

SPECIFICATION**For****35KV-CV**

35kV

XLPE Insulated PVC Sheathed

Power Cable

(35kV, Cu/XLPE/CTS/PVC)

BY



(Wachara Sangsomritphon)

MANAGER, Cable Design Section

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CUSTOMER

Rev.	Date	Description
0	6/9/2022	Issued specification
1	25/3/2024	Update specification
2	14/5/2024	Change thickness sheath
3	26/12/2024	Update conductor diameter

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 35000V copper conductor cross-linked polyethylene (XLPE) insulated polyvinyl chloride (PVC) sheathed power cable.

The cable shall be based on ICEA S-93-639 : 2006.

The cable shall be provided with a 133% insulation level

2. Conductor

The conductor shall be compacted concentric stranded uncoated annealed copper conductor in accordance with IEC 60228 : 2004, Class 2.

The direction of lay shall be left-hand (S) lay in the outermost layer.

3. Conductor Shield

The conductor shield shall be a semi-conducting nylon tape and shall be applied helically with a wrap over the conductor and a layer of extruded semi-conducting compound.

Size $\leq 150 \text{ mm}^2$: Applied extruded semi-conducting compound

Size $\geq 185 \text{ mm}^2$: Applied semi-conducting nylon tape and extruded semi-conducting compound

The thickness of the conductor shield shall be approximate 0.6 mm.

4. Insulation

The insulation shall be cross-linked polyethylene (XLPE) compound meet the requirements of ICEA S-93-639 : 2006.

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

The minimum thickness shall not less than 90% of the value in Table 1.

5. Insulation Shield

The insulation shield shall be a layer of extruded semi-conducting compound and shall be free stripping.

The thickness of the insulation shield shall be approximate 0.6 mm.

6. Metallic Shield

The metallic shield shall be an uncoated annealed copper tape and applied helically with a lap over the insulation shield.

The thickness of the copper tape shall be approximate 0.1 mm.

A suitable separator tape shall be applied helically over the shielded core.

7. Sheath

The sheath shall be polyvinyl chloride (PVC) compound meet the requirements of ICEA S-93-639 : 2006.


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

The minimum thickness shall be not less than 80% of the value in Table 1.

The color of the sheath shall be black.

8. 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. Rated circuit voltage "35KV"
4. Type of conductor "CU"
5. Type of insulation and sheath "XLPE/PVC"
6. Type of cable "POWER CABLE"
7. Number of core and size of conductor
8. The continuous reel length marking (in figure) shall be made on the sheath at every 1 meter

9. Test and Properties


The cable shall meet the requirements in Test and Inspection and Table 1, when tested in accordance with ICEA S-93-639 : 2006 and IEC 60228 : 2004.

10. 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 "35KV-CV"
2. Number of core 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.

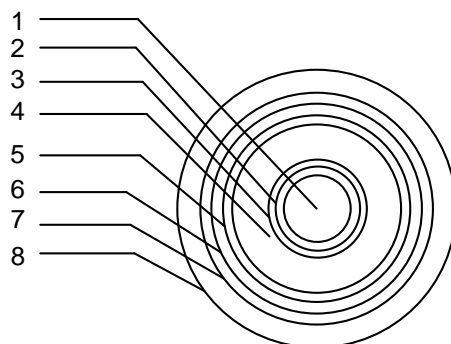
Test and Inspection

Routine Tests

- Maximum conductor resistance, Ohm/km.....specified in Table 1
 - AC test voltage for 5 minutes, kV.....84
 - Maximum partial discharge level*5 pC or better
 - Electrical test on over sheathNo breakdown
- *The partial discharge level shall be no detectable discharge exceeding the declared sensitivity

Cable structure

Cross-sectional (Not scale)



No.	Structure	Material
1	Conductor	Stranded annealed copper
2	Nylon tape	Semi-conducting nylon tape (For size $\geq 185 \text{ mm}^2$ only)
3	Conductor shield	Semi-conducting compound
4	Insulation	Cross-linked polyethylene (XLPE) compound
5	Insulation shield	Semi-conducting compound
6	Metallic shield	Copper tape
7	Separator tape	Spun bond tape or suitable tape
8	Sheath	Polyvinyl chloride (PVC) compound

Application: Use for installation exposed, or in raceway, wet or dry location, or direct burial in ground.

Maximum conductor temperature of 90°C for normal operation and 250°C for short circuit conditions

Table 1

No. of core	Size (mm ²)	Conductor (wires/type)	Conductor diameter approx. (mm)	Insulation thickness nominal (mm)	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)
1	50	19/Compacted	8.20	10.67	1.78	37.5	0.387	1534	500
1	70	19/Compacted	9.80	10.67	1.78	39.5	0.268	1794	500
1	95	19/Compacted	11.60	10.67	1.78	41.0	0.193	2112	500
1	120	37/Compacted	13.10	10.67	1.78	42.5	0.153	2416	500
1	150	37/Compacted	14.50	10.67	2.54	45.5	0.124	2873	500
1	185	37/Compacted	16.10	10.67	2.54	47.5	0.0991	3261	500
1	240	61/Compacted	18.60	10.67	2.54	50.0	0.0754	3906	500
1	300	61/Compacted	20.80	10.67	2.54	52.0	0.0601	4568	500
1	400	61/Compacted	23.40	10.67	2.54	55.0	0.0470	5477	500
1	500	61/Compacted	26.60	10.67	2.54	58.5	0.0366	6661	500