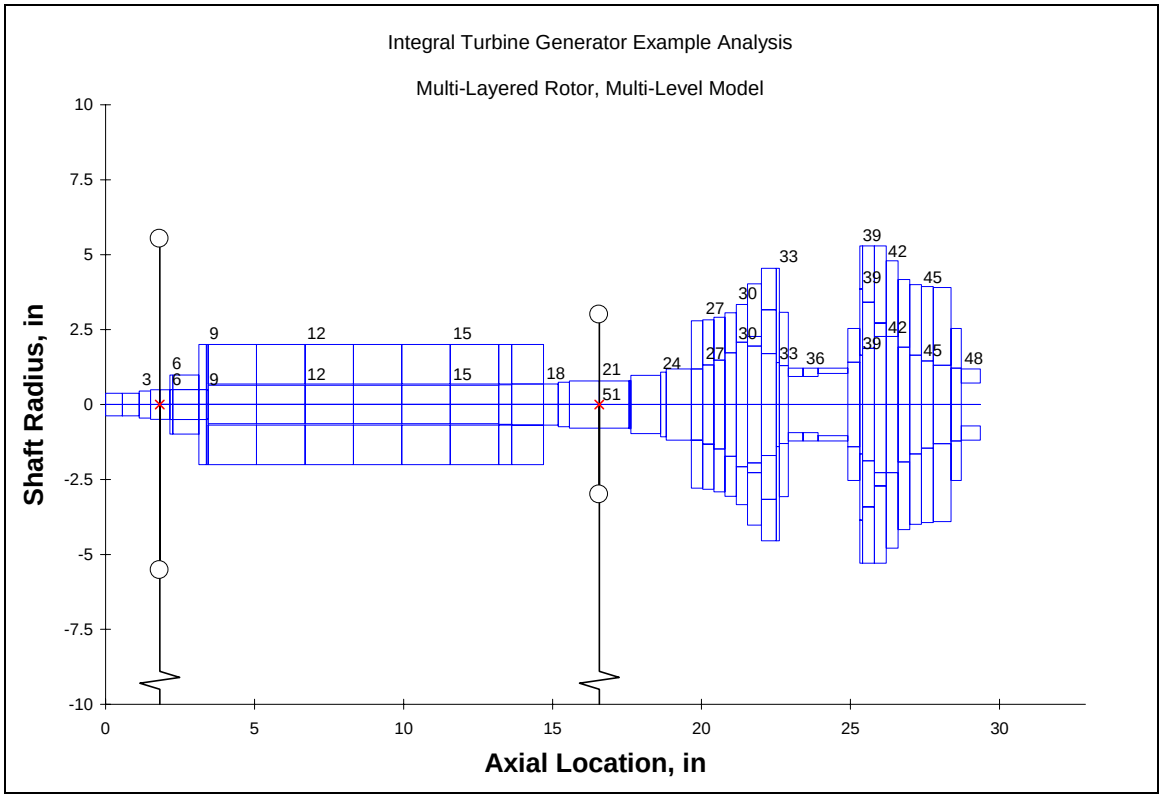
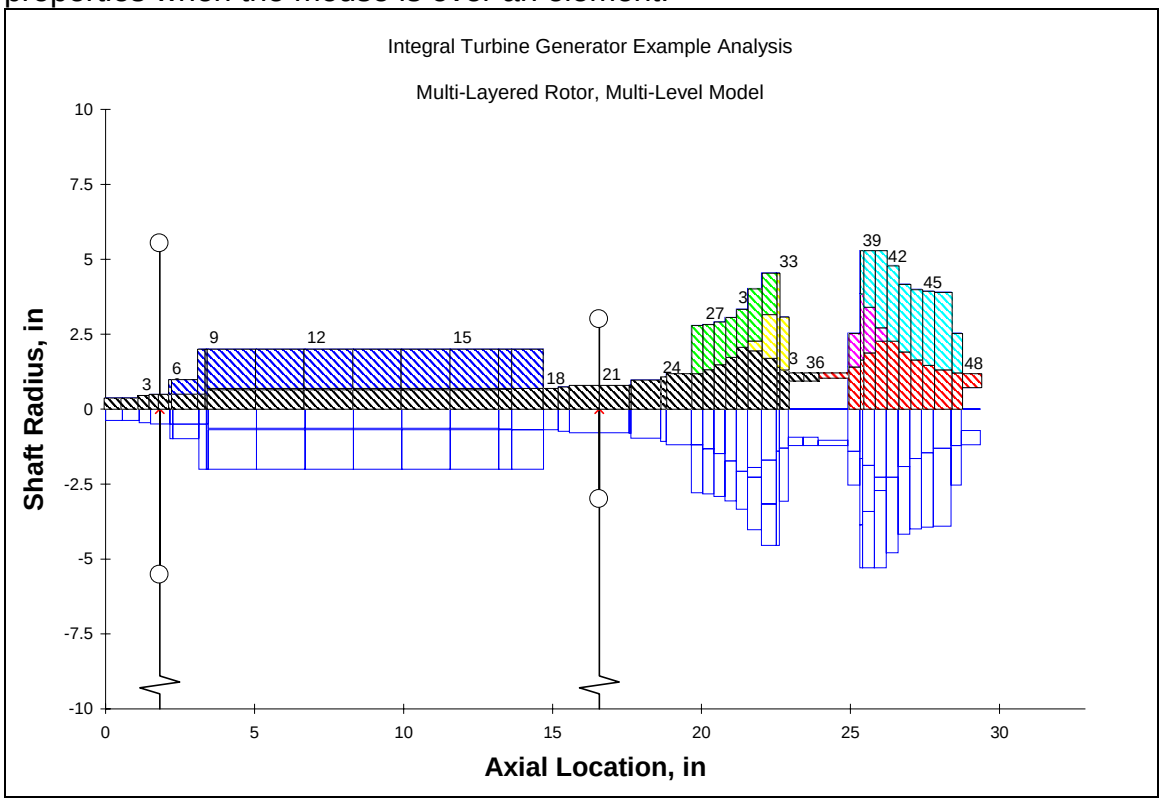
Gallery of Charts Created by XLRotor

What follows are samples of the charts created automatically by XLRotor. The formats for each chart are copied from templates in a file named XLRGRPH.XLS located in the XLRotor program folder. You are can modify the formats of the template charts any way you wish.

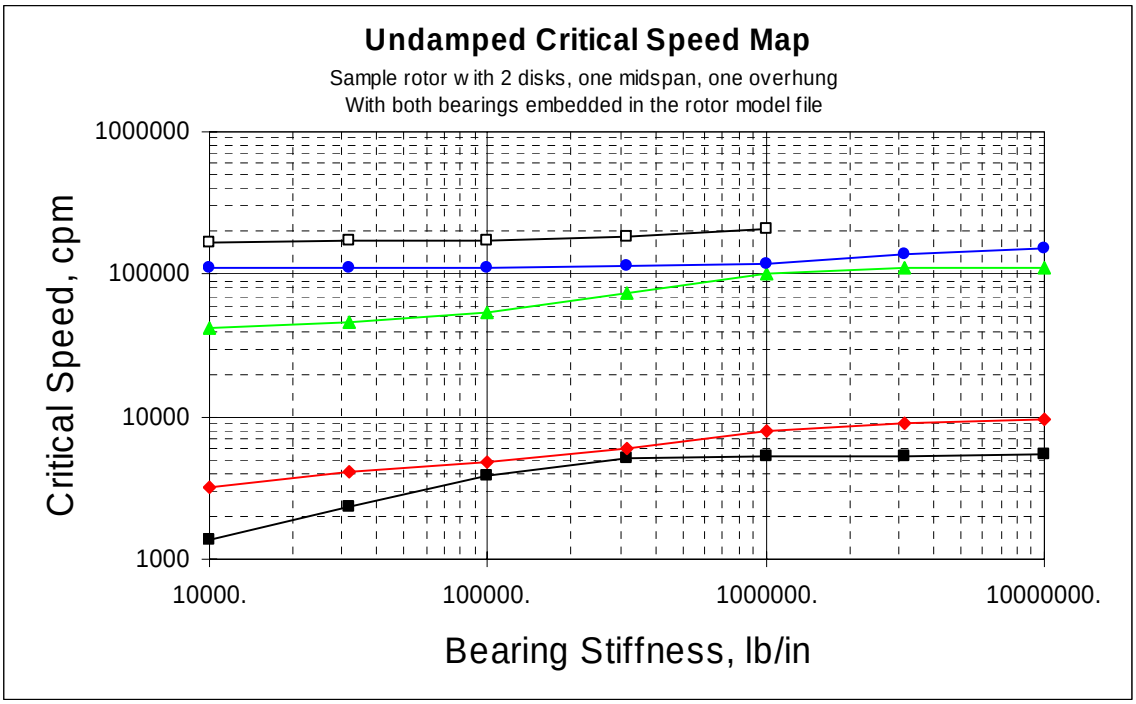
Model Geometry Chart



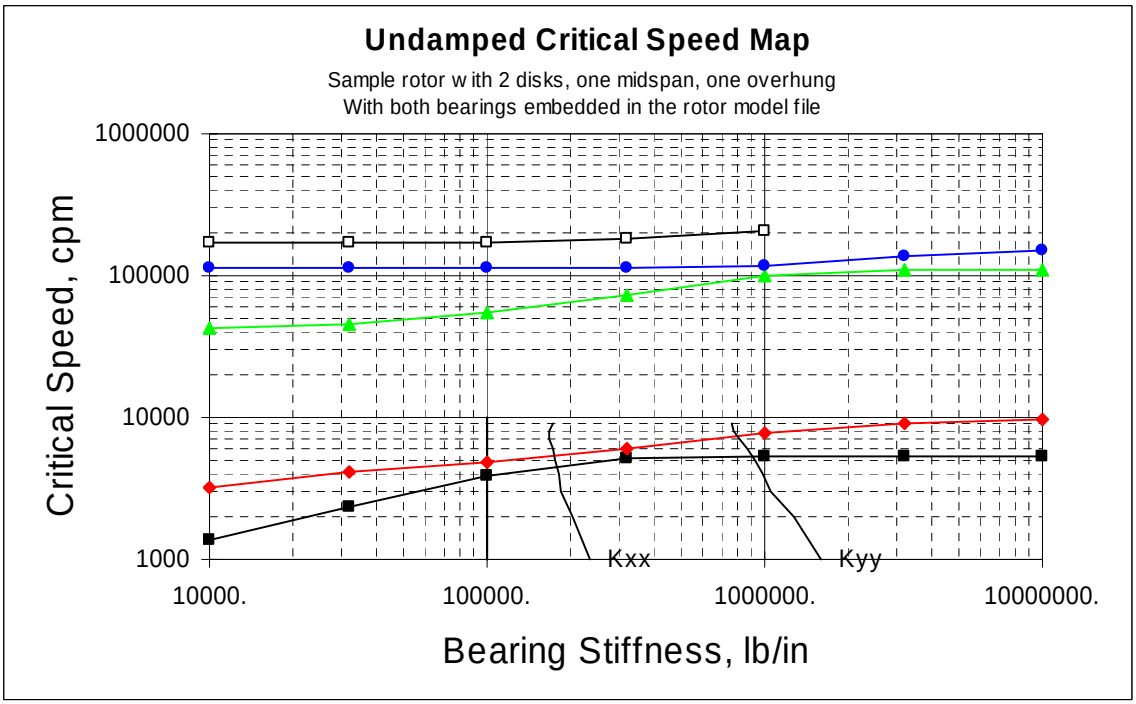
After using a menu command to display material properties. A tool tip shows the properties when the mouse is over an element.



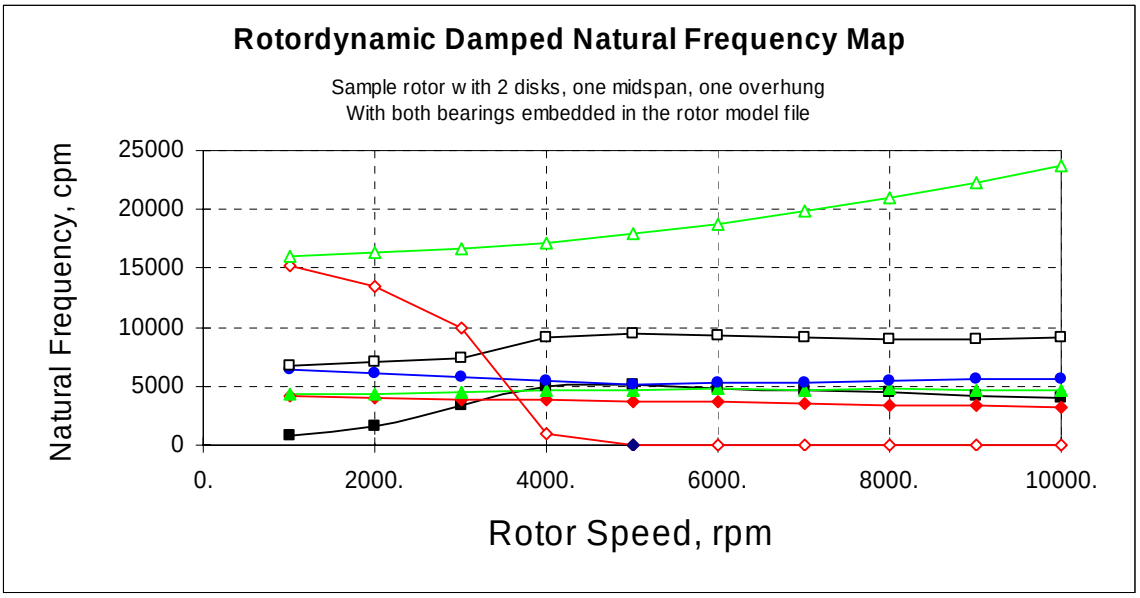
Undamped Critical Speed Map (USC)



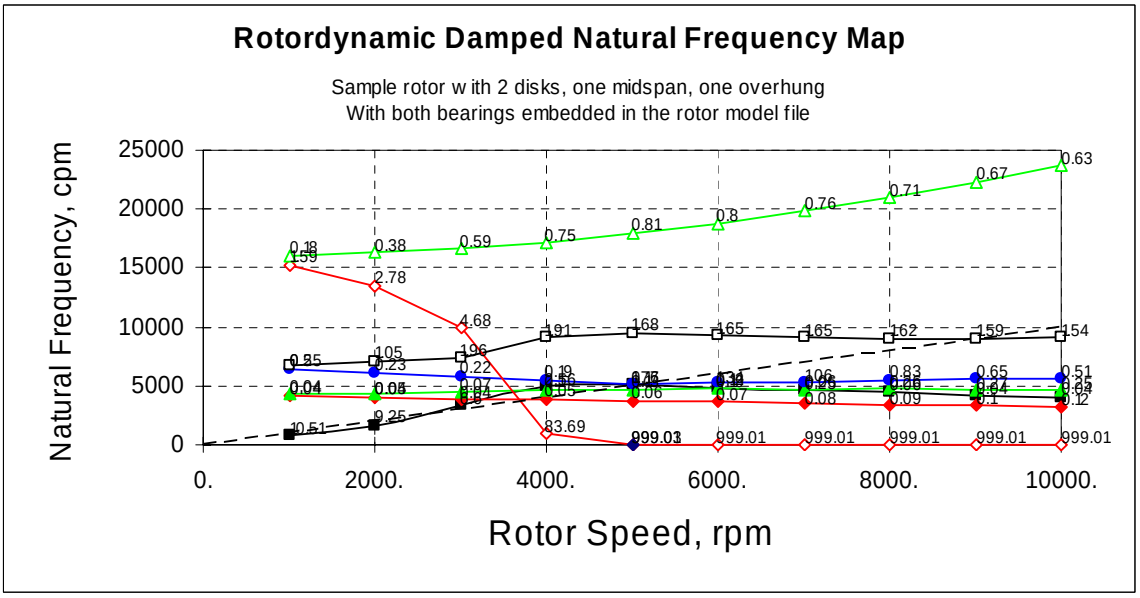
After using a menu command to overlay the bearing stiffness values.



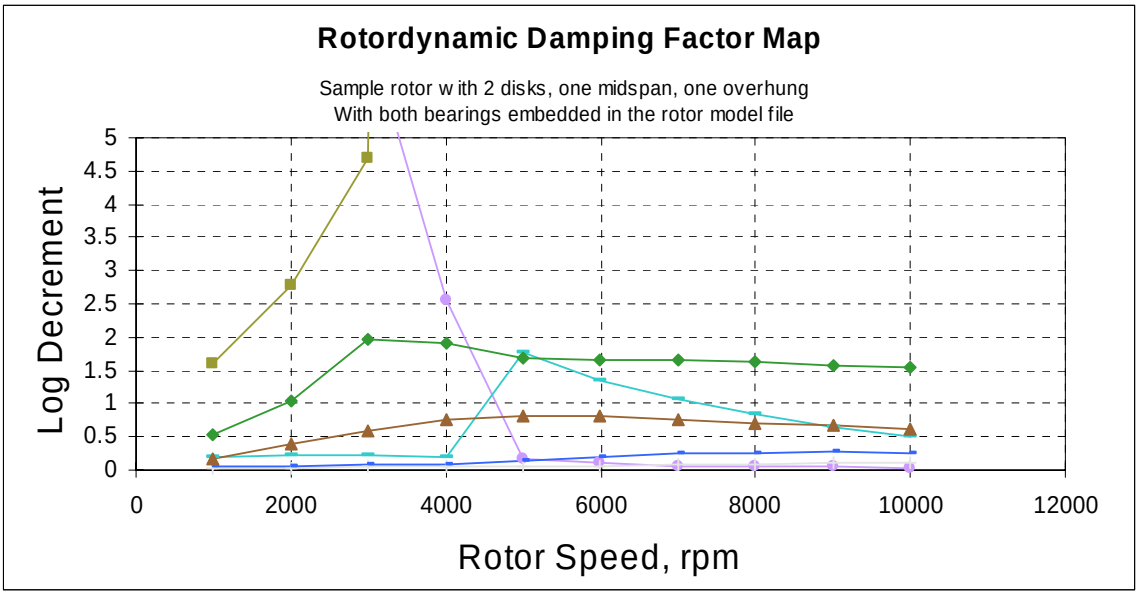
Damped Natural Frequency Map



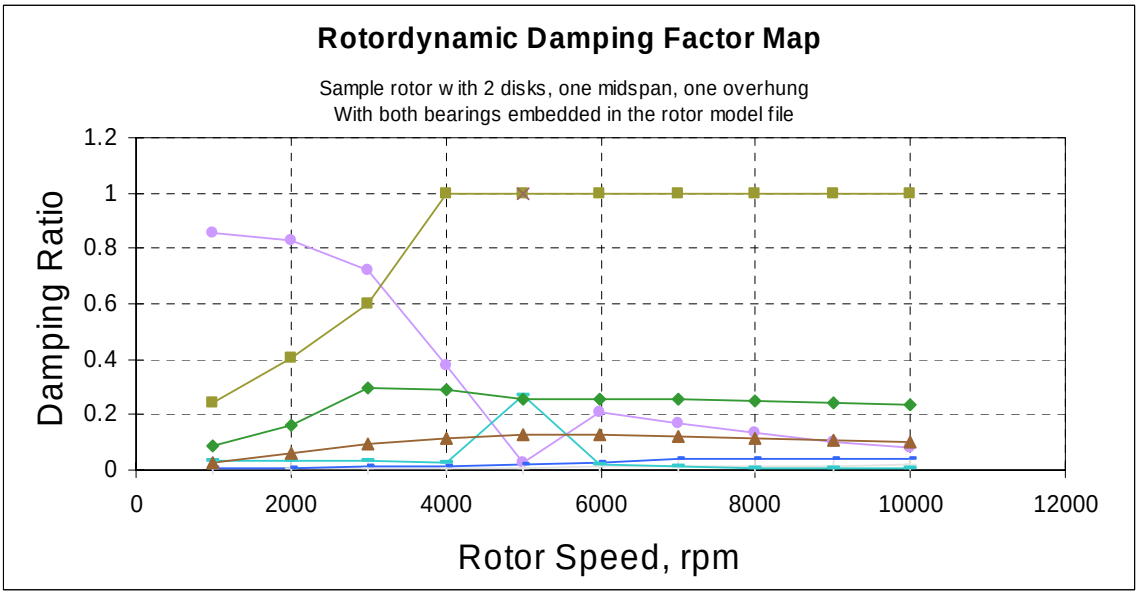
After using menu commands to add a synchronous line and damping ratios.



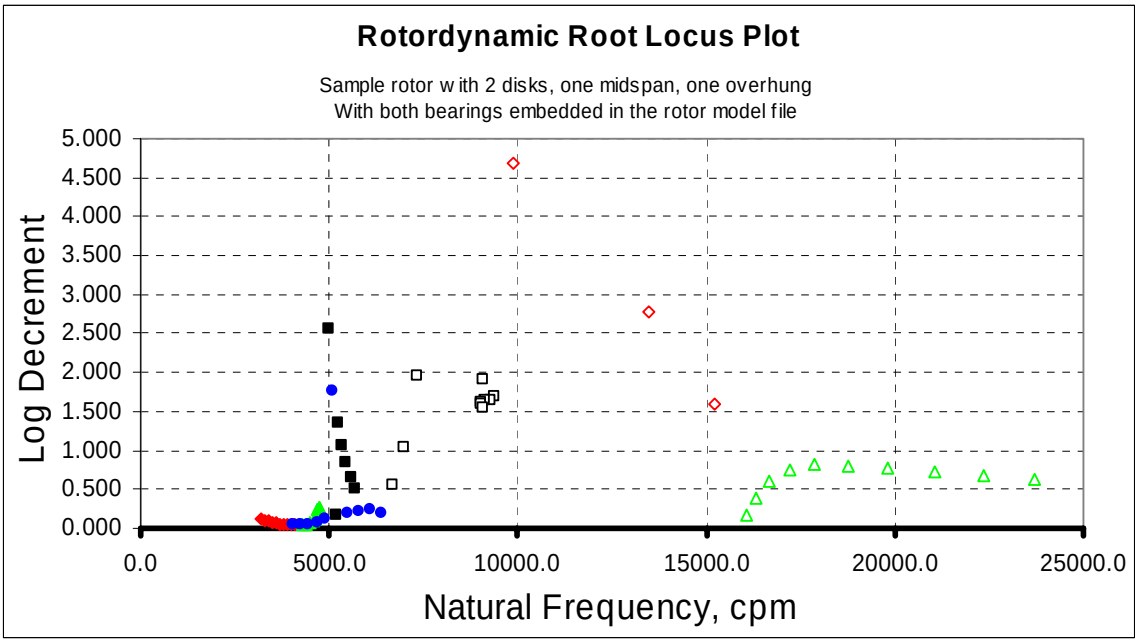
Damping Factor Map



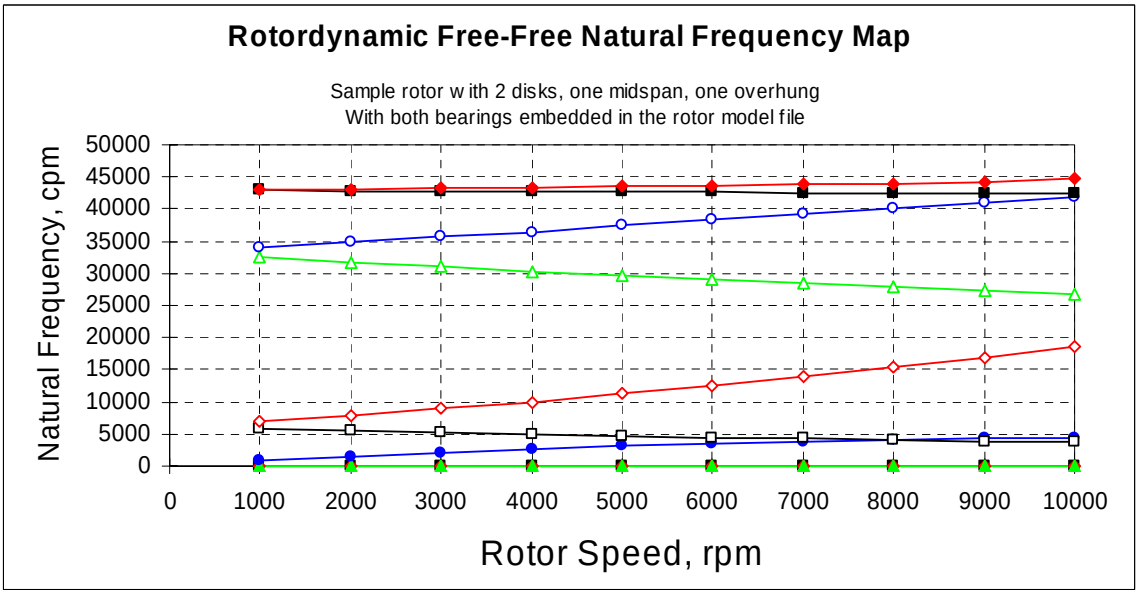
After using a menu command to convert Log Dec to Damping Ratio.



Root Locus Plot

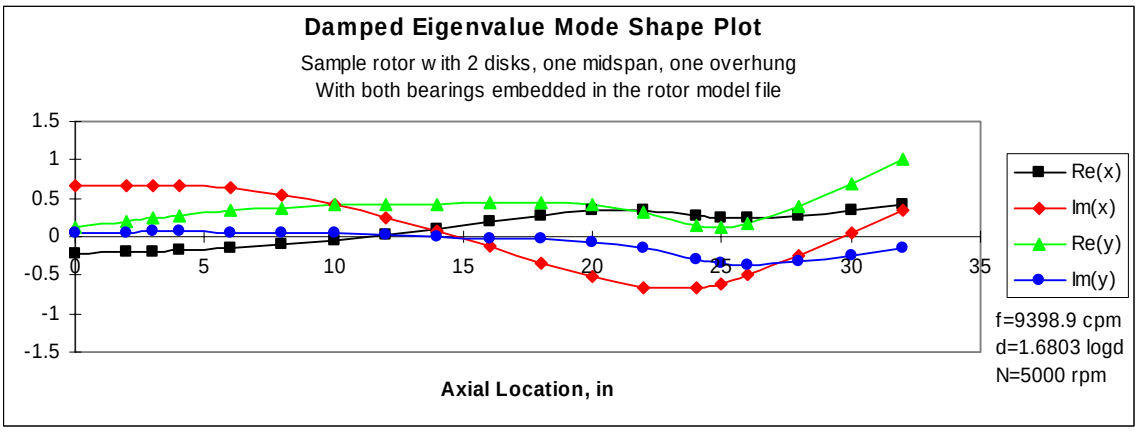


Free-Free Natural Frequency Map (Undamped)



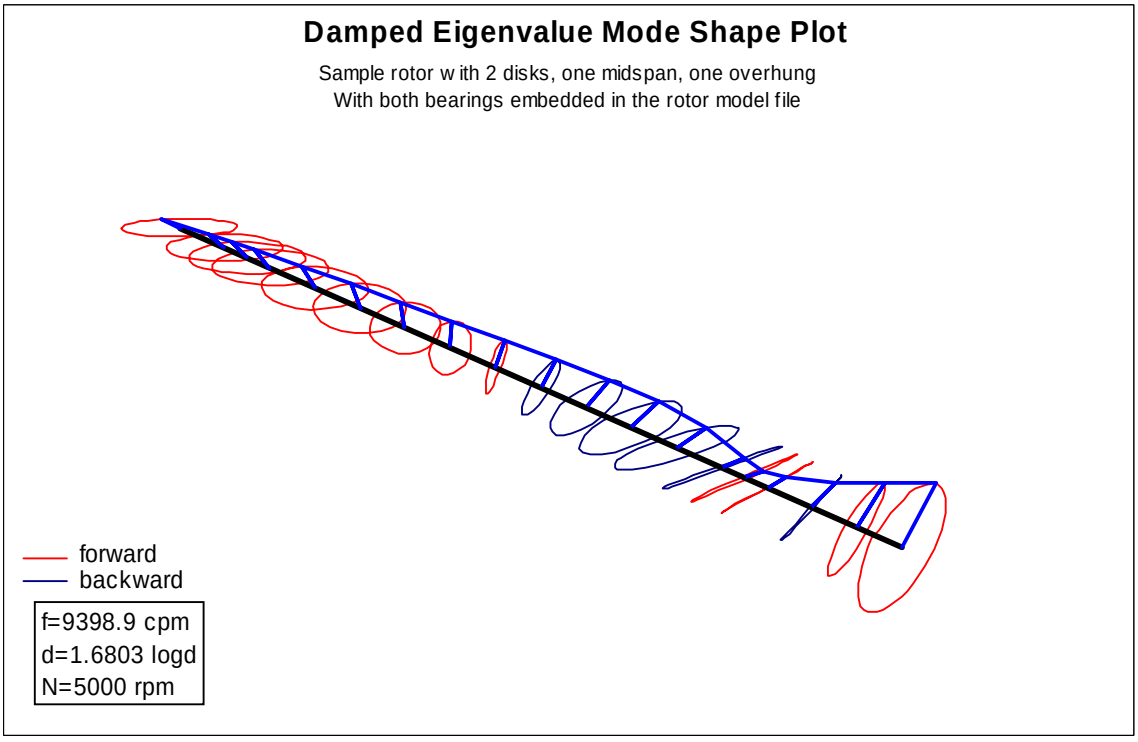
Mode Shape Plots

2 Dimensional Format



The above 2D mode shapes can be animated with a menu command.

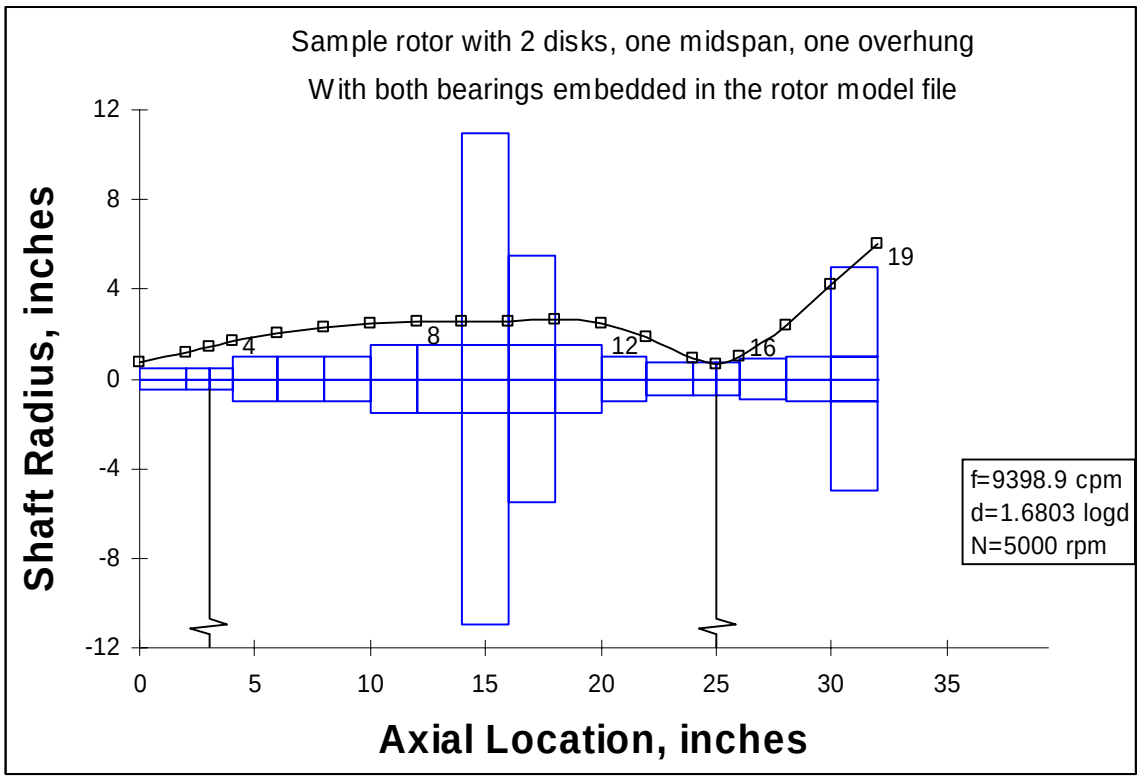
3 Dimensional Format



The above 3D mode shapes can be animated with a menu command.

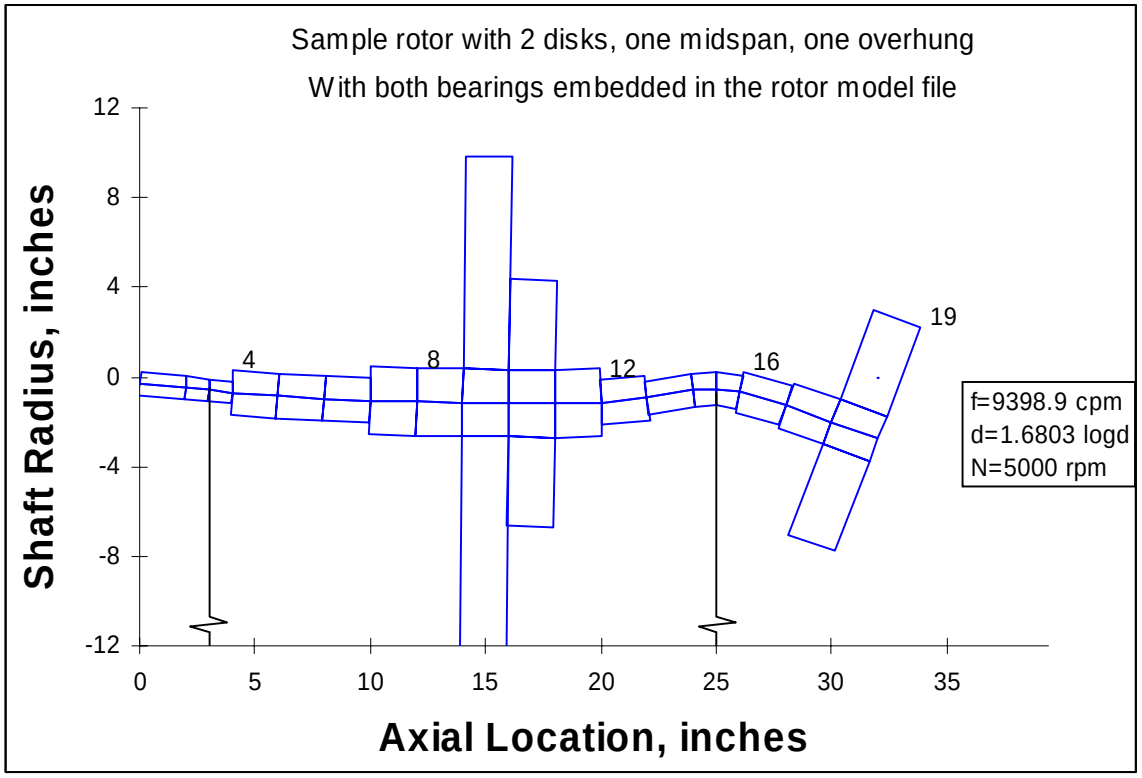
Overlaid on Mode Geometry

After using a menu command to overlay the model geometry on either the 2D or 3D mode shape plot



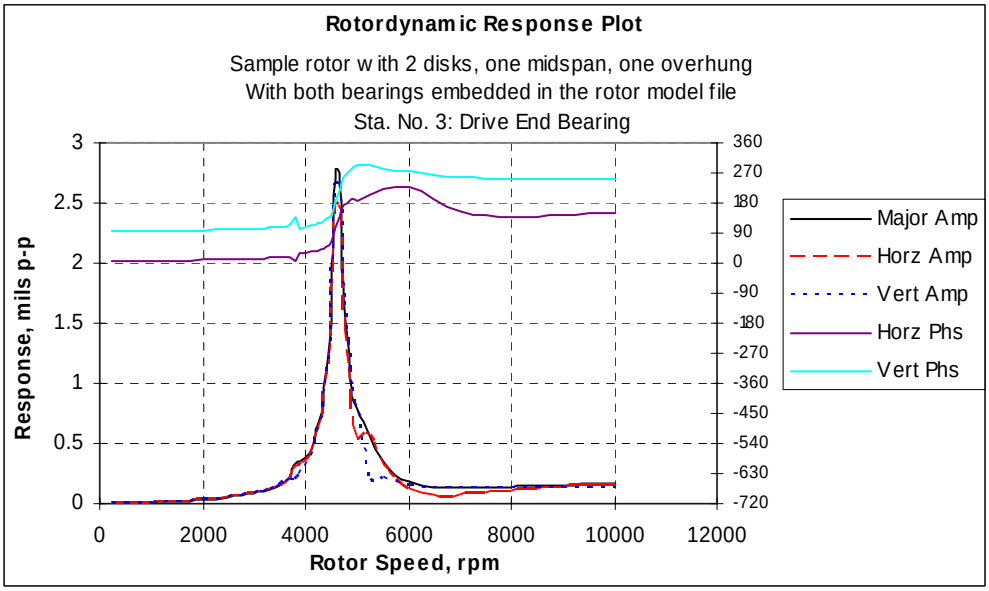
Deformed Geometry Animation

When the Animate Mode Shape menu command is used on a mode shape overlaid on the model geometry, the entire model geometry is animated.



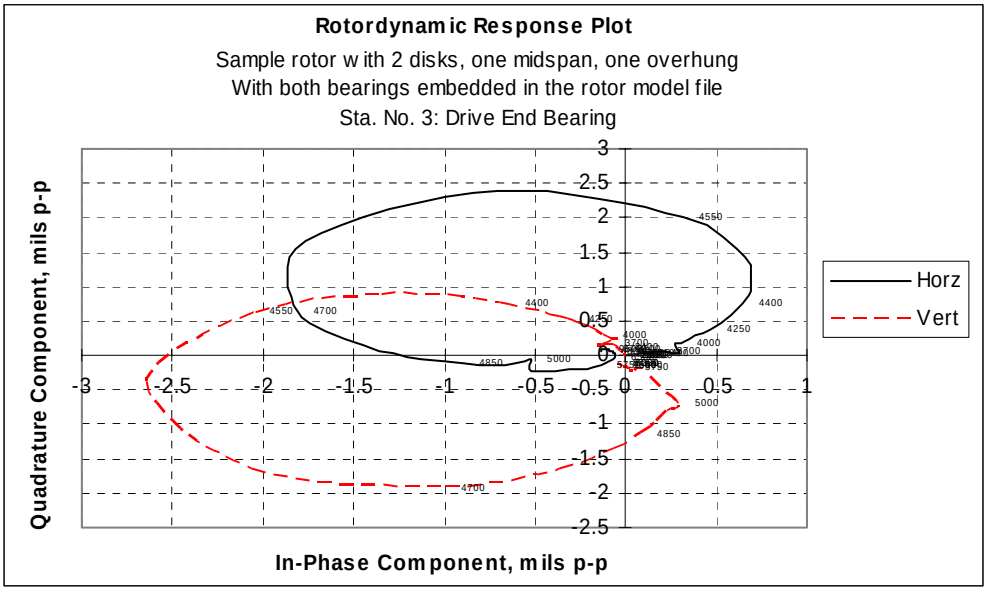
Imbalance Response Displacement Plot

Bode Style



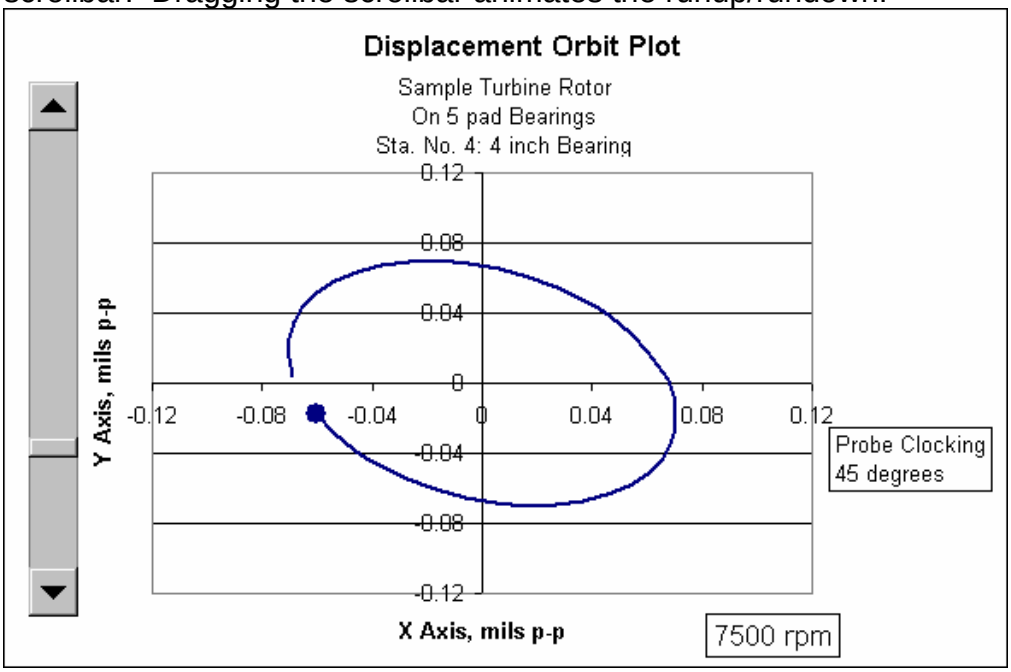
Polar Style

After using a menu command to convert Bode to Polar format



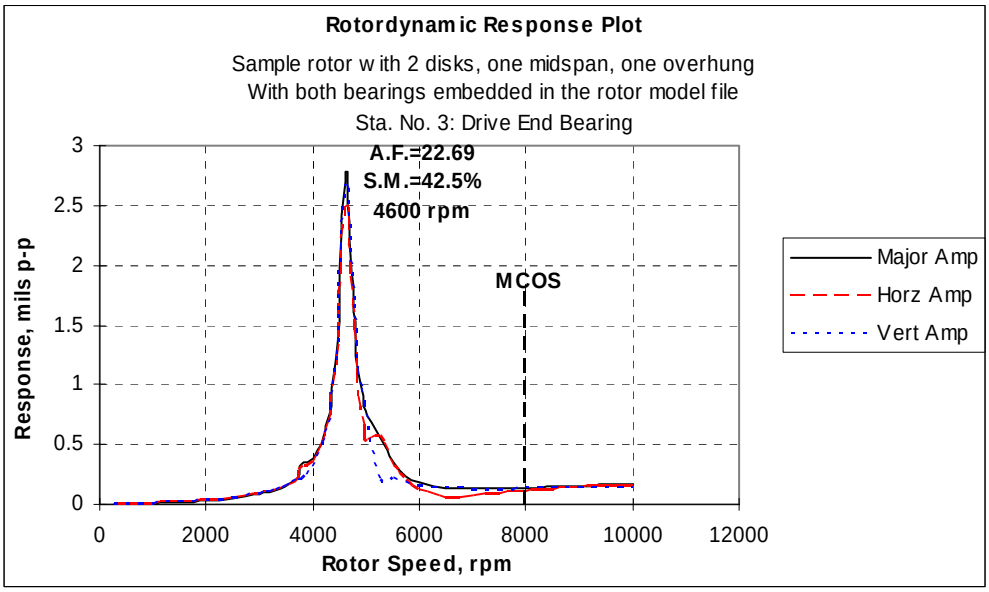
Animated Orbit Plot

After using a menu command to convert the Polar format to an Orbit plot. This plot shows the shaft orbit at one speed. The speed can be changed using the scrollbar. Dragging the scrollbar animates the runup/rundown.

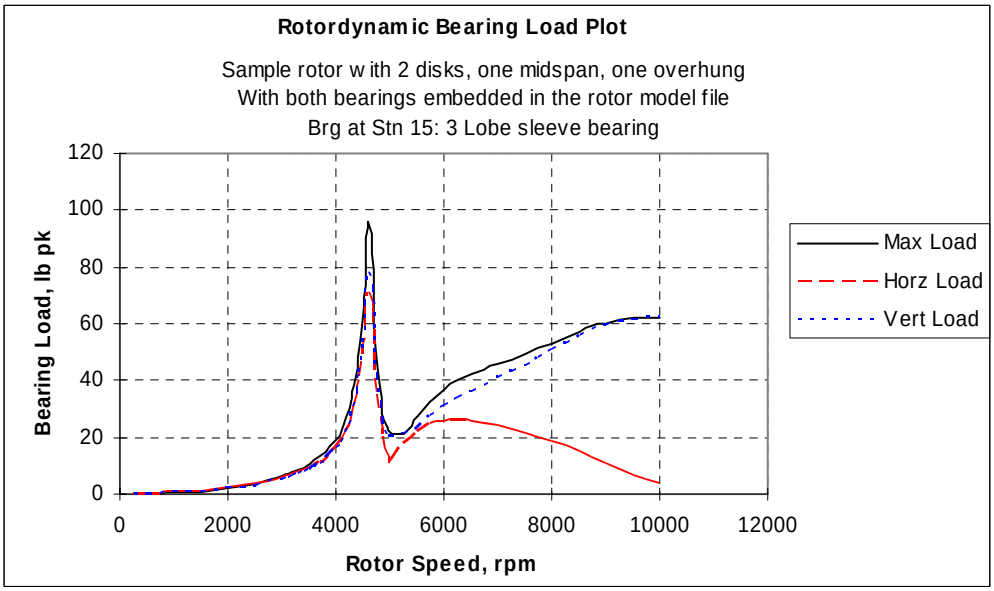


With Labeled Peaks

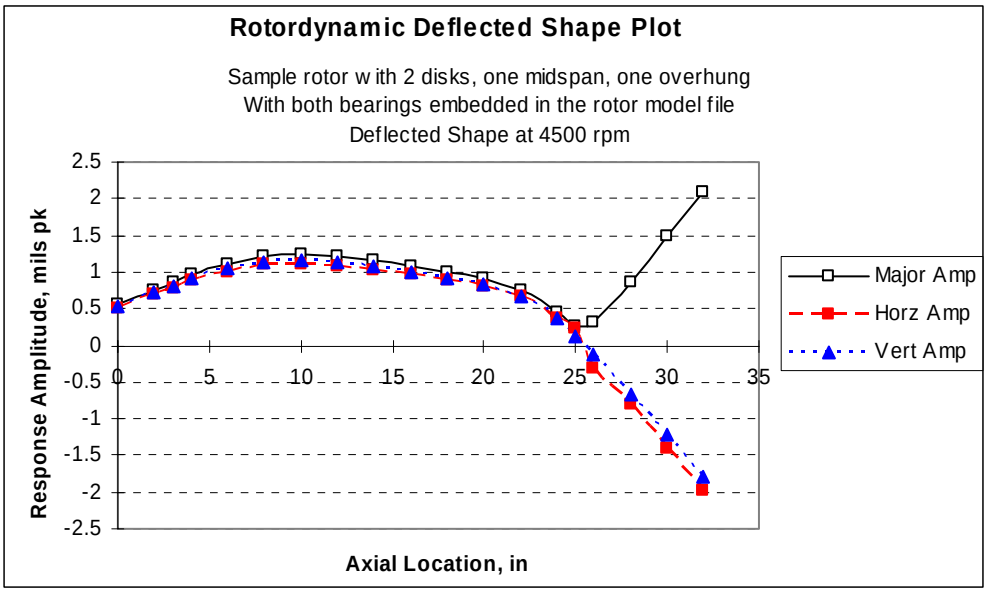
After using a menu command to label a critical speed and show the maximum continuous operating speed (MCOS)



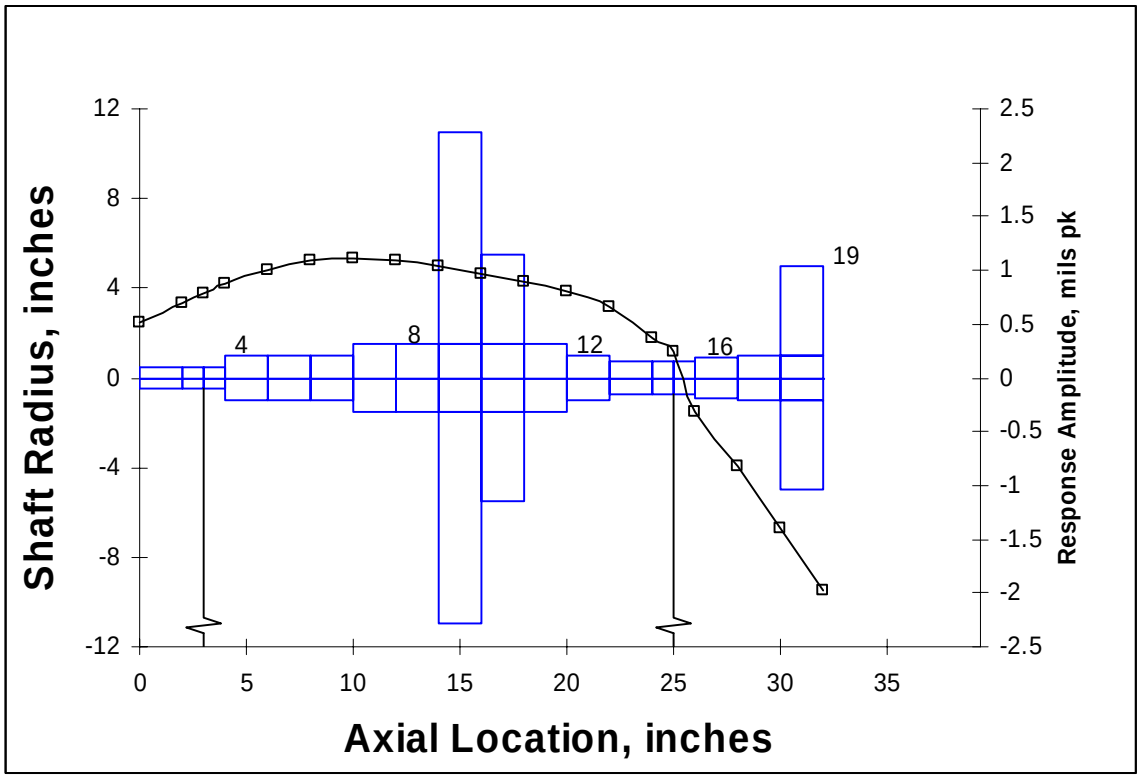
Imbalance Response Bearing Load Plot



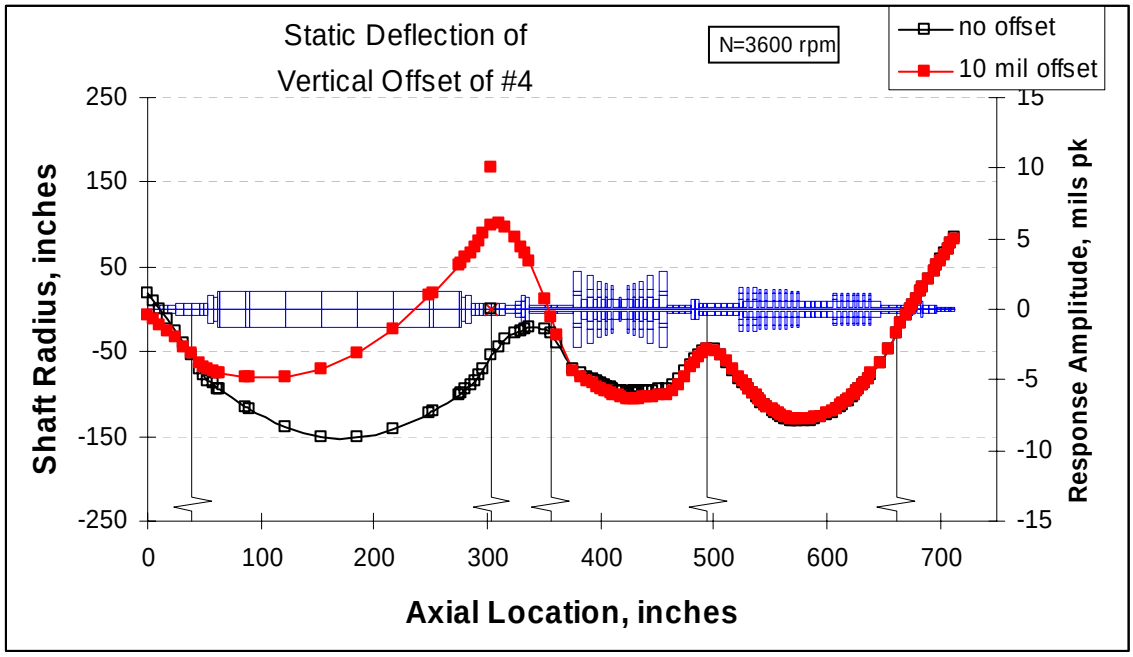
Imbalance Response – Operating Deflected Shape Plot



After using a menu command to overlay the deflected shape on the model geometry.

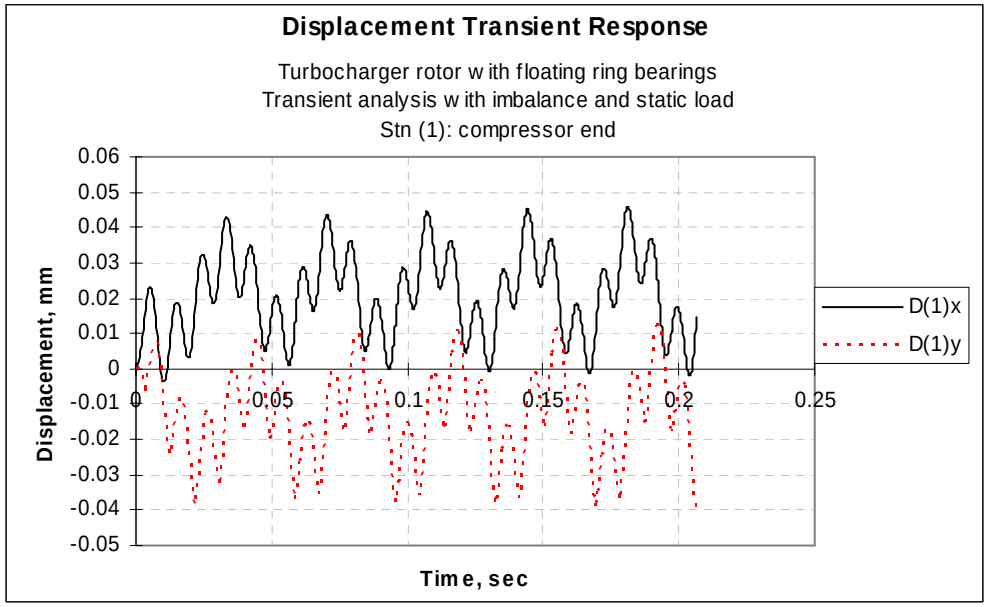


Static Deflection Analysis to Misaligned Bearing



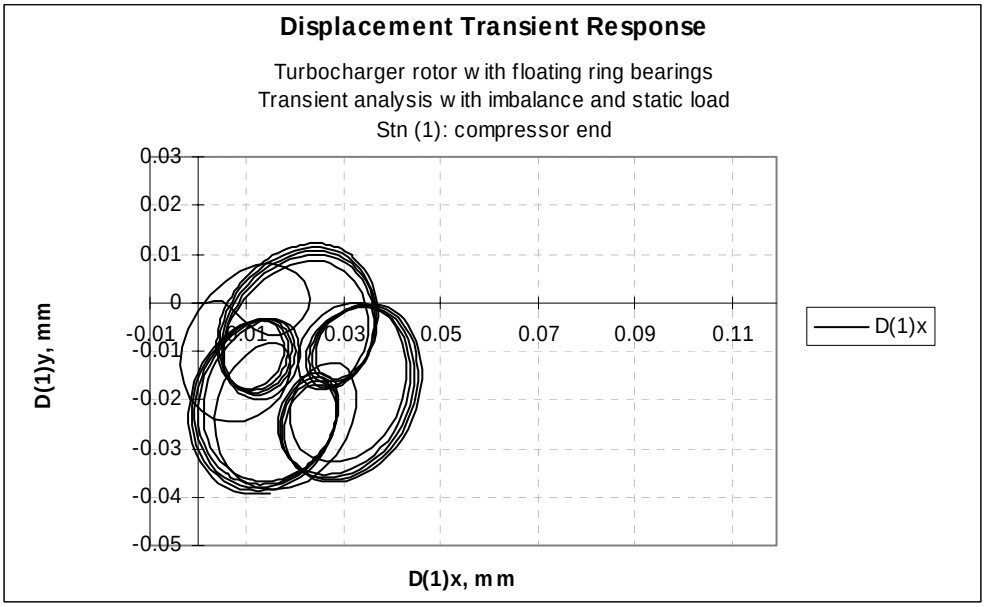
Transient Response Plots

Time History Plot of Displacement



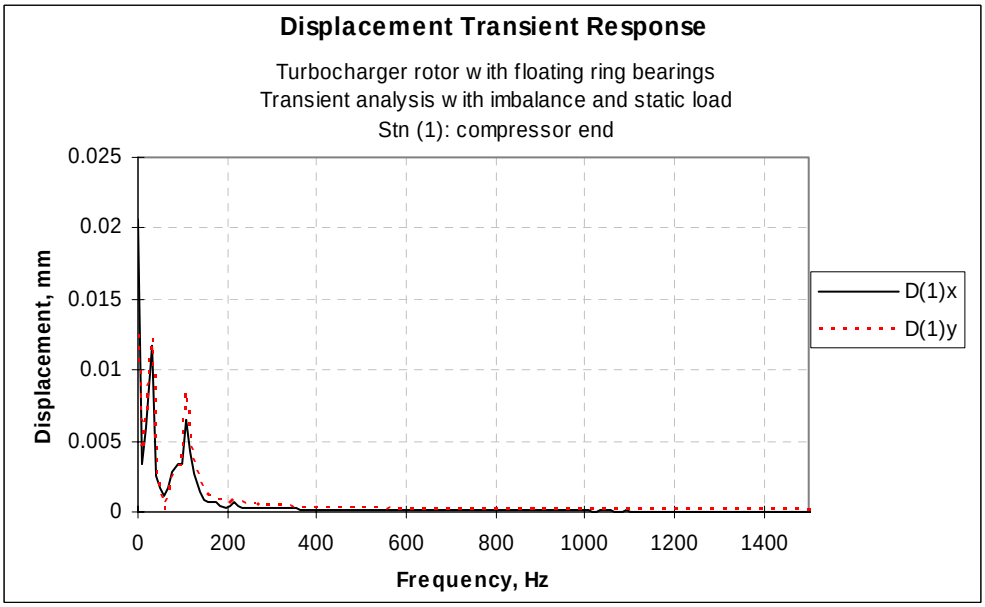
Orbit Plot

After using a menu command to convert the time history plot to an orbit plot.

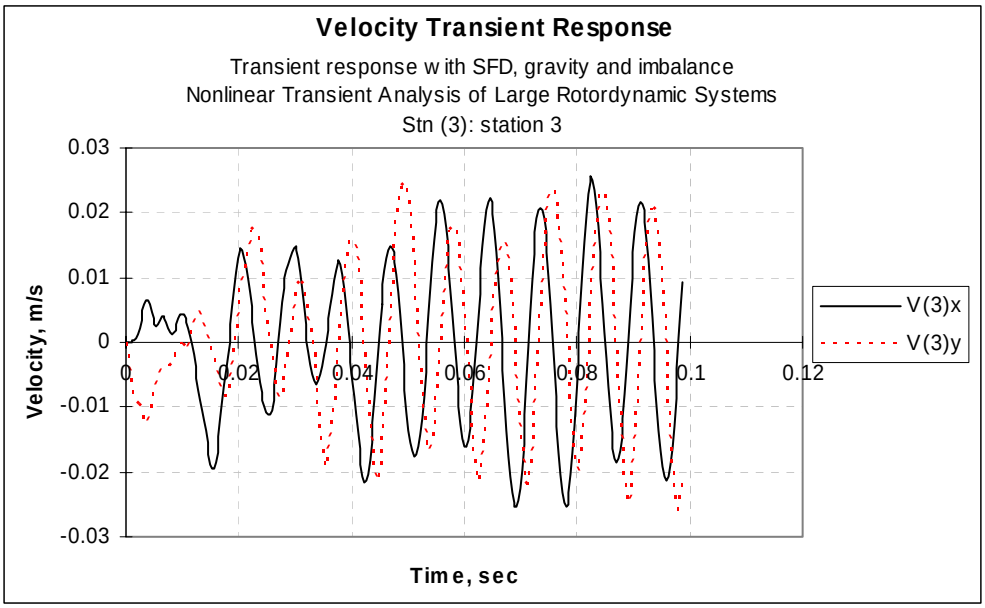


Frequency Spectrum

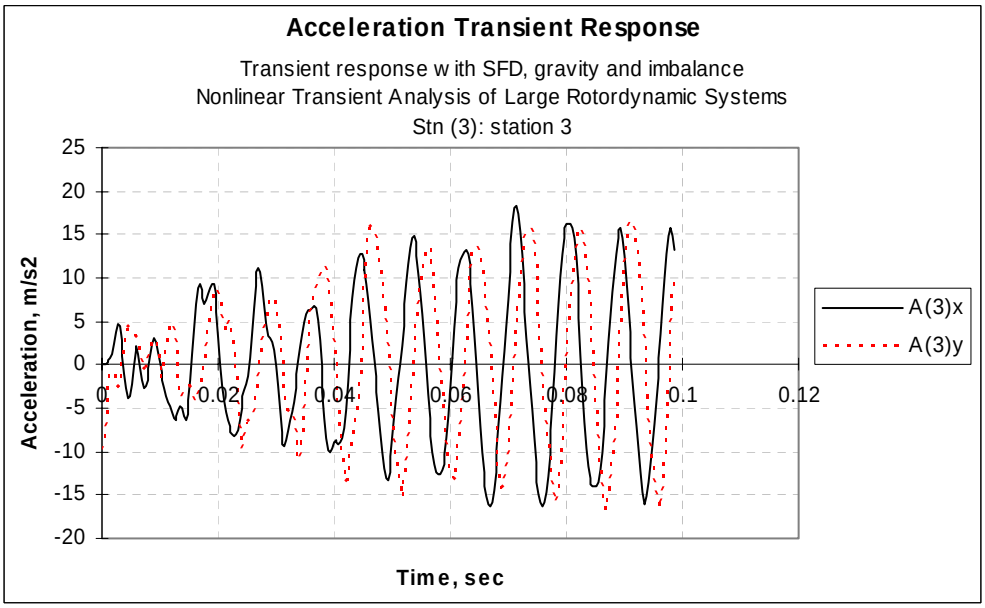
After using a menu command to convert the time history plot to a frequency spectrum.



Velocity Plot

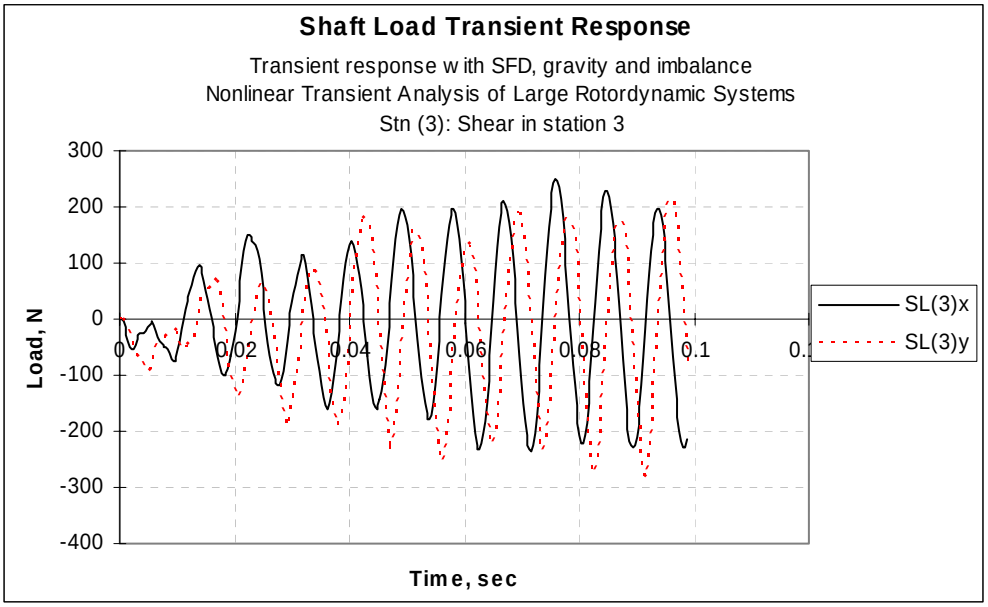


Acceleration Plot

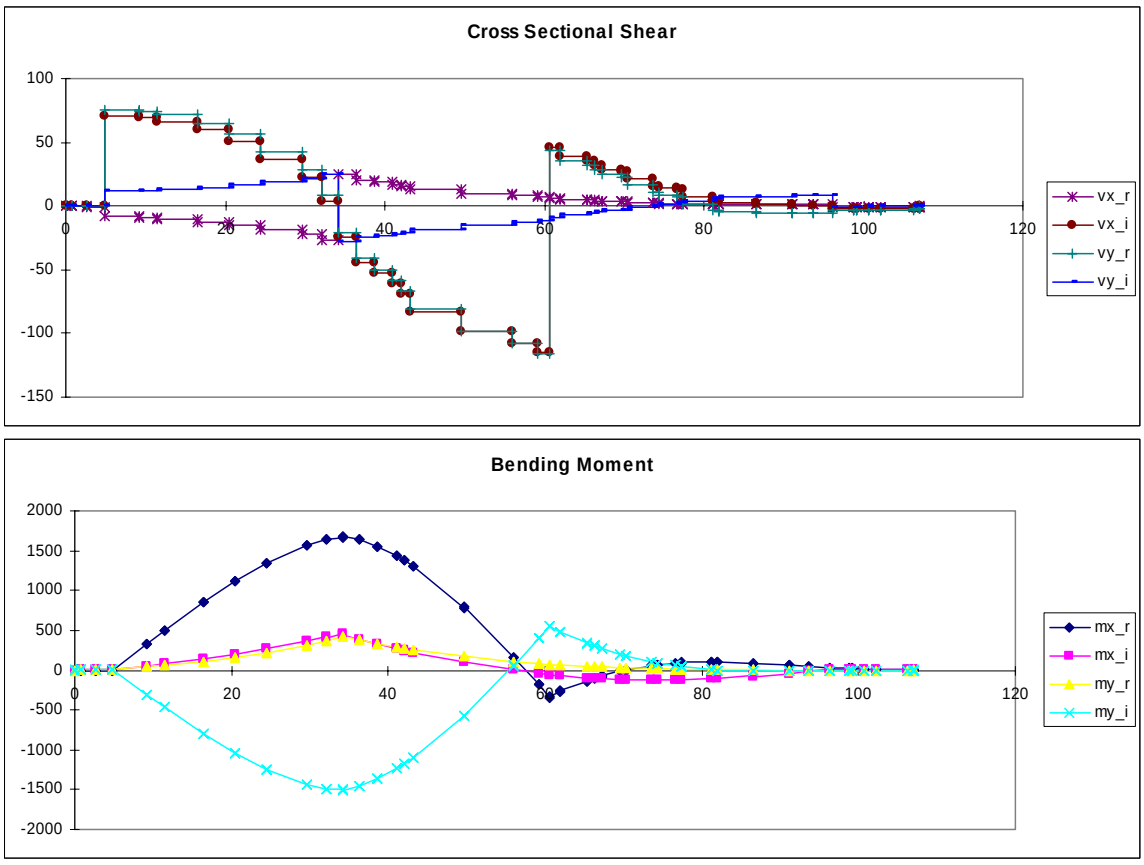


Internal Shaft Load Plot

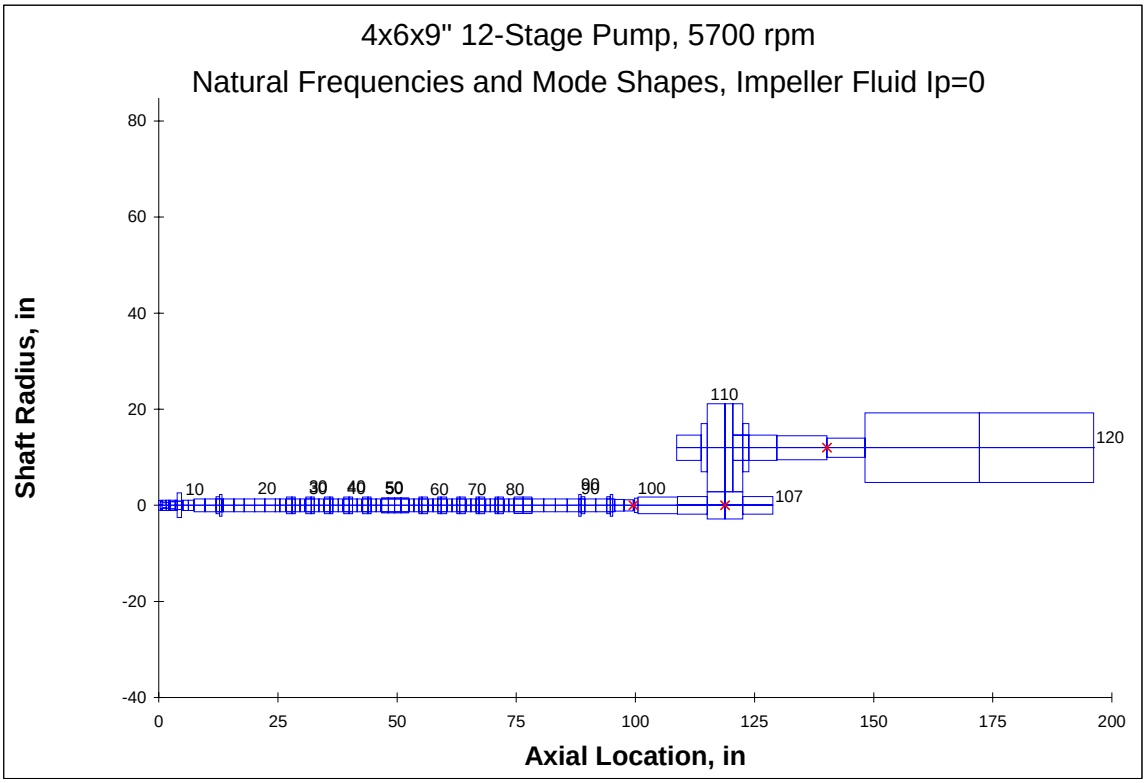
Plots of both shear load and/or bending moment can be generated.



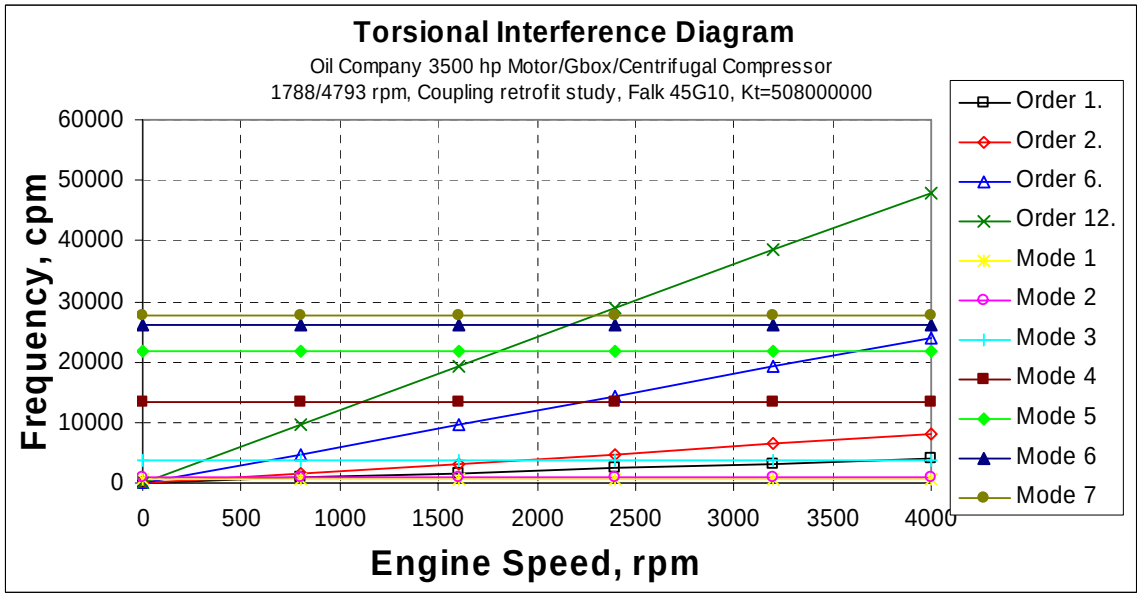
Shear and Bending Moment Diagrams



Torsional Model Geometry

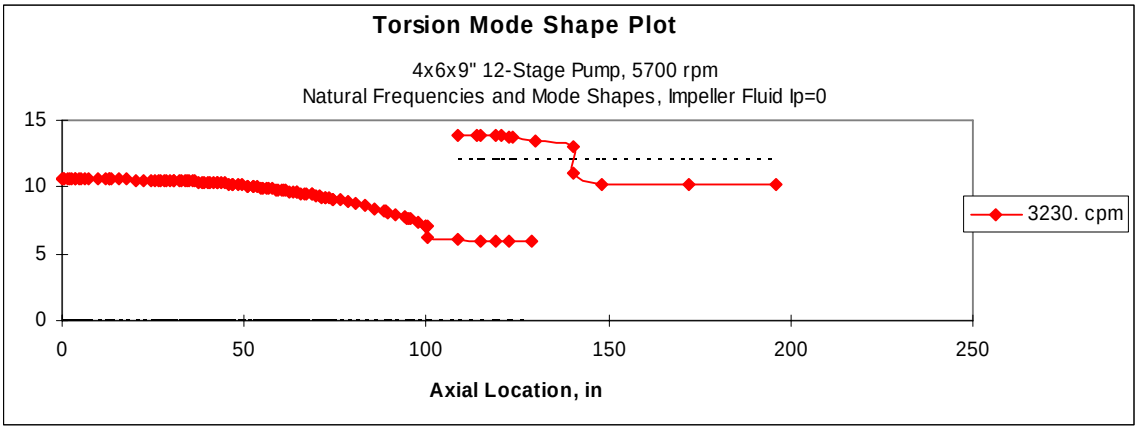


Torsional Interference Diagram (Campbell)



Torsional Mode Shape Chart

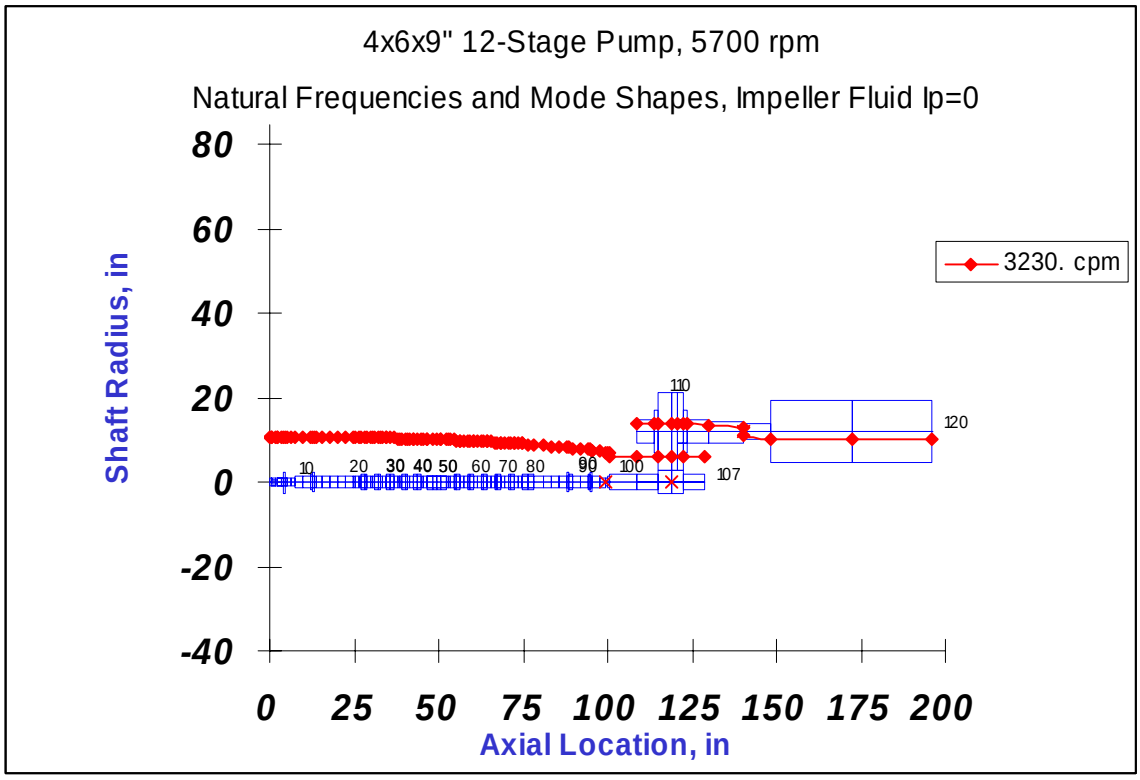
2D Dimensional Format



The above chart can be animated by with the Animate Mode Shape menu command. The above chart can also contain multiple mode shapes.

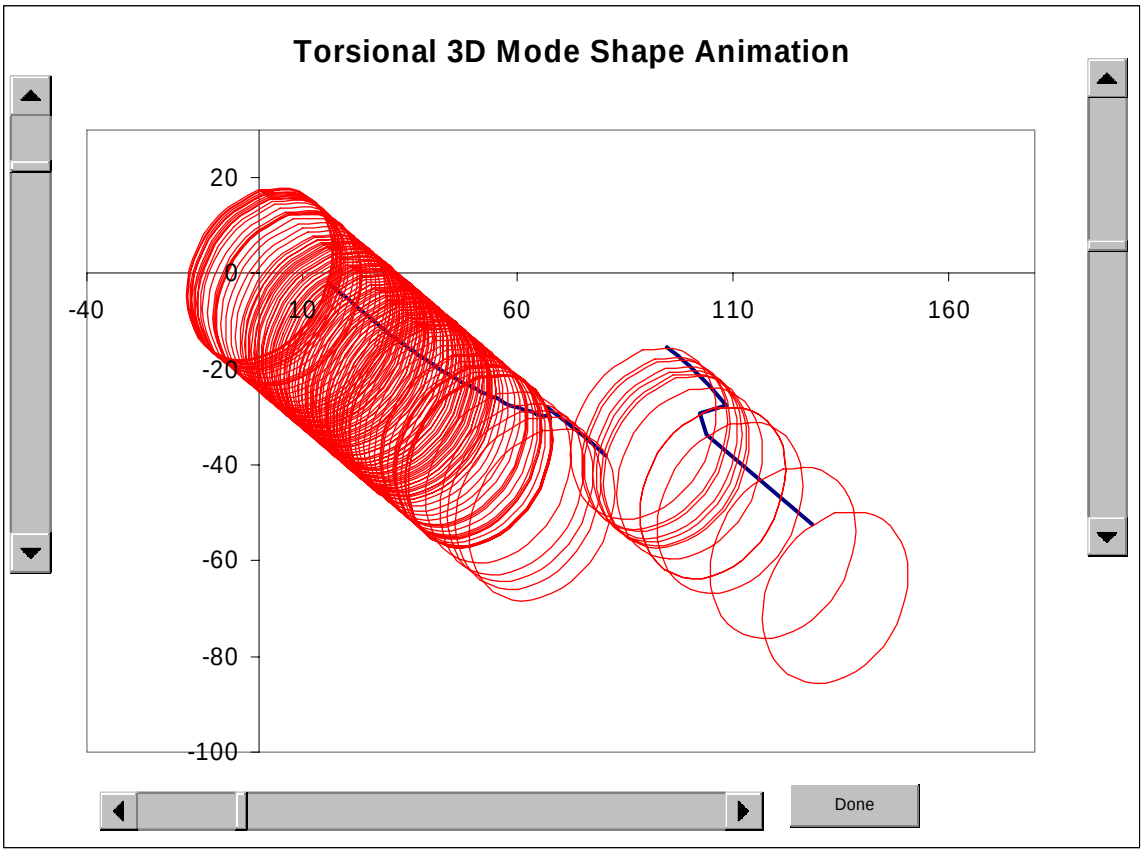
Overlaid on Model Geometry

After using a menu command to overlay the model geometry on the mode shape.



3D Animation

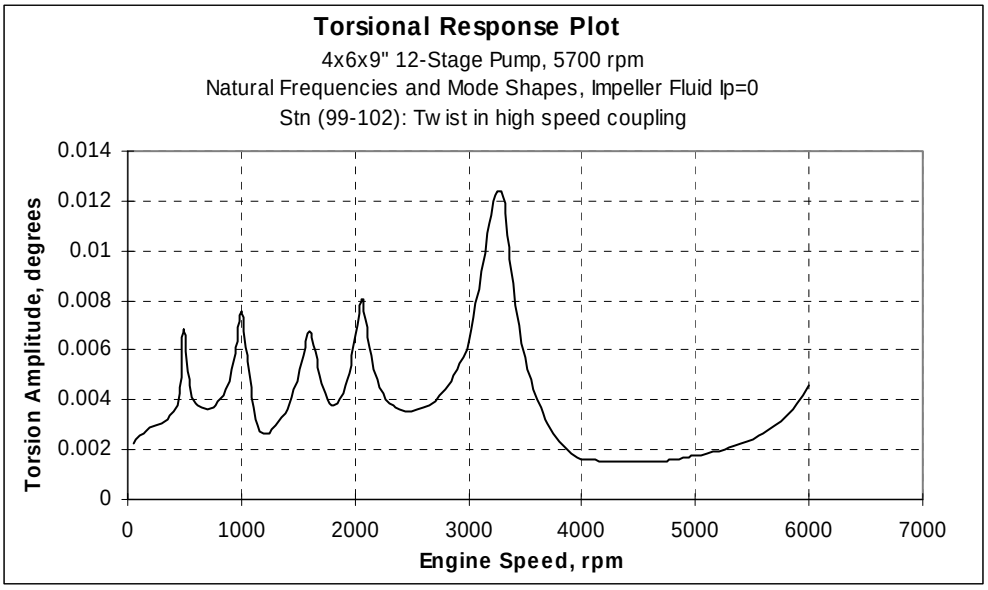
The Animate Mode Shape menu command can also be used to produce a 3D animation of a torsional mode shape. The left scroll bars plays the animation. The bottom scroll bar pivots the display about the y axis. The right scroll bar pivots the display about the x axis.



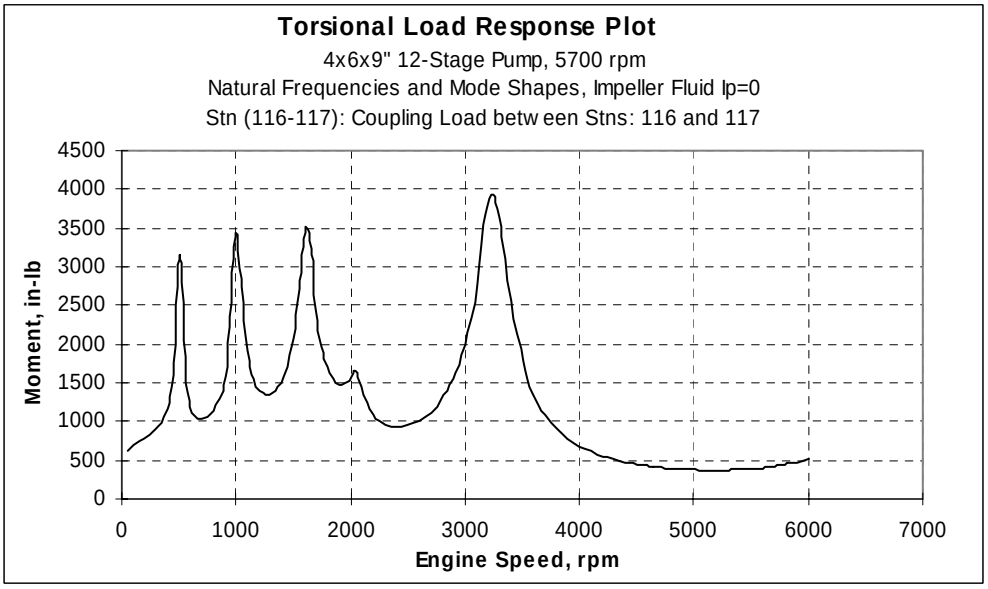
Linear Torsional Response to Engine Orders

Shaft Twist Response

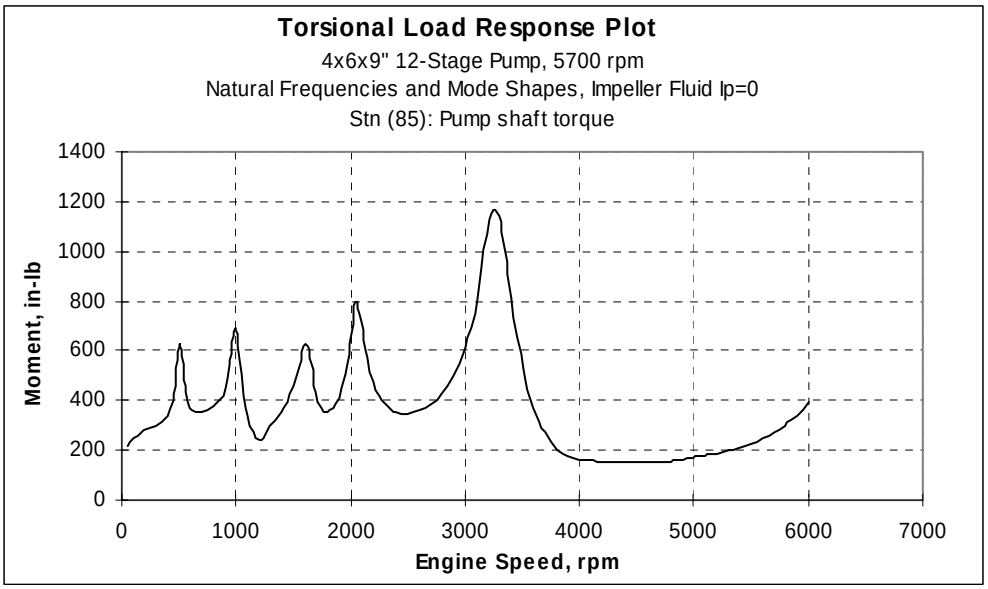
Both relative and absolute angles can be output.



Coupling Load Torque Response

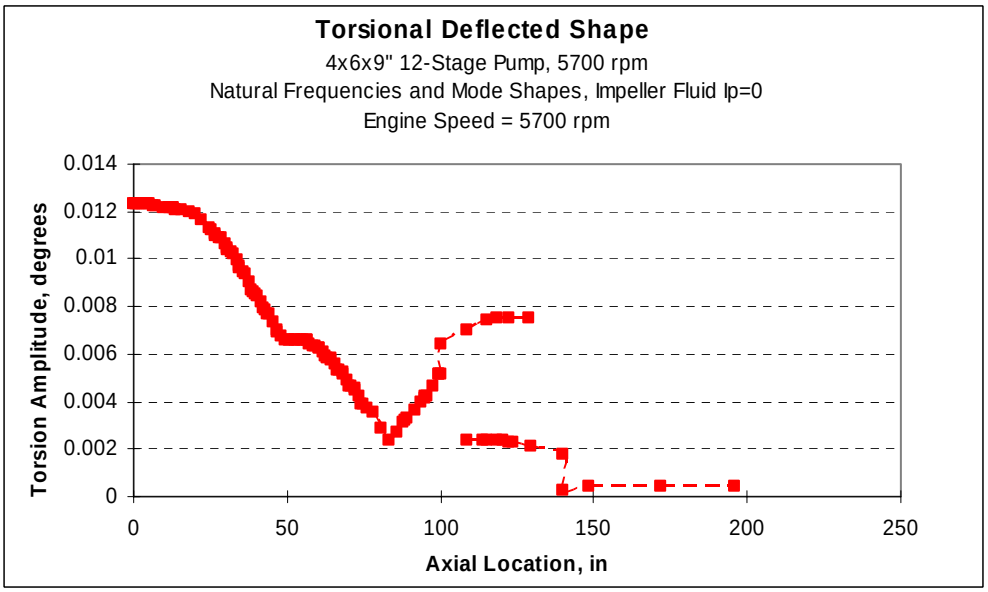


Shaft Torque Response



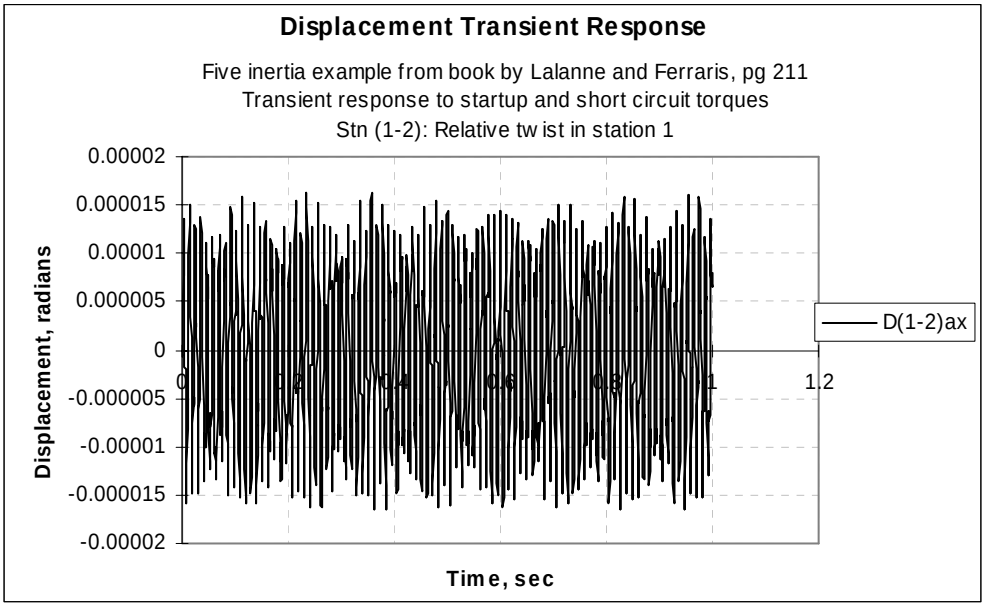
Operating Deflected Shape

All harmonics are summed and displayed as absolute values.



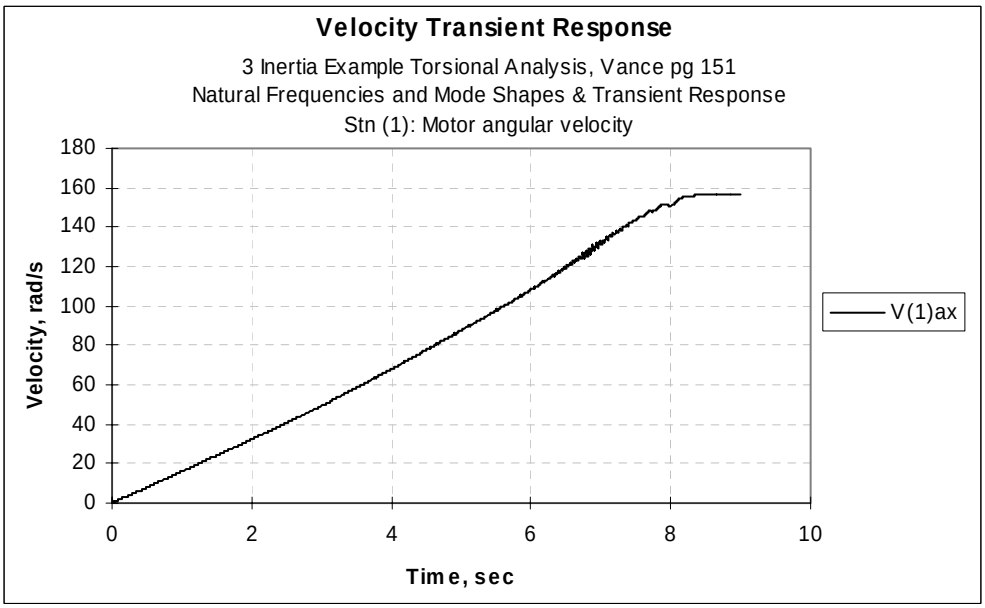
Torsional Transient Response Plots

Shaft Twist.



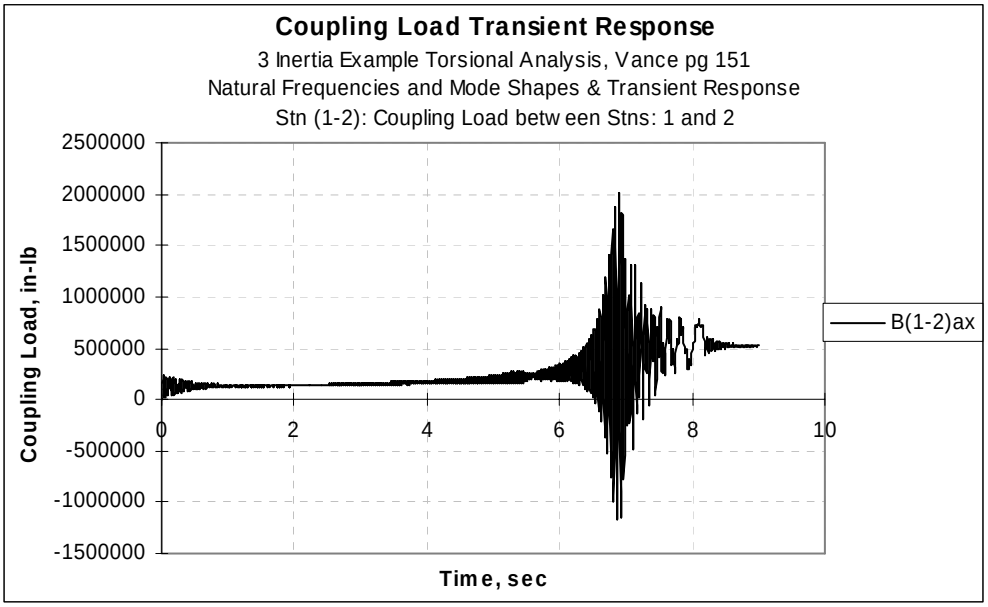
Shaft Angular Velocity

This sample plot shows the machine train accelerating up to rated speed.



Coupling Load Torque

This plot show the torque transmitted in a coupling.



Applied Nonlinear Torques

This example plot shows two nonlinear load components which are being applied at the same station. One is the nominal motor drive torque, the other is a pulsating component of motor torque due to slippage.