

SPECIFICATION

For

THWA

450/750V 70 °C Aluminium Conductor PVC Insulated Wire

(450/750V, Al/PVC)

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CUSTOMER

Rev.	Date	Description
0	11/11/2019	Issued specification
1	28/10/2021	- Cancel code "0010" - Add size 1x10 mm ²
2	23/1/2024	Update Table 1
3	19/4/2024	Change packing length size 10 to 50 mm ²

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 750V aluminium conductor polyvinyl chloride (PVC) insulated wire.

Maximum conductor temperature shall be 70°C.

The wire shall be in accordance with TIS 293-2541, Table 1.

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

2. Conductor

The conductor shall be non-compacted concentric stranded hard drawn aluminium conductor in accordance with TIS 293-2541, Table 1.

The direction of lay shall be right-hand (Z) lay in the outermost layer.

3. Insulation

The insulation shall be polyvinyl chloride (PVC) compound meet the requirements of with TIS 293-2541.


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.

The color of the insulation shall be black.

4. Marking on Cable

The marking items shall be marked with suitable means throughout the length of wire.

1. Manufacturer's name and/or trade mark "  YAZAKI..... : TYE"
2. Rated voltage "750V"
3. Insulation material "PVC"
4. Max. operating rated temperature at conductor "70°C"
5. Designation "THWA"
6. Size of conductor
7. Table number of relevant "TABLE 1"
8. Type of conductor "NON-COMPACTED"
9. TIS logo and standard number
10. The continuous reel length marking shall be made on the insulation at every 1 meter
(Except, cable size 10 mm²)

5. Test and Properties


The cable shall meet the requirement in Test and Inspection and Table 1, when tested in accordance with TIS 11 Part 5-2553 (Same IEC 60227-5 : 2011), TIS 2427-2552 (Same IEC 60228 : 2004) and TIS 11 Part 2-2553 (Same IEC 60332-1 : 2015).

6. Packing

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

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

Each package shall be clearly marked as follows.

1. Rated voltage "750V "
2. Insulation material "PVC"
3. Max. operating rated temperature at conductor "70°C"
4. Designation "THWA"
5. Number of core and size of conductor
6. Table number of relevant "TABLE 1"
7. Cable length
8. Net and gross weight
9. Year of manufacture
10. Rolling direction of reel (only for reel package)
11. Manufacturer's name and/or trade mark "  **YAZAKI** "
12. 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 :

- Flame retardant tested according to TIS 11 Part 2-2553 (Same IEC 60332-1)

Definition concerning the tests

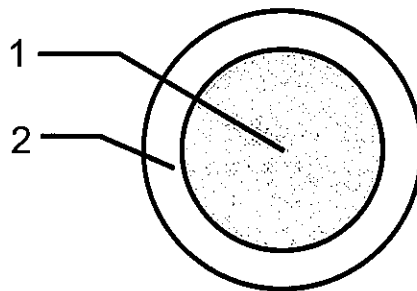
Routine tests: Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

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	Stranded hard drawn aluminium
2	Insulation	Polyvinyl chloride (PVC)

Application: For low voltage overhead distribution line, Maximum conductor temperature of 70°C for normal operation and 160°C for short circuit condition

Table 1

Nominal size (mm ²)	Conductor strands (No./mm)	Conductor diameter approx. (mm)	Insulation thickness nominal (mm)	Overall diameter approx. (mm)	Conductor resistance at 20°C maximum (Ohm/km)	Weight approx. (kg/km)	Standard packing length (m)
10	7/1.32	3.96	1.1	6.5	3.08	60	100/Coil
16	7/1.68	5.04	1.1	8.0	1.91	85	100/Coil
25	7/2.12	6.36	1.3	9.5	1.20	130	100/Coil
35	7/2.49	7.47	1.3	10.5	0.868	170	100/Coil
50	7/2.90	8.70	1.5	12.5	0.641	220	100/Coil
70	19/2.12	10.60	1.5	14.5	0.443	290	100/Coil
95	19/2.49	12.45	1.7	16.5	0.320	400	100/Coil
120	37/2.01	14.07	1.7	18.0	0.253	480	500
150	37/2.23	15.61	1.9	20.0	0.206	590	500
185	37/2.50	17.50	2.1	22.5	0.164	730	500
240	61/2.23	20.07	2.3	25.5	0.125	950	500
300	61/2.49	22.41	2.5	28.5	0.100	1170	500
400	61/2.82	25.38	2.7	31.5	0.0778	1470	500
500	61/3.20	28.80	3.1	36.0	0.0605	1910	500