



Technical section

To be read in conjunction
with the relevant cable datasheet

Installation recommendations

(in accordance with BS 6883:1999 appendix B)

Installation Temperature

Minimum recommended installation temperature for cables according to BS6883 is -15 °C

Minimum bending radius (MBR)

The cables specified in BS6883 should not be bent to an internal radius smaller than that given in the table A1 below. Wherever possible larger installation radii should be used.

Type of cable	Overall diameter	Minimum bending radius
Screened multi-pair, triple or quad	Any	8 D
Multi-core unarmoured (unbraided) 600/1000 V	≤10mm	3 D
	>10mm to ≤25mm	4 D
	>25mm	6 D
Multi-core armoured (braided) 600/1000 V	≤25mm	4 D
	>25mm	6 D

D – is the overall diameter of the cable

Current Ratings

(in accordance with IEC 60092-352 based on ambient air temperature of 45 °C)

Nominal cross-sectional area mm ²	Insulation class temperature 90 °C		
	Single core Ampere	2 core Ampere	3 & 4 core Ampere
1	18	15	13
1.5	23	20	16
2.5	30	26	21
4	40	34	28
6	52	44	36
10	72	61	50
16	96	82	67
25	127	108	89
35	157	133	110
50	196	167	137
70	242	206	169
95	293	249	205
120	339	288	237
150	389	331	272
185	444	377	311
240	522	444	365
300	601	511	421
400	719	611	503
500	827	703	579
630	955	812	669

Current ratings for 5 cores and over

Number of cores	Insulation class temperature 90°C		
Nominal cross-sectional area	1 mm ²	1.5 mm ²	2.5 mm ²
	Ampere	Ampere	Ampere
5	10.5	12	16
7	9	10	15
10	8	9	13
12	8	9	12
16	7	8	11
19	7	7	10
20	7	7	10
24	6	6.5	9.5
27	6	6.5	9
30	6	6	9
37	5	6	8

The ambient temperature of 45°C, on which the above current ratings are based, is considered as a standard value for the ambient air temperature, generally applicable for any kind of ship or offshore platform in any climate.

Correction factors for different ambient air temperatures

Maximum conductor temperature	90°C									
Ambient temperature, °C	35	40	45	50	55	60	65	70	75	80
Correction factor	1.10	1.05	1.0	0.94	0.88	0.82	0.74	0.67	0.58	0.47

Where more than six bunched cables on cable trays, in cable conduits. Pipes or trunking are expected to operate simultaneously full rated capacity, a correction factor of 0.85 should be applied.

Short circuit rating

Short circuit rating calculation based on formula:

$$\text{Short circuit} = 226 \times \frac{S}{\sqrt{t}} \times \sqrt{\ln \frac{234 + T_k}{234 + T_b}}$$

S = Cross-section of conductor, mm²

t = Duration of the short circuit, s

T_k = Maximum rated conductor temperature, short circuit, °C

T_b = Maximum rated conductor temperature, normal, °C

Size	Maximum short circuit current rating for 1 second	Maximum short circuit current rating for 3 seconds	Maximum short circuit current rating for 5 seconds
mm ²	kA	kA	kA
1	0.14	0.08	0.06
1.5	0.21	0.12	0.10
2.5	0.35	0.21	0.16
4	0.57	0.33	0.26
6	0.85	0.50	0.38
10	1.43	0.82	0.64
16	2.29	1.32	1.02

Size	Maximum short circuit current rating for 1 second	Maximum short circuit current rating for 3 seconds	Maximum short circuit current rating for 5 seconds
25	3.57	2.06	1.60
35	5.01	2.89	2.20
50	7.15	4.13	3.20
70	10.0	5.78	4.48
95	13.6	7.85	6.08
120	17.1	9.91	7.68
150	21.4	12.3	9.60
185	26.4	15.3	11.8
240	34.3	19.8	15.3
300	42.9	24.8	19.2
400	56.0	–	–
500	70.0	–	–
630	88.2	–	–

Conductor resistance for Power cables

(in accordance with IEC60228)

Cross-section of conductor	Conductor class 2		Conductor class 5	
	Tinned copper		Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C	Maximum resistance at 20°C	Maximum resistance at 90°C
mm ²	Ω/km	Ω/km	Ω/km	Ω/km
1	18.2	23.2	20.0	25.5
1.5	12.2	15.6	13.7	17.5
2.5	7.56	9.64	8.21	10.47
4	4.7	5.99	5.09	6.49
6	3.11	3.97	3.39	4.32
10	1.84	2.35	1.95	2.49
16	1.16	1.48	1.24	1.58
25	0.734	0.936	0.795	1.014
35	0.529	0.675	0.565	0.720
50	0.391	0.499	0.393	0.501
70	0.27	0.344	0.277	0.353
95	0.195	0.249	0.210	0.268
120	0.154	0.196	0.164	0.209
150	0.126	0.161	0.132	0.168
185	0.1	0.128	0.108	0.138
240	0.0762	0.0972	0.0817	0.1042
300	0.607	0.0774	0.0654	0.0834

Conductor resistance for Instrumentation cables

(in accordance with IEC60228)

Cross-section of conductor	Conductor class 5	
	Tinned copper	
	Maximum resistance at 20°C	Maximum resistance at 90°C
mm ²	Ω/km	Ω/km
0.75	26.7	34.18
1	20.0	25.60
1.5	13.7	17.54

UK00A cable coding

1st Character					
	Type	Voltage		Type	Voltage
F	Fire resistant, reduced halogen	150/250 V	M	Flame retardant, reduced halogen	3.8/6.6 KV
G	Fire resistant, low smoke & fume	150/250 V	N	Flame retardant, reduced halogen	1.9/3.3 KV
H	Flame retardant, reduced halogen	8.7/15 KV	P	Flame retardant, reduced halogen	6.35/11 KV
J	Flame retardant, reduced halogen	150/250 V	W	Flame retardant, low smoke & fume	600/1000 V
K	Flame retardant, low smoke & fume	150/250 V	X	Fire resistant, reduced halogen	600/1000 V
L	Flame retardant, reduced halogen	600/1000 V	Y	Fire resistant, low smoke & fume	600/1000 V

2nd Character				
	Basic Construction	Sheath Colour	Armour	Screen
A	Flame retardant	Black (600/1000 V) , Red (HV)	Bronze braid (TPBWB)	–
B	Flame retardant	Black (600/1000 V) , Red (HV)	GSWB	–
C	Fire resistant	Black (600/1000 V)	Bronze braid (TPBWB)	–
D	Fire resistant	Black (600/1000 V)	GSWB	–
E	Flame retardant	Green/Yellow	None	–
F	Flame retardant	Black	None	–
G	Flame retardant	Light Blue	GSWB	Collective
H	Flame retardant	Light Blue	GSWB	Individual
J	Flame retardant	Grey	GSWB	Collective
K	Flame retardant	Grey	GSWB	Individual
L	Fire resistant	Light Blue	GSWB	Collective
M	Fire resistant	Light Blue	GSWB	Individual
N	Fire resistant	Grey	GSWB	Collective
P	Fire resistant	Grey	GSWB	Individual
Y	Flame retardant	Orange	GSWB	Co-axial

3rd Character

1	Single core	B	19 core	K	12 pair	T	7 triple
2	2 core	C	27 core	L	20 pair	U	12 triple
3	3 core	D	37 core	M	27 pair	X	1 quad
4	4 core	F	1 pair	N	37 pair	Y	3 quad
7	7 core	H	3 pair	R	1 triple	Z	7 quad
A	12 core	J	7 pair	S	3 triple		

4th & 5th Character

	Conductor Size	Type of stranding		Conductor Size	Type of stranding
00	0.75 mm ²	Flexible tinned copper (Class5)	70	70 mm ²	Tinned copper (Class2)
01	1.0 mm ²	Flexible tinned copper (Class5)	95	95 mm ²	Tinned copper (Class2)
02	1.5 mm ²	Flexible tinned copper (Class5)	0A	120 mm ²	Tinned copper (Class2)
03	2.5 mm ²	Tinned copper (Class2)	0B	150 mm ²	Tinned copper (Class2)
04	4 mm ²	Tinned copper (Class2)	0C	185 mm ²	Tinned copper (Class2)
06	6 mm ²	Tinned copper (Class2)	0D	240 mm ²	Tinned copper (Class2)
10	10 mm ²	Tinned copper (Class2)	0E	300 mm ²	Tinned copper (Class2)
16	16 mm ²	Tinned copper (Class2)	0F	400 mm ²	Tinned copper (Class2)
25	25 mm ²	Tinned copper (Class2)	0G	500 mm ²	Tinned copper (Class2)
35	35 mm ²	Tinned copper (Class2)	0H	630 mm ²	Tinned copper (Class2)
50	50 mm ²	Tinned copper (Class2)			