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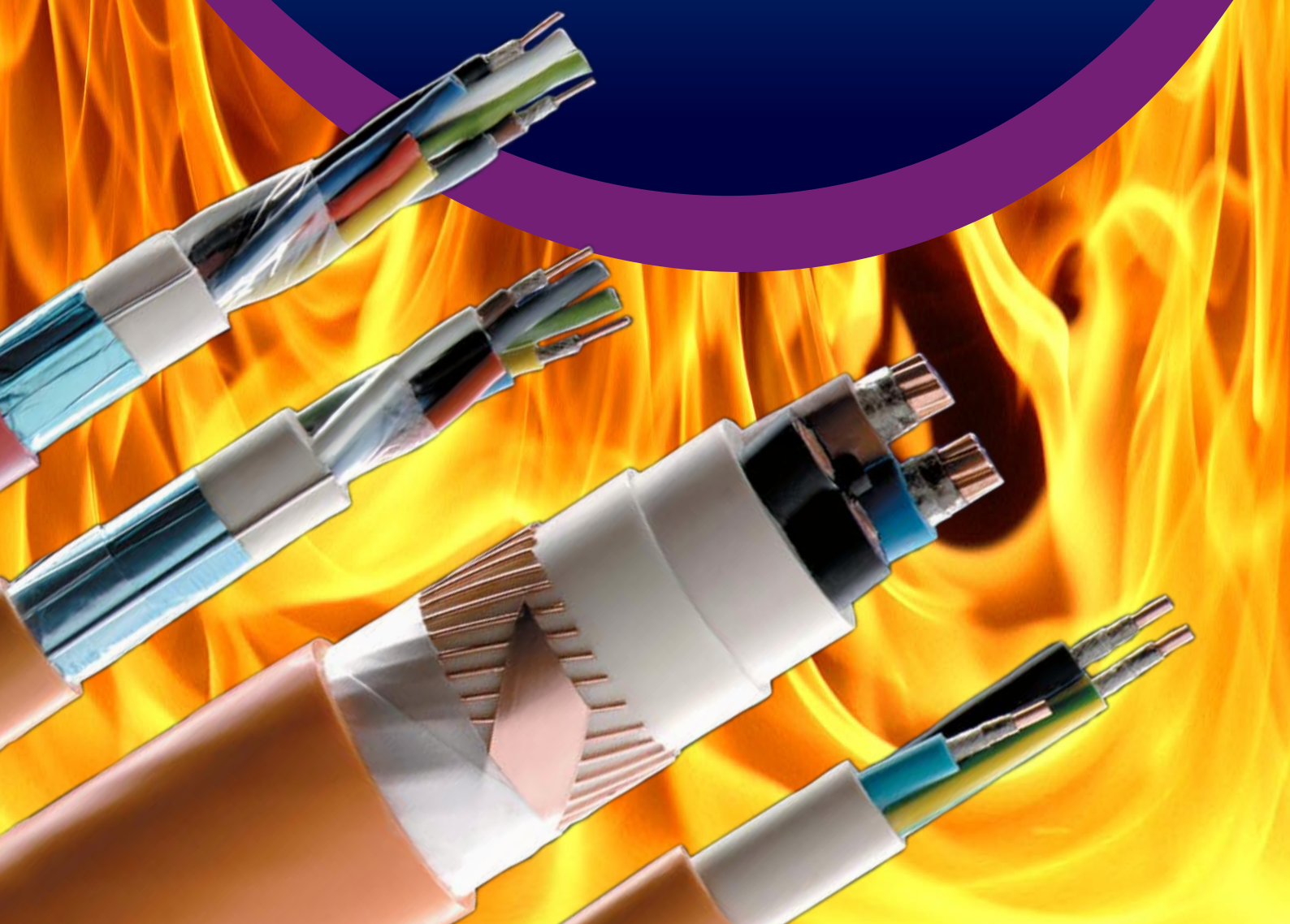
FIREGUARD
Flame Retardant Cables



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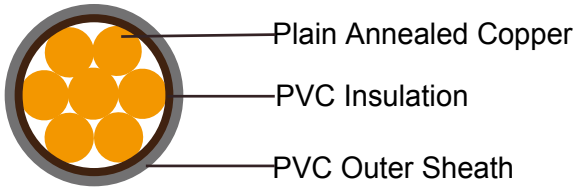
300/500V PVC Insulated, PVC Sheathed Power Cables (Single Core)

FGD300 05VV-U/R (CU/PVC/PVC 300/500V Class 1/2)
BS Code: 6181Y (CU/PVC/PVC)





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS 6004: 2012

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300/500V

CABLE CONSTRUCTION

Conductor: Annealed copper conductor, class 1 (1.0mm² to 2.5mm²) or class 2 (4mm² to 35mm²) according to BS EN 60228.
Insulation: PVC Type TI 1 according to BS EN 50363-3.
Outer Sheath: PVC Type 6 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or blue.
Sheath Colour: Grey (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius:
Up to 10mm² - Fixed: 3 x overall diameter
10mm² to 25mm² - Fixed: 4 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 05VV-U/R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²		mm	mm	mm	kg/km
1x1.0	1	0.6	0.8	4.5	27
1x1.5	1	0.7	0.8	5.0	36
1x2.5	1	0.8	0.8	5.7	52
1x4.0	2	0.8	0.9	6.7	76
1x6.0	2	0.8	0.9	7.3	100
1x10	2	1.0	0.9	8.8	160
1x16	2	1.0	1.0	10.1	230
1x25	2	1.2	1.1	12.1	340
1x35	2	1.2	1.1	13.5	440

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4D1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm²	A	A	A	A	A	A	A	A	A	A	A
1.0	11.0	10.5	13.5	12.0	15.5	14	-	-	-	-	-
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	20	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	131	114	110	146	130
35	99	89	125	110	141	129	162	143	137	181	162

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4D1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.													
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C & F(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C & F (clipped direct, on trays or in free air)							
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat	
1	2	3			Cables touching 4			Cables spaced*5			6			7			8			9	
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m	
1.0	44	44			44			44			38			38			38			38	
1.5	29	29			29			29			25			25			25			25	
2.5	18	18			18			18			15			15			15			15	
4	11	11			11			11			9.5			9.5			9,5			9.5	
6	7.3	7.3			7.3			7.3			6.4			6.4			6.4			6.4	
10	4.4	4.4			4.4			4.4			3.8			3.8			3.8			3.8	
16	2.8	2.8			2.8			2.8			2.4			2.4			2.4			2.4	
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15

Note: *Spacings larger than one cable diameter will result in a large voltage drop.

r = conductor resistance at operating temperature

x = reactance

z = impedance



Rated Voltage



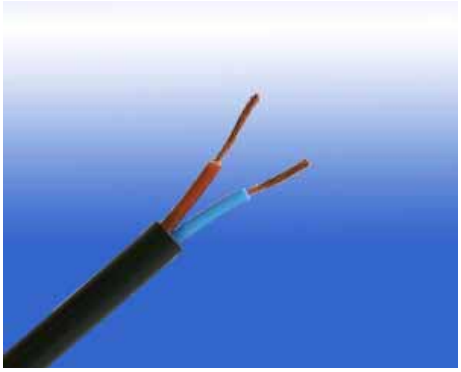
Standard

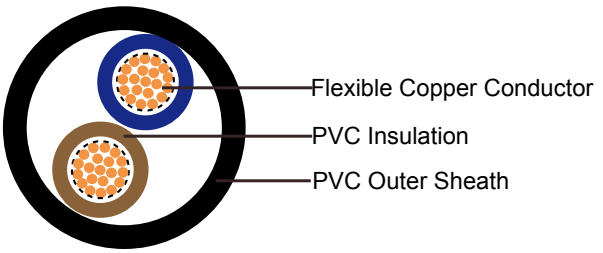


Flame Retardancy
BS EN 60332-1-2

300/500V PVC Insulated, PVC Sheathed Power Cables (2-5 Cores)

FGD200 05VV-F (CU/PVC/PVC 300/500V Class 5)
BS Code: 3182Y/3183Y/3184Y/3185Y
HAR Code: H05VV-F





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS EN 50525-2-11(formerly BS 6500)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2

VOLTAGE RATING

300/500V

CABLE CONSTRUCTION

Conductor: Flexible copper wire according to EN 60228 class 5.
Insulation: PVC Type TI 2 according to EN 50363-3.
Filling: For circular cable having two cores, the space between the cores shall be filled either by separate fillers or by the sheath filling the interstices. For circular cables with three, four or five cores, a centre filler may be used.
Outer Sheath: PVC Type TM 2 according to EN 50363-4-1. A tape may be applied around the core assembly before application of the sheath.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour
Cables and cords with a green-and-yellow cores

No. of cores	Colour of cores[b]				
	Protective	Live			
3 Cores	Yellow/Green	Blue	Brown		
4 Cores	Yellow/Green	-	Brown	Black	Grey
4 Cores[a]	Yellow/Green	Blue	Brown	Black	
5 Cores	Yellow/Green	Blue	Brown	Black	Grey

[a] For certain applications only.
[b] In this table an uninsulated concentric conductor, such as a metallic sheath, armour or screen wire, is not regarded as a core. A concentric conductor is identified by its position and, therefore, need not be identified by colour.

Cables and cords without a green-and-yellow cores

No. of cores	Colour of cores[b]				
2 Cores	Blue	Brown			
3 Cores	-	Brown	Black	Grey	
3 Cores[a]	Blue	Brown	Black		
4 Cores	Blue	Brown	Black	Grey	
5 Cores	Blue	Brown	Black	Grey	Black

[a] For certain applications only.
[b] In this table an uninsulated concentric conductor, such as a metallic sheath, armour or screen wire, is not regarded as a core. A concentric conductor is identified by its position and, therefore, need not be identified by colour.

Sheath Colour: Black (other colours can be offered upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 150°C
Minimum bending radius:
Up to 12mm²: 3 x overall diameter
Above 12mm²: 4 x overall diameter

CONSTRUCTION PARAMETERS

No. of Core X Cross Section	FGD200 05VV-F			
	Nominal Insulation Thickness	Nominal Sheath Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²	mm	mm	mm	kg/km
2x0.75	0.6	0.8	7.2	57
2x1.0	0.6	0.8	7.5	65
2x1.5	0.7	0.8	8.6	87
2x2.5	0.8	1.0	10.6	134
2x4	0.8	1.1	12.1	174
3x0.75	0.6	0.8	7.6	68
3x1.0	0.6	0.8	8.0	79
3x1.5	0.7	0.9	9.4	111
3x2.5	0.8	1.1	11.4	169

No. of Core X Cross Section	FGD200 05VV-F			
	Nominal Insulation Thickness	Nominal Sheath Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm^2	mm	mm	mm	kg/km
3x4	0.8	1.2	13.1	233
4x0.75	0.6	0.8	8.3	84
4x1.0	0.6	0.9	9.0	101
4x1.5	0.7	1.0	10.5	142
4x2.5	0.8	1.1	12.5	211
4x4	0.8	1.2	14.3	292
5x0.75	0.6	0.9	9.3	106
5x1.0	0.6	0.9	9.8	123
5x1.5	0.7	1.1	11.6	176
5x2.5	0.8	1.2	13.9	262
5x4	0.8	1.4	16.1	369

ELECTRICAL PROPERTIES

Current-Carrying Capacities (Amp) according to BS7671:2008 table 4F3A

Conductor cross-sectional area	Single-phase a.c.	Three-phase a.c.
mm^2	A	A
0.75	6	6
1.0	10	10
1.5	16	16
2.5	25	20
4	32	25

Voltage Drop (Per Amp Per Meter) according to BS7671:2008 table 4F3B

Conductor cross-sectional area	d.c. or single-phase a.c.	Three-phase a.c.
mm^2	mV/A/m	mV/A/m
0.75	62	54
1.0	46	40
1.5	32	27
2.5	19	16
4	12	10



Rated Voltage

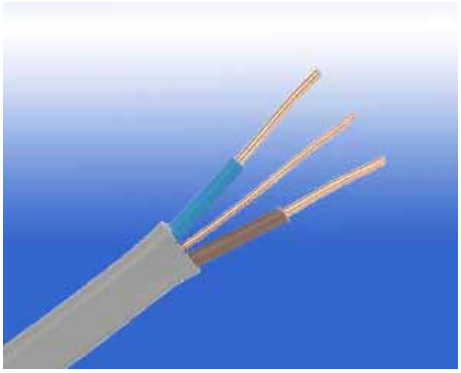


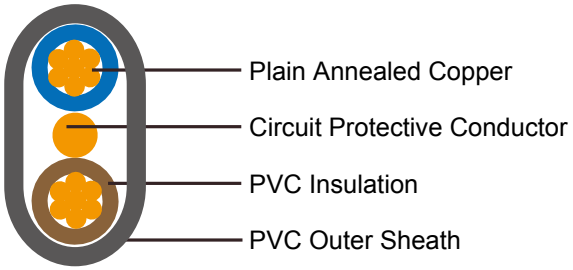
Standard


Flame Retardancy
EN 60332-1-2

300/500V PVC Insulated, PVC Sheathed, Twin & Earth Cables (2-3 Cores)

FGD200 05VV-U/R (CU/PVC/PVC 300/500V Class 1/2)
BS Code:6242Y/6243Y





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS 6004:2012

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300/500V

CABLE CONSTRUCTION

Conductor: Annealed copper conductor, class 1 (1.0mm² to 2.5mm²) or class 2 (4mm² to 35mm²) according to BS EN 60228.
Insulation: PVC Type TI 1 according to BS EN 50363-3.
Circuit Protective Conductor (CPC): Annealed plain copper (class 1 or 2)
Position of CPC: Centrally placed between cores in same plane (twin); centrally placed between black and grey cores in same plane(3-core).
Outer Sheath: PVC Type 6 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Twin: brown and blue, alternatively, for 2 x 1.0 and 2 x 1.5 cables, brown and brown;
3-core: brown, black (centre core), and grey
Sheath Colour: Grey. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius: 6 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD200 05VV-U/R					
No. of Cores X Cross Section	Class of Conductor	Nominal Insulation Thickness	Cross-Section Area of CPC	Class of CPC	Nominal Sheath Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm^2		mm	mm^2		mm	mm	kg/km
2x1.0	1	0.6	1.0	1	0.9	4.8x8.7	68
2x1.5	1	0.7	1.0	1	0.9	5.3x9.7	85
2x2.5	1	0.8	1.5	1	1.0	6.2x11.7	120
2x4.0	2	0.8	1.5	1	1.0	6.9x13.1	175
2x6.0	2	0.8	2.5	1	1.1	7.8x15.0	240
2x10.0	2	1.0	4	2	1.2	9.5x18.9	390
2x16.0	2	1.0	6	2	1.3	10.8x21.9	560
3x1.0	1	0.6	1.0	1	0.9	4.8x11.4	91
3x1.5	1	0.7	1.0	1	0.9	5.3x12.9	115
3x2.5	1	0.8	1.5	1	1.0	6.2x15.3	170
3x4.0	2	0.8	1.5	1	1.1	7.1x17.9	250
3x6.0	2	0.8	2.5	1	1.1	7.8x20.2	340
3x10.0	2	1.0	4	2	1.2	9.5x25.7	540
3x16.0	2	1.0	6	2	1.3	10.8x29.7	790

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) and Voltage Drop (Per Amp Per Meter) according to BS7671:2008 table 4D5

Conductor cross-sectional area	Reference Method 100# (above a plasterboard ceiling covered by thermal insulation not exceeding 100 mm in thickness)	Reference Method 101# (above a plasterboard ceiling covered by thermal insulation exceeding 100 mm in thickness)	Reference Method 102# (in a stud wall with thermal insulation with cable touching the inner wall surface)	Reference Method 103# (in a stud wall with thermal insulation with cable not touching the inner wall surface)	Reference Method C* (clipped direct)	Reference Method A* (enclosed in conduit in an insulated wall)	Voltage Drop (per ampere per meter)
1	2	3	4	5	6	7	8
mm^2	A	A	A	A	A	A	mV/A/m
1.0	13	10.5	13	8	16	11.5	44
1.5	16	13	16	10	20	14.5	29
2.5	21	17	21	13.5	27	20	18
4	27	22	27	17.5	37	26	11
6	34	27	35	23.5	47	32	7.3
10	45	36	47	32	64	44	4.4
16	57	46	63	42.5	85	57	2.8

A* For full installation method refer to Table 4A2 (BS 7671-2008) Installation Method 2 but for flat twin and earth cable
C* For full installation method refer to Table 4A2 (BS 7671-2008) Installation Method 20 but for flat twin and earth cable
100# For full installation method refer to Table 4A2 (BS 7671-2008) Installation Method 100
102# For full installation method refer to Table 4A2 (BS 7671-2008) Installation Method 102
103# For full installation method refer to Table 4A2 (BS 7671-2008) Installation Method 103
Wherever practicable, a cable is to be fixed in a position such that it will not be covered with thermal insulation. Regulation 523.7, BS 5803-5 Appendix C: Avoidance of overheating of electric cables, Building Regulations Approved document B and Thermal insulation: avoiding risks, BR 262, BRE, 2001 refer.



Rated Voltage



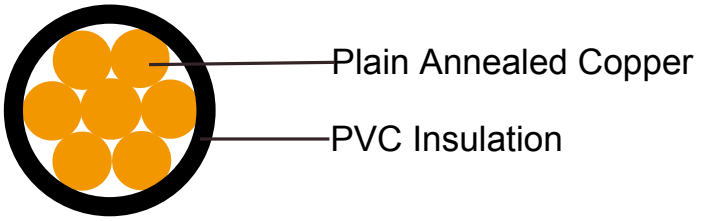
Standard


Flame Retardancy
BS EN 60332-1-2

300/500V PVC Insulated, Non-sheathed Power Cables (Single Core)

FGD100 05V-U/R/K (CU/PVC 300/500V Class 1/2/5)
BS Code: 2491X
HAR Code: H05V-U, H05V-R, H05V-K





APPLICATION

This cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS EN 50525-2-31(formerly BS 6004:2000)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2

VOLTAGE RATING

300/500V

CABLE CONSTRUCTION

Conductor:
H05V-U: Class 1 solid copper conductor to BS EN 60228.
H05V-R: Class 2 stranded copper conductor to BS EN 60228.
H05V-K: Class 5 stranded copper conductor to BS EN 60228.
Insulation: PVC Type TI 1 according to BS EN 50363-3.

COLOUR CODE

Black, Blue, Brown, Grey, Orange, Pink, Red, Turquoise, Violet, White, Green and Yellow. Bi-colours of any combination of the above mono-colours are permitted.

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius:

Up to 8mm²: 4 x overall diameter
8mm² to 12mm²: 5 x overall diameter
Above 12mm²: 6 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD100 05V-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²		mm	mm	kg/km
1x0.5	1	0.6	2.3	8
1x0.75	1	0.6	2.5	11
1x1	1	0.6	2.7	14
1x0.5	2	0.6	2.4	9
1x0.75	2	0.6	2.6	12
1x1	2	0.6	2.8	14
1x0.5	5	0.6	2.5	8
1x0.75	5	0.6	2.7	11
1x1	5	0.6	2.8	13

ELECTRICAL PROPERTIES

Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4D1A

Conductor cross-sectional area	PVC insulated types (HD 21)	
	single-phase a.c.	three-phase a.c.
mm²	A	A
0.5	3	3
0.75	6	6
1.0	10	10

Note: These values apply to the majority of cases. Further information should be sought in unusual cases eg.:
(i) When high ambient temperatures are involved, ie. above 30°C
(ii) Where long lengths are used
(iii) Where ventilation is restricted
(iv) Where the cords are used for other purposes, ego internal wiring of apparatus.

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4D1B

Conductor cross-sectional area	d.c. or single-phase a.c.	Three-phase a.c.
mm²	mV/A/m	mV/A/m
0.5	93	80
0.75	62	54
1.0	46	40

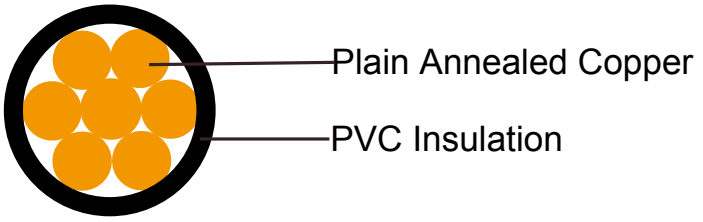


Rated Voltage | Standard | Flame Retardancy EN 60332-1-2

300/500V PVC Insulated, Non-sheathed Power Cables (Single Core 90°C)

FGD100 05V2-U/R/K (CU/PVC 300/500V Class 1/2/5)
BS Code: 2491XHR
HAR Code: H05V2-U, H05V2-R, H05V2-K





APPLICATION

This cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS EN 50525-2-31(formerly BS 6004:2000)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2

VOLTAGE RATING

300/500V

CABLE CONSTRUCTION

Conductor:
H05V2-U: Class 1 solid copper conductor to BS EN 60228.
H05V2-R: Class 2 stranded copper conductor to BS EN 60228.
H05V2-K: Class 5 stranded copper conductor to BS EN 60228.
Insulation: PVC Type TI 3 according to BS EN 50363-3.

COLOUR CODE

Black, Blue, Brown, Grey, Orange, Pink, Red, Turquoise, Violet, White, Green and Yellow. Bi-colours of any combination of the above mono-colours are permitted.

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 90°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius:
Up to 8mm²: 4 x overall diameter
8mm² to 12mm²: 5 x overall diameter
Above 12mm²: 6 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD100 05V2-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²		mm	mm	kg/km
1x0.5	1	0.6	2.3	8
1x0.75	1	0.6	2.5	11
1x1	1	0.6	2.7	14
1x0.5	2	0.6	2.4	9
1x0.75	2	0.6	2.6	12
1x1	2	0.6	2.8	14
1x0.5	5	0.6	2.5	8
1x0.75	5	0.6	2.7	11
1x1	5	0.6	2.8	13

ELECTRICAL PROPERTIES

Current-Carrying Capacities (Amp) according to HD516 Table 7 (a)

Conductor cross-sectional area	PVC insulated types (HD 21)	
	single-phase a.c.	three-phase a.c.
mm²	A	A
0.5	3	3
0.75	6	6
1.0	10	10

Note: These values apply to the majority of cases. Further information should be sought in unusual cases eg.:
(i) When high ambient temperatures are involved, ie. above 30°C
(ii) Where long lengths are used
(iii) Where ventilation is restricted
(iv) Where the cords are used for other purposes, ego internal wiring of apparatus.

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.			3 or 4 cables, three-phase a.c.			
		Ref. Methods A and B (enclosed in conduit or trunking)	Ref. Methods C, F & G (clipped direct, on trays or in free air)		Ref. Methods A & B (enclosed in conduit or trunking	Ref. Methods C, F & G (clipped direct, on trays or in free air)		
						Cables touching, Trefoil	Cables touching, Flat	Cables spaced*, Flat
1	2	3	Cables touching 4	Cables spaced* 5	6	7	8	9
mm^2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
0.5	93	93	93	93	80	80	80	80
0.75	62	62	62	62	54	54	54	54
1.0	46	46	46	46	40	40	40	40



Rated Voltage



Standard

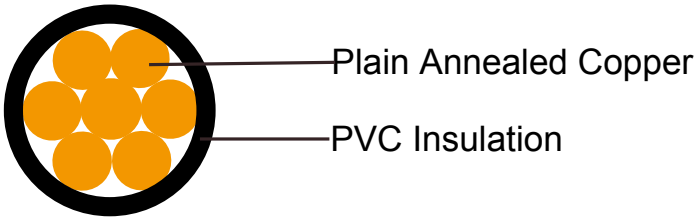


Flame Retardancy
EN 60332-1-2

450/750V PVC Insulated, Non-sheathed Power Cables (Single Core)

FGD100 07V-U/R/K (CU/PVC 450/750V Class 1/2/5)
BS Code: 6491X
HAR Code: H07V-U, H07V-R, H07V-K





APPLICATION

This cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS EN 50525-2-31(formerly BS 6004:2000)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2

VOLTAGE RATING

450/750V

CABLE CONSTRUCTION

Conductor:
H07V-U: Class 1 solid copper conductor to BS EN 60228.
H07V-R: Class 2 stranded copper conductor to BS EN 60228.
H07V-K: Class 5 stranded copper conductor to BS EN 60228.
Insulation: PVC Type TI 1 according to BS EN 50363-3.

COLOUR CODE

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

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C

Minimum bending radius:
Up to 8mm²: 4 x overall diameter
8mm² to 12mm²: 5 x overall diameter
Above 12mm²: 6 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD100 07V-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²		mm	mm	kg/km
1x1.5	1	0.7	3.2	21
1x2.5	1	0.8	3.9	33
1x4	1	0.8	4.4	49
1x6	1	0.8	5.0	69
1x10	1	1.0	6.4	115
1x1.5	2	0.7	3.3	23
1x2.5	2	0.8	4.0	35
1x4	2	0.8	4.6	51
1x6	2	0.8	5.2	71
1x10	2	1.0	6.7	120
1x16	2	1.0	7.8	170
1x25	2	1.2	9.7	260
1x35	2	1.2	10.9	350
1x50	2	1.4	12.8	480
1x70	2	1.4	14.6	680
1x95	2	1.6	17.1	930
1x120	2	1.6	18.8	1160
1x150	2	1.8	20.9	1430
1x185	2	2.0	23.3	1780
1x240	2	2.2	26.6	2360
1x300	2	2.4	29.6	2940
1x400	2	2.6	33.2	3740
1x500	2	2.8	36.9	4950
1x630	2	2.8	41.1	6300
1x800	2	2.8	45.7	8610
1x1000	2	3.0	51.0	10820
1x1.5	5	0.7	3.4	20
1x2.5	5	0.8	4.1	31
1x4	5	0.8	4.8	48

Conductor		FGD100 07V-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm^2		mm	mm	kg/km
1x6	5	0.8	5.3	69
1x10	5	1.0	6.8	121
1x16	5	1.0	8.1	211
1x25	5	1.2	10.2	303
1x35	5	1.2	11.7	417
1x50	5	1.4	13.9	539
1x70	5	1.4	16.0	730
1x95	5	1.6	18.2	900
1x120	5	1.6	20.2	1135
1x150	5	1.8	22.5	1410
1x185	5	2.0	24.9	1845
1x240	5	2.2	28.4	2270

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4D1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three -phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	20	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	131	114	110	146	130
35	99	89	125	110	141	129	162	143	137	181	162
50	119	108	151	134	182	167	196	174	167	219	197
70	151	136	192	171	234	214	251	225	216	281	254
95	182	164	232	207	284	261	304	275	264	341	311
120	210	188	269	239	330	303	352	321	308	396	362
150	240	216	300	262	381	349	406	372	356	456	419
185	273	245	341	296	436	400	463	427	409	521	480
240	321	286	400	346	515	472	546	507	485	615	569
300	367	328	458	394	594	545	629	587	561	709	659
400	-	-	546	467	694	634	754	689	656	852	795
500	-	-	626	533	792	723	868	789	749	982	920
630	-	-	720	611	904	826	1005	905	855	1138	1070
800	-	-	-	-	1030	943	1086	1020	971	1265	1188
1000	-	-	-	-	1154	1058	1216	1149	1079	1420	1337

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4D1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.			3 or 4 cables, three-phase a.c.			
		Ref. Methods A and B (enclosed in conduit or trunking)	Ref. Methods C & F(clipped direct, on trays or in free air)		Ref. Methods A & B (enclosed in conduit or trunking	Ref. Methods C & F (clipped direct, on trays or in free air)		
			Cables touching	Cables spaced*		Cables touching, Trefoil	Cables touching, Flat	Cables spaced*, Flat
1	2	3	4	5	6	7	8	9
mm^2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1.5	29	29	29	29	25	25	25	25
2.5	18	18	18	18	15	15	15	15
4	11	11	11	11	9.5	9.5	9,5	9.5

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.												
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C & F(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C & F (clipped direct, on trays or in free air)								
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			Cables touching 4			Cables spaced* 5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
6	7.3	7.3			7.3			7.3			6.4			6.4			6.4			6.4		
10	4.4	4.4			4.4			4.4			3.8			3.8			3.8			3.8		
16	2.8	2.8			2.8			2.8			2.4			2.4			2.4			2.4		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
50	0.93	0.95	0.3	1.0	0.93	0.19	0.95	0.93	0.28	0.97	0.81	0.26	0.85	0.8	0.165	0.82	0.8	0.24	0.84	0.8	0.32	0.86
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69	0.56	0.25	0.61	0.55	0.16	0.57	0.55	0.24	0.6	0.55	0.31	0.63
95	0.46	0.49	0.28	0.56	0.47	0.18	0.5	0.47	0.27	0.54	0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.4	0.31	0.51
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45	0.33	0.23	0.41	0.32	0.15	0.36	0.32	0.23	0.4	0.32	0.3	0.44
150	0.29	0.31	0.27	0.41	0.3	0.175	0.34	0.29	0.26	0.39	0.27	0.23	0.36	0.26	0.15	0.3	0.26	0.23	0.34	0.26	0.3	0.4
185	0.23	0.25	0.27	0.37	0.24	0.17	0.29	0.24	0.26	0.35	0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.3	0.36
240	0.18	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31	0.17	0.23	0.29	0.16	0.145	0.22	0.16	0.22	0.27	0.16	0.29	0.34
300	0.145	0.16	0.26	0.31	0.15	0.165	0.22	0.15	0.25	0.29	0.14	0.23	0.27	0.13	0.14	0.19	0.13	0.22	0.25	0.13	0.29	0.32
400	0.105	0.13	0.26	0.29	0.12	0.16	0.2	0.115	0.25	0.27	0.12	0.22	0.25	0.105	0.14	0.175	0.105	0.21	0.24	0.1	0.29	0.31
500	0.086	0.11	0.26	0.28	0.098	0.155	0.185	0.093	0.24	0.26	0.1	0.22	0.25	0.086	0.135	0.16	0.086	0.21	0.23	0.081	0.29	0.3
630	0.068	0.094	0.25	0.27	0.081	0.155	0.175	0.076	0.24	0.25	0.08	0.22	0.24	0.072	0.135	0.15	0.072	0.21	0.22	0.066	0.28	0.29
800	0.053	-	-	-	0.068	0.15	0.165	0.061	0.24	0.25	-	-	-	0.06	0.13	0.145	0.06	0.21	0.22	0.053	0.28	0.29
1000	0.042	-	-	-	0.059	0.15	0.16	0.05	0.24	0.24	-	-	-	0.052	0.13	0.14	0.052	0.2	0.21	0.044	0.28	0.28

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



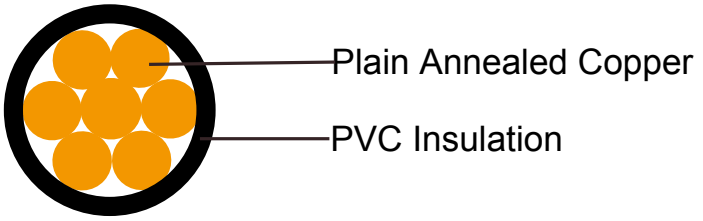
Standard


Flame Retardancy
EN 60332-1-2

450/750V PVC Insulated, Non-sheathed Power Cables (Single Core 90°C)

FGD100 07V2-U/R/K (CU/PVC 450/750V Class 1/2/5)
BS Code: 6491XHR
HAR Code: H07V2-U, H07V2-R, H07V2-K





APPLICATION

This cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS EN 50525-2-31(formerly BS 6004:2000)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2

VOLTAGE RATING

450/750V

CABLE CONSTRUCTION

Conductor:
H07V2-U: Class 1 solid copper conductor to BS EN 60228.
H07V2-R: Class 2 stranded copper conductor to BS EN 60228.
H07V2-K: Class 5 stranded copper conductor to BS EN 60228.
Insulation: PVC Type TI 3 according to BS EN 50363-3.

COLOUR CODE

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

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 90°C
Maximum short circuit temperature (5 Seconds): 160°C

Minimum bending radius:
Up to 8mm²: 4 x overall diameter
8mm² to 12mm²: 5 x overall diameter
Above 12mm²: 6 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD100 07V2-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm²		mm	mm	kg/km
1x1.5	1	0.7	3.2	21
1x2.5	1	0.8	3.9	33
1x4	1	0.8	4.4	49
1x6	1	0.8	5.0	69
1x10	1	1.0	6.4	115
1x1.5	2	0.7	3.3	23
1x2.5	2	0.8	4.0	35
1x4	2	0.8	4.6	51
1x6	2	0.8	5.2	71
1x10	2	1.0	6.7	120
1x16	2	1.0	7.8	170
1x25	2	1.2	9.7	260
1x35	2	1.2	10.9	350
1x50	2	1.4	12.8	480
1x70	2	1.4	14.6	680
1x95	2	1.6	17.1	930
1x120	2	1.6	18.8	1160
1x150	2	1.8	20.9	1430
1x185	2	2.0	23.3	1780
1x240	2	2.2	26.6	2360
1x300	2	2.4	29.6	2940
1x400	2	2.6	33.2	3740
1x500	2	2.8	36.9	4950
1x630	2	2.8	41.1	6300
1x800	2	2.8	45.7	8610
1x1000	2	3.0	51.0	10820
1x1.5	5	0.7	3.4	20
1x2.5	5	0.8	4.1	31
1x4	5	0.8	4.8	48
1x6	5	0.8	5.3	69

Conductor		FGD100 07V2-U/R/K		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm^2		mm	mm	kg/km
1x10	5	1.0	6.8	121
1x16	5	1.0	8.1	211
1x25	5	1.2	10.2	303
1x35	5	1.2	11.7	417
1x50	5	1.4	13.9	539
1x70	5	1.4	16.0	730
1x95	5	1.6	18.2	900
1x120	5	1.6	20.2	1135
1x150	5	1.8	22.5	1410
1x185	5	2.0	24.9	1845
1x240	5	2.2	28.4	2270

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4E1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical etc) Touching			Reference Method G (in free air) Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.5	19	17	23	20	25	23	-	-	-	-	-
2.5	26	23	31	28	34	31	-	-	-	-	-
4	35	31	42	37	46	41	-	-	-	-	-
6	45	40	54	48	59	54	-	-	-	-	-
10	61	54	75	66	81	74	-	-	-	-	-

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical etc) Touching			Reference Method G (in free air) Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three -phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
16	81	73	100	88	109	99	-	-	-	-	-
25	106	95	133	117	143	130	161	141	135	182	161
35	131	117	164	144	176	161	200	176	169	226	201
50	158	141	198	175	228	209	242	216	207	275	246
70	200	179	253	222	293	268	310	279	268	353	318
95	241	216	306	269	355	326	377	342	328	430	389
120	278	249	354	312	413	379	437	400	383	500	454
150	318	285	393	342	476	436	504	464	444	577	527
185	362	324	449	384	545	500	575	533	510	661	605
240	424	380	528	450	644	590	679	634	607	781	719

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.			3 or 4 cables, three-phase a.c.			
		Ref. Methods A and B (enclosed in conduit or trunking)	Ref. Methods C, F & G(clipped direct, on trays or in free air)		Ref. Methods A & B (enclosed in conduit or trunking	Ref. Methods C, F & G (clipped direct, on trays or in free air)		
			Cables touching	Cables spaced*		Cables touching, Trefoil	Cables touching, Flat	Cables spaced*, Flat
1	2	3	4	5	6	7	8	9
mm^2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	31	31	27	27	27	27
2.5	19	19	19	19	16	16	16	16
4	12	12	12	12	10	10	10	10
6	7.9	7.9	7.9	7.9	6.8	6.8	6.8	6.8
10	4.7	4.7	4.7	4.7	4.0	4.0	4.0	4.0
16	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.5

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.											
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C, F & G(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C, F & G (clipped direct, on trays or in free air)								
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			Cables touching 4			Cables spaced* 5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.85	0.28	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60	1.60	0.27	1.65
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.35	0.27	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15	1.15	0.26	1.20
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.99	0.27	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87	0.86	0.26	0.89
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.68	0.26	0.73	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62	0.59	0.25	0.65
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.49	0.26	0.56	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46	0.43	0.25	0.49
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.39	0.25	0.47	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38	0.34	0.24	0.42
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.32	0.25	0.41	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32	0.28	0.24	0.37
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.25	0.25	0.36	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28	0.22	0.24	0.33
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.195	0.25	0.31	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24	0.170	0.24	0.29

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



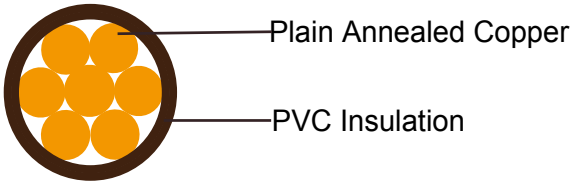
Standard


Flame Retardancy
EN 60332-1-2

600/1000V PVC Insulated, Non-sheathed Flexible Cables (Single Core)

FGD300 1V-F (CU/PVC 600/1000V Class 5)
BS Code: TYPE BK / TYPE CK(CU/PVC)





APPLICATION

The cables are intended for use in the wiring of switch, control, metering, relay and instrument panels of power switchgear, and for such purposes as internal connections in rectifier equipment and its motor starters and controllers.

STANDARDS

Basic design to BS 6231: 2006

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper conductor, class 5 according to BS EN 60228.
Insulation: PVC Type TI 1 according to BS EN 50363-3 for cable type BK, and type TI 3 according to BS EN 50363-3 for cable type CK.

COLOUR CODE

Insulation Colour: Black, Blue, Brown, Red, White, Grey, Violet, Pink, Green/Yellow. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C (TYPE BK); 90°C (TYPE CK)
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius: 6 x overall diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1V-F		
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Maximum Overall Diameter	Approx. Weight
Noxmm^2		mm	mm	kg/km
1x0.5	5	0.8	3.0	12
1x0.75	5	0.8	3.1	15
1x1.0	5	0.8	3.3	18
1x1.5	5	0.8	3.6	23
1x2.5	5	0.8	4.1	34
1x4.0	5	0.8	4.8	48
1x6.0	5	0.8	5.3	67
1x10	5	1.0	7.2	119
1x16	5	1.0	9.0	187
1x25	5	1.2	11.5	291
1x35	5	1.2	12.5	406
1x50	5	1.4	15.4	580
1x70	5	1.4	17.5	780
1x95	5	1.6	19.2	1055
1x120	5	1.6	21.2	1175
1x150	5	1.8	23.9	1425
1x185	5	2.0	25.9	1735
1x240	5	2.2	28.9	2310

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4D1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three -phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.0	11.0	10.5	13.5	12.0	15.5	14	-	-	-	-	-
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-

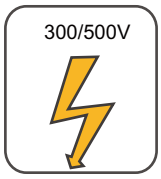
Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical etc)				
							Touching			Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three -phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
2.5	20	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	131	114	110	146	130
35	99	89	125	110	141	129	162	143	137	181	162
50	119	108	151	134	182	167	196	174	167	219	197
70	151	136	192	171	234	214	251	225	216	281	254
95	182	164	232	207	284	261	304	275	264	341	311
120	210	188	269	239	330	303	352	321	308	396	362
150	240	216	300	262	381	349	406	372	356	456	419
185	273	245	341	296	436	400	463	427	409	521	480
240	321	286	400	346	515	472	546	507	485	615	569

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4D1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.			3 or 4 cables, three-phase a.c.			
		Ref. Methods A and B (enclosed in conduit or trunking)	Ref. Methods C & F(clipped direct, on trays or in free air)		Ref. Methods A & B (enclosed in conduit or trunking	Ref. Methods C & F (clipped direct, on trays or in free air)		
						Cables touching, Trefoil	Cables touching, Flat	Cables spaced*, Flat
1	2	3	Cables touching 4	Cables spaced* 5	6	7	8	9
mm^2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1.0	44	44	44	44	38	38	38	38
1.5	29	29	29	29	25	25	25	25
2.5	18	18	18	18	15	15	15	15
4	11	11	11	11	9.5	9.5	9,5	9.5
6	7.3	7.3	7.3	7.3	6.4	6.4	6.4	6.4
10	4.4	4.4	4.4	4.4	3.8	3.8	3.8	3.8

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.												
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C & F(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C & F (clipped direct, on trays or in free air)								
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			Cables touching 4			Cables spaced* 5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
16	2.8	2.8			2.8			2.8			2.4			2.4			2.4			2.4		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
50	0.93	0.95	0.3	1.0	0.93	0.19	0.95	0.93	0.28	0.97	0.81	0.26	0.85	0.8	0.165	0.82	0.8	0.24	0.84	0.8	0.32	0.86
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69	0.56	0.25	0.61	0.55	0.16	0.57	0.55	0.24	0.6	0.55	0.31	0.63
95	0.46	0.49	0.28	0.56	0.47	0.18	0.5	0.47	0.27	0.54	0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.4	0.31	0.51
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45	0.33	0.23	0.41	0.32	0.15	0.36	0.32	0.23	0.4	0.32	0.3	0.44
150	0.29	0.31	0.27	0.41	0.3	0.175	0.34	0.29	0.26	0.39	0.27	0.23	0.36	0.26	0.15	0.3	0.26	0.23	0.34	0.26	0.3	0.4
185	0.23	0.25	0.27	0.37	0.24	0.17	0.29	0.24	0.26	0.35	0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.3	0.36
240	0.18	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31	0.17	0.23	0.29	0.16	0.145	0.22	0.16	0.22	0.27	0.16	0.29	0.34

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

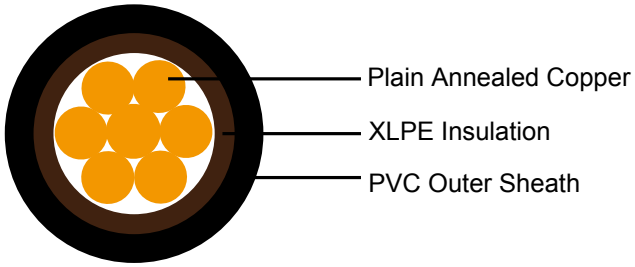

Flame Retardancy
BS EN 60332-1-2

600/1000V XLPE Insulated, PVC Sheathed, Unarmoured Power Cables (Single Core)

FGD300 1RV-R (CU/XLPE/PVC 600/1000V Class 2)

BS Code: 6181X





APPLICATION

The cables are mainly use in fixed installations in industrial areas, buildings and similar applications but not for burial in the ground, either directly or in ducts.

STANDARDS

Basic design to BS 7889:2012

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: XLPE type GP8 according to BS 7655-1.3.
Optional Inner Covering: The optional inner covering, where used, shall consist of an extruded layer of synthetic polymeric material. It shall surround the single core and the laid-up two, three, four or five cores, giving the assembly a practically circular shape.
Outer Sheath: PVC Type 9 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or blue
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (XLPE): 90°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductor (OD ≤ 25mm): 4 x Overall Diameter
Circular copper conductor (OD > 25mm): 6 x Overall Diameter
Shaped copper conductor: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
1x1.5	2	0.7	1.4	6.1	36
1x2.5	2	0.7	1.4	6.8	52
1x4	2	0.7	1.4	7.4	76
1x6	2	0.7	1.4	8.2	100
1x10	2	0.7	1.4	9.2	160
1x16	2	0.7	1.4	10.7	230
1x25	2	0.9	1.4	12.5	340
1x35	2	0.9	1.4	13.5	440
1x50	2	1.0	1.4	13.7	541
1x70	2	1.1	1.4	15.8	749
1x95	2	1.1	1.5	17.5	1000
1x120	2	1.2	1.5	19.3	1241
1x150	2	1.4	1.6	21.5	1523
1x185	2	1.6	1.6	24.7	1942
1x240	2	1.7	1.7	27.7	2514
1x300	2	1.8	1.8	30.6	3125
1x400	2	2.0	1.9	34.2	3967
1x500	2	2.2	2.0	38.0	5063
1x630	2	2.4	2.2	42.9	6491
1x800	2	2.6	2.3	46.0	8075
1x1000	2	2.8	2.4	63.0	9860

ELECTRICAL PROPERTIES

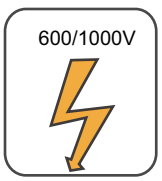
Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4E1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical etc) Touching			Reference Method G (in free air) Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.5	19	17	23	20	25	23	-	-	-	-	-
2.5	26	23	31	28	34	31	-	-	-	-	-
4	35	31	42	37	46	41	-	-	-	-	-
6	45	40	54	48	59	54	-	-	-	-	-
10	61	54	75	66	81	74	-	-	-	-	-
16	81	73	100	88	109	99	-	-	-	-	-
25	106	95	133	117	143	130	161	141	135	182	161
35	131	117	164	144	176	161	200	176	169	226	201
50	158	141	198	175	228	209	242	216	207	275	246
70	200	179	253	222	293	268	310	279	268	353	318
95	241	216	306	269	355	326	377	342	328	430	389
120	278	249	354	312	413	379	437	400	383	500	454
150	318	285	393	342	476	436	504	464	444	577	527
185	362	324	449	384	545	500	575	533	510	661	605
240	424	380	528	450	644	590	679	634	607	781	719
300	486	435	603	514	743	681	783	736	703	902	833
400	-	-	683	584	868	793	940	868	823	1085	1008
500	-	-	783	666	990	904	1083	998	946	1253	1169
630	-	-	900	764	113	1033	1254	1151	1088	1454	1362
800	-	-	-	-	1288	1179	1358	1275	1214	1581	1485
1000	-	-	-	-	1443	1323	1520	1436	1349	1775	1671

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.											
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C, F & G(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C, F & G (clipped direct, on trays or in free air)								
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			Cables touching 4			Cables spaced* 5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1.5	31	31			31			31			27			27			27			27		
2.5	19	19			19			19			16			16			16			16		
4	12	12			12			12			10			10			10			10		
6	7.9	7.9			7.9			7.9			6.8			6.8			6.8			6.8		
10	4.7	4.7			4.7			4.7			4.0			4.0			4.0			4.0		
16	2.9	2.9			2.9			2.9			2.5			2.5			2.5			2.5		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.85	0.28	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60	1.60	0.27	1.65
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.35	0.27	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15	1.15	0.26	1.20
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.99	0.27	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87	0.86	0.26	0.89
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.68	0.26	0.73	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62	0.59	0.25	0.65
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.49	0.26	0.56	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46	0.43	0.25	0.49
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.39	0.25	0.47	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38	0.34	0.24	0.42
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.32	0.25	0.41	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32	0.28	0.24	0.37
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.25	0.25	0.36	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28	0.22	0.24	0.33
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.195	0.25	0.31	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24	0.170	0.24	0.29
300	0.155	0.175	0.25	0.31	0.160	0.160	0.22	0.155	0.25	0.29	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.21	0.135	0.24	0.27
400	0.120	0.140	0.25	0.29	0.130	0.155	0.20	0.125	0.24	0.27	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195	0.110	0.24	0.26
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.098	0.24	0.26	0.100	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180	0.085	0.24	0.25
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.078	0.24	0.25	0.088	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170	0.068	0.23	0.24
800	0.056	-	-	-	0.072	0.150	0.170	0.064	0.24	0.25	-	-	-	0.062	0.130	0.145	0.059	0.155	0.165	0.055	0.23	0.24
1000	0.045	-	-	-	0.063	0.150	0.165	0.054	0.24	0.24	-	-	-	0.055	0.130	0.140	0.050	0.155	0.165	0.047	0.23	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

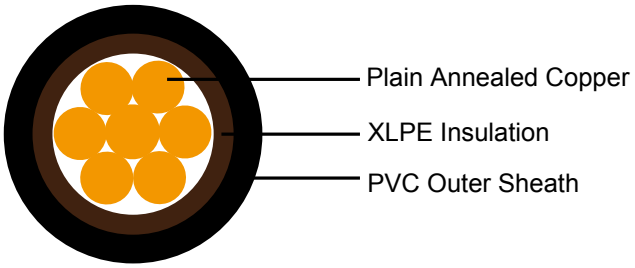

Flame Retardancy
BS EN 60332-1-2

600/1000V XLPE Insulated, PVC Sheathed, Unarmoured Power Cables (Single Core)

FGD300 1RV-R (CU/XLPE/PVC 600/1000V Class 2)

VDE Code: N2XY





APPLICATION

The cables are mainly use in fixed installations in industrial areas, buildings and similar applications but not for burial in the ground, either directly or in ducts.

STANDARDS

Basic design to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Plain annealed copper, stranded according to IEC 60228 class 2.
Insulation: XLPE according to IEC 60502-1.
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or Blue
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation: 80°C (For ST_1 Sheath); 90°C (For ST_2 Sheath)
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductor (OD ≤ 25mm): 4 x Overall Diameter
Circular copper conductor (OD > 25mm): 6 x Overall Diameter
Shaped copper conductor: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
1x1.5	2	0.7	1.4	6.1	36
1x2.5	2	0.7	1.4	6.8	52
1x4	2	0.7	1.4	7.4	76
1x6	2	0.7	1.4	8.2	100
1x10	2	0.7	1.4	9.2	160
1x16	2	0.7	1.4	10.7	230
1x25	2	0.9	1.4	12.5	340
1x35	2	0.9	1.4	13.5	440
1x50	2	1.0	1.4	13.7	541
1x70	2	1.1	1.4	15.8	749
1x95	2	1.1	1.5	17.5	1000
1x120	2	1.2	1.5	19.3	1241
1x150	2	1.4	1.6	21.5	1523
1x185	2	1.6	1.6	24.7	1942
1x240	2	1.7	1.7	27.7	2514
1x300	2	1.8	1.8	30.6	3125
1x400	2	2.0	1.9	34.2	3967
1x500	2	2.2	2.0	38.0	5063
1x630	2	2.4	2.2	42.9	6491
1x800	2	2.6	2.3	46.0	8075
1x1000	2	2.8	2.4	63.0	9860

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

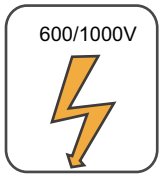
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4E1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical etc) Touching			Reference Method G (in free air) Spaced by one cable diameter	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.5	19	17	23	20	25	23	-	-	-	-	-
2.5	26	23	31	28	34	31	-	-	-	-	-
4	35	31	42	37	46	41	-	-	-	-	-
6	45	40	54	48	59	54	-	-	-	-	-
10	61	54	75	66	81	74	-	-	-	-	-
16	81	73	100	88	109	99	-	-	-	-	-
25	106	95	133	117	143	130	161	141	135	182	161
35	131	117	164	144	176	161	200	176	169	226	201
50	158	141	198	175	228	209	242	216	207	275	246
70	200	179	253	222	293	268	310	279	268	353	318
95	241	216	306	269	355	326	377	342	328	430	389
120	278	249	354	312	413	379	437	400	383	500	454
150	318	285	393	342	476	436	504	464	444	577	527
185	362	324	449	384	545	500	575	533	510	661	605
240	424	380	528	450	644	590	679	634	607	781	719
300	486	435	603	514	743	681	783	736	703	902	833
400	-	-	683	584	868	793	940	868	823	1085	1008
500	-	-	783	666	990	904	1083	998	946	1253	1169
630	-	-	900	764	113	1033	1254	1151	1088	1454	1362
800	-	-	-	-	1288	1179	1358	1275	1214	1581	1485
1000	-	-	-	-	1443	1323	1520	1436	1349	1775	1671

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.											
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C, F & G(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C, F & G (clipped direct, on trays or in free air)								
														Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			Cables touching 4			Cables spaced* 5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1.5	31	31			31			31			27			27			27			27		
2.5	19	19			19			19			16			16			16			16		
4	12	12			12			12			10			10			10			10		
6	7.9	7.9			7.9			7.9			6.8			6.8			6.8			6.8		
10	4.7	4.7			4.7			4.7			4.0			4.0			4.0			4.0		
16	2.9	2.9			2.9			2.9			2.5			2.5			2.5			2.5		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.85	0.28	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60	1.60	0.27	1.65
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.35	0.27	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15	1.15	0.26	1.20
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.99	0.27	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87	0.86	0.26	0.89
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.68	0.26	0.73	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62	0.59	0.25	0.65
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.49	0.26	0.56	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46	0.43	0.25	0.49
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.39	0.25	0.47	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38	0.34	0.24	0.42
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.32	0.25	0.41	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32	0.28	0.24	0.37
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.25	0.25	0.36	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28	0.22	0.24	0.33
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.195	0.25	0.31	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24	0.170	0.24	0.29
300	0.155	0.175	0.25	0.31	0.160	0.160	0.22	0.155	0.25	0.29	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.21	0.135	0.24	0.27
400	0.120	0.140	0.25	0.29	0.130	0.155	0.20	0.125	0.24	0.27	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195	0.110	0.24	0.26
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.098	0.24	0.26	0.100	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180	0.085	0.24	0.25
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.078	0.24	0.25	0.088	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170	0.068	0.23	0.24
800	0.056	-	-	-	0.072	0.150	0.170	0.064	0.24	0.25	-	-	-	0.062	0.130	0.145	0.059	0.155	0.165	0.055	0.23	0.24
1000	0.045	-	-	-	0.063	0.150	0.165	0.054	0.24	0.24	-	-	-	0.055	0.130	0.140	0.050	0.155	0.165	0.047	0.23	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

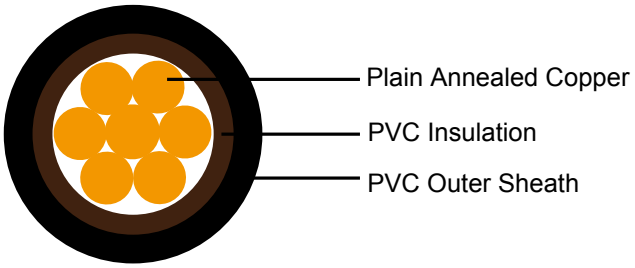

Flame Retardancy
IEC 60332-1

600/1000V PVC Insulated, PVC Sheathed, Unarmoured Power Cables (Single Core)

FGD300 1VV-R (CU/PVC/PVC 600/1000V Class 2)

VDE Code: NYY





APPLICATION

The cables are mainly use in fixed installations in industrial areas, buildings and similar applications but not for burial in the ground, either directly or in ducts.

STANDARDS

Basic design to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Plain annealed copper, stranded according to IEC 60228 class 2.
Insulation: PVC/A according to IEC 60502-1.
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or Blue
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation: 70°C
Maximum short circuit temperature (5 Seconds):
Conductor cross-section ≤300 mm^2:160°C
Conductor cross-section >300 mm^2:140°C
Minimum bending radius:
Circular copper conductor (OD ≤ 25mm): 4 x Overall Diameter
Circular copper conductor (OD > 25mm): 6 x Overall Diameter
Shaped copper conductor: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
1x1.5	2	0.8	1.4	5.8	55
1x2.5	2	0.8	1.4	6.2	70
1x4	2	1.0	1.4	7.1	98
1x6	2	1.0	1.4	7.6	124
1x10	2	1.0	1.4	8.4	173
1x16	2	1.0	1.4	9.3	240
1x25	2	1.2	1.4	10.8	350
1x35	2	1.2	1.4	11.9	468
1x50	2	1.4	1.4	13.6	646
1x70	2	1.4	1.4	15.0	854
1x95	2	1.6	1.5	17.2	1154
1x120	2	1.6	1.5	18.6	1428
1x150	2	1.8	1.6	20.6	1764
1x185	2	2.0	1.7	22.7	2160
1x240	2	2.2	1.8	25.5	2796
1x300	2	2.4	1.9	28.1	3449
1x400	2	2.6	2.0	31.8	4570
1x500	2	2.8	2.1	35.0	5641
1x630	2	2.8	2.2	38.3	7015
1x800	2	2.8	2.3	42.1	8798
1x1000	2	3.0	2.5	46.7	10970

ELECTRICAL PROPERTIES

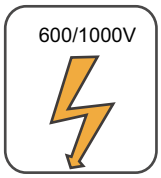
Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4D1A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical)				
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	2 cables, single-phase a.c. or d.c. or 3 cables three-phase a.c. flat	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	20	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	131	114	110	146	130
35	99	89	125	110	141	129	162	143	137	181	162
50	119	108	151	134	182	167	196	174	167	219	197
70	151	136	192	171	234	214	251	225	216	281	254
95	182	164	232	207	284	261	304	275	264	341	311
120	210	188	269	239	330	303	352	321	308	396	362
150	240	216	300	262	381	349	406	372	356	456	419
185	273	245	341	296	436	400	463	427	409	521	480
240	321	286	400	346	515	472	546	507	485	615	569
300	367	328	458	394	594	545	629	587	561	709	659
400	-	-	546	467	694	634	754	689	656	852	795
500	-	-	626	533	792	723	868	789	749	982	920
630	-	-	720	611	904	826	1005	905	855	1138	1070
800	-	-	-	-	1030	943	1086	1020	971	1265	1188
1000	-	-	-	-	1154	1058	1216	1149	1079	1420	1337

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4D1B

Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.											
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C & F(clipped direct, on trays or in free air)						Ref. Methods A & B (enclosed in conduit or trunking			Ref. Methods C, F & G (clipped direct, on trays or in free air)								
					Cables touching			Cables spaced*						Cables touching, Trefoil			Cables touching, Flat			Cables spaced*, Flat		
1	2	3			4			5			6			7			8			9		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1.5	29	29			29			25			25			25			25			25		
2.5	18	18			18			18			15			15			15			15		
4	11	11			11			11			9.5			9.5			9.5			9.5		
6	7.3	7.3			7.3			7.3			6.4			6.4			6.4			6.4		
10	4.4	4.4			4.4			4.4			3.8			3.8			3.8			3.8		
16	2.8	2.8			2.8			2.8			2.4			2.4			2.4			2.4		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
50	0.93	0.95	0.30	1.00	0.93	0.190	0.95	0.93	0.28	0.97	0.81	0.26	0.85	0.80	0.165	0.82	0.80	0.24	0.84	0.80	0.32	0.86
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69	0.56	0.25	0.61	0.55	0.160	0.57	0.55	0.24	0.60	0.55	0.31	0.63
95	0.46	0.49	0.28	0.56	0.47	0.180	0.50	0.47	0.27	0.54	0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.40	0.31	0.51
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45	0.33	0.23	0.41	0.32	0.150	0.36	0.32	0.23	0.40	0.32	0.30	0.44
150	0.29	0.31	0.27	0.41	0.30	0.175	0.34	0.29	0.26	0.39	0.27	0.23	0.36	0.26	0.150	0.30	0.26	0.23	0.34	0.26	0.30	0.40
185	0.23	0.25	0.27	0.37	0.24	0.170	0.29	0.24	0.26	0.35	0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.30	0.36
240	0.180	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31	0.17	0.23	0.29	0.160	0.145	0.22	0.160	0.22	0.27	0.160	0.29	0.34
300	0.145	0.160	0.26	0.31	0.150	0.165	0.22	0.150	0.25	0.29	0.14	0.23	0.27	0.130	0.140	0.190	0.130	0.22	0.25	0.130	0.29	0.32
400	0.105	0.130	0.26	0.29	0.120	0.160	0.20	0.115	0.25	0.27	0.12	0.22	0.25	0.105	0.140	0.175	0.105	0.21	0.24	0.100	0.29	0.31
500	0.086	0.110	0.26	0.28	0.098	0.155	0.185	0.093	0.24	0.26	0.10	0.22	0.25	0.086	0.135	0.160	0.086	0.21	0.23	0.081	0.29	0.30
630	0.068	0.094	0.25	0.27	0.081	0.155	0.175	0.076	0.24	0.25	0.08	0.22	0.24	0.072	0.135	0.150	0.072	0.21	0.22	0.066	0.28	0.29
800	0.053	-	-	-	0.068	0.150	0.165	0.061	0.24	0.25	-	-	-	0.060	0.130	0.145	0.060	0.21	0.22	0.053	0.28	0.29
1000	0.042	-	-	-	0.059	0.150	0.160	0.050	0.24	0.24	-	-	-	0.052	0.130	0.140	0.052	0.20	0.21	0.044	0.28	0.28

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

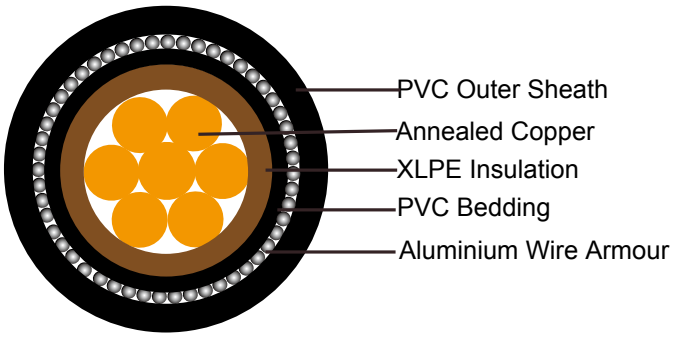

Flame Retardancy
IEC 60332-1

600/1000V XLPE Insulated, PVC Sheathed, Armoured Power Cables (Single Core)

FGD300 1RVMAV-R (CU/XLPE/PVC/AWA/PVC 600/1000V Class 2)

BS Code:6941X





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS 5467

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: Extruded XLPE GP 8 according to BS 7655-1.3.
Bedding: PVC or polymeric compound.
Armouring: Aluminium Wire
Outer Sheath: PVC Type 9 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or blue
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (XLPE): 90°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1RVMAV-R					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox Weight
No.×mm²		mm	mm	mm	mm	mm	kg/km
1x50	2	1.0	0.8	0.9	1.5	17.5	800
1x70	2	1.1	0.8	1.25	1.5	20.2	990
1x95	2	1.1	0.8	1.25	1.6	22.3	1280
1x120	2	1.2	0.8	1.25	1.6	24.2	1550
1x150	2	1.4	1.0	1.6	1.7	27.4	1900
1x185	2	1.6	1.0	1.6	1.8	30	2320
1x240	2	1.7	1.0	1.6	1.8	32.8	2930
1x300	2	1.8	1.0	1.6	1.9	35.6	3580
1x400	2	2.0	1.2	2.0	2.0	40.5	4600
1x500	2	2.2	1.2	2.0	2.1	44.2	5680
1x630	2	2.4	1.2	2.0	2.2	48.8	7160
1x800	2	2.6	1.4	2.5	2.4	55.4	9315
1x1000	2	2.8	1.4	2.5	2.5	60.6	11490

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

Current-Carrying Capacities (Amp) according to BS 7671: 2008 table 4E3A

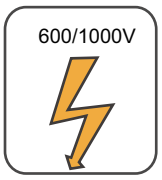
Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical)								
	Touching		Touching			Spaced by on cable diameter					
	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	3 cables three-phase a.c. trefoil	2 cables, d.c.		2 cables, single-phase a.c.		3 or 4 cables, three-phase a.c.	
						Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
50	237	220	253	232	222	284	270	282	266	288	266
70	303	277	322	293	285	356	349	357	337	358	331
95	367	333	389	352	346	446	426	436	412	425	393
120	425	383	449	405	402	519	497	504	477	485	449
150	488	437	516	462	463	600	575	566	539	549	510
185	557	496	587	524	529	688	660	643	614	618	574
240	656	579	689	612	625	815	782	749	714	715	666
300	755	662	792	700	720	943	906	842	805	810	755
400	853	717	899	767	815	1137	1094	929	889	848	797
500	962	791	1016	851	918	1314	1266	1032	989	923	871
630	1082	861	1146	935	1027	1528	1474	1139	1092	992	940
800	1170	904	1246	987	1119	1809	1744	1204	1155	1042	978
1000	1261	961	1345	1055	1214	2100	2026	1289	1238	1110	1041

Voltage Drop (Per Amp Per Meter) according to BS 7671: 2008 table 4E3B

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
50	0.98	0.99	0.21	1.0	0.98	0.29	1.0	0.86	0.18	0.87	0.64	0.25	0.88	0.84	0.33	0.9
70	0.67	0.68	0.20	0.71	0.69	0.29	0.75	0.59	0.170	0.62	0.60	0.25	0.65	0.62	0.32	0.70
95	0.49	0.51	0.195	0.55	0.53	0.28	0.60	0.44	0.170	0.47	0.46	0.24	0.52	0.49	0.31	0.58
120	0.39	0.41	0.190	0.45	0.43	0.27	0.51	0.35	0.165	0.39	0.38	0.24	0.44	0.41	0.30	0.51
150	0.31	0.33	0.185	0.38	0.36	0.27	0.45	0.29	0.160	0.33	0.31	0.23	0.39	0.34	0.29	0.45

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
185	0.25	0.27	0.185	0.33	0.30	0.26	0.40	0.23	0.160	0.28	0.26	0.23	0.34	0.29	0.29	0.41
240	0.195	0.21	0.180	0.28	0.24	0.26	0.35	0.180	0.155	0.24	0.21	0.22	0.30	0.24	0.28	0.37
300	0.155	0.17	0.175	0.25	0.195	0.25	0.32	0.145	0.150	0.21	0.170	0.22	0.28	0.20	0.27	0.34
400	0.115	0.145	0.170	0.22	0.180	0.24	0.30	0.125	0.150	0.195	0.160	0.21	0.27	0.20	0.27	0.33
500	0.093	0.125	0.170	0.21	0.165	0.24	0.29	0.105	0.145	0.180	0.145	0.20	0.25	0.190	0.24	0.31
630	0.073	0.105	0.165	0.195	0.150	0.23	0.27	0.092	0.145	0.170	0.135	0.195	0.24	0.175	0.23	0.29
800	0.056	0.090	0.160	0.190	0.145	0.23	0.27	0.086	0.140	0.165	0.130	0.180	0.23	0.175	0.195	0.26
1000	0.045	0.092	0.155	0.180	0.140	0.21	0.25	0.080	0.135	0.155	0.125	0.170	0.21	0.165	0.180	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

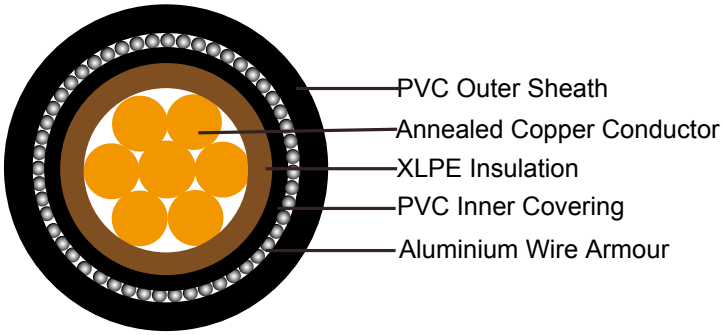

Flame Retardancy
BS EN 60332-1-2

600/1000V XLPE Insulated, PVC Sheathed, Armoured Power Cables (Single Core)

FGD300 1RVMAV-R (CU/XLPE/PVC/AWA/PVC 600/1000V Class 2)

VDE Code: N2XRY





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to IEC 60228 class 2.
Insulation: XLPE according to IEC 60502-1.
Inner Covering: Extruded PVC or polymeric compound.
Armouring: Aluminium Wire
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or Blue
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation: 80°C (For ST_1 Sheath); 90°C (For ST_2 Sheath)
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1RVMAV-R					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox Weight
No.×mm²		mm	mm	mm	mm	mm	kg/km
1x1.5	2	0.7	1.0	0.8	1.8	10.0	205
1x2.5	2	0.7	1.0	0.8	1.8	10.4	236
1x4	2	0.7	1.0	0.8	1.8	10.9	269
1x6	2	0.7	1.0	0.8	1.8	11.4	308
1x10	2	0.7	1.0	0.8	1.8	12.2	380
1x16	2	0.7	1.0	0.8	1.8	13.1	475
1x25	2	0.9	1.0	0.8	1.8	14.6	631
1x35	2	0.9	1.0	1.25	1.8	16.6	900
1x50	2	1.0	1.0	1.25	1.8	18.1	1096
1x70	2	1.1	1.0	1.25	1.8	19.7	1401
1x95	2	1.1	1.0	1.6	1.8	22.0	1901
1x120	2	1.2	1.0	1.6	1.8	23.6	2253
1x150	2	1.4	1.0	1.6	1.8	25.4	2642
1x185	2	1.6	1.0	1.6	1.8	27.4	3156
1x240	2	1.7	1.0	1.6	1.9	29.9	3919
1x300	2	1.8	1.0	2.0	2.0	33.1	4984
1x400	2	2.0	1.2	2.0	2.2	37.3	6172
1x500	2	2.2	1.2	2.0	2.3	40.5	7482
1x630	2	2.4	1.2	2.5	2.4	45.3	9743
1x800	2	2.6	1.4	2.5	2.6	50.0	12065
1x1000	2	2.8	1.4	2.5	2.7	54.5	14680

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671: 2008 table 4E3A

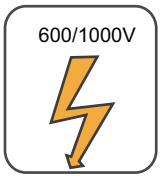
Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical)								
	Touching		Touching			Spaced by on cable diameter					
	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	3 cables three-phase a.c. trefoil	2 cables, d.c.		2 cables, single-phase a.c.		3 or 4 cables, three-phase a.c.	
						Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
50	237	220	253	232	222	284	270	282	266	288	266
70	303	277	322	293	285	356	349	357	337	358	331
95	367	333	389	352	346	446	426	436	412	425	393
120	425	383	449	405	402	519	497	504	477	485	449
150	488	437	516	462	463	600	575	566	539	549	510
185	557	496	587	524	529	688	660	643	614	618	574
240	656	579	689	612	625	815	782	749	714	715	666
300	755	662	792	700	720	943	906	842	805	810	755
400	853	717	899	767	815	1137	1094	929	889	848	797
500	962	791	1016	851	918	1314	1266	1032	989	923	871
630	1082	861	1146	935	1027	1528	1474	1139	1092	992	940
800	1170	904	1246	987	1119	1809	1744	1204	1155	1042	978
1000	1261	961	1345	1055	1214	2100	2026	1289	1238	1110	1041

Voltage Drop (Per Amp Per Meter) according to BS 7671: 2008 table 4E3B

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
50	0.98	0.99	0.21	1.0	0.98	0.29	1.0	0.86	0.18	0.87	0.64	0.25	0.88	0.84	0.33	0.9
70	0.67	0.68	0.20	0.71	0.69	0.29	0.75	0.59	0.170	0.62	0.60	0.25	0.65	0.62	0.32	0.70
95	0.49	0.51	0.195	0.55	0.53	0.28	0.60	0.44	0.170	0.47	0.46	0.24	0.52	0.49	0.31	0.58
120	0.39	0.41	0.190	0.45	0.43	0.27	0.51	0.35	0.165	0.39	0.38	0.24	0.44	0.41	0.30	0.51
150	0.31	0.33	0.185	0.38	0.36	0.27	0.45	0.29	0.160	0.33	0.31	0.23	0.39	0.34	0.29	0.45
185	0.25	0.27	0.185	0.33	0.30	0.26	0.40	0.23	0.160	0.28	0.26	0.23	0.34	0.29	0.29	0.41

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
240	0.195	0.21	0.180	0.28	0.24	0.26	0.35	0.180	0.155	0.24	0.21	0.22	0.30	0.24	0.28	0.37
300	0.155	0.17	0.175	0.25	0.195	0.25	0.32	0.145	0.150	0.21	0.170	0.22	0.28	0.20	0.27	0.34
400	0.115	0.145	0.170	0.22	0.180	0.24	0.30	0.125	0.150	0.195	0.160	0.21	0.27	0.20	0.27	0.33
500	0.093	0.125	0.170	0.21	0.165	0.24	0.29	0.105	0.145	0.180	0.145	0.20	0.25	0.190	0.24	0.31
630	0.073	0.105	0.165	0.195	0.150	0.23	0.27	0.092	0.145	0.170	0.135	0.195	0.24	0.175	0.23	0.29
800	0.056	0.090	0.160	0.190	0.145	0.23	0.27	0.086	0.140	0.165	0.130	0.180	0.23	0.175	0.195	0.26
1000	0.045	0.092	0.155	0.180	0.140	0.21	0.25	0.080	0.135	0.155	0.125	0.170	0.21	0.165	0.180	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



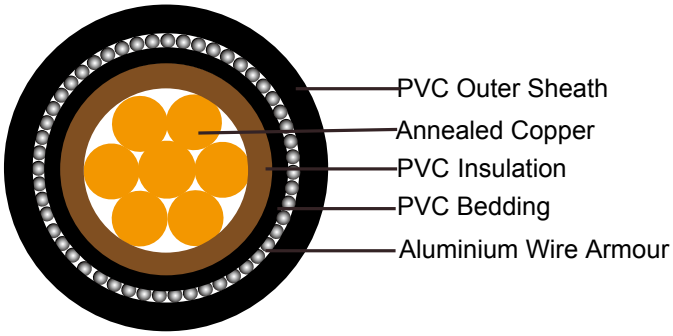
Standard


Flame Retardancy
IEC 60332-1

600/1000V PVC Insulated, PVC Sheathed, Armoured Power Cables (Single Core)

FGD300 1VVMAV-R (CU/PVC/PVC/AWA/PVC 600/1000V Class 2)





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS 6346

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 50265-2-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS 6360 class 2.
Insulation: PVC TI 1 according to BS 7655-3.1.
Bedding: PVC.
Armouring: Aluminium Wire
Outer Sheath: PVC TM 1 according to BS 7655-4.1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or blue
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1VVMAV-R					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox Weight
No.×mm²		mm	mm	mm	mm	mm	kg/km
1x50	2	1.4	0.8	1.25	1.5	19.1	820
1x70	2	1.4	0.8	1.25	1.6	21.1	1070
1x95	2	1.6	0.8	1.25	1.6	23.4	1390
1x120	2	1.6	1.0	1.6	1.7	26.3	1600
1x150	2	1.8	1.0	1.6	1.7	28.3	1900
1x185	2	2.0	1.0	1.6	1.8	30.8	2450
1x240	2	2.2	1.0	1.6	1.9	34.1	3100
1x300	2	2.4	1.0	1.6	1.9	37.0	3760
1x400	2	2.6	1.2	2.0	2.1	42.0	4850
1x500	2	2.8	1.2	2.0	2.1	45.6	5930
1x630	2	2.8	1.2	2.0	2.2	49.7	7390
1x800	2	2.8	1.4	2.5	2.4	55.8	9400
1x1000	2	3.0	1.4	2.5	2.5	61.0	11430

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C

Current-Carrying Capacities (Amp) according to BS 7671: 2008 table 4D3A

Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical)								
	Touching		Touching			Spaced by on cable diameter					
	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables three-phase a.c. trefoil	2 cables, d.c.		2 cables, single-phase a.c.		3 or 4 cables, three-phase a.c.	
						Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
50	193	179	205	189	181	229	216	229	217	230	212
70	245	225	259	238	231	294	279	287	272	286	263
95	296	269	313	285	280	357	340	349	332	338	313
120	342	309	360	327	324	415	396	401	383	385	357
150	393	352	413	373	373	479	458	449	429	436	405
185	447	399	469	422	425	548	525	511	489	490	456
240	525	465	550	492	501	648	622	593	568	566	528
300	594	515	624	547	567	748	719	668	640	616	578
400	687	575	723	618	657	885	851	737	707	674	632
500	763	622	805	673	731	1035	997	810	777	721	676
630	843	669	891	728	809	1218	1174	893	856	771	723
800	919	710	976	777	886	1441	1390	943	905	824	772
1000	975	737	1041	808	945	1685	1627	1008	967	872	816

Voltage Drop (Per Amp Per Meter) according to BS 7671: 2008 table 4D3B

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
50	0.93	0.93	0.22	0.95	0.92	0.30	0.97	0.80	0.19	0.82	0.79	0.26	0.84	0.79	0.34	0.86
70	0.63	0.64	0.21	0.68	0.66	0.29	0.72	0.55	0.18	0.58	0.57	0.25	0.62	0.59	0.32	0.68
95	0.46	0.48	0.20	0.52	0.51	0.28	0.58	0.42	0.175	0.45	0.44	0.25	0.50	0.47	0.31	0.57
120	0.36	0.39	0.195	0.43	0.42	0.28	0.50	0.33	0.170	0.37	0.36	0.24	0.43	0.40	0.30	0.50
150	0.29	0.31	0.190	0.37	0.34	0.27	0.44	0.27	0.165	0.32	0.30	0.24	0.38	0.34	0.30	0.45

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
185	0.23	0.26	0.190	0.32	0.29	0.27	0.39	0.22	0.160	0.27	0.25	0.23	0.34	0.29	0.29	0.41
240	0.18	0.20	0.180	0.27	0.23	0.26	0.35	0.175	0.160	0.23	0.20	0.23	0.30	0.24	0.28	0.37
300	0.145	0.160	0.180	0.24	0.19	0.26	0.32	0.140	0.155	0.21	0.165	0.22	0.28	0.20	0.28	0.34
400	0.105	0.140	0.175	0.22	0.18	0.24	0.30	0.12	0.130	0.195	0.160	0.21	0.26	0.21	0.25	0.32
500	0.086	0.120	0.170	0.21	0.165	0.23	0.29	0.105	0.145	0.18	0.145	0.20	0.25	0.19	0.24	0.30
630	0.068	0.105	0.165	0.195	0.150	0.22	0.27	0.091	0.145	0.17	0.135	0.195	0.23	0.175	0.22	0.28
800	0.053	0.095	0.160	0.185	0.145	0.21	0.25	0.082	0.140	0.160	0.125	0.180	0.22	0.170	0.195	0.26
1000	0.042	0.091	0.155	0.180	0.140	0.19	0.24	0.079	0.135	0.155	0.125	0.165	0.21	0.165	0.170	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard

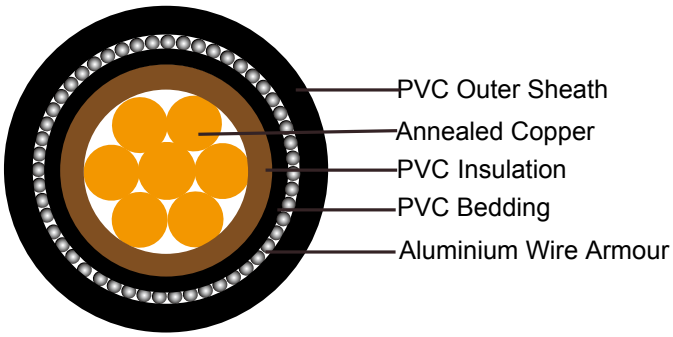

Flame Retardancy
BS EN 50265-2-1

600/1000V PVC Insulated, PVC Sheathed, Armoured Power Cables (Single Core)

FGD300 1VVMAV-R (CU/PVC/PVC/AWA/PVC 600/1000V Class 2)

VDE Code:NYRY





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: PVC/A according to IEC 60502-1.
Inner Covering: Extruded PVC or polymeric compound.
Armouring: Aluminium Wire
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Brown or Blue
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C(≤300 mm²); 140°C(>300 mm²)
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD300 1VVMAV-R					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox Weight
No.×mm²		mm	mm	mm	mm	mm	kg/km
1x4	2	1.0	1.0	0.8	1.8	11.5	213
1x6	2	1.0	1.0	0.8	1.8	12.0	247
1x10	2	1.0	1.0	0.8	1.8	12.8	310
1x16	2	1.0	1.0	0.8	1.8	13.7	394
1x25	2	1.2	1.0	0.8	1.8	15.2	534
1x35	2	1.2	1.0	1.25	1.8	17.2	713
1x50	2	1.4	1.0	1.25	1.8	18.9	893
1x70	2	1.4	1.0	1.25	1.8	20.3	1158
1x95	2	1.6	1.0	1.6	1.8	23.0	1558
1x120	2	1.6	1.0	1.6	1.8	24.4	1863
1x150	2	1.8	1.0	1.6	1.8	26.2	2214
1x185	2	2.0	1.0	1.6	1.9	28.2	2697
1x240	2	2.2	1.0	1.6	1.9	31.0	3402
1x300	2	2.4	1.0	2.0	2.1	34.4	4282
1x400	2	2.6	1.2	2.0	2.2	38.6	5360
1x500	2	2.8	1.2	2.0	2.3	41.8	6583
1x630	2	2.8	1.2	2.5	2.4	46.2	8401
1x800	2	2.8	1.4	2.5	2.6	50.5	10515
1x1000	2	3.0	1.4	2.5	2.7	55.0	12968

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C

Current-Carrying Capacities (Amp) BS 7671: 2008 table 4D3A

Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray, horizontal or vertical)								
	Touching		Touching			Spaced by on cable diameter					
	2 cables, single-phase a.c. or d.c. flat	3 or 4 cables, three-phase a.c. flat	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables three-phase a.c. trefoil	2 cables, d.c.		2 cables, single-phase a.c.		3 or 4 cables, three-phase a.c.	
						Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
mm^2	A	A	A	A	A	A	A	A	A	A	A
50	193	179	205	189	181	229	216	229	217	230	212
70	245	225	259	238	231	294	279	287	272	286	263
95	296	269	313	285	280	357	340	349	332	338	313
120	342	309	360	327	324	415	396	401	383	385	357
150	393	352	413	373	373	479	458	449	429	436	405
185	447	399	469	422	425	548	525	511	489	490	456
240	525	465	550	492	501	648	622	593	568	566	528
300	594	515	624	547	567	748	719	668	640	616	578
400	687	575	723	618	657	885	851	737	707	674	632
500	763	622	805	673	731	1035	997	810	777	721	676
630	843	669	891	728	809	1218	1174	893	856	771	723
800	919	710	976	777	886	1441	1390	943	905	824	772
1000	975	737	1041	808	945	1685	1627	1008	967	872	816

Voltage Drop (Per Amp Per Meter) BS 7671: 2008 table 4D3B

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
50	0.93	0.93	0.22	0.95	0.92	0.30	0.97	0.80	0.19	0.82	0.79	0.26	0.84	0.79	0.34	0.86
70	0.63	0.64	0.21	0.68	0.66	0.29	0.72	0.55	0.18	0.58	0.57	0.25	0.62	0.59	0.32	0.68
95	0.46	0.48	0.20	0.52	0.51	0.28	0.58	0.42	0.175	0.45	0.44	0.25	0.50	0.47	0.31	0.57
120	0.36	0.39	0.195	0.43	0.42	0.28	0.50	0.33	0.170	0.37	0.36	0.24	0.43	0.40	0.30	0.50
150	0.29	0.31	0.190	0.37	0.34	0.27	0.44	0.27	0.165	0.32	0.30	0.24	0.38	0.34	0.30	0.45

Nominal Cross Section Area 1	2 cables d.c. 2	Ref. Methods C&F(clipped direct, on trays or in free air)														
		2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.								
		Touching 3			Spaced* 4			Trefoil and touching 5			Flat and touching 6			Flat and spaced* 7		
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
185	0.23	0.26	0.190	0.32	0.29	0.27	0.39	0.22	0.160	0.27	0.25	0.23	0.34	0.29	0.29	0.41
240	0.18	0.20	0.180	0.27	0.23	0.26	0.35	0.175	0.160	0.23	0.20	0.23	0.30	0.24	0.28	0.37
300	0.145	0.160	0.180	0.24	0.19	0.26	0.32	0.140	0.155	0.21	0.165	0.22	0.28	0.20	0.28	0.34
400	0.105	0.140	0.175	0.22	0.18	0.24	0.30	0.12	0.130	0.195	0.160	0.21	0.26	0.21	0.25	0.32
500	0.086	0.120	0.170	0.21	0.165	0.23	0.29	0.105	0.145	0.18	0.145	0.20	0.25	0.19	0.24	0.30
630	0.068	0.105	0.165	0.195	0.150	0.22	0.27	0.091	0.145	0.17	0.135	0.195	0.23	0.175	0.22	0.28
800	0.053	0.095	0.160	0.185	0.145	0.21	0.25	0.082	0.140	0.160	0.125	0.180	0.22	0.170	0.195	0.26
1000	0.042	0.091	0.155	0.180	0.140	0.19	0.24	0.079	0.135	0.155	0.125	0.165	0.21	0.165	0.170	0.24

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage

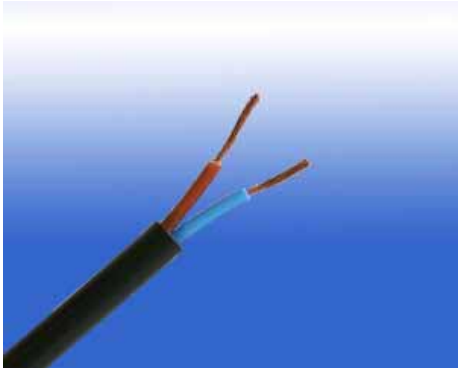


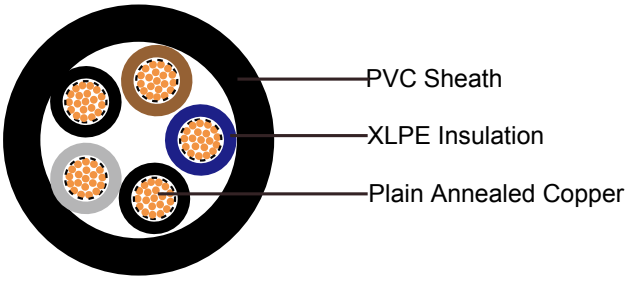
Standard


Flame Retardancy
BS EN 50265-2-1

600/1000V XLPE Insulated, PVC Sheathed, Unarmoured Power Cables (2-5 Cores)

FGD400 1RV-R (CU/XLPE/PVC 600/1000V Class 2)





APPLICATION

The cables are mainly use in fixed installations in industrial areas, buildings and similar applications but not for burial in the ground, either directly or in ducts.

STANDARDS

Basic design to BS 7889:2012

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: XLPE type GP8 according to BS 7655-1.3.
Filling: If necessary, the formation of a compact and reasonably circular cable shall be achieved by one of the following methods.
a) The application of synthetic fillers or binder tape(s).
b) The optional inner covering.
c) The sheath provided it effectively fills the interstices.
d) Any combination of the above.
Optional Inner Covering: The optional inner covering, where used, shall consist of an extruded layer of synthetic polymeric material. It shall surround the single core and the laid-up two, three, four or five cores, giving the assembly a practically circular shape.
Outer Sheath: PVC Type 9 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the

overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey. Alternatively, green-and-yellow, blue, brown
Four-core Blue, brown, black, grey. Alternatively, green-and-yellow, brown, black, grey
Five-core Green-and-yellow, blue, brown, black, grey
Note: Depending on their intended use, the cables might be subject to the core colour requirements specified in BS 7671 or other standards, or in statutory requirements.
Sheath Colour: Black (other colours can be offered upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (XLPE): 90°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductor (OD ≤ 25mm): 4 x Overall Diameter
Circular copper conductor (OD > 25mm): 6 x Overall Diameter
Shaped copper conductor: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
2 Cores					
2x1.5[a]	2	0.7	1.8	9.2	108
2x2.5[a]	2	0.7	1.8	10.4	142
2x4[a]	2	0.7	1.8	11.5	186
2x6[a]	2	0.7	1.8	12.6	239
2x10[a]	2	0.7	1.8	14.5	344
2x16[a]	2	0.7	1.8	16.6	488
2x25[a]	2	0.9	1.8	20.0	727
2x35[a]	2	0.9	1.8	22.3	954
2x50[a]	2	1.0	1.8	25.4	1251
2x70[a]	2	1.1	1.8	29.4	1739
2x95[a]	2	1.1	1.9	33.4	2345
2x120[a]	2	1.2	2.0	37.2	2933
2x25[b]	2	0.9	1.8	16.4	501
2x35[b]	2	0.9	1.8	18.0	646
2x50[b]	2	1.0	1.8	22.6	1134
2x70[b]	2	1.1	1.8	25.8	1542
2x95[b]	2	1.1	1.9	28.7	1998
2x120[b]	2	1.2	2.0	32.0	2528
3 Coress					
3x1.5[a]	2	0.7	1.8	9.6	132

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
3x2.5[a]	2	0.7	1.8	10.9	179
3x4[a]	2	0.7	1.8	12.1	240
3x6[a]	2	0.7	1.8	13.3	316
3x10[a]	2	0.7	1.8	15.3	466
3x16[a]	2	0.7	1.8	17.6	674
3x25[a]	2	0.9	1.8	21.3	1019
3x35[a]	2	0.9	1.8	23.8	1350
3x50[a]	2	1.0	1.8	27.1	1784
3x70[a]	2	1.1	1.9	31.6	2516
3x95[a]	2	1.1	2.0	35.9	3405
3x120[a]	2	1.2	2.1	40.0	4267
3x25[b]	2	0.9	1.8	17.4	694
3x35[b]	2	0.9	1.8	19.1	906
3x50[b]	2	1.0	1.8	24.1	1620
3x70[b]	2	1.1	1.9	27.7	2233
3x95[b]	2	1.1	2.0	30.8	2902
3x120[b]	2	1.2	2.1	34.4	3679
4 Cores					
4x1.5[a]	2	0.7	1.8	10.3	159
4x2.5[a]	2	0.7	1.8	11.8	219
4x4[a]	2	0.7	1.8	13.1	298
4x6[a]	2	0.7	1.8	14.5	397
4x10[a]	2	0.7	1.8	16.8	593
4x16[a]	2	0.7	1.8	19.3	866
4x25[a]	2	0.9	1.8	23.4	1319
4x35[a]	2	0.9	1.8	26.2	1756
4x50[a]	2	1.0	1.8	29.9	2327
4x70[a]	2	1.1	2.0	35.1	3310
4x95[a]	2	1.1	2.1	39.9	4485
4x120[a]	2	1.2	2.3	44.7	5646
4x25[b]	2	0.9	1.8	19.0	893
4x35[b]	2	0.9	1.8	21.0	1172
4x50[b]	2	1.0	1.8	26.5	2114
4x70[b]	2	1.1	2.0	30.8	2938
4x95[b]	2	1.1	2.1	34.3	3822
4x120[b]	2	1.2	2.3	38.4	4869
5 Cores					
5x1.5[a]	2	0.7	1.8	11.1	187
5x2.5[a]	2	0.7	1.8	12.8	260
5x4[a]	2	0.7	1.8	14.3	357
5x6[a]	2	0.7	1.8	15.8	479

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
5x10[a]	2	0.7	1.8	18.3	721
5x16[a]	2	0.7	1.8	21.2	1059
5x25[a]	2	0.9	1.8	25.8	1620
5x35[a]	2	0.9	1.8	28.9	2164
5x50[a]	2	1.0	1.9	33.2	2890
5x70[a]	2	1.1	2.1	39.0	4111
5x95[a]	2	1.1	2.2	44.4	5573
5x120[a]	2	1.2	2.4	49.6	7014

a: Circular or compacted circular stranded conductor (Class 2).
b: Shaped stranded conductor (Class 2).

ELECTRICAL PROPERTIES

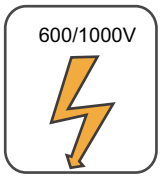
Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4E2A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method E (free air or on a perforated cable tray etc. horizontal or vertical)	
	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
1.5	18.5	16.5	22	19.5	24	22	26	23
2.5	25	22	30	26	33	30	36	32
4	33	30	40	35	45	40	49	42
6	42	38	51	44	58	52	63	54
10	57	51	69	60	80	71	86	75
16	76	68	91	80	107	96	115	100
25	99	89	119	105	138	119	149	127
35	121	109	146	128	171	147	185	158
50	145	130	175	154	209	179	225	192
70	183	164	221	194	269	229	289	246
95	220	197	265	233	328	278	352	298
120	253	227	305	268	382	322	410	346

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E2B

Nominal Cross Section Area	Two-core cable d.c.	Two-core cable, single-phase a.c.			Three- or four-core cable, three-phase a.c.		
1	2	3			Cables touching 4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
1.5	31	31			27		
2.5	19	19			16		
4	12	12			10		
6	7.9	7.9			6.8		
10	4.7	4.7			4.0		
16	2.9	2.9			2.5		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



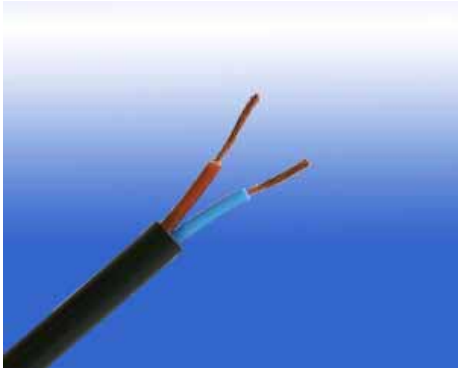
Standard

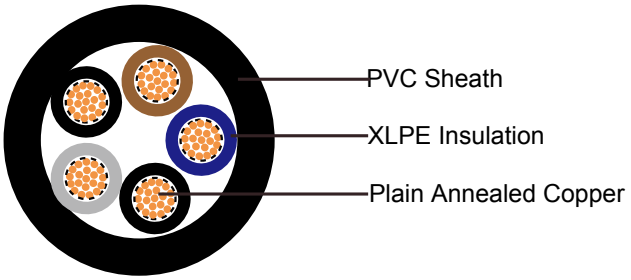

Flame Retardancy
BS EN 60332-1-2

600/1000V XLPE Insulated, PVC Sheathed, Unarmoured Power Cables (2-5 Cores & Multicore)

FGD400 1RV-R (CU/XLPE/PVC 600/1000V Class 2)

VDE Code: N2XY





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design adapted to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: XLPE according to IEC 60502-1.
Inner Covering(Option): Extruded PVC or polymeric compound.
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey. Alternatively, green-and-yellow, blue, brown

Four-core Blue, brown, black, grey. Alternatively, green-and-yellow, brown, black, grey
Five-core Green-and-yellow, blue, brown, black, grey
Note: Depending on their intended use, the cables might be subject to the core colour requirements specified in BS 7671 or other standards, or in statutory requirements.
Sheath Colour: Black (other colours can be offered upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation: 80°C (For ST_1 Sheath); 90°C (For ST_2 Sheath)
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius: 12 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm
2 Cores					
2x1.5	2	0.7	1.8	9.2	109
2x2.5	2	0.7	1.8	10.0	138
2x4	2	0.7	1.8	11.0	182
2x6	2	0.7	1.8	12.0	234
2x10	2	0.7	1.8	13.6	333
2x16	2	0.7	1.8	15.4	468
2x25	2	0.9	1.8	18.4	686
2x35	2	0.9	1.8	20.6	926
2x50	2	1.0	1.8	23.6	1269
2x70	2	1.1	1.8	26.8	1699
2x95	2	1.1	1.9	30.2	2269
2x120	2	1.2	2.0	33.7	2853
2x150	2	1.4	2.2	37.5	3539
2x185	2	1.6	2.3	41.6	4329
2x240	2	1.7	2.5	46.7	5607
2x300	2	1.8	2.6	51.4	6892
2x400	2	2.0	2.9	58.9	9202
3 Cores					
3x1.5	2	0.7	1.8	9.6	133
3x2.5	2	0.7	1.8	10.5	174
3x4	2	0.7	1.8	11.6	236

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm
3x6	2	0.7	1.8	12.6	310
3x10	2	0.7	1.8	14.4	452
3x16	2	0.7	1.8	16.3	648
3x25	2	0.9	1.8	19.5	963
3x35	2	0.9	1.8	21.9	1315
3x50	2	1.0	1.8	25.1	1818
3x70	2	1.1	1.9	28.7	2451
3x95	2	1.1	2.0	32.4	3287
3x120	2	1.2	2.1	36.1	4142
3x150	2	1.4	2.3	40.3	5140
3x185	2	1.6	2.4	44.6	6298
3x240	2	1.7	2.6	50.2	8170
3x300	2	1.8	2.7	55.2	10063
3x400	2	2.0	3.0	63.3	13451
3 Cores+1 Earth Conductor					
		power conductor	earth conductor		
3x16/10	2	0.7	0.7	1.8	17.5	793
3x25/16	2	0.9	0.7	1.8	21.2	1070
3x35/16	2	0.9	0.7	1.8	23.8	1349
3x50/25	2	1.0	0.9	1.8	27.5	1890
3x70/35	2	1.1	0.9	2.0	31.7	2660
3x95/50	2	1.1	1.0	2.1	35.8	3650
3x120/70	2	1.2	1.1	2.3	39.9	4610
3x150/70	2	1.4	1.1	2.4	44.6	5450
3x185/95	2	1.6	1.1	2.6	49.5	6680
3x240/120	2	1.7	1.2	2.8	55.7	8690
3x300/150	2	1.8	1.4	3.0	61.4	11170
3x400/185	2	1.8	1.6	3.2	70.4	11480
4 Cores					
4x1.5	2	0.7		1.8	10.4	169
4x2.5	2	0.7		1.8	11.3	220
4x4	2	0.7		1.8	12.5	297

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm
4x6	2	0.7	1.8	13.7	392
4x10	2	0.7	1.8	15.7	585
4x16	2	0.7	1.8	17.8	851
4x25	2	0.9	1.8	21.5	1200
4x35(S)	2	0.9	1.8	24.1	1600
4x50(S)	2	1.0	1.8	27.8	2200
4x70(S)	2	1.1	2.0	32.0	3050
4x95(S)	2	1.1	2.1	36.1	4070
4x120(S)	2	1.2	2.3	40.2	5915
4x150(S)	2	1.4	2.4	44.9	6350
4x185(S)	2	1.6	2.6	49.8	7890
4x240(S)	2	1.7	2.8	56.0	10400
4x300(S)	2	1.8	3.0	61.7	12810
4x400(S)	2	2.0	3.2	70.7	15869
5 Cores					
5x1.5	2	0.7	1.8	12.1	205
5x2.5	2	0.7	1.8	13.1	265
5x4	2	0.7	1.8	14.3	360
5x6	2	0.7	1.8	15.2	478
5x10	2	0.7	1.8	15.6	720
5x16	2	0.7	1.8	16.1	1050
5x25	2	0.9	1.8	18.6	1485
5x35	2	0.9	1.8	21.3	1940
5x50	2	1.0	2.1	25.9	2667
5x70	2	1.1	2.2	28.8	3698
5x95	2	1.1	2.4	29.4	4934
5x120	2	1.2	2.5	42.6	7171
5x150	2	1.4	2.7	47.7	7699
5x185	2	1.6	2.9	52.8	9566
5x240	2	1.7	3.1	58.7	12610
(S) - Sectoral Stranded Conductors					
7 Cores					
7x1.5	2	0.7	1.8	12.4	225

Conductor		FGD400 1RV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm
7x2.5	2	0.7	1.8	13.8	303
7x4	2	0.7	1.8	15.5	422
10 Cores					
10x1.5	2	0.7	1.8	15.6	325
10x2.5	2	0.7	1.8	17.5	426
10x4	2	0.7	1.8	19.7	597
12 Cores					
12x1.5	2	0.7	1.8	16.2	370
12x2.5	2	0.7	1.8	18.1	489
12x4	2	0.7	1.8	20.3	690
19 Cores					
19x1.5	2	0.7	1.8	19.0	516
19x2.5	2	0.7	1.8	21.3	725
19x4	2	0.7	1.8	24.0	1037
27 Cores					
27x1.5	2	0.7	1.8	22.7	712
27x2.5	2	0.7	1.8	25.5	1004
27x4	2	0.7	1.8	28.8	1445
37 Cores					
37x1.5	2	0.7	1.8	25.5	941
37x2.5	2	0.7	1.8	28.7	1334
37x4	2	0.7	1.8	32.5	1932
48 Cores					
48x1.5	2	0.7	1.8	29.0	1186
48x2.5	2	0.7	1.9	32.9	1706
48x4	2	0.7	1.9	37.3	2479

Note : Other conductor sizes & core configurations are available upon request.

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671:2008 table 4E2A

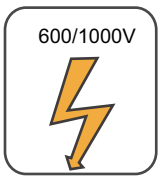
Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method E (free air or on a perforated cable tray etc. horizontal or vertical)	
	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three -phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
1.5	18.5	16.5	22	19.5	24	22	26	23
2.5	25	22	30	26	33	30	36	32
4	33	30	40	35	45	40	49	42
6	42	38	51	44	58	52	63	54
10	57	51	69	60	80	71	86	75
16	76	68	91	80	107	96	115	100
25	99	89	119	105	138	119	149	127
35	121	109	146	128	171	147	185	158
50	145	130	175	154	209	179	225	192
70	183	164	221	194	269	229	289	246
95	220	197	265	233	328	278	352	298
120	253	227	305	268	382	322	410	346
150	290	259	334	300	441	371	473	399
185	329	295	384	340	506	424	542	456
240	386	346	459	398	599	500	641	538
300	442	396	532	455	693	576	741	621
400	-	-	625	536	803	667	865	741

Voltage Drop (Per Amp Per Meter) according to BS 7671:2008 table 4E2B

Nominal Cross Section Area	Two-core cable d.c.	Two-core cable, single-phase a.c.	Three- or four-core cable, three-phase a.c.
1	2	3	Cables touching 4
mm^2	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	27
2.5	19	19	16
4	12	12	10
6	7.9	7.9	6.8
10	4.7	4.7	4.0
16	2.9	2.9	2.5

Nominal Cross Section Area	Two-core cable d.c.	Two-core cable, single-phase a.c.			Three- or four-core cable, three-phase a.c.		
1	2	3			Cables touching 4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.28	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.200	0.140	0.24	0.175	0.125	0.21
300	0.155	0.160	0.140	0.21	0.140	0.120	0.185
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



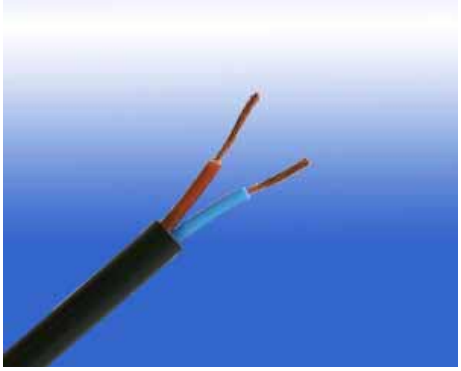
Standard

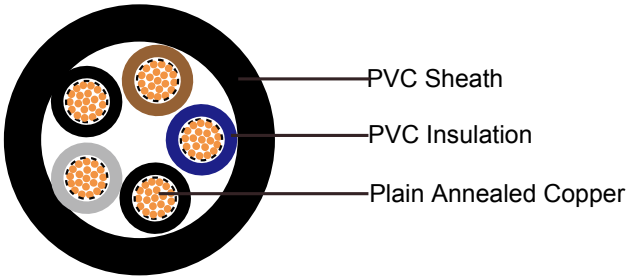

Flame Retardancy
IEC 60332-1

600/1000V PVC Insulated, PVC Sheathed, Unarmoured Power Cables (2-5 Cores & Multicore)

FGD400 1VV-R (CU/PVC/PVC 600/1000V Class 2)

VDE Code: NYY





APPLICATION

The cables are mainly use in fixed installations in industrial areas, buildings and similar applications but not for burial in the ground, either directly or in ducts.

STANDARDS

Basic design to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: PVC/A according to IEC 60502-1.
Inner Covering(Option): Extruded PVC or polymeric compound.
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey. Alternatively, green-and-yellow, blue, brown
Four-core Blue, brown, black, grey. Alternatively, green-and-yellow, brown, black, grey
Five-core Green-and-yellow, blue, brown, black, grey
Note: Depending on their intended use, the cables might be subject to the core colour requirements specified in BS 7671 or other standards, or in statutory requirements.
Sheath Colour: Black (other colours can be offered upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds):
Conductor cross-section ≤300 mm^2:160°C
Conductor cross-section >300 mm^2:140°C
Minimum bending radius: 12 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD400 1VV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
2 Cores					
2x1.5	2	0.8	1.8	9.6	120
2x2.5	2	0.8	1.8	10.4	151
2x4	2	1.0	1.8	12.2	212
2x6	2	1.0	1.8	13.2	266
2x10	2	1.0	1.8	14.8	370
2x16	2	1.0	1.8	16.6	510
2x25	2	1.2	1.8	19.6	740
2x35	2	1.2	1.8	21.8	986
2x50	2	1.4	1.8	25.2	1355
2x70	2	1.4	1.9	28.1	1798
2x95	2	1.6	2.0	32.4	2419
2x120	2	1.6	2.1	35.4	3003
2x150	2	1.8	2.2	39.2	3696
2x185	2	2	2.4	43.3	4536
2x240	2	2.2	2.5	48.9	5849

Conductor		FGD400 1VV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
2x300	2	2.4	2.7	54.0	7223
2x400	2	2.6	2.9	61.5	9566
3 Cores					
3x1.5	2	0.8	1.8	10.1	149
3x2.5	2	0.8	1.8	10.9	192
3x4	2	1.0	1.8	12.9	277
3x6	2	1.0	1.8	13.9	354
3x10	2	1.0	1.8	15.7	503
3x16	2	1.0	1.8	17.6	707
3x25	2	1.2	1.8	20.8	1040
3x35	2	1.2	1.8	23.2	1401
3x50	2	1.4	1.8	26.9	1942
3x70	2	1.4	1.9	30.1	2589
3x95	2	1.6	2.1	34.7	3514
3x120	2	1.6	2.2	38	4372
3x150	2	1.8	2.3	42.1	5390
3x185	2	2.0	2.5	46.5	6615
3x240	2	2.2	2.7	52.5	8576
3x300	2	2.4	2.8	58	10564
3x400	2	2.6	3.1	66.1	14049
3 Cores+1 Earth Conductor					
		power conductor	earth conductor		
3x 16/10	2	1.0	1.0	1.8	19.0	764
3x 25/16	2	1.2	1.0	1.8	22.6	1137
3x 35/16	2	1.2	1.0	1.8	25.3	1494
3x 50/25	2	1.4	1.2	1.9	29.6	2120
3x 70/35	2	1.4	1.2	2.0	33.2	2862

Conductor		FGD400 1VV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness		Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm	kg/km
3x 95/50	2	1.6	1.4	2.2	38.4	3917
3x120/70	2	1.6	1.4	2.3	42.0	4973
3x150/70	2	1.4	1.2	2.5	46.6	5861
3x185/95	2	1.6	1.4	2.6	51.6	7321
3x240/120	2	1.6	1.4	2.9	58.3	9433
3x300/150	2	1.8	1.6	3.1	64.5	11714
3x400/185	2	2.0	1.6	3.3	73.5	15404
4 Cores						
4x1.5	2	0.8		1.8	10.8	180
4x2.5	2	0.8		1.8	11.8	236
4x4	2	1		1.8	14	346
4x6	2	1		1.8	15.2	447
4x10	2	1		1.8	17.1	642
4x16	2	1		1.8	19.3	910
4x25	2	1.2		1.8	22.9	1347
4x35	2	1.2		1.8	25.6	1824
4x50	2	1.4		1.9	29.9	2553
4x70	2	1.4		2	33.5	3409
4x95	2	1.6		2.2	38.7	4628
4x120	2	1.6		2.3	42.3	5763
4x150	2	1.8		2.5	46.9	7132
4x185	2	2		2.6	51.9	8723
4x240	2	2.2		2.9	58.6	11344
4x300	2	2.4		3.1	64.8	14012
4x400	2	2.6		3.3	73.8	18590
5x1.5	2	0.8		1.8	11.7	213
7x1.5	2	0.8		1.8	12.6	270

Conductor		FGD400 1VV-R			
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
10x1.5	2	0.8	1.8	15.6	371
12x1.5	2	0.8	1.8	16.1	424
14x1.5	2	0.8	1.8	16.8	480
19x1.5	2	0.8	1.8	18.6	619
21x1.5	2	0.8	1.8	19.5	676
24x1.5	2	0.8	1.8	21.6	769
30x1.5	2	0.8	1.8	22.8	927
40x1.5	2	0.8	1.8	27.7	1196
48x1.5	2	0.8	1.9	28.2	1430
61x1.5	2	0.8	1.9	30.9	1773
5x2.5	2	0.8	1.8	12.8	281
7x2.5	2	0.8	1.8	13.8	363
10x2.5	2	0.8	1.8	17.2	503
12x2.5	2	0.8	1.8	17.7	580
14x2.5	2	0.8	1.8	18.6	660
19x2.5	2	0.8	1.8	20.6	860
21x2.5	2	0.8	1.8	21.6	941
24x2.5	2	0.8	1.8	24	1072
30x2.5	2	0.8	1.8	25.4	1302
40x2.5	2	0.8	2	31.1	1720
48x2.5	2	0.8	2	31.7	2039
61x2.5	2	0.8	2.1	34.7	2557

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671 table 4D2A

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)		Reference Method C (clipped direct)		Reference Method G (in free air) Spaced by one cable diameter	
	1 two-core cables*, single-phase a.c. or d.c.	1 three-core cable* or 1 four-core cable, three -phase a.c.	1 two-core cables*, single-phase a.c. or d.c.	1 three-core cable* or 1 four-core cable, three -phase a.c.	1 two-core cables*, single-phase a.c. or d.c.	1 three-core cable* or 1 four-core cable, three -phase a.c.	1 two-core cables*, single-phase a.c. or d.c.	1 three-core cable* or 1 four-core cable, three -phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
1.0	11	10	13	11.5	15	13.5	17	14.5
1.5	14	13	16.5	15	19.5	17.5	22	18.5
2.5	18.5	17.5	23	20	27	24	30	25
4	25	23	30	27	36	32	40	34
6	32	29	38	34	46	41	51	43
10	43	39	52	46	63	57	70	60
16	57	52	69	62	85	76	94	80
25	75	68	90	80	112	96	119	101
35	92	83	111	99	138	119	148	126
50	110	99	133	118	168	144	180	153
70	139	125	168	149	213	184	232	196
95	167	150	201	179	258	223	282	238
120	192	172	232	206	299	259	328	276
150	219	196	258	225	344	299	379	319
185	248	223	294	255	392	341	434	364
240	291	261	344	297	461	403	514	430
300	334	298	394	339	530	464	593	497
400	-	-	470	402	634	557	715	597

*** with or without a protective conductor**

Voltage Drop (Per Amp Per Meter) according to BS 7671 table 4D2B

Nominal Cross Section Area	Two-core cable d.c.	Two-core cable, single-phase a.c.			Three- or four-core cable, three-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
1.0	44	44			38		
1.5	29	29			25		
2.5	18	18			15		
4	11	11			9.5		
6	7.3	7.3			6.4		
10	4.4	4.4			3.8		
16	2.8	2.8			2.4		
		r	x	z	r	x	z
25	1.75	1.75	0.170	1.75	1.50	0.145	1.50
35	1.25	1.25	0.165	1.25	1.10	0.145	1.10
50	0.93	0.93	0.165	0.94	0.80	0.140	0.81
70	0.63	0.63	0.160	0.65	0.55	0.140	0.57
95	0.46	0.47	0.155	0.50	0.41	0.135	0.43
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35
150	0.29	0.30	0.155	0.34	0.26	0.130	0.29
185	0.23	0.25	0.150	0.29	0.21	0.130	0.25
240	0.180	0.190	0.150	0.24	0.165	0.130	0.21
300	0.145	0.155	0.145	0.21	0.135	0.130	0.185
400	0.105	0.115	0.145	0.185	0.100	0.125	0.160

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard



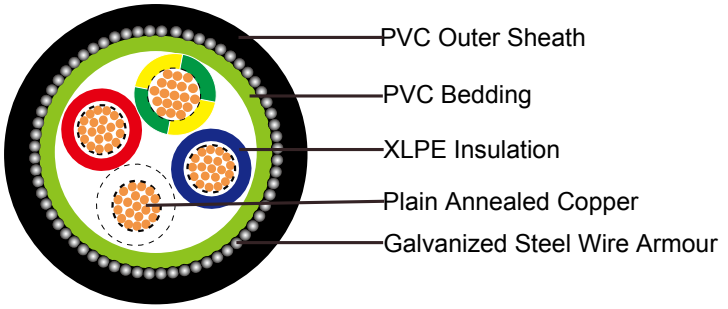
Flame Retardancy
IEC 60332-1

600/1000V XLPE Insulated, PVC Sheathed, Armoured Power Cables (2-5 Cores & Multicore)

FGD400 1RVMV-R (CU/XLPE/PVC/SWA/PVC 600/1000V Class 2)

BS Code:6942X-6945X





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design to BS 5467

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS EN 60228 class 2.
Insulation: Extruded XLPE GP 8 according to BS 7655-1.3.
Bedding: PVC.
Armouring: Galvanized steel wire
Outer Sheath: PVC Type 9 according to BS 7655-4.2.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey
Four-core: Blue, brown, black, grey
Five-core: Green-and-yellow, blue, brown, black, grey
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (XLPE): 90°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERSCONSTRUCTION PARAMETERS

No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armor Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox. Weight
No./mm²		mm	mm	mm	mm	mm	kg/km
2 Cores							
2x1.5[a]	2	0.6	0.8	0.9	1.3	12.1	320
2x2.5[a]	2	0.7	0.8	0.9	1.4	13.6	365
2x4[a]	2	0.7	0.8	0.9	1.4	14.7	440
2x6[a]	2	0.7	0.8	0.9	1.4	15.9	470
2x10[a]	2	0.7	0.8	0.9	1.5	18.0	800
2x16[a]	2	0.7	0.8	1.25	1.5	20.4	900
2x25[b]	2	0.9	0.8	1.25	1.6	20.4	1240
2x25[a]	2	0.9	0.8	1.25	1.6	24.1	1240
2x35[b]	2	0.9	1	1.6	1.7	23.3	1710
2x35[a]	2	0.9	1	1.6	1.7	27.7	1710
2x50[b]	2	1.0	1	1.6	1.8	25.8	1800
2x70[b]	2	1.1	1	1.6	1.9	29.0	2320
2x95[b]	2	1.1	1.2	2.0	2.0	33.1	3150
2x120[b]	2	1.2	1.2	2.0	2.1	36.1	3880
2x150[b]	2	1.4	1.2	2.0	2.2	39.3	4820
2x185[b]	2	1.6	1.4	2.5	2.4	44.7	5920
2x240[b]	2	1.7	1.4	2.5	2.5	49.0	7300
2x300[b]	2	1.8	1.6	2.5	2.6	53.5	8770
2x400[b]	2	2	1.6	2.5	2.8	59.0	10905
3 Cores							

No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armor Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox. Weight
No./mm²		mm	mm	mm	mm	mm	kg/km
3x1.5[a]	2	0.6	0.8	0.9	1.3	12.6	340
3x2.5[a]	2	0.7	0.8	0.9	1.4	14.1	408
3x4[a]	2	0.7	0.8	0.9	1.4	15.3	498
3x6[a]	2	0.7	0.8	0.9	1.4	16.6	600
3x10[a]	2	0.7	0.8	1.25	1.5	19.5	915
3x16[a]	2	0.7	0.8	1.25	1.6	21.6	1130
3x25[a]	2	0.9	1	1.6	1.7	26.7	1710
3x25[b]	2	0.9	1	1.6	1.7	23.6	1710
3x35[a]	2	0.9	1	1.6	1.8	29.4	2100
3x35[b]	2	0.9	1	1.6	1.8	25.7	2100
3x50[b]	2	1.0	1	1.6	1.8	28.5	2450
3x70[b]	2	1.1	1	1.6	1.9	32.2	3120
3x95[b]	2	1.1	1.2	2.0	2.1	37.0	4310
3x120[b]	2	1.2	1.2	2.0	2.2	40.4	5160
3x150[b]	2	1.4	1.4	2.5	2.3	45.5	7160
3x185[b]	2	1.6	1.4	2.5	2.4	49.8	8600
3x240[b]	2	1.7	1.4	2.5	2.6	55.1	10755
3x300[b]	2	1.8	1.6	2.5	2.7	60.2	13080
3x400[b]	2	2	1.6	2.5	2.9	66.6	15810
4 Cores							
4x1.5[a]	2	0.7	0.8	0.9	1.3	13.3	390
4x2.5[a]	2	0.7	0.8	0.9	1.4	15.0	470
4x4[a]	2	0.7	0.8	0.9	1.4	16.4	580
4x6[a]	2	0.7	0.8	1.25	1.5	18.7	805
4x10[a]	2	0.7	0.8	1.25	1.5	21.1	1090
4x16[a]	2	0.7	0.8	1.25	1.6	23.4	1320
4x25[a]	2	0.9	1	1.6	1.7	28.9	1840
4x25[b]	2	0.9	1	1.6	1.7	26.1	1840
4x35[a]	2	0.9	1	1.6	1.8	31.9	2310
4x35[b]	2	0.9	1	1.6	1.8	28.6	2310

No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armor Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter	Aprrox. Weight
No./mm²		mm	mm	mm	mm	mm	kg/km
4x50[b]	2	1.0	1	1.6	1.9	32.0	2970
4x70[b]	2	1.1	1.2	2.0	2.1	37.7	4240
4x95[b]	2	1.1	1.2	2.0	2.2	41.7	5400
4x120[b]	2	1.2	1.4	2.5	2.3	47.1	7000
4x150[b]	2	1.4	1.4	2.5	2.4	51.4	8350
4x185[b]	2	1.6	1.4	2.5	2.6	56.6	10130
4x240[b]	2	1.7	1.6	2.5	2.7	63.0	12840
4x300[b]	2	1.8	1.6	2.5	2.9	68.8	15530
4x400[b]	2	2	1.8	3.15	3.2	78.1	19950
5 Cores							
5x1.5[a]	2	0.6	0.8	0.9	1.4	14.3	430
5x2.5[a]	2	0.7	0.8	0.9	1.4	16.1	545
5x4[a]	2	0.7	0.8	0.9	1.5	17.8	680
5x6[a]	2	0.7	0.8	1.25	1.5	20	840
5x10[a]	2	0.7	0.8	1.25	1.6	22.9	1105
5x16[a]	2	0.7	1	1.6	1.7	26.6	1450
5x25[a]	2	0.9	1	1.6	1.8	31.5	2245
5x35[a]	2	0.9	1	1.6	1.9	34.8	2840
5x50[a]	2	1.0	1.2	2	2	40.4	3895
5x70[a]	2	1.1	1.2	2	2.2	46.3	5145

[a] Circular or compacted circular stranded conductors (class 2).
[b] Shaped stranded conductor (class 2).

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

Current-Carrying Capacities (Amp) according to BS7671:2008 table 4E4A

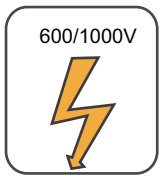
Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method E (in free air or on a perforated cable tray, horizontal or vertical)		Reference Method D (direct in in groud or in ducting in groud. in or around buildings)	
	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
1.5	27	23	29	25	25	21
2.5	36	31	39	33	33	28
4	49	42	52	44	43	36
6	62	53	66	56	53	44
10	85	73	90	78	71	58
16	110	94	115	99	91	75
25	146	124	152	131	116	96
35	180	154	188	162	139	115
50	219	187	228	197	164	135
70	279	238	291	251	203	167
95	338	289	354	304	239	197
120	392	335	410	353	271	223
150	451	386	472	406	306	251
185	515	441	539	463	343	281
240	607	520	636	546	395	324
300	698	599	732	628	446	365
400	787	673	847	728	-	-

Voltage Drop (Per Amp Per Meter) according to BS7671:2008 table 4E4B

Conductor cross-sectional area	Two-core cables, d.c.	Two-core cable, single-phase a.c.	Three-or four core cable, three-phase a.c.
1	2	3	4
mm^2	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	27
2.5	19	19	16
4	12	12	10
6	7.9	7.9	6.8
10	4.7	4.7	4.0
16	2.9	2.9	2.5

Conductor cross-sectional area	Two-core cables, d.c.	Two-core cable, single-phase a.c.			Three-or four core cable, three-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.38	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.200	0.140	0.24	0.175	0.125	0.21
300	0.155	0.160	0.140	0.21	0.140	0.120	0.185
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



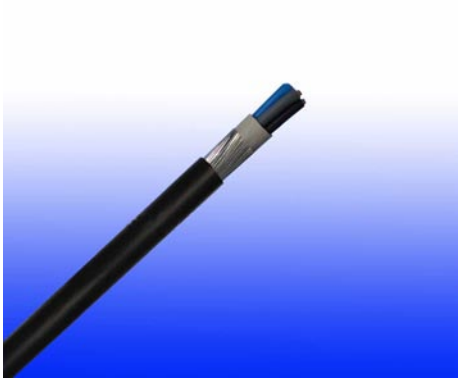
Standard

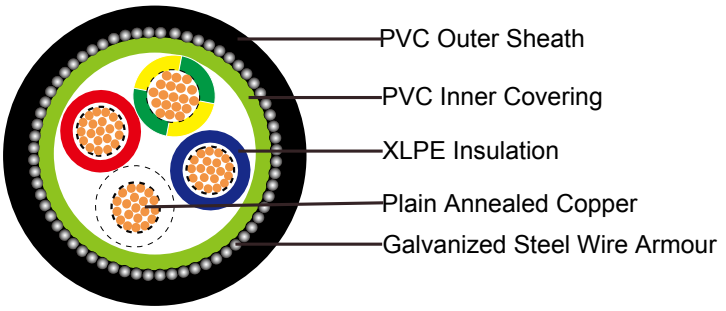

Flame Retardancy
BS EN 60332-1-2

600/1000V XLPE Insulated, PVC Sheathed, Armoured Power Cables (2-4 Cores & Multicore)

FGD400 1RVMV-R (CU/XLPE/PVC/SWA/PVC 600/1000V Class 2)

VDE Code:N2XRY





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design adapted to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to IEC 60228 class 2.
Insulation: XLPE according to IEC 60502-1.
Inner Covering: Extruded PVC or polymeric compound.
Armouring: Galvanized steel wire
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey
Four-core: Blue, brown, black, grey
Five-core: Green-and-yellow, blue, brown, black, grey
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation: 80°C (For ST_1 Sheath); 90°C (For ST_2 Sheath)
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius: 12 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor			FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm		mm	kg/km
2 Cores							
2x1.5	2	0.7	1	0.8	1.8	12.8	312
2x2.5	2	0.7	1	0.8	1.8	13.6	359
2x4	2	0.7	1	0.8	1.8	14.6	424
2x6	2	0.7	1	1.25	1.8	16.5	620
2x10	2	0.7	1	1.25	1.8	18.1	768
2x16	2	0.7	1	1.25	1.8	19.9	958
2x25	2	0.9	1	1.6	1.8	23.6	1414
2x35	2	0.9	1	1.6	1.8	25.8	1737
2x50	2	1	1	1.6	1.9	29	2208
2x70	2	1.1	1	2	2	33.2	3020
2x95	2	1.1	1.2	2	2.1	37.1	3793
2x120	2	1.2	1.2	2	2.3	40.5	4554
2x150	2	1.4	1.2	2.5	2.4	45.4	5821
2x185	2	1.6	1.4	2.5	2.6	49.9	6927
2x240	2	1.7	1.4	2.5	2.7	55.1	8471
2x300	2	1.8	1.6	2.5	2.9	60.2	10127
2x400	2	2	1.6	2.5	3.1	67.7	10850
3 Cores							
3x1.5	2	0.7	1.0	0.8	1.8	13.2	325
3x2.5	2	0.7	1.0	0.8	1.8	14.1	374

Conductor				FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness		Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm		mm	kg/km
3x4	2	0.7		1.0	0.8	1.8	15.2	441
3x6	2	0.7		1.0	1.25	1.8	17.1	660
3x10	2	0.7		1.0	1.25	1.8	18.9	815
3x16	2	0.7		1.0	1.25	1.8	20.8	1013
3x25	2	0.9		1.0	1.6	1.8	24.7	1468
3x35	2	0.9		1.0	1.6	1.8	27.2	1798
3x50	2	1.0		1.0	1.6	1.9	30.6	2281
3x70	2	1.1		1.0	2.0	2.1	35.2	3138
3x95	2	1.1		1.2	2.0	2.2	39.3	3930
3x120	2	1.2		1.2	2.0	2.3	43.0	4688
3x150	2	1.4		1.4	2.5	2.5	48.6	6087
3x185	2	1.6		1.4	2.5	2.7	53.0	7157
3x240	2	1.7		1.4	2.5	2.8	58.5	8732
3x300	2	1.8		1.6	2.5	3.0	64.0	10422
3x400	2	2.0		1.6	3.2	3.3	73.5	14190
3Cores+1 Earth Conductor								
		power conductor	earth conductor					
3x16/10	2	0.7	0.7	1.0	1.6	1.8	22.7	1446
3x25/16	2	0.9	0.7	1.0	1.6	1.8	26.5	1925
3x35/16	2	0.9	0.7	1.0	1.6	1.9	29.0	2607
3x50/25	2	1.0	0.9	1.0	1.6	2.1	33.0	3413
3x70/35	2	1.1	0.9	1.2	2.0	2.2	38.0	4710
3x95/50	2	1.1	1.0	1.2	2.0	2.3	42.4	6179
3x120/70	2	1.2	1.1	1.2	2.0	2.5	48.0	8195
3x150/70	2	1.4	1.1	1.4	2.5	2.7	52.0	10304
3x185/95	2	1.6	1.1	1.4	2.5	2.8	57.2	13172
3x240/120	2	1.7	1.2	1.6	2.5	3.1	64.0	16711
3x300/150	2	1.8	1.4	1.6	2.5	3.2	69.8	21094
3x400/185	2	2.0	1.6	1.6	3.2	3.6	78.6	27130
4 Cores								
4x1.5	2	0.7		1.0	0.8	1.8	14.0	389
4x2.5	2	0.7		1.0	0.8	1.8	14.9	462

Conductor			FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm		mm	kg/km
4x4	2	0.7	1.0	1.25	1.8	17.0	711
4x6	2	0.7	1.0	1.25	1.8	18.2	845
4x10	2	0.7	1.0	1.25	1.8	20.2	1093
4x16	2	0.7	1.0	1.6	1.8	23.0	1542
4x25	2	0.9	1.0	1.6	1.8	26.7	2092
4x35	2	0.9	1.0	1.6	1.9	29.5	2671
4x50	2	1.0	1.0	2.0	2.1	34.2	3759
4x70	2	1.1	1.2	2.0	2.2	38.8	4850
4x95	2	1.1	1.2	2.0	2.3	42.9	6147
4x120	2	1.2	1.4	2.5	2.5	48.6	8006
4x150	2	1.4	1.4	2.5	2.7	53.2	9591
4x185	2	1.6	1.4	2.5	2.8	58.1	11403
4x240	2	1.7	1.6	2.5	3.1	64.8	14349
4x300	2	1.8	1.6	2.5	3.2	70.4	17189
4x400	2	2.0	1.8	3.2	3.6	81.3	23416
5 Cores							
5x1.5	2	0.7	1.0	0.8	1.8	14.8	434
5x2.5	2	0.7	1.0	0.8	1.8	15.8	522
5x4	2	0.7	1.0	0.8	1.8	17.2	650
5x6	2	0.7	1.0	1.25	1.8	19.4	947
5x10	2	0.7	1.0	1.25	1.8	21.6	1244
5x16	2	0.7	1.0	1.6	1.8	24.7	1793
5x25	2	0.9	1.0	1.6	1.9	29.0	2473
5x35	2	0.9	1.0	1.6	2.0	32.2	3179

Note : Other conductor sizes & core confi gurations are available upon request.

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS7671:2008 table 4E4A

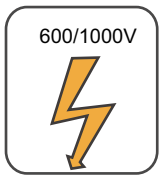
Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method E (in free air or on a perforated cable tray, horizontal or vertical)		Reference Method D (direct in in groud or in ducting in groud. in or around buildings)	
	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.	1 two-core cable*, single-phase a.c. or d.c.	1 three-or four core cable*, three-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
1.5	27	23	29	25	25	21
2.5	36	31	39	33	33	28
4	49	42	52	44	43	36
6	62	53	66	56	53	44
10	85	73	90	78	71	58
16	110	94	115	99	91	75
25	146	124	152	131	116	96
35	180	154	188	162	139	115
50	219	187	228	197	164	135
70	279	238	291	251	203	167
95	338	289	354	304	239	197
120	392	335	410	353	271	223
150	451	386	472	406	306	251
185	515	441	539	463	343	281
240	607	520	636	546	395	324
300	698	599	732	628	446	365
400	787	673	847	728	-	-

Voltage Drop (Per Amp Per Meter) according to BS7671:2008 table 4E4B

Conductor cross-sectional area	Two-core cables, d.c.	Two-core cable, single-phase a.c.	Three-or four core cable, three-phase a.c.
1	2	3	4
mm^2	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	27
2.5	19	19	16
4	12	12	10
6	7.9	7.9	6.8
10	4.7	4.7	4.0
16	2.9	2.9	2.5

Conductor cross-sectional area	Two-core cables, d.c.	Two-core cable, single-phase a.c.			Three-or four core cable, three-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.38	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.200	0.140	0.24	0.175	0.125	0.21
300	0.155	0.160	0.140	0.21	0.140	0.120	0.185
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage

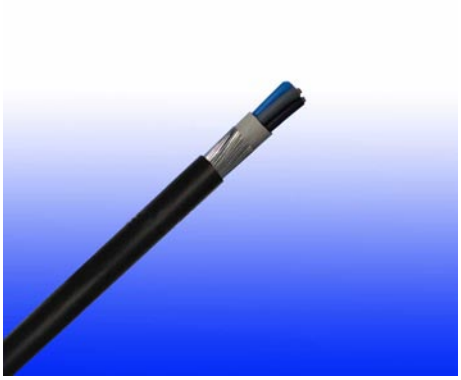


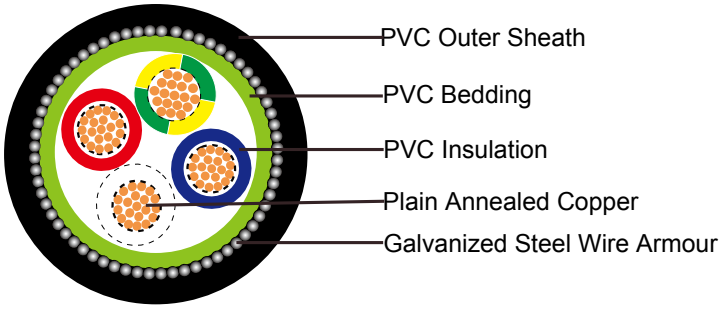
Standard


Flame Retardancy
IEC 60332-1

600/1000V PVC Insulated, PVC Sheathed, Armoured Power Cables (2-5 Cores & Multicore)

FGD400 1VVMV-R (CU/PVC/PVC/SWA/PVC 600/1000V Class 2)





APPLICATION

The cables are intended for use in fixed installations in industrial areas, buildings and similar applications.

STANDARDS

Basic design to BS 6346

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 50265-2-1

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to BS 6360 class 2.
Insulation: PVC TI 1 according to BS 7655-3.1.
Bedding: Extruded PVC or taped bedding comprising two or more layers of PVC tape or other synthetic tape(for cables having a nominal conductor area of 16mm² and above).
Armouring: Galvanized steel wire.
Outer Sheath: PVC TM 1 according to BS 7655-4.1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour:
Two-core: Brown, blue
Three-core: Brown, black, grey
Four-core: Blue, brown, black, grey
Five-core: Green-and-yellow, blue, brown, black, grey
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor		FGD400 1VVMAV-R						
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter		Aprrox Weight
						Extruded Bedding	Taped Bedding	
No.×mm²		mm	mm	mm	mm	mm	mm	kg/km
2 Core								
2x1.5[a]	2	0.6	0.8	0.9	1.4	12.3	-	278
2x2.5[a]	2	0.7	0.8	0.9	1.4	13.6	-	355
2x4[a]	2	0.8	0.8	0.9	1.4	15.1	-	437
2x6[a]	2	0.8	0.8	0.9	1.5	16.5	-	524
2x10[a]	2	1.0	0.8	1.25	1.6	20.1	-	835
2x16[a]	2	1.0	0.8	1.25	1.6	21.9	21.9	1045
2x25[b]	2	1.2	1.0	1.6	1.7	23.0	22.6	1535
2x25[a]	2	1.2	1.0	1.6	1.7	26.7	26.3	1608
2x35[b]	2	1.2	1.0	1.6	1.8	24.8	24.4	1839
2x35[a]	2	1.2	1.0	1.6	1.8	29.2	28.8	1941
2x50[b]	2	1.4	1.0	1.6	1.9	27.8	27.4	1364
2x70[b]	2	1.4	1.0	1.6	1.9	30.4	30.0	2328
2x95[b]	2	1.6	1.2	2.0	2.1	35.5	34.7	3759
2x120[b]	2	1.6	1.2	2.0	2.2	38.0	37.2	3217
2x150[b]	2	1.8	1.2	2.0	2.3	41.3	40.5	3732
2x185[b]	2	2.0	1.4	2.5	2.4	46.4	45.2	6669

Conductor		FGD400 1VVMAV-R						
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter		Aprrox Weight
						Extruded Bedding	Taped Bedding	
No.×mm²		mm	mm	mm	mm	mm	mm	kg/km
2x240[b]	2	2.2	1.4	2.5	2.5	51.2	50.0	6432
2x300[b]	2	2.4	1.6	2.5	2.7	56.4	54.8	7680
2x400[b]	2	2.6	1.6	2.5	2.9	61.9	60.3	12535
3 Core								
3x1.5[a]	2	0.6	0.8	0.9	1.4	12.8	-	311
3x2.5[a]	2	0.7	0.8	0.9	1.4	14.1	-	405
3x4[a]	2	0.8	0.8	0.9	1.4	15.8	-	510
3x6[a]	2	0.8	0.8	1.25	1.5	18.0	-	727
3x10[a]	2	1.0	0.8	1.25	1.6	21.2	-	998
3x16[a]	2	1.0	0.8	1.25	1.6	23.1	23.1	1291
3x25[b]	2	1.2	1.0	1.6	1.7	25.0	24.6	1879
3x25[a]	2	1.2	1.0	1.6	1.7	28.2	27.8	1989
3x35[b]	2	1.2	1.0	1.6	1.8	27.1	26.7	2286
3x35[a]	2	1.2	1.0	1.6	1.8	30.8	30.4	2439
3x50[b]	2	1.4	1.0	1.6	1.9	30.5	30.1	1638
3x70[b]	2	1.4	1.2	2.0	2.0	35.0	34.2	3272
3x95[b]	2	1.6	1.2	2.0	2.1	39.3	38.5	4789
3x120[b]	2	1.6	1.2	2.0	2.2	42.2	41.4	4068
3x150[b]	2	1.8	1.4	2.5	2.4	47.5	46.3	5231
3x185[b]	2	2.0	1.4	2.5	2.5	51.9	50.7	8660
3x240[b]	2	2.2	1.6	2.5	2.6	57.8	56.2	8395
3x300[b]	2	2.4	1.6	2.5	2.8	63.2	61.6	10006
3x400[b]	2	2.6	1.6	2.5	3.0	69.6	68.0	16856
4 Core								
4x1.5[a]	2	0.6	0.8	0.9	1.4	13.5	-	353
4x2.5[a]	2	0.7	0.8	0.9	1.4	15.0	-	466
4x4[a]	2	0.8	0.8	1.25	1.5	17.8	-	708
4x6[a]	2	0.8	0.8	1.25	1.5	19.2	-	850

Conductor		FGD400 1VVMAV-R						
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Bedding Thickness	Nominal Armour Wire Diameter	Nominal Sheath Thickness	Approx. Overall Diameter		Aprrox Weight
						Extruded Bedding	Taped Bedding	
No.×mm²		mm	mm	mm	mm	mm	mm	kg/km
4x10[a]	2	1.0	0.8	1.25	1.6	22.8	-	1186
4x16[a]	2	1.0	1.0	1.6	1.7	26.3	25.9	1751
4x25[b]	2	1.2	1.0	1.6	1.8	27.8	27.4	2254
4x25[a]	2	1.2	1.0	1.6	1.8	30.7	30.3	2401
4x35[b]	2	1.2	1.0	1.6	1.9	30.3	29.9	2769
4x35[a]	2	1.2	1.0	1.6	1.9	33.7	33.3	2972
4x50[b]	2	1.4	1.2	2.0	2.0	35.4	34.6	2198
4x70[b]	2	1.4	1.2	2.0	2.1	39.2	38.4	3961
4x95[b]	2	1.6	1.2	2.0	2.2	44.3	43.5	5891
4x120[b]	2	1.6	1.4	2.5	2.4	49.3	48.1	5437
4x150[b]	2	1.8	1.4	2.5	2.5	53.6	52.4	6357
4x185[b]	2	2.0	1.6	2.5	2.6	59.0	57.4	10827
4x240[b]	2	2.2	1.6	2.5	2.8	65.7	64.1	10363
4x300[b]	2	2.4	1.6	2.5	3.0	72.0	70.4	12420
4x400[b]	2	2.6	1.8	3.15	3.3	81.3	79.3	22477
5 Core								
5x1.5[a]	2	0.6	0.8	0.9	1.4	14.3	-	396
5x2.5[a]	2	0.7	0.8	0.9	1.5	16.3	-	538
5x4[a]	2	0.8	0.8	1.25	1.5	19.0	-	807
5x6[a]	2	0.8	0.8	1.25	1.6	20.9	-	987
5x10[a]	2	1.0	1.0	1.6	1.7	25.8	-	1581
5x16[a]	2	1.0	1.0	1.6	1.7	28.4	28.0	2039
5x25[a]	2	1.2	1.0	1.6	1.9	33.5	33.1	2840
5x35[a]	2	1.2	1.0	1.6	1.9	36.6	36.2	3518
5x50[a]	2	1.4	1.2	2.0	2.1	43.0	42.2	4881
5x70[a]	2	1.4	1.2	2.0	2.2	48.1	47.3	6325

[a] Circular or compacted circular stranded conductor (class 2)

[b] Shaped stranded conductor (class 2)

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671: 2008 table 4D4A

Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method E (in free air or on a perforated cable tray, horizontal or vertical)		Reference Method D (direct in ground or in ducting in ground. in or around buildings)	
	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
1.5	21	18	22	19	22	18
2.5	28	25	31	26	29	24
4	38	33	41	35	37	30
6	49	42	53	45	46	38
10	67	58	72	62	60	50
16	89	77	97	83	78	64
25	118	102	128	110	99	82
35	145	125	157	135	119	98
50	175	151	190	163	140	116
70	222	192	241	207	173	143
95	269	231	291	251	204	169
120	310	267	336	290	231	192
150	356	306	386	332	261	217
185	405	348	439	378	292	243
240	476	409	516	445	336	280
300	547	469	592	510	379	316
400	621	540	683	590	-	-

Voltage Drop (Per Amp Per Meter) according to BS 7671: 2008 table 4D4B

Nominal Cross Section Area 1	Two-core cables d.c. 2	Two-core cable, single-phase a.c. 3	Three- or four-core cable, 4
mm^2	mV/A/m	mV/A/m	mV/A/m
1.5	29	29	25
2.5	18	18	15
4	11	11	9.5
6	7.3	7.3	6.4
10	4.4	4.4	3.8

Nominal Cross Section Area 1	Two-core cables d.c. 2	Two-core cable, single-phase a.c. 3			Three- or four-core cable, 4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
16	2.8	2.8			2.4		
		r	x	z	r	x	z
25	1.75	1.75	0.170	1.75	1.50	0.145	1.50
35	1.25	1.25	0.165	1.25	1.10	0.145	1.10
50	0.93	0.93	0.165	0.94	0.80	0.140	0.81
70	0.63	0.63	0.160	0.65	0.55	0.140	0.57
95	0.46	0.47	0.155	0.50	0.41	0.135	0.43
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35
150	0.29	0.30	0.155	0.34	0.26	0.130	0.29
185	0.23	0.25	0.150	0.29	0.21	0.130	0.25
240	0.180	0.190	0.150	0.24	0.165	0.130	0.21
300	0.145	0.155	0.145	0.21	0.135	0.130	0.185
400	0.105	0.115	0.145	0.185	0.100	0.125	0.160

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard



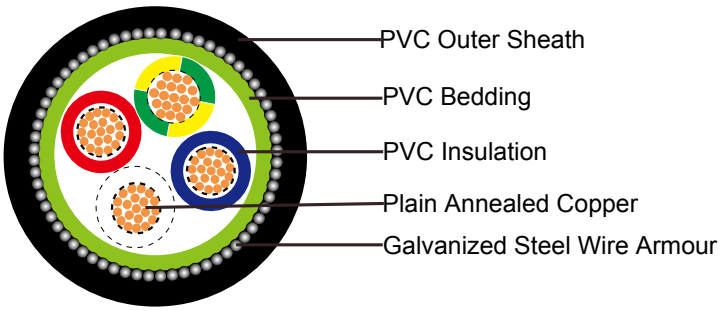
Flame Retardancy
BS EN 50265-2-1

600/1000V PVC Insulated, PVC Sheathed, Armoured Power Cables (2-4 Cores)

FGD400 1VVMV-R (CU/PVC/PVC/SWA/PVC 600/1000V Class 2)

VDE Code:NYRY





APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design adapted to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	IEC 60332-1-2

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper wire, stranded according to IEC 60228 class 2.
Insulation: PVC/A according to IEC 60502-1.
Inner Covering: Extruded PVC or polymeric compound.
Armouring: Galvanized steel wire
Outer Sheath: Extruded PVC Type ST_1/ST_2 according to IEC 60502-1.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Two-core: Brown, blue
Three-core: Brown, black, grey
Four-core: Blue, brown, black, grey
Five-core: Green-and-yellow, blue, brown, black, grey
Other colours can be manufactured upon request.
Sheath Colour: Black (other colours upon request)

PHYSICAL AND THERMAL PROPERTIES

Maximum temperature range during operation (PVC): 70°C
Maximum short circuit temperature (5 Seconds): 160°C(≤300 mm²); 140°C(>300 mm²)
Minimum bending radius:
Circular copper conductors: 6 x Overall Diameter
Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor			FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	mm	mm	kg/km
2 Cores							
2x2.5	2	0.8	1.0	0.8	1.8	14.0	380
2x4	2	1.0	1.0	1.25	1.8	16.7	604
2x6	2	1.0	1.0	1.25	1.8	17.7	689
2x10	2	1.0	1.0	1.25	1.8	19.3	841
2x16	2	1.0	1.0	1.25	1.8	21.1	1037
2x25	2	1.2	1.0	1.6	1.8	24.8	1513
2x35	2	1.2	1.0	1.6	1.8	27.0	1843
2x50	2	1.4	1.0	1.6	1.9	30.7	2356
2x70	2	1.4	1.0	2.0	2.1	34.5	3179
2x95	2	1.6	1.2	2.0	2.2	39.2	4042
2x120	2	1.6	1.2	2.0	2.3	42.2	4764
2x150	2	1.8	1.2	2.5	2.5	47.2	6095
2x185	2	2.0	1.4	2.5	2.6	51.6	7207
2x240	2	2.2	1.4	2.5	2.8	57.2	8861
2x300	2	2.4	1.6	2.5	3.0	62.8	10608
2x400	2	2.6	1.6	2.5	3.2	70.3	13385
3 Cores							
3x2.5	2	0.8	1.0	0.8	1.8	14.5	432

Conductor				FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness		Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm		mm	mm	mm	mm	kg/km
3x4	2	1.0		1.0	1.25	1.8	17.4	689
3x6	2	1.0		1.0	1.25	1.8	18.4	800
3x10	2	1.0		1.0	1.25	1.8	20.2	1001
3x16	2	1.0		1.0	1.6	1.8	22.8	1405
3x25	2	1.2		1.0	1.6	1.8	26.0	1860
3x35	2	1.2		1.0	1.6	1.9	28.5	2325
3x50	2	1.4		1.0	2.0	2.0	33.3	3266
3x70	2	1.4		1.2	2.0	2.1	37.0	4108
3x95	2	1.6		1.2	2.0	2.3	41.6	5245
3x120	2	1.6		1.2	2.5	2.4	45.9	6677
3x150	2	1.8		1.4	2.5	2.6	50.4	8016
3x185	2	2.0		1.4	2.5	2.7	54.8	9466
3x240	2	2.2		1.5	2.5	2.9	61.2	11805
3x300	2	2.4		1.6	2.5	3.1	66.8	14181
3x400	2	2.8		1.6	3.15	3.4	76.7	19235
3x500	2	2.8		1.8	3.15	3.7	83.6	23011
3Cores+1 Earth Conductor								
3x10/6	2	1.0	1.0	1.0	1.25	1.8	21.9	1140
3x16/10	2	1.0	1.0	1.0	1.6	1.8	24.2	1633
3x25/16	2	1.2	1.0	1.0	1.6	1.8	27.9	2145
3x35/16	2	1.2	1.0	1.0	1.6	1.9	30.8	2659
3x50/25	2	1.4	1.2	1.0	2.0	2.0	36.4	3739
3x70/35	2	1.4	1.2	1.2	2.0	2.1	40.1	4720
3x95/50	2	1.6	1.4	1.2	2.5	2.3	46.3	6398
3x120/70	2	1.6	1.4	1.4	2.5	2.4	50.3	7746
3x150/70	2	1.8	1.4	1.4	2.5	2.6	55.0	9128
3x185/95	2	2.0	1.6	1.4	2.5	2.7	60.3	10916
3x240/120	2	2.2	1.6	1.6	2.5	2.9	67.0	13713
3x300/150	2	2.4	1.8	1.6	3.15	3.1	74.6	17403
3x400/185	2	2.6	2.0	1.8	3.15	3.4	84.1	20704
3x500/240	2	2.8	2.2	2.0	3.15	3.7	91.8	25817
4 Cores								
4x4	2	1.0		1.0	1.25	1.8	18.5	792

Conductor			FGD400 1RVMV-R				
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Covering Thickness	Armour Wire Diameter	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	mm	mm	kg/km
4x6	2	1.0	1.0	1.25	1.8	19.7	931
4x10	2	1.0	1.0	1.25	1.8	22.3	1185
4x16	2	1.0	1.0	1.6	1.8	24.5	1672
4x25	2	1.2	1.0	1.6	1.9	28.2	2260
4x35	2	1.2	1.0	1.6	2.0	31.1	2854
4x50	2	1.4	1.0	2.0	2.1	36.7	4013
4x70	2	1.4	1.2	2.0	2.3	40.4	5104
4x95	2	1.6	1.2	2.5	2.5	46.6	6996
4x120	2	1.6	1.4	2.5	2.6	50.6	8400
4x150	2	1.8	1.4	2.5	2.7	55.3	10008
4x185	2	2.0	1.4	2.5	2.9	60.6	11906
4x240	2	2.2	1.6	2.5	3.1	67.3	14963
4x300	2	2.4	1.6	3.15	3.4	74.9	18944
4x400	2	2.6	1.8	3.15	3.7	84.4	24304
4x500	2	2.8	2.0	3.15	3.9	92.1	29351

Note : Other conductor sizes & core confi gurations are available upon request.

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp) according to BS 7671: 2008 table 4D4A

Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method E (in free air or on a perforated cable tray, horizontal or vertical)		Reference Method D (direct in ground or in ducting in ground. in or around buildings)	
	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
1.5	21	18	22	19	22	18
2.5	28	25	31	26	29	24
4	38	33	41	35	37	30
6	49	42	53	45	46	38

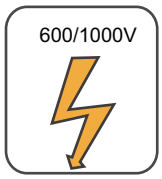
Conductor cross-sectional area	Reference Method C (clipped direct)		Reference Method E (in free air or on a perforated cable tray, horizontal or vertical)		Reference Method D (direct in ground or in ducting in ground. in or around buildings)	
	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
10	67	58	72	62	60	50
16	89	77	97	83	78	64
25	118	102	128	110	99	82
35	145	125	157	135	119	98
50	175	151	190	163	140	116
70	222	192	241	207	173	143
95	269	231	291	251	204	169
120	310	267	336	290	231	192
150	356	306	386	332	261	217
185	405	348	439	378	292	243
240	476	409	516	445	336	280
300	547	469	592	510	379	316
400	621	540	683	590	-	-

Voltage Drop (Per Amp Per Meter) according to BS 7671: 2008 table 4D4B

Nominal Cross Section Area 1	Two-core cables d.c. 2	Two-core cable, single-phase a.c. 3			Three- or four-core cable, 4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
1.5	29	29			25		
2.5	18	18			15		
4	11	11			9.5		
6	7.3	7.3			6.4		
10	4.4	4.4			3.8		
16	2.8	2.8			2.4		
		r	x	z	r	x	z
25	1.75	1.75	0.170	1.75	1.50	0.145	1.50
35	1.25	1.25	0.165	1.25	1.10	0.145	1.10
50	0.93	0.93	0.165	0.94	0.80	0.140	0.81
70	0.63	0.63	0.160	0.65	0.55	0.140	0.57
95	0.46	0.47	0.155	0.50	0.41	0.135	0.43
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35

Nominal Cross Section Area 1	Two-core cables d.c. 2	Two-core cable, single-phase a.c. 3			Three- or four-core cable, 4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
150	0.29	0.30	0.155	0.34	0.26	0.130	0.29
185	0.23	0.25	0.150	0.29	0.21	0.130	0.25
240	0.180	0.190	0.150	0.24	0.165	0.130	0.21
300	0.145	0.155	0.145	0.21	0.135	0.130	0.185
400	0.105	0.115	0.145	0.185	0.100	0.125	0.160

Note: *Spacings larger than one cable diameter will result in a large voltage drop.
r = conductor resistance at operating temperature
x = reactance
z = impedance



Rated Voltage



Standard



Flame Retardancy
IEC 60332-1

TYPE CODES FOR FLAME RETARDANT POWER & CONTROL CABLES

FGD A-B-C-D-E-F-G-H

H Conductor
U: Solid to IEC 60228 class 1
R: Stranded to IEC 60228 class 2
K: Flexible conductor of a cable for fixed installations (Class 5)
F: Flexible conductor of a flexible cable or cord (Class 5)

G Outer Sheath
V: Thermoplastic PVC 70°C
V2: Thermoplastic PVC 90°C

F Armour
M: Steel wire armour
MA: Aluminium wire armour
F: Steel tape armour
FA: Aluminium tape armour
F2: Double steel tape armour
F3: Flat steel wire armour

E Inner Sheath
V: Thermoplastic PVC
V2: Thermoplastic PVC 90°C

D Screen
O: Overall aluminium screen
C: Overall copper braiding

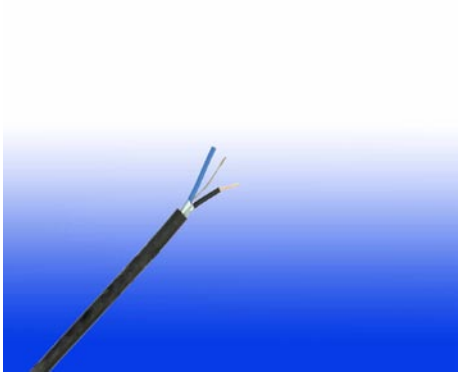
C Insulation
R: XLPE
V: PVC

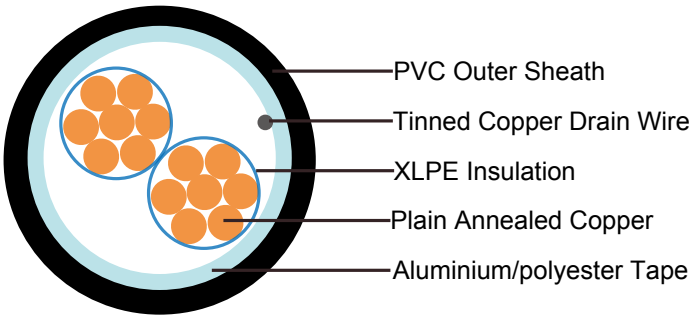
B Voltage
05: 300/500V
07: 450/750V
1: 600/1000V

A Type
100: Single core unsheathed
200: 300/500V & 450/750V multicore/multipair
300: Single core sheathed
400: 600/1000V multicore

Flame Retardant Overall Screened Instrumentation Cables (Multicore)

RE-2X(St)Y





APPLICATION

The unarmoured XLPE versions are generally use for indoor installation and suitable for wet and damp areas. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300V, 500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Overall Screen: Aluminium/polyester tape is applied over the laid up cores with metallic side down in contact with tinned copper drain wire, 0.5mm².
Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: -30°C - +90°C
Temperature range fixed installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius: 7.5 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				
Dielectric Strength for 1 minute	AC	V	≥2000				
	DC	V	≥3000				

CONSTRUCTION PARAMETERS

300V

Conductor				RE-2X(St)Y	
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
0.5mm^2					
2x0.5	2	0.35	0.9	5.4	45
3x0.5	2	0.35	0.9	5.6	48
4x0.5	2	0.35	0.9	6.0	57
5x0.5	2	0.35	0.9	6.5	67
8x0.5	2	0.35	1.0	7.8	89
10x0.5	2	0.35	1.0	8.8	119
12x0.5	2	0.35	1.0	9.0	141
14x0.5	2	0.35	1.0	9.5	151
16x0.5	2	0.35	1.1	9.9	167
20x0.5	2	0.35	1.1	11.2	206
24x0.5	2	0.35	1.1	12.3	255
27x0.5	2	0.35	1.2	12.5	260
30x0.5	2	0.35	1.2	13.1	294
37x0.5	2	0.35	1.2	14.1	342
40x0.5	2	0.35	1.2	14.7	340
0.75mm^2					
2x0.75	2	0.38	0.9	6.5	49
3x0.75	2	0.38	0.9	6.9	60
4x0.75	2	0.38	0.9	7.4	71
5x0.75	2	0.38	0.9	8.1	92
8x0.75	2	0.38	1.0	9.7	120
10x0.75	2	0.38	1.0	11.1	148
12x0.75	2	0.38	1.0	11.5	174
14x0.75	2	0.38	1.1	12.2	189
16x0.75	2	0.38	1.1	12.9	212
20x0.75	2	0.38	1.1	14.3	269
24x0.75	2	0.38	1.2	16.0	306
27x0.75	2	0.38	1.2	16.3	342
30x0.75	2	0.38	1.2	16.9	373
37x0.75	2	0.38	1.2	18.2	444
40x0.75	2	0.38	1.3	19.1	483
1.0mm^2					
2x1.0	2	0.4	0.9	6.3	59
3x1.0	2	0.4	0.9	6.7	68
4x1.0	2	0.4	0.9	7.2	82
5x1.0	2	0.4	0.9	7.8	105
8x1.0	2	0.4	1.0	9.3	151

Conductor				RE-2X(St)Y	
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
10x1.0	2	0.4	1.0	10.7	185
12x1.0	2	0.4	1.0	11.0	205
14x1.0	2	0.4	1.1	11.7	232
16x1.0	2	0.4	1.1	12.3	268
20x1.0	2	0.4	1.1	13.7	320
24x1.0	2	0.4	1.2	15.2	395
27x1.0	2	0.4	1.2	15.6	422
30x1.0	2	0.4	1.2	16.1	461
37x1.0	2	0.4	1.2	17.5	561
40x1.0	2	0.4	1.3	18.2	600
$1.5mm^2$					
2x1.5	2	0.45	0.9	7.1	76
3x1.5	2	0.45	0.9	7.5	95
4x1.5	2	0.45	0.9	8.1	116
5x1.5	2	0.45	1.0	9.0	148
8x1.5	2	0.45	1.0	10.6	211
10x1.5	2	0.45	1.1	12.5	259
12x1.5	2	0.45	1.1	12.9	304
14x1.5	2	0.45	1.1	13.5	328
16x1.5	2	0.45	1.1	14.2	377
20x1.5	2	0.45	1.2	16.1	466
24x1.5	2	0.45	1.3	17.8	557
27x1.5	2	0.45	1.3	18.3	601
30x1.5	2	0.45	1.3	18.9	657
37x1.5	2	0.45	1.4	20.5	800
40x1.5	2	0.45	1.4	21.4	861

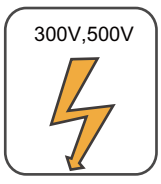
500V

Conductor				RE-2X(St)Y	
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
$0.5mm^2$					
2x0.5	2	0.55	0.9	6.2	47
3x0.5	2	0.55	0.9	6.5	50
4x0.5	2	0.55	0.9	7.0	60
5x0.5	2	0.55	0.9	7.6	71
8x0.5	2	0.55	1.0	9.1	95
10x0.5	2	0.55	1.0	10.4	127
12x0.5	2	0.55	1.0	10.7	151

Conductor				RE-2X(St)Y	
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
14x0.5	2	0.55	1.0	11.3	162
16x0.5	2	0.55	1.1	11.8	180
20x0.5	2	0.55	1.1	13.3	222
24x0.5	2	0.55	1.1	14.7	274
27x0.5	2	0.55	1.2	15.0	282
30x0.5	2	0.55	1.2	15.7	318
37x0.5	2	0.55	1.2	16.9	372
40x0.5	2	0.55	1.2	17.6	372
0.75mm^2					
2x0.75	2	0.55	0.9	6.5	51
3x0.75	2	0.55	0.9	6.9	62
4x0.75	2	0.55	0.9	7.4	74
5x0.75	2	0.55	0.9	8.1	96
8x0.75	2	0.55	1.0	9.7	126
10x0.75	2	0.55	1.0	11.1	156
12x0.75	2	0.55	1.0	11.5	183
14x0.75	2	0.55	1.1	12.2	200
16x0.75	2	0.55	1.1	12.9	224
20x0.75	2	0.55	1.1	14.3	284
24x0.75	2	0.55	1.2	16.0	324
27x0.75	2	0.55	1.2	16.3	363
30x0.75	2	0.55	1.2	16.9	396
37x0.75	2	0.55	1.2	18.2	472
40x0.75	2	0.55	1.3	19.1	514
1.0mm^2					
2x1.0	2	0.55	0.9	6.9	61
3x1.0	2	0.55	0.9	7.3	70
4x1.0	2	0.55	0.9	7.9	85
5x1.0	2	0.55	0.9	8.6	109
8x1.0	2	0.55	1.0	10.3	157
10x1.0	2	0.55	1.0	11.9	193
12x1.0	2	0.55	1.0	12.2	214
14x1.0	2	0.55	1.1	13.0	243
16x1.0	2	0.55	1.1	13.7	280
20x1.0	2	0.55	1.1	15.2	336
24x1.0	2	0.55	1.2	17.0	414
27x1.0	2	0.55	1.2	17.4	443
30x1.0	2	0.55	1.2	18.0	484
37x1.0	2	0.55	1.2	19.6	590
40x1.0	2	0.55	1.3	20.4	631

Conductor				RE-2X(St)Y	
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2		mm	mm	mm	kg/km
1.5mm^2					
2x1.5	2	0.6	0.9	7.7	78
3x1.5	2	0.6	0.9	8.1	98
4x1.5	2	0.6	0.9	8.8	120
5x1.5	2	0.6	1.0	9.8	153
8x1.5	2	0.6	1.0	11.6	218
10x1.5	2	0.6	1.1	13.7	268
12x1.5	2	0.6	1.1	14.1	315
14x1.5	2	0.6	1.1	14.8	341
16x1.5	2	0.6	1.1	15.6	392
20x1.5	2	0.6	1.2	17.6	484
24x1.5	2	0.6	1.3	19.6	579
27x1.5	2	0.6	1.3	20.1	626
30x1.5	2	0.6	1.3	20.8	685
37x1.5	2	0.6	1.4	22.6	834
40x1.5	2	0.6	1.4	23.6	898
2.5mm^2					
2x2.5	2	0.7	0.9	8.9	111
3x2.5	2	0.7	1.0	9.7	132
4x2.5	2	0.7	1.0	10.5	169
5x2.5	2	0.7	1.0	11.9	209
8x2.5	2	0.7	1.1	13.9	321
10x2.5	2	0.7	1.2	16.3	386
12x2.5	2	0.7	1.2	16.9	447
14x2.5	2	0.7	1.2	17.7	509
16x2.5	2	0.7	1.3	18.9	585
20x2.5	2	0.7	1.3	21.1	712
24x2.5	2	0.7	1.4	23.6	855
27x2.5	2	0.7	1.4	24.1	956
30x2.5	2	0.7	1.5	25.2	1049
37x2.5	2	0.7	1.5	27.2	1277
40x2.5	2	0.7	1.6	28.5	1370

Note : Other conductor sizes & core confi gurations are available upon request.



Rated Voltage



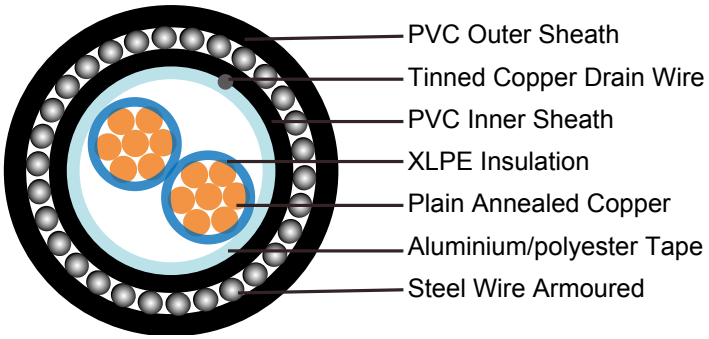
Standard


Flame Retardancy
BS EN 60332-1-2

Flame Retardant Overall Screened, Armoured Instrumentation Cables (Multicore)

RE-2X(St)YSWAY





APPLICATION

The armoured XLPE versions are generally used when the risk of mechanical damage is increased. The galvanized steel wire armour provides excellent protection. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Overall Screen: Aluminium/polyester tape is applied over the laid up cores with metallic side down in contact with tinned copper drain wire, 0.5mm².
Inner Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Armouring: Galvanised steel wire.
Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: -30°C - +90°C
Temperature range fixed installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius: 10 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				
Dielectric Strength for 1 minute	AC	V	≥2000				
	DC	V	≥3000				

CONSTRUCTION PARAMETERS

300V

Conductor		RE-2X(St)YSWAY					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
0.5mm^2							
2x0.5	2	0.35	0.9	0.9	1.3	9.8	208
3x0.5	2	0.35	0.9	0.9	1.3	10.0	228
4x0.5	2	0.35	0.9	0.9	1.3	10.4	250
5x0.5	2	0.35	0.9	0.9	1.3	10.9	279
8x0.5	2	0.35	1.0	0.9	1.4	12.4	338
10x0.5	2	0.35	1.0	0.9	1.4	13.4	391
12x0.5	2	0.35	1.0	0.9	1.4	13.6	432
14x0.5	2	0.35	1.0	0.9	1.4	14.1	463
16x0.5	2	0.35	1.1	0.9	1.4	14.5	492
20x0.5	2	0.35	1.1	0.9	1.5	16.0	553
24x0.5	2	0.35	1.1	0.9	1.5	17.1	623
27x0.5	2	0.35	1.2	0.9	1.5	17.3	786
30x0.5	2	0.35	1.2	0.9	1.5	17.9	824
37x0.5	2	0.35	1.2	0.9	1.6	19.1	933
40x0.5	2	0.35	1.2	1.25	1.6	20.4	982
0.75mm^2							
2x0.75	2	0.38	0.9	0.9	1.3	10.9	228
3x0.75	2	0.38	0.9	0.9	1.3	11.3	245
4x0.75	2	0.38	0.9	0.9	1.3	11.8	275
5x0.75	2	0.38	0.9	0.9	1.4	12.7	318
8x0.75	2	0.38	1.0	0.9	1.4	14.3	377
10x0.75	2	0.38	1.0	0.9	1.4	15.7	453
12x0.75	2	0.38	1.0	0.9	1.4	16.1	468
14x0.75	2	0.38	1.1	0.9	1.5	17.0	516
16x0.75	2	0.38	1.1	0.9	1.5	17.7	560
20x0.75	2	0.38	1.1	0.9	1.5	19.1	654
24x0.75	2	0.38	1.2	0.9	1.5	20.8	859
27x0.75	2	0.38	1.2	0.9	1.6	21.3	908
30x0.75	2	0.38	1.2	0.9	1.6	21.9	963

Conductor		RE-2X(St)YSWAY					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
37x0.75	2	0.38	1.2	1.25	1.6	23.9	1074
40x0.75	2	0.38	1.3	1.25	1.6	24.8	1150
$1.0mm^2$							
2x1.0	2	0.4	0.9	0.9	1.3	11.3	245
3x1.0	2	0.4	0.9	0.9	1.3	11.7	268
4x1.0	2	0.4	0.9	0.9	1.4	12.5	296
5x1.0	2	0.4	0.9	0.9	1.4	13.2	338
8x1.0	2	0.4	1.0	0.9	1.4	14.9	418
10x1.0	2	0.4	1.0	0.9	1.4	16.5	506
12x1.0	2	0.4	1.0	0.9	1.5	17.0	539
14x1.0	2	0.4	1.1	0.9	1.5	17.8	579
16x1.0	2	0.4	1.1	0.9	1.5	18.5	637
20x1.0	2	0.4	1.1	0.9	1.5	20.0	848
24x1.0	2	0.4	1.2	0.9	1.6	22.0	986
27x1.0	2	0.4	1.2	1.25	1.6	23.1	1037
30x1.0	2	0.4	1.2	1.25	1.6	23.7	1090
37x1.0	2	0.4	1.2	1.25	1.6	25.3	1242
40x1.0	2	0.4	1.3	1.25	1.7	26.3	1320
$1.5mm^2$							
2x1.5	2	0.45	0.9	0.9	1.3	12.1	277
3x1.5	2	0.45	0.9	0.9	1.4	12.7	319
4x1.5	2	0.45	0.9	0.9	1.4	13.4	343
5x1.5	2	0.45	1.0	0.9	1.4	14.4	387
8x1.5	2	0.45	1.0	0.9	1.4	16.2	511
10x1.5	2	0.45	1.1	0.9	1.5	18.5	605
12x1.5	2	0.45	1.1	0.9	1.5	18.9	659
14x1.5	2	0.45	1.1	0.9	1.5	19.6	729
16x1.5	2	0.45	1.1	0.9	1.5	20.4	910
20x1.5	2	0.45	1.2	1.25	1.6	23.3	1044
24x1.5	2	0.45	1.3	1.25	1.6	25.3	1196
27x1.5	2	0.45	1.3	1.25	1.6	25.8	1264
30x1.5	2	0.45	1.3	1.25	1.7	26.7	1390
37x1.5	2	0.45	1.4	1.25	1.7	28.5	1552
40x1.5	2	0.45	1.4	1.25	1.7	29.5	1650

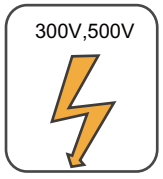
500V

Conductor		RE-2X(St)YSWAY					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
$0.5mm^2$							
2x0.5	2	0.55	0.9	0.9	1.3	10.6	210
3x0.5	2	0.55	0.9	0.9	1.3	10.9	230
4x0.5	2	0.55	0.9	0.9	1.3	11.4	253
5x0.5	2	0.55	0.9	0.9	1.3	12.0	283
8x0.5	2	0.55	1.0	0.9	1.4	13.7	344
10x0.5	2	0.55	1.0	0.9	1.4	15.0	399
12x0.5	2	0.55	1.0	0.9	1.4	15.3	442
14x0.5	2	0.55	1.0	0.9	1.4	15.9	474
16x0.5	2	0.55	1.1	0.9	1.4	16.4	505
20x0.5	2	0.55	1.1	0.9	1.5	18.1	569
24x0.5	2	0.55	1.1	0.9	1.5	19.5	642
27x0.5	2	0.55	1.2	0.9	1.5	19.8	808
30x0.5	2	0.55	1.2	0.9	1.5	20.5	848
37x0.5	2	0.55	1.2	0.9	1.6	21.9	963
40x0.5	2	0.55	1.2	1.25	1.6	23.3	1014
$0.75mm^2$							
2x0.75	2	0.55	0.9	0.9	1.3	10.9	230
3x0.75	2	0.55	0.9	0.9	1.3	11.3	247
4x0.75	2	0.55	0.9	0.9	1.3	11.8	278
5x0.75	2	0.55	0.9	0.9	1.4	12.7	322
8x0.75	2	0.55	1.0	0.9	1.4	14.3	383
10x0.75	2	0.55	1.0	0.9	1.4	15.7	461
12x0.75	2	0.55	1.0	0.9	1.4	16.1	477
14x0.75	2	0.55	1.1	0.9	1.5	17.0	527
16x0.75	2	0.55	1.1	0.9	1.5	17.7	572
20x0.75	2	0.55	1.1	0.9	1.5	19.1	669
24x0.75	2	0.55	1.2	0.9	1.5	20.8	877
27x0.75	2	0.55	1.2	0.9	1.6	21.3	929
30x0.75	2	0.55	1.2	0.9	1.6	21.9	986
37x0.75	2	0.55	1.2	1.25	1.6	23.9	1102

Conductor		RE-2X(St)YSWAY					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
40x0.75	2	0.55	1.3	1.25	1.6	24.8	1181
$1.0mm^2$							
2x1.0	2	0.55	0.9	0.9	1.3	11.3	247
3x1.0	2	0.55	0.9	0.9	1.3	11.7	270
4x1.0	2	0.55	0.9	0.9	1.4	12.5	299
5x1.0	2	0.55	0.9	0.9	1.4	13.2	342
8x1.0	2	0.55	1.0	0.9	1.4	14.9	424
10x1.0	2	0.55	1.0	0.9	1.4	16.5	514
12x1.0	2	0.55	1.0	0.9	1.5	17.0	548
14x1.0	2	0.55	1.1	0.9	1.5	17.8	590
16x1.0	2	0.55	1.1	0.9	1.5	18.5	649
20x1.0	2	0.55	1.1	0.9	1.5	20.0	864
24x1.0	2	0.55	1.2	0.9	1.6	22.0	1005
27x1.0	2	0.55	1.2	1.25	1.6	23.1	1058
30x1.0	2	0.55	1.2	1.25	1.6	23.7	1113
37x1.0	2	0.55	1.2	1.25	1.6	25.3	1271
40x1.0	2	0.55	1.3	1.25	1.7	26.3	1351
$1.5mm^2$							
2x1.5	2	0.6	0.9	0.9	1.3	12.1	279
3x1.5	2	0.6	0.9	0.9	1.4	12.7	322
4x1.5	2	0.6	0.9	0.9	1.4	13.4	347
5x1.5	2	0.6	1.0	0.9	1.4	14.4	392
8x1.5	2	0.6	1.0	0.9	1.4	16.2	518
10x1.5	2	0.6	1.1	0.9	1.5	18.5	614
12x1.5	2	0.6	1.1	0.9	1.5	18.9	670
14x1.5	2	0.6	1.1	0.9	1.5	19.6	742
16x1.5	2	0.6	1.1	0.9	1.5	20.4	925
20x1.5	2	0.6	1.2	1.25	1.6	23.3	1062
24x1.5	2	0.6	1.3	1.25	1.6	25.3	1218
27x1.5	2	0.6	1.3	1.25	1.6	25.8	1289
30x1.5	2	0.6	1.3	1.25	1.7	26.7	1418
37x1.5	2	0.6	1.4	1.25	1.7	28.5	1586

Conductor		RE-2X(St)YSWAY					
No. of Core X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
40x1.5	2	0.6	1.4	1.25	1.7	29.5	1687
2.5mm^2							
2x2.5	2	0.7	0.9	0.9	1.4	13.5	364
3x2.5	2	0.7	1.0	0.9	1.4	14.3	389
4x2.5	2	0.7	1.0	0.9	1.4	15.1	430
5x2.5	2	0.7	1.0	0.9	1.4	16.5	547
8x2.5	2	0.7	1.1	0.9	1.5	18.7	684
10x2.5	2	0.7	1.2	0.9	1.6	21.3	952
12x2.5	2	0.7	1.2	0.9	1.6	21.9	1012
14x2.5	2	0.7	1.2	1.25	1.6	23.4	1126
16x2.5	2	0.7	1.3	1.25	1.6	24.6	1252
20x2.5	2	0.7	1.3	1.25	1.7	27.0	1456
24x2.5	2	0.7	1.4	1.25	1.7	29.5	1644
27x2.5	2	0.7	1.4	1.25	1.8	30.2	1811
30x2.5	2	0.7	1.5	1.25	1.8	31.3	2154
37x2.5	2	0.7	1.5	1.25	1.8	33.3	2477
40x2.5	2	0.7	1.6	1.25	1.9	34.8	2614

Note : Other conductor sizes & core confi gurations are available upon request.



Rated Voltage



Standard

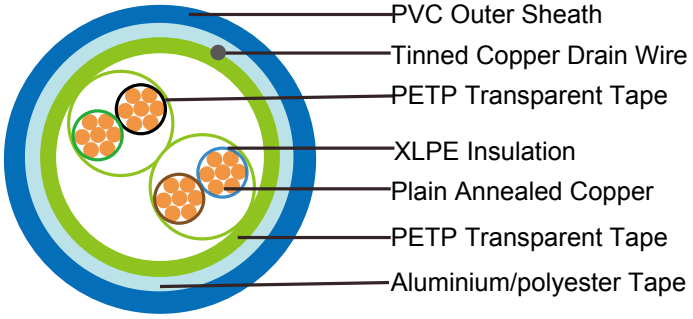


Flame Retardancy
BS EN 60332-1-2

Flame Retardant Overall Screened Instrumentation Cables (Multipair)

RE-2X(St)Y





APPLICATION

The unarmoured XLPE versions are generally use for indoor installation and suitable for wet and damp areas. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300V, 500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Pairs: Two insulated conductors uniformly twisted together with a lay not exceeding 100mm (≤1.5mm^2) nor 150mm(for 2.5mm^2).
Binder tape: PETP transparent tape
Overall Screen: Aluminium/polyester tape is applied over the laid up pairs with metallic side down in contact with tinned copper drain wire, 0.5mm².
Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: 30°C - +90°C
Temperature range fixed installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 160°C
Minimum bending radius: 7.5 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				
Dielectric Strength for 1 minute	AC	V	≥2000				
	DC	V	≥3000				

CONSTRUCTION PARAMETERS

300V

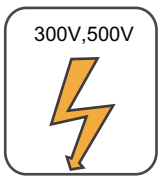
Conductor		RE-2X(St)Y			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
0.5mm^2					
2x2x0.5	2	0.35	0.9	7.6	66
3x2x0.5	2	0.35	0.9	8.8	98
4x2x0.5	2	0.35	1.0	9.8	112
5x2x0.5	2	0.35	1.0	10.6	133
8x2x0.5	2	0.35	1.0	11.3	161
10x2x0.5	2	0.35	1.1	12.9	200
12x2x0.5	2	0.35	1.1	13.5	242
16x2x0.5	2	0.35	1.1	15.2	288
20x2x0.5	2	0.35	1.2	16.9	376
24x2x0.5	2	0.35	1.2	18.3	426
0.75mm^2					
2x2x0.75	2	0.38	0.9	8.5	87
3x2x0.75	2	0.38	1.0	10	122
4x2x0.75	2	0.38	1.0	10.9	154
5x2x0.75	2	0.38	1.0	11.8	174
8x2x0.75	2	0.38	1.1	12.8	213
10x2x0.75	2	0.38	1.1	14.5	266
12x2x0.75	2	0.38	1.1	15.1	304
16x2x0.75	2	0.38	1.2	17.3	398
20x2x0.75	2	0.38	1.3	19.2	478
24x2x0.75	2	0.38	1.3	20.8	559
1.0mm^2					
2x2x1.0	2	0.4	0.9	9.2	101
3x2x1.0	2	0.4	1	10.9	157
4x2x1.0	2	0.4	1	11.9	194
5x2x1.0	2	0.4	1	13	223
8x2x1.0	2	0.4	1.1	14	272
10x2x1.0	2	0.4	1.1	15.9	334
12x2x1.0	2	0.4	1.2	16.8	390
16x2x1.0	2	0.4	1.2	19	511
20x2x1.0	2	0.4	1.3	21.1	617
24x2x1.0	2	0.4	1.4	23.1	749
1.5mm^2					
2x2x1.5	2	0.45	1	10.8	139
3x2x1.5	2	0.45	1.1	12.7	214
4x2x1.5	2	0.45	1.1	14.0	259
5x2x1.5	2	0.45	1.2	15.2	305
8x2x1.5	2	0.45	1.2	16.4	385

Conductor		RE-2X(St)Y			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
10x2x1.5	2	0.45	1.3	18.8	460
12x2x1.5	2	0.45	1.3	19.7	558
16x2x1.5	2	0.45	1.4	22.5	725
20x2x1.5	2	0.45	1.5	25.0	881
24x2x1.5	2	0.45	1.5	27.1	1047

500V

Conductor		RE-2X(St)Y			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
$0.5mm^2$					
2x2x0.5	2	0.55	0.9	8.9	69
3x2x0.5	2	0.55	0.9	10.2	103
4x2x0.5	2	0.55	1.0	11.4	118
5x2x0.5	2	0.55	1.0	12.4	141
8x2x0.5	2	0.55	1.0	13.5	174
10x2x0.5	2	0.55	1.1	15.5	216
12x2x0.5	2	0.55	1.1	16.2	261
16x2x0.5	2	0.55	1.1	18.3	314
20x2x0.5	2	0.55	1.2	20.3	408
24x2x0.5	2	0.55	1.2	22.2	464
$0.75mm^2$					
2x2x0.75	2	0.55	0.9	9.6	90
3x2x0.75	2	0.55	1.0	11.2	127
4x2x0.75	2	0.55	1.0	12.2	160
5x2x0.75	2	0.55	1.0	13.3	182
8x2x0.75	2	0.55	1.1	14.6	225
10x2x0.75	2	0.55	1.1	16.7	281
12x2x0.75	2	0.55	1.1	17.4	322
16x2x0.75	2	0.55	1.2	19.9	423
20x2x0.75	2	0.55	1.3	22.1	509
24x2x0.75	2	0.55	1.3	24.1	596
$1.0mm^2$					
2x2x1.0	2	0.55	0.9	10.2	104
3x2x1.0	2	0.55	1	12.0	162
4x2x1.0	2	0.55	1	13.1	200

Conductor		RE-2X(St)Y			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
5x2x1.0	2	0.55	1	14.3	231
8x2x1.0	2	0.55	1.1	15.6	284
10x2x1.0	2	0.55	1.1	17.9	350
12x2x1.0	2	0.55	1.2	18.8	409
16x2x1.0	2	0.55	1.2	21.3	536
20x2x1.0	2	0.55	1.3	23.6	648
24x2x1.0	2	0.55	1.4	26.1	786
1.5mm^2					
2x2x1.5	2	0.6	1	11.8	143
3x2x1.5	2	0.6	1.1	13.8	220
4x2x1.5	2	0.6	1.1	15.2	266
5x2x1.5	2	0.6	1.2	16.5	314
8x2x1.5	2	0.6	1.2	18.0	400
10x2x1.5	2	0.6	1.3	20.8	478
12x2x1.5	2	0.6	1.3	21.7	580
16x2x1.5	2	0.6	1.4	24.8	755
20x2x1.5	2	0.6	1.5	27.5	918
24x2x1.5	2	0.6	1.5	30.1	1091
2.5mm^2					
2x2x2.5	2	0.7	1	13.4	194
3x2x2.5	2	0.7	1.1	15.6	296
4x2x2.5	2	0.7	1.1	17.3	367
5x2x2.5	2	0.7	1.2	18.9	440
8x2x2.5	2	0.7	1.2	21.0	602
10x2x2.5	2	0.7	1.3	24.2	731
12x2x2.5	2	0.7	1.3	25.4	883
16x2x2.5	2	0.7	1.4	28.9	1159
20x2x2.5	2	0.7	1.5	32.0	1423
24x2x2.5	2	0.7	1.5	35.2	1679



Rated Voltage



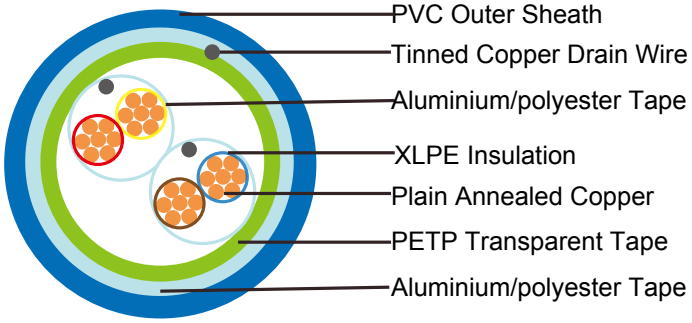
Standard


Flame Retardancy
BS EN 60332-1-2

Flame Retardant Individual and Overall Screened Instrumentation Cables (Multipair)

RE-2X(St)Y PiMF





APPLICATION

The unarmoured XLPE versions are generally use for indoor installation and suitable for wet and damp areas. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300V, 500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Pairs: Two insulated conductors uniformly twisted together with a lay not exceeding 100mm (≤1.5mm^2) nor 150mm(for 2.5mm^2).
Individual Screen: Aluminium/polyester tape is applied over each pair with metallic side down in contact with tinned copper drain wire, 0.5mm²
Binder tape: PETP transparent tape
Overall Screen: Aluminium/polyester tape is applied over the laid up pairs with metallic side down in contact with tinned copper drain wire, 0.5mm²
Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the

overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: 30°C - +90°C
Temperature range fixed installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius: 7.5 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				
Dielectric Strength for 1 minute	AC	V	≥2000				
	DC	V	≥3000				

CONSTRUCTION PARAMETERS

300V

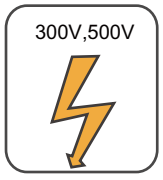
Conductor		RE-2X(St)Y PiMF			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
$0.5mm^2$					
2x2x0.5	2	0.35	0.9	8.7	85
3x2x0.5	2	0.35	1.0	10.2	120
4x2x0.5	2	0.35	1.0	11.2	145
5x2x0.5	2	0.35	1.0	12.1	170
8x2x0.5	2	0.35	1.1	13.1	214
10x2x0.5	2	0.35	1.2	15.1	265
12x2x0.5	2	0.35	1.2	15.7	286
16x2x0.5	2	0.35	1.2	17.8	380
20x2x0.5	2	0.35	1.3	19.7	475
24x2x0.5	2	0.35	1.4	21.5	561
$0.75mm^2$					
2x2x0.75	2	0.38	1.0	9.7	101
3x2x0.75	2	0.38	1.0	11.2	159
4x2x0.75	2	0.38	1.1	12.5	183
5x2x0.75	2	0.38	1.1	13.6	215
8x2x0.75	2	0.38	1.1	14.4	272
10x2x0.75	2	0.38	1.2	16.6	333
12x2x0.75	2	0.38	1.2	17.4	383
16x2x0.75	2	0.38	1.3	19.8	492
20x2x0.75	2	0.38	1.4	22.0	603
24x2x0.75	2	0.38	1.5	24.0	704
$1.0mm^2$					
2x2x1.0	2	0.4	1.0	10.4	112
3x2x1.0	2	0.4	1.0	12.1	179
4x2x1.0	2	0.4	1.1	13.5	220
5x2x1.0	2	0.4	1.1	14.7	256
8x2x1.0	2	0.4	1.2	15.8	323
10x2x1.0	2	0.4	1.2	18.0	401
12x2x1.0	2	0.4	1.3	19.0	454
16x2x1.0	2	0.4	1.3	21.5	601
20x2x1.0	2	0.4	1.4	23.9	719
24x2x1.0	2	0.4	1.5	26.1	884
$1.5mm^2$					
2x2x1.5	2	0.45	1.0	11.8	164

Conductor		RE-2X(St)Y PiMF			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
3x2x1.5	2	0.45	1.1	13.9	235
4x2x1.5	2	0.45	1.2	15.5	289
5x2x1.5	2	0.45	1.2	16.9	366
8x2x1.5	2	0.45	1.3	18.2	446
10x2x1.5	2	0.45	1.4	21.0	565
12x2x1.5	2	0.45	1.4	21.9	637
16x2x1.5	2	0.45	1.5	25.1	828
20x2x1.5	2	0.45	1.6	27.8	1024
24x2x1.5	2	0.45	1.7	30.4	1219

500V

Conductor		RE-2X(St)Y PiMF			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
0.5mm^2					
2x2x0.5	2	0.55	0.9	10.1	88
3x2x0.5	2	0.55	1.0	11.7	125
4x2x0.5	2	0.55	1.0	12.9	151
5x2x0.5	2	0.55	1.0	14.0	178
8x2x0.5	2	0.55	1.1	15.4	227
10x2x0.5	2	0.55	1.2	17.9	281
12x2x0.5	2	0.55	1.2	18.7	305
16x2x0.5	2	0.55	1.2	21.1	406
20x2x0.5	2	0.55	1.3	23.4	507
24x2x0.5	2	0.55	1.4	25.8	599
0.75mm^2					
2x2x0.75	2	0.55	1.0	10.9	104
3x2x0.75	2	0.55	1.0	12.5	164
4x2x0.75	2	0.55	1.1	14.0	189
5x2x0.75	2	0.55	1.1	15.2	223
8x2x0.75	2	0.55	1.1	16.4	284
10x2x0.75	2	0.55	1.2	19.0	348
12x2x0.75	2	0.55	1.2	19.9	401
16x2x0.75	2	0.55	1.3	22.6	517
20x2x0.75	2	0.55	1.4	25.1	634
24x2x0.75	2	0.55	1.5	27.6	741

Conductor		RE-2X(St)Y PiMF			
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	kg/km
1.0mm^2					
2x2x1.0	2	0.55	1.0	11.5	115
3x2x1.0	2	0.55	1.0	13.3	184
4x2x1.0	2	0.55	1.1	14.8	226
5x2x1.0	2	0.55	1.1	16.1	264
8x2x1.0	2	0.55	1.2	17.6	335
10x2x1.0	2	0.55	1.2	20.1	417
12x2x1.0	2	0.55	1.3	21.2	473
16x2x1.0	2	0.55	1.3	24.0	626
20x2x1.0	2	0.55	1.4	26.7	750
24x2x1.0	2	0.55	1.5	29.3	921
1.5mm^2					
2x2x1.5	2	0.6	1.0	12.9	168
3x2x1.5	2	0.6	1.1	15.1	241
4x2x1.5	2	0.6	1.2	16.8	296
5x2x1.5	2	0.6	1.2	18.3	375
8x2x1.5	2	0.6	1.3	20.0	461
10x2x1.5	2	0.6	1.4	23.1	583
12x2x1.5	2	0.6	1.4	24.1	659
16x2x1.5	2	0.6	1.5	27.6	858
20x2x1.5	2	0.6	1.6	30.6	1061
24x2x1.5	2	0.6	1.7	33.6	1263
2.5mm^2					
2x2x2.5	2	0.7	1.0	15.1	219
3x2x2.5	2	0.7	1.1	18.2	317
4x2x2.5	2	0.7	1.1	20.7	397
5x2x2.5	2	0.7	1.2	23.9	501
8x2x2.5	2	0.7	1.2	28.0	663
10x2x2.5	2	0.7	1.3	33.7	836
12x2x2.5	2	0.7	1.3	37.2	962
16x2x2.5	2	0.7	1.4	44.1	1262
20x2x2.5	2	0.7	1.5	50.4	1566
24x2x2.5	2	0.7	1.5	59.4	1869



Rated Voltage

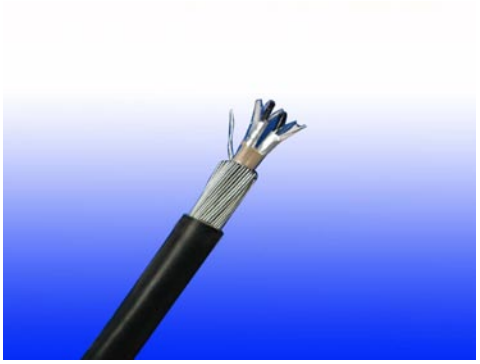


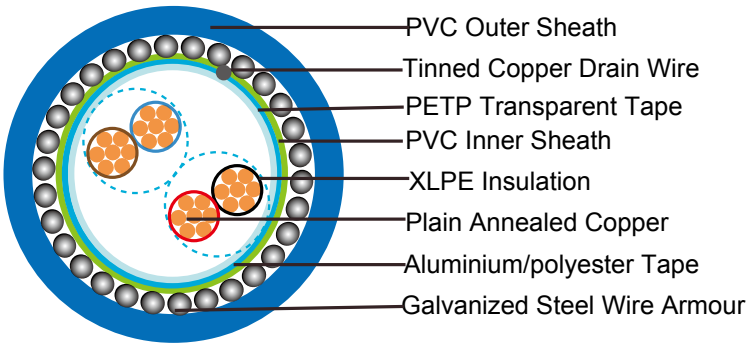
Standard


Flame Retardancy
BS EN 60332-1-2

Flame Retardant Overall Screened, Armoured Instrumentation Cables (Multipair)

RE-2X(St)YSWAY





APPLICATION

The armoured XLPE versions are generally used when the risk of mechanical damage is increased. The galvanized steel wire armour provides excellent protection. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300V, 500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Pairs: Two insulated conductors uniformly twisted together with a lay not exceeding 100mm (≤1.5mm^2) nor 150mm(for 2.5mm^2).
Binder tape: PETP transparent tape
Overall Screen: Aluminium/polyester tape is applied over the laid up pairs with metallic side down in contact with tinned copper drain wire, 0.5mm².
Inner Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Amouring: Galvanized steel wire armour
Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the

overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: 30°C - +90°C
Temperature range during installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius: 6 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				
Dielectric Strength for 1 minute	AC	V	≥2000				
	DC	V	≥3000				

CONSTRUCTION PARAMETERS

300V

Conductor		RE-2X(St)YSWAY					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
$0.5mm^2$							
2x2x0.5	2	0.35	0.9	0.9	1.3	12.0	269
3x2x0.5	2	0.35	0.9	0.9	1.4	13.4	325
4x2x0.5	2	0.35	1.0	0.9	1.4	14.4	375
5x2x0.5	2	0.35	1.0	0.9	1.4	15.2	423
8x2x0.5	2	0.35	1.0	0.9	1.4	15.9	473
10x2x0.5	2	0.35	1.1	0.9	1.5	17.7	521
12x2x0.5	2	0.35	1.1	0.9	1.5	18.3	592
16x2x0.5	2	0.35	1.1	0.9	1.5	20.0	823
20x2x0.5	2	0.35	1.2	0.9	1.6	21.9	920
24x2x0.5	2	0.35	1.2	1.25	1.6	24.0	1028
$0.75mm^2$							
2x2x0.75	2	0.38	0.9	0.9	1.4	13.1	308
3x2x0.75	2	0.38	1.0	0.9	1.4	14.6	371
4x2x0.75	2	0.38	1.0	0.9	1.4	15.5	436
5x2x0.75	2	0.38	1.0	0.9	1.4	16.4	495
8x2x0.75	2	0.38	1.1	0.9	1.5	17.6	533
10x2x0.75	2	0.38	1.1	0.9	1.5	19.3	637
12x2x0.75	2	0.38	1.1	0.9	1.5	19.9	825
16x2x0.75	2	0.38	1.2	0.9	1.6	22.3	965
20x2x0.75	2	0.38	1.3	1.25	1.6	24.9	1116
24x2x0.75	2	0.38	1.3	1.25	1.6	26.7	1257
$1.0mm^2$							
2x2x1.0	2	0.4	0.9	0.9	1.4	13.8	336
3x2x1.0	2	0.4	1.0	0.9	1.4	15.5	436
4x2x1.0	2	0.4	1.0	0.9	1.4	16.5	494
5x2x1.0	2	0.4	1.0	0.9	1.4	17.6	550
8x2x1.0	2	0.4	1.1	0.9	1.5	18.8	633
10x2x1.0	2	0.4	1.1	0.9	1.5	20.7	859

Conductor		RE-2X(St)YSWAY					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
12x2x1.0	2	0.4	1.2	0.9	1.5	21.6	972
16x2x1.0	2	0.4	1.2	1.25	1.6	24.7	1171
20x2x1.0	2	0.4	1.3	1.25	1.7	27.0	1316
24x2x1.0	2	0.4	1.4	1.25	1.7	29.0	1520
$1.5mm^2$							
2x2x1.5	2	0.45	1.0	0.9	1.4	15.4	419
3x2x1.5	2	0.45	1.1	0.9	1.5	17.5	544
4x2x1.5	2	0.45	1.1	0.9	1.5	18.8	627
5x2x1.5	2	0.45	1.2	0.9	1.5	20.0	833
8x2x1.5	2	0.45	1.2	0.9	1.6	21.4	943
10x2x1.5	2	0.45	1.3	1.25	1.6	24.5	1095
12x2x1.5	2	0.45	1.3	1.25	1.7	25.6	1197
16x2x1.5	2	0.45	1.4	1.25	1.7	28.4	1511
20x2x1.5	2	0.45	1.5	1.25	1.8	31.1	1968
24x2x1.5	2	0.45	1.5	1.25	1.8	33.2	2247

500V

Conductor		RE-2X(St)YSWAY					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
$0.5mm^2$							
2x2x0.5	2	0.55	0.9	0.9	1.3	13.3	272
3x2x0.5	2	0.55	0.9	0.9	1.4	14.8	330
4x2x0.5	2	0.55	1.0	0.9	1.4	16.0	381
5x2x0.5	2	0.55	1.0	0.9	1.4	17.0	431
8x2x0.5	2	0.55	1.0	0.9	1.4	18.1	486
10x2x0.5	2	0.55	1.1	0.9	1.5	20.3	537
12x2x0.5	2	0.55	1.1	0.9	1.5	21.0	611
16x2x0.5	2	0.55	1.1	0.9	1.5	23.1	849
20x2x0.5	2	0.55	1.2	0.9	1.6	25.3	952
24x2x0.5	2	0.55	1.2	1.25	1.6	27.9	1066

Conductor		RE-2X(St)YSWAY					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
$0.75mm^2$							
2x2x0.75	2	0.55	0.9	0.9	1.4	14.2	311
3x2x0.75	2	0.55	1.0	0.9	1.4	15.8	376
4x2x0.75	2	0.55	1.0	0.9	1.4	16.8	442
5x2x0.75	2	0.55	1.0	0.9	1.4	17.9	503
8x2x0.75	2	0.55	1.1	0.9	1.5	19.4	545
10x2x0.75	2	0.55	1.1	0.9	1.5	21.5	652
12x2x0.75	2	0.55	1.1	0.9	1.5	22.2	843
16x2x0.75	2	0.55	1.2	0.9	1.6	24.9	990
20x2x0.75	2	0.55	1.3	1.25	1.6	27.8	1147
24x2x0.75	2	0.55	1.3	1.25	1.6	30.0	1294
$1.0mm^2$							
2x2x1.0	2	0.55	0.9	0.9	1.4	14.8	339
3x2x1.0	2	0.55	1.0	0.9	1.4	16.6	441
4x2x1.0	2	0.55	1.0	0.9	1.4	17.7	500
5x2x1.0	2	0.55	1.0	0.9	1.4	18.9	558
8x2x1.0	2	0.55	1.1	0.9	1.5	20.4	645
10x2x1.0	2	0.55	1.1	0.9	1.5	22.7	875
12x2x1.0	2	0.55	1.2	0.9	1.5	23.6	991
16x2x1.0	2	0.55	1.2	1.25	1.6	27.0	1196
20x2x1.0	2	0.55	1.3	1.25	1.7	29.5	1347
24x2x1.0	2	0.55	1.4	1.25	1.7	32.0	1557
$1.5mm^2$							
2x2x1.5	2	0.6	1.0	0.9	1.4	16.4	423
3x2x1.5	2	0.6	1.1	0.9	1.5	18.6	550
4x2x1.5	2	0.6	1.1	0.9	1.5	20.0	634
5x2x1.5	2	0.6	1.2	0.9	1.5	21.3	842
8x2x1.5	2	0.6	1.2	0.9	1.6	23.0	958
10x2x1.5	2	0.6	1.3	1.25	1.6	26.5	1113
12x2x1.5	2	0.6	1.3	1.25	1.7	27.6	1219
16x2x1.5	2	0.6	1.4	1.25	1.7	30.7	1541
20x2x1.5	2	0.6	1.5	1.25	1.8	33.6	2005
24x2x1.5	2	0.6	1.5	1.25	1.8	36.2	2291

Conductor		RE-2X(St)YSWAY					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
2.5mm^2							
2x2x2.5	2	0.7	1.0	0.9	1.4	18.4	474
3x2x2.5	2	0.7	1.1	0.9	1.5	20.8	626
4x2x2.5	2	0.7	1.1	0.9	1.5	22.5	735
5x2x2.5	2	0.7	1.2	0.9	1.5	24.0	968
8x2x2.5	2	0.7	1.2	0.9	1.6	26.4	1160
10x2x2.5	2	0.7	1.3	1.25	1.6	30.6	1366
12x2x2.5	2	0.7	1.3	1.25	1.7	31.8	1522
16x2x2.5	2	0.7	1.4	1.25	1.7	35.5	1945
20x2x2.5	2	0.7	1.5	1.25	1.8	38.8	2510
24x2x2.5	2	0.7	1.5	1.25	1.8	42.3	2897



Rated Voltage



Standard

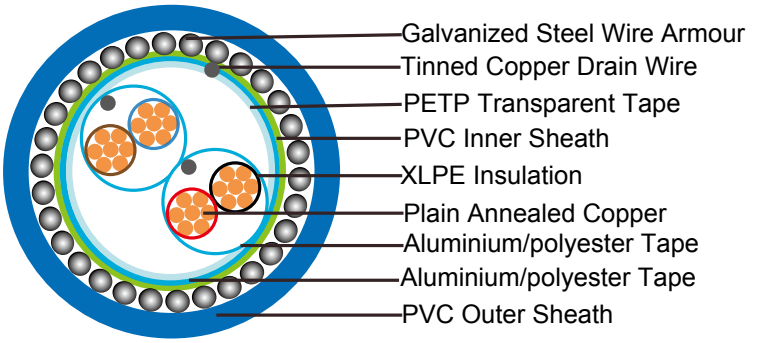


Flame Retardancy
BS EN 60332-1-2

Flame Retardant Individual and Overall Screened, Armoured Instrumentation Cables (Multipair)

RE-2X(St)YSWAY PiMF





APPLICATION

The armoured XLPE versions are generally used when the risk of mechanical damage is increased. The galvanized steel wire armour provides excellent protection. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services.

STANDARDS

Basic design to BS EN 50288-7 (formerly BS 5308)

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2

VOLTAGE RATING

300V, 500V

CABLE CONSTRUCTION

Conductor: Plain or metal coated copper wire, solid, stranded or flexible according to IEC 60228 class 1, 2 and 5.
Insulation: Extruded XLPE compound according to EN 50290-2-29. PVC, PE, PP compound can be offered as option.
Pairs: Two insulated conductors uniformly twisted together with a lay not exceeding 100mm (≤1.5mm^2) nor 150mm(for 2.5mm^2).
Individual Screen: Aluminium/polyester tape is applied over the laid up pairs with metallic side down in contact with tinned copper drain wire, 0.5mm².
Binder tape: PETP transparent tape
Overall Screen: Aluminium/polyester tape is applied over the laid up pairs with metallic side down in contact with tinned copper drain wire, 0.5mm².
Inner Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Amouring: Galvanized steel wire armour

Outer Sheath: Thermoplastic PVC compound according to EN 50290-2-22.
Outer Sheath Option: Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour: Colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting.
Outer sheath: Black. Other colours can be offered upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: 30°C - +90°C
Temperature range during installation: -5°C - +50°C
Maximum short circuit temperature (5 Seconds): 250°C
Minimum bending radius: 6 x Overall Diameter

ELECTRICAL PROPERTIES

300V

Conductor Area Size		mm^2	0.5	0.75	1	1.5
Insulation thickness (nominal)		mm	0.35	0.38	0.4	0.45
Insulation thickness (minimum)		mm	0.26	0.26	0.26	0.35
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3
Minimum Insulation resistance (20°C)		Mohm/ km	1000			
Maximum Mutual Capacitance		nf/km	250			
Capacitance Unbalance		pf/500m	500			
Maximum L/R (ratio)		µH/Ω	25	25	25	40
Operating Voltage		V	300			
Dielectric Strength for 1 minute	AC	V	≥1000			
	DC	V	≥2000			

500V

Conductor Area Size		mm^2	0.5	0.75	1	1.5	2.5
Insulation thickness (nominal)		mm	0.55	0.55	0.55	0.6	0.7
Insulation thickness (minimum)		mm	0.44	0.44	0.44	0.44	0.53
Conductor resistance (20°C)		ohm/km	36.7	25	18.5	12.3	7.4
Minimum Insulation resistance (20°C)		Mohm/ km	1000				
Maximum Mutual Capacitance		nf/km	250				
Capacitance Unbalance		pf/500m	500				
Maximum L/R (ratio)		µH/Ω	25	25	25	40	60
Operating Voltage		V	500				

Dielectric Strength for 1 minute	AC	V	≥2000
	DC	V	≥3000

CONSTRUCTION PARAMETERS

300V

Conductor		RE-2X(St)YSWAY PiMF					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
$0.5mm^2$							
2x2x0.5	2	0.35	0.9	0.9	1.4	13.3	311
3x2x0.5	2	0.35	1.0	0.9	1.4	14.8	373
4x2x0.5	2	0.35	1.0	0.9	1.4	15.8	451
5x2x0.5	2	0.35	1.0	0.9	1.6	16.9	483
8x2x0.5	2	0.35	1.1	0.9	1.6	17.9	537
10x2x0.5	2	0.35	1.2	0.9	1.5	19.9	781
12x2x0.5	2	0.35	1.2	0.9	1.5	20.5	804
16x2x0.5	2	0.35	1.2	1.25	1.6	23.5	968
20x2x0.5	2	0.35	1.3	1.25	1.7	25.6	1143
24x2x0.5	2	0.35	1.4	1.25	1.7	27.4	1264
$0.75mm^2$							
2x2x0.75	2	0.38	1.0	0.9	1.4	14.3	342
3x2x0.75	2	0.38	1.0	0.9	1.4	15.8	439
4x2x0.75	2	0.38	1.1	0.9	1.5	17.3	496
5x2x0.75	2	0.38	1.1	0.9	1.5	18.4	578
8x2x0.75	2	0.38	1.1	0.9	1.5	19.2	664
10x2x0.75	2	0.38	1.2	1.25	1.6	22.3	876
12x2x0.75	2	0.38	1.2	1.25	1.6	23.1	942
16x2x0.75	2	0.38	1.3	1.25	1.7	25.7	1130
20x2x0.75	2	0.38	1.4	1.25	1.7	27.9	1325
24x2x0.75	2	0.38	1.5	1.25	1.8	30.1	1490
$1.0mm^2$							
2x2x1.0	2	0.4	1.0	0.9	1.4	15.0	382
3x2x1.0	2	0.4	1.0	0.9	1.4	16.7	487
4x2x1.0	2	0.4	1.1	0.9	1.5	18.3	566
5x2x1.0	2	0.4	1.1	0.9	1.5	19.5	641

Conductor		RE-2X(St)YSWAY PiMF					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
8x2x1.0	2	0.4	1.2	0.9	1.5	20.6	718
10x2x1.0	2	0.4	1.2	1.25	1.6	23.7	994
12x2x1.0	2	0.4	1.3	1.25	1.7	24.7	1083
16x2x1.0	2	0.4	1.3	1.25	1.7	27.4	1361
20x2x1.0	2	0.4	1.4	1.25	1.7	29.8	1510
24x2x1.0	2	0.4	1.5	1.25	1.8	32.2	1902
1.5mm^2							
2x2x1.5	2	0.45	1.0	0.9	1.5	16.6	475
3x2x1.5	2	0.45	1.1	0.9	1.5	18.7	599
4x2x1.5	2	0.45	1.2	0.9	1.5	20.3	818
5x2x1.5	2	0.45	1.2	1.25	1.6	22.6	940
8x2x1.5	2	0.45	1.3	1.25	1.7	24.1	1037
10x2x1.5	2	0.45	1.4	1.25	1.7	26.9	1273
12x2x1.5	2	0.45	1.4	1.25	1.7	27.8	1353
16x2x1.5	2	0.45	1.5	1.25	1.8	31.2	1932
20x2x1.5	2	0.45	1.6	1.25	1.9	34.8	2224
24x2x1.5	2	0.45	1.7	1.25	2	37.6	2541

500V

Conductor		RE-2X(St)YSWAY PiMF					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
0.5mm^2							
2x2x0.5	2	0.55	0.9	0.9	1.4	14.7	314
3x2x0.5	2	0.55	1.0	0.9	1.4	16.3	378
4x2x0.5	2	0.55	1.0	0.9	1.4	17.5	457
5x2x0.5	2	0.55	1.0	0.9	1.6	18.8	491
8x2x0.5	2	0.55	1.1	0.9	1.6	20.2	550
10x2x0.5	2	0.55	1.2	0.9	1.5	22.7	797
12x2x0.5	2	0.55	1.2	0.9	1.5	23.5	823

Conductor		RE-2X(St)YSWAY PiMF					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
16x2x0.5	2	0.55	1.2	1.25	1.6	26.8	994
20x2x0.5	2	0.55	1.3	1.25	1.7	29.3	1175
24x2x0.5	2	0.55	1.4	1.25	1.7	31.7	1302
$0.75mm^2$							
2x2x0.75	2	0.55	1.0	0.9	1.4	15.5	345
3x2x0.75	2	0.55	1.0	0.9	1.4	17.1	444
4x2x0.75	2	0.55	1.1	0.9	1.5	18.8	502
5x2x0.75	2	0.55	1.1	0.9	1.5	20.0	586
8x2x0.75	2	0.55	1.1	0.9	1.5	21.2	676
10x2x0.75	2	0.55	1.2	1.25	1.6	24.7	891
12x2x0.75	2	0.55	1.2	1.25	1.6	25.6	960
16x2x0.75	2	0.55	1.3	1.25	1.7	28.5	1155
20x2x0.75	2	0.55	1.4	1.25	1.7	31.0	1356
24x2x0.75	2	0.55	1.5	1.25	1.8	33.7	1527
$1.0mm^2$							
2x2x1.0	2	0.55	1.0	0.9	1.4	16.1	385
3x2x1.0	2	0.55	1.0	0.9	1.4	17.9	492
4x2x1.0	2	0.55	1.1	0.9	1.5	19.6	572
5x2x1.0	2	0.55	1.1	0.9	1.5	20.9	649
8x2x1.0	2	0.55	1.2	0.9	1.5	22.4	730
10x2x1.0	2	0.55	1.2	1.25	1.6	25.8	1010
12x2x1.0	2	0.55	1.3	1.25	1.7	26.9	1102
16x2x1.0	2	0.55	1.3	1.25	1.7	29.9	1386
20x2x1.0	2	0.55	1.4	1.25	1.7	32.6	1541
24x2x1.0	2	0.55	1.5	1.25	1.8	35.4	1939
$1.5mm^2$							
2x2x1.5	2	0.6	1.0	0.9	1.5	17.7	479
3x2x1.5	2	0.6	1.1	0.9	1.5	19.9	605
4x2x1.5	2	0.6	1.2	0.9	1.5	21.6	825
5x2x1.5	2	0.6	1.2	1.25	1.6	24.0	949
8x2x1.5	2	0.6	1.3	1.25	1.7	25.9	1052
10x2x1.5	2	0.6	1.4	1.25	1.7	29.0	1291

Conductor		RE-2X(St)YSWAY PiMF					
No. of Pairs X Cross Section	Class of Conductor	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Armour Wire Diameter	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Approx. Weight
mm^2	No./mm	mm	mm	mm	mm	mm	kg/km
12x2x1.5	2	0.6	1.4	1.25	1.7	30.0	1375
16x2x1.5	2	0.6	1.5	1.25	1.8	33.7	1962
20x2x1.5	2	0.6	1.6	1.25	1.9	37.6	2261
24x2x1.5	2	0.6	1.7	1.25	2	40.8	2585
2.5mm^2							
2x2x2.5	2	0.7	1.0	0.9	1.5	20.4	530
3x2x2.5	2	0.7	1.1	0.9	1.5	23.5	681
4x2x2.5	2	0.7	1.2	0.9	1.5	26.0	926
5x2x2.5	2	0.7	1.2	1.25	1.6	30.0	1075
8x2x2.5	2	0.7	1.3	1.25	1.7	34.5	1254
10x2x2.5	2	0.7	1.4	1.25	1.7	40.4	1544
12x2x2.5	2	0.7	1.4	1.25	1.7	43.8	1678
16x2x2.5	2	0.7	1.5	1.25	1.8	51.1	2366
20x2x2.5	2	0.7	1.6	1.25	1.9	58.4	2766
24x2x2.5	2	0.7	1.7	1.25	2.0	67.8	3191



Rated Voltage



Standard



Flame Retardancy
BS EN 60332-1-2

EN 50288-7 Colour Code

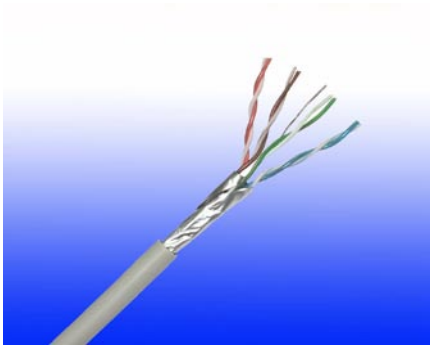
Unless otherwise specified e.g. by means of numbered cores or tapes, the coding for identification shall be given in IEC 60189-2 or EN 60708, as appropriate. The colours shall meet the requirements of 4.4 of EN 50288-1.
Coloured or numbered non-hygroscopic binder tapes may be applied over screened cabling elements as identification.

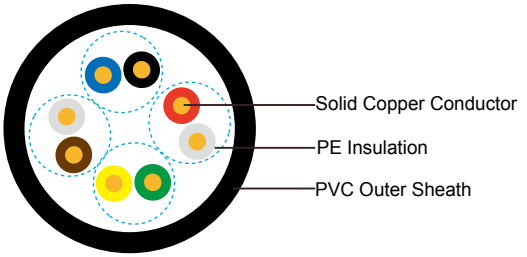
4.4 of EN 50288-1:

When required, the insulated conductors shall be identified by colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting. Colours shall be clearly identifiable and shall correspond reasonably with the standard colours shown in HD 402.
The colour(s) or the symbol used for core identification shall be durable such that it cannot be removed when tested to EN 50289-3-8.

Flame Retardant CAT5E Data Cables

CAT5E U/UTP4P24
CAT5E F/UTP4P24
CAT5E SF/UTP4P24





APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

STANDARDS

Basic design adapted to EN50173

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

VOLTAGE RATING

60V

CABLE CONSTRUCTION

Conductors: 24AWG solid bare copper.
Insulation: HDPE.
Twinning: Two coloured insulated conductors twisted together to form a pair.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1,

IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.
Cat5E F/UTP: These cables have collective shielding of aluminium/Polyester tape with drain wire.
Cat5E SF/UTP: These cables have double collective shieldings of aluminium/Polyester tape & copper wire braid.

PHYSICAL AND THERMAL PROPERTIES

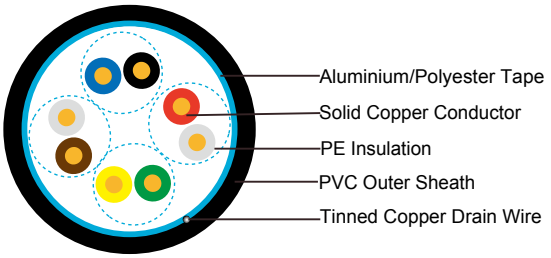
Temperature range: -30°C ~ +75°C
Minimum bending radius during installation (mobile state): 8 x Overall Diameter
Minimum bending radius during operation (fixed state): 4 x Overall Diameter

ELECTRICAL PROPERTIES

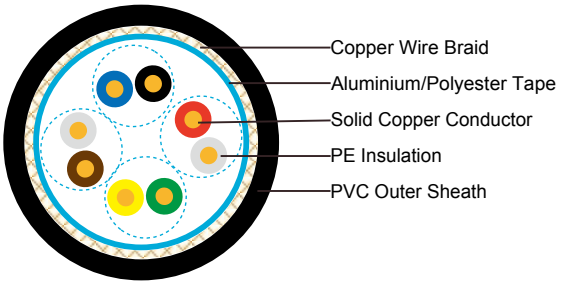
AWG		24
Nominal Conductor Diameter	mm	0.5/0.51/0.53
Maximum DC Resistance@20°C	Ω/100m	9.38
Maximum DCR Unbalance	%	5
Maximum Mutual Capacitance	pF/m	55.8
Maximum Capacitance Unbalance	pF/100m	330
Characteristic Impedance@1-100MHz	Ω	100±15
Maximum Propagation Delay Skew	ns/100m	45

TRANSMISSION PROPERTIES

FREQ MHz	Maximum Attenuation dB/100m	Minimum NEXT dB	Minimum PSNEXT dB	Minimum ELFEXT dB/100m	Minimum PSELFEXT dB/100m	Minimum RL dB
0.772	1.8	67.0	64.0	66.0	63.0	—
1	2.0	65.3	62.3	63.8	60.8	20.0
4	4.1	56.3	53.3	51.7	48.7	23.0
8	5.8	51.8	48.8	45.7	42.7	24.5
10	6.5	50.3	47.3	43.8	40.8	25.0
16	8.2	47.3	44.3	39.7	36.7	25.0
20	9.3	45.8	42.8	37.7	34.7	25.0
25	10.4	44.3	41.3	35.8	32.8	24.3
31.25	11.7	42.9	39.9	33.9	30.9	23.6
62.5	17.0	38.4	35.4	27.8	24.8	21.5
100	22.0	35.3	32.3	23.8	20.8	20.1



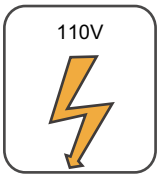
F/UTP CAT5E



SF/UTP CAT5E

CONSTRUCTION PARAMETERS

Cable Code	Conductor Diameter	Diameter Over Insulation	Pairs	Screen	Nominal Overall Diameter
	mm	mm			mm
Cat5E U/UTP4P24	0.5/0.51	0.91	4	Nil	5.1
Cat5E F/UTP4P24	0.53	1.00	4	Overall Aluminum Tape Screen	6.3
Cat5E SF/UTP4P24	0.53	1.00	4	Overall Aluminum Tape Screen & Copper Wire Braid	6.6



Rated Voltage



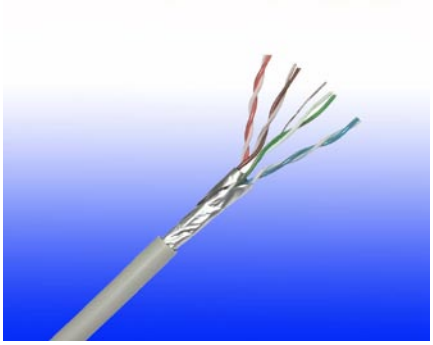
Standard

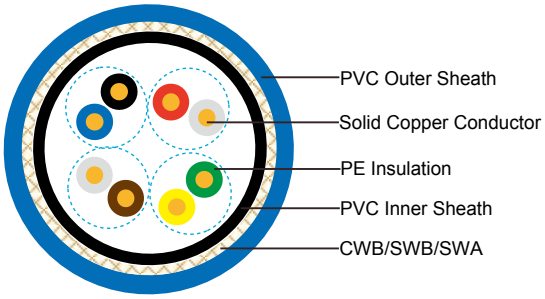


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant CAT5E CWB/SWB/SWA Armoured Data Cables

CAT5E U/UTP4P24 CWB/SWB/SWA
CAT5E F/UTP4P24 CWB/SWB/SWA
CAT5E SF/FTP4P24 CWB/SWB/SWA





APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

STANDARDS

Basic design adapted to EN50173

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

VOLTAGE RATING

60V

CABLE CONSTRUCTION

Conductors: 24AWG solid bare copper.
Insulation: HDPE.
Twinning: Two coloured insulated conductors twisted together to form a pair.
Inner Sheath: Flame retardant, low smoke and halogen-free polyolefin, coloured black.

Armouring:
CWB: Copper Wire Braid
SWB: Steel Wire Braid
SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.
Cat5E F/UTP: These cables have collective shielding of aluminium/Polyester tape with drain wire.
Cat5E SF/UTP: These cables have double collective shieldings of aluminium/Polyester tape & copper wire braid.

PHYSICAL AND THERMAL PROPERTIES

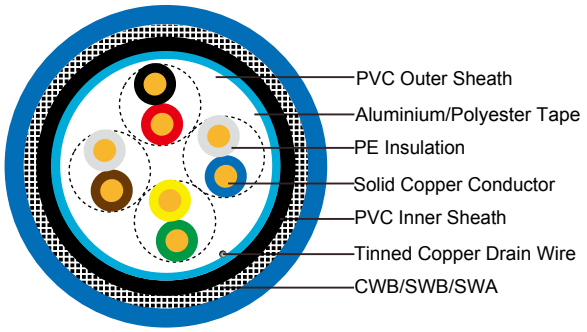
Temperature range: -30°C ~ +75°C
Minimum bending radius during installation (mobile state): 8 x Overall Diameter
Minimum bending radius during operation (fixed state): 4 x Overall Diameter

ELECTRICAL PROPERTIES

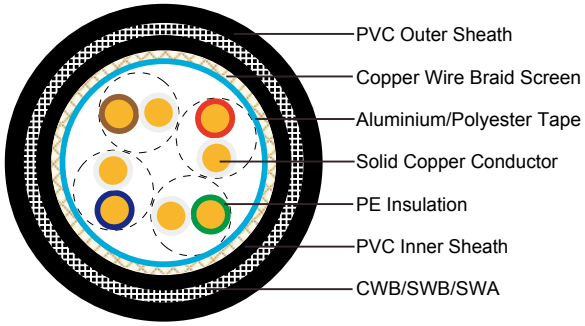
AWG		24
Nominal Conductor Diameter	mm	0.5/0.53
Maximum DC Resistance@20°C	Ω/100m	9.38
Maximum DCR Unbalance	%	5
Maximum Mutual Capacitance	pF/m	55.8
Maximum Capacitance Unbalance	pF/100m	330
Characteristic Impedance@1-100MHz	Ω	100+/-15
Maximum Propagation Delay Skew	ns/100m	45

TRANSMISSION PROPERTIES

FREQ MHz	Maximum Attenuation dB/100m	Minimum NEXT dB	Minimum PSNEXT dB	Minimum ELFEXT dB/100m	Minimum PSELFEXT dB/100m	Minimum RL dB
0.772	1.8	67.0	64.0	66.0	63.0	—
1	2.0	65.3	62.3	63.8	60.8	20.0
4	4.1	56.3	53.3	51.7	48.7	23.0
8	5.8	51.8	48.8	45.7	42.7	24.5
10	6.5	50.3	47.3	43.8	40.8	25.0
16	8.2	47.3	44.3	39.7	36.7	25.0
20	9.3	45.8	42.8	37.7	34.7	25.0
25	10.4	44.3	41.3	35.8	32.8	24.3
31.25	11.7	42.9	39.9	33.9	30.9	23.6
62.5	17.0	38.4	35.4	27.8	24.8	21.5
100	22.0	35.3	32.3	23.8	20.8	20.1



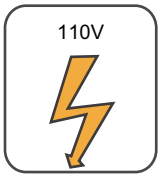
F/UTP CAT5E



SF/UTP CAT5E

CONSTRUCTION PARAMETERS

Cable Code	Construction No. of elements×No. of cores in element×Conductor diameter	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	mm	kg/km
CAT5E U/UTP4P24 CWB	4×2×0.5	0.2	0.6	1.0	7.68	97
CAT5E U/UTP4P24 SWB	4×2×0.5	0.2	0.6	1.0	7.68	93
CAT5E U/UTP4P24 SWA	4×2×0.5	0.2	0.6	1.0	8.68	165
CAT5E F/UTP4P24 CWB	4×2×0.53	0.2	0.6	1.0	8.28	116
CAT5E F/UTP4P24 SWB	4×2×0.53	0.2	0.6	1.0	8.28	112
CAT5E F/UTP4P24 SWA	4×2×0.53	0.2	0.6	1.0	9.28	192
CAT5E SF/UTP4P24 CWB	4×2×0.53	0.2	0.6	1.0	8.76	123
CAT5E SF/UTP4P24 SWB	4×2×0.53	0.2	0.6	1.0	8.76	119
CAT5E SF/UTP4P24 SWA	4×2×0.53	0.2	0.6	1.0	9.76	216



Rated Voltage



Standard



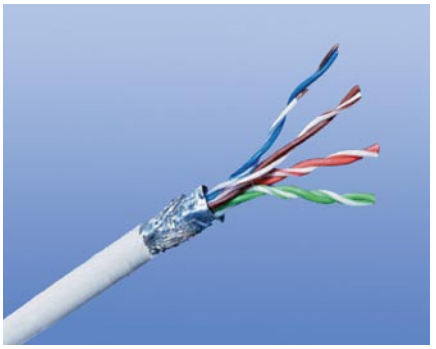
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

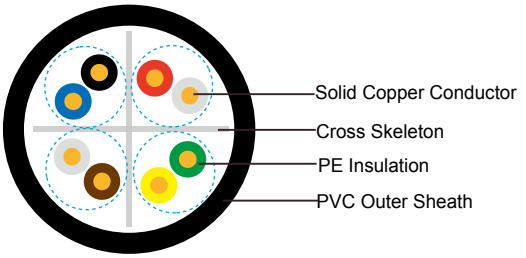


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant CAT6 Data Cables

CAT6 U/UTP4P23
CAT6 F/UTP4P23
CAT6 SF/FTP4P23





APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

STANDARDS

Basic design adapted to EN50173

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

VOLTAGE RATING

60V

CABLE CONSTRUCTION

Conductors: 23AWG solid bare copper.
Insulation: HDPE.
Twinning: Two coloured insulated conductors twisted together to form a pair.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1,

IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.
Cat6 F/UTP: These cables have collective shielding of aluminium/Polyester tape with drain wire.
Cat6 SF/UTP: These cables have double collective shieldings of aluminium/Polyester tape & copper wire braid with drain wire.

PHYSICAL AND THERMAL PROPERTIES

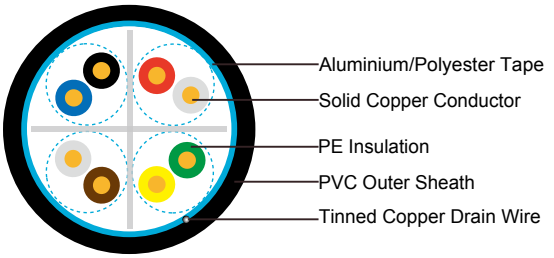
Temperature range: -30°C ~ +75°C
Minimum bending radius during installation (mobile state): 8 x Overall Diameter
Minimum bending radius during operation (fixed state): 4 x Overall Diameter

ELECTRICAL PROPERTIES

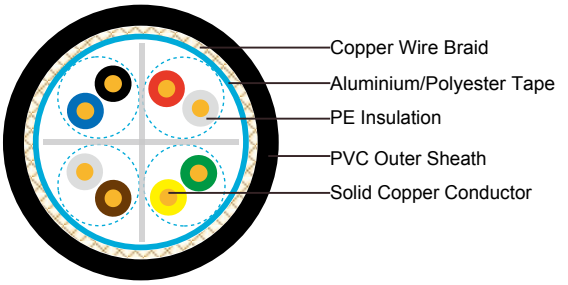
AWG		23
Nominal Conductor Diameter	mm	0.56/0.57/0.58
Maximum DC Resistance@20°C	Ω/100m	9.38
Maximum DCR Unbalance	%	3
Maximum Mutual Capacitance	pF/m	5.8
Maximum Capacitance Unbalance	pF/100m	30
Characteristic Impedance@1-100MHz	Ω	100+/-15
Maximum Propagation Delay Skew	ns/100m	18

TRANSMISSION PROPERTIES

FREQ MHz	Maximum Attenuation dB/100m	Minimum NEXT dB	Minimum PSNEXT dB	Minimum ELFEXT dB/100m	Minimum PSELFEXT dB/100m	Minimum RL dB
0.772	1.8	76.0	74.	70.0	67.0	—
1	2.0	74.3	72.3	67.8	64.8	20.0
4	3.8	65.3	63.3	55.7	52.7	23.0
8	5.3	60.8	58.8	49.7	46.7	24.5
10	6.0	59.3	57.3	47.8	44.8	25.0
16	7.6	56.3	54.3	43.7	40.7	25.0
20	8.5	54.8	52.8	41.7	38.7	25.0
25	9.5	53.3	51.3	39.8	36.8	24.3
31.25	10.7	51.9	49.9	37.9	34.9	23.6
62.5	15.4	47.4	45.4	31.8	28.8	21.5
100	19.8	44.3	42.3	27.8	24.8	20.1
155	25.2	41.5	39.5	23.9	20.9	18.8
200	29.0	39.8	37.8	21.7	18.7	18.0
250	32.8	38.3	36.3	19.8	16.8	17.3



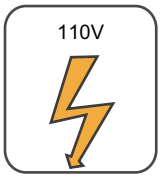
F/UTP CAT6



SF/UTP CAT6

CONSTRUCTION PARAMETERS

Cable Code	Conductor Diameter	Diameter Over Insulation	Pairs	Screen	Overall Diameter
	mm	mm			mm
Cat6 U/UTP4P23	0.56/0.57	1.02	4	Nil	6.0
Cat6 F/UTP4P23	0.57/0.58	1.02	4	Overall Aluminum Tape Screen	6.3
Cat6 SF/UTP4P23	0.57/0.58	1.02	4	Overall Aluminum Tape Screen & Copper Wire Braid	6.6



Rated Voltage



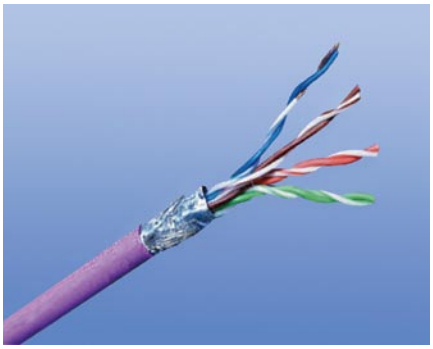
Standard

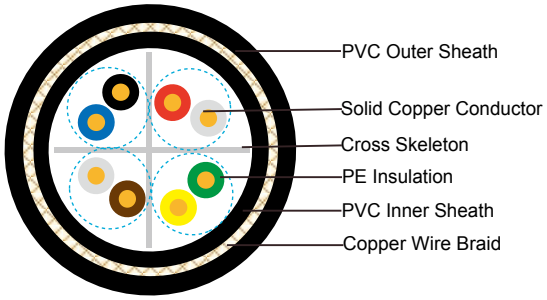


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant CAT6 CWB/SWB/SWA Armoured Data Cables

CAT6 U/UTP4P23 CWB/SWB/SWA
CAT6 F/UTP4P23 CWB/SWB/SWA
CAT6 SF/UTP4P23 CWB/SWB/SWA





APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

STANDARDS

Basic design adapted to EN50173

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

VOLTAGE RATING

60V

CABLE CONSTRUCTION

Conductors: 23AWG solid bare copper.
Insulation: HDPE .
Twinning: Two coloured insulated conductors twisted together to form a pair.
Inner Sheath: Flame retardant, low smoke and halogen-free polyolefin, coloured black.
Armouring:
CWB: Copper Wire Braid

SWB: Steel Wire Braid
SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.
Cat6 F/UTP: These cables have collective shielding of aluminium/Polyester tape with drain wire.
Cat6 SF/UTP: These cables have double collective shieldings of aluminium/Polyester tape & copper wire braid.

PHYSICAL AND THERMAL PROPERTIES

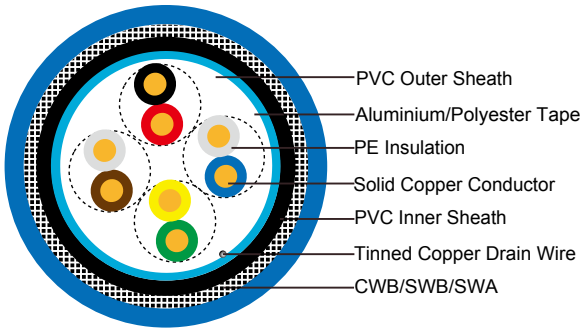
Temperature range: -30°C ~ +75°C
Minimum bending radius during installation (mobile state): 8 x Overall Diameter
Minimum bending radius during operation (fixed state): 4 x Overall Diameter

ELECTRICAL PROPERTIES

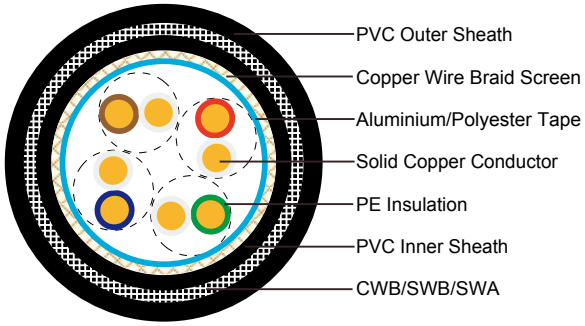
AWG		23
Nominal Conductor Diameter	mm	0.56/0.57/0.58
Maximum DC Resistance@20°C	Ω/100m	9.38
Maximum DCR Unbalance	%	3
Maximum Mutual Capacitance	pF/m	5.8
Maximum Capacitance Unbalance	pF/100m	30
Characteristic Impedance@1-100MHz	Ω	100+/-15
Maximum Propagation Delay Skew	ns/100m	18

TRANSMISSION PROPERTIES

FREQ MHz	Maximum Attenuation dB/100m	Minimum NEXT dB	Minimum PSNEXT dB	Minimum ELFEXT dB/100m	Minimum PSELFEXT dB/100m	Minimum RL dB
0.772	1.8	76.0	74.	70.0	67.0	—
1	2.0	74.3	72.3	67.8	64.8	20.0
4	3.8	65.3	63.3	55.7	52.7	23.0
8	5.3	60.8	58.8	49.7	46.7	24.5
10	6.0	59.3	57.3	47.8	44.8	25.0
16	7.6	56.3	54.3	43.7	40.7	25.0
20	8.5	54.8	52.8	41.7	38.7	25.0
25	9.5	53.3	51.3	39.8	36.8	24.3
31.25	10.7	51.9	49.9	37.9	34.9	23.6
62.5	15.4	47.4	45.4	31.8	28.8	21.5
100	19.8	44.3	42.3	27.8	24.8	20.1
155	25.2	41.5	39.5	23.9	20.9	18.8
200	29.0	39.8	37.8	21.7	18.7	18.0
250	32.8	38.3	36.3	19.8	16.8	17.3



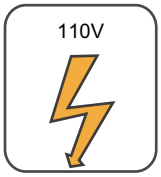
F/UTP CAT6



SF/UTP CAT6

CONSTRUCTION PARAMETERS

Cable Code	Construction No. of elements×No. of cores in element×Conductor diameter	Nominal Insulation Thickness	Nominal Inner Sheath Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	mm	kg/km
CAT6 U/UTP4P23 CWB	4×2×0.56/0.57	0.2	0.6	1.0	7.88	115
CAT6 U/UTP4P23 SWB	4×2×0.56/0.57	0.2	0.6	1.0	7.88	109
CAT6 U/UTP4P23 SWA	4×2×0.56/0.57	0.2	0.6	1.0	8.88	189
CAT6 F/UTP4P23 CWB	4×2×0.57/0.58	0.2	0.6	1.0	8.48	126
CAT6 F/UTP4P23 SWB	4×2×0.57/0.58	0.2	0.6	1.0	8.48	132
CAT6 F/UTP4P23 SWA	4×2×0.57/0.58	0.2	0.6	1.0	9.48	213
CAT6 SF/UTP4P23 CWB	4×2×0.57/0.58	0.2	0.6	1.0	8.96	154
CAT6 SF/UTP4P23 SWB	4×2×0.57/0.58	0.2	0.6	1.0	8.96	148
CAT6 SF/UTP4P23 SWA	4×2×0.57/0.58	0.2	0.6	1.0	9.96	242



Rated Voltage



Standard

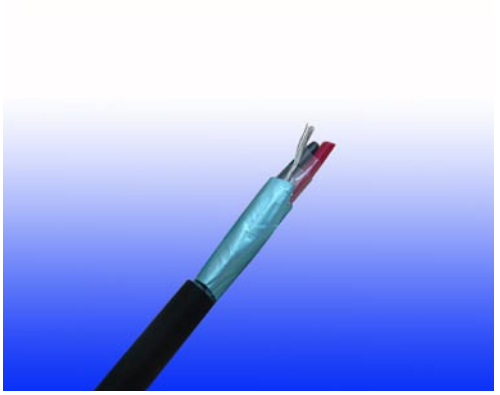


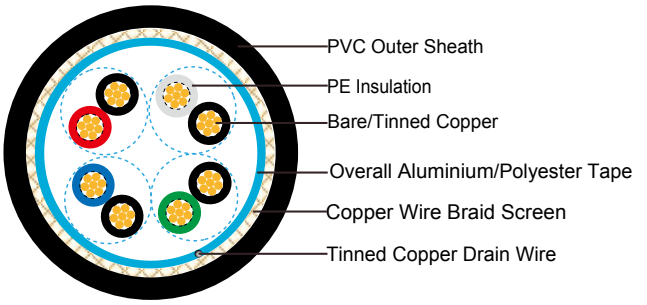
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1



Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant RS485 Databus Cables





APPLICATION

The cables are designed for RS485 data connections where continued functionality is required during a fire situation. This cable combines low capacitance insulation with one of the highest levels of screening to provide high speed, interference free, data transmission where continued functionality is required during a fire situation.

STANDARDS

Basic design adapted to EIA/TIA 485

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Multipair RS 485 Overall Screened Databus Cable
Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: Foam PE or foam skin PE.
Cabling Elements: Insulated cores are twisted to form pairs with varying lay length to minimize crosstalk. Two pair cable had four cores laid in quad formation.
Cabling: Pairs are cabled together in concentric layers.
Overall Screen: Aluminum/polyester tape with tinned copper drain wire.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

Multipair RS 485 Overall Double Screened Databus Cable
Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: Foam PE or foam skin PE.
Cabling Elements: Insulated cores are twisted to form pairs with varying lay length to minimize crosstalk. Two pair cable had four cores laid in quad formation.
Cabling: Pairs are cabled together in concentric layers.
Overall Screen: Aluminium/polyester tape+copper wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

Multipair RS 485 Individual & Overall Screened Databus Cable
Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: Foam PE or foam skin PE.
Cabling Elements: Insulated cores are twisted to form pairs with varying lay length to minimize crosstalk. Two pair cable had four cores laid in quad formation.
Cabling: Pairs are cabled together in concentric layers.
Individual Screen: Individual aluminium/polyester tape.
Overall Screen: Copper wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

Multipair RS 485 Overall Screened Databus Cable
Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: Foam PE or foam skin PE.
Cabling Elements: Insulated cores are twisted to form pairs with varying lay length to minimize crosstalk. Two pair cable had four cores laid in quad formation.
Cabling: Pairs are cabled together in concentric layers.
Overall Screen: Copper wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -20°C - +90°C
Temperature range during installation (mobile state): -5°C - +60°C
Minimum bending radius: 8 x Overall Diameter

ELECTRICAL PROPERTIES

Dielectric test	1000 V r.m.s. for 5' (core-core)
	1000 V r.m.s. for 5' (core-screen)
Impedance	120Ω
Capacitance	45 nF/km conductor to conductor
	90 nF/km conductor to shield

CONSTRUCTION PARAMETERS

Multipair RS 485 Overall Screened Databus Cable

RE-02Y(St)Y / RE-02YS(St)Y

No.of pair x	Nominal Cross Sectional Area	No./Nominal Diameter of Strands	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
No.	mm^2	No/mm	mm	mm	mm	kg/km
1	0.22	7/0.2	0.7	1.1	6.0	21
2	0.22	7/0.2	0.7	1.1	9.2	42
4	0.22	7/0.2	0.7	1.1	10.7	68
1	0.50	16/0.2	0.7	1.1	6.6	32
2	0.50	16/0.2	0.7	1.1	10.3	68
4	0.50	16/0.2	0.7	1.1	12.2	115
1	0.75	24/0.2	0.7	1.1	7.1	40
2	0.75	24/0.2	0.7	1.1	11.2	84
4	0.75	24/0.2	0.7	1.1	13.3	144
1	1.00	30/0.2	0.7	1.1	7.2	49
2	1.00	30/0.2	0.7	1.1	11.6	105
4	1.00	30/0.2	0.7	1.1	13.6	182

Multipair RS 485 Overall Double Screened Databus Cable

RE-02Y(St)CY / RE-02YS(St)CY

No.of pair x	Nominal Cross Sectional Area	No./Nominal Diameter of Strands	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
No.	mm^2	No/mm	mm	mm	mm	kg/km
1	0.22	7/0.2	0.7	1.1	6.5	34
2	0.22	7/0.2	0.7	1.1	9.6	67
4	0.22	7/0.2	0.7	1.1	11.2	97
1	0.50	16/0.2	0.7	1.1	7.1	48

No.of pair x	Nominal Cross Sectional Area	No./Nominal Diameter of Strands	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
No.	mm^2	No/mm	mm	mm	mm	kg/km
2	0.50	16/0.2	0.7	1.1	10.8	97
4	0.50	16/0.2	0.7	1.1	12.7	150
1	0.75	24/0.2	0.7	1.1	7.6	57
2	0.75	24/0.2	0.7	1.1	11.8	116
4	0.75	24/0.2	0.7	1.1	13.8	182
1	1.00	30/0.2	0.7	1.1	7.7	67
2	1.00	30/0.2	0.7	1.1	12.1	138
4	1.00	30/0.2	0.7	1.1	14.2	222

Multipair RS 485 Individual & Overall Screened Databus Cable

RE-02Y(St)Y PiMF / RE-02YS(St)Y PiMF

No.of pair x	Nominal Cross Sectional Area	No./Nominal Diameter of Strands	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
No.	mm^2	No/mm	mm	mm	mm	kg/km
1	0.22	7/0.2	0.7	1.1	6.4	35
2	0.22	7/0.2	0.7	1.1	9.6	69
4	0.22	7/0.2	0.7	1.1	11.2	106
1	0.50	16/0.2	0.7	1.1	7.0	49
2	0.50	16/0.2	0.7	1.1	10.8	100
4	0.50	16/0.2	0.7	1.1	12.7	159
1	0.75	24/0.2	0.7	1.1	7.5	58
2	0.75	24/0.2	0.7	1.1	11.8	119
4	0.75	24/0.2	0.7	1.1	13.6	174
1	1.00	30/0.2	0.7	1.1	7.6	68
2	1.00	30/0.2	0.7	1.1	12.1	142
4	1.00	30/0.2	0.7	1.1	14.2	234

Multipair RS 485 Overall Screened Databus Cable

RE-02YCY / RE-02YSCY

No.of pair x	Nominal Cross Sectional Area	No./Nominal Diameter of Strands	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
No.	mm^2	No/mm	mm	mm	mm	kg/km
1	0.22	7/0.2	0.7	1.1	8.4	31
2	0.22	7/0.2	0.7	1.1	11.7	61
4	0.22	7/0.2	0.7	1.1	13.6	91
1	0.50	16/0.2	0.7	1.1	9.0	44
2	0.50	16/0.2	0.7	1.1	12.9	91
4	0.50	16/0.2	0.7	1.1	15.1	142
1	0.75	24/0.2	0.7	1.1	9.5	53
2	0.75	24/0.2	0.7	1.1	13.9	109
4	0.75	24/0.2	0.7	1.1	16.0	174
1	1.00	30/0.2	0.7	1.1	9.6	63
2	1.00	30/0.2	0.7	1.1	14.2	131
4	1.00	30/0.2	0.7	1.1	16.6	213

TYPE CODES

RE-A-B-D

- D — Outer Sheath
  - Y: PVC
- B — Screen
  - St: Aluminum tape
  - C: Copper braid
- A — Insulation
  - 02Y: Foam PE
  - 02YS: Foam Skin PE



Standard

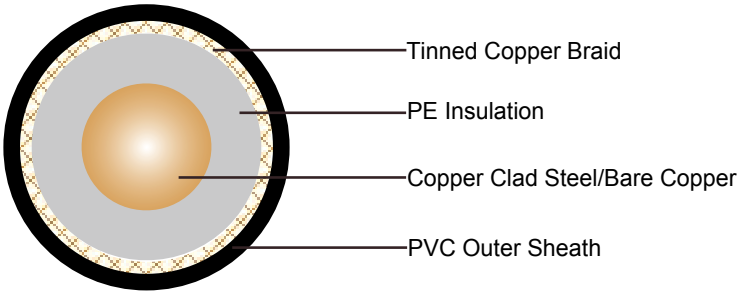


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant RG59 B/U Coaxial Cables

RG59 B/U





APPLICATION

The cables are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: Copper clad steel or bare copper, solid according to IEC 60228 class 1.
Insulation: PE compound.
Overall Screen: Plain copper wire braid
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -30°C - +70°C
Temperature range during installation (mobile state): -5ºC - +60ºC
Minimum bending radius: 8 x Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	67 nF/km
Velocity ratio	67%
Insulation resistance	>2000 Mohm.Km
Shield coverage	95%
DC resistance	
Inner conductor	154 Ω/km
Outer conductor	9 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	7.4	2.26
100	10.7	3.26
200	15.7	4.79
400	22.7	6.92
500	25.7	7.84
600	28.7	8.75
800	33.6	10.24
1000	38.0	11.59

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300 MHz	>31dB
300-600 MHz	>28dB
600-900 MHz	>24dB

CONSTRUCTION PARAMETERS

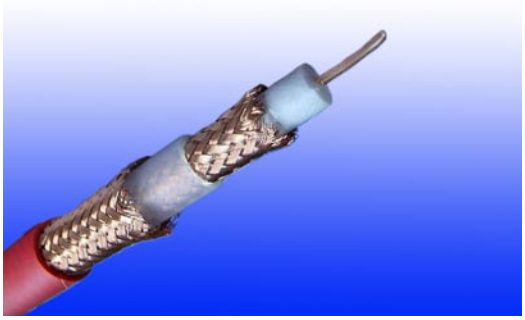
Cable Code	Conductor Diameter	Nominal Insulation Diameter	Nominal Screen No.x Diameter	Nominal Overall Diameter	Approx. Weight
	mm	mm	No. x mm	mm	kg/km
RG59 B/U	0.58 ± 0.03	3.70 ± 0.10 m	120 x 0.15	6.20	60.3

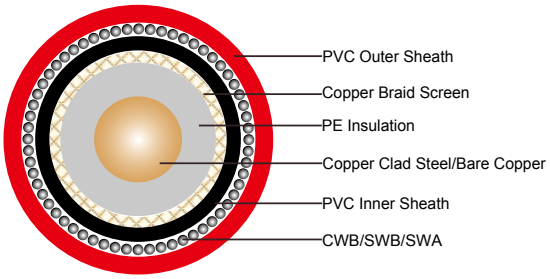
MIL-C-17
N
Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant RG59 B/U CWB/SWB/SWA Armoured Coaxial Cables

RG59 B/U CWB/SWB/SWA





APPLICATION

The cables are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: Copper clad steel or bare copper, solid according to IEC 60228 class 1.
Insulation: PE compound.
Overall Screen: Plain copper wire braid
Inner Sheath: Thermoplastic PVC compound.
Armouring:
CWB: Copper Wire Braid
SWB: Steel Wire Braid
SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.

Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range: -30°C - +75°C
Minimum Bending Radius: 15 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	67 nF/km
Velocity ratio	66%
Insulation resistance	>2000 Mohm.Km
Shield coverage	95%
DC resistance	
Inner conductor	154 Ω/km
Outer conductor	9 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	7.4	2.26
100	10.7	3.26
200	15.7	4.79
400	22.7	6.92
500	25.7	7.84
600	28.7	8.75
800	33.6	10.24
1000	38.0	11.59

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300 MHz	>31dB
300-600 MHz	>28dB
600-900 MHz	>24dB

CONSTRUCTION PARAMETERS

Cable Code	Nominal Inner Conductor Diameter	Nominal Insulation Thickness	Nominal Outer Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	kg/km
RG59 B/U CWB	0.58	1.4	1.2	9.78	146
RG59 B/U SWB	0.58	1.4	1.2	9.78	114
RG59 B/U SWA	0.58	1.4	1.2	10.8	220



Standard



Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

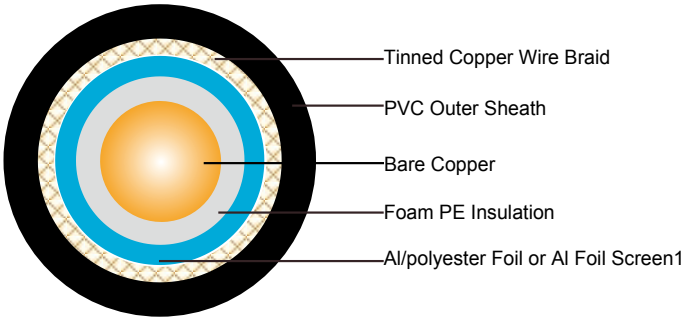


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant RG6/U4 Coaxial Cables

RG6/U4





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: 18AWG bare copper wire, solid according to IEC 60228 class 1.
Insulation: Foam PE.
Screen1: Aluminium/polyester or aluminium tape.
Screen2: Tinned copper wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range During Operation (Fixed State): -30°C - +70°C

Temperature Range During Installation (Mobile State): -5°C - +60°C
Minimum Bending Radius: 8 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	53 nF/km
Velocity ratio	83%
Insulation resistance	>5000 Mohm.Km
DC resistance	
Inner conductor	23.1 Ω/km
Outer conductor	28 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.5	1.4
100	6.2	1.9
200	8.9	2.7
500	15.1	4.6
600	16.8	5.1
800	19.0	5.8
1000	21.5	6.6
1350	24.9	7.6
1750	28.3	8.6
2150	31.1	9.5
2400	33.3	10.1

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300	>28dB
300-600	>24dB
600-900	>22dB

CONSTRUCTION PARAMETERS

Cable Code	Conductor Diameter	Nominal Insulation Diameter	Nominal Screen No.x Diameter	Nominal Overall Diameter	Approx. Weight
	mm	mm	No. x mm	mm	kg/km
RG6/U4	1.02	4.6 ± 0.20	64 x 0.12	6.8 ± 0.20	46



Standard

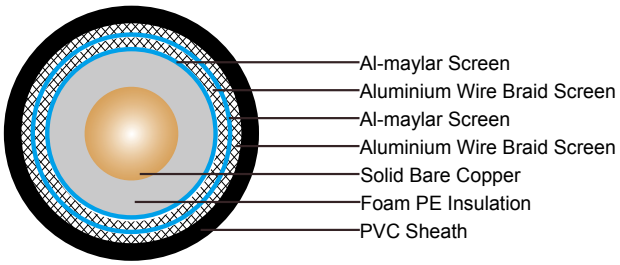


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant RG6 Quad Shield Coaxial cables

RG6 Quad Shield





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: 18AWG bare copper wire, solid according to IEC 60228 class 1.
Insulation: Foam PE.
Screen1: Aluminium-maylar.
Screen2: Aluminium wire braid.
Screen3: Aluminium-maylar.
Screen4: Aluminium wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range During Operation (Fixed State): -30°C - +70°C

Temperature Range During Installation (Mobile State): -5°C - +60°C
Minimum Bending Radius: 8 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	54 nF/km
Velocity ratio	82%
Insulation resistance	>5000 Mohm.Km
DC resistance	
Inner conductor	24.1 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.8	1.5
100	6.7	2.0
200	9.3	2.8
500	15.0	4.6
600	16.9	5.1
800	19.4	5.9
1000	21.6	6.6
1350	24.2	7.4
1750	28.0	8.4
2150	31.5	9.6
2400	32.8	10.0

CONSTRUCTION PARAMETERS

Cable Code	Conductor Diameter	Nominal Insulation Diameter	Nominal Screen2 No.x Diameter	Nominal Screen4 No.x Diameter	Nominal Overall Diameter	Approx. Weight
	mm	mm	No. x mm	No. x mm	mm	kg/km
RG6 QUAD	1.02	4.6 ± 0.20	80 x 0.12	64 x 0.12	7.55 ± 0.20	59.8



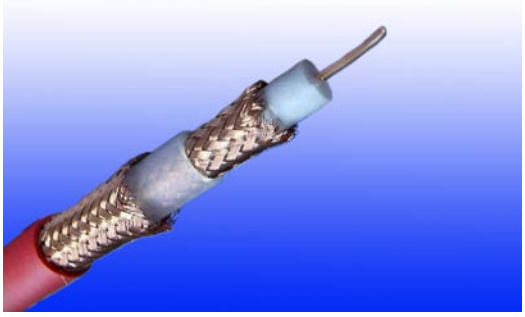
Standard

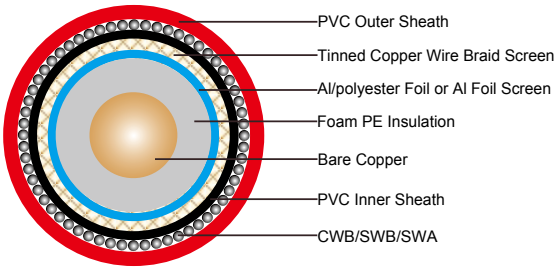


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant RG6/U4 CWB/SWB/SWA Armoured Coaxial Cables

RG6/U4 CWB/SWB/SWA





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: 18AWG bare copper wire, solid according to IEC 60228 class 1.
Insulation: Foam PE.
Screen1: Aluminium/polyester or aluminium tape.
Screen2: Tinned copper wire braid.
Inner Sheath: PVC compound.
Armour:
CWB: Copper Wire Braid
SWB: Steel Wire Braid
SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.

Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range: -30°C - +75°C
Minimum Bending Radius: 15 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	53 nF/km
Velocity ratio	83%
Insulation resistance	>5000 Mohm.Km
DC resistance	
Inner conductor	23.1 Ω/km
Outer conductor	28 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.5	1.4
100	6.2	1.9
200	8.9	2.7
500	15.1	4.6
600	16.8	5.1
800	19.0	5.8
1000	21.5	6.6
1350	24.9	7.6
1750	28.3	8.6
2150	31.1	9.5
2400	33.3	10.1

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300	>28dB
300-600	>24dB
600-900	>22dB

CONSTRUCTION PARAMETERS

Cable Code	Nominal Inner Conductor Diameter	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	kg/km
RG6/U4 CWB	1.0	1.8	1.2	10.8	181
RG6/U4 SWB	1.0	1.8	1.2	10.8	177
RG6/U4 SWA	1.0	1.8	1.2	11.8	267



Standard



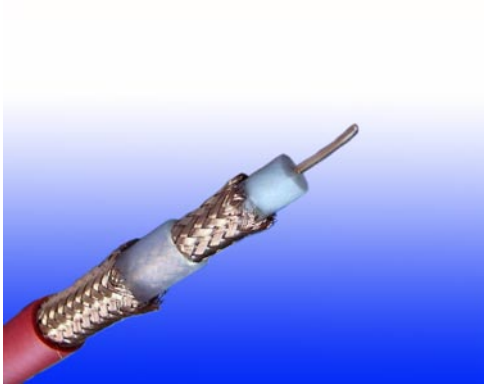
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

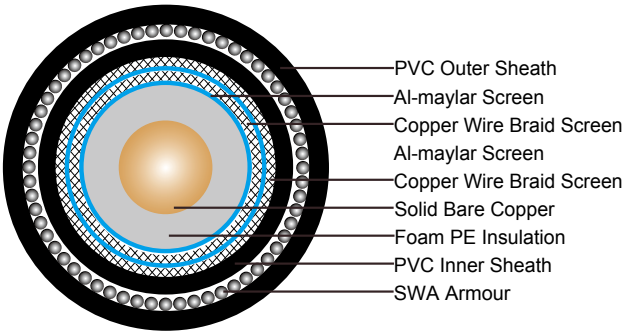


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant RG6 Quad Shield CWB/SWB/SWA Armoured Coaxial cables

RG6 Quad Shield CWB/SWB/SWA Armoured





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: 18AWG bare copper wire, solid according to IEC 60228 class 1.
Insulation: Foam PE.
Screen1: Aluminium-maylar.
Screen2: Aluminium wire braid.
Screen3: Aluminium-maylar.
Screen4: Aluminium wire braid.
Inner Sheath: PVC compound.
Armour:
CWB: Copper Wire Braid
SWB: Steel Wire Braid

SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range During Operation (Fixed State): -30°C - +70°C
Temperature Range During Installation (Mobile State): -5°C - +60°C
Minimum Bending Radius: 8 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	54 nF/km
Velocity ratio	82%
Insulation resistance	>5000 Mohm.Km
DC resistance	
Inner conductor	24.1 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.8	1.5
100	6.7	2.0
200	9.3	2.8
500	15.0	4.6
600	16.9	5.1
800	19.4	5.9
1000	21.6	6.6
1350	24.2	7.4
1750	28.0	8.4
2150	31.5	9.6
2400	32.8	10.0

CONSTRUCTION PARAMETERS

Cable Code	Nominal Inner Conductor Diameter	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	kg/km
RG6 QUAD CWB	1.02	1.8	1.2	11.5	194.8
RG6 QUAD SWB	1.02	1.8	1.2	11.5	190.8
RG6 QUAD SWA	1.02	1.8	1.2	12.5	280.8



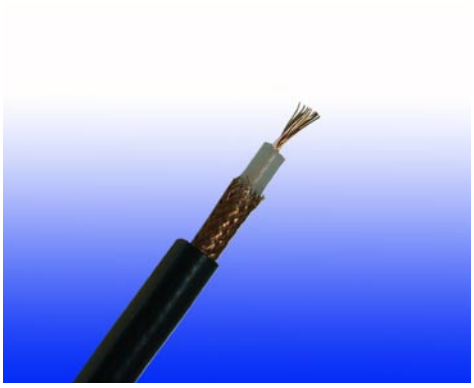
Standard

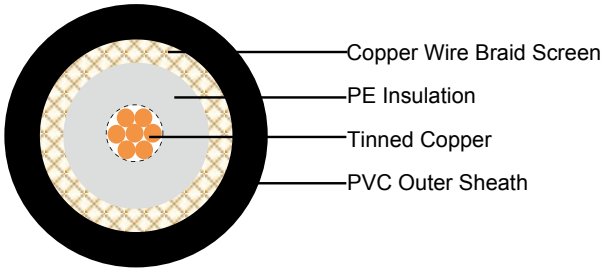

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant RG11 A/U Coaxial Cables

RG11 A/U





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: PE compound.
Overall Screen: Plain copper wire braid.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature Range During Operation (Fixed State): -30°C - +70°C
Temperature Range During Installation (Mobile State): -5°C - +60°C
Minimum Bending Radius: 8 X Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	67 nF/km
Velocity ratio	66%
Insulation resistance	>2000 Mohm.Km
Shield coverage	97%
DC resistance	
Inner conductor	20.5 Ω/km
Outer conductor	4.5 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.2	1.28
100	6.2	1.89
200	9.3	2.84
400	13.8	4.21
500	15.5	4.73
600	17.1	5.21
860	20.1	6.13
1000	23.4	7.13

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300 MHz	>30dB
300-600 MHz	>27dB
600-900 MHz	>25dB

CONSTRUCTION PARAMETERS

Cable Code	Conductor Diameter	Nominal Insulation Diameter	Nominal Screen No.x Diameter	Nominal Overall Diameter	Approx. Weight
	mm	mm	No. x mm	mm	kg/km
RG11 A/U	7 x 0.40	7.25 ± 0.18	192 x 0.18	10.3 ± 0.18	150

MIL-C-17

N

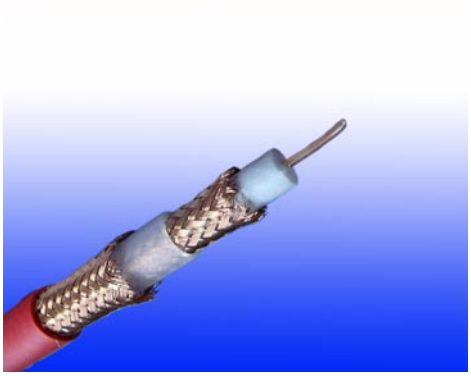
Standard

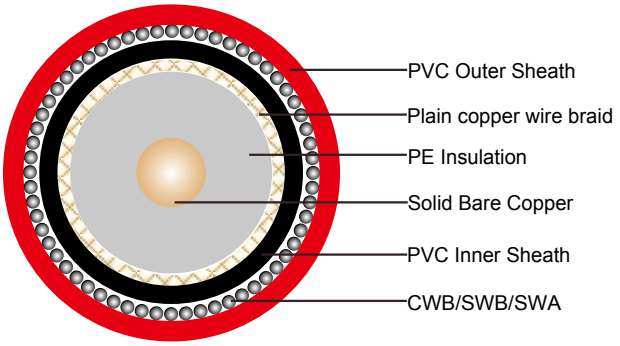


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Flame Retardant RG11 A/U CWB/SWB/SWA Armoured Coaxial Cables

RG11 A/U CWB/SWB/SWA





APPLICATION

The cables are are used as a connection cable in the high signal sequences of wireless and data communication systems where lower attenuation required, RF and microwave transmission, data transmission and instrumentation control.

STANDARDS

Basic design adapted to MIL-C-17

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Conductors: Tinned copper wire, stranded according to IEC 60228 class 2.
Insulation: PE compound.
Overall Screen: Plain copper wire braid.
Inner Sheath: Thermoplastic PVC compound.
Armour:
CWB: Copper Wire Braid
SWB: Steel Wire Braid

SWA: Steel Wire Armour
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -30°C - +75°C
Minimum bending radius: 15 x Overall Diameter

ELECTRICAL PROPERTIES

Impedance	75±5Ω
Capacitance	67 nF/km
Velocity ratio	66%
Insulation resistance	>2000 Mohm.Km
Shield coverage	97%
DC resistance	
Inner conductor	20.5 Ω/km
Outer conductor	4.5 Ω/km

ATTENUATION

Frequency(MHz)	Attenuation (dB/100 m)	Attenuation (dB/100ft)
50	4.2	1.28
100	6.2	1.89
200	9.3	2.84
400	13.8	4.21
500	15.5	4.73
600	17.1	5.21
860	20.1	6.13
1000	23.4	7.13

RETURN LOSS

Frequency(MHz)	Return Loss (dB)
30-300 MHz	>30dB
300-600 MHz	>27dB
600-900 MHz	>25dB

CONSTRUCTION PARAMETERS

Cable Code	Nominal Inner Conductor Diameter	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Nominal Weight
	mm	mm	mm	mm	kg/km
RG11 A/U CWB	1.6	2.7	1.7	15.2	349
RG11 A/U SWB	1.6	2.7	1.7	15.2	344
RG11 A/U SWA	1.6	2.7	1.7	16.2	468

MIL-C-17
N
Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

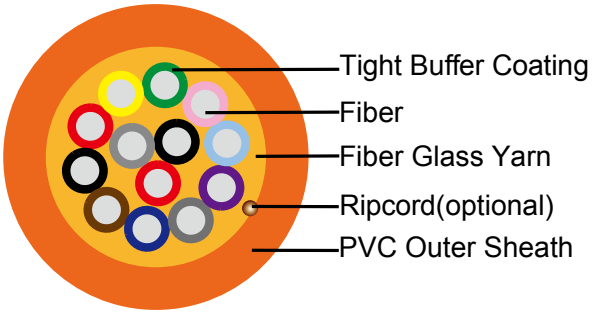
Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4



Flame Retardant Tight Buffered Distribution Fiber Optic Cables

MTA-B-C-D-Y





APPLICATION

This cables are used for interconnection of distribution boxes and end devices, where continued functionality is required during a fire situation. The cables are very suitable for various indoor and outdoor applications, including routing between buildings within ducts and inside building up to riser shafts.

STANDARDS

Basic design adapted to Telcordia GR409-CORE / TIA/EIA 568B.3 / ICEA-S-83-596

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Optical fibers: Singlemode and multimode tight fibers, with tight buffer coating.
Reinforcement: Either aramid yarn or fiber glass is wound around the tube to provide physical protection and tensile strength, with added fire protection.
Inner Sheath(optional): Thermoplastic PVC compound type LTS3 as per BS 7655-6.1
Ripcord(optional): An optional ripcord can be located under the outer sheath to facilitate jacket removal.
Armouring(optional):
STA: Corrugated steel tape armour

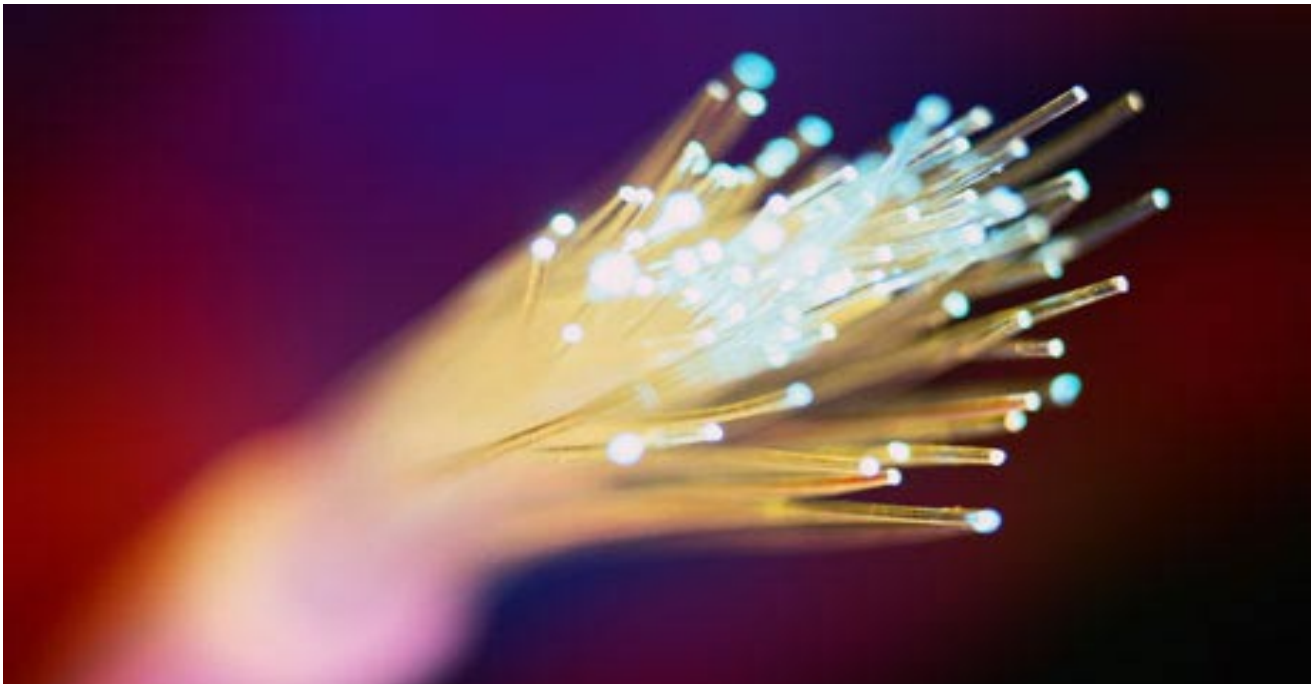
SWB: Steel wire braid
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -20°C - +60°C
Temperature range during installation (mobile state): 0°C - +50°C
Minimum bending radius: 10 times the outer diameter for unarmoured cables
20 times the outer diameter for armoured cables

CONSTRUCTION PARAMETERS

Cable Code	N° of Fibers	Nominal Overall Diameter	Max. Tensile Strength	Minimum Bending Radius	Approx. Weight
		mm	N	mm	kg/km
MTA-B-2-0-Y	2	7.6	250	76	55
MTA-B-4-0-Y	4	7.8	250	78	67
MTA-B-6-0-Y	6	8.6	400	86	77
MTA-B-8-0-Y	8	8.8	400	88	81
MTA-B-12-0-Y	12	9.3	400	93	90



TYPE CODES

MTA-B-C-D-E-F-G-H

- **G** — Outer Sheath
  - Y: PVC
- **F** — Armour
  - Blank: No armour
  - STA: Corrugated steel tape armour
  - SWB: Steel wire braid
- **E** — Inner Sheath
  - 2Y: PE
  - Y: PVC
- **D** — Central strength member
  - Blank: No Central strength member
  - A: Aramid yarn
  - F: Fiber reinforced plastic(FRP)
- **C** — Sub Unit Jacket Optons
  - 0: No Sub Unit
  - Y: PVC
- **B** — C No of Fibers
- **A** — Fiber Type
  - 4: 50/125 um(OM3) 7: NZDS SM fiber per ITU-T G.656
  - 5: 50/125 um(OM2) 8: NZDS SM fiber per ITU-T G.655
  - 6: 62.5/125um(OM1) 9: Standard SM fiber per ITU-T G.652.D
- **MTA** — Sub Unit Diameter
  - 0.9mm~4.2mm

GR-20/RUS 7
CFR1755.900
(REA PE-90)
N

Standard

ICEA S 87-640
N

Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant Central Loose Tube Fiber Optic Cables

APPLICATION

These cables are characterized by light weight and small diameter, suitable for both aerial and duct installation. They are mainly installed inside buildings, tunnels,subways or closed areas in general, specially designed to guarantee the signal transmission even in case of fire. The cable can also be used for direct burial for armoured version.

STANDARDS

Basic design adapted to Telcordia GR-20 / RUS 7 CFR 1755.900 (REA PE-90) / ICEA S 87-640

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Fibers: Singlemode and multimode fibers, with loose tube technology.
Structure: Central loose tube cable contains one tube with 2-24 single or multimode fibers, which are filled with water blocking gel.
Water Blocking: The jelly filled tube is waterblocked by using swellable tape and thread.
Reinforcement: Either aramid yarn or fiber glass is wound around the tube to provide physical protection and tensile strength, with added fire protection.
Inner Sheath (optional): The cable can be jacketed with either PE or thermoplastic PVC inner sheath. PE is the preferred option in outdoor environment for water protection purpose.
Moisture Barrier Tape (optional): An aluminum moisture tape can be incorporated under the sheath for water blocking and shielding purpose.
Armouring(optional):
For diect burial, either galvanized steel wire braid, corrugated steel tape armour or galvanized steel wire armour is applied over an inner polyethylene or PVC sheath. For steel tape armour, the 0.15mm thick steel tape is coated with a copolymer and applied with an overlap. For steel wire braid or armour, single layer of galvanized steel wire braid or armour is applied.
Ripcord (optional): An optional ripcord can be located under the jacket to facilitate jacket removal.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the

overall cable design. LSPVC can also be provided upon request.

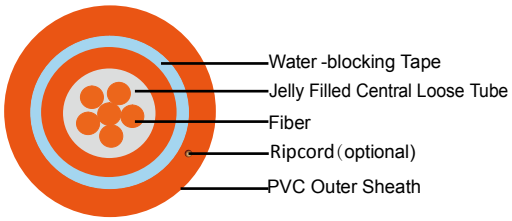
FIBER COLOUR CODE

Fiber colour code	1	Red	7	Brown
	2	Green	8	Violet
	3	Blue	9	Turquoise
	4	Yellow	10	Black
	5	White	11	Orange
	6	Grey	12	Pink

CONSTRUCTION

Unarmoured type

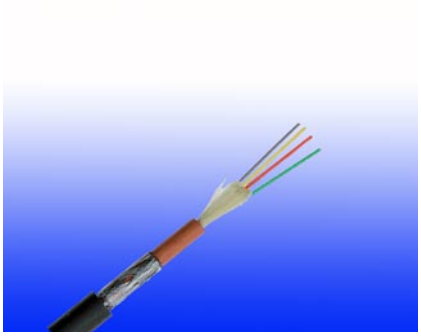


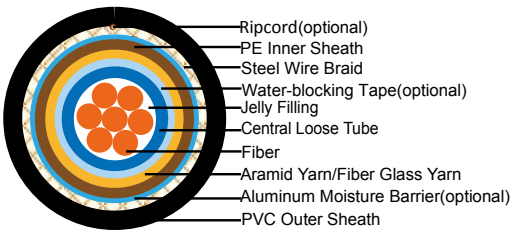


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
CLA-B-C-Y-J	02-06	2.7	8.0	70	1000	1500
CLA-B-C-Y-J	08-16	3.5	9.0	90	1200	1500
CLA-B-C-Y-J	18-24	4.2	10.0	100	1500	1500

STEEL WIRE BRAID

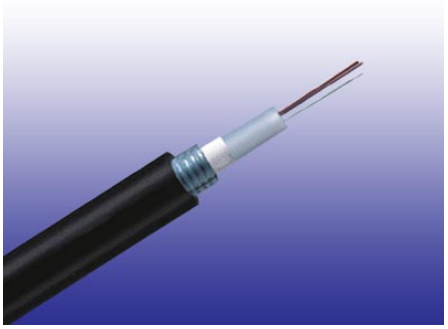


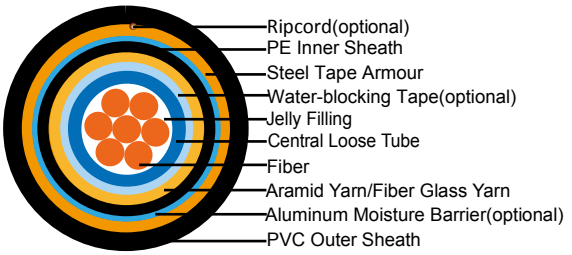


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
CLA-B-C-2Y(SWB)Y-J	02-06	2.7	11.5	160	1000	2000
CLA-B-C-2Y(SWB)Y-J	08-16	3.5	12.0	180	1200	2000
CLA-B-C-2Y(SWB)Y-J	18-24	4.2	13.0	200	1500	2000

CORRUGATED STEEL TAPE ARMOUR

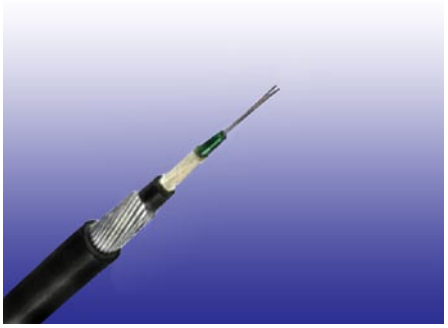


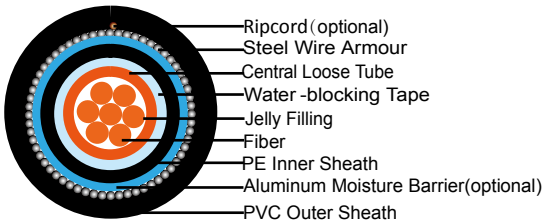


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
CLA-B-C-2Y(STA)Y-J	02-06	2.7	13.0	200	1000	2500
CLA-B-C-2Y(STA)Y-J	08-16	3.5	14.0	220	1200	2500
CLA-B-C-2Y(STA)Y-J	18-24	4.2	14.5	250	1500	2500

STEEL WIRE ARMOUR





CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
CLA-B-C-2Y(SWA)Y-J	02-12	2.7	10.5	180	2500	3000
CLA-B-C-2Y(SWA)Y-J	16-24	3.5	11.0	210	2500	3000

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -20°C - +60°C
Temperature range during installation (mobile state): 0°C - +50°C
Minimum Operation Bending Radius: 10 times the outer diameter for unarmoured cables
20 times the outer diameter for armoured cables
Minimum Installation Bending Radius: 20 times the outer diameter

MECHANICAL PROPERTIES

Maximum Compressive Load	4000N for unarmoured cables 5000N for armoured cables
Repeated Impact:	4.4 N.m (J)
Twist (Torsion):	180×10 times, 125×OD
Cyclic Flexing:	25 cycles for armoured cables; 100 cycles for unarmoured cables.

FIBER COMPLIANCE

Temperature Cycling	IEC60794-1-2-F2
Tensile Strength	IEC60794-1-2-E1A
Crush	IEC60794-1-2-E3
Impact	IEC60794-1-2-E4
Repeated Bending	IEC60794-1-2-E6
Torsion	IEC60794-1-2-E7
Kink	IEC60794-1-2-E10
Cable Bend	IEC60794-1-2-E11
Cool Bend	IEC60794-1-2-E11

TYPE CODES

CL<u>A</u>-<u>B</u>-<u>C</u>-<u>D</u>-<u>E</u>-<u>F</u>-<u>G</u>

Water blocking gel in tubes
X: No water-blocking J: Water blocking gel between jackets;
D: Dry water-blocking between cable jackets

Outer Sheath
Y: PVC

Armour
Blank: No armour
STA: Corrugated steel tape armour
SWA: Steel wire armour
SWB: Steel wire braid

Inner Sheath
2Y: PE
Y: PVC

C No of Fibers

B Fiber Type
4: 50/125 um(OM3) 7: NZDS SM fiber per ITU-T G.656
5: 50/125 um(OM2) 8: NZDS SM fiber per ITU-T G.655
6: 62.5/125um(OM1) 9: Standard SM fiber per ITU-T G.652.D

Tube Diameter
2.5mm~6mm



Standard



Standard


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Flame Retardant Multi Loose Tube Fiber Optic Cables

APPLICATION

The multi loose tube non metallic cables are designed for outside plant, which is prone to electrical interference. They are mainly installed inside buildings, tunnels,subways or closed areas in general, specially designed to guarantee the signal transmission even in case of fire. The cable can also be used for direct burial for armoured version.

STANDARDS

Basic design adapted to Telcordia GR-20 / RUS 7 CFR 1755.900 (REA PE-90) / ICEA S 87-640

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

CABLE CONSTRUCTION

Fibers: Singlemode and multimode fibers, with loose tube technology.
Structure: The cable consists of 5 to 36 fibers containing tubes or fillers stranded in up to 3 layers around a central strength member and bound under a PVC sheath. Each tube contains 4 -12 fibers, which is filled with water blocking gel.
Central Strength Member: Solid or stranded steel wire coated with polyethylene is usually used as central strength member. Fiber glass reinforced plastics (FRP) will be used as central strength member if non metallic construction is required.
Water Blocking: The jelly filled tube is waterblocked by using swellable tape and thread.
Reinforcement: Either aramid yarn or fiber glass is wound around the tube to provide physical protection and tensile strength, with added fire protection.
Inner Sheath (optional): The cable can be jacketed with either PE or Thermoplastic PVC inner sheath. PE is the preferred option in outdoor environment for water protection purpose.
Armouring(optional): For diect burial, either galvanized steel wire braid, corrugated steel tape armour or galvanized steel wire armour is applied over an inner polyethylene or PVC sheath. For steel tape armour, the 0.15mm thick steel tape is coated with a copolymer and applied with an overlap. For steel wire braid or armour, single layer of galvanized steel wire braid or armour is applied.
Moisture Barrier Tape (optional): An aluminum moisture tape can be incorporated under the sheath for water blocking and shielding purpose.

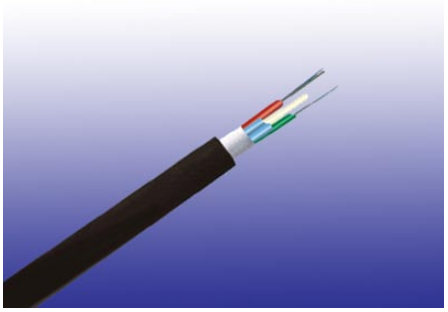
Ripcord (optional): An optional ripcord can be located under the jacket to facilitate jacket removal.
Outer Sheath: Thermoplastic PVC compound.
Outer Sheath Option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

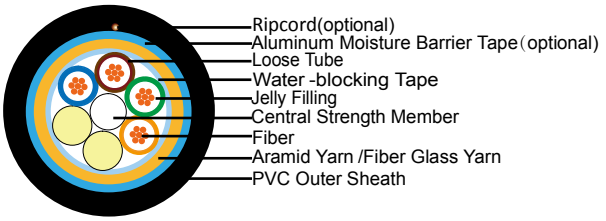
FIBER COLOUR CODE

Fiber colour code	1	Red	7	Brown
	2	Green	8	Violet
	3	Blue	9	Turquoise
	4	Yellow	10	Black
	5	White	11	Orange
	6	Grey	12	Pink

CONSTRUCTION

Unarmoured type

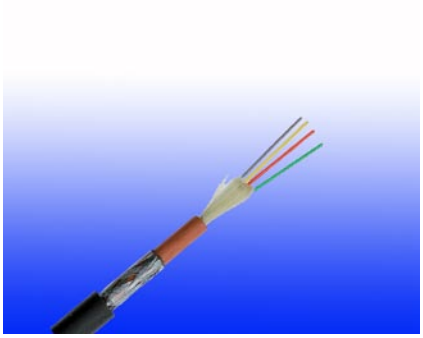


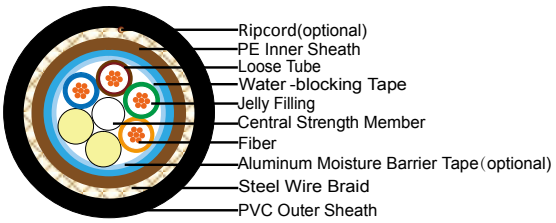


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
MLA-B-C×D-F-Y-J	72	2.5	15.0	230	4000	1500
MLA-B-C×D-F-Y-J	96	2.5	16.5	250	4000	1500
MLA-B-C×D-F-Y-J	144	2.5	20.5	280	4000	1500

Steel Wire BRAID

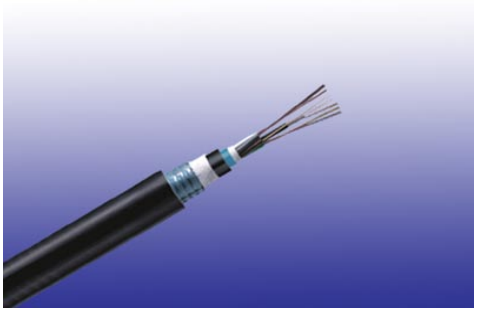


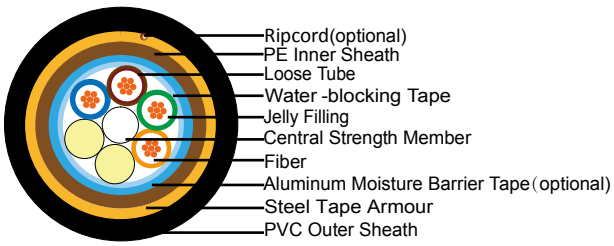


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
MLA-B-C×D-F-2Y(SWB)Y-J	72	2.5	15.0	280	3000	2000
MLA-B-C×D-F-2Y(SWB)Y-J	96	2.5	17.5	310	3000	2000
MLA-B-C×D-F-2Y(SWB)Y-J	144	2.5	21.5	350	3500	2000

CORRUGATED STEEL TAPE ARMOUR

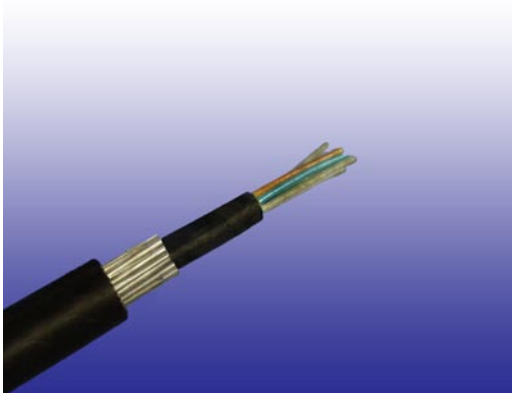


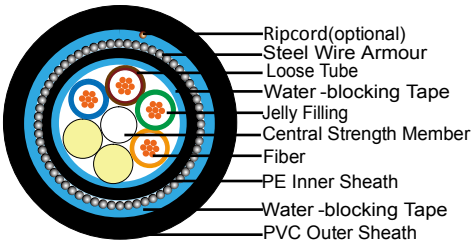


CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
MLA-B-C×D-F-2Y(STA)Y-J	72	2.5	16.5	290	3000	2500
MLA-B-C×D-F-2Y(STA)Y-J	96	2.5	18.5	350	3000	2500
MLA-B-C×D-F-2Y(STA)Y-J	144	2.5	22.5	450	3500	2500

STEEL WIRE ARMOUR





CONSTRUCTION PARAMETERS

Cable Code	Fiber Count	Tube Diameter	Nominal Overall Diameter	Approx. Weight	Tension load	Crush
	(n°)	mm	mm	kg/km	N	N/100mm
MLA-B-C×D-F-2Y(SWA)Y-J	72	2.0	15.0	360	3500	3000
MLA-B-C×D-F-2Y(SWA)Y-J	96	2.0	16.5	390	4000	3000
MLA-B-C×D-F-2Y(SWA)Y-J	144	2.0	18.5	430	4500	3000

PHYSICAL AND THERMAL PROPERTIES

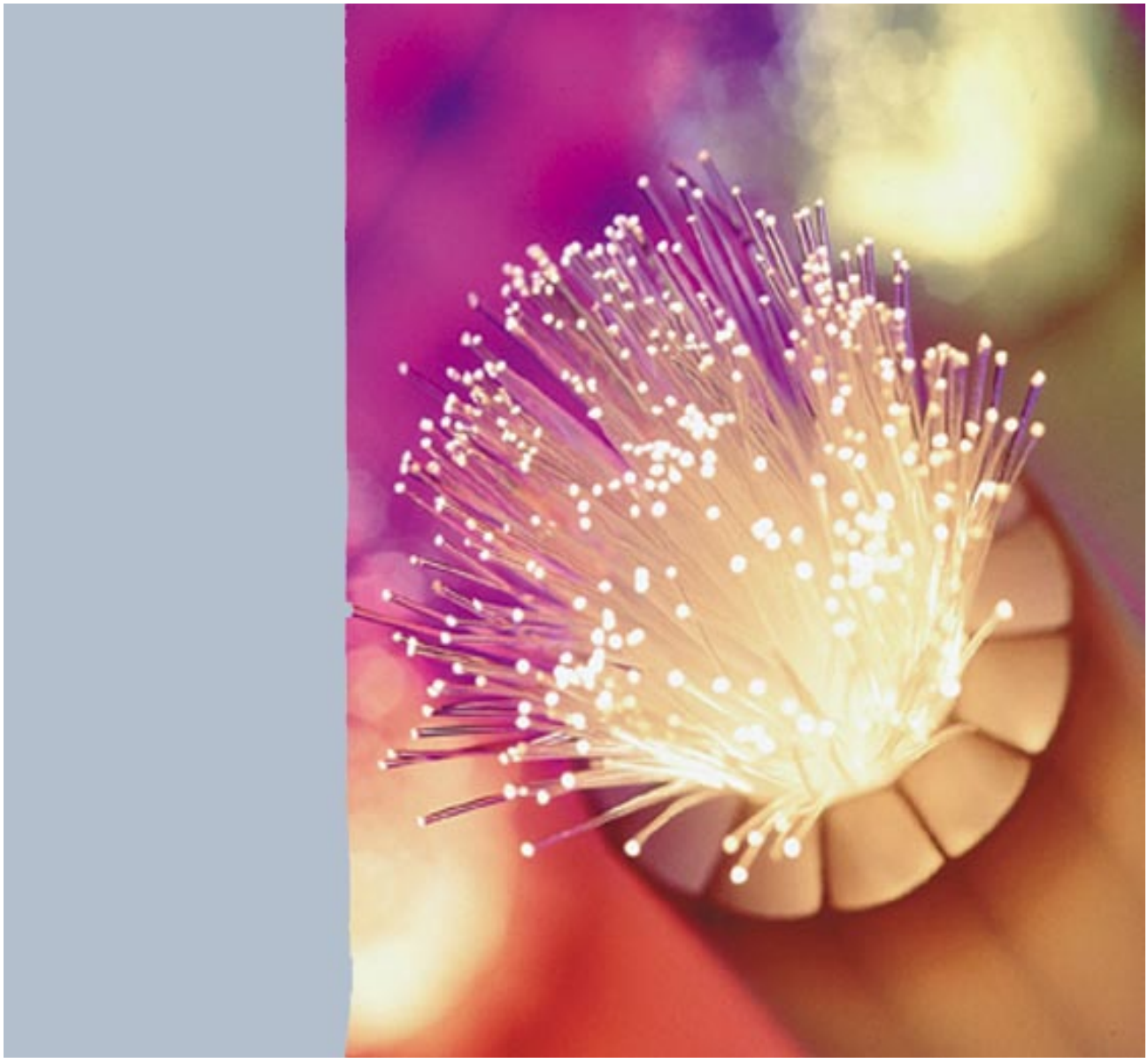
Temperature range during operation (fixed state): -20°C - +60°C
Temperature range during installation (mobile state): 0°C - +50°C
Minimum Installation Bending Radius: 20 times the outer diameter
Minimum Operation Bending Radius: 10 times the outer diameter for unarmoured cables
20 times the outer diameter for armoured cables

MECHANICAL PROPERTIES

Maximum Compressive Load:	4000N for unarmoured cables 6000N for armoured cables
Repeated Impact:	4.4 N.m (J)
Twist (Torsion):	180×10 times, 125×OD
Cyclic Flexing:	25 cycles for armoured cables 100 cycles for unarmoured cables

FIBER COMPLIANCE

Temperature Cycling	IEC60794-1-2-F2
Tensile Strength	IEC60794-1-2-E1A
Crush	IEC60794-1-2-E3
Impact	IEC60794-1-2-E4
Repeated Bending	IEC60794-1-2-E6
Torsion	IEC60794-1-2-E7
Kink	IEC60794-1-2-E10
Cable Bend	IEC60794-1-2-E11
Cool Bend	IEC60794-1-2-E11



TYPE CODES

MLA-B-CxD-E-F-G-H-I

- Water blocking gel in tubes
  X: No water-blocking J: Water blocking gel between jackets;
  D: Dry water-blocking between cable jackets
- Outer Sheath
  Y: PVC
- Armour
  Blank: No armour
  STA: Corrugated steel tape
  SWA: Steel wire
  SWB: Armour steel wire braided
- Inner Sheath
  2Y: PE
  Y: PVC
- Central strength member
  S: Solid steel
  SR: Stranded steel
  F: Fiber reinforced plastic(FRP)
- Fiber per Tubes: 2-12
- C No of tubes: 1-36
- Fiber Type
  4: 50/125 um(OM3) 7: NZDS SM fiber per ITU-T G.656
  5: 50/125 um(OM2) 8: NZDS SM fiber per ITU-T G.655
  6: 62.5/125um(OM1) 9: Standard SM fiber per ITU-T G.652.D
- Loose Tube Diameter
  1.9mm~ 2.8mm

GR-20/RUS 7
CFR1755.900
(REA PE-90)
N
Standard

ICEA S 87-640
N
Standard


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

Technical Information For Fiber Optic Cables

Optical & Geometrical Properties for Single Mode Fibers

Parameter		Standard Single Mode Fiber per ITU-T G.652D	Non-zero Dispersion Shifted fiber per ITU-T G.655	Non-zero Dispersion Shifted fiber per ITU-T G.656	Units
Fiber Code		9	8	7	
Attenuation, Loose Tube Cables		Standard	Metro Area	Long Haul	
	@1310nm	≤0.35	-	-	dB/km
	@1550nm	≤0.22	≤0.22	≤0.22	dB/km
	@1625nm	≤0.25	≤0.26	≤0.26	dB/km
Attenuation, Tight Buffer or Semi-Tight Cables					
	@1310nm	≤0.38	-		dB/km
	@1550nm	≤0.28	-		dB/km
Chromatic Dispersion	between 1260 and 1360nm (O Band)	≤3.5	NA-	-	ps/(nm*km)
	between 1460 and 1530nm (S Band)	-	-	2.0-7.0	ps/(nm*km)
	between 1530 and 1565nm (C Band)	≤18	1.0-10.0	7.0-10.0	ps/(nm*km)
	between 1565 and 1625nm (L Band)	≤22	7.0-12.0	10.0-14.0	ps/(nm*km)
Zero Dispersion Wavelength		1310±11	≤1520	≤1420	nm
Zero Dispersion Slope		0.093	0.093	0.093	ps/(nm2.km)
Point Discontinuity at 1300nm& 1550nm		0.1	0.1	0.1	dB
Mode Field Diameter	@1300nm	9.3±0.5	-		um
	@1550nm	10.4±0.8	8.5±0.6	9.0±0.5	um
Cable Cut-off Wavelength		≤1260	≤1450	≤1310	nm
PMD (Individual fiber)		≤0.2	≤0.2	≤0.2	ps/km 1/2
Cladding Diameter		125±1	125±1	125±1	um
Core/Cladding Concentricity Error		≤0.5	≤0.5	≤0.6	um

Cladding Non-Circularity	≤1.0	≤1.0	≤1.0	%
Coating Non-Circularity	≤6.0	≤6.0	≤6.0	%
Primary Coating Diameter	245±10	245±10	245±10	um
Proof-Test Level	100 (0.7)	100 (0.7)	100 (0.7)	Kpsi/GN/m^2
Fatigue Coefficient	≥20	≥20	≥20	
Temperature Dependence between 0°C ~ +70°C @ 1310 & 1550nm	0.1	0.1	0.1	Db/km

Optical & Geometrical Properties for Multimode Fibers

Parameter		50/125		62.5/125	Units
Fiber Code		5	4	6	-
ISO/IEC 11801 Classification(2)		**OM2**	**OM3**	**OM1**	-
Attenuation, Loose Tube Cables					
@850nm		≤3.0		≤3.0	dB/km
@1300nm		≤0.8		≤0.8	dB/km
Attenuation, Tight Buffer and Semi-tight Cables					
@850nm		≤3.0		≤3.5	dB/km
@1300nm		≤1.0		≤1.0	dB/km
Bandwidth*	@850nm	≥500	≥2000	≥200	MHz*km
	@1300nm	≥800/500	≥500	≥500/600	MHz*km
Numerical Aperture		0.20±0.015		0.275±0.015	-
Core Diameter		50±3		62.5±3	um
Cladding Diameter		125±2		125±2	um
Core/Cladding Concentricity		≤1.5		≤1.5	um
Core Non-Circularity		≤6		≤6	%
Cladding Non-Circularity		≤2 1		≤2 1	%
Core/Cladding Offset		≤3		≤3	um
Coating Diameter		245±10		245±10	um
Proof-Test Level		100 (0.7)		100 (0.7)	Kpsi (GN/m^2)
Fatigue Coefficient		≥20		≥20	
Temperature Dependence between 0°C ~ +70°C		0.1		0.1	dB

Mechanical & Environmental Properties for Single Mode Fiber

Testing Parameters	EIA/ TIA-455 FOTP Number	IEC-794-1 Test Method	EN 187000 Test Method	Maximum Increased loss
Tensile Load & Bending	33	E1	501	<0.05dB (90%); <0.15dB (100%)
Low & High Temperature Bend	37	E11		<0.05dB (90%); <0.15dB (100%)
Compression loading (Crush)	41	E3	504	<0.05dB (90%); <0.15dB (100%) 440N/km(250lb/in) load
Impact Resistance	25	E4	505	<0.05dB (90%); <0.15dB (100%)
Twist (Torson)	85	E7	508	<0.05dB (90%); <0.15dB (100%)
Cyclic Flexing (Repeated Bending)	104	E6	509	<0.05dB (90%); <0.15dB (100%)
External freezing	98	F6		<0.05dB (90%); <0.15dB (100%)
Temperature Cycling	3	F1	601	<0.05dB (90%); <0.15dB (100%)
Fiber Stripability	178	B6		<8.9N(2lbf) on unaged and aged fiber; >1.3N(0.3lbf) on unaged and aged fiber
Cable Aging	82	F5		<0.1dB (90%); <0.25dB (100%)
Water Penetration	82	F5		No flow after 24 hours from 1 meter length of cable
Compound Flow (Drip)	81	E14		80°C 24 hours duration, no drip

Mechanical & Environmental Properties for Multi Mode Fiber

Testing Parameters	EIA/TIA-455 FOTP Number	IEC-794-1 Test Method	EN 187000 Test Method	Maximum Increased loss
Tensile Load & Bending	33	E1	501	<0.2dB
Low & High Temperature Bend	37	E11		<0.4dB
Compression loading (Crush)	41	E3	504	<0.2dB 440N/km(250lb/in) load
Cyclic Impact	25	E4	505	<0.4dB
Twist (Torsion)	85	E7	508	<0.2dB
Cyclic Flexing (Repeated Bending)	104	E6	509	<0.2dB
External freezing	98	F6		<0.2dB
Temperature Cycling	3	F1	601	<0.05dB (90%); <0.15dB (100%)
Fiber Stripability	178	B6		<13.4N(3lbf) on unaged fiber
Cable Aging	82	F5		<0.1dB (90%); <0.25dB (100%)
Water Penetration	82	F5		No flow after 24 hours from 1 meter length of cable
Compound Flow (Drip)	81	E14		80°C 24 hours duration, no drip

Technical Information for Fire Properties

FLAME RETARDANCE IN ACCORDANCE WITH DIFFERENT STANDARDS

The following standards specify a method for flame propagation test for single core cables. The single cable sample undergoes the flame action of a bunsen burner. The test only lasts few minutes.

The IEC 60332-1 standards are taken over as EN standards and transferred to national standards Example: IEC 60332-1 becomes EN 60332-1 and introduced in Germany as DIN EN 60332-1.

Flame Retardance in accordance with EN 60332:2004

EN 60332:2004 Tests on electrical and optical cables under fire conditions. The standard applies to single insulated wires (cables) and requires a vertical flame test with a maximum flame climb of 450mm. The test lasts between 1 and 8 minutes, depending on the cable diameter.

EN 60332-1-1:2004 / BS EN 60332-1-1:2004 / IEC 60332-1-1:2004 / DIN EN 60332-1-1:2004 / VDE 0482-1-1:2005-06 Test on electrical and optical cables under fire conditions. Test for a vertical flame propagation fo a single insulated wire or cables.

EN 60332-1-2:2004 / BS EN 60332-1-2:2004 / IEC 60332-1-2:2004 / DIN EN 60332-1-2:2004 / VDE 0482-1-2:2005-06 / CEI 60332-1-2(CEI 20-35/1-2) Tests on electrical and optical fiber cables under fire conditions. Test for a vertical flame propagation for a single insulated wire or cable – Procedure for 1kW premixed flame.

This standard specifies a method of test for resistance to vertical flame propagation for a single insulated wire or cable. Part 1-1 specifies the test apparatus and Part 1-2 specifies the test procedure.

The cable sample is deemed to pass the test if the distance between the lower edge of the top support and the onset of charring is greater than 50mm. In addition, a failure shall be recorded if burning extends downward to a point greater than 540mm from the lower edge of the top support.

EN 60332-1-2:2004 specifies the use of 1kW premix flame and is for general use, except that the procedure may not be suitable for the testing of small insulated conductors or cables of less than 0.5mm sq cross section because the conductor melts before the test is completed, or for the testing of small optic fiber cables because the fiber will be broken before the test is completed. In this case, the procedure given by EN 60332-2-1/2 is recommended.

EN 60332-2-1:2004 / BS EN 60332-2-1:2004 / IEC 60332-2-1:2004 / DIN EN 60332-2-1:2004 / VDE 0482-2-1:2005-06 Tests on electrical and optical cables under fire conditions. Test for a vertical flame propagation for a single small insulated wire or cable.

EN 60332-2-2:2004 / BS EN 60332-2-2:2004 / IEC60332-2-2:2004 / DIN EN 60332-2-2:2004 / VDE 0482-2-2:2005-06 / CEI 60332-2-2 (CEI 20-35/2-2) Test on electric and optical fiber cables under fire conditions. Tests for vertical flame propagation for a single small insulated wire or cable. Procedure for diffusion flame.
This test applies to small dimensions cables.
This standard specifies a method of test for resistance to vertical flame propagation for a single insulated wire or cable. Part 2-1 specifies the test apparatus and Part 2-2 specifies the test

procedure.

Flame Retardance in accordance with NF C32-070-2.1(C2)

NF C32-070:2001 Insulated conductors and cables for installation - Classification tests on conductors and cables with regard to fire behavior.
NF C32-070 2.1 Procedure for 1 kW pre-mixed flame.

The NF F 32070 2.1 (Category C2) and IEC 60332-1-2 are very similar. The sole difference is the time during which the flame is applied.

Flame Retardance in accordance with EN 50265-1:1999 (replaced by EN 60332)

EN 50265-1:1999 / BS EN 50265-1:1999 / DIN EN 50265-1:1999 / VDE 0482-265-1:1999-04– Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Apparatus (Replaced by EN 60332-1-1:2004 and EN 60332-2-1:2004).
EN 50265-2-1:1999 / BS EN 50265-2-1:1999 / DIN EN 50265-2-1:1999 / VDE 0482-265-2-1:1999-04 – Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Part 2-1: Procedure 1kW pre-mixed flame (Replaced by EN 60332-1-2:2004).

EN 50265-2-2:1999 / BS EN 50265-2-2:1999 / DIN EN 50265-2-2:1999 / VDE 0482-265-2-2:1999-04 – Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Part 2-2: Procedure Diffusion flame (Replaced by EN 60332-2-2:2004).

Flame Retardance in accordance with BS 4066 Part 1 & 2 (replaced by EN 60332)

BS 4066-2:1980 (superseded) – Tests on electic cables under fire conditions. Method of test on a single vertical insulated wire or cable.

This standard is no longer in force and is replaced by BS EN 50265-2-1 which was also superseded by BS EN 60332-1:2009.

Flame Retardance in accordance with NBN C 30-004 (cat. F1)

NBN C 32-004 specifies a method of test for measuring the vertical flame propagation characteristics of a single wire or cable. The cable specimen is deemed to have passed the test and categorized as F1 if after burning has ceased, the charred or affected portion does not reach within 50mm of the lower edge of the top clamp which is equivalent to 425mm above the point of flame application.

Flame Retardance in accordance with IEEE 383

In the IEEE 383 test, cables are supported by a one foot wide vertical rack eight feet high. The cables are positioned in the centre six inches of the rack, spaced one-half diameter apart. The rack is centered in an eight foot enclosure. A ten inch ribbon burner ignites the cable with a 21 kW (70000 BTU). The burner is positioned 2 feet above the floor and 9 to 12 inches of cables are exposed to direct flames for 20 minutes. Cables on which flame extends above the top of the 8 foot rack fail the test.

REDUCED FIRE PROPAGATION IN ACCORDANCE WITH DIFFERENT STANDARDS



These standards specify a method for fire propagation test for vertically mounted bunched cables. These tests simulate the chimney effect in vertical installation of bunch of cables. A certain number of cable sections with a length of 3.5 m is fastened to a vertical ladder in an adapted chamber. The amount of combustible materials for cables and duration of flame application depends on the category the cable has to meet.

Resistance of the wires bundle arranged vertically to the spread of the flame should be such that after a certain time and stopping the source of ignition, flame is extinguished by itself and the length of charred fragments will not exceed 2.5 m in height measured above the lower edge of the burner.

Reduced Fire Propagation in accordance with IEC 60332-3

This test is the most common one to verify the behaviour of a cables for the fire propagation. The cables are installed on a bunch of vertical ladder inside a metal cabinet and undergo the action of a ribbon flame at 750°C.The standard is subdivided in several parts that differ one from the other for the quantity of cable to be installed, the installation mode and the flame application time.

EN 60332-3-10:2009 / BS EN 60332-3-10:2009 / IEC 60332-3-10 ed1.1 / DIN EN 60332-3-10:2009 / VDE 0482-332-3-10:2010-08 – Common test methods for cables under fire conditions. Tests on electric and optical fiber cables under fire conditions - Part 3-10: Test for vertical flame spread of vertically mounted bunched wires or cables.

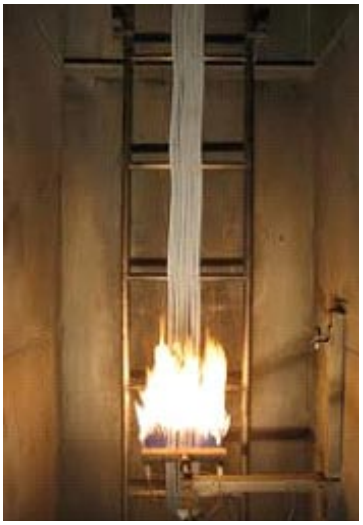
EN 60332-3-21:2009 / BS EN 60332-3-21:2009 / IEC 60332-3-21 ed1.1 / DIN EN 60332-3-21 / VDE 0482-332-3-21:2010-08 / CEI EN 60332-3-21:2009 (CEI 20-22/3-1)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-21: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A . F/R
-Installation In one layer (front).
-Installation In two layers (front and rear)
-The quantity of the Installed cable is equal to 7 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes

EN 60332-3-22:2009 / BS EN 60332-3-22:2009 / IEC 60332-3-22 ed1.1 / DIN EN 60332-3-22:2009 /VDE 0482-332-3-22:2010-08 / CEI EN 60332-3-22:2009 (CEI 20-22/3-2)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cable - Category A

-Installation In one layer (front).
-The quantity of the installed cable is equal to 7 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes

EN 60332-3-23:2009 / BS EN 60332-3-23:2009 / IEC 60332-3-23 ed1.1 / DIN EN 60332-3-23:2009 / VDE 0482-332-3-23:2010-08 / CEI EN 60332-3-23:2009 (CEI 20-22/3-3)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-23: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category B

-Installation In one layer (front).
-The quantity of the installed cable is equal to 3.5 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes



EN 60332-3-24:2009 / BS EN 60332-3-24:2009 / IEC 60332-3-24 ed1.1 / DIN EN 60332-3-24:2009 / VDE 0482-332-3-24:2010-08 / CEI EN 60332-3-24:2009 (CEI 20-22/3-4) – Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C

-Installation In one layer (front).
-The quantity of the installed cable is equal to 1.5 litres/m of combustible materials for cables
-The time of application of the flame is 20 minutes

EN 60332-3-25:2009 / BS EN 60332-3-25:2009 / IEC 60332-3-25 ed1.1 / DIN EN 60332-3-25: 2009 / VDE 0482-332-3-25:2010-08 / CEI EN 60332-3-25:2009 (CEI 20-22/3-5)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D
-Installation In one layer (front).
-The quantity of the installed cable is equal to 0.5 litres/m of combustible materials for cables
-The time of application of the flame is 20 minutes.
Summary of test condition:

IEC	60332-3-21	60332-3-22		60332-3-23		60332-3-24		60332-3-25	
BS EN 50266	50266-2-1	50266-2-2		50266-2-3		50266-2-4		50266-2-5	
CEI	20-22/3-1	20-22/3-2		20-22/3-3		20-22/3-4		20-22/3-5	
Category	AF/R	A		B		C		D	
Conductor cross-sectionsmm²	＞35	＞35	≤35	＞35	≤35	＞35	≤35	＞35	≤35
NMV(litres per metre of cable)	7	7		3.5		1.5		0.5	
Minimum length of test pieces(m)	3.5	3.5		3.5		3.5		3.5	

Standard ladder (500 mm wide): • number of layers • maximum width of test sample	1front+1rear 300mm	≥1front 300mm	1front 300mm	- -	≥1front 300mm	1front 300mm	≥1front 300mm	1front 300mm	≥1front 300mm
Wide ladder (800 mm wide): • number of layers • maximum width of test sample	- -	- -	- -	1front 600mm	- -		- -		- -
Positioning of test pieces	Spaced 0.5×Diameter cable (Max.20mm)	Touching	Spaced 0.5×Diameter cable (Max.20mm)		Touching	Spaced 0.5×Diameter cable (Max.20mm)	Touching	Spaced 0.5×Diameter cable (Max.20mm)	Touching
Number of burners	1	1	1	2	1		1		1
Ladder mounting	Front and rear	Front, Wider ladder for larger cables			Front		Front		Front
Flame application time(min)	40	40	40		40		40		40
Test conditions	Wind speed: <8 m/s; Ternperature: 5°C - +40°C								
Extent of the charred portion	≤2.5m above the bottom edge of the burner, neither at the front nor at the rear of the ladder.								

Reduced fire propagation in accordance with NF C32-070-2.2(C1)

NF C32-070 :2001 Insulated conductors and cables for installation.
-Classification tests on conductors and cables with regard to fire behavior.

A 1600mm vertically installed bundled of cable is exposed to the effects of a radiating oven (approx 830°C) and forced ventilation. Pilot flames arranged above the oven burn off the emitted gases. The test duration is 30 minutes, with the ventilation stopped for every 10 minutes during the flame application period. The cable sample is classified under Category C1 according to NF F 32070-2.2 if the carbonised part of the cable sample does not extend more than 0.8m above the upper base of the oven.

Depending on the damaged length, they can be further classified into 4 classes A, B, C and D according to NF F 16-101 as follows:

Category	Test Result
A	No damaged length from top of the oven in upper position.
B	Damaged length from top of oven in upper position not extending more than 50mm.
C	Damaged length from top of oven in upper position not extending more than 300mm
D	Damaged length from top of oven in upper position not extending above the top of the chimney

Reduced Fire Propagation in accordance to EN 50266-1, EN 50266-2-2, EN 50266-2-3, EN

50266-2-4.

EN 50266-1:2001 / BS EN 50266-1:2001 / DIN EN 50266-1:2001 / VDE 0482-266-1:2001-09– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 1: Apparatus (Replaced by EN 60332-3-10:2009)

EN 50266-2-1:2001 / BS EN 50266-2-1:2001 / DIN EN 50266-2-1:2001 / VDE 0482-266-2-1:2001-09 / CEI EN 50266-2-1– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-1 : Procedures. Category A F/R (Replaced by EN 60332-3-21:2009)

EN 50266-2-2:2001 / BS EN 50266-2-2:2001 / DIN EN 50266-2-2:2001 / VDE 0482-266-2-2:2001-09 / CEI EN 50266-2-2– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-2: Procedures. Category A (Replaced by EN 60332-3-22:2009)



EN 50266-2-3:2001 / BS EN 50266-2-3:2001 / DIN EN 50266-2-3:2001 / VDE 0482-266-2-3:2001-09 / CEI EN 50266-2-1– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-3: Procedures. Category B (Replaced by EN 60332-3-23:2009)

EN 50266-2-4:2001 / BS EN 50266-2-4:2001 / DIN EN 50266-2-4:2001 / VDE 0482-266-2-4:2001-09 / CEI EN 50266-2-4:2001 – Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-4: Procedures. Category C (Replaced by EN 60332-3-24:2009).

Reduced Fire Propagation in accordance with BS 4066-3

BS 4066-3:1994 (superseded) – Tests on electic cables under fire conditions. Tests on bunched wires or cables.
This standard is no longer in force and is replaced by the BS EN 50266-1:2001

Reduced Fire Propagation in accordance with NBN C 32-004 (F2)

NBN C 32-004 specifies a method of test for measuring the vertical flame propagation characteristics of a bunch of cables. The cable specimen is deemed to have passed the test and categorized as F2 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.

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