

# 0361TQ BS EN 60332-1-2 BS 638 Black Welding Cable

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**RoHS  
Compliant**

## 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.

## Cable Standards:

Made in accordance with the following:  
BS 638 Part 4\*, BS EN/IEC 60332-1-2

## Construction:

|            |   |
|------------|---|
| Conductor  | : 16mm <sup>2</sup> to 35mm <sup>2</sup> : Class 6 extra flexible tinned copper conductor according to BS EN 60228 (previously BS 6360) |
| Separator  | : PET (Polyester Tape)  |
| Insulation | : EPR (Ethylene Propylene Rubber) Type GP4 according to BS 7655   |
| Sheath     | : HOFR (Heat and Oil Resistant and Flame Retardant) Type EM5 Rubber compound according to BS EN 50363                                   |

## Characteristics:

|                     |   |
|---------------------|---|
| Voltage Rating      | : 100V (450V for non-welding applications if suitably protected from mechanical damage) |
| Temperature Rating  | : -20°C to +85°C (Flexed)   |
| Min. Bending Radius | : 6 × overall diameter (Flexed)   |
| Sheath Colour       | : Black   |

**Note** : \*Sizes up to and including 185mm<sup>2</sup> conform to BS 638 Part 4

## 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<sub>100</sub> : 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%

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## Current Carrying Capacity:

| Part Number | Nominal Cross Sectional Area mm <sup>2</sup> | Current Rating for Single Cycle Operation over a Maximum Period of 5 Minutes Amps |     |     |     |
|-------------|--|---|-----|-----|-----|
|             |  | 100%  | 85% | 60% | 35% |
| PP000905    | 16   | 135   | 145 | 175 | 230 |
| PP000907    | 25   | 180   | 195 | 230 | 300 |
| PP000909    | 35   | 225   | 245 | 290 | 375 |

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

## 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

## Conductors:

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

| Part Number | Nominal Cross Sectional Area mm <sup>2</sup> | Max. Diameter of Wires in Conductor mm | Max. Resistance of Conductor at 20°C |
|-------------|--|--|--------------------------------------|
|             |  |  | Plain Wires Ω/km                     |
| PP000905    | 16   | 0.21                                   | 1.21                                 |
| PP000907    | 25   | 0.21                                   | 0.78                                 |
| PP000909    | 35   | 0.21                                   | 0.554                                |

The above table is in accordance with BS EN 60228 (previously BS 6360)

## Dimensions:

Type 0361TQ - Plain Copper Conductors

| Part Number | Conductor Class | Nominal Cross Sectional Area mm <sup>2</sup> | Total Radial Thickness of Covering mm | Nominal Overall Diameter mm | Nominal Weight kg/km |
|-------------|-----------------|--|---------------------------------------|-----------------------------|----------------------|
| PP000905    | Class 6         | 16   | 2                                     | 9.7                         | 215                  |
| PP000907    | Class 6         | 25   | 2                                     | 11.2                        | 305                  |
| PP000909    | Class 6         | 35   | 2                                     | 12.4                        | 400                  |

## Part Number Table

| Description  | Reel Length (m) | Part Number |
|--|-----------------|-------------|
| 0361TQ BS EN 60332-1-2 BS 638<br>Black Welding Cable | 50              | PP000905    |
|  |                 | PP000907    |
|  |                 | PP000909    |

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