



Accurate and easy to use line of hand-held devices for flexible spirometry screening!

- ▶ Full spirometry testing (FVC, SVC, MVV, Bronchial challenge test)
- ▶ Available with turbine flowmeter or disposable pneumotach
- ▶ Spiropalm 6MWT (Six-Minute Walking Test) for ventilation monitoring, HR and SpO<sub>2</sub>
- ▶ PC software for data management and real time testing
- ▶ USB connection (PC and external Printer)
- ▶ Integrated Digital Oximeter (optional)



Spiropalm is the NEW hand-held device designed for flexible spirometry screening. Tests can be performed easily and accurately wherever it is needed. Results are monitored on the bright and clear black and white display and printed by linking Spiropalm directly to an external printer or to a PC.

Spiropalm is the first and only portable spirometer designed to measure also ventilatory, SpO<sub>2</sub> and HR parameters during the standardized "Six-Minute Walking Test" (6MWT).

## Accurate Measurements

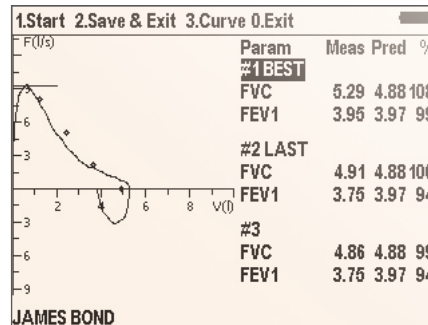
- ▶ Full Spirometry (FVC, SVC, MVV, pre/post)
- ▶ Bronchial challenge test (Pre-Post)
- ▶ SpO<sub>2</sub> (option)
- ▶ Six-Minutes Walking Test (6MWT) (only with Spiropalm 6MWT)
- ▶ Normal values: ERS, NHANES III, Crapo 1981, Knudson 1983, ITS, Multicentrico Barcelona, LAM, Gutierrez, Pneumobil, Zapletal, Thai 2000, Pereira, Austria (Forche)



Flowmeter is wired to the unit, allowing to check the spirometric maneuver while breathing.

## Applications

- ▶ Small Clinic, Family Practice
- ▶ General Practitioner, Primary care
- ▶ Mobile Solutions
- ▶ Occupational Health
- ▶ Preventive Medicine
- ▶ Sports Doctor



Six-Minute Walking Test (6MWT)

## Accurate and Reliable Flow and Volume measurements

Spiropalm is available with three different configurations:

- ▶ **Spiropalm**: with the COSMED bidirectional digital turbine flowmeter (that requires the use of antibacterial filters);
- ▶ **Spiropalm +**: with the new COSMED disposable pneumotach Flowsafe, a single use differential pressure transducer (that does not require antibacterial filter) designed to avoid risk of cross contamination especially in Hospital settings.
- ▶ **Spiropalm 6MWT**: which includes a turbine flowmeter, a silicone face mask with head cap and SpO<sub>2</sub> monitor, for measurement of ventilatory parameters and oxygen saturation during the tests. PC software is included in the package for data management and reporting.

All flowmeters are extremely accurate and comply with the most stringent requirements for precision fixed by ATS and ERS.

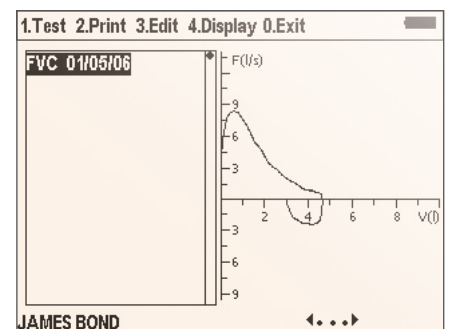
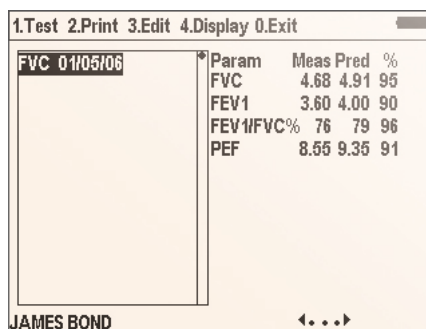
## High connectivity !

All Spiropalm models offer 3 different interfacing options:

- ▶ the USB-B for direct printing with an external inkjet or laser printer (PCL compatible).
- ▶ the USB-A for PC connection
- ▶ port for connection with pulse oximeter for SpO<sub>2</sub> monitoring

## Key Features

- ▶ Black and white LCD display (320x240 pixels) with real time monitoring of test performance and encouragement features for children and non-cooperative patients;
- ▶ Internal memory of up to 1000 tests/patients;
- ▶ Compact size (dims. 18x7.5x3 cms) and light weight (less than 400 gr)
- ▶ Designed in a simple operating mode through a navigation tool similar to cellular phones.



Screenshot from Spiropalm display

## Accessories & Options

**Digital turbine flowmeter** It does not require frequent calibration. Extremely accurate and reliable in any conditions. It can be used with antibacterial filters (recommended) or cardboard mouthpieces.

**Flowsafe** The disposable pneumotach is the ideal solution to avoid cross contamination between patients. Particularly accurate and ideal at very low flow rates.

**Pulse Oximeter** Monitor of oxygen saturation (SpO<sub>2</sub>) at rest and during exercise available with finger sensor.

**Calibration syringe** A 3 liters certified syringe ensures easy and fast flowmeter calibration at any time.

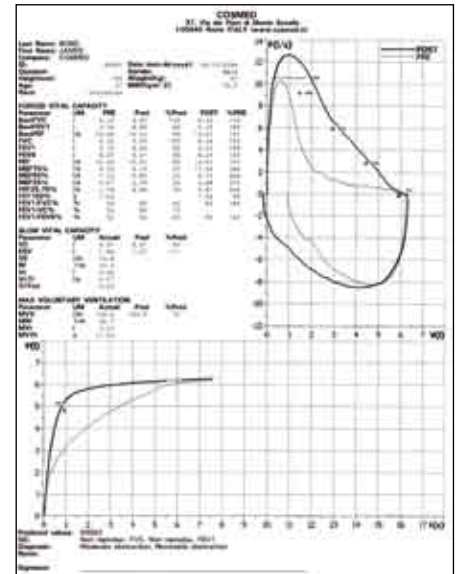
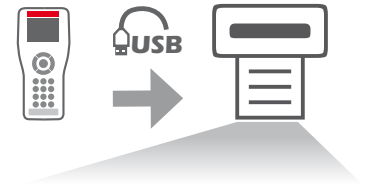
## Automatic Diagnosis

The automatic interpretation of test results as per the latest interpretation criteria fixed by ATS and ERS, is automatically suggested by the software at the end of the test. User however can manually modify the diagnosis, customize the diagnosis database and add notes. Spiropalm is currently the unique spirometer that incorporates the diagnosis for COPD after a bronchial dilator test.

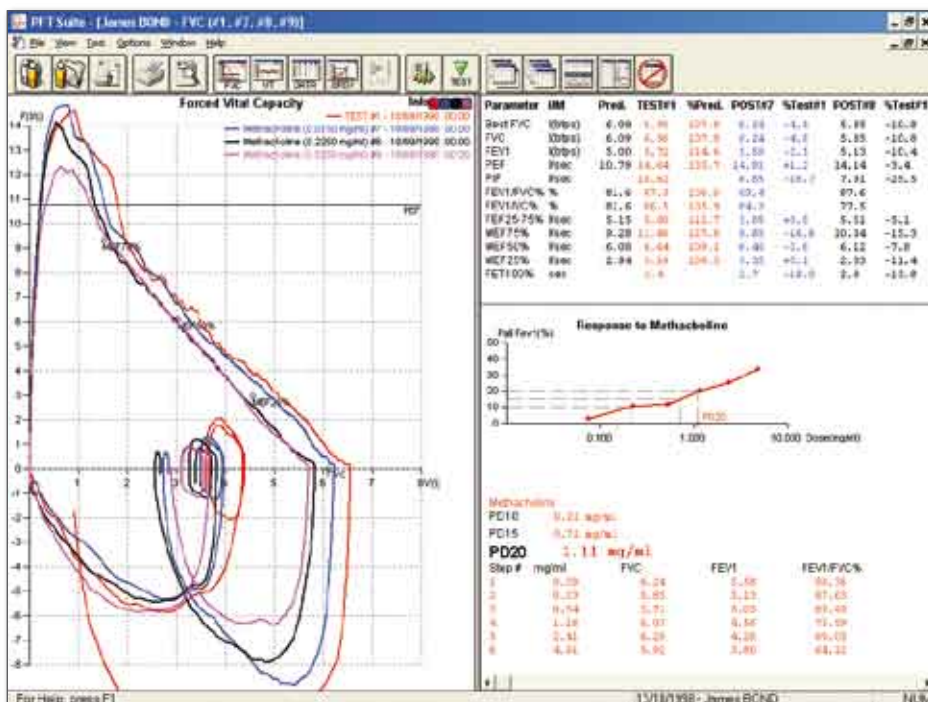
## PC Software

Spiropalm is integrated with an extremely user-friendly PC program, which allows online testing via USB interface and data download for the management of results through simple, intuitive commands and icons.

- ▶ Complete database management for patients, diagnosis, clinical report, bronchial challenge protocols;
- ▶ Advanced features and user defined protocols to easily manage bronchial challenge tests;
- ▶ Powerful post-analysis elaboration of data with possibility to compare tests performed in different test sessions;



*Spiropalm allows to print reports with PCL5 compatible printers via direct USB connection*



*Real time graphic and numeric visualization of spirometry tests*



*Digital turbine flowmeter ("Spiropalm" configuration)*



*Disposable pneumotach flowmeter ("Spiropalm+" configuration)*



Spiropalm



Spiropalm +



Spiropalm 6MWT

## Technical Specification

Products Features	Spiropalm	Spiropalm+	Spiropalm 6MWT
Flowmeter	Digital Turbine	Disposable Pneumatach <sup>®</sup>	Digital Turbine
Type	Bi-directional	Pressure Transducer (lilly)	Bi-directional
Flow Range	0.08-20l/s	0.04-16 l/sec	0.08-20l/s
Volume range	12 litres	12 litres	12 litres
Accuracy of reading	±2%	±2%	±2%
Resistance	<0.6 cm H <sub>2</sub> O/l/s @ 14 l/s	<1.0 cm H <sub>2</sub> O/l/s @ 14 l/s	<0.6 cm H <sub>2</sub> O/l/s @ 14 l/s
Temperature sensor	0-50° C	0-50° C	0-50° C

### Measured parameter

FVC • IVC • VC • MVV • VT • FEV1 • FEV6 • FEV1/FEV6 • FEV6/FVC • PEF • PIF • FEV1/FVC • FEF 25-75 • FEV1/VC% • %FEV1 • MEF25% • MEF50% • MEF75% • FET 100% • Lung Age • ERV • IRV • VE • Rf • ti • te • ti/t.tot • VT/ti • Best FVC • Best FEV1 • IC • SpO2 • HR

### Predicted values

ERS 1993 (ECCS 1983), NHANES III, Knudson 83, ECCS 1971, ITS, Zapletal, LAM, Pneumobil, Gutierrez (Chile), Multicentrico, Barcelona, Thai 2000, Austria (Forche), Crapo 1981 user defined predicted calculations.

### Hardware

Dimension (mm/in)	185x86x31/7¼ x 3 ¼ x 1 ¼ in	185x86x31/7¼ x 3 ¼ x 1 ¼	185x86x31/7¼ x 3 ¼ x 1 ¼
Weight (gr/oz)	390/13½	330/11½	390/13½
Display	LCD B/W 320 x 240 pixel (amber backlighted)	LCD B/W 320 x 240 pixel (amber backlighted)	LCD B/W 320 x 240 pixel (amber backlighted)

### Standard Packaging Includes

PC software and user manual, Flowmeter, AC/DC adapter (110-240V), USB communication cable, Carrying case, Pediatric mouthpiece adapter, Mouthpieces and nose clips, Anti-Bacterial filters, CD-Rom.

### Available languages

English, Italian, French, German, Spanish, Portuguese, Turkish, Chinese (Mandarin), Korean.

### PC configuration required

Pentium or faster, Windows Vista 32, XP, 2000 or NT, 32 Mb RAM or more, Available USB port, CD-ROM Drive, 20 Mb on HD space available, Monitor VGA, SVGA, XGA, Any mouse and printer compatible with the MS Windows™ operative system  
USB printer: only PCL compatible

### Electrical requirements

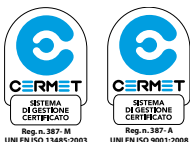
Internal batteries	Rechargeable Li-Ion 1800mAh
Battery Charger	Input 100-240Vac 200mA, Output 12Vdc 700mA)

### Safety & Quality Standards

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



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