHX	7 x 3 x 0,5	15.6	103.0	387.0
1714 007	12 IT 05 EG FA SHX	12 x 3 x 0,5	19.3	175.0	586.0
1714 008	01 IP 09 EG FA SHX	1 x 2 x 0,88	9.4	20.0	167.0

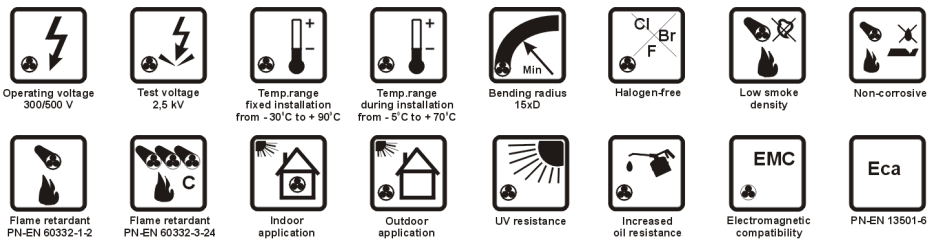
Product No.	Cable type	Number of pairs/triads/quads x conductor	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
		cross-section	mm	kg/km	kg/km
1714 009	03 IP 09 EG FA SHX	3 x 2 x 0,88	13.3	53.0	261.0
1714 010	07 IP 09 EG FA SHX	7 x 2 x 0,88	16.9	121.0	436.0
1714 011	12 IP 09 EG FA SHX	12 x 2 x 0,88	20.9	205.0	653.0
1714 012	19 IP 09 EG FA SHX	19 x 2 x 0,88	25.1	324.0	936.0
1714 013	27 IP 09 EG FA SHX	27 x 2 x 0,88	29.1	459.0	1245.0
1714 014	01 IT 09 EG FA SHX	1 x 3 x 0,88	9.8	28.0	161.0
1714 015	07 IT 09 EG FA SHX	7 x 3 x 0,88	19.0	180.0	573.0
1714 016	12 IT 09 EG FA SHX	12 x 3 x 0,88	23.4	307.0	869.0
1714 017	01 IQ 09 EG FA SHX	1 x 4 x 0,88	10.3	36.0	182.0
1714 018	01 IP 15 EG FA SHX	1 x 2 x 1,5	10.7	28.0	161.0
1714 019	07 IP 15 EG FA SHX	7 x 2 x 1,5	20.6	180.0	573.0
1714 020	12 IP 15 EG FA SHX	12 x 2 x 1,5	25.7	307.0	869.0

Other cross-sections and pair, triad or quad counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## EI SF SHX, EI FA SHX

TECHNOKABEL EI FA SHX

HALOGEN FREE SAFETY CABLES



### APPLICATIONS

EI SF SHX and EI FA SHX instrumentation cables are intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all in industrial electronics applications, allowing particularly for conditions met in chemical, petrochemical and paper industries.

The cables are protected by an overall electrostatic shield against external electric interferences.

Shielded pair structure substantially decreases mutual influence between signals transmitted along the cable.

Steel tape armour in EI FA SHX cables offers enhanced protection against mechanical damages and rodent attack.

The cables can also be used for power supply to small auxiliary devices on condition that current-carrying capacity limit (see our Technical Guide) is not exceeded.

The cables are suitable for fixed indoor and outdoor installations.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are oil-resistant and offer enhanced resistance to aliphatic hydrocarbons.

### CONSTRUCTION

- bare annealed copper wire conductors,
  - 05 – 0.50 mm<sup>2</sup> (1x0.8 mm),
  - 09 – 0.88 mm<sup>2</sup> (7x0.4 mm),
  - 15 – 1.50 mm<sup>2</sup> (7x0.52 mm),
- insulation made of cross-linked halogen free compound,
- insulated conductors twisted into,
  - pairs IP - colour code insulation: white and red,
  - triads IT - colour code insulation: white, red and blue,
- pair/triad electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.22 mm<sup>2</sup> (7x0.2 mm),
- sheath of shielded pairs/triads made of cross-linked halogen free compound, blue (RAL 5012), other colours also available and printed black number of pair or triad,
- shielded and sheathed pairs or triads laid-up in layers,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.22 mm<sup>2</sup> (7x0.2 mm), number of drain wires from 1 to 3 depending on the cable core diameter,
- cable sheath made of cross-linked halogen free compound, blue (RAL 5012), other colours also available,
- steel tape armour for EI FA SHX cable,
- cable covering made of cross-linked halogen free compound, blue (RAL 5012), other colours also available.

## CHARACTERISTICS

### DC loop resistance at 20°C, maximum:

conductor 0.50 mm <sup>2</sup>	75.0 Ω/km
conductor 0.88 mm <sup>2</sup>	42.8 Ω/km
conductor 1.50 mm <sup>2</sup>	24.2 Ω/km

### Resistance unbalance, maximum:

conductor 0.50 mm <sup>2</sup>	1.120 Ω/km
conductor 0.88 mm <sup>2</sup>	1.070 Ω/km
conductor 1.50 mm <sup>2</sup>	0.605 Ω/km

<b>Operating voltage U<sub>0</sub>/U</b>	300/500 V
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### Voltage test

conductor/conductor	2500 V rms
conductor/screen	2000 V rms

<b>Insulation resistance, minimum:</b>	500 MΩ·km
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### Mutual capacitance, maximum:

conductor 0.50 mm <sup>2</sup>	210 nF/km
conductor 0.88 mm <sup>2</sup>	230 nF/km
conductor 1.50 mm <sup>2</sup>	220 nF/km

### Operating temperature range

during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C

<b>Corrosivity of emitted gases per</b>	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
<b>Smoke density</b>	low smoke density PN-EN 61034-2, IEC 61034-2
<b>Light transmittance, minimum</b>	60%
<b>Minimum bending radius</b>	15 x cable diameter
<b>Resistance to aliphatic hydrocarbons</b>	NF M 87-202 Annex A
<b>Oil resistance</b>	PN-EN 60811-404
<b>Cable combustibility</b>	flame retardant
<b>Combustibility tests</b>	PN-EN 60332-1-2, IEC 60332-1-2 PN-EN 60332-3-24, IEC 60332-3-24
<b>Reference standards</b>	DT 68/06/05, NF M 87-202
<b>CPR – class reaction on fire</b>	Eca
<b>DoP declarations are available at</b>	<a href="http://technokabel.com.pl">technokabel.com.pl</a>

The cable meets requirements of the low voltage direction 2014/35/EU

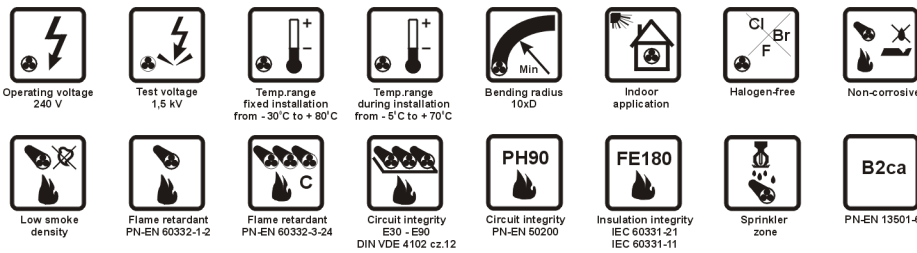
Product No.	Cable type	Number of pairs/triads x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
		mm <sup>2</sup>	mm	kg/km	kg/km
1715 001	03 IP 05 EI SF SHX	3 x 2 x 0,5	12.2	38.0	126.0
1715 002	07 IP 05 EI SF SHX	7 x 2 x 0,5	17.6	87.0	339.0
1715 003	12 IP 05 EI SF SHX	12 x 2 x 0,5	23.6	145.0	558.0
1715 004	19 IP 05 EI SF SHX	19 x 2 x 0,5	29.4	229.0	867.0
1715 005	07 IT 05 EI SF SHX	7 x 3 x 0,5	18.2	120.0	399.0
1715 006	12 IT 05 EI SF SHX	12 x 3 x 0,5	24.7	205.0	673.0
1715 007	03 IP 09 EI SF SHX	3 x 2 x 0,88	15.5	60.0	223.0
1715 008	07 IP 09 EI SF SHX	7 x 2 x 0,88	20.8	138.0	470.0
1715 009	12 IP 09 EI SF SHX	12 x 2 x 0,88	28.0	235.0	778.0
1715 010	19 IP 09 EI SF SHX	19 x 2 x 0,88	34.8	368.0	1207.0
1715 011	07 IT 09 EI SF SHX	7 x 3 x 0,88	21.7	197.0	574.0
1715 012	12 IT 09 EI SF SHX	12 x 3 x 0,88	29.4	336.0	970.0

Product No.	Cable type	Number of pairs/triads x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
		mm <sup>2</sup>	mm	kg/km	kg/km
1716 001	03 IP 05 EI FA SHX	3 x 2 x 0,5	16.4	38.0	348.0
1716 002	07 IP 05 EI FA SHX	7 x 2 x 0,5	21.0	87.0	581.0
1716 003	12 IP 05 EI FA SHX	12 x 2 x 0,5	27.2	145.0	891.0
1716 004	19 IP 05 EI FA SHX	19 x 2 x 0,5	33.0	229.0	1277.0
1716 005	07 IT 05 EI FA SHX	7 x 3 x 0,5	21.6	120.0	649.0
1716 006	12 IT 05 EI FA SHX	12 x 3 x 0,5	28.1	205.0	1006.0
1716 007	03 IP 09 EI FA SHX	3 x 2 x 0,88	18.7	60.0	440.0
1716 008	07 IP 09 EI FA SHX	7 x 2 x 0,88	24.2	138.0	754.0
1716 009	12 IP 09 EI FA SHX	12 x 2 x 0,88	31.8	235.0	1184.0
1716 010	19 IP 09 EI FA SHX	19 x 2 x 0,88	38.8	368.0	1727.0
1716 011	07 IT 09 EI FA SHX	7 x 3 x 0,88	25.3	197.0	882.0
1716 012	12 IT 09 EI FA SHX	12 x 3 x 0,88	29.4	336.0	1397.0

Other cross-sections and pair or triad counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.



## TECHNOFLAME HTKSH FE180 PH90/E30-E90



### APPLICATIONS

HTKSH FE180 PH90/E30-E90 fire resistant and halogen free cables are intended for installation in alarm, signalling, transmission, sound warning and similar systems, also for data processing systems and for analogue or digital data transmission in industrial electronics and control applications in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.

**Functions of the cables are maintained** – data are transmitted and power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. emergency lighting). The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for indoor installations.

### CONSTRUCTION

- **conductor** – bare copper, solid,
- **insulation** – mica tape and halogen free compound insulation - colours in accordance with IEC 60189-2 and PN-92/T-90321 standards,
- **pair** – insulated conductors twisted into pairs,
- **cable core** – pairs laid-up into a cable core,
- **separator** – polyester tape,
- **sheath** – red, cable sheath made of halogen free compound according to EN 50290-2-27 and VDE 0250-214 – HM2.

### CHARACTERISTICS

Cable type	HTKSH FE180 PH90/E30-E90							
Conductor diameter	mm	0.8	1.0	1.4	1.8	2.3	2.8	
Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.5	2.5	4	6	
DC loop resistance at 20°C, maximum	Ω/km	75	48	24.5	14.9	9.3	6.3	
Capacitance between conductors at 1 kHz	maximum	nF/km	80	80	90	90	100	100
	average	nF/km	60	60	70	70	70	80



Operating voltage U <sub>0</sub> /U	240 V
Voltage test	1500 V rms
Insulation resistance, minimum	500 MΩ · km
Inductance, approximate	0.7 mH/km
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60-80%
Operating temperature range	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Cable combustibility	flame retardant

Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Circuit integrity:	
E30-E90	DIN 4102-12
PH90	PN-EN 50200 + Annex E
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0296-3701 edition 1, WT-TK-43
Class reaction to fire (PN-EN 13501-6)	B2ca-s1b,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems, tested according to DIN 4102 part 12, should be used.

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (kWh/m)	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1638 005	1 x 2 x 0,8	5.1	9.7	31	0.09	B2ca-s1b,d0,a1
1638 029	1 x 4 x 0,8	5.6	19.3	50	0.12	B2ca-s1b,d0,a1
1638 004	2 x 2 x 0,8	7.6	19.3	57	0.17	B2ca-s1b,d0,a1
1638 011	3 x 2 x 0,8	8.0	29.0	73	0.19	B2ca-s1b,d0,a1
1638 014	4 x 2 x 0,8	8.8	38.6	90	0.23	B2ca-s1b,d0,a1
1638 017	5 x 2 x 0,8	9.7	48.3	108	0.26	B2ca-s1b,d0,a1
1638 022	6 x 2 x 0,8	10.5	57.9	125	0.32	B2ca-s1b,d0,a1
1638 019	7 x 2 x 0,8	10.5	67.6	139	0.34	B2ca-s1b,d0,a1
1638 025	8 x 2 x 0,8	11.4	77.2	162	0.38	B2ca-s1b,d0,a1
1638 020	10 x 2 x 0,8	13.0	96.5	197	0.45	B2ca-s1b,d0,a1
1638 026	14 x 2 x 0,8	14.6	135.1	261	0.56	B2ca-s1b,d0,a1

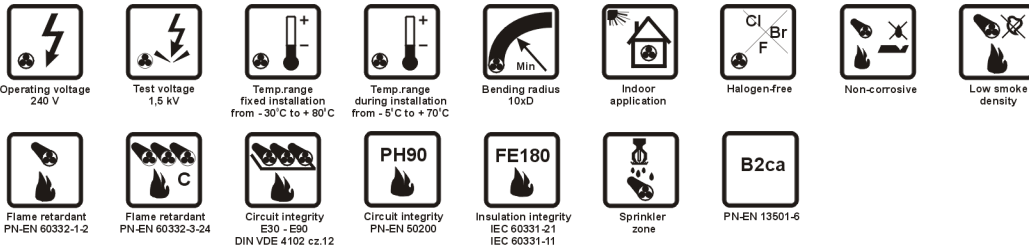
Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (kWh/m)	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1638 028	20 x 2 x 0,8	17.3	193.0	366	0.77	B2ca-s1b,d0,a1
1638 007	1 x 2 x 1,0	5.3	15.1	37	0.10	B2ca-s1b,d0,a1
1638 030	1 x 4 x 1,0	6.1	30.2	63	0.13	B2ca-s1b,d0,a1
1638 006	2 x 2 x 1,0	8.2	30.2	71	0.18	B2ca-s1b,d0,a1
1638 012	3 x 2 x 1,0	8.7	45.2	92	0.21	B2ca-s1b,d0,a1
1638 015	4 x 2 x 1,0	9.6	60.3	116	0.25	B2ca-s1b,d0,a1
1638 018	5 x 2 x 1,0	10.5	75.4	139	0.32	B2ca-s1b,d0,a1
1638 023	6 x 2 x 1,0	11.7	90.5	169	0.36	B2ca-s1b,d0,a1
1638 024	7 x 2 x 1,0	11.7	105.6	188	0.38	B2ca-s1b,d0,a1
1638 031	8 x 2 x 1,0	12.5	120.6	212	0.42	B2ca-s1b,d0,a1
1638 027	10 x 2 x 1,0	14.2	150.8	259	0.50	B2ca-s1b,d0,a1

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1638 001	1 x 2 x 1,4	6.0	29.6	53	0.12	B2ca-s1b,d0,a1
1638 032	1 x 4 x 1,4	7.0	59.1	96	0.16	B2ca-s1b,d0,a1
1638 008	2 x 2 x 1,4	9.5	59.1	104	0.22	B2ca-s1b,d0,a1
1638 013	3 x 2 x 1,4	10.1	88.7	140	0.26	B2ca-s1b,d0,a1
1638 016	4 x 2 x 1,4	11.3	118.2	184	0.33	B2ca-s1b,d0,a1
1638 033	5 x 2 x 1,4	12.5	147.8	223	0.38	B2ca-s1b,d0,a1
1638 034	7 x 2 x 1,4	13.6	206.9	295	0.46	B2ca-s1b,d0,a1
1638 035	8 x 2 x 1,4	14.5	236.4	333	0.50	B2ca-s1b,d0,a1
1638 036	10 x 2 x 1,4	16.6	295.6	411	0.60	B2ca-s1b,d0,a1
1638 002	1 x 2 x 1,8	7.8	48.9	86	0.19	B2ca-s1b,d0,a1
1638 037	1 x 4 x 1,8	9.1	97.7	156	0.27	B2ca-s1b,d0,a1
1638 010	2 x 2 x 1,8	12.3	97.7	171	0.36	B2ca-s1b,d0,a1
1638 038	3 x 2 x 1,8	13.1	146.6	233	0.44	B2ca-s1b,d0,a1
1638 039	4 x 2 x 1,8	14.5	195.4	297	0.52	B2ca-s1b,d0,a1

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1638 040	5 x 2 x 1,8	16.0	244.3	392	0.62	B2ca-s1b,d0,a1
1638 041	7 x 2 x 1,8	17.8	342.0	494	0.81	B2ca-s1b,d0,a1
1638 042	8 x 2 x 1,8	19.0	390.9	560	0.90	B2ca-s1b,d0,a1
1638 003	1 x 2 x 2,3	8.7	79.8	119	0.22	B2ca-s1b,d0,a1
1638 043	1 x 4 x 2,3	10.2	159.5	220	0.32	B2ca-s1b,d0,a1
1638 021	2 x 2 x 2,3	13.9	159.5	239	0.41	B2ca-s1b,d0,a1
1638 044	3 x 2 x 2,3	14.3	239.3	331	0.50	B2ca-s1b,d0,a1
1638 045	4 x 2 x 2,3	16.4	319.1	426	0.61	B2ca-s1b,d0,a1
1638 046	5 x 2 x 2,3	18.4	398.9	531	0.76	B2ca-s1b,d0,a1
1638 009	1 x 2 x 2,8	9.7	118.2	159	0.25	B2ca-s1b,d0,a1
1638 047	1 x 4 x 2,8	11.6	236.4	306	0.39	B2ca-s1b,d0,a1
1638 048	2 x 2 x 2,8	16.2	236.4	349	0.57	B2ca-s1b,d0,a1
1638 049	3 x 2 x 2,8	16.6	354.7	456	0.57	B2ca-s1b,d0,a1
1638 050	4 x 2 x 2,8	18.6	472.9	599	0.74	B2ca-s1b,d0,a1

TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## TECHNOFLAME HTKSHekw FE180 PH90/E30-E90



### APPLICATIONS

HTKSHekw FE180 PH90/E30-E90 fire resistant and halogen free screened cables are intended for installation in alarm, signalling, transmission, sound warning and similar systems, also for data processing systems and for analogue or digital data transmission in industrial electronics and control applications in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpozarowej - PIB) at Józefów.

Cable circuits are protected by an overall electrostatic shield against external electric field interferences.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.

**Functions of the cables are maintained** – data are transmitted and power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. emergency lighting). The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for indoor installations.

### CONSTRUCTION

- **conductor** – bare copper, solid,
- **insulation** – mica tape and halogen free compound insulation - colours in accordance with IEC 60189-2 and PN-92/T-90321 standards,
- **pair** – insulated conductors twisted into pairs,
- **cable core** – pairs laid-up into a cable core,
- **separator** – polyester tape,
- **shielding** – overall electrostatic shield incorporating a plastic laminated metal foil and a tinned copper drain wire,
- **sheath** – red, cable sheath made of halogen free compound according to EN 50290-2-27 and VDE 0250-214 – HM2.



## CHARACTERISTICS

Cable type	HTKSHekw FE180 PH90/E30-E90						
Conductor diameter	mm	0.8	1.0	1.4	1.8	2.3	2.8
Conductor cross-section	mm <sup>2</sup>	0.5	0.75	1.5	2.5	4	6
DC loop resistance at 20°C, maximum	Ω/km	75	48	24.5	14.9	9.3	6.3
Capacitance between conductors at 1 kHz	maximum	nF/km	100	100	130	130	140
	average		80	90	110	120	120

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems, tested according to DIN 4102 part 12, should be used.

Operating voltage U <sub>0</sub> /U	240 V
Voltage test	1500 V rms
Insulation resistance, minimum	500 MΩ · km
Inductance, approximate	0.7 mH/km
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm
Smoke density	PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80%
Operating temperature range	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 70°C
Minimum bending radius	10 x cable diameter
Cable combustibility	flame retardant

Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Circuit integrity:	
E30-E90	DIN 4102-12
PH90	PN-EN 50200 + Annex E
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0296-3701 edition 1, WT-TK-43
Class reaction to fire (PN-EN 13501-6)	B2ca-s1a,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1639 001	1 x 2 x 0,8	5.1	10.9	32	0.09	B2ca-s1a,d0,a1
1639 017	1 x 4 x 0,8	5.7	20.5	53	0.12	B2ca-s1a,d0,a1
1639 006	2 x 2 x 0,8	7.7	20.5	60	0.17	B2ca-s1a,d0,a1
1639 010	3 x 2 x 0,8	8.1	30.2	76	0.20	B2ca-s1a,d0,a1
1639 007	4 x 2 x 0,8	8.9	39.8	94	0.23	B2ca-s1a,d0,a1

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
	mm	mm	kg/km	kg/km	kWh/m	
1639 022	5 x 2 x 0,8	9.8	49.5	112	0.27	B2ca-s1a,d0,a1
1639 025	6 x 2 x 0,8	10.8	59.1	135	0.33	B2ca-s1a,d0,a1
1639 038	7 x 2 x 0,8	10.8	68.8	149	0.35	B2ca-s1a,d0,a1
1639 030	8 x 2 x 0,8	11.5	78.4	166	0.38	B2ca-s1a,d0,a1
1639 013	10 x 2 x 0,8	13.1	97.7	202	0.45	B2ca-s1a,d0,a1

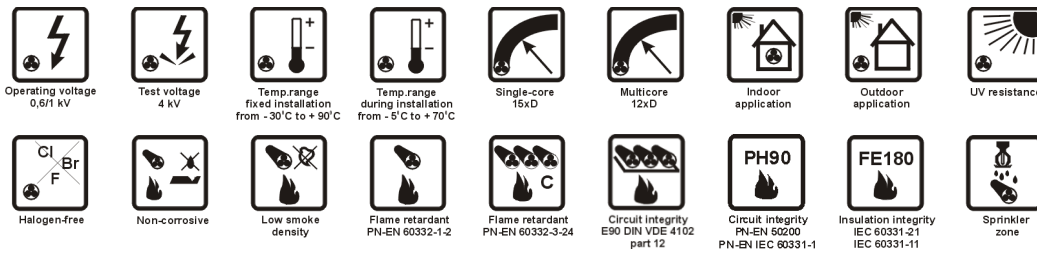
Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
1639 036	12 x 2 x 0,8	13.7	117.0	233	0.50	B2ca-s1a,d0,a1
1639 032	14 x 2 x 0,8	14.7	136.3	266	0.56	B2ca-s1a,d0,a1
1639 037	20 x 2 x 0,8	17.4	194.2	372	0.77	B2ca-s1a,d0,a1
1639 004	1 x 2 x 1,0	5.4	16.3	39	0.10	B2ca-s1a,d0,a1
1639 039	1 x 4 x 1,0	6.2	31.4	66	0.13	B2ca-s1a,d0,a1
1639 012	2 x 2 x 1,0	8.3	31.4	74	0.19	B2ca-s1a,d0,a1
1639 011	3 x 2 x 1,0	8.8	46.4	96	0.22	B2ca-s1a,d0,a1
1639 020	4 x 2 x 1,0	9.7	61.5	120	0.25	B2ca-s1a,d0,a1
1639 023	5 x 2 x 1,0	10.8	76.6	149	0.32	B2ca-s1a,d0,a1
1639 040	6 x 2 x 1,0	11.8	91.7	173	0.36	B2ca-s1a,d0,a1
1639 029	7 x 2 x 1,0	11.8	106.8	193	0.38	B2ca-s1a,d0,a1
1639 027	8 x 2 x 1,0	12.6	121.8	217	0.42	B2ca-s1a,d0,a1
1639 014	10 x 2 x 1,0	14.3	152.0	264	0.50	B2ca-s1a,d0,a1
1639 035	12 x 2 x 1,0	15.0	182.2	307	0.56	B2ca-s1a,d0,a1
1639 002	1 x 2 x 1,4	6.1	30.8	56	0.12	B2ca-s1a,d0,a1
1639 041	1 x 4 x 1,4	7.1	60.3	99	0.16	B2ca-s1a,d0,a1
1639 009	2 x 2 x 1,4	9.6	60.3	108	0.22	B2ca-s1a,d0,a1
1639 028	3 x 2 x 1,4	10.2	89.9	144	0.26	B2ca-s1a,d0,a1
1639 021	4 x 2 x 1,4	11.4	119.4	188	0.33	B2ca-s1a,d0,a1
1639 024	5 x 2 x 1,4	12.6	149	228	0.38	B2ca-s1a,d0,a1
1639 026	6 x 2 x 1,4	13.7	178.5	266	0.43	B2ca-s1a,d0,a1

Product No.	Number of pairs x conductor diameter	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load	Class reaction to fire
1639 033	7 x 2 x 1,4	13.7	208.1	300	0.46	B2ca-s1a,d0,a1
1639 031	8 x 2 x 1,4	14.6	237.7	339	0.51	B2ca-s1a,d0,a1
1639 015	10 x 2 x 1,4	16.7	296.8	417	0.64	B2ca-s1a,d0,a1
1639 016	12 x 2 x 1,4	17.7	355.9	496	0.72	B2ca-s1a,d0,a1
1639 003	1 x 2 x 1,8	7.9	50.1	89	0.19	B2ca-s1a,d0,a1
1639 042	1 x 4 x 1,8	9.2	98.9	160	0.28	B2ca-s1a,d0,a1
1639 018	2 x 2 x 1,8	12.4	98.9	175	0.36	B2ca-s1a,d0,a1
1639 043	3 x 2 x 1,8	13.2	147.8	238	0.44	B2ca-s1a,d0,a1
1639 044	4 x 2 x 1,8	14.6	196.6	303	0.53	B2ca-s1a,d0,a1
1639 051	5 x 2 x 1,8	16.1	245.5	368	0.62	B2ca-s1a,d0,a1
1639 033	7 x 2 x 1,8	13.7	208.1	300	0.81	B2ca-s1a,d0,a1
1639 045	8 x 2 x 1,8	19.1	392.1	566	0.90	B2ca-s1a,d0,a1
1639 005	1 x 2 x 2,3	8.8	81.0	122	0.22	B2ca-s1a,d0,a1
1639 046	1 x 4 x 2,3	10.3	160.7	224	0.32	B2ca-s1a,d0,a1
1639 019	2 x 2 x 2,3	14.0	160.7	244	0.42	B2ca-s1a,d0,a1
1639 047	3 x 2 x 2,3	14.9	240.5	337	0.50	B2ca-s1a,d0,a1
1639 048	4 x 2 x 2,3	16.5	320.3	432	0.61	B2ca-s1a,d0,a1
1639 049	5 x 2 x 2,3	18.5	400.1	538	0.76	B2ca-s1a,d0,a1
1639 008	1 x 2 x 2,8	9.8	119.4	163	0.25	B2ca-s1a,d0,a1
1639 050	1 x 4 x 2,8	11.7	237.7	310	0.39	B2ca-s1a,d0,a1
1639 034	2 x 2 x 2,8	16.3	237.7	355	0.57	B2ca-s1a,d0,a1

TECHNOKABEL S.A. reserves the right to change specifications without prior notice.

## TECHNOFLAME

### NHXH FE180 PH90/E90 0,6/1 kV, NHXH-J FE180 PH90/E90 0,6/1 kV



## APPLICATIONS

NHXH FE180 PH90/E90 0,6/1 kV and NHXH-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

Functions of the cables are maintained for 90 minutes – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

## CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
  - green-yellow protective conductor in the outer layer in NHXH-J FE180 PH90/E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius	
single core cables	15 x cable diameter
multi core cables	12 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (appr.) (kWh/m)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
<b>NHXH FE180 PH90/E90 0,6/1 kV</b>						
0699 100	1 x 1,5 RE	6.3	14.4	59	0.22	Cca-s1a,d0,a1
0699 199	1 x 2,5 RE	6.6	24.0	71	0.24	Cca-s1a,d0,a1
0699 200	1 x 4 RE	7.1	38.4	89	0.26	Cca-s1a,d0,a1
0699 076	1 x 6 RE	7.6	57.6	111	0.29	Cca-s1a,d0,a1
0699 104	1 x 10 RE	8.4	96.0	155	0.34	Cca-s1a,d0,a1
0699 174	1 x 16 RE	8.9	154.0	215	0.30	B2ca-s1a,d0,a1
0699 070	1 x 25 RM	10.9	240.0	325	0.41	B2ca-s1a,d0,a1

Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Light transmittance	min. 80% for s1a
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24
Circuit integrity:	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s1a,d0,a1 or Cca-s1a,d0,a1 or Dca-s2,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (appr.) (kWh/m)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0699 045	1 x 35 RM	11.9	336.0	425	0.46	B2ca-s1a,d0,a1
0699 046	1 x 50 RM	13.3	480.0	560	0.55	B2ca-s1a,d0,a1
0699 047	1 x 70 RM	15.3	672.0	780	0.69	B2ca-s1a,d0,a1
0699 048	1 x 95 RM	17.0	912.0	1090	0.78	B2ca-s1a,d0,a1
0699 049	1 x 120 RM	18.7	1152	1290	0.90	B2ca-s1a,d0,a1
0699 050	1 x 150 RM	20.8	1440	1620	1.12	B2ca-s1a,d0,a1
0699 051	1 x 185 RM	23.0	1776	2000	1.31	B2ca-s1a,d0,a1

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0699 052	1 x 240 RM	25.6	2304	2480	1.59	B2ca-s1a,d0,a1
0699 135	1 x 300 RM	27.6	2880	3010	1.80	B2ca-s1a,d0,a1
0699 013	2 x 1,5 RE	9.9	28.8	157	0.58	B2ca-s1a,d0,a1
0699 002	2 x 2,5 RE	10.7	48.0	193	0.66	B2ca-s1a,d0,a1
0699 176	2 x 4 RE	11.6	77.0	245	0.76	B2ca-s1a,d0,a1
0699 177	2 x 6 RE	12.6	115.0	305	0.88	B2ca-s1a,d0,a1
0699 129	2 x 10 RE	14.2	192.0	425	1.08	B2ca-s1a,d0,a1
0699 130	2 x 16 RE	16.2	307.0	595	1.37	B2ca-s1a,d0,a1
0699 132	2 x 25 RM	20.1	480.0	920	2.12	B2ca-s1a,d0,a1
0699 220	2 x 35 RM	22.4	672.0	1143	2.48	B2ca-s1a,d0,a1
0699 144	2 x 50 RM	25.1	960.0	1495	3.07	B2ca-s1a,d0,a1
0699 221	2 x 70 RM	29.0	1344	2069	4.05	B2ca-s1a,d0,a1
0699 145	2 x 95 RM	32.7	1824	2820	5.04	B2ca-s1a,d0,a1
0699 222	2 x 120 RM	36.3	2304	3420	6.22	B2ca-s1a,d0,a1
0699 223	2 x 150 RM	40.4	2880	4268	7.69	B2ca-s1a,d0,a1
0699 224	2 x 185 RM	45.0	3552	5306	9.50	B2ca-s1a,d0,a1
0699 183	2 x 240 RM	50.0	4608	6781	11.53	B2ca-s1a,d0,a1
<b>NHXH-J FE180 PH90/E90 0,6/1 kV</b>						
0699 014	3 x 1,5 RE	10.5	43.2	178	0.60	B2ca-s1a,d0,a1
0699 015	3 x 2,5 RE	11.3	72.0	225	0.68	B2ca-s1a,d0,a1
0699 053	3 x 4 RE	12.3	115.0	290	0.78	B2ca-s1a,d0,a1
0699 054	3 x 6 RE	13.5	173.0	370	0.90	B2ca-s1a,d0,a1
0699 090	3 x 10 RE	15.1	288.0	530	1.13	B2ca-s1a,d0,a1
0699 215	3 x 16 RE	17.2	461.0	720	1.50	B2ca-s1a,d0,a1

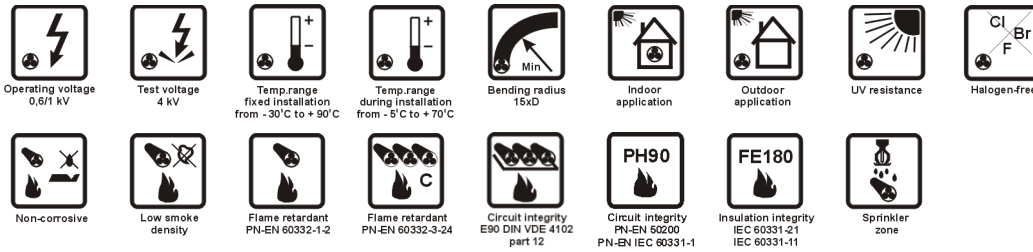
Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0699 091	3 x 25 RM	21.6	720.0	1150	2.10	B2ca-s1a,d0,a1
0699 072	3 x 35 RM	23.9	1008	1500	2.48	B2ca-s1a,d0,a1
0699 073	3 x 50 RM	27.0	1440	1990	3.12	B2ca-s1a,d0,a1
0699 074	3 x 70 RM	31.2	2016	2760	4.05	B2ca-s1a,d0,a1
0699 134	3 x 95 RM	35.3	2736	3800	4.89	B2ca-s1a,d0,a1
0699 149	3 x 120 RM	39.0	3456	4550	5.92	B2ca-s1a,d0,a1
0699 201	3 x 150 RM	43.4	4320	5538	7.94	B2ca-s1a,d0,a1
0699 202	3 x 185 RM	48.3	5328	6886	9.64	B2ca-s1a,d0,a1
0699 203	3 x 240 RM	53.7	6912	8851	11.56	B2ca-s1a,d0,a1
0699 001	4 x 1,5 RE	11.4	58.0	215	0.69	B2ca-s1a,d0,a1
0699 055	4 x 2,5 RE	12.3	96.0	270	0.78	B2ca-s1a,d0,a1
0699 056	4 x 4 RE	13.4	154.0	355	0.89	B2ca-s1a,d0,a1
0699 020	4 x 6 RE	14.6	230.0	455	1.02	B2ca-s1a,d0,a1
0699 057	4 x 10 RE	16.7	384.0	660	1.28	B2ca-s1a,d0,a1
0699 216	4 x 16 RE	18.9	614.0	900	1.68	B2ca-s1a,d0,a1
0699 071	4 x 25 RM	23.9	960.0	1450	2.39	B2ca-s1a,d0,a1
0699 084	4 x 35 RM	26.6	1344	1910	2.88	B2ca-s1a,d0,a1
0699 068	4 x 50 RM	29.9	1920	2520	3.54	B2ca-s1a,d0,a1
0699 085	4 x 70 RM	34.9	2688	3550	4.59	B2ca-s1a,d0,a1
0699 123	4 x 95 RM	39.3	3648	4900	5.62	B2ca-s1a,d0,a1
0699 110	4 x 120 RM	43.4	4608	5669	6.80	B2ca-s1a,d0,a1
0699 146	4 x 150 RM	48.3	5760	7084	8.73	B2ca-s1a,d0,a1
0699 181	4 x 185 RM	53.8	7104	8816	10.6	B2ca-s1a,d0,a1

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0699 204	4 x 240 RM	59.8	9216	11352	12.7	B2ca-s1a,d0,a1
0699 058	5 x 1,5 RE	12.4	72.0	255	0.79	B2ca-s1a,d0,a1
0699 081	5 x 2,5 RE	13.4	120.0	325	0.90	B2ca-s1a,d0,a1
0699 059	5 x 4 RE	14.7	192.0	425	1.04	B2ca-s1a,d0,a1
0699 060	5 x 6 RE	16.2	288.0	555	1.22	B2ca-s1a,d0,a1
0699 021	5 x 10 RE	18.4	480.0	800	1.49	B2ca-s1a,d0,a1
0699 196	5 x 16 RE	21.0	768.0	1110	1.99	B2ca-s1a,d0,a1
0699 061	5 x 25 RM	26.5	1200	1780	2.87	B2ca-s1a,d0,a1
0699 017	5 x 35 RM	29.4	1680	2330	3.37	B2ca-s1a,d0,a1
0699 018	5 x 50 RM	33.2	2400	3150	4.23	B2ca-s1a,d0,a1
0699 075	5 x 70 RM	38.7	3360	4350	5.48	B2ca-s1a,d0,a1
0699 088	5 x 95 RM	43.7	4560	6000	6.70	B2ca-s1a,d0,a1
0699 141	5 x 120 RM	48.3	5760	7010	9.74	B2ca-s1a,d0,a1
0699 152	5 x 150 RM	53.7	7200	8755	11.6	B2ca-s1a,d0,a1
0699 147	5 x 185 RM	59.8	8880	10897	13.9	B2ca-s1a,d0,a1
0699 148	5 x 240 RM	66.5	11520	14037	16.45	B2ca-s1a,d0,a1
0699 003	7 x 1,5 RE	13.5	101.0	310	0.89	B2ca-s1a,d0,a1
0699 004	7 x 2,5 RE	14.6	168.0	400	1.01	B2ca-s1a,d0,a1
0699 133	7 x 4 RE	16.2	269.0	535	1.19	B2ca-s1a,d0,a1
0699 197	7 x 6 RE	17.7	403.2	672	1.54	B2ca-s1a,d0,a1
0699 131	7 x 10 RE	20.1	672.0	982	1.91	B2ca-s1a,d0,a1
0699 219	7 x 16 RE	23.0	1075	1430	2.30	Dca-s2,d0,a1

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0699 206	7 x 25 RM	29.1	1680	2209	3.50	Dca-s2,d0,a1
0699 097	10 x 1,5 RE	17.2	144.0	426	1.45	Dca-s2,d0,a1
0699 096	10 x 2,5 RE	18.7	240.0	550	1.66	B2ca-s1a,d0,a1
0699 217	10 x 4 RE	20.8	384.0	743	1.97	B2ca-s1a,d0,a1
0699 119	12 x 1,5 RE	17.8	173.0	474	1.39	Dca-s2,d0,a1
0699 150	12 x 2,5 RE	19.3	288.0	616	1.57	Dca-s2,d0,a1
0699 218	12 x 4 RE	21.5	461.0	840	2.11	B2ca-s1a,d0,a1
0699 098	14 x 1,5 RE	18.7	201.6	529	1.46	Dca-s2,d0,a1
0699 117	14 x 2,5 RE	20.4	336.0	693	1.65	Dca-s2,d0,a1
0699 207	14 x 4 RE	22.6	537.6	946	1.94	Dca-s2,d0,a1
0699 109	16 x 1,5 RE	19.7	230.4	594	1.87	Dca-s2,d0,a1
0699 208	16 x 2,5 RE	21.7	384.0	792	2.18	Dca-s2,d0,a1
0699 211	16 x 4 RE	23.9	614.4	1070	2.52	Dca-s2,d0,a1
0699 128	19 x 1,5 RE	21.0	274.0	681	1.87	Dca-s2,d0,a1
0699 143	19 x 2,5 RE	22.9	456.0	898	2.11	Dca-s2,d0,a1
0699 212	19 x 4 RE	25.2	729.6	1219	2.87	Dca-s2,d0,a1
0699 118	24 x 1,5 RE	24.5	346.0	853	2.34	Dca-s2,d0,a1
0699 178	24 x 2,5 RE	27.0	576.0	1141	2.71	Dca-s2,d0,a1
0699 213	24 x 4 RE	29.8	921.6	1551	3.62	Dca-s2,d0,a1
0699 179	30 x 1,5 RE	26.2	432.0	1019	2.70	Dca-s2,d0,a1
0699 180	30 x 2,5 RE	28.6	720.0	1353	3.06	Dca-s2,d0,a1
0699 214	30 x 4 RE	31.8	1152	1870	4.20	Dca-s2,d0,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME NHXCH FE180 PH90/E90 0,6/1 kV



### APPLICATIONS

NHXCH FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- concentric conductor formed by bare copper wires with counter helix of copper tape over the inner sheath,
- concentric conductor wrapped in polyester tape,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius	15 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2,
pH	> 4.3
conductivity	< 2.5 μS/mm
Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60-80%
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
Circuit integrity:	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11,
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s1b,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductor diameter	Cable outer diameter (appr.)	Cu Index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
<b>NHXCH FE180 PH90/E90 0,6/1 kV</b>						
0700 069	2 x 1,5 RE/ 1,5	12.4	49,5	215	0.77	B2ca-s1b,d0,a1
0700 077	2 x 2,5 RE/ 2,5	13.4	78,3	265	0.87	B2ca-s1b,d0,a1
0700 070	2 x 4 RE/ 4	14.5	121,3	329	1.02	B2ca-s1b,d0,a1
0700 072	2 x 6 RE/ 6	16.1	179,1	421	1.15	B2ca-s1b,d0,a1
0700 078	2 x 10 RE/ 10	18.1	300,4	583	1.39	B2ca-s1b,d0,a1
0700 079	2 x 16 RE/ 16	19.9	473,1	813	1.72	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductor diameter	Cable outer diameter (appr.)	Cu Index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0700 080	2 x 25 RM/ 16	24.0	645,9	1134	2.44	B2ca-s1b,d0,a1
0700 081	2 x 35 RM/ 16	26.3	837,9	1407	2.89	B2ca-s1b,d0,a1
0700 082	2 x 50 RM/ 25	29.0	1212	1826	3.52	B2ca-s1b,d0,a1
0700 083	2 x 70 RM/ 35	34.1	1692	2580	4.65	B2ca-s1b,d0,a1
0700 084	2 x 95 RM/ 50	38.2	2316	3488	5.69	B2ca-s1b,d0,a1
0700 085	2 x 120 RM/ 70	41.9	2988	4277	6.82	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductor diameter	Cable outer diameter (appr.)	Cu Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0700 122	2 x 150 RM/70	46.3	3564	5191	8.28	B2ca-s1b,d0,a1
0700 096	2 x 240 RM/120	56.2	5772	8246	12.42	B2ca-s1b,d0,a1
0700 014	3 x 1,5 RE/ 1,5	13.0	63,7	239	0.80	B2ca-s1b,d0,a1
0700 016	3 x 2,5 RE/ 2,5	14.0	102,3	297	0.90	B2ca-s1b,d0,a1
0700 071	3 x 4 RE/ 4	15.4	159,9	383	1.05	B2ca-s1b,d0,a1
0700 025	3 x 6 RE/ 6	16.8	236,5	481	1.19	B2ca-s1b,d0,a1
0700 073	3 x 10 RE/ 10	19.0	396,3	681	1.41	B2ca-s1b,d0,a1
0700 074	3 x 16 RM/ 16	21.9	626,8	994	1.74	B2ca-s1b,d0,a1
0700 018	3 x 25 RM/ 16	25.5	885,9	1368	2.52	B2ca-s1b,d0,a1
0700 075	3 x 35 RM/ 16	27.8	1174	1712	2.88	B2ca-s1b,d0,a1
0700 022	3 x 50 RM/ 25	30.9	1692	2283	3.57	B2ca-s1b,d0,a1
0700 023	3 x 70 RM/ 35	36.2	2364	3182	4.68	B2ca-s1b,d0,a1
0700 076	3 x 95 RM/ 50	40.0	3228	4323	5.55	B2ca-s1b,d0,a1
0700 086	3 x 120 RM/ 70	44.4	4140	5428	6.67	B2ca-s1b,d0,a1
0700 102	3 x 150 RM/ 70	48.9	5004	6440	8.25	B2ca-s1b,d0,a1
0700 117	3 x 185 RM/ 95	54.1	6252	8060	10.03	B2ca-s1b,d0,a1
0700 118	3 x 240 RM/120	59.9	8076	10360	12.28	B2ca-s1b,d0,a1
0700 003	4 x 1,5 RE/ 1,5	13.9	78,3	276	0.90	B2ca-s1b,d0,a1
0700 015	4 x 2,5 RE/ 2,5	15.2	126,3	352	1.04	B2ca-s1b,d0,a1
0700 011	4 x 4 RE/ 4	16.5	198,1	448	1.17	B2ca-s1b,d0,a1
0700 012	4 x 6 RE/ 6	17.7	294,1	549	1.32	B2ca-s1b,d0,a1
0700 013	4 x 10 RE/ 10	20.0	492,3	806	1.62	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductor diameter	Cable outer diameter (appr.)	Cu Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
0700 008	4 x 16 RM/ 16	23.7	780,3	1188	1.91	B2ca-s1b,d0,a1
0700 017	4 x 25 RM/ 16	27.8	1126	1668	2.79	B2ca-s1b,d0,a1
0700 009	4 x 35 RM/ 16	30.3	1510	2103	3.19	B2ca-s1b,d0,a1
0700 005	4 x 50 RM/ 25	34.2	2172	2846	4.10	B2ca-s1b,d0,a1
0700 024	4 x 70 RM/ 35	38.8	3036	3915	5.18	B2ca-s1b,d0,a1
0700 086	4 x 95 RM/ 50	44.4	4140	5428	6.42	B2ca-s1b,d0,a1
0700 087	4 x 120 RM/ 70	48.9	5292	6584	7.63	B2ca-s1b,d0,a1
0700 095	4 x 150 RM/ 70	53.4	6444	8029	9.48	B2ca-s1b,d0,a1
0700 101	4 x 185 RM/ 95	59.9	8028	10110	11.81	B2ca-s1b,d0,a1
0700 103	4 x 240 RM/120	66.0	10380	12894	14.09	B2ca-s1b,d0,a1
0700 104	5 x 1,5 RE/ 1,5	15.1	92,7	325	0.53	B2ca-s1b,d0,a1
0700 030	5 x 2,5 RE/ 2,5	16.3	150,1	407	0.62	B2ca-s1b,d0,a1
0700 029	7 x 1,5 RE/ 2,5	16.4	131,1	393	1.19	B2ca-s1b,d0,a1
0700 088	7 x 2,5 RE/ 2,5	17.5	198,1	483	1.32	B2ca-s1b,d0,a1
0700 120	7 x 4 RE/ 4	18.7	305,1	613	0.85	B2ca-s1b,d0,a1
0700 028	10 x 1,5 RE/ 2,5	20.1	180,3	548	1.76	B2ca-s1b,d0,a1
0700 114	10 x 2,5 RE/ 4	21.6	290,8	684	1.86	B2ca-s1b,d0,a1
0700 123	10 x 4 RE/ 6	23.7	453,9	896	2.11	B2ca-s1b,d0,a1
0700 089	12 x 1,5 RE/ 2,5	20.5	209,1	595	1.74	B2ca-s1b,d0,a1
0700 090	12 x 2,5 RE/ 4	22.2	338,7	753	1.96	B2ca-s1b,d0,a1
0700 124	12 x 4 RE/ 6	24.4	530,7	996	2.23	B2ca-s1b,d0,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME

(N)HXH FE180 PH90/E90 0,6/1 kV, (N)HXH-J FE180 PH90/E90 0,6/1 kV



Napiecie pracy  
0,6/1 kV



Napiecie proby  
4 kV



Zakres temp.pracy  
stacjonarne od  
-30°C do +90°C



Zakres temp.pracy  
ruchome od  
-5°C do +70°C



Jednożyłowe  
15xD



Wieleżyłowe  
12xD



Zastosowanie  
wewnętrzne



Zastosowanie  
zewnętrzne



Odporność UV



Bezhalogenowe



Niekorozyjne



Mala emisja  
dymow



Uniepalnienie  
PN-EN 60332-1-2



Uniepalnienie  
PN-EN 60332-3-24



Podtrzymanie funkcji  
E90  
DIN VDE 4102 cz.12



Podtrzymanie funkcji  
PN-EN 50200  
PN-EN IEC 60331-1



PH90



FE180

## APPLICATIONS

(N)HXH FE180 PH90/E90 0,6/1 kV and (N)HXH-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

Functions of the cables are maintained for 90 minutes – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwożarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

## CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- double special cross-linked silicone rubber insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
  - green-yellow protective conductor in the outer layer in (N)HXH-J FE180 PH90/E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius:	
single core cables	15 x cable diameter
multi core cables	12 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	80% for s1a, 60-80% for s1b
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
Circuit integrity:	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s1a,d0,a1 or B2ca-s1b,d0,a1 or Cca-s2,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (appr.) (kWh/m)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
<b>(N)HXH FE180 PH90/E90 0,6/1 kV</b>						
1192 106	1 x 16 RE	8.7	154.0	206	0.32	B2ca-s1a,d0,a1
1192 107	1 x 25 RM	10.7	240.0	309	0.44	B2ca-s1a,d0,a1
1192 108	1 x 35 RM	11.7	336.0	404	0.49	B2ca-s1a,d0,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index (kg/km)	Cable weight (appr.) (kg/km)	Fire load (appr.) (kWh/m)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1192 051	1 x 50 RM	13.3	480.0	541	0.61	B2ca-s1a,d0,a1
1192 047	2 x 1,5 RE	9.5	28.8	144	0.55	B2ca-s1b,d0,a1
1192 048	2 x 2,5 RE	10.3	48.0	179	0.64	B2ca-s1b,d0,a1
1192 056	2 x 4 RE	11.2	77.0	230	0.74	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper Cable		Fire load (appr.)	Class reaction to fire
			index	weight (appr.)		
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1192 072	2 x 6 RE	12.2	115.0	290	0.86	B2ca-s1b,d0,a1
1192 070	2 x 10 RE	13.8	192.0	405	1.07	B2ca-s1b,d0,a1
1192 110	2 x 16 RE	15.8	307.0	564	1.37	B2ca-s1b,d0,a1
1192 068	2 x 25 RM	20.1	480.0	890	2.17	B2ca-s1b,d0,a1
1192 137	2 x 35 RM	22.0	672.0	1129	2.54	B2ca-s1b,d0,a1
1192 121	2 x 50 RM	25.1	960.0	1507	3.33	B2ca-s1b,d0,a1
<b>(N)HXH-J FE180 PH90/E90 0,6/1 kV</b>						
1192 009	3 x 1,5 RE	10.0	43.2	195	0.59	B2ca-s1b,d0,a1
1192 010	3 x 2,5 RE	10.8	72.0	207	0.67	B2ca-s1b,d0,a1
1192 019	3 x 4 RE	11.8	115.0	268	0.78	B2ca-s1b,d0,a1
1192 024	3 x 6 RE	12.9	173.0	345	0.90	B2ca-s1b,d0,a1
1192 027	3 x 10 RE	14.6	288.0	493	1.11	B2ca-s1b,d0,a1
1192 028	3 x 16 RM	16.8	461.0	708	1.48	B2ca-s1b,d0,a1
1192 029	3 x 25 RM	21.2	720.0	1097	2.14	B2ca-s1b,d0,a1
1192 030	3 x 35 RM	23.5	1008	1432	2.54	B2ca-s1b,d0,a1
1192 031	3 x 50 RM	27.0	1440	1932	3.32	B2ca-s1b,d0,a1
1192 018	4 x 1,5 RE	10.9	58.0	198	0.68	B2ca-s1b,d0,a1
1192 026	4 x 2,5 RE	11.8	96.0	251	0.77	B2ca-s1b,d0,a1
1192 049	4 x 4 RE	12.9	154.0	329	0.90	B2ca-s1b,d0,a1
1192 050	4 x 6 RE	14.1	230.0	426	1.04	B2ca-s1b,d0,a1
1192 034	4 x 10 RE	16.3	384.0	626	1.31	B2ca-s1b,d0,a1
1192 035	4 x 16 RE	18.5	614.0	891	1.70	B2ca-s1b,d0,a1
1192 036	4 x 25 RM	23.4	960.0	1382	2.45	B2ca-s1b,d0,a1

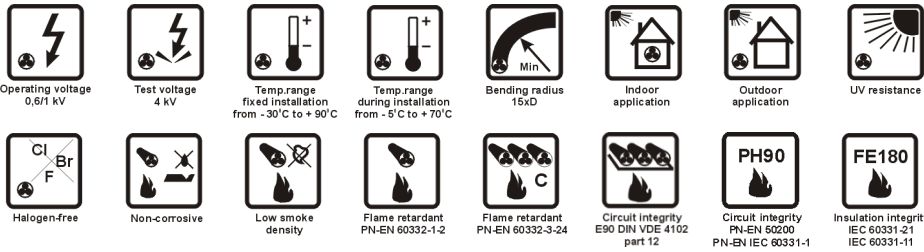
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper Cable		Fire load (appr.)	Class reaction to fire
			index	weight (appr.)		
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1192 037	4 x 35 RM	26.1	1344	1819	2.95	B2ca-s1b,d0,a1
1192 006	4 x 50 RM	29.9	1920	2450	3.79	B2ca-s1b,d0,a1
1192 043	5 x 1,5 RE	11.9	72.0	235	0.79	B2ca-s1b,d0,a1
1192 012	5 x 2,5 RE	12.9	120.0	301	0.90	B2ca-s1b,d0,a1
1192 025	5 x 4 RE	14.1	192.0	395	1.05	B2ca-s1b,d0,a1
1192 013	5 x 6 RE	15.7	288.0	524	1.24	B2ca-s1b,d0,a1
1192 011	5 x 10 RE	17.8	480.0	757	1.53	B2ca-s1b,d0,a1
1192 014	5 x 16 RE	20.3	768.0	1086	2.04	B2ca-s1b,d0,a1
1192 020	5 x 25 RM	26.0	1200	1703	2.94	B2ca-s1b,d0,a1
1192 021	5 x 35 RM	28.8	1680	2232	3.47	B2ca-s1b,d0,a1
1192 022	5 x 50 RM	33.2	2400	3023	4.54	B2ca-s1b,d0,a1
1192 017	7 x 1,5 RE	12.9	101.0	285	0.90	B2ca-s1b,d0,a1
1192 044	7 x 2,5 RE	14.0	168.0	370	1.03	B2ca-s1b,d0,a1
1192 122	7 x 4 RE	15.6	268.8	503	1.23	B2ca-s1b,d0,a1
1192 138	7 x 6 RE	17.1	403.2	661	1.41	B2ca-s1b,d0,a1
1192 139	7 x 10 RE	19.5	672.0	971	1.71	B2ca-s1b,d0,a1
1192 069	10 x 1,5 RE	16.4	144.0	410	1.31	B2ca-s1b,d0,a1
1192 126	10 x 2,5 RE	17.9	240.0	533	1.50	B2ca-s1b,d0,a1
1192 140	10 x 4 RE	19.8	384.0	716	1.75	B2ca-s1b,d0,a1
1192 060	12 x 1,5 RE	16.9	172.8	457	1.40	Cca-s2,d0,a1
1192 065	12 x 2,5 RE	18.5	288.0	600	1.61	B2ca-s1b,d0,a1
1192 141	12 x 4 RE	20.4	460.8	810	1.91	B2ca-s1b,d0,a1
1192 059	14 x 1,5 RE	17.8	201.6	512	1.53	Cca-s2,d0,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1192 132	14 x 2,5 RE	19.5	336.0	676	1.76	Cca-s2,d0,a1
1192 142	14 x 4 RE	21.7	537.6	927	2.09	B2ca-s1b,d0,a1
1192 129	16 x 1,5 RE	18.8	230.4	577	1.70	Cca-s2,d0,a1
1192 143	16 x 2,5 RE	20.8	384.0	774	2.00	Cca-s2,d0,a1
1192 144	16 x 4 RE	22.9	614.4	1048	2.33	Cca-s2,d0,a1
1192 055	19 x 1,5 RE	20.2	273.6	666	1.92	Cca-s2,d0,a1
1192 145	19 x 2,5 RE	21.9	456.0	878	2.19	Cca-s2,d0,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1192 146	19 x 4 RE	24.2	729.6	1198	2.54	Cca-s2,d0,a1
1192 133	24 x 1,5 RE	23.3	345.6	827	2.87	Cca-s2,d0,a1
1192 063	24 x 2,5 RE	25.6	576.0	1102	3.33	Cca-s2,d0,a1
1192 147	24 x 4 RE	28.6	921.6	1523	4.08	Cca-s2,d0,a1
1192 127	30 x 1,5 RE	24.7	432.0	979	3.29	Cca-s2,d0,a1
1192 134	30 x 2,5 RE	27.4	720.0	1328	3.75	Cca-s2,d0,a1
1192 148	30 x 4 RE	30.3	1152	1824	4.58	Cca-s2,d0,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME (N)HXCH FE180 PH90/E90 0,6/1 kV



### APPLICATIONS

(N)HXCH FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- double special cross-linked silicone rubber insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- concentric conductor formed by bare copper wires with counter helix of copper tape over the inner sheath,
- concentric conductor wrapped in polyester tape,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius	15 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

Smoke density	low smoke density, PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60-80 %
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
<b>Circuit integrity:</b>	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s1b,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

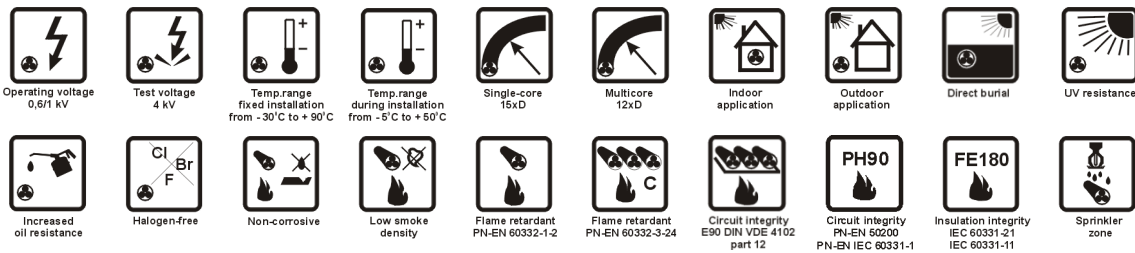
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1222 051	2 x 1,5 RE/1,5	12.0	49.3	198	0.73	B2ca-s1b,d0,a1
1222 055	2 x 2,5 RE/2,5	13.0	78.3	255	0.82	B2ca-s1b,d0,a1
1222 056	2 x 4 RE/ 4	14.1	121.5	319	0.92	B2ca-s1b,d0,a1
1222 057	2 x 6 RE/ 6	15.7	178.9	409	1.03	B2ca-s1b,d0,a1
1222 063	2 x 10 RE/ 10	17.7	294.3	573	1.23	B2ca-s1b,d0,a1
1222 054	2 x 16 RE/ 16	19.5	473.1	792	1.56	B2ca-s1b,d0,a1
1222 058	2 x 25 RM/ 16	23.6	646.0	1119	2.02	B2ca-s1b,d0,a1
1222 059	2 x 35 RM/ 16	25.9	837.9	1392	2.36	B2ca-s1b,d0,a1
1222 050	2 x 50 RM/ 25	29.0	1212.3	1866	3.01	B2ca-s1b,d0,a1
1222 005	3 x 1,5 RE/1,5	12.5	63.7	228	0.80	B2ca-s1b,d0,a1
1222 006	3 x 2,5 RE/2,5	13.5	102.3	285	0.90	B2ca-s1b,d0,a1
1222 007	3 x 4 RE/ 4	14.7	159.9	363	1.05	B2ca-s1b,d0,a1
1222 040	3 x 6 RE/ 6	16.4	236.7	472	1.11	B2ca-s1b,d0,a1
1222 041	3 x 10 RE/ 10	18.5	396.3	667	1.41	B2ca-s1b,d0,a1
1222 042	3 x 16 RE/ 16	20.7	626.7	952	1.83	B2ca-s1b,d0,a1
1222 043	3 x 25 RM/ 16	24.9	886.0	1348	2.38	B2ca-s1b,d0,a1
1222 046	3 x 35 RM/ 16	27.4	1174	1704	2.78	B2ca-s1b,d0,a1
1222 047	3 x 50 RM/ 25	30.9	1692	2306	3.44	B2ca-s1b,d0,a1
1222 003	4 x 1,5 RE/1,5	13.4	78.3	265	0.94	B2ca-s1b,d0,a1
1222 008	4 x 2,5 RE/2,5	14.5	126.3	334	1.04	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1222 009	4 x 4 RE/ 4	16.0	198.1	436	1.18	B2ca-s1b,d0,a1
1222 010	4 x 6 RE/ 6	17.6	294.3	559	1.25	B2ca-s1b,d0,a1
1222 011	4 x 10 RE/ 10	20.0	492.3	799	1.63	B2ca-s1b,d0,a1
1222 044	4 x 16 RE/ 16	22.4	780.4	1143	2.04	B2ca-s1b,d0,a1
1222 013	4 x 25 RM/ 16	27.3	1126	1654	2.84	B2ca-s1b,d0,a1
1222 014	4 x 35 RE/ 16	29.8	1510	2088	3.26	B2ca-s1b,d0,a1
1222 004	4 x 50 RM/ 25	34.2	2172	2872	4.19	B2ca-s1b,d0,a1
1222 053	5 x 1,5 RE/1,5	14.4	92.7	300	1.08	B2ca-s1b,d0,a1
1222 060	5 x 2,5 RE/2,5	15.8	150.1	397	1.17	B2ca-s1b,d0,a1
1222 048	7 x 1,5 RE/2,5	15.8	130.9	380	1.32	B2ca-s1b,d0,a1
1222 045	7 x 2,5 RE/2,5	16.9	198.3	470	1.40	B2ca-s1b,d0,a1
1222 064	7 x 4 RE/ 4	18.3	319.5	615	1.52	B2ca-s1b,d0,a1
1222 068	7 x 6 RE/ 6	20.0	473.1	798	1.78	B2ca-s1b,d0,a1
1222 065	10 x 1,5 RE/2,5	18.9	180.4	510	1.96	B2ca-s1b,d0,a1
1222 066	10 x 2,5 RE/ 4	20.8	290.7	665	2.10	B2ca-s1b,d0,a1
1222 067	10 x 4 RE/ 6	22.9	453.9	876	2.26	B2ca-s1b,d0,a1
1222 049	12 x 1,5 RE/2,5	19.4	209.2	558	2.15	B2ca-s1b,d0,a1
1222 015	12 x 2,5 RE/ 4	21.4	338.8	734	2.29	B2ca-s1b,d0,a1
1222 069	12 x 4 RE/ 6	23.5	530.7	973	2.33	B2ca-s1b,d0,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME

### NHXHX FE180 PH90/E90 0,6/1 kV, NHXHX-J FE180 PH90/E90 0,6/1 kV



## APPLICATIONS

NHXHX FE180 PH90/E90 0,6/1 kV, NHXHX-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpowarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are oil-resistant and designed for frequent contact with petroleum products, as in petrol stations and stores, where engine fuels and lubricants are pumped or handled.

The cables are suitable for fixed indoor and outdoor installations also for direct earth burial. Cables are UV radiation resistant.

## CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
  - green-yellow protective conductor in the outer layer in NHXHX-J FE180 PH90/E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- orange cable sheath made of cross-linked halogen free compound.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
<b>Minimum bending radius</b>	
single core cables	15 x cable diameter
multi core cables	12 x cable diameter
<b>Corrosivity of emitted gases per</b>	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm

<b>Smoke density</b>	low smoke density PN-EN 61034-2, IEC 61034-2
<b>Light transmittance,</b>	min. 80% for s1a, 60-80 % for s1b
<b>Cable combustibility</b>	fire resistant
<b>Combustibility tests</b>	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
<b>Circuit integrity:</b>	
E90	DIN 4102-12
PH90	PN-EN 50200, PN-EN 50362 or PN-EN IEC 60331-1
<b>Insulation integrity FE180</b>	IEC 60331-21, IEC 60331-11
<b>Reference standards</b>	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
<b>Class reaction to fire (PN-EN 13501-6)</b>	B2ca-s1a,d2,a1 or B2ca-s1b,d0,a1 or Dca-s2,d1,a1
<b>KDWU declarations are available at</b>	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
<b>NHXHX FE180 PH90/E90 0,6/1 kV</b>						
1391 090	1 x 16 RE	9.3	153.6	215	0.34	B2ca-s1a,d2,a1
1391 091	1 x 25 RM	11.3	240.0	320	0.45	B2ca-s1a,d2,a1
1391 082	1 x 35 RM	12.3	336.0	415	0.51	B2ca-s1a,d2,a1
1391 083	1 x 50 RM	13.7	480.0	547	0.59	B2ca-s1a,d2,a1
1391 084	1 x 70 RM	15.5	672.0	754	0.71	B2ca-s1a,d2,a1
1391 008	1 x 95 RM	17.4	912.0	1052	0.84	B2ca-s1a,d2,a1
1391 085	1 x 120 RM	19.3	1152	1261	1.00	B2ca-s1a,d2,a1
1391 086	1 x 150 RM	21.2	1440	1566	1.18	B2ca-s1a,d2,a1
1391 087	1 x 185 RM	23.6	1776	1949	1.44	B2ca-s1a,d2,a1
1391 014	1 x 240 RM	26.2	2304	2520	1.70	B2ca-s1a,d2,a1
1391 092	1 x 300 RM	28.4	2880	3064	1.96	B2ca-s1a,d2,a1
1391 088	2 x 1,5 RE	11.1	28.8	182	0.71	B2ca-s1b,d0,a1
1391 001	2 x 2,5 RE	11.9	48.0	220	0.81	B2ca-s1b,d0,a1
1391 094	2 x 4 RE	12.8	76.8	270	0.92	B2ca-s1b,d0,a1
1391 095	2 x 6 RE	13.8	115.2	333	1.05	B2ca-s1b,d0,a1
1391 096	2 x 10 RE	15.4	192.0	453	1.27	B2ca-s1b,d0,a1
1391 097	2 x 16 RE	17.2	307.2	615	1.54	B2ca-s1b,d0,a1
1391 098	2 x 25 RM	21.1	480.0	927	2.27	B2ca-s1b,d0,a1
1391 144	2 x 35 RM	23.2	672.0	1185	2.68	B2ca-s1b,d0,a1
1391 145	2 x 50 RM	25.9	960.0	1542	3.29	B2ca-s1b,d0,a1
1391 146	2 x 70 RM	29.8	1344	2121	4.30	B2ca-s1b,d0,a1
1391 147	2 x 95 RM	33.5	1824	2880	5.32	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index kg/km	Cable weight (appr.) kg/km	Fire load (appr.) kWh/m	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1391 148	2 x 120 RM	37.3	2304	3503	6.61	B2ca-s1b,d0,a1
1391 149	2 x 150 RM	41.6	2880	4380	8.22	B2ca-s1b,d0,a1
1391 150	2 x 185 RM	46.2	3552	5433	10.10	B2ca-s1b,d0,a1
1391 135	2 x 240 RM	51.4	4608	6946	12.66	B2ca-s1b,d0,a1
<b>NHXHX-J FE180 PH90/E90 0,6/1 kV</b>						
1391 002	3 x 1,5 RE	11.7	43.2	205	0.75	B2ca-s1b,d0,a1
1391 005	3 x 2,5 RE	12.5	72.0	250	0.83	B2ca-s1b,d0,a1
1391 099	3 x 4 RE	13.5	115.2	315	0.95	B2ca-s1b,d0,a1
1391 007	3 x 6 RE	14.5	172.8	392	1.06	B2ca-s1b,d0,a1
1391 100	3 x 10 RE	16.3	288.0	549	1.29	B2ca-s1b,d0,a1
1391 107	3 x 16 RM	19.0	460.8	789	1.66	B2ca-s1b,d0,a1
1391 101	3 x 25 RM	22.4	720.0	1147	2.25	B2ca-s1b,d0,a1
1391 102	3 x 35 RM	24.7	1008	1486	2.64	B2ca-s1b,d0,a1
1391 108	3 x 50 RM	27.6	1440	1950	3.23	B2ca-s1b,d0,a1
1391 109	3 x 70 RM	32.0	2016	2719	4.26	B2ca-s1b,d0,a1
1391 110	3 x 95 RM	36.3	2736	3771	5.38	B2ca-s1b,d0,a1
1391 111	3 x 120 RM	40.0	3456	4522	6.45	B2ca-s1b,d0,a1
1391 151	3 x 150 RM	44.6	4320	5658	8.01	B2ca-s1b,d0,a1
1391 152	3 x 185 RM	49.5	5328	7019	9.78	B2ca-s1b,d0,a1
1391 153	3 x 240 RM	55.1	6912	9024	11.94	Dca-s2,d1,a1
1391 112	4 x 1,5 RE	12.6	57.6	241	0.84	B2ca-s1b,d0,a1
1391 113	4 x 2,5 RE	13.5	96.0	297	0.94	B2ca-s1b,d0,a1
1391 114	4 x 4 RE	14.6	153.6	378	1.06	B2ca-s1b,d0,a1

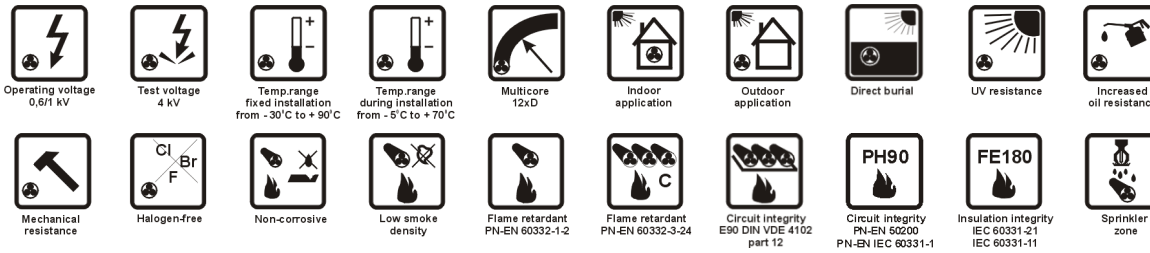
Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1391 115	4 x 6 RE	15.8	230.4	479	1.21	B2ca-s1b,d0,a1
1391 116	4 x 10 RE	17.7	384.0	673	1.44	B2ca-s1b,d0,a1
1391 117	4 x 16 RM	20.8	614.4	979	1.87	B2ca-s1b,d0,a1
1391 104	4 x 25 RM	24.7	960.0	1439	2.57	B2ca-s1b,d0,a1
1391 105	4 x 35 RM	27.2	1344	1868	2.99	B2ca-s1b,d0,a1
1391 118	4 x 50 RM	30.7	1920	2480	3.74	B2ca-s1b,d0,a1
1391 119	4 x 70 RM	35.9	2688	3500	5.09	B2ca-s1b,d0,a1
1391 106	4 x 95 RM	40.3	3648	4814	6.16	B2ca-s1b,d0,a1
1391 154	4 x 120 RM	44.6	4608	5791	7.47	B2ca-s1b,d0,a1
1391 155	4 x 150 RM	49.5	5760	7220	9.15	B2ca-s1b,d0,a1
1391 156	4 x 185 RM	55.2	7104	8993	11.32	Dca-s2,d1,a1
1391 157	4 x 240 RM	61.4	9216	11573	13.75	Dca-s2,d1,a1
1391 003	5 x 1,5 RE	13.6	72.0	281	0.95	B2ca-s1b,d0,a1
1391 013	5 x 2,5 RE	14.6	120.0	350	1.07	B2ca-s1b,d0,a1
1391 012	5 x 4 RE	15.9	192.0	451	1.23	B2ca-s1b,d0,a1
1391 011	5 x 6 RE	17.2	288.0	573	1.39	B2ca-s1b,d0,a1
1391 010	5 x 10 RE	19.4	480.0	815	1.68	B2ca-s1b,d0,a1
1391 120	5 x 16 RM	22.7	768.0	1184	2.15	B2ca-s1b,d0,a1
1391 009	5 x 25 RM	27.1	1200	1751	2.98	B2ca-s1b,d0,a1
1391 006	5 x 35 RM	30.2	1680	2302	3.57	B2ca-s1b,d0,a1
1391 103	5 x 50 RM	34.0	2400	3052	4.43	B2ca-s1b,d0,a1
1391 121	5 x 70 RM	39.7	3360	4303	6.00	B2ca-s1b,d0,a1

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper Index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1391 122	5 x 95 RM	44.9	4560	5960	7.41	B2ca-s1b,d0,a1
1391 158	5 x 120 RM	49.5	5760	7126	8.78	B2ca-s1b,d0,a1
1391 159	5 x 150 RM	55.1	7200	8932	11.44	Dca-s2,d1,a1
1391 160	5 x 185 RM	61.4	8880	11095	13.42	Dca-s2,d1,a1
1391 161	5 x 240 RM	68.3	11520	14287	16.29	Dca-s2,d1,a1
1391 004	7 x 1,5 RE	14.7	100.8	335	1.06	B2ca-s1b,d0,a1
1391 123	7 x 2,5 RE	15.8	168.0	423	1.19	B2ca-s1b,d0,a1
1391 124	7 x 4 RE	17.2	268.8	553	1.35	B2ca-s1b,d0,a1
1391 162	7 x 6 RE	18.7	403.2	714	1.52	B2ca-s1b,d0,a1
1391 163	7 x 10 RE	21.1	672.0	1030	1.82	B2ca-s1b,d0,a1
1391 164	7 x 16 RE	23.8	1075	1472	2.18	B2ca-s1b,d0,a1
1391 165	7 x 25 RM	29.9	1680	2255	3.25	B2ca-s1b,d0,a1
1391 125	12 x 1,5 RE	18.8	172.8	517	1.55	Dca-s2,d1,a1
1391 126	12 x 2,5 RE	20.3	288.0	662	1.73	Dca-s2,d1,a1
1391 127	14 x 1,5 RE	19.7	201.6	574	1.67	Dca-s2,d1,a1
1391 140	16 x 1,5 RE	20.7	230.4	641	2.10	Dca-s2,d1,a1
1391 128	19 x 1,5 RE	21.8	273.6	720	1.99	Dca-s2,d1,a1
1391 129	19 x 2,5 RE	23.7	456.0	940	2.24	Dca-s2,d1,a1
1391 130	24 x 1,5 RE	25.3	345.6	898	2.46	Dca-s2,d1,a1
1391 131	24 x 2,5 RE	27.6	576.0	1178	2.78	Dca-s2,d1,a1
1391 132	30 x 1,5 RE	26.8	432.0	1055	2.75	Dca-s2,d1,a1
1391 133	30 x 2,5 RE	29.4	720.0	1407	3.16	Dca-s2,d1,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME

### NHXHRHX FE180 PH90/E90 0,6/1 kV, NHXHRHX-J FE180 PH90/E90 0,6/1 kV



## APPLICATIONS

NHXHRHX FE180 PH90/E90 0,6/1 kV and NHXHRHX-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

Galvanized steel wire armour provides carrying an axial load of the cable during installation and exploitation. It also offers enhanced protection against mechanical damages and rodent attack, as well as shielding properties.

The cables are oil-resistant and designed for frequent contact with petroleum products, as in petrol stations and stores, where engine fuels and lubricants are pumped or handled.

The cables are suitable for fixed indoor and outdoor installations also for direct earth burial. Cables are UV radiation resistant.



## CONSTRUCTION

- bare annealed copper conductors meeting requirements of PN-EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation – colours:
  - up to 5 wires in accordance with PN-HD 308,
  - above 5 wires black and white conductor number printed on it,
  - green-yellow protective conductor in the outer layer in NHXHRHX-J FE180 PH90/E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- cable sheath made of halogen free compound,
- galvanized steel wire armour,
- orange cable covering made of cross-linked halogen free compound.

## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius multi core cables	12 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm
Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	60-80 %
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
Circuit integrity:	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s1b,d2,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
<b>NHXHRHX FE180 PH90/E90 0,6/1 kV</b>						
1611 006	2 x 1,5 RE	15.2	28.8	458	1.12	B2ca-s1b,d2,a1
1611 001	2 x 2,5 RE	16.0	48.0	515	1.24	B2ca-s1b,d2,a1
1611 003	2 x 4 RE	16.9	76.8	586	1.37	B2ca-s1b,d2,a1
1611 004	2 x 6 RE	17.9	115.2	670	1.53	B2ca-s1b,d2,a1
1611 005	2 x 10 RE	19.5	192.0	825	1.80	B2ca-s1b,d2,a1
1611 007	2 x 16 RM	22.9	307.2	1232	2.33	B2ca-s1b,d2,a1
1611 008	2 x 25 RM	26.1	480.0	1621	3.04	B2ca-s1b,d2,a1
1611 061	2 x 35 RM	29.2	672.0	2120	3.79	B2ca-s1b,d2,a1
1611 062	2 x 50 RM	32.1	960.0	2591	4.59	B2ca-s1b,d2,a1
1611 063	2 x 70 RM	36.2	1344	3345	5.68	B2ca-s1b,d2,a1
1611 064	2 x 95 RM	41.1	1824	4580	7.41	B2ca-s1b,d2,a1
1611 065	2 x 120 RM	44.9	2304	5391	8.71	B2ca-s1b,d2,a1
1611 066	2 x 150 RM	50.5	2880	6988	10.48	B2ca-s1b,d2,a1
1611 067	2 x 185 RM	55.5	3552	8347	12.99	B2ca-s1b,d2,a1
1611 043	2 x 240 RM	60.7	4608	10137	15.74	B2ca-s1b,d2,a1
<b>NHXHRHX-J FE180 PH90/E90 0,6/1 kV</b>						
1611 012	3 x 1,5 RE	15.8	43.2	495	1.17	B2ca-s1b,d2,a1
1611 009	3 x 2,5 RE	16.6	72.0	559	1.28	B2ca-s1b,d2,a1
1611 013	3 x 4 RE	17.6	115.2	645	1.52	B2ca-s1b,d2,a1
1611 014	3 x 6 RE	18.6	172.8	744	1.64	B2ca-s1b,d2,a1
1611 015	3 x 10 RE	21.1	288.0	1078	1.88	B2ca-s1b,d2,a1
1611 016	3 x 16 RM	24.0	460.8	1417	2.37	B2ca-s1b,d2,a1
1611 017	3 x 25 RM	28.4	720.0	2060	3.20	B2ca-s1b,d2,a1

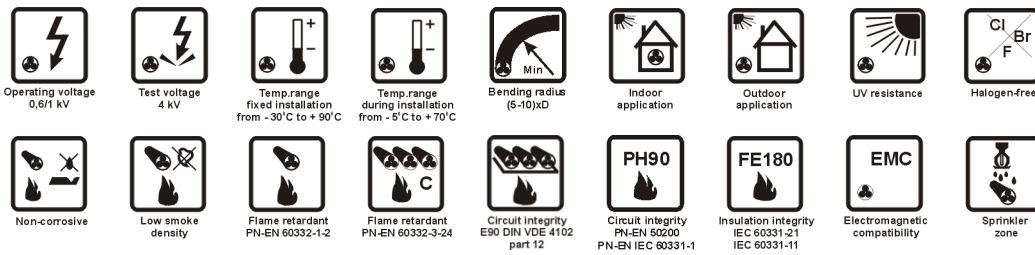
Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1611 018	3 x 35 RM	30.7	1008	2479	3.68	B2ca-s1b,d2,a1
1611 019	3 x 50 RM	34.2	1440	3107	4.59	B2ca-s1b,d2,a1
1611 020	3 x 70 RM	39.4	2016	4336	5.85	B2ca-s1b,d2,a1
1611 021	3 x 95 RM	43.9	2736	5600	7.48	B2ca-s1b,d2,a1
1611 068	3 x 120 RM	47.8	3456	6558	8.73	B2ca-s1b,d2,a1
1611 069	3 x 150 RM	53.7	4320	8488	10.98	B2ca-s1b,d2,a1
1611 070	3 x 185 RM	59.0	5328	10164	13.36	B2ca-s1b,d2,a1
1611 071	3 x 240 RM	64.8	6912	12557	16.05	B2ca-s1b,d2,a1
1611 022	4 x 1,5 RE	16.7	57.6	550	1.29	B2ca-s1b,d2,a1
1611 023	4 x 2,5 RE	17.6	96.0	627	1.41	B2ca-s1b,d2,a1
1611 010	4 x 4 RE	18.7	153.6	735	1.69	B2ca-s1b,d2,a1
1611 024	4 x 6 RE	19.9	230.4	863	1.75	B2ca-s1b,d2,a1
1611 025	4 x 10 RE	22.7	384.0	1262	2.11	B2ca-s1b,d2,a1
1611 026	4 x 16 RM	25.8	614.4	1661	2.63	B2ca-s1b,d2,a1
1611 027	4 x 25 RM	30.7	960.0	2432	3.61	B2ca-s1b,d2,a1
1611 028	4 x 35 RM	33.6	1344	2990	4.26	B2ca-s1b,d2,a1
1611 029	4 x 50 RM	37.3	1920	3761	5.24	B2ca-s1b,d2,a1
1611 030	4 x 70 RM	43.5	2688	5300	6.95	B2ca-s1b,d2,a1
1611 031	4 x 95 RM	48.1	3648	6854	8.33	B2ca-s1b,d2,a1
1611 072	4 x 120 RM	53.7	4608	8621	10.25	B2ca-s1b,d2,a1
1611 073	4 x 150 RM	59.0	5760	10366	12.44	B2ca-s1b,d2,a1
1611 074	4 x 185 RM	64.9	7104	12529	15.10	B2ca-s1b,d2,a1
1611 075	4 x 240 RM	71.3	9216	15510	17.89	B2ca-s1b,d2,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1611 032	5 x 1,5 RE	17.7	72.0	612	1.43	B2ca-s1b,d2,a1
1611 033	5 x 2,5 RE	18.7	120.0	707	1.58	B2ca-s1b,d2,a1
1611 011	5 x 4 RE	20.0	192.0	836	1.98	B2ca-s1b,d2,a1
1611 034	5 x 6 RE	22.2	288.0	1138	2.14	B2ca-s1b,d2,a1
1611 035	5 x 10 RE	24.4	480.0	1456	2.40	B2ca-s1b,d2,a1
1611 036	5 x 16 RM	28.7	768.0	2100	3.12	B2ca-s1b,d2,a1
1611 037	5 x 25 RM	33.5	1200	2872	4.25	B2ca-s1b,d2,a1
1611 038	5 x 35 RM	36.6	1680	3545	4.97	B2ca-s1b,d2,a1
1611 039	5 x 50 RM	41.6	2400	4783	6.21	B2ca-s1b,d2,a1
1611 040	5 x 70 RM	47.5	3360	6313	8.15	B2ca-s1b,d2,a1
1611 041	5 x 95 RM	54.0	4560	8795	10.0	B2ca-s1b,d2,a1
1611 076	5 x 120 RM	59.0	5760	10292	11.62	B2ca-s1b,d2,a1
1611 077	5 x 150 RM	64.8	7200	12468	14.10	B2ca-s1b,d2,a1

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1611 078	5 x 185 RM	71.3	8880	15062	17.25	B2ca-s1b,d2,a1
1611 079	5 x 240 RM	79.7	11520	19684	20.87	B2ca-s1b,d2,a1
1611 042	7 x 1,5 RE	18.8	100.8	693	1.67	B2ca-s1b,d2,a1
1611 059	7 x 2,5 RE	19.9	168.0	808	1.85	B2ca-s1b,d2,a1
1611 060	7 x 4 RE	22.2	268.8	1118	2.12	B2ca-s1b,d2,a1
1611 048	10 x 1,5 RE	23.2	144.0	1070	2.28	B2ca-s1b,d2,a1
1611 058	10 x 2,5 RE	24.7	240.0	1238	2.48	B2ca-s1b,d2,a1
1611 080	12 x 1,5 RE	23.8	172.8	1134	2.36	B2ca-s1b,d2,a1
1611 081	12 x 2,5 RE	25.3	288.0	1330	2.63	B2ca-s1b,d2,a1
1611 083	14 x 2,5 RE	26.4	336.0	1438	2.84	B2ca-s1b,d2,a1
1611 084	15 x 1,5 RE	25.7	216.0	1314	2.68	B2ca-s1b,d2,a1
1611 085	15 x 2,5 RE	28.5	360.0	1733	3.09	B2ca-s1b,d2,a1
1611 055	16 x 1,5 RE	25.7	230.4	1322	2.74	B2ca-s1b,d2,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME (N)HXCH-J-SERVO FE180 PH90/E90 0,6/1 kV



### APPLICATIONS

(N)HXCH-J-SERVO FE180 PH90/E90 0,6/1 kV fire resistant halogen free cables, are intended for connecting converters or inverters with motors in fire protection equipment which is to operate in fire conditions. The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **Scientific and Research Centre for Fire Protection** - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

The cables are resistant to water in accordance with EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

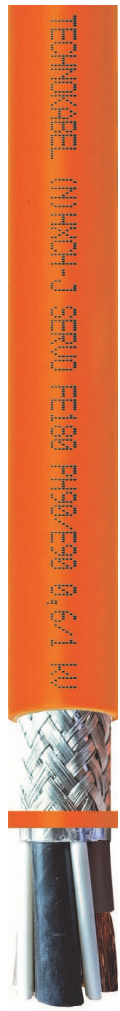
The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

Cables are protected by a specially designed and highly effective collective shield against emission of electromagnetic interferences to environment and against influence of external interferences.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

### CONSTRUCTION

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- double special cross-linked silicone rubber insulation - colours of insulation: black, brown, grey, green-yellow,
- insulated conductors and fillers laid-up in a cable core,
- cable core wrapped in polyester tape,
- cable core wrapped in mica tape,
- double screen incorporating aluminium-polyester tape under a tinned copper wire braid shield of coverage bigger than 80%,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	13.3	7.98	4.59	3.3	1.91	1.21	0.780	0.554	0.386

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance at 90°C, minimum	10 <sup>11</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Shielding efficiency, approximate	75 dB
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 70°C
Minimum bending radius	
Ø < 12 mm	5 x cable diameter
Ø = 12÷20 mm	7.5 x cable diameter
Ø > 20 mm	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3

conductivity	< 2.5 μS/mm
Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60%
Cable combustibility	fire resistant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-24, IEC 60332-3-24,
Circuit integrity:	
E90	DIN 4102-12
PH90	PN-EN 50200 or PN-EN IEC 60331-1
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2021/0311-3701 edition 3, WT-TK-44
Class reaction to fire (PN-EN 13501-6)	B2ca-s2,d1,a1
KDWU declarations are available at	technokabel.com.pl

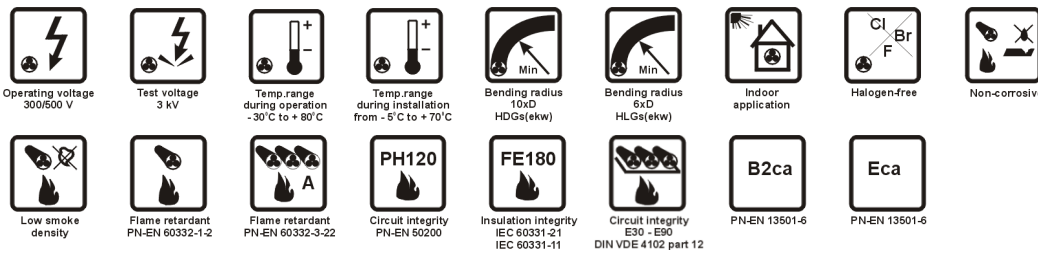
The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductors cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)	Fire load (appr.)	Class reaction to fire
	mm <sup>2</sup>	mm	kg/km	kg/km	kWh/m	
1669 001	4 x 1,5	13.4	90.6	255	0.9	B2ca-s2,d1,a1
1669 006	4 x 2,5	14.5	139.8	319	1.0	B2ca-s2,d1,a1
1669 007	4 x 4	15.9	201.9	403	1.2	B2ca-s2,d1,a1
1669 008	4 x 6	17.3	285.4	505	1.4	B2ca-s2,d1,a1
1669 009	4 x 10	20.1	469.5	750	1.7	B2ca-s2,d1,a1
1669 003	4 x 16	23.1	739.5	1085	2.8	B2ca-s2,d1,a1
1669 004	4 x 25	27.1	1113.8	1536	3.7	B2ca-s2,d1,a1
1669 005	4 x 35	30.1	1512.0	1982	4.4	B2ca-s2,d1,a1
1669 002	4 x 50	37.9	2147.9	2880	6.0	B2ca-s2,d1,a1

TECHNOKABEL SA reserves the right to change specifications without prior notice.

**TECHNOFLAME**

HDGs(żo) FE180 PH120/E30-E90, HLGs(żo) FE180 PH120/E30-E90,  
HDGsekw(żo) FE180 PH120/E30-E90, HLGsekw(żo) FE180 PH120/E30-E90



**APPLICATIONS**

HDGs(żo) FE180 PH120/E30-E90 300/500 V, HLGs(żo) FE180 PH120/E30-E90 300/500 V fire resistant cables and HDGsekw(żo) FE180 PH120/E30-E90 300/500 V, HLGsekw(żo) FE180 PH120/E30-E90 300/500 V screened fire resistant cables, are intended for installation in alarm, signalling, sound warning and similar systems, also for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.

Functions of the cables are maintained – power is supplied to equipment which must operate in fire conditions and during fire fighting. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are certified by Scientific and Research Centre for Fire Protection - National Research Institute (Centrum Naukowo-Badawcze Ochrony Przeciwpozarowej - PIB) at Józefów.

Cables can't be used in protected rooms by fixed water extinguishing devices. For such applications, use HDGs(żo)-W FE180 PH120/E30-E90 300/500 V cables.

An overall electrostatic shield (ekw) in screened cables protects cable circuits against interference by external electric fields.

The cables are suitable for fixed indoor installations.

**CONSTRUCTION**

- bare copper, single wire (D) or stranded multi wire (L), round conductors meeting requirements of class 1 or 5 per PN-EN 60228,
- special silicone rubber insulation,
- identification colour code according to PN-HD 308 S2,

Number of conductors	Colour of insulation	
	with protective conductor (żo)	without protective conductor
2	-	blue and brown
3	green-yellow, blue and brown	brown, black and grey
4	green-yellow, brown, black and grey	blue, brown, black and grey
5	green-yellow, blue, brown, black and grey	black, blue, brown, black and grey
> 5	in each cable core layer brown <sup>1</sup> conductor (as a counter), blue conductor (as directional) and other black conductors	

<sup>1</sup> for cables with protective conductor - green-yellow protective conductor is positioned as a counter conductor in the outer layer instead brown conductor

- insulated conductors laid-up in layers,



- cable core wrapped in polyester tape - in HDGsekw and HLGsekw,
- overall electrostatic shield incorporating aluminium-polyester tape and annealed tinned copper drain wire - in HDGsekw and HLGsekw,
- red cable sheath of halogen free compound.

## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1	1.5	2.5	4	6	10
Conductor diameter (HDGs), approximate	mm	1.1	1.4	1.8	2.3	2.8	3.5
DC conductor resistance at 20°C, maximum – HDGs	Ω/km	18.1	12.1	7.41	4.61	3.08	1.83
DC conductor resistance at 20°C, maximum – HLGs	Ω/km	19.5	13.3	7.98	4.95	3.30	1.91
Capacitance between conductors at 1 kHz,	maximum	nF/km	120	120	120	120	120
	average		70	80	80	100	100

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3 kV rms
Insulation resistance at 20°C, minimum	100 MΩ · km
Inductance, approximate	0.7 mH/km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit (max. 5 s)	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 70°C
<b>Minimum bending radius</b>	
HDGs(ekw) cables	10 x cable diameter
HLGs(ekw) cables	6 x cable diameter
<b>Corrosivity of emitted gases per</b>	
	very low, halogen free PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	> 4.3
conductivity	< 2.5 μS/mm
<b>Smoke density</b>	
	low smoke density PN-EN 61034-2, IEC 61034-2

Light transmittance, minimum	80% for s1a
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-22, IEC 60332-3-22
<b>Circuit integrity:</b>	
E30-E90	DIN 4102-12
PH120	PN-EN 50200 or EN 50200
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB- KOT-2018/2023/0054-3701 edition 1, WT-TK-46
Reaction to fire (PN-EN 13501-6)	B2ca-s1a,d0,a1; B2ca-s1a,d1,a1; Eca
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Class reaction to fire	Copper	Cable
				index	weight
		mm		kg/km	kg/km
<b>HDGs</b>					
1195 005	2 x 1,0	6.3	B2ca-s1a,d0,a1	19.2	51
1195 006	2 x 1,5	7.2	B2ca-s1a,d0,a1	28.8	67
1195 007	2 x 2,5	8.6	B2ca-s1a,d0,a1	48.0	99
1195 014	2 x 4	9.7	B2ca-s1a,d0,a1	76.8	137
1195 023	2 x 6	11.1	B2ca-s1a,d0,a1	115.2	186
1195 026	2 x 10	13.1	B2ca-s1a,d0,a1	192.0	278
<b>HDGszo</b>					
1195 003	3 x 1,0	6.7	B2ca-s1a,d0,a1	28.8	66
1195 001	3 x 1,5	7.6	B2ca-s1a,d0,a1	43.2	89
1195 002	3 x 2,5	9.3	B2ca-s1a,d0,a1	72.0	136
1195 004	3 x 4	10.3	B2ca-s1a,d0,a1	115.2	185
1195 015	3 x 6	11.8	B2ca-s1a,d0,a1	172.8	255
1195 038	3 x 10	13.9	B2ca-s1a,d0,a1	288.0	388
1195 010	4 x 1,0	7.3	B2ca-s1a,d0,a1	38.4	82
1195 008	4 x 1,5	8.6	B2ca-s1a,d0,a1	57.6	116
1195 017	4 x 2,5	10.1	B2ca-s1a,d0,a1	96.0	173
1195 021	4 x 4	11.3	B2ca-s1a,d0,a1	153.6	239
1195 025	4 x 6	12.9	B2ca-s1a,d0,a1	230.4	332
1195 027	4 x 10	16.2	B2ca-s1a,d0,a1	384.0	540
1195 020	5 x 1,0	8.1	B2ca-s1a,d0,a1	48.0	106
1195 012	5 x 1,5	9.5	B2ca-s1a,d0,a1	72.0	148
1195 011	5 x 2,5	11.1	B2ca-s1a,d0,a1	120.0	214

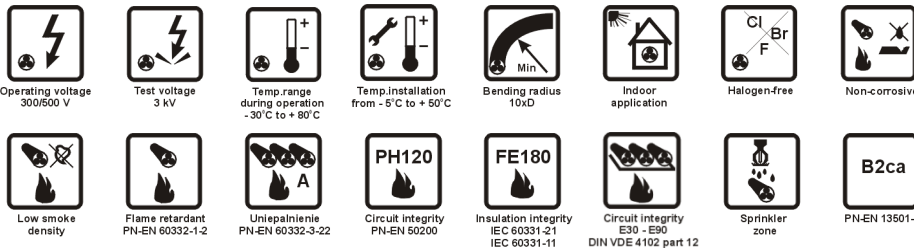
Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Class reaction to fire	Copper	Cable
				index	weight
		mm		kg/km	kg/km
1195 013	5 x 4	12.4	B2ca-s1a,d0,a1	192.0	295
1195 022	5 x 6	14.4	B2ca-s1a,d0,a1	288.0	419
1195 036	5 x 10	17.7	B2ca-s1a,d0,a1	480.0	670
1195 016	7 x 1,5	10.4	B2ca-s1a,d0,a1	100.8	188
1195 019	7 x 2,5	12.1	B2ca-s1a,d0,a1	168.0	273
<b>HLGs</b>					
1197 001	2 x 1,0	6.6	Eca	19.2	52
1197 002	2 x 1,5	7.5	Eca	28.8	68
1197 006	2 x 2,5	9.2	Eca	48.0	104
1197 010	2 x 4	10.2	Eca	76.8	136
1197 012	2 x 6	11.7	Eca	115.2	185
<b>HLGszo</b>					
1197 003	3 x 1,0	7.0	Eca	28.8	67
1197 004	3 x 1,5	8.2	Eca	43.2	94
1197 005	3 x 2,5	9.7	Eca	72.0	137
1197 021	3 x 4	10.8	Eca	115.2	182
1197 022	3 x 6	12.5	Eca	172.8	252
1197 007	4 x 1,0	7.6	Eca	38.4	83
1197 008	4 x 1,5	8.9	Eca	57.6	116
1197 017	4 x 2,5	10.7	Eca	96.0	175
1197 023	4 x 4	11.9	Eca	153.6	235
1197 014	4 x 6	13.7	Eca	230.4	328
1197 009	5 x 1,0	8.5	Eca	48.0	108
1197 019	5 x 1,5	10.0	Eca	72.0	150
1197 020	5 x 2,5	11.7	Eca	120.0	215
1197 024	5 x 4	13.0	Eca	192.0	322
<b>HDGsekw</b>					
1196 008	2 x 1,0	6.5	B2ca-s1a,d1,a1	23.9	59
1196 007	2 x 1,5	7.4	B2ca-s1a,d1,a1	33.5	76
1196 003	2 x 2,5	8.8	B2ca-s1a,d1,a1	52.7	114
1196 009	2 x 4	9.9	B2ca-s1a,d1,a1	84.0	149

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm		kg/km	kg/km
<b>HDGsekwżo</b>					
1196 029	3 x 1,0	6.9	B2ca-s1a,d1,a1	33.5	74
1196 001	3 x 1,5	8.0	B2ca-s1a,d1,a1	47.9	101
1196 010	3 x 2,5	9.5	B2ca-s1a,d1,a1	76.7	146
1196 002	4 x 1,0	7.5	B2ca-s1a,d1,a1	43.1	91
1196 020	4 x 1,5	8.8	B2ca-s1a,d1,a1	62.3	125
1196 013	4 x 2,5	10.3	B2ca-s1a,d1,a1	100.7	183
1196 014	4 x 4	11.5	B2ca-s1a,d1,a1	160.8	252
1196 019	5 x 1,5	9.7	B2ca-s1a,d1,a1	76.7	158
1196 031	5 x 2,5	11.3	B2ca-s1a,d1,a1	124.7	225
1196 032	5 x 4	12.6	B2ca-s1a,d1,a1	199.2	310
1196 021	7 x 2,5	12.3	B2ca-s1a,d1,a1	172.7	284
1196 016	7 x 4	13.7	B2ca-s1a,d1,a1	276	398
1196 017	10 x 1,0	11.5	B2ca-s1a,d1,a1	100.7	200
1196 025	10 x 2,5	16.4	B2ca-s1a,d1,a1	244.7	427

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Class reaction to fire	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm		kg/km	kg/km
1196 011	10 x 4	18.9	B2ca-s1a,d1,a1	391.2	618
<b>HLGsekw</b>					
1198 001	2 x 1,0	6.8	Eca	24.0	60
1198 006	2 x 1,5	7.7	Eca	33.6	76
1198 007	2 x 2,5	9.4	Eca	52.8	113
1198 008	2 x 4	10.4	Eca	84.0	147
1198 009	2 x 6	11.9	Eca	122.4	197
<b>HLGsekwżo</b>					
1198 003	3 x 1,0	7.2	Eca	33.6	75
1198 004	3 x 1,5	8.4	Eca	48.0	102
1198 002	3 x 2,5	9.9	Eca	76.8	146
1198 011	3 x 4	11.0	Eca	122.4	194
1198 012	3 x 6	12.7	Eca	180.0	265
1198 005	4 x 1,0	8.0	Eca	43.2	95
1198 013	4 x 1,5	9.3	Eca	62.4	130
1198 014	4 x 2,5	10.9	Eca	100.8	185
1198 015	4 x 4	12.1	Eca	160.8	247
1198 016	4 x 6	13.9	Eca	237.6	341
1198 017	5 x 1,0	8.7	Eca	52.8	116
1198 010	5 x 1,5	10.2	Eca	76.8	160
1198 018	5 x 2,5	11.9	Eca	124.8	226
1198 019	5 x 4	13.2	Eca	199.2	304

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME HDGs(żo)-W FE180 PH120/E30-E90



### APPLICATIONS

HDGs(żo)-W FE180 PH120/E30-E90 300/500 V fire resistant cables, are intended for installation in alarm, signalling, sound warning and similar systems, also for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

Halogen free cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.

**Functions of the cables are maintained** – power is supplied to equipment which must operate in fire conditions and during fire fighting. The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpozarowej) at Józefów.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E. **HDGs(żo)-W FE180 PH120/E30-E90 300/500 V** cables can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for fixed indoor installations.

### CONSTRUCTION

- bare copper, single wire (D), round conductors meeting requirements of class 1 per PN-EN 60228,
- special silicone rubber insulation,
- identification colour code according to PN-HD 308 S2,

Number of conductors	Colour of insulation	
	with protective conductor (żo)	without protective conductor
2	-	blue and brown
3	green-yellow, blue and brown	brown, black and grey
4	green-yellow, brown, black and grey	blue, brown, black and grey
5	green-yellow, blue, brown, black and grey	blue, brown, black and grey, black

- insulated conductors laid-up in layers,
- cable core wrapped in polyester tape and mica tape,
- red, cable sheath made of halogen free compound.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1	1.5	2.5
DC conductor resistance at 20°C, maximum	Ω/km	18.1	12.1	7.41
Capacitance between conductors at 1 kHz	maximum	120	120	120
	average	70	80	80

Operating voltage U <sub>0</sub> /U	300/500 V
Voltage test	3 kV rms
Insulation resistance at 20°C, minimum	100 MΩ · km
Inductance, approximate	0.7 mH/km
<b>Conductor temperature limit</b>	
in work conditions	+ 90°C
at short-circuit (max. 5 s)	+ 250°C
<b>Operating temperature range</b>	
during operation	from - 30 to + 80°C
during installation	from - 5 to + 50°C
<b>Minimum bending radius</b>	
HDGs-W cables	10 x cable diameter
Corrosivity of emitted gases per	very low, halogen free
	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm

Smoke density	low smoke density PN-EN 61034-2, IEC 61034-2
Light transmittance, minimum	60% for s1b
Cable combustibility	flame retardant
Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2, PN-EN 60332-3-22, IEC 60332-3-22
<b>Circuit integrity:</b>	
E30-E90	DIN 4102-12
PH120	PN-EN 50200 or EN 50200
Insulation integrity FE180	IEC 60331-21, IEC 60331-11
Reference standards	CNBOP-PIB-KOT-2018/0054-3701 edition 1, WT-TK-46
Reaction to fire (PN-EN 13501-6)	B2ca-s1b,d0,a1
KDWU declarations are available at	technokabel.com.pl

The cable meets requirements of the low voltage direction 2014/35/EU

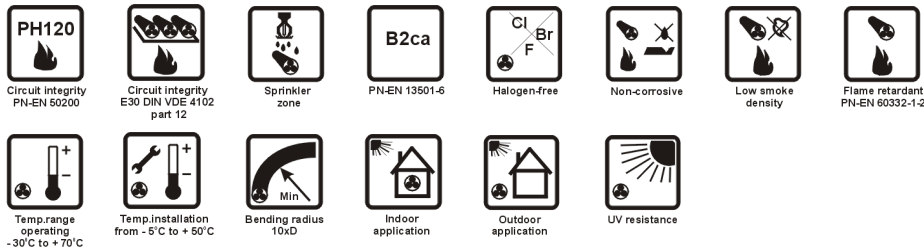
**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
<b>HDGs-W</b>				
1673 001	2 x 1,0	6.9	19.2	58
1673 005	2 x 1,5	8.0	28.8	78
1673 003	2 x 2,5	9.4	48	111
<b>HDGszo-W</b>				
1673 002	3 x 1,0	7.3	28.8	73
1673 006	3 x 1,5	8.4	43.2	101

Product No.	Number of conductors x conductor cross-section	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	kg/km	kg/km
1673 004	3 x 2,5	9.9	72.0	145
1673 018	4 x 1,0	8.1	38.4	96
1673 007	4 x 1,5	9.4	58.0	128
1673 008	4 x 2,5	10.7	96.0	183
1673 009	5 x 1,0	8.7	48.0	117
1673 013	5 x 1,5	10.1	72.0	158
1673 021	5 x 2,5	11.7	120.0	229

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME FOC-2-SLT-HFFR PH120/E30 9/125 SM



### APPLICATIONS

FOC-2-SLT-HFFR PH120/E30 9/125 SM is fire resistant fiber optic cable with one central loose tube containing single-mode fibres (up to 24 fibres) intended for use in fire alarm and fire automatic control systems. Cable can be installed in the buildings, tunnels and underground.

Halogen-free cable, applied when higher safety in case of fire is required. The cable is flame retardant, its smoke emission in fire is low and released gases are not corrosive.

Fibreglass yarns armour provides enhanced protection against mechanical damages and rodent attack. It's also prevent water from reaching the cable core.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpozarowej) at Józefów.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E. FOC-2-SLT-HFFR PH120/E30 9/125 SM cables can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (**sprinkler zones**).

The cables are suitable for indoor and outdoor installations.

### CONSTRUCTION

- coloured single-mode fibres 9/125 SM, G.652 D, G.657 A1,
- loose tube (gel filled) diameter  $2.5 \pm 0.5$  mm,

1	red	7	brown	13	red*	19	brown*
2	green	8	purple	14	green*	20	purple*
3	blue	9	turquoise	15	blue*	21	turquoise*
4	yellow	10	black	16	yellow*	22	black*
5	white	11	orange	17	white*	23	orange*
6	gray	12	pink	18	gray*	24	pink*

(\*) - with black rings

- double fireproof layer,
- water swelling glass yarns reinforcement,
- red cable outer sheath made of halogen free compound (HFFR) UV stabilized.

TECHNOKABEL FOC-2-SLT-HFFR PH120/E30 9/125 SM



## CHARACTERISTICS

### Attenuation coefficient max

for 1310 nm	≤ 0.5 dB/km
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for 1550 nm	≤ 0.4 dB/km
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Mode field diameter (MFD)	8.6 ÷ 9,5 μm
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Cladding diameter	125 μm
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Coating diameter	250 μm
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### Operating temperature range:

after installation	from - 30 to + 70°C
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during installation	from - 5 to + 50°C
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### Minimum bending radius:

static	10 x cable diameter
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dynamic	15 x cable diameter
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### Maximum pulling tension

during operation	1500 N
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during installation	2000 N
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### Crush resistance

continuous	2000 N
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short term	5000 N
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Corrosivity of emitted gases per	PN-EN 60754-1/-2, IEC 60754-1/-2
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pH	>4.3
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conductivity	<2.5 μS/mm
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Smoke density	PN-EN 61034-2, IEC 61034-2
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Light transmittance, minimum	80%
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Cable combustibility	flame retardant,
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Combustibility tests	PN-EN 60332-1-2, IEC 60332-1-2
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### System circuit integrity acc. to PN-EN 50582(\*):

to 30 min (E30)	DIN 4102-12
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PH120	PN-EN 50200 + Annex E
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Reference standards	CCNBOP-PIB- KOT-2020/2025/0196-3701 wyd.1, WT-TK-51
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Reaction to fire (PN-EN 13501-6)	B2ca-s1a,d0,a1
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KDWU declarations are available at	technokabel.com.pl
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(\* ) The maximum change in attenuation of optical fibers according to PN-EN 50582 is 1 dB/m and depends on the cable installation method.

**Cable installation** - should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 or PN-EN 50200.

## INSTALLING CABLES IN CABLE ASSEMBLIES

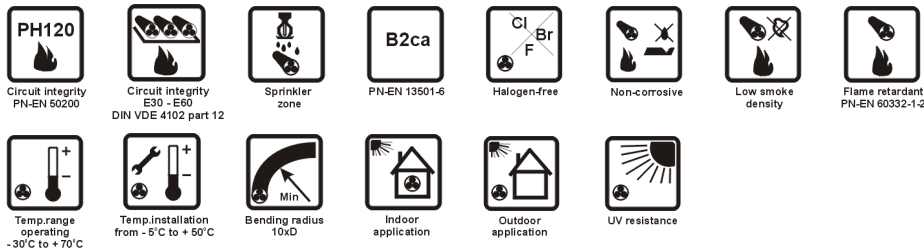
Manufacturer	Circuit integrity	Cable supporting system
BAKS	30 min (E30)	UDF – cable clips at 600 mm spacing
BAKS	30 min (E30)	KDS/KDSO60H60; KDS/KDSO400H60 – mash trays with supports at 1500 mm spacing
OBO BETTERMANN	30 min (E30)	GRM 55 50 – trays with supports at 1500 mm spacing

Product No.	No of fibres	Tube diameter	Cable outer diameter (appr.)	Cable weight (appr.)
		mm	mm	kg/km
2000 002	4x9/125 SM	2.5 ± 0.5	7.8	80
2000 008	6x9/125 SM	2.5 ± 0.5	7.8	80
2000 003	12x9/125 SM	2.5 ± 0.5	7.8	80
2000 009	24x9/125 SM	2.5 ± 0.5	7.8	80

Other number of fibres counts available on request.

TECHNOKABEL SA reserves the right to change specifications without prior notice.

## TECHNOFLAME FOC-2-SLT-HFFR PH120/E30-E60 50/125 OM2



### APPLICATIONS

FOC-2-SLT-HFFR PH120/E30-E60 50/125 OM2 is fire resistant fiber optic cable with one central loose tube (up to 6 fibres) intended for use in fire alarm and fire automatic control systems. Cable can be installed in the buildings, tunnels and underground.

Halogen-free cable, applied when higher safety in case of fire is required. The cable is flame retardant, its smoke emission in fire is low and released gases are not corrosive.

Fibreglass yarns armour provides enhanced protection against mechanical damages and rodent attack. It's also prevent water from reaching the cable core.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpozarowej) at Józefów.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E. FOC-2-SLT-HFFR PH120/E30-E60 50/125 OM2 cables can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems (sprinkler zones).

The cables are suitable for indoor and outdoor installations.

### CONSTRUCTION

- coloured multi-mode fibres 50/125 OM2,
- loose tube (gel filled) (up to 6 fibres in one tube, colours: red, green, blue, yellow, white, gray), diameter  $2,5 \pm 0,5$  mm,
- double fireproof layer,
- water swelling glass yarns reinforcement,
- red cable outer sheath made of halogen free compound (HFFR) UV stabilized.



## CHARACTERISTICS

<b>Attenuation coefficient max</b>		pH	>4.3
for 850 nm	≤ 2.5 dB/km	conductivity	<2.5 μS/mm
for 1300 nm	≤ 0.6 dB/km	<b>Smoke density</b>	PN-EN 61034-2, IEC 61034-2
<b>Core diameter</b>	50 μm	<b>Light transmittance, minimum</b>	80%
<b>Cladding diameter</b>	125 μm	<b>Cable combustibility</b>	flame retardant
<b>Coating diameter</b>	250 μm	<b>Combustibility tests</b>	PN-EN 60332-1-2, IEC 60332-1-2
<b>Operating temperature range:</b>		<b>System circuit integrity acc. to PN-EN 50582*:</b>	
after installation	from - 30 to + 70°C	up to 60 min (E30-E60)	DIN 4102-12
during installation	from - 5 to + 50°C	P60-R	CSN 73 0895
<b>Minimum bending radius:</b>		PS 60	STN 92 0205
static	10 x cable diameter	PH120	PN-EN 50200 + Annex E
dynamic	15 x cable diameter	<b>Reference standards</b>	CNBOP-PIB- KOT-2020/2025/0196-3701 wyd.1, WT-TK-51,
<b>Maximum pulling tension</b>		<b>Reaction to fire (PN-EN 13501-6)</b>	B2ca-s1a,d0,a1
after installation	1500 N	<b>KDWU declarations are available at</b>	technokabel.com.pl
during installation	2000 N		
<b>Crush resistance</b>			
continuous	2000 N		
short term	5000 N		
<b>Corrosivity of emitted gases per</b>	PN-EN 60754-1/-2, IEC 60754-1/-2		

(\*) The maximum change in attenuation of optical fibers according to PN-EN 50582 is 2 dB/m and depends on the cable installation method.

**Cable installation** - should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 or PN-EN 50200.

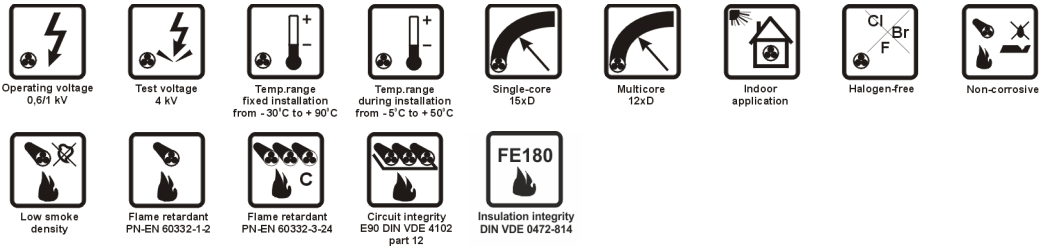
## INSTALLING CABLES IN CABLE ASSEMBLIES

Manufacturer	Circuit integrity	Cable supporting system
BAKS	30 min (E30)	KDS/KDSO60H60; KDS/KDSO400H60 - mash trays with supports at 1500 mm spacing,
BAKS	30 min (E30)	KFL50H60 - trays with supports at 1500 mm spacing
BAKS	30 min (E30)	OZM, KSA - cables group hangers at 600 mm spacing,
BAKS	60 min (E60)	UDF - cable clips at 300 mm spacing
OBO BETTERMANN	30 min (E30)	1015-8 - cable clips at 300 mm spacing
OBO BETTERMANN	30 min (E30)	GRM 55 50 – trays with supports at 1500 mm spacing

Product No.	No of fibres	Tube diameter	Cable outer diameter (appr.)	Cable weight (appr.)
		mm	mm	kg/km
2000 001	4x50/125 OM2	2.5 ± 0.5	7.8	80
2000 007	6x50/125 OM2	2.5 ± 0.5	7.8	81

Other number of fibres counts available on request  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

**NHXH FE180 E90 0,6/1 kV,  
NHXH-J FE180 E90 0,6/1 kV**



**APPLICATIONS**

NHXH FE180 PH90/E90 0,6/1 kV and NHXH-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

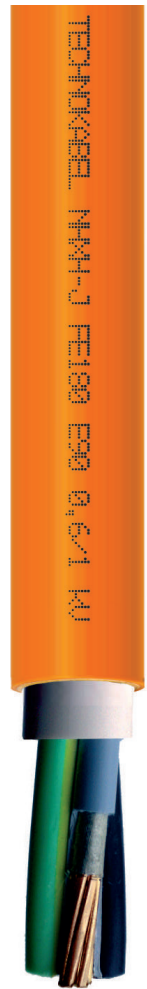
The cables are certified by **VDE Institute** - Verband der Elektrotechnik at Offenbach.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

**CONSTRUCTION**

- bare annealed copper conductors meeting requirements of EN 60228 standard:  
RE - class 1 single wire round conductor,  
RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation (HXI2 according to VDE 0266) – colours:  
up to 5 wires in accordance with HD 308 S2,  
above 5 wires black and white conductor number printed on it,  
green-yellow protective conductor in the outer layer in NHXH-J FE180 E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1 and VDE 0276-604.



**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524
Conductor cross-section	mm <sup>2</sup>	50	70	95	120	150	185	240	300
DC conductor resistance at 20°C, maximum	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601

Operating voltage U <sub>0</sub> /U	0,6/1 kV	pH	>4.3
Voltage test	4 kV rms	conductivity	<2.5 μS/mm
Insulation resistance, at 90°C, minimum	10 <sup>9</sup> Ω · cm	Smoke density	EN 61034-2, IEC 61034-2
Inductance, approximate	0.7 mH/km	Light transmittance	min. 60%
Conductor temperature limit		Cable combustibility	fire resistant
in work conditions	+ 90°C	Combustibility tests	EN 60332-1-2, IEC 60332-1-2, EN 60332-3-24, IEC 60332-3-24
at short-circuit	+ 250°C	Circuit integrity*:	
Operating temperature range		E90	DIN 4102-12
during operation	from - 30 to + 90°C	Insulation integrity FE180	DIN VDE 0472-814, IEC 60331-21, IEC 60331-11
during installation	from - 5 to + 50°C	Reference standards	DIN VDE 0266, DIN VDE 0276-604
Minimum bending radius			
single core cables	15 x cable diameter		
multi core cables	12 x cable diameter		
Corrosivity of emitted gases per	EN 60754-1, EN 60754-2, IEC 60754-2		

\*Circuit integrity is dependent on installation method.

Cable installation - Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

The cable meets requirements of the low voltage directive 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)	Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km		mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
<b>NHXH FE180 E90 0,6/1 kV</b>													
1914 001	1 x 6 RE	0.7	1.4	7.7	57.6	111	1914 010	1 x 150 RM	1.4	1.6	21.4	1440	1526
1914 002	1 x 10 RE	0.7	1.4	8.5	96.0	154	1914 011	1 x 185 RM	1.6	1.6	23.7	1776	1914
1914 003	1 x 16 RE	0.7	1.4	9.4	153.6	215	1914 012	1 x 240 RM	1.7	1.8	26.5	2304	2473
1914 004	1 x 25 RM	0.9	1.4	11.4	240.0	320	1914 013	1 x 300 RM	1.8	1.9	29.2	2880	3083
1914 005	1 x 35 RM	0.9	1.4	12.4	336.0	415	1914 015	2 x 1,5 RE	0.7	1.8	11.2	28.8	179
1914 006	1 x 50 RM	1.0	1.4	13.8	480.0	547	1914 016	2 x 2,5 RE	0.7	1.8	12.0	48.0	216
1914 007	1 x 70 RM	1.1	1.4	15.6	672.0	753	1914 017	2 x 4 RE	0.7	1.8	12.9	76.8	266
1914 008	1 x 95 RM	1.1	1.5	17.5	912.0	1052	1914 018	2 x 6 RE	0.7	1.8	13.9	115.2	328
1914 009	1 x 120 RM	1.2	1.6	19.4	1152	1261	1914 019	2 x 10 RE	0.7	1.8	15.5	192.0	446
							1914 020	2 x 16 RE	0.7	1.8	17.3	307.2	606

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1914 021	2 x 25 RM	0.9	1.8	21.3	480.0	919
<b>NHXH-J FE180 PH90/E90 0,6/1 kV</b>						
1914 023	3 x 1,5 RE	0.7	1.8	11.8	43.2	203
1914 024	3 x 2,5 RE	0.7	1.8	12.6	72.0	247
1914 025	3 x 4 RE	0.7	1.8	13.6	115.2	311
1914 026	3 x 6 RE	0.7	1.8	14.6	172.8	388
1914 027	3 x 10 RE	0.7	1.8	16.4	288.0	543
1914 028	3 x 16 RM	0.7	1.8	19.0	460.8	776
1914 029	3 x 25 RM	0.9	1.8	22.6	720.0	1141
1914 030	3 x 35 RM	0.9	1.8	24.8	1008	1472
1914 031	3 x 50 RM	1.0	1.8	27.8	1440	1939
1914 032	3 x 70 RM	1.1	2.0	32.1	2016	2695
1914 033	3 x 95 RM	1.1	2.1	36.4	2736	3739
1914 034	3 x 120 RM	1.2	2.2	40.1	3456	4483
1914 070	3 x 150 RM	1.4	2.4	44.9	4230	5498
1914 071	3 x 185 RM	1.6	2.5	49.6	5328	6855
1914 072	3 x 240 RM	1.7	2.7	55.6	6912	8828
1914 081	3 x 25 RM + 16 RM	0.9/0.7	1.8	23.6	873.6	1284
1914 082	3 x 35 RM + 16 RM	0.9/0.7	1.8	25.4	1162	1598
1914 083	3 x 50 RM + 25 RM	1.0/0.9	1.9	29.1	1680	2161
1914 084	3 x 70 RM + 35 RM	1.1/0.9	2.1	33.1	2352	2971
1914 085	3 x 95 RM + 50 RM	1.1/1.0	2.2	37.6	3216	4123
1914 086	3 x 120 RM + 70 RM	1.2/1.1	2.3	42.0	4128	5077
1914 087	3 x 150 RM + 70 RM	1.4/1.1	2.5	45.8	4992	6012
1914 088	3 x 185 RM + 95 RM	1.6/1.1	2.7	51.0	6240	7654
1914 089	3 x 240 RM + 120 RM	1.7/1.2	2.9	57.0	8064	9764
1914 036	4 x 1,5 RE	0.7	1.8	12.7	57.6	238
1914 037	4 x 2,5 RE	0.7	1.8	13.6	96.0	294
1914 038	4 x 4 RE	0.7	1.8	14.7	153.6	375
1914 039	4 x 6 RE	0.7	1.8	15.9	230.4	474
1914 040	4 x 10 RE	0.7	1.8	17.8	384.0	668

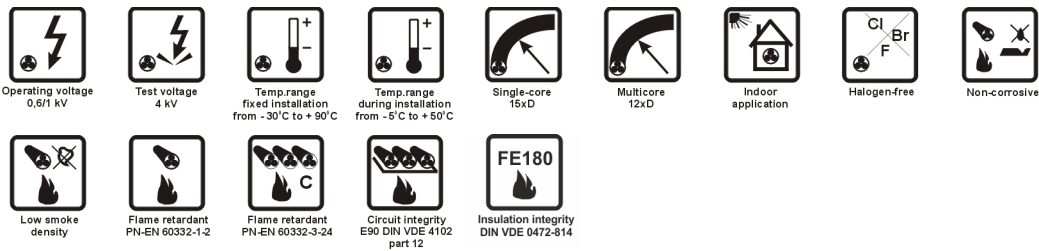
Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1914 041	4 x 16 RM	0.7	1.8	20.8	614.4	977
1914 042	4 x 25 RM	0.9	1.8	24.9	960.0	1447
1914 043	4 x 35 RM	0.9	1.8	27.3	1344	1854
1914 044	4 x 50 RM	1.0	1.9	30.9	1920	2470
1914 045	4 x 70 RM	1.1	2.1	36.0	2688	3503
1914 046	4 x 95 RM	1.1	2.2	40.4	3648	4818
1914 073	4 x 120 RM	1.2	2.4	44.7	4608	5795
1914 074	4 x 150 RM	1.4	2.5	49.8	5760	7017
1914 075	4 x 185 RM	1.6	2.7	55.3	7104	8795
1914 076	4 x 240 RM	1.7	2.9	62.0	9216	11336
1914 090	4 x 25 RM + 16 RM	0.9/0.7	1.8	26.2	1114	1602
1914 091	4 x 35 RM + 16 RM	0.9/0.7	1.9	28.3	1498	2016
1914 092	4 x 50 RM + 25 RM	1.0/0.9	2.0	32.6	2160	2739
1914 093	4 x 70 RM + 35 RM	1.1/0.9	2.2	37.6	3024	3821
1914 094	4 x 95 RM + 50 RM	1.1/1.0	2.4	42.4	4128	5270
1914 095	4 x 120 RM + 70 RM	1.2/1.1	2.5	47.0	5280	6424
1914 096	4 x 150 RM + 70 RM	1.4/1.1	2.7	51.8	6432	7694
1914 097	4 x 185 RM + 95 RM	1.6/1.1	2.9	57.6	8016	9757
1914 098	4 x 240 RM + 120 RM	1.7/1.2	3.1	64.4	10368	12478
1914 047	5 x 1,5 RE	0.7	1.8	13.6	72.0	282
1914 048	5 x 2,5 RE	0.7	1.8	14.6	120.0	351
1914 049	5 x 4 RE	0.7	1.8	16.0	192.0	453
1914 050	5 x 6 RE	0.7	1.8	17.3	288.0	575
1914 051	5 x 10 RE	0.7	1.8	19.5	480.0	817
1914 052	5 x 16 RM	0.7	1.8	22.7	768.0	1182
1914 053	5 x 25 RM	0.9	1.8	27.2	1200	1753
1914 054	5 x 35 RM	0.9	1.9	30.3	1680	2287
1914 055	5 x 50 RM	1.0	2.0	34.2	2400	3042
1914 056	5 x 70 RM	1.1	2.2	39.8	3360	4276
1914 057	5 x 95 RM	1.1	2.4	45.0	4560	5926
1914 077	5 x 120 RM	1.2	2.5	49.6	5760	7104

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1914 078	5 x 150 RM	1.4	2.7	55.5	7200	8697
1914 079	5 x 185 RM	1.6	2.9	61.5	8880	10888
1914 080	5 x 240 RM	1.7	3.2	69.2	11520	14075
1914 058	7 x 1,5 RE	0.7	1.8	14.8	100.8	332
1914 059	7 x 2,5 RE	0.7	1.8	15.9	168.0	420
1914 060	7 x 4 RE	0.7	1.8	17.3	268.8	549
1914 061	12 x 1,5 RE	0.7	1.8	18.9	172.8	512
1914 062	12 x 2,5 RE	0.7	1.8	20.4	288	657

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1914 063	14 x 1,5 RE	0.7	1.8	19.8	201.6	569
1914 064	19 x 1,5 RE	0.7	1.8	21.9	273.6	715
1914 065	19 x 2,5 RE	0.7	1.8	23.8	456	935
1914 066	24 x 1,5 RE	0.7	1.8	25.4	345.6	892
1914 067	24 x 2,5 RE	0.7	1.8	27.7	576	1170
1914 068	30 x 1,5 RE	0.7	1.8	26.9	432.0	1048
1914 069	30 x 2,5 RE	0.7	1.9	29.5	720.0	1399

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

**(N)HXH FE180 E90 0,6/1 kV,  
(N)HXH-J FE180 E90 0,6/1 kV**



**APPLICATIONS**

(N)HXH FE180 PH90/E90 0,6/1 kV and (N)HXH-J FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **VDE Institute** - Verband der Elektrotechnik at Offenbach.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

**CONSTRUCTION**

- bare annealed copper conductors meeting requirements of EN 60228 standard:  
RE - class 1 single wire round conductor,  
RM - class 2 multiwire round conductor,
- double special cross-linked silicone rubber insulation (HXI1 according to VDE 0266) – colours:  
up to 5 wires in accordance with HD 308 S2,  
green-yellow protective conductor in the outer layer in (N)HXH-J FE180 PH90/E90 0,6/1 kV cable,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1 and VDE 0276-604.



**CHARACTERISTICS**

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387
Operating voltage U <sub>0</sub> /U	0,6/1 kV					pH	> 4.3			
Voltage test	4 kV rms					conductivity	< 2.5 μS/mm			
Insulation resistance at 90°C, minimum	10 <sup>9</sup> Ω · cm					Smoke density	EN 61034-2, IEC 61034-2			
Inductance, approximate	0.7 mH/km					Light transmittance, minimum	60%			
Conductor temperature limit						Cable combustibility	fire resistant			
in work conditions	+ 90°C					Combustibility tests	EN 60332-1-2, IEC 60332-1-2, EN 60332-3-24, IEC 60332-3-24,			
at short-circuit	+ 250°C									
Operating temperature range						Circuit integrity*:				
during operation	from - 30 to + 90°C					E90	DIN 4102-12			
during installation	from - 5 to + 50°C					Insulation integrity FE180	DIN VDE 0472-814, IEC 60331-21, IEC 60331-11			
Minimum bending radius:							Reference standards	DIN VDE 0266, DIN VDE 0276-604		
single core cables	15 x cable diameter									
multi core cables	12 x cable diameter									
Corrosivity of emitted gases per	PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2									

\*Circuit integrity is dependent on installation method.

Cable installation - Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

The cable meets requirements of the low voltage directive 2014/35/EU

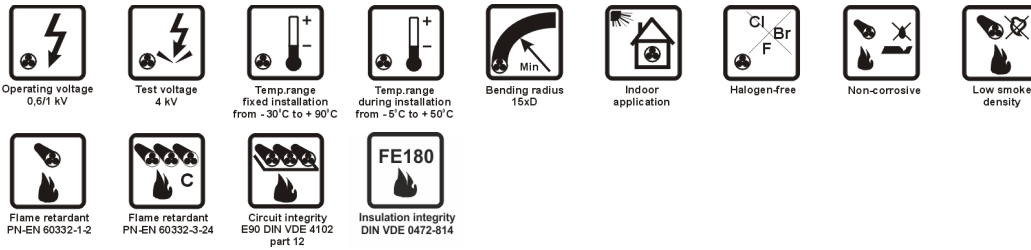
Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)	Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km		mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
<b>(N)HXH FE180 E90 0,6/1 kV</b>													
1916 040	1 x 6 RE	1.0	1.4	7.4	57.6	110	1916 011	2 x 10 RE	1.0	1.8	15.0	192.0	444
1916 041	1 x 10 RE	1.0	1.4	8.2	96.0	154	1916 012	2 x 16 RE	1.0	1.8	16.8	307.2	605
1916 001	1 x 16 RE	1.0	1.4	9.1	153.6	215	1916 013	2 x 25 RM	1.2	1.8	20.7	480.0	917
1916 002	1 x 25 RM	1.2	1.4	11.1	240.0	320	<b>(N)HXH FE180 E90 0,6/1 kV</b>						
1916 003	1 x 35 RM	1.2	1.4	12.1	336.0	416	1916 014	3 x 1,5 RE	1.0	1.8	11.2	43.2	197
1916 004	1 x 50 RM	1.4	1.4	13.7	480.0	553	1916 015	3 x 2,5 RE	1.0	1.8	12.0	72.0	236
1916 007	2 x 1,5 RE	1.0	1.8	10.7	28.8	175	1916 016	3 x 4 RE	1.0	1.8	13.0	115.2	306
1916 008	2 x 2,5 RE	1.0	1.8	11.5	48.0	212	1916 017	3 x 6 RE	1.0	1.8	14.1	172.8	386
1916 009	2 x 4 RE	1.0	1.8	12.4	76.8	262	1916 018	3 x 10 RE	1.0	1.8	15.8	288.0	539
1916 010	2 x 6 RE	1.0	1.8	13.4	115.2	325	1916 019	3 x 16 RE	1.0	1.8	17.8	460.8	752
							1916 020	3 x 25 RM	1.2	1.8	22.0	720.0	1142

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1916 042	3 x 35 RM	1.2	1.8	24,3	1008	1481
1916 043	3 x 50 RM	1.4	1.8	27,6	1440	1975
1916 060	3 x 25 RM + 16 RM	1.2/1.0	1.8	23.9	873.0	1325
1916 061	3 x 35 RM + 16 RM	1.2/1.0	1.8	26.4	1162	1664
1916 062	3 x 50 RM + 25 RM	1.4/1.2	1.9	30.3	1680	2267
1916 021	4 x 1,5 RE	1.0	1.8	12.1	57.6	225
1916 022	4 x 2,5 RE	1.0	1.8	13.0	96.0	286
1916 023	4 x 4 RE	1.0	1.8	14.1	153.6	366
1916 024	4 x 6 RE	1.0	1.8	15.3	230.4	466
1916 025	4 x 10 RE	1.0	1.8	17.3	384.0	662
1916 026	4 x 16 RE	1.0	1.8	19.5	614.4	931
1916 027	4 x 25 RM	1.2	1.8	24.2	960.0	1416
1916 028	4 x 35 RM	1.2	1.8	26.7	1344	1842

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1916 029	4 x 50 RM	1.4	1.9	30.7	1920	2463
1916 065	4 x 25 RM + 16 RM	1.2/1.0	1.8	25.5	1114	1600
1916 066	4 x 35 RM + 16 RM	1.2/1.0	1.9	29.4	1498	2100
1916 067	4 x 50 RM + 25 RM	1.4/1.2	2.0	33.7	2160	2853
1916 030	5 x 1,5 RE	1.0	1.8	13.1	72.0	273
1916 031	5 x 2,5 RE	1.0	1.8	14.1	120.0	342
1916 032	5 x 4 RE	1.0	1.8	15.4	192.0	443
1916 033	5 x 6 RE	1.0	1.8	16.7	288.0	565
1916 034	5 x 10 RE	1.0	1.8	18.9	480.0	807
1916 035	5 x 16 RE	1.0	1.8	21.4	768.0	1143
1916 036	5 x 25 RM	1.2	1.8	26.7	1200	1749
1916 037	5 x 35 RM	1.2	1.9	29.8	1680	2302
1916 038	5 x 50 RM	1.4	2.0	34.2	2400	3104

Nominal cross sectional area acc. to data sheet KA2306R1 (dated 2023-08-29).  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## NHXCH FE180 E90 0,6/1 kV



### APPLICATIONS

NHXCH FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **VDE Institute** - Verband der Elektrotechnik at Offenbach.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation (HXI2 according to VDE 0266) – colours:
  - up to 5 wires in accordance with HD 308 S2,
  - above 5 wires black and white conductor number printed on it,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- concentric conductor formed by bare copper wires with counter helix of copper tape over the inner sheath,
- concentric conductor wrapped in polyester tape,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1 and VDE 0276-604.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524
Conductor cross-section	mm <sup>2</sup>	50	70	95	120	150	185	240	
DC conductor resistance at 20°C, maximum	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, at 90°C, minimum	10 <sup>9</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
Minimum bending radius	15 x cable diameter
Corrosivity of emitted gases per	EN 60754-1, EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm

Smoke density	EN 61034-2, IEC 61034-2
Light transmittance	min. 60%
Cable combustibility	fire resistant
Combustibility tests	EN 60332-1-2, IEC 60332-1-2, EN 60332-3-24, IEC 60332-3-24
Circuit integrity*:	
E90	DIN 4102-12
Insulation integrity FE180	DIN VDE 0472-814, IEC 60331-21, IEC 60331-11
Reference standards	DIN VDE 0266, DIN VDE 0276-604

\*Circuit integrity is dependent on installation method.

Cable installation - Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

The cable meets requirements of the low voltage directive 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1915 001	2 x 1,5 RE/1,5	0.7	1.8	13.6	49.5	253
1915 002	2 x 2,5 RE/2,5	0.7	1.8	14.6	78.3	306
1915 003	2 x 4 RE/4	0.7	1.8	15.7	121.3	374
1915 004	2 x 6 RE/6	0.7	1.8	17.1	179.1	461
1915 005	2 x 10 RE/10	0.7	1.8	19.1	300.4	628
1915 006	2 x 16 RE/16	0.7	1.8	20.9	473.2	854
1915 007	2 x 25 RM/16	0.9	1.8	24.8	645.9	1180

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1915 008	2 x 35 RM/16	0.9	1.8	26.9	837.9	1444
1915 009	2 x 50 RM/25	1	1.9	29.8	1212	1911
1915 014	3 x 1,5 RE/1,5	0.7	1.8	14.2	63.7	279
1915 015	3 x 2,5 RE/2,5	0.7	1.8	15.2	102.3	340
1915 016	3 x 4 RE/4	0.7	1.8	16.4	159.9	422
1915 017	3 x 6 RE/6	0.7	1.8	17.8	236.5	524
1915 018	3 x 10 RE/10	0.7	1.8	20	396.3	729

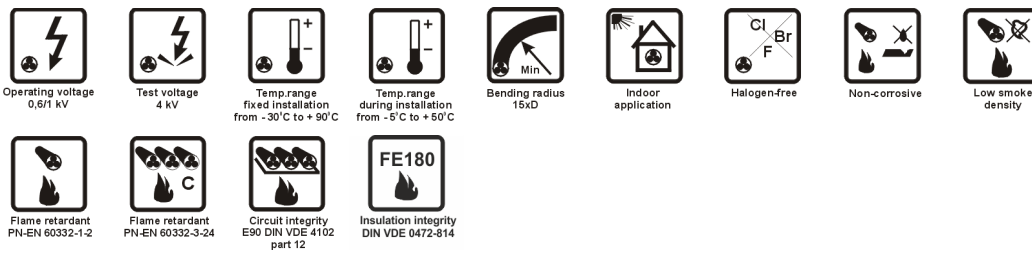
Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1915 019	3 x 16 RE/16	0.7	1.8	21.9	626.8	1003
1915 020	3 x 25 RM/16	0.9	1.8	26.1	885.9	1406
1915 021	3 x 35 RM/16	0.9	1.9	28.6	1174	1767
1915 022	3 x 50 RM/25	1	2	31.7	1692	2344
1915 023	3 x 70 RM/35	1.1	2.2	37.2	2364	3272
1915 024	3 x 95 RM/50	1.1	2.3	41.2	3228	4441
1915 025	3 x 120 RM/70	1.2	2.4	45.6	4140	5413
1915 010	3 x 150 RM/70	1.4	2.6	50.5	5004	6636
1915 011	3 x 185 RM/95	1.6	2.8	55.9	6252	8290
1915 012	3 x 240 RM/120	1.7	3	61.9	8076	10642
1915 026	4 x 1.5 RE/1.5	0.7	1.8	15.1	78.3	318
1915 027	4 x 2.5 RE/2.5	0.7	1.8	16.2	126.3	391
1915 028	4 x 4 RE/4	0.7	1.8	17.5	198.1	490
1915 029	4 x 6 RE/6	0.7	1.8	18.7	294.1	592
1915 030	4 x 10 RE/10	0.7	1.8	21	492.3	856
1915 031	4 x 16 RE/16	0.7	1.8	23.6	780.3	1197
1915 032	4 x 25 RM/16	0.9	1.9	28.6	1126	1723
1915 033	4 x 35 RM/16	0.9	2	31.3	1510	2178
1915 034	4 x 50 RM/25	1	2.1	35.2	2172	2931
1915 035	4 x 70 RM/35	1.1	2.2	39.8	3036	4011
1915 036	4 x 95 RM/50	1.1	2.4	45.6	4140	5559
1915 037	4 x 120 RM/70	1.2	2.6	50.3	5292	6753
1915 013	4 x 150 RM/70	1.4	2.7	55	6444	8244

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
1915 048	4 x 185 RM/95	1.6	3	61.9	8028	10398
1915 049	4 x 240 RM/120	1.7	3.2	68.2	10380	13257
1915 050	5 x 1,5 RE/1,5	0.7	1.8	16.3	92.7	372
1915 051	5 x 2,5 RE/2,5	0.7	1.8	17.5	150.1	457
1915 052	5 x 4 RE/4	0.7	1.8	18.8	236.5	567
1915 038	5 x 6 RE/6	0.7	1.8	20.1	358.0	715
1915 053	5 x 10 RE/10	0.7	1.8	22.9	588.4	1017
1915 054	5 x 16 RE/16	0.7	1.8	25.7	934	1422
1915 055	5 x 25 RM/16	0.9	2	31.4	1366	2077
1915 056	5 x 35 RM/16	0.9	2.1	34.5	1846	2682
1915 057	5 x 50 RM/25	1	2.2	38.7	2652	3544
1915 058	5 x 70 RM/35	1.1	2.4	44	3708	4875
1915 059	5 x 95 RM/50	1.1	2.6	50.3	5052	6758
1915 060	5 x 120 RM/70	1.2	2.7	55	6444	8169
1915 061	5 x 150 RM/70	1.4	2.9	61	7884	10057
1915 062	5 x 185 RM/95	1.6	3.2	67.9	9804	12567
1915 063	5 x 240 RM/120	1.7	3.3	71.5	12684	15335
1915 039	7 x 1,5 RE/2,5	0.7	1.8	17.4	131.1	435
1915 040	7 x 2,5 RE/2,5	0.7	1.8	18.5	198.1	527
1915 041	10 x 1,5 RE/2,5	0.7	1.8	20.7	180.3	577
1915 042	12 x 1,5 RE/2,5	0.7	1.8	21.3	209.1	630
1915 043	12 x 2,5 RE/4	0.7	1.8	23	338.7	797
1915 044	24 x 1,5 RE/6	0.7	1.9	28.2	415.5	1089

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1915 045	24 x 2,5 RE/10	0.7	1.9	30.7	684.3	1419
1915 046	30 x 1,5 RE/6	0.7	1.9	29.7	501.9	1253
1915 047	30 x 2,5 RE/10	0.7	2	32.7	828.3	1654

Other cross-sections and conductor counts available on request.  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.

## (N)HXCH FE180 E90 0,6/1 kV



### APPLICATIONS

(N)HXCH FE180 PH90/E90 0,6/1 kV fire resistant and halogen free power cables, are intended for power supply to fire protection equipment in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables shall be applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required (subway tunnels, hospitals, shopping centres, supermarkets, cinemas, theatres, stadiums and other public buildings).

**Functions of the cables are maintained for 90 minutes** – power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. water pumps in fire extinguishing systems, smoke removing fans, emergency lighting and elevators).

The cables are certified by **VDE Institute** - Verband der Elektrotechnik at Offenbach.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are suitable for fixed indoor and outdoor installations. Sheathing is UV radiation resistant. Laying cables in water or direct earth burial are only permitted if additional protection is used.

### CONSTRUCTION

- bare annealed copper conductors meeting requirements of EN 60228 standard:
  - RE - class 1 single wire round conductor,
  - RM - class 2 multiwire round conductor,
- mica tape and halogen free cross-linked compound insulation (HXI2 according to VDE 0266) – colours in accordance with HD 308 S2,
- insulated conductors laid-up into a cable core,
- inner covering made of halogen free compound,
- concentric conductor formed by bare copper wires with counter helix of copper tape over the inner sheath,
- concentric conductor wrapped in polyester tape,
- orange cable sheath made of halogen free compound type HM4 according to HD 604 S1 and VDE 0276-604.



## CHARACTERISTICS

Conductor cross-section	mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35	50
DC conductor resistance at 20°C, maximum	Ω/km	12.1	7.41	4.61	3.08	1.83	1.15	0.727	0.524	0.387

Operating voltage U <sub>0</sub> /U	0,6/1 kV
Voltage test	4 kV rms
Insulation resistance, at 90°C, minimum	10 <sup>9</sup> Ω · cm
Inductance, approximate	0.7 mH/km
Conductor temperature limit	
in work conditions	+ 90°C
at short-circuit	+ 250°C
Operating temperature range	
during operation	from - 30 to + 90°C
during installation	from - 5 to + 50°C
Minimum bending radius	15 x cable diameter
Corrosivity of emitted gases per	EN 60754-1, EN 60754-2, IEC 60754-2
pH	>4.3
conductivity	<2.5 μS/mm

Smoke density	EN 61034-2, IEC 61034-2
Light transmittance	min. 60%
Cable combustibility	fire resistant
Combustibility tests	EN 60332-1-2, IEC 60332-1-2, EN 60332-3-24, IEC 60332-3-24
Circuit integrity*:	
E90	DIN 4102-12
Insulation integrity FE180	DIN VDE 0472-814, IEC 60331-21, IEC 60331-11
Reference standards	DIN VDE 0266, DIN VDE 0276-604

\*Circuit integrity is dependent on installation method.

Cable installation - Only certified cable fixing systems shall be used. Systems certified according to DIN 4102 part 12 are recommended.

The cable meets requirements of the low voltage directive 2014/35/EU

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1917 026	2 x 1,5 RE/1,5	1.0	1.8	13.4	49.5	249
1917 027	2 x 2,5 RE/2,5	1.0	1.8	14.4	78.3	302
1917 028	2 x 4 RE/4	1.0	1.8	15.5	121.3	370
1917 029	2 x 6 RE/6	1.0	1.8	16.9	179.1	458
1917 030	2 x 10 RE/10	1.0	1.8	18.9	300.4	625
1917 031	2 x 16 RE/16	1.0	1.8	20.7	473.2	851
1917 032	2 x 25 RM/16	1.2	1.8	24.6	645.9	1178
1917 033	2 x 35 RM/16	1.2	1.8	26.7	838.0	1443

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index (appr.)	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1917 001	2 x 50 RM/25	1.4	1.9	29.8	1212.3	1923
1917 002	3 x 1,5 RE/1,5	1.0	1.8	13.7	63.7	266
1917 003	3 x 2,5 RE/2,5	1.0	1.8	14.7	102.3	326
1917 004	3 x 4 RE/4	1.0	1.8	15.9	159.9	408
1917 005	3 x 6 RE/6	1.0	1.8	17.4	236.7	514
1917 006	3 x 10 RE/10	1.0	1.8	19.5	396.3	714
1917 007	3 x 16 RE/16	1.0	1.8	21.5	626.7	992
1917 008	3 x 25 RM/16	1.2	1.8	25.7	886.0	1395

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1917 009	3 x 35 RM/16	1.2	1.9	28.2	1174	1755
1917 010	3 x 50 RM/25	1.4	2.0	31.7	1692	2363
1917 011	4 x 1,5 RE/1,5	1.0	1.8	14.6	78.3	306
1917 012	4 x 2,5 RE/2,5	1.0	1.8	15.7	126.3	378
1917 013	4 x 4 RE/4	1.0	1.8	17.0	198.1	476
1917 014	4 x 6 RE/6	1.0	1.8	18.6	294.3	603
1917 015	4 x 10 RE/10	1.0	1.8	21.0	492.3	849
1917 016	4 x 16 RE/16	1.0	1.8	23.2	780.4	1186
1917 017	4 x 25 RM/16	1.2	1.9	28.1	1126	1708
1917 018	4 x 35 RE/16	1.2	1.9	30.6	1510	2147

Product No.	Number of conductors x conductor cross-section	Insulation thickness	Sheath thickness	Cable outer diameter (appr.)	Copper index	Cable weight (appr.)
	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km
1917 019	4 x 50 RM/25	1.4	2.1	35.2	2172	2956
1917 037	5 x 1,5 RE/1,5	1.0	1.8	15.8	92.7	359
1917 038	5 x 2,5 RE/2,5	1.0	1.8	17.0	150.1	444
1917 039	5 x 4 RE/4	1.0	1.8	18.4	236.7	561
1917 040	5 x 6 RE/6	1.0	1.8	19.8	357.9	712
1917 041	5 x 10 RE/10	1.0	1.8	21.9	588.4	960
1917 042	5 x 16 RE/16	1.0	1.8	25.2	934.0	1406
1917 043	5 x 25 RM/16	1.2	1.9	30.7	1366	2047
1917 044	5 x 35 RM/16	1.2	2.0	33.7	1846	2646
1917 045	5 x 50 RM/25	1.4	2.2	38.7	2652	3576

Nominal cross sectional area acc. to data sheet KA2306R1 (dated 2023-08-29).  
 TECHNOKABEL SA reserves the right to change specifications without prior notice.





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