

## Cooked Spaghetti & Noodles Elasticity & Tensile Strength by Tension

### TVT Texture Analyzer

The TVT Texture Analyzer (Figure 1) offers rapid and objective analysis for different products. The following parameters can be characterized for your product category:

- Firmness
- Hardness
- Flexibility
- Elasticity
- Break Strength

Both international standard methods as well as customer tailor-made profiles are available.



Figure 1: TVT Texture Analyzer

### Scope

- Determination of elasticity and tensile strength of spaghetti and noodles by single cycle tension.

### Method Description

The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then pull the sample to a pre-defined distance. After the pull, the probe returns to its starting position.

### Calibration

Make sure the instrument is correctly calibrated before the measurements. How to perform the calibration can be found in the User's Manual.

Load cell (recommended) 5 - 10 kg

#### Probe & Rig set

R-STRG, Self-tightening roller grip, open end 45 mm wide, stainless steel (Figure 2)

Part number: 67.50.21

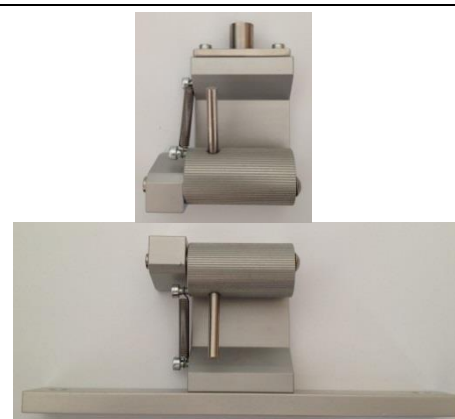


Figure 2: R-STRG

## Profile Settings

### Setting Parameter

Single Cycle Tension

Sample height [mm]	60.0
Starting distance from sample [mm]	5.0
Extension [mm]	100.00
Initial speed [mm/s]	1.0
Test speed [mm/s]	3.0
Retract speed [mm/s]	10.0
Trigger force [g]	5
Data rate [pps]	200

### Sample preparation:

Cook the noodles according to a pre-set standard procedure, where the amount of water and noodles, cooking time, rinsing time and time between cooking and testing are defined and constant. Attach the noodle strand carefully to the probe/rig, see Figure 3, and start the test.

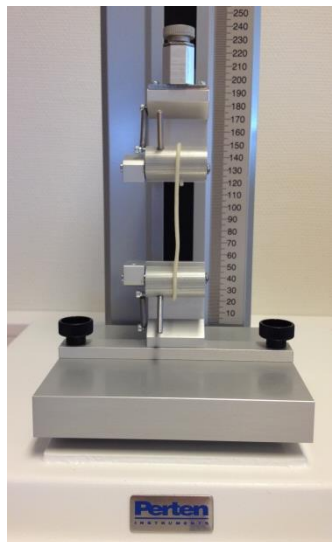


Figure 3: Sample set-up

### Curve Description

In Figure 4 a typical Force-Distance curves is illustrated. Maximum peak<sup>+</sup> force is here defined as the tensile strength of the sample, while the distance to the break is defined as the elasticity of the sample.

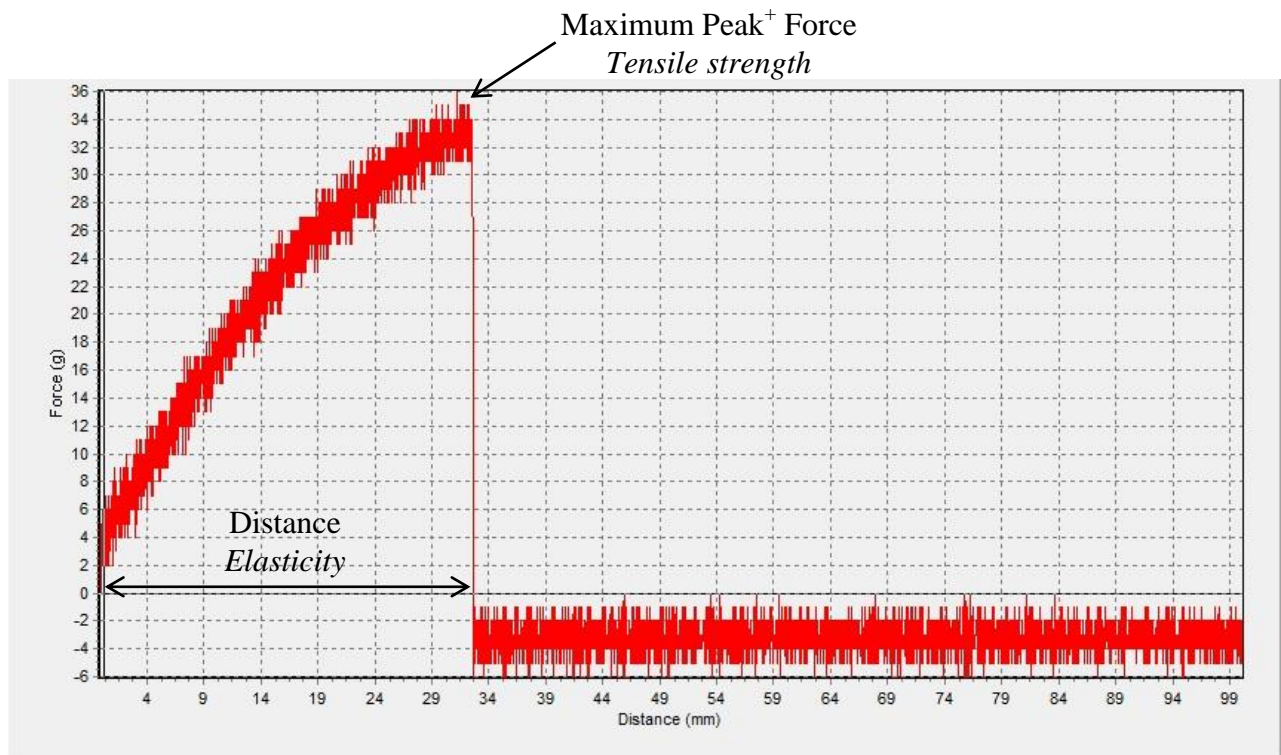


Figure 4: Tensile strength of spaghetti.

### Data Analysis

The force required extending the sample to a certain distance or break is here defined as the tensile strength of the sample and can be measured in the units [g] or [N]. The elasticity is given in [mm]. Except raw data (force, time and distance) the program also directly provides calculated results such as *mean value* and *standard deviation*.