

# BS 7835 XLPE / LSZH Medium Voltage 19/33 (36)kV Cable



Eland Product Group: **A9M**

## APPLICATION

Power cables for power networks, underground and in cable ducting, in installations with potential threat to life and equipment in the event of fire, smoke and toxic fumes emissions.

## CONSTRUCTION

### Conductor

Class 2 stranded copper conductor according to BS EN 60228 (previously BS 6360)

### Conductor Screen

Semi-conductive XLPE (Cross-Linked Polyethylene)

### Insulation

XLPE (Cross-Linked Polyethylene) Type GP8 according to BS 7655

### Insulation Screen

Semi-conductive XLPE (Cross-Linked Polyethylene)

### Metallic Screen

Individual or overall copper tape screen according to BS 7835

### Filler

PET (Polyethylene Terephthalate) fibres

### Separator

Binding tape

### Bedding

LSZH (Low Smoke Zero Halogen)

### Armour

Single core: AWA (Aluminium Wire Armoured)  
Multi-core: SWA (Steel Wire Armoured)

### Sheath

LSZH (Low Smoke Zero Halogen)

## CABLE STANDARDS

BS 7835, BS EN/IEC 60228, BS EN / IEC 60754-1,  
BS EN / IEC 60332-1



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 (U<sub>0</sub>/U)(U<sub>m</sub>)

19/33 (36)kV

### Temperature Rating

Fixed: 0°C to +90°C

### Combustion characteristics:

Oxygen index: 35

0.5% HCL in accordance with BS EN 50267-2-1

Low smoke classification based on 3metre cube test.

Complete cables comply with the requirements of the fire test  
BS EN 50266-2-4

### Minimum Bending Radius

Single core - Fixed: 15 x overall diameter

3 core - Fixed: 12 x overall diameter

(Single core 12 x overall diameter and 3 core 10 x overall diameter where bends are positioned adjacent to a joint or terminations provided that the bending is carefully controlled by the use of a former)

### Sheath Colour

● Red ● Black

## DIMENSIONS

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm <sup>2</sup>	NOMINAL DIAMETER			NOMINAL WEIGHT kg/km
			Under Armour mm	Over Armour mm	Overall mm	
A9M33KV01070L*	1	70	32.6	36.6	41	2300
A9M33KV01095L*	1	95	34.3	38.3	42.9	2650
A9M33KV01120L*	1	120	35.9	39.9	44.5	3000
A9M33KV01150L*	1	150	37.5	42.5	47.3	3500
A9M33KV01185L*	1	185	39.3	44.3	49.3	4000
A9M33KV01240L*	1	240	41.7	46.7	51.7	4650
A9M33KV01300L*	1	300	44.2	49.2	54.4	5450
A9M33KV01400L*	1	400	47.3	52.3	57.7	6350
A9M33KV01500L*	1	500	50.5	55.5	61.1	7600
A9M33KV01630L*	1	630	54.2	59.2	65	9150
A9M33KV01800L*	1	800	60.5	65.5	71.6	11100
A9M33KV011000L*	1	1000	65	70	76.5	13400
A9M33KV03050L*	3	50	65.1	71.4	78.2	9150
A9M33KV03070L*	3	70	68.8	75.1	82.1	10300
A9M33KV03095L*	3	95	72.6	78.9	86.1	11600
A9M33KV03120L*	3	120	76.3	82.6	90	12800
A9M33KV03150L*	3	150	79.3	85.6	93.2	14050
A9M33KV03185L*	3	185	83.4	89.7	97.5	15650
A9M33KV03240L*	3	240	88.8	95.1	103.3	18200
A9M33KV03300L*	3	300	93.9	100.2	108.8	21100
A9M33KV03400L*	3	400	100.8	107.1	116.1	24200

\*Eland Part No. shown above designate the sheath colour (\*). For each colour substitute \* for a colour code as listed below. e.g. A9M33KV01070RD = 70mm<sup>2</sup> Red

## Colour Codes

COLOUR	Red	Black
CODE	RD	BK

## CONDUCTORS

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

NOMINAL CROSS SECTIONAL AREA mm <sup>2</sup>	MINIMUM NO. OF WIRES IN CONDUCTOR						MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C
	Circular		Circular Compacted		Shaped		Annealed Copper Conductor
	Cu	Al	Cu	Al	Cu	Al	Plain Wires ohms/km
70	19	19	12	12	12	12	0.268
95	19	19	15	15	15	15	0.193
120	37	37	18	15	18	15	0.153
150	37	37	18	15	18	15	0.124
185	37	37	30	30	30	30	0.0991
240	37	37	34	30	34	30	0.0754
300	61	61	34	30	34	30	0.0601
400	61	61	53	53	53	53	0.047
500	61	61	53	53	53	53	0.0366
630	91	91	53	53	53	53	0.0283
800	91	91	53	53	-	-	0.0221
1000	91	91	53	53	-	-	0.0176

The above table is in accordance with BS EN 60228 (previously BS6360)

## ELECTRICAL CHARACTERISTICS

### Copper Conductors (Insulated Armoured Cables according to BS 7835)

#### Current Carrying Capacity

NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm <sup>2</sup>	CONTINUOUS CURRENT RATING					
		In Ground Amps		In Ducts Amps		In Air Amps	
		Trefoil	Flat	Trefoil	Flat	Trefoil	Flat
1	70	270	280	260	270	310	370
1	95	320	335	305	325	375	460
1	120	360	380	340	370	430	530
1	150	410	430	375	410	490	600
1	185	455	485	410	460	550	690
1	240	520	560	470	540	650	820
1	300	580	640	500	610	740	940
1	400	650	730	530	690	840	1100
1	500	710	830	570	780	930	1280
1	630	760	940	620	890	1040	1480
1	800	810	1060	660	990	1140	1690
1	1000	860	1170	690	1090	1230	1900
3	50	210	210	180	180	220	220
3	70	250	250	215	215	270	270
3	95	300	300	255	255	330	330
3	120	340	340	290	290	380	380
3	150	380	380	330	330	430	430
3	185	430	430	370	370	490	490
3	240	500	500	430	430	570	570
3	300	540	540	470	470	650	650
3	400	600	600	530	530	740	740

## DE-RATING FACTORS

AIR TEMPERATURE °C	25	30	35	40	45	50	55
DE-RATING FACTOR	1.00	0.96	0.92	0.88	0.83	0.78	0.73
GROUND TEMPERATURE °C	10	15	20	25	30	35	40
DE-RATING FACTOR	1.03	1.00	0.97	0.93	0.89	0.86	0.82
GROUND THERMAL RESISTIVITY k.m/W	0.9	1.0	1.2	1.5	2.0	2.5	3.0
DE-RATING FACTOR	1.06	1.04	1.00	0.92	0.82	0.74	0.68
DEPTH OF LAYING mtr	0.80	1.00	1.25	1.50	1.75	2.00	2.50
DE-RATING FACTOR	1.00	0.97	0.95	0.94	0.93	0.91	0.90