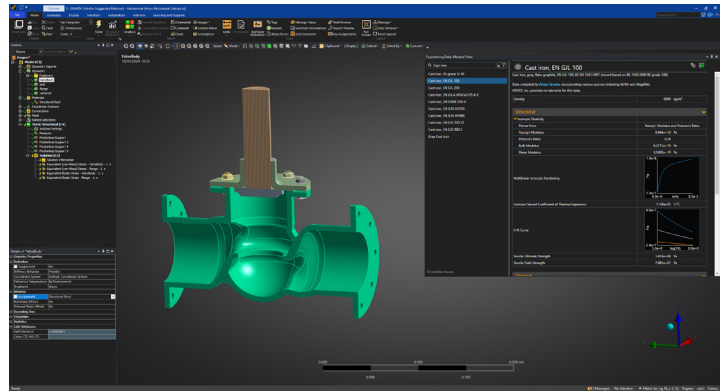# Materials Data for Simulation

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 Data Products team. Ansys is the leading provider of materials information combined with related software technology — for materials selection, materials data management, and materials simulation. Ansys Granta Materials Data for Simulation (MDS) is based on proven sources including Ansys's comprehensive MaterialUniverse™ database and the JAHM simulation data set from JAHM Software, Inc. Coverage of data is constantly being extended in Ansys updates.

Request a **FREE TRIAL**

Accessing data from Ansys Granta 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 interface.

- More than 750 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.

- Bilinear and multilinear hardening data is available for many metals and some polymers.

/ Key Features

- Easy access to materials data embedded within Ansys Mechanical, Ansys Discovery, Ansys Fluent, Ansys Electronics Desktop (AEDT), Ansys Motor-CAD (magnets subset only), and Ansys OnScale.

- Simulation ready, with no time wasted on data input.

- Support for multiphysics: consistent data across Ansys tools in all flagships, with additional license for Ansys OnScale users.

- Data you can rely on: Ensure accurate simulations with data from materials information leader Ansys.

Every datasheet in the main Granta 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 low-frequency and high-frequency solvers within Ansys Electronics Desktop (Ansys Maxwell, Ansys HFSS, and Ansys SIwave) will find an extra Producers dataset providing data for more than 2,600 producer-specific records for soft magnetic alloys, soft magnetic alloys, hard magnetic alloys, and PCB laminates. Motor-CAD users will also benefit from a curated subset of this producer data, which includes 1,450+ producer-specific grades of soft and hard magnetic alloys. Where relevant, this includes physical properties, thermal properties, B-H curves, core loss data, frequency-dependent permittivity, and frequency-dependent loss tangent — enabling more exact analysis for key classes of electromagnetic simulation.

/ Need More Data?

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

Ansys Granta Selector™ provides the extended Granta library of materials property data, including grade-specific properties for hundreds of thousands of metals, plastics, composites, ceramics, electromagnetic materials, and more, plus tools to compare and select materials. Users can find the material that you need and then export data for simulation into **Workbench, Mechanical, Discovery, AEDT, Motor-CAD, Fluent and Sherlock**.

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 extended Granta library, creating a single source for property data in their business, as well as facilitating the development and sharing of materials models from corporate testing and analysis programs. Direct integration with **Workbench** is available. Export of key materials data is also possible to **Workbench, Mechanical, Discovery, AEDT, Motor-CAD, Fluent and Sherlock**.
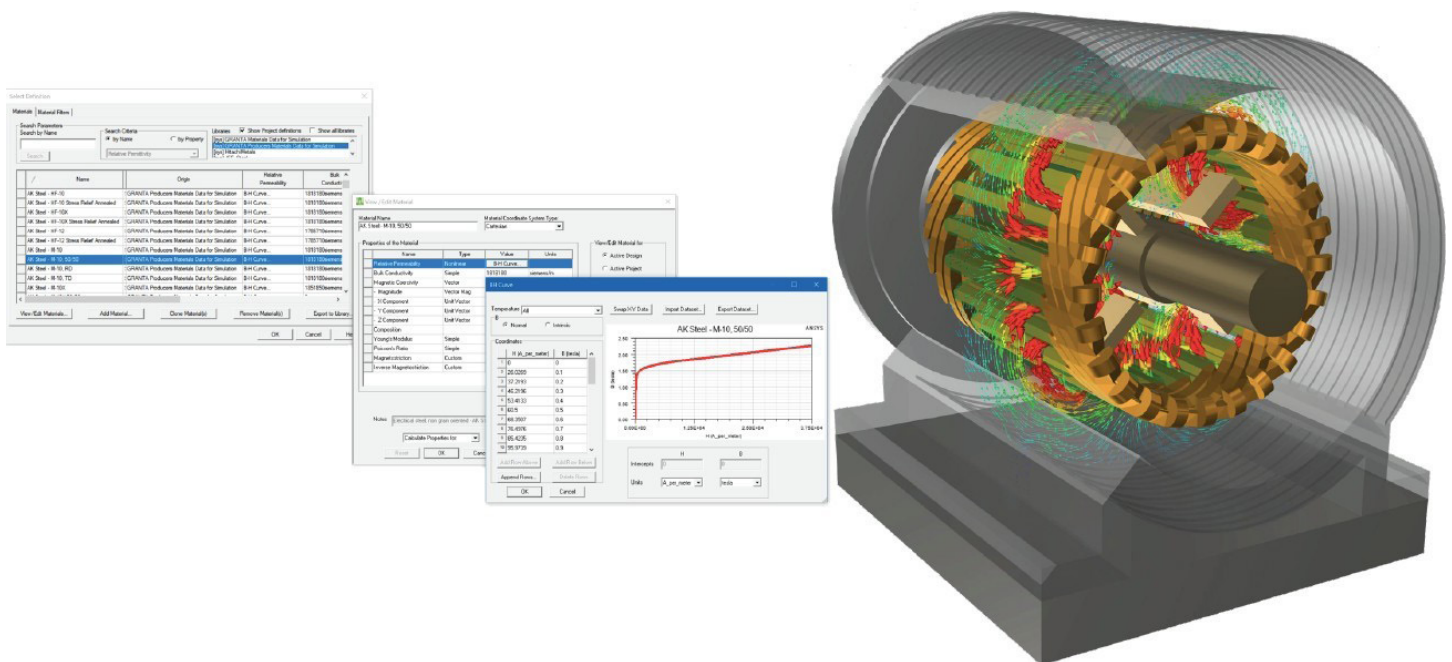
Granta Materials Data for Simulation in Ansys Electronics Desktop