

MagScope measurement & data analysis software

MagScope is Magcam's advanced data analysis software for measuring and analyzing magnetic field distributions in real time. MagScope is designed to extract as much information as possible from the measurement data. All types of field distributions can be analyzed. Analysis configurations can be saved.

MagScope features include:

- Highly flexible and modular measurement and analysis capabilities
- **Real time measurement and analysis** of magnetic field images captured with the MiniCube magnetic field camera
- Integrated **Python Scripting** Module for e.g. automated **pass/fail analysis** and **data logging**
- Integrated MagFit analysis module for **magnetization vector size and angle** analysis
- Integrated **Matlab scripting** module
- Interpolation of magnetic field maps for **micrometer-resolution** analysis
- 2D color plots of magnetic field maps
- 2D and 1D (cross-section) region selection in **Cartesian and polar coordinates** for cut-out and analysis
- Line plots of **cross sections** in Cartesian or polar coordinates
- Automatic **multipole** segment detection and measurement of pole sizes/angles
- **Statistical analysis** on images and cross sections
- Accurate **distance/radius/angle measurements** on image features (e.g. pole segment sizes)
- Image processing
- **Save/load configurations** for measurement and analysis
- **Save/load recorded images** to/from CSV and binary file formats
- Automated data and screenshot saving
- Automated analysis result export to Excel or OpenXML spreadsheet
- Flexible docking structure for customized layout
- Batch processing of large amounts of data files
- **Crack detection** algorithms
- Gradient analysis
- Powerful distance filter algorithm
- FFT and THD analysis
- Numerous other functions

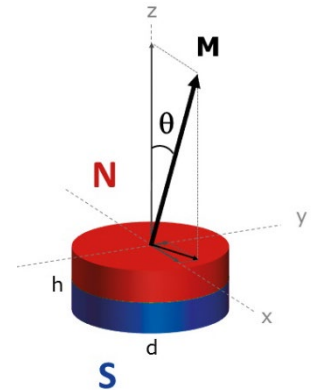


MagScope Measurement & Analysis software example. Top: 2D color graph of a linear sensor magnet assembly. Bottom: 1D plot of the lower part (left) and 1D plot of the upper half (right) of a linear sensor magnet assembly.

MagFit Magnet Analysis Module

The MagFit Magnet Analysis software module offers advanced Magcam data analysis capabilities for a complete characterization of uniaxial permanent magnets. By comparing the measured data with theoretical magnet models, MagFit extracts a lot of extra information from the data, such as:

- Full **magnetization vector** in Cartesian and spherical coordinates
- **Angle deviation** of magnetization vector from the geometrical magnetization axis
- Main magnetization axis (with respect to the magnet geometry)
- Deviations from a perfect theoretical magnet
- **Local material defects** in the magnet material and in the magnetization
- Magnet's 3D **position** (X, Y, Z)
- Magnet's angular position in the sensor plane
- Magnet dimensions
- **Pass/Fail** quality control (in combination with Python Scripting Module)
- Automatic **data logging**
- **Crack detection**
- **Import STL** files for any magnet geometry

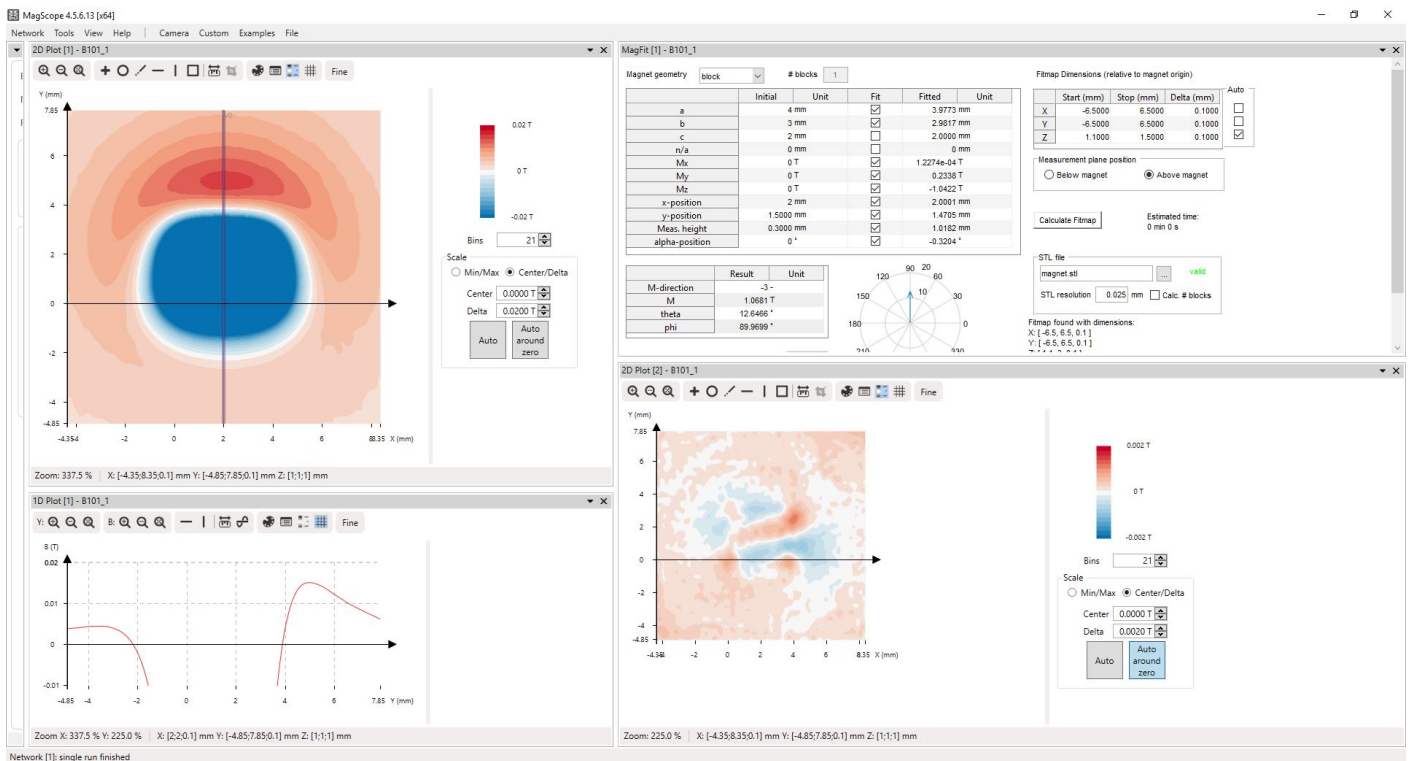


MagFit supports various magnet geometries.

For each parameter, the user can choose whether MagFit should optimize the parameter or keep it constant in the fitting procedure.

The fitted parameters can be used for a pass/fail quality control, with user-defined quality tolerances.

The MagFit Magnet Analysis software adds substantial value to the Magcam Measurement Platform by extracting additional quantitative magnet properties from the Magcam data, resulting in a complete magnet inspection solution for permanent magnets.



Screenshot of MagScope showing a magnetic field image (top left), MagFit analysis (top middle) and difference between ideal and measured magnet (bottom right).