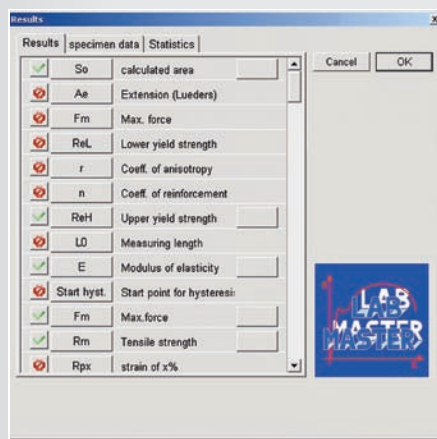


## LabMaster universal material testing software



## Premium Flexible Solutions

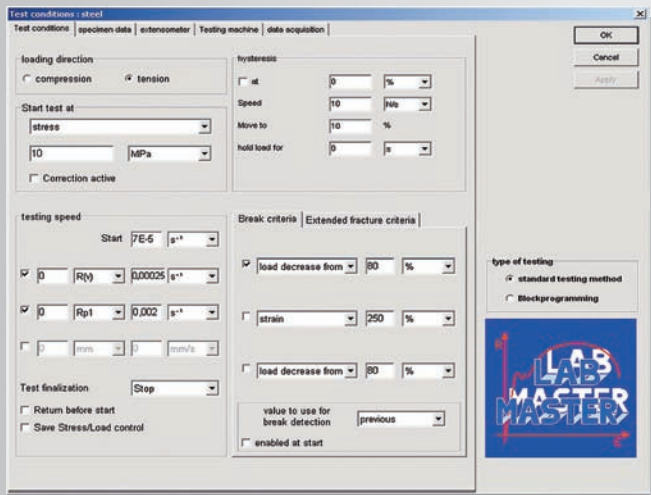


**Hegewald & Peschke**  
Meß- und Prüftechnik GmbH

## Design of the LabMaster Software

The design and development of the software were carried out object-oriented with the efficient programming language Delphi™. All information, such as real-time measuring data, test parameterisations, measured data display and test evaluation are stored in an efficient SQL-database. The real-time data can be exported to text or csv files at any time. The explorer function is used to create new measuring series and manage them in a file structure. LabMaster is optimised for the operating systems Windows XP® and Windows 7®. LabMaster includes all the necessary functions for the creation of testing procedures and individual evaluation. Thus, LabMaster is the ideal tool for editing standardised and individual testing task.

## Test parameterisation with LabMaster



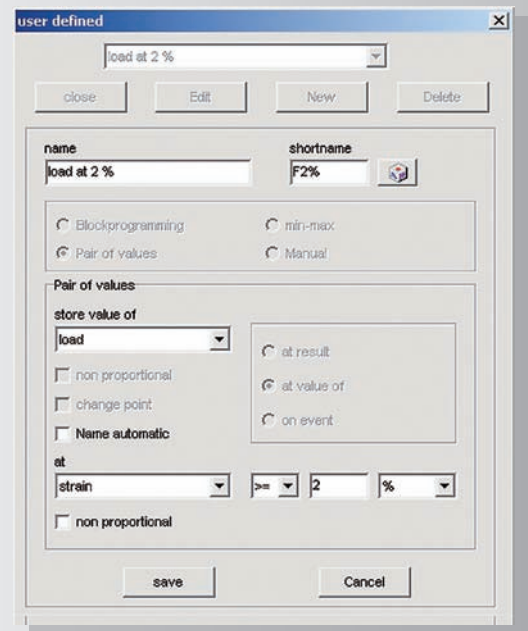
All of the settings relevant to the test are done in this menu. This includes e.g. test speed, switch points and breakage identification criteria. A standard test is defined with few settings. The specimen geometries for routine testing can be entered or imported from external sources before the test starts. Due to the structure of the database there are no restrictions to the naming and storage of the measuring results.

## Creation of results

The test is evaluated with the help of standardised results (Young's Modulus; tensile, compression, bending strength). In order to give users the opportunity to react to changes in the standards, LabMaster also includes the function „user-defined results“.

The following modes are available:

- pair of values (e.g. storage of load value at a certain position)
- maximum and minimum storage (one or more values)
- average value determination (e.g. plateau-stress between 1 and 10 mm).

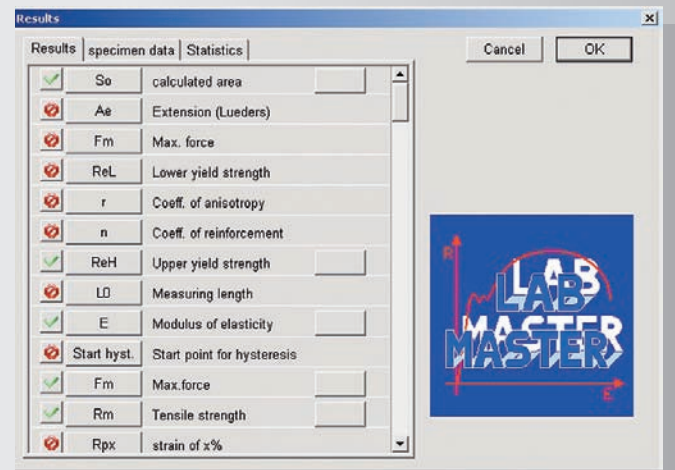


Thus, it is not necessary to acquire and administrate an extensive collection of standards. The user-defined results are the ideal tool for customised material and component testing.

## Test evaluation with LabMaster

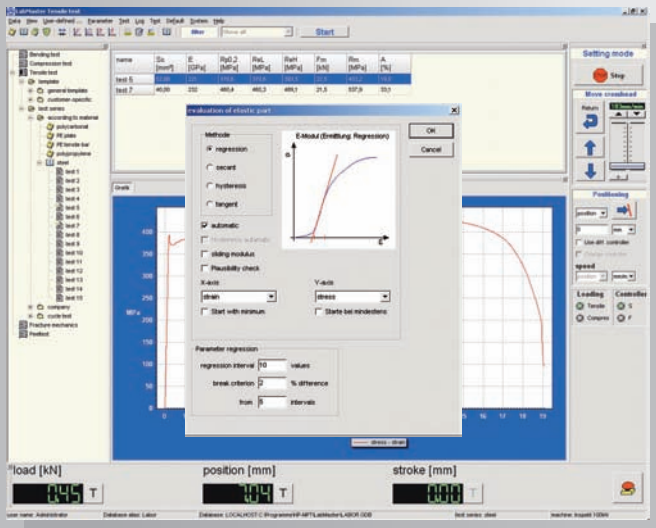
Standard results are available for the evaluation of tests. Furthermore, free tools for individual evaluation are available in the software package.

Additionally, tolerances can be defined and monitored for all results.



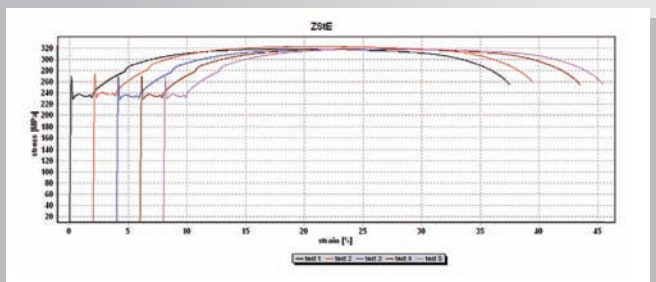
The post calculation function that is included in the software allows for a convenient subsequent change of test conditions, e.g. cross section surface or breakage identification criteria.

The calculation of results can be changed at any later point in time. Thus, it is possible, for example, to calculate Young's Modulus based on different mathematical models (e.g. secant, tangent and regression).

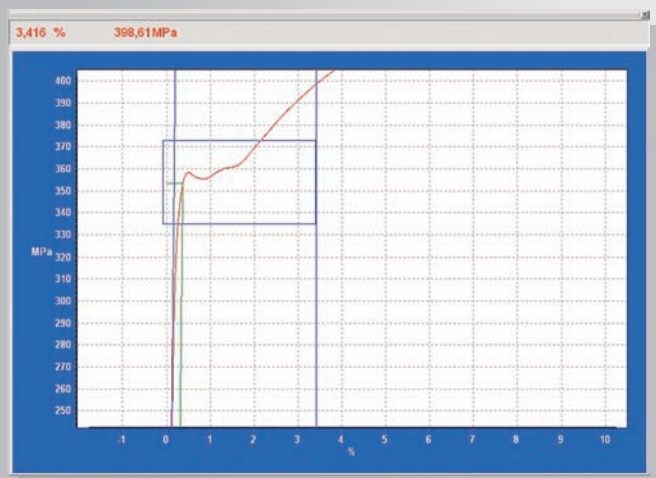


## Graphic display of results with LabMaster

Gradients can be displayed as single value, series and average value curves. Especially interesting regions can be zoomed.



Using the cursor-function single data points can be highlighted and evaluated. The diagram can be copied to the clipboard or saved as graphic file and is thus available for further editing in other programs.



## Creation of reports with LabMaster

The log editor allows for an individual order of test information in the test log. It also allows for company-specific layouts. The company logo can be added as well as test results, parameter, statistic data and a diagram.

Eventually, the report can be printed or saved as a pdf file.

**test protocol**

tester : Mr. Mustermann material: ZSIE  
test date : 04.03.2013 11:14:37

results ZSIE:

	name	E [GPa]	Rp0.2 [MPa]	ReH [MPa]	ReL [MPa]	Rm [MPa]	A [%]	AI [%]	Ag [%]	Agf [%]	Ae [%]
test 1	204,1	230,4	270,0	228,7	318,9	37,4	37,5	18,9	19,1	1,843	
test 2	208,1	233,6	273,7	231,9	323,2	37,3	37,5	18,4	18,6	1,846	
test 3	204,0	229,7	269,1	228,0	317,8	22,6	22,8	18,9	19,1	1,846	
test 4	204,9	230,5	270,0	228,7	318,9	37,4	37,5	18,9	19,1	1,843	
test 5	203,9	230,6	268,8	229,1	318,9	37,3	37,5	18,4	18,6	1,854	

Statistics ZSIE:

	E [GPa]	Rp0.2 [MPa]	ReH [MPa]	ReL [MPa]	Rm [MPa]	A [%]	AI [%]	Ag [%]	Agf [%]	Ae [%]
mean value	205	230,96	270,32	229,28	319,54	34,4	34,56	18,7	18,9	1,8464
MINI	203,9	229,7	268,8	228,0	317,8	22,6	22,8	18,4	18,6	1,843
maximum	208,1	233,6	273,7	231,9	323,2	37,4	37,5	18,9	19,1	1,854
minimum	1,778	1,518	1,964	1,517	2,101	6,597	6,574	0,274	0,274	0,005

stress [MPa] vs strain [%] graph for ZSIE showing five test curves.

## Free programming of the test procedure with LabMaster

Blockprogramm: cycle test

Mainroutine: specimen data | extensometer | Testing machine | data acquisition

moving	parameter for moving	parameter for destination	limit
Cyclic	Controller: position Speed to start position: 100mm/min Speed to second position: 100mm/min	Cycles: 1000 Start position: 1mm Second position: 1,2mm Final destination: 0mm	Use hold mode: disabled
Move	Controller (Moving): position Speed: 100mm/min Switch controller at destination	Destination: 300N (absolute) Limit: 100mm (absolute)	
Hold	Controller (Hold): load Hold time: 5s		
Move	Controller (Moving): position Speed: 100mm/min	Destination: 1mm (relative)	

loading direction:  compression  tension

Start test at: load [N] [value], time [s] [value], stroke [mm] [value]

Break criteria: load [N] [value], time [s] [value], stroke [mm] [value]

type of testing:  standard testing method  Blockprogramming

The block programme offers a sequential list of movement, hold and control commands. They allow for cyclical movements, relaxations and creep tests, e.g. for fracture mechanics or component testing. The commands are parameterised in windows, which doesn't require any programming skills.

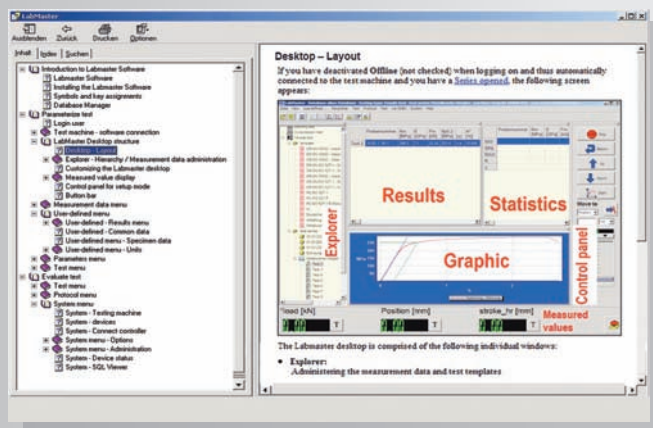
It is possible to gain complete control over the testing procedure by setting detailed abort criteria.

# Software

## Support for LabMaster

The software has a context-sensitive help function, which is constantly updated. Additionally, there is the option of support via remote desktop access.

If you have any questions, please feel free to call our software telephone support.



The basic package includes the following functions:

- creation of new testing procedures
- editing of existing procedures
- user-defined basic data, specimen data and results
- standard tensile, pressure and block programme test parameterisation
- access to control parameters
- graphic display (access to all 4 axes)
- log editing and printing
- data export to text, CSV, Excel files and printing to PDF

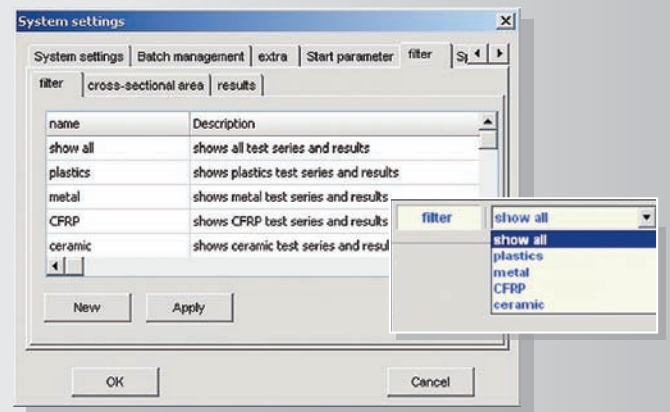
## Customer-specific data export and import

With the export function, test data can be exported to existing quality assurance systems. It is configured with the help of the interface 3 definition.

Basically, the data are exported via a database interface (ODBC). Possible target systems include SAP®, Microsoft Access®, Excel®, LIMS or customer-specific interfaces.

The import of data is supported in the same way. This function requires an interface definition by the customer's information systems department. It allows for the automatic import of specimen and test parameters which can be the basis for the analysis in LabMaster. Data of automatically measured specimens are the basis for routine tests.

## Filter function in LabMaster



LabMaster content can also be tagged and filtered for a more clearly arranged organisation. The displayed data can then be reduced by selecting only those tagged with a specific filter. Filter tags can be created by the user and explained with descriptions.

## Simulation mode for demonstrations and teaching with LabMaster

The simulation mode is based on two different methods. The first method is a simple display of existing real-time measuring data. It allows for a demonstration of component and material behaviour with the help of real test data in a lecture hall or classroom. It also makes the instruction and training of larger groups very easy. The second method allows for block programme tests with a mathematical material simulation. Thus, it is possible to check complex testing procedures without having to waste a real test specimen.

In both cases, a virtual controller gives access to the entire range of LabMaster functions. Based on this function there is also a demo version of LabMaster available.



**Hegewald & Peschke**  
**Meß- und Prüftechnik GmbH**

Am Gründchen 1 Telefon: +49 (0) 3 52 42 · 4 45 0  
D-01683 Nossen Telefax: +49 (0) 3 52 42 · 4 45 11

E-Mail: [info@Hegewald-Peschke.com](mailto:info@Hegewald-Peschke.com)  
Web: [www.Hegewald-Peschke.com](http://www.Hegewald-Peschke.com)

