

Solution Highlights

- Comprehensive fitting and simulation solution
- Rubber & Hydromount bushing models for multibody simulation
- Fast and accurate identification of parameters from test data
- Frequency, amplitude and operating point dependence
- Robust simulation model with force-coupling, mount stiffness and external friction
- OEM-validated on hundreds of real-world test data sets



Rubber Busing Model



Hydromount Model

Altair Bushing Model

Enhance the Accuracy of Multibody Simulation

The Altair Bushing Model helps you fit bushing test data to empirical models and subsequently simulate multibody models with fitted bushings to produce simulation results with highly realistic behavior. High fidelity bushings let you accurately evaluate vehicle dynamics, durability, and ride and comfort characteristics for automobiles. Below are details about the workflow and components of the Altair Bushing Model.

Model Identification Tool

The Model Identification Tool (MIT) is a graphical tool for visualizing, modifying and fitting physical test data to analytical models of rubber and hydromount bushings. Once the fitting process is complete, results can be reviewed and the coefficients can be exported into a bushing property file for future use. The MIT is easily accessible from the Tools menu in HyperGraph®, MotionView®, or HyperWorks® Desktop.

The MIT Fit Tool

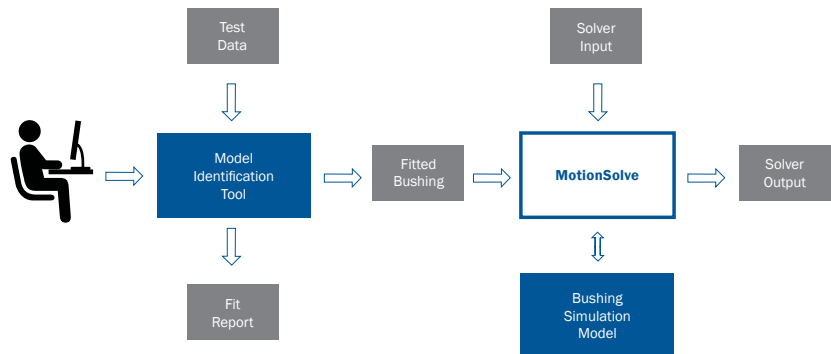
The MIT relies on a sophisticated fitting tool to perform model identification, an optimization process wherein the coefficients of the selected model are modified so that the deviation between the test data and the analytical model is minimized.

Bushing Modeling in MotionView

A set of panels in MotionView is used to instantiate fitted bushings in a vehicle model. All parameters required by the bushing at run-time are specified here. MotionView writes out the bushing description to the solver input file in a MotionSolve supported format.

Bushing Modeling in MotionSolve

This is a run-time library, .dll or shared library that contains analytical bushing models. MotionSolve uses the specified model to calculate a bushing's response to the model's instantaneous inputs at run-time. Unique capabilities for modeling directional coupling of forces, various mount conditions, external friction and Design of Experiments are available.



The Overall Workflow: The bushing test data is fitted using the Model Identification Tool. The output is a set of fitted model coefficients and a fit report. Next, using MotionView, the fitted bushings are instantiated into a MotionSolve model. During the simulation, MotionSolve automatically loads the Bushing Simulation Model to calculate the instantaneous behavior of each fitted bushing. Test data is thus incorporated seamlessly into a CAE model.