halogen-free wind turbine torsion & tower cable

# 638 TQ 1.8/3 kV

## (Um 3.6 kV) 3GI3 HEPR / 5GM5 XL-EVA Wind Turbine Torsi

IEC 60502-1 / VDE 0250 · 1.8/3 kV (Um 3.6 kV) · Halogen-free wind turbine torsion &




IEC 60502-1 / VDE 0250 | 1.8/3 kV (Um 3.6 kV) (-40 to +90 °C) | 5GM5 Cross-Linked EVA Outer Sheath (

## Application

638 TQ 1.8/3 kV (Um 3.6 kV) 3GI3 HEPR / 5GM5 XL-EVA Wind Turbine Torsion Power Cable (IEC 60502-1 / VDE 0250) engineered for 1.8/3 kV (Um 3.6 kV) wind turbine service across -40 to +90 °C (min. bend radius 5 × OD).

**Typical uses:** Onshore & Offshore Wind Turbine Nacelle Drip Loops, Wind Turbine Generator-to-Converter Main Power Drops, Halogen-Free Wind Tower Vertical Power Distribution, Cold-Climate (−40 °C) Renewable Energy Installations

## Construction






Cross-section, not to scale

1. Class 5 Flexible Tinned/Bare Copper (16-
2. 3GI3 High-Modulus HEPR Insulation (1.8/3
3. 5GM5 Cross-Linked EVA Outer Sheath (±150

## Technical data

Typical values

| | | | |
|---|---|---|---|
| **Rated voltage / operating system** | 1.8/3 kV (Um 3.6 kV) (IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification) | **Core / conductor construction** | Class 5 Flexible Tinned/Bare Copper (16-400 mm²) — IEC 60228 Class 5 flexible stranded copper conductor |
| **Primary dielectric / insulation** | 3GI3 High-Modulus HEPR Insulation (1.8/3 kV) — High-dielectric ethylene-propylene rubber rated for Um 3.6 kV | **Continuous operating temperature** | −40…+90 °C (wind turbine nacelle, hub & tower duty) |
| **Low-temperature torsion & cold bend** | Verified cold-flex and torsion endurance across −40…+90 °C per IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification | **Storage & transport temperature** | −40…+80 °C on export wooden/steel cable drum |
| **Outer jacket / sheath protection** | 5GM5 Cross-Linked EVA Outer Sheath (±150°/m) — Cold-resistant (-40 °C) halogen-free thermoset EVA elastomer jacket | **Minimum bending radius** | 5 × OD |
| **Intermediate screen / separator / core layer** | 3GI3 High-Modulus HEPR Insulation (1.8/3 kV) — High-dielectric ethylene-propylene rubber rated for Um 3.6 kV | **Oil, grease, ozone & UV resistance** | Resistant to wind turbine gearbox oil, hydraulic fluid, ozone and UV weathering per IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification |
| **Flame retardancy & smoke/halogen emission** | Flame-retardant and environmental performance verified per IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification | **RoHS & REACH compliance** | RoHS 2 (2011/65/EU + 2015/863) & REACH SVHC compliant |
| **Standards** | IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification | | |

## Sizes

3 standard constructions

**Tick the sizes you need** and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

| Order designation | Configuration | Core / stranding | Outer Ø ≈ mm | Net weight ≈ kg/km | Max. pulling kN ≈ | Min. bend R mm |
|---|---|---|---|---|---|---|
| **638 TQ 1.8/3 kV Construction Schedule (−40…+90 °C)** 3 sizes | | | | | | |
| ☐ 638 TQ 1.8 1×95 / 4G25 Cu | 1 × 95 mm² (or 4G25 mm² / 3/0 AWG) | IEC 60228 Class 5 Flexible Cu/SnCu | 21.6 | 1,080 | 14.2 | 110 |
| ☐ 638 TQ 1.8 1×185 / 4G50 Cu | 1 × 185 mm² (or 4G50 mm² / 373 kcmil) | IEC 60228 Class 5 Flexible Cu/SnCu | 27.8 | 1,960 | 27.5 | 140 |
| ☐ 638 TQ 1.8 1×300 / 4G95 Cu | 1 × 300 mm² (or 1×535/777 kcmil) | IEC 60228 Class 5 Flexible Cu/SnCu | 34.6 | 3,120 | 45.0 | 175 |

– Custom conductor cross-sections, core counts, pre-lugged tower kits and drum lengths available per IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification.

## Electrical & thermal parameters

3 sizes

| Configuration | Max. DC $R_{20}$ Ω/km | Rating / Impedance | Operating temp. |
|---|---|---|---|
| 1 × 95 mm² (or 4G25 mm² / 3/0 AWG) | 0.21 | 1.8/3 kV (Um 3.6 kV) (320 A Cu) | −40…+90 °C |
| 1 × 185 mm² (or 4G50 mm² / 373 kcmil) | 0.11 | 1.8/3 kV (Um 3.6 kV) (495 A Cu) | −40…+90 °C |
| 1 × 300 mm² (or 1×535/777 kcmil) | 0.06 | 1.8/3 kV (Um 3.6 kV) (680 A Cu) | −40…+90 °C |

– Every production length undergoes routine conductor DC resistance, AC high-voltage spark/dielectric and dimensional verification.

## Standards and approvals

- IEC 60502-1 / VDE 0250 Compliant
- EN 10204 3.1 Factory Test Certificate
- CE, RoHS 2 (2011/65/EU) & REACH

## Certifications

**Management systems:** ISO 9001, ISO 14001, ISO 45001

### Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone
**+86 185 9591 3361**

Email
**info@tebaoflex.com**

Web
**tebaoflex.com/cables/638-tq-1-8-3kv-hepr-eva-torsion-wind-cable**

Typical values for this cable type, based on IEC 60502-1 & DIN VDE 0207 3GI3/5GM5 Wind Torsion Specification. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.