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Electric Motor Test Stand

Type Z90...

for BLDC, Synchronous and Asynchronous Motors

Test stand for motor testing in the laboratory during new development and further development of motors and inverters.

The following is determined during the test procedure:
- Torque and speed
- Current/voltage
- Electrical power
- Power factor
- Temperature
- Efficiency

Description
The dynamically-detected measured quantities are displayed online, evaluated and stored in a process database. An optimally-configured active brake in four-quadrant operation is used to load the test object.

A torque sensor Type 4503A... is used to determine the dynamic torques. Electrical data acquisition is carried out by the highly precise Power Analyzer in conjunction with Hallfeld precision current converters. Various measurement ranges allow peak currents of up to 1 000 A to be measured exactly.
Resistance is measured by a 4-wire system. Thermocouples or thermal resistors can be connected to the 15-channel device to measure the temperature.

Analogue and digital interfaces allow precise control and measuring.
The test object converter can be controlled by an analogue interface (0 ... 10 V) or CAN bus.

Application
Use of this precise measuring equipment permits conclusions to be made regarding product optimisation and further development.

Fig. 1: Drive train with torque sensor Type 4503A... connector and crash ring

Technical Data

Motor/Dynamometer		
Power	kW	81
Torque	N·m	700
Power Analyzer (4-channel)		
1x DC	A	600
3x AC	A	600
Ohmmeter		
Measuring range min.	Ω	0,003
Measuring range max.	Ω	3000
Temperature measurement		
Measuring range	°C	0 ... 250
Weight	kg	2 500

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Dimensions

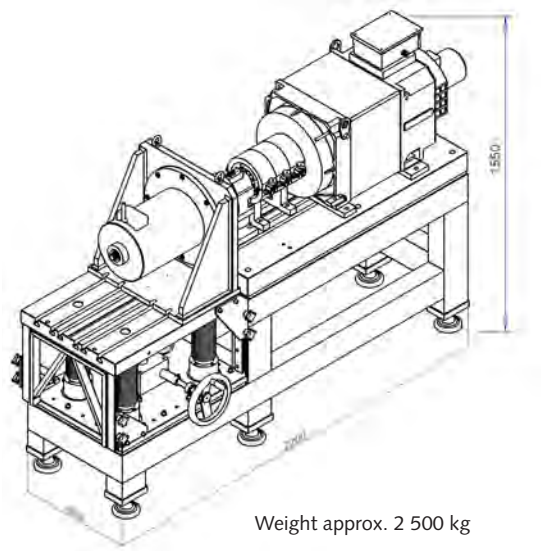

Fig. 2: Overall dimensions of mechanics

Mechanical Configuration

The solid basic frame is made of welded steel profile. The components are mounted onto slotted baseplates, allowing the configuration to be varied.
Slots in the middle permit the components to be aligned exactly within a short time. All rotating parts are equipped with crash and safety guards compliant to accident-prevention regulations. Test objects with various axle heights can be operated on the lifting table.
All steel parts are surface treated and therefore protected against corrosion.

Control

Software control functions

- Manual operation
- Blocking test
- Map (dynamic, stepwise)
- Temperature-rise runs
- Idle test
- Load profile

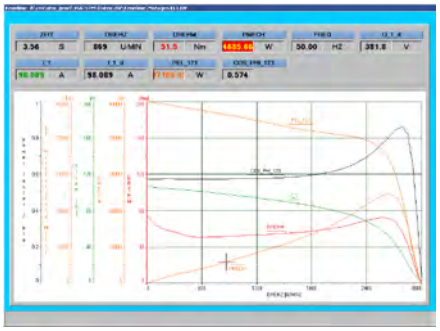

Fig. 4: Display of test results

Elektrics

Fig. 3: Measuring equipment control cabinet

Measuring equipment control cabinet
LxWxH: 1200 x 600 x 2200 mm, Weight: 400 kg

Power electronics control cabinet
LxWxH: 1400 x 600 x 2400 mm, Weight: 750 kg

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