

OKONITE

SOLAR ENERGY
CABLES



**THE
OKONITE
COMPANY**

Setting the Standard in Quality Since 1878

SOLAR ENERGY IS EXPANDING

Solar power generation in the U.S. is expected to grow considerably over the next two decades. Current installed generation capacity is estimated at over 100 Gigawatts. Electric utilities are using solar energy to supplement other forms of generation, while residential systems are becoming more prevalent. These sources of distributed generation are having a major impact on the traditional electric grid model and how electric utilities provide energy to their customers.

YOU KNOW OKONITE

Founded in 1878, Okonite first entered the electric utility generation market in 1882. It was also the same year Thomas Edison selected Okonite for his very first generating station on Pearl Street, New York City. Okonite continues to lead the way with its quality and expertise for the emerging new generation assets.

OKONITE QUALITY

Within the industries we serve, Okonite is considered to be the premium quality cable available. This comes from years of innovation, proven reliability, and a determination to get it right the first time. Maybe that is because Okonite is an employee owned ESOP company where everyone is part of the products and solutions we provide.

During our historic legacy, we have led the industry in innovations, research and plant modernizations.

OKONITE RELIABILITY

Okonite has been the cable standard for all the previous modes of power generation; Solar generation requires the same cable reliability. Okonite's Okoguard all EPR insulation system has now performed in the most demanding environments since 1967. Okoguard is the insulation system that is qualified to operate continuously at 105 C conductor temperature. Will your cables be able to continuously conduct power to the grid under a variety of conditions, including the perfect solar day, when the field is producing maximum output and all cables are fully loaded?

Ironically, cable is the longest link with the highest exposure between the power source and the point of power delivery (the grid) yet a small percent of the overall project cost. Solar fields deserve the same Okonite quality cables as all other forms of generation.

TECHNICAL SUPPORT

Our in-house staff of expert Applications Engineers provide valuable services to customers with cable related issues. Training, onsite support, and technical support are all available. Cable design, electrical, and installation calculations are provided as part of our total service and support package.



YOUR SOLAR ENERGY CABLE SOURCE

	Cable Type & Voltage Range	Product Line	Insulation & Jacket Type	Industry Standards	Listings
Collection System Cables					
Medium Voltage Power	15 - 35kV 1/C URD Cables 2.4 - 35kV 1/C & M/C Power	Okoguard URO-J *	EPR/PE	ICEA/AEIC, CSA	105°C
		Okoguard/Okoseal	EPR/PVC	UL, CSA	CT-USE, MV-105 MC-HL (CLX only)
		Okoguard/Okolon TS-CPE	EPR/TS-CPE	NEMA/ICEA	
		Okoguard-CLX-Okoseal	EPR/PVC	AEIC	
Low Voltage Power	1/C & M/C Power 600V & 2kV	1/C Okoguard/Okolon TS-CPE	EPR/TS-CPE	UL NEMA/ICEA, cUL	RHH, RHW-2, RW-90 USE-2
		M/C Okonite-FMR/Okoseal	EPR/PVC	UL, CSA NEMA/ICEA, cUL	TC-ER
		M/C X-Olene/Okoseal	XLPE/PVC	UL, NEMA/ICEA	TC-ER
		M/C X-Olene-CLX-Okoseal	XLPE/PVC	UL, CSA, NEMA/ICEA	MC-HL, RA-90
PV Cable	600V - 2000V	1/C X-OLENE UV FMR	XLPE	UL/ICEA	PV, RHH, RHW-2, (600V only)
Substation & Transmission Cables					
High Voltage Cable	Okoguard 69kV	Okoguard/Okoseal	EPR/PVC	ICEA, AEIC	105°C
Medium Voltage Power	15 - 35kV 1/C URD Cables 2.4 - 35kV 1/C & M/C Power	Okoguard URO-J *	EPR/PE	ICEA, AEIC, CSA	105°C
		Okoguard/Okoseal	EPR/PVC	UL, CSA	MV-105
		Okoguard/Okolon TS-CPE	EPR/TS-CPE	NEMA/ICEA	CT-USE
		CLX®	EPR/PVC	AEIC	MC-HL (CLX only)

*Also available as UL MV-90 listed cable

Contact your local Okonite Sales Office for additional information.

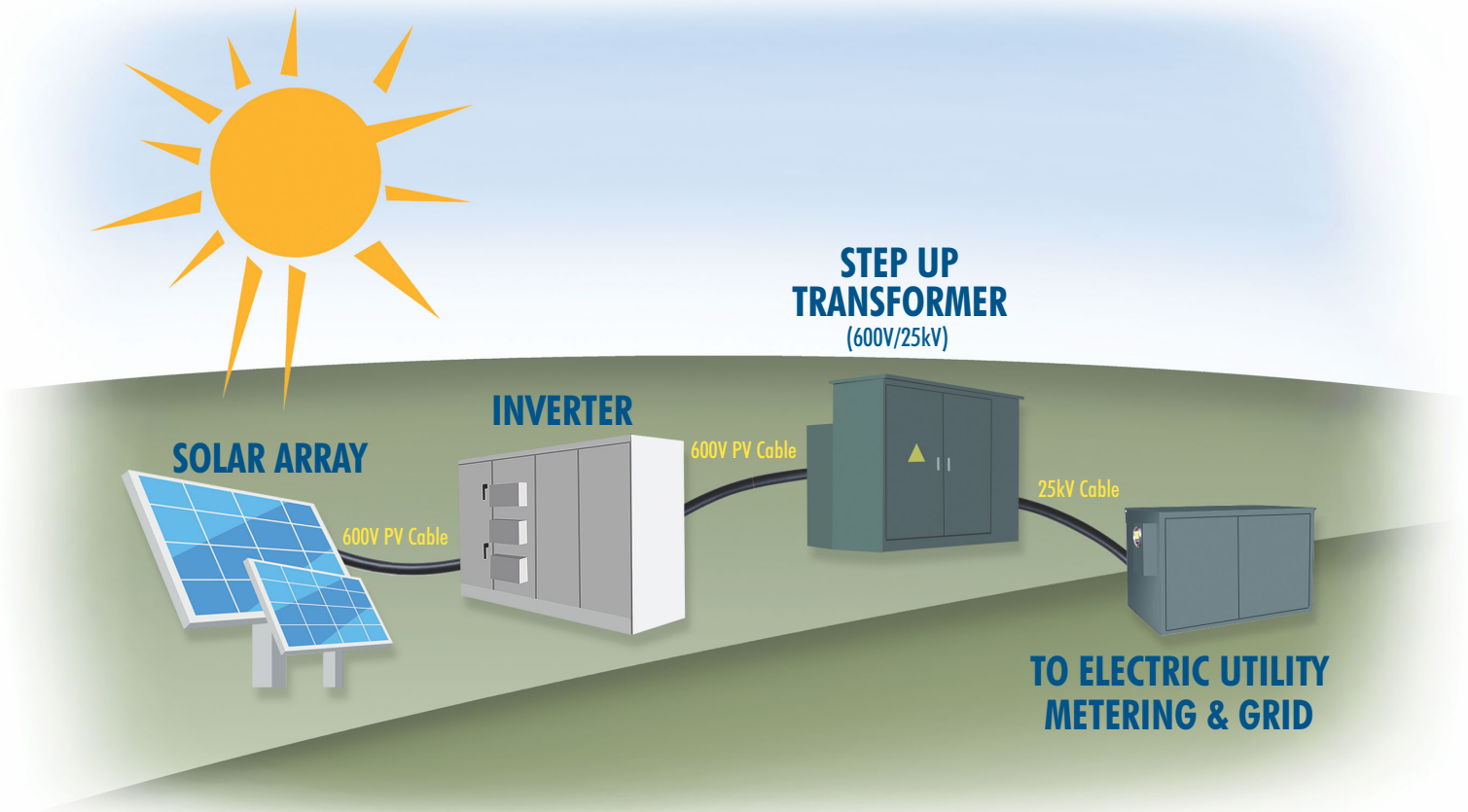
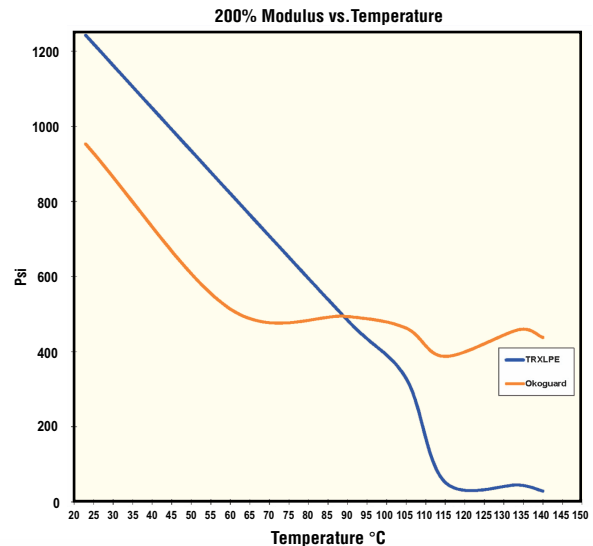
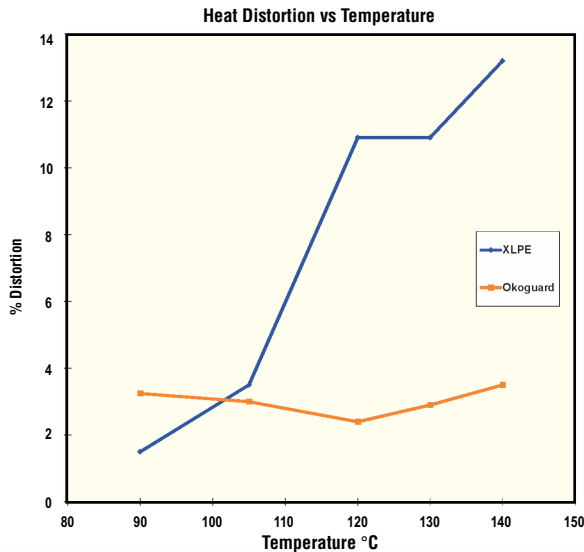
Okonite also manufactures a full line of Instrumentation, Power & Control cables.



TYPICAL SOLAR FIELDS

Utility scale solar fields are usually built in high sunlight intensive, desert like climates. Soil conditions and lack of soil moisture are not ideal for efficient conductor heat transfer. Soil environments can sometimes measure greater than 200 RHO. As a result, medium voltage cables will run hot during full load conditions.

There is a dramatic thermal performance difference between Okonite's all EPR medium voltage insulation system and XLPE. As shown in the accompanying charts, medium voltage polyethylene based insulation loses its physical properties above 103° C. Okonite's Okoguard all EPR insulation system maintains physical stability over a temperature range of 30° to 150° C. When all systems are "GO", make sure your medium voltage cables can take the heat. Specify, purchase, and install the cable whose reputation is built on reliability...Okonite.



MANUFACTURED SOLAR CABLES

X-Olene UV FMR®

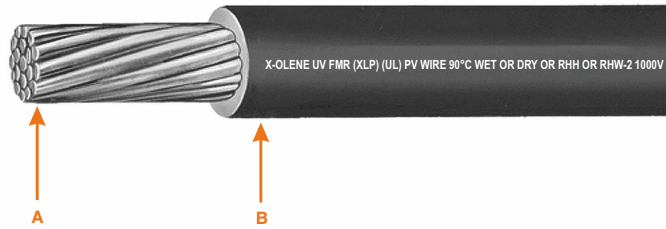
Type PV/RHH/RHW-2/USE-2

600V, 1000V, 2000V

Single copper or aluminum conductors, (UL)

X-Olene UV FMR insulation

Gasolene and oil resistant -40°C



- A Copper or Aluminum Conductor
- B X-Olene UV FMR Insulation

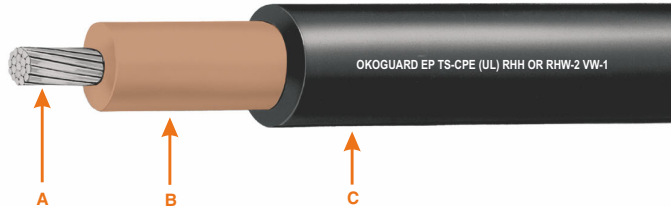
Okoguard®-Okolon® TS-CPE

Type RHH or RHW-2 600V or 2kV

One bare stranded round copper conductor, composite

Okoguard-Okolon® TS-CPE Insulation (UL)

For Cable Tray Use-Sunlight Resistant



- A Uncoated, Copper Conductor
- B Composite Okoguard/Okolon
- C Okoguard EPR Insulation
- C Jacket Okolon TS-CPE

Okoguard®-Okoseal® Type MV-105

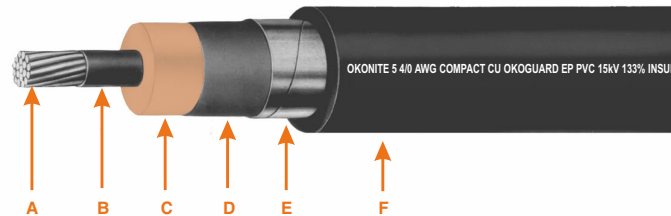
15 - 35kV Shielded Power Cable

One Okopact® (Compact Stranded) Copper or

Aluminum Conductor/105° C Rating

100% and 133% Insulation Level (UL)

For Cable Tray Use-Sunlight Resistant



- A Uncoated, Okopact (Compact Stranded) Copper Conductor
- B Strand Screen-Extruded Semiconducting EPR
- C Insulation-Okoguard EPR
- D Insulation Screen-Extruded Semiconducting EPR
- E Shield- Copper Tape
- F Jacket-Okoseal

Okoguard®-Okolon® TS-CPE Type MV-105

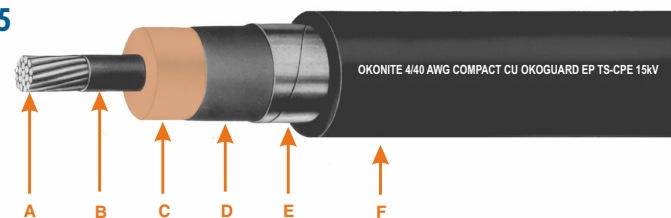
15 - 35kV Shielded Power Cable

One Okopact® (Compact Stranded) Copper or

Aluminum Conductor/105° C Rating

100% and 133% Insulation Level (UL)

For Cable Tray Use-Sunlight Resistant



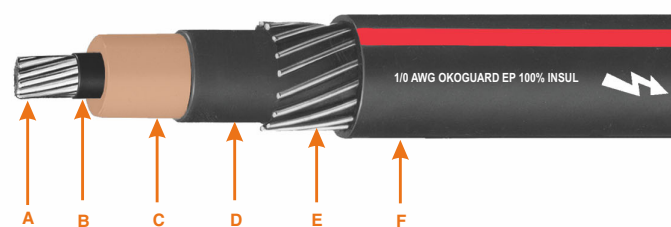
- A Uncoated, Okopact (Compact Stranded) Copper Conductor
- B Strand Screen-Extruded Semiconducting EPR
- C Insulation-Okoguard EPR
- D Insulation Screen-Extruded Semiconducting EPR
- E Shielding Bare Copper Tape
- F Jacket Okolon TS-CPE

Okoguard®- 105° URO-J

15 - 35kV Concentric Neutral URD Cable

One stranded or solid aluminum or copper conductor, concentric wires, Okolene jacket/105° C rated continuous 140° C rated emergency 100% and 133% Insulation Level Sunlight Resistant

* XLPE Jacket is also available



- A Conductor-Compressed or Compact Round Copper
- B Strand Screen-Extruded Semiconducting EPR
- C Insulation-Okoguard- EPR
- D Insulation Screen-Extruded Semiconducting EPR
- E Concentric Conductor-Bare Copper Wires
- F Encapsulating Jacket-Okolene with 3 extruded red ID stripes

C-L-X® Type MV-105 or MC-HL

5/8 - 35kV Okoguard®

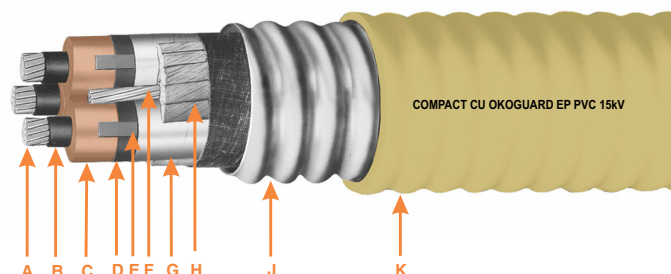
Shielded Power Cable-Aluminum Sheath

3 Okopact® (Compact Stranded) Copper

Conductors/105°C Rating 100% and

133% Insulation Level (UL)

For Cable Tray Use-Sunlight Resistant-For Direct Burial



- A Uncoated, Okopact (Compact Stranded) Copper Conductors
- B Extruded Semiconducting EPR Strand Screen
- C Okoguard Insulation (EPR)
- D Extruded Semiconducting EPR Insulation Screen
- E Phase Identification Tape
- F Copper Grounding Conductor
- G Uncoated Copper Shield
- H Fillers and Binder Tape
- J Impervious, Continuous, Corrugated Aluminum C-L-X Sheath
- K Jacket- Low Temperature Okoseal

District Offices, Manufacturing Plants & Service Centers

Manufacturing Plants



Orangeburg, SC - Compound Facility



Orangeburg, SC - Manufacturing Plant



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Santa Maria, CA - Manufacturing Plant



Cumberland, RI - Manufacturing Plant



Paterson, NJ - Manufacturing Plant

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