

Welding Cable



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

STANDARDS

KS EN 60228
Flame Retardant according to IEC/EN 60332-1-2



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

Nitrile pvc compound

Sheath

Nitrile pvc compound

Sheath Colour

- Orange
- Red
- Blue
- Black

Note

Also available with tinned annealed copper conductor on request



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DIMENSIONS

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
5	1	16	2	9.7	215
5	1	25	2	11.2	305
5	1	35	2	12.4	400
5	1	50	2	14.3	587
5	1	70	2.2	16.3	775
5	1	95	2.4	18.6	1040
5	1	120	2.6	20.3	1256
5	1	150	2.8	22.6	1360
5	1	185	3	24.7	1875

CONDUCTORS

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

NOMINAL CROSSSECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
16	0.41	1.21
25	0.41	0.780
35	0.41	0.554
50	0.41	0.386
70	0.51	0.272
95	0.51	0.206

The above table is in accordance with EN 60228

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

NOMINAL CROSSSECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
120	0.51	0.161
150	0.51	0.129
185	0.51	0.108

The above table is in accordance with EN 60228



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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 CROSSSECTIONAL 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

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

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for products set forth our standard terms and conditions of sale



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