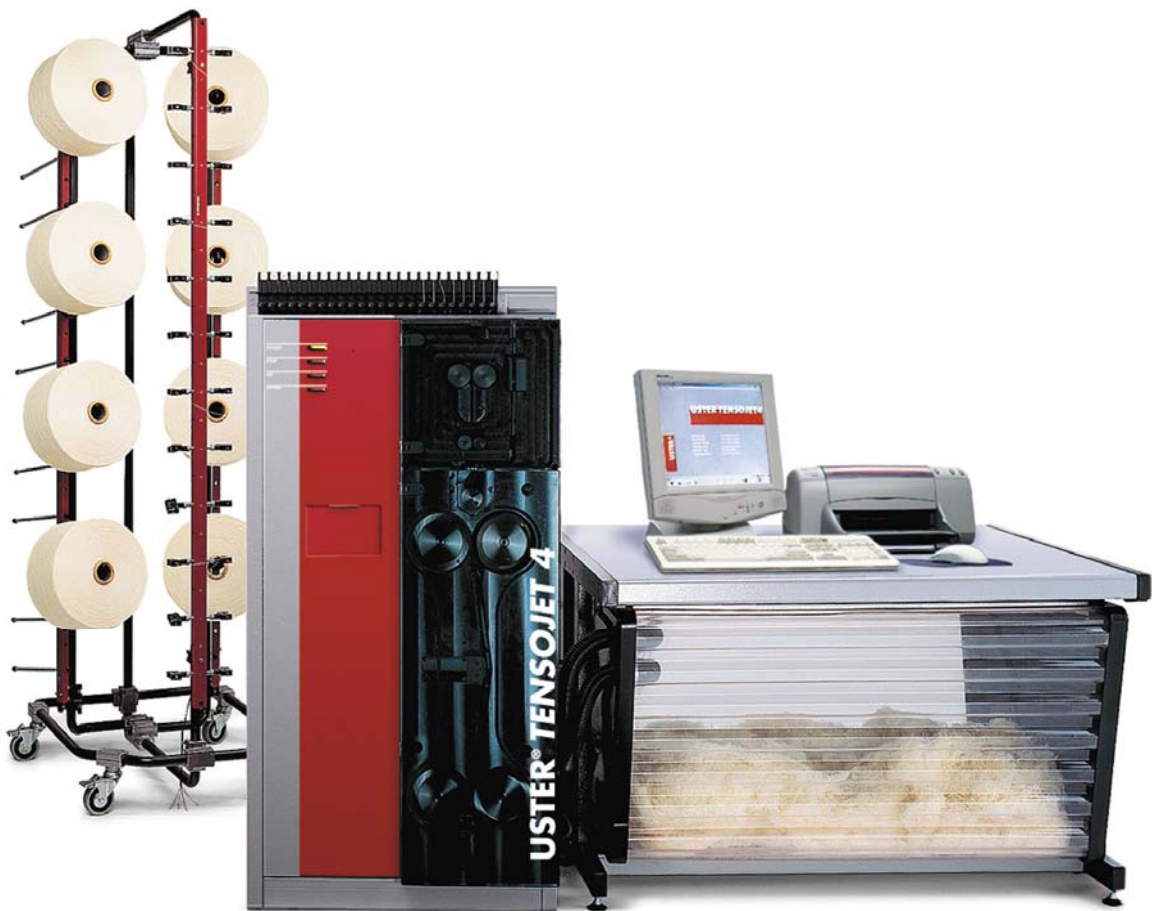


USTER® *TENSOJET 4*

TECHNICAL DATA

THE WEAVABILITY™ MEASUREMENT SYSTEM



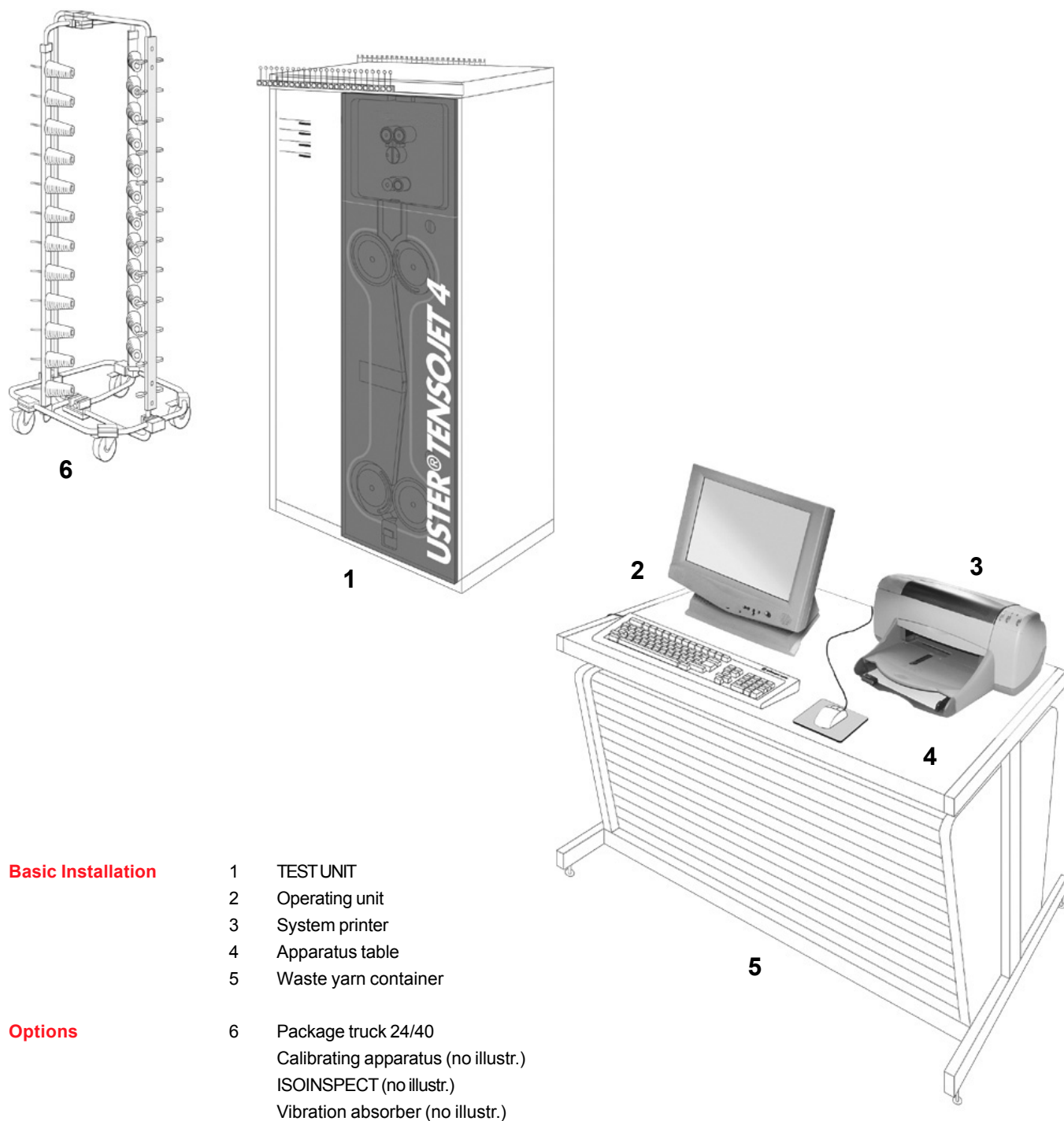
October 2003

USTER®
Think quality

THE WEAVABILITY™ MEASUREMENT SYSTEM

Digital high performance tensile testing installation for analyzing complete yarn lots, trade-out and trade-in of yarns

System Configuration



Basic Installation

- 1 TEST UNIT
- 2 Operating unit
- 3 System printer
- 4 Apparatus table
- 5 Waste yarn container

Options

- 6 Package truck 24/40
Calibrating apparatus (no illustr.)
ISOINSPECT (no illustr.)
Vibration absorber (no illustr.)

Basic Installation

Overall Installation

Functions:

- Measurement of tensile strength and elongation of staple fiber yarns.
- Collection, evaluation and storage of measurement values and diagrams.
- Automatic check of all measured values.
- Yarn classification based on the USTER® STATISTICS.
- Editor for customizing report layouts.
- Filter functions for quick data retrieval and for the preparation of long-term reports.

Included in the delivery:

- Operating unit
- Table with integrated waste-box
- Screen, keyboard and mouse
- System printer
- Application software
- Backup unit

TEST UNIT (1)

General instrument type:

- Recommended for staple fiber yarns 5 – 150 tex (Nm 7 to 200; Nec 4 to 119).
- Special staple fiber yarns on request: especially for linen yarns, plied yarns, waxed yarns, silk yarns, slub or fancy yarns, high-volume yarns.

Measuring principle:

Constant rate of extension CRE

Testing method:

Simple tensile test.
Testing capacity 30'000 per hour at 400 m/min testing speed.

Force measuring arrangement:

Practically inertialess electronic force measurement.

Elongation measuring arrangement:

Electronic elongation measurement.
Measuring accuracy for force and elongation measurement, ± 1 cN or $\pm 1\%$.

Clamp speed:

200 and 400 m/min

Pre-tension:

Adjustable between 5 and 500 cN (approx. 5 to 500 p)

Test lengths:

500 mm (necessary yarn length 800 mm/break)

Force measuring range:

0.7 – 50 N (0.07 – 5 kp)

Elongation measuring range:

3 to 70%

Yarn changer:

Device for the automatic changing of the yarn taken from up to 24 packages.

THE WEAVABILITY™ MEASUREMENT SYSTEM

-
- Operating Unit (2)**
- Personal computer with Microsoft Windows 2000 and USTER® *TENSOJET 4* specific hard- and software installed in the USTER® *TENSOJET 4*.
 - Power supply for the overall USTER® *TENSOJET 4* installation.
 - User interface: 15" Flatscreen, US ASCII keyboard, 3 key-mouse.
 - Backup unit: 2 GB storage capacity for the data backup.

System Printer (3) *Minimal configuration:* Ink-jet color printer, actual HP DeskJet printer.

Application Software

Reports	<i>Type of report:</i>	<ul style="list-style-type: none">• Test reports of measurement series.• USTER® Quality Report (summary of the key data and the test results on one page; quality certificate).• USTER® QualiProfile™ (graphic representation of the overall yarn quality, with respect to the USTER® <i>STATISTICS</i> or to customer-specific yarn profile).• Long-term reports.
	<i>Possible representations:</i>	<ul style="list-style-type: none">• Pre-configured standard reports for different applications.• Editor for the definition of customer-specific reports.
	<i>Display and print-out of the reports:</i>	Choice of: <ul style="list-style-type: none">– automatic– only in exceptional situations– as required
	<i>Limit values:</i>	<ul style="list-style-type: none">• Determination of fixed limit values or definition of limit values based on the USTER® <i>STATISTICS</i> stored in the system.• Verification of measured values.• Measured values which exceed the set limits values will be marked.

Numerical Output of Results	<i>Breaking force:</i>	Maximum force value measured during the tensile test.
	<i>Breaking elongation:</i>	Elongation at maximum breaking force value.
	<i>Tenacity:</i>	Breaking force in relation to the yarn count of the sample.
	<i>Breaking work:</i>	Work done to break (enclosed area below the force/elongation characteristic curve up to the point of breaking force).

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Statistical Values	<i>Type of report:</i>	Overall results protocol with statistical data of the results columns.
	<i>Statistical values:</i>	<ul style="list-style-type: none">• Mean value• Standard deviation s• Coefficient of variation CV• 95% confidence range Q95• Minimum value• Maximum value• Percentage values – 0.01 / 0.05 / 0.1 / 0.5 and 1% of the total breaks are smaller or equal to the indicated B-force, elongation or B-work.• Number of isolated weak places• USP (USTER® STATISTICS percentage)• UTRexp (expected traditional tensile value USTER® TENSORAPID, testing speed: 5 m/min, test length: 500 mm).
	<i>USTER® STATISTICS:</i>	<ul style="list-style-type: none">• Material-dependent USTER® STATISTICS are stored in the data-base.• Application:<ul style="list-style-type: none">– for the comparison of measured values with the USTER® STATISTICS– setting of limit values based on the USTER® STATISTICS

Graphic Output of Results	<i>Stroke diagram:</i>	<ul style="list-style-type: none">• Available for breaking force and elongation.• Individual values can be selected with the aid of the cursor directly on the screen.
	<i>Frequency distribution diagram:</i>	Available for force and elongation.
	<i>Force/elongation scatter plot:</i>	<ul style="list-style-type: none">• Contains the B-force and B-Force elongation measurements of a package.• Individual points in the scatter plot can be selected with the aid of the cursor directly on the screen and the B-force and B-force elongation values will be displayed.
	<i>Spectrogram:</i>	Available for force and elongation.

Data Storage	<i>Data protection:</i>	<ul style="list-style-type: none">• The data are stored on the hard disk.• For long-term storage, the data can be archived on a backup unit and presented again as required at a later date.• All settings, measurement values and diagram are stored.
	<i>Memory capacity:</i>	500'000 measurements per test series.

Input of Data, Output of Results, Languages, Units	<i>Dialog and report languages:</i>	English, German, French, Italian or Spanish can be selected via the operating menu (other languages on request).
	<i>Possible units:</i>	<ul style="list-style-type: none">• Force values: DN, N, cN, kgf, gf, lbf, ozf• Yarn count: ktex, tex, dtex, denier, Nm, Nec, Nel, New, grn/yd, Y.S.W.• Tenacity: mN/tex, cN/tex, gf/denier, Rkm, CSP, MPA

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Selftest	<i>Function check:</i>	<ul style="list-style-type: none">• Initiated automatically when the installation is switched on.• Comprehensive function check and special test programs can be initiated at any time via the diagnosis menu.
	<i>Calibration:</i>	<ul style="list-style-type: none">• The inspection and calibration can be performed by the local service station.
	<i>Checking of the measuring accuracy:</i>	<ul style="list-style-type: none">• The measuring accuracy is checked by means of the ISOINSPECT by the local service station.• The measuring accuracy of the installation can be checked by the local service station.
	<i>Overhaul intervals:</i>	General overhaul after approx. 100 million tests.

General

General Ambient Conditions	<i>Room climate:</i>	The ambient conditions must be maintained in order to avoid any influencing of the test material. <ul style="list-style-type: none">– Relative humidity: (65±2)% relative humidity– Temperature: according to ISO 139-1973 or DIN 53 802 (20±2) °C for temperate climates, (27±2) °C for tropical climates
	<i>Max. conditions:</i>	80% relative humidity, non-condensing Temperature >+10 °C and <30 °C

Installation Data	<i>Electrical connection:</i>	Single-phase mains with protective conductor
	<i>Nominal voltages:</i>	200 to 250 VAC; ±10% (12.6 A), 100 to 145 VAC; ±10% (6.3 A)
	<i>Mains frequency:</i>	49 or 62 Hz
	<i>Power consumption:</i>	Approx. 1'000 VA (all units and motors switched on)
	<i>Compressed air consumption:</i>	40 m ³ /h with normal pressure (atmospheric pressure)
	<i>Compressed air connection:</i>	<ul style="list-style-type: none">• Air quality: according to ISO 8573.1, class 3• Min. pressure at inlet of air filter regulator: 6 bar• Max. pressure at inlet of air filter regulator: 7 bar
	<i>Dew point:</i>	2 to 3 °C or lower at atmospheric pressure
	<i>Oil content:</i>	Oil-free, or residual oil content <1 mg/m ³
	<i>Solids content:</i>	<5 mg/m ³ , particle size <5 mm
	<i>Noise level of the suction nozzle:</i>	Approx. 70 dB(A) at 1 m distance, depending on the yarn count noise can be more quiet.

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Weight of the Installation

TESTER: 180 kg

Table with waste yarn container: 60 kg

Space required for the USTER® TENSOJET 4

