All India Institute of Medical Sciences, Bhubaneswar
At - Sijua (Patrapada), Post - Dumuduma, Bhubaneswar (Odisha) - 751 019

To be uploaded in Website: www.aiimsbhubaneswar.edu.in (Tender) and www.eprocure.gov.in (CPPP)

Reference No: J-11049(041)/2022-23/S&P **Dated: 21 /10/2022**

Sub: Procurement of **Indirect Calorimetry Make-COSMED Srl, Italy, Model- COSMED Q-NRG+** for the **Department of Pediatrics** at AIIMS, BBSR on Proprietary basis - **Inviting Comments thereon.**

The **Department of Pediatrics** of AIIMS, Bhubaneswar has projected for **Procurement of Indirect Calorimetry Make-COSMED Srl, Italy, Model- COSMED Q-NRG+** from **M/s Global Medical Device, Pune** the authorised distributer of the **PAC firm COSMED Srl, Italy.**.

The Notice is being uploaded for general information of prospective manufacturer/Authorized Distributor/Dealers to submit their objection/proposal/comments if any, on proprietorship of the item. In case the product of any manufacturer/Authorized distributor/Dealer conforms to the enclosed specifications, they may submit their proposal for the supply of the same along with the brochures, point by point compliance of the enclosed specifications along with all documentary evidence. One quotation of the product may also be submitted.

The objections/comments/proposal should be sent in sealed cover to the Office of Sr. Procurement Cum Stores Officer, AIIMS, Bhubaneswar (Odisha) – 751019 or through E-mail to spo@aiimsbhubaneswar.edu.in & aso.dkmahana@aiimsbhubaneswar.edu.in, so as to reach on or before **date: 14 -11-2022** failing which it will be presumed that no other firm is interested to offer comments/protest/object and case will be decided on its merits.

The Ref. No. – **J-11049(041)/2022-23/S&P dt: 21 -10-2022,** due on dated: **14-11-2022** should be superscripted on sealed envelope.

Sr. Procurement-cum-Stores Officer

Enclosure:

1. Proprietary Article Certificate from Indenting Officer of Department of Pediatrics, AIIMS, Bhubaneswar. **Annexure-I**
2. PAC of **COSMED Srl, Italy. Annexure-II**
3. Agency agreement of **M/s Global Medical Device, Pune. Annexure-III**
4. Technical Specification. **Annexure-IV**
5. Quotation from **M/s Global Medical Device, Pune - Annexure-V**
6. Brochure of **Model- COSMED Q-NRG+, Make-COSMED Srl, Italy Annexure-VI**

Copy to:

1. Indenting Officer, Department of Pediatrics : for information please
2. Accounts Officer : for information please
3. IT Cell : for hoisting in the website.

Sr. Procurement-cum-Stores Officer

Annexure-I

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AIIMS, BHUBANESWAR

Proprietary Article Certificate

Valid for the Current Financial Year

File No. and Date Reference :		
1	Description of article	Indirect Calorimetry for ventilated patients Q-NRG+ metabolic monitor
2	Forecast of quantity /annual requirement	One Complete System
3	Approximate estimated value for above quantity	Rs. 30,00,000 including GST and 5 year CMC after 5 year warranty
4	Maker's name and address	Cosmed Srl, Via dei Piani di Monte Savello 3700041 Pavona di Albano- Rome, Italy
5	Name(s) of authorized dealers/ stockists	M/s: Global Medical devices, Office No. D-05, 1st floor, Choice Arcade, Opp.Ruby Hall, Dhole Patil Road, Pune-411001
6	I approve the above purchase on PAC basis and certify that : - Note- Tick to retain only one out of (b), C-1) or (c-2) whichever is applicable and cross out others. Please do confirm (a) by ticking it - without which PAC certificate will be invalid.	
6 (a)	This is the only firm who is manufacturing / stocking this item. AND	Yes
6 (b)	A Similar article is not manufactured / sold by any other firm, which could be used in lieu OR	
6 (c-1)	No other make/brand will be suitable for following tangible reasons (like OEM/ Warranty, spares.) : OR Microdynamic mixing chamber for mechanically ventilated patients	Yes
6 (c)	No other make/brand will be suitable for following intangible reasons (if PAC was also given in the last procurement cycle, please also bring out efforts made since then to locate more sources) : OR _____	
7	Reference of concurrence of finance wing to the proposal : To be approved	Fund available under CCA head.

History of PAC Purchase of this item for past three years may be given below :

Name of the Supplier

Order/ Tender Reference & Date	Quantity Ordered	Basic Rate on Order (Rs.)	Adverse Performance Reported if Any
Nil	Nil	Nil	Nil

Signature of the Indenting Officer

18/7/22

Signature of Approving Authority.....

Date..... Designation of Officer.....

डॉ. आशुतोष बिस्वास
Dr.Ashutosh Biswas
कार्यकारी निदेशक /Executive Director
एम्स, भुवनेश्वर
AIIMS, Bhubaneswar-751019

Dr. Krishna Mohan Gulla
Associate Professor
Department of Pediatrics
AIIMS Bhubaneswar-751019

Bhubaneswar - 51
(14)

COSMED
The Metabolic Company

To whom it may concern

Proprietary Certificate

Date: Rome, June 22, 2022

It is certified that COSMED Srl, Italy, is the only manufacturer of Indirect Calorimetry System with Micro-dynamic Mixing Chamber technology for mechanically ventilated patients through ICU kit as well as spontaneously breathing subjects with Canopy Hood and Face masks. This system works with any Standard ventilator and can be shifted from bed to bed. To the best of our knowledge, there is no other system available in the world with these capabilities. Trade name of this system is Q-NRG+

Signed:

Managing Director
Cosmed srl

for and on behalf of **COSMED Srl,Via dei Piani di Monte Savello 37**
00041 Pavona di Albano – Rome, Italy

Office | Headquarters
Via dei Piani di Monte Savello 37
Albano Laziale - Roma, (RM) 00041
Info@cosmed.com cosmed.com

Dr. Krishna Mohan Gulla
Associate Professor
Department of Pediatrics
IMS, Bhubaneswar-751019

Annexure - III (16)

COSMED
The Metabolic Company

Date: March 12, 2011 rev February 23, 2018

Agency Agreement

Company: **Global Medical Devices,**
Kalsmruti Building, Ground Floor,
S. No. 46/2, Dattaprasad Housing Society,
Kharadi Road, Chandan Nagar,
Pune-411 014, Maharashtra, India

Definitions

"Products" means: Micro Quark, Pony FX, Spiropalm 6MWT, Quark PFT, Q-BOX, Quark CPET, Quark RMR,Q-NRG, Quark i2m, Quark T-12, C-12, K4b2, K5, ADP Line, Fitmate Line, Treadmills, Cycle Ergometers and all accessories.

"Territory" means: Indian states of Maharashtra, Goa, Gujarat, Madhya Pradesh, Rajasthan, Delhi, Haryana, Punjab, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, North Eastern States, Odisha and Chhattisgarh.

Appointment

Exclusive Rights. COSMED hereby appoints the Company named above as its exclusive Distributor for the Products in the Territory. The Company shall have the exclusive rights to market, sell, promote, distribute and arrange for service, repair and replacement of the Products in the Territory. The company shall not sell outside their defined territory directly or through dealers and agents and shall pass any inquiries received from outside their territory to Cosmed.
Non-competition. The Company binds not to sell, market, promote, distribute or arrange for sale of any competitor product to those represented by the Company for COSMED as well as other products not represented by the Company which COSMED may manufacture.

General obligations of the Company

Promotion of Products. The company shall promote Products in the Territory in the appropriate ways, further, shall do the utmost to be present in relevant meeting and at the main events.

Marketing Information. The Company shall possibly provide COSMED with a written description of its plans for marketing Products within the Territory, including schedule of exhibits and target markets to be covered, which must be reasonably defined in accordance with the "Annual Target Sales" fixed by COSMED, decided from time to time.

Customer Service. The Company shall maintain an adequate number of qualified sales, service and applications personnel to respond promptly to sales leads and to requests for applications support and technical service within the Territory. The company shall also support all existing installations in the territory that were sold prior to the appointment. Installation, service during warranty or thereafter, return of goods or parts under warranty or there after shall be the responsibility of the company as per the terms fixed by Cosmed and here enclosed.

Product Manager. The Company shall designate/appoint a product manager with adequate technical/commercial knowledge/experience for Cosmed products in order to co-ordinate various business activities between the Company and COSMED.

General obligations of COSMED

Deliveries. COSMED agrees to use its best efforts to process orders and deliver Products in a prompt and commercially reasonable manner, subject to the provisions of COSMED's customary order acceptance procedures; provided, that COSMED shall deliver Products, ordered not later than sixty (60) calendar days following order acceptance unless a later delivery date is specified by the company.

Promotional Materials. COSMED shall furnish the company, from time to time, with a reasonable quantity of COSMED's marketing materials, catalogs and brochures relating to the Products.

Sales support. COSMED shall provide the company, training, initial installations help and guidance on servicing locally at the company's registered office in Pune and upon mutual agreement demo units and direct support during important international events in a reasonable amount with the potential market of the Territory.

Office / Headquarters
Via del Pratello Monte Savello 53
Albano Laziale - Roma, 00041 ITALY
O +39 06 931-5492 F +39 06 931-4500
info@cosmed.com cosmed.com

COSMED SRL

Krishna 18/7/21
Dr. Krishna Mohan Gulla
Associate Professor
Department of Pediatrics
IIMS,Bhubaneswar-751019

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COSMED
The Metabolic Company

Price List
The Contractor will promote COSMED products at the assigned price list for India from COSMED. Sales below this price list is not allowed unless specific written notice from COSMED.
Generally all COSMED prices will be ex works COSMED, Rome.

Compensation & Benefits
A) Resale: The distributor will import company products at a transfer price and sell them on prices as decided by them depending on the prevailing market factors. No compensation or commission will be entitled from the company.

B) Expense Reimbursement: In case of direct orders from end users through Letter of credits or advance payments COSMED agrees to reimburse the Distributor for reasonable costs and expenses incurred in the performance of its duties like installation, training and service backup during warranty including the costs of travel and lodging with prior written consent from COSMED and submission of expense invoice.

or

C) Agency Commission: In case of direct orders from end users through Letter of credits or advance payments where the buyer wishes to pay the agency commission directly to the distributor in local currency as per the rules and regulations prevalent in your territory an agency commission of 5% of the Ex-works/FOB value maybe be charged by you from the buyer . In case it has not been mentioned on our quote the buyer can deduct 5% from the Ex-works/FOB value and pay to you directly. In such case no expense reimbursement as per clause B above will be applicable or paid to you.

Termination
Either party shall have the right in good faith to terminate this Agreement with immediate effect upon written notice.

COSMED may terminate this Agreement if the Distributor breaches the agreement by selling outside the assigned territory without COSMED's written authorization or if the Distributor engages in any unlawful practice, which is detrimental to COSMED.

Contractor fails to meet the sales target set forth by COSMED and amended from time to time.

Effects of Termination
Upon any termination of this Agreement, Contractor shall forthwith cease the promotion, sale and distribution of the Products in the Territory and return to COSMED all printed materials, labels, samples, packaging and all other materials relative to the Product. Contractor shall furthermore cease the use of all of COSMED's trademarks, trade names, and logos, and shall discontinue reporting to the public and the trade that Contractor is authorized by COSMED to sell the Products

Validity
This appointment letter is valid until 31/03/2003.

On Behalf of COSMED S.r.l.

Mr. Marco Brugnoli
Managing Director

COSMED S.r.l.

On Behalf of Global Medical Devices

Mr. Kiran Tathe
Proprietor

Office - Headquarters
Via dei Piani di Monte Savello 37,
Albano Laziale - Roma, 00041 ITALY
T +39 06 931-5492 F +39 06 931-4580
info@cosmed.com cosmed.com
Registered Office: Viale Bruno Buozzi, 77 – 00197 Roma – ITALIA

ANNEXURE – IV

SPECIFICATIONS ARE VETTED BY AN EXTERNAL EXPERT FROM AIIMS, DELHI.

(5)

INDIRECT CALORIMETER SYSTEM FOR MEASUREMENT OF RESTING ENERGY EXPENDITURE(REE) IN MECHANNICALLY VENTILATED AS WELL AS SPONTANEOUSLY BREATHING PATIENTS

It should be a light-weight, portable standalone metabolic monitor able to measure/calculate the following in children

Indirect Calorimetry (VO2, VCO2, RQ, RF, VT, CV, FiO2, FiCO2, FeO2, FeCO2)

Resting Energy Expenditure (REE)

Technical Specifications:

- Display screen should be of LCD with touch screen
- In ventilated patients it should able to measure REE in children >1 year and 10 kg weight
  In spontaneously breathing patients, canopy mode should be able to measure REE in children more than 15 kg and mask mode should be able to measure REE in children more than 10 kg weight
- It should be able to measure REE in invasive as well as non-invasively mechanically ventilated children and spontaneously breathing children
- It should be able to measure REE in ventilated patients requiring FiO2 even up to 75%

- VO2 and VCO2 measurement range should be of 10-1000 ml/min with accuracy of +/-3%
- REE range should be of 0-7000 kcal/day with accuracy of +/-3%
- Sampling mode for analysis of gases should be using micro dynamic mixing technology
- Automatic gas calibration should be there and time taken to provide EE measurement should be less than 10 min
- O2 Sensor: It should be of GFC (Galvanic Fuel Cell) type, Range to measure FiO2 should be from 0-75% with accuracy of <0.05%vol
- CO2 Sensor: It should be of NDIR (Non-Dispersing Infrared) type, Range to measure fractional CO2 should be from 0-10% with accuracy of <0.05%
- Environmental Sensors: The system should have Temperature, Barometric and Humidity Sensors
- Power Supply: Rechargeable Battery as well as Mains 100-240V AC ±10% 50/60Hz.
- Interface: It should have USB interface for transferring data in all formats (CVS, PDF, Xml)

Dr. KRISHNA MGULLAI

Dr. Bhagirathi Dwibedi
Additional Professor
Department of Paediatric
AIIMS, Bhubaneswar,Odisha

Dr. Rakesh Lodha
Professor
Pedwatrics,
AIIMS, DELHI.

(7)

- PC Software should be provided to download tests to a Windows Compatible Desktop PC with atleast 17" Monitor, Core i8 with 8 GB RAM, 2TB Hard disk, Original Windows 10 with Microsoft Original software, and DVD writer, 4 or more USB port, Ethernet card Ink tank/laser color printer

- Ventilator Compatibility: The system should be able to operate with different make/models international standard ventilators

- Essential Accessories: The system should be supplied with all essential accessories required like calibration gas, Face Mask kit in plug and play configuration

- Quality assurance: European CE/ US FDA/ISO certifications should be provided.

- The system should meet ESPEN Guidelines on Clinical Nutrition in Intensive Care Unit

- Consumables should be clearly mentioned and rate contract should be done for the consumables at the time of purchase

  The following consumables should be provided with machine for smooth functioning

  - Disposable flow sensors – 150
  - HME with anti-bacterial filter - 150
  - Adapter – 150
  - Sampling lines – 150
  - Calibration Gas in 5L WC Cylinder (16%O2, 5% CO2, N2 Balance)- 2
  - Reusable Canopy mask -2 (pediatric, adult/small, large size each)
  - Disposable veils for Canopy mask large and small – 50 each
  - Reusable mask-2 (pediatric, adult/small, large size each)
  - Head caps for Facemask - 20
  - 3L syringe for calibration -2
  - Cart from the OEM with cylinder holder
  - Pole to mount machine over it with appropriate clamps

- It should be Mounted on a wheeled cart
- Accessories/parts not covered under warranty are to be clearly mentioned
- Availability of calibration gases should be confirmed and supplied throughout the life span of machine

Dr. Bhagirathi Dwibedi
Additional Professor
Department of Paediatric
AIIMS, Bhubaneswar, Odisha

Professor
of Pediatrics

Annexure – V

GLOBAL
MEDICAL DEVICES

Office No. D-05,
1st Floor, Choice Arcade,
Opp. Ruby Hall, Dhole Patil Road.
Pune - 411 001.

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Ref. : GMD/AIIMS_Bhubneswar/NRG/248/2022-23

Date : 10.05.2022

To,
The Director
AIIMS BHUBANESWAR
Bhubneshwar-751 019

Madam,
This refers to your requirement of COSMED RMR/REE systems. Please find below our Commercial Quote for COSMED Q-NRG+ Metabolic Monitor with Omnia Software

Sr. No.	Ref	Description of Goods	Qty.	Total Price (INR)
	Imported Items			
1	C09092-02-99	Q-NRG+ Metabolic Monitor	1	
	A-662-250-003	Flow-Ree, disposable flow sensor (10 pcs.)	1	
	A-820-173-002	Q-NRG+ Adapter, FiO2 to Ventilator (50 pcs.)	1	
	A-180-100-002	QNRG/NRG+ Sampling Lines (100 pcs.)	1	
	C03179-01-11	Canopy Hood Kit, LARGE size	1	
	C03179-03-11	Canopy Hood Kit, SMALL size	1	
	C04690-01-10	Disposable Veils for Canopy Hood LARGE (50 pcs.)	1	
2	C04656-02-11	Q-NRG Face Mask Kit (w/ 2 Masks M and S, 2 head-caps, ext.	1	
3	C04690-01-10	Disposable Veils for Canopy Hood LARGE (50 pcs.)	1	
4	C00600-02-11	Calibration syringe 3 liters for resting/low flows	1	
	A-258-900-002	Q-NRG/NRG+ | Cart with cylinder holder w/o clamp	1	
	C04756-01-10	Q-NRG Pole/Rail/Clamp w/100mm VESA Mounting	1	
5	A-670-100-006	OMNIA Metabolic - REE Vent Module	1	
6	A-670-100-016	OMNIA Metabolic - REE Canopy Module	1	
	A-258-900-002	A-670-100-022 OMNIA Metabolic - REE Module Mask (Q-NRG)	1	
	Locally Sourced Items			
		Calibration Gas in 5L WC Cylinder (16%O2, 5% CO2, N2 Balance)	1	
		Dual Stage Regulator	1	
		Special connector for calibration port	1	
			Sub Total	2,200,000.00
			GST @ 12 %	264,000.00
			Total	2,464,000.00

(Rupees Twenty four Lacs and Sixty four Thousand Only)

Terms & Conditions :

1	Prices	: The Prices are in Indian Rupees
2	GST	: GST @ 12 % will be charged extra as mentioned
3	Payment	: 100% against delivery/installation
4	Delivery	: 8 - 12 weeks from date of Confirmed PO
5	Warranty	: Five Years from date of Installation/Supply
6	Validity	: 3 months
7	CMC	: Rs. 1,10,000.00 + GST @18% per year after expiry of warranty upto 5 Years

For Global Medical Devices

Global Medical Devices

Authorized Signatory

Tel.: 020 - 41208304 ✣ M : 9890014348 / 9764949973 / 7774017586
✣ E : globalmedicaldevices@gmail.com, contact@gmdindia.com ✣ www.gmdindia.com

18/7/22

Mohan Gulla
Associate Professor
Department of Pediatrics
AIIMS, Bhubaneswar-751019

Q-NRG™+

Metabolic Monitor

Annexure-VI

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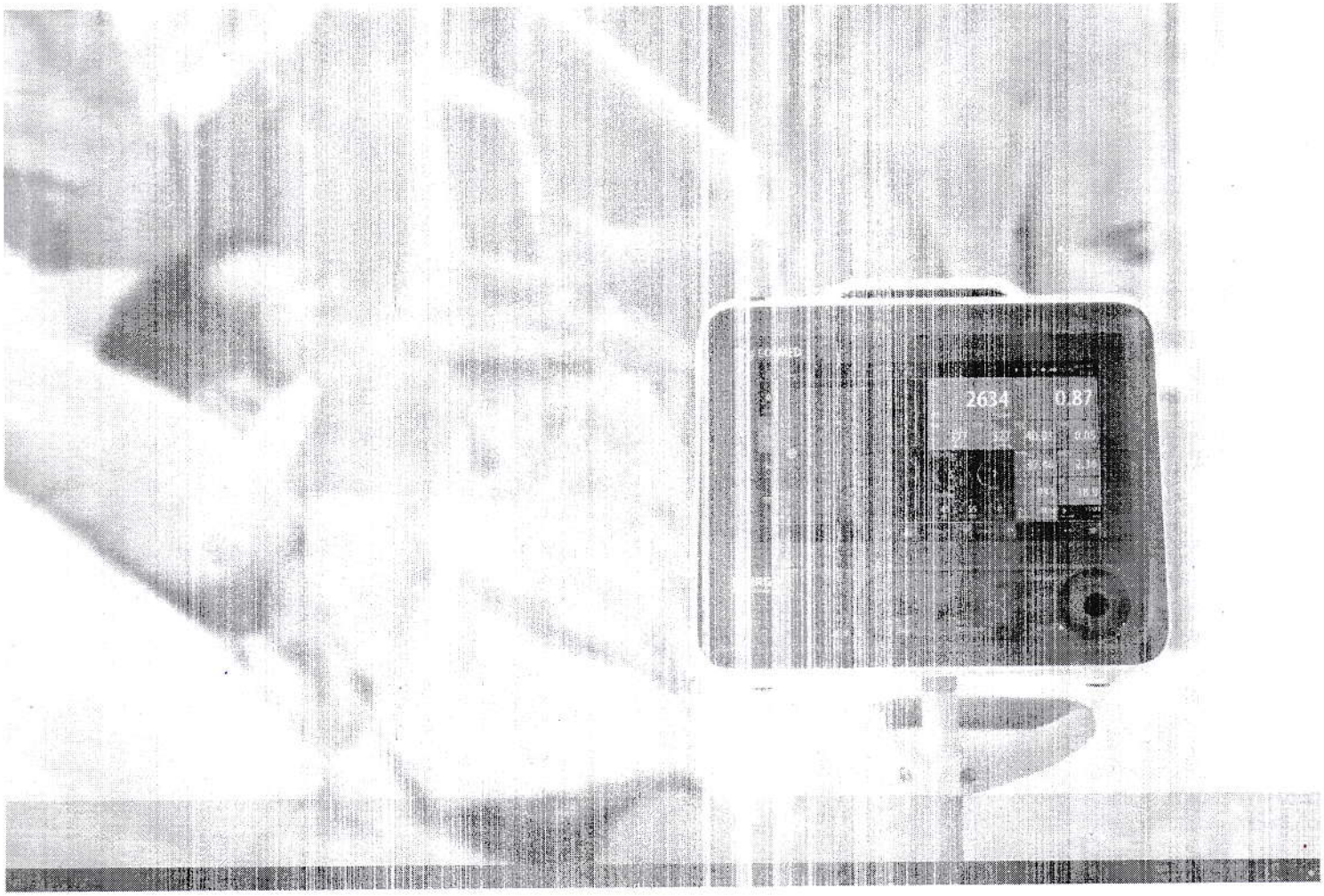


Introducing The New Generation of Metabolic Monitors for Indirect Calorimetry in Clinical and Critical Care Practice

18/7/12

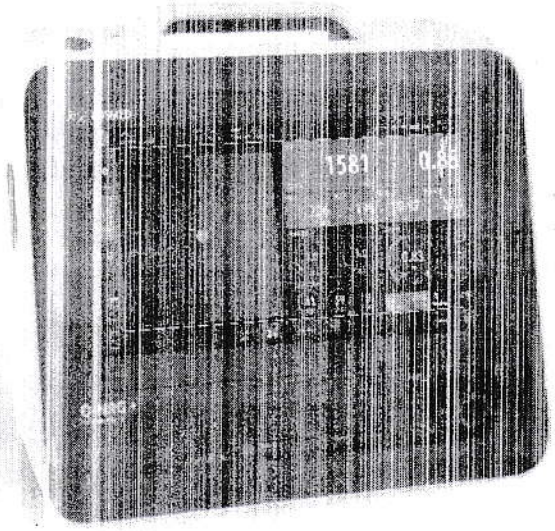
Dr. Krishna Mohan Gulla
Associate Professor
Department of Pediatrics
IMS, Bhubaneswar-751019

COSMED
The Metabolic Company

(12)

"In critically ill mechanically ventilated patients, EE should be determined by using Indirect Calorimetry[1]"

- 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 patients who are mechanically ventilated or spontaneously breathing 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 Equations[2].

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 group[3].

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 resolution[4]. 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 measurements[5].

Quick to operate, clean and maintain

Q-NRG has been designed to reduce operations and measurement times. 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.

1 ESPEN guidelines on clinical nutrition in the intensive care unit. Singer P, et al. Clin Nutr. 2018

2 Resting energy expenditure in malnourished older patients at hospital admission and three months after discharge: predictive equations versus measurements. Neelemaat F, van Bokhorst-de van der Schueren MA, Thijs A, Seidell JC, Kruizenga HM. Clin Nutr. 2012

3 Indirect calorimetry in nutritional therapy. A position paper by the ICALIC study group. Oshima T, et al. Clin Nutr. 2017

4 Indirect calorimetry as point of care testing. Singer P, Rattanachaiwong S. Clin Nutr. 2019

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

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

7 The clinical evaluation of the new indirect calorimeter developed by the ICALIC project. Oshima T, et al. Clin Nutr. 2020

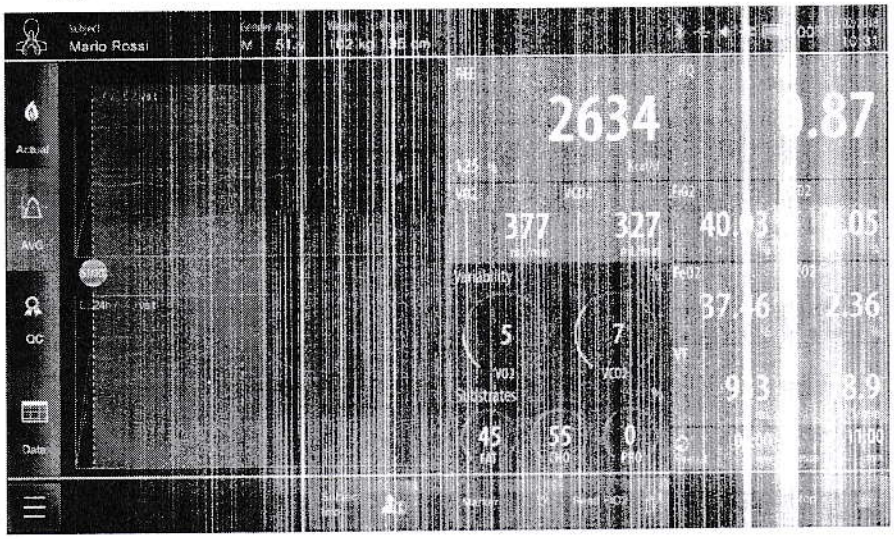
One tool for many applications

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 (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.

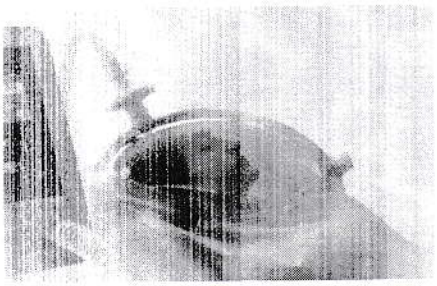
Canopy Mode. Indirect Calorimetry through Canopy Hood is the 'Gold Standard' technique to measure REE in spontaneously breathing subjects. Exhaled gases are diluted within a "Canopy Hood" (small or large size). Measurement of dilution flow and O_2/CO_2 concentrations allow the calculation of VO_2 and VCO_2.

Face Mask Mode. REE measurements can be performed using an orthostatic 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 (S sizes) for VO_2 and VCO_2 measurement.

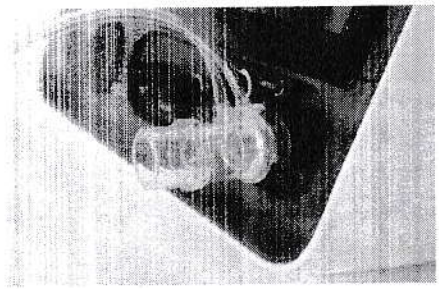


Real Time dashboard of Ventilator test shows metabolic and ventilatory data as well as wizards for Quality Control and understand whenever test is completed.

The Ventilator patient circuit requires the use of a single-use flowmeter and HME or standard filter



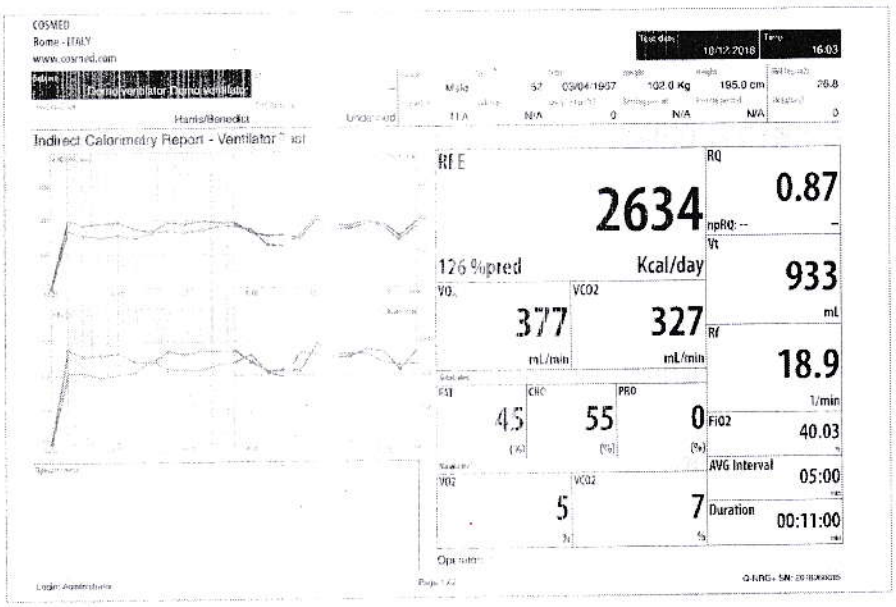
Canopy Hood (small or large size) utilizes a single-use vest to avoid cross contamination



COSMED single-use pneumotach flowmeter (Flow-REE)

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% O2, 5% CO2, N2 bal) and pressure regulator.
- **Flow/Volume Calibration kit.** Required for the monthly calibration, includes a 3L certified calibration syringe and adapter.
- **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.

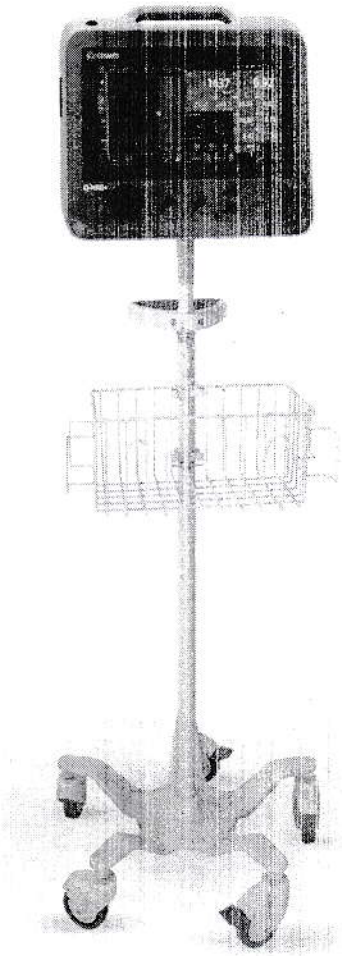


PDF printout of ventilator test shows test results in a comprehensive format to facilitate metabolic assessment. Tabular data may also be included.

Q-NRG™ +

Metabolic Monitor

Technical Specifications



Q-NRG+	Metabolic Monitor	CE0092-02-99
Standard packaging	Q-NRG + unit, IEC cable power cable, fuses, Q-NRG + cover, User Manual	
Indications for use	Resting Energy Expenditure (REE) measurement with limitations in accordance with labeling, within the following population: Ventilator mode: ventilated subjects > age 10 and 10Kg Canopy mode: spontaneously breathing subjects >15Kg Mask mode: spontaneously breathing subjects > 6 years and 10Kg	
Measurements		
Indirect Calorimetry in Ventilator mode (standard)	Resting Energy Expenditure (REE, MMR) in ventilator mode, Respiratory Quotient (RQ), Substrates Analysis (%Fat, %PRO, %CHO)	
Indirect Calorimetry in Canopy mode (optional)	Resting Energy Expenditure (REE, MMR) with canopy hood, Respiratory Quotient (RQ), Substrates Analysis (%Fat, %PRO, %CHO)	
Indirect Calorimetry in Mask mode (optional)	Resting Energy Expenditure (REE, MMR) with oro-nasal face mask or mouthpiece, Respiratory Quotient (RQ), Substrates Analysis (%Fat, %PRO, %CHO)	
Oxygen (O2)	**Range**	**Accuracy**
VO_2	0-1000 ml/min	±3% or 5mL/min
VCO_2	0-1000 ml/min	±3% or 5mL/min
RQ	0.7-2.30	±5% or 0.04
REE	0-7200 kcal/day	±3% or 36 kcal/day
Flow Sensor	**Q-NRG+**	**Flow REE**
Type	Bidirectional digital turbine	Disposable Pneumotach
Flow range	0.05 - 2 L/s	0.01 – 1.6 L/s
Accuracy	≤ 2% or 10 mL/min @1-25 L/min	≤2% or 100mL/min @1-25 L/min
Resistance	<0.45 cmH2O s/l @ 1 L/s	2.3 cmH2O s/l @ 1 L/s
Calibration	With 3L calibration syringe (monthly)	Automatic via Internal Blower
Gas Module	**O2 sensor**	**Carbon Dioxide (CO_2)**
Sampling mode	Micro Dynamic Mixing Chamber (patented)	
Type	Galvanic Cell Technology (GFC)	Digital NDIR
Range	0-75%	0-10%
Accuracy	<0.05% Vol	<0.05% Vol
Resolution	0.01% Vol	0.01% Vol
Calibration	Automatic with gas cylinder (monthly)	
Data		
Export modes	USB, Bluetooth®	
Export formats	PDF, CSV, XML	
Device		
Dimensions & Weight	31x21x27 cm, 4.5 Kg	
Display	10.1" Transmissive TFT LED 1024x600, 65k colors, capacitive touch screen	
Power	Battery: Li-ion™ smart (6 hours autonomy) Mains: IEC 60601-1-2 ±10% 50/60Hz, 100-130 VAC	
Wireless Connectivity	Bluetooth® 4.1 + EDR Class II (range 10 m line-of-sight)	
Wired Connectivity	3 USB-A device (5 kV galvanic insulated), 2 x USB Host, RS-232 (5 kV galvanic insulated), LAN (5 kV galvanic insulated)	
Environmental ranges (operating)	Temp. +15°C to +35°C, Humidity 5-95% (non condensing), Atmospheric pressure: 700hPa-1060hPa up to 3000 m	
Graphical User Interface		
Languages	English, Spanish, Portuguese, Italian, Turkish, French, Italian, Japanese, German	
Software User Manual		
Languages	English, Chinese (Traditional & Simplified), Czech, Dutch, French, German, Greek, Hebrew (interpretation only), Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Romanian, Russian, Spanish, Turkish	

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PC Requirements	Windows 7 SP1 (32 bit, 64 bit), Windows 8.x (32 bit, 64 bit), Windows 10 (32 bit, 64bit), Windows 11 (64bit), CPU ≥ 2GHz, RAM ≥ 4GB, HD ≥ 10GB for full installation, monitor resolution ≥ 1366x768 pixel, ≥ 2 USB port	
DESCRIPTION		
OMNIA	PC software	C04060-01-11
ACCESSORIES		
Cart	Wheeled cart with cylinder holder and basket	A-258-900-002
Clamp	Clamp for pole or rail	C04256-01-10
Canopy Kit	Canopy hood (large) + Canopy hose	C05179-01-11
	Canopy hood (small) + Canopy hose	C03179-01-11
Canopy hose	Reusable hose for canopy testing	C03578-01-07
Mask kit	Masks (S/M) + Headcap (S/M) + Flowmeter	C04656-01-11
Face masks	Reusable silicon nasal mask (Petite, XS, S, M, L)	C03618-01-10
Headcap	Reusable headcap (Petite/XS, S/M, L)	A-500-900-02X
Flowmeter	Reusable D18 turbine	C04279-01-04
Filter adapter	Reusable for tests with AB/AV filters	C05585-01-20
Calibration gas	Gas cylinder 16% O_2, 5% CO_2, N_2 bal	A-260-000-034
Pressure regulator	Pressure regulator for calibration gas cylinder	A-520-152-001
1L syringe	Certified 1L syringe for calibration	C00600-01-21
CONSUMABLES		
Flow-Kit	Single use (10 pcs.)	A-562-256-035
Sampling line	Single use (100 pcs.)	A-180-101-032
H2O adapter	Single use (50 pcs.)	A-570-172-032
Vent standard filter	Single use (50 pcs.)	A-182-300-037
Vent HME filter	Single use (50 pcs.)	A-182-300-036
Canopy gel	Single use vials (50 pcs.), large	C04690-01-13
	Single use vials (50 pcs.), small	C04690-01-12
AB/AV filters	Single use with round mouthpiece (50 pcs.)	A-182-300-034
Rubber mouthpiece	Single use (200 pcs.)	C00568-01-98
Nose clip	Single use (25 pcs.)	A-569-166-031

MDD (93/42/EEC Class IIa), IVDA (98/79/EC), safety (IEC 60601-1 Class I), EMC (IEC 60601-1-2), Telemetry (ETSI EN 301 489-1, ETSI EN 301 489-17), FCC, IC

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