

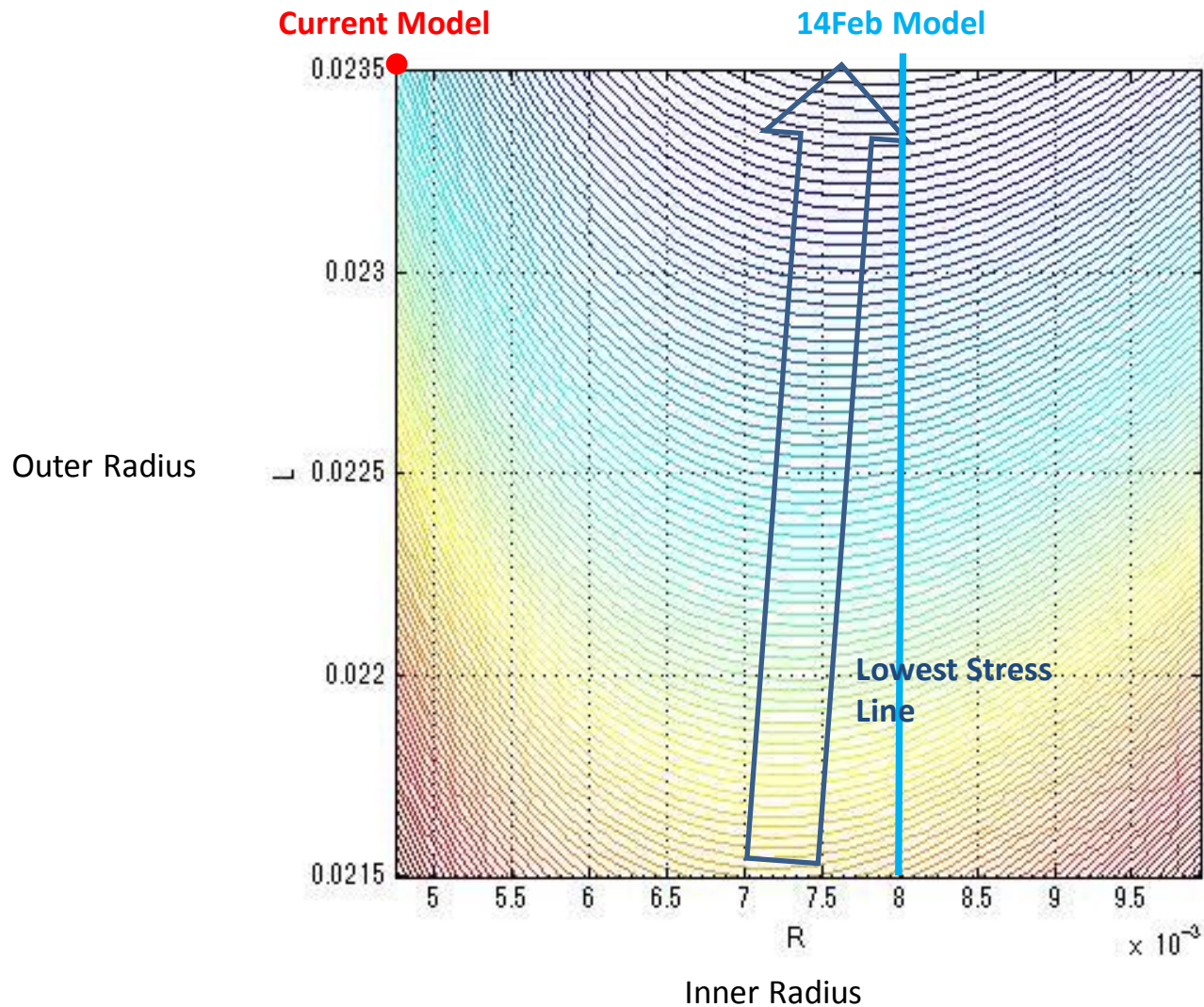
New Frame Idea

Oct,10,2013 meeting

Atsuo Orita

2D Layer Design

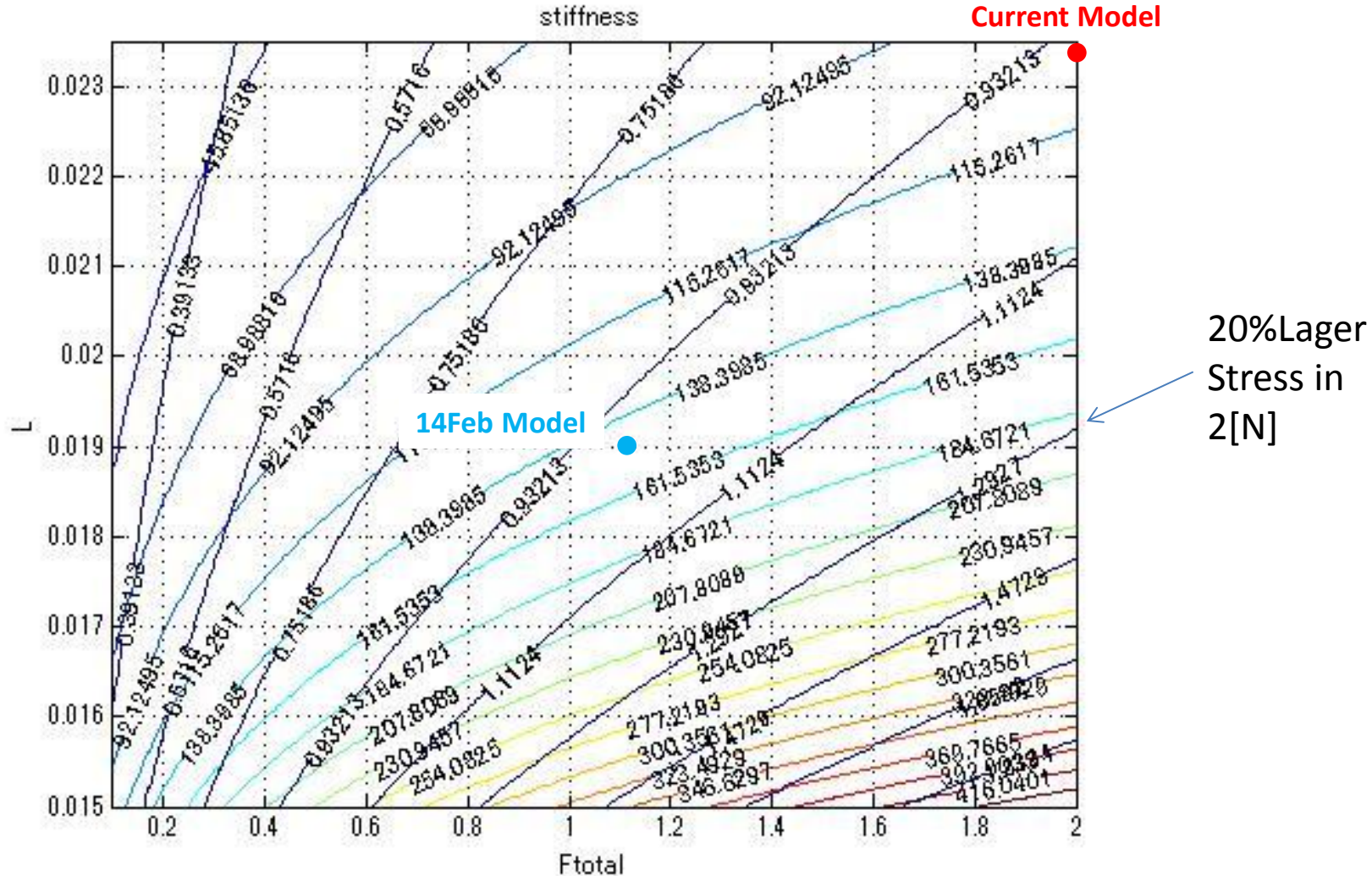
Contour line map of stress in membrane modeling



Inner Diameter = 16 mm is the reasonable value

2D Layer Design

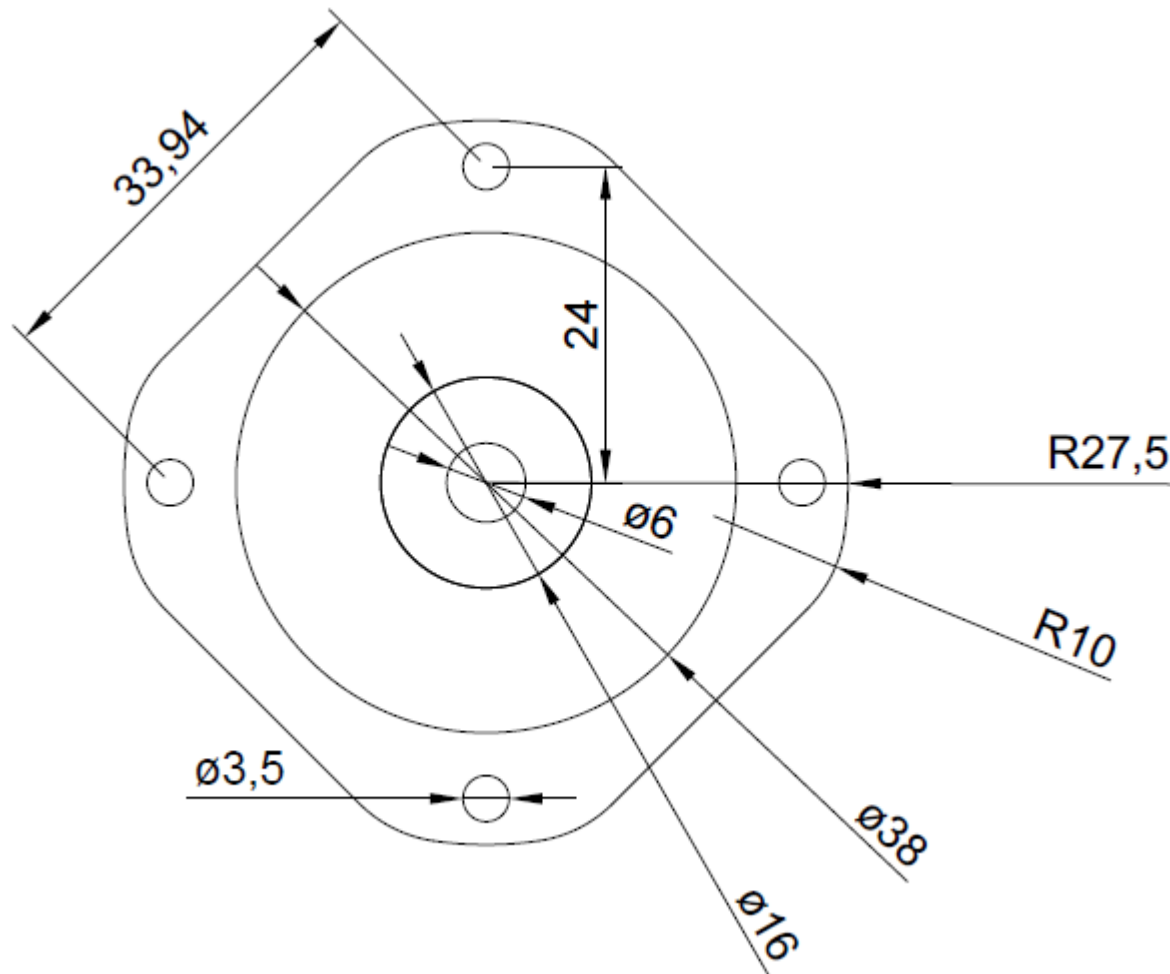
Contour line map of stress ratio and stiffness ratio in membrane modeling



Outer Diameter = 38 mm is 1.1N durable in same stress with 150%stiffness
Compared to Current Model

2D Layer Design

As a result of design parameter of model, 2D design of EAP is designed below.



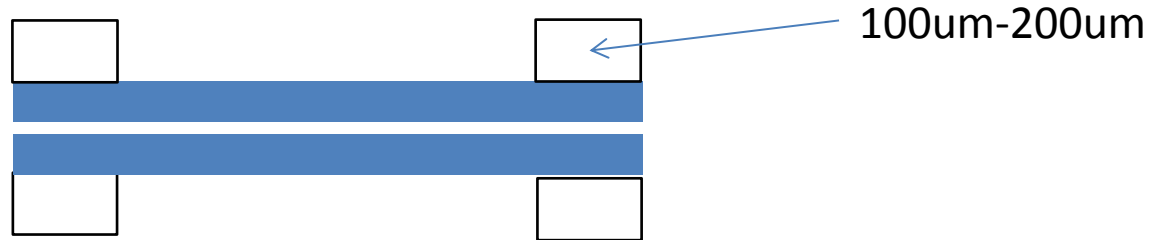
3D Layer Design



	thickness	Tensile stiffness	2 Layer Possibility
ABS	254um	Weak	NG
POM	More than 254um	Weak	Better than ABS
FRP	254um	Higher	Good
PEEK	100um or 200um	Higher	Good
Zirconium	100 um	Highest	-----
Willow Glass	100um or 200um	Highest	----

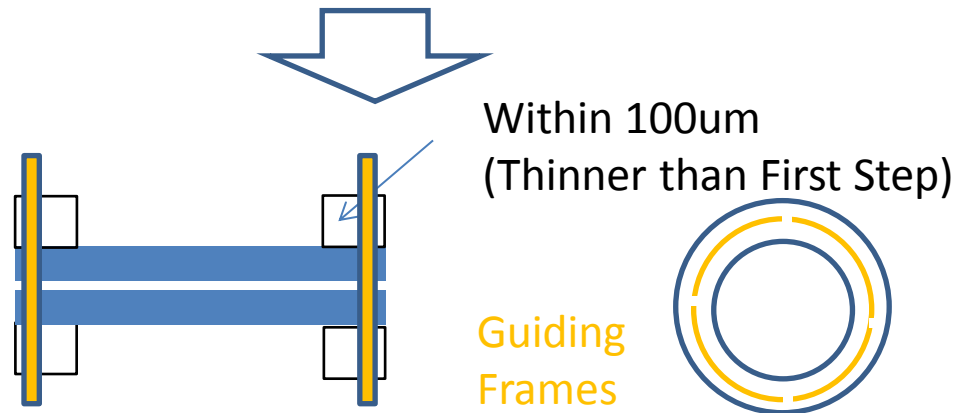
3D Layer Design

First Step



Total thickness is 320-520um / 2 layer

Second Step



Total thickness is 320 / 2 layer