

# MEASURING TECHNOLOGY FOR TEXTILE INDUSTRY



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# WAWEON

## WARP AND WEFT TENSION METER

This portable measuring equipment serves with excellent warp and weft sensors for dynamic measurement of tension forces. Measuring electronic and sensors has been developed in VÚTS,a.s.



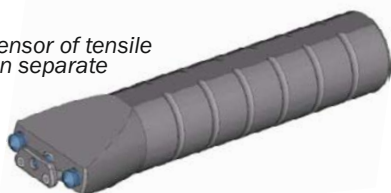
### GENERAL CHARACTERISTIC:

- Easy connection to common personal computer through USB port.
- Two input channels allowed connection of two sensors.
- Electronic is powered by line adapter 230 V/28 V AC 50 Hz or 110 V/28 V AC 60 Hz (on request).
- Wide range of graphic outputs.
- Measurement of periodical and non-periodical processes.
- Special measuring modes for weaving machines.
- Diagrams with time base in seconds or degrees (turning of machine's main shaft).
- Statistical functions for data evaluation.
- Measured data can be saved, plotted or reopened for comparison with new measurement
- Modern structure of measuring electronic with programmable gate array allows some additional changes by development status.
- PC software has been created in Borland Delphi.
- Software control is simple and user friendly, contains instruction manual.

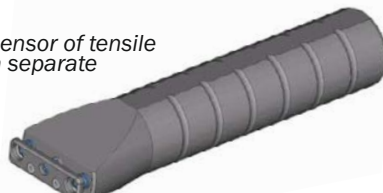
## YARN TENSILE FORCES SENSORS

Sensors are determined for static and dynamic measurements of tensile forces in separate yarns and warps. They are characterized with wide measuring range, versatile using and high dynamic parameters for the most exacting measurements. Sensors of tensile forces in separate yarns are supplied in ranges 300 cN and 1000 cN. Patented design of sensor with semiconductor strain gauges enables to reach high dynamic parameters. Except the typical heat compensation, there is also a compensation of warming-up of sapphire carrier by friction of running yarn (KTS marking). Yarn guide, which transfers force component from measured thread to sensor, is made of thin-walled sapphire tube and with its mass just little reduces proper frequency of measuring carrier. Natural frequency of the standard sensor is approx. 6 kHz. On demand it is possible to increase natural frequency of measuring carriers to 10 or 12 kHz at certain sensitivity decrease.

Open sensor of tensile forces in separate yarns



Closed sensor of tensile forces in separate yarns

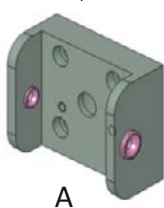
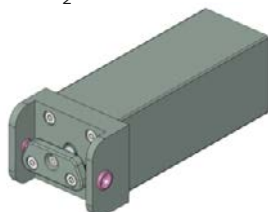


**Universal connector enables connection of almost arbitrary strain gauge measuring apparatus.**

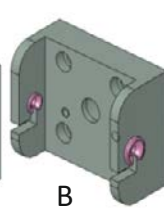
For graphic display of the measured-up courses it is possible to connect the sensors to our two-channel **measuring equipment WAVEON** or other measuring device with strain gauge sensors input channels.

## MINIATURE YARN TENSILE FORCES SENSORS

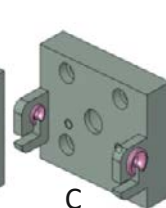
Sensors are determined for static and dynamic measurements of tensile forces in separate yarns and warps. These sensors use the same principle and the same measuring element as the standard yarn tensile forces sensors but their package is smaller and suitable for stable mounting to machines. For guiding threads it is possible to use three types of exchangeable head adapters; one with closed ceramic guides and two with open ceramic guides for an easy threading of the thread to be measured. The sensors are delivered in ranges 300 cN and 1000 cN. On a regular basis, sensors are delivered with an A adapter with thread guides from  $\text{Al}_2\text{O}_3$  material with a hole of  $\varnothing 2$  mm or as option per order with a hole of  $\varnothing 3$  mm or from  $\text{TiO}_2$  material with a hole of  $\varnothing 2,5$  mm.



A



B



C

## WARP TENSILE FORCES SENSORS

To measure the warp tensile forces quite new type of sensors has been developed. Measuring member is designed with Finite Element Method in the way to reach the optimum relation between sensitivity and dynamic properties. Natural frequency of measuring deformation member is 1 200 Hz. Sensor provides correct results of measuring even though the resultants of forces act in arbitrary point of the sensor measuring pin. The warp sensor is designed as the two-range type. Required range is selected with method of warp guiding to the sensor. Basic ranges on the bilateral sensor are 150 N and 300 N and on the unilateral sensor 100 N and 200 N. Sensors can be easily adapted even for another required widths.





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**more information here**

