Ansys Granta MI 2023 R1

Ansys Granta Advanced Materials - Metals

Release Notes

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Introduction

All Granta software includes a set of Core Materials Data and their properties. This can be supplemented with a wide spectrum of Advanced Materials Data for different industries and materials types. Access design, supplier, or test data or standards and specifications – helping to inform critical decisions across design, materials selection and more.
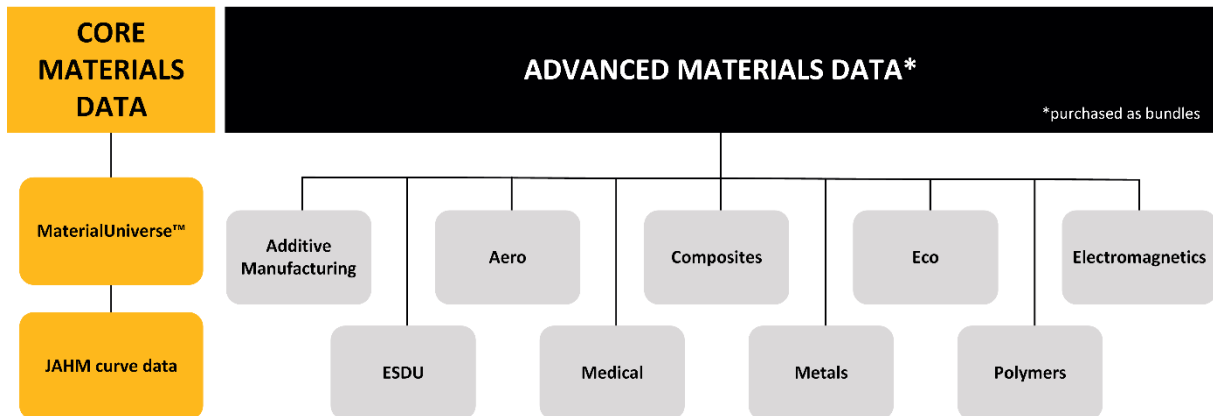
Ansys Granta Advanced Materials - Metals includes a combination of Design, Test and Standards and Specifications data, covering:

- Global Metals Specifications data from ASM International, the German Steel Institute, UK Steel and WMI.

- Design data for Boiler and pressure vessel data from ASME.

- Creep and fatigue data from Japan's NIMs – exclusively for Granta MI Enterprise.

- Standards and specifications data on powder metallurgy and test data for sheet steels.

To find out more about the full range of Ansys Granta materials data, go to
https://www.ansys.com/products/materials/materials-data-library

About this release

Ansys releases a new version of the data bundles for Granta MI every 6 months, concurrent with the latest Granta MI software release.

Some of the reference databases included in each bundle may have new or updated data or other enhancements, while others are simply re-released with a new schema version to make them compatible with the latest Granta MI software version, and no other changes.

The 2023 R1 release of **Ansys Granta Advanced Materials - Metals** includes the following databases.

Database	Provides	Data updates in this release?
ASME Boiler and Pressure Vessel Code II-D	Rules for the design, fabrication and inspection of boilers and pressure vessels with over 4,000 datasheets covering temperature dependent performance.	No
Global Metals Specifications	Metal standards and specifications data	Yes
Powder Metallurgy	Heat treatment data for Powder Metallurgy and Metal Injection Molding	No
NIMS Creep & Fatigue	Raw metals data from Japan's National Institute for Material Science (NIMS)	No
StahlDat Sheet Steels	Mechanical and processing test data for sheet steels used in the automotive and manufacturing industries	No

ASME Boiler and Pressure Vessel Code II-D data

Overview

Provides data from the 2021 ASME Boiler and Pressure Vessel Code (BPVC), Section II: Materials – Part D: Properties, which provides tables of design stress values, tensile and yield strength values, and tables and charts of material properties, and also from Section VIII (Rules for Construction of Pressure Vessel), Division 2, Annex 3-F (Design Fatigue Curves).

Separate Metric and US Customary databases are provided. The ASME Code requires that consistent units be used when designing vessels and exchangers. Converting between US Customary and Metric units using the tools provided in the database may result in data which is not the same as that published in the Customary/Metric Edition of ASME BPVC, and therefore:

- If your design calls for Customary units, we recommend using the **ASME BPVC 2021 (Customary)** database.

- If your design calls for Metric units, we recommend using the **ASME BPVC 2021 (Metric)** database.

What's new for 2023 R1?

There are no data changes in this release.

Global Metals Specifications data

Overview

Compilation of over 100,000 metal standards and specifications from four unique collections: ASM Alloy Finder, MI-21, StahlDat SX and SteelSpec. Covers over 40 countries and international bodies and includes composition, processing, classification and mechanical/thermal/electrical properties.

What's new for 2023 R1?

Data provided from StahlDat SX and SAE International has been updated to include the latest data, bringing the total number of datasheets to over 99000.

1. StahlDat SX

   - 2500+ records updated with latest data.

   - 100 new records added, including structural steels (90 records), dual phase and stainless steels.

   - 6 new weathering steel grades (for improved atmospheric corrosion resistance).

   - Curve data in mechanical, thermal and electrical properties for 400+ materials; properties available for a wide range of temperatures between -100°C and 600°C.

2. SAE International

   - 580+ records updated with latest data.

   - 640 new records added.

   - 2 special alloys included - Powder, Chromium carbide plus Nickel-chromium alloy (type 1 and type 2).

3. As a result of the data changes the overall data count in different Subsets are:

Subset	Number of records
All specifications	99329 (+740 from previous year)
ASM Alloy Finder	64140
MI-21	26381 (-583, updated to SAE)
Stahldat SX	2644 (+ 100)
SAE International (new)	3803 (+ 640)
SteelSpecs	4944

4. Updates to Attribute notes:

   - Condition/Heat treatment note updated to include 5 new temper codes: W, +CR1/+Cr2, QC, +C, +SH, +CR, +Z

   - New attribute notes for magnetic properties and Bake hardening index

Powder Metallurgy data

Overview

Data on over 550 ferrous and non-ferrous powder forged and metal injection molded (MIM) grades used in bearings (self-lubricating) and structural applications.

What's new for 2023 R1?

There are no data changes in this release.

StahlDat Sheet Steels data

Overview

Mechanical and processing information on 36+ grades of sheet steels that are commonly used in the automotive and manufacturing industries.

What's new for 2023 R1?

There are no data changes in this release.

NIMs Creep & Fatigue data

Overview

Fully accessible raw metals data from Japan's National Institute for Material Science (NIMS) covering creep and fatigue performance of ferrous and non-ferrous alloys at both room temperature and elevated temperatures.

What's new for 2023 R1?

There are no data changes in this release.

Installing or upgrading your Granta MI databases

Granta MI databases are released as full SQL database backups which must be restored to your Microsoft SQL Server instance or imported into Azure SQL Database, and then added to your Granta MI system using the MI Server Manager tool. For instructions on how to do this, see the installation documentation for your Granta MI release.

If you have an older version of a Granta MI reference database installed, and you have not added data that you want to keep, you may want to replace it with the latest version to take advantage of new data and other enhancements in the newer database version. However, please note the following before replacing an existing database with a newer version:

- **Custom material card (FEA) exporters**. If you have added or modified any of the material card exporters in the database, and you have not stored them in a *__User_Exporters__* subfolder, ensure that you back them up before installing the new database by exporting them in MI Admin; you can then import them into the new database. See the *Granta MI Administrator's Guide* for additional information.

- **Custom Layouts.** If you have added or modified any Layouts for use with MI Explore, you will need to replicate these changes in MI Admin in the new version of the database.

- **Custom Unit Systems**. If you have added or modified any Unit Systems in the database, you will need to replicate these changes in MI Admin in the new version of the database.

- **Custom MI Explore configuration files**. If you have added or modified data view configuration files for MI Explore, you should export them in MI Admin before installing the new database, and then import them into the new version of the database.

- **Custom images used in MI applications**. If your current database contains any custom images used in lists or datasheets in the MI Explore app, or on your organization's Granta MI (One MI) home page, you should export them in MI Admin before installing the new database version, and then import them into the new version of the database.