Ansys Granta Selector
Product Overview

Granta Selector combines comprehensive materials data with powerful selection and comparison tools, enabling you to make smart materials decisions.

Find, plot, and compare materials data. Fast access to comprehensive, easy-to-search data on your PC. Use interactive charting and comparison tools with the unique MaterialUniverse data set covering more than 4,000 materials, plus specialist data modules on plastics, metals, batteries, composites, additive manufacturing, and more.

Materials selection. Get your materials choices "right first time" during product development. It's easy to apply a proven, auditable, repeatable materials selection method. Gain confidence in your decisions and generate new ideas.

Materials substitution and equivalency. Respond quickly to problems with material supply, regulation, increasing cost, or obsolescence. Find equivalent or similar materials at the touch of a button and easily compare material properties.

Minimize cost. Identify low-cost routes early in design, applying cost data, cost per unit of function tools, and part cost estimation.

Materials development. Use graphical tools to identify gaps in the market that can be filled by new material solutions. Understand how your new material compares and communicate its advantages.

Lightweighting and hybrid materials. Experiment with the Hybrid Synthesizer tool to predict hybrid material properties, reduce development time, estimate cost, and guide your materials testing.

Eco design and restricted substances. Reduce environmental impact and minimize restricted substances risk at the design stage by using detailed eco and regulatory materials data and tools.

Simulation and product design. Use Granta Selector independently or as part of an integrated workflow in Ansys Workbench. Export simulation-ready data into **Ansys Mechanical, Ansys Electronics Desktop, Ansys Fluent, Ansys Discovery, Ansys Motor-CAD, and other applications.**

Batteries. Compare different battery cell types and compare performance and specifications of different designs of multicell battery modules and packs to rapidly explore battery module design space.
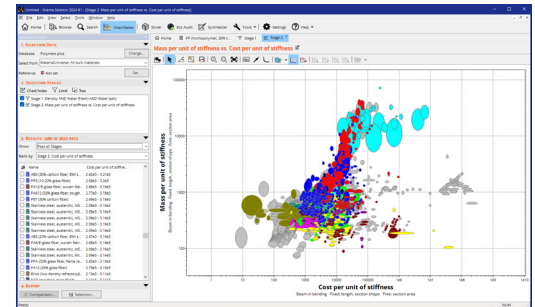
Balancing competing materials requirements in a materials property chart. These charts support decision-making by helping you explore material space and communicate your results.

/ Key Benefits

Use materials to innovate and evolve your products.

- Quickly identify solutions to materials issues.
- Confirm and validate your choice of materials.
- Reduce material and development costs.
- Change the way you work with colleagues and suppliers.

"A complex materials study using Granta Selector software now takes half the time of what we did before." — Radiall

Find more case studies at:
www.ansys.com/granta-selector

/ Materials Information

At the heart of Granta Selector is a database of materials and process properties. It comes preloaded with your choice of data from Granta's comprehensive library. Of particular value is MaterialUniverse, which consists of more than 4,000 records providing properties for virtually every type of purchasable engineering material. One strength is that there are no "holes" in this data — property values are either populated with known, referenced data or estimated using Ansys Granta technology. You can screen the complete "universe" of candidate materials without excluding those for which you may not have complete data.
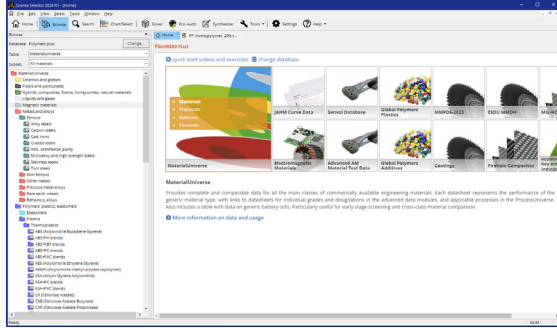
Granta Selector homepage. The software is straightforward to learn and use, beginning with choosing from a wide range of materials data sets to use in your project.

/ Choose Your Advanced Materials Data

Every copy of Granta Selector includes the Core Data. Then, choose from our range of Advanced Materials Data.

Data series	What's included
Core Data (included as standard)	MaterialUniverse data. Browse and search materials information, Plot and compare, support materials selection and substitution. Includes JAHM curve data, supporting simulation
Additive Manufacturing	Contains advanced test data on commercially manufactured additive manufacturing materials from Siemens Energy and Senvol Database, a comprehensive set of additive manufacturing machines and materials
Aero	MMPDS aero alloys and coatings database. Used in aerospace, defense, motorsports, energy, and related industries
Composites	Data from Mil-Handbook-17 (the leading source of composite test data), plus Firehole continuous reinforced polymer data
Eco	Key traceable environmental indicators for both materials and relevant process, including geographic location
Electromagnetics	Key property data on materials for low- and high-frequency electromagnetic applications, including printed circuit boards and magnetic materials
ESDU	Statistically derived design strength data for alloys in aerospace applications
High Temperature Alloys	Detailed data on 70+ different alloys at multiple temperatures. This GE licensed materials data comprises curve data on thermal performance, stress/strain, fatigue and creep
Medical	Medical data in MaterialUniverse with links to the ASM Medical Materials Database, a comprehensive online resource
Metals	Integrated global metals specifications from ASM Alloy Finder, StahlDat SX steels, MI-21, SteelSpec, plus Powder Metals, ASME Boiler and Pressure Vessel Code materials, and Sheet Steels
Polymers	Detailed manufacturer data sheets on plastics and additives, plus ChemRes (chemical and solvent resistance) for plastic and thermoplastic elastomers (TPEs)

/ Software Tools

Browse: Browse thousands of materials, view properties, and use links to explore related records.

Search: Find the data you need — search by keyword or with advanced property queries.

Chart: Create dynamic property charts, compare materials, and present your conclusions.

Select: Apply systematic material selection methodology developed by Prof. Mike Ashby at the University of Cambridge.

	ABS (extrusion)	PP (copolymer, 10% talc)
Mechanical properties		
Young's modulus (GPa)	2 - 2.9	1.07 - 1.27
Specific stiffness (MN.m/kg)	1.9 - 2.77	1.11 - 1.31
Yield strength (elastic limit) (MPa)	29.6 - 44.1	21 - 28
Tensile strength (MPa)	30 - 50	21 - 28
Specific strength (kN.m/kg)	28.2 - 42.1	21.7 - 29
Elongation (% strain)	20 - 100	30.5 - 63.3
Elongation at yield (% strain)	2.4 - 50	9.77 - 10.6

Compare: Support substitution and equivalency projects with side-by-side comparisons (see above). The Find Similar tool discovers close property matches for a material.

Eco Audit Tool: Estimate energy use and CO_2 output from each stage in a product life cycle — consider environmental factors early in design.

Synthesizer Tool: Embed predictive models; comes with tools for hybrid materials and part cost.

FE Exporters: Export simulation-ready data for a wide range of CAD/CAE packages and/or use as part of an integrated workflow in Ansys Workbench.

Battery Designer Tool: Early-stage design of multicell battery modules and packs. Estimate and compare performance for different cell configurations.

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