



Hegewald & Peschke
Meß- und Prüftechnik GmbH



LabMaster

Universal material and component testing software

Competency generates results



LabMaster

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Our testing machines speak your language.

Universal testing machines of the Inspekt series from Hegewald & Peschke are especially geared towards the individual needs of customers. This also applies to the LabMaster universal material testing software. Based on the experience of over 20 years of development, it is coordinated with the testing machines – and constantly adapted to the technical progress and ongoing development of test standards. Constant feedback from user experience also contributes to the fact that the test software is always up-to-date and optimally adapted to user needs.

Regardless of whether simple or complex test assignments need to be handled, LabMaster adapts in a straightforward way to the tasks – while always remaining user-friendly.



Competency generates results

Structure of the user interface

To facilitate quick orientation to LabMaster, the symbols of the user interface resemble those of common office software. Diverse functions are clearly arranged and quickly accessible. The size of each area can be varied and positioned flexibly.

Results

The function displays the associated results, specimen data and tolerance violations for each test. Data can be displayed or hidden, and their order can be varied.

Explorer

The explorer is used to create new measuring series and test templates that are then managed in a folder structure. Subsequent renaming and deletion is possible without any problems. What's more, additional information about a measuring series and specific test can be retrieved in this area.

Measured value display

This function allows for setting the choice of measured values, units of measure and decimal places in a flexible manner. Furthermore, the measuring channels can also be tared.

Statistics

The table, which can be displayed as an option, provides the desired characteristic statistic values for any value from the results table. Statistics characteristics can be chosen from a list.

Menu

In the menu, functions are grouped according to topics and that facilitates quick work. All unneeded functions can be hidden.

Graph

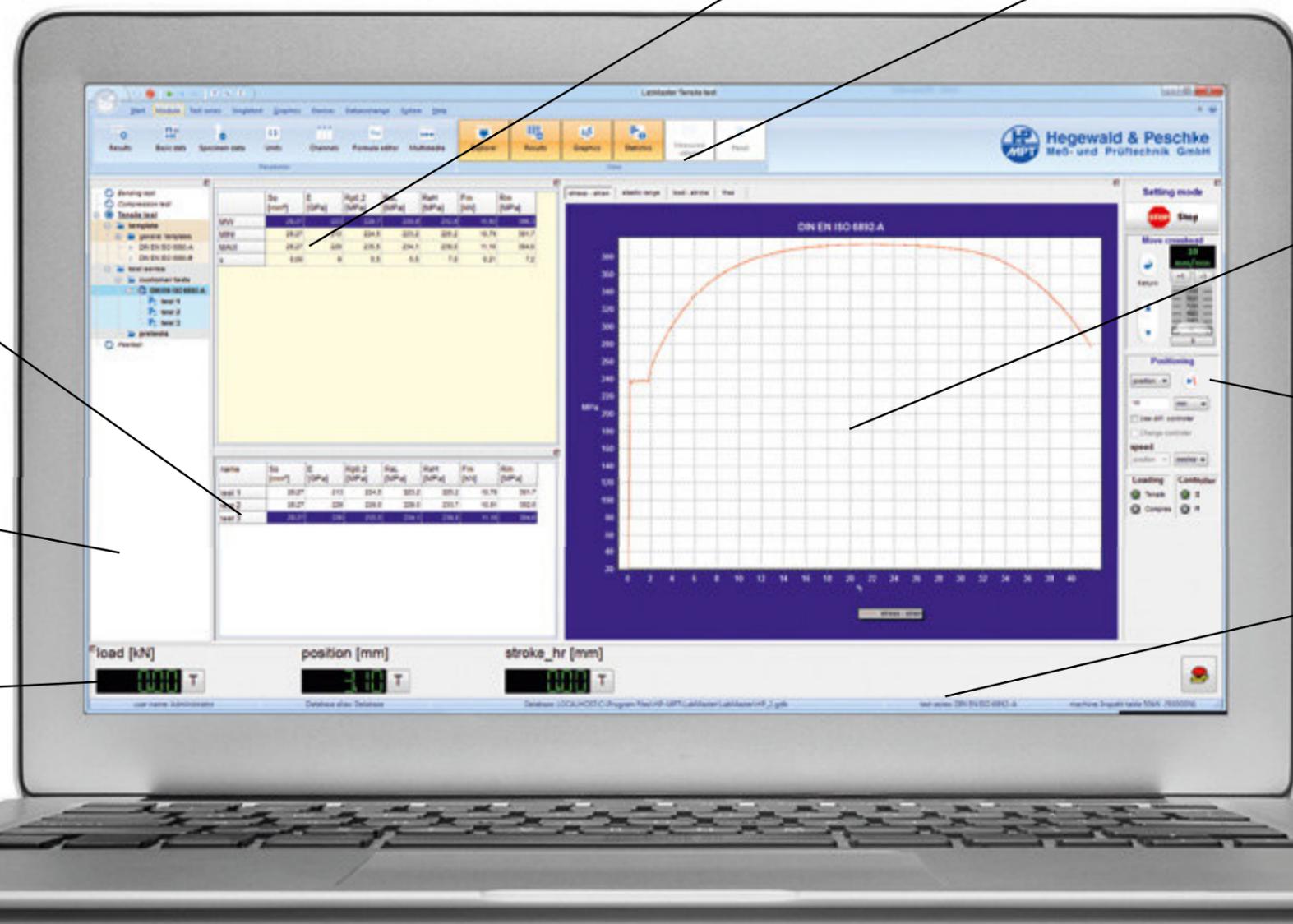
The graph can show the data already during the test, if desired. Up to four freely configurable measured values diagrams are possible. Measuring curves can be displayed as single, series or mean value curves. Each diagram features zoom and cursor functions. The latter allow for selecting and analysing individual data points. Diagrams can be exported as graphics in the formats .bmp, .jpg, .wmf and .emf.

Control panel

The control panel allows the machine to conveniently move to a desired position or force setting, e.g. reference or return travel, outside an actual test.

Status bar

This area displays information about the current users, database, measuring series and machine configuration.



Application options and features

LabMaster can be used as test software in all industries where material or component testing is performed in the framework of quality assurance as well as research and development. It is also used when upgrading testing machines from other manufacturers.

Examples for application areas of LabMaster

- » Metallurgy and metal processing
- » Plastics industry
- » Wood industry
- » Aerospace
- » Furniture industry
- » Medical technology
- » Education and research

LabMaster stands out by its unusually high service quality. The services extend beyond the fast and correct processing of the enquiry and offer, e.g. through free consultation with the set-up of tests according to specific standards, true added value for users.

Benefits of LabMaster

- » User interface adaptable to different levels of complexity of test management, including showing and hiding options
- » Clearly arranged operation
- » Customisable log editor (results display)
- » Flexible software; can be easily adapted to new standards
- » Standard version includes nearly all applications; different add-on functions are available for specific customer requirements
- » Comprehensive test specifications library available free of charge
- » Simple management of test data through practical database structure
- » User-definable channel permits integration of external devices (e.g. extensometer, temperature controller, measuring amplifiers of other manufacturers, thickness gauges, callipers or scales) and thus recording of measuring variables across force, path and elongation
- » Higher frequency tests up to long-term tests possible

How standard test assignments are supported

LabMaster offers test software modules for five typical standardised test assignments. Basic and specimen data as well as results can be individually managed within each module. All test-relevant settings, for example, test velocities, change-over points and fracture detection, can be separately defined for each measuring series. Specimen geometries of series can be entered before starting the test.

Standardised measuring variables, such as tensile strength, compression strength, bending strength or proof stress and yield points are output as results. LabMaster offers the function "User-defined results" to allow for responding to changes in standards.

Events can be defined in the software by means of interactive process control. This functionality facilitates the execution of the test assignments for the user. The user is guided through the software settings according to the defined work sequence. The user interface is limited to the essential for processing the test assignment and can be configured for the concrete needs of the operator. The operating steps specified by the software are processed in sequence, from entering the specimen data to printing the test log after the end of the test. User errors can thus be nearly ruled out.

Fig. right side: Parameterisation of customer-specific tests with LabMaster

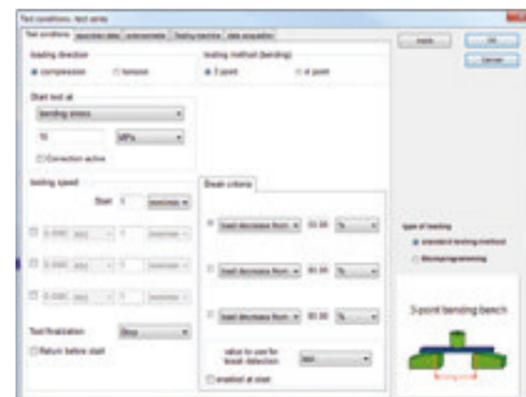
The five standard test modules

- » Tensile test
- » Compression test
- » Bending test
- » Peel test
- » Torsion test

Tools for the efficient handling of the test assignment

- » Free setting options for visualisation and graphic analysis
- » Data management system
- » Statistics function (e.g. maximum, minimum, mean, Cpk values)
- » Results configurator
- » Freely designable test report
- » Language toggling

Fig. bottom: Parameterisation of standardised tests with LabMaster



How to master special scenarios

All settings can be made via a block program for complex test sequences. It provides a list in which the defined travel, stop or control commands can be compiled for free programming of the test sequence. For example, travel commands can be selected for cyclical tests, relaxation and creep tests. Sequences for fracture mechanics tests or component testing can thus be implemented as well. The commands are entered in menu windows; no programming know-how is, therefore, required. Complete control of the test sequence is provided through monitoring detailed abort criteria.

Application example: Higher frequency tests on small components

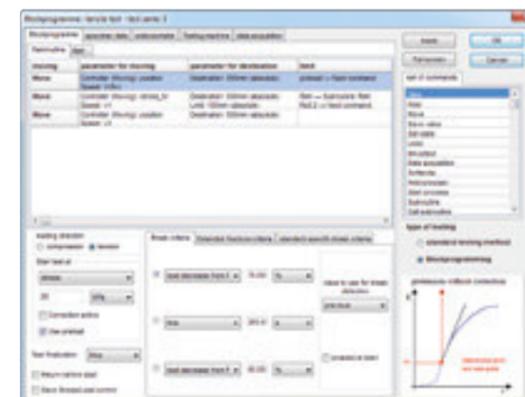
- » Command for cyclical movement regimen (cosine command) using the parameters for number of cycles and frequency
- » Data acquisition criteria allow for data reduction to an extent that can be analysed
- » Visualisation through envelope

Application example: Testing of cabinet drawers

- » Test parameters incl. number of cycles, can be individually adjusted to component data; preparation of own, reproducible test programs possible
- » Separate setting of velocity and deceleration rate per travel command
- » Event-controlled test sequence with monitoring of limits and programming of responses; triggering of event-dependent switching actions
- » Variable storage of cycle data across all load cycles
- » Automatic data reduction during analysis

Application example: Creep tests

- » Variable data acquisition, changes possible during the test
- » Data acquisition separated according to test segments (heating phase, wind-up curve, creep test); thus separate results analysis
- » Monitoring of limits (e.g. temperature, load) and programming of responses
- » Maintaining constant force for specimen not to be moved to the fracture point can be programmed in the cooling phase



Test evaluation

Tolerances can be defined and monitored for all the results. Post-calculation function allows for subsequent modification of test conditions, e.g. cross-section or fracture detection criterion. Even the analysis can be subsequently changed. Young's modulus can thus be calculated based on different mathematical models.



Graphic presentation of measurements

Measuring curves can be displayed as single, series or mean value curves. Interesting ranges can be enlarged by zooming. Individual data points can be marked and analysed with numerical value pairs with the help of the cursor. Several graphic windows can be set up in this manner. Thereby different measuring units are simply assigned to the axes. All key diagrams of a test or test series can thus be viewed at a glance without switching – e.g. stress-strain diagram and path-time diagram at a tensile test. The graphs can be copied via the clipboard or stored as graphic file and are, therefore, available for further processing.

Log generation

All data (results, basic and specimen data) can be flexibly placed and formatted. This allows preparing individual log layouts – including your own company logo. The log can be printed or filed as a PDF file.

Exporting data

The standard scope of LabMaster includes: Export of results and statistics to selected file formats, e.g. as .xlsx, .txt and .csv; saving of diagrams as .bmp, .jpg, .wmf and .emf and saving real-time data in a configurable ASCII file.

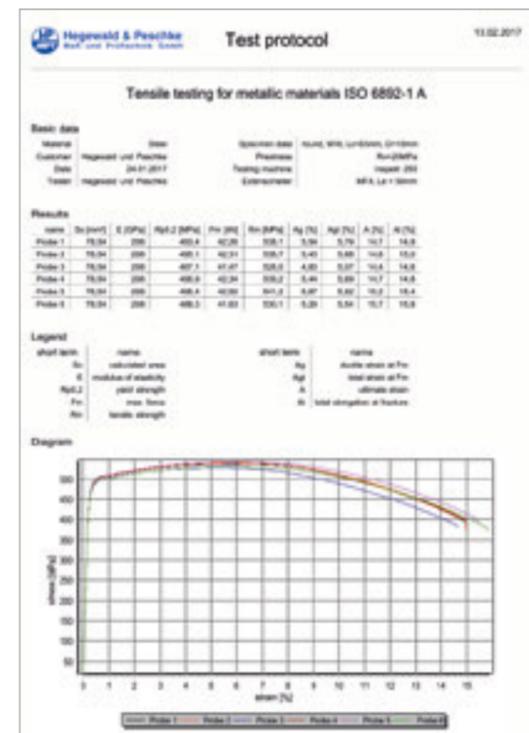


Fig. upper left: Selection of standard results with LabMaster
Fig. top: Test report

Software support and add-on modules

LabMaster features a help function which explains the basic operation of the software. The free software telephone service of Hegewald & Peschke is available to you for more complex questions. Our experienced service team not only assists with operating the software but also makes their expert knowledge available for application problems and the configuration of LabMaster according

to specific standards. In addition, remote maintenance and support functions are offered via remote support. LabMaster is constantly adapted to the continuous development of Microsoft operating systems.

Chargeable add-on modules are available for the standard version of LabMaster for specific customer requirements.

Add-on modules for LabMaster

- » Multiple work place system for linking several test workstations with a database stored in the network
- » Formula editor to create calculation rules
- » Functions for recording, storage and synchronised playback of video clips of static or quasi-static tests
- » Expanded data export for the integration of data from component or material testing into the existing quality assurance system or user-defined formats (e.g. QDAS)
- » Expanded data import to adopt data from an existing quality assurance system or user-defined source into the material testing software
- » Calibration with specific test runs and analyses for the calibration of force measurement devices, load cells, scales, etc. as well as the verification of the force measurement of the testing machine
- » Data acquisition up to 1,000 Hz to set an enhanced data acquisition rate
- » Fracture mechanics with analysis methods as specified in the ASTM 399 (K_{Ic}) and ASTM 1820 (J-R test) standards

Hegewald & Peschke is certified according to ISO 9001:2008 and registered under the DAkkS accreditation number D-K-17222-01.

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Further offers:

- » Static universal testing machines
- » Hydraulic universal testing machines
- » Machines for dynamic component and product testing
- » Portable and stationary hardness testers
- » Length measuring devices
- » Component and furniture testing machines
- » Maintenance and DAkkS calibration services
- » Special testing machines

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