



Interface LIMIT – Abaqus

Supported Abaqus Versions in Release Package

- ✨ 6131
- ✨ 6141, 6143, 6146
- ✨ 6161 (=2016)
- ✨ 6171 (=2017)
- ✨ 6181 (=2018)

If you need a different version please contact LIMIT support (limit@cae-sim-sol.com)

Importing the .inp-file into LIMIT-CAE:

- ✦ Abaqus (.inp; **must be a ,NoPartsInput'!**)
- ✦ Activate 'do not use parts and assemblies in input files' in the Abaqus CAE Model manager/Edit Model Attributes



Edit Model Attributes

Name: Model-1

Model type: Standard & Explicit

Description:

Do not use parts and assemblies in input files

Physical Constants

Absolute zero temperature: []

Stefan-Boltzmann constant: []

Universal gas constant: []

Specify acoustic wave formulation: []

Restart | Submodel

Note: Specify these settings to reuse state data from a previous analysis of this model.

Read data from job: []

Restart Location: []

Step name: []

Restart from the end of the step

Restart from increment, interval, iteration, or cycle: []

and terminate the step at this point

and complete the step

OK Cancel

Specification of the interface

- ✨ **Maximum nodenumber respectively elementnumber :**
 - Windows 64 bit (x64): 50000000
- ✨ **Maximum number of nodes :**
 - Windows 64 bit (x64): 6000000
- ✨ **Maximum number of elements :**
 - Windows 64 bit (x64): 6000000
- ✨ **These LIMITS can be changed by the user. See document LIMIT_2019, section: *Redimensioning of Arrays***

Following elements can be analyzed:

- ✨ **Solids (stress gradients are only calculated for C3D):**
 - C3D.. (linear and quadratic 3D-Solids)
 - CPE.., CPEG.. (linear and quadratic 2D-Solids)
 - CAX.., (linear and quadratic AXI-Solids)

- ✨ **Membranes:**
 - M3D.. (linear und quadratic 3D-Solids)

- ✨ **Shells:**
 - S.., STRI.., SC.. (linear and quadratic shells)

Solid assessment:

- ✨ **Goal of a LIMIT FKM proof of strength:**
 - Assessment of surface stresses (2D-tensors)
 - Popular method and conservative
- ✨ **Free surfaces:**
 - Are necessary for the consideration of stress gradients normal to the surface
 - Are identified by the software LIMIT
 - Can be generated by covering the solids with 2D-elements (skin) in the preprocessor.
- ✨ **2D-skin elements can be assessed as well**
 - But without supporting effect => conservative
 - This leads to considerable less data
- ✨ **Supporting effect is only possible with solids!**
 - Results of a 3D analysis with good element quality and fine meshing are more precise than results of 2D-skin elements.

✨ **Modifications to the .Inp-File for Fil-File-Output:**
(without these adjustments the assessment doesn't work!)

```
*EL FILE, Position=NODES, Directions=YES  
S
```

✨ **Modifications to the .Inp-File for Odb-Output:**
(without these adjustments the assessment doesn't work!)

```
*OUTPUT, FIELD  
*ELEMENT OUTPUT, POSITION=NODES  
S
```

Note: both adjustments are not supported by Abaqus-CAE!
The commands have to be edited in ‚Edit Keywords‘ or directly in the .Inp-File

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