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Industry: Automotive industry / electric motors

Test system for electric motors

Task

Since the area of application is the prototype workshop of a well-known sports car manufacturer, the test system must be able to test various prototypes of electric motors, some with very different component characteristics. A maximum of flexibility was therefore crucial.

Solution

In order to ensure maximum flexibility, the contacting of the very different DUT is done by hand. For particularly heavy DUT, the test system can be equipped with a crane. The design allows for motors up to a weight of 500 kg / 1,200 lbs.

By scanning a DMC code, the appropriate test program for the DUT is automatically loaded. When the start button is pressed, the light curtain is activated and the further test steps run fully automatically.

A light curtain was used to protect the user. This makes it possible to shorten the cycle time, as no safety door has to be closed and opened again. In case of faulty DUT, the user does not have to open a safety door to remove the corresponding DUT.

At the end of the test, a PDF protocol with the test results is generated to simplify further evaluation.

Advantages

+ Turnkey solution including DUT fixture, adaptation and workplace design
+ Simple and intuitive operation for trained personnel
+ The DUT only has to be connected once, the rest of the test sequence is automatic
+ Parameters and settings can be changed at any time via the software
+ Automatic dummy test
+ Workplace safety according to EN 50191
+ Large test chamber for DUT with high weight / large external dimensions

Specifications

- Surge test up to 6,000 V
- Partial discharge measurement during HV- and surge test
- Insulation resistance test at 6,000 V DC
- High voltage test AC 500 – 5,500 V
- High voltage test DC 500 – 6,000 V
- Potential equalization measurement 0 – 20 A / 0 – 40 V DC
- Resistance measurement 2 mΩ – 200 kΩ (with temperature compensation)
- Alignment of a rotor for the surge test 0 – 20 A / 0 – 40 V DC

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