

0361TQ BS 638 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.

CHARACTERISTICS

Voltage Rating

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

Temperature Rating

Flexed: -20°C to +85°C

Minimum Bending Radius

Flexed: 6 x overall diameter

CONSTRUCTION

Conductor

16mm² to 95mm²: Class 6 extra flexible tinned copper conductor
 120mm² and above: Class 5 flexible tinned copper conductor

Separator

PET (Polyester Tape)

Insulation

EPR (Ethylene Propylene Rubber)

Sheath

HOFR (Heat and Oil Resistant and Flame Retardant)

Sheath Colour

● Orange

Note

Also available with aluminium conductor on request

STANDARDS

BS638 Part 4 (withdrawn), EN 60228

Flame Retardant according to IEC/EN 60332-1-2

ISO/IEC 17025 LABORATORY TESTED

This product is subject to the Quality Assurance protocols of The Cable Lab®, an ISO/IEC 17025 accredited cable testing laboratory. Testing includes vertical flame, conductor resistance, tensile & elongation, and dimensional consistency, verified to published standards and approved product drawings.



REGULATORY COMPLIANCE

This cable meets the requirements of the Low Voltage Directive 2014/35/EU and the RoHS Directive 2011/65/EU. RoHS compliance has been tested and confirmed by The Cable Lab® as meeting the requirements of the BSI RoHS Trusted Kitemark™.





DIMENSIONS

ELAND PART NO.	CONDUCTOR CLASS	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	TOTAL RADIAL THICKNESS OF COVERING mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
A1E016	6	1	16	2	9.7	215
A1E025	6	1	25	2	11.2	305
A1E035	6	1	35	2	12.4	400
A1E050	6	1	50	2	14.3	587
A1E070	6	1	70	2.2	16.3	775
A1E095	6	1	95	2.4	18.6	1040
A1E120	5	1	120	2.6	20.3	1256
A1E150	5	1	150	2.8	22.6	1360
A1E185	5	1	185	3	24.7	1875

CONDUCTORS

Class 6 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
16	0.21	1.24
25	0.21	0.795
35	0.21	0.565
50	0.21	0.393
70	0.21	0.277
95	0.21	0.21

The above table is in accordance with EN 60228

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
120	0.51	0.164
150	0.51	0.132
185	0.51	0.108

The above table is in accordance with EN 60228



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

Where:

- 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

NOMINAL CROSS SECTIONAL AREA mm ²	CURRENT RATING FOR SINGLE CYCLE OPERATION OVER A MAXIMUM PERIOD OF 5 MINUTES Amps			
	100%	85%	60%	35%
16	135	145	175	230
25	180	195	230	300
35	225	245	290	375
50	285	305	365	480
70	355	385	460	600
95	430	470	560	730
120	500	540	650	850
150	580	630	750	980
185	665	720	860	1120
240	780	850	975	1250

The above table is in accordance with Table A.5 of BS 638 part 4

Ambient Air Temperature: 25°C
 Maximum Conductor Temperature: 85°C

DE-RATING FACTORS

AMBIENT TEMPERATURE	25°C	30°C	35°C	40°C	45°C
DE-RATING FACTOR	1.0	0.96	0.91	0.87	0.82

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

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.