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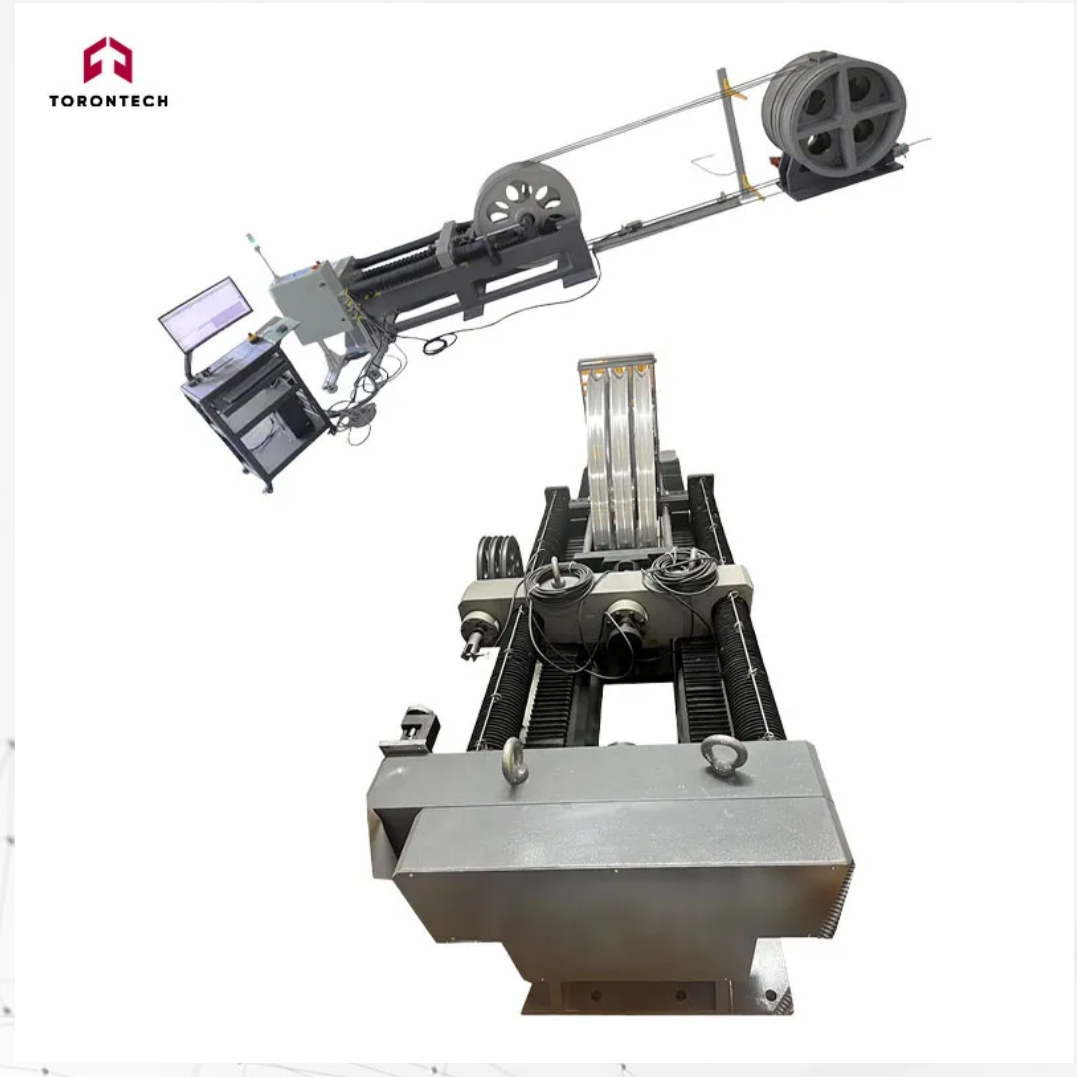

OPTICAL FIBER CABLE TENSILE TESTER - INDOOR & OUTDOOR COMBO

ASTM E4, ISO 7500-1, EN 10002-2, JIS B7721

Optical Fiber Cable Tensile Tester – Indoor & Outdoor Combo | Model TT-OFCT-IDOD is built in accordance with IEC 60794-1-21 E1 standards for tensile testing of both indoor and outdoor optical fiber cables. This method evaluates cable performance under specific tension levels, focusing on changes in attenuation and/or fiber elongation caused by load conditions that may occur during installation. The process is designed to be non-destructive, ensuring the applied tension stays within safe operating limits.

APPLICATIONS

Objective

This testing method applies to optical fiber cables subjected to specific tensile forces to assess how attenuation and fiber elongation behave under load. These conditions simulate the stresses that may occur during cable installation and/or operation.

Sample

The cable under test must be at least 50 meters long. Additional length is required to connect the fibers to the testing equipment.

Apparatus

The testing setup includes:

1. An attenuation measurement device, typically an OTDR (provided by the customer)
2. A fiber elongation strain measurement system using dispersion analysis equipment
3. A specialized tensile test machine designed to handle cables of at least 50 meters in six legs. This machine features a motor for controlled tensioning and a load cell to measure the applied force on the cable

Procedure

The cable is routed over appropriately sized sheaves within the test machine. Both ends of the cable are extended to connect with the measuring instruments. A selected number of fibers are spliced using fusion splicing. Typically, one fiber set is used for attenuation monitoring, and the other for elongation tracking.

Once initial measurements and calibrations are complete, the cable is pulled at a controlled rate until the specified tension is reached. It is then held under that tension according to the test specifications, during which attenuation and fiber length are recorded.

This process may involve testing at multiple tension levels to fully characterize the cable’s tensile response, or may be limited to the maximum permitted tension value.

Pass/Fail Criteria

1. Under load, fiber attenuation must not increase by more than a specified value—typically 0.05 dB over the test length.
2. Under load, fiber elongation must not exceed a specified threshold—typically 0.25% of the original fiber length.

How it Works

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Software

With analog output design allow load/displacement/strain signals to be transferred to other instruments like OTDR, Fiber strain meter for further analysis.

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TECHNICAL SPECIFICATIONS

Load capacity	kN	100(outdoor) & 5(indoor)
Measuring range		
Accuracy class	ISO 7500-1	±0.5% (1%–100%) capacity
Crosshead travel	mm	1000
Diameter of sheave for outdoor cables	mm	1000

Load capacity	**kN**	**100(outdoor) & 5(indoor)**
Diameter of sheave for indoor cables	mm	250
Width of slot on drum	mm	200
Loading speed	mm/min	0.2–300
Deformation measuring accuracy	%	±0.5%
Displacement measuring accuracy	%	±0.5%
Optional extensometer		Gauge length: 1000mm (others upon request)
		Measuring range: 25mm
		Measuring resolution is better than 0.5μm
		Accuracy is better than ±0.5%
Power		1P+E, 220Vac, 50–60Hz, 3kW (110V is also available)
Painting color	RAL	7024+9007
General Specifications		
Load Measurement Accuracy: ±0.5% of reading to 1/100 of load weighing system capacity meets or exceeds the requirements of the following standards: ASTM E4, ISO 7500-1, EN 10002-2, JIS B7721.		
Speed Accuracy: Set speed <0.05% Max. speed: ±1% Set speed ≥0.05% Max. speed: ±0.5%		
Humidity Range: 10% to 90% non-condensing		
Storage Temperature: -40 to +66°C (-40 to +150°F)		

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