

# EasyOne Pro LAB

The portable solution that offers the broadest spectrum of lung function testing in the GP's office, clinic and hospital



## Spirometry Single Breath CO Diffusion Multiple Breath Nitrogen Washout for Lung Volumes and Ventilation Inhomogeneity

The proven ultrasound technology  
NDD TrueFlow™  
NDD TrueCheck™

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

Automated user guidance throughout maneuvers based on  
ATS/ERS standards 2019 and 2005

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 and 1 gas for MBW testing, 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 with the patient's flow. NDD TrueFlow™ is a hygienic and resistance-free solution.

**TrueCheck**  
automated precision

**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** 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 2019 and 2005, NIOSH/OSHA, SSA Disability

### Languages

Brazilian Portuguese, Chinese, Croatian, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Norwegian, Portuguese, Russian, Spanish, Swedish, Turkish, Vietnamese

### Gas specification

- DLCO**
- 9% to 11% medical grade helium
  - 0.27% to 0.33% medical grade carbon monoxide
  - 18% to 25% medical grade oxygen, balance nitrogen
  - The DLCO test requires a gas mixture within an accuracy range of <2%
- MBW** Oxygen for hospital use

### Technical

- Printing options** PCL standard, direct to printer or over network
- Data management** EasyOne Connect (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<sup>6</sup>000 tests
- Age range** Spirometry > 4 years, DLCO > 6 years, MBW > 4 years or > 18kg
- Dimensions** 27 x 33.5 x 27 cm<sup>3</sup> (H x W x D), 8 kg
- Device classification** Protection class I  
Type BF applied part
- Operating conditions** Temp. 10 - 40°C / 50 - 104°F  
Rel. Humidity 30 - 75%, non-condensing  
Atmosph. Pressure 700 - 1060 hPa
- Power Consumption** Up to 80 VA

## Parameters

<b>FVC</b>	ATI, BEV, EOTV, FEF10, FEF25, FEF 2575, 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/VC, FEV1/VCmax, FEV3/FVC, FEV3/VCmax, FEV3, FEV6, FVC, MEF20, MEF25, MEF40, MEF50, MEF60, MEF75, MEF90, MMEF, MTC1, MTC2, MTC3, MTCR, PEF, PEFT, t0, 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/FIVC, FEV1/FVC, FEV1/VC, FEV1/VCmax, FEV3/FVC, FEV3/VCmax, FEV3, FEV6, FIF25, FIF2575, FIF50, FIF50/FEV50, FIF75, FIV.25, FIV.5, FIV1, FIVC, FVC, MEF20, MEF25, MEF40, MEF50, MEF60, MEF75, MEF90, MIF25, MIF50, MIF75, MMEF, MMIF, MTC1, MTC2, MTC3, MTCR, PEF, PEFT, PIF, t0, VCmax
<b>SVC</b>	ERV, IC, IRV, Rf, VC, VCex, VCin, VCmax, VT
<b>MVV</b>	MVV, MVV6, MVVtime, Rf, VCext, VT
<b>DLCO</b>	BHT, COHb, ColBarVol, CO Conc, HE Conc, O2 Conc, Anatomic Dead Space, System Dead Space, Discard Volume, DLadj, DLadj/VA, DLCO, DLCO/VA (KCO), ERV, FA CO, FA HE, FE CO, FEV1/FVC, FI CO, FI HE, FRC sb, FRC Cor, Hb, tl, Kroghs K, PaO2, RV sb, RV Cor, RV/TLC sb, RV/TLC Cor, TLC sb, TLC Cor, TLCO, VA sb, VA Cor, VCext, VCmax, Vd, VI, VT
<b>MBW</b>	CEV, CEV5, Anatomic Dead Space, Syst Dead Space, ERV, fN2 End, fN2 Start, FRC base, FRC extrapol, FRC mb, IC, IRV, LCI, LCI5, MO, MR1, MR2, Rf, RV mb, RV/TLC mb, TLC mb, VA mb, VC, VCex, VCin, Vd, VT, VT/FRC mb, VT/kg, Sccond, Sacin

## Predicted normal values Spirometry

<b>GLI</b>	Quanjer 2012, Stanojevic 2009
<b>North America</b>	Crapo 1981, Dockery (Harvard) 1993, Eigen 2001, Gutierrez (Canada) 2004, Hsu 1979, Knudson 1983, Knudson 1976, Morris 1971 & 1976, NHANES III (Hankinson) 1999, Polgar 1971
<b>Latin America</b>	Chile 2010, Chile (Pediatrics) 1997, Pereira 1992, Pereira 2006/2008, Pérez-Padilla (PLATINO) 2006, Pérez-Padilla (Mexico) 2001, Pérez-Padilla (Mexico, Pediatrics) 2003
<b>Europe</b>	ERS (ECGS, EGKS, Quanjer) 1993, Garcia-Rio (SEPAR) 2013, Falaschetti 2004, Forche (Austria) 1988 & 1994, Klement (Russia) 1986, Roca (Spain, SEPAR) 1982, Rosenthal 1993, Sapaldia (Switzerland) 1996, Vilozni 2005, Zapletal 1977, Zapletal 2003
<b>Europe Scandinavia</b>	Berglund Birath (Sweden) 1963, Finnish 1982 (1998), Gulsvik (Norway) 1985, Hedenström 1985 & 1986, Langhammer (Norway) 2001, Kainu (Finland), 2016, Nystad 2002
<b>Australia</b>	Gore Crockett 1995, Hibbert 1989
<b>Asia</b>	Chhabra (India) 2014, Dejsomritrutai (Thailand) 2000, Indonesia 1992, IP (China, HongKong) 2000 & 2006, JRS 2001 & 2014
<b>Africa</b>	Mengesha (Ethiopia), 1985

Gas-Sensor	CO	CO <sub>2</sub>
<b>Type</b>	Non-dispersive infrared	
<b>Range</b>	0 to 0.35%	0 to 10%
<b>Resolution</b>	0.0001% (1 ppm)	0.005 %
<b>Accuracy</b>	± 0.0015% (15 ppm)	0-1%: 0.05% CO <sub>2</sub> 1-3%: 0.1% CO <sub>2</sub> 3-6%: 0.15% CO <sub>2</sub> 6-9%: 0.2% CO <sub>2</sub> 9-10%: 0.3% CO <sub>2</sub>

## Accessories and order numbers

<b>Spirette</b>	Box 50 pcs 2050-1	<b>DLCO Barriette</b>	Box of 50 pcs 3050-1	<b>Stand for Sensor</b>	3000-07.00
	Box 200 pcs 2050-5		Box of 100 pcs 3050-2	<b>Annual replacement kit</b> (filter pack, patient tube, one-way valve and overpressure valve)	3000-50.50SP
	Box 500 pcs 2050-10	<b>FRC Barriette</b>	Box of 40 pcs 3150-1		
			Box of 80 pcs 3150-2		

## Predicted normal values DLCO

<b>North America</b>	Ayers 1975, Burrows 1961, Crapo 1981 & 1982, Knudson 1987, McGrath & Thompson 1959, Miller 1980, Gutierrez (Canada) 2004, NHANES (Neas) 1996, Polgar 1971
<b>Latin America</b>	Vazquez Garcia (ALAT) 2016, Gochicoa 2019
<b>Europe</b>	Stanojevic (GLI) 2017, ERS ECCS/EGKS 1993, Zapletal 1977, Roca 1990 & 1998, Hedenström 1985 & 1986, Gulsvik 1992, Klement (Russia) 1986
<b>Other</b>	Pereira 2008, Thompson 2008, Kim 2012, Chhabra (India) 2015), Ip (China, HongKong) 2007, JRS (Japan) 2001

## Predicted normal values MBW

<b>Europe</b>	Verbanck 2012
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## 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 (converted and stored with 200 Hz)

Tracer Gas Sensor	Helium	N <sub>2</sub>
<b>Type</b>	Ultrasonic transit time	
<b>Range</b>	0 to 50%	0 to 100%
<b>Resolution</b>	0.02%	0.1%
<b>Accuracy</b>	0.05%	0.2%