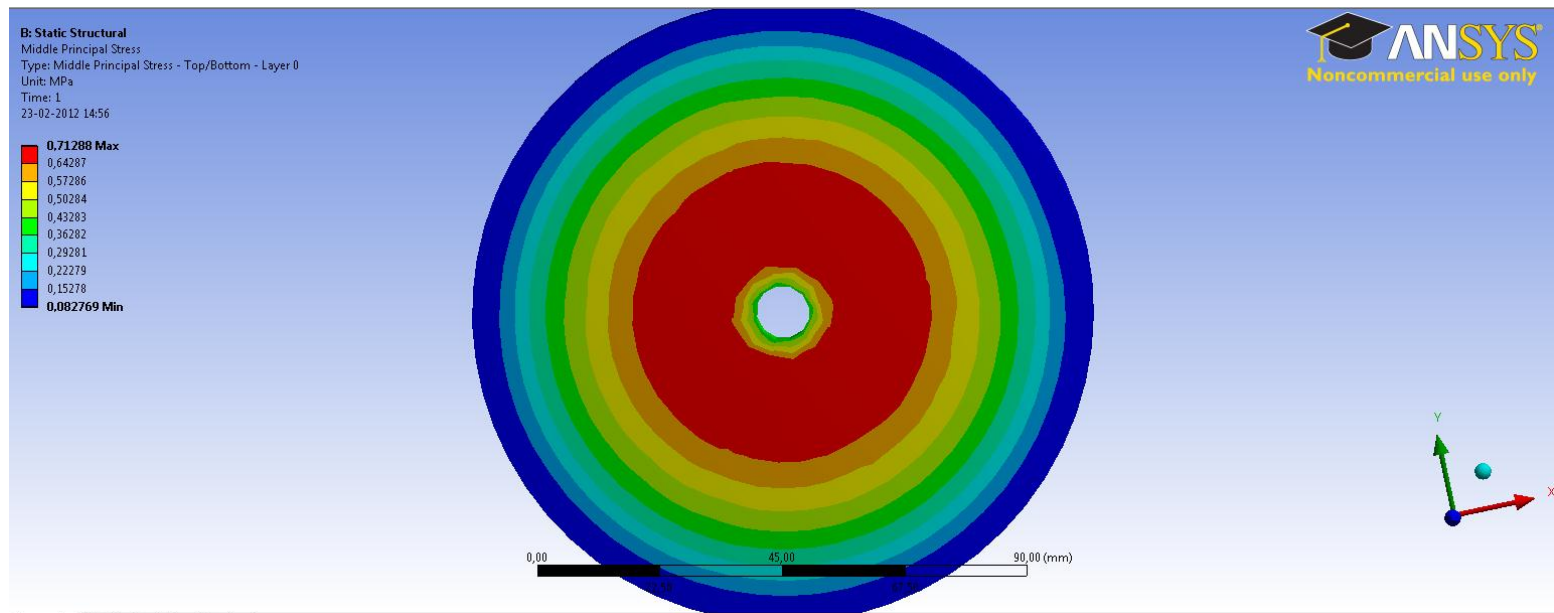
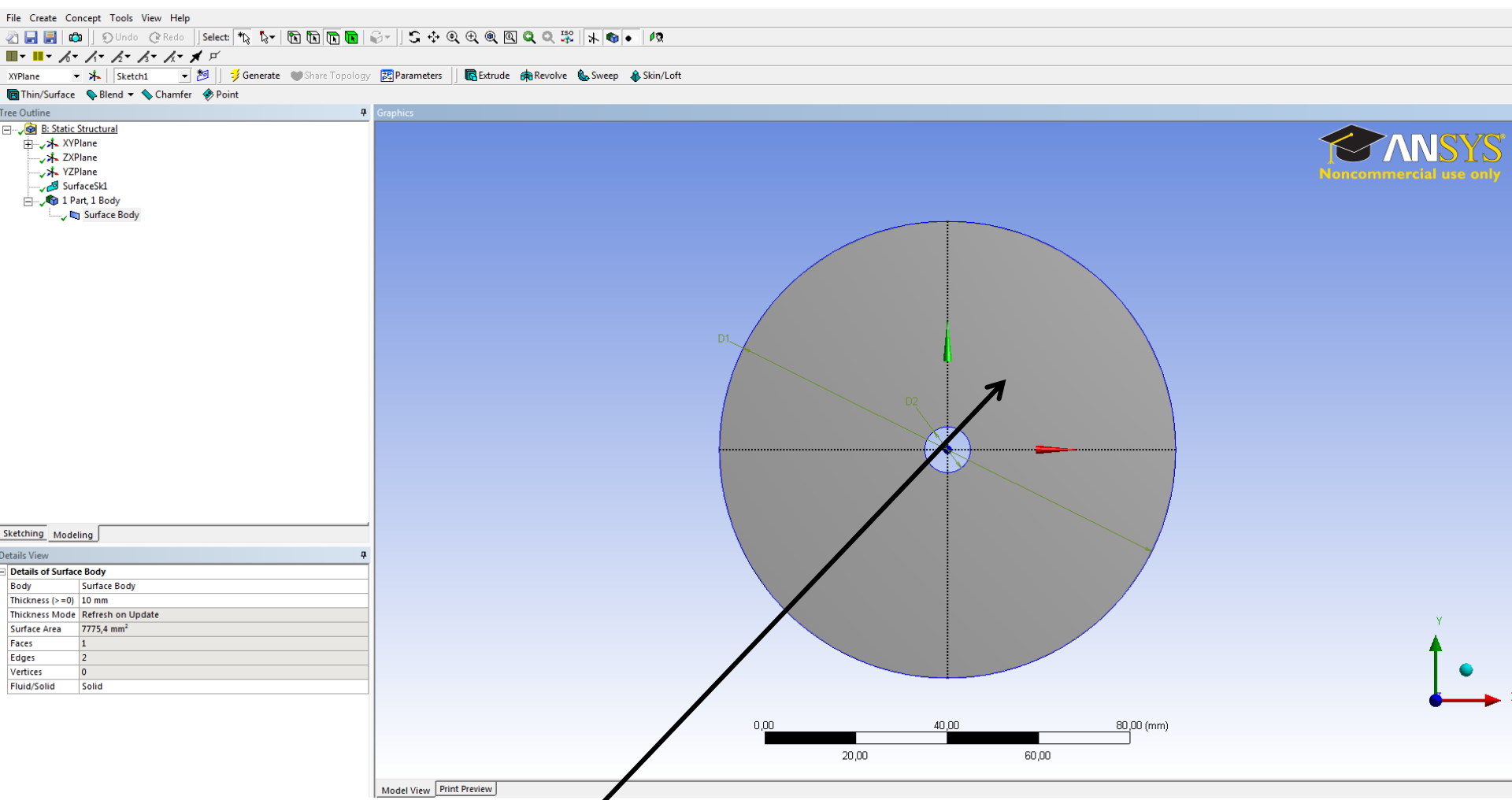


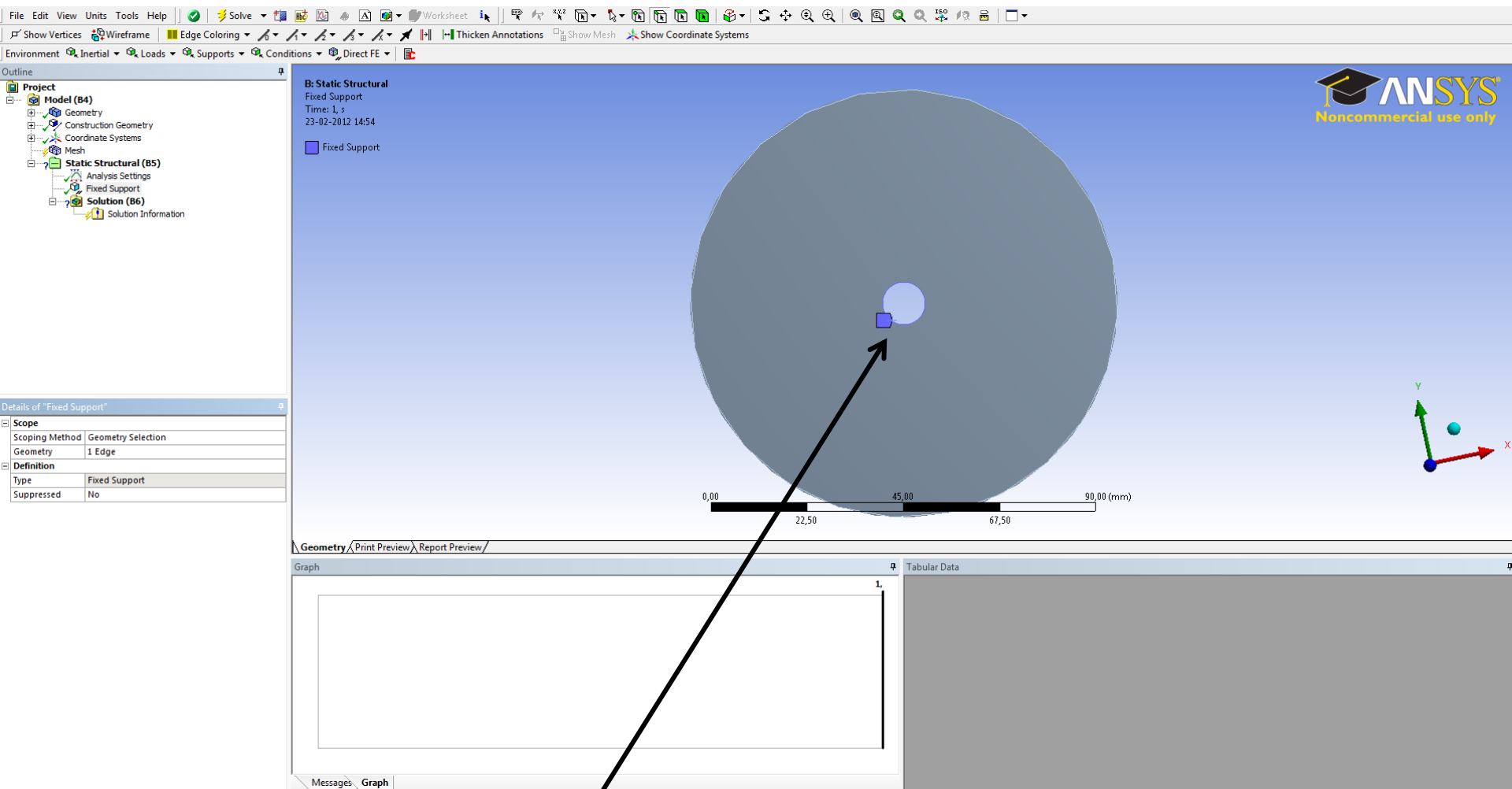
Rotation analysis Workbench 14.0



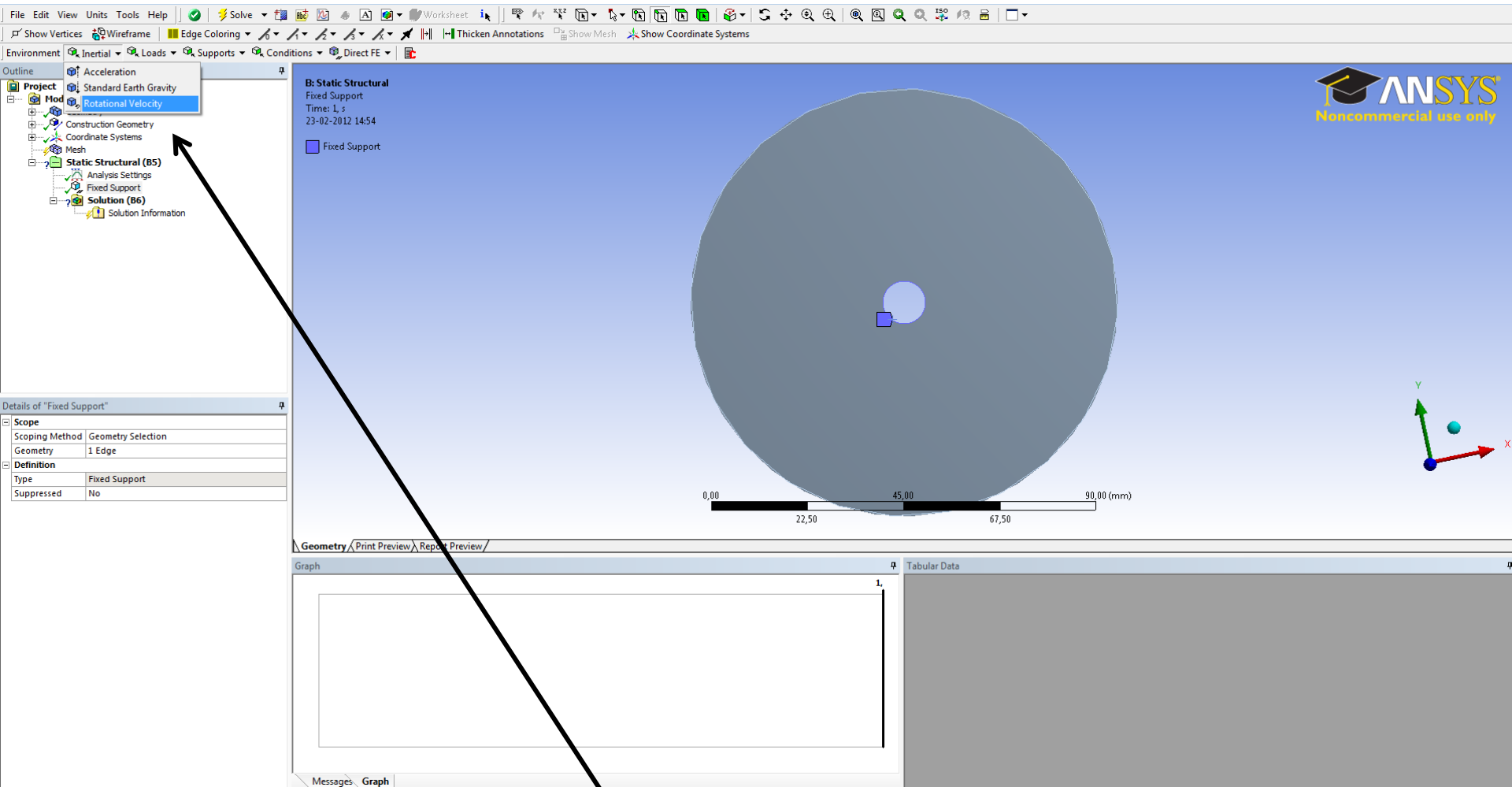
Aalborg Universitet esbjerg
Søren Heide Lambertsen



Make the model.



Then set the boundary condition. Fixed the center hole.



Click on Rotational Velocity

File Edit View Units Tools Help

Environment Outline Project Model (E) Geom Cont Coord Mesh Sta

Units: Metric (m, kg, N, s, V, A)
Metric (cm, g, dyne, s, V, A)
Metric (mm, kg, N, s, mV, mA)
Metric (mm, t, N, s, mV, mA)
Metric (mm, dat, N, s, mV, mA)
Metric (um, kg, uN, s, V, mA)
U.S. Customary (ft, lbm, lbf, °F, s, V, A)
U.S. Customary (in, lbm, lbf, °F, s, V, A)

Direct FE

Thicken Annotations Show Mesh Show Coordinate Systems

B: Static Structural
Rotational Velocity
Times: 1, s
23-02-2012 14:55

Rotational Velocity: 0, rad/s
Rotation: 0, 0, 0, rad/s
Location: 0, 0, 0, mm

0,00 22,50 45,00 67,50 90,00 (mm)

Details of "Rotational Velocity"

Scope
Scoping Method: Geometry Selection
Geometry: All Bodies

Definition
Define By: Components
Coordinate System: Global Coordinate System

X Component: 0, rad/s (ramped)
Y Component: 0, rad/s (ramped)
Z Component: 0, rad/s (ramped)

X Coordinate: 0, mm
Y Coordinate: 0, mm
Z Coordinate: 0, mm
Suppressed: No

Graph

Tabular Data

Steps	Time [s]	X [rad/s]	Y [rad/s]	Z [rad/s]
1	0	0	0	0
2	1	0	0	0

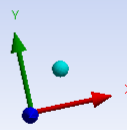
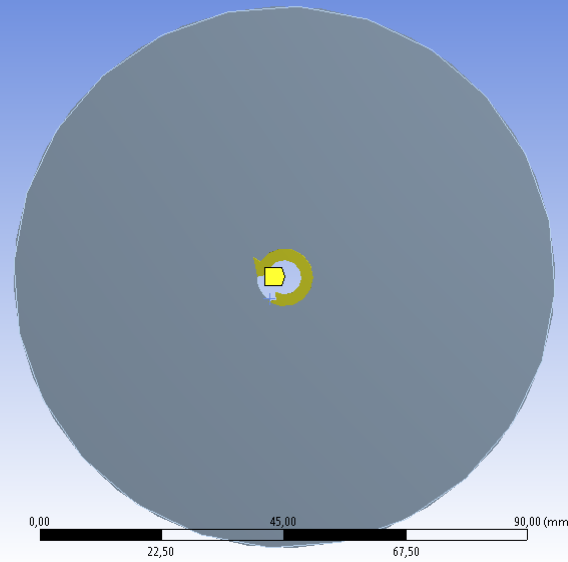
Changes to RPM.

Outline

- Project
- Model (B4)
 - Geometry
 - Construction Geometry
 - Coordinate Systems
 - Mesh
- Static Structural (B5)
 - Analysis Settings
 - Fixed Support
 - Rotational Velocity
- Solution (B6)
 - Solution Information

B: Static Structural
Rotational Velocity
Time: 1, s
23-02-2012 14:56

Rotational Velocity: 3000, RPM
Rotation: 0, 0, 3000, RPM
Location: 0, 0, 0, mm



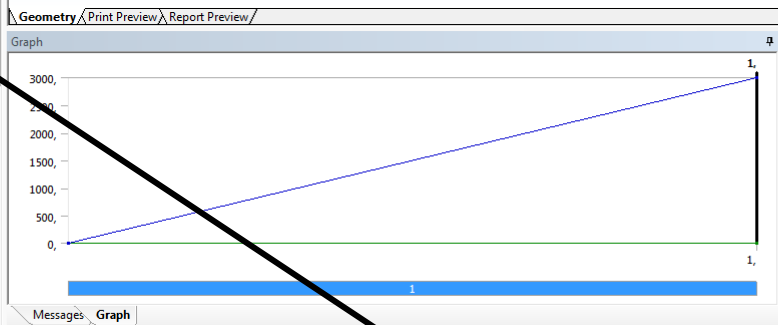
Details of "Rotational Velocity"

Scope

Scoping Method	Geometry Selection
Geometry	All Bodies

Definition

Define By	Components
Coordinate System	Global Coordinate System
<input type="checkbox"/> X Component	0, RPM (ramped)
<input type="checkbox"/> Y Component	0, RPM (ramped)
<input checked="" type="checkbox"/> Z Component	3000, RPM (ramped)
<input type="checkbox"/> X Coordinate	0, mm
<input type="checkbox"/> Y Coordinate	0, mm
<input type="checkbox"/> Z Coordinate	0, mm
Suppressed	No



Tabular Data

Steps	Time [s]	X [rpm]	Y [rpm]	Z [rpm]
1	0	0	0	0
2	1	0	0	3000

Insert 3000 RPM.

File Edit View Units Tools Help

Show Vertices Wireframe Edge Coloring Solves the analysis or analyses using a given solve process settings Show Mesh Show Coordinate Systems

Solution Deformation Strain Stress Energy Linearized Stress Probe Tools User Defined Result Campbell Diagram Coordinate Systems

Outline

- Project
 - Model (B4)
 - Geometry
 - Construction Geometry
 - Coordinate Systems
 - Mesh
 - Static Structural (B5)
 - Analysis Settings
 - Fixed Support
 - Rotational Velocity
 - Solution (B6)
 - Solution Information
 - Maximum Principal Stress
 - Middle Principal Stress

Details of "Middle Principal Stress"

Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Shell	Top/Bottom
Layer	Entire Section
Definition	
Type	Middle Principal Stress
By	Time
Display Time	Last
Calculate Time History	Yes
Integration Point Results	
Display Option	Averaged
Results	
<input type="checkbox"/> Minimum	
<input type="checkbox"/> Maximum	
Information	

Geometry Print Preview Report Preview

Graph Tabular Data

0, 1,

Messages Graph

No Messages No Selection Metric (mm, kg, N, s, mV, mA) Degrees RPM Celsius

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0,00 22,50 45,00 67,50 90,00 (mm)

Y X

Plot the Maximum Principal Stress and Middle Principal Stress and press solve.

