Dynamic Design Solutions
CAE Software and Services

DYNAMIC DESIGN SOLUTIONS NV – COMPANY PROFILE

Dynamic Design Solutions ("DDS") is an independent and privately owned developer of CAE software tools for validating and updating simulation models, optimizing engineering designs, modal testing and integrating and automating simulation processes.

We provide solutions that help FEA and test engineers to improve the fidelity of their FE models, identify structural properties, assess uncertainty of variables and incorporate variability into models. Validated simulation models can be used with more confidence to improve performance of products under real world conditions. This process is becoming part of the ISO 9001 quality assurance standard.

Dynamic Design Solutions is a technology leader in Finite Element (FE) model updating using static or dynamic reference test data. We service a wide spectrum of industries including aerospace, automotive, defense, marine, manufacturing, power, sports and education. Many prestigious companies and institutions have relied on our unique and proven technologies combined with the best possible support and technical expertise by a dedicated team of specialists.

Founded in 1994 with headquarters in Leuven (Belgium), Dynamic Design Solutions is providing advanced but yet easy to use engineering software. The competitive advantages of the company, our products and services are demonstrated by:

- A prestigious and wide customer base of commercial and academic organizations worldwide.
- A unique position in providing analysis solutions that can run stand-alone or integrate commercial FEA models and solvers for model validation, updating or design optimization.
- A platform- and solver independent engineering framework with essential components for graphics, data management, and programming, serves as the basis for developing a growing array of CAE tools.
- The only company providing interactive software that integrates all components for real-life model validation, updating or design optimization. From pre-test planning to probabilistic design improvement.
- A professional and multi-lingual staff of engineers with extensive experience gained from consulting with sophisticated customers.

Our products and services are available directly from Dynamic Design Solutions and from a growing network of Solutions Partners providing localized sales and support.

Participation in international research projects and our own internal research on the core correlation and updating technology is expected to regularly yield new major functional upgrades and new related products. Research and development of new products focuses on the following areas:

- **Applications of test-analysis integration**. This includes applications like structural health monitoring, damage detection, material identification, ...
- **Integration of design and analysis**. This includes applications like design optimization, rapid prototyping, robust design, ...
- **CAE process integration and automation** - Automation of analysis and validation processes involving different distributed analysis and diagnostics tools.
- **CAE database management** - FEA and test data translation, normalization, transformation, and archiving.

Dynamic Design Solutions works with a network of technical advisors from university and industry. Members advise our developers and customers on new technologies and applications.

Dynamic Design Solutions is also a third-party developer partner of ANSYS Inc., Dassault Systèmes Simulia Corp., MSC.Software Inc., and Siemens PLM Software Corp.

Dynamic Design Solutions is a member of NAFEMS, the International Association for the Engineering Analysis community.

FEMtools Product Overview

The flagship product of Dynamic Design Solutions is the FEMtools family of products.

FEMtools is a multi-functional, cross-platform and solver-independent family of CAE software providing analysis and scripting solutions for a growing number of applications in the areas of FE pre- and postprocessing, structural dynamics simulation, pretest analysis, experimental modal analysis, test-analysis correlation, model updating, uncertainty analysis, design improvement, CAE process integration and simulation data management.

FEMtools seamlessly integrates with standard analysis codes like MSC.Nastran, Simcenter Nastran, Ansys, Abaqus, LS-DYNA and others. Translators for importing static, modal or operational test data are available.

The underlying framework architecture with powerful scripting and API function libraries provides unlimited extension and customization. This makes the software an ideal tool research work and development of process-based applications like material identification and damage identification.

FEMtools consists of various tools that are licensed as the following standard configurations:

- **FEMtools Framework** – this is the core platform containing tools for database management, interactive graphics, finite element library and basic solvers, scripting language and API.
- **FEMtools Dynamics** – Advanced structural dynamics simulations (forced response), superelements, and structural modifications
- **FEMtools Pretest and Correlation** – Tools for modal pretest analysis and FEM-FEM or FEM-Test correlation (modal and non-modal).
- **FEMtools Model Updating** – Tools for sensitivity analysis, automated FE model updating, force identification and uncertainty analysis.
- **FEMtools Optimization** – Tools for gradient-based optimization, DOE/RSM optimization, and optimization of topology, shape, size and material.

A growing number of add-on products and third-party products based on FEMtools Framework and components are becoming available that address specific needs for various applications and industries.

Services and Courses

A dedicated team of specialists at Dynamic Design Solutions continuously improves and extends the FEMtools program. New versions are regularly released. In addition, Dynamic Design Solutions provides technical support, FEMtools customization and implementation, application development, project research and courses.

Dynamic Design Solutions and FEMtools Solutions Partners regularly organize two or three-day courses on finite element model validation and updating technology applied to structural static and dynamic analysis. This course is intended for all who want to improve their understanding of the technology. The FEMtools software is used for hands-on exercises during approximately half of the time.

Contact

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