

ST9

Bolted Steel Connection

The ST9 application is suitable for the design of screw connections in steel construction.

The following types of connections are available:

- Tensile splice with butt straps
- Beam connection (shear force connection with angle brackets)
- Rigid splice with butt straps
- Front plate splice

Standards

- DIN 18800
- DIN EN 1993
- ÖNORM EN 1993

The connection may have almost any geometry (also beyond standard solutions such as connections flush to the ceiling etc).

In addition, the application generates workshop drawings true to scale, which can be printed or transferred to the CAD system via a DFX interface.

Tensile splice

In a tensile splice, only tensile forces that apply in the gravity line of the screw pattern are transferred.

The connection can be single-, double- or multi-shear.

The user can optionally select whether the tie is a metal sheet or an I-shaped (single tie) or U-shaped (single or two ties) cross section from the F+L profile section file.

Beam connection

In a beam connection (shear force connection with angle brackets), only shear forces are transferred in the direction of the beam web.

The permissible profile types for main and secondary beams are I-shaped profiles connected with two angle brackets with equal or unequal legs.

The secondary beam can be connected with an offset to the main beam and have a notch on top on bottom or on both sides.

Rigid splice with butt straps

In a rigid splice with butt straps, axial forces, shear forces and bending moments can be transferred.

The user must preset outer web and flange butt straps.

He/she can optionally preset inner flange butt straps.

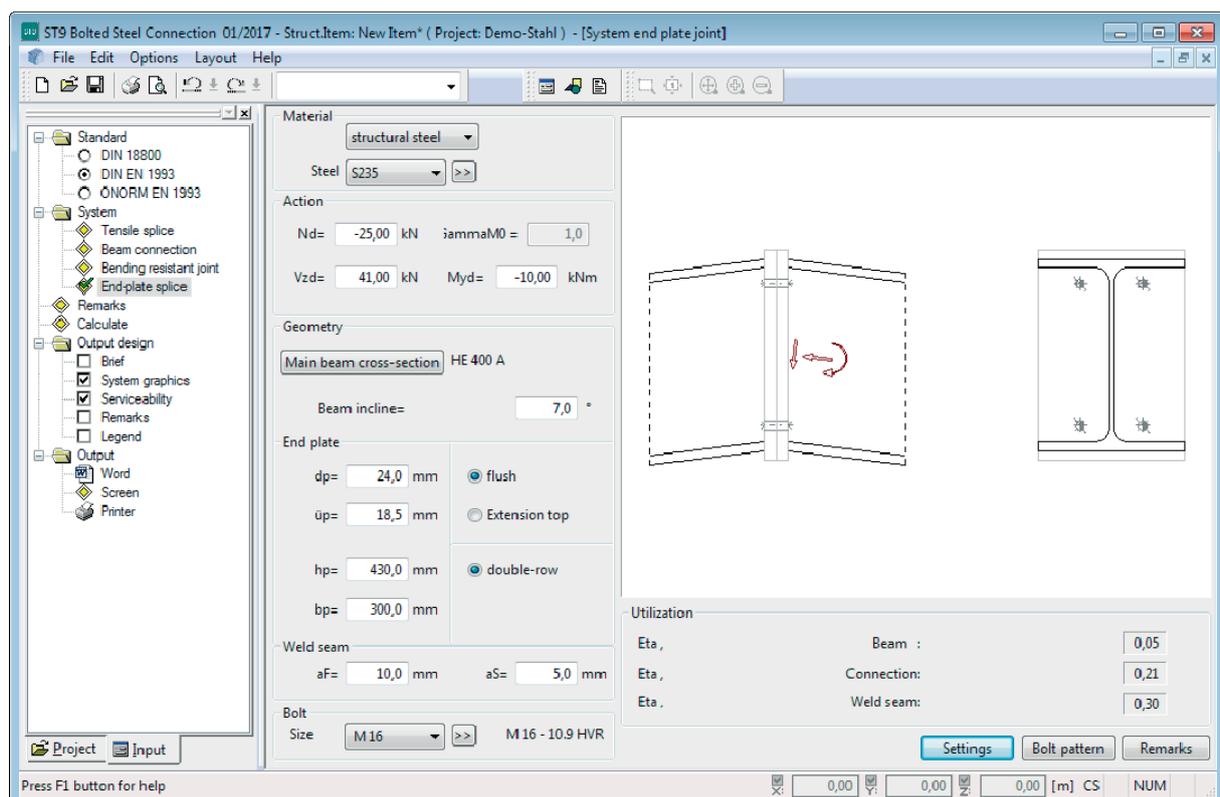
I-shaped cross sections are allowed for the beam.

Front plate splice

EN 1993:

The design of connections is based on the component model of EN 1993-1-8.

The front plate can be fitted with two vertical rows of screws.



DIN 18800:

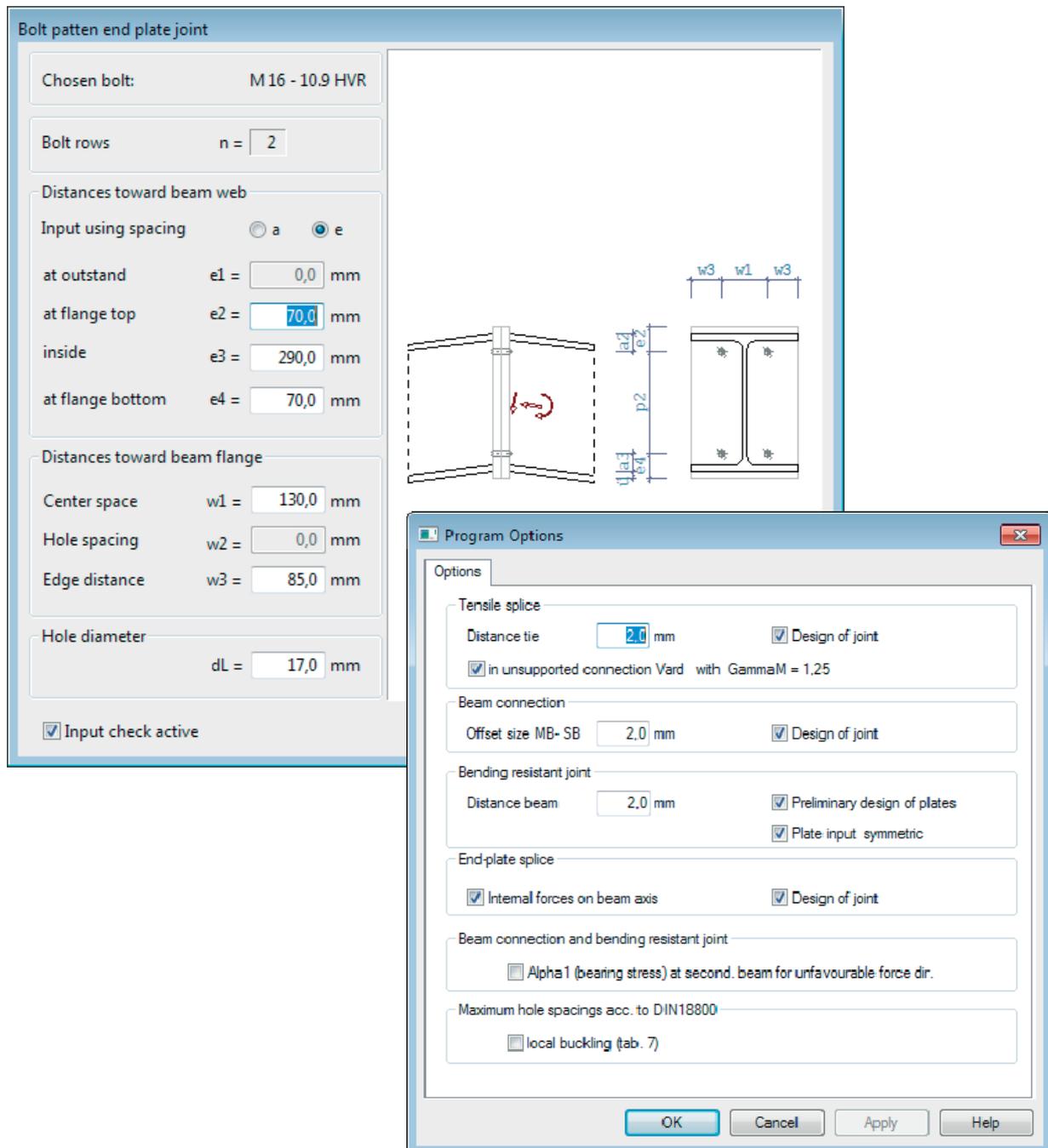
In a front plate splice as defined by the DAST¹ guideline (1984), two beams of double-symmetrical I-profiles are connected by means of welded-on front plates, either flush to the outer edges or projecting in the tension zone, and high-strength pre-tensioned screws (HV 10.9). Axial forces, shear forces and bending moments can be transferred.

However, the application does not allow the user to apply only tension or only compression in the beam cross section.

The front plate can be fitted with two or four vertical rows of screws.

Design optimization

An automatic design optimization feature is available for the front plate splice and the shear force connection with angle brackets. For this feature, the geometries of typical connections are stored in a catalogue.



¹ German Committee for Steel Construction