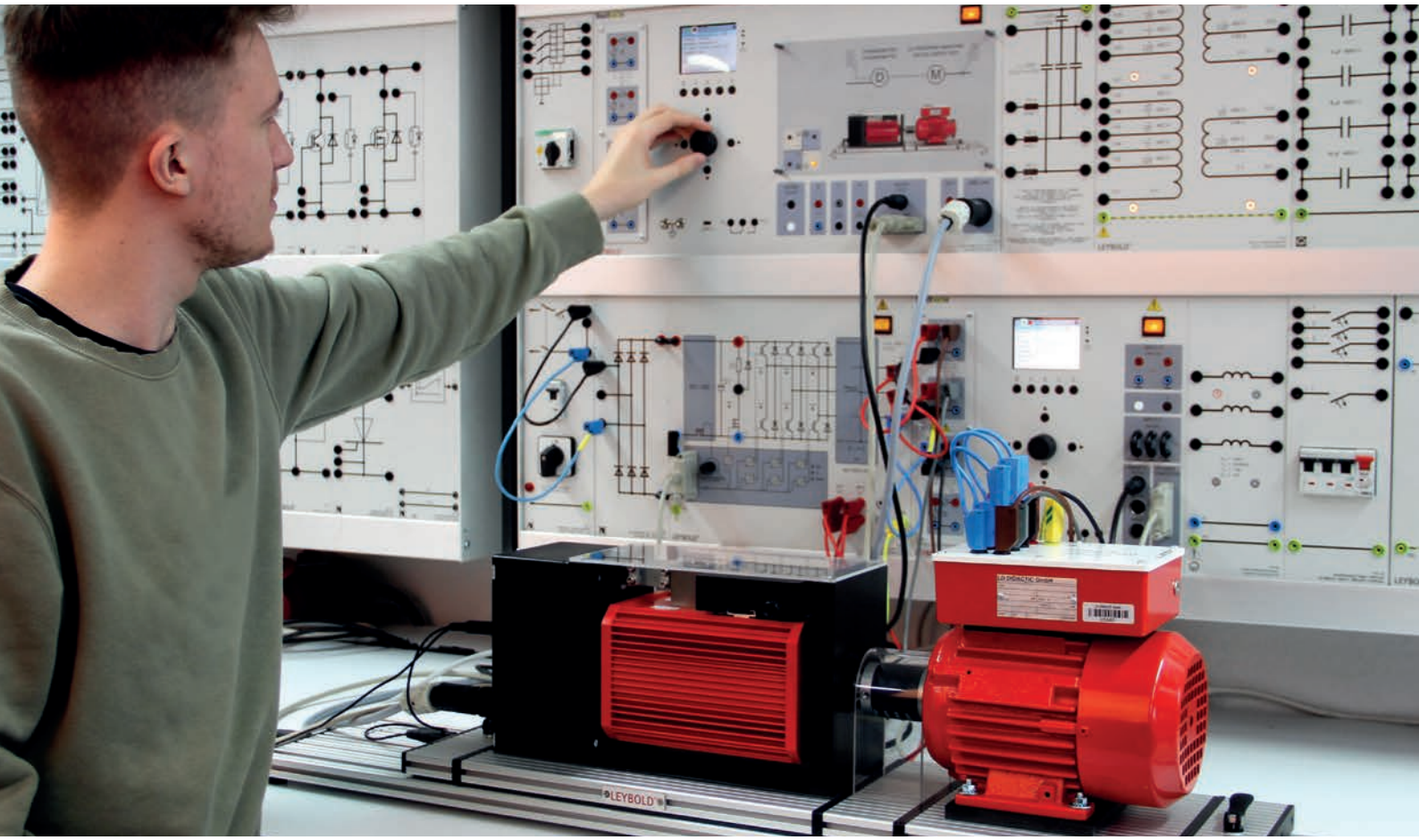
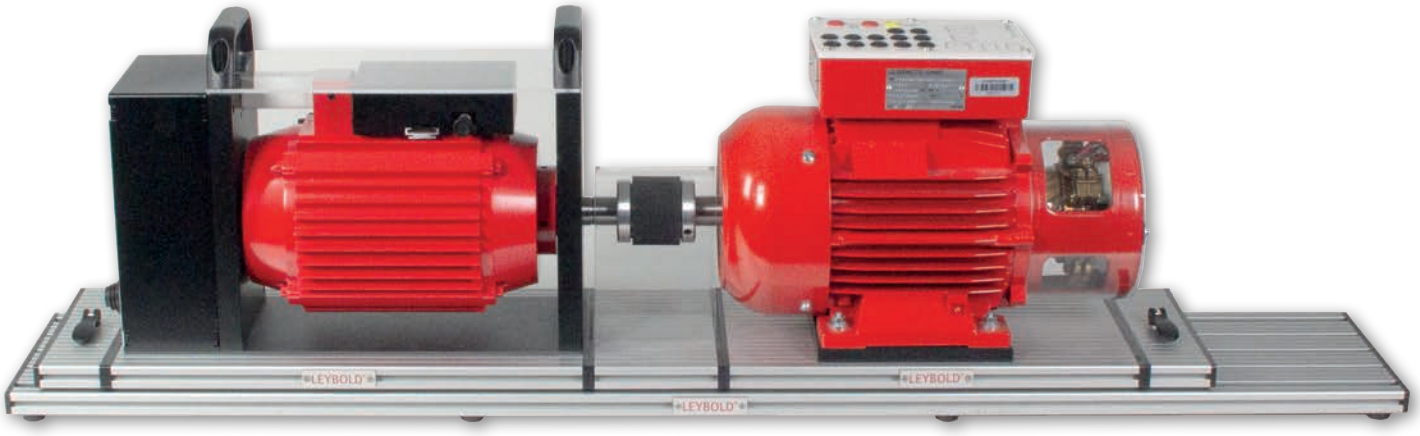
MACHINE TEST SYSTEM



The Machine Test CASSY can be used as a tabletop unit or in a frame.

BENEFITS AT A GLANCE

- Machine test system developed based on the latest safety requirements
- Compatible with existing drive technology equipment
- Integrated Power Analyser CASSY functions to analyse specimens in the control unit
- Part of the CASSY family compatible with all of the interfaces to CASSY Lab 2, digital experiment instructions "Lab Docs", MATLAB® and LabView™



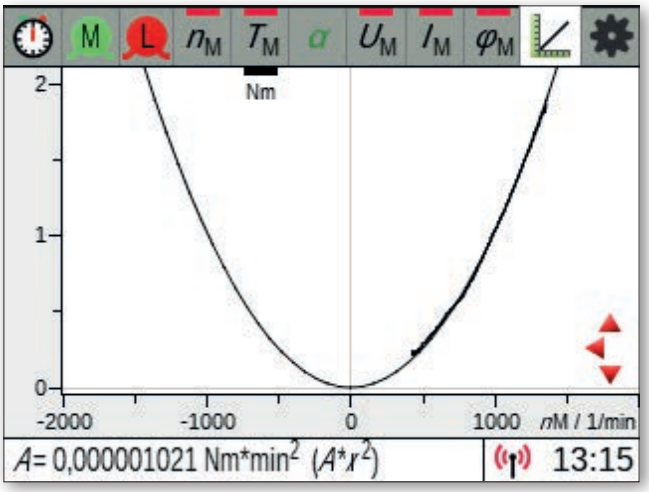
Suitable for 300 W and 1 kW machines

ELECTRICAL MACHINES SUITABLE FOR EVERY DAY USE

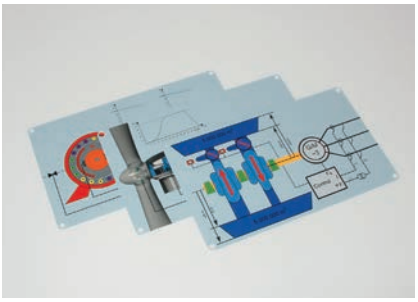
Although the fundamental principals of electric machines have been around for more than 150 years, continuous developments, such as Industry 4.0, have ensured that technological progress has been achieved in this field in recent decades. The specialists in this field are thus continually being required to broaden their knowledge.

As well as testing engines and generators, the new requirements for the machine test system also combine the load simulation of machines with direct start-up in the network or for speed-controlled drives.

The measurements can be recorded with a PC, analysed and distributed via WiFi. However, there is also the option of completing the measurements, including the analysis and distribution of data, without a PC directly on the device.



Load simulation mode of quadratic functions



Masks to visualise the generator types:

- *Synchronous generator*
- *Wind power plant*
- *Pumped storage power station*

LEARNING OBJECTIVES

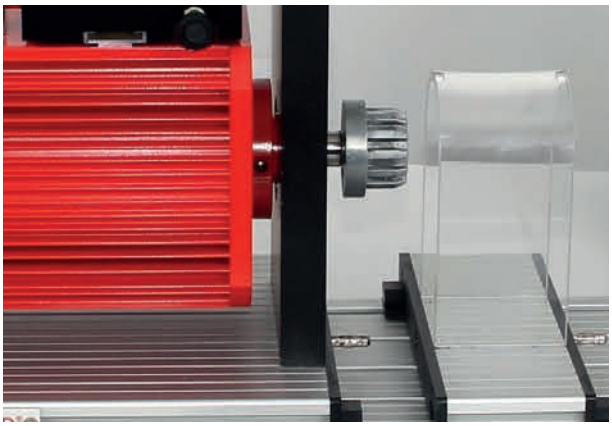
- Design and mode of operation of machines
- Behaviour of machines as motors
- Behaviour of machines as generators
- Speed setting options
- Efficiency
- Characteristic curves of motors
- Load simulation
- Speed and load setting options
- Starting and braking
- Characteristic curves of generators
- Idle and short circuit test

SAFETY CONCEPT OF MACHINE TEST SYSTEM

HEAVY-DUTY MACHINE BENCH & MECHANICAL LOCK

A heavy-duty aluminium machine bench serves to fix the machines in place. Mechanical impulses, which can occur when IPM motors, synchronous motors or high efficiency machines stall, are absorbed by the bench and the mechanical latches on both sides. The machines can be moved around on the machine bench at any time so that two machines can be operated against each other on the machine bench. The installation of digital and analogue tachometers can be installed easily.

PROTECTION AGAINST CONTACT WITH ROTATING PARTS

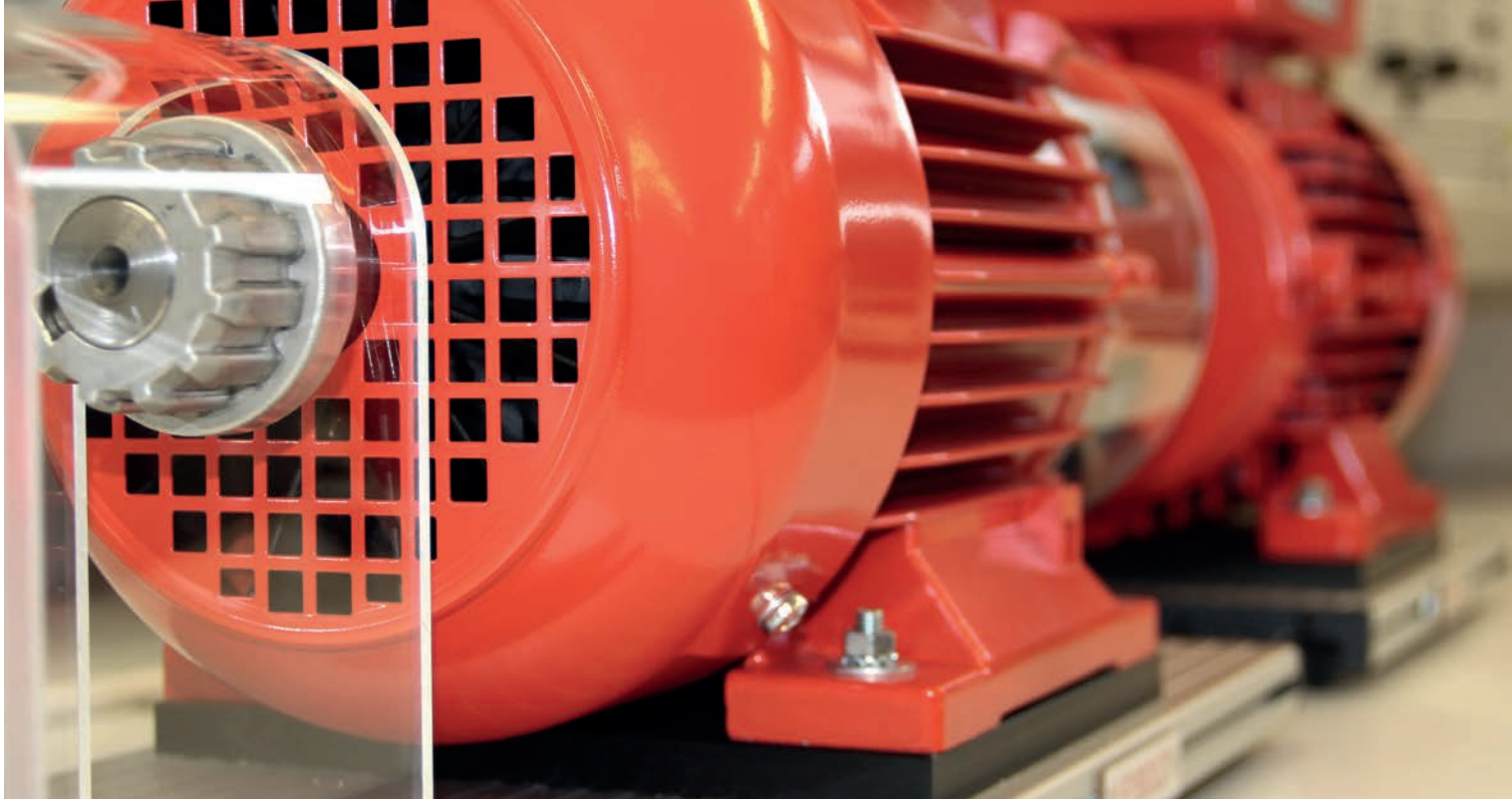


The shaft is connected to the bases of the machine and the pendulum machine by a hood on its own base. The drive shafts can only be accessed after disassembling the drive system. In addition, the base latches are electrically monitored, therefore the unit switches off as soon as the base is detached. Optical tachometers can still be used here.

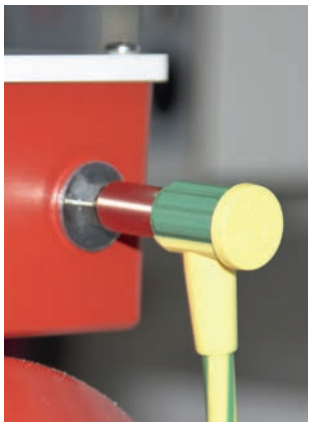
INSULATION FOR ELECTROMAGNETIC COMPATIBILITY

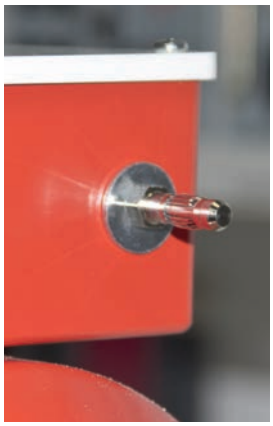
All motors are insulated against the base so that unnecessary current loops do not increase interference radiation and stray leakage currents do not influence the measuring sensors.

This is the requirement for Industry 4.0-compatible frequency converters and servo actuators as well as the associated speed rotation angles and position sensors.



ADDITIONAL POTENTIAL EQUALISATION





Additional potential equalisation is necessary to protect people and the unit. A break in the protective conductor would put the machine or even the entire unit under voltage, as leakage currents could be conducted directly to the motor and the unit via the stator.

An additional protective conductor (potential equalisation) can be created to teach the problem in lessons and labwork. A unit which is often used in medical technology with 6 mm connectors and 10 mm² wires (green/yellow) is used for this. This makes it possible to create an additional protective conductor or local potential equalisation quickly and as intended.

PREPARED FOR EDUCATIONAL PURPOSES TO IMPROVE COMPREHENSION

The machines are all industrially manufactured, designed for education and equipped with a shaft end. The terminal board is on the top for the flexible set-up of experiments. The machines are partially opened and covered so that important components are visible.

FURTHER SAFETY FEATURES

- Temperature switch to protect against overheating
- Automatic shutdown to protect against damage caused by an overload
- Coil ends are led out on the terminal board on 4 mm safety sockets
- All measurements are isolated