Introducing The New Generation of Metabolic Monitors for Indirect Calorimetry in Clinical and Critical Care Practice
In critically ill mechanically ventilated patients, EE should be determined by using Indirect Calorimetry1.

**Individual**

**Gold Standard**

**Easy**

**Compact**

**Affordable**

Indirect calorimetry remains the Gold Standard in measuring energy expenditure in clinical settings, proven to have enormous advantages compared to Predictive Equations2.

In fact, this measuring technology provides an individual and dynamic metabolic assessment based on the actual physical status of the subject rather than estimating it on anthropometric data.

Q-NRG is a unique product, the result of COSMED’s collaboration with world-class institutes in the field of nutrition support in intensive care units. Product concept and specifications have been designed together with the ICALIC Trial study group3.

This collaboration made possible the development of an accurate metabolic system simple to use and able to solve all typical pitfalls of Indirect Calorimetry technology.

**Individual Metabolic Assessment**

Q-NRG uses the Gold Standard Indirect Calorimetry technique to measure metabolic parameters. The technique itself guarantees that the results reflect the metabolic alterations during illness and repeated measurements may correspond with disease progression or resolution4. Q-NRG is the ultimate tool to develop individual nutrition support plans and optimize them to prevent over/underfeeding, to reduce length of stay and, ultimately, to decrease costs in ICU.

**Indirect Calorimetry, a Gold Standard**

Q-NRG is the result of more than 30 years of experience in the design of metabolic systems. The new calorimeter has been validated in-vitro by international multicentre study showing the greatest accuracy with excellent agreement vs. mass spectrometer measurements5,6.

**Quick to operate, clean and maintain**

Q-NRG has been designed to reduce operations and measurement time7. System does not require warm-up time nor user-assisted calibrations, all operations can be performed with a few taps on the screen and cleaning procedures are simplified thanks to rounded surfaces and single-use accessories.

**Designed for Clinical Practice**

Q-NRG usability has been designed according to best clinical practice. An intuitive workflow supports the user through all operations with main instructions prompted along the procedures and test information always accessible. Designed to be portable, the device can be easily transported between rooms.

**Latest Technologies in a Compact Device**

Q-NRG is a compact, lightweight, battery operating device. The 10” inches LCD touchscreen simplify access to all operations. Bluetooth, USB, RS-232 and LAN interfaces allow to connect the system to any hub (PC, printers, etc.).

**Affordable**

Q-NRG has been designed to compete with conventional metabolic system, at a fraction of the cost.

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7 The clinical evaluation of the new indirect calorimeter developed by the ICALIC project. Oshima T, et al. Clin Nutr 2020
One tool for many applications
Q-NRG provides flexibility in a variety of clinical settings, assessing different patient's conditions (mechanically ventilated or spontaneous breathing) and with different techniques (Canopy Hood and/or Face Mask), from pediatric to adult.

Ventilator Mode. Q-NRG can measure REE in mechanically ventilated patients ($\text{FiO}_2$ up to 75%). A single-use flowmeter is placed in series in the patient circuit to measure ventilatory parameters. Two sampling lines are connected to patient circuit and ventilator outlet for the measurement of inspired/expired gases.

Canopy Mode. Indirect Calorimetry through Canopy Hood is the “Gold Standard” technique to measure REE in spontaneously breathing subjects. Exhaled gases are diluted within a “Canopy Hood” (small or large size). Measurement of dilution flow and $\text{O}_2$/CO$_2$ concentrations allow the calculation of VO$_2$ and VCO$_2$.

Face Mask Mode. REE measurements can be performed using an oronasal face mask on spontaneously breathing subjects whenever Canopy Hood cannot be used (special subjects, claustrophobic, etc.). A flowmeter and a sampling line are connected to the mask (5 sizes) for VO$_2$ and VCO$_2$ measurement.

Accessories & Options
- Canopy Hood kit. Available in two sizes (large or small), includes hood w/ adapter and corrugated tube.
- Face Mask kit. Includes two oronasal masks in silicone (S/M sizes), 1 head cap, and external flowmeter.
- Gas Calibration kit. Required for the monthly gas calibration. It includes a 3,6 Liter cylinder with certified gas mix (16% O$_2$, 5% CO$_2$, N$_2$ bal) and pressure regulator.
- Flow/Volume Calibration kit. Required for the monthly calibration, includes a 3L certified calibration syringe and adapters.
- Cart. Compact Cart with medical grade wheels, includes gas cylinder holder and accessory basket, perfect for moving the system between beds or hospital departments.
- Clamp. Pole/rail clamp with 100 mm VESA mounting plate to be used for securing Q-NRG on any Pole or Rail setting within an hospital setting.