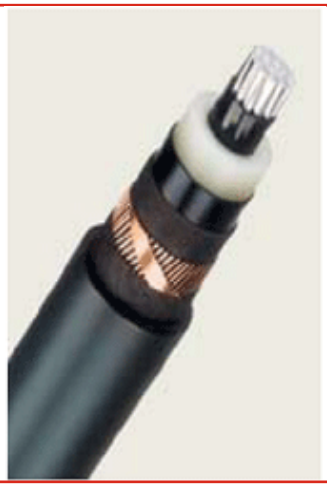
BS7870 - 4.10 19/33kv Single Core Un-armoured



19/33kV Single Core un-armoured XLPE insulated cables

DESCRIPTION

Important Note: this information is for general guidance only, based on standard design options. Exact data will vary based upon the options required, and therefore a full data sheet for the exact design should be requested prior to any order.

Voltage Rating:

- 19/33 (36) kV

Typical Constructions:

Conductors

- Stranded Copper or
- Stranded Aluminium
- Option - water swellable powders or tapes

Conductor Screen

- SC XLPE

Insulation

- XLPE

Insulation Screen

- Bonded SC XLPE
- Option - cold strippable SC XLPE

Paper separation Tapes

- Option - water swellable tapes

Copper Wire Screen

- Number and diameter of wires dependant upon required earth fault rating
- Option - copper equalising tapes applied helically

Sheath

- Black MDPE
- Option - LSOH material
- Sheath embossed or indented with year of manufacture, size and type of conductor and voltage in accordance with design standard employed
- Option - sequential metre marking

STANDARDS

International IEC 60502

National BS 7870-4.10

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TYPICAL DATA FOR CABLES WITH COPPER CONDUCTORS

Nominal cross-sectional area	mm²	70	95	120	150	185	240	300	400	500	630	800	1000
Approximate diameter over conducto	mm	9.8	11.5	12.8	14.3	15.9	18.4	20.5	23.2	26.2	30.3	34.7	38
Approximate diameter over insulation	mm	27	28.7	30	31.5	33.1	35.6	38.1	41.2	44.2	48.3	52.7	57.3
Approximate overall diameter	mm	34.1	36.1	37.5	39.3	41	43.8	46.6	50.2	53.4	58	66	71
Approximate weight of Cable	kg/m	1560	1880	2160	2480	2860	3530	4220	5150	6250	7740	9630	12200
Minimum bending radius (static)	mm	340	360	380	390	420	440	470	500	540	580	660	710
Maximum pulling tension on Cable	kg	350	475	600	750	925	1200	1500	2000	2500	3150	4000	5000
Maximum DC resistance (R) @ 20°C	W/km	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.047	0.0366	0.0283	0.0221	0.0176
Maximum AC resistance (R') @ 90°C	W/km	0.342	0.247	0.196	0.159	0.128	0.098	0.079	0.063	0.051	0.042	0.035	0.03
Inductance (L) @ 50Hz @ 90°C	mH/km	0.43	0.41	0.4	0.38	0.37	0.36	0.36	0.33	0.32	0.31	0.3	0.29
Approximate Capacitance (C)	µF/km	0.14	0.16	0.17	0.18	0.2	0.22	0.25	0.26	0.29	0.32	0.35	0.38
Short circuit ratings													
1 Second Short Circuit Rating of Conductor (90 to 250°C)	kA	9.7	13.5	17.1	21	26.3	34.6	43.4	57.7	72.1	90.7	115.1	143.8
1 Second Short Circuit Rating of a 35mm2 Copper wire screen (80 to 250°C)	kA	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
1 Second Short Circuit Rating of a 50mm2 Copper wire screen (80 to 250°C)	kA	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Current Carrying Capacity (cables laid in trefoil)													
Direct Buried	A	270	320	360	410	460	530	600	690	760	850	930	1010
Single way ducts	A	270	320	360	405	445	520	570	630	700	780	860	920
In Air	A	320	390	445	510	580	680	770	890	1020	1160	1290	1430

Values for minimum bending radius are multiplied by two for cables being laid (dynamic)

Ampacity Values based on :
· Depth of cover = 800mm ,
· Thermal resistivity of soil = 1.2K.m/W ,
· Soil temperature = 15°C
· Ambient Air temperature = 25°C
· Maximum conductor temperature = 90°C

TYPICAL DATA FOR CABLES WITH ALUMINIUM CONDUCTORS

Nominal cross-sectional area	mm²	70	95	120	150	185	240	300	400	500	630	800	1000	1200
Approximate diameter over conducto	mm	9.8	11.4	12.9	14	16.2	18	20.5	23.3	26.4	30	34.7	38	41.2
Approximate diameter over insulation	mm	27	28.6	30.1	31.2	33.4	35.2	38.1	41.3	44.4	48	52.7	57.3	60.2
Approximate overall diameter	mm	34.1	36	37.6	39	41.3	43.4	46.6	50.2	53.7	57.6	66	71	74
Approximate weight of Cable	kg/m	1140	1290	1430	1550	1760	1990	2330	2740	3200	3770	4720	5480	6090
Minimum bending radius (static)	mm	340	360	380	390	420	440	470	500	540	580	660	710	740

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Maximum pulling tension on Cable	**kg**	210	285	360	450	555	720	900	1200	1500	1890	2400	3000	3600
Maximum DC resistance (R) @ 20°C	**W/km**	0.443	0.32	0.253	0.206	0.164	0.125	0.1	0.0778	0.0605	0.0469	0.0367	0.0291	0.0247
Maximum AC resistance (R') @ 90°C	**W/km**	0.568	0.411	0.325	0.265	0.211	0.162	0.13	0.102	0.081	0.064	0.052	0.044	0.039
Inductance (L) @ 50Hz @ 90°C	**mH/km**	0.43	0.41	0.4	0.38	0.37	0.36	0.36	0.33	0.32	0.31	0.3	0.29	0.29
Approximate Capacitance (C)	**µF/km**	0.14	0.16	0.17	0.18	0.2	0.22	0.25	0.26	0.29	0.32	0.35	0.38	0.41
Short circuit ratings														
1 Second Short Circuit Rating of Conductor (90 to 250°C)	kA	6.8	9.2	11.6	14.5	17.8	23.1	28.8	38.3	47.8	60.2	76.4	95.4	114.4
1 Second Short Circuit Rating of a 35mm2 Copper wire screen (80 to 250°C)	kA	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
1 Second Short Circuit Rating of a 50mm2 Copper wire screen (80 to 250°C)	kA	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Current Carrying Capacity (cables laid in trefoil)														
Direct Buried	A	210	250	280	320	360	415	475	550	610	690	780	860	920
Single way ducts	A	210	250	280	320	350	415	460	520	570	650	770	800	980
In Air	A	250	305	345	400	450	530	600	700	820	940	1070	1210	1325

Values for minimum bending radius are multiplied by two for cables being laid (dynamic)

Ampacity Values based on :
· Depth of cover = 800mm ,
· Thermal resistivity of soil = 1.2K.m/W ,
· Soil temperature = 15°C
· Ambient Air temperature = 25°C
· Maximum conductor temperature = 90°C