

FTTH optical cable tensile strength standard



AI Overview

FTTH optical cables typically withstand tensile forces of 600 to 2700 N during installation, with standards defined by IEC 60794-1-311:2024 and VDE 0800-740.

Tensile Strength Overview

FTTH optical cables are designed to endure mechanical stresses during installation and operation. The tensile strength refers to the maximum pulling force a cable can withstand without damage. For typical FTTH cables, the installation tensile force ranges from 600 N to 2700 N, depending on cable type and construction, while operational tensile forces are lower to ensure long-term reliability.

Relevant Standards

IEC 60794-1-311:2024: This international standard specifies test procedures for determining the tensile strength and elongation at break of optical fiber cables. It applies to cables used in telecommunications, including those with combined optical and electrical conductors. The standard defines uniform mechanical property requirements and includes parameters such as strain at yield and modulus of elasticity.

DIN VDE V 0800-740: This German standard provides guidelines for mechanical stress limits, including tensile and compression loads during installation. It specifies compression testing for microducts and defines critical phases of mechanical stress, ensuring that cables are not damaged during civil works installation.

IEC 60794 (general series): Covers cable construction, mechanical performance, and environmental resistance, including tensile strength, temperature cycling, crush resistance, and water penetration. It is widely used for type testing and procurement of optical cables.

Practical Considerations

Tensile force during installation can increase significantly at bends: a 90° bend multiplies the force by 1.6, and two successive bends by 2.5.

Measurement and compliance:

Modern tensile force meters with $\pm 2\%$ accuracy are used to monitor peak loads and load duration, which...

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IEC 60794-1-311:2024

IEC 60794-1-311:2024 describes test procedures to be used in establishing uniform requirements of optical fibre cable elements for the mechanical property – tensile strength and elongation at break.

Overview of optical fibres standardization

Readers of this document are encouraged to seek information on specific matters regarding Optical cables and components from the manufacturer or provider and to consider the Technical Standards

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Fiber optic cable Catalog

Optical Fiber Core could be applied as G.652.D, G.655, G.657.A1, G.657.A2, OM1, OM2, OM3, OM4 according to needs. Maximum Tensile Strength could be changed according to technical demand.

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