

Outside Plant

Aerolink™ ADSS

ALL-DIELECTRIC SELF-SUPPORTING CABLE
for Aerial Applications

Understanding Static Fatigue

One unusual feature of optical fibers is that they are subject to Static Fatigue. This means that the life expectancy of a fiber varies, depending on how much strain it experiences.

Under moderate strain, fibers don't break right away. But, all fibers contain tiny flaws. When strain levels are too high, these flaws grow bigger. As they grow, the fiber is weakened. If the flaws grow too big, the fiber will break.

The practical implication of Static Fatigue is that the duration of fiber strains must be limited. The table below shows some examples. As you can see, higher strains weaken fiber more rapidly. But, fibers do not have to be strain-free to be reliable. In fact, strains up to 20% of a fiber's proof strain can be safely applied over the life of the fiber.

Fiber Strain	Max Safe Duration
0.5%	1 second
0.33%	4 hours
0.29%	40 days
0.20%	40+ years

Based on COF data for long lengths of 100kpsi proof-tested fiber

Initial Cost vs. Reliability

One important function of an optical fiber cable is to limit fiber strain, thereby ensuring reliability. This is accomplished by adding materials that increase tensile strength. However, these materials also increase the cost of a cable. So, a careful balance must be struck between cable cost and fiber reliability. This is especially true of ADSS cables.

Most of an ADSS cable's strength comes from aramid yarn, which is very costly. So, the cost of an ADSS cable can be significantly reduced by using less aramid. However, ADSS cables are typically under their Maximum Rated Cable Loads for long periods of time. So, limiting fiber strain is more important in ADSS cables than for standard applications.



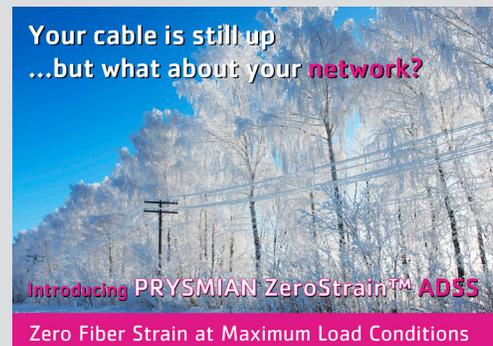
PRYSMIAN SAFESTRAIN™ ADSS CABLES

All of Prysmian's SafeStrain designs limit fiber strain to 0.20% or less, even at MRCL. This protects fiber reliability, no matter how often or how long the cable is under load. And, they comply with the strain limits in the forthcoming revision to the IEEE-1222 standards for ADSS cables.



PRYSMIAN ZEROSTRAIN™ ADSS CABLES

Optical attenuation usually increases when a fiber is under strain. Industry standards place limits on strain-induced attenuation. But, these limits are based on short test lengths. Although small, these losses accumulate significantly over longer lengths, and can cause temporary network outages. The ZeroStrain concept takes network reliability to an even higher level, by preventing fiber strains that can cause attenuation—even at MRCL.



SPECIFYING FIBER STRAIN

The right fiber for your needs can be identified by asking just a few questions:

- >Is it OK to have temporary attenuation changes caused by load events (storms, etc)?
- >Is it OK to have fiber breaks in otherwise intact cables?
- >Is Standards compliance important to you?

Take a look at the table below and see which specification is right for you. And remember, if you don't specify a limit for fiber strain, it could take down your network.

Attenuation during loading breaks?	Fiber Breaks	Compliant with new IEEE-1222	Fiber Strain Limit	Prysmian Description
No	No	Yes	0.0%	ZeroStrain™
Possible	No	Yes	0.2%	SafeStrain™
Likely	Likely	No	None	n/a

ADSS cables with less aramid cost less. But, they can also cause network outages. Choose the right design for your needs. And, be sure to specify limits on fiber strain when you buy ADSS cables.

To place an order, contact us in one of the following ways:

700 Industrial Drive, Lexington SC 29072 - (800) 669-0808 (Inside Sales) - Fax (800) 951-5040 - comm.cables@prysmian.com