

Submarine & Subsea Power Cable — HVAC & HVDC

HVAC to 500kV · HVDC to ±600kV | Armored | Offshore Wind · Interconnects · Island Links

PRODUCT OVERVIEW

Mirabel Energy USA submarine and subsea power cables deliver the critical energy transport infrastructure for offshore wind farm export systems, island-to-mainland grid interconnects, cross-strait and cross-bay links, and offshore platform power supply. Both HVAC (up to 500kV) and HVDC (up to ±600kV) voltage designs are available — with HVDC mass-impregnated (MI) and extruded XLPE insulation options for long-distance DC transmission where reactive power compensation for AC cable becomes impractical beyond approximately 50–80km. The submarine cable construction incorporates a pressure-resistant insulation system, lead or aluminum alloy moisture barrier sheath, armor wire layers for tensile strength during installation and in-service mechanical protection, and a polypropylene yarn or HDPE outer serving. Cable lay installation, burial depth, and cathodic protection system design support is available through the GCP Energy application engineering team.

Up to 500kV HVAC AC Voltage	±600kV HVDC DC Voltage	SWA / DWA Armor Mechanical Protection	CIGRÉ TB 623 Qualification Standard
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APPLICATIONS

- Offshore wind farm inter-array and export cable (HVAC 66kV–220kV)
- Island-to-mainland grid interconnect (HVAC or HVDC)
- Cross-bay and cross-strait long-distance HVDC transmission links
- Offshore oil and gas platform power supply (HVAC 33kV–132kV)
- Tidal and wave energy array export cable systems
- River crossing and harbor transit for underground transmission circuits

KEY SPECIFICATIONS

- HVAC designs: 33kV–500kV per IEC 60840 / IEC 62067
- HVDC designs: ±150kV–±600kV (MI-PPL or extruded XLPE) per IEC 62895
- Single wire armor (SWA) or double wire armor (DWA) for deep-water deployment
- Lead alloy (E-alloy) or corrugated aluminum moisture barrier sheath
- Dynamic cable constructions available for floating platforms and risers
- Qualified per CIGRÉ TB 623 (HVAC) and CIGRÉ TB 852 (HVDC) protocols
- Factory and shore-end testing: 100% FAT, TDR, and insulation resistance
- Installation engineering support: lay vessel coordination, burial assessment

TECHNICAL SPECIFICATIONS

Parameter	HVAC Submarine	HVDC Submarine (XLPE)
Voltage Range	33kV – 500kV	±150kV – ±600kV
Insulation	XLPE or EPR	XLPE (extruded)
Armor	SWA or DWA	SWA or DWA
Moisture Barrier	Pb alloy or Al sheath	Pb alloy sheath
Qualification	CIGRÉ TB 623	CIGRÉ TB 852 / IEC 62895
Conductor	Cu or Al (round/seg)	Cu (Milliken)
Typical Max Depth	Up to 1,000m	Up to 3,000m

CONDUCTOR SIZES & CONFIGS 33kV–500kV HVAC ±150kV–±600kV HVDC SWA/DWA Custom cable lay engineering	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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