Hegewald & Peschke
Meß- und Prüftechnik GmbH

Product information

Temperature and Climate chambers

zertifiziert nach DIN EN ISO 9001
TÜV CERT
Zert. Nr. 08/100/9044/3

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Field of application:

Temperature and climate chambers are used for material and component testing in a wide temperature and humidity range.

The different standard dimensions of the chambers ensure compatibility with our universal testing machines from the inspekt, inspekt table, inspekt duo and inspekt blue series and offer the right solution for different testing methods and materials.

For the mounting of the chamber two systems are available.
With the rail guide system, the chamber is fixed to the testing machine and can be driven into or out of the test room. Alternatively, we offer roller carriages, where the chamber is completely independent from the testing machine.

Together with grips and test tools suitable for temperature chambers, Hegewald & Peschke offers customer-specific complete solutions for material testing under defined environmental conditions.

Technical data:

Temperature range at RT 23 °C	-80 °C to 260 °C
Maximum heating/cooling speed	10 K/min / 8 K/min (with empty test room)
Temperature measurement resolution	0.1 °C
Constant temperature in the test room	± 0.5 °C to 2 °C in time
Heating	Rod heating
Cooling	LN_2 (liquid nitrogen) direct injection Connection 3/8" internal thread (0.9 to max. 1.5 bar) Exhaust air at the top (ensure sufficient ventilation of the room)
Connection	3NPE AC 50 Hz 400 V, 2.5 to 11.5 kVA, CEE16 or CEE32 plug with 5 m cable

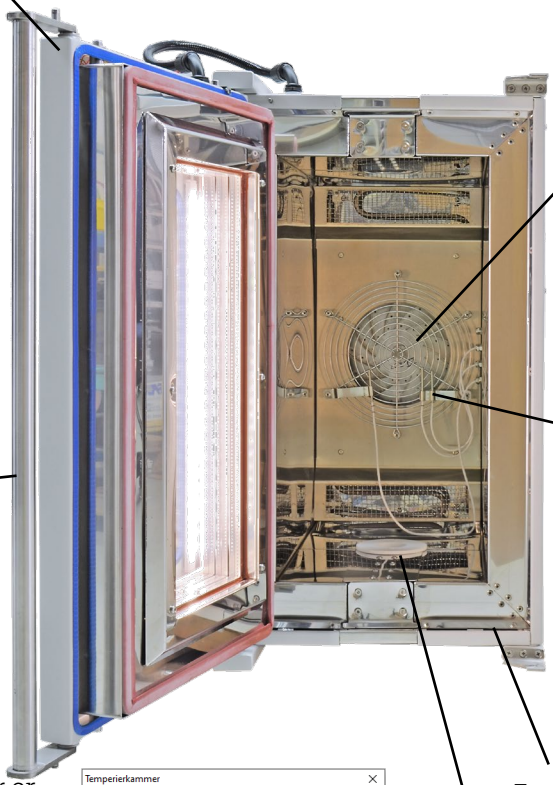
Models of temperature chambers:

Item no.		**16-100-00X**	**16-100-01X**	**16-100-02X**	**16-100-10X**	**16-100-11X**	**16-100-20X**	**16-100-21X**
Inner dimensions [mm]	**B**	264	264	264	324	424	554	554
	H	250	530	680	800	650	810	975
	T	416	416	416	510	500	750	750
Outer dimensions [mm]	**B**	400	400	400	490	590	730	730
	H	386	708	858	966	816	986	1151
	T	1032	1032	1032	1150	1150	1390	1390
Weight		80 kg	120 kg	120 kg	160 kg	160 kg	260 kg	300 kg
Window		no	Yes	Yes	Yes	Yes	Yes	Yes

- Direct **status display** in the door via LED-illuminated symbols

- Lateral entry (ø 50 mm) for clip-on extensometers or similar

Integrated control
- Electronic digital controller (Eurotherm type) with simultaneous display of actual and setpoint value



- **Viewing window** with heated/cooled 5-fold anti-reflective glass including indirect LED lighting
- Optimum visibility conditions for optical strain determination

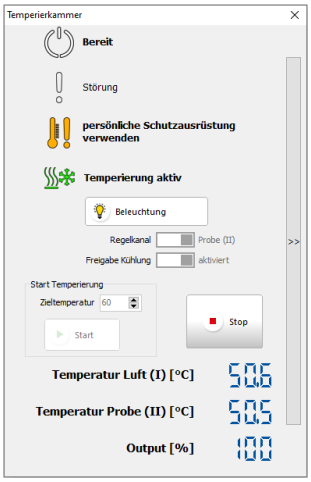
- **Uniform temperature distribution** throughout the entire heating room
- In standard: **direct cooling** by LN_2
- Dust-protected radial fan

- Ergonomic **swivelling lever handle** over the entire chamber height

3 thermocouples
- 1 air temperature sensor
- 1 movable specimen temperature sensor

→ Permanent display of both measured values,
→ temperature control switchable between specimen and air temperature
- 1 sensor for overtemperature protection

Convenient control via LabMaster testing software - Everything at a glance
- Temperature control on/off
- Switching between control of air or specimen temperature
- Test room lighting
- Temperature display in the testing software
- Synchronisation of mechanical and thermal stress (block programming)
- Temperature programmes (ramps, etc.)
- Modern LAN/Ethernet connection

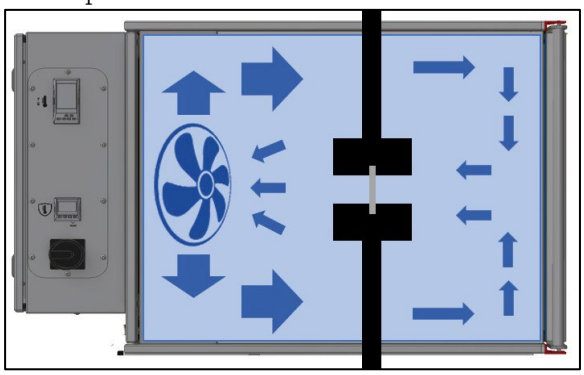


Frame with jacket cooling
- Avoidance of high surface temperatures on the outside of the temperature chamber

Slide in inserts and compensating rings
- Moving the temperature chamber into and out of the test area without removing the fixtures
- Significant reduction in set-up times
- Compensation rings for thermal sealing at the feed-throughs of the force transmission rods into the temperature chamber

Further advantages of the temperature chambers:

- **High heating and cooling rates** due to optimized air circulation, which does not affect the precision of the measurement



- **Cascade control for precise and gentle temperature control of the specimen**
  - Mode of operation: The measuring sensor for the air temperature acts as the primary controller. This is corrected by the secondary controller (measuring sensor on the specimen) in order to achieve the desired specimen temperature more precisely.
  - The advantage compared to direct control via the specimen temperature sensor is more gentle temperature control of the specimen. As the transfer of heat between the ambient and specimen temperature via the air is slow, sensitive specimens may otherwise overheat on the specimen surface.

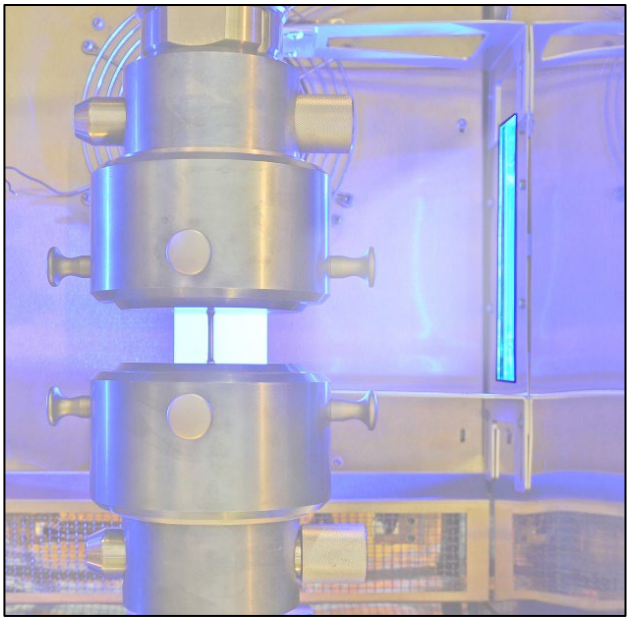
Options:

- **Lateral slot** for tactile strain measurement with long-distance extensometers

- **Indirect cooling** via heat exchanger/refrigerant for humidity-sensitive specimens or small test laboratories

Cooling unit with hermetic compressor

- Shelf for **specimen pre-tempering**
- **Lateral viewing window** for optical strain determination or external backlighting (ensures optimised conditions for transverse strain determination)



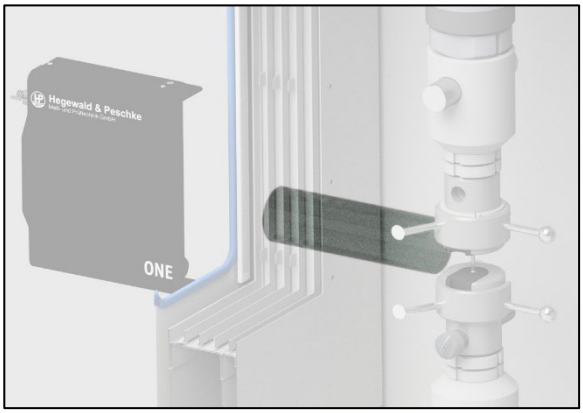
- **Additional specimen temperature sensor** (e.g. for tensile tests according to DIN EN ISO 6892-2 with specimen lengths >50 mm)
- **Separate access to the test area** below the inspection window
  - Fast specimen change
  - No interruption of conditioning
  - Shorter cycle times, lower operating costs, less ice/condensate formation in cooling mode

- **Speed control** for the circulating air fan
  - Optimization of conditioning to minimize interference
  - Reliable individual parameterization via LabMaster software (test data is stored once in the test method and can be re-loaded at any time – no need to make new settings for each test)
  - Suitable for sensitive specimens and measurement setups

- **Air deflector**
  - Optimized temperature distribution for sensitive test configurations
  - Reduction of interference effects on deformation measuring devices

- **Tunnel system**
  - For optical deformation measurement with increased accuracy requirements, e.g., according to class 0.5, ISO 9513 for small deformations
  - Reduction of assembly influences on strain determination

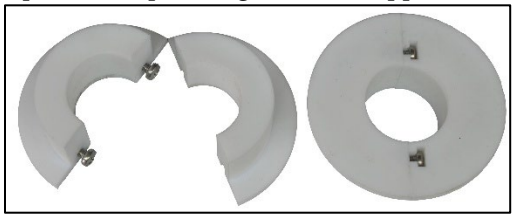
  → Lower noise ratio



Scope of delivery:

- Tempering chamber with retractable inserts
- 3 thermocouples PT 100 (flexible for specimen, air, excess temperature)

- 1 pair of adapter rings for force application

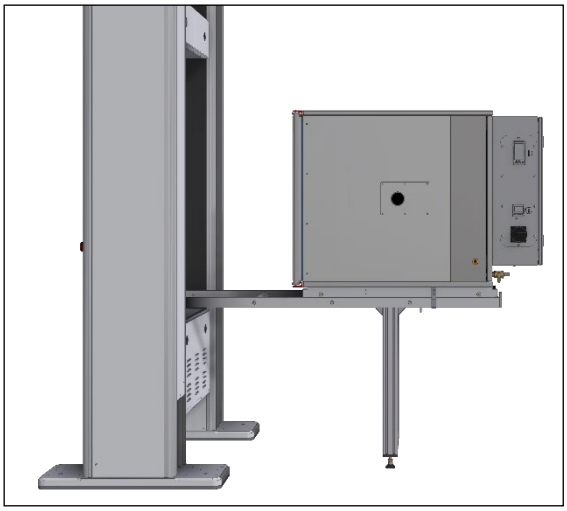


- Software connection Eurotherm-LabMaster incl. hardware and software control module

necessary accessories (not included):

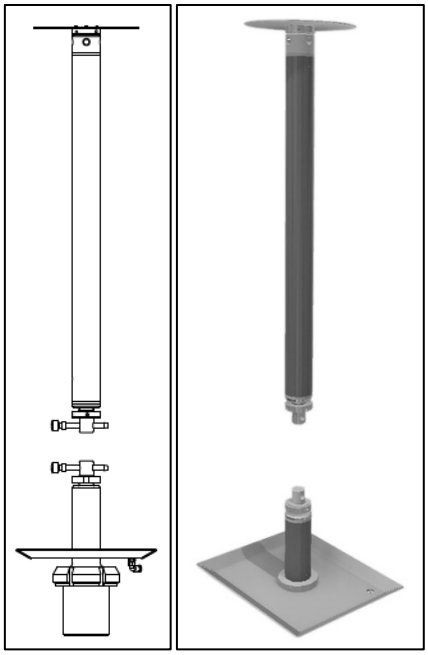
- Fixture with rail guide or roller carriage

Roller carriage



Rail guide

- Extension rod set with tool connection (optional with drainer) 16-028...



- LabMaster testing software
- PC with a free Ethernet connection (LAN)
- For (cooling) operation: Provision of LN_2 (by the customer)

Climate chambers

For the control of the relative humidity in the chamber in addition to the temperature, climatic chambers are used.

The following parameters apply as standard for setting the relative humidity (other parameters on request):

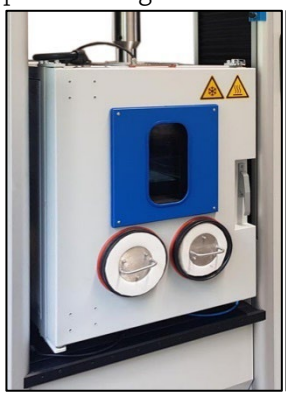
Humidity range	10 % to 95 % relative humidity
Moisture constancy	+/- 3 % relative humidity
Humidity control	Electronic digital controller with simultaneous display of setpoint and actual value, Programme controller
Humidity sensor	capacitive
Humidification	via vaporiser/ superheated steam
Drying	via dried compressed air
Water connection	5 litre water supply tank for demineralised water or Fixed connection

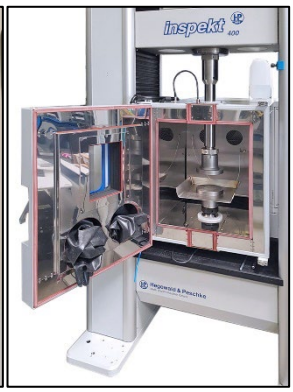
Climate chamber - rear view

Transport trolley with height adjustment option

Option:

Feed-through with stoppers and gloves for sample handling in the closed climate chamber:





Practical examples in pictures: