

BMR Speakman Chamber

Engineered for True Basal Metabolic Precision



A dedicated calorimetric chamber for accurate basal metabolic rate (BMR) measurements in rodents – eliminating locomotor activity to reveal the true metabolic baseline.

Why Measure BMR?

Basal metabolic rate (BMR) defines the minimum energy an organism requires at rest — the foundation of metabolic research. Unlike total energy expenditure, BMR isolates the intrinsic metabolic activity of tissues and organs, without interference from movement, feeding, or thermogenesis.

Features

- Compact chamber design ensures zero activity for true BMR assessment and accurate EE assessment.
- Integrated activity monitoring for inactivity verification.
- 1-second VO_2 and VCO_2 resolution via ultra-fast gas exchange sensors in continuous mode.
- Short, reproducible 2-hour measurement protocol.
- Fully compatible with thermoneutral climate chambers.
- C^{13} - CO_2 isotope tracing ready for substrate oxidation studies.
- Hygienic, easy-to-handle design for high reproducibility.



Benefits



True resting state measurement



Infrared activity verification



1-second resolution time

BMR Speakman Chamber

Uncover the True Basal Metabolic Rate.



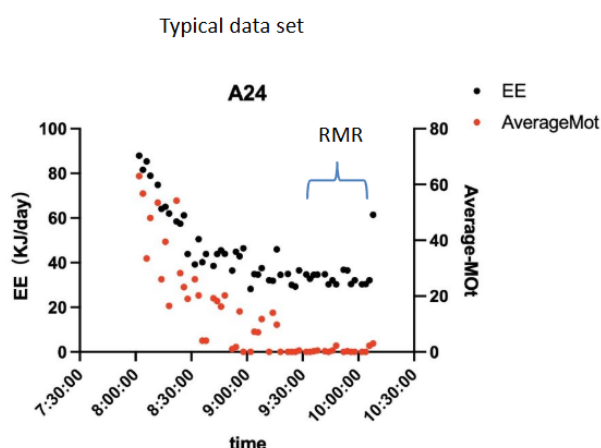
Scientific Background

Traditional calorimetry systems quantify total energy expenditure (TEE) — a sum of basal metabolism, locomotion, and diet-induced thermogenesis.

The BMR Speakman Chamber isolates the basal component by combining behavioral restriction without the negative effects of restraint stress, infrared verification, and high-resolution calorimetry, providing reproducible and translational BMR data in rodents.

Research Applications

- Obesity & metabolic disorders
- Drug development & pharmacology
- Aging & caloric restriction
- Genetic & mitochondrial studies
- Thermoneutrality & environmental physiology



EE (in black) and locomotor activity (in red) decrease during habituation until immobility during which resting (basal) metabolic rate can be measured

Automated Indirect Calorimetry

The BMR Speakman Chamber operates within TSE's High-Throughput Indirect Calorimetry System – a flexible, modular platform supporting 2 to 32 chambers.

Infrared ActivityFrame

Enhances experimental confidence through continuous behavioral verification – ensuring that all data truly reflect basal metabolic conditions.

By integrating behavioral suppression, infrared verification, and scalable calorimetry, the BMR Speakman Chamber defines a new benchmark for basal metabolic research – enabling scientists to separate resting metabolism from all other components of energy expenditure.

www.tse-systems.com



Scan to Contact us

TSE Systems GmbH
Barbara-McClintock-Str. 4
12489 Berlin
030 639221100

TSE Systems, Inc.
11964B Oak Creek
Parkway, Huntley,
Illinois 60142, USA