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

Fitmate MED uses either comfortable silicon masks for exercise and disposable Face Mask (for resting measurements).

Fitmate MED provides two flowmeters to ensure accuracy at any workload: one for exercise testing and one for resting measurements.

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

Handle for Spirometry testing

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Technical Specification

Main Functions

Tests	*Exercise Testing (VO2max), Spirometry, Resting Energy Expenditure, Body Composition, Risk Stratification, Standard measurements*
Additional Testing - Software	*Data management, Daily caloric intake, Trends*

Oxygen Analyzer

Type	*GFC (Galvanic Fuel Cell)*
O2 Measurement range	*0-22%*
Gas Calibration	*Automatic on room air*
Warm-up time	*None*
Accuracy	*±0.02%*
O2 Sensor Lifespan	*12-18 months*
Sampling Type	*Dynamic Mixing Chamber (international patent)*
Sampling Rate	*Programmable (minimum 15 sec.)*

Flowmeter#1: Bidirectional digital turbine Ø 28mm (Exercise & Spirometry)

Ventilation range	*5-300l/m*
Flow resistance	*<0.7cm H2O/l/s@14l/s*
Accuracy Flow/Volume	*±2%*

Flowmeter#2: Bidirectional digital turbine Ø 18mm (Resting)

Ventilation range	*0-50l/m*
Flow resistance	*<0.7cm H2O/l/s@3l/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

Fitmate 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.

CE 0476

COSMED
Pulmonary Function Equipment

fitmate® MED
Wellness Technology

Cardio Pulmonary Exercise Testing

The first & unique diagnostic system for a complete Cardio Pulmonary 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

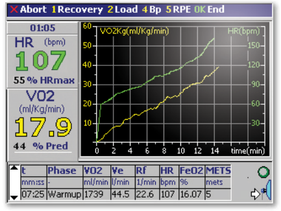
Fitmate MED is the first diagnostic equipment designed to provide a full picture about Cardio Pulmonary Function. Fitmate MED measures maximal Oxygen Uptake that is the Gold standard for measuring Exercise Capacity and quantify Aerobic Fitness. Used together with exercise electrocardiography, Fitmate Med enables you to complete the cardiovascular stress test without the need for 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 for surgical risk
- Classification and prognosis of CHF (congestive heart failure)
- Provision of objective selection criteria for heart transplant
- Decision tool for heart transplantations
- Differentiates Cardiac vs. Pulmonary limitations
- Determination of the intensity for exercise training as part of Cardiac Rehabilitation
- Measuring Resting Energy expenditure for providing optimal nutrition for recovery from illness and chronic health management
- Obesity treatment, and diabetes type II prevention
- Quantify severity and identify energy requirements for Respiratory disorders (COPD, Sleep disorders, Cystic Fibrosis)

VO_2max and real METS

- Choose between maximal and sub-maximal 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
- Automatic control of the most common cycle and treadmill ergometers with cable interface

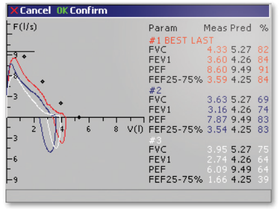


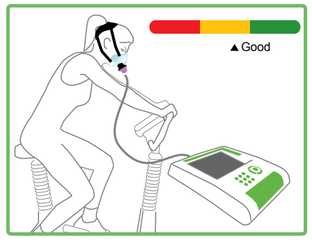
Resting Energy Expenditure

Fitmate measures oxygen consumption (VO_2) at rest with a, specialised low-flow flowmeter (supplied), ensuring high accuracy, comparable with conventional metabolic carts. Measurements include resting energy expenditure (REE), resting metabolic rate (RMR) and basal metabolic rate (BMR) in Kcal/day.

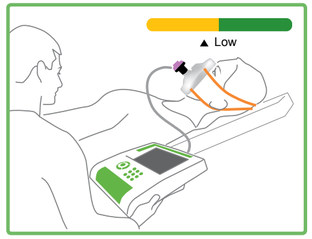
Spirometry

- Forced Vital Capacity (FVC)
- PRE & POST broncho-dilator response
- Maximum Voluntary Ventilation (MVV)
- Slow Vital Capacity SVC (Inspiratory & Expiratory)
- Automatic diagnosis complying with ERS and ATS recommendations





Maximal VO_2 Testing with both Treadmills and bikes



Resting Energy Expenditure Test

Spirometry Test

Risk Stratification

- Duke Treadmill Score
- Framingham Index
- European Heart Score
- Bode Index

Other Measurements

- Body composition measurement by skin-fold (caliper included)
- Individual weight management Programs based on Energy balance equation (built-in features)
- Standard Measurements (BMI, WHR BP, etc.)
- Daily caloric intake (software only)
- Lifestyle monitoring (pedometer and software tools included)

Accurate	Fitmate MED has been validated against the "gold standard" Douglas Bag technique for VO_2 measurements at rest and during exercise
Portable, Desktop-size	Compact, light, battery or mains operating.
Built-in printer	Integrated fast-thermal printer delivers high quality reports in a few seconds.
Self-Calibrating	Auto-calibration in less than 20 seconds using room air. No need for special gases or tanks.
No warm-up time	Plug it in, and Fitmate MED is ready for use
No maintenance	No on-site or self servicing required. Low-cost oxygen sensor replacement required after 12-18 months (automatic warning)
Quality Control	Warnings and quality control messages (mask leaks, breathing pattern etc.) are displayed during the test
Software Included	Windows XP/ VISTA compatible software for data management, trends and exercise prescription and weight management
Face Masks	5 sized masks are available for exercise testing and one universal size disposable mask with antibacterial filter for REE testing
Optional oxygen saturation	SpO2 finger probe available for both rest and exercise testing

Proven Accuracy, Fitmate Validated vs. Douglas Bag

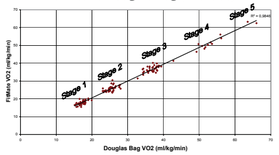
1) Validation of COSMED's Fitmate™ in measuring exercise metabolism.
[David C. Nieman, at all . Research in Sports Medicine, 15: 1–9, 2007.]

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

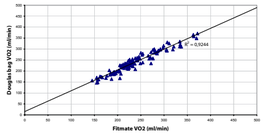
In conclusion, the Fitmate metabolic system accurately measures oxygen consumption during graded treadmill exercise as well as during Resting when compared with the Douglas bag system in male and female adults.

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

Fitmate vs Douglas Bag (Exercise)



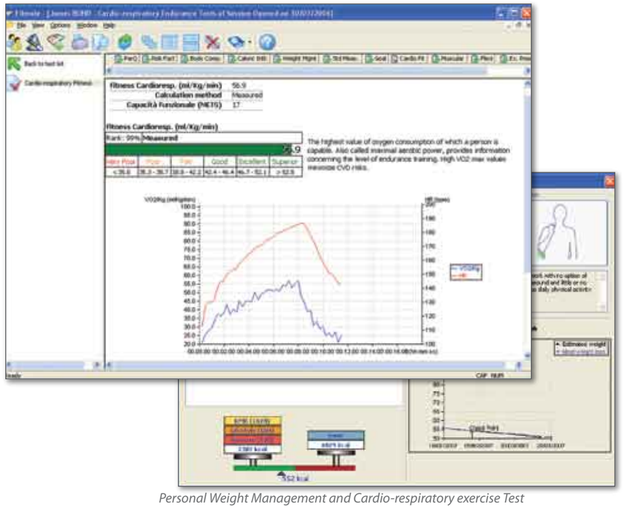
Fitmate vs Douglas Bag (Resting)



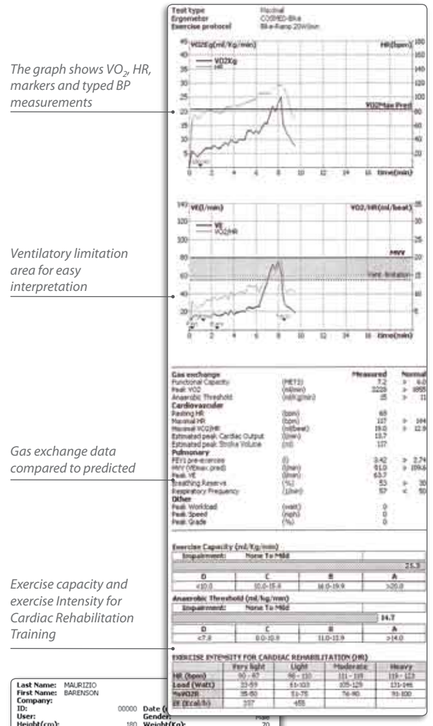
PC Software

A full PC software package is included, allowing the download and analysis of test data from Fitmate MED for advanced data management:

- Download data from Fitmate MED to PC
- Show trends, progress and deterioration
- Professional A4 or Letter format color printouts.
- Export Tests in different file format (ASCII, Excel etc.)
- Daily caloric intake (USDA Database)
- Compatible with any network on MS Windows environment



Personal Weight Management and Cardio-respiratory exercise Test

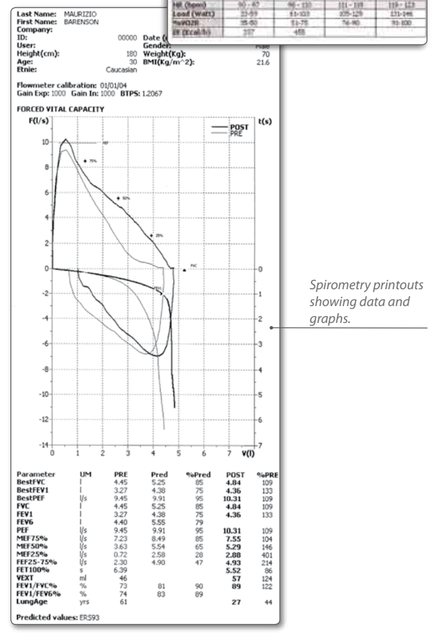


The graph shows VO_2, HR, markers and typed BP measurements

Ventilatory limitation area for easy interpretation

Gas exchange data compared to predicted

Exercise capacity and exercise Intensity for Cardiac Rehabilitation Training



Spirometry printouts showing data and graphs.