



Release Notes

2020

Key new features in GRANTA Selector 2020:

Enhanced user experience within *GRANTA Selector* and across the *ANSYS Granta* portfolio, with a [refreshed user interface](#) and branding, [simplified data bundling](#), new [Flex-enabled licensing](#) model and [integration with ANSYS Workbench](#).

Make connections and comparisons with the new [Global Metals Specifications](#) data set and newly consolidated [CAMPUS and M-Base Plastics](#) data. Quickly find and compare equivalent metal grades by country, search the CAMPUS and M-Base datasets using a single set of attributes, or select on another of [the latest datasets available](#).

Continually improving support for simulation: since the introduction of temperature-dependent models in [CES Selector 2019 Update 1](#), more properties have been added to [ANSYS Workbench exporters](#), and four new [Global Metals Specifications exporters](#) have been created.

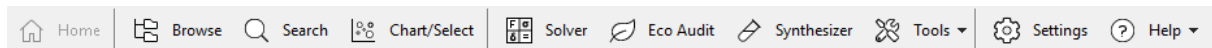
These features and more are described in more detail under the headings below:

- [Refreshed user interface and branding](#)
- [New licensing model](#)
- [New and consolidated data for easier comparisons](#)
- [Integration with ANSYS Workbench](#)
- [Support for simulation](#)
- [Latest versions of selection and specialist datasets](#)

Detailed Descriptions

1. Refreshed user interface and branding

GRANTA Selector has been renamed and given an accompanying visual refresh this year, with the same use case support and functionality it brought you as CES Selector.



This refresh aims to improve overall user experience by unifying the style of all toolbar icons, providing better support for use on high definition displays, and bringing GRANTA Selector and its documentation more in line with that of other Granta and ANSYS products.



Benefits:

- Enhanced user experience
- Clearer display of toolbar icons at all screen resolutions

2. New licensing model

GRANTA Selector 2020 supports ANSYS FlexNet server-based licensing. This is a floating concurrent, Flex-enabled licensing model which ensures licence compliance, and enables offline or remote work and license 'reservation' for individuals or groups through the ANSYS Borrow Utility.

Capability of the core GRANTA Selector product has been extended to include all software tools (FE Exporters, Synthesizer Tool and Eco Audit Tool), and includes JAHM Curve Data alongside MaterialUniverse. Data options have been simplified. Editions and add-on data modules have been replaced with the following Advanced Materials data bundles:

Advanced Materials Bundle	Data sets included
Aero	MMPDS-13 Coatings
Metals	Global Metals Specifications (incorporates ASM Alloy Finder, StahlDat SX, SteelSpec and MI-21) StahlDat Sheet Steels Powder Metallurgy ASME BPVC
Polymers	Prospector Plastics M-Base Plastics (incorporates CAMPUS data)

Composites	Firehole Composites MIL-HDBK-17
Additive Manufacturing	Senvol Database
Eco	ecoInvent Key Materials Indicators
Medical	ASM Medical Materials (online)
ESDU (lease only)	ESDU MMDH

Advanced Materials data bundles are licensed separately to the software. This allows the number of data licenses to be tailored to match the interests of the user community, and enables users to decide which data to check-out at the start of each session.

Benefits:

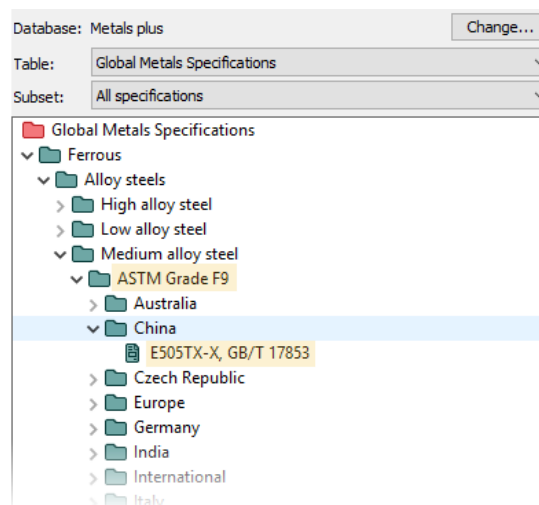
- Provides more flexibility to serve a wide community of power and occasional users
- Tailor data licenses to suit your user community
- Access to all software tools in the core product
- Monitor usage and check that license plan suits demand
- Avoid inadvertent non-compliance with the license agreement

Note: For the time being, ANSYS Granta is continuing support of the *CES Selector* 'named user' licensing model with *GRANTA Selector 2020 Classic*. The software is identical; only the licensing, installation and data bundle content differs.

3. New and consolidated data for easier comparisons

3.1. Global Metals Specifications

An enhanced metals database from Granta, created by adding ASM Alloy Finder to StahlDat SX (the complete Register of European Steels - 'Stahl-Eisen-Liste'), MI-21 (part of the World Metals Index), and the Steel Specification Handbook (published by UK Steel) – all in one data table.



Provides composition and classification information for over 100,000 metal standards from global standards organizations and suppliers. Records are organized by continent, region or country, making the dataset particularly useful for identifying global equivalents.

Benefits:

- Wider coverage of global metals standards, particularly Asia and Eastern Europe
- Directly compare all specifications data in selection studies and the Find Similar tool – avoid having to carry out multiple projects and combining results
- Use the browse tree and links to quickly identify the equivalent MaterialUniverse datasheet for a specific specification

3.2. CAMPUS and M-Base Plastics becomes M-Base Plastics

CAMPUS and M-Base records and attributes have been consolidated into a single attribute set, allowing all datasheets in the renamed M-Base Plastics dataset to be directly compared.

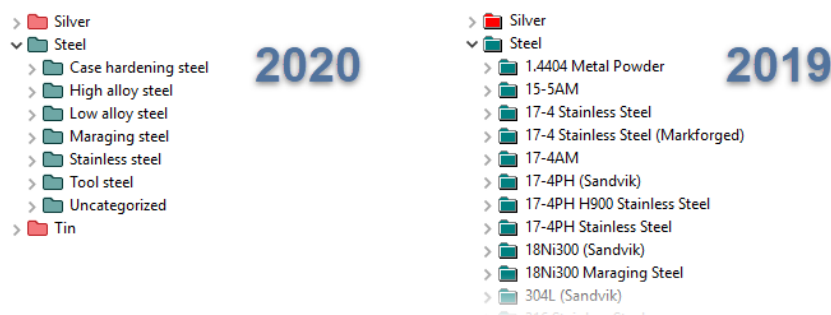


Benefits:

- Directly compare polymer data from CAMPUS and M-Base in selection studies and the Find Similar tool – avoid having to carry out multiple studies and combining the results

3.3. Senvol Database browse tree categories simplified

The Senvol Database browse tree has been updated to reflect standardization and consolidation of the *Similar to conventional material* attribute values (see [Senvol Database](#)), making it easier to locate and compare Additive Manufacturing material records.



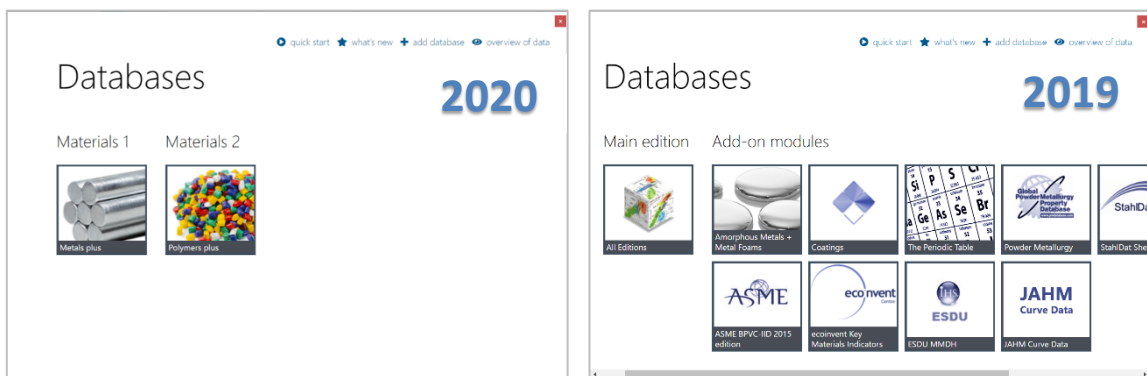
Benefits:

- Easier to identify similar alloys in the browse tree
- Simplifies the generation of tree stages where you want to filter based AM alloys of a specific type

3.4. Consolidation of data sets

All data sets have been consolidated into two databases: *Metals plus* and *Polymers plus* – with both databases including the MaterialUniverse, Aerospace, Additive Manufacturing and Medical data tables, and all add-on data modules. The datasets available in the software are determined by your license file.

This makes it easier to find relevant data; for example, if you are interested in a specific metal specification, you can now search across all metals data sets in one operation using the *Metals plus* database. In addition, all data sets are now linked to MaterialUniverse making it easier to identify the equivalent generic materials for material screening studies.

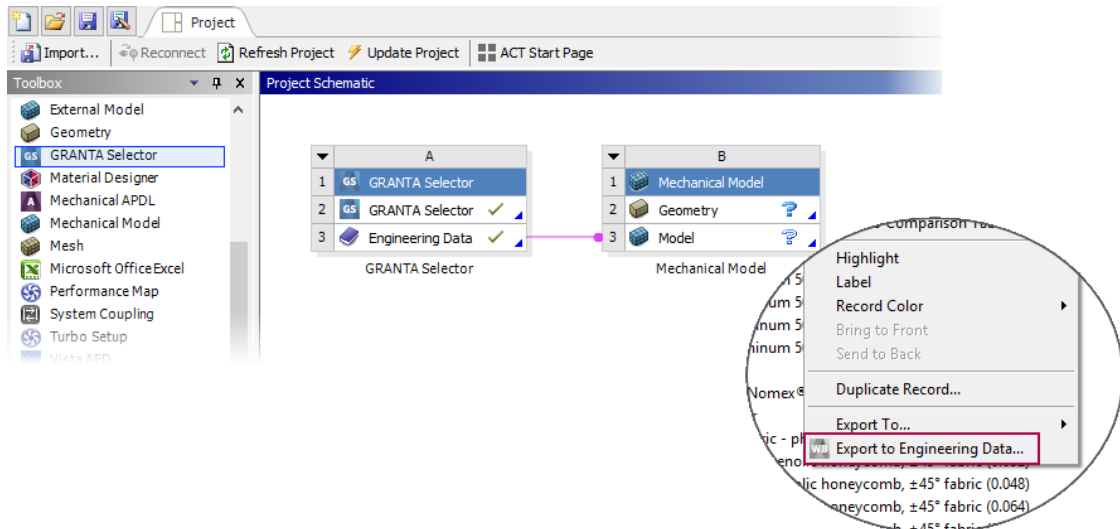


Benefits:

- Quickly find all relevant data, without needing to use multiple databases or understand which database is most relevant for your search
- Enhanced user experience – get the most out of all licensed data sets

4. Integration with ANSYS Workbench

GRANTA Selector now integrates into your ANSYS Workbench workflow as an optional add-in, opening an instance of GRANTA Selector from ANSYS Workbench and importing selection results directly back into Engineering Data.



- If you already have ANSYS Workbench installed, the add-in is automatically installed when you install GRANTA Selector.
- GRANTA Selector appears under **Component Systems**.
- When opened from ANSYS Workbench, an **Export to Engineering Data** option appears in right-click context menus (equivalent to clicking **Export to...** > **ANSYS Workbench**).

Benefits:

- Identify the optimal materials for your application prior to simulation work - saving time and avoiding unnecessary design and simulation iterations by considering the best material from the outset
- Save time and avoid human error in finding and manually entering material data into ANSYS products

5. Support for simulation

If you didn't install CES Selector 2019 Update 1, the upgrades made to exporters and functional data in that release may also be relevant to you. You can download the [Release Notes for Update 1 here](#).

Benefits:

- Quickly find all records containing curve (functional) data using the 'Exists' checkbox in Limit stages
- Save time and avoid human error by exporting curve data into the format required by a range of CAD and CAE simulation packages

5.1. Exporters added for Global Metals Specifications

New FE exporters for the Global Metals Specifications dataset – exports data into the formats required by *Abaqus*, *ANSYS Workbench*, and *SolidWorks*.

Benefits:

- Save time and avoid human error by directly exporting data into the format required by *Abaqus*, *ANSYS Workbench*, and *SolidWorks*

5.2. Materials Data for Simulation subset added to MaterialUniverse

New MaterialUniverse subset containing 740+ materials which appear in *ANSYS GRANTA Materials Data for Simulation* - available in *ANSYS Mechanical* and *ANSYS Maxwell*. Includes the following non-linear and temperature-dependent properties:

Young's modulus with temperature

True plastic stress-strain

Yield strength with temperature

Tensile strength with temperature

Tangent modulus

Thermal expansion coefficient with temperature

Thermal conductivity with temperature

Specific heat capacity with temperature

Electrical conductivity with temperature

Magnetic B-H curve

Fatigue strength model (stress range)

Benefits:

- Focus selection studies on properties that are particularly relevant for non-linear CAE simulation
- Allows materials selection studies to focus on materials that are available to your simulation users in ANSYS products

5.3. Non-linear properties added to ANSYS Workbench exporters

The following data attributes are now exported to *ANSYS Workbench* from MaterialUniverse and JAHM Curve Data:

MaterialUniverse

Stress with strain

Yield strength

Tangent modulus

Coefficient of thermal expansion with temperature

Ultimate tensile strength with temperature

Thermal conductivity with temperature

Specific heat capacity with temperature

Magnetic B-H curve

RGB color

JAHM Curve Data

Stress with strain

Coefficient of thermal expansion with temperature

Ultimate tensile strength with temperature

Thermal conductivity with temperature

Specific heat capacity with temperature

The JAHM Curve Data exporter now also has the option to enter a user-defined value of *Poisson's ratio* when there is no value on the datasheet.

Benefits:

- Greater support for non-linear simulation and simulation at elevated temperatures
- Better visualization of assigned material type in simulation models

6. Latest versions of selection and specialist datasets

The following datasets have been updated since the last release of *CES Selector*.

6.1. MaterialUniverse

Provides complete and comparable selection data for all the main classes of commercially available engineering materials. Particularly useful for early-stage screening and cross-class material comparison. Updates include:

- New prices for all 4,000+ materials in MaterialUniverse. These are generated using Granta's price model, based on data from world commodity markets.
- All polymer chemical resistance data and medical attributes now included as standard (previously only available in the Polymer and Medical Editions).
- 85 new materials added to improve selection in multiple applications and industries:
 - 3 aluminum alloys (Al 2014A-T6, Al 2195-T8, Al 2618A-T6),
 - 3 stainless steel alloys (AISI 316H, AISI 316N, UNS S31254),
 - 3 nickel alloys (Incoloy 909, Incoloy 945X, Haynes 242),
 - 6 ABS-PBT polymer grades (2 unfilled, 4 glass-fiber filled),
 - 13 PCB laminates (including FR2, FR4 and CEM-1),
 - 9 gases (including air and nitrogen),
 - 21 fluids (including water and other common refrigerants),
 - 15 solders (including bismuth-tin and tin-zinc),
 - 12 semiconductors (including Gallium Arsenide and Barium Titanate).
- New [Materials Data for Simulation subset](#).
- RoSH(EU) attribute updated to RoSH 2 (EU). Includes the latest restrictions on DEHP, BBP, DBP and DIBP.
- [Enhanced FE Exporters](#).
- Elements data table added into MaterialUniverse as a subtable.

Benefits:

- Access the latest version of this unique dataset that covers technical, economic and environmental properties

6.2. JAHM Curve Data

Contains temperature dependent curve data for mechanical, thermal, physical and electrical properties, stress-strain curves, fatigue, creep and magnetic properties for over 2,900 materials. Enables comparison of material properties at elevated temperatures.

- Over 130 materials added, including AISI 1144 Carbon Steel, AISI 4142 Alloy Steel and Polyphenylene Ether (PPE).
- [Enhanced FE Exporters](#).

Benefits:

- Fast access to difficult-to-find temperature-dependent curve data for materials
- Select and compare materials suitable for use at elevated temperatures

6.3. MMPDS-13

The *Metallic Materials Properties Development and Standardization* (MMPDS) handbook is the pre-eminent source for aerospace component design allowables relating to alloys and fasteners. Contains over 2,250 records of statistically-derived design data for aerospace alloys in various forms and thicknesses, as well as information on the temperature dependence of mechanical properties. Also contains a complete fastener database comprising over 450 sheet-metal/fastener combinations.

- Over 30 new records added, including twenty-four 7099 Aluminum alloys and eight A206.0 Cast Aluminums.
- New and updated thermal data, strength and moduli.

Benefits:

- Get access to the most up-to-date version of this critical source of design allowables for the global aerospace sector

6.4. Prospector Plastics

A global library of plastic and elastomer datasheets from UL. Includes over 100,000 datasheets from over 900 manufacturers and specialty compounders. Provides information on performance, applications, key features, agency ratings, and global availability.

- Over 1,000 datasheets added.
- New *Overmolded* attribute – enables overmolding materials to be selected based on the polymer type of the substrate to be overmolded.
- *Coefficient of friction* and *Wear factor* attributes updated to include data that was previously stored in the *Additional information* attribute, providing more complete filtering and comparison of this hard-to-find data.
- *DMA data (flexural & shear)* has been split out into three attributes (*G'*, *G''* and *Tan delta*) enabling greater filtering and comparison capability.

Benefits:

- Access the latest version of this global library of plastics data.
- Enhanced screening and comparison on overmolding, wear characteristics and DMA properties.

6.5. M-Base Plastics

A quality source of plastics and elastomer information from M-Base Engineering + Software GmbH. Includes the full collection of over 45,000 manufacturers' datasheets from the M-Base Material Data Center and links to over 900 examples of industrial applications.

- Records for 36 new producers added.
- More than 7000 new material records added, including:
 - 3000 Nylons (PA),
 - 1000 Polycarbonates (PC),
 - 600 Polypropylenes (PP),
 - 500 Polyethylenes (PE).
- [Consolidation of M-Base and CAMPUS attributes.](#)

Benefits:

- Access the latest data on polymers – incorporating the merger and renaming of several manufacturers and grades, and removal of discontinued grades.

6.6. Senvol Database

The first and most comprehensive source of data on industrial additive manufacturing (AM) machines and materials, containing supplier information on over 1,150 industrial machines and over 2,300 compatible materials.

- Over 600 AM materials added.
- Over 200 industrial AM machines added.
- Over 39 new conventional materials added for direct comparison.
- *AM Process (Manufacturer)* attribute revised and updated to remove duplicate processes.
- [Updated tree structure](#).

Benefits:

- Access the latest data on additive manufacturing machines and materials, representing the latest status of this rapidly evolving field of materials
- Directly compare the performance of additive manufacturing grades with the equivalent material produced by conventional technology

6.7. ASME BPVC 2017

The ASME Boiler and Pressure Vessel Code (BPVC) is a standard for the design, fabrication, and inspection of boilers and pressure vessels. It provides over 3700 datasheets covering various forms, thicknesses and heat treatments for seven material families.

- The 2017 version includes 227 new datasheets.

Benefits:

- Access the 2017 version of Part II-D of this authoritative source of design data for boilers and pressure vessels

Feedback

Granta Design Limited would welcome your feedback on any improvements you would like to see in the *GRANTA Selector* system, its data or documentation.

Please send your ideas using the **Feature Request** button on the main toolbar. Alternatively, you can email your suggestions to support@grantadesign.com.

www.grantadesign.com

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