

Dantec Dynamics

Validation Tool 1.4.3

for Ansys WB Versions 19.2 to 2025 R1

Introductory Slides

by

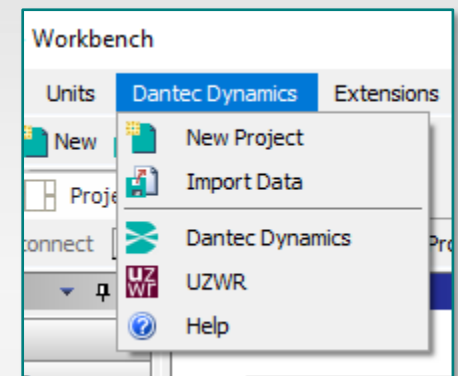
U. Simon, M. Kost

Scientific Research Centre Ulm
University of Ulm
www.uzwr.de

Ulm Jun. 2025

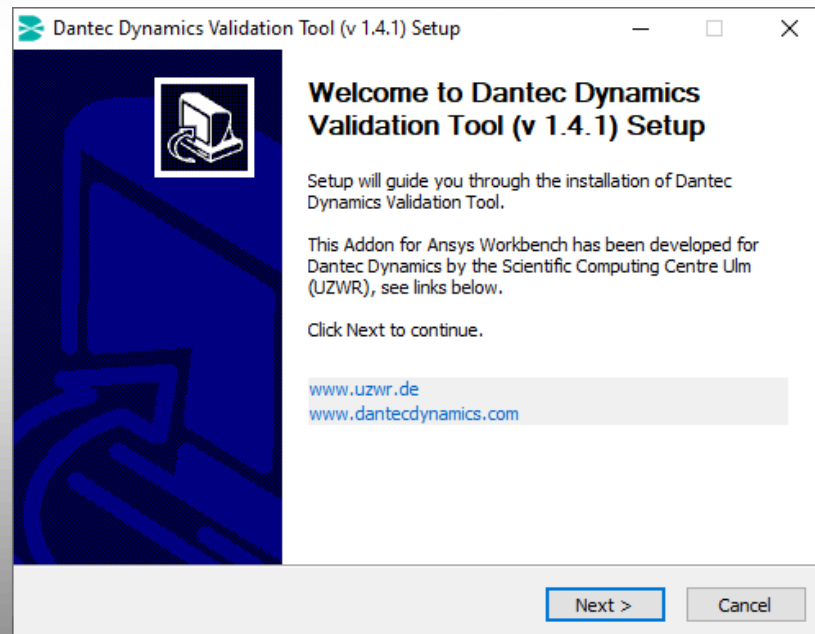


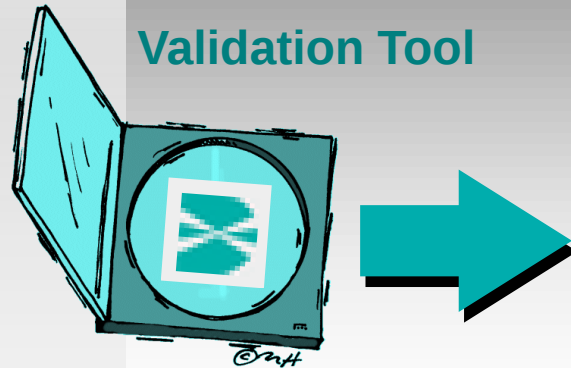
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Installer, straight forward

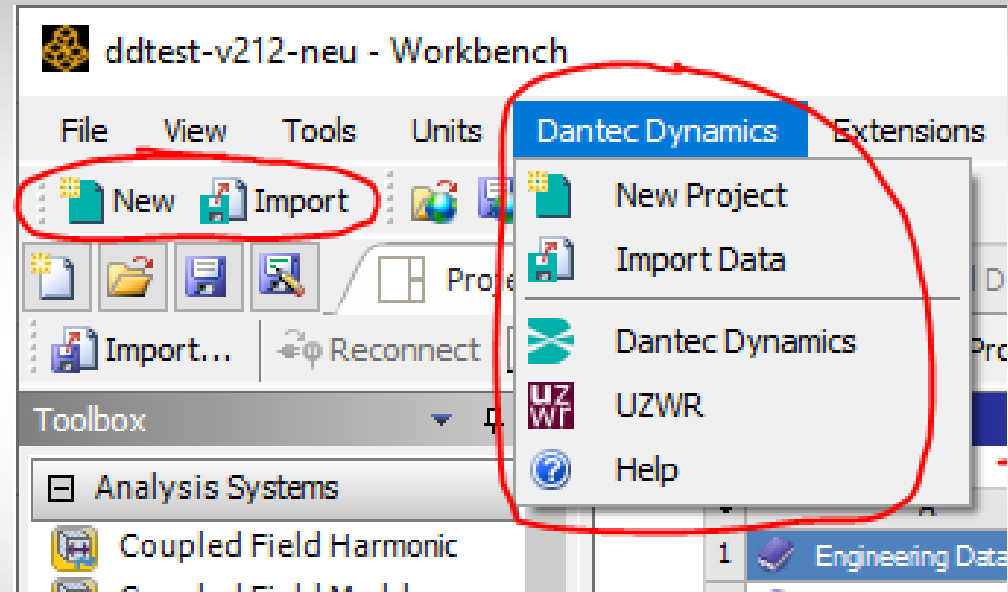
- Version 1.4.3 for Ansys WB Versions 19.2 to 2025 R1
- Tool will only be installed for ONE, the latest Ansys Version on a system.
- Copies the needed files into the necessary Ansys directories.
- Source: www.uzwr.de > Information > Downloads > Validation Tool





Ansys WB Add On

- WB 19.2 to 2025 R1
- Windows 10

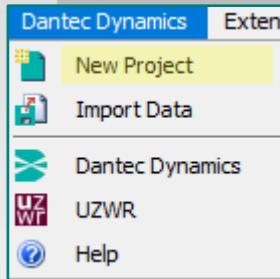


After successful installation you should see ...

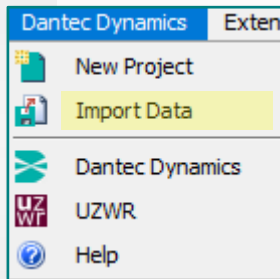
- a toolbar extension with two buttons [New] and [Import]
- a new main pop down menu item “Dantec Dynamics”

Pop Down Menu “Dantec Dynamics”

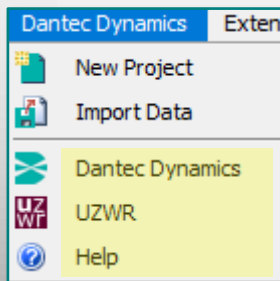
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- **New Project** creates a Template (complete & running, easy to modify).
Hit this button and define a new name and location of your project.



- **Import Data:** reading and converting Dantec Dynamics data (hdf5) into Ansys



- **Dantec Dynamics** and
- **UZWR** links to corresponding homepages
- Online **Help** system

Start a New Project

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- Based on a Template Project**
- Click on [New] and
 - Define new name and working space for the new project.

The screenshot displays the ANSYS Workbench interface for a project named 'ddtest-v212-neu - Workbench'. The 'Project Schematic' area shows a hierarchical structure of analysis systems:

- Analysis Systems (Toolbox):** A list of available analysis types, including Coupled Field Harmonic, Coupled Field Modal, Coupled Field Static, Coupled Field Transient, Eigenvalue Buckling, Electric, Explicit Dynamics, Fluid Flow - Blow Molding (CFX), Fluid Flow - Extrusion (Polyflow), Fluid Flow (Fluent with Fluent), Fluid Flow (Fluent), Fluid Flow (Polyflow), Harmonic Acoustics, Harmonic Response, Hydrodynamic Diffraction, Hydrodynamic Response, IC Engine (Fluent), LS-DYNA, LS-DYNA Restart, and Magnetostatic.
- Project Schematic:** A diagram showing the flow of data and parameters between analysis systems. The systems are organized into five main categories: A (Material Properties), B (Idealized Geometry), C (Import Measured Displacement Data), D (Measurement), and E (FEA). Each category contains a list of steps (1-7) with status indicators (checkmarks or green arrows).
- Measure and FEA Labels:** Two labels, 'Measure' and 'FEA', are placed below the schematic, indicating the types of analysis performed.

Annotations and connections in the schematic include:

- A blue arrow pointing from 'Engineering Data' in category A to 'Engineering Data' in category D.
- A blue arrow pointing from 'Geometry' in category B to 'Geometry' in category D.
- A pink arrow pointing from 'Setup' in category C to 'Setup' in category D.

At the bottom of the interface, there are status bars for 'Ready', 'Job Monitor...', 'No DPS Connection', 'Show Progress', and 'Show 0 Messages'.

- Complete template
- Based on test case 1
- All blocks filled with data and parameters
- Fully visible and functional
- Easy to adapt to user case

Data Conversion

Data Conversion

Convert .hdf5 data to Ansys compatible .txt data.

Current Step: series_step_20.hdf5

Reference Step:

Reference points in measurement coordinate system:

	x	y	z
Ref Point 1			
Ref Point 2			
Ref Point 3			
Ref Point 4			

Corresponding points in Ansys coordinate system:

Point 1			
Point 2			
Point 3			
Point 4			

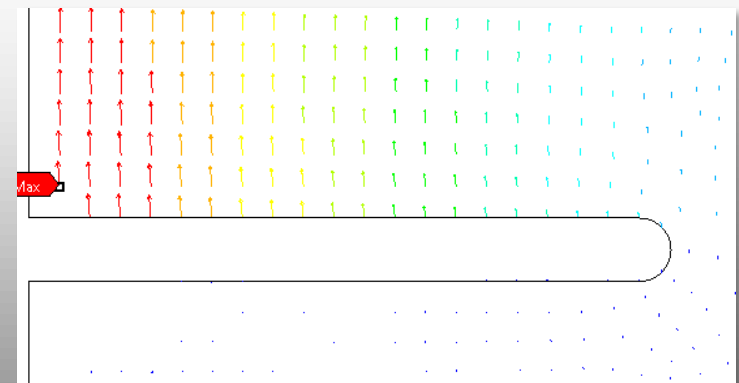
Reading .hdf5 data

Automatic transformation

- Based on reference points
- Least squares method

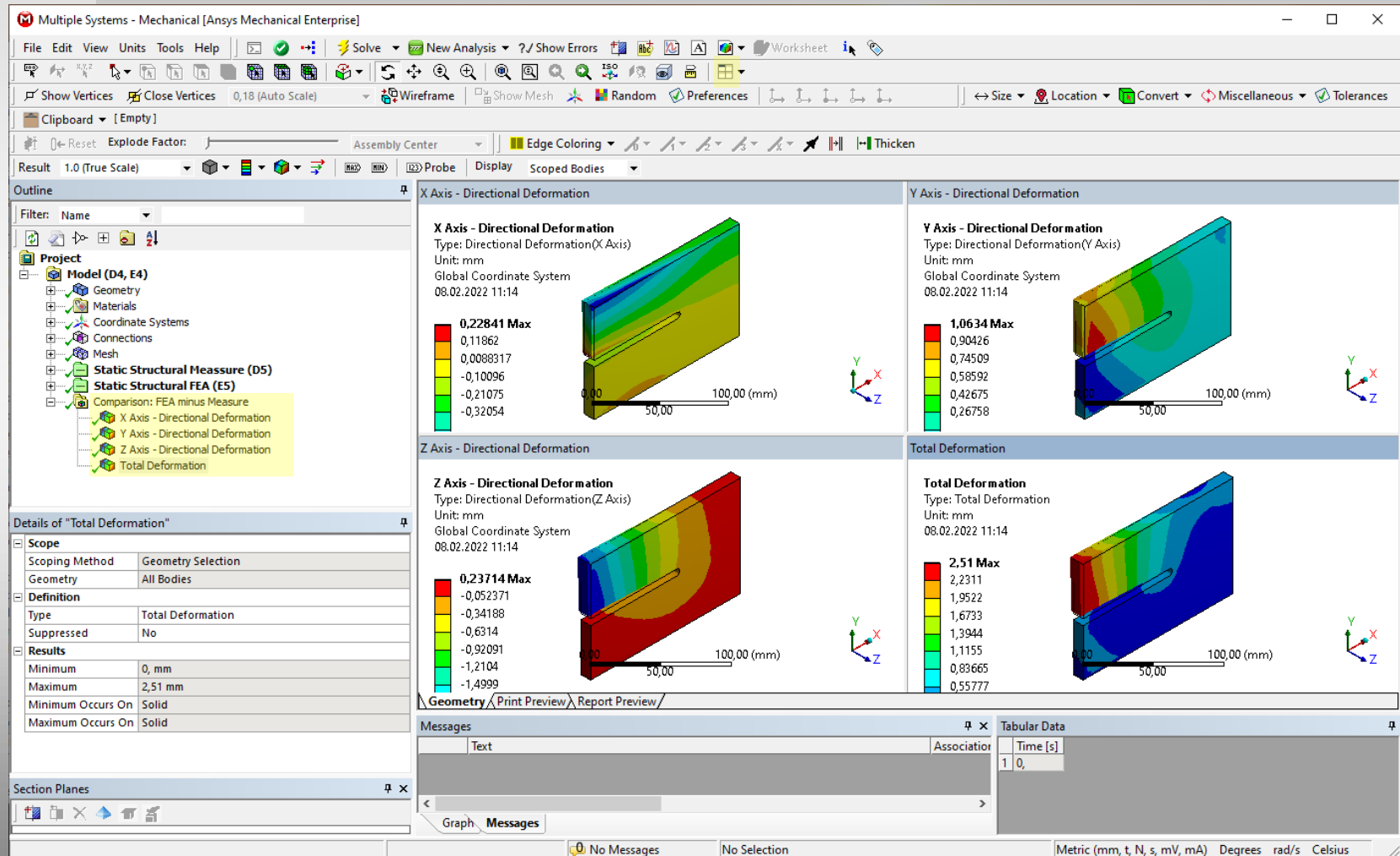
Visualization of measured data

- Mapped on the FEA geometry
- Location, amount, direction



Displaying Results

- Comparative Results (FEA - Measure) are now available directly in the Mechanical module.
- Switching to 4 viewports you can display 4 results simultaneously.



- Written in HTML
- Integrated in Dantec Dynamic main menu extension



Validation Tool: Documentation

This Guide offers you help on how to use the Dantec Dynamics Validation Tool.

Table of Contents

- [1. User's Guide](#)
- [2. HDF5 to TXT conversion Tool](#)
- [3. How to handle contacts in your Model](#)

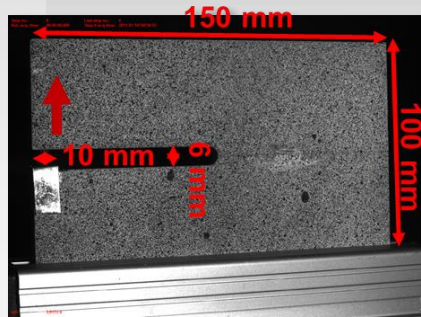
Examples

Case 1: S-Plate (Validation)

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Measurement

- Geometry



- Material:

- Arbitrary

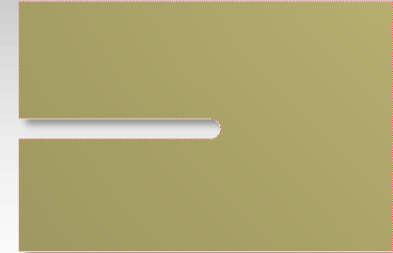
- Load / boundary conditions

- Measured displacement

FEA

- Geometry

- 3D

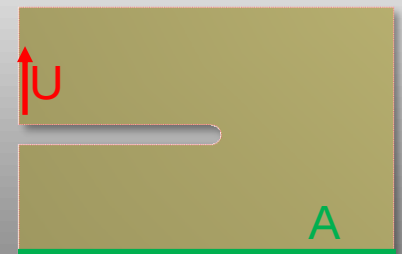


- Material:

Young's Modulus	3000	MPa
Poisson's Ratio	0,35	
Bulk Modulus	3,3333E+09	Pa
Shear Modulus	1,1111E+09	Pa

- Load / boundary conditions

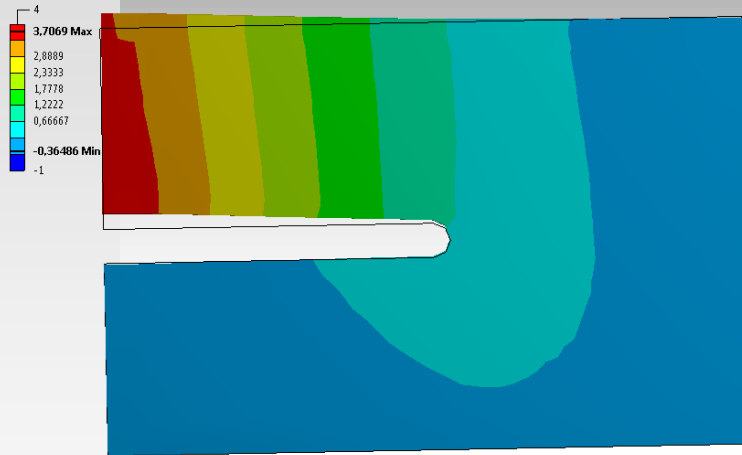
- U: Displacement load or force
- A: Fixation



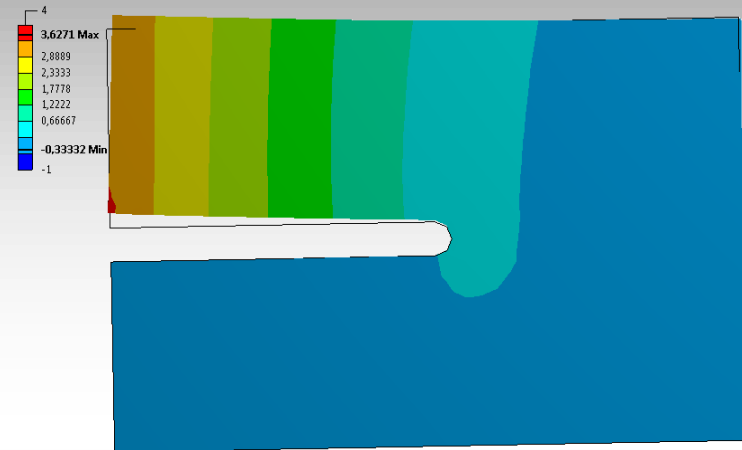
S-Plate: Results

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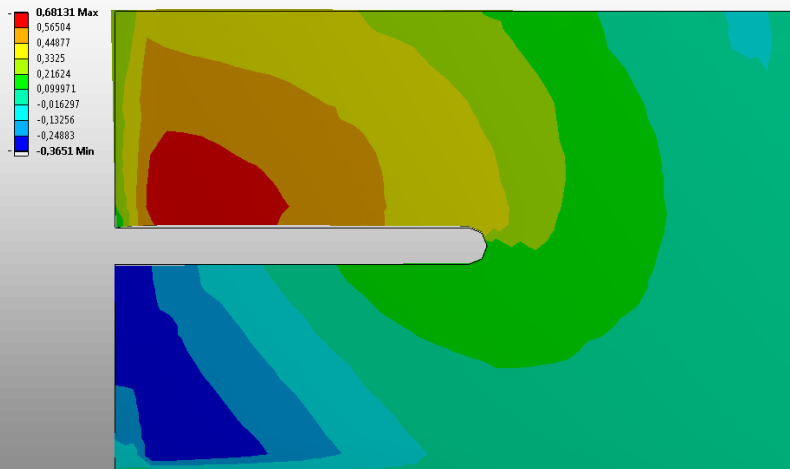
Measurement



FEA



Difference (FEA - Measure)



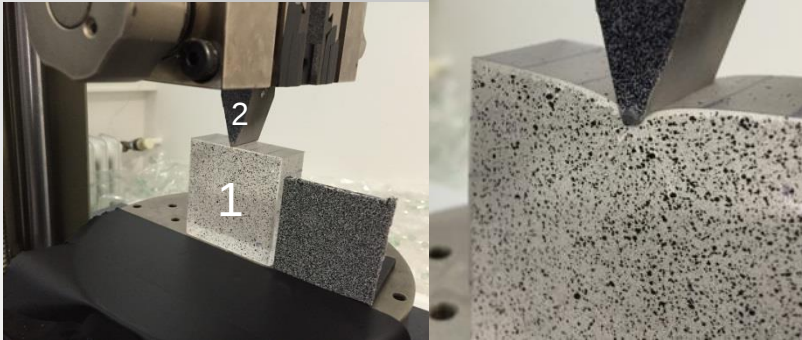
- Displacement differences in all 3 directions
 - Stresses, strains
- Answer: Fit or no fit

Case 2: Silicone Cube (Calibration)

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Measurement

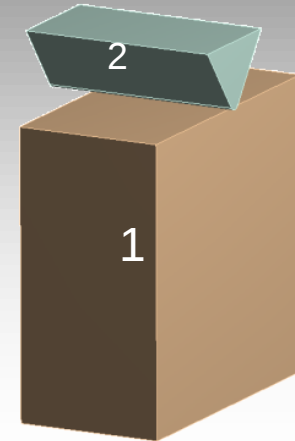
- Geometry



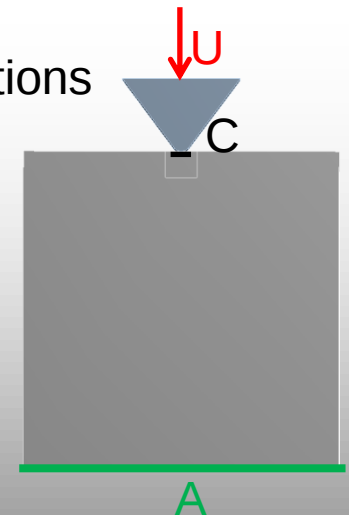
- Load / Boundary conditions
 - Measured displacements
- Material: arbitrary

FEA

- Geometry

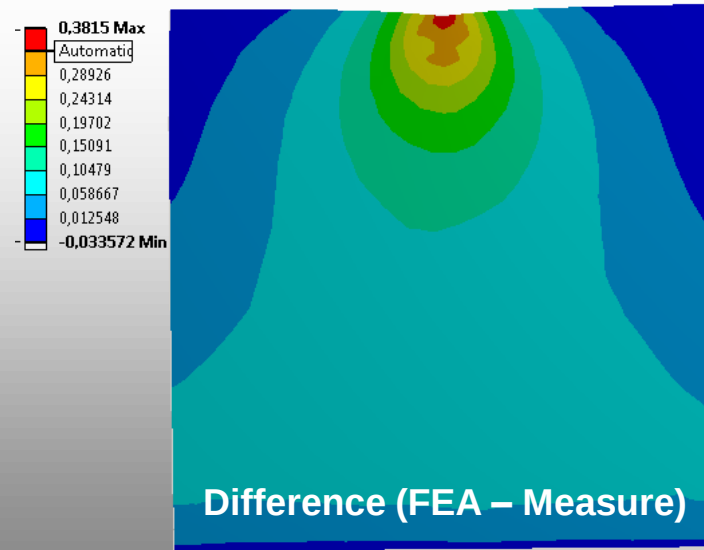
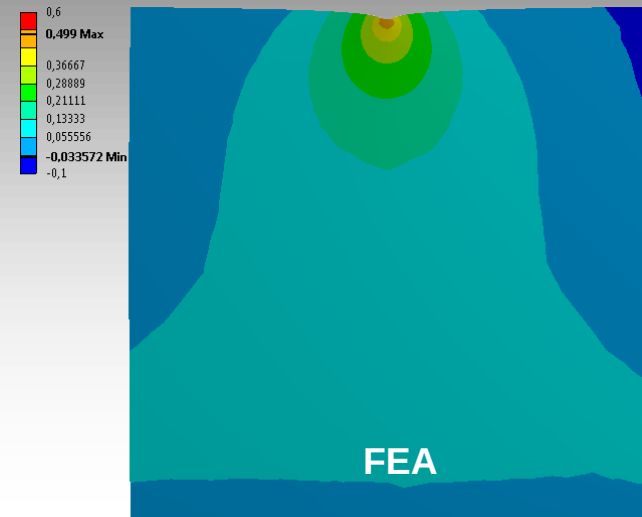
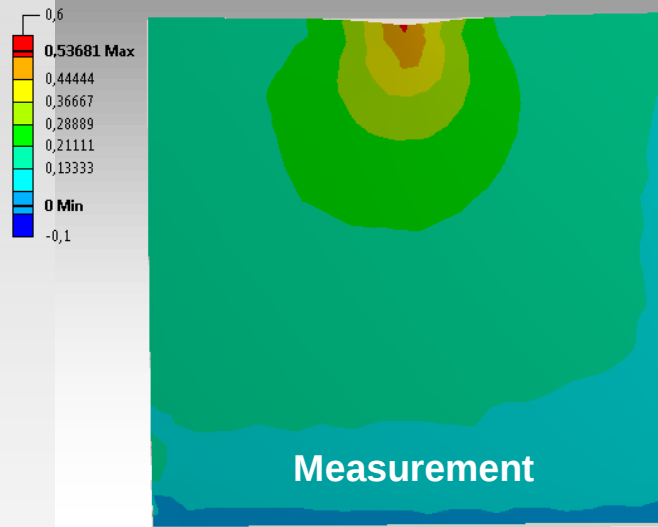


- Load / Boundary conditions
 - U: Displacement load
 - A: Fixation
 - C: Contacts with friction
- Material:
 - 1 Modified Silicone
 - 2 Aluminium



Silicone Cube: Results

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- Displacement differences in all 3 directions
 - Stresses, strains
- Answer: Fit or no fit