

Medium Voltage Submarine Cable

LS Cable & System lights up the world through the sea



Company Profile

Introduction

LS Cable & System is a Korean industrial corporation with global operations and one of the biggest cable manufacturers in the world. Founded in 1962, our company has gradually expended its manufacturing to include a wide range of products, such as electric power and telecommunication cables, integrated modules and cable systems and related industrial materials.

We further provide engineering, installation and commissioning services for land and submarine power cable systems, ranging from low to extra high voltage grade.

LS Cable & System has a proven track record for both supply and turnkey (EPCI) project management.

Company Network

Operations are coordinated from our headquarter, the LS Tower, in Anyang, South Korea.

Domestic factories are located in Anyang, Donghae, Gumi and Indong, while overseas production takes place in China (LSHQ), Vietnam (LS-Vina), India (LSCI) and Malaysia (LSCM).

We are part of the wider LS Group, which formed after a split from the LG Group in 2003.

Our parent is LS Holdings, which incorporates over 40 affiliates. There are 6 major sister companies in this network, LS Industrial Systems, LS Mtron, LS-Nikko Copper, Gaon, Yesco and E1. As of 2015, LS Cable & System majorly owns 18 subsidiaries. For a list of sales offices and overseas branches, please review the map on the back of this catalogue.



• Power & Industrial cables,
Telecom cables etc.

• LS Anyang Head Office



Vision and Values

The "LS Cable & System Way" of management is formulated in our company's vision to Enable the cabled World.

It underlines the importance of cables as the lifelines of our societies and reflects our aspiration as well as the responsibility we carry in our business.

The C.O.R.E. values are our four guiding principles which - just like the core of a cable - form the central identity of the company.



Customer First

Acting from the customer's point of view



One LS Cable & System

Prioritizing the benefit of all



Rule & Responsibility

Abiding by the laws and work ethics



Expertise

Being professional and proficient

Submarine Power Cables

Introduction

LS Cable & System is continuously investing in new state-of-the-art manufacturing equipment for our main submarine power cable plant in Donghae at the East coast of Korea.

From there, we provide submarine cable system solutions for the (inter)connection of offshore wind, as well as oil and gas platforms and for the grid linkage between two or more countries or a country's mainland and its islands.

Our company has delivered numerous submarine power cable products and services to customers all around the world, including for projects in Europe, America, Asia and The Middle East.

Engineering

We offer highly customized cable design solutions in accordance with individual customer requirements and project-based environmental conditions.

Submarine MV AC cables can be designed with copper or aluminum conductor, XLPE or EPR insulation and copper tape or wire screen / radial metallic water barriers. The three AC phases can be supplied as individual single cores or as a combined three-core solution.

Additionally, the cables can be manufactured "composite" with integrated single or multi mode fiber optical units.

The system can also be adapted to peripheral equipment, e.g. for DTS measurement and monitoring.



• HVAC Three Core



• HVAC One Core



• HVDC MI



• HVDC XLPE



• MVAC Three Core



Production

The manufacturing of the submarine cable begins with the raw material purchase (e.g. copper from LS-Nikko) and the conductor drawing and stranding in Donghae or Gumi.

In our two production halls in Donghae, we then continue with the insulation, degassing, screen/sheath - application, lay-up (where applicable) and protective armoring of the cable. After the factory acceptance test, cables are stored on drums or turntables close by the Donghae Harbor. Related accessories are produced and packaged in Gumi, from where they can be readily transported to the port as well.

QHSE Management

To guarantee high quality product design and manufacturing, we perform electric and mechanical tests and inspections during and after production in accordance with recognized international standards (IEC and Cigre), as well as the customer's individual requirements.

We annually commit to and control our well - established health and safety management system, waste management system and corporate social responsibility activities. Please find information on relevant ISO/OHSAS certificates on page 15.

Medium Voltage AC Submarine Cables

MV Three Core Cable with Copper Wire(or Copper tape) Screen

Design Features

- **Standards** : IEC 60502-2, Electra No. 171, Electra No. 189 or Cigre TB No. 490
- **Applied Voltage** : up to $U_0/U_m = 18/36\text{kV}$
- **Applied Conductor Size** : $\sim 630\text{mm}^2$

Current rating of Submarine Cables

The continuous current ratings are calculated according to IEC 60287 series of standards and with the following conditions

- | | |
|--|---|
| - Ambient Temperature in sea bed : 25°C | - Burial depth in sea bed : 1.0 m |
| - Thermal resistivity of sea bed : 1.0K.m/W | - Load factor : 100% |
| - Frequency : 50 Hz | - Max. conductor temperature : 90°C |
| - The continuous current ratings are calculated in accordance with IEC 60287 | |

Note

01. Calculations are performed assuming galvanized steel wire armor of 4~6mm diameter.
02. The rating given in the tables should be regarded as indicative only.
03. Three-core cables with cross-sections larger than 630mm^2 can be offered on request.
04. Aluminum conductor cables will have a rating of 75~80% for the same size of copper conductor.



Cross Section of the Cable

1. **Conductor** : copper, circular stranded compacted
2. **Conductor screen** : extruded semi-conductive layer
3. **XLPE insulation**
4. **Insulation screen** : extruded semi-conductive layer
5. **Swelling tape**
6. **Screen** : copper wires and copper helix(or copper tape)
7. **Swelling tape**
8. **Laminated Aluminum tape**
9. **Outer sheath** : PE or semi-conductive PE
10. **Fillers** : polypropylene strings(or shaped fillers)
11. **Fiber optic cable (optional)**
12. **Binding tape**
13. **Bedding layer** : polypropylene strings
14. **Armour** : Galvanized steel wires filled with bitumen compound
15. **Serving** : polypropylene strings with coloured stripe

Data Sheet for 6/10(12) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
10kV (Um = 12kV)							
70	9.7	3.4	23	31	4	92	14
95	11.4	3.4	31	33	4	96	16
120	12.8	3.4	40	35	4	99	17
150	14.2	3.4	50	38	4	106	19
185	15.8	3.4	61	40	4	110	21
240	18.1	3.4	80	42	5	117	26
300	20.4	3.4	100	45	5	124	29
400	23.2	3.4	133	48	6	132	36
500	26.3	3.4	166	51	6	140	42

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
10kV (Um = 12kV)							
70	0.2680	0.3417	0.356	0.62	62.17	243	1.4
95	0.1930	0.2461	0.394	0.69	64.47	289	1.5
120	0.1530	0.1951	0.425	0.74	66.26	326	1.5
150	0.1240	0.1581	0.456	0.80	69.01	364	1.6
185	0.0991	0.1264	0.492	0.86	70.92	406	1.7
240	0.0754	0.0961	0.543	0.95	74.10	459	1.8
300	0.0601	0.0766	0.594	1.04	77.14	504	1.9
400	0.0470	0.0599	0.656	1.15	80.65	548	2.0
500	0.0366	0.0467	0.724	1.27	83.72	589	2.1

Data Sheet for 8.7/15(17.5) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
15kV (Um = 17.5kV)							
70	9.7	4.5	23	34	4	97	15
95	11.4	4.5	31	36	4	101	17
120	12.8	4.5	40	37	4	104	18
150	14.2	4.5	50	40	4	111	20
185	15.8	4.5	61	42	4	115	22
240	18.1	4.5	80	44	5	122	29
300	20.4	4.5	100	47	5	129	31
400	23.2	4.5	133	50	6	137	38
500	26.3	4.5	166	54	6	144	43

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
15kV (Um = 17.5kV)							
70	0.2680	0.3417	0.284	0.72	62.52	243	1.5
95	0.1930	0.2461	0.313	0.79	64.83	289	1.6
120	0.1530	0.1951	0.337	0.85	66.63	326	1.6
150	0.1240	0.1581	0.361	0.91	69.34	365	1.7
185	0.0991	0.1264	0.388	0.98	71.28	407	1.8
240	0.0754	0.0961	0.427	1.08	74.59	460	1.9
300	0.0601	0.0766	0.465	1.18	77.55	505	2.0
400	0.0470	0.0599	0.512	1.30	81.13	550	2.1
500	0.0366	0.0467	0.564	1.43	84.26	592	2.2

Data Sheet for 12/20(24) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
20kV (Um = 24kV)							
70	9.7	5.5	23	36	4	102	16
95	11.4	5.5	31	38	4	106	18
120	12.8	5.5	40	39	4	109	19
150	14.2	5.5	50	42	4	116	21
185	15.8	5.5	61	44	4	119	23
240	18.1	5.5	80	46	5	127	28
300	20.4	5.5	100	50	5	134	32
400	23.2	5.5	133	53	6	142	39
500	26.3	5.5	166	56	6	149	44
630	30.2	5.5	210	60	6	158	52

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
20kV (Um = 24kV)							
70	0.2680	0.3417	0.244	0.85	62.85	244	1.6
95	0.1930	0.2461	0.268	0.94	65.09	290	1.6
120	0.1530	0.1951	0.287	1.00	66.99	327	1.7
150	0.1240	0.1581	0.307	1.07	69.57	365	1.8
185	0.0991	0.1264	0.329	1.15	71.63	407	1.8
240	0.0754	0.0961	0.361	1.26	74.86	461	2.0
300	0.0601	0.0766	0.393	1.37	77.96	506	2.1
400	0.0470	0.0599	0.431	1.51	81.56	552	2.2
500	0.0366	0.0467	0.474	1.66	84.78	594	2.3
630	0.0283	0.0361	0.528	1.84	88.30	631	2.4

Data Sheet for 18/30(36) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
30kV (Um = 36kV)							
70	9.7	8.0	23	41	4	113	18
95	11.4	8.0	31	43	4	117	20
120	12.8	8.0	40	45	4	121	21
150	14.2	8.0	50	48	4	127	23
185	15.8	8.0	61	49	4	131	26
240	18.1	8.0	80	52	5	139	31
300	20.4	8.0	100	55	5	145	35
400	23.2	8.0	133	58	6	154	42
500	26.3	8.0	166	61	6	161	48
630	30.2	8.0	210	65	6	170	55

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
30kV (Um = 36kV)							
70	0.2680	0.3417	0.186	0.98	63.39	244	1.7
95	0.1930	0.2461	0.203	1.07	65.82	291	1.8
120	0.1530	0.1951	0.217	1.14	67.64	328	1.9
150	0.1240	0.1581	0.230	1.21	70.26	366	2.0
185	0.0991	0.1264	0.246	1.29	72.38	409	2.0
240	0.0754	0.0961	0.268	1.41	75.67	463	2.1
300	0.0601	0.0766	0.290	1.52	78.74	509	2.2
400	0.0470	0.0599	0.317	1.66	82.43	555	2.4
500	0.0366	0.0467	0.346	1.82	85.78	599	2.5
630	0.0283	0.0361	0.384	2.01	89.48	638	2.6

Medium Voltage AC Submarine Cables

MV Three Core Cable with Lead Sheath

Design Features

- **Standards** : IEC 60502-2, Electra No. 171, Electra No. 189 or Cigre TB No. 490
- **Applied Voltage** : up to $U_0/U_m = 18/36\text{kV}$
- **Applied Conductor Size** : $\sim 630\text{mm}^2$

Current rating of Submarine Cables

The continuous current ratings are calculated according to IEC 60287 series of standards and with the following conditions

- | | |
|--|---|
| - Ambient Temperature in sea bed : 25°C | - Burial depth in sea bed : 1.0 m |
| - Thermal resistivity of sea bed : 1.0K.m/W | - Load factor : 100% |
| - Frequency : 50 Hz | - Max. conductor temperature : 90°C |
| - The continuous current ratings are calculated in accordance with IEC 60287 | |

Note

01. Calculations are performed assuming galvanized steel wire armor of 4~6mm diameter.
02. The rating given in the tables should be regarded as indicative only.
03. Three-core cables with cross-sections larger than 630mm^2 can be offered on request.
04. Aluminum conductor cables will have a rating of 75~80% for the same size of copper conductor.



Cross Section of the Cable

1. **Conductor** : copper, circular stranded
2. **Conductor screen** : extruded semi-conductive layer
3. **XLPE insulation**
4. **Insulation screen** : extruded semi-conductive layer
5. **Swelling tape**
6. **Metallic sheath** : Lead sheath
7. **Outer sheath** : PE or semi-conductive PE
8. **Fillers** : polypropylene strings (or shaped fillers)
9. **Fiber optic cable (optional)**
10. **Binding tape**
11. **Bedding layer** : polypropylene strings
12. **Armour** : Galvanized steel wires filled with bitumen compound
13. **Serving** : polypropylene strings with coloured stripe

Data Sheet for 6/10(12) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
10kV (Um = 12kV)							
70	9.7	3.4	106	30	4	90	17
95	11.4	3.4	114	32	4	94	19
120	12.8	3.4	121	34	4	97	20
150	14.2	3.4	128	35	4	100	22
185	15.8	3.4	135	37	4	104	24
240	18.1	3.4	146	39	5	112	29
300	20.4	3.4	168	42	5	117	32
400	23.2	3.4	194	45	6	126	39
500	26.3	3.4	223	49	6	134	44

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
10kV (Um = 12kV)							
70	0.2680	0.3417	0.356	0.62	63.05	244	1.4
95	0.1930	0.2461	0.394	0.69	65.30	290	1.5
120	0.1530	0.1951	0.425	0.74	67.22	328	1.5
150	0.1240	0.1581	0.456	0.80	68.97	365	1.5
185	0.0991	0.1264	0.492	0.86	70.99	409	1.6
240	0.0754	0.0961	0.543	0.95	74.32	467	1.7
300	0.0601	0.0766	0.594	1.04	77.05	518	1.8
400	0.0470	0.0599	0.656	1.15	80.98	576	1.9
500	0.0366	0.0467	0.724	1.27	84.39	634	2.1

Data Sheet for 8.7/15(17.5) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
15kV (Um = 17.5kV)							
70	9.7	4.5	117	33	4	95	19
95	11.4	4.5	125	34	4	99	20
120	12.8	4.5	131	36	4	102	22
150	14.2	4.5	138	37	4	105	23
185	15.8	4.5	146	39	4	109	25
240	18.1	4.5	167	42	5	117	30
300	20.4	4.5	191	44	5	123	34
400	23.2	4.5	206	47	6	131	40
500	26.3	4.5	236	51	6	139	46

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
15kV (Um = 17.5kV)							
70	0.2680	0.3417	0.284	0.75	63.30	244	1.5
95	0.1930	0.2461	0.313	0.82	65.67	290	1.5
120	0.1530	0.1951	0.337	0.88	67.50	328	1.6
150	0.1240	0.1581	0.361	0.95	69.28	365	1.6
185	0.0991	0.1264	0.388	1.02	71.32	409	1.7
240	0.0754	0.0961	0.427	1.12	74.75	467	1.8
300	0.0601	0.0766	0.465	1.22	77.63	518	1.9
400	0.0470	0.0599	0.512	1.34	81.37	576	2.0
500	0.0366	0.0467	0.564	1.48	84.78	634	2.1

Data Sheet for 12/20(24) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
20kV (Um = 24kV)							
70	9.7	5.5	126	35	4	100	20
95	11.4	5.5	134	37	4	104	22
120	12.8	5.5	141	38	4	107	23
150	14.2	5.5	147	40	4	110	25
185	15.8	5.5	166	41	4	114	27
240	18.1	5.5	189	44	5	122	32
300	20.4	5.5	201	47	5	127	35
400	23.2	5.5	230	50	6	136	43
500	26.3	5.5	261	53	6	144	48
630	30.2	5.5	300	58	6	153	56

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
20kV (Um = 24kV)							
70	0.2680	0.3417	0.244	0.85	63.55	244	1.5
95	0.1930	0.2461	0.268	0.94	65.92	290	1.6
120	0.1530	0.1951	0.287	1.00	67.78	328	1.7
150	0.1240	0.1581	0.307	1.07	69.66	366	1.7
185	0.0991	0.1264	0.329	1.15	71.81	409	1.8
240	0.0754	0.0961	0.361	1.26	75.36	467	1.9
300	0.0601	0.0766	0.393	1.37	78.07	518	2.0
400	0.0470	0.0599	0.431	1.51	81.88	575	2.1
500	0.0366	0.0467	0.474	1.66	85.32	633	2.2
630	0.0283	0.0361	0.528	1.84	89.37	692	2.3

Data Sheet for 18/30(36) kV Cables

Constructional Data

Cross-section of conductor	Diameter of conductor	Insulation thickness	Cross-section of screen	Diameter of core sheath	Armor steel wires diameter	Outer diameter of cable	Cable weight (in Air)
(mm ²)	(mm)	(mm)	(mm ²)	(mm)	(mm)	(mm)	(kg/m)
30kV (Um = 36kV)							
70	9.7	8.0	160	40	4	112	23
95	11.4	8.0	169	42	4	116	25
120	12.8	8.0	176	44	4	119	27
150	14.2	8.0	195	45	4	123	29
185	15.8	8.0	203	47	4	126	31
240	18.1	8.0	229	50	5	134	37
300	20.4	8.0	256	52	5	140	41
400	23.2	8.0	288	56	6	149	48
500	26.3	8.0	307	59	6	156	53
630	30.2	8.0	349	63	6	165	61

Electrical & Mechanical Data

Cross-section of conductor	Conductor resistance DC 20°C	Conductor resistance AC 90°C	Capacitance	Charging current per phase at 50Hz	Losses	Current rating	Min. bending radius : when laying
(mm ²)	(Ω/km)	(Ω/km)	(μF/km)	(A/km)	(W/m)	(A)	(m)
30kV (Um = 36kV)							
70	0.2680	0.3417	0.186	0.92	64.30	245	1.7
95	0.1930	0.2461	0.203	1.01	66.74	291	1.8
120	0.1530	0.1951	0.217	1.07	68.64	328	1.8
150	0.1240	0.1581	0.230	1.14	70.63	366	1.9
185	0.0991	0.1264	0.246	1.22	72.76	409	1.9
240	0.0754	0.0961	0.268	1.33	76.35	466	2.1
300	0.0601	0.0766	0.290	1.44	79.18	517	2.1
400	0.0470	0.0599	0.317	1.57	83.00	574	2.3
500	0.0366	0.0467	0.346	1.72	86.43	633	2.4
630	0.0283	0.0361	0.384	1.90	90.53	692	2.5

Inquiry Form : MV AC Submarine Cables

Please fill-in the following information for us to be able to assure an accurate product design engineering for the submarine cable and related accessories.

General Information for Quotation

Category & No.		Descriptions	Requirements
Transmission System	1-1	Highest System Voltage, U_m	kV
	1-2	Rated Voltage between Conductors, U	kV
	1-3	Rated Voltage between Conductor and Earth, U_0	kV
	1-4	Required Transmission Ampacity in MVA (or MW with Power Factor)	MVA
	1-5	Load Factor	%
	1-6	Operating Frequency	Hz
	1-7	Permissible Voltage Drop	%
	1-8	3 Phases Fault Current (Duration and Capacity)	KA/sec
	1-9	Phase-to-ground Fault Current (Duration and Capacity)	KA/sec
Power Cable Details	2-1	Preferred Conductor Size	mm ²
	2-2	Preferred Insulation Type - XLPE, MI, or EPR	
	2-3	Preferred Metallic Sheath Type – Lead, Copper or others ?	
	2-4	Anti-corrosion Sheath Type - HDPE, PVC or Others ?	
	2-5	Anti-teredo Layer Required	Yes___ or No___
	2-6	Other Specific Requirements?	
Installation Condition	3-1	Maximum Water Depth	meter
	3-2	Salt Water or Fresh Water	
	3-3	Cable to be Buried or Surface laid at Seabed?	
		Target Burial Depth	meter
		Ambient Temperature at Cable Burial Depth	°C
		Thermal Resistivity of Seabed Soil	K.m/W
		Tidal Conditions; Current Speed of Water	knots
	3-4	J-Tube or Duct to be used	Yes___ or No___
		If "Yes" then Inner & Outer Diameter	/ mm
		If "Yes" then Material? (Steel or others)	
		Height from Sea Level to Hang-off Platform in	mm
		J-Tube to be Located inside Tower (External, Internal)	Yes___ or No___
		Maximum Air Temperature	°C
		Maximum Intensity of Solar Radiation	W/m ²
		Transition Joints required at Landfall Area?	
	3-5	Cables to be Direct Buried or Installed in Pipe?	
		Required Burial Depth of Cable	meter
		Soil Temperature at Burial Depth	°C
		Thermal Resistivity of Land Soil	K.m/W
		Materials of Pipe? (Steel or others)	
		Inner / Outer Diameter of Pipe	/ mm
Others	4-1	Cable Route Length in Total	km
	4-2	Number of Circuits	ccts
	4-3	Required Shipping (or Delivery) Length(s)	km
	4-4	Scope of Work – Turnkey or Cable Supply Only?	

ISO Certificates

We do what it takes to earn quality certifications like ISO 9001, ISO 14001 and OHASA 18001 which sets standards for process control and manufacturing flow.

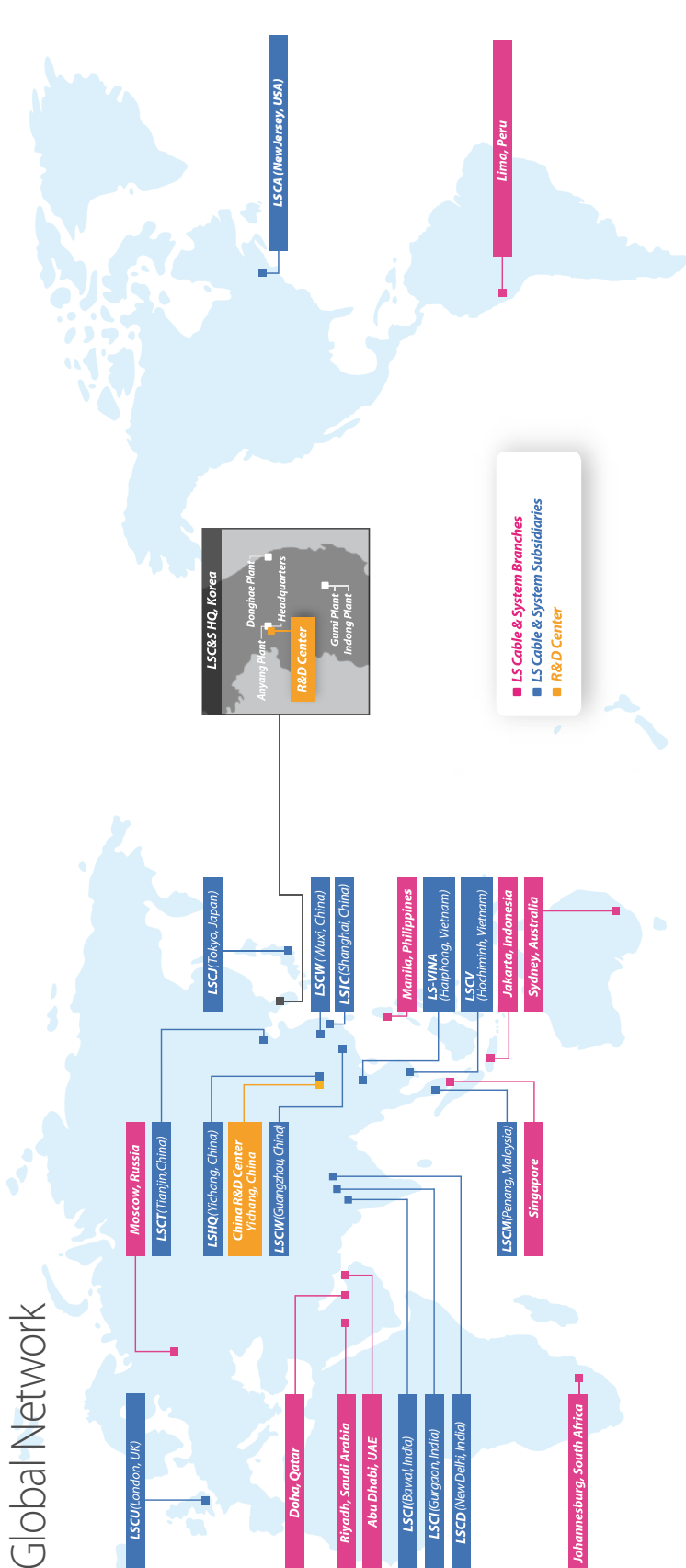
ISO 9001 Certificate



ISO 14001 & OHSAS 18001 Certificates



Global Network



Branches

Abu Dhabi Office(U.A.E.)
Tel. +971-2-674-8780 Fax: +971-2-674-8781

Riyadh Office(Saudi Arabia)
Tel. +966-11-269-4911

Singapore Office(Singapore)
Tel. +65-6342-9162-3 Fax: +65-6342-9165

Sydney Office(Australia)
Tel. +61-2-9460-0255 Fax: +61-2-9460-0355

Moscow Office(Russia)
Tel. +7-495-259-18-05 Fax: +7-495-258-18-06

Lima Office(Peru)
Tel. +51-1-434-6433

Johannesburg Office(South Africa)
Tel. +27-11-688-2028 Fax: +27-11-785-8327

Jakarta Office(Indonesia)
Tel. +62-21-7974140 / 7974013 Fax: +62-21-7993071

Manila Office(Philippines)
Tel. +632-899-6169 Fax: +632-942-2250

Doha Office(Qatar)
Tel. +974-4453-0333

Subsidiaries

LSCAU(S.A.): Marketing and Sales
Tel. +1-201-944-2005 Fax: +1-201-503-8130

LSCU(U.K.): Marketing and Sales
Tel. +44-20-8897-6671 Fax: +44-20-8899-6673

LSC(Japan): Marketing and Sales
Tel. +81-3-6205-7188 Fax: +81-3-6205-7187

LSCD(India): Marketing and Sales
Tel. +91-11-41064242

LSHQ(China)
Tel. +86-717-667-7777 Fax: +86-717-667-7618
Production: Extra-High Voltage Cable, Medium & Low Voltage Cable, Overhead Transmission Line, Industrial Specialty Cable & System

LSC(TChina)
Tel. +86-22-2697-7618 Fax: +86-22-2697-7617
Production: Magnet Wire

LSCW(China)
Tel. +86-510-8811-9000 Fax: +86-510-8534-5341
Production: Automotive Wire & Cable, Bus Duct, Electronic Wire & Cable, ACF, Accessories for EHV Cable System

Shanghai Sales Head Office(Shanghai)
Tel. +86-21-5237-6633 Fax: +86-21-5237-8996

Korea Operations

Headquarters
Tel. +82-2-2189-9114

Anyang Plant
Tel. +82-31-428-4114
Production: Automotive Wire, Tube Components, HV Cable & Connectors, Bus Duct, Flooring System

Gumi Plant
Tel. +82-56-469-7114
Production: Power Cable up to 500KV, DHTL, OPGW, Data Cable, RF Feeder System, Copper Rod, Magnet Wire

Indong Plant
Tel. +82-56-469-7163
Production: Industrial Cable & Module, Optical Cable, Aluminum Materials

Donghae Plant
Tel. +82-33-820-3114
Production: Submarine Cable, Industrial Specialty Cable

R&D Center
Tel. +82-31-450-8114