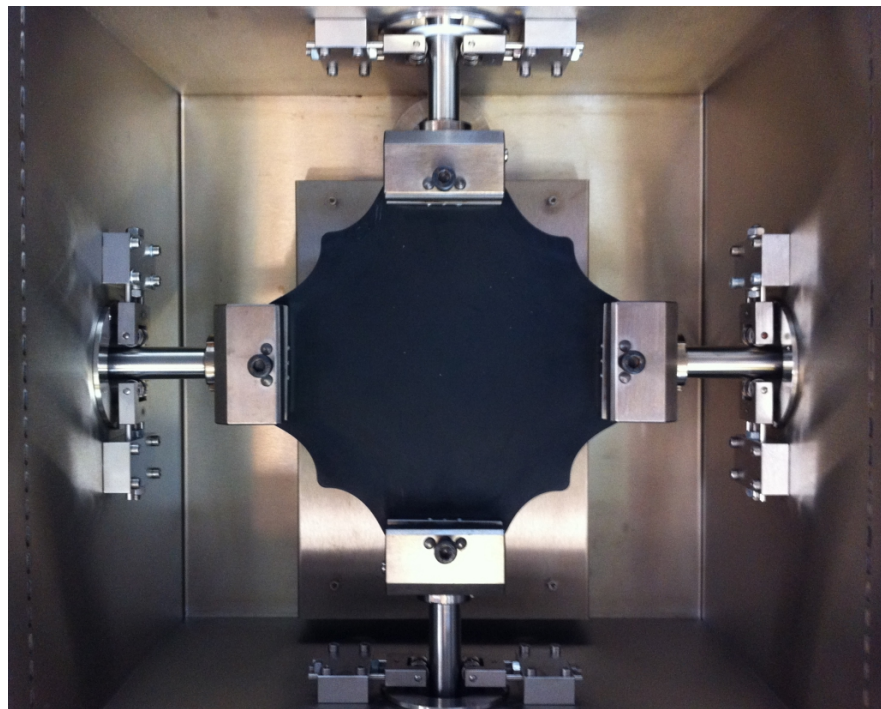


Biaxial Testing Machine

In the specialist group for applied mechanics, the identification and implementation of nonlinear material models is one of four subject areas in applied research and development.



In order to be able to simulate components made of elastomer materials in a realistic manner, the laboratory at the Institute of Mechanical Systems (IMES) is also equipped with a biaxial testing machine. This facilitates obtaining material data which are essential for solving the respective problem.

In addition, the aforementioned tests can be carried out at different temperatures. The setting options are between -70 °C to 280 °C and thus cover a large part of the application range of such materials.

Biaxial Testing Machine

The machine can be used to collect various test data which are necessary for correct simulation, for example with FEM software. The following tests can be carried out:

- Uniaxial tensile and compressive tests
- Equibiaxial tensile and compressive tests
- Two dimensional tensile and compression tests

Technical Details Biax Testing Machine

Nominal force:
100 N to 10 kN (various measuring cells available)
Travel distance:
150 mm per axis
Speed:
0.6 mm/min to 500 mm/min
Temperature range:
-70 °C to + 280 °C
Distance resolution:
0.001 mm
Force resolution:
0.01 N

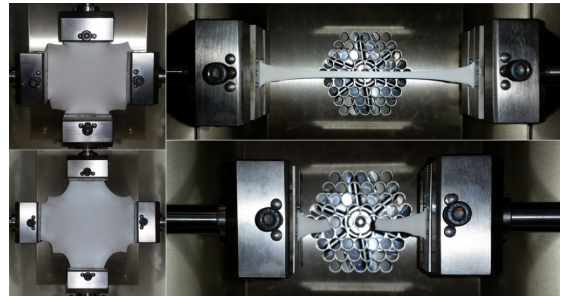


Measuring rate:
Up to 50 Hz
Data transfer software:
1 Hz to 50 Hz
Control method:
Position or force control

Example Thermoplastic Elastomers

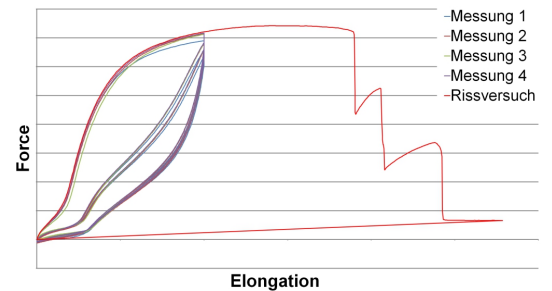
1. Experiment

In order to determine the material parameters for an FE analysis, uni- and biaxial tests with TPE were carried out for a customer.



2. Data Processing / Evaluation

According to customer requirements, the raw data from the experiment are made available. However, collection of material parameters, optimizations of parameters and further FE analysis are also available.



If you have any further questions regarding options, costs, etc., please contact the address below (contact). In addition, dynamic tests on components are also possible at IMES. Amongst others the following test facilities are available:

- 2 single-axis, servo-hydraulic testing machines with up to 100 Hz and 15 kN
- 1 two-axis, servo-hydraulic testing machine with up to 100 Hz and 15 kN (axial and rotation)
- 1 two-axis, servo-electric testing machine with up to 2.5 kN (axial and flexion)

Contact

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