

Capabilities of MatplusHQ

MatplusHQ 1.2 from 25.05.2018

MatplusHQ is a program for determining optimal heating and cooling rates and holding times during the heat treatment process. It is distinguished by its ease of use and intuitive operation. No knowledge of finite element programs is required. On the contrary, the icon-based loading of the component geometry, the input of the temperature-time regime and the subsequent calculation is carried out within minutes. The results are displayed by significant 2D graphics. High priority was placed on a clear user interface, so that the operation can also be done via touchpad or tablet computer.

Product summary:

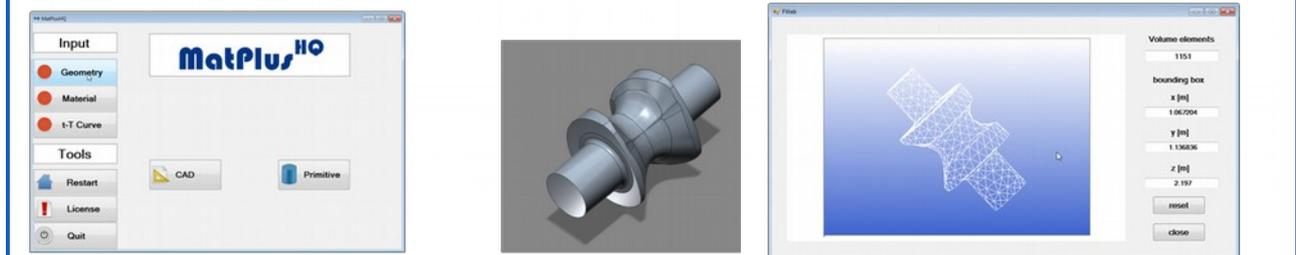
Optimization of the T/t cycle by practicable simulations

- directly productive useable by machine operators without training
- with sophisticated FEM simulation in the background
- with exact material data
- with exact geometry from CAD

Advantages:

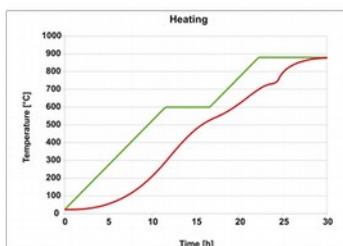
- use within the process
- low costs
- > n% energy saving
- improvement of productivity

Input: few parameters and geometry from CAD

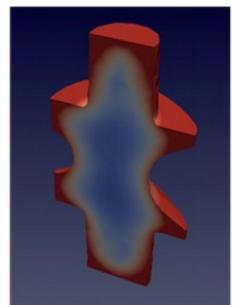


automatic FEM calculation

Output: visible after a few seconds computing time



- heating of the complex component
- options to optimize the process



The software is characterized by the fact that the complex 3D FEM calculation runs automatically in the background - the system is specially optimized for this application. Based on 3D real geometries that can be imported from CAD systems, an automatic and fast meshing takes place - mesh is optimized in relation to this application. Optionally, the user can also visually inspect and influence the quality of the mesh. For simple cases, the use of basic shapes, such as ball, cylinder, and cuboid is possible.

For the different applications of heating and cooling, the system provides pre-configured and temperature-dependent heat transfer coefficients. These data can also be adapted by the user to the current boundary conditions of the existing system technology, provided that they have the appropriate authorization.

By default, MatplusHQ is shipped with 2 material records, e.g. S235 and 1.4301. Further material data can be acquired through Dynaweld GmbH & Co. KG. These material data are calculated according to their material certificate with the software JMatPro, Sente Software Ltd. For existing customers of the software JMatPro a material file generator is supplied as a part MatplusHQ. The material file generator allows converting JMatPro Mat Files into a format readable by MatplusHQ. Entering your own material data is also possible.

In postprocessing, meaningful graphics show the temperature profile of the coldest point in the component in relation to the furnace chamber and component surface as well as the resulting temperature differences over the process time. In addition, the complete time-dependent temperature field is stored in the VTK format. This format can be directly imported into various open source postprocessing programs, such as: Paraview, Kitware Inc. or MayaVi, Enthought Inc.

System requirements

Windows compatible PC with:

- Processor: Intel® or AMD multi-core processor with at least 2 GHz
- Operating System: Microsoft Windows 7 or higher
- Memory: 4 GB
- Free hard disk space: 10 GB
- Monitor Resolution 1920 x 1080

Installation and Licensing

MatplusHQ can be installed in single user mode (administrative rights are required).

The software is licensed via a dongle, which is connected to a USB port. The purchased material records are licensed separately from the main program.