

HDpft™ 4000

High Definition All-Digital Pulmonary Function Plethysmograph

HDpft™ 4000 combines the latest testing capabilities and exclusive High Definition accuracy in an innovative architecture designed to increase productivity and improve the clinical yield of pulmonary function testing.

nSight™ 5 software for HDpft simplifies testing processes, shortens procedure time, automates quality assurance, and delivers flexible real-time trending and instant formattable reporting.

Redefining Accuracy – Diagnostic Confidence

HDpft 4000's exclusive Single-Breath, linked manoeuvre delivers Diffusing Capacity (2 methods offered), Total Lung Capacity, Functional Residual Capacity, and Lung Volume results in a single 15 second examination sequence. Whole body plethysmography offers "gold standard" Lung Volume determination and Airways Resistance in seconds. High Definition accuracy in every testing process ensures the confidence you need, even when testing your most challenging patients.

Redefining Accuracy – Improving Outcomes

iFlow™ advanced flow sensor technology delivers the industry's best resolution, ensuring flow & volume measuring accuracy and reproducibility at 300% more than the industry standard. iFlow's superior accuracy permits you to identify smaller changes in lung function sooner, dramatically enhancing diagnostic precision, treatment planning decisions, and monitoring value even with the most subtle longitudinal changes in lung function.

We continue redefining accuracy so you can improve patient outcomes, more efficiently.

Redefining Accuracy – Clinical Outcomes

"If the variability of the results can be diminished and the measurement accuracy can be improved, the range of the normal values for populations can be narrowed and abnormalities more easily detected." ²



Redefining Accuracy — Clinically Proven Technology

- **MicroGas-HD™ Analyser.** Clinically proven at two times the industry standard in accuracy and precision without the need for pre-test calibration. Real-time display and exclusive High Definition retrospective data analysis reduces the need for repeat exams. Its fast response analyzer is used for both the Diffusion Capacity (DLCO) test and the optional Nitrogen Washout lung volume test.
- **GemTach-HD™ Precision Pneumotach with iFlow* Technology.** Delivers higher sampling rates and drift free performance. Intuitive multi-flow verification guarantees your lab's compliance to the latest ATS/ERS quality control standards.
- **AutoFlow™ Ultra-low Resistance Breathing Circuit.** Provides near resistance-free gas delivery, enhancing patient comfort and test compliance.
- **BPd-HD™ Cabin.** Strong aluminum alloy and tempered security glass provide a stable test environment. Electromagnetic, fail safe door release eliminates patient safety concerns. Electronic breathing arm easily adjusts during testing for optimal patient positioning without opening the cabin door.
- **nSight™ Software.** Streamlines testing, delivering the industry's fastest start-to-finish exam times. Real-time, dynamic incentive graphics, QA scoring, and linked manoeuvres increase acceptable test efforts.
- **HDnet™.** Delivers networking and connectivity to hospital information systems, seamlessly consolidating other vendors' data into the gold standard nSight SQL database, optimising your workflow.

Redefining Accuracy — Beyond Expectations

HDpft 4000 simplifies and automates compliance with the latest ATS/ERS standardisation criteria for Spirometry, Lung Volumes, and Diffusion testing while offering the industry's most accurate test results.

Lifetime GemTach-HD flow sensor meets ATS/ERS standards while eliminating costly downtime associated with re-calibrations. Verification testing automatically validates syringe volumes or leaks in real-time, saving your lab valuable time. BPd-HD with patent pending digital signal processing eliminates drift and warm-up time permitting exacting Lung Volume and Airways Resistance procedures in less than 60 seconds. Without life-limited sensors or costly proprietary consumables, HDpft 4000 guarantees you the lowest cost of operation.

Expert customer support teams provide extensive start-up training, application assistance, system uptime coverage, and on-site or remote service protecting your investment throughout the products lifecycle.

Ordering Information

Part No.	Description
IHD4000	HDpft 4000 Pulmonary Function Plethysmography System
IHD4000N2	HDpft 4000 Pulmonary Function Plethysmography System with Nitrogen Washout

References:

1. Correction of single breath Helium Lung Volumes in Patients with airflow obstruction. Punjabi, Shade,Wise, Chest/114/3/September, 1998
2. Series "ATS/ERS Task Force Standardisation of Spirometry"
3. Series "ATS/ERS Task Force Standardisation of the single-breath determination of carbon monoxide uptake in the lung"
4. Series "ATS/ERS Standardisation of the measurement of lung volumes"



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Technical Specifications

Tests Performed:

Spirometry (FVC, MVV, SVC) (36 parameters), Lung Volumes (Plethysmography) (21 parameters), Diffusing Capacity (Single-Breath & 3-Equation), Airways Resistance (RAW, Specific Conductance) (43 parameters), Bronchoprovocation (Multiple Protocols), Maximum Pressures. HDpft 4000/N2 performs Lung Volumes (Single-Breath & Multiple-Breath) and Diffusing Capacity (3 Equation, SBO2) as well.

Cart Dimensions:

41 in H x 22 in W x 25 in D
104 cm H x 56 cm W x 64 cm D

GemTach-HD:

Type: Screen
Resistance: <0.05 kPa/L/sec
<0.15 kPa/L/sec with DCII filter
Accuracy (Including Linearity): $\pm 3\%$, $\pm 1\%$ with iFlow
Range: ± 15 L/sec
Resolution: 0.45 ml/sec

Plethysmograph Cabin:

Type: Compensated, Volume Constant
Internal Volume: 980 Liters
Box Dimensions: 69 in H x 34 in W x 29 in D
175 cm H x 86 cm W x 74 cm D
Door Material: Safety Glass
Calibration Pump: 100 ml @ 1 Hz

Transducers:	Mouth Pressure	Box Pressure
Linearity:	0.5%	0.05%
Accuracy:	1%	1%
Range:	± 30 kPa	± 0.2 kPa
Resolution:	0.001 kPa	0.0001 kPa

MicroGas-HD:

Type: CO, CH₄, CO₂ - Type Infrared (NDIR)
Range, CO, CH₄: 0 - 3000 ppm
Range, CO₂: 0% - 15%
Response: <100 msec
Sample Rate: 100 Hz
Accuracy: 1%
Linearity: <1%
Noise: <1% Full Scale

Electrochemical O₂ cell:

Range: 0% - 100% O₂
Response: <100 msec
Accuracy: <1%
Linearity: <1%
Noise: <1%

AutoFlow Gas Delivery System:

Type: Electromagnetic, Flow Controlled
Gas Source: DLCO Mix or 100% Oxygen
Spec: <0.15 kPa @ 6 L/sec

Computer Interface:

A/D Converter: 16 bit
Resolution: 0.3 mvolts

Safety & Conformance:

ISO 13485:2003 UL2601-1 2nd edition: 1997, CAN/CSA C22.2 No. 601.1S1-M90, Class II Type BF

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