

Typified steel connections - STY+

This documentation is not yet available as translated version. Until availability, we ask you to use the German manual.

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Application options

The program STY+ is used to design bolted moment-resisting beam connections of the type series IH as well as pinned I-beam connections of the type series IS, optionally with IK beam notches, following the guidelines of the German Steel Construction Association DSTV "Typisierte Anschlüsse im Stahlhochbau" (Typified Connections in Steel Construction), edition 2013.

Materials

Structural steel: S235 and S355

Structural systems

IH-connection:

- Moment-resisting connection with butt plate either flush to the surface or projecting on top or bottom and two or four vertical rows of bolts
- Beam-to-beam connection
- Connection of the beam to a continuous column with dimensioning of the column cross-section
- Connection of the beam to the top face of a column with dimensioning of the column cross-section
- Bolt strength classes 8.8 and 10.9

IS-connection:

- Pinned connection to a metal plate (as a connection to any kind of component)
- Pinned connection to a column web
- Pinned connection to beam web without a notch (i.e. connected in the centre of the web).
- Pinned connection to a beam web with a notch (on one or both sides)
- Pinned connection to a metal plate with a notch (on one or both sides)
- Bolt strength classes 4.6 and 10.9

Cross-sections:

- I-sections as standard shapes

Loads

IH-connection:

- Design internal forces from axial force, moment and shear force as well as from reverse moment, if applicable
- Multiple combinations of design internal forces can be entered
- Small negligible axial force N_d with verification of its application limit $N/N_{pl} < 0,05$

IS-connection:

- Design values of the shear force V_z
- Multiple combinations of design internal forces can be entered

Design

The design process in the program is based on the implemented catalogue of the German Steel Construction Association DSTV which corresponds to the guideline "Typisierte Anschlüsse im Stahlhochbau" (Typified connections in steel construction), edition 2013.

The calculation of the connections is based on the component method, which decomposes the connection into each of its basic components. For each of the basic components, such as the column web in tension or the bolts in tension, the design resistance is determined. The global resistance is the sum of the resistances of the individual components.

All connections permissible for the defined system are listed as specified in the catalogue of the German Steel Construction Association DSTV. You can further refine the list by defining additional criteria such as the type of connection, the material or the screw strength or size. The program calculates the associated utilization for each specified type of connection and generates a well-structured presentation of the connection details including a 3-d model and a 2-d drawing.

Standards

- DIN EN 1993
- DSTV-Ringbuch Ausgabe 2013