

CAE Data for Steels

Cooperation between M-Base and VDEh



Coordinated by VDEh (Verein Deutscher Eisenhüttenleute) the comprehensive research project „Material and processing relevant material values for sheet steel of normal strength, high strength and stainless steel“ was executed in close cooperation by steel producers, automotive manufacturers, suppliers and research institutes.

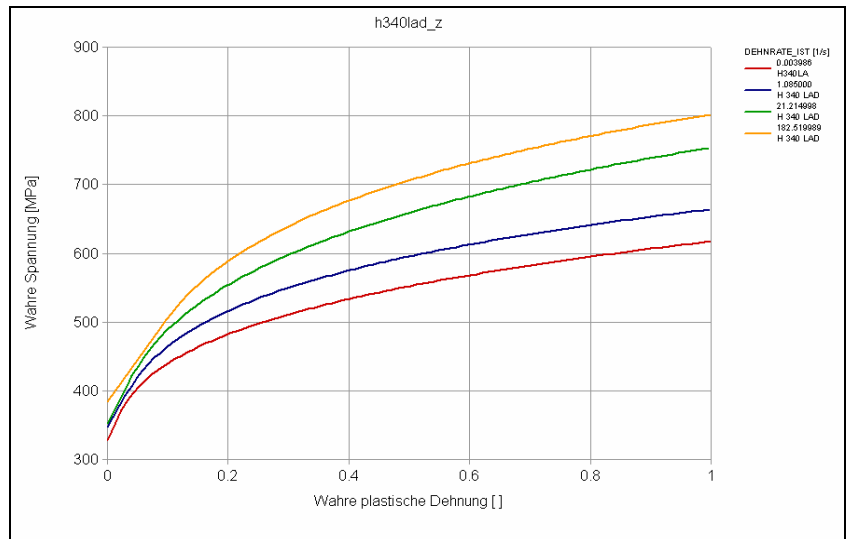
M-Base has developed the database system MARLIS®, especially designed for the administration of the gained material data and their provision in CAE systems. Information about MARLIS can be found at:

www.MARLIS-CAE.com

During this project a representative selection of steels were systematically tested. Great importance was attached to uniform test conditions and evaluation methods in order to achieve comparable results. The major aim of the project was to make reliable data available for the application in CAE systems. Important boundary conditions, such as anisotropies or pre-deformations are considered systematically.

So far these results were exclusively available to the participants of the project. In cooperation with VDEh, M-Base can now offer these valuable results to any interested party. The complete data set contains important material properties, like the standard engineering values from tensile tests, flow lines, fatigue curves and forming limit diagrams of the following steels:

- DD13
- D33X
- S380MC
- CP900
- DC04
- DC06
- H180B
- H260YD
- H260B
- H250G1
- H260P
- H320LA
- H340LAD



Flowlines According to MARLIS Evaluation Software

- H300X
- TRIP700Z
- 1.4301
- 1.4376

For each material different temperatures, pre-deformations and sample directions are reported. A complete list of the data content is available at:

www.MARLIS-CAE.com

The data will be delivered on CD-ROM.

The delivery includes as basic information the complete set of raw data measured during the project. In addition files were prepared, that include engineering data that was evaluated based on the raw data, like engineering properties, parameters for simulation and more. The generation of this data was carried out by M-Base, using the official MARLIS evaluation software and following the official guidelines of the German automotive industry.

The results are stored in a standardised XML format, which allows to merge the data into any inhouse data system. Also selected data is available in the form of easy to understand graphical presentations.

In addition material cards for the input into CAE systems are available which

were generated based on the data content. For the time being, input files for the following systems are available:

- ABAQUS
- Autoform
- FEMFAT
- FEMSITE
- FALANCS
- INDEED
- LS-DYNA
- NASTRAN
- PAM-CRASH
- PAM-STAMP
- PERMAS

The MARLIS evaluation software is available for customers, who want to extend the data content to new materials that are tested inhouse, leading to high data quality and comparability to the data from the project mentioned above.

Companies, that are interested to install a powerful database and offer high functionality for their internal users may consider to purchase the MARLIS CAE database, which already is installed at many important players of the international automotive industry.

Information about the different MARLIS software modules is available from M-Base.