

**Background**

Tear resistance, also known as tear strength, is a crucial mechanical property of materials. It serves as a measure of a material's ability to withstand the forces and effects of tearing or being torn apart. This property is significant in engineering and materials science as it provides valuable insights into a material's durability and performance under various conditions.

Tear resistance can be assessed using various test methods, making it a versatile parameter for evaluating a wide range of materials. These tests help determine how well a material can resist tearing forces and are essential for ensuring the quality and suitability of materials

Application

The SLD-01 tear tester, named after inventor Armin Elmendorf, measures tear resistance by determining the average force, typically in grams or millinewtons (mN), needed to tear a sample after initiation. This is achieved by tearing one or more material sheets over a fixed distance using a pendulum mechanism. The energy expended in tearing is measured by the pendulum's potential energy loss. This test assesses a material's tear strength, aiding in its suitability for applications requiring durability.

Test Process

A cutting knife in the tester is used to create a slit that ends 43mm from the far edge of the sample. Then a pendulum mechanism is released under the influence of gravity, propagating the existing slit through the remaining 43mm of the sample. During this process, the amount of energy lost by the pendulum during the tear propagation is then used to calculate the average tearing force.

Technical Features

- **PLC Control and HMI Touch Screen:** industrial-level programmable logic controller (PLC) and Human-Machine Interface (HMI) touch screen, ensuring precision and ease of use.
- **Standard Conformance:** All components and parts strictly adhere to industry standards, ensuring consistency and reliability in testing.
- **Calibration Capability:** The tester includes a weight for checking and calibrating different test ranges.
- **Paper-Focused Features:** For users working with paper materials, the option to add units of millinewtons (mN) and tear index parameters is available.
- **Wide Test Range:** The tester offers a broad test range, accommodating various materials.
- **Pneumatic Specimen Clamping:** ensuring secure and consistent gripping of the test material, which is essential for accurate and repeatable results.
- **Pendulum Automatic Release:** simplifying the testing process and ensuring consistent test execution.
- **Data Auto Statistics:** automatically collects test data, as well as store test results.
- **Microprinter:** The built-in microprinter allows for immediate printing of test results.
- **RS-232 Port and Professional Software(Optional):** enhances data analysis and reporting capabilities

Major Standards

ASTM D1922, ASTM D1424, ASTM D689, ISO 6383, ISO 1974

Main Parameters

| | |
|-----------------------|----------------------------|
| Pendulum Capacity(gf) | 200,400,800,1600,3200,6400 |
| Gas Source | 0.6 MPa |
| Tearing Arm | 104±1mm |
| Tearing Initial Angle | 27.5 ±0.5° |
| Power | AC110~220V 50/60Hz |

Similar Models

SLD-02 Tear Tester (Digital)
SLD-03 Tear Tester (Manual)



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Cell Instruments Co., Ltd.

Headquarters: No. 5577 Gongyebei Rd, Licheng District, Jinan, 250109, Shandong, P.R.C.

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Contact Us Now
trading@celtec.cn
Mobile/WeChat:
+86 18560013985