



Structural Analysis & Design Software



www.dlubal.com



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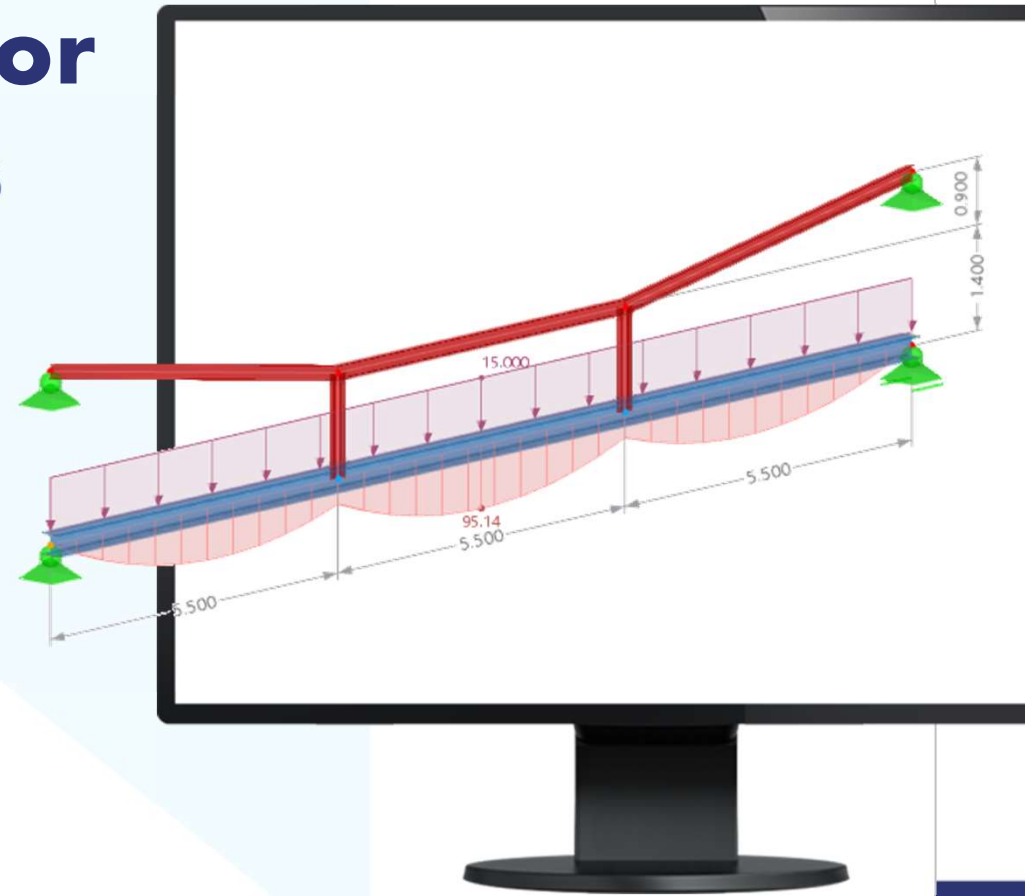
Dr. Ing. Jonas Bien
Co-Organizer

Product Engineering & Customer Support
Dlubal Software GmbH



PART 1 | Introduction to Member Design

RFEM 6 for Students



Questions during the presentation



GoToWebinar Control Panel
Desktop



E-Mail: info@dlubal.com

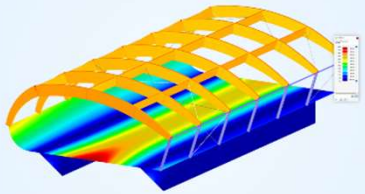


The screenshot shows two windows from the GoToWebinar interface. The top window is titled 'Audio' and contains settings for 'Computer audio' (selected) and 'Phone call'. A microphone icon is labeled 'MUTED'. Below this are dropdown menus for 'Mikrofon (2- Sennheiser USB h...)' and 'Lautsprecher (2- Sennheiser U...)', along with a volume slider. The bottom window is titled 'Questions' and features a text input field with the placeholder '[Enter a question for staff]' and a 'Send' button. At the bottom of the 'Questions' window, it displays 'Webinar ID: 373-901-987' and the 'GoToWebinar' logo. Three callout boxes with blue arrows point to specific elements: 'Show or hide control panel' points to the top-left control icons; 'Adjust audio settings' points to the audio settings window; and 'Ask questions' points to the question input field.



EVENT SCHEDULE

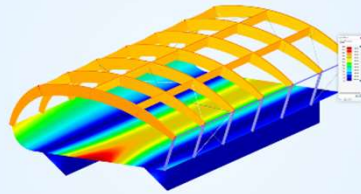
Online Training | English



Wed, Apr 10, 2024 | 4:00 PM - 7:00 PM CEST

**RFEM 6 | Students
Member Design**

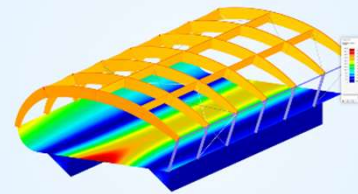
Online Training | English



Wed, Apr 17, 2024 | 4:00 PM - 5:00 PM CEST

**RSECTION 1 | Students
Strength of Materials**

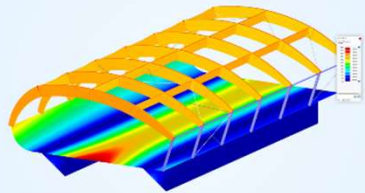
Online Training | English



Wed, Apr 24, 2024 | 4:00 PM - 7:00 PM CEST

**RFEM 6 | Students
FEM**

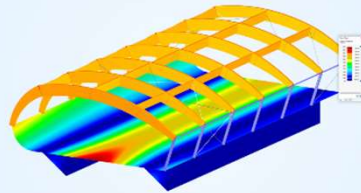
Online Training | English



Tue, Apr 30, 2024 | 4:00 PM - 5:00 PM CEST

**RFEM 6 | Students
Timber Design**

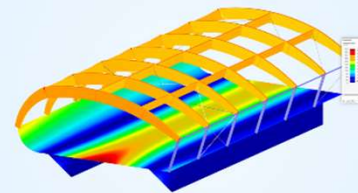
Online Training | English



Wed, May 8, 2024 | 4:00 PM - 5:00 PM CEST

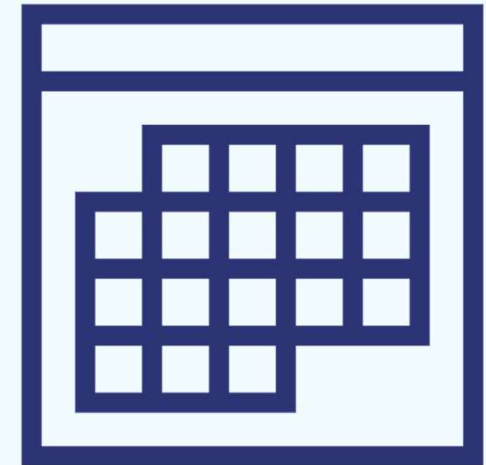
**RFEM 6 | Students
Reinf. Concrete Design**

Online Training | English



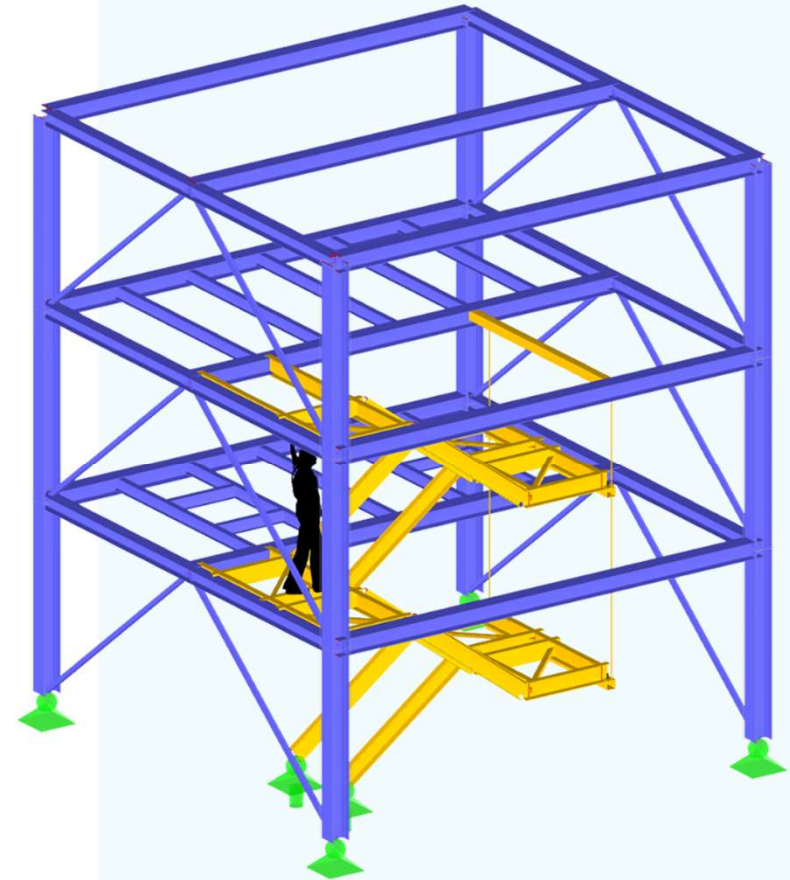
Wed, May 15, 2024 | 4:00 PM - 5:00 PM CEST

**RFEM 6 | Students
Steel Design**



CONTENT

- 01 Introduction to RFEM user-interface
- 02 Introductory example: Single-span beam
- 03 Advanced analysis examples
- 04 Influence of 2nd order theory
- 05 Linear bifurcation / Stability analysis





User-Interface

Menubar

Search function

Toolbar top side

Viewcube

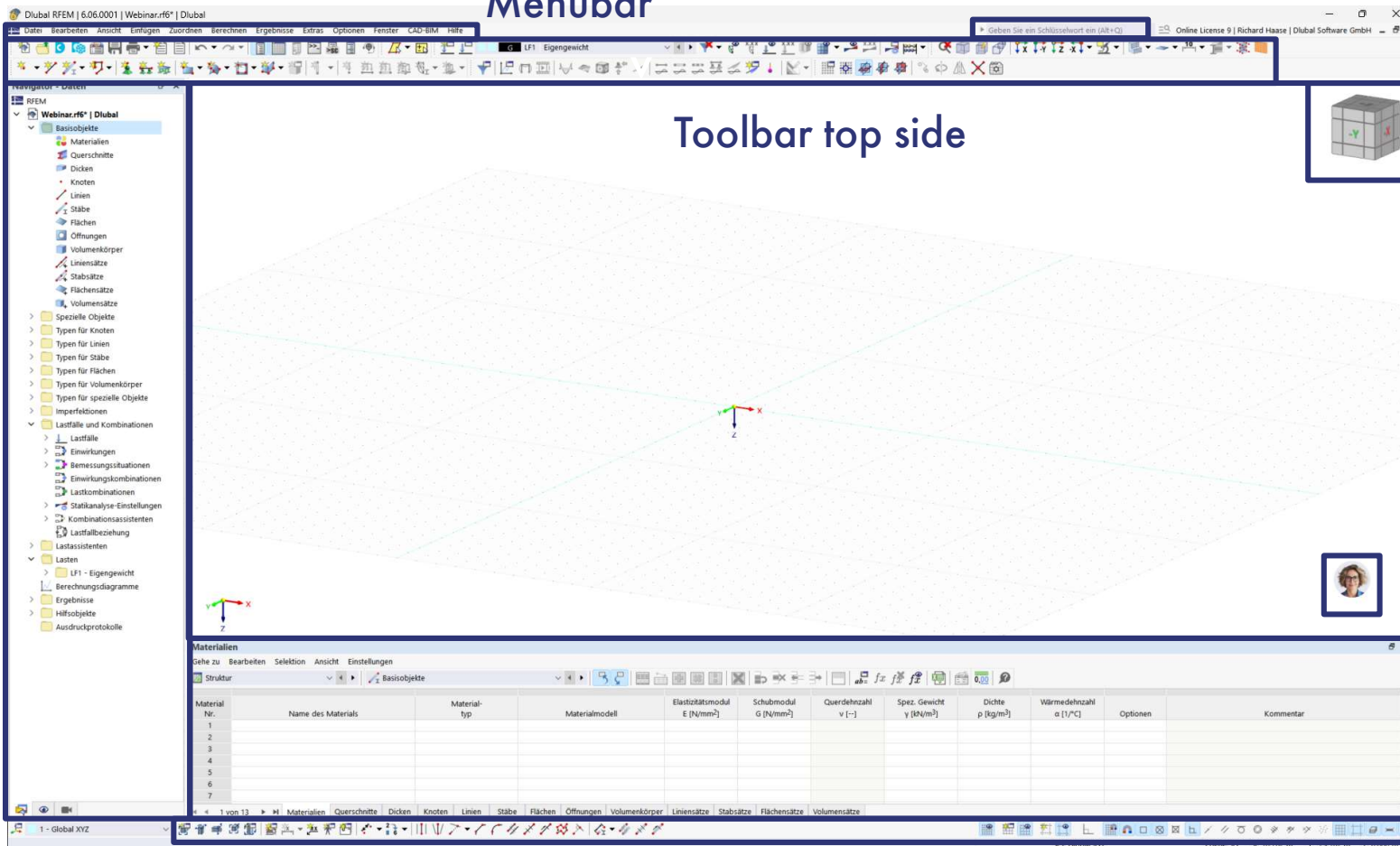
Workspace

AI-Assistent

Table

Toolbar bottom side

Navigator

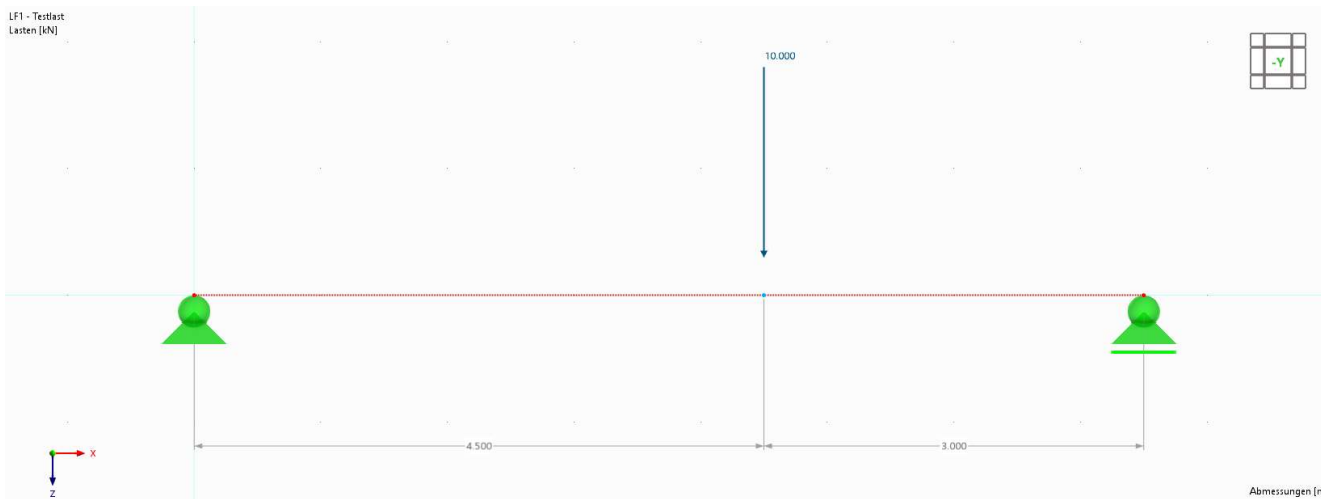


ONLINE TRAINING





Single-span beam with concentrated load



Step by Step

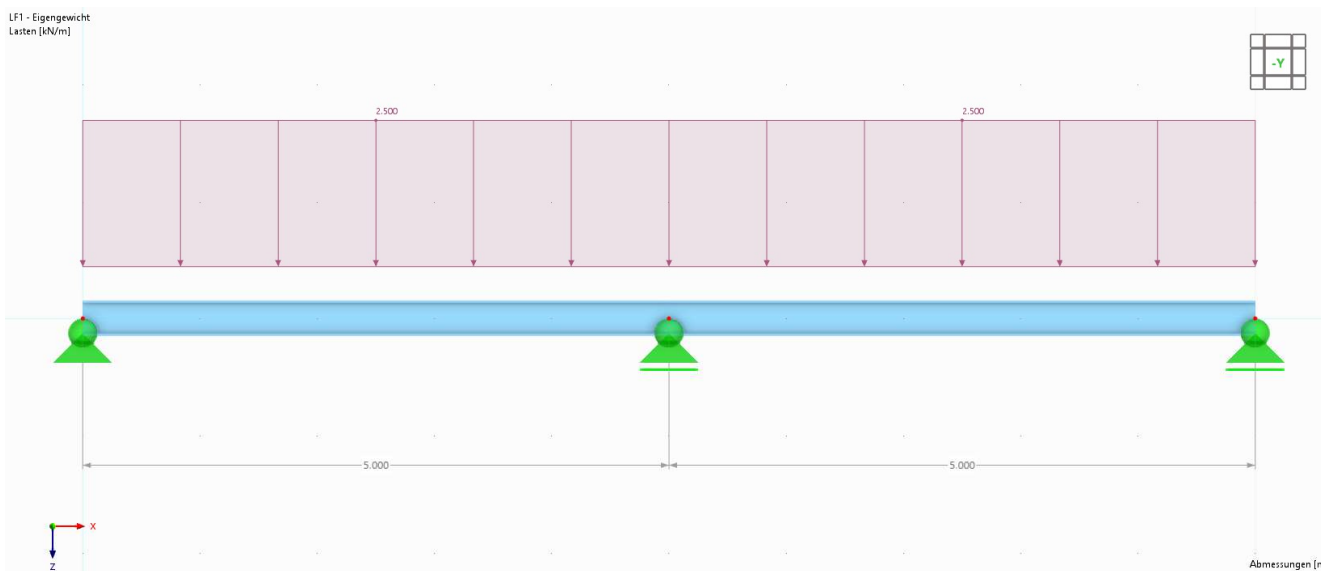
- Modeling
- Loadcases and Loads
- Calculation
- Results

Result interpretation

- Support Reaction
- Internal Forces
- Deformation



Two-span beam with altering load position



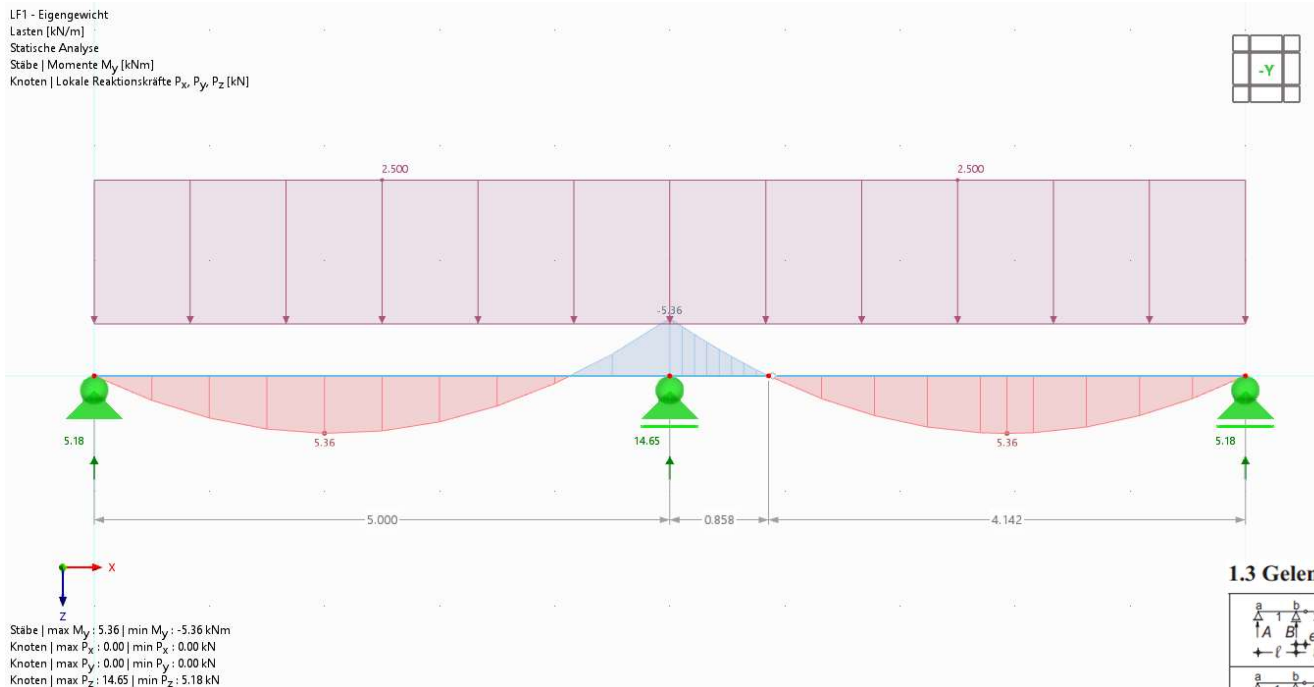
Information

- HEB 300, S235
- LC 1: Self-weight | $g = 2,5 \text{ kN/m}$
- LC 2: Imposed load left | $q = 5,0 \text{ kN/m}$
- LC 3: Imposed load right | $q = 5,0 \text{ kN/m}$

Tasks

- Determine the support forces, internal forces and deformations
- Determine the governing load combination that causes the largest internal forces

Gerber beam / Hinged beam



Information

- Schneider Bautabellen (24. Edition): page 4.13
- Eccentricity e : 0,1716 x L

Tasks

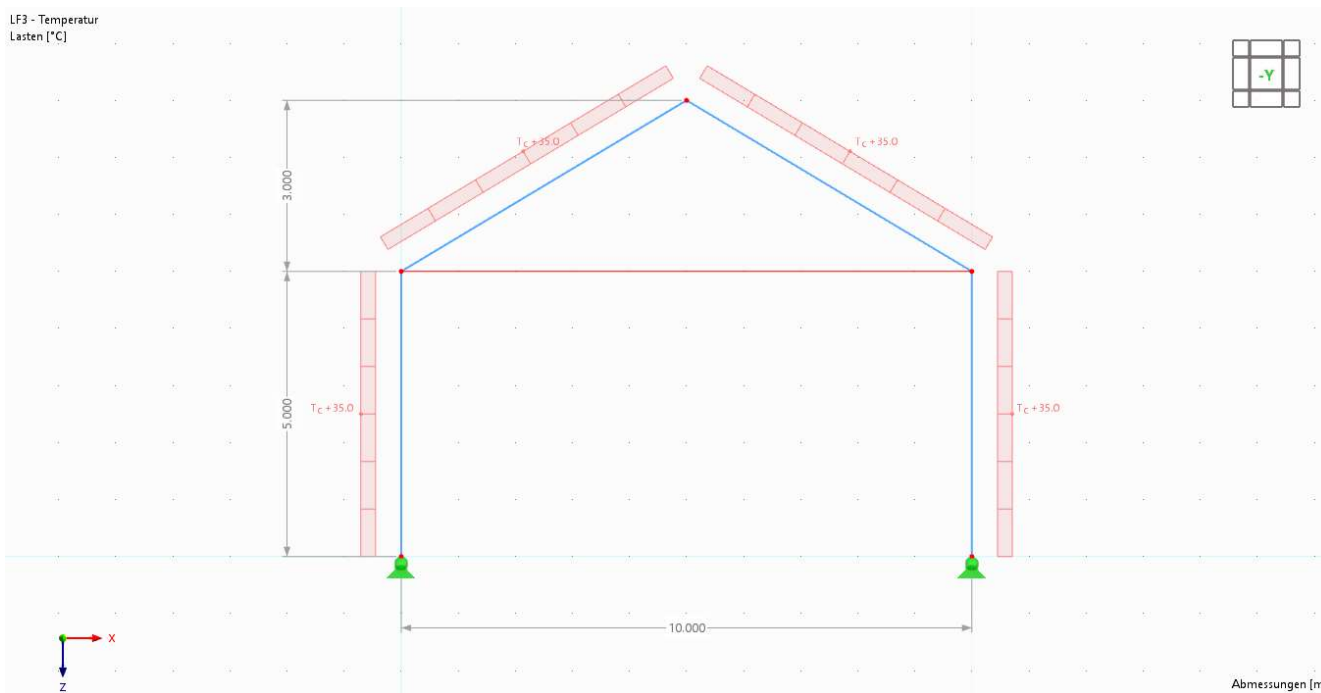
- Parametrize the structure

1.3 Gelenkträger (Gerberträger)¹⁾ mit Streckenlast q

	$e = 0,1716 l$	$A = 0,414 ql$ $B = 1,172 ql$	$M_1 = 0,0858 ql^2$ $M_2 = 0,0858 ql^2$ $M_b = -0,0858 ql^2$	$f_1 = \frac{ql^4}{130 EI}$
	$e = 0,22 l$	$A = 0,414 ql$ $B = 1,086 ql$	$M_1 = 0,0858 ql^2$ $M_2 = 0,0392 ql^2$ $M_b = -0,0858 ql^2$	$f_1 = \frac{ql^4}{130 EI}$
	$e = 0,1250 l$	$A = 0,438 ql$ $B = 1,063 ql$	$M_1 = 0,0957 ql^2$ $M_2 = 0,0625 ql^2$ $M_b = -0,0625 ql^2$	$f_1 = \frac{ql^4}{130 EI}$
	$e = 0,1716 l$	$A = 0,414 ql$ $B = 1,086 ql$	$M_1 = 0,0858 ql^2$ $M_2 = 0,0392 ql^2$ $M_b = -0,0858 ql^2$	$f_1 = \frac{ql^4}{130 EI}$



Two-hinged frame with tie rod



Information

- Frame: HEB 300, S235
- Tie rod: R30
- LC 1: Snow | $s = 1,0 \text{ kN/m}$
- LC 2: Wind | $w = 1,0 \text{ kN/m}$
- LC 3: Temperature increase of the frame
 $T_c = 35 \text{ K}$

Tasks

- Determine the support forces, internal forces and deformations

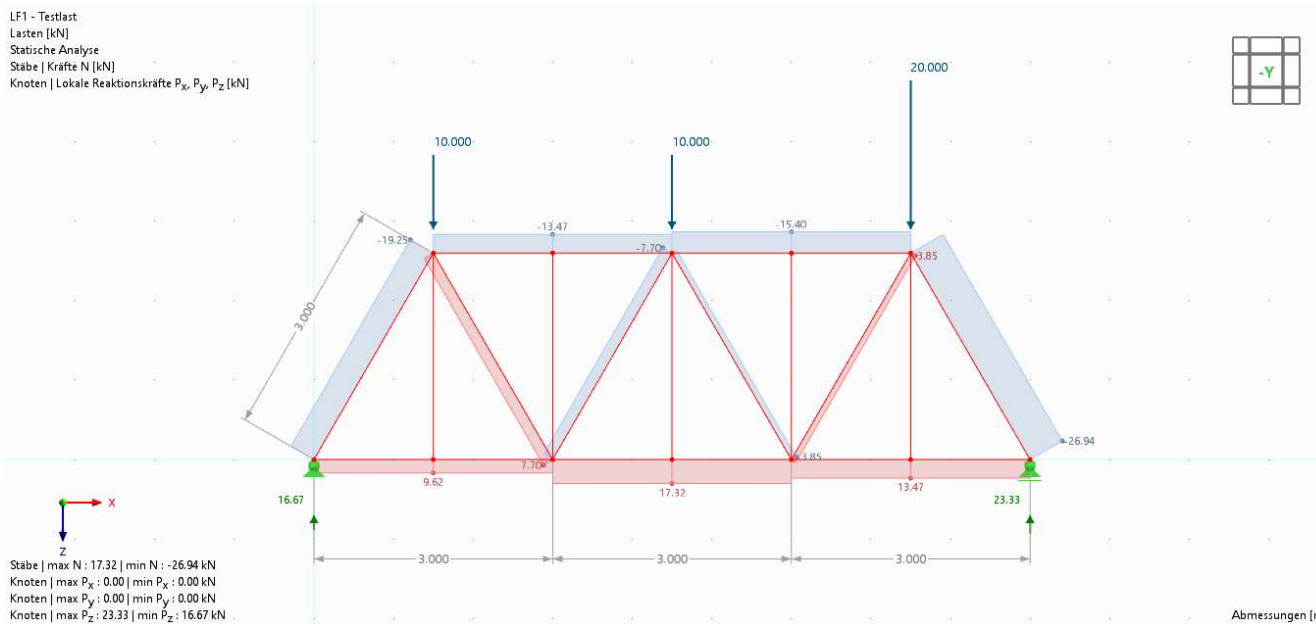
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Coffee Break





Ideal truss structure



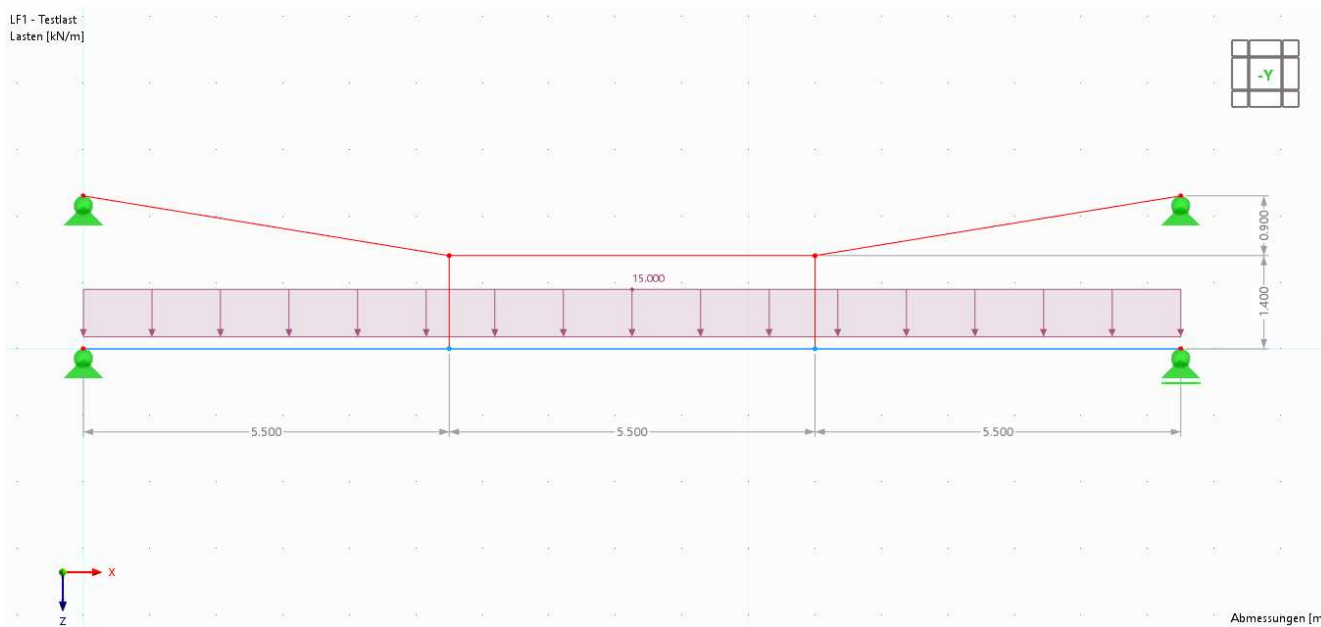
Information

- Members: HEB 300, S235
- Nodal loads as indicated
- Member Type: Truss (only N)

Tasks

- Determine the support forces and internal forces
- Determine the null members
- Which members are loaded in tension / compression?

Suspended single-span beam



Information

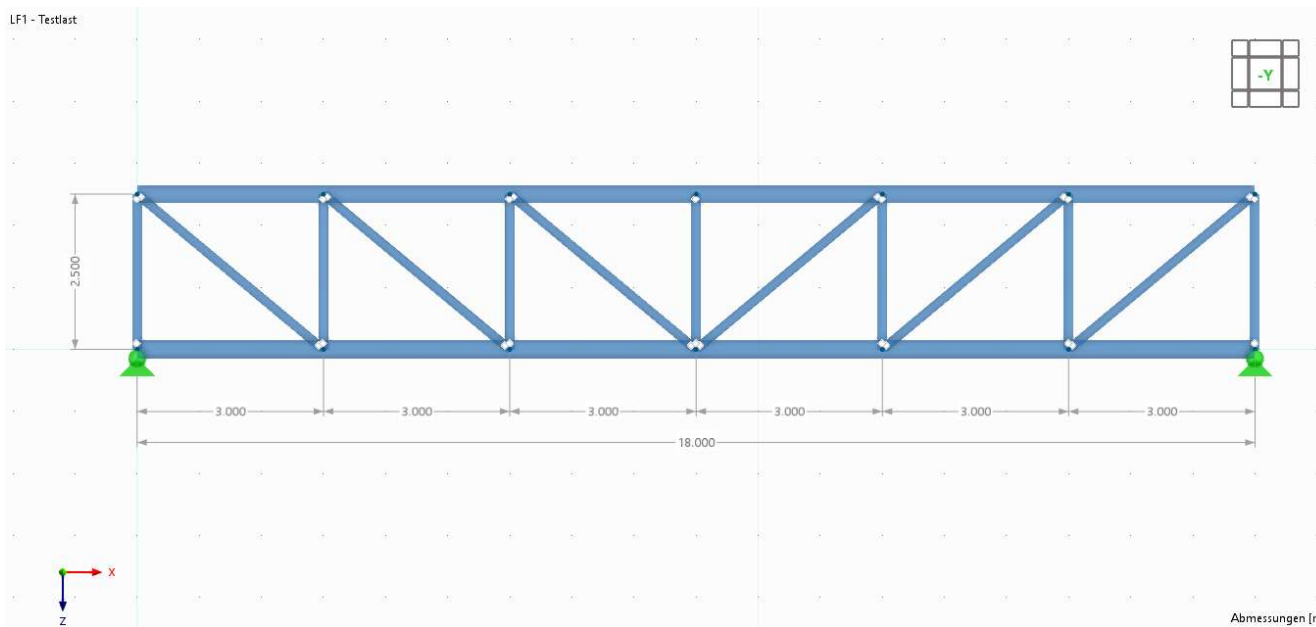
- Truss members: IPE 200, S235
- Beam: HEB 300, S235
- Distributed load: $q = 15 \text{ kN/m}$

Tasks

- Determine the support forces and internal forces



Generated truss structure



Information

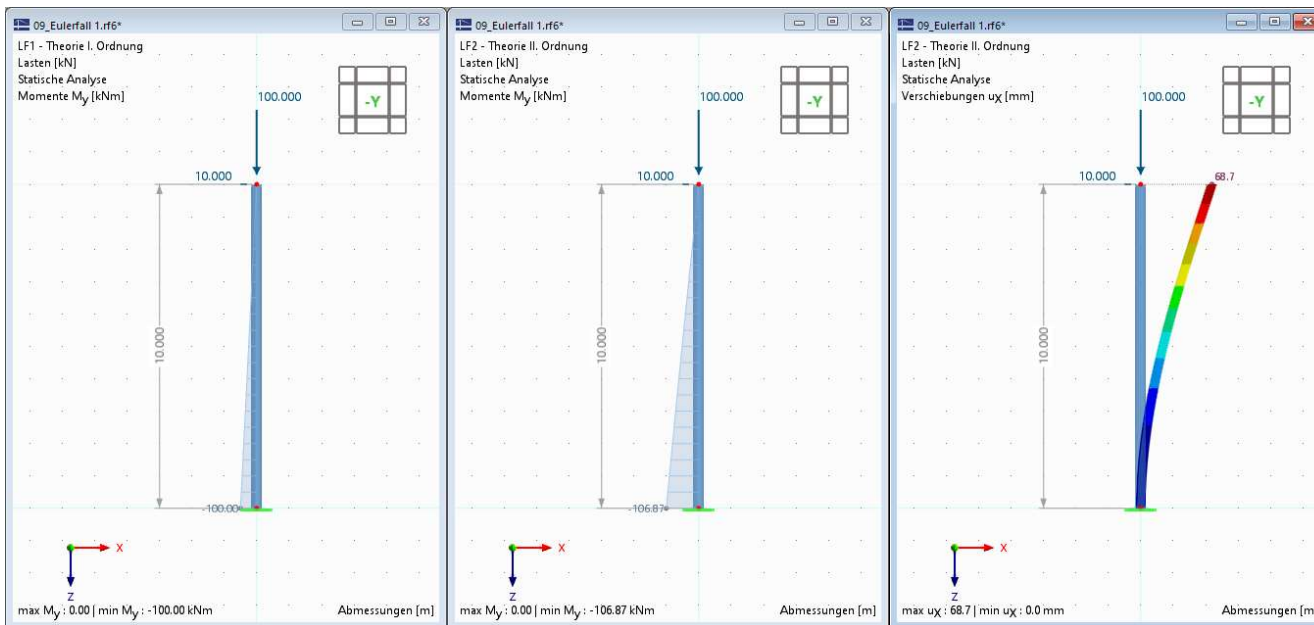
- Upper/lower Chord: HEA 300, S235
- Diagonals: IPE 160, S235
- Posts: HEA 160, S235

Tasks

- Get familiar with blocks
- Replace the beam members with regular truss members



Fixed column | 1st and 2nd order theory



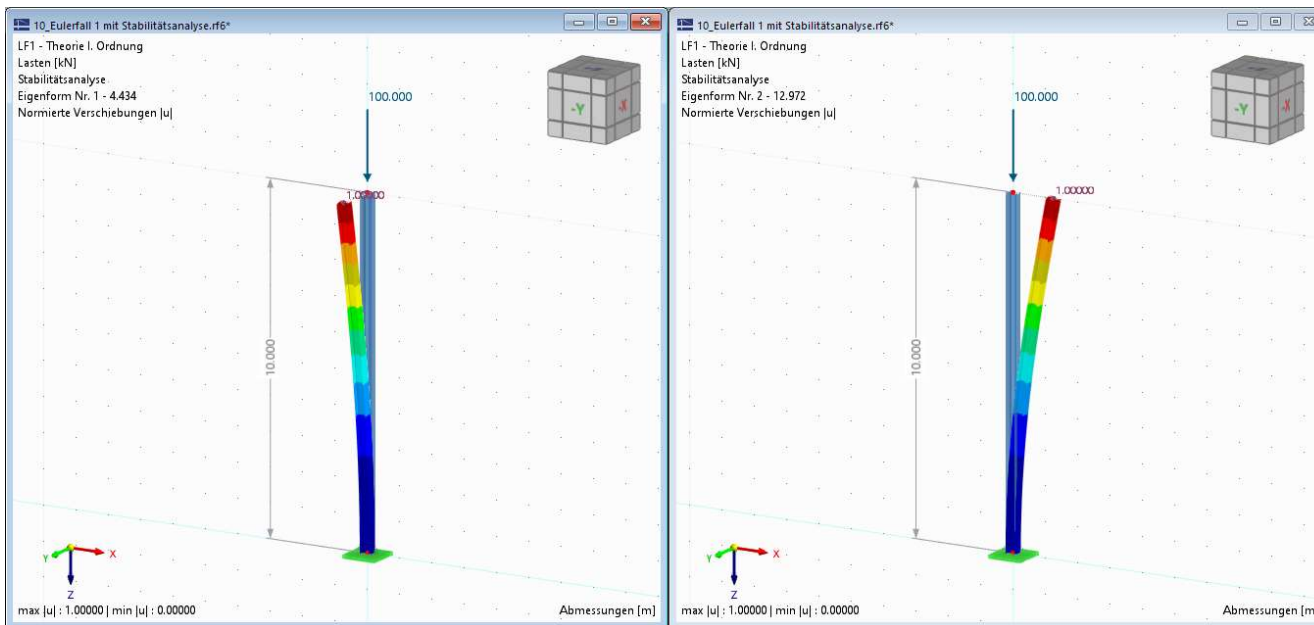
Information

- Fixed column: HEB 300, S235
- Nodal load: $P_z = 100 \text{ kN}$, $P_x = 10 \text{ kN}$

Tasks

- Study the influence of 2nd order theory on the resulting internal forces and deformations

Euler-Case 1 | Mode shapes



Information

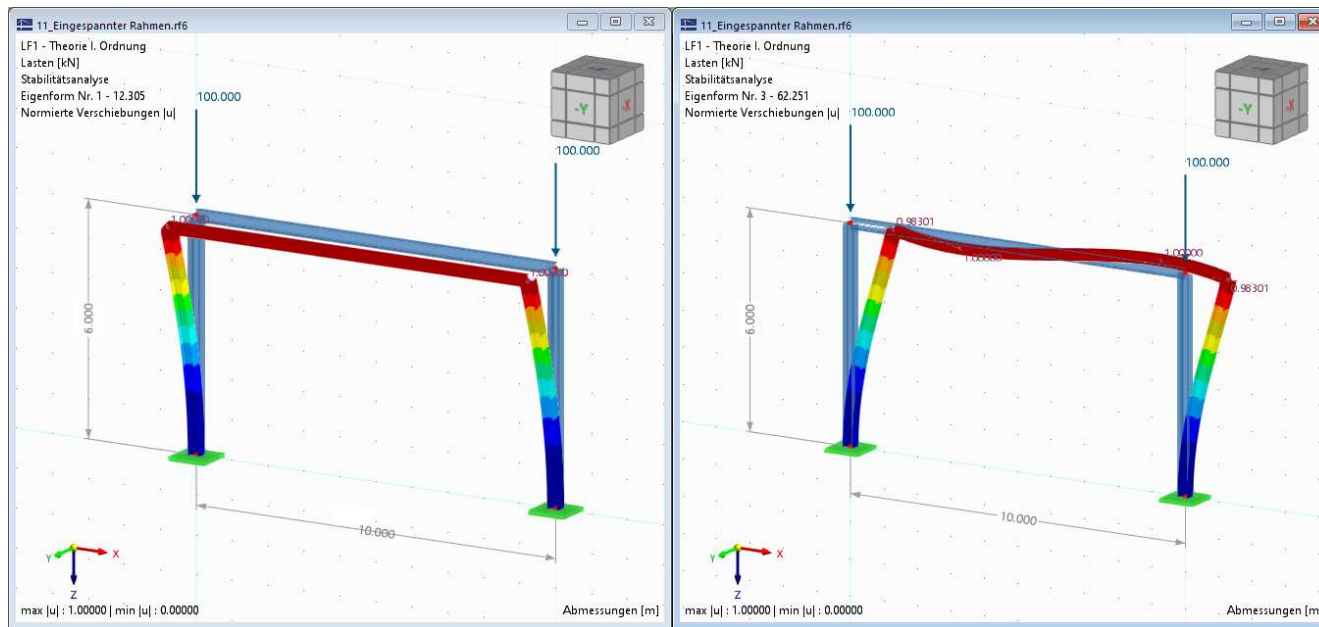
- Fixed column: HEB 300, S235
- Load: $P_z = 100 \text{ kN}$
- Add-on: Structure Stability

Tasks

- Calculate the critical load of a cantilever
- Determine the critical lengths for buckling about the minor and major axis of the cross-section



Fixed frame | Mode shapes



Information

- Columns: HEB 300, S235
- Beam: IPE 300, S235
- Add-on: Structure Stability required

Aufgaben

- Compare the different mode shapes
- How to prevent the frame from buckling out-of-plane?



Open Discussion

Any Questions



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www.dlubal.com

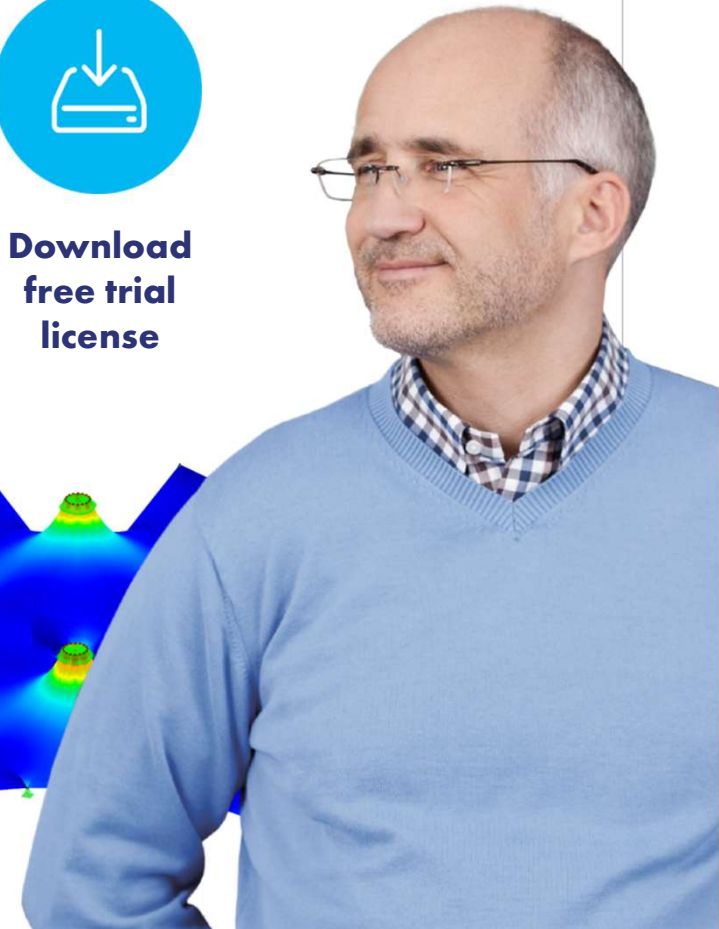
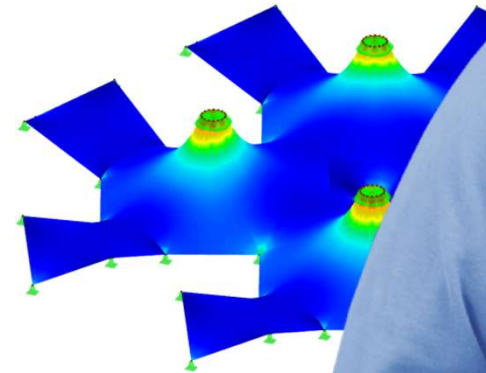
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See Dlubal Software in action in a webinar



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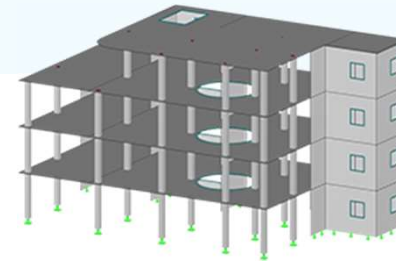


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Free Online Services



Geo-Zone Tool

Dlubal Software offers an online tool for determining the characteristic load values of the relevant load zone.

Cross-Section Properties

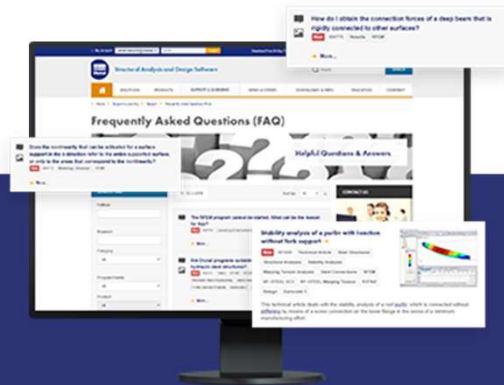
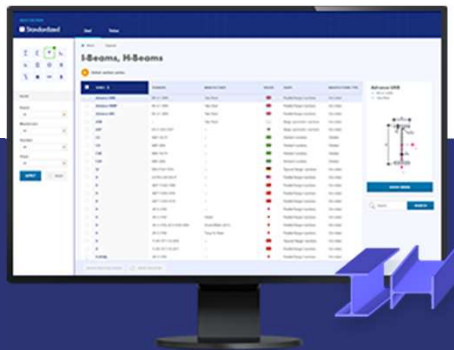
With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.

FAQs & Knowledge Base

Check out the frequently asked questions our customer support team is asked and get helpful tips and tricks with our technical articles to improve your work.

Models to Download

Download numerous example files that help you to get started and become familiar with the Dlubal programs.





Free Online Services

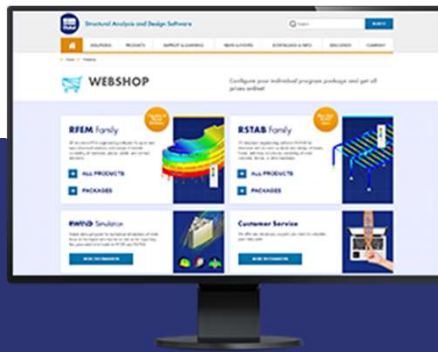
Youtube Channel - Webinars, Videos

Check out our videos and webinars about Dlubal's structural engineering software.



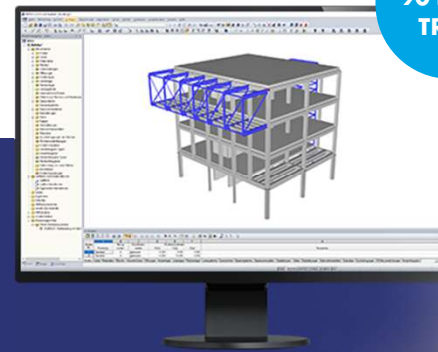
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Customize your program package and get all prices online!



Trial Versions

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90 DAYS TRIAL

Free Support via Email and Live Chat





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