

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

600V Grade polyvinyl chloride insulated and sheathed power cable
VCT

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

No. PN-010000A	S P E C I F I C A T I O N	MITSUBOSHI CO., LTD.
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Name of Manufacture 600V Grade polyvinyl chloride insulated and sheathed power cable

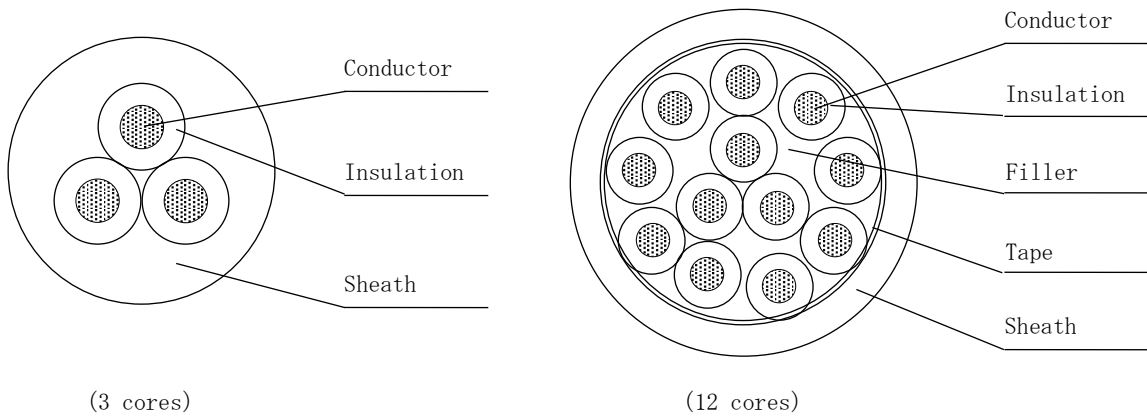
Applicable Standards
 JIS C 3005, JIS C 3102, JIS C 3312
 Electrical appliance and material safety law, Technical standards for electrical installations

1. Scope

This Specification covers quality level of VCT
 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 annealed copper wire specified in JIS C 3102. |
| 2.2 | Insulation | Polyvinyl chloride 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. |
| 2.3 | Identification of cores | Identification of cores are made by the color of insulation. |
| 2.4 | Stranding of cores | As the need arises, cores are stranded with a suitable filler. |
| 2.5 | Sheath | Polyvinyl chloride 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 (at 20°C)	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 (at 20°C)	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: V C T 4 × 2 mm²

★ ★ <PS>E MITSUBOSHI VCT 2mm² RoHS2 【Year of manufacture】

Example: V C T 1 2 × 2 mm²


★ ★ MITSUBOSHI VCT 2mm² RoHS2

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
- ② Number of cores and nominal sectional area
- ③ Length
- ④ Month and year of manufacture or Lot No.
- ⑤ Manufacture's name
- ⑥  J E T (only apply to Electrical Appliance and Material Safety Law)

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

0. 75mm²

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	(A) 30/0.18	1.1	0.8	2.7	1.7	8.8	100	25.1	50	200m Bundle
3					1.7	9.2	115			
4					1.7	9.9	135			
5					1.8	10.9	160			
6					1.8	11.7	190			
7					1.8	11.7	195			
8					1.9	13.0	215			100m Bundle
10					2.0	15.1	270			
12					2.1	15.7	305			
14					2.1	16.4	345			
15					2.1	16.8	360			
16					2.2	17.4	390			
20					2.3	18.9	470			100m Drum
24					2.4	21.3	550			
30					2.5	22.6	660			

1. 25mm²

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	(A) 50/0.18	1.5	0.8	3.1	1.7	9.6	125	15.1	50	200m Bundle
3					1.7	10.1	145			
4					1.8	11.1	175			
5					1.9	12.2	210			
6					1.9	13.1	250			
7					1.9	13.1	260			
8					2.0	14.5	280			100m Bundle
10					2.1	16.9	355			
12					2.2	17.6	405			
14					2.2	18.4	455			
15					2.3	19.0	485			
16					2.3	19.5	515			
20					2.4	21.2	625			100m Drum
24					2.6	24.1	750			
30					2.6	25.4	885			

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	(A) 37/0.26	1.8	0.8	3.4	1.8	10.4	155	9.79	50	200 m Bundle
3					1.8	10.9	180			
4					1.8	11.8	215			
5					1.9	13.0	260			
6					2.0	14.2	315			
7					2.0	14.2	330			100 m Bundle
8					2.1	15.7	360			
10					2.2	18.3	450			
12					2.3	19.0	520			
14					2.3	19.9	585			
15					2.4	20.6	625			100 m Drum
16					2.4	21.1	660			
20					2.5	22.9	805			
24					2.7	26.1	960			
30					2.8	27.7	1155			

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	(A) 45/0.32	2.5	0.8	4.1	1.8	11.8	215	5.24	40	200 m Bundle
3					1.9	12.6	260			
4					2.0	13.9	325			
5					2.0	15.1	390			
6					2.1	16.5	460			
7					2.1	16.5	490			100 m Bundle
8					2.2	18.3	535			
10					2.4	21.5	675			
12					2.5	22.3	785			
12					2.5	22.3	785			

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	(A) 70/0.32	3.1	1.0	5.1	2.0	14.2	315	3.37	40	200 m Bundle
3					2.0	15.0	380			
4					2.1	16.5	470			
5					2.2	18.2	575			100 m Drum
6					2.3	19.9	685			
7					2.3	19.9	725			
8					2.4	22.0	790			

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	(A) 50/0.45	3.7	1.2	6.1	2.1	16.4	425	2.39	40	200 m Drum
3					2.2	17.5	520			
4					2.3	19.3	650			

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	(A) 88/0.45	4.9	1.4	7.7	2.3	20.0	660	1.36	40	200 m Drum
3					2.4	21.4	820			
4					2.5	23.6	1,030			

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	(A) 7/20/0.45	7.0	1.6	10.2	2.7	25.8	1,085	0.869	30	100 m Drum
3					2.8	27.6	1,355			
4					2.9	30.4	1,690			

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	(A) 7/27/0.45	8.1	1.6	11.3	2.8	28.2	1,355	0.644	30	100 m Drum
3					2.9	30.2	1,700			
4					3.1	33.5	2,145			

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	(A) 7/34/0.45	9.1	1.8	12.7	3.0	31.4	1,680	0.511	30	100 m Drum
3					3.1	33.6	2,110			
4					3.3	37.3	2,665			

50 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	(A) 19/16/0.45	10.4	1.8	14.0	3.2	34.4	2,040	0.401	30	100 m Drum
3					3.3	36.8	2,565			
4					3.6	41.0	3,260			

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 (MQ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(A) 19/20/0.45	11.6	1.8	15.2	3.3	37.0	2,415	0.320	30	100 m Drum
3					3.5	39.8	3,075			
4					3.7	44.1	3,875			

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 (MQ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(A) 19/27/0.45	13.5	2.0	17.5	3.6	42.2	3,195	0.237	30	100 m Drum
3					3.8	45.3	4,065			
4					4.1	50.4	5,165			

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 (MQ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(A) 19/34/0.45	15.2	2.0	19.2	3.9	46.2	3,890	0.188	20	100 m Drum
3					4.1	49.6	4,970			
4					4.4	55.1	6,305			

Cable of single core

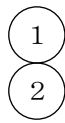
Size [mm ²]	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 20°C (Ω/km)	Insulation resistance 20°C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
0.75	(A) 30/0.18	1.1	0.8	2.7	1.5	5.7	45	24.4	50	200m Bundle
1.25	(A) 50/0.18	1.5	0.8	3.1	1.5	6.1	55	14.7	50	
2	(A) 37/0.26	1.8	0.8	3.4	1.5	6.4	65	9.50	50	
3.5	(A) 45/0.32	2.5	0.8	4.1	1.6	7.3	90	5.09	40	
5.5	(A) 70/0.32	3.1	1.0	5.1	1.6	8.3	120	3.27	40	
8	(A) 50/0.45	3.7	1.2	6.1	1.7	9.5	160	2.32	40	
14	(A) 88/0.45	4.9	1.4	7.7	1.8	11.3	245	1.32	40	
22	(A) 7/20/0.45	7.0	1.6	10.2	2.0	14.2	390	0.844	30	100m Drum
30	(A) 7/27/0.45	8.1	1.6	11.3	2.1	15.5	490	0.625	30	
38	(A) 7/34/0.45	9.1	1.8	12.7	2.1	16.9	595	0.496	30	
50	(A) 19/16/0.45	10.4	1.8	14.0	2.2	18.4	720	0.389	30	
60	(A) 19/20/0.45	11.6	1.8	15.2	2.3	19.8	860	0.311	30	
80	(A) 19/27/0.45	13.5	2.0	17.5	2.5	22.5	1140	0.230	30	
100	(A) 19/34/0.45	15.2	2.0	19.2	2.6	24.4	1385	0.183	20	

Identification of cores

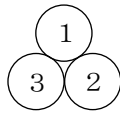
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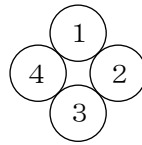
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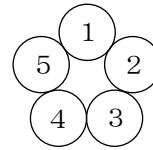
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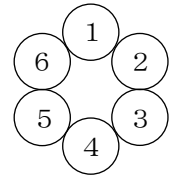
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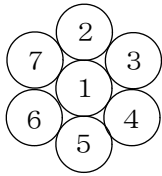
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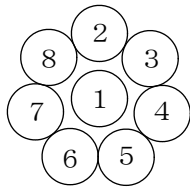
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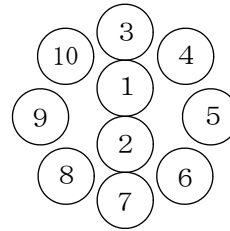
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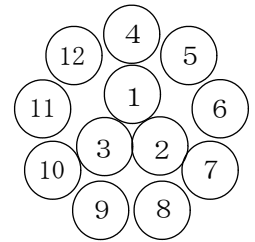
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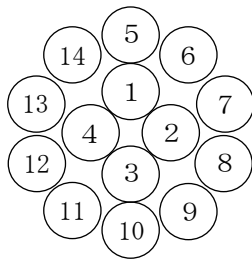
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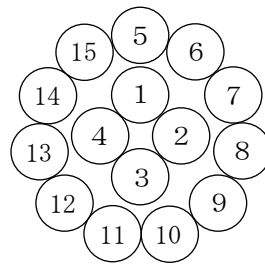
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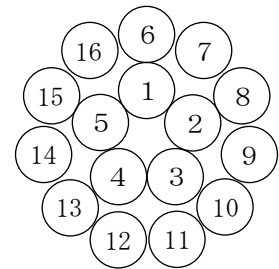
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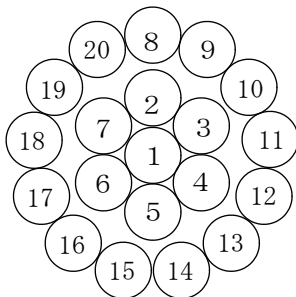
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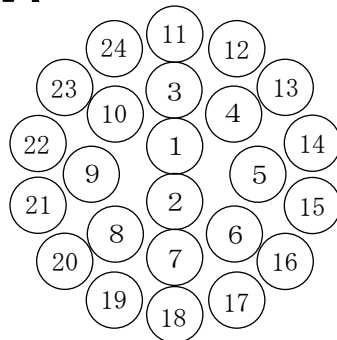
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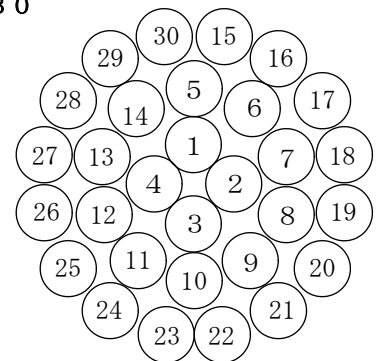
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24



30



Number of core	1	2	3	4	5	6	7	8	9	10
Core color or line color/ core color	Black	White	Red	Green	Yellow	Brown	Blue	Gray	Orange	Light Green
Number of core	11	12	13	14	15	16	17	18	19	20
Core color or line color/ core color	Pink	Light Blue	Black/ White	Black/ Red	Black/ Green	Black/ Yellow	Black/ Brown	Black/ Blue	Black/ Gray	Black/ Orange
Number of core	21	22	23	24	25	26	27	28	29	30
Core color or line color/ core color	Black/ Light Green	Black/ Pink	Black/ Light Blue	Red/ Black	Red/ White	Red/ Green	Red/ Yellow	Red/ Brown	Red/ Blue	Red/ Gray