



- ✓ Laboratory dynamometer for schools
- ✓ Demonstrative display of the engine properties
- ✓ High supply flexibility

# DYNAMOMETER

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Laboratory workstation for demonstrating engine type tests. An asynchronous motor fed by a frequency converter with a recuperation and braking unit serves as the load cell. The workstation contains a dynamometer, a speed sensor, a torque sensor and sensors for measuring voltage and current.

The measurement of mechanical and electrical quantities is realized with NI DAQ cards in the cDAQ chassis. The sampling frequency of analogue signals is 10 kS/s. Inverter and technology control using the Simatic PLC.

The tests can be extended, include the measurement of winding resistance, temperature and vibration.

The device can be supplied with a static power supply with 3 phases, 1 phase and DC output.

## SW APPLICATIONS

SW development by ELCOM. Application enables the control and parametrization of tests. Allows saving the results of all tests and graph display.

## AUTOMATIC TESTS

- Heating characteristics – measurement of motor and ambient temperature with thermocouples (type J, T), PT100, KTY
- Cooling test – temperature measurement – winding resistance measurement during cooling
- Torque test – at constant voltage – at constant torque – dynamic test
- Short circuit test with shaft interlock – the test can be performed quickly (approx. 2 s) even at nominal voltage
- Idle test

## GENERAL TEST

- Arbitrary control of dynamometer and power supply

## METROLOGY PARAMETERS

Current measurement

- Range 40 A
- DC frequency – 20 kHz
- Accuracy 0.5%

Voltage measurement

- Range 600 V
- DC frequency – 20 kHz
- Accuracy 0.5 %

Torque measurement

- Range 17.5 Nm
- Accuracy 0,5 %

## DYNAMOMETER PARAMETERS

Current measurement

- Nominal power - 4 kW
- Maximum speed - 6000 rpm.
- Nominal torque - 9 Nm
- Maximum torque - 15 Nm
- Integrated speed sensor 1024 imp./rev.
- Frequency inverter Sinamics S120

**Modifications in power, voltage ranges, current, torque and mechanical design are available upon customer request.**