BIM ready software for structural analysis of steel, reinforced concrete and timber structures in civil, plant and mechanical engineering, glass design, dynamics...

RFEM 5
The ultimate FEM program

RSTAB 8
The 3D beam analysis program

Picture: Sailer Stepan und Partner
General Features

RFEM and RSTAB are the optimal solutions for structural and dynamic analyses in steel, reinforced concrete, timber, plant and crane construction, mechanical engineering, etc. RSTAB is used to design 3D beam structures. With the FEM program RFEM you can additionally design plate, wall, planar, shell and solid elements. Due to the intuitive program handling, both analysis programs allow for a fast and efficient work.

General Features/User Interface

- Individual program packages due to modular software structure
- National and international standards (constant updating)
- High-quality visualization of model and loading
- Quick and qualified hotline support
- Quick familiarization with programs due to easy-to-operate user interface
- Model input in tables or directly in graphics
- Immediate model check due to photo-realistic visualization in 3D rendering
- Creation of structural and load data in nearly no time
- Multilingual program handling

Modeling

- Tools for generating models including loads
- Comprehensive cross-section and material library
- Determination of imperfections
- Wind and snow load generators
- Editing recurring structures efficiently by parameterized input
- Inserting and saving parameterized structural systems
- Input of member non-linearities, couplings and eccentricities for members and surfaces
- Large variety of member and surface types as well as material models
- Detection and elimination of input errors by model check

Calculation

- Linear static, second-order or large deformation analysis
- Automatic creation of combinations acc. to selected combination expressions
- Computation kernel with optimized multi-core processor technology and 64-bit technology
- Option to consider non-linear effects such as failure of tension members, plastic hinges, slippage, etc.
- Modification of stiffnesses for materials, cross-sections, releases, etc.

Results Output and Printout Report

- Output of internal forces, deformations and support reactions in tables and graphics
- Colored results display on rendered model
- Results display for entire model or selected model parts
- Animation of deformations, internal forces and stresses
- Manual or automatic printing of graphics into printout report
- Multilingual printout report
- Export of report in RTF or PDF file
Steel Construction

With RFEM and RSTAB you can perform structural calculations and designs of steel structures such as halls, frameworks, bridges, silos, cranes, towers, etc.

RSTAB calculates spatial beam structures, RFEM can additionally design spatial structural systems consisting of plates, walls and shells. The steel design is carried out in the respective add-on module. Both programs are optimally integrated into the BIM process. They provide a variety of interfaces with the industry standard software. In addition, RFEM and RSTAB have bidirectional interfaces with the programs Autodesk Revit Structure, Tekla Structures and Bentley ISM.

- Eurocode 3 with numerous National Annexes, for example of Germany, Austria, France
- International steel construction standards: USA, Switzerland, Great Britain, China, Canada, Russia (with certification), Australia, etc.
- Extensive library with international materials and cross-section tables
- Nonlinear material laws to consider plastification of surface elements (RFEM)
- Non-linearities of members, releases, and supports (failure under compression/tension etc.)
- Load and model generators
- Equivalent imperfections or scaled buckling mode shapes
- Critical load factors
- Linear static, second-order and large deformation analysis
- Automatic cross-section classification
- Cross-section designs elastic-plastic (von Mises, EN 1993, TSV, AISC, SIA, etc.)
- Stability analyses with integrated eigenvalue calculation for any load and boundary conditions (rotational restraint, shear panel, etc.)
- Extended approach (with biaxial bending) by Naumes/Feldmann/Sedlacek
- Buckling analyses (reduced stresses/effective widths/second-order analysis)
- Stability analyses acc. to second-order analysis (2D/3D)
- Fatigue designs, fire resistance design
- Layout of connections (frame joints, column footings, DSTV connections, etc.)
- Design of crane runways and towers acc. to EC 3
- Detailed results output and documentation

Bahá’í Temple of South America - Chile

Customer: Josef Gartner GmbH, Würzburg, Germany
- Modeling in Rhinoceros and subsequent data transfer to RFEM
- Calculated with RFEM including seismic design in RF-DYNAM

Nodes: 9,734
Members: 17,300
Finite elements: 26,348
Reinforced Concrete Construction

With RFEM and RSTAB you can easily calculate and design structural systems consisting of reinforced concrete. RSTAB is the appropriate tool used for 3D beam structures (continuous beams, columns, frames, halls, etc.). RFEM can additionally design reinforced concrete slabs, walls and shells as well as prestressed concrete structures. Moreover, it is possible to calculate single foundations and to perform punching designs (RFEM).

- Eurocode 2 with numerous National Annexes, for example of Germany, Austria, Italy
- International concrete standards: USA, Switzerland, China
- Linear and nonlinear calculations
- Design of slabs, walls, shells, members, and foundations
- Designs for ultimate limit state, punching, serviceability
- Deformation analysis of slabs, shells, and 3D beam structures in cracked and uncracked state
- Option to consider creep and shrinkage in deformation analysis
- Fire protection for rectangular and circular cross-sections
- 3D rendering of provided reinforcement for beam structures
- Model column method or method based on nominal curvature
- Design of prestressed concrete members with pre-tensioned and bonded post-tensioned concrete
- Single foundations like bucket foundations, block foundations or simple foundation plates designed acc. to EN 1992-1-1 and EN 1997-1 with many National Annexes, for example of Germany, Austria
- 3D rendering of foundation reinforcement
- Reinforcement drawings for foundations including steel schedules
- Verifiable printout report

Hotel Intercontinental in Davos - Switzerland

Customer: Sailer Stepan und Partner GmbH, Munich, Germany
- Calculated with RFEM including seismic analysis

Nodes: 3,232
Surfaces: 652
Finite elements: 29,505
Timber Construction

Dlubal Software offers different possibilities for designing timber structures. On the one hand, you can use RFEM and RSTAB to calculate complete 3D structural systems built with timber. On the other hand, you can use the RX-TIMBER programs to calculate individual structural components such as glued-laminated beams, columns, continuous beams, purlins, frames, and bracings with only a few entries. In addition to beam structures, it is also possible to calculate surface elements in RFEM. So you can design for example cross-laminated timber slabs which are biaxially stressed.

- Eurocode 5 with numerous National Annexes, for example of Germany, Austria, Spain
- International timber standards: USA, Switzerland, Canada
- Cross-section designs, stability analyses, and serviceability limit state designs
- Fire resistance design acc. to EN 1995, SIA 265, ANSI/AWC NDS-2012 (ASD)
- Extensive material and cross-section library
- Automatic creation of combinations considering influences of creep
- Design of cross-laminated timber slabs acc. to EC 5
- Free form members and surfaces
- Semi-rigidly connected composite cross-sections
- Cross-section optimization
- Orthotropic solids
- Layout of connections like dowel, footing and girder joints (Sigha, Sherpa) using timber connectors, nails, bolts
- Time-saving parametric input in RX-TIMBER stand-alone programs (glued-laminated beams, columns, continuous beams, frames, etc.)
- Automatic distribution and design of stiffenings for transversal tension in RX-TIMBER

Look-Out Tower on Pyramidenkogel - Austria

Customer: LACKNER + RAML Ziviltechniker - GmbH, Villach, Austria
- Mixed structure made of timber and steel
- Calculated with RSTAB

Height: approx. 100 m
Nodes: 1,773
Members: 2,474
Dynamics

RFEM and RSTAB offer powerful add-on modules for dynamic analyses. You can perform seismic designs as well as analyses of natural frequencies and of vibrations for any structural system.

- Determination of up to 9,999 eigenvalues for planar and spatial structural systems
- Model self-weight considered automatically as well as determination of additional masses by means of previously defined load cases or combinations
- Visualization/animation of mode shapes and time courses
- Forced vibration analysis by means of modal analysis or direct integration
- Extensive library of accelerograms in earthquake prone regions
- Equivalent seismic loads acc. to multi-modal response spectrum method and subsequent square addition of results
- EC 8 with National Annexes of Germany, Austria, Italy, France, etc.
- International Standards such as SIA 261, IBC 2012, GB 50011, O.G. 23089, etc.
- Output of natural frequencies and mode shapes, modal masses, equivalent loads, and time history diagrams

BIM Planning

RFEM and RSTAB allow for a BIM-oriented planning. Both programs have high-performance interfaces with the leading software tools for computer-aided design and structural analysis. The interfaces are integrated in the programs by default and subject to constant updating and continuous development.

- Efficient teamwork for engineers planning design and details
- Working on 3D model with material and geometry information
- Direct interfaces with Autodesk Revit Structure, Tekla Structures, AutoCAD, and Bentley ISM
- Keeping intelligence of objects during data transfer
- Easy transfer of model modifications
- Standard file formats for data exchange like DXF, IFC, DSTV, STP, SDNF, etc.
- Interfaces with CAD reinforcement programs of Glaser, Strakon and Nemetschek

Glass Design

With RFEM you can calculate and design glass structures separately or as parts of an entire model. Many of the commercially available glass types are provided. The glass surfaces defined in RFEM can be supported on lines and nodes. It is also possible to model them as special geometric solids.

- Design of single layer, laminated and insulating glass
- Standards DIN 18008:2010-12 or TRLV:2006-08
- Stress analysis, ultimate and serviceability limit state designs
- Design of curved glass
- Consideration of climatic loads
- Option to consider shear coupling of layers
Customers all over the world

Germany, Austria, Switzerland, UK, France, Netherlands, Belgium, Luxembourg, Portugal, Hungary, Poland, Czech Republic, Denmark, Sweden, Finland, Norway, Slovenia, Greece, Turkey, Italy, USA, Canada, South Korea, Brazil, Peru, China, Russia...

Well-known companies use Dlubal Software

Abengoa, ESP-Sevilla
A-Insinöörit Suunnittelu Oy, FIN-Espoo
ALSTOM Boiler Deutschland GmbH, Stuttgart
ALSTOM, Mannheim
ALTRAD pllettac assco, Plettenberg
AmericanTower, USA-Cary, North Carolina
Andritz Hydro, A-Linz
Anwikar Consultants, Würzburg
AREVA NP, Erlangen
Assmann, Braunschweig
ATP, München, Offenbach am Main, A-Innsbruck, A-Wien
Audi, Ingolstadt
Bayer Techn. Services, Leverkusen
BG Ingenieure & Berater AG, CH-Lausanne
Bilfinger Berger, Wiesbaden
Bois Consult Natterer SA, CH-Etoy
Bollinger + Grohmann, Frankfurt am Main
Bosch Rexroth AG, Wiesbaden
E.ON Business Services GmbH, Hannover
EADS Deutschland, Immensstaed
EDF - CNEN, F-Montrouge Cedex
Europoles, Neumarkt
Fast + Epp, CDN-Vancouver (BC)
FLSmidth, Wadgassen
Fritsch + Chiari, A-Wien
Gartner, Gundelfingen
GEA, Bochum

Germanischer Lloyd, Hamburg
Hochtief Solutions AG, München
Hyder Consulting, Hartheim
IMPaC Offshore Engineering, Hamburg
Ischebeck GmbH, Ennepeal, UK-Oldham
ITER, F-St. Paul Lez Durance Cedex
Kanegiesser, Vlotho
Krebs und Kieferk, Darmstadt
Lafarge Services, F-Saint Quentin Fallavier
Larson Engineering Inc., USA-Maryland
Layher International
Liebherr-Werk Biberach GmbH
Lloyds Register, UK-London
Magdeburger Förderanlagen, Magdeburg
MAN Diesel & Turbo, Augsburg, IND-Aurangabad
Max Bögl Bauservice, Sengenthal
MEFA International
Neptun Ship Design GmbH, Rostock
Novum Structures, Veitschochheim,
USA-Menomonee Falls (WI)
OTIS GesmbH, A-Wien
PERI, Weissenhorn
Permasteelisa, USA-Miami
Ramblöll, FIN-Espoo
Reynaers Aluminium, BEL-Duffel
Rubner Holzbau, I-Brixen
RWE, Essen, Dortmund
Schaefer Systems International
Siemens AG, Erlangen
SLS Services, Saarbrü
Spannverbund, Waldems-Esch
SPI Schüßler-Plan, Düsseldorf
SPX Cooling Technologies, B-Brüssel
ThyssenKrupp
Trelleborg Marine System, F-Rueil-Mal-
maison Cedex
TÜV SÜD Industrie Service
ULMA Construction, I-Monguello (BZ)
Waagener Biro, A-Wien
WIHA Electrical GmbH, A-Altheim
Züblin, Stuttgart

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Would you like to know more about RFEM and RSTAB? Ask for a free trial version without obligation or use the download option at www.dlubal.com.

With the trial version you can learn more about our programs, get acquainted with the handling and calculate structural systems.

See for yourself how easy it is to work with Dlubal software.

If you need help with the first steps with RFEM and RSTAB, go to www.dlubal.com/en/for-beginners.aspx where you can find introductory examples and tutorials, videos and webinars, manuals and information about our service contracts.

If you are looking for the answer to a particular question, browse the FAQ page, visit the Dlubal blog or follow us on social networks where you can find numerous tips and tricks as well as solutions for everyday problems occurring in many engineering offices. We would also be happy to advise you directly by phone or video call.

You also have the possibility to participate in our free webinars, where we give you insight into the operation of our software, show you new features and can discuss questions in detail.

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We welcome any feedback you may have on our products. Your comments and suggestions for improvements are important to us.

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