



fiber optic cable series

OPGW

Optical Ground Wire

Stainless-steel FIMT & ACS/AAW overhead transmission optical shield wire



IEEE 1138 / IEC 60794-4-10

FIMT Stainless Tube

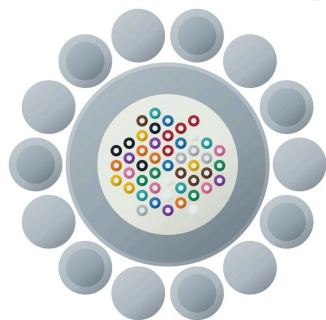
28-215 kA²·s Fault Rating

Application

OPGW Optical Ground Wire engineered per IEEE 1138 and IEC 60794-4-10 with hermetically laser-welded 316L stainless steel optical tube(s) and concentric Aluminum-Clad Steel (ACS) and Aluminum Alloy (AAW) armouring for 110-1000 kV.

Typical uses: 110 kV to 1000 kV Transmission Grids, HVDC & Ultra-High-Voltage Corridors, Substation Gantry Earth-Wire Links, Hydro & Renewable Grid Interconnectors, Long-Span River & Mountain Crossings

Construction



Cross-section, not to scale

- | | | |
|---|--|--|
| 1 | Single-mode optical fibres | ≤ 0.35 dB/km @ 1310 nm ·
≤ 0.21 dB/km @ 1550 nm |
| 2 | Thixotropic hydrogen-scavenging gel | |
| 3 | Laser-welded stainless steel tube (FIMT) | |
| 4 | Inner Aluminum-Clad Steel (ACS) layer | |
| 5 | Outer ACS / Aluminum Alloy (AAW) layer | |

Technical data

Typical values

Short-circuit capacity (I^2t)	28 to 215 kA ² s (0.3 s, +40 °C to +200 °C)	DC resistance @ 20 °C	0.185 to 0.880 Ω/km (cross-section dependent)
Lightning arc resistance	Class 1–3 coulomb charge transfer per IEC 60794-4-10	Continuous operating temp.	-40 °C to +85 °C
Short-circuit peak temp.	Up to +200 °C (structural) / +180 °C (FIMT core)	Coeff. of linear expansion	13.0 to 16.8 × 10 ⁻⁶ /K
Rated Tensile Strength (RTS)	62 kN to 158 kN	Modulus of elasticity	110 to 162 GPa
Everyday Stress (EDS)	18 % to 25 % of RTS	Crush resistance	≥ 10,000 N / 100 mm
Min. bend radius	20 × OD (static) · 30 × OD (stringing sheave)	Optical fibre types	ITU-T G.652.D · G.655 · G.654.E ultra-low-loss
Attenuation @ 1310 / 1550 nm	≤ 0.35 dB/km / ≤ 0.21 dB/km	Excess fibre length (EFL)	0.20 % to 0.35 % inside laser-welded FIMT
Strain margin	Zero fibre strain up to ≥ 60 % RTS	Hermeticity & moisture	100 % eddy-current tested laser-welded 316L tube
Corrosion resistance	20SA–40SA ACS & 6201 AAW salt-spray tested	Aeolian vibration	10 ⁸ cycles at 20 % RTS without wire or fibre break
Sheave & galloping fatigue	IEEE 1138 Clause 5.2.3 & 5.2.5 compliant	Standards	IEEE Std 1138 & IEC 60794-4-10

Sizes

7 standard constructions

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

Order designation	Area & fibres	Outer Ø mm	Weight ≈ kg/km	RTS kN	DC R @ 20 °C Ω/km	Fault I^2t kA ² s
Single-Layer Central FIMT (50–90 mm ²) 3 sizes						
☐ OPGW-24B1-50	50 mm ² · 24F G.652.D	9.4	320	62	0.875	28
☐ OPGW-24B1-70	70 mm ² · 24F G.652.D	11.2	445	86	0.612	52
☐ OPGW-24B1-90	90 mm ² · 24F G.652.D	12.6	530	98	0.455	78
Double-Layer High Fault Capacity (100–185 mm ²) 4 sizes						
☐ OPGW-48B1-100	100 mm ² · 48F G.652.D	13.5	585	108	0.382	95
☐ OPGW-48B1-120	120 mm ² · 48F G.652.D	14.8	660	118	0.305	128
☐ OPGW-48B1-150	150 mm ² · 48F G.652.D	16.4	780	135	0.238	165
☐ OPGW-96B1-185	185 mm ² · 96F G.652.D	18.2	940	158	0.185	215

– Short-circuit capacity I^2t calculated for 0.3 s fault duration from +40 °C initial to +200 °C final temperature per IEEE 1138.

Standards and approvals

- ✓ IEEE Std 1138 & IEC 60794-4-10
- ✓ IEC 61232 (ACS) & IEC 60104 (AAW)
- ✓ 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

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Email

info@tebaoflex.com

Web

tebaoflex.com/cables/optical-ground-wire



Typical values for this cable type, based on IEEE 1138 / IEC 60794-4-10 / IEC 61232. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.