Environmental Simulation Test Equipment
Electronics withstand heat and cold

Function and reliability under extreme conditions

In many industries, there is a trend towards an ever increasing electronics share in the products. However, an abundance of failure risks are inherent to the efficient, yet very sensitive technology. In spite of this, the electronics used must function reliably under all circumstances prevailing in use - also under extreme conditions.

Faults generated under extreme loads must be recognized as early as possible in the manufacturing process. For this reason, a test of the components and assemblies under simulation of actually existing environmental influences - especially extreme temperatures - is necessary.

This is of particular importance in markets with high requirements on operational safety, such as automotive, medical technology, aerospace.

In addition, manufacturers increasingly require a guaranteed reliability of third-party components. Defective components can cause the failure of complete systems which always involves high costs and loss of image.

In-process tests enable the customers to meet the high requirements on the reliability of their products - from the individual component up to complete products.

A further segment of our product range comprises the calibration of devices. A typical application example from the building technology field is the temperature calibration of heat meters.

Industries
- Automotive
- Aerospace
- Rail transport
- Building technology
- Medical technology
- Communication technology
Temperature test product range

ENGMATEC provides a large range of efficient systems for quality assurance, development and production. This includes standard modules that can be flexibly combined as well as individual equipment according to customer specification.

The delivery program comprises both climate test equipment as batch version (temperature test cabinets) and continuous tunnel systems with inline capability (DTA).

The use of stand-alone climate cabinets is suitable for market segments with lower production quantities.

When assemblies are produced in high annual quantities, e.g. in the automotive industry, the use of continuous tunnel systems with process-integrated test systems is often more economical.

Automotive test systems
- Airbag
- ABS
- ESP
- Emission control
- Steering systems
- Engine and transmission control
- Sensors

Aerospace test systems
- Flight controls
- Actuation systems

Rail transport test systems
- System electronics
- Chassis controls

Building technology test systems
- Heat meters
Stand-alone systems

Professional test technology and environmental simulation

The core competence of ENGMATEC GmbH is the design of climate and temperature cabinets which allow for functional tests or calibrations.

Depending on customer requirements, the products are exposed to various thermal and mechanical stress factors and tested. Combined environmental test procedures are often required.

Provoked failures help to identify weak points already in the development phase to enable early correction of instable processes.

Main characteristics

- Temperature profiles from -45°C to +125°C
- Simple handling
- Reliable contacting with low-wear system plugs
- Adaptation to customer specifications
ENGMATEC has implemented solutions in the testing and measuring technology field. Based on this experience we can provide our customers a comprehensive and interdisciplinary test spectrum.

Based on proven components, ENGMATEC plans and installs temperature test equipment optimally tailored to individual customer specifications.

Complete products or individual electronic components can be tested with our test systems, depending on requirements.
Continuous tunnel systems

Rehm Thermal Systems and ENGMATEC, two specialists in the field of temperature testing, have joined their forces to offer thermal test systems as inline solutions. ENGMATEC integrates the Securo thermal test system from Rehm into the production process.

Inline test equipment for temperature test

The general development towards a continuously increasing use of electronic components in various products, led by the automotive industry, corresponds with the simultaneously increasing requirements on product reliability.

Test systems with a higher capacity are therefore urgently required. This achieves higher economic effectiveness and efficiency as compared to temperature cabinets as stand-alone versions.

In particular, suppliers to the automotive industry manufacture assemblies and components in annual quantities which can be manufactured only on equipment with inline capability and process-integrated test systems.

ENGMATEC provides automated environmental simulation sections for these requirements.

Design and implementation

- Temperature profiles from -40°C to +125°C
- Continuous parts throughput
- Individual adaptation to customer specifications
- Manual or automated loading
- Temperature precision of ±1°C can be achieved
Continuous tunnel systems

- Temperature profiles from -40°C to +140°C
- Continuous parts throughput
- Individual adaptation to customer specifications
- Manual or automated loading

Test technology

Assembly automation

Measuring equipment

Board handling equipment

Detail part manufacturing