Software for analysis and design of steel structures

Eurocode 3

Accurate simulation of the model

Parametric modelling

Extensive section libraries of hot rolled, and cold formed sections

Definition of welded and castellated sections

Static, dynamic and spectral analysis

Spectral analysis according to Eurocode 8 and P100 (Romania)

Members design according to Eurocode 3

Connections design according to Eurocode 3

Capability to define and design individual members and connections according to Eurocode 3

Innovation in the design of steel structures

INSTANT steel is a reliable and effective structural software solution for a wide range of steelwork which can be simulated with linear beam elements such as: industrial buildings, pylons, trusses, pipe racks, bridges, multi-storey buildings, hangars, canopies and stairs. It is distributed to the European market since 1995 and has been used in thousands of steel projects.

INSTANT steel can analyse and design almost every type of structural beam is used in modern steel industry, including special profiles such as tapered, castellated, and cold rolled sections. It includes a complete connections design environment (EC3 Connections).

More than 500 design offices and steel fabricators have chosen INSTANT steel for its flexibility in model simulation, reliable output results, and consistency on the application of the Eurocodes.

INSTANT steel is developed and owned by Computer Control Systems S.A. (CCS). It is one of the first structural software applications released in Europe which incorporated Eurocode 3 design and it is recognized as a reference program for the analysis and design of steel structures.

INSTANT steel is continuously updated with new features so as to comply with the increasing demands of the steel industry.
INSTANT steel can accurately simulate any type of steel structure using beam finite elements.

Innovation and Expertise

In the domain of steel structures, we deliver advanced IT products and quality services for two decades.

**CCS**, renowned for its prestige and credibility, has highly qualified personnel with an accumulated expertise which originates from multiple sources such as:

- Design, development, support and continuous improvement of structural analysis software, which are used in hundreds of design offices.

- Implementation of hundreds of studies for steelwork projects of all types and sizes, which have been erected in Greece and abroad.

- Installation and support of advanced software systems to automate the design and management of production, in more than a hundred steel fabricators.

- Implementation of projects for the certification of new products and production of industry specific software for technical support of structural systems.

- Collaboration with European institutes of steel structures such as CTICM (France) and SCI (UK).

- Perennial collaboration with Greek Universities, such as Steel Structures Laboratory of NTUA in experiments and specialized issues of design codes.

- Participation in national and European research projects and production of numerous papers for publication in journals and conferences.

- Design and development of dozens of special applications for large European organizations that address specific engineering issues.

Superior software solutions for steel and composite structures
Loads and Masses:
- Static loads: self weight distributed or concentrated to beam elements, nodal, temperature, imposed displacements at supports.
- Joint, distributed or concentrated masses.
- Automatic mass production and loads combinations.
- Capability of user-defined combinations.
- Dynamic loads: time history load, harmonic load, accelerogram.

Calculations:
- Static linear analysis.
- Dynamic analysis.
- Spectral Analysis using the Greek seismic code (EAK), Romanian seismic code (P100), Eurocode 8 and user defined spectrum.
- Definition of the viscous damping ratio coefficient.
- Capability for using stress design method.
- Sway check.

Results and Reports:
- Graphical and numerical display of the analysis results (deformations, internal forces, eigenmodes etc).
- Interactive selection of model elements for which input and results will be contained in the report.
- Automated production of report with summary or detailed results.
- Model images, curves, and diagrams embedded in the report.
- Automatic production in MS Word.

Members design (Eurocode 3):
- Automatic cross section checking of all model beams.
- Interactive definition of restraints.
- Automatic calculation of the buckling lengths in the two directions.
- Section classification (classes 1, 2, 3 and 4).
- Capability for accurate computation of the n coefficient.
- Local buckling of the web due to shear and check of the resistance of the section in bending, bending and axial, shear, bending shear and axial checks.
- Bending and buckling and lateral torsional buckling member checks.
- Analytical and summary check results per member and load.
- Colour representation of failing members in the model.
- Automatic creation of report in MS Word document, with references to Eurocode 3.
- Capability of stand-alone mode operation, independent from an INSTANT steel model (user defines the member and the analysis results).

Connections design (Eurocode 3):
- 25 basic connection types, 120 total different configurations.
- Interactive definition of the connection from the structural beam model.
- Detailed design of the connection with the assistance of multiple drawing views.
- Automatic creation and export of connection drawing in DXF format.
- Detailed and summary results per connection and loading.
- Automatic creation of report in MS Word document, with references to Eurocode 3.
- Capability of stand-alone mode operation, independent from an INSTANT steel model (user defines the beams and the analysis results).
Computer Control Systems S.A. (CCS) was established in 1987 in Athens, Greece. Its initial legal form was Ltd and in 1992 it was reformed to S.A. (shareholding company). Our main business is the production of software and the provision of services. The extensive expertise of the sectors in which we operate, combined with highly skilled scientific and technical personnel and consistent after-sales support, ensure customer satisfaction and long-term collaboration.

CCS has a strong commitment for quality in the design, development and support of its products and is certified with ISO 9001 since 1999 for “Design / Development Installation and support of Information Technology products and solutions and elaboration of applied mechanics studies”.

The Engineering Division of CCS is unique for its commitment in serving the steel industry, and has gained an excellent reputation for the high level of expertise, the innovation in software, and the quality of services and engineering studies. Hundreds of structural engineers, design offices, contractors, steel suppliers and fabricators have chosen to rely on our services in order to achieve superior productivity and competitiveness.