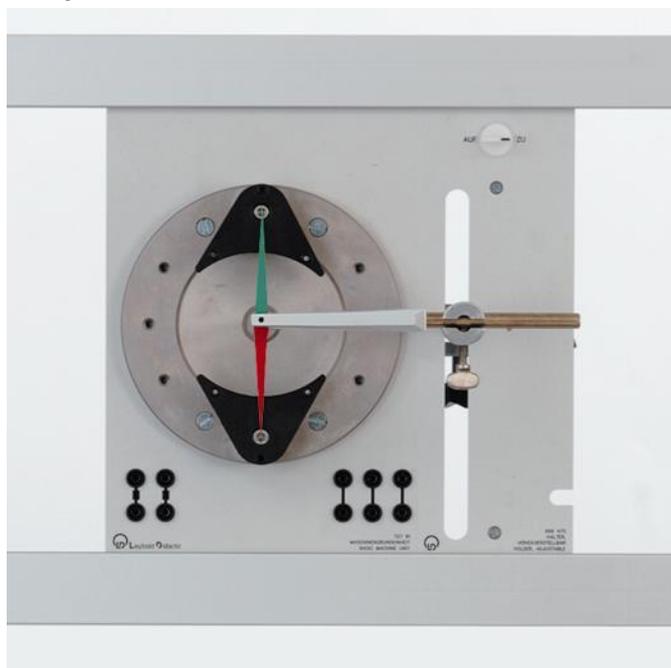


Motors and generators
Stators and rotorsMagnetic field of a permanent magnet stator
Demonstration with a magnetic field indicator needle**Object of the experiment**

1. Investigate the magnetic field of a permanent magnet stator

Setup

With the original polarity set-up, the red tip of the needle (north) points downwards.

When the polarity is reversed, the red tip of the needle (north) points upwards.

Evaluation

A magnetic field develops between the unlike magnetic poles of the stator.

The direction of the magnetic field depends on the polarity of the pole pieces with a permanent magnet attached to each of them.

Apparatus

1 Basic machine unit	727 81
2 ELM pole pieces for magnets	563 091
1 Pair of magnets, 35 mm diam.....	510 48
1 Allen key	563 16
1 Magnetic field indicator.....	514 011
1 Holder with clamp, height-adjustable, CPS	666 470
1 Universal bosshead.....	666 615
1 Stand rod, 25 cm, 12 mm diam.....	300 41
1 Demonstration panel frame	301 300
2 Bench clamps with pin.....	301 05

Procedure

- Put the magnets onto the pole pieces in such a way that the poles are unlike. Screw the magnets to the pole pieces with the red marking of the top magnet facing forwards and the red marking of the bottom one toward the rear.
- Attach the indicator needle in the middle of the stator as close to it as possible and observe the direction of the needle.
- Swap the polarities of the pole pieces. Screw the magnets to the pole pieces with the red marking of the top magnet facing backwards and the red marking of the bottom one toward the front.
- Observe the direction of the needle again.

Observation

The needle aligns itself parallel to the magnetic field of the stator.