Mechanical Suite 2018.1 New Features
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
• 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
• **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
Enhanced End Gap Gas Dynamics

- Y-Junction physics with coupled thermal balance solution
- Developed using VECTIS
- Improved blow-by and 2\textsuperscript{nd} Land pressure predictions
Mechanical Suite 2018.1

- 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
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
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