



JAEGER® Vyntus®

Powered by SentrySuite®



The new **Vyntus family** of products continues the JAEGER® tradition of clinically proven, lung function testing devices. The modular approach allows new features to be added as your diagnostic needs increase using Vyntus PNEUMO as the foundation for your future requirements.

Vyntus PNEUMO – Well-validated precision spirometry based on the most published flow-sensing principle.

Vyntus IOS – Uses only tidal breathing and is more sensitive than spirometry alone.

Vyntus APS – The single concentration method makes bronchial challenge testing easier to perform and cost effective.

SentrySuite – A platform designed to advance the experience of lung function testing for both the patient and operator.



CareFusion

Vyntus PNEUMO

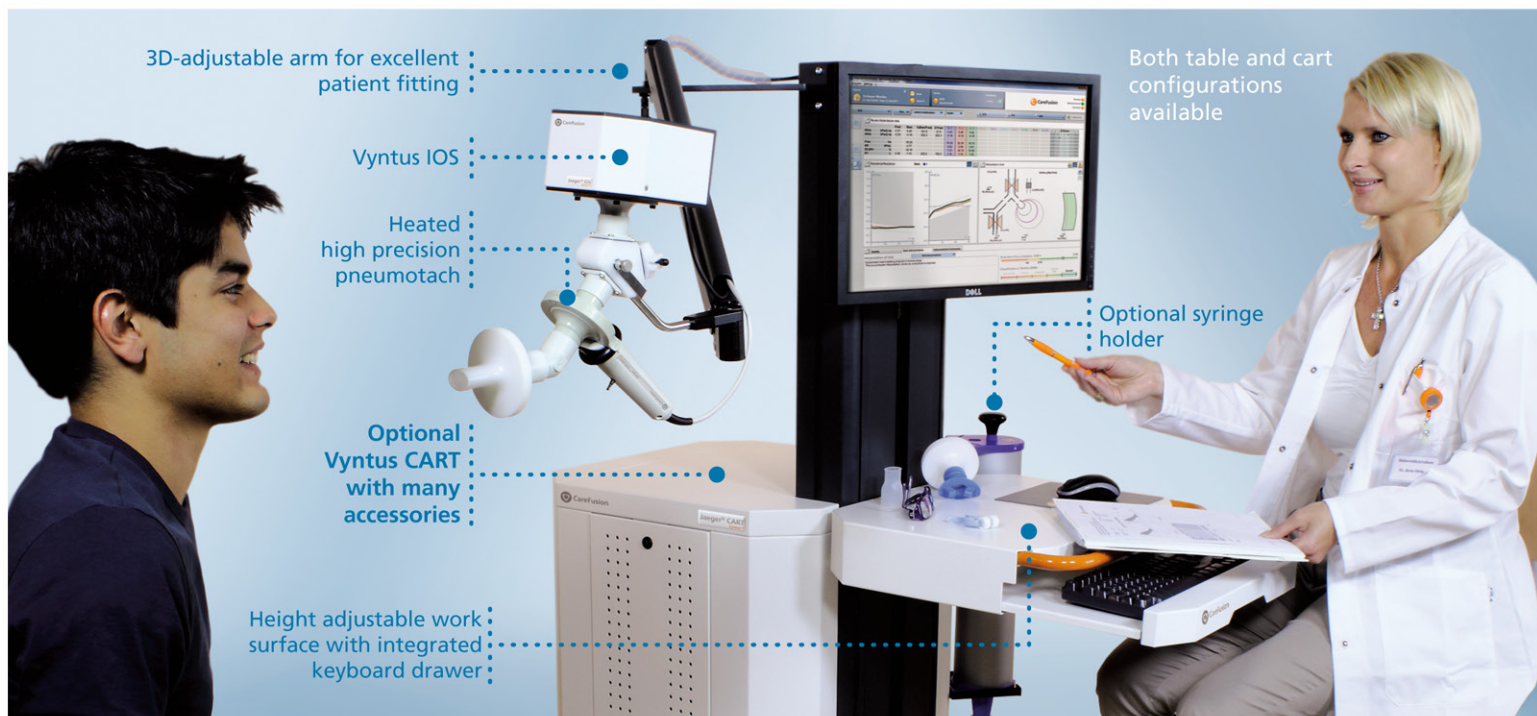
Vyntus PNEUMO offers you comprehensive spirometry testing:

- Forced Spirometry - Flow/Volume (FVC)
- Slow Spirometry - Slow Vital Capacity (SVC)
- Maximum Voluntary Ventilation (MVV)

Powerful features are:

- Pre/post handling and trend analysis
- Choice of 10 animated incentives to train and encourage patient compliance
- Expandable with Rocc, P0.1 and MIP/MEP modules

The modular approach allows complete flexibility as your requirements change, allowing you to expand on the Vyntus PNEUMO with additional test or equipment modules such as Vyntus IOS and Vyntus APS.



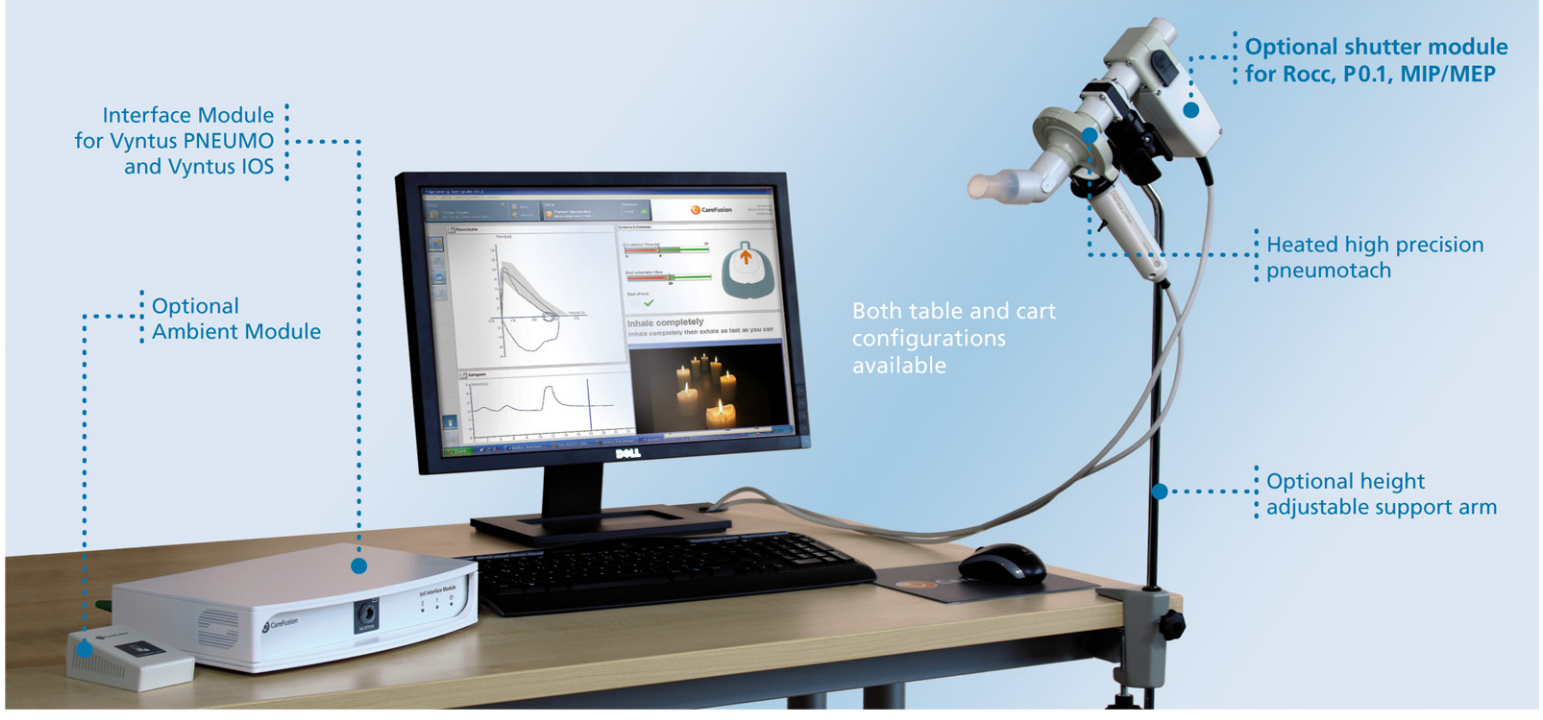
Vyntus APS

Vyntus APS – Aerosol Provocation System – as stand-alone device or seamlessly integrated into Vyntus PNEUMO and Vyntus IOS, offers you sophisticated nebulizer technology ensuring the safe registration of various non-specific and specific dose-response protocols.

Vyntus APS comes standard with:

- Bronchial Challenge testing program (PD and PC threshold calculation)
- Choice of pulse or continuous nebulization

The two modes of administration, i.e. pulse or continuous nebulization, allow for a broad age range to be tested.



Interface Module
for Vyntus PNEUMO
and Vyntus IOS

Optional
Ambient Module

Both table and cart
configurations
available

Optional shutter module
for Rocc, P0.1, MIP/MEP

Heated high precision
pneumotach

Optional height
adjustable support arm

Vyntus IOS

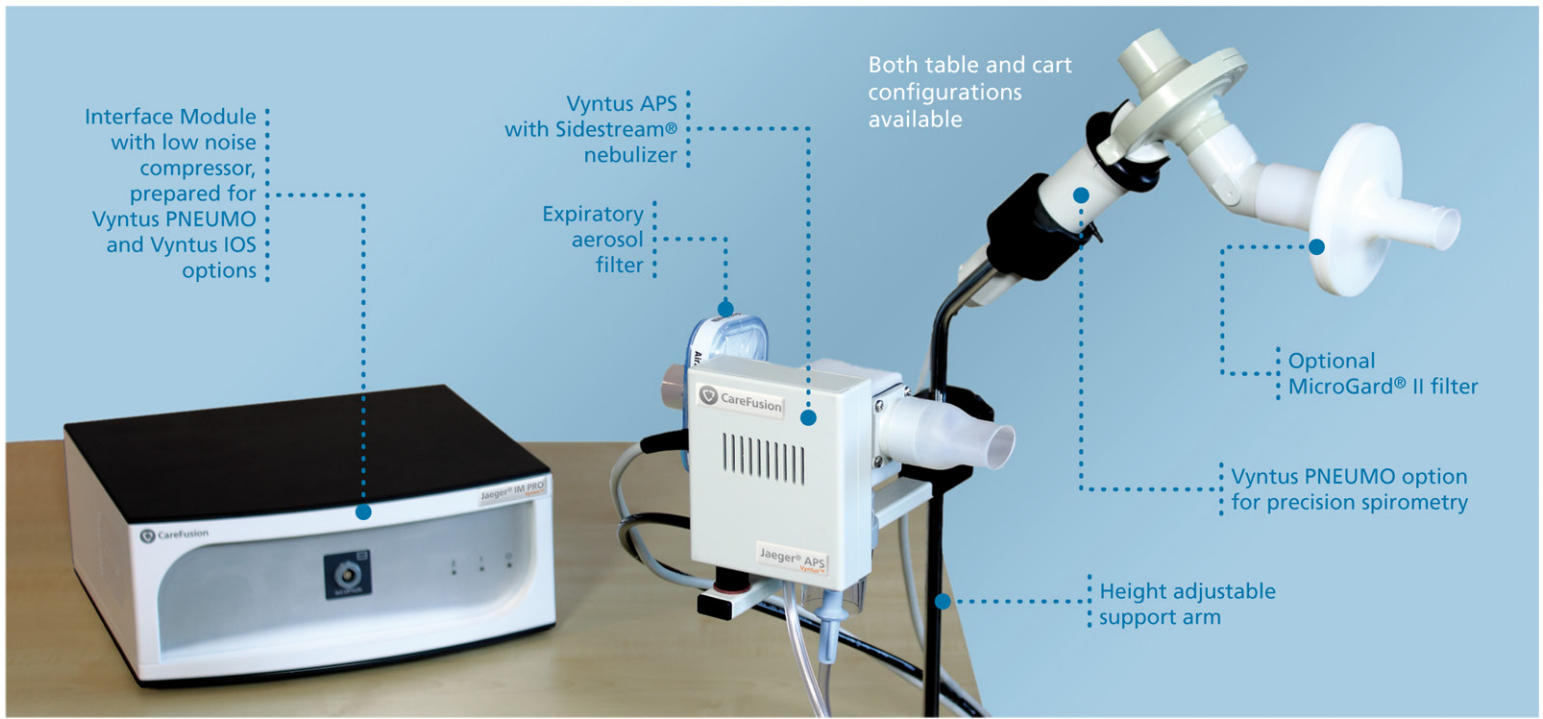
Vyntus IOS – Impulse Oscillometry System – combines spirometry and respiratory resistance diagnostics in one compact device:

- Forced Spirometry - Flow/Volume (FVC)
- Slow Spirometry - Slow Vital Capacity (SVC)
- Maximum Voluntary Ventilation (MVV)
- Respiratory Resistance analysis (Rrs and Xrs)

Powerful features are:

- Single key stroke and 20 seconds of quiet breathing to complete the test procedure
- Lung model interpretation chart that visualizes the degree of central and peripheral obstruction

Vyntus IOS can test a larger patient range than spirometry alone; from elderly down to young children, from athletes to severely ill, and neuromuscular disease patients, making the IOS useful in a broad clinical range.



Interface Module
with low noise
compressor,
prepared for
Vyntus PNEUMO
and Vyntus IOS
options

Vyntus APS
with Sidestream®
nebulizer

Expiratory
aerosol
filter

Both table and cart
configurations
available

Optional
MicroGard® II filter

Vyntus PNEUMO option
for precision spirometry

Height adjustable
support arm

Featuring SentrySuite

All-in-one user interface:

The SentrySuite software has been designed to advance the experience of lung function testing for both the patient and operator and therefore improve the quality of the clinical findings.

The all-in-one user interface offers all tasks a lung function technician has to complete on one screen. All diagnostic programs follow the same all-in-one logic.

- New diagnostic programs are intuitive to use and reduce training requirements.
- Direct navigation to relevant tasks avoiding redundant menu steps.
- All-in-one; enter/search patient, calibrate, measure, validate, edit, comment, report and trend.

The screenshot shows the SentrySuite software interface with several key areas highlighted by dashed blue boxes and labels:

- Patient data: Enter and Search:** Located at the top left, it includes fields for patient name (Sample SeS), ID (CFR1907592), and visit date (25.01.2011).
- System status:** Located at the top center, it shows the current program (Slow Spirometry) and result mode (Local).
- Reporting and Trending:** Located at the top right, it includes buttons for SPIR_SVC and a Calibration icon.
- Lab workflow: Physician Review and Administrator Tools:** Located at the far top right, it includes Review, Measurement, and Desktop icons.
- Select test, level and medication:** Located on the left side, it includes a dropdown menu for 'Slow Spirometry' and a 'Pre' button.
- Measure and edit:** Located on the left side, it includes a 'Review Mode tabular data' table.
- Test data with adjustable table, graphs, and Z-score:** Located on the left side, it includes a 'Spirogram' graph and a 'Result' bar chart.
- Post-test workflow: QA, interpretation, comments, disease classification:** Located on the left side, it includes a 'Guidance' section with 'Auto Interpretation' and 'Interpretation/Comments' tabs.

	%Chg...	Pred	Best	%(Best/Pred)	Tr 1	Tr 2	Tr 3	Tr 4	Tr 5	Tr 6	Tr 7	Tr 8	Tr 9	Tr 10	-Z-Score
VC MAX	L -0	4.98	4.98	100	4.86	4.87	4.93								
VC IN	L -0	4.98	4.98	100	4.84	4.87	4.93								
VC EX	L 0	4.98	4.91	98	4.86	4.85	4.91								
VC	L 0	3.51	4.26	121	3.00	3.75	4.20								
IRV	L 0		3.59		2.60	3.10	3.53								
VT	L 0	0.57	0.67	117	0.40	0.65	0.67								
ERV	L 0	1.48	0.73	49	1.86	1.12	0.73								

QA feedback per trial and repeatability check

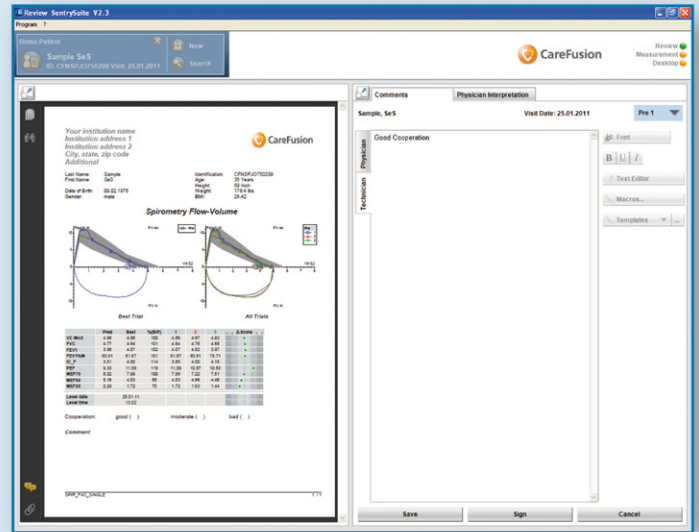
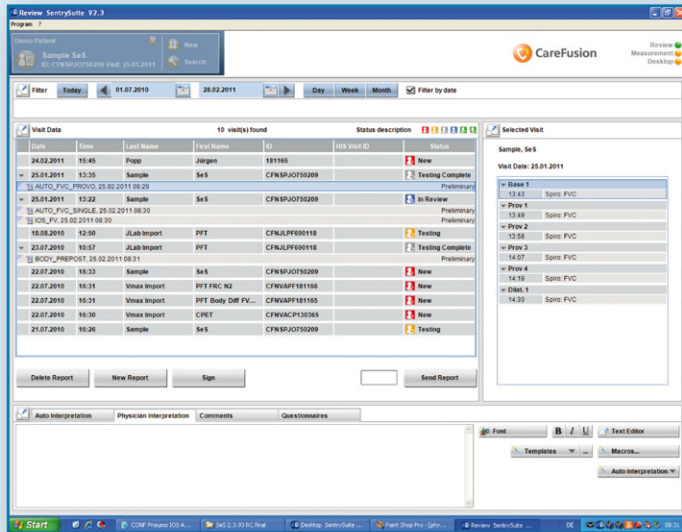
This screenshot shows the 'Quality' tab of the software interface. It includes a 'Type of quality check-ATS and ERS 2005' section with a 'Repeatability' status: 'No Quality Control messages detected, acceptable measurement'. To the right, there is a 'Summary of between maneuver acceptability criteria' section with a color-coded bar ranging from 'Poor Quality Repeat trial' (red) to 'Good Quality' (green).

Templates for quick comments and interpretation

This screenshot shows the 'Interpretation/Comments' tab of the software interface. It features a text area with a pre-filled comment: 'Good cooperation of the patient'. To the right, there is a 'Text Editor' section with various formatting options like Bold (B), Italic (I), Underline (U), and buttons for 'Templates', 'Macros...', 'Auto Interpretation', and 'Paste'.

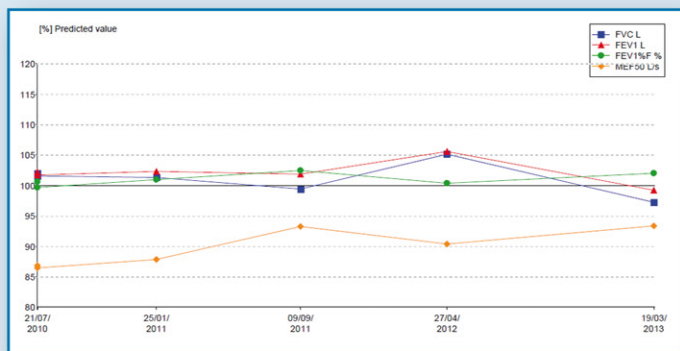
Optimising workflow

- The Review program holds all tools to efficiently complete the test procedure; quick filters to effectively sort visits, pre-set text macros and templates, direct short-cuts to the measurements and split-screen display of report and interpretation tools.



Flexible in all dimensions

- Auto Report automatically selects the relevant report to test procedure.
- Modify an existing report or generate a new one, i.e. layout, style, font size and colour are free formatable.
- Trending of all parameters and SQL export, ideal for clinical trials.



Patient continuum of care

- Import data from our Micro Medical spirometers to follow patients at home and complete their clinical picture.





Vyntus PNEUMO

the entry level model for your respiratory needs

The modular Vyntus PNEUMO works with both a stationary PC to comfortably test subjects in a hospital, clinic or practice, and a small notebook turning it into a professional spirometry station for field testing in e.g. occupational health settings. With optimised ease-of-use, Vyntus PNEUMO offers you:

Flow/Volume-loop for FEV1, FVC, FEV1%FVC, PEF, MEFxx, FEFxx, etc.
and important static volumes like VCmax, IC-F, ERV-F, etc.

Slow Spirometry for VC IN, VC EX, IC, ERV, IRV, BF, VT, etc.

Maximum Voluntary Ventilation for MVV, MVV6, VT MVV, BF MVV, EMF, etc.

Pre and Post medication testing and trend analysis.

Report Designer for customising reports.

Multi-format report output; PDF, TIF, JPG or RTF.

Authors for reference equations such as GLI, ECCS and NHANES.

Numerical and graphical standard scores such as %Reference, Z-score, Standard Deviation.

Optional tests to complement your Vyntus PNEUMO:

- Rocc allows for easy and fast Resistance testing with just one single occlusion during tidal breathing.
- MIP/MEP Maximal inspiratory and expiratory pressures for measuring respiratory muscle strength.
- P0.1 to easily measure tidal breathing respiratory drive.

Optional modules to broaden your diagnostic view:

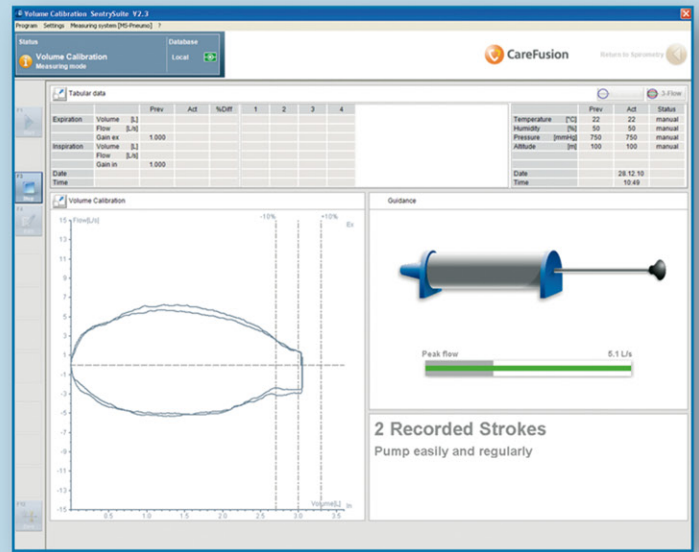
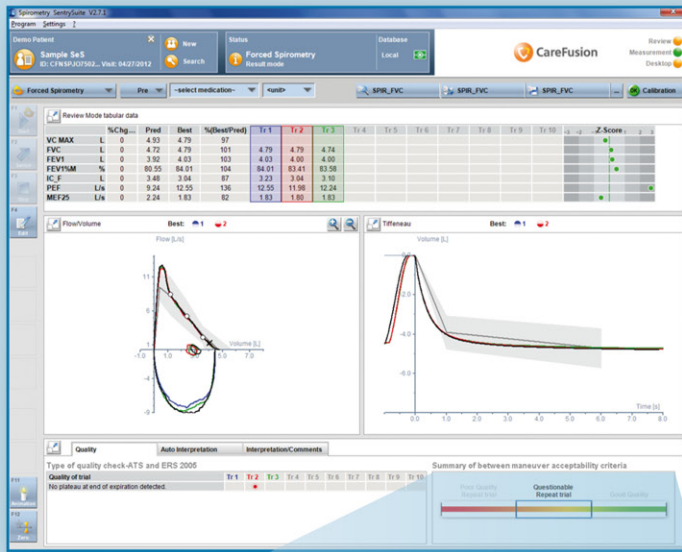
- Vyntus IOS complements spirometry with airway resistance analysis during tidal breathing; from elderly down to young children and patients with neuromuscular disease.
- Vyntus APS for automated and safe bronchial challenge testing and classification.

Ideal for:

pulmonary diagnostics, respiratory care departments, clinical labs, allergy labs, pediatrics, physiology, research, occupational medicine, pulmonary and neuromuscular diseases rehabilitation, etc.

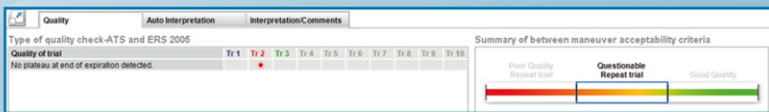
Standards that matter

- Recommendations drive quality control prior, during and after every test to optimise clinical output; for system performance, within test and between test repeatability based on ATS/ERS or other authors.



- Intuitive animated calibration program to ensure measurement quality.

- Calibration and verification data log, stored and reportable as per ATS/ERS recommendations.⁽¹⁾

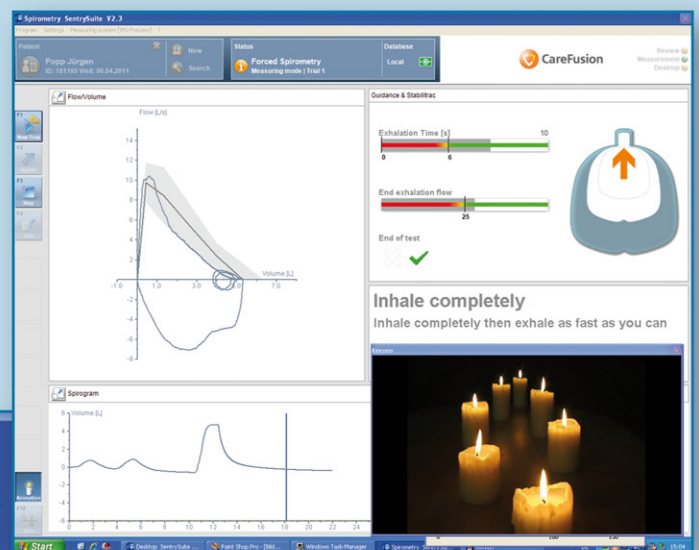
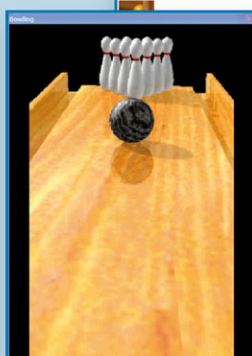
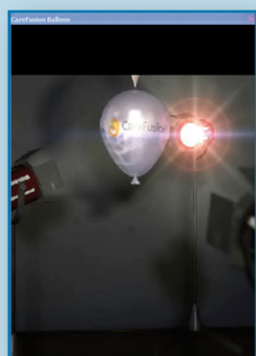
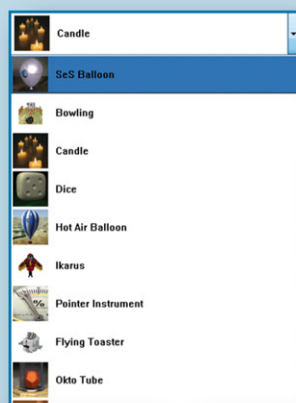


- Colour coded repeatability graph for direct, visual feedback on test quality.

⁽¹⁾ "Daily calibration checking is highly recommended so that the onset of a problem can be determined within 1 day." "...a log of calibration results is maintained."; Series ATS/ERS task force: STANDARDISATION OF LUNG FUNCTION TESTING.

Fun and learning

- Textual and animated tools provide invaluable 'hands-on' guidance to assist operator and coach patient.



- Choice of 10 user definable incentives to entertain and coach patients in all age ranges.



Vyntus IOS empowers through advanced diagnostics

Based on the recording of a few tidal breaths, impulse oscillometry has been demonstrated to be more sensitive under resting conditions than spirometry in measuring small airways obstruction, post bronchodilator effects and bronchial hyper-responsiveness.

The experts found that...

- Impulse oscillometry and plethysmography should be considered the preferred techniques for measuring bronchodilation in COPD Clinical Trials.⁽ⁱ⁾
- Several forced oscillation measures are more accurate and sensitive for detecting bronchodilator response than FEV1 in patients with asthma.⁽ⁱⁱ⁾
- Methacholine-induced asthma symptoms correlate with impulse oscillometry but not spirometry.⁽ⁱⁱⁱ⁾
- Impulse oscillometry provides an effective measure of lung dysfunction in 4-year old children at risk for persistent asthma.^(iv)
- Spirometry underestimated the prevalence of lung function abnormalities in comparison to forced oscillation.^(v)

Vyntus IOS offers the same testing capabilities for spirometry as Vyntus PNEUMO plus:
Respiratory Resistance analysis for the determination of R5Hz, X5Hz, Fres., AX, D5-20%, EFL, etc.

Ideal for:

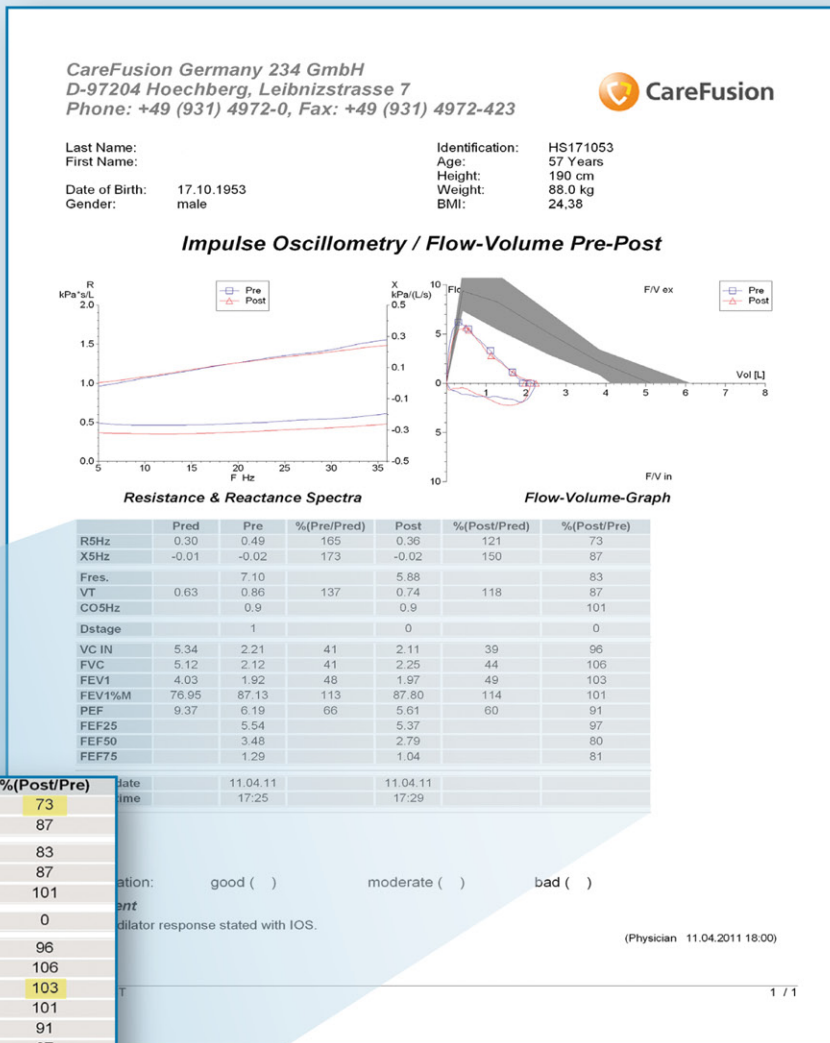
The IOS is especially suited for use in the fields of pulmonary, pediatric, geriatric and occupational medicine.

IOS can provide objective response to drug therapy even when FEV1 can't.

A use case – spirometry is abnormal in the “Pre”-measurement and shows no significant response post-medication.

IOS clearly shows an abnormal central obstruction in the “Pre”-measurement, and additionally indicates the significant bronchodilator response post-medication. This patient displays hyper-reactive airways as airway resistance decreased with over 25%.

Using spirometry alone the patient’s hyper-responsiveness would be missed, the degree of abnormality under resting conditions would be overestimated and the type of obstruction could not have been specified.



	Pred	Pre	%(Pre/Pred)	Post	%(Post/Pred)	%(Post/Pre)
R5Hz	0.30	0.49	165	0.36	121	73
X5Hz	-0.01	-0.02	173	-0.02	150	87
Fres.		7.10		5.88		83
VT	0.63	0.86	137	0.74	118	87
CO5Hz		0.9		0.9		101
Dstage		1		0		0
VC IN	5.34	2.21	41	2.11	39	96
FVC	5.12	2.12	41	2.25	44	106
FEV1	4.03	1.92	48	1.97	49	103
FEV1%M	76.95	87.13	113	87.80	114	101
PEF	9.37	6.19	66	5.61	60	91
FEF25		5.54		5.37		97
FEF50		3.48		2.79		80
FEF75		1.29		1.04		81

Visualising the obstruction.

- Central and peripheral airway obstruction can be differentiated by IOS.
- Effectiveness of modern drug therapy can be better assessed with IOS.

Degree of central obstruction

Degree of peripheral obstruction





Vyntus APS completes the lung function procedure

The versatile Vyntus APS offers computer controlled nebulization for the precise administration of challenge substances. The inhalation of the challenge substances, can be efficiently controlled whilst on-line observing the patient's breathing maneuvers in a flow/time diagram.

Vyntus APS comes with:

Bronchial Challenge testing program for the determination of Provocation Dose or Concentration; PD/PC -20 FEV1 (Spirometry), PD/PC +50 (Rocc), PD/PC +40 R5 (IOS), PD/PC +35 Fres (IOS), etc.

Featuring:

- Specific and non-specific challenge testing
- Multiple and single concentration protocols

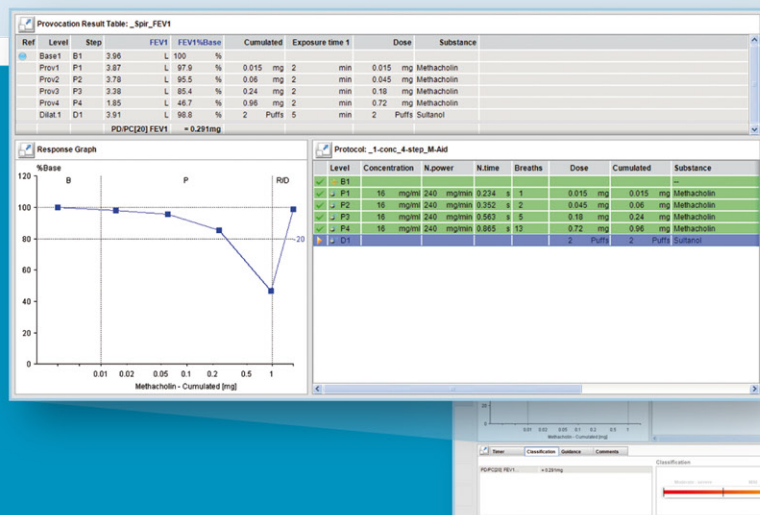
The experts found that...

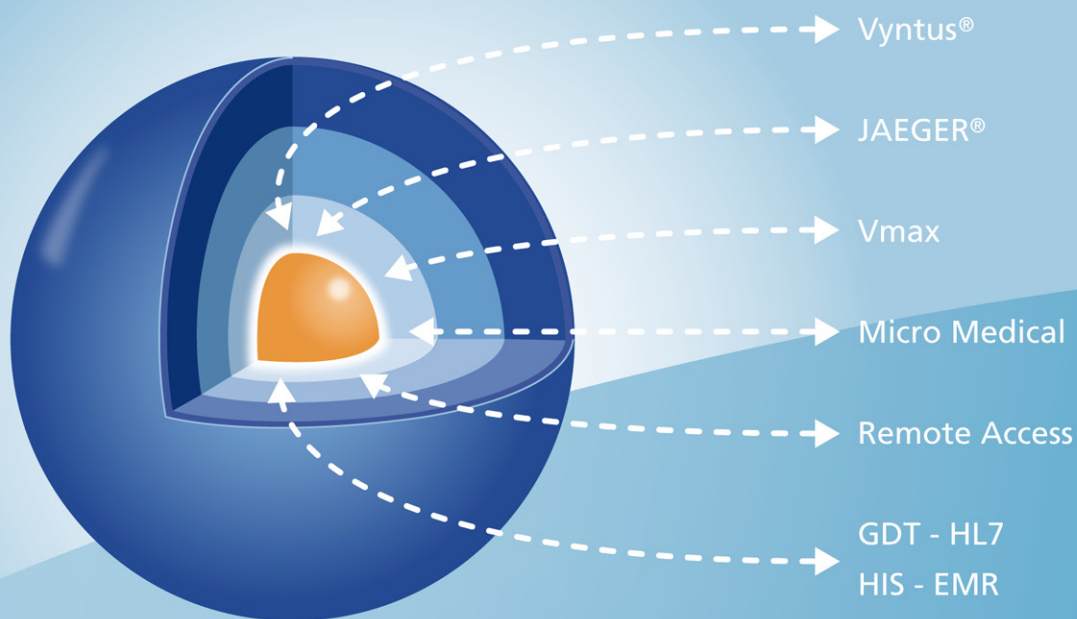
- The single concentration dosimeter method provides values comparable to the Gold Standard.^(VI)

Ideal for:

pulmonary diagnostics, respiratory care departments, clinical labs, pediatrics, allergy labs, occupational medicine, pulmonary rehabilitation centers, physiology and research, etc.

- **Bronchial Challenge testing program** for software controlled, accurate and safe bronchial provocation testing, user guidance throughout the entire protocol, subject's response is monitored and software triggers for "proceed with next step" or flags for "pre-set provocation level has been achieved".





- › Intelligent diagnostics
- › Workflow solutions
- › Data migration
- › System integration
- › Compliance
- › Quality assurance
- › Data protection

SentrySuite® with SQL database

SentrySuite® is compatible with your "CareFusion Family" of devices, i.e. the JAEGER Vyntus, MasterScreen and Oxycon instruments, the SensorMedics® Vmax Encore and the Micro Medical series. All PFT and CPET data collected on these devices (and others!) can be imported, combined, reviewed, interpreted and reported through one "database of record", SentrySuite. SentrySuite can import some competitors databases as well. Through phased-budgeting and life extension SentrySuite offers you a smooth transition to a new cardio-pulmonary diagnostic lab while securing your historical databases and capital investment.



The heart of the system, the JAEGER flow transducer

The reliable, well-proven, accurate JAEGER heated **pneumotach** has been selected as the measurement device of choice in hundreds of publications. Its excellent dynamic range allows for testing a broad population, from small children to athletes.

Thousands of PFT labs depend daily on its high performance. The heated **pneumotach**, which is easy to disassemble, complements with the validated MicroGard® II bacterial/viral filter for a comprehensive hygiene concept.

The "CareFusion Experience"

CareFusion's Respiratory Diagnostics division is active in over 120 countries and headquartered in the USA and Germany. It is an organization with over 60 years' experience in the field of pulmonary function testing founded on the reputed brands: Godart, Mijnhardt, JAEGER®, Beckman, Gould, Micro Medical, SensorMedics® and VIASYS®.

With over 500 employees at CareFusion RDx, we strive to continue the rich tradition of supplying reliable, professional and accessible cardiopulmonary diagnostic devices and services. Today we expand our offer to you with new diagnostic concepts and future oriented workflow and H-IT solutions. In conjunction with our global support organization we at CareFusion RDx are at your service in almost any country in the world.

- ¹⁾ Z L Borrill, C M Houghton, A A Woodcock, J Vestbo, and D Singh Medicines Evaluation Unit, North-west Lung Centre, Wythenshawe Hospital, Manchester, UK Br J Clin Pharmacol. 2005 April; 59(4): 379-384. doi: 10.1111/j.1365-2125.2004.02261.x.
- ²⁾ Yaegashi M, Yalamanchili V, Kaza V, Weedon J, Heurich A, Akerman M. Respir Med. 2007 May;101(5):995-1000.
- ³⁾ Mansur AH, Manney S, Ayres JG. Resp Med. 2007 Sep 25. Respiratory Medicine, Birmingham Heartlands Hospital NHS Trust, Birmingham, West Midlands, UK.
- ⁴⁾ Marotta A, Klinnert, M, Price, M, Larsen, G. Liu, A.H. J Allergy Clin Immunol 2003; 112(2): 317-322. Division of Pediatric Allergy and Immunology, National Jewish Medical and Research Center, and the Department of Pediatrics, University of Colorado Health Sciences Center, Denver, 80206, USA.
- ⁵⁾ Skloot G, Goldman M, Fischler D, Goldman C, Schechter C, Levin S, Teirstein A. Chest. 2004 Apr;125(4):1248-55. Division of Pulmonary and Critical Care Medicine, Mount Sinai School of Medicine, New York, NY, USA.
- ⁶⁾ Skloot G, Goldman M, Fischler D, Goldman C, Schechter C, Levin S, Teirstein A. Chest. 2004 Apr;125(4):1248-55. Division of Pulmonary and Critical Care Medicine, Mount Sinai School of Medicine, New York, NY, USA.
- ⁷⁾ R. Köbrich, N.J. van Duijn, R. Lauschner, P.J. Sterk; Jaeger Toennies GmbH, Höechberg, Germany; Lindopharm GmbH, Hilden, Germany; Dept. Pulmonology, Leiden University Medical Center, Leiden, The Netherlands.

 CareFusion Germany 234 GmbH
Leibnizstrasse 7
97204 Hoechberg
Germany

+49 931 4972-0 tel
+49 931 4972-423 fax
www.carefusion.de

CareFusion
22745 Savi Ranch Parkway
Yorba Linda, CA 92887
USA

800.231.2466 toll-free
714.283.2228 tel
714.283.8493 fax
www.carefusion.com

U.K. Sales
CareFusion UK 236 Ltd
The Crescent, Jays Close
Basingstoke, RG22 4BS, UK

+44 (0) 1256 388599 tel
+44 (0) 1256 330860 fax
www.carefusion.co.uk



© 2014 CareFusion Corporation or one of its subsidiaries.
All rights reserved. Sidestream is a registered trademark
Respironics UK Ltd. Vyntus, SentrySuite, MicroGard, JAEGER,
SensorMedics and VIASYS are trademarks or registered
trademarks of CareFusion Corporation or one of its subsidiaries.
All trademarks are property of their respective owners. V-791854
CF01640

carefusion.co.uk/vyntuspneumo



CareFusion