


SPECIFICATION

For

FD-0.6/1KV-AL-CV-SWA

0.6/1(1.2)kV Aluminium Conductor
XLPE Insulated PVC Inner Sheathed
Steel Wire Armored PVC Outer Sheathed
Flame Retardant Power Cable
(0.6/1(1.2)kV, Al/XLPE/PVC/SWA/FR-PVC)

BY 
(Wachara Sangsomritphon)
MANAGER, Cable Design Section

Rev.	Date	Description
0	16/5/2025	Issued specification

APP. _____
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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 1000V aluminium conductor cross-linked polyethylene (XLPE) insulated polyvinyl chloride (PVC) inner sheathed steel wire armored polyvinyl chloride (PVC) outer sheathed flame retardant power cable.

The cable shall be in accordance with IEC 60502-1 : 2021.

- Flame retardant test requirements per IEC 60332-1.
- Flame propagation test requirements per IEC 60332-3-24; Category C.

2. Conductor

The conductor shall be compacted concentric stranded uncoated hard-drawn aluminium conductor in accordance with IEC 60228 : 2004, Class 2.

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

3. Insulation

The insulation shall be cross-linked polyethylene (XLPE) compound meet the requirements of IEC 60502-1 : 2021.

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

The minimum thickness shall not fall below 90% of the nominal value in Table 1 by more than 0.1 mm.

4. Cabling

The individual insulated cores shall be cabled together with non-hygroscopic filler to give the completed cable a substantially circular cross section.

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

A suitable binder tape shall be applied helically over the cable.

5. Core Identification

The cores shall be identified by colors, as follows :

2-cores : blue, brown

3-cores : brown, black, grey

4-cores : blue, brown, black, grey

6. Inner Sheath

The inner sheath shall be polyvinyl chloride (PVC) compound applied over the binder tape.

The average thickness given in Table 1.

The color of the inner sheath shall be black.

7. Steel Wire Armor

The armor shall be galvanized round steel wire applied with a minimum gap between adjacent wires over the inner sheathed.

A separator tape may be applied helically over the armored core.

8. Outer Sheath

The outer sheath shall be sunlight resistant and flame retardant polyvinyl chloride (PVC/ST2) compound meet the requirements of IEC 60502-1 : 2021.


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

The minimum thickness shall not fall below 80% of the nominal value in Table 1 by more than 0.2 mm.

The color of the outer sheath shall be black.

9. 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. Year of manufacture

3. Flame retardant "FD"

4. Rated circuit voltage "0.6/1KV"

5. Type of conductor "AL"

6. Type of insulation and sheath "XLPE/PVC"

7. Type of cable "POWER CABLE"

8. Number of cores and size of conductor

9. The continuous reel length marking (in figure) shall be made on the sheath at every 1 meter

10. Test and Properties

The cable shall meet the requirements in Test and Inspection and Table 1, when tested in accordance with IEC 60502-1 : 2021, IEC 60228 : 2004, IEC 60332-1 and IEC 60332-3-24 ; Category C.


Remark: Sunlight resistant test meet the requirement of TIS 293-2541.

11. Packing

The cable shall be placed on non-returnable wooden reels.

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 reel shall be clearly marked as follows.

1. Designation "FD-0.6/1KV-AL-CV-SWA"
2. Number of cores and size of conductor
3. Cable length
4. Net and gross weight
5. Manufacturer's name and/or trade mark "  **YAZAKI** "
6. Rolling direction of reel

Test and Inspection

Routine Tests

- Maximum conductor resistance, Ohm/km.....specified in Table 1
- AC test voltage for 5 minutes, kV..... 3.5

Sample Tests

- Construction..... specified in Table 1
- Hot set test at $200\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ for XLPE
 - Maximum elongation under load (%) 175
 - Maximum permanent elongation after cooling (%)..... 15

Type Tests

- Flame retardant tested according to IEC 60332-1.
- Flame propagation test according to IEC 60332-3-24; Category C.

Definition concerning the tests

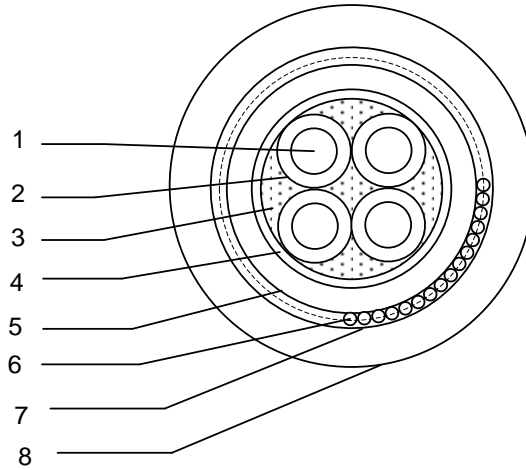
Routine tests: Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

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 uncoated hard-drawn aluminium
2	Insulation	Cross-linked polyethylene (XLPE) compound
3	Filler	Non-hygroscopic
4	Binder tape	Spun bond tape or suitable tape
5	Inner sheath	Polyvinyl chloride (PVC) compound
6	Armor	Galvanized steel wire
7	Separator tape	PS tape or suitable tape
8	Outer sheath	Flame retardant polyvinyl chloride (PVC/ST2) compound

Application: Use for installation in open tray, conduit, underground duct trench or direct burial in ground, at wet or dry location. Maximum conductor temperature of 90°C for normal operation and 250°C for short circuit conditions.

Table 1

No. of cores	Size (mm ²)	Conductor (wires/type)	Conductor diameter approx. (mm)	Insulation thickness nominal (mm)	Inner sheath thickness nominal (mm)	Dia. of inner sheath approx. (mm)	Aarmor wire dia. nominal (mm)	Outer sheath thickness nominal (mm)	Overall diameter approx. (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Weight of cable approx. (kg/km)	Standard packing length (m)
2	10	7/Compacted	3.72	0.7	1.2	14.5	1.25	1.8	21.0	3.08	696	500
2	16	7/Compacted	4.69	0.7	1.2	16.0	1.60	1.8	23.5	1.91	963	500
2	25	7/Compacted	5.90	0.9	1.2	19.5	1.60	1.8	27.0	1.20	1206	500
2	35	7/Compacted	6.95	0.9	1.2	22.0	1.60	1.9	29.5	0.868	1395	500
2	50	7/Compacted	8.01	1.0	1.2	24.5	1.60	1.9	32.0	0.641	1629	500
2	70	19/Compacted	9.73	1.1	1.2	28.5	2.00	2.1	37.5	0.443	2280	500
2	95	19/Compacted	11.40	1.1	1.2	31.5	2.00	2.2	41.0	0.320	2673	500
2	120	19/Compacted	12.95	1.2	1.2	35.0	2.00	2.4	45.0	0.253	3122	500
2	150	19/Compacted	14.27	1.4	1.3	39.0	2.50	2.5	50.0	0.206	4037	500
2	185	34/Compacted	15.98	1.6	1.4	43.5	2.50	2.7	55.0	0.164	4773	500
2	240	34/Compacted	18.47	1.7	1.5	49.5	2.50	2.9	61.5	0.125	5736	500
2	300	34/Compacted	20.68	1.8	1.6	54.5	2.50	3.1	67.0	0.100	6676	500
2	400	55/Compacted	23.39	2.0	1.7	61.0	2.50	3.3	74.0	0.0778	7711	300

Table 1 (continued)

No. of cores	Size (mm ²)	Conductor (wires/type)	Conductor diameter approx. (mm)	Insulation thickness nominal (mm)	Inner sheath thickness nominal (mm)	Dia. of inner sheath approx. (mm)	Aarmor wire dia. nominal (mm)	Outer sheath thickness nominal (mm)	Overall diameter approx. (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Weight of cable approx. (kg/km)	Standard packing length (m)
3	10	7/Compacted	3.72	0.7	1.2	15.0	1.25	1.8	22.0	3.08	761	500
3	16	7/Compacted	4.69	0.7	1.2	17.0	1.60	1.8	24.5	1.91	1061	500
3	25	7/Compacted	5.90	0.9	1.2	21.0	1.60	1.8	28.5	1.20	1317	500
3	35	7/Compacted	6.95	0.9	1.2	23.5	1.60	1.9	31.0	0.868	1562	500
3	50	7/Compacted	8.01	1.0	1.2	26.0	2.00	2.0	35.0	0.641	2073	500
3	70	19/Compacted	9.73	1.1	1.2	30.5	2.00	2.2	39.5	0.443	2586	500
3	95	19/Compacted	11.40	1.1	1.2	33.5	2.00	2.3	43.0	0.320	3054	500
3	120	19/Compacted	12.95	1.2	1.3	38.0	2.50	2.5	49.0	0.253	4062	500
3	150	19/Compacted	14.27	1.4	1.4	42.0	2.50	2.6	53.0	0.206	4679	500
3	185	34/Compacted	15.98	1.6	1.5	47.0	2.50	2.8	59.0	0.164	5554	500
3	240	34/Compacted	18.47	1.7	1.6	53.5	2.50	3.0	65.5	0.125	6689	500
3	300	34/Compacted	20.68	1.8	1.7	58.5	2.50	3.2	71.5	0.100	7848	300
3	400	55/Compacted	23.39	2.0	1.8	66.0	3.15	3.5	80.5	0.0778	10320	200

Table 1 (continued)

No. of cores	Size (mm ²)	Conductor (wires/type)	Conductor diameter approx. (mm)	Insulation thickness nominal (mm)	Inner sheath thickness nominal (mm)	Dia. of inner sheath approx. (mm)	Armor wire dia. nominal (mm)	Outer sheath thickness nominal (mm)	Overall diameter approx. (mm)	Conductor resistance at 20 °C maximum (Ohm/km)	Weight of cable approx. (kg/km)	Standard packing length (m)
4	10	7/Compacted	3.72	0.7	1.2	16.5	1.60	1.8	24.0	3.08	989	500
4	16	7/Compacted	4.69	0.7	1.2	19.0	1.60	1.8	26.0	1.91	1195	500
4	25	7/Compacted	5.90	0.9	1.2	23.0	1.60	1.9	30.5	1.20	1536	500
4	35	7/Compacted	6.95	0.9	1.2	25.5	1.60	2.0	33.5	0.868	1805	500
4	50	7/Compacted	8.01	1.0	1.2	29.0	2.00	2.1	38.0	0.641	2405	500
4	70	19/Compacted	9.73	1.1	1.2	33.5	2.00	2.3	43.0	0.443	3019	500
4	95	19/Compacted	11.40	1.1	1.3	37.5	2.50	2.5	48.5	0.320	4084	500
4	120	19/Compacted	12.95	1.2	1.4	42.0	2.50	2.6	53.5	0.253	4789	500
4	150	19/Compacted	14.27	1.4	1.5	46.5	2.50	2.8	58.5	0.206	5610	500
4	185	34/Compacted	15.98	1.6	1.6	52.5	2.50	3.0	64.5	0.164	6633	500
4	240	34/Compacted	18.47	1.7	1.7	59.5	2.50	3.2	72.0	0.125	8063	300
4	300	34/Compacted	20.68	1.8	1.8	65.5	3.15	3.5	80.0	0.100	10383	300
4	400	55/Compacted	23.39	2.0	2.0	73.5	3.15	3.8	89.0	0.0778	12521	200