





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.



## Vyntus® PNEUMO

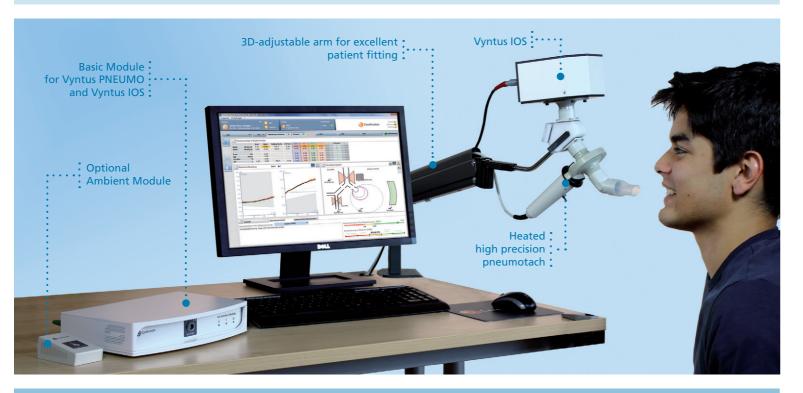
Vyntus PNEUMO offers you comprehensive spirometry testing:

- 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 improve patient cooperation
- 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 – seamlessly integrated into Vyntus PMEUMO 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.



## Vyntus® IOS

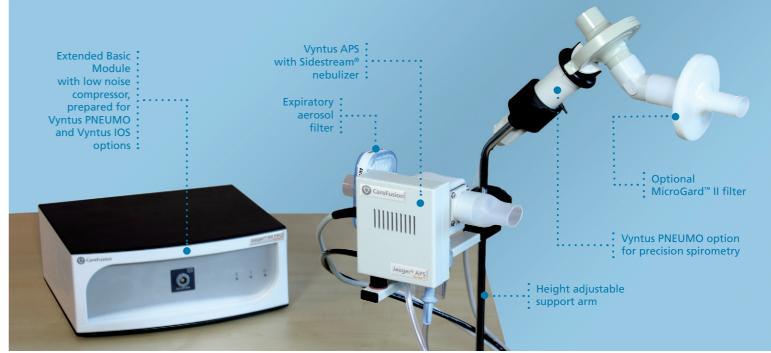
**Vyntus IOS – Impulse Oscillometry System –** combines spirometry and respiratory resistance diagnostics in one compact device:

- 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.



## Featuring SentrySuite®

#### All-in-one user interface:

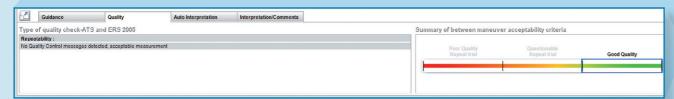
The SentrySuite software has been designed to advance the experience of lung function testing for both the patient and the operator and therefore improve the quality of the clinical findings.

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.



#### QA feedback per trial and repeatability check

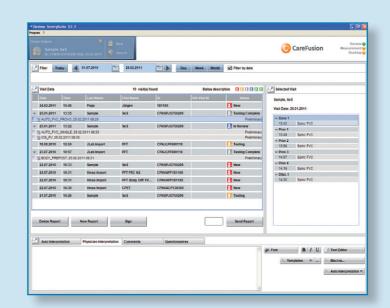


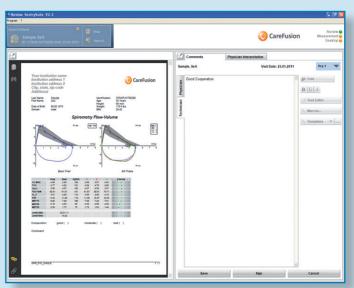
#### Templates for quick comments and interpretation



#### Optimising workflow

• The **Review progra**m 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.
- Modifying an existing report or generate a new one is easily possible, i.e. layout, style, font size and colour are free formattable.





# 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.

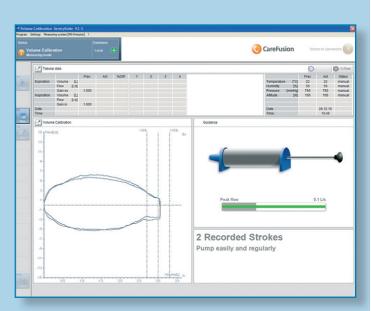
#### Ideal for:

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.<sup>(1)</sup>



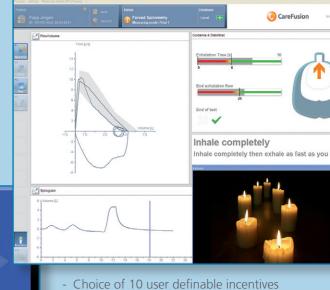
- Colour coded repeatability graph for direct, visual feedback on test quality.

- (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

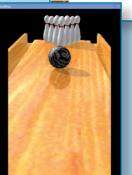
#### Fun and learning

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



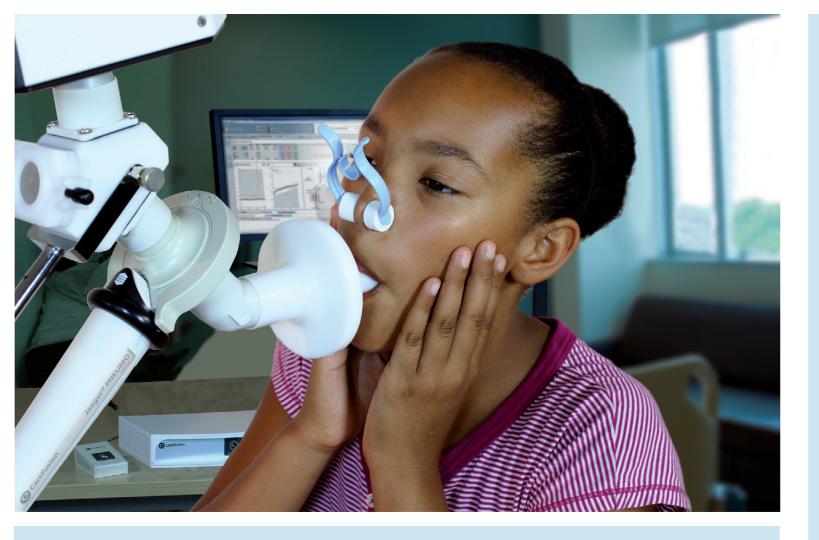








Choice of 10 user definable incentive to motivate and coach patients in all age ranges.



## 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.<sup>(i)</sup>
- Several forced oscillation measures are more accurate and sensitive for detecting bronchodilator response than FEV1 in patients with asthma.<sup>(II)</sup>
- Methacholine-induced asthma symptoms correlate with impulse oscillometry but not spirometry.
- Impulse oscillometry provides an effective measure of lung dysfunction in 4-year old children at risk for persistent asthma.<sup>(IV)</sup>
- Spirometry underestimated the prevalence of lung function abnormalities in comparison to forced oscillation.(1)

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.

10.70

0.17

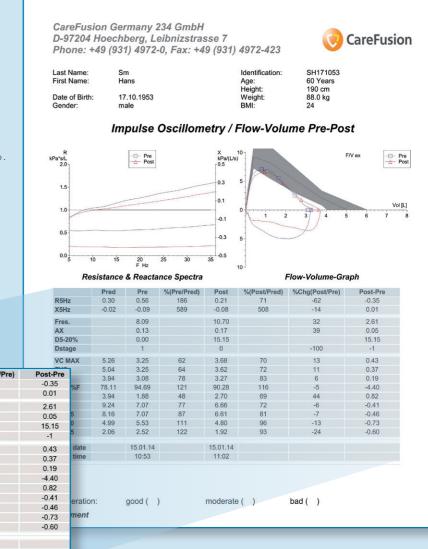
3.62 3.27

2.70

6.61

4.80

15.01.14



#### Visualising the obstruction.

8.09

0.13

3.08

94.69 1.88

7 07

5.53

2.52

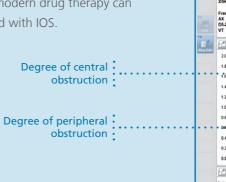
15.01.14

5.04 3.94

78.11

4.99

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







## 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.

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

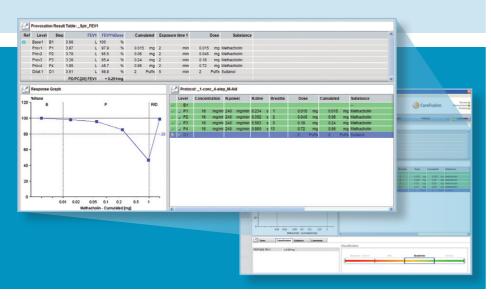
#### The experts found that...

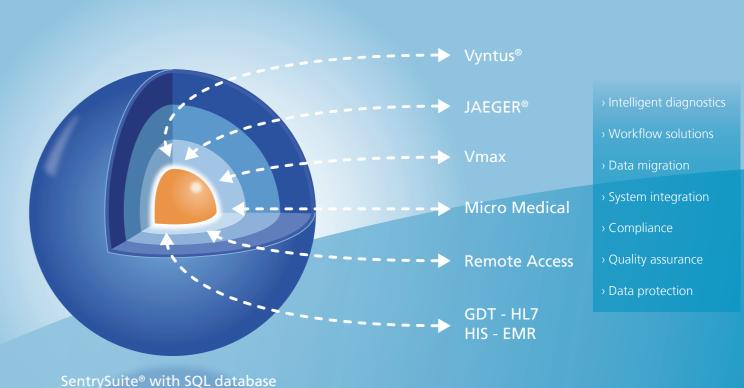
The single concentration dosimeter method provides values comparable to the Gold Standard.<sup>(vi)</sup>

#### 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".





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 (RDx) 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.

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