

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



Eland Product Group: **A9K**

APPLICATION

The high voltage power cables contained within this datasheet are suitable for the primary distribution of power up to a maximum network voltage of 110kV. Suitable for locations where mechanical protection is afforded by other means and where the additional protection of a moisture barrier has been determined not to be necessary, see 2XS(FL)2Y and A2XS(FL)2Y. The cables are triple extruded using proprietary materials on modern catenary line equipment to the latest IEC standards. Waterblocking tape options ensure that should the cable be damaged, repair lengths and associated works are kept to a minimum. The cables are provided as standard with a high density polyethylene sheath, chosen to give the best compromise between abrasion resistance and flexibility to ensure installation confidence. The range can be customised to meet specific project demands should the need arise.

CONSTRUCTION

Conductor

Class 2 copper or aluminium conductor, compacted or segment strand Milliken 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 tape

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 (U₀/U) (U_m)

64/110kV(123kV)

Highest Network Voltage (U_m)

123kV

Maximum Conductor Temperature In Service

(Operating temperature-continuous operation) +90°C

Short Circuit Temperature

+250°C

Overload Temperature

+130°C (100h per year maximum)

Operating Temperature

-30°C to 90°C

Minimum Installation Temperature

-20°C

Sheath Colour

● Black

DIMENSIONS

2XS(F)2Y Copper Conductor

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	ELECTRICAL PROTECTION mm ²	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
A9K2XSF150	1	150	95	14.1	18	54.9	64.5	4910	970	7.5
A9K2XSF185	1	185	95	15.7	17	54.5	64.1	5145	960	9.2
A9K2XSF240	1	240	95	18	16	54.8	64.4	5614	970	12
A9K2XSF300	1	300	95	20.3	15	55.1	64.7	6085	1000	15
A9K2XSF400	1	400	95	23	15	57.6	67.4	7075	1010	20
A9K2XSF500	1	500	95	26.5	15	61.3	71.3	8185	1070	25
A9K2XSF630	1	630	95	30.3	15	64.5	74.8	9740	1200	31.5
A9K2XSF800	1	800	95	36.9	15	71.8	82.6	11869	1240	40

A2XS(F)2Y Aluminium Conductor

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	ELECTRICAL PROTECTION mm ²	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
A9KA2XSF150	1	150	95	14.1	18	54.9	64.5	3995	970	4.5
A9KA2XSF185	1	185	95	15.7	17	54.5	64.1	4026	960	5.5
A9KA2XSF240	1	240	95	18	16	54.8	64.4	4156	970	7.2
A9KA2XSF300	1	300	95	20.3	15	55.1	64.7	4263	1000	9
A9KA2XSF400	1	400	95	23	15	57.6	67.4	4746	1010	12
A9KA2XSF500	1	500	95	26.5	15	61.3	71.3	5287	1070	15
A9KA2XSF630	1	630	95	30.3	15	64.5	74.8	5908	1200	18.9
A9KA2XSF800	1	800	95	36.9	15	71.8	82.6	6925	1240	24
A9KA2XSF1000	1	1000	95	37.9	15	72.8	84	7409	1260	30
A9KA2XSF1200*	1	1200*	95	44	15	78	90	8010	1350	36

* Milliken conductor

CONDUCTORS

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

NOMINAL CROSS SECTIONAL AREA mm ²	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

NOMINAL CROSS SECTIONAL AREA mm ²	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							
	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 mm ²	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

As per IEC 60287. 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

The information contained within this datasheet is for guidance only and is subject to change without notice or liability. All the information is provided in good faith and is believed to be correct at the time of publication. When selecting cable accessories, please note that actual cable dimensions may vary due to manufacturing tolerances.