fitmate® MED

Wellness Technology

Cardio Pulmonary Exercise Testing

The first & unique diagnostic system for a complete Cardiopulmonary Assessment

- Maximal oxygen uptake (VO_2max) and measured METs.
- Classification of Exercise Capacity & Anaerobic Threshold
- Nutritional Assessment and resting VO_2 for Fick equation
- Full Spirometry (FVC, SVC, MVV etc.)
- Multiple scores for Cardio Vascular and Pulmonary Risk analysis
- Body composition & comprehensive Weight Management software
- Interfaces with conventional Stress testing ECG
- Affordable, compact & easy to use

COSMED

Pulmonary Function Equipment

Fitmate MED measures maximal Oxygen Uptake that is the Gold standard for measuring Exercise Capacity and quantify Aerobic Fitness. Together with exercise electrocardiography, Fitmate MED enables you to complete the Cardio Pulmonary Stress Test without the need of expensive investment, complicated procedures or specialist expertise.

Rehabilitation of the patient is managed with exercise prescription and weight management software according to established international guidelines.

Clinical applications of VO_2

- Actual measurement of Exercise Capacity and METs (not-estimated)
- Pre-operative evaluation of surgical risk
- Classification and prognosis of CHF (Congestive Heart Failure)
- Provision of objective selection criteria and decision tool for heart transplant
- Differentiation of Cardiac vs. Pulmonary limitations
- Determination of exercise training intensity as part of Cardiac Rehabilitation
- Nutrition assessment for recovery from illness and chronic health management
- Obesity treatment and diabetes type II prevention
- Identification of energy requirements for Respiratory disorders (COPD, Sleep disorders, Cystic Fibrosis)

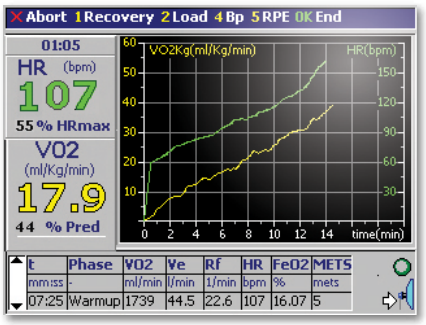
Comfortable silicone masks (5 sizes, both adult and paediatric) are available for exercise testing and one universal size disposable mask for resting measurements.

Three in one

Fitmate MED is the first diagnostic equipment designed to provide a full picture about Cardiopulmonary Function.

VO_2max and real METS

- Choose between maximal and submaximal exercise protocols
- Real time display of pertinent respiratory parameters
- Automatic and manual detection of anaerobic threshold
- Pre-defined or custom exercise protocols (Bruce, cycle, ramp etc.)
- Automatic exercise training heart rate zones based on oxygen uptake
- Warnings and quality control messages (mask leaks, breathing pattern etc.) are displayed during test

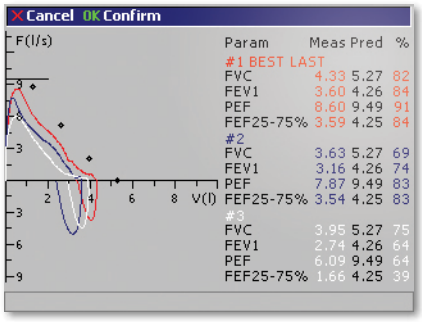


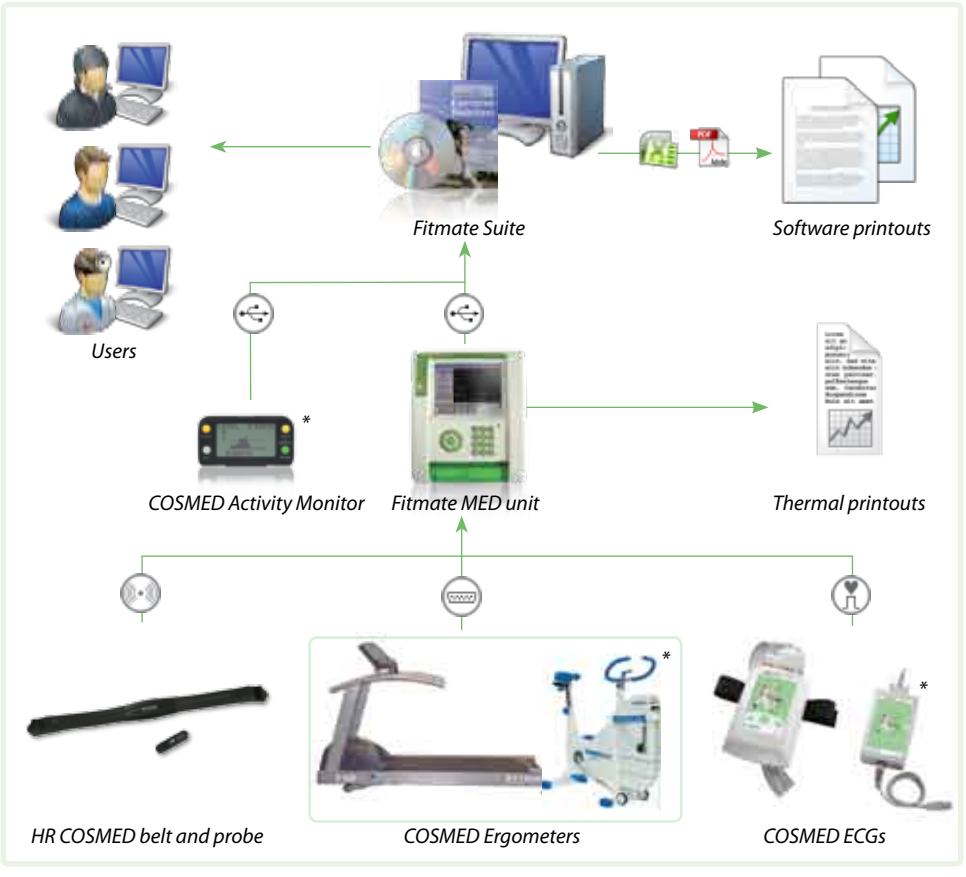
Resting Energy Expenditure

Fitmate measures oxygen consumption (VO_2) at rest with high accuracy, comparable with conventional metabolic carts.

Spirometry

Full spirometry testing (FVC, SVC, MVV, Pre/Post bronchial dilator response) is available fully complying with ATS/ERS recommendations.



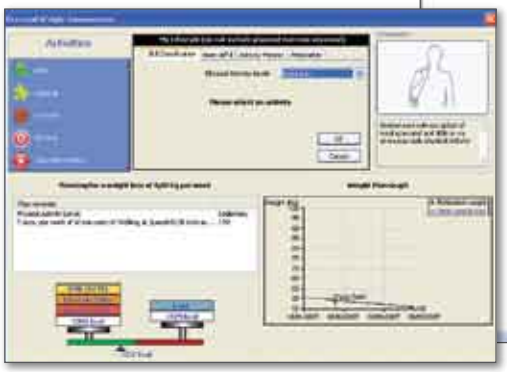


RS-232 Port
Wireless
USB Port
TTL

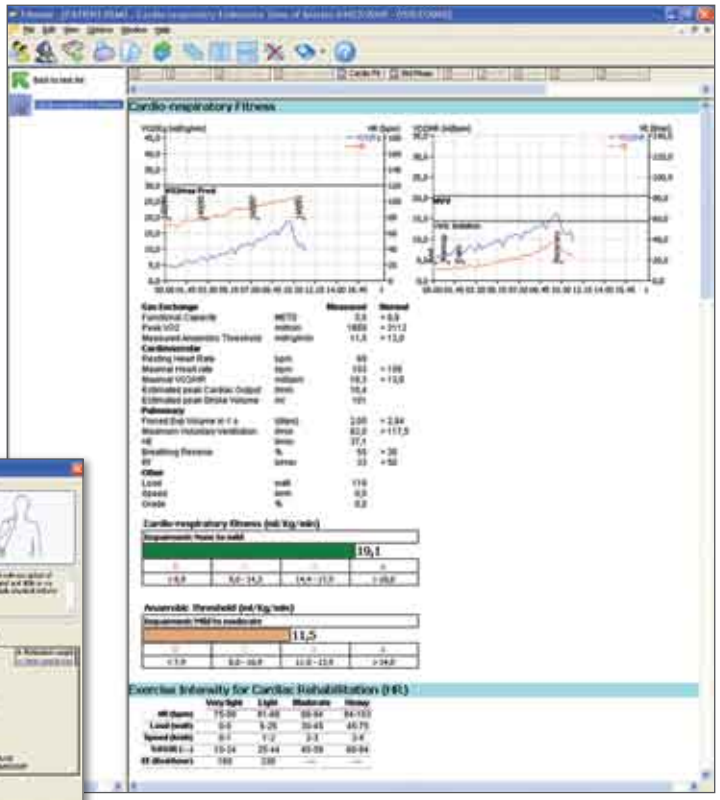
*option

Other Measurements

- Cardiovascular Risk Stratification (Duke Score, Framingham Index, European Heart Score, BODE Index)
- Individual weight management programs based on Energy Balance equation and diet plan based on daily caloric intake (USDA Database)
- Standard Measurements (BMI, WHR BP, etc.)
- Lifestyle monitoring (with optional physical activity monitor, Fitmate Lifecorder)

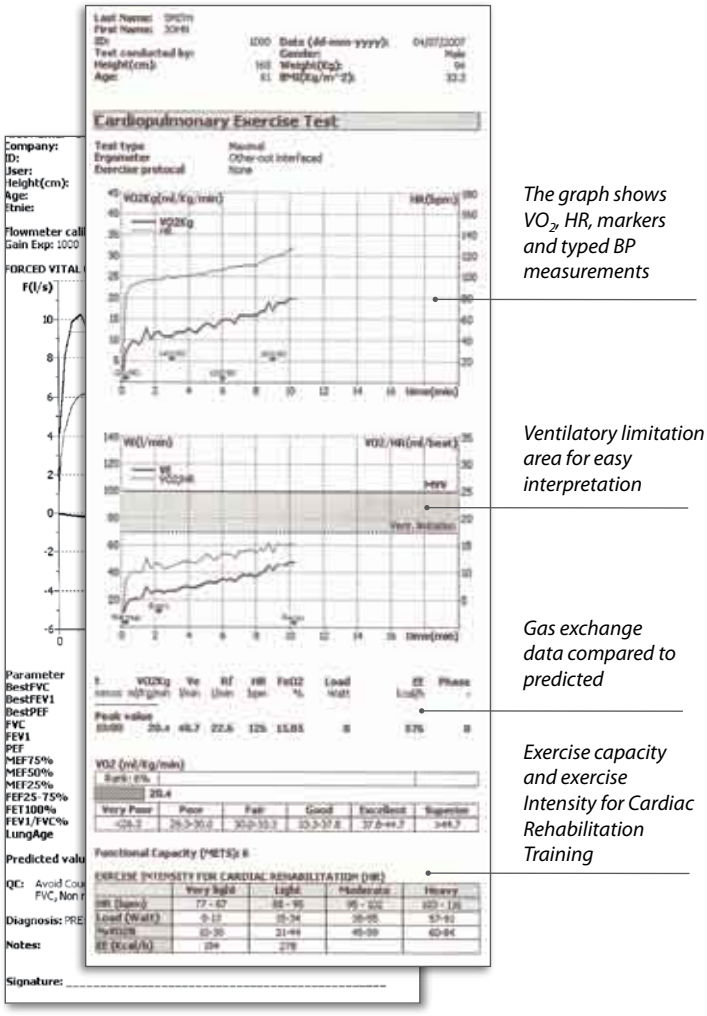


Personal Weight Management and



Cardio-respiratory Exercise Test

Sample of a Thermal Printout (Original size 110mm wide)



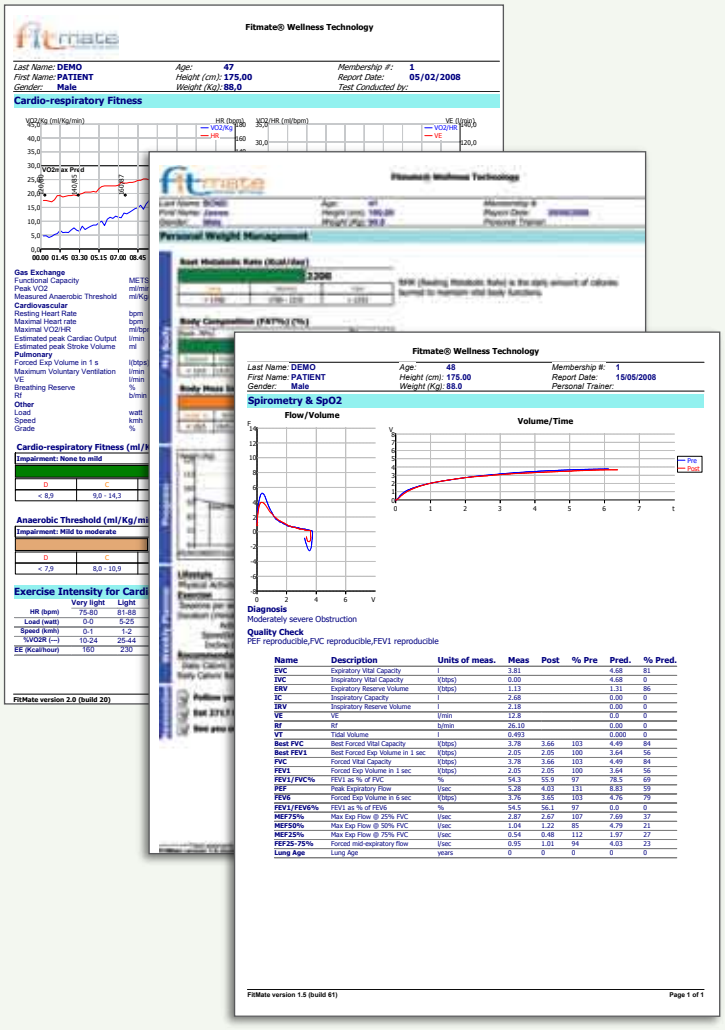
The graph shows VO_2, HR, markers and typed BP measurements

Ventilatory limitation area for easy interpretation

Gas exchange data compared to predicted

Exercise capacity and exercise Intensity for Cardiac Rehabilitation Training

Sample of Software Printouts (A4 or Letter size)



Proven Accuracy, Fitmate Validated vs. Douglas Bag

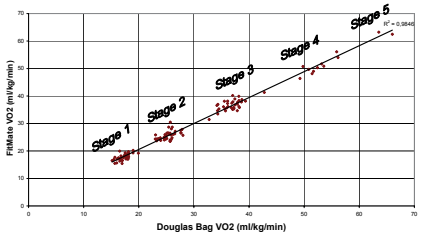
1) Validation of COSMED's Fitmate™ in measuring exercise metabolism.
[David C. Nieman, at all . Research in Sports Medicine, 15: 1–9, 2007.]

2) Validation of Fitmate in measuring REE
[David C. Nieman, at all . Research in Sports Medicine, 14: 1–8, 2006

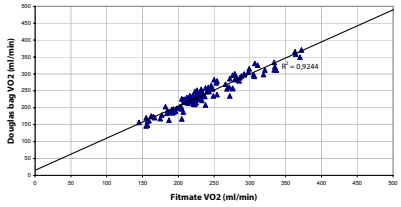
In conclusion, the Fitmate metabolic system accurately measures oxygen consumption during graded treadmill exercise as well as during Resting when compared with the Douglas bag system in male and female adults.

Both validations show an excellent correlation (R^2> 0.98)

Fitmate vs Douglas Bag (Exercise)



Fitmate vs Douglas Bag (Resting)



Easy to replace, the O_2 cell comes in a sealed bag, Lifespan is 12-18 months and it is indicated by the device.

Distributed by:

Technical Specification

Tests	w/Unit	w/Software
Cardio Pulmonary Exercise Testing		
Cardiorespiratory Fitness (VO_2max, Anaerobic Threshold)	●	●
Automatic Control of Ergometers (Bikes or Treadmills)	●	●
HR interface w/ external ECG (TTL)	○	
Indirect Cardiac Output (Wassermann)		●
VO_2/HR Training Zones (based on AT)	●	●
Exercise Intensity for Cardiac Rehabillitation		●
Spirometry		
Forced and Slow Vital Capacity (FVC, SVC)	●	●
Maximal Voluntary Ventilation (MVV)	●	●
Bronchial Dilator Test (Pre-Post)	●	●
Cardiovascular Risk Analysis		
Framingham index	●	●
Duke score	●	●
Bode index	●	●
European Cardio Score	●	●
Nutritional Assessment		
Resting Energy Expenditure (REE, RMR)	●	
Weight Management Program (Energy Balance)	●	●
Physical Activity Monitoring (integration with accelerometer)		○
Diet Software w/ Weekly Meal Planner		●
Other measurements		
Body Composition (skin-fold)	●	
Standard Measurements (blood pressure, WHR, resting heart rate, BMI..)	●	
Integrated Pulse Oximeter (SpO_2) - Resting only	○	

Oxygen Consumption Measurements

Sensor Type	*GFC (Galvanic Fuel Cell)*
O_2 Measurement range	*0-25%*
Sampling Type	*Dynamic Mixing Chamber (international patent)*
Sampling Rate	*30 sec / 60 sec*
Calibration	*Automatic on room air (less than 20 seconds)*
Warm-up time	*10 seconds*
Accuracy	*± 2% (REE) ±0.02% (O_2)*
O_2 Sensor Lifespan	*12-18 months*

Flowmeter

	Ø 18mm	Ø 28mm
Type	*Bidirectional digital turbine*	*Bidirectional digital turbine*
Ventilation range	*0-50 l/min*	*0-300 l/min*
Flow resistance	*<0.7 cmH2O/l/s @ 3l/s*	*<0.6 cmH2O/l/s @ 14l/s*
Accuracy Flow/Volume	*±2%*	*±2%*

Hardware

Dimensions & Weight	*24 x 20 x 8 cm / 1.5kg*
Display	*Color LCD 320 x 240 pixel*
Printer	*High speed thermal printer 12 cm (4,7 in)*

Standard Packaging Includes

Fitmate PRO unit, RMR - Flowmeter, RMR masks (10 pcs), VO_2max - flowmeter, Silicone face mask, (M-size), Head cap for silicone mask, AC/DC Adapter, USB cable, Fitmate PC Software (CD-Rom), Mouthpieces (10 pieces) and paediatric mouthpiece adapter, Body meter, Oxygen sensor, HR belt and probe.

Available languages

Firmware	*Italian, English, Spanish, German, French, Greek, Finnish, Dutch, Portuguese, Japanese, Chinese, Turkish, Russian, Polish, Slovenian*
Software	*Italian, English, Spanish, German, French, Greek, Dutch, Portuguese, Chinese, Slovenian*

PC configuration required

Pentium or faster, Windows XP, VISTA (32/64 bit), Windows 7 (32/64 bit), 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.

CE 0476

CERMET Reg.n. 387- M UNI EN ISO 13485:2003
CERMET Reg.n. 387- A UNI EN ISO 9001:2008

COSMED
Pulmonary Function Equipment

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