

LS Shipboard Cable

JIS C 3410 - 1999





Leading Solution

**LG Cable, LG Industrial Systems and LG-Nikko Copper,
Gaon Cable, E1 and Yesco are starting with
a new name, Leading Solution, LS.**

New Dream, New Start

To become a leader in the competitive global market, LG has been divided into three groups, electronics and chemicals for LG, energy and distribution for GS, Industrial electric · electronics and material for LS based on their business specialties.

LS' main companies, such as LS cable, LS industrial systems, LS-Nikko copper, Gaon cable, E1 and Yesco, are ranked as No.1 in their respective industry. However, LS won't just sit back, satisfied with being the best in Korea. We will pave the way for becoming the world's best in industrial electric · electronics and material industry with the new CI, LS.

Your good partner LG Cable is making a fresh start as LS Cable

LS Cable is No. 1 cable maker in Korea and its business fields are telecommunication, electric power, components & materials and machinery. Also, LS Cable is creating new businesses particularly in component and materials industry. LS Cable makes its best to accomplish the vision, "Your No.1 Creative Partner" and be one of the world leaders with high technology and best level of service.



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LS Cable

Korea's foremost cable maker in both product list and service range, LS Cable has an integrated supply system from basic raw materials to ultrahigh voltage cables, optical fiber cables, system engineering and installation works.

In non-cable sector as well, LS Cable flourishes as a top-rate supplier of information and communication networks, connectors, lead frames, industrial rubber, and aluminum products.

Reputed for its outstanding technology and quality,

LS Cable is at the service of customers within and outside Korea.

Armed with the world's leading technology in electric power and optic fiber, it has been successful with four joint ventures in Malaysia and Vietnam.

It has thus demonstrated leadership in establishing a global network in the domains of electric power, other energy and information.



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Global Network

Cable Designation

Designation	Type of cables	Page		
3.6/6KV, 6/10KV, 8.7/15KV	[FA-]SPYC, [FA-]SPYCB	Single core, EP rubber insulated, PVC sheathed and steel wire or copper alloy braided cable	9-10	
	[FA-]SPYCY, [FA-]SPYCBY	Single core, EP rubber insulated, PVC sheathed, steel wire or copper alloy braided and protective covering cable		
	[FA-]TPYC	Three core, EP rubber insulated, PVC sheathed, steel wire or copper alloy braided cable	11-12	
	[FA-]TPYCY	Three core, EP rubber insulated, PVC sheathed, steel wire or copper alloy braided and protective covering cable		
0.6/1KV	[FA-]SPYC	Single core, EP rubber insulated, PVC sheathed and steel wire braided cable	13	
	[FA-]SPYCY	Single core, EP rubber insulated, PVC sheathed and steel wire braided cable with protective covering	13	
	[FA-]DPY	Double core, EP rubber insulated and PVC sheathed cable	14	
	[FA-]DPYC	Double core, EP rubber insulated, PVC sheathed and steel wire braided cable	14	
	[FA-]DPYCY	Double core, EP rubber insulated, PVC sheathed and steel wire braided cable with protective covering	14	
	[FA-]TPY	Three core, EP rubber insulated and PVC sheathed cable	15	
	[FA-]TPYC	Three core, EP rubber insulated, PVC sheathed and steel wire braided cable	15	
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	[FA-]FPY	Four core, EP rubber insulated and PVC sheathed cable	16	
	[FA-]FPYC	Four core, EP rubber insulated, PVC sheathed and steel wire braided cable	16	
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	[FA-]5PY	5core, EP rubber insulated and PVC sheathed cable	17	
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	[FA-]5PYCY	5core, EP rubber insulated, PVC sheathed and steel wire braided cable with protective covering	17	
	[FA-]6PY	6core, EP rubber insulated and PVC sheathed cable	18	
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	[FA-]6PYCY	6core, EP rubber insulated, PVC sheathed and steel wire braided cable with protective covering	18	
	[FA-]SPYCS, [FA-]SPYCBS	Single core, EP rubber insulated, PVC sheathed and steel wire or copper alloy braided cable with collective screen	19	
	[FA-]SPYCY, [FA-]SPYCBYS	Single core, EP rubber insulated, PVC sheathed, steel wire or copper alloy braided and protective covering cable with collective screen	19	
	[FA-]DPYCS	Double core, EP rubber insulated, PVC sheathed and steel wire braided cable with common shield	20	
	[FA-]DPYCY	Double core, EP rubber insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	20	
	[FA-]TPYCS	Three core, EP rubber insulated, PVC sheathed and steel wire braided cable with common shield	21	
	[FA-]TPYCY	Three core, EP rubber insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	21	
	[FA-]FPYCS	Four core, EP rubber insulated, PVC sheathed and steel wire braided cable with collective screen	22	
	[FA-]FPYCY	Four core, EP rubber insulated, PVC sheathed, steel wire braided and protective covering cable with collective screen	22	
	[FA-]DPNP	Double core, EP rubber insulated and PCP sheathed cable	23	
	[FA-]TPNP	Three core, EP rubber insulated and PCP sheathed cable	23	
	[FA-]FPNP	Four core, EP rubber insulated and PCP sheathed cable	23	
	[FA-]JSCP	XLPE insulated switch board cable	24	
	[FA-]JSP	PVC insulated switch board cable	24	
	250V	[FA-]MPY	Multi core, EP rubber insulated and PVC sheathed cable	25
		[FA-]MPYC	Multi core, EP rubber insulated, PVC sheathed and steel wire braided cable	25
[FA-]MPYCY		Multi core, EP rubber insulated, PVC sheathed and steel wire braided cable with protective covering	25	
[FA-]MPYCS		Multi core, EP rubber insulated, PVC sheathed and steel wire braided cable with common shield	26	
[FA-]MPYCY		Multi core, EP rubber insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	26	
[FA-]MPYC-S		Multi core, EP rubber insulated, PVC sheathed and steel wire braided cable with individual shield	27	
[FA-]MPYCY-S		Multi core, EP rubber insulated, PVC sheathed, steel wire braided and protective covered cable with individual shield	27	
[FA-]TTY		PVC insulated and PVC sheathed telephone cable	28	
[FA-]TTYC		PVC insulated, PVC sheathed and steel wire braided telephone cable	28	
[FA-]TTYCY		PVC insulated, PVC sheathed and steel wire braided telephone cable with protective covering	28	
[FA-]TTYCS		PVC insulated, PVC sheathed and steel wire braided telephone cable with common shield	29	
[FA-]TTYCY		PVC insulated, PVC sheathed, steel wire braided and protective covered telephone cable with common shield	29	
[FA-]TTYC-S		PVC insulated, PVC sheathed and steel wire braided telephone cable with individual shield	30	
[FA-]TTYCY-S		PVC insulated, PVC sheathed, steel wire braided and protective covered telephone cable with individual shield	30	
[FA-]TTPY		EP rubber insulated and PVC sheathed telephone cable	28	
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[FA-]TTPYCY		EP rubber insulated, PVC sheathed and steel wire braided telephone cable with protective covering	28	
[FA-]TTPYCS		EP rubber insulated, PVC sheathed and steel wire braided telephone cable with common shield	29	
[FA-]TTPYCY		EP rubber insulated, PVC sheathed, steel wire braided and protective covered telephone cable with common shield	29	
[FA-]TTPYCY-S		EP rubber insulated, PVC sheathed and steel wire braided telephone cable with individual shield	30	
[FA-]TTPYCY-S	EP rubber insulated, PVC sheathed, steel wire braided and protective covered telephone cable with individual shield	30		

Index of symbols

No. of core and main use		Insulation		Sheath		Armoring		Protective covering		Otherwise	
S	Single core	P	EPR	Y	PVC	C	Steel wire braid	Y	PVC	S	Common shield
D	Double core	Y	PVC	N	PCP	CB	Copper alloy wire braid			-S	Individual core and pair shield
T	Three core	C	FR-XLPE							E	Earth wire
F	Four core										
5	5 core										
6	6 core										
M	multi core										
TT	Telephone and Instrumentation										
P	Portable and flexible										
FA-	Flame retardant type (IEC 60332-3 Cat.A)										
FRT-	Fire resistant type (IEC 60331)										
FRT(A)-	Flame retardant and Fire resistant type										
S	Switch board cable										

Note

1. For telephone cable, the insulation symbols are omitted.
2. Wire braid shall be made of galvanized steel wires. In case of copper alloy wire braid, "CB" instead of "C" shall be used as the symbol.
3. In case of cable with earth core, "E" shall be added to the symbol.
4. In case of fire resistant type, the symbol of cables begins as "FRT-" and in case of both flame retardant and fire resistant type, the symbol begins as "FRT(A)-".

MV Power Cable

[FA-] SPYC, SPYCB, TPYC
[FA-] SPYCY, SPYCBY,TPYCY



Voltage rating: 3.6/6KV, 6/10KV, 8.7/15KV

Maximum conductor temperature: 85°C

Applied Standard

- JISC 3410-1999
- IEC 60092-350
- IEC 60092-354
- IEC 60332-1
- IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Tinned annealed stranded copper,class 2 according to IEC 60228

Conductor screen : Semi-conducting compound

Insulation : 85°C EPR

Metallic screen : Tinned copper tape

Filler: Non-hygroscopic material (If necessary)

Sheath: PVC

Armor: Galvanized steel wire braid or copper alloy wire braid(-CB TYPE)
(For armored and non-protective covering type cables

: The red paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 1. ① 3.6/6KV (FA-) SPYC, SPYCB ② 3.6/6KV (FA-) SPYCY, SPYCBY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① (FA-) SPYC, SPYCB			② (FA-) SPYCY, SPYCBY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick.of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
10	7/1.35	4.05	2.5	1.3	15.8	0.3	17.4	0.9	480	1.1	19.8	1.0	580
16	7/1.7	5.1	2.5	1.4	17.1	0.3	18.7	0.9	680	1.1	21.0	1.1	780
25	7/2.14	6.42	2.5	1.4	18.4	0.3	20.0	1.0	830	1.1	22.3	1.1	950
35	7/2.52	7.56	2.5	1.5	19.8	0.3	21.3	1.1	970	1.1	23.7	1.2	1100
50	19/1.78	8.9	2.5	1.5	21.1	0.3	22.7	1.1	1160	1.2	25.3	1.3	1300
70	19/2.14	10.7	2.5	1.6	23.1	0.3	24.7	1.2	1370	1.2	27.3	1.4	1560
95	19/2.52	12.6	2.5	1.7	25.2	0.3	26.8	1.3	1740	1.3	29.6	1.5	1890
120	37/2.03	14.21	2.5	1.7	26.8	0.3	28.4	1.4	2010	1.3	31.2	1.6	2200
150	37/2.25	15.75	2.5	1.8	28.6	0.3	30.2	1.5	2450	1.3	33.0	1.6	2720
185	37/2.52	17.64	2.5	1.9	30.7	0.4	32.8	1.6	2650	1.4	35.8	1.8	2870
240	61/2.25	20.25	2.6	2.0	33.7	0.4	35.8	1.8	3200	1.5	39.0	2.0	3450
300	61/2.52	22.68	2.8	2.1	36.8	0.4	38.9	1.9	4150	1.5	42.1	2.1	4400

Table 2. ① 6/10KV (FA-) SPYC, SPYCB ② 6/10KV (FA-) SPYCY, SPYCBY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] SPYC, SPYCB			② [FA-] SPYCY, SPYCBY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick.of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
16	7/1.7	5.1	3.4	1.4	19.0	0.3	20.6	1.0	660	1.1	22.9	1.1	870
25	7/2.14	6.42	3.4	1.5	20.6	0.3	22.1	1.1	800	1.2	24.7	1.2	980
35	7/2.52	7.56	3.4	1.5	21.7	0.3	23.3	1.2	990	1.2	25.8	1.3	1110
50	19/1.78	8.9	3.4	1.6	23.2	0.3	24.8	1.2	1200	1.2	27.4	1.4	1360
70	19/2.14	10.7	3.4	1.7	25.3	0.3	26.8	1.3	1460	1.3	29.6	1.5	1720
95	19/2.52	12.6	3.4	1.7	27.2	0.3	28.7	1.4	1800	1.3	31.5	1.6	2080
120	37/2.03	14.21	3.4	1.7	28.8	0.3	30.3	1.5	2100	1.4	33.3	1.7	2290
150	37/2.25	15.75	3.4	1.9	30.7	0.4	32.8	1.6	2600	1.4	35.8	1.8	2810
185	37/2.52	17.64	3.4	1.9	32.6	0.4	34.7	1.7	2750	1.5	37.9	1.9	2950
240	61/2.25	20.25	3.4	2.1	35.7	0.4	37.7	1.9	3300	1.5	41.0	2.0	3550
300	61/2.52	22.68	3.4	2.1	38.1	0.4	40.2	2.0	4300	1.6	43.6	2.2	4550

Table 3. ① 8.7/15KV (FA-) SPYC, SPYCB ② 8.7/15KV (FA-) SPYCY, SPYCBY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] SPYC, SPYCB			② [FA-] SPYCY, SPYCBY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick.of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
25	7/2.14	6.42	4.5	1.6	23.1	0.3	24.7	1.2	790	1.2	27.3	1.4	920
35	7/2.52	7.56	4.5	1.6	24.3	0.3	25.8	1.3	1200	1.3	28.6	1.4	1340
50	19/1.78	8.9	4.5	1.7	25.8	0.3	27.4	1.4	1370	1.3	30.2	1.5	1550
70	19/2.14	10.7	4.5	1.8	27.8	0.3	29.4	1.5	1620	1.3	32.2	1.6	1870
95	19/2.52	12.6	4.5	1.8	29.7	0.3	31.3	1.6	2010	1.4	34.3	1.7	2290
120	37/2.03	14.21	4.5	1.9	31.6	0.4	33.6	1.7	2300	1.4	36.6	1.8	2600
150	37/2.25	15.75	4.5	2.0	33.3	0.4	35.4	1.8	2780	1.5	38.6	1.9	3050
185	37/2.52	17.64	4.5	2.0	35.2	0.4	37.3	1.9	2850	1.5	40.5	2.0	3060
240	61/2.25	20.25	4.5	2.1	38.0	0.4	40.1	2.0	3450	1.6	43.5	2.2	3690
300	61/2.52	22.68	4.5	2.2	40.7	0.4	42.7	2.1	4450	1.7	46.4	2.3	4690

Table 4. ① 3.6/6KV (FA-) TPYC ② 3.6/6KV (FA-) TPYCY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] TPYC			② [FA-] TPYCY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick.of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
10	7/1.35	4.05	2.5	1.9	32.4	0.4	34.5	1.7	1180	1.5	37.6	2.0	1490
16	7/1.7	5.1	2.5	2.0	34.8	0.4	36.9	1.8	1680	1.5	40.2	2.0	1990
25	7/2.14	6.42	2.5	2.1	37.9	0.4	40.0	2.0	2130	1.6	43.4	2.2	2480
35	7/2.52	7.56	2.5	2.2	40.6	0.4	42.7	2.1	2550	1.7	46.2	2.3	2950
50	19/1.78	8.9	2.5	2.3	43.7	0.4	45.8	2.3	3130	1.7	49.5	2.5	3560
70	19/2.14	10.7	2.5	2.5	47.9	0.4	50.0	2.5	3750	1.8	53.9	2.7	4310
95	19/2.52	12.6	2.5	2.7	52.3	0.4	54.4	2.7	4880	2.0	58.6	2.9	5320
120	37/2.03	14.21	2.5	2.8	56.1	0.4	58.2	2.9	5690	2.1	62.6	3.1	6250
150	37/2.25	15.75	2.5	2.9	59.7	0.4	61.8	3.1	7100	2.1	66.4	3.3	7820
185	37/2.52	17.64	2.5	3.1	64.1	0.4	66.2	3.3	8600	2.3	71.0	3.6	9200

Table 5. ① 6/10KV (FA-)TPYC ② 6/10KV (FA-) TPYCY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] TPYC			② [FA-] TPYCY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick. of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
16	7/1.7	5.1	3.4	2.2	39.3	0.4	41.4	2.1	1950	1.6	44.9	2.2	2590
25	7/2.14	6.42	3.4	2.3	42.4	0.4	44.5	2.2	2370	1.7	48.2	2.4	2920
35	7/2.52	7.56	3.4	2.4	45.1	0.4	47.2	2.4	2950	1.8	51.0	2.5	3330
50	19/1.78	8.9	3.4	2.5	48.2	0.4	50.3	2.5	3600	1.9	54.3	2.7	4050
70	19/2.14	10.7	3.4	2.7	52.4	0.4	54.5	2.7	4350	2.0	58.7	2.9	5130
95	19/2.52	12.6	3.4	2.8	56.8	0.4	58.9	2.9	5380	2.1	63.4	3.2	6210
120	37/2.03	14.21	3.4	3.0	60.6	0.4	62.7	3.1	6200	2.2	67.3	3.4	6860
150	37/2.25	15.75	3.4	3.1	64.2	0.4	66.3	3.3	7700	2.3	71.1	3.6	8430
185	37/2.52	17.64	3.4	3.3	68.6	0.4	70.7	3.5	9200	2.4	75.7	3.8	9990

Table 6. ① 8.7/15KV (FA-)TPYC ② 8.7/15KV (FA-) TPYCY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] TPYC			② [FA-] TPYCY			
Size	Construction	O.D					Nominal overall dia.	Tolerance	Cable weight (Approx.)	Thick. of protective covering	Nominal overall dia.	Tolerance	Cable weight (Approx.)
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
25	7/2.14	6.42	4.5	2.5	48.0	0.4	50.1	2.5	2350	1.9	54.0	2.7	2750
35	7/2.52	7.56	4.5	2.6	50.6	0.4	52.7	2.6	3580	1.9	56.8	2.8	4030
50	19/1.78	8.9	4.5	2.7	53.8	0.4	55.8	2.8	4110	2.0	60.1	3.0	4640
70	19/2.14	10.7	4.5	2.9	58.0	0.4	60.0	3.0	4860	2.1	64.5	3.2	5610
95	19/2.52	12.6	4.5	3.0	62.4	0.4	64.5	3.2	6030	2.2	69.2	3.5	6890
120	37/2.03	14.21	4.5	3.2	66.2	0.4	68.2	3.4	6910	2.3	73.2	3.7	7820
150	37/2.25	15.75	4.5	3.3	69.8	0.4	71.8	3.6	8340	2.4	77.0	3.8	9160
185	37/2.52	17.64	4.5	3.5	74.2	0.4	76.2	3.8	9700	2.5	81.6	4.1	10460

LV Power Cable

[FA-] DPY, TPY, FPY, 5PY, 6PY

[FA-] SPYC, SPYCB, DPYC, TPYC, FPYC, 5PYC, 6PYC

[FA-] SPYCY, SPYCBY, DPYCY, TPYCY, FPYCY, 5PYCY, 6PYCY



Voltage rating: 0.6/1kV

Maximum conductor temperature: 85°C

Applied Standard

-JISC 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Tinned annealed stranded copper,class 2 according to IEC 60228

Insulation : 85°C EPR

Filler: Non-hygroscopic material (If necessary)

Sheath: PVC

Armor: Galvanized steel wire braid or copper alloy wire braid(-CB TYPE)

(For armored and non-protective covering type cables

: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 7. ① 0.6/1KV (FA-) SPYC, SPYCB ② 0.6/1KV (FA-) SPYCY, SPYCBY

Conductor			Thick. of insulation	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] SPYC, SPYCB			② [FA-] SPYCY, SPYCBY			
Size	Construction	O.D					Nom. overall dia.	Tolerance	Cable weight	Thick of covering	Nom. overall dia.	Tolerance	Cable weight
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km	
1.5	7/0.53	1.59	1.0	1.0	5.9	0.3	7.2	0.4	100	0.8	9.0	0.4	135
2.5	7/0.67	2.01	1.0	1.0	6.3	0.3	7.8	0.4	120	0.8	9.4	0.4	150
4	7/0.85	2.55	1.0	1.0	6.9	0.3	8.2	0.4	140	0.8	10.0	0.4	175
6	7/1.04	3.12	1.0	1.0	7.4	0.3	8.7	0.4	170	0.8	10.5	0.4	205
10	7/1.35	4.05	1.0	1.1	8.6	0.3	9.9	0.4	225	0.8	11.7	0.5	270
16	7/1.70	5.1	1.0	1.1	9.6	0.3	10.9	0.4	300	0.9	12.9	0.5	350
25	7/2.14	6.42	1.2	1.2	11.5	0.3	12.8	0.5	425	0.9	14.8	0.6	485
35	7/2.52	7.56	1.2	1.2	12.7	0.3	14.0	0.6	535	1.0	16.2	0.6	605
50	19/1.78	8.9	1.4	1.3	14.6	0.3	15.9	0.6	695	1.0	18.1	0.7	775
70	19/2.14	10.7	1.6	1.4	17.2	0.3	18.5	0.7	960	1.1	20.9	0.8	1060
95	19/2.52	12.6	1.6	1.5	19.3	0.3	20.6	0.8	1250	1.1	23.0	0.9	1360
120	37/2.03	14.2	1.6	1.5	20.9	0.3	22.2	0.9	1510	1.2	24.8	1.0	1650
150	37/2.25	15.8	1.8	1.6	23.1	0.3	24.4	1.0	1830	1.2	27.0	1.1	1980
185	37/2.52	17.6	2.0	1.7	25.5	0.3	26.8	1.1	2250	1.3	29.6	1.2	2420
240	61/2.25	20.3	2.2	1.8	28.8	0.3	30.1	1.2	2910	1.4	33.1	1.3	3110
300	61/2.52	22.7	2.4	1.9	31.8	0.4	33.6	1.3	3680	1.4	36.6	1.5	3910

Table 8. ① 0.6/1KV (FA-) DPY ② 0.6/1KV (FA-) DPYC ③ 0.6/1KV (FA-) DPYCY

Conductor			Thick. of insulation	Thick. of sheath	① [FA-] DPY			Dia. of steel wire	② [FA-] DPYC			Thick. of covering	③ [FA-] DPYCY		
Size	Construction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1.5	7/0.53	1.59	1.0	1.1	10.4	0.5	120	0.3	11.7	0.5	205	0.9	13.7	0.5	260
2.5	7/0.67	2.01	1.0	1.2	11.5	0.5	155	0.3	12.8	0.5	250	0.9	14.8	0.6	310
4	7/0.85	2.55	1.0	1.2	12.6	0.6	200	0.3	13.9	0.6	300	0.9	15.9	0.6	365
6	7/1.04	3.12	1.0	1.3	13.9	0.6	255	0.3	15.2	0.6	370	1.0	17.4	0.7	445
10	7/1.35	4.05	1.0	1.3	15.8	0.7	360	0.3	17.1	0.7	490	1.0	19.3	0.8	575
16	7/1.70	5.1	1.0	1.4	18.1	0.8	515	0.3	19.4	0.8	660	1.1	21.8	0.9	765
25	7/2.14	6.42	1.2	1.5	21.7	0.9	770	0.3	23.0	0.9	945	1.2	25.6	1.0	1080
35	7/2.52	7.56	1.2	1.6	24.2	1.0	1010	0.3	25.5	1.0	1200	1.2	28.1	1.1	1350
50	19/1.78	8.9	1.4	1.8	28.1	1.2	1360	0.3	29.4	1.2	1580	1.3	32.2	1.3	1770
70	19/2.14	10.7	1.6	2.0	33.3	1.4	1930	0.4	35.1	1.4	2300	1.5	38.5	1.5	2570
95	19/2.52	12.6	1.6	2.1	37.3	1.6	2550	0.4	39.1	1.6	2960	1.6	42.7	1.6	3280
120	37/2.03	14.2	1.6	2.3	40.9	1.6	3150	0.4	42.7	1.6	3600	1.7	46.5	1.7	3970
150	37/2.25	15.8	1.8	2.4	45.0	1.7	3840	0.4	46.8	1.7	4330	1.8	50.8	1.8	4750
185	37/2.52	17.6	2.0	2.6	50.0	1.9	4780	0.4	51.8	1.9	5330	1.9	56.0	1.9	5810

Table 9. ① 0.6/1KV (FA-) TPY ② 0.6/1KV (FA-) TPYC ③ 0.6/1KV (FA-) TPYCY

Conductor			Thick. of insulation	Thick. of sheath	① [FA-] TPY			Dia. of steel wire	② [FA-] TPYC			Thick. of covering	③ [FA-] TPYCY		
Size	Construction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1.5	7/0.53	1.59	1.0	1.2	11.2	0.5	150	0.3	12.5	0.5	245	0.9	14.5	0.6	300
2.5	7/0.67	2.01	1.0	1.2	12.2	0.5	195	0.3	13.5	0.5	295	0.9	15.5	0.6	355
4	7/0.85	2.55	1.0	1.2	13.4	0.6	255	0.3	14.7	0.6	365	1.0	16.9	0.7	440
6	7/1.04	3.12	1.0	1.3	14.8	0.6	335	0.3	16.1	0.6	455	1.0	18.3	0.7	535
10	7/1.35	4.05	1.0	1.4	17.0	0.7	485	0.3	18.3	0.7	625	1.1	20.7	0.8	725
16	7/1.70	5.1	1.0	1.5	19.5	0.8	700	0.3	20.8	0.8	855	1.1	23.2	0.9	970
25	7/2.14	6.42	1.2	1.6	23.4	1.0	1060	0.3	24.7	1.0	1240	1.2	27.3	1.1	1390
35	7/2.52	7.56	1.2	1.7	26.1	1.1	1390	0.3	27.4	1.1	1600	1.3	30.2	1.2	1770
50	19/1.78	8.9	1.4	1.9	30.2	1.3	1870	0.4	32.0	1.3	2200	1.4	35.0	1.4	2420
70	19/2.14	10.7	1.6	2.1	35.8	1.5	2660	0.4	37.6	1.5	3050	1.5	41.0	1.6	3350
95	19/2.52	12.6	1.6	2.2	40.1	1.6	3530	0.4	41.9	1.6	3980	1.6	45.5	1.7	4320
120	37/2.03	14.2	1.6	2.4	44.0	1.7	4370	0.4	45.8	1.7	4860	1.7	49.6	1.8	5250
150	37/2.25	15.8	1.8	2.5	48.4	1.8	5340	0.4	50.2	1.8	5870	1.9	54.2	1.9	6340
185	37/2.52	17.6	2.0	2.7	53.7	1.9	6640	0.4	55.5	1.9	7230	2.0	59.7	2.0	7780
240	61/2.25	20.25	2.2	3.0	60.4	2.3	8880	0.4	62.7	2.3	10100	2.2	67.2	3.4	10376

Table 10. ① 0.6/1KV (FA-) FPY ② 0.6/1KV (FA-) FPYC ③ 0.6/1KV (FA-) FPYCY

Conductor			Thick. of insulation	Thick. of sheath	① (FA-) FPY			Dia. of steel wire	② (FA-) FPYC			Thick. of covering	③ (FA-) FPYCY		
Size	Const- ruction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1.5	7/0.53	1.59	1.0	1.2	11.8	0.6	230	0.3	13.4	0.7	370	0.9	15.4	0.8	450
2.5	7/0.67	2.01	1.0	1.2	12.8	0.6	290	0.3	14.4	0.7	440	1.0	16.4	0.8	530
4	7/0.85	2.55	1.0	1.3	14.4	0.7	380	0.3	16.0	0.8	550	1.0	18.1	0.9	660
6	7/1.04	3.12	1.0	1.3	15.8	0.8	500	0.3	17.4	0.9	680	1.0	19.6	1.0	800
10	7/1.35	4.05	1.0	1.4	18.3	0.9	730	0.3	19.9	1.0	940	1.1	22.2	1.1	1090
16	7/1.70	5.1	1.0	1.5	21.0	1.1	1050	0.3	22.6	1.1	1280	1.2	25.1	1.3	1460
25	7/2.14	6.42	1.2	1.7	25.7	1.3	1590	0.3	27.3	1.4	1860	1.3	30.0	1.5	2090
35	7/2.52	7.56	1.2	1.8	28.6	1.4	2090	0.3	30.2	1.5	2400	1.4	33.1	1.7	2660
50	19/1.78	8.9	1.4	2.0	33.5	1.7	2810	0.4	35.6	1.8	3300	1.5	38.8	1.9	3630
70	19/2.14	10.7	1.4	2.1	38.1	1.9	3990	0.4	40.2	2.0	4580	1.6	43.6	2.2	5030
95	19/2.52	12.6	1.6	2.4	44.4	2.2	5300	0.4	46.5	2.3	5970	1.8	50.2	2.5	6480
120	37/2.03	14.2	1.6	2.5	48.7	2.4	6560	0.4	50.8	2.5	7290	1.9	54.8	2.7	7880
150	37/2.25	15.8	1.8	2.7	54.0	2.7	8010	0.4	56.1	2.8	8810	2.0	60.4	3.0	9510
185	37/2.52	17.6	2.0	2.9	59.8	3.0	9960	0.4	61.9	3.1	10850	2.1	66.5	3.3	11670

Table 11. ① 0.6/1KV (FA-) 5PY ② 0.6/1KV (FA-) 5PYC ③ 0.6/1KV (FA-) 5PYCY

Conductor			Thick. of insulation	Thick. of sheath	① (FA-) 5PY			Dia. of steel wire	② (FA-) 5PYC			Thick. of covering	③ (FA-) 5PYCY		
Size	Const- ruction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1.5	7/0.53	1.59	1.0	1.2	12.8	0.6	270	0.3	14.4	0.7	430	1.0	16.5	0.8	520
2.5	7/0.67	2.01	1.0	1.3	14.2	0.7	340	0.3	15.8	0.8	510	1.0	17.9	0.9	610
4	7/0.85	2.55	1.0	1.3	15.7	0.8	440	0.3	17.3	0.9	630	1.0	19.4	1.0	760
6	7/1.04	3.12	1.0	1.4	17.5	0.9	570	0.3	19.1	1.0	780	1.1	21.5	1.1	920
10	7/1.35	4.05	1.0	1.5	20.2	1.0	840	0.3	21.8	1.1	1080	1.1	24.2	1.2	1250
16	7/1.70	5.1	1.0	1.6	23.2	1.2	1200	0.3	24.8	1.2	1460	1.2	27.4	1.4	1670
25	7/2.14	6.42	1.2	1.8	28.4	1.4	1820	0.3	30.0	1.5	2130	1.4	33.0	1.7	2390
35	7/2.52	7.56	1.2	1.9	31.7	1.6	2390	0.4	33.8	1.7	2740	1.4	36.8	1.8	3040
50	19/1.78	8.9	1.4	2.1	37.1	1.9	3210	0.4	39.2	2.0	3770	1.6	42.6	2.1	4140
70	19/2.14	10.7	1.4	2.3	42.4	2.1	4550	0.4	44.5	2.2	5230	1.7	48.1	2.4	5740
95	19/2.52	12.6	1.6	2.6	49.6	2.5	6050	0.4	51.7	2.6	6810	1.9	55.8	2.8	7390
120	37/2.03	14.2	1.6	2.7	54.1	2.7	7480	0.4	56.2	2.8	8320	2.0	60.5	3.0	8990
150	37/2.25	15.8	1.8	3.0	60.2	3.0	9140	0.4	62.3	3.1	10050	2.2	67.0	3.4	10850
185	37/2.52	17.6	2.0	3.2	66.6	3.3	11360	0.4	68.7	3.4	12370	2.3	73.6	3.7	13310

Table 12. ① 0.6/1KV (FA-) 6PY ② 0.6/1KV (FA-) 6PYC ③ 0.6/1KV (FA-) 6PYCY

Conductor			Thick. of insulation	Thick. of sheath	① (FA-) 6PY			Dia. of steel wire	① (FA-) 6PYC			Thick. of covering	① (FA-) 6PYCY		
Size	Const- ruction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1.5	7/0.53	1.59	1.0	1.3	14.1	0.7	310	0.3	15.7	0.8	500	1.0	17.8	0.9	600
2.5	7/0.67	2.01	1.0	1.3	15.4	0.8	390	0.3	17.0	0.9	590	1.0	19.1	1.0	700
4	7/0.85	2.55	1.0	1.4	17.3	0.9	510	0.3	18.9	0.9	720	1.1	21.3	1.1	870
6	7/1.04	3.12	1.0	1.4	19.0	1.0	650	0.3	20.6	1.0	890	1.1	23.0	1.2	1050
10	7/1.35	4.05	1.0	1.6	22.2	1.1	960	0.3	23.8	1.2	1240	1.2	26.4	1.3	1430
16	7/1.70	5.1	1.0	1.7	25.6	1.3	1370	0.3	27.2	1.4	1670	1.3	30.0	1.5	1910
25	7/2.14	6.42	1.2	1.9	31.3	1.6	2080	0.3	32.9	1.6	2430	1.4	35.9	1.8	2730
35	7/2.52	7.56	1.2	2.0	34.9	1.7	2730	0.4	37.0	1.9	3130	1.5	40.2	2.0	3470
50	19/1.78	8.9	1.4	2.2	40.9	2.0	3660	0.4	43.0	2.2	4300	1.7	46.6	2.3	4720
70	19/2.14	10.7	1.4	2.5	47.0	2.4	5190	0.4	49.1	2.5	5970	1.8	53.0	2.7	6550
95	19/2.52	12.6	1.6	2.8	54.9	2.7	6900	0.4	57.0	2.9	7770	2.0	61.3	3.1	8430
120	37/2.03	14.2	1.6	2.9	59.9	3.0	8530	0.4	62.0	3.1	9490	2.2	66.7	3.3	10250
150	37/2.25	15.8	1.8	3.2	66.5	3.3	10420	0.4	68.6	3.4	11460	2.3	73.5	3.7	12370
185	37/2.52	17.6	2.0	3.5	73.9	3.7	12960	0.4	76.0	3.8	14110	2.5	81.4	4.1	15180

LV Power Cable

Collective screen

[FA-] SPYCS, SPYCBS, DPYCS, TPYCS, FPYCS
 [FA-] SPYCYS, SPYCBYS, DPYCYS, TPYCYS, FPYCYS



Voltage rating: 0.6/1kV
Maximum conductor temperature: 85°C
Applied Standard
 -JISC 3410-1999
 -IEC 60092-350
 -IEC 60332-1
 -IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Tinned annealed stranded copper, class 2 according to IEC 60228
Insulation : 85°C EPR
Filler: Non-hygroscopic material
Sheath: PVC
Armor: Galvanized steel wire braid or copper alloy wire braid(-CB TYPE)
 (For armored and non-protective covering type cables
 : The white paint shall be painted uniformly on the armor.)
Protective covering: PVC

Table 13. ① 0.6/1KV (FA-) SPYCS, SPYCBS ② 0.6/1KV (FA-) SPYCYS, SPYCBYS

Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① (FA-) SPYCS, SPYCBS			Thick. of covering	② (FA-) SPYCYS, SPYCBYS		
Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km
1.5	7/0.53	1.59	1.0	0.12	1.0	6.4	0.3	8.0	0.4	110	0.8	9.9	0.5	150
2.5	7/0.67	2.01	1.0	0.12	1.0	6.9	0.3	8.5	0.4	130	0.8	10.6	0.5	160
4	7/0.85	2.55	1.0	0.12	1.0	7.5	0.3	9.1	0.5	150	0.8	11.2	0.6	185
6	7/1.04	3.12	1.0	0.14	1.0	8.1	0.3	9.7	0.5	180	0.8	12.1	0.6	220
10	7/1.35	4.05	1.0	0.14	1.1	9.4	0.3	11.0	0.6	240	0.9	13.4	0.7	280
16	7/1.70	5.1	1.0	0.14	1.1	10.4	0.3	12.0	0.6	320	0.9	14.6	0.7	370
25	7/2.14	6.42	1.2	0.14	1.2	12.3	0.3	13.9	0.7	450	0.9	16.5	0.8	500
35	7/2.52	7.56	1.2	0.16	1.2	13.6	0.3	15.2	0.8	550	1.0	18.0	0.9	620
50	19/1.78	8.9	1.4	0.16	1.3	15.7	0.3	17.3	0.9	710	1.0	20.3	1.0	790
70	19/2.14	10.7	1.6	0.16	1.4	18.1	0.3	19.7	1.0	980	1.1	22.9	1.1	1100
95	19/2.52	12.6	1.6	0.16	1.5	20.3	0.3	21.9	1.1	1280	1.1	21.9	1.1	1400
120	37/2.03	14.2	1.6	0.18	1.6	22.2	0.3	23.8	1.2	1570	1.2	23.8	1.2	1700
150	37/2.25	15.8	1.8	0.18	1.6	24.2	0.3	25.8	1.3	1900	1.2	25.8	1.3	2020
185	37/2.52	17.6	2.0	0.18	1.7	26.6	0.3	28.2	1.4	2310	1.3	28.2	1.4	2500
240	61/2.25	20.3	2.2	0.20	1.8	30.1	0.4	32.2	1.6	2980	1.4	32.2	1.6	3200
300	61/2.52	22.7	2.4	0.20	2.0	33.4	0.4	35.5	1.8	3750	1.5	35.5	1.8	4000

Table 14. ① 0.6/1KV (FA-) DPYCS ② 0.6/1KV (FA-) DPYCYS

Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] DPYCS			Thick. of covering	② [FA-] DPYCYS		
Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	mm	Kg / Km
1.5	7/0.53	1.59	1.0	0.14	1.2	11.3	0.3	12.6	0.5	265	0.9	14.6	0.6	325
2.5	7/0.67	2.01	1.0	0.14	1.2	12.2	0.3	13.5	0.5	310	0.9	15.5	0.6	375
4	7/0.85	2.55	1.0	0.16	1.2	13.4	0.3	14.7	0.6	380	1.0	16.9	0.7	455
6	7/1.04	3.12	1.0	0.16	1.3	14.4	0.3	15.9	0.8	460	1.0	18.1	0.9	550
10	7/1.35	4.05	1.0	0.16	1.3	16.4	0.3	18.0	0.9	610	1.0	20.2	1.0	710
16	7/1.70	5.1	1.0	0.16	1.4	18.7	0.3	20.2	1.0	790	1.1	22.6	1.1	910
25	7/2.14	6.42	1.2	0.18	1.6	22.5	0.3	24.1	1.2	1100	1.2	26.7	1.3	1290
35	7/2.52	7.56	1.2	0.18	1.7	25.0	0.3	26.6	1.3	1400	1.3	29.3	1.5	1620
50	19/1.78	8.9	1.4	0.18	1.8	29.1	0.3	30.6	1.5	1800	1.4	33.6	1.7	2030
70	19/2.14	10.7	1.6	0.2	2.0	34.0	0.4	36.1	1.8	2640	1.5	39.3	2.0	2900
95	19/2.52	12.6	1.6	0.26	2.2	38.7	0.4	40.7	2.0	3410	1.6	44.2	2.2	3700
120	37/2.03	14.2	1.6	0.26	2.3	42.1	0.4	44.2	2.2	3900	1.7	47.9	2.4	4320
150	37/2.25	15.8	1.8	0.26	2.5	46.5	0.4	48.6	2.4	4760	1.8	52.5	2.6	5220
185	37/2.52	17.6	2.0	0.26	2.6	51.3	0.4	53.4	2.7	5800	1.9	57.6	2.9	6350

Table 15. ① 0.6/1KV (FA-) TPYCS ② 0.6/1KV (FA-) TPYCYS

Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] TPYCS			Thick. of covering	② [FA-] TPYCYS		
Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	mm	Kg / Km
1.5	7/0.53	1.59	1.0	0.14	1.2	11.9	0.3	13.2	0.5	305	0.9	15.2	0.6	365
2.5	7/0.67	2.01	1.0	0.14	1.2	12.9	0.3	14.2	0.6	360	1.0	16.4	0.7	430
4	7/0.85	2.55	1.0	0.16	1.3	14.4	0.3	15.7	0.6	455	1.0	17.9	0.7	535
6	7/1.04	3.12	1.0	0.16	1.3	15.3	0.3	16.8	0.8	530	1.0	18.9	1.0	610
10	7/1.35	4.05	1.0	0.16	1.4	17.5	0.3	19.0	1.0	730	1.1	21.4	1.1	830
16	7/1.70	5.1	1.0	0.16	1.5	19.8	0.3	21.4	1.1	990	1.1	23.8	1.2	1100
25	7/2.14	6.42	1.2	0.18	1.6	24.0	0.3	25.6	1.3	1400	1.2	28.2	1.4	1550
35	7/2.52	7.56	1.2	0.18	1.7	26.7	0.3	28.2	1.4	1850	1.3	31.0	1.6	2020
50	19/1.78	8.9	1.4	0.2	1.9	31.1	0.3	32.7	1.6	2450	1.4	35.7	1.8	2670
70	19/2.14	10.7	1.6	0.26	2.1	36.6	0.4	38.7	1.9	3350	1.6	42.1	2.1	3650
95	19/2.52	12.6	1.6	0.26	2.3	41.3	0.4	43.4	2.2	4390	1.7	47.0	2.3	4730
120	37/2.03	14.2	1.6	0.26	2.4	45.0	0.4	47.1	2.4	5350	1.8	50.9	2.5	5740
150	37/2.25	15.8	1.8	0.26	2.6	49.8	0.4	51.8	2.6	6100	1.9	55.9	2.8	6570
185	37/2.52	17.6	2.0	0.26	2.8	54.9	0.4	57.0	2.9	7530	2.0	61.3	3.1	8080

Table 16. ① 0.6/1KV (FA-) FPYCS ② 0.6/1KV (FA-) FPYCYS

Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① (FA-) FPYCS			Thick. of covering	② (FA-) FPYCYS		
Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	mm	Kg / Km
1.5	7/0.53	1.59	1.0	0.14	1.2	12.4	0.3	14.0	0.7	400	1.0	16.0	0.8	490
2.5	7/0.67	2.01	1.0	0.16	1.2	13.7	0.3	15.3	0.8	480	1.0	17.4	0.9	580
4	7/0.85	2.55	1.0	0.16	1.3	15.1	0.3	16.7	0.8	600	1.0	18.9	0.9	720
6	7/1.04	3.12	1.0	0.16	1.4	16.7	0.3	18.3	0.9	740	1.1	20.5	1.0	880
10	7/1.35	4.05	1.0	0.16	1.4	19.1	0.3	20.7	1.0	1030	1.1	23.1	1.2	1190
16	7/1.70	5.1	1.0	0.18	1.5	22.0	0.3	23.6	1.2	1350	1.2	26.1	1.3	1550
25	7/2.14	6.42	1.2	0.18	1.7	26.5	0.3	28.1	1.4	1950	1.3	30.9	1.5	2200
35	7/2.52	7.56	1.2	0.18	1.8	29.5	0.3	31.1	1.6	2540	1.4	34.0	1.7	2780
50	19/1.78	8.9	1.4	0.20	2.0	34.5	0.4	36.6	1.8	3480	1.5	39.8	2.0	3750
70	19/2.14	10.7	1.4	0.26	2.2	39.5	0.4	41.6	2.1	4750	1.6	45.1	2.3	5280
95	19/2.52	12.6	1.6	0.26	2.4	45.9	0.4	48.0	2.4	6280	1.8	51.8	2.6	6750
120	37/2.03	14.2	1.6	0.26	2.6	50.1	0.4	52.1	2.6	7590	1.9	56.2	2.8	8150
150	37/2.25	15.8	1.8	0.26	2.8	55.3	0.4	57.4	2.9	9150	2.0	61.8	3.1	1210
185	37/2.52	17.6	2.0	0.26	3.0	61.2	0.4	63.2	3.2	11150	2.2	67.9	3.4	11980

Portable Flexible Cable

DPNP, TPNP, FPNP



Voltage rating: 0.6/1kV

Maximum conductor temperature: 85°C

Applied Standard

-JISC 3410-1999

-IEC 60332-1

Cable Construction

Conductor : Tinned annealed stranded copper, class 5 according to IEC 60228

Insulation: 85°C EPR

Sheath: PCP

Table. 17 DPNP, TPNP, FPNP

No. of Cores	Conductor			Thick. of insulation	Thick. of sheath	Nom. overall dia.	Tolerance	Cable Weight
	Size	Construction	O.D					
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km
2	0.75	24/0.20	1.13	1	1.4	9.7	0.4	130
2	1	32/0.20	1.27	1	1.4	9.9	0.4	135
2	1.5	30/0.25	1.58	1	1.5	10.8	0.4	165
2	2.5	49/0.25	2.02	1	1.6	11.8	0.5	205
2	4	55/0.30	2.57	1	1.7	13.1	0.5	265
2	6	82/0.30	3.14	1	1.8	14.5	0.6	340
3	0.75	24/0.20	1.13	1	1.4	10.2	0.4	145
3	1	32/0.20	1.27	1	1.5	10.7	0.4	160
3	1.5	30/0.25	1.58	1	1.5	11.4	0.5	190
3	2.5	49/0.25	2.02	1	1.6	12.5	0.5	240
3	4	55/0.30	2.57	1	1.8	14.1	0.6	325
3	6	82/0.30	3.14	1	1.9	15.6	0.6	420
4	0.75	24/0.20	1.13	1	1.5	11.3	0.5	175
4	1	32/0.20	1.27	1	1.6	11.8	0.5	200
4	1.5	30/0.25	1.58	1	1.6	12.2	0.5	225
4	2.5	49/0.25	2.02	1	1.8	14.1	0.6	310
4	4	55/0.30	2.57	1	1.9	15.6	0.6	405
4	6	82/0.30	3.14	1	2	17.2	0.7	525

Switch Board Cable

SCP, SYP



Voltage rating: 0.6/1kV

Maximum conductor temperature: 85°C (XLPE), 75°C (PVC)

Applied Standard

-JISC 3410-1999

-IEC 60332-1

Cable Construction

Conductor : Tinned annealed stranded copper, class 5 according to IEC 60

Insulation: 85°C XLPE, 75°C (PVC)

Table 18. SCP

Size	Conductor		Thick. of insulation	Nom. overall dia.	Tolerance	Cable Weight
	Construction	O.D				
SQ	Nos./mm	mm	mm	mm	mm	kg/km
1.5	30/0.25	1.58	0.9	3.7	0.4	26
2.5	49/0.25	2.02	1.0	4.3	0.4	38
4	55/0.30	2.57	1.0	4.8	0.4	55
6	82/0.30	3.14	1.0	5.3	0.4	75
10	80/0.40	4.13	1.1	6.6	0.4	125
16	7/18/0.40	5.88	1.1	8.3	0.4	190
25	7/28/0.40	7.32	1.2	10.0	0.4	280
35	7/39/0.40	8.67	1.4	11.8	0.5	390
50	19/21/0.40	10.3	1.4	13.4	0.5	550
70	19/19/0.50	12.2	1.6	15.7	0.6	770
95	19/25/0.50	14	1.7	17.7	0.7	1000

Table 19. SYP

Size	Conductor		Thick. of insulation	Nom. overall dia.	Tolerance	Cable Weight
	Construction	O.D				
SQ	Nos./mm	mm	mm	mm	mm	kg/km
0.75	24/0.20	1.13	1.2	3.8	0.4	21
1	32/0.20	1.27	1.2	3.9	0.4	24
1.5	30/0.25	1.58	1.2	4.2	0.4	30
2.5	49/0.25	2.02	1.2	4.7	0.4	41
4	55/0.30	2.57	1.2	5.2	0.4	60
6	82/0.30	3.14	1.2	5.8	0.4	80
10	80/0.40	4.13	1.2	6.8	0.4	125
16	7/18/0.40	5.88	1.3	8.7	0.4	195

Control Cable

[FA-] MPY, MPYC, MPYCY



Voltage rating: 250V

Maximum conductor temperature: 85°C

Applied Standard

-JIS C 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Tinned annealed stranded copper, class 2 according to IEC 60228

Insulation : 85°C EPR

Filler: Non-hygroscopic material

Sheath: PVC

Armor: Galvanized steel wire braid

(For armored and non-protective covering type cables

: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 20. ① 250V (FA-) MPY ② 250V (FA-) MPYC ③ 250V (FA-) MPYCY

No. of cores	Conductor			Thick. of insulation	Thick. of sheath	① (FA-) MPY			Dia. of steel wire	② (FA-) MPYC			Thick. of covering	③ (FA-) MPYCY		
	Size	Const- ruction	O.D			Nom. overall dia.	Toler- ance	Cable Weight		Nom. overall dia.	Toler- ance	Cable Weight		Nom. overall dia.	Toler- ance	Cable Weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
2	1	7/0.43	1.29	0.7	1.1	8.7	0.4	85	0.3	10.0	0.4	155	0.9	12.0	0.5	205
4	1	7/0.43	1.29	0.7	1.1	9.9	0.4	125	0.3	11.2	0.4	205	0.9	13.2	0.5	260
7	1	7/0.43	1.29	0.7	1.2	11.9	0.5	190	0.3	13.2	0.5	290	0.9	15.2	0.6	350
12	1	7/0.43	1.29	0.7	1.3	15.5	0.7	315	0.3	16.8	0.7	445	1.0	19.0	0.8	530
19	1	7/0.43	1.29	0.7	1.4	18.3	0.8	465	0.3	19.6	0.8	615	1.1	22.0	0.9	720
27	1	7/0.43	1.29	0.7	1.6	22.1	0.9	665	0.3	23.4	0.9	840	1.2	26.0	1.0	980
37	1	7/0.43	1.29	0.7	1.7	24.8	1.0	870	0.3	26.1	1.0	1070	1.3	28.9	1.2	1240
44	1	7/0.43	1.29	0.7	1.8	28.0	1.2	1160	0.3	29.3	1.2	1290	1.3	32.1	1.3	1470
77	1	7/0.43	1.29	0.7	2.1	35.9	1.5	1790	0.4	37.7	1.5	2180	1.5	41.1	1.6	2470

Control Cable

Collective screen

[FA-] MPYCS, MPYCYS



Voltage rating: 250V
Maximum conductor temperature: 85°C
Applied Standard
 -JISC 3410-1999
 -IEC 60092-350
 -IEC 60332-1
 -IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Tinned annealed stranded copper, class 2 according to IEC 60228
Insulation : 85°C EPR
Shield: Tinned copper wire braid
Filler: Non-hygroscopic material
Sheath: PVC
Armor: Galvanized steel wire braid
 (For armored and non-protective covering type cables
 : The white paint shall be painted uniformly on the armor.)
Protective covering: PVC

Table 21. ① 250V (FA-) MPYCS ② 250V (FA-) MPYCYS

No. of cores	Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] MPYCS			Thick. of covering	② [FA-] MPYCYS		
	Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km
2	1	7/0.43	1.29	0.7	0.14	1.1	9.4	0.3	10.7	0.4	205	0.9	12.7	0.5	255
4	1	7/0.43	1.29	0.7	0.14	1.1	10.6	0.3	11.9	0.5	260	0.9	13.9	0.6	315
7	1	7/0.43	1.29	0.7	0.14	1.2	12.6	0.3	13.9	0.6	355	0.9	15.9	0.6	420
12	1	7/0.43	1.29	0.7	0.16	1.3	16.3	0.3	17.6	0.7	540	1.0	19.8	0.8	625
19	1	7/0.43	1.29	0.7	0.16	1.5	19.3	0.3	20.6	0.8	735	1.1	23.0	0.9	850
27	1	7/0.43	1.29	0.7	0.18	1.6	23.0	0.3	24.3	1.0	995	1.2	26.9	1.1	1140
37	1	7/0.43	1.29	0.7	0.18	1.7	25.7	0.3	27.0	1.1	1240	1.3	29.8	1.2	1410
44	1	7/0.43	1.29	0.7	0.18	1.8	28.9	0.3	30.2	1.2	1480	1.4	33.2	1.3	1680

Control Cable

Individual screen

[FA-] MPYC-S, MPYCY-S

**Voltage rating:** 250V**Maximum conductor temperature:** 85°C**Applied Standard**

-JIS C 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction**Conductor :** Tinned annealed stranded copper, class 2 according to IEC 60228**Insulation :** 85°C EPR**Shield:** Tinned copper wire braid**Filler:** Non-hygroscopic material**Sheath:** PVC**Armor:** Galvanized steel wire braid

(For armored and non-protective covering type cables

: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 22. ① 250V (FA-) MPYC-S ② 250V (FA-) MPYCY-S

No. of cores	Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① [FA-] MPYC-S			Thick. of covering	② [FA-] MPYCY-S		
	Size	Construction	O.D.						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km
2	1	7/0.43	1.29	0.7	0.12	1.1	9.9	0.3	11.2	0.4	210	0.9	13.2	0.5	260
4	1	7/0.43	1.29	0.7	0.12	1.2	11.6	0.3	12.9	0.5	300	0.9	14.9	0.6	360
7	1	7/0.43	1.29	0.7	0.12	1.3	13.9	0.3	15.2	0.6	435	1.0	17.4	0.7	515
12	1	7/0.43	1.29	0.7	0.12	1.4	18.2	0.3	19.5	0.8	685	1.1	21.9	0.9	795
19	1	7/0.43	1.29	0.7	0.12	1.5	21.5	0.3	22.8	0.9	980	1.2	25.4	1.0	1120
27	1	7/0.43	1.29	0.7	0.12	1.7	26.0	0.3	27.3	1.1	1360	1.3	30.1	1.2	1540
37	1	7/0.43	1.29	0.7	0.12	1.8	29.2	0.3	30.5	1.2	1760	1.4	33.5	1.3	1970
44	1	7/0.43	1.29	0.7	0.12	2.0	33.2	0.4	35	1.4	2240	1.5	38.4	1.5	2500

Telephone Cable

[FA-] TTY, TTYC, TTYCY

[FA-] TTPY, TTPYC, TTPYCY



Voltage rating: 250V

Maximum conductor temperature: 85°C for TTPY-type / 60°C for TTY-type

Applied Standard

-JISC 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Annealed stranded copper, class 2 according to IEC 60228(Tinned copper for TTPY-type)

Insulation : 85°C EPR for TTPY-type / 60°C PVC for TTY-type

Filler: Non-hygroscopic material

Sheath: PVC

Armor: Galvanized steel wire braid

(For armored and non-protective covering type cables

: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 23. ① 250V (FA-) TTY, TTPY ② 250V (FA-) TTYCY, TTPYC ③ 250V (FA-) TTYCY, TTPYCY

No. of pairs	Conductor			Thick. of insulation	Thick. of sheath	① (FA-) TTY, TTPY			Dia. of steel wire	② TTYC, TTPYC			Thick. of covering	③ TTYCY, TTPYCY		
	Size	Construction	O.D			Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight		Nom. overall dia.	Tolerance	Cable Weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	kg/km	mm	mm	mm	kg/km	mm	mm	mm	kg/km
1	0.75	7/0.37	1.1	0.7	1.0	7.9	0.4	70	0.3	9.2	0.4	130	0.8	11.0	0.4	170
1T	0.75	7/0.37	1.1	0.7	1.1	8.6	0.4	85	0.3	9.9	0.4	155	0.9	11.7	0.5	205
1Q	0.75	7/0.37	1.1	0.7	1.1	9.3	0.4	105	0.3	10.6	0.4	180	0.9	12.6	0.5	230
2	0.75	7/0.37	1.1	0.7	1.2	12.0	0.6	105	0.3	13.6	0.6	180	0.9	15.5	0.7	230
4	0.75	7/0.37	1.1	0.7	1.3	14.2	0.6	205	0.3	15.5	0.6	320	1.0	17.7	0.7	400
7	0.75	7/0.37	1.1	0.7	1.4	16.9	0.7	310	0.3	18.2	0.7	440	1.1	20.6	0.8	545
10	0.75	7/0.37	1.1	0.7	1.5	21.7	0.9	465	0.3	23.0	0.9	640	1.2	25.6	1.0	775
14	0.75	7/0.37	1.1	0.7	1.6	23.5	1.0	585	0.3	24.8	1.0	770	1.2	27.4	1.1	920
19	0.75	7/0.37	1.1	0.7	1.7	26.4	1.1	755	0.3	27.7	1.1	965	1.3	30.5	1.2	1140
24	0.75	7/0.37	1.1	0.7	1.9	31.9	1.3	1030	0.4	33.7	1.3	1380	1.4	36.7	1.5	1610
30	0.75	7/0.37	1.1	0.7	2.0	34.0	1.4	1220	0.4	35.8	1.4	1590	1.5	39.2	1.6	1860
37	0.75	7/0.37	1.1	0.7	2.1	36.9	1.5	1450	0.4	38.7	1.5	1860	1.6	42.3	1.6	2170
48	0.75	7/0.37	1.1	0.7	2.3	42.8	1.7	1910	0.4	44.6	1.7	2380	1.7	48.4	1.8	2760

* NOTE - 1T: 3CORE / 1Q: 4CORE

Telephone Cable

Collective screen

[FA-] TTYCS, TTYCYS

[FA-] TTPYCS, TTPYCYS

**Voltage rating:** 250V**Maximum conductor temperature:** 85°C for TTPY-type / 60°C for TTY-type**Applied Standard**

-JIS C 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction**Conductor :** Annealed stranded copper, class 2 according to IEC 60228(Tinned copper for TTPY-type)**Insulation :** 85°C EPR for TTPY-type / 60°C PVC for TTY-type**Filler:** Non-hygroscopic material**Shield:** Tinned copper wire braid**Sheath:** PVC**Armor:** Galvanized steel wire braid

(For armored and non-protective covering type cables

: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 24. ① 250V (FA-) TTYCS, TTPYCS ② 250V (FA-) TTYCYS, TTPYCYS

No. of pairs	Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① (FA-) TTYCS,			Thick. of covering	② (FA-) MPYCY-S		
	Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km
1	0.75	7/0.37	1.1	0.7	0.14	1.1	8.8	0.3	10.1	0.4	180	0.9	12.1	0.5	230
1T	0.75	7/0.37	1.1	0.7	0.14	1.1	9.3	0.3	10.6	0.4	205	0.9	12.6	0.5	255
1Q	0.75	7/0.37	1.1	0.7	0.14	1.1	10	0.3	11.3	0.5	230	0.9	13.3	0.5	285
2	0.75	7/0.37	1.1	0.7	0.16	1.2	13	0.3	14.6	0.7	230	1.0	16.7	0.7	285
4	0.75	7/0.37	1.1	0.7	0.16	1.3	15	0.3	16.3	0.7	405	1.0	18.5	0.7	490
7	0.75	7/0.37	1.1	0.7	0.16	1.4	17.7	0.3	19.0	0.7	545	1.1	21.4	0.9	650
10	0.75	7/0.37	1.1	0.7	0.18	1.6	22.8	0.3	24.1	1.0	800	1.2	26.7	1.1	945
14	0.75	7/0.37	1.1	0.7	0.18	1.6	24.4	0.3	25.7	1.0	935	1.2	28.3	1.1	1090
19	0.75	7/0.37	1.1	0.7	0.18	1.8	27.5	0.3	28.8	1.2	1160	1.3	31.6	1.3	1340
24	0.75	7/0.37	1.1	0.7	0.2	2.0	33.1	0.4	34.9	1.4	1600	1.5	38.3	1.5	1860
30	0.75	7/0.37	1.1	0.7	0.26	2.1	35.5	0.4	37.3	1.5	1950	1.5	40.7	1.6	2230
37	0.75	7/0.37	1.1	0.7	0.26	2.2	38.4	0.4	40.2	1.6	2250	1.6	43.8	1.7	2570
48	0.75	7/0.37	1.1	0.7	0.26	2.4	44.3	0.4	46.1	1.7	2830	1.8	50.1	1.8	3240

* NOTE - 1T : 3CORE / 1Q : 4CORE

Telephone Cable

Individual screen

[FA-] TTYC-S, TTYCY-S

[FA-] TTPYC-S, TTPYCY-S



Voltage rating: 250V

Maximum conductor temperature: 85°C for TTPY-type / 60°C for TTY-type

Applied Standard

-JISC 3410-1999

-IEC 60092-350

-IEC 60332-1

-IEC 60332-3 Cat.AF(for FA-type)

Cable Construction

Conductor : Annealed stranded copper, class 2 according to IEC 60228(Tinned copper for TTPY-type)

Insulation : 85°C EPR for TTPY-type / 60°C PVC for TTY-type

Filler: Non-hygroscopic material

Shield: Tinned copper wire braid

Sheath: PVC

Aarmor: Galvanized steel wire braid
(For armored and non-protective covering type cables
: The white paint shall be painted uniformly on the armor.)

Protective covering: PVC

Table 25. ① 250V (FA-) TTYC-S, TTPYC-S ② 250V (FA-) TTYCY-S, TTPYCY-S

No. of pairs	Conductor			Thick. of insulation	Dia. of shield wire	Thick. of sheath	Dia. over sheath	Dia. of steel wire	① (FA-) TTYC-S, TTPYC-S			Thick. of covering	② (FA-) TTYCY-S, TTPYCY-S		
	Size	Construction	O.D						Nom. overall dia.	Tolerance	Cable weight		Nom. overall dia.	Tolerance	Cable weight
Nos.	SQ	Nos./mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg / Km	mm	mm	mm	Kg / Km
2	0.75	7/0.37	1.1	0.7	0.14	1.3	14.4	0.3	16.0	0.7	320	1.0	18.1	0.8	375
4	0.75	7/0.37	1.1	0.7	0.14	1.4	17.4	0.3	18.7	0.7	490	1.1	21.1	0.8	595
7	0.75	7/0.37	1.1	0.7	0.14	1.5	20.9	0.3	22.2	0.9	690	1.2	24.8	1.0	825
10	0.75	7/0.37	1.1	0.7	0.14	1.8	27.4	0.3	28.7	1.1	1070	1.3	31.5	1.3	1250
14	0.75	7/0.37	1.1	0.7	0.14	1.8	29.8	0.3	31.1	1.2	1400	1.4	34.1	1.4	1610
19	0.75	7/0.37	1.1	0.7	0.14	2.0	33.6	0.4	35.4	1.4	1780	1.5	38.8	1.6	2050
24	0.75	7/0.37	1.1	0.7	0.14	2.2	39.8	0.4	41.6	1.6	2300	1.6	45.2	1.7	2640
30	0.75	7/0.37	1.1	0.7	0.14	2.3	42.4	0.4	44.2	1.7	2680	1.7	48.0	1.8	3060
37	0.75	7/0.37	1.1	0.7	0.14	2.4	46.0	0.4	47.8	1.8	3170	1.8	51.8	1.9	3600
48	0.75	7/0.37	1.1	0.7	0.14	2.7	53.3	0.4	55.1	1.9	4090	2.0	59.5	2.0	4630

* NOTE - 1T : 3CORE / 1Q : 4CORE

Technical Information

Conductor Resistance

Resistance Formula

$$R = \frac{\rho L}{A}$$

R : Resistance in ohm per phase

ρ : Specific resistance $\frac{\text{ohm} \cdot \text{mm}^2}{\text{m}}$

$\rho = 0.017241$ for copper

$\rho = 0.0280$ for aluminum

A : Conductor area, mm^2

L : Conductor length, m

Resistance as a Function of Temperature

R : $R_0 \{1 + \alpha(t - 20)\}$

R_0 : Resistance at $t = 20^\circ\text{C}$

t : Conductor temperature $^\circ\text{C}$

$\alpha = 0.00393$ for copper

$\alpha = 0.00403$ for aluminum

CONDUCTOR RESISTANCE AND INSULATION RESISTANCE

Nominal Conductor area	No. of wires and diameter of wires	Approx. diameter	Conductor resistance at 20°C	Insulation resistance at 20°C
mm ²	No. / mm	mm	ohm / Km	Mohm - Km
0.75	7/0.37	1.1	24.8	1600(1300)
1	7/0.44	1.3	18.2	1500(1200)
1.5	7/0.53	1.6	12.2	1300
2.5	7/0.67	2.1	7.56	1100
4	7/0.85	2.6	4.70	900
6	7/1.04	3.1	3.11	800
10	7/1.35	4.1	1.84	700
16	7/1.70	5.1	1.16	600
25	7/2.14	6.4	0.734	500
35	7/2.52	7.6	0.529	450
50	19/1.78	8.9	0.391	450
70	19/2.14	10.7	0.270	450
95	19/2.52	12.5	0.195	400
120	37/2.03	14.2	0.154	350
150	37/2.25	15.8	0.126	350
185	37/2.52	17.7	0.100	350
240	61/2.25	20.3	0.0762	350
300	61/2.52	22.7	0.0607	350
400	61/2.85	25.7	0.0475	300
500	61/3.20	28.8	0.0369	300
630	127/2.52	32.8	0.0286	300

Note. the values of () are given for 250V EPR insulated cables.

Technical Information

Current ratings

For power cables, the current ratings are given in the following table:

(at 45°C)

Conductor area m m2	Single core Amp	Two Core Amp	Two Core Amp
0.5	10	8.5	7
0.75	13	11	9
1.0	16	14	11
1.5	20	17	14
2.5	28	24	20
4	38	32	27
6	48	41	34
10	67	57	47
16	90	76	63
25	120	100	84
35	145	125	102
50	180	155	126
70	225	190	158
95	275	235	193
120	320	272	224
150	365	310	256
185	415	353	291
240	490	-	-
300	560	-	-
400	680	-	-
500	780	-	-
630	900	-	-

For control cables, the current ratings are given by the following formula :

(at 45°C)

$$I = \frac{I_1}{\sqrt[3]{N}}$$

I_1 : Current for single Core

N : No. of Cores

No. of cores	1 m m ² A m p
2	2
4	4
7	7
12	12
19	19
27	27
37	37
44	44
77	77

The tabled current ratings must be adjusted for ambient air temperature other than 45°C, Appropriate rating factors are :

Ambient temperature°C	25	30	35	40	45	50	55	60	65	70	75
Rating factor	1.22	1.17	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61	0.5

Technical Information

Short circuit rating

The following short circuit currents are for cables operating normally at a maximum conductor temperature of 85°C.

The theoretical temperature that arises in the conductor during a short circuit, which is used as a basis of the calculation, is 250°C. EPR and XLPE - insulation are capable of withstanding short term temperatures up to 250°C.

The short circuit currents for copper conductors given in the table are values for one second, for other durations the current may be calculated from the following formula :

$$I_t = \frac{I}{\sqrt{t}}$$

I_t = short circuit current for t sec. [A]

I = short circuit current for one sec. [A]

t = short circuit duration (sec.)

The duration of the short circuit based on these assumptions should be between 0.2 sec. and 10 sec.

Conductor area mm ²	Conductor area mm ²	Conductor area mm ²	Conductor area mm ²
1.0	140	70	9,800
1.5	210	95	13,300
2.5	350	120	16,800
4	560	150	21,000
6	840	185	25,900
10	1,400	240	33,600
16	2,240	300	42,000
25	3,500	400	56,000
35	4,900	500	70,000
50	7,000	630	88,200

Reactance

The reactance of a cable operating in an AC system depends on many factors, including, in particular, the axial spacing between conductors and the proximity and magnetic properties of adjacent steelwork. The former is known for multicore cable, but may vary for single core cables depending upon the spacing between them and their disposition when installed.

Reactances of cables in certain dispositions remote from steelwork are calculable and are shown.

The tabulated values are for cables with circular conductors.

The value for a sector-shaped conductor should be taken as 90% of the tabulated value.

The value of reactance so calculated is for a supply frequency of 60 Hz. For any other frequency, a correction should be made in direct proportion to the frequency.

For example at 50Hz, the reactance is 0.83 times that at 60Hz.

Induction for 2- and 3-conductor cables is given by the formula :

$$L = 0.2 \left(\ln \frac{2a}{d} + 0.25 \right) \cdot 10^{-6}$$

L = induction in H/m and phase.

a = axial space between conductors in

d = conductor diameter in mm

Reactance for 2- and 3-conductor cables is given by the formula :

$$X = 2 \pi \cdot L \cdot l$$

X = reactance in ohm pr. phase

L = induction in H/m and phase

f = frequency in Hz

l = conductor length in m.

Conductor area mm ²	Reactance (X) Ω /km
1.5	0.113
2.5	0.104
4	0.097
6	0.092
10	0.086
16	0.081
25	0.080
35	0.077
50	0.077
70	0.076
95	0.074
120	0.073
150	0.073
185	0.073

Technical Information

Impedance

Impedance for 2-and 3-conductor cables is given by the formula :

$$Z = \sqrt{R^2 + X^2}$$

Z = impedance in ohm pr. phase

R = resistance at operating temp. in ohm pr. phase

X = reactance in ohm pr. phase.

Conductor area mm ²	Reactance [Z] Ω /km
1.5	15.317
2.5	9.492
4	5.901
6	3.905
10	2.312
16	1.459
25	0.925
35	0.669
50	0.497
70	0.347
95	0.256
120	0.207
150	0.174
185	0.145

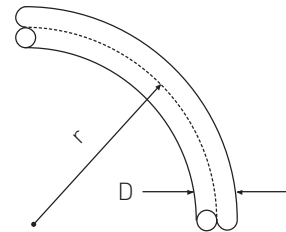
Installations recommendations Minimum cable bending radius

The internal radius of cable bends which are not subjected to movements by expansion, is not to be less than :

6 times the external diameter of cable

Cable which are subjected to movements by expansion and the high voltage cable are to be bent to a form of at least 12 times cable diameter.

r : radius
D : external diameter



Installations temperature

Minimum recommended temperature of installations :

-10°C Ship wiring cable with PVC sheath

-20°C Elastomeric on/off shore cables

Technical Information

Voltage drop coefficient

The voltage drop coefficients in each circuit are given in the following table:

[at 50Hz]

Voltage	Dielectric power factor	100	95	90	85	80	75	70	Inductance [mH/km]
	size[mm ²]	Voltage drop coefficient							
250V	0.75	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.353
	1	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.336
	1.5	1.00	0.95	0.90	0.85	0.80	0.75	0.71	0.354
	2.5	1.00	0.95	0.90	0.86	0.81	0.76	0.71	0.327
	4	1.00	0.96	0.91	0.86	0.81	0.76	0.71	0.306
	6	1.00	0.96	0.91	0.86	0.81	0.77	0.72	0.289
	10	1.00	0.96	0.92	0.87	0.82	0.77	0.73	0.270
	16	1.00	0.97	0.92	0.88	0.83	0.79	0.74	0.256
	25	1.00	0.98	0.94	0.90	0.85	0.81	0.76	0.253
	0.6/1kV	35	1.00	0.99	0.95	0.91	0.87	0.83	0.78
50		1.00	1.00	0.97	0.93	0.89	0.85	0.81	0.245
70		1.00	1.02	1.00	0.97	0.93	0.90	0.86	0.243
95		1.00	1.04	1.03	1.01	0.98	0.95	0.92	0.236
120		1.00	1.07	1.06	1.05	1.03	1.00	0.97	0.231
150		1.00	1.09	1.10	1.09	1.08	1.05	1.03	0.232
185		1.00	1.13	1.15	1.15	1.15	1.13	1.11	0.231
240		1.00	1.19	1.23	1.25	1.25	1.25	1.24	0.229
300		1.00	1.24	1.31	1.35	1.36	1.37	1.37	0.228

Type approval Certificates

ABS



GL



DNV



LR



BV



NK



KR



RINA



ISO Certificates

UNDERWRITERS LABORATORIES INC.
CERTIFICATE OF REGISTRATION

ISO 9001

LS Cable Ltd.

Gumi Plant 190 Gongdan-Dong Gumi-Si Gyeongbuk 730-708 Korea	Anyang Plant 555 Hogae-Dong Dongan-Gu Anyang-Si, Gyeonggi-Do 430-080 Korea	Indong Plant 643 Jinpyeong-Dong Gumi-Si Gyeongbuk 730-360 Korea
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Underwriters Laboratories Inc.® (UL) issues this certificate to the Firm named above, after assessing the Firm's quality system and finding it in compliance with

ISO 9001:2000

EN ISO 9001:2000, BS EN ISO 9001:2000, ANSI/ASQ Q9001:2000, KS A 9001:2001

for the following scope of registration

3137 (US) :	Drawing and Insulating of Nonferrous Wire
3643 (US) :	Current-Carrying Wiring Devices
3089 (US) :	Fabricated Rubber Products, Not Elsewhere Classified
3449 (US) :	Miscellaneous Structural Metal Work
3351 (US) :	Rolling, Drawing and Extruding of Copper
3081 (US) :	Unsupported Plastics Film and Sheet
3613 (US) :	Switchgear and Switchboard Apparatus
3354 (US) :	Aluminum Extruded Products
3355 (US) :	Aluminum Rolling and Drawing, Not Elsewhere Classified

The design and manufacture of copper telecommunication cables, power cables, power cable accessories, control cables, nuclear power plant cables, rubber floorings, vibration absorbent rubbers, connectors for electronic equipment, overhead AL conductors, OPGW (optical fiber composite ground wires), anisotropic conductive films for display material, appliance wiring materials, busduct systems and aluminum extruded products for industrial applications.

The manufacture of magnet wires, bare conductors, copper rods and aluminum products for curtain walls.

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization.

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of Underwriters Laboratories Inc.®.

File Number:	A1690	Volume:	1
Original Certification Date:	July 16, 1993		
ISO 9001:2000 Issue Date:	November 25, 2001		
Revision Date:	July 11, 2005		
Renewal Date:	November 24, 2007		

Gejeon Jeusdas
 Chief Operating Officer

UNDERWRITERS LABORATORIES INC.
ENVIRONMENTAL MANAGEMENT SYSTEM REGISTRATION

ISO 14001

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Underwriters Laboratories Inc.® (UL) issues this certificate to the Firm named above, after assessing the Firm's environmental management system and finding it in compliance with

ISO 14001:1996

ENVIRONMENTAL MANAGEMENT SYSTEM
KS A 14001:2001

for the following scope of registration

The environmental management system of LS Cable Ltd. associated with the design and manufacture of rubber insulated cables, rubber floorings and vibration absorbent rubbers, electronic wires and cables, busduct, low voltage electric cables, connectors for electronic equipment, extruded tubing, electronic materials and magnet wires and the manufacture of automotive wires, lead frames for semiconductor industry and bare wires at Anyang-Si, Gyeonggi-do, Korea.

This environmental management system registration is included in UL's Directory of Registered Firms and applies to the operations of the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of Underwriters Laboratories Inc.®.



File Number:	A5119	Volume:	1
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ISO 14001 Issue Date:	January 30, 1997		
Revision Date:	April 24, 2005		
Renewal Date:	January 29, 2007		

S. Joe Dhalla
 Executive Vice President, International






Safety-related Instruction

The following safety-related instructions are to help you use products safely and precisely, and to prevent unexpected danger or damage.







According to the extent of risk, damage and emergency of risk occurrence anticipated when products are incorrectly used, the safety-related instructions are classified as follows;

	Warning	In case of using products incorrectly by ignoring this indication, it is possible to anticipate mortality risks or severe wounds.
	Caution	In case of using products incorrectly by ignoring this indication, it is possible to anticipate slight wounds or property damage.

Warning

-  It may be the cause of a fire or damage by a fire.
Do not use in excess of a rated voltage and an allowable current.
-  It may be the cause of an electric shock.
Do not conduct connection operations when power is on.
-  It may be the cause of a fire or an electric shock.
Do not disassemble or convert products.
-  It may be the cause of a fire or damage by a fire.
Keep heat-resisting temperature of cable, considering the environment of using.
-  Be sure to earth an screened products.

Caution

-  Cable is not untied.
Pile up drums after making them stand.
-  It may be the cause of damage to a cable.
When you hand a drum on the crane, keep sufficient length to the extent that an angle of the wire can be under 60 degrees.
-  It may be the cause of disconnection or breakdown of a cable.
Keep the permissible pulling tension and radius of bend.
-  It may be the cause of damage to a cable.
Do not drop a drum.
Use an A-frame carrier or a crane.
-  It may be the cause of damage to a cable.
In case of processing the terminal of cable, keep water from percolating.
-  It may be the cause of damage to a cable.
Do not use except its fixed purpose according to each kind of cable.

- Before using products, read these instructions.
- Use products after verifying indefinite details besides the above descriptions from company.
- keep this safety-related instructions in the place it can always be seen by users after reading it.

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