songhyun TMC

T-Route®

Traveling & Cabtyre Cables

Enterprise with dream, hope, and future

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

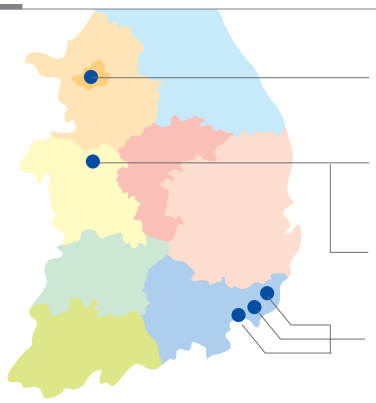
For 23 years TMC has had a single-minded focus on delivering superior customer services with marine and offshore plant cable solutions.

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

Sales Office & Factory



Sales Office
Songhyun Tower 136, Unjung-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea

Headquarter / Ipjang Factory
443, Yeongok-gil, Ipjang-myeon, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Korea

Bukmyeon Factory
5, Myungduk 1-gil, Buk-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Korea

Other Office(Sales)
Geojae, Ulsan, Busan Korea.
Dalian, Nantong China.

Main Products

Offshore Cable

Type
O-Route, P-Route,
E-Route

Standard
- NEK 606, IEC 60092-3XX
- BS 6883
- IEC 60754-1, 2
- IEC 60331, IEC 60332-3 A
- IEC 61034-1, 2
- IEEE 1580-2001

Marine & Passenger ship Cable

Type
HIS, S-Route, E-Route

Standard
- IEC 60092-350
- IEC 60092-3XX
- IEC 60331, IEC 60332-3 A
- IEC 61034-1, 2-JIS C 3410

On-shore Cable

Type
Power-Route
- Power & Control Cable
- Instrumentation Cable

Standard
- IEC 60502
- IEC 60754-1, 2
- IEC 60331, IEC 60332-3 A
- ASTM D2863
- ICEA S-94-649

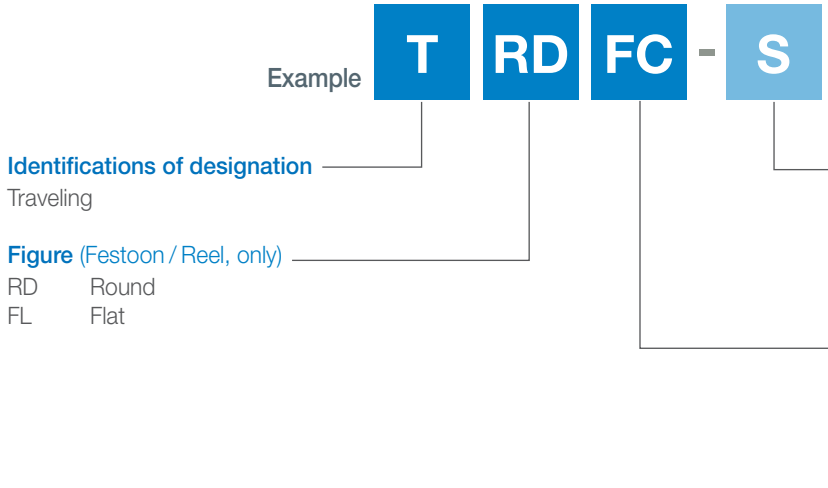
Specialized Industrial Cable

Type
- **Traveling & Cabtyre Cables (T-Route)**
- Nuclear power plant
- Mines
- Rolling stock
- Optical Cable
- Rolling stock

R & D Center

Traveling Cable for crane

Type Designation of Crane Cable



Flexible Cables for Crane

TRDFC-S	Round Festoon Cable - Single sheath
TRDFC-SC	Round Festoon Cable - Single sheath, Collective screen
TRDFC	Round Festoon Cable
TRDFC-C	Round Festoon Cable - Collective screen
TRDLRC	Round Low voltage Reeling Cable
TRDLRC-SWB	Round Low voltage Reeling Cable - Stainless Wire Braid
TFLLRC	Flat Low voltage Reeling Cable
TRDMRC	Round Medium voltage Reeling Cable
TRDMRC-MS	Round Medium voltage Reeling Cable - Metal Screen
TFLMRC-MS	Flat Medium voltage Reeling Cable - Metal Screen
TSCB	Spreader Cable for Basket

Guide to use

Festoon	Reel	Basket	Cable Type
■			TRDFC-S
■			TRDFC-SC
■			TRDFC
■			TRDFC-C
	■		TRDLRC
	■		TRDLRC-SWB
	■		TFLLRC
	■		TRDMRC
	■		TRDMRC-MS
	■		TFLMRC-MS
		■	TSCB

■ Main application ☐ No application

TRDFC-S Round Festoon Cable – Single sheath, 0.6/1kV

Cable Type TRDFC-S

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-14030

Application Flexible power and control cable for use on festoon systems RMGC, RTGC, GC, OHC etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to + 60℃
• not moved	-40℃ to + 80℃

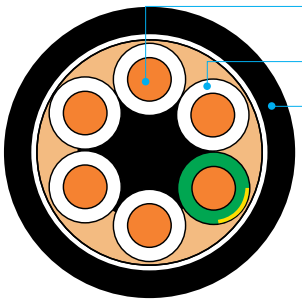
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radius	min. 5 x D (D : Cable diameter)
Torsion stress	not permitted
Traveling speed	max. 100m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, Better than IEC 60502-1
	Sheath	- SE1, Better than IEC 60502-1, Black
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering + green (or green / yellow)
	Marking	- If without earth conductor, TRDFC-S 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, TRDFC-S 0.6/1kV Number of cores G cross-section TMC Year Length

TRDFC-S Round Festoon Cable – Single sheath, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm²	mm	Ω/km	mm	mm	kg/km	N
1 x 10	4.0	1.95	9.3	10.9	190	150
1 x 16	5.6	1.24	11.2	13.0	270	240
1 x 25	7.0	0.795	13.2	15.0	390	375
1 x 35	8.2	0.565	14.5	16.5	500	525
1 x 50	9.9	0.393	16.8	18.8	690	750
1 x 70	11.8	0.277	19.0	21.2	930	1,050
1 x 95	13.5	0.210	21.2	23.6	1,190	1,425
1 x 120	15.3	0.164	23.2	25.6	1,470	1,800
1 x 150	17.1	0.132	25.7	28.3	1,820	2,250
1 x 185	18.6	0.108	27.7	30.5	2,180	2,775
1 x 240	21.3	0.0817	31.1	34.1	2,820	3,600
1 x 300	24.1	0.0654	34.6	37.8	3,540	4,500
2 x 1.5	1.6	13.7	9.9	11.5	140	45
2 x 2.5	2.0	8.21	11.3	13.1	190	75
2 x 4	2.6	5.09	13.4	15.2	260	120
2 x 6	3.1	3.39	14.7	16.7	330	180
2 x 10	4.0	1.95	17.6	19.8	480	300
2 x 16	5.6	1.24	21.5	23.9	720	480
2 x 25	7.0	0.795	25.6	28.2	1,030	750
3 x 1.5	1.6	13.7	10.6	12.2	170	67
3 x 2.5	2.0	8.21	11.9	13.7	230	112
3 x 4	2.6	5.09	14.2	16.2	330	180
3 x 6	3.1	3.39	15.7	17.7	420	270
3 x 10	4.0	1.95	18.8	21.0	620	450
3 x 16	5.6	1.24	23.0	25.4	920	720
3 x 25	7.0	0.795	27.3	30.1	1,330	1,125
3 x 35	8.2	0.565	30.1	32.9	1,700	1,575
3 x 50	9.9	0.393	35.0	38.2	2,370	2,250
4 x 1.5	1.6	13.7	11.3	13.1	220	90
4 x 2.5	2.0	8.21	13.1	14.9	280	150
4 x 4	2.6	5.09	15.7	17.7	410	240
4 x 6	3.1	3.39	17.3	19.3	520	360
4 x 10	4.0	1.95	20.6	23.0	770	600
4 x 16	5.6	1.24	25.5	28.1	1,170	960
4 x 25	7.0	0.795	30.3	33.3	1,700	1,500
4 x 35	8.2	0.565	33.4	36.4	2,180	2,100
4 x 50	9.9	0.393	39.0	42.4	3,060	3,000
5 x 1.5	1.6	13.7	12.5	14.3	260	112
5 x 2.5	2.0	8.21	14.3	16.3	350	187
5 x 4	2.6	5.09	17.2	19.2	490	300
5 x 6	3.1	3.39	18.9	21.1	630	450
5 x 10	4.0	1.95	22.7	25.1	950	750
5 x 16	5.6	1.24	28.1	30.9	1,440	1,200
5 x 25	7.0	0.795	33.4	36.4	2,090	1,875
5 x 35	8.2	0.565	37.1	40.5	2,720	2,625
5 x 50	9.9	0.393	43.2	46.9	3,790	3,750
6 x 1.5	1.6	13.7	13.4	15.2	300	135
6 x 2.5	2.0	8.21	15.6	17.6	420	225
6 x 4	2.6	5.09	18.8	21.0	590	360
6 x 6	3.1	3.39	20.7	23.1	760	540
6 x 10	4.0	1.95	24.8	27.4	1,130	900
12 x 1.5	1.6	13.7	20.0	22.2	620	270
12 x 2.5	2.0	8.21	23.4	25.8	880	450
12 x 4	2.6	5.09	28.4	31.2	1,320	720
18 x 1.5	1.6	13.7	20.5	22.9	690	405
18 x 2.5	2.0	8.21	24.0	26.6	990	675
18 x 4	2.6	5.09	29.3	32.1	1,480	1,080
24 x 1.5	1.6	13.7	24.0	26.6	930	540
24 x 2.5	2.0	8.21	28.2	31.0	1,330	900
30 x 1.5	1.6	13.7	25.9	28.5	1,070	675
30 x 2.5	2.0	8.21	30.5	33.5	1,550	1,125
36 x 1.5	1.6	13.7	27.9	30.7	1,250	810
36 x 2.5	2.0	8.21	33.1	36.1	1,840	1,350

Note _ The other size may be applicable when purchaser required.

TRDFC-SC Round Festoon Cable – Single sheath, Collective screen, 0.6/1kV

Cable Type TRDFC-SC

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-14031

Application Flexible power and control cable for use on festoon systems RMGC, RTGC, GC, OHC etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

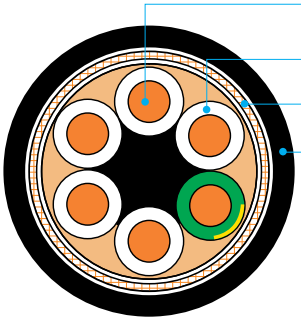
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radii	
• 20mm ≥ D	min. 6 x D
• 20mm < D	min. 8 x D (D : Cable diameter)
Torsion stress	not permitted
Traveling speed	max. 100m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, Better than IEC 60502-1
	Collective Screen	- Braid screen made of tinned copper wires and polyester yarn
	Sheath	- SE1, Better than IEC 60502-1, Black
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering + green (or green / yellow)
	Marking	- If without earth conductor, TRDFC-SC 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, TRDFC-SC 0.6/1kV Number of cores G cross-section TMC Year Length

TRDFC-SC Round Festoon Cable – Single sheath, Collective screen, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 10	4.0	1.95	11.7	13.5	230	150
1 x 16	5.6	1.24	13.8	15.8	330	240
1 x 25	7.0	0.795	15.8	17.9	450	375
1 x 35	8.2	0.565	17.1	19.3	570	525
1 x 50	9.9	0.393	19.4	21.7	770	750
1 x 70	11.8	0.277	21.4	23.8	1,010	1,050
1 x 95	13.5	0.210	23.9	26.5	1,290	1,425
1 x 120	15.3	0.164	25.8	28.6	1,580	1,800
1 x 150	17.1	0.132	28.2	31.0	1,930	2,250
1 x 185	18.6	0.108	30.4	33.4	2,310	2,775
1 x 240	21.3	0.0817	33.8	37.0	2,970	3,600
1 x 300	24.1	0.0654	37.3	40.7	3,700	4,500
2 x 1.5	1.6	13.7	12.3	14.2	180	45
2 x 2.5	2.0	8.21	13.7	15.7	230	75
2 x 4	2.6	5.09	15.8	17.9	310	120
2 x 6	3.1	3.39	17.1	19.3	380	180
2 x 10	4.0	1.95	19.8	22.2	530	300
2 x 16	5.6	1.24	24.0	26.6	790	480
2 x 25	7.0	0.795	25.6	28.3	960	750
3 x 1.5	1.6	13.7	12.5	15.0	230	67
3 x 2.5	2.0	8.21	14.1	16.6	300	112
3 x 4	2.6	5.09	16.2	18.9	400	180
3 x 6	3.1	3.39	17.7	20.4	500	270
3 x 10	4.0	1.95	20.8	23.7	720	450
3 x 16	5.6	1.24	25.2	28.5	1,060	720
3 x 25	7.0	0.795	29.4	32.9	1,480	1,125
3 x 35	8.2	0.565	32.3	36.0	1,880	1,575
3 x 50	9.9	0.393	37.3	41.2	2,570	2,250
4 x 1.5	1.6	13.7	13.9	16.4	250	90
4 x 2.5	2.0	8.21	15.6	18.3	330	150
4 x 4	2.6	5.09	18.2	20.9	450	240
4 x 6	3.1	3.39	19.8	22.7	570	360
4 x 10	4.0	1.95	23.5	26.6	850	600
4 x 16	5.6	1.24	28.4	31.9	1,270	960
4 x 25	7.0	0.795	33.0	36.7	1,800	1,500
4 x 35	8.2	0.565	36.2	40.1	2,300	2,100
4 x 50	9.9	0.393	42.3	46.6	3,230	3,000
5 x 1.5	1.6	13.7	14.9	17.4	290	112
5 x 2.5	2.0	8.21	16.9	19.6	390	187
5 x 4	2.6	5.09	19.7	22.6	550	300
5 x 6	3.1	3.39	21.5	24.4	690	450
5 x 10	4.0	1.95	25.5	28.8	1,030	750
5 x 16	5.6	1.24	31.1	34.6	1,540	1,200
5 x 25	7.0	0.795	36.3	40.2	2,210	1,875
5 x 35	8.2	0.565	40.5	44.6	2,880	2,625
5 x 50	9.9	0.393	46.7	51.2	4,000	3,750
6 x 1.5	1.6	13.7	15.9	18.6	340	135
6 x 2.5	2.0	8.21	18.0	20.7	450	225
6 x 4	2.6	5.09	21.3	24.2	640	360
6 x 6	3.1	3.39	23.5	26.6	830	540
6 x 10	4.0	1.95	27.7	31.0	1,220	900
12 x 1.5	1.6	13.7	22.5	25.6	680	270
12 x 2.5	2.0	8.21	26.0	29.3	940	450
12 x 4	2.6	5.09	31.4	34.9	1,380	720
18 x 1.5	1.6	13.7	23.0	26.1	720	405
18 x 2.5	2.0	8.21	26.7	30.0	1,030	675
18 x 4	2.6	5.09	32.1	35.8	1,510	1,080
24 x 1.5	1.6	13.7	26.8	30.1	980	540
24 x 2.5	2.0	8.21	30.9	34.4	1,380	900
30 x 1.5	1.6	13.7	28.5	32.0	1,120	675
30 x 2.5	2.0	8.21	32.8	36.5	1,580	1,125
36 x 1.5	1.6	13.7	30.6	34.1	1,310	810
36 x 2.5	2.0	8.21	35.3	39.2	1,880	1,350

Note _ The other size may be applicable when purchaser required.

TRDFC Round Festoon Cable, 0.6/1kV

Cable Type TRDFC

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-14012

Application Flexible power and control cable
for use on festoon systems
RMQC, RMGC, RTGC, GC, OHC etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

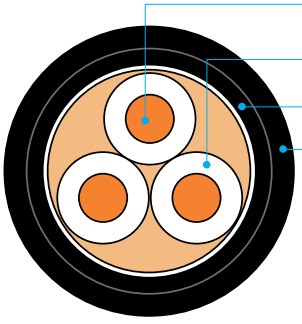
Mechanical properties

Tensile stress	max. 15N/mm²
Bending radius	min. 5 x D (D : Cable diameter)
Torsion stress	not permitted
Traveling speed	max. 210m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, Better than IEC 60502-1
	Inner sheath	- SE1, Better than IEC 60502-1
	Outer sheath	- SE1, Better than IEC 60502-1, Black
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering+ green (or green / yellow)
	Marking	- If without earth conductor, TRDFC 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, TRDFC 0.6/1kV Number of cores G cross-section TMC Year Length

TRDFC-S Round Festoon Cable, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 185	18.6	0.108	27.9	31.2	2,210	2,775
1 x 240	21.3	0.0817	31.3	34.8	2,850	3,600
1 x 300	24.1	0.0654	34.8	38.5	3,570	4,500
3 x 35	8.2	0.565	30.5	34.0	1,740	1,575
3 x 50	9.9	0.393	35.4	39.3	2,410	2,250
4 x 25	7.0	0.795	30.6	34.1	1,730	1,500
4 x 35	8.2	0.565	33.8	37.5	2,230	2,100
4 x 50	9.9	0.393	39.5	43.6	3,110	3,000
5 x 16	5.6	1.24	28.6	32.1	1,480	1,200
5 x 25	7.0	0.795	33.9	37.6	2,140	1,875
5 x 35	8.2	0.565	37.7	41.6	2,770	2,625
5 x 50	9.9	0.393	43.9	48.2	3,870	3,750
12 x 4	2.6	5.09	28.9	32.4	1,330	720
18 x 4	2.6	5.09	29.7	33.2	1,400	1,080
24 x 2.5	2.0	8.21	28.4	31.9	1,330	900
24 x 4	2.6	5.09	35.0	38.9	1,980	1,440
30 x 2.5	2.0	8.21	30.4	33.9	1,520	1,125
36 x 1.5	1.6	13.7	28.2	31.5	1,250	810
36 x 2.5	2.0	8.21	32.9	36.6	1,810	1,350

Note _ The other size may be applicable when purchaser required.

TRDFC-C Round Festoon Cable – Collective screen, 0.6/1kV

Cable Type TRDFC-C

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-14013

Application Flexible power and control cable
for use on festoon systems
RMQC, RMGC, RTGC, GC, OHC etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

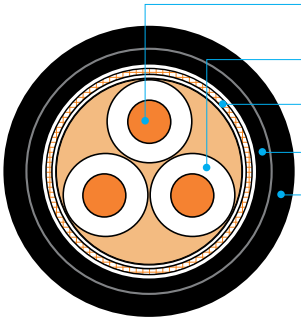
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radii	
• 20mm ≥ D	min. 6 x D
• 20mm < D	min. 8 x D (D : Cable diameter)
Torsion stress	not permitted
Traveling speed	max. 210m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, Better than IEC 60502-1
	Collective Screen	- Braid screen made of tinned copper wires and polyester yarn
	Inner sheath	- SE1, Better than IEC 60502-1
	Outer sheath	- SE1, Better than IEC 60502-1, Black
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering+ green (or green / yellow)
	Marking	- If without earth conductor, TRDFC-C 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, TRDFC-C 0.6/1kV Number of cores G cross-section TMC Year Length

TRDFC-C Round Festoon Cable – Collective screen, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 150	17.1	0.132	28.7	32.1	1,970	2,250
1 x 185	18.6	0.108	30.8	34.2	2,340	2,775
1 x 240	21.3	0.0817	34.4	38.0	3,010	3,600
1 x 300	24.1	0.0654	37.9	41.7	3,750	4,500
2 x 25	7.0	0.795	26.3	29.6	990	750
3 x 25	7.0	0.795	30.4	33.9	1,450	1,125
3 x 35	8.2	0.565	33.3	37.0	1,840	1,575
3 x 50	9.9	0.393	38.6	42.7	2,560	2,250
4 x 16	5.6	1.24	28.6	32.1	1,290	960
4 x 25	7.0	0.795	33.4	37.1	1,830	1,500
4 x 35	8.2	0.565	36.6	40.5	2,330	2,100
4 x 50	9.9	0.393	42.7	47.0	3,270	3,000
5 x 16	5.6	1.24	31.5	35.0	1,580	1,200
5 x 25	7.0	0.795	36.7	40.6	2,250	1,875
5 x 35	8.2	0.565	40.9	45.0	2,920	2,625
5 x 50	9.9	0.393	47.1	51.6	4,040	3,750
6 x 10	4.0	1.95	28.1	31.4	1,250	900
12 x 4	2.6	5.09	31.7	35.4	1,420	720
18 x 4	2.6	5.09	32.3	36.0	1,530	1,080
24 x 4	2.6	5.09	37.1	40.6	2,070	1,440
30 x 1.5	1.6	13.7	28.7	32.2	1,140	675
30 x 2.5	2.0	8.21	33.2	36.9	1,620	1,125
36 x 1.5	1.6	13.7	30.8	34.3	1,330	810
36 x 2.5	2.0	8.21	35.5	39.4	1,900	1,350

Note _ The other size may be applicable when purchaser required.

TRDLRC Round Low voltage Reeling Cable, 0.6/1kV

Cable Type TRDLRC

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-14016

Application Flexible power and control cable for use on reeling systems Gantry Crane etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	2.5kV/5min.
	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

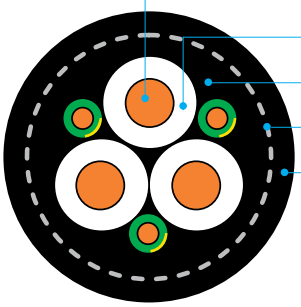
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radii	
• Reeling	min. 6 x D (20mm ≥ D)
	min. 8 x D (20mm < D)
• Pulleys	min. 7.5 x D
• S bending	min. 20 x D (D : Cable diameter)
Torsion stress	max. ±50°/m
Traveling speed	max. 100m/min.
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - Better than IEC 60228 Class 5
	Insulation	- EPR, Better than IEC 60502-1
	Inner sheath	- SE1, Better than IEC 60502-1
	Reinforce layer	- Polyester yarn braid
	Outer Sheath	- SE1, Better than IEC 60502-1, Black or Yellow
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering + green (or green / yellow)
	Marking	- If without earth conductor, TRDLRC 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, TRDLRC 0.6/1kV Number of cores G cross-section TMC Year Length

TRDLRC Round Low voltage Reeling Cable, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 16	5.6	1.24	13.0	15.2	320	240
1 x 25	7.0	0.795	14.9	17.3	450	375
1 x 35	8.2	0.565	16.3	18.7	560	525
1 x 50	9.9	0.393	18.5	21.1	760	750
1 x 70	11.8	0.277	20.5	23.3	1,000	1,050
1 x 95	13.5	0.210	22.8	25.6	1,270	1,425
1 x 120	15.3	0.164	24.9	27.9	1,570	1,800
1 x 150	17.1	0.132	27.4	30.6	1,920	2,250
1 x 185	18.6	0.108	29.5	32.7	2,290	2,775
1 x 240	21.3	0.0817	32.9	36.3	2,940	3,600
2 x 1.5	1.6	13.7	10.8	13.0	180	45
2 x 2.5	2.0	8.21	12.1	14.3	230	75
2 x 4	2.6	5.09	14.2	16.6	310	120
2 x 6	3.1	3.39	15.8	18.2	400	180
2 x 10	4.0	1.95	18.5	21.1	560	300
2 x 16	5.6	1.24	22.6	25.4	830	480
2 x 25	7.0	0.795	26.7	29.7	1,180	750
3 x 1.5	1.6	13.7	11.3	13.5	200	68
3 x 2.5	2.0	8.21	12.9	15.1	270	113
3 x 4	2.6	5.09	15.1	17.5	380	180
3 x 6	3.1	3.39	16.6	19.0	470	270
3 x 10	4.0	1.95	19.7	22.3	690	450
3 x 16	5.6	1.24	24.2	27.2	1,050	720
3 x 25	7.0	0.795	28.4	31.6	1,480	1,125
3 x 35	8.2	0.565	31.1	34.5	1,870	1,575
3 x 50	9.9	0.393	36.3	39.9	2,600	2,250
3 x 70	11.8	0.277	40.8	44.8	3,450	3,150
3 x 95	13.5	0.210	45.6	49.8	4,400	4,275
3 x 120	15.3	0.164	49.9	54.5	5,430	5,400
3 x 150	17.1	0.132	55.1	59.9	6,680	6,750
3 x 185	18.6	0.108	59.6	64.8	8,000	8,325
3 x 240	21.3	0.0817	66.9	72.5	10,300	10,800
3 x 300	24.1	0.0654	74.6	80.6	12,930	13,500
4 x 1.5	1.6	13.7	12.1	14.3	230	90
4 x 2.5	2.0	8.21	13.8	16.2	320	150
4 x 4	2.6	5.09	16.6	19.0	450	240
4 x 6	3.1	3.39	18.0	20.6	570	360
4 x 10	4.0	1.95	21.6	24.4	850	600
4 x 16	5.6	1.24	26.6	29.6	1,280	960
4 x 25	7.0	0.795	31.4	34.8	1,830	1,500
4 x 35	8.2	0.565	34.4	38.0	2,330	2,100
4 x 50	9.9	0.393	40.0	44.0	3,250	3,000
4 x 70	11.8	0.277	45.1	49.3	4,330	4,200
4 x 95	13.5	0.210	50.6	55.2	5,570	5,700
4 x 120	15.3	0.164	55.4	60.2	6,870	7,200
4 x 150	17.1	0.132	61.3	66.5	8,490	9,000
4 x 185	18.6	0.108	66.3	71.9	10,180	11,100
4 x 240	21.3	0.0817	74.6	80.6	13,150	14,400
5 x 1.5	1.6	13.7	13.3	15.5	280	113
5 x 2.5	2.0	8.21	15.1	17.5	380	188
5 x 4	2.6	5.09	17.9	20.5	540	300
5 x 6	3.1	3.39	19.9	22.5	700	450
5 x 10	4.0	1.95	23.6	26.6	1,040	750
5 x 16	5.6	1.24	29.4	32.6	1,590	1,200
5 x 25	7.0	0.795	34.5	38.1	2,260	1,875
6 x 1.5	1.6	13.7	14.3	16.3	330	135
6 x 2.5	2.0	8.21	16.6	18.6	450	225
6 x 4	2.6	5.09	19.9	22.1	660	360
6 x 6	3.1	3.39	21.8	24.2	840	540
6 x 10	4.0	1.95	26.0	28.6	1,240	900
6 x 16	5.6	1.24	32.5	35.5	1,930	1,440
6 x 25	7.0	0.795	38.3	41.7	2,780	2,250
12 x 1.5	1.6	13.7	20.9	23.3	650	270
12 x 2.5	2.0	8.21	24.5	27.1	920	450
12 x 4	2.6	5.09	29.9	32.7	1,350	720
18 x 1.5	1.6	13.7	21.6	24.0	720	405
18 x 2.5	2.0	8.21	25.0	27.6	1,020	675
18 x 4	2.6	5.09	30.4	33.4	1,500	1,080
24 x 1.5	1.6	13.7	25.1	27.7	970	540
24 x 2.5	2.0	8.21	29.2	32.0	1,370	900
24 x 4	2.6	5.09	36.0	39.2	2,070	1,440
30 x 1.5	1.6	13.7	27.5	30.4	1,130	675
30 x 2.5	2.0	8.21	32.4	35.5	1,630	1,125
30 x 4	2.6	5.09	39.2	42.7	2,400	1,800
36 x 1.5	1.6	13.7	29.9	32.8	1,340	810
36 x 2.5	2.0	8.21	34.5	37.8	1,900	1,350
36 x 4	2.6	5.09	42.3	46.0	2,860	2,160

Note _ The other size may be applicable when purchaser required.

TRDLRC-SWB Round Low voltage Reeling Cable – Stainless Wire Braid, 0.6/1kV

Cable Type TRDLRC-SWB

Standards IEC 60502-1, VDE 0250-814

Application Flexible power and control cable for use on reeling systems

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	2.5kV/5min.
	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

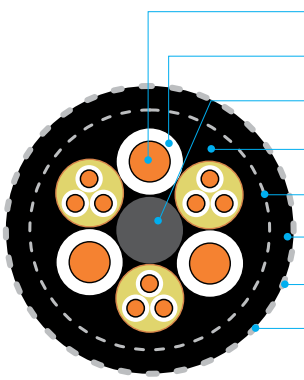
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radius	min. 8 x D (D : Cable diameter)
Torsion stress	max. ±25°/m
Traveling speed	max. 60/m
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

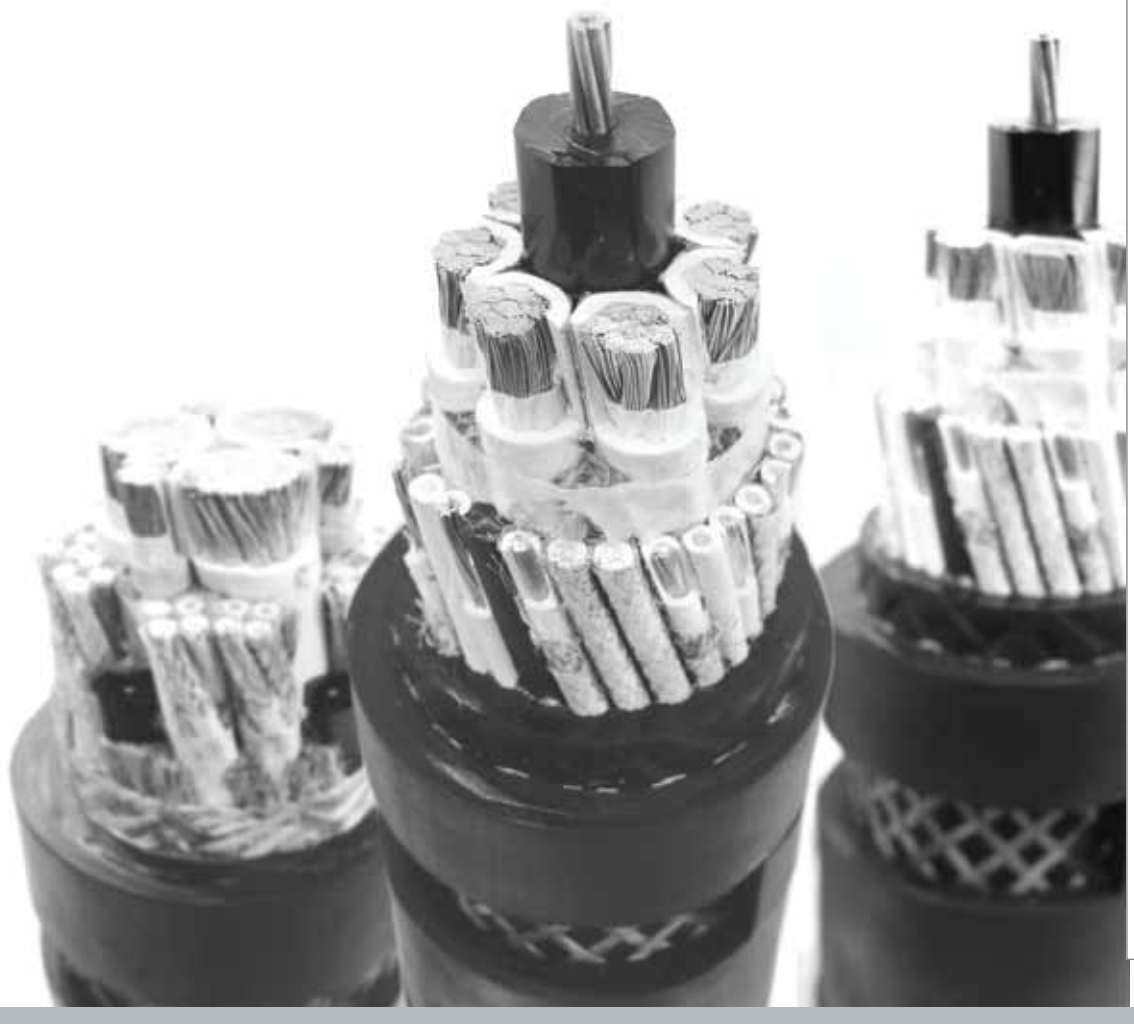
Construction

Sectional view	Classification	Construction detail
	Conductor	Flexible tinned copper, IEC 60228 Class 5
	Insulation	EPR, Better than IEC 60502-1
	Filler	Strain bearing member
	Inner sheath	SE1, Better than IEC 60502-1
	Reinforce layer	Polyester yarn braid
	Outer Sheath	SE1, better than IEC 60502-1
	Heat resistant layer	Heat resistant tape lapped
	Mechanical reinforce layer	Stainless steel wires braid
	Cores identification	Black numbering or Insulation color
	Marking	TRDLRC-SWB 0.6/1kV Number of cores x cross-section TMC Year length

TRDLRC-SWB Round Low voltage Reeling Cable – Stainless Wire Braid, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 150	5.6	1.24	41.1	44.7	2,880	480
1 x 185	2.0	8.21				
1 x 240	7.0	0.795	47.7	51.7	3,940	750
1 x 300	2.6	5.09				
2 x 25	7.0	0.795	54.8	59.2	5,320	1,750
3 x 25	2.6	5.09				
3 x 35	9.9	0.393	71.7	76.7	8,860	2,000
3 x 50	3.1	3.39				
4 x 16	2.6	5.09				

Note _ The other size may be applicable when purchaser required.



TFLLRC Flat Low voltage Reeling Cable, 0.6/1kV

Cable Type TFLLRC

Standards IEC 60502-1, VDE 0250-814

Specification TMCRS-15039

Application Flexible power and control cable for use on reeling systems Gantry Crane etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

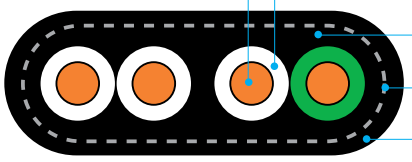
Mechanical properties

Tensile stress	max. 10N/mm²
Bending radii	
• Reeling	min. 6 x D (20mm ≥ D) min. 8 x D (20mm < D)
• Pulleys	min. 7.5 x D
• S bending	min. 20 x D (D : Cable diameter)
Torsion stress	Not permissible
Traveling speed	max. 60m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	Flexible tinned copper, IEC 60228 Class 5
	Insulation	EPR, better than IEC 60502-1
	Inner sheath	SE1, better than IEC 60502-1
	Reinforce layer	Polyester yarn braid
	Outer Sheath	SE1, Better than IEC 60502-1
	Cores identification	Black numbering or Insulation color
	Marking	TFLLRC 0.6/1kV Number of cores x cross-section TMC Year length

TFLLRC Flat Low voltage Reeling Cable, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter				Net weight	Tension stress
	Diameter (approx.)	Resistance (at 20℃)	Height		Width		Approx.	Max.
			Min.	Max.	Min.	Max.		
mm^2	mm	Ω/km	mm	mm	mm	mm	kg/km	N
3 x 4	2.6	5.09	8.4	11.4	18.0	21.0	300	120
3 x 6	3.1	3.39	9.0	12.0	19.8	22.8	380	180
3 x 10	4.0	1.95	10.9	13.9	24.3	27.3	570	300
3 x16	5.6	1.24	13.2	16.2	30.3	33.3	850	480
3 x 25	7.0	0.795	15.6	18.6	36.3	39.3	1,240	750
3 x 35	8.2	0.565	17.1	20.1	40.0	43.0	1,590	1,050
3 x 50	9.9	0.393	19.1	23.1	46.2	50.2	2,200	1,500
3 x 70	11.8	0.277	21.6	25.6	52.5	56.5	2,940	2,100
3 x 95	13.5	0.210	24.3	28.3	59.4	63.4	3,790	2,850
3 x 120	15.3	0.164	26.5	30.5	65.2	69.2	4,670	3,600
3 x 150	17.1	0.132	29.0	34.0	72.1	77.1	5,790	4,500
3 x 185	18.6	0.108	31.5	36.5	78.4	83.4	6,960	5,550
4 x 4	2.6	5.09	8.4	11.4	25.8	28.8	410	160
4 x 6	3.1	3.39	9.4	12.4	28.6	31.6	530	240
4 x10	4.0	1.95	11.1	14.1	34.2	37.2	780	400
4 x 16	5.6	1.24	13.6	16.6	42.2	45.2	1,170	640
4 x 25	7.0	0.795	16.0	19.0	50.0	53.0	1,680	1,000
4 x 35	8.2	0.565	17.5	20.5	54.8	57.8	2,150	1,400
4 x 50	9.9	0.393	19.7	23.7	63.3	67.3	2,980	2,000
4 x 70	11.8	0.277	22.2	26.2	71.5	75.5	3,970	2,800
4 x 95	13.5	0.210	25.1	29.1	80.7	84.7	5,130	3,800
4 x 120	15.3	0.164	27.3	31.3	88.3	92.3	6,320	4,800

Note _ The other size may be applicable when purchaser required.

TRDMRC Round Medium Voltage Reeling Cable, 6/10kV

Cable Type TRDMRC

Standards IEC 60502-2, VDE 0250-813

Specification TMCRS-15002

Application Flexible power cable
for use on reeling systems
RMQC, RMGC, e-RTGC etc.

Electrical properties

Rated voltage(Uo/U)	6/10kV
AC test voltage	17kV/5min.
Current rating(A)	IEC 60502-2

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

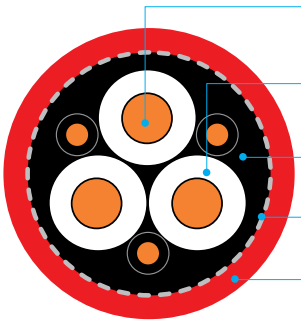
Mechanical properties

Tensile stress	max. 20N/mm^2
Bending radii	
• Reeling	min. 12 x D
• Pulleys	min. 15 x D
• S bending	min. 20 x D (D : Cable diameter)
Torsion stress	max. ±25°/m
Traveling speed	max. 180m/min.
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - Better than IEC 60228 Class 5
	Insulation	- Inner semi-conductive layer - 3GI3, VDE 0250-813 - Outer semi-conductive layer
	Inner sheath	- 5GM3, VDE 0250-813
	Reinforce layer	- Polyester yarn braid
	Outer Sheath	- 5GM3 or 5GM5, VDE 0250-813, Red or Black
	Marking	- TRDMRC 6/10kV Number of cores x cross-section TMC Year Length

TRDMRC Round Medium Voltage Reeling Cable, 6/10kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm²	mm	Ω/km	mm	mm	kg/km	N
3 x 25	7.0	0.795	40.5	43.1	2,550	1,500
3 x 25/3	4.1					
3 x 35	8.2	0.565	43.2	46.0	3,000	2,100
3 x 25/3	4.1					
3 x 50	9.9	0.393	47.1	50.1	3,740	3,000
3 x 25/3	4.1					
3 x 70	11.8	0.277	52.0	55.3	4,840	4,200
3 x 35/3	4.9					
34 x 95	13.5	0.210	55.8	59.3	5,890	5,700
3 x 50/3	5.8					
3 x 120	15.3	0.164	60.0	63.8	7,170	7,200
3 x 70/3	6.9					
3 x 150	17.1	0.132	64.0	68.1	8,370	9,000
3 x 70/3	6.9					
3 x 185	18.6	0.108	67.6	71.8	9,830	11,100
3 x 95/3	8.0					
3 x 240	21.3	0.0817	73.8	78.5	12,320	14,400
3 x 120/3	9.1					

Note _ The other size may be applicable when purchaser required.

TRDMRC-MS Round Medium voltage Reeling Cable – Metal Screen, 6/10kV

Cable Type TRDMRC-MS

Standards IEC 60502-2, JCS 353

Specification TMCRS-14010, TMCRS-14014

Application Flexible power cable
for use on reeling systems
Gantry Crane etc.

Electrical properties

Rated voltage(Uo/U)	6/10kV
AC test voltage	21kV/5min.
Current rating(A)	IEC 60502-2

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

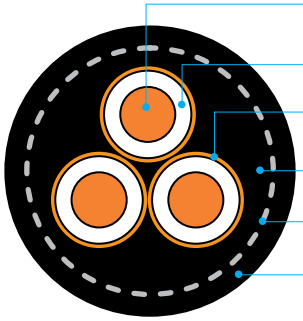
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radii	
• Reeling	min. 15 x D
• Pulleys	min. 15 x D
• S bending	min. 20 x D (D : Cable diameter)
Torsion stress	max. ±25°/m
Traveling speed	max. 60m/min.
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, IEC 60502-2
	Metal shield	- Braid screen made of tinned copper wires and polyester yarn
	Inner sheath	- SE1, IEC 60502-2
	Reinforce layer	- Polyester yarn braid
	Outer Sheath	- SE1, better than IEC 60502-2, Black or Red
	Marking	- TRDMRC-MS 6/10kV Number of cores x cross-section TMC Year Length

TRDMRC-MS Round Medium voltage Reeling Cable – Metal Screen, 6/10kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
1 x 16	5.6	1.24	23.1	25.5	730	240
1 x 25	7.0	0.795	24.4	27.0	870	375
1 x 35	8.2	0.565	26.0	28.7	1,030	525
1 x 50	9.9	0.393	27.7	30.4	1,240	750
1 x 70	11.8	0.277	29.9	32.8	1,530	1,050
1 x 95	13.5	0.210	31.8	34.8	1,810	1,425
1 x 120	15.3	0.164	33.7	36.8	2,130	1,800
1 x 150	17.1	0.132	35.7	38.9	2,490	2,250
1 x 185	18.6	0.108	37.5	40.8	2,880	2,775
1 x 240	21.3	0.0817	40.7	44.2	3,570	3,600
3 x 16	5.6	1.24	43.7	47.5	2,550	720
3 x 25	7.0	0.795	47.0	51.0	3,080	1,125
3 x 35	8.2	0.565	50.1	54.3	3,630	1,575
3 x 50	9.9	0.393	54.3	58.7	4,460	2,250
3 x 70	11.8	0.277	58.9	63.5	5,490	3,150
3 x 95	13.5	0.210	62.7	67.7	6,510	4,275
3 x 120	15.3	0.164	67.1	72.3	7,700	5,400
3 x150	17.1	0.132	71.3	76.7	8,990	6,750
3 x 185	18.6	0.108	74.8	80.4	10,290	8,325
3 x 240	21.3	0.0817	82.0	88.1	12,830	10,800
4 x 16	5.6	1.24	48.4	52.4	3,160	960
4 x 25	7.0	0.795	52.1	56.3	3,820	1,500
4 x 35	8.2	0.565	55.5	59.9	4,520	2,100
4 x 50	9.9	0.393	60.0	64.8	5,560	3,000
4 x 70	11.8	0.277	65.1	70.1	6,870	4,200
4 x 95	13.5	0.210	69.6	75.0	8,210	5,700
4 x 120	15.3	0.164	74.2	79.8	9,690	7,200
4 x 150	17.1	0.132	79.2	85.2	11,410	9,000
4 x 185	18.6	0.108	83.1	89.3	13,080	11,100
4 x 240	21.3	0.0817	91.3	97.9	16,380	14,400

Note _ The other size may be applicable when purchaser required.

TFLMRC-MS Flat Medium voltage Reeling Cable – Metal Screen, 6/10kV

Cable Type TFLMRC-MS

Standards IEC 60502-2, JCS 353

Application Flexible power cable
for use on reeling systems
Gantry Crane etc.

Electrical properties

Rated voltage(Uo/U)	6/10kV
AC test voltage	21kV/5min.
Current rating(A)	IEC 60502-2

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

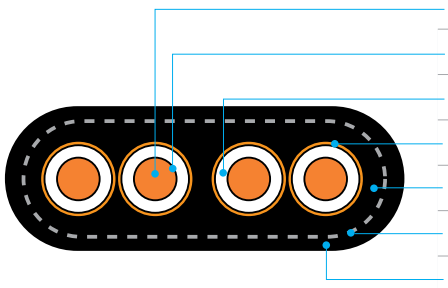
Mechanical properties

Tensile stress	max. 10N/mm^2
Bending radii	
• Reeling	min. 15 x D
• Pulleys	min. 15 x D
• S bending	min. 20 x D (D : Cable height diameter)
Torsion stress	not permissible
Traveling speed	max. 60m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	Flexible tinned copper, IEC 60228 Class 5
	Conductor screen	Semi-conducting tape
	Insulation	EPR, better than IEC 60502-1
	Insulation screen	Semi-conducting tape
	Inner sheath	SE1, better than IEC 60502-1
	Reinforce layer	Polyester yarn braid
	Outer sheath	SE1, better than IEC 60502-1
	Marking	TFLMRC-MS 6/10kV Number of cores x cross-section TMC Year length

TFLMRC-MS Flat Medium voltage Reeling Cable – Metal Screen, 6/10kV

Number of cores and nominal cross-section	Conductor		Overall diameter				Net weight	Tension stress
	Diameter (approx.)	Resistance (at 20℃)	Height		Width		Approx.	Max.
			Min.	Max.	Min.	Max.		
mm^2	mm	Ω/km	mm	mm	mm	mm	kg/km	N
3 x 16	5.6	1.24	24.7	28.7	59.0	63.0	2,200	480
3 x 25	7.0	0.795	26.4	30.4	63.7	67.7	2,650	750
3 x 35	8.2	0.565	28.0	32.0	67.7	71.7	3,120	1,050
3 x 50	9.9	0.393	29.8	34.8	72.9	77.9	3,840	1,500
3 x 70	11.8	0.277	32.3	37.3	79.2	84.2	4,740	2,100
3 x 95	13.5	0.210	34.4	39.4	84.7	89.7	5,640	2,850
3 x 120	15.3	0.164	36.8	41.8	90.7	95.7	6,690	3,600
4 x 16	5.6	1.240	25.3	29.3	79.7	83.7	2,970	640
4 x 25	7.0	0.795	27.2	31.2	86.1	90.1	3,610	1,000
4 x 35	8.2	0.565	28.1	33.1	90.6	95.6	4,200	1,400
4 x 50	9.9	0.393	28.9	33.9	95.0	100.0	4,910	2,000

Note _ The other size may be applicable when purchaser required.

TSCB Spreader Cable for Basket, 0.6/1kV

Cable Type TSCB

Standards IEC 60502-2, VDE 0250-814

Specification TMCRS-14029

Application Flexible power cable
for use on basket spreader system
Gantry Crane etc.

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-25℃ to +60℃
• not moved	-40℃ to +80℃

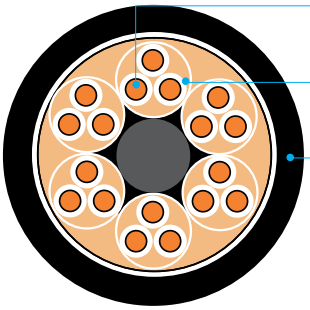
Mechanical properties

Tensile stress	max. 15N/mm^2
Bending radius	min. 15 x D (D : Cable diameter)
Torsion stress	max. ±100°/m
Traveling speed	max. 70m/min.(up to 12C)
	max. 120m/min.(above 15C)
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

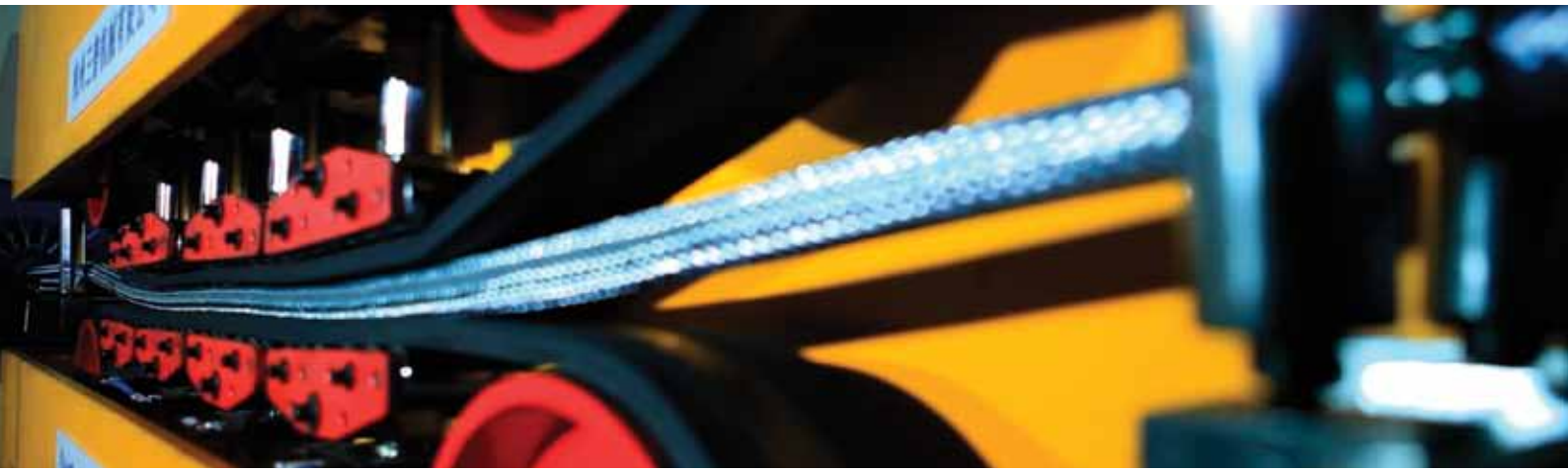
Sectional view	Classification	Construction detail
	Conductor	Flexible tinned copper, IEC 60228 Class 5
	Insulation	EPR, better than IEC 60502-1
	Sheath	SE1, better than IEC 60502-1
	Core identification	Black numbering
	Marking	TSCB 0.6/1kV Number of cores x cross-section TMC Year length

TSCB Spreader Cable for Basket, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter		Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃)	Min.	Max.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	N
6 x 1.5	1.6	13.7	13.6	15.9	300	135
6 x 2.5	2.0	8.21	15.6	18.1	410	225
6 x 4	2.6	5.09	18.9	21.6	590	360
6 x 6	3.1	3.39	20.8	23.7	770	540
9 x 1.5	1.6	13.7	16.6	19.1	440	203
9 x 2.5	2.0	8.21	19.4	22.1	630	338
9 x 4	2.6	5.09	23.7	26.8	920	540
9 x 6	3.1	3.39	26.3	29.4	1,190	810
12 x 1.5	1.6	13.7	19.9	22.6	620	270
12 x 2.5	2.0	8.21	23.5	26.4	890	450
12 x 4	2.6	5.09	28.8	32.1	1,300	720
12 x 6	3.1	3.39	32.0	35.5	1,690	1,080
4 x 3 x 1.5	1.6	13.7	21.5	24.3	650	270
4 x 3 x 2.5	2.0	8.21	25.4	28.4	930	450
4 x 3 x 4	2.6	5.09	31.1	34.5	1,360	720
4 x 3 x 6	3.1	3.39	34.5	38.1	1,770	1,080
5 x 3 x 1.5	1.6	13.7	24.3	27.4	790	338
5 x 3 x 2.5	2.0	8.21	28.1	31.4	1,100	563
5 x 3 x 4	2.6	5.09	34.7	38.4	1,640	900
5 x 3 x 6	3.1	3.39	38.7	42.6	2,150	1,350
6 x 3 x 1.5	1.6	13.7	26.8	30.1	960	405
6 x 3 x 2.5	2.0	8.21	31.0	34.5	1,340	675
6 x 3 x 4	2.6	5.09	38.4	42.3	2,000	1,080
6 x 3 x 6	3.1	3.39	42.6	46.7	2,610	1,620
6 x 4 x 1.5	1.6	13.7	29.4	32.7	1,180	540
6 x 4 x 2.5	2.0	8.21	34.3	38.0	1,690	900
6 x 4 x 4	2.6	5.09	42.6	46.7	2,530	1,440
6 x 4 x 6	3.1	3.39	47.2	51.7	3,320	2,160
6 x 5 x 1.5	1.6	13.7	32.4	35.9	1,450	675
6 x 5 x 2.5	2.0	8.21	37.9	41.8	2,070	1,125
6 x 5 x 4	2.6	5.09	46.9	51.4	3,110	1,800
6 x 6 x 1.5	1.6	13.7	35.7	39.4	1,740	810
6 x 6 x 2.5	2.0	8.21	42.0	46.1	2,500	1,350
6 x 6 x 4	2.6	5.09	51.9	56.6	3,760	2,160

Note _ The other size may be applicable when purchaser required.

Cabtyre Cable



PNCT Rubber Insulated Flexible Cabytyre Cable, 0.6/1kV

Cable Type	PNCT
Standards	KS C IEC 60502-1
Specification	TMCRS-15041
Application	Flexible power and control cable

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-15℃ to +60℃
• not moved	-30℃ to +80℃

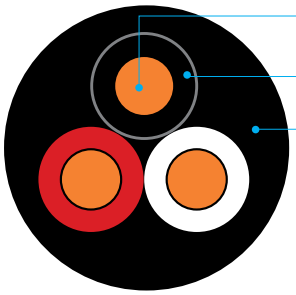
Mechanical properties

Tensile stress	max. 15N/mm²
Bending radii	
• 20mm ≥ D	min. 6 x D
• 20mm < D	min. 8 x D (D : Cable diameter)
• Fixed installation	min. 4 x D
Torsion stress	max. ±30°/m
Traveling speed	
• Reeling	not permissible
• Festoon	max. 40m/min.
Additional tests	Bending, Torsion

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper - IEC 60228 Class 5
	Insulation	- EPR, IEC 60502-2
	Sheath	- SE1, IEC 60502-1, Black
	Cores identification	- Black number or Insulation color
	Marking	- PNCT 0.6/1kV Number of cores x cross-section TMC Year Length - If with earth conductor, PNCT 0.6/1kV Number of cores G cross-section TMC Year Length

PNCT Rubber Insulated Flexible Cabytyre Cable, 0.6/1kV

PNCT Rubber Insulated Flexible Cabytyre Cable, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Thickness of		Overall diameter	Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃) Max.	Insulation	Sheath	Approx.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	kg/km	N
1 x 1.5	1.6	13.7	1.0	1.6	6.8	60	23
1 x 2.5	2.1	8.21	1.0	1.6	7.2	80	38
1 x 4	2.6	5.09	1.0	1.7	8.0	100	60
1 x 6	3.6	3.39	1.0	1.7	8.6	130	90
1 x 10	4.8	1.95	1.0	1.8	9.7	180	150
1 x 16	6.0	1.24	1.0	1.9	11.7	260	240
1 x 25	7.4	0.795	1.2	2.0	13.7	380	375
1 x 35	8.7	0.565	1.2	2.1	15.1	490	525
1 x 50	10.4	0.393	1.4	2.2	17.4	680	750
1 x 70	12.5	0.277	1.4	2.4	19.7	910	1,050
1 x 95	14.5	0.210	1.6	2.5	22.0	1,170	1,425
1 x 120	16.2	0.164	1.6	2.6	24.0	1,450	1,800
1 x 150	18.2	0.132	1.8	2.8	26.6	1,800	2,250
1 x 185	20.2	0.108	2.0	3.0	28.9	2,170	2,775
1 x 240	23.3	0.0817	2.2	3.2	32.4	2,810	3,600
1 x 300	26.0	0.0654	2.4	3.4	36.0	3,520	4,500
2 x 1	1.3	20.0	1.0	1.8	10.6	150	30
2 x 1.5	1.6	13.7	1.0	1.9	11.3	170	45
2 x 2.5	2.1	8.21	1.0	1.9	12.2	210	75
2 x 4	2.6	5.09	1.0	2.0	13.5	270	120
2 x 6	3.6	3.39	1.0	2.1	14.9	350	180
2 x 10	4.8	1.95	1.0	2.3	17.1	480	300
2 x 16	6.0	1.24	1.0	2.5	21.1	720	480
2 x 25	7.4	0.795	1.2	2.7	25.1	1,050	750
2 x 35	8.7	0.565	1.2	2.9	27.9	1,350	1,050
2 x 50	10.4	0.393	1.4	3.1	32.5	1,890	1,500
2 x 70	12.5	0.277	1.4	3.4	36.9	2,520	2,100
2 x 95	14.5	0.210	1.6	3.7	41.7	3,250	2,850
2 x 120	16.2	0.164	1.6	3.9	45.7	4,010	3,600
2 x 150	18.2	0.132	1.8	4.2	50.7	4,960	4,500
3 x 1	1.3	20.0	1.0	1.9	11.3	170	45
3 x 1.5	1.6	13.7	1.0	1.9	11.9	200	68
3 x 2.5	2.1	8.21	1.0	2.0	13.0	250	113
3 x 4	2.6	5.09	1.0	2.0	14.2	320	180
3 x 6	3.6	3.39	1.0	2.2	15.9	420	270

Note _ The other size may be applicable when purchaser required.

PNCT Rubber Insulated Flexible Cabytyre Cable, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Thickness of		Overall diameter	Net weight	Tension stress
	Diameter (approx.)	Resistance(at 20℃) Max.	Insulation	Sheath	Approx.	Approx.	Max.
mm^2	mm	Ω/km	mm	mm	kg/km	kg/km	N
3 x 10	4.8	1.95	1.0	2.4	18.2	600	450
3 x 16	6.0	1.24	1.0	2.5	22.3	900	720
3 x 25	7.4	0.795	1.2	2.8	26.8	1,330	1,125
3 x 35	8.7	0.565	1.2	3.0	29.8	1,720	1,575
3 x 50	10.4	0.393	1.4	3.3	34.9	2,420	2,250
3 x 70	12.5	0.277	1.4	3.5	39.4	3,230	3,150
3 x 95	14.5	0.210	1.6	3.9	44.7	4,200	4,275
3 x 120	16.2	0.164	1.6	4.1	49.0	5,190	5,400
3 x 150	18.2	0.132	1.8	4.5	54.6	6,460	6,750
4 x 1	1.3	20.0	1.0	1.9	12.1	200	60
4 x 1.5	1.6	13.7	1.0	2.0	13.0	240	90
4 x 2.5	2.1	8.21	1.0	2.0	14.1	300	150
4 x 4	2.6	5.09	1.0	2.1	15.6	400	240
4 x 6	3.6	3.39	1.0	2.3	17.4	530	360
4 x 10	4.8	1.95	1.0	2.5	20.0	750	600
4 x 16	6.0	1.24	1.0	2.7	24.8	1,140	960
4 x 25	7.4	0.795	1.2	3.0	29.7	1,690	1,500
4 x 35	8.7	0.565	1.2	3.2	33.0	2,190	2,100
4 x 50	10.4	0.393	1.4	3.5	38.7	3,090	3,000
4 x 70	12.5	0.277	1.4	3.8	43.9	4,150	4,200
4 x 95	14.5	0.210	1.6	4.2	49.7	5,380	5,700
4 x 120	16.2	0.164	1.6	4.5	54.7	6,690	7,200
4 x 150	18.2	0.132	1.8	4.8	60.6	8,270	9,000
5 x 1	1.3	20.0	1.0	2.0	13.3	240	75
5 x 1.5	1.6	13.7	1.0	2.0	14.0	280	113
5 x 2.5	2.1	8.21	1.0	2.1	15.4	370	188
5 x 4	2.6	5.09	1.0	2.2	17.1	490	300
5 x 6	3.6	3.39	1.0	2.4	19.1	640	450
5 x 10	4.8	1.95	1.0	2.6	21.9	910	750
5 x 16	6.0	1.24	1.0	2.8	27.2	1,400	1,200
5 x 25	7.4	0.795	1.2	3.2	32.9	2,090	1,875
5 x 35	8.7	0.565	1.2	3.4	36.5	2,700	2,625
5 x 50	10.4	0.393	1.4	3.8	43.0	3,830	3,750
5 x 70	12.5	0.277	1.4	4.1	48.7	5,150	5,250
5 x 95	14.5	0.210	1.6	4.5	55.2	6,690	7,125

Note _ The other size may be applicable when purchaser required.

PNCT-F Rubber Insulated Flexible Cabytyre Cable- Flat, 0.6/1kV

Cable Type PNCT-F

Standards KS C IEC 60502-1, JIS C 3327

Specification TMCRS-15003

Application Flexible power and control cable

Electrical properties

Rated voltage(Uo/U)	0.6/1kV
AC test voltage	3.5kV/5min.
Current rating(A)	IEC 60364-5-52

Thermal properties

Maximum conductor temperature	
• normal operation	90℃
• short-circuit(5s)	250℃
Ambient temperature	
• moved	-15℃ to +60℃
• not moved	-30℃ to +80℃

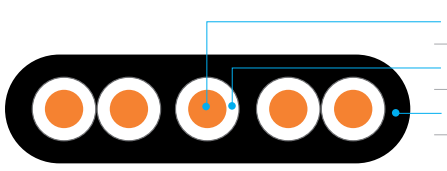
Mechanical properties

Tensile stress	max. 5N/mm²
Bending radii	
• 20mm ≥ D	min. 6 x D
• 20mm < D	min. 8 x D (D : Cable height diameter)
• Fixed installation	min. 4 x D
Torsion stress	not permissible
Traveling speed	
• Reeling	not permissible
• Festoon	max. 40m/min.
Additional tests	Bending

Chemical properties

Oil resistance	IEC 60811-2-1
Flame-retardant	IEC 60332-1
Weather resistance	Ozone, UV

Construction

Sectional view	Classification	Construction detail
	Conductor	- Flexible tinned copper, IEC 60228 Class 5
	Insulation	- EPR, IEC 60502-1
	Sheath	- SE1, IEC 60502-1, Black
	Cores identification	- If without earth conductor, White with black numbering - If with earth conductor, White with black numbering + green
	Marking	- PNCT-F 0.6/1kV Number of cores x cross-section TMC Year Length

PNCT-F Rubber Insulated Flexible Cabytyre Cable- Flat, 0.6/1kV

Number of cores and nominal cross-section	Conductor		Overall diameter				Net weight	Tensile force
	Diameter (approx.)	Resistance (at 20℃)	Height		Width		Approx.	Max.
			Min.	Max.	Min.	Max.		
mm²	mm	Ω/km	mm	mm	mm	mm	kg/km	N
5 x 6	3.6	3.39	9.6	12.7	35.4	40.5	790	150
7 x 6	3.6	3.39	9.8	12.9	45.9	51.0	1,060	210
9 x 6	3.6	3.39	10.4	13.5	56.9	62.0	1,370	270
11 x 6	3.6	3.39	10.8	13.9	67.7	72.8	1,670	330
13 x 6	3.6	3.39	11.0	14.1	78.3	83.4	1,970	390

Note _ The other size may be applicable when purchaser required.

Technical Data & Installation Information

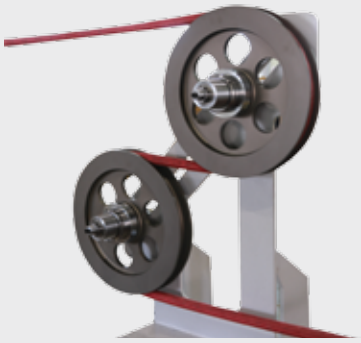
Mechanical Tests

Reversed Bending Test

- Cable diameter max. 60mm
- Tensile load max. 3000N
- Bending diameter min. 10 x D
- Number of cycles min. 30,000

- Cable type
  - Festoon cables
  - Reeling cables
  - Spreader cables
  - Cabtyre cables

S Bending Test



- Cable diameter max. 50mm
- Tensile load max. 100N
- Bending diameter min. 10 x D
- Number of cycles min. 60,000

- Cable type
  - Festoon cables
  - Reeling cables
  - Spreader cables
  - Cabtyre cables

Torsion Test

- Cable diameter max. 70mm
- Tensile load max. 3000N
- Torsion angle min. ±25˚/m

- Cable type (Round only)
  - Reeling cables
  - Spreader cables
  - Cabtyre cables

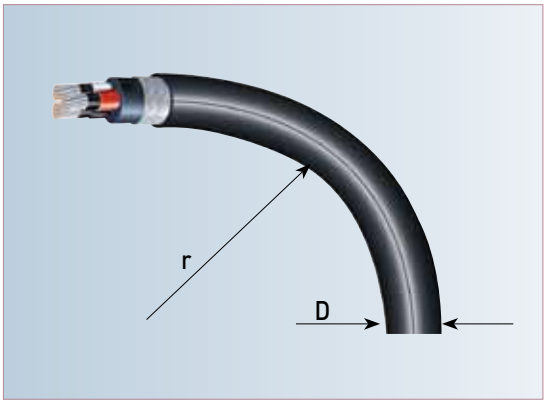
Installation Recommendations

The following installation recommendations are in accordance with IEC regulation and practice.
Different regulations may apply in other countries.

1. Minimum cable bending radii

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

Type of cables	Minimum bending radii
TRDFC-S / TRDFC	5 x D
TRDFC-SC / TRDFC-C	6 ~ 8 x D
TRDLRC	6 ~ 20 x D
TRDLRC-SWB	8 x D
TFLLRC	6 ~ 8 x D
TRDMRC	12 ~ 20 x D
TRDMRC-MS	15 ~ 20 x D
TFLMRC-MS	15 ~ 20 x D
TSCB	15 x D
PNCT	4 ~ 8 x D
PNCT-F	4 ~ 8 x D



Note _ D : Overall diameter of cable.

2. Installation temperature

Minimum recommended installation temperature for cables shall be -20℃.
But, if the ambient temperature were below -20℃, the cable should be installed after maintained at room temperature (about 15~25℃) for 24 hours or more.

3. Pulling tension

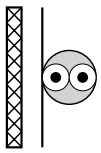
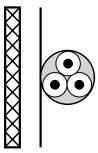
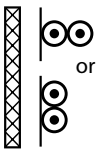
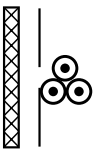
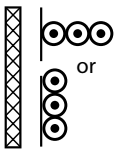
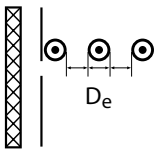
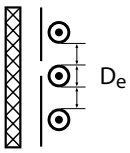
The cable pulling tension during installation can be estimated by means of the following formula:

p=5kg x total cross section of conductors in the armoured cable or,
p=2.5kg x total cross section of conductors in the unarmoured cable

Additional tension will be supplied from the braid and the insulation and sheathing compound.

Current-carrying capacity

- Rated Voltage : up to 1000V
- Reference standard : IEC 60364-5-52
- Conductor : Copper
- Insulation : EPR
- Conductor temperature : 90℃
- Reference ambient temperature : 30℃

Nominal cross-sectional area of conductor mm²	Installation						
	Multi-core cables		Single-core cables				
	Two loaded conductors	Three loaded conductors	Two loaded conductors touching	Three loaded conductors trefoil	Three loaded conductors. Flat		
					Touching	Spaced	
						Horizontal	Vertical
							
1.5	26	23	-	-	-	-	-
2.5	36	32	-	-	-	-	-
4	49	42	-	-	-	-	-
6	63	54	-	-	-	-	-
10	86	75	-	-	-	-	-
16	115	100	-	-	-	-	-
25	149	127	161	135	141	182	161
35	185	158	200	169	176	226	201
50	225	192	242	207	216	275	246
70	289	246	310	268	279	353	318
95	352	298	377	328	342	430	389
120	410	346	437	383	400	500	454
150	473	399	504	444	464	577	527
185	542	456	575	510	533	661	605
240	641	538	679	607	634	781	719
300	741	621	783	703	736	902	833
400	-	-	940	823	868	1085	1008
500	-	-	1083	946	998	1253	1169
630	-	-	1254	1088	1151	1454	1362

Note _ D_e : External diameter of cable.

Correction factor for ambient air temperatures other than 30℃ to be applied to the current-carrying capacities for cables in the air

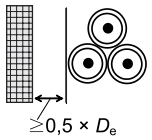
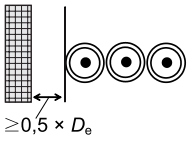
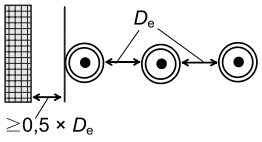
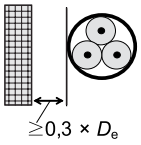
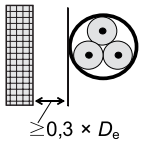
Ambient temperature	10℃	15℃	20℃	25℃	30℃	35℃	40℃	45℃	50℃	55℃	60℃	65℃	70℃	75℃	80℃
EPR	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41

Reduction factors for on circuit or one multi-core cable or for a group of more than one circuit, or more than one multi-core cable, to be used with current-carrying capacities

Item	Arrangement	Number of circuits or multi-core cables											
		1	2	3	4	5	6	7	8	9	12	16	20
1	Bunched in air, on a surface, embedded or enclosed	1.00	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.45	0.41	0.38
2	Single layer on wall, floor or unperforated cable tray systems	1.00	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70			
3	Single layer fixed directly under a wooden ceiling	0.95	0.81	0.72	0.68	0.66	0.64	0.63	0.62	0.61	No further raduction factor for more than nine clrcuits or multicore cables		
4	Singel layer on a perforated horizontal or vertical cable tray systems	1.00	0.88	0.82	0.77	0.75	0.73	0.73	0.72	0.72			
5	Single layer on cable ladder systems or cleats etc.,	1.00	0.87	0.82	0.80	0.80	0.79	0.79	0.78	0.78			

Current-carrying capacity

- Rated Voltage : 3.6/6kV to 18/30kV
- Reference standard : IEC 60502-2
- Conductor : Copper
- Insulation : EPR
- Conductor temperature : Max. 90℃
- Ambient air temperature : 30℃

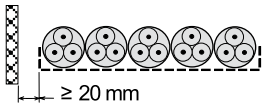
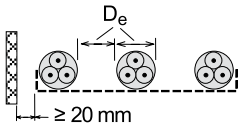
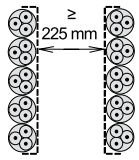
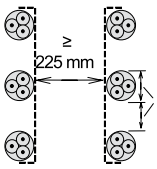
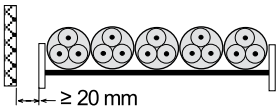
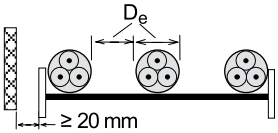
Two loaded conductors	Single-core cables			Multi-core cables	
	In air	In air	In air	In air	In air
	Trefoil	Flat touching	Flat spaced		
					
mm²	A	A	A	A	A
16	116	119	138	104	104
25	153	156	181	136	136
35	186	190	221	164	164
50	224	229	266	195	197
70	280	287	334	243	244
95	343	352	409	296	296
120	398	407	474	339	339
150	454	465	540	385	385
185	522	534	621	441	439
240	619	634	736	519	513
300	712	728	843	590	583
400	825	843	977	678	666

Note _ D_e : External diameter of cable.

Correction factor for ambient air temperatures other than 30℃

Maximum conductor temperature ℃	Ambient air temperature ℃								
	20℃	25℃	30℃	35℃	40℃	45℃	50℃	55℃	60℃
90	1.08	1.04	0.96	0.91	0.71	0.87	0.82	0.76	0.71

Reduction factors for groups of more than one multi-core cable in air -
to be applied to the current- carrying capacity for one multi-core cable in free air

Method of installation		Number of trays	Number of cables					
			1	2	3	4	6	9
Cables on perforated trays	Touching 	1	1,00	0,88	0,82	0,79	0,76	0,73
		2	1,00	0,87	0,80	0,77	0,73	0,68
		3	1,00	0,86	0,79	0,76	0,71	0,66
	Spaced 	1	1,00	1,00	0,98	0,95	0,91	–
		2	1,00	0,99	0,96	0,92	0,87	–
		3	1,00	0,98	0,95	0,91	0,85	–
Cables on vertical perforated trays	 Touching	1	1,00	0,88	0,82	0,78	0,73	0,72
		2	1,00	0,88	0,81	0,76	0,71	0,70
	 Spaced	1	1,00	0,91	0,89	0,88	0,87	–
		2	1,00	0,91	0,88	0,87	0,85	–
Cables on ladder supports, cleats, etc.	Touching 	1	1,00	0,87	0,82	0,80	0,79	0,78
		2	1,00	0,86	0,80	0,78	0,76	0,73
		3	1,00	0,85	0,79	0,76	0,73	0,70
	Spaced 	1	1,00	1,00	1,00	1,00	1,00	–
		2	1,00	0,99	0,98	0,97	0,96	–
		3	1,00	0,98	0,97	0,96	0,93	–

Note 1 Values given are averages for the cable types and range of conductor sizes considered. The spread of values is generally less than 5%.

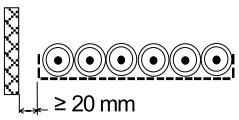
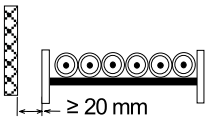
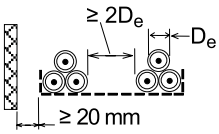
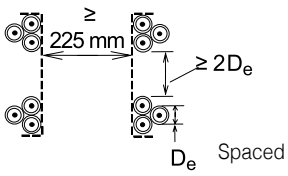
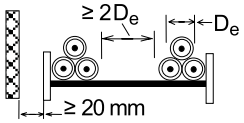
Note 2 Factors apply to single layer groups of cables as shown above and do not apply when cables are installed in more than one layer touching each other. Values for such installations may be significantly lower and must be determined by an appropriate method.

Note 3 Values are given for vertical spacings between trays of 300 mm and at least 20 mm between trays and wall. For closer spacing, the factors should be reduced.

Note 4 Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.

Current-carrying capacity

Reduction factors for groups of more than one circuit of single-core cable - to be applied to the current-carrying capacity for one circuit of single-core cable in free air

Method of installation		Number of trays	Number of three-phase circuits (Note 5)			Use as a multiplier to rating for
			1	2	3	
Perforated trays (Note 3)	Touching 	1	0,98	0,91	0,87	Three cables in horizontal formation
		2	0,96	0,87	0,81	
		3	0,95	0,85	0,78	
Ladder supports, cleats etc. (Note 3)	Touching 	1	1,00	0,97	0,96	Three cables in horizontal formation
		2	0,98	0,93	0,89	
		3	0,97	0,90	0,86	
Perforated trays (Note 3)		1	1,00	0,98	0,96	Three cables in trefoil formation
		2	0,97	0,93	0,89	
		3	0,96	0,92	0,86	
Vertical perforated trays (Note 4)		1	1,00	0,91	0,89	
		2	1,00	0,90	0,86	
Ladder supports, cleats etc. (Note 3)		1	1,00	1,00	1,00	
		2	0,97	0,95	0,93	
		3	0,96	0,94	0,90	

Note 1 Values given are averages for the cable types and range of conductor sizes considered. The spread of values is generally less than 5%.

Note 2 Factors are given for single layers of cables (or trefoil groups) as shown in the table and do not apply when cables are installed in more than one layer touching each other. Values for such installations may be significantly lower and should be determined by an appropriate method.

Note 3 Values are given for vertical spacings between trays of 300 mm. For closer spacing, the factors should be reduced.

Note 4 Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.

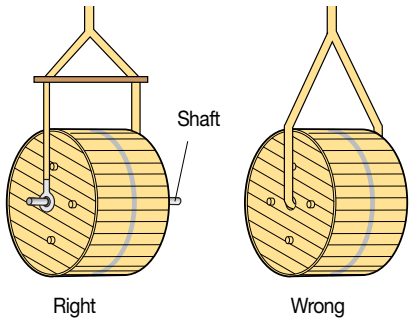
Note 5 For circuits having more than one cable in parallel per phase, each three phase set of conductors should be considered as a circuit for the purpose of this table.

Handling, Installation Method & Notice

■ Loading & Transportation

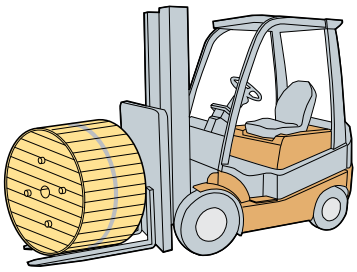
1. In case of a crane
Should transport by using standard rope and a shaft which is put in the center of drum.

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



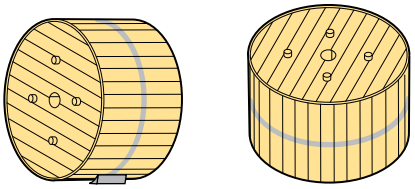
2. In case of a forklift
Drums should not be damaged by a forklift.

* 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.

Class Type Approval


CERTIFICATE OF APPROVAL

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

ISO 9001:2008
KS Q ISO 9001:2009

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

Cert. of ISO 9001


LRQA

CERTIFICATE OF APPROVAL

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

ISO 14001:2004
KS I ISO 14001:2009

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

Cert. of ISO 14001


CERTIFICATE OF APPROVAL

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

OHSAS 18001:2007

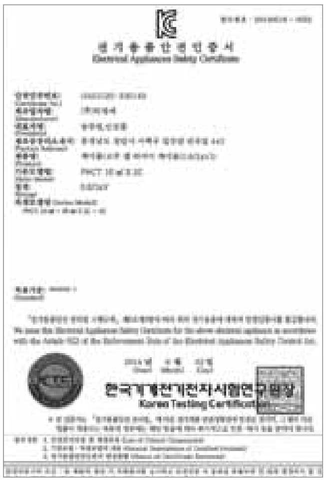
Design and manufacture of shipboard cables, off-shore cables, electrical cables and fiber optic cables.

Cert. of OHSAS 18001

Electrical Appliances Safety Certificate


전기용품안전인증서
Electrical Appliances Safety Certificate

한국기계전기전자시험연구원
Korea Testing Certification


전기용품안전인증서
Electrical Appliances Safety Certificate

한국기계전기전자시험연구원
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한국기계전기전자시험연구원
Korea Testing Certification


전기용품안전인증서
Electrical Appliances Safety Certificate

한국기계전기전자시험연구원
Korea Testing Certification

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