USTER® TENSOJET 5

The WEAVABILITY™ measurement system

Technical Data

February 2023

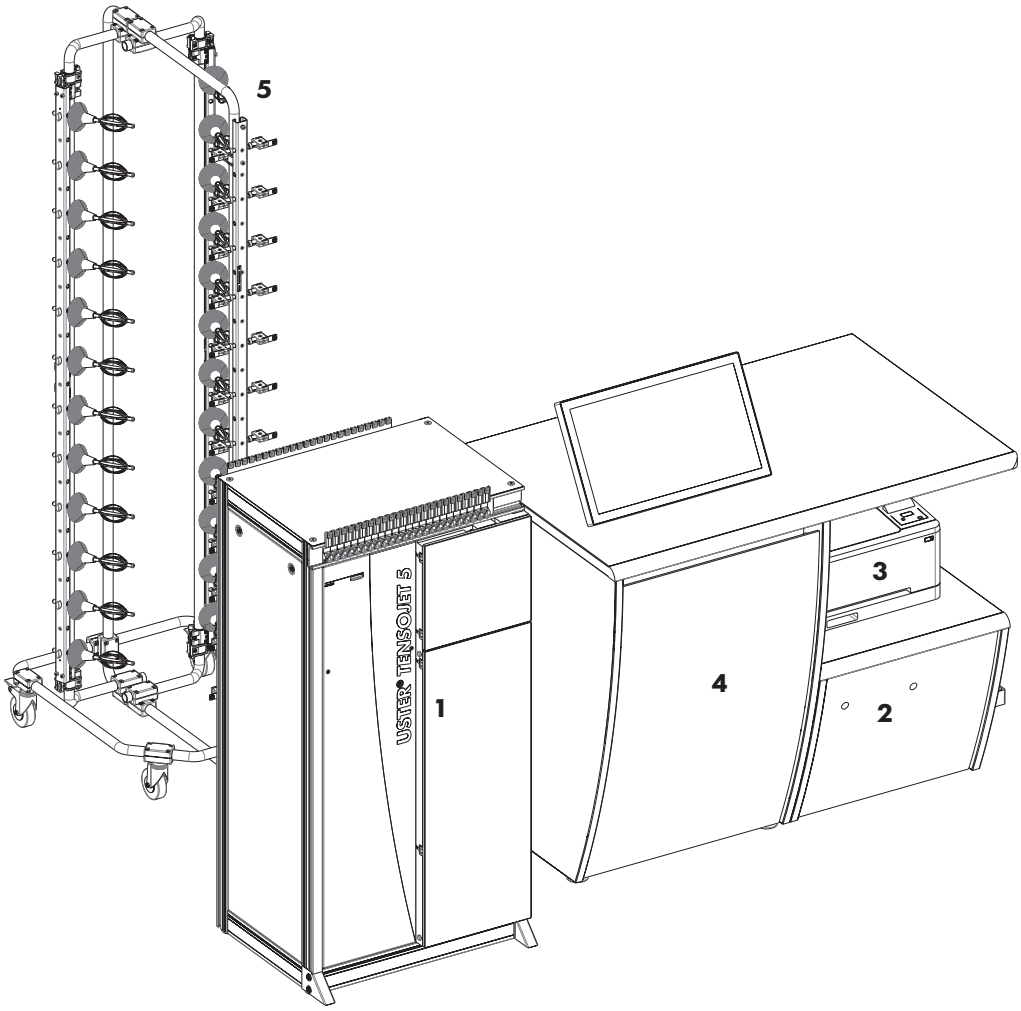
USTER®
Think quality

USTER® *TENSOJET 5*
The WEAVABILITY™ measurement system

High performance tensile instrument gives a precise forecast of yarn runability for high performance processes with a testing speed of 400 m/min.

Elements

of the Uster Tensojet 5 installation



Basic installation

1 Test unit
– Sensor for force and elongation
– Sensor temperature and humidity
2 Control unit
3 Printer provided by the customer
4 Table with touchscreen and integrated waste box

Options

5 Package truck

Basic installation

Overall Installation

Functions

- Measurement of tensile strength and elongation of staple fiber yarns
- Analysis, evaluation and storage of measurement values
- Automatic check of all measured values
- Yarn classification based on the Uster Statistics
- Editor for customizing reports and setting of mill limits
- Filter functions for quick data selection and for the preparation of long-term reports

Included in the delivery

- Test unit
- Control unit
- Touchscreen
- Application software
- Table

Subsystem of the Uster Tensojet 5 basic version:

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: espacially for linen yarns, plied yarns, waxed yarns, technical yarns, silk yarns, slub or fancy yarns, high-volume yarns
- It is not recommended to measure core 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: for force ±1% (above 100 cN) or ±1 cN (below 100 cN), and for elongation ±1%

Clamp speed

200 and 400 m/min

Pre-tension

Adjustable between 5 and 500 cN

	Test lengths	500 mm (necessary yarn length 800 mm/break)
	Force measuring range	0.7 – 30 N
	Elongation measuring range	3 – 30%
	Yarn changer	– Automatic selection of the yarn from the sample into the measuring zone – Setup of 24 samples, finishing of the incomplete test after end of the test
Control unit (2)	**Computer software**	– Uster Tensojet 5 intuitive touch application software – Windows operating system – System pre-configured and locked down – Simple full system update process
	Computer hardware	– Industrial computer with Intel processor – 3 internal hard drives for data security and system redundancy – 1 TB test data storage
	Computer accessories	– Large easy to read touchscreen monitor

Application software

Reports	**Type of report**	– Standard test report of the measurement series – Uster Quality Report (summary of the key data and the test results on one page; quality certificate) – Pre-defined table reports and graphical reports for different application – Long-term reports
	Display and printout of the reports	Live view report during the measurement – Analysis tool with all measured data and graphical output – Smart view report for exceptions and outliers – Automatic printout possibility after the measurement
	Limit values	Setting of customized limits according to the Uster Statistics, standard deviation, relative and absolute count – Automatic verification of the measured value – Measured values which exceed the limit will be marked with red or purple color in the report
Numerical results	**Breaking force**	Maximum force value measured during the tensile test
	Breaking elongation	Elongation at maximum breaking force value
	Tenacity	Breaking force in relation to the yarn count of the sample
	Breaking work	Work done to break (enclosed area below the force/elongation characteristic curve up to the point of breaking force)
Statistics	**Statistical values**	– Mean value – Standard deviation s – Coefficient of variation CV – Q95% confidence interval – 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 force, elongation and work – Number of isolated weak places – USP™ (Uster Statistics Percentile) – UTRexp (expected traditional tensile value Uster Tensorapid, testing speed: 5 m/min, test length: 500 mm)
	Uster Statistics	– Comparison of measured values with the Uster Statistics – Material-dependent Uster Statistics are stored in the data-base – Setting of limit values based on the Uster Statistics

Graphic output of results	**Stroke diagram**	Available for breaking force and elongation
	Histogram	Available for force and elongation
	Force/elongation scatter plot	– Show all single measurements as individual points in scatter plot – Easier detection of the saple due to different colors
	Spectrogram	– Available for force and elongation – Pre-condition: needs 200 within tests per sample
Data protection	**Backup**	Automatic backup to dedicated internal hard drive every 15 minutes
Input of data, output of results, languages, units	**Dialog and report languages**	English, German, French, Italian, Spanish, Portuguese, Turkish, Russian, Chinese or Japanese can be selected (other languages on request)
	Possible units	– 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
System security	**Protection function**	– System protected from viruses, network and other security threads – Remote support capabilities built in – Diagnostic tools with extensive event logging – Automated system recovery

General

General ambient conditions	**Room climate**	The ambient conditions must be maintained in order to avoid any influencing of the test material according to ISO 139 (2015) – Humidity: 65±4% – Temperature: 20±2 °
Installation data	**Electrical connection**	Single-phase mains with protective conductor
	Mains voltage range	100 – 240 VAC
	Mains frequency	50/60 Hz
	Power consumption	Maximum 1,000 VA (all units and motors switched on)
	Compressed air consumption	40 m3/h with normal pressure (atmospheric pressure)
	Compressed air connection	– 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: 10 bar
	Dew point	2 to 3 °C or lower at atmospheric pressure
	Oil content	Oil-free, or residual oil content <1 mg/m^3
	Solids content	<5 mg/m^3, particle size <5 mm
	Noise level of the suction nozzle	Maximum 70 dB(A) at 1 m distance, depending on the yarn, count noise can be lower
Weight of the installation	**Tester**	153 kg
	Table with waste yarn container	103 kg
	Complete system	290 kg

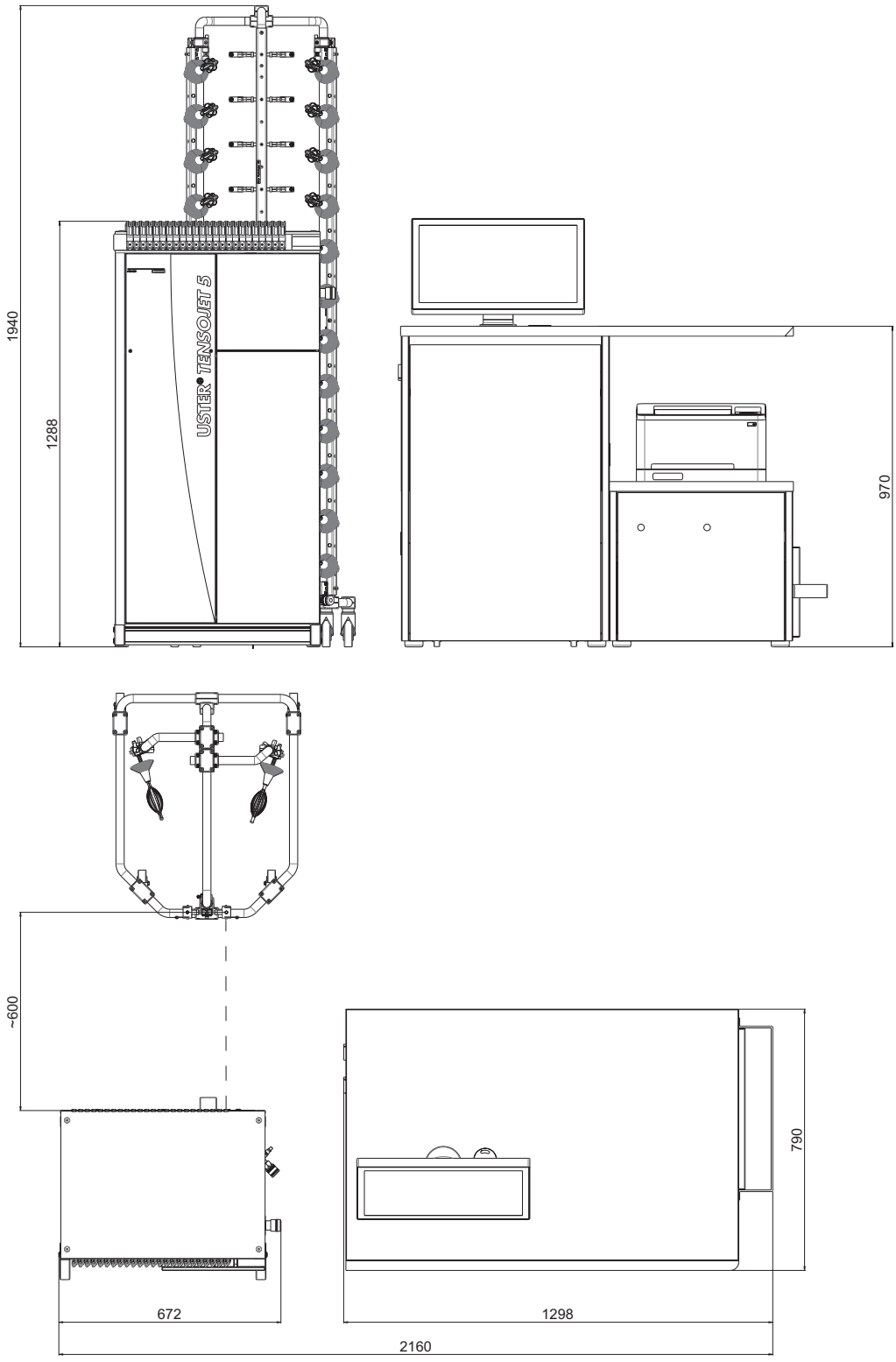
Uninterrupted power supply (UPS)

UPS must be provided by the customer

	UPS Model	Tower
	UPS Bypass Type	ON-Line
Electrical Input	**Nominal Voltage**	120 VAC, 220 – 240 VAC
	Voltage range 120 VAC	90 – 138 VAC
	Voltage range 230 VAC	160 – 276 VAC
	Frequency	50/60 Hz
Output	**Nominal Output Voltage**	120 VAC, 230 VAC
	Power Capacity	1,500 VA (1.5 kVA)/1,350 W
	Voltage regulation	+/-3%
Enviroment	**Safety markings 120/208 V**	UL, CUL, VCCI
	Safety markings 230 V	CE, GS
	Ambient operating temp.	Laboratory condition are acceptable
	Relative humidity	Laboratory condition are acceptable

Note: It is not permitted to connect a Laser Printer.

Space required for
the Uster Tensojet 5



Uster Technologies has made all possible efforts to ensure that all information is accurate at the time of publication. Hereby it is declared that alterations to the product may be possible at any time. In these cases the information contained in this technical datasheet is subject to change without notice.

February 2023

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