



# UL CABLE FOR FAR EAST DISTRICT

Medium & Low Voltage Power Cable



# THE WORLD BEST CABLE SOLUTION LEADER

LS Cable & System supplies various cables and materials used for power grids and communication networks around the world across all industries providing its top class technology and excellent quality. The company has also developed state of the art products, such as superconductors, HVDC and submarine cables that will lead the future energy industry.

**LS spun off from LG in 2003 as a group specializing in electronics, electrical systems, energy and materials.**



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Distribution Cable  
Submarine Cable  
Telecommunication Cable  
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**LS**-Nikko Copper

Copper Refinement

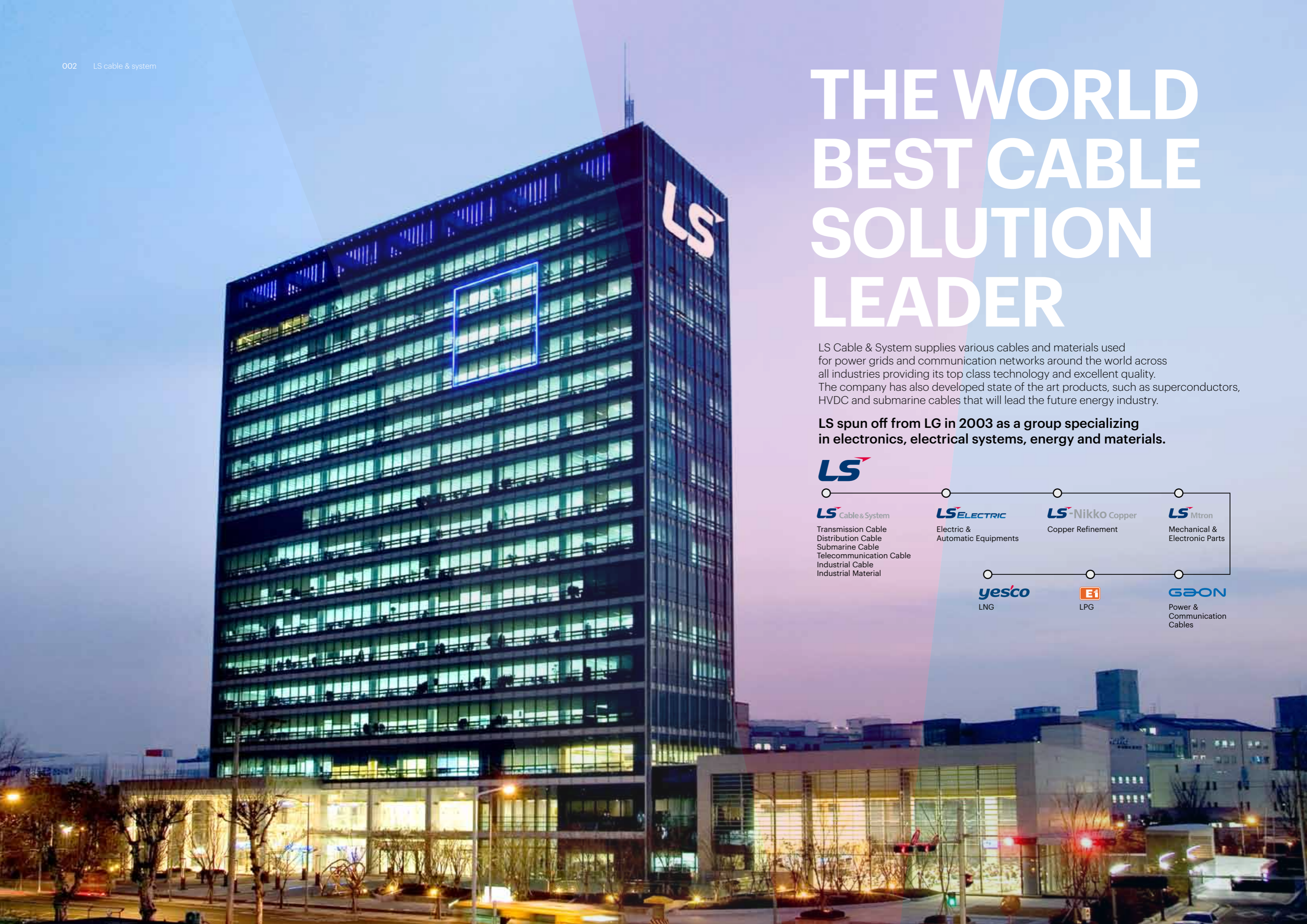
**LS** Mitron

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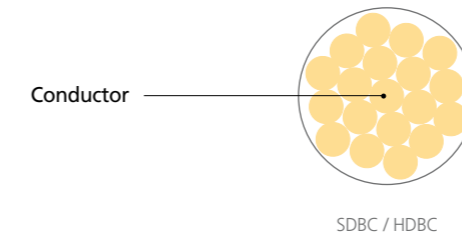
**E1**  
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Power &  
Communication  
Cables



# SDBC / HDBC

Soft Drawn Bare Copper Conductor / Hard Darwn Bare Copper Conductor



## Medium & Low Voltage Power Cable

# UL CABLE FOR FED

### (FAR EAST DISTRICT)

### Application

Type SDBC/HDBC listed by UL is suitable for use in electrical properties

### Standard

ASTM B8 Standard specification for Stranded Copper Conductors

### Construction

Conductor Stranded annealed copper wires

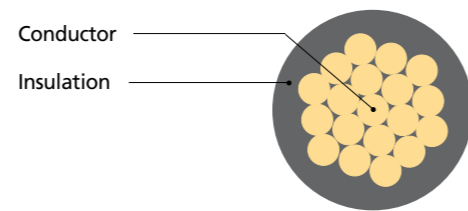
Size		Conductor				Nom. DC Conductor Resistance (20°C)	Weight of Cable (Approx.)	
AWG or KCM	mm <sup>2</sup>	Construction	Shape	Diameter (nom.)			kg/km	lb/1000ft
		No. of strands	-	mm	mils	Ω/km		
14	2.08	7	Round	1.8	72	8.46	26	57.32
12	3.31	7	Round	2.32	92.8	5.35	41	90.39
10	5.26	7	Round	2.95	118	3.35	61	134.48
8	8.37	7	Round	3.71	148.4	2.1	95	209.44
6	13.3	7	Round	4.67	186.8	1.32	160	352.74
4	21.2	7	Round	5.89	235.6	0.830	245	540.13
3	26.7	7	Round	6.6	264	0.659	295	650.36
2	33.6	7	Round	7.42	296.8	0.522	370	815.71
1	42.4	19	Round	8.43	337.2	0.417	470	1036.17
1/0	53.5	19	Round	9.47	378.8	0.328	575	1267.66
2/0	67.4	19	Round	10.64	425.6	0.261	715	1576.31
3/0	85	19	Round	11.94	477.6	0.207	875	1929.05
4/0	107	19	Round	13.41	536.4	0.164	1095	2414.06
250	127	37	Round	14.61	584.4	0.139	1430	3152.61
300	152	37	Round	16	640	0.116	1535	3384.10
350	177	37	Round	17.3	692	0.0991	1780	3924.23
400	203	37	Round	18.49	739.6	0.0866	2030	4475.38
500	253	37	Round	20.65	826	0.0695	2500	5511.56
750	380	61	Round	25.35	1014	0.0462	3750	8267.34

\* Per Table 310-16 of the National Electrical Code, 2005 edition.

\* Conditions : Not more than three conductors in raceway or cable or earth(directly buried), based on ambient temperature of 30°C

# 600V THW

600V Heat-Resistant PVC Insulated Wire



600V THW

### Application

Type THW listed by UL is suitable for use in wet and dry locations at 75°C.

This wire is generally used in conduit or other approved raceways in commercial wiring, as specified in the National Electrical Code.

### Standard

UL83 Thermoplastic insulated wires and cables

### Construction

Conductor Solid or stranded annealed copper

Insulation Flame-retardant, Heat-, Abrasion- and moisture-resistant PVC

### Color

The standard color is black, when required for a particular application, other colors are available

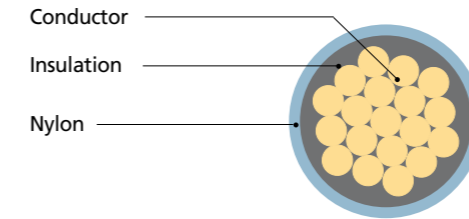
Size		Conductor		Insulation Thickness				Apprx. Overall Diameter		Apprx. Weight		Ampacity (75°C) dry and wet location	Max. DC Conductor Resistance (20°C) Ω/km	
AWG or KCM	mm²	No. of Strands	Diameter		min. ave		min		mm	mils	kg/km	lb/1000ft	Ω/km	
			mm	mils	mm	mils	mm	mils						
14	2.08	1	1.63	65.2	0.76	30.4	0.69	27.6	3.6	144	27	59.5	15	8.45
14	2.08	7	1.85	74	0.76	30.4	0.69	27.6	3.8	152	30	66.1	15	8.62
12	3.31	1	2.05	82	0.76	30.4	0.69	27.6	4	160	39	86.0	20	5.31
12	3.31	7	2.32	92.8	0.76	30.4	0.69	27.6	4.2	168	43	94.8	20	5.43
10	5.26	1	2.59	103.52	0.76	30.4	0.69	27.6	4.5	180	58	127.9	30	3.343
10	5.26	7	2.95	118	0.76	30.4	0.69	27.6	4.8	192	63	138.9	30	3.409
8	8.37	7	3.71	148.4	1.14	45.6	1.02	40.8	6.4	256	105	231.5	50	2.144
6	13.3	7	4.67	186.8	1.52	60.8	1.37	54.8	8.2	328	168	370.4	65	1.348
4	21.2	7	5.89	235.6	1.52	60.8	1.37	54.8	9.5	380	249	549.0	85	0.8481
3	26.7	7	6.02	240.8	1.52	60.8	1.37	54.8	10.2	408	305	672.4	100	0.6727
2	33.6	7	6.81	272.4	1.52	60.8	1.37	54.8	11	440	376	828.9	115	0.5335
1	42.4	19	7.59	303.6	2.03	81.2	1.83	73.2	13	520	490	1080.3	130	0.423
1/0	53.5	19	8.53	341.2	2.03	81.2	1.83	73.2	14.2	568	592	1305.1	150	0.3354
2/0	67.4	19	9.55	382	2.03	81.2	1.83	73.2	15.5	620	734	1618.2	175	0.266
3/0	85	19	10.74	429.6	2.03	81.2	1.83	73.2	16.5	660	905	1995.2	200	0.211
4/0	107	19	12.07	482.8	2.03	81.2	1.83	73.2	17.5	700	1120	2469.2	230	0.1673
250	127	37	13.21	528.4	2.41	96.4	2.18	87.2	19.5	780	1345	2965.2	255	0.1416
300	152	37	14.48	579.2	2.41	96.4	2.18	87.2	21	840	1595	3516.4	285	0.118
350	177	37	15.65	626	2.41	96.4	2.18	87.2	22.5	900	1836	4047.7	310	0.1011
400	203	37	16.74	669.6	2.41	96.4	2.18	87.2	23.5	940	2080	4585.6	335	0.08851
500	253	37	18.69	747.6	2.41	96.4	2.18	87.2	25.5	1020	2566	5657.1	380	0.0708

\* Per Table 310-16 of the National Electrical Code, 2005 edition.

\* Conditions : Not more than three conductors in raceway or cable or earth(directly buried), based on ambient temperature of 30°C

# 600V THHN / THWN

600V Heat-Resistant PVC Insulated and Nylon Jacketed Wire



### Application

Type THHN is suitable for use in dry locations at 90°C.

Type THWN is suitable for use in dry and wet locations at 75°C.

These wires are generally used in conduit as branch circuits in commercial or industrial applications, as specified in the National Electrical Code.

### Standard

UL83 Thermoplastic insulated wires and cables

### Construction

Conductor Solid or stranded annealed copper

Insulation Flame-retardant, Heat-, Abrasion-and moisture-resistant PVC with clear nylon jacket

### Color

The standard color is black, when required for a particular application, other colors are available

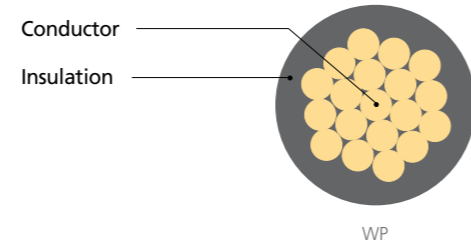
Size		Conductor		Insulation Thickness				Nylon Layer (min)		Overall Diameter (Approx.)		Weight of Cable (Approx.)		Ampacity		Max. DC Conductor Resistance (20°C) Ω/km	
AWG or KCM	mm²	No. of Strands	Diameter		min. ave		min		mm	mils	mm	mils	kg/km	lb/1000ft	THWN (75°C)	THHN (75°C)	Ω/km
			mm	mils	mm	mils	mm	mils	mm	mils	mm	mils					
14	2.08	1	1.63	65.2	0.38	15.2	0.33	13.2	0.1	4	3	120	25	55.1	15	15	8.45
14	2.08	7	1.85	74	0.38	15.2	0.33	13.2	0.1	4	3.2	128	26	57.3	15	15	8.62
12	3.31	1	2.05	82	0.38	15.2	0.33	13.2	0.1	4	3.4	136	40	88.2	20	20	5.31
12	3.31	7	2.32	92.8	0.38	15.2	0.33	13.2	0.1	4	3.7	148	41	90.4	20	20	5.43
10	5.26	1	2.59	103.52	0.51	20.4	0.46	18.4	0.1	4	4.3	172	60	132.3	30	30	3.343
10	5.26	7	2.95	118	0.51	20.4	0.46	18.4	0.1	4	4.7	188	61	134.5	30	30	3.409
8	8.37	7	3.71	148.4	0.76	30.4	0.69	27.6	0.13	5.2	6	240	95	209.4	50	55	2.144
6	13.3	7	4.67	186.8	0.76	30.4	0.69	27.6	0.13	5.2	7	280	160	352.7	65	55	1.348
4	21.2	7	5.89	235.6	1.02	40.8	0.91	36.4	0.15	6	9.1	364	245	540.1	85	75	0.8481
3	26.7	7	6.02	240.8	1.02	40.8	0.91	36.4	0.15	6	9.3	372	295	650.4	100	95	0.6727
2	33.6	7	6.81	272.4	1.02	40.8	0.91	36.4	0.15	6	10.1	404	370	815.7	115	110	0.5335
1	42.4	19	7.59	303.6	1.27	50.8	1.14	45.6	0.18	7.2	11.4	456	470	1036.2	130	130	0.423
1/0	53.5	19	8.53	341.2	1.27	50.8	1.14	45.6	0.18	7.2	12.4	496	575	1267.7	150	150	0.3354
2/0	67.4	19	9.55	382	1.27	50.8	1.14	45.6	0.18	7.2	13.5	540	715	1576.3	175	170	0.266
3/0	85	19	10.74	429.6	1.27	50.8	1.14	45.6	0.18	7.2	14.7	588	875	1929.0	200	195	0.211
4/0	107	19	12.07	482.8	1.27	50.8	1.14	45.6	0.18	7.2	15.9	636	1095	2414.1	230	225	0.1673
250	127	37	13.21	528.4	1.52	60.8	1.38	55.2	0.2	8	17.6	704	1430	3152.6	255	260	0.1416
300	152	37	14.48	579.2	1.52	60.8	1.38	55.2	0.2	8	18.9	756	1535	3384.1	285	290	0.118
350	177	37	15.65	626	1.52	60.8	1.38	55.2	0.2	8	20.1	804	1780	3924.2	310	320	0.1011
400	203	37	16.74	669.6	1.52	60.8	1.38	55.2	0.2	8	21.2	848	2030	4475.4	335	350	0.08851
500	253	37	18.69	747.6	1.52	60.8	1.38	55.2	0.2	8	23.1	924	2500	5511.6	380	380	0.0708
750	2.08	61	23.06	922.4	1.78	71.2	1.6	64	0.23	9.2	28.5	1140	3750	8267.3	475	475	0.04721

\* Per Table 310-16 of the National Electrical Code, 2005 edition.

\* Conditions : Not more than three conductors in raceway or cable or earth(directly buried), based on ambient temperature of 30°C

# WP

Weather Proof PE Insulated Wire



### Application

WP is intended primarily for the distribution of electrical energy under normal conditions of overhead installations and service outdoors. The coverings carry no voltage ratings, and the conductors must be installed on insulators adequate for the service voltage.

### Standard

ICEA S-70-547 Weather-resistant Polyethylene covered conductors

### Construction

Conductor Hard-drawn Solid or stranded copper  
Insulation Polyethylene

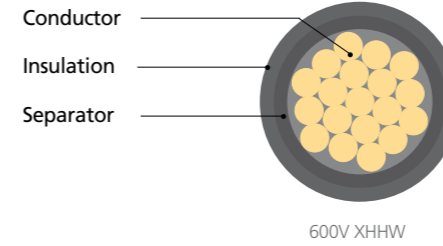
### Color

Black

Conductor			Conductor			Apprx. Weight	Standard Length
Size		No. of Strands	Diameter	Overall Diameter	Overall Diameter		
AWG or KCM	mm <sup>2</sup>		mm	mm	lb/1000ft	mm	ft
10	5.26	1	2.59	0.76	0.68	4.5	58
8	8.37	1	3.264	0.76	0.68	5.0	83
8	8.37	7	3.71	0.76	0.68	5.5	89
6	13.3	1	4.115	0.76	0.68	6.0	129
6	13.3	7	4.67	0.76	0.68	6.5	136
4	21.2	1	5.189	0.76	0.68	7.0	197
4	21.2	7	5.89	0.76	0.68	8.0	210
3	26.7	7	6.60	1.14	1.04	9.5	272
2	33.6	7	7.42	1.14	1.04	10.0	338
1	42.4	19	8.43	1.14	1.04	11.0	424
1/0	53.5	19	9.45	1.52	1.37	13.0	545
2/0	67.4	19	10.62	1.52	1.37	14.0	677
3/0	85.0	19	11.94	1.52	1.37	15.5	843
4/0	107.2	19	13.41	1.52	1.37	17.0	1,051
250	126.7	37	14.61	1.52	1.37	18.0	1,242
300	152.0	37	16.0	1.52	1.37	19.5	1,478
350	177.3	37	17.3	1.52	1.37	20.5	1,717
400	202.6	37	18.49	2.03	1.83	23.0	1,99
500	253.3	37	20.65	2.03	1.83	25.0	2,465
750	380.0	61	25.35	2.03	1.83	30.0	3,672
800	405.4	61	26.16	2.03	1.83	30.5	3,911
900	456.0	61	27.79	2.03	1.83	32.5	4,376
1,000	506.7	61	29.26	2.41	2.18	34.5	4,894

# 600V XHHW

600V Flame-Retardant XLPE Insulated Wire



### Application

Type XHHW listed by UL is suitable for use in dry locations at 90°C and in wet locations at 75°C. This wire is generally used for distribution and branch circuit wiring in commercial and residential applications with conduit as specified in the National Electrical Code.

### Standard

UL44 Thermoset Insulated Wires and Cables

### Construction

Conductor Solid or stranded annealed copper  
Separator A separator may be applied on stranded conductor  
Insulation Flame-retardant, heat-, abrasion- and moisture-resistant crosslinked polyethylene(FR-XLPE)

### Color

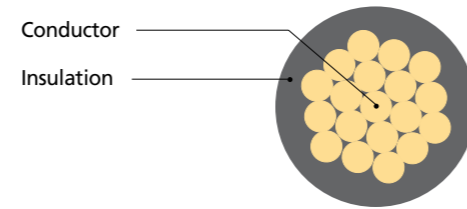
The standard color is black, when required for a particular application, other colors are available

Conductor			Insulation Thickness		Apprx. Overall Diameter		Apprx. Weight		*Ampacity		Standard Length			
Size		No. of Strands	**Diameter		mm	mils	mm	mils	kg/km	lb/1000ft	75°C (Wet)	90°C (Dry)	m	ft
AWG or KCM	mm <sup>2</sup>		mm	mils							mm	mm		
14	2.08	1	1.63	64.1	0.76	30	3.3	132	25	17	15	15	915	3,000
14	2.08	7	1.85	72.7	0.76	30	3.5	140	25	17	15	15	915	3,000
12	3.31	1	2.05	80.8	0.76	30	3.7	148	35	24	20	20	915	3,000
12	3.31	7	2.32	91.5	0.76	30	4.0	160	40	27	20	20	915	3,000
10	5.26	1	2.59	102	0.76	30	4.2	168	55	37	30	30	915	3,000
10	5.26	7	2.95	116	0.76	30	4.5	180	60	40	30	30	915	3,000
8	8.37	1	3.26	129	1.14	45	5.7	228	95	64	50	55	915	3,000
8	8.37	7	3.71	146	1.14	45	6.2	248	100	67	50	55	915	3,000
6	13.3	7	4.67	184	1.14	45	7.1	284	150	100	65	75	915	3,000
4	21.2	7	5.89	232	1.14	45	8.3	332	220	150	85	95	915	3,000
3	26.7	7	6.60	260	1.14	45	9.1	364	280	190	100	110	915	3,000
2	33.6	7	7.42	292	1.14	45	9.9	396	350	240	115	130	915	3,000
1	42.4	19	8.43	332	1.40	55	11.5	460	440	300	130	150	457	1,500
1/0	53.5	19	9.45	372	1.40	55	12.5	500	550	370	150	170	457	1,500
2/0	67.4	19	10.62	418	1.40	55	13.7	548	690	460	175	195	457	1,500
3/0	85.0	19	11.94	470	1.40	55	15.0	600	850	570	200	225	457	1,500
4/0	107	19	13.41	528	1.40	55	16.4	656	1,060	710	230	260	457	1,500
250	127	37	14.61	575	1.65	65	18.3	732	1,270	850	255	290	457	1,500
300	152	37	16.00	630	1.65	65	19.8	792	1,520	1,020	285	320	457	1,500
350	177	37	17.30	681	1.65	65	21.0	840	1,750	1,180	310	350	457	1,500
400	203	37	18.49	728	1.65	65	22.2	888	1,990	1,340	335	380	457	1,500
500	253	37	20.65	813	1.65	65	24.3	972	2,470	1,660	380	430	305	1,000
600	304	61	22.68	893	2.03	80	27.3	1,092	3,000	2,020	420	475	305	1,000
750	380	61	25.35	998	2.03	80	30.0	1,200	3,730	2,510	475	535	305	1,000
1,000	507	61	29.26	1,152	2.03	80	33.9	1,356	4,900	3,290	545	615	305	1,000

\* Per Table 310-16 of the National Electrical Code, 2005 edition.  
\* Conditions : Not more than three conductors in raceway or cable or earth (directly buried), based on ambient temperature of 30°C  
\*\* These values are the outer diameter of the solid or concentric-stranded class B conductor. For stranded conductor, the compress-stranding may be available to reduce the conductor diameter

# 600V XHHW-2

600V Flame-Retardant XLPE Insulated Wire



600V XHHW-2

## Application

Type XHHW-2 listed by UL is suitable for use in wet and dry locations at 90°C.

This wire is generally used for distribution and branch circuit wiring in commercial and residential applications with conduit as specified in the National Electrical Code.

## Standard

UL44 Thermoset insulated wires and cables

## Construction

Conductor Solid or stranded annealed copper  
 Insulation Flame-retardant, heat-, abrasion-and moisture-resistant crosslinked polyethylene(FR-XLPE)

Color The standard color is black, when required for a particular application, other colors are available

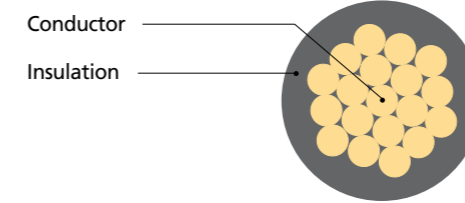
Size		Conductor		Insulation Thickness				Apprx. Overall Diameter		Apprx. Weight		Ampacity	Nom. DC Conductor Resistance (20°C)	
AWG or KCM	mm²	No. of Strands	Diameter		Thickness				mm		kg/km		(75°C dry and wet location)	Ω/km
			mm	mils	mm	mils	mm	mils	mm	mils	kg/km	lb/1000ft		
14	2.08	1	1.63	65.2	1.14	45.6	1.02	40.8	4.2	168	32	70.55	15	8.45
14	2.08	7	1.85	74	1.14	45.6	1.02	40.8	4.4	176	35	77.16	15	8.62
12	3.31	1	2.05	82	1.14	45.6	1.02	40.8	4.6	184	44	97.00	20	5.31
12	3.31	7	2.32	92.8	1.14	45.6	1.02	40.8	4.8	192	49	108.03	20	5.43
10	5.26	1	2.59	103.6	1.14	45.6	1.02	40.8	5.1	204	64	141.10	30	3.343
10	5.26	7	2.95	118	1.14	45.6	1.02	40.8	5.4	216	71	156.53	30	3.409
8	8.37	7	3.71	148.4	1.52	60.8	1.37	54.8	7	280	114	251.33	55	2.144
6	13.3	7	4.67	186.8	1.52	60.8	1.37	54.8	8.2	328	168	370.38	55	1.348
4	21.2	7	5.89	235.6	1.52	60.8	1.37	54.8	9.5	380	249	548.95	75	0.8481
3	26.7	7	6.02	240.8	1.52	60.8	1.37	54.8	10.2	408	305	672.41	95	0.6727
2	33.6	7	6.81	272.4	1.52	60.8	1.37	54.8	11	440	376	828.94	110	0.5335
1	42.4	19	7.59	303.6	2.03	81.2	1.83	73.2	13	520	490	1080.27	130	0.423
1/0	53.5	19	8.53	341.2	2.03	81.2	1.83	73.2	14.2	568	592	1305.14	150	0.3354
2/0	67.4	19	9.55	382	2.03	81.2	1.83	73.2	15.5	620	734	1618.19	170	0.266
3/0	85	19	10.74	429.6	2.03	81.2	1.83	73.2	16.5	660	905	1995.18	195	0.211
4/0	107	19	12.07	482.8	2.03	81.2	1.83	73.2	17.5	700	1120	2469.18	225	0.1673
250	127	37	13.21	528.4	2.41	96.4	2.18	87.2	19.5	780	1345	2965.22	260	0.1416
300	152	37	14.48	579.2	2.41	96.4	2.18	87.2	21	840	1595	3516.37	290	0.118
350	177	37	15.65	626	2.41	96.4	2.18	87.2	22.5	900	1836	4047.69	320	0.1011
400	203	37	16.74	669.6	2.41	96.4	2.18	87.2	23.5	940	2080	4585.62	350	0.08851
500	253	37	18.69	747.6	2.41	96.4	2.18	87.2	25.5	1020	2558	5639.43	380	0.0708
750	380	61	23.06	922.4	2.79	111.6	2.51	100.4	31.5	1260	3940	8686.21	475	0.04721
1000	507	61	26.92	1076.8	2.79	111.6	2.51	100.4	35.4	1416	5157	11369.24	535	0.0354

\* Per Table 310-16 of the National Electrical Code, 2005 edition.

\* Conditions : Not more than three conductors in raceway or cable or earth(directly buried), based on ambient temperature of 30°C

# 600V USE-2 XLPE Cable

600V Flame-Retardant XLPE Insulated Wire



600V USE-2 XLPE Cable



## Application

Type USE-2 listed by UL is suitable for use in wet and dry locations at 90°C.

This wire is generally used for distribution and branch circuit wiring in commercial and residential applications with conduit as specified in the National Electrical Code.

## Standard

UL854 Service-Entrance Cables  
 UL44 Thermoset insulated wires and cables

## Construction

Conductor Solid or stranded annealed copper  
 Separator A separator may be applied on stranded conductor  
 Insulation Flame-retardant, heat-, abrasion-and moisture-resistant crosslinked polyethylene(FR-XLPE)

Color The standard color is black, when required for a particular application, other colors are available

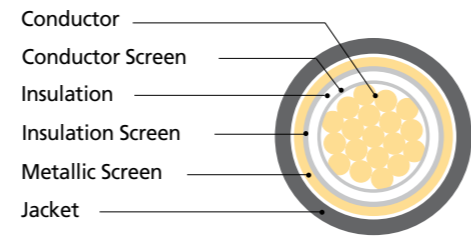
Size		Conductor		Insulation Thickness				Apprx. Overall Diameter		Apprx. Weight		Ampacity	Max. DC Conductor Resistance (20°C)	
AWG or KCM	mm²	No. of Strands	Diameter		Thickness				mm		kg/km		(75°C dry and wet location)	Ω/km
			mm	mils	min	mils	min	mils	mm	mils	kg/km	lb/1000ft		
14	2.08	1	1.63	65.2	1.14	45.6	1.02	40.8	4.2	168	32	70.55	15	8.45
14	2.08	7	1.85	74	1.14	45.6	1.02	40.8	4.4	176	35	77.16	15	8.62
12	3.31	1	2.05	82	1.14	45.6	1.02	40.8	4.6	184	44	97.00	20	5.31
12	3.31	7	2.32	92.8	1.14	45.6	1.02	40.8	4.8	192	49	108.03	20	5.43
10	5.26	1	2.59	103.6	1.14	45.6	1.02	40.8	5.1	204	64	141.10	30	3.343
10	5.26	7	2.95	118	1.14	45.6	1.02	40.8	5.4	216	71	156.53	30	3.409
8	8.37	7	3.71	148.4	1.52	60.8	1.37	54.8	7	280	114	251.33	55	2.144
6	13.3	7	4.67	186.8	1.52	60.8	1.37	54.8	8.2	328	168	370.38	55	1.348
4	21.2	7	5.89	235.6	1.52	60.8	1.37	54.8	9.5	380	249	548.95	75	0.8481
3	26.7	7	6.02	240.8	1.52	60.8	1.37	54.8	10.2	408	305	672.41	95	0.6727
2	33.6	7	6.81	272.4	1.52	60.8	1.37	54.8	11	440	376	828.94	110	0.5335
1	42.4	19	7.59	303.6	2.03	81.2	1.83	73.2	13	520	490	1080.27	130	0.423
1/0	53.5	19	8.53	341.2	2.03	81.2	1.83	73.2	14.2	568	592	1305.14	150	0.3354
2/0	67.4	19	9.55	382	2.03	81.2	1.83	73.2	15.5	620	734	1618.19	170	0.266
3/0	85	19	10.74	429.6	2.03	81.2	1.83	73.2	16.5	660	905	1995.18	195	0.211
4/0	107	19	12.07	482.8	2.03	81.2	1.83	73.2	17.5	700	1120	2469.18	225	0.1673
250	127	37	13.21	528.4	2.41	96.4	2.18	87.2	19.5	780	1345	2965.22	260	0.1416
300	152	37	14.48	579.2	2.41	96.4	2.18	87.2	21	840	1595	3516.37	290	0.118
350	177	37	15.65	626	2.41	96.4	2.18	87.2	22.5	900	1836	4047.69	320	0.1011
400	203	37	16.74	669.6	2.41	96.4	2.18	87.2	23.5	940	2080	4585.62	350	0.08851
500	253	37	18.69	747.6	2.41	96.4	2.18	87.2	25.5	1020	2558	5639.43	380	0.0708
750	380	61	23.06	922.4	2.79	111.6	2.51	100.4	31.5	1260	3940	8686.21	475	0.04721
1000	507	61	26.92	1076.8	2.79	111.6	2.51	100.4	35.4	1416	5157	11369.24	535	0.0354

\* Per Table 310-16 of the National Electrical Code, 2005 edition.

\* Conditions : Not more than three conductors in raceway or cable or earth(directly buried), based on ambient temperature of 30°C

# 5kV / 8kV XLPE Power Cable

5kV, 8kV Copper Conductor XLPE Insulated, and PVC or PE jacketed power cable



5kV, 8kV XLPE Power Cable

## Application

Type MV-90 Cable is used for 5kV,8kV power and distribution circuits in industrial and commercial installation. It may be installed on conduit, duct, tray or directly buried. Safe from ingress of humidity.

## Standard

UL1072

## Construction

Conductor Circular compacted stranded plain annealed copper  
 Insulation 90°C,extruded cross-linked polyethylene with semi conductive inner and outer screen  
 Metallic Screen Annealed copper tape  
 Sheath Black PVC or PE

### 5kV XLPE power (133% insulation)

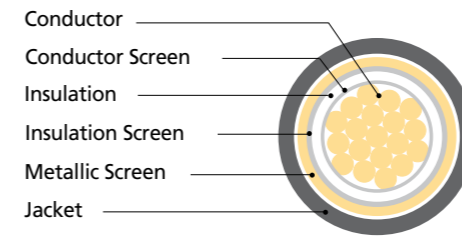
Size	Conductor		Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max. DC Conductor Resistance at 20°C	Approx. Cable Weight
	Shape	Approx. Dia.		min.	max.					
8	ROUND	3.71	0.15	2.16	3.05	0.61	1.40	17	2.144	360
6	ROUND	4.67	0.15	2.16	3.05	0.61	1.40	18	1.348	430
4	ROUND	5.89	0.15	2.16	3.05	0.61	1.40	19	0.8481	535
2	Compacted	6.81	0.15	2.16	3.05	0.61	1.40	20	0.5335	680
1		7.59	0.15	2.16	3.05	0.61	1.40	21	0.4230	785
1/0		8.53	0.15	2.16	3.05	0.61	1.40	22	0.3354	915
2/0		9.55	0.15	2.16	3.05	0.61	1.40	23	0.266	1070
3/0		10.74	0.15	2.16	3.05	0.61	1.40	24	0.2110	1270
4/0		12.07	0.15	2.16	3.05	0.61	1.78	27	0.1673	1580
250		13.21	0.15	2.16	3.05	0.61	1.78	28	0.1416	1810
300		14.48	0.15	2.16	3.05	0.61	1.78	29	0.1180	2080
350		15.65	0.15	2.16	3.05	0.61	1.78	31	0.1011	2350
400		16.74	0.15	2.16	3.05	0.61	1.78	32	0.08851	2630
500	18.69	0.15	2.16	3.05	0.61	1.78	34	0.0708	3165	
600	20.65	0.15	2.16	3.05	0.61	1.78	36	0.05900	3720	
750	23.06	0.15	2.16	3.05	0.61	1.78	38	0.04721	4515	
1000	26.92	0.15	2.16	3.05	0.61	1.78	42	0.03540	5840	

### 8kV XLPE power (133% insulation)

Size	Conductor		Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max. DC Conductor Resistance at 20°C	Approx. Cable Weight
	Shape	Approx. Dia.		min.	max.					
6	ROUND	4.67	0.15	3.43	4.32	0.61	1.40	20.5	1.348	515
4	ROUND	5.89	0.15	3.43	4.32	0.61	1.40	22	0.8481	625
2	Compacted	6.81	0.15	3.43	4.32	0.61	1.40	23	0.5335	770
1		7.59	0.15	3.43	4.32	0.61	1.40	23.5	0.4230	875
1/0		8.53	0.15	3.43	4.32	0.61	1.40	24	0.3354	1010
2/0		9.55	0.15	3.43	4.32	0.61	1.78	26	0.266	1225
3/0		10.74	0.15	3.43	4.32	0.61	1.78	28	0.2110	1430
4/0		12.07	0.15	3.43	4.32	0.61	1.78	29	0.1673	1680
250		13.21	0.15	3.43	4.32	0.61	1.78	30	0.1416	1910
300		14.48	0.15	3.43	4.32	0.61	1.78	32	0.1180	2190
350		15.65	0.15	3.43	4.32	0.61	1.78	33	0.1011	2460
400		16.74	0.15	3.43	4.32	0.61	1.78	34	0.08851	2750
500	18.69	0.15	3.43	4.32	0.61	1.78	36	0.0708	3280	
600	20.65	0.15	3.43	4.32	0.61	1.78	38	0.05900	3850	
750	23.06	0.15	3.43	4.32	0.61	1.78	41	0.04721	4650	
1000	26.92	0.15	3.43	4.32	0.61	1.78	45	0.03540	5990	

# 15kV XLPE Power Cable

15kV Copper Conductor XLPE Insulated, and PVC or PE jacketed power cable



15kV XLPE Power Cable



## Application

Type MV-90 Cable is used for 15kV power and distribution circuits in industrial and commercial installation. It may be installed on conduit, duct, tray or directly buried. Safe from ingress of humidity.

## Standard

UL1072

## Construction

Conductor Circular compacted stranded plain annealed copper.  
 Insulation 90°Cextruded cross-linked polyethylene with semi conductive inner and outer screen.  
 Metallic Screen Annealed copper tape  
 Sheath Black PVC or PE.

### 15kV XLPE power (100% insulation)

Size	Conductor		Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max. DC Conductor Resistance at 20°C	Approx. Cable Weight
	Shape	Approx. Dia.		min.	max.					
1	Compacted	7.59	0.15	4.19	5.21	0.61	1.78	25	0.4230	900
1/0		8.53	0.15	4.19	5.21	0.61	1.78	26	0.3354	1030
2/0		9.55	0.15	4.19	5.21	0.61	1.78	27	0.266	1190
3/0		10.74	0.15	4.19	5.21	0.61	1.78	28	0.2110	1390
4/0		12.07	0.15	4.19	5.21	0.61	1.78	29	0.1673	1630
250		13.21	0.15	4.19	5.21	0.61	1.78	30	0.1416	1850
300		14.48	0.15	4.19	5.21	0.61	1.78	32	0.1180	2110
350		15.65	0.15	4.19	5.21	0.61	1.78	33	0.1011	2280
400		16.74	0.15	4.19	5.21	0.61	1.78	34	0.08851	2670
500		18.69	0.15	4.19	5.21	0.61	1.78	35	0.0708	3170
600	20.65	0.15	4.19	5.21	0.61	1.78	39	0.05900	3710	
750	23.06	0.15	4.19	5.21	0.61	1.78	40	0.04721	4470	
1000	26.92	0.15	4.19	5.21	0.61	1.78	43	0.03540	5500	

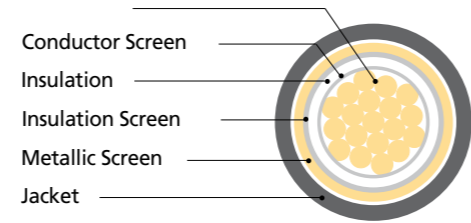
### 15kV XLPE power (133% insulation)

Size	Conductor		Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max. DC Conductor Resistance at 20°C	Approx. Cable Weight
	Shape	Approx. Dia.		min.	max.					
2	Compacted	6.81	0.15	5.33	6.35	0.61	1.78	26	0.5335	890
1		7.59	0.15	5.33	6.35	0.61	1.78	27	0.4230	1000
1/0		8.53	0.15	5.33	6.35	0.61	1.78	28	0.3354	1130
2/0		9.55	0.15	5.33	6.35	0.61	1.78	29	0.266	1290
3/0		10.74	0.15	5.33	6.35	0.61	1.78	30	0.2110	1490
4/0		12.07	0.15	5.33	6.35	0.61	1.78	32	0.1673	1740
250		13.21	0.15	5.33	6.35	0.61	1.78	33	0.1416	1960
300		14.48	0.15	5.33	6.35	0.61	1.78	34	0.1180	2260
350		15.65	0.15	5.33	6.35	0.61	1.78	36	0.1011	2520
400		16.74	0.15	5.33	6.35	0.61	1.78	37	0.08851	2800
500	18.69	0.15	5.33	6.35	0.61	1.78	39	0.0708	3320	
600	20.65	0.15	5.33	6.35	0.61	1.78	41	0.05900	3860	
750	23.06	0.15	5.33	6.35	0.61	1.78	43	0.04721	4640	
1000	26.92	0.15	5.33	6.35	0.61	2.54	48	0.03540	6130	

# 25kV XLPE Power Cable

25kV Copper Conductor XLPE Insulated, and PVC or PE jacketed power cable

# Quality Certificates



25kV XLPE Power Cable

## Application

Type MV-90 Cable is used for 25kV power and distribution circuits in industrial and commercial installation. It may be installed on conduit, duct, tray or directly buried. Safe from ingress of humidity.

## Standard

UL1072

## Construction

Conductor	Circular compacted stranded plain annealed copper
Insulation	90°C, extruded cross-linked polyethylene with semi conductive inner and outer screen
Metallic Screen	Annealed copper tape
Sheath	Black PVC or PE

## 25kV XLPE power (100% insulation)

Size	Shape	Approx. Dia.	Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max DC Conductor Resistance at 20°C	Approx. Cable Weight
				min	max.					
AWG/MCM	-	mm	mm	mm	mm	mm	mm	mm	Ω/km	kg/km
1	Compacted	7.59	0.15	6.22	7.37	0.61	1.78	29	0.4230	1090
1/0		8.53	0.15	6.22	7.37	0.61	1.78	30	0.3354	1230
2/0		9.55	0.15	6.22	7.37	0.61	1.78	31	0.266	1390
3/0		10.74	0.15	6.22	7.37	0.61	1.78	32	0.2110	1590
4/0		12.07	0.15	6.22	7.37	0.61	1.78	34	0.1673	1840
250		13.21	0.15	6.22	7.37	0.61	1.78	35	0.1416	2100
300		14.48	0.15	6.22	7.37	0.61	1.78	36	0.1180	2370
350		15.65	0.15	6.22	7.37	0.61	1.78	37	0.1011	2620
400		16.74	0.15	6.22	7.37	0.61	1.78	38	0.08851	2900
500		18.69	0.15	6.22	7.37	0.61	1.78	40	0.0708	3430
600	20.65	0.15	6.22	7.37	0.61	1.78	42	0.05900	3980	
750	23.06	0.15	6.22	7.37	0.61	1.78	45	0.04721	4980	
1000	26.92	0.15	6.22	7.37	0.61	2.54	50	0.03540	6290	

## 25kV XLPE power (133% insulation)

Size	Shape	Approx. Dia.	Conductor Shield Thickness (min)	Thickness of Insulation		Insulation Shield Thickness (min)	Thickness of Outer Sheath (min)	Overall Diameter (approx.)	Max DC Conductor Resistance at 20°C	Approx. Cable Weight
				min.	max.					
AWG/MCM	-	mm	mm	mm	mm	mm	mm	mm	Ω/km	kg/km
1	Compacted	7.59	0.15	7.75	8.89	0.61	1.78	33	0.4230	1320
1/0		8.53	0.15	7.75	8.89	0.61	1.78	35	0.3354	1490
2/0		9.55	0.15	7.75	8.89	0.61	1.78	36	0.266	1660
3/0		10.74	0.15	7.75	8.89	0.61	1.78	37	0.2110	1870
4/0		12.07	0.15	7.75	8.89	0.61	1.78	38	0.1673	2130
250		13.21	0.15	7.75	8.89	0.61	1.78	39	0.1416	2360
300		14.48	0.15	7.75	8.89	0.61	1.78	41	0.1180	2640
350		15.65	0.15	7.75	8.89	0.61	1.78	42	0.1011	2920
400		16.74	0.15	7.75	8.89	0.61	1.78	43	0.08851	3210
500		18.69	0.15	7.75	8.89	0.61	1.78	47	0.0708	3850
600	20.65	0.15	7.75	8.89	0.61	1.78	49	0.05900	4450	
750	23.06	0.15	7.75	8.89	0.61	2.54	51	0.04721	5360	
1000	26.92	0.15	7.75	8.89	0.61	2.54	55	0.03540	6700	



\*<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html>





# Quality Certificates

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**ZKST.GuideInfo**  
**Thermopst-insulated Wire**  
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**(Wire) Thermopst-insulated Wire**

See General Information for Wire

**GENERAL**

This category covers thermopst-insulated wire and other insulated conductors which are flame-retardant and rated 90°C, except for Type 90W, 90E and 90F which have an rated 100°C. The voltage rating is marked on the outer surface of the wire or cable.

**PRODUCT MARKINGS**

**90W** - Indicates a single conductor having a thermopst insulation, with or without a non-metallic covering, rated 90°C dry, 100°C wet.  
**90E** - Indicates a single conductor with the same description as Type 90W, except that it is rated 90E dry, 90E wet.  
**90F** - Indicates a single conductor with the same description as Type 90W, except that it is rated 90F dry only.  
**90** - Indicates a single conductor having a cross-linked polyethylene or other insulation with an overall covering provided rated 90°C dry.  
**90W** - Indicates a single conductor with the same description as Type 90W, except that it is rated 90W dry, 100°C wet.  
**90E** - Indicates a single conductor with the same description as Type 90E, except that it is rated 90E dry, 90E wet.  
**90F** - Indicates a single conductor having thermopst insulation without rubber insulation and a non-metallic covering rated 90°C dry, general use, 100°C wet, special applications.  
**90** - Indicates a single conductor having thermopst insulation with an overall covering provided rated 90°C dry, for non-metallic wiring only.  
**90** - Used as a suffix indicating a cable having two or more insulated single conductors twisted together under an outer non-metallic covering.  
This wire is made reinforced nylon, polyethylene, polypropylene, or other high-strength plastic, with copper or aluminum conductors. Wire with copper-lead aluminum conductors is further marked "Cu-lead Al" or "Al-Cu-lead Al". Wire with aluminum conductors is further marked "Al".  
In addition to the required AAC or AAC-LS, the marking equivalent may be marked on the wire, e.g. "6 AAC (11.2 AWG)" or "11.2 AWG (6 AAC)".  
Types 90W, 90E, 90F, 90, 90W, 90E, 90F, and 90 are used in sizes 14 AWG through 2000 kcmil copper and 14 AWG through 2000 kcmil aluminum or copper-lead aluminum. Type 90 is listed in sizes 14 through 600 kcmil copper, and 14 through 400 kcmil aluminum or copper-lead aluminum.  
Wire and cable insulation, specially formulated conductors or so identified directly beneath the conductor size whenever it appears in parentheses, may refer to "thermoast" or "thermoast" types. The abbreviations "SMBT" and "ST" may be used for compact and super-compact.  
Type, size and colors for products employing compact twisted copper conductors have the marking: "thermoast with compact twisted copper conductor."  
Wire having multiple lead impedances is suitable for the impedance associated with each lead. For example, a wire marked "100-ohm 50-ohm" is suitable for 100-ohm or 50-ohm loads, and 100-ohm or 50-ohm.  
Wire marked "positive resistant" has been tested at 110°C when immersed in positive, wire marked "OH Resistant 2" and "OH Resistant 3" has been tested by immersion in acid at 85°C and 100°C, respectively.  
Wire and cable marked "PVC Free" comply with a "PVC Free" flame test. Wire and cable marked "thermoast resistant" comply with an additional flame test. The "Low Smoke" marking indicates that the cable is designed to produce less than 100 g/m<sup>2</sup> of smoke in a 100°C fire for 10 minutes. The marking "Low Smoke" is used for products that are designed to produce less than 100 g/m<sup>2</sup> of smoke in a 100°C fire for 10 minutes. The marking "Low Smoke" is used for products that are designed to produce less than 100 g/m<sup>2</sup> of smoke in a 100°C fire for 10 minutes.  
Wire marked "UL 7" complies with a tested flame test. All other cables with a reported flame test.  
Wire that complies with the Underwriters Laboratories (UL) requirements specified in UL 2257, "Thermopst-insulated and Insulated Flexible Test for Electrical and Optical Fiber Cables," is further marked with the suffix "UL".

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**PITY.E331907**  
**Medium-voltage Power Cable**  
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**Medium-voltage Power Cable**

See General Information for Medium-voltage Power Cable

**LS CABLE & SYSTEM LTD** E331907  
100 KONGSAN-DONG  
SUNGWI-SI, CHUNGCHANG-DO 330-750 REPUBLIC OF KOREA

Type 90-90

Last updated on 2011-04-08

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**ONLINE CERTIFICATIONS DIRECTORY**

**PITY.GuideInfo**  
**Medium-voltage Power Cable**  
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**Medium-voltage Power Cable**

Guide Information for Electrical Equipment for Use in Ordinary Locations

**GENERAL**

This category covers medium-voltage cable rated 2400 to 35,000 V intended for use and installation in accordance with Article 310 of ANSI/NFPA 70E, "National Electrical Code" (NEC).

The cable is single or multiconductor, aluminum or copper, with solid extruded dielectric insulation and may have an extruded jacket, metallic covering or combination of both over the single conductors or over the assembled conductors in a multiconductor power cable.

All insulated conductors rated higher than 2400 V have electrostatic shielding. Cable rated 2400 V is nonmetallic.

Nonmetallic cable is intended for use where conditions of maintenance and supervision ensure that only competent individuals service and have access to the installation.

**PRODUCT MARKINGS**

Shielded cable is marked "90-90" or "90-100" and is suitable for use in wet or dry locations at 90 or 100°C.

Nonshielded cable is marked either "90-90" indicating suitability for use in wet or dry locations at 90°C maximum, or "90-90 Dry Locations Only" indicating suitability for use only in dry locations at 90°C maximum.

Cable marked "OH Resistant 2" or "OH Resistant 3" is suitable for exposure to mineral oil at 60°C or 75°C, respectively.

Cable marked "Sunlight Resistant" may be exposed to the direct rays of the sun.

Cable intended for installation in cable trays is accordance with Article 310 of the NEC is marked "For use in Cable Trays" (or "For CT Use").

Cable with aluminum conductors is marked with the word "Aluminum" (or "AL").

The cable is marked with the conductor size, voltage rating and insulation level (100% or 133%).

**ADDITIONAL INFORMATION**

For additional information, see Electrical Equipment for Use in Ordinary Locations (ANLZ).

**REQUIREMENTS**

The basic standard used to investigate products in this category is ANSI/UL 857, "Medium-voltage Power Cables."

**UL MARK**

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Medium-voltage Cable."

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**Medium-voltage Power Cable**

Guide Information for Electrical Equipment for Use in Ordinary Locations

**GENERAL**

This category covers medium-voltage cable rated 2400 to 35,000 V intended for use and installation in accordance with Article 310 of ANSI/NFPA 70E, "National Electrical Code" (NEC).

The cable is single or multiconductor, aluminum or copper, with solid extruded dielectric insulation and may have an extruded jacket, metallic covering or combination of both over the single conductors or over the assembled conductors in a multiconductor power cable.

All insulated conductors rated higher than 2400 V have electrostatic shielding. Cable rated 2400 V is nonmetallic.

Nonmetallic cable is intended for use where conditions of maintenance and supervision ensure that only competent individuals service and have access to the installation.

**PRODUCT MARKINGS**

Shielded cable is marked "90-90" or "90-100" and is suitable for use in wet or dry locations at 90 or 100°C.

Nonshielded cable is marked either "90-90" indicating suitability for use in wet or dry locations at 90°C maximum, or "90-90 Dry Locations Only" indicating suitability for use only in dry locations at 90°C maximum.

Cable marked "OH Resistant 2" or "OH Resistant 3" is suitable for exposure to mineral oil at 60°C or 75°C, respectively.

Cable marked "Sunlight Resistant" may be exposed to the direct rays of the sun.

Cable intended for installation in cable trays is accordance with Article 310 of the NEC is marked "For use in Cable Trays" (or "For CT Use").

Cable with aluminum conductors is marked with the word "Aluminum" (or "AL").

The cable is marked with the conductor size, voltage rating and insulation level (100% or 133%).

**ADDITIONAL INFORMATION**

For additional information, see Electrical Equipment for Use in Ordinary Locations (ANLZ).

**REQUIREMENTS**

The basic standard used to investigate products in this category is ANSI/UL 857, "Medium-voltage Power Cables."

**UL MARK**

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**ONLINE CERTIFICATIONS DIRECTORY**

**PITY.E303315**  
**Medium-voltage Power Cable**  
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**Medium-voltage Power Cable**

See General Information for Medium-voltage Power Cable

**LS CABLE & SYSTEM LTD** E303315  
MYHANG PLANT  
SIS HOSE OONG DONGAN-GI  
MYHANG-SI, SINGHONG-DO 431-831 REPUBLIC OF KOREA

Type 90-90, 90-100

Last updated on 2011-04-08

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**ONLINE CERTIFICATIONS DIRECTORY**

**TYLZ.E111852**  
**Service-entrance Cable**  
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**Service-entrance Cable**

See General Information for Service-entrance Cable

**LS CABLE & SYSTEM LTD** E111852  
LS POWER 1120-B  
HOCHU OONG  
OONGSAN-SI  
ANHYANG-CITY, KYANGGI-DO 431-480 REPUBLIC OF KOREA

Types 100, 100-2

Last updated on 2011-04-08

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# Quality Certificates

**ONLINE CERTIFICATIONS DIRECTORY**

**TYLZ.GuideInfo**  
Service-entrance Cable

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**[Service Cable] Service-entrance Cable**

See General Information for Service Cable

**GENERAL**

The category covers service-entrance cable designated Type SE and Type USE for use in accordance with Article 338 of ANSI/NFPA 70, "National Electrical Code" (NEC).

Service-entrance cable, rated 600 V, is listed in sizes 4 AWG and larger for copper, and 12 AWG and larger for aluminum or copper-clad aluminum.

The cable is designated as follows:

**Type SE** – Indicates cable for above-ground installation. Both the individual insulated conductors and the outer jacket or sheath of Type SE are suitable for use where exposed to such. Type SE cable contains Type EHM, EHM-2, EHM-3, EHM-4, Type H or THHN-2 conductors. Maximum size is 4/0 AWG copper or 300 kcmil aluminum or copper-clad aluminum.

**Type USE and USE-2** – Indicates cable for underground installation including direct burial in the earth. Maximum size is 2500 kcmil. Cable in sizes 4/0 AWG copper, aluminum or copper-clad aluminum and smaller and having all conductors insulated is suitable for all of the underground uses for which Type of cable is permitted by the NEC. Multiconductor Type USE cable contains conductors with insulation equivalent to THHN or THHN-2. Multiconductor Type USE-2 contains insulation equivalent to THHN-2 or THHN-3 and is rated 90°C wet or dry. Single- and multiconductor Type USE and USE-2 are not suitable for use in premises, single- and multiconductor Type USE and USE-2 are not suitable above-ground except for terminals at the service equipment or metering equipment. Both the insulation and the outer covering, when used, are single- and multiconductor Type USE and USE-2, are suitable for use where exposed to sun.

**Submersible Water Pump Cable** – Indicates a multiconductor cable in which 2, 3 or 4 single-conductor Type USE or USE-2 cables are provided in a flat or round assembly. The cable is listed in sizes 14 AWG to 6/0 AWG insulation, copper, and 12 AWG to 4/0 AWG insulation, aluminum or copper-clad aluminum. The cable is 32½ marked "For use within the well casing for wiring deep-well water pumps where the cable is not subject to repetitive handling caused by frequent servicing of the pump units. The insulation may also be surface marked "Pump Cable." The cable may be directly buried in the earth in conjunction with the use.

For termination information, see Electrical Equipment for Use in Ordinary Locations (AALZ).

Based upon tests which have been made involving the maximum heating that can be produced, an uninsulated conductor employed in a service cable assembly is considered to have the same current-carrying capacity as the insulated conductor even though it may be smaller in size.

**PRODUCT MARKINGS**

The Type designation of the conductors may be marked on the surface of the cable, when used. This marking indicates that the temperature rating for the cable corresponds to the temperature rating of the conductors, when this marking does not appear, the temperature rating of the cable is 75°C.

Cable acceptable for installation in cable trays is so marked.

Cable may employ copper, aluminum, or copper-clad aluminum conductors. Cable with copper-clad aluminum conductors is surface printed "AL (CU-CLAD)" or "CU-Clad AL." Cable with aluminum conductors is surface printed "AL."

Cable employing compact-stranded copper conductors is so identified directly following the conductor size, whenever it appears (Surface, tag, carton or reel) by "compact copper." The abbreviations "CMCP" and "CU" may be used for compact and copper, respectively.

Tags, reels and cartons for products employing compact-stranded copper conductors have the marking: "Terminals with conductors identified for use with compact-stranded copper conductors."

**ADDITIONAL INFORMATION**

For additional information, see Electrical Equipment for Use in Ordinary Locations (AALZ).

**REQUIREMENTS**

The basic standard used to investigate products in this category is ANSI/UL 854, "Service-Entrance Cables."

**UL MARK**

The UL symbol on the product and the Listing Mark of UL on the attached tag, coil, reel or smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name as appropriate. Service-entrance cable that contains copper or copper-clad aluminum conductor(s) has the product name "Service-Entrance Cable," service-entrance cable that contains aluminum conductors has the product name "Aluminum Service-Entrance Cable."

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**ONLINE CERTIFICATIONS DIRECTORY**

**ZLGR.GuideInfo**  
Thermoplastic-insulated Wire

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**[Wire] Thermoplastic-insulated Wire**

See General Information for Wire

**USE**

The category covers thermoplastic-insulated wire for use in accordance with Article 310 of ANSI/NFPA 70, "National Electrical Code."

**PRODUCT MARKINGS**

Thermoplastic-insulated wire is rated 600 V and is designated as follows:

**TW** – Indicates a single conductor having flame-retardant, moisture-resistant thermoplastic insulation. The wire is rated 90°C wet or dry.

**THHN** – Indicates a single conductor having flame-retardant and heat-resistant thermoplastic insulation with a jacket of insulated nylon or equivalent material. The wire is rated 90°C dry only.

**THW** – Indicates a single conductor having flame-retardant, moisture- and heat-resistant thermoplastic insulation. The wire is rated 75°C wet or dry.

**THW-2** – Same as THW except that the wire is rated 90°C wet or dry.

**THHW** – Indicates a single conductor having flame-retardant, moisture- and heat-resistant thermoplastic insulation. The wire is rated 90°C dry and 75°C wet.

**THWN** – Indicates a single conductor having flame-retardant, moisture- and heat-resistant thermoplastic insulation with a jacket of non-halogenated nylon or equivalent material. The wire is rated 75°C wet or dry. THWN wire suitable for exposure to mineral oil and to liquid gasoline and gasoline vapors at ordinary ambient temperatures is marked "Gasoline and Oil Resistant." If suitable for exposure to mineral oil at 60°C, or "Gasoline and Oil Resistant 2" if the compound is suitable for exposure to mineral oil at 90°C. Gasoline-resistant wire has been tested at 127°C when immersed in gasoline. It is considered inherently resistant to gasoline vapors within the limits of the temperature rating.

**THWN-2** – Same as THWN except that the wire is rated 90°C wet or dry.

**FEP** – Indicates a single copper conductor having flame-retardant and heat-resistant thermoplastic (fluorinated ethylene propylene) insulation. Type FEP wire is suitable for use at 90°C and lower temperatures in dry locations. It is also suitable for use in dry locations at 200°C and lower temperatures for special applications.

**FFEP** – Indicates a single copper conductor having flame-retardant and heat-resistant thermoplastic (fluorinated ethylene propylene) insulation with a glass braid. Type FFEP wire is suitable for general use at 90°C and lower temperatures in dry locations. It is also suitable for use in dry locations at 200°C and lower temperatures for special applications.

**PFA** – Indicates a single copper conductor having flame-retardant and heat-resistant thermoplastic (perfluoroalkoxy) insulation. Type PFA wire is suitable for use at 90°C and lower temperatures in dry locations. It is also suitable for use in dry locations at 200°C and lower temperatures for special applications.

**PFAE** – Indicates a single, nickel- or nickel-coated copper conductor having flame-retardant and heat-resistant thermoplastic (perfluoroalkoxy) insulation. The PFAE is suitable for use at 200°C and lower temperatures only for leads where exposure or within recessed conductor connections, in dry locations only.

**TSE** – Indicates a single, nickel-coated copper or nickel base alloy conductor having flame-retardant and heat-resistant thermoplastic (ethylene tetrafluoride) insulation. Type TSE wire is suitable for use at 200°C and lower temperatures in dry locations as leads within exposure or within recessed conductor connections or in lead wiring.

**Z** – Indicates a single copper conductor having flame-retardant and heat-resistant thermoplastic (ethylene tetrafluoride) insulation. Type Z wire is suitable for use at 90°C and lower temperatures in dry locations. It is also suitable for use in dry locations at 150°C and lower temperatures for special applications.

**ZW** – Indicates a single copper conductor having flame-retardant and heat-resistant thermoplastic (ethylene tetrafluoride) insulation. Type ZW wire is suitable for use in dry locations at 90°C and wet locations at 75°C. It is also suitable for use in dry locations at 150°C and lower temperatures for special applications.

**ZW-2** – Same as ZW except that the wire is rated 90°C wet or dry.

**TBS** – Indicates a single conductor switchboard wire having thermoplastic insulation and a flame-retardant nonmetallic covering. Type TBS is suitable for use at 90°C and lower temperatures in dry locations.

**PRODUCT MARKINGS**

Types TW, THW, THW-2, THHN, THHN-2, THWN, THWN-2, PFA, PFAE and Z in sizes 4 to 1 AWG for grounding conductors only and in sizes 1/0 AWG and larger for circuit and grounding conductors that are marked "Cable Tray Rated" or "CT" comply with a vertical tray cable flame test. Wire so marked may additionally be marked "Sunlight Resistant" indicating compliance with an artificial weathering test.

Types TW, THW, THW-2, THHN, THHN-2 and THWN-2 in all sizes that are marked "Sunlight Resistant" comply with an artificial weathering test.

Wire suitable for exposure to mineral oil is marked "Oil Resistant 1" for 60°C oil resistance, or "Oil Resistant 2" for 75°C oil resistance, on the surface of the wire. An Oil Resistant marking, by itself, does not include resistance to gasoline or similar light petroleum products.

Wire that complies with a special vertical flame test is surface marked "VW-1."

Constructions in this category that comply with a flame and smoke test (as described in UL 1685, "Vertical-Tray Fire-Propagation and Smoke Release Test for Electrical and Optical Fiber Cables") may have the additional marking "VFI" indicating "Limited Smoke." (Note: The suffix "UL" added to the Type letters, has also been used to indicate Limited Smoke. Effective November 15, 2004, only "VFI" may be used.)

In place of three of the markings described above, the following multinational markings may be used:

"SR" in place of "Sunlight Resistant"

"OR" in place of "Oil Resistant"

"GR" in place of "Gasoline and Oil Resistant"

**Submersible Pump Cable** – Indicates multiconductor cable consisting of two or three flat or two to six twisted insulated conductors with or without an overall jacket. The cable is listed in size 14 AWG to 500 kcmil copper, and 12 AWG to 500 kcmil aluminum or copper-clad aluminum. The cable is tag marked "For Wiring Only between Equipment Located at Water Well Heads and Heads of Isolated Deep-Well Submersible Water Pumps." The insulation is surface marked "Submersible Pump Cable." The cable has not been investigated for direct burial in the earth.

Wire, in sizes mentioned below, may employ copper, aluminum, or copper-clad aluminum conductors. Wire with copper-clad aluminum conductors is surface printed "AL (CU-CLAD)" or "CU-Clad AL." Wire with aluminum conductors is surface printed "AL."

Wire and cable employing compact-stranded copper conductors is so identified directly following the conductor size, whenever it appears (Surface, tag, carton or reel), by "compact copper." The abbreviations "CMCP" and "CU" may be used for compact and copper, respectively.

Tags, reels and cartons for product employing compact-stranded copper conductors have the marking: "Terminals with conductors identified for use with compact-stranded copper conductors."

**SIZES AND CONDUCTOR INFORMATION**

Types TW, THW and THW-2 are listed in sizes 14 AWG to 2000 kcmil copper and 12 AWG to 2000 kcmil aluminum or copper-clad aluminum.

Types THHN, THHN-2, THWN-2 and THWN are listed in sizes 14 AWG to 1000 kcmil copper and 12 AWG to 1000 kcmil aluminum or copper-clad aluminum.

Types TA, TBS, PFA, PFAE and Z are listed in sizes 14 to 4/0 AWG copper and 12 to 4/0 AWG aluminum or copper-clad.

**ONLINE CERTIFICATIONS DIRECTORY**

**ZLGR.E88260**  
Thermoplastic-insulated Wire

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**Thermoplastic-insulated Wire**

See General Information for Thermoplastic-insulated Wire

**LS CABLE & SYSTEM LTD** 888260

LS NUMBER: 028-4  
MOORE DONG  
DONGSAN-GU  
ANYANG-CITY, HYUNGUK DO 431-680 REPUBLIC OF KOREA

Types : TW, THN, THWN, THWN-2

List Updated on 2011-04-08

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**ADDITIONAL INFORMATION**

For conductor termination information, see Electrical Equipment for Use in Ordinary Locations (AALZ).

**REQUIREMENTS**

The basic standard used to investigate products in this category is UL 83, "Thermoplastic-insulated Wires and Cables."

**UL MARK**

The Listing Mark of UL on the attached tag, the reel, or the smallest unit container in which the product is packaged, with or without the UL symbol on the product, is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name as appropriate. Thermoplastic-insulated wire that contains copper or copper-clad aluminum conductors has the product name "Insulated Wire," thermoplastic-insulated wire that contains aluminum conductors has the product name "Insulated Aluminum Wire."

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# Quality Certificates

**UL ONLINE CERTIFICATIONS DIRECTORY**

**ZKST.GuidInfo**  
**Thermoset-insulated Wire**

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**[Wire] Thermoset-insulated Wire**

See General Information for Risk

**GENERAL**

This category covers thermoset-insulated wire and cable (described below) which is flame resistant and rated 600 V, except for Types 89H, 89H-2 and 89H-2 which may be rated 2000 V. The voltage rating is marked on the outer surface of the wire or cable.

**PRODUCT MARKINGS**

**89W** — Indicates a single conductor having a thermoset insulation, with or without a nonmetallic covering, rated 75°C dry, 75°C wet.

**89W-2** — Indicates a single conductor with the same description as Type 89W, except that it is rated 90°C dry, 90°C wet.

**89H** — Indicates a single conductor with the same description as Type 89H, except that it is rated 90°C dry only.

**89H-2** — Indicates a single conductor having a cross-linked synthetic polymer insulation with no overall covering provided, rated 90°C dry.

**89HW** — Indicates a single conductor with the same description as Type 89H, except that it is rated 90°C dry, 75°C wet.

**89HW-2** — Indicates a single conductor with the same description as Type 89H, except that it is rated 90°C dry, 90°C wet.

**8A** — Indicates a single conductor having thermosetting silicone rubber insulation and a nonmetallic covering rated 90°C dry, general use, 200°C dry, special applications.

**82S** — Indicates a single conductor having thermosetting insulation with its overall covering provided rated 90°C dry, for overhead wiring only.

**8** — Used as a suffix indicating a heat wire having two insulated conductors laid parallel under an outer nonmetallic covering.

**8** — Used as a suffix indicating a cable having two or more insulated single conductors banded together under an outer nonmetallic covering.

This wire, or cable mentioned herein, may employ copper, aluminum, or copper-clad aluminum conductors. Wire with copper-clad aluminum conductors is surface printed "Cu-Clad Al" or "Al (Cl)-Clad Al." Wire with aluminum conductors is surface printed "Al."

In addition to the required 89W or 89H-2 code, the metric equivalent may be marked on the wire, e.g., "8 89W (1.5) 89W2" or "1.5 89W (8 89W2)".

Types 89H, 89H-2, 89H, 89H-2, 89H, 89H-2 and 8A are listed in sizes 14 AWG through 2000 kcmil copper, and 12 AWG through 2000 kcmil aluminum or copper-clad aluminum. Type 82S is listed in sizes 14 through 600 kcmil copper, and 12 through 400 kcmil aluminum or copper-clad aluminum.

Wire and cable employing compact-stranded copper conductors is so identified directly following the conductor size whenever it appears (in letters, tag, label or reel) by "compact copper." The abbreviations "CMCT" and "CC" may be used for compact and compact-stranded, respectively.

Tags, mark and cartons for products employing compact-stranded copper conductors have the marking: "Termoset with compact-stranded copper conductors."

Wire bearing multiple type designations is suitable for the temperature associated with each use. For example, a wire marked "89H or 89H-2" is suitable for 90°C in dry locations, and 75°C in wet locations.

Wire marked "89-1" or "89-2" has been tested at 25°C when immersed in gasoline and in oil at 60°C and 75°C, respectively. Wire marked "90-1" or "90-2" has been tested for immersion in oil at 60°C and 75°C, respectively.

Wire and cable marked "C" complies with a Vertical-Trey Flame Test. Wire and cable marked "SM" complies with an artificial weathering test. The "C" marking, with or without the "SM" marking, pertains to single conductor sizes 4 through 14 AWG for grounding conductors only, single conductor sizes 14 AWG and larger, and all sizes of multiconductor Types 89H, 89H-2, 89HW, 89HW-2 and 89H-2.

Wire marked "90-1" complies with a Vertical Flame Test; all others comply with a Horizontal Flame Test.

Wire that complies with the Limited Smoke Test requirements specified in ANSI/UL 1685, "Vertical-Trey Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables," is surface marked "311."

Wire and cable marked "40°C" complies with a cold impact test conducted at that temperature. This does not necessarily mean that the cable can be easily installed at that temperature. Different installation conditions and configurations require that care be taken when installing cables at low temperatures.

**Submersible Water Pump Cable** — Indicates multiconductor cable in which two, three or four Type 89W, 89H-2, 89HW or 89HW-2 conductors are provided in a flat or banded assembly. The cable is listed in sizes from 14 AWG through 500 kcmil copper, and from 12 AWG through 500 kcmil aluminum or copper-clad aluminum. The cable is tag marked "For use within the well casing for wiring deep-well water pumps where the cable is not subject to repetitive handling caused by frequent servicing of the pump units." The surface of the wire may also be marked "Pump Cable." The cable has not been investigated for direct burial in the earth unless the single conductors carry an additional "Type USE" or "Type USE-2" marking.

**ADDITIONAL INFORMATION**

For additional information, see Electrical Equipment for Use in Ordinary Locations (MAG).

**REQUIREMENTS**

The basic standard used to investigate products in this category is ANSI/UL 44, "Thermoset-Insulated Wires and Cables."

**UL MARK**

The Listing Mark of UL, on the attached tag, the reel, or the smallest unit container in which the product is packaged, with or without the UL symbol on the product, is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name as appropriate. Thermoset-insulated wire that contains copper or copper-clad aluminum conductors has the product name "Insulated Wire," thermoset-insulated wire that contains aluminum conductors has the product name "Insulated Aluminum Wire."

\*\*\*\*\*

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**ZKST.E88259**  
**Thermoset-insulated Wire**

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**Thermoset-insulated Wire**

See General Information for Thermoset-insulated Wire

**LS CABLE & SYSTEM LTD** 88259

LS TOWER 122A-A  
HO CHI MINH  
DINH DIEM-03  
HANGANG CITY, KYUNGKI DO 410 (S) REPUBLIC OF KOREA

Types 89H, 89H-2, 89HW-2, 89HW, 82S

Last Updated on 2011-04-06

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# BUSINESS AREAS

LS Cable & System supplies various cables and materials used for power grids and communication networks around the world across all industries providing its top class technology and excellent quality. The company has also developed state of the art products, such as superconductors, HVDC and submarine cables that will lead the future energy industry

## Energy

- Extra High Voltage Cable / HVDC Cable
- Super Conducting Cable
- Submarine Cable
- High Capacity Conductor
- Flame Retardant Water Resistance Cable
- Bus Duct



## Telecommunication

- Optical Cable
- Structured Cabling System
- RF Feeder System

## Industrial Materials

- Copper Rod
- Magnetic Wire



## Industrial Cable

- Industrial Devices & FA Cable
- Automotive Wire & Cable, Tubes
- Marine & Offshore Cable
- Railway & Rolling Stock Cable
- Wind Power & Photovoltaic Cable


# GLOBAL NETWORK

More than 60 Factories,  
Sales and Production Sites  
in 20 Countries.


- Factory
- Sales office
- Branch office




**KOREA**



**Gumi Plant**  
EHV / MV / LV cable  
UTP, Coaxial cable  
SCR, Magnet wire  
Overhead cable, Bus duct



**Indong Plant**  
Optical fiber  
Optical cable



**Donghae Plant**  
Submarine cable  
Industrial specialty cable

**CHINA**



**LSHQ(Yichang)**  
EHV / MV / LV cable  
Industrial specialty cable




**LSCW(Wuxi)**  
Industrial devices cable  
Automotive cable  
Harness & module  
Aluminum, Bus duct

**VIETNAM**




**LS-VINA(Haiphong)**  
EHV / MV / LV cable  
SCR, ACSR  
Overhead cable



**LSCV(HO Chi Minh)**  
MV / LV cable  
UTP, Optical cable  
Overhead cable

**INDIA**



**LSCI(Bawal)**  
EHV / MV / LV cable  
Coaxial cable  
Overhead cable

**USA**



**LSCUS(Tarboro)**  
MV / LV cable  
Control, Instrument cable

**POLAND**



**LS EV Poland./LSCP (Dzierzoniow)**  
Automotive battery components  
Optical cable



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UL Cable for Far East District

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