BodyBox PFS

plethysmograph

ROBUST AND PROVEN SYSTEM

NOW WITH A NEW TWIST!

ALL PULMONARY FUNCTION TESTS IN ONE DEVICE

The NEW Medisoft BodyBox PFS plethysmograph features unique preVent® flow sensor (PFS) technology. This system is the ideal device for accurate spirometry and lung volume measurements from children to adults.

- Complete clear glass enclosure for maximum patient comfort.
- Sturdy, easy-to-clean bench with a 250 kg (551 lbs) weight capacity for all patient sizes.
- Expair II testing software is a powerful tool to collect, display and review.

FEATURING PREVENT® FLOW SENSOR TECHNOLOGY

The small, durable and lightweight preVent® flow sensor is used on all MGC Diagnostics and Medisoft systems.

- Saves time between patients with no warm-up or recalibration needed between changes and provides maximum infection control
- No moving parts or electronics

mgcdiagnostics.com

MGC DIAGNOSTICS®

ALL PULMONARY FUNCTION TESTS
WITH ONE DEVICE:

All measurement programs in the **Medisoft Bodybox PFS plethysmograph** are controlled by the powerful **Expair II software** featuring the following testing options, included in the basic standard configuration:

COMPLETE BASIC SPIROMETRY:
- Forced Vital Capacity, Slow Vital Capacity and Maximum Voluntary Ventilation

ABSOLUTE STATIC LUNG VOLUMES:
THORACIC GAS VOLUME
- FRCpleth, VC, IC, ERV, RV, TLC

AIRWAYS RESISTANCE TESTING:
- Raw, Gaw, sRaw and sGaw

PULMONARY AIRWAYS RESISTANCE:
- Panting mode
- High quality signal filtering (with complete test control by the operator)
- Review
- Analysis of the loops by several user-selected methods.

The preVent® flow sensor (PFS) is based on an **exclusive** design which is small, durable and lightweight. **The preVent® flow sensor** has been validated to meet or exceed the ATS/ERS specifications. It is used worldwide in thousands of labs on MGCD devices and provides accurate testing results with safety and infection control in mind.

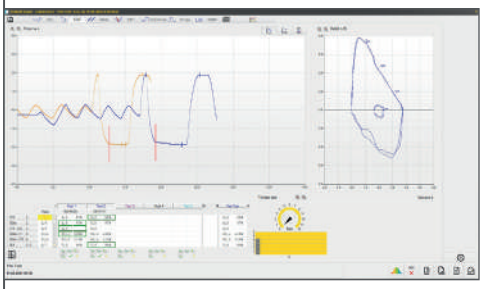
- No warm-up or recalibration needed between patients, can be verified with 3L cal syringe at any time to comply to standards.
- Practical Snap-in setup, no moving parts or electronics.

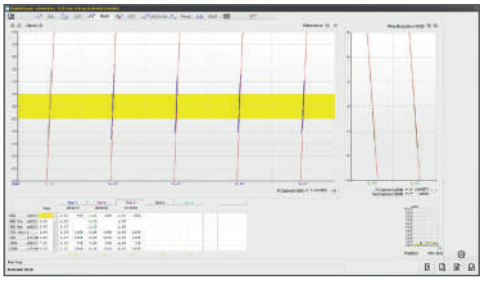
We give you three options for infection control, you make the choice that is right for you!

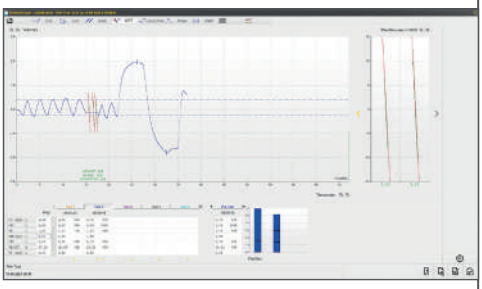
1. **Change:** simply change the filter and keep the same preVent® flow sensor.
2. **Re-Use:** change the flow sensor between patients and replace with disinfected components.
3. **Dispose:** dispose of the flow sensor after each patient.

Fast mode testing sequence, allows the operator to program the sequence and modes of each test enabling the patient to reduce the time into the box and speeding the workflow of the pulmonary department.

Medisoft, integrating all commonly used, important pulmonary function measurements in one system, one database, one report:







Choice of 6 DLCO Options:

UNIQUE: Medisoft is the only manufacturer to offer a choice of 6 diffusion methods to complete the system. These options are available inside or outside of the plethysmograph to make the BodyBox a "single station" for all main diagnostics tests:

- Single Breath with Helium trace gas He
- Rapid gas analysis Diffusion test, Single Breath using Helium trace gas (He)
- Rapid gas analysis Diffusion test, Single Breath using Methane trace gas (CH4)
- Intra Breath diffusion with Cardiac Output (Qc)
- DLCO-NO dual diffusion method (EXCLUSIVE) with membrane diffusion (DM) and Capillary blood volume (Vc), now used for POST-COVID patients evaluation.
- Steady State diffusion TlCo ss (EXCLUSIVE)

MORE FRC methods:

UNIQUE: in addition to the TGV body box method Medisoft offers more FRC options, in the cabin such as:

- FRC method by N2 washout, LCI (Lung Clearance Index) and CV (CLosing Volume)
- FRC method by Helium dilution

OPTIONS to complete your array of testing choices, for all your patients needs:

By adding modules you can perform many more pulmonary diagnostic measurements and integrate them in its' database for combined reporting, with tests such as:

- Automated PROVO4, software controlled dosimeter module for accurate, reproducible bronchial challenge testing
- Exhaled Nitric Oxide (FeNO) as a stationary system (FeNO+) or portable remote compact analyzer (FeNOBreath), for your asthma management and diagnostics
- Cardiopulmonary Exercise Testing module (CPET)
- Respiratory Mechanics modules, for pulmonary rehailitation such as MIP/MEP, SNIP, lung compliance, P.01 (respiratory drive), Negative Expiratory Pressure (NEP)

Ideal for clinical and research applications in:

respiratory care departments, clinical labs, all pulmonary diagnostics, thoracic surgery, respiratory allergy assessment and asthma management, pediatrics, physiology, research, occupational medicine, pulmonary and neuromuscular diseases rehabilitation, POST-COVID monitoring, etc.

OPTION: Complete the diagnostic picture with the Resmon Pro V3 for accurate pulmonary resistance measurements.
The Resmon Pro Full V3 is a revolutionary and validated Forced Oscillation Technique (Oscillometry) stand-alone device. Get the full picture of asthma, COPD and Post-Covid patients. Testing includes fast (10 breath tidal breathing) assessment of sensitive small airways and lung recruitment.

Resmon Pro Full V3 is a product from Restech srl

EXPAIR II, THE MEDISOFT SOFTWARE

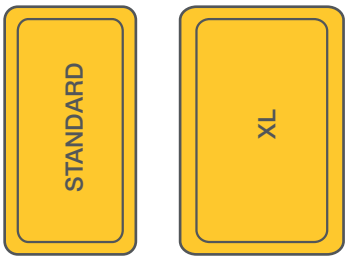
The driving force of the Medisoft system is **Expair II,** a powerfully intuitive, user-friendly and complete software package. Available for all Medisoft devices.

- **Advanced, powerful database function and electronic storage, full networking, HL7 and MySQL options**
- **Trend Reporting of any parameter**
- **New interpretation algorithm based on LLN, ULN, Z-Score and percentile**
- **Comments and Offline data input such as arterial blood gases**
- **Online data transfer**
- **Report designer**
- **Predicted value editor**
- **Choice of languages and units of measurement**
- **Bronchial challenge testing software**
- **Measurement sequencing configuration**
- **Full calculation function: display of calculation points with manual correction capability**
- **Quality control automated software, diagnostic functions and full program control**

2 sizes available:

- Standard Cabin for all subjects, child to adult
- XL cabin, extra room for large framed subject's to avoid wall contact that may introduce artefacts.
- Excluding 15 cm of Body Box module

PHYSICAL DIMENSION	STANDARD	XL
H x W x D cm H x W x D inches	173 x 81 x 75 71 x 29 x 32	173 x 81 x 87 71 x 29 x 34
WEIGHT	± 130 kg ± 286 lbs	± 150 kg ± 330 lbs
INTERNAL VOLUME	887 L	1041 L



Technical and electrical Specifications:

Power requirement:	*230 VAC 50 Hz or 115 VAC 60 Hz*
Power consumption:	*100 VA (module)* *130VA (module with rapid diffusion)*
Warmup time:	*20 min.*
Meets all electrical safety requirements:	*IEC60601-1*
Classification:	*IIa*
CE MARK:	*CE 1434*
MDD:	*93/42/EC and harmonized standards*
Computer interfacing:	*Windows 10 ™ Pro* *Serial interface RS232* *USB 2.0 / 3.0*

Ambient conditions for use:

Temperature:	*10 - 35°C*
Relative humidity:	*25 to 85 % (non condensed)*
Barometric pressure:	*No restriction*

Technical specifications: *1119H – Y - EN*

Trolley Physical Dimensions:

Ergonomic and full electrical isolation trolley option, for PC and printer with full electrical isolation transformer.

(H x W x D):
- 140 x 73 x 55 cm
  55 x 28 x 21 inches

Weight (without accessories):
- 35 Kg
  77 lb

Intended users:
Medical diagnostic device, Class IIa, should only be used by doctors, physiologists, trained respiratory technicians, nurses or under supervision of such.
Data obtained must be interpreted and reported by trained medical staff only.

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CE 1434

BodyBox PFS

plethysmograph

EXPAIR software

The most Intuitive, userfriendly and complete sofware basic version

- A sophisticated and powerful data-base function and electronic storage
- Trends Report (Historic function)
- Interpretation function
- Comment function
- Off Line input and on line data transfer
- Report designer
- Predicted value editor
- Choice of languages
- Choice of units for the measured parameters
- Bronchial test generation
- Blood gases with blood chemistry analysis from manual entry
- Users Units capability
- Measurement sequencing configuration
- Full calculation function : display of calculation points with manual correction capability
- Technical toolbox to enable diagnostic function and full program control
- Inbuilt quality control with calibration markers for performance
- Teleassistance or VPN assist

The MGC Diagnostics International factory is a state of the art modern facility with clinical research, precision engineering and computer design departments.

GENERAL SPECIFICATIONS

	Standard	Extra Large Size XL
Dim. (H x W x D) cm	173 x 81 x 75	173 x 81 x 87
Weight	± 130 kg	± 150 Kg
Internal Volume	960 L	± 1041L
Patient Area	bench with a 250 kg (551 lbs) weight capacity	

BodyBox closing door Sturdy closing and internal handle
Power requirements 230/115 VAC 50/60 Hz
Power Consumption 100 VA (module)
Warm up Time 20 min (minimum)
Conform to electrical safety req. IEC60601/1 and CE 0029

PATIENT VALVE

Pneumotachograph Lilly cone
Range 0,03 to 15 L/sec or 20L/sec
Résistance 0,4 cmH_2O/L/sec
Relative accuracy Error < 3%
Volume conv. to BTPS integrated thermometer (optional barometer)
Automatic zero shift correction of measuring elements
Software computerised linearization
Patient valve Pneumatic (Time O/C : 30 mS)
Dead Space < 60 ml / 30 ml (paediatric).
DisinfectionSimple Dismantling for cold cleaning
Valve Support Arm Moveable arm with 3 joints

PRESSURE TRANSDUCERS

Piezo resistive sensors protected from overload

Sensitivity		**Resolution**		**Calibration**	
Box pres	± 0,5 cm H_2O	Box Pres	0,05 cm H_2O	Box Pres	Integrated 30ml pump
Mouth pres	± 50,0 cm H_2O	Mouth Pres. & Flow	0,01 cm H_2O	Mouth Pres.	Water column
Pres. MIP/MEP SNIP	± 280,0 cm H_2O	Linearity	Error < 0,1%	Pneumotachograph	semi. auto. with 1 to 3L
Mouth flow	± 5,0 cm H_2O	Relative Accuracy	Error < 0,01%	syringe with ERS/ATS quality control indicator	

GAS ANALYZERS

Helium Thermal conductivity
Range 0 to 15% He
Relative accuracy ± 0,1%
Response time ± 200 msec Fast He
± 10 sec He STD
Carbon monoxide infra red/Fast or Fuel Cell
Range 0 to 0,350 % CO
Relative accuracy ± 0,1 %
Response time ± 150 msec Fast CO
± 20 sec CO Fuel Cell
O_2 Chemical Fuel Cell
Range 0 to 100 % O_2
Relative accuracy ± 0,02 %
Response time ± 150 msec
CO_2 infra red
Range 0 to 10 % CO_2
Relative accuracy ± 0,01 %
Response time ± 120 msec

GAS SUPPLY SPECIFICATIONS

Body Box Compressed air
TLCO He option 0,3% CO, 14% He, 21% O_2, rem N_2
TLNO option ± 450 ppm No, rem N_2
TLCO CH_4 option 0,3% CO, 0,3% CH_4, 21% O_2, rem N_2
Pressure regulator 0 - 8 Bars / 15 m^3 / h
TLCO ss 0,08 CO, 21% O_2 rem N_2
FRC N_2 100% O_2

AMBIENT CONDITIONS

Temp. 10 - 40°c Relative humidity 25 to 80 % non condensed

OPTIONS

- Mixed (Volumetric and Barometric bodyplethysmograph)
- TLCO He, TLCO NO, TLCO CH_4, $TLCO_{steady\ state}$/$TLCO_{rebreathing}$
- MIP/MEP, SNIP, NEP, Rint
- Static and dynamic Compliance
- Integrated automatic nebulizer, PROVO 4.
- External compensation Box
- Computer integration trolley with electrical isolation transformer
- Double Door for wheelchair access
- Medisoft network
- Data transfer & reception (HL7,…)
- Automatic data backup
- Disabled handrail support
- Colour Lazer Printer

VOLUMETRIC BODYBOX (OPTION)

Pneumotachograph double Grid Lilly cone
Range 0,01 to 15 L/sec
Resistance 0,1cm H_2O/L/sec
Relative accuracy Error < 3%

OPTIONAL GAS ANALYZERS

Multigas analyser Infrared spectrometer (CO, CH4, CO_2, C_2H_2)
Range 0 to 0,350%, CO_2 : 0 -10%
Relative accuracy ± 0,1 %
Response time < 20 sec (10 - 90% FS)
Nitric oxide Chemical fuel cell
Range 0 - 450 ppm
Relative accuracy ± 0,1 %
Response time < 10 sec (10 - 90 % Fs)

ANALYSER CIRCUIT

Automatic, rapid and accurate calibration with quality control

COMPUTER INTERFACE

Type Serial RS232 or USB
Conversion 12 & 16 bit.
Acq. frequency 100 Hz /chanels (Multigas 3500 Hz)
Transmission speed 115,200 baud
Isolation System fully isolated by optocoupling
Computer PC Intel, 19'' monitor, Printer A4 colour Deskjet
Operating system Windows 7® 32 or 64 bit

- RAW (Insp. exp. tot.), SRAW, GAW, SGAW, ...
- TGV, VC, IRV, ERV, RV, TLC, ...
- Slow Spirometry : VC, ERV, IRV, IC, EC
- Foced Spirometry : FEV1, FIV1, FVC, FEV1/FVC, FEV1/VC,
- FEV6, PEF, F25, F50,F75, MEF, MVV, ...
- Bronchodilation and challenge test, dose-response curves, reactivity threshold, ...
- V Comp., P. Alv. (option)
- TLCO : AV, TLCO / AV, TLCO - NO : Dm, Vc; TLCO ss (option)
- Compliance stat./dyn., RL stat./dyn., CL stat./dyn., EL dyn., W vis. (option)
- MIP/Mep,SNIP, ... (option)
- NEP, R_{Nep}, Exp. Flow Lim, ... (option)
- FRC N_2 - RV N_2 - TLC N_2 (NEW)
- Closing Volume
- Lost Volume, Intrathoracic Pressure & Partial FLow/Volume curve

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