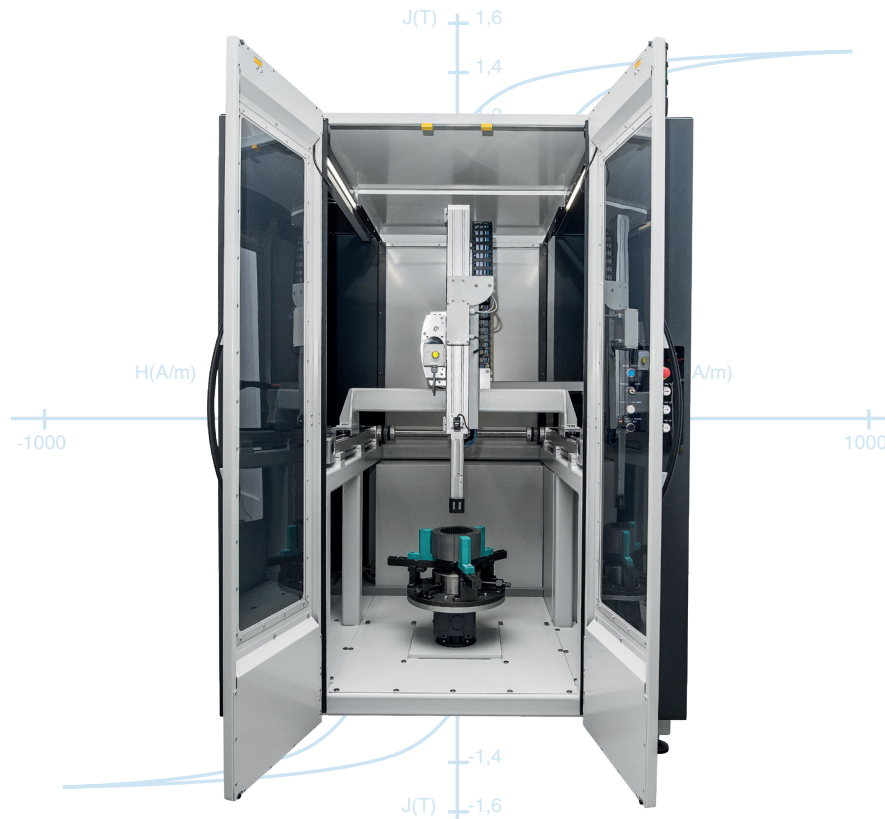




- Determination of magnetic properties of stator cores
- Magnetization via stator teeth enabling evaluation of magnetic properties of stators with windings and housing
- Measurements at multiple angular and vertical positions for detection of local defects and non-uniformity of magnetic properties within a stator stack
- Compatible with the MPG 200 magnetisation unit
- Customized sensor heads for magnetic testing of teeth and back iron of stators
- YZ scanning system and rotating table with stator holding fixture for setting different angular positions of sensor head within the stator core
- Laser system for calibration of the initial reference measurement position
- Active air-cooling for measurements under controlled temperature of sensor head core and windings
- Plug&Play system for fast exchange of sensor heads
- Integrated safety features
- Software package for control of automated testing sequence including stator and sensor head positioning, as well as measurement procedure and visualization of results

Measuring categories

Stator power loss (W)

Flux density in the sensor head (T)

Magnetisation current (A)

Relative magnetic field strength (A/m)

BH loops

BH curves

Relative remanence (T)

Relative coercivity (A/m)

Multilayer polar plots of power loss

Multilayer polar plots of relative permeability

Measuring Technology for Soft Magnetic Materials

Stator Tester BST-L

Stator Tester BST-L

Operating principle

The BST-L system is integrated with the MPG 200 D magnetisation unit. BST-L magnetic measurements of stator teeth and back iron sections are performed using a customized sensor head. The measurement locations are defined by the user by specifying the vertical and angular positions of sensor head with respect to the stator.

The positioning process of the sensor head is fully automated and controlled by the YZ scanning system and rotating table with stator holding fixture. The initial reference position of the sensor head and the stator is calibrated with the laser positioning system. The measurement procedure specifies the number and details of measurement positions, magnetisation parameters, testing sequence, model of sensor head and stator dimensions.

The measurement output data includes information on the magnetic properties of the complete magnetised circuit, including sensor head, yoke, stator teeth and back iron. As the magnetic characteristic of the sensor head and yoke is known from prior yoke characterisation, it is possible to extract the relative properties of the tested stator segments.

These relative properties, such as power loss, can be used for comparative analysis of different segments within individual stator, as well as for comparison of stators after different manufacturing processes, such as: stacking, winding, housing.

Dimensions and details of stators that can be tested with BST-L

- Maximum stator height: 300 mm
- Maximum stator weight: 60 kg
- Maximum stator outer diameter: 500 mm
- Minimum inner diameter of stator from inner rotor machines: 100 mm
- Minimum inner diameter of stator from outer rotor and axial machines: 40 mm

Technical Data

Measurement ranges

- Measurement flux density range from 20 mT up to 2 T (depending on the sensor head size and coil configuration)
- Measuring frequencies range: DC to 20 kHz
- Maximum magnetisation current: 52 A
- Maximum magnetisation voltage: 100 V

Measuring modes

- Sinusoidal flux density
- DC + AC up to 20 kHz
- Higher harmonic content
- Free curves
- DC bias

Sensor head

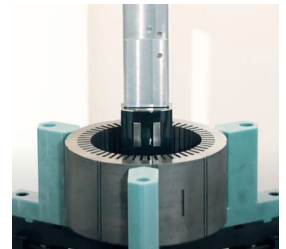
- Sensor head and gripper are custom designed based on stator geometry

Other measuring systems

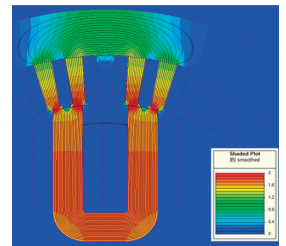
Electrical Steel: MPG 100 D, C 510
Inline: EBA
Surface Resistance: Franklin Tester

Product divisions

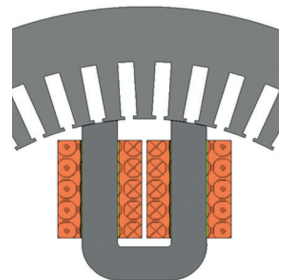
Measuring Technology for Hard Magnetic Materials
Magnetizing Technology
Services



Sensor head



Distribution of flux density



Reference position of sensor head