



**SIWO-KUL®**

**Customized cable solutions for motors, generators and drives  
backed up with support and services**

# Motors, generators and drives require **SIWO-KUL®**...

Traditional and renewable energy generation, oil and gas, mining, the processing industry, shipbuilding and power plants are all dependent on medium-voltage motors, generators and drives. The latter enhance motor efficiency and optimize energy costs.

Annual average market growth until 2015 for motors and generators is predicted at around 8%, and for MV drives around 15%. Currently, the largest markets are the US, Brazil, Europe, China, India and the rest of Asia.

The challenges facing the industry depend greatly on optimizing flexible high-temperature cables to assure safe and reliable power connection and operation. There is a need for increased power density and faster start up (ignition) necessitating improved cable flexibility and lower partial discharges in insulations to prolong the lifetime of the cable.

All of this requires advanced cable design, engineering, and extensive services that only a time-proven cable manufacturer can provide.



## **What you expect from a cable manufacturer**

As an OEM, energy system integrator, or specialized distributor you want a global cable partner who can provide you with high-end products and expertise to improve the performance and durability of your systems and equipment, including:

- A full range of flexible, high-temperature MV singlecore cables
- The right choice of conductors, platings and premium-quality silicone insulation
- Compactness and resistance to chemicals and oils
- Low smoke, minimal corrosive/toxic gases and fire-resistance
- Ongoing innovation to keep up with technical evolution
- International certifications and test approvals
- Technology to help optimize and reduce expensive copper
- Services: short lead times, prompt delivery, engineering, design input, electrical and thermal simulation, kits, supply chain and e-business tools

## **SIWO-KUL® customized cables with a portfolio of services**

Nexans has been manufacturing a full range of high-performance medium-voltage SIWO-KUL® singlecore cables for over half a century for applications that require high flexibility in prolonged high-temperature conditions. We are also developing a competitive high-temperature cable for LV industrial motors.

SIWO-KUL® cables are mainly used in medium-voltage motors and generators for connecting stator coils to the terminal box. They are also vital elements for wind converters, transformers, solar power inverters and other MV/LV cabinets. In drives, silicone decreases copper cross-section and gives flexibility for compactness.

Nexans not only manufactures a customized product to fit your extra-tough specifications, we also provide expertise and an extensive service package to add value to your products and give you a competitive edge in the marketplace.



# ...cable solutions for flexibility, efficiency and durability

A typical medium-voltage SIWO-KUL® cable consists of a flexible, class-5, tinned-copper conductor, a separation tape, silicone rubber insulation, a protective tape and synthetic yarn braiding.

Other versions include bare copper, silver-plated copper, nickel-plated copper and aluminum (Class 5 or 2). Nexans also masters complete pre-connected cables which are 100% electrically tested, and is designing low-voltage, high-temperature cables for industrial LV motors.

- SIWO-KUL® B: protective Braid with PUR or silicone varnish
- SIWO-KUL® D: Dual silicone insulation
- SIWO-KUL® S: Screened version

Apart from medium-voltage SIWO-KUL® cables, Nexans can also supply VFD power cables engineered to provide 100% containment of EMI emissions.

## Outstanding features: adaptability, durability and performance

Silicone can tolerate high temperatures arising from ignition and harmonics. Thanks to their premium quality silicone insulation, medium-voltage SIWO-KUL® cables are chemical-resistant and extremely flexible, with excellent stretch properties and an elongation at break value greater than 300%. During a fire, the halogen-free insulation forms a ceramic shield that keeps them operational for at least 90 minutes. The cables are corona-resistant, electrically stable and have low partial discharge, thus prolonging cable life. Appropriate terminations/connectors make them easy to install, and all-in-one kits are available. All cables are UL and CSA certified, and approved by Lloyds' Register and Veritas.

## Nexans SIWO-KUL® integrated services

- **Customization** to find the right conductor, insulation and design for your specific application (with the Nexans Research Center)
- **Thermal and electrical field simulation** to pre-test solutions in confined environments and optimize maintenance, installation, and energy-efficiency
- **On-site engineering and technical consulting** to give support and expert advice on appropriate cables, installation and connectivity
- **Life Cycle Analysis (LCA) and PEPecopassport®** to guarantee that all cables conform to your long-term environmental objectives
- **Short lead-time, emergency delivery on site** to make sure you get exactly what you need when and where you need it
- **Cut-to-length cables and customized packaging** to facilitate installation and identification of reels, barrels, boxes and coils, and reduce waste
- **e-ordering and e-invoicing** to streamline the supply chain and simplify ordering and billing
- **Cabling kits and harnesses** to reduce production costs and facilitate installation

With a long experience in materials science, silicone and metallurgy, and with proven expertise in designing cables for automation, wind turbines, and shipbuilding, Nexans can provide you with the expert knowledge and support you need to serve the demanding motor, generator and drive market worldwide.





Global expert in cables and cabling systems

With energy at the basis of its development, Nexans, worldwide expert in the cable industry, offers an extensive range of cables and cabling solutions. The Group is a global player in the energy transmission and distribution, industry and building markets. Nexans addresses a wide series of market segments: from energy and telecom networks to energy resources (wind turbines, photovoltaic, oil and gas, and mining) to transportation (shipbuilding, aerospace, automotive and automation, and railways). Nexans is a responsible industrial company that regards sustainable development as integral to its global and operational strategy. Continuous innovation in products, solutions and services, employee development and commitment, customer orientation and the introduction of safe industrial processes with limited environmental impact are among the key initiatives that place Nexans at the core of a sustainable future. With an industrial presence in 40 countries and commercial activities worldwide, Nexans employs 25,000 people and had sales in 2012 of nearly 7.2 billion euros. Nexans is listed on NYSE Euronext Paris, compartement A.

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