

# PowerCube Ergo

## Cardiopulmonary Exercise Testing

Sophisticated hardware meets  
state-of-the-art software



# THE ALL-IN-ONE CPET LAB

Cardiopulmonary Exercise Testing (CPET) is a specialized diagnostic procedure used to evaluate the function of the cardiovascular and pulmonary systems during exercise. By measuring various parameters such as heart rate, oxygen consumption, and breathing patterns, CPET provides comprehensive insights into how well these systems are functioning

under stress. This test is valuable for diagnosing and monitoring a wide range of cardiovascular and pulmonary conditions, helping healthcare providers make informed decisions about treatment and exercise prescription. The GANSHORN PowerCube Ergo system provides detailed information for diagnosis, therapy or training support.



**Long life  
CO<sub>2</sub> sensor**



**Versatile, fast and compatible  
LFX software platform**



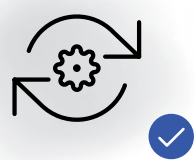
**Sensor unaffected  
by saliva**



**Highly accurate and  
precise gas analyzers**



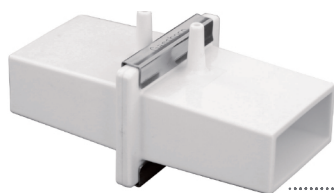
**Powerful and flexible  
components**



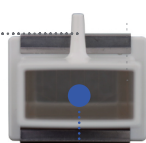
**Easy interchangeable  
O<sub>2</sub> oxygen cell**

The GANSHORN flow sensor Spirozeptor is the heart of the ergospirometry system. Thanks to the integrated variable orifice flow sensor technology, the Spirozeptor offers accurate








respiration measurements that are not affected by saliva or vibrations. The flow sensor is further characterized by the following unique properties:



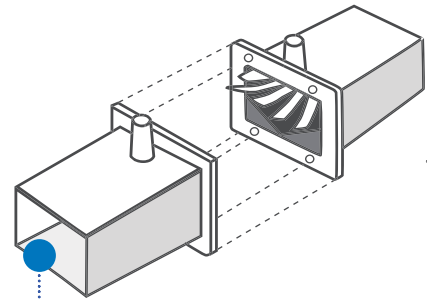
**GANSHORN Spirozeptor**



**View of the lamellas**

-  Can be used for measurements with children, seriously ill patients or high-performance athletes
-  Extremely light (29 g)
-  Minimal resistance
-  Can be used with a mask or mouthpiece
-  Validated according to ERS/ATS criteria
-  Easy to clean, no drying time required what leads to high patient throughput
-  Low deadspace and no inertia

The Spirozeptor operates in turbulent flows. Thanks to its unique design, resistance remains low even at high flows. This contributes to maximum patient comfort.



**Spirozeptor** flow sensor



Optional ECG incl. automatic interpretation and 3D vector ECG

**Software LFX**

- ⚡ with (e.g.) fully assisted calibration charts and data display
- ⚡ powerful post-test editing phase

**PowerCube**

- ⚡ fast response, stable and durable
- ⚡ electrochemical technology for O<sub>2</sub> measurements and fast ultrasound for CO<sub>2</sub> measurements

**Calibration gas**

- ⚡ Low gas consumption during automatic calibration
- ⚡ Gas bottle needs to be replaced less frequently

Ergometer or treadmill

# CONFIGURABLE APPLICATIONS



## Treadmill

Whether athletes or patients: A broad selection of treadmills offers full flexibility



## Ergometer

No matter if young or older patients, there is a wide range of bikes.



## Recumbent ergometer

Our company partner ERGOSANA offers recumbent ergometers for older or physically impaired patients.



## 12 Lead ECG/ Pulse belt

Cardiac diagnostics quality ECG or waterproof pulse belt. USB or wireless solutions available.



## Blood Pressure/ SpO<sub>2</sub>

Automatic blood pressure measurement and/ or optional built-in SpO<sub>2</sub> module – to the ergometer or stand-alone



## Test lab integration

Perfectly complement your pulmonary function test area with the PowerCube Ergo workstation and vice versa



# POWERCUBE ERGO ENSURES

- ~ Early detection of cardiac/pulmonary dysfunctions
- ~ Differentiation of cardiac and pulmonary function
- ~ Limitations assessment of respiratory problems
- ~ Classification of patients against reference values
- ~ Evaluation of medication and training successes
- ~ Eligibility for cardiac and pulmonary surgery or transplantation
- ~ Detection of individual anaerobic threshold
- ~ Creation of customer-specific training recommendations



## CONFIGURATIONS

Programs	Standard	Option
■ Microsoft SQL / MySQL	☑	
■ XML Report	☑	
■ Multiuser license		☑
■ Worklist		☑
■ DICOM/GDT/HL7		☑

### Configurations

- Ergometer
- Treadmill

### Features

Features	Standard	Option
■ Forced spirometry	☑	
■ Slow spirometry	☑	
■ Offline input of blood gases	☑	
■ Indirect calorimetry	☑	
■ SpO <sub>2</sub>		☑
■ 12-channel stress ECG		☑
■ Polar pulse belt		☑
■ Blood pressure measurement		☑
■ LFSport		☑

# CONNECTORS, CONTROLS AND INDICATORS



Calibration connector

Front panel

POWER

Back panel



Temperature sensor

DC power in

Replace the O<sub>2</sub> cell easily by yourself (no expensive engineers required)

Power indicator

Calibration gas out (no exhaust tube required)

Calibration gas in (from gas bottle)

Three (color coded) tubes to the mask and spirosensor assembly

Power switch

RS-232 data connector

Connector for the nafion tube from the mask assembly when carrying out gas calibration

# SOFTWARE PLATFORM



The LFX software is our user-friendly interface, developed with the physiologist in mind. The patient management interface provides all the tools necessary to perform every task done in the laboratory, while remaining easy to operate. Built on state-of-the-art Windows tools like .net, C# and SQL database, the LFX software is

the future of modern respiratory diagnostics. The LFX software has built-in quality control monitoring based on ATS/ERS guidelines, which are accessible during and after the measurements are performed.

## + 9-panel view

Uses internationally recognized 9-panel-Wasserman-plot which can be also adjusted to individual needs.

## + Breath by breath measurement

All important parameters can be evaluated for every single breath. While optional averaging for curve smoothing facilitates visual diagnosis of the panels.

## + 12-channel ECG

Uses a complete 12-lead stress ECG or a heart rate monitor when exercising

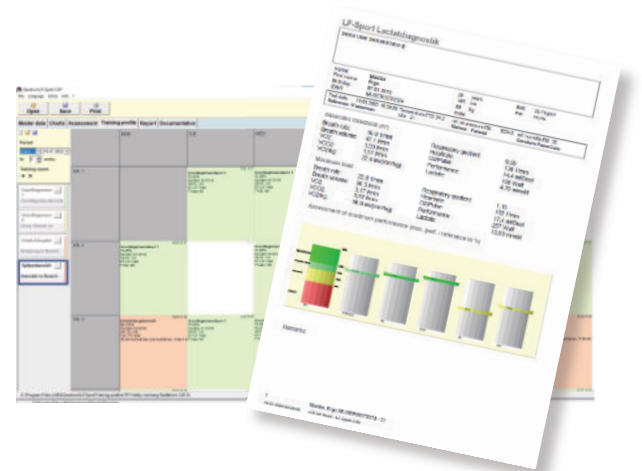
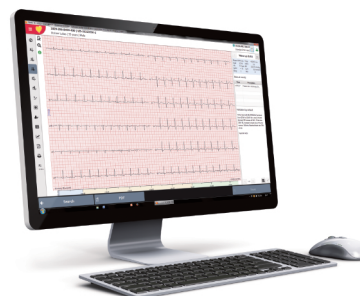
## + Blood gas integration

Offline entry of blood gases with automatic calculation of related parameters such as  $p_aO_2$

## + LFSport

Software combines ergospirometry analysis with lactate diagnostics & training plans - ideal tool for performance diagnostics.

- ✓ Training advice based on test results with heart rates
- ✓ Automatic import of LFX results
- ✓ Integrated training diaries
- ✓ Development of your own training programs
- ✓ Direct comparison of lactate and gas thresholds
- ✓ Determination of the anaerobic threshold and the respiratory compensation point



# WHY GANSHORN?

For 40 years GANSHORN has been manufacturing a complete state-of-the-art portfolio of pulmonary function testing systems for spirometry, bodyplethysmography, diffusion, bronchial provocation and cardiopulmonary stress testing. With its technological innovations, the company has been a leader in the diagnostics market since 1982. Many of these

are now perceived as gold standards. In order to meet our high quality standards, it is important to us that all key components are made in Germany. Our devices are created in modern processes in Bavaria, from the initial idea to distribution. In the meantime GANSHORN is represented worldwide, with strong markets in Europe, Asia, North and South America.



## PowerCube

Bodyplethysmography



## Vivatmo pro

FeNO monitoring



## SpiroScout

Spirometry



## tremoflo®

Airwave oscillometry



## PowerCube Diffusion+

Diffusion measurement



## EucapSys

EVH provocation



## Provo.X

Provocation testing



## AltiTrainer

Hypoxic challenge testing, hypoxia training



## PowerCube Ergo

Cardiopulmonary exercise testing (CPET)

**GANSHORN Medizin Electronic GmbH**  
Industriestr. 6-8 | 97618 Niederlauer, Germany

✉ [sales@ganshorn.de](mailto:sales@ganshorn.de)  
☎ +49 9771 6222 0  
🌐 [www.ganshorn.de](http://www.ganshorn.de)



019950157 – Rev 1.0



The model shown may also include optional equipment which is not within the standard scope of supply. Design, equipment, and contents are subject to change without notice, as are misprints and errors.