


# PRIMARY UNDERGROUND DISTRIBUTION CABLE - ALUM.

35kV, 100% Insulation Level 345 Mils TRXLPE, LLDPE Jacket 35000 Volts  
AEIC CS8

<p><b>APPLICATION:</b> For use on single phase and three phase primary underground distribution systems operating at 35 kV phase to phase 100% insulation level Suitable for either direct burial or installation in ducts</p> <p><b>STANDARDS:</b></p> <ol style="list-style-type: none"> <li>1. Conforms to ICEA S-94-649 Std. for Concentric Neutral Cable Rated 5000-46000 Volts</li> <li>2. Conforms to ICEA S-97-682 Std. for Utility Shielded Power Cables Rated 5000-46000 Volts</li> <li>3. Conforms to AEIC CS8 Specification for Extruded Dielectric Shielded Power Cables Rated 5000-46000 Volts</li> <li>4. CAN/CSA Standard C68.3-97 Shielded and Concentric Neutral Power Cables Rated 5000-46000 Volts</li> </ol> <p><b>CONSTRUCTION:</b> Aluminum concentrically stranded compressed conductor; triple single head extruded conductor shield, TRXLPE insulation and easy strippable insulation shield, all dry cured; solid bare copper wires uniformly spaced around the cable as a concentric neutral; LLDPE jacket with extruded longitudinal colored stripes, surface printed</p>	
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USAWC Part #	Size AWG or kcmil	No. of Strands (2)	Thickness in Mils(3)		Nominal Diameter Inches	Neutral No. X AWG Size	Approx. Net Wt. lbs/1000 ft	Copper Weight lbs/1000 ft	Aluminum Weight lbs/1000 ft	Ampacity(1)	
			Insulation min/max	Jacket min/max						Direct Burial	Duct
<b>35000 VOLTS, 100% INSULATION LEVEL</b>											
	1/0	19	330 / 375	45 / 80	1.46	16 x 14	960	192	99	210*	150*
	1/0	19	330 / 375	45 / 80	1.46	6 x 14	810	72	99	200**	160**
	2/0	19	330 / 375	45 / 80	1.50	20 x 14	1080	240	125	240*	170*
	2/0	19	330 / 375	45 / 80	1.50	7 x 14	870	84	125	220**	180**
	3/0	19	330 / 375	45 / 80	1.55	25 x 14	1210	300	158	270*	190*
	3/0	19	330 / 375	45 / 80	1.55	9 x 14	1000	108	158	260**	210**
	4/0	19	330 / 375	70 / 120	1.67	32 x 14	1350	384	199	310*	220*
	4/0	19	330 / 375	70 / 120	1.67	11 x 14	1080	132	199	290**	250**
	250	37	330 / 375	70 / 120	1.78	25 x 12	1550	500	235	340*	240*
	250	37	330 / 375	70 / 120	1.78	13 x 14	1210	156	235	320**	270**
	350	37	330 / 375	70 / 120	1.87	32 x 12	1950	640	329	420*	300*
	350	37	330 / 375	70 / 120	1.87	18 x 14	1510	216	329	390**	320**
	500	37	330 / 375	70 / 120	2.01	25 x 14	1850	300	470	470**	380**
	750	61	330 / 375	70 / 120	2.24	24 x 12	2450	480	704	570**	470**
	1000	61	330 / 375	70 / 120	2.43	20 x 10	3020	620	939	640**	540**

(1) Ampacity based upon operation at 90°C conductor, 20°C ambient, 3 ft burial depth, earth  $\rho = 90$ , insulation and shield  $\rho = 400$ , 100% load factor  
 Multiplying correction factors for 75% load factor are: direct burial (1.08); duct (1.04) and for 50% load factor: direct burial (1.16); duct (1.07).  
 \*Full concentric neutral, single phase circuit, one cable      \*\*1/3 concentric neutral, three phase circuit, three cables triplexed, multi-point grounding.  
 (2) Strand blocked conductor tested to ICEA T-31-610.  
 (3) Minimum and maximum point thicknesses as per ICEA S-94-649 and S-97-682 standards.

## Specification

### PRIMARY UNDERGROUND DISTRIBUTION CABLE

#### Single Conductor with Neutral

AEIC CS8, 35kV 100% Insulation Level 345 Mils TRXLPE, LLDPE Jacket, Aluminum Conductor

#### 1. SCOPE

- 1.1. This specification describes TRXLPE (tree-retardant cross-linked polyethylene) insulated power cables with full or 1/3 concentric neutral for direct burial or installation in ducts. They are intended for use on single phase and three phase primary underground distribution systems not exceeding 35,000 volt phase to phase at maximum conductor temperatures of 90 °C for continuous normal operation, 130 °C for emergency overload conditions, and 250 °C for short circuit conditions.

#### 2. STANDARDS

- 2.1. The following standards shall form a part of this specification to the extent specified herein: -ICEA S-94-649 Std. for Concentric Neutral Cables Rated 5,000 - 46,000 V. -ICEA S-97-682 Std. for Utility Shielded Power Cables Rated 5,000 - 46,000 V. -AEIC CS8 Specification for Extruded Dielectric Shielded Power Cables Rated 5 through 46 kV. -CAN/CSA Standard C68.3-97 -Shielded and Concentric Neutral Power Cables Rated 5-46 kV.

#### 3. CONDUCTORS

- 3.1. Solid or Class B compressed stranded aluminum as per Part 2 of ICEA S-94-649.

#### 4. CONDUCTOR SHIELD

- 4.1. The conductors shall be covered with a layer of extruded conducting cross-linked polyethylene compound with a minimum point thickness in accordance with Table 3-1 of ICEAS-94-649 and S-97-682.
- 4.2. The extruded layer shall be firmly bonded to the insulation and shall meet the requirements of Par. C of AEIC CS8.

#### 5. INSULATION

- 5.1. Directly over the conductor shield shall be applied a homogeneous wall of TRXLPE (tree-retardant cross-linked polyethylene) insulation. The minimum point thickness shall be 330 mils and the maximum point thickness shall be 375 mils in accordance with Table 4-11 of ICEAS-94-649 and S-97-682.
- 5.2. Properties of the insulation shall be in accordance with Part 4 of ICEAS-94-649 and S-97-682 and Par. D of AEIC CS8.

#### 6. INSULATION SHIELD

- 6.1. Over the insulation shall be applied an extruded thermosetting insulation shield conforming to Par. E of AEICCS8. It shall be in intimate contact with the outer surface of the insulation and shall be easy stripping leaving no conducting particles or other residue on the insulation surface. This layer shall be legibly identified as being conducting.
- 6.2. The thickness of this layer shall be in accordance with Table 5-1 of ICEAS-94-649.
- 6.3. The insulation shield shall meet the resistivity requirements of Par. 5.4.1.4 of ICEA S-94-649.

#### 7. CONCENTRIC NEUTRAL

- 7.1. A concentric neutral consisting of annealed bare copper wires in accordance with ICEA S-94-649 shall be spirally applied over the extruded insulation shield with uniform spacing between wires.
- 7.2. The number and size of the neutral wires shall be as specified in Tables 6-1; 6-2 or 6-3 of ICEA S-94-649, as appropriate. Accordingly, other alternate standardized constructions to the ones given in the table overleaf are available. The length of lay shall be not less than 6 nor more than 10 times the diameter over the concentric wire layer.

#### 8. JACKET

- 8.1. An insulating linear low-density polyethylene (LLDPE) Extruded-To Fill jacket shall be applied overall. The jacket shall meet the requirements of Par. 7.1.3 and 7.2.1 of ICEA S-94-649.
- 8.2. Minimum and maximum point jacket thickness shall be as specified in Par. 7.2.1 of ICEA S-94-649.
- 8.3. Equally spaced longitudinal colored stripes shall be extruded in the jacket.

#### 9. IDENTIFICATION

- 9.1. All cables shall be identified by means of surface printing indicating: "company name", size ("AWG" or "MCM"), (Cu or "Al"), "UD", "TRXLPE", voltage "KV", nominal insulation thickness "MIL", No. shield wires "x" wire size (AWG), year of manufacture, and sequential footage marking.

#### 10. TESTS

- 10.1. Cables shall be tested in accordance with ICEA S-94-649-2000, S-97-682 and AEIC CS8. Certified Test Reports may be furnished, if requested prior to production of the cables.