





D1 = Diameter over bedding sheath d = Diameter of armour wire D2 = Diameter over outer sheath

Cable Description

Electrical and physical properties of 3 core PVC insulated PVC bedded SWA PVC sheathed 1,9 / 3,3 kV cables with copper conductors and manufactured to SANS 1507-3.

Application Information

The cost effectiveness of transferring power over long distances through intermediate step-up step-down systems is desirable for the electrification of industrial and residential installations, including game lodges.

Armadac® consists of 3 circular stranded plain soft copper conductors, PVC insulated, PVC bedded, Steel Wire Armoured, PVC sheathed, 1,9/3,3 kV manufactured to SANS 1507-3. Applications where this cable can typically be used include, amongst others, residential installations, game lodges and general long distance electricity transfer applications at intermediate voltage.

Advantages of using an intermediate voltage cable over the conventional 400V 3-phase system offered by the increased voltage of 3,3 kV include the fact that volt drop will be considerably lower and small conductor sizes (10mm², 16mm² or 25mm²) will suffice for most applications. The Armadac® cable is steel wire armoured and provides a robust mechanical protection to the cable, hence it is suitable to be installed underground. Furthermore, Armadac® offers additional protection against attack by rodents and other animals as provided by the steel wire armouring. The steel wire armouring can also be utilized as an earth continuity path, therefore eliminating the need for an external earth conductor. Armadac® makes use of circular cores which limits electrical stress in the insulation and also incorporates a flame retardant PVC Sheath, which limits the spread of fire.

Properties

- Specification : SANS 1507-3
- Temperature Range : -10°C to 70°C
- Voltage Rating : 1900/3300V
- Core Identification : Red, Yellow, Blue
- Packaging : Available on 500 metre wooden drums

Technical Data

Electrical & Physical Properties

Cable Size	Electrical Properties						Physical Properties			
	Current Rating *			Impedance (Z)	Volt Drop	1 Sec Short Circuit Rating	Nominal Diameters			Approx. Mass
	Ground	Ducts	Air				D1	d	D2	
(mm ²)	(A)	(A)	(A)	(Ω/km)	(mV/A/m)	(kA)	(mm)	(mm)	(mm)	(kg/km)
10	68	58	60	2.34	2,2	1,4	20,7	1,6	227,3	1543
16	91	76	81	1.47	1,4	2,2	22,8	1,6	29,6	1859
25	113	95	103	0.93	0,9	3,4	24,9	1,6	31,7	2221

- Recommended depth of lay 500mm. Soil thermal resistivity 1,2 km/W
- Soil temperature at 25°C
- * In ground at 500mm depth

Airdac SNE Cable

House Service Connecting Cable with or without Pilot Cores

ABERDARE
CABLES

Driven by Powertech



Cable Description

Circular stranded hard drawn copper phase conductor, XLPE insulated with concentrically arranged identified neutral and bare earth conductors. Polyethylene sheathed 600/1000V service connection cable. Nylon ripcord laid under sheath. Manufactured to SANS 1507-6.

- Small overall diameter - concentric construction (SNE - Seperate Neutral Earth).
- Lower mass - due to smaller diameter - no steel wire armour.
- Increased safety - reliable earthing.
- Improved reliability - UV stable sheath and core insulation and water blocked.
- Tamper and vandal proof - unauthorised access to phase conductor inhibited by concentric layer.
- Easy strip with nylon ripcord.

Technical Data

Electrical Properties

Cable Size (mm ²)	10	16
Phase Conductor Resistance (Ohm/km) DC @ 20 °C	1,90	1,20
Earth Size (mm ²)	7,5	10
Neutral Size (mm ²)	10	16
Phase Core Impedance (Z) (Ohm/km)	2,34	1,47
Current Rating* (A)	50	70
Pilot Cores (No. x OD) Solid (mm)	2 x 1,13	2 x 1,13

* Note: - In air, with 30 °C ambient with maximum conductor temperature 90 °C

Mechanical Properties

Cable Size (mm ²)	10	16
Phase Conductor (No. x OD)(mm)	7 x 1,35	7 x 1,67
Nominal Insulation Thickness (mm)	1,0	1,0
Neutral Conductor (No. x OD)(mm)	7 x 1,33	7 x 1,76
Earth Conductor (No. x OD)(mm)	3 x 1,78	3 x 2,20
Nominal Sheath Thickness (mm)	1,6	1,6
Approximate Cable OD (mm)	12,8	14,5
Approximate Cable Mass (kg/km)	320	485

Installation Data

Span (m)		10	20	30	40	50	Based on	
							UTS**	MWT***
SAG* (mm)	10 mm ²	45	180	400	710	1110	3600	900
SAG* (mm)	16 mm ²	40	170	380	670	1050	5760	1440

Note: * Assuming worst conditions, i.e. - 5,5 °C with simultaneous wind speed of 31 m/s and measured at midspan.

** UTS = Minimum ultimate tensile strength.

*** MWT = Minimum working tension.



Cable Description

Circular stranded hard-drawn copper phase conductor, XLPE insulated with concentrically arranged bare earth conductors. Polyethylene sheathed 600/1000 V house service connection cable. Nylon ripcord laid under sheath. Manufactured to SANS 1507-6.

- Small overall diameter - concentric construction
- Lower mass - due to smaller diameter - no steel wire armour
- Increased safety - reliable earthing
- Improved reliability - UV stable sheath and core insulation
- Tamper and vandal proof - unauthorised access to phase conductor inhibited by concentric layer
- Easy strip with nylon ripcord

Technical Data

Electrical Properties

Cable Size (mm ²)	4	10
Phase Conductor Resistance (Ohm/km) DC @ 20 °C	4,80	1,90
Phase Core Impedance (Z) (Ohm/km)	5,88	2,34
Current Rating (A)*	30	50
Symmetrical Short Circuit Rating for 1s in kA	0,572	1,431

* Note: - In air, with 30 °C ambient with maximum conductor temperature 90 °C

Mechanical Properties

Cable Size (mm ²)	4	10
Phase Conductor {No. x OD} (mm)	7 x 0,92	7 x 1,45
Nominal Insulation Thickness (mm)	1,0	1,0
Earth Size (mm ²)	4	10
Earth Conductor {No. x OD} (mm)	8 x 0,85	18 x 0,85
Nominal Sheath Thickness (mm)	1,4	1,4
Approximate Cable OD (mm)	9,0	11,0
Approximate Cable Mass (kg/km)	121	249

Installation Data

Span (m)		10	20	30	40	50	Based on	
							UTS**	MWT***
SAG* (mm)	4 mm ²	40	165	370	650	1020	1480	370
SAG* (mm)	10 mm ²	35	140	310	550	870	3600	900

- Note:**
- * Assuming worst conditions, i.e. temperature -5,5°C with simultaneous wind speed of 31m/s and measured at midspan.
 - ** UTS = Minimum ultimate tensile strength. Safety factor of 2,5.
 - *** MWT = Minimum working tension.

Aerial Bundle Conductor (ABC) Cable



SELF SUPPORTING



SUPPORTING CORE

Cable Description

Self-supporting system consists of four cores of hard-drawn stranded and compacted aluminum conductors of equal cross-section and insulated with carbon-loaded XLPE to ensure UV protection. All cores strained equally. Supporting-core system consists of three phase cores of hard-drawn stranded compacted aluminium conductors insulated with carbon-loaded XLPE laid up around an aluminium-alloy supporting core insulated with carbon loaded XLPE to ensure UV protection. Additional sub-conductors optional in both self-supporting and supporting-core systems.

Installation Information

- Economical
- Flexible
- Safe
- Vandal proof
- Durable
- Aesthetically pleasing
- Adaptable

Properties

Specification	: SANS 1418 Part 1 and 2
Temperature Range	: -10°C to 80°C
Voltage Rating	: 600/1000V
Core Identification	: Phase 1,2 and 3 indented, • Non strain-bearing neutral, 2 longitudinal ribs on opposite surfaces 0,5mm x 1,00mm • Strain-bearing (supporting) neutral, 1 longitudinal rib on one surface 0,5mm x 1,00mm
Packaging	: Available on 500 metre wooden drums

Technical Data

Electrical Properties

Cable Size	Current Rating (Note 1)	Short Circuit Rating (Note 2)	Conductor Resistance @ 20°C	Conductor Resistance (ac) @ 80°C	Self Supporting System		Supporting Core System		
					Induction Reactance @ 50Hz	Impedance (z) @ 50Hz at 80°C	Supporting Core Size	Induction Reactance @ 50Hz	Impedance (z) @ 50Hz at 80°C
mm ²	(A)	kA	(Ω/km)	(Ω/km)	(Ω/km)	(Ω/km)	mm ²	(Ω/km)	(Ω/km)
25	105	2,3	1,200	1,490	0,096	1,493	54,6	0,101	1,493
35	144	3,2	0,868	1,078	0,096	1,082	54,6	0,097	1,082
50	183	4,6	0,641	0,796	0,090	0,801	54,6	0,089	0,801
70	228	6,4	0,443	0,550	0,089	0,557	54,6	0,086	0,557
95	277	8,5	0,320	0,397	0,086	0,406	54,6	0,081	0,405
120	322	11,0	0,253	0,314	0,084	0,325	70	0,079	0,324
150	350	13,8	0,206	0,256	0,082	0,269	95	0,079	0,268

- NOTES:** 1. Continuous current ratings are given for ambient temperature of 35 °C, and maximum conductor temperature of 80°C. For other ambient temperatures use adjoining rating factors
2. Short circuit ratings of 1 second duration, for a final conductor temperature of 130 °C.

Temp °C	25	30	35	40	45
Factor	1.11	1.05	1.00	0.94	0.88

Mechanical Properties

Cable Size	Conductor Diameter		Core Diameter		Self Supporting System			Supporting Core System			
	Min	Max	Min	Max	Approx. Assembly Diameter	Approx. Assembly Mass	Maximum Design Load	Supporting Core Size	Approx. Assembly Diameter	Approx. Assembly Mass	Maximum Design Load
Phase Cores	(mm)		(mm)		(mm)	(kg/km)	(kN)	mm ²	(mm)	(kg/km)	(kN)
mm ²											
25	5,6	6,5	8,4	9,6	25	400	5	54,6	26	507	6
35	6,6	7,5	9,8	11,1	27	540	7	54,6	28	612	6
50	7,7	8,6	10,9	12,3	29	697	9	54,6	32	730	6
70	9,3	10,2	12,9	14,3	33	982	14	54,6	34	944	6
95	11,0	12,0	14,6	16,2	37	1302	19	54,6	38	1183	6
120	12,5	13,5	16,1	17,5	41	1470	24	70,0	40	1600	8
150	13,9	15,0	17,5	19,2	45	2011	30	95,0	44	1870	13

Above Plus 25mm² Auxiliary Core

25	N/A	N/A	N/A	N/A	25	505	N/A	N/A	32	612	N/A
35					32	645			34	717	
50					34	802			36	835	
70					38	1087			38	1049	
95					42	1407			42	1288	
120					44	1575			50	1705	
150					48	2116			56	1975	