

WIND POWER SPECIAL CABLE

UV RESISTANT | TORSION PROOF | -40°C TO 125°C





Shuangdeng Wind Power Cable Product Manual

Engineered for the Demanding Environment of Wind Energy Systems

① Product Overview

Shuangdeng Wind Power Cables are specifically designed to meet the rigorous requirements of modern wind turbine installations and wind farm power transmission. Withstanding extreme mechanical stress, harsh weather conditions, and continuous vibration, these cables ensure reliable power transmission from turbines to grid connections. Crafted with advanced materials and innovative manufacturing techniques, our wind power cables offer exceptional durability, high - efficiency performance, and enhanced safety, contributing to the long - term stability of wind energy systems.

② Core Features & Benefits

Feature	Technical Advantage	Application Benefit
High Mechanical Strength	Reinforced with aramid fiber or steel wire braiding, providing excellent resistance to tension, torsion, and bending fatigue.	Ensures cable integrity under the continuous mechanical stress of wind turbine rotation and movement, reducing maintenance frequency.
Extreme Weather Resistance	Utilizes specialized sheath materials with high UV resistance, cold - flexibility, and heat - tolerance (e.g., Polyurethane - PUR).	Suitable for various climatic zones, from frigid polar regions to hot desert environments, extending the cable's service life.
Superior Electrical Performance	Constructed with high - purity oxygen - free copper conductors and advanced insulation (such as cross - linked polyethylene - XLPE), minimizing power loss.	Optimizes the efficiency of power transmission from wind turbines to the grid, increasing the overall energy output of wind farms.
Anti - Vibration Design	Flexible stranded conductor structure and shock - absorbing insulation layers effectively dampen vibrations generated by wind turbines.	Protects the cable from internal damage caused by continuous vibration, enhancing system reliability.
EMI/RFI Suppression	Multi - layer shielding (copper tape and braid) provides excellent electromagnetic interference protection, ensuring stable operation of turbine control systems.	Prevents signal disruptions in turbine control and monitoring equipment, maintaining the safe and efficient operation of wind turbines.

③ Product Specifications

3.1 Conductor

- Material: High - purity oxygen - free copper ($\geq 99.97\%$ conductivity)
- Structure: Class 6 flexible stranded conductors (IEC 60228) for maximum flexibility and fatigue resistance
- Cross - sections: 10mm^2 - 630mm^2 (single - core) and multi - core configurations (2 - 5 cores) for different power transmission requirements

3.2 Insulation & Sheath

- Insulation: XLPE for excellent electrical insulation and temperature resistance
- Sheath:
 - PUR (standard): Offers high abrasion resistance, UV protection, and flexibility in a wide temperature range (-40°C to $+90^\circ\text{C}$)
 - Specialized cold - resistant PUR: Suitable for extremely cold environments (down to -60°C)
 - Color coding: Customizable for easy identification in complex wind turbine and wind farm setups

3.3 Electrical Characteristics

- Rated voltage: 0.6/1kV, 3.6/6kV, 6/10kV, 8.7/15kV (customizable according to project needs)
- Capacitance: $\leq 0.2\mu\text{F}/\text{km}$ (at 50Hz)
- Insulation resistance: $\geq 10000\text{M}\Omega\cdot\text{km}$ (20°C)
- Current - carrying capacity: Up to 1000A (depending on cable size, voltage class, and ambient temperature)

④ Application Scenarios

- Onshore wind turbine internal connections (nacelle to generator, tower cabling)
- Offshore wind turbine power transmission from turbines to offshore substations
- systems within wind farms for aggregating power from multiple turbines
- Inter - array cabling in offshore wind farms for power transfer between turbines
- Grid connection cables from wind farms to the main power grid

⑤ Compliance & Certifications

- International standards: IEC 60332, IEC 60502, IEC 60227, DNV - GL (for offshore applications)
- Environmental compliance: RoHS 3.0, REACH
- Optional certifications: TÜV, SGS, ISO 9001

⑥ Installation & Maintenance

6.1 Installation Guidelines

- Minimum bending radius: 12× cable diameter (static), 15× (dynamic) to prevent internal conductor damage
- Ensure proper strain relief and anchoring to minimize mechanical stress on the cable during turbine operation
- Use specialized installation tools and techniques for offshore and high - altitude onshore installations
- Maintain a safe distance from moving parts and sharp edges within wind turbines

6.2 Storage Conditions

- Store in a dry, shaded area with temperatures between - 20°C and + 40°C
- Keep cable reels horizontally to avoid sheath deformation
- Protect from direct sunlight, salt spray (for offshore applications), and chemical exposure

⑦ Customization Options

- Specialized cables for high - humidity or corrosive environments (e.g., coastal wind farms)
- Custom - length cables with pre - terminated connectors for simplified installation
- Cables with integrated fiber optic strands for data transmission in smart wind farms
- Tailored cable jackets with specific color - coding and marking for easy identification and maintenance