

SPECIFICATION

For

VCT-G

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

BY



(Wachara Sangsomritphon)

MANAGER, Cable Design Section

APP. _____

()

CUSTOMER

Rev.	Date	Description
0	10/11/2020	Issued specification
1	5/2/2024	Update Table 1
2	10/1/2025	Update Table 1

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 (Comply with 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 mm² : The direction of lay shall be left-hand (S) lay.

For size 6 mm² to 35 mm² : 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 by printed at intervals not exceeding 1 meter with suitable means 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 (Comply with 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** "
10. TIS logo and standard number

Test and Inspection

Sample Tests

- Maximum conductor resistance, Ohm/km specified in Table 1
- AC test voltage for 5 minutes, kV2.5
- 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 (Comply with IEC 60332-1)

Definition concerning the tests

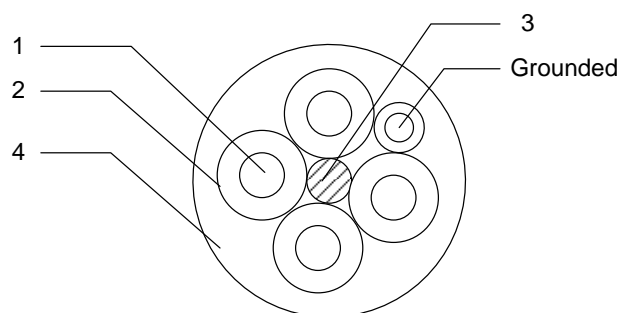
Routine tests: Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

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) compound
3	Filler	PVC Rod ($\geq 3+G \times 6/6 \text{ mm}^2$)
4	Sheath	Polyvinyl chloride (PVC/ST5) compound

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 ²)	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	115	100/Coil	500/Drum
2+G x 1.5/1.5	Flexible	1.55	0.8	1.4	12.0	13.3	0.0111	148	100/Coil	500/Drum
2+G x 2.5/2.5	Flexible	2.00	0.8	1.4	13.0	7.98	0.0092	188	100/Coil	500/Drum
2+G x 4/4	Flexible	2.60	0.9	1.6	15.5	4.95	0.0084	284	100/Coil	500/Drum
2+G x 6/6	Flexible	3.40	0.9	1.8	17.5	3.30	0.0071	403	100/Coil	500/Drum
2+G x 10/10	Flexible	4.60	1.1	2.0	21.5	1.91	0.0068	657	-	500/Drum
2+G x 16/16	Flexible	5.60	1.1	2.4	25.0	1.21	0.0050	917	-	500/Drum
2+G x 25/16	Flexible	6.90	1.3	2.6	28.5	0.780	0.0048	1217	-	500/Drum
2+G x 35/16	Flexible	8.30	1.3	2.8	31.5	0.554	0.0041	1538	-	500/Drum

Table 1 (continued)

No. of core and size (core x mm ²)	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	147	100/Coil	500/Drum
3+G x 1.5/1.5	Flexible	1.55	0.8	1.4	12.5	13.3	0.0111	175	100/Coil	500/Drum
3+G x 2.5/2.5	Flexible	2.00	0.8	1.4	14.0	7.98	0.0092	227	100/Coil	500/Drum
3+G x 4/4	Flexible	2.60	0.9	1.8	17.0	4.95	0.0084	358	100/Coil	500/Drum
3+G x 6/6	Flexible	3.40	0.9	2.0	19.5	3.30	0.0071	513	-	500/Drum
3+G x 10/10	Flexible	4.60	1.1	2.2	24.0	1.91	0.0068	838	-	500/Drum
3+G x 16/16	Flexible	5.60	1.1	2.6	28.0	1.21	0.0050	1170	-	500/Drum
3+G x 25/16	Flexible	6.90	1.3	2.8	33.0	0.780	0.0048	1587	-	500/Drum
3+G x 35/16	Flexible	8.30	1.3	3.1	37.0	0.554	0.0041	2058	-	500/Drum

Table 1 (continued)

No. of core and size (core x mm ²)	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	189	100/Coil	500/Drum
4+G x 1.5/1.5	Flexible	1.55	0.8	1.6	14.0	13.3	0.0111	225	100/Coil	500/Drum
4+G x 2.5/2.5	Flexible	2.00	0.8	1.6	15.5	7.98	0.0092	292	100/Coil	500/Drum
4+G x 4/4	Flexible	2.60	0.9	1.8	18.5	4.95	0.0084	437	100/Coil	500/Drum
4+G x 6/6	Flexible	3.40	0.9	2.0	21.5	3.30	0.0071	622	-	500/Drum
4+G x 10/10	Flexible	4.60	1.1	2.2	26.5	1.91	0.0068	1019	-	500/Drum
4+G x 16/16	Flexible	5.60	1.1	2.6	30.5	1.21	0.0050	1410	-	500/Drum
4+G x 25/16	Flexible	6.90	1.3	2.8	36.5	0.780	0.0048	1962	-	500/Drum
4+G x 35/16	Flexible	8.30	1.3	3.1	41.5	0.554	0.0041	2595	-	500/Drum

Table 1 (continued)

FOR GROUNDED CONDUCTOR

Size (mm ²)	Conductor		Insulation thickness nominal (mm)	Conductor resistance at 20 ⁰ C maximum (Ohm/km)
	Type	Diameter approx. (mm)		
1	Flexible	1.30	0.8	19.5
1.5	Flexible	1.55	0.8	13.3
2.5	Flexible	2.00	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