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HPPlife

Constant climate chamber for keeping mice

Temperature setting range: 0 °C to +70 °C | Humidity setting range: 10 % rh to 90 % rh
Working range with illumination: 0 °C to +40 °C | Chamber volume: 749 litres

Humans and animals are highly adaptable. A healthy body adjusts to changing environmental conditions and sources of food without any problems. At the Institute for Molecular Nutritional Medicine of the Technical University of Munich, the question as to why the energy balance in some mammals gets into difficulties, subsequently leading to being overweight or underweight, or to diabetes type II, is being examined on the model organism of the mouse. The mice are kept under controlled conditions, in two Memmert constant climate chambers specially adapted for their keeping.

- Efficient dehumidification of the chamber by means of compressed air for safe and stable humidity values in compliance with GV Solas guidelines
- Air exchange rate can be controlled by adjusting the speed of the exhaust air motor
- Programme controlled LED light strips (on max. 3 levels), adjustable in steps of 1 % (6,500 K cold white or 2,700 K warm white); adjustment angle 45 °
- Developed in cooperation with the Institute for Molecular Nutritional Medicine of the Technical University of Munich headed by Prof. Dr. Klingenspor





Recovery time

(after the door was opened for 30 seconds)
 10 °C and 60 % rh: approx. 30 min.
 30 °C and 45 % rh: approx. 5 min.



Light measurement

(measured on two levels in the middle of the chamber)

Illumination setting: 50 %, measured value: 150 Lux

Illumination setting: 100 %, measured value: 300 Lux

HPPIfe – CONSTANT CLIMATE CHAMBER FOR KEEPING MICE

Controlled air exchange and controlled humidity even at low temperatures thanks to compressed air dehumidification

At TU München various types of mice are kept in a clean room at +30 °C as well as at +5 °C and 55 to 60 % relative humidity in two Memmert constant climate chambers HPP750 (➔ <https://www.atmosafe.net/en/incubating-and-breeding/mice-breeding.html>). In order to guarantee the recommended humidity of between 45 and 65 % rh for the humane keeping of mice even at low temperatures, Memmert integrated a compressed air drying unit. For simulation of the day and night rhythm, the LED illumination can be programmed using the AtmoCONTROL software.

In conventional heating ovens, mice and rats can only be kept at room temperature or warmer, since air exchange in combination with cooling and dehumidification usually poses a problem. Walk-in climate chambers with temperature and humidity control, as used by the Institute for Molecular Nutritional Medicine prior to the acquisition of the two Memmert constant climate chambers, have the disadvantage that above all working at +30 °C puts a strain on the animal keeper staff. The current “mobile” solution is space-saving and enables freshwater for humidity control to be supplied via water tanks or alternatively via a central water supply system. With the appliance’s internal data logger, all controlled parameters are logged and documented.

Performance measurements

at 23 °C ambient temperature
 allowance of 60 minutes

Lower supply air openings closed						
	Temperature deviation	Temperature stability	Humidity ¹ (% rh)	HuT ² (min)	CdT ³ (min)	HE ⁴
30 °C – 45 % rh	+/- 0.7 K	+/- 0.3 K	44 – 48 average 45.7	5	10	211 W

Lower supply air openings open						
	Temperature deviation	Temperature stability	Humidity ¹ (% rh)	HuT ² (min)	CdT ³ (min)	HE ⁴
30 °C – 45 % rh	+/- 1.5 K	+/- 0.3 K	44 – 51 average 46.0	5	10	180 W

¹ Humidity value measured at the sensor in the middle | ² Heating up time (HuT) from 20 °C to 30 °C

³ Cooling down time (CdT) from 20 °C to 5 °C | ⁴ Heat emission (HE)

Measurements made without any chamber load