# WHAT'S NEW IN CONSTEEL 7

CONSTEEL

**Version 7.0**

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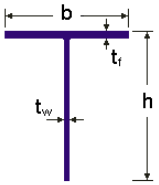
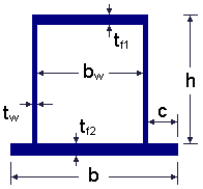
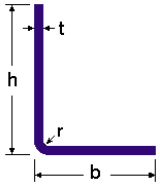
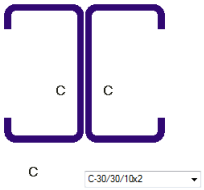
www.consteelsoftware.com

# Content

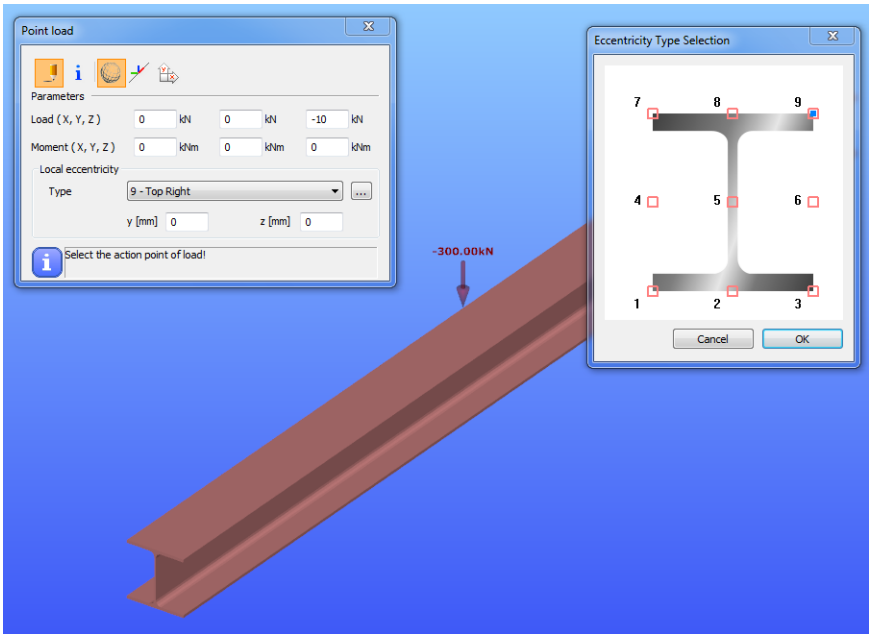
# 1. STRUCTURAL INPUT

## 1.1 NEW MACRO SECTION TYPES

| | |
|---|---|
| Buckling restrained brace<br>StarSeismic POWERCAT |  |
| Welded T |  |
| WQ section |  |
| Cold formed L profile |  |
| 2 C profile |  |

## 1.2 EASY POSITIONING OF THE ECCENTRIC LOADS AND SUPPORTS

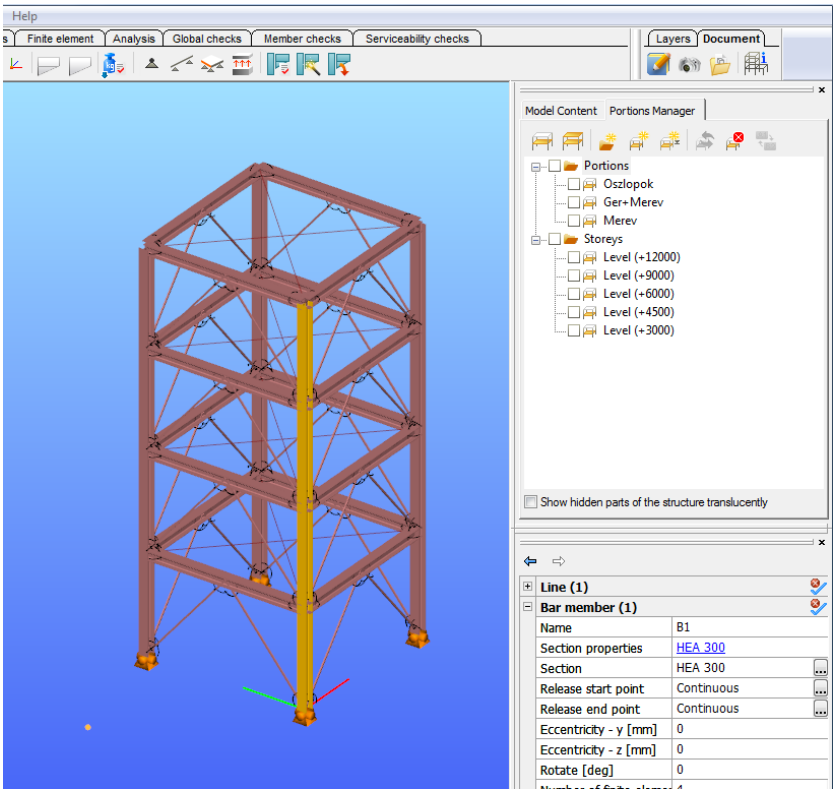
Point, line loads and supports can be placed eccentric easily by the new function. Loads and supports can be placed according to the one of the typical points of the section geometry (1-9). In case of section changing the position of placed loads and supports are modified according to the new section size.




## 1.3 NEW PORTIONS AND STOREYS MANAGER

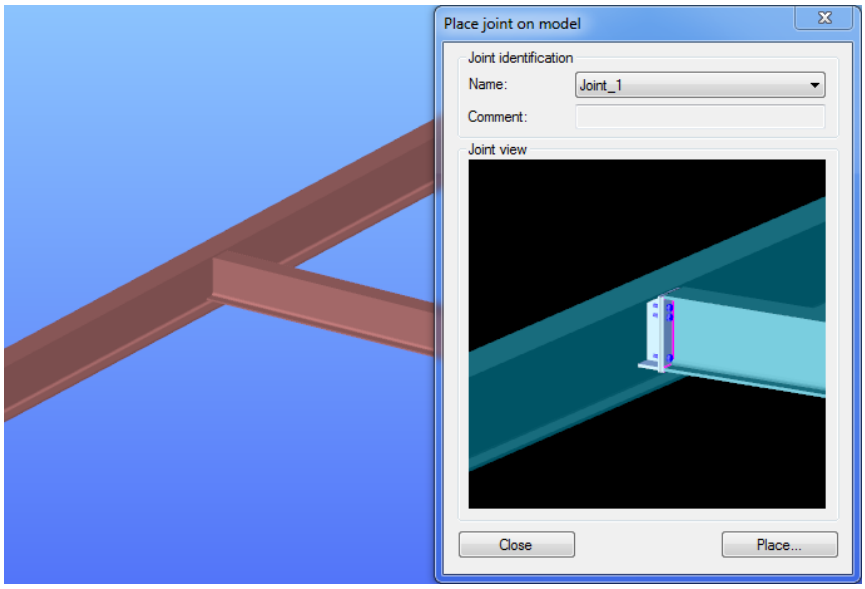
To help faster model handling, the portions manager was redesigned. New features for the portions modification: add selected elements to portion; remove selected elements from portion; assign only selected elements to portion.

The function of the storey manager also placed on the Portions manager tab. To create a new storey, give the level of the storey. Elements of the storey are added automatically to the storey.




## 1.4 IMPROVED JOINT PLACING

Thanks to the new feature it is not necessary to divide every member to place a previously defined joint. For example: in case of moment end-plate connection, main girder does not have to be divided in the joint.



# 2. LOAD INPUT AND ANALYSIS

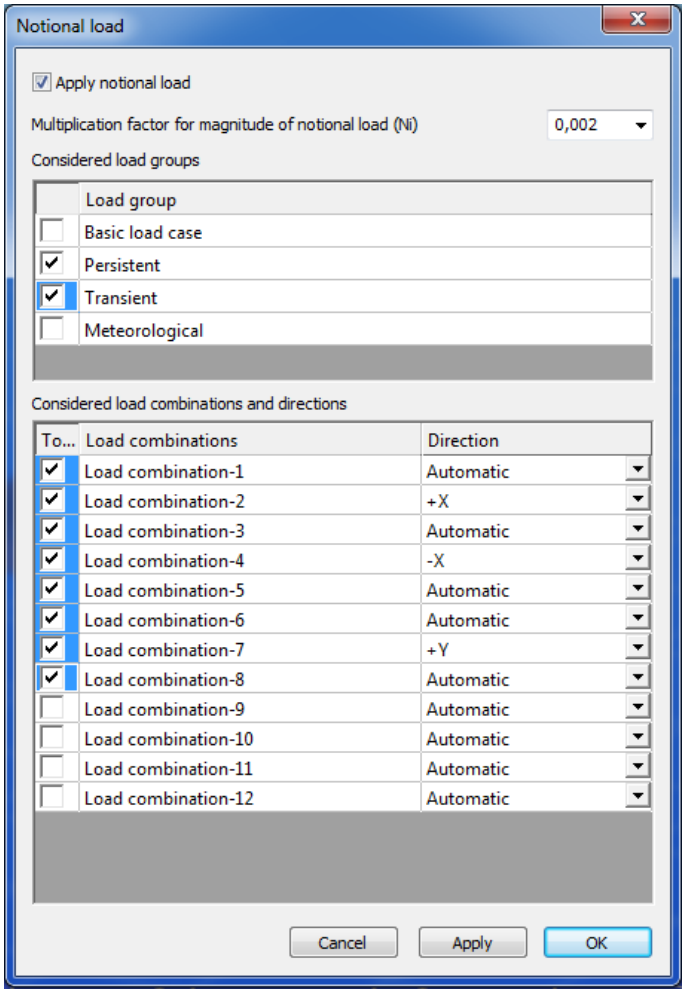
## 2.1 WIND LOAD GENERATION FOR CONNECTED FLAT ROOFS

Flat roof wind surface can be placed on connected flat roof (roof angle under 5°), and wind load can be generated according to the EuroCode.

## 2.2 NOTIONAL LOAD

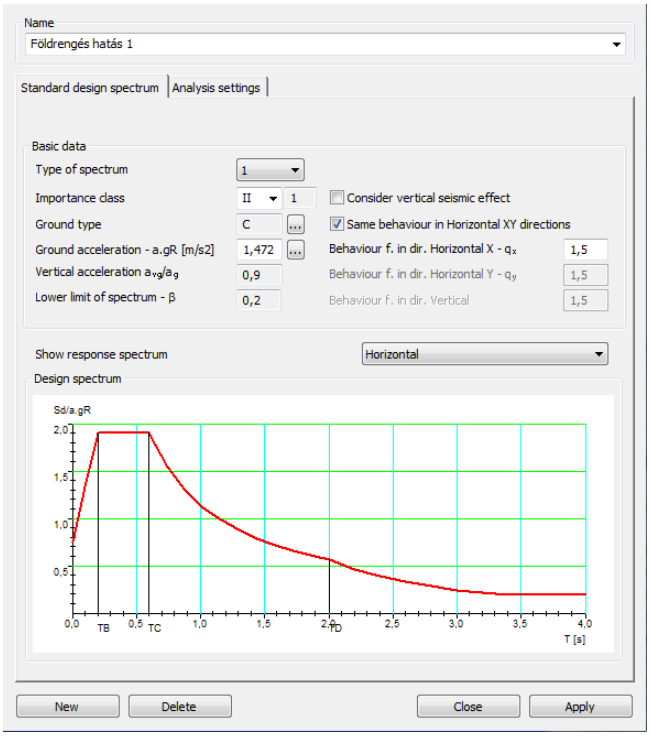
Initial imperfections can be taken into account by the application of notional loads.

On the basis of the selected load groups, the notional loads are generated automatically in the selected load combinations. Direction of the notional loads can be defined automatically or can be set for every load combinations.



## 2.3 COMPLETE REVISION OF EARTHQUAKE ANALYSIS. CONSIDERATION OF ACCIDENTAL TORSIONAL EFFECT

Earthquake effect dialog was redesigned. Response spectrum can be defined in two ways:




- According to the Eurocode 8/ASCE 360-10 (American standard)
- User defined response spectrum. Points of the spectrum can be entered by the user.

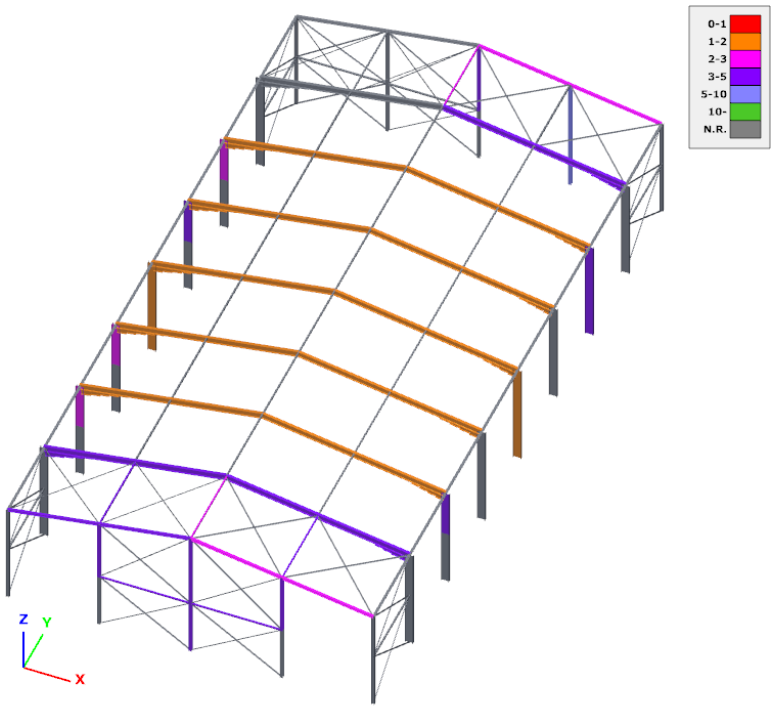
New settings of the modal analysis: consideration of modal shapes (minimum value of the effective modal masses can be set); various modes are combined using CQC method; consideration of accidental torsional effect.

## 2.4 ANIMATION OF THE DYNAMIC SHAPES

In case of vibration analysis, the animation of the dynamic shapes can be reached to click on the  icon.

## 2.5 BUCKLING SENSITIVITY ANALYSIS – NEW FEATURES IN STABILITY DESIGN

Buckling sensitivity analysis is a very useful function to assist the global stability design. Buckling sensitivity gives a review about the eigen shapes of the structure, and gives for every member the relevant eigen shape which is the best for the buckling analysis.




| Member | $\alpha_{cr}$ | Load combination | Buckling eigen... |
|---|---|---|---|
| B134 | 5,39 | Teherkombináció-1 | 3. |
| B133 | 5,39 | Teherkombináció-1 | 3. |
| B221 | 4,92 | Teherkombináció-3 | 1. |
| B125 | 4,92 | Teherkombináció-3 | 1. |
| B108 | 4,92 | Teherkombináció-3 | 1. |
| B62 | 4,92 | Teherkombináció-3 | 1. |
| B84 | 4,92 | Teherkombináció-3 | 1. |

As a new function, the upper limit of relevant buckling eigen values can be given.

# 3. STANDARD DESIGN

## 3.1 PARAMETERS OF THE EARTHQUAKE DESIGN ARE HANDLED BY THE EUROCODE NATIONAL ANNEXES

Parameters of the EuroCode 8 can be review on the standard dialog in case of every national annexes.

## 3.2 NEW EUROCODE NATIONAL ANNEXES

Two more national annexes can be used to standard design:

- Austrian national annex
- Swedish national annex

## 3.3 NEW NATIONAL STANDARDS

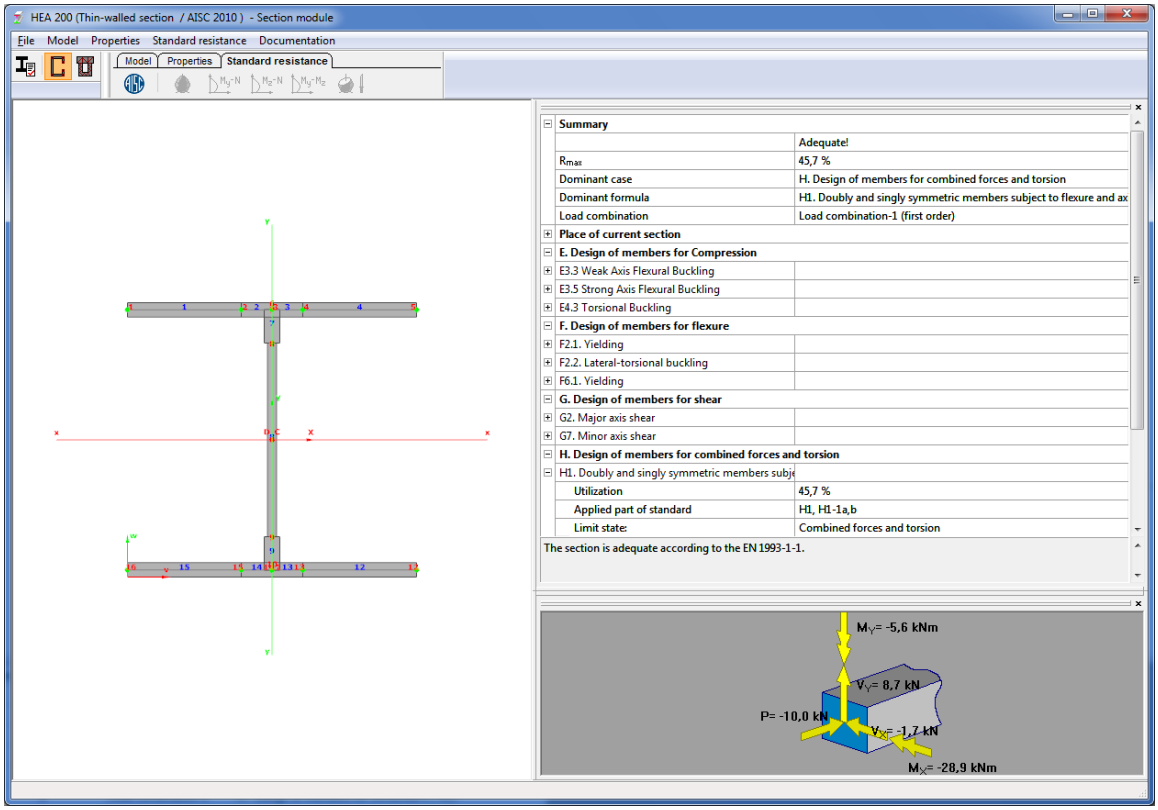
Two more national standards can be used to standard design:

- Spanish national standards: EAE and SE-AE.

  The following features can reached according to the Spanish standards: automatic load combinations and wind load generations; complete steel structure design

- American national standards: ASCE 7-10 and AISC 360-10

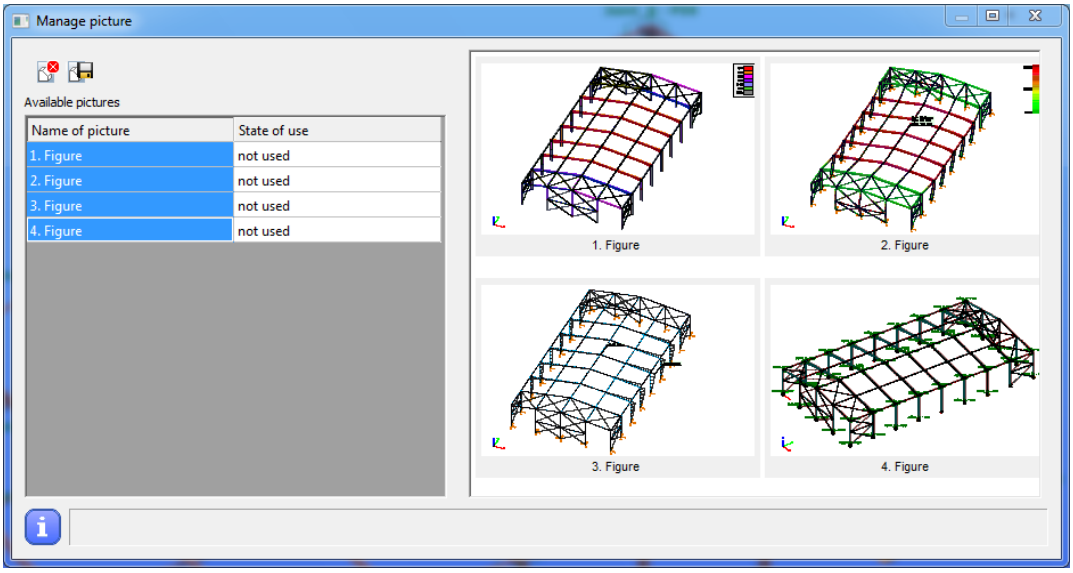
  The following features can reached according to the American standards: automatic load combinations generation; earthquake effect; complete steel structure design



# 4. DOCUMENTATION AND MODEL EXPORT

## 4.1 PICTURE MANAGER

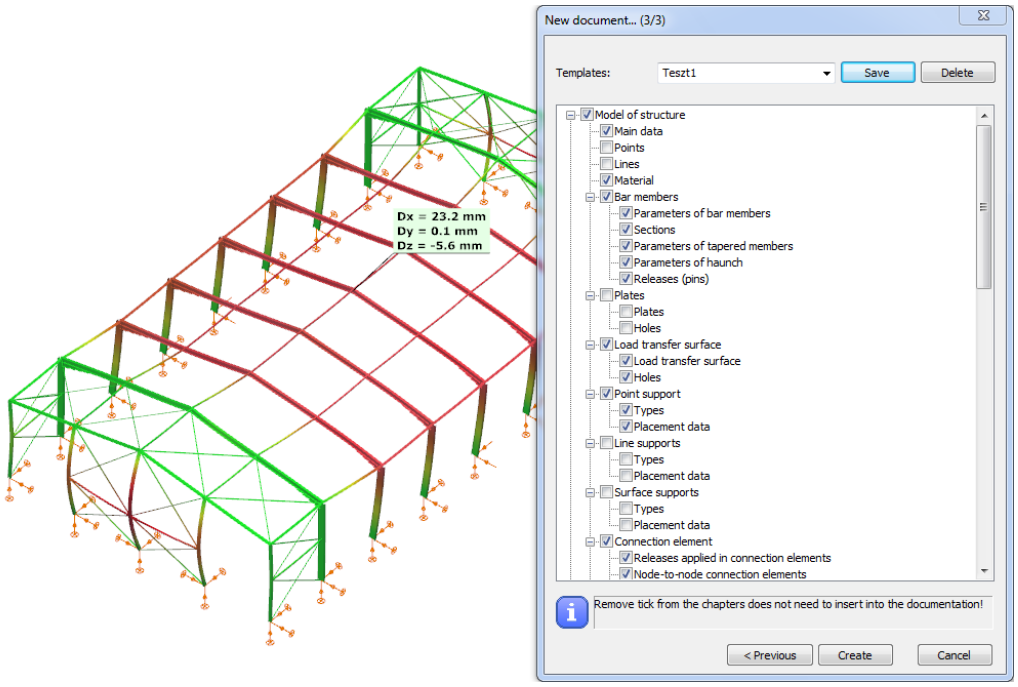
New features on the picture manager dialog: preview of the saved pictures can be seen; multiple selected pictures can be saved and deleted at the same time.




Screenshot can be printed directly from the create snapshot dialog.

## 4.2 DOCUMENTATION TEMPLATE

Documentation templates can be saved. Most used documentation structures can be saved as templates. Based on the templates, documentation can be created with one click.



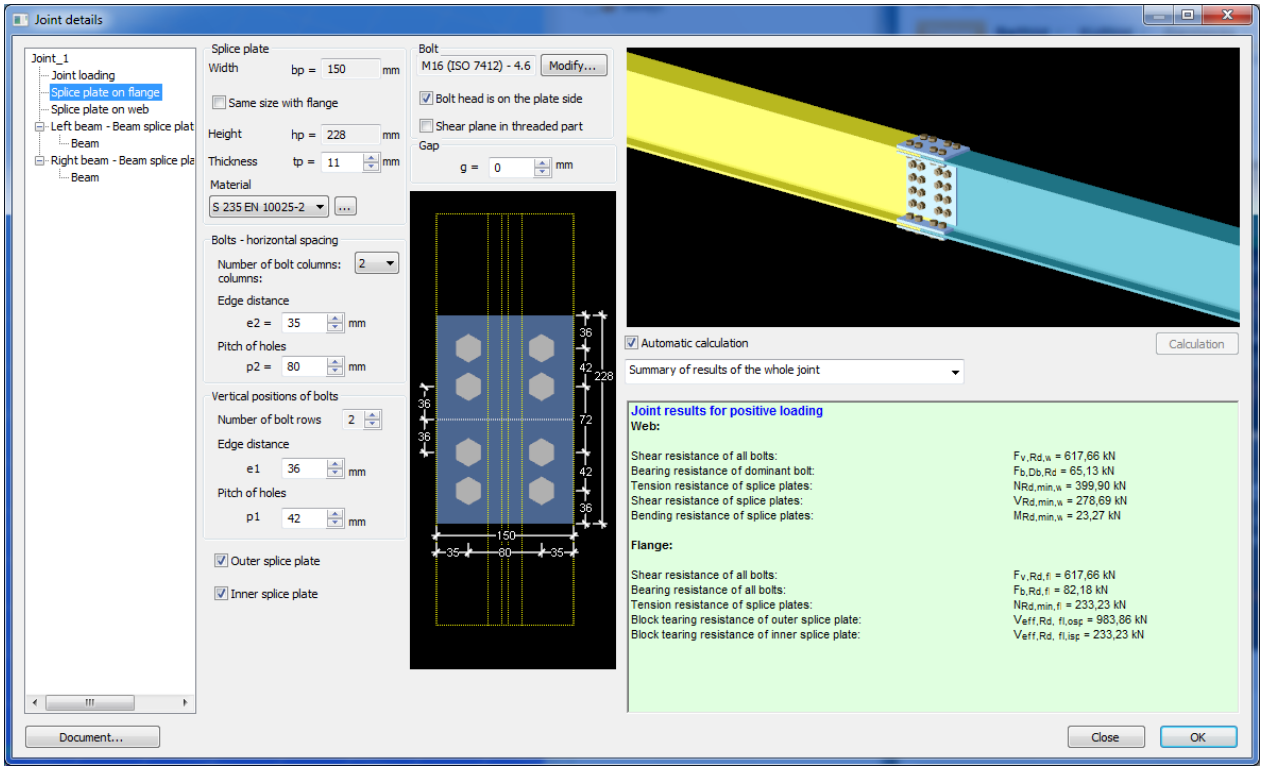

## 4.3 EXPORT TO TEKLA STRUCTURES 18

Model export available to Tekla Structures 18. ConSteel supports only the 32bit versions.

# 5. CSJOINT JOINT MODULE

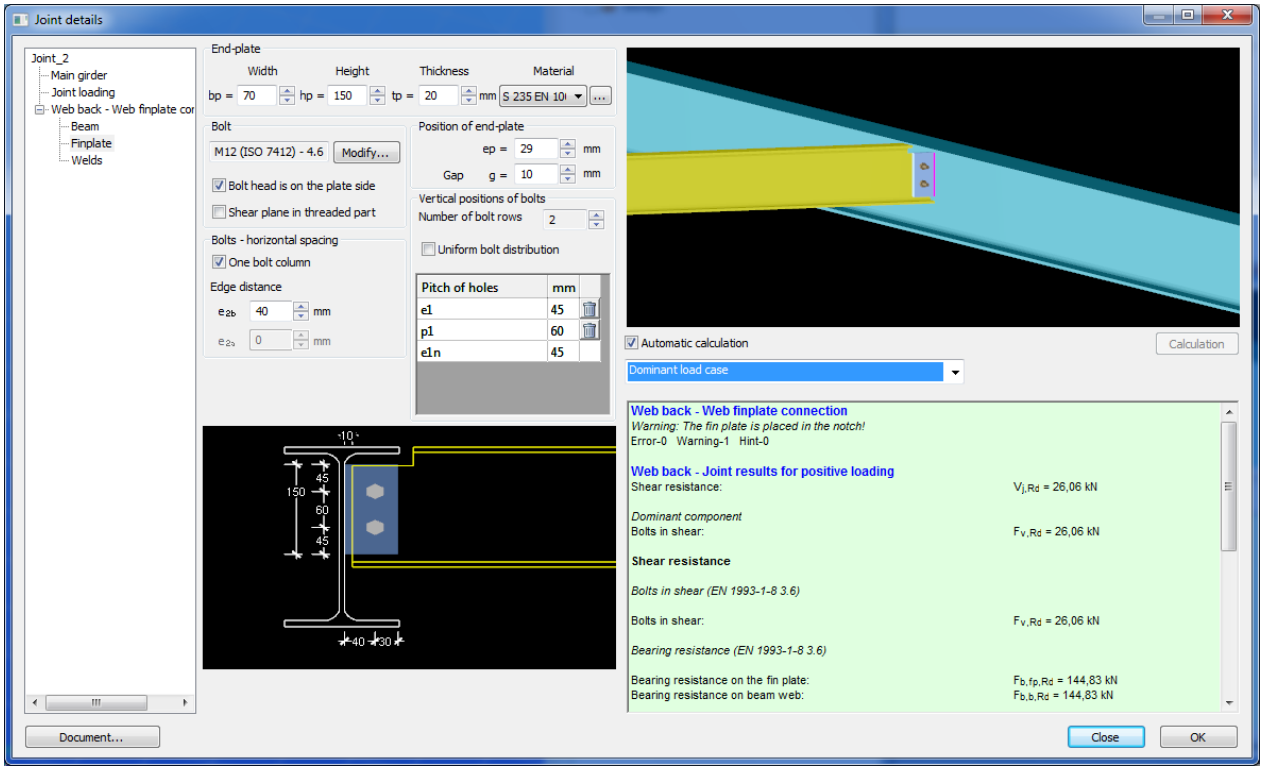
## 5.1 BEAM SPLICEPLATE

Splice plate connection can be created and checked for same size beams. Number of the bolt rows and columns can be changed. Plate on the flange could be on one side or both side.



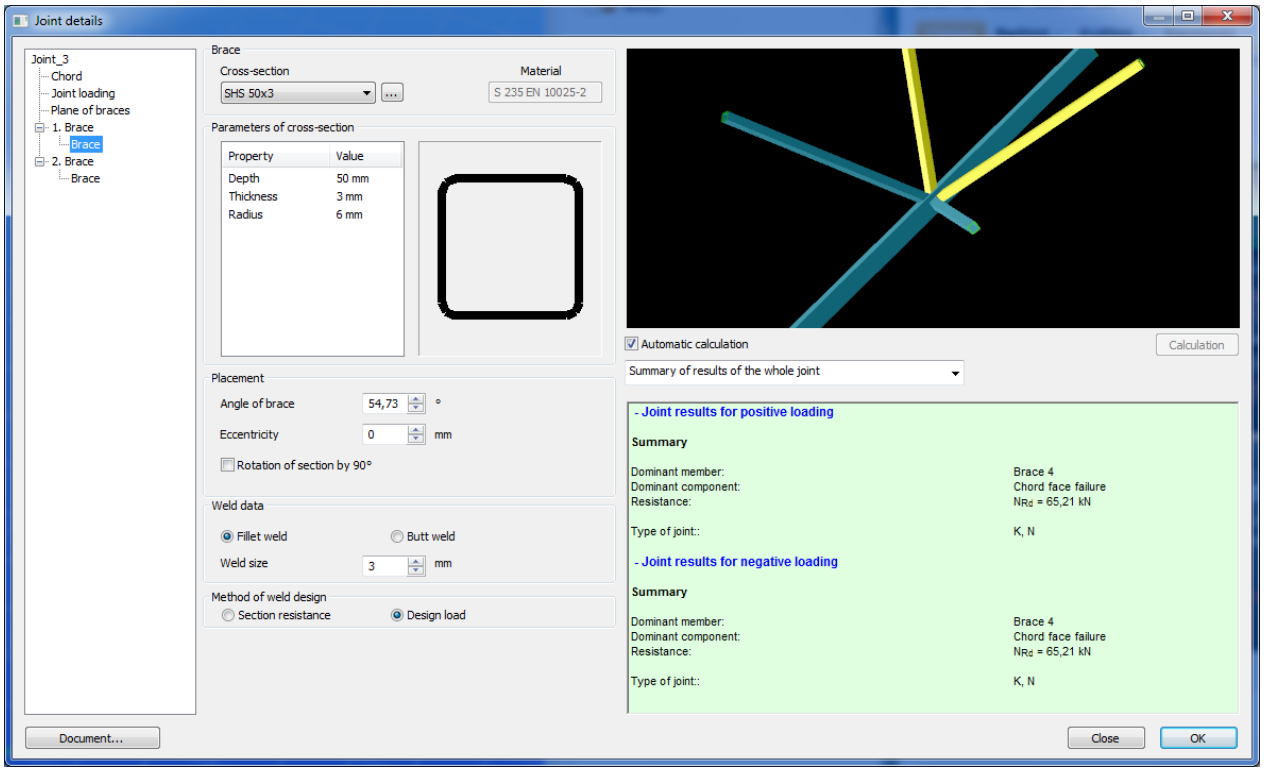
## 5.2 FIN PLATE

Fin plate connection can be created and checked for perpendicular beams. Sizes of the beams are optional. Upper and lower notch can be used on the end of the secondary beam. Position of the secondary beam is optional.



## 5.3 HOLLOW SECTION MULTIPLANAR KK JOINT

Multiplanar KK joint can be created and checked. Angle between the two truss plane and the angle of braces can be changed.

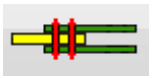


## 5.4 SPLICE PLATE COMPONENT

Splice plate component can be created and checked.

4 types of components can be created:


one side, simple splice plate


one side, double splice plate


two side, double splice plate


two side, simple splice plate

Number of the bolt rows and columns can be changed. Moment resistance can be also checked.