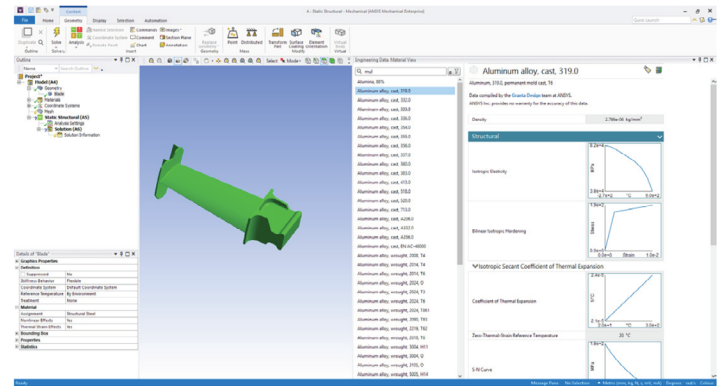# Materials Data for Simulation

Easily access materials input data for simulation, with broad coverage of materials classes, from within Ansys tools. This new dataset is drawn from the industry-standard materials data library, providing the material property data required for structural analysis.

The data are collated and maintained by the materials experts in the Ansys Granta Data Products team. Originally a Cambridge University spinoff, Granta Design is now part of Ansys, and is the leading provider of materials information and related software technology. Materials Data for Simulation is based on proven sources, including Granta's comprehensive Material Universe™ database and the JAHM simulation data set from JAHM Software, Inc. Ongoing updates will extend the coverage of the data.

Accessing data from Materials Data for Simulation within Ansys Mechanical.

Key Features

- Broad coverage of materials classes: Metals, Plastics, Ceramics, Fluids, Semiconductors, PCB laminates, Magnetic materials, Woods, Composites, Glasses, and Foams.

- Fully integrated: users can find the data they need and instantly apply them without leaving the Ansys Mechanical interface or Ansys Electronics Desktop.

- More than 700 data sheets detailing physical, electrical, and magnetic properties to support Ansys simulation.

- Room-temperature physical properties of the following types for all materials:
  - Linear, isotropic elastic (Young's modulus and Poisson's ratio).
  - Thermo mechanical (thermal expansion coefficient).
  - Thermal (thermal conductivity and specific heat capacity).

- Where relevant, electrical and magnetic properties for many materials, including electrical conductivity, dielectric constant, dissipation factor, magnetic coercivity, magnetic permeability, core loss, B-H curves.

- Many materials also include temperature-dependent properties.

- Bi-linear and multi-linear hardening data is available for many metals.

Key Benefits

- Easy access to materials data, embedded within Ansys Mechanical and Ansys Electronics Desktop
- Simulation-ready, no time wasted on data input
- Support for multiphysics: consistent data across Ansys tools
- Data you can rely on: ensure accurate simulations with data from materials information leader Ansys Granta

Every datasheet in the main Materials Data for Simulation dataset represents a generic materials type, rather than a specific product from a materials producer. This means that each record gives representative values for the properties offered by the different available grades of the material. The goal is to support the early phases of design and to provide a wide-ranging reference source to support simulation, helping users to get reliable results quickly.

Users of Ansys Maxwell will find an extra dataset providing B-H curves and core loss data for over 500 producer-specific grades of magnetic material, enabling more exact analysis for key classes of electromechanical simulation.

/ Need More Data?

What if users need data for a specific grade? Or to make the most effective use of materials models developed by your in-house engineering teams, test houses, or collaborators? Ansys Granta can help.

Ansys GRANTA Selector™ provides the extended Granta library of materials property data, including grade-specific properties for thousands of metals and plastics, plus tools to compare and select materials. Users can find the material that you need and then export data for simulation.

Ansys GRANTA MI™ is the industry-leading database system for managing company materials information. It enables user organizations to capture and share corporate materials data alongside the Granta library, creating a single source for property data in their business, and facilitating the development and sharing of materials models from corporate testing and analysis programs. Direct integration with Ansys Workbench is available.
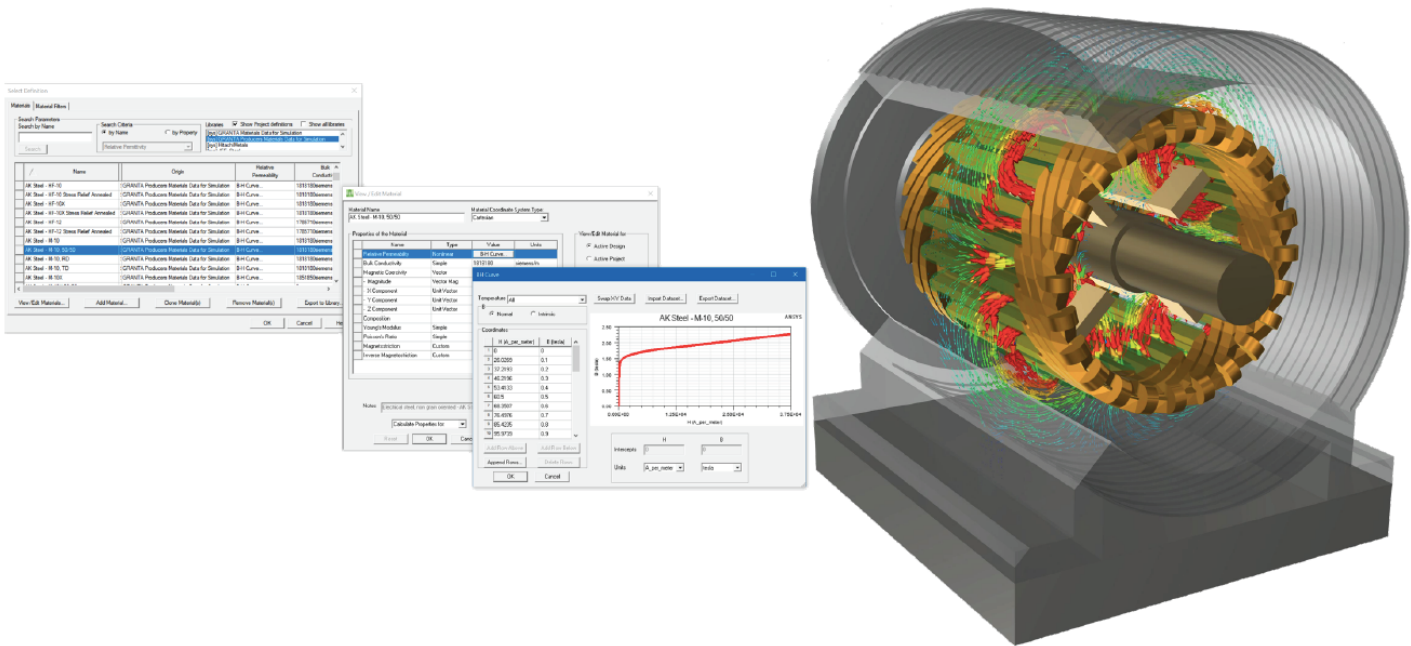
Materials Data for Simulation in Ansys Electronics Desktop.