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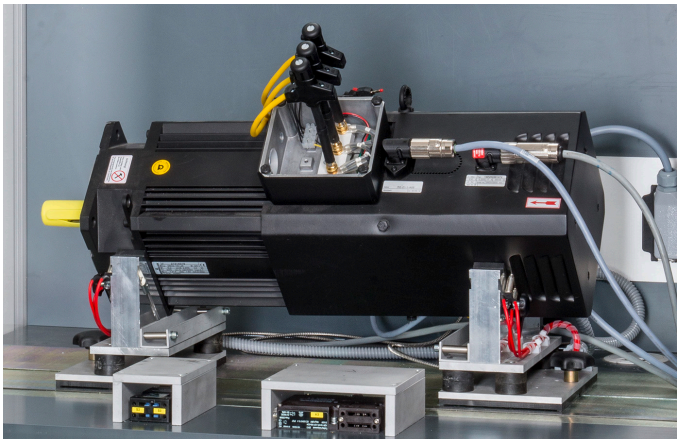
CUSTOMIZED

Industry: Electric motors

Final testing bench for brushless servomotors



Task

Aim of the final testing bench was to enable the customer to test different motor sizes and output classes. The partly heavy weight of the motors made top loading using a crane necessary, in addition to the normal mounting from the front. In addition to the safety and function tests, vibration measurement must also be performed. Another difficulty was the large number of different connector plugs and different sensor systems.

Solution

Easy-to-use PC software and a sophisticated switching matrix allowed testing of all of the different motor sizes and output classes. Over a network connection, the different motors are identified and assigned using a bar code scanner and the corresponding test program is loaded. The test results are stored under the serial number with operator's name, date and the test results on the server. All of the different sizes in the test system can be contacted due to the different DUT supports. Operation with up to six different types of sensors is possible. Vibration is measured on the two bearing flanges. For this purpose, the testing cabin was hermetically sealed, but provided with an opening to the top. This is used for the desired crane loading. In addition to the protective earth conductor test, the high voltage test was performed between the different potentials such as winding, housing, sensor and the thermal sensor. Other tests performed are the EMC voltage test, winding resistance test and the function test at different target rpms. Operation of the motors with and without sensor is possible here. Sensors are also checked (number of lines, level, etc.).

An arbitrary number of test programs can be stored in the testing system PC. This allows the customer to independently write new test programs when developing new products. However, for products with identical data, it is also possible to use the same test program, which is then allocated to the respective DUT over the product list. The test results are stored automatically in XML or Access format on an arbitrary place on the network.

A separate test dummy is used to check the functionality of the testing system fully automatically. During the daily start of the testing system, the testing personnel is asked to include this dummy and start the corresponding program. The testing system does not allow further testing without a passed dummy test.

Advantages

+ Turnkey solution including DUT support, adaptation and workplace design
+ Simple, intuitive operation for semiskilled personnel
+ The DUT needs to be connected only once, then the whole test process occurs automatically
+ In network operation, all test data is automatically saved at the specified location / database
+ Long service life and service-friendly design
+ All values and settings can be made using software
+ Automatic dummy test
+ Workplace safety according to EN 50191
+ Full integration in the existing production line
+ Compact design for production areas with less space
+ Suitable for crane loading
+ Safety and function test including vibration measurement for various motors and only one-time connection

Specifications

- Protective earth conductor test from 10 to 30 A AC
- High voltage test up to 5,500 V AC and 6,000 V DC
- Resistance test
- Measurement of the EMC voltage
- Vibration test
- Sensor test
- Function test at different rpms

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