Spiropalm
Hand-Held Spirometer

Accurate and easy to use hand-held device for flexible spirometry screening!

- ▶ Full spirometry testing (FVC, SVC, MVV, Bronchial challenge test)

- ▶ Accurate bidirectional turbine flowmeter reliable in any conditions

- ▶ PC software for data management and real time testing

- ▶ USB connection (PC and external Printer)

- ▶ Internal memory of up to 600 tests/ patients

- ▶ Integrated Digital Oximeter (optional) for HR and SpO_2 monitoring

COSMED
Pulmonary Function Equipment

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 a very compact portable spirometer (dims. 18x7.5x3 cm) and it comes with a bidirectional turbine flowmeter (that requires the use of antibacterial filters). Optionally, Spiropalm can be implemented with an integrated Nonin pulseoximeter for measuring SpO_2 and HR parameters.

The device has been designed in a simple operating mode through a navigation tool similar to cellular phones.

High connectivity !

Spiropalm offers 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_2 monitoring

Display:
Black and white LCD display (320x240 pixels) with real time monitoring of test performance, plus encouragement features for children and non-cooperative patients;
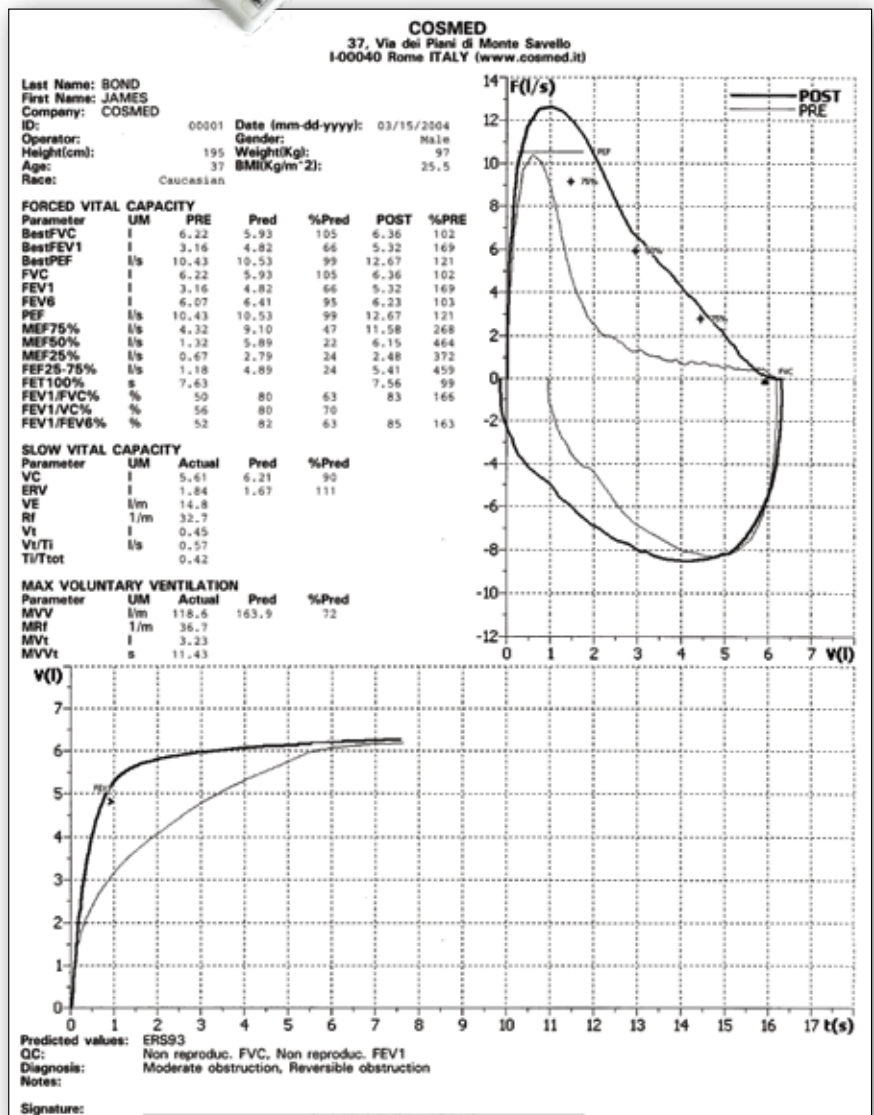
Applications

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

Accurate Measurements

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

▸ Full Spirometry (FVC, SVC, MVV, pre/post)
▸ Bronchial challenge test (Pre-Post)
▸ SpO_2 (option)
▸ Six-Minutes Walk Test (6MWT)
▸ Normal values: ERS, NHANES III, Crapo 1981, Knudson 1983, ITS, Multicentrico Barcelona, LAM, Gutierrez, Pneumobil, Zapletal, Thai 2000, Pereira, Austria (Forche)

Reports:
Spiropalm allows to print reports with PCL compatible printers directly via USB connection. Colour printouts can also be produced through the included PC software.

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

Last Name: BOND
First Name: JAMES
Company: COSMED
ID: 00001 Date (mm-dd-yyyy): 03/15/2004
Operator: Gender: Male
Height(cm): 195 Weight(Kg): 97
Age: 37 BMI(Kg/m^2): 25.5
Race: Caucasian

FORCED VITAL CAPACITY

Parameter	UM	PRE	Pred	%Pred	POST	%PRE
BestFVC	l	6.22	5.93	105	6.36	102
BestFEV1	l	3.16	4.82	66	5.32	169
BestPEF	l/s	10.43	10.53	99	12.67	121
FVC	l	6.22	5.93	105	6.36	102
FEV1	l	3.16	4.82	66	5.32	169
FEV6	l	6.07	6.41	95	6.23	103
PEF	l/s	10.43	10.53	99	12.67	121
MEF75%	l/s	4.32	9.10	47	11.58	268
MEF50%	l/s	1.32	5.89	22	6.15	464
MEF25%	l/s	0.67	2.79	24	2.48	372
FEF25-75%	l/s	1.18	4.89	24	5.41	459
FET100%	s	7.63			7.56	99
FEV1/FVC%	%	50	80	63	83	166
FEV1/VC%	%	56	80	70		
FEV1/FEV6%	%	52	82	63	85	163

SLOW VITAL CAPACITY

Parameter	UM	Actual	Pred	%Pred
VC	l	5.61	6.21	90
ERV	l	1.84	1.67	111
VE	l/m	14.8		
Rf	1/m	32.7		
Vt	l	0.45		
Vt/Ti	l/s	0.57		
Ti/Ttot		0.42		

MAX VOLUNTARY VENTILATION

Parameter	UM	Actual	Pred	%Pred
MVV	l/m	118.6	163.9	72
MRf	1/m	36.7		
MVt	l	3.23		
MVVt	s	11.43		

Predicted values: ERS93
QC: Non reproduc. FVC, Non reproduc. FEV1
Diagnosis: Moderate obstruction, Reversible obstruction
Notes:

Signature:

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.
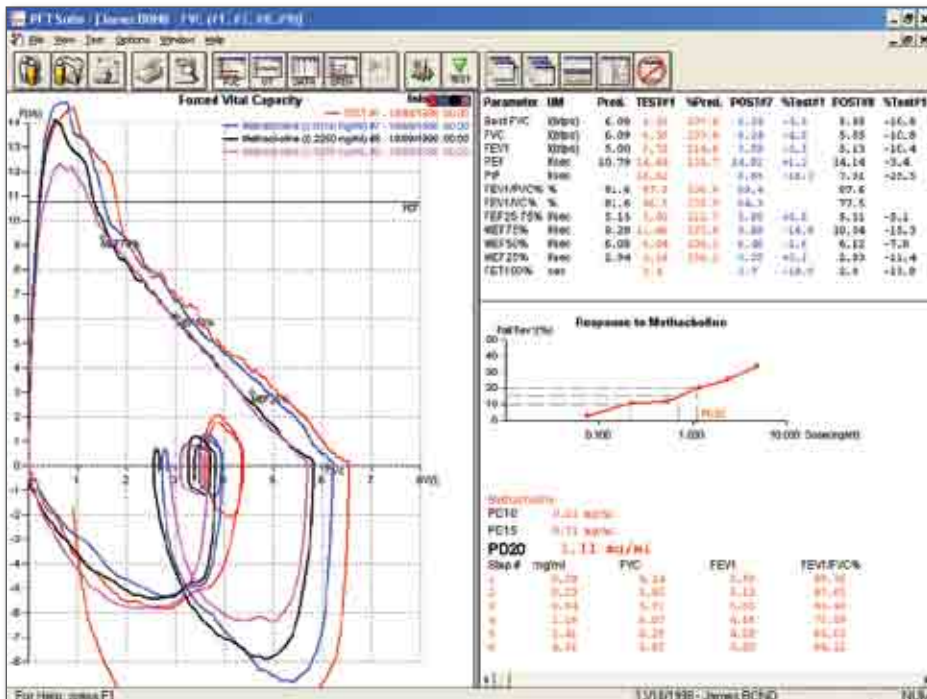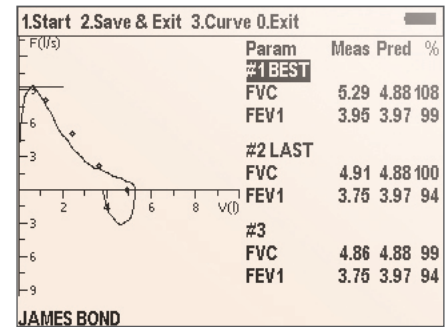
PC Software

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;

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.

Real time graphic and numeric visualization of spirometry tests

Possibility to save PDF reports directly in a configured USB stick

Technical Specification

Products Features

Flowmeter	*Digital Turbine*
Type	*Bi-directional*
Flow Range	*0.08-20l/s*
Volume range	*12 litres*
Accuracy of reading	*±2%*
Resistance	*<0.6 cm H_2O/l/s @ 14 l/s*
Temperature sensor	*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), Multicèntrico, Barcelona, Thai 2000, Austria (Forche), Crapo 1981 user defined predicted calculations.

Hardware

Dimension (mm/in)	*185x86x31/7¼ x 3 ¼ x 1 ¼ in*
Weight (gr/oz)	*390 /13½*
Display	*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, 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. Operating system: Windows XP, 2000, 98/95, NT, Vista (32 bit), Windows 7 (32 bit). 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 (Printer Control Language) 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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ENTE DI ACCREDITAMENTO

COSMED
Pulmonary Function Equipment