

SPECIFICATION**For****60227 IEC 10**

300/500V 70 °C Copper Conductor PVC Insulated PVC Inner Sheathed

PVC Outer Sheathed with Grounded Power Cable Power Cable

(300/500V, Cu/PVC/PVC/PVC)

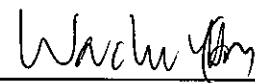
BY



(Wachara Sangsomritphon)

MANAGER, Cable Design Section

APP.



(Winai Ariyasakulsap)

MANAGER, Development Department

APP.

()

CUSTOMER

Rev.	Date	Description
0	25/5/2022	Issued specification

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 300/500V copper conductor polyvinyl chloride (PVC) insulated polyvinyl chloride (PVC) inner sheathed polyvinyl chloride (PVC) outer sheathed with grounded power cable.

Maximum conductor temperature shall be 70°C.

The wire shall be in accordance with TIS 11 Part 4-2553, Table 1
(Same IEC 60227-4 : 1997, Table 1).

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

2. Conductor

The conductor shall be solid and non-compacted concentric stranded uncoated annealed copper conductor in accordance with TIS 2427-2552, Class 1 and Class 2.

(Same IEC 60228 : 2004, Class 1 and Class 2).

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

3. Insulation

The insulation shall be polyvinyl chloride (PVC/C) compound meet the requirements of TIS 11 Part 4-2553. (Same IEC 60227-4 : 1997).

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 to give the completed cable a 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. Inner Sheath

The inner sheath shall be polyvinyl chloride (PVC) compound applied over the cable core.

The approximate thickness given in Table 1.

The color of the inner sheath shall be black.

7. Outer Sheath

The outer sheath shall be polyvinyl chloride (PVC/ST4) compound meet the requirements of TIS 11 Part 4-2553. (Same IEC 60227-4 : 1997).


The average thickness shall be not less than the value 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 outer sheath shall be black.

8. 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 "60227 IEC 10"
3. Rated voltage "300/500V"
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 shall be made on the outer sheath at every 1 meter

9. Test and Properties


The cable shall be meet the requirement in Test and Inspection and Table 1, when tested in accordance with TIS 11 Part 4-2553 (Same IEC 60227-4 : 1997), TIS 2427-2552 (Same IEC 60228 : 2004) and TIS 11 Part 2-2553 (Same IEC 60332-1 : 2015).

10. Packing

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

The reels shall be lagged to provide the cable with physical protection during transportation and during ordinary storage and handling operation.

Each package shall be clearly marked as follows.

1. Rated voltage "300/500V "
2. Max. operating rated temperature at conductor "70°C"
3. Designation "60227 IEC 10"
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/or trade mark "  **YAZAKI** "

Test and Inspection

Sample Tests

- Maximum conductor resistance, Ohm/km specified in Table 1
- AC test voltage for 5 minutes, kV2.0
- 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

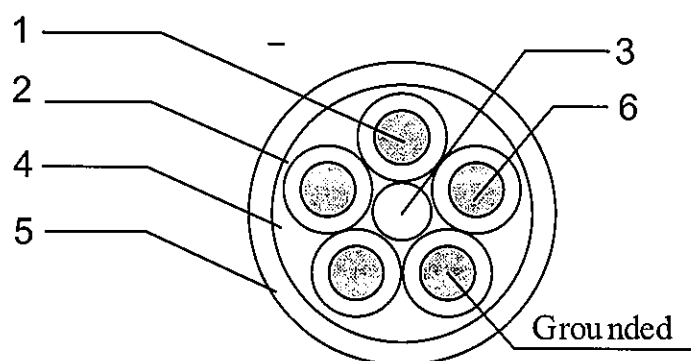
Routine tests: Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

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	Solid and Non-compacted concentric stranded annealed copper
2	Insulation	Polyvinyl chloride (PVC/C)
3	Filler	PVC Rod
4	Inner Sheath	Polyvinyl chloride (PVC)
5	Outer Sheath	Polyvinyl chloride (PVC/ST4)

Application: For installation exposed, or in raceway, wet or dry location, Maximum conductor temperature of 70°C for normal operation and 160°C for short circuit conditions.

Table 1

No. of core and size (core x mm ²)	Conductor			Insulation thickness nominal (mm)	Inner sheath thickness approx. (mm)	Outer sheath thickness nominal (mm)	Overall diameter average (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)
	No. of wires (wires)	Type	Diameter approx. (mm)				Minimum	Maximum				
2+G x 1.5/1.5	1	Solid	1.38	0.7	0.4	1.2	8.0	10.5	12.1	0.011	140	100/coil
2+G x 1.5/1.5 (st)	7	Non-compacted	1.59	0.7	0.4	1.2	8.2	11.0	12.1	0.010	150	100/coil
2+G x 2.5/2.5	1	Solid	1.78	0.8	0.4	1.2	9.2	12.0	7.41	0.010	190	100/coil
2+G x 2.5/2.5 (st)	7	Non-compacted	2.01	0.8	0.4	1.2	9.4	12.5	7.41	0.009	210	100/coil
2+G x 4/4	1	Solid	2.25	0.8	0.4	1.2	10.0	13.0	4.61	0.0085	250	100/coil
2+G x 4/4 (st)	7	Non-compacted	2.55	0.8	0.4	1.2	10.5	13.5	4.61	0.0077	270	100/coil
2+G x 6/6	7	Non-compacted	3.12	0.8	0.4	1.4	12.0	15.5	3.08	0.0065	370	100/coil
2+G x 10/10	7	Non-compacted	4.10	1.0	0.6	1.4	14.5	19.0	1.83	0.0065	550	500
2+G x 16/16	7	Non-compacted	5.10	1.0	0.8	1.4	16.5	21.5	1.15	0.0052	800	500

Table 1 (continued)

No. of core and size (core x mm ²)	Conductor			Insulation thickness nominal (mm)	Inner sheath thickness approx. (mm)	Outer sheath thickness nominal (mm)	Overall diameter average (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)
	No. of wires	Type	Diameter approx. (mm)				Minimum	Maximum				
3+G x 1.5/1.5	1	Solid	1.38	0.7	0.4	1.2	8.6	11.5	12.1	0.011	170	100/coil
3+G x 1.5/1.5 (st)	7	Non-compacted	1.59	0.7	0.4	1.2	9.0	12.0	12.1	0.010	180	100/coil
3+G x 2.5/2.5	1	Solid	1.78	0.8	0.4	1.2	10.0	13.0	7.41	0.010	230	100/coil
3+G x 2.5/2.5 (st)	7	Non-compacted	2.01	0.8	0.4	1.2	10.0	13.5	7.41	0.009	250	100/coil
3+G x 4/4	1	Solid	2.25	0.8	0.4	1.4	11.5	14.5	4.61	0.0085	320	100/coil
3+G x 4/4 (st)	7	Non-compacted	2.55	0.8	0.4	1.4	12.0	15.0	4.61	0.0077	340	100/coil
3+G x 6/6	7	Non-compacted	3.12	0.8	0.6	1.4	13.0	17.0	3.08	0.0065	470	500
3+G x 10/10	7	Non-compacted	4.10	1.0	0.6	1.4	16.0	20.5	1.83	0.0065	700	500
3+G x 16/16	7	Non-compacted	5.10	1.0	0.8	1.4	18.0	23.5	1.15	0.0052	1000	500

Table 1 (continued)

No. of core and size (core x mm ²)	Conductor		Insulation thickness nominal (mm)	Inner sheath thickness approx. (mm)	Outer sheath thickness nominal (mm)	Overall diameter average (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)	
	No. of wires (wires)	Type				Diameter approx. (mm)	Minimum					Maximum
4+G x 1.5/1.5	1	Solid	1.38	0.7	0.4	1.2	9.4	12.0	12.1	0.011	200	100/coil
4+G x 1.5/1.5 (st)	7	Non-compacted	1.59	0.7	0.4	1.2	9.8	12.5	12.1	0.010	220	100/coil
4+G x 2.5/2.5	1	Solid	1.78	0.8	0.4	1.2	11.0	14.0	7.41	0.010	280	100/coil
4+G x 2.5/2.5 (st)	7	Non-compacted	2.01	0.8	0.4	1.2	11.0	14.5	7.41	0.009	300	100/coil
4+G x 4/4	1	Solid	2.25	0.8	0.6	1.4	12.5	16.0	4.61	0.0085	400	100/coil
4+G x 4/4 (st)	7	Non-compacted	2.55	0.8	0.6	1.4	13.0	17.0	4.61	0.0077	430	100/coil
4+G x 6/6	7	Non-compacted	3.12	0.8	0.6	1.4	14.5	18.5	3.08	0.0065	550	500
4+G x 10/10	7	Non-compacted	4.10	1.0	0.6	1.4	17.5	22.0	1.83	0.0065	850	500
4+G x 16/16	7	Non-compacted	5.10	1.0	0.8	1.6	20.5	26.0	1.15	0.0052	1300	500

Table 1 (continued)

FOR GROUNDED CONDUCTOR

Size (mm ²)	Conductor		Insulation thickness nominal (mm)	Conductor resistance at 20 °C maximum (Ohm/km)
	No. of wires (wires)	Type		
1.5	1	Solid	0.7	12.1
1.5 (st)	7	Non-compacted	0.7	12.1
2.5	1	Solid	0.8	7.41
2.5 (st)	7	Non-compacted	0.8	7.41
4	1	Solid	0.8	4.61
4 (st)	7	Non-compacted	0.8	4.61
6	7	Non-compacted	0.8	3.08
10	7	Non-compacted	1.0	1.83
16	7	Non-compacted	1.0	1.15