WindFlex® cables are torsion twist resistant and remain flexible at temperatures from -40°C to +90°C.

**WindFlex Cable Portfolio**

Draka WindFlex® is an extensive low and medium voltage cable program application for flexible installation in wind turbines. Besides the standard version, available as options are halogen free, EMC-screened and extra flame retardant versions.

**Design Strengths**

The WindFlex® design is based on existing and well proven Draka WindFlex® technology, which offers an effective combination of both rubber insulation and sheathing. WindFlex® cables are robust due to the special high quality thermosetting insulating and sheathing compounds used in their manufacture. They have a -40°C to +90°C temperature range as standard, however a special +120°C version is also available.

**Torsion Capability**

Draka WindFlex® cables are tested for torsion during the toughest possible conditions. The test is carried out at -40°C and the cables are twisted 4 x 360° each way over 10 meters for a minimum of 5000 complete cycles, to simulate 20 years lifetime.

**Oil & Chemical Resistance**

Draka WindFlex® offers excellent resistance against mineral and synthetic gear oils, cooling fluids as well as hydraulic oils. We are committed to upholding this standard by constantly testing our cable range against new industry oils. By doing this we are confident that the cables we offer have passed the most extensive fluid resistance test program in the industry.

**Standards & Approvals**

The basis of Draka WindFlex® is standard HD 22, which specifies the construction, dimensions and test requirements. Various options for approvals are available, such as US National Electric Code (NEC) and Listing (UL 1277 & UL 46) and international standards as well as international standards as well as EN 50332-2-4 category C, is also available.

**Conductor Materials**

Draka WindFlex® is designed for maximum flexibility and the conductors are always made of class 5 annealed copper.

**An Economic Alternative**

The Draka WindFlex® program is the complete solution for wind turbine application. With a wide range of designs and options, Draksa ensures that there is a cable made solution for all wind applications. With our Draka WindFlex® Global range of cables, we even ensure that one cable can be used throughout the world. The end result is simpler designs, simpler logistics and reduced costs.

**Prysmian Group / Renewable Energy**

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Draka WindFlex®

The cable solution for flexible installation in towers
WindFlex® family is comprised of 2 basic cable constructions with each 4 subordinate cable types.

WindFlex® Global 0.6/1kV

Application: Flexible rubber cable for use in wind turbines at moderate and low mechanical stress and in torsion applications.

Construction:
- Approval according to UL Style 4697, Annex A180 similar to DIN VDE 0280.
- Conductor insulation made of plain copper fine wire class 5 acc. to IEC 60287.
- Insulation in combination with rubber compound type Class 20 UL, Type XG acc. to DIN VDE 0250 Part 20.
- Outer sheath made of rubber compound type XG30 acc. to IEC 60287 part 20.
- Bending radius when moved minimum 6 x D and when fixed minimum 4 x D.
- Minimum surface temperature fixed and moved from -40°C to maximum conductor temperature +90°C.

WindFlex® Global 0.6/1kV LSZH

Application: Flexible halogen free rubber cable for use in wind turbines at moderate mechanical stress and in torsion applications.

Construction:
- Approval according to UL Style 4697, Annex A180 similar to DIN VDE 0280.
- Conductor insulation made of plain copper fine wire class 5 acc. to IEC 60287.
- Insulation in combination with rubber compound type Class 20 UL, Type XG acc. to DIN VDE 0250 Part 20.
- Outer sheath made of rubber compound type XG30 acc. to IEC 60287 part 20.
- Bending radius when moved minimum 6 x D and when fixed minimum 4 x D.
- Minimum surface temperature fixed and moved from -40°C to maximum conductor temperature +90°C.

We know flexible cables

Draka provides the solution for wind turbine manufacturers to choose between Ul Recognized or Ul Listed. Just ask us, if you're in doubt!

WindFlex® EMC 0.6/1kV LSZH

Application: Flexible halogen free rubber cable for use in wind turbines at moderate mechanical stress and in torsion applications. Standard or halogen free version.

Construction:
- Conductor made of plain copper fine wire class 5 acc. to IEC 60287.
- Insulation in combination with rubber compound type Class 20 UL, Type XG acc. to DIN VDE 0250 Part 20.
- Outer sheath made of rubber compound type XG30 acc. to IEC 60287 part 20.
- Bending radius when moved minimum 6 x D and when fixed minimum 4 x D.
- Minimum surface temperature fixed and moved from -40°C to maximum conductor temperature +90°C.

WindFlex® MV Power 6 - 35kV

Application: Flexible medium voltage rubber cable for use in wind turbines at medium mechanical stress and in torsion applications. Standard or halogen free version.

Construction:
- Conductor made of plain copper, fine wire class 5 acc. to IEC 60287.
- Insulation in combination with rubber compound type Class 20 UL, Type XG acc. to DIN VDE 0250 Part 20.
- Outer sheath made of rubber compound type XG30 acc. to IEC 60287 part 20.
- Bending radius when moved minimum 6 x D and when fixed minimum 4 x D.
- Minimum surface temperature fixed and moved from -40°C to maximum conductor temperature +90°C.

WindFlex® cable Specifications

UL Standards and Testing

It's important to understand the difference between a Recognized cable UL 758 and a Listed cable UL 2077 or UL 44.

At Draka we listen to our customer's needs. For that reason we produce WindFlex® in different versions, depending on the wind turbine manufacturer's requirements for a Ul Recognized vs Ul Listed approval.

Drake provides the solution for wind turbine manufacturers to choose between Ul Recognized or Ul Listed. Just ask us, if you're in doubt!

Main points to consider when choosing which Ul approval to use:
- Recognized cables can only be installed in machines. Fixed and flexible mounting allowed. Listed TC cables are allowed for horizontal as well as vertical installation in buildings.
- Flammability requirements are much less severe for a recognized cable. Whereas, Listed TC cables are required to resist large scale flame tests.
- Recognized cables can be lighter, due to different design requirements, that allow the use of thinner insulation and jackets. As Listed TC cable are meant to be more "tough", thickness and thus, a thinner and lighter cable.
- Super clean HEPR insulation allowing for reduced insulation thickness and wires covering > 85%.
- Three phase conductors and one earth conductor or as a three core cable with the earth conductor made as a twisted copper wire, covering each core, which is a thinner and lighter cable. Also available with EPM core Insulation type 1567 or with super thin MVH insulation allowing for reduced insulation thickness as well as a thinner and lighter cable.

Draka provides the solution for wind turbine manufacturers to choose between Ul Recognized or Ul Listed. Just ask us, if you’re in doubt!