

KES-FB1-A

Tensile and Shear Tester

The KES-FB1-A Tensile and Shear Tester analyzes hand movements—referred to as “tensile” and “shear”—performed by artisans and professionals when judging a fabric’s texture. This device performs these movements mechanically, making it possible to obtain objective numerical data.

Obtainable data includes tensile/shear rigidity, tensile energy, elongation rates, and recoverability for such targets as cloth, paper, non-woven fabric, and film.

Tensile and shear characteristic data is useful for determining stiffness and anti-drape stiffness. These properties often influence form stability and the tendency for wrinkles.

**Measurement
Sample Example**

General fabric, Fabric, Medicinal fabric,
Car seats, Interior fabric, Non-woven fabric,
Film-like samples



FEATURES

● **Improved data accuracy**

Sample slack is removed through motor chucking and clamping, eliminating errors caused by the user and thus improving the accuracy of data.

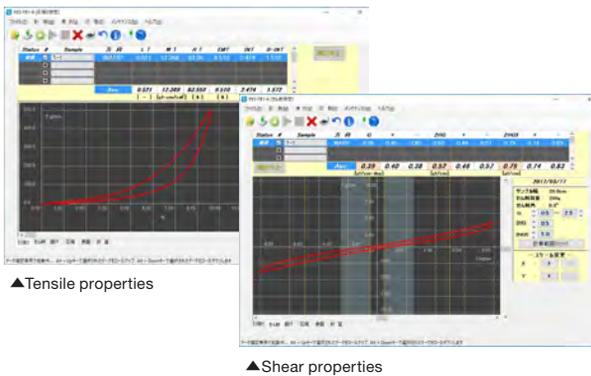
● **Detection resolution: 0.01**

The KES-FB1-A makes it possible to quantify minute differences in tensile and shear properties.

SYSTEM CONFIGURATION DIAGRAM / MEASUREMENT DATA



Sample Measurement Software Screens



Obtainable Data

Item	Characteristic value	Description	Reading the data
Tensile properties	LT	Tensile rigidity	Values closer to 1 mean firmer tensility
	WT	Tensile energy	Higher values mean greater stretchability
	RT	Tensile recoverability	Values closer to 100 mean better recoverability
Shear properties	G	Shear rigidity	Higher values mean harder shearing
	2HG	Elasticity for minute shear	Higher values mean poorer recoverability from initial shear deformation
	2HG5	Elasticity for large shear	Higher values mean poorer recoverability

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Dimensions/Weight (approx.)	Measuring unit: W610 × D535 × H320 (mm) / 45 kg Amplifier: W230 × D450 × H500 (mm) / 20 kg
Power source	100 VAC, power consumption: 40W Max.
Measurement environment temperature and humidity	20 to 30°C / 50 to 70% RH. (No condensation.) Temperature and humidity should be kept constant during measurement. (Standard temperature and humidity conditions: 20°C / 65% RH) *The instrument should be located to minimize influence from wind or vibrations.
Measurement operation	Tensile measurement: Load control method Shear measurement: Deformation control method
Tensile load detection	Detector: Resistance wire strain gauge type Load (full scale): (standard conditions) 50 kg, (high-sensitivity conditions) 20 kg Standard conditions: 10 kgf (500 gf/cm) High-sensitivity conditions: 1 kgf (50 gf/cm) *Other selections for measurement condition available Tensile strength during shearing (standard conditions): 200 gf (10 gf/cm) (selections for measurement conditions): 100 to 1000 gf (100 gf increments) Accuracy: ±0.5% or less of full scale

Tensile strain detection	Detector: Potentiometer Stretch amount: 2-step switchable, Max. 25 mm (50% tension) / 50 mm (100% tension) Accuracy: ±0.5% or less of full scale
Tensile deformation rate	0.05 to 0.5 mm/sec (0.05 mm/sec increments)
Shear load detection	Detector: Ring-type detector with differential transformer Load (full scale): (standard conditions) 2 kg Accuracy: ±0.5% or less of full scale
Shear strain detection	Detector: Potentiometer Shear angle: Max. 8° (50 mm × tan 8° = approx. 7 mm) Standard condition: ±8° Selections for measurement condition: ±0.8 to 8° (0.8° increments) Accuracy: ±0.5% or less of full scale
Shear deformation rate	Constant
Sample size	Dimensions: 200 × 200 mm (standard) Thickness: 2 mm (max.)

⚠ Caution For safety use, please read the operation manual / the instruction carefully and thoroughly before using the tester.

Specification details recorded here are subject to change without notice.
We appreciate your understanding.

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