

Introducing...



You love ANSYS! But have you ever wanted access to a strong Multi-Body Dynamics (MBD) capability from within your Workbench user environment? It would be great to be able to simulate the motion and all of the related physics of your mechanical assemblies. You could understand the behavior of your assembly up-front and you could generate the loads that you need for your component-level FEA.

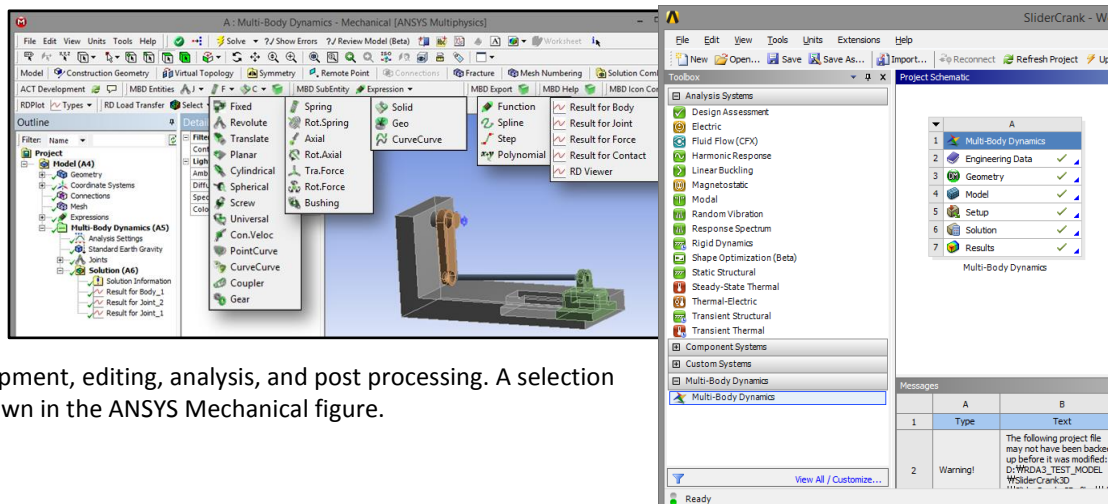
A strong MBD capability in Workbench would need to model contacts easily and solve assemblies with contacts quickly. It would let the user define a set of load cases by selecting output points of the work cycle simulation, and automatically define the linear statics models for the component of interest. It would provide MBD-specific advanced post processing capabilities. And finally, it would provide a way to transfer your MBD model to an advanced MBD tool (without losing the work done) when specialized MBD capabilities are needed.

We conceived and developed MBD for ANSYS after considering the requirements and potential benefits just listed. As the group of people who develop and provide the RecurDyn line of MBD software we have a unique ability to create and maintain a powerful MBD tool for the ANSYS community.

Fully functional MBD software in the Workbench Environment

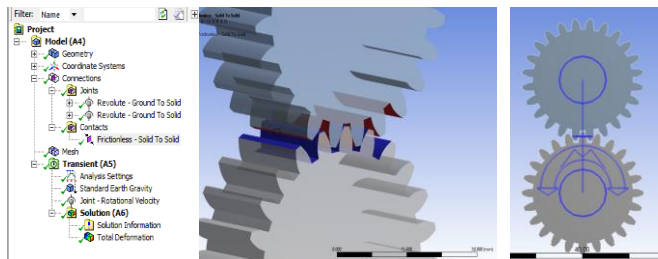
MBD for ANSYS is tightly integrated into Workbench for MBD model block creation and data management, and it is also integrated with ANSYS

Mechanical for MBD model development, editing, analysis, and post processing. A selection of the menus is shown in the ANSYS Mechanical figure.



High Performance Contact Modeling

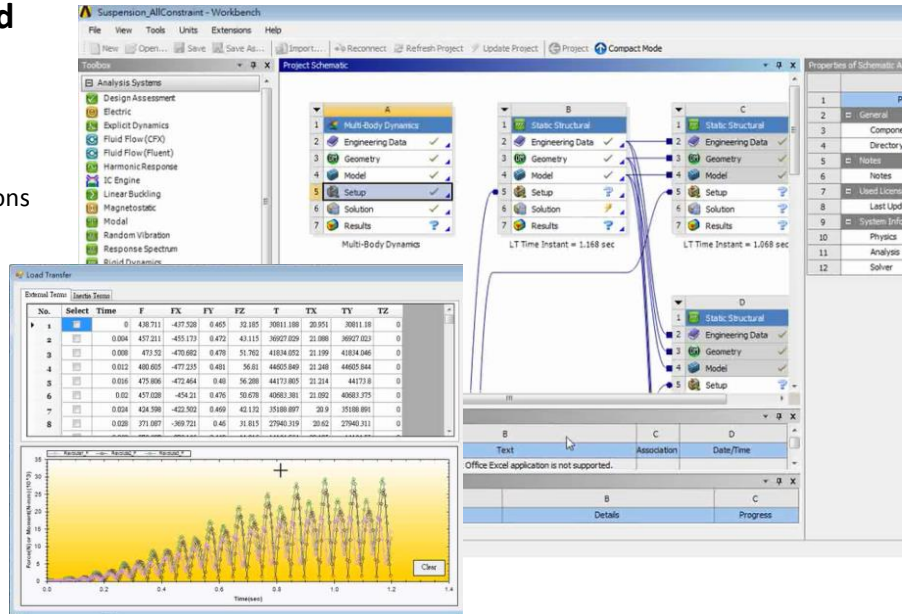
MBD for Ansys uses RecurDyn solver technology and is able to solve contact problems efficiently. For example, the gear pair shown in the figure has many surfaces on each gear that can contact with any of the surfaces of the other gear. With MBD for ANSYS the gear pair rotating at a high speed for 0.1 seconds is simulated in 12 seconds.



Automated, Intelligent Load Transfer Function

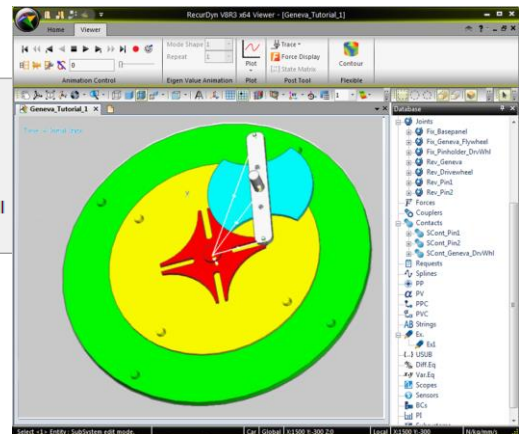
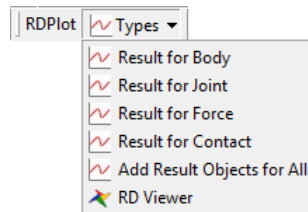
Load transfer consists of these steps:

1. The user runs the MBD simulation.
2. A body is selected.
3. The body loads are mapped to regions on the body geometry.
4. Forces on the body are plotted and the user selects output times in the simulation with loads of interest.
5. A system for the linear statics analysis of each load case is created in the project schematic window, including data connections.
6. The loads cases are analyzed.



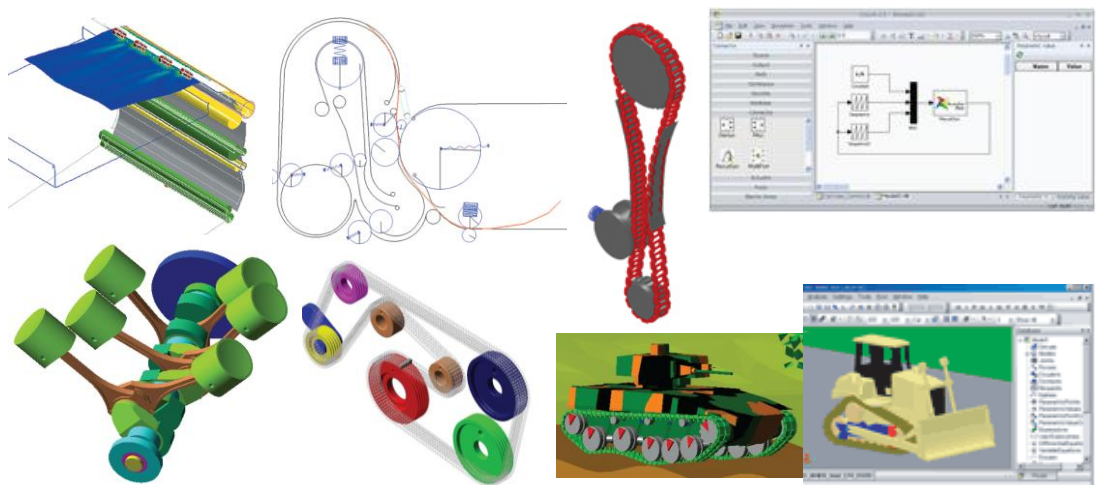
Advanced MBD Post Processing Tool

Output forces can be plotted within ANSYS Mechanical. Animation and advanced plotting is done using the RD Viewer, which runs at a click on the RD Viewer command. A new window appears with the model geometry and all results ready for review. Combined views of animations and plots can be defined. Animations can be saved to an avi file for display in presentations. Curve data can be mathematically processed and filtered. Plot data can be exported to a file that can be imported by Excel.



Export of the MBD model to the Standalone RecurDyn Software

If additional MBD functionality is needed the MBD model can be exported with a single command. The resulting files can be imported into standalone RecurDyn/Professional with a single import command. All geometry, joints, forces and contacts are retained. The user can add controllers, belts, chains, and bearings. Users can add flexible media to their models. Track assemblies for construction equipment and military vehicles can be added.



For further information contact: