

Q-NRG™

Metabolic Monitor

“You can't manage
what you
don't measure”



Introducing The New Generation of Metabolic Monitors
for Indirect Calorimetry in Clinical Practice



COSMED
The Metabolic Company

“The first Indirect Calorimeter specifically intended for the measurement of Resting Energy Expenditure (REE) in spontaneously breathing patients and for healthy subjects”



Individual



Gold Standard



Quick



Easy



Compact



Affordable



Introduced by COSMED, worldwide leader in the design of metabolic systems for clinical and human performance applications, Q-NRG is the first Indirect Calorimeter specifically intended for the measurement of Resting Energy Expenditure (REE) in spontaneously breathing patients and for healthy subjects.

Indirect calorimetry remains the Gold Standard in measuring energy expenditure in clinical settings, proven to have enormous advantages compared to Predictive Equations¹. 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 Clinical Nutrition. Product concept and specifications have been designed together with the ICALIC Trial study group². This collaboration made possible the development of an accurate metabolic system simple to use and at the same time 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 each individual's specific and existing characteristics³. Therefore, Q-NRG is the ultimate tool for research in metabolic response at resting, to develop individual weight management programs and optimize energy balance.

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 measurements^{4,5}.

Quick to operate, clean and maintain

Q-NRG has been designed to reduce operations and measurement time⁶. 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 touch-screen 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.

¹ Resting energy expenditure in malnourished older patients at hospital admission and three months after discharge: predictive equations versus measurements. Neelimaat F, van Bokhorst-de van der Schueren MA, Thijs A, Seidell JC, Weijs PJ. Clinical Nutrition 2012

² Indirect calorimetry in nutritional therapy. A position paper by the ICALIC study group. Oshima T, et al. Clinical Nutrition 2017

³ Indirect calorimetry as point of care testing. Singer P, Rattanachaiwong S. Clinical Nutrition 2019

⁴ In vitro validation of indirect calorimetry device developed for the ICALIC project against mass spectrometry. Oshima T, et al. Clin Nutr ESPEN 2019

⁵ Evaluation of the accuracy and precision of a new generation indirect calorimeter in canopy dilution mode. Delsoglio M, et al. Clin Nutr 2020

⁶ The clinical evaluation of the new indirect calorimeter developed by the ICALIC project. Oshima T, et al. Clinical Nutrition 2020

One tool for many applications

Q-NRG provides flexibility in a variety of clinical settings, assessing different patient's conditions and with different techniques (Canopy Hood and/or Face Mask), from pediatric to adult.



Canopy Mode. Indirect Calorimetry through Canopy Hood is the "Gold Standard" technique to measure REE in spontaneously breathing subjects. Patient's exhaled gases are diluted with a known airflow within a "Canopy Hood" (available in small and large size). Measurement of dilution flow and O_2/CO_2 concentrations allow the calculation of VO_2 and VCO_2 . Each test utilizes a single-use veil and an anti-bacterial filter.



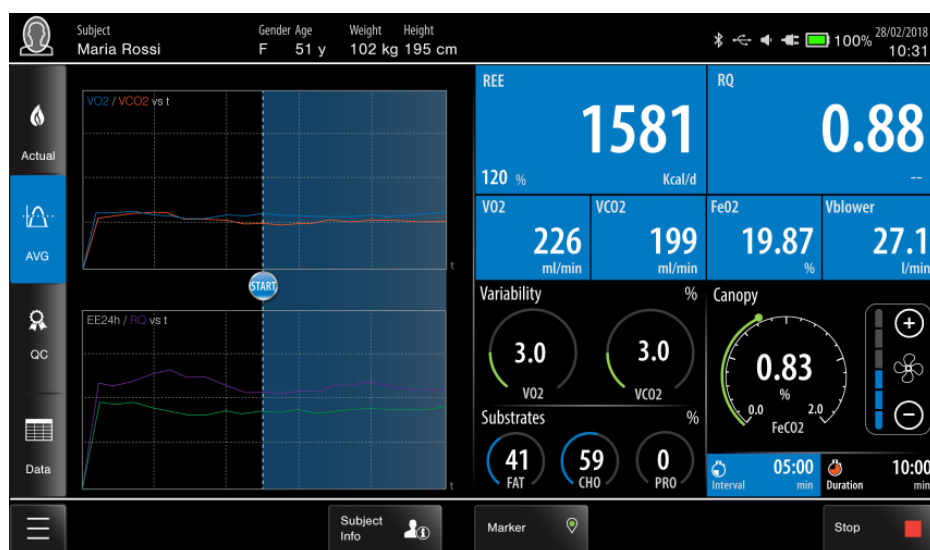
Face Mask Mode. REE measurements can be performed using an oronasal face mask on spontaneously breathing subjects whenever Canopy Hood cannot be used (special subjects, claustrophobic, etc.). The face mask (available in 5 sizes) is placed on the subject and fixed with a comfortable headcap. A turbine flowmeter is connected to the face mask to measure ventilatory parameters and a sampling line is used for the measurement of inspiratory and expiratory O_2/CO_2 concentration.



Canopy Hood (small or large size) utilizes a single-use veil to avoid cross contamination



Canopy tests require a simple set-up by connecting the canopy hose to the blower



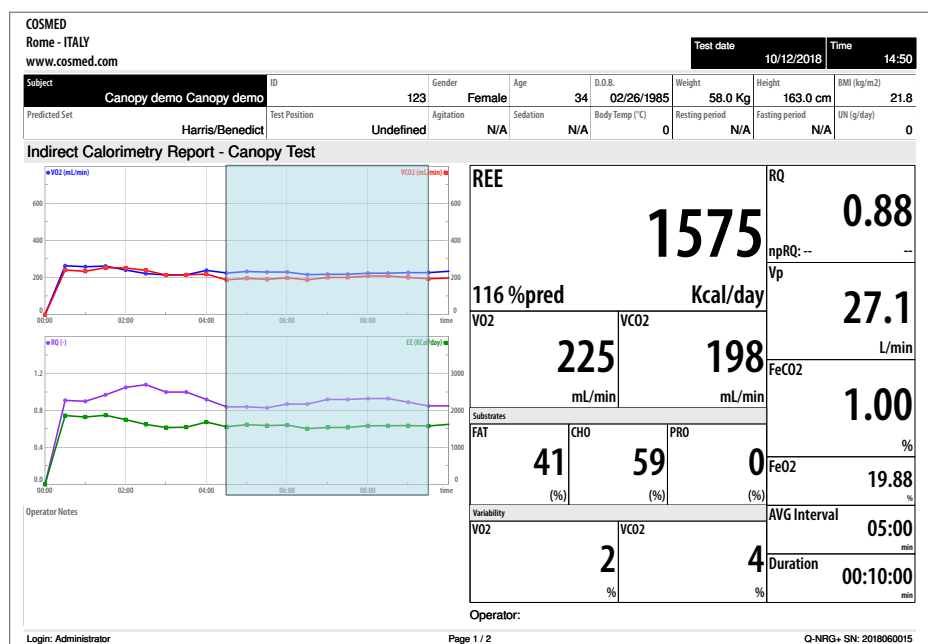
Real Time dashboard of Canopy test shows metabolic and ventilatory data as well as widgets to verify Quality Control and understand whenever test is completed.



Multi-use silicone oronasal face masks are available in 5 different sizes (adult and pediatric)

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 within an hospital setting.



PDF printout of Canopy test shows test results in a comprehensive format to facilitate metabolic assessment. Tabular data may also be included.



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