songhyun TMC



S-Route®

2010

Marine & Shipboard Cable

JIS C 3410(2010) | IEC 60092-350, 353, 354, 376

ENTERPRISE WITH DREAM, HOPE, AND FUTURE

TMC Co., Ltd has been pursuing innovation in technology and products for the specialty industrial cable market.

For 23 years TMC has had a single-minded focus on delivering superior customer services with marine and offshore plant cable solutions.

The operational excellence of TMC is underpinned by its products with the best quality and outstanding service to meet specific requirements that makes us the world's most experienced marine and offshore cable manufacturer.







Company History

1991 Establishment of Seojin Industry Co.,Ltd.
1998 ISO 9001 Certification by LRQA
2004 ISO 14001 Certification by LRQA
2005 Changed the name of company to TMC Co.,Ltd.
2006 Won the 30 million USD Export Tower Award granted by the Ministry of Knowledge Economy
2006 Earned recognition by Hyundai Mipo Dockyard Co., Ltd. as one of the excellent suppliers.
2007 Won the 70 million USD Export Tower Award granted by the Ministry of Knowledge Economy
2007 Received the High quality supplier Certification from DSME
2007 Achieved Korean world-class product award 2007
2008 Won the 100 million USD Export Tower Award granted by the Ministry of Knowledge Economy
2008 OHSAS 18001 Certification by LRQA
2009 Awarded the Q-Mark as a Silver grade for Offshore Cable supplier by Samsung Heavy Industries
2010 Awarded the Best Supplier for Offshore & Marine Cable by Ocean Rig
2010 Earned recognition by DSME as one of the excellent supplier
2011 Awarded the Best Supplier for Offshore & Marine Cable by Stena Sphere
2011 KEPIC Certification by KEA (Manufacture of Class 1E cable)
2012 Won the 200 million USD Export Tower Award granted by the Ministry of Knowledge Economy
2013 Designated as 'Korean Hidden Champion' by Korea Eximbank
2013 TL9000 certification by SGS (design & manufacture of optical fiber cable)
2014 Earned recognition by DSME Excellent supplier

Certificates

- Type Approval Certification for shipboard cables : ABS, BV, DNV, GL, KR, LR, NK and RINA
- Type Approval Certification for NEK 606(2004) offshore cables : ABS, DNV and LR
- Type Approval Certification by ABS for offshore cables and listed on ETL
- Type Approval Certification for Passenger ships cables : ABS, DNV,LR, BV and CCS
- Obtained Patent of Paint Resistant Shipboard Cables (Patent N0. 10-0627241)
- Type Approval Certification for IEEE1580 Type P cables : ABS, DNV, CSA and listed on ETL
- Type Approval Certification for LNG Carrier cables : ABS, DNV, LR and BV
- Gost-R Certification for NEK 606(2004) offshore cables by GOSSTANDART
- Type Approval Certification for Marine Optical Fiber Cables : ABS and DNV
- Type Approval Certification for MIL 24643 Warship Cables : KR
- Type Approval Certification for VG 95218 Submarine Cables : KR


TME





Code Designation

Symbols of number of core and main use

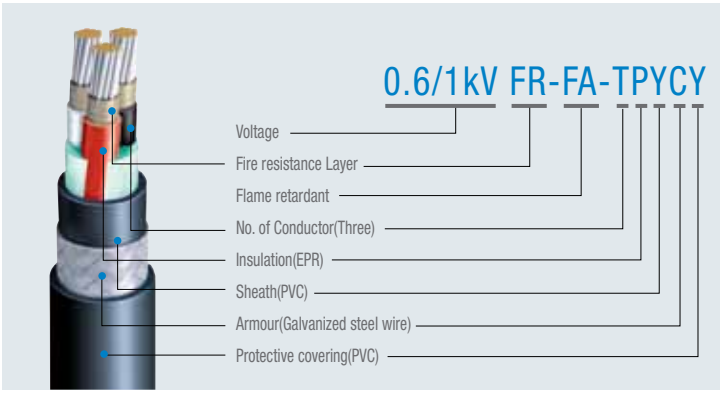
FA-	Flame retardant	T	Three core for power and lighting
FR-	Fire resistance	F	Four core for power and lighting
FR-FA-	Flame Retardant & Fire Resistant	M	Multi core for control and signal
S	Single core for power and lighting	TT	Telephone and instrumentation
D	Double core for power and lighting		

Symbols of material

Insulation	Sheath	Armouring	Protective covering	Others
P : EP Rubber **Y** : PVC **C** : XLPE	**Y** : PVC	**C** : Steel wire **CB** : Copper alloy wire	**Y** : PVC	**SLA** : Common shield (AL/PS tape) **-SLA** : Individual shield (AL/PS tape) **-S** : Individual shield (Copper braid) **E** : Earth wire **(C)** : Cold type

Note
1. For Telephone cable, the insulation symbols are omitted.
2. In case of copper alloy wire braid, the letter shall be CB instead of letter C.
   ex) : 0.6/1KV SPYCB , 0.6/1KV SPYCBY
3. In case of cable with earth wire, letter E shall be suffixed to symbol.
   ex) : 0.6/1kV TPYE

Example



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	(FA-) TPY	(FA-) TPYC	(FA-) TPYCY	
	(FA-) TPYE	(FA-) TPYCE	(FA-) TPYCYE	
	(FA-) FPY	(FA-) FPYC	(FA-) FPYCY	
	(FA-) 5PY	(FA-) 5PYC	(FA-) 5PYCY	
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HV Power Cable





3.6/6kV SPYCB(Y), FA-SPYCB(Y), TPYC(Y), FA-TPYC(Y)

6/10kV SPYCB(Y), FA-SPYCB(Y), TPYC(Y), FA-TPYC(Y) 06 ~ 08

High Voltage(3.6/6, 6/10) Power Cable



Cable Designation

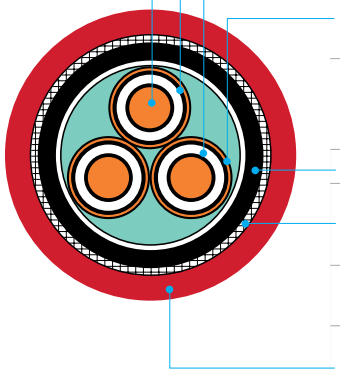
3.6/6kV SPYCB(Y), TPYC(Y), FA-SPYCB(Y), FA-TPYC(Y)

6/10kV SPYCB(Y), TPYC(Y), FA-SPYCB(Y), FA-TPYC(Y)

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	S, T	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Conductor screen		- Semi-conducting layer (tape / compound)
	Insulation	P	- EPR as per JIS C 3410(2010)
	Insulation screen		- Non-metallic part : Semi-conducting layer (tape / compound) - Metallic part : Copper tape with about 0.1mm thickness - A suitable separator tape(s) may be applied over the metallic part
	Cabling		- Three insulation screened conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Sheath	Y	- PVC as per JIS C 3410(2010)
	Armour	C (CB)	- Braid of galvanized steel wire(C) or copper alloy wire(CB) - Coverage density : Min. 90% - A suitable separator tape(s) may be applied under/over the armour
	Paint		- The red paint shall be painted uniformly on the steel wire braid. - In case of PVC outer sheath cable, paint is dispensable.
	Protective covering	Y	- PVC as per JIS C 3410(2010) - Outer sheath color : Red - Any other color may be applicable when purchaser required.
	Core identification		- 3C : Red, Yellow, Blue

Note. Cold type cable can be supplied. (Cold type abbreviation "(C)" is added at the end of designation.)

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

3.6/6KV (FA-)SPYCB, 3.6/6KV (FA-)SPYCBY

No. of Cores	Conductor			(FA-)SPYCB		(FA-)SPYCBY		Conductor Resistance (at 20℃) (Max.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance		SPYCB FA-SPYCB	SPYCBY FA-SPYCBY
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	Ω/km	kg/km	kg/km
1	10	7/1.35	4.05	17.6	0.7	19.8	0.8	1.840	560	640
	16	7/1.70	5.10	18.8	0.8	21.2	0.8	1.160	660	755
	25	7/2.14	6.42	20.1	0.8	22.5	0.9	0.734	795	895
	35	7/2.52	7.56	21.5	0.9	23.9	1.0	0.529	940	1,050
	50	19/1.78	8.90	22.8	0.9	25.4	1.0	0.391	1,110	1,230
	70	19/2.14	10.70	24.8	1.0	27.4	1.1	0.270	1,380	1,520
	95	19/2.52	12.60	26.9	1.1	29.7	1.2	0.195	1,710	1,870
	120	37/2.03	14.21	28.7	1.1	31.5	1.3	0.154	2,010	2,180
	150	37/2.25	15.75	30.3	1.2	33.3	1.3	0.126	2,330	2,520
	185	37/2.52	17.64	32.8	1.3	35.8	1.4	0.100	2,890	3,090
	240	61/2.25	20.25	35.9	1.4	39.3	1.6	0.0762	3,590	3,830
	300	61/2.52	22.68	38.9	1.6	42.5	1.6	0.0607	4,330	4,610

3.6/6KV (FA-)TPYC, 3.6/6KV (FA-)TPYCY

No. of Cores	Conductor			(FA-)TPYC		(FA-)TPYCY		Conductor Resistance (at 20℃) (Max.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance		TPYC FA-TPYC	TPYCY FA-TPYCY
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	Ω/km	kg/km	kg/km
3	10	7/1.35	4.05	34.1	1.4	37.5	1.5	1.840	1,620	1,850
	16	7/1.70	5.10	36.5	1.5	39.9	1.6	1.160	1,920	2,170
	25	7/2.14	6.42	39.6	1.6	43.2	1.7	0.734	2,370	2,650
	35	7/2.52	7.56	42.2	1.6	46.0	1.7	0.529	2,800	3,120
	50	19/1.78	8.90	45.5	1.7	49.3	1.8	0.391	3,360	3,710
	70	19/2.14	10.70	49.6	1.8	53.6	1.9	0.270	4,210	4,610
	95	19/2.52	12.60	54.1	1.9	58.5	2.0	0.195	5,260	5,740
	120	37/2.03	14.21	57.8	2.0	62.2	2.1	0.154	6,210	6,720
	150	37/2.52	15.75	61.6	2.1	66.2	2.2	0.126	7,250	7,820

High Voltage(3.6/6, 6/10) Power Cable

6/10KV (FA-)SPYCB, 6/10KV (FA-)SPYCBY

No. of Cores	Conductor			(FA-)SPYCB		(FA-)SPYCBY		Conductor Resistance (at 20℃) (Max.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance		SPYCB FA-SPYCB	SPYCBY FA-SPYCBY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	Ω/km	kg/km	kg/km
1	16	7/1.70	5.10	20.8	0.8	23.2	0.9	1.160	765	870
	25	7/2.14	6.42	22.1	0.9	24.7	1.0	0.734	910	1,030
	35	7/2.52	7.56	23.5	0.9	26.1	1.0	0.529	1,060	1,190
	50	19/1.78	8.90	24.8	1.0	27.4	1.1	0.391	1,230	1,360
	70	19/2.14	10.70	26.8	1.1	29.6	1.2	0.270	1,510	1,670
	95	19/2.52	12.60	28.9	1.2	31.7	1.3	0.195	1,850	2,020
	120	37/2.03	14.21	30.5	1.2	33.5	1.3	0.154	2,150	2,340
	150	37/2.25	15.75	32.8	1.3	35.8	1.4	0.126	2,610	2,820
	185	37/2.52	17.64	34.8	1.4	38.2	1.5	0.100	3,060	3,290
	240	61/2.25	20.25	37.7	1.5	41.1	1.6	0.0762	3,760	4,010
	300	61/2.52	22.68	40.3	1.6	43.9	1.7	0.0607	4,470	4,760

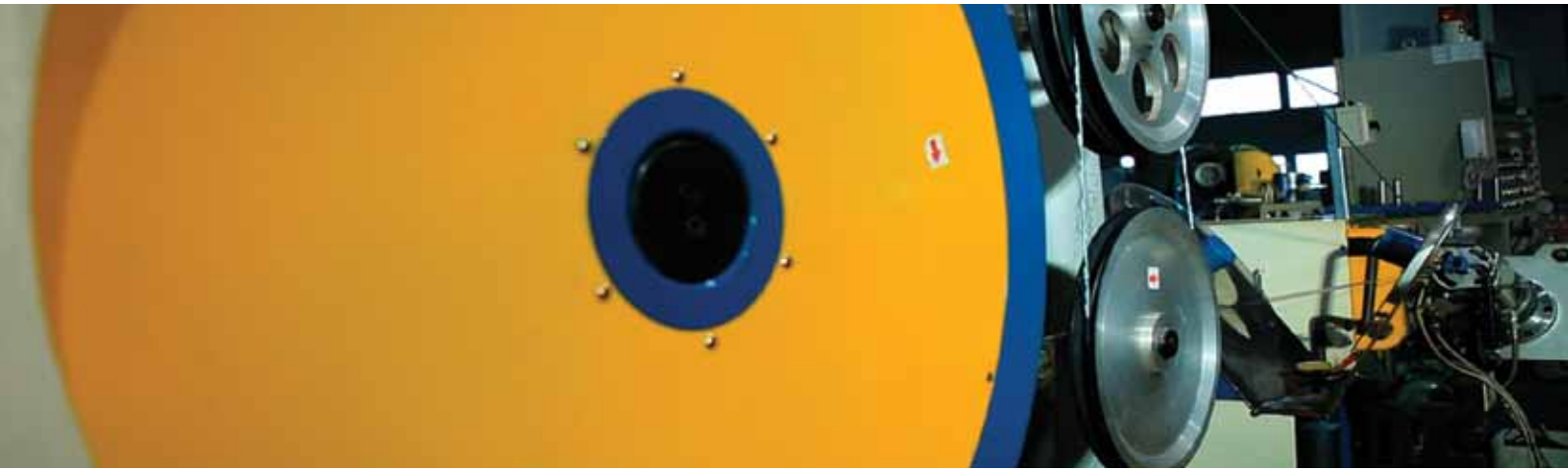
6/10KV (FA-)TPYC, 6/10KV (FA-)TPYCY

No. of Cores	Conductor			(FA-)TPYC		(FA-)TPYCY		Conductor Resistance (at 20℃) (Max.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance		TPYC FA-TPYC	TPYCY FA-TPYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	Ω/km	kg/km	kg/km
3	16	7/1.70	5.10	41.0	1.6	44.6	1.7	1.160	2,290	2,590
	25	7/2.14	6.42	44.1	1.7	47.9	1.8	0.734	2,760	3,100
	35	7/2.52	7.56	46.7	1.7	50.7	1.8	0.529	3,220	3,590
	50	19/1.78	8.90	49.8	1.8	53.8	1.9	0.391	3,780	4,180
	70	19/2.14	10.70	54.1	1.9	58.5	2.0	0.270	4,690	5,170
	95	19/2.52	12.60	58.4	2.0	63.0	2.1	0.195	5,740	6,290
	120	37/2.03	14.21	62.3	2.1	67.1	2.2	0.154	6,750	7,360
	150	37/2.25	15.75	65.9	2.2	70.7	2.3	0.126	7,790	8,440





Power & Lighting Cable





0.6/1kV SPYC, SPYCY, FA-SPYC, FA-SPYCY
0.6/1kV SPYCB, SPYCBY, FA-SPYCB , FA-SPYCBY **10 ~ 11**

0.6/1kV D(T,F,5,6,10)PY, FA-D(T,F,5,6,10)PY
0.6/1kV D(T,F,5,6,10)PYC, FA-D(T,F,5,6,10)PYC
0.6/1kV D(T,F,5,6,10)PYCY, FA-D(T,F,5,6,10)PYCY
0.6/1kV D(T)PYE, D(T)PYCE, D(T)PYCYE **12 ~ 15**

0.6/1kV DPYSLA, TPYSLA, FA-DPYSLA, FA-TPYSLA
0.6/1kV DPYCSLA, TPYCSLA, FA-DPYCSLA, FA-TPYCSLA
0.6/1kV DPYCYSLA, TPYCYSLA, FA-DPYCYSLA, FA-TPYCYSLA **16 ~ 17**

0.6/1kV FR-DPY, FR-TPY, FR-FA-DPY, FR-FA-TPY
0.6/1kV FR-DPYC, FR-TPYC, FR-FA-DPYC, FR-FA-TPYC
0.6/1kV FR-DPYCY, FR-TPYCY, FR-FA-DPYCY, FR-FA-TPYCY **18 ~ 19**

Power & Lighting Cable



Cable Designation

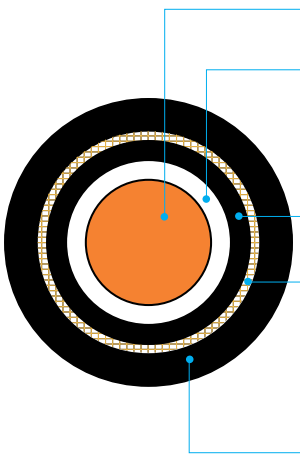
0.6/1kV SPYC, SPYCY, FA-SPYC, FA-SPYCY

0.6/1kV SPYCB, SPYCBY, FA-SPYCB, FA-SPYCBY

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardan : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	S	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	P	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	Y	- PVC as per JIS C 3410(2010)
	Armour	C (CB)	- Braid of galvanized steel wire(C) or copper alloy wire(CB) - Coverage density : Min. 90% - A suitable separator tape(s) may be applied under/over the armour
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	Y	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.

Note. Cold type cable ("(C)") can be supplied.

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

0.6/1KV (FA-)SPYC, 0.6/1KV (FA-)SPYCY, 0.6/1KV (FA-)SPYCB, 0.6/1kV (FA-)SPYCBY

No. of Cores	Conductor			Nominal dia. over sheath	(FA-)SPYC (FA-)SPYCB		(FA-)SPYCY (FA-)SPYCBY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)	
	Nominal Area	Strand	DIA.		Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) SPYC SPYCB	(FA-) SPYCY SPYCBY
No.	mm^2	No./mm	mm	mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km
1	1.5	7/0.52	1.56	5.9	7.2	0.4	9.0	0.4	12.2	1,300	100	135
	2.5	7/0.67	2.01	6.3	7.6	0.4	9.4	0.4	7.56	1,100	120	150
	4	7/0.85	2.55	6.9	8.2	0.4	10.0	0.4	4.70	1,000	140	175
	6	7/1.04	3.12	7.4	8.7	0.4	10.5	0.4	3.11	800	170	205
	10	7/1.35	4.05	8.6	9.9	0.4	11.7	0.5	1.84	700	225	270
	16	7/1.70	5.10	9.6	10.9	0.4	12.9	0.5	1.16	600	300	350
	25	7/2.14	6.42	11.5	12.8	0.5	14.8	0.6	0.734	500	425	485
	35	7/2.52	7.56	12.7	14.0	0.6	16.2	0.6	0.529	450	535	610
	50	19/1.78	8.90	14.6	15.9	0.6	18.1	0.7	0.391	450	700	780
	70	19/2.14	10.70	16.6	17.9	0.7	20.1	0.8	0.270	450	940	1,030
	95	19/2.52	12.60	19.3	20.6	0.8	23.0	0.9	0.195	400	1,260	1,370
	120	37/2.03	14.20	20.9	22.2	0.9	24.8	1.0	0.154	350	1,520	1,650
	150	37/2.25	15.80	23.1	24.4	1.0	27.0	1.1	0.126	350	1,840	1,980
	185	37/2.52	17.60	25.5	26.8	1.1	29.6	1.2	0.100	350	2,260	2,430
	240	61/2.25	20.30	28.8	30.1	1.2	33.1	1.3	0.0762	350	2,920	3,130
	300	61/2.52	22.70	31.8	33.6	1.3	36.6	1.5	0.0607	350	3,700	3,930

Power & Lighting Cable



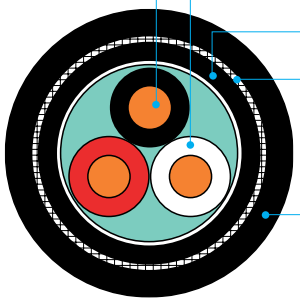
Cable Designation

0.6/1kV D(T,F,5,6,10)PY, FA-D(T,F,5,6,10)PY
0.6/1kV D(T,F,5,6,10)PYC, FA-D(T,F,5,6,10)PYC
0.6/1kV D(T,F,5,6,10)PYCY, FA-D(T,F,5,6,10)PYCY
0.6/1kV D(T)PYE, D(T)PYCE, D(T)PYCYE

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**D, T, F** **5, 6, 10**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		

No. of cores	Without Earth core	With Earth core
2C	Black, White	-
3C / 2C+E	Black, White, Red	Black, White, G/Y
4C / 3C+E	Black, White, Red, Green	Black, White, Red, G/Y
5C and over	Black No. on white insulation	Black No. on white insulation, G/Y

Note. Cold type cable ("(C)") can be supplied.

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376

0.6/1kV (FA-)DPY, 0.6/1kV (FA-)DPYC, 0.6/1kV (FA-)DPYCY

No. of Cores	Conductor			(FA-)DPY		(FA-)DPYC		(FA-)DPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance			(FA-) DPY	(FA-) DPYC	(FA-) DPYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2	1.5	7/0.52	1.56	10.4	0.5	11.7	0.5	13.7	0.5	12.2	1,300	120	205	260
	2.5	7/0.67	2.01	11.5	0.5	12.8	0.5	14.8	0.6	7.56	1,100	155	250	305
	4	7/0.85	2.55	12.6	0.6	13.9	0.6	15.9	0.6	4.70	1,000	200	300	365
	6	7/1.04	3.12	13.9	0.6	15.2	0.6	17.4	0.7	3.11	800	255	370	445
	10	7/1.35	4.05	15.8	0.7	17.1	0.7	19.3	0.8	1.84	700	360	490	575
	16	7/1.70	5.10	18.1	0.8	19.4	0.8	21.8	0.9	1.16	600	515	660	765
	25	7/2.14	6.42	21.7	0.9	23.0	0.9	25.6	1.0	0.734	500	770	945	1,080
	35	7/2.52	7.56	24.2	1.0	25.5	1.0	28.1	1.1	0.529	450	1,010	1,200	1,350
	50	19/1.78	8.90	28.1	1.2	29.4	1.2	32.2	1.3	0.391	450	1,360	1,580	1,770
	70	19/2.14	10.70	31.9	1.3	33.7	1.3	36.7	1.5	0.270	450	1,860	2,210	2,440
	95	19/2.52	12.60	37.3	1.6	39.1	1.6	42.7	1.6	0.195	400	2,550	2,960	3,280
	120	37/2.03	14.20	40.9	1.6	42.7	1.6	46.5	1.7	0.154	350	3,150	3,600	3,970
	150	37/2.25	15.80	45.1	1.7	46.9	1.7	50.9	1.8	0.126	350	3,840	4,340	4,760
	185	37/2.52	17.60	49.9	1.9	51.7	1.9	55.9	1.9	0.100	350	4,780	5,320	5,810

0.6/1kV (FA-)DPYE(C), 0.6/1kV (FA-)DPYCE(C), 0.6/1kV (FA-)DPYCYE(C)

No. of Cores	Conductor			(FA-)DPYE		(FA-)DPYCE		(FA-)DPYCYE		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance			(FA-) DPYE	(FA-) DPYCE	(FA-) DPYCYE
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
3	1.5	7/0.52	1.56	11.2	0.5	12.5	0.5	14.5	0.6	12.2	1,300	150	245	300
	2.5	7/0.67	2.01	12.2	0.5	13.5	0.5	15.5	0.6	7.56	1,100	195	295	355
	4	7/0.85	2.55	13.4	0.6	14.7	0.6	16.9	0.7	4.70	1,000	255	365	440
	6	7/1.04	3.12	14.8	0.6	16.1	0.6	18.3	0.7	3.11	800	335	455	535
	10	7/1.35	4.05	17.0	0.7	18.3	0.7	20.7	0.8	1.84	700	485	625	725
	16	7/1.70	5.10	19.5	0.8	20.8	0.8	23.2	0.9	1.16	600	700	855	970
	25	7/2.14	6.42	23.4	1.0	24.7	1.0	27.3	1.1	0.734	500	1,060	1,240	1,390
	35	7/2.52	7.56	26.1	1.1	27.4	1.1	30.2	1.2	0.529	450	1,390	1,600	1,770
	50	19/1.78	8.90	30.2	1.3	32.0	1.3	35.0	1.4	0.391	450	1,870	2,200	2,420
	70	19/2.14	10.70	34.3	1.4	36.1	1.4	39.5	1.6	0.270	450	2,570	2,950	3,220
	95	19/2.52	12.60	40.1	1.6	41.9	1.6	45.5	1.7	0.195	400	3,530	3,980	4,310
	120	37/2.03	14.20	44.0	1.7	45.8	1.7	49.6	1.8	0.154	350	4,370	4,860	5,250
	150	37/2.25	15.80	48.5	1.8	50.3	1.8	54.5	1.9	0.126	350	5,340	5,870	6,350
	185	37/2.52	17.60	53.6	1.9	55.4	1.9	59.8	2.0	0.100	350	6,640	7,230	7,770

0.6/1kV (FA-)TPY, 0.6/1kV (FA-)TPYC, 0.6/1kV (FA-)TPYCY

No. of Cores	Conductor			(FA-)TPY		(FA-)TPYC		(FA-)TPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance	Nominal overall dia.	Tolerance			(FA-) TPY	(FA-) TPYC	(FA-) TPYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
3	1.5	7/0.52	1.56	11.2	0.5	12.5	0.5	14.5	0.6	12.2	1,300	150	245	300
	2.5	7/0.67	2.01	12.2	0.5	13.5	0.5	15.5	0.6	7.56	1,100	195	295	355
	4	7/0.85	2.55	13.4	0.6	14.7	0.6	16.9	0.7	4.70	1,000	255	365	440
	6	7/1.04	3.12	14.8	0.6	16.1	0.6	18.3	0.7	3.11	800	335	455	535
	10	7/1.35	4.05	17.0	0.7	18.3	0.7	20.7	0.8	1.84	700	485	625	725
	16	7/1.70	5.10	19.5	0.8	20.8	0.8	23.2	0.9	1.16	600	700	855	970
	25	7/2.14	6.42	23.4	1.0	24.7	1.0	27.3	1.1	0.734	500	1,060	1,240	1,390
	35	7/2.52	7.56	26.1	1.1	27.4	1.1	30.2	1.2	0.529	450	1,390	1,600	1,770
	50	19/1.78	8.90	30.2	1.3	32.0	1.3	35.0	1.4	0.391	450	1,870	2,200	2,420
	70	19/2.14	10.70	34.3	1.4	36.1	1.4	39.5	1.6	0.270	450	2,570	2,950	3,220
	95	19/2.52	12.60	40.1	1.6	41.9	1.6	45.5	1.7	0.195	400	3,530	3,980	4,310
	120	37/2.03	14.20	44.0	1.7	45.8	1.7	49.6	1.8	0.154	350	4,370	4,860	5,250
	150	37/2.25	15.80	48.5	1.8	50.3	1.8	54.5	1.9	0.126	350	5,340	5,870	6,350
	185	37/2.52	17.60	53.6	1.9	55.4	1.9	59.8	2.0	0.100	350	6,640	7,230	7,770

Power & Lighting Cable

0.6/1kV (FA-)TPYE, 0.6/1kV (FA-)TPYCE, 0.6/1kV (FA-)TPYCYE

No. of Cores	Conductor			(FA-)TPYE		(FA-)TPYCE		(FA-)TPYCYE		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) TPYE	(FA-) TPYCE	(FA-) TPYCYE
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
4	1.5	7 / 0.52	1.56	12.0	0.5	13.5	0.5	15.5	0.6	12.2	1,300	210	310	370
	2.5	7 / 0.67	2.01	12.9	0.6	14.4	0.6	16.6	0.7	7.56	1,100	260	370	440
	4	7 / 0.85	2.55	14.5	0.6	16.0	0.6	18.2	0.7	4.70	900	350	470	550
	6	7 / 1.04	3.12	15.9	0.7	17.4	0.7	19.6	0.8	3.11	800	450	590	670
	10	7 / 1.35	4.05	18.3	0.8	19.8	0.8	22.2	0.9	1.84	700	660	810	920
	16	7 / 1.70	5.10	21.0	0.9	22.5	0.9	25.1	1.0	1.16	600	940	1,120	1,250
	25	7 / 2.14	6.42	25.8	1.1	27.3	1.1	30.1	1.2	0.734	500	1,450	1,660	1,840
	35	7 / 2.52	7.56	28.6	1.2	30.1	1.2	33.1	1.3	0.529	450	1,900	2,140	2,340
	50	19 / 1.78	8.90	33.4	1.4	35.4	1.4	38.6	1.5	0.391	450	2,580	2,940	3,200
	70	19 / 2.14	10.70	39.1	1.6	41.1	1.6	44.5	1.6	0.270	450	3,630	4,050	4,370
	95	19 / 2.52	12.60	44.1	1.6	46.1	1.6	49.9	1.7	0.195	400	4,840	5,310	5,720
	120	37 /2.03	14.20	48.1	1.8	50.1	1.8	54.1	1.9	0.154	350	5,950	6,460	6.930
	150	37 / 2.25	15.80	53.4	1.9	55.4	1.9	59.6	2.1	0.126	350	7,310	7,870	8,420
	185	37 / 2.52	17.60	59.1	2.1	61.1	2.1	65.5	2.3	0.100	350	9,080	9,700	10,340

0.6/1kV (FA-)FPY, 0.6/1kV (FA-)FPYC, 0.6/1kV (FA-)FPYCY

No. of Cores	Conductor			(FA-)FPY		(FA-)FPYC		(FA-)FPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) FPY	(FA-) FPYC	(FA-) FPYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
4	1.5	7 / 0.52	1.56	12.0	0.5	13.5	0.5	15.5	0.6	12.2	1,300	210	310	370
	2.5	7 / 0.67	2.01	12.9	0.6	14.4	0.6	16.6	0.7	7.56	1,100	260	370	440
	4	7 / 0.85	2.55	14.5	0.6	16.0	0.6	18.2	0.7	4.70	900	350	470	550
	6	7 / 1.04	3.12	15.9	0.7	17.4	0.7	19.6	0.8	3.11	800	450	590	670
	10	7 / 1.35	4.05	18.3	0.8	19.8	0.8	22.2	0.9	1.84	700	660	810	920
	16	7 / 1.70	5.10	21.0	0.9	22.5	0.9	25.1	1.0	1.16	600	940	1,120	1,250
	25	7 / 2.14	6.42	25.8	1.1	27.3	1.1	30.1	1.2	0.734	500	1,450	1,660	1,840
	35	7 / 2.52	7.56	28.6	1.2	30.1	1.2	33.1	1.3	0.529	450	1,900	2,140	2,340
	50	19 / 1.78	8.90	33.4	1.4	35.4	1.4	38.6	1.5	0.391	450	2,580	2,940	3,200
	70	19 / 2.14	10.70	39.1	1.6	41.1	1.6	44.5	1.6	0.270	450	3,630	4,050	4,370
	95	19 / 2.52	12.60	44.1	1.6	46.1	1.6	49.9	1.7	0.195	400	4,840	5,310	5,720
	120	37 / 2.03	14.20	48.1	1.8	50.1	1.8	54.1	1.9	0.154	350	5,950	6,460	6,930
	150	37 / 2.25	15.80	53.4	1.9	55.4	1.9	59.6	2.1	0.126	350	7,310	7,870	8,420
	185	37 / 2.52	17.60	59.1	2.1	61.1	2.1	65.5	2.3	0.100	350	9,080	9,700	10,340

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0.6/1kV (FA-)5PY, 0.6/1kV (FA-)5PYC, 0.6/1kV (FA-)5PYCY

No. of Cores	Conductor			(FA-)5PY		(FA-)5PYC		(FA-)5PYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) 5PY	(FA-) 5PYC	(FA-) 5PYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
5	1.5	7 / 0.52	1.56	13.0	0.5	14.5	0.6	16.7	0.7	12.2	1,300	230	340	410
	2.5	7 / 0.67	2.01	14.3	0.6	15.8	0.6	18.0	0.7	7.56	1,100	290	400	470
	4	7 / 0.85	2.55	15.8	0.6	17.3	0.7	19.5	0.8	4.70	900	390	510	580
	6	7 / 1.04	3.12	17.6	0.7	19.1	0.8	21.5	0.9	3.11	800	520	650	730
	10	7 / 1.35	4.05	20.3	0.8	21.8	0.9	24.2	1.0	1.84	700	760	910	1,000
	16	7 / 1.70	5.10	23.3	0.9	24.8	1.0	27.4	1.1	1.16	600	1,100	1,270	1,370

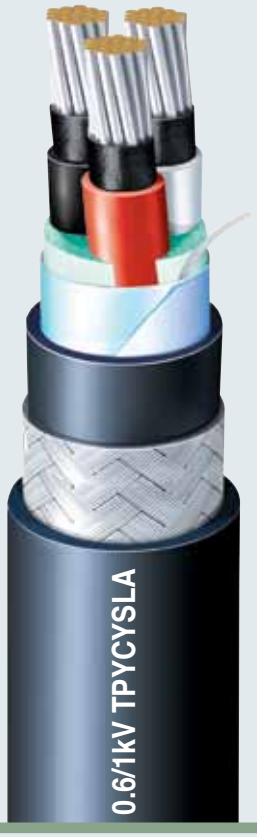
0.6/1kV (FA-)6PY, 0.6/1kV (FA-)6PYC, 0.6/1kV(FA-) 6PYCY

No. of Cores	Conductor			(FA-)6PY		(FA-)6PYC		(FA-)6PYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) 6PY	(FA-) 6PYC	(FA-) 6PYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
6	1.5	7 / 0.52	1.56	14.3	0.7	15.8	0.8	18.0	0.8	12.2	1,300	280	390	480
	2.5	7 / 0.67	2.01	15.5	0.8	17.0	0.8	19.2	0.9	7.56	1,100	360	470	570
	4	7 / 0.85	2.55	17.4	0.8	18.9	0.9	21.3	0.9	4.70	900	490	610	730
	6	7 / 1.04	3.12	19.0	0.9	20.5	0.9	22.9	1.0	3.11	800	630	770	900

0.6/1kV (FA-)10PY, 0.6/1kV (FA-)10PYC, 0.6/1kV(FA-)10PYCY

No. of Cores	Conductor			(FA-)10PY		(FA-)10PYC		(FA-)10PYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			(FA-) 10PY	(FA-) 10PYC	(FA-) 10PYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
10	1.5	7 / 0.52	1.56	18.3	0.8	19.8	0.9	22.2	1.0	12.2	1,300	450	600	710
	2.5	7 / 0.67	2.01	20.1	0.9	21.6	0.9	24.0	1.0	7.56	1,100	590	750	870
	4	7 / 0.85	2.55	22.5	1.0	24.0	1.0	26.6	1.1	4.70	900	800	980	1,120

Power & Lighting Cable



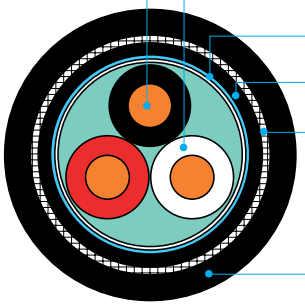
Cable Designation

0.6/1kV DPYSLA, TPYSLA, FA-DPYSLA, FA-TPYSLA
0.6/1kV DPYCSLA, TPYCSLA, FA-DPYCSLA, FA-TPYCSLA
0.6/1kV DPYCYSLA, TPYCYSLA, FA-DPYCYSLA, FA-TPYCYSLA

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	D, T	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	P	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Common shield	SLA	- Screened by AL/PS tape with tinned copper drain wire. - A suitable tape may be applied on the common shield
	Sheath	Y	- PVC as per JIS C 3410(2010)
	Armour	C	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	Y	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		No. of cores: 2C — Insulation Color: Black, White No. of cores: 3C — Insulation Color: Black, White, Red

Note. Cold type cable ("(C)") can be supplied.

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0.6/1kV (FA-)DPYCSLA, 0.6/1kV (FA-)DPYCYSLA

No. of Cores	Conductor			Nominal dia. over sheath	(FA-)DPYCSLA		(FA-)DPYCYSLA		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.		Nominal Dia.	Toler-ance	Nominal Dia.	Toler-ance			(FA-) DPYCSLA	(FA-) DPYCYSLA
No.	mm^2	No./mm	mm	mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km
2	1.5	7 / 0.52	1.56	10.6	11.9	0.5	13.9	0.6	12.2	1,300	215	270
	2.5	7 / 0.67	2.01	11.7	13.0	0.5	15.0	0.6	7.56	1,100	260	320
	4	7 / 0.85	2.55	12.8	14.1	0.6	16.3	0.7	4.70	1,000	310	385
	6	7 / 1.04	3.12	14.1	15.4	0.6	17.6	0.7	3.11	800	450	530
	10	7 / 1.35	4.05	16.0	17.3	0.7	19.5	0.8	1.84	700	580	680
	16	7 / 1.70	5.10	18.3	19.6	0.8	22.0	0.9	1.16	600	760	860
	25	7 / 2.14	6.42	21.9	23.2	0.9	25.8	1.0	0.734	500	1,080	1,210
	35	7 / 2.52	7.56	24.4	25.7	1.0	28.3	1.1	0.529	450	1,350	1,510
	50	19 / 1.78	8.90	28.3	29.6	1.2	32.4	1.3	0.391	450	1,730	1,940
	70	19 / 2.14	10.70	32.1	33.9	1.4	36.9	1.5	0.270	450	2,440	2,700
	95	19 / 2.52	12.60	37.5	39.3	1.6	42.9	1.7	0.195	400	3,170	3,470
	120	37 / 2.03	14.21	41.1	42.9	1.7	46.7	1.9	0.154	350	3,820	4,170

0.6/1kV (FA-)TPYCSLA, 0.6/1kV (FA-)TPYCYSLA

No. of Cores	Conductor			Nominal dia. over sheath	(FA-)TPYCSLA		(FA-)TPYCYSLA		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)	
	Nominal Area	Strand	Dia.		Nominal Dia.	Toler-ance	Nominal Dia.	Toler-ance			(FA-) TPYCSLA	(FA-) TPYCYSLA
No.	mm^2	No./mm	mm	mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km
3	1.5	7 / 0.52	1.56	11.4	12.7	0.5	14.7	0.6	12.2	1,300	255	315
	2.5	7 / 0.67	2.01	12.4	13.7	0.5	15.7	0.6	7.56	1,100	305	365
	4	7 / 0.85	2.55	13.6	14.9	0.6	17.1	0.7	4.70	1,000	375	450
	6	7 / 1.04	3.12	15.0	16.3	0.7	18.5	0.7	3.11	800	540	620
	10	7 / 1.35	4.05	17.2	18.5	0.7	20.9	0.8	1.84	700	730	830
	16	7 / 1.70	5.10	19.7	21.0	0.8	23.4	0.9	1.16	600	970	1,080
	25	7 / 2.14	6.42	23.6	24.9	1.0	27.5	1.1	0.734	500	1,380	1,520
	35	7 / 2.52	7.56	26.3	27.6	1.1	30.4	1.2	0.529	450	1,750	1,920
	50	19 / 1.78	8.90	30.4	32.2	1.3	35.2	1.4	0.391	450	2,390	2,610
	70	19 / 2.14	10.70	34.5	36.3	1.5	39.7	1.6	0.270	450	3,290	3,580
	95	19 / 2.52	12.60	40.3	42.1	1.7	45.9	1.8	0.195	400	4,220	4,570
	120	37 / 2.03	14.21	44.2	46.0	1.8	50.0	2.0	0.154	350	5,120	5,520

Power & Lighting Cable



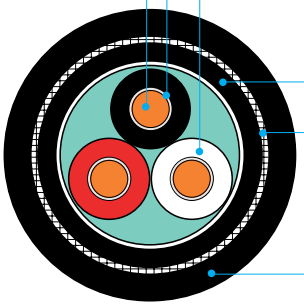
Cable Designation

0.6/1kV FR-D(T)PY, FR-FA-D(T)PY
0.6/1kV FR-D(T)PYC, FR-FA-D(T)PYC
0.6/1kV FR-D(T)PYCY, FR-FA-D(T)PYCY

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FR-FA-Cables Only)
- Fire resistant : IEC 60331-21 & IEC 60331-1, -2 (120minute)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction



Sectional view	Classification	Code	Construction detail
	Conductor	**D, T**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Fire resisting layer	**FR-(FA-)**	- Mica/glass tape
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		No. of cores / Insulation Color 2C / Black, White 3C / Black, White, Red

Note. Cold type cable ("(C)") can be supplied.

S-Route®

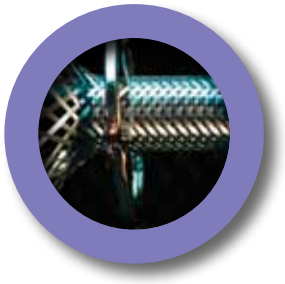
JIS C 3410(2010), IEC 60092-350, 353, 354, 376

0.6/1kV FR-(FA-)DPY, 0.6/1kV FR-(FA-)DPYC, 0.6/1kV FR-(FA-)DPYCY

No. of Cores	Conductor			FR(-FA)-DPY		FR(-FA)-DPYC		FR(-FA)-DPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			FR(-FA)-DPY	FR(-FA)-DPYC	FR(-FA)-DPYCY
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2	1.5	7 / 0.52	1.56	12.8	0.6	14.1	0.6	16.3	0.7	12.2	1,000	165	270	340
	2.5	7 / 0.67	2.01	13.9	0.6	15.2	0.6	17.4	0.7	7.56	900	205	320	395
	4	7 / 0.85	2.55	15.0	0.7	16.3	0.7	18.5	0.7	4.70	800	255	375	455
	6	7 / 1.04	3.12	16.1	0.7	17.4	0.7	19.6	0.8	3.11	700	310	440	530
	10	7 / 1.35	4.05	18.2	0.8	19.5	0.8	21.9	0.9	1.84	600	430	575	685
	16	7 / 1.70	5.10	20.5	0.9	21.8	0.9	24.4	1.0	1.16	500	590	755	875
	25	7 / 2.14	6.42	24.1	1.0	25.4	1.0	28.0	1.1	0.734	450	860	1,060	1,210
	35	7 / 2.52	7.56	26.6	1.1	27.9	1.1	30.7	1.2	0.529	400	1,110	1,320	1,500
	50	19 / 1.78	8.90	30.5	1.3	32.3	1.3	35.3	1.4	0.391	400	1,480	1,820	2,030
	70	19 / 2.14	10.70	34.3	1.4	36.1	1.4	39.5	1.6	0.270	350	1,990	2,370	2,640
	95	19 / 2.52	12.60	39.7	1.6	41.5	1.6	45.1	1.7	0.195	350	2,700	3,140	3,480
	120	37 / 2.03	14.20	43.1	1.7	44.9	1.7	48.7	1.8	0.154	350	3,300	3,770	4,160
	150	37 / 2.25	15.80	47.5	1.8	49.3	1.8	53.3	1.9	0.126	350	4,030	4,550	4,990
	185	37 / 2.52	17.60	52.3	1.9	54.1	1.9	58.5	2.0	0.100	350	4,980	5,550	6,080

0.6/1kV FR-(FA-)TPY, 0.6/1kV FR-(FA-)TPYC, 0.6/1kV FR-(FA-)TPYCY

No. of Cores	Conductor			FR(-FA)-TPY		FR(-FA)-TPYC		FR(-FA)-TPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance	Nominal Dia.	Tolerance			FR(-FA)-TPY	FR(-FA)-TPYC	FR(-FA)-TPYCY
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
3	1.5	7 / 0.52	1.56	13.6	0.6	14.9	0.6	17.1	0.7	12.2	1,000	205	315	390
	2.5	7 / 0.67	2.01	14.8	0.6	16.1	0.6	18.3	0.7	7.56	900	255	375	460
	4	7 / 0.85	2.55	16.0	0.7	17.3	0.7	19.5	0.8	4.70	800	320	450	540
	6	7 / 1.04	3.12	17.4	0.7	18.7	0.7	21.1	0.8	3.11	700	410	550	650
	10	7 / 1.35	4.05	19.6	0.8	20.9	0.8	23.3	0.9	1.84	600	570	730	845
	16	7 / 1.70	5.10	22.1	0.9	23.4	0.9	26.0	1.0	1.16	500	795	975	1,110
	25	7 / 2.14	6.42	26.0	1.1	27.3	1.1	30.1	1.2	0.734	450	1,170	1,380	1,550
	35	7 / 2.52	7.56	28.6	1.2	29.9	1.2	32.7	1.3	0.529	400	1,520	1,740	1,930
	50	19 / 1.78	8.90	32.8	1.4	34.6	1.4	38.0	1.5	0.391	400	2,010	2,380	2,640
	70	19 / 2.14	10.70	36.9	1.5	38.7	1.5	42.3	1.6	0.270	350	2,730	3,140	3,450
	95	19 / 2.52	12.60	42.7	1.7	44.5	1.7	48.3	1.8	0.195	350	3,730	4,200	4,580
	120	37 / 2.03	14.20	46.5	1.8	48.3	1.8	52.3	1.9	0.154	350	4,580	5,090	5,520
	150	37 / 2.25	15.80	51.1	1.9	52.9	1.9	57.1	2.0	0.126	350	5,570	6,130	6,630
	185	37 / 2.52	17.60	56.2	2.0	58.0	2.0	62.6	2.1	0.100	350	6,890	7,510	8,110





Control & Signal Cable



150/250V MPY, FA- MPY
150/250V MPYC, FA- MPYC
150/250V MPYCY, FA- MPYCY 21 ~ 22

150/250V MPYSLA, FA-MPYSLA
150/250V MPYCSLA, FA-MPYCSLA
150/250V MPYCYSLA, FA-MPYCYSLA 24

150/250V MPY-S, FA-MPY-S
150/250V MPYC-S, FA-MPYC-S
150/250V MPYCY-S, FA-MPYCY-S 25



Control & Signal Cable

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



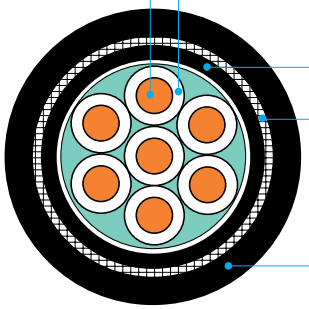
Cable Designation

150/250V MPY, FA-MPY
150/250V MPYC, FA-MPYC
150/250V MPYCY, FA-MPYCY

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Type)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	M	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	P	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	Y	- PVC as per JIS C 3410(2010)
	Armour	C	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the wire braid - In case of PVC protective covering cable, paint is dispensable
	Protective Covering	Y	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		Without Earth core: Black No. on white insulation With Earth core: Black No. on white insulation, G/Y

Note. Cold type cable ("(C)") can be supplied.

Control & Signal Cable

150/250V (FA-)MPY, 150/250V (FA-)MPYC, 150/250V (FA-)MPYCY

No. of Cores	Conductor			(FA-)MPY		(FA-)MPYC		(FA-)MPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	Dia.	Nominal Dia.	Toler-ance	Nominal Dia.	Toler-ance	Nominal Dia.	Toler-ance			(FA-) MPY	(FA-) MPYC	(FA-) MPYCY
No.	mm^2	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2				8.7	0.4	10.0	0.4	12.0	0.5			85	155	205
4				9.9	0.4	11.2	0.4	13.2	0.5			125	205	260
5				10.3	0.5	11.8	0.5	13.8	0.6			160	240	300
7				11.9	0.5	13.2	0.5	15.2	0.6			190	290	350
9				13.2	0.7	14.7	0.7	16.9	0.8			260	370	440
10				14.5	0.7	16.0	0.8	18.2	0.8			290	420	490
12				15.5	0.7	16.8	0.7	19.0	0.8			315	440	525
14	1.0	7/0.43	1.29	15.7	0.7	17.2	0.7	19.4	0.9	19.3	1,000	370	500	580
16				16.5	0.8	18.0	0.8	20.4	0.9			410	550	650
19				18.3	0.8	19.6	0.8	22.0	0.9			465	615	720
23				20.7	0.9	22.2	0.9	24.8	1.0			620	790	920
27				22.1	0.9	23.4	0.9	26.0	1.0			665	840	980
33				22.9	1.0	24.4	1.0	27.0	1.1			800	990	1,130
37				24.8	1.0	26.1	1.0	28.9	1.2			870	1,070	1,240
44				28.0	1.2	29.3	1.2	32.1	1.3			1,060	1,290	1,470

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



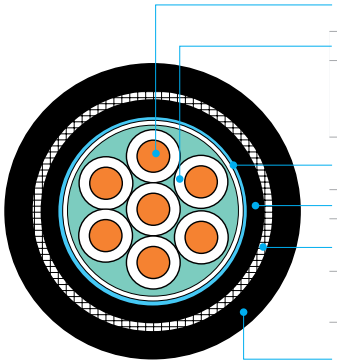
Cable Designation

150/250V MPYSLA, FA-MPYSLA,
150/250V MPYCSLA , FA-MPYCSLA,
150/250V MPYCYSLA , FA-MPYCYSLA

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**M**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Common shield	**SLA**	- Screened by AL/PS tape with tinned copper drain wire. - A suitable tape may be applied on the common shield
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Black No. on white insulation

Note. Cold type cable ("(C)") can be supplied.

150/250V (FA-)MPYSLA, 250V (FA-)MPYCSLA, 250V (FA-)MPYCYSLA

No. of Cores	Conductor			(FA-)MPYSLA		(FA-)MPYCSLA		(FA-)MPYCYSLA		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) MPYSLA	(FA-) MPYCSLA	(FA-) MPYCYSLA
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2	1.0	7/0.43	1.29	8.9	0.4	10.2	0.4	12.0	0.5	19.3	1,000	1,500	160	200
4				10.1	0.4	11.4	0.5	13.4	0.5			1,500	210	260
7				12.1	0.5	13.4	0.5	15.4	0.6			1,500	290	355
12				15.7	0.6	17.0	0.7	19.2	0.8			1,500	445	530
19				18.5	0.7	19.8	0.8	22.2	0.9			1,500	615	725
27				22.3	0.9	23.6	0.9	26.2	1.0			1,500	845	985
37				25.0	1.0	26.3	1.1	29.1	1.2			1,500	1,070	1,240
44				28.2	1.1	29.5	1.2	32.5	1.3			1,500	1,290	1,490

Control & Signal Cable



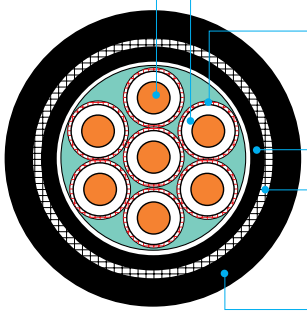
Cable Designation

150/250V MPY-S, FA-MPY-S,
150/250V MPYC-S, FA-MPYC-S,
150/250V MPYCY-S, FA-MPYCY-S

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**M**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Individual shield	**-S**	- Tinned copper wire braid - A suitable tape may be applied on the individual shield
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Black No. on white insulation

Note. Cold type cable ("(C)") can be supplied.

150/250V (FA-)MPY-S, 150/250V (FA-)MPYC-S, 150/250V (FA-)MPYCY-S

No. of Cores	Conductor			(FA-)MPY-S		(FA-)MPYC-S		(FA-)MPYCY-S		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) MPY-S	(FA-) MPYC-S	(FA-) MPYCY-S
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2				10.1	0.4	11.4	0.5	13.4	0.5	19.3	1,000	150	210	260
4				11.8	0.5	13.1	0.5	15.1	0.6	19.3	1,000	230	300	360
5				12.2	0.6	13.7	0.6	15.7	0.7	19.3	1,000	270	340	400
7				14.2	0.6	15.5	0.6	17.7	0.7	19.3	1,000	350	435	515
9				15.5	0.8	17.0	0.8	19.2	0.9	19.3	1,000	440	510	590
10				17.1	0.8	18.6	0.8	21.0	0.9	19.3	1,000	440	580	680
12				18.7	0.8	20.0	0.8	22.4	0.9	19.3	1,000	570	685	795
14	1.0	7/0.43	1.29	18.5	0.8	20.0	0.9	22.4	0.9	19.3	1,000	580	710	820
16				19.8	0.9	21.3	0.9	23.7	1.0	19.3	1,000	690	800	920
19				22.2	0.9	23.5	0.9	26.1	1.0	19.3	1,000	840	980	1,120
23				23.1	1.0	24.6	1.0	27.2	1.1	19.3	1,000	940	1,070	1,210
27				26.6	1.1	27.9	1.1	30.7	1.2	19.3	1,000	1,200	1,360	1,540
33				27.2	1.2	28.7	1.2	31.5	1.2	19.3	1,000	1,300	1,450	1,640
37				30.1	1.2	31.4	1.3	34.4	1.4	19.3	1,000	1,600	1,760	1,970
44				34.0	1.4	35.8	1.4	39.0	1.6	19.3	1,000	2,000	2,240	2,500

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



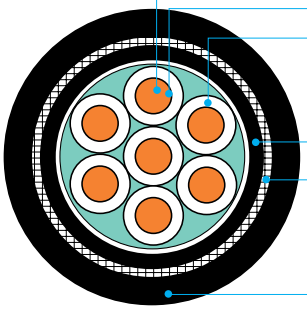
Cable Designation

150/250V FR-MPY, FR-FA-MPY,
150/250V FR-MPYC, FR-FA-MPYC,
150/250V FR-MPYCY, FR-FA-MPYCY

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A(FR-FA-Cables Only)
- Fire resistant : IEC 60331-21 & IEC 60331-1, -2 (120minute)
- Cold bend / impact : CSA 22.2 No. 0.3(-40℃/-35℃)(Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**M**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Fire resisting layer	**FR-(FA-)**	- Mica/glass tape
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C) - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Black No. on white insulation

Note. Cold type cable ("(C)") can be supplied.

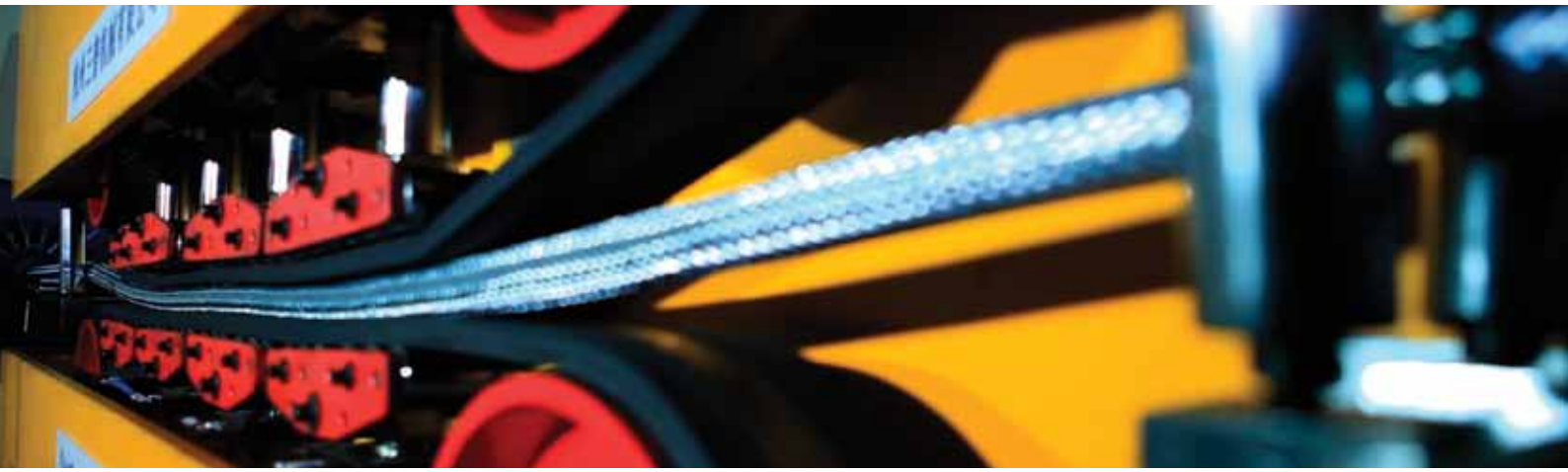
150/250V FR-(FA-)MPY, 150/250V FR-(FA-)MPYC, 150/250V FR-(FA-)MPYCY

No. of Cores	Conductor			(FA-)MPY		(FA-)MPYC		(FA-)MPYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
	Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) MPY	(FA-) MPYC	(FA-) MPYCY
No.	mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
2	1.0	7/0.43	1.29	10.9	0.5	12.2	0.5	14.2	0.6	19.3	700	120	210	265
4				12.8	0.6	14.1	0.6	16.3	0.7	19.3	700	185	290	360
7				15.4	0.7	16.7	0.7	18.9	0.8	19.3	700	285	410	490
12				20.5	0.9	21.8	0.9	24.2	1.0	19.3	700	485	650	765
19				24.2	1.0	25.5	1.0	28.1	1.1	19.3	700	705	900	1,050
27				29.3	1.2	30.6	1.2	33.6	1.3	19.3	700	1,010	1,250	1,450
37				33.1	1.4	34.9	1.4	38.3	1.5	19.3	700	1,330	1,700	1,970
44				37.4	1.6	39.2	1.6	42.8	1.7	19.3	700	1,630	2,040	2,360





Telephone & Instrumentation Cable



150/250V TTY, FA-TTY
150/250V TTYC, FA-TTYC
150/250V TTYCY, FA-TTYCY 27

150/250V TTYSLA, FA- TTYSLA
150/250V TTYCSLA, FA- TTYCSLA
150/250V TTYCYSLA, FA- TTYCYSLA 28

150/250V TTY-SLA, FA- TTY-SLA
150/250V TTYC-SLA, FA- TTYC-SLA
150/250V TTYCY-SLA, FA- TTYCY-SLA 29

250V RCOP(OS) 30 ~ 31

250V RCOP(IS) 32 ~ 33

250V FR-RCOP(OS) 34 ~ 35

250V FR-RCOP(IS) 36 ~ 37



S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



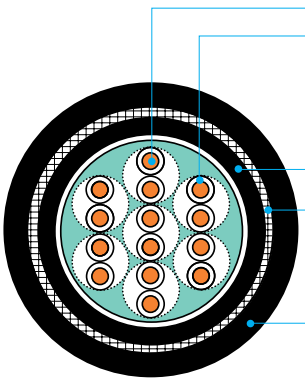
Cable Designation

150/250V TTY, FA-TTY,
150/250V TTYC, FA-TTYC,
150/250V TTYCY, FA-TTYCY

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 70℃

Construction

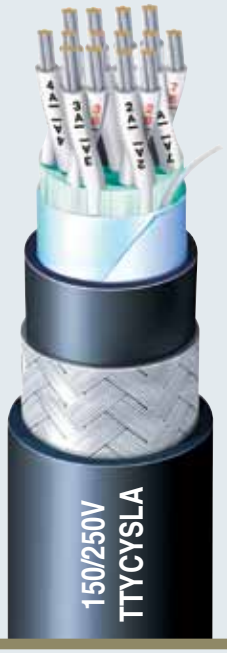
Sectional view	Classification	Code	Construction detail
	Conductor	TT	- Stranded plain annealed copper wires as per JIS C 3410(2010)
	Insulation		- PVC as per JIS C 3410(2010)
	Twisting		- Two Insulated cores shall be twisted together to form a pair
	Cabling		- Twisted pairs shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Sheath	Y	- PVC as per JIS C 3410(2010)
	Armour	C	- Braid of galvanized steel wire(C). - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	Y	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Printed pair number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B) - 1T, 1Q cable shall be identified by the black number on the white insulation

Note. Cold type cable ("(C)") can be supplied.

150/250V (FA-)TTY, 150/250V (FA-)TTYC, 150/250V (FA-)TTYCY

No. of Units	No.of Cores	Conductor			(FA-)TTY		(FA-)TTYC		(FA-)TTYCY		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
		Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) TTY	(FA-) TTYC	(FA-) TTYCY
		mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
1P	2	0.75	7/0.37	1.11	7.9	0.4	9.2	0.4	11.0	0.4	26.0	20	65	130	170
1T	3				8.6	0.4	9.9	0.4	11.7	0.5			85	160	200
1Q	4				9.3	0.4	10.6	0.4	12.6	0.5			105	180	230
4P	8				14.2	0.6	15.5	0.6	17.7	0.7			205	320	400
7P	14				16.9	0.7	18.2	0.7	20.6	0.8			310	445	545
10P	20				21.7	0.9	23.0	0.9	25.6	1.0			465	640	775
14P	28				23.5	1.0	24.8	1.0	27.4	1.1			585	775	920
19P	38				26.4	1.1	27.7	1.1	30.5	1.2			755	965	1,140
24P	48				31.9	1.3	33.7	1.3	36.7	1.5			1,030	1,380	1,610
30P	60				34.0	1.4	35.8	1.4	39.2	1.6			1,220	1,590	1,870
37P	74				36.9	1.5	38.7	1.5	42.3	1.6			1,450	1,860	2,180
48P	96				42.8	1.7	44.6	1.7	48.4	1.8			1,910	2,380	2,760

Telephone & Instrumentation Cable



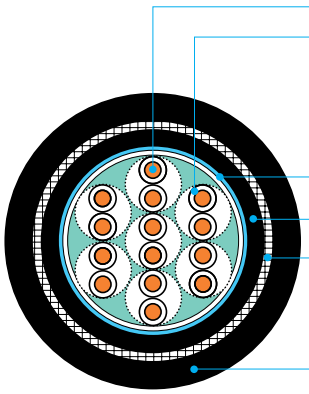
Cable Designation

150/250V TTYSLA, FA-TTYSLA,
150/250V TTYCSLA, FA-TTYCSLA,
150/250V TTYCYSLA, FA-TTYCYSLA

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 70℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**TT**	- Stranded plain annealed copper wires as per JIS C 3410(2010)
	Insulation		- PVC as per JIS C 3410(2010)
	Twisting		- Two Insulated cores shall be twisted together to form a pair
	Cabling		- Twisted pairs shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Common shield	**SLA**	- Screened by AL/PS tape with tinned copper drain wire. - A suitable tape may be applied on the common shield
	Sheath	**Y**	- PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C). - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Printed pair number and Alphabet letter on the white insulation ex) 4P : (1A,1B), (2A, 2B), (3A, 3B), (4A, 4B) - 1T, 1Q cable shall be identified by the black number on the white insulation

Note. Cold type cable ("(C)") can be supplied.

150/250V (FA-)TTYSLA, 150/250V (FA-)TTYCSLA, 150/250V (FA-)TTYCYSLA

No. of Units	No.of Cores	Conductor			(FA-)TTYSLA		(FA-)TTYCSLA		(FA-)TTYCYSLA		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
		Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) TTYSLA	(FA-) TTYCSLA	(FA-) TTYCYSLA
		mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
1P	2	0.75	7/0.37	1.11	8.1	0.5	9.4	0.4	11.2	0.4	26.0	20	80	140	180
1T	3				8.8	0.5	10.1	0.4	12.1	0.5			100	170	215
1Q	4				9.5	0.5	10.8	0.4	12.8	0.5			110	190	240
4P	8				14.4	0.7	15.7	0.6	17.9	0.7			220	335	410
7P	14				17.1	0.8	18.4	0.7	20.8	0.8			330	460	560
10P	20				22.1	0.9	23.4	0.9	26.0	1.0			500	665	805
14P	28				23.7	1.0	25.0	1.0	27.6	1.1			610	790	935
19P	38				26.6	1.0	27.9	1.1	30.7	1.2			790	985	1,160
24P	48				32.1	1.2	33.9	1.4	36.9	1.5			1,190	1,400	1,630
30P	60				34.2	1.3	36.0	1.4	39.4	1.6			1,280	1,610	1,890
37P	74				37.1	1.4	38.9	1.6	42.5	1.6			1,520	1,880	2,200
48P	96				43.0	1.5	44.8	1.7	48.6	1.7			1,990	2,410	2,790

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376



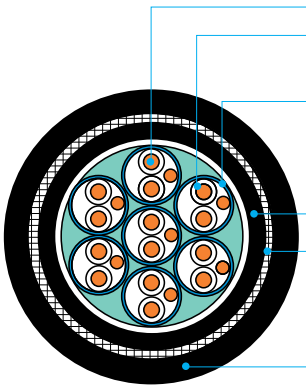
Cable Designation

150/250V TTY-SLA, FA-TTY-SLA,
150/250V TTYC-SLA, FA-TTYC-SLA,
150/250V TTYCY-SLA, FA-TTYCY-SLA

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 70℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**TT**	- Stranded plain annealed copper wires as per JIS C 3410(2010)
	Insulation		- PVC as per JIS C 3410(2010)
	Twisting		- Two Insulated cores shall be twisted together to form a pair
	Individual shield	**-SLA**	- Screened by AL/PS tape with tinned copper drain wire. - A suitable tape may be applied on the individual shield
	Cabling		- Twisted pairs shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Sheath	**Y**	-PVC as per JIS C 3410(2010)
	Armour	**C**	- Braid of galvanized steel wire(C). - Coverage density : Min. 90%
	Paint		- The white paint shall be painted uniformly on the steel wire braid - In case of PVC protective covering cable, paint is dispensable.
	Protective Covering	**Y**	- PVC as per JIS C 3410(2010) - Protective covering color : Black - Any other color may be applicable when purchaser required.
	Core identification		- Printed pair number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B)

Note. Fire resistance type FR(A) & Cold type cable ("(C)") can be supplied.

150/250V (FA-)TTY-SLA,150/250V (FA-)TTYC-SLA,150/250V (FA-)TTYCY-SLA

No. of Units	No.of Cores	Conductor			(FA-)TTY-SLA		(FA-)TTYC-SLA		(FA-)TTYCY-SLA		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight (Approx.)		
		Nominal Area	Strand	DIA.	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance	Nominal overall dia	Tolerance			(FA-) TTY-SLA	(FA-) TTYC-SLA	(FA-) TTYCY-SLA
		mm²	No./mm	mm	mm	±mm	mm	±mm	mm	±mm	Ω/km	MΩ - km	kg/km	kg/km	kg/km
4P	8	0.75	7/0.37	1.11	16.0	0.7	17.3	0.7	19.5	0.8	26.0	300	270	380	465
7P	14				19.5	0.9	20.8	0.8	23.2	0.9			410	545	660
10P	20				25.2	1.1	26.5	1.1	29.3	1.2			630	805	970
14P	28				27.6	1.2	28.9	1.2	31.7	1.3			790	980	1,160
19P	38				30.9	1.4	32.7	1.3	35.7	1.4			1,030	1,320	1,540
24P	48				36.6	1.6	38.4	1.5	42.0	1.6			1,370	1,710	2,020
30P	60				39.1	1.7	40.9	1.6	44.5	1.7			1,600	1,970	2,300
37P	74				42.3	1.8	44.1	1.7	47.9	1.8			1,900	2,300	2,670
48P	96				49.1	1.9	50.9	1.9	55.1	1.9			2,500	2,960	3,440

Telephone & Instrumentation Cable



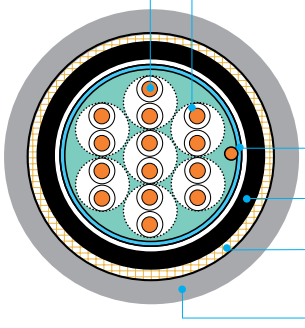
Cable Designation

250V RCOP(OS)

Application Standard

- Design guide : IEC 60092-350 & IEC 60092-376
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor		- Stranded tinned annealed copper wires as per IEC 60228, Class 2
	Insulation	R	- EPR as per IEC 60092-351
	Twisting		- Two/Three Insulated cores shall be twisted together to form a pair/triad
	Cabling		- Twisted pairs/triads shall be cabled - Flame retardant & non-hygroscopic fillers may be used - Suitable tape(s) may be applied on the cabled core - A Filler may be applied to obtain a circular Cable
	Collective screen	(OS)	- AL/PS tape + Tinned copper drain wire (0.75mm²) - A suitable tape may be applied on the collective screen
	Inner sheath	C	- SE1 as per IEC 60092-359
	Armour	O	- Braid of plain annealed copper wires - Coverage density is minimum 90%
	Outer sheath	P	- ST2 (PVC) as per IEC 60092-359 - Outer sheath color : Grey (for Non-IS Type) or Blue (for IS Type)
	Core identification		- Printed pair/triad number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B) 2T : (1A, 1B, 1C), (2A, 2B, 2C)

Note. Cold type cable ("(C)") can be supplied.

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

(PAIR TYPE)

250V RCOP(OS)

No. of Units	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA. (ca.)		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1Q	1.0	7/0.43	1.29	9.0	12.8	0.8	19.3	1,050	290
2P				11.7	15.5	0.9			360
4P				13.5	17.3	1.0			470
5P				15.1	19.1	1.1			550
6P				16.3	20.3	1.1			620
7P				16.3	20.3	1.1			650
8P				17.3	21.3	1.2			710
10P				19.6	23.8	1.3			850
12P				20.4	24.6	1.3			940
14P				21.4	25.6	1.3			1,040
16P				22.9	27.3	1.4			1,160
19P				24.2	28.6	1.4			1,300
20P				24.7	29.1	1.5			1,350
24P				27.5	32.1	1.6			1,590
30P				30.8	36.0	1.7			2,000
37P				33.1	38.3	1.8			2,310

*. 1 Quad cable shall be twisted quad formation

(TRIAD TYPE)

250V RCOP(OS)

No. of Triads	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA. (ca.)		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
2T	1.0	7/0.43	1.29	13.0	16.8	1.0	19.3	1,050	430
4T				15.1	19.1	1.1			580
5T				16.8	20.8	1.1			680
6T				19.1	23.3	1.2			810
7T				19.1	23.3	1.2			860
8T				20.4	24.6	1.3			940
10T				23.2	27.6	1.4			1,130
12T				24.7	29.1	1.5			1,280
14T				25.7	30.1	1.5			1,410
16T				27.5	32.1	1.6			1,590
19T				29.8	34.4	1.7			1,810
20T				30.3	35.5	1.7			1,980
24T				33.1	38.3	1.8			2,280
30T				36.7	42.1	2.0			2,730
37T				40.2	45.8	2.1			3,260

Telephone & Instrumentation Cable



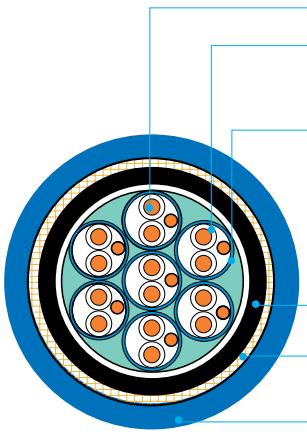
Cable Designation

250V RCOP(IS)

Application Standard

- Design guide : IEC 60092-350 & IEC 60092-376
- Flame retardant : IEC 60332-1
  : IEC 60332-3 Category A (FA-Cables Only)
- Cold bend/impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature :90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor		- Stranded tinned annealed copper wires as per IEC 60228, Class 2
	Insulation	**R**	- EPR as per IEC 60092-351
	Twisting		- Two/Three Insulated cores shall be twisted together to form a pair/triad
	Individual screen	**(IS)**	- AL/PS tape + Tinned copper drain wire (0.75mm^2) - A suitable tape may be applied on the individual screen
	Cabling		- Twisted pairs/triads shall be cabled - Flame retardant & non-hygroscopic fillers may be used - Suitable tape(s) may be applied on the cabled core - A Filler may be applied to obtain a circular Cable
	Inner sheath	**C**	- SE1 as per IEC 60092-359
	Armour	**O**	- Braid of plain annealed copper wires - Coverage density is minimum 90%
	Outer sheath	**P**	- ST2 (PVC) as per IEC 60092-359 - Outer sheath color : Grey (for Non-IS Type) or Blue (for IS Type)
	Core identification		- Printed pair/triad number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B) 2T : (1A, 1B, 1C), (2A, 2B, 2C)

Note. Cold type cable ("(C)") can be supplied.

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

(PAIR TYPE)

250V RCOP(IS)

No. of Pairs	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA. (ca.)		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1P	1.0	7 / 0.43	1.29	8.0	11.8	0.8	19.3	1,050	230
2P				12.3	16.1	0.9			380
4P				14.5	18.3	1.0			520
5P				16.3	20.3	1.1			620
6P				16.9	20.9	1.1			680
7P				16.9	20.9	1.1			720
8P				18.7	22.9	1.2			830
10P				21.4	25.6	1.3			990
12P				22.2	26.4	1.4			1,100
14P				23.3	27.7	1.4			1,220
16P				25.2	29.6	1.5			1,370
19P				25.7	30.1	1.5			1,510
20P				26.5	30.9	1.5			1,590
24P				30.2	35.2	1.7			1,980
30P				32.9	38.1	1.8			2,350
37P				34.8	40.2	1.9			2,750

(TRIAD TYPE)

250V RCOP(IS)

No. of Triads	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA. (ca.)		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1T	1.0	7 / 0.43	1.29	8.4	12.2	0.8	19.3	1,050	260
2T				13.3	17.1	1.0			440
4T				15.7	19.7	1.1			640
5T				17.3	21.3	1.2			740
6T				19.7	23.9	1.3			880
7T				19.7	23.9	1.3			940
8T				21.3	25.5	1.3			1,050
10T				24.2	28.6	1.4			1,270
12T				25.6	30.0	1.5			1,430
14T				26.9	31.5	1.6			1,610
16T				28.5	33.1	1.6			1,780
19T				31.0	36.2	1.7			2,150
20T				31.5	3.7	1.8			2,230
24T				34.6	40.0	1.9			2,630
30T				38.4	44.0	2.1			3,160
37T				41.9	47.5	2.2			3,720

Telephone & Instrumentation Cable



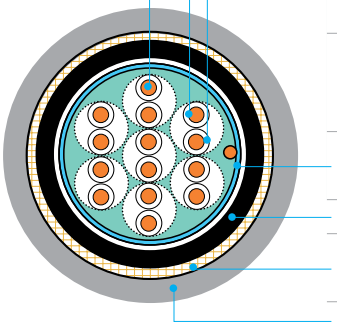
Cable Designation

250V FR-RCOP(OS)

Application Standard

- Design guide : IEC 60092-350 & IEC 60092-376
- Insulation material : IEC 60092-351, EPR
- Sheath material : IEC 60092-359, SE1 & ST2
- Flame retardant : IEC 60332-1 & IEC 60332-3 Category A
- Fire resistant : IEC 60331-21 & IEC 60331-1 or -2(120minute)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor		- Stranded tinned annealed copper wires as per IEC 60228, Class 2 - A suitable tape may be applied on the conductor
	Fire resisting layer	**FR-**	- Mica/glass tape
	Insulation	**R**	- EPR as per IEC 60092-351
	Twisting		- Two/Three Insulated cores shall be twisted together to form a pair/triad
	Cabling		- Twisted pairs/triads shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Collective screen	**(OS)**	- AL/PS tape + tinned copper drain wire - A suitable tape may be applied on the collective screen
	Inner sheath	**C**	- SE1 as per IEC 60092-359
	Armour	**O**	- Braid of plain annealed copper wires - A suitable separator tape(s) may be applied under/over the armour
	Outer sheath	**P**	- ST2 (PVC) as per IEC 60092-359
	Core identification		- Printed pair/triad number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B) 2T : (1A, 1B, 1C), (2A, 2B, 2C)

Note. Cold type cable ("(C)") can be supplied.

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

(PAIR TYPE)

250V FR-RCOP(OS)

No. of Unit	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA.		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1Q	1.0	7 / 0.43	1.29	10.4	14.2	0.9	19.3	20	330
2P				13.6	17.4	1.0			420
4P				15.7	19.7	1.1			560
5P				17.6	21.6	1.2			640
6P				19.0	23.2	1.2			730
7P				19.0	23.2	1.2			770
8P				20.2	24.4	1.3			830
10P				22.9	27.3	1.4			1,000
12P				24.1	28.5	1.4			1,120
14P				25.0	29.4	1.5			1,210
16P				27.0	31.6	1.6			1,370
19P				28.3	32.9	1.6			1,510
20P				29.1	33.7	1.6			1,590
24P				32.4	37.6	1.8			1,960
30P				36.3	41.7	2.0			2,350
37P				39.0	44.6	2.1			2,730

*. 1 Quad cable shall be twisted quad formation

(TRIAD TYPE)

250V FR-RCOP(OS)

No. of Triads	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA.		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
2T	1.0	7 / 0.43	1.29	14.9	18.9	1.1	19.3	20	490
4T				17.6	21.6	1.2			670
5T				19.7	23.9	1.3			800
6T				22.4	26.6	1.4			940
7T				22.4	26.6	1.4			990
8T				24.1	28.5	1.4			1,120
10T				27.4	32.0	1.6			1,350
12T				29.2	33.8	1.7			1,520
14T				30.4	35.6	1.7			1,770
16T				32.5	37.7	1.8			1,960
19T				35.2	40.6	1.9			2,250
20T				35.8	41.2	1.9			2,330
24T				39.1	44.7	2.1			2,700
30T				43.5	49.3	2.3			3,250
37T				47.5	53.5	2.4			3,830

Telephone & Instrumentation Cable



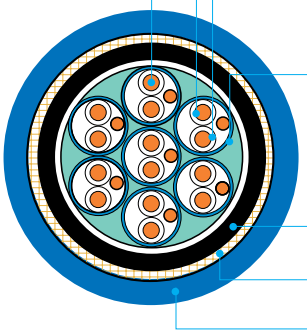
Cable Designation

250V FR-RCOP(IS)

Application Standard

- Design guide : IEC 60092-350 & IEC 60092-376
- Insulation material : IEC 60092-351, EPR
- Sheath material : IEC 60092-359, SE1 & ST2
- Flame retardant : IEC 60332-1 & IEC 60332-3 Category A
- Fire resistant : IEC 60331-21 & IEC 60331-1 or -2(120minute)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor		- Stranded tinned annealed copper wires as per IEC 60228, Class 2 - A suitable tape may be applied on the conductor
	Fire resisting layer	**FR-**	- Mica/glass tape
	Insulation	**R**	- EPR as per IEC 60092-351
	Twisting		- Two/Three Insulated cores shall be twisted together to form a pair/triad
	Collective screen	**(IS)**	- AL/PS tape + tinned copper drain wire - A suitable tape may be applied on the collective screen
	Cabling		- Twisted pairs/triads shall be cabled. - Flame retardant & non-hygroscopic fillers may be used . - Suitable tape(s) may be applied on the cabled core.
	Inner sheath	**C**	- SE1 as per IEC 60092-359
	Armour	**O**	- Braid of plain annealed copper wires - A suitable separator tape(s) may be applied under/over the armour
	Outer sheath	**P**	- ST2 as per IEC 60092-359
	Core identification		- Printed pair/triad number and Alphabet letter on the white insulation ex) 4P : (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B) 2T : (1A, 1B, 1C), (2A, 2B, 2C)

Note. Cold type cable ("(C)") can be supplied.

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JIS C 3410(2010), IEC 60092-350, 353, 354, 376

(PAIR TYPE)

250V FR-RCOP(IS)

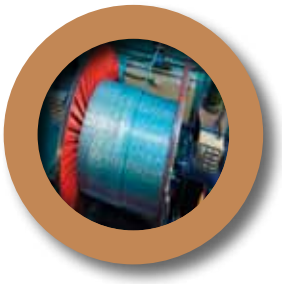
No. of Pair	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA.		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1P	1.0	7 / 0.43	1.29	9.0	12.8	0.8	19.3	20	260
2P				14.3	18.1	1.0			440
4P				16.8	20.8	1.1			620
5P				18.9	23.1	1.2			740
6P				19.6	23.8	1.3			800
7P				19.6	23.8	1.3			850
8P				21.7	25.9	1.3			960
10P				24.8	29.2	1.5			1,170
12P				25.8	30.2	1.5			1,290
14P				27.3	31.9	1.6			1,460
16P				29.5	34.1	1.7			1,640
19P				30.1	35.1	1.7			1,880
20P				30.8	36.0	1.7			1,970
24P				35.4	40.8	1.9			2,370
30P				38.5	44.1	2.1			2,800
37P				40.7	46.3	2.2			3,230

(TRIAD TYPE)

250V FR-RCOP(IS)

No. of Triads	Conductor			Nominal Dia. inner sheath	Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Cable Weight Approx.
	Nominal Area	Strand	DIA.		Nominal	Tolerance			
No.	SQMM	No./mm	mm	mm	mm	±mm	Ω/km	MΩ - km	kg/km
1T	1.0	7 / 0.43	1.29	9.5	13.3	0.8	19.3	20	290
2T				15.2	19.2	1.1			510
4T				18.0	22.0	1.2			720
5T				20.2	24.4	1.3			860
6T				23.0	27.4	1.4			1,030
7T				23.0	27.4	1.4			1,090
8T				24.8	29.2	1.5			1,220
10T				28.3	32.9	1.6			1,480
12T				30.1	35.1	1.7			1,770
14T				31.4	36.6	1.8			1,950
16T				33.5	38.7	1.8			2,170
19T				36.4	41.8	2.0			2,510
20T				37.2	42.6	2.0			2,620
24T				40.6	46.2	2.1			3,050
30T				45.3	51.1	2.3			3,690
37T				49.4	55.4	2.5			4,360





Portable and Flexible Cable



0.6/1kV DPNP

0.6/1kV TPNP

0.6/1kV FPNP 39

0.6/1kV SYP

0.6/1kV SCP 40



S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



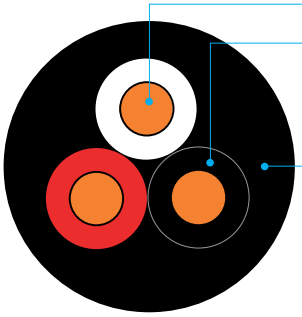
Cable Designation

0.6/1KV DPNP, TPNP, FPNP

Application Standard

- Design guide : JIS C 3410(2010)
- Cold bend / impact : CSA 22.2 No. 0.3 (-40℃/-35℃) (Cold Type Only)
- Max. rated conductor temperature : 90℃

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**D, T, F**	- Stranded tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	**P**	- EPR as per JIS C 3410(2010)
	Cabling		- Insulated conductors shall be cabled. - Flame retardant & non-hygroscopic fillers may be used. - Suitable tape(s) may be applied on the cabled core.
	Sheath	**NP**	- PCP as per JIS C 3410(2010) - Outer sheath color : Black - Any other color may be applicable when purchaser required.
	Core identification		No. of cores: 2C — Insulation Color: Black, White No. of cores: 3C — Insulation Color: Black, White, Red No. of cores: 4C — Insulation Color: Black, White, Red, Green

0.6/1kV DPNP, 0.6/1kV TPNP, 0.6/1kV FPNP

No.of Cores	Conductor			DPNP, TPNP, FPNP		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (at 20℃) (Min.)	Weight (Approx.)
	Nominal Area	Strand	DIA.	Nominal overall dia.	Tolerance			
	mm²	Stranding	mm	mm	±mm	MΩ - km	MΩ - km	kg/km
2	0.75	24/0.20	1.13	9.7	0.4	26.7	1,600	130
	1.0	32/0.20	1.27	9.9	0.4	20.0	1,500	135
	1.5	30/0.25	1.58	10.8	0.4	13.7	1,300	165
	2.5	49/0.25	2.02	11.8	0.5	8.21	1,100	205
	4	55/0.30	2.57	13.1	0.5	5.09	900	265
	6	82/0.30	3.14	14.5	0.6	3.39	800	340
3	0.75	24/0.20	1.13	10.2	0.4	26.7	1,600	145
	1.0	32/0.20	1.27	10.7	0.4	20.0	1,500	160
	1.5	30/0.25	1.58	11.4	0.5	13.7	1,300	190
	2.5	49/0.25	2.02	12.5	0.5	8.21	1,100	240
	4	55/0.30	2.57	14.1	0.6	5.09	900	325
	6	82/0.30	3.14	15.6	0.6	3.39	800	420
4	0.75	24/0.20	1.13	11.3	0.5	26.7	1,600	180
	1.0	32/0.20	1.27	11.8	0.5	20.0	1,500	200
	1.5	30/0.25	1.58	12.6	0.5	13.7	1,300	235
	2.5	49/0.25	2.02	14.1	0.6	8.21	1,100	310
	4	55/0.30	2.57	15.6	0.6	5.09	900	410
	6	82/0.30	3.14	17.2	0.7	3.39	800	525

Portable and Flexible Cable



Cable Designation

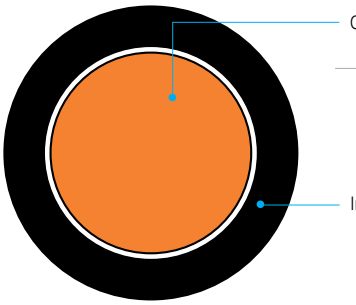
0.6/1KV SCP

0.6/1KV SYP

Application Standard

- Design guide : JIS C 3410(2010)
- Flame retardant : JIS C 3410(2010) (same as IEC 60332-1)
- Max. rated conductor temperature : 90℃ (0.6/1kV SCP)
  75℃ (0.6/1kV SYP)

Construction

Sectional view	Classification	Code	Construction detail
	Conductor	**S**	- Flexible Plained or tinned annealed copper wires as per JIS C 3410(2010) - A suitable tape may be applied on the conductor
	Insulation	**CP**	- Flame retardant XLPE as per JIS C 3410(2010)
		YP	- PVC as per JIS C 3410(2010)

0.6/1kV SCP

Conductor Size		Diameter	Nominal Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (20℃)	Weight (Approx.)
mm^2	Stranding	mm	mm	±mm	MΩ - km	MΩ - km	kg/km
1.5	30 / 0.25	1.58	3.7	0.4	13.7	70	25
2.5	49 / 0.25	2.02	4.3	0.4	8.21	70	38
4	55 / 0.3	2.57	4.9	0.4	5.09	60	55
6	82 / 0.3	3.14	5.4	0.4	3.39	50	75
10	80 / 0.4	4.13	6.6	0.4	1.95	40	120
16	7 / 18 / 0.4	5.88	8.4	0.4	1.24	30	185
25	7 / 28 / 0.4	7.32	10.0	0.4	0.795	30	275
35	7 / 39 / 0.4	8.67	11.8	0.5	0.565	30	380
50	19 / 21 / 0.4	10.3	13.4	0.5	0.393	30	535
70	19 / 19 / 0.5	12.2	15.9	0.6	0.277	30	755
95	19 / 25 / 0.5	14.0	17.9	0.7	0.210	30	980

0.6/1kV SYP

Conductor Size		Diameter	Nominal Overall diameter		Conductor Resistance (at 20℃) (Max.)	Insulation Resistance (20℃)	Weight (Approx.)
mm^2	Stranding	mm	mm	±mm	MΩ - km	MΩ - km	kg/km
0.75	24 / 0.20	1.13	3.7	0.4	26.7	400	20
1.0	32 / 0.20	1.27	3.9	0.4	20.0	350	23
1.5	30 / 0.25	1.58	4.2	0.4	13.7	350	29
2.5	49 / 0.25	2.02	4.6	0.4	8.21	300	40
4	55 / 0.30	2.57	5.2	0.4	5.09	250	60
6	82 / 0.30	3.14	5.7	0.4	3.39	200	80
10	80 / 0.40	4.13	6.7	0.4	1.95	150	125
16	18 / 0.40	5.88	8.7	0.4	1.24	150	190





Technical Data & Installation Information





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Technical Information

1. Maximum working voltage and test voltage

Nominal voltage (V)	Maximum working voltage (V)		(Test voltage) V/min.
	a.c	d.c	
250V	250V	450V	1500/5
0.6/1kV	0.6/1kV	0.9/1.5kV	3500/5

2. Current rating

1) Current ratings in continuous service for single cables. (ambient temperature 45°)

Note) 1 - The current ratings (I), have been calculated for each nominal Cross-sectional area (A), 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:

Maximum permissible temperature of the conductor		60℃	70℃	85℃	90℃	95℃
Values of α for nominal cross-section area	≥ 2.5mm²	9.5	12	16	17	18
	< 2.5mm²	8	11.5	16	18	20

2) Multi-core cable correction factor.

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

3) Ambient temperature correction factor.

Max. conductor temperature	Correction factor for various ambient air temperatures										
℃	35	40	45	50	55	60	65	70	75	80	85
60	1.29	1.15	1.00	0.82	-	-	-	-	-	-	-
65	1.22	1.12	1.00	0.87	0.71	-	-	-	-	-	-
70	1.18	1.10	1.00	0.89	0.77	0.63	-	-	-	-	-
75	1.15	1.08	1.00	0.91	0.82	0.71	0.58	-	-	-	-
80	1.13	1.07	1.00	0.93	0.85	0.76	0.65	0.53	-	-	-
85	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61	0.50	-	-
90	1.10	1.05	1.00	0.94	0.88	0.82	0.74	0.67	0.58	0.47	-

4) Current rating of EP rubber insulated cable

Table 1. Current ratings of power cable

No.of cores	Nominal Sectional area mm²	Ambient temperature (40℃)			Ambient temperature (45℃)			Ambient temperature (50℃)		
		Continuos Rating	Short time rating		Continuos Rating	Short time rating		Continuos Rating	Short time rating	
			30 min	1 hour		30 min	1 hour		30 min	1 hour
1	1.5	24	26	26	23	24	24	22	23	23
	2.5	32	33	33	30	32	32	28	30	30
	4	42	44	44	40	42	42	38	40	40
	6	55	58	58	52	55	55	49	52	52
	10	76	80	80	72	76	76	68	72	72
	16	101	107	107	96	102	102	90	96	96
	25	133	143	141	127	136	134	119	128	126
	35	165	177	175	157	169	166	148	159	156
	50	206	224	218	196	213	208	184	200	195
	70	254	281	270	242	267	257	227	251	242
	95	308	349	328	293	332	313	275	312	294
	120	356	410	381	339	390	363	319	367	341
	150	408	481	441	389	459	420	366	431	394
	185	466	564	508	444	537	484	417	505	454
	240	548	689	606	522	656	577	491	617	543
	300	631	825	711	601	786	678	565	739	637
2	1.5	21	22	22	20	21	21	19	20	20
	2.5	27	29	29	26	28	28	24	26	26
	4	36	38	38	34	37	36	32	34	34
	6	46	50	49	44	48	47	41	45	44
	10	64	70	68	61	67	65	57	63	61
	16	86	96	92	82	92	87	77	86	82
	25	113	132	122	108	125	116	102	118	109
	35	140	167	151	133	159	144	125	149	135
	50	175	219	193	167	208	184	157	196	173
	70	216	283	244	206	270	232	194	253	218
	95	261	363	305	249	346	290	234	325	273
	120	302	437	361	288	416	344	271	391	323
	150	348	523	426	331	498	406	311	469	382
	185	396	626	503	377	596	479	354	560	450
3	1.5	17	18	18	16	17	17	15	16	16
	2.5	22	24	23	21	23	22	20	21	21
	4	29	32	31	28	30	30	26	28	28
	6	38	41	40	36	39	38	34	37	36
	10	53	58	56	50	55	53	47	52	50
	16	70	80	75	67	76	72	63	71	67
	25	93	111	101	89	105	96	84	99	90
	35	116	141	126	110	134	120	103	126	113
	50	144	185	161	137	176	153	129	165	144
	70	177	239	203	169	227	193	159	214	182
	95	215	308	256	205	293	243	193	276	229
	120	249	371	303	237	353	289	223	332	272
	150	286	445	359	272	424	342	256	398	321
	185	327	535	425	311	509	405	292	479	381

Note

1. The values given in Table 1. are for 6 cables or less bunched or laid together.
   When more than 6 cables are bunched or laid close together, a correction factor 0.85 should be applied to the values given in table 1.
2. Frequencies in the case of AC : 60 Hz

Technical Information

Table 2. Current ratings of multi-core, EPR insulated cable

No. of core	Ambient temperature		
	40℃	45℃	50℃
2	16	15	14
4	13	13	12
7	10	10	9
12	9	8	8
19	8	7	7
27	6	5	5
37	5	5	4
44	4	4	3
77	4	4	3

Note 1. The values given in Table 2. are for 6 cables or less bunched or laid together.
When more than 6 cables are bunched or laid close together, a correction factor 0.85 should be applied to the values given in table 2.
2. Frequencies in the case of AC : 60 Hz.

Table 3. Current ratings of EP rubber insulated PCP sheathed cable

Nominal conductor area(㎟)	Single core			Double core			Three core		
	ambient temperature			ambient temperature			ambient temperature		
	40℃	45℃	50℃	40℃	45℃	50℃	40℃	45℃	50℃
0.75	13	12	11	11	10	9	11	10	9
1	16	15	14	13	12	12	13	12	12
1.5	19	18	17	16	15	14	16	15	14
2.5	26	25	25	22	21	20	22	21	20
4	36	34	33	30	29	28	30	29	28
6	45	44	42	38	36	34	38	36	34

Note 1. Frequencies in the case of AC : 60 Hz.

Table 4.
Current ratings of FR-XLPE insulated switchboard wire

Nominal conductor area(㎟)	Ambient temperature		
	40℃	45℃	50℃
1.5	22	21	20
2.5	32	30	28
4	42	40	38
6	54	51	48
10	75	71	67
16	100	95	91
25	134	127	121
35	162	154	145
50	201	191	181
70	252	239	227
95	308	292	277

Table 5. Current ratings of PVC insulated wire
for controlling machines and apparatus

Nominal conductor area(㎟)	Ambient temperature		
	40℃	45℃	50℃
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 values given in Table 4. & 5. are for 6 wires or less bunched or laid together.
When more than 6 wires are bunched or laid close together, a correction factor 0.85 should be applied to the values given in Table 4. & 5.
2. Frequencies in the case of AC : 60 Hz

3. Short circuit current ratings

Short circuit current capacity is calculated by IEC 60724, IEC 60949 and IEC 60986.
The relation between short circuit current capacity and duration of short circuit is determined as follows :

$$I^2 \times t = 226^2 \times S^2 \times \log_e \left[\frac{\theta_1 + 234.5}{\theta_2 + 234.5} \right]$$

Short circuit current capacity, therefire, is calculated by following formula :

$$I = \sqrt{\frac{1}{t} \times 226^2 \times S^2 \times \log_e \left[\frac{\theta_1 + 234.5}{\theta_2 + 234.5} \right]}$$

Where,

I : Short circuit current capacity (kA)

t : Duration of short circuit (S) : up to 5 s

S : Conductor nominal section area (mm^2)

θ_1 : Short circuit conductor maximum permissible temperature : 250℃ (EP rubber insulation cable)

θ_2 : Continuous conductor maximum permissible temperature : 250℃ (EP rubber insulation cable)

Nominal area	Short circuit currents (kA)													
	Duration of short circuit in second													
mm^2	0.03	0.05	0.07	0.1	0.14	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2
2.5	2.1	1.6	1.4	1.1	1.0	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4
4	3.3	2.6	2.2	1.8	1.5	1.3	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.6
6	5.0	3.8	3.2	2.7	2.3	1.9	1.6	1.4	1.2	1.1	1.0	1.0	0.9	0.9
10	8.3	6.4	5.4	4.5	3.8	3.2	2.6	2.3	2.0	1.8	1.7	1.6	1.5	1.4
16	13.2	10.2	8.7	7.2	6.1	5.1	4.2	3.6	3.2	3.0	2.7	2.6	2.4	2.3
25	20.7	16.0	13.5	11.3	9.6	8.0	6.5	5.7	5.1	4.6	4.3	4.0	3.8	3.6
35	28.9	22.4	18.9	15.8	13.4	11.2	9.1	7.9	7.1	6.5	6.0	5.6	5.3	5.0
50	41.3	32.0	27.0	22.6	19.1	16.0	13.1	11.3	10.1	9.2	8.6	8.0	7.5	7.2
70	57.8	44.8	37.9	31.7	26.8	22.4	18.3	15.8	14.2	12.9	12.0	11.2	10.6	10.0
95	78.5	60.8	51.4	43.0	36.3	30.4	24.8	21.5	19.2	17.5	16.2	15.2	14.3	13.6
120	99.1	76.8	64.9	54.3	45.9	38.4	31.3	27.1	24.3	22.2	20.5	19.2	18.1	17.2
150	123.9	96.0	81.1	67.9	57.4	48.0	39.2	33.9	30.4	27.7	25.7	24.0	22.6	21.5
240	198.3	153.6	129.8	108.6	91.8	76.8	62.7	54.3	48.6	44.3	41.0	38.4	36.2	34.3
300	247.8	192.0	162.2	135.7	114.7	96.0	78.4	67.9	60.7	55.4	51.3	48.0	45.2	42.9
400	330.4	256.0	216.3	181.0	153.0	128.0	104.5	90.5	80.9	73.9	68.4	64.0	60.3	57.2
500	413.0	319.9	270.4	226.2	191.2	160.0	130.6	113.1	101.2	92.4	85.5	80.0	75.4	71.5

Technical Information

4. Electrical data

0.6/1kV EP rubber insulated cable

Nominal Area	R-dc (at 20℃)	R-dc (at 90℃)	R-ac (at 20℃)	Single core cable						Multi core cable					
				Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃	Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃
mm^2	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km
1.5	12.2	15.6	15.6	0.206	0.539	0.169	0.203	15.6	15.6	0.289	0.370	0.116	0.139	15.6	15.6
2.5	7.56	9.64	9.64	0.226	0.497	0.156	0.187	9.64	9.64	0.323	0.341	0.107	0.129	9.64	9.64
4	4.70	5.99	5.99	0.263	0.462	0.145	0.174	5.99	6.00	0.363	0.317	0.0996	0.120	5.99	5.99
6	3.11	3.97	3.97	0.315	0.431	0.136	0.163	3.97	3.97	0.409	0.299	0.0939	0.113	3.97	3.97
10	1.84	2.35	2.35	0.377	0.401	0.126	0.151	2.35	2.35	0.484	0.279	0.0877	0.105	2.35	2.35
16	1.16	1.48	1.48	0.465	0.374	0.118	0.141	1.48	1.49	0.564	0.263	0.0826	0.0991	1.48	1.48
25	0.734	0.936	0.936	0.493	0.356	0.112	0.134	0.943	0.945	0.586	0.259	0.0814	0.0976	0.939	0.941
35	0.529	0.675	0.675	0.556	0.341	0.107	0.129	0.683	0.687	0.658	0.250	0.0785	0.0942	0.679	0.681
50	0.391	0.499	0.499	0.574	0.331	0.104	0.125	0.509	0.514	0.664	0.248	0.0779	0.0935	0.505	0.507
70	0.270	0.344	0.344	0.674	0.315	0.0989	0.119	0.358	0.364	0.757	0.240	0.0754	0.0905	0.352	0.356
95	0.195	0.249	0.251	0.698	0.309	0.0971	0.116	0.269	0.277	0.777	0.240	0.0754	0.0905	0.262	0.267
120	0.154	0.196	0.198	0.779	0.300	0.0943	0.113	0.220	0.228	0.849	0.235	0.0738	0.0886	0.212	0.217
150	0.126	0.161	0.164	0.762	0.296	0.0931	0.112	0.188	0.198	0.846	0.235	0.0738	0.0886	0.180	0.186
185	0.100	0.128	0.131	0.787	0.292	0.0918	0.110	0.160	0.171	0.854	0.234	0.0735	0.0882	0.151	0.158
240	0.0762	0.0972	0.101	0.806	0.287	0.0901	0.108	0.135	0.148	-	-	-	-	-	-
300	0.0607	0.0774	0.0820	0.834	0.284	0.0893	0.107	0.121	0.135	-	-	-	-	-	-

3.6/6kV EP rubber insulated cable

Nominal Area	R-dc (at 20℃)	R-dc (at 90℃)	R-ac (at 20℃)	Single core cable						Multi core cable					
				Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃	Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃
mm^2	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km
10	1.84	2.35	2.35	0.260	0.434	0.136	0.164	2.35	2.35	0.260	0.399	0.125	0.150	2.35	2.35
16	1.16	1.48	1.48	0.293	0.416	0.131	0.157	1.48	1.49	0.293	0.370	0.116	0.139	1.48	1.49
25	0.734	0.936	0.936	0.336	0.393	0.123	0.148	0.944	0.948	0.336	0.343	0.108	0.129	0.942	0.945
35	0.529	0.675	0.675	0.375	0.377	0.119	0.142	0.685	0.689	0.375	0.327	0.103	0.123	0.682	0.686
50	0.391	0.499	0.499	0.418	0.363	0.114	0.137	0.511	0.517	0.418	0.311	0.0977	0.117	0.508	0.512
70	0.270	0.344	0.344	0.476	0.347	0.109	0.131	0.361	0.368	0.476	0.295	0.0927	0.111	0.357	0.362
95	0.195	0.249	0.251	0.537	0.335	0.105	0.126	0.272	0.281	0.537	0.282	0.0886	0.106	0.266	0.273
120	0.154	0.196	0.198	0.589	0.325	0.102	0.123	0.223	0.233	0.589	0.273	0.0858	0.103	0.216	0.223
150	0.126	0.161	0.164	0.641	0.317	0.100	0.120	0.192	0.203	0.641	0.266	0.0836	0.100	0.184	0.192
185	0.100	0.128	0.131	0.699	0.312	0.0981	0.118	0.164	0.176	-	-	-	-	-	-
240	0.0762	0.0972	0.101	0.759	0.305	0.0957	0.115	0.139	0.153	-	-	-	-	-	-
300	0.0607	0.0774	0.0820	0.782	0.300	0.0941	0.113	0.125	0.140	-	-	-	-	-	-

6/10kV EP rubber insulated cable

Nominal Area	R-dc (at 20℃)	R-dc (at 90℃)	R-ac (at 20℃)	Single core cable						Multi core cable					
				Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃	Capacitance C	Inductance L	Reactance X 50Hz	Reactance X 60Hz	Impedance Z at 50Hz 90℃	Impedance Z at 60Hz 90℃
mm^2	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km	μF/km	mH/km	Ω/km	Ω/km	Ω/km	Ω/km
16	1.16	1.48	1.48	0.235	0.434	0.136	0.164	1.49	1.49	0.235	0.399	0.125	0.150	1.48	1.49
25	0.734	0.936	0.936	0.268	0.412	0.129	0.155	0.945	0.949	0.268	0.370	0.116	0.139	0.943	0.946
35	0.529	0.675	0.675	0.297	0.395	0.124	0.149	0.686	0.691	0.297	0.351	0.110	0.132	0.683	0.687
50	0.391	0.499	0.499	0.329	0.379	0.119	0.143	0.513	0.519	0.329	0.334	0.105	0.126	0.509	0.514
70	0.270	0.344	0.344	0.372	0.363	0.114	0.137	0.363	0.370	0.372	0.316	0.0993	0.119	0.358	0.364
95	0.195	0.249	0.251	0.418	0.348	0.109	0.131	0.274	0.283	0.418	0.301	0.0946	0.113	0.268	0.276
120	0.154	0.196	0.198	0.457	0.338	0.106	0.127	0.225	0.236	0.457	0.291	0.0914	0.110	0.218	0.227
150	0.126	0.161	0.164	0.495	0.332	0.104	0.125	0.194	0.206	0.495	0.283	0.0889	0.107	0.186	0.195
185	0.100	0.128	0.131	0.539	0.325	0.102	0.123	0.166	0.180	-	-	-	-	-	-
240	0.0762	0.0972	0.101	0.603	0.314	0.0985	0.118	0.141	0.156	-	-	-	-	-	-
300	0.0607	0.0774	0.0820	0.661	0.306	0.0962	0.115	0.126	0.142	-	-	-	-	-	-

5. Calculate of Voltage Drop

Calculate fomula

1) DC circuit

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

2) AC circuit

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

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

Where,

- L : Cable length (km)
- I : Current (A)
- V : Circuit Voltage (V)
- R_{dc} : D.C. resistance at maximum rated Conductor temperature
- R_{ac} : A.C. resistance at maximum rated Conductor temperature
- ∂ : Inductive voltage drop coefficient

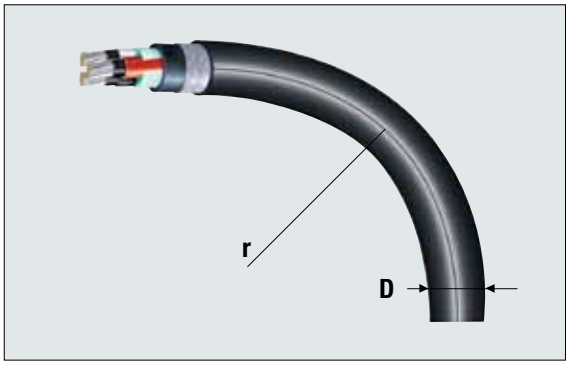
Nominal Area	0.6/1kV EP rubber insulated cable Inductive voltage drop coefficient							3.6/6kV EP rubber insulated cable Inductive voltage drop coefficient							6 /10kV EP rubber insulated cable Inductive voltage drop coefficient						
	Dielectric power factor (at 60HZ & 90℃ Conductor temperature)							Dielectric power factor (at 60HZ & 90℃ Conductor temperature)							Dielectric power factor (at 60HZ & 90℃ Conductor temperature)						
mm^2	100%	95%	90%	85%	80%	75%	70%	100%	95%	90%	85%	80%	75%	70%	100%	95%	90%	85%	80%	75%	70%
1.5	1.00	0.95	0.90	0.85	0.81	0.76	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5	1.00	0.95	0.91	0.86	0.81	0.76	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	1.00	0.96	0.91	0.86	0.81	0.76	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	1.00	0.96	0.91	0.86	0.82	0.77	0.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	1.00	0.96	0.92	0.87	0.83	0.78	0.73	1.00	0.97	0.92	0.88	0.83	0.78	0.74	-	-	-	-	-	-	-
16	1.00	0.97	0.93	0.89	0.84	0.79	0.75	1.00	0.97	0.93	0.89	0.85	0.80	0.76	1.00	0.98	0.94	0.89	0.85	0.81	0.76
25	1.00	0.98	0.95	0.90	0.86	0.82	0.77	1.00	0.99	0.95	0.91	0.87	0.83	0.78	1.00	0.99	0.95	0.92	0.88	0.83	0.79
35	1.00	0.99	0.96	0.92	0.88	0.84	0.80	1.00	1.00	0.97	0.93	0.89	0.85	0.81	1.00	1.00	0.97	0.94	0.90	0.86	0.82
50	1.00	1.01	0.98	0.95	0.91	0.87	0.83	1.00	1.01	0.99	0.96	0.92	0.88	0.84	1.00	1.02	1.00	0.97	0.93	0.90	0.86
70	1.00	1.03	1.01	0.99	0.96	0.92	0.89	1.00	1.04	1.02	1.00	0.97	0.94	0.90	1.00	1.05	1.03	1.01	0.98	0.95	0.92
95	1.00	1.06	1.06	1.04	1.02	0.99	0.96	1.00	1.07	1.06	1.05	1.03	1.00	0.97	1.00	1.08	1.08	1.06	1.04	1.02	0.99
120	1.00	1.09	1.09	1.09	1.07	1.05	1.02	1.00	1.10	1.10	1.10	1.08	1.06	1.03	1.00	1.11	1.12	1.11	1.10	1.08	1.06
150	1.00	1.12	1.14	1.14	1.12	1.11	1.09	1.00	1.12	1.14	1.14	1.13	1.12	1.10	1.00	1.13	1.16	1.16	1.15	1.14	1.12
185	1.00	1.16	1.19	1.20	1.20	1.19	1.18	1.00	1.16	1.20	1.21	1.21	1.20	1.18	1.00	1.17	1.21	1.23	1.23	1.23	1.21
240	1.00	1.22	1.27	1.30	1.31	1.32	1.31	1.00	1.22	1.28	1.31	1.32	1.32	1.32	1.00	1.23	1.30	1.33	1.35	1.35	1.35
300	1.00	1.28	1.36	1.40	1.43	1.44	1.45	1.00	1.28	1.36	1.41	1.44	1.45	1.46	1.00	1.29	1.38	1.43	1.46	1.48	1.48

6. Minimum bending radius

The bending radius for the installation of cables should be not less than the values given as follows:

Type of cable		Minimum bending radius
Up to 1.8/3kV	Unarmoured or unbraided	
	D ≤ 25mm	4 X D
	D > 25mm	6 X D
	Metal braid screened or armoured	6 X D
	Tape screened	8 X D
3.6/6kV above	Single core	12 X D
	3-core	9 X D

Notes) D : Overall diameter of cable



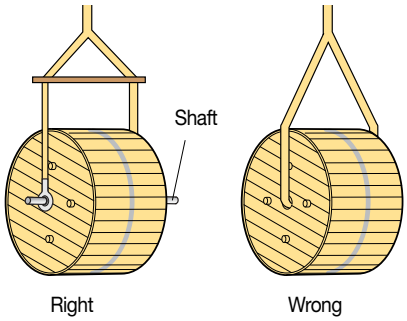
Handling, Installation Method & Notice

■ Loading & Transportation

1. In case of a crane

Should transport by using standard rope and a shaft which is put in the center of drum.

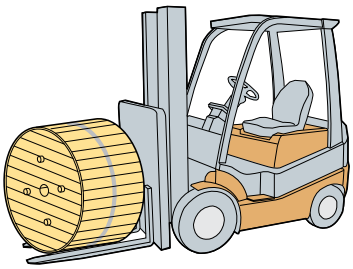
* Matters that requires attention
- Placing it even with the ground.
- Should move slowly and when it placedown, don't do sudden stop.



2. In case of a forklift

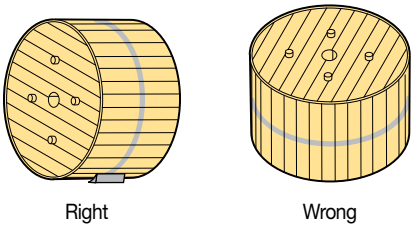
Drums should not be damaged by a forklift.

* Matters that requires attention:
- Place the drum on the center of a fork.
- The width of a fork should be longer than drum size.



■ Transportation and Unloading

*** Matters that requires attention while handling cables.**
- Don't lie drums down.
- Don't move it 20m longer when rolling it.
- Don't use gimlets or something like sharp when moving.
- Don't roll a damaged drum.
- Don't roll at projecting surface.
- Don't store drum near to stove and heater.



Check point while handling cables(Storage)

■ Storage

- Don't leave the protecting packing materials and outside package until remove it for setting up cables.
- Should construct a fence to protect against damages by moving machines.
- Keep it inside or in depository when safekeeping in long term.
  (For reference, drums and packages can stand against dry whether outside the house)
- Must seal both sides of cables remaining in the drums the cap and heat-contracting tube so that moisture doesn't soak in after finishing the removal of exterior packing materials and cutting and installing cables.

System Certificates

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376



Lloyd's Register LRQA

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

TMC Co., Ltd.
443, Yeongok-gil, Ipjang-myeon, Seobuk-gu
Cheonan-si, Chongnam, Korea

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

ISO 9001:2008
KS Q ISO 9001:2009

The Quality Management System is applicable to:

Design and manufacture of shipboard cables, offshore cables, electrical cables and fiber optic cables.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval Certificate No: SEO 0681028

Original Approval: 2 December 1998
Current Certificate: 1 January 2014
Certificate Expiry: 31 December 2016

Issued by: LRQA (Korea) Ltd. for and on behalf of Lloyd's Register Quality Assurance Limited

Cert. of ISO 9001



LRQA Business Assurance

CERTIFICATE OF APPROVAL

This is to certify that the Environmental Management System of:

TMC Co., Ltd.
368-7, Gasan-ri, Ibjang-myeon, Cheonan-si
Chungnam, 330-821, Korea

has been approved by Lloyd's Register Quality Assurance to the following Environmental Management System Standard:

ISO 14001:2004
KS I ISO 14001:2009

The Environmental Management System is applicable to:

Design and manufacture of shipboard cables, offshore cables, electrical cables and fiber optic cables.

Approval Certificate No: SEO 0052017

Original Approval: 1 February 2009
Current Certificate: 1 February 2012
Certificate Expiry: 31 January 2015

Issued by: LRQA Korea Ltd. for and on behalf of Lloyd's Register Quality Assurance Limited

Cert. of ISO 14001



LRQA Business Assurance

CERTIFICATE OF APPROVAL

This is to certify that the Occupational Health & Safety Management System of:

TMC Co., Ltd.
Cheonan-si, Chungnam
Korea

has been approved by Lloyd's Register Quality Assurance to the following specification:

OHSAS 18001:2007

The Occupational Health & Safety Management System is applicable to:

Design and manufacture of shipboard cables, off-shore cables, electrical cables and fiber optic cables.

Approval Certificate No: SEO 6004071

Original Approval: 22 July 2008
Current Certificate: 22 July 2011
Certificate Expiry: 21 July 2014

Issued by: LRQA (Korea) Ltd. for and on behalf of Lloyd's Register Quality Assurance Limited

Cert. of OHSAS 18001

Class Type Approval



ABS



BV



DNV



GL



KR



LR



NK



RINA

Main changed point in JIS C 3410

S-Route®

JIS C 3410(2010), IEC 60092-350, 353, 354, 376

	JIS C 3410 (1999)	JIS C 3410 (2010)	Remark
High Voltage Power Cable	None	Newly Specified by Standard	Cable dimension and weight are changed when compared with JIS C3410 (1999) based cables.
Low Voltage Fire Resistant Power & Control Cable	None	Newly Specified by Standard	
Screen Method	Tinned Copper Wire Braid 	AL/PS Tape + Tinned Copper Drain Wire 	Reduced Cable Dimension & Weight Symbol “SLA” and “-SLA” were newly made for indicating new screen method(AL/PS). Only for the (FA-)MPYCY-S type cable, braid screen method remains.
Maximum Rated Conductor Temperature	85℃ for EPR Insulation 65℃ for PVC Insulation	90℃ for EPR Insulation 70℃ for PVC Insulation	Current rating Increase

songhyun TMC

www.tmc-cable.com

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