Zwick / Roell

Zwick
Materials Testing

Testing Software *testXpert*® II
Intelligent and Reliable

FP 541 2.0912

Intelligent Testing

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1 Welcome to Zwick Roell – passionate customer orientation

Zwick at a glance

For over 150 years the name of Zwick Roell has stood for outstanding technical competence, innovation, quality and reliability in materials and component testing. Our customers' confidence in us is reflected in our position as world-leaders in static testing and the significant growth we are experiencing in fatigue strength testing systems. With innovative product development, a comprehensive range and worldwide service, this family concern supplies tailor-made solutions for the most demanding requirements – in both research and development and quality assurance in over 20 sectors. With around 1000 employees, a production facility in Ulm, Germany, additional facilities in Europe, USA and Asia plus agencies in 56 countries worldwide, the Zwick brand name guarantees the highest product and service quality.

Customer orientation is the basis of our corporate philosophy. Dependability, straightforwardness and professionalism are the keynotes of our approach. Our aim is to build long-term customer relationships based on mutual trust – we value every customer, from large undertakings to small firms. We always give of our best. We help our customers to achieve greater success through expert advice, tailer-made solutions, innovative products and comprehensive services.

testXpert® II – intelligent and reliable testing software by Zwick

Zwick sets the standards – drawing on 90 years' experience of materials testing and the expertise gained from 15 years of Windows software programming. Building on this experience we have taken a further innovative leap forward. The result is *testXpert*® II, the new software generation for materials testing, using the latest Microsoft® Windows platform and featuring state-of-the-art software technology. Rest assured: you are in expert hands. *testXpert*® II is simple and flexible, powerful and user-friendly, precise and cost-effective, intelligent and reliable – in short, the perfect solution. Whether you test to established standards, create your own test programs or need to export your test data to a database, Zwick has the solution - on the spot, worldwide. Naturally *testXpert*® II can be used with all current Microsoft operating systems. In the following pages you can discover the benefits of *testXpert*® II for yourself.

Headquarters of the Zwick Roell AG and the Zwick GmbH & Co. KG in Ulm

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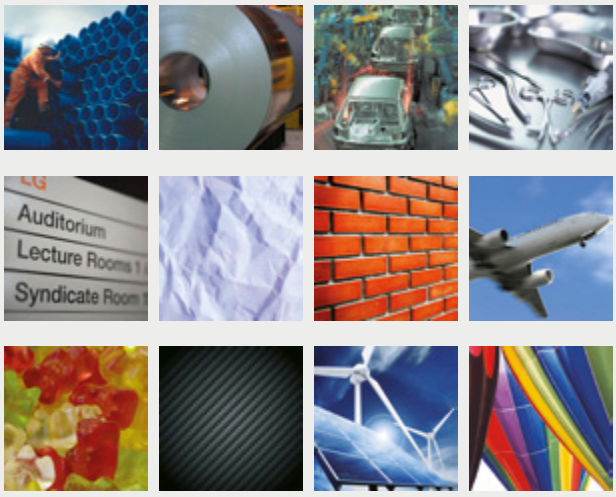
2 *testXpert*® II - the testing software for all applications and testing machines

Standard

Advanced

R & D



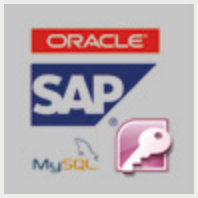
Any application
With *testXpert*® II, Zwick has set a new standard for intelligent materials testing software by introducing a uniform operating concept for all applications.

Any industry
testXpert® II knows your industry - specific functions and terminologies for over 20 different sectors enable tests to be customized within *testXpert*® II.

Multimedia functions

Export functions

Expansion functions



Database functions

Versatile functions
testXpert® II does more than other software – its range covers simple export functions, connection to databases, integration of hardware components.

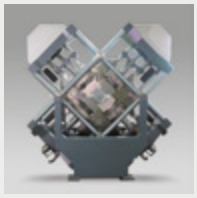
Static

Dynamic

Hardness

Pendulum

Extrusion test



Special test

Any machine
testXpert® II - the software platform for every machine and instrument, from small testing instruments to high-capacity testing machines. No compromise on operator convenience!

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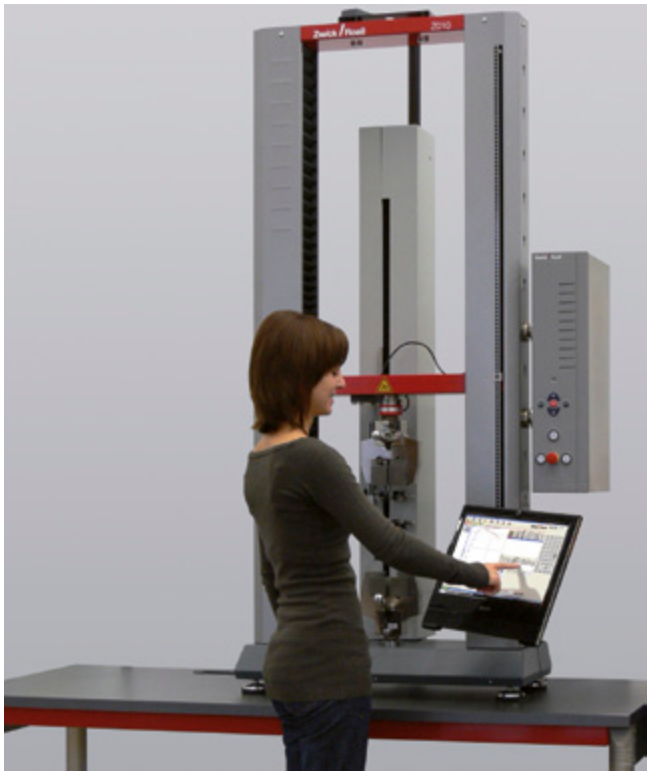
2.1 *testXpert*® II - for standardized test situations

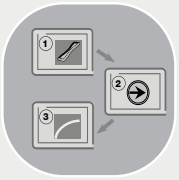
testXpert® II operation is designed to be purely intuitive. Informative icons and a clear layout mean operators quickly become oriented, reducing familiarization time to a minimum.

An intelligent wizard function guides you systematically through the test configuration and automatically checks your inputs for plausibility. The combination of *testXpert*® II and a touch-screen installed on the machine via a fully adjustable mounting produces a highly ergonomic user interface. The integrated alphanumeric panel is particularly useful for simple applications, with efficient parameter-setting and test performance directly on the machine.

testXpert® II already contains a ready-to-use test program for each test situation or standard. Integrated interactive tutorials allow you to familiarize yourself quickly with the software, while the comprehensive *testXpert*® II Online Help will quickly provide the right answer to any questions you may have. Materials testing really is that easy – if you have *testXpert*® II to help you.

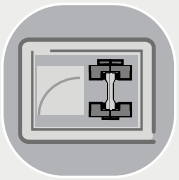


Standardized application with touch-screen operation



On your marks... get set... go!
Load test program,
input specimen dimensions,
clamp specimen,
press start button…
and *testXpert*® II takes care of the rest.

Speech output
The speech output provides all relevant and individual status reports, actively guiding the user through the test sequence.



Test environment visualization
With one mouse-click you can generate images or videos of your test arrangement, ensuring important information for the user is recorded for future tests.

Report and result export
The report is automatically printed out after the test or stored as a PDF file. Results can be exported directly in ASCII format.

Comprehensive user-management
Integrated user management with freely configurable user profiles and rights management avoids input errors and prevents manipulation.

Standard test programs
There are over 600 standard test programs, all fully compliant with the standards they relate to – allowing the user to perform standard-compliant tests immediately.

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testXpert® II - the ergonomic user interface

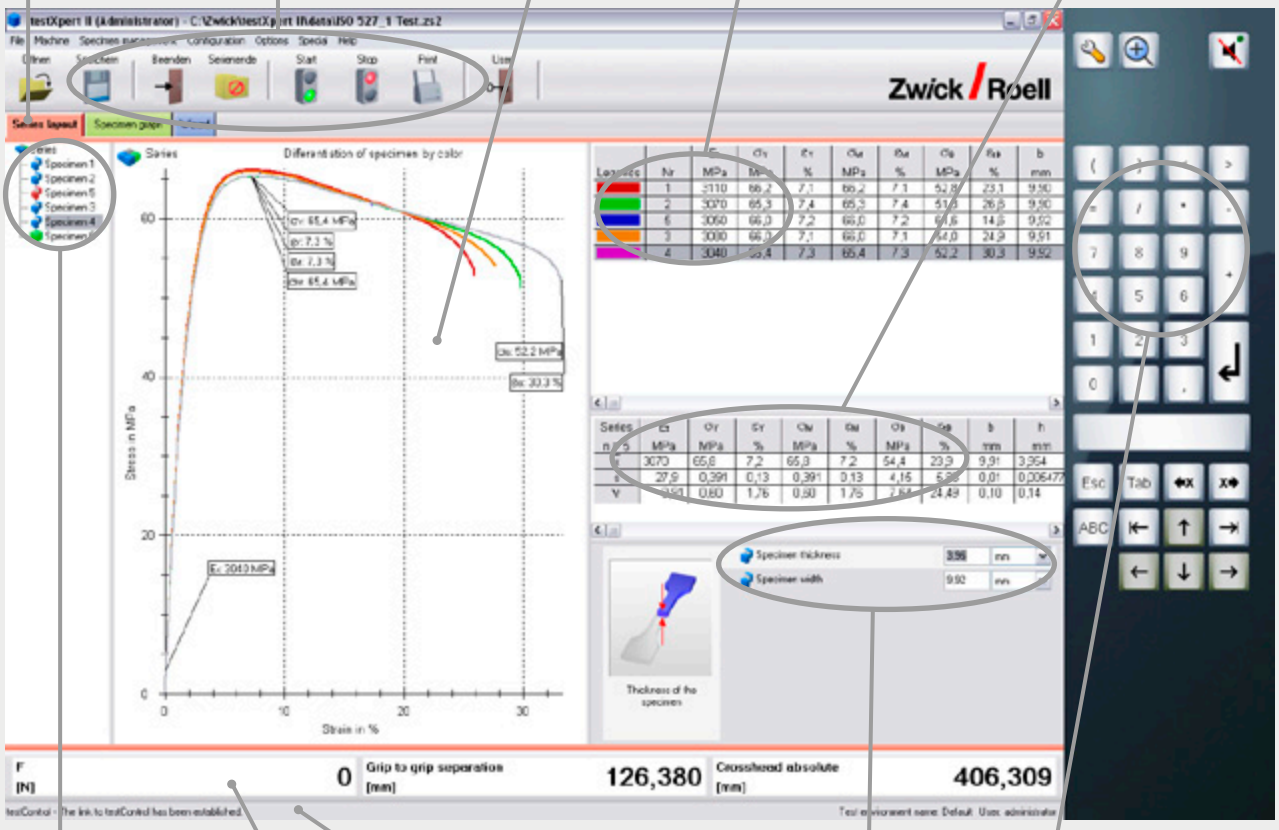
Layout change
Rapid change to different layouts.

Curve graphs
Result labeling, intelligent zoom functions, reticle and completely freely configurable curve graphs.

Statistics table
A wide range of statistical expressions from standard deviation to CMK index covers all requirements.

Toolbar
Key functions at a glance.

Results table
Tolerance and anomaly monitoring, free configuration and key.



Specimen list
Clear display of specimen and series structure.

Status display
The status indicator provides detailed information to the operator regarding the current test process.

Touch panel
Alphanumeric panel enables efficient parameter setting and navigation.

Channel display
All the key measurement channels at a glance.

Specimen-specific parameters
All specimen-specific parameters can be input directly in the test layout.

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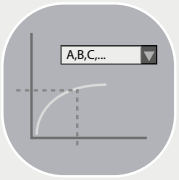
2.2 *testXpert*® II really shines in demanding test situations

For all types of test, *testXpert*® II has a master test program already fully set up, allowing you to configure your test sequence freely. In the same way the user interface adapts to your individual requirements so that you see exactly the graphics, results tables, tolerance displays, input dialogs and layout elements that you require for your test situation. The comprehensive results and statistics tables can be expanded as required, while long-term evaluations and clear histogram displays are already integrated into *testXpert*® II.

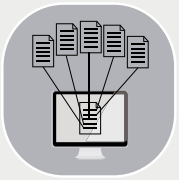
Whether you are exporting your test results to an external program or creating a report to your individual requirements, *testXpert*® II offers you all the options you need. In addition to the usual test data analysis, it is possible to assess specimen behavior visually during the test with the aid of synchronized videos.

Application using optical extensometer



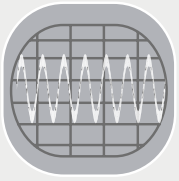
Results and channels
Reference values, statistical values, peak and gradient determination, complex algorithms, measurement and formula channels: *testXpert*® II generates any type of result or channel quickly and reliably.

Online language-swapping
At the click of a mouse *testXpert*® II user interface and reports can be displayed in any of twelve different languages as required.



Organizational data
Your adminstrative data (name of company, tester, certificate number), together with a uniform report structure, can be predefined centrally for all test programs.

SMS and e-mail dispatch
If required a text message or e-mail can be sent directly after the test. This function also enables the user to be notified of the end of the test in his absence.



2000 Hz data logging
Synchronized data transfer up to 2000 Hz from *testControl* II to *testXpert*® II guarantees detailed recording of fast-moving test processes.

Virtual testing machine
The virtual testing machine simulates tests without the need for a real testing machine. Ideal for training purposes and for checking complex test sequences.

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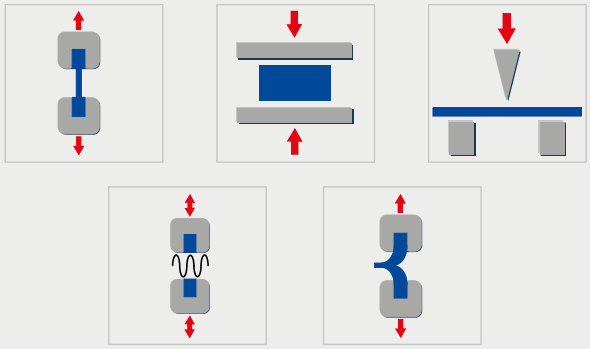
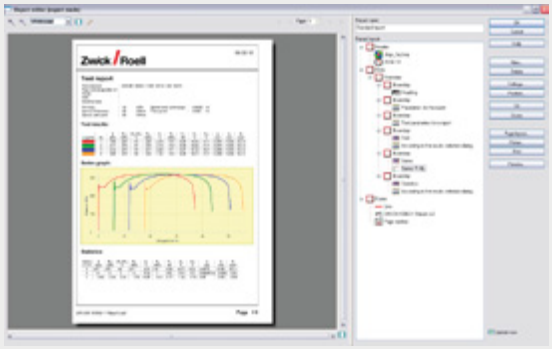
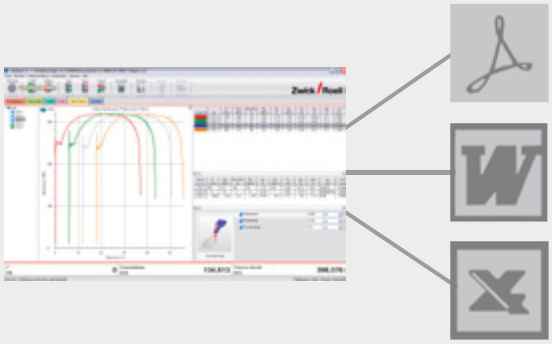
Master test programs
Zwick supplies master test programs for freely configurable tensile, compression, flexure, tear-growth, adhesion, peel and cyclic tests, plus master test programs for devices.



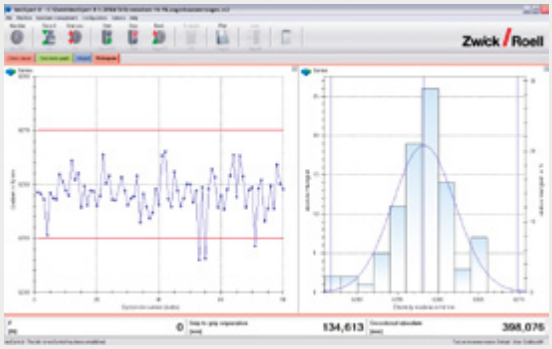
Report editor
Fast creation and amendment of test reports to individual requirements and presets. Effortless report compilation via structure editor with comprehensive functions.



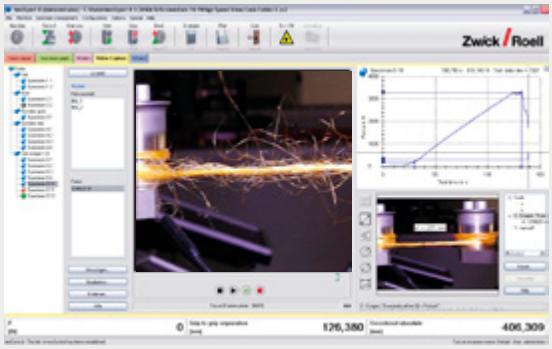
***testXpert*® II export editor**
Unique import / export interfaces allow perfect integration into your IT structure, allowing test results to be processed further or data exported.



Long-term evaluations
A powerful option which manages test results from various sources and also generates and archives long-term statistics.



Video-Capturing Plus
Videos synchronized exactly with the test and integrated into *testXpert*® II, together with measurement of individual frames, enable visual analysis of specimen behavior parallel to the test sequence.



***testXpert*® II user interfaces**
Customer-specific configuration of wizard and complete lay-out, with dialogs, graphs, parameter tables, channel display, images, etc. to your requirements.

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2.3 *testXpert*® II - reference testing software for R&D and Academia applications

It is frequently necessary to be able to program test sequences freely, particularly in research applications. The *testXpert*® II graphical sequence editor is exactly the right tool for this. This is precisely how we produce customizations tailored specifically to your particular applications. Existing sensor technology is easily integrated into *testXpert*® II; even measurement channels of external measurement amplifiers can be imported into *testXpert*® II in synchronized form. The integrated evaluation algorithms are ideal for analysing test data sets, while the ZIMT programming language enables you to create calculation and evaluation methods and procedures – you can make them as simple or complex as you like!

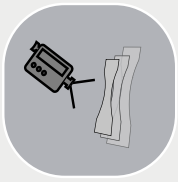
There are numerous additional tools, including expanded controller functions, positioning to external set values and database connections as required, making *testXpert*® II the universal testing software for research and development.

Research application

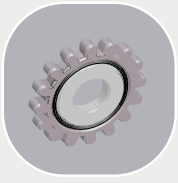
High flexibility
Individual expansions, adaptations, creation of unit tables, captures, system scripts and graphics elements are easily implemented with *testXpert*® II.

Database integration
However you prefer to manage your test presets and results, Zwick can implement any type of customized database integration.

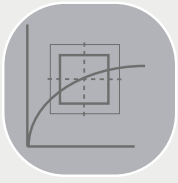
Integration of external sensor equipment
Easy integration of specimen measuring instruments, barcode readers, scales, external load cells and displacement transducers and strain-gage bridges.



Synchronized high-speed video
New analysis options for special test sequences via synchronized high-speed videos.



Customized special solutions
Complex testing systems, optical measuring procedures, high-speed tests, high-capacity units…
Zwick has the right solution.



External set-value control
The Graphical Sequence Editor allows the machine to be controlled to an external set value via *testXpert*® II.

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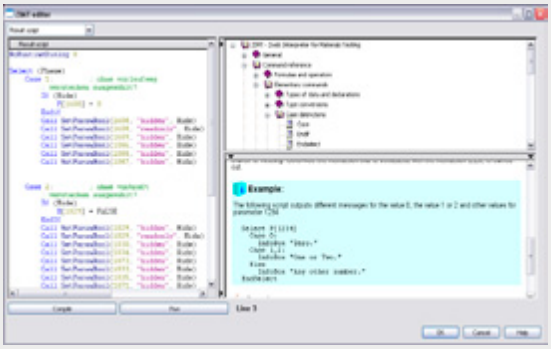
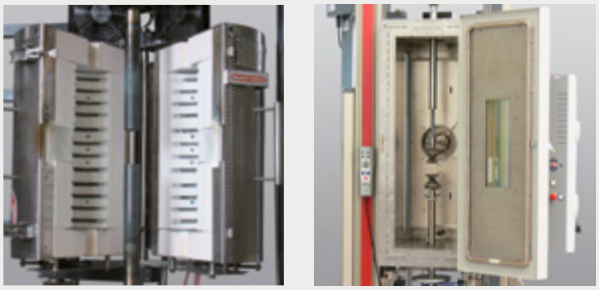
Graphical sequence editor
The graphical generation of complex test sequences is ideally suited to many R&D applications. Freely configurable travel, logic and limit modules enable almost any conceivable test sequence.

ZIMT - Zwick Interpreter for Materials Testing
ZIMT provides you with a flexible programming language which can be used to access all test data and functions within *testXpert*® II.

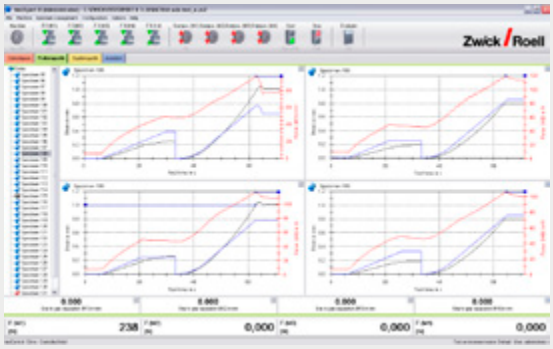


Universal integration of measurement amplifiers
testXpert® II allows you to import measurement channels from external measurement amplifiers in synchronized form and use them in the same way as standard measurement channels.

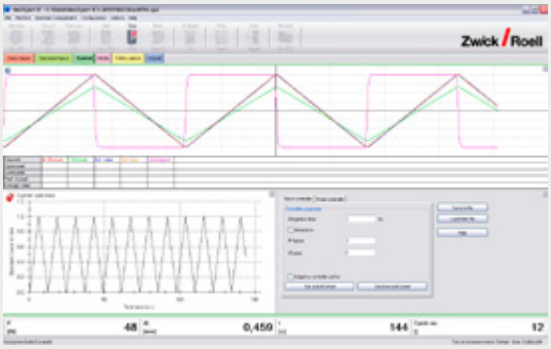
Temperature chambers and high-temperature furnaces
testXpert® II provides complete temperature management for tests at elevated temperature. Discrete temperature-profile tests are easily achieved.



Multiaxial solutions
In addition to normal axial test sequences, *testXpert*® II permits a large range of superimposed multiaxial solutions.



Expanded control
An integrated oscilloscope with set, actual and control values plus comprehensive controller settings allow complex control requirements to be implemented.



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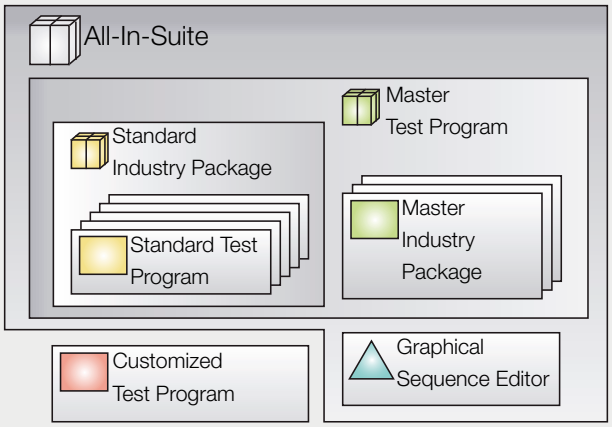
3 *testXpert*® II is at home in your industry

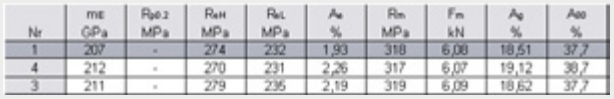
Zwick's materials testing machines can be found giving excellent service in over 20 different industries. Our long experience of working with customers from all sectors allows Zwick to deliver solutions perfectly matched to your requirements. In the same way, our active involvement in various standards committees ensures that new developments are incorporated directly into *testXpert*® II software.

testXpert® II is ideally suited to your industry. Our industry packages contain all key master and standard test programs plus a large range of options.



Terminology swapping:
***testXpert*® II speaks your language**
Integrated terminology-swapping allows the master test programs to adapt to your industry, matching terms, abbreviations and symbols, units and parameters to your requirements. You only see what you need for your industry. Additional layouts are automatically displayed on an industry-specific basis and the test sequence expanded logically with additional functions – making working with *testXpert*® II easier still.

Naturally, all Standard Test Programs are already optimized for the terminology used in your industry. Illustrated on the right is terminology adaptation for metals.

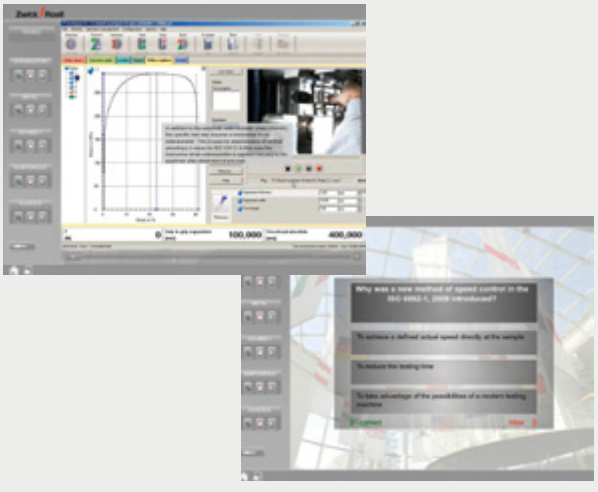

Test result

Layouts for r- and n-values

Parameter and test sequence

Education Module: The interactive multimedia learning software for materials testing
The *testXpert*® II education module is the ideal complement to classical teaching methods. In the first stage the principal types of test on various materials are shown with synchronized videos and on-screen captions at key stages of the test. A short quiz on each video sequence reviews what has been learned.

All software functions are available to users of the *testXpert*® II education module. Students can perform tests independently using the virtual testing machine, without destroying specimens in the process.



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4 *testXpert*® II – a good choice for sure

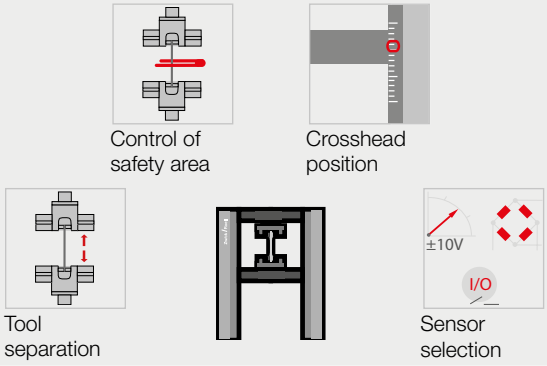
Zwick's quality standard 'Made in Germany' is based on the quality management system certified by TÜV to ISO 9001. Product safety is guaranteed by observance of the EU Machinery Directive and other applicable standards and directives. This entitles Zwick to apply the CE mark to its testing machines and to issue the declaration of conformity. With increasing quality awareness, demands on the accuracy and comparability of measuring equipment have also risen. The Zwick quality assurance process has been validated by well-known concerns to FDA, ISO and other guidelines and directives – your guarantee of the highest quality standards.

User safety is a central theme at Zwick and is guaranteed through CE-compliant safety devices, emergency stop chains and the *testXpert*® II test environment concept. Of equal significance are manipulation-secure test data and the protection of test devices, ensured via the following functions:

- sheltered area sensor monitoring
- sensor limit values stored in EEPROMs
- automatic block detection
- constant force during closing of specimen grips
- user management
- expanded traceability
- electronic signature

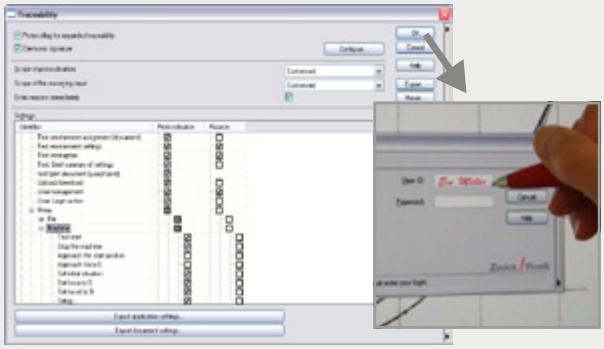
testXpert® II test environment concept

All relevant machine and safety settings, such as crosshead position, fixture separation or sensor configurations are stored and assigned to test environments.



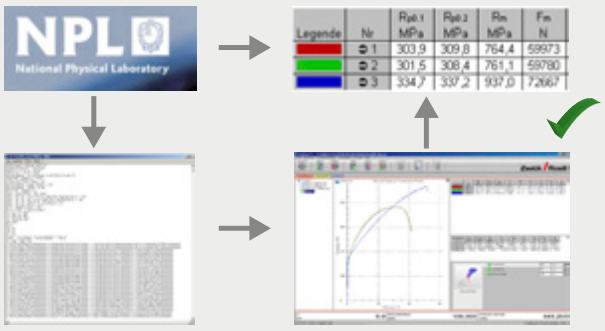
Expanded traceability

This option provides all the tools necessary to fulfil the requirements of FDA 21 CFR part 11, while the electronic signature safeguards the test series from changes.



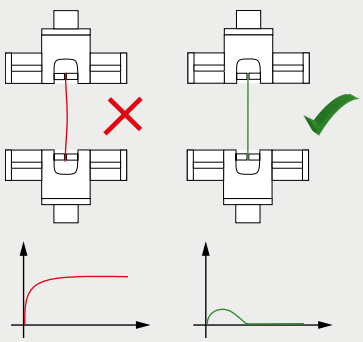
TENSTAND for validation of _testXpert_® II for metal tensile tests

Importing and evaluating reference files (National Physical Laboratory) allows the *testXpert*® II evaluation algorithms to be validated (ISO 6892-1 2009).



Constant force application on closing of specimen holders

testXpert® II's constant force hold reliably prevents unwanted tensile and compressive forces acting on the specimen during the closing and clamping process.



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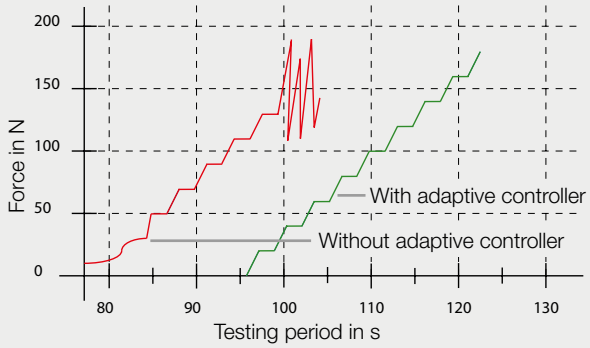
5 *testXpert*® II has yet more to offer

Innovative testing systems call for components from a single source matched to each other down to the finest detail and it is precisely this advantage that Zwick offers you. Our *testXpert*® II software and *testControl* electronics were developed in-house by our experts and together they form a perfectly matched total system. One feature of *testControl* is adaptive control, which automatically adapts to any specimen.
Time-consuming, cost-intensive pre-testing is no longer necessary.

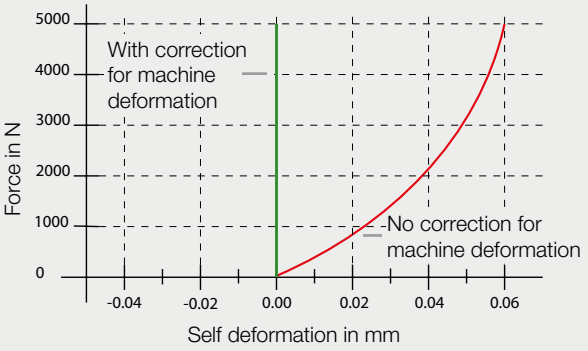
Real-time correction for machine stiffness is another important function only available with Zwick systems.

The system's modular design allows it to adapt precisely to the requirements of the test being performed, via modules plugged into *testControl* (e.g. the universal I/O module), various data acquisition cards and the online data transfer facility (up to 2000Hz). *testXpert*® II identifies all hardware components for automatic management, enabling quick, easy hardware configuration.

Adaptive control
Automatic setting of all control parameters enables exact approaching of target positions and strain control to ISO 6892-1 2009 Method A. Changes in specimen properties are compensated for online.



Real-time machine deformation correction
Maximum possible travel measurement and positioning accuracy when measuring with the crosshead travel encoder. Control and positioning take place directly on the corrected channel.



Automatic firmware update
On installation of a *testXpert*® II update the *testControl* firmware is automatically updated, ensuring that your *testControl* electronics are always up to date.

***testXpert*® II Corporate License**
Central test specifications, a uniform software version and traceable sensor use assist globally active concerns in achieving reliable, reproducible and comparable test results.

6 *testXpert*® II - the testing software for all machines and instruments

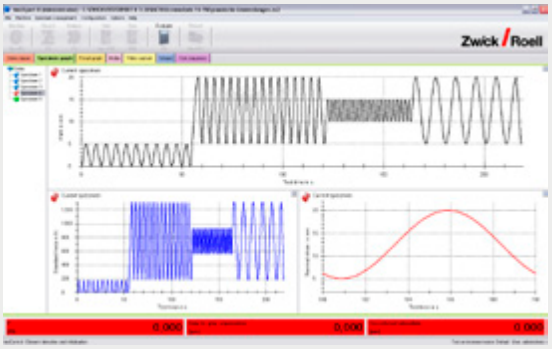
testXpert® II provides you with a uniform testing platform for all applications and equipment. *testXpert*® II's uses extend far beyond static applications to many other areas, offering you the benefits of a uniform, universal operating concept for testing machines and instruments. This enables training required to be reduced to a minimum when using different machines and instruments. Moreover, the entire, unique *testXpert*® II portfolio is available to you for all machines and instruments. *testXpert*® II long-term evaluation allows you to generate material-specific long-term evaluations and statistics via different test methods and instruments.

Master and standard test programs equipped with many device-specific and extremely useful functions have been created by our experienced software engineers for all devices. Customizations are naturally possible as and when required.

Automation with *testXpert*® II
For working with robotic systems, *testXpert*® II is perfectly matched to the automation software developed in-house by Zwick. Its performance in these applications is equally impressive.

Impact tests
A uniform master test program is available for pendulum impact testers and drop-weight testers. For instrumented pendulums automatic curve recognition to ISO 179 and 4 MHz data logging are optionally available.

Cyclic applications
testXpert® II offers cyclic travel commands with fade-in and fade-out functions, captures and integrated peak value controller, making *testXpert*® II ideal for such test situations.



Extrusion plastometers
Many different functions are integrated into *testXpert*® II to meet specialized requirements for individual testing instruments. Examples include automatic bubble detection and multiple-instrument operation for extrusion plastometers.

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7 Zwick Service

Customer satisfaction is the first priority for Zwick Service. As well as multiple service bases in Germany, highly-trained technicians in service organizations in over 50 countries worldwide ensure optimum utilization and maximum availability of your testing system. But Zwick offers more than just technical expertise. Experienced engineers advise you on the planning and execution of complex projects, when changes in test requirements arise or on the setting up or rebuilding of your testing laboratory and help optimize organization and performance of your tests. Professional services leave nothing to chance: installation, commissioning, maintenance, calibration and high availability of technicians and engineers give you the security of being in the hands of a competent and reliable organization.

Zwick software engineers possess solid specialist knowledge combined with many years' experience, enabling them to deliver fast, individual programming.

There is no need to change your IT environment – Zwick supplies software services perfectly matched to your conditions. The Zwick Academy® offers you and your operators comprehensive training programs for maximum efficiency when working with *testXpert*® II. Working in small groups or individually, you learn how to get the best from the software for your test requirements. And a phone call is all it takes for experienced software experts at the support desk to provide swift answers to unforeseen difficulties. *testXpert*® II is a future-proof platform; regular updates guarantee that you will always have powerful, up-to-date testing software available.

Individual connection to databases
Our experienced software engineers can program a customized connection to *testXpert*® II for all existing database systems for two-way data exchange.

Training courses at the ZwickAcademy®
Professional theoretical and practical training ensures that your staff work efficiently with *testXpert*® II testing software. The comprehensive training available from www.zwick.de can be reinforced whenever required by individual training.

Software update
An update gives access to the continuous development of *testXpert*® II and opens the door to expanded functions. Changes and updates for all relevant standards are contained in the relevant update.

Support desk
For comprehensive application-related advice or software support, the Zwick support desk is at your service. In many cases it repesents a cost-effective alternative to an on-site visit.

Zwick / Roell

You can count on *testXpert*® II

… over 20,000 installations worldwide

… more than 30 software developers constantly at work on new features

… service agents in over 50 countries for your on-the-spot requirements

… over 10 Zwick representatives active on international standards committees

… more than 600 standards already covered in standard test programs

… rest assured – you are in expert hands!

Would you like to know what *testXpert*® II has to offer you?
Talk to our staff - on the spot, worldwide.

Zwick / Roell

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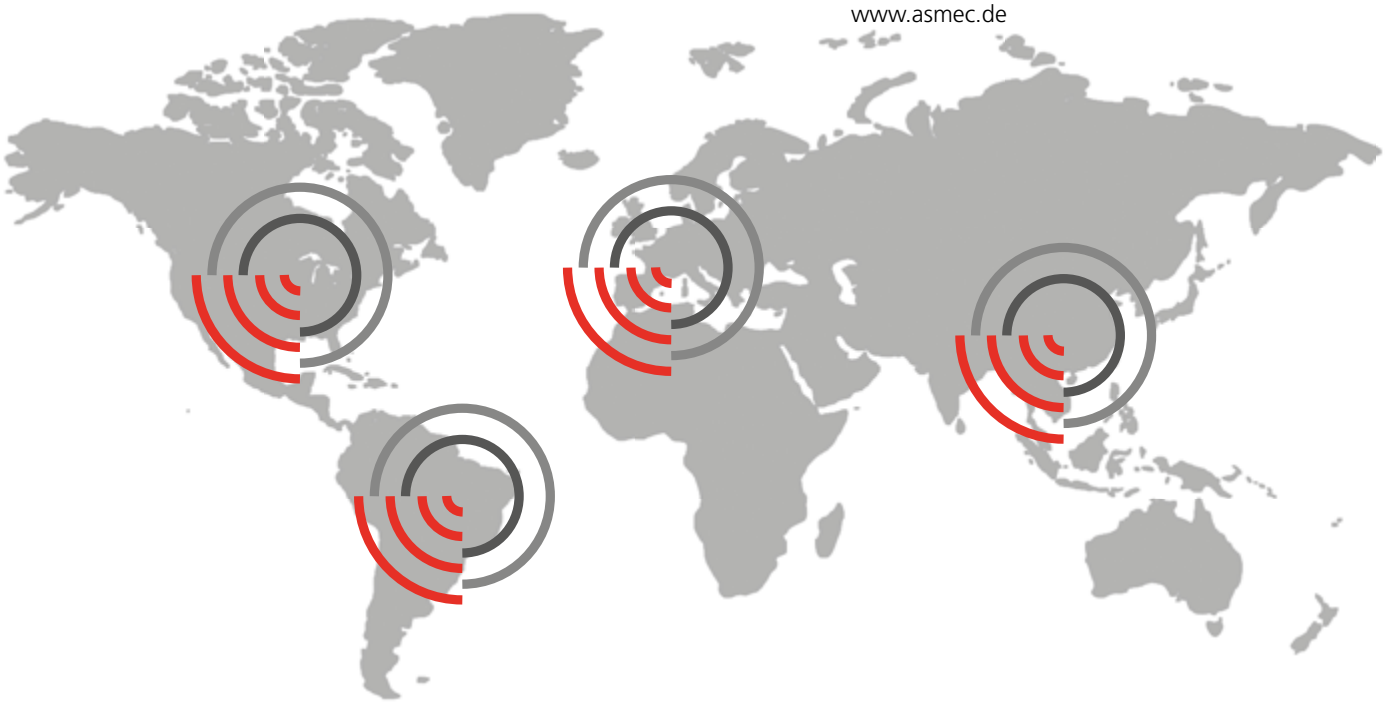

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