Horizontal Rotator Specifications

Angle \( \Theta \)
- Range: -10° to 370°
- Angular Step Resolution*: 0.0133°/step (standard resolution)
  0.0011°/step (high resolution)
- Orientation: Axis of rotation perpendicular to magnetic field axis and puck key
- Backlash: < 10°

Operational Range
1.8 to 400 K; 0 to 16 T

*Specified resolution is only obtained by driving successive steps in the same direction.
Specifications are subject to change without notice.

Probing the angular dependence (i.e., anisotropy) of the electrical resistance provides key insights into the electronic and crystallographic properties of materials. The Horizontal Rotator enables a sample to be rotated over 360° in the presence of an applied magnetic field spanning the entire temperature range of the base system. An automated indexing procedure and encoder ensures accurate angular positions and the on-board thermometer monitors the temperature in close proximity to the sample.

Key Features:
- Integrated temperature sensor is in direct contact with the installed sample holder
- Materials chosen to minimize magnetic and temperature effects to ensure reproducibility upon cycling environmental parameters
- Two types of sample boards provided – one where the rotation axis remains in the sample plane, and one where the axis points out of the sample plane
- Two channels per sample board, each channel provides 4-probe electrical contacts
- Low- and high-resolution motor options available

Angular dependence of magnetoresistance measured at 300 K and 1 T using the Resistivity Option in conjunction with the Horizontal Rotator. The 10 nm thick Permalloy film exhibits the expected anisotropic magnetoresistance (AMR) response.