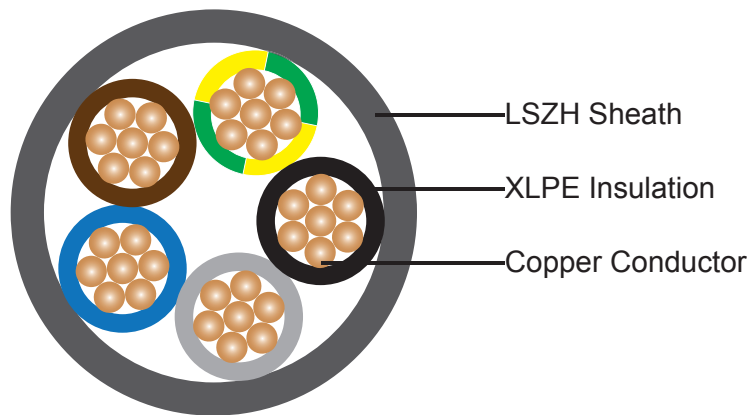




Five-core 600/1000V XLPE Insulation, LSZH Sheath Cables to BS 8573



APPLICATION

These XLPE insulated and LSZH sheathed cables are generally used for fixed installation. Suitable for building wiring, especially in areas where smoke and fume emissions may cause a potential threat to life but not for burial in the ground, either directly or in ducts.

STANDARD

Basic design to BS 8573:2012

FIRE PERFORMANCE

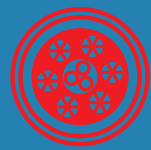
Flame Retardance (Single Vertical Wire Test)	BS EN 60332-1-2:2004
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)	BS EN 60332-3-24:2009 (cat. C)
Halogen Free	BS EN 50267-2-1
Minimum Smoke Emission	BS EN 61034-2
Spark Test	BS EN 62230

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Annealed copper conductor, strand according to BS EN 60228 class 2.



Insulation: XLPE type GP8 according to BS 7655-1.3. HEPR type GP6 according to BS 7655-1.2, or crosslinked polyolefin material type EI 5 according to BS EN 50363-5 can be offered as option.

Inner Covering option: The laid up cores may be covered by an optional extruded inner covering or separating tape. It shall be possible to separate the cores easily.

Outer Sheath: Thermoplastic LSZH type LTS 4 according to BS 7655-6.1.

Outer Sheath option: UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option.

COLOUR CODE

Insulation Colour: Green and yellow, blue, brown black, grey.

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 conductors(up to 25mm²): 4 x Overall Diameter

Circular copper conductors(above 25mm²): 6 x Overall Diameter

Shaped copper conductors: 8 x Overall Diameter

CONSTRUCTION PARAMETERS

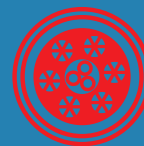
Conductor		Nominal Insulation Thickness	Nominal Inner Covering Thickness	Nominal Sheath Thickness
No. of Cores x Cross Section	Class of Conductor			
No. x mm ²		mm	mm	mm
5x1.5	2	0.7	0.4	1.8
5x2.5	2	0.7	0.4	1.8
5x4.0	2	0.7	0.6	1.8
5x6.0	2	0.7	0.6	1.8
5x10	2	0.7	0.6	1.8
5x16	2	0.7	0.8	1.8
5x25	2	0.9	1.0	1.8
5x35	2	0.9	1.0	1.8
5x50	2	1.0	1.2	1.9
5x70	2	1.1	1.2	2.1
5x95	2	1.1	1.4	2.2



Conductor		Nominal Insulation Thickness	Nominal Inner Covering Thickness	Nominal Sheath Thickness
No. of Cores x Cross Section	Class of Conductor			
No. x mm ²		mm	mm	mm
5x120	2	1.2	1.4	2.4



Standard



Technical Reference

CONDUCTOR RESISTANCE

No. of Cores x Cross Section mm ²	Min. no. of wires in the conductor			Max. resistance of conductor@20°C	
	Circular	Circular Compacted	Shaped	Annealed copper conductor	
	CU	CU	CU	plain wires	Metal-coated wires
1.5	7	6	-	12,1	12,2
2.5	7	6	-	7,41	7,56
4.0	7	6	-	4,61	4,70
6.0	7	6	-	3,08	3,11
10	7	6	-	1,83	1,84
16	7	6	-	1,15	1,16
25	7	6	6	0,727	0,734
35	7	6	6	0,524	0,529
50	19	6	6	0,387	0,391
70	19	12	12	0,268	0,270
95	19	15	15	0,193	0,195
120	37	18	18	0,153	0,154
150	37	18	18	0,124	0,126
185	37	30	30	0,0991	0,100
240	37	34	34	0,0754	0,0762
300	61	34	34	0,0601	0,0607
400	61	53	53	0,0470	0,0475
500	61	53	53	0,0366	0,0369
630	91	53	53	0,0283	0,0286
800	91	53	-	0,0221	0,0224
1000	91	53	-	0,0176	0,0177



ELECTRICAL PROPERTIES

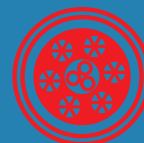
Conductor Operating Temperature : 90°C

Ambient Temperature : 30°C

Current-Carrying Capacities (Amp)

Single-core 90°C thermosetting insulated cables, unarmoured, with or without sheath

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
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	-	-	-	-	-
4.0	35	31	42	37	46	41	-	-	-	-	-
6.0	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	606	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	1113	1033	1254	1151	1088	1454	1362
800	-	-	-	-	1288	1179	1358	1275	1214	1581	1485



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
1000	-	-	-	-	1443	1323	1520	1436	1349	1775	1671

Multicore 90°C thermosetting insulated and thermoplastic sheathed cables, unarmoured

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
4.0	33	30	40	35	45	40	49	42
6.0	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)

Single-core 90°C thermosetting insulated cables, unarmoured, with or without sheath

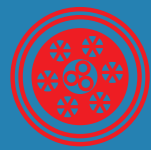
Nominal Cross Section Area	2 cables d.c.	2 cables, single-phase a.c.									3 or 4 cables, three-phase a.c.											
		Ref. Methods A and B (enclosed in conduit or trunking)			Ref. Methods C, F&G (clipped direct, on trays or in free air)						Ref. Methods 3 and 4 (enclosed in conduit etc, in or on a wall)	Ref. Methods C, F&G (clipped direct, on trays or in free air)										
					Cables touching 4			Cables spaced*5				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				
1.0	46	46			46			46			40	40			40			40				
1.5	31	31			31			31			27	27			27			27				
2.5	19	19			19			19			16	16			16			16				
4.0	12	12			12			12			10	10			10			10				
6.0	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	0.50	0.43	0.170	0.45	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



Multicore 90°C thermosetting insulated and thermoplastic sheathed cables, unarmoured

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





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