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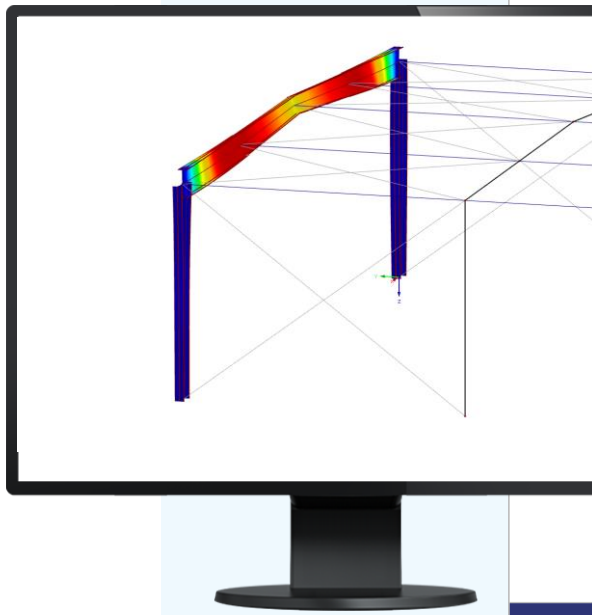
Webinar

Stability Design in Steel Construction with RFEM and RSTAB



Questions During the Presentation

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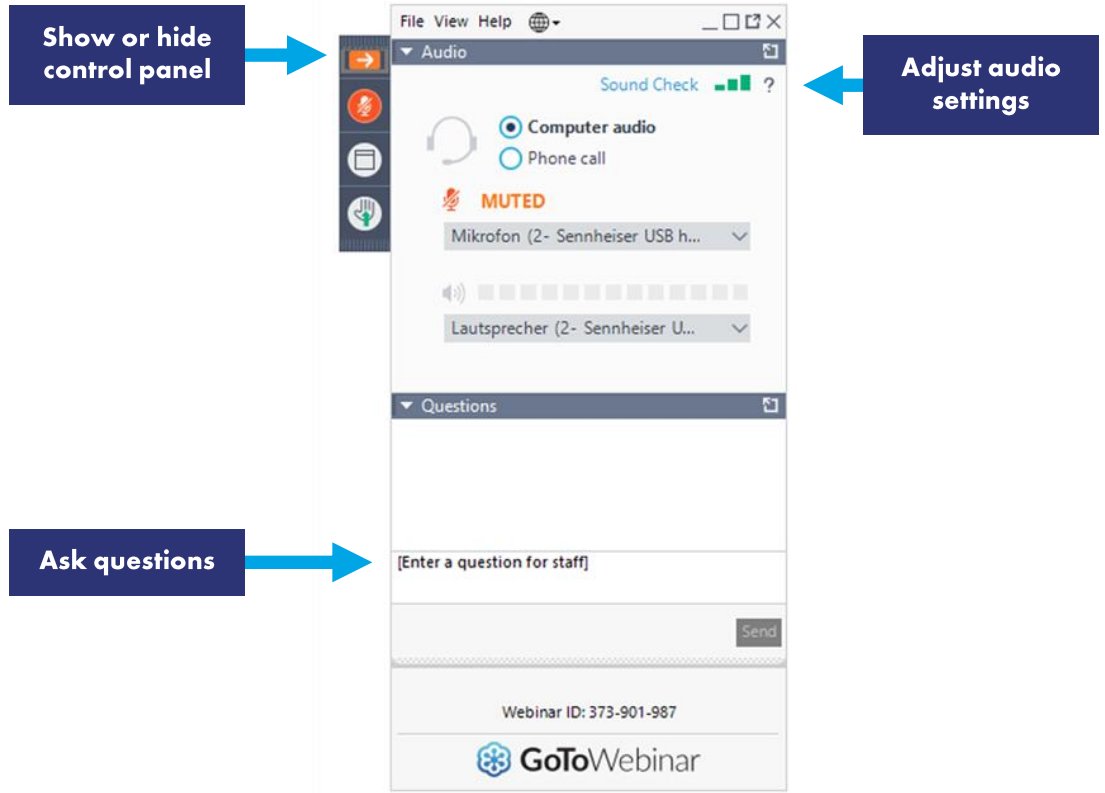
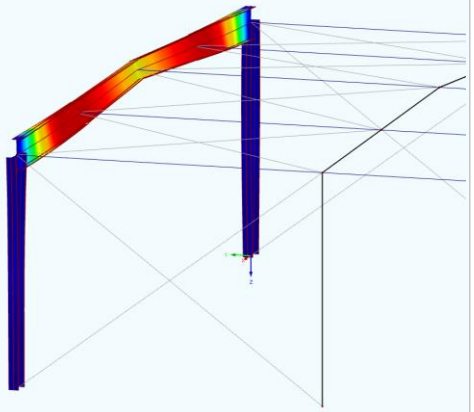


CONTENT

01 Comparison/limits of Equivalent Member Method, General Method, warping torsion analysis according to EC 3

02 Applying these methods using examples



Webinar

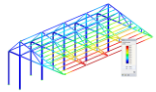
Stability Analysis - Methods

Method	Component		Cross-Sections				Loading				Notes
	▬	◢	I	O	[	?	N	M_y	M_z	M_T	
Equivalent member design according to 6.3.1	●		●	●	●	●	●				FB, TB, LTB due to compression
Equivalent member design according to 6.3.2	●		●	●	●	●		●			LTB due to bending
Equivalent member design according to 6.3.3	●		●	●			●	●	●		FB, TB, LTB
General method according to 6.3.4	●	●	●	●	●		●	●			FB, TB, LTB (op – out of plane)
Design according to second-order analysis with 7 DOF	●	●	●	●	●	●	●	●	●	●	Local imperfection must be applied in add-on module, end moments if necessary, from global imperfections + second-order analysis

applicable ● other cross-sections ?

Necessary Add-on Modules

Equivalent member design/General method

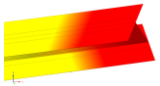


RF-/STEEL EC3

Design of steel members according to Eurocode 3

- Elastic design
- Plastic design

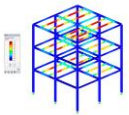
Design according to second-order analysis with 7 DOF



RF-/STEEL Warping Torsion

Warping torsion analysis according to the second-order theory with 7 degrees of freedom

- Elastic design



RF-/STEEL Plasticity

Plastic design of cross-sections according the Partial Internal Forces Method (PIFM) and Simplex Method

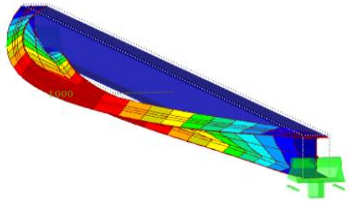
- Plastic design

Precamber

- Imperfections for lateral-torsional buckling:

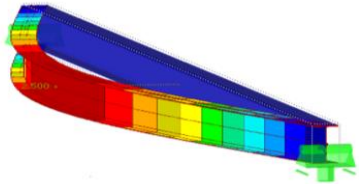
  Precamber in direction of weak axis $k \cdot e_{0,d}$

  Recommended buckling curves according table 6.5 (using equation 6.57); k = 0.5



- **EN 1993-1-1** Table 6.5

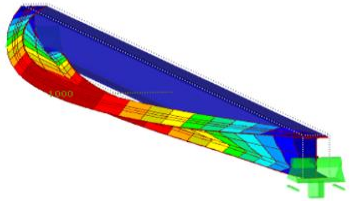
Cross-section	Limits	Buckling curve
Rolled I-sections	$h/b \leq 2.0$	b
	$h/b > 2.0$	c
Welded I-sections	$h/b \leq 2.0$	c
	$h/b > 2.0$	d

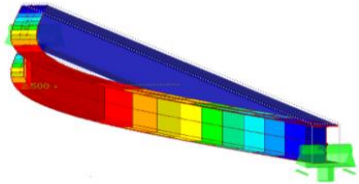


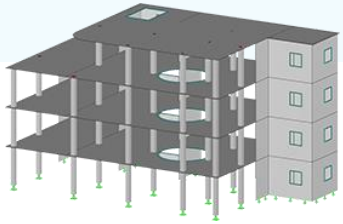
Precamber

EN 1993-1-1 Section 5.3.2 (3) Table 5.1

Buckling curve accord. to EC 3-1-1	Cross-section design	
	Elastic $e_{0,d}/L$	**Plastic** $e_{0,d}/L$
a_0	1/350	1/300
a	1/300	1/250
b	1/250	1/200
c	1/200	1/150
d	1/150	1/100







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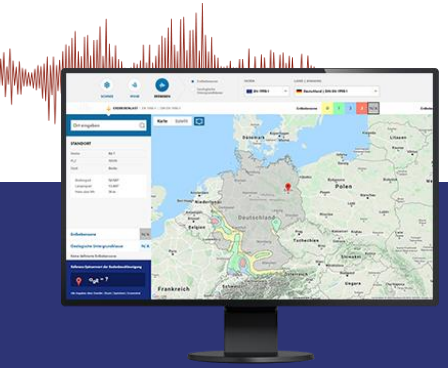
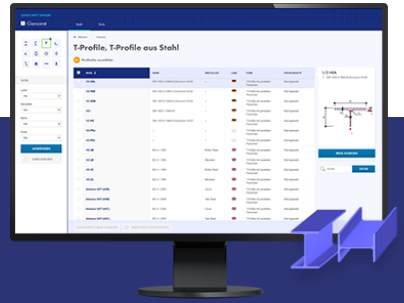


Cross-Section Properties

With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.



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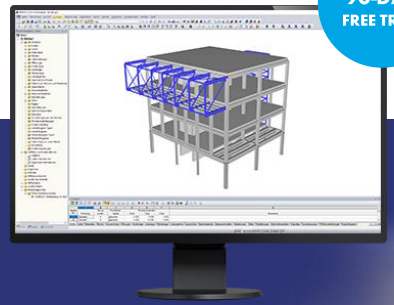

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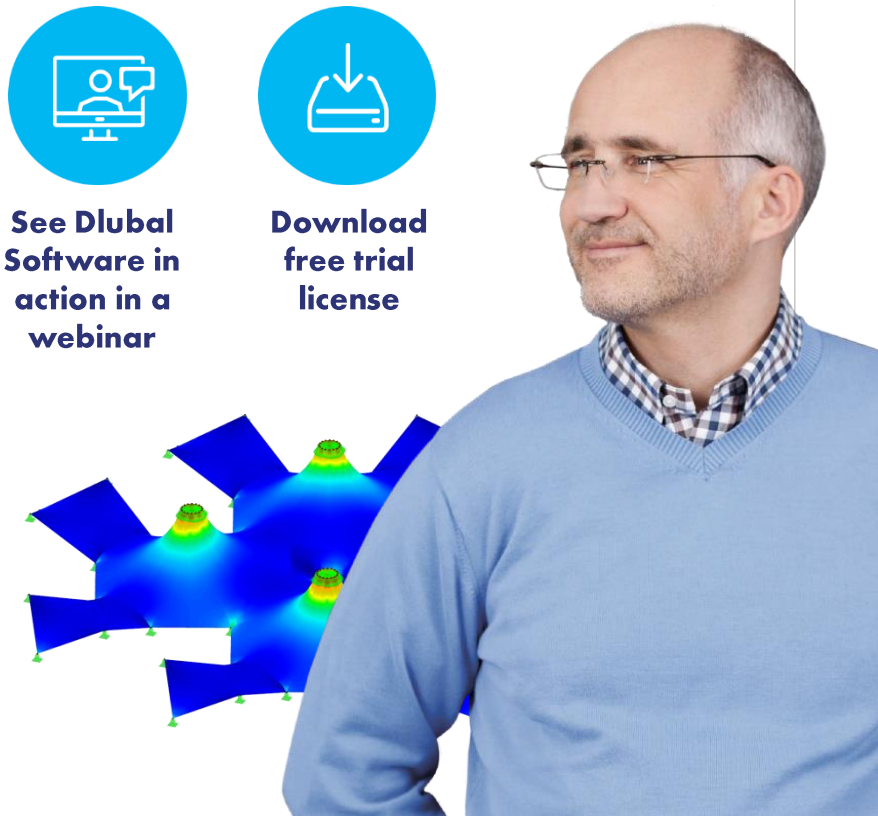

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