GRANTA MI™ version 11

CAE Exporters for Granta Reference Data

GRANTA
MATERIAL INTELLIGENCE

GRANTA MI™ is the leading system for materials information management in engineering organizations. It enables you to control, analyze, and securely share critical corporate data on materials and processes, managing the materials information lifecycle.

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1 Summary

Table 1 below lists the CAE exporters available for each of the Granta reference data modules and summarises what type of data can be exported.

For more detail about the data exported for each supported CAE package, see the following sections.

Note that where temperature-independent data is exported, the temperature value can be revised from room temperature in the **Parameter Values** page during export for databases such as MMPDS, ESDU, CAMPUS, CAMPUS and M-Base and ASME BPVC.

More information

- For information about writing FEA exporters, see the document *GRANTA MI FEA Exporter Author Guide*.
- For information about Granta data modules, go to www.grantadesign.com/products/data/

Table 1 Summary of available CAE exporters by Granta reference data module

		Maximum number of records	MaterialUniverse	MMPDS	ESDU	CAMPUS	CAMPUS and M-Base	ASME (Customary and Metric)	StahlDat SX	StahlDat SX (German)	MMD	HBM
Abaqus 6	Linear, temperature-independent, isotropic, thermal, plastic	50	✓	✓	✓	✓	✓	✓				
Abaqus 6	Linear, temperature-dependent, isotropic, thermal, plastic	50	✓	✓	✓	✓	✓				✓	✓
ANSYS MAPDL v15 (Classic)	Linear, temperature-dependent, isotropic	50	✓	✓								
ANSYS MAPDL v15 (Classic)	Linear, temperature-independent, isotropic	50	✓	✓								
ANSYS Workbench v12 onwards	Linear, temperature-dependent, isotropic, thermal, plastic	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CATIA v5	Isotropic	500	✓	✓	✓	✓	✓	✓			✓	
MatML	Basic material data	50	✓	✓								
MatML	Linear, isotropic	200	✓	✓								
MatML	Linear, temperature-dependent, isotropic	200	✓	✓								
Nastran NX	MAT1 (temperature-independent, isotropic, with MATS1)	1000	✓	✓								
Nastran NX	MAT1/MATT1 (temperature-dependent, isotropic, with MATS1)	1000	✓	✓								
Creo Parametric (Pro/ENGINEER)	Linear, temperature-independent, isotropic, thermal, plastic	1	✓	✓	✓	✓	✓	✓			✓	✓
SolidWorks 2011	Linear, elastic, isotropic	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Legend

✓	An exporter for this data module is available
	No exporter is available for this data module

2 Data exported for each CAE package

More detailed information about the data exported from each Granta data module is given in the sections below, organized by CAE package.

2.1 Abaqus 6

Linear, isotropic, thermal, plastic, temperature-independent, and temperature-dependent data may be exported from the following GRANTA reference data modules to Abaqus version 6 simulation software.

Granta Reference Data Module	Data Exported
MaterialUniverse MMD	• Linear, isotropic, temperature-independent (room temperature) data • Linear, isotropic, temperature-dependent data
MMPDS ESDU CAMPUS CAMPUS and M-Base CAMPUS and M-Base German	• Linear, isotropic, temperature-independent (user-specified) data • Linear, isotropic, temperature-dependent data If there is no temperature-dependent data, room temperature data will be exported
ASME	• Linear, isotropic, temperature-dependent data
HBM	• Linear, isotropic, temperature-independent (room temperature) data • Age dependent, linear, isotropic, temperature-independent (room temperature) data

2.2 ANSYS Workbench v12 (onwards)

Linear, temperature-dependent, isotropic, thermal, and plastic data may be exported from the following GRANTA reference data modules to ANSYS® Workbench version 12 (onwards):

Granta Reference Data Module	Data Exported
MaterialUniverse MMD	Linear, isotropic, thermal, plastic, room-temperature data
MMPDS ESDU	Linear, isotropic, thermal, plastic data • If there is no temperature-dependent data, room temperature data will be exported • If stress-strain curves are available, they will be exported to the plastic hardening model

Granta Reference Data Module	Data Exported
CAMPUS CAMPUS and M-Base CAMPUS and M-Base German	Linear, isotropic, thermal, plastic data • If there is no temperature-dependent data, room temperature data will be exported, • If stress-strain curves are available, they will be exported to the plastic hardening model. **This may not be appropriate for some hyperelastic materials**.
ASME StahlDat SX StahlDat SX German	Linear, isotropic, thermal, plastic data If there is no temperature-dependent data, room temperature data will be exported,
HBM	• Isotropic data • Age-dependent, isotropic data - If there is no temperature-dependent data, room temperature data will be exported - If stress-strain curves are available, they will be exported to the plastic hardening model

2.3 CATIA v5

Isotropic data may be exported from the following GRANTA reference data modules to CATIA® version 5.

Granta Reference Data Module	Data Exported
MaterialUniverse MMPDS ESDU CAMPUS CAMPUS and M-Base CAMPUS and M-Base German ASME MMD	Isotropic data to the Granta-CATIA interchange format

Note that an additional macro is required to complete the export of data from MI to CATIA v5.

The exporters that are bundled with the databases listed above create an XML “neutral format” of the CATIA material definition (GCIF file). A CATIA user who receives these files from an MI user needs to install an additional macro in his/her local CATIA installation, to convert the GCIF file into the binary CATmaterial format that CATIA requires.

This macro is available in formats for both Windows and Linux, and is available as a download; contact Granta support for details.

2.4 Creo Parametric (Pro/ENGINEER)

Linear, isotropic, temperature-independent, and age-dependent data may be exported from the following GRANTA reference data modules to Creo Parametric software.

Granta Reference Data Module	Data Exported
MaterialUniverse MMD	Linear, isotropic, temperature-independent (room temperature) data
MMPDS CAMPUS CAMPUS and M-Base CAMPUS and M-Base German ASME	Linear, isotropic, temperature-independent (user-specified) data
HBM	• Linear, isotropic, temperature-independent (room temperature) data • Age-dependent, linear, isotropic, temperature-independent (room temperature) data

2.5 SolidWorks 2011 (incorporates COSMOS/M)

Linear, elastic, and isotropic data may be exported from the following GRANTA reference data modules to SolidWorks® 2011.

Granta Reference Data Module	Data Exported
MaterialUniverse MMPDS ESDU CAMPUS CAMPUS and M-Base CAMPUS and M-Base German ASME MMD StahlDat SX StahlDat SX German	Linear, elastic, isotropic data

2.6 Nastran NX

Linear, elastic, and isotropic data may be exported from the following GRANTA reference data modules to Nastran®.

Granta Reference Data Module	Data Exported
MaterialUniverse	• **Mat1/MATT11**: Temperature-dependent, isotropic • **Mat1**: Temperature-independent isotropic (room temperature)
MMPDS	• **Mat1/MATT11**: Temperature-dependent, isotropic Stress strain curves exported in MATS1 format • **Mat1**: Temperature-independent isotropic (user specified)

2.7 MatML

Linear, isotropic, and basic data may be exported from the following GRANTA reference data modules to the MatML format.

Granta Reference Data Module	Data Exported
MaterialUniverse	• Linear, temperature-dependent, isotropic • Linear, temperature-independent (room temperature), isotropic • Basic linear, plastic, thermal
MMPDS	• Linear, temperature-dependent, isotropic • Linear, temperature-independent (user specified), isotropic • Basic linear, plastic, thermal

2.8 ANSYS Classic/ANSYS MAPDL v15

Linear, elastic, and isotropic data may be exported from the following GRANTA reference data modules to ANSYS® Mechanical™ APDL (ANSYS Parametric Design Language).

Granta Reference Data Module	Data Exported
MaterialUniverse	• Linear, temperature-dependent, isotropic • Linear, temperature-independent (room temperature), isotropic
MMPDS	• Linear, temperature-dependent, isotropic • Linear, temperature-independent (user specified), isotropic