

EasyOne Pro

Advanced lung function testing with
DLCO in a portable solution



Spirometry (FVC, FVL, SVC & MVV) Single Breath CO Diffusion (DLCO)

The proven ultrasound technology
n d d TrueFlow™
n d d TrueCheck™

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

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

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

Reproducible results ensure comparability in multicenter studies

Real-time curves and pediatric incentives

Immediate test quality feedback in accordance with
ATS/ERS criteria

Export of pdf files and raw data

Flexible HL7 and XML interface for easy EMR integration

Only 1 gas for DLCO, no calibration gas required

Absolute hygienic solution with Spirette and Barriette
consumables eliminates the risk of cross-contamination

Compact device with smooth surfaces for easy and thorough
cleaning

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 of the patient's flow. n d d TrueFlow™ is a hygienic and resistance-free solution.

TrueCheck

**TrueCheck™ – Always Safe &
Ready to Test**

TrueCheck™ takes care of the essential quality control for gas analysis testing. EasyOne Pro® is the only device proven to be accurate for a lifetime for DLCO measurements.

Standards & Recommendations

Quality, Medical Devices & Electrical EN ISO 9001, EN ISO 13485, EN ISO 14971, EN 62366, EN 62304, EN ISO 26782, EN ISO 23747, IEC 60601-1, IEC 60601-1-2

FDA 510(k) market clearance

MDD 93/42/EEC CE marked

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

Languages

Chinese, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Norwegian, Portuguese (Brazil), Russian, Spanish, Swedish, Turkish, Vietnamese

Gas specification

DLCO 10% helium, ± 10%
0.3% carbon monoxide, ± 10%
18 to 25% oxygen (normally 21%)
balance nitrogen

Technical

Printing options	PCL standard, direct to printer or over network
Data management	EasyWare Pro (SQLite, MS SQL Server)
Export	HL7, XML, GDT, via USB, LAN Network
Data links	Ethernet port, USB, possibility to upgrade to WLAN
No. of tests	> 10'000 tests
Age range	Spirometry > 4 years, DLCO > 6 years
Dimensions	27 x 33,5 x 27 cm ³ (H x W x D), 8 kg
Device classification	Protection class I Type BF applied part
Operating conditions	Temp 5 - 40 °C / 41 - 104 °F Rel. Humidity 15 - 95 %, no condensation Atmosph. Pressure 700 - 1060 hPa
Power Consumption	50 VA

Parameters

FVC	ATI, BEV, EOTV, FEF ₁₀ , FEF ₂₅ , FEF ₂₅₇₅ , FEF _{2575_6} , FEF ₄₀ , FEF ₅₀ , FEF _{50/FVC} , FEF _{50/VCmax} , FEF ₆₀ , FEF ₇₅ , FEF ₇₅₋₈₅ , FEF ₈₀ , FET, FET ₂₅₋₇₅ , FEV ₂₅ , FEV ₅ , FEV _{5/FVC} , FEV ₇₅ , FEV _{75/FEV6} , FEV _{75/FVC} , FEV _{75/VCmax} , FEV ₁ , FEV _{1/FEV6} , FEV _{1/FVC} , FEV _{1/FVC6} , FEV _{1/VCmax} , FEV _{1/VCext} , FEV _{3/FVC} , FEV _{3/VCmax} , FEV ₃ , FEV ₆ , FVC, FVC ₆ , MEF ₂₀ , MEF ₂₅ , MEF ₄₀ , MEF ₅₀ , MEF ₆₀ , MEF ₇₅ , MEF ₉₀ , MMEF, MTC ₁ , MTC ₂ , MTC ₃ , MTCR, PEF, PEFT, to, VCext, VCmax
FVL	ATI, BEV, CVI, E _{50/150} , EOTV, FEF ₁₀ , FEF ₂₅ , FEF ₂₅₇₅ , FEF _{2575_6} , FEF ₄₀ , FEF ₅₀ , FEF _{50/FVC} , FEF _{50/VCmax} , FEF ₆₀ , FEF ₇₅ , FEF ₇₅₋₈₅ , FEF ₈₀ , FET, FET ₂₅₋₇₅ , FEV ₂₅ , FEV ₅ , FEV _{5/FVC} , FEV ₇₅ , FEV _{75/FEV6} , FEV _{75/FVC} , FEV _{75/VCmax} , FEV ₁ , FEV _{1/FEV6} , FEV _{1/FIV1} , FEV _{1/FVC} , FEV _{1/VCmax} , FEV _{1/VCext} , FEV _{3/FVC} , FEV _{3/VCmax} , FEV ₃ , FEV ₆ , FIF ₂₅ , FIF ₅₀ , FIF _{50/FEF50} , FIF ₇₅ , FIV ₂₅ , FIV ₅ , FIV ₁ , FIVC, FVC, MEF ₂₀ , MEF ₂₅ , MEF ₄₀ , MEF ₅₀ , MEF ₆₀ , MEF ₇₅ , MEF ₉₀ , MIF ₂₅ , MIF ₅₀ , MIF ₇₅ , MMEF, MTC ₁ , MTC ₂ , MTC ₃ , MTCR, PEF, PEFT, PIF, to, VCext, VCmax
SVC	ERV, IC, IRV, Rf, VC, VCex, VCext, VCin, VCmax, VT
MVV	MVV, MVV6, MVVtime, VT
DLCO	BHT, COHb, ColBarVol, CO Conc, HE Conc, O ₂ Conc, Anatomic Dead Space, System Dead Space, Discard Volume, DLadj, DLadj/VA, DLCO, DLCO/VA (KCO), FA CO, FA HE, FE CO, FEV _{1/FVC} , FI CO, FI HE, FRC sb, FRC Cor, Hb, tl, Kroghs K, PAO ₂ , RV sb, RV Cor, RV/TLC, RV/TLC Cor, TLC sb, TLC Cor, TLCO, VA sb, VA Cor, VCext, VCmax, Vd, VI

Predicted normal values Spirometry

GLI	Stanojevic 2009, Quanjer 2012
North America	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
Latin America	Pereira 1992, Perreira 2006 & 2008, Pérez-Padilla (PLATINO) 2006, Pérez-Padilla (Mexico) 2001, Pérez-Padilla (Mexico, Pediatrics) 2003, Chile 2010, Chile (Pediatrics) 1997
Europe	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
Europe Scandinavia	Hedenström 1985 & 1986, Gulsvik (Norway) 1985, Berglund Birath (Sweden) 1963, Langhammer (Norway) 2001, Finnish 1982 (1998), Nystad 2002
Australia	Hibbert 1989, Gore Crockett 1995
Asia	Chhabra (India) 2014, Dejsomritrutai (Thailand) 2000, Indonesia 1992, IP (China, HongKong) 2000 & 2006, JRS 2001 & 2014
Africa	Ethiopia 1985

Predicted normal values DLCO

North America	Ayers 1975, Burrows 1961, Crapo 1981 & 1982, Goldman Becklake 1958, Knudson 1987, McGrath Thompson 1959, Miller 1980, Gutierrez (Canada) 2004, NHANES (Neas) 1996, Polgar 1971
Latin America	Vazquez Garcia (ALAT) 2016
Europe	ERS (Quanjer) 1993, Zapletal 1977, Roca 1990 & 1998, Hedenström 1985 & 1986, Gulsvik 1992, Klement (Russia) 1986
Other	Pereira 2008, Thompson 2008, Kim 2012, Chhabra (India) 2015, Ip (China, HongKong) 2007, JRS (Japan) 2001

Flow/Volume Sensor

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

Gas Sensor

Type	Non-dispersive infrared
Range	0 to 0.35%
Resolution	0.0001%
Accuracy	± 0.001%

CO

Tracer Gas Sensor

Helium

Type	Ultrasonic transit time
Range	0 to 50%
Resolution	0.02%
Accuracy	0.05%