

# RhinoFlowmetry *precision*

Current methods for functional rhinological diagnostics (RhinoManometry, RhinoResistometry, Acoustic Rhinometry) quantify the situation of the nose at the time of examination only. In clinical practice, patients often complain about temporary nasal obstruction, for example during the night. Additionally, discrepancy between conventional diagnostics, clinical symptoms and endoscopic findings can be seen. All currently used methods do not give insight into alterations by the nasal cycle or temporary nasal complaints.

RhinoCycle is a new portable, battery powered device for long-term registration of nasal airflow developed to monitor the nasal cycle and is based on a method called “RhinoFlowmetry”.



# The RhinoCycle *Module*

- Efficient Rhinoflowmetry

## Method

RhinoCycle is a complete 24-hour recording and investigation system for examination of the nasal cycle. The module performs long-term measurement of the inspiration (and expiration) flow through each nostril and a complete picture of the nasal cycle is monitored.

The system is ideal for home monitoring with few instructions from a professional. The patient can carry on with light to moderate activities and may sleep with the system.

The pressure fluctuations during nasal inspiration are transmitted to connected pressure transducers at the data-logger with the help of a nasal cannula fitted on both nasal sides at the bottom of the nasal vestibule. The measured data are stored on the memory card. The recorded data can be transferred to and analysed on a personal computer after measurement.

The pressure transducers are calibrated at a linear pressure-flow relationship and therefore the pressure can be used as a direct measure of nasal flow during inspiration.

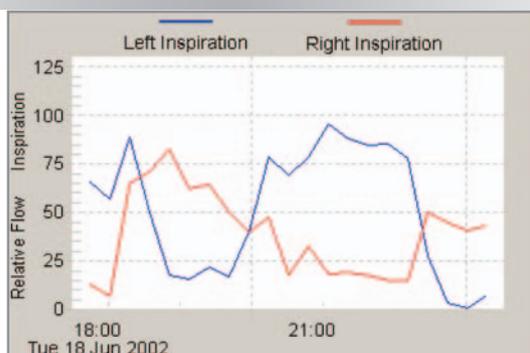
## RhinoCycle Concept

True flow-measurement performed by means of pressure transducers ensures high precision. The recorded data are presented as relative flow through the two nostrils.

At termination of the measurement the professional reads the data stored on the SD Memory Card into his own PC for further analysis. The RhinoCycle software provides an excellent overview of the nasal cycle variations to support the final diagnosis. It is a complementary tool in addition to the established rhinological diagnostics.

The results obtained by rhinoflowmetry are a supplement to other nasal investigation methods.

*Example of nasal cycle curve recorded with the RhinoCycle module.*



## What is a “Nasal Cycle”

A normal healthy nose has a cycle during which the mucosa in one nostril is active, while the other is resting. After a certain amount of time, they change and the other nostril becomes active. It may vary how long time the mucosa is active from person to person. If the cycle is abnormal, this may cause respiratory problems.

## Benefits

- Exact registration of the nasal cycle.
- Home monitoring.
- Easy to use software for analysis of monitored data on own pc.
- Helpful complementary tool in addition to the established rhinological diagnostics.

## Patient Group

Patients > 12 years.

The following patient groups can benefit from a rhinoflowmetry examination:

Patients with temporary nasal complaints.

Patients with perceived obstructions in the nasal passage.

Patients with nasal dysfunctions.

Prospective OSA-patients.

Patients who are going through a functional rhinosurgery (before and after).

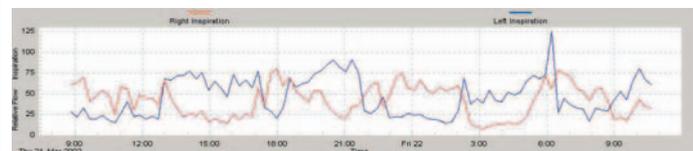
Patients with a discrepancy between their clinical symptoms, endoscopic findings and diagnosis based on conventional nasal analysis.

Patients suffering from allergy.

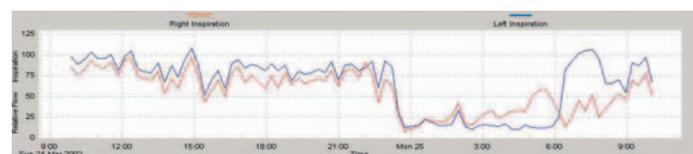
## Examples of Curves

These are examples of curves showing different nasal cycles recorded with RhinoCycle, both normal and also pathological nasal cycles.

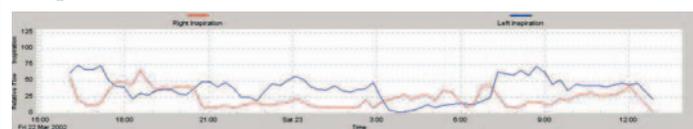
- Typical nasal cycle, short



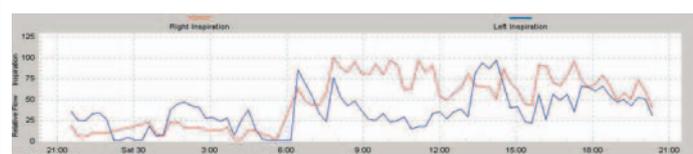
- In-Concert Nasal cycle



- Septum Deviation



- Nocturnal Nasal obstruction



# General Technical Specifications

## Approvals/certifications:

CE approved 93/42/EEC.

## RhinoCycle Description:

RhinoCycle is a complete 24-hour recording and investigation system for examination of the nasal cycle. The module performs long-term measurement of the inspiration (and expiration) flow through each nostril.

The system is ideal for home monitoring with few instructions from a professional. At termination of the measurement the professional reads the data stored on the Flash Memory Card into his own PC for further analysis. The RhinoCycle software provides an excellent overview of the nasal cycle variations to support the final diagnosis. It is a complementary tool in addition to the established rhinological diagnostics.

## RhinoCycle:

- Includes disposable, easy-to-fit, dual-flow cannulas.
- Performs 50 real time measurements per second to ensure high precision flow acquisition.
- Utilizes standard SD Memory Card for cost effective and flexible data storage.
- Comes with a standard USB-compatible SD Card Reader.
- One PC can be used for handling any number of RhinoCycle systems.
- Documentation of obtained results.
- Import from logger / Export to file for easy exchange of results with colleagues.
- Is easy to use.
- Ideal for home monitoring.
- Ultra light weight.
- Printing facilities.

## Combine RhinoCycle with other products from RhinoMetrics to support your nasal diagnosis:

RhinoScan (Acoustic Rhinometry).  
RhinoStream (RhinoManometry).

## Patient Groups:

Patients > 12 years with perceived nasal obstructions, nasal dysfunction, prospective OSA-patients and others.

## Measurement Duration:

24 hour monitoring is recommended but up to 76 hrs. is possible. Ideal for home monitoring. Patients can start and stop the device as per agreement with the professional.

## Measurement Method:

True flow-measurement performed by means of pressure transducers ensures high precision. The recorded data are presented as relative flow through the two nostrils.

## Hardware Description:

- The portable, ultra light weight RhinoCycle consists of:
- RhinoCycle Logger (one 1.5 V AA battery).
  - RhinoCycle Sensor.
  - Disposable, latex free, nasal cannula with a dual-flow tube, terminated with an easy-to-fit connector.
  - Moisture protected with special filter.
  - SD Memory Card, 128 MB (holds up to five measurements of 24 hours).
  - SD Card reader, SanDisk USB-compatible.
  - Serial Cable.

## Other RhinoCycle Data:

System Size: 11cm x 1,8 cm x 5,5 cm / (4,37" x 0,71" x 2,17").

System weight: 100 g.

Cannula weight 40 g.

## Software Description:

The RhinoCycle analysis software runs on a standard PC equipped with one serial port and USB. Please see the RhinoCycle User Manual for further details.

## Operating System:

The RhinoCycle analysis software is supported under:

Windows® 98 / ME/ 2000 / XP

## High Compatibility:

The usage of a standard SD Memory Card enables storage of a large amount of data. You also have a high compatibility for a variety of other PC systems.

## Hard Copy Output

Results can be printed in colour on all Windows®-based printers.

## Operating Conditions:

### Temperature:

10° C to 40° C.  
(50° F to 104° F).

### Humidity:

Max. 93% RH.

## Storage Conditions:

### Temperature:

-10° C to 55° C.  
(14° F to 131° F).

### Humidity:

10 to 90 % RH.

Non condensing.

## Included Parts:

RhinoCycle Logger  
RhinoCycle Sensor with dual-flow tube  
(attached to the logger)  
Batteries, Alkaline 1.5 V AA  
2 disposable dual-flow nasal cannula (one size)  
RhinoCycle software CD  
1 SD Memory Card  
SanDisk Card reader with USB cable and connector  
Serial cable for PC-connection in programming modus  
RhinoCycle user manual  
RhinoCycle Patient Guide

## Optional Parts:

RhinoCycle disposable dual-flow nasal cannulas  
(10 pcs), one size  
SD Memory Card  
Batteries, Alkaline 1.5 V AA

## Interacoustics A/S

Phone: +45 6371 3555

Fax: +45 6371 3522

E-mail: [info@interacoustics.com](mailto:info@interacoustics.com)

Web: [www.interacoustics.com](http://www.interacoustics.com)

Mail: Interacoustics A/S

DK-5610 Assens, Denmark

## Sales and Service in your area:

