APAR
Tomorrow's solutions today

OPTICAL GROUND WIRES (OPGW)

CENTRAL CORE ALUMINIUM EXTRUDED STAINLESS STEEL TUBE

APAR OPGW cable with a central aluminum-coated stainless-steel tube is designed with a stainless-steel loose buffer tube at the core, while the outer layer is engineered using an optimized combination of Aluminum-Clad Steel (ACS) and All-Aluminum (AA) wires to meet the end-user's required mechanical and electrical ratings. The aluminum-clad stainless-steel OPGW offers a compact, efficient design without compromising corrosion resistance. It is ideally suited for applications with low to moderate spans and electrical loading requirements.

FEATURES

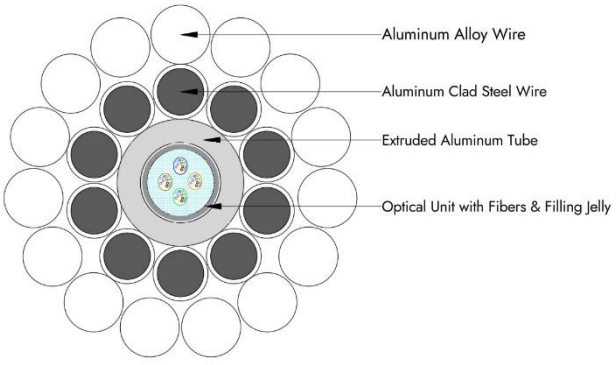
Aluminum-clad stainless steel core tube – Provides high crush resistance in a compact form factor and ensures robust performance in demanding environments.
Superior corrosion resistance – Prevents interaction between dissimilar metals and eliminates the risk of galvanic corrosion. Offers performance comparable to stainless-steel central tube designs and meets IEEE construction guidelines for high-corrosion sites.
Enhanced electrical performance – Aluminum cladding improves overall conductivity, reduces resistance, and increases fault-current capacity. Supports the use of more or higher-grade ACS wires, and in some applications allows complete replacement of AA wires with ACS for improved performance.
Improved lightning performance – Reduced dependence on aluminum alloy wires, with ACS substitution enhancing lightning resistance and overall reliability.
Compact, efficient design – Lower weight with increased flexibility, a smaller minimum bend radius, and easier handling during installation. Reduced wind and ice loads translate into less structural stress.

Fiber availability – OPGW offered in fiber counts ranging from 12F to 144F.

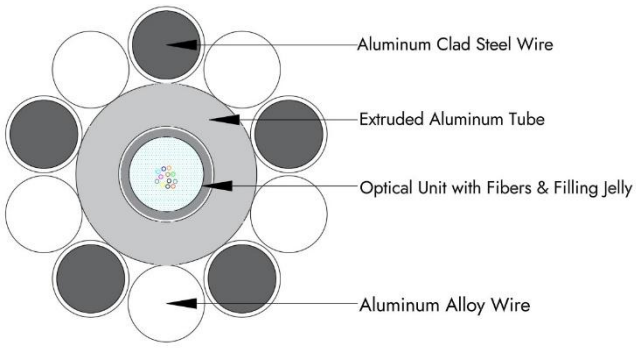
APPLICATIONS

Integrated Transmission and Communication Lines: Designed for installation on overhead high-voltage transmission structures with voltage levels ranging from 33 kV to 765 kV, where the OPGW serves both as a grounding (shield) wire and a high-capacity fiber optic communication link.
Lightning Protection: Installed along the tops of transmission towers to shield phase conductors from lightning strikes and other atmospheric discharges.
Smart Grid and Utility Applications: Enables simultaneous data transmission for a variety of real-time applications, including Dynamic Line Rating (DLR), Dynamic Monitoring Systems (DMS), data center connectivity, SCADA, and smart grid operations.

CABLE COMPONENTS*



Double Layer



Single Layer

** Indicative combination, available in variety of permutation and combinations*

SINGLE & DOUBLE LAYER CONSTRUCTION

TYPICAL DESIGNS

FIBRES (MAX)	OPGW SIZE	FAULT CURRENT (KA)^2	TOTAL CONDUCTOR AREA		OVER ALL DIAMETER		WEIGHT		APPROXIMATE RBS	
			IN^2	MM^2	IN	MM	LBS/FT	KG/M	LBS	KGF
12	12FSSATAS[52,28]	28	0.0907	58.53	0.409	10.40	0.225	0.335	11690	5303
24	24FSSATAS[73.3,40]	40	0.1094	70.59	0.441	11.20	0.278	0.414	16478	7475
24	24FSSATAS[90,40]	40	0.1165	75.14	0.453	11.50	0.329	0.490	20233	9177
36	36FSSATAS/AA[54.9,81]	81	0.1472	94.99	0.504	12.80	0.282	0.419	12342	5598
36	36FSSATAS/AA[84.8,183.9]	183.9	0.2253	145.35	0.626	15.90	0.423	0.630	19064	8647
48	48FSSATAS[95.7,77]	77	0.1615	104.17	0.528	13.40	0.411	0.612	21514	9759
48	48FSSATAS[150.1,40]	40	0.1612	103.98	0.535	13.60	0.491	0.730	33744	15306
72	72FSSATAS[85,81]	81	0.1672	107.87	0.547	13.90	0.413	0.614	19109	8668
72	72FSSATAS[60,130]	130	0.1871	120.73	0.567	14.40	0.378	0.562	13489	6118
96	96FSSATAS/AA[90,256]	256	0.2736	176.49	0.689	17.50	0.478	0.712	20233	9177
96	96FSSATAS/AA[115,200]	200	0.2787	179.80	0.709	18.00	0.524	0.780	25853	11727
144	144FSSATAS[98.4,75]	75	0.1617	104.30	0.551	14.00	0.410	0.610	22121	10034
144	144FSSATAS/AA[75,300]	300	0.2941	189.72	0.732	18.60	0.484	0.721	16861	7648

NOTES:
The data presented in this table are approximations. The designs shown above represent only a sample of the configurations available from APAR. **For a cable engineered to your exact requirements, please contact our Sales team and refer to the customized cable data sheet for the most accurate and up-to-date specifications.**

REFERENCE STANDARDS		
IEEE	1138	Cable
IEC	60794	Cable
EIA/TIA	598-D	Fiber
ASTM	B415 B398	ACS Wires AA Wires

TEMPERATURE RANGE	
Operation	-40 ^{0}C to +85 ^{0}C
Storage	-50 ^{0}C to +85 ^{0}C
Installation	-30 ^{0}C to +85 ^{0}C

QUALIFICATIONS

APAR'S OPGW -Type tested and validated by internationally acknowledged independent test laboratory according to IEC 60794 and IEEE 1138 standards