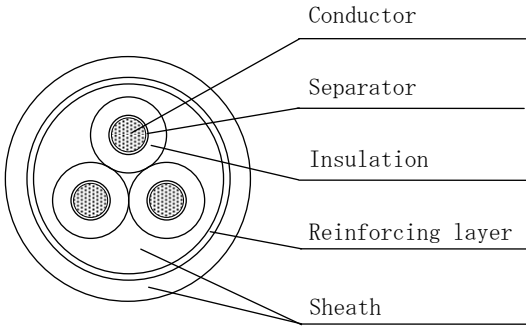
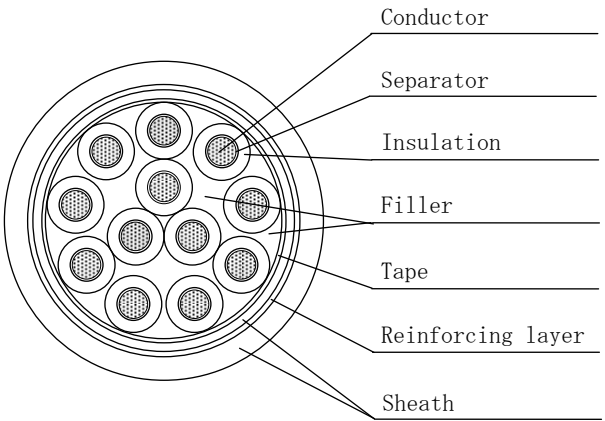


# S P E C I F I C A T I O N

Class 3 EP rubber insulated chloroprene rubber sheathed flexible cable  
3 P N C T

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

No. RN-110000	SPECIFICATION	MITSUBOSHI CO., LTD.
Name of Manufacture Class 3 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		
<p>1. Scope</p> <p>This Specification covers quality level of <u>3PNCT</u> used in power supply circuit of portable electrical machinery and apparatus not higher than 600V.</p> <p>2. Construction and materials</p> <p>(Construction)</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>(3 cores)</p> </div> <div style="text-align: center;">  <p>(12 cores)</p> </div> </div> <p>2.1 Conductor A stranded wire is composed of the tinned annealed copper wire specified in JIS C 3152.</p> <p>2.2 Separator A suitable separator is applied on the conductor.</p> <p>2.3 Insulation Ethylene propylene rubber compound The average thickness of the insulation is not less than 90% of the value in Attached Table 1. The minimum thickness of the insulation is not less than 80% of the value in Attached Table 1.</p> <p>2.4 Identification of cores Identification of cores are made by the color of insulation. (Attached Table 2)</p> <p>2.5 Stranding of cores As the need arises, cores are stranded with a suitable filler.</p> <p>2.6 Reinforcing layer A Reinforcing layer of butt-lapped cotton canvas tape is applied on inserted in the middle of the sheath.</p> <p>2.7 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.</p>		

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 1 with structure and size.	JIS C 3005 4.3
Conductor resistance		Not more than the value in Attached Table 1.	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 1.	JIS C 3005 4.7.1 a)
※ <sup>1)</sup> 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%
※ <sup>1)</sup> 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	
※ <sup>1)</sup> Oil resistance	Sheath	Tensile strength	※ <sup>2)</sup> Not less than 60% of the value before oil-Immersion
		Elongation	
※ <sup>1)</sup> Flame retardance		To disappear naturally within 60 seconds	JIS C 3005 4.26.2 a)
※ <sup>1)</sup> Bending (nominal sectional area 38mm <sup>2</sup> 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)
※ <sup>1)</sup> Impact		No damage nor crack to develop, number of broken component wires in each core not to exceed 30%	JIS C 3005 4.28
※ <sup>1)</sup> Abrasion		Sheath not to be so abraded as to expose the insulation	JIS C 3005 4.29

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

※<sup>2)</sup> 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: 3 P N C T 4 × 2 mm<sup>2</sup>



<PS>E

MITSUBOSHI

3PNCT


2mm<sup>2</sup>

## 5. Length and packaging

According to the Attached Table 1.

## 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

2 mm<sup>2</sup>

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	1.2	4.3	2.8	15.2	285	10.2	500	200 m Drum
3					2.8	15.9	325			
4					2.9	17.2	390			
5					3.0	18.6	465			
6					3.1	20.1	540			
7					3.1	21.4	618			
8					3.3	23.4	662			
9					3.3	24.8	728			
10					3.4	26.3	812			
12					3.4	26.0	843			
14					3.5	27.3	949			
15					3.5	27.9	994			
16					3.6	28.7	1,059			
18					3.7	30.2	1,174			
20					3.7	31.5	1,294			
24					3.9	34.6	1,571			
30	4.1	37.1	1,811							

3. 5 mm<sup>2</sup>

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	1.2	5.0	2.9	16.8	365	5.54	500	200 m Drum
3					2.9	17.6	425			
4					3.0	19.1	515			
5					3.1	20.7	620			
6					3.2	22.4	725			
7					3.3	24.1	845			
8					3.4	26.2	887			
9					3.5	27.9	998			
10					3.6	29.7	1,116			
12					3.6	29.3	1,167			
14					3.7	30.8	1,316			
15					3.7	31.5	1,388			
16					3.8	32.4	1,478			
18					3.9	34.1	1,645			
20					4.0	35.8	1,815			
24					4.2	39.3	2,235			
30	4.4	42.2	2,578							

5. 5 mm<sup>2</sup>

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	1.2	5.6	2.9	18.0	445	3.56	500	200m Drum
3					3.0	19.1	530			
4					3.1	20.7	645			
5					3.2	22.5	785			
6					3.3	24.4	924			
7					3.4	26.3	1,079			
8					3.6	28.7	1,143			
9					3.7	30.7	1,291			
10					3.8	32.6	1,440			
12					3.8	32.2	1,522			
14					3.9	33.8	1,718			
15					3.9	34.6	1,816			
16					4.0	35.6	1,936			
18					4.1	37.5	2,171			
20	4.2	39.4	2,402							

8 mm<sup>2</sup>

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	1.2	6.2	3.0	19.4	535	2.52	400	200m Drum
3					3.1	20.6	645			
4					3.2	22.4	795			
5					3.3	24.3	965			
6					3.4	26.4	1,144			
7					3.6	28.7	1,350			
8					3.7	31.1	1,411			
9					3.8	33.2	1,598			
10					4.0	35.6	1,801			
12					3.9	34.9	1,905			

**1 4 mm<sup>2</sup>**

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0°C (Ω/km)	Insulation resistance 2 0°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	1.2	7.4	3.2	23.2	780	1.43	400	2 0 0 m Drum
3					3.3	24.5	950			
4					3.4	26.7	1,180			
5					3.5	29.0	1,422			
6					3.7	31.6	1,706			

**2 2 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0°C (Ω/km)	Insulation resistance 2 0°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	1.6	10.4	3.6	30.0	1,305	0.919	300	2 0 0 m Drum
3					3.7	31.8	1,595			
4					3.9	34.9	1,995			

**3 0 mm<sup>2</sup>**

Number of Core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0°C (Ω/km)	Insulation resistance 2 0°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	1.6	11.5	3.7	32.4	1,570	0.681	300	2 0 0 m Drum
3					3.9	34.6	1,955			
4					4.1	38.0	2,450			

**3 8 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0°C (Ω/km)	Insulation resistance 2 0°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	1.6	12.5	3.9	34.8	1,860	0.541	300	2 0 0 m Drum
3					4.0	36.9	2,305			
4					4.2	40.6	2,905			

**5 0 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0°C (Ω/km)	Insulation resistance 2 0°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	2.1	14.8	4.2	40.0	2,425	0.423	300	2 0 0 m Drum
3					4.3	42.5	2,995			
4					4.6	46.9	3,780			

**6 0 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0 °C (Ω/km)	Insulation resistance 2 0 °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	2.1	16.0	4.3	42.6	2,835	0.339	300	200 m Drum
3					4.5	45.5	3,545			
4					4.8	50.2	4,485			

**8 0 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0 °C (Ω/km)	Insulation resistance 2 0 °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	2.1	17.9	4.6	47.0	3,570	0.250	300	200 m Drum
3					4.8	50.2	4,495			
4					5.1	55.4	5,775			

**1 0 0 mm<sup>2</sup>**

Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0 °C (Ω/km)	Insulation resistance 2 0 °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	2.1	19.6	4.8	50.8	4,280	0.199	200	200 m Drum
3					5.0	54.2	5,405			
4					5.4	60.1	6,997			



Cable of single core

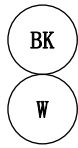
Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(TA) 37/0.26	1.8	1.2	4.3	2.5	10.3	130	9.91	500	200m Bundle
3.5	(TA) 45/0.32	2.5	1.2	5.0	2.5	11.0	160	5.38	500	
5.5	(TA) 70/0.32	3.1	1.2	5.6	2.6	11.8	195	3.46	500	
8	(TA) 50/0.45	3.7	1.2	6.2	2.6	12.4	225	2.45	400	
14	(TA) 88/0.45	4.9	1.2	7.4	2.7	13.8	310	1.39	400	
22	(TA) 7/20/0.45	7.0	1.6	10.4	2.9	17.2	485	0.892	300	
30	(TA) 7/27/0.45	8.1	1.6	11.5	3.0	18.5	595	0.661	300	
38	(TA) 7/34/0.45	9.1	1.6	12.5	3.0	19.5	690	0.525	300	
50	(TA) 19/16/0.45	10.4	2.1	14.8	3.2	22.2	880	0.411	300	
60	(TA) 19/20/0.45	11.6	2.1	16.0	3.3	23.6	1,040	0.329	300	
80	(TA) 19/27/0.45	13.5	2.1	17.9	3.4	25.7	1,300	0.243	300	
100	(TA) 19/34/0.45	15.2	2.1	19.6	3.5	27.6	1,560	0.193	200	
125	(TA) 19/42/0.45	16.8	2.7	22.4	3.7	31.8	1,970	0.156	200	
150	(TA) 27/34/0.45	18.7	2.7	24.3	3.8	33.9	2,225	0.136	200	
200	(TA) 37/34/0.45	21.2	3.3	28.0	4.1	38.2	2,960	0.0993	200	
250	(TA) 37/42/0.45	23.6	3.3	30.4	4.2	40.8	3,515	0.0803	200	
325	(TA) 37/55/0.45	27.0	3.3	33.8	4.5	44.8	4,425	0.0614	200	

Attached Table 2 : Identification of cores (1)

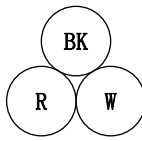
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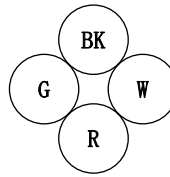
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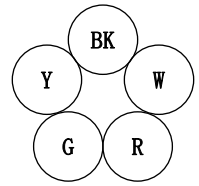
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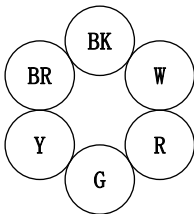
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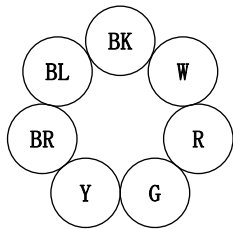
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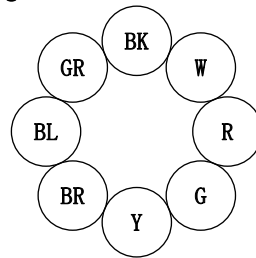
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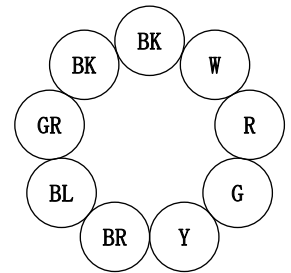
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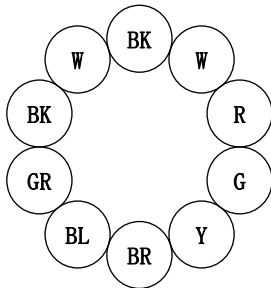
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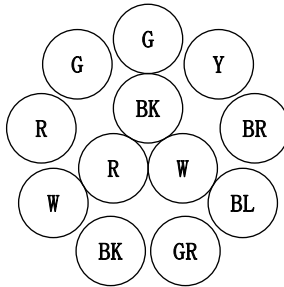
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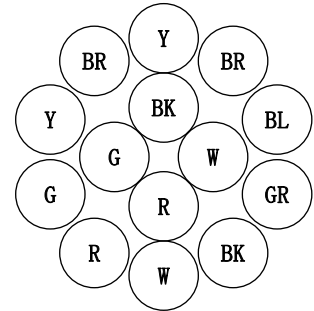
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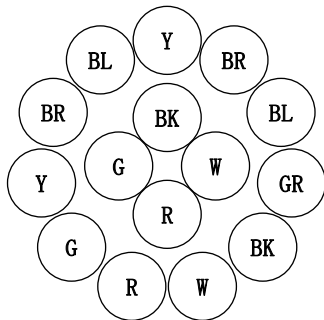
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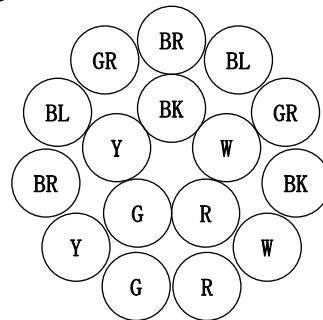
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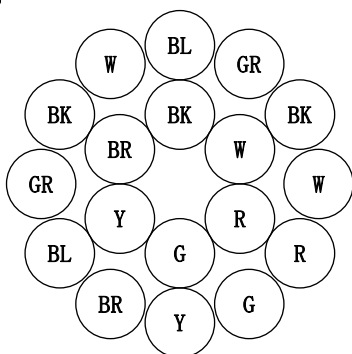
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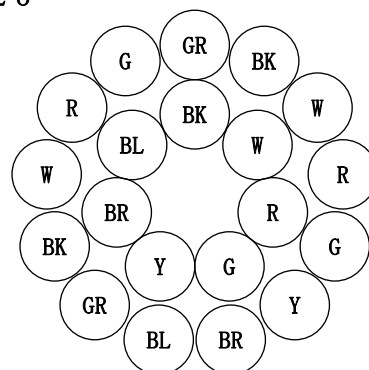
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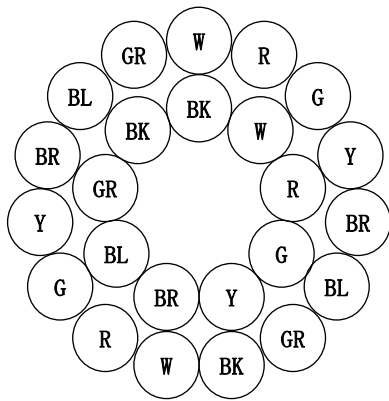


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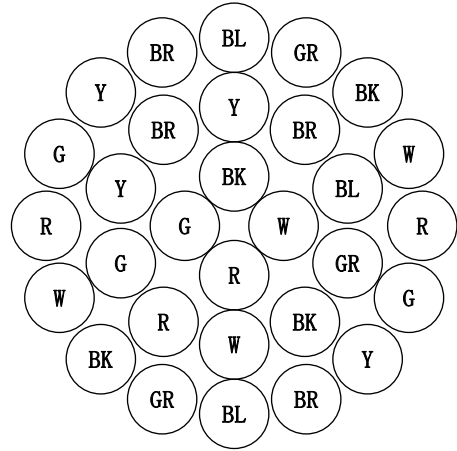


Attached Table 2 : Identification of cores (2)

2 4



3 0



~Symbol of COLOR~

BK : Black

W : White

R : Red

G : Green

Y : Yellow

BR : Brown

BL : Blue

GR : Gray