ELASTOMERIC YARN TESTER
model CTT-E LH 450

Elastomeric yarn has high stretch and recovery properties, which are affected by tension on the yarn during fabric production and yarn covering.

Lawson Hemphill Constant Tension Transport for Elastomeric Yarns, CTT-E is a dynamic quality control test instrument, specifically designed for the elastomeric yarn market in mind.

Conventional static tensile testers can only measure small test lengths at slower test speeds. This does not reflect the process conditions that the elastomeric yarns will be facing. The CTT-E provides a dynamic test platform to measure the yarn properties and performance factors such as Draw Ratio, Elongation %, Unwinding tension, Hot Air Shrinkage as the yarn is moving at test speeds from 10m/min up to 500m/min.

This speed range along with the sensitive tension heads provides true information regarding yarn behavior during fabric formation, air or mechanical covering and comfort level of the end product.

The CTT-E can be equipped with optional Elastomeric Yarn Feeder to measure the Unwinding tension under conditions that are very close to zero draft.
**1. DRAW RATIO TEST**

This test measures the tension on the yarn when it is drawn up to 50x (4900% elongation). The drawing is achieved by the speed difference between the CTT-E input and output rolls.

Up to 20 consecutive draw ratio levels can be entered to measure the tension on the yarn as it is being stretched. The CTT-E draw rolls will follow the programmed draw levels.

Different tension heads such as 5g, 10g, 100g or 250g are available to measure the yarn tension within the desired sensitivity range.

**The Draw Ratio test applications include:**

1. Measuring the yarn draftability
2. Performance check before air or mechanical covering process
3. Wear comfort prediction

**2. ELONGATION TEST**

This test measures the Elongation % of the yarn under constant tension at test speeds up to 500m/min.

The CTT-E Tension Arms maintains the tension levels constant throughout the test while the yarn is moving.

Below graph shows the difference in Elongation % between the Dry Spinning and Wet Spinning methods. It also shows how the Elongation % can change when the package is full or half full.

**3. PIN FRICTION TEST**

This test measures the Coefficient of Friction of yarn to ceramic pins or yarn to metal pins. This test complies with ASTM D 3108.

The results of this test are used to study the effect of different spin finish types on the yarn as well as how much finish is needed.

Higher coefficient of friction usually indicates that the tension on the yarn might increase during the processes such as covering, knitting, weaving, causing yarn to break. Below graph shows how COF can change.