Caledonian

Industrial Cables

Single and Multi-core cables to British Standard

www.caledonian-cables.co.uk
www.caledonian-cables.com

Addison

Company Profile

Caledonian. established in 1978.offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. . Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard. ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison. produces a wide range of cables for communication. power and electronics in its primary plants in UK. Italy and Spain. To stay in front. we continually keep expanding our manufacturing capabilities in more low cost region such as Romania. Taiwan. Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible. scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing. logistic services. and vertically integrated with our E commerce technologies. to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality. excellent service level. competitive pricing and a unique and innovative spirit. With our latest technologies. we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning. we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized. country and industry-specific solutions. Caledonian & Addison has established an extensive network of design. manufacturing. and logistics facilities in the world’s major markets to serve the growing outsourcing needs of both multinational and regional customers.

Our Certificate

REGISTRATION CERTIFICATE

This document certifies that the administration systems of

Caledonian Cables Limited / Addison Technology Limited

Marchants Industrial Centre, Mill Lane, Laughton, Lewes, Sussex, BN8 6AJ, United Kingdom

have been assessed and approved by QAS International to the following management systems, standards and guidelines:

ISO 9001 : 2008

With the permitted exclusion of clauses 7.3 Design and Development

The approved administration systems apply to the following:

The manufacture and supply of electrical cables and ancillary power equipment to customers internationally.

Original Approval	***6th September 1997***
Current Certificate	***7th February 2015***
Certificate Expiry	***7th February 2016***
Certificate Number	***A6211***

Signed: Certification Officer

On behalf of QAS International

This certificate remains valid while the holder maintains their quality administration systems in accordance with the standards and guidelines stated above, which will be audited annually by QAS International. The holder is entitled to display the above registration mark for the duration of this certificate, which should be returned to QAS International upon reasonable request.
Issuing Office: QAS International, 20A Oxford Street, Malmesbury, Wiltshire SN16 9AX, UK

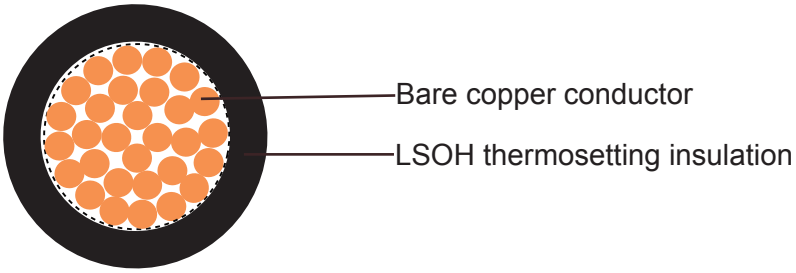
Table of Contents

2491B to BS 7211(New BS EN 50525-3-41)

Application and Description

These flexible cable are used in panel, conduit and general fixed wiring applications where there is a requirement for flexibility during installation and in the event of fire, a need to minimize the risk from smoke and toxic fumes but where circuit integrity is not required. Not suitable for wet or immersed applications. 2491B is equivalent to harmonized code H05Z-U/H05Z-K.

Cable Construction



2491B

- Fine bare copper conductor
- Solid wire to BS 6360 CL-1 or IEC 60228 CL-1
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- LSOH thermosetting core insulation type EI5

Core Identification

Green/Yellow, Black, Blue, Brown, Red, White, Yellow, Grey, Violet,Grey, Orange, Pink

Technical Characteristics

- Working voltage: 300/500v
- Test voltage: 2000v
- Minimum bending radius: 5xOverall diameter
- Flexing temperature: -15° C to +90° C
- Static temperature: -40° C to +90° C
- Insulation resistance: 10 MΩxkm

- Halogen free acc. to EN 50267-2-1 / IEC 60754-1
- Smoke density acc. to EN 50268-2 / IEC 61034-2
- Corrosivity of gases acc. to EN 50267-2-2, IEC 60754-2
- Flame retardancy acc. to EN 50265-2-1, IEC 60332-1

Cable Parameter

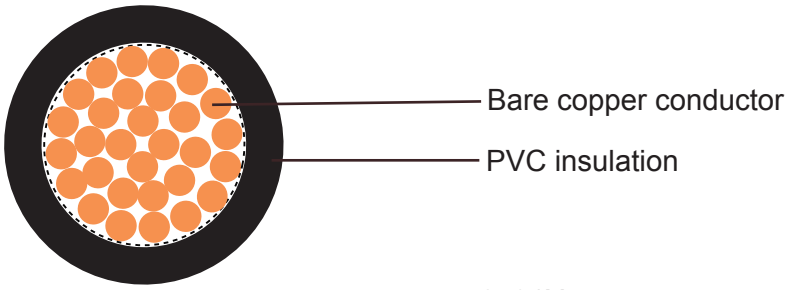
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
20(solid)	1 x 0.5	0.6	2.0	4.8	8
18(solid)	1 x 0.75	0.6	2.2	7.2	12
17(solid)	1 x 1	0.6	2.3	9.6	14
20(16/32)	1 x 0.5	0.6	2.3	4.8	9
18(24/32)	1 x 0.75	0.6	2.5	7.2	12.4
17(32/32)	1 x 1	0.6	2.6	9.6	15

2491X to BS 6004(New BS EN 50525-2-31)

Application and Description

These cables are designed for use in the switch control, relay and instrumentation panels of power switchgear and for purposes such as internal connectors in rectifier equipment, motor starters and controllers. 2491X is equivalent to harmonized code H05V-U/H05V-R/H05V-K.

Cable Construction



2491X

- Fine bare copper strands
- Solid wire to BS 6360 CL-1 or IEC 60228 CL-1
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- Special PVC TI1 core insulation to BS 7655

Core Identification

Black, Blue, Green/Yellow, Red, Yellow, White, Violet, Brown, Grey, Orange, Pink

Technical Characteristics

- Working voltage: 300/500v
- Test voltage: 2000volts
- Minimum bending radius: 6xOverall diameter
- Flexing temperature: -5° C to +70° C
- Static temperature: -30° C to +80° C
- Flame retardant: IEC 60332.1
- Insulation resistance: 10 MΩxkm

Cable Parameter

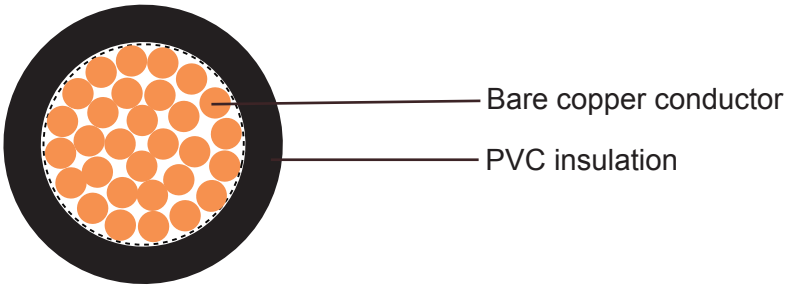
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
20(solid)	1 x 0.5	0.6	2.1	4.8	9
18(solid)	1 x 0.75	0.6	2.2	7.2	11
17(solid)	1 x 1	0.6	2.4	9.6	14
20(7/29)	1 x 0.5	0.6	2.1	4.8	9
18(7/27)	1 x 0.75	0.6	2.3	7.2	12
17(7/26)	1 x 1	0.6	2.6	9.6	15
20(16/32)	1x0.5	0.6	2.1	4.9	10
18(24/32)	1x0.75	0.6	2.4	7.2	13
17(32/32)	1x1	0.6	2.6	9.6	15

2491X HR to BS 6004(New BS EN 50525-2-31)

Application and Description

These special heat-resistant flexible single-conductor hook-up wires are ideal for use in power current installation, switch cabinets, motors and transformers which are subject to direct contact with high temperature equipments(e.g. varnishing machines and drying towers etc.). These are also suitable for inside wiring of electrical equipments such as lighting and heating apparatus. 2491X HR is equivalent to harmonized code H05V2-U/H05V2-R/H05V2-K.

Cable Construction



2491X HR

2491X HR

- Fine bare copper strands
- Solid wire to BS 6360 CL-1 or IEC 60228 CL-1
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- Special heat resistant PVC TI3 core insulation to BS 7655

Core Identification

Black, Blue, Green/Yellow, Red, Yellow, White, Violet, Brown, Grey, Orange, Pink

Technical Characteristics

- Working voltage: 300/500volts
- Test voltage: 2000/2500 volts

- Flexing bending radius: 10-15xOverall diameter
- Static bending radius: 10-15xOverall diameter
- Flexing temperature: +5º C to +90º C
- Static temperature: -10º C to +105º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

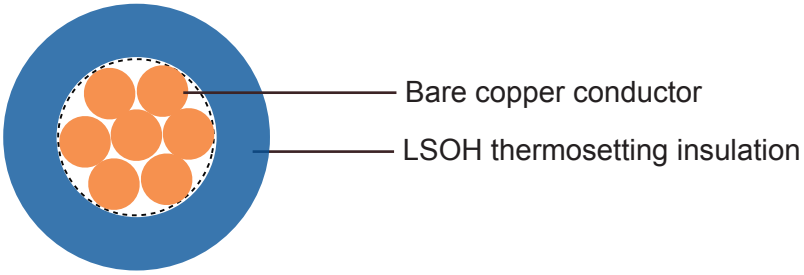
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
20(solid)	1 x 0.5	0.6	2.1	4.8	9
18(solid)	1 x 0.75	0.6	2.2	7.2	11
17(solid)	1 x 1	0.6	2.4	9.6	14
20(7/29)	1 x 0.5	0.6	2.1	4.8	9
18(7/27)	1 x 0.75	0.6	2.3	7.2	12
17(7/26)	1 x 1	0.6	2.6	9.6	15
20(16/32)	1x0.5	0.6	2.1	4.9	10
18(24/32)	1x0.75	0.6	2.4	7.2	13
17(32/32)	1x1	0.6	2.6	9.6	15

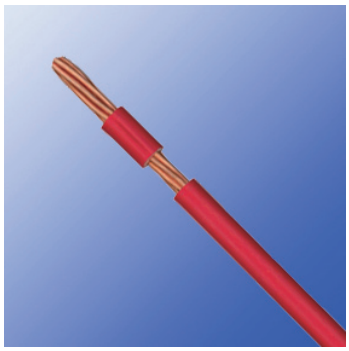
6491B to BS 7211 (New BS EN 50525-3-41)

Application and Description

These cables are designed for fixed wiring purposes in domestic and industrial power/lighting applications. They can be used in trunking or conduit, or may be surface mounted when used for earthing. and they are generally in areas (such as public and government buildings) where smoke and toxic fumes may cause a threat to life and equipment. The cables produce no corrosive gasses when burnt and which is particularly important where electronic equipment is installed. 6491B is equivalent to harmonized code H07Z-U/ H07Z-R/H07Z-K.

Cable Construction





- Bare copper made of solid/strands conductor
- Solid to BS 6360 CL-1 or IEC 60228 CL-1(H07Z-U)
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2(H07Z-R)
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5(H07Z-K)
- LSOH thermosetting core insulation type EI5

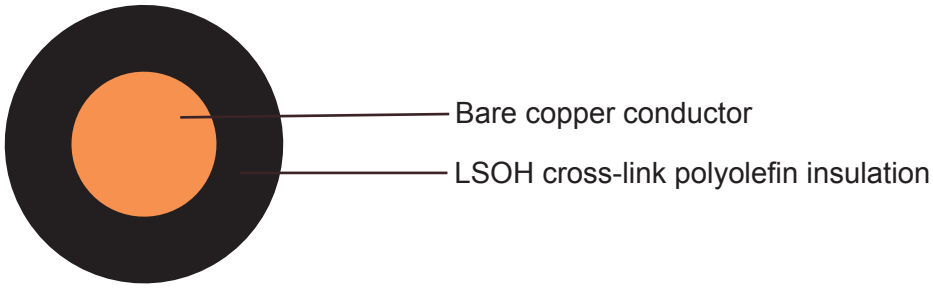
Core Identification

Black, Blue, Green/Yellow, Red, Yellow, White, Violet, Brown, Grey, Orange, Pink

Technical Characteristics

- Working voltage: 450/750 volts
- Test voltage: 2500 volts
- Minimum bending radius: up to 10 mm² - 3xoverall diameter,
  above 25 mm² - 6xoverall diameter

- Operating temperature: +0° C to +90° C
- Short circuit temperature: +250° C
- Insulation resistance: 10 MΩxkm
- Halogen free acc. to EN 50267-2-1 / IEC 60754-1
- Smoke density acc. to EN 50268-2 / IEC 61034-2
- Corrosivity of gases acc. to EN 50267-2-2, IEC 60754-2
- Flame retardancy acc. to EN 50265-2-1, IEC 60332-1



Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
16(solid)	1x1.5	0,7	2.8	14.4	20
14(solid)	1x2.5	0,8	3.3	24	30
12(solid)	1x4	0,8	3.8	38	45
10(solid)	1x6	0,8	4.3	58	65
8(solid)	1x10	1,0	5.5	96	105
16(7/24)	1x1.5	0.7	3.0	14.4	21
14(7/22)	1x2.5	0.8	3.6	24	33
12(7/20)	1x4	0.8	4.1	39	49
10(7/18)	1x6	0.8	4.7	58	71
8(7/16)	1x10	1	6	96	114
6(7/14)	1x16	1	6.8	154	172
4(7/12)	1x25	1.2	8.4	240	265
2(7/10)	1x35	1.2	9.3	336	360
1(19/13)	1x50	1.4	10.9	480	487
2/0(19/11)	1x70	1.4	12.6	672	683
3/0(19/10)	1x95	1.6	14.7	912	946
4/0(37/12)	1x120	1.6	16	1152	1174
300MCM(37/11)	1x150	1.8	17.9	1440	1448

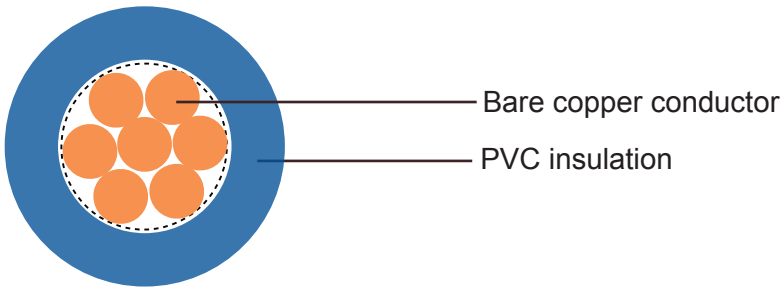
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
350MCM(37/10)	1x185	2.0	20.0	1776	1820
500MCM(61/11)	1x240	2.2	22.7	2304	2371
-(61/10)	1x300	2.4	25.4	2980	3050
-(61/9)	1x400	2.6	28.8	3765	3842
-(61/8)	1x500	2.8	32.8	4725	4900
-(127/10)	1x630	2.8	36.5	6205	6334
16(30/30)	1 x 1.5	0,7	3.5	14.4	24
14(50/30)	1 x 2.5	0,8	4	24	35
12(56/28)	1 x 4	0,8	4.8	38	51
10(84/28)	1 x 6	0,8	6	58	71
8(80/26)	1 x 10	1,0	6.7	96	118
6(128/26)	1 x 16	1,0	8.2	154	180
4(200/26)	1 x 25	1,2	10.2	240	278
2(280/26)	1 x 35	1,2	11.5	336	375
1(400/26)	1 x 50	1,4	13.6	480	560
2/0(356/24)	1 x 70	1,4	16	672	780
3/0(485/24)	1 x 95	1,6	18.4	912	952
4/0(614/24)	1 x 120	1,6	20.3	1152	1200
300 MCM (765/24)	1 x 150	1,8	22.7	1440	1505
350 MCM (944/24)	1 x 185	2,0	25.3	1776	1845
500MCM(1225/24)	1 x 240	2,2	28.3	2304	2400

6491X/6491X HR to BS 6004(New BS EN 50525-2-31)

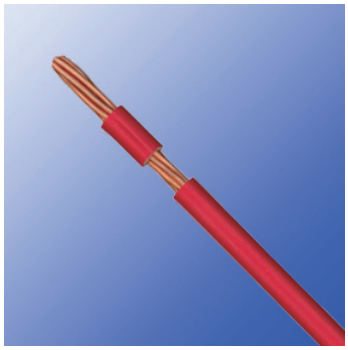
Application and Description

These cables are designed for use as fixed wiring in domestic, Industrial power and lighting applications such as light fittings, appliances, switchgear and control gear, they can be used in conduit or trunking or surface mounted when used as an earth. 6491X is equivalent to H07V-U/H07V-R/H07V-K.The heat-resistant version is ideal for use in installation which are subject to direct contact with high temperature equipments (e.g. varnishing machines and drying towers etc.).

Cable Construction



6491X



6491X

- Bare copper made of solid/strands conductor
- Solid to BS 6360 CL-1 or IEC 60228 CL-1(H07V-U)
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2(H07V-R)
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5(H07V-K)
- Special PVC TI1/TI3(for 6491X HR) core insulation

Core Identification

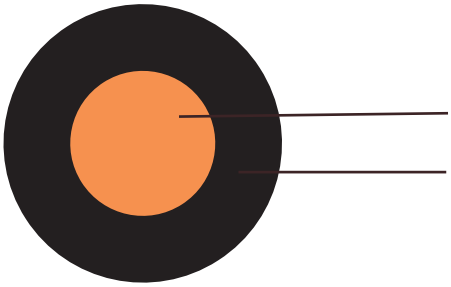
Green/Yellow, Black, Blue, Brown, Red, White, Grey, Violet

Technical Characteristics

- Working voltage: 450/750 volts
- Test voltage: 2500 volts

- Minimum bending radius: Up to 10mm²: 3xoverall diameter
  10mm² to 25mm²: 4xoverall diameter
  Above 25mm²: 5xoverall diameter
- Operating temperature: -0° C to +70° C/105 ° C(for 6491X HR)
- Short circuit temperature: +160° C
- Flame retardant: IEC 60332.1
- Insulation resistance: 10 MΩxkm

6491X



6491X

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
16(solid)	1x1.5	0.7	2.9	14.4	21
14(solid)	1x2.5	0.8	3.5	24	33
12(solid)	1x4	0.8	3.9	38.0	49
10(solid)	1x6	0.8	4.5	58.0	69
8(solid)	1x10	1.0	5.7	96	115
16(7/24)	1x1.5	0.7	3.0	14.4	23
14(7/22)	1x2.5	0.8	3.6	24	35
12(7/20)	1x4	0.8	4.2	39	51
10(7/18)	1x6	0.8	4.7	58	71
8(7/16)	1x10	1	6.1	96	120
6(7/14)	1x16	1	7.2	154	170
4(7/12)	1x25	1.2	8.4	240	260
2(7/10)	1x35	1.2	9.5	336	350
1(19/13)	1x50	1.4	11.3	480	480
2/0(19/11)	1x70	1.4	12.6	672	680
3/0(19/10)	1x95	1.6	14.7	912	930
4/0(37/12)	1x120	1.6	16.2	1152	1160

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
300MCM(37/11)	1x150	1.8	18.1	1440	1430
350MCM(37/10)	1x185	2.0	20.2	1776	1780
500MCM(61/11)	1x240	2.2	22.9	2304	2360
-(61/10)	1x300	2.4	24.5	2980	2940
-(61/9)	1x400	2.6	27.5	3765	3740
16(30/30)	1x1.5	0.7	3.1	14.4	20
14(50/30)	1x2.5	0.8	3.6	24	31
12(56/28)	1x4	0.8	4.3	38.0	48
10(84/28)	1x6	0.8	4.9	58.0	69
8(80/26)	1x10	1.0	6.4	96	121
6(128/26)	1x16	1.0	8.1	154	211
4 (200/26)	1x25	1.2	9.8	240	303
2 (280/26)	1x35	1.2	11.1	336	417
1 (400/26)	1x50	1.4	13.1	480	539
2/0 (356/24)	1x70	1.4	15.5	672	730
3/0 (485/24)	1x95	1.6	17.2	912	900
4/0 (614/24)	1x120	1.6	19.7	1152	1135
300MCM (765/24)	1x150	1.8	21.3	1440	1410
350MCM (944/24)	1x185	2.0	23.4	1776	1845
500MCM(1225/24)	1x240	2.2	27.1	2304	2270

6181B/6182B/6183B/6184B/6185B to BS 7211

Application and Description

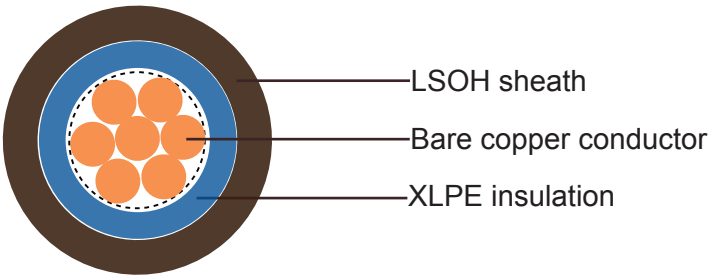
These cables are designed for fixed wiring purposes in domestic and industrial power/lighting applications. They can be installed in trunking or conduit, or may be surface mounted when used for earthing. They are suitable for use in areas (such as public and government buildings) where smoke and toxic fumes may cause a threat to life and equipment. When mechanical protection is required, they can be embedded in concrete.

Cable Construction

- Bare copper made of strands conductor
- Stranding to IEC 60228 CL-1/2
- Thermosetting insulation, type EI 5 or type GP 8 insulation
- For 2 cores and above, the cores shall be laid up together. Centre filler may be used; the laid up cores may be covered by an optional extruded inner covering or separating tape
- LSOH type LTS4 sheath

Core Identification

2-core: brown and blue;
3-core: brown, black and grey;
4-core: blue, brown, black and grey;
5-core: greenlyellow, blue, brown, black and grey



6181B

Technical Characteristics

- Working voltage: 450/750 volts
- Operating temperature: -15° C to +90° C
- Insulation resistance: 10 MΩxkm
- Halogen free acc. to EN 50267-2-1 / IEC 60754-1
- Smoke density acc. to EN 50268-2 / IEC 61034-2
- Corrosivity of gases acc. to EN 50267-2-2, IEC 60754-2
- Flame retardancy acc. to EN 50265-2-1, IEC 60332-1

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of inner Covering mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter lower limit mm	Nominal Overall Diameter upper limit mm
6181B						
18(solid)	1x1.0	0.7	-	0.8	3.9	4.8
18(7/26)	1x1.0	0.7	-	0.8	4	4.9
16(solid)	1x1.5	0.7	-	0.8	4.2	5
16(7/24)	1x1.5	0.7	-	0.8	4.3	5.2
14(solid)	1x2.5	0.7	-	0.8	4.6	5.5
14(7/22)	1x2.5	0.7	-	0.8	4.7	5.6
12(solid)	1x4	0.7	-	0.9	5.2	6.3
12(7/20)	1x4	0.7	-	0.9	5.3	6.4
10(solid)	1x6	0.7	-	0.9	5.7	6.8
10(7/18)	1x6	0.7	-	0.9	5.9	7.1
8(7/16)	1x10	0.7	-	0.9	6.7	8.1
6(7/14)	1x16	0.7	-	0.9	7.6	9.2
4(7/12)	1x25	0.9	-	1	9.7	11.4
2(7/10)	1x35	0.9	-	1.1	10.6	12.8
6182B						
18(solid)	2x1.0	0.7	0.4	1.2	7.1	9.5
18(7/26)	2x1.0	0.7	0.4	1.2	7.3	9.7
16(solid)	2x1.5	0.7	0.4	1.2	7.6	10.1
16(7/24)	2x1.5	0.7	0.4	1.2	7.8	10.3
14(solid)	2x2.5	0.7	0.4	1.2	8.4	11
14(7/22)	2x2.5	0.7	0.4	1.2	8.5	11.3
12(solid)	2x4	0.7	0.4	1.2	9.2	12.1
12(7/20)	2x4	0.7	0.4	1.2	9.5	12.4
10(solid)	2x6	0.7	0.4	1.2	10.2	13.2
10(7/18)	2x6	0.7	0.4	1.2	10.6	13.7
8(solid)	2x10	0.7	0.4	1.4	12.1	16
8(7/16)	2x10	0.7	0.6	1.4	12.7	16.7
6(7/14)	2x16	0.7	0.6	1.4	14.4	18.8
4(7/12)	2x25	0.9	0.8	1.4	17.7	23.2
2(7/10)	2x35	0.9	0.8	1.6	20	26

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of inner Covering mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter lower limit mm	Nominal Overall Diameter upper limit mm
6183B						
18(solid)	3x1.0	0.7	0.4	1.2	7.5	10.0
18(7/26)	3x1.0	0.7	0.4	1.2	7.7	10.2
16(solid)	3x1.5	0.7	0.4	1.2	8.0	10.6
16(7/24)	3x1.5	0.7	0.4	1.2	8.2	10.9
14(solid)	3x2.5	0.7	0.4	1.2	8.8	11.6
14(7/22)	3x2.5	0.7	0.4	1.2	9.0	11.9
12(solid)	3x4	0.7	0.4	1.2	9.8	12.7
12(7/20)	3x4	0.7	0.4	1.2	10.1	13.1
10(solid)	3x6	0.7	0.4	1.2	11.2	14.4
10(7/18)	3x6	0.7	0.4	1.4	11.6	15.0
8(solid)	3x10	0.7	0.6	1.4	12.8	16.9
8(7/16)	3x10	0.7	0.6	1.4	13.5	17.7
6(7/14)	3x16	0.7	0.6	1.4	15.3	19.9
4(7/12)	3x25	0.9	0.8	1.4	18.9	24.6
2(7/10)	3x35	0.9	0.8	1.6	2 1.3	27.6
6184B						
18(solid)	4x1.0	0.7	0.4	1.2	8.1	10.7
18(7/26)	4x1.0	0.7	0.4	1.2	8.3	11.0
16(solid)	4x1.5	0.7	0.4	1.2	8.7	11.4
16(7/24)	4x1.5	0.7	0.4	1.2	8.9	11.7
14(solid)	4x2.5	0.7	0.4	1.2	9.6	12.6
14(7/22)	4x2.5	0.7	0.4	1.2	9.9	12.8
12(solid)	4x4	0.7	0.4	1.2	10.7	13.8
12(7/20)	4x4	0.7	0.4	1.2	11.0	14.2
10(solid)	4x6	0.7	0.4	1.4	12.2	16.1
10(7/18)	4x6	0.7	0.6	1.4	12.7	16.7
8(solid)	4x10	0.7	0.6	1.4	14.1	18.4
8(7/16)	4x10	0.7	0.6	1.4	14.8	19.2
6(7/14)	4x16	0.7	0.6	1.4	16.9	21.8
4(7/12)	4x25	0.9	0.8	1.6	21.2	27.5
2(7/10)	4x35	0.9	1.0	1.6	23.5	30.7

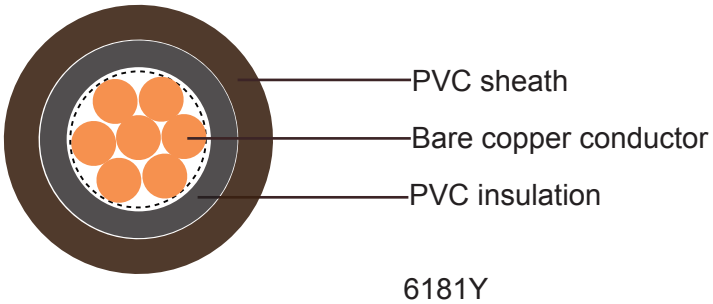
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of inner Covering mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter lower limit mm	Nominal Overall Diameter upper limit mm
6185B						
18(solid)	5x1.0	0.7	0.4	1.2	8.8	11.5
18(7/26)	5x1.0	0.7	0.4	1.2	9.0	11.9
16(solid)	5x1.5	0.7	0.4	1.2	9.4	12.3
16(7/24)	5x1.5	0.7	0.4	1.2	9.7	12.6
14(solid)	5x2.5	0.7	0.4	1.2	10.5	13.6
14(7/22)	5x2.5	0.7	0.4	1.2	10.7	13.9
12(solid)	5x4	0.7	0.4	1.4	12.0	15.9
12(7/20)	5x4	0.7	0.6	1.4	12.4	16.4
10(solid)	5x6	0.7	0.6	1.4	13.3	17.5
10(7/18)	5x6	0.7	0.6	1.4	13.8	18.1
8(solid)	5x10	0.7	0.6	1.4	15.4	20.0
8(7/16)	5x10	0.7	0.6	1.4	16.2	20.9
6(7/14)	5x16	0.7	0.8	1.4	18.5	24.2
4(7/12)	5x25	0.9	1.0	1.6	23.3	30.5
2(7/10)	5x35	0.9	1.0	1.6	25.9	33.6

6181Y to BS 6004

Application and Description

These cables are designed for surface wiring where there is little risk of mechanical damage and are suitable for use in electrical installations such as power and lighting.

Cable Construction



6181Y

6181Y

- Bare copper conductor
- Solid to BS 6360 CL-1 or IEC 60228 CL-1; stranding to BS 6360 CL-2 or IEC 60228 CL-2
  1.0mm²- 2.5mm CL-1 – circular solid
  4mm² and above - CL-2 – stranded circular or circular compacted
- PVC insulation Type TI1 to BS7655
- PVC sheath Type 6 to BS7655

Core Identification

Black, Blue, Brown

Technical Characteristics

- Working voltage: 300/500V
- Minimum bending radius: 3xoverall diameter
- Operating temperature: -15º C to +70º C
- Insulation resistance: 10 MΩxkm
- Flame retardant: IEC 60332.1

Cable Parameter

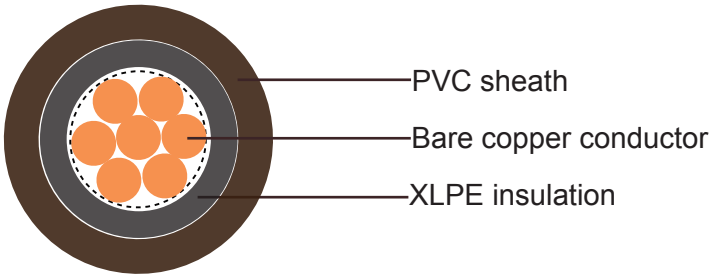
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
18	1x1	0.6	0.8	4.5	27
16	1x1.5	0.7	0.8	4.9	36
14	1x2.5	0.8	0.8	5.8	52
12(7/20)	1x4	0.9	0.9	6.8	76
10(7/18)	1x6	0.8	0.9	7.4	100
8(7/16)	1x10	1	0.9	8.8	160
6(7/14)	1x16	1	1	10.5	230
4(7/12)	1x25	1.2	1.1	12.5	340
2(7/10)	1x35	1.2	1.1	13.5	440

6181X/6182X/6183X/6184X/6185X to BS 7889

Application and Description

These cables are designed for surface wiring where there is little risk of mechanical damage and are suitable for use in electrical installations such as power and lighting.

Cable Construction



6181X

- Bare copper conductor
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- XLPE GP8 insulation
- Inner covering (optional)
- PVC sheath Type 9 to BS7655-4.2

Core Identification

1-core: brown or blue;
2-core: brown and blue;
3-core: brown, black and grey;or green/yellow,brown and blue
4-core: blue, brown, black and grey; or green/yellow, brown, black and grey
5-core: greenlyellow, blue, brown, black and grey

Technical Characteristics

- Working voltage: 600/1000V
- Minimum bending radius: OD<25 mm : 4xoverall diameter,
  OD>25 mm: 6xoverall diameter
  Shapped conductor: 8xoverall diameter

- Operating temperature: -15º C to +90º C
- Insulation resistance: 10 MΩxkm
- Flame retardant: IEC 60332.1

Cable Parameter

Nominal Cross Sectional Area mm²	Nominal Thickness of Insulation mm	Nominal Thickness of Inner Covering mm	Nominal Thickness of Sheath mm	Nominal Cross Sectional Area mm²	Nominal Thickness of Insulation mm	Nominal Thickness of Inner Covering mm	Nominal Thickness of Sheath mm
6181X				6182X			
1.5	0.7	0.4	1.4	1.5	0.7	0.4	1.8
2.5	0.7	0.4	1.4	2.5	0.7	0.4	1.8
4	0.7	0.4	1.4	4	0.7	0.4	1.8
6	0.7	0.4	1.4	6	0.7	0.4	1.8
10	0.7	0.4	1.4	10	0.7	0.6	1.8
16	0.7	0.4	1.4	16	0.7	0.6	1.8
25	0.9	0.4	1.4	25	0.9	0.8	1.8
35	0.9	0.4	1.4	35	0.9	0.8	1.8
50	1.0	0.6	1.4	50	1.0	1.0	1.8
70	1.1	0.6	1.4	70	1.1	1.0	1.8
95	1.1	0.6	1.5	95	1.1	1.2	1.9
120	1.2	0.8	1.5	120	1.2	1.2	2.0
150	1.4	0.8	1.6	25 *	0.9	0.6	1.8
185	1.6	0.8	1.6	35 *	0.9	0.6	1.8
240	1.7	1.0	1.7	50 *	1.0	0.8	1.8
300	1.8	1.0	1.8	70 *	1.1	0.8	1.8
400	2.0	1.2	1.9	95 *	1.1	1.0	1.9
500	2.2	1.2	2.0	120 *	1.2	1.0	2.0
630	2.4	1.4	2.2	*Shaped stranded conductor			
800	2.6	1.6	2.3				
1000	2.8	1.6	2.4				

Nominal Cross Sectional Area mm²	Nominal Thickness of Insulation mm	Nominal Thickness of Inner Covering mm	Nominal Thickness of Sheath mm	Nominal Cross Sectional Area mm²	Nominal Thickness of Insulation mm	Nominal Thickness of Inner Covering mm	Nominal Thickness of Sheath mm
6183X				6184X			
1.5	0.7	0.4	1.8	1.5	0.7	0.4	1.8
2.5	0.7	0.4	1.8	2.5	0.7	0.4	1.8
4	0.7	0.4	1.8	4	0.7	0.4	1.8
6	0.7	0.4	1.8	6	0.7	0.6	1.8
10	0.7	0.6	1.8	10	0.7	0.6	1.8
16	0.7	0.6	1.8	16	0.7	0.6	1.8
25	0.9	0.8	1.8	25	0.9	0.8	1.8
35	0.9	0.8	1.8	35	0.9	1.0	1.8
50	1.0	1.0	1.8	50	1.0	1.0	1.8
70	1.1	1.2	1.9	70	1.1	1.2	2.0
95	1.1	1.2	2.0	95	1.1	1.2	2.1
120	1.2	1.2	2.1	120	1.2	1.2	2.3
25 *	0.9	0.6	1.8	25 *	0.9	0.8	1.8
35 *	0.9	0.8	1.8	35 *	0.9	0.8	1.8
50 *	1.0	0.8	1.8	50 *	1.0	1.0	1.8
70 *	1.1	1.0	1.9	70 *	1.1	1.2	2.0
95 *	1.1	1.2	2.0	95 *	1.1	1.2	2.1
120 *	1.2	1.2	2.1	120 *	1.2	1.2	2.3
6185X							
1.5	0.7	0.4	1.8	25	0.9	1.0	1.8
2.5	0.7	0.4	1.8	35	0.9	1.0	1.8
4	0.7	0.6	1.8	50	1.0	1.2	1.9
6	0.7	0.6	1.8	70	1.1	1.2	2.1
10	0.7	0.6	1.8	95	1.1	1.4	2.2
16	0.7	0.8	1.8	120	1.2	1.4	2.4

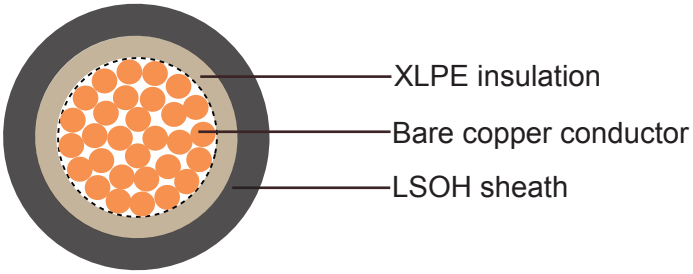
*Shaped stranded conductor

6381B to BS7211 & IEC 60502

Application and Description

These cables are suitable for D.C. power supplies on telecom equipment and power applications where flexibility is required. The cables produce no corrosive gases when burnt which is important where electronic equipment is installed.

Cable Construction



6381B

6381B

- Bare copper conductor
- Stranding to BS6360 CL-5 or IEC60228 CL-5
- XLPE(Cross-Linked Polyethylene), GP8 insulation
- LSOH(Low Smoke Zero Halogen) LTS4 sheath

Sheath/Core Identification

Blue (Blue), Grey (Grey), Green/Yellow (Green/Yellow), Brown (Brown), Special colours to order

Technical Characteristics

- Working voltage: 600/1000V
- Minimum bending radius: up to 50 mm² : 3xoverall diameter,
  70mm² and above: - 4xoverall diameter
- Operating temperature: 0º C to +90º C
- Insulation resistance: 10 MΩxkm
- Flame retardant: IEC 60332.1, BS4066 Part 1

Cable Parameter

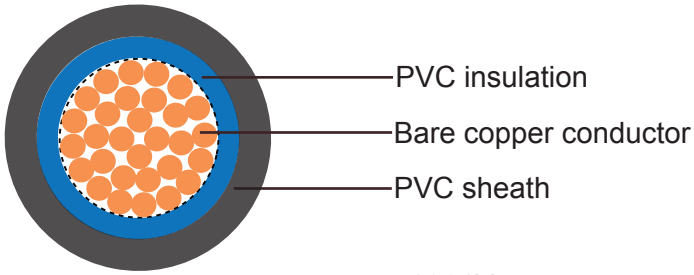
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
16(30/30)	1x1.5	0.9	0.8	5.2	42
14(50/30)	1x2.5	0.9	0.8	5.7	54
12(56/28)	1x4	1	0.9	6.6	77
10(84/28)	1x6	1.1	0.9	7.3	102
8(80/26)	1x10	1.2	1	8.6	160
6(128/26)	1x16	1.2	1	9.6	210
4(200/26)	1x25	1.4	1.1	11.5	320
2(280/26)	1x35	1.4	1.1	12.8	420
1(400/26)	1x50	1.4	1.4	14.9	590
2/0(356/24)	1x70	1.4	1.4	17.2	810
3/0(485/24)	1x95	1.6	1.5	18.6	1020
4/0(614/24)	1x120	1.6	1.8	20.8	1285
300MCM (765/24)	1x150	1.8	1.8	23.1	1610
350MCM (944/24)	1x185	2	1.8	25.3	1940
500MCM(1225/24)	1x240	2.2	1.8	27.8	2480
-(1525/24)	1x300	2.4	2	31.2	3050
-(2013/24)	1x400	2.6	2.1	35.3	4035
-(1769/23)	1x500	2.8	2.2	38.8	4970
-(2257/23)	1x630	2.8	2.4	43.8	6510

6381Y to BS 6004 & IEC60502

Application and Description

These cables are designed for DC power supplies on Telecom equipment and power applications where flexibility is required.

Cable Construction



6381Y

6381Y

- Bare copper conductor
- Stranding to BS6360 CL-5 or IEC60228 CL-5
- PVC insulation Type TI1 to BS7655
- PVC sheath Type TM1 to BS7655
  oxygen index> 30%
  Meets requirements for flammability as required by BT specification M231

Sheath/Core Identification

Blue (Blue), Grey (Grey), Green/Yellow (Green/Yellow), Brown (Brown), Special colours to order

Technical Characteristics

- Working voltage: 1.0mm² to 35mm² - 450/750V
  50mm² and above - 600/1000V
- Minimum bending radius: up to 50 mm² : 3xoverall diameter,
  70mm² and above: - 4xoverall diameter
- Operating temperature: -15º C to +70º C
- Insulation resistance: 10 MΩxkm
- Flame retardant: IEC 60332.1, BS4066 Part 1

Cable Parameter

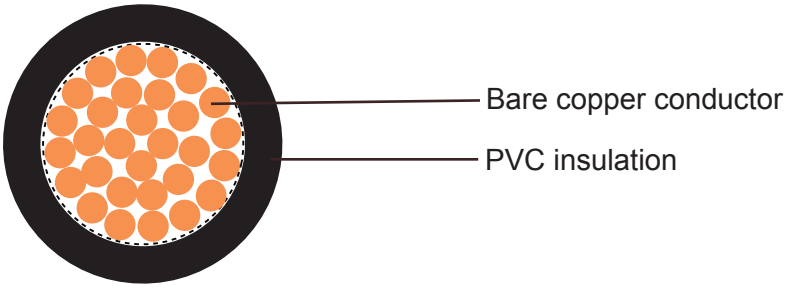
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
16(30/30)	1x1.5	0.9	0.8	4.9	36
14(50/30)	1x2.5	0.9	0.8	5.4	52
12(56/28)	1x4	1	0.9	6.3	76
10(84/28)	1x6	1.1	0.9	7.6	100
8(80/26)	1x10	1.2	1	8.6	160
6(128/26)	1x16	1.2	1	9.8	230
4(200/26)	1x25	1.4	1.1	11.5	340
2(280/26)	1x35	1.4	1.1	12.5	440
1(400/26)	1x50	1.4	1.4	15.1	541
2/0(356/24)	1x70	1.4	1.4	17.0	749
3/0(485/24)	1x95	1.6	1.5	19.1	1000
4/0(614/24)	1x120	1.6	1.8	21.6	1241
300MCM (765/24)	1x150	1.8	1.8	23.4	1523
350MCM (944/24)	1x185	2	1.8	25.5	1942
500MCM(1225/24)	1x240	2.2	1.8	28.5	2514
-(1525/24)	1x300	2.4	2	31.2	3125
-(2013/24)	1x400	2.6	2.1	35.3	3967
-(1769/23)	1x500	2.8	2.2	38.8	5063
-(2257/23)	1x630	2.8	2.4	43.8	6491

Tri-rated Cable to BS6231

Application and Description

Tri-rated Cable panel wiring is a high temperature, flame retardant cable designed for use in the switch control, relay and instrumentation panels of power switchgear and for purposes such as internal connectors in rectifier equipment, motor starters and controllers. Tri-rated Cable is sometimes referred to as BS6231 Cable or Panel Wire.

Cable Construction



tri-rated cables

tri-rated cables

- Fine bare copper strands
- Stranding to IEC 60228 CL-5
- PVC TI1(for type BK), TI3 (for type CK) core insulation

Core Identification

Black, Blue, Brown, Red, White, Yellow, Grey, Violet, Pink, Green/Yellow, Other colours are available on request

Technical Characteristics

- Working voltage: 600/1000v
- Minimum bending radius: 6xOverall diameter
- Operating temperature: 0º C to +70º C(for type BK)
  0º C to +90º C(for type CK)
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

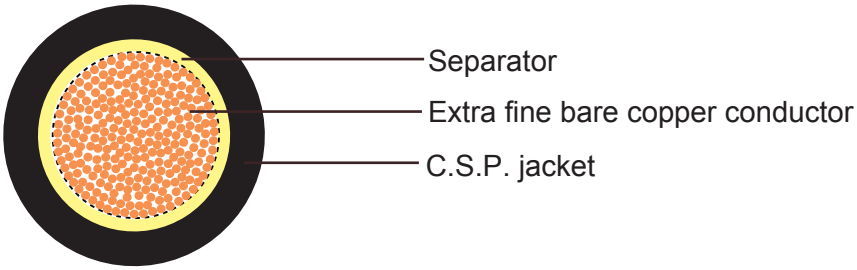
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Weight kg/km
20(16/32)	1x0.5	0.80	2.50	12
18(24/32)	1x0.75	0.80	2.70	15
17(32/32)	1x1	0.80	2.95	18
16(30/30)	1x1.5	0.80	3.20	23
14(50/30)	1x2.5	0.80	3.65	34
12(56/28)	1x4	0.80	4.20	48
10(84/28)	1x6	0.80	4.70	67
8(80/26)	1x10	1.14	6.50	119
6(128/26)	1x16	1.52	8.00	187
4(200/26)	1x25	1.52	9.40	291
2(280/26)	1x35	1.52	10.60	406
1(400/26)	1x50	2.02	12.90	580
2/0(356/24)	1x70	2.02	14.60	780
3/0(485/24)	1x95	2.02	16.10	1055
4/0(614/24)	1x120	2.02	17.90	1175
300 MCM (765/24)	1x150	2.41	20.20	1425
350 MCM (944/24)	1x185	2.41	22.85	1735
500MCM(1225/24)	1x240	2.41	24.40	2310

H01N2-D/E to BS 638-4(New BS EN50525-2-81)

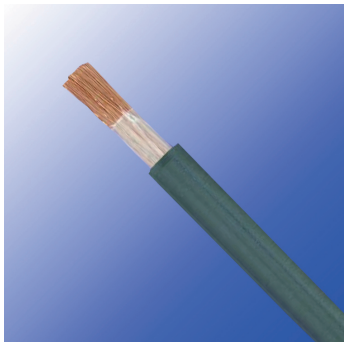
Application and Description

These cables are used as a connection between the welding generator, the hand-electrode and the work piece, they are suitable for use in the automobile industry, ship building, transport and conveyor systems, tool making machinery, welding robots etc. These cables retain their high flexibility even under influence of ozone, light, oxygen, protective gases, oil and petrol. Robust design of these cables makes them resistant to low and high temperature, fire, ozone and radiation, oils, acids, fats and petrols. These cables are also ideal for outside installation in dry, moist and wet areas.

Cable Construction



H01N2-D



H01N2-D

- Extra fine bare copper strands
- Stranding to BS 6360 CL-6, IEC 60228 CL-6
- Synthetic or paper separator over core
- Polychloroprene rubber (neoprene) sheath EM5, or extruded in two layers, EI7&EM5, the outer layer will be not less than 0.6mm

Technical Characteristics

- Working voltage: 100/100 volts
- Test voltage: 1000 volts
- Minimum bending radius: 12.0xOverall diameter (H01N2-D)
  10xOverall diameter (H01N2-E)
- Flexing Temperature: -25° C to +80° C
- Fixed Temperature: -40° C to +80° C
- Flame retardant: IEC 60332.1

Cable Parameter

H01N2-D (standard flexibility)

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
8(320/32)	1x10	2.0	7.7-9.7	96	135
6(512/32)	1x16	2.0	8.8-11.0	154	205
4(800/32)	1x25	2.0	10.1-12.7	240	302
2(1120/32)	1x35	2.0	11.4-14.2	336	420
1(1600/32)	1x50	2.2	13.2-16.5	480	586
2/0(2240/32)	1x70	2.4	15.3-19.2	672	798
3/0(3024/32)	1x95	2.6	17.1-21.4	912	1015
4/0(614/24)	1x120	2.8	19.2-24	1152	1310
300MCM(765/24)	1x150	3.0	21.2-26.4	1440	1620
350MCM(944/24)	1x185	3.2	23.1-28.9	1776	1916
500MCM(1225/24)	1x240	3.4	25-29.5	2304	2540

H01N2-E(high flexibility)

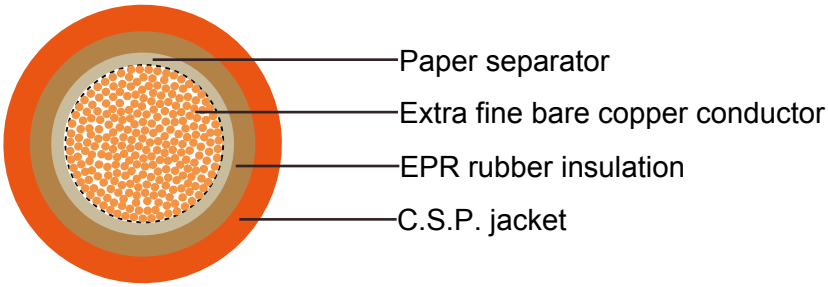
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
8(566/35)	1x10	1.2	6.2-7.8	96	119
6(903/35)	1x16	1.2	7.3-9.1	154	181
4(1407/35)	1x25	1.2	8.6-10.8	240	270
2(1974/35)	1x35	1.2	9.8-12.3	336	363
1(2830/35)	1x50	1.5	11.9-14.8	480	528
2/0(3952/35)	1x70	1.8	13.6-17.0	672	716
3/0(5370/35)	1x95	1.8	15.6-19.5	912	1012
4/0(3819/32)	1x120	1.8	17.2-21.6	1152	1190
300MCM(4788/32)	1x150	1.8	18.8-23.5	1440	1305
500MCM(5852/32)	1x185	1.8	20.4-25.5	1776	1511

0361TQ to BS 638

Application and Description

These cables are used for the transmission of high currents from the electric welding machine to the welding tool. they are suitable for flexible use under rough conditions, on assembly lines and conveyor systems, in machine tool and motor car manufacturing, ship building, for manually and automatically operated line and spot welding machines.

Cable Construction



0361TQ

0361TQ

- Extra fine bare/tinned copper strands
- Stranding to BS 6360 class 6,or class 5 (120mm² and above)
- Synthetic or paper separator over core
- EPR (Ethylene Propylene Rubber) to BS7655
- Chlorosulphonated Polyethylene (C.S.P.), HOFR (Heat and Oil Resistant and Flame Retardant)to BS7655 , black/ orange

Technical Characteristics

- Working voltage: 100/100 volts
  (450V for non-welding applications if suitably protected from mechanical damage)
- Test voltage: 1000 volts
- Minimum bending radius: 6xOverall diameter
- Operating temperature: -25º C to +85º C
- Flame retardant: IEC 60332.1

Cable Parameter

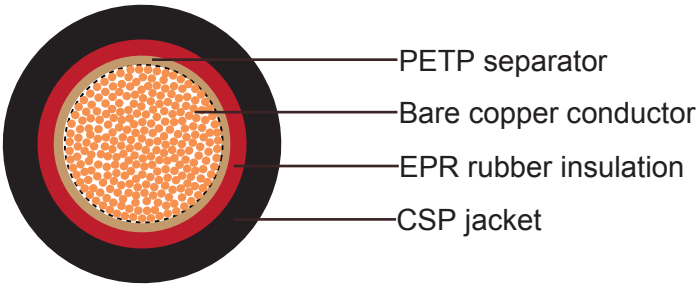
AWG (No of Strands/Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6(903/35)	1x16	2	9.7	215
4(1407/35)	1x25	2	11.2	305
2(1974/35)	1x35	2	12.4	400
1(2830/35)	1x50	2.2	14.3	587
2/0(3952/35)	1x70	2.4	16.3	775
3/0(5370/35)	1x95	2.6	18.6	1040
4/0(614/24)	1x120	2.8	20.3	1256
300 MCM (765/24)	1x150	3	22.6	1360
350 MCM (944/24)	1x185	3.2	24.7	1875
500MCM(1225/24)	1x240	3.2	28.3	2434

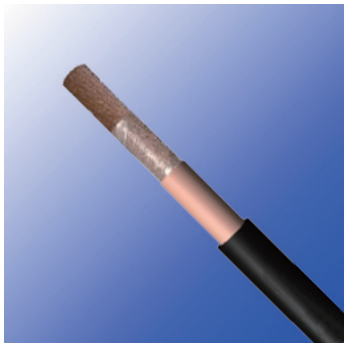
Coil End Lead Cable to BS 6195

Application and Description

These cables are designed as power leads for permanent connection to coil winding motors, panel wiring and electrical machinery. They are able to withstand high temperature and immersion in varnish. Other applications include vehicle wiring, The HOFR sheath resists oil and varnish and the stranding is designed as a compromise between flexibility and positional stability. Also they are suitable for use as an alternative to tri-rated and bi-rated cable in certain applications.

Cable Construction





- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PETP(Polyethylene Terephthalate) tape separator
- EPR-HOFR(Ethylene Propylene Rubber-Heat and Oil Resistant and Flame Retardant) insulation, type FR1 (for type 4A & 4C) & type FR2 (for type 4D & 4E&4F) to BS 7655-1.5, type EI2 (for type 5) to EN 50363-1
- CSP(Chlorosulphonated Polyethylene), HOFR (Heat and Oil Resistant and Flame Retardant) sheath to BS 6899, black

Technical Characteristics

- Working voltage: Type A: 300/500V
  Type C: 600/1000V
  Type D: 1900/3300V
  Type E: 3800/6600V
  Type F: 6350/11000V
- Minimum bending radius: 4xOverall diameter
- Operating temperature max. : +90° C(for type 4), +180° C(for type 5)

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Weight kg/km
TYPE A				
18(24/32)	1x0.75	0.8	3.5	16
17(32/32)	1x1	0.8	3.7	19
16(30/30)	1x1.5	0.8	4	25
14(50/30)	1x2.5	0.9	4.6	37
12(56/28)	1x4	1	5.4	57
10(84/28)	1x6	1	6.5	80
8(80/26)	1x10	1.2	7.9	130
TYPE C				
20(16/32)	1x0.5	1.4	4.5	17
18(24/32)	1x0.75	1.4	4.7	21
17(32/32)	1x1	1.4	4.9	24
16(30/30)	1x1.5	1.4	5.2	30
14(50/30)	1x2.5	1.4	5.6	41
12(56/28)	1x4	1.4	6.3	66
10(84/28)	1x6	1.5	7.5	93
8(80/26)	1x10	1.5	8.5	136
6(128/26)	1x16	1.5	9.6	206
4(200/26)	1x25	1.6	11.4	300
2(280/26)	1x35	1.6	12.8	406
1(400/26)	1x50	1.7	14.8	573
2/0(356/24)	1x70	1.8	17.2	793
3/0(485/24)	1x95	2	19.7	1028
4/0(614/24)	1x120	2.2	21.9	1285
300 MCM (765/24)	1x150	2.3	24.1	1562
350 MCM (944/24)	1x185	2.4	26.3	1914
500MCM(1225/24)	1x240	2.4	28.3	2431
(1525/24)	1x300	2.6	33	3024
(2013/24)	1x400	2.8	37.4	3948
TYPE D				
6(128/26)	1x16	2.8	12.4	255
4(200/26)	1x25	2.8	13.8	351
2(280/26)	1x35	2.8	15.2	458

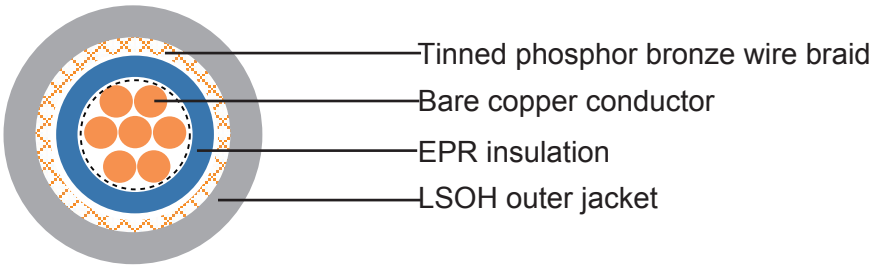
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Weight kg/km
1(400/26)	1x50	2.8	17.1	616
2/0(356/24)	1x70	2.8	19.2	820
3/0(485/24)	1x95	3	22	1097
4/0(614/24)	1x120	3	23.5	1340
300 MCM (765/24)	1x150	3	25.5	1635
350 MCM (944/24)	1x185	3	27.5	1973
500MCM(1225/24)	1x240	3	30.6	2504
(1525/24)	1x300	3	33.8	3098
(2013/24)	1x400	3	37.8	4045
TYPE E				
6(128/26)	1x16	5	17.2	384
4(200/26)	1x25	5	18.6	495
2(280/26)	1x35	5	20	613
1(400/26)	1x50	5	22.1	796
2/0(356/24)	1x70	5	24.2	1020
3/0(485/24)	1x95	5	26.3	1287
4/0(614/24)	1x120	5	27.8	1542
300 MCM (765/24)	1x150	5	29.8	1853
350 MCM (944/24)	1x185	5	32.1	2225
500MCM(1225/24)	1x240	5	35.1	2782
TYPE F				
6(128/26)	1x16	7.6	22.9	566
4(200/26)	1x25	7.6	24.1	680
2(280/26)	1x35	7.6	25.5	810
1(400/26)	1x50	7.6	27.3	997
2/0(356/24)	1x70	7.6	29.4	1237
3/0(485/24)	1x95	7.6	31.5	1520
4/0(614/24)	1x120	7.6	33.3	1804
300 MCM (765/24)	1x150	7.6	35.3	2131
350 MCM (944/24)	1x185	7.6	37.3	2503
500MCM(1225/24)	1x240	7.6	40.3	3081

6591TQ to BS 6883

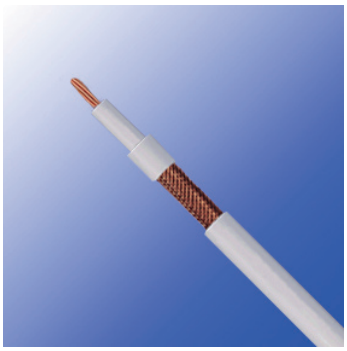
Application and Description

These cables are designed for use in offshore applications where mechanical protection is not required. Examples of application include fixed wiring in ships and fixed offshore drilling rigs and oil platforms.

Cable Construction



6591TQ



6591TQ

- Fine bare copper strands
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- EPR(Ethylene Propylene Rubber) rubber insulation to BS 7655
- TPBWB (Tinned phosphor bronze wire braid) non-magnetic armour
- LSOH (Low Smoke Zero Halogen), type SW4 to BS 7655

Core Identification

1 core: Black or red

Technical Characteristics

- Working voltage: 600/1000 volts
- Test voltage: 3500 volts
- Minimum bending radius: up to 10mm² - 3xOverall diameter
  10mm²-25mm² - 4xOverall diameter
  Above 25mm² - 6xOverall diameter
- Temperature Range: -25° C to +85° C
- Oxygen Index32%, HCL 5%
- Flame retardant: IEC 60332.3

Cable Parameter

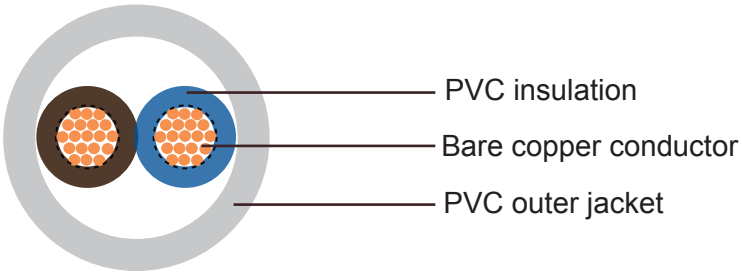
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
17(7/26)	1x1.0	0.8	1	0.3	1.1	8.8	135
16(7/24)	1x1.5	0.8	1	0.3	1.1	9.3	145
14(7/22)	1x2.5	0.8	1	0.3	1.1	9.8	165
12(7/20)	1x4	1.0	1	0.3	1.1	10.8	190
10(7/18)	1x6	1.0	1	0.3	1.1	11.4	225
8(7/16)	1x10	1.0	1.1	0.3	1.2	13.1	315
6(7/14)	1x16	1.0	1.1	0.3	1.2	14.2	395
4(7/12)	1x25	1.2	1.2	0.3	1.3	16.7	565
2(7/10)	1x35	1.2	1.2	0.3	1.4	17.8	670
1(19/13)	1x50	1.4	1.3	0.3	1.4	19.7	865
2/0(19/11)	1x70	1.4	1.4	0.3	1.5	22.1	1120
3/0(19/10)	1x95	1.6	1.4	0.3	1.6	24.4	1440
4/0(37/12)	1x120	1.6	1.5	0.3	1.7	26.6	1780
300MCM (37/11)	1x150	1.8	1.6	0.3	1.8	28.9	2120
350MCM (37/10)	1x185	2	1.7	0.45	1.9	32.5	2700
500MCM (61/11)	1x240	2.2	1.8	0.45	2.0	36	3410
-(61/10)	1x300	2.4	1.9	0.45	2.1	39.4	4180
-(61/9)	1x400	2.6	2.1	0.45	2.3	43.9	5280
-(61/8)	1x500	2.8	2.2	0.45	2.5	48.1	6480
-(127/10)	1x630	2.8	2.3	0.45	2.6	52.3	7820

218Y to BS 6500(New BS EN 50525-2-11)

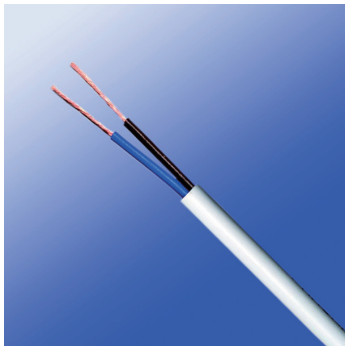
Application and Description

These cable types are especially suited for use on small appliances with low mechanical stress and for connection for light household appliances, e.g. kitchen utensils, desk lamps, floor lamps, vacuum cleaners, office machines, radios, etc. As far as these cables are admitted to the relevant specifications of the equipment, They are not permitted for use with cooking or heating apparatus. 218Y is equivalent to harmonized code H03VV-F.

Cable Construction



2182Y



2182Y

- Bare copper fine wire conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI2 to BS 7655
- Green/Yellow grounding (3 conductors and above)
- PVC outer jacket TM2 to BS 7655

Core Identification

2 Cores: Blue, Brown

3 Cores: Green/Yellow, Blue, Brown

4 cores: Green/Yellow, black, brown, blue

Technical Characteristics

- Working voltage: 300/300 volts
- Test voltage: 2000 volts
- Flexing bending radius: 7.5xOverall diameter
- Static bending radius: 4xOverall diameter
- Flexing temperature: -5º C to +70º C
- Static temperature: -40º C to +70º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

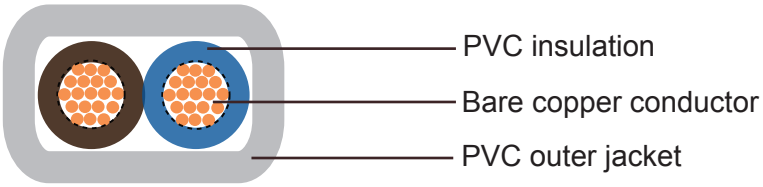
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
2182Y						
20(16/32)	2x0.50	0.5	0.6	5	9.6	38
18(24/32)	2x0.75	0.5	0.6	5.5	14.4	46
2183Y						
20(16/32)	3x0.50	0.5	0.6	5.4	14.4	45
18(24/32)	3x0.75	0.5	0.6	6	21.6	59
2184Y						
20(16/32)	4x0.50	0.5	0.6	5.8	19.2	55
18(24/32)	4x0.75	0.5	0.6	6.5	28.8	72

2192Y to BS 6500(New BS EN 50525-2-11)

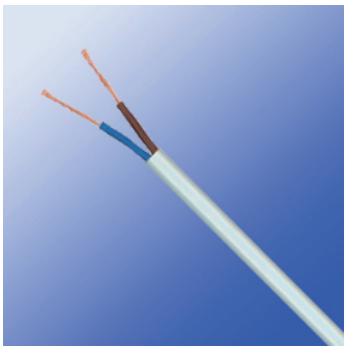
Application and Description

These cable types are especially suited for use on small appliances with low mechanical stress and for connection for light household appliances, e.g. kitchen utensils, desk lamps, floor lamps, vacuum cleaners, office machines, radios, etc. These cables are admitted to the relevant specifications of the equipment, They are not permitted for use with cooking or heating apparatus. 2192Y is equivalent to harmonized code H03VVH2-F.

Cable Construction



2192Y



2192Y

- Bare copper fine wire conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI2 to BS 7655
- PVC outer jacket TM2 to BS 7655

Core Identification

2 Cores: Blue, Brown

Technical Characteristics

- Working voltage: 300/300 volts
- Test voltage: 2000 volts
- Flexing bending radius: 7.5xOverall diameter
- Static bending radius: 4xOverall diameter

- Flexing temperature: -5º C to +70º C
- Static temperature: -40º C to +70º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

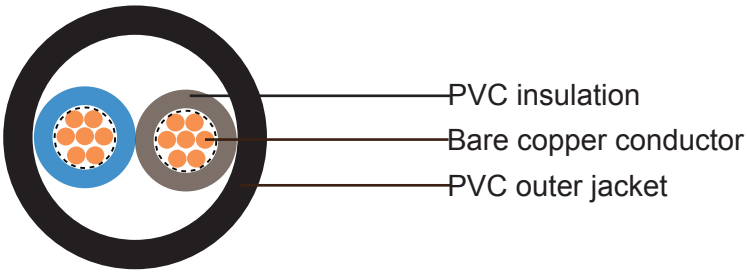
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
2192Y						
20(16/32)	2x0.50	0.5	0.6	3.2x5.2	9.7	32
18(24/32)	2x0.75	0.5	0.6	3.4x5.6	14.4	35

6192Y/ 6193Y to BS 6004

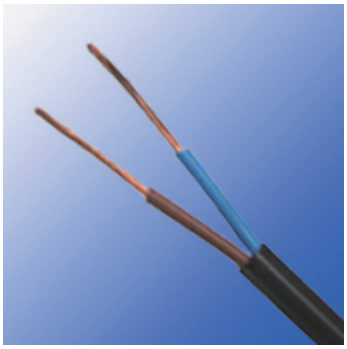
Application and Description

These cables are suitable for fixed installation in dry or damp premises on walls, boards or trays, in channels or embedded in plaster. They should be laid in conduit in conduit or trunking where mechanical protection is required.

Cable Construction



6192Y



6192Y

- Fine bare copper strands
- Stranding to BS 6360, IEC 60228 CL-1 or 2
- PVC insulation type TI1 to BS 7655
- PVC sheath type T6 to BS 7655

Core Identification

2 cores: brown and blue
3 cores: brown, black and grey

Technical Characteristics

- Working voltage: 300/500v
- Test voltage: 2000 volts
- Minimum bending radius: 4xOverall diameter
- Operating temperature: -15º C to +70º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 10 MΩxkm

Cable Parameter

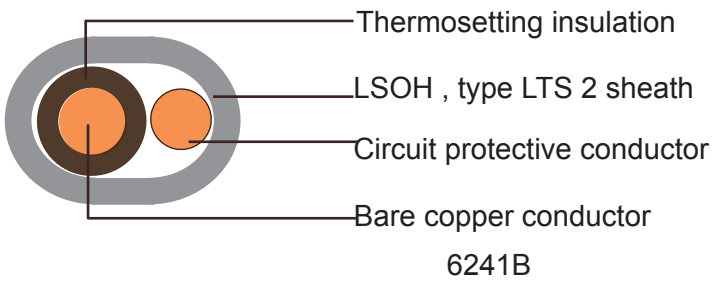
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal thickness of insulation mm	Nominal thickness of sheath mm	Nominal overall dimensions		Nominal Weight kg/km
				lower limit mm	upper limit mm	
6192Y						
17	2 × 1.0	0.6	0.9	3.9x6.1	4.8x7.4	53
16	2 × 1.5	0.7	0.9	4.4x7.0	5.4x8.5	70
14	2 × 2.5	0.8	1	5.1x8.4	6.2x10.1	105
12(7/20)	2 × 4	0.8	1	5.7x9.5	6.9x11.5	150
10(7/18)	2 × 6	0.8	1.1	6.4x10.8	7.8x13.0	205
8(7/16)	2 × 10	1	1.2	7.9x13.4	9.5x16.2	325
6(7/14)	2 × 16	1	1.3	8.9x15.4	10.8x18.6	465
6193Y						
17	3 × 1.0	0.6	0.9	3.9x8.4	4.8x10.1	77
16	3 × 1.5	0.7	0.9	4.4x9.6	5.3x11.7	100
14	3 × 2.5	0.8	1	5.1x11.6	6.2x14.0	150
12(7/20)	3 × 4	0.8	1.1	5.9x13.5	7.1x16.3	230
10(7/18)	3 × 6	0.8	1.1	6.4x15.1	7.8x18.2	300
8(7/16)	3 × 10	1	1.2	7.9x19.0	9.5x23.0	485
6(7/14)	3 × 16	1	1.3	8.9x21.8	10.8x26.3	700

6241B/6242B/6243B to BS 7211

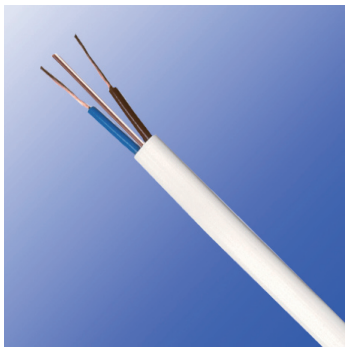
Application and Description

These cables are suitable for fixed installation particularly for situations in which low emission smoke and domestic wiring cable for the surface wiring of sockets and lighting where fire, smoke emission and toxic fumes create a potential threat to life and equipment. Can be installed in fixed installations in dry or damp premises on walls, boards or trays, in channels or embedded in plaster. Suitable for laying in conduit or trunking where mechanical protection is required.

Cable Construction



6241B

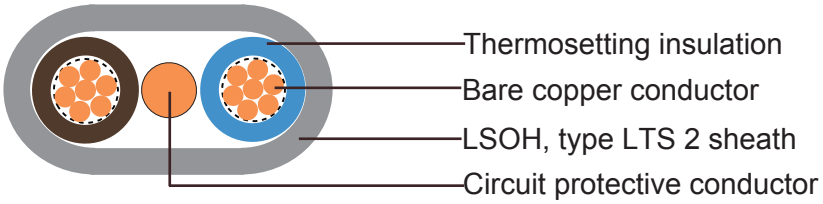


6241B

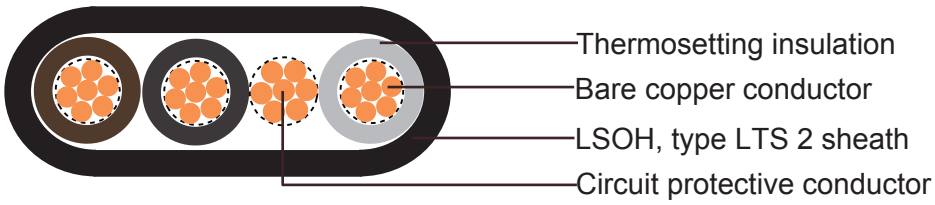
- Fine bare copper strands
- Stranding to IEC 60228 CL-1 or 2
- Thermosetting core insulation type EI5 or GP 8
- The core or cores shall be laid parallel with the uninsulated circuit protective conductor
- For twin cores, the protective conductor centrally placed between cores in same plane
- For 3 cores, the protective conductor centrally placed between black and grey cores in same plane
- LSOH sheath, type LTS 2, white

Core Identification

2 cores: brown and blue, or, for 2 × 1.0 and 2 × 1.5 cables, brown and brown
3 cores: brown, black (centre core) and grey



6242B



6243B

Technical Characteristics

- Working voltage: 300/500v
- Test voltage: 2000 volts
- Flexing bending radius: 15xOverall diameter
- Static bending radius: 10xOverall diameter
- Flexing temperature: +5º C to +90º C
- Short circuit temperature: +250º C
- Insulation resistance: 10 MΩxkm
- Halogen free acc. to EN 50267-2-1 / IEC 60754-1
- Smoke density acc. to EN 50268-2 / IEC 61034-2
- Corrosivity of gases acc. to EN 50267-2-2, IEC 60754-2
- Flame retardancy acc. to EN 50265-2-1, IEC 60332-1

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal thickness of insulation mm	Nominal thickness of sheath mm	Nominal overall dimensions		Circuit protective conductor AWG	Nominal Weight kg/km
				lower limit mm	upper limit mm		
6241B							
17	1 × 1.0	0.7	0.9	4.1 × 5.2	5.0 × 6.3	17	45
16	1 × 1.5	0.7	0.9	4.4 × 5.4	5.3 × 6.6	17	55

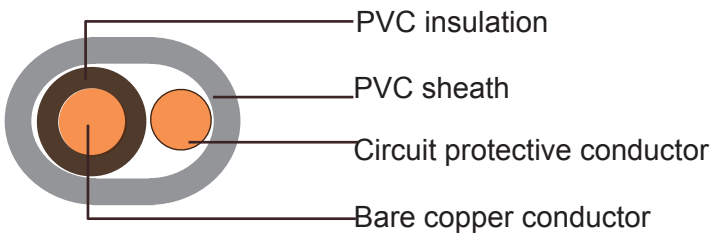
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal thickness of insulation mm	Nominal thickness of sheath mm	Nominal overall dimensions		Circuit protective conductor AWG	Nominal Weight kg/km
				lower limit mm	upper limit mm		
6242B							
17	2 × 1.0	0.7	0.9	4.1 × 7.6	5.0 × 9.1	17	68
17(7/26)	2 × 1.0	0.7	0.9	4.2 × 7.8	5.1 × 9.4	17	73
16	2 × 1.5	0.7	0.9	4.4 × 8.1	5.3 × 9.7	17	85
16(7/24)	2 × 1.5	0.7	0.9	4.5 × 8.3	5.4 × 10	17	90
14	2 × 2.5	0.7	1.0	4.9 × 9.3	6 × 11.2	16	120
14(7/22)	2 × 2.5	0.7	1.0	5.0 × 9.5	6.1 × 11.4	16	125
12(7/20)	2 × 4	0.7	1.0	5.5 × 10.4	6.7 × 12.6	16	175
10(7/18)	2 × 6	0.7	1.1	6.2 × 12.0	7.5 × 14.6	14	240
8(7/16)	2 × 10	0.7	1.2	7.3 × 14.5	8.8 × 17.6	12(7/20)	390
6(7/14)	2 × 16	0.7	1.3	8.4 × 17.0	10.1 × 20.5	10(7/18)	560
6243B							
17	3 × 1.0	0.7	0.9	4.1 × 10	5.1 × 12.1	17	91
16	3 × 1.5	0.7	0.9	4.4 × 10.7	5.3 × 12.9	17	115
14	3 × 2.5	0.7	1.0	4.9 × 12.0	6 × 14.6	17	170
12(7/20)	3 × 4	0.7	1.0	5.5 × 14	6.7 × 16.9	16	196
10(7/18)	3 × 6	0.7	1.1	6.2 × 16.2	7.5 × 19.5	14	291
8(7/16)	3 × 10	0.7	1.2	7.3 × 19.5	8.8 × 23.6	12(7/20)	440
6(7/14)	3 × 16	0.7	1.3	8.4 × 22.8	10.1 × 27.6	10(7/18)	670

6241Y/6242Y/ 6243Y to BS 6004

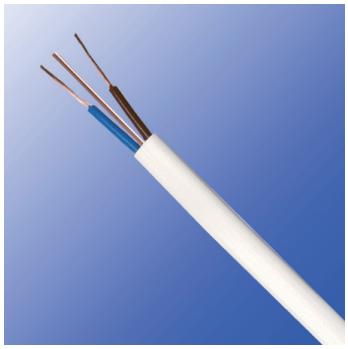
Application and Description

These cables are suitable for fixed installation in dry or damp premises on walls, boards or trays, in channels or embedded in plaster. They should be laid in conduit or trunking where mechanical protection is required.

Cable Construction



6241Y

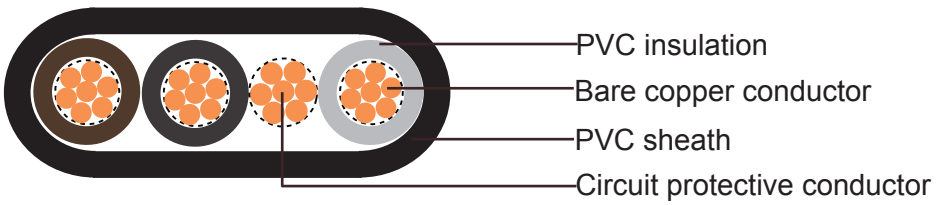


6241Y

- Fine bare copper strands
- Stranding to IEC 60228 CL-1 or 2
- PVC insulation type TI1 to BS 7655
- The core or cores shall be laid parallel with the uninsulated circuit protective conductor
- For twin cores, the protective conductor centrally placed between cores in same plane
- For 3 cores, the protective conductor centrally placed between black and grey cores in same plane
- PVC sheath type T6 to BS 7655

Core Identification

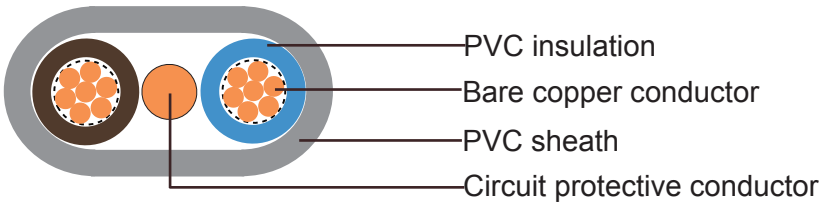
2 cores: brown and blue, or, for 2 × 1.0 and 2 × 1.5 cables, brown and brown
3 cores: brown, black (centre core) and grey



6243Y

Technical Characteristics

- Working voltage: 300/500v
- Test voltage: 2000 volts
- Minimum bending radius: 4xOverall diameter
- Flexing temperature: -15° C to +70° C
- Short circuit temperature: +160° C
- Flame retardant: IEC 60332.1
- Insulation resistance: 10 MΩxkm



Cable Parameter

6242Y

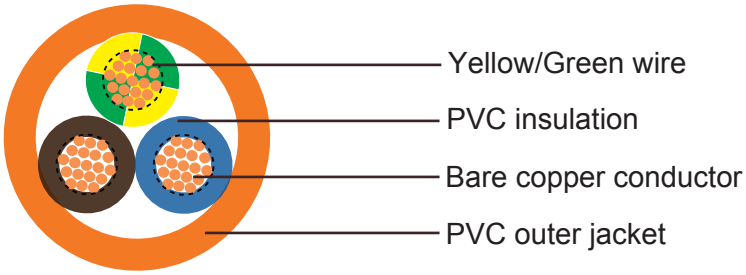
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal thickness of insulation mm	Nominal thickness of sheath mm	Nominal overall dimensions		Circuit protective conductor AWG	Nominal Weight kg/km
				lower limit mm	upper limit mm		
6241Y							
17	1 × 1.0	0.6	0.9	3.9x5.1	4.8x6.0	17	45
16	1 × 1.5	0.7	0.9	4.4x5.4	5.3x6.6	17	55
6242Y							
17	2 × 1.0	0.6	0.9	3.9×7.2	4.8x8.7	17	68
16	2 × 1.5	0.7	0.9	4.4x8.1	5.3x9.7	17	85
14	2 × 2.5	0.8	1	5.1x9.6	6.2x11.7	16	120
12(7/20)	2 × 4	0.8	1	5.7x10.8	6.9x13.1	16	175
10(7/18)	2 × 6	0.8	1.1	6.4x12.4	7.8x15.0	14	240
8(7/16)	2 × 10	1	1.2	7.9x15.5	9.5x18.9	12(7/20)	390
6(7/14)	2 × 16	1	1.3	8.9x18.1	10.8x21.9	10(7/18)	560
6243Y							
17	3 × 1.0	0.6	0.9	3.9x9.4	4.8x11.4	17	91
16	3 × 1.5	0.7	0.9	4.4x10.7	5.3x12.9	17	115
14	3 × 2.5	0.8	1	5.1x12.6	6.2x15.3	17	170
12(7/20)	3 × 4	0.8	1.1	5.9x14.8	7.1x17.9	16	250
10(7/18)	3 × 6	0.8	1.1	6.4x16.8	7.8x20.2	14	340
8(7/16)	3 × 10	1	1.2	7.9x21.3	9.5x25.7	12(7/20)	540
6(7/14)	3 × 16	1	1.3	8.9x24.6	10.8x29.7	10(7/18)	790

209Y to BS 6500(New BS EN 50525-2-11)

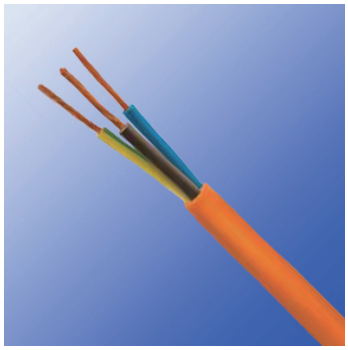
Application and Description

These cables are suitable for domestic premises, kitchen, office for light service or light portable apparatuses. With their special insulation and sheath compounds, these cables are adapted for apparatus in kitchen and heating and for use in zones with high temperatures (like lighting system apparatuses) without contact with warm parts and radiations. 209Y is equivalent to harmonized code H03V2V2-F.

Cable Construction



209Y



209Y

- Bare copper fine wire conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI3
- PVC outer jacket TM3

Core Identification

2 Cores: Blue, Brown
3 Cores: Green/Yellow, Blue, Brown
4 cores: Green/Yellow, Black, Brown, Blue
5 Cores: Green/Yellow, Brown, Black, Grey, Blue

Technical Characteristics

- Working voltage: 300/300 volts
- Test voltage: 2000 volts
- Flexing bending radius: 4xOverall diameter
- Static bending radius: 3xOverall diameter
- Flexing temperature: +5º C to +90º C
- Static temperature: -40º C to +90º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

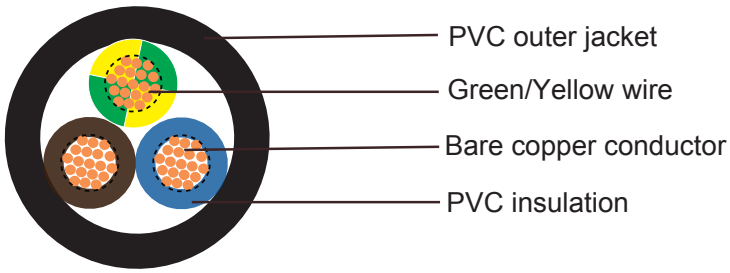
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
2092Y						
20(16/32)	2x0.50	0.5	0.6	5	9.6	38
18(24/32)	2x0.75	0.5	0.6	5.5	14.4	46
2093Y						
20(16/32)	3x0.50	0.5	0.6	5.4	14.4	45
18(24/32)	3x0.75	0.5	0.6	6	21.6	59
2094Y						
20(16/32)	4x0.50	0.5	0.6	5.8	19.2	55
18(24/32)	4x0.75	0.5	0.6	6.5	28.8	72

309Y to BS 6500(New BS EN 50525-2-11)

Application and Description

These cables are suitable for domestic premises, kitchen, office for light service or light portable apparatuses. With their special insulation and sheath compounds, these cables are adapted for apparatus in kitchen and heating and for use in zones with high temperature (like lighting system apparatuses) without contact with warm parts and radiations. Unsuitable for outdoor use, in industrial and agricultural buildings or non-domestic portable tools. 309Y is equivalent to harmonized code H05V2V2-F.

Cable Construction



309Y

309Y

- Bare copper fine wire conductor
- Stranding to BS CL-5 or IEC 60228 CL-5
- PVC core insulation TI3 to BS 7655
- Green/Yellow grounding (3 conductors and above)
- PVC outer jacket TM3 to BS 7655

Core Identification

2 Cores: Blue, Brown
3 Cores: Green/Yellow, Blue, Brown
4 Cores: Green/Yellow, Brown, Black, Grey
5 Cores: Green/Yellow, Brown, Black, Grey, Blue

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 15xOverall diameter
- Static bending radius: 4xOverall diameter
- Flexing temperature: +5º C to +90º C
- Static temperature: -40º C to +90º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

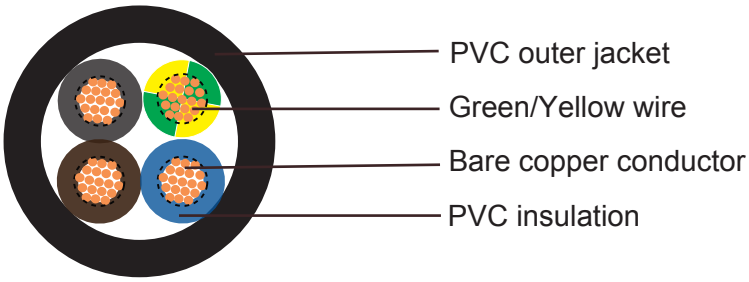
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3092Y						
20(16/32)	2x0.50	0.6	0.8	5.6-7	9.6	46
18(24/32)	2x0.75	0.6	0.8	6-7.6	14.4	56
17(32/32)	2x1.00	0.6	0.8	6.4-8	19	65
16(30/30)	2x1.50	0.7	0.8	7.4-9	29	80
14(50/30)	2x2.50	0.8	1.0	8.9-11	48	135
3093Y						
20(16/32)	3x0.50	0.6	0.8	5.8-7.2	14.4	56
18(24/32)	3x0.75	0.6	0.8	6.4-8	21.6	61
17(32/32)	3x1.00	0.6	0.8	6.8-8.4	29	77
16(30/30)	3x1.50	0.7	0.9	8-9.8	43	108
14(50/30)	3x2.50	0.8	1.1	9.6-12	72	165
12(56/28)	3x40	0.8	1.2	10.8-13.1	115	224
3094Y						
20(16/32)	4x0.50	0.6	0.8	6.4-7.8	19	68
18(24/32)	4x0.75	0.6	0.8	6.8-8.6	29	80
17(32/32)	4x1.00	0.6	0.9	7.6-9.4	38	100
16(30/30)	4x1.50	0.7	1.0	9-11	58	140
14(50/30)	4x2.50	0.8	1.1	10.5-13	96	210
12(56/28)	4x40	0.8	1.2	11.8-14.1	154	295
3095Y						
18(24/32)	5x0.75	0.6	0.9	7.4-9.6	36	110
17(32/32)	5x1.00	0.6	0.9	8.3-10	48	130
16(30/30)	5x1.50	0.7	1.1	10-12	72	185
14(50/30)	5x2.50	0.8	1.2	11.5-14	120	265
12(56/28)	5x40	0.8	1.4	13.1-16.3	192	361

318Y to BS 6500(New BS EN 50525-2-11)

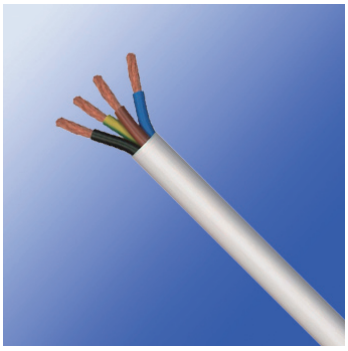
Application and Description

These cables are suited for medium mechanical stress in damp and wet environments such as refrigerators, washing machines, spin dryers and other appliances, as long as it meets applicable equipment specifications. These cables are also suited for cooking and heating apparatus, provided that the cable does not come into direct contact with the hot parts of the apparatus or with any other heat source. Further applications of this cable include: Fixed installation in furniture, partition walls, decorative covering, and in the hollow spaces of prefabricated building parts. They are not suitable for outdoor use, industrial (except clothing manufacture) or farming applications. 318Y is equivalent to harmonized code H05VV-F,

Cable Construction



3184Y



3184Y

- Bare copper fine wire conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI2 to BS 7655
- Green/Yellow grounding (3 conductors and above)
- PVC outer jacket TM2 to BS 7655

Core Identification

2 Cores: Blue, Brown
3 Cores: Green/Yellow, Blue, Brown
4 Cores: Green/Yellow, Brown, Black, Grey
5 Cores: Green/Yellow, Brown, Black, Grey, Blue

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 7.5xOverall diameter
- Static bending radius: 4xOverall diameter
- Flexing temperature: -5° C to +70° C
- Static temperature: -40° C to +70° C
- Short circuit temperature: +160° C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

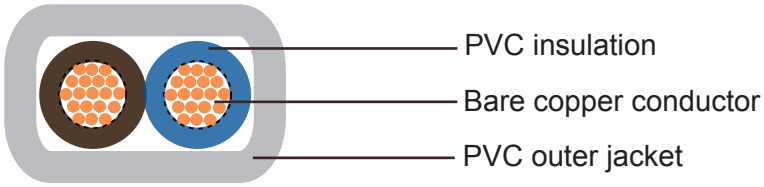
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3182Y						
18(24/32)	2x0.75	0.6	0.8	6.4	14.4	57
17(32/32)	2x1.0	0.6	0.8	6.8	19	65
16(30/30)	2x1.5	0.7	0.8	7.6	29	87
14(50/30)	2x2.5	0.8	1.0	9.2	48	134
12(56/28)	2x4.0	0.8	1.1	10.5	77	174
3183Y						
18(24/32)	3x0.75	0.6	0.8	6.8	21.6	68
17(32/32)	3x1.0	0.6	0.8	7.2	29	79
16(30/30)	3x1.5	0.7	0.9	8.2	43	111
14(50/30)	3x2.5	0.8	1.1	10.1	72	169
12(56/28)	3x4.0	0.8	1.2	11.3	115	233
3184Y						
18(24/32)	4x0.75	0.6	0.8	7.4	29	84
17(32/32)	4x1.0	0.6	0.9	8.0	38	101
16(30/30)	4x1.5	0.7	1.0	9.2	58	142
14(50/30)	4x2.5	0.8	1.1	11.2	96	211
12(56/28)	4x4.0	0.8	1.2	12.5	154	292
3185Y						
18(24/32)	5x0.75	0.6	0.9	8.5	36	106
17(32/32)	5x1.0	0.6	0.9	8.8	48	123
16(30/30)	5x1.5	0.7	1.1	10.5	72	176
14(50/30)	5x2.5	0.8	1.2	12.4	120	262
12(56/28)	5x4.0	0.8	1.4	13.7	192	369

3192Y to BS 6500(New BS EN 50525-2-11)

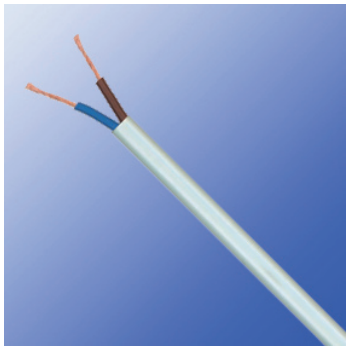
Application and Description

These cables are suited for medium mechanical stress in damp and wet environments such as refrigerators, washing machines, spin dryers and other appliances, as long as it meets applicable equipment specifications. These cables are also suited for cooking and heating apparatus, provided that the cable does not come into direct contact with the hot parts of the apparatus or with any other heat source. Further applications of this cable include: Fixed installation in furniture, partition walls, decorative covering, and in the hollow spaces of prefabricated building parts. They are not suitable for outdoor use, industrial (except clothing manufacture) or farming applications. 2192Y is equivalent to harmonized code H05VVH2-F.

Cable Construction



3192Y



3192Y

- Bare copper fine wire conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI2 to BS 7655
- PVC outer jacket TM2 to BS 7655

Core Identification

2 Cores: Blue, Brown
3 Cores: Green/Yellow, Blue, Brown
4 Cores: Green/Yellow, Brown, Black, Grey
5 Cores: Green/Yellow, Brown, Black, Grey, Blue

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 7.5xOverall diameter
- Static bending radius: 4xOverall diameter
- Flexing temperature: -5º C to +70º C
- Static temperature: -40º C to +70º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

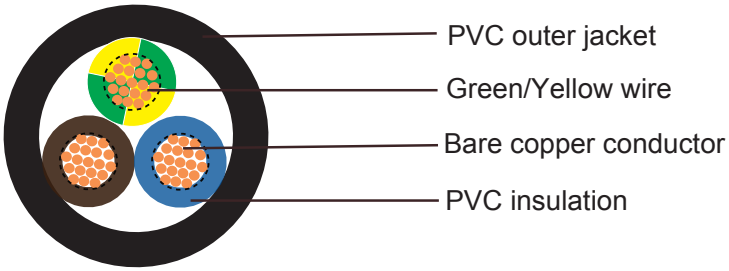
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3192Y						
18(24/32)	2x0.75	0.6	0.8	4.2x6.8	14.4	49
17(32/32)	2x1.0	0.6	0.8	4.4x7.2	19.2	57
16(30/30)	2x1.5	0.7	0.8	4.7x7.9	29.0	79

318A/3192A to BS 6004(Formerly BS 7919)

Application and Description

These cables are designed to withstand severe external temperatures and will remain flexible at temperatures down to -40°C. Making them particularly suitable for outdoor applications and for use where flexibility is required at sub zero temperatures. At normal temperatures the cable is very flexible, offering some of the characteristics usually found in elastomeric cables.,

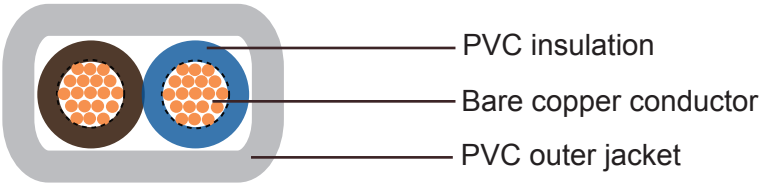
Cable Construction



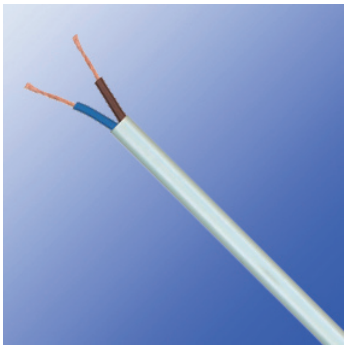
3183A

3183A

- Anealed copper conductor
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- PVC core insulation TI 4 to EN 50363-3-1(formerly BS 7655-3-1)
- Green/Yellow grounding (3 conductors and above)
- PVC outer jacket Type 10 to BS7655-4-2
- Yellow or blue



3192A



3192A

Core Identification

2 Cores: Blue, Brown

3 Cores: Green/Yellow, Blue, Brown

4 Cores: Green/Yellow, Brown, Black, Grey or Green/Yellow, Blue, Brown, Black

5 Cores: Green/Yellow, Blue,Brown, Black, Grey

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 6xOverall diameter
- Static bending radius: 4xOverall diameter
- Flexing temperature: -5º C to +70º C
- Static temperature: -40º C to +70º C
- Short circuit temperature: +160º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3192A						
18(24/32)	2x0.75	0.6	0.8	3.8x6.7	14.4	58
17(32/32)	2x1.0	0.6	0.8	4.0x6.9	19	66
3182A						
20(16/32)	2x0.50	0.6	0.8	6.1	9.6	46
18(24/32)	2x0.75	0.6	0.8	6.4	14.4	57
17(32/32)	2x1.0	0.6	0.8	6.8	19	65
16(30/30)	2x1.5	0.7	0.8	7.6	29	87
14(50/30)	2x2.5	0.8	1.0	9.2	48	134
12(56/28)	2x4.0	0.8	1.1	10.5	77	174
3183A						
18(24/32)	3x0.75	0.6	0.8	6.8	21.6	68
17(32/32)	3x1.0	0.6	0.8	7.2	29	79

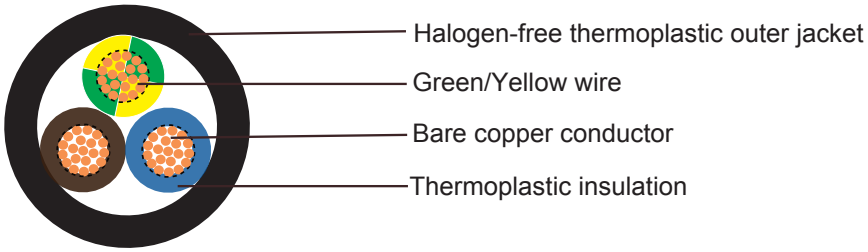
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
16(30/30)	3x1.5	0.7	0.9	8.2	43	111
14(50/30)	3x2.5	0.8	1.1	10.1	72	169
12(56/28)	3x4.0	0.8	1.2	11.3	115	233
3184A						
18(24/32)	4x0.75	0.6	0.8	7.4	29	84
17(32/32)	4x1.0	0.6	0.9	8.0	38	101
16(30/30)	4x1.5	0.7	1.0	9.2	58	142
14(50/30)	4x2.5	0.8	1.1	11.2	96	211
12(56/28)	4x4.0	0.8	1.2	12.5	154	292
3185A						
18(24/32)	5x0.75	0.6	0.9	8.5	36	106
17(32/32)	5x1.0	0.6	0.9	8.8	48	123
16(30/30)	5x1.5	0.7	1.1	10.5	72	176
14(50/30)	5x2.5	0.8	1.2	12.4	120	262
12(56/28)	5x4.0	0.8	1.4	13.7	192	369

318B to BS 6500(New BS EN 50525-3-11)

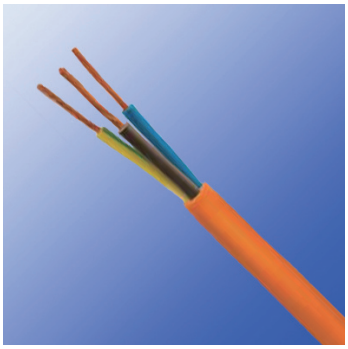
Application and Description

These cables may be used as an indoor general wiring cable primarily for installations in public areas. Examples include use on pendant lighting drops or as a general supply lead within hospital or airport projects. They are suitable for installations where fire, smoke emission and toxic fumes create a potential threat to life and equipment. 318B is equivalent to harmonized code H05Z1Z1-F.

Cable Construction



3183B



3183B

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- Halogen-fee thermoplastic TI6 core insulation
- Green/Yellow grounding (3 conductors and above)
- Halogen-fee thermoplastic TM7 outer jacket

Core Identification

2 Cores: Brown, Blue
3 Cores: Brown, Blue and Green/Yellow
4 Cores: Brown, Grey, Black and Green/Yellow
5 Cores: Brown, Blue, Grey, Black and Green/Yellow

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts

- Flexing bending radius: 6xOverall diameter
- Fixed bending radius: 4xOverall diameter
- Operating temperature: -30° C to +90° C
- Short circuit temperature: +160° C
- Insulation resistance: 20 MΩxkm
- Halogen free acc. to EN 50267-2-1 / IEC 60754-1
- Smoke density acc. to EN 50268-2 / IEC 61034-2
- Corrosivity of gases acc. to EN 50267-2-2, IEC 60754-2
- Flame retardancy acc. to EN 50265-2-1, IEC 60332-1

Cable Parameter

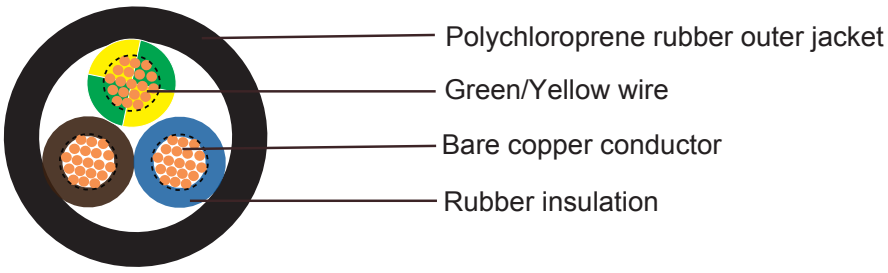
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3182B						
18(24/32)	2x0.75	0.6	0.8	6.2	14.4	58
17(32/32)	2x1	0.6	0.8	6.6	19	67
16(30/30)	2x1.5	0.7	0.8	7.4	29	87
14(50/30)	2x2.5	0.8	1.0	9.3	48	138
12(56/28)	2x4	0.8	1.1	10.6	76.8	190
3183B						
18(24/32)	3x0.75	0.6	0.8	6.6	21.6	68
17(32/32)	3x1	0.6	0.8	6.9	29	81
16(30/30)	3x1.5	0.7	0.9	8.1	43	109
14(50/30)	3x2.5	0.8	1.1	10.1	72	172
12(56/28)	3x4	0.8	1.2	11.5	115.2	242
3184B						
18(24/32)	4x0.75	0.6	0.8	7.1	29	81
17(32/32)	4x1	0.6	0.9	7.7	38	101
16(30/30)	4x1.5	0.7	1.0	9	58	117
14(50/30)	4x2.5	0.8	1.1	11	96	210
12(56/28)	4x4	0.8	1.4	12.5	153.6	298
3185B						
18(24/32)	5x0.75	0.6	0.9	8	36	102
17(32/32)	5x1	0.6	0.9	8.4	48	107
16(30/30)	5x1.5	0.7	1.1	10	72	169
14(50/30)	5x2.5	0.8	1.2	12.3	120	260
12(56/28)	5x4	0.8	1.4	14.1	192	371

318TRS to BS 6500(New BS EN 50525-2-21)

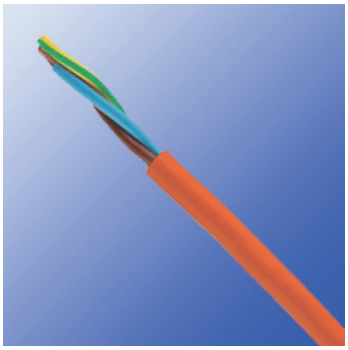
Application and Description

These cables are suitable for use with electronics and electrical equipment such as appliances, small hand tools and office equipment, where the cables may be subject to light and medium stresses in both dry and damp environments. They can be used in flat irons, soldering irons, kitchen aids, toasters, stoves in connections with light commercial electric tools. They are also suitable for fixed installation in furniture, decorative coverings, wall partitions and pre-fabricated building parts. 318TRS is equivalent to harmonized code H05RR-F.

Cable Construction



3183TRS



3183TRS

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- Rubber core insulation EI4
- Green/Yellow grounding, 3 conductors and above
- Polychloroprene rubber (neoprene) jacket EM3

Core Identification

2 Cores: Brown, Blue
3 Cores: Brown, Blue and Green/Yellow
4 Cores: Brown, Grey, Black and Green/Yellow
5 Cores: Brown, Blue, Grey, Black and Green/Yellow

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 8xOverall diameter
- Fixed bending radius: 6xOverall diameter
- Temperature range: -30º C to +60º C
- Short circuit temperature: +200 º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

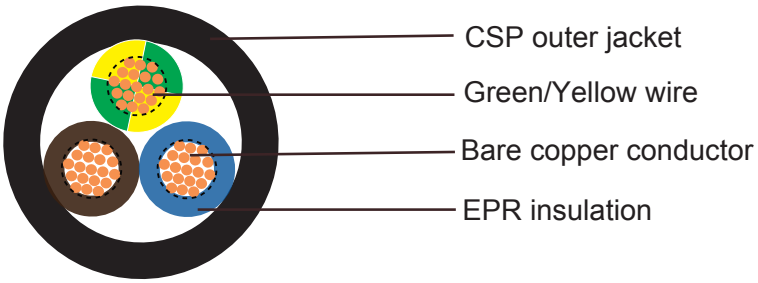
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter min-max mm	Nominal Copper Weight kg/km	Nominal Weight kg/km
3182TRS						
18(24/32)	2x0.75	0.6	0.8	5.7-7.4	14.4	61
17(32/32)	2x1	0.6	0.9	6.1-8.0	19.0	73
16(30/30)	2x1.5	0.8	1.0	7.6-9.8	29.0	115
14(50/30)	2x2.5	0.9	1.1	9.0-11.6	48.0	160
3183TRS						
18(24/32)	3x0.75	0.6	0.9	6.2-8.1	21.6	75
17(32/32)	3x1	0.6	0.9	6.5-8.5	29.0	86
16(30/30)	3x1.5	0.8	1.0	8.0-10.4	43.0	135
14(50/30)	3x2.5	0.9	1.1	9.6-12.4	72.0	191
3184TRS						
18(24/32)	4x0.75	0.6	0.9	6.8-8.8	28.8	94
17(32/32)	4x1	0.6	0.9	7.1-9.3	38.4	105
16(30/30)	4x1.5	0.8	1.1	9.0-11.6	58.0	165
14(50/30)	4x2.5	0.9	1.2	10.7-13.8	96	235
3185TRS						
18(24/32)	5x0.75	0.6	1.0	7.6-9.9	36	110
17(32/32)	5x1	0.6	1.0	8.0-10.3	48.0	130
16(30/30)	5x1.5	0.8	1.1	9.8-12.7	72.0	190
14(50/30)	5x2.5	0.9	1.3	11.9-15.3	120	285

318TQ to BS 6500(New BS EN 50525-2-21)

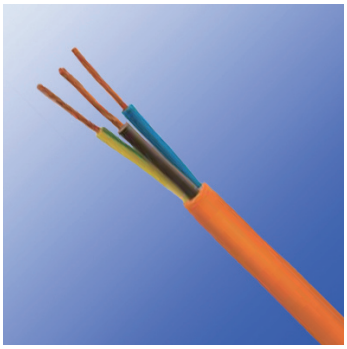
Application and Description

These cables can be used either in dry, humid or wet places or in contact with oil or grease, in weather conditions and under weak mechanical stress, they are suitable for power supply to small appliances in industrial plants, machine shops, heating plates, portable lamps, farming equipment etc. They are also suitable for caravans and camping equipment. 318TQ is equivalent to harmonized code H05BN4-F.

Cable Construction



3183TQ



3183TQ

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- EPR(Ethylene Propylene Rubber) rubber EI7 insulation
- CSP(Chlorosulphonated Polyethylene) outer jacket EM7

Core Identification

2 cores: Brown, Blue
3 cores: Green/Yellow, Brown, Blue
4 cores: Green/Yellow, Brown, Black, Grey
5 cores: Green/Yellow, Blue, Brown, Black, Grey
6 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 300/500 volts
- Test voltage: 2000 volts
- Flexing bending radius: 6xOverall diameter
- Fixed bending radius: 4xOverall diameter
- Temperature Range: -25º C to +90º C
- Maximum short circuit temperature: +250º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

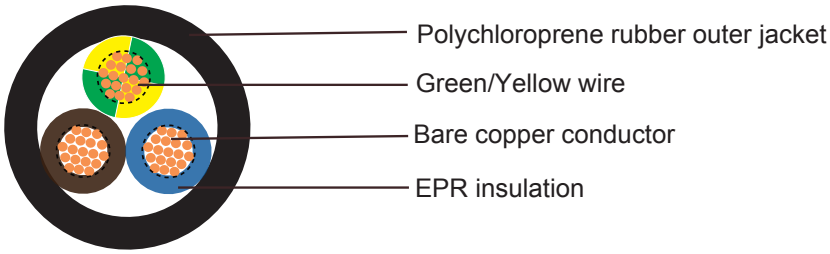
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
3182TQ					
18(24/32)	2x0.75	0.6	0.8	6.5	66
17(32/32)	2x1	0.6	0.9	7.1	79
3183TQ					
18(24/32)	3x0.75	0.6	0.9	7.1	80
17(32/32)	3x1	0.6	0.9	7.6	94

638TQ to BS 7919(New BS EN 50525-2-21)

Application and Description

These cables are can be used either in dry, humid or wet places, in contact with oil or grease, in weather conditions and under medium mechanical stress, They are suitable for power supply to equipment in industrial plants, large size boilers, heating plates, portable lamps, electrical tools such as drilling machines, disk saws, portable engines and machines, building and farming equipments etc. These cables are also suitable for stationary equipments designed for wind-tower application. The particular cable construction and the special sheath materials have improved the cable torsion resistance (max150°/m), which is a key requirement for drop cables in wind-generators. The cables are also suitable on plaster in temporary buildings and builders huts, and wiring in machinery elevators. 638TQ is equivalent to harmonized code H07BN4-F.

Cable Construction



6383TQ

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- EPR(Ethylene Propylene Rubber) rubber EI7 insulation
- CSP(Chlorosulphonated Polyethylene) outer jacket EM7

Core Identification

1 core: Black
2 cores: Brown, Blue
3 cores: Green/Yellow, Brown, Blue
4 cores: Green/Yellow, Brown, Black, Grey
5 cores: Green/Yellow, Blue, Brown, Black, Grey
6 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 450/750 volts
- Test voltage: 2500 volts
- Flexing bending radius: 6xOverall diameter
- Fixed bending radius: 4xOverall diameter
- Temperature Range: -25º C to +90º C
- Maximum short circuit temperature: +250º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6381TQ					
16(30/30)	1x1.5	0.8	1.4	5.9	50
14(50/30)	1x2.5	0.9	1.4	6.5	65
12(56/28)	1x4	1	1.5	7.8	105
10(84/28)	1x6	1	1.6	9	130
8(80/26)	1x10	1.2	1.8	10.8	200
6(128/26)	1x16	1.2	1.9	12.1	275
4(200/26)	1x25	1.4	2	14.1	400
2(280/26)	1x35	1.4	2.2	15.9	520
1(400/26)	1x50	1.6	2.4	18.5	730
2/0(356/24)	1x70	1.6	2.6	21	980
3/0(485/24)	1x95	1.8	2.8	23.9	1270
4/0(614/24)	1x120	1.8	3	25.8	1570
300MCM (765/24)	1x150	2	3.2	28.6	1960
350MCM (944/24)	1x185	2.2	3.4	31.5	2380
500MCM(1225/24)	1x240	2.4	3.5	35.1	3100
-(1525/24)	1x300	2.6	3.6	38.7	3790
-(2013/24)	1x400	2.8	3.8	43.5	4880
-(1769/23)	1x500	3	4	47.8	6070
-(2257/23)	1x630	3	4.1	51.5	7460

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6382TQ					
17(32/32)	2x1	0.8	1.3	8.2	93
16(30/30)	2x1.5	0.8	1.5	9.3	118
14(50/30)	2x2.5	0.9	1.7	10.9	172
12(56/28)	2x4	1	1.8	13.2	275
10(84/28)	2x6	1	2	15.6	370
8(80/26)	2x10	1.2	3.1	20.6	690
6(128/26)	2x16	1.2	3.3	23.3	910
4(200/26)	2x25	1.4	3.6	27.4	1290
6383TQ					
17(32/32)	3x1	0.8	1.4	8.9	114
16(30/30)	3x1.5	0.8	1.6	10	144
14(50/30)	3x2.5	0.9	1.8	11.7	210
12(56/28)	3x4	1	1.9	14.1	335
10(84/28)	3x6	1	2.1	16.6	450
8(80/26)	3x10	1.2	3.3	22.1	835
6(128/26)	3x16	1.2	3.5	24.8	1120
4(200/26)	3x25	1.4	3.8	29.3	1600
2(280/26)	3x35	1.4	4.1	32.9	2080
1(400/26)	3x50	1.6	4.5	38.5	2890
2/0(356/24)	3x70	1.6	4.8	43.6	3850
3/0(485/24)	3x95	1.8	5.3	50	4970
4/0(614/24)	3x120	1.8	5.6	53.9	6350
300 MCM (765/24)	3x150	2	6	59.9	7700
350 MCM (944/24)	3x185	2.2	6.4	65.9	9350
500MCM(1225/24)	3x240	2.4	7.1	74.7	1200
-(1525/24)	3x300	2.6	7.7	83.2	14910
6384TQ					
17(32/32)	4x1	0.8	1.5	9.8	139
16(30/30)	4x1.5	0.8	1.7	11	177
14(50/30)	4x2.5	0.9	1.9	12.8	257
12(56/28)	4x4	1	2	15.5	420
10(84/28)	4x6	1	2.3	18.5	565

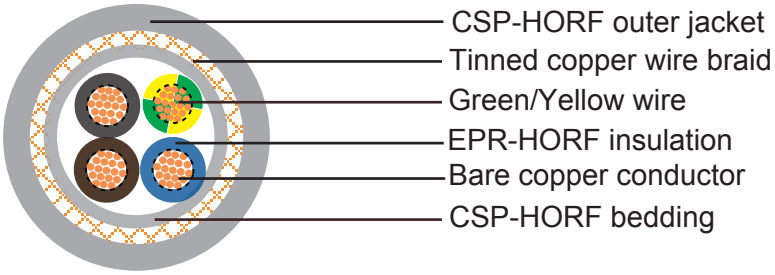
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
8(80/26)	4x10	1.2	3.4	24.1	1020
6(128/26)	4x16	1.2	3.6	27.1	1380
4(200/26)	4x25	1.4	4.1	32.5	2140
2(280/26)	4x35	1.4	4.4	36.5	2610
1(400/26)	4x50	1.6	4.8	42.6	3650
2/0(356/24)	4x70	1.6	5.2	48.6	4880
3/0(485/24)	4x95	1.8	5.9	56	6390
4/0(614/24)	4x120	1.8	6	59.9	7750
300 MCM (765/24)	4x150	2	6.5	66.8	9780
350 MCM (944/24)	4x185	2.2	7	73.5	11900
500MCM(1225/24)	4x240	2.4	7.7	83.2	15330
-(1525/24)	4x300	2.6	8.4	92.8	19030
6386TQ					
16(30/30)	6x1.5	0.8	2.5	14.7	288
14(50/30)	6x2.5	0.9	2.7	17.1	395
12(56/28)	6x4	1	2.9	20.2	670
6387TQ					
16(30/30)	7x1.5	0.8	2.6	15.7	385
14(50/30)	7x2.5	0.9	2.8	18.1	445
12(56/28)	7x4	1	3.1	21.6	773
63812TQ					
16(30/30)	12x1.5	0.8	2.9	19.1	556
14(50/30)	12x2.5	0.9	3.1	22.2	760
12(56/28)	12x4	1	3.5	20.2	1290
63818TQ					
16(30/30)	18x1.5	0.8	2.5	14.7	814
14(50/30)	18x2.5	0.9	2.7	17.1	1100
12(56/28)	18x4	1	2.9	26.2	1910
63824TQ					
16(30/30)	24x1.5	0.8	3.5	26.5	1080
14(50/30)	24x2.5	0.9	3.9	31.3	1460
63836TQ					
16(30/30)	36x1.5	0.8	3.8	30.2	1600
14(50/30)	36x2.5	0.9	4.3	36.5	2150

380TQ to BS 6500

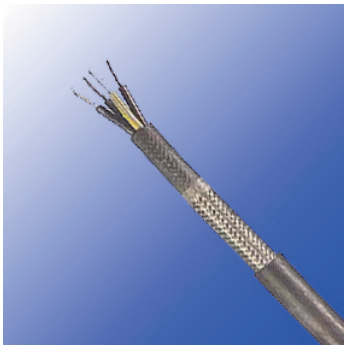
Application and Description

These cables are designed for temporary building sites as extension leads for portable or fixed equipment. The copper braid prevents earth leakage and offers mechanical protection.

Cable Construction



380TQ



380TQ

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- EPR insulation
- CSP(Chlorosulphonated Polyethylene), HOFR (Heat and Oil Resistant and Flame Retardant) bedding
- TCWB(tinned copper wire braid)
- CSP(Chlorosulphonated Polyethylene), HOFR (Heat and Oil Resistant and Flame Retardant) sheath

Core Identification

2 cores: Brown, Blue
3 cores: Green/Yellow + Brown, Blue
4 cores: Green/Yellow, Brown, Black, Grey
5 cores: Green/Yellow, Blue, Brown, Black, Grey
6 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 300/500 volts
- Minimum bending radius: 8.0xOverall diameter
- Temperature Range: -20º C to +85º C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
3802TQ							
18(24/32)	2x0.75	0.6	0.8	0.2	1.1	9.7	149
17(32/32)	2x1	0.6	0.9	0.2	1.1	10.3	169
16(30/30)	2x1.5	0.8	1	0.2	1.3	12.3	236
14(50/30)	2x2.5	0.9	1.1	0.2	1.4	13.9	307
3803TQ							
18(24/32)	3x0.75	0.6	0.9	0.2	1.1	10.3	170
17(32/32)	3x1	0.6	0.9	0.2	1.2	11	196
16(30/30)	3x1.5	0.8	1.1	0.2	1.3	13.1	274
14(50/30)	3x2.5	0.9	1.2	0.2	1.5	15	366
3804TQ							
18(24/32)	4x0.75	0.6	0.9	0.2	1.2	11.1	198
17(32/32)	4x1	0.6	1	0.2	1.2	11.8	227
16(30/30)	4x1.5	0.8	1.1	0.2	1.4	14.1	319
14(50/30)	4x2.5	0.9	1.3	0.2	1.6	16.4	441
3805TQ							
18(24/32)	5x0.75	0.6	1	0.2	1.2	11.9	233
17(32/32)	5x1	0.6	1	0.2	1.3	12.7	272
16(30/30)	5x1.5	0.8	1.2	0.2	1.5	15.4	373
14(50/30)	5x2.5	0.9	1.3	0.2	1.6	17.4	502
3806TQ							
18(24/32)	6x0.75	0.6	1.1	0.2	1.3	13.1	272
16(30/30)	6x1.5	0.8	1.3	0.2	1.6	16.8	438
14(50/30)	6x2.5	0.9	1.4	0.2	1.8	19.2	593

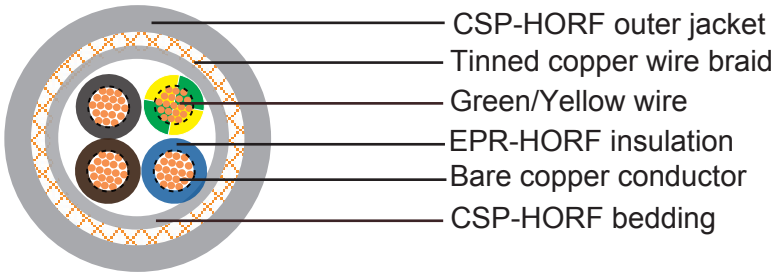
AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
3808TQ							
18(24/32)	8x0.75	0.6	1.2	0.2	1.5	15.2	350
16(30/30)	8x1.5	0.8	1.5	0.2	1.8	19.7	575
14(50/30)	8x2.5	0.9	1.7	0.3	2.1	23.4	856
38012TQ							
18(24/32)	12x0.75	0.6	1.3	0.2	1.6	16.8	449
16(30/30)	12x1.5	0.8	1.6	0.3	2	22.5	775
14(50/30)	12x2.5	0.9	1.8	0.3	2.3	26	1060
38016TQ							
18(24/32)	16x0.75	0.6	1.4	0.2	1.7	18.5	544
16(30/30)	16x1.5	0.8	1.8	0.3	2.2	25.3	1010
14(50/30)	16x2.5	0.9	2	0.3	2.5	28.9	1330
38020TQ							
18(24/32)	20x0.75	0.6	1.5	0.3	1.9	21.2	713
16(30/30)	20x1.5	0.8	2.1	0.3	2.6	30.8	1430
14(50/30)	20x2.5	0.9	2.4	0.4	3	36.3	2140
38025TQ							
18(24/32)	25x0.75	0.6	1.7	0.3	2.1	23.6	866
16(30/30)	25x1.5	0.8	2.1	0.3	2.6	30.8	1430
14(50/30)	25x2.5	0.9	2.4	0.4	3	36.3	2140
38030TQ							
18(24/32)	30x0.75	0.6	1.8	0.3	2.2	25	986
16(30/30)	30x1.5	0.8	2.2	0.4	2.8	33.2	1760
14(50/30)	30x2.5	0.9	2.6	0.4	3.2	38.7	2440

680TQ to BS 6007

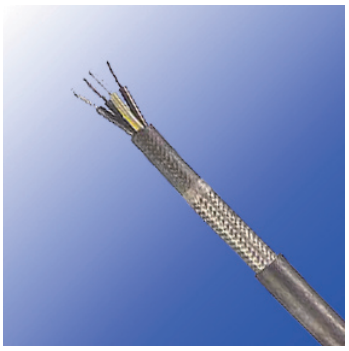
Application and Description

These cables are designed for temporary building sites as extension leads for portable or fixed equipment. The copper braid prevents earth leakage and offers mechanical protection.

Cable Construction



680TQ



680TQ

- Fine bare copper strands
- Stranding to BS 6360 CL-5 or IEC 60228 CL-5
- EPR insulation
- CSP(Chlorosulphonated Polyethylene), HOFR (Heat and Oil Resistant and Flame Retardant) bedding
- TCWB(tinned copper wire braid)
- CSP(Chlorosulphonated Polyethylene), HOFR (Heat and Oil Resistant and Flame Retardant) sheath

Core Identification

2 cores: Brown, Blue
3 cores: Green/Yellow, Brown, Blue
4 cores: Green/Yellow, Brown, Black, Grey
5 cores: Green/Yellow, Blue, Brown, Black, Grey
6 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 450/750 volts
- Minimum bending radius: 8.0xOverall diameter (below 25mm²)
  10xOverall diameter (above 25mm²)
- Temperature Range: -20° C to +85° C
- Flame retardant: IEC 60332.1
- Insulation resistance: 20 MΩxkm

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6802TQ							
12(56/28)	2x4	1	2	0.2	2.6	19.8	578
6803TQ							
12(56/28)	3x4	1	2.2	0.2	2.8	21.3	684
10(84/28)	3x6	1	2.4	0.3	3.1	24.8	955
8(80/26)	3x10	1.2	3.1	0.3	3.8	30.7	1450
6(128/26)	3x16	1.2	3.3	0.3	4	33.8	1840
4(200/26)	3x25	1.4	3.6	0.4	4.4	39.6	2620
6804TQ							
12(56/28)	4x4	1	2.3	0.3	3	23.6	874
10(84/28)	4x6	1	2.6	0.3	3.3	27.1	1147
8(80/26)	4x10	1.2	3.3	0.3	4	33.3	1730
6(128/26)	4x16	1.2	3.5	0.4	4.2	37.2	2310
4(200/26)	4x25	1.4	3.8	0.4	4.7	43.2	3170
2(280/26)	4x35	1.4	4.1	0.4	5	47.9	3990
1(400/26)	4x50	1.6	4.6	0.4	5.5	55.1	5320

657TQ to BS 6883

Application and Description

These cables are designed for use in offshore applications where mechanical protection is not required. Examples of application include fixed wiring in ships and fixed offshore drilling rigs and oil platforms.

Cable Construction

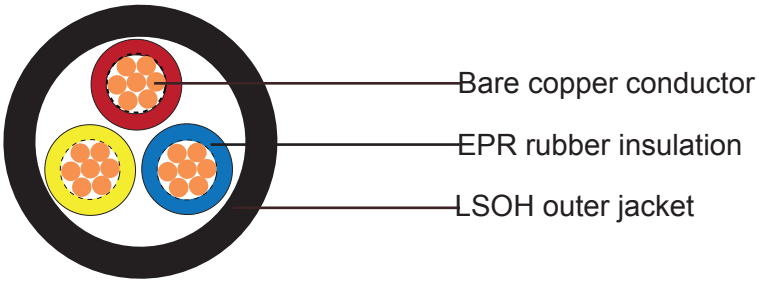
- Tinned aneal copper strands
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- EPR(Ethylene Propylene Rubber) rubber insulation to BS 7655
- LSOH(Low Smoke Zero Halogen), type SW4 to BS 7655

Core Identification

1 core: Black or red
2 core: Black, red
3 core: Red, yellow, blue
4 core: Red, yellow, blue, black
5 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 600/1000 volts
- Test voltage: 3500 volts



657TQ

- Minimum bending radius: up to 10mm² - 3xOverall diameter
  10mm²-25mm² - 4xOverall diameter
  Above 25mm² - 6xOverall diameter
- Temperature Range: -25° C to +85° C
- Oxygen Index32%, HCL 5%
- Flame retardant: IEC 60332.3

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6571TQ					
17(7/26)	1X1.0	0.8	1	5.2	41
16(7/24)	1X1.5	0.8	1	5.5	47
14(7/22)	1X2.5	0.8	1	6	55
12(7/20)	1X4	1.0	1	6.9	84
10(7/18)	1X6	1.0	1	7.5	110
8(7/16)	1X10	1.0	1.1	9	165
6(7/14)	1X16	1.0	1.1	101	235
4(7/12)	1X25	1.2	1.2	12.4	375
2(7/10)	1X35	1.2	1.2	13.3	460
1(19/13)	1X50	1.4	1.3	15.2	670
2/0(19/11)	1X70	1.4	1.4	17.2	835
3/0(19/10)	1X95	1.6	1.4	19.3	1200
4/0(37/12)	1X120	1.6	1.5	21.4	1410
300MCM(37/11)	1X150	1.8	1.6	23.5	1890
350MCM(37/10)	1X185	2	1.7	26	2360
500MCM(61/11)	1X240	2.2	1.8	29.2	3050
-(61/10)	1X300	2.4	1.9	32.3	3700
-(61/9)	1X400	2.6	2.1	36.4	4400
-(61/8)	1X500	2.8	2.2	40.2	5360
-(127/10)	1X630	2.8	2.3	44.1	6660
6572TQ					
17(7/26)	2X1.0	0.8	1	8	85
16(7/24)	2X1.5	0.8	1	8.6	115
14(7/22)	2X2.5	0.8	1.1	9.8	147
12(7/20)	2X4	1.0	1.2	12	225
10(7/18)	2X6	1.0	1.2	13.1	285
8(7/16)	2X10	1.0	1.3	16	440
6(7/14)	2X16	1.0	1.4	18.3	635
4(7/12)	2X25	1.2	1.6	22.9	1020
2(7/10)	2X35	1.2	1.6	24.7	1230
1(19/13)	2X50	1.4	1.8	28.4	1650
2/0(19/11)	2X70	1.4	1.9	32.3	2200

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
3/0(19/10)	2X95	1.6	2.1	37	2940
4/0(37/12)	2X120	1.6	2.2	40.8	3680
300MCM(37/11)	2X150	1.8	2.4	45.1	4450
350MCM(37/10)	2X185	2	2.6	50	5600
500MCM(61/11)	2X240	2.2	2.8	56.6	7260
-(61/10)	2X300	2.4	3	62.7	9020
6573TQ					
17(7/26)	3X1.0	0.8	1	8.4	95
16(7/24)	3X1.5	0.8	1.1	9.3	130
14(7/22)	3X2.5	0.8	1.1	10.4	175
12(7/20)	3X4	1.0	1.2	12.7	270
10(7/18)	3X6	1.0	1.2	13.9	355
8(7/16)	3X10	1.0	1.4	17.2	570
6(7/14)	3X16	1.0	1.4	19.5	790
4(7/12)	3X25	1.2	1.6	24.4	1290
2(7/10)	3X35	1.2	1.7	26.5	1590
1(19/13)	3X50	1.4	1.8	30.3	2150
2/0(19/11)	3X70	1.4	2	34.7	2920
3/0(19/10)	3X95	1.6	2.2	39.7	3790
4/0(37/12)	3X120	1.6	2.3	43.8	4790
300MCM(37/11)	3X150	1.8	2.5	48.4	5860
350MCM(37/10)	3X185	2	2.7	53.9	7290
500MCM(61/11)	3X240	2.2	3	61.1	9500
-(61/10)	3X300	2.4	3.2	67.6	11960
6574TQ					
17(7/26)	4X1.0	0.8	1.1	9.3	130
16(7/24)	4X1.5	0.8	1.1	10.1	160
14(7/22)	4X2.5	0.8	1.1	11.4	220
12(7/20)	4X4	1.0	1.2	13.9	345
10(7/18)	4X6	1.0	1.3	15.4	450
8(7/16)	4X10	1.0	1.4	18.9	700
6(7/14)	4X16	1.0	1.5	21.7	1020
4(7/12)	4X25	1.2	1.7	27.1	1630
2(7/10)	4X35	1.2	1.8	29.4	2058
1(19/13)	4X50	1.4	2	33.9	2700

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
2/0(19/11)	4X70	1.4	2.1	38.5	3730
3/0(19/10)	4X95	1.6	2.4	44.5	4960
4/0(37/12)	4X120	1.6	2.5	48.9	6240
300MCM(37/11)	4X150	1.8	2.7	54.1	7600
350MCM(37/10)	4X185	2	2.9	60	9510
500MCM(61/11)	4X240	2.2	3.2	68	12410
-(61/10)	4X300	2.4	3.5	75.7	15200
6575TQ					
16(7/24)	5X1.5	0.8	1.1	11	190
14(7/22)	5X2.5	0.8	1.2	12.6	280
6577TQ					
17(7/26)	7X1.5	0.8	1.2	12.2	260
16(7/24)	7X2.5	0.8	1.2	14	365
65712TQ					
17(7/26)	12X1.5	0.8	1.3	15.9	380
16(7/24)	12X2.5	0.8	1.4	18.6	589
65719TQ					
17(7/26)	19X1.5	0.8	1.4	18.8	590
16(7/24)	19X2.5	0.8	1.5	22	810
65727TQ					
17(7/26)	27X1.5	0.8	1.6	22.8	820
65737TQ					
17(7/26)	37X1.5	0.8	1.7	25.9	1120

658TQ to BS 6883

Application and Description

These cables are designed for use in offshore applications where mechanical protection is not required. Examples of application include fixed wiring in ships and fixed offshore drilling rigs and oil platforms.

Cable Construction

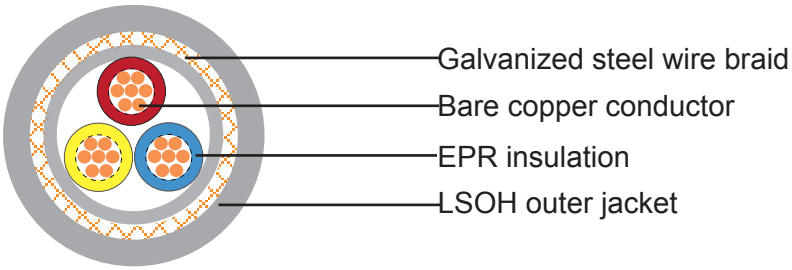
- Fine bare copper strands
- Stranding to BS 6360 CL-2 or IEC 60228 CL-2
- EPR(Ethylene Propylene Rubber) rubber insulation to BS 7655
- GSWB (Galvanized steel wire braid) armour
- LSOH(Low Smoke Zero Halogen), type SW4 to BS 7655

Core Identification

2 core: Black, red
3 core: Red, yellow, blue
4 core: Red, yellow, blue, black
5 cores and above: white insulation with black numerals

Technical Characteristics

- Working voltage: 600/1000 volts
- Test voltage: 3500 volts
- Minimum bending radius: up to 10mm² - 3xOverall diameter
  10mm²-25mm² - 4xOverall diameter
  Above 25mm² - 6xOverall diameter
- Temperature Range: -25º C to +85º C
- Oxygen Index32%, HCL 5%
- Flame retardant: IEC 60332.3



658TQ

Cable Parameter

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
6582TQ							
17(7/26)	2x1.0	0.8	1	0.3	1.2	12.1	230
16(7/24)	2x1.5	0.8	1.1	0.3	1.2	12.7	250
14(7/22)	2x2.5	0.8	1.1	0.3	1.2	13.9	305
12(7/20)	2x4	1	1.2	0.3	1.3	16.3	420
10(7/18)	2x6	1	1.2	0.3	1.4	17.6	515
8(7/16)	2x10	1.0	1.3	0.3	1.5	20.7	725
6(7/14)	2x16	1.0	1.4	0.3	1.6	23.4	975
4(7/12)	2x25	1.2	1.5	0.3	1.7	28.1	1340
2(7/10)	2x35	1.2	1.6	0.3	1.8	30.1	1540
1(19/13)	2x50	1.4	1.7	0.45	2	35.1	2140
2/0(19/11)	2x70	1.4	1.9	0.45	2.2	39.3	2820
3/0(19/10)	2x95	1.6	2.1	0.45	2.3	44.4	3690
4/0(37/12)	2x120	1.6	2.2	0.45	2.5	48.5	4380
300MCM (37/11)	2x150	1.8	2.3	0.45	2.7	53.4	5360
350MCM (37/10)	2x185	2.0	2.5	0.45	2.9	58.8	6550
500MCM (61/11)	2x240	2.2	2.8	0.45	3.2	65.8	8310
-(61/10)	2x300	2.4	3	0.45	3.4	72.7	10200
6583TQ							
17(7/26)	3x1.0	0.8	1.1	0.3	1.2	12.5	245
16(7/24)	3x1.5	0.8	1.1	0.3	1.2	13.4	280
14(7/22)	3x2.5	0.8	1.1	0.3	1.3	14.7	360
12(7/20)	3x4	1	1.2	0.3	1.3	17	475
10(7/18)	3x6	1	1.2	0.3	1.4	18.4	586
8(7/16)	3x10	1.0	1.3	0.3	1.5	22.1	860
6(7/14)	3x16	1.0	1.4	0.3	1.6	24.6	1150
4(7/12)	3x25	1.2	1.6	0.3	1.8	29.8	1640
2(7/10)	3x35	1.2	1.7	0.45	1.9	33.1	2030
1(19/13)	3x50	1.4	1.8	0.45	2.2	37.2	2640
2/0(19/11)	3x70	1.4	2	0.45	2.2	41.9	3480
3/0(19/10)	3x95	1.6	2.2	0.45	2.5	47.6	4650

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
4/0(37/12)	3x120	1.6	2.3	0.45	2.6	52	5540
300MCM (37/11)	3x150	1.8	2.5	0.45	2.8	57.9	6770
350MCM (37/10)	3x185	2.0	2.7	0.45	3	62.9	8310
500MCM (61/11)	3x240	2.2	2.9	0.45	3.3	70.6	10680
-(61/10)	3x300	2.4	3.2	0.45	3.6	77.9	13100
6584TQ							
17(7/26)	4x1.0	0.8	1.1	0.3	1.2	13.4	300
16(7/24)	4x1.5	0.8	1.1	0.3	1.2	14.2	320
14(7/22)	4x2.5	0.8	1.1	0.3	1.3	15.7	410
12(7/20)	4x4	1	1.2	0.3	1.4	18.4	570
10(7/18)	4x6	1	1.3	0.3	1.5	20.1	720
8(7/16)	4x10	1.0	1.4	0.3	1.6	24	1050
6(7/14)	4x16	1.0	1.5	0.3	1.7	26.9	1410
4(7/12)	4x25	1.2	1.7	0.45	1.9	33.6	2160
2(7/10)	4x35	1.2	1.8	0.45	2	36.1	2510
1(19/13)	4x50	1.4	1.9	0.45	2.2	41	3290
2/0(19/11)	4x70	1.4	2.1	0.45	2.4	46.1	4410
3/0(19/10)	4x95	1.6	2.3	0.45	2.6	52.6	5880
4/0(37/12)	4x120	1.6	2.5	0.45	2.8	57.4	7050
300MCM (37/11)	4x150	1.8	2.7	0.45	3	63.1	8620
350MCM (37/10)	4x185	2.0	2.9	0.45	3.5	69.6	10620
500MCM (61/11)	4x240	2.2	3.2	0.45	3.6	78.3	13580
-(61/10)	4x300	2.4	3.5	0.45	3.9	82.6	16760
6585TQ							
16(7/24)	5x1.5	0.8	1.1	0.3	1.3	15.6	370
14(7/22)	5x2.5	0.8	1.2	0.3	1.3	17.4	470
6587TQ							
16(7/24)	6x1.5	0.8	1.2	0.3	1.3	17	420
14(7/22)	6x2.5	0.8	1.2	0.3	1.4	18.5	545
65812TQ							
16(7/24)	12x1.5	0.8	1.3	0.3	1.5	21.7	685
14(7/22)	12x2.5	0.8	1.4	0.3	1.6	24	919

AWG (No of Strands/ Strand Diameter)	No. of Cores x Nominal Cross Sectional Area #xmm²	Nominal Thickness of Insulation mm	Nominal Thickness of Bedding mm	Diameter of Braid Wire mm	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
65819TQ							
16(7/24)	19x1.5	0.8	1.4	0.3	1.6	23.9	871
14(7/22)	19x2.5	0.8	1.5	0.3	1.7	26.9	1190
65827TQ							
16(7/24)	27x1.5	0.8	1.6	0.3	1.8	28.3	1210
65837TQ							
14(7/22)	37x2.5	0.8	1.7	0.45	1.9	32.6	1760

Reference Notes

Fire Performance Standard

IEC Standard for Flame Retardancy

Standard for Fire Resistance

Standard for Halogen & Smoke Emission,
Corrosivity & Toxicity

Fire Performance Standard

At present, in cable industry, Fire Retardant, Low Smoke Halogen Free (LSZH), Low Smoke Fume (LSF) and Fire Resistant cables are all described as Fire survival Cables.

Flame Retardant

Fire retardant cables are designed for use in fire situations where the spread of flames along a cable route needs to be retarded. Due to relative low cost, fire retardant cables are widely used as fire survival cables. No matter the cables are installed in single wire or in bundles, during a fire, the flame spread will be retarded and the fire will be confined to a small area, thus reducing the fire hazard due to fire propagation.

Low Smoke & Halogen Free & Fire retardant (LSZH)

LSZH cables are not only characterized by the fire retardant performance but also by the halogen free properties, thus offering low corrosivity and toxicity. During a fire, the LSZH cables will emit less smoke and acid gases which may damage the human being and expensive equipment. Compared with normal PVC cables, LSZH cables outperform by their fire retardancy, low corrosivity and low smoke emission properties, however, normal PVC cables have better mechanical and electrical properties.

Low Smoke Fume (LSF)

The low halogen content and low corrosivity of low smoke fume cables lies somewhat in between their of fire retardant cables and LSZH cables. LSF cables also contain halogen but the content is much less than that of PVC cables. LSF cables are designed to reduce the spread of fire, toxic gases and smoke during fire. The LSF cables are usually manufactured from flame retardant PVC blended with HCL additive and smoke absorbent. These materials help improve the fire performance of the LSF cables.

Fire Resistant (FR)

Fire resistant cables are designed to maintain circuit integrity of those vital emergency services during the fire. 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. The fire resistant cables exhibit same performance even under fire with water spray or mechanical shock situation.

Fire Performance CL-

The main concerns for the cables in their fire survival properties are their flame spread, smoke characterization and gas toxicity. In American fire standard, the concern lies more on the first two and it differs from the European standard which concerns all these aspects. In USA, it is believed that the fire hazard is mainly due to CO toxic gas emitted and the heat release during the conversion of CO to CO2 during the fire. Therefore, to control the heat release is the most important concern for reducing the fire hazard. However, in European countries, halogen content, the corrosivity of the gases, the smoke density and the toxicity of the gas are equally important factors affecting the safety and survival of human during a fire.

IEC Standard for Flame Retardancy

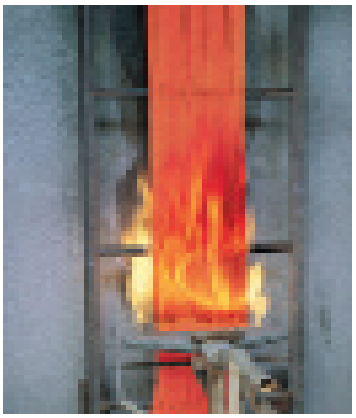
The European Electrical Committee categorizes the fire performance of the cables into three classes, namely IEC 60332-1, IEC 60332-2, IEC 60332-3. IEC 60332-1 and IEC 60332-2 are used to assess the flame propagation characteristics of a single wire. IEC 60332-3 is used to assess the flame propagation characteristics of bundled cables. Comparatively speaking, IEC 60332-3 for bundled cables is more demanding than IEC 60332-1 for single wires.

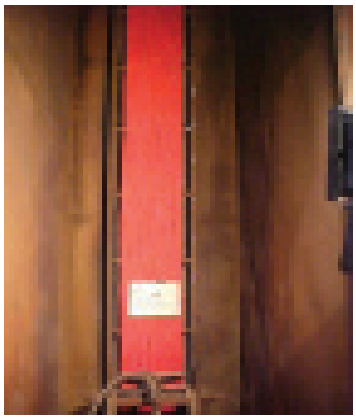
IEC 60332-1/BS 4066-1/EN 50265 (Flame Test On Single Vertical Insulated Wires/Cables)

This test details a method of test for the assessment of the flame propagation characteristics of a single wire or cable. In this test, a 60cm cable sample is fixed vertically inside a metallic boxand a 175mm long flame is applied at 45mm from a gas burner placed at 450mm from the top at the upper portion. The specimen is deemed to have passed this test, if after burning has ceased, the charred or affected position does not reach within 50mm of the lower edge of the top clamp which is equivalent to 425mm above the point of flame application. The test method is not suitable for the testing of some small wires due to the melting of the conductors during the timeof application of the flame.

IEC 60332-3/BS 4066-3/EN 50266(Flame Test On Bunched Wires/Cables)

IEC60332-3C describes a method of type approval testing to define the ability of bunched cables to resist fire propagation. In this test, a cable specimen, consisting of number of 3.5m length of cables are fixed to a vertical ladder tray where they are applied with a flame from a gas burner for a specified times under controlled air flow. Four categories (A, B, C & D) are defined and distinguished by test duration and the volume of non metallic material of the sample under test. The cable specimen is deemed to have met the requirements of the standard 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.



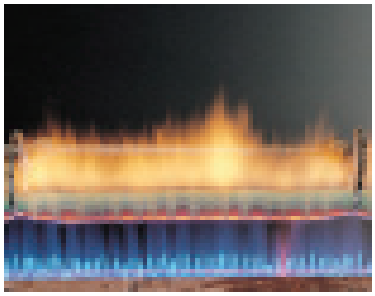


Standard for Fire Resistance

Fire resistant cables are designed for maintaining circuit integrity during a fire. The IEC and the BS adopted two different standards, namely the IEC 60331 and BS 6387.Comparatively speaking, the fire performance requirement for BS 6387 is more demanding.

IEC 60331 Fire Resistance Test

A cable sample is placed over a gas burner and connected to an electrical supply at its rated voltage. Fire is applied for a period of 3 hours. The temperature on the cable is between 750°C and 800°C. After 3 hours, the fire and the power is switched off. 12 hours later, the cable sample is reenergized and must maintain its circuit integrity.



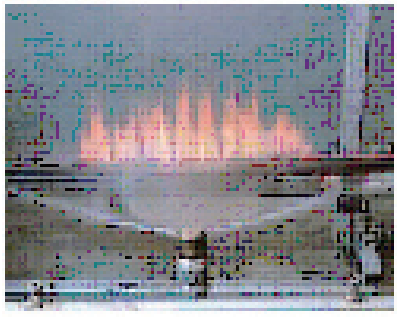
BS6387 Fire Resistance Test

BS6387 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 rate 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), and 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 surpassed 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 an S bend and is exposed to flames while the backing panel is stuck with a steel bar with the same diameter as the cables under test every 30 seconds for 15 minutes. The cables will be tested under the following temperatures: X (650°C/15min), Y(750°C/15min) and Z (950°C/15min). The highest standard for BS 6387 is CWZ.



Standard for Halogen & Smoke Emission, Corrosivity & Toxicity

IEC 60754-1/BS6425-1(Emission Of Halogens)

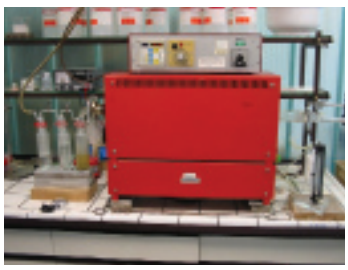
This specifies a test for determination of the amount of halogen acid gas other than the hydrofluoric acid evolved during combustion of compound based on halogenated polymers and compounds containing halogenated additives taken from cable constructions. Halogen includes Florine, Chlorine, Bromine, Iodine and Astatine. All these elements are toxic by their nature. In this test, when the burner is heated to 800℃,1g sample is placed inside and the HCL is absorbed into water inside the chamber fed with air flow. The water is then tested with its acidity. If the hydrochloric acid yield is less than 5 mg/g, the cable specimen is categorized as LSZH. If the hydrochloric acid yield lies between 5mg/g to 15mg/g, the cable specimen is categorized as LSF. IEC60754-1 cannot be used for measuring the exact HCL yield if the yield is less than 5mg/g. This test cannot determine if the cable is 100% halogen free or not. To determine if the cable specimen is 100% halogen free or not, IEC60754-2 has to be employed.

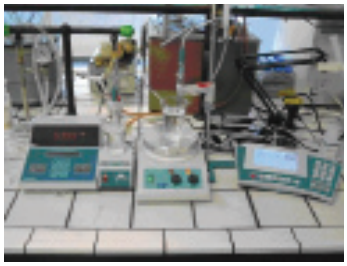
IEC 60754-2(Corrosivity)

This test specifies a method for the determination of degree of acidity of gases evolved during combustion of the cable specimen by measuring its pH and conductivity. The specimen is deemed to pass this test if the pH value is not less than 4.3 when related to 1 litre of water and conductivity is less than 10us/min. When the HCL yield lies between 2mg/g and 5mg/g, a cable specimen can pass IEC 60754-1 but its pH value will likely be less than 4.3 and therefore cannot pass the IEC 60754-2 test.

IEC 61034-1/ASTM E662 (Emission of Smoke)

This specifies a test for determination of smoke density. 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 transmissions. A 1 metre cable sample is placed in the centre of the enclosure and is applied with a fire. The minimum light transmission is recorded. The result is expressed as percentage of light transmitted. The specimen is deemed to pass this test (IEC61034-1 & 2) if the value is greater than 60% .The higher the light transmittance, the less smoke emitted during a fire.





ISO4589-2/BS2863 (Oxygen Index LOI)

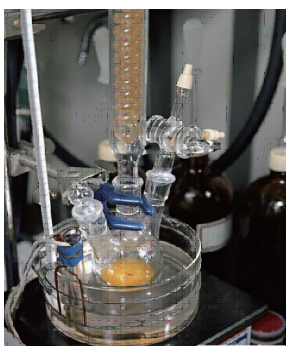
This is a test for assessing the oxygen index of the material in accordance with the test method specified in ASTM D2863-95(Measuring the minimum oxygen concentration to support candle-like combustion of plastics). At room temperature when the oxygen content in the air exceeds the oxygen index, the material will burn by itself automatically. The higher the oxygen index, the more retardant the cable will be. For example, if the oxygen index of a material is 21%, it means that the material will burn by itself even at room temperature because at room temperature the normal oxygen content is 21%. In general, the oxygen index of a LSZH cables ranges from 33% to 42%.

ISO4589-3/BS2782.1 (Temperature Index TI)

This is a test for assessing the performance of a material when it is tested in accordance with BS2782 Part 1 Method 143A and 143B. The oxygen index of a material will drop when the temperature rises. When the temperature rises and the oxygen index drops to 21%, the material will burn automatically. This temperature is defined as temperature index. For example, the temperature index of coal is 50%. When the temperature climbs to 150℃, its oxygen index drop to 21% and the coal will burn by itself automatically. The temperature index of the coal will then be defined as 150℃. In general, the temperature index of LSZH cables ranges from 250℃ to 300℃.

ES713 (Toxicity Index)

This is a test defined by Naval Engineering Standard which is a directed at the analysis of a specified set of gaseous species which are commonly present in the combustion products of materials used in military application and which may cause lethality at the time of a fire. In this test a 1g cable specimen is completely burnt inside a sealed chambers of volume 0.7-1m3 using a burner fed with air and gas to give a non-luminous flame. The resulting chamber atmosphere is quantitatively analysed for a specified set of gases. For each gas, the measured concentration (Ci) is scaled up for 100g and the concentration is recalculated as though the combustion products is diffused into a volume of exactly 1m3. The resulting concentration (C8) is expressed as the ratio of critical factor (Cf) which is equal to the concentration of this gas considered fatal to human for 30 minutes exposure. The ratio C8/Cf are summed for all gases detected to give the toxicity index .The higher the toxicity index, the more toxic the cable materials are. In general, the toxicity index of LSZH materials are less than 5. LSZH cable will also emit toxic CO and if the cable materials contains P, N and S, the toxic gases generated will even be greater. Thus LSZH cables cannot be categorized as toxic free. CM, CMR and CMP cables in general contains halogen elements which are essential for passing the strict fire retardancy testing. For example, CMP cables are made from FEP which contains Flourine and are much toxic than normal LSZH cables.



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