

MBD for ANSYS

Multi-Body Dynamics

Powered by RECURDYN

Why MBD for ANSYS?

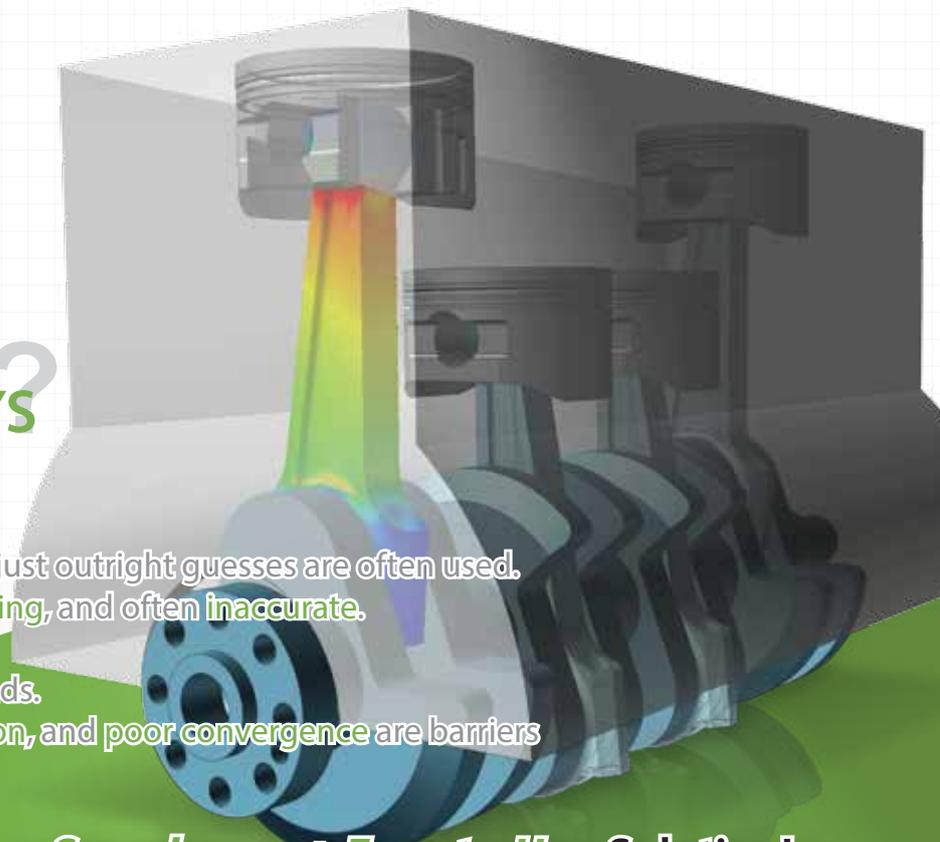
To generate accurate loads for physical tests, empirical values, or just outright guesses are often used. But this is expensive, time consuming, and often inaccurate.

Transient FEA can calculate the loads. But difficulty of use, slow calculation, and poor convergence are barriers to using transient FEA.

MBD for ANSYS Provides a *Seamless* and *Easy-to-Use* Solution!



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5 Advantages of MBD for ANSYS

1 Fully functional MBD software in the Workbench Environment

MBD for ANSYS is tightly integrated into Workbench with capabilities for

- MBD Model Development
- Editing and Analysis
- Post Processing

All of the MBD for ANSYS menus fit in the bottom row of the Mechanical window shown in the figure, and selected menus are expanded. A new Multi-Body Dynamics system is defined in the Workbench window as shown.



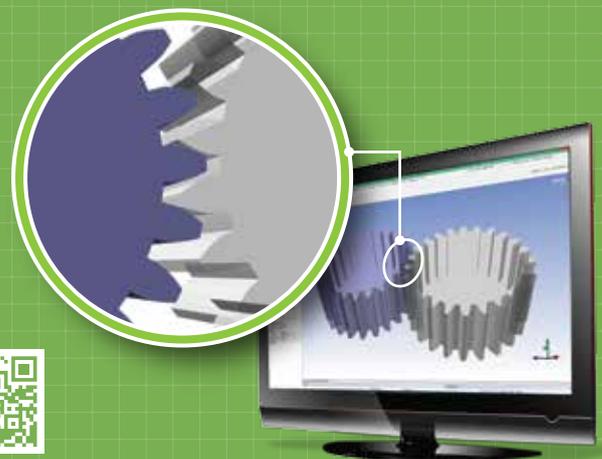
Movie clip
Joint Creation



2 High Performance Contact Modeling

MBD for ANSYS uses RecurDyn technology to solve contacts, so it solves contacts extremely efficiently.

For example, the gear pair shown has many surfaces on each gear that can contact each other. The gear pair rotates at a high speed for 0.1 seconds and is simulated in 12 seconds.



Movie clip
Animation of Gear Contact Simulation



Movie clip
Contact Creation

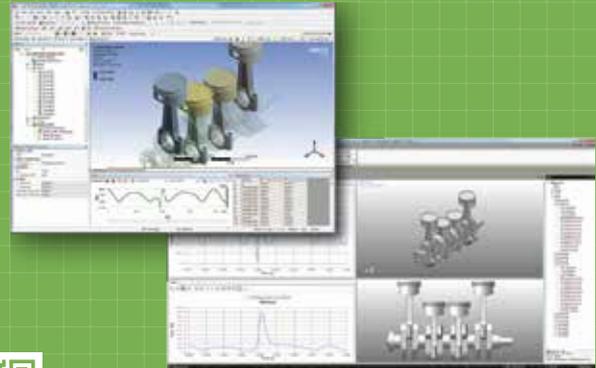


Gear pair with many contact surfaces
Simulation end time: 0.1 sec / Calculation time: 12 sec.

Computer Information: Intel Xeon CPU E5-1620 @ 3.6 GHz / 16 GB RAM

3 Advanced MBD Post Processing Tool

- Plot output forces within ANSYS Mechanical.
- Run animation and advanced plotting with a click on the RecurDyn Viewer command.
- Define combined views of animations / plots.
- Animations can be saved to an avi file.
- Curve data can be mathematically processed and filtered.
- Plot data can be exported to a text file that can be imported by Excel.



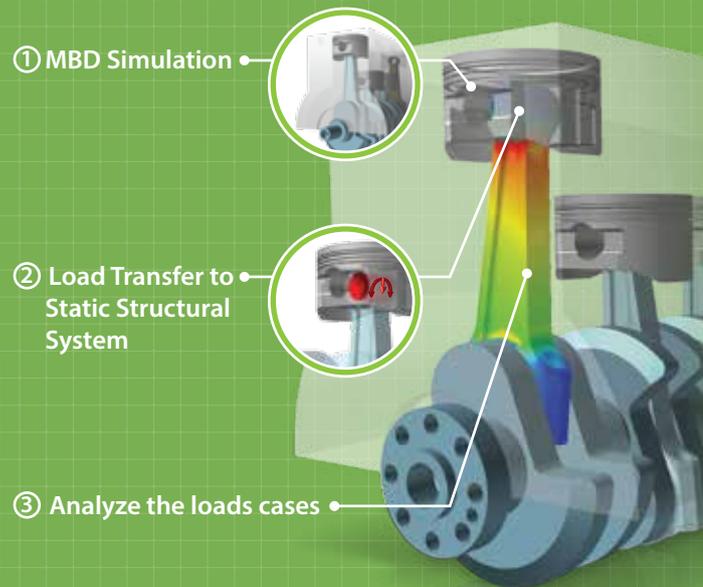
Movie clip

Plot and Animation Using RecurDyn Viewer



4 Automated, Intelligent Load Transfer Function

MBD simulation output can easily be used to define the loads acting on an FEA model to be simulated by ANSYS. From its output, MBD for ANSYS can automatically and intelligently create the FE mesh and define the loads acting on that mesh with only a minimum of effort from the user.



Movie clip

Load Transfer



Movie clip

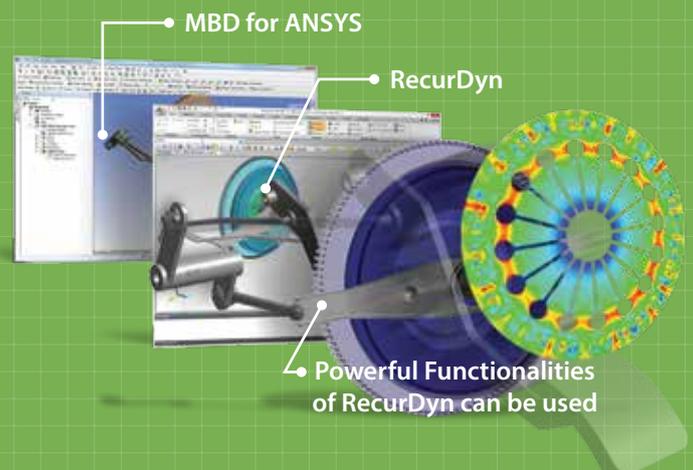
Transient Analysis Result of RecurDyn/FFlex



5 Export to the Standalone RecurDyn Software

A single command exports MBD models and the resulting files into standalone RecurDyn/Professional.

- All geometry, joints, forces and contacts are retained.
- Add controllers, belts, chains, bearings.
- Add flexible media (paper/film).
- Add track assemblies for construction equipment or military vehicles.
- Do system-level optimization and more.



For more information, visit:
mbd4a.functionbay.com



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