

OPGW Cable System

OPGW (*Optical ground wire*) cable is a special kind of electrical ground wire. Apart from functions as a conventional ground wire, to protect the transmission line from lightning and short circuit current, OPGW also provide a data communication channel with the optic fiber inside the cable.

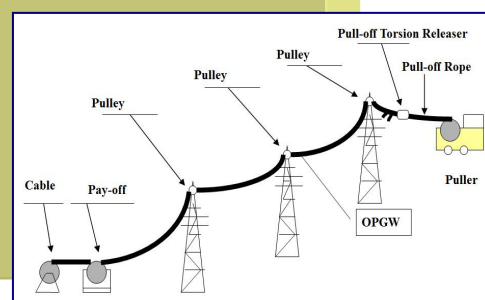
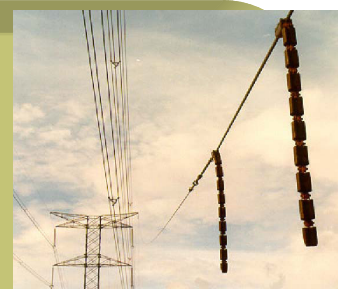
By combining the function of grounding and data communication into one cable, OPGW deployment considerably reduce the cost of overhead transmission system.




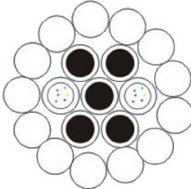
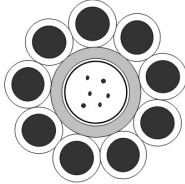
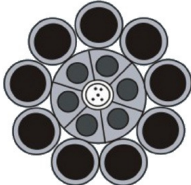
ZTT OPGW Total Solution

With the state-of-the-art manufacturing process and stringent quality control, more than 100,000km of ZTT's OPGW has been deployed in some 60 countries of the world, gain high reputation in the field.

ZTT's OPGW solutions included system analysis, cable design, installation, construction supervising and technical support.



OPGW Cable Design

Product Code	Type	Features	Structure
51#	SUS type <i>Stainless Steel</i> <i>Central Tube</i>	<ul style="list-style-type: none"> - Light weight, small size - Good resistance to moisture and hydrogen ingress 	
52#	SRD type <i>Stranded</i> <i>Stainless Steel</i> <i>Tube</i>	<ul style="list-style-type: none"> - Stranded design allow up to three steel tubes - Fiber counts up to 144c 	
53#	ACS type <i>Aluminium-Clad</i> <i>Steel Tube</i>	<ul style="list-style-type: none"> - Aluminium-clad tube provide extra short circuit current capacity - Light weight, small size 	
54#	COM type <i>Compacted</i> <i>Stainless Steel</i> <i>Tube</i>	<ul style="list-style-type: none"> - Compressed wire offer much stronger tensile strength and fault current capacity 	

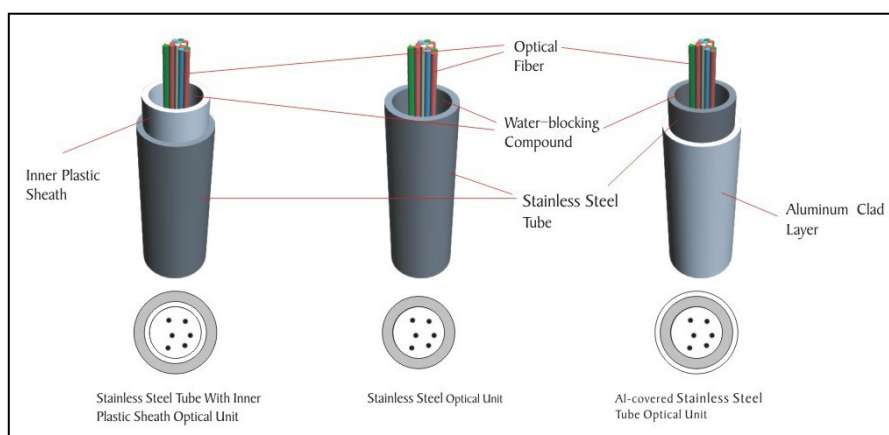
Special cable design is available upon request

OPGW Design Specialist

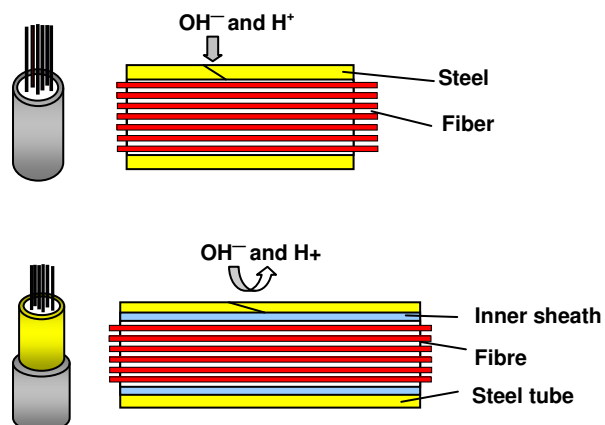
ZTT keep innovating new technologies and new designs to satisfy different requirements and to further improve the performance and reliability of OPGW system:

Stainless steel with inner plastic tube

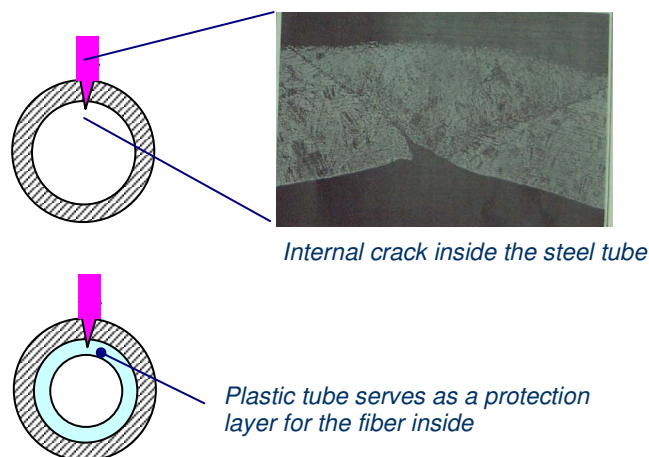
Inspired by ZTT's submarine cable design, based on traditional stainless steel tube design, ZTT's deploy a layer of plastic tube to protect the fiber inside. This unique design will effectively prevent fiber damage form sawtooth or blur of the cutting edge of the stainless tube.



- Prevent water and moisture ingress when there was crack at the steel tube.



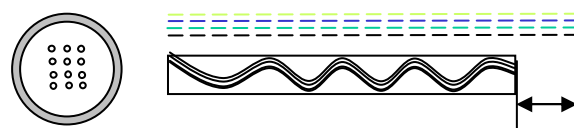
- Protect fiber form sawtooth or blur of the steel tube.



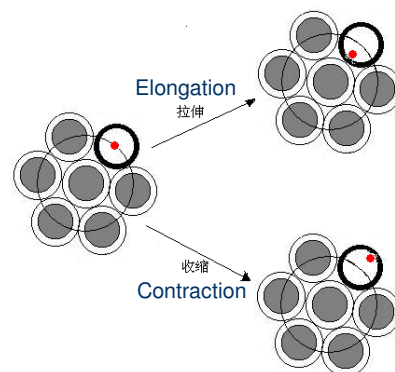
Double Fiber Excess Length Consideration:

Fiber excess length was a kind of mechanism to protect the fiber from pulling strength. The fundamental idea is to deploy fiber longer than the OPGW length by laying stranded fiber into the tube, named as the first excess length consideration.

Secondary excess length consideration is applied for the layer stranded OPGW design (52# SRD OPGW). As the fiber unit was stranded with the central unit, the fiber are able to move freely inside the tube when the OPGW suffering pulling strength.



First fiber excess length consideration



Second fiber excess length consideration

Binder tape fiber identification

For the high fiber count (e.g. over 12) OPGW design, fiber identification become an important issue for the cable designer as it will considerably affect the effectiveness of OPGW installation work.

Blinder tape is one of the most efficient fiber identification method, to divided fibers in different groups by coloured binder yarn so as to provide a easily way for workers to distinguish fibers.

For example, for a 24 fibers OPGW design. Fiber in two group will coloured with 12 different colour(according to EIA/TIA 598). To allow identification, the fibers are divided into two groups and held together by coloured binders. Illustration as follow:

