

The logo for SVS FEM features the text "SVS FEM" in a bold, black, sans-serif font. The text is positioned on a yellow horizontal bar that has a slight gradient and a shadow effect. Below the yellow bar is a solid black horizontal line.

SVS FEM

Body To Body Distance ACT

Your partner in computing

— Description

Modul: Mechanical

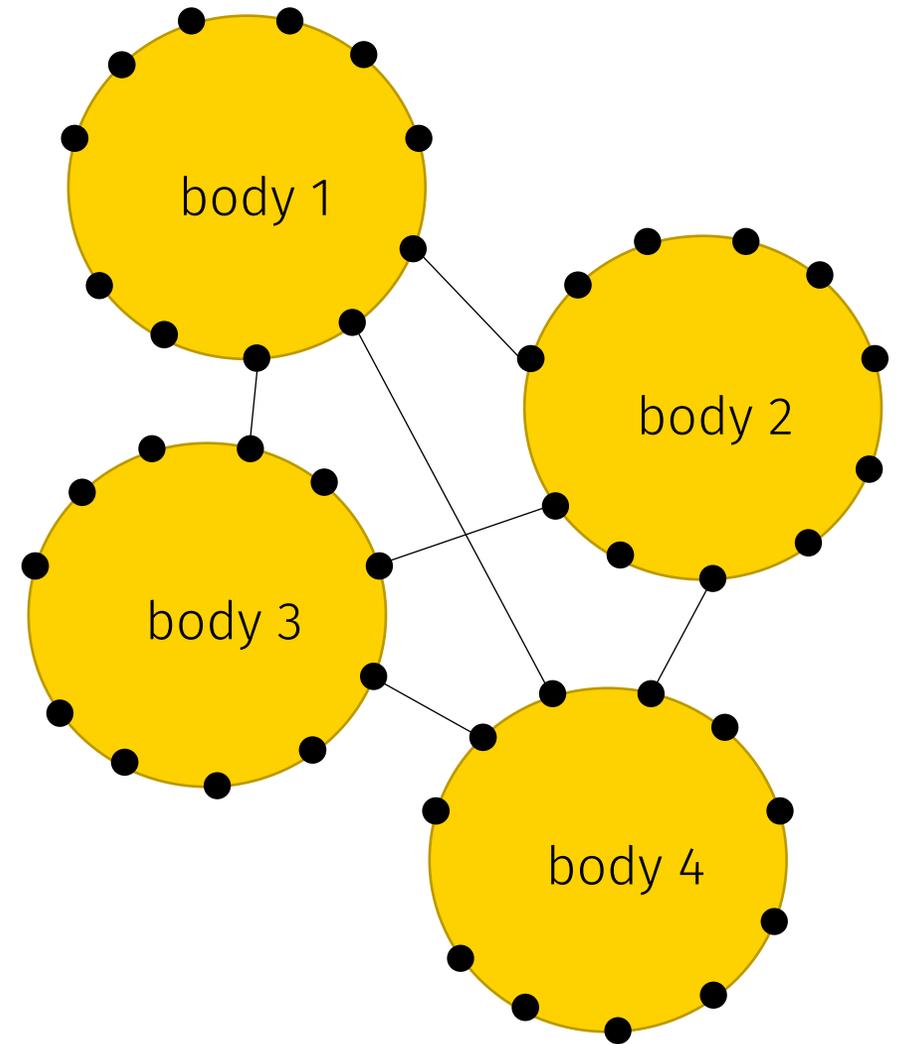
The ACT extension calculates nodal distance between all selected bodies over whole solution time history ...

Assumptions:

- 3D
- uses displacement
 - without any scale factor
 - evaluated over solution time history
- nodal distance
 - automatic dividing selection to bodies (couples)
 - node-to-node distance (nearest nodes)
 - finer mesh => more accurate distance
 - only external nodes are used
- contact penetration
 - basic Ansys contact is more precise for evaluation of small gaps and small penetration, because projection method is used

Example:

4 bodies => 5 couples => 5 distances



Workflow

1. Install and load ACT
2. Use Body To Body Distance button
3. Setup Geometry Scoping
 - which nodes will be used
4. Search Couples
 - if you would like see all distances between all bodies (each-to-each)
 - or only one distance between closest bodies
5. Evaluate the Body To Body Distance object

The screenshot shows the software interface with the 'Body To Body Distance' button highlighted in the top toolbar. The 'Outline' tree on the left shows the 'Body To Body Distance' object selected under the 'Solution (A6)' folder. The 'Details of "Body To Body Distance"' dialog box is open on the right, showing the following settings:

Details of "Body To Body Distance"	
Geometry	
Scoping Method	All Bodies
Definition	
Bodies	Attached to Selection
Search Couples	Only Nearest Body
Distance Method	Nodal Distance
By	Time
<input type="checkbox"/> Display Time	0.36667 s
Info	
Bodies	3
Couples	3
Graphics	
Show Line Automatic	Yes
Show Only Nearest	Yes
Show Now	Click to show ...
Results	
<input type="checkbox"/> Minimum	7.8689e-003
<input type="checkbox"/> Maximum	8.9323e-003
Minimum Occurs On	SYS\Solid
Maximum Occurs On	SYS\Solid

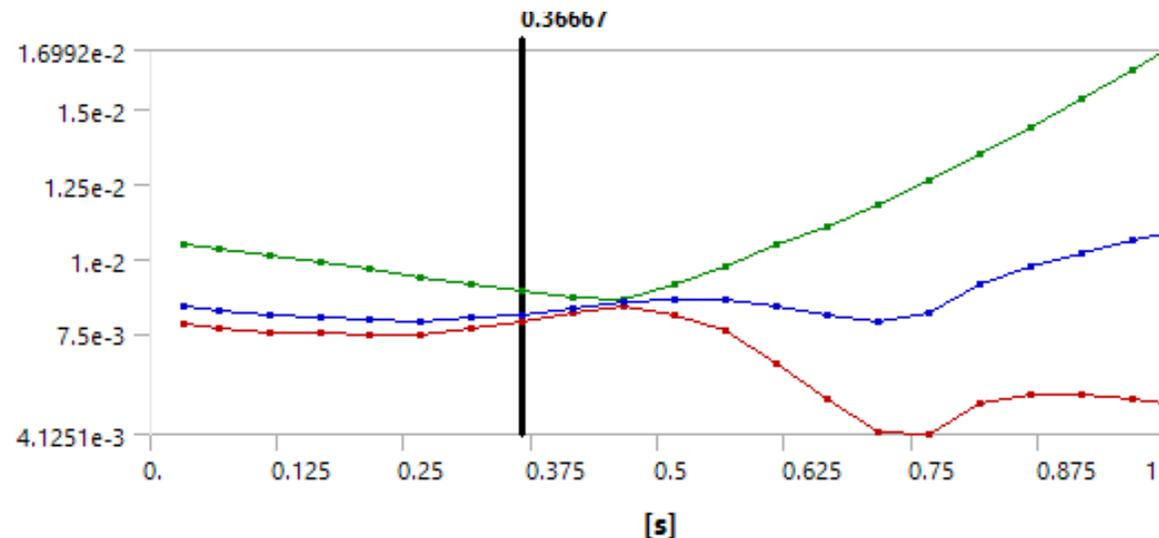
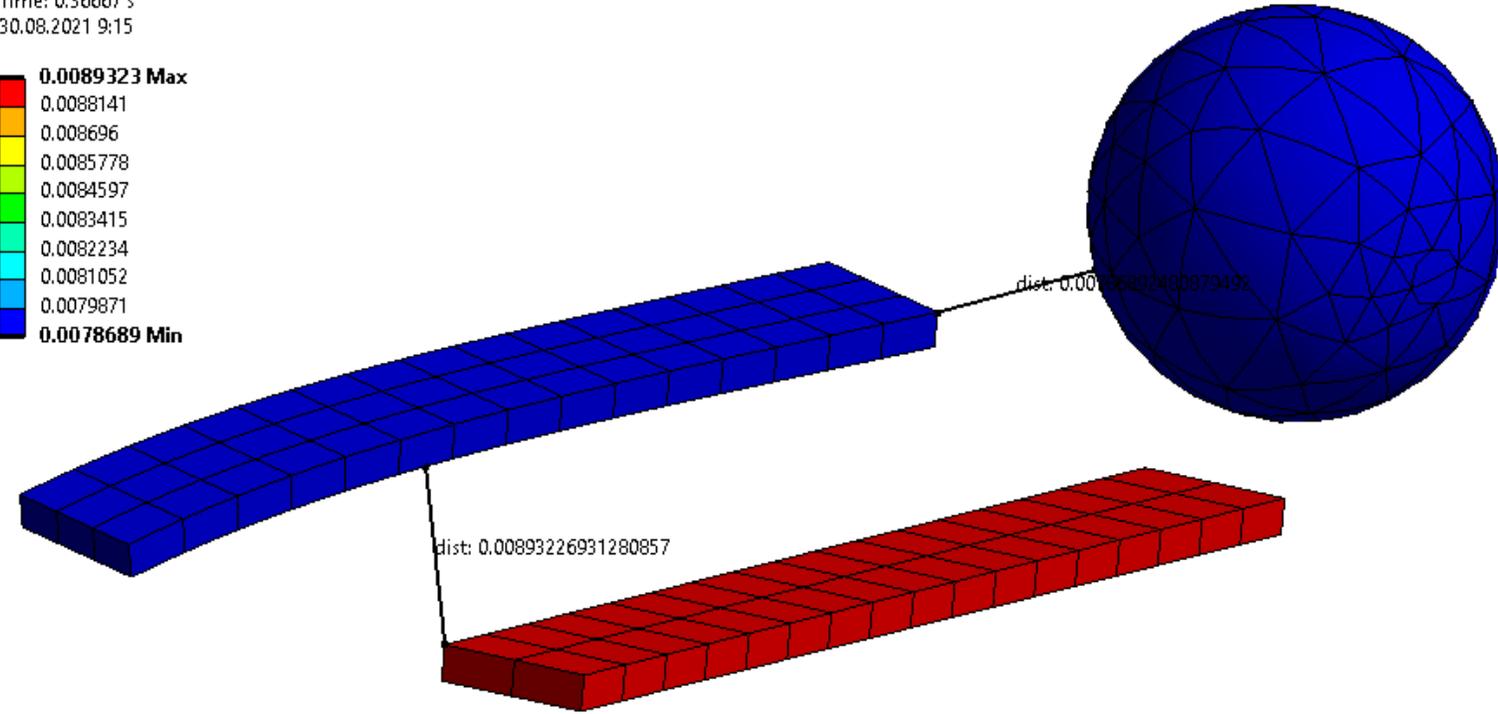
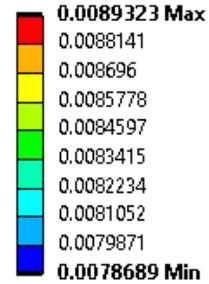
Results

1. Graph and Tabular Data
 - min-average-max distance progress over solution time history
 - retrieving a time

2. Graphics

- contour plot where colour shows minimal distance for a body
- additional graphics (line and text) show connecting line between closest points and writes their distance for current time point

A: Static Structural
Body To Body Distance
Expression: RES1
Time: 0.36667 s
30.08.2021 9:15



**Thank you for using
SVS FEM ACTs**

SVS FEM

www.svsfem.cz