

# SPECIFICATION

## For

## VCT-G

450/750V 70 °C Flexible Conductor PVC Insulated PVC Sheathed with Grounded Cabtyre Cable  
(450/750V, Cu/PVC/PVC)

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Rev.	Date	Description
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APP. \_\_\_\_\_  
( )

CUSTOMER

Customer Document	Rev.

### Remark:

This document is based on the Customer Document for the structure and properties of electric wire and cable only. If there are different points, will be shown in deviation table.

## 1. Scope

This specification covers 450/750V copper conductor polyvinyl chloride (PVC) insulated polyvinyl chloride (PVC) sheathed with grounded cable.

Maximum conductor temperature shall be 70°C

The cable shall be in accordance with TIS 11 Part 101-2559, Table 8.

Flame retardant test TIS 11 Part 2-2553 (Same IEC 60332-1 : 2015).

## 2. Conductor

The conductor shall be flexible stranded uncoated annealed copper conductor in accordance with TIS 2427-2552, Class 5.

For size 1.5 to 4 mm<sup>2</sup> : The direction of lay shall be left-hand (S) lay.

For size 6 mm<sup>2</sup> to 35 mm<sup>2</sup> : The direction of lay shall be right-hand (Z) lay in the outermost layer.

## 3. Insulation

The insulation shall be polyvinyl chloride (PVC/D) compound meet the requirements of TIS 11 Part 101-2559.

The average thickness of the insulation shall be not less than that given in Table 1.

The minimum thickness shall not fall below the value in Table 1 by more than 10% plus 0.1 mm.

## 4. Cabling

The individual insulated cores shall be cabled together with suitable length of lay or PVC rod ;if necessary; in the center of cable to form a substantially circular cross section.

The direction of lay shall be left-hand (S) lay.

## 5. Core Identification

The cores shall be identified by colors, as follows :

2-cores + G : blue, brown + green/yellow

3-cores + G : brown, black, grey + green/yellow

4-cores + G : blue, brown, black, grey + green/yellow

## 6. Sheath

The sheath shall be polyvinyl chloride (PVC/ST5) compound meet the requirements of TIS 11 Part 101-2559.


The average thickness of the sheath shall be not less than that given in Table 1.

The minimum thickness shall not fall below the value in Table 1 by more than 15% plus 0.1 mm.

The color of the sheath shall be black.

## 7. Marking on Cable

The marking items shall be marked with suitable mean throughout the length of cable.

1. Manufacturer's name and/or trade mark "  YAZAKI..... : TYE"
2. Designation "VCT-G"
3. Rated voltage "450/750V "
4. Insulation and sheath material "PVC/PVC"
5. Max. operating rated temperature at conductor "70°C"
6. Number of cores and size of conductor
7. TIS logo and standard number
8. The continuous reel length marking (in figure) shall be made on the sheath at every 1 meter

## 8. Test and Properties


The cable shall be meet the requirement in Test and Inspection and Table 1, when tested in accordance with 11 Part 101-2559, TIS 2427-2552 and TIS 11 Part 2-2553 (Same IEC 60332-1).

## 9. Packing

The cable shall be placed on non-returnable wooden reels or shall be coiled and wrapped with plastic which shall be overlapped and secured.

The reel shall be covered with suitable covering to provide the cable with physically protection during transportation and during ordinary storage and handling operations.

Each reel shall be clearly marked as follows.

1. Rated voltage "450/750V"
2. Max. operating rated temperature at conductor "70°C"
3. Designation "VCT-G"
4. Number of cores and size of conductor
5. Cable length
6. Net and gross weight
7. Month and year of manufacture
8. Rolling direction of reel (only for reel package)
9. Manufacturer's name and trade mark "  **YAZAKI** "

### Test and Inspection

#### **Sample Tests**

- Maximum conductor resistance, Ohm/km ..... specified in Table 1
- AC test voltage for 5 minutes, kV .....2.5
- Construction.....specified in Table 1

#### **Type Tests**

This cable shall be tested as followed :

- Minimum insulation resistance at 70 °C, MOhm-km ..... specified in Table 1
- Flame retardant tested according to TIS 11 Part 2-2553 (Same IEC 60332-1)

#### Definition concerning the tests

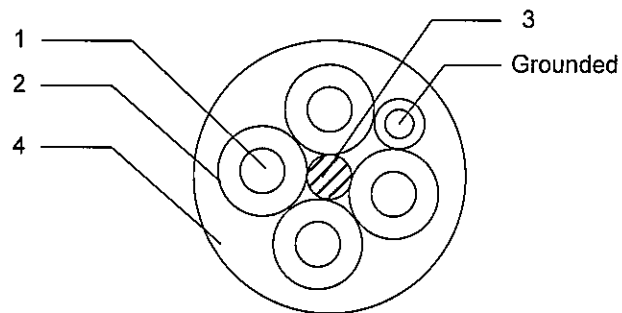
**Routine tests:** Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

**Sample tests:** Tests made by the manufacturer on samples of completed cable or components taken from a completed cable, at a specified frequency, so as to verify that the finished product meets the specified requirements.

**Type tests:** Tests made before supplying, on a general commercial basis, a type of cable covered by this standard, in order to demonstrate satisfactory performance characteristics to meet the intended application.

### Cable structure

Cross-sectional (Not scale)



No.	Structure	Material
1	Conductor	Flexible stranded annealed copper
2	Insulation	Polyvinyl chloride (PVC/D)
3	Filler	PVC Rod
4	Sheath	Polyvinyl chloride (PVC/ST5)

**Application:** For mobile-electrical equipment used in mines, factories, farm or household appliances, Maximum conductor temperature of 70 °C for normal operation and 160 °C for short circuit condition.

**Table 1**

No. of core and size (core x mm <sup>2</sup> )	Conductor		Insulation thickness nominal (mm)	Sheath thickness nominal (mm)	Overall diameter maximum (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Insulation resistance at 70 °C minimum (MOhm-km)	Weight of cable approx. (kg/km)	Standard packing length (m)
	Type	Diameter approx. (mm)							
2+G x 1/1	Flexible	1.30	0.8	1.2	10.0	19.5	0.0127	120	100/Coil
2+G x 1.5/1.5	Flexible	1.60	0.8	1.4	12.0	13.3	0.0111	150	100/Coil
2+G x 2.5/2.5	Flexible	2.10	0.8	1.4	13.0	7.98	0.0092	200	100/Coil
2+G x 4/4	Flexible	2.60	0.9	1.6	15.5	4.95	0.0084	280	100/Coil
2+G x 6/6	Flexible	3.40	0.9	1.8	17.5	3.30	0.0071	400	100/Coil
2+G x 10/10	Flexible	4.60	1.1	2.0	21.5	1.91	0.0068	650	500
2+G x 16/16	Flexible	5.60	1.1	2.4	25.0	1.21	0.0050	900	500
2+G x 25/16	Flexible	6.90	1.3	2.6	28.5	0.780	0.0048	1200	500
2+G x 35/16	Flexible	8.30	1.3	2.8	31.5	0.554	0.0041	1500	500

**Table 1 (continued)**

No. of core and size (core x mm <sup>2</sup> )	Conductor		Insulation thickness nominal (mm)	Sheath thickness nominal (mm)	Overall diameter maximum (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Insulation resistance at 70 °C minimum (MOhm-km)	Weight of cable approx. (kg/km)	Standard packing length (m)
	Type	Diameter approx. (mm)							
3+G x 1/1	Flexible	1.30	0.8	1.4	11.5	19.5	0.0127	150	100/Coil
3+G x 1.5/1.5	Flexible	1.60	0.8	1.4	12.5	13.3	0.0111	180	100/Coil
3+G x 2.5/2.5	Flexible	2.10	0.8	1.4	14.0	7.98	0.0092	240	100/Coil
3+G x 4/4	Flexible	2.60	0.9	1.8	17.0	4.95	0.0084	360	100/Coil
3+G x 6/6	Flexible	3.40	0.9	2.0	19.5	3.30	0.0071	500	500
3+G x 10/10	Flexible	4.60	1.1	2.2	24.0	1.91	0.0068	850	500
3+G x 16/16	Flexible	5.60	1.1	2.6	28.0	1.21	0.0050	1200	500
3+G x 25/16	Flexible	6.90	1.3	2.8	33.0	0.780	0.0048	1600	500
3+G x 35/16	Flexible	8.30	1.3	3.1	37.0	0.554	0.0041	2100	500

**Table 1 (continued)**

No. of core and size (core x mm <sup>2</sup> )	Conductor		Insulation thickness nominal (mm)	Sheath thickness nominal (mm)	Overall diameter maximum (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Insulation resistance at 70 °C minimum (MOhm-km)	Weight of cable approx. (kg/km)	Standard packing length (m)
	Type	Diameter approx. (mm)							
4+G x 1/1	Flexible	1.30	0.8	1.6	13.0	19.5	0.0127	190	100/Coil
4+G x 1.5/1.5	Flexible	1.60	0.8	1.6	14.0	13.3	0.0111	220	100/Coil
4+G x 2.5/2.5	Flexible	2.10	0.8	1.6	15.5	7.98	0.0092	310	100/Coil
4+G x 4/4	Flexible	2.60	0.9	1.8	18.5	4.95	0.0084	440	100/Coil
4+G x 6/6	Flexible	3.40	0.9	2.0	21.5	3.30	0.0071	600	500
4+G x 10/10	Flexible	4.60	1.1	2.2	26.5	1.91	0.0068	1000	500
4+G x 16/16	Flexible	5.60	1.1	2.6	30.5	1.21	0.0050	1400	500
4+G x 25/16	Flexible	6.90	1.3	2.8	36.5	0.780	0.0048	2000	500
4+G x 35/16	Flexible	8.30	1.3	3.1	41.5	0.554	0.0041	2600	500



**Table 1 (continued)**

**FOR GROUNDED CONDUCTOR**

Size (mm <sup>2</sup> )	Conductor		Insulation thickness nominal (mm)	Conductor resistance at 20°C maximum (Ohm/km)
	Type	Diameter approx. (mm)		
1	Flexible	1.30	0.8	19.5
1.5	Flexible	1.60	0.8	13.3
2.5	Flexible	2.10	0.8	7.98
4	Flexible	2.60	0.9	4.95
6	Flexible	3.40	0.9	3.30
10	Flexible	4.60	1.1	1.91
16	Flexible	5.60	1.1	1.21