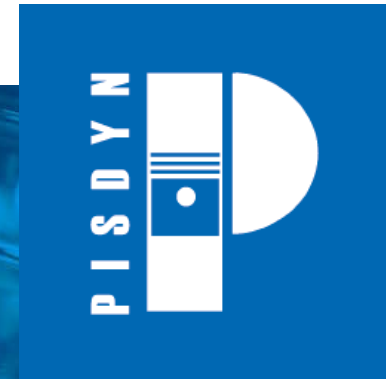
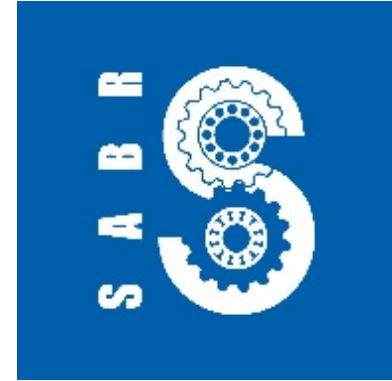


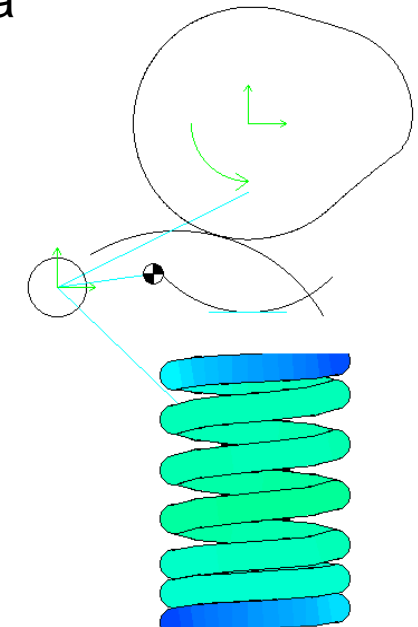
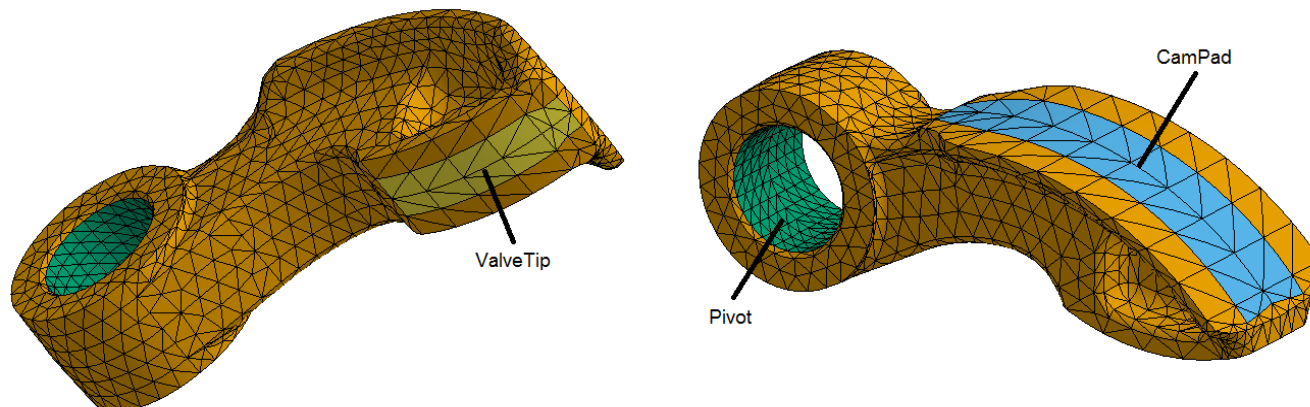
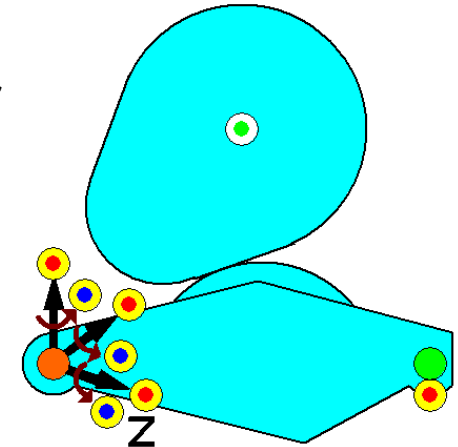
# Mechanical Suite 2018.1 New Features



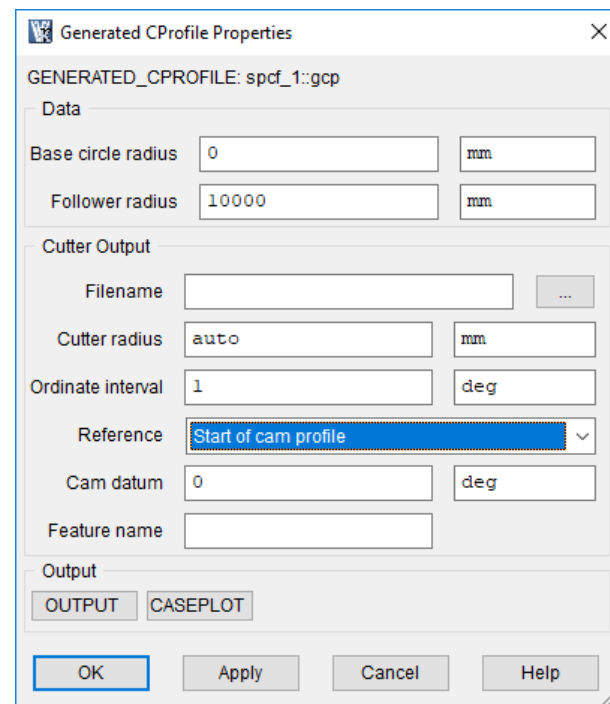
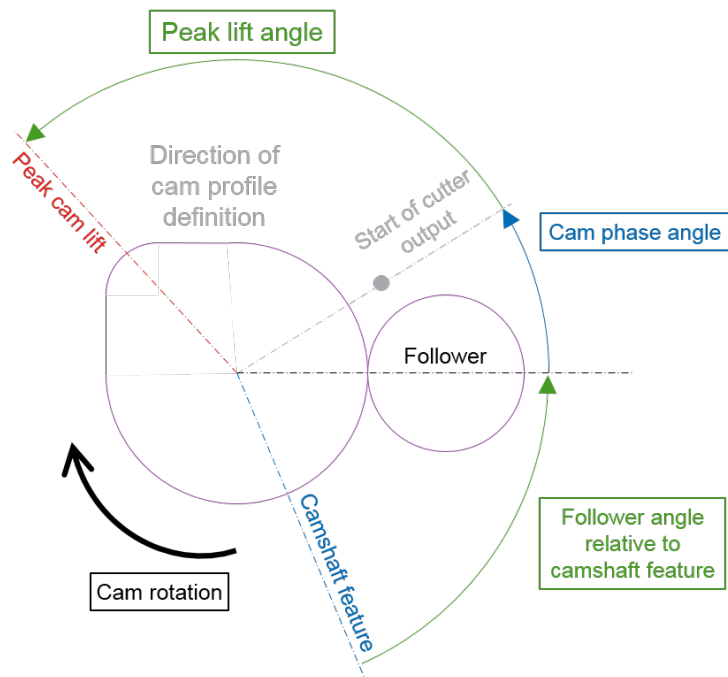
capability and usability



- Enhanced Swinging Follower element (VRFOLLOWER\_V2) with integrated DYNAMICBODY FE model offering a number of advantages over existing VRFOLLOWER element
  - The modes of the follower, derived from the supplied FE model, are included in the VALDYN solution
  - For pad followers the contact between the follower, cam and valve tip are modelled using flexible lamina
  - The need to calculate equivalent stiffness and mass from a static FE analysis is no longer required

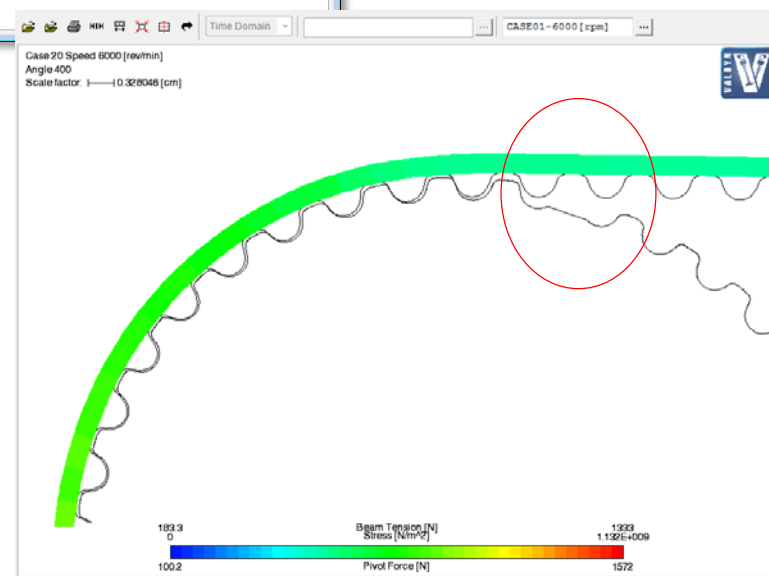
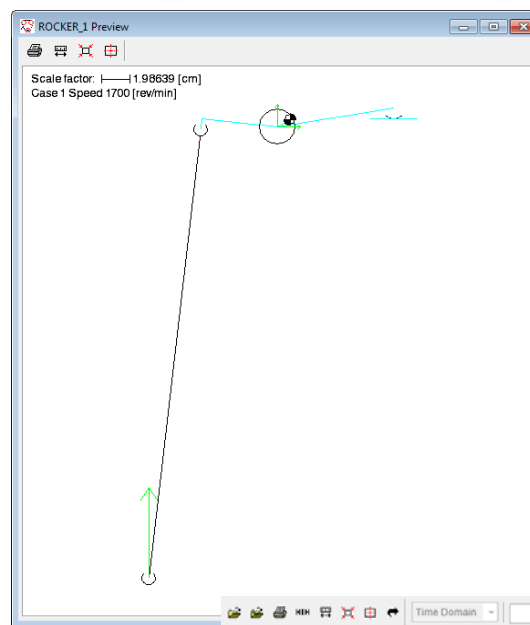


- Updated Generated Cam Profile output
  - The cutter output can be written w.r.t. to a given Reference
    - Peak cam lift, or
    - Start of Cam profile with supplied Cam datum and Feature name
- Distortion Angle for Swinging Follower is written to VALKIN.out file
- Update the Swinging Follower design guidelines



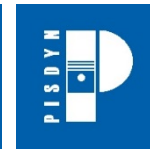


- 2D Visualization of objects
  - 2D Preview enables rapid verification of the intended geometry
    - ROCKER and PUSHROD objects are now supported
  
- Non-circular PULLEY can now be defined using geometry of the whole pulley
  - Definition using scanned geometry may be more convenient
  - Figure shows example with broken tooth

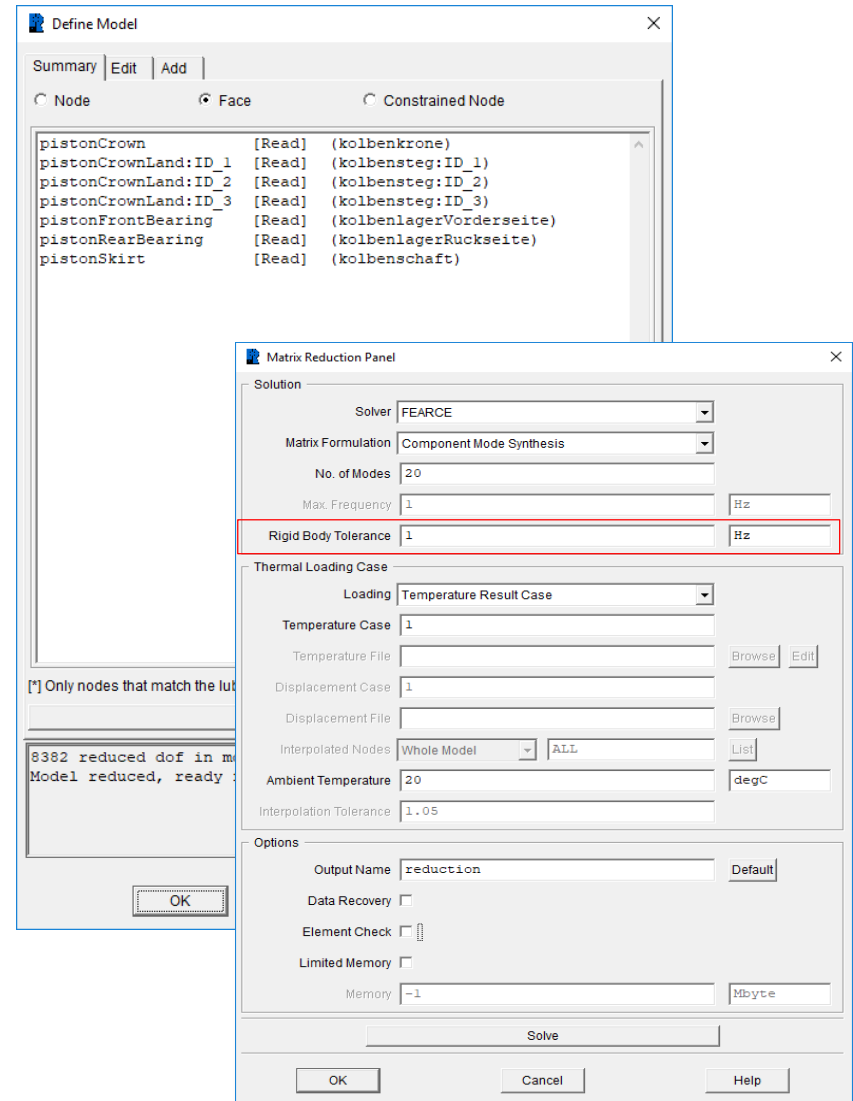


# Mechanical Suite 2018.1

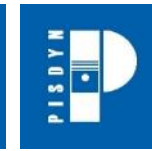
usability



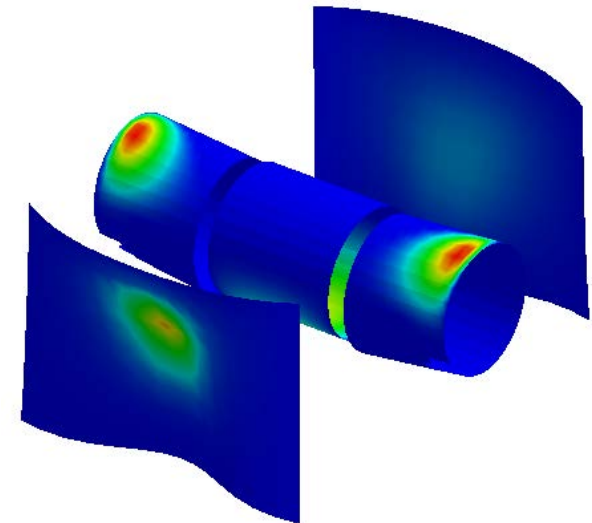
- User-defined sets when defining reduced models of flexible components
  - Allows users to adopt their own naming convention for parts of a model
    - Figure shows use of German language
- User-defined rigid body tolerance for dynamic models
  - Resolves problems where a given reduced model doesn't have zero rigid body modes as it should



capability and speed



- *PISDYN - Dynamics (Flexible Bearings, Pin and Conrod)* solver introduced in 2016.1.
  - A number of fixes has resulted in significantly improved robustness of this solver for models with multiple EHL interfaces
- PISDYN + ENGDYN
  - Significant speed up of EHL static solutions
    - Up to 10 times speed improvement dependent on size of mesh and number of reduced DOF

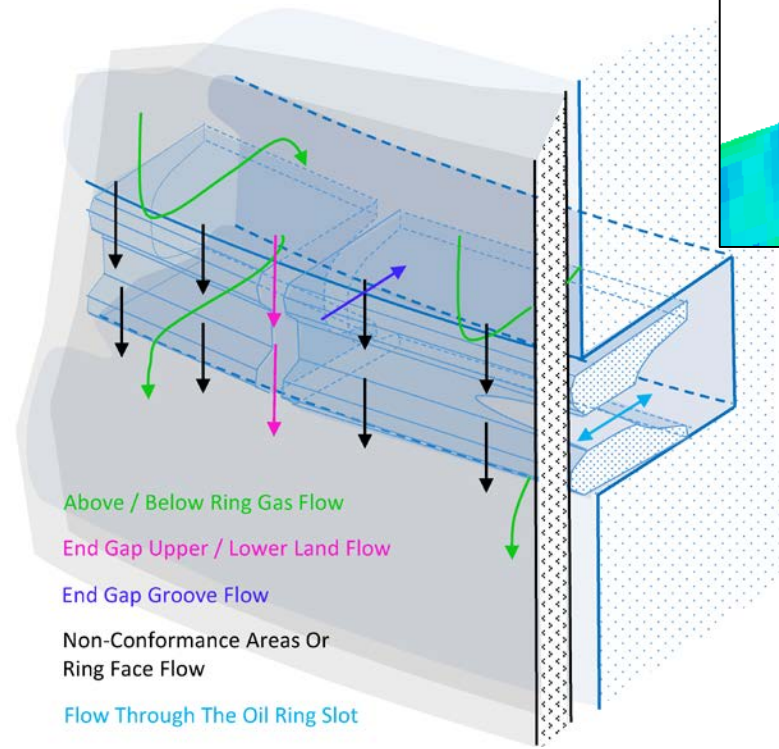
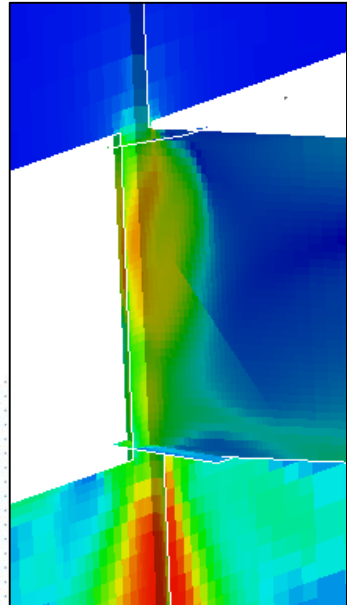


# Mechanical Suite 2018.1

usability and flexibility



- Enhanced End Gap Gas Dynamics
  - Y-Junction physics with coupled thermal balance solution
  - Developed using VECTIS
  - Improved blow-by and 2<sup>nd</sup> Land pressure predictions

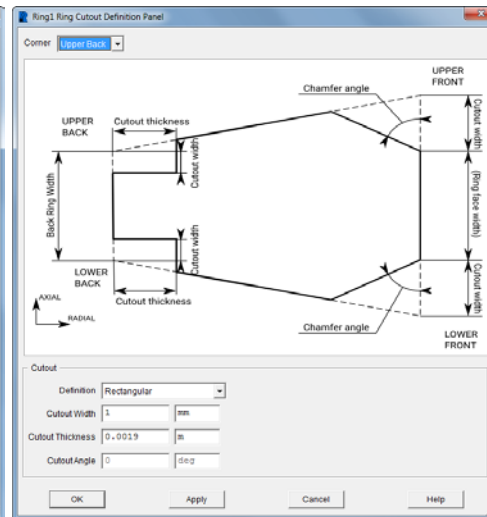
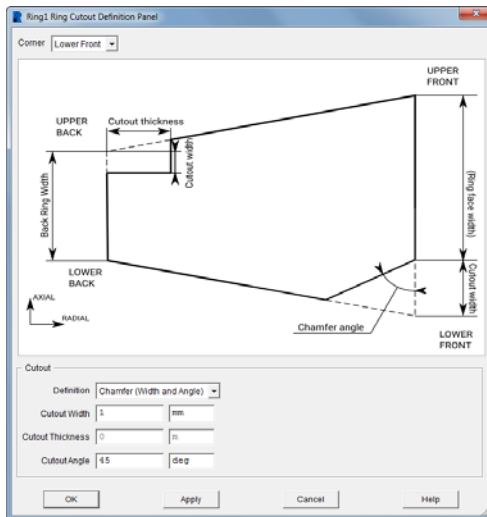
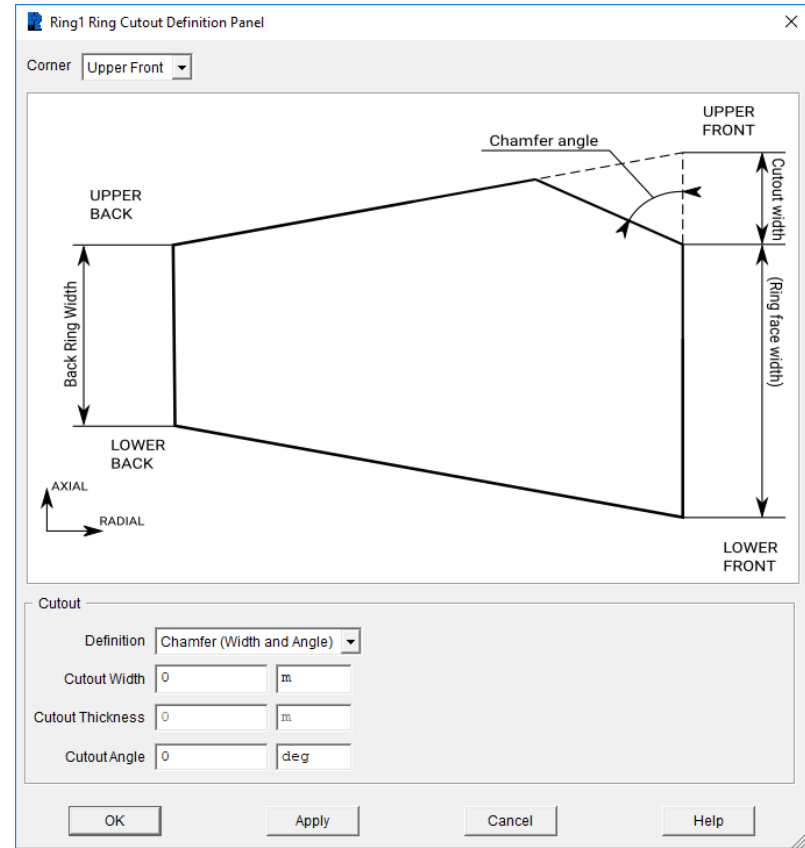


Above / Below Ring Gas Flow  
End Gap Upper / Lower Land Flow  
End Gap Groove Flow  
Non-Conformance Areas Or Ring Face Flow  
Flow Through The Oil Ring Slot

capability and usability



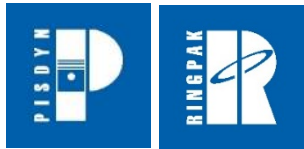
- Compression ring with chamfer cut-out enabling
  - Keystone ring with flats to be modelled correctly
  - Parametric studies
- Improved visualization of the cut-outs
  - Directly visible showing chamfer and rectangular cut-outs



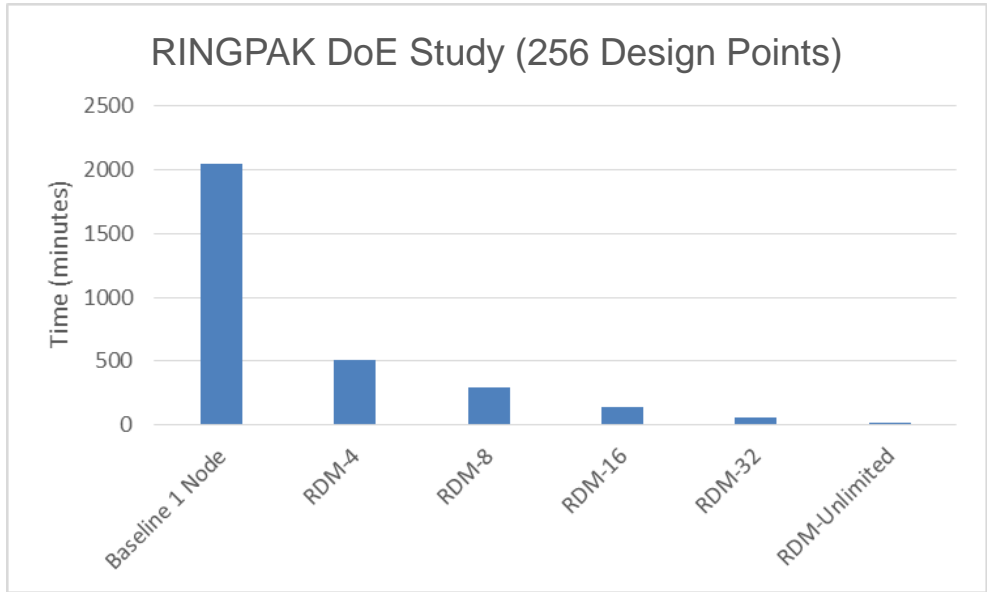
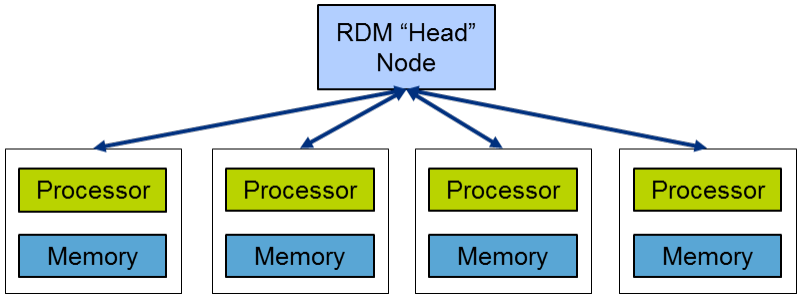


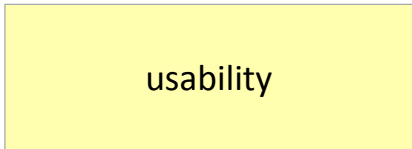
# Mechanical Suite 2018.1

capability and speed

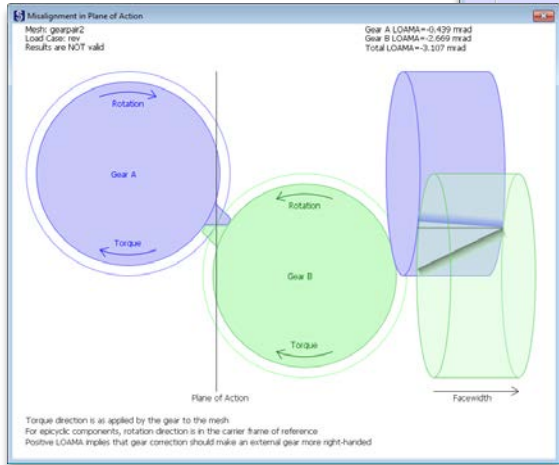
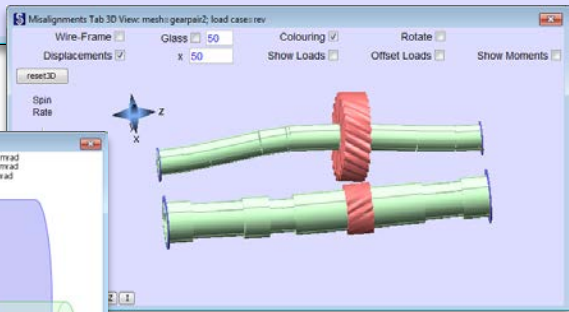
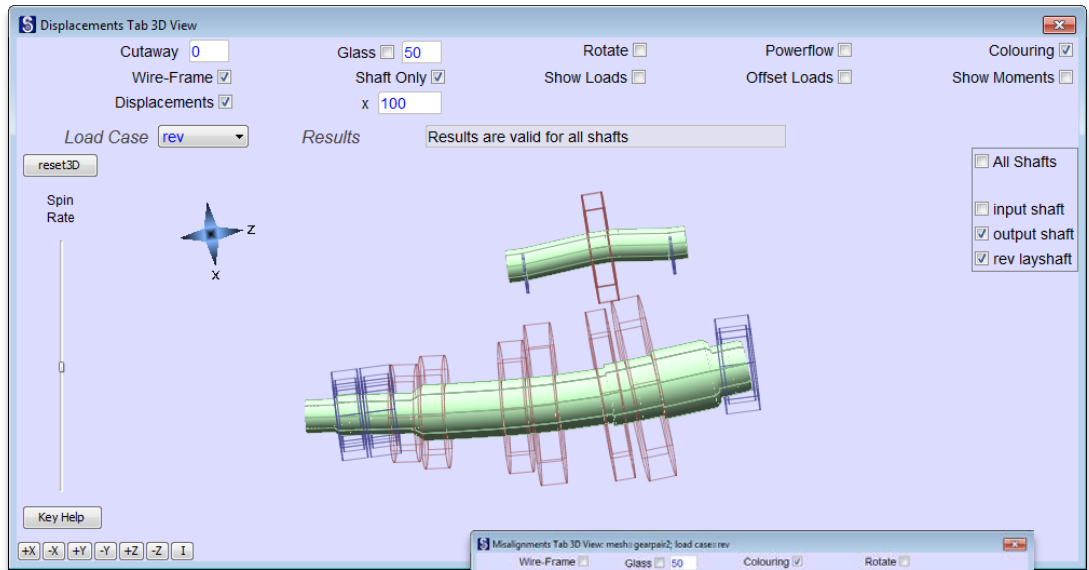


- Design of Experiment (DoE) studies
  - Generation of multiple model files from a single parent file, enabling with RDM the solution of multiple cases for DoE studies.
  - RINGPAK Tutorial 3 has been updated to use and demonstrate this new feature.






- Visualisation of shaft displacements in 3D
  - Shaft Loads
  - Displacements
  - Misalignments
- Visualisation of gear misalignment
  - Line of action v's 3D displacements
  - Denote which flank is active
  - Denote application of correction



# Mechanical Suite 2018.1

capability and usability



- Run Distribution Manager (RDM) now has a heartbeat
  - Job Monitor  will now shutdown all jobs and release all licenses
  - Fixes problems with not released licenses if jobs are removed from a queue
  - Equivalent command line *rdmclient* option also available
    - Enables to monitor and control jobs from a command line

