



The first desktop system for easy and accurate Cardio Pulmonary Exercise Testing

- ▶ Accurate VO_2 measurements for resting & Exercise Testing
- ▶ VO_2 max and sub-max VO_2
- ▶ Resting Energy Expenditure (REE, RMR)
- ▶ Built-in application for developing individual Weight Management programs
- ▶ Fitness Assessment, Body Composition and Risk Analysis
- ▶ Software for data management, exercise prescription and HR/ VO_2 Training zones
- ▶ Affordable, portable and easy to use



Application Fields

Fitmate PRO brakes schemes with traditional Cardio Pulmonary Exercise Testing and proposes a new approach for measuring Oxygen consumption both in the clinical and sport exercise. Fitmate PRO has been designed for:

- ▶ Sport Science, University Education
- ▶ Performance, Training centers
- ▶ Clinical Exercise Testing
- ▶ Professional Teams
- ▶ Corporate Wellness programs, Professional Personal Training etc.

- ▶ Automatic and custom Anaerobic Threshold detection
- ▶ Automatic RQ compensation during resting and graded exercise
- ▶ Automatic control of ergometers by the integrated serial port (RS-232)
- ▶ Provided with Polar HR interface
- ▶ HR interfaced with external ECG (optional)
- ▶ Quality control during testing (leaks on the mask, HR missing. Non-physiological gas measurements etc.)

Exclusive New Design

Fitmate PRO is a desktop-size compact device with a large LCD screen and in-built printer that allow users to do testing without the need of having a PC. Fitmate manages data, tests and stores all the information inside its internal memory. Reporting is fast and easy by the fast integrated thermal printer.

Cardio Pulmonary Exercise Testing (CPET)

Fitmate PRO offers most of the features of conventional metabolic carts but at incomparable affordable costs.

- ▶ Oxygen Consumption by Dynamic Mixing Chamber (Patent)
- ▶ Provides VO_2 , Minute Ventilation, Heart rate and related parameters with a 15 seconds sampling rate.
- ▶ Accurate and reliable at any exercise intensity
- ▶ Pre-defined VO_2 max and Sub-max VO_2 protocols
- ▶ Automatic regression for extrapolating VO_2 max based on VO_2 and HR response during Sub-Max protocols

Indirect Calorimetry

Oxygen consumption is measured sampling expired gas with a 30 seconds or more average time. REE and metabolic results are automatically printed out by the built-in printer right at the end of the test.

- ▶ REE, RMR, Energy Expenditure, Ventilation, AVG data
- ▶ Quality Control Messages during testing (mask leaks, FeO_2 control, respiratory pattern etc.) to minimize possible errors.



Proven Accuracy, Fitmate Validated vs. Douglas Bag

1) Validation of COSMED's Fitmate™ in measuring exercise metabolism.

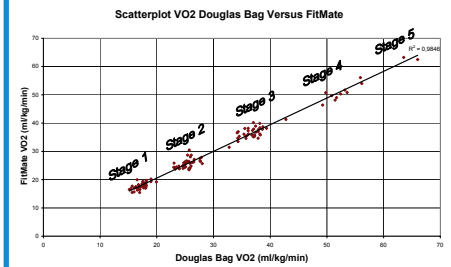
[David C. Nieman, et al. Research in Sports Medicine, 15: 1-9, 2007.]

2) Validation of Fitmate in measuring REE

[David C. Nieman, et al. Research in Sports Medicine, 14: 1-8, 2006]

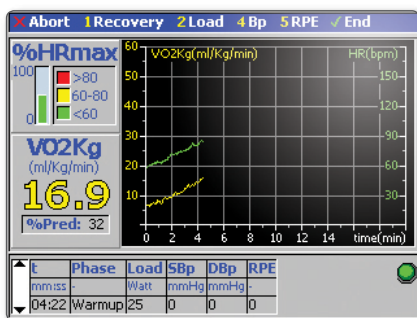
In conclusion, the Fitmate metabolic system accurately measures oxygen consumption during graded treadmill exercise as well as during Resting when compared with the Douglas bag system in male and female adults.

Both validation shows a great correlation ($R^2 > 0.98$)



Extra Tests & Tools

- ▶ Activity Caloric Cost, to measure EEKcal/day, exercise capacity during any physical activity (working, lifestyle etc.)
- ▶ Fitness Assessment (Muscular Strength, Flexibility)
- ▶ Body Composition
- ▶ Weight Management Program
- ▶ Standard Measurements (WHR, Blood Pressure etc.)
- ▶ Cardiovascular Risk Analysis



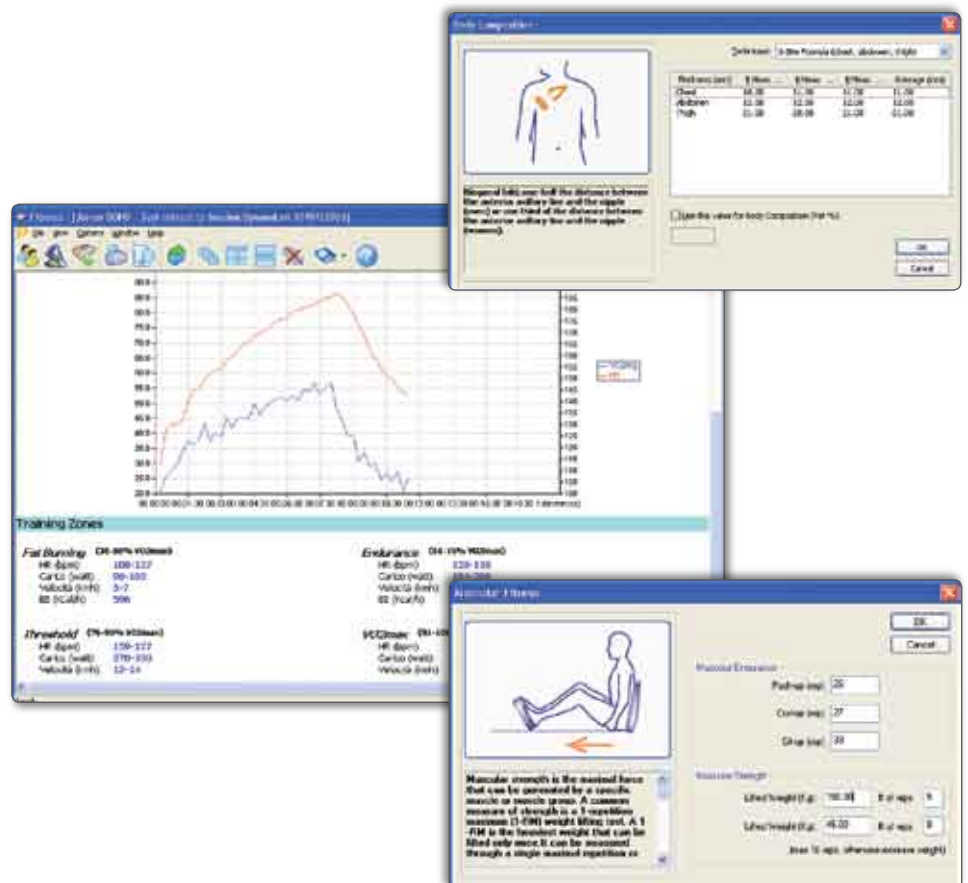
Accurate VO ₂	Validated with outstanding results vs. the “gold standard” both at resting and exercise
Flowmeters	Provided with two flowmeters (resting & exercise) Fitmate delivers accurate measurement of ventilation at any range for both resting (0-10l/min) or during exercise (> 250 l/min)
Ergometer Interface	Fitmate PRO is provided with RS-232 port for direct interface with most of bikes and treadmills available in the market (HP COSMOS, Ergoline, Trackmaster, Technogym, Monark etc.)
Portable, Handheld	Large LCD screen, easy-to-access keyboard, both main and battery operating and weighing less than 2 kg (5 lbs), can be used within hospital or even for outcome patients.
Built-in Printer	Fast and silent, delivers high quality reports of any assessment in just a few seconds.
No warm-up time	Plug it in, and Fitmate is ready for use, no need of any warm-up time for Metabolic testing
Quality Control	Fitmate displays real time data (VO ₂ , EEKcal/day, VE, Rf, FeO ₂ , HR) for continuous data monitoring. Warnings and quality control messages (mask leaks, inappropriate breathing pattern...) are displayed if anything wrong occurs during the test
Auto-Calibrating	Fitmate calibrates in room air in less than 20 seconds, saving time for health care professionals and eliminating the need of gas cylinders and complex calibration procedures
Face Masks (Exercise)	Durable and easy-to-clean silicone face masks available in different sizes both Adult (Small Medium and Large) and Paediatric (Small and Large)
Face Masks (Resting)	Single patient face masks comfortable and provided with high efficiency antibacterial filter to eliminate the risk of cross-contamination.
No maintenance	Fitmate does not require specialized technical service. Ordinary maintenance requires few operations (O ₂ sensor replacement) that can be done by the user in just a few seconds

Software & More

- ▶ Provided with a full software package for data management
- ▶ Download and link tests with new or existing patient information
- ▶ View and printout data (Color, A4 format etc.)
- ▶ Show Trends among tests performed in different dates
- ▶ Export gas Exchange data in different file format (ASCII, Excel)
- ▶ Exercise Prescription according to ACSM guidelines.

Exercise Prescription

Software provides a comprehensive prescription report that includes Cardio Vascular, Muscular and Flexibility development. In addition users can set HR training zones (fat burning, endurance, VO₂max etc.) based on the relationship between VO₂ and HR that helps professionals in delivering easy-to-follow guidance to the training.



VO₂ max Test, VO₂ vs. HR plot and HR training Zones.



Fitmate and all the accessories are provided together with a nice and practical carrying case.



Fitmate uses two kind of mask: Comfortable Silicon mask for long testing session and RMR disposable Face Mask (patent)



To ensure accuracy at any workload Fitmate provides two flowmeters: One for exercise testing and a small one for resting metabolic rate.



The O2 sensor has to be replaced every 12-18 months.

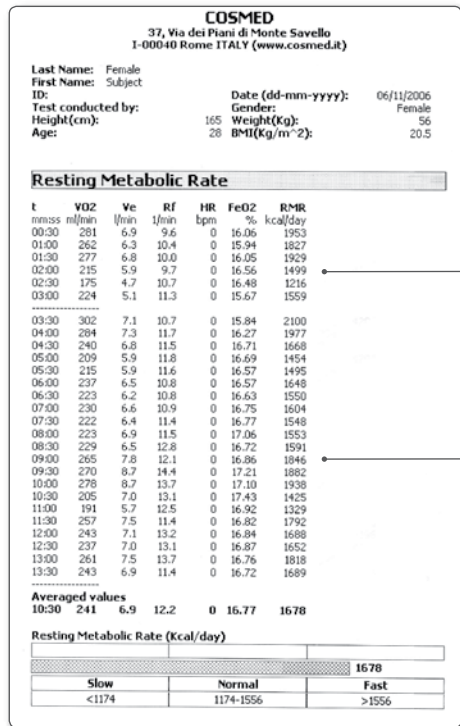
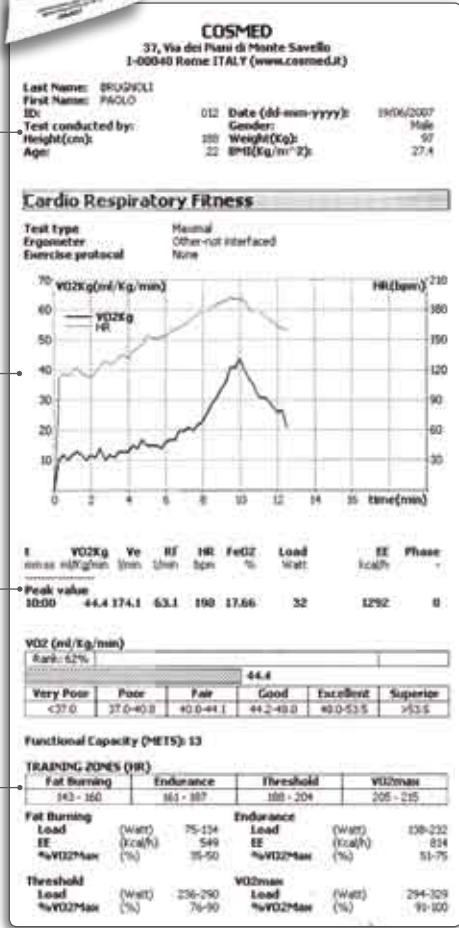


Subject data & Test Information

The Graph shows relationship between VO₂/Kg and Heart Rate

Gas Exchange Data (VO₂, VE, HR etc.) can be shown at peak, average, or each 15 secs interval

Individual HR Training Zones



Discard interval

Average interval

VO₂max test and Resting Metabolic Rate printouts showing data and graphs

Technical Specification

Main Functions

Oxygen Consumption	Resting Energy Expenditure, REE, RMR, EE (Kcal Day), VO ₂ , VE, FeO ₂ , Rf, HR (optional)
Measurement Time	15 min (default), user defined
Additional Testing	Body composition, Weight Management Program, Standard measurements (blood pressure, waist and hip circumferences, resting hart rate, BMI...)
Software Features	Data management, Daily caloric intake, Cardiovascular Risks analysis, Trends
Sampling Type	Dynamic Mixing Chamber (international patent)
Sampling Rate	15/30 /60 sec

Oxygen Analyzer

Type	GFC (Galvanic Fuel Cell)
O ₂ Measurement range	0-22%
Calibration	Automatic on room air
Warm-up time	None
Accuracy	±0.02%
Lifespan	12-18 months

Flowmeter: Bidirectional digital turbine Ø 18mm

Ventilation range	0-50l/m
Flow resistance	<0.7cm H ₂ O/l/s@3l/s
Accuracy Flow/Volume	±2%

Flowmeter: Bidirectional digital turbine Ø 28mm

Ventilation range	5-300l/m
Flow resistance	<0.7cm H ₂ O/l/s@14l/s
Accuracy Flow/Volume	±2%

Hardware

Dimensions & Weight	24 x 20 x 8cm / 1.5kg (9,4 x 7,9 x 3,1 in / 3.3 lb)
Display	Color LCD 320 x 240 pixel
Printer	High speed thermal printer 11 cm (4,3 in)

Standard Packaging Includes

Fitmate PRO unit, RMR - Flowmeter, RMR masks (10 pcs), Vo2max - flowmeter, Silicone face mask, (M-size), Head cap for silicone mask, AC/DC Adapter, USB cable, Fitmate PC Software (CD-Rom), Skin-fold caliper, Body meter, Fitmate pedometer, Oxygen sensor, POLAR® HR belt and probe.

Available languages

Italian, English, German, Spanish, Greek, simplified Chinese, French, Dutch.

PC configuration required

Pentium or faster, Windows XP, VISTA 32, 128 Mb RAM or more, USB, CD-Rom reader, 80 Mb on HD space available.

Safety & Quality Standards

Equipment complies with MDD (93/42 EEC);
EN 60601-1 (safety) / EN 60601-1-2 (EMC)
FDA 510(k) cleared.



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