

117-332 to 800

multicomp

SWITCHGEAR WIRE PVC

SPECIFICATION	CONDUCTOR	NUMBER & SIZE OF WIRES MM	WEIGHT	VOLTAGE	INSULATION	NOMINAL OVERALL DIAMETER MM	INSULATION THICKNESS MM	TEMPERATURE	RESISTANCE
300.25MM (1.5MM ²) TYPE CK	PLAIN ANNEALED COPPER WIRE	30 X 0.25MM	24KG/KM	600/1000V	PVC	3.7MM	0.8MM	85 °C	22A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
500.25MM (2.5mm ²) TYPE CK	PLAIN ANNEALD COPPER WIRE	50 X 0.25MM	36KG/KM	600/1000V	PVC	4.2MM	0.8MM	85 °C	29A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
160.2MM (0.5MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	16 X 0.2MM	12KG/KM	600/1000V	PVC	3.0MM	0.8MM	70 °C	11A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
240.2MM (0.75MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	24 X 0.2MM	15KG/KM	600/1000V	PVC	3.2MM	0.8MM	70 °C	14A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
320.2MM (1.0MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	32 X 0.2MM	18KG/KM	600/1000V	PVC	3.4MM	0.8MM	70 °C	17A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
300.25MM (1.5MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	30 X 0.25MM	24KG/KM	600/1000V	PVC	3.7MM	0.8MM	70 °C	22A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
500.25MM (2.5MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	50 X 0.25 MM	36KG/KM	600/1000V	PVC	4.2MM	0.8MM	70 °C	29A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
560.3MM (4.0MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	56 X 0.3MM	54KG/KM	600/1000V	PVC	4.8MM	0.8MM	70 °C	39A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
840.3MM (6.0MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	84 X 0.3MM	78KG/KM	600/1000V	PVC	6.3MM	0.8MM	70 °C	50A AT 35 °C SINGLE CONDUCTOR IN FREE AIR
800.4MM (10.0MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	80 X 0.4MM	130KG/KM	600/1000V	PVC	7.6MM	1.0MM	70 °C	68A AT 35 °C SINGLE WIRE IN FREE AIR
1260.4MM (16.0MM ²) TYPE BK	PLAIN ANNEALD COPPER WIRE	126 X 0.4MM	207KG/KM	600/1000V	PVC	8.8MM	1.0MM	70 °C	91A AT 35 °C SINGLE WIRE IN FREE AIR

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SPECIFICATION	CONDUCTOR	NUMBER & SIZE OF WIRES MM	WEIGHT	VOLTAGE	INSULATION	NOMINAL OVERALL DIAMETER MM	INSULATION THICKNESS MM	TEMPERATURE	RESISTANCE
196/0.4MM (25 0MM ²) TYPE BK	PLAIN ANNEALED COPPER WIRE	196 X 0.4MM	322KG/KM	600/1000V	PVC	11.0MM	1.0MM	70 °C	120A AT 35 °C SINGLE WIRE IN FREE AIR
276/0.4MM (36 0MM ²) TYPE BK	PLAIN ANNEALED COPPER WIRE	276 X 0.4MM	407KG/KM	600/1000V	PVC	12.5MM	1.2MM	70 °C	167A AT 35 °C SINGLE WIRE IN FREE AIR

This British standard specifies requirements for single-core non-sheathed cables, including flexible cables used for the wiring of switch, control, metering, relay and instrument panels of power switchgear, and for such purposes as internal connections in rectifier equipment and in motor starters and controllers.

Cables are suitable for use where the combination of ambient temperature and temperature rise due to load results in a cumulative conductive temperature not exceeding 70 °C for BK types and 85 °C for CK types.

CK types however which not subject to flexing or other mechanical stresses are suitable for cumulative conductor temperatures of 105 °C..

Types BK and CK are suitable for installation at a minimum of 0 °C, once installed, they are suitable for a limited degree of movement at a minimum ambient temperature of -20 °C for BK types and 15 °C for CK types.

Types BK and CK cables are intended for use at nominal voltages not exceeding 600V to earth. They are suitable for wiring circuits for which the prescribed alternating test voltage, when installed in the equipment, does not exceed 4KV for 1 minute.

Flame retardance conforms with the requirements of BS4066.

All colours conform with BS6746.

CONDUCTOR RESISTANCE (TINNED & PLAIN) AND VOLT DRO

Table for Dimensions and Metal				
Max Diam of Wires mm		Solid Conductors		Stranded
Above	Up-to and In	PACu	TACu	PACu
0.05	0.10	-	-	1.07
0.10	0.31	-	-	1.04
0.31	0.91	1.03	1.05	1.02
0.91	3.60	1.03	1.04	1.02
3.60	4.50	1.03	1.04	-
4.50	-	1.03	1.03	-

Table for Conductor Formation	
1.00	For Solid Conductors
1.02	For Stranded Conductors > 0.8 mm
1.04	For Stranded and Flexible Conductors < 0.6 mm

Table for Conductor Usage	
1.00	For Fixed Instalations > 500 mm ²
1.02	For Fixed Instalations < 400 mm ²
1.05	For Flexible Conductors < 500 mm ²

The following boxes (1 to 5) must be filled in for resistance value
Box 6 is only to be used for Volt Drop.

Number of Wires	56
Wire Diameter	0.3
Dimension and Metal Factor	1.04
Conductor Formation Factor	1.02
Conductor Usage Factor	1.05
Maximum Operating Temp	70

Max Resis @ 20°C in ohms/kM **4.851**

Volt Drop mV / A / M **5.811**

TABLE 4D1B

VOLTAGE DROP (per ampere per metre):

Conductor operating temperature: 70°C

Conductor cross-sectional area	2 cables, single-phase a.c.					3 or 4 cables, three-phase a.c.				
	Reference Methods 3 & 4 (enclosed in conduit etc. in or on a wall)	Reference Methods 1 & 11 (clipped direct or on trays, touching)	Reference Method 12 (spaced*)	Reference Methods 3 & 4 (enclosed in conduit etc. in or on a wall)	Reference Methods 1, 11 & 12 (in trefoil)	Reference Methods 1 & 11 (flat and touching)	Reference Method 12 (flat spaced*)			
1	2	4	5	6	7	8	9			
(mm ²)	(mV/A/m)	(mV/A/m)	(mV/A/m)	(mV/A/m)	(mV/A/m)	(mV/A/m)	(mV/A/m)			
1	44	44	44	38	38	38	38			
1.5	29	29	29	25	25	25	25			
2.5	18	18	18	15	15	15	15			
4	11	11	11	9.5	9.5	9.5	9.5			
6	7.3	7.3	7.3	6.4	6.4	6.4	6.4			
10	4.4	4.4	4.4	3.8	3.8	3.8	3.8			
16	2.8	2.8	2.8	2.4	2.4	2.4	2.4			
25	1.75	1.80	1.75	1.50	1.50	1.50	1.50			
35	1.25	1.30	1.25	1.10	1.10	1.10	1.10			
50	0.93	0.95	0.93	0.81	0.81	0.80	0.80			
70	0.63	0.65	0.63	0.56	0.56	0.55	0.55			
95	0.46	0.49	0.47	0.42	0.42	0.41	0.40			
120	0.36	0.39	0.37	0.33	0.33	0.32	0.32			
150	0.29	0.31	0.30	0.27	0.27	0.26	0.26			
185	0.23	0.25	0.24	0.22	0.22	0.21	0.21			
240	0.180	0.195	0.185	0.17	0.17	0.160	0.160			
300	0.145	0.160	0.150	0.14	0.140	0.130	0.130			
400	0.105	0.130	0.120	0.12	0.12	0.105	0.105			
500	0.086	0.110	0.098	0.10	0.10	0.086	0.086			
630	0.068	0.094	0.081	0.08	0.072	0.072	0.066			
800	0.053	-	0.068	0.061	0.060	0.060	0.053			
1000	0.042	-	0.059	0.050	0.052	0.052	0.044			
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NOTE: * Spacings larger than those specified in Method 12 (see table 4A) will result in larger voltage drop.