



Elektrosil – Complex material load testing

In collaboration with customers and manufacturers, Elektrosil GmbH develops individual, economical solutions and customized products. The basis for this is Elektrosil's specific philosophy of offering products and processes from a single source: development support, quality management, production, process control, product-related technical support and logistics.

Complex load testing

The focus at Elektrosil lies in the fields of industry (incl. automation & automation technology, mechanical engineering, measurement) and automotive (climate control & entertainment cooling). Elektrosil develops active and passive electromechanical components and systems in their entirety for these customers. The custo-

mer's specifications and standards often place high demands on the thermal stability of the products, which require complex load testing. The MKF 240 environmental simulation chamber from BINDER is used for this testing. Developed for complex alternating climate profiles, the MKF is ideally suited for heat or cold testing according to current temperature and climate testing standards.

Environmental simulation over multiple days

The complete range of loads that might befall the respective product in the course of its service life is tested. Nothing is left to chance. Does a unit operate at the minimum operating voltage even at -40 °C according to the requirements? Does it stand up to continuous operation with a

Requirements

- ▶ Environmental simulation chambers for testing electromechanical components and systems
- ▶ Complex material testing, complete range of loads
- ▶ Constant environmental conditions in the test room
- ▶ Environmental simulations at a temperature range of -40 °C to +120 °C
- ▶ Reproducible measurements

BINDER Solution

- ▶ BINDER environmental chamber of the MKF series for complex alternating climate profiles with vapor pressure humidification and drift-free capacitive humidity sensor for very accurate test results
- ▶ Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results



▲ Fan series from Elektrosil

full load and, for example, at 90 °C? How does it respond to sudden changes in temperature? These and many other questions are raised with every new product. "The climate chamber from BINDER provides us with its performance reserves adequate for heat, cold and humidity that allow us to also safely develop future projects", explains Peter Huck, project manager in charge at Elektrosil.

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Reproducible measurements

The focus of the testing is currently fan systems that are used, among other things, in the automotive sector. Environmental simulations are carried out over multiple days that cover the operating range of the products from -40 °C to +120 °C. As four or more samples are tested simultaneously in most cases, homogeneous temperature distribution is particularly important for comparable measurement results. Self-adjusting fans, for example, are tested at a temperature range of -40 °C to +90 °C for the properties required by the customer. The test lasting up to 36 hours consists of a sequence of temperature steps and steep temperature ramps of varying degrees. Compliance with the defined operating



▲ Fan unit with integrated PTC module:
Analysis of environmental influences on performance

behavior must be ensured over the entire temperature range. With the BINDER MKF 240, the required temperatures can be specifically achieved and precisely maintained. During this predetermined temperature profile, the sample values (voltage, current consumption, speed, control response, temperature and humidity) are continuously logged and analyzed. In addition, execution of a test must be reproducible in order to obtain meaningful data. According to a defined test plan, the measurements are then carried out and the temperature profile already planned can be accurately repeated at any time.

The complete package from BINDER is impressive

These types of measurements have been carried out at Elektrosil in the past with external service providers or significant manual effort. Productivity in the laboratory

has increased significantly due to the BINDER MKF 240 as tests series can now be carried out fully automatic around the clock and over the weekend. Above all, the good price/performance ratio has impressed Elektrosil. "The MKF offers a wide range of services with absolute precision and performance reserves at a good price", concludes Peter Huck

30 years of experience

As a solutions partner, Elektrosil GmbH has operated successfully in the market for 30 years. The target markets can be found in almost all industrial sectors. The range of products includes system components (input systems, output systems, power supplies and embedded systems), as well as traditional electromechanical assemblies (fans, cable assemblies, connectors and DC motors).

Advantages

- ▶ State-of-the-art reliability
- ▶ User-friendly chamber interior
- ▶ Comprehensive standard equipment
- ▶ Quality "Made in Germany"

Areas of application

- ▶ Plastics Industry
- ▶ Automotive
- ▶ Electronics- / Semiconductor Industry



▲ Environmental simulation chamber MKF

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