

# EMPOWER YOUR ELECTRONICS BUSINESS WITH MEMMERT

We offer the best solutions for your applications

Humidity chamber HCP

Vacuum oven VO

Universal oven U

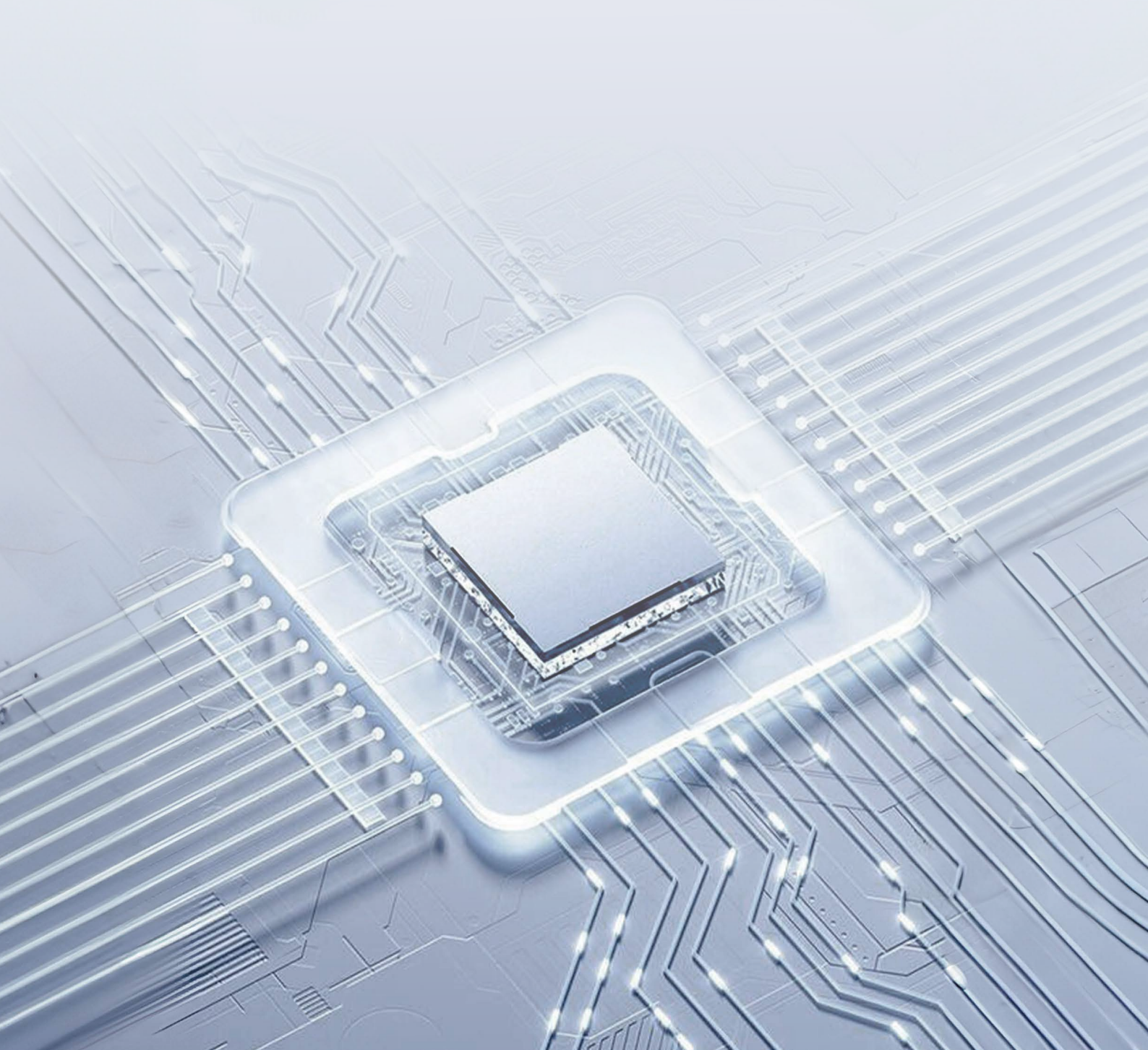


# ABOUT MEMMERT

MEMMERT is one of the world's leading manufacturers of climate chambers and temperature control units for laboratories and industrial applications. Our product range comprises of climate chambers, heating and drying ovens, incubators, medical devices and water baths.

In our role as innovation leader, our philosophy is to align new product developments with customer requirements whilst simultaneously striving for a maximum level of quality, reliability and sustainability. Standardised manufacturing processes in our modern production facilities implemented by a 550-strong workforce of skilled and experienced employees guarantee consistent high-quality standards.

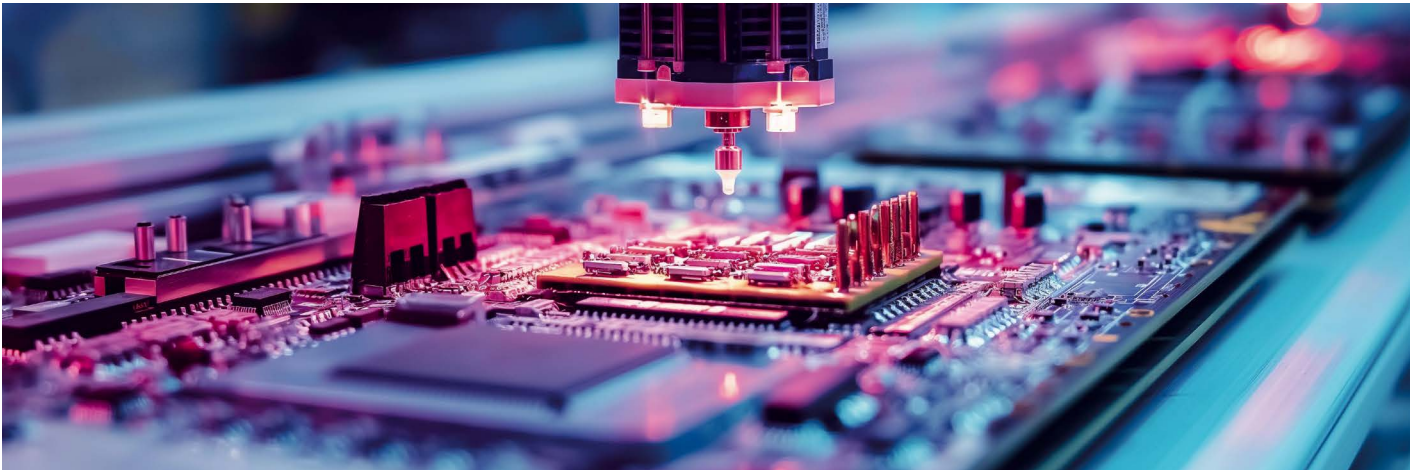
With over 90 years of experience and an international network spanning the globe, Memmert is synonymous with consistent high standards.



# MEMMERT: YOUR TRUSTED ALLY IN THE ELECTRONICS SECTOR

Our range of products is ideally suited to applications in the production, testing and quality assurance of electronic components and systems. In this brochure you will find fantastic insights into how Memmert products can enhance your business in the electronics industry, such as:

- Thorough drying of PCBs and assemblies after cleaning
- Annealing and curing of electronic and mechanical components
- Bubble-free potting using the Vacuum Oven (VO)
- Reliable climate conditions for storage, ageing, and corrosion tests
- Precise temperature control for polymer curing and material testing



## GOOD REASONS FOR A MEMMERT

- **Leader in technology:** Experienced and continuously innovative for more than 9 decades.
- **ControlCOCKPIT:** Touch, turn & go! Easy and intuitive operation. Clear view of all parameters.
- **Performance:** Unparalleled precision and temperature stability, brilliant all-round surface heating.
- **Advanced Peltier Technology:** Pioneer of energy-efficient, environmentally friendly products with Peltier technology.
- **Convenience:** Interfaces for connecting and programming, easy opening/closing of the door and transport.
- **Safety:** Of users and chamber loads. Electronic temp. monitoring system, overtemp. protection, alarm notifications and MobileALERT.
- **AtmoCONTROL-Software:** Drag, drop & go! Simple to operate, userfriendly, multiple possibilities for reading and data logging.
- **Service:** Technical support – whenever, wherever. Spares, maintenance, repair, commissioning, IQ/OQ/PQ qualification, customer training.

# OUR PRODUCT HIGHLIGHTS FOR THE ELECTRONICS INDUSTRY



## Vacuum oven VO



Heating



Vacuum



3 model sizes: 29, 49 and 101 litres

- Model variant TwinDISPLAY
- Temperature range up to +200 °C
- Pressure range: 5 to 1100 mbar
- Digital electronic pressure control
- Separately adjustable and directly heated thermoshelves
- Multifunctional fuzzy-supported control
- Control and logging software AtmoCONTROL
- Speed-controlled vacuum pump (optional) saves around 70% energy, reducing energy consumption
- T5 option for introducing alternative gases, enhancing the drying process
- Energy-efficient system ensures optimal performance while keeping energy costs low

### Applications

- **Bubble-free fusing and curing** of potting compounds on electrical components, aiding in efficient heat dissipation
- **Crack-free drying** of potting compounds, preserving the conductivity and insulation of electronic components
- **Oxidation-free storage** by maintaining a pressure of 5 mbar, preventing oxygen contact, and protecting oxidation-sensitive materials
- **Gentle drying** of electronic components without risk of high temperature damage

## Humidity chamber HCP



Heating



Humidity

4 model sizes: 56, 107, 156 and 241 litres

- Model variant TwinDISPLAY
- Working temperature range: at least 7°C above ambient temperature up to +90 °C
- Digitally controlled active humidification and dehumidification 20 to 95 % rh
- 6 side heating incl. heated inner glass door: short recovery times, avoiding condensation
- Double doors (inside glass, outside stainless steel)
- Exceptional temperature and humidity uniformity

### Applications

- **Perfect for 85/85 stress tests (85 °C/85 % rh)** to ensure electronic components withstand extreme conditions
- Ideal for **environmental testing, simulation**, and accelerated life tests
- Complies with **IEC 60068-2-67** and **IEC 60068-2-78** standards



## Universal oven U



Heating

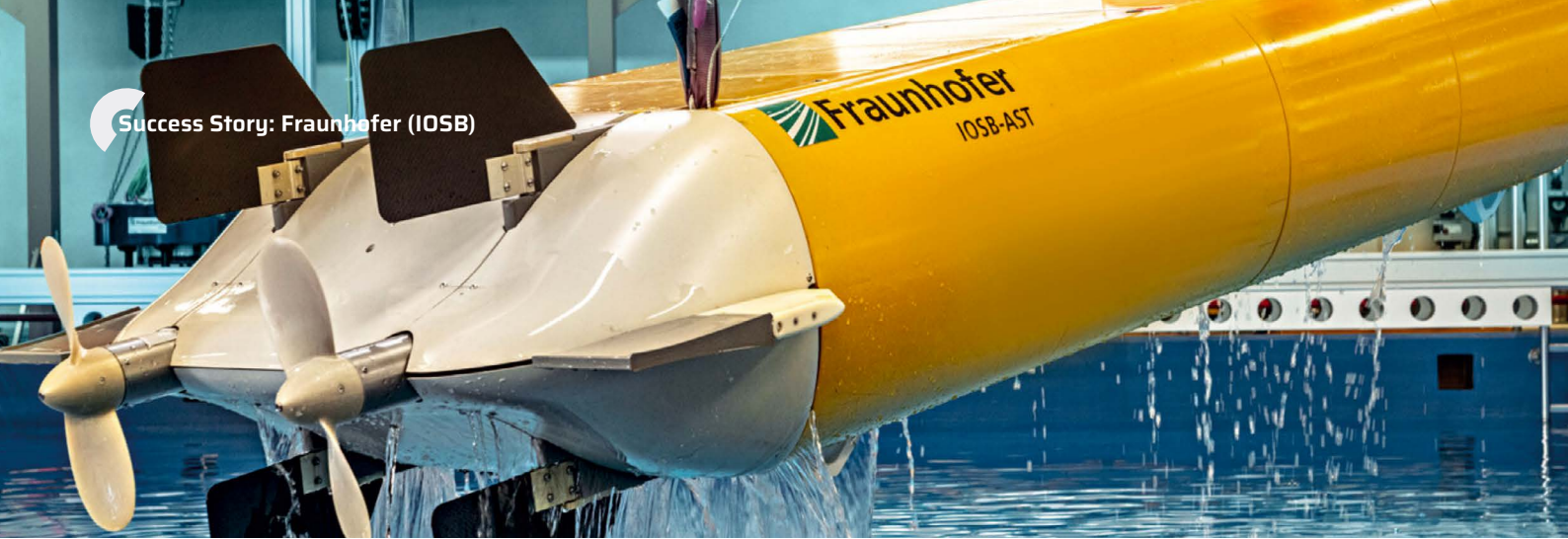
9 model sizes from 32 litres to 1060 litres

- 2 model variants: SingleDISPLAY or TwinDISPLAY
- Temperature range up to +300 °C
- All-round heating on all 4 sides for excellent temperature homogeneity
- Natural convection (N) or forced air circulation (F)

### Applications

- **Cable ageing:** Ideal for testing and ageing cables with precise temperature control and high heat output
- **Drying:** UF drying oven efficiently removes water residues with a powerful fan and fully openable exhaust air flap





## MAKING THE INVISIBLE VISIBLE - WITH ABSOLUTE PRECISION UNDER WATER

A single air bubble can cost millions – especially if it causes damage in a highly complex autonomous underwater vehicle (AUV). That's why the Fraunhofer IOSB-AST relies on the **Memmert VO101 vacuum oven** in underwater robotics. To reliably protect electronics from the extreme conditions of the deep sea, all components are potted bubble-free in silicone gel – a sensitive process that allows no mistakes. Thanks to Memmert's precise vacuum technology, the team in Ilmenau is on the safe side.

### The challenge: Ensuring full reliability under extreme conditions

In developing autonomous underwater vehicles for extreme missions down to 6,000 meters, one thing matters above all: absolute reliability. A single air bubble trapped during potting can lead to severe damage under immense water pressure – with fatal consequences for the vehicle, the mission and the research budget.

Manual potting using a vacuum bell jar and external pump was time-consuming, error-prone and difficult to reproduce. A more precise and safer solution was needed.

### The solution: Vacuum encapsulation with Memmert – safe, fast, and reproducible

With the Memmert VO101 vacuum cabinet, the team found a reliable, low-maintenance and user-friendly solution. Electronic components are degassed under controlled conditions at 5 mbar and fully embedded in silicone gel. The entire process is completed in just a few minutes and guarantees the highest quality without air inclusions. Precise pressure control and simple handling make vacuum potting not only safer but also significantly more efficient.

*"A generous usable volume, precise pressure stability and a wide vacuum range – those were the decisive features."*

*The VO101 was the largest model with integrated vacuum pump and controller that ideally met our requirements."*

*- Prof. Dr.-Ing. habil. Thomas Rauschenbach,  
Director, Fraunhofer IOSB-AST*



## The device in detail: Why the VO101 is the perfect choice

The **VO101 vacuum oven from Memmert** is specially designed for demanding drying and encapsulation processes where precision, reproducibility, and safety are crucial – as in the underwater robotics work at Fraunhofer IOSB-AST.

Thanks to the combination of precise vacuum control, uniform temperature distribution, and robust construction, the device meets the highest demands in research and development. For the Fraunhofer team, this means consistent process conditions, easy operation, and bubble-free encapsulation of electronics with minimal effort.

### Particularly convincing for Fraunhofer IOSB-AST:

- **Vacuum range from 5 to 1100 mbar:** ideal for bubble-free degassing and potting of electronic components
- **Large chamber volume (108 l)** with a compact footprint – perfect for lab use
- **Intuitive ControlCOCKPIT with touchscreen:** all parameters at a glance
- **Integrated vacuum pump and pressure control:** no external equipment required
- **Gentle, reproducible pressure profiles:** prevent boiling and minimise error sources
- **High-quality construction for long-lasting, trouble-free operation:** even with daily use
- **Programmable temperature and vacuum profiles:** ideal for standardised lab processes

**The VO101 is therefore not just a technical device, but a reliable partner in everyday laboratory work – helping the Fraunhofer team take quality, safety, and efficiency to a new level.**



### About Fraunhofer IOSB

The Fraunhofer Institute is one of Europe's leading applied research organizations, operating over 75 institutes and research centers across Germany. In the 'Applied System Technology' (AST) division of the Fraunhofer Institute for Optronics, System Technologies, and Image Exploitation (IOSB), researchers focus, among other areas, on developing cutting-edge underwater robotics.

**Industry:** Research and Development

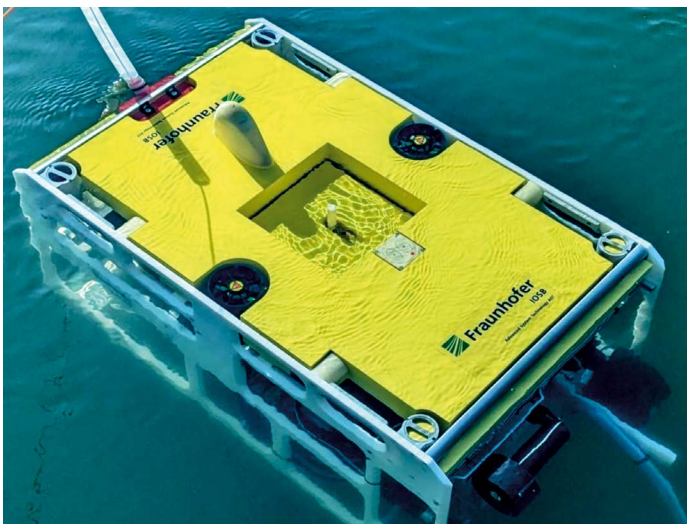
**Locations:** 75 institutes and research centers in Germany

**Employees:** more than 30,000

**Customer since:** To be recorded



The institute develops autonomous underwater vehicles (AUVs) designed for operations at depths of up to 6,000 meters. In this extreme environment, the robots must withstand high water pressure and strong currents.



## BAYKA RELIES ON MEMMERT PRECISION - PERFECT TEST RESULTS FOR MORE THAN 35 YEARS

Bayerische Kabelwerke (BayKa), based in Roth, has been developing and manufacturing high-quality cables and wires for over 130 years – for buildings, infrastructure, transport and industry worldwide. For quality assurance the company relies on a total of **25 Memmert units**, including heating ovens and Peltier-cooled incubators. The oldest devices have been running around the clock since 1988 – proof of maximum reliability even in harsh production environments.

### The challenge: Meeting the highest material standards over decades

In the cable industry it is crucial that materials function reliably even under prolonged and demanding chemical, physical and mechanical stress.

For BayKa, resistance under extreme conditions such as high temperatures and high humidity is especially important to ensure durability and reliability. The challenge lies in testing materials under accelerated ageing conditions to identify potential weaknesses at an early stage and initiate measures for quality assurance and product safety. In doing so, the materials must maintain their performance even under adverse environmental conditions, preventing degradation due to thermal aging, oxidation, corrosion, or mechanical damage.

Another important aspect is the careful handling of waterproof materials, such as swellable substances, which must be kept completely dry before use to ensure their sealing function and long-term reliability.

*“ With Memmert we have found a partner who promises the same quality standards as we do. We and our customers can rely on dependable test results and the highest quality. The excellent spatial temperature uniformity has particularly convinced us.”*

*- Benedikt Spangenberg, Head of Development at BayKa*



## The solution: Memmert precision for safety and quality

In the test laboratory, microbiological resistance tests on cable sheaths are performed in **Memmert Peltier-cooled incubators**. This is followed by ageing tests in **Memmert heating ovens** under accelerated conditions, as the service life of cables roughly halves with every 10 °C increase in temperature.

For BayKa's heat-resistant and flame-retardant cables, cross-linked special elastomers or polyolefins are used; the degree of cross-linking, which is crucial for durability and performance, is determined by the hot-set test at 200 °C under load, as specified in DIN EN 60811. In addition to the hot-set test, Memmert ovens are used for tests such as heat-pressure resistance, stress-cracking, and lifetime testing. For longitudinally watertight cables, swellable materials are used that absorb and sea water in the event of damage; to ensure optimal function, the nonwovens and yarns are dried for 24 hours at 60 °C in Memmert drying ovens before processing.

## The devices in detail: Why the universal ovens and incubators are the perfect choice

BayKa relies in particular on UF-series heating ovens and IPP Peltier-cooled incubators, which excel thanks to:

- **Exact temperature distribution throughout the chamber**
  - essential for comparable test results
- **Extremely durable construction**
  - many units have been running for over 35 years
- **Reliable compliance with standards**
  - e.g. DIN EN 60811 for cable material testing
- **Robust in harsh industrial environments**
- **Minimal maintenance and high ease of use**



## About Bayerische Kabelwerke (BayKa)

Bayerische Kabelwerke (BayKa), headquartered in Roth, was founded in 1885 and is one of the pioneers of the German cable industry. Today, with around 320 employees, the company produces innovative cable solutions for digitalization, the mobility transition, energy infrastructure, and Industry 4.0. With over 1,200 cable types and decades of experience, BayKa is one of Europe's leading mid-sized cable specialists.

**Industry:** Industrial sector – electrical wires and cables

**Locations:** Roth, Berlin

**Employees:** 320

**Memmert customer since:** 1988





## FULL CONTROL UNDER CONTINUOUS LOAD – ACCELERATED LIFETIME TESTING AT 85/85 CONDITIONS

At the accredited test laboratory NonaChem, the precise analysis of electronic components is the focus. To test them under extreme climatic conditions, the company uses **Memmert HCP humidity chambers**. Today more than 15 Memmert units are in use – including constant climate chambers, heating ovens and water baths. The combination of a stable 85 °C/85 % rh atmosphere, reliable software and exact documentation convinces the team around Managing Director Nedim Treiber.

### The challenge: Ensuring the durability of electronic components

Manufacturers in the automotive industry face intense innovation pressure: electronic components are becoming more complex and must withstand extreme conditions, while the time available for testing and development is decreasing. Accelerated lifetime testing in the prototype phase is therefore essential to avoid failures in series production or operation.

A key test standard is the so-called 85/85 test – continuous exposure to 85 °C and 85 % relative humidity. This is where the wheat is separated from the chaff: corrosion, material failure or total breakdowns appear under these conditions – often long before they would be noticed in real-world use.



*"The stability, performance and user-friendliness of Memmert devices are exceptional. In addition, the software package and fast service convinced us."*

*Complete real-time logging and control of tests is of the utmost value for us and our customers."*

*– Nedim Treiber, Managing Director, NonaChem*

## The solution: Reliable testing conditions with the HCP humidity chamber

To conduct these sensitive tests efficiently and reliably, NonaChem uses HCP humidity chambers. They offer:

- Precise control of temperature and humidity over many hours
- Maximum homogeneity thanks to six-sided heating and active air guidance
- Stable test conditions for repeatability
- Intuitive operation and complete documentation with AtmoCONTROL software.

Memmert delivers the devices you can rely on for sensitive testing tasks. For CEO Nedim Treiber, it was clear even during his studies that Memmert devices set the standard in stability, performance, and user-friendliness – complemented by comprehensive software solutions and dependable service, which is especially valuable for sensitive testing applications.

## The device in detail: Why the HCP humidity chamber is the perfect choice

The 85/85 tests at NonaChem demand absolute precision – the HCP humidity chamber delivers the perfect conditions:

- Six-sided heating including a heated inner glass door
- Active humidity control for precise humidity values
- Encapsulated, turbulence-free air system for uniform conditions
- AtmoCONTROL software for easy programming, real-time monitoring and complete logging
- Conformity with IEC 60068-2-67  
– essential for customers in the automotive industry



The ability to document multiple tests simultaneously and securely is a real competitive advantage for NonaChem and its customers.

## About NonaChem

NonaChem GmbH, based in Ladenburg, is an independent, accredited laboratory for chemical and physical testing of materials. Founded in 2018 by Mr. Treiber, the company today serves leading clients in the automotive, agricultural machinery, and supplier sectors. Its focus is on material analysis, quality verification, and accelerated lifetime testing.

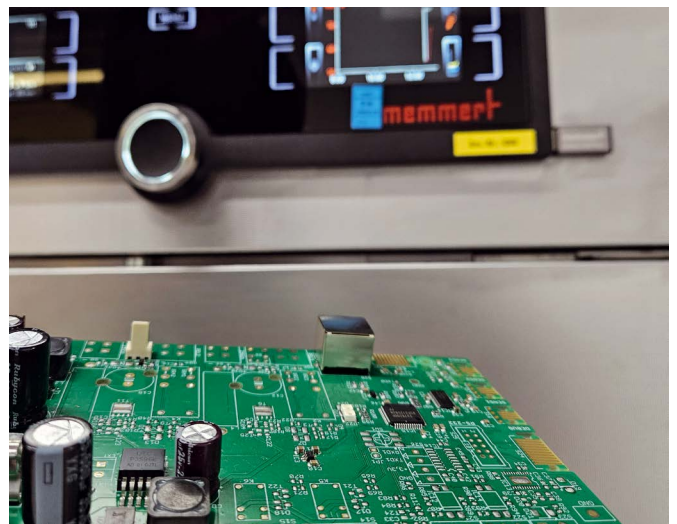
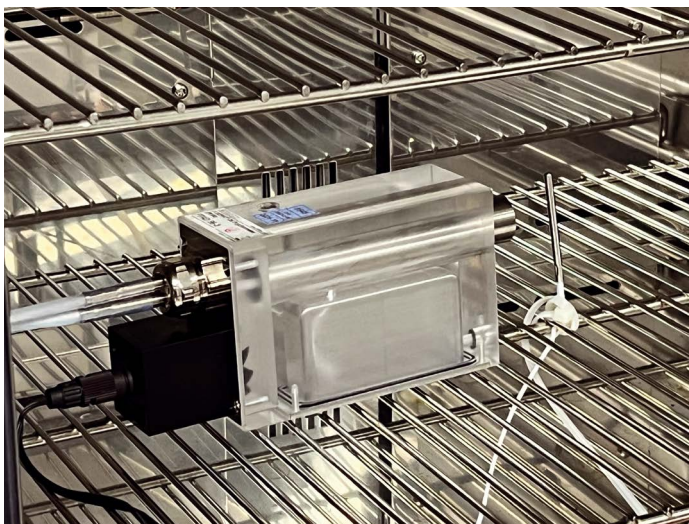
**Industry:** Testing laboratory for electronic components

**Location:** Ladenburg

**Employees:** 2

**Memmert customer since:** 2018

**NONACHEM**  
testing - consulting - engineering - chemistry





## CONTACT US!

Do you have any questions about the Memmert product portfolio or would you like personalised support? Please get in touch with your Memmert representative, send us an e-mail to [sales@memmert.com](mailto:sales@memmert.com) or visit our website [www.memmert.com/products](http://www.memmert.com/products).

We look forward to hearing from you!



E-Mail: [sales@memmert.com](mailto:sales@memmert.com)



Phone: +49 9122/925 - 0