//// CSM INSTRUMENTS
Bioindenter
Nanoindentation designed for Biological samples

Bioindenter

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To satisfy the needs of biologists and soft material scientists, a new type of indentation system has been developed within the framework of a cooperation project between CSM Instruments and CSEM in Switzerland.

This device, called Bioindenter, is composed of a modified Ultra Nanoindentation Tester (UNHT) and a Biochamber for easy mounting and observation of biological samples.

This nanoindentation system is designed to test materials with Young's modulus in the range of ~10 kPa up to ~400 MPa.

The Nanoindentation part of the system has been optimized to respond to the requirements of testing of soft materials with non-planar surfaces.

//// Key Features:

> Two **independent depth** and **load** sensors

> Compliant springs for even better resolution in force application and force sensing

> Large displacement range

> Biochamber for:
- easy sample handling (petri dish holder)
- observation (phase contrast, bright field, ...)
- liquid immersion compatibility
- temperature control (37°C)

> Customizable indenter (spherical, flat punch, ...)

> Precise X-Y positioning system

> Single axis design

Certified Management System SQS ISO 9001

SWISS MADE

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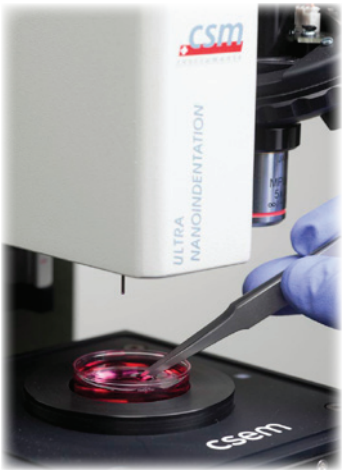
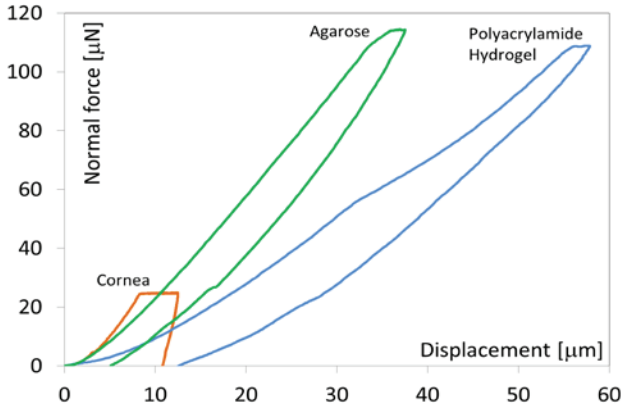
//// Specifications

Normal load range	up to 20 mN
Load resolution	0.0004 µN
Loading rate	up to 10'000 mN/min
Contact force hold time	unlimited
Max depth	100 µm
Depth resolution	0.0003 nm

//// Applications



An example of force-displacement curves obtained on polyacrylamide gel, agarose and cornea.



//// Biochamber

The Biochamber (developed at CSEM in Neuchâtel) has been designed to suit the needs of easy handling and in-situ observation of biological samples.

It contains a holder for Petri dish and its cover, phase contrast objective, video camera, Thorlabs cage cube system for customization of the observation means (bright field, fluorescence, etc), independent manual positioning system and heater.

Observation of different areas in phase contrast or fluorescence mode is facilitated by manual positioning and the heater ensures maintenance of the sample at a given temperature. Samples can be conveniently placed in a standard Petri dish with 35 mm diameter.

The Petri dish is firmly held by a cover with four magnetic pegs.

//// Contact us for more information

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