ÖLFLEX® TORSION FRNC

Cold and oil-resistant cables for flexible applications under torsional load, halogen-free - 0.6/1 kV

The special design reliably compensates for the permanent torsional drip loop movements inside the wind turbine between the nacelle and the tower; The high flexibility and good dismantling
and stripping properties enable easy space-
saving cable installation and fast processing; Sea water-resistant for onshore and offshore
applications; FRNC = Flame Retardant Non Corrosive
- Reduction of flame-propagation and
  density and toxicity of smoke gases
  in the event of fire
- Minimisation of damage to buildings
  and production facilities
- Safety for staff and in
  areas with high density of people; The copper wrapping of the screened D
version protects against electromagnetic
interference

- Torsion resistant, Cold flexible and Oil resistant for drip loops
- Halogen-free, Highly flame retardant, Low smoke density

Product description

Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery,

wind turbines)
- Very suitable for installation in the drip loop, between the rotating nacelle and the stationary windmill tower, to connect the generator to the control units

Benefits

- The special design reliably compensates for the permanent torsional drip loop movements inside the wind turbine between the nacelle and the tower
- The high flexibility and good dismantling and stripping properties enable easy space-saving cable installation and fast processing
- Sea water-resistant for onshore and offshore applications
- FRNC = Flame Retardant Non Corrosive
  - Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
  - Minimisation of damage to buildings and production facilities
  - Safety for staff and in areas with high density of people
- The copper wrapping of the screened D version protects against electromagnetic interference

Product Make-up

- Extra-fine wire conductor made of bare copper
- Core insulation: polyolefin compound
- Core connection optimised for high torsion requirements, twisted in layers
- Optional screening (D): wrapped with braided tinned-copper wires
- Outer sheath: special compound, halogen-free, black (RAL 9005)

Norm references / Approvals

- Use of leading, European metric stranded conductors according to the IEC scale for conductor nominal cross-sections in mm² according to IEC 60228/VDE 0295, braided conductor class 6 (tinned): For converting to AWG, odd-numbered nominal AWG cross-sections must be excluded. The next lowest nominal AWG conductor cross-section in mm² must then be allocated to the metric nominal conductor cross-section in mm² (according to IEC 60228) (please refer to the technical catalogue appendix T16). This is to ensure that the normative current rating defined by the nominal AWG conductor cross-section does not exceed the physical/real current rating defined by the nominal IEC conductor cross-section that is actually used
- Cable type certifications: UL AWM style 21288 by UL acc. UL standard as well as cUL AWM II A/B by UL acc. CSA AWM standard
- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2)
  - No fire propagation (IEC 60332-3-24 and IEC 60332-3-25)
- Oil-resistant according to EN 60811-404

and UL OIL RES I and UL OIL RES II
- UV-resistant according to ISO 4892-2 and ozone-resistant according to EN 50396

Product features

- Torsion-resistant up to ±150°/m
- Good weather, abrasion, temperature and UV-resistance
- Resistant to oils
- Halogen-free and highly flame-retardant
- Depending on the quantity, customised designs are also possible upon request

Technical Data

Core identification code	Power and control cables: Colour-coded in accordance with VDE 0293-308, refer to Appendix T9 From 6 cores: black with white numbers Paired signal cables: DIN 47100
Classification	ETIM 5.0 Class-ID: EC000057 ETIM 5.0 Class-Description: Low voltage power cable
Conductor stranding	Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6 (Refer to Appendix T16 for the matching US conductor sizes in AWG standard)
Torsion movement in WTG	TW-0 & TW-2, refer to Appendix T0
Minimum bending radius	Flexible use: 10 x outer diameter Fixed installation: 6 x outer diameter
Nominal voltage	According to IEC/VDE: U_0/U 0.6/1 kV ac Operating voltage in accordance with UL: 1000V
Test voltage	C/C: 4000 V
Protective conductor	G = with GN-YE protective conductor X = without protective conductor
Temperature range	Flexible use: -40°C to +90°C (UL +80°C) Fixed installation: -40°C to +90°C (UL +80°C)