

HVDC Extruded XLPE Transmission Cable — ±150kV to ±600kV

High Voltage Direct Current | IEC 62895 | Long-Distance Bulk Transmission & Offshore Wind

PRODUCT OVERVIEW

Mirabel Energy USA HVDC extruded XLPE cable represents the most advanced underground and submarine transmission technology available — enabling bulk energy transport over distances of hundreds to thousands of kilometers with minimal reactive power losses and full controllability of power flow. The transition from traditional Mass-Impregnated Non-Draining (MIND) paper cable to extruded XLPE for HVDC applications is the most significant advancement in HV cable technology in decades, governed by IEC 62895 (2017) and supported by extensive CIGRÉ qualification protocols. HVDC XLPE cable design must address the space charge accumulation phenomenon unique to DC insulation stress — requiring specialized XLPE compounds with controlled additive chemistry and manufacturing processes that differ fundamentally from AC XLPE cable production. Applications include long-distance underground transmission corridors connecting renewable energy zones to load centers, offshore wind farm HVDC export systems, asynchronous grid interconnects (back-to-back), and voltage source converter (VSC-HVDC) transmission projects.

±150kV – ±600kV DC Voltage Range	70°C Normal Conductor Temp	Space Charge Free Critical Design Req.	IEC 62895 Primary Standard
--------------------------------------------	--------------------------------------	--------------------------------------------------	--------------------------------------

APPLICATIONS

- Long-distance underground HVDC bulk transmission corridors
- Offshore wind farm HVDC export cable (VSC-HVDC)
- Asynchronous grid interconnects and frequency isolation links
- Submarine HVDC interconnections between island grids and mainland
- Multi-terminal HVDC grid (MTDC) cable infrastructure
- Renewable energy zone-to-load center underground HVDC links

KEY SPECIFICATIONS

- ±150kV–±600kV HVDC rated — IEC 62895 qualified extruded XLPE
- Specialized HVDC XLPE compound — controlled space charge suppression
- 70°C nominal conductor temperature (vs. 90°C for AC XLPE)
- Conductor sizes: 1200–3200 kcmil Milliken copper or aluminum
- Lead alloy or corrugated aluminum moisture barrier sheath
- Qualified per CIGRÉ TB 852 and IEC 62895 test protocols
- VSC-HVDC compatible — bipolar and monopolar system designs
- HVDC joint and termination accessories available as complete system

TECHNICAL SPECIFICATIONS

Parameter	±320kV HVDC	±525kV HVDC
System Voltage	±320kV	±525kV
Insulation	HVDC XLPE compound	HVDC XLPE compound
Conductor Temp Normal	70°C	70°C
Conductor Temp Emerg.	85°C	85°C
Conductor Sizes	1200–3200 kcmil	2000–3200 kcmil
Moisture Barrier	Pb alloy or Al sheath	Pb alloy sheath
Standard	IEC 62895 / CIGRÉ 852	IEC 62895 / CIGRÉ 852

CONDUCTOR SIZES & CONFIGS ±150kV–±600kV 1200–3200 kcmil Milliken Cu/Al Complete VSC-HVDC system supply	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
-----------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------