

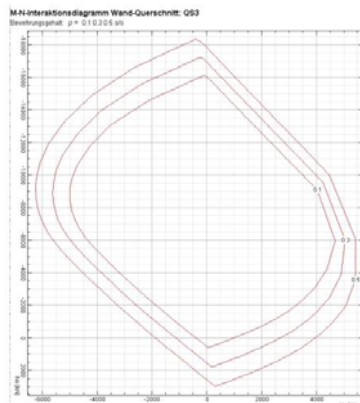
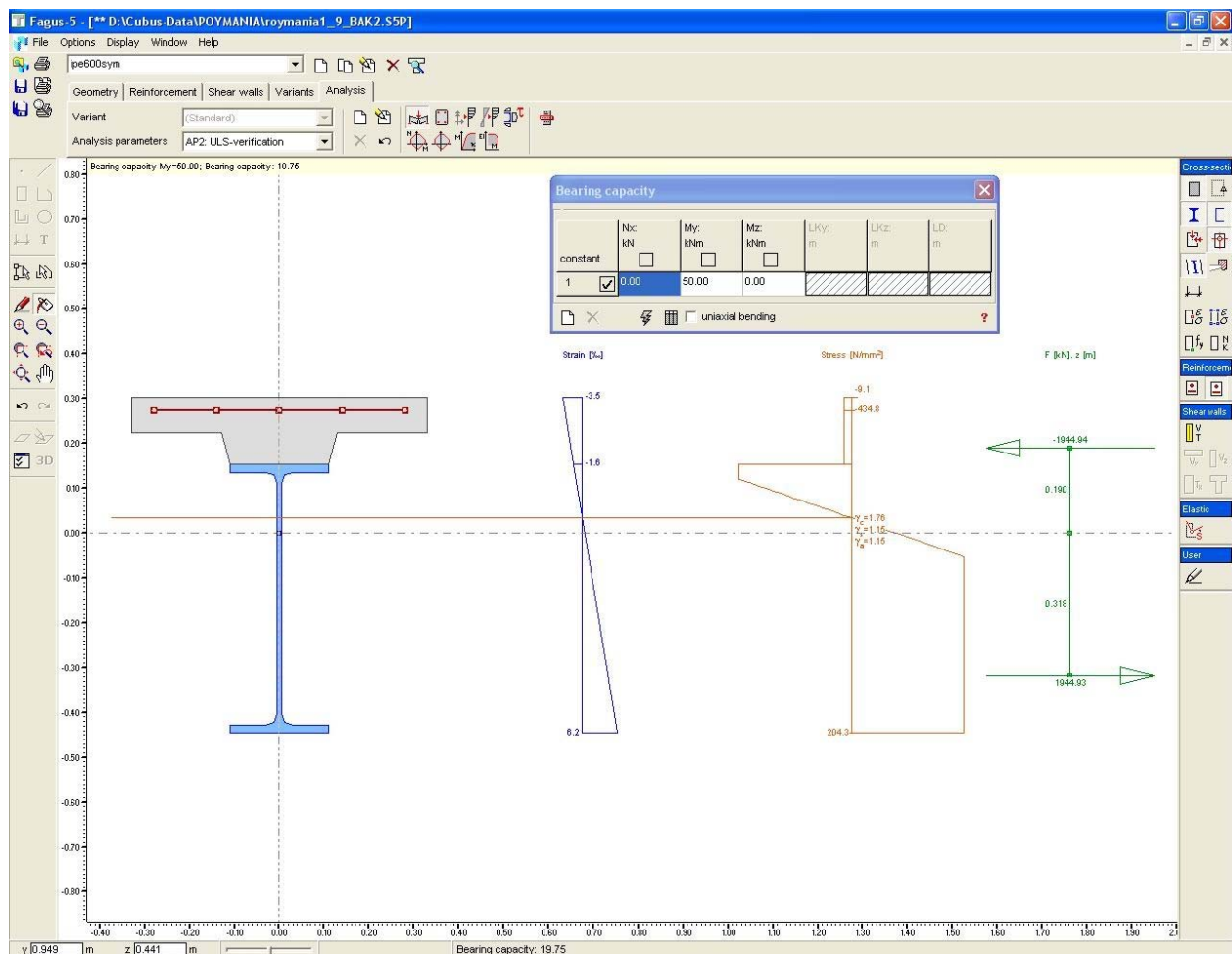
FAGUS-5

Analysis of Cross Sections

Reinforced and Prestressed concrete sections

Hot-Rolled Steel Sections

Thin-Walled Sections



FAGUS-5 is a program for the solution of multiple types of cross section analysis problems, primary in the area of reinforced and prestressed concrete. In thin-walled sections the shear center and the distribution of shear force due to shear and torsion are calculated.

Supported codes are DIN, SIA/Swisscode, EC2, OeNorm, GReek Norm etc.

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Software · Consulting Services

Cross Sections

- Cross sections consist of one or more partial sections and optional reinforcement elements
- Different materials (Library) correspond to each partial section, composite sections are supported
- Partial sections can be defined through an arbitrary polygonal boundary or as thin walled elements through insertion of the element axis (polygon) and the element thickness
- Sections or partial sections can be inserted by following ways:
 - input/construction with the graphic editor
 - insertion of an element from the hot-rolled profile library
 - use of a parametric cross section
 - import of existing cross sections or partial sections
 - library of parametric cross sections includes common types like rectangles, T etc and is extendable

Reinforcement

- Normal reinforcement elements can be defined as points, lines or circles, prestressed layers only as points
- Sorting of the reinforcement into groups

Shear walls

- Shear forces due to shear and torsion in non thin walled sections can be carried by an appropriate model, consisting of shear wall elements
- Special models for shear and torsion for various types of cross sections

Variants

- Cross section variants are supported. They can be defined through:
 - Activation/Deactivation of partial sections
 - Modification of materials in partial sections
 - Application of reinforcement groups to variants

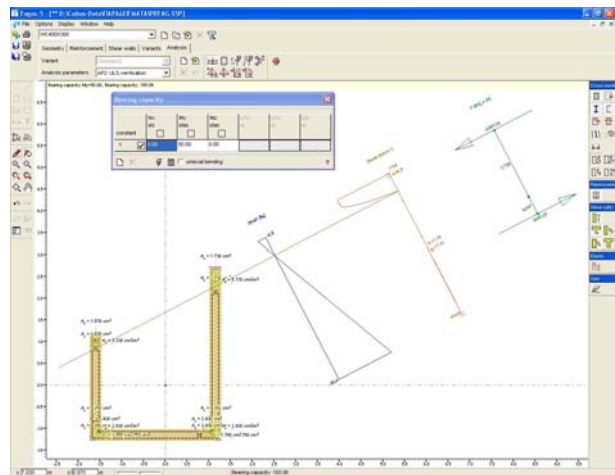
Analysis

For all cross sections:

- Calculation of ultimate load (factor) for given section forces (N, My, Mz), where one or two components of the section forces can remain constant
- Moment - curvature diagrams (My or Mz) for different levels of normal force
- Moment - stiffness diagrams (My or Mz) for different levels of normal force
- Stress analysis for a given strain distribution
- Stress analysis for stepwise application of forces or deformations on partial cross sections, than can be activated also stepwise
- Stress analysis for given section forces (N, My, Mz)
- General interaction diagrams for My, Mz, N, where one of the components each time can remain constant
- Interaction diagrams N-My for given reinforcement or for a serie of given reinforcement percentages

For cross sections with normal reinforcement:

- Design of the longitudinal linear reinforcement for given section forces (N, My, Mz) and of the stirrups for (Vy, Vz, T)



For thin-walled cross sections:

- Calculation of shear center and of the distribution of shear stresses for given section forces (Vy, Vz, T)

Composite sections with stepwise loading:

- Stepwise calculation of partial sections and loadings

Parameters of Analysis

- User definition of ultimate states for the design, ultimate load calculation and interaction diagrams (maximum strains or permissible stresses)

- Material factors according to the material
- Predefined and user defined materials can be assigned to the partial cross sections
- Type of stress-strain diagram for concrete, reinforcement steel and prestressing steel
- Further parameters for minimum reinforcement, inclination of compression struts and stress limit for the stirrups

Library of Cross Sections

- Creation and maintenance of cross section libraries, that can be used by other cubus programmes

Results

- Graphical and text output of the section results and the analysis results
- Additional output of analysis (strains, stresses, reinforcements) by using result points, that can be positioned at any point of the cross section

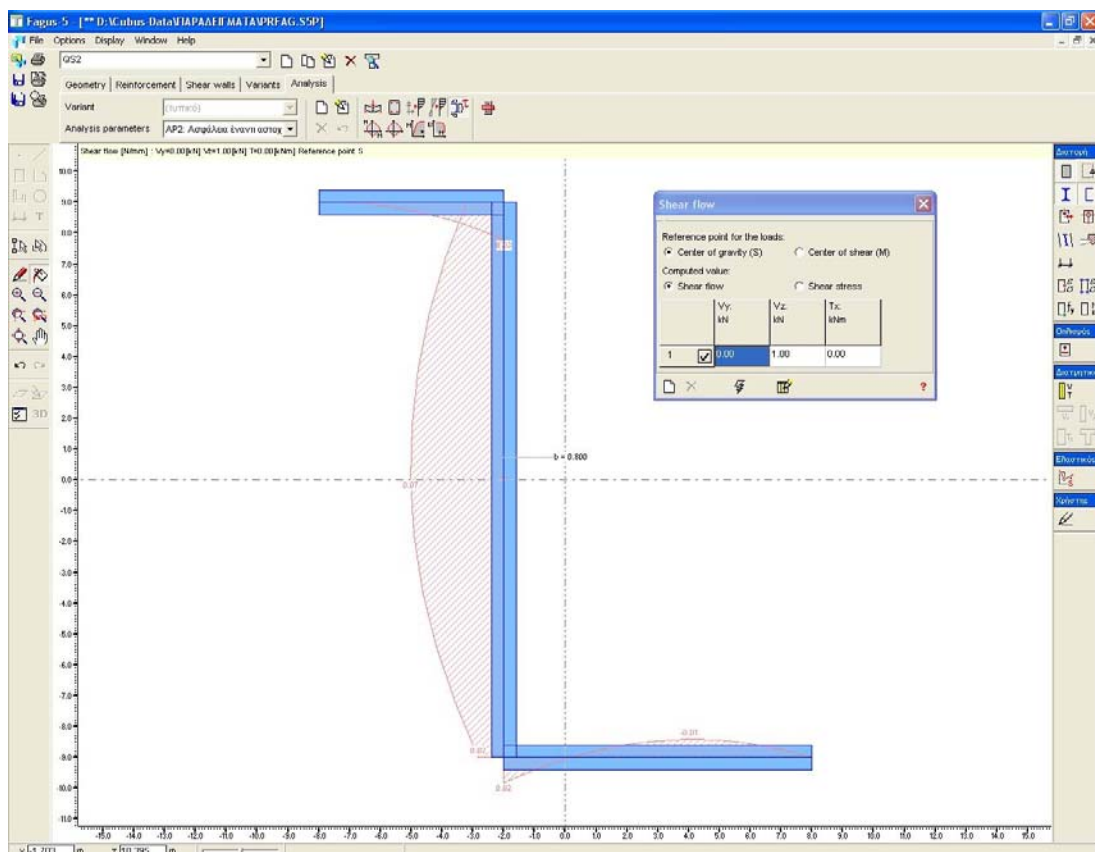
Supported Codes

- DIN, Swisscode, EC2, OeNorm, GRN etc

General

User surface

- Fast and efficient fully graphical input of all geometric and load data using the intuitive object-oriented graphic editor with CAD capabilities
- Multistep undo/redo function
- Optimized interface for data modification of single objects and groups of objects
- All graphical data managed in layers for easy visibility and selectability changes
- Highly interactive analysis: Actual results are recalculated on the fly after input or modification (automatic checks and solution)
- Import of input objects from another calculation through copy/paste
- Integrated CAD drawing functions for supplementing output with dimension lines, constructions, notes, sketches etc.
- Configurable user interface (colors, symbol sizes, fonts, units, output accuracy, predefined settings for dialog etc.)
- Extensive online documentation: Context sensitive, printable forms, text search
- Microsoft Windows application (NT4, 2000, XP)



Interfaces

- Import and Export of DXF-files
- Export of all numerical and graphical data into other Windows applications (clipboard, Word, Excel etc.)
- Text interface for import of structural and loading model
- Import of FAGUS-3/4 projects

Print Manager (Cubus Viewer)

- Editable preview of all output data: Changing print order, scales, colors, visibility
- User-defined page layout (page format, company logo, texts, borders etc.)

Project Manager (Cubus Explorer)

- Project explorer with Windows-Explorer functionality
- Additional functions for project archiving, compression and decompression
- Graphical preview of projects

FAGUS-5 and STATIK-5

- FAGUS-5 is the cross section program of STATIK-5, responsible for the calculation of cross section values and for the reinforcement design and analysis as postprocessor