

PiCUS TreeQinetic

Combined measurement technology for tensile tests on trees





Reliable assessment of stability and safety against fracture through tensile test

The tensile test with the PiCUS TreeQinetic provides the measurement data you need to determine stability and safety against fracture.

During the tensile test, the tree is exposed to a defined simulated wind load. The PiCUS TreeQinetic simultaneously records three measured variables:

- Applied force with pulling direction and rope angle
- Stretching or compression of the wood fibres
- Root plate inclination

For this purpose, the tree is pulled with the help of a pulley. The load generated in this way and the tree's reaction are measured with the TreeQinetic's Forcemeter, Inclinometer and Elastometer.

In this way, a single measurement setup can be used to determine how a tree behaves under load. This allows an assessment of the tree's stability and resistance to fracture under the expected loads.





Defined load test without wind

The TreeQinetic measures the tree reaction under an artificial wind equivalent load - comprehensively and very specifically.



Wind is not necessary

By using the wind equivalent load, conclusions can be drawn about the stability and safety against fracture of the tree without having to wait for a wind event.



Extensive equipment

Starterset with transport case incl. 1x Forcemeter, 1x Elastometer, 1x Inclinometer, 1x Overload-Indicator, 1x communication unit. The system can be individually expanded at any time.



Software

The IML TreeQinetic software and app including cloud integration, are included in the starter set. Extensive documentation options for trees and measurement setups make it easier to manage a large number of measurements. After completing the measurement, the generated data file can be imported into analysis software or further processed individually.



Rope angle measurement

The Forcemeter has a built-in inclinometer to determine the rope angle during the pulling.



Overload-Indicator

The Overload-Indicator warns the winch operator with a visual and acoustic alarm when the tree's failure limit is about to be reached.

PiCUS TreeQinetic function range:

Range:	Operating range up to 60 m around the communication unit
Accuracy:	Elastometer: 0.1 $\mu m;$ Inclinometer: 0.005°; Forcemeter: 0.3 kN
Connection:	Wireless data transmission via Bluetooth, alternatively via USB
Extension:	The system can be expanded modularly by up to a total of 10 modules



The sensors and extensions of the TreeQinetic

The Inclinometer and Elastometer record the tree's reaction to the pulling force recorded by the Forcemeter in different ways.

Inclinometer

The TreeQinetic Inclinometers measure the inclination of the root plate and trunk under the tensile load. This can be used to assess the root stability and the anchoring force of the tree in the soil.

Forcemeter

The TreeQinetic Forcemeter measures the force that is coupled into the tree via the rope during the tensile test. For improved handling, an inclinometer is integrated to measure the angle of the rope during pulling.

Elastometer

The TreeQinetic Elastometers record the elongation or compression of the outer wood fibres of the trunk. The measured values serve as a basis for estimating the safety against fracture.

Extensions

Connectivity: 8-port hub for simultaneous charging or wired data transfer between sensors and the communication unit

Anemometer: IML wind measurement system, which can be integrated into the measurement process (with optional wind mast)

Pulling Winch: Mechanical winch including accessories for applying tensile force



Analysis of measurement data with "arbostat"

The collected data is displayed live by the TreeQinetic software and stored in plain text, allowing for further processing. If needed, the measurement values can then be analyzed in more detail using the analysis software "arbostat".

Optimally Evaluate Tension Tests

arbostat is the evaluation software for pulling tests. The program uses the latest research findings to generate precise and easy-to-understand result graphics from the TreeQinetic measurement data. This allows for reliable conclusions to be drawn about the tree's stability and breakage safety with minimal effort.

Wind Load Analysis

The arbostat software uses the measurement results from the PiCUS TreeQinetic as a basis for determining a safety factor for the stability and safety against fracture.

For more information about the arbostat software, please visit ArboSafe Hard- und Software für Baumsicherheit GmbH.



Inclination (°)





Do you have any questions? We are happy to assist you personally

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With Passion and Precision

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Product information via QR code!

