

TXL-KMS-001 / 27 October 2026 · One-year manufacturer warranty

Fabric Tensile Strength Tester

Measures breaking force and elongation of fabrics and similar materials using an electronic load cell. Grips, load cell and capacity are selected for the test method.



Model technical data

1	The maximum strength is 5 kN or 50 kN.
2	The device has lengthening measurement features (with 0,01 mm precision).
3	The device's measurement is electronic load cell.
4	The movement length except for jaws is 1000mm.
5	USB connection data output is standard.
6	The computer, program and printer is optional.

Physical specifications and utilities

Electrical supply	Approx. 220–240 V AC, 50/60 Hz, single phase; build-dependent.
Power / connected load	Approx. 400–1000 W connected load for preliminary planning.
Overall instrument dimensions	Approx. 700 × 600 × 1800 mm (W × D × H).
Instrument weight	Approx. 100–180 kg net.
Gross / shipping weight	Approx. 135–250 kg gross; estimated packing allowance.
Interfaces	USB connection data output is standard.
Lab requirements	Compressed air for pneumatic grip option; grip interface and safety clearance depend on the host machine.

Dimension order and approximate values are stated in each row. Packaging data are separate from instrument dimensions and net mass. Approx. rows are preliminary engineering estimates based on comparable equipment and function/capacity; they are not verified manufacturing measurements or standard requirements. Installation and shipment are finalised against the approved drawing and nameplate. Estimate scope: base product / one unit; external computer, bench and auxiliary plant excluded.

Specifications, dimensions, and power requirements are approximate and subject to change without prior notice for continuous design improvements.

Product technical specifications and images may vary according to manufacturing conditions and applicable standards.

Test and configuration

Measured output / function	Breaking force (N), elongation (%)
Parameters selected for the method	Grip type, gauge length, test speed and load cell
Verification points	Force, displacement and speed verification

Control and recording specification

Method-specific software and recording requirements follow. Delivered software modules are defined by the order scope.

- Method code and edition, specimen ID, operator and selected test parameters are linked to the record.
- Force-extension curve; strain = $100 \times (L - L_0) / L_0$; crosshead and extensometer results are identified separately.
- Raw measurements, units, valid/invalid test flags and the reported result remain traceable.
- Calculations are checked against known inputs and an independent calculation; sensor channels are checked against calibration values.

Related test methods

NEXT TM 16 · ASTM D2212 · ISO 11644 · ASTM D2261 · ISO 13937-4 · ASTM D2724 · ISO 13937-3 · ASTM D5034 · ISO 5081 · ASTM D5587 · ISO 13937-2 · ASTM D5735 · ISO 4674-1 · ASTM D5035 · ISO 13934-1 · ISO 13934-2 · ISO 13935-1 · ASTM D5822 · EN 14704-1 · NEXT TM 36 · ISO 3376 · NEXT TM 27 · NEXT TM 25 · BS 3424-5

Listed methods are application references. Suitability is established by assessing hardware, method edition and calibration together.

Historical method references: ISO 5081, ASTM D5735, EN 14704-1, BS 3424-5

Test parameters for the reviewed method

The values below were reviewed in selected clauses of the stated source edition. They are not a declaration of equivalence to a later edition or independent instrument verification.

ISO 13934-1:2013 / 6.1.3-6.1.5 / 8.2

1	Force error: no greater than $\pm 1\%$ in the working range; jaw-separation error: no greater than ± 1 mm.
2	CRE rates: 20 and 100 mm/min, $\pm 10\%$; gauge lengths: 100 and 200 mm, ± 1 mm.
3	Preferred strip specimen width: 50 ± 0.5 mm; other widths require agreement and reporting.

EN ISO 13934-2:1999 / TS EN ISO 13934-2:2002 / 6.1.3-6.1.6

1	Grab test: speed 50 mm/min $\pm 10\%$; gauge length 100 ± 1 mm or 75 ± 1 mm by agreement; effective gripping area $(25 \pm 1) \times (25 \pm 1)$ mm. Force error no greater than $\pm 1\%$ in the range used.
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ISO 13935-1:2014 / 6.1, 9.1-9.2

1	Seam strip test: gauge length 200 ± 1 mm; speed 100 mm/min $\pm 10\%$; force error no greater than $\pm 1\%$. Jaws must not be narrower than the specimen and should preferably be at least 60 mm wide.
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EN ISO 13937-2:2000 / TS EN ISO 13937-2:2002 / 6.2, 8.2, 9

1	Trouser tear: speed 100 ± 10 mm/min and gauge length 100 ± 1 mm. Narrow specimen $(200 \pm 2) \times (50 \pm 1)$ mm; initial slit 100 ± 1 mm. Force and jaw-separation errors no greater than $\pm 1\%$ and ± 1 mm respectively.
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TS EN ISO 13937-3:2002 / 6.2, 9

1	Wing tear: speed 100 ± 10 mm/min, gauge length 100 ± 1 mm; jaw width preferably 100 mm and at least 75 mm. Specimen mounted at 55° according to the method geometry.
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EN ISO 13937-4:2000 / TS EN ISO 13937-4:2002 / 6.2, 9

- 1 Double tear: speed 100 ± 10 mm/min, gauge length 100 ± 1 mm. Jaws must not be narrower than the specimen and should preferably be 200 mm wide; double-tear peak evaluation is stored as a separate recipe.

ASTM D2261-96 (2002) / 6.1-6.2

- 1 Tongue tear uses a CRE tensile tester with force recording. Jaw faces at least 25×75 mm with the long dimension perpendicular to force; record specimen slip and jaw damage as invalidity flags.

ASTM D5034-95 / 6.1, 10.1.2

- 1 Grab-test initial jaw spacing 75 ± 1 mm. Record 300 ± 10 mm/min fixed speed and 20 ± 3 s time-to-break as separate options; these differ from the 50 mm/min ISO 13934-2 recipe.

ASTM D5035-95 (2003) / 6.1-6.2.1

- 1 Strip method uses 300 ± 10 mm/min or a selected constant time-to-break of 20 ± 3 s. Jaw face at least 10 mm wider than the specimen and at least 25 mm long in the force direction.

EN 14704-1:2005 / TS EN 14704-1:2006 / 6.1

- 1 Elasticity CRE arrangement accommodates 20-500 mm/min within $\pm 10\%$ and gauge lengths 100-250 mm within ± 1 mm. Force and jaw-separation error limits 1% and 1 mm respectively; record cycling between load or extension limits.

ASTM D2724-03 / 6.10

- 1 For the tensile subtest of bonded/laminated apparel fabrics, clamp width is 76.2 mm and CRE is preferred. This edition prefers a 0–4.5 kgf indicating range. Record separation setup and force range; drycleaning and laundering are separate preparations.

ASTM D5587-03 / 6.1–6.2, 8.2–8.3

- 1 For trapezoid tearing use CRE, initial jaw separation 25 ± 1 mm and speed 300 ± 10 mm/min. Gripping faces are at least 50 by 75 mm, long side perpendicular to force. Distinguish the 100 mm/min ISO nonwoven trapezoid setting.

ASTM D5735-95 (2001) / 6.1–6.3

- 1 Use a force-recording CRE tester for nonwoven tongue tearing. Flat parallel non-slip gripping faces are at least 25 by 75 mm, long side perpendicular to force. Distinguish the recommended pneumatic/hydraulic setup from minimum face dimensions.

ASTM D5822-03 / 6.1–6.2

- 1 For inflatable-restraint seams use 300 ± 10 mm/min or the selected 20 ± 3 second time-to-break procedure; report the option. Front jaw width perpendicular to force is 25 ± 1 mm, with 25–50 mm along force. CRE is preferred; record failure location.

ISO 3376:2020 / 5.1-5.4, 7.5

- 1 Leather tensile test: class 2 force system, jaw speed 100 ± 20 mm/min and gripping length at least 45 mm. Slip must not exceed 1% of initial gauge length; determine thickness and cross-sectional area using the leather method.

ISO 4674-1:2016 / GOST ISO 4674-1:2021 (IDT) / 4, 8, 10

- 1 Constant-rate coated-fabric tearing: CRE machine, force recording and electronic sampling at least 8 Hz. Jaw speed 100 ± 10 mm/min, initial separation 100 mm; choose grip width for the clamped tongue/trouser section. This differs from pendulum propagated tearing.

ISO 11644:2022 / 5.1-5.5

- 1 Leather-finish adhesion: jaw separation 100 ± 5 mm/min and force-distance recording. Use an adherent plate approximately $70 \times 20 \times 3$ mm and a hook/clamp arrangement maintaining about 90° peel; general tensile grips alone are insufficient.

ISO 5081:1977 / 5.1.2-5.1.4

1	Fabric tensile method: force indication error at most 1%, jaw-separation error at most 1 mm. Nominal gauge length 200 mm; 100 mm may be selected for fabrics with breaking elongation over 75%. Record machine type and selected gauge length.
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ASTM D2212-00(2021) / 5.1–5.4, 6.1–6.2; required fixture figures not available locally

1	2021 edition: leather slit tear requires two special holders adjusted to touch. Die 1 × 2 in (25.4 × 51 mm); slot 7/16 × 3/16 in. Inch values govern. Missing figures/full text prevent holder-manufacturing or current-edition conformity verification.
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BS 3424-5:1982 / 2.1.1, 2.4, 3.1, 3.4, 4.1; methods 7A/7B/7C

1	1982 method: low-inertia CRT tensile machine, 100 ± 10 mm/min, force error ≤±1%. Methods 7A/7B: initial jaw spacing 100 mm, tearing travel at least 60 mm. Keep 7A median and 7B maximum-force analysis distinct. Equivalence with a modern CRE machine needs separate verification.
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