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.

M W

No. RN－０９００００B	SPECIFICATION	MITSUBOSHI CO., LTD.

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, Site electrical facilities technical standard

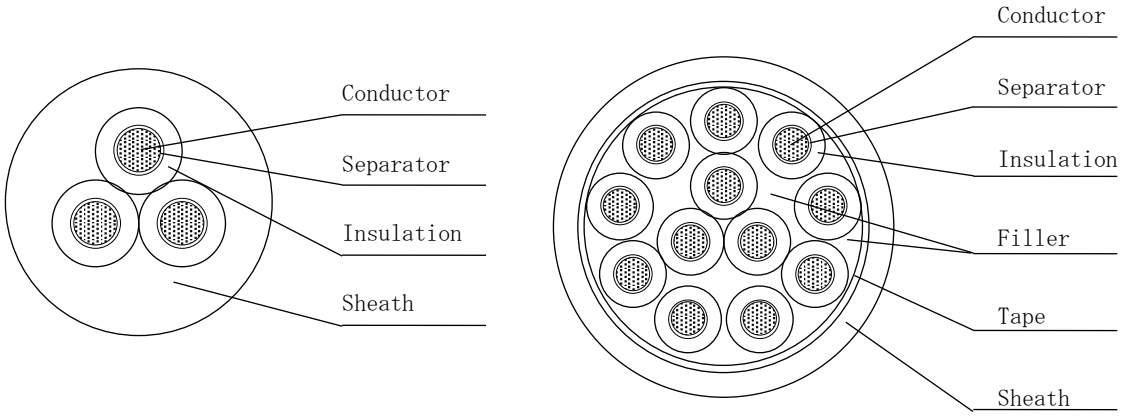
1. Scope

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)



(3 cores) (12 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	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	JIS C 3005 4.16
		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	JIS C 3005 4.17
		Elongation		
	Sheath	Tensile strength	Not less than 65% of the value before heating	
		Elongation		
※1) Oil resist-ance	Sheath	Tensile strength	※2) Not less than 60% of the value before oil-Immersion	JIS C 3005 4.18
		Elongation		
※1) Flame retardance			To disappear naturally within 60 seconds	JIS C 3005 4.26.2 a)
※1) Bending (nominal sectional area 38㎟ 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 abrased 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: ２ＰＮＣＴ ４×２㎟

☆☆ ＜PS＞E MITSUBOSHI 2PNCT 2㎟

Example: ２ＰＮＣＴ １０×２㎟

☆☆ 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 PS E ＪＥＴ (only apply to Electrical Appliance and Material Safety Law)

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

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
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			400m Drum
6					1.9	12.5	13.1	215			
7					1.9	13.4	14.0	240			
8					2.0	14.4	15.0	275			
9					2.1	15.5	16.3	295	26.8		
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			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
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			400m Drum
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	16.1		
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			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
2	(TA) 37/0.26	1.8	0.8	3.5	1.8	10.6	11.0	160	10.2	500	200m 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			400m Drum
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	10.3		
10					2.3	19.7	20.7	540			
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	1,270			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
2	(TA) 45/0.32	2.5	0.8	4.2	1.9	12.2	12.6	225	5.54	400	200m 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			400m Drum
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	1,030			
16					2.6	25.2	26.5	1,090			
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	1,630			200m Drum
30					3.1	33.4	35.1	1,930			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
2	(TA) 70/0.32	3.1	1.0	5.2	2.0	14.4	14.8	325	3.56	400	200m Bundle
3					2.0	15.2	15.6	390			
4					2.1	16.8	17.3	495			200m Drum
5					2.2	18.4	19.1	600			400m Drum
6					2.3	20.7	21.4	730			
7					2.4	22.6	23.3	850			
8					2.5	24.4	25.1	975			
9					2.7	26.1	27.4	1,060	3.60		
10					2.8	27.9	29.3	1,200			
12					2.8	27.5	28.9	1,260			
16					2.9	30.5	32.0	1,620			200m Drum
20					3.2	34.3	36.0	2,040			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
2	(TA) 50/0.45	3.7	1.0	5.8	2.1	15.8	16.3	405	2.52	400	200m Bundle
3					2.1	16.7	17.2	495			200m Drum
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	1,100			
8					2.7	27.0	27.8	1,230			
9					2.8	28.6	30.0	1,350	2.55		
10					3.0	30.9	32.4	1,530			
12					2.9	30.2	31.7	1,620			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
2	(TA) 88/0.45	4.9	1.0	7.0	2.2	18.4	18.9	595	1.43	300	200m Drum
3					2.3	19.7	20.2	750			
4					2.4	21.7	22.2	955			
5					2.6	24.7	25.5	1,210			
6					2.7	27.1	27.9	1,400			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20℃ (Ω/km)	Insulation resistance 20℃ (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	6.8	1.2	9.4	2.6	24.0	24.6	1,000	0.919	300	200m Drum
3					2.7	25.7	26.3	1,260			
4					2.8	28.3	28.9	1,570			
5					3.0	31.4	32.2	1,930			
6					3.2	34.6	35.5	2,300			

30㎟

Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20℃ (Ω/km)	Insulation resistance 20℃ (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	7.9	1.2	10.5	2.7	26.4	27.0	1,250	0.681	300	200m Drum
3					2.8	28.2	28.8	1,580			
4					3.0	31.3	31.9	1,990			
5					3.2	34.8	35.7	2,440			
6					3.4	38.3	39.2	2,900			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20℃ (Ω/km)	Insulation resistance 20℃ (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	8.8	1.2	11.4	2.8	28.4	29.0	1,500	0.541	200	200m Drum
3					2.9	30.4	31.0	1,910			
4					3.1	33.7	34.4	2,410			
5					3.4	37.6	38.5	2,960			
6					3.6	41.4	42.4	3,500			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20℃ (Ω/km)	Insulation resistance 20℃ (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	10.1	1.5	13.3	3.1	32.8	33.5	1,940	0.423	200	200m Drum
3					3.2	35.1	35.8	2,450			
4					3.4	38.9	39.6	3,090			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass (kg/km)	Conductor resistance 20℃ (Ω/km)	Insulation resistance 20℃ (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	11.3	1.5	14.5	3.2	35.4	36.1	2,310	0.339	200	200m Drum
3					3.4	38.0	38.7	2,950			
4					3.6	42.2	43.0	3,740			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
2	(TA) 19/27/0.45	13.1	2.0	17.3	3.6	41.8	42.6	3,190	0.250	300	200m Drum
3					3.8	44.9	45.7	4,060			
4					4.1	50.0	50.9	5,150			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
2	(TA) 19/34/0.45	14.7	2.0	18.9	3.8	45.4	46.2	3,850	0.199	200	200m Drum
3					4.0	48.7	49.5	4,920			
4					4.3	54.2	55.1	6,240			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
2	(TA) 19/42/0.45	16.3	2.0	20.5	4.0	49.0	49.8	4,590	0.161	200	200m Drum
3					4.2	52.6	53.5	5,900			

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Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ･km)	
2	(TA) 27/34/0.45	17.6	2.0	21.8	4.2	52.0	52.9	5,200	0.140	200	200m Drum
3					4.4	55.8	56.7	6,680			

Cable of single core

Number of core	Conductors		Insulation		Sheath	Overall diameter		Approx. mass	Conductor resistance 20℃	Insulation resistance 20℃	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Standard (mm)	Maximum (mm)	(kg/km)	(Ω/km)	(MΩ・km)	
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	6.8	1.2	9.4	1.9	13.2	13.6	365	0.892	300	200m Drum
30	(TA) 7/27/0.45	7.9	1.2	10.5	2.0	14.5	14.9	460	0.661	300	
38	(TA) 7/34/0.45	8.8	1.2	11.4	2.1	15.6	16.1	555	0.525	200	
50	(TA)19/16/0.45	10.1	1.5	13.3	2.2	17.7	18.2	700	0.411	200	
60	(TA)19/20/0.45	11.3	1.5	14.5	2.3	19.1	19.6	840	0.329	200	
80	(TA)19/27/0.45	13.1	2.0	17.3	2.5	22.3	22.8	1,140	0.243	300	
100	(TA)19/34/0.45	14.7	2.0	18.9	2.6	24.1	24.7	1,390	0.193	200	
125	(TA)19/42/0.45	16.3	2.0	20.5	2.7	25.9	26.5	1,660	0.156	200	
150	(TA)27/34/0.45	17.6	2.0	21.8	2.8	27.4	28.0	1,880	0.136	200	
200	(TA)37/34/0.45	20.6	2.5	25.8	3.0	31.8	32.4	2,570	0.0993	200	
250	(TA)37/42/0.45	22.9	2.5	28.1	3.2	34.5	35.2	3,110	0.0803	200	
325	(TA)37/55/0.45	26.2	2.5	31.4	3.4	38.2	38.9	3,950	0.0614	200	

Attached Table２：Identification of cores　（１）

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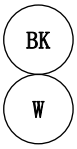

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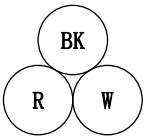

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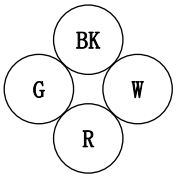

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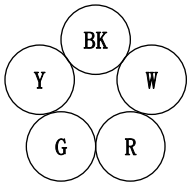

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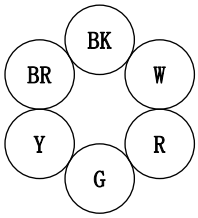

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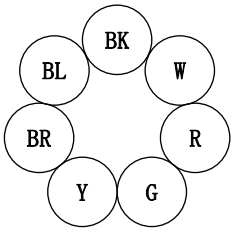

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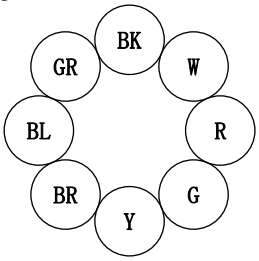

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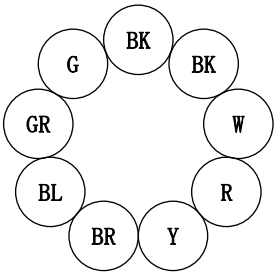

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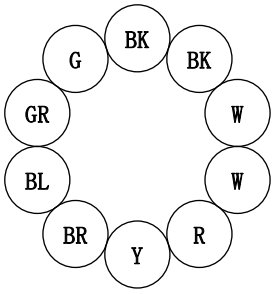

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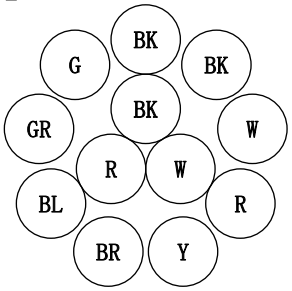

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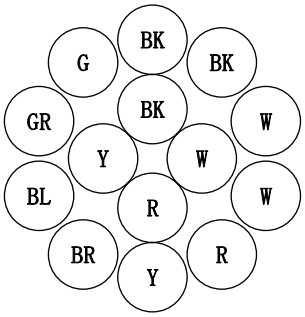

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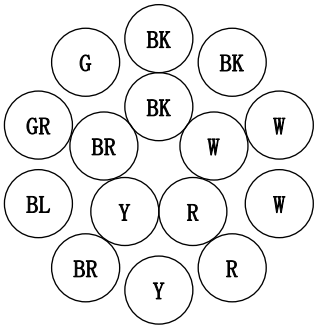

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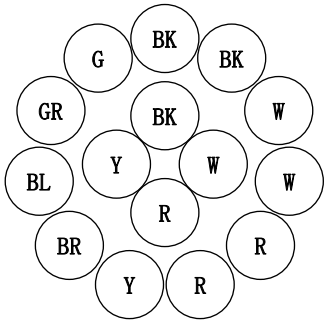

（３．５～８㎟）

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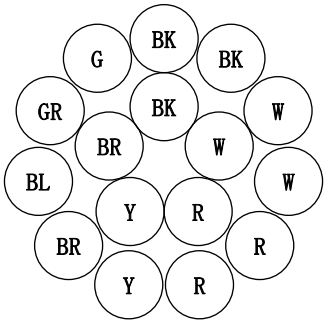

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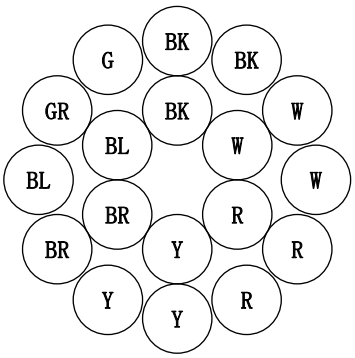

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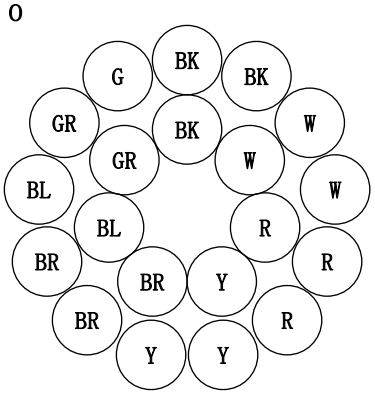
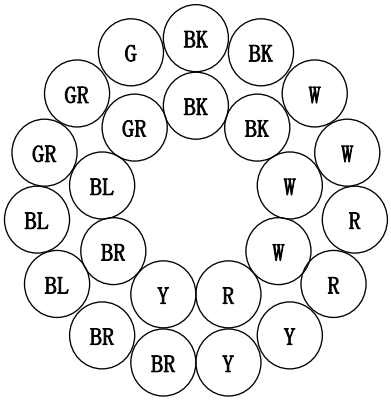


Attached Table２：Identification of cores　（２）

２４



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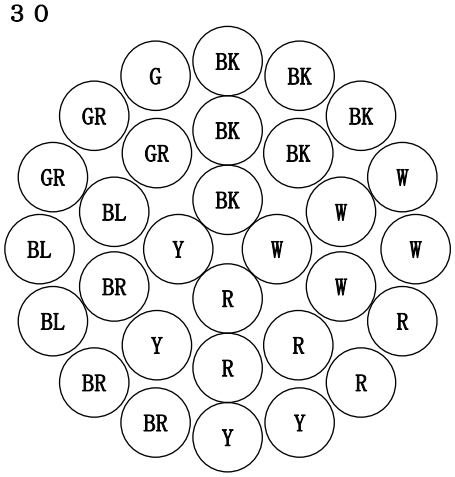

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ＢＫ：Ｂｌａｃｋ
Ｗ　：Ｗｈｉｔｅ
Ｒ　：Ｒｅｄ
Ｇ　：Ｇｒｅｅｎ
Ｙ　：Ｙｅｌｌｏｗ
ＢＲ：Ｂｒｏｗｎ
ＢＬ：Ｂｌｕｅ
ＧＲ：Ｇｒａｙ