



Vyntus[®] CPX

Powered by SentrySuite[®]



The JAEGER[®] Vyntus CPX represents the new generation of Cardio Pulmonary Exercise Testing and combines high measurement quality with ease-of-use and a workflow driven CPET evaluation. The Vyntus CPX is the result of over 50 years of experience in the development of CPET devices.

- ACCURATE** - Built on trusted high-end sensor technology
- FLEXIBLE** - Suitable for a wide range of subjects - from sick patients to high-performance athletes
- HELPFUL** - Tools to assist your interpretation
- INTEGRATED** - 12-Lead-Bluetooth[®] ECG fully integrated into the CPET software

Variable configurations for your needs

- Mobile cart configuration
- Table Top configuration
- Single- or dual monitor setup



Vyntus® CPX represents a new generation of professional exercise diagnostics

The versatile JAEGER® Vyntus CPX is an accurate and reliable system that allows the determination of a subject's metabolic response. It can measure children and adults, from patients to athletes; collecting full breath-by-breath data. The main parameters are: $\dot{V}'O_2$, $\dot{V}'CO_2$, RER, $\dot{V}'O_2/kg$, $\dot{V}'E$, BF, V_{Tex}, EqO₂, EqCO₂, BR FEV%, PETO₂, PETCO₂, REE, FAT, CHO, PROT and many more.

Vyntus CPX comes standard with all of the essential CPET applications:

- True breath-by-breath Cardio Pulmonary Exercise Testing
- Slow/Forced Spirometry and MVV in rest including Pre/Post testing and animation program
- Exercise Flow/Volume Loops (EFVL) overlayed with maximum loop
- Indirect Calorimetry assessment (REE, FAT...)
- New and legacy 9-Panel-Wasserman Graph and the Possible Limitation Graph
- 3 different threshold determinations (VT1, VT2 and VT3)
- 4 different automatic slope calculations ($\dot{V}'O_2/Watt$, $\dot{V}'E/\dot{V}'CO_2$, $\dot{V}'E/\dot{V}'O_2$, HR/ $\dot{V}'O_2kg$)
- Editable ranges for baseline, warm-up, peak and recovery phases
- Online entry of RPE scale, blood gases, blood pressure, events or just set a marker for later data entry
- Offline entry of blood gases with automatic calculation of further parameters (P(A-a)O₂...)
- Customizable evaluation workflow
- Extensive program for comments and interpretation with helpful template manager
- Automatic control of bike/treadmill/blood pressure
- Comprehensive Protocol Editor program for creating individual ramp, step and weight dependent protocols
- Report Designer program for customized reports including export to Excel® format

Combine Vyntus CPX with other devices:

- Integrated SpO₂ with sensor type options
- JAEGER Vyntus® ECG, the fully integrated and wireless 12-Lead Bluetooth® PC-ECG
- GE CAM USB CardioSoft 12-Lead-PC-ECG or other 12-Lead-ECGs
- Polar® Bluetooth® Interface
- Choice of cycle ergometers with/without integrated blood pressure and treadmills in various sizes and specifications
- Tango® blood pressure monitor
- Blood gas analyzer interface for serial import of blood gas data

Optional workflow applications:

- Questionnaire Designer and Tablet Questionnaires
- Networking with further PFT systems inclusive report stations for review and interpretation
- Web-based evaluation of PDF reports through Sentry.NET
- EMR, CIS and HIS data integration through SentryConnect (comes standard with GDT interface)

USB port to connect the PC and for in-field firmware upgrades

Robust high value materials with long time resistance against disinfection fluids and easy to clean

Port/Blower for unique, fully automatic volume calibration

Proven Digital Volume Transducer (DVT) for exact determination of ventilation

Additional built-in highly effective gas drying mechanism

Status lights for continuous information about your system and automated self-check

Port for upcoming options

Integrated SpO₂ measurement

Robust coded medical connectors

2.4 m Twin Tube sample line for maximal freedom of movement

The heart of the system - the highly accurate and proven O₂/CO₂ Analyzer

O₂ cell change - made easy

The long-life O₂ fuel cell can be exchanged easily, in about one minute. All you need is a coin to open the fuel cell door on the back of the Vyntus® CPX. Take the old cell out and put the new one in. A fully automatic filter optimization system ensures exact measurements also after such cell exchange.



DVT parking and calibration position for both volume and gas calibration



Calibration made easier

There is no need for a manual 3 Liter syringe because the Vyntus CPX is equipped with a unique, fully automatic volume calibration unit. Just one click in the SentrySuite software and your volume sensor calibration will be automatically performed using the integrated blower.

With the special Twin Tube sample line and fresh air flush system, moving the sample line to a calibration port is not necessary. The easy "click-and-play" fully automatic 2-point gas calibration of the O₂/CO₂ analyzers determines the delay and response times in the same procedure for exact synchronization with the volume signal.

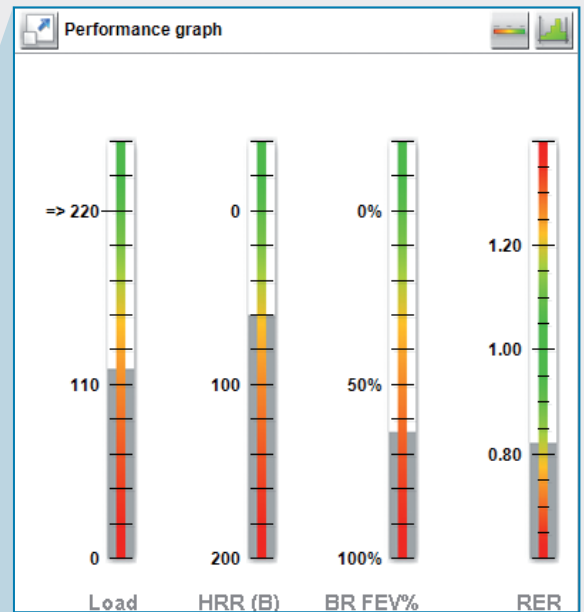
Vyntus® CPX measurement - all under control

With Vyntus CPX powered by SentrySuite® software, using smart tools to automate pretest and in-test technical functions allows more focus to be placed on the patient and not on using the product. SentrySuite software shows the most important CPET curves and parameters with their reference values all on one screen.

The real-time 9-Panel-Wasserman Graph lets you keep an eye on your data during measurement. With just one click, any graph can be enlarged to full screen.



The "Performance Bar Graph" highlights ongoing patient response relative to predicted max values.

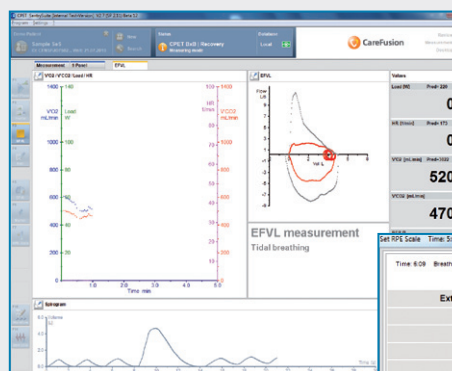


Vyntus CPX helps you to get prepared. The event countdown shows you when the next programmed events will take place.

Time min	Event
00:30	Enter blood gas values
01:00	Select RPE values
01:30	EFVL submeasurement
02:10	Automatic measurement of blood pressure
03:00	End of phase

Features during the test

- Start Up menu with connection check, max predicted values, suggested target load and automatic protocol selection
- Automatic pop-up of programmed events like EFVL, blood pressure entry or RPE entry (Rate of Perceived Exertion)
- Manual set of markers like blood gases or lactate for offline data entry after the test
- Manual RPE entry during the test
- Manual or programmed start of EFVL measurement
- Viewed parameter set is user adjustable
- Automatic control of connected ergometer and blood pressure device



Exercise Flow/ Volume Loops (EFVL) during exercise with clear guidance on how to perform.

	Exertion	Dyspnea
Extremely strong (maximal)	10	10
Very strong	7	7
Strong (heavy)	5	5
Moderate	3	3
Weak (light)	2	2
Very weak	1	1
Extremely weak	0.5	0.5
Nothing at all	0	0

RPE Scale entry during the test

Digital Volume Transducer (DVT)

The proven DVT meets the 24-wave form test of ATS/ERS and provides accurate and reliable flow/volume measurements in the complete range of low to high flow. Thanks to its compact and lightweight design (45g only), the sensor has a very small dead space (only 30mL). The DVT is insensitive both to water vapor and breathing gas concentrations. As compared to a turbine, the flat fan system has no starting or hunting problems due to its small inertia. Patients and athletes will appreciate the fact that it adds minimal resistance to airflow and is extremely comfortable to wear with both mask and mouthpiece.

Five mask sizes to allow best fit for each subject - all available as reusable or disposable masks.

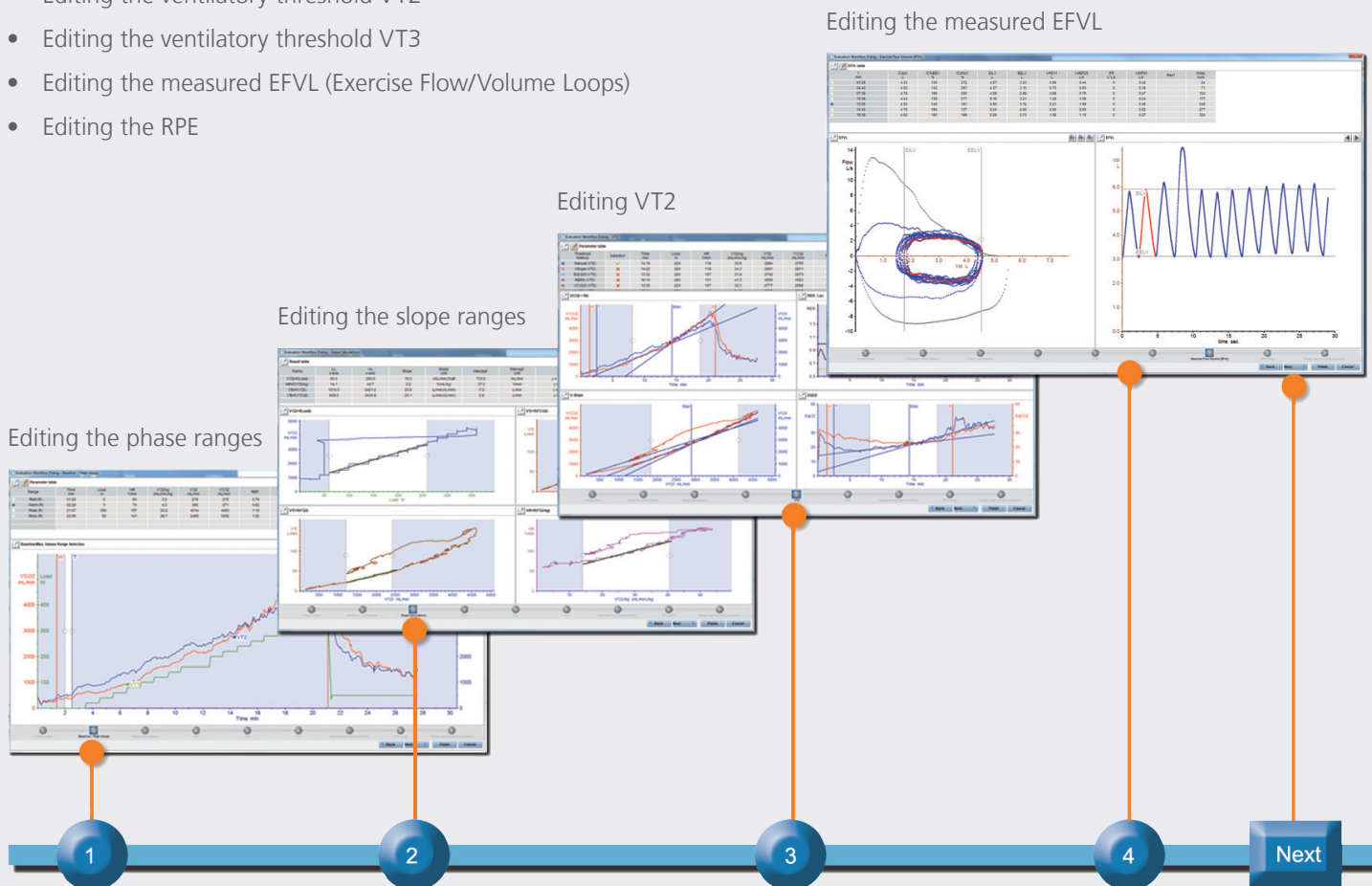


Vyntus® CPX evaluation workflow - easy to use from beginners to experts

After the measurement, the evaluation workflow will automatically guide you through the step-by-step post test evaluation. Just click "Next". This helps to standardize evaluation/interpretation and reduce time-to-result. Workflows can be configured for individual users in relation to the tasks and the sequence.

The complete workflow includes:

- Entry of End of Test Criteria, manually or from predefined templates
- Editing the ranges of rest, warm-up, test and recovery phase
- Editing the ranges of the slopes
- Editing the ventilatory threshold VT1
- Editing the ventilatory threshold VT2
- Editing the ventilatory threshold VT3
- Editing the measured EFVL (Exercise Flow/Volume Loops)
- Editing the RPE



Vyntus® CPX - All-in-one - Result and evaluation

The CPET result and evaluation screen is designed where the data and evaluation tools are laid out on one viewing screen, allowing you to perform faster, better interpretations.

Buttons to switch to 9-Panel-Wasserman Graph, EFVL and ECG view

Buttons to view, print and save the reports

Quick access to patient data

Edit mode for post-test evaluation

Start of automated evaluation workflow

Summary, blood gas and breath-by-breath tables with adjustable averaging

Vyntus ECG seamlessly integrated

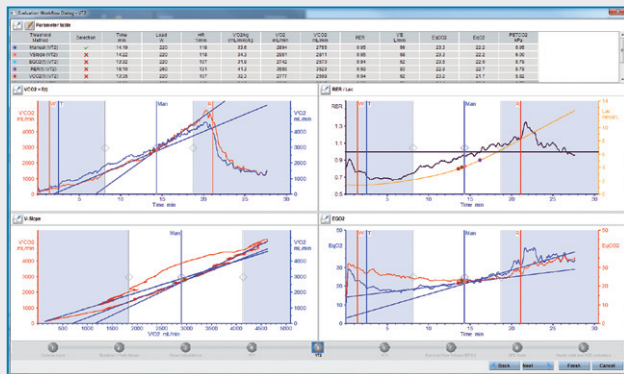
Auto-Interpretation according to W. L. Eschenbacher & A. Mannina²

Comprehensive comments and interpretation tool with user definable templates and usage of macros

Color coded classification bar based on V_O₂ max Pred¹

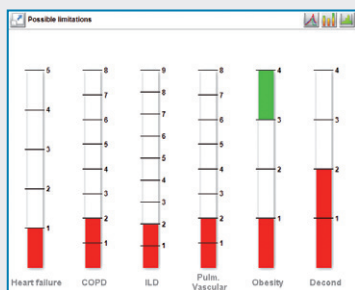


Fast track interpretation made easy

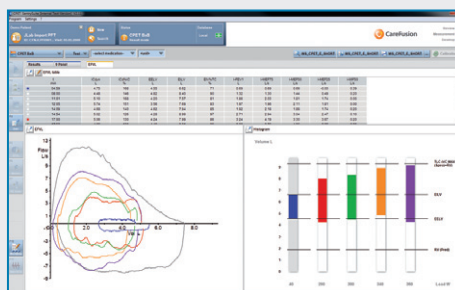


Ventilatory Thresholds

- Multiple threshold evaluations (VT1, VT2, VT3)
- Automatic calculation of each threshold with different methods in one view
- Ability to modify upper and lower VT range
- Manual setting of thresholds
- Plausibility check by viewing the threshold parameters



Possible limitations chart with 6 types of physiological conditions based on the interrelationship of 9 parameters³.

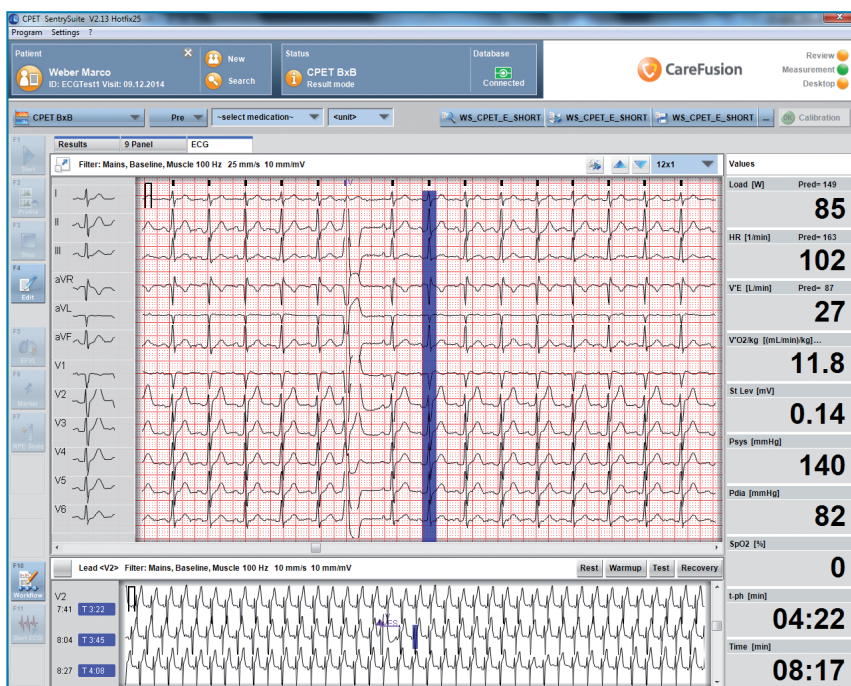


Evaluation of Exercise F/V Loop (EFVL) including useful EELV/EILV trend graph for dynamic hyperinflation.

The art of diagnostic integration

The JAEGER® Vyntus® ECG is the ideal 12-Lead PC-ECG extension for the Vyntus® CPX via wireless Bluetooth® communication. It is fully integrated into the SentrySuite software and provides customers 'the power of one'.

- **Improved patient comfort**
Wireless Bluetooth® technology, small and light (220g) ECG amplifier and short electrode cables
- **Proven technology**
Utilization of the worldwide renowned and well accepted Hannover ECG System (HES-stress) for automatic evaluation and analysis of signals
- **Better signal quality**
Quality check via LED indicators in the snap connector and software dialogue
- **Full disclosure feature**
for storing the unfiltered, continuous ECG signals



Your benefits - all in one

- ONE user interface
- ONE network interface
- ONE HIS connection
- ONE combined report
- ONE program to train
- ONE central database

Customized cardiac solutions

User-friendly interfaces with

- GE CAM-14 CardioSoft 12-Lead-PC-ECG with or without KISS suction unit
- 3rd party 12-Lead-PC-ECGs like Custo med, AMEDTEC, NORAV, Cardiolex, Welch Allyn, PBI...
- Polar WearLink® Bluetooth® solution
- Tango® blood pressure unit
- External SpO2 devices




The "CareFusion Experience"

CareFusion's Respiratory Diagnostics (RDx) division is active in over 120 countries and headquartered in Germany and USA. It is an organisation 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 organisation we at CareFusion RDx are at your service in almost any country in the world.

References

- 1 Löllgen H.; Erdmann E.; Gitt A.K.: Ergometrie, Belastungsuntersuchungen in Klinik und Praxis, 3. Edition, Springer, 2010
- 2 Eschenbacher W. L.; Mannina A.: An algorithm for the interpretation of cardiopulmonary exercise tests, Chest, 1990, 97, 263-267
- 3 Weisman I.M.; Zeballos R.J.: Clinical Exercise Testing, Progress in Respiratory Research, Basel, Karger, 2002, Vol 32, 300-322

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