

345kV – 500kV XLPE Insulated EHV Transmission Cable

Extra High Voltage | IEC 62067 · IEEE P1 | Bulk Grid Transmission & HVAC Backbone

PRODUCT OVERVIEW

Mirabel Energy USA 345kV–500kV XLPE extra-high voltage (EHV) cable represents the pinnacle of underground transmission technology — operating at voltage levels that carry the majority of bulk electrical energy across the North American grid. EHV underground cable systems at 345kV and 500kV are deployed for the most critical transmission corridors: urban underground where overhead lines are not feasible, offshore wind farm HVAC export cables, long submarine crossings, and strategic reinforcement of bulk transmission networks. Governed by IEC 62067 (the EHV counterpart to IEC 60840), these cable systems demand the highest levels of manufacturing precision, quality assurance, and installation engineering available in the cable industry. Factory acceptance testing is mandatory on 100% of cable lengths, and type testing includes electrical, thermal, and mechanical qualification at full system voltage. Mirabel EHV cable is supported by comprehensive application engineering services including thermal rating studies, installation design, joint bay layout, and FAT/SAT test protocol development.

345–500 kV EHV Range	90°C Normal Conductor Temp	1550kV BIL Max Impulse (500kV)	IEC 62067 Primary Standard
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APPLICATIONS

- Bulk transmission underground cable — 345kV and 500kV utility backbone
- Urban bypass of overhead 345kV/500kV transmission infrastructure
- Offshore wind HVAC export cable — wind farm to onshore substation
- Long submarine crossings — bays, rivers, and straits up to 500kV
- Generation interconnect — large nuclear, hydro, or pumped storage plants
- Strategic transmission grid reinforcement in congested load areas

KEY SPECIFICATIONS

- 345kV–500kV (362kV–550kV Um) — governed by IEC 62067
- Dry-cure triple-extruded XLPE: highest insulation quality class available
- 1175kV BIL (345kV) / 1550kV BIL (500kV) impulse withstand
- Milliken or segmental Cu/Al conductors — 1500–5000 kcmil
- Corrugated welded aluminum or lead alloy moisture barrier sheath
- 100% FAT per IEC 62067: PD < 5pC, tan δ, HVAC voltage withstand
- System design support: thermal rating, installation, and joint bay engineering
- Accessory package: factory-made joints, GIS terminations, sealing ends

TECHNICAL SPECIFICATIONS

Parameter	345kV EHV	500kV EHV
System Voltage (Um)	362kV	550kV
BIL (1.2/50µs)	1175kV	1550kV
Insulation Type	Dry-cure XLPE	Dry-cure XLPE
Conductor Temp Normal	90°C	90°C
Conductor Temp Emerg.	105°C	105°C
Conductor Sizes	1500–5000 kcmil	2000–5000 kcmil
Standard	IEC 62067	IEC 62067

CONDUCTOR SIZES & CONFIGS 1500–5000 kcmil Milliken Cu/Al Corrugated Al or Pb sheath FAT on all lengths	STOCKING & PROCUREMENT Reno, NV · Houston, TX Long-lead and project-phased delivery supported	APPLICATION ENGINEERING GCP Energy LLC — Salt Lake City, UT Ampacity, thermal, and system design support available
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