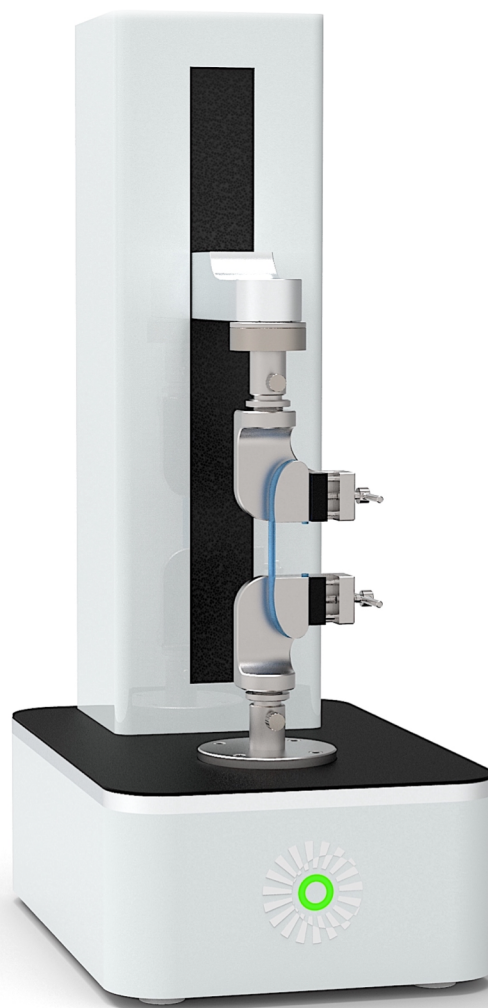




THELKIN
Know the Difference

Application Note

ASTM D3822 – Textile Fibers Testing



Background

The quality of individual fibers within a yarn play an important role in its overall functional properties. The specifications of the yarn can be controlled by modifying the fibers.

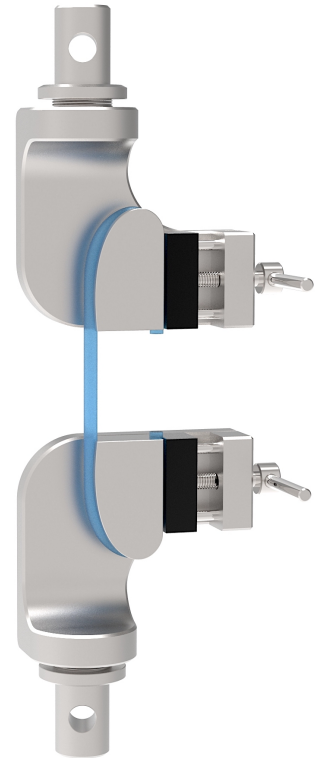
During the development and testing of yarns, tensile tests are performed according to ASTM D3822¹ and the mechanical properties of the fibers or filaments are determined.

Test Setup

ASTM D3822 defines the method for determining the tensile strength and elongation of individual textile fibers. Choosing the right sensors is elementary; individual fibers can fail even at very low loads.

For a tensile test, the specimen is clamped in the appropriate fixture and pulled at a constant speed until failure

The results serve as a basis for the determination of material characteristics such as toughness, modulus of elasticity and strength of the material.



Equipment

The test requirements described in ASTM D3822 can be ideally implemented with THELKIN's servo-static testing systems. These offer the required measuring accuracy of 1% (Class 1 or better). Test profiles, failure criteria and data acquisition can be defined easily and efficiently via the operating software:

- **THELKIN Servo Static Load Frame SSL-S-010** - complies with all specifications of ASTM D3822 and allows easy and safe specimen mounting, test programming, data acquisition and test execution.
- **Bollard Grip GR.BO** - fast and precise fixing of the specimen.

Additional accessories, such as external extensometers or chambers for environmental simulation, complete the functionality of the basic system.

¹ASTM D3822: Standard Test Method for Tensile Properties of Single Textile Fibers

