



Structural Analysis & Design Software

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WEBINAR

Modeling with Solids in RFEM



Dipl.-Ing. (FH) Andreas Hörold

Presenter

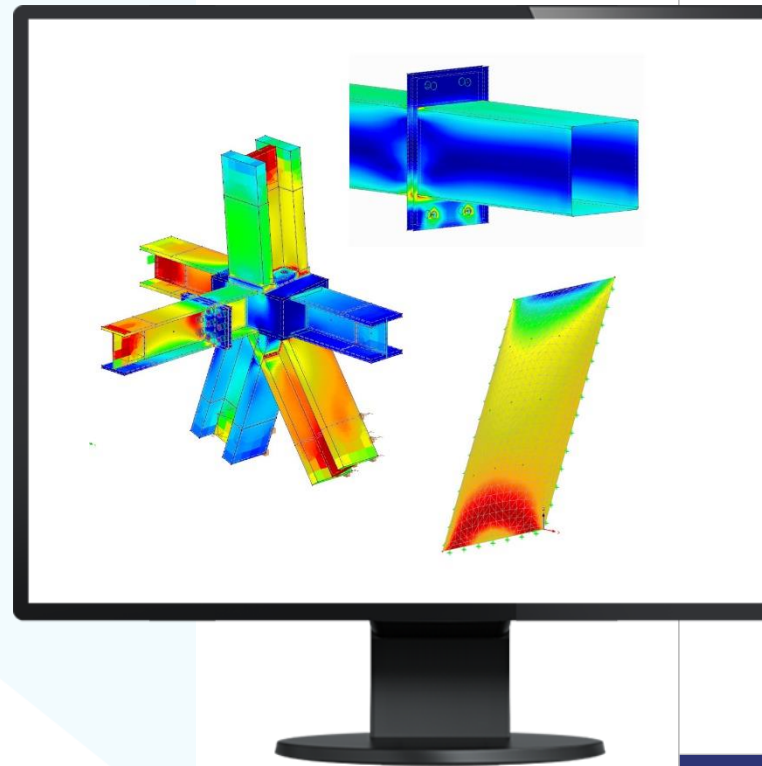
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Ask questions

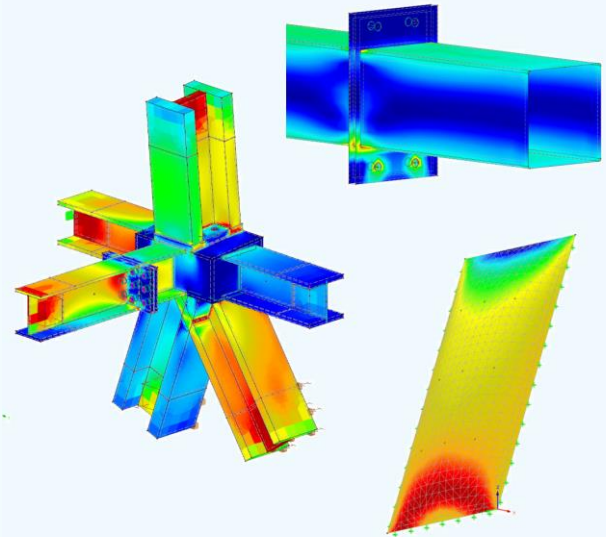


The screenshot shows the GoToWebinar desktop control panel. The 'Audio' window is open, displaying 'Sound Check' with a green bar and a question mark. Under 'Audio', 'Computer audio' is selected with a blue dot, and 'Phone call' is unselected. A red 'MUTED' indicator is present. Below, the microphone is set to 'Mikrofon (2- Sennheiser USB h...)' and the speaker to 'Lautsprecher (2- Sennheiser U...'. The 'Questions' section is visible below the audio settings, featuring a text input field with the placeholder '[Enter a question for staff]' and a 'Send' button. At the bottom of the control panel, the 'Webinar ID: 373-901-987' and the 'GoToWebinar' logo are displayed.



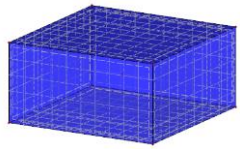
CONTENT

- 01 Definition and properties of solid types
- 02 Practical examples
- 03 Modeling solids using examples
- 04 Results evaluation (deformations, internal forces, solid stresses)



Solid Types

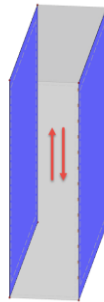
Material



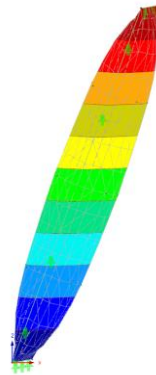
Isotropic

Orthotropic

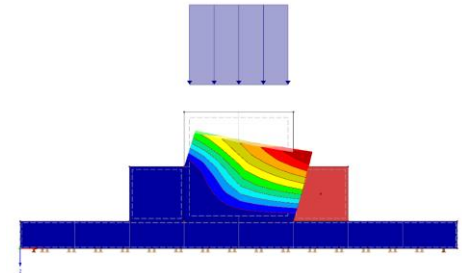
Contact



Gas



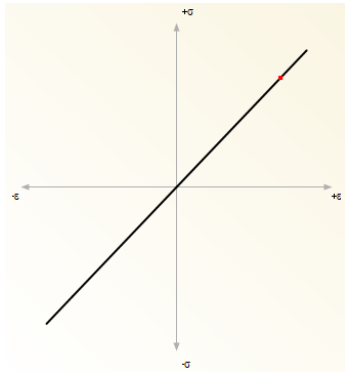
Null



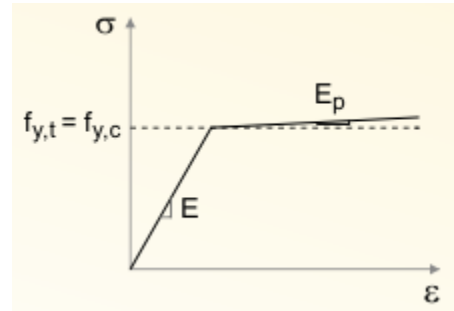
Solid Type Material

Material Models

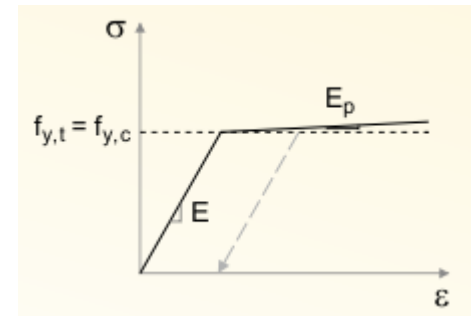
- Isotropic linear elastic



- Isotropic nonlinear elastic



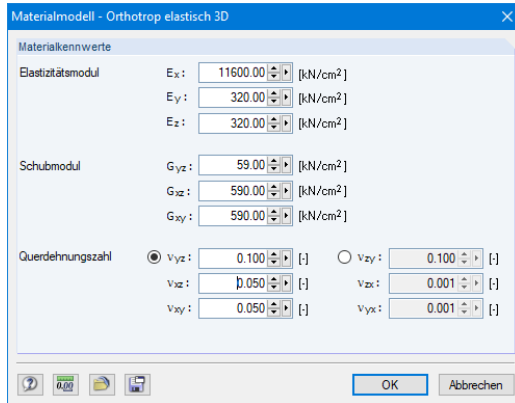
- Isotropic plastic



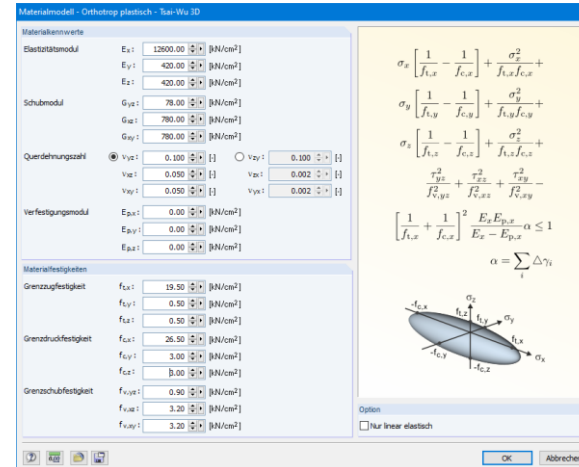
Solid Type Material

Material Models

- Orthotropic elastic



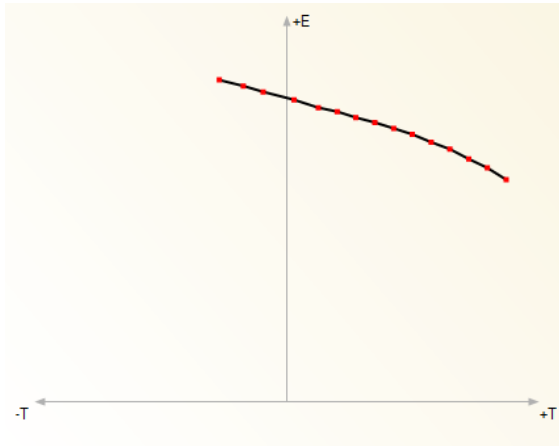
- Orthotropic plastic (Tsai-Wu)



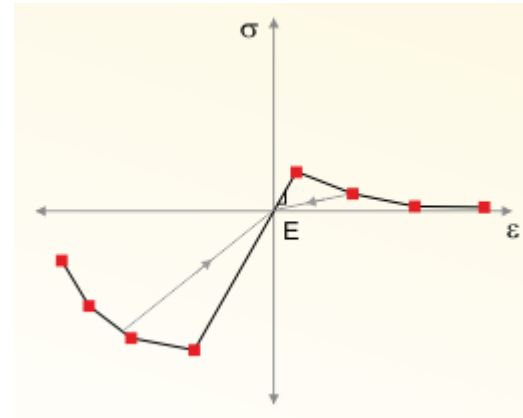
Solid Type Material

Material Models

- Isotropic thermal-elastic



- Isotropic damage



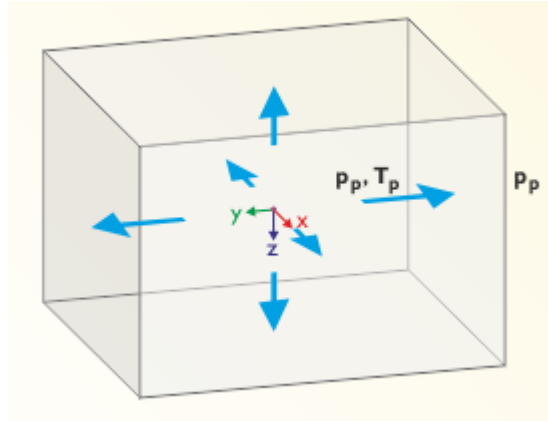
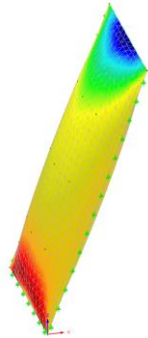
Solid Type Gas

Definition of:

- Material gas from library
- Initial pressure
- Initial temperature

Application examples:

- Foil cushion
- Gas tank
- Insulating glass (RF-GLASS)
- Gas balloon etc.



Solid Type Contact

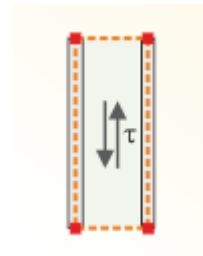
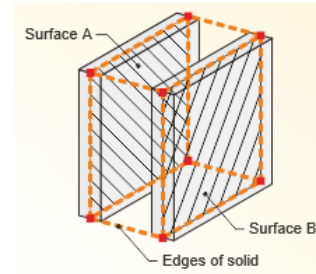
Contact Conditions

- Perpendicular to surfaces

Full force transmission	▼
Full force transmission	
Failure under compression	
Failure under tension	

- Parallel to surfaces

Failure if contact perpendicular to surfaces failed	▼
Failure if contact perpendicular to surfaces failed	
Full force transmission	
Rigid friction	
Rigid friction with limit	
Elastic friction	
Elastic friction with limit	
Elastic solid behavior	

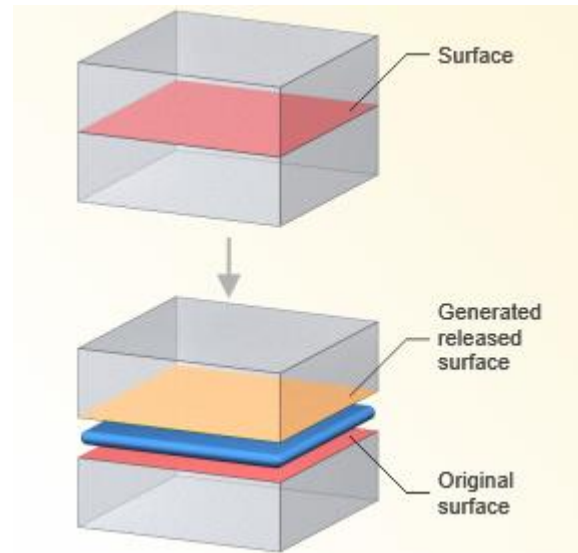


Surface Release

Surface Release Types

- Fixed, spring constant
- Nonlinearities

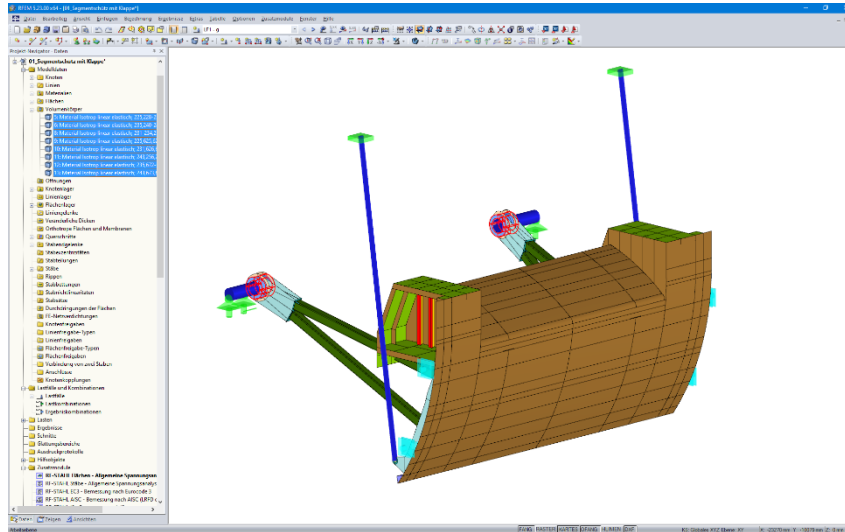
None
Fixed if negative pz
Fixed if positive pz
Partial activity...
Diagram...
Coupled diagram - permanent release



Application Examples

Customer Project: Flap Gate Sluice of Niederfinow Boat Lift, Germany

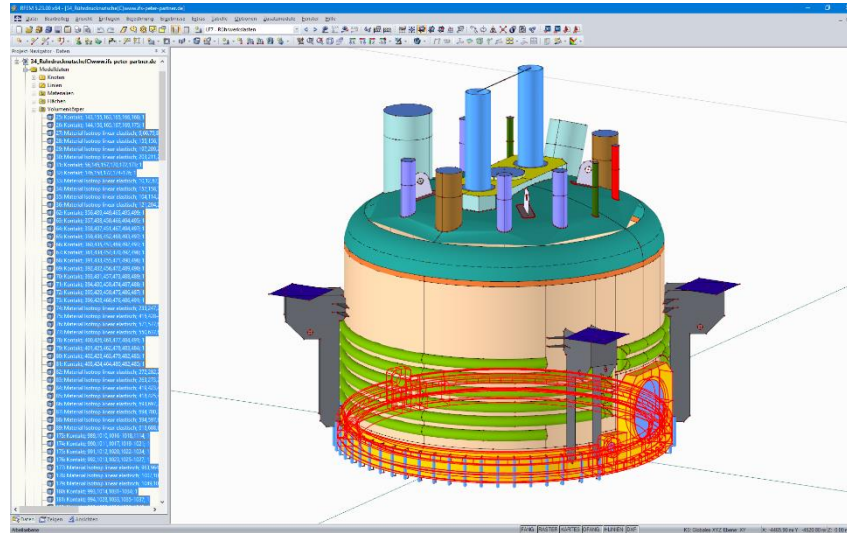
Customer:
Ingenieurbüro Ehlenz,
Beckingen, Germany
www.ibehlenz.de



Application Examples

Customer Project: Industrial Filter Device, Germany

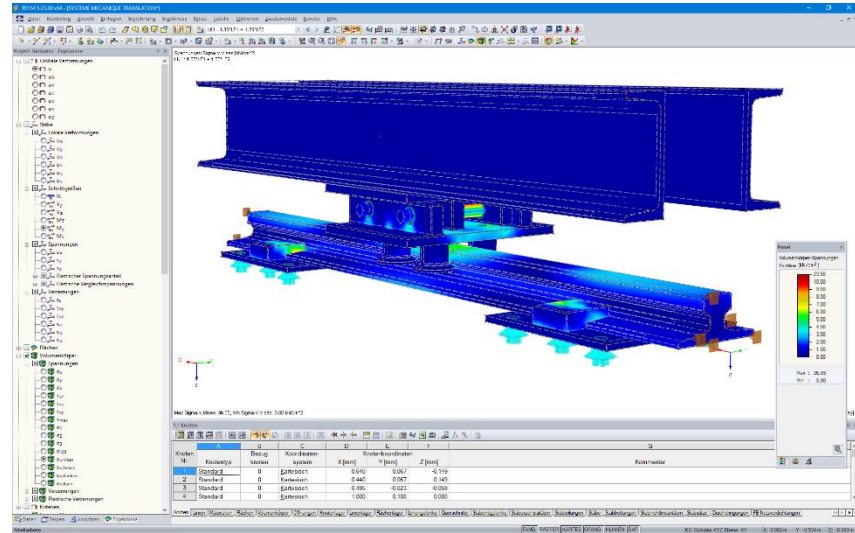
Customer:
 Peter & Partner
 Ingenieur- und
 Sachverständigengesellschaft
 für Strukturmechanik, Much,
 Germany
www.ifs-peter-partner.de



Application Examples

Customer Project: Mechanical Displacement System Design, Saint-Martin-de-la-Porte, France

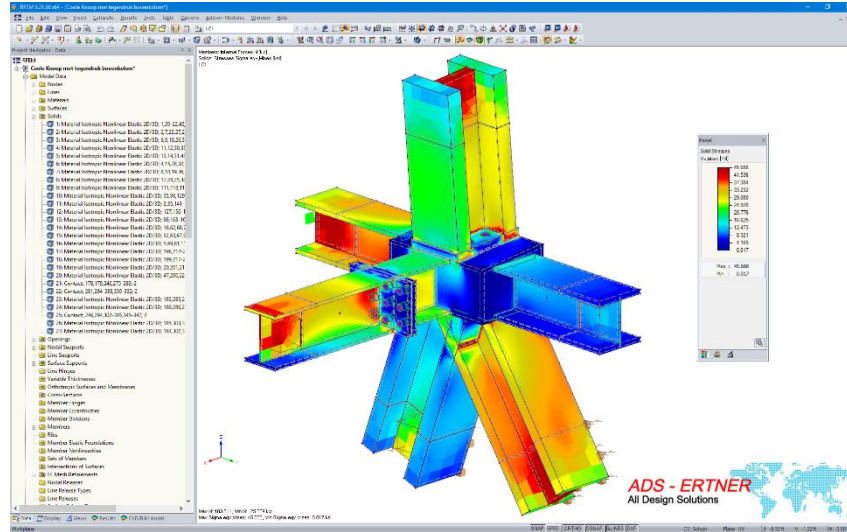
Customer:
AGICEA, Orange, France
www.agicea-bureau-etudes.fr



Application Examples

Customer Project: 3D Steel Connection with RFEM Solid Elements, The Netherlands

Customer:
MSc Engineering bv,
Doorwerth, The Netherlands
www.msc-engineering.nl



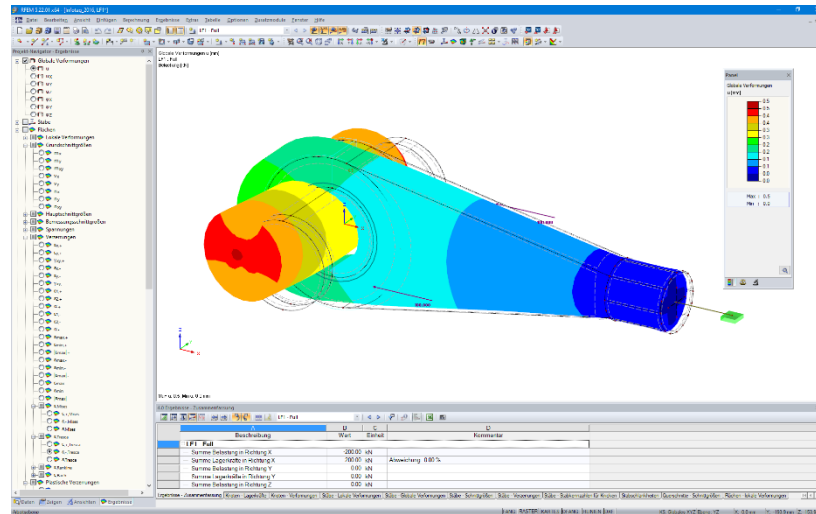
ADS - ERTNER
All Design Solutions

Application Examples

Member Tension Connection with Bolt

Dlubal Infoday 2016 | Part 4: Modeling and Calculating Solid Elements in RFEM

Designed by:
 Dipl.-Ing. (FH) Walter Rustler, M.Eng.
 Sales Director & Customer Support
 Dlubal Software GmbH

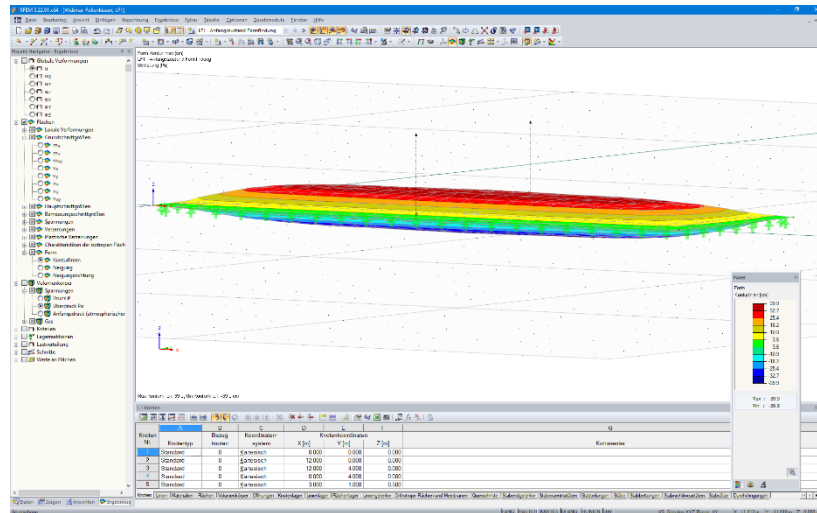


Application Examples

Foil Cushion

Dlubal Webinar: Simulation of Air-Inflated Foil Cushions in RFEM

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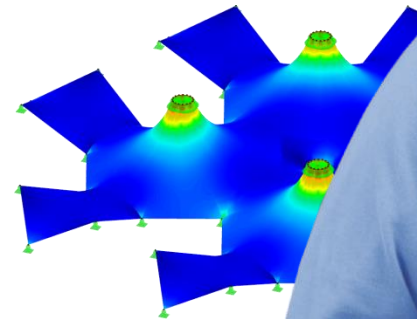
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