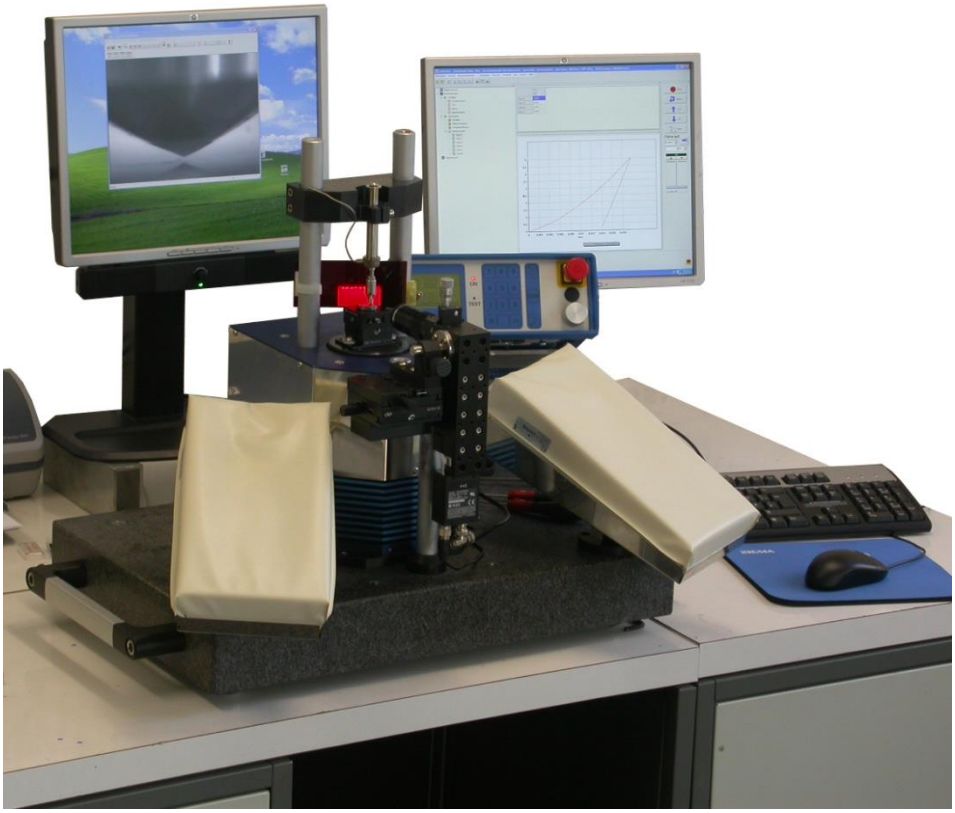
Hegewald & Peschke
Meß- und Prüftechnik GmbH

Data sheet

Testing machines for micro system engineering

for mechanical load in the range of mN and µm



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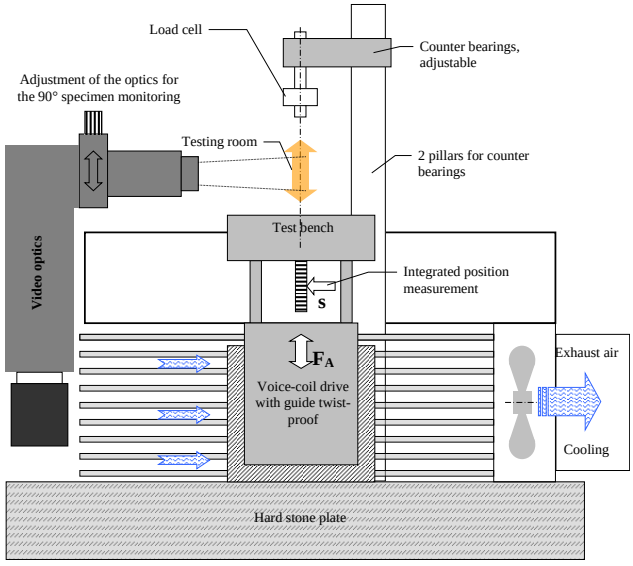
System properties

- Voice-coil drive for dynamic loading during static and dynamic tests in low cycle ranges
- Long-term test load ±100 N, up to 50 Hz Sinus
- Special design for the work with small specimen, integrated arm rests
- Tool connection with R8/3 or with M5 thread
- Integrated cooling of the drive, exhaust air is conducted at the back side
- Device is suitable for cleanrooms ISO 14644-1 class 8

Functional description and design



System design loading unit/basic device (sectional view)

The miniature testing machine can either be operated as a **STAND-ALONE** version or with a **PC**. A LAN or USB interface establishes the connection to the **H&P-LabMaster software**. The data is recorded at a rate of 50Hz (20ms) by default; optionally 1 kHz (1ms) is possible. The testing software is based on WINDOWS XP and it controls the machine, displays measuring data, calculates results and saves the data. The graphic representation is online. The module block program allows for the free programming of user-defined testing procedures.

Furthermore, two arm rests are installed to serve the ergonomic design of the workstation. This allows the operator to position very small specimen / components manually in the test space. An optional video system is integrated in the workstation concept for the visual monitoring of the setup and test. Additionally, the system can also be used for measurements with the help of video or laser speckle extensometers.
A support for miniature clamping tools exists on the test table and on the load cell.

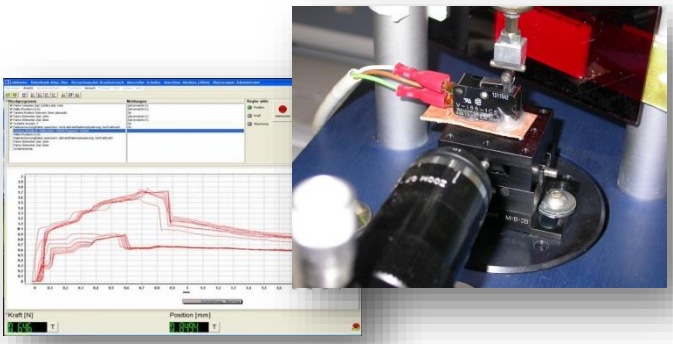
Application examples:

Tests in the medical sector (dental implants)

- Equipped with a fluid container for wet testing, in order to simulate the conditions in the oral cavity (standard saliva)
- Maximum load application of 100N as well as 50Hz for alternating loads can map the permanent load test in an optimal manner (permanent load during cyclic tests)

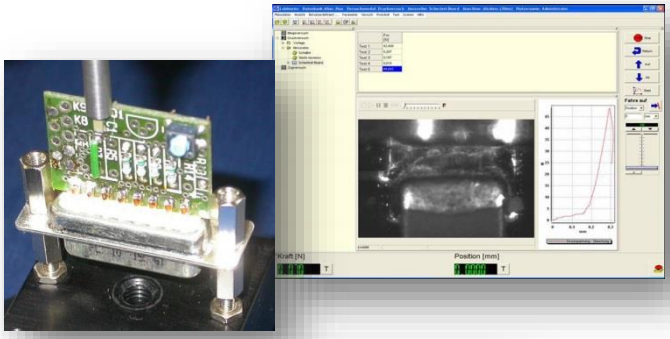
Component tests (micro switch)

- Use of block program for test accomplishment
- Test cycle is automatically saved every 10.000 cycles
- The respective 10.000 load cycles were done with 10 Hz sinus with 2mm lift
- Load cycles are not recorded, only limit values are supervised
- The switch is connected to the I/O of the controller and switch points are saved synchronously with the positions



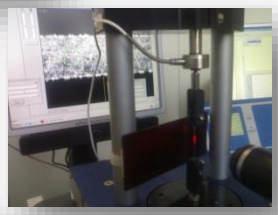
Veer test on soldered joints on SMD board

- Positioning of the sample with a X-Y compound table
- Use of different veer chisels possible
- Documentation of component failure with the integrated video module and synchronous record of strain



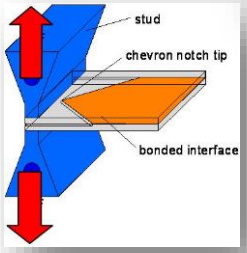
Tensile tests on plane specimen

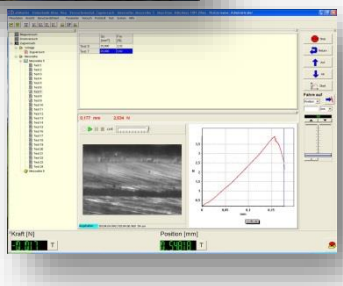
- Elongation measurement directly on the specimen with Laser Speckle Extensometer



Chevron-Test

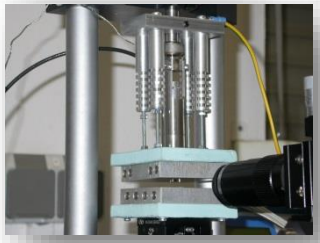
- Deformation measurement (crack opening) on the front side of the Chevron specimen with the Laser Speckle Extensometer
- Documentation of the crack opening of the Chevron sample with the integrated video module and recording synchronous to the load





Tests under the influence of temperature

- Pressure and bending tests with thermal plates



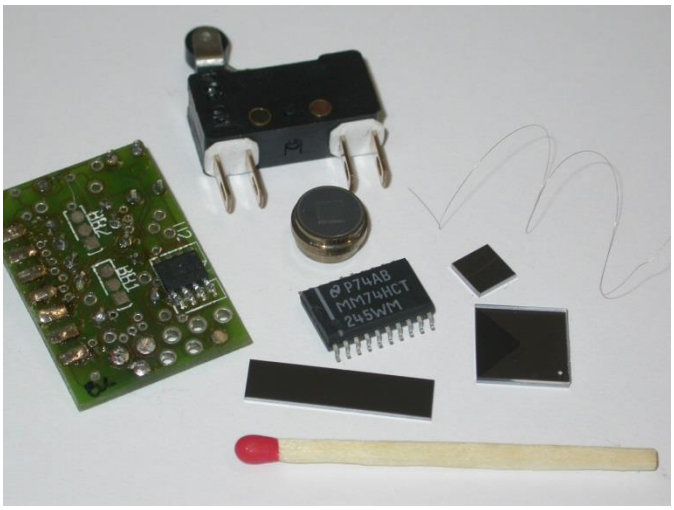
Testing of the adhesive properties

- Tensile tests on adhesive joints

Your contact person:

Technical Data:

Test load	±100 N
Load resolution	±140.000 Digits, class 1 (between 1% and 100 % FS ±1 % of the displayed value, according to ASTM E4, DIN EN ISO 7500 class 1)
Position	±5 mm (10mm), resolution 0,02 µm
Maximum testing speed	v_{max} = 120 mm/s
Maximum loading speed	Fv_{max} = 5000N/s
Exchangeable sensors (recommended grading 10N/50N/100N)	
Direct position measurement underneath the load table with a glass scale	
System stiffness with 100 N load sensor 4 N/µm	
Control with digital signal processor, 5kHz on the system bus	
7 optional data acquisition cards possible	
Data interface LAN or USB 2.0 full speed	
Basic construction on a hard stone plate for passive dampening with the possibility of additional mounting of tools or devices	
Dimensions (W x D x H), Weight	750mm x 500mm x 670mm, 95kg
Electric connection	115/230 V AC; 0,7 kVA; 50/60Hz
Optional accessories	• Load cell for dynamic tests • Zoom-microscope 0,8-5x , order-no.:10-019-800 • Software H&P Labmaster • Enhancement of the data acquisition 1kHz • PC with 2 monitors (recommended)



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