What does it measure?
For the first time, objective, highly accurate measurements on the nail are possible in vivo.
In collaboration with Prof. Paola Perugini from the University of Pavia in Italy, we have developed a patented device to analyze mechanical properties of nails, such as firmness, elasticity and thickness.

The Measuring Principle
The nail is placed on a support in the unit. A high precision load cell measures constantly the pressure required to step down the special applicator. The force needed for the deflection of the nail is displayed in real time. As soon as the head touches the surface of the nail the pressure increases. The result is a curve of force and distance (force deflection diagram). Its slope is depending on the mechanical properties of the nail. There are three different applicator sets for the measurement of:

- **Transversal deformation**: the nail is deflected vertically. The slope of the curve indicates the **elastic property of the complete nail**. The result is the flattening index for the nail.
- **Resistance to compression force**: the nail is deflected punctually. The slope of the curve indicates the **structural strength/ firmness** of the nail. Also the **thickness** of the nail can be assessed.
- **Longitudinal deformation**: the nail is deflected horizontally. The slope of the curve indicates the **elasticity of the distal edge** (border) of the nail. The result is the bending index for the nail.

Fields of Application
- **Efficacy tests** for all kind of nail care products and formulations.
- Create innovative **product & marketing ideas**.
- Clinical research of **nail disorders** as well as other skin diseases presenting nail changes and the quantification of therapies.

Advantages
- **Very easy handling** and convenient software.
- Measurement is absolutely **pain-free**.
- Several **safety** and comfort features.
- A variety of settings (pressure force, down step size of the applicator, measurement time, etc.) to meet **individual applications**.
- Positioning the nail is easy, as it is constantly **monitored by a built-in camera** from the side.
- Ghost image of T0 as an overlay to aid **perfect positioning** for optimal reproducibility.
- The applicator heads can be moved down in very **small adjustable steps** (precision of 0.1 µm).
- Highly accurate values with **good reproducibility**.
- **Quality measures** of the curves (R² and deviation) to check the measurement immediately.
- Study based simple and quick evaluation of the results in **statistical programmes** possible.

Technical Data
Dimensions: 51.0 (H) x 20.5 (W) x 19.2 (D) cm, Weight: 10.4 kg, Power supply: external 100-240 VAC, 47-63 Hz, DC 12V/9A, Port: USB 2.0, type B connector, Consumption: during measurement approx. 0.3 A, Internal illumination by 18 white LEDs
Distance measurement: max. 10 mm ± 0.02 mm, steps from 1 to 10 µm, measurement uncertainty: 30-70 µm for load of 10 N
Load measurement: high precision load measurement cell, measurement range 0 – 10 N, measurement uncertainty: ± 0.02 N ± 2% of the respective load value, camera to monitor nail position: built-in, 5 MPixel USB color camera, resolution: 2592 x 1994 Pixel, Computer: Windows® 7/8/10, USB 2.0 or 3.0
Technical changes may be made without prior notice.