ABSTRACT

Modeling of a Lathe Chuck for Turning Aluminum Wheels Using Dynamic Designer for SolidWorks

Rotary Actuator Sizing and Load Export to COSMOS/Works for FEA

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The purpose of this project was to run a dynamic simulation of a lathe chuck used for turning aluminum wheels, export the resulting loads to COSMOS/Works, and perform a FE analysis on select components. Also of interest was the sizing of a rotary actuator needed to provide sufficient clamp force on the wheel while rotating at 2800 to 3000 rpm.

The following are the highlights in the process:

- Created dynamic model of lathe chuck in Dynamic Designer 2.0 for SolidWorks.
- Exported component loads to COSMOS/Works 4.0
- Performed FE analysis on select components using COSMOS/Works
  - maximum stress
- Sized rotary actuator needed for providing sufficient clamp force