

VHT

Virtual Heat Treatment tool for monitoring and optimising HT process

IMS Project No. 01014

- Predict distortion resulting from quenching, carburizing and nitriding of steel parts both qualitatively and quantitatively.
- Optimize time and operating condition of heat treatments materials.
- Uses databases (Material, Process & Generic) and process simulation by the Finite Element Analysis

Project Summary

The objective of the VHT project is to determine the current knowledge, the needs, and the material data for the future in relation with the defined technical area: prediction of distortion during heat treatment.

The overall goal of the project is to define the high end physical models and environment which may be required for an intensive use of Numerical Simulation. Ultimately the project will propose a strategy for mastering alloys characterization and numerical simulation of such processes. As final result the project should contribute to provide designers of steel parts and companies performing heat treatment with solutions to predict distortion resulting from quenching, carburizing and nitriding of steel parts both qualitatively and quantitatively, and optimize time and operating condition of heat treatments materials. The VHT model to develop is based on a combination of 2 aspects:

- Databases (Material, Process & Generic)
- Process simulation by the Finite Element Analysis

Partners

20 partners, from 3 IMS regions (Europe, Japan, Korea) joined this project and will bring their know-how in the field of simulation of Heat Treatment.

	Partner	Country
1	S&CC - Sciences & Computers Consultants (ICP)	France
2	EMTT - Etudes Métallurgiques et de Traitement Thermique	France
3	INDUSTEEL	France
4	Metallografica	Spain
5	Centro Ricerche FIAT (CRF)	Italy
6	SCANIA	Sweden
7	Ecole des Mines d'Albi-Carmaux (ARMINES)	France
8	LSG2M (Institut National Polytechnique de Lorraine)	France
9	IWT - Institute for Materials Science	Germany
10	IVF Industrial Research & Development Corporation	Sweden



11	Fukuyama University	Japan
12	Saitama Institute of Technology	Japan
13	Nissan Motor (RCP)	Japan
14	Komatsu	Japan
15	Sumitomo Metal Industries	Japan
16	Idemitsu	Japan
17	Yonsei University (RCP)	Korea
18	DONG WOO	Korea
19	Pusan National University	Korea