The Analysis System for Vehicle Safety Tests

XCrash

A Reliable Standard for Innovative Vehicle Development

Crash tests and active safety tests play a central role in the development of vehicles and their components. They provide verification that the required safety standards and protection criteria are met or even exceeded, and they also encompass vehicle and component tests for optimizing safety systems within defined target areas and for reinforcing development strategies. The challenges in the area of vehicle safety are constantly increasing in complexity and call for testing and analysis systems of the highest quality.

The analysis software **X-Crash** reliably supports automobile manufacturers, suppliers and crash laboratories in analyzing and documenting all types of safety-tests. In constant development since the mid-1990s, the software is today one of the world's leading standard systems for analyzing vehicle safety tests. Even the European New Car Assessment Programme (Euro NCAP) relies on X-Crash: all accredited crash laboratories in Europe use our software for analysis and reporting.

Vehicle manufacturers with their own dummy labs and certification labs also appreciate the functionality of **X-Crash ATD**, which was specially developed for the certification of dummies.

Turnkey but Still Flexible
From the first examination of the data to the final report, X-Crash is thoroughly focused on the needs of its users. Both individual tests and complete test series can be quickly and reproducibly analyzed and compared according to current laws and standards. The turnkey standard

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With X-Crash, your test data analysis will be reliable, standards-compliant and suitable for comparisons.

Crash tests
Sled tests
Component tests
Dummy certification

package contains analysis macros according to international regulations and is regularly updated.

X-Crash also impresses with its extensive customizing options: the user interface, dialogs, analysis algorithms and report layouts can be adapted to changing conditions and individual requirements via either pure parametrization or scripting with Visual Basic Script (VBS).

Turnkey system: As standard software, X-Crash is immediately ready to use.

In Line with the Times

The decades of expertise accumulated by measX in the area of analysis systems and vehicle safety have been bundled together in X-Crash. Users profit from the fact that our crash specialists work closely with standards-defining institutions, such as Euro NCAP. We receive early information on the development of new standards and participate in the efficient implementation of test procedures.

Standards for Data Exchange

Standardization improves collaboration and ensures high-quality results in the area of crash testing as well. For instance, the data exchange format ISO MME (Multimedia data exchange format for impact tests) ensures that heterogeneous test data can be saved in a uniform format. As recognized experts in test data management, we have participated in the development of this standard. Test data and descriptive supplemental information about the test are automatically stored together and permanently retained. This metadata makes it possible to quickly retrieve data records at any time. X-Crash contains special functions to make the generation and use of ISO MME data structures as simple as possible, and it also supports ISO MME version 2.0.

Alongside ISO MME, X-Crash supports data exchange in the standard data formats of ISO (EGV) and DIAdem. In addition, access to other data formats and databases, such as ASAM ODS (VSIM), can also be realized.

"We decided on X-Crash because all crash-relevant evaluation criteria were taken into account and the software is kept continuously up to date."

Richard Schram, Technical Manager Euro NCAP

A Coherent Solution from Inspecting the Data to the Final Report

The actual analysis is generally preceded by a check of the raw data for measurement errors and plausibility. With the modules **QuickView, QuickEdit** and **QuickCalc**, X-Crash offers powerful functions for interactive data viewing and editing as well as manual calculation of channels and result values. The software provides you with optimal support in viewing and evaluating the signals. Edited data can be saved by default in the formats ISO MME, ISO (EGV), DIAdem DAT/TDM and Excel.

Standards-compliant Analyses at one Click
The standard package contains a comprehensive library of formulas with predefined analyses and reports according to international crash regulations, laws and evaluation methods, such as Euro NCAP.

Rapidly Create your Own Analyses
In addition to the included analysis algorithms, you can create your own project- and customer-specific macros without special programming hurdles using Visual Basic Script (VBS) or DIAdem functionalities and add them to the macro library.
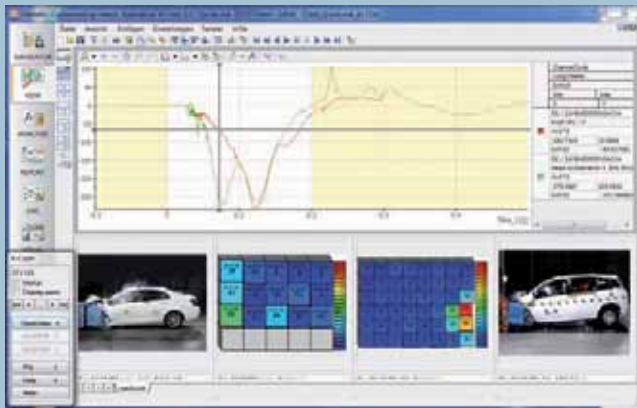
Better Overview, Efficient Processes
The macro library is clearly structured. The standard area with the included analysis macros is maintained by measX, while you can organize the company, project or user area yourself. Here you can collect both standard macros and your own creations however you like. You can assign a suitable group of special analysis macros as defaults to every test type.

Data Viewing

QuickView

- *x* Synchronous viewing of measurement channels and videos

- *x* Representation of forces from load cell walls as video
- *x* Marking of already viewed channels
- *x* Simple comparison of various tests (channels and videos)
- *x* Creation of screenshots and videos of the entire view
- *x* Creation of report pages with video images

Data Editing

QuickEdit

- *x* Automatic check of the measurement channels (e.g. polarity check, amplitude check, spike search)
- *x* Simple editing of the channels (e.g. trigger and offset correction, inversion, removal of spikes)

QuickCalc

- *x* Calculation of cumulative forces for the load cell wall
- *x* Calculation of channels (e.g. resultant, AVS, formula, HoF, AHoF)
- *x* Calculation of injury criteria (e.g. HIC and 3ms)

XCrash Comprehensive plausibility checks of the raw data and largely automated report generation guarantee maximum reliability and comparability.

Automated Processes

The analysis processes are largely automated. Nevertheless, you can intervene at any time to make adjustments. If fully automatic analysis is desired, for example, the analysis can be controlled by a process database.

Comparative Analyses

Thanks to an automatic channel search, you can very easily compare entire test series – even with different impact side or driver position – and produce a single report on the comparison.
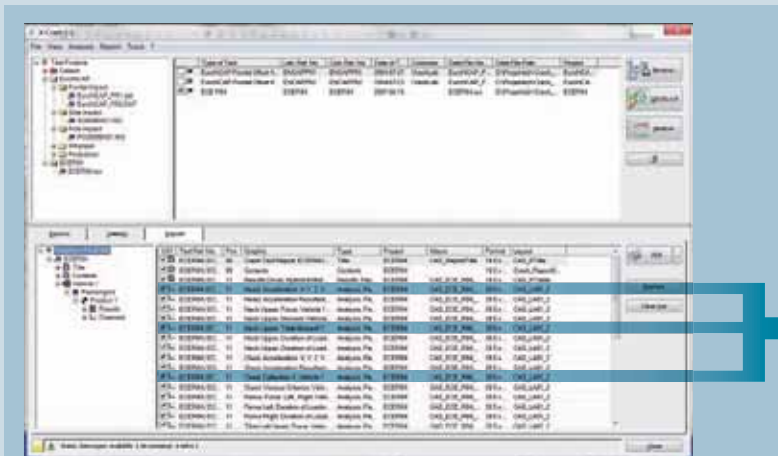
Individual Reports

X-Crash provides numerous analysis functions both general in nature and tailored for the various regulations. The analysis results are presented in clearly organized reports with cover sheet, table of contents and results summary. You can take advantage of proven standard layouts or implement special layouts of your own. A wide range of output formats is available for the reports, such as PDF, PowerPoint, PNG, JPG or EMF.

Proven Standards

X-Crash is based on the standard software DIAdem from National Instruments in combination with our development platform X-Frame. As a result, the user is offered comprehensive basic functions for interactive, automated data processing supplemented by convenient customizing options and special functionality tailored to crash testing.
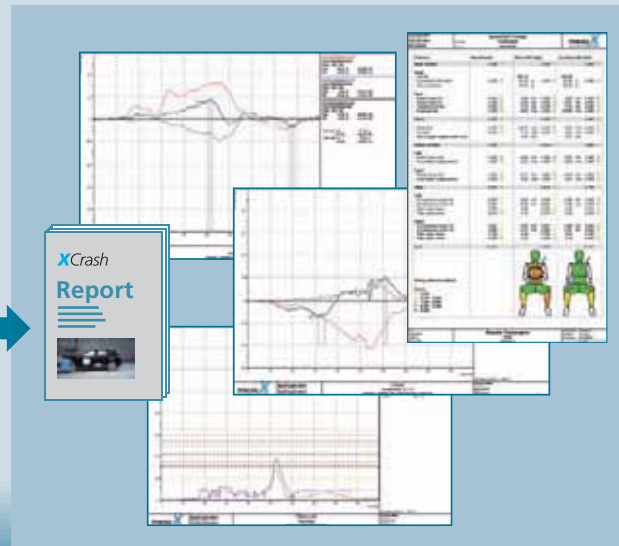
powered by
XFrame

Analysis

The contents of the test reports are summarized in a clearly structured menu.

Report

Internationally applicable laws, crash regulations and evaluation methods are included in the standard package and continuously updated.

- **x** ADR
- **x** C-NCAP
- **x** ECE
- **x** EU
- **x** Euro NCAP
- **x** FMVSS

- **x** IIHS
- **x** JNCAP
- **x** TRIAS
- **x** US NCAP
- **x** and other standards

Crash Test Dummies on the Test Bench

X-Crash is used successfully for even more than the analysis of vehicle safety tests. As X-Crash ATD, the software also assists vehicle manufacturers and certification laboratories in the evaluation and calibration of dummies according to current legislative requirements. All typical dummy types and methods for testing their biomechanical properties are supported.

Specialized Tool
X-Crash ATD offers a user interface and an analysis library tailored specially to the needs of dummy laboratories. The system also features clearly organized, practically oriented test management functions.

By default, X-Crash ATD works with the data formats ISO MME, ISO (EGV) and DIAdem DAT as well as the industry-specific exchange format "Equipment Exchange" (*.e2x) developed specially for equipment such as dummies and sensors.

All tests associated with a certification can be collected into a single report, including corresponding sensor information, if necessary. As with X-Crash, you can also integrate your own extensions here. The integration of automated test operation is also a simple matter.

One Common Solution
X-Crash ATD can be used independently of the base software X-Crash. However, users profit from parallel use: both software packages share the same foundation and are administered identically. Moreover, customer-specific analysis requirements can be integrated in the same way.

XCrash ATD

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X-Crash ATD offers reliability and flexibility in the certification of dummies.

x Legally-compliant analyses
x Convenient customizing options
x Flexible data exchange (including via *.e2x)
x File-based data management
x Suitable for integration into automated testing operations

Solid Partnership
for your Success

Long-term customer relationships based on partnership, not to mention the established trust of Euro NCAP, are the best proof of our competence in the area of vehicle safety testing. The analysis software X-Crash remains under active development to ensure that you can continue to master your future challenges.

Comprehensive X-Crash Service
We support you from the initial installation of the software through to complete implementation, and we remain ready to assist you throughout your use of our software. The X-Crash service maintenance contract naturally includes fast, professional support by telephone, fax and email.

We continuously adapt X-Crash and X-Crash ATD to current, internationally applicable laws, regulations and evaluation methods so that you can always stay on the safe side. If legislative requirements and regulations change or new ones are added, we adapt the evaluation macros or integrate new algorithms. X-Crash is continuously optimized within the framework of the core development work. As a service customer, you automatically receive all new updates and upgrades.

Individual Services
If necessary, we create analysis macros for you, solve automation problems or realize special functions, such as integration into a specific internal data management system. We are also at your side in matters of data import and export. For example, we support you in conversion to ISO MME data structures.

Training
We offer standard training courses in X-Crash, but we also focus on individual topics, if desired, such as the creation of analysis algorithms with Visual Basic Script (VBS).
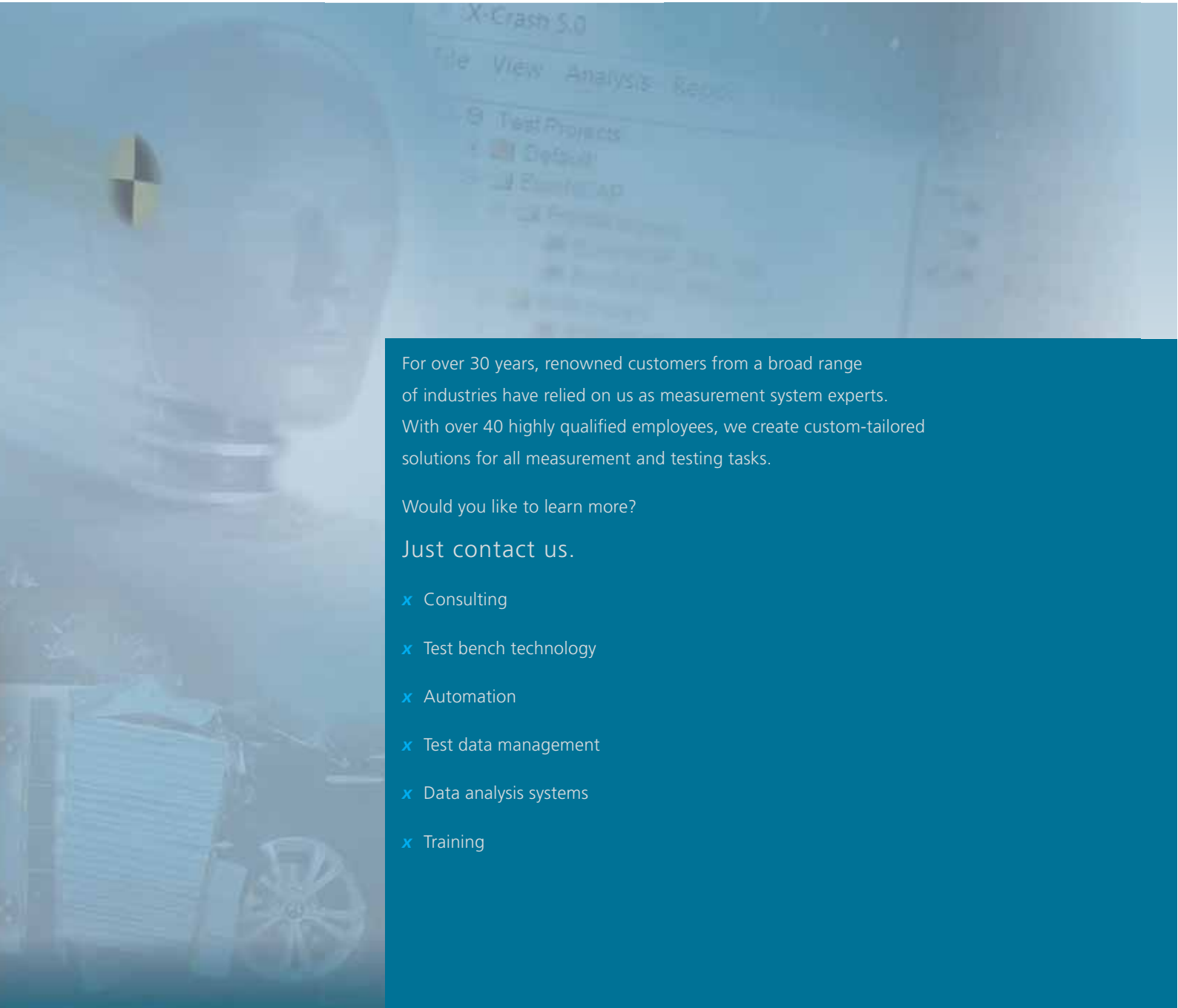
Coaching
You are encountering difficulties with your analysis work or have special questions about X-Crash? We would be happy to send you an expert to provide individual on-site assistance.

Profit from a dedicated team and over 20 years of experience in the field of analysis systems and vehicle safety. We are there for you!

x Member of the Vehicle Safety Measurement Data Processing Workgroup (MDVFS) and ASAM e.V.
x Partner of National Instruments and Oracle
x Certified according to ISO 9001

measX
Measurement System Experts

For over 30 years, renowned customers from a broad range
of industries have relied on us as measurement system experts.
With over 40 highly qualified employees, we create custom-tailored
solutions for all measurement and testing tasks.

Would you like to learn more?

Just contact us.

x Consulting

x Test bench technology

x Automation

x Test data management

x Data analysis systems

x Training

measX GmbH & Co. KG

Moenchengladbach Headquarters
Trompeterallee 110
D-41189 Moenchengladbach

Tel.: +49 (0) 2166 9520-0
Fax: +49 (0) 2166 9520-20

info@measx.com
www.measx.com

Aachen Office
Pascalstrasse 26
D-52076 Aachen

South Office
Martin-Luther-Strasse 55
D-71636 Ludwigsburg