

BS7870-4.10 33kV Stranded Copper Conductor

BS7870 - 4.10

CABLE CHARACTERISTICS



Bending radius
 $r=20D$

CABLE DESCRIPTION

1.CONDUCTOR

Compact circular stranded copper conductor complying with BS6360 Class 2.

2. CONDUCTOR SCREEN

Extruded semi-conducting compound bonded to the insulation and applied in the same operation as the insulation.

3.INSULATION

Extruded cross-linked polyethylene (XLPE) suitable for operation at a conductor temperature of 90°C.

4.INSULATION SCREEN

Extruded semi-conducting compound applied in the same operation as the insulation. Cold strippable screens are supplied as standard but fully bonded screens may be provided if specified.

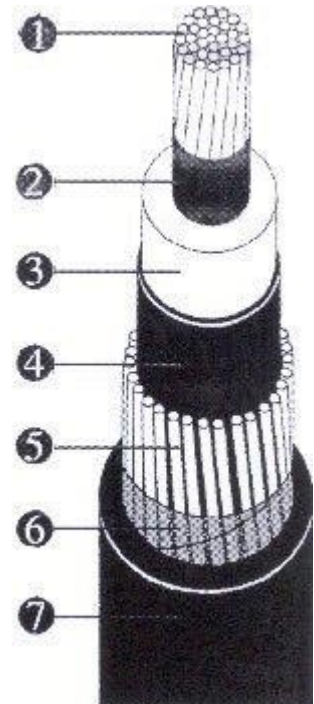
5.METALLIC SCREEN

Circular copper wires applied helically to provide an earth fault current path. Nominal screen area, as stated in table, supplied as standard unless otherwise specified.

6.BINDER TAPE

7.OVERSHEATH

Extruded black medium density polyethylene (MDPE) is supplied as standard.



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Cross-sectional area mm ²	Minimum average thickness of insulation mm	Nominal diameter over insulation mm	Nominal area of copper wire screen mm ²	Minimum average thickness of oversheath mm	Nominal overall diameter mm	Nominal drum length m
70	8.0	28.9	35	2.0	36.9	500
95	8.0	30.6	35	2.1	38.8	500
120	8.0	32.1	35	2.1	41.4	500
150	8.0	33.4	35	2.2	43.0	500
185	8.0	35.2	35	2.2	44.8	500
240	8.0	37.4	35	2.3	47.5	500
300	8.0	39.7	35	2.4	50.0	500
400	8.0	42.4	35	2.5	53.3	250
500	8.0	45.3	35	2.6	56.5	250
630	8.0	48.7	35	2.7	60.4	250

Installation Data

Cross-sectional area mm ²	Approximate cable weight Kg/m	Minimum bending radius mm	Nominal internal diameter of ducts mm
70	1.8	750	100
95	2.1	800	100
120	2.4	850	100
150	2.7	900	100
185	3.1	900	100
240	3.8	950	100
300	4.5	1000	100
400	5.5	1100	100
500	6.6	1150	100
630	8.0	1250	100

Electrical Data

Cross-sectional area mm ²	Maximum DC resistance of conductor at 20°C μ Ω/m	Maximum AC resistance of conductor at 90°C μ Ω/m	Reactance at 50Hz μ Ω/m	Impedance at 50Hz μ Ω/m	Maximum Capacitance pF/m	Maximum charging current at normal voltage and frequency mA/m
70	268	343	143	371	154	0.92
95	193	248	135	281	169	1.01
120	153	196	130	235	183	1.10
150	124	159	126	202	194	1.16
185	99.1	128	122	176	210	1.26
240	75.4	98	117	152	229	1.37
300	60.1	80	113	138	249	1.49
400	47.0	64	109	126	273	1.64
500	36.6	51	105	116	298	1.79
630	28.3	42	102	110	327	1.96

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Ratings

Cross-sectional area mm ²	Current Ratings			Short Circuit Ratings	
	Laid direct in ground Amps	Drawn into ducts Amps	Laid in air Amps	1 second short circuit rating of conductor kA	1 second short circuit rating of copper wire screen kA
70	270	270	320	9.8	6.1
95	320	320	390	13.3	6.1
120	360	360	445	17.2	6.1
150	410	405	510	21.2	6.1
185	460	445	580	26.6	6.1
240	530	520	680	34.9	6.1
300	600	570	770	43.8	6.1
400	690	630	890	57.3	6.1
500	760	700	1020	72.3	6.1
630	850	780	1160	91.2	6.1

Current Rating Conditions:

Ground Temperature	15°C
Ambient temperature (air)	25°C
Depth of Burial	0.8m
Thermal Resistance of Soil	1.2°C m/W

Single core cable in trefoil, bonded and earthed at both ends.