Filament characteristics such as molecular orientation, dyeability, shrinkage and shrinkage recovery are important quality parameters, but usually their determination is time consuming and expensive. These characteristics are straight connected to the draw tension or draw elongation, which are directly related to shrinkage force and shrinkage - but measured on a running yarn. That means faster measurement, information about variation and better useability of the results.

**DTI 600** is designed to determine the draw tension on the workfloor immediately after the filament leaves production. In this way, the time of response to irregularities in the process and therewith the production of low quality lots is reduced to a minimum.

**DTI 600** stands out for modern, automatic, high performance filament testing.

Out of the results of the draw tension test, orientation irregularities, shrinkage and the future dyeability can be judged quickly and easily in a reliable way.

By measuring both draw elongation and draw tension, **DTI 600** offers a versatile tool for complete and accurate quality determination.

Wide varieties of different filaments are easily and rapidly tested, since the varying test parameters are easily changeable and storable in the connected computer according to any requirements of the tested filaments.

**DTI 600** features a high degree of user friendliness and flexibility due to the automatic string up and sample removal as well as the powerful evaluation software.
### DTI 600

**Scope:**
Draw tension is a property of yarn which reflects the orientation of polymer molecules. Malfunctions in the filament yarn spinning process will result in variations of the orientation.

With the aid of the draw tension tests, necessary corrections in the production process can be carried out soonest possible after their appearance. Previous installations show that on the basis of draw tension results, producers have strongly reduced the time consuming tensile test by using the DTI 600 for the routine control.

If draw ratio 1.0 is selected, the instrument also allows to determine the shrinkage force within flat yarn or within texturized yarns - besides the draw force of POY yarns.

**Method:**
- **Draw tension measurement:**
  During the course of a cycle, DTI 600 continuously measures the tension produced in a sample yarn which is heated to a certain temperature and drawn to a certain percentage.

  - **Temperature:** Ambient temperature - 280 °C, other temperatures on request
  - **Testing speed:** Up to 1000 m/min
  - **Testing time:** approx. 30 sec/test
  - **Control system:** Freely programmable control system in connection with an Windows® evaluation PC via Ethernet-Interface
  - **Options:**
    - Ethernet interface with external source
    - SESS automatic bobbin changer
    - Bar code reader

- **Draw elongation measurement:**
  During the test, DTI 600 continuously controls and records the draw ratio so that the preset tension remains constant. The draw ratio corresponds therewith directly to the draw elongation or in other words to the yarn’s thermal shrinkage behaviour at a certain pretension.

**Non routine tests:**
For product development and detailed process studies, non routine tests can be carried out during the course of ramps, e.g. tension vs. different yarn speeds and draw ratio or elongation at different tensions (dynamic tensile test).

The DTI 600 features automatic string up and sample removal. DTI 600 complies with ASTM D 5344

**Sample feeding:**
Automatic string up and sample removal

**Accuracy:**
- **Draw ratio:** ± 0.02 %
- **Draw force:** ± 0.1 cN
- **Temp.:** 1 % of actual temperature

**Denier range:**
10 - 510 den (11 - 560 dtex) (up to 1300 den, 1430 dtex on request)

**Tension (force) range:**
0 to 800 cN

**Draw ratio:**
0.2 to 20 via electronic servo motors

**Temperature:**
- Ambient temperature - 280 °C, other temperatures on request
- **Testing speed:** Up to 1000 m/min
- **Testing time:** approx. 30 sec/test
- **Control system:** Freely programmable control system in connection with an Windows® evaluation PC via Ethernet-Interface
- **Options:**
  - Ethernet interface with external source
  - SESS automatic bobbin changer
  - Bar code reader

**Dimensions:**
- **Height:** 1780 mm
- **Width:** 850 mm
- **Depth:** 620 mm
- **Weight:** 220 kg

**Power supply:**
230 / 115 VAC ± 10 %, 50 / 60 Hz, 1500 W

**Air supply:**
90 psi instrument air, 20 scfm (6 bar, 0.6 Nm³/min)

**Software features:**
- Long term data storage
- Product table
- Network adaptation
- Automatic barcode recognition
- Freely configurable test program

Technical data and pictures are subject to change!