

0361TQ Orange Welding Cable

Eland Product Group **A1E**



Application

For the transmission of high currents from the electric welding machine to the welding tool. Suitable for flexible use under rough conditions, on assembly lines and conveyor systems, in machine tool and motor car manufacturing, ship building, for manually and automatically operated line and spot welding machines.

Standards

BS638 Part 4*, BS EN 60332-1-2

Technical Data

Conductor

Class 6 extra flexible tinned copper conductors to BS60228. (Class 5 flexible tinned copper for 120mm² and above)

Separator

PETP (Polyethylene Terephthalate)

Insulation

EPR (Ethylene Propylene Rubber) Insulation to BS7655

Sheath

HOFR (Heat and Oil Resistant and Flame Retardant) Sheath to BS7655

Sheath Colour

Orange

Voltage Rating

100V (450V for non-welding applications if suitably protected from mechanical damage)

Temperature Rating

-20°C to +85°C

Minimum Bending Radius

6 x overall diameter

Note

* Sizes up to and including 185mm² conform to BS 638 Part 4. Sizes above 185mm² are generally to BS638 Part 4.

Dimensions

Type 0361TQ - Tinned Copper Conductors

Eland Part Number	Conductor Class	No. of Cores x Nominal Cross Sectional Area # x mm ²	Total Radial Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Weight kg/Km
A1E016	Class 6	1 x 16	1.2	9.7	215
A1E025	Class 6	1 x 25	1.2	11.2	305
A1E035	Class 6	1 x 35	1.2	12.4	400
A1E050	Class 6	1 x 50	1.5	14.3	567
A1E070	Class 6	1 x 70	1.5	16.3	775
A1E095	Class 6	1 x 95	1.8	18.6	1040
A1E120	Class 5	1 x 120	2.8	20.3	1256
A1E150	Class 5	1 x 150	3.0	22.6	1560
A1E185	Class 5	1 x 185	3.2	24.7	1875
A1E240	Class 5	1 x 240	3.4	27.8	2534

Aluminium conductor cable also available, Eland Part Numbers A3D/A3E

The information contained within this datasheet is for guidance only. When selecting accessories such as cleats, glands, etc please note that actual cable dimensions may vary due to manufacturing tolerances.

Conductors

Class 5 flexible Copper Conductors for Single Core and Multi-Core cables

1	2	3
Nominal Cross Sectional Area mm ²	Maximum Diameter of Wires in Conductor mm	Maximum Resistance of Conductor at 20°C
		Metal-coated Wires ohms/km
120	0.51	0.164
150	0.51	0.132
185	0.51	0.108
240	0.51	0.0817

Table in accordance with BS EN 60228:2005 (previously BS6360)

Class 6 flexible Copper Conductors for Single Core and Multi-Core cables

1	2	3
Nominal Cross Sectional Area mm ²	Maximum Diameter of Wires in Conductor mm	Maximum Resistance of Conductor at 20°C
		Metal-Coated Wires ohms/km
16	0.21	1.24
25	0.21	0.795
35	0.21	0.565
50	0.31	0.393
70.00	0.31	0.277
95.00	0.31	0.210

Table in accordance with BS EN 60228:2005 (previously BS6360)

Electrical Characteristics

Duty Cycle and Current Carrying Capacity

The current carrying capacity of a welding cable depends on the length of the duty cycle. The duty cycle is the length of time during which a loaded current passes through the cable over an operation period of 5 minutes, expressed as a percentage of that period. For example, if the current is flowing for the whole 5 minutes the duty cycle is 100%, and if the current is flowing for 1 minute the duty cycle is 20%.

As conductor temperature varies according to the time in use as well as current, ratings shown are given as a guide.

The permissible loading of the cable for duty cycles other than those shown in the table can be calculated using the following formula:

$$I = I_{100} \times \sqrt{100/F}$$

I: is the maximum permissible loading current for the required duty cycle.

I_{100} : is the maximum permissible loading current for a duty cycle of 100%.

F: is the required duty cycle calculated as a percentage of the 5 minute operation period.

Typical guidance values for different welding processes are as follows:

Fully automatic welding 100%

Semi-automatic welding 65 - 85%

Manual Welding 30 - 60%

Very infrequent or occasional welding 20%

Current Carrying Capacity (amperes)

Nominal Cross Sectional Area mm ²	Current Rating for single cycle operation over a maximum period of 5 minutes				
	100%	85%	60%	35%	20%*
16	135	145	175	230	305
25	180	195	230	300	405
35	225	245	290	375	505
50	285	305	365	480	640
70	355	385	460	600	795
95	430	470	560	730	965
120	500	540	650	850	1120
150	580	630	750	980	1265
185	665	720	860	1120	1475
240	780	850	975	1250	1630

The above table is in accordance with Table A.5 of BS 638 part 4:1996. *20% values are calculated in accordance with BS638

Ambient Air Temperature: +25°C

Maximum Conductor Temperature: +85°C

Influence of Ambient Temperature

Ambient Temperature	25°C	30°C	35°C	40°C	45°C	50°C	55°C
Reduction Factor	1.0	0.96	0.91	0.87	0.82	0.76	0.71

The above table is in accordance with Table A.7 of BS 638 Part 4:1996