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Multipair Instrumentation Cables to BS 5308 Part 1- Polyethylene Insulated

VDE Ref Code

PVC Sheath Version:

RE-2Y(St)Y (Overall Screen)
RE-2Y(St)YPiMF (Individual Screen + Overall Screen)
RE-2Y(St)Y-SWA (Overall Screen + Steel Wire Armour)
RE-2Y(St)YPiMF-SWA (Individual Screen + Overall Screen + Steel Wire Armour)

LSHF Sheath Version:

RE-2Y(St)H(Overall Screen)
RE-2Y(St)HPiMF(Individual Screen + Overall Screen)
RE-2Y(St)H-SWA(Overall Screen + Steel Wire Armour)
RE-2Y(St)HPiMF-SWA(Individual Screen + Overall Screen + Steel Wire Armour)

Application

These cables are designed for transmission of analog and digital signals, and the interconnection of electrical equipment and instruments, particular for the process control industry.

Construction

Conductors: Annealed solid copper (Class 1),stranded (Class 2), or flexible(Class 5) to BS 6360.

Insulation: Polyethylene to BS 6234 Type 03.

Pair Identification:

a) Collectively screened cables: Colour coded in accordance with Colour Code Chart 1 on page 3.
b) Individually screened pairs: One blue core and one black core in each pair. Pairs identified by numbered screen isolation tape.

Pair Screens

Aluminium/p.e.t.p. laminated tape applied with the metallic side down in electrical contact with a 0.5 mm² tinned copper drain wire. A 23 micron isolation tape is applied over the screening tape with a minimum 50% overlap.

Binder Tape:

A 23 micron p.e.t.p.tape applied with a minimum 50% overlap.

Collective Screen:

Aluminium/p.e.t.p. laminated tape applied with the metallic side down in electrical contact with a 0.5 mm² tinned copper drain wire over the p.e.t.p.binder tape.

Outer Protection:

Type 1 Extruded flame retardant PVC sheath.
Type 2 Extruded polyethylene bedding, galvanised steel wire armour, extruded flame retardant PVC sheath.

Minimum Bending Radius:

Type 1 8 × overall diameter.
Type 2 12 × overall diameter.

Voltage Rating

300 volt core to earth and 500 volt core to core at maximum temperature of 65 ℃.

These cables are not for direct connection to the public mains supply.

Temperature Rating

During Operation: -40 ℃ to + 70 ℃
During Installation: 0 ℃ to + 50 ℃

Electrical Characteristics

		Unit	Conductor Size				
			0.5mm² (1/0.8mm)	0.5mm² (16/0.2mm)	0.75mm² (24/0.2mm)	1.0mm² (1/1.13mm)	1.5mm² (7/0.53mm)
Conductor resistance	max.	Ω/km	36.8	39.7	26.5	18.2	12.3
Imsulation resistance	min.	GΩ×km	5	5	5	5	5
Mutual capacitance at 1 kHz -One pair and two pair(Quad)cables with collective screen and all cables with individually screened pairs -Cables with only collective screen except one pair and two pair (Quad)	max.	pF/m	115 75	115 75	115 75	115 75	115 75
Capacitance unbalance at 1 kHz	max.	pF/250m	250	250	250	250	250
Inductance/resistance ratio(L/R)	max.	μH/Ω	25	25	25	25	40
Test voltage (Core:core) (Core:screen)		V V	1000 1000	1000 1000	1000 1000	1000 1000	1000 1000
Rated voltage	max.	V	300/500	300/500	300/500	300/500	300/500

Fire retardant PVC and LSHF material can be used as insulation and jacket options.Please refer to Ordering Options.

Instrumentation Cables to BS 5308

Multipair Instrumentation Cables (Unarmoured) to BS 5308 Part 1 Type 1 - Collectively Screened

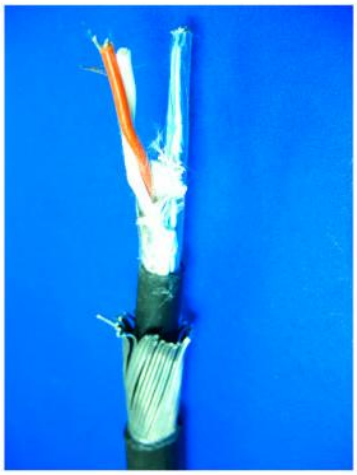
Conductor	Number of Pairs	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
1/0.8mm 0.5mm²	1	5.7	40
	2(Quad)	6.5	60
	5	11.0	130
	10	14.4	220
	20	18.8	380
	30	22.4	540
16/0.2mm (0.5mm²)	1	6.4	60
	2(Quad)	7.3	80
	5	12.5	200
	10	16.6	340
	20	21.7	570
	30	26.3	790
24/0.2mm (0.75mm²)	1	6.7	75
	2(Quad)	7.7	100
	5	13.7	250
	10	18.1	450
	20	23.9	800
	30	28.9	1130
1/1.13mm (1.0mm²)	1	6.8	85
	2(Quad)	7.8	115
	5	13.7	290
	10	17.8	500
	20	23.8	950
	30	28.4	1330
7/0.53mm (1.5mm²)	1	7.7	100
	2(Quad)	9.1	150
	5	15.8	360
	10	21.0	670
	20	27.9	1230
	30	33.7	1720

Multipair Instrumentation Cables (Unarmoured) to BS 5308 Part 1 Type 1- Individual Pair and Collectively Screened

Conductor	Number of Pairs	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
1/0.8mm (0.5mm²)	2	9.7	100
	5	12.9	190
	10	17.7	320
	20	22.9	570
	30	27.3	820
16/0.2mm (0.5mm²)	2	11.4	160
	5	14.6	250
	10	20.5	480
	20	26.7	780
	30	31.7	1100
24/0.2mm (0.75mm²)	2	12.2	190
	5	15.7	270
	10	21.8	550
	20	28.5	960
	30	33.7	1320
1/1.13mm (1.0mm²)	2	12.2	190
	5	15.6	270
	10	22.0	480
	20	29.2	910
	30	34.8	1320
7/0.53mm (1.5mm²)	2	13.7	250
	5	17.8	400
	10	25.2	800
	20	33.8	1400
	30	40.4	2040

Multipair Instrumentation Cables (Armoured) to BS 5308 Part 1 Type 2 - Collectively Screened

Condnctor	Number of Pairs	Nominal Dia. under Armour (mm)	Nominal Overall Dia. (mm)	Armour Wire Dia. (mm)	Approx. Weight (kg/km)
1/0.8mm (0.5mm²)	1	5.3	10.1	0.9	225
	2(Quad)	6.1	10.9	0.9	250
	5	10.6	15.6	0.9	430
	10	14.0	20.1	1.25	730
	20	18.4	25.4	1.6	1200
	30	22.0	29.2	1.6	1500
16/0.2mm (0.5mm²)	1	4.5	10.8	0.9	250
	2(Quad)	6.9	11.7	0.9	300
	5	9.9	17.3	0.9	560
	10	16.2	22.3	1.25	970
	20	22.3	28.5	1.6	1640
	30	32.9	33.3	1.6	2110
24/0.2mm (0.75mm²)	1	6.3	11.1	0.9	280
	2(Quad)	7.3	12.3	0.9	330
	5	13.3	19.2	1.25	750
	10	17.7	24.7	1.6	1260
	20	23.5	30.7	1.6	1890
	30	28.5	36.9	1.6	2440
1/1.13mm (1.0mm²)	1	6.4	11.2	0.9	290
	2(Quad)	7.4	12.4	0.9	345
	5	13.2	19.1	1.25	790
	10	17.4	23.7	1.25	1310
	20	23.3	30.6	1.6	2040
	30	28.0	35.6	1.6	2640
7/0.53mm (1.5mm²)	1	7.3	12.3	0.9	330
	2(Quad)	13.3	13.7	0.9	420
	5	21.1	21.5	1.25	940
	10	27.4	27.8	1.6	1050
	20	27.5	35.1	1.6	2400
	30	27.8	41.9	1.6	3120



Instrumentation Cables to BS 5308

Multipair Instrumentation Cables (Armoured) to BS 5308 Part 1 Type 2 - Individual Pair and Collectively Screened

Conductor	Number of Pairs	Nominal Dia. under Armour (mm)	Nominal Overall Dia. (mm)	Armour Wire Dia. (mm)	Approx. Weight (kg/km)
1/0.8mm (0.5mm²)	2	10.1	14.3	0.9	411
	5	13.5	18.4	1.25	686
	10	18.3	23.6	1.25	1037
	20	23.5	29.7	1.6	1664
	30	27.9	34.3	1.6	2136
16/0.2mm (0.5mm²)	2	12.0	15.8	0.9	460
	5	15.2	20.1	1.25	760
	10	21.1	27.0	1.6	1300
	20	27.3	33.3	1.6	1870
	30	32.3	39.6	2.0	2620
24/0.2mm (0.75mm²)	2	12.8	16.8	1.25	500
	5	16.2	21.1	1.25	920
	10	22.6	28.6	1.6	1610
	20	29.8	37.0	2.0	2420
1/1.13mm (1.0mm²)	2	12.8	17.0	0.9	515
	5	16.2	21.3	1.25	950
	10	22.6	28.8	1.6	1670
	20	29.8	37.2	2.0	2540
7/0.53mm (1.5mm²)	2	14.7	19.5	1.25	730
	5	18.4	24.5	1.6	1180
	10	26.5	32.3	1.6	1820
	20	28.0	41.3	2.0	3030

ORDERING CODE
CCA – BC-DEFGH-IJ-K-LM

A - Cable Series
FSN = FIRESCREEN
B - Screen Type
US = Unscreened; OS = Overall Screened;
IS = Individual Pair Screened;
IOS = Individual Pair and Overall Screened;
FRUS = Fire Resistant Unscreened;
FROS = Fire Resistant Overall Screened;
FRIS = Fire Resistant Individual Pair Screened;
FRIOS = Fire Resistant Individual Pair and Overall Screened
C - Voltage Rating
115 = 115/300V; 300 = 300/500V; 450 = 450/750V; 600 = 600/1000V
D - Insulation
2X = XLPE; Y = PVC; 2Y = PE; H = LSHF; O2Y = FOAM PE
E - Screening
ST = Aluminium/Polyester Tape;
PIMF = Pair Shielded with Aluminium/Polyester Tape;
PIC = Pair Shielded with Copper Braid
F - Bedding
Y = PVC; 2Y = PE; H = LSHF
G - Armouring
SWA = Steel Wire Armouring; STA = Steel Tape Armouring;
SWB = Steel Wire Braiding; DSTA = Double Steel Tape Armouring
H - Sheathing
Y = PVC; Yu = Flame Retardant PVC; Yv = PVC with Reinforced Sheath;
2Y = PE; H = LSHF
I - Number of Cores/Pairs/Triads/Quad
2C = 2 Cores; 3C = 3 Cores; 4C = 4 Cores etc.
J - Cross Section Area or Wire Gauge
1.5S = 1.5mm²; 2.5 = 2.5mm²
1.91S(39/0.21) = 1.91mm² (39/0.21mm)
24A(7) = 24AWG (7 strands)
20A(16/0.2) = 24AWG (16/0.2mm)
K - Standard (Option)
530811 = BS 5308 Part 1 Type 1; 530812 = BS 5308 Part 1 Type 2;
530821 = BS 5308 Part 2 Type 1; 530822 = BS 5308 Part 2 Type 2;
E965 = ESI 09-6 Issue 5; E966 = ESI 09-6 Issue 6;
B8774 = Belden Equivalent 8774 etc.
L - Fire Propagation Level (Option)
1 = IEC 60332-1; 3C = IEC 60332-3C; 3A = IEC 60332-3A
M - Fire Resistant Level (Option)
331 = IEC 60331; 6387CWZ = BS 6387 CWZ

COLOUR CODE CHART 1

(For Multipair PE insulated Collective Screened Cables to BS 5308 Part1.)
Two-Pair unscreened cables are cabled in quad formation and colour coded in clockwise order of rotation, black, blue, green, brown.

All other cables up to 50 pairs conform to the following coding:

Pair Number	A wire	B wire
1	Black	Blue
2	Black	Green
3	Blue	Green
4	Black	Brown
5	Blue	Brown
6	Green	Brown
7	Black	White
8	Blue	White
9	Green	White
10	Brown	White
11	Black	Red
12	Blue	Red
13	Green	Red
14	Brown	Red
15	White	Red
16	Black	Orange
17	Blue	Orange
18	Green	Orange
19	Brown	Orange
20	White	Orange
21	Red	Orange
22	Black	Yellow
23	Blue	Yellow
24	Green	Yellow
25	Brown	Yellow

Pair Number	A wire	B wire
26	White	Yellow
27	Red	Yellow
28	Orange	Yellow
29	Black	Grey
30	Blue	Grey
31	Green	Grey
32	Brown	Grey
33	White	Grey
34	Red	Grey
35	Orange	Grey
36	Yellow	Grey
37	Black	Violet
38	Blue	Violet
39	Green	Violet
40	Brown	Violet
41	White	Violet
42	Red	Violet
43	Orange	Violet
44	Yellow	Violet
45	Grey	Violet
46	Black	Turquoise
47	Blue	Turquoise
48	Green	Turquoise
49	Brown	Turquoise
50	White	Turquoise

ORDERING OPTIONS:

1)Conductor: Bare or Tinned Conductor
2)Conductor Size: Solid or Stranded (to IEC 228 Class 2 or 5 or 6)

Size	Class 1	Class 2	Class 5	Class 6
0.5mm²	1/0.8mm	7/0.3mm	16/0.2mm	28/0.15mm
0.75mm²		7/0.43mm	24.0.2mm	42/0.15mm
1.0mm²	1/1.13mm	7/0.44mm	32/0.2mm	56/0.15mm
1.5mm²		7/0.53mm	30/0.25mm	84/0.15mm
2.5mm²		7/0.67mm	50/0.25mm	140/0.15mm

3)Insulation: PE/XLPE/LSF/LSHF
4)Screening: Aluminium Tape/Copper Braiding
5)Cabling: Multicore/Multipair/Multitriple
6)Bedding & Sheathing Material: PE/PVC/LSF/LSHF
7)Armouring: Steel Tape Armouring/Steel Wire Armouring
8)**Fire Performance**:
IEC 332-1 (For Flame Retardant PVC sheath)
IEC 332-3C (For Flame Retardant PVC or LSHF sheath)
IEC 1034 Part1 & 2 (For LSHF sheath)
IEC 754 Part 1 & 2 (5%-15% for LSF sheath & 0.5% for LSHF sheath)
Oxygen Index (32%-40% depending on different LSHF compound)
Temperature Index (250 °C to 300 °C,depending on different LSHF compound)
IEC 331 (For Flame Retardant PVC or LSHF sheath)

Instrumentation Cables to BS 5308

Multicore & Multipair Instrumentation Cables to BS 5308 Part 2 - PVC Insulated

VDE Ref Code

PVC Sheath Version:

RE-Y(St)Y(Overall Screen)
RE-Y(St)YPiMF(Individual Screen+Overall Screen)
RE-Y(St)Y-SWA(Overall Screen+Steel Wire Armour)
RE-Y(St)YPiMF-SWA(Individual Screen+Overall Screen+ Steel Wire Armour)

Application

These cables are designed for transmission of analog and digital signals, and the interconnection of electrical equipment and instruments, particular for the process control industry.

Construction

Conductors: Annealed solid copper (Class 1), stranded (Class 2), or flexible (Class 5) to BS 6360.

Core/Pair Identification:

a) Multicore cables:
Up to 40 cores-yellow cores with black numbers;
41-80 cores-black cores with yellow numbers.
b) Multipair cables:
Colour coded in accordance with Colour Code Chart 2 on page 6

Pair Screens:
Aluminium/p.e.t.p laminated tape applied with the metallic side down in electrical contact with a 0.5mm² tinned copper drain wire. A 23 micron isolation tape is applied over the screening tape with a minimum 50% overlap.

Voltage Rating

300 volt core to earth and 500 volt core to core at maximum temperature of 65°C.

These cables are not for direct connection to the public mains supply.

LSHF Sheath Version:

RE-H(St)H(Overall Screen)
RE-H(St)HPiMF(Individual Screen+Overall Screen)
RE-H(St)H-SWA(Overall Screen+Steel Wire Armour)
RE-H(St)HPiMF-SWA(Individual Screen+Overall Screen+ Steel Wire Armour)

Binder Tape:

A 23 micron p.e.t.p. applied with the metallic side down in electrical contact with a 0.5mm² tinned copper drain wire over the p.e.t.p.binder tape.

Collective Screen:

Alminium/p.e.t.p.laminated tape applied with the metallic side down in electrical contact with a 0.5mm² tinned copper drain wire over the p.e.t.p.binder tape.

Outer Protection:

Type 1 Extruded flame retardant PVC sheath.
Type 2 Extruded PVC Type TM1, galvanised steel wire armour, extruded flame retardant PVC sheath.

Minimum Bending Radius:

Type 1 8 × overall diameter.
Type 2 12 × overall diameter.

Temperature Rating:

During Operation: -40°C to +70°C
During Installation: 0°C to +50°C

Electrical Characteristics

			Unit	Conductor Size		
				0.5mm² (16/0.2mm)	0.75mm² (24/0.2mm)	1.5mm² (7/0.53mm)
Conductor resistance	Multicore	max.	Ω/km	39	26	12.1
	Multipair			39.7	26.5	12.3
Insulation resistance		min.	MΩ×km	25	25	25
Mutual capacitance at 1 kHz Mutual capacitance of the pairs or adjacent cores		max.	pF/m	250	250	250
Capacitance between any core or screen.		max.	pF/m	450	450	450
Inductance/resistance ratio(L/R)		max.	μH/Ω	25	25	40
Test voltage (Core:core) (Core:screen)			V V	1000 1000	1000 1000	1000 1000
Rated voltage		max.	V	300/500	300/500	300/500

Fire retardant PVC and LSHF material can be used as insulation and jacket options.Please refer to Ordering Options.

Instrumentation Cables to BS 5308

Multicore Instrumentation Cables (Unarmoured) to BS 5308 Part 2 Type 1 - Collectively Screened

Conductor	Number of Cores	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
16/0.2mm (0.5mm²)	2	6.4	60
	3	6.7	72
	4	7.3	80
	6	8.7	110
	10	11.3	176
	20	14.3	310
	40	19.5	568
24/0.2mm (0.75mm²)	2	6.7	75
	3	7.1	90
	4	7.7	100
	6	9.3	138
	10	12.1	220
	20	15.4	388
	40	21.1	710
7/0.53mm (1.5mm²)	2	7.7	103
	3	8.3	135
	4	9.1	150
	6	11.1	205
	10	14.1	330
	20	18.1	580
	40	24.0	1065

Multipair Instrumentation Cables (Unarmoured) to BS 5308 Part 2 Type 1 - Collectively Screened

Conductor	Number of Pairs	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
16/0.2mm (0.5mm²)	1	6.4	60
	2(Quad)	7.3	80
	5	12.5	200
	10	16.6	340
	20	21.7	570
	30	26.3	790
24/0.2mm (0.75mm²)	1	6.7	75
	2(Quad)	7.7	100
	5	13.7	250
	10	18.1	450
	20	23.9	800
	30	28.9	1130
7/0.53mm (1.5mm²)	1	7.7	100
	2(Quad)	9.1	150
	5	15.8	360
	10	21.0	670
	20	27.9	1230
	30	33.7	1720

Also available with Individual Pair and Collective Screens

Multicore Instrumentation Cables (Armoured) to BS 5308 Part 2 Type 2 - Collectively Screened

Conductor	Number of Cores	Nominal Dia. under Armour (mm)	Nominal Overall Dia. (mm)	Armour Wire Dia. (mm)	Approx. Weight (kg/km)
16/0.2mm (0.5mm²)	2	6.0	10.8	0.9	255
	3	6.3	11.1	0.9	280
	4	6.9	11.7	0.9	305
	6	8.3	13.3	0.9	360
	10	10.9	16.1	0.9	510
	20	13.9	20.0	1.25	860
	40	19.1	26.1	1.6	1440
24/0.2mm (0.75mm²)	2	6.3	11.1	0.9	280
	3	6.7	11.5	0.9	305
	4	7.3	12.3	0.9	335
	6	8.9	13.9	0.9	400
	10	11.7	16.9	0.9	565
	20	15.0	21.1	1.25	950
	40	20.7	27.9	1.6	1590
7/0.53mm (1.5mm²)	2	7.3	12.3	0.9	330
	3	7.9	12.9	0.9	380
	4	8.7	13.7	0.9	420
	6	10.7	15.7	0.9	540
	10	13.7	19.8	1.25	750
	20	17.7	24.7	1.6	1260
	40	23.6	31.0	1.6	2140

Instrumentation Cables to BS 5308

Multipair Instrumentation Cables (Armoured) to BS 5308 Part 2 Type 2 - Collectively Screened

Conductor	Number of Pairs	Nominal Dia. under Armour (mm)	Nominal Overall Dia. (mm)	Armour Wire Dia. (mm)	Approx. Weight (kg/km)
16/0.2mm (0.5mm²)	1	6.0	10.8	0.9	255
	2(Quad)	7.85	11.7	0.9	305
	5	12.1	17.3	0.9	610
	10	16.2	22.3	1.25	1060
	20	22.6	28.5	1.6	1800
	30	26.4	33.3	2.0	2320
24/0.2mm (0.75mm²)	1	6.5	11.1	0.9	305
	2(Quad)	7.4	12.3	0.9	360
	5	17.3	19.2	1.25	820
	10	17.7	24.7	1.6	1380
	20	23.0	30.7	1.6	2080
	30	29.7	36.9	2.0	2660
7/0.53mm (1.5mm²)	1	7.5	12.3	0.9	360
	2(Quad)	8.7	13.7	0.9	460
	5	16.7	21.5	1.25	1040
	10	21.1	27.8	1.6	1160
	20	28.0	35.1	2.0	2630

Also available with Individual Pair and Collective Screens

COLOUR CODE CHART 2

(For Multipair PVC insulated Collective Screened Cables to BS 5308 Part 2)
Two-Pair unscreened cables are cabled in quad formation and colour coded in clockwise order of rotation,blue, green,orange,brown.

All other cables up to 50 pairs conform to the following coding:

Pair Number	A wire	B wire
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Grey
6	Red	Blue
7	Red	Orange
8	Red	Green
9	Red	Brown
10	Red	Grey
11	Black	Blue
12	Black	Orange
13	Black	Green
14	Black	Brown
15	Black	Grey
16	Yellow	Blue
17	Yellow	Orange
18	Yellow	Green
19	Yellow	Brown
20	Yellow	Grey
21	WHITE-Blue	Blue
22	WHITE-Blue	Orange
23	WHITE-Blue	Green
24	WHITE-Blue	Brown
25	WHITE-Blue	Grey

Pair Number	A wire	B wire
26	RED-Blue	Blue
27	RED-Blue	Orange
28	RED-Blue	Green
29	RED-Blue	Brown
30	RED-Blue	Grey
31	BLUE-Black	Blue
32	BLUE-Black	Orange
33	BLUE-Black	Green
34	BLUE-Black	Brown
35	BLUE-Black	Grey
36	YELLOW-Blue	Blue
37	YELLOW-Blue	Orange
38	YELLOW-Blue	Green
39	YELLOW-Blue	Brown
40	YELLOW-Blue	Grey
41	WHITE-Orange	Blue
42	WHITE-Orange	Orange
43	WHITE-Orange	Green
44	WHITE-Orange	Brown
45	WHITE-Orange	Grey
46	ORANGE-Red	Blue
47	ORANGE-Red	Orange
48	ORANGE-Red	Green
49	ORANGE-Red	Brown
50	ORANGE-Red	Grey

NOTE: Except in cases of bi-colour extrusion, the colour indicated by capital letters is the base colour, and is:
a) the extruded colour
b) the colour with the greatest area of exposure on the finished wire.

ORDERING CODE
CCA – BC-DEFGH-IJ-K-LM

A - Cable Series
FSN = FIRESCREEN
B - Screen Type
US = Unscreened; OS = Overall Screened;
IS = Individual Pair Screened;
IOS = Individual Pair and Overall Screened;
FRUS = Fire Resistant Unscreened;
FROS = Fire Resistant Overall Screened;
FRIS = Fire Resistant Individual Pair Screened;
FRIOS = Fire Resistant Individual Pair and Overall Screened
C - Voltage Rating
115 = 115/300V; 300 = 300/500V; 450 = 450/750V; 600 = 600/1000V
D - Insulation
2X = XLPE; Y = PVC; 2Y = PE; H = LSHF; O2Y = FOAM PE
E - Screening
ST = Aluminium/Polyester Tape;
PIMF = Pair Shielded with Aluminium/Polyester Tape;
PIC = Pair Shielded with Copper Braid
F - Bedding
Y = PVC; 2Y = PE; H = LSHF
G - Armouring
SWA = Steel Wire Armouring; STA = Steel Tape Armouring;
SWB = Steel Wire Braiding; DSTA = Double Steel Tape Armouring
H - Sheathing
Y = PVC; Yu = Flame Retardant PVC; Yv = PVC with Reinforced Sheath;
2Y = PE; H = LSHF
I - Number of Cores/Pairs/Triads/Quad
2C = 2 Cores; 3C = 3 Cores; 4C = 4 Cores etc.
J - Cross Section Area or Wire Gauge
1.5S = 1.5mm²; 2.5 = 2.5mm²;
1.91S(39/0.21) = 1.91mm² (39/0.21mm);
24A(7) = 24AWG (7 strands);
20A(16/0.2) = 24AWG (16/0.2mm)
K - Standard (Option)
530811 = BS 5308 Part 1 Type 1; 530812 = BS 5308 Part 1 Type 2;
530821 = BS 5308 Part 2 Type 1; 530822 = BS 5308 Part 2 Type 2;
E965 = ESI 09-6 Issue 5; E966 = ESI 09-6 Issue 6;
B8774 = Belden Equivalent 8774 etc.
L - Fire Propagation Level (Option)
1 = IEC 60332-1; 3C = IEC 60332-3C; 3A = IEC 60332-3A
M - Fire Resistant Level (Option)
331 = IEC 60331; 6387CWZ = BS 6387 CWZ

ORDERING OPTIONS:

1) Conductor: Bare or Tinned Conductor
2) Conductor Size: Solid or Stranded (to IEC 228 Class 2 or 5 or 6)

Size	Class 1	Class 2	Class 5	Class 6
0.5mm²	1/0.8mm	7/0.3mm	16/0.2mm	28/0.15mm
0.75mm²		7/0.43mm	24.0.2mm	42/0.15mm
1.0mm²	1/1.13mm	7/0.44mm	32/0.2mm	56/0.15mm
1.5mm²		7/0.53mm	30/0.25mm	84/0.15mm
2.5mm²		7/0.67mm	50/0.25mm	140/0.15mm

3) Insulation: PVC/XLPE/LSF/LSHF
4) Screening: Aluminium Tape/Copper Braiding
5) Cabling: Multicore/Multipair/Multitriple
6) Bedding & Sheathing Material: PVC/LSF/LSHF
7) Armouring: Steel Tape Armouring/Steel Wire Armouring
8) Fire Performance:
IEC 332-1 (For Flame Retardant PVC sheath)
IEC 332-3C (For Flame Retardant PVC or LSHF sheath)
IEC 1034 Part 1 & 2 (For LSHF sheath)
IEC 754 Part 1 & 2 (5%-15% for LSF sheath & 0.5% for LSHF sheath)
Oxygen Index (32%-40% depending on different LSHF compound)
Temperature Index (250°C to 300°C, depending on different LSHF compound)
IEC 331 (For Flame Retardant PVC or LSHF sheath)

Instrumentation Cables to ESI 09-6

Multipair Instrumentation Cables
ESI 09-6 Issue 5 - PVC Insulated & Sheathed

Application

These multipair light current cables are designed primarily with control, indication and alarm equipment for switchgear and similar power applications where the nominal operating voltages do not exceed 150 volts d.c. or 110 volts. a.c. The cables are also suitable for telemetry applications where large conductor sizes are required. An optional collective aluminium tape screen can be offered. In case if the installation environment is prone to flooding or prolonged period of dampness , PE insulation should be considered as an alternative to PVC.

Construction

Conductors: 1/0.9mm tinned annealed copper conductor to BS6360.
Insulation: PVC to BS 7655
Binder Tape: p.e.t.p binder tape.
Collective Screen (optional): Aluminium/Polyester tape, metallic side down, in contact with a longitudinal 1/0.5mm to 1/0.8mm tinned copper drain wire.
Bedding (armoured): PVC to BS 7655.
Armouring (armoured): Galvanised steel wire armour to BS EN10257-1
Outer Sheath: Flame retardant PVC to BS 7655

Technical Data

Maximum Conductor Temperature: +70°C
Minimum Ambient Temp: -20°C after installation and only when cable is in a fixed position.
Voltage Rating (Uo/U): 150V d. c. or 110V a.c.
Test Voltage: 2kV r. m. s. between conductors, 5kV r. m. s between all conductors and armour.
Maximum Conductor Resistance (loop): 59.34 W/km at 20 °C
Minimum Insulation Resistance: 80MW/km at 20°C
Maximum Mutual Capacitance: 150 nF/km at 1 KHz
Flame Retardancy: Complies with BS 4066 Part 1 (IEC 60332-1) or BS 4066 Part 3 (IEC 60332-3)
Minimum Bending Radius: 6 × overall diameter

Unarmoured Cables

Number of Pairs	Nominal Conductor Area (mm²)	Nominal Conductor Stranding No./mm	Insulation Thickness (mm)	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
2(Quad)	0.64	1/0.9	0.30	5.70	45.00
5	0.64	1/0.9	0.30	9.40	115.00
10	0.64	1/0.9	0.30	13.00	205.00
20	0.64	1/0.9	0.30	16.80	380.00
30	0.64	1/0.9	0.30	19.90	570.00
50	0.64	1/0.9	0.30	25.40	920.00
2(Quad)	0.64	1/0.9	0.30	6.20	50.00
5	0.64	1/0.9	0.30	9.90	125.00
10	0.64	1/0.9	0.30	13.50	215.00
20	0.64	1/0.9	0.30	17.30	390.00
30	0.64	1/0.9	0.30	20.40	580.00
50	0.64	1/0.9	0.30	25.90	940.00

Armoured Cables

Number of Pairs/Triple	Nominal Conductor Area (mm²)	Nominal Conductor Stranding No. /mm	Insulation Thickness (mm)	Nominal Dia. under Armour (mm)	Armour Wire Dia. (mm)	Nominal Overall Dia. (mm)	Approx. Weight (kg/km)
2(Quad)	0.64	1/0.9	0.30	5.70	0.90	10.10	200.00
5	0.64	1/0.9	0.30	9.40	0.90	14.10	370.00
10	0.64	1/0.9	0.30	13.00	1.25	18.60	610.00
20	0.64	1/0.9	0.30	16.80	1.25	22.70	930.00
30	0.64	1/0.9	0.30	19.90	1.60	26.70	1390.00
50	0.64	1/0.9	0.30	25.40	1.60	32.60	1940.00
2(Quad)	0.64	1/0.9	0.30	6.20	0.90	10.60	220.00
5	0.64	1/0.9	0.30	9.90	0.90	14.60	380.00
10	0.64	1/0.9	0.30	13.50	1.25	19.10	630.00
20	0.64	1/0.9	0.30	17.30	1.25	23.20	1055.00
30	0.64	1/0.9	0.30	20.40	1.60	27.20	1415.00
50	0.64	1/0.9	0.30	25.90	1.60	33.10	2000.00

Instrumentation Cables to ESI 09-6

COLOUR CODE CHART3

For ESI 09-6 ISSUE 5 pairs are identified as follows:

Pair No.	A wire	B wire
1	Black	Blue
2	Black	Orange
3	Black	Green
4	Black	Brown
5	Black	Grey
6	Blue	White
7	Blue	Orange
8	Blue	Green
9	Blue	Brown

Pair No.	A wire	B wire
10	Blue	Grey
11	Orange	White
12	Orange	Green
13	Orange	Brown
14	Orange	Grey
15	Green	White
16	Green	Brown
17	Green	Grey
18	Brown	White

Pair No.	A wire	B wire
19	Brown	Grey
20	Grey	White
21	Black	White
22	Black	Red
23	Black	Yellow
24	Black	Violet
25	White	Red
26	White	Yellow
27	White	Violet

Pair No.	A wire	B wire
28	Blue	Red
29	Blue	Yellow
30	Blue	Violet
31	Green	Red
32	Green	Yellow
33	Green	Violet
34	Red	Grey
35	Red	Orange
36	Red	Yellow

Pair No.	A wire	B wire
37	Red	Brown
38	Red	Violet
39	Grey	Yellow
40	Grey	Violet
41	Orange	Yellow
42	Orange	Violet
43	Yellow	Brown
44	Yellow	Violet
45	Brown	Violet

Pair No.	A wire	B wire
46	Turquoise	Black
47	Turquoise	Blue
48	Turquoise	Red
49	Turquoise	Orange
50	Turquoise	Yellow

Ordering Code: Please refer to P3

Multipair Instrumentation Cables
ISI 09-6 Issue 6 PVC Insulated & Sheathed

Construction

Conductors: 1/0.8mm tinned annealed copper conductor to BS 6360.
Insulation: PVC to BS 7655
Binder Tape: p.e.t.p binder tape.
Collective Screen (optional): Aluminium/Polyester tape, metallic side down, in contact with a longitudinal 1/0.5mm to 1/0.8mm tinned copper drain wire.
Bedding (armoured): PVC to BS 7655.
Armouring (armoured): Galvanised steel wire armour to BS EN10257-1
Outer Sheath: Flame retardant PVC to BS 7655

Technical Data

Maximum Conductor Temperature: +70°C
Minimum Ambient Temp: -20°C after installation and only when cable is in a fixed position.
Voltage Rating (Uo/U): 150V d. c. or 110V a.c.
Test Voltage: 2kV r. m. s. between conductors, 5kV r. m. s between all conductors and armour.
Maximum Conductor Resistance (loop): 73.6 W/km at 20 °C
Minimum Insulation Resistance: 80MW/km at 20°C
Maximum Mutual Capacitance: 150 nF/km at 1 KHz
Flame Retardancy: Complies with BS 4066 Part 1 (IEC 60332-1) or BS 4066 Part 3 (IEC 60332-3)
Minimum Bending Radius: 6 × overall diameter

Armoured Cables

Number of Pairs	Nominal Conductor Area (mm²)	Nominal Conductor Stranding No. / mm	Insulation Thickness (mm)	Nominal Dia. under Armour (mm)	Armour Wire Dia. / Tape Thickness (mm)	Nominal Overall Dia. (mm)	Nominal Cable Weight (kg/km)
2(Quad)	0.50	1/0.8	0.30	6.50	0.90	12.10	300.00
5	0.50	1/0.8	0.30	9.50	0.90	15.30	450.00
10	0.50	1/0.8	0.30	11.70	1.25	18.60	730.00
20	0.50	1/0.8	0.30	15.00	0.50	21.80	930.00
40	0.50	1/0.8	0.30	24.10	0.50	31.70	1570.00

Ordering Code: Please refer to P3

COLOUR CODE CHART 4

For ESI 09-6 ISSUE 6 pairs are identified as follows:

Pair No.	A wire	B wire
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Grey

Pair No.	A wire	B wire
6	Red	Blue
7	Red	Orange
8	Red	Green
9	Red	Brown
10	Red	Grey

Pair No.	A wire	B wire
11	Black	Blue
12	Black	Orange
13	Black	Green
14	Black	Brown
15	Black	Grey

Pair No.	A wire	B wire
16	Yellow	Blue
17	Yellow	Orange
18	Yellow	Green
19	Yellow	Brown
20	Yellow	Grey

2 pair cables are manufactured in quad formation, in rotational order white, blue then orange. Cables having 40 pairs are produced in 20 pair unit, each unit with pair identification as above.

Each core is identified by a number (running from 1 upwards) applied directly to its binder tape or by a separate longitudinal tape applied under a clear binder tape.

Flexible Screened Cable Family

Introduction

Flexible Screened Cable Family can be offered as an alternative to Belden cables. Armoured data cables or other jacket options (such as FRPVC , LSF or LSHF) can be offered.

1) **Multicore Overall Screened:** used in RS 232 instrumentation, and audio applications where balanced lines are not required.
2) **Multipair Overall Screened:** used for computers, point of sale, control systems, and RS 232 applications.
3) **Multipair Individual Screened:** used for minitoring, computer, instrumentation and audio applications where the individual screen can reduce crosstalk.
4) **Multipair Individual Shielded & Overall Screened:** used for monitoring, computer, instrumentation and audio application where the individual screen can reduce crosstalk.
5) **Low Capacitance Multipair Screened:** used for RS 422 and RS 485 applications requiring low capacitance and free interference between pairs. Ideal for CAD/CAM and other industrial applications requiring high data rates.

ORDERING CODE

CCA – BC-DEFGH-IJ-K-LM

A - Cable Series
FSN = FIRESCREEN

B - Screen Type
US = Unscreened; OS = Overall Screened; IS = Individual Pair Screened; IOS = Individual Pair and Overall Screened;
FRUS = Fire Resistant Unscreened; FROS = Fire Resistant Overall Screened; FRIS = Fire Resistant Individual Pair Screened;
FRIOS = Fire Resistant Individual Pair and Overall Screened

C - Voltage Rating
115 = 115/300V; 300 = 300/500V; 450 = 450/750V; 600 = 600/1000V

D - Insulation
2X = XLPE; Y = PVC; 2Y = PE; H = LSHF; O2Y = FOAM PE

E - Screening
ST = Aluminium/Polyester Tape; PIMF = Pair Shielded with Aluminium/Polyester Tape;
PIC = Pair Shielded with Copper Braid

F - Bedding
Y = PVC; 2Y = PE; H = LSHF

G - Armouring
SWA = Steel Wire Armouring; STA = Steel Tape Armouring; SWB = Steel Wire Braiding;
DSTA = Double Steel Tape Armouring

H - Sheathing
Y = PVC; Yu = Flame Retardant PVC; Yv = PVC with Reinforced Sheath; 2Y = PE; H = LSHF

I - Number of Cores/Pairs/Triads/Quad
2C = 2 Cores; 3C = 3 Cores; 4C = 4 Cores etc.

J - Cross Section Area or Wire Gauge
1.5S = 1.5mm²; 2.5 = 2.5mm²;
1.91S(39/0.21) = 1.91mm² (39/0.21mm);
24A(7) = 24AWG (7 strands);
20A(16/0.2) = 24AWG (16/0.2mm)

K - Standard (Option)
530811 = BS 5308 Part 1 Type 1; 530812 = BS 5308 Part 1 Type 2;
530821 = BS 5308 Part 2 Type 1; 530822 = BS 5308 Part 2 Type 2;
E965 = ESI 09-6 Issue 5; E966 = ESI 09-6 Issue 6;
B8774 = Belden Equivalent 8774 etc.

L - Fire Propagation Level (Option)
1 = IEC 60332-1; 3C = IEC 60332-3C; 3A = IEC 60332-3A

M - Fire Resistant Level (Option)
331 = IEC 60331; 6387CWZ = BS 6387 CWZ

For Example
CCFSN-OS300-2Y(St)H-4P24A(7)-530811-3C
Firescreen Series, Overall Aluminium Screening Type, 300/500V, XLPE Insulated, Overall Aluminium/Polyester Tape Screened, LSHF Sheathed, 4 Pairs, 24 AWG with 7 strands, to BS 5308 Part 1 Type 1, fire propagation to IEC 60332-3C.

Multicore Overall Screened Data Cables

Multicore overall screened data cables have individually insulated cores laid up in an aluminium/polyester tape. A tinned copper drain wire is laid under and in contact with the screen.

Applications For RS 232 data transmission and instrumentation applications.

Construction

Conductor: Tinned annealed high conductivity copper wire to BS 6360.
Insulation: PVC/PE/PP/XLPE/LSF/LSHF
Overall Screen: Aluminium/Polyester Tape or Copper Braiding
Sheath: PVC/LSF/LSHF

Technical Data

Operating Temperature: -5°C to 80°C
Nominal Voltage: 30V
Bending Radius: 12 × overall diameter
Nominal Impedance: 100 Ohm (RS 422 applications)
120 Ohm (RS 485 applications)
Mutual Capacitance: 42.5 pF/M

Electrical Characteristics

No. of Cores	Insulation Type	Conductor Size(AWG)	Belden Equivalent (Nearest)	Maximum Conductor Resistance (Ohm/km)	Nominal Capacitance (pF/M) C1	C2	Nominal Overall Diameter (mm)
3	PVC	24	9533	85	107	193	4.4
4	PVC	24	9534	85	107	193	4.7
5	PVC	24	9535	85	107	193	4.8
6	PVC	24	9536	85	107	193	5.3
7	PVC	24	9537	85	107	193	5.4
8	PVC	24	9538	85	107	193	5.8
10	PVC	24	9540	85	107	193	6.1
15	PVC	24	9541	85	107	193	7.4
25	PVC	24	9543	85	107	193	9.2
3	PVC	22	8735	54.8	105	185	5.4
6	PVC	20	9260	34.1	80	158	7.9
12	PVC	20	9261	34.1	80	158	10.9
4	FOAM PE	28	9791	148.6	40	70	5.9
4	PVC	18	9418	23	200	340	6.4
3	PE	22	8771	54.8	62	115	5.3
4	PE	22	8729	54.8	65	128	6.7
3	PE	20	8772	34.1	85	162	5.7
3	PE	18	8770	23	70	130	6.3
3	PE	16	8618	15.8	80	160	8.2
3	PP	22	9770	54.8	100	192	3.8

Remarks : Armoured versions for direct burial are available upon request.

Multipair Overall Screened Data Cables

Multipair overall screened data cables have pairs laid up in aluminum/polyester tape. The cables incorporate a tinned copper drain wire under and in contact with the screen.

Applications

For RS 232 data transmission and instrumentation applications.

Construction

Conductor: Tinned annealed high conductivity copper wire to BS 6360.

Insulation: PVC/PE/PP/XLPE/LSF/LSHF

Overall Screen: Aluminium/Polyester Tape or Copper Braiding

Sheath: PVC/LSF/LSHF

Technical Data

Operating Temperature: -5°C to 80°C

Nominal Voltage: 30V

Bending Radius: 12 × overall diameter

Nominal Impedance: 100 Ohm (RS 422 applications)
120 Ohm (RS 485 applications)

Mutual Capacitance: 42.5 pF/M

Electrical Characteristics

No. of Pairs	Insulation Type	Conductor Size(AWG)	Belden Equivalent (Nearest)	Maximum Conductor Resistance (Ohm/km)	Nominal Capacitance (pF/M) C1	C2	Nominal Overall Diameter (mm)
1	PVC	24	9501	85	127	235	3.96
2	PVC	24	9502	85	94	160	5.5
3	PVC	24	9503	85	94	160	5.8
4	PVC	24	9504	85	94	160	6.68
5	PVC	24	9505	85	94	160	7.3
6	PVC	24	9506	85	94	160	7.4
10	PVC	24	9510	85	94	160	9.5
19	PVC	24	9519	85	94	160	11.5
25	PVC	24	9525	85	94	160	12.9
1	PVC	22	8441	54.8	160	290	4.52
2	PVC	22	9302	54.8	110	160	6.3
4	PVC	22	9304	54.8	110	160	6.8
6	PVC	22	9306	54.8	110	160	8.3
9	PVC	22	9309	54.8	110	160	9.6
15	PVC	22	9315	54.8	110	160	11.7
19	PVC	22	9319	54.8	110	160	12.7
27	PVC	22	9327	54.8	110	160	15.8
1	PVC	20	9154	34.1	190	320	5
3	PE	24	9680	78.7	49	89	7.8
4	PE	24	9681	78.7	49	89	8.4
6	PE	24	9682	78.7	49	89	9.3
9	PE	24	9683	78.7	49	89	10.9
12.5	PE	24	9684	78.7	49	89	13
1	PE	22	8761	54.8	77	150	4.57
1	PE	20	8762	34.1	88	165	5.3
1	PE	18	8760	23	77	142	5.7
1	PE	16	8719	15.8	77	147	7.9
1	PE	14	8720	10	82	160	8.8
1	PE	12	8718	8	80	159	10.4
1	PP	22	8451	54.8	109	218	3.6
2	PP	22	8723	54.8	106	197	4.5

Remarks: Armoured versions for direct burial are available upon request.

Flexible Screened Cables

Multipair Individually Screened Data Cables

Multipair individually screened data cables have individually screened pairs laid up with a tinned copper drain wire under and in contact with the screen.

Applications RS 232 and RS 422 data transmission and instrumentation applications.

Construction

Conductor: Tinned annealed high conductivity copper wire to BS 6360.
Insulation: PVC/PE/PP/XLPE/LSF/LSHF
Individual Screen: Aluminium/Polyester Tape or Copper Braiding
Sheath: PVC/LSF/LSHF

Technical Data

Operating Temperature: -5°C to 80°C
Nominal Voltage: 30V
Bending Radius: 12 × overall diameter
Nominal Impedance: 100 Ohm (RS 422 applications)
120 Ohm (RS 485 applications)
Mutual Capacitance: 42.5 pF/M

Electrical Characteristics

No. of Pairs	Insulation Type	Conductor Size(AWG)	Belden Equivalent (Nearest)	Maximum Conductor Resistance (Ohm/km)	Nominal Capacitance (pF/m) C1	C2	Nominal Overall Diameter (mm)
9	PVC	22	8764	54.8	130	250	11
11	PVC	22	8765	54.8	130	250	12.1
15	PVC	22	8766	54.8	130	250	13.5
1	PE	24	8641	85	70	135	4.4
1	PE	22	8761	54.8	77	152	4.6
6	PE	22	8778	54.8	105	190	9.3
9	PE	22	8774	54.8	105	190	11
11	PE	22	8775	54.8	105	190	12
15	PE	22	8776	54.8	105	190	14.5
27	PE	22	8773	54.8	105	190	18
3	PE	20	9873	34.1	105	190	8.6
6	PE	20	9874	34.1	105	190	11.2
9	PE	20	9875	34.1	105	190	13.8
11	PE	20	9876	34.1	105	190	15.4
12	PE	20	9877	34.1	105	190	15.6
15	PE	20	9879	34.1	105	190	17.2
3	PE	18	9773	34.1	105	190	10.6
6	PE	18	9774	23	105	190	14.5
9	PE	18	9775	23	105	190	16.8
12	PE	18	9776	23	105	190	18.8
15	PE	18	9777	23	105	190	21
2	FOAM PE*	24	9729	85	45	82	8.8
3	FOAM PE*	24	9730	85	45	82	9.1
4	FOAM PE*	24	9728	85	45	82	10.5
6	FOAM PE*	24	9731	85	45	82	12.2
9	FOAM PE*	24	9732	85	45	82	14.8
11	FOAM PE*	24	9733	85	45	82	15.8
12	FOAM PE*	24	9734	85	45	82	16.5
15	FOAM PE*	24	9735	85	45	82	18.1
17	FOAM PE*	24	9736	85	45	82	18.7
19	FOAM PE*	24	9737	85	45	82	19.5
27	FOAM PE*	24	9738	85	45	82	22.5
3	PP	22	8777	54.8	105	190	7.1

**For RS 422 Application*

Remarks: Armoured versions for direct burial are available upon request.

Multipair Individually Shielded Data Cables with Overall Screen

Multipair individually shielded data cables with overall screen have individually shielded pairs laid up in aluminium/polyester tape. The cables incorporate a tinned copper drain wire under and in contact with the screen.

Applications RS 232, RS 422 and RS 485 data transmission and instrumentation applications.

Construction

Conductor: Tinned annealed high conductivity copper wire to BS 6360.
Insulation: PVC/PE/PP/XLPE/LSF/LSHF
Individual & Overall Screen: Aluminium/Polyester Tape or Copper Braiding
Sheath: PVC/LSF/LSHF

Technical Data

Operating Temperature: -5°C to 80°C
Nominal Voltage: 30V
Bending Radius: 12 × overall diameter
Nominal Impedance: 100 Ohm (RS 422 applications)
120 Ohm (RS 485 applications)
Mutual Capacitance: 42.5 pF/M

Electrical Characteristics:

No. of Pairs	Insulation Type	Conductor Size(AWG)	Belden Equivalent (Nearest)	Maximum Conductor Resistance (Ohm/km)	Nominal Capacitance (pF/m) C1	C2	Nominal Overall Diameter (mm)
2	PVC	24	8332	85	105	180	6.5
3	PVC	24	8333	85	105	180	7.2
4	PVC	24	8334	85	105	180	7.6
5	PVC	24	8335	85	105	180	7.7
7	PVC	24	8337	85	105	180	8.5
10	PVC	24	8340	85	105	180	9.9
15	PVC	24	8345	85	105	180	11.5
25	PVC	24	8355	85	105	180	14.3
2	PVC	22	8302	54.8	131	236	6.6
3	PVC	22	8303	54.8	120	210	7.7
4	PVC	22	8304	54.8	120	210	8.4
5	PVC	22	8305	54.8	120	210	8.5
7	PVC	22	8307	54.8	120	210	9.2
10	PVC	22	8310	54.8	120	210	11.4
15	PVC	22	8315	54.8	120	210	12.9
25	PVC	22	8325	54.8	120	210	15.9
1	FOAM PE*	24	9841	85	42	73	6.6
2	FOAM PE*	24	9842	85	42	73	9.8
3	FOAM PE*	24	9843	85	42	73	10.3
4	FOAM PE*	24	9844	85	42	73	11.3
2	PE	24	9829	85	51	90	8.1
3	PE	24	9830	85	51	90	8.4
4	PE	24	9831	85	51	90	9.1
5	PE	24	9832	85	51	90	9.5
7	PE	24	9833	85	51	90	10.7
10	PE	24	9835	85	51	90	12.4
12	PE	24	9836	85	51	90	12.8
18	PE	24	9837	85	51	90	15.8
25	PE	24	9838	85	51	90	18.5
2	PE	22	9855	54.8	51	90	6.9
2	FOAM POLYOLEFIN*	24	8102	85	42	73	7.6
5	FOAM POLYOLEFIN*	24	8105	85	42	73	8.9
10	FOAM POLYOLEFIN*	24	8110	85	42	73	11.9
15	FOAM POLYOLEFIN*	24	8115	85	42	73	14.1
25	FOAM POLYOLEFIN*	24	8125	85	42	73	16.8

**For RS 485 Application*

Remarks: Armoured versions for direct burial are available upon request.

Low Capacitance Multipair Individual or Overall Screened Data Cables

Applications

With low capacitance and high propagation speed of the insulation and its high immunity against external interference, these cables are specially suitable for extended distances at high data rates for RS 232, RS 422, RS 423 and RS 485 applications.

Construction

Conductor: Tinned annealed copper
Insulation: Foam Polyolefin/Polyethylene
Pairing: Twisted to form pairs
Screening:
1) Individual Pair Screening: Each Pair Polyester/Aluminium foil screened plus tinned copper drain wire (usually for RS 422 applications)
2) Overall Foil & Braid Screening: Overall Polyester/Aluminium foil screened plus tinned copper drain wire + Overall tinned Copper (usually for RS 485 applications)
Sheath: PVC/LSF/LSHF

Technical Data

Operating Temperature: -5°C to 80°C
Nominal Voltage: 30V
Bending Radius: 12 × overall diameter
Nominal Impedance: 100 Ohm (RS 422 applications)
120 Ohm (RS 485 applications)
Mutual Capacitance: 42.5 pF/m
Core Colour:
Black/Red; Black/White; Black/Green; Black/Blue (other core coding is available upon request)

Size	Maximum Conductor Resistance (Ohm/km)	Nominal Capacitance between Conductors (pF/M)	Nominal Overall Diameter (mm)	Approx. Cable Weight (kg/km)
1× 2 × 0.22 sq mm (7/0.20 mm)	88	42.5	4.20	18
2 × 2 × 0.22 sq mm (7/0.20 mm)	88	42.5	5.90	31
4 × 2 × 0.22 sq mm (7/0.20 mm)	88	42.5	6.20	42
1 × 2 × 0.50 sq mm (16/0.20 mm)	40	42.5	6.30	36
2 × 2 × 0.50 sq mm (16/0.20 mm)	40	42.5	8.50	54
4 × 2 × 0.50 sq mm (16/0.20 mm)	40	42.5	9.40	80
1 × 2 × 1.00 sq mm (32/0.20 mm)	20	42.5	7.30	53
2 × 2 × 1.00 sq mm (32/0.20 mm)	20	42.5	11.40	100
4 × 2 × 1.00 sq mm (32/0.20 mm)	20	42.5	13.30	154

Item	Inner Conductor	No. /mm	Dielectric Nom. Dia. (mm)	Shield Coverage	Sheath Nominal Overall Dia. (mm)	Approx. Weight (kg/km)	Imp. (ohm)	Cap. (pF/m)	Vel. (%)	Attenuation MHz dB/100M
RG6/U	Bare Copper Covered Steel	1/0.95	Foam PE 4.6	Al/Polyester Tape 100% + Tinned Cu Braid 60%	PVC/LSHF 6.9	41	75	57	78	50 100 200 400 700 900 5.2 7.0 9.9 14.5 19.8 22.8
RG6 3.0 GHZ	Bare Copper	1/1.02	Skin Foam PE 4.57	Al/Polyester Tape 100% +Al Wire Braid 60%	PVC 6.7	43	75	53.1	82	50 200 600 1000 1450 2200 3000 5.25 10.01 17.52 22.92 30.00 42.02 53.0
RG6/U QUAD	Bare Copper Covered Steel	1/1.02	Foam PE 4.6	Al/Polyester Tape 100% +Al Wire Braid 60% +Al1/Polyester Tape 100% +Al Wire Braid 40%	PVC/LSHF 7.3	61	75	55	80	50 100 200 400 700 900 5.2 6.9 10.1 14.2 18.7 22.3
RG6 TWIN	Copper Clad Steel	1/1.02	Skin Foam PE 4.57	Al/Polyester Tape 100% +Al Wire Braid 60%	PVC 12.8	93	75	53.1	82	50 100 200 400 700 900 1000 5.2 6.75 10.12 14.41 19.2 22.1 22.9
RG6 QUAD TWIN	Bare Copper	1/1.02	Skin Foam PE 4.57	Al/Polyester Tape 100% +Al Wire Braid 60% +Al/PolyesterTape 100% +Al Wire Braid 40%	PVC 14.9	95	75	53.1	82	50 100 200 400 700 900 1000 5.2 6.75 10.12 14.41 19.2 22.1 22.9
RG 11	Tinned Copper	7/0.14	PE 7.25	Bare Copper Braid 95%	PVC/LSHF 10.3	140	75	67	66	50 100 200 400 700 900 4.6 7 10 14 19.4 24
RG 11 Type	Bare Copper	1/1.63	PE 7.25	Bare Copper Braid 95%	PVC/LSHF 10.3	125	75	56	78	50 100 200 400 700 900 3.3 5 7 9 13 14.6
RG 59 B/U	Copper Covered Steel	1/0.58	PE 3.70	Bare Copper Braid 95%	PVC/LSHF 6.15	56	75	67	66	50 100 200 400 700 900 8 12 18 24 36.5 39.5
RG59 3.0 GHZ	Bare Copper	1/0.82	Foam PE 3.66	Al/Polyester Tape 100% +Tinned Copper Wire Braid 95%	PVC 5.8	51.5	75	53.1	82	86 360 750 1000 1500 2250 3000 8.7 16.75 23.90 27.50 33.80 42.70 49.65
RG59 Siamese	Bare Copper + Stranded Bare Copper	1/0.81 + 16/0.25	Skin Foam PE 3.66/PVC 2.77	Bare Copper Braid 95%	PVC 13.5	105	75	53.1	82	50 100 200 400 700 900 1000 4.85 8.53 12.5 17.63 23.2 30.1 33.6
RG 59 C/U	Tinned Copper	19/0.18	PE 2.95	Tinned Copper Braid 95%	PVC/LSHF 4.95	38	50	100	66	50 100 200 400 700 900 11 16 23 33 56 66
2xRG 59 B/U	Bare Copper Covered Steel	1/0.58	PE 3.70	Copper Braid 90%	PVC/ LSHF 6.10	101	75	67	66	50 100 200 400 700 900 7.5 12 17 28 38 45
RG 179	Silver Plated Copper	7/0.1	PTFE 1.65	Silver Plated Copper 95%	FEP 2.54	16	75	64	66	50 100 200 400 700 900 28 33 41 53 65 74
RG 62 A/U	Bare Copper Covered Steel	1/0.64	PE 7.05	Bare Copper Braid 95%	PVC/LSHF 6.15	50	93	44	83	50 100 200 400 700 900 6.2 9 12.8 17.5 24 27
RG 174	Bare Copper Covered Steel	7/0.16	PE 1.52	Tinned Copper Braid 88%	PVC/LSHF 2.5	11	50	100	66	50 100 200 400 700 900 17 27 40 56 78 88
RG 213/U	Bare Copper	7/0.75	PE 7.25	Copper Braid 96%	PVC/LSHF 10.3	153	50	100	66	50 100 200 400 700 900 4.3 7 9 14 21.3 24.9
RG 178	Silver Plated Copper	7/0.1	PTFE 0.9	Silver Plated Copper Braid 96%	FEP 1.8	9	50	96	66	50 100 200 400 700 900 35 46 62 92 120 130
RG 58/U	Bare Copper	1/0.8	PE 2.95	Copper Braid 75%	PVC/LSHF 4.95	34	50	100	66	50 100 200 400 700 900 11.0 16.0 23.4 34.4 51.3 58.6

Imp.= Impedance Cap.= Capacitance Vel.= Velocity of Propagation

Coaxial Cables

Item	Inner Conductor	No. /mm	Dielectric Nom. Dia. (mm)	Shield Coverage	Sheath Nominal Overall Dia. (mm)	Approx. Weight (kg/km)	Imp. (ohm)	Cap. (pF/m)	Vel. (%)	Attenuation MHz dB/100M
URM 67	Bare Copper	0.77/7	Solid PE 7.25	Bare Copper Braid 87%	PVC/LSHF 10.30	225	50	100	66.6	50 200 400 600 800 1000 4.1 9.8 15.6 20 22.8 28
URM 70	Bare Copper	0.19/7	Solid PE 3.20	Bare Copper Braid 81%	PVC/LSF/ LSOH 5.8	96	75	67	66.7	100 300 500 700 900 1000 13.8 25.5 33.0 41.5 47.8 50.1
CT 100 R	Bare Copper	1/1.0	Cellular PE 4.6	Cu/Polyester Tape 100% + Bare Copper Braid 56%	PVC/LSHF 6.80	40	75	55	80	50 100 200 400 700 900 1000 4.6 6.9 8.4 12.2 17.9 18.8 22.5
CT 125 R	Bare Copper	1/1.25	Cellular PE 5.6	Cu/Polyester Tape 100% + Bare Copper Braid 54%	PE/LSHF 7.8	85	75	58	80	50 100 200 400 700 90 1000 3.4 5.2 7.0 11.1 13.0 15.8 17.4
RG188	Silver Plated Copper/Silver Plated Copper Clad Steel	7/0.17	PTFE 1.52	Silver Plated Copper Braid 90%	PTFE 2.67	20	50	96.45	70	50 100 200 400 700 900 1000 15.8 27.4 36.1 54.9 70.2 77.5 87.9
RG316	Silver Plated Copper/Silver Plated Copper Clad Steel	7/0.17	PTFE 1.52	Silver Plated Copper Braid 90%	FEP 2.49	18	50	96.5	69.5	50 100 200 400 700 900 1000 14.6 26.2 35.8 53.1 69.9 75.4 85.6
RG500	Bare Copper/CCS/CCA	1/2.77	Foam PE 11.5	Al/Polyester Tape 100% +Al Braid 60%/80%/90%	PVC/LSF/ LSHF 15.0	98	75	49	66	50 100 200 400 700 900 1000 2.4 4.5 6.2 8.4 12.1 13.8 14.9

Imp.= Impedance Cap.= Capacitance Vel.= Velocity of Propagation

ORDERING CODE

CCA–B-CD-EFGH-IJ

A - Cable Series
FCX = FIRECOAX

B - Standard
RG6 = RG 6 equivalent; FRRG6 = Fire Resistant RG 6 equivalent

C - Screen Type
BC = Bare Copper Braided; TC = Tinned Copper Braid; AL= Aluminium/Polyester Tape

D - Screen Level
60 = 60%; 80 = 80%

E - Bedding
Y = PVC; 2Y = PE; H = LSHF

F - Armouring
SWA = Steel Wire Armouring; STA = Steel Tape Armouring; SWB = Steel Wire Braiding; DSTA = Double Steel Tape Armouring

G - Sheathing
Y = PVC; Yu = Flame Retardant PVC; Yv = PVC with reinforced sheath; 2Y = PE; H = LSHF;

H - Conductor Construction
7/0.14 = 7/0.14mm

I - Fire Propagation Level (Option)
1 = IEC 60332-1; 3C = IEC 60332-3C; 3A = IEC 60332-3A

J - Fire Resistant Level (Option)
331 = IEC 60331; 6387CWZ = BS 6387 CWZ

For Example
CCFCX-RG6-AL100/TC61-H(SWA)H-(1/0.95)-3A
FIRECOAX Series, RG6, 100% Aluminium/Polyester tape + 61% Tinned Copper Braid, LSHF Bedding, Steel Wire Armoured, LSHF Sheathed, 1/0.95mm, fire propagation to IEC 60332-3A

Fire Alarm Cable

Application: These cables are designed for fire alarms, fire protective circuits and smoke detectors.
Conductor Material: Solid bare copper
Insulation Material: Foam PP/PVC
Laying-up: Units
Drain Wire: Solid bare copper
Screen: Overall Al/Polyester foil shield
Nylon Rip Cord: 150 × overall diameter
Sheath Material: PVC/LSHF (CMR/CMP jacket can be offered as option)
Shape: Circular
Voltage Rating: 300/500 V
Temperature Rating: 75℃

No. of Conductors	AWG Size	Stranding	Nominal Thickness of Insulation (mm)	Nominal Thickness of Jacket (mm)	Nominal Overall Diameter (mm)
4	24	Solid	0.21	0.7	3.9
6	24	Solid	0.21	0.7	4.2
8	24	Solid	0.21	0.84	5.0
12	24	Solid	0.21	1.00	6.0
4	22	Solid	0.30	0.88	5.1
2	18	Solid	0.38	0.76	5.3
4	18	Solid	0.38	0.76	6.09
6	18	Solid	0.38	0.76	6.9
2	16	Solid	0.38	0.76	5.9
4	16	Solid	0.38	0.76	6.7
2	14	Solid	0.38	0.76	6.65
4	14	Solid	0.38	0.76	8.68

Speaker Cable

Application: These cables are designed for power limited circuit, remote control, signaling, security systems, communications and intercom/P.A. systems.
Conductor Material: Bare oxygen free copper wire strands
Insulation Material: PE/PVC
Laying-up: Units
Drain Wire: Solid bare copper
Screen: Overall Al/Polyester foil shield
Nylon Rip Cord: 150 × overall diameter
Sheath Material: PVC/LSHF (CL2R/CMR/MPR jacket can be offered as option)
Shape: Circular
Voltage Rating: 300/500 V
Temperature Rating: 75℃

No. of Conductors	AWG Size	Cross Section of Conductors (mm^2)	Stranding (No. / mm)	Nominal Thickness of Insulation (mm)	Nominal Thickness of Jacket (mm)	Nominal Overall Diameter (mm)
2	16	1.29	26/0.25	0.21	0.7	4.7
2	16	1.29	65/0.16	0.21	0.7	4.9
4	16	1.29	26/0.25	0.21	0.7	5.8
4	16	1.29	65/0.16	0.21	0.7	5.9
2	14	2.08	41/0.25	0.30	0.76	5.7
2	14	2.08	105/0.16	0.30	0.76	5.8
4	14	2.08	41/0.25	0.30	0.76	6.9
4	14	2.08	105/0.16	0.30	0.76	6.9
2	12	3.20	65/0.25	0.30	0.76	6.8

Security & Microphone Cables

Security Cable

Application: These cables are designed for power limited circuit, remote control, signaling, security systems, communications, intercom/P.A. systems and nurse call.
Conductor Material: Bare copper wire strands
Insulation Material: PP/PE/PVC
Laying-up: Units
Drain Wire: Solid bare copper
Screen: Overall Al/Polyester foil shield
Nylon Rip Cord: 150 × overall diameter
Sheath Material: PVC / LSHF
Shape: Circular
Voltage Rating: 300/500 V
Temperature Rating: 75℃

No. of Conductors	AWG Size	Cross Section of Conductors (mm^2)	Stranding (No. / mm)	Nominal Thickness of Insulation (mm)	Nominal Thickness of Jacket (mm)	Nominal Overall Diameter (mm)
2	22	0.34	7/0.25	0.21	0.7	3.5
4	22	0.34	7/0.25	0.21	0.7	4.2
6	22	0.34	7/0.25	0.21	0.7	4.8
8	22	0.34	7/0.25	0.21	0.7	5.5
10	22	0.34	7/0.25	0.30	0.76	6.2
12	22	0.34	7/0.25	0.30	0.76	7.0
2	18	0.82	16/0.25	0.30	0.76	4.7
4	18	0.82	16/0.25	0.30	0.76	5.6
6	18	0.82	16/0.25	0.30	0.76	6.3
8	18	0.82	16/0.25	0.38	0.76	7.1
2	16	1.31	42/0.2	0.38	0.8	6.0
3	16	1.31	42/0.2	0.38	0.8	6.5
4	16	1.31	42/0.2	0.38	0.8	6.9
2	14	2.08	19/0.36	0.38	0.8	6.3
3	14	2.08	19/0.36	0.38	0.8	6.7
4	14	2.08	19/0.36	0.38	0.8	7.2
2	12	3.31	19/0.45	0.38	0.8	7.1

Microphone Cable

Application: These cables are designed for signalling, security and intercom/P.A. systems.
Conductor Material: Tinned annealed high conductivity copper wire strands.
Insulation Material: PVC/PE
Laying-up: Units
Screen: Braided or lapped copper wire
Sheath Material: PVC/LSHF
Shape: Circular
Voltage Rating: 300/500 V
Temperature Rating: 75℃

No. of Conductors	AWG Size	Cross Section of Conductors (mm)	Stranding (No. / mm)	Nominal Thickness of Insulation (mm)	Type of Screen	Nominal Thickness of Jacket (mm)	Nominal Overall Diameter (mm)
1	26	0.15	19/0.10	0.5	Lapped	0.43	2.4
1	24	0.22	7/0.20	0.5	Lapped	0.7	3.1
1	22	0.41	13/0.20	0.45	Braided	0.76	3.3
1	20	0.50	16/0.20	0.45	Braided	0.95	3.75
2	26	0.15	19/0.10	0.5	Lapped	0.76	4.5
2	24	0.22	7/0.20	0.5	Lapped	1.1	5.4
2	22	0.41	13/0.20	0.45	Braided	1.2	5.8
2	20	0.50	16/0.20	0.45	Braided	1.4	6.3
4	24	0.22	7/0.20	0.30	Lapped	1.2	6.8
4	20	0.50	16/0.20	0.38	Lapped	1.4	7.8

Single Core Flexible Conduit Wires

Cable Description:
300/500V 70 °C PVC/LSHF insulated conduit wire;
400/750V 70 °C PVC/LSHF insulated conduit wire.
Applications:
Conduit wires are designed for installation in surface mounted or embedded conduits and for fixed protected installation inside appliances and lighting fittings.
Reference Code:
PVC Insulated
2491X, H05V-K (300/500V), H07V-K (450/750V);
LSHF Insulated
2491B H05Z-K (300/500V)
Standard: BS 6004 (2491X); BS 7211 (2491B)
Conductors: Stranded annealed copper conductors
Insulation: 70 °C PVC (2491X); LSHF (2491B)
Voltage Rating: 300/500V (1.0mm²)
450/750V (1.5mm² to 120mm²)
Core Identification: Red, Black, Green/Yellow, Yellow, Blue etc.
Fire Performance
2491X Flame Retardancy: BS 4066 Part 1 (IEC 60332 Part 1)
2491B Flame Retardancy: BS 4066 Part 1 (IEC 60332 Part 1)
Corrosive Acid Gas Emission: <0.5% to BS 6425 or IEC 60754-1
Smoke Emissions: Pass BS 7211 Appendix D

Nomnal Cross-section Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Overall Diameter	Approx. Weight
mm²	No./mm	mm	mm	kg/km
0.5	16/0.20	0.7	2.1	8
0.75	24/0.20	0.7	2.3	10.6
1.0	32/0.20	0.7	2.5	13.7
1.5	30/0.25	0.7	3.1	20
2.5	50/0.25	0.8	3.6	31
4.0	56/0.30	0.8	4.3	46
6.0	84/0.30	0.8	5.5	75
10	80/0.40	1.0	6.8	125
16	126/0.40	1.0	8.6	199
25	196/0.40	1.2	10.3	299
35	276/0.40	1.2	11.5	421

Single Core Conduit Wires

Cable Description:
300/500V 70 °C PVC/LSHF insulated conduit wire;
450/750V 70 °C PVC/LSHF insulated conduit wire.
Applications:
Conduit wires are designed for installation in surface mounted or embedded conduits systems and for fixed protected installation inside appliances and lighting fittings.
Reference Code:
PVC Insulated
6491X, H05V-U (300/500V), H07V-R (450/750V);
LSHF Insulated
6491B H07Z-R (450/750V), 6491B (600/1000V)
Standard: BS 6004 (6491X); BS 7211 (6491B)
Conductors: Solid annealed copper conductors
(1.0mm² to 2.5mm²)
Stranded annealed copper conductors
(1.5mm² to 120mm²)
Insulation: 70 °C PVC (6491X); LSHF (6491B)
Voltage Rating: 300/500V (1.0mm²)
450/750V or 600/1000V (1.5mm² to 120mm²)
Core Identification: Red, Black, Green/Yellow, Yellow, Blue etc.
Fire Performance
6491X Flame Retardancy:
BS 4066 Part 1 (IEC 60332 Part 1)
6491B Flame Retardancy:
BS 4066 Part 1 (IEC 60332 Part 1)
Corrosive Acid Gas Emission: < 0.5% to BS 6425 or IEC 60754-1
Smoke Emissions: Pass BS 7211 Appendix D

450/750V								600/1000V		
6491X		6491X	6491B	6491X	6491B			6491B		
Conductor Size	No./ Dia.	Nominal Thickness of Insulaton	Nominal Overall Diameter		Approx. Weight			Nominal Thickness of Insulaton	Nominal Overall Diameter	Approx. Weight
mm²	mm	mm	mm		kg/km			mm	mm	kg/km
1.5	1/1.38	0.7	3.3	3.3	21	22		0.8	3.5	23
1.5	7/0.53	0.7	3.5	3.5	21	22		0.8	3.7	24
2.5	1/1.78	0.8	3.9	3.9	33	34		0.8	4.1	35
2.5	7/0.67	0.8	4.2	4.2	35	36		0.8	4.2	36
4	7/0.85	0.8	4.8	4.8	50	52		1.0	5.2	55
6	7/1.04	0.8	5.4	5.4	70	73		1.0	5.9	75
10	7/1.35	1.0	6.8	6.8	120	120		1.0	6.8	120
16	7/1.70	1.0	8.0	8.0	180	180		1.0	8.0	180
25	7/2.14	1.2	9.8	9.8	285	285		1.2	9.8	285
35	19/1.53	1.2	11.0	11.0	400	400		1.2	11.0	375
50	19/1.78	1.4	13.0	13.0	513	520		1.4	13.0	510
70	19/2.14	1.4	15.0	15.6	722	730		1.4	15.3	720
95	19/2.52	1.6	17.0	17.8	997	1005		1.6	17.0	995
120	37/2.03	1.6	19.0	19.5	1232	1232		1.6	19.5	1230
150	37/2.25	1.8	21.0	21.3	1516	1526		1.8	21.3	1515
185	37/2.52	2.0	23.5	24.0	1980	1920		2.0	24.0	1900
240	61/2.25	2.2	26.5	26.5	2500	2520		2.2	26.5	2475
300	61/2.52	2.4	29.5	29.5	3175	3150		2.4	29.5	3100
400	61/2.85	2.6	33.5	33.5	3950	3970		2.6	33.5	3945
500	61/3.20	2.8	37.0	37.5	4950	4980		2.8	37.5	4950
630	127/2.52	2.8	41.0	41.5	6250	6300		2.8	41.5	6300

3182/3/4 60°C Rubber Insulated & Sheathed Flexible Cables

Cable Description: 300/500V 60°C Rubber insulated, sheathed ordinary flexible cable, circular twin, 3 core and 4 core.
Reference Code: 3182, 3183, 3184
Standard: BS 6500 and BS 6141
Conductors: Flexible tinned copper conductors in the size range from 0.75mm² to 2.5mm²
Insulation: 60°C Vulcanized Rubber
Voltage Rating: 300/500V
Core Identification: Circular Twin: Blue Brown
Three Core: Green/Yellow, Blue, Brown
Four Core: Green/Yellow, Black, Blue, Brown
Assembly: Cores twisted together
Sheath: Tough Rubber

Number of Cores	Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Approx. Weight	Minimum Bending Radius for Fixed Wiring	Harmonized Code Designation
					Lower limit	Upper limit			
No.	mm²	No./mm	mm	mm	mm	mm	kg/km	mm	
2	0.5	16/0.20	0.6	0.8	5.6	7.8	55	20	NATIONAL
2	0.75	24/0.20	0.6	0.8	6.0	8.2	65	20	HO5RR-F2
2	1.0	32.0.20	0.6	0.9	6.6	8.8	75	20	HO5RR-F2
2	1.5	30/0.25	0.8	1.0	8.0	10.5	110	35	HO5RR-F2
2	2.5	50/0.25	0.9	1.1	9.5	12.5	155	40	HO5RR-F2
3	0.5	16/0.20	0.6	0.8	5.8	8.2	60	20	NATIONAL
3	0.75	24/0.20	0.6	0.9	6.5	8.8	80	20	HO5RR-F3
3	1.0	32/0.20	0.6	0.9	7.0	9.2	90	20	HO5RR-F3
3	1.25	40/0.20	0.8	1.0	8.2	11.0	115	35	NATIONAL
3	1.5	30/0.25	0.8	1.0	8.6	11.0	135	35	HO5RR-F3
3	2.5	50/0.25	0.9	1.1	10.0	13.0	190	40	HO5RR-F3
4	0.75	24/0.20	0.6	0.9	7.1	9.6	95	20	HO5RR-F4
4	1.0	32/0.20	0.6	0.9	7.6	10.0	110	20	HO5RR-F4
4	1.5	30/0.25	0.8	1.1	9.6	12.5	170	40	HO5RR-F4
4	2.5	50/0.25	0.9	1.2	11.0	14.0	246	45	HO5RR-F4

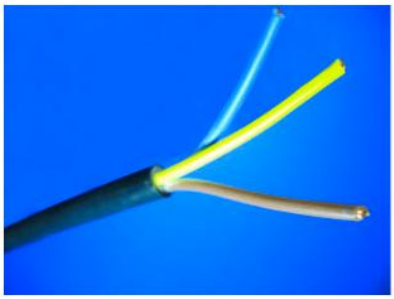
3182/3/4TQ 85°C Rubber Insulated & HOFR Sheathed Flexible Cables

Cable Description: 300/500V 85°C Rubber insulated, sheathed ordinary flexible cable, circular twin, 3 core and 4 core
Reference Code: 3182TQ, 3183TQ, 3184TQ
Standard: BS 6500: 1990 Table 9 and BS 6007:1983
Conductors: Flexible tinned copper conductors in the size range from 0.75mm² to 2.5mm²
Insulation: EPR Rubber
Voltage Rating: 300/500V
Core Identification: Circular Twin: Blue Brown
Three Core: Green/Yellow, Blue, Brown
Four Core: Green/Yellow, Black, Blue, Brown
Assembly: Cores twisted together
Sheath: 85°C Oil Resisting & Flame Retardant Rubber

Number of Cores	Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Approx. Weight	Minimum Bending Radius for Fixed Wiring
					Lower limit	Upper limit		
No.	mm²	No./mm	mm	mm	mm	mm	kg/km	mm
2	0.5	16/0.20	0.6	0.8	5.6	7.8	59	20
2	0.75	24/0.20	0.6	0.8	6.0	8.2	66	20
2	1.0	32/0.20	0.6	0.9	6.6	8.8	79	20
2	1.5	30/0.25	0.8	1.0	8.0	10.5	120	35
2	2.5	50/0.25	0.9	1.1	9.5	12.5	170	40
2	4.0	56/0.30	1.0	1.8	12.0	15.0	295	45
3	0.5	16/0.20	0.6	0.8	5.8	8.2	65	20
3	0.75	24/0.20	0.6	0.9	6.5	8.8	80	20
3	1.0	32/0.20	0.6	0.9	7.0	9.2	90	20
3	1.5	30/0.25	0.8	1.0	8.6	11.0	135	35
3	2.5	50/0.25	0.9	1.1	10.0	13.0	195	40
3	4.0	55/0.30	1.0	1.9	13.0	16.0	360	50
4	0.75	24/0.20	0.6	0.9	7.1	9.6	96	20
4	1.0	32/0.20	0.6	0.9	7.6	10.0	113	20
4	1.5	30/0.25	0.8	1.1	9.6	12.5	174	40
4	2.5	50/0.25	0.9	1.2	11.0	14.0	252	45
4	4.0	56/0.30	1.0	2.0	14.5	15.0	445	55

3182/3/4/5Y 70°C PVC Insulated & Sheathed Flexible Cables
3182/3/4/5B XLPE Insulated & LSHF Sheathed Flexible Cables

Cable Description: 300/500V 70°C PVC insulated, sheathed ordinary flexible cable, circular twin, 3 core, 4 cores and 5 core (3182/3/4/5Y)
300/500V XLPE insulated, LSHF sheathed ordinary flexible cable, circular twin, 3 core, 4 cores and 5 core (3182/3/4/5B)
Reference Code: 3182Y, 3183Y, 3184Y, 3185Y
3182B, 3183B, 3184B, 3185B
Standard: BS 6500
Conductors: Flexible tinned copper conductors in the size range from 0.75mm² to 2.5mm²
Insulation: 70°C PVC (3182/3/4/5Y); XLPE (3182/3/4/5B)
Voltage Rating: 300/500V
Core Identification: Circular Twin: Blue Brown
Three Core: Green/Yellow, Blue, Brown
Four Core: Green/Yellow, Black, Blue, Brown
Five Core: Green/Yellow, Black, Blue, Brown, Red
Assembly: Cores twisted together
Sheath: 70°C PVC (3182/3/4/5Y); LSHF (3182/3/4/5B)



Number of Cores	Nominal Cross-Sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Approx. Weight	Minimum Bending Radius for Fixed Wiring	Harmonized Code Designation
					Lower limit	Upper limit			
No.	mm²	No./mm	mm	mm	mm	mm	kg/km	mm	
2	0.75	24/0.20	0.6	0.8	6.0	7.6	59	20	HO5VV-F2
2	1.0	32/0.20	0.6	0.8	6.4	8.0	69	20	HO5VV-F2
2	1.5	30/0.25	0.7	0.8	7.4	9.0	95	30	HO5VV-F2
2	2.5	50/0.25	0.8	1.0	8.9	11.0	145	35	HO5VV-F2
3	0.75	24/0.20	0.6	0.8	6.4	8.0	70	20	HO5VV-F3
3	1.0	32/0.20	0.6	0.5	6.8	8.4	82	20	HO5VV-F3
3	1.5	30/0.25	0.7	0.9	8.0	9.8	121	30	HO5VV-F3
3	2.5	50/0.25	0.8	1.1	9.6	12.0	180	40	HO5VV-F3
4	0.75	24/0.20	0.6	0.8	6.8	8.6	85	20	HO5VV-F4
4	1.0	32/0.20	0.6	0.9	7.6	9.4	105	20	HO5VV-F4
4	1.5	30/0.25	0.7	1.0	9.0	11.0	150	35	HO5VV-F4
4	2.5	50/0.25	0.8	1.1	10.5	13.0	220	40	HO5VV-F4
5	0.75	24/0.20	0.6	0.9	7.4	9.6	110	20	HO5VV-F5
5	1.0	32/0.20	0.6	0.9	8.3	10.0	130	20	HO5VV-F5
5	1.5	30/0.25	0.7	1.1	10.0	12.0	180	40	HO5VV-F5
5	2.5	50/0.25	0.8	1.2	11.5	14.0	265	45	HO5VV-F5

Trirated Single Core 105℃ PVC Insulated Conduit Wires

Cable Description: 300/500V Single Core 105°C PVC insulated

Reference Code: 6231Y

Standard: BS 6231; UL 1015, UL 1028, UL 1283 and UL 1284

Conductors: Solid annealed copper conductors to BS 6360 in the size range from 0.5 mm² to 120 mm²

Insulation: 105°C PVC

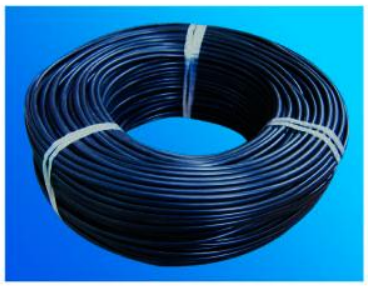
Voltage Rating: 300/500V

Nominal Cross Sectional Area of Conductor mm²	Conductor Construction No. /mm	Nominal Overall Diameter mm	UL Style No.
0.5	16/0.2	2.6	1015
0.75	24/0.2	2.8	1015
1.0	32/0.2	3.0	1015
1.5	30/0.25	3.3	1015
2.5	50/0.25	3.7	1015
4.0	56/0.3	4.4	1015
6.0	84/0.3	5.1	1015
10.0	80/0.4	6.9	1028
16.0	126/0.4	8.6	1283
25.0	196/0.4	10.5	1283
35.0	276/0.4	11.9	1283
50.0	396/0.4	14.4	1264
70.0	360/0.5	16.7	1284
95.0	475/0.5	19.0	1284
120.0	608/0.5	20.5	1281

3092/3/4/5Y 90°C PVC Insulated & 85°C PVC Sheathed Flexible Cables

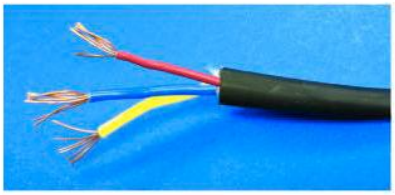
Cable Description: 300/500V 90°C PVC insulated, 85°C PVC sheathed ordinary flexible cable, circular twin, 3 core, 4 core and 5 core (3182/3/4/5Y)
Reference Code: 3092Y, 3093Y, 3094Y
Standard: BS 6141: 1991 Table 15
Conductors: Flexible annealed copper conductors to BS 6360 in the size range from 0.75mm² to 2.5mm²
Insulation: 90°C PVC
Voltage Rating: 300/500V
Core Identification: Circular Twin: Blue, Brown
Three Core: Green/Yellow, Blue, Brown
Four Core: Green/Yellow, Black, Blue, Brown
Assembly: Cores twisted together
Sheath: 85°C PVC

Number of Cores	Conductor		Nominal Thickness of Insulation	Maximum Diameter of Wires	Nominal Overall Diameter		Approximate Weight
	Nominal Cross-Sectional Area	Number and Diameter of Wires			Lower Limit	Upper Limit	
No.	mm	No. /mm	mm	mm	mm	mm	kg/km
2	0.5	16/0.2	0.6	0.8	5.6	7.0	46
2	0.75	24/0.2	0.6	0.8	6.0	7.6	56
2	1.0	32/0.2	0.6	0.8	6.4	8.0	65
2	1.5	30/0.25	0.7	0.8	7.4	9.0	80
2	2.5	50/0.25	0.8	1.0	8.9	11.0	135
3	0.5	16/0.2	0.6	0.8	5.8	7.2	66
3	0.75	24/0.2	0.6	0.8	6.4	8.0	68
3	1.0	32/0.25	0.6	0.8	6.8	8.4	77
3	1.5	30/0.25	0.7	0.9	8.0	9.8	100
3	2.5	50/0.25	0.8	1.1	9.6	12.0	150
4	0.5	16/0.2	0.6	0.8	6.4	6.8	70
4	0.75	24/0.2	0.6	0.8	6.8	8.6	78
4	1.0	32/0.2	0.6	0.9	7.6	9.4	110
4	1.5	30/0.25	0.7	1.0	9.0	11.0	150
4	2.5	50/0.25	0.8	1.1	10.5	13.0	220



6241/2/3Y Multicore 70°C PVC Insulated & Sheathed Flexible Cables with Circuit Protective Conductor

Cable Description: 300/500V Single core 70°C PVC insulated, sheathed ordinary flexible cable with circuit protective conductor (bare earth), single, flat twin and 3 core.
Reference Code: 6241Y, 6242Y, 6243Y
Standard: BS 6004
Conductors: Solid or Class 2 annealed copper conductors to BS 6360 in the size range from 1 mm² to 16 mm².
Insulation: 70°C PVC
Voltage Rating: 300/500V
Core Identification: Single Core: Red
Flat Twin: Red, Black
Three Core: Red, Yellow, Blue
Assembly: Cores and CPC laid parallel within sheath
Sheath: 70°C PVC



6241Y

Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Nominal Cross-Sectional Area of CPC	Approx. Weight	Minimum Bending Radius for Fixed Wiring
				Lower Limit	Upper Limit			
mm²	No. /mm	mm	mm	mm	mm	mm²	kg/km	mm
1.0	1/1.13	0.6	0.9	4.0×5.1	5.2×6.4	1.0	45	20
1.5	1/1.38	0.7	0.9	4.4×5.4	5.8×7.0	1.0	55	21

6242Y

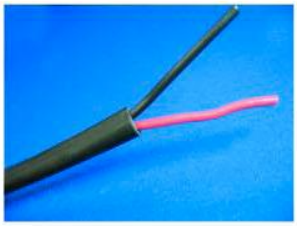
Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Nominal Cross-Sectional Area of CPC	Approx. Weight	Minimum Bending Radius for Fixed Wiring
				Lower Limit	Upper Limit			
mm²	No. /mm	mm	mm	mm	mm	mm²	kg/km	mm
1.0	1/1.13	0.6	0.9	4.0×7.2	4.7×8.6	1.0	68	26
1.5	1/1.38	0.7	0.9	4.4×8.2	5.4×9.6	1.0	85	29
2.5	1/1.77	0.8	1.0	5.2×9.8	6.2×11.5	1.5	120	46
4.0	7/0.85	0.8	1.0	5.6×10.5	7.2×13.0	1.5	175	52
6.0	7/1.04	0.8	1.1	6.4×12.5	8.0×15.0	2.5	240	60
10.0	7/1.35	1.0	1.2	7.8×15.5	9.6×19.0	4.0	390	76
16.0	7/1.70	1.0	1.3	9.0×18.0	11.0×22.5	6.0	560	90

6243Y

Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Nominal Cross-Sectional Area of CPC	Approx. Weight	Minimum Bending Radius for Fixed Wiring
				Lower Limit	Upper Limit			
mm²	No. /mm	mm	mm	mm	mm	mm²	kg/km	mm
1.0	1/1.13	0.6	0.9	4.0×9.6	4.7×11.0	1.0	91	44
1.5	1/1.38	0.7	0.9	4.4×10.5	5.4×12.5	1.0	115	50

6192P 60°C Rubber Insulated & PCP Sheathed Festoon Lighting Cables

Cable Description: 300/500V Single core 60°C Rubber insulated & PCP sheathed ordinary flexible cable, flat twin.
Reference Code: 6192P
Standard: BS 6007
Conductors: Tinned copper conductors 2.5 mm²
Insulation: 60°C Vulcanized Rubber
Voltage Rating: 300/500V
Core Identification: Red & Black
Assembly: Cores laid parallel within sheath
Sheath: PCP (polychloroprene)



Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Approx. Weight	Minimum Bending Radius for Fixed Wiring
				Lower Limit	Upper Limit		
mm²	No. /mm	mm	mm	mm	mm	kg/km	mm
2.5	7/0.67	0.8	1.1	5.4×8.8	6.8×11.0	120	44

6181Y Single Core 70°C PVC Insulated & Sheathed Surface Wiring Cables

Cable Description: 300/500V Single core 70°C PVC insulated and sheathed surface wiring cable.
Reference Code: 6181Y
Standard: BS 6004
Conductors: Solid or Class 2 annealed copper conductors to BS 6360 in the size range from 1 mm² to 35 mm²
Insulation: 70°C PVC
Voltage Rating: 300/500V
Core Identification: Red, Black
Sheath: 70°C PVC

Nominal Cross-sectional Area of Conductor	Conductor Construction (Number and Diameter of Wires)	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter		Approx. Weight	Minimum Bending Radius for Fixed Wiring
				Lower Limit	Upper Limit		
mm²	No. /mm	mm	mm	mm	mm	kg/km	mm
1.0	1/1.13	0.6	0.8	3.8	4.5	26	14
1.5	1/1.38	0.7	0.8	4.2	4.9	35	15
2.5	1/1.77	0.8	0.8	4.8	5.8	55	18
4.0	7/0.85	0.8	0.9	5.4	6.8	75	21
6.0	7/1.04	0.8	0.9	6.0	7.4	95	23
10.0	7/1.35	1.0	0.9	7.2	8.8	155	27
16.0	7/1.70	1.0	1.0	8.4	10.5	225	42
25.0	7/2.14	1.2	1.1	10.0	12.5	340	50
35.0	7/2.52	1.2	1.1	11.0	13.5	445	54

FIREGUARD

Flame Retardant Cables

FIREFUME

Flame Retardant Low Smoke Cables

FIRETOX

Flame Retardant Low Smoke Halogen Free Cables

FIREFLIX

Fire Resistant Low Smoke Halogen Free Cables

FIREGUARD

Applications

These cables are designed for use in fire situations where the spread of flames along a cable route need to be retarded. Fireguard cables are designed to reduce the spread of fire along a cable duct or tray. The outer sheath of the cables is flame retardant PVC. These cables are slightly more expensive than normal PVC cables and are widely used without extra costing.

Construction

Conductors : Stranded compacted annealed copper to IEC 60228 or BS 6360
Insulation : PVC/XLPE
Filler (where applicable) : Polypropylene yarn
Binder Tape (where applicable) : Polyester mylar tape
Bedding (armoured cable) : Flame retardant PVC
Armour (armoured cable) : Galvanised steel wire armoured (multicore) or Aluminium wire armoured (single core)
Oversheath : Flame retardant PVC
Rated Voltage : 300/500V, 450/750V, 600/1000V
Range of Sizes: 1.5mm^2 to 1000mm^2
Number of Cores: 1, 2, 3, 4, 7, 12, 19, 27, 37
Core Identification: Single Core; Natural (Orange for nonsheathed)
Two Core: Red & Black
Three Core: Red, Yellow & Blue
Four Core: Red, Yellow, Blue & Black
Reference Standards: BS 6004 (single core unsheathed cable)
BS 6346 (PVC insulated and PVC sheathed cable)
BS 5467 (XLPE insulated and PVC sheathed armoured cable)

Fire Performance

Flame Retardancy: Pass IEC 60332 Part 1 or BS 4066 Part 1
Flame Propagation: Pass IEC 60332 Part 3 or BS 4066 Part 3

Highlights of Fireguard
-Fully complying with BS 5467 or BS 6346
-Reduced flame propagation to IEC 60332 Part 3C (BS 4066 Part 3C) or IEC 60332 Part 3A (BS 4066 Part 3A) (with special sheath material)
-Fireguard cables will retard the flame propagation.
-Fireguard cables are not designed for maintaining circuit integrity, and will give off large quantities of toxic gas and smoke.

FIREGUARD

Flame Retardant Cables

FIREFUME

Flame Retardant Low Smoke Cables

FIRETOX

Flame Retardant Low Smoke Halogen Free Cables

FIREFLIX

Fire Resistant Low Smoke Halogen Free Cables

FIREFUME

Applications

These cables are designed for use in surface mounted or embedded conduits, or closed systems, for areas in which low emission of smoke and acid gas have to be guaranteed in case of fire. FIREFUME cables are designed to reduce the spread of fire along a cable conduit. The outer sheath of the cables is flame retardant low halogen PVC. These cables are slightly more expensive than flame retardant PVC cables and cheaper than LSHF cables.

Construction

Conductors : Stranded compacted annealed copper to IEC 60228 or BS 6360
Insulation : XLPE (single core unsheathed conduit wires.)
PVC/XLPE (single core & multicore sheathed cables.)
Filler (where applicable) : Polypropylene yarn
Binder Tape (where applicable) : Polyester mylar tape
Bedding (armoured cable) : Flame retardant low halogen PVC
Armour (armoured cable) : Galvanised steel wire armoured (multicore) or Aluminium wire armoured (single core)
Oversheath : Flame retardant low halogen PVC
Rated Voltage : 300/500V, 450/750V, 600/1000V
Range of Sizes: 1.5mm^2 to 1000mm^2
Number of Cores: 1, 2, 3, 4, 7, 12, 19, 27, 37
Core Identification: Single Core: Natural (Orange for nonsheathed)
Two Core: Red & Black
Three Core: Red, Yellow & Blue
Four Core: Red, Yellow, Blue & Black
Reference Standards: BS 7211 (single core unsheathed cable)
BS 6346 (PVC insulated and PVC sheathed cable)
BS 5467 (XLPE insulated and PVC sheathed armoured cable)
BS 6724 (XLPE insulated and LSHF sheathed armoured cable)

Fire Performance

Flame Retardancy: Pass IEC 60332 Part 1 or BS 4066 Part 1
Flame Propagation: Pass IEC 60332 Part 3 or BS 4066 Part 3
Corrosive Acid Gas Emission: 5% - 15% to BS 6425 or IEC 60754-1

Highlights of FIREFUME

-Fully complying with BS 7211, BS 5467 or BS 6346 or BS 6724
-Reduced flame propagation to IEC 60332 Part 3C (BS 4066 Part 3C) or IEC 60332 Part 3A (BS 4066 Part 3A) (with special sheath material)
-Low emissions of smoke when tested according to BS 7622 Part 2 or IEC 61034.
-Low emissions of acid gas when tested according to BS 6425 Part 2 or IEC 60754-2;
-Low halogen content (15%) when tested according to IEC 60754-1

FIREGUARD

Flame Retardant Cables

FIREFUME

Flame Retardant Low Smoke Cables

FIRETOX

Flame Retardant Low Smoke Halogen Free Cables

FIREFLIX

Fire Resistant Low Smoke Halogen Free Cables

FIRETOX

Applications

These cables are designed for fixed installation in dry premises for situations in which low emission of smoke and acid gases have to be guaranteed in the case of fire. FIRETOX cables are designed to reduce flame propagation and smoke in those instances where a fire may develop. FIRETOX are highly recommended in the following areas:

1) Where large numbers of people may be present (eg. Cinemas, shopping centres, theatres)
2) Where people are confined due to limited access and escape may be difficult during fire. (eg. Underground railways, high rise buildings, hospitals, tunnels etc.)
3) Where expensive equipment has been installed (eg. Computer rooms, data centres, power stations, switching centre etc)

Construction

Conductors : Stranded compacted annealed copper to IEC 60228 or BS 6360
Insulation : XLPE complying to BS 7211 (single core unsheathed conduit wires.) and BS 6724 (multicore armoured cables.)
Filler (where applicable) : Polypropylene yarn
Binder Tape (where applicable) : Polyester mylar tape
Bedding (armoured cable) : Low smoke halogen free (LSHF) compound
Armour (armoured cable) : Galvanised steel wire armoured (multicore) or Aluminium wire armoured (single core)
Oversheath : Low smoke halogen free (LSHF) compound
Rated Voltage : 300/500V, 450/750V, 600/1000V
Range of Sizes: 1.5mm^2 to 1000mm^2
Number of Cores: 1, 2, 3, 4, 7, 12, 19, 27, 37
Core Identification: Single Core: Natural (Orange for nonsheathed)
Two Core: Red & Black
Three Core: Red, Yellow & Blue
Four Core: Red, Yellow, Blue & Black
Reference Standards: BS 7211 (single core unsheathed cable)
BS 6724 (multicore armoured cable)

Fire Performance

Flame Retardancy: Pass IEC 60332 Part 1 or BS 4066 Part 1
Flame Propagation: Pass IEC 60332 Part 3 or BS 4066 Part 3
Corrosive Acid Gas Emission: < 0.5% to BS 6425 or IEC 60754-1
Toxicity: NES 713
Smoke Emissions: Pass IEC 61034

Highlights of FIRETOX
-Fully complying with BS 7211 or BS 6724
-Reduced flame propagation to IEC 60332 Part 3C (BS 4066 Part 3C) or IEC 60332 Part 3A (BS 4066 Part 3A) (with special sheath material)
-Low emissions of smoke when tested according to BS 7622 Part 2 or IEC 61034
-Low emissions of acid gas when tested according to BS 6425 Part 2 or IEC 60754-2;
-Very low halogen content (0.5%) when tested according to IEC 60754-1

FIREGUARD

Flame Retardant Cables

FIREFUME

Flame Retardant Low Smoke Cables

FIRETOX

Flame Retardant Low Smoke Halogen Free Cables

FIREFLIX

Fire Resistant Low Smoke Halogen Free Cables

FIREFLIX

Applications

These cables are designed for emergency lighting, fire alarms and essential equipment in fire situations where an uninterrupted power supply has to be guaranteed.

During fire, electric circuits may be damaged and the associated lighting, power and data communications may be suspended. Human safety may depend on continued operation of lighting, elevators and escalators, fire fighting water pumps, fire alarm and ventilation fans. FIREFLIX cables are designed to maintain circuit integrity of these vital emergency services during the fire situation. The individual conductors are wrapped with a layer of fire resisting mica/glass tape which prevents phase to phase and phase to earth contact even after the insulation has been burnt away.

Construction

Conductors : Plain annealed stranded copper to IEC 60228 or BS 6360
Fire Barrier : Mica/glass tape
Insulation : XLPE
Filler (where applicable) : Polypropylene yarn
Binder Tape (where applicable) : Polyester mylar tape
Bedding (armoured cable) : Low smoke halogen free (LSHF) compound
Armour (armoured cable) : Galvanised steel wire armoured (multicore) or Aluminium wire armoured (single core)
Oversheath : Low smoke halogen free (LSHF) compound
Rated Voltage : 300/500V, 450/750V, 600/1000V
Range of Sizes: 1.5mm^2 to 1000mm^2
Number of Cores: 1, 2, 3, 4, 7, 12, 19, 27, 37
Core Identification:
Single Core: Natural (Orange for nonsheathed)
Two Core: Red & Black
Three Core: Red, Yellow & Blue
Four Core: Red, Yellow Blue & Black
Reference Standards: BS 7211 (single core unsheathed)
BS 6724 (multicore armoured cables)

Fire Performance

Flame Retardancy: Pass IEC 60332 Part 1 or BS 4066 Part 1
Flame Propagation: Pass IEC 60332 Part 3 or BS 4066 Part 3
Corrosive Acid Gas Emission: < 0.5% to BS 6425 or IEC 60754-1
Toxicity: NES 713
Smoke Emissions: Pass IEC 61034

Circuit Integrity Performance:

Resistance to Fire Alone: IEC 60331-3 hours at 750 °C
BS 6387 Cat C-3 hours at 950 °C
Resistance to Fire with Water Spray:
BS 6387 Cat W-15 mins at 650°C
Plus 15 mins with water spray
Resistance to Fire with mechanical shock:
BS 6387 Cat Z-15 mins at 950°C
Plus 15 mins with water spray & mechanical shock

Highlights of FIREFLIX

-Surpasses the requirements of BS 6387 CWZ or IEC 60331
-Reduced flame propagation to IEC 60332 Part 3C (BS 4066 Part 3C) or IEC 60332 Part 3A (BS 4066 Part 3A) (with special sheath material)
-Low emissions of smoke when tested according to BS 7622 Part 2 or IEC 61034.
-Low emissions of acid gas when tested according to BS 6425 Part 2 or IEC 60754-2;
-Very low halogen content (0.5%) when tested according to IEC 60754-1

FIRE PERFORMANCE CABLES


FIREGUARD


FIREFUME


FIRETOX


FIREFLIX

ORDERING CODE
CCA – BCDE-FG-HI

A - Cable Series
FGD = FIREGUARD; FFE = FIREFUME;
FTX = FIRETOX; FFX = FIREFLIX

B - Insulation
XP = XLPE; Y = PVC; 2Y = PE; H = LSHF

C - Voltage Rating
300 = 300/500V; 450 = 450/750V; 600 = 600/1000V; 1900 = 1900/3300V

D - Core Construction
S = Single Core with Sheathing; SU = Single Core Unsheathed; M = Multicore

E - Armouring
U = No Armouring; A = Armouring

F - Number of Cores
2C = 2 Cores; 3C = 3 Cores; 4C = 4 Cores etc.

G - Cross Section Area
1.5 = 1.5mm^2; 2.5 = 2.5mm^2 etc.

H - Fire Propagation Level (Option)
1 = IEC 60332-1; 3C = IEC 60332-3C; 3A = IEC 60332-3A

I - Fire Resistant Level (Option)
331 = IEC 60331; 6387CWZ = BS 6387 CWZ

For Example
CCFGD-XP300SA-4C25-3C
Fireguard Series, XLPE Insulated, 300/500V, Single Core Armoured, 4 Cores,
25 mm^2, fire propagation to IEC 60332-3C.

PVC Insulated & PVC Sheathed Cables to BS 6346

(1) 6941X 600/1000V, Single-Core, PVC Insulated & PVC Sheathed Cables Unarmoured or Wire-Armoured to BS 6346

Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Wire-Armoured Cables				
Nominal Cross Sectional Area		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm^2	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
50	1.4	1.4	14.8	600	0.8	1.25	1.5	19.1	780
70	1.4	1.4	16.8	800	0.8	1.25	1.6	21.1	1020
95	1.6	1.5	19.2	1105	0.8	1.25	1.6	23.4	1350
120	1.6	1.5	21.0	1360	1.0	1.6	1.7	26.3	1700
150	1.8	1.6	23.0	1658	1.0	1.6	1.7	28.3	2050
185	2.0	1.7	25.5	2060	1.0	1.6	1.8	30.8	2500
240	2.2	1.8	29.0	2650	1.0	1.6	1.9	34.1	3160
300	2.4	1.9	32.0	3300	1.0	1.6	1.9	37.0	3830
400	2.6	2.0	36.0	4200	1.2	2.0	2.1	42.0	4930
500	2.8	2.1	40.0	5205	1.2	2.0	2.1	45.6	6030
630	2.8	2.2	44.0	6630	1.2	2.0	2.2	49.7	7529
800	2.8	2.3	48.0	8380	1.4	2.5	2.4	55.8	9630
1000	3.0	2.5	54.0	10500	1.4	2.5	2.5	61.0	11830

(2) 6942X 600/1000V, Two-Core, PVC Insulated & PVC Sheathed Cables Unarmoured or Wire-Armoured to BS 6346

Conductor	Nominal Thickness of Insulation	Unarmoured Cables			Wire-Armoured Cables				
Nominal Cross Sectional Area		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm^2	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.8	—	—	—	0.8	0.9	1.4	12.0	280
2.5	0.8	—	—	—	0.8	0.9	1.4	13.6	350
4	1.0	—	—	—	0.8	0.9	1.4	15.1	430
6	1.0	—	—	—	0.8	0.9	1.5	16.5	510
10	1.0	1.8	17	390	0.8	1.25	1.6	20.1	820
16	1.0	1.8	19	550	0.8	1.25	1.6	21.9	1020
25	1.2	1.8	19	730	1.0	1.6	1.7	23	1400
35	1.2	1.8	20	950	1.0	1.6	1.8	25	1700
50	1.4	1.8	21	1200	1.0	1.6	1.9	28	2000
70	1.4	1.9	28	1900	1.0	1.6	1.9	31	2600
95	1.6	2.0	30	2300	1.2	2.0	2.1	36	3700
120	1.6	2.1	33	2900	1.2	2.0	2.2	39	4400
150	1.8	2.2	36	3450	1.2	2.0	2.3	42	5200
185	2.0	2.4	44	4300	1.4	2.5	2.4	47	6500
240	2.2	2.5	50	5600	1.4	2.5	2.5	55	8250
300	2.4	2.7	54	7000	1.6	2.5	2.7	66	10250
400	2.6	2.9	60	9000	1.6	2.5	2.9	73	12000

(3) 6943X 600/1000V, Three-Core, PVC Insulated & PVC Sheathed Cables Unarmoured or Wire-Armoured to BS 6346

Conductor	Nominal Thickness of Insulation	Unarmoured Cables			Wire-Armoured Cables				
Nominal Cross Sectional Area		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.6	1.8	12	160	0.8	0.9	1.4	12.1	310
2.5	0.7	1.8	13	210	0.8	0.9	1.4	13.1	340
4	1.0	1.8	14	300	0.8	0.9	1.4	15.5	520
6	1.0	1.8	15	380	0.8	1.25	1.5	18	715
10	1.0	1.8	18	500	0.8	1.25	1.6	21.5	965
16	1.0	1.8	20	680	0.8	1.25	1.6	23.5	1175
25	1.2	1.8	22	1020	1.0	1.6	1.7	26.5	1815
35	1.2	1.8	24	1340	1.0	1.6	1.8	28.5	2215
50	1.4	1.8	27	1780	1.0	1.6	1.9	33.5	2805
70	1.4	1.9	31	2460	1.2	2.0	2.0	38	3900
95	1.6	2.1	36	3360	1.2	2.0	2.1	44	4990
120	1.6	2.2	40	4170	1.2	2.0	2.2	48	5950
150	1.8	2.3	44	5090	1.4	2.5	2.4	54	7850
185	2.0	2.5	48	6370	1.4	2.5	2.5	58	9105
240	2.2	2.6	57	8460	1.6	2.5	2.6	67	11700
300	2.4	2.8	63	10350	1.6	2.5	2.8	71	13800
400	2.6	3.1	70	13150	1.6	3.15	3.0	78	18890

(4) 6944X 600/1000V, Four-Core, PVC Insulated & PVC Sheathed Cables Unarmoured or Wire-Armoured to BS 6346

Conductor	Nominal Thickness of Insulation	Unarmoured Cables			Wire-Armoured Cables				
Nominal Cross Sectional Area		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.6	1.8	12	200	0.8	0.9	1.4	13.5	350
2.5	0.7	1.8	13	260	0.8	0.9	1.4	15	430
4	0.8	1.8	15	380	0.8	1.25	1.5	17.8	680
6	0.8	1.8	17	460	0.8	1.25	1.5	19.2	800
10	1.0	1.8	18.6	665	0.8	1.25	1.6	22.8	1100
16	1.0	1.8	20	930	1.0	1.6	1.7	26.5	1600
25	1.2	1.8	23.5	1320	1.0	1.6	1.8	27.8	2100
35	1.2	1.8	26.5	1745	1.0	1.6	1.9	30.5	2650
50	1.4	1.9	29.5	2430	1.2	2.0	2.0	35.4	3650
70	1.4	2.0	33.0	3230	1.2	2.0	2.1	39.2	4000
95	1.6	2.2	39.2	4380	1.2	2.0	2.2	44.3	6050
120	1.6	2.3	42.2	5400	1.4	2.5	2.4	49.3	7555
150	1.8	2.5	47	6735	1.4	2.5	2.5	53.6	9050
185	2.0	2.6	52.5	8260	1.6	2.5	2.6	59.0	11000
240	2.2	2.8	60	10650	1.6	2.5	2.8	71	13950
300	2.4	3.1	66	13205	1.6	2.5	3.0	79	17000
400	2.6	3.3	76	19985	1.8	3.15	3.3	87	22000

PVC Insulated & PVC Sheathed Cables to BS 6346

(5) 600/1000V, Multi-Core, PVC Insulated & PVC Sheathed Cables Armoured to BS 6346

No. of Cores	Conductor Construction		Nominal Thickness of Insulation	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
	Size	No./Dia. of Wires						
No.	mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
5	1.5	7/0.53	0.6	0.8	0.9	1.4	13.8	390
6				0.8	0.9	1.4	14.2	445
7				0.8	0.9	1.4	14.5	460
8				0.8	0.9	1.5	15.4	520
9				0.8	1.25	1.5	17.5	670
10				0.8	1.25	1.5	18.1	685
12				0.8	1.25	1.5	18.6	740
19				0.8	1.25	1.6	21.2	995
20				0.8	1.25	1.6	22.5	1100
24				1.0	1.6	1.7	22.5	1450
27				1.0	1.6	1.7	25.9	1480
30				1.0	1.6	1.7	26.1	1520
35				1.0	1.6	1.8	27.1	1820
37				1.0	1.6	1.8	28.5	1880
40				1.0	1.6	1.8	29.8	1950
48				1.0	1.6	1.9	31.5	2250
50				1.0	1.6	1.9	32.9	2270
5	2.5	7/0.67	0.7	0.8	0.9	1.5	15.5	495
6				0.8	1.25	1.5	16	590
7				0.8	1.25	1.5	16.5	650
8				0.8	1.25	1.5	18.5	740
9				0.8	1.25	1.6	21	880
10				0.8	1.25	1.6	21.5	970
12				0.8	1.25	1.6	22.5	1050
19				1.0	1.6	1.7	25.5	1550
20				1.0	1.6	1.8	27.5	1670
24				1.0	1.6	1.8	30.5	1950
27				1.0	1.6	1.8	29.5	1990
30				1.0	1.6	1.9	32.5	2200
35				1.0	1.6	1.9	33.5	2470
37				1.0	1.6	1.9	34.5	2500
40				1.2	2.0	2.0	37.5	2990
48				1.2	2.0	2.1	40.5	3450
50				1.2	2.0	2.1	41.5	3490
5	4	7/0.85	0.8	0.8	1.25	1.5	19.5	790
6				0.8	1.25	1.6	21.5	907
7				0.8	1.25	1.6	21.5	930
8				0.8	1.25	1.6	22.5	1050
9				1.0	1.25	1.7	25.5	1350
10				1.0	1.6	1.7	27.1	1430
12				1.0	1.6	1.7	27.5	1595
19				1.0	1.6	1.8	31.5	2090
20				1.0	1.6	1.9	32.5	2205
24				1.0	1.6	1.9	36.5	2605
27				1.2	2.0	2.0	37.5	3070

(6) 1900/3300V Single-Core, PVC Insulated & PVC Sheathed Cables Armoured to BS 6346

Conductor			Wire-Armoured Cables				
Nominal Area of Conductor	No. and Dia. of Wires	Nominal Thickness of Insulation	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm^2	No. /mm	mm	mm	mm	mm	mm	kg/km
50	19/1.78	2.2	0.8	1.25	1.6	21.0	1100
70	19/2.14	2.2	0.8	1.25	1.6	23.0	1400
95	19/2.52	2.2	1.0	1.6	1.7	26.0	1900
120	37/2.03	2.2	1.0	1.6	1.7	28.0	2150
150	37/2.25	2.2	1.0	1.6	1.8	30.0	2500
185	37/2.52	2.2	1.0	1.6	1.8	32.0	3000
240	61/2.25	2.2	1.0	1.6	1.9	34.0	3600
300	61/2.52	2.4	1.0	1.6	1.9	37.0	4300
400	61/2.85	2.6	1.2	2.0	2.1	42.0	5700
500	61/3.20	2.8	1.2	2.0	2.1	46.0	6800
630	127/2.52	2.8	1.2	2.0	2.2	50.0	8400
800	127/2.85	2.8	1.4	2.0	2.4	56.0	10500
1000	127/3.20	3.0	1.4	2.5	2.5	61.0	13500

(7) 1900/3300V Three-Core, PVC Insulated & PVC Sheathed Cables Armoured to BS 6346

Conductor			Wire-Armoured Cables				
Nominal Area of Conductor	No. and Dia. of Wires	Nominal Thickness of Insulation	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Oversheath	Nominal Overall Dia.	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
16	7/1.70	2.2	1.0	1.6	1.8	30.5	1755
25	7/2.14	2.2	1.0	1.6	1.8	33.5	2100
35	19/1.53	2.2	1.0	1.6	1.9	32.5	2500
50	19/1.78	2.2	1.2	2.0	2.0	36.0	3500
70	19/2.14	2.2	1.2	2.0	2.1	39.5	4200
95	19/2.52	2.2	1.2	2.0	2.2	43.0	5100
120	37/2.03	2.2	1.4	2.5	2.3	47.0	6500
150	37/2.25	2.2	1.4	2.5	2.4	50.0	7600
185	37/2.52	2.2	1.4	2.5	2.5	53.0	8800
240	37/2.88	2.2	1.6	2.5	2.6	58.0	10800
300	61/2.52	2.4	1.6	2.5	2.8	63.0	13000
400	61/2.85	2.6	1.6	2.5	3.0	70.5	17000

* Cables having conductors of 35 mm^2 and above have shaped stranded conductor

XLPE Insulated & PVC/LSHF Sheathed Cables to IEC 60502

(1) 600/1000V, Single-Core, XLPE Insulated, Unarmoured or Armoured, PVC or LSHF Sheathed to IEC 60502

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Wire-Armoured Cable				
		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight
mm^2	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
1.5	0.7	1.4	6.0	50					
2.5	0.7	1.4	6.5	70					
4	0.7	1.4	7.0	80					
6	0.7	1.4	7.5	110					
10	0.7	1.4	8.5	150					
16	0.7	1.4	9.5	215					
25	0.9	1.4	11.5	315					
35	0.9	1.4	12	415					
50	1.0	1.4	13	555	1.0	1.25	1.8	19.5	730
70	1.1	1.4	15	760	1.0	1.25	1.8	21.5	970
95	1.1	1.5	17	1025	1.0	1.6	1.8	24.0	1220
120	1.2	1.5	18.5	1270	1.0	1.6	1.8	25.5	1520
150	1.4	1.6	21.5	1575	1.0	1.6	1.8	27.5	1920
185	1.6	1.6	23	1955	1.0	1.6	1.8	30.0	2320
240	1.7	1.7	26	2470	1.0	1.6	1.9	33.0	2920
300	1.8	1.8	28	3155	1.0	1.6	1.9	35.0	3650
400	2.0	1.9	32	4049	1.2	2.0	2.1	40.5	4670
500	2.2	2.0	36	5100	1.2	2.0	2.2	44.5	5870
630	2.4	2.2	40	6410	1.2	2.0	2.3	49.0	7360
800	2.6	2.3	47	8200	1.4	2.5	2.5	55.5	9360
1000	2.8	2.4	52	10210	1.4	2.5	2.7	61.0	11350

(2) 600/1000V, 2-Core, XLPE Insulated, Unarmoured or Armoured, PVC or LSHF Sheathed to IEC 60502

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Wire-Armoured Cable				
		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight
mm^2	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
1.5	0.7	1.8	10.0	125	1.0	0.9	1.8	13.5	360
2.5	0.7	1.8	11.5	155	1.0	0.9	1.8	14.5	405
4	0.7	1.8	12.5	195	1.0	0.9	1.8	15.8	470
6	0.7	1.8	13.5	255	1.0	0.9	1.8	17.0	505
10	0.7	1.8	15.5	370	1.0	1.25	1.8	19.3	900
16	0.7	1.8	17.0	500	1.0	1.25	1.8	21.2	950
25	0.9	1.8	20.0	700	1.0	1.6	1.8	24.0	1205
35	0.9	1.8	22.0	900	1.0	1.6	1.8	24.8	1800
50	1.0	1.8	25.0	1250	1.0	1.6	1.8	26.0	1850
70	1.1	1.8	29.0	1600	1.0	2.0	2.0	29.0	2335
95	1.1	1.9	32.0	2250	1.2	2.0	2.1	33.2	3165
120	1.2	2.0	36.0	2750	1.2	2.0	2.3	36.1	3750
150	1.4	2.2	40.0	3510	1.2	2.5	2.3	39.3	4410
185	1.6	2.3	44.0	4200	1.3	2.5	2.5	44.8	5710
240	1.7	2.5	50.0	5500	1.4	2.5	2.7	53.5	7150
300	1.8	2.6	55.0	6950	1.5	2.5	2.9	58.0	8565
400	2.0	2.9	60.0	8400	1.6	2.5	3.1	63.0	10695

(3) 600/1000V, Three-Core, XLPE Insulated, Unarmoured or Armoured, PVC or LSHF Sheathed to IEC 60502

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Wire-Armoured Cable				
		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.7	1.8	10.5	150	1.2	0.8	1.8	15.0	380
2.5	0.7	1.8	11.0	190	1.2	0.8	1.8	15.5	400
4	0.7	1.8	12.5	250	1.2	0.8	1.8	16.5	460
6	0.7	1.8	14.5	320	1.2	0.8	1.8	18.0	540
10	0.7	1.8	15.5	465	1.2	0.8	1.8	19.5	750
16	0.7	1.8	18.5	670	1.2	1.25	1.8	22.5	1000
25	0.9	1.8	19.5	965	1.2	1.6	1.8	26.0	1510
35	0.9	1.8	22.0	1290	1.2	1.6	1.8	28.0	1950
50	1.0	1.8	26.0	1750	1.2	1.6	1.9	32.0	2350
70	1.1	1.9	28.5	2450	1.2	2.0	2.0	35.0	3230
95	1.1	2.0	32.5	3200	1.2	2.0	2.1	39.0	4050
120	1.2	2.1	35.5	4010	1.2	2.0	2.3	43.0	5230
150	1.4	2.3	40.0	5050	1.4	2.5	2.4	47.0	6750
185	1.6	2.4	44.5	6105	1.4	2.5	2.6	52.0	8230
240	1.7	2.6	54.0	8050	1.5	2.5	2.7	59.0	10510
300	1.8	2.7	60.5	9998	1.6	2.5	2.9	64.0	13210
400	2.0	3.0	66.0	13210	1.6	2.5	3.2	74.0	16100

(4) 600/1000V, Four-Core, XLPE Insulated, Unarmoured or Armoured, PVC or LSHF Sheathed to IEC 60502

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Wire-Armoured Cable				
		Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Sheath	Nominal Overall Dia.	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.7	1.8	11.0	170	1.0	0.8	1.8	15.0	415
2.5	0.7	1.8	12.0	230	1.0	0.8	1.8	17.5	490
4	0.7	1.8	14.0	305	1.0	0.8	1.8	19.0	600
6	0.7	1.8	15.5	400	1.0	0.8	1.8	20.0	730
10	0.7	1.8	18.0	585	1.0	1.25	1.8	23.0	970
16	0.7	1.8	20.0	835	1.0	1.6	1.8	26.0	1520
25	0.9	1.8	22.0	1210	1.0	1.6	1.8	29.0	2010
35	0.9	1.8	24.5	1670	1.0	1.6	1.9	31.0	2560
50	1.0	1.8	26.5	2250	1.0	1.6	2.1	36.0	3350
70	1.1	2.0	32.0	3015	1.2	2.0	2.2	40.0	4680
95	1.1	2.1	36.5	4085	1.2	2.0	2.4	44.0	5710
120	1.2	2.3	40.5	5320	1.4	2.5	2.5	50.0	7500
150	1.4	2.4	44.5	6510	1.4	2.5	2.6	55.0	9010
185	1.6	2.6	51.0	8050	1.4	2.5	2.8	61.0	10820
240	1.7	2.8	58.5	10520	1.6	2.5	3.1	69.0	13630
300	1.8	3.0	64.5	13130	1.6	2.5	3.2	75.0	16820
400	2.0	3.3	73.5	16850	1.8	3.15	3.4	83.0	22230

(5) 600/1000V, Four-Core with Reduced Neutral, XLPE Insulated & PVC Sheathed Cables to IEC 60502

Conductor Size		Nominal Thickness of Insulation		Unarmoured Cable			Steel Wire-Armoured (SWA) Cable				
Phase	Neutral	Phase	Neutral	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Armour Wire Dia.	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
mm²	mm²	mm	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
16	10	0.7	0.7	1.8	20.0	825	1.0	1.6	1.8	25.5	1550
25	16	0.9	0.7	1.8	22.8	1235	1.0	1.6	1.8	27.5	2010
35	16	0.9	0.7	1.8	24.8	1565	1.0	1.6	1.8	29.0	2375
50	25	1.0	0.9	1.8	28.5	2220	1.0	1.6	2.0	33.0	3100
70	35	1.1	0.9	1.9	32.0	2925	1.2	2.0	2.1	38.0	4290
95	50	1.1	1.0	2.1	37.5	3525	1.2	2.0	2.3	43.5	5540
120	70	1.2	1.1	2.2	41.5	4940	1.2	2.0	2.4	49.0	7150
150	70	1.4	1.1	2.3	45.0	6250	1.4	2.5	2.5	52.0	8330
185	95	1.6	1.1	2.5	50.5	7450	1.4	2.5	2.7	57.2	10110
240	120	1.7	1.2	2.6	56.0	9500	1.6	2.5	3.0	64.0	12740
300	150	1.8	1.4	2.8	64.5	12100	1.6	2.5	3.0	69.8	15430
400	185	2.0	1.6	3.1	70.0	18900	1.6	3.15	3.3	78.6	19990

(1) 600/1000V, Multi-Core XLPE Insulated and PVC Sheathed to BS 5467 or LSHF Sheathed to BS 6724

No. of Core	Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable (IEC60502)			Steel Wire Armoured (SWA) Cable (BS 5467/BS 6724)				
			Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
No.	mm^2	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
2	1.5	0.7	1.8	10.0	125	0.8	0.9	1.3	12.2	320
	2.5	0.7	1.8	11.0	155	0.8	0.9	1.4	13.5	365
	4	0.7	1.8	12.0	195	0.8	0.9	1.4	14.8	440
	6	0.7	1.8	13.0	255	0.8	0.9	1.4	15.5	470
	10	0.7	1.8	15.5	370	0.8	0.9	1.5	17.8	800
	16	0.7	1.9	17.0	500	0.8	1.25	1.5	20.2	905
	25	0.9	1.8	19.5	700	0.8	1.25	1.6	22.5	1005
	35	0.9	1.8	20.0	900	1.0	1.6	1.7	23.8	1405
	50	1.0	1.8	21.0	1250	1.0	1.6	1.8	25.8	1755
	70	1.1	1.8	23.5	1600	1.0	1.6	1.9	29.0	2305
	95	1.1	1.9	26.5	2250	1.2	2.0	2.0	33.2	3105
	120	1.2	2.0	29.5	2750	1.2	2.0	2.1	36.1	3705
	150	1.4	2.2	33.0	3510	1.2	2.0	2.2	39.3	4405
	185	1.6	2.3	36.5	4200	1.4	2.5	2.4	44.7	5705
	240	1.7	2.5	46.0	5500	1.4	2.5	2.5	49.0	7105
	300	1.8	2.6	50.0	6950	1.6	2.5	2.6	53.5	8505
	400	2.0	2.9	54.0	8400	1.6	2.5	2.8	59.2	10705
3	1.5	0.7	1.8	10.5	150	0.8	0.9	1.3	13.0	340
	2.5	0.7	1.8	11.0	190	0.8	0.9	1.4	14.5	408
	4	0.7	1.8	12.5	250	0.8	0.9	1.4	15.3	498
	6	0.7	1.8	14.5	320	0.8	0.9	1.4	16.6	600
	10	0.7	1.8	15.5	465	0.8	1.25	1.5	19.5	915
	16	0.7	1.8	18.5	670	0.8	1.25	1.6	21.3	1200
	25	0.9	1.8	19.5	965	1.0	1.6	1.7	26.5	1720
	35	0.9	1.8	22.0	1290	1.0	1.6	1.8	29.5	2120
	50	1.0	1.8	26.0	1750	1.0	1.6	1.8	30.5	2620
	70	1.1	1.9	28.5	2450	1.0	1.6	1.9	32.5	3025
	95	1.1	2.0	32.5	3200	1.2	2.0	2.1	37.0	4270
	120	1.2	2.1	35.5	4010	1.2	2.0	2.2	40.5	5250
	150	1.4	2.3	40.0	5050	1.4	2.5	2.3	45.5	6650
	185	1.6	2.4	44.5	6105	1.4	2.5	2.4	50.0	8000
	240	1.7	2.6	54.0	8050	1.4	2.5	2.6	55.0	10150
	300	1.8	2.7	60.5	9998	1.6	2.5	2.7	60.0	12500
	400	2.0	3.0	66.0	13210	1.6	2.5	2.9	66.5	15050
4	1.5	0.7	1.8	11.0	170	0.8	0.9	1.3	14.0	390
	2.5	0.7	1.8	12.0	230	0.8	0.9	1.4	15.0	470
	4	0.7	1.8	14.0	305	0.8	0.9	1.4	16.5	580
	6	0.7	1.8	15.5	400	0.8	1.25	1.5	18.5	805
	10	0.7	1.8	18.0	585	0.8	1.25	1.5	21.2	1090
	16	0.7	1.8	20.0	835	0.8	1.25	1.6	22.9	1450
	25	0.9	1.8	22.0	1210	1.0	1.6	1.7	29.0	2050
	35	0.9	1.8	24.5	1670	1.0	1.6	1.8	31.5	2570
	50	1.0	1.8	26.5	2250	1.0	1.6	1.9	32.5	2890
	70	1.1	2.0	32.0	3015	1.2	2.0	2.1	38.0	4250
	95	1.1	2.1	36.5	4085	1.2	2.0	2.2	41.8	5470
	120	1.2	2.3	40.5	5320	1.4	2.5	2.3	47.1	7175
	150	1.4	2.4	45.0	6510	1.4	2.5	2.4	51.5	8475
	185	1.6	2.6	51.0	8050	1.4	2.5	2.6	56.5	10350
	240	1.7	2.8	58.5	10520	1.6	2.5	2.7	63.0	13000
	300	1.8	3.0	64.5	13130	1.6	2.5	2.9	69.0	15750
	400	2.0	3.3	73.5	16850	1.8	3.15	3.2	78.0	20500

(2) 600/1000v, Single-Core XLPE Insulated and PVC Sheathed to BS 5467 or LSHF Sheathed to BS 6724

Conductor Size	Nominal Thickness of Insulation	Unarmoured Cable (IEC60502)			Aluminium Wire-Armoiured (AWA) Cable (BS 5467 or BS 6724)				
		Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
mm^2	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
1.5	0.7	1.4	6.0	50					
2.5	0.7	1.4	6.5	70					
4	0.7	1.4	7.0	80					
6	0.7	1.4	7.5	110					
10	0.7	1.4	8.5	150					
16	0.7	1.4	9.5	215					
25	0.9	1.4	11.5	315					
35	0.9	1.4	12	415					
50	1.0	1.4	13	555	0.8	1.25	1.5	17.5	700
70	1.1	1.4	15	760	0.8	1.25	1.5	20.2	940
95	1.1	1.5	17	1025	0.8	1.6	1.6	22.5	1250
120	1.2	1.5	18.5	1270	0.8	1.6	1.6	24.2	1500
150	1.4	1.6	21.5	1575	1.0	1.6	1.7	27.4	1950
185	1.6	1.6	23	1955	1.0	1.6	1.8	30.3	2360
240	1.7	1.7	26	2470	1.0	1.6	1.8	32.8	3000
300	1.8	1.8	28	3155	1.0	1.6	1.9	35.8	3700
400	2.0	1.9	32	4049	1.2	2.0	2.0	40.4	4700
500	2.2	2.0	36	5100	1.2	2.0	2.1	44.2	5900
630	2.4	2.2	40	6410	1.2	2.0	2.2	48.8	7400
800	2.6	2.3	47	8200	1.4	2.5	2.4	55.4	9400
1000	2.8	2.4	52	10210	1.4	2.5	2.5	60.6	11400

(3) 600/1000V, Multi-Core XLPE Insulated and PVC Sheathed to BS 5467 or LSHF Sheathed to BS 6724

No. of Core	Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable (IEC 60502)			Steel Wire-Armoured (SWA) Cable (BS 5467 or BS 6724)				
			Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
No.	mm^2	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
7		0.7	1.8	13.0	250	0.8	0.9	1.4	16.0	500
12		0.7	1.8	16.5	380	0.8	1.25	1.5	20.0	820
19	1.5	0.7	1.8	20.0	545	0.8	1.25	1.6	23.0	1080
27		0.7	1.8	23.0	735	1.0	1.6	1.7	28.0	1550
37		0.7	1.8	25.5	950	1.0	1.6	1.7	30.5	1850
48		0.7	1.9	30.0	1225	1.0	1.6	1.8	34.0	2250
7		0.7	1.8	14.5	325	0.8	0.9	1.4	17.0	730
12		0.7	1.8	18.5	510	0.8	1.25	1.6	22.0	1020
19	2.5	0.7	1.8	21.5	745	1.0	1.6	1.7	26.5	1530
27		0.7	1.8	26.0	1020	1.0	1.6	1.8	30.5	1960
37		0.7	1.8	28.5	1350	1.0	1.6	1.8	33.5	2450
48		0.7	1.9	33.5	1730	1.2	2.0	2.0	39.0	3260
7		0.7	1.8	16.0	470	0.8	1.25	1.5	19.5	840
12	4.0	0.7	1.8	21.0	745	1.0	1.6	1.6	25.5	1390
19		0.7	1.8	24.0	1100	1.0	1.6	1.7	29.0	1850

(4) 1.9/3.3KV, Single-Core XLPE Insulated and PVC Sheathed to BS 5467 or LSHF Sheathed to BS 6724

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Aluminium Wire-Armoured (AWA) Cable				
		Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
10	2.0	1.4	10.5	200	0.8	1.25	1.6	15.0	350
16	2.0	1.4	12.0	265	0.8	1.25	1.6	16.0	430
25	2.0	1.4	13.0	370	0.8	1.25	1.6	17.5	550
35	2.0	1.4	14.5	470	0.8	1.25	1.6	19.5	670
50	2.0	1.4	15.5	600	0.8	1.25	1.6	20.1	820
70	2.0	1.5	17.5	825	0.8	1.25	1.6	21.9	1050
95	2.0	1.5	19.5	1100	0.8	1.25	1.6	23.5	1320
120	2.0	1.6	21.5	1350	1.0	1.6	1.7	25.6	1675
150	2.0	1.6	23.0	1650	1.0	1.6	1.7	27.1	2050
185	2.0	1.7	25.0	2000	1.0	1.6	1.8	28.9	2350
240	2.0	1.8	27.0	2575	1.0	1.6	1.8	31.2	2925
300	2.0	1.8	30.0	3200	1.0	1.6	1.9	33.9	3550
400	2.0	1.9	33.0	4010	1.2	2.0	2.0	37.4	4275
500	2.2	2.0	36.0	5050	1.2	2.0	2.1	40.7	5620
630	2.4	2.2	41.0	6500	1.2	2.0	2.2	44.8	7020
800	2.6	2.3	45.5	8200	1.4	2.5	2.4	51.5	10500
1000	2.8	2.4	52.0	10300	1.4	2.5	2.5	58.5	12500

(5) 1.9/3.3KV, 3-Core XLPE Insulated and PVC Sheathed to BS 5467 or LSHF Sheathed to BS 6724

Size of Conductor	Nominal Thickness of Insulation	Unarmoured Cable			Steel Wire-Armoured (SWA) Cable				
		Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
mm²	mm	mm	mm	kg/km	mm	mm	mm	mm	kg/km
10	2.0	1.8	21.5	450	1.0	1.6	1.8	27.0	675
16	2.0	1.8	24.0	650	1.0	1.6	1.8	29.0	875
25	2.0	1.8	25.0	950	1.0	1.6	1.8	31.5	1125
35	2.0	1.8	28.0	1050	1.0	1.6	1.9	34.0	1650
50	2.0	1.9	29.0	1450	1.2	2.0	2.0	35.5	2250
70	2.0	2.0	32.0	1850	1.2	2.0	2.1	38.5	2750
95	2.0	2.1	37.5	2550	1.2	2.0	2.2	41.5	3500
120	2.0	2.2	40.5	3560	1.4	2.5	2.3	45.5	4500
150	2.0	2.3	41.0	4050	1.4	2.5	2.4	48.5	5800
185	2.0	2.5	46.0	4450	1.4	2.5	2.5	51.5	6500
240	2.0	2.6	50.0	5550	1.6	2.5	2.6	56.5	7500
300	2.0	2.8	55.0	6750	1.6	2.5	2.7	60.5	9375
400	2.0	3.0	60.5	8050	1.6	2.5	2.9	65.5	10700

XLPE Insulated & LSHF Sheathed Fire Resistant Cables

(1) 600/1000V Single-Core Unarmoured Fire Resistant Cable to BS 6387, IEC 60331, IEC 60332-3C, IEC 61034 & IEC 60754

Conductor			Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx.Weight	
Size	No./Dia. of Wire	Approx. Diameter				IEC 332-3C	IEC 332-3A
mm²	No./mm	mm	mm	mm	mm	kg/km	kg/km
1.5	7/0.53CR	1.59	0.7	1.4	6.4	55	60
2.5	7/0.67CR	2.01	0.7	1.4	6.8	70	75
4	7/0.85CR	2.55	0.7	1.4	7.4	90	100
6	7/1.04CR	3.12	0.7	1.4	7.9	110	115
10	7/1.35CR	4.05	0.7	1.4	8.9	160	165
16	7/1.70CR	5.10	0.7	1.4	9.9	220	225
25	7/2.14CP	6.10	0.9	1.4	12.2	330	335
35	7/2.52CP	7.10	0.9	1.4	13.5	440	445
50	19/1.78CP	8.40	1.0	1.4	15.0	560	585
70	19/2.14CP	9.90	1.1	1.4	17.0	770	800
95	19/2.52CP	11.8	1.1	1.5	19.0	1040	1070
120	37/2.03CP	13.2	1.2	1.5	20.8	1290	1330
150	37/2.25CP	14.8	1.4	1.6	23.0	1580	1635
185	37/2.52CP	16.4	1.6	1.6	25.0	1950	2010
240	37/2.88CP	19.0	1.7	1.7	28.5	2530	2610
300	61/2.52CP	21.2	1.8	1.8	31.0	3140	3230
400	61/2.85CP	23.7	2.0	1.9	34.7	3970	4095
500	61/3.20CP	27.0	2.2	2.0	38.5	4980	5100
630	91/2.97CP#	31.2	2.4	2.2	43.5	4600	6590
800	127/2.85CR	37.05	2.6	2.3	49.5	8000	8280
1000	127/3.20CR	41.6	2.8	2.4	53.2	10200	10670

(2) 450/750V & 600/1000V Single-Core Non-Sheathed LSHF Fire Resistant Cable to BS 7211, BS 6387, IEC 60331, IEC 60332-1, IEC 61034 & IEC 60754

Conductor			450/750V			600/1000V		
Size	No. /Dia. of Wire	Approx. Diameter	Nominal Thickness of Insulation	Nominal Overall Diameter	Approx. Weight	Nominal Thickness of Insulation	Nominal Overall Diameter	Approx. Weight
mm²	No./mm	mm	mm	mm	kg/km	mm	mm	kg/km
1.5	7/0.53CR	1.59	0.7	3.6	30	0.8	3.8	35
2.5	7/0.67CR	2.01	0.8	4.4	43	0.8	4.2	45
4	7/0.85CR	2.55	0.8	5.5	53	1.0	4.7	75
6	7/1.04CR	3.12	0.8	6.0	80	1.0	5.3	85
10	7/1.35CR	4.05	1.0	7.0	146	1.0	6.6	146
16	7/1.70CR	5.10	1.0	7.6	198	1.0	7.6	198
25	7/2.14CP	6.10	1.2	9.4	320	1.2	9.4	320
35	7/2.52CP	7.10	1.2	10.5	410	1.2	10.5	410
50	19/1.78CP	8.40	1.4	12.2	550	1.4	12.2	550
70	19/2.14CP	9.90	1.4	14.1	770	1.4	14.1	770
95	19/2.52CP	11.8	1.6	16.0	1140	1.6	16.0	1140
120	37/2.03CP	13.2	1.6	17.5	1420	1.6	17.5	1425
150	37/2.25CP	14.8	1.8	19.5	1720	1.8	19.5	1720
185	37/2.52CP	16.4	2.0	22.6	2155	2.0	22.6	2155
240	37/2.88CP	19.0	2.2	25.5	2900	2.2	25.6	2900
300	61/2.52CP	21.2	2.4	28.5	3550	2.4	28.5	3550
400	61/2.85CP	23.7	2.6	31.9	4410	2.6	31.9	4410
500	61/3.20CP	27.0	2.8	35.6	5660	2.8	35.6	5660
630	91/2.97CP#	31.2	2.8	40.0	7140	2.8	40.0	7140

* CR=circular stranded conductor
* CP=circular compacted stranded conductor (#630mm² shall be 89/3.0mm or 91/2.97mm)

(3) 600/1000V Multi-Core LSHF Fire Resistant Cable to IEC 60502, BS 6387, IEC 60331, IEC 60332-3C, IEC 61034 & IEC 60754

No. of Core	Size	Conductor No. / Diameter of Wire	Approximate Diameter of Conductor	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx.Weight	
							IEC 332-3C	IEC 332-3A
No.	mm²	No. / mm	mm	mm	mm	mm	kg/km	kg/km
2	1.5	7/0.53CR	1.59	0.7	1.8	10.4	150	160
	2.5	7/0.67CR	2.01	0.7	1.8	11.2	180	190
	4	7/0.85CR	2.55	0.7	1.8	12.3	240	250
	6	7/1.04CR	3.12	0.7	1.8	13.5	300	320
	10	7/1.35CR	4.05	0.7	1.8	15.7	420	440
	16	7/1.70CR	5.10	0.7	1.8	17.8	590	610
	25	7/2.14CP	6.10	0.9	1.8	21.2	960	890
	35	7/2.52CP	7.10	0.9	1.8	23.7	1120	1150
	50	19/1.78CP	8.40	1.0	1.8	26.5	1500	1550
	70	19/2.14CP	9.90	1.1	1.8	30.0	2050	2100
	95	19/2.52CP	11.80	1.1	1.9	34.0	2700	2780
	120	37/2.03CP	13.20	1.2	2.0	37.5	3430	3700
	150	37/2.25CP	14.80	1.4	2.2	42.0	4230	4300
	185	37/2.52CP	16.40	1.6	2.3	46.0	5235	5300
	240	37/2.88CP	19.00	1.7	2.5	52.0	6770	6850
	300	61/2.52CP	21.20	1.8	2.6	57.0	8335	8450
	400	61/2.85CP	23.70	2.0	2.9	63.5	10500	10700
3	1.5	7/0.53CR	1.59	0.7	1.8	11.4	170	185
	2.5	7/0.67CR	2.01	0.7	1.8	12.3	215	230
	4	7/0.85CR	2.55	0.7	1.8	13.5	280	295
	6	7/1.04CR	3.12	0.7	1.8	14.8	360	375
	10	7/1.35CR	4.05	0.7	1.8	16.7	510	540
	16	7/1.70CR	5.10	0.7	1.8	18.5	740	770
	25	7/2.14CP	6.10	0.9	1.8	22.0	1100	1150
	35	7/2.52CP	7.10	0.9	1.8	25.0	1400	1450
	50	19/1.78CP	8.40	1.0	1.8	28.0	1900	1980
	70	19/2.14CP	9.90	1.1	1.9	32.0	2600	2700
	95	19/2.52CP	11.80	1.1	2.0	37.0	3500	3600
	120	37/2.03CP	13.20	1.2	2.1	42.0	4400	4505
	150	37/2.25CP	14.80	1.4	2.3	47.0	5500	5650
	185	37/2.52CP	16.40	1.6	2.4	52.0	6800	7005
	240	37/2.88CP	19.00	1.7	2.6	58.5	8800	9070
	300	61/2.52CP	21.20	1.8	2.7	64.5	10000	11400
	400	61/2.85CP	23.70	2.0	3.0	69.5	14000	14400
4	1.5	7/0.53CR	1.59	0.7	1.8	12.5	200	220
	2.5	7/0.67CR	2.01	0.7	1.8	13.5	250	270
	4	7/0.85CR	2.55	0.7	1.8	14.5	335	360
	6	7/1.04CR	3.12	0.7	1.8	16.0	440	465
	10	7/1.35CR	4.05	0.7	1.8	18.0	640	675
	16	7/1.70CR	5.10	0.7	1.8	21.0	915	955
	25	7/2.14CP	6.10	0.9	1.8	25.0	1410	1470
	35	7/2.52CP	7.10	0.9	1.8	28.5	1500	1570
	50	19/1.78CP	8.40	1.0	1.8	32.0	1950	2050
	70	19/2.14CP	9.90	1.1	2.0	37.0	3100	3220
	95	19/2.52CP	11.80	1.1	2.1	42.5	3600	3750
	120	37/2.03CP	13.20	1.2	2.3	47.0	5700	5870
	150	37/2.25CP	14.80	1.4	2.4	51.5	7000	7250
	185	37/2.52CP	16.40	1.6	2.6	57.5	8700	8900
	240	37/2.88CP	19.00	1.7	2.8	65.5	11000	11300
	300	61/2.52CP	21.20	1.8	3.0	71.5	14760	14400
	400	61/2.85CP	23.70	2.0	3.3	75.5	18000	18500

* CR = circular stranded conductor

* CP = circular compacted stranded conductor

(4) 300/500V Multi-Core, XLPE Insulated, LSHF Sheathed, Unarmoured Fire Resistant Cable to IEC 60502, BS 6387, IEC 60331, IEC 60332-3C, IEC 61034 & IEC 60754

Conductor				Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight
No. of Core	Size	No. / Dia. of Wire	Approx. Dia.				
No.	mm²	No. / mm	mm	mm	mm	mm	kg/km
2	1.5	7/0.53CR	1.59	0.7	0.9	8.0	95
	2.5	7/0.67CR	2.01	0.8	1.0	8.8	120
	4.0	7/0.85CR	2.55	0.8	1.1	9.9	165
3	1.5	7/0.53CR	1.59	0.7	1.0	8.5	110
	2.5	7/0.67CR	2.01	0.8	1.1	9.5	150
	4.0	7/0.85CR	2.55	0.8	1.1	10.5	205
4	1.5	7/0.53CR	1.59	0.7	1.0	9.5	135
	2.5	7/0.67CR	2.01	0.8	1.1	10.5	180
	4.0	7/0.85CR	2.55	0.8	1.2	11.5	255

(5) 600/1000V Single-Core, XLPE Insulated, LSHF Sheathed, Armoured Fire Resistant Cable to IEC 60502, BS 6387, IEC 60331, IEC 60332-3C, IEC 61034 & IEC 60754

Conductor			Nominal Thickness of Insulation	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	
Size	No. / Dia. of Wire	Approx. Dia.						IEC 332-3C	IEC 332-3A
mm²	No. / mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
50	19/1.78CP	8.40	1.0	0.8	1.25	1.5	15.0	560	580
70	19/2.14CP	9.90	1.1	0.8	1.25	1.5	17.0	770	790
95	19/2.52CP	11.80	1.1	0.8	1.25	1.6	19.0	1050	1100
120	37/2.03CP	13.20	1.2	0.8	1.25	1.6	20.5	1300	1350
150	37/2.25CP	14.80	1.4	1.0	1.6	1.7	23.0	1580	1620
185	37/2.52CP	16.40	1.6	1.0	1.6	1.8	25.5	1950	2010
240	37/2.88CP	19.00	1.7	1.0	1.6	1.8	28.5	2550	2630
300	61/2.52CP	21.20	1.8	1.0	1.6	1.9	31.0	3150	3240
400	61/2.85CP	23.70	2.0	1.2	2.0	2.0	35.0	3950	4060
500	61/3.20CP	27.00	2.2	1.2	2.0	2.1	38.0	4970	5105
630	91/2.97CP#	31.20	2.4	1.2	2.0	2.2	43.5	6500	6700
800	127/2.85CR	37.05	2.6	1.4	2.5	2.4	48.0	8000	8200
1000	127/3.20CR	41.60	2.8	1.4	2.5	2.5	53.5	10200	10450

* CR = circular stranded conductor
* CP = circular compactcd stranded conductor (#630mm² shall be 89/3.00mm or 91/2.97mm)

(6) 600/1000V Multi-Core, XLPE Insulated, LSHF Sheathed, Armoured Fire Resistant Cable to IEC 60502, BS 6387, IEC 60331, IEC 60332-3C, IEC 61034 & IEC 60754

No.of Core	Size	Conductor		Nominal Thickness of Insulation	Nominal Thickness of Bedding	Nominal Dia. of Armour Wire	Nominal Thickness of Sheath	Nominal Overall Diameter	Approx. Weight	
		No./Dia. of Wire	Approx. Diameter						IEC 332-3C	IEC 332-3A
No.	mm²	No./mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
2	1.5	7/0.53CR	1.59	0.7	0.8	0.9	1.4	15.0	400	415
	2.5	7/0.67CR	2.01	0.7	0.8	0.9	1.4	16.0	450	460
	4	7/0.85CR	2.55	0.7	0.8	0.9	1.4	17.0	530	540
	6	7/1.04CR	3.12	0.7	0.8	0.9	1.4	18.0	620	635
	10	7/1.35CR	4.05	0.7	0.8	0.9	1.5	20.0	900	925
	16	7/1.70CR	5.10	0.7	0.8	1.25	1.5	22.4	1050	1075
	25	7/2.14CP	6.10	0.9	0.8	1.25	1.6	26.5	1600	1620
	35	7/2.52CP	7.10	0.9	1.0	1.6	1.7	29.0	1965	2075
	50	19/1.78CP	8.40	1.0	1.0	1.6	1.8	32.5	2500	2550
	70	19/2.14CP	9.90	1.1	1.0	1.6	1.9	37.5	3400	3460
	95	19/2.52CP	11.80	1.1	1.2	2.0	2.0	42.5	4420	4480
	120	37/2.03CP	13.20	1.2	1.2	2.0	2.1	46.0	5250	5330
	150	37/2.25CP	14.80	1.4	1.2	2.0	2.2	51.0	6300	6405
	185	37/2.52CP	16.40	1.6	1.4	2.5	2.4	55.5	8200	8350
	240	37/2.88CP	19.00	1.7	1.4	2.5	2.5	62.5	9900	10500
	300	61/2.52CP	21.20	1.8	1.6	2.5	2.6	68.5	12300	12550
	400	61/2.85CP	23.70	2.0	1.6	2.5	2.8	76.0	15500	15800
3	1.5	7/0.53CR	1.59	0.7	0.8	0.9	1.4	15.7	450	465
	2.5	7/0.67CR	2.01	0.7	0.8	0.9	1.4	16.8	510	530
	4	7/0.85CR	2.55	0.7	0.8	0.9	1.4	18.0	610	630
	6	7/1.04CR	3.12	0.7	0.8	0.9	1.4	20.0	820	840
	10	7/1.35CR	4.05	0.7	0.8	1.25	1.5	21.8	1000	1020
	16	7/1.70CR	5.10	0.7	0.8	1.25	1.6	24.4	1300	1330
	25	7/2.14CP	6.10	0.9	1.0	1.6	1.7	28.0	1900	1950
	35	7/2.52CP	7.10	0.9	1.0	1.6	1.8	31.0	2400	2450
	50	19/1.78CP	8.40	1.0	1.0	1.6	1.8	34.5	3000	3070
	70	19/2.14CP	9.90	1.1	1.0	1.6	1.9	40.5	4300	4400
	95	19/2.52CP	11.80	1.1	1.2	2.0	2.1	45.0	5400	5500
	120	37/2.03CP	13.20	1.2	1.2	2.0	2.2	49.0	6600	6720
	150	37/2.25CP	14.80	1.4	1.4	2.5	2.3	55.0	8300	8450
	185	37/2.52CP	16.40	1.6	1.4	2.5	2.4	60.0	10000	10200
	240	37/2.88CP	19.00	1.7	1.4	2.5	2.6	67.5	12000	12200
	300	61/2.52CP	21.20	1.8	1.6	2.5	2.7	74.0	15000	15280
	400	61/2.85CP	23.70	2.0	1.6	2.5	2.9	84.0	18300	19600
4	1.5	7/0.53CR	1.59	0.7	0.8	0.9	1.4	16.6	500	520
	2.5	7/0.67CR	2.01	0.7	0.8	0.9	1.4	17.7	580	605
	4	7/0.85CR	2.55	0.7	0.8	0.9	1.4	19.5	800	820
	6	7/1.04CR	3.12	0.7	0.8	1.25	1.5	21.0	950	1020
	10	7/1.35CR	4.05	0.7	0.8	1.25	1.5	24.0	1200	1235
	16	7/1.70CR	5.10	0.7	0.8	1.25	1.6	26.5	1700	1740
	25	7/2.14CP	6.10	0.9	1.0	1.6	1.7	30.5	2300	2400
	35	7/2.52CP	7.10	0.9	1.0	1.6	1.8	34.5	2900	2940
	50	19/1.78CP	8.40	1.0	1.0	1.6	1.9	39.0	3900	4050
	70	19/2.14CP	9.90	1.1	1.2	2.0	2.1	44.0	4900	5030
	95	19/2.52CP	11.80	1.1	1.2	2.0	2.2	49.0	6600	6630
	120	37/2.03CP	13.20	1.2	1.4	2.5	2.3	55.0	8500	8700
	150	37/2.25CP	14.80	1.4	1.4	2.5	2.4	60.5	9900	10300
	185	37/2.52CP	16.40	1.6	1.4	2.5	2.6	66.5	12000	12400
	240	37/2.88CP	19.00	1.7	1.6	2.5	2.7	75.5	16000	16500
	300	61/2.52CP	21.20	1.8	1.6	2.5	2.9	82.5	19000	19300
	400	61/2.85CP	23.70	2.0	1.8	3.15	3.2	90.5	23800	24200

* CR = circular stranded conductor * CP = circular compacted stranded conductor

XLPE Insulated & PVC Sheathed Cables to ICEA S-66-524

(1) 0-600V Single Core, XLPE Insulated, PVC Sheathed, 100/133% Insulation Level Unarmoured to ICEA S-66-524

Conductor			Nominal Thickness of Insulation (mm)	Nominal Thickness of Sheath (mm)	Nominal Overall Diameter (mm)	AC Test Voltage (kv/5min)	Approx. Cable Weight (kg/km)
Size (AWG or MCM)	No. /Diameter of Wire (No. /mm)	Outside Dia. (mm)					
14	7/0.615	1.85	0.76	0.38	4.4	3.5	34
12	7/0.775	2.34	0.76	0.38	4.9	3.5	48
10	7/0.978	2.95	0.76	0.38	5.5	3.5	69
9	7/1/10	3.30	0.76	0.38	5.8	3.5	83
8	7/1.23	3.70	1.14	0.38	7.1	3.5	108
6	7/1.56	4.67	1.14	0.76	8.9	5.5	176
4	7/1.96	5.88	1.14	0.76	10.1	5.5	256
2	7/2.47	7.42	1.14	0.76	11.7	5.5	381
1	19/1.69	8.43	1.40	1.14	14.1	7.0	511
1/0	CC	8.53	1.40	1.14	14.2	7.0	611
2/0	CC	9.55	1.40	1.14	15.2	7.0	748
3/0	CC	10.74	1.40	1.14	16.4	7.0	920
4/0	CC	12.07	1.40	1.14	17.7	7.0	1136
250	CC	13.21	1.65	1.65	20.6	8.0	1398
300	CC	14.48	1.65	1.65	21.8	8.0	1643
350	CC	15.65	1.65	1.65	23.0	8.0	1886
400	CC	16.74	1.65	1.65	24.1	8.0	2137
500	CC	18.69	1.65	1.65	26.1	8.0	2625
600	CC	20.65	2.03	1.65	28.9	10.0	3179
750	CC	23.06	2.03	1.65	31.3	10.0	3914
1000	CC	26.92	2.03	1.65	35.3	10.0	5145

(2) 0-600V Three Core, XLPE Insulated, PVC Sheathed, 100/133% Insulation Level Unarmoured to ICEA S-66-524

Conductor			Nominal Thickness of Insulation (mm)	Nominal Thickness of Sheath (mm)	Nominal Overall Diameter (mm)	AC Test Voltage (kv/5min)	Approx. Cable Weight (kg/km)
Size (AWG or MCM)	No. /Diameter of Wire (No. /mm)	Outside Dia. (mm)					
14	7/0.615	1.85	0.76	1.14	10.2	3.5	143
12	7/0.775	2.34	0.76	1.14	11.3	3.5	188
10	7/0.978	2.95	0.76	1.14	12.6	3.5	264
9	7/1.10	3.30	0.76	1.52	14.2	3.5	339
8	7/1.23	3.70	1.14	1.52	17.0	5.5	444
6	7/1.56	4.67	1.14	1.52	19.1	5.5	612
4	7/1.96	5.88	1.14	2.03	22.8	5.5	936
2	7/2.47	7.42	1.14	2.03	26.1	5.5	1354
1	19/1.69	8.43	1.40	2.03	29.6	7.0	1704
1/0	CC	8.53	1.40	2.03	29.8	7.0	2006
2/0	CC	9.55	1.40	2.03	32.0	7.0	2449
3/0	CC	10.74	1.40	2.03	34.6	7.0	2995
4/0	CC	12.07	1.40	2.03	37.4	7.0	3688
250	CC	13.21	1.65	2.03	41.1	8.0	4362
300	CC	14.48	1.65	2.79	45.6	8.0	5314
350	CC	15.65	1.65	2.79	48.0	8.0	6089
400	CC	16.74	1.65	2.79	50.4	8.0	6887

* CC = circular compacted conductor

THHN/THWN PVC/Nylon Insulated PVC Sheathed Cables

THHN/THWN 600V PVC/Nylon Insulated & PVC Sheathed Control Cable

Application:
These cables are designed for use in power, control and lighting circuits in a broad range of commerical and industrial applications. Suitable for installation indoors or outdoors, aerially, in conduits, ducts, cable trays or direct burial in circuits not exceeding 600 volts. May be used in NEC Class I and II, Division 2 hazardous locations. Recognised for use in continuous rating at 75°C in wet locations, 90°C continuous ratings in dry locations, 130°C for emergency overload ratings, and 250°C for short circuit ratings. Not recommended in d.c. operation in wet locations.

Conductor:
Soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8.

Insulation:
High dielectric strength flame-retardent PVC per UL 1581.

Insulation Jacket:
Clear nylon per UL 1581 for Type THHN or THWN wire.

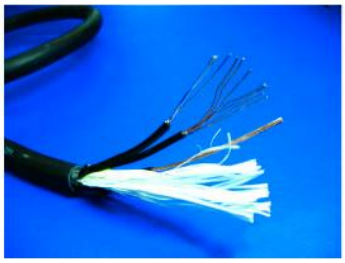
Cabling:
Three or more conductors are assembled with fillers as needed. A Nylon rip cord is put under the jacket for ease of stripping.

Overall Jacket:
Sunlight-resistant gas/vaportight PVC per UL 1277.

Flame Tests:
- 70,000 BTU/hr Cable Tray Propagation Test per ICEA 383

Color Code:
ICEA Method 1, Table E-2

Additional Standards:
- UL Type TC per Article 336 of the NEC
- Class 1 circuits per Article 725 of the NEC



Insulation Thickness:15 mils (0.38mm) PVC, 4 mils (0.1mm) Nylon on# 14 #12
20 mils (0.5 mm) PVC, 4 mils (0.1mm) Nylon on # 10

14 AWG (7 Strand)				12 AWG (7 Strand)			10 AWG (19 Strand)		
No. of Cores	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000 ft)
2	45/1.14	0.32/8.2	65	45/1.14	0.36/9.1	85	45/1.14	0.43/10.9	125
3	45/1.14	0.34/8.6	80	45/1.14	0.39/9.6	110	45/1.14	0.45/11.5	165
4	45/1.14	0.36/9.3	100	45/1.14	0.41/10.4	140	60/1.52	0.50/12.6	220
5	45/1.14	0.39/10	120	45/1.14	0.44/11.2	170	60/1.52	0.57/14.5	270
6	45/1.14	0.41/10.4	135	45/1.14	0.46/11.7	200	60/1.52	0.60/15.3	320
7	45/1.14	0.43/10.8	155	45/1.14	0.48/12.2	220	60/1.52	0.62/15.7	350
8	45/1.14	0.46/11.6	180	60/1.52	0.54/13.7	260	60/1.52	0.67/17.0	405
9	60/1.52	0.49/12.4	200	60/1.52	0.59/14.9	300	60/1.52	0.72/18.2	460
10	60/1.52	0.51/12.9	235	60/1.52	0.64/16.2	340	60/1.52	0.75/19.0	530
12	60/1.52	0.58/14.7	275	60/1.52	0.66/16.7	390	80/2.03	0.80/20.4	630
15	60/1.52	0.63/16.0	330	60/1.52	0.72/18.3	470	80/2.03	0.86/21.8	765
19	60/1.52	0.67/16.9	405	60/1.52	0.76/19.2	580	80/2.03	0.93/23.7	930
20	60/1.52	0.72/18.2	440	80/2.03	0.84/21.3	645	80/2.03	0.98/24.9	990
24	80/2.03	0.80/20.2	535	80/2.03	0.90/22.8	780	80/2.03	1.10/27.9	1210
30	80/2.03	0.85/21.5	655	80/2.03	0.95/24.1	930	80/2.03	1.17/29.8	1435
37	80/2.03	0.92/23.2	775	80/2.03	1.04/26.4	1115	80/2.03	0.27/32.3	1730

THHN/THWN PVC/Nylon Insulated PVC Sheathed Cables

THHN/THWN 600V, PVC/Nylon Insulated & PVC Sheathed Power Cable

Application:
These cables are designed for use in power, control and lighting circuits in a broad range of commercial and industrial applications. Suitable for installation indoors or outdoors, aerially, in conduits, ducts, cable trays or direct burial in circuits not exceeding 600 volts. May be used in NEC Class I and II, Division 2 hazardous locations. Recognised for use in continuous rating at 75°C in wet locations, 90°C continuous rating in dry locations, 130°C for emergency overload ratings, and 250°C for short circuit ratings.

Conductors:
Soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8.

Insulation:
High dielectric strength flame-retardant PVC per UL 1581.

Insulation Jacket:
Clear nylon per UL 1581 for Type THHN or THWN wire.

Grounding Conductor:
Soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8 sized in accordance with UL 1277.

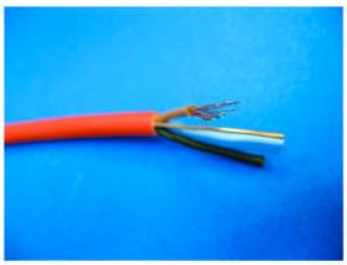
Cabling:
Three or more conductors are assembled with fillers as needed. A Nylon rip cord is put under the jacket for ease of stripping.

Overall Jacket:
Sunlight-resistant gas/vaportight PVC per UL 1277.

Flame Tests:
- 70,000 BTU/hr Cable Tray Propagation Test per ICEA 383

Color Code:
ICEA Method 4

Additional Standards:
- UL Type TC per Article 336 of the NEC.



Three Cores

Size AWG or kcmil	Stranding	Ampacity	Nominal Thickness of Insulation (mils/mm)	Grounding Conductors Three Per Cable(awg)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)
8	19	59	30/0.76	14	60/1.52	0.63/16	320
6	19	79	30/0.76	12	80/2.03	0.72/18.3	420
4	19	104	40/1.01	12	80/2.03	0.84/21.4	690
2	19	136	40/1.01	10	80/2.03	0.97/24.7	980
1	19	161	50/1.27	10	80/2.03	1.11/28.2	1230
1/0	19	186	50/1.27	10	80/2.03	1.20/30.5	1450
2/0	19	215	50/1.27	10	80/2.03	1.29/32.8	1820
3/0	19	249	50/1.27	7	80/2.03	1.40/35.6	2180
4/0	19	287	50/1.27	7	80/2.03	1.52/38.6	2750
250	37	320	60/1.52	7	110/2.78	1.72/43.9	3290
350	37	394	60/1.52	7	110/2.78	1.96/49.8	4500
500	37	489	60/1.52	5	110/2.78	2.23/56.7	6300

Four Cores

Size AWG or kcmil	Stranding	Ampacity	Nominal Thickness of Insulation (mils/mm)	Grounding Conductors Three Per Cable(awg)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)
8	19	47	30/0.76	12	60/1.52	0.69/17.5	380
6	19	63	30/0.76	10	60/1.52	0.77/19.6	540
4	19	83	40/1.01	10	80/2.03	0.93/23.6	825
2	19	110	40/1.01	8	80/2.03	1.07/27.2	1225
1	19	129	50/1.27	8	80/2.03	1.23/31.2	1525
1/0	19	149	50/1.27	6	80/2.03	1.27/33.0	1800
2/0	19	172	50/1.27	8	80/2.03	1.43/36.3	2440
3/0	19	199	50/1.27	6	80/2.03	1.55/39.4	2630
4/0	19	230	50/1.27	6	110/2.78	1.74/44.2	3490
250	37	256	60/1.52	6	110/2.78	1.92/48.8	4100
350	37	315	60/1.52	6	110/2.78	2.17/55.1	5660
500	37	391	60/1.52	4	110/2.78	2.48/63.1	8150

XHHW-2 XLPE Insulated PVC Sheathed Control Cables

XHHW-2 600V, XLPE Insulated & PVC Sheathed Control Cable

Application:
These flame-retardant cable are designed for use in power, control and lighting circuits in a broad range of commercial and industrial applications. Suitable for use in wet or dry locations at 90°C, for installation indoors or outdoors, aerially, in conduits, ducts, cable trays or direct burial in circuits not exceeding 600 volts. May be used in NEC Class I and II, Division 2 hazardous locations. Recognised for use at 90°C continuous ratings for dry operation, 130°C for emergency overload ratings, and 250°C for short circuit ratings.

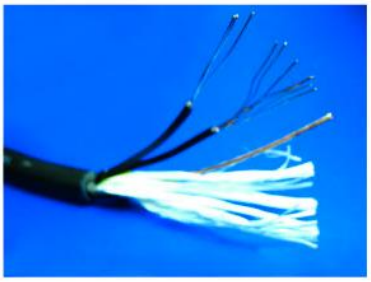
Conductors:
Soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8 and UL 44 Paragraph 12.6.

Insulation:
Flame-retardant cross-linked polyethylene (FR-XLPE) per ICEA S-73-532 part 3 and UL Standard 44 for Type XHHW-2, VW-1 conductors.

Cabling:
Three or more conductors are assembled round with non hygroscopic fillers as needed.
An optional binder is applied over the assembly. A Nylon rip cord is put under the jacket for ease of stripping.

Overall Jacket:
Sunlight-resistant gas/vaportight PVC per UL 1277 table 11-1 & ICEA S-73-532 part 4.

Flame Tests:
- IEEE 383 70,000 BTU/hr flame test
- IEEE 1202 70,000 BTU/hr CSA FT4 flame test
- ICEA T-29-520 210,000 BTU/hr flame test
- Individual conductors pass the UL VW-1 flame test



Color Code:
ICEA Method 1, Table E-2

Additional Standards:
- UL Type TC per Article 336 of the NEC.
- Approved for Class 1 circuits per Article 725 of the NEC.
- NEMA WC 57

Insulation Thickness:30 mils

14 AWG (7 Strand)				12 AWG (7 Strand)			10 AWG (18 Strand)		
No. of Cores	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)
2	45/1.14	0.37/9.4	65	45/1.14	0.41/10.2	85	45/1.14	0.45/11.4	135
3	45/1.14	0.39/9.9	85	45/1.14	0.43/10.9	120	45/1.14	0.47/11.9	175
4	45/1.14	0.42/10.7	115	45/1.14	0.47/11.9	150	60/1.52	0.56/14.2	225
5	45/1.14	0.46/11.7	135	60/1.52	0.55/13.9	215	60/1.52	0.61/15.5	285
6	60/1.52	0.53/12.5	170	60/1.52	0.58/14.7	235	60/1.52	0.66/16.8	325
7	60/1.52	0.53/13.5	185	60/1.52	0.58/14.7	255	60/1.52	0.66/16.8	355
8	60/1.52	0.56/14.2	215	60/1.52	0.65/16.5	305	60/1.52	0.72/18.3	420
9	60/1.52	0.60/15.2	235	60/1.52	0.68/17.3	340	60/1.52	0.77/19.6	475
10	60/1.52	0.66/16.8	255	60/1.52	0.74/18.8	365	80/2.03	0.88/22.4	555
12	60/1.52	0.68/17.3	295	60/1.52	0.77/19.6	420	80/2.03	0.91/23.1	635
16	60/1.52	0.73/18.5	355	80/2.03	0.88/22.4	540	80/2.03	0.98/24.8	765
19	60/1.52	0.79/20.0	435	80/2.03	0.94/23.9	640	80/2.03	1.06/26.9	935
24	80/2.03	0.95/24.1	565	80/2.03	1.09/27.7	805	80/2.03	1.24/31.5	1185
30	80/2.03	1.02/25.4	685	80/2.03	1.16/29.5	980	80/2.03	1.31/33.3	1400
37	80/2.03	1.05/26.7	815	80/2.03	1.24/31.5	1170	80/2.03	1.41/35.8	1700

* Also available in other sizes and other strandings

XHHW-2 XLPE Insulated PVC Sheathed Power Cables

XHHW-2 600V, XLPE Insulated & PVC Sheathed Power Cable

Application:

These flame retardant cable are designed for use in power, control and lighting circuits in a broad range of commercial and industrial applications. Suitable for use in wet or dry locations at 90°C, for installation indoors or outdoors, aerially, in conduits, ducts, cable trays or direct burial in circuits not exceeding 600 volts. May be used in NEC Class I and II, Division 2 hazardous locations. Recognised for use at 90°C for continuous operation, 130°C for emergency overload ratings, and 250°C for short circuit ratings.

Conductors:

Soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8 and UL 44 Paragraph 12.6.

Insulation:

Cross-linked polyethylene (XLPE) per ICEA S-95-658 and UL 44 for Type XHHW-2 conductors.

Grounding Conductor:

Concentric compressed stranded soft bare annealed copper per ASTM B-3, Class B stranding per ASTM B-8 sized in accordance with UL 1277.

Cabling:

Three or more conductors are assembled round with non-hygroscopic fillers as needed. A tape binder is applied over the assembly.

Jacket:

Sunlight-resistant gas/vaportight PVC per UL 1277 table 11-1 & ICEA S-95-658 section 4.

Flame Test:

- UL and IEEE 383 70,000 BTU/hr flame test.

Color Code:

ICEA Method 4

Additional Standards:

- UL Type TC Tray Cable per Article 336 of the NEC.
- NEMA WC 70

Three Cores

Size AWG or kcmil	Stranding	Ampacity	Nominal Thickness of Insulation (mils/mm)	Grounding Conductors Three Per Cable(awg)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)
8	7	59	45/1.14	14	60/1.52	0.63/16.0	315
6	7	79	45/1.14	12	60/1.52	0.72/18.3	420
4	7	104	45/1.14	12	80/2.02	0.84/21.3	695
2	7	138	45/1.14	10	80/2.02	0.97/24.6	980
1	19	161	55/1.39	10	80/2.02	1.11/28.2	1230
1/0	19	186	55/1.39	10	80/2.02	1.20/30.5	1450
2/0	19	215	55/1.39	10	80/2.02	1.29/32.8	1820
3/0	19	249	55/1.39	7	80/2.02	1.40/35.6	2185
4/0	19	287	55/1.39	7	80/2.02	1.52/38.6	2745
250	37	320	65/1.65	7	110/2.79	1.73/43.9	3215
350	37	394	65/1.65	7	110/2.79	1.96/49.8	4505
500	37	489	65/1.65	5	110/2.79	2.23/56.7	6300
750	61	615	80/2.02	5	140/3.55	2.75/69.9	9490

Four Cores

Size AWG or kcmil	Stranding	Ampacity	Nominal Thickness of Insulation (mils/mm)	Grounding Conductors Three Per Cable(awg)	Nominal Thickness of Jacket (mils/mm)	Nominal Overall Diameter (inches/mm)	Approx. Weight (lbs/1000ft)
8	7	47	45/1.14	12	60/1.52	0.69/17.6	380
6	7	63	45/1.14	10	60/1.52	0.77/19.6	530
4	7	83	45/1.14	10	80/2.02	0.93/23.6	825
2	7	110	45/1.14	8	80/2.02	1.07/27.2	1225
1	19	129	55/1.39	8	80/2.02	1.23/31.2	1525
1/0	19	149	55/1.39	8	80/2.02	1.39/33.8	1805
2/0	19	172	55/1.39	8	80/2.02	1.43/36.3	2440
3/0	19	199	55/1.39	6	80/2.02	1.55/39.4	2635
4/0	19	230	55/1.39	6	110/2.79	1.74/44.2	3495
250	37	256	65/1.65	6	110/2.79	1.92/48.8	4100
350	37	315	65/1.65	6	110/2.79	2.17/55.1	5660
500	37	391	65/1.65	4	110/2.79	2.48/63.1	8150
750	61	492	80/2.02	4	140/3.55	3.05/77.5	12000

Ordering Code according to VDE Standard

1 Basic type

A-	Outdoor cable
A	Authorised National
AB	Outdoor cable with lighting protection
AD	Outdoor cable with differential protection
AJ-	Outdoor cable with induction protection
ASLH	Self-supporting Communication cables for high voltage overhead lines
FL	Flat cable
G-	Mining cable
GJ	Mining cable with induction protection
H	Harmonized type
M	Plastic-sheathed cable
N	VDE standard
(N)	In adapted to VDE standard
RAGL-	Compensating cable for thermocoupling
RD-	Rhenomatic cable
RE	Computer cable
RG-	Coaxial Coble according to MIL specification
RS	Computer Switchboard cable
-S	Signal cable for German Rallway
S-	Switchboard cable
SL	Flexible sheathed cable
T-	Fan-out cable
Z	Twin cable

2.Additional information

-J	Cable with green-yellow ground conductor
-JZ	Cable with green-yellow ground conductor with numbering
-O	Cable without green-yellow ground conductor
-OZ	Cable without green-yellow ground conductor with numbering

3.Insulation & Sheath Material

G	Rubber (N&R) or (SBR)
2G	Silicone Rubber,(SIR)
3G	Ethylene Propylene Rubber,(EPR)
4G	Ethylene Vinylacetate Rubber (EVA)
5G	Chloroprene Rubber(CR)
6G	Chlorosulphonated PE(CSM),Hypalon
7G	Flouroelastomer
8G	Nitrile Rubber(NBR)
9G	PE-C Rubber(CE)
53G	CM,Chlorinated Polyethyene
H	Halogen-free flame retardant compound
HX	Cross-linked,halogen-free compound
O2Y	Foam-PE,(cellular PE)
X	Polyvinylchloride(X-PVC)
XP	Cross-linked Polyethylene(X-PE)
2X	Cross-linked Polyethylene
7X	Cross-linked Ethylentetrafluorethylene(X-ETFE)
10x	Cross-linked Polyvinylidenfluoride(X-PVDF)
Y	PVC,Polyvinylchloride
Yu	PVC,Polyvinylchloride,flame-retardant
Yv	PVC,Polyvinylchloride,with reinforced sheath
YV	Equipment wires with tinned conductor
Yw	PVC,Polyvinylchloride,heat resistant up to 90 C
2Y	Polyethylene(PE)
2Yv	Polyethylene,reinforced sheath
02Y	Cellular or Foam Polyethylene
02YS	Cellular Polyethylene with outer PE-skin or Foam Skin
2YHO	Air-spaced polyethylene
3Y	Polystyrene(PS),Styroflex
4Y	Polyamide(PA)
5Y	Polytetrafluorethylene(PTFE),Teflon®
5YX	Perfluoralkoxy(PFA)
6Y	Perfluoroethylene-Propylene(FEP),Teflon®
7Y	Ethylentetrafluorethylene(ETFE)®
8Y	Polyimide(PI)
9Y	Polypropylene(PP)
10Y	PVDF,Polyvinylidene fluoride
11Y	Polyurethene(PUR)
13Y	TPE-EE,TPE on base of Polyester-Ester
31Y	TPE-S,TPE on base of Polystyrol
41Y	TPE-A,TPE on base of Polyamide
51Y	PFA,Perfluor-Alkoxylalkane
71Y	ECTFE,Monochiortrifluorethylene
91Y	TPE-O,TPE on base of Polyester-Ester

4 Make-up Features

B	Armouring
B	Reinforcement
C	Tinned copper braid shield
F	Petroleum jelly filling
(K)	Copper strip screen
LD	Corrugated aluminium sheath
(L)Y	Laminated sheath A1-tape and PVC-jacket
(L)2Y	Laminated sheath A1-tape and PE-jacket
M	Lead sheath
MZ	Special lead sheath
(mS)	Magnetic shield
(St)	Static shield(aluminium/polyester tape)
W	Corrugated steel sheath
(Z)	Corrugated steel wire braid

5 Conductor Type

Re	Round,single wire conductor
Rm	Round,multiwire conductor
Staku	Copper clad steel wires
Staku-Li	Copper clad steel stranded wires

6 Stranding element

PiC	Pairs shielded with copper braid
PiMF	Pairs shielded with aluminium/polyester tape
St	Star Quad(Phantom)
St I	Star Quad(trunk cable)
St III	Star Quad(local cable)
TiC	Triple Shielded with copper braid
TiMF	Triple shielded with aluminium/polyester tape

7 Type of Stranding

Bd	Twisted in layers
Lg	Twisted in units

8 Special Features

FR	Flame retardant
..T	Anti-termite
O	Oil-resistant
NC	Non-corrosive

Insulation & Sheath Material Options

Polyvinyl Chloride (PVC)

PVC is the most widely used material throughout the cable industry because of its good mechanical and electrical properties, combined with cheap cost. The three most common materials used are PVC (-20°C to 80°C), PVC 105°C (-20°C to 105°C), PVC AF which is flame retardant (oxygen index＞32% and halogen content＜18%.)

Polyethylene (PE)

PE has excellent insulation characteristics and is used for data and RF transmission. It is very resistant to water penetration and thus used as sheath for outdoor/underground cables. It has three major types. ie. Low, (LDPE) medium (MDPE) and high (HDPE). Generally speaking, the higher the density, the better the mechanical performance. Cellular polyethylene has even lower capacitance than solid PE and is used for low loss data cable.

Nylon (PA)

Nylon has excellent abrasion and chemical resistance and is an excellent sheathing materia. It is however, less flexible than other materials.

Fluoropolymer (PTFE/FEP/ETFE)

The three most common materials used are polytetrafluorethylene (PTFE) (-80°C to 260°C), fluorethylene-propylene (FEP) (-80°C to 205°C) and ethylenetetrafluorethylene (ETFE) (-80°C to 155°C)
These materials are usually used in aerospace industry where wide temperature range is required.

Low Smoke Halogen Free (LSHF)

It is a flame retardant compound designed to reduce both the spread of fire and the volume of toxic gas and smoke during a fire. It is usually used in Mass Transit Railway, banking and high rise building.

Low Smoke and Fume (LSF)

These materials differ from the LSHF materials in their fire retardancy and gas emission characteristics. In general, these materials are graded by their hydrogen chloride emission charaterstics usually between 5 per cent and 15 percent emissions for the LSF materials as compared to 0.5 per cent for the LSHF materials.

Elastomeric Compound

They have excellent thermal stability and also makes the cable flexibie. The most common material are EPR and XLPE. Both of them are used for insulation material in low and medium voltage cables.

Polypropylene (PP)

It exhibits same electrical characteristics of PE but has better mechanical and temperature properties. It is usually used for small cables with thin sheath and overall diameter.

UV Stabiliser

With the inclusion of UV Stabiliser such as carbon back compound in the formulation, PE exhibits extremely good aging properties and high UV and weather resistance whereas PVC or LSHF have improved resistance to degradation from exposure to UV radiation.

Characteristics of Insulation & Sheath Materials

Designation				Fire Performance				Mechanical Performance			Halogen Content	Weather	
	VDE code	Abbreviations	Materials	Working Temperature °C	Flame Retardance	Oxygen Index	Corrosive Gases in case of Fire	Tensile Strength N/mm²	Abrasion Resistance	Water Resistance	Halogen-Free	Weather Resistance	Cold Resistance
Thermoplastic compounds	Y	PVC	Polyvinylchloride compounds	-30 +70	Self-extinguishing	23-42	Hydrogen chloride	10-30	Fair	Good	No	Fair/Good	Fair/Good
	YW	PVC	Heat-resistant 90°C	-20 +90									
	Yw	PVC	Heat-resistant 105°C	-20 +105									
	Yk	PVC	Cold resistant	-40 +70									Excellent
	2Y	LDPE	Low density polyethylene	-40 +80	Flammable	≤23	No	10-20	Fair	Excellent	Yes	Good	Good
	2Y	HDPE	High density polyethylene	-60 +90				20-30	Good				
	2X	XLPE	Cross-linked polyethylene	-35 +90				10-20	Fair			Good	
	02Y		Foamed polyethylene	-40 +70		18-30		5-15	-	-	Condi-tional	-	
	3Y	PS	Polystrole	-50 +80		≤23	No	50-70	Good	Good	Yes	Fair/Good	Fair/Good
	4Y	PA	polyamide	-20 +105		≤23	No	50-60	Excellent	Fair		Good	Good
	9Y	PP	Polypropylene	-20 +100				20-40	Fair	Excellent		Fair	
	11Y	PUR	Polyurethane	-40 +80		20-26		30-50	Excellent	Fair	Yes	Excellent	Excellent
Elastomeric compounds	G	NR SBR	Natural rubber Styrol butadiene rubber compounds	-65 +60	Flammable	≤23	No	5-10	Fair	Fair	No	Fair	Excellent
	2G	SIR	Silicone rubber	-60 +180	High flash point	25-35					Yes	Good	
	3G	EPR	Ethylene propylene rubber compounds	-30 +90	Flammable	≤23						Excellent	Good
	4G	EVA	Ethylene vinylacetate copolymer compounds	-30 +125				5-15				Good	
	5G	CR	Polychloroprene compounds	-40 +100	Self-extinguishing	30-35	Hydrogen chloride	10-20	Fair		No	Excellent	Fair/Good
	6G	CSM	Chlorosulfonated Polyethylene compounds	-30 +80						Fair			Fair
Fluoropolymer	10Y	PVDF	Polyvinylidene fluoride Kynar/Dyflor	-40 +135	Self-extinguishing	40-45	Hydro-fluoric	50-80	Excellent	Excellent	No	Excellent	Excellent
	7Y	ETFE	Ethylene Tetrafluorethylene Tefzel	-80 +155	Self-extinguishing	30-35	Yes	40-50	Excellent	Excellent		Excellent	Excellent
	6Y	FEP	Fluorine ethylene propylene Teflon	-80 +205	Self-extinguishing	>95	Yes	10-30	Excellent	Excellent		Excellent	Excellent
	5YX	PFA	Perfluoralkoxypolymeric Teflon	-80 +240	Self-extinguishing	>95	Yes	20-30	Excellent	Excellent		Excellent	Excellent
	5Y	PTFE	Polytetrafluorethylene Teflon	-80 +260	Self-extinguishing	>95	Yes	70-80	Excellent	Excellent		Excellent	Excellent
Halogen-Free compounds	H	not cross linked	Halogen free polymer compounds	-30 +70	Self-extinguishing	≤40	No	8-15	Fair	Conditional	Yes	Fair/Good	Fair
	HX	cross linked	Halogen free polymer compounds	-30 +90	Self-extinguishing	≤40	No	8-15	Fair				

Conductor Resistance

Electrical Resistance of Copper Conductors (mm²)

Nominal Section (mm²)	Min. No. of Wires Class 2	Max. Wire Dia. Class 5(mm)	Max. Wire Dia. Class 6(mm)	Max. Conductor Resistance (Ohm/km at 20 °C) Class 2	Class 5 and Class 6
				Copper	Copper
0.5	7	0.21	0.16	36	39
0.75	7	0.21	0.16	24.5	26
1.0	7	0.21	0.16	18.1	19.5
1.5	7	0.26	0.16	12.1	13.3
2.5	7	0.26	0.16	7.41	7.98
4	7	0.31	0.16	4.61	4.95
6	7	0.31	0.21	3.08	3.3
10	7	0.41	0.21	1.83	1.91
16	7	0.41	0.21	1.15	1.21
25	7	0.41	0.21	0.73	0.78
35	7	0.41	0.21	0.52	0.55
50	19	0.41	0.31	0.39	0.38
70	19	0.51	0.31	0.27	0.27
95	19	0.51	0.31	0.19	0.20
120	37	0.51	0.31	0.15	0.16
150	37	0.51	0.31	0.12	0.13

Electrical Resistance of Copper Conductors (AWG)

Section (AWG)	Section (mm²)	Conductor		Max. Conductor Resistance (Ohm at 20 °C)
		No. of Wires	Single Wire (mm)Dia.	Copper
0	52.95	1045	0.254	0.35
0	53.116	259	0.510	0.38
1	41.397	817	0.254	0.40
1	42.112	259	0.455	0.45
2	33.696	665	0.254	0.5
2	33.201	259	0.404	0.6
2	34.416	133	0.574	0.5
4	21.231	418	0.255	0.8
4	21.625	133	0.455	0.9
6	13.611	266	0.254	1.5
6	13.764	133	0.363	1.5
8	8.604	133	0.287	2.0
10	5.317	105	0.254	3.2
10	4.74	37	0.404	3.6
10	5.26	1	2.588	3.4
12	3.292	65	0.254	5.7
12	2.98	37	0.321	6.8
12	3.08	19	0.455	4.8
12	3.31	1	2.052	5.4
14	2.078	41	0.254	8.3
14	1.854	19	0.361	8.9
14	2.08	1	1.628	8.6
16	1.317	26	0.254	13.1
16	1.229	19	0.287	14.1
16	1.31	1	1.291	13.7
18	0.963	19	0.254	17.9
18	0.811	16	0.254	21.3
18	0.897	7	0.404	19.2
18	0.827	1	1.023	21.8
20	0.615	19	0.203	28.3
20	0.507	10	0.254	33.9
20	0.562	7	0.320	33.8
20	0.519	1	0.813	34.6
22	0.382	19	0.160	45.1
22	0.355	7	0.254	48.4
22	0.324	1	0.643	55.3
24	0.241	19	0.127	69.2
24	0.227	7	0.203	76.4
24	0.205	1	0.511	89.4
26	0.155	19	0.102	113.0
26	0.141	7	0.160	122.0
26	0.128	1	0.404	138.8

IEC 60332 Part 1: Flame Propagation Test (Single Cables)

This test defines the flame propagation characteristics of single vertical insulated wire or cable. The specimen is deemed to have passed this test, if after burning has ceased, the charred or affected postion does not reach within 50mm of the lower edge of the top clamp.

IEC 60332 - Part 1 Flame Propagation Test (Single)

IEC 60332 Part 3: Flame Propagation Test (Bunched Cables)

This test defines vertical flame propagation characteristics of bunched cables. The test comprises of 3 categories each defined by the amount of combustible material in a 1 metre sample, as shown as below.

CATEGORY	A	B	C
No.of litres of combustible material in a 1 metre sample	7	3.5	1.5
Exposure to fire in minutes	40	40	20

IEC 60332 - 3C Flame Propagation Test (Bundled)

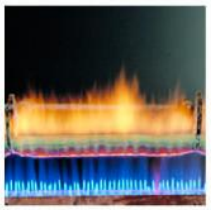
The cable samples are placed vertically next to one another on a vertical ladder tray where they are exposed to fire from a gas burner for the above mentioned times.

The specimen consisting of 3.5m, is deemed to have met the requirements, if after burning has ceased, the extent of charred or affected portion does not reach a height exceeding 2.5m above the bottom edge of the burner.

IEC 60331: Circuit Integrity Test

A cable sample of 1200mm in length is placed over a gas burner and connected to an electrical supply at it's rated voltage. Fire is applied for a period of 3 hours.

The temperature on the cable is between 750°C & 800°C. After 3 hours, the fire and the power is switched off. 12 hours later, the cable sample is reenergised and must maintain its circuit integrity.



IEC 60331 or BS 6387 Circuit Integrity Test

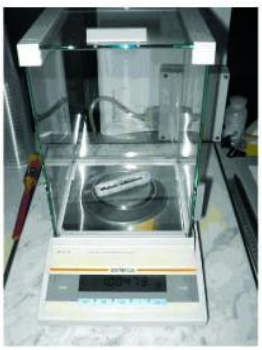
BS 6387: Circuit Integrity Test

BS 6387 specifies the performance requirements for cables required to maintain circuit integrity under fire conditions. It details the following methods to categorize the cables according to cable withstand capacities.

Resistance to fire alone – the cables is tested by gas burner flame while passing a current at its rated voltage. Four survival categories are defined: Cat A (3 hours at 650°C); Cat B (3 hours at 750°C); Cat C (3 hours at 950°C) & Cat S (20 minutes at 950°C).

Resistance to fire with water spray – A new sample of cable is exposed to flame at 650°C for 15 minutes while passing a current at its rated voltage and then the spray is turned on to give exposure to both fire and water for a further 15 minutes. A single survival category W is defined if the cables surpasses the testing requirement.

Resistance to fire with mechanical shock – the final requirement is mechanical shock damage. A fresh sample is mounted on a backing panel in a S bend and is exposed to flames while the backing panel is stuck with a steel bar with same diameter as the cable under test every 30 seconds for 15 minutes. The cables will be tested under the following temperatures: X (650°C), Y (750°C) and Z (950°C).

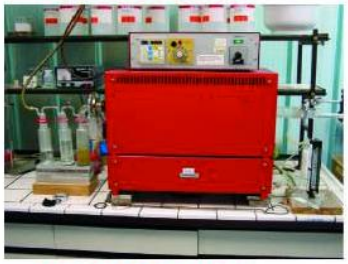


IEC 60754-1 Halogen Acid Gas Test (1)

Fire Performance Testing

IEC 60754-1 or BS 6425 Part 1: Determination of The Amount of Halogen Acid Gas

This specifies a test for determination of the amount of halogen acid gas, other than the hydrofluoric acid evolved during combustion of compound. When tested in accordance with IEC 60754-1, the hydrochloric acid yield should be less than 0.5% (5mg/g) for LSHF compound. For LSF compound, the hydrochloric acid yield should be between 5% to 15%.



IEC 60754-1 Halogen Acid Gas Test (2)

IEC 60754-2: Determination of Degree of Acidity of Gases.

This test specifies a method for determination of acidity of gas evolved during combustion of cables by measuring pH and conductivity. The specimen is deemed to pass this test if the pH value is less than 4.3 when related to 1 litre of water and conductivity is less than 10 us/min.

IEC 60754-2 Gas Acidity Test

IEC 61034: Smoke Density Test

The " 3 metre cube test " measures the generation of smoke from electric cables during fire. A light beam emitted from a window is projected across the enclosure to a photo cell connected to a recorder at the opposite window.The recorder is adjusted to register from 0% for complete obscuration to 100% luminous transmission.

A 1 metre cable sample is placed in the centre of the enclosure and then subjected to fire.The minimum light transmission is recorded. The result is expressed as percentage of light transmitted.The specimen is deemed to pass this Test (IEC 61034-2) if the value is greater than 60%. A similar test BS 6724 also defines the density of smoke emitted from armoured cables during fire. The amount is expressed as the standard absorbance Ao, Ao value is usually less than 0.8 for a cable with overall diameter of 15mm to 25mm.

IEC 61034 Smoke Density Test

ISO 4589-2 or BS 2863: Minimum Oxygen Concentration to Support Candle like Combustion of Plastics (Oxygen Index)

This test gives a measure of the cable sheath flammability characteristics under a specific set of conditions. Oxygen index is defined as the minimum concentration of oxygen, expressed as volume per cent, in a mixture of oxygen and nitrogen that will just support flaming combustion of the material initially at room temperature under the test condition.

ISO 4589-2 Oxygen Index Test

ISO 4589-3 or BS 2782 Part 1 Method 143A & 143B: Temperature Index of Materials

This is similar to the oxygen index test. Whereas in the oxygen index test, the oxygen content is varied at room temperature, in this test the oxygen concentration is kept constant at 21% and the test temperature is varied until, again, combustion is just sustained. This test is more complex but gives a more realistic measure of a material's performance in a real fire.

ISO 4589-3 Material Temperature Index Test

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