



# SpiroScout

## Desktop Spirometer

The first with ultrasound technology

# OVERVIEW

With the development of ultrasound flow measurement, GANSHORN opened new perspectives for spirometry and lung function testing. Based on simultaneous flow and molar mass determination the SpiroScout measures all spirometry parameters not only precisely and accurately, but also collects additional information about capnovolumetry, which adds another dimension to your diagnostic capabilities. Together with the LFX software the SpiroScout complies with current medical and technical standards.



**Highly accurate and precise**



**Calibration free**



**Compact and portable**



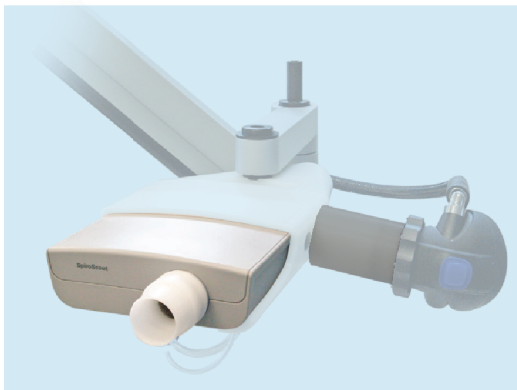
**Maintenance free**



**Reliable, ultra-fast and no warm-up time**



**Powerful, intuitive LFX software**

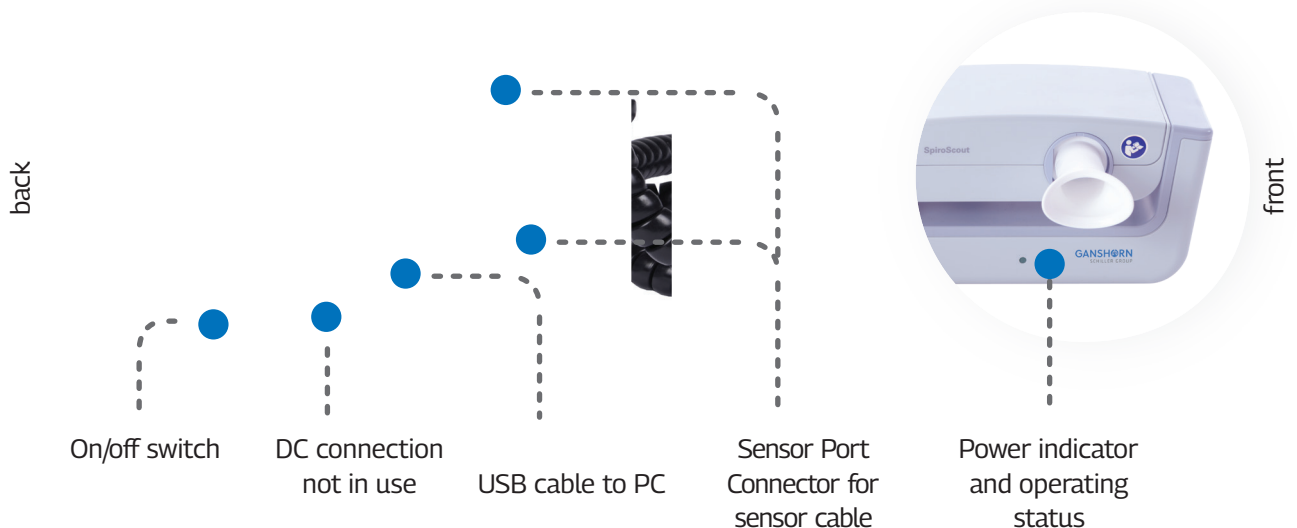


## Ultrasound technology

**The heart of GANSHORN diagnostic systems is its ultrasound sensor.**

SpiroScout, PowerCube Body+ as well as the PowerCube Diffusion+ are based on GANSHORN ultrasound technology. So every measurement comes with precise and direct digital sound pulse transit-time flow determination of lung function. Every system, every session result, always the same accuracy and precision.

## Connectors, controls, indicators



# MEASURING OPTIONS



## ScoutTube

Mouthpiece

ScoutTube is the disposable mouthpiece of SpiroScout. It is easy to use and a hygienic solution, as you simply change it with every patient. Using the ScoutTube allows to measure without added resistance from a filter. It suits all ages from children to adults, at all levels of health. ScoutTubes are permeable to ultrasound waves. However, due to the small window size of the mesh and its arrangement, contamination of the device is unlikely.

Shape encourages tight seal of lips, avoiding leaks

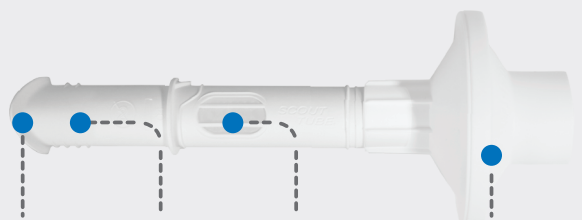
Cost-efficient

No cleaning needed (single patient use)

Eco-friendly biodegradable disposable

No added resistance

SpiroDef ScoutTube (back side mounted) protection against cross contamination and offers additional protection for operators and technicians



Comfortable lip seal

Riffles for teeth avoid slipping

Permeable for ultra sound waves

SpiroDef ScoutTube (back side mounted)



## SpiroDef

PFT filter

The SpiroDef contains a filter fleece matching highest quality standards. It provides an effective mechanical barrier for aerosols. This reliably filters aerosols, bacteria and viruses which prevents not only contamination of the device, but also protects the ambient air. The SpiroDef allows a clean, economical workflow and impresses with an ergonomic shape. The extra compact filter saves not only space, but also minimizes the use of plastic and thus reduces waste. In order to attach the filter to the SpiroScout, a permanent breathing tube\* (picture below) is necessary.

Integrated mouthpiece

Shape encourages tight seal of lips, avoiding leaks

More compact design saves storage

30% less plastics used than in comparable products

Comfortable to use

SpiroDef fleece with protective membrane

Comfortable lip seal

Fits not only all GANSHORN devices, but also most other PFT devices on the market



## Sustainability

To guarantee sustainability GANSHORN offsets the emissions generated during production, packaging, delivery and disposal of ScoutTubes and SpiroDefs.



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# MEASUREMENT PRINCIPLE AND SET UPS

Two diagonally opposite ultrasound transducers alternately send and receive ultrasonic waves. Without any air flow inside the breathing insert, the transit time of the ultrasound waves is the same in both directions. Any air flow inside the insert will accelerate the waves in one direction and decelerate in the other. The difference between the transit times of the ultrasonic waves allows to calculate the flow. Flow and gas density are calculated from the measured transit times, allowing changes in the concentration of the exhaled gases to be determined directly and at the same time with the respiratory volume.



ScoutSensor used with PowerCube Diffusion+

ScoutSensor used in PowerCube Body+

## UPGRADES & ADDITIONAL OPTIONS

### + Tidal breathing analysis

Tidal breathing analysis can be performed on patients who are unable to perform a spirometry measurement, e.g. young children and even neonates.



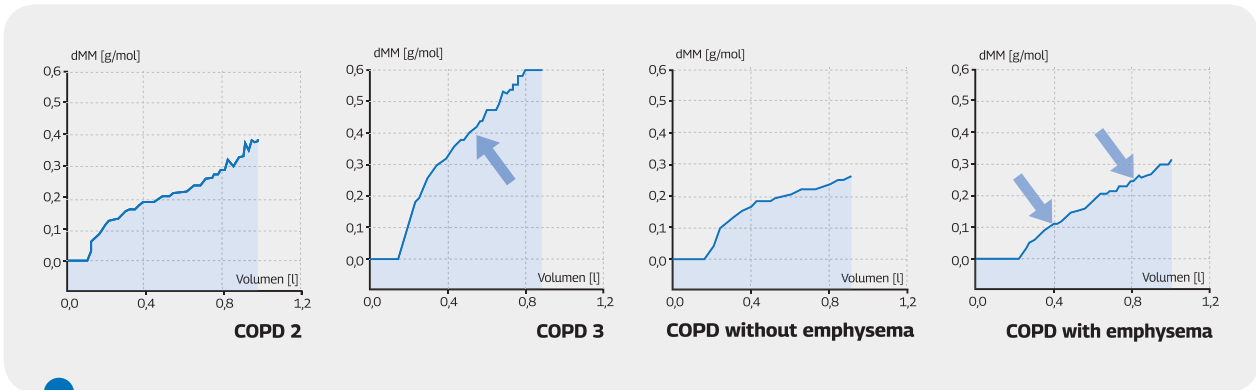
### + Rhinomanometry

Rhinomanometry is a form of manometry used to help evaluate the nasal cavity and the respiratory function of the nose. It measures pressure and flow during normal inspiration and expiration through the nose.



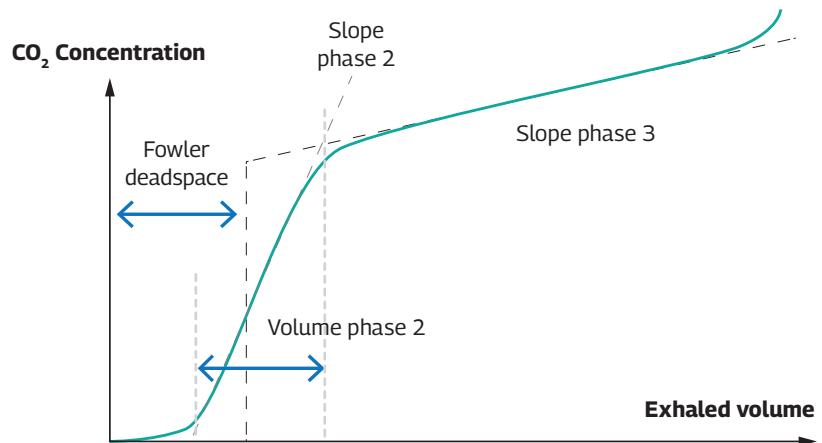
# Capnovolumetry option

**Capnovolumetry\* is the analysis of the exhaled CO<sub>2</sub> compared to the exhaled volume.** The CO<sub>2</sub> concentration of exhaled air is plotted against the exhaled volume and thereby the anatomical airway dead space as well as the functional airway dead space can be determined. This method is independent of patient cooperation and therefore especially useful for monitoring respiratory diseases in both paediatric and geriatric patients.



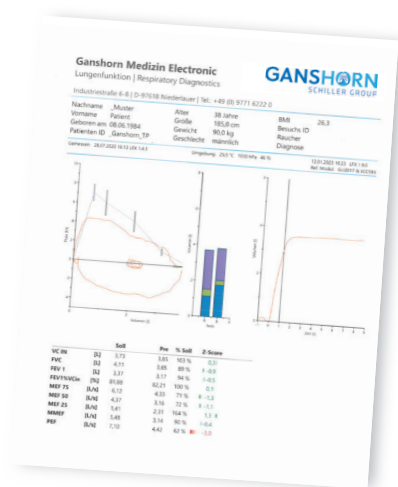
Example graphs of capnovolumetry in patients with COPD of GOLD 2 and 3 severity, and in patients with and without emphysema. With increasing severity as well as the presence of emphysema, phase 3 becomes steeper and the difference in the slope to phase 2 becomes smaller, correspondingly the quotient  $s_3/s_2$  becomes larger.<sup>1</sup>

\* works only with ScoutTube



## Software platform

The LFX software is the GANSHORN user-friendly interface, developed with the physiologist in mind. It provides all 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 software is the future of modern respiratory diagnostics. LFX has built-in quality control monitoring based on ATS/ERS guidelines, which are accessible during and after the measurements are performed.



1 Klütsch et al.: Value of ultrasound capnovolumetry in the differential diagnosis of obstructive airway diseases in clinical practice, TU Munich, Munich



SCHILLER, founded in 1974 by Alfred E. Schiller is a successful group with 30 subsidiaries and a global sales network. Today, SCHILLER is a world-leading manufacturer and supplier of devices for cardiopulmonary diagnostics, defibrillation and patient monitoring as well as software solutions for the medical industry.

Over the last 27 years, SCHILLER has established itself as a leader in the medical technology sector in India. With 400+ employees, two production centres and a R&D facility SCHILLER makes state-of-the-art healthcare equipment accessible through a network of 100 sales & service personnel spread across more than 45 locations. Our product range covers Critical Care, Anaesthesia, Emergency Care, Cardiology, Pulmonology, Radiology and Robotics.



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 high quality standards, all key components are made in Germany. All devices are created in modern processes in Bavaria, from the initial idea


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The Art of Diagnostics



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