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.

Technical Specification

Main Functions

Oxygen Consumption	*Resting Energy Expenditure, REE, RMR, EE (Kcal Day), VO2, VE, FeO2, 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)*
O2 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 H2O/l/s@3l/s*
Accuracy Flow/Volume	*±2%*

Flowmeter: Bidirectional digital turbine Ø 28mm

Ventilation range	*5-300l/m*
Flow resistance	*<0.7cm H2O/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.

CERMET

CERMET

CE 0476

COSMED
Pulmonary Function Equipment

fitmate® PRO

Cardio Pulmonary Exercise Testing

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

- Accurate VO_2 measurements for resting & Exercise Testing
- VO_2max 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

COSMED

Pulmonary Function Equipment

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.

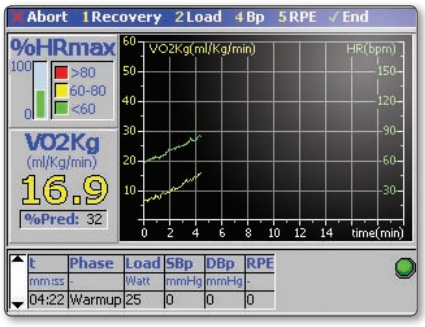
Exclusive New Design

Fitmate PRO is a desktop-size compact device wit 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_2max and Sub-max VO_2 protocols
- Automatic regression for extrapolating VO_2max based on VO_2 and HR response during Sub-Max protocols

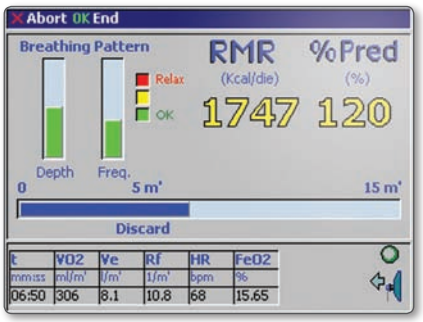


- Automatic and custom Anaerobic Threshold detection
- Automatic RQ compensation during resting and graded exercise
- Automatic control of ergometers by the integrated serial port (RS-232)
- Provided with Polar HR interface
- HR interfaced with external ECG (optional)
- Quality control during testing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

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, FeO2 control, respiratory pattern etc.) to minimize possible errors.



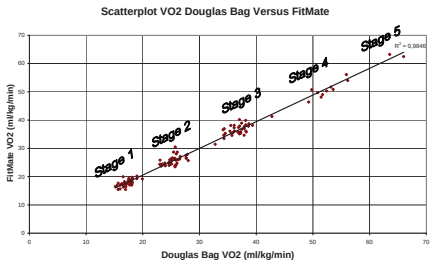
Proven Accuracy, Fitmate Validated vs. Douglas Bag

1) Validation of COSMED's Fitmate™ in measuring exercise metabolism.
[David C. Nieman, 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 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

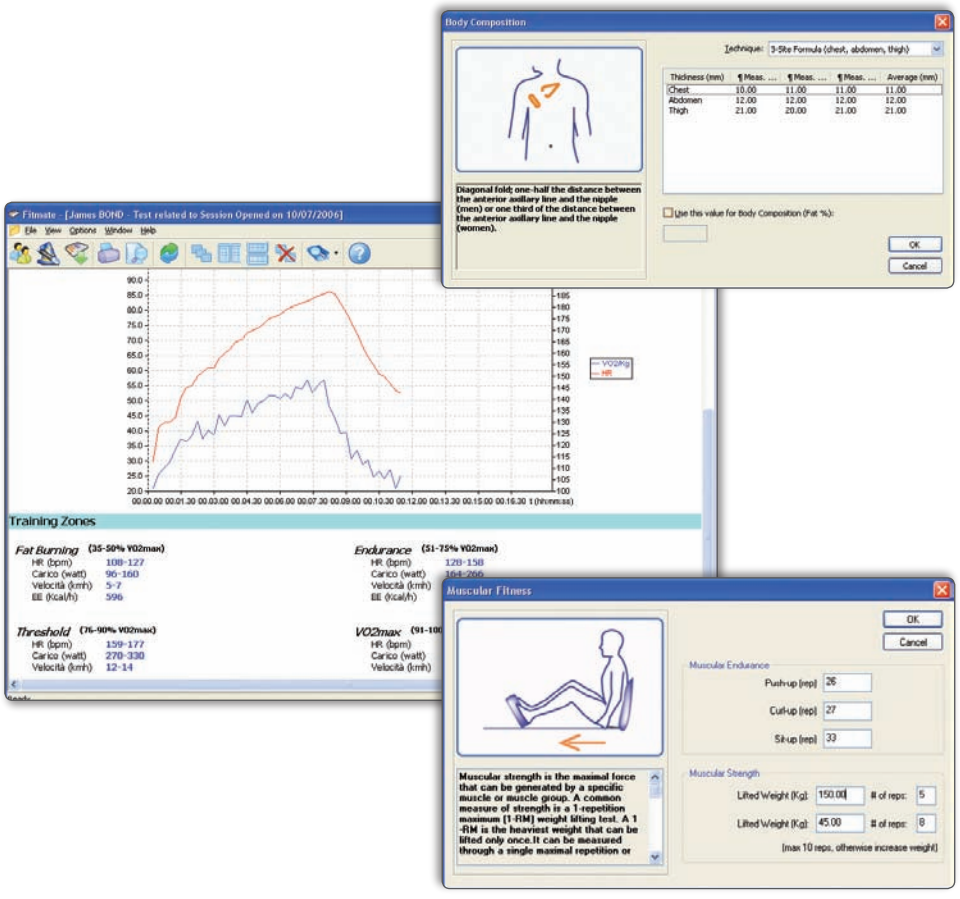
Accurate VO_2	Validated with outstanding results vs. the "gold standard" both at resting and exercise
Flowmeters	Provided with two flowmeters (resting & exercise) Fitmate delivers accurate measurement of ventilation at any range for both resting (0-10l/)min or during exercise (> 250 l/min)
Ergometer 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, FeO2, 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 (O2 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, VO_2max etc.) based on the relationship between VO_2 and HR that helps professionals in delivering easy-to-follow guidance to the training.



VO_2 max Test, VO_2 vs. HR plot and HR training Zones.

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

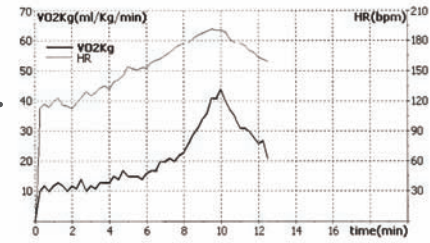
Individual HR Training Zones

COSMED
37, Via dei Piani di Monte Savello
I-00040 Rome ITALY (www.cosmed.it)

Last Name:	BRUGNOLI			
First Name:	PAOLO			
ID:		012	**Date (dd-mm-yyyy):**	19/06/2007
Test conducted by:			**Gender:**	Male
Height(cm):		188	**Weight(Kg):**	97
Age:		22	**BMI(Kg/m^2):**	27.4

Cardio Respiratory Fitness

Test type	Maximal
Ergometer	Other-not interfaced
Exercise protocol	None



t	VO2Kg	Ve	Rf	HR	FeO2	Load	EE	Phase
mm:ss	ml/Kg/min	l/min	1/min	bpm	%	Watt	kcal/h	-
Peak value								
10:00	**44.4**	**174.1**	**63.1**	**190**	**17.66**	**32**	**1292**	**0**

VO2 (ml/Kg/min)

Rank: 62%

44.4

Very Poor	Poor	Fair	Good	Excellent	Superior
<37.0	37.0-40.8	40.8-44.1	44.2-48.0	48.0-53.5	>53.5

Functional Capacity (METS): 13

TRAINING ZONES (HR)

Fat Burning	Endurance	Threshold	VO2max
143 - 160	161 - 187	188 - 204	205 - 215

Fat Burning			**Endurance**		
Load	(Watt)	75-134	**Load**	(Watt)	138-232
EE	(Kcal/h)	549	**EE**	(Kcal/h)	814
%VO2Max	(%)	35-50	**%VO2Max**	(%)	51-75
Threshold			**VO2max**		
Load	(Watt)	236-290	**Load**	(Watt)	294-329
%VO2Max	(%)	76-90	**%VO2Max**	(%)	91-100

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37, Via dei Piani di Monte Savello
I-00040 Rome ITALY (www.cosmed.it)

Last Name:	Female			
First Name:	Subject			
ID:			**Date (dd-mm-yyyy):**	06/11/2006
Test conducted by:			**Gender:**	Female
Height(cm):		165	**Weight(Kg):**	56
Age:		28	**BMI(Kg/m^2):**	20.5

Resting Metabolic Rate

t	VO2	Ve	Rf	HR	FeO2	RMR
mm:ss	ml/min	l/min	1/min	bpm	%	kcal/day
00:30	281	6.9	9.6	0	16.06	1953
01:00	262	6.3	10.4	0	15.94	1827
01:30	277	6.8	10.0	0	16.05	1929
02:00	215	5.9	9.7	0	16.56	1499
02:30	175	4.7	10.7	0	16.48	1216
03:00	224	5.1	11.3	0	15.67	1559
03:30	302	7.1	10.7	0	15.84	2100
04:00	284	7.3	11.7	0	16.27	1977
04:30	240	6.8	11.5	0	16.71	1668
05:00	209	5.9	11.8	0	16.69	1454
05:30	215	5.9	11.6	0	16.57	1495
06:00	237	6.5	10.8	0	16.57	1648
06:30	223	6.2	10.8	0	16.63	1550
07:00	230	6.6	10.9	0	16.75	1604
07:30	222	6.4	11.4	0	16.77	1548
08:00	223	6.9	11.5	0	17.06	1553
08:30	229	6.5	12.8	0	16.72	1591
09:00	265	7.8	12.1	0	16.86	1846
09:30	270	8.7	14.4	0	17.21	1882
10:00	278	8.7	13.7	0	17.10	1938
10:30	205	7.0	13.1	0	17.43	1425
11:00	191	5.7	12.5	0	16.92	1329
11:30	257	7.5	11.4	0	16.82	1792
12:00	243	7.1	13.2	0	16.84	1688
12:30	237	7.0	13.1	0	16.87	1652
13:00	261	7.5	13.7	0	16.76	1818
13:30	243	6.9	11.4	0	16.72	1689
Averaged values						
10:30	**241**	**6.9**	**12.2**	**0**	**16.77**	**1678**

Discard interval

Average interval

Resting Metabolic Rate (Kcal/day)

1678

Slow	Normal	Fast
<1174	1174-1556	>1556

$VO_{2\,max}$ test and Resting Metabolic Rate printouts showing data and graphs