Medical Technologies

Inspiring innovation. Every day.

EasyOne Pro LAB

Advanced lung function testing with DLCO and MBW in a portable solution

Spirometry (FVC, FVL, SVC & MVV)
Single breath CO Diffusion (DLCO)
Multiple breath washout (MBW)

The proven ultrasound technology
ndd TrueFlow
ndd TrueCheck

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

Portable and lightweight design tailored for testing at the point of care.

User-centered approach for intuitive operation, instant usability with no warm-up time.

Hygienic solution with Spirette and Barriette consumables eliminates the risk of cross-contamination.

Swiss precision engineering

Stable technology, no need for calibration by the user

Minimal maintenance, allowing more time to be dedicated to patient care.

TrueFlow
makes the difference

ndd's unique ultrasonic flow measurement is highly accurate in all flow ranges, independent of gas composition, pressure, temperature and humidity. ndd **TrueFlow** is a resistance-free solution that does not require calibration during its lifetime.

TrueCheck
automated precision

Patented method to verify performance of ndd machines

- Eliminates the need for gas-calibration as well as the need for an external DLCO simulator
- 5-point calibration including stability and linearity of tracer gas and CO sensors
- Automatic flow baseline setting

Standards & Recommendations

Quality, electrical, medical devices	IEC 60601-1, IEC 60601-1-2, IEC 62304, IEC 62366, ISO 13485, ISO 14971, ISO 26782, ISO 23747
FDA	510(k) market clearance
MDD 93/42/EEC	CE marked
Associations & institutes	ATS/ERS 2022, 2019 & 2005 Spirometry Standards, NIOSH, OSHA, SSA Disability ATS/ERS 2017 & 2005 DLCO Standards

Languages – User Interface

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

Gas Specifications

DLCO	The DLCO test requires a gas mixture within an accuracy range of <2%. • 10% helium, accuracy ±10% • 0.3% carbon monoxide, accuracy ±10% • 18% to 25% oxygen • balance nitrogen
MBW	100% oxygen

Technical Specifications

Printing options	PCL standard, direct to printer or via network
Data management	EasyOne Connect (SQLite, MS SQL Server)
Export	HL7, XML, GDT, via USB, LAN network
Data links	Ethernet port, USB, option to upgrade to WLAN
No. of tests	>10,000 tests
Age range	Spirometry ≥4 years, DLCO ≥6 years, MBW ≥4 years or >18kg
Dimensions	27 x 33.5 x 27 cm (H x W x D), 8 kg 10.6 x 13.2 x 10.6", 17.65 lb
Display	Touch display size: 12.1" Resolution: 1024 x 768 pixels
Device classification	Protection class I; Type BF applied part
Operating conditions	Temp 5-40°C/41-104°F Rel. humidity 15-90%, no condensation Atmosph. pressure 620-1060 hPa
Power consumption	Up to 80 VA

ndd Medical Technologies • 300 Brickstone Square, Suite 604 Andover, MA, 01810 USA
ndd Medizintechnik AG • Technoparkstrasse 1, CH-8005 Zürich, Switzerland

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Parameters

FVC	ATI, BEV, EOTV, FEF10, FEF25, FEF25-75, FEF25-75_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, FEV1Q, FEV3/FVC, FEV3/VCmax, FEV3, FEV6, FVC, MEF20, MEF25, MEF40, MEF50, MEF60, MEF75, MEF90, MMEF, MTC1, MTC2, MTC3, MTCR, PEF, PEFT, t0, VC, VCmax
FVL	ATI, BEV, CVI, E50/I50, EOTV, FEF10, FEF25, FEF25-75, FEF25-75_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, FEV1Q, FEV3, FEV6, FIF25, FIF 25-75, FIF50, FIF50/FEF50, 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, VC, VCmax
SVC	ERV, IC, IRV, Rf, VC, VCex, VCin, VCmax, VT
MVV	MVV, MVV6, MVVtime, Rf, VCext, VT
DLCO	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, tI, 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
MBW	CEV, CEV5, Anatomic Dead Space, System Dead Space, ERV, FRCbase, FRCextrapol, FRCmb, IC, IRV, LCI, LCI5, LCIao, MO, MR1, MR2, Rf, RVmb, RV/TLCmb, TLCmb, VAmb, VC, VCex, VCin, Vd, VT, VT/FRCmb, VT/kg

Predicted Normal Values – Spirometry

GLI	Stanojevic 2009, Quanjer 2012, Bowerman 2023 (Global GLI)
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, Cherniak 1972
Latin America	Chile 2010, Chile (Pediatrics) 1997, Jones 2022, Pereira 1992, Pereira 2006/2008, Pereira-Prata 2018, Pérez-Padilla (PLATINO) 2006, Pérez-Padilla (Mexico) 2001, Pérez-Padilla (Mexico, Pediatrics) 2003
Europe	ERS (ECCS, 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
Europe Scandinavia	Hedenström (Sweden) 1985/1986, Gulsvik (Norway) 1985, Berglund Birath (Sweden) 1963, Langhammer (Norway) 2001, Finnish 1982/1998, Nystad 2002, Koillinen 1998, 2001, Kainu (Finland) 2016
Australia	Hibbert 1989, Gore Crockett 1995
Asia	Chhabra (India) 2014, Dejsomritrutai (Thailand) 2000, (Indonesia) 1992, IP (China, HongKong) 2000 & 2006, JRS 2001 & 2014
Africa	Mengesha (Ethiopia) 1985

Predicted Normal Values – DLCO

North America	Ayers 1975, Burrows 1961, Crapo 1981 & 1982, Knudson 1987, McGrath & Thompson 1959, Miller 1980, Gutierrez (Canada) 2004, NHANES (Neas) 1996, Polgar 1971
Latin America	Vazquez Garcia (ALAT) 2016, Gochicoa 2019
Europe	Stanojevic (GLI) 2017, ERS ECCS/EGKS 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

Predicted Normal Values – MBW

Europe	Verbanck 2012

Flow/Volume Sensor

Measurement Principle	Ultrasonic transit time
Flow Range	±16 l/s
Flow Resolution	≤1 ml/s
Flow Accuracy (except PEF)	±2.5% or 0.02 l/
PEF Accuracy	±5% or 0.200 l/s
Volume Accuracy	±2.5% or 0.050 l
MVV Accuracy	±5% or 5 l/min
Resistance	<1.5 cm H2O/l/s at 14 l/s

Gas Sensor	CO	CO_2
Type	Non-dispersive infrared	
Range	0 to 0.35%	0 to 10%
Resolution	0.0001% (1 ppm)	0.005%
Accuracy	± 0.0015% (15 ppm)	0.015%

Gas Sensor	Helium	CO_2
Type	Ultrasonic transit time	
Range	0 to 50%	0 to 100%
Resolution	0.02%	0.1 %
Accuracy	0.05%	0.2 %

Accessories and Order Numbers

Spirette	Box 50 pcs. 2050-1	**DLCO Barriette**	Box 50 pcs. 3050-1	**Annual replacement kit** (filter pack, patient tube, one-way valve and overpressure valve)	3000-50.50SP
	Box 200 pcs. 2050-5		Box 100 pcs. 3050-2		
	Box 500 pcs. 2050-10	**FRC Barriette**	Box 40 pcs. 3150-1		
			Box 80 pcs. 3150-2		

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