

S P E C I F I C A T I O N

Class 2 natural rubber insulated natural rubber sheathed flexible cable
2 C T

M I T S U B O S H I C O . , L T D .

No.

RN-030000A

S P E C I F I C A T I O N

MITSUBOSHI CO., LTD.

Name of Manufacture

Class 2 natural rubber insulated natural rubber sheathed flexible cable

Applicable Standards

JIS C 3005, JIS C 3152, JIS C 3327

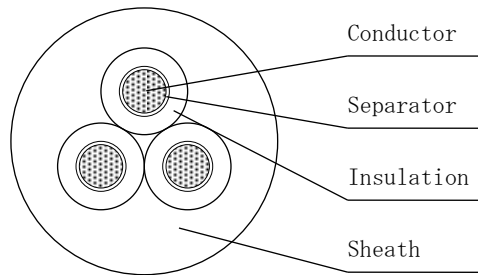
Electrical appliance and material safety law, Technical standards for electrical installations

1. Scope

This Specification covers quality level of 2CT
used in power supply circuit of portable electrical machinery and apparatus not higher than 600V.

2. Construction and materials

(Construction)



(3 cores)

- | | | |
|-----|-------------------------|--|
| 2.1 | Conductor | A stranded wire is composed of the tinned annealed copper wire specified in JIS C 3152. |
| 2.2 | Separator | A suitable separator is applied on the conductor. |
| 2.3 | Insulation | Natural rubber compound
The average thickness of the insulation is not less than 90% of the value in Attached Tables. The minimum thickness of the insulation is not less than 80% of the value in Attached Tables. |
| 2.4 | Identification of cores | Identification of cores are made by the color of insulation. (Attached Tables 2) |
| 2.5 | Stranding of cores | As the need arises, cores are stranded with a suitable filler. |
| 2.6 | Sheath | Natural rubber compound
The average thickness of sheath is not less than 90% of the value in Attached Tables. The minimum thickness of sheath is not less than 85% of the value in Attached Tables. |

3. Characteristics

Item	Characteristics	Test method
Appearance	The surface be smooth and there is not a flaw in case of use.	JIS C 3005 4.1
Construction	It depends on the Attached Table with structure and size.	JIS C 3005 4.3
Conductor resistance	Not more than the value in Attached Table.	JIS C 3005 4.4
Dielectric withstand voltage (in water)	Capable of withstanding 3000V for 1min.	JIS C 3005 4.6 a)
Insulation resistance	Not less than the value in Attached Table.	JIS C 3005 4.7.1 a)

4. Marking on cable

The following information is continuously marked on cable.

- ① The symbol of the cable
- ② Nominal sectional area
- ③ Manufacture's name or abbreviation

Example: 2CT 4 × 2mm²


★ ★ <PS>E MITSUBOSHI 2CT 2mm²

5. Length and packaging

According to the Attached Table.

6. Marking on package

The following information is marked on package.

- ① The symbol of the cable and nominal sectional area
- ② Length
- ③ Year of manufacture or lot No.
- ④ Manufacture's name
- ⑤  JET (only apply to Electrical Appliance and Material Safety Law)

Attached Table 1 : Construction, Size, Weight, and electric characteristic

0. 7 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 30/0.18	1.1	1.1	3.4	1.8	10.4	135	26.6	1,000	200 m Bundle
3					1.8	10.9	155			
4					1.8	11.8	180			

1. 2 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 50/0.18	1.5	1.1	3.8	1.8	11.2	160	16.0	1,000	200 m Bundle
3					1.8	11.8	185			
4					1.9	13.0	230			

2 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 37/0.26	1.8	1.1	4.1	1.8	11.8	185	10.2	1,000	200 m Bundle
3					1.9	12.6	225			
4					2.0	13.9	275			

3. 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 45/0.32	2.5	1.1	4.8	1.9	13.4	255	5.54	1,000	200 m Bundle
3					2.0	14.3	310			
4					2.1	15.8	385			

5. 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 70/0.32	3.1	1.1	5.4	2.0	14.8	325	3.56	900	200 m Bundle
3					2.1	15.8	405			
4					2.2	17.4	500			200 m Drum

8 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 50/0.45	3.7	1.1	6.0	2.1	16.2	410	2.52	800	200m Drum
3					2.2	17.3	510			
4					2.3	19.1	635			

14 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 88/0.45	4.9	1.4	7.8	2.3	20.2	660	1.43	700	200m Drum
3					2.4	21.6	830			
4					2.6	24.0	1,050			

22 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 7/20/0.45	7.0	1.4	10.0	2.6	25.2	1,050	0.919	600	200m Drum
3					2.7	27.0	1,320			
4					2.9	29.9	1,660			

30 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 7/27/0.45	8.1	1.8	11.9	2.9	29.6	1,435	0.681	600	200m Drum
3					3.0	31.6	1,795			
4					3.2	35.1	2,260			

38 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 7/34/0.45	9.1	1.8	12.9	3.0	31.8	1,700	0.541	600	200m Drum
3					3.2	34.2	2,160			
4					3.4	37.9	2,720			

5 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 19/16/0.45	10.4	1.8	14.2	3.2	34.8	2,055	0.423	500	200m Drum
3					3.3	37.2	2,590			
4					3.6	41.5	3,285			

6 0 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 19/20/0.45	11.6	1.8	15.4	3.4	37.6	2,450	0.339	500	200m Drum
3					3.5	40.2	3,110			
4					3.8	44.8	3,945			

8 0 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 19/27/0.45	13.5	2.3	18.3	3.7	44.0	3,345	0.250	500	200m Drum
3					3.9	47.2	4,250			
4					4.2	52.6	5,385			

1 0 0 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 19/34/0.45	15.2	2.3	20.0	4.0	48.0	4,055	0.199	500	200m Drum
3					4.2	51.5	5,175			
4					4.5	57.3	6,555			

1 2 5 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 19/42/0.45	16.8	2.3	21.6	4.2	51.6	4,795	0.161	400	200m Drum
3					4.4	55.3	6,135			

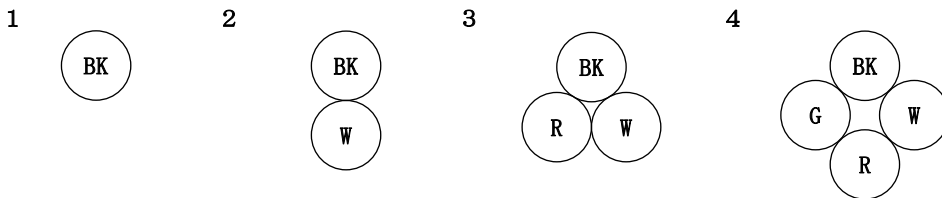
1 5 0 mm²

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20 °C (Ω/km)	Insulation resistance 20 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 27/34/0.45	18.7	2.3	23.5	4.4	55.8	5,520	0.140	400	200m Drum
3					4.7	60.0	7,070			

Cable of single core

Size [mm ²]	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
0.75	(TA) 30/0.18	1.1	1.1	3.4	1.5	6.4	55	25.8	1,000	200m Bundle
1.25	(TA) 50/0.18	1.5	1.1	3.8	1.6	7.0	65	15.5	1,000	
2	(TA) 37/0.26	1.8	1.1	4.1	1.6	7.3	75	9.91	1,000	
3.5	(TA) 45/0.32	2.5	1.1	4.8	1.6	8.0	100	5.38	1,000	
5.5	(TA) 70/0.32	3.1	1.1	5.4	1.7	8.8	130	3.46	900	
8	(TA) 50/0.45	3.7	1.1	6.0	1.7	9.4	160	2.45	800	
14	(TA) 88/0.45	4.9	1.4	7.8	1.8	11.4	250	1.39	700	
22	(TA) 7/20/0.45	7.0	1.4	10.0	2.0	14.0	385	0.892	600	200m Drum
30	(TA) 7/27/0.45	8.1	1.8	11.9	2.1	16.1	515	0.661	600	
38	(TA) 7/34/0.45	9.1	1.8	12.9	2.2	17.3	615	0.525	600	
50	(TA) 19/16/0.45	10.4	1.8	14.2	2.2	18.6	730	0.411	500	
60	(TA) 19/20/0.45	11.6	1.8	15.4	2.3	20.0	875	0.329	500	
80	(TA) 19/27/0.45	13.5	2.3	18.3	2.5	23.3	1,185	0.243	500	
100	(TA) 19/34/0.45	15.2	2.3	20.0	2.6	25.2	1,435	0.193	500	
125	(TA) 19/42/0.45	16.8	2.3	21.6	2.7	27.0	1,710	0.156	400	
150	(TA) 27/34/0.45	18.7	2.3	23.5	2.9	29.3	1,960	0.136	400	
200	(TA) 37/34/0.45	21.2	2.9	27.2	3.1	33.4	2,675	0.0993	400	
250	(TA) 37/42/0.45	23.6	2.9	29.6	3.3	36.2	3,220	0.0803	400	
325	(TA) 37/55/0.45	27.0	2.9	33.0	3.5	40.0	4,085	0.0614	400	

Attached Table 2 : Identification of cores



~Symbol of COLOR~

BK : B l a c k

W : W h i t e

R : R e d

G : G r e e n

Attached Table 3 : A table of allowable current

Unit [A]

Number of core \ Nominal Sectional area	Unit [A]						
	0.75	1.25	2	3.5	5.5	8	14
1	14	19	25	37	49	62	88
2	12	16	22	32	41	51	71
3	10	14	19	28	36	44	62
4	9	13	17	25	32	39	55

Number of core \ Nominal Sectional area	Unit [A]						
	22	30	38	50	60	80	100
1	115	140	165	195	225	270	315
2	95	110	130	150	170	216	250
3	83	98	110	125	150	186	215
4	74	89	100	115	135	170	197

Number of core \ Nominal Sectional area	Unit [A]				
	125	150	200	250	325
1	358	394	473	538	633
2	286	316			
3	246	271			