fitmate® MED

Cardiology

The first compact metabolic system for assessing functional capacity and risk stratification

"Assess, Measure, Improve my Performance"

COSMED

The Metabolic Company

“Fitmate™ is a small, inexpensive, userfriendly, lightweight, battery-powered unit, facilitating accurate metabolic measurements in both the field and in the lab[(1)]”

- **Maximal oxygen uptake (VO_2max) and measured METs.**
- **Classification of Exercise Capacity & Anaerobic Threshold**
- **Nutritional Assessment and resting energy expenditure**
- **Full Spirometry (FVC, SVC, MVV, etc.)**
- **Multiple scores for Cardiovascular and Pulmonary Risk analysis**
- **Interfaces with conventional stress testing ECG**
- **Affordable, compact & easy to use**

The Fitmate MED is the first portable diagnostic equipment designed to provide a complete picture on cardio pulmonary function. Fitmate MED measures maximal oxygen uptake, the “Gold Standard” for measuring exercise capacity and quantify aerobic fitness.

Fitmate MED is a compact desktop device with internal rechargeable battery, a large LCD screen and in-built printer that allow testing without a computer or mains power lead. Fitmate MED processes test results and stores all information inside its internal memory, ready for upload to PC software (included).

In combination with traditional stress ECG, the Fitmate MED can assess the patient’s functional capacity, overcoming limits of conventional cardiovascular stress test without the need of expensive equipment. In addition, Fitmate MED also provides multiple scores for cardiovascular risk stratification (Duke Score, Framingham Index, European Heart Score, BODE Index), which are useful for a more effective classification of the cardiac patient. Patient rehabilitation is then managed with exercise prescription and weight management software according to established international guidelines.

(1) Nieman DC, et al. Validation of Cosmed’s FitMate in measuring exercise metabolism. Appalachian State University, Boone, North Carolina, USA. Res Sports Med. 2007 Jan-Mar;15(1):67-75

Clinical Applications

- Actual measurement of Exercise Capacity and METs (not-estimated)
- Pre-operative evaluation for surgical risk
- Classification and prognosis of CHF (Congestive Heart Failure)
- Objective selection criteria and decision tool for heart transplant
- Differentiation between cardiac and pulmonary limitation
- Determination of exercise training intensity as part of cardiac rehabilitation
- Nutritional assessment during 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)

Cardio Respiratory Fitness (VO_2max)

Fitmate MED has been validated for measuring VO_2max and for predicting maximal oxygen consumption with a sub-maximal protocol. VO_2max and sub max tests can be performed with most of cyclergometers and treadmills available in the market.

- VO_2, ventilation, heart rate and related parameters with a 15 seconds sampling rate
- Pre-defined VO_2max and Sub-max exercise protocols and user defined protocols
- Pre-defined or custom exercise protocols (Bruce, cycle, ramp etc.)
- Automatic and adjustable Anaerobic Threshold detection
- Automatic RQ compensation during resting and graded exercise
- Automatic (protocol) or manual ergometer control
- Heart rate measurement with wireless belt (included) or TTL from ECG (optional)
- Calculation of Training Zones based on relationship between VO_2 and HR
- Warnings and quality control messages (mask leaks, breathing pattern etc.) are displayed during test.

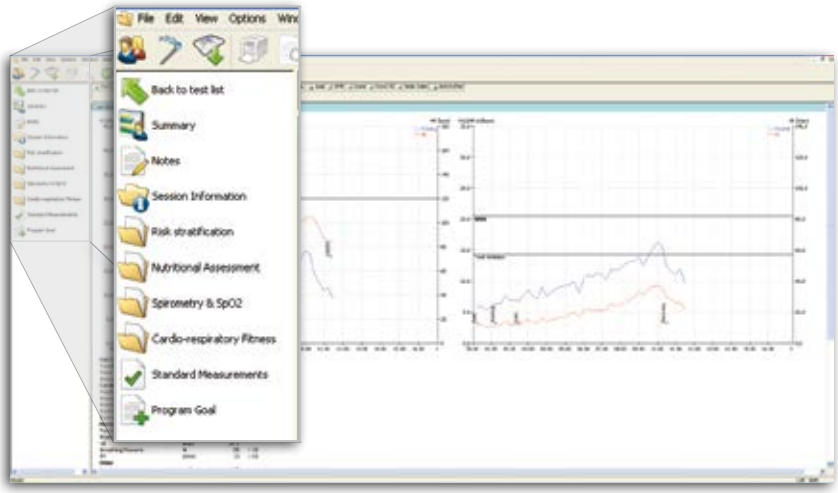
Spirometry

Complete spirometry testing (FVC, SVC, MVV, Pre/Post bronchial dilator response) is available with full compliance to latest ATS/ERS guidelines.

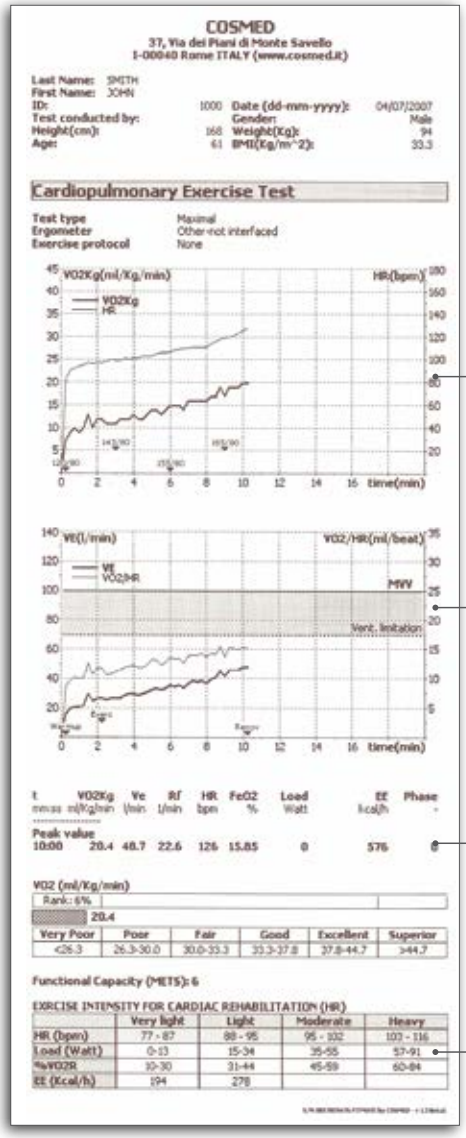
Nutritional Assessment

- Measurement of energy expenditure at rest (REE, RMR) for Fick equation
- Tests can be executed either with face masks (multi-use), with mouthpiece and antibacterial filter or, optionally, with an integrated canopy hood
- Individual weight management based on Energy Balance equation
- Complete Lifestyle and Physical activity monitoring up to 60 days (with optional monitor, Lifecorder)

Real-time screenshot of VO_2max and Spirometry tests as shown on Fitmate MED LCD display



Software provides complete information and results of current open session or previously closed sessions. Ability to review serial test data.



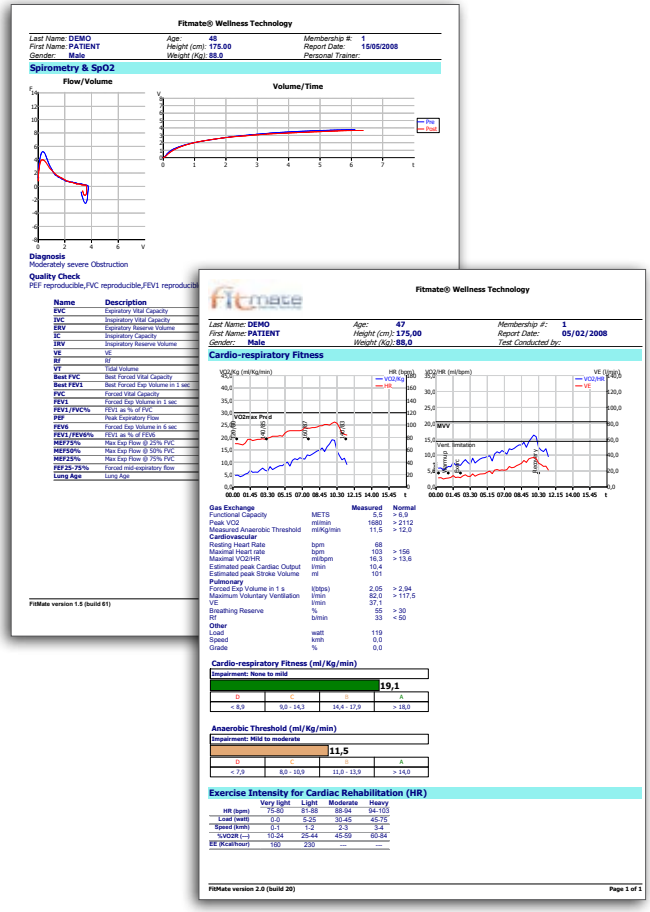
The graph shows VO_2, HR, markers and typed BP measurements

Ventilatory limitation area for easy interpretation

Peak values

Exercise capacity and exercise Intensity for Cardiac Rehabilitation Training

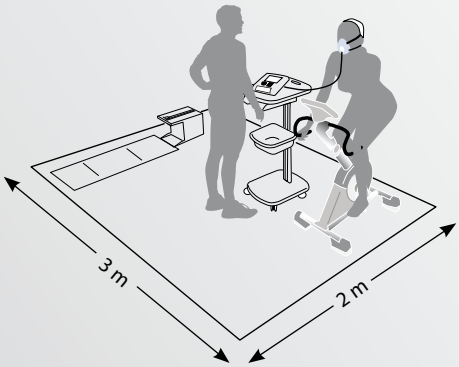
Sample of a thermal printout (original size: 110 mm wide)



Wide range of reports printable on PC (available in A4 or Letter size)

Validation articles

- *Vandarakis D, et al. A comparison of COSMED metabolic systems for the determination of RMR. Res Sports Med 2013;21(2):187*
- *Lee J et al. Validation Of The Cosmed Fitmate For Predicting Maximal Oxygen Consumption Medicine & Science in Sports & Exercise: May 2009 - Volume 41 - Issue 5 - p 260*
- *Nieman DC, et al. Validation of Cosmed's FitMate in measuring exercise metabolism. Appalachian State University, Boone, North Carolina, USA. Res Sports Med. 2007 Jan-Mar;15(1):67-75*
- *Nieman DC, et al. Validation of Cosmed's FitMate in measuring oxygen consumption and estimating resting metabolic rate. Appalachian State University, Boone, North Carolina, USA. Res Sports Med. 2006 Apr-Jun;14(2):89-96*
- *More scientific studies on* www.cosmed.com/bibliography



Technical Specifications

Product	Description	REF
Fitmate MED	Clinical Desktop metabolic monitor	C09066-03-99
Standard packaging	Unit, Carrying Case, PC Software, Battery Charger, USB Cable, Oxygen Sensor, Roll of thermal paper, Measuring Tape, RMR Flowmeter ID18, VO2 Flowmeter ID28, Reusable VO2 mask (Medium size), HR probe and belt, Head cap for VO2 testing, AB filters (15 pcs).	
Standard Tests		
Cardio Pulmonary Exercise Test (CPET)	Pulmonary Gas Exchange (VO_2, VCO_2), VO_2max, Sub-max VO_2, Thresholds (AT, RCP), Heart Rate with HR belt	
Nutritional Assessment	Resting Energy Expenditure (REE, RMR). Indirect Calorimetry (w/ Face Mask or w/ mouthpieces-antibacterial filter), Weight Management Program (Energy Balance), Diet Planner, Standardized Measurements (WHR, BP, RHR, etc), Body composition by Skinfold	
Spirometry	Forced Vital Capacity (FVC) Pre/Post, Slow Vital Capacity (SVC) Pre/Post, Maximum Voluntary Ventilation (MVV), Bronchochallenge - Bronchial Dilator/Constrictor test	
Fitness Assessment	Standardized Measurements (WHR, BP, RHR, etc), Body composition by Skinfold	
Exercise Prescription	VO_2/HR Training Zones (based on AT), Recommended Exercise Intensity for Cardiac Rehab	
CV Risk Analysis	Framingham Index, Duke Score, Bode Index, European Cardio Score	
Flowmeter	**VO_2max (Turbine Ø-28mm)**	**RMR/REE (Turbine Ø-18mm)**
Type	Bidirectional Digital Turbine	Bidirectional Digital Turbine
Flow Range	0-16 l/s	0-8 l/s
Accuracy	± 2% or 20 ml/s (flow) ± 2% or 200 ml/min (ventil.)	± 2% or 20 ml/s (flow) ± 2% or 100 ml/min (ventil.)
Resistance	<0.6 cmH_2O /l/s @ 14l/s	<0.7 cmH_2Ol/s @ 3l/s
Ventilation range	0-300 l/min	0-50 l/min
Gas Analyzers	**O_2**	
Type	GFC	
Range	0-25%	
Accuracy	±2% (REE) ±0.02% (O_2)	
Warm-up time	10 seconds	
Hardware		
Dimensions & Weight	24 x 20 x 8 cm / 1.5kg	
Interface ports	USB A-B, RS-232, HR-TTL, Flowmeter	
Display	Colour LCD 320 x 240 pixel	
Printer	High speed thermal printer 12 cm	
Battery	Rechargeable Li-ion batteries (autonomy 6h; charging time 2h10)	
Electrical Requirements	220V ± 10 %;50/60Hz 110V ± 10%; 50/60Hz	
Firmware		
Available languages	Italian, English, Spanish, French, German, Portuguese, Greek, Dutch, Turkish, Chinese, Korean, Japanese, Finnish, Polish, Russian, Slovenian	
Software	**Fitmate Suite**	
Available languages	Italian, English, Spanish, French, German, Portuguese, Greek, Dutch, Chinese, Finnish, Russian, Slovenian	
PC Configuration	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.	
Accessories & Options	**Description**	**REF**
REE with Canopy Hood	Kit including transparent canopy hood and blower for "gold standard" indirect calorimetry measurements at rest	C03950-01-11
Fitmate cart	Fits Fitmate unit, printer, masks, printouts, carrying case	C02950-01-11
Calibration syringe	3L syringe for accuracy check of flow volume measurements	C00600-01-11
O_2 sensor replacement kit	Includes GFC sensor, sampling line and mounting key	C02748-01-11
Fitmate Lifecorder PLUS	Integrated one-axial, solid state accelerometer	C03580-01-04
Pulse Oximetry	Nonin Oximeter with integrated finger probe	C02390-01-05
Safety & Quality Standards		
MDD (93/42 EEC); FDA 510(k); EN 60601-1 (safety) / EN 60601-1-2 (EMC)		

CE 0476

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To know more: