33 kV single core cables XLPE-AL-ST
Aluminium screen wires
Longitudinal water tightness in screen area
Semi-conductive outer sheath

Conductor:	**Circular solid aluminium conductor**
Conductor screen:	**Extruded semi-conducting compound**
Insulation:	**XLPE**
Insulation screen:	**Extruded semi-conducting compound, fully bonded**
Bedding:	**Semi-conducting swelling tape**
Screen:	**Layer of aluminium wires with an aluminium tape applied in the opposite direction**
Bedding:	**Swelling tape**
Outer sheath:	**MDPE (red) + Semi-conducting layer (black)**
Marking on sheath (indenting), line 1:	**x NKT x ELECTRIC CABLE 33000 V “Dimension" UKPN "Year" “Meter"**
Marking on sheath (indenting), line 2:	**x NKT x ELECTRIC CABLE 33000 V “Dimension" UKPN “Year” "Code"**
Application:	**For AC voltage with max. 36 kV between phases**
Maximum operating conductor temperature:	**90 °C**
Maximum short circuit temperature:	**250 °C**
Minimum installation temperature:	**–15 °C**
Standards:	**BS 7870-4.10 where applicable Conductor according to IEC 60228**

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Area of conductor	**mm²**	**120**	**240**	**300**	**400**
Mechanical properties					
Diameter of conductor, nom.	mm	11.9	17.0	18.9	21.4
Insulation thickness, nom.	mm	8.0	8.0	8.0	8.0
Diameter over insulation, nom.	mm	29.3	34.4	36.3	38.8
Area of aluminium screen, nom.	mm²	82	82	82	82
Diameter over screen, nom.	mm	33.8	38.9	40.8	43.3
Thickness of sheath, nom.	mm	2.1	2.3	2.4	2.5
Diameter over sheath, nom.	mm	38.6	44.1	46.2	48.9
Diameter over sheath incl. semi-conductive layer, nom.	mm	40.0	45.5	47.6	50.3
Diameter over sheath, max.	mm	43	48	51	53
Weight of cable, appr.	kg/km	1495	2020	2260	2580
Radius of bend, min.	mm	600	682	715	755
Pull at cable, max.	kN	4.7	7.7	9.6	12.1
Electrical properties:					
Capacitance, max.	μF/km	0.177	0.223	0.241	0.263
Resistance, DC, at 20°C, max.	Ω/km	0.253	0.125	0.100	0.0778
Short circuit rating for 1 sec.					
a) of conductor with initial temperature 90°C and final temperature 250°C	kA	11.3	22.7	28.3	37.8
b) of screen with initial temperature 80°C and with final screen temperature 250°C	kA	8.6	8.6	8.6	8.6
Continuous current carrying capacity for maximum conductor temperature 90°C, screens bonded at both ends:					
a) **Direct in ground at 15°C** depth 1.0 m and thermal resistivity 1°C m/W					
trefoil formation, close together	A*	290	430	485	555
flat formation, free distance between cables 70 mm	A*	305	435	490	555
b) **In free air at 25°C**					
trefoil formation, close together	A	330	505	575	675
flat formation, free distance between cables 70 mm	A	355	530	600	695
Continuous current carrying capacity for maximum conductor temperature 90°C, screens bonded at a single point:					
a) **Direct in ground at 15°C** depth 1.0 m and thermal resistivity 1°C m/W					
trefoil formation, close together	A*	290	430	490	560
flat formation, free distance between cables 70 mm	A*	310	460	515	595
b) **In free air at 25°C**					
trefoil formation, close together	A	330	410	580	685
flat formation, free distance between cables 70 mm	A	360	555	635	755
Reactance at 50 Hz					
trefoil formation, close together	Ω/km	0.14	0.12	0.12	0.11
flat formation, free distance between cables 70 mm	Ω/km	0.21	0.19	0.17	0.16

* In ducts the rated current should be multiplied with 0.82
* In ground with thermal resistivity at 1.2 °C m/W the rated current should be multiplied with 0.95

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Area of conductor	**mm²**	**500**	**630**	**800**	**1000**
Mechanical properties					
Diameter of conductor, nom.	mm	24.5	27.8	31.3	35.6
Insulation thickness, nom.	mm	8.0	8.0	8.0	8.0
Diameter over insulation, nom.	mm	41.9	45.2	48.7	53.0
Area of aluminium screen, nom.	mm²	82	82	82	82
Diameter over screen, nom.	mm	46.2	49.7	53.2	57.5
Thickness of sheath, nom.	mm	2.6	2.7	2.8	3.0
Diameter over sheath, nom.	mm	52.2	55.7	59.4	64.1
Diameter over sheath incl. semi-conductive layer, nom.	mm	53.6	57.1	60.8	65.5
Diameter over sheath, max.	mm	57	60	64	69
Weight of cable, appr.	kg/km	3010	3520	4165	4930
Radius of bend, min.	mm	800	855	915	980
Pull at cable, max.	kN	14.6	17.8	22.1	27.0
Electrical properties:					
Capacitance, max.	μF/km	0.290	0.320	0.351	0.389
Resistance, DC, at 20°C, max.	Ω/km	0.0605	0.0469	0.0367	0.0291
Short circuit rating for 1 sec.					
a) of conductor with initial temperature 90°C and final temperature 250°C	kA	47.2	59.5	75.6	94.5
b) of screen with initial temperature 80°C and with final screen temperature 250°C	kA	8.6	8.6	8.6	8.6
Continuous current carrying capacity for maximum conductor temperature 90°C, screens bonded at both ends:					
a) **Direct in ground at 15°C** depth 1.0 m and thermal resistivity 1°C m/W					
trefoil formation, close together	A*	625	710	795	880
flat formation, free distance between cables 70 mm	A*	605	660	720	780
b) **In free air at 25°C**					
trefoil formation, close together	A	775	925	1055	1190
flat formation, free distance between cables 70 mm	A	765	900	1005	1110
Continuous current carrying capacity for maximum conductor temperature 90°C, screens bonded at a single point:					
a) **Direct in ground at 15°C** depth 1.0 m and thermal resistivity 1°C m/W					
trefoil formation, close together	A*	640	735	825	920
flat formation, free distance between cables 70 mm	A*	685	790	895	1005
b) **In free air at 25°C**					
trefoil formation, close together	A	790	955	1095	1240
flat formation, free distance between cables 70 mm	A	875	1085	1250	1430
Reactance at 50 Hz					
trefoil formation, close together	Ω/km	0.11	0.10	0.10	0.09
flat formation, free distance between cables 70 mm	Ω/km	0.16	0.15	0.15	0.14

* In ducts the rated current should be multiplied with 0.82
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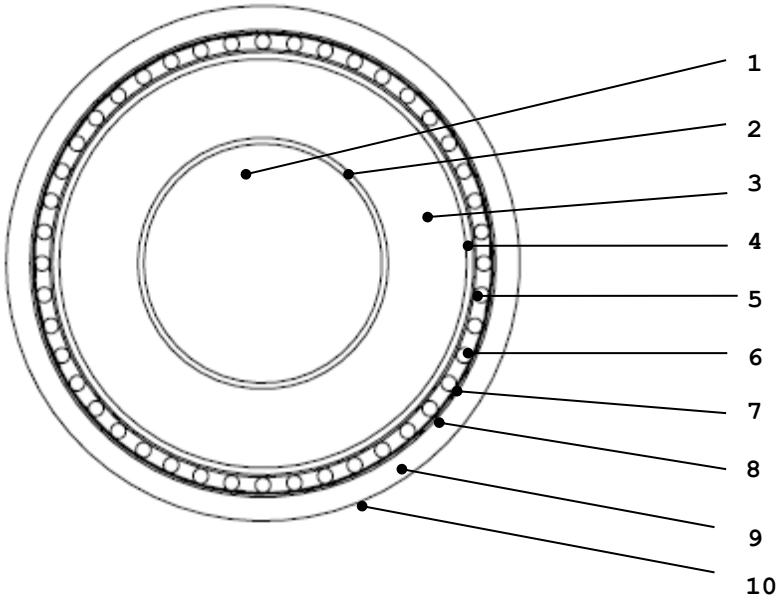
Drawing of cable



1 Conductor, aluminium, solid

2 Semi-conducting layer

3 XLPE insulation

4 Semi-conducting layer, fully bonded

5 Semi-conducting swelling tape

6 Concentric layer of aluminium wires

7 Aluminium tape applied in opposite direction

8 Swelling tape

9 Outer sheath, MDPE

10 Semi-conducting layer