

Tensile Tester

Principle:

Tensile test also known as tension test is one of the most common types of mechanical testing.

A tensile force is applied to a material being tested to determine its strength by measuring the specimen's response to the stress. It performs yield strength, tensile strength, Young's modulus (modulus of elasticity), strain at break and other material properties such as deformation.

A graph of stress (force per unit area) vs. Strain (change in length) curve can be plotted with the obtained data. Measuring and evaluating procedures vary based on the material being examined.

Current model:



Figure 1: Tensile Tester-Zwick

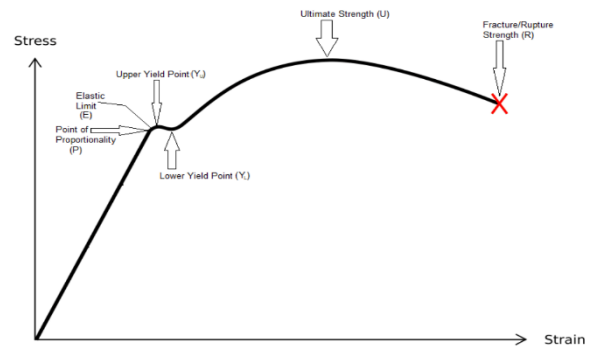


Figure b: Plot graph of Stress vs. Strain

Video Link: <https://www.youtube.com/watch?v=YL91SZEU-y4>

The Zwick tensile tester consists of a load cell, crosshead, grips, extensometer, electronics and a drive system. The measured values are determined using Zwick Roell ZwickiLine Z5.0 TN for Flexible Low-Force Testing machine. The frame can hold up to 5 kN while the current loadcell capacity is 2.5kN.

Typical samples

Sample that can be analysed include elastomers, polymers, adhesives, Textiles, plastics and metals.



Instrument Description

Sub Folder: Physical Analysis



Standards:

Samples are assessed using international standards including:

Metals: ISO 6892-1:2016, ASTM E8/8M

Steels: ASTM A370-19

Flexible cellular polymeric materials: ISO 1798:2008, ISO 8067:2018, ASTM D3574

Polymers: ISO 527:2019, ASTM D3039

Wood: ISO 13061-6:2014, ISO 13061-7:2014, I.S. EN 314-1:2005.

Textiles: ISO 13934-1:2013

Tissue paper and products: ISO 12625-4,-5, ISO 1924-2:2008

Tensile testing on plastic pipes: ISO 6259-1:2015, ISO 8521, ISO 8513, ASTM D2105, ASTM D2290, EN 1393, EN 1394.

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