High Voltage / 2XS(FL)2Y, A2XS(FL)2Y 110kV Power Cable

Eland Product Group: **A9K**

APPLICATION

The HV power cables contained within this datasheet are suitable for the primary distribution of power up to a maximum network voltage of 110kV. The cables are triple extruded to the latest IEC standards using proprietary materials on modern catenary line equipment. The foil laminate layer provides an effective moisture barrier and imparts a limited increase in mechanical protection although it should be noted that these cables should be adequately protected from potential mechanical damage. Waterblocking tape options ensure that, should the cable be damaged, repair lengths and associated works are kept to a minimum. The cables are provided with a High Density Polyethylene sheath selected to offer the best compromise between abrasion resistance and flexibility. The range can be customised to meet specific project requirements, etc.

CONSTRUCTION

Conductor
Class 2 copper or aluminium conductor, compacted or segment according to BS EN 60228 (previously BS 6360)

Conductor Screen
Extruded semi-conductive XLPE (Cross-Linked Polyethylene)

Insulation
XLPE (Cross-Linked Polyethylene)

Insulation Screen
Extruded semi-conductive XLPE (Cross-Linked Polyethylene)

Separator
Water swellable semi-conductive tape

Screen
Copper wire screen, with a counter helix of copper tape

Separator
Water swellable semi-conductive tape

Moisture Barrier
Aluminium or Copper tape with copolymer

Sheath
HDPE (High Density Polyethylene)
(To be specified at time of order. Other options available)

CABLE STANDARDS

IEC 60840, HRN HD 632

The electrical and dimensional properties of this product are measured by the Technical and Quality Assurance department at the Eland Cables laboratory. Cable performance in respect of conductor resistance, construction quality (workmanship), dimensional consistency, and other parameters are verified to published standards and approved product drawings. Conformance to RoHS (Restriction of the use of Hazardous Substances) is determined and confirmed.

CHARACTERISTICS

Voltage Rating (Uo/U) (Um)
64/110kV (123kV)

Highest Network Voltage (Um)
123kV

Maximum Conductor Temperature
+90°C

Short Circuit Temperature
+250°C

Operating Temperature
-30°C to +90°C

Minimum Installation Temperature
-20°C

Sheath Colour
● Black

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DIMENSIONS

2XS(FL)2Y Copper Conductor

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm²	ELECTRICAL PROTECTION mm²	NOMINAL DIAMETER OF CONDUCTOR mm	NOMINAL THICKNESS OF INSULATION mm	NOMINAL DIAMETER OVER INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS (FIXED) mm	MAXIMAL FORCE OF DRAGGING (CONDUCTOR PULLING) kN
A9K2XSFL150	1	150	95	14.1	18	54.9	64.9	5035	970	7.5
A9K2XSFL185	1	185	95	15.7	17	54.5	64.5	5272	960	9.2
A9K2XSFL240	1	240	95	18	16	54.8	64.8	5742	970	12
A9K2XSFL300	1	300	95	20.3	15	55.1	65.1	6210	980	15
A9K2XSFL400	1	400	95	23	15	57.6	67.4	7208	1010	20
A9K2XSFL500	1	500	95	26.5	15	61.3	71.7	8322	1070	25
A9K2XSFL630	1	630	95	30.3	15	64.5	75.2	9886	1200	31.5
A9K2XSFL800	1	800	95	36.9	15	71.8	82.6	12042	1240	40

A2XS(FL)2Y Aluminium Conductor

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm²	ELECTRICAL PROTECTION mm²	NOMINAL DIAMETER OF CONDUCTOR mm	NOMINAL THICKNESS OF INSULATION mm	NOMINAL DIAMETER OVER INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS (FIXED) mm	MAXIMUM PULLING FORCE kN
A9KA2XSFL150	1	150	95	14.1	18	54.9	64.9	4128	970	4.5
A9KA2XSFL185	1	185	95	15.7	17	54.5	64.5	4153	960	5.5
A9KA2XSFL240	1	240	95	18	16	54.8	64.8	4283	970	7.2
A9KA2XSFL300	1	300	95	20.3	15	55.1	65.1	4397	980	9
A9KA2XSFL400	1	400	95	23	15	57.6	67.4	4880	1010	12
A9KA2XSFL500	1	500	95	26.5	15	61.3	71.7	5433	1070	15
A9KA2XSFL630	1	630	95	30.3	15	64.5	75.2	6064	1200	18.9
A9KA2XSFL800	1	800	95	36.9	15	71.8	82.6	7100	1240	24
A9KA2XSFL1000	1	1000	95	37.9	15	72.8	84.7	7795	1270	30
A9KA2XSFL1200*	1	1200*	95	44	15	78	95.7	8350	1400	36

*Milliken conductor

CONDUCTORS

Class 2 Stranded Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm²	MINIMUM NO. OF WIRES IN CONDUCTOR				MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C	
	Circular		Circular Compacted		Annealed Copper Conductor	Aluminium or Aluminium Alloy Conductor ohms/km
	Cu	Al	Cu	Al	Plain Wires ohms/km	
150	37	37	18	15	0.124	0.206
185	37	37	30	30	0.0991	0.164
240	37	37	34	30	0.0754	0.125
300	61	61	34	30	0.0601	0.1
400	61	61	53	53	0.047	0.0778
500	61	61	53	53	0.0366	0.0605
630	91	91	53	53	0.0283	0.0469
800	91	91	53	53	0.0221	0.0367

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NOMINAL CROSS SECTIONAL AREA mm²	MINIMUM NO. OF WIRES IN CONDUCTOR				MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C	
	Circular		Circular Compacted		Annealed Copper Conductor	Aluminium or Aluminium Alloy Conductor ohms/km
	Cu	Al	Cu	Al	Plain Wires ohms/km	
1000	91	91	53	53	0.0176	0.0291
1200*	-	-	-	-	-	0.0247

The above table is in accordance with BS EN 60228 (previously BS 6360)
* Milliken conductor

ELECTRICAL CHARACTERISTICS

CONDUCTOR TYPE	COPPER CONDUCTOR								ALUMINIUM CONDUCTOR							
INSTALLATION	GROUND				AIR				GROUND				AIR			
METHOD OF INSTALLATION	Flat Spaced		Trefoil		Flat Spaced		Trefoil		Flat Spaced		Trefoil		Flat Spaced		Trefoil	
METHOD OF EARTHING	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓	↓	↓ ↓
NOMINAL CROSS SECTIONAL AREA mm²	CURRENT RATINGS Amps															
150	435	406	410	406	551	515	478	473	335	325	320	320	431	415	373	373
185	490	448	465	453	630	574	546	538	380	363	360	358	494	465	425	423
240	570	505	540	519	740	659	645	628	445	416	420	416	583	541	504	499
300	640	535	610	580	805	685	710	685	495	445	475	460	625	565	550	540
400	720	595	690	650	915	775	820	785	565	500	540	525	715	640	640	625
500	825	650	785	730	1060	860	945	895	645	555	620	595	835	725	745	720
630	940	705	890	810	1235	950	1085	1010	740	610	710	670	975	820	865	830
800	1055	755	1000	885	1415	1040	1235	1130	845	665	805	745	1130	910	995	940
1000	-	-	-	-	-	-	-	-	950	720	900	820	1295	1005	1135	1055
1200*	-	-	-	-	-	-	-	-	1025	755	970	870	1420	1070	1235	1140

↓ = cross-bonding of grounding
↓ ↓ = both ends grounded
* Milliken conductor

Calculated pursuant to the standard IEC 60287 for the maximal conductor temperature of 90°C.
Earth temperature: 20°C
Specific Earth Resistance: 1.0km/W
Air temperature: 30°C
Depth of Laying: 1m
Space between cables: 70mm + D (external diameter of cable)

Maximum Short Circuit Current

95mm² Copper Wire Screen = 15kA/1 second
Other sizes available on request to meet your protection requirements.

DE-RATING FACTORS

AMBIENT TEMPERATURE	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
In Ground	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76	0.71	0.65	0.60	0.53
In Air	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58

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