

# Forming Simulation Technology LLC

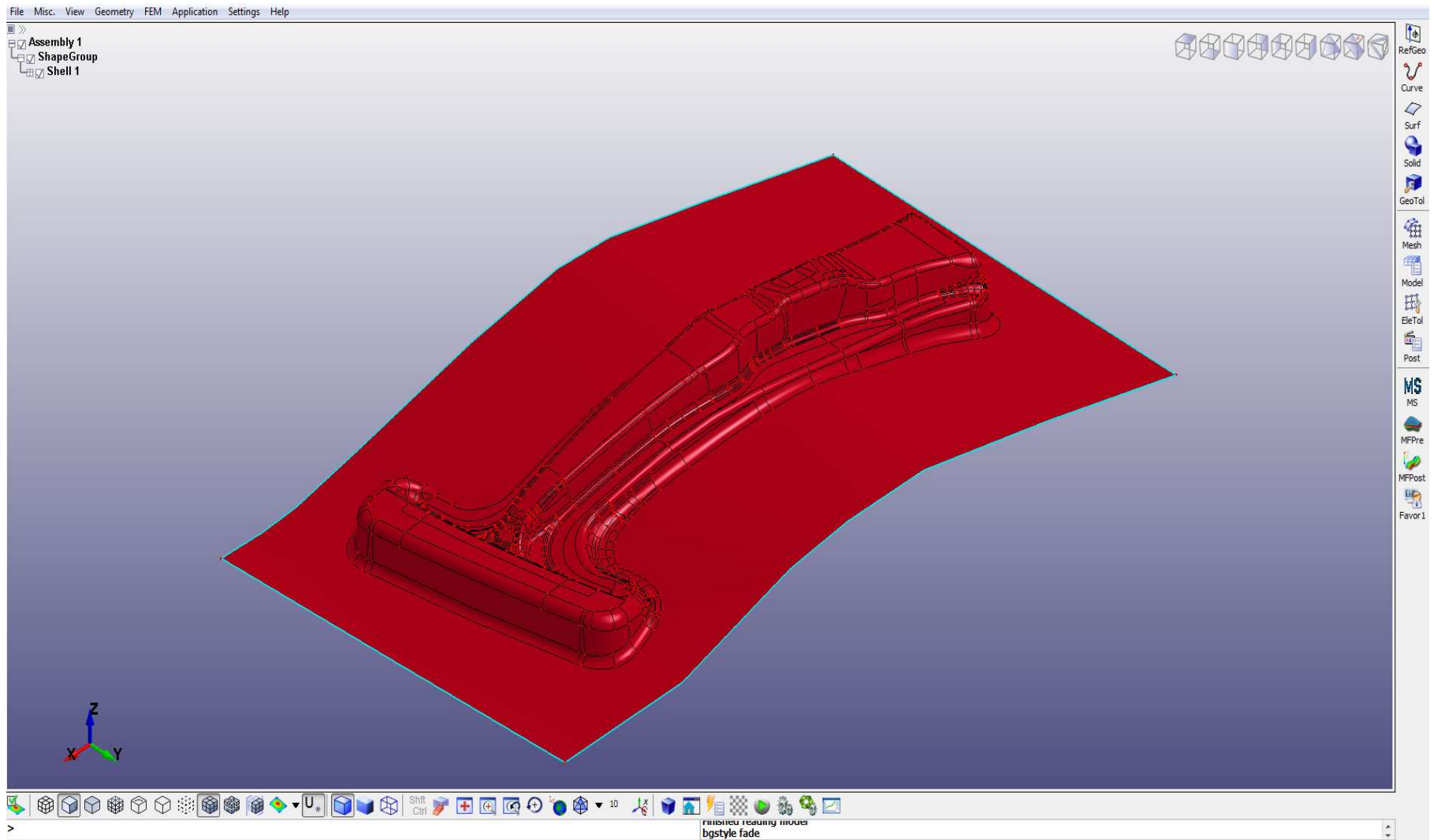
## **Unfold a part with LS- Prepost 4.5.20 +**

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May, 2018

# LS-Pepost Main Screen Interface

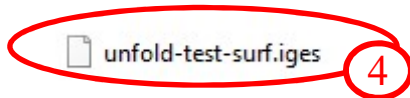
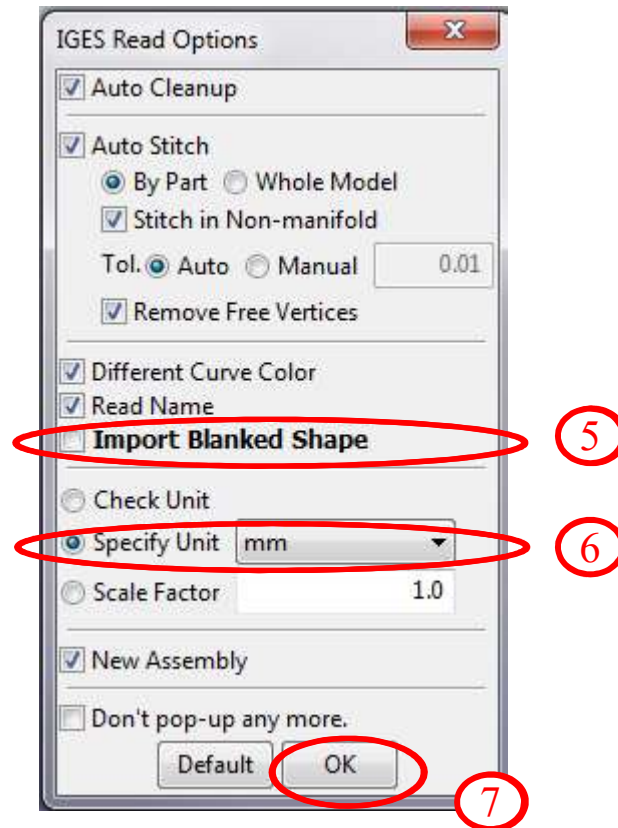
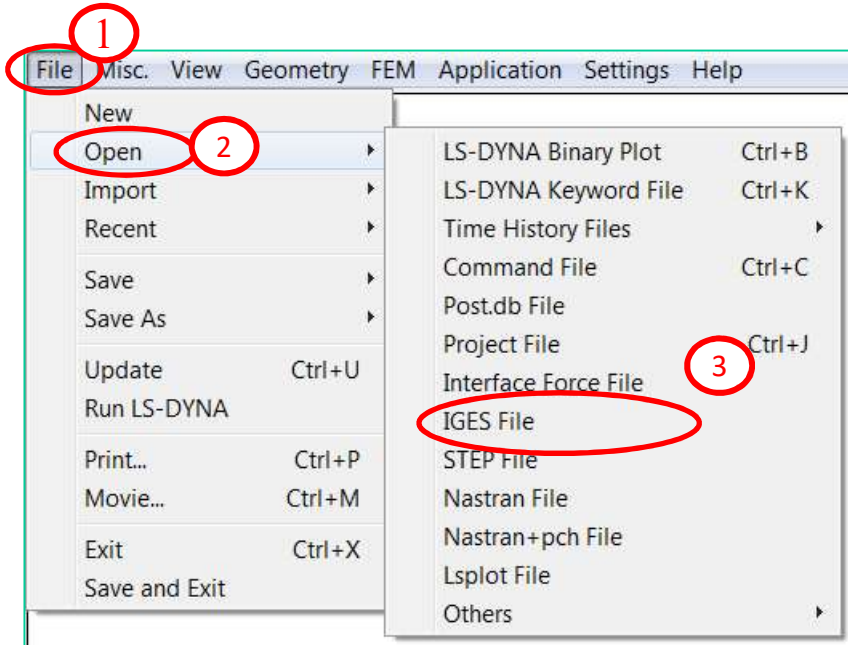


# LS-Prepost Mouse Button Operation

<b>Ctrl</b>	<b>LMB</b>	<b>MMB</b>	<b>RMB</b>
	Rotation	Translation	Zoom

# Input Blank Surfaces Iges file

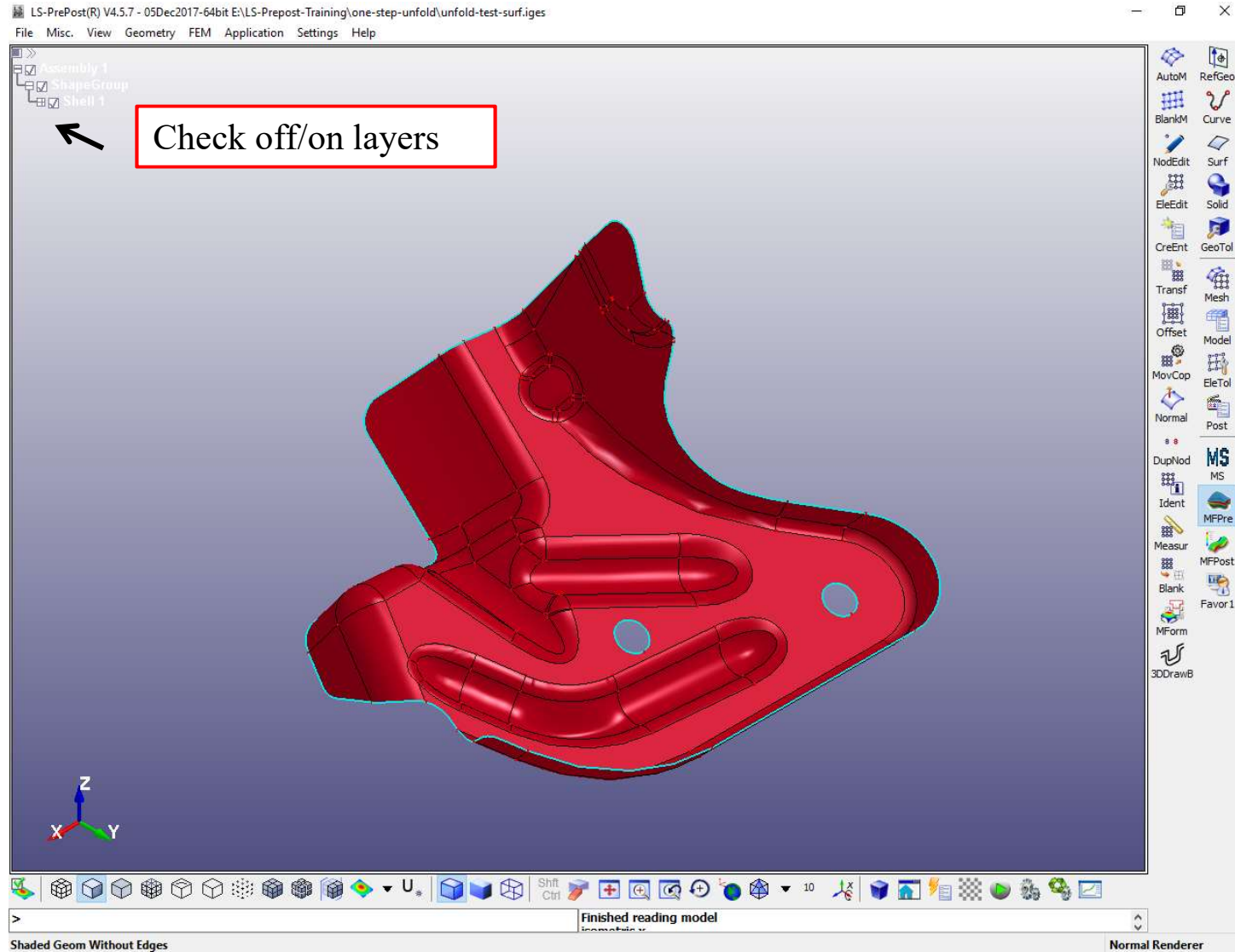
Open an IGES file:



Note: step file is more reliable



# Turn Layers Off/On



# Mesh the Surfaces

LS-PrePost(R) V4.5.7 - 05Dec2017-64bit E:\LS-Prepost-Training\one-step-unfold\unfold-test-surf.iges

File Misc. View Geometry FEM Application Settings Help

Assembly 1  
ShapeGroup  
Shell 1  
FEM Parts

Auto Mesher

Mesh Mode  
 Size  
 Deviation  
 Remesh  
 Variable Size Mesh

Mesh Type: Mxed

Elem Size: 2

Compute Reset

Connect Boundary Nodes  
 Mesh Across Suppressed Edges  
 8/6 Nodes Shell Element  
 Show Meshed Boundaries  
 Auto Remesh Boundary  
 Manual Remesh Boundary  
 Constraint Point Insert  
 Mesh by GPart

Ignored Hole Size: 0  
Merge Tolerance: 0.0001

Part ID: 1

Mesh Reject Accept

Done

Sel. geom(0)

Pick  
 Area  
 In  
 Out  
 Add  
 Rm

Clear Save Load Deselect Active

View mesh toggle button

Control + Q if the right side icon MFPre is missing

Shrunken Element Mode

Normal Renderer



# Checking Normal (optional)

Make sure normal are consistently pointing one side( not color change side is the positive normal direction)

Negative normal side shows different color

Normals

Entity Type: Shells

Show Normal  
 Reverse Normal  
 Align

V-Size 1.0 1

Compliment  Dimmed

Airbag Shell RG  Airbag Node RG

Clear Reverse AutoRev Done

Sel. Shells(0)

Pick  Box  In  Out  
 Area  Prox  Circ  Add  
 Poly  Frin  Rm  
 Sel1  Plan Sphe

ID: Type: any

Label selection  3DSurf  Entire

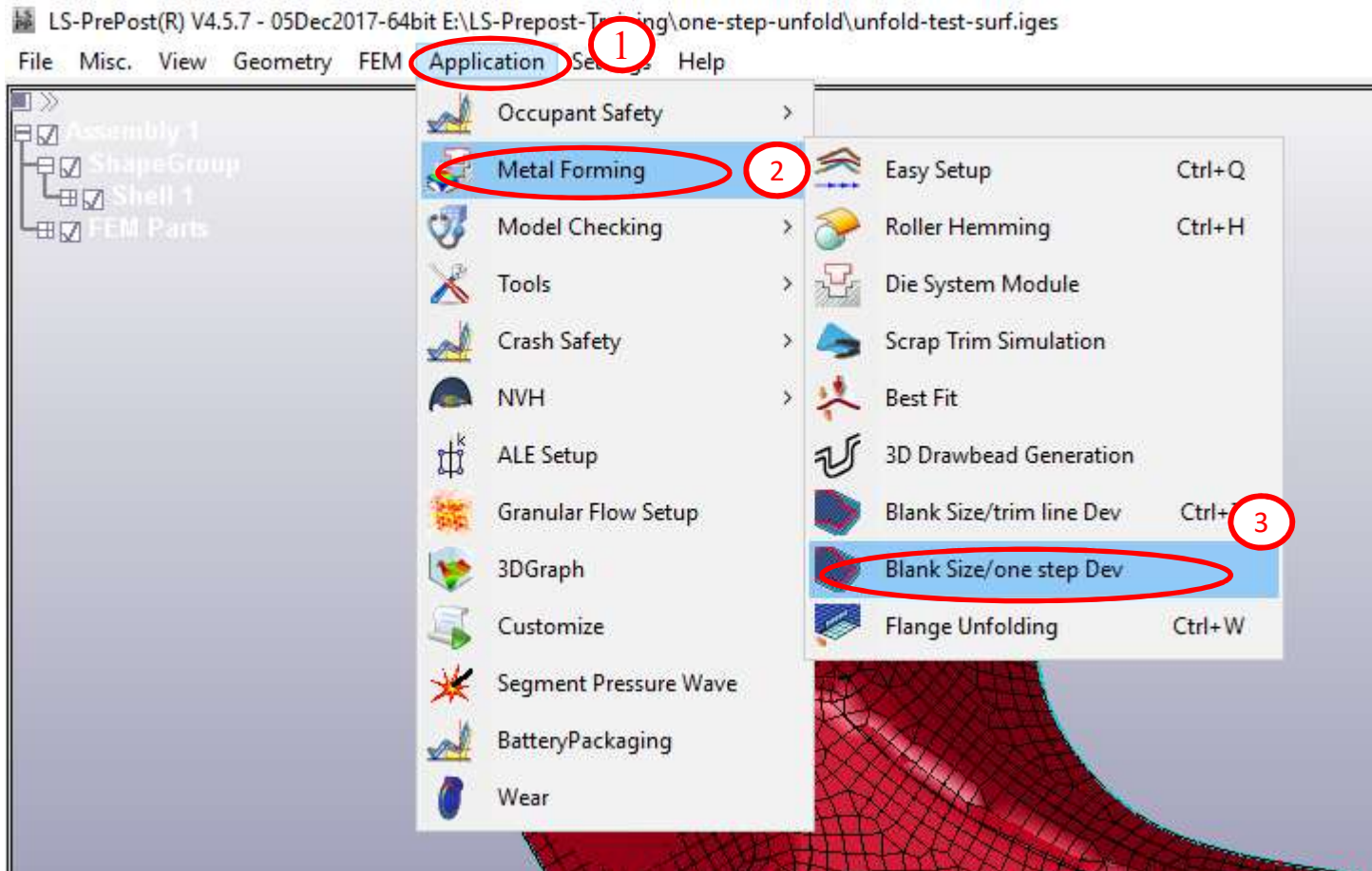
Prop  Adap Ang 5

Adjacent  ByNode  
Attach  ByElem  
Clear  ByPart  
Save  ByGPart  
Load  BySubsys  
Deselect  BySet/Grp  
Whole  ByEdge  
Active  ByPath  
Reverse  ByCurve  
 BySurf

lWofacecolor on  
genselect shownormal on

A notification has been sent by TS1400D30E.  
Confirm NAS Navigator2 main window.

# Blank Size/One-Step Development





# Define Part/Material/Thickness

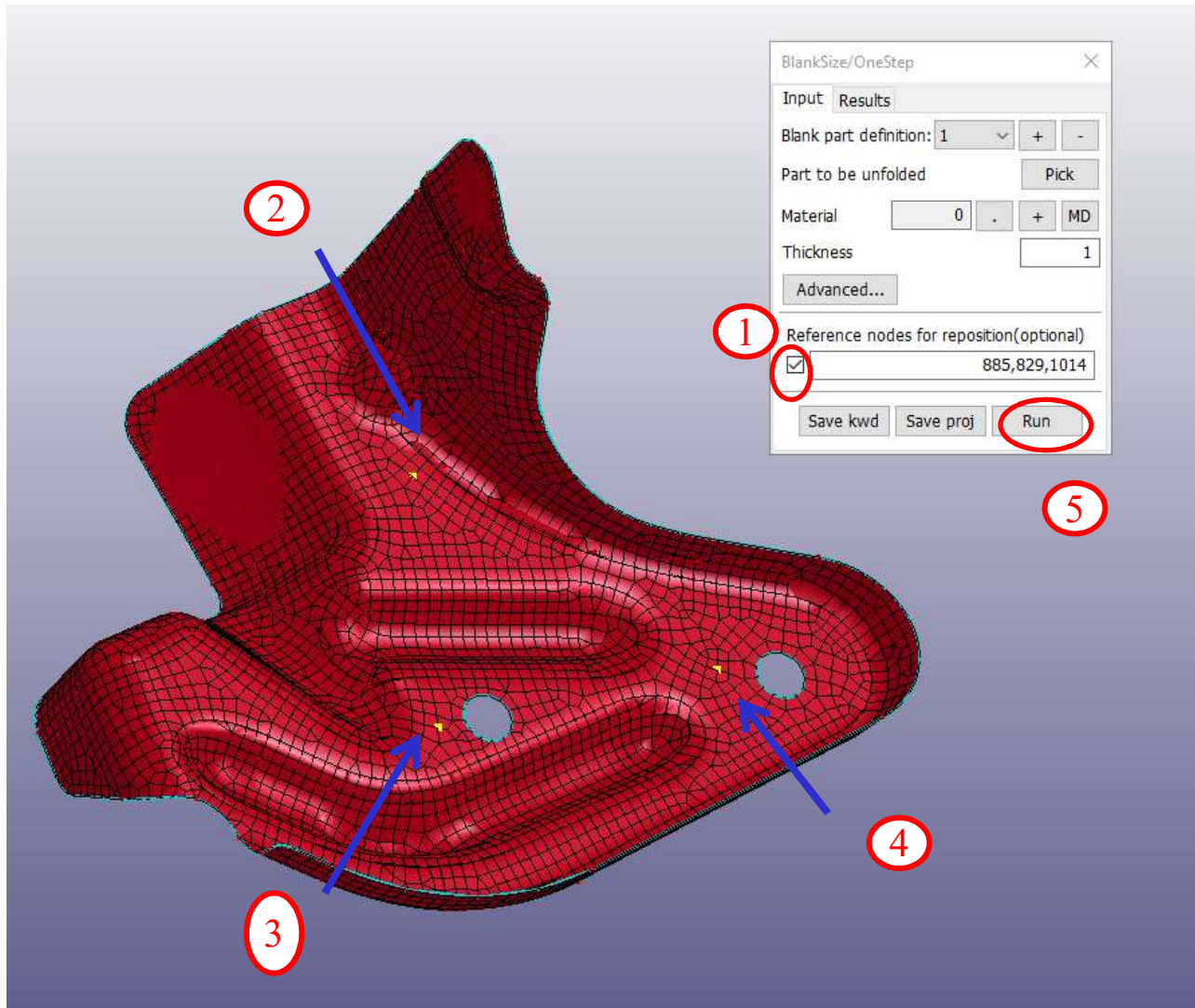
The image shows a 3D model of a mechanical part, possibly a bracket or flange, rendered in a red mesh. The model is positioned on the left side of the screen. To the right, there are two dialog boxes. The top dialog box is titled 'BlankSize/OneStep' and has two tabs: 'Input' and 'Results'. The 'Input' tab is active. It contains the following fields and controls:

- Blank part definition: 1 (with '+' and '-' buttons)
- Part to be unfolded: Pick (with a red circle around it and a '1' in a red circle pointing to it)
- Material: 0 (with '+' and '-' buttons)
- Thickness: 1 (with a red circle around it and a '2' in a red circle pointing to it)
- Advanced... button
- Reference nodes for reposition(optional):  0,0,0
- Buttons: Save kwd, Save proj, Run

A blue arrow points from the 'Pick' button in the 'BlankSize/OneStep' dialog to a red-bordered box containing the text: 'Select a material model 37 or 24 only'. Below this box is the 'Material Database' dialog box, which shows a file list with the following entries:

- Public Directory
- C:\LSTC\LS-Prepost4.5.7\LS-PrePost 4.5\lspp\_matlib\Steel\DQSK
- M37\_Curve\_DQSK25Ksi\_t069.k (circled in red)

# Select Three Reference Nodes



Three reference nodes will define the unfold plane, the first nodes is a lock point.



# Submit the Job

The screenshot shows the LS-Run application window. The configuration is as follows:

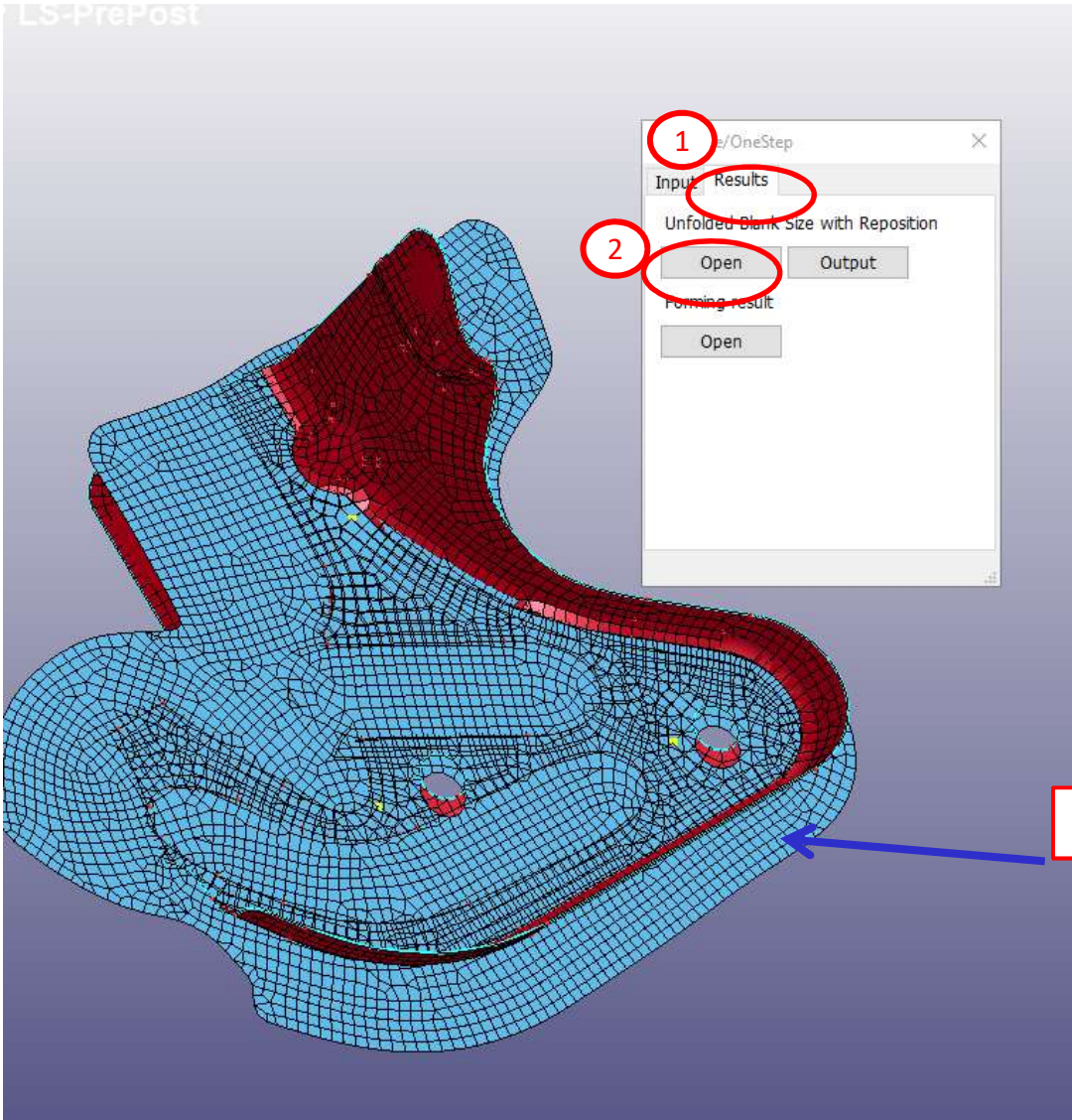
- INPUT: E:\LS-Prepost-Training\one-step-unfold\autosaved.k
- SOLVER: C:\LSDYNA\program\ls-dyna\_smp\_d\_Dev\_121240\_winx64.exe
- NCPU: 31
- MEMORY: 400m
- LS-DYNA command: Preset is "SMP double", Expression is "\$SOLVER" i=\$INPUT ncpu=\$NCPU memory=\$MEMORY, and Preview is "C:\LSDYNA\program\LS-DYN~4.EXE" i=E:\LS-PRE~1\ONE-ST~1\AUTOSA~1.K ncpu=31 n

The execution control bar includes a play button (circled in red with the number 1), a stop button, a refresh button, a d3plot button, and a messag button.

ID	Input File	Run Command	Status
1	E:\LS-Prepost-Training\one-step-unfold\autosa	"C:\LSDYNA\program\	Running... 25%

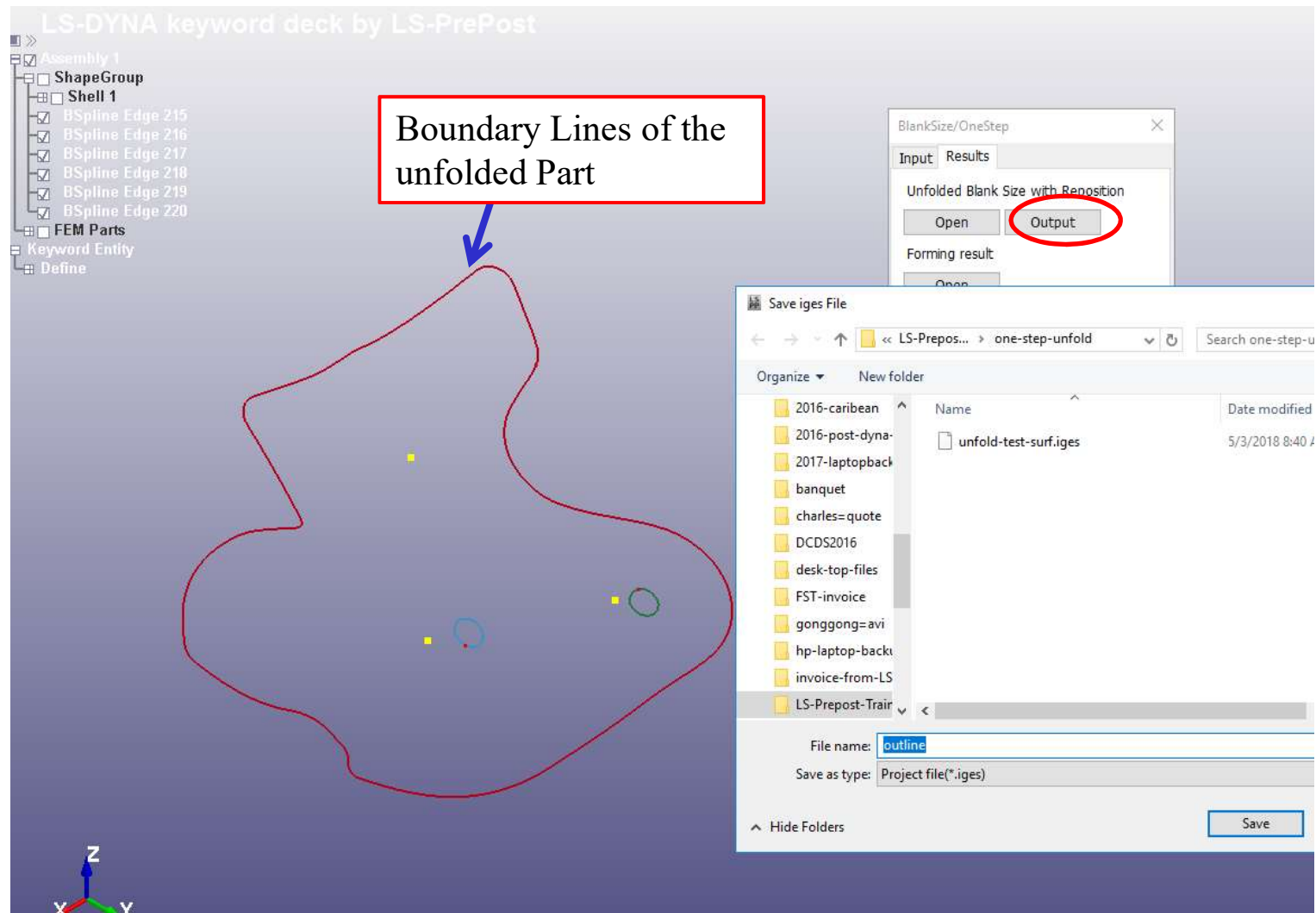


# Results



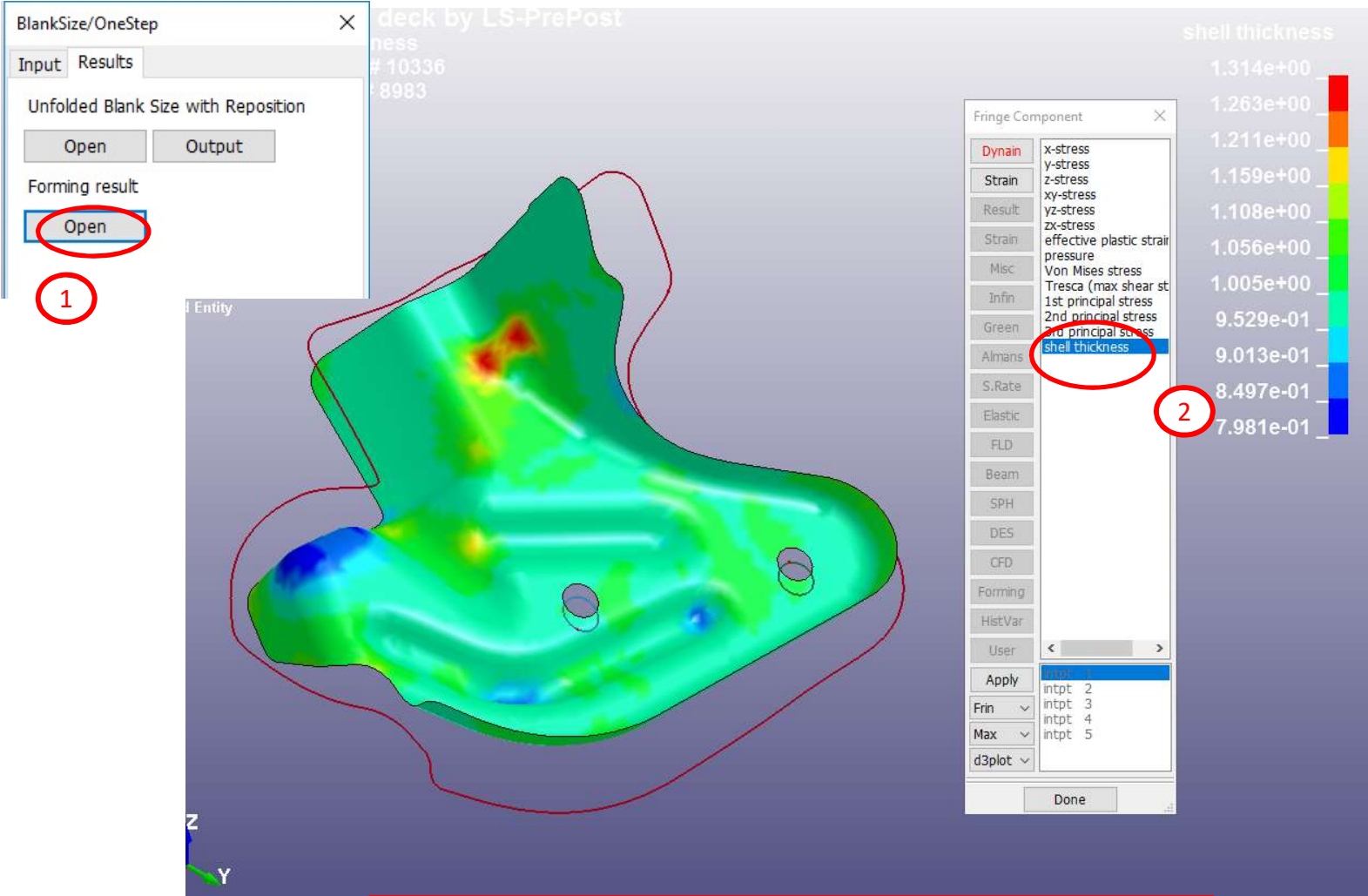
Flattened Part

# Output Boundary Lines





# Formability Results



Thickness Contour Map





**Thank You!!!**

Please feel free to check out more training videos and Tooltips at  
**[www.formingsimulation.com](http://www.formingsimulation.com)**