JS Cable

Shipboard Cables

JIS C 3410(1999) / IEC 60092-350

JS Cable

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■ Products & Systems of JS Cable

Marine & Offshore Cables

Rubber & Specialty Cables

Electric Cables

Data Cables

Copper Rod

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JS Cable

The Innovative Challenger For
Your Dream

P r e f a c e

A new beginning to deliver the dream of customers - JS Cable

A new name of endless innovation and creative ideas - JS Cable

Since its foundation in 1968, JS Cable has been a pioneer in rubber cable industry and known for its excellence in quality and technology.

JS Cable is a world class leader in shipboard and offshore cable products with state of art facilities. We pursue global standard quality, safety and health and environment with full compliance of ISO 9001 (Quality Management), ISO 14001 (Environment Management) and OHSAS 18001 (Safety and Healthy working Environment Management) standards.

We continue to strive for a pace setter in cable manufacturing industry by implementing state of art R&D Center, best practice HR Program, and a new ERP initiative.

A mission to deliver light, energy, and information to global communities - JS Cable

A great leap into the future, relentless pursue for customer value - JS Cable

With our customers, we devote our full attention to make a better world tomorrow.

■ Products & Systems of JS Cable

Marine & Offshore Cables

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Electric Cables

Data Cables

Copper Rod

We supply our best quality products to markets all over the world.

Company **Profile**

1968 The company incorporated in the name of YONHAP CABLE CO., LTD.

1978 Designated as a specialized factory for shipbuilding materials & equipment.

1984 Stock listed for public subscription.

1987 Moved to new constructed factory site located in Cheon-An

1990 Communication cable plant completed in Mokchon.

1992 Operation of the copper smelting furnace plant commenced.

1995 ISO 9001 certification acquired. (LRQA)

2000 LAN cable production line started its commercial operation.

2001 TL (Telecommunication Leadership) 9000 certification acquired(LRQA).
ETL for IEEE 45 Type P Off-shore and Marine structure cables acquired.
UL for UL 1309 Type Off-shore and Marine structure cables acquired.

2002 Korean World Class Products Award for Marine Cable in 2002
(Minister of Commerce, Industry and Energy Republic of Korea)

2004 ISO 14001 certification acquired(LRQA).

2005 OHSAS 18001 certification acquired(LRQA).
The corporate governance of the company acquired by LS Group



Cotents

Construction Tables of Shipboard Cables

1. 0.6 /1kV Power and Lighting use : Normal Condition

Overall Diameter	Symbol	Table No.
Single core, EPR insulated, PVC sheathed and steel wire braided cable	0.6/1kV SPYC	1
Single core, EPR insulated, PVC sheathed and steel wire braided cable with protective covering	0.6/1kV SPYCY	
Single core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable	0.6/1kV FA-SPYC	
Single core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with protective covering	0.6/1kV FA-SPYCY	
Double core, EPR insulated and PVC sheathed cable	0.6/1kV DPY	2
Double core, EPR insulated and PVC sheathed and steel wire braided cable	0.6/1kV DPYC	
Double core, EPR insulated and PVC sheathed and steel wire braided cable with protective covering	0.6/1kV DPYCY	
Double core, EPR insulated and PVC sheathed flame retardant cable	0.6/1kV FA-DPY	
Double core, EPR insulated and PVC sheathed steel wire braided flame retardant cable	0.6/1kV FA-DPYC	
Double core, EPR insulated and PVC sheathed steel wire braided flame retardant cable with protective covering	0.6/1kV FA-DPYCY	
Three core, EPR insulated and PVC sheathed cable	0.6/1kV TPY	3
Three core, EPR insulated, PVC sheathed and steel wire braided cable	0.6/1kV TPYC	
Three core, EPR insulated, PVC sheathed and steel wire braided cable with protective covering	0.6/1kV TPYCY	
Three core, EPR insulated and PVC sheathed flame retardant cable	0.6/1kV FA-TPY	
Three core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable	0.6/1kV FA-TPYC	
Three core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with protective covering	0.6/1kV FA-TPYCY	
Double core, EPR insulated, PVC sheathed and steel wire braided cable with common shield	0.6/1kV DPYCS	4
Double core, EPR insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	0.6/1kV DPYCYS	
Three core, EPR insulated, PVC sheathed and steel wire braided cable with common shield	0.6/1kV TPYCS	
Three core, EPR insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	0.6/1kV TPYCYS	
Double core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with common shield	0.6/1kV FA-DPYCS	
Double core, EPR insulated, PVC sheathed, steel wire braided and protective covered flame retardant cable with common shield	0.6/1kV FA-DPYCYS	
Three core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with common shield	0.6/1kV FA-TPYCS	
Three core, EPR insulated, PVC sheathed, steel wire braided and protective covered flame retardant cable with common shield	0.6/1kV FA-TPYCYS	

2. 0.6/1kV Power and Lighting Use : High Temperature

Type of Cable	Symbol	Table No.
Double core, Silicone rubber insulated and steel wire braided cable	0.6/1kV DSRC	5
Three core, Silicone rubber insulated and steel wire braided cable	0.6/1kV TSRC	
Double core, Silicone rubber insulated and steel wire braided flame retardant cable	0.6/1kV FA-DSRC	
Three core, Silicone rubber insulated and steel wire braided flame retardant cable	0.6/1kV FA-TSRC	

3. 250V Control and Signal Use : Normal Condition

Type of Cable	Symbol	Table No.
Multi core, EPR insulated and PVC sheathed cable	250V MPY	6
Multi core, EPR insulated, PVC sheathed and steel wire braided cable	250V MPYC	
Multi core, EPR insulated, PVC sheathed and steel wire braided cable with protective covering	250V MPYCY	
Multi core, EPR insulated and PVC sheathed flame retardant cable	250V FA-MPY	
Multi core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable	250V FA-MPYC	
Multi core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with protective covering	250V FA-MPYCY	
Multi core, EPR insulated, PVC sheathed and steel wire braided cable with common shield	250V MPYCS	7
Multi core, EPR insulated, PVC sheathed, steel wire braided and protective covered cable with common shield	250V MPYCYS	
Multi core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with common shield	250V FA-MPYCS	
Multi core, EPR insulated, PVC sheathed, steel wire braided and protective covered flame retardant cable with common shield	250V FA-MPYCYS	
Multi core, EPR insulated, PVC sheathed and steel wire braided cable with individual shield	250V MPYC-S	8
Multi core, EPR insulated, PVC sheathed, steel wire braided and protective covered cable with individual shield	250V MPYCY-S	
Multi core, EPR insulated, PVC sheathed and steel wire braided flame retardant cable with individual shield	250V FA-MPYC-S	
Multi core, EPR insulated, PVC sheathed, steel wire braided and protective covered flame retardant cable with individual shield	250V FA-MPYCY-S	

4. 250V Telephone and Instrumentation Use

Type of Cable	Symbol	Table No.
PVC insulated and PVC sheathed telephone cable	250V TTY	9
PVC insulated, PVC sheathed and steel wire braided telephone cable	250V TTYC	
PVC insulated, PVC sheathed and steel wire braided telephone cable with protective covering	250V TTYCY	
PVC insulated and PVC sheathed flame retardant telephone cable	250V FA-TTY	
PVC insulated, PVC sheathed and steel wire braided flame retardant telephone cable	250V FA-TTYC	
PVC insulated, PVC sheathed and steel wire braided flame retardant telephone cable with protective covering	250V FA-TTYCY	
PVC insulated, PVC sheathed and steel wire braided telephone cable with common shield	250V TTYCS	10
PVC insulated, PVC sheathed, steel wire braided and protective covered telephone cable with common shield	250V TTYCYS	
PVC insulated, PVC sheathed and steel wire braided flame retardant telephone cable with common shield	250V FA-TTYCS	
PVC insulated, PVC sheathed, steel wire braided and protective covered flame retardant telephone cable with common shield	250V FA-TTYCYS	
PVC insulated, PVC sheathed and steel wire braided telephone cable with individual shield	250V TTYC-S	11
PVC insulated, PVC sheathed and steel wire braided, protective covered telephone cable with individual shield	250V TTYCY-S	
PVC insulated, PVC sheathed and steel wire braided flame retardant telephone cable with individual shield	250V FA-TTYC-S	
PVC insulated, PVC sheathed, steel wire braided and protective covered flame retardant telephone cable with individual shield	250V FA-TTYCY-S	

5. 0.6/1kV Portable or Flexible Use

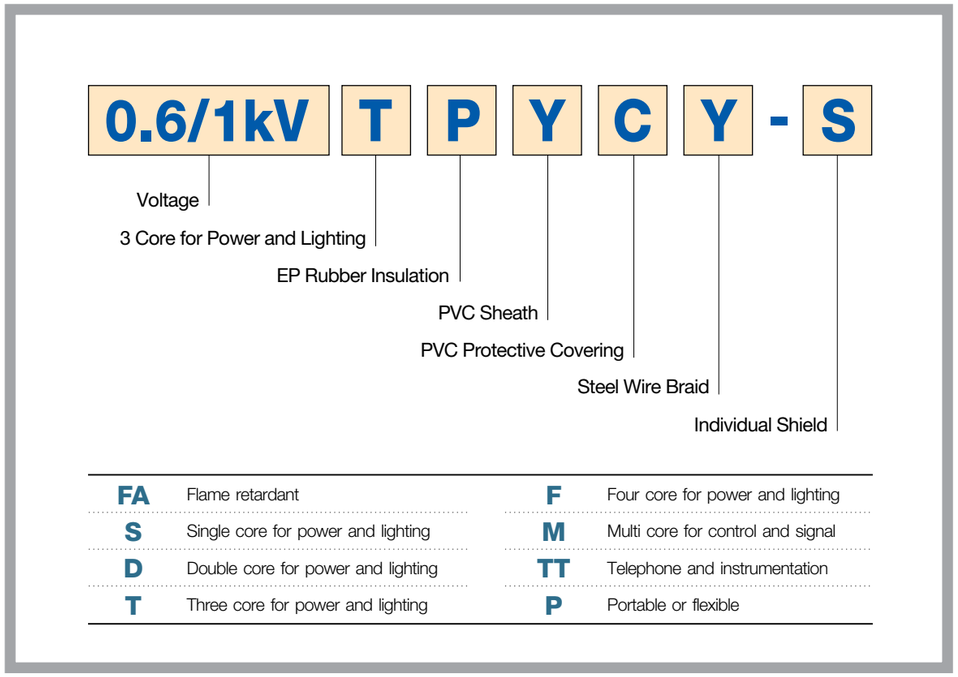
Type of Cable	Symbol	Table No.
Double core, EPR insulated and PCP sheathed flexible cord	0.6/1kV DPNP	12
Three core, EPR insulated and PCP sheathed flexible cord	0.6/1kV TPNP	
Four core, EPR insulated and PCP sheathed flexible cord	0.6/1kV FPNP	
Single core, FR-XLPE insulated switchboard wire	0.6/1kV SCP	13
Single core, PVC insulated wire for controlling machines and apparatus	0.6/1kV SYP	14

Note 1. 0.6/1kV means rated voltage of cable
0.6kV : Ground Voltage (a.c.) 1kV : Line Voltage (a.c.)
2. Abbreviation
EPR : Ethylene propylene rubber PVC : Polyvinyl chloride
PCP : Polychloroprene FR-XLPE : Flame retardant cross-linked polyethylene
3. The meaning of letterings used in the symbols in above Tables are as following Table 1 and 2.

Types of Shipboard Cables

Table 1. Symbols of Number of Core and Main Use

Example



FA	Flame retardant	**F**	Four core for power and lighting
S	Single core for power and lighting	**M**	Multi core for control and signal
D	Double core for power and lighting	**TT**	Telephone and instrumentation
T	Three core for power and lighting	**P**	Portable or flexible

Table 2. Symbols of Material

Insulation		Sheath		Armouring		Protective covering		Otherwise	
P	EP Rubber	**Y**	PVC	**C**	Steel Wire	**Y**	PVC	**S**	Common Shield
SR	Silicone Rubber	**N**	PCP	**CB**	Copper Alloy Wire			**-S**	Individual Core or Pair Shield
Y	PVC							**E**	Earth Wire
C	FR-XLPE								

Note 1. For telephone cable, the insulation symbols are omitted.
2. For EPR insulated cable, sheath shall be made of PVC. In case of PCP sheath, letter "N" shall be substituted for letter "Y".
3. Wire braid shall be made of steel wire. In case of copper alloy wire braid, Letter "CB" shall be substituted for letter "C".
4. In case of cable with earth wire, add a letter "E" to cable symbol.

Shipboard Cables

JIS C 3410(1999) / IEC 60092 - 350

Types of Shipboard Cables Conforming to JIS C-3410(1999)

JS Cable

- Maximum rated conductor temperature : 85℃

Power and Lighting Cables

Normal Condition Use

TABLE 1

0.6 / 1kV EP Rubber Insulated PVC Sheathed Cables-Armoured Flame Retardant

Conductor

Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation

EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering

Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour

Braided galvanized steel wire in accordance with JIS C 3410

Paint

In case of protective covering cable, paint is dispensable

Tests

Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

Single Conductor

Conductor Size		Nominal Dia. over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)		Current Carrying Capacity (Max.) at 45℃
			SPYC FA-SPYC		SPYCY FA-SPYCY			SPYC FA-SPYC	SPYCY FA-SPYCY	
mm^2	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km		A
1.5	7/0.52	5.9	7.2	0.4	9.0	0.4	1,300	100	135	20
2.5	7/0.67	6.3	7.6	0.4	9.4	0.4	1,100	120	150	28
4	7/0.85	6.9	8.2	0.4	10.0	0.4	900	140	175	38
6	7/1.04	7.4	8.7	0.4	10.5	0.4	800	170	205	48
10	7/1.35	8.6	9.9	0.4	11.7	0.5	700	225	270	67
16	7/1.70	9.6	10.9	0.4	12.9	0.5	600	300	350	90
25	7/2.14	11.5	12.8	0.5	14.8	0.6	500	425	485	120
35	7/2.52	12.7	14.0	0.6	16.2	0.6	450	535	605	145
50	19/1.78	14.6	15.9	0.6	18.1	0.7	450	695	775	180
70	19/2.14	17.2	18.5	0.7	20.9	0.8	450	960	1,080	225
95	19/2.52	19.3	20.6	0.8	23.0	0.9	400	1,250	1,360	275
120	37/2.03	20.9	22.2	0.9	24.8	1.0	350	1,510	1,650	320
150	37/2.25	23.1	24.4	1.0	27.0	1.1	350	1,830	1,980	365
185	37/2.52	25.5	26.8	1.1	29.6	1.2	350	2,250	2,420	415
240	61/2.25	28.8	30.1	1.2	33.1	1.3	350	2,910	3,110	490
300	61/2.52	31.8	33.6	1.3	36.6	1.5	350	3,680	3,910	560

- Maximum rated conductor temperature : 85℃

Power and Lighting Cables
Normal Condition Use

TABLE 2
0.6 / 1kV EP Rubber Insulated PVC Sheathed Cables-Armoured Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

Two Conductor

Conductor Size		Overall Diameter						Insulation Resistance (20℃)	Weight (Approx.)			Current Carrying Capacity (Max.) at 45℃
		DPY FA-DPY		DPYC FA-DPYC		DPYCY FA-DPYCY			DPY FA-DPY	DPYC FA-DPYC	DPYCY FA-DPYCY	
mm²	Stranding	mm	±mm	mm	±mm	mm	±mm	MΩ • km	kg/km			A
1.5	7/0.52	10.4	0.5	11.7	0.5	13.7	0.5	1,300	120	205	260	17
2.5	7/0.67	11.5	0.5	12.8	0.5	14.8	0.6	1,100	155	250	310	24
4	7/0.85	12.6	0.6	13.9	0.6	15.9	0.6	900	200	300	365	32
6	7/1.04	13.9	0.6	15.2	0.6	17.4	0.7	800	255	370	445	41
10	7/1.35	15.8	0.7	17.1	0.7	19.3	0.8	700	360	490	575	57
16	7/1.70	18.1	0.8	19.4	0.8	21.8	0.9	600	515	660	765	77
25	7/2.14	21.7	0.9	23.0	0.9	25.6	1.0	500	770	945	1,080	102
35	7/2.52	24.2	1.0	25.5	1.0	28.1	1.1	450	1,010	1,200	1,350	123
50	19/1.78	28.1	1.2	29.4	1.2	32.2	1.3	450	1,360	1,580	1,770	153
70	19/2.14	33.3	1.4	35.1	1.4	38.5	1.5	450	1,930	2,300	2,570	191
95	19/2.52	37.3	1.6	39.1	1.6	42.7	1.6	400	2,550	2,960	3,280	234
120	37/2.03	40.9	1.6	42.7	1.6	46.5	1.7	350	3,150	3,600	3,970	272
150	37/2.25	45.0	1.7	46.8	1.7	50.8	1.8	350	3,840	4,330	4,750	310
185	37/2.52	50.0	1.9	51.8	1.9	56.0	1.9	350	4,780	5,330	5,810	353

- Maximum rated conductor temperature : 85℃

Power and Lighting Cables
Normal Condition Use

TABLE 3
0.6 / 1kV EP Rubber Insulated PVC Sheathed Cables-Armoured Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

Three Conductor

Conductor Size		Overall Diameter						Insulation Resistance (20℃)	Weight (Approx.)			Current Carrying Capacity (Max.) at 45℃
		TPY FA-TPY		TPYC FA-TPYC		TPYCY FA-TPYCY			TPY FA-TPY	TPYC FA-TPYC	TPYCY FA-TPYCY	
mm²	Stranding	mm	±mm	mm	±mm	mm	±mm	MΩ • km	kg/km			A
1.5	7/0.52	11.2	0.5	12.5	0.5	14.5	0.6	1,300	150	245	300	14
2.5	7/0.67	12.2	0.5	13.5	0.5	15.5	0.6	1,100	195	295	355	20
4	7/0.85	13.4	0.6	14.7	0.6	16.9	0.7	900	255	365	440	27
6	7/1.04	14.8	0.6	16.4	0.6	18.3	0.7	800	335	455	535	34
10	7/1.35	17.0	0.7	18.3	0.7	20.7	0.8	700	485	625	725	47
16	7/1.70	19.5	0.8	20.8	0.8	23.2	0.9	600	700	855	970	63
25	7/2.14	23.4	1.0	24.7	1.0	27.3	1.1	500	1,060	1,240	1,390	84
35	7/2.52	26.1	1.1	27.4	1.1	30.2	1.2	450	1,390	1,600	1,770	102
50	19/1.78	30.2	1.3	32.0	1.3	35.0	1.4	450	1,870	2,200	2,420	126
70	19/2.14	35.8	1.5	37.6	1.5	41.0	1.6	450	2,660	3,060	3,350	158
95	19/2.52	40.1	1.6	41.9	1.6	45.5	1.7	400	3,530	3,980	4,320	193
120	37/2.03	44.0	1.7	45.8	1.7	49.6	1.8	350	4,370	4,860	5,250	224
150	37/2.25	48.4	1.8	50.2	1.8	54.2	1.9	350	5,340	5,870	6,340	256
185	37/2.52	53.7	1.9	55.5	1.9	59.7	2.0	350	6,640	7,230	7,780	291

Power and Lighting Cables
Normal Condition Use

TABLE 4
0.6 / 1kV EP Rubber Insulated PVC Sheathed Armoured Cables-Common Shielded, Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 85℃

No. of Cores	Conductor Size		Nominal Dia. over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)		Current Carrying Capacity (Max.) at 45℃
				D(T)PYCS FA-D(T)PYCS		D(T)PYCYS FA-D(T)PYCYS			D(T)PYCS FA-D(T)PYCS	D(T)PYCYS FA-D(T)PYCYS	
	mm²	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km		A
2	1.5	7/0.52	11.3	12.6	0.5	14.6	0.6	1,300	265	325	17
	2.5	7/0.67	12.2	13.5	0.5	15.5	0.6	1,100	310	375	24
	4	7/0.85	13.4	14.7	0.6	16.9	0.7	900	380	455	32
3	1.5	7/0.52	11.9	13.2	0.5	15.2	0.6	1,300	305	365	14
	2.5	7/0.67	12.9	14.2	0.6	16.4	0.7	1,100	360	430	20
	4	7/0.85	14.4	15.7	0.6	17.9	0.7	900	455	535	27

Power and Lighting Cables
High Temperature Use

TABLE 5
0.6 / 1kV Silicone Rubber Insulated Armoured Cables, Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
Silicone rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 95℃

No. of Cores	Conductor Size		Thickness of Insulation	Overall Diameter		Insulation Resistance (20℃)	Weight (Approx.)	Current Carrying Capacity (Max.) at 45℃
				D(T)SRC FA-D(T)SRC				
	mm²	Stranding	mm	mm	±mm	MΩ • km	kg/km	A
2	1.5	7/0.52	1.0	11.3	0.5	600	230	20
	2.5	7/0.67	1.0	12.2	0.5	500	275	27
	4	7/0.85	1.0	13.3	0.5	400	335	36
3	1.5	7/0.52	1.0	12.0	0.5	600	260	17
	2.5	7/0.67	1.0	13.0	0.5	500	315	22
	4	7/0.85	1.0	14.2	0.6	400	395	29

Control and Signal Cables
Normal Condition Use

TABLE 6
250V EP Rubber Insulated PVC Sheathed Cables-Armoured Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 85℃

No. of Cores	Conductor Size		Overall Diameter						Insulation Resistance (20℃)	Weight (Approx.)			Current Carrying Capacity (Max.) at 45℃
			MPY FA-MPY		MPYC FA-MPYC		MPYCY FA-MPYCY			MPY FA-MPY	MPYC FA-MPYC	MPYCY FA-MPYCY	
	mm²	Stranding	mm	±mm	mm	±mm	mm	±mm	MΩ • km	kg/km			A
2	1	7/0.43	8.7	0.4	10.0	0.4	12.0	0.5	1,200	85	155	205	14
4	1	7/0.43	9.9	0.4	11.2	0.4	13.2	0.5	1,200	125	205	260	11
7	1	7/0.43	11.9	0.5	13.2	0.5	15.2	0.6	1,200	190	290	350	9
12	1	7/0.43	15.5	0.7	16.8	0.7	19.0	0.8	1,200	315	445	530	7
19	1	7/0.43	18.3	0.8	19.6	0.8	22.0	0.9	1,200	465	615	720	6
27	1	7/0.43	22.1	0.9	23.4	0.9	26.0	1.0	1,200	665	840	980	5
37	1	7/0.43	24.8	1.0	26.1	1.0	28.9	1.2	1,200	870	1,070	1,240	4
44	1	7/0.43	28.0	1.2	29.3	1.2	32.1	1.3	1,200	1,160	1,290	1,470	3
77	1	7/0.43	35.9	1.5	37.7	1.5	41.1	1.6	1,200	1,790	2,180	2,470	3

Control and Signal Cables
Normal Condition Use

TABLE 7
250V EP Rubber Insulated PVC Sheathed Cables-Armoured Common Shielded Flame Retardant

Conductor
Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Shield(Common)
Tinned copper wire braid shield shall be applied over the core assembly

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 85℃

No. of Cores	Conductor Size		Nominal Dia. Over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)		Current Carrying Capacity (Max.) at 45℃
				MPYCS FA-MPYCS		MPYCYS FA-MPYCYS			MPYCS FA-MPYCS	MPYCYS FA-MPYCYS	
	mm²	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km		A
2	1	7/0.43	9.4	10.7	0.4	12.7	0.5	1,200	205	255	14
4	1	7/0.43	10.6	11.9	0.5	13.9	0.6	1,200	260	315	11
7	1	7/0.43	12.6	13.9	0.6	15.9	0.6	1,200	355	420	9
12	1	7/0.43	16.3	17.6	0.7	19.8	0.8	1,200	540	625	7
19	1	7/0.43	19.3	20.6	0.8	23.0	0.9	1,200	735	850	6
27	1	7/0.43	23.0	24.3	1.0	26.9	1.1	1,200	995	1,140	5
37	1	7/0.43	25.7	27.0	1.1	29.8	1.2	1,200	1,240	1,410	4
44	1	7/0.43	28.9	30.2	1.2	33.2	1.3	1,200	1,480	1,680	3

Control and Signal Cables

Normal Condition Use

TABLE 8

250V EP Rubber Insulated PVC Sheathed Cables-Armoured Individual Shielded Flame Retardant

Conductor

Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation

EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Shield(Individual)

Tinned copper wire braid shield shall be applied over the each core.

Sheath & Protective Covering

Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour

Braided galvanized steel wire in accordance with JIS C 3410

Paint

In case of protective covering cable, paint is dispensable

Tests

Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 85℃

No. of Cores	Conductor Size		Nominal Dia. Over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)		Current Carrying Capacity (Max.) at 45℃
				MPYC-S FA-MPYC-S		MPYCY-S FA-MPYCY-S			MPYC-S FA-MPYC-S	MPYCY-S FA-MPYCY-S	
	mm^2	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km		A
2	1	7/0.43	9.9	11.2	0.4	13.2	0.5	1,200	210	260	14
4	1	7/0.43	11.6	12.9	0.5	14.9	0.6	1,200	300	360	11
7	1	7/0.43	13.9	15.2	0.6	17.4	0.7	1,200	435	515	9
12	1	7/0.43	18.2	19.5	0.8	21.9	0.9	1,200	685	795	7
19	1	7/0.43	21.5	22.8	0.9	25.4	1.0	1,200	980	1,120	6
27	1	7/0.43	26.0	27.3	1.1	30.1	1.2	1,200	1,360	1,540	5
37	1	7/0.43	29.2	30.5	1.2	33.5	1.3	1,200	1,760	1,970	4
44	1	7/0.43	33.2	35.0	1.4	38.4	1.5	1,200	2,240	2,500	3

Telephone and Instrumentation Cables

TABLE 9

250V PVC Insulated PVC Sheathed Cables-Armoured Flame Retardant

Conductor

Annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation

PVC insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath & Protective Covering

Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour

Braided galvanized steel wire in accordance with JIS C 3410

Paint

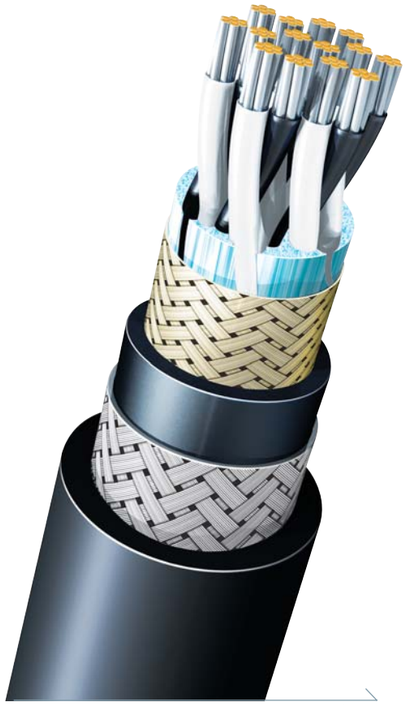
In case of protective covering cable, paint is dispensable

Tests

Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 60℃

No. of Pairs, Triads Quads	No. of Cores	Conductor Size		Overall Diameter						Insulation Resistance (20℃)	Weight (Approx.)		
				TTY FA-TTY		TTYC FA-TTYC		TTYCY FA-TTYCY			TTY FA-TTY	TTYC FA-TTYC	TTYCY FA-TTYCY
		mm^2	Stranding	mm	±mm	mm	±mm	mm	±mm	MΩ • km	kg/km		
1	2	0.75	7/0.37	7.9	0.4	9.2	0.4	11.0	0.4	300	70	130	170
1T	3	0.75	7/0.37	8.6	0.4	9.9	0.4	11.7	0.5	300	85	155	205
1Q	4	0.75	7/0.37	9.3	0.4	10.6	0.4	12.6	0.5	300	105	180	230
4	8	0.75	7/0.37	14.2	0.6	15.5	0.6	17.7	0.7	300	205	320	400
7	14	0.75	7/0.37	16.9	0.7	18.2	0.7	20.6	0.8	300	310	440	545
10	20	0.75	7/0.37	21.7	0.9	23.0	0.9	25.6	1.0	300	465	640	775
14	28	0.75	7/0.37	23.5	1.0	24.8	1.0	27.4	1.1	300	585	770	920
19	38	0.75	7/0.37	26.4	1.1	27.7	1.1	30.5	1.2	300	755	965	1,140
24	48	0.75	7/0.37	31.9	1.3	33.7	1.3	36.7	1.5	300	1,030	1,380	1,610
30	60	0.75	7/0.37	34.0	1.4	35.8	1.4	39.2	1.6	300	1,220	1,590	1,860
37	74	0.75	7/0.37	36.9	1.5	38.7	1.5	42.3	1.6	300	1,450	1,860	2,170
48	96	0.75	7/0.37	42.8	1.7	44.6	1.7	48.4	1.8	300	1,910	2,380	2,760



Telephone and Instrumentation Cables

TABLE 10

250V PVC Insulated PVC Sheathed Cables-Armoured Common Shielded Flame Retardant

Conductor
Annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
PVC insulation applied on the conductor
Core identification shall meet JIS C 3410

Shield(Common)
Annealed copper wire braid shield shall be applied over the pair assembly

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 60℃

No. of Pairs, Triads Quads	No. of Cores	Conductor Size		Nominal Dia. over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)	
					TTYCS FA-TTYCS		TTYCYS FA-TTYCYS			TTYCS FA-TTYCS	TTYCYS FA-TTYCYS
		mm²	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km	
1	2	0.75	7/0.37	8.8	10.1	0.4	12.1	0.5	300	180	230
1T	3	0.75	7/0.37	9.3	10.6	0.4	12.6	0.5	300	205	255
1Q	4	0.75	7/0.37	10.0	11.3	0.5	13.3	0.5	300	230	285
4	8	0.75	7/0.37	15.0	16.3	0.7	18.5	0.7	300	405	490
7	14	0.75	7/0.37	17.7	19.0	0.8	21.4	0.9	300	545	650
10	20	0.75	7/0.37	22.8	24.1	1.0	26.7	1.1	300	800	945
14	28	0.75	7/0.37	24.4	25.7	1.0	28.3	1.1	300	935	1090
19	38	0.75	7/0.37	27.5	28.8	1.2	31.6	1.3	300	1,160	1,340
24	48	0.75	7/0.37	33.1	34.9	1.4	38.3	1.5	300	1,600	1,860
30	60	0.75	7/0.37	35.5	37.3	1.5	40.7	1.6	300	1,950	2,230
37	74	0.75	7/0.37	38.4	40.2	1.6	43.8	1.7	300	2,250	2,570
48	96	0.75	7/0.37	44.3	46.1	1.7	50.1	1.8	300	2,830	3,240

Telephone and Instrumentation Cables

TABLE 11

250V PVC Insulated PVC Sheathed Cables-Armoured Individual Shielded Flame Retardant

Conductor
Annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
PVC insulation applied on the conductor
Core identification shall meet JIS C 3410

Shield (Individual)
Annealed copper wire braid shield shall be applied over the each pair

Sheath & Protective Covering
Both the PVC sheath applied over the cabled core and PVC protective covering over the armour are flame retardant.
The PVC complies with the JIS C 3410

Armour
Braided galvanized steel wire in accordance with JIS C 3410

Paint
In case of protective covering cable, paint is dispensable

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1(for normal type cable), IEC 60332-3 CAT 'A'(for "FA-" type cable)

- Maximum rated conductor temperature : 60℃

No. of Pairs	No. of Cores	Conductor Size		Nominal Dia. over Sheath	Overall Diameter				Insulation Resistance (20℃)	Weight (Approx.)	
					TTYC-S FA-TTYC-S		TTYCY-S FA-TTYCY-S			TTYC-S FA-TTYC-S	TTYCY-S FA-TTYCY-S
		mm²	Stranding	mm	mm	±mm	mm	±mm	MΩ • km	kg/km	
4	8	0.75	7/0.37	17.4	18.7	0.7	21.1	0.8	300	490	595
7	14	0.75	7/0.37	20.9	22.2	0.9	24.8	1.0	300	690	825
10	20	0.75	7/0.37	27.4	28.7	1.1	31.5	1.3	300	1,070	1,250
14	28	0.75	7/0.37	29.8	31.1	1.2	34.1	1.4	300	1,400	1,610
19	38	0.75	7/0.37	33.6	35.4	1.4	38.8	1.6	300	1,780	2,050
24	48	0.75	7/0.37	39.8	41.6	1.6	45.2	1.7	300	2,300	2,640
30	60	0.75	7/0.37	42.4	44.2	1.7	48.0	1.8	300	2,680	3,060
37	74	0.75	7/0.37	46.0	47.8	1.8	51.8	1.9	300	3,170	3,600
48	96	0.75	7/0.37	53.3	55.1	1.9	59.5	2.0	300	4,090	4,630

Portable or Flexible Cords

TABLE 12

0.6 / 1kV EP Rubber Insulated PCP Sheathed Flexible Cords

Conductor

Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation

EP rubber insulation applied on the conductor
Core identification shall meet JIS C 3410

Sheath

The PCP sheath applied over the cabled core
The PCP complies with the JIS C 3410

Tests

Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1

- Maximum rated conductor temperature : 85℃

No. of Cores	Conductor Size		Thickness of Insulation	Overall Diameter DPNP, TPNP, FPNP		Insulation Resistance (20℃)	Weight (Approx.)	Current Carrying Capacity (Max.) at 45℃
	mm^2	Stranding	mm	mm	±mm	MΩ • km	kg/km	A
2	0.75	24/0.20	1.0	9.7	0.4	1,600	130	11
	1	32/0.20	1.0	9.9	0.4	1,500	135	14
	1.5	30/0.25	1.0	10.8	0.4	1,300	165	17
	2.5	49/0.25	1.0	11.8	0.5	1,100	205	24
	4	55/0.30	1.0	13.1	0.5	900	265	32
	6	82/0.30	1.0	14.5	0.6	800	340	41
3	0.75	24/0.20	1.0	10.2	0.4	1,600	145	9
	1	32/0.20	1.0	10.7	0.4	1,500	160	11
	1.5	30/0.25	1.0	11.4	0.5	1,300	190	14
	2.5	49/0.25	1.0	12.5	0.5	1,100	240	20
	4	55/0.30	1.0	14.1	0.6	900	325	27
	6	82/0.30	1.0	15.6	0.6	800	420	34
4	0.75	24/0.20	1.0	11.3	0.5	1,600	175	9
	1	32/0.20	1.0	11.8	0.5	1,500	200	11
	1.5	30/0.25	1.0	12.2	0.5	1,300	225	14
	2.5	49/0.25	1.0	14.1	0.6	1,100	310	20
	4	55/0.30	1.0	15.6	0.6	900	405	27
	6	82/0.30	1.0	17.2	0.7	800	525	34

Switchboard Wire

TABLE 13

0.6 / 1kV XLPE Insulated Wire(SCP)

Conductor

Tinned, annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation

XLPE insulation applied on the conductor
The XPLE complies with the JIS C 3410

Tests

Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1

- Maximum rated conductor temperature : 85℃

Single Conductor

Conductor Size		Thickness of Insulation	Overall Diameter SCP		Insulation Resistance (20℃)	Weight (Approx.)	Current Carrying Capacity (Max.) at 45℃
mm^2	Stranding	mm	mm	±mm	MΩ • km	kg/km	A
1.5	30/0.25	0.9	3.7	0.4	70	26	20
2.5	49/0.25	1.0	4.3	0.4	70	38	28
4	55/0.30	1.0	4.8	0.4	60	55	38
6	82/0.30	1.0	5.3	0.4	50	75	48
10	80/0.40	1.1	6.6	0.4	40	125	67
16	7/18/0.40	1.1	8.3	0.4	30	190	90
25	7/28/0.40	1.2	10.0	0.4	30	280	120
35	7/39/0.40	1.4	11.8	0.5	30	390	145
50	19/21/0.40	1.4	13.4	0.5	30	550	180
70	19/19/0.50	1.6	15.7	0.6	30	770	225
95	19/25/0.50	1.7	17.7	0.7	30	1,000	275

Switchboard Wire

TABLE 14

0.6 / 1kV PVC Insulated Wire (SYP)

Conductor
Annealed copper wires per IEC Pub. 60228
Stranding as shown in table below

Insulation
PVC insulation applied on the conductor
The PVC complies with the JIS C 3410

Tests
Meet applicable test requirements in JIS C 3410 or IEC 60092-350, IEC 60332-1

• Maximum rated conductor temperature : 75℃

Single Conductor

Conductor Size		Thickness of Insulation	Overall Diameter SYP		Insulation Resistance (20℃)	Weight (Approx.)	Weight (Approx.)
mm^2	Stranding	mm	mm	±mm	MΩ • km	kg/km	A
0.75	24/0.20	1.2	3.8	0.4	400	21	11
1	32/0.20	1.2	3.9	0.4	370	24	13
1.5	30/0.25	1.2	4.2	0.4	320	30	17
2.5	49/0.25	1.2	4.7	0.4	280	41	24
4	55/0.30	1.2	5.2	0.4	230	60	32
6	82/0.30	1.2	5.8	0.4	200	80	41
10	80/0.40	1.2	6.8	0.4	170	125	57
16	7/18/0.40	1.3	8.7	0.4	130	195	76

Shipboard Cables
JIS C 3410(1999) / IEC 60092 - 350

Types of Shipboard Cables Conforming to JIS C-3410(1999)

JS Cable

1. Identification Methods of Cores

Kinds	Identification Method	Identification Code
Power & Lighting Cable (for normal condition) Portable or Flexible Cable	Colored insulation	Single Core : Black Double Core : Black & White Three Core : Black, White & Red Four Core : Black, White, Red & Green
Power & Lighting Cable (for high temperature)	Colored compound over the glass yarn braid	
Control & Signal Cable	Printed letter on the insulation	Number of arabic figures (in some cases, colored identification may be applied)
Telephone & Instrumentation Cable	Printed letter on the insulation, but color of insulation shall be white, and one core of each pair shall be imprinted by specified color ink	

2. Maximum Working Voltage and Test Voltage

Nominal Voltage (V)	Maximum Working Voltage (V)		Test Voltage V/minute
	a.c	d.c	
250V	250V	450V	1500 / 5
0.6 / 1 kV	0.6 / 1 kV	0.9 / 1.5 kV	3500 / 5

3. Current Rating

a) Current ratings in continuous service for single cables. (ambient temperature 45℃)

Note 1 - The current ratings I , in amperes, have been calculated for each nominal cross-sectional area A, in square millimeters, with the formula:

$$I = \alpha \cdot A^{0.625}$$

Where α is a coefficient related to the maximum permissible service temperature of the conductor as follows:

Attached Table 1.

Maximum Permissible Temperature of the Conductor			60℃	75℃	85℃	95℃
Values of α	For Nominal Cross-Sectional Area	≥ 2.5mm²	9.5	13.5	16	18
		≤ 2.5mm²	8	13	16	20

b) In case of multi-core cable, the values shown in Table 1. shall be multiplied by following correction factors.

Attached Table 2. Correction factor for multi-core cable

Core Number	Correction Factor	Core Number	Correction Factor
2	0.85	19	0.4
3 ~ 4	0.7	27	0.3
7	0.55	37	0.25
12	0.45	44	0.2

c) If ambient temperature differ from 45℃, the values shown in Table. should be multiplied by the following factors.

Attached Table 3. Correction factor various ambient air temperatures

Maximum Conductor Temperature(℃)	Correction Factor for Ambient Air Temperature of										
	35℃	40℃	45℃	50℃	55℃	60℃	65℃	70℃	75℃	80℃	85℃
60	1.29	1.15	1.00	0.82	-	-	-	-	-	-	-
75	1.15	1.08	1.00	0.91	0.82	0.71	0.58	-	-	-	-
85	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61	0.50	-	-
95	1.10	1.05	1.00	0.95	0.89	0.84	0.77	0.71	0.63	0.55	0.45

d) Current rating of EP rubber insulated cable

mm²	Single Core (d, c)									Double Cores (a.c, d.c)									Three Cores (a.c, d.c)								
	Ambient Temperature (40℃)			Ambient Temperature (45℃)			Ambient Temperature (50℃)			Ambient Temperature (40℃)			Ambient Temperature (45℃)			Ambient Temperature (50℃)			Ambient Temperature (40℃)			Ambient Temperature (45℃)			Ambient Temperature (50℃)		
		Short Time			Short Time			Short Time			Short Time			Short Time			Short Time			Short Time			Short Time			Short Time	
		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour		30 min	1 hour
1.5	21	22	22	20	21	21	19	20	20	18	19	19	17	18	18	16	17	17	15	16	16	14	15	15	13	14	14
2.5	30	31	31	28	30	30	26	28	28	25	27	27	24	25	25	23	24	24	21	22	22	20	21	21	19	20	20
4	42	43	43	38	40	40	36	38	38	34	37	36	32	35	34	31	33	33	28	30	30	27	29	28	26	28	27
6	51	54	54	48	51	51	45	48	48	43	47	46	41	44	43	39	43	41	36	39	38	34	37	36	32	35	34
10	71	75	75	67	71	71	63	67	67	60	66	64	57	63	60	55	60	58	50	55	53	47	52	50	45	50	48
16	95	101	101	90	96	95	85	90	90	81	91	86	77	86	81	73	82	78	67	76	71	63	72	67	60	69	65
25	127	135	135	120	128	127	113	121	119	108	126	116	102	119	110	98	114	105	89	106	96	84	100	91	81	96	87
35	154	163	163	145	156	154	136	147	144	131	156	142	123	147	134	118	142	128	108	131	118	102	124	111	97	119	107
50	191	202	202	180	196	191	169	184	179	162	203	179	153	191	169	147	183	162	134	172	149	126	162	141	121	156	135
70	239	253	253	225	249	239	212	234	225	202	266	229	191	251	216	184	241	207	167	225	191	158	212	180	151	204	173
95	292	311	311	275	312	293	259	293	276	248	345	289	234	325	273	224	312	262	204	293	243	193	276	229	185	265	220
120	339	364	364	320	369	343	301	347	322	288	417	345	272	394	325	261	379	312	237	355	290	224	335	373	215	321	262
150	387	418	418	365	431	394	343	405	371	329	496	404	310	468	381	298	449	366	271	422	340	256	399	321	245	383	308
185	440	479	479	415	503	452	390	473	425	374	593	475	353	559	448	339	537	430	308	505	401	291	476	379	279	457	363
240	519	575	575	490	617	542	461	580	510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300	594	670	670	560	734	632	526	690	594	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1. The value in Table. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table.
2. In case of a,c, the frequency is 60Hz

Attached Table 4. Current ratings of multi-core, EPR insulated cable

No. of Core	Ambient Temperature		
	40℃ A	45℃ A	50℃ A
2	14	14	13
4	12	11	11
7	9	9	9
12	7	7	7
19	6	6	5
27	5	5	5
37	4	4	4
44	3	3	3
77	3	3	3

Note 1. The current rating value in Table 4. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table 4.
2. In case of a.c, the frequency is 60Hz.

Attached Table 5. Current ratings of silicone rubber insulated cable

Nominal Conductor Area (mm²)	Ambient Temperature								
	Single Core			Double Core			Three Core		
	40℃	45℃	50℃	40℃	45℃	50℃	40℃	45℃	50℃
1.5	25	24	23	21	20	19	18	17	16
2.5	34	32	30	29	27	26	24	22	21
4	44	42	40	37	36	34	31	29	28
6	58	55	52	49	47	44	40	39	37
10	79	75	71	67	64	61	55	53	50

Note 1. The value in Table 5. are calculated at conductor rating temperature 95°…
2. The value in Table 5. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table.
3. In case of a.c, the frequency is 60Hz.

Attached Table 6. EP rubber insulated PCP sheath cabtyre cord

Nominal Conductor Area (mm²)	Ambient Temperature								
	Single Core			Double Core			Three Core		
	40℃	45℃	50℃	40℃	45℃	50℃	40℃	45℃	50℃
0.75	12	11	10	10	9	8	10	9	8
1	15	14	13	12	11	11	12	11	11
1.5	18	17	16	15	14	13	15	14	13
2.5	25	24	23	21	20	19	21	20	19
4	34	32	31	28	27	26	28	27	26
6	43	41	39	36	34	32	36	34	32

Note 1. In case of a.c, the frequency is 60Hz.

Attached Table 7. Current ratings of FR-XLPE insulated switchboard wire

Nominal Conductor Area (mm^2)	Ambient Temperature		
	40℃ A	45℃ A	50℃ A
1.5	21	20	19
2.5	30	28	26
4	40	38	36
6	51	48	45
10	71	67	63
16	95	90	85
25	127	120	113
35	154	145	136
50	191	180	169
70	239	225	212
95	292	275	259

Note 1. The value in Table 7. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table.
2. In case of a.c, the frequency is 60Hz.

Attached Table 8. Current ratings of PVC insulated wire for controlling machines and apparatus

Nominal Conductor Area (mm^2)	Ambient Temperature		
	40℃ A	45℃ A	50℃ A
0.75	12	11	10
1	14	13	12
1.5	18	17	15
2.5	26	24	22
4	35	32	29
6	44	41	37
10	62	57	52
16	82	76	69

Note 1. The value in Table 8. are for 6 cables or less bunched or laid together in that formation.
When more than 6 cables and bunched or laid close together, a correction factor 0.85 should be applied to the value given in table.
2. In case of a.c, the frequency is 60Hz.

4. Calculation of Voltage Drop

The following formulas are for calculation of the voltage drop in each circuit distribution.

1) D.C. circuit

$$\text{Voltage drop rate} = \frac{Rdc \times 2L \times I}{V} \times 100(\%)$$

2) A.C. circuit

$$\text{Voltage drop rate of single-phase A.C.} = \frac{Rac \times 2L \times I}{V} \times \partial \times 100(\%)$$

$$\text{Voltage drop rate of three-phase A.C.} = \frac{Rac \times 2L \times I}{V} \times \frac{\sqrt{3}}{2} \times \partial \times 100(\%)$$

Where L : Cable Length(km) V : Circuit Voltage(V) I : Current(A)
Rdc : D.C. Resistance at Maximum Rated Conductor Temperature (see following table)
Rac : A.C. Resistance at Maximum Rated Conductor Temperature (see following table)
∂ : Inductive Voltage Drop Coefficient (see following table)

R-dc, R-ac, Inductance and inductive voltage drop coefficient

Nominal Area	R-dc (at 20℃)	R-dc (at 85℃)	R-ac (at 85℃)	Inductance (0.6/1kV)	Inductive Voltage Drop Coefficient						
					Dielectric Power Factor						
mm^2	Ω/km	Ω/km	Ω/km	mH/km	100%	95%	90%	85%	80%	75%	70%
1.5	12.200	15.3	15.3	0.357	1.00	0.95	0.91	0.85	0.81	0.76	0.71
2.5	7.500	9.5	9.5	0.332	1.00	0.95	0.91	0.86	0.81	0.76	0.71
4	4.700	5.90	5.90	0.309	1.00	0.96	0.91	0.86	0.81	0.76	0.71
6	3.110	3.90	3.90	0.292	1.00	0.96	0.91	0.86	0.82	0.77	0.72
10	1.840	2.31	2.31	0.272	1.00	0.96	0.92	0.87	0.83	0.78	0.73
16	1.160	1.46	1.46	0.258	1.00	0.97	0.93	0.89	0.84	0.79	0.75
25	0.734	0.92	0.92	0.254	1.00	0.98	0.95	0.90	0.86	0.82	0.77
35	0.529	0.664	0.664	0.246	1.00	0.99	0.96	0.92	0.88	0.84	0.80
50	0.391	0.491	0.491	0.245	1.00	1.01	0.98	0.95	0.91	0.87	0.83
70	0.270	0.339	0.339	0.237	1.00	1.03	1.01	0.99	0.96	0.92	0.89
95	0.195	0.245	0.247	0.235	1.00	1.06	1.06	1.04	1.02	0.99	0.96
120	0.154	0.193	0.195	0.230	1.00	1.09	1.09	1.08	1.07	1.04	1.02
150	0.126	0.158	0.161	0.231	1.00	1.12	1.14	1.13	1.12	1.11	1.09
185	0.100	0.126	0.129	0.230	1.00	1.16	1.19	1.20	1.20	1.19	1.18
240	0.076	0.096	0.099	0.229	1.00	1.22	1.28	1.31	1.32	1.32	1.32
300	0.061	0.076	0.081	0.228	1.00	1.28	1.36	1.41	1.44	1.45	1.46

Approval by Ship Classification Society

The Shipboard cables in accordance with KS C-3326 and JIS C 3410 have been accepted by ship classification societies such as DNV, ABS, NK, LR and KR moreover we got the certificate of Type Approval, Homologation or Test Report which are issued to such cables by DNV, LR, NK, ABS and KR.


CERTIFICATE OF TYPE APPROVAL

CABLES (LOW VOLTAGE)

JINRO INDUSTRIES CO., LTD.


REGISTRO ITALIANO NAVALE

TYPE APPROVAL CERTIFICATE
No ELE/5622000PU1

RINA


Lloyd's Register

Type Approval Certificate Extension


DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-7469

Electric Cable, Power Current

FA-SPYCY, FA-DPYCY, FA-TPYCY, FA-DPYCYS and FA-TPYCYS 0.6/1 kV

JINRO INDUSTRIES CO., LTD.

Germanischer Lloyd

Example of Typical Certificate


NIPPON KAIJI KYOKAI

Certificate of Type Test


Type Approval Certificate

Germanischer Lloyd


TYPE APPROVAL CERTIFICATE

한국선급


ABS

TYPE APPROVAL PROGRAM

Confirmation of Type Approval

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