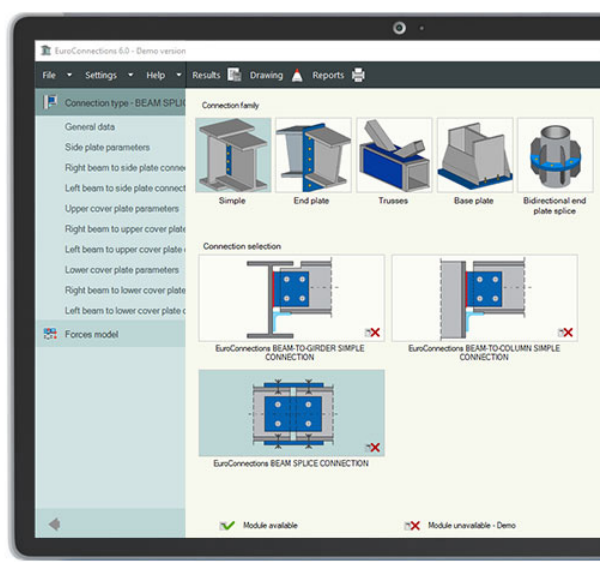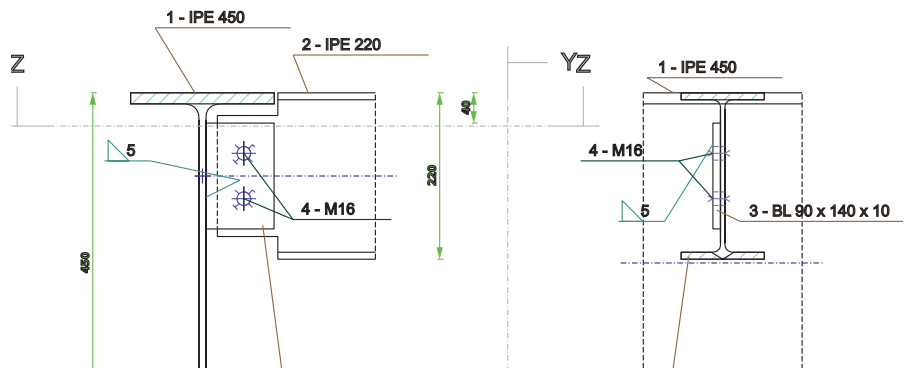# EuroConnections

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 SPLICE connection
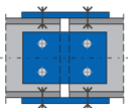
Connection type BEAM SPLICE with web splice plates and flange cover plates, welded or bolted, verification for sets of uniplanar internal forces, or the full bearing capacity of members.

The algorithm for verification of a connection in which both main members are connected via a beam web side plates and possibly beam flanges cover plates, with various possible configurations.
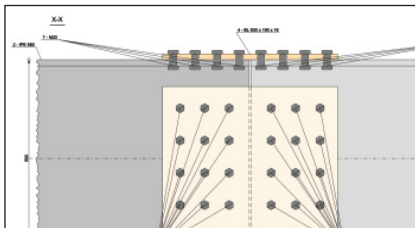

General:
- advanced and dynamic sketch of the designed connection model in an editable the DXF format, which includes bill of materials
- cross-sections for the beam are I-beam sections
- the orientation of the I-beam section is vertical (flanges subject to compression/tension as a result of a bending moment acting about the stronger axis of inertia)
- 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 beam web side plates and possibly beam flanges cover plates
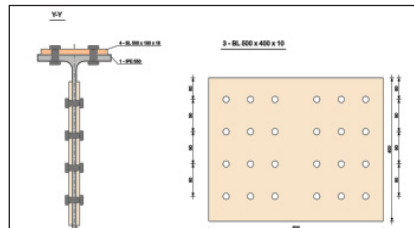
Fin plates:
- side plates and cover plates are attached to the beams webs and beams flanges, respectively, through bolted or welded lap connection
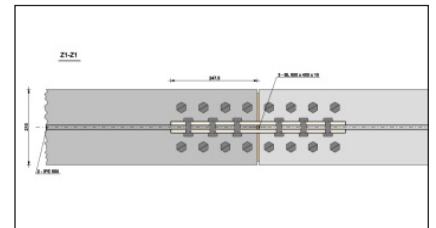
Cover plates:
- the use of cover plates is only possible if both connected beams are of equal height