



# Technical Data Sheet

Body Plethysmography

# Vyntus™ BODY

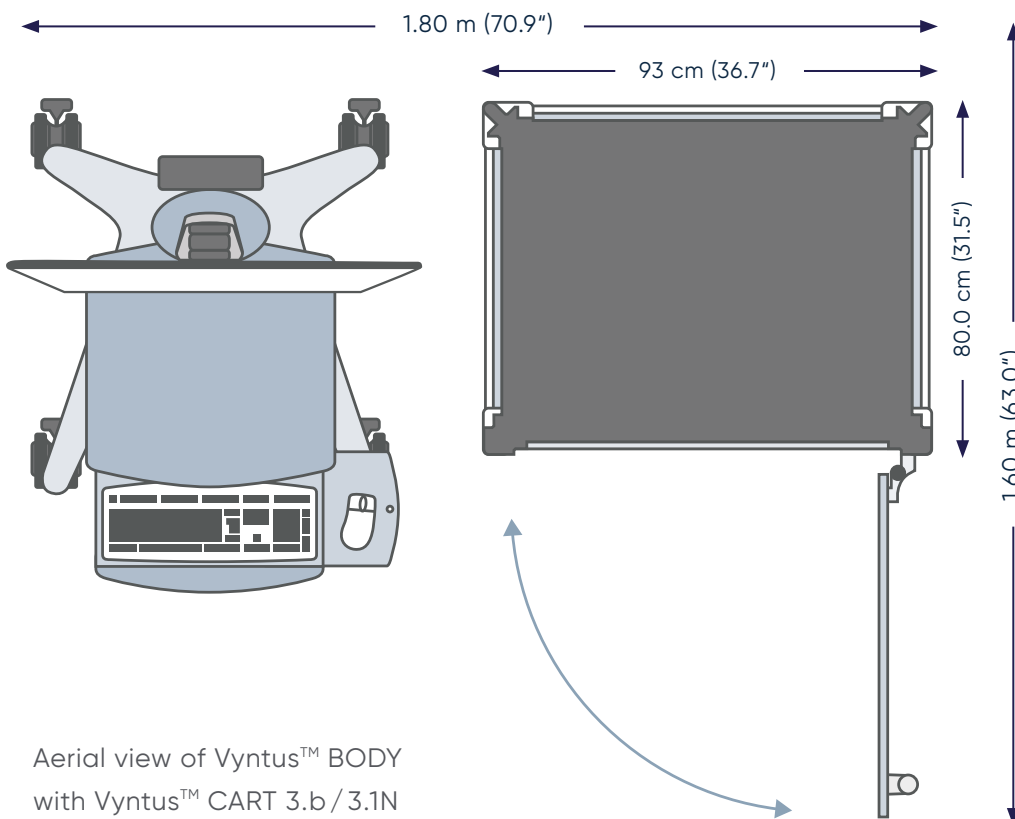
## Measurement

(Specific) airway resistance:	sReff, sRtot, sR0.5, sRmid as well as Reff, Rtot, R0.5, Rmid and others
Static lung volumes:	Absolute lung volumes: TLC, FRCpleth, RV, RV/TLC and others; Static lung volumes: VC MAX, IC, ERV and others
Dynamic lung volumes:	FVC, FEV1, FEV1/FVC, MFEF 25-75, FEF 75, PEF and others
Options*:	<ul style="list-style-type: none"> <li>• CO-Diffusion RT and IB</li> <li>• MIP/MEP</li> <li>• P0.1</li> <li>• SNIP (Sniff Nasal Inspiratory Pressure)</li> <li>• Rocc</li> <li>• Rhinomanometry</li> <li>• Compliance (dynamic/static)</li> <li>• APS – Aerosol Provocation System</li> </ul>

## Components

- Airtight box with panorama glazing, integrated control units and new digital ambient pressure compensation circuit.
- Calibration-free and waterproof ultrasonic flow sensor.
- PC with hygiene keyboard / mouse, inkjet printer, and 24" LCD flatscreen monitor on an ergonomic, smooth-running trolley.
- Set of accessories.
- Complete software package for measurement and report generation plus extended infrastructure for data management.

## Required space



Aerial view of Vyntus™ BODY with Vyntus™ CART 3.b / 3.1N

Space requirements:  
180 × 160 cm (70.9" × 63.0")

To test outside the cabin,  
more space is required.

The guidelines for the  
patient area must be  
followed.

# Technical data

Flow measurement	
Type	Ultrasound
Methodological peculiarities	Simultaneous measurement of ultrasound transit time in and against flow direction
Sample rate	True 1000 Hz for flow, achieved by 2000 ultrasound transit time measurements (double shot technology)
Range	0 to 18 L / s bidirectional
Accuracy	Exhalation 0 to 14 L / s: 1.5 % or 0.05 L / s (whichever is greater) Inhalation 0 to 14 L/s: 2.0 % or 0.05 L/s (whichever is greater)
Precision	1% or 0.1 L / s (whichever is greater)
Resolution	1 mL / s
Total resistance (MicroGard™ II filter + USS Module + FPV block)	<0.150 kPa*s/L at 14 L / s
Dead space USS Module	66 mL



Calibration-free and waterproof ultrasonic sensor

Volume integration	
Principle	Software volume integration of flow signal (ultrasound)
Range	30 L (software limited)
Accuracy	Exhalation and inhalation 0.5 to 14 L/s: 2.5% or 0.075 L (75 mL)
Precision	1% or 0.05 L (whichever is greater)
Resolution	1 mL

Mouth pressure measurement	
Type	Piezo resistive
Range	± 20 kPa
Accuracy	±1% or 0.01 kPa (0.075 mmHg) (whichever is greater)
Resolution	0.003 kPa (0.0225 mmHg)

Box signal	
Transducer type	Piezo resistive, calibrated in terms of shift volume
Transducer range	0 to ± 2500 mL at 1000 hPa ambient pressure
Accuracy	± 2 % at 0.25 Hz / 0.5 Hz
Resolution	0.1 mL
Compensation of ambient pressure variations	Digital ambient pressure compensation



Barrier free spacious cabin for safe and easy entry

## Box

Material	Aluminium / glass construction
Principle	Volume-constant
Volume	1110 L
Height step-in	70 mm (2.8")
Weight	175 kg (385 lbs), 150 kg (330 lbs) without door
Door-lock	Electromagnetic via 8 magnets
Size outside	93.2 x 80 x 185 cm (36.7" x 31.5" x 72.8") incl. door handle
Space inside	88.2 x 70.5 x 173.9 cm (34.7" x 27.8" x 68.5")
Interface to PC	USB

## Box calibration syringe

Calibration volume	50 mL, motor-driven calibration pump
Calibration frequency	0.25 Hz, 0.5 Hz and 1 Hz

## Bench

Maximal load bench	250 kg (551 lbs)
Sitting height	47.6 cm (18.7")
Sitting area	50.6 cm W x 33.0 cm D (19.9" x 13.0")
Material bench	POM (Polyoxymethylene)
Kind of disinfection	Wipe disinfection

## Flexible 3D arm

Max. length outside cabin	63 cm (24.8")
Adjustable height inside cabin	98.3 cm to 141.5 cm (38.7" to 55.7")

## Keyboard / Mouse

### Hygienic keyboard

Kind of disinfection	Wipe disinfection
Material	Silicone key membrane / sealed key field

### Hygienic mouse

Material bench	Wipe disinfection
Kind of disinfection	IP68 fully sealed



Bench for patients up to 250 kg



Flexible 3D arm - can be extended outside of the cabin up to an impressive reach of 63 cm (24.8").



Hygienic keyboard and mouse

### Dimensions / weight Vyntus™ CART 3.b

Dimensions total	61 cm W × 62 cm D × 120 cm H (24" × 24.4" × 47.3")	
Weight total	45 kg (99.2 lbs) inclusive PC, printer and 24" LCD monitor	
Castors	4 twin swivel castors Ø 10 cm (3.9"), lockable	
Shelves	Number	1
	Platform area	45 cm W × 36 cm D (17.7" × 14.2")
	Load capacity	20 kg (44 lbs) distributed load
Keyboard drawer with mousepad (left / right)	Keyboard platform area	40 cm W × 20 cm D (15.7" × 7.9")
	Load capacity	3 kg (6.6 lbs) distributed load
Drawer	Interior area	34 cm W × 24 cm D × 8 cm H (13.4" × 9.4" × 3.1")
	Platform area	45 cm W × 36 cm D (17.7" × 14.2")
	Load capacity shelf	15 kg (33 lbs) distributed load
	Load capacity drawer	3 kg (6.6 lbs) distributed load
Monitor mount	Load capacity	14 kg (30.9 lbs)

### Dimensions / weight Vyntus™ CART 3.0N/3.1N

Dimensions total	145 cm W × 118 cm D × 175 cm H (57.1" × 46.5" × 68.9")	
Weight total	71 kg (156.5 lbs) including 24" monitor	
Castors	4 twin swivel castors Ø 10 cm (3.9"), lockable, non marking grey polyurethane tyred	
Shelves	Number	2
	Platform area	45 cm W × 36 cm D (17.7" × 14.2")
	Load capacity	20 kg (44 lbs) distributed load
Keyboard drawer with mousepad (left / right)	Keyboard platform area	40 cm W × 20 cm D (15.7" × 7.9")
	Load capacity	3 kg (6.6 lbs) distributed load
Mechanical height adjustment for keyboard/mouse and monitor (CART 3.1N only)	Type	Gas spring
	Range	30 cm (11.81")
	Load capacity during height adjustment	10 – 16 kg (22 – 35.2 lbs)

### Multigas analyzer (CO / CH<sub>4</sub>) – Diffusion measurement

Type	Infrared
Range	0 to 0.33 vol %
Accuracy	± 0.003 vol % or ± 2 % relative (whichever is greater)
Resolution	0.0005 vol %
Response time	≤ 145 ms

### Pressure reducer (Diffusion pressure reducer for demand valve)

Inlet pressure	200 bar
Outlet pressure	7 bar (fixed)
Flow rate	At least 500 L/min At most 700 L/min
2 outlets	G 1/4 internal screw thread



Vyntus™ BODY with height-adjustable Vyntus™ CART 3.1N for sitting and standing position

## Vyntus™ APS

Compressor	Flow	8 L/min ± 1.5 L/min
	Pressure	1.4 bar ± 0.3 bar
Nebulizer	Name	Philips Respironics Sidestream®
	Type	Compressed air nebulizer
	Mean mass diameter	3.2 µm
	Output power	240 mg/min

### Ambient measurement

### Measurement range

### Accuracy

Temperature sensor	- 10 to 50 °C (14 to 122 °F)	± 0.5 °C at 20 °C (68 °F) ± 1 °C at 10 to 34 °C (50 to 93.2 °F)
Humidity sensor	0 to 100 % relative humidity	4 % relative humidity at 20 – 80 % relative humidity
Air pressure sensor	500 to 1100 hPa (375 to 825 mmHg)	± 2.5 hPa (1.88 mmHg) at 700 to 1060 hPa (525 to 795 mmHg)

### Ambient conditions

Temperature	+ 10 °C to + 34 °C (+ 50 °F to 93.2 °F)
Relative humidity	20 to 80 % RH, non-condensing
Ambient pressure	700 to 1060 hPa (525 to 795 mmHg)
Altitude	≤ 3000 m (9842 ft)

### Vyntus™ BODY – Transport and storage conditions

Temperature	- 20 °C to + 50 °C (- 4 °F to 122 °F)
Relative humidity	15 to 95 % RH, non-condensing
Ambient pressure	600 to 1200 hPa (450 to 900 mmHg)

### Vyntus™ BODY (cabin) – Power supply

Mains voltage	100 to 240 V, AC 50 to 60 Hz
Power input	Max. 80 VA
Electrical safety	Protection class I
Mains plug	Used for isolating all poles simultaneously from supply mains

### Vyntus™ CART 3.b or desktop version with PC / Monitor / Printer power supply

Mains input voltage	100 to 240 V, AC 50 to 60 Hz, max. 1.5 A
Power input	Max. 1.5 A (depending on PC)
Electrical safety	Protection class I

### Vyntus™ CART 3.0N / 3.1N with PC / Monitor / Printer – Power supply

Mains voltage	100 – 120 V AC, 50 / 60 Hz 220 – 240 V AC, 50 / 60 Hz
Power input	630 VA
Electrical safety	Protection class I
Mains plug	Used for isolating all poles simultaneously from supply mains
Primary Fuse	220 – 240 V: 2 × T3.15 AH / 250 VAC 100 – 120 V: 2 × T6.3 AH / 250 VAC



Vyntus™ APS Aerosol Provocation System integrated inside the cabin for automated, software-controlled, safe and accurate bronchial challenge testing



## Vyntus™ APS – Power supply

Type	Magic Power MPM-X125
Mains input voltage	100 to 240 V, AC 47 to 63 Hz
Power consumption	1.5 to 1 A
Output voltage	24 V DC
Output	120 VA / 5 A
Electrical safety	Protection class I
Mains plug	Used for isolating all poles simultaneously from supply mains

## Moisture protection

Vyntus™ BODY	IP 20
Vyntus™ CART CART 3.b / 3.0N / 3.1N	No IP protection
Vyntus™ APS	IP 20

## Classification of applied parts

Vyntus™ BODY	Type applied part	B
Vyntus™ APS	Type applied part	B

## Category according to MDD 93/42/EEC (2007)

Complete system      Active class IIa medical product

## Operating mode

Complete system      Continuous operation

## Standards, directives

Standards	EN 60601-1, EN 60601-1-2 (4th edition), EN 62304, EN 62366-1, EN ISO 14971, EN ISO 10993-1
Directives	93/42/EEC amended by 2007/47/EC, RoHS 2011 / 65 / EU compliant
Market clearances*	CE, FDA 510(k) clearance, Brazil-ANVISA, Australia-TGA, Health Canada, South Korea-MFDS



Vyntus™ CART 3.b with spacious drawer



Easy and fast adjustment to fit your patients

# Software

Measurement programs	✓ Standard	○ Option
Body plethysmography	✓	
Forced spirometry (FVC) / Slow spirometry (SVC) / MVV	✓	
Spirometry animation programs	✓	
Single-breath CO-diffusion realtime and intrabreath	○	
Airway resistance by R occlusion	○	
P 0.1	○	
MIP/MEP	○	
SNIP (Sniff Nasal Inspiratory Pressure)	○	
Rhinomanometry	○	
Compliance (dynamic/static)	○	
Bronchial challenge with Vyntus™ APS	○	

Calibration programs	✓ Standard	○ Option
Volume calibration for the Vyntus™ APS / verification for the USS module	✓	
Gas calibration	○	
Body box calibration	✓	

Organization programs	✓ Standard	○ Option
SentrySuite™ home page	✓	
SentrySuite™ review	✓	
SentrySuite™ mobile review web application	○	
Patient data	✓	
Report output inclusive multiformat output (PDF, JPG, TIFF, RTF and others)	✓	
Auto interpretation	✓	
ATS / ERS quality check	✓	
Comments / Physician interpretation	✓	
Report designer for generating customized reports	✓	
Predicted values / Reference sets design / editor	✓	
Offline data input	✓	
SentrySuite™ (SeS) quality management	✓	
Backup / Restore	✓	
Data export / import	✓	
User parameter editor for customized parameters	○	



Flexible 3D arm extends to accommodate mobility impaired patients



Glass panels on all four sides helps with visual observation



### Organization programs

✓ Standard    ○ Option

Patient data management for advanced corrective actions

○

Questionnaire designer for customized questionnaires

○

Security and user administration

○

Networking

○

SentryConnect for HIS integration via HL7

○

GDT connection (German standard)

✓

Spirometer data transfer (MicroLoop, MicroLab, FlowScreen, SpiroPro)

✓

InterConnectivity Manager for interface with JLAB / Vmax / SPCS platforms

✓

SeS SQL database interface query / DataCube

○



Stable hand grip for easy entry and exit with integrated emergency button to open the door from inside




Vyntus™ BODY - designed for you and your patients

\*Please note, all products, services, or features of products and services may not be available in your local area.  
Please check with your local Vyair representative.

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