

# Twist'n Turn.

Our flexible and twistable Windflex® 66 kV cable is the wave of the future.



**Prysmian**  
Group

*We're delivering renewable  
energy to societies worldwide.*





# Our flexible and twistable Windflex® 66 kV cable is the wave of the future.

It takes a hardworking and robust, yet flexible, cable to handle the powers in- and outside a wind turbine. Our HV cable Windflex® 66 kV can handle temperatures ranging from -40 °C to +90 °C, and it can be installed free moveable, free hanging and fixed. When free hanging it's even twistable. Put yourself on the crest of the wave and choose reliable cables feeding the world with renewable energy.

## WINDFLEX® (N)TSCGEHXOEU 36/60-69 kV

### Application

These halogen-free high voltage cables are intended for use in wind turbines with medium mechanical effort in a temperature range from -40 °C to +90 °C. The cables can be installed free moveable, free hanging or fixed. For free hanging operation the cables are twistable. The cables are used for economic power transmission of large energy rates with high voltage. In other respects, DIN VDE 0250 and IEC 60840 applies.



## MAIN FEATURES

- ✓ Flexible – perfect for cramped areas
- ✓ Can be installed free moveable, free hanging or fixed
- ✓ Twistable in free hanging mode
- ✓ Operational from -40 °C to +90 °C
- ✓ Low Smoke Zero Halogen – flame retardant; emits less toxic smoke compared to PVC cables and no corrosive substances in case of a fire

COMMITTED TO SUSTAINABILITY

# We offer solutions to reduce carbon emissions.

There can be no transition to clean energy without cables. US investment banks Morgan Stanley and Citi both recently included Prysmian Group among 33 companies with products that will help the world meet sustainable development goals. One example is our specially-engineered undersea energy cables, which enable offshore wind farms to transport energy back to land.

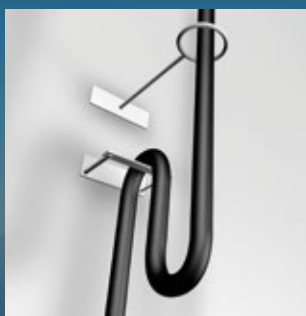
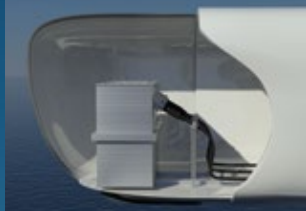
## ASSEMBLY AND TERMINATION

We can harness all the cables that you need for your wind turbine. In our factory or on spot – we will make up the cables ready for connection according to your requirements. We can also supply installation sets designed specifically for your requirements.

- Terminations of cast-resin, hybrid and vulcanization type
- Special terminations
- High-voltage plug-on terminations
- Inner and outer cone connectors
- T-Connectors

### Benefits

- Ready-to-plug solutions – fast and easy to install
- Customised to your specific requirements
- Torsion secured down to  $-40^{\circ}\text{C}$
- At least 25 years of service life



## Moveable, free hanging or fixed.

Windflex® can be used in many areas:

- ✓ Nacelle
- ✓ Rotor/pitch system
- ✓ Generator/Loop
- ✓ Rectifier/Loop
- ✓ Transformator/Loop
- ✓ Tower (fixed installation)
- ✓ Tower (flexible installation)
- ✓ Service lift
- ✓ Base

## TECHNICAL DATA

WINDFLEX® (N)TSCGEHXOEU 36/60-69 kV	
Global data	
Brand	WINDFLEX®
Type designation	(N)TSCGEHXOEU
Standard	Based on IEC 60840 Based on DIN VDE 0250-813
Construction characteristics	
Conductor	Electrolytic bare copper, finely stranded, Class 5 according to DIN VDE 0295 / IEC 60228
Insulation	Halogen-free, heat resistant insulation HEPR acc. to IEC 60840, super clean
Electrical field control	Inner and outer layer of semiconductive rubber compound
Core identification	Natural colouring with black semiconductive rubber
Inner sheath	Rubber, compound type GM1b, halogen-free, acc. to DIN VDE 0207 part 21
Outer sheath	Halogen-free compound HXM1 acc. to DIN VDE 0266
Outer sheath colour	Black
Electrical parameters	
Rated voltage	36/60-69 (72.5) kV
Max. permissible operating voltage AC	42/72.5 kV
Max. permissible operating voltage DC	54/108 kV
AC test voltage – main cores	90 kV (30 Min.)

WINDFLEX® (N)TSCGEHXOEU 36/60-69 kV	
Chemical parameters	
Resistance to cooling fluid Acc. to IEC 60811-404, 24 h at 60 °C	– Dowcal 10 (50 % Ethylenglycol) – Havoline XLC +B -40 (50 % Ethylenglycol)
Smoke emission	IEC 61034-2
Flame propagation	IEC 60332-1-2
Resistance to oil Acc. to IEC 60811-404, 24 h at 100 °C	– IRM 902 – Cognis Breox SL 320 – Mobilgear SHC XMP 320 – Shell Tivela SC 320 – Texaco Meropa 320 – Texaco Pinnacle WM 320 – Tribol 1710/320 – Mobil SHC 524 – Mobil Aero HF(A) 32 – Texaco Rando HDZ LT 32 – Texaco Rando WM 32 – Shell Transaxle 75W-90
UV-resistance	Yes
Ozone resistance	Yes, acc. to DIN EN 50396 clause 8.1.3
Thermal parameters	
Max. operating temperature of the conductor	90 °C
Max. short circuit temperature of the conductor	250 °C
Ambient temperature for fixed installation	-40 °C – +80 °C
Ambient temperature in fully flexible operation	-40 °C – +80 °C
Mechanical parameters	
Max. tensile load on the conductor	15 N/mm <sup>2</sup>
Bending radii min.	Moving: 10 x D, fixed: 6 x D

WINDFLEX® (N)TSCGEHXOEU 36/60-69 kV												
Number of cores x cross section	Part number	Conductor diameter max. mm	Insulation thickness nom. mm	Outer sheath thickness nom. mm	Outer diameter		Weight (approx.) kg/km	Conductor resistance at 20 °C max. Ω/km	Nominal operating capacitance µF/km	Current carrying capacity A*	Short circuit current (conductor) kA	Torsional stress +/- %/m
					min. mm	max. mm						
3x95+3x95/3	20181086	12.5	10.5	4.5	92.6	96.5	11290	0.206	0.165	298	13.6	80
3x120+3x120/3		14.4	10.5	5	95	102	13850	0.161	0.179	346	17.4	70
3x150+3x150/3	20198294	16	10	5	96	104	14260	0.129	0.198	399	21.5	70
3x185+3x185/3	20345933	17.7	10	5	102	106	15970	0.106	–	–	26.5	70
3x240+3x240/3	20295572	21.5	10	5	107	114	20368	0.0801	0.234	538	34.4	70

\* Current carrying capacity free in air at 30 °C acc. to IEC 60364-5-52T B52.12.

# Linking the future

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