



memmert

trust the best

eco

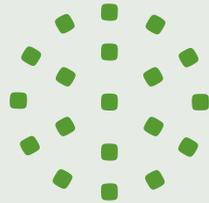
Efficient. Homogeneous. Reliable

HPPeco / IPPeco | PELTIER TECHNOLOGY

Memmert has been the expert in the application of Peltier technology in laboratory equipment for over 20 years.



Maximum energy efficiency compared to climate chambers with a compressor.



Absolutely homogeneous distribution of temperature and humidity.



Reliable and fail-safe, even after many years of continuous operation.



Always a good climate: refrigerant-free, smooth running, compact, low maintenance.

HPP_{eco} / IPP_{eco} | ADVANCED PELTIER TECHNOLOGY

New Peltier technology

- Highly efficient in continuous operation
 - Twice the power with the same energy consumption
 - High savings on Total Cost of Ownership
-

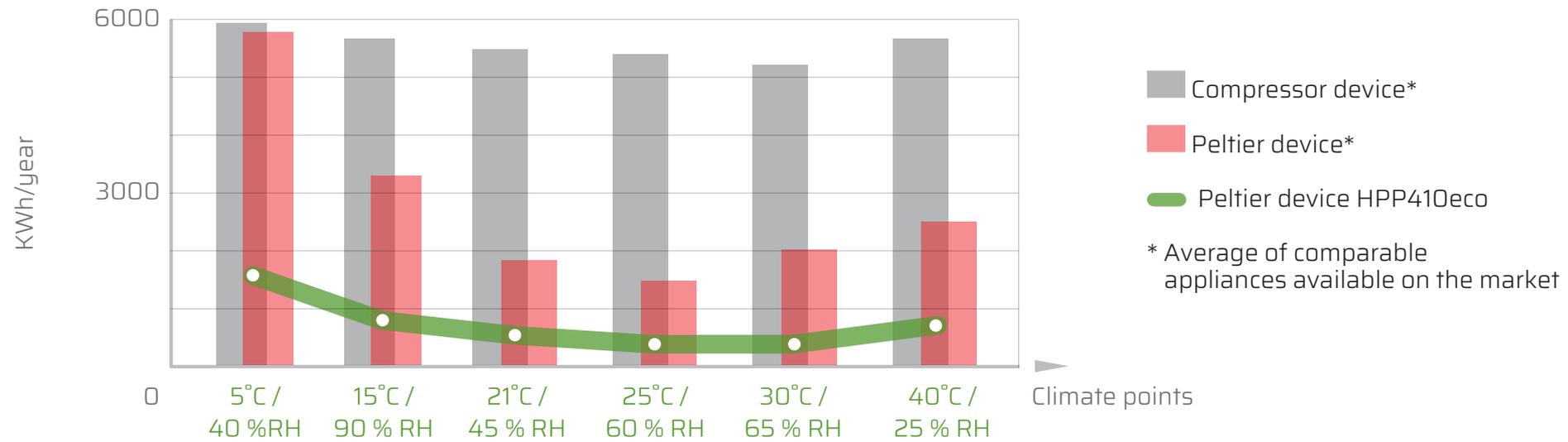
New micro-metering pump

- Intelligent humidity control
 - Fast, accurate and reproducible
-

New air flow routeing

- Outstanding homogeneity
due to modified air flow routeing
-

HPPeco / IPPeco | ENERGY SAVING



HPP_{eco} / IPP_{eco} | EXAMPLE CALCULATION - ICH GUIDELINE

Energy consumption for long-term tests (12 months) according to ICH-Q1A (R2)

Energy costs	Energy costs	HPP410 _{eco}	Compressor device
Calculation:		438 KWh x € 0.25	5200 KWh x € 0.25
Energy costs:		€ 109.5	€ 1300

Environmental Impact	CO ₂ calculation	HPP410 _{eco}	Compressor device
Calculation:		438KWh x 0,537kgCO ₂ (KWh)	5200KWh x 0,537kgCO ₂ (KWh)
CO ₂ Footprint:		0,24 t CO ₂	2,8 t CO ₂

HPP_{eco} / IPP_{eco} | ADVANCED PELTIER TECHNOLOGY

New Peltier technology

- Highly efficient in continuous operation
 - Twice the power with the same energy consumption
 - High savings on Total Cost of Ownership
-

New micro-metering pump

- Intelligent humidity control
 - Fast, accurate and reproducible
-

New air flow routeing

- Outstanding homogeneity
due to modified air flow routeing
-

HPPeco / IPPeco | NEW HUMIDIFICATION SYSTEM

New vaporisation plant

- Enables faster humidification

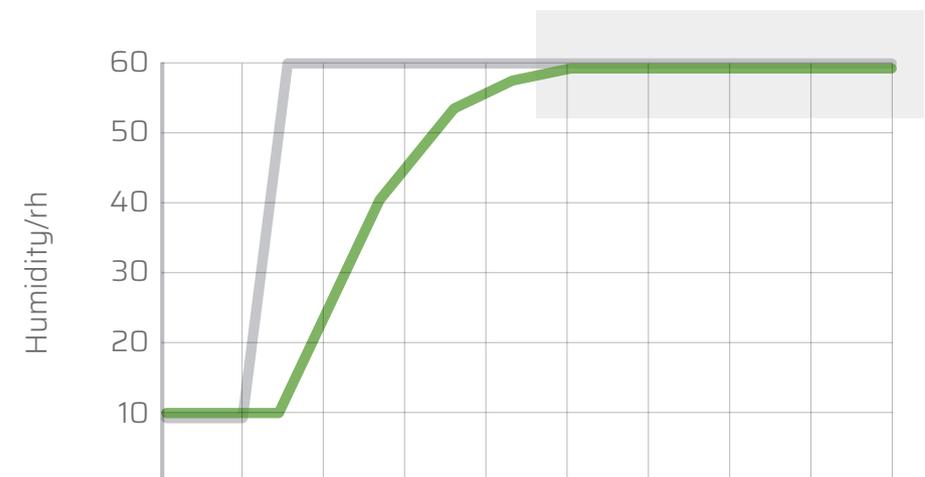
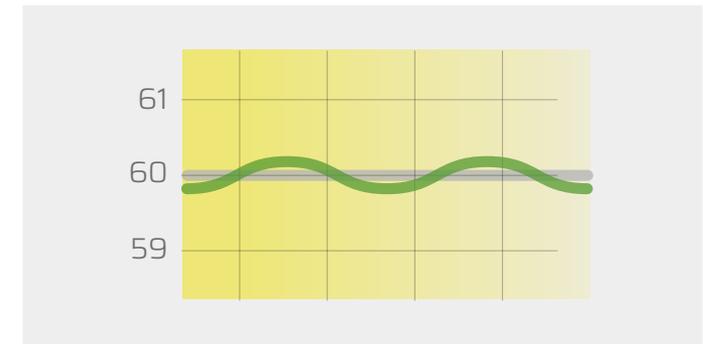
New micro-metering pump

- Enables 10 times more precise humidification

HPP110eco*

Spatial humidity deviation	25 °C/ 60% rh	+ - 0.2 %rh
Temporal humidity deviation	25 °C/ 60% rh	+ - 0.7 %rh
Humidification at 35 °C	10% rh to 60% rh	8 min

* The values are based on measurements on a pre production series. Subject to modifications.



HPP^{eco} / IPP^{eco} | ADVANCED PELTIER TECHNOLOGY

New Peltier technology

- Highly efficient in continuous operation
 - Twice the power with the same energy consumption
 - High savings on Total Cost of Ownership
-

New micro-metering pump

- Intelligent humidity control
 - Fast, accurate and reproducible
-

New air flow routeing

- Outstanding homogeneity
due to modified air flow routeing
-

HPPeco / IPPeco | NEW AIR FLOW ROUTEING

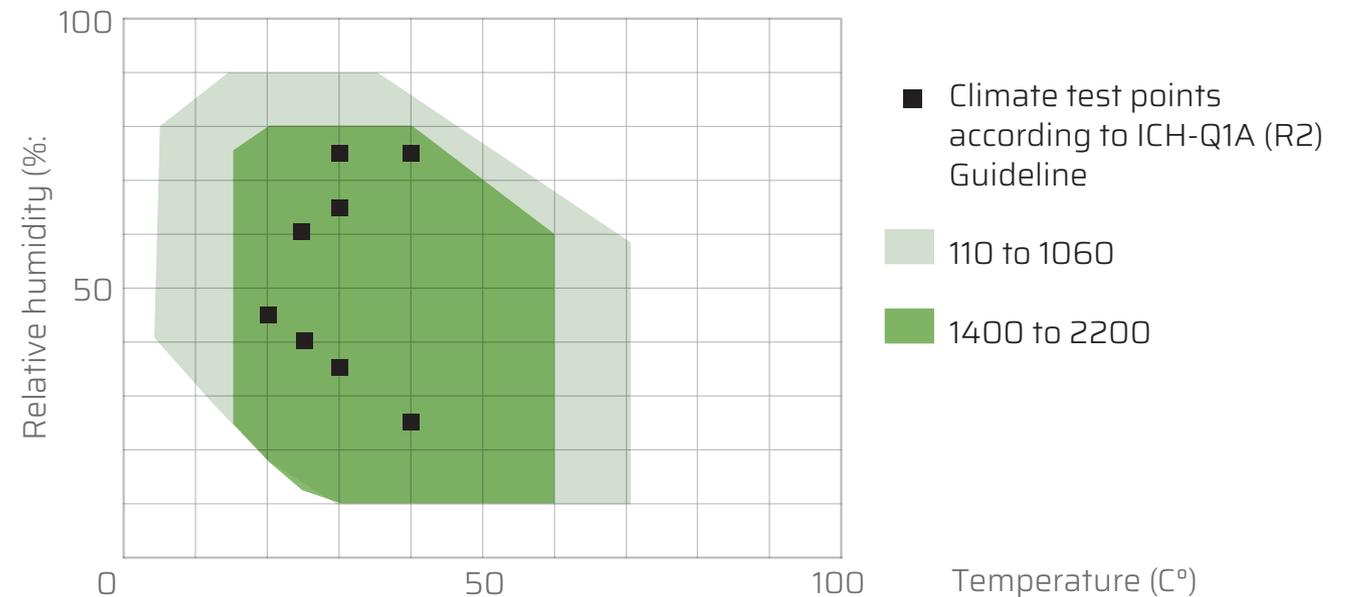
- Outstanding homogeneity due to changed air flow routeing in the interior
- Faster recovery times after opening the door
- Optimal temperature distribution, even at maximum load



HPPeco / IPPeco | APPLICATIONS

- Long term stability tests
- Packaging tests
- Quality checks
- Humidity-controlled storage

” **Ideal for stability tests according to ICH Q1A**



HPPeco / IPPeco | TECHNICAL DATA



Model sizes: 110, 260, 410, 750, 1060, 1400, 2200

Temperature adjustment ranges: 0 to +70 °C (110 -1060) | +15°C to +60°C (1400/2200)

Humidity adjustment ranges: 10 to 90% rh (HPP110eco - HPP1060eco) | 10 to 80% rh (HPP1400eco/HPP2200eco)
