

Applies to: Procurement & Suppliers	SPECIFICATION FOR 11kV and 33kV DISTRIBUTION CABLES	SP-PS-239
Classification: Internal	Uncontrolled if printed	Rev: 2.00

Appendix 1 – 11kv single core Cables

[1] - 11kV single core 150 mm² al XLPE			
Description		Stock code	
XLPE tree retardant insulation, stranded (with water blocking) or solid aluminium phase conductors with 35 mm² copper wire screen.		015079	
		MNF code	
Requirements		Notes	
- BS 7870: 2011 Section 4.10 and with reference to Table 2 and - Longitudinal water blocking par. 4.3 under screen wires - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref: P-600		Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4		Y/N	

[2] - 11kV single core 500 mm ² al XLPE			
Description			Stock code
XLPE tree retardant insulation stranded (with water blocking) or solid aluminium phase conductors with 35 mm ² copper wire screen.			992662
			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 2 and - Longitudinal water blocking par. 4.3 under screen wires - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref:	P-600	Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4			Y/N



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[3] - 11kV single core 630 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulation stranded (with water blocking) or solid aluminium phase conductors with 35 mm² copper wire screen.			992663
			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 2 and - Longitudinal water blocking par. 4.3 under screen wires - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires			
Manufacturers conformity to specifications			
Description and requirements as above		Y/N	
Certified Type Tests included with return	Ref: P-600	Y/N	
Cable marking		Y/N	
Cable data sheet completed Appendix 4		Y/N	

[4] - 11kV single core 800 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulation stranded (with water blocking) or solid aluminium phase conductors with 35 mm² copper wire screen.			992664
			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 2 and - Longitudinal water blocking par. 4.3 under screen wires - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref:	P-600	Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4			Y/N



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[5] - 11kV single core 1000 mm² al XLPE				
Description			Stock code	
XLPE tree retardant insulation stranded (with water blocking) or solid aluminium phase conductors with 35 mm² copper wire screen.			MNF code	
Requirements			Notes	
- BS 7870: 2011 Section 4.10 and with reference to Table 2 and - Longitudinal water blocking par. 4.3 under screen wires - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires				
Manufacturers conformity to specifications				
Description and requirements as above		Y/N		
Certified Type Tests included with return	Ref:	XXXXXXXXXX		Y/N
Cable marking		Y/N		
Cable data sheet completed Appendix 4		Y/N		

[6] - 11kV single core 500 mm² cu XLPE			
Description			Stock code
XLPE tree retardant insulated stranded copper phase conductors with 35 mm² copper wire screen.			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 2 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on screen wires			
Manufacturers conformity to specifications			
Description and requirements as above		Y/N	
Certified Type Tests included with return	Ref: XXXXXXXXXXXX	Y/N	
Cable marking		Y/N	
Cable data sheet completed Appendix 4		Y/N	

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Appendix 2 - 11kV Three Core Cables

[7] - 11kV Three Core 70 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 60 mm² copper wire screen.			015011
			MNF code
Requirements			Notes
• BS 7870: 2011 Section 4.20 and with reference to Table 1 • Core identification required • Screen wires suitable for 5 kA for 3 seconds and equalising wire (60 mm²). • Oversheath red LLDPE. • Longitudinal water blocking par. 4.1 • Par 4.2.4 the insulation screen shall be cold strippable			
Manufacturers conformity to specifications			
Description and requirements as above		Y/N	
Certified Type Tests included with return	Ref: P-602	Y/N	
Cable marking		Y/N	
Cable data sheet completed Appendix 4		Y/N	

[8] - 11kV Three Core 150 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 60 mm² copper wire screen.			015024
			MNF code
Requirements			Notes
• BS 7870: 2011 Section 4.20 and with reference to Table 1 • Core identification required • Screen wires suitable for 5 kA for 3 seconds and equalising wire (60 mm²). • Oversheath red LLDPE. • Longitudinal water blocking par. 4.1 • Par 4.2.4 the insulation screen shall be cold strippable			
Manufacturers conformity to specifications			
Description and requirements as above		Y/N	
Certified Type Tests included with return	Ref: P-602	Y/N	
Cable marking		Y/N	
Cable data sheet completed Appendix 4		Y/N	

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[9] - 11kV Three Core 240 mm² al XLPE

Description	Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 60 mm ² copper wire screen.	015037
	MNF code
Requirements	Notes
- BS 7870: 2011 Section 4.20 and with reference to Table 1 - Core identification required - Screen wires suitable for 5 kA for 3 seconds and equalising wire (60 mm²). - Oversheath red LLDPE. - Longitudinal water blocking par. 4.1 - Par 4.2.4 the insulation screen shall be cold strippable	
Manufacturers conformity to specifications	
Description and requirements as above	
Certified Type Tests included with return Ref: P-602	
Cable marking	
Cable data sheet completed Appendix 4	

[10] - 11kV Three Core 300 mm² al XLPE

Description	Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 60 mm ² copper wire screen.	015040
	MNF code
Requirements	Notes
- BS 7870: 2011 Section 4.20 and with reference to Table 1 - Core identification required - Screen wires suitable for 5 kA for 3 seconds and equalising wire (60 mm²). - Oversheath red LLDPE. - Longitudinal water blocking par. 4.1 - Par 4.2.4 the insulation screen shall be cold strippable	
Manufacturers conformity to specifications	
Description and requirements as above	
Certified Type Tests included with return Ref: P-602	
Cable marking	
Cable data sheet completed Appendix 4	

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[11] - 11kV Three Core 240 mm² al XLPE (Low Smoke and Fume)

Description	Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 60 mm ² copper wire screen.	015189
	MNF code
Requirements	Notes
• BS 7870: 2011 Section 4.20 and with reference to Table 1 • Core identification required • Screen wires suitable for 5 kA for 3 seconds and equalising wire (60 mm²). • Oversheath red LLDPE. • Longitudinal water blocking par. 4.1 • Par 4.2.4 the insulation screen shall be cold strippable • Low emission of smoke and corrosive gases, refer to BS 7870 4.20 par 4.6 (b).	
Manufacturers conformity to specifications	
Description and requirements as above	
Certified Type Tests included with return	
Cable marking	
Cable data sheet completed Appendix 4	

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Appendix 3 – 33kV Single Core Cables

[12] - 33kV single core 95 mm² al XLPE		
Description		Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm² copper wire screen. Laid up in triplex.		016025
		MNF code
Requirements		Notes
• BS 7870: 2011 Section 4.10 and with reference to Table 4 • Longitudinal water blocking par. 4.3 • Par 4.2.4 the insulation screen shall be cold strippable • Equalising wire or tape on wire screen required • Core identification required.		
Manufacturers conformity to specifications		
Description and requirements as above		Y/N
Certified Type Tests included with return	Ref: P-601	Y/N
Cable marking		Y/N
Cable data sheet completed Appendix 4		Y/N

[13] - 33kV single core 300 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm² copper wire screen, with equalising wire or tape			016067
			MNF code
Requirements			Notes
• BS 7870: 2011 Section 4.10 and with reference to Table 4 • Longitudinal water blocking par. 4.3 • Par 4.2.4 the insulation screen shall be cold strippable • Equalising wire or tape on wire screen required			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref:	P-601	Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4			Y/N

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[14] - 33kV single core 400 mm² al XLPE

Description	Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm ² copper wire screen, with equalising wire or tape	016070
	MNF code
Requirements	Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on wire screen required	
Manufacturers conformity to specifications	
Description and requirements as above	Y/N
Certified Type Tests included with return Ref: <i>P-601</i>	Y/N
Cable marking	Y/N
Cable data sheet completed Appendix 4	Y/N

[15] - 33kV single core 500 mm² al XLPE

Description	Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm ² copper wire screen, with equalising wire or tape	016083
	MNF code
Requirements	Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on wire screen required	
Manufacturers conformity to specifications	
Description and requirements as above	Y/N
Certified Type Tests included with return Ref: <i>P-601</i>	Y/N
Cable marking	Y/N
Cable data sheet completed Appendix 4	Y/N

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[16] - 33kV single core 630 mm² al XLPE			
Description			Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm² copper wire screen, with equalising wire or tape			016084
			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on wire screen required			
Manufacturers conformity to specifications			
Description and requirements as above		Y/N	
Certified Type Tests included with return	Ref: P-601	Y/N	
Cable marking		Y/N	
Cable data sheet completed Appendix 4		Y/N	

[17] - 33kV single core 800 mm² al XLPE		
Description		Stock code
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm² copper wire screen, with equalising wire or tape		MNF code
Requirements		Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on wire screen required		
Manufacturers conformity to specifications		
Description and requirements as above		Y/N
Certified Type Tests included with return	Ref: XXXXXXXXXX	Y/N
Cable marking		Y/N
Cable data sheet completed Appendix 4		Y/N

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[18] - 33kV single core 1000 mm² al XLPE			
Description		Stock code	
XLPE tree retardant insulated solid or stranded (with water blocking) aluminium phase conductors with 35 mm² copper wire screen, with equalising wire or tape		MNF code	
Requirements		Notes	
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - Equalising wire or tape on wire screen required			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref: XXXXXXXXXX		Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4		Y/N	

[19] - 33kV single core 185 mm² cu XLPE		
Description		Stock code
XLPE tree retardant insulated stranded copper phase conductors with 35 mm² copper wire screen,.		MNF code
Requirements		Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - with equalising wire or tape on wire screen		
Manufacturers conformity to specifications		
Description and requirements as above		Y/N
Certified Type Tests included with return	Ref: XXXXXXXXXXXX	Y/N
Cable marking		Y/N
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[20] - 33kV single core 240 mm² cu XLPE		
Description		Stock code
XLPE tree retardant insulated stranded copper phase conductors with 35 mm² copper wire screen,.		MNF code
Requirements		Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - with equalising wire or tape on wire screen		
Manufacturers conformity to specifications		
Description and requirements as above		Y/N
Certified Type Tests included with return	Ref: XXXXXXXXXXXX	Y/N
Cable marking		Y/N
Cable data sheet completed Appendix 4		Y/N

[21] - 33kV single core 500 mm² cu XLPE		
Description		Stock code
XLPE tree retardant insulated stranded copper phase conductors with 35 mm² copper wire screen,.		MNF code
Requirements		Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - with equalising wire or tape on wire screen		
Manufacturers conformity to specifications		
Description and requirements as above		Y/N
Certified Type Tests included with return	Ref: XXXXXXXXXXXX	Y/N
Cable marking		Y/N
Cable data sheet completed Appendix 4		Y/N

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[22] - 33kV single core 630 mm² cu XLPE			
Description			Stock code
XLPE tree retardant insulated stranded copper phase conductors with 35 mm² copper wire screen,.			MNF code
Requirements			Notes
- BS 7870: 2011 Section 4.10 and with reference to Table 4 - Longitudinal water blocking par. 4.3 - Par 4.2.4 the insulation screen shall be cold strippable - with equalising wire or tape on wire screen			
Manufacturers conformity to specifications			
Description and requirements as above			Y/N
Certified Type Tests included with return	Ref:	XXXXXXXXXX	Y/N
Cable marking			Y/N
Cable data sheet completed Appendix 4			Y/N

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APPENDIX 4 - Cable Data Sheet for 11kV and 33kV Distribution Cables

Item	Unit	Cable size mm ² / Reference			
Cable Type: 11kV AL single core cables		1x150	1x500	1x630	1x800
Conductor Nominal area of conductor Type of conductor	mm ² type	150 Aluminium	500 Aluminium	630 Aluminium	800 Aluminium
Minimum average thickness of insulation	mm	3.1	3.1	3.1	3.1
Minimum thickness of insulation at any point	mm	2.96	2.96	2.96	2.96
Copper earth wire Number of wires Nominal diameter of wire	No. mm	41x1.04	41x1.04	41x1.04	41x1.04
Copper neutral wire screen Number of wires Nominal diameter of wires	No. mm	N/A	N/A	N/A	N/A
Minimum average thickness of oversheath	mm	1.9	2.3	2.4	2.5
Minimum thickness of oversheath at any point	mm	1.51	1.85	2.19	2.02
Nominal overall diameter of finished cable	mm	31	44	48	51
Nominal weight per metre of finished cable	kg	1.16	2.39	2.90	3.34
DC resistance of phase & conductor at 20 °C	Ω/km	0.206	0.0605	0.0469	0.0367
AC resistance of phase conductor at 90 °C	Ω/km	0.265	0.0804	0.0639	0.0523
DC resistance of earth conductor at 20°C	Ω/km	0.542	0.542	0.542	0.542
Reactance of cable at 50 Hz	Ω/km	0.106	0.090	0.087	0.085
Zero Sequence Resistance @ 20°C	Ω/km	0.178	0.070	0.057	0.048
Zero Sequence Reactance @ 50Hz	Ω/km	0.051	0.037	0.034	0.033
Capacitance of cable per km	μF	0.39	0.66	0.74	0.86
Minimum installation radius on cable route	mm	620	880	960	1020
Minimum installation radius adjacent to terminations	mm	465	660	720	765
Continuous current rating, buried direct 10 °C ambient, soil resistivity 1.0 °Km/W	A	353	679	756	857
Winter cyclic rating, buried direct, 10 °C ambient, soil resistivity 1.0 °Km/W	A	353	679	756	857
Short circuit rating (core) Duration 0.1 sec 1 sec 2 sec's 3 sec's	kA kA kA kA	43.6 (0.1s) 13.8 (1s) 9.76 (2s) 7.97 (3s)	145.5 (0.1s) 46 (1s) 32.5 (2s) 26.6 (3s)	183.3 (0.1s) 57.9 (1s) 40.9 (2s) 33.5 (3s)	232.7 (0.1s) 73.6 (1s) 52.0 (2s) 42.5 (3s)
Short circuit rating (screen) 3 sec's	kA	2.6 (3s)	2.6 (3s)	2.6 (3s)	2.6 (3s)
Maximum installation tension	KN	13.5	45.0	56.7	72.0

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APPENDIX 4 - Cable Data Sheet for 11kV and 33kV Distribution Cables

Item	Unit	Cable size mm ² / Reference				
Cable Type: 33kV AL single core cables		1x300	1x400	1x500	1x630	1x800
Conductor	mm ²	300	400	500	630	800
Nominal area of conductor	type	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Type of conductor						
Minimum average thickness of insulation	mm	7.3	7.3	7.3	7.3	7.3
Minimum thickness of insulation at any point	mm	7.1	7.1	7.1	7.1	7.1
Copper earth wire						
Number of wires	No.	41x1.04	41x1.04	41x1.04	41x1.04	41x1.04
Nominal diameter of wire	mm					
Copper neutral wire screen						
Number of wires	No.	N/A	N/A	N/A	N/A	N/A
Nominal diameter of wires	mm					
Minimum average thickness of oversheath	mm	2.4	2.5	2.6	2.7	2.8
Minimum thickness of oversheath at any point	mm	1.94	2.02	2.11	2.19	2.28
Nominal overall diameter of finished cable	mm	47	50	53	57	61
Nominal weight per metre of finished cable	kg	2.25	2.59	3.01	3.57	4.06
DC resistance of phase & conductor at 20 °C	Ω/km	0.100	0.0778	0.0605	0.0469	0.0367
AC resistance of phase conductor at 90 °C	Ω/km	0.129	0.101	0.0797	0.0630	0.0509
DC resistance of earth conductor at 20°C	Ω/km	0.542	0.542	0.542	0.542	0.542
Reactance of cable at 50 Hz	Ω/km	0.113	0.109	0.104	0.100	0.095
Zero Sequence Resistance @ 20°C	Ω/km	0.104	0.085	0.069	0.056	0.047
Zero Sequence Reactance @ 50Hz	Ω/km	0.056	0.053	0.049	0.046	0.044
Capacitance of cable per km	μF	0.26	0.29	0.32	0.35	0.40
Minimum installation radius on cable route	mm	940	1000	1060	1140	1220
Minimum installation radius adjacent to terminations	mm	705	750	795	855	915
Continuous current rating, buried direct 10 °C ambient, soil resistivity 1.0 °Km/W	A	523	606	679	768	857
Winter cyclic rating, buried direct, 10 °C ambient, soil resistivity 1.0 °Km/W	A	523	606	679	768	857
Short circuit rating (core)						
Duration 0.1 sec	kA	87.3 (0.1s)	116.3 (0.1s)	145.5 (0.1s)	183.3 (0.1s)	232.7 (0.1s)
1 sec	kA	27.6 (1s)	36.8 (1s)	46 (1s)	57.9 (1s)	73.6 (1s)
2 sec's	kA	19.5 (2s)	26.0 (2s)	32.5 (2s)	40.9 (2s)	52.0 (2s)
3 sec's	kA	15.9 (3s)	21.2 (3s)	26.6 (3s)	33.5 (3s)	42.5 (3s)
Short circuit rating (screen) 3 sec's	kA	2.6 (3s)	2.6 (3s)	2.6 (3s)	2.6 (3s)	2.6 (3s)
Maximum installation tension	KN	27.0	36.0	45.0	56.7	72.0

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Item	Unit	Cable size mm ² / Reference				
Cable Type: 11kV AL three core cables		3x70	3x150	3x240	3x300	3x240
Conductor	mm ²	70	150	240	300	240
Nominal area of conductor	type	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Type of conductor						
Minimum average thickness of insulation	mm	3.1	3.1	3.1	3.1	3.1
Minimum thickness of insulation at any point	mm	2.96	2.96	2.96	2.96	2.96
Copper earth wire						
Number of wires	No.	63x1.10 ^(*)	63x1.10 ^(*)	63x1.10 ^(*)	63x1.10 ^(*)	63x1.10 ^(*)
Nominal diameter of wire	mm					
Copper neutral wire screen						
Number of wires	No.	N/A	N/A	N/A	N/A	N/A
Nominal diameter of wires	mm					
Minimum average thickness of oversheath	mm	2.6	2.9	3.2	3.3	3.2
Minimum thickness of oversheath at any point	mm	2.11	2.37	2.62	2.71	2.62
Nominal overall diameter of finished cable	mm	47	58	67	73	67
Nominal weight per metre of finished cable	kg	2.21	3.30	4.45	5.20	4.82
DC resistance of phase & conductor at 20 °C	Ω/km	0.443	0.206	0.125	0.100	0.125
AC resistance of phase conductor at 90 °C	Ω/km	0.568	0.265	0.161	0.130	0.161
DC resistance of earth conductor at 20°C	Ω/km	0.297	0.297	0.297	0.297	0.297
Reactance of cable at 50 Hz	Ω/km	0.106	0.094	0.089	0.086	0.089
Zero Sequence Resistance @ 20°C	Ω/km	0.178	0.122	0.088	0.075	0.088
Zero Sequence Reactance @ 50Hz	Ω/km					
Capacitance of cable per km	μF	0.32	0.42	0.51	0.56	0.51
Minimum installation radius on cable route	mm	940	1160	1340	1460	1340
Minimum installation radius adjacent to terminations	mm	705	870	1005	1095	1005
Continuous current rating, buried direct 10 °C ambient, soil resistivity 1·0 °Km/W	A	215	331	419	479	419
Winter cyclic rating, buried direct, 10 °C ambient, soil resistivity 1·0 °Km/W	A	215	331	419	479	419
Short circuit rating (core)						
Duration 0.1 sec	kA	20.4 (0.1s)	43.6 (0.1s)	69.8 (0.1s)	87.3 (0.1s)	69.8 (0.1s)
1 sec	kA	6.4 (1s)	13.8 (1s)	22.1 (1s)	27.6 (1s)	22.1 (1s)
2 sec's	kA	4.6 (2s)	9.8 (2s)	15.6 (2s)	19.5 (2s)	15.6 (2s)
3 sec's	kA	3.7 (3s)	7.9 (3s)	12.7 (3s)	15.9 (2s)	12.7 (3s)
Short circuit rating (screen) 3 sec's	kA	4.5 (3s)	4.5 (3s)	4.5 (3s)	4.5 (3s)	4.5 (3s)
Maximum installation tension	KN	6.3	13.5	21.6	27.0	21.6

(*)The copper earth wires are indicative and could be modified acc. to the manufacturing processes. The total cross section area will be 60sqmm.

Applies to: Procurement & Suppliers	SPECIFICATION FOR 11kV and 33kV DISTRIBUTION CABLES	SP-PS-239
Classification: Internal	Uncontrolled if printed	Rev: 2.00

APPENDIX 4 - Cable Data Sheet for 11kV and 33kV Distribution Cables

Item	Unit	Cable size mm ² / Reference
Cable Type: 33kV AL cable in triplex formation		3x(1x95)
Conductor Nominal area of conductor Type of conductor	mm ² type	95 Aluminium
Minimum average thickness of insulation	mm	7.3
Minimum thickness of insulation at any point	mm	7.1
Copper earth wire Number of wires Nominal diameter of wire	No. mm	41x1.04
Copper neutral wire screen Number of wires Nominal diameter of wires	No. mm	N/A
Minimum average thickness of oversheath	mm	2.1
Minimum thickness of oversheath at any point	mm	1.68
Nominal overall diameter of finished cable	mm	80
Nominal weight per metre of finished cable	kg	4.04
DC resistance of phase & conductor at 20 °C	Ω/km	0.320
AC resistance of phase conductor at 90 °C	Ω/km	0.411
DC resistance of earth conductor at 20°C	Ω/km	0.542
Reactance of cable at 50 Hz	Ω/km	0.136
Zero Sequence Resistance @ 20°C	Ω/km	0.234
Zero Sequence Reactance @ 50Hz	Ω/km	0.077
Capacitance of cable per km	μF	0.18
Minimum installation radius on cable route	mm	1600
Minimum installation radius adjacent to terminations	mm	1200
Continuous current rating, buried direct 10 °C ambient, soil resistivity 1.0 °Km/W	A	276
Winter cyclic rating, buried direct, 10 °C ambient, soil resistivity 1.0 °Km/W	A	276
Short circuit rating (core) Duration 0.1 sec 1 sec 2 sec's 3 sec's	kA kA kA kA	27.6 (0.1s) 8.7 (1s) 6.2 (2s) 5.0 (3s)
Short circuit rating (screen) 3 sec's	kA	2.6 (3s)
Maximum installation tension	KN	8.55



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