

# Photovoltaic Cable XLPE Insulated

1000 V or 2000 V

**CME**<sup>®</sup>  
wire and cable

A Viakable Company

## Features

Rated and listed as PV Wire per UL 4703.

Also listed as Type RHH / RHW-2 Per UL 44.

FV-1 vertical flame rating per UL 2556.

Meet requirements of UL 854 for Type USE-2.

All aluminum AA-8000 and copper sizes are rated Direct Burial and Sunlight Resistance in all colors.

Meets cold bend and cold impact tests at -40 °C.

Complete cable is Lead Free and RoHS compliant.

Copper conductors sizes 18 AWG and 16 AWG are rated as PV only.

Shipping reels can be provided in duplex, triplex, or parallel configurations.

*Additional/Optional Ratings for all colors are available upon request:*

- VW-1 per UL1581/UL 2556
- Gas & Oil Res. I or II per UL 44

## Application

For interconnection wiring of grounded and ungrounded photovoltaic power systems as described in Wiring Systems, Article 690, and other applicable parts of the National Electrical Code (NEC), NFPA 70.

## Standards

UL 4703

Standard for Photovoltaic Wire.

UL 854

Service Entrance Cables.

UL 44

Rubber-Insulated Wires and Cables, for cables rated RHW-2 or RHH.

ICEA S-95-658/NEMA WC70

Non-shielded 0-2 kV Cables.

## Specifications

Maximum operating voltage:

- 1000 V or 2000 V

Maximum conductor operation temperatures:

- Wet and dry locations
- Normal: 90 °C
- Emergency: 130 °C
- Short Circuit: 250 °C

## Engineering Information

**1. Conductor:** Soft annealed uncoated copper Class B compressed or unilay compressed per ASTM B8 or Aluminum AA-8000 alloy compacted conductor, Class B stranding, per ASTM B801.

*On request, flexible or other strandings available.*

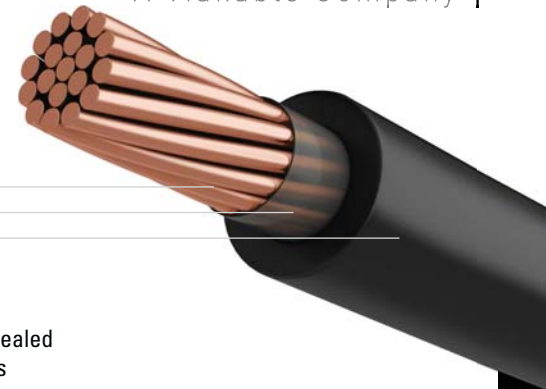
**Sizes:** 18 AWG (6 AWG Aluminum) – 1000 kcmil.

**2. Binder Tape:** A suitable opaque tape, as required.

**3. Insulation:** Black thermoset flame retardant cross-linked polyethylene (XLPE).

*On request, other colors available.*

Example of Standard Markings:  
for Aluminum Conductors:  
CME WIRE & CABLE E-xxxxxx  
(UL) PV Wire or RHW-2 XLPE 2000 V conductor size Compact AL AA 8000 90C Dry or Wet (-40C) Sun Res Dir Bur RoHS Manufacturing Date. Sequential footage.



COPPER  
CONDUCTOR



ALUMINUM  
CONDUCTOR

Technical Data

Copper XLPE Insulated, 1000 V / 2000 V

Size AWG	Number of Strands	Insulation Thickness		Approximate Outside Diameter		Approximate Net Weight
		mil	in	in	lb/ft	
18	7*	75	0.20		21	
16	7*	75	0.22		26	
14	7*	75	0.23		33	
12	7*	75	0.25		43	
10	7*	75	0.27		58	
8	7*	85	0.32		87	
6	7*	85	0.36		123	
4	7*	85	0.40		179	
2	7*	85	0.46		265	
1	19	105	0.55		342	
1/0	19	105	0.59		418	
2/0	19	105	0.63		512	
3/0	19	105	0.68		634	
4/0	19	105	0.74		782	
250	37	120	0.82		926	
300	37	120	0.87		1092	
350	37	120	0.92		1259	
400	37	120	0.96		1419	
450	37	120	1.01		1570	
500	37	120	1.05		1754	
600	61	135	1.15		2103	
700	61	135	1.22		2385	
750	61	135	1.26		2592	
1000	61	135	1.41		3401	

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product. Other sizes available upon request.

\* Available upon request with 19 wire stranding. Approximate outside diameter and weight shown with 7 wire stranding apply.

**Engineering Information**

**Aluminum 8000** XLPE Insulated, 1000 V / 2000 V

Size AWG	Number of Strands	Insulation Thickness	Approximate Outside Diameter	Approximate Net Weight
		mil	in	lb/kft
6	7	85	0.35	63
4	7	85	0.39	84
2	7	85	0.45	120
1	19	105	0.52	157
1/0	19	105	0.56	184
2/0	19	105	0.60	223
3/0	19	105	0.65	266
4/0	19	105	0.70	319
250	37	120	0.78	379
300	37	120	0.83	438
350	37	120	0.87	496
400	37	120	0.92	554
450	37	120	0.96	605
500	37	120	0.99	665
600	61	135	1.10	798
700	61	135	1.16	865
750	61	135	1.20	966
1000	61	135	1.35	1240

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product. Other sizes available upon request.

Engineering Information

## Copper XLPE Insulated, 1000 V / 2000 V

Size	Conductor Area	Bare Conductor Diameter	Approximate Outside Diameter	Min Bending Radius	Max Pull Tension	DC resistance 20 °C	Ohms per 1000 foot @ 60 Hz and 90°C		Allowable Ampacity At 90°C
AWG/kcmil	kcmil	in	in	in	Lbs	Ohms/1000 ft	Rac	Reactance XL	Amps
14	4.1	0.071	0.23	2	33	2.62	-	-	15*
12	6.5	0.089	0.25	2	52	1.65	2.075	0.045	20*
10	10	0.113	0.27	2	80	1.04	1.300	0.033	30*
8	17	0.142	0.32	3	136	0.654	0.815	0.038	55
6	26	0.18	0.36	3	208	0.411	0.514	0.035	75
4	42	0.23	0.40	3	336	0.259	0.323	0.033	95
2	66	0.28	0.46	4	528	0.163	0.203	0.031	130
1	84	0.32	0.55	4	672	0.129	0.161	0.032	145
1/0	106	0.36	0.59	5	848	0.102	0.128	0.031	170
2/0	133	0.41	0.63	5	1064	0.0811	0.102	0.030	195
3/0	168	0.46	0.68	5	1344	0.0643	0.081	0.029	225
4/0	212	0.51	0.74	6	1696	0.0510	0.064	0.029	260
250	250	0.56	0.82	7	2000	0.0432	0.055	0.029	290
300	300	0.61	0.87	7	2400	0.0360	0.047	0.028	320
350	350	0.66	0.92	7	2800	0.0308	0.041	0.028	350
400	400	0.71	0.96	8	3200	0.0270	0.036	0.028	380
450	450	0.75	1.01	8	3600	0.0240	0.033	0.028	405
500	500	0.79	1.05	8	4000	0.0216	0.029	0.028	430
600	600	0.87	1.15	9	4800	0.0180	0.025	0.028	475
700	600	0.94	1.22	10	5600	0.0151	0.022	0.028	520
750	750	0.97	1.26	10	6000	0.0144	0.020	0.027	535
1000	1000	1.12	1.41	11	8000	0.0108	0.016	0.026	615

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product. Other sizes available upon request.

**Impedance:** Based on a direct buried plexed configuration.

**Ampacities:** Based on NEC Table 310.15 (B)(16) for insulated conductors rated up to and including 2000 Volts, based on ambient temperature of 30°C (86°F) for not more than three current carrying conductor in raceways, cable or direct buried conditions.

Engineering Information

## Aluminum 8000 XLPE Insulated, 1000 V / 2000 V

Size	Conductor Area	Bare Conductor Diameter	Approximate Outside Diameter	Min Bending Radius	Max Pull Tension	DC resistance 20 °C	Ohms per 1000 foot @ 60 Hz and 90°C		Allowable Ampacity At 90°C
AWG/kcmil	kcmil	in	in	in	Lbs	Ohms/1000 ft	Rac	Reactance XL	Amps
6	26	0.17	0.35	3	156	0.674	0.847	0.040	55
4	42	0.21	0.39	3	252	0.424	0.533	0.037	75
2	66	0.27	0.45	4	396	0.267	0.335	0.035	100
1	84	0.30	0.52	4	504	0.211	0.266	0.035	115
1/0	106	0.34	0.56	4	636	0.168	0.211	0.034	135
2/0	133	0.38	0.60	5	798	0.133	0.167	0.033	150
3/0	168	0.42	0.65	5	1008	0.106	0.133	0.032	175
4/0	212	0.48	0.70	6	1272	0.0836	0.106	0.031	205
250	250	0.52	0.78	6	1500	0.0708	0.090	0.031	230
300	300	0.57	0.83	7	1800	0.0590	0.075	0.031	260
350	350	0.62	0.87	7	2100	0.0505	0.064	0.030	280
400	400	0.66	0.92	7	2400	0.0442	0.057	0.030	305
450	450	0.70	0.96	8	2700	0.0393	0.051	0.029	327
500	500	0.74	0.99	8	3000	0.0354	0.046	0.029	350
600	600	0.81	1.10	9	3600	0.0295	0.039	0.029	385
700	700	0.88	1.16	9	4200	0.0248	0.034	0.028	425
750	750	0.91	1.20	10	4500	0.0236	0.032	0.028	435
1000	1000	1.06	1.35	11	6000	0.0177	0.025	0.027	500

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product. Other sizes available upon request.

**Impedance:** Based on a direct buried plexed configuration.

**Ampacities:** Based on NEC Table 310.15 (B)(16) for insulated conductors rated up to and including 2000 Volts, based on ambient temperature of 30°C (86°F) for not more than three current carrying conductor in raceways, cable or direct buried conditions.

## DC Resistance Temperature Correction

For DC resistance Temperature correction, Please use the below formula:

$$R2 = R1 [1 + \text{Alpha} (T2 - T1)],$$

where Alpha for CU = 0.00323, Alpha for AL = 0.00330

For example:

10 awg Copper the Rdc at 20 Deg C as listed in our catalog sheet is: 1.04 Ohms

Rdc Temperature correction at 75 Deg C is: 1.23 Ohms

Rdc temperature correction at 90 Deg C is: 1.28 Ohms