

Certain remarks concerning
supporting system of four horns
Bogdan Szybiński, Cracow Univ. of Technology
*Piotr Cupiał, AGH Univ. of Science and
Technology*

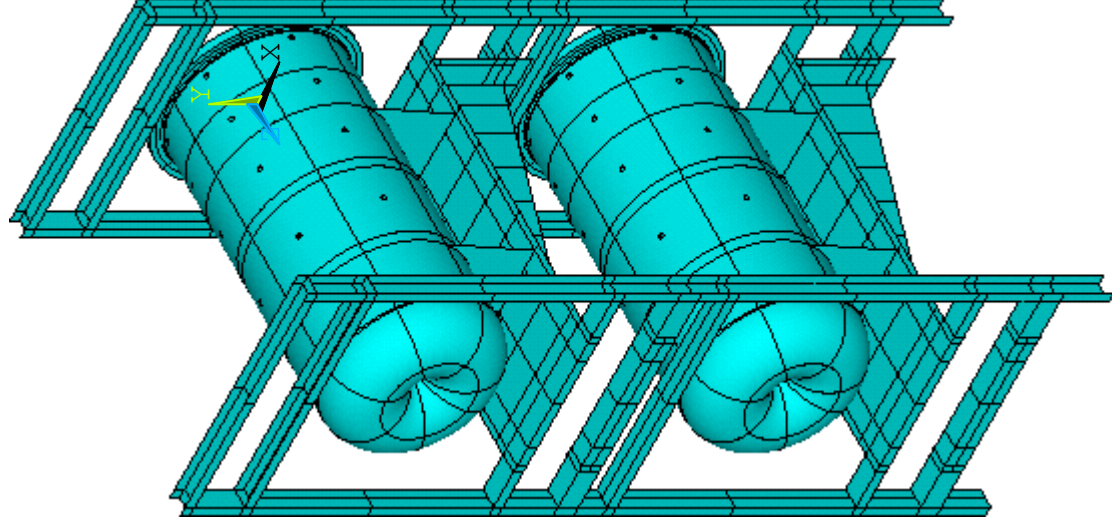
1

AREAS

TYPE NUM

ANSYS

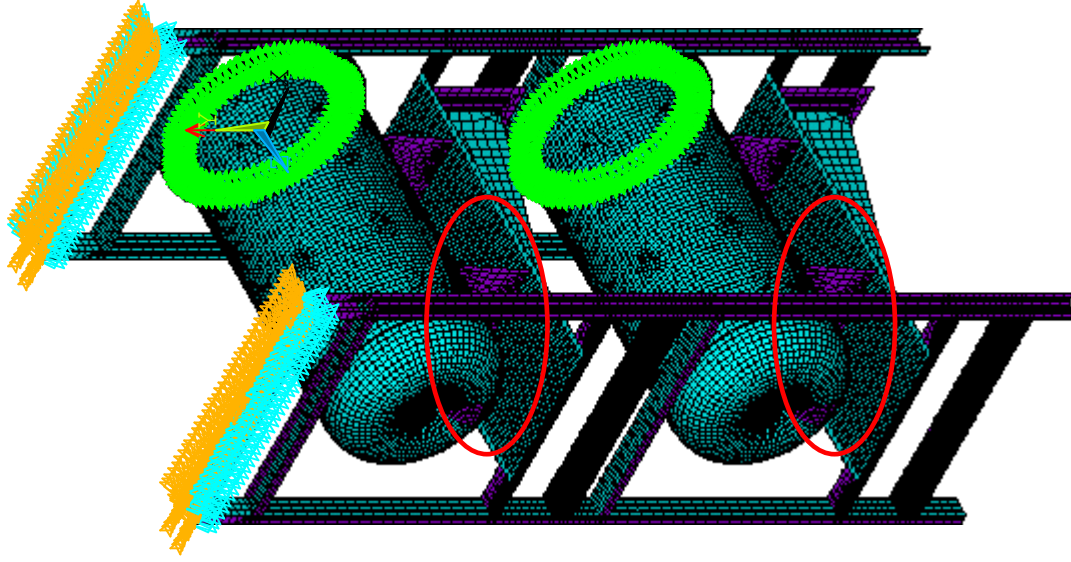
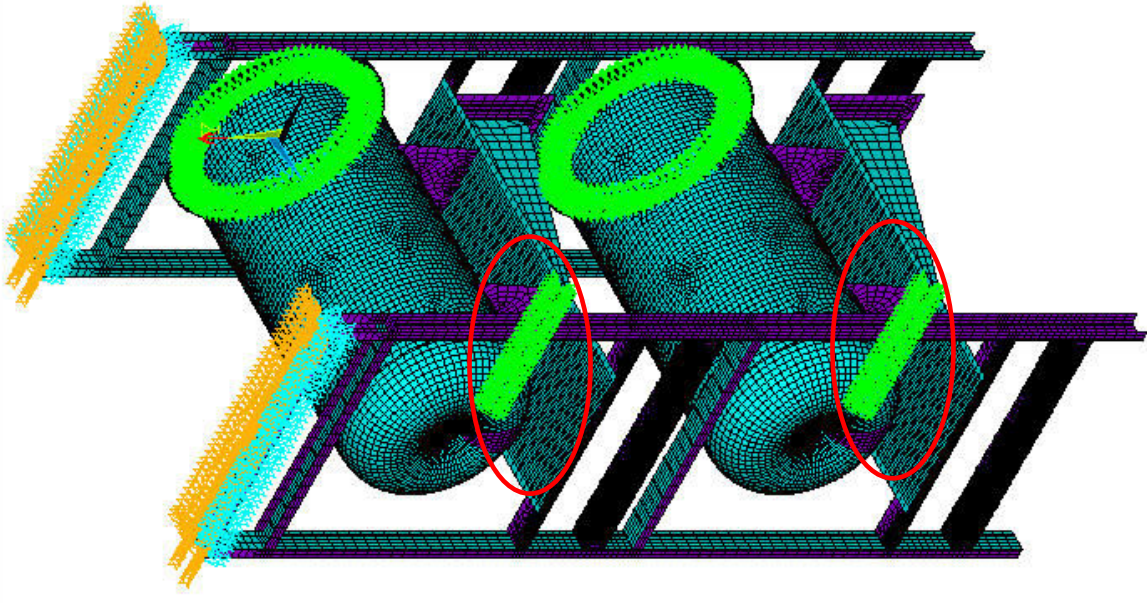
DEC 18 2011
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Frames supported on the top,

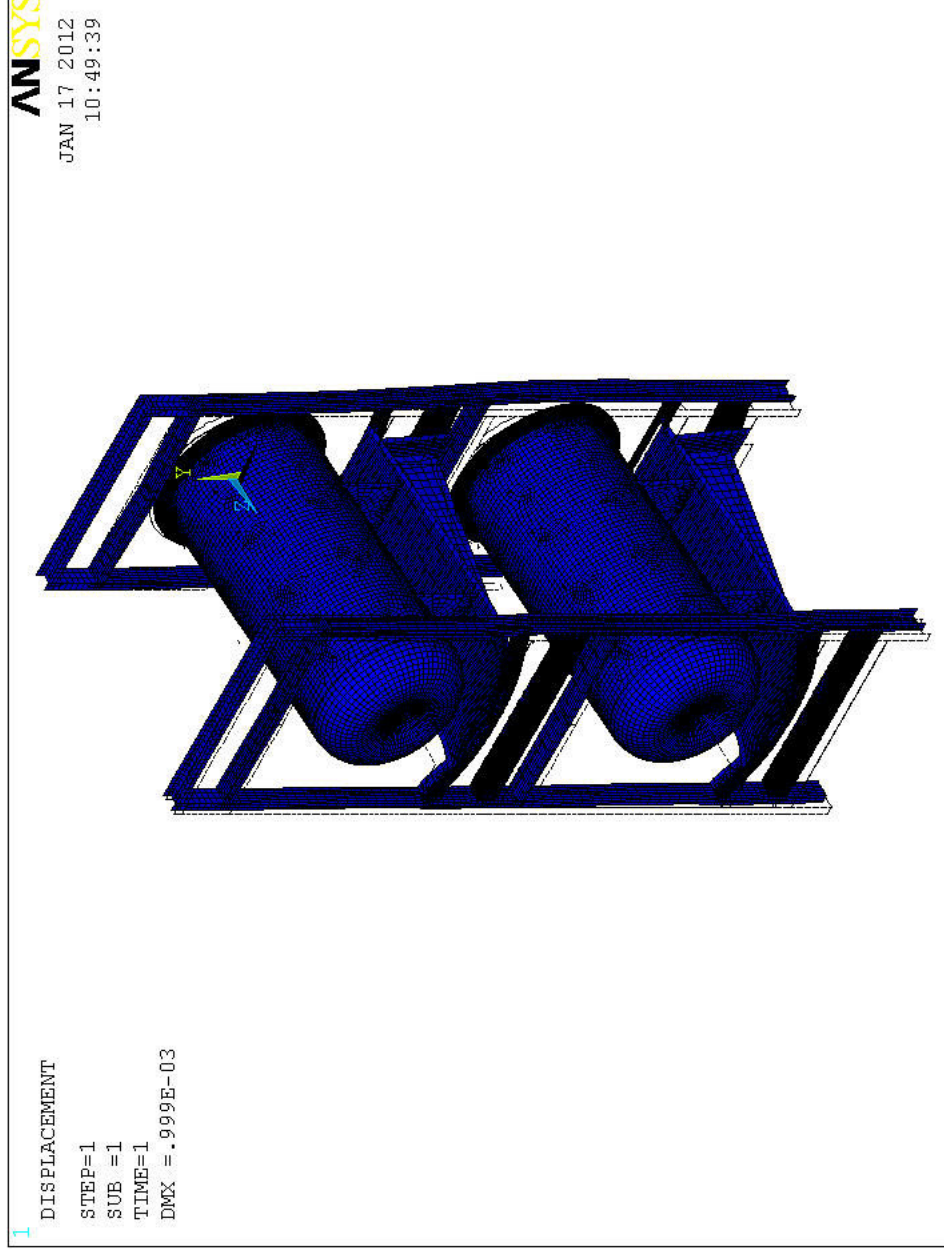
Slides: 4 - 12

Frames supported on the top



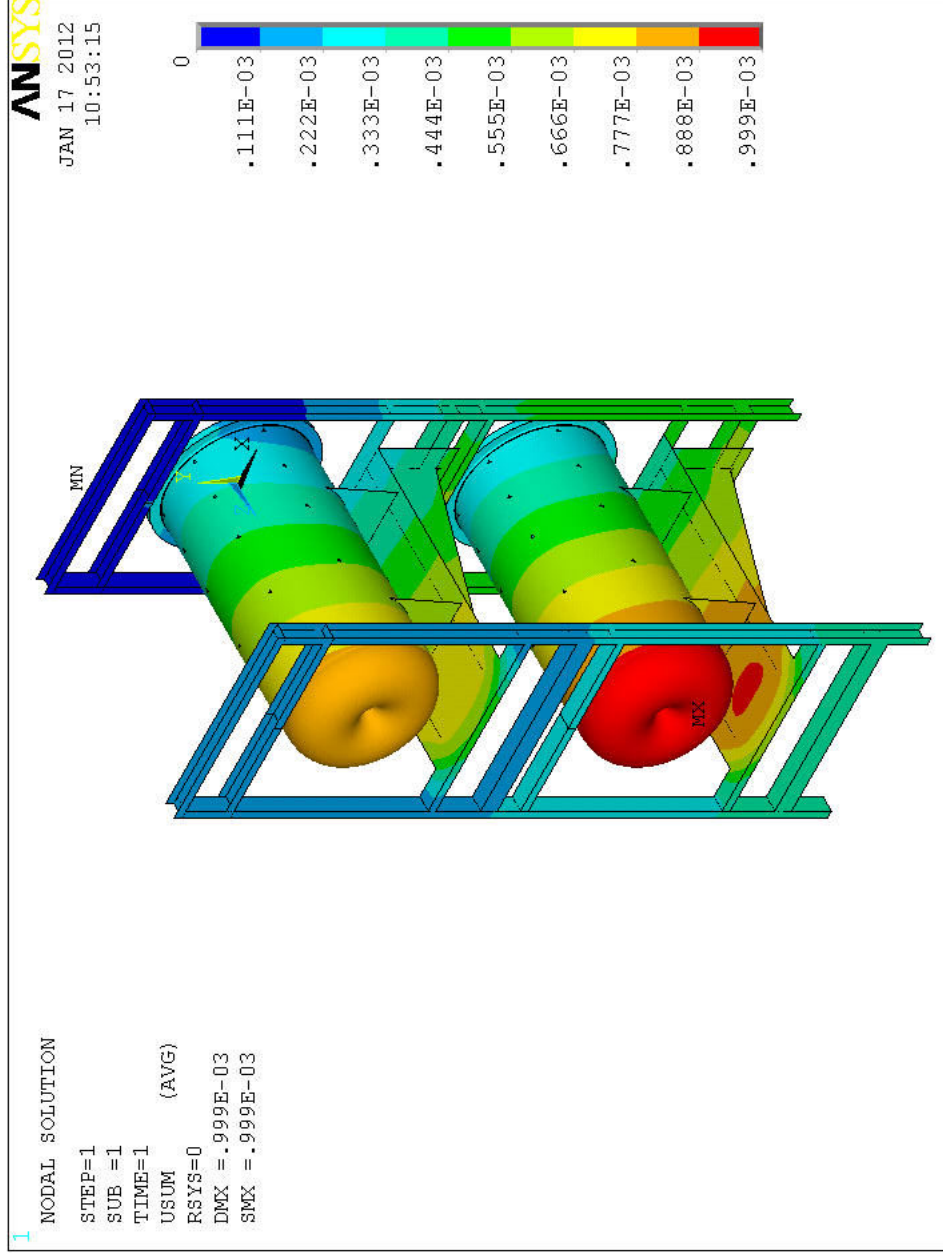
Mesh of elements, boundary conditions

Frames supported on the top



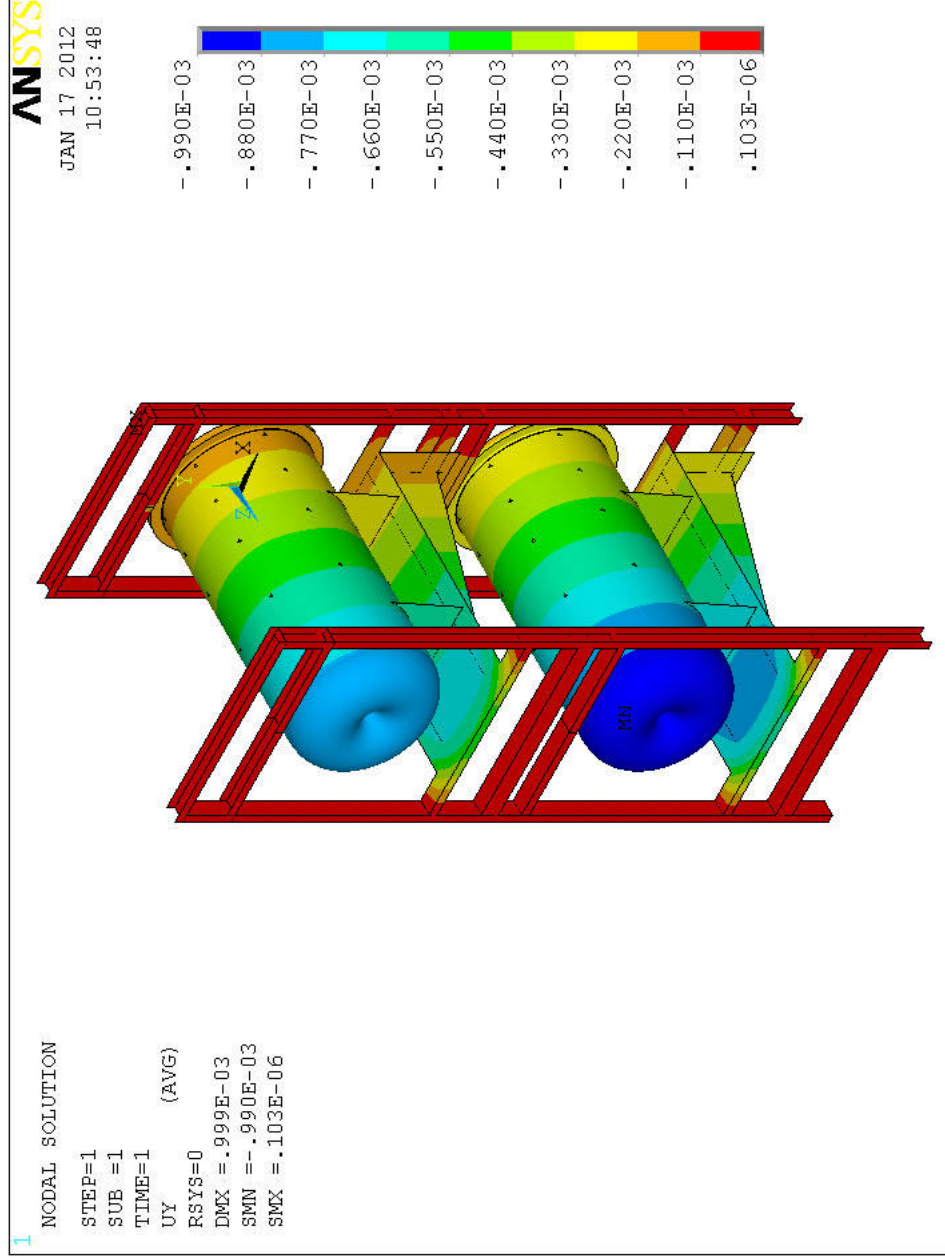
Deformation

Frames supported on the top



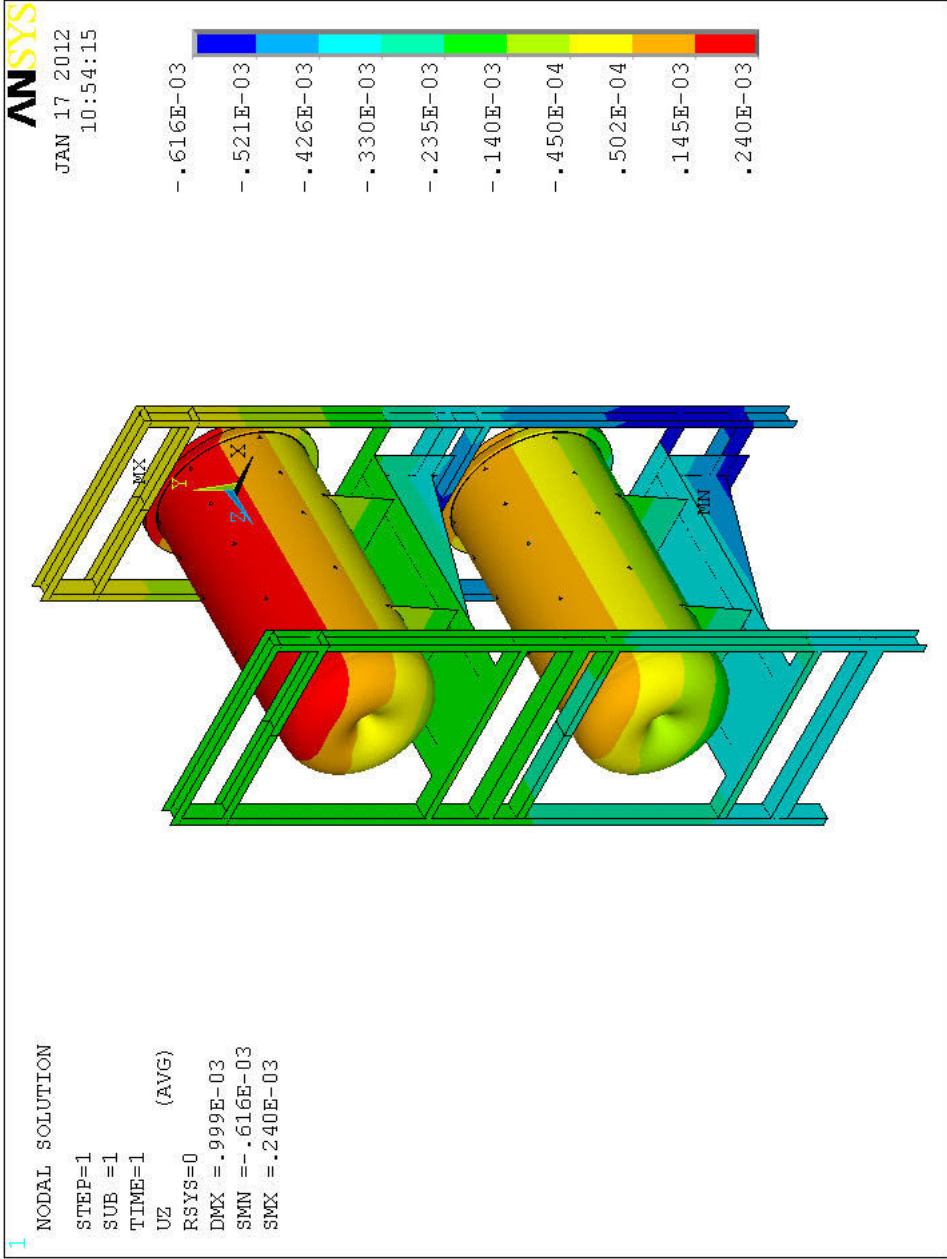
Deflection in m

Frames supported on the top



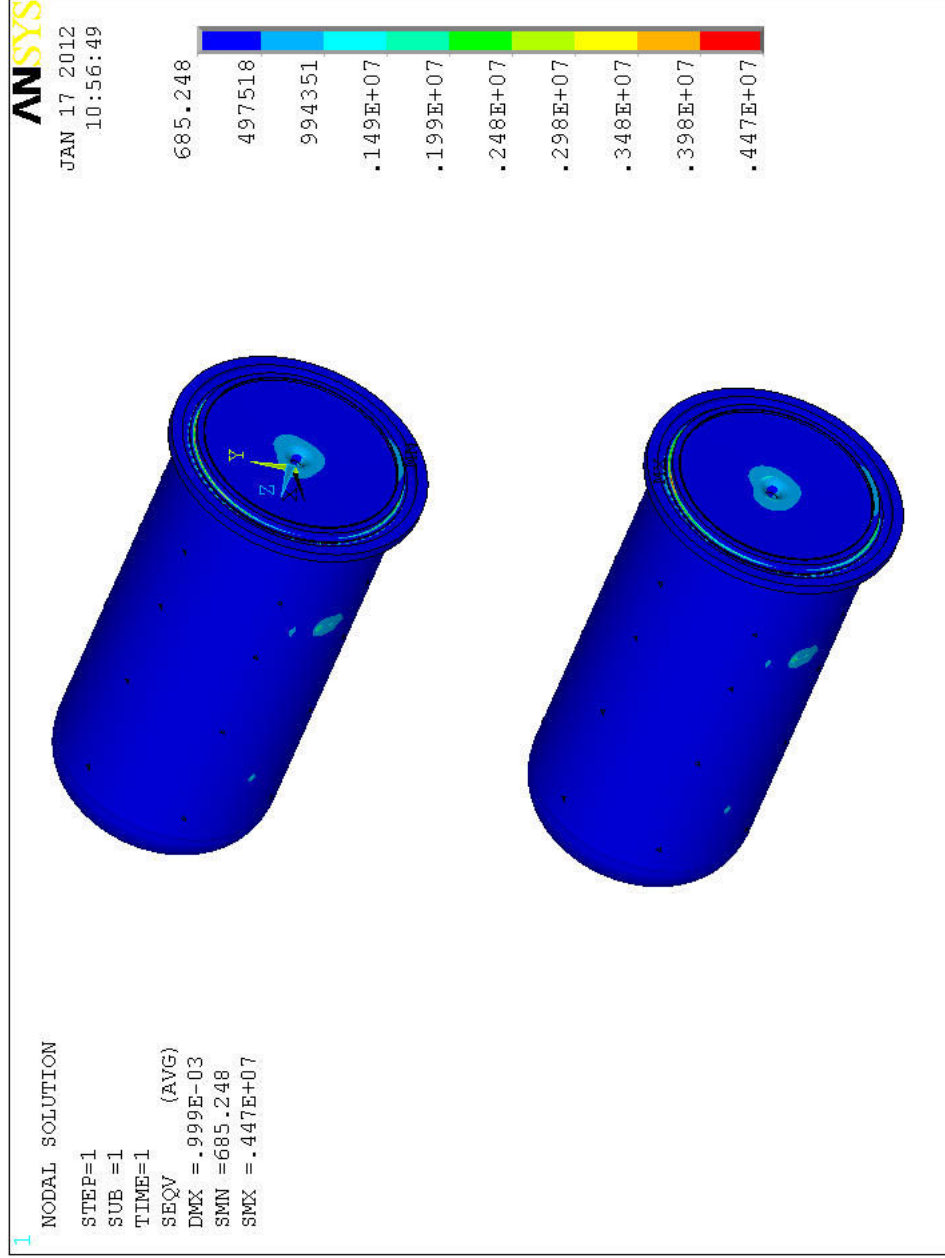
Deflection in m

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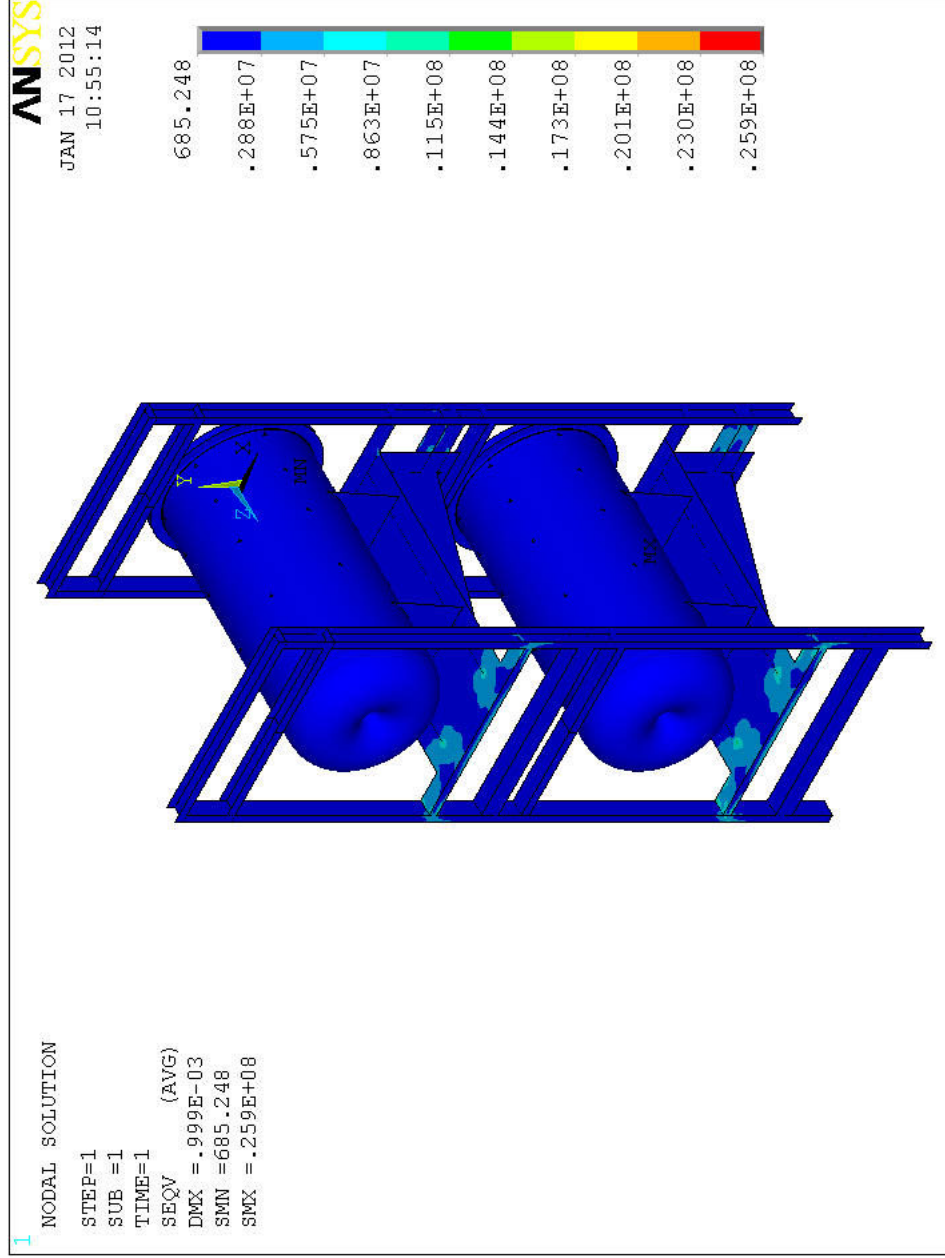
Deflection in m

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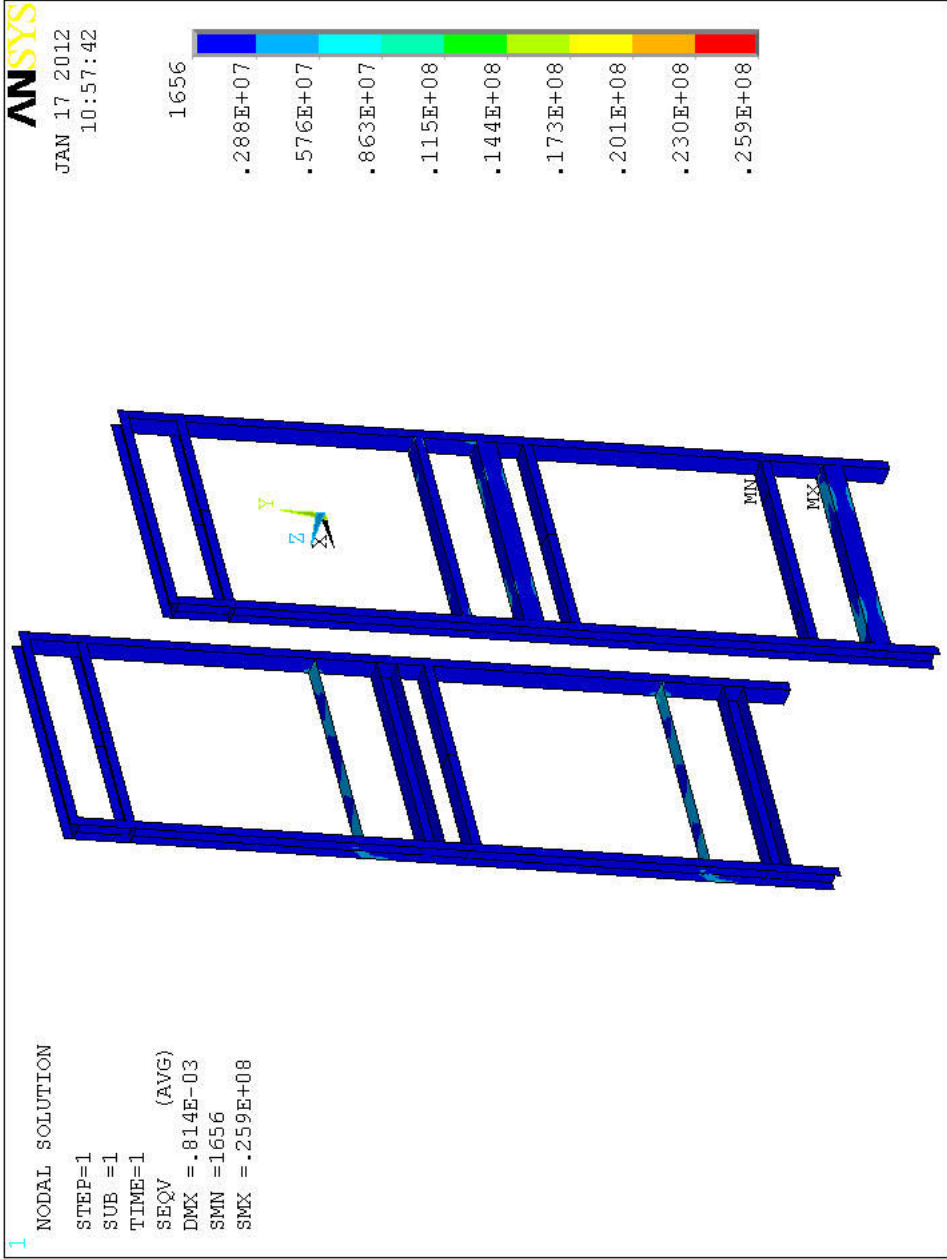
Stress in Pa

Frames supported on the top



Stress in Pa

Frames supported on the top

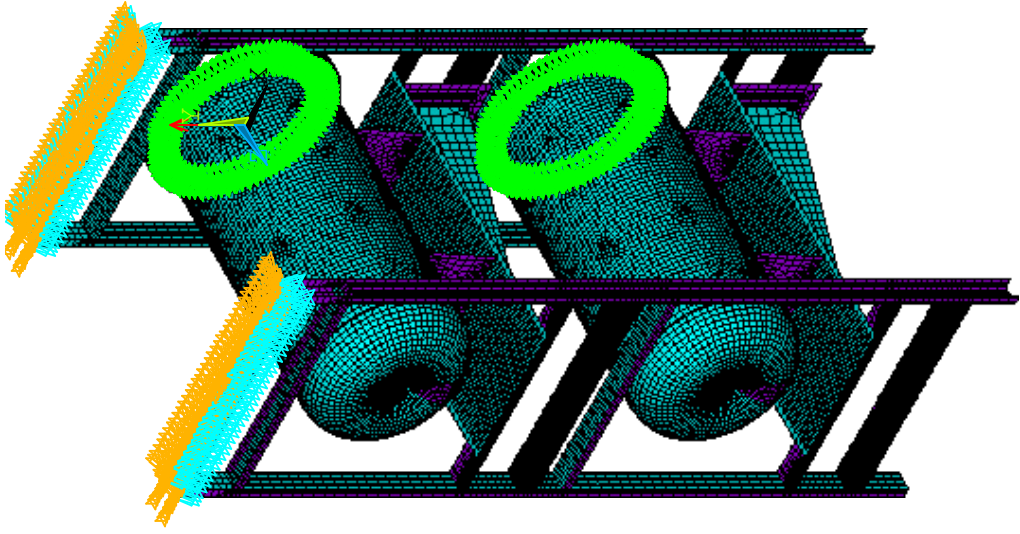


Stress in Pa

Two horns supported in two frames – summary of static results

Supports location	$ u_y _{\max}$ <i>mm</i>	$ u_z _{\max}$ <i>mm</i>	$u_{\text{sum},\max}$ <i>mm</i>	$\sigma_{\text{eqv},\max}$ <i>MPa</i>	Remarks
Bottom	0.90	1.38	1.45	20.2	Max. Stress in frame
Top	0.99 0.93	0.24 1.18	0.99 1.20	25.9 18.1	Max. Stress in frame

Modal results for 2
horns supported in 2
frames on the top



Frames supported on the top

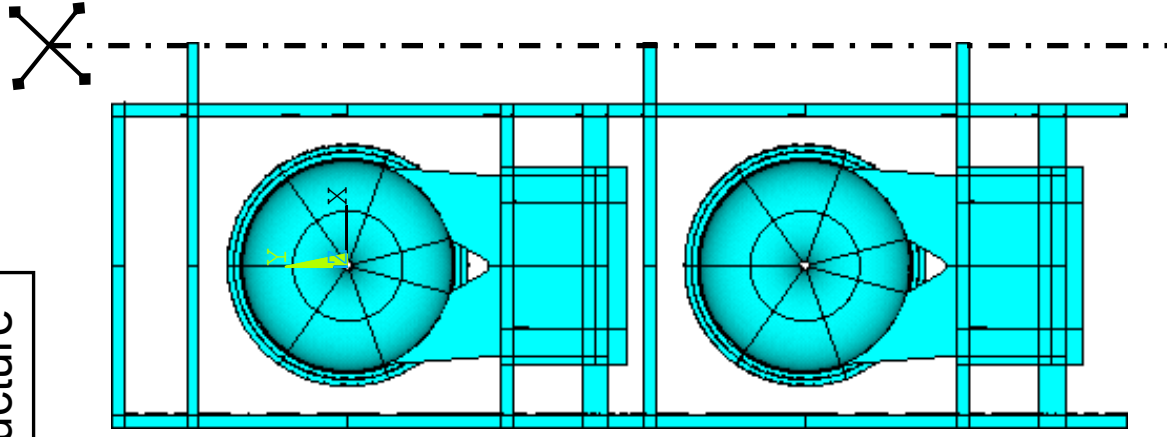
Lowest five natural
frequencies

1	1.99 Hz
2	3.34 Hz
3	4.32 Hz
4	7.15 Hz
5	9.18 Hz

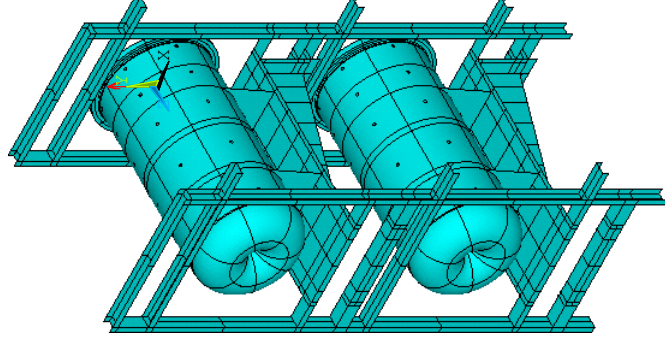
Calculations need
corrections

System of four horns supported in two frames

FE analysis of
symmetric half
of the structure

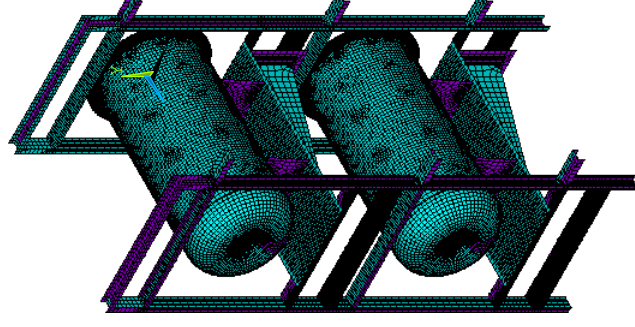


1 AREAS
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11:25:39

4 ELEMENTS

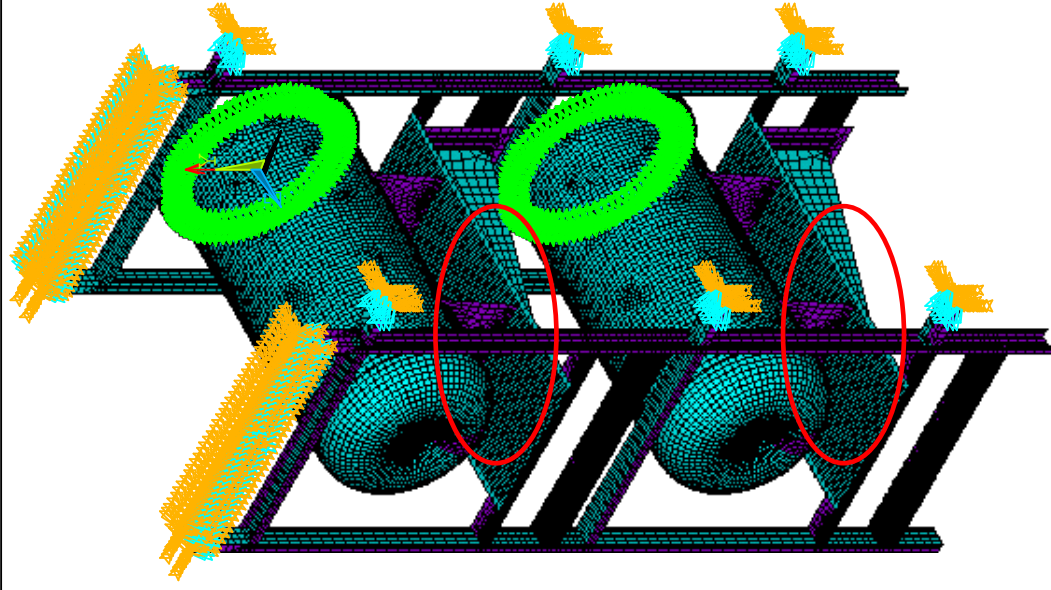


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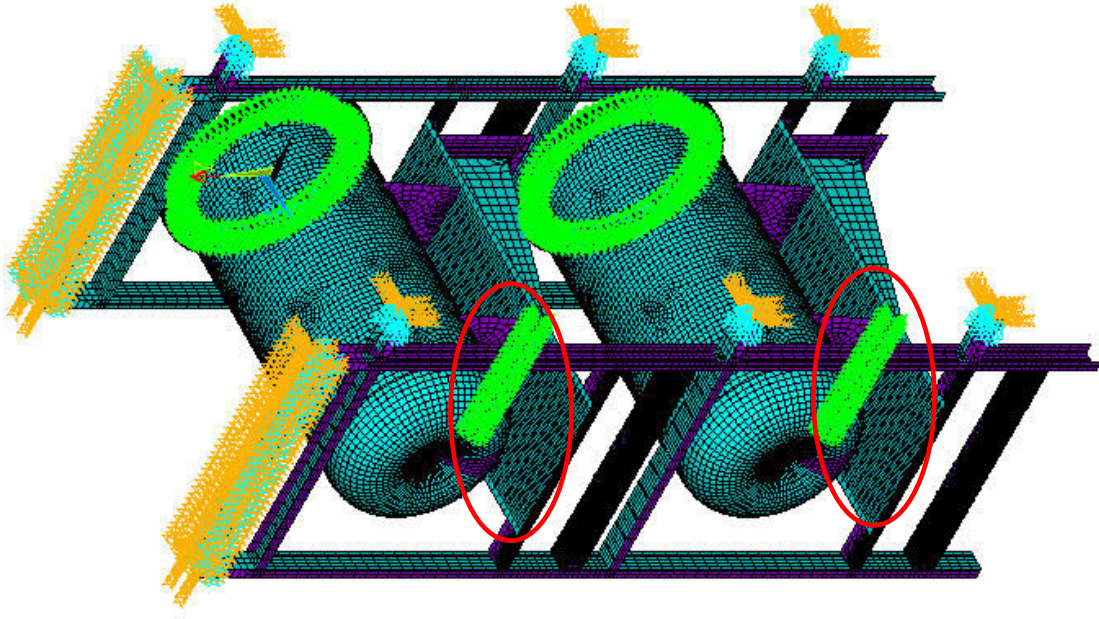
Frames supported on the top,

Slides: 17 - 24

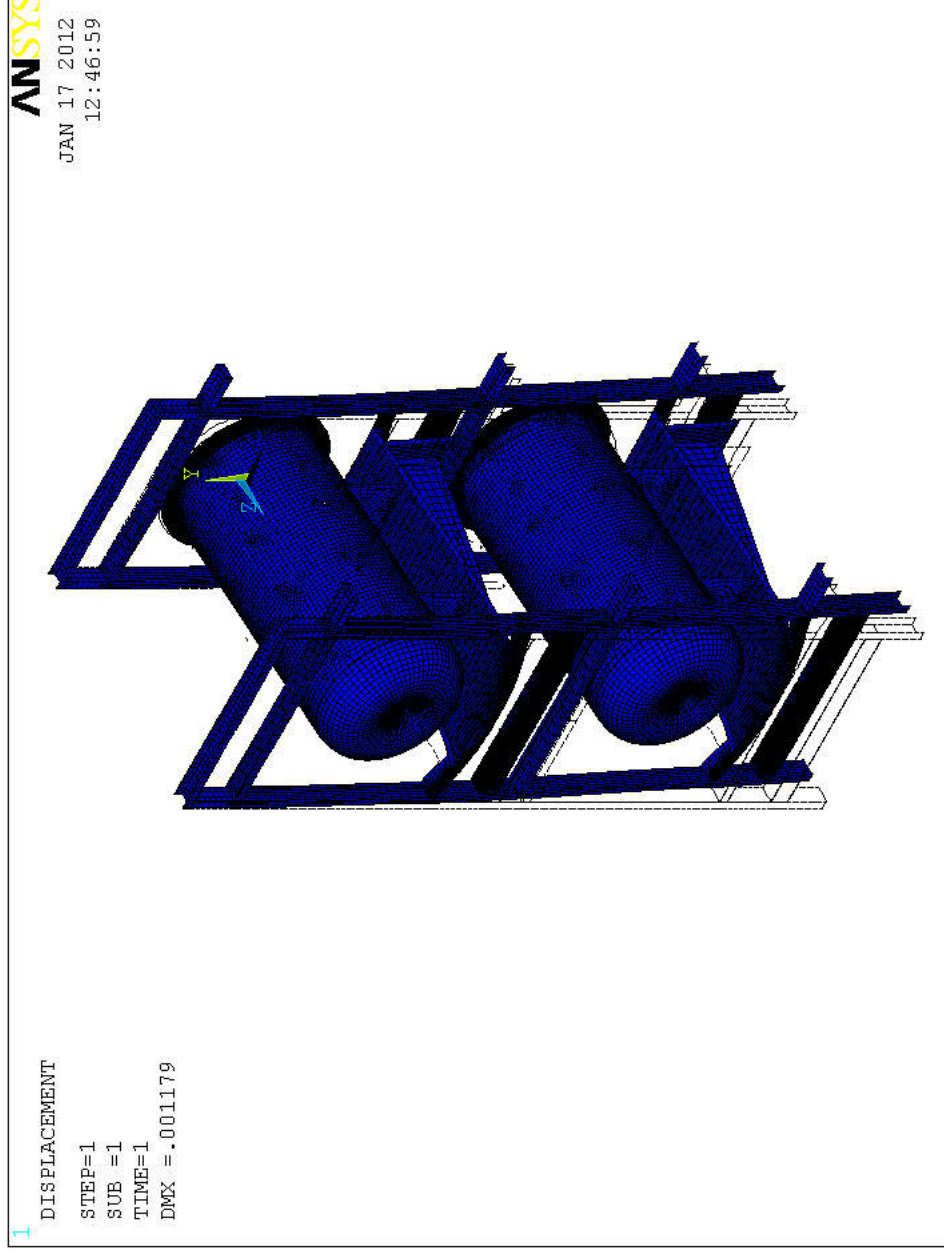
Frames supported on the top



DEC

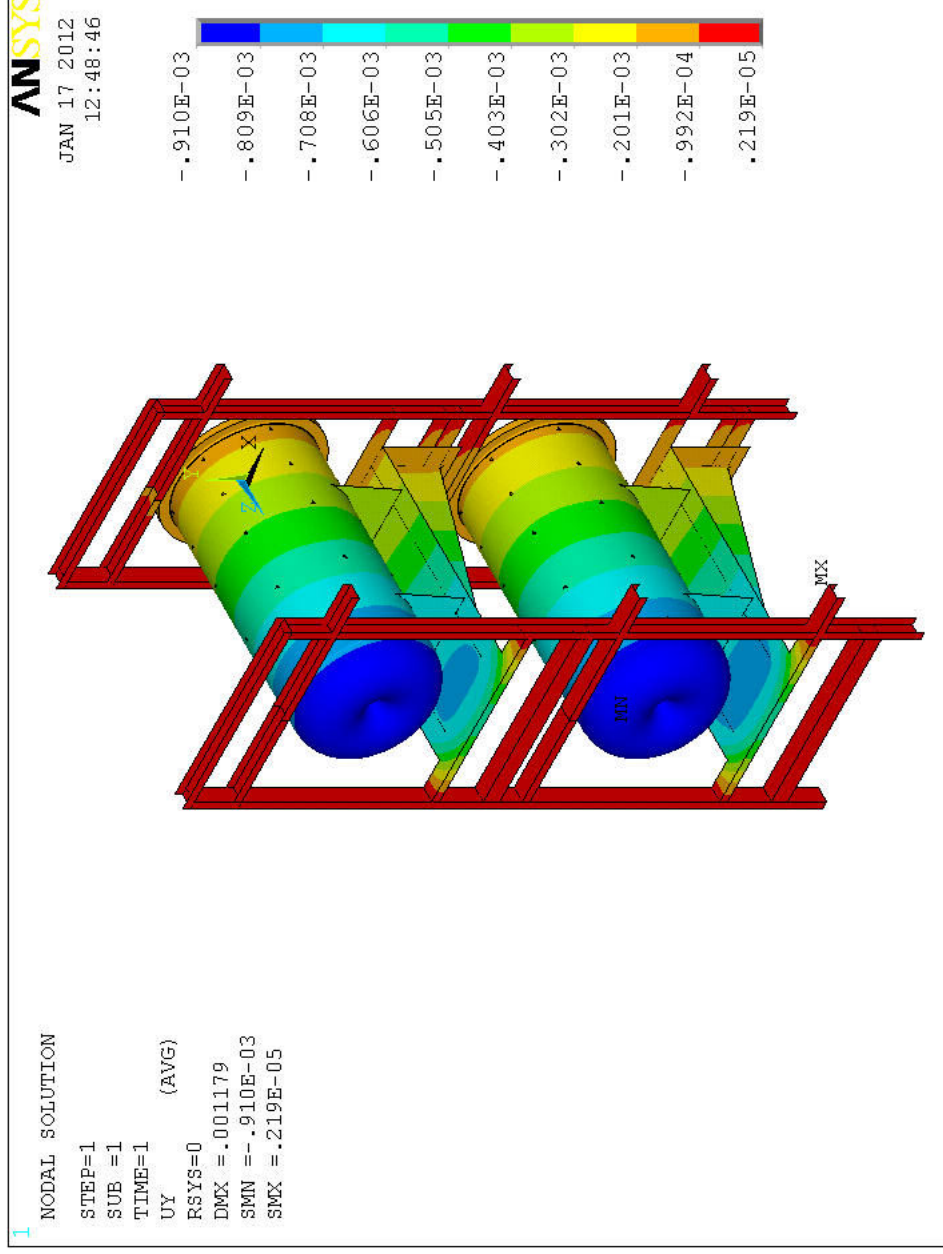


Frames supported on the top



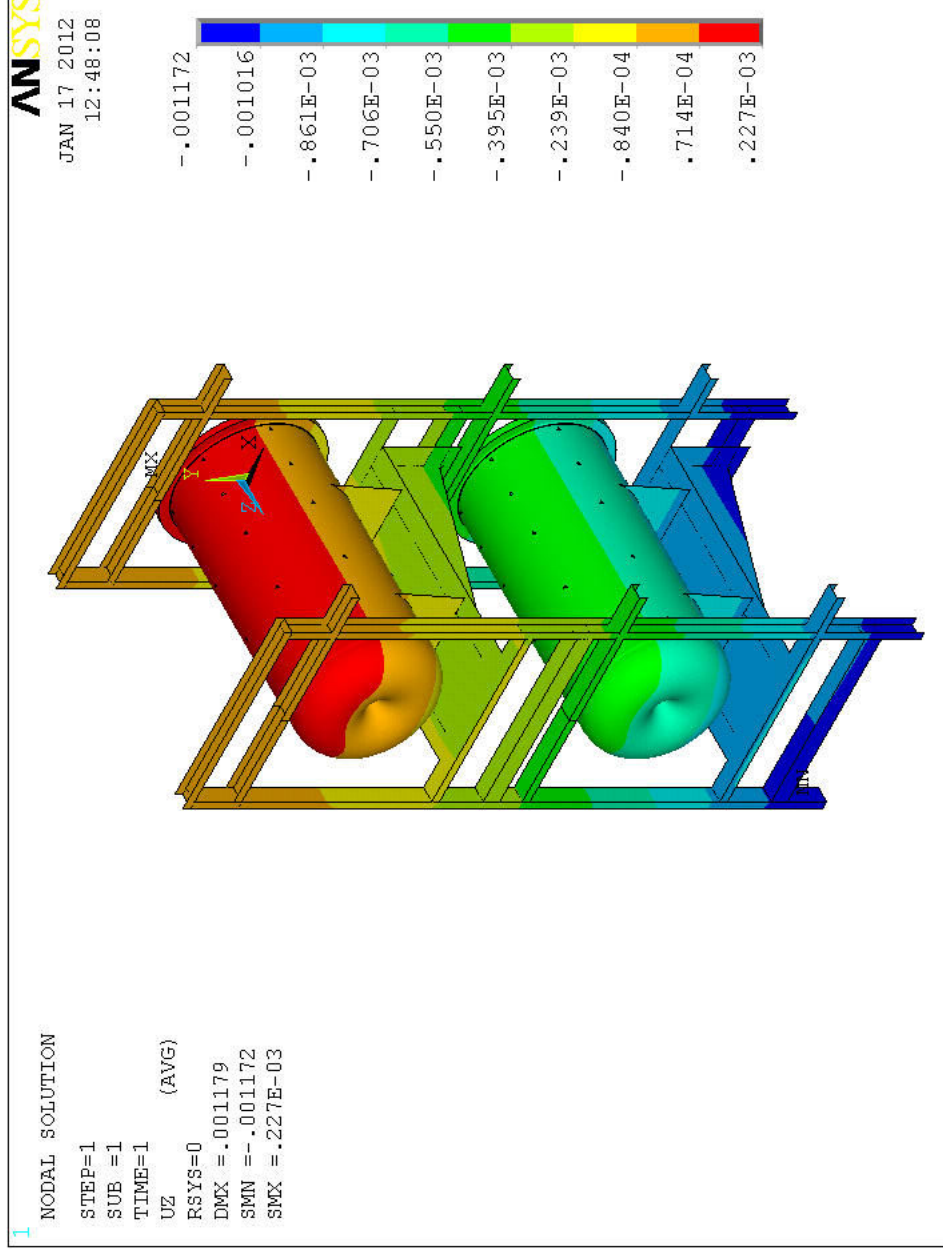
Deformation

Frames supported on the top



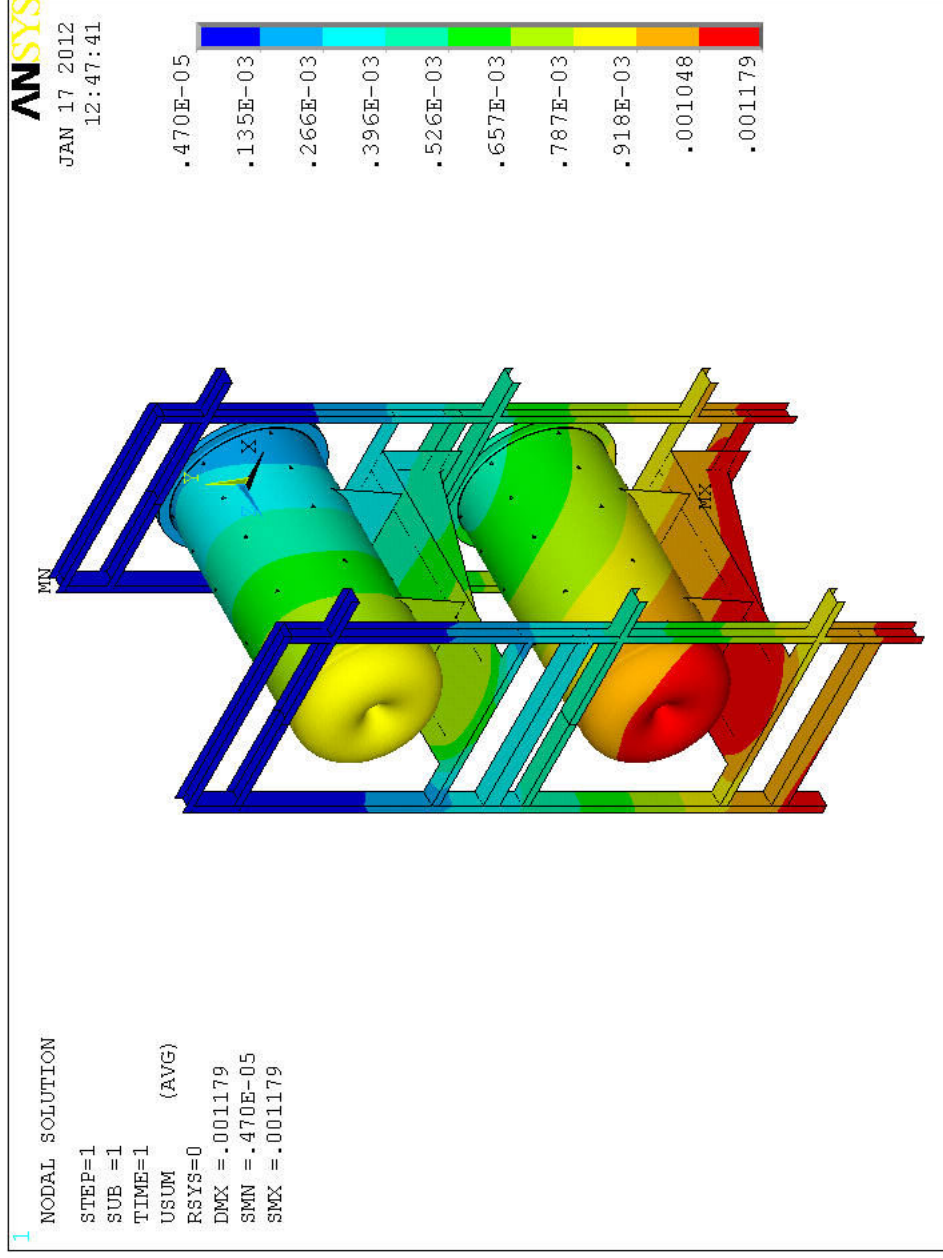
Deflection in m

Frames supported on the top



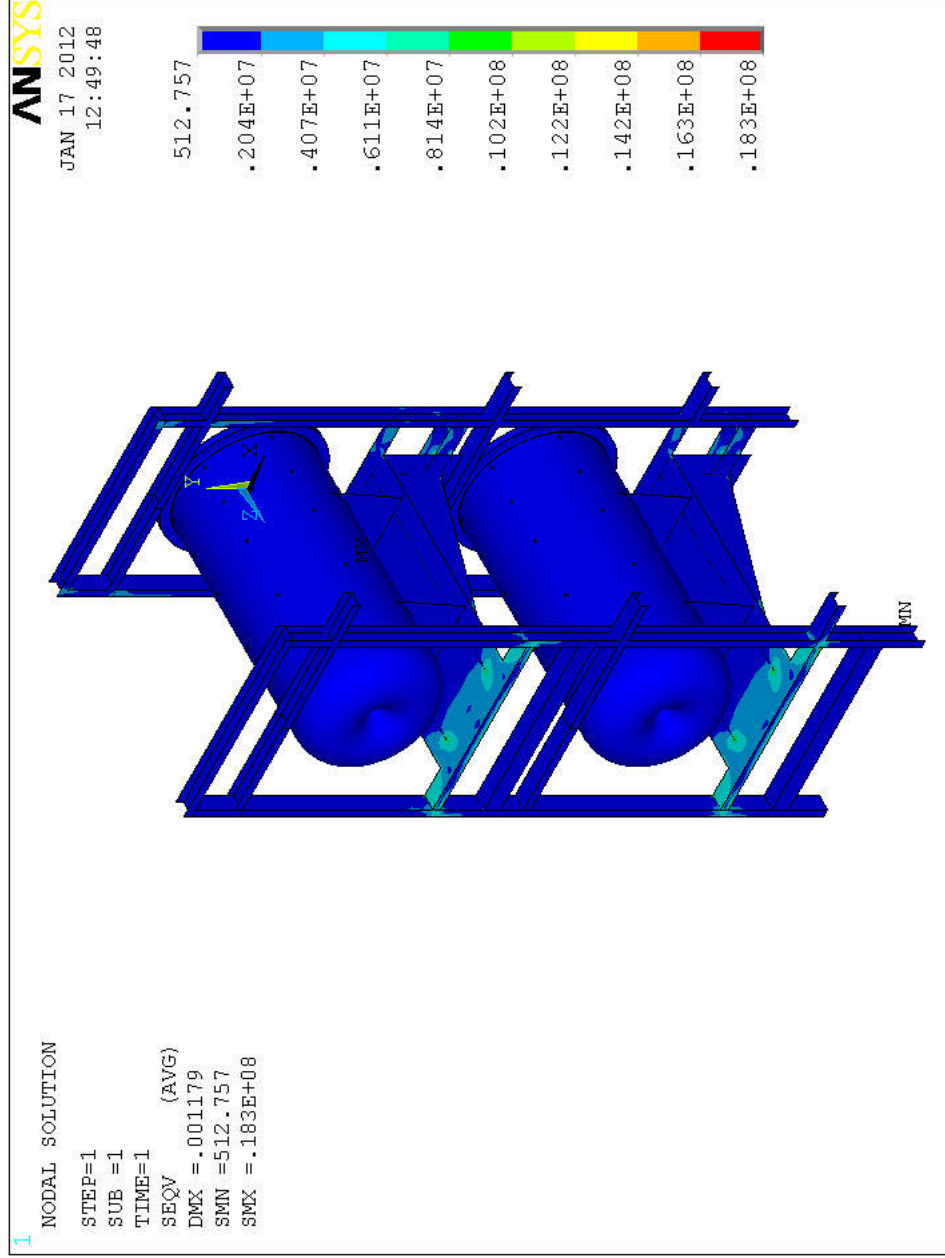
Deflection in m

Frames supported on the top



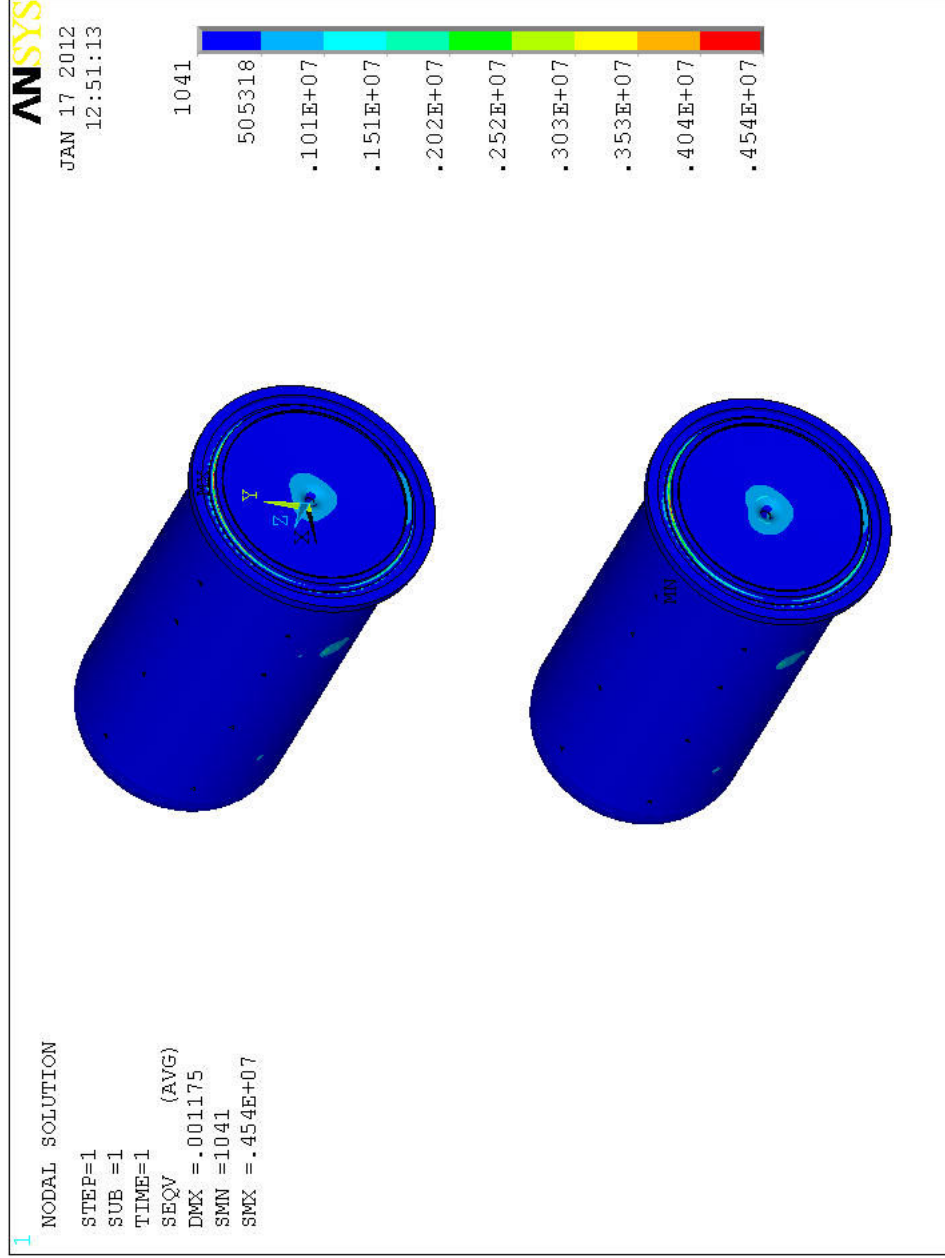
Deflection in m

Frames supported on the top



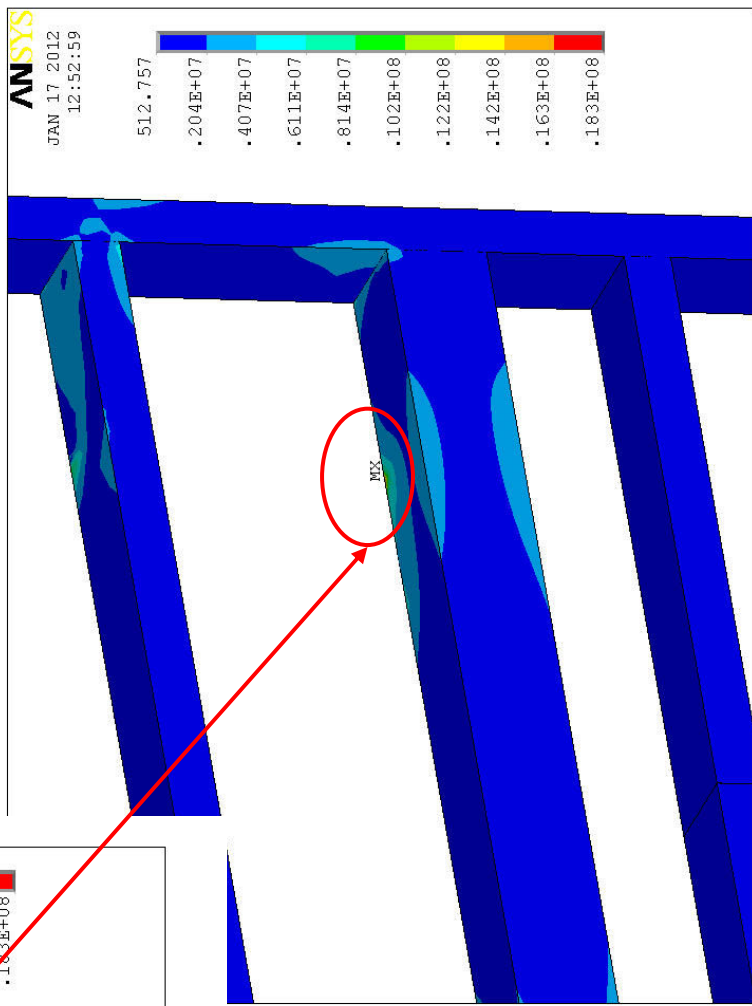
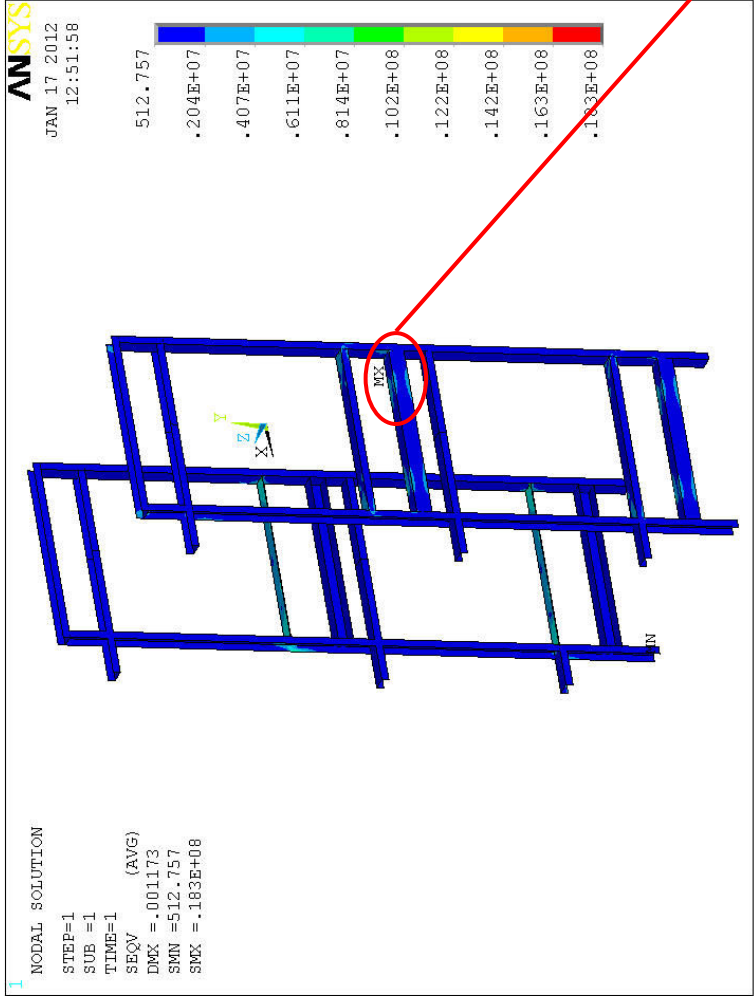
Stress in Pa

Frames supported on the top



Stress in Pa

Frames supported on the top

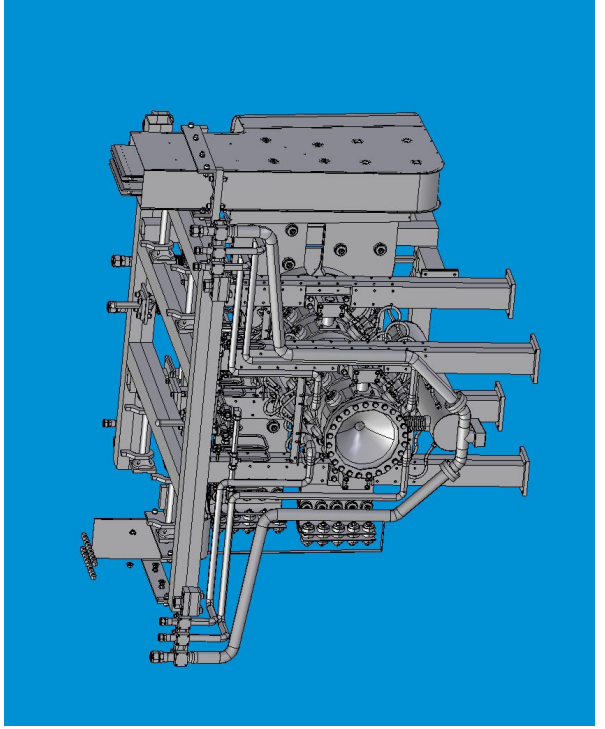
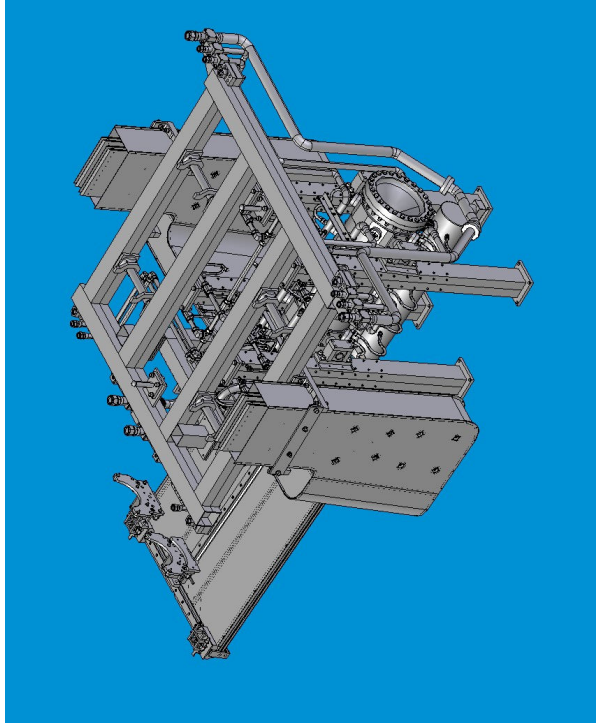
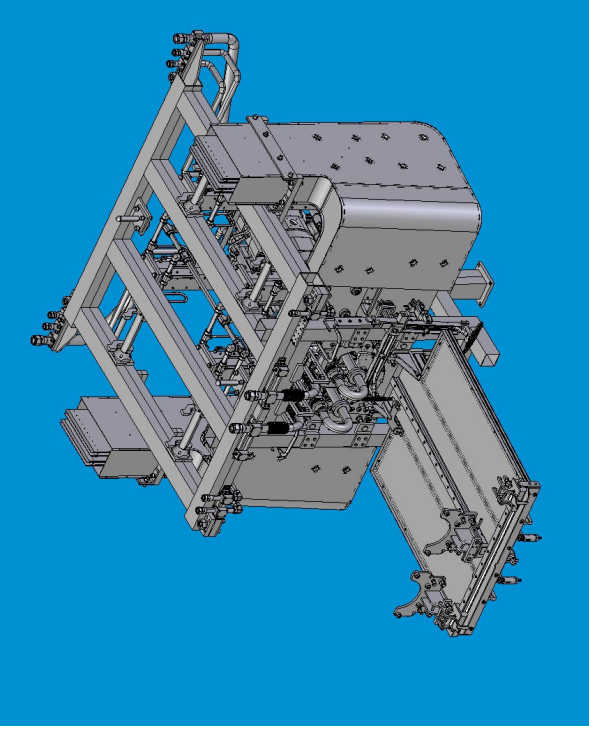
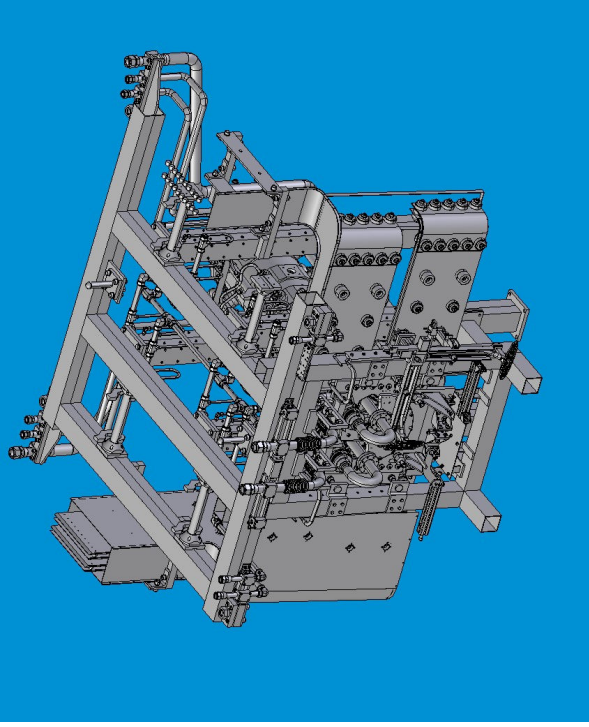


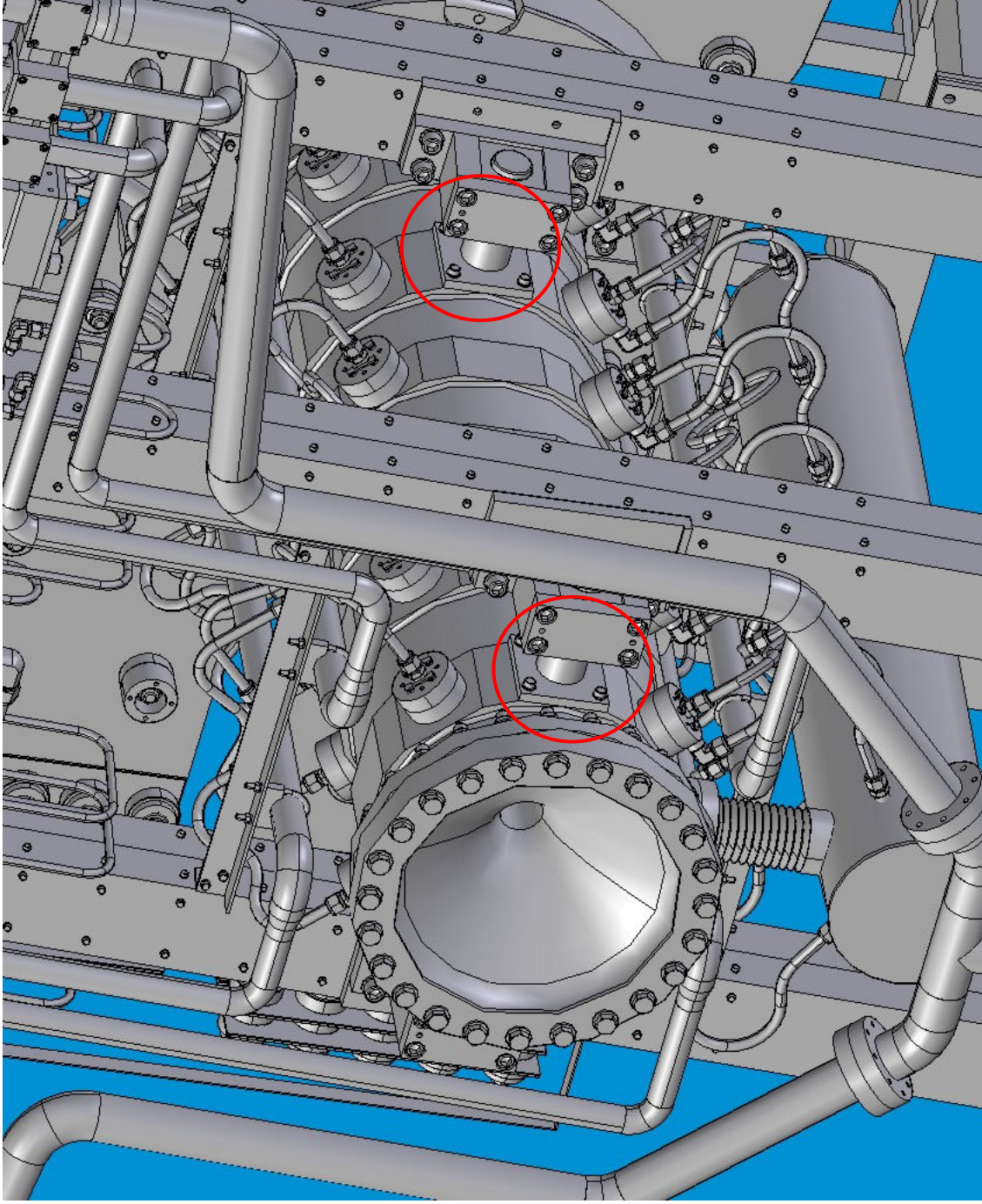
Stress in Pa

Four horns supported in two frames – summary of static results
for ½ of the structure

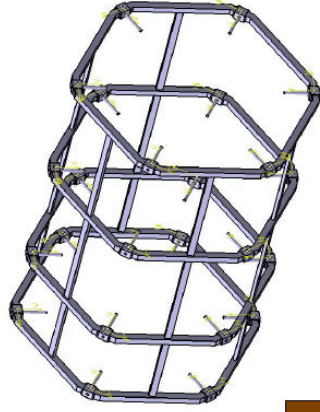
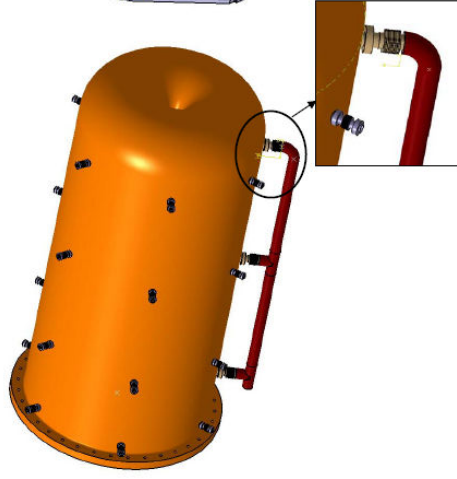
Supports location	$ u_y _{\max}$ <i>mm</i>	$ u_z _{\max}$ <i>mm</i>	$U_{\text{sum,max}}$ <i>mm</i>	$\sigma_{\text{eqv,max}}$ <i>MPa</i>	Remarks
Bottom	0.90	1.38	-	20.5	Max. Stress in frame
Top	0.91 0.91	0.23 1.18	1.18 1.19	18.3 19.0	Max. Stress in frame

T2K



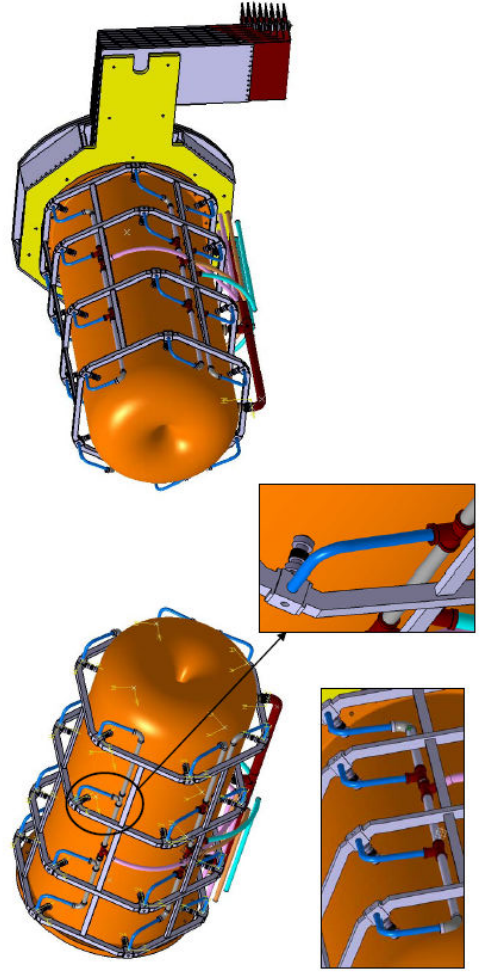


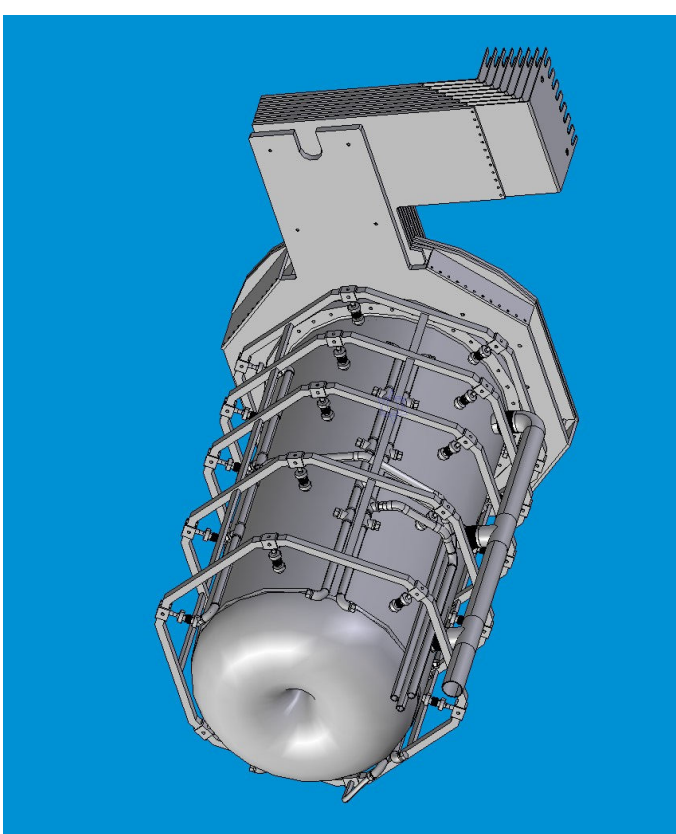
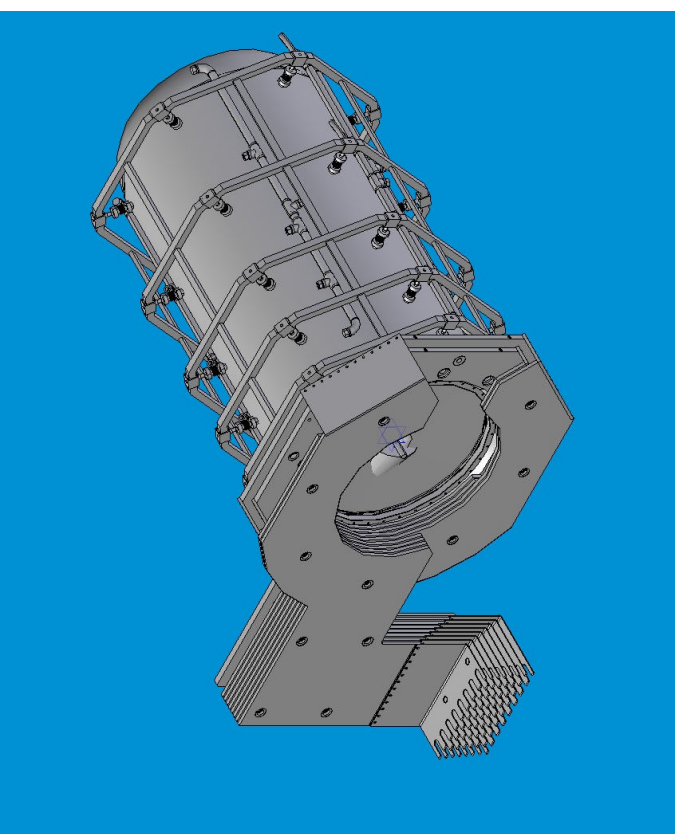
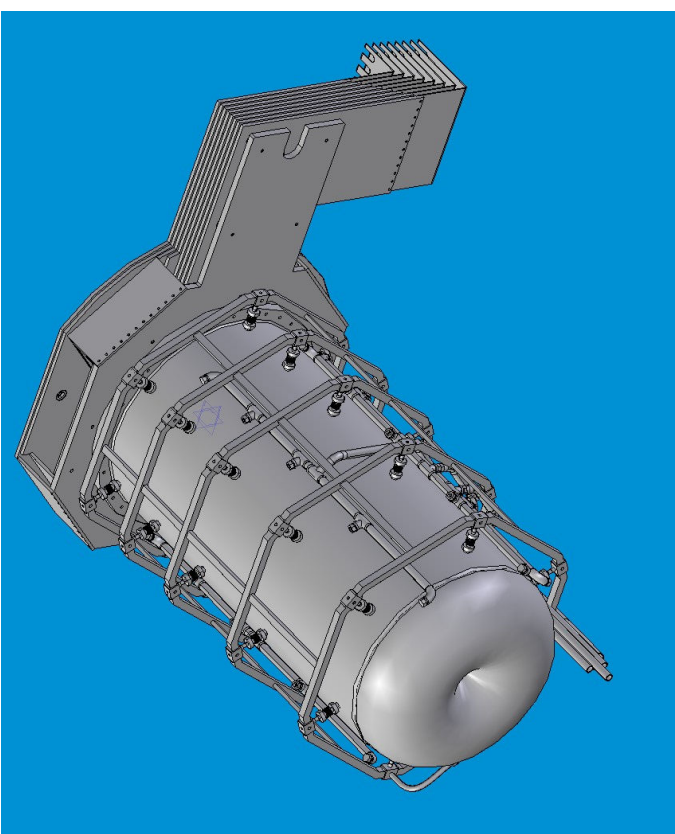
Conducteur externe – les soufflets pour le circuit de refroidissement et la sortie d'eau



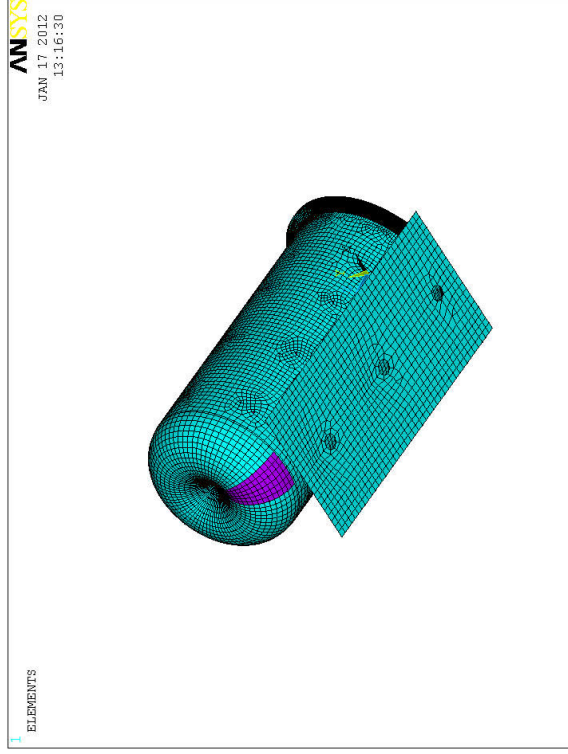
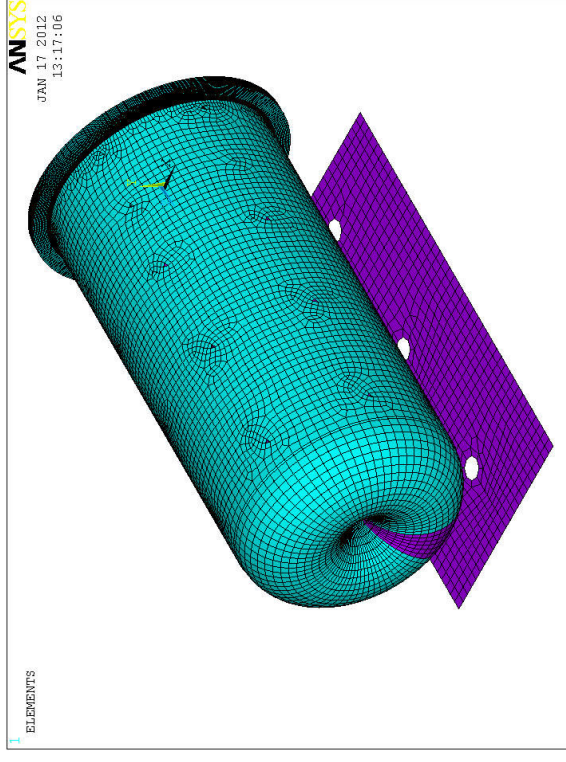
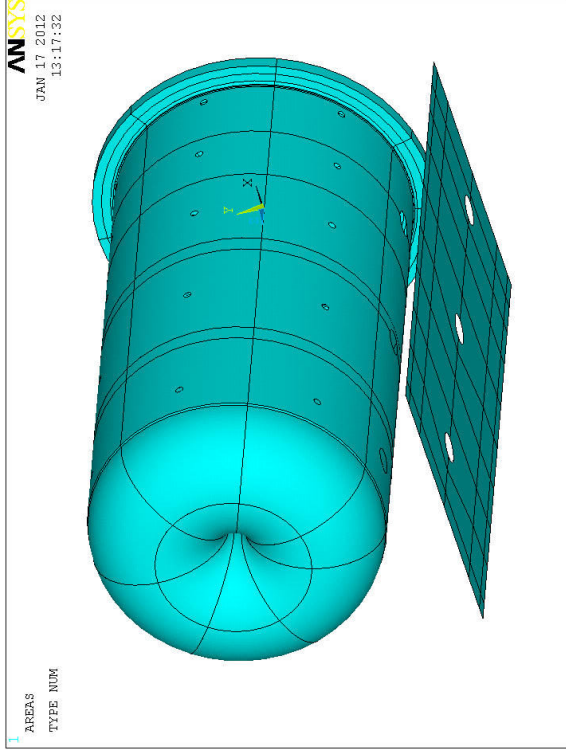
La structure qui soutien la corne et les tuyaux de refroidissement

L'ensemble de la Corne





Future concept/study of support system



Thank you for your attention