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Grip Systems for Universal Tensile Testers

Pneumatic and manual fabric grips with interchangeable jaw faces for textile specimens: 35 × 105 / 155 / 200 mm flat rubber and grooved aluminium faces, inclined rubber faces for trapezoid tear, 25 × 25 mm grab face, 82 and 125 mm loop bar sets and manual yarn grip. ISO 13934-1/-2, ISO 13935-1/-2, ISO 9073-3/-4/-18, ASTM D5034/D5035/D5587, EN 14704-1, ISO 2062.



Model technical data

1	Pneumatic fabric grip (UMT-PG-SET) and manual fabric grip (UMT-MG-SET): 2 grips / set, supplied with 35 × 105 mm flat rubber faces (4 pcs).
2	Flat rubber and grooved aluminium faces: 35 × 105, 35 × 155, 35 × 200 mm (4 pcs / set); ISO 13934-1, ISO 13935-1, ISO 9073-3, ASTM D5035.
3	Inclined rubber faces (35–72.5 × 105 mm) for trapezoid tear: ISO 9073-4, ASTM D5587.
4	25 × 25 mm grab face: ISO 13934-2, ISO 13935-2, ISO 9073-18, ASTM D5034.
5	82 and 125 mm loop bar sets (Ø8 mm, max. 200 N): EN 14704-1 Method B, ASTM D4964, BS 4952.
6	Manual yarn grip (Ø11 mm max.): brass guide roller, V-groove; ISO 2062, ASTM D2256.

Physical specifications and utilities

Electrical supply	Manual / passive base apparatus; no mains supply assumed.
Power / connected load	Approx. 0 W connected load for preliminary planning.
Overall instrument dimensions	Approx. 200 × 150 × 300 mm (W × D × H).
Instrument weight	Approx. 2–15 kg net.
Gross / shipping weight	Approx. 12.2–28.8 kg gross; estimated packing allowance.
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: one grip / grip set; host tensile machine 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 × $(L-L_0)/L_0$; 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

ISO 13934-1 · ISO 13934-2 · ISO 13935-1 · ISO 13935-2 · ISO 9073-3 · ISO 9073-4 · ASTM D5034 · ASTM D5035 · ASTM D5587 · EN 14704-1 · ISO 2062

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

Historical method references: EN 14704-1

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 ±1% in the working range; jaw-separation error: no greater than ±1 mm.
2	CRE rates: 20 and 100 mm/min, ±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 ±10%; gauge length 100 ± 1 mm or 75 ± 1 mm by agreement; effective gripping area (25 ± 1) × (25 ± 1) mm. Force error no greater than ±1% in the range used.

ISO 13935-1:2014 / 6.1, 9.1-9.2

1	Seam strip test: gauge length 200 ± 1 mm; speed 100 mm/min ±10%; force error no greater than ±1%. Jaws must not be narrower than the specimen and should preferably be at least 60 mm wide.

ISO 13935-2:2014 / 6.1, 9.1-9.2

1	Seam grab test: gauge length 100 ± 1 mm; speed 50 mm/min ±10%; gripping area (25 ± 1) × (25 ± 1) mm; force error no greater than ±1%.

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 ±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 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.

TS EN ISO 9073-4:2002 / EN ISO 9073-4:1997 / 4, 6.1–6.2, 7.2

1	For nonwoven trapezoid tearing use specimens 75 ±1 by 150 ±2 mm, five per direction. Initial jaw separation is 25 ±1 mm, speed 100 mm/min, with break at 10–90% full scale. This setting differs from ASTM D5587 speed.

ISO 9073-3:1989 / TS EN 29073-3:1996 / 5-9

1	Nonwoven strip tensile method: CRE machine, strip 50 ± 0.5 mm, gauge length 200 ± 1 mm and speed 100 mm/min; five specimens per direction. Record breaking force and elongation together; assess jaw breaks separately. Equivalence to a later edition is not assumed.