Friability Tester

Vollstädt diamant

Toughness Index (TI)

Friability Tester

The Friability Tester measures the impact strength value (Toughness Index - TI) of diamonds. This method is often used to obtain a general assessment of a diamond sample's quality.

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More than just one value.
Toughness Index (TI).

The Toughness Index represents a diamond characteristic that cannot be directly measured through physical parameters. Instead, it must be assessed in relation to the average combinations of hardness and resiliency of a limited number of diamond grains considered a representative sample of the material being analyzed.

Two Versions.
ST 1 & ST 4.

There are two versions of the Friability Tester. The ST1 is designed specifically for testing industrial diamond. The ST4 allows for the selection of four different mechanical loads.

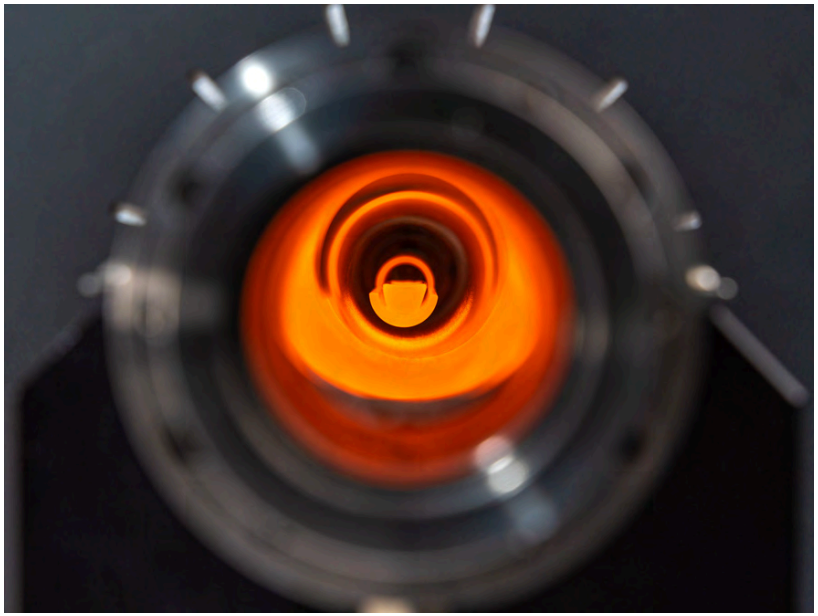
Both versions of the Friability Tester feature a specialized mechanism to apply the necessary forces to the samples using steel balls. The number of cycles can be preset for precise control.

Friability Tester

Shake it Baby.
Operating Principle.

A well-sieved 2 cts. diamond sample is shaken in a specialized capsule with a steel ball. The number of cycles varies based on the grain size. The process may partially crush the diamonds. The Toughness Index (TI) is calculated as the percentage of undamaged grains.

Additionally, the Friability Index (FI) can be determined based on the number of cycles needed to crush 50% of the grains.



Taking it a Step Further.
Thermal Toughness Index (TTI).

For measuring the Thermal Toughness Index (TTI), we recommend using our DiaHeat v4 device, a specialized furnace engineered for heating diamond in a protective gas environment.

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Friability Tester

Technical Data.

Version ST 1	For Diamonds for working stones
Version ST 4	For • Diamonds for stoneworking • Diamonds for mechanical applications • CBN (Cubic Boron Nitride) • Diamonds for glassworking and polishing
Measurement	500 ... 7,000 (shaking cycles)
Measurement range	Grain size: 325/400 ... 18/20 US-Mesh
Duty cycle	20 % max. working duty cycle
Shaking frequencies	ST 1: 1, ST 4: 4
Power supply	230 V A.C. (50 Hz) or 110 V A.C.
Power input	max. 420 W
Protection class	IP 54
Dimensions	465 x 225 x 195 mm
Weight	ca. 35 kg
Recommended accessories (not included, available separately)	Measurement capsules, Steel balls, Sieves (electroformed), Analytical sieve shaker, Electronic scales

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