

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

Class 2 EP rubber insulated chloroprene rubber sheathed flexible cable
2 P N C T

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

No. RN-090000A	SPECIFICATION	MITSUBOSHI CO., LTD.
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Name of Manufacture
Class 2 EP rubber insulated chloroprene rubber sheathed flexible cable

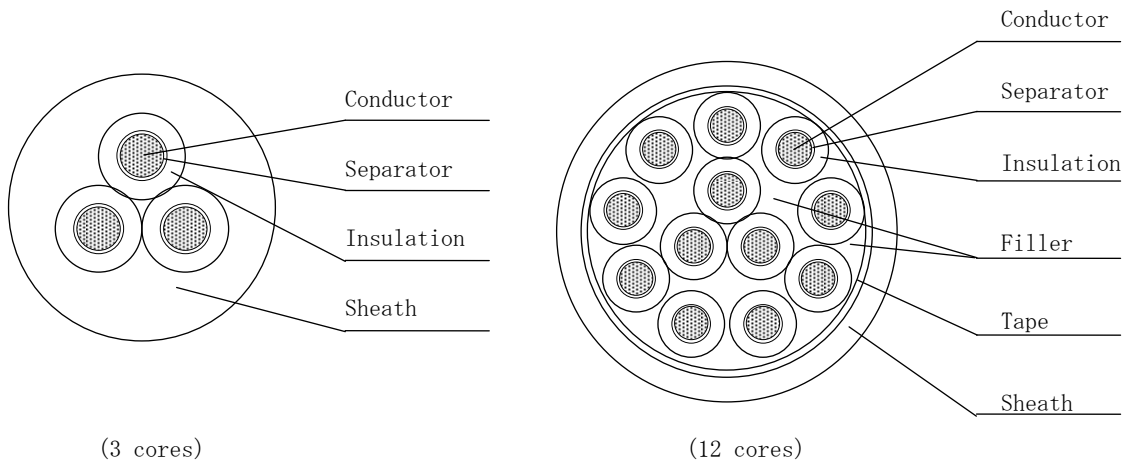
Applicable Standards
JIS C 3005, JIS C 3152, JIS C 3327
Electrical appliance and material safety law, Technical standards for electrical installations

1. Scope

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

2. Construction and materials

(Construction)



- | | | |
|-----|-------------------------|---|
| 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 | Ethylene propylene 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 | Chloroprene 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)
※ ¹⁾ Tensile properties	Insulation	Tensile strength	Not less than 4Mpa
		Elongation	Not less than 300%
	Sheath	Tensile strength	Not less than 13Mpa
		Elongation	Not less than 300%
※ ¹⁾ Thermal aging	Insulation	Tensile strength	Not less than 80% of the value before heating
		Elongation	
	Sheath	Tensile strength	Not less than 65% of the value before heating
		Elongation	
※ ¹⁾ Oil resistance	Sheath	Tensile strength	※ ²⁾ Not less than 60% of the value before oil-Immersion
		Elongation	
※ ¹⁾ Flame retardance		To disappear naturally within 60 seconds	JIS C 3005 4.26.2 a)
※ ¹⁾ Bending (nominal sectional area 38mm ² or under)		No damage nor crack to develop, number of broken component wires in each core not to exceed 30%	JIS C 3005 4.27.1 a)
※ ¹⁾ Abrasion		Sheath not to be so abraded as to expose the insulation	JIS C 3005 4.29

※¹⁾ The quality characteristic to enforce inspection regularly with an in-house standard.

※²⁾ For the test piece less than 1mm in thickness, not less than 50%.

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: 2 P N C T 4 × 2 mm²

★ ★ <PS>E MITSUBOSHI 2PNCT 2mm²

Example: 2 P N C T 1 0 × 2 mm²


★ ★ MITSUBOSHI -2PNCT-

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  J E T (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. 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)	Standard (mm)	Maximum (mm)				
2	(TA) 30/0.18	1.1	0.8	2.8	1.7	9.0	9.4	105	26.6	500	200m Bundle
3					1.7	9.4	9.8	120			
4					1.8	10.4	10.8	150			
5					1.8	11.2	11.8	175			
6					1.9	12.5	13.1	215			
7					1.9	13.4	14.0	240			
8					2.0	14.4	15.0	275	26.8		400m Drum
9					2.1	15.5	16.3	295			
10					2.1	16.4	17.2	330			
12					2.1	16.1	16.9	335			
14					2.1	16.9	17.7	375			
15					2.2	17.9	18.8	410			
16					2.2	17.9	18.8	425			
18					2.3	18.9	19.8	475			
20					2.3	19.8	20.8	520			
24					2.4	21.7	22.8	625			
30					2.5	23.3	24.5	730			

1. 2 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 50/0.18	1.5	0.8	3.2	1.7	9.8	10.2	130	16.0	500	200m Bundle
3					1.8	10.5	10.9	155			
4					1.8	11.3	11.7	185			
5					1.9	12.4	13.0	225			
6					1.9	13.7	14.3	270			
7					2.0	14.9	15.5	310			
8					2.1	16.1	16.8	360			
9					2.2	17.2	18.1	395			
10					2.2	18.3	19.2	435			
12					2.2	18.0	18.9	450			
14					2.3	19.0	20.0	510			
15					2.3	19.9	20.9	545			
16					2.3	19.9	20.9	570			
18					2.4	21.1	22.2	635			
20					2.5	22.3	23.4	695			
24					2.6	24.4	25.6	835			
30					2.7	26.2	27.5	980			

2 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 37/0.26	1.8	0.8	3.5	1.8	10.6	11.0	160	10.2	500	200 m Bundle
3					1.8	11.1	11.5	185			
4					1.9	12.2	12.6	230			
5					1.9	13.3	13.9	275			
6					2.0	14.9	15.5	340			
7					2.1	16.2	16.9	395			
8					2.1	17.2	17.9	440			
9					2.2	18.4	19.3	480			
10					2.3	19.7	20.7	540	10.3		400 m Drum
12					2.3	19.4	20.4	565			
14					2.3	20.3	21.3	635			
15					2.4	21.6	22.7	685			
16					2.4	21.6	22.7	720			
18					2.5	22.8	23.9	805			
20					2.6	24.1	25.3	895			
24					2.7	26.4	27.7	1,070			
30					2.8	28.3	29.7	1,265			

3.5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 45/0.32	2.5	0.8	4.2	1.9	12.2	12.6	225	5.54	400	200 m Bundle
3					1.9	12.9	13.3	270			
4					2.0	14.1	14.5	340			
5					2.1	15.5	16.2	415			
6					2.1	17.2	17.9	500			
7					2.2	18.7	19.4	580			
8					2.3	20.2	20.9	660			
9					2.4	21.6	22.7	710			5.60
10					2.5	23.1	24.3	800			
12					2.5	22.8	23.9	845			
14					2.6	24.0	25.2	970			
15					2.6	24.6	25.8	1,025			
16					2.6	25.2	26.5	1,085			
18					2.7	26.7	28.0	1,220			
20					2.8	28.2	29.6	1,350			
24					3.0	31.2	32.8	1,625	200 m Drum		
30					3.1	33.4	35.1	1,930			

5. 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 70/0.32	3.1	1.0	5.2	2.0	14.4	14.8	325	3.56	400	200 m Bundle
3					2.0	15.2	15.6	390			
4					2.1	16.8	17.3	495			200 m Drum
5					2.2	18.4	19.1	600			
6					2.3	20.7	21.4	730			
7					2.4	22.6	23.3	850			
8					2.5	24.4	25.1	975	3.60		400 m Drum
9					2.7	26.1	27.4	1,055			
10					2.8	27.9	29.3	1,190			
12					2.8	27.5	28.9	1,260			
16					2.9	30.5	32.0	1,620			
20					3.2	34.3	36.0	2,035			

8 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 50/0.45	3.7	1.0	5.8	2.1	15.8	16.3	405	2.52	400	200 m Bundle
3					2.1	16.7	17.2	495			
4					2.2	18.4	18.9	625			
5					2.3	20.8	21.5	790			
6					2.5	23.0	23.7	945			
7					2.6	25.0	25.8	1,095			2.55
8					2.7	27.0	27.8	1,260			
9					2.8	28.6	30.0	1,345			
10					3.0	30.9	32.4	1,530			
12					2.9	30.2	31.7	1,615			

14 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 88/0.45	4.9	1.0	7.0	2.2	18.4	18.9	595	1.43	300	200 m Drum
3					2.3	19.7	20.2	750			
4					2.4	21.7	22.2	955			
5					2.6	24.7	25.5	1,205			
6					2.7	27.1	27.9	1,395			

2 2 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 7/20/0.45	7.0	1.2	9.6	2.6	24.4	25.0	1,010	0.919	300	200m Drum
3					2.7	26.1	26.7	1,270			
4					2.8	28.8	29.4	1,585			
5					3.0	32.8	33.6	2,045			
6					3.2	36.2	37.1	2,360			

3 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 7/27/0.45	8.1	1.2	10.7	2.7	26.8	27.4	1,265	0.681	300	200m Drum
3					2.8	28.7	29.3	1,600			
4					3.0	31.8	32.4	2,010			
5					3.2	36.3	37.2	2,605			
6					3.4	40.0	40.9	3,100			

3 8 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 7/34/0.45	9.1	1.2	11.7	2.9	29.2	29.8	1,535	0.541	200	200m Drum
3					3.0	31.2	31.8	1,940			
4					3.2	34.6	35.3	2,445			
5					3.4	39.5	40.4	3,165			
6					3.6	43.5	44.5	3,650			

5 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 19/16/0.45	10.4	1.5	13.6	3.1	33.4	34.1	1,965	0.423	200	200m Drum
3					3.3	35.9	36.6	2,490			
4					3.5	39.8	40.5	3,135			

6 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 19/20/0.45	11.6	1.5	14.8	3.3	36.2	36.9	2,355	0.339	200	200m Drum
3					3.4	38.7	39.4	2,985			
4					3.7	43.1	43.9	3,780			

8 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 19/27/0.45	13.5	2.0	17.7	3.7	42.8	43.6	3,250	0.250	300	200m Drum
3					3.8	45.7	46.5	4,105			
4					4.1	50.9	51.8	5,190			

1 0 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 19/34/0.45	15.2	2.0	19.4	3.9	46.6	47.4	3,935	0.199	200	200m Drum
3					4.1	50.0	50.9	5,015			
4					4.4	55.6	56.5	6,345			

1 2 5 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 19/42/0.45	16.8	2.0	21.0	4.1	50.2	51.1	4,675	0.161	200	200m Drum
3					4.3	53.9	54.8	5,980			

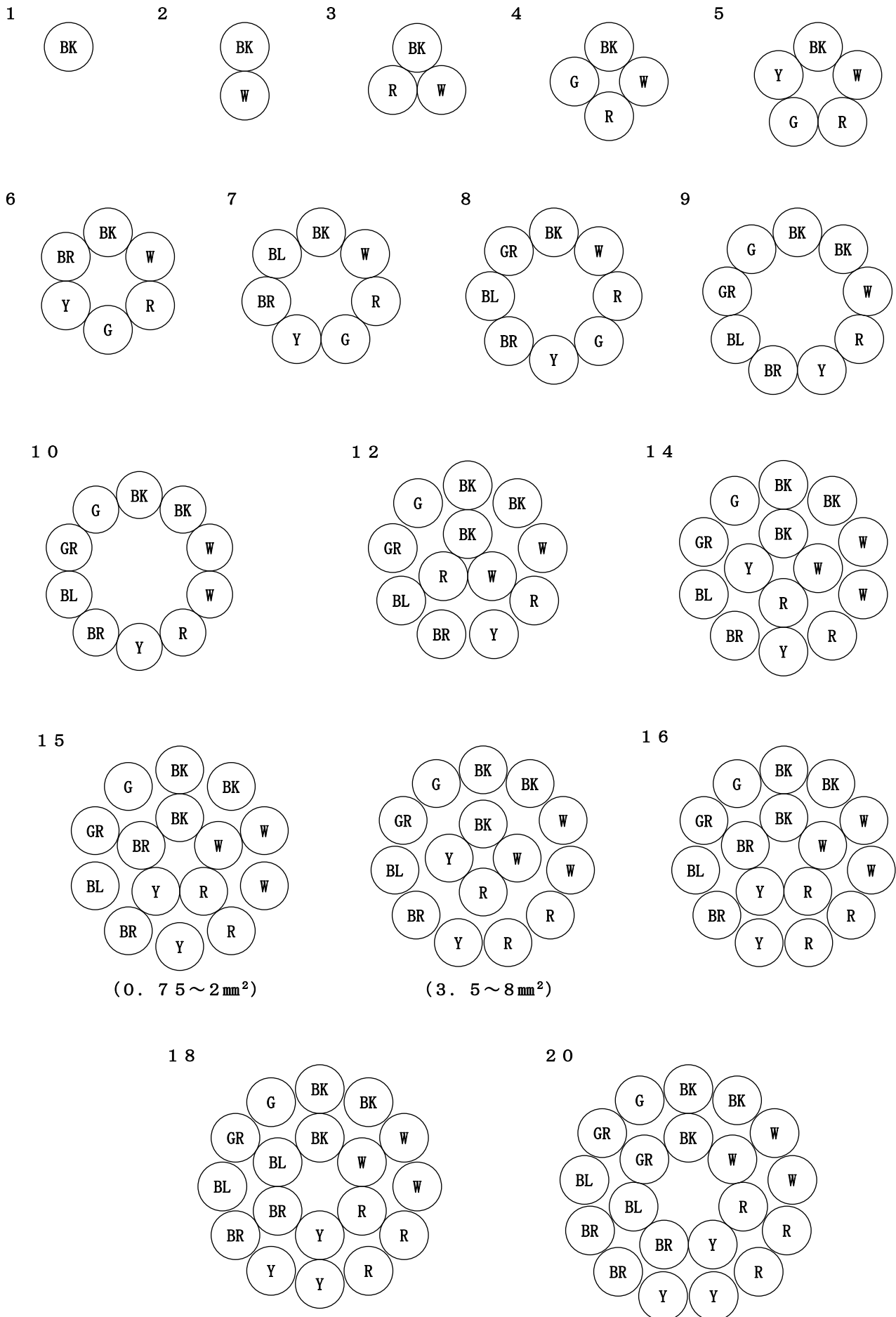
1 5 0 mm²

Number of core	Conductors		Insulation		Sheath	Overall diameter		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)	Standard (mm)	Maximum (mm)				
2	(TA) 27/34/0.45	18.7	2.0	22.9	4.4	54.6	55.5	5,420	0.140	200	200m Drum
3					4.6	58.5	59.5	6,890			

Cable of single core

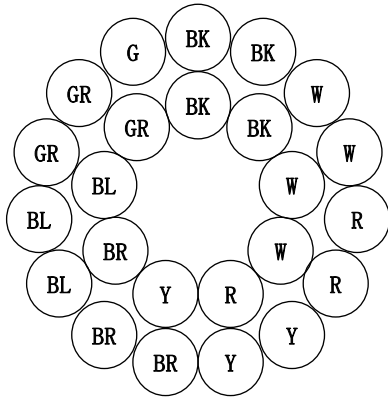
Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MQ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)				
0.75	(TA) 30/0.18	1.1	0.8	2.8	1.5	5.8	6.2	45	25.8	500	200m Bundle
1.25	(TA) 50/0.18	1.5	0.8	3.2	1.5	6.2	6.6	55	15.5	500	
2	(TA) 37/0.26	1.8	0.8	3.5	1.5	6.5	6.9	65	9.91	500	
3.5	(TA) 45/0.32	2.5	0.8	4.2	1.6	7.4	7.8	90	5.38	400	
5.5	(TA) 70/0.32	3.1	1.0	5.2	1.6	8.4	8.8	125	3.46	400	
8	(TA) 50/0.45	3.7	1.0	5.8	1.7	9.2	9.6	155	2.45	400	
14	(TA) 88/0.45	4.9	1.0	7.0	1.8	10.6	11.0	230	1.39	300	
22	(TA) 7/20/0.45	7.0	1.2	9.6	1.9	13.4	13.8	370	0.892	300	
30	(TA) 7/27/0.45	8.1	1.2	10.7	2.0	14.7	15.1	470	0.661	300	
38	(TA) 7/34/0.45	9.1	1.2	11.7	2.1	15.9	16.4	565	0.525	200	
50	(TA) 19/16/0.45	10.4	1.5	13.6	2.2	18.0	18.5	710	0.411	200	
60	(TA) 19/20/0.45	11.6	1.5	14.8	2.3	19.4	19.9	855	0.329	200	
80	(TA) 19/27/0.45	13.5	2.0	17.7	2.5	22.7	23.2	1,160	0.243	300	
100	(TA) 19/34/0.45	15.2	2.0	19.4	2.6	24.6	25.2	1,410	0.193	200	
125	(TA) 19/42/0.45	16.8	2.0	21.0	2.7	26.4	27.0	1,680	0.156	200	
150	(TA) 27/34/0.45	18.7	2.0	22.9	2.8	28.5	29.1	1,915	0.136	200	
200	(TA) 37/34/0.45	21.2	2.5	26.4	3.1	32.6	33.3	2,600	0.0993	200	
250	(TA) 37/42/0.45	23.6	2.5	28.8	3.2	35.2	35.9	3,125	0.0803	200	
325	(TA) 37/55/0.45	27.0	2.5	32.2	3.4	39.0	39.7	3,975	0.0614	200	

Attached Table 2 : Identification of cores (1)

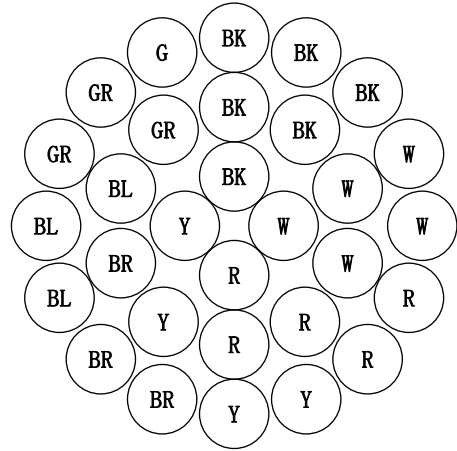


Attached Table 2 : Identification of cores (2)

2 4



3 0



~Symbol of COLOR~

BK : Black

W : White

R : Red

G : Green

Y : Yellow

BR : Brown

BL : Blue

GR : Gray