

# Power Cables



## XLPE Insulated, PVC Sheathed Multicore Cables for Fixed Installations, 0.6/1 kV

### APPLICATION:

For indoor or outdoor installation in open air in tray, trough and conduit or for direct burial in free draining soil or inside duct where no mechanical damage is to be expected. Power cable for utilities low voltage underground distribution systems and in commercial buildings, industrial plants, power stations and substations. For systems operating at not more than 0.6 kV between a conductor to earth or 1 kV between conductors at maximum conductor temperatures of 90 °C for continuous normal operation and 250 °C for short circuit.

### STANDARDS:

- Conforms to IEC 60502-1 Standard: "Power cables with extruded insulation and their accessories for rated voltages from 1 kV ( $U_m = 1,2$  kV) up to 30 kV ( $U_m = 36$  kV)" – "Part 1: Cables for rated voltages of 1 kV ( $U_m = 1,2$  kV) and 3 kV ( $U_m = 3,6$  kV)".



### CONSTRUCTION:

A copper single wire round, compacted circular stranded or shaped stranded conductor or aluminium compacted circular stranded or shaped stranded conductor has an extruded cross-linked polyethylene (XLPE) coloured insulation applied around the conductor. The cores are twisted together and covered with an extruded inner covering. A green PVC outer sheath with printed marking is extruded over all.

### PACKAGING

Standard supply lengths are given in the tables hereunder. Other bobbin lengths or cut to length - available upon request.

Catalog Number	No. and Nominal cross sectional area of conductors	Minimum No. of wires in phase conductor	Nominal insulation thickness	Nominal sheath thickness	Approximate outer diameter	Approximate cable weight	Minimum bending radius	Maximum conductor resistance at 20 °C	Short circuit rating (1 sec)	Current rating (2)		Voltage Drop (5)		Standard supply lengths
										In Air (3)	Buried (4)	Single Phase AC	Three Phase AC	
	No. x mm <sup>2</sup>	-	mm	mm	mm	kg/km	mm	Ω/km	kA	A	A	mV/A/m	mV/A/m	m
<b>N2XY FR1 COPPER ROUND CONDUCTOR</b>														
18320396	3x1.5	1	0.7	1.8	11	175	132	12.1	0.21	24	30	31	27	1000
18330396	3x2.5	1	0.7	1.8	12	210	144	7.41	0.36	32	40	19	16	1000
18340396	3x4	1	0.7	1.8	13	280	156	4.61	0.57	42	52	12	10	1000
18350396	3x6	1	0.7	1.8	14	360	168	3.08	0.86	53	64	7.9	6.8	1000
18102196	3x10	6	0.7	1.8	16.5	520	198	1.83	1.43	73	86	4.7	4.0	1000
18102296	3x16	6	0.7	1.8	18.5	780	222	1.15	2.29	96	111	2.9	2.5	1000
18111396	3x25	6	0.9	1.8	22	1150	264	0.727	3.6	130	143	1.9	1.65	1000
18106696	3x25+16	6	0.9/0.7	1.8	23.5	1300	282	0.727	3.6	130	143	-	1.62	1000
18106396	3x35+16	6	0.9/0.7	1.8	25.5	1650	306	0.524	5.0	160	173	-	1.15	1000
18106896	3x50+25	6	1.0/0.9	1.8	29	2150	348	0.387	7.2	195	205	-	0.87	1000
18107496	3x70+35	12	1.1/0.9	1.9	35	3100	420	0.268	10.0	247	252	-	0.60	1000
18107596	3x95+50	15	1.1/1.0	2.1	37.5	3800	450	0.193	13.6	305	303	-	0.45	500
18107096	3x120+70	18	1.2/1.1	2.2	41.5	5300	498	0.153	17.2	355	346	-	0.37	500
18107196	3x150+70	18	1.4/1.1	2.3	45	6100	540	0.124	21.5	407	390	-	0.30	500
18106996	3x185+95	30	1.6/1.1	2.5	51	7950	612	0.0991	26.5	469	441	-	0.26	250
18107696	3x240+120	34	1.7/1.2	2.7	57	10250	684	0.0754	34.3	551	511	-	0.21	250
18320496	4x1.5	1	0.7	1.8	12	200	144	12.1	0.21	24	30	-	27	1000
18330496	4x2.5	1	0.7	1.8	13	260	156	7.41	0.36	32	40	-	16	1000
18340496	4x4	1	0.7	1.8	14	340	168	4.61	0.57	42	52	-	10	1000
18350496	4x6	1	0.7	1.8	15.5	430	186	3.08	0.86	53	64	-	6.8	1000
18102796C	4x10	6	0.7	1.8	18	640	216	1.83	1.43	73	86	-	4.0	1000
18102596	4x16	6	0.7	1.8	20.5	930	246	1.15	2.29	96	111	-	2.5	1000
18111296	4x25	6	0.9	1.8	24	1450	288	0.727	3.6	130	143	-	1.62	1000
18109296	4x35	6	0.9	1.8	26.5	1850	318	0.524	5.0	160	173	-	1.15	1000
18110496	4x50	6	1.0	1.9	30.5	2500	366	0.387	7.2	195	205	-	0.87	1000
18111796	4x70	12	1.1	2.0	35	3350	420	0.268	10.0	247	252	-	0.60	500
18402996	4x95	15	1.1	2.1	40	4500	480	0.193	13.6	305	303	-	0.45	500
18109596	4x120	18	1.2	2.3	44	5600	528	0.153	17.2	355	346	-	0.37	500
18112096	4x150	18	1.4	2.4	49	6900	582	0.124	21.5	407	390	-	0.30	250
18407896	4x185	30	1.6	2.6	54.5	8600	654	0.0991	26.5	469	441	-	0.26	250
18119496	4x240	34	1.7	2.8	61	11100	732	0.0754	34.3	551	511	-	0.21	250



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Catalog Number	No. and Nominal cross sectional area of conductors	Minimum No. of wires in phase conductor	Nominal insulation thickness	Nominal sheath thickness	Approximate outer diameter	Approximate cable weight	Minimum bending radius	Maximum conductor resistance at 20 °C	Short circuit rating (1 sec)	Current rating (2)		Voltage Drop (5)		Standard supply lengths
										In Air (3)	Buried (4)	Single Phase AC	Three Phase AC	
	No. x mm <sup>2</sup>	-	mm	mm	mm	kg/km	mm	Ω/km	kA	A	A	mV/A/m	mV/A/m	m
<b>N2XY FR1 COPPER ROUND CONDUCTORS</b>														
18320596	5x1.5	1	0.7	1.8	13	240	156	12.1	0.21	24	30	-	27	1000
18330596	5x2.5	1	0.7	1.8	14	310	168	7.41	0.36	32	40	-	16	1000
18340596	5x4	1	0.7	1.8	15	410	180	4.61	0.57	42	52	-	10	1000
18350596	5x6	1	0.7	1.8	16.5	520	198	3.08	0.86	53	64	-	6.8	1000
18103396	5x10	6	0.7	1.8	19.5	770	234	1.83	1.43	73	86	-	4.0	1000
18103896	5x16	6	0.7	1.8	22.5	1150	270	1.15	2.29	96	111	-	2.5	1000
18352596	5x25	6	0.9	1.8	26.5	1700	318	0.727	3.6	130	143	-	1.62	1000
18109496	5x35	6	0.9	1.8	31	2250	372	0.524	5.0	160	173	-	1.15	1000
<b>N2XY FR1 COPPER SHAPED CONDUCTORS</b>														
18106196	3x25+16	6	0.9/0.7	1.8	23	1200	276	0.727	3.6	130	143	-	1.62	1000
18106296	3x35+16	6	0.9/0.7	1.8	25	1520	300	0.524	5.0	160	173	-	1.15	1000
18106796	3x50+25	6	1.0/0.9	1.8	29	2050	348	0.387	7.2	195	205	-	0.87	1000
18107396	3x70+35	12	1.1/0.9	1.9	33	2800	396	0.268	10.0	247	252	-	0.60	1000
181077196	3x95+50	15	1.1/1.0	2.1	37	3300	444	0.193	13.6	305	303	-	0.45	500
18108096	3x120+70	18	1.2/1.1	2.2	40.5	4650	486	0.153	17.2	355	346	-	0.37	500
18108396	3x150+70	18	1.4/1.1	2.3	45	5530	540	0.124	21.5	407	390	-	0.30	500
18108496	3x185+95	30	1.6/1.1	2.5	51	7150	612	0.0991	26.5	469	441	-	0.26	250
18108596	3x240+120	34	1.7/1.2	2.7	56.5	9200	678	0.0754	34.3	551	511	-	0.21	250
18109796	3x300+150	34	1.8/1.4	2.9	63	11400	756	0.0601	42.9	638	580	-	0.185	250
18109196	4x25	6	0.9	1.8	23	1280	276	0.727	3.6	130	143	-	1.62	1000
18109696	4x35	6	0.9	1.8	25	1690	300	0.524	5.0	160	173	-	1.15	1000
18110696	4x50	6	1.0	1.9	29	2200	348	0.387	7.2	195	205	-	0.87	1000
18110996	4x70	12	1.1	2.0	33	3100	396	0.268	10.0	247	252	-	0.60	500
18402896	4x95	15	1.1	2.1	37	4200	444	0.193	13.6	305	303	-	0.45	500
18110396	4x120	18	1.2	2.3	40.5	5300	486	0.153	17.2	355	346	-	0.37	500
18110796	4x150	18	1.4	2.4	45	6500	540	0.124	21.5	407	390	-	0.30	250
18408696	4x185	30	1.6	2.6	51	8070	612	0.0991	26.5	469	441	-	0.26	250
18119497	4x240	34	1.7	2.8	56.5	10470	678	0.0754	34.3	551	511	-	0.21	250
<b>N2XY FR3 COPPER ROUND CONDUCTORS, ENHANCED FLAME RETARDANT BEHAVIOUR</b>														
18353596	3x1.5	1	0.7	1.8	11	175	132	12.1	0.21	24	30	31	27	1000
18353696	3x2.5	1	0.7	1.8	12	210	144	7.41	0.36	32	40	19	16	1000
18147696	3x4	1	0.7	1.8	13	280	156	4.61	0.57	42	52	12	10	1000
18340896	3x6	1	0.7	1.8	14	360	168	3.08	0.86	53	64	7.9	6.8	1000
18353796	4x1.5	1	0.7	1.8	12	200	144	12.1	0.21	24	30	-	27	1000
18120996	4x2.5	1	0.7	1.8	13	260	156	7.41	0.36	32	40	-	16	1000
18355196	4x4	1	0.7	1.8	14	340	168	4.61	0.57	42	52	-	10	1000
18355296	4x6	1	0.7	1.8	15.5	430	186	3.08	0.86	53	64	-	6.8	1000
18122196	5x1.5	1	0.7	1.8	13	240	156	12.1	0.21	24	30	-	27	1000
18356696	5x2.5	1	0.7	1.8	14	310	168	7.41	0.36	32	40	-	16	1000
18356796	5x4	1	0.7	1.8	15	410	180	4.61	0.57	42	52	-	10	1000
18381896	5x6	1	0.7	1.8	16.5	520	198	3.08	0.86	53	64	-	6.8	1000
<b>NA2XY FR1 ALUMINIUM ROUND CONDUCTORS</b>														
33709696	3x25+16	6	0.9/0.7	1.8	23.5	730	282	1.200	2.35	100	111	-	2.7	1000
33709796	3x35+16	6	0.9/0.7	1.8	25.5	900	306	0.868	3.29	122	132	-	1.95	1000
33710296	3x50+25	6	1.0/0.9	1.8	29	1150	348	0.641	4.7	147	157	-	1.45	1000
33711096	3x70+35	12	1.1/0.9	1.9	35	1650	420	0.443	6.6	189	195	-	0.97	1000
33711996	3x95+50	15	1.1/1.0	2.1	37.5	2100	450	0.320	8.9	232	233	-	0.72	1000
33713096	3x120+70	15	1.2/1.1	2.2	41.5	2700	498	0.253	11.3	270	266	-	0.58	1000
33714096	3x150+70	15	1.4/1.1	2.3	45	3050	540	0.206	14.1	308	299	-	0.47	500
33715096	3x185+95	30	1.6/1.1	2.5	51	3950	612	0.164	17.4	357	340	-	0.39	500
33716096	3x240+120	30	1.7/1.2	2.7	57	5050	684	0.125	22.6	435	401	-	0.31	500
<b>NA2XY FR1 ALUMINIUM SHAPED CONDUCTORS</b>														
33709597	3x25+16	6	0.9/0.7	1.8	23	630	276	1.200	2.35	100	111	-	2.7	1000
33709797	3x35+16	6	0.9/0.7	1.8	25	770	300	0.868	3.29	122	132	-	1.95	1000
33710196	3x50+25	6	1.0/0.9	1.8	29	1050	348	0.641	4.7	147	157	-	1.45	1000
33711196	3x70+35	12	1.1/0.9	1.9	33	1330	396	0.443	6.6	189	195	-	0.97	1000
33712196	3x95+50	15	1.1/1.0	2.1	37	1550	444	0.320	8.9	232	233	-	0.72	1000
33712296	3x120+70	15	1.2/1.1	2.2	40.5	2020	486	0.253	11.3	270	266	-	0.58	1000
33714296	3x150+70	15	1.4/1.1	2.3	45	2500	540	0.206	14.1	308	299	-	0.47	1000
33715296	3x185+95	30	1.6/1.1	2.5	51	3150	612	0.164	17.4	357	340	-	0.39	500
33725096	3x240+120	30	1.7/1.2	2.7	56.5	4000	678	0.125	22.6	435	401	-	0.31	500
33709896	4x25	6	0.9	1.8	23	700	276	1.200	2.35	100	111	-	2.7	1000
33709996	4x35	6	0.9	1.8	25	800	300	0.868	3.29	122	132	-	1.95	1000
33710096	4x50	6	1.0	1.9	29	1000	348	0.641	4.7	147	157	-	1.45	1000
33711296	4x70	12	1.1	2.0	33	1300	420	0.443	6.6	189	195	-	0.97	1000
33712096	4x95	15	1.1	2.1	37	1750	444	0.320	8.9	232	233	-	0.72	1000
33713196	4x120	15	1.2	2.3	40.5	2200	486	0.253	11.3	270	266	-	0.58	1000
33714396	4x150	15	1.4	2.4	45	2750	540	0.206	14.1	308	299	-	0.47	500
33715396	4x185	30	1.6	2.6	51	3300	612	0.164	17.4	357	340	-	0.39	500
33716196	4x240	30	1.7	2.8	56.5	4200	678	0.125	22.6	435	401	-	0.31	500

(1) Short circuit rating is based on an initial conductor temperature of 90 °C and a final temperature of 250 °C.  
 (2) Current rating based upon operation at 90 °C conductor, three-phase a.c. load. According to VDE 0298.  
 (3) Single cable laid in freely circulating air at 30 °C, protected against direct thermal radiation due to sun, etc.  
 (4) Single cable directly buried at 0.7 m deep in soil at 20 °C, with 1 K . m/W thermal resistivity. Load factor 0.7.  
 (5) Voltage drop according to BS 7671:1992.3 assuming that the conductor temperature is 90 °C, the load is balanced and the phase angle of the cable equals that of the load. Single-phase or three-phase.

TEMPERATURE RATING FACTORS (Protection against short-circuit only). According to BS 7671:1992.3

Ambient Temperature °C	20	25	30	35	40	45	50	55	60	65
Correction factor air	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65
Correction factor ground	1.00	0.96	0.93	0.89	0.85	0.80	0.76	-	-	-

The information given in this page is subject to change without notice.

# Power Cables



## XLPE Insulated, PVC Sheathed Multicore Cables for Fixed Installations, 0.6/1 kV

# Specification

### SCOPE

This specification describes XLPE insulated PVC sheathed multicore cables for fixed installations underground and in the air in commercial, industrial and utilities plants. They are intended for use on single phase and three phase installations not exceeding 1000 Volt phase to phase at maximum conductor temperatures of 90 °C for continuous normal operation and 250 °C for short circuit maximum conductor temperature.

### STANDARDS

The following standards shall form a part of this specification to the extent specified herein:  
 - IEC 60502-1 Standard: "Power cables with extruded insulation and their accessories for rated voltages from 1 kV (U<sub>m</sub> = 1,2 kV) up to 30 kV (U<sub>m</sub> = 36 kV)"  
 - "Part 1: Cables for rated voltages of 1 kV (U<sub>m</sub> = 1,2 kV) and 3 kV (U<sub>m</sub> = 3,6 kV)".

### CONDUCTORS

- Annealed, high conductivity copper single wire round, compacted circular stranded or shaped stranded conductor according to IEC 60228, Class 1 or Class 2.  
 - Aluminium compacted circular stranded or shaped stranded conductor according to IEC 60228, Class 2.

### INSULATION

- Directly over the conductor shall be applied a homogeneous wall of XLPE insulation. The thickness shall be in accordance with IEC 60502-1 Standard  
 - Properties of the insulation shall be in accordance with IEC 60502-1 Standard

- Core colouring identification:

No. of cores	With grounding conductor	Without grounding conductor
3	Brown-blue-yellow/green.	Brown-brown with black strip-brown with orange strip.
4	Brown-brown with black strip-brown with orange strip-yellow/green.	Brown-brown with black strip-brown with orange strip- blue.
5	Brown-brown with black strip-brown with orange strip-blue-yellow/green.	-

- Other insulation colours than the described above may be supplied upon request.

### CABLING

The cores, each with its corresponding identification colour, shall be twisted together.

### INNER COVERING

- An extruded covering shall be applied on the cores assembly.  
 - Properties of the covering shall be in accordance with IEC 60502-1 Standard

### OVERSHEATH

- An extruded green PVC sheath shall be applied on the inner covering. Other sheath colours available upon request.  
 - Properties of the sheath shall be in accordance with IEC 60502-1 Standard

### TESTS

The cable shall be tested in accordance with IEC 60502-1 Standard

### CHARACTERISTICS

Mechanical resistance to impacts	Low
Flexibility	Semi-flexible
Minimum installation temperature	-5 °C
Temperature range	-15 to +90 °C
Flame retardant	IEC 60332-1*
Weather resistance	Good
Chemical resistance	Accidental

\* Enhanced fire retardant behavior as per IS 1516 types N2XY FR3 and NA2XY FR3 (IEEE 383), available upon request.