

Textechno
textile testing technology



ITEMAT+

Interlace Tester



ITEMAT+

Efficient determination of number and stability of interlaces

Importance of interlacing

Filament yarns are given the cohesion required for further processing by being entangled by an air jet, either directly during spinning and/or in later processing. The present requirements to be met by air jets and entanglement testing systems are as high and varied as demands on yarns and fabrics.

A matter of sensitivity

For determining the number of interlacing points Textechno has developed the ITEMAT+ as the successor of the well-known ITEMAT by Enka tecnica after taking over all rights on this instrument. While the basic principle was kept the same drives and electronics have been replaced by state-of-the-art technology and the mechanical interlace sensor has been completely re-designed to serve a larger linear-density at better reproducibility. An optical sensor is now available as a good alternative to the mechanical sensor for textured yarn.

Function principle

ITEMAT+ is a measuring system providing the values needed in commercial practice in a precise, rapid and cost-saving manner.



Interlacing can be tested by the ITEMAT+ according to two principles

- the so-called thickness scanning principle. This is based on the fact that non-interlaced and untwisted filament yarns can be flattened by applying slight mechanical pressure. However, at an interlacing point the yarn retains its shape and is thus thicker. The ITEMAT+ scanning head consists of two ceramic pins, one of which is stationary and the other is movable.

The movable pin is pressed against the other with a well-defined and switchable pressure. The yarn passes between these two pins at constant speed. In the absence of an interlace the pin will compress the yarn. When encountering an interlacing point, the movable pin will be deflected, which is transformed into an electric signal. This signal is processed by a personal computer, which furnishes all the information and statistical data required for evaluating an interlaced yarn. Additionally, for DTY the thickness scanning principle allows in many cases to detect tight spots, which show a higher thickness level than interlaces.

- The optical principle. Here the yarn passes a special light barrier, which detects the differences in light transmission between a non-interlaced section and an interlace point.

While the thickness scanning principle works for all types of yarn, the optical principle is only recommended for DTY and BCF yarns, yarns for which the interlace points are also visible for the human eye. The optical principle has the advantage of higher test speed and thus higher efficiency.

Compared to the thickness scanning sensors of older versions of ITEMAT, the new Textechno scanning sensor offers a wider linear-density range and a better reproducibility.

Independent from the choice of sensor principle the ITEMAT+ is available in two versions: ITEMAT+ without stability test and ITEMAT+ TSI with stability test. In addition, these two versions can be delivered in a single position housing as a table top unit or in a multi position cabinet for efficiently testing the level of entanglement on up to 5 yarn packages simultaneously.

The choice of sensor principle, model with or without stability test and of single- or multi-position housings assures that the ITEMAT+ can be configured to be the optimum solution for interlace testing, both for production control and R&D. A tester in a single-position housing can later be used as one slot in a multi-position housing, too.



**ITEMAT+ TSI with stability test
in a single position housing**

All ITEMAT+ versions are equipped with an active constant tension feeder at the yarn inlet to provide a precise pretension. This feeder compensates differences in yarn tension of the incoming yarn, which might influence the sensor reading.

Version ITEMAT+ TSI is equipped with an additional drawing zone, in which either a constant draw-ratio or a draw force level can be predefined. In this way the stability of yarn interlaces towards a certain load or draw ration can be measured. A yarn tension sensor in the drawing zone monitors the draw force, while a second yarn tension sensor behind the drawing zone and the draw-off godet surveys the yarn tension inside the interlace sensor.

The single position models can be combined with Textechno's well proven automatic package changers model SE (20 positions) and model SM (2 positions).

The software running on a standard PC under WINDOWS 7 offers a wide variety of options. It is designed for fully automatic testing of groups of packages e.g. in combination with a package changer. The threshold level for the detection of the interlace points can be set fix (recommended for the thickness scanning principle) or floating (recommended for the optical principle). A graph of the yarn profile shows the detected interlace points clearly marked and the set threshold level (fix mode only).

**Technical data
(all models):**

- Linear density range: 30 - 5000 dtex
- Data output to PC: USB
- Power supply: 230V 50/60 Hz
- Max. speed with mechanical sensor: 100 m/min
- Max. speed with optical sensor: 500 m/min
- Pretension range: 0.5 - 100 cN
(with sensor 100 cN)
5 - 500 cN
(with sensor 1000 cN,
recommended for BCF
yarn, only)
- Max. draw force (TSI): 1200 cN
- Draw-extension: max. 100 %
in steps of 0,1 %
- Lacquer Finish RAL 9006 / 5002

**Technical data for
single position housing:**

- Dimensions: width 750 mm,
depth 565 mm,
height 260 mm
- Weight: approx. 40 kg
- Compressed air supply: 5 bar, approx. 100 l/min

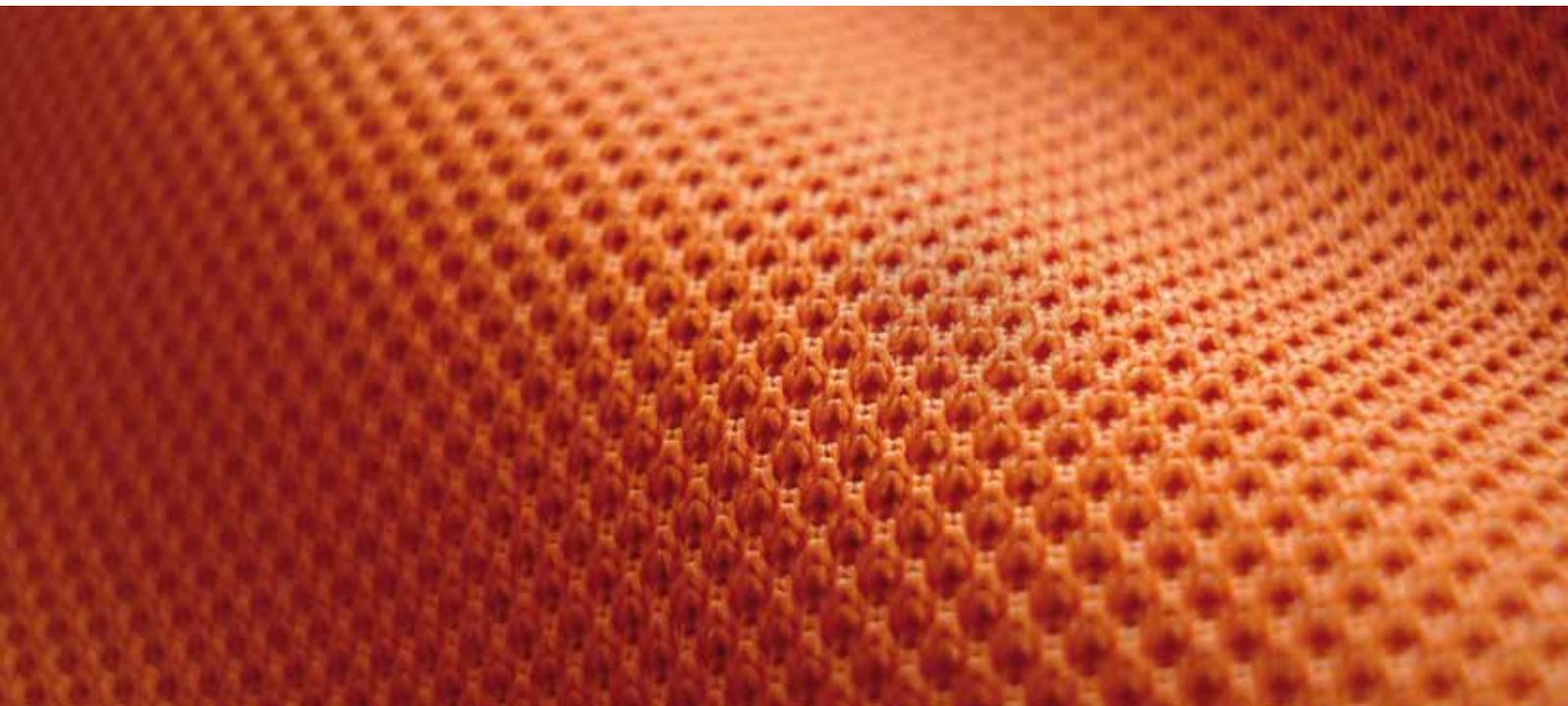
**Technical data for
multi position housing:**

- Dimensions: width 820 mm,
depth 670 mm,
height 1680 mm
- Weight: max. 250 kg
(depending on the
numbers of units)
- Compressed air supply: 5 bar, approx. 100 l/min
per ITEMAT+ unit

The above technical contents can be subject to changes
by Textechno.

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