

H01N2-D BS EN 50525-2-81 Welding Cable



Eland Product Group: **A2G**

APPLICATION

These cables are used as a connection to welding robots in the automotive industry, shipyards and for manually/automatically operated lines and spot welding. The robust cable structure makes them resistant to low and high temperatures, ozone and radiation, oils, acids, fats and petrols.

CONSTRUCTION

Conductor

Generally to Class 6 flexible copper conductor according to BS EN 60228 (previously BS 6360)

Separator

PET (Polyester Tape)

Sheath

Rubber compound, Type EM5 according to BS EN 50363

CABLE STANDARDS

BS EN 50525-2-81 (previously BS 638 Part 4, CENELEC HD22.6, VDE0282-6), BS EN 60332-1-2



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

100V

Temperature Rating

Fixed: -40°C to +85°C

Flexed: -20°C to +85°C

Minimum Bending Radius

Flexed: 6 x overall diameter

Sheath Colour

● Black ● Red

DIMENSIONS

ELAND PART NO.	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	NOMINAL THICKNESS OF INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
A2G010*	1	10	2	9	146
A2G016*	1	16	2	10	204
A2G025*	1	25	2	11.5	290
A2G035*	1	35	2	12.5	384
A2G050*	1	50	2.2	14.5	535
A2G070*	1	70	2.4	16.5	716
A2G095*	1	95	2.6	18.5	943
A2G120*	1	120	2.8	20.5	1235
A2G150*	1	150	3	23	1556

Eland Part No. shown above designate the sheath colour (). For each colour substitute * for a colour code as listed below. e.g. A2G010E = 10mm² Black

Colour Codes

COLOUR	Black	Red
CODE	E	RD

CONDUCTORS

Flexible Copper Conductors for Single Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C
		Plain Wires ohms/km
10	0.21	1.91
16	0.21	1.21
25	0.21	0.78
35	0.21	0.554
50	0.21	0.386
70	0.21	0.272
95	0.21	0.206
120	0.51	0.161
150	0.51	0.129

ELECTRICAL CHARACTERISTICS

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%
10	100	103	108	122
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

Ambient air temperature: 25°C
 Maximum conductor temperature: 85°C

The above table is from HD 516 S2:1997

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.
- I₁₀₀ : 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%

DE-RATING FACTORS

AMBIENT TEMPERATURE	25°C	30°C	35°C	40°C	45°C	50°C	55°C
DE-RATING FACTOR	1.0	0.96	0.91	0.87	0.82	0.76	0.71