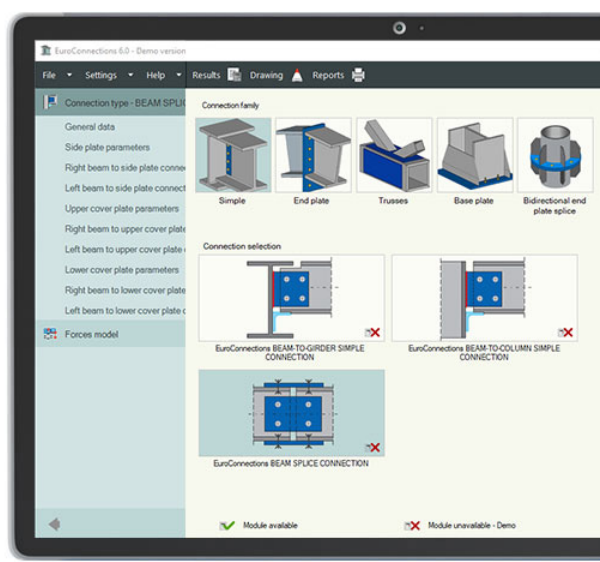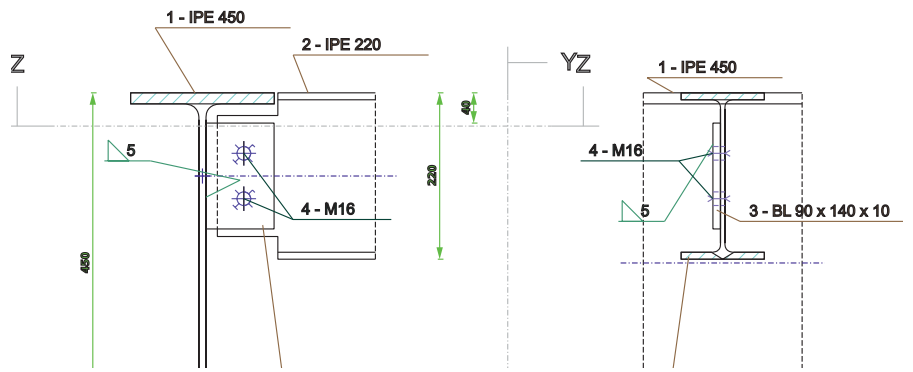# EuroConnections

A collection of programs for steel connections design.

Design and verify the capacity of typical uniplanar frames & lattice connections in steel structures according to PN-EN 1993-1-8:2006 standard.
Welded or bolted connections in various joints types.

Possibility to create a model for a rigid, semi-rigid or nominally pinned joint.
Various additional connection components can be used, depending on specific connetion type: side plate, fin plate, flange cover plate, landing cleat, end plate, base plate, stiffener plate, haunch, shear nib, gusset plate, etc.
The program operates in a standalone mode, or as a design module for steel connections calculations in ArCADia-RAMA program.
The program creates a bill of materials for connectors and other components used in connection.
The program creates an advanced and dynamic sketch of the designed connection model, which can also be saved to an editable file in the DXF format.
Reports with verification result in RTF or PDF format can be created in four different detailed levels with the option of customizing their scope by the user.

The following types of connections are supported:

SIMPLE group:
- BEAM-TO-GIRDER simple connection +DXF
- BEAM-TO-COLUMN simple connection +DXF
- BEAM SPLICE connection +DXF

END PLATE group:
- BEAM-TO-COLUMN END PLATE connection +DXF
- BEAM-TO-BEAM END PLATE connection +DXF

TRUSSES group:
- TRUSS GUSSET PLATE connection +DXF
- WEDLED TUBULAR TRUSS node +DXF

BASE PLATE group:
- I-BEAM COLUMN BASE +DXF
- DOUBLE-BRANCH COLUMN BASE +DXF
- RECTANGULAR HOLLOW SECTION COLUMN BASE +DXF
- CIRCULAR HOLLOW SECTION COLUMN BASE +DXF

BIDIRECTIONAL END PLATE SPLICE group:
- END PLATE I-BEAM JOINT
- END PLATE DOUBLE-BRANCH PROFILE JOINT
- BIDIRECTIONAL END PLATE SPLICE FOR RECTANGULAR PIPES
- BIDIRECTIONAL END PLATE SPLICE FOR ROUND PIPES

BEAM-TO-GIRDER simple connection
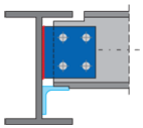
EuroConnections BEAM-TO-GIRDER simple connection, welded or bolted, verification for sets of uniplanar internal forces, or the full bearing capacity of members.

The algorithm for verification of a connection in which both main members are connected via a fin plate or a girder web stiffener. The connection is one-sided (for one beam from one side of the girder), with various possible configurations.
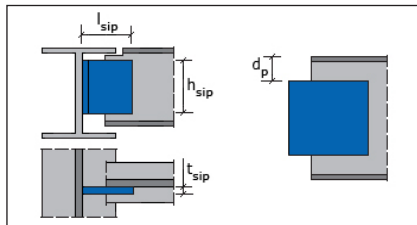

General:

- advanced and dynamic sketch of the designed connection model in an editable the DXF format, which includes bill of materials
- cross-sections for the beam and girder are I-beam sections
- the V and M forces are acting about the stronger axis of inertia of the members (the orientation of the I-beam section is vertical)
- connection made using a fin plate or a girder web stiffener
- beam connected to the girder web
- notched beam section at the end of a beam
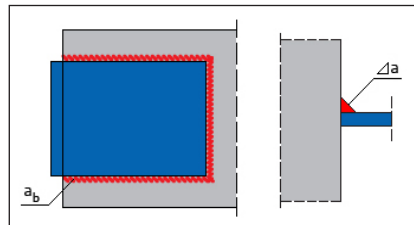
Fin plates:

- use of fin plates (side plates)
- fin plates are connected to the beam web and the girder web
- the use of fin plates can be single-sided (on one side of the beam web) or double-sided (on both sides of the beam web)
- when double-sided fin plates are used, they are symmetrical in relation to the beam web
- the beam-side plate connection can be realized using a fillet weld or with bolted connection
- the girder-fin plate T-weld connection can be made using a butt weld or a fillet weld (welds only outer, or inner and outer, in relation to beam web)
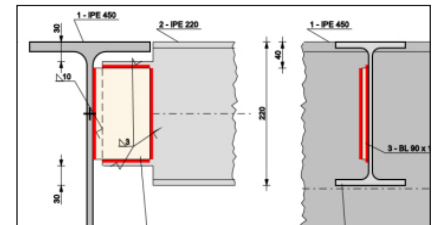
Girder web stiffener:

- the beam-girder web stiffener connection can be realized using a fillet weld or with bolted connection
- the girder web stiffener to girder welded connection is not verified in calculations

Landing cleat:

- the use of a landing cleat is not possible when the girder web stiffener is present
- the landing cleat is considered only for erection purposes - its load capacity is not verified in the calculations