

OPTICAL GROUND WIRE™

Fiber Optic Cable Used for Providing a Grounding Path for Transmission Systems



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Description

Fiber Optic cable used for providing a grounding path for transmission systems. Optical fibers (either singlemode or multimode) placed inside dielectric tubes. The tubes are helically stranded around a dielectric strength member using a reverse oscillating pattern to facilitate mid-span entry. An aluminum tube is extruded (not welded) around the optical core providing an excellent path for fault current and the dissipation of heat. Either aluminum clad steel wires or aluminum alloy wires are helically applied to provide the needed breaking load and fault current. Prysmian's Engineers can custom design OPGW cable to meet any of the mechanical and electrical requirements of the North American market.

Features and Benefits

Singlemode or Multimode Fiber

- Conforming to the latest ITU and Telcordia specifications and colored according to EIA/TIA 598.

Buffer Tubes

- Optical fibers are placed into gel filled dielectric tubes. The buffer tubes are helically stranded around a dielectric strength member using the reverse oscillated lay method.

Hydrogen Absorbing Compound

- Prysmian's patented Hydroget™ material is flooded around the optical core to absorb hydrogen which can increase the attenuation of the optical fibers over time

Mineral Tape

- Mineral tape is applied around the optical core to provide protection of the buffer tubes from sudden increases in temperature due to fault current and lightning strikes.

Aluminum Tube

- Hermetically sealed extruded aluminum tube providing and high conductivity for fault current.

Wire Strands

- Either aluminum clad steel wires or a combination of aluminum clad steel wires and aluminum alloy wires which provide the needed breaking load and additional fault current carrying capacity.

Performance

- Meets or exceeds the requirements of Telcordia GR-20, Issue 2 and ICEA 640, and is tested in accordance with relevant EIA/TIA-455 series FOTPs for fiber optic cables
- Tested in accordance with IEEE-1222

Registered Supplier

- ISO 9001, ISO 14001, and TL 9000

Options

- Left Hand Lay
- Right Hand Lay

Installation Procedures

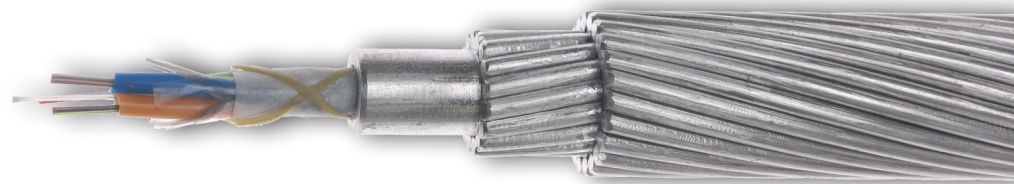
- Prysmian recommends to install the OPGW cable according to the latest version of our "Installation Procedures for OPGW Fiber Optic Cable" reference Q-09-PE-PA-012.

Cable Features

- Fibers placed directly in to dielectric tubes and away from metallic members
- Heat resistant mineral tapes protect the optical core from sudden changes in temperature changes due to fault current or lightning strikes
- Hydrogen absorbing materials keep hydrogen atoms from getting into the optical fibers
- Extruded Aluminum Tube guarantees that there is no weld seams
- Prysmian's design of aluminum touching aluminum guarantees the cable will not be affected by galvanic corrosion.

Performance Specifications

Temperature Ratings	°C	°F
Operation	-50 to +80	-58 to +176
Installation	-20 to +70	-4 to +158
Storage/Shipping	-40 to +80	-40 to +80



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Fiber Color Identifier for Single Tube Configurations

Fiber Number	Fiber Color without stripes	Fiber Number	Fiber Color with 1 Stripe	Fiber Number	Fiber Color with 2 Stripes	Fiber Number	Fiber Color with 3 Stripes
1	Blue	13	Blue	25	Blue	37	Blue
2	Orange	14	Orange	26	Orange	38	Orange
3	Green	15	Green	27	Green	39	Green
4	Brown	16	Brown	28	Brown	40	Brown
5	Slate	17	Slate	29	Slate	41	Slate
6	White	18	White	30	White	42	White
7	Red	19	Red	31	Red	43	Red
8	Black	20	Natural	32	Natural	44	Natural
9	Yellow	21	Yellow	33	Yellow	45	Yellow
10	Violet	22	Violet	34	Violet	46	Violet
11	Rose	23	Rose	35	Rose	47	Rose
12	Aqua	24	Aqua	36	Aqua	48	Aqua

Cables Up to 24 Fibers

Cable ODs of 0.472 in and 0.512 in OD

Reference:	5983	5984	5985	5986	5987	5988	5989
Name:	20A49z	20B40z	20B32z	30C56z	30D48z	30D42z	30E36z
Aluminum Tube Diameter (mm):	0.236	0.236	0.236	0.276	0.276	0.276	0.276
Strand Wires Diameter (in):	0.119	0.119	0.119	0.119	0.119	0.119	0.119
Approximate Cable Diameter (in):	0.472	0.472	0.472	0.512	0.512	0.512	0.512
Approximate Cable Weight (lb/1000ft):	527	269	212	377	320	282	244
Rated Tensile Strength ⁽¹⁾ (lbs):	17712	13312	8890	19822	15422	12482	9541
Rated Tensile Strength ⁽¹⁾ (PSI):	140625	105750	70594	128953	100266	81141	62016
Ultimate Tensile Strength (lbs):	19531	14592	9878	22000	17061	13694	10551
Ultimate Tensile Strength (PSI):	155109	115875	78469	143156	110953	89016	68625
Maximum Recommended Load (lbs):	7094	5388	3682	7924	6241	5096	3973
Elasticity Modulus ⁽²⁾ (PSI):	1.85E+07	1.51E+07	1.17E+07	1.75E+07	1.48E+07	1.29E+07	1.11E+07
Section ⁽²⁾ (in ²):	0.1223	0.1223	0.1223	0.1493	0.1493	0.1493	0.1493
Linear Expansion Thermal Coefficient (x10 ⁻⁶ °C ⁻¹):	13.4	15.1	17.9	13.8	15.3	16.7	18.6
Minimum Bending Radius:							
- On Pulley Blocks (in):	12	12	12	12	12	12	12
- On Tensioner Devices (in):	20	20	20	20	20	20	20
Electrical resistance (20°C) Ω/mile	1.275	0.972	0.785	0.941	0.764	0.679	0.380
Short circuit rating from 40°C (kA2s):	38	45.2	50.2	61.1	69.2	73.5	76.8
Short circuit current for 0.3 s (kA):	11.3	12.3	12.9	14.3	15.2	15.7	16

(1) Per IEEE 1138

(2) for stress strain/sag and tension calculations

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Cables Up to 24 Fibers

Cable ODs of 0.551 in and 0.591 in OD

Reference:	5990	5991	5992	5993	5994	5995	5996	5997
Name:	40F64z	40G53z	40H47z	40H41z	50J73z	50J61z	50K53z	50K47z
Aluminum Tube Diameter (in):	0.315	0.315	0.315	0.315	0.354	0.354	0.354	0.354
Strand Wires Diameter (in):	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119
Approximate Cable Diameter (in):	0.551	0.551	0.551	0.551	0.591	0.591	0.591	0.591
Approximate Cable Weight (kg/km):	431	354	316	278	488	412	355	316
Rated Tensile Strength ⁽¹⁾ (lbs):	21978	16096	13178	10237	24155	18273	13873	10933
Rated Tensile Strength ⁽¹⁾ (PSI):	119531	87469	71719	55687	111516	84375	63984	50484
Ultimate Tensile Strength (lbs):	24245	17735	14592	11224	26714	20204	15265	12122
Ultimate Tensile Strength (PSI):	131906	96469	79313	61031	123328	93234	70453	55969
Maximum Recommended Load (lbs):	8800	6533	5410	4265	9653	7408	5724	4580
Elasticity Modulus ⁽²⁾ (PSI):	16748	13641	12094	10547	16073	13444	11461	10153
Section ⁽²⁾ (in ²):	0.1786	0.1786	0.1786	0.1786	0.2103	0.2103	0.2103	0.2103
Linear Expansion Thermal Coefficient (x10 ⁻⁶ °C ⁻¹):	14.1	16	17.4	19.1	14.4	16.2	18	19.6
Minimum Bending Radius:								
- On Pulley Blocks (in):	12	12	12	12	12	12	12	12
- On Tensioner Devices (in):	22	22	22	22	24	24	24	24
Electrical resistance (20°C) Ω/mile	0.727	0.587	0.536	0.494	0.581	0.489	0.438	0.409
Short circuit rating from 40°C (kA2s):	92.4	104.1	108.6	112.2	133.8	146.8	154.2	158
Short circuit current for 0.3 s (kA):	17.5	18.6	19	19.3	21.1	22.1	22.7	22.9

(1) Per IEEE 1138

(2) for stress strain/sag and tension calculations

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Cables Up to 48 Fibers

Cable ODs of 0.512 in and 0.551 in OD

Reference:	5998	5999	6000	6001	6002	6003	6004	6005
Name:	30C55z	30C47z	30D41z	30D36z	40E63z	40F52z	40G47z	40G41z
Aluminum Tube Diameter (in):	0.276	0.276	0.276	0.276	0.315	0.315	0.315	0.315
Strand Wires Diameter (in):	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119
Approximate Cable Diameter (in):	0.512	0.512	0.512	0.512	0.551	0.551	0.551	0.551
Approximate Cable Weight (kg/km):	372	315	278	239	426	350	312	274
Rated Tensile Strength ⁽¹⁾ (lbs):	19755	15355	12414	9473	21910	16029	13088	10147
Rated Tensile Strength ⁽¹⁾ (PSI):	134578	104484	84516	64547	123609	90422	73828	57234
Ultimate Tensile Strength (lbs):	21776	16837	13694	10327	24245	17735	14367	11224
Ultimate Tensile Strength (PSI):	148219	114609	93234	70313	136828	100125	81141	63281
Maximum Recommended Load (lbs):	35.2	27.6	22.6	17.6	39	28.9	23.9	18.9
Elasticity Modulus ⁽²⁾ (PSI):	1.80E+07	1.51E+07	1.32E+07	1.12E+07	1.71E+07	1.39E+07	1.23E+07	1.07E+07
Section ⁽²⁾ (in ²):	0.1426	0.1426	0.1426	0.1426	0.1721	0.1721	0.1721	0.1721
Linear Expansion Thermal Coefficient (x10 ⁻⁶ °C ⁻¹):	13.6	15.1	16.6	18.5	13.9	15.9	17.3	19
Minimum Bending Radius:								
- On Pulley Blocks (in):	12	12	12	12	12	12	12	12
- On Tensioner Devices (in):	20	20	20	20	22	22	22	22
Electrical resistance (20°C) Ω/mile	1.033	0.824	0.726	0.649	0.780	0.623	0.565	0.517
Short circuit rating from 40°C (kA2s):	53.9	62	66.3	69.6	83.8	95.4	99.9	103.4
Short circuit current for 0.3 s (kA):	13.4	14.4	14.9	15.2	16.7	17.8	18.2	18.6

(1) Per IEEE 1138

(2) for stress strain/sag and tension calculations

Higher fiber counts available, please call Prysmian directly.