

# 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 .



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)
※ <sup>1)</sup> Tensile properties	Insulation	Tensile strength	Not less than 10MPa
		Elongation	Not less than 100%
	Sheath	Tensile strength	Not less than 10MPa
		Elongation	Not less than 120%
※ <sup>1)</sup> Thermal aging	Insulation	Tensile strength	Not less than 85% of the value before heating
		Elongation	Not less than 80% of the value before heating
	Sheath	Tensile strength	Not less than 85% of the value before heating
		Elongation	Not less than 80% of the value before heating
※ <sup>1)</sup> Oil resistance	Insulation	Tensile strength	Not less than 85% of the value before oil-Immersion ※ <sup>2)</sup>
		Elongation	Not less than 85% of the value before oil-Immersion ※ <sup>3)</sup>
	Sheath	Tensile strength	Not less than 80% of the value before oil-Immersion
		Elongation	Not less than 60% of the value before oil-Immersion
※ <sup>1)</sup> Heat shock		No crack or flaw shall appear on the surface.	JIS C 3005 4.19.1
※ <sup>1)</sup> Cold bend		No crack or flaw shall appear on the surface.	JIS C 3005 4.20.1
※ <sup>1)</sup> Heat deformation		Thickness reduction shall not exceed 50%	JIS C 3005 4.23
※ <sup>1)</sup> Flame retardance		Flame shall go out naturally within 30 seconds	JIS C 3005 4.26.2 b)
※ <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> The quality characteristic to enforce inspection regularly with an in-house standard.

※<sup>2)</sup> More than 22mm<sup>2</sup>, not less than 80% of the value before oil-Immersion

※<sup>3)</sup> More than 22mm<sup>2</sup>, not less than 60% of the value before oil-Immersion

## 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 mm<sup>2</sup>

☆☆ <PS>E MITSUBOSHI VCT 2mm<sup>2</sup> 【Year of manufacture】

Example: V C T 1 2 × 2 mm<sup>2</sup>


☆☆ MITSUBOSHI VCT 2mm<sup>2</sup>

## 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. 7 5 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	(A) 30/0.18	1.1	0.8	2.7	1.7	8.8	100	25.1	50	200 m 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			
1 0					2.0	15.1	270			
1 2					2.1	15.7	305			
1 4					2.1	16.4	345			
1 5					2.1	16.8	360			
1 6					2.2	17.4	390			
2 0					2.3	18.9	470			
2 4					2.4	21.3	550			
3 0					2.5	22.6	660			100 m Drum

1. 2 5 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	(A) 50/0.18	1.5	0.8	3.1	1.7	9.6	125	15.1	50	200 m 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			
1 0					2.1	16.9	355			
1 2					2.2	17.6	405			
1 4					2.2	18.4	455			
1 5					2.3	19.0	485			
1 6					2.3	19.5	515			
2 0					2.4	21.2	625			
2 4					2.6	24.1	750			
3 0					2.6	25.4	885			100 m Drum



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

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

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

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

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

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

**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	(A) 19/20/0.45	11.6	1.8	15.2	3.3	37.0	2,415	0.320	30	100m Drum
3					3.5	39.8	3,075			
4					3.7	44.1	3,875			

**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	(A) 19/27/0.45	13.5	2.0	17.5	3.6	42.2	3,195	0.237	30	100m Drum
3					3.8	45.3	4,065			
4					4.1	50.4	5,165			

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

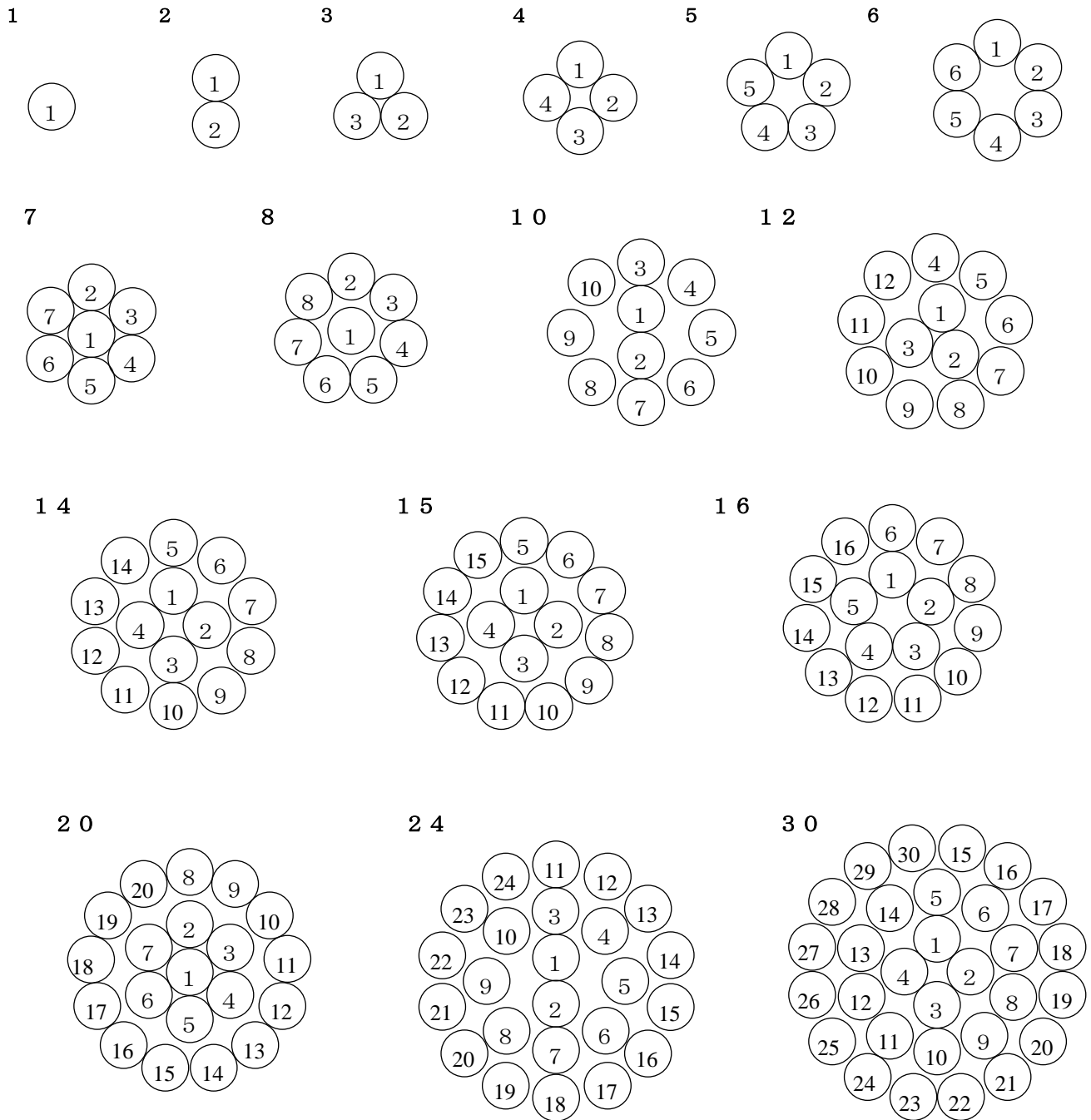
Number of core	Conductors		Insulation		Sheath	Overall diameter (approx.) (mm)	Approx. mass (kg/km)	Conductor resistance 2 0 °C (Ω/km)	Insulation resistance 2 0 °C (MΩ·km)	Standard Unit length And packaging
	Composition	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)	Outside diameter (approx.) (mm)	Thickness (approx.) (mm)					
2	(A) 19/34/0.45	15.2	2.0	19.2	3.9	46.2	3,890	0.188	20	100m Drum
3					4.1	49.6	4,970			
4					4.4	55.1	6,305			



## 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)					
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



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