EnginSoft is a premier consulting firm in the field of Simulation Based Engineering Science (SBES) with a global presence. It was founded in 1984, but its founder and initial employees had been working in SBES since the mid ‘70s. Throughout its long history it has been at the forefront of technological innovation and remains a catalyst for change in the way SBES and CAE technologies in general are applied to solve even the most complex industrial problems with a high degree of reliability.

Today, EnginSoft is comprised of groups of highly qualified engineers, with expertise in a variety of engineering simulation technologies including FEM Analysis and CFD, working in synergic companies across the globe. We are present in Italy, France, Germany, the UK, Sweden, Turkey and the U.S.A. and have a close partnership with synergetic companies located in Greece,  Spain, Israel, Portugal, Brazil, Japan and the U.S.A.

EnginSoft works across a broad range of industries that include the automotive, aerospace, defense, energy, civil engineering, consumer goods and biomechanics industries to help them get the most out of existing engineering simulation technologies.


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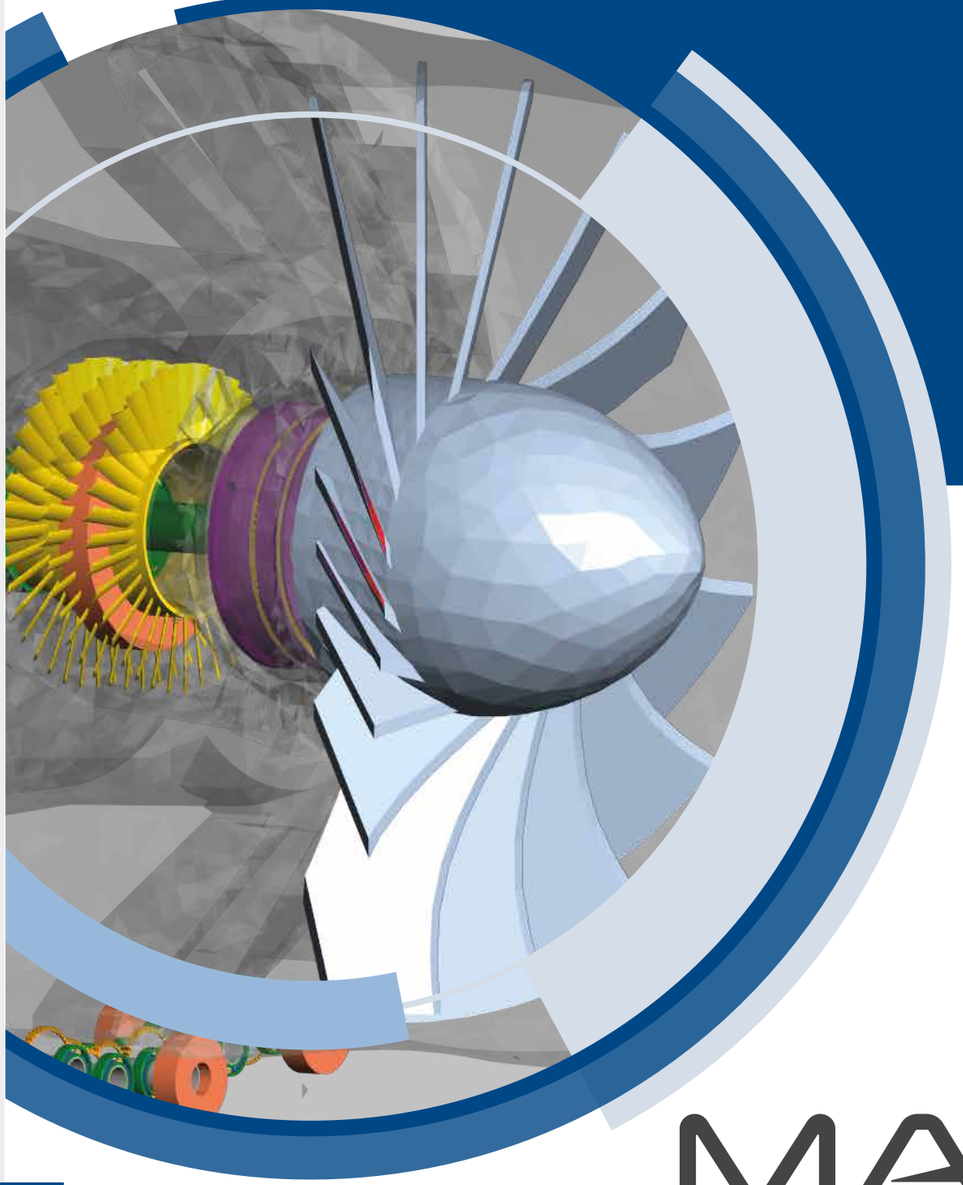
DATA SHEET

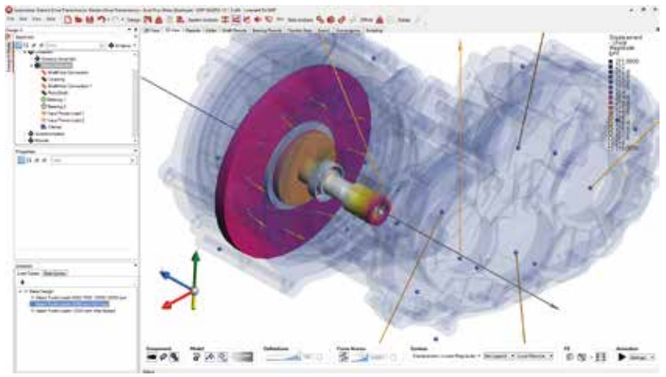


# MASTA

## System Development - General

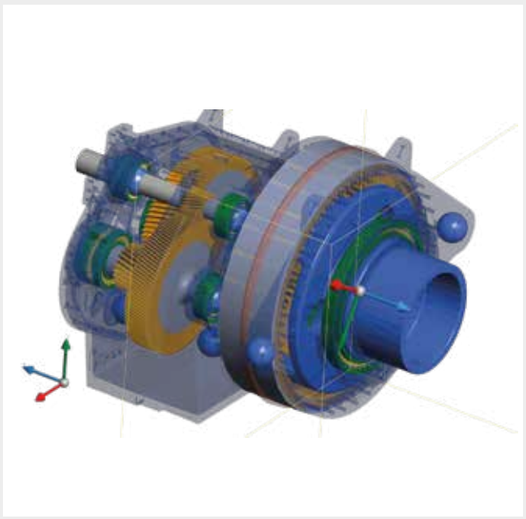
MASTA offers different tools for developing every mechanical transmission system. By means of that, users can harness a wide range of visual and numerical results tools to understand transmission performance under load. This can be assessed referring to a single system state or giving users the power to observe the system at different points in its rotation. MASTA includes powerful analysis capabilities to reveal critical data in order to create a robust transmission design.

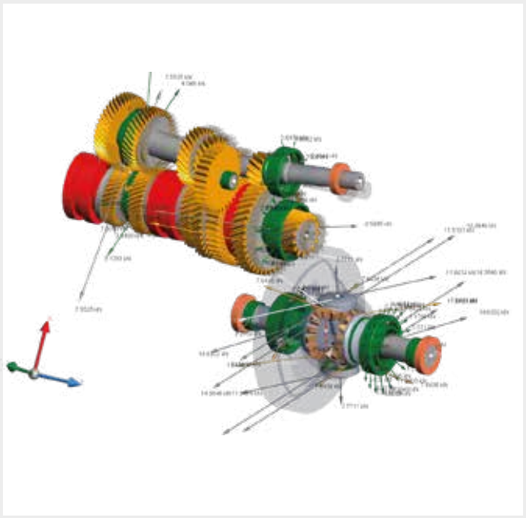
The research of the optimum design in the defined working conditions can be performed by hands - by expert users - or by means of specialised tool. Users can employ critical early-stage optimisation tools to determine efficient system configurations before performing any detailed design or analysis. Users can derive gear ratios, optimise power density, develop gear macro or micro geometry so that to streamline the transmission development process or determine the effect of design or condition changes using MASTA's Parametric Study Tool or RUNNA, to drive design changes by Excel. Last, but not the least, scripting in MASTA allow the users to embed inside the software "in house" methods and software.

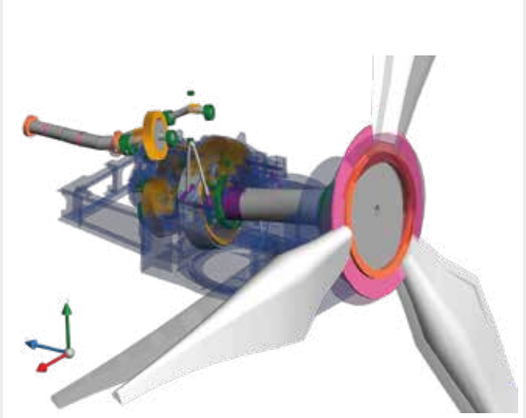


Masta is a product

SMT







# System Development General

## Power Flow and the System Optimiser

- ✔ Visualise transmission operation and perform initial gear ratings
- ✔ Utilise MASTA's System Optimiser to develop transmission layout, gear ratios and gear geometry early in the design stage.

## System Deflection

- ✔ Visualise system deformation, forces, stresses and more on the complete 3D system model.
- ✔ Perform detailed component ratings in both static and fatigue to the most important rating standards.
- ✔ Calculate critical variables such as Gear Mesh Misalignment.
- ✔ Customise reports to present results, charts and images to your exact preferences.
- ✔ Detailed bearing and shaft analysis with dedicated analysis tools.
- ✔ Export FE component data to external FE analyses.

## Advanced System Deflection

- ✔ Assess the behaviour of the system in operation using a quasi-static deflection analysis.
- ✔ Study changes to gear contact patterns and mesh transmission error as the system stiffness changes due to rotational position.
- ✔ Determine the impact of manufacturing errors on critical transmission metrics.

## Parametric Study Tool

- ✔ Use Design of Experiment studies to simulate and analyse complex transmission changes results on a single chart.
- ✔ Monte Carlo study to simulate statistical studies such as the effects of manufacturing tolerances on critical transmission metrics.
- ✔ Linear sweep studies to assess the impact of limited design or condition changes on component or system level results.

## RUNNA

- ✔ Easily run thousands of design variations and automatically extract critical data from MASTA.
- ✔ Utilise the benefits of external software packages to post-process data and determine effective transmission designs.
- ✔ Assess large scale design changes with minimal user input.

## Scripting

- ✔ Utilise MASTA's extensive API, containing thousands of transmission and component properties.
- ✔ Automate tasks within MASTA to create custom functionality.
- ✔ Create scripts using a range of programming languages. .NET, Python and MATLAB® scripts can all be created.
- ✔ Extensive tutorial material to get the most out of the scripting functionality.
- ✔ Link MASTA to external applications and seamlessly process and transfer data between them using custom scripts.
- ✔ Save time performing repetitive processing tasks by automation via scripting.