

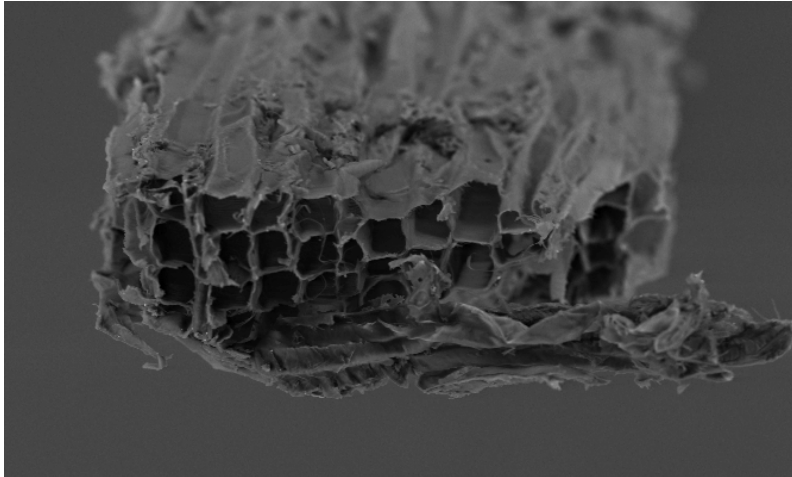
# Tensile strength of bundles of softwood fibres

*Workshop on Single Fiber Testing and Modeling*

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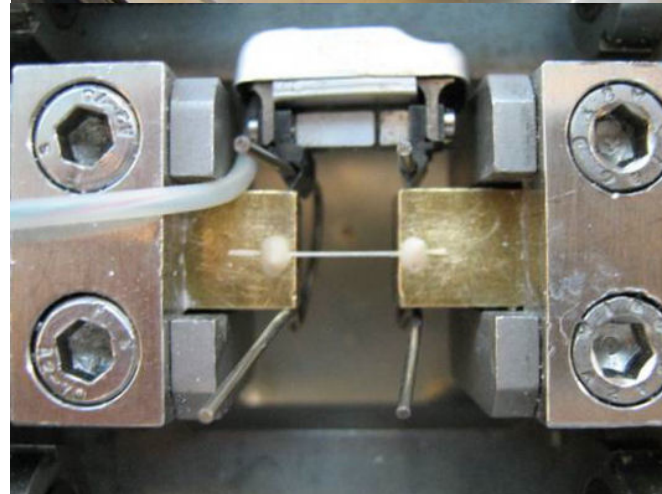
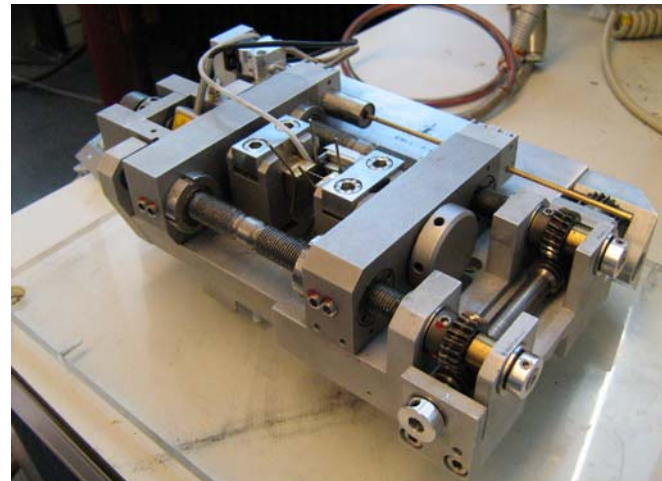
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# Testing procedure



Softwood bundles:

- ✓ Pine  $A=238 \times 475 \mu\text{m}^2$
- ✓ Spruce  $d=265 \mu\text{m}$
- ✓ Larch  $d=228 \mu\text{m}$



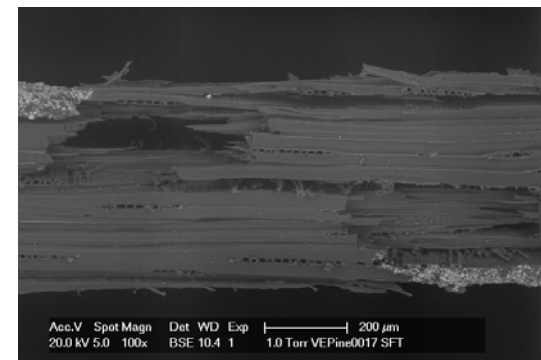
Micro tension-compression testing device  
developed by Kammrath & Weiss  
Microlab Laboratory

# Test results

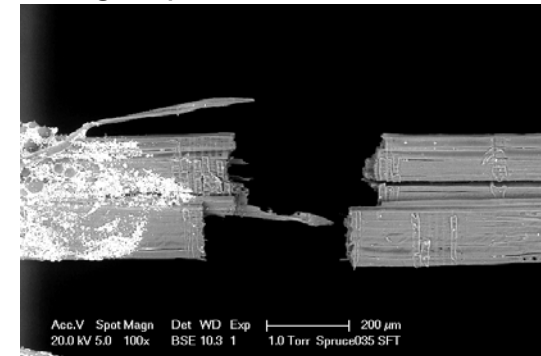
## 1. Tensile strength

Fibre	Tensile strength (MPa)	Young's modulus (GPa)	Area (mm <sup>2</sup> )
Pine	730	29	0.113
Spruce	663	39	0.055
Larch	708	34	0.041

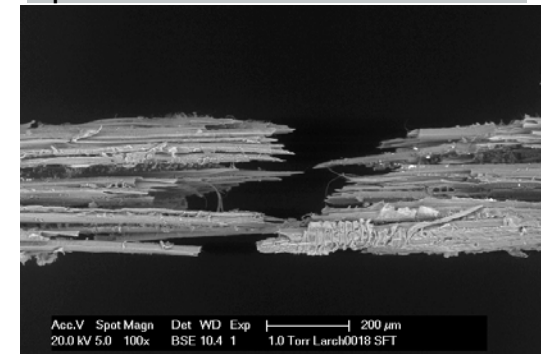
## 2. Fracture surface



Oregon pine



Spruce



Larch