

# Easy on-PC

Modern PC-based spirometer offering maximum functionality and value



\* PC-tablet not included

## Spirometry (FVC, FVL, SVC, MVV, Provocation)

The proven ultrasound technology  
**n d d TrueFlow**

**no calibration, no warm-up  
time, no moving parts**

Real time curves and pediatric incentives

Intuitive PC-based solution

Automated user guidance throughout maneuvers based on current ATS/ERS standards

Reproducible results ensure comparability in multicenter studies

Immediate test quality feedback in accordance with ATS/ERS criteria

Z-score, LLN and %predicted for fast interpretation of results

Export of pdf files and raw data

Flexible HL7 and XML interface for easy EMR integration

Absolute hygienic solution with Spirette consumable eliminates the risk of cross-contamination

Customizable reports

Powerful data-management

### Standards & Recommendations

**Quality, Medical Devices & Electrical** ISO 13485, ISO 14971, IEC 62366, IEC 62304, ISO 26782, ISO 23747, IEC 60601-1, IEC 60601-2, ISO 10993-1

**FDA** 510(k) market clearance

**MDD 93/42/EEC** CE marked

**Associations & Institutes** ATS/ERS 2005, NIOSH/ OSHA, SSA Disability

### Languages

English, French, German, Spanish, Italian, Brazilian-portuguese, Dutch, Russian, Vietnamese, Turkish, Chinese

### Technical

**Printing options** direct to printer or over network

**Data management** EasyWare Pro (SQLite, MS SQL Server)

**Interface** HL7, XML, GDT

**No. of tests** > 10'000 tests

**Age range** Spirometry > 4 years

**Device classification** Type BF applied part

**Operating conditions** Temp 0 - 40 °C/32 - 104 °F  
Rel. Humidity 5 - 95 %  
Atmosph. Pressure 500 - 1060 hPA

### Requirements PC/ Laptop

**Hard disk capacity** Installation/ system 1 GB  
Data up to 4 GB

**RAM** 2 GB

**Operating system** Windows 7, Windows 8 and 8.1 (32 and 64 bit), Windows 10 (32 and 64 Bit)

**TrueFlow**  
makes the difference

The original ultrasonic flow measurement is highly accurate in all flow ranges, independent of gas composition, pressure, temperature and humidity and does not require calibration during its life-time. The sensor is never in direct contact with the patient's flow. n d d TrueFlow is a hygienic and resistance-free solution.

## Parameters

<b>FVC</b>	ATI, BEV, EOTV, FEF10, FEF25, FEF2575, FEF2575_6, FEF40, FEF50, FEF50/FVC, FEF50/VCmax, FEF60, FEF75, FEF75-85, FEF80, FET, FET25-75, FEV.25, FEV.5, FEV.5/FVC, FEV.75, FEV.75/FEV6, FEV.75/FVC, FEV.75/VCmax, FEV1, FEV1/FEV6, FEV1/FVC, FEV1/FVC6, FEV1/VCmax, FEV1/VCext, FEV3/FVC, FEV3/VCmax, FEV3, FEV6, FVC, FVC6, MEF20, MEF25, MEF40, MEF50, MEF60, MEF75, MEF90, MMEF, MTC1, MTC2, MTC3, MTCR, PEF, PEFT, to, VCext, VCmax
<b>FVL</b>	ATI, BEV, CVI, E50/150, EOTV, FEF10, FEF25, FEF2575, FEF2575_6, FEF40, FEF50, FEF50/FVC, FEF50/VCmax, FEF60, FEF75, FEF75-85, FEF80, FET, FET25-75, FEV.25, FEV.5, FEV.5/FVC, FEV.75, FEV.75/FEV6, FEV.75/FVC, FEV.75/VCmax, FEV1, FEV1/FEV6, FEV1/FIV1, FEV1/FVC, FEV1/VCmax, FEV1/VCext, FEV3/FVC, FEV3/VCmax, FEV3, FEV6, FIF25, FIF50, FIF50/FEF50, FIF75, FIV.25, FIV.5, FIV1, FIVC, FVC, MEF20, MEF25, MEF40, MEF50, MEF60, MEF75, MEF90, MIF25, MIF50, MIF75, MMEF, MTC1, MTC2, MTC3, MTCR, PEF, PEFT, PIF, to, VCext, VCmax
<b>SVC</b>	ERV, IC, IRV, Rf, VC, VCex, VCext, VCin, VCmax, VT
<b>MVV</b>	MVV, MVV6, MVVtime, VT

## Predicted normal values Spirometry

<b>GLI</b>	Stanojevic 2009, Quanjer 2012
<b>North America</b>	NHANES III (Hankinson) 1999, Knudson 1983, Knudson 1976, Crapo 1981, Morris 1971 & 1976, Hsu 1979, Dockery (Harvard) 1993, Polgar 1971, Gutierrez (Canada) 2004, Eigen 2001
<b>Latin America</b>	Pereira 1992, Perreira 2006 & 2008, Pérez-Padilla (PLATINO) 2006, Pérez-Padilla (Mexico) 2001, Pérez-Padilla (Mexico, Pediatrics) 2003, Chile 2010, Chile (Pediatrics) 1997
<b>Europe</b>	ERS (ECCS, EGKS, Quanjer) 1993, Zapletal 1977, Zapletal 2003, Rosenthal 1993, Austria 1988, Austria 1994, Sapaldia (Switzerland) 1996, Roca (Spain, SEPAR) 1982, Garcia-Rio (SEPAR) 2013, Vilozni 2005, Falaschetti 2004, Klement (Russia) 1986
<b>Europe Scandinavia</b>	Hedenström 1985 & 1986, Gulsvik (Norway) 1985, Berglund Birath (Sweden) 1963, Langhammer (Norway) 2001, Finnish 1982 (1998), Nystad 2002
<b>Australia</b>	Hibbert 1989, Gore Crockett 1995
<b>Asia</b>	Chhabra (India) 2014, Dejsomritrutai (Thailand) 2000, Indonesia 1992, IP (China, HongKong) 2000 & 2006, JRS 2001 & 2014
<b>Africa</b>	Ethiopia 1985

## Flow/Volume Sensor

<b>Type</b>	Ultrasonic transit time
<b>Flow Range</b>	± 16 l/s
<b>Flow Resolution</b>	4 ml/s
<b>Flow Accuracy (except PEF)</b>	± 2% or 0.02 l/s
<b>Volume Resolution</b>	1 ml
<b>Volume Accuracy</b>	± 2% or 0.050 l
<b>PEF Accuracy</b>	± 5% or 0.200 l/s
<b>MVV Accuracy</b>	± 5% or 5 l/min
<b>Resistance</b>	~ 0.3 cm H <sub>2</sub> O/l/s at 16 l/s
<b>Sample Rate</b>	400 Hz