Innocor® CO

- Quick measurement (~ 30 seconds)
- Suitable in children and adults at rest and during exercise
- Compact and portable design
- Optional metabolic gas exchange (VO_2, VCO_2, ...) and lung function testing
- Validated over multiple testing conditions

Non-Invasive Measurement Of Cardiac Output By Inert Gas Rebreathing

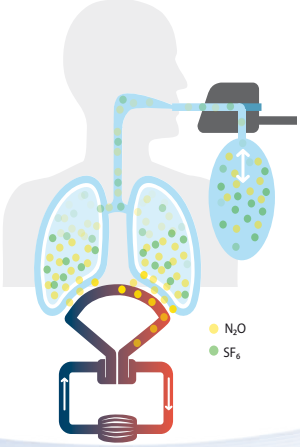
Cardiac Output (CO) is an important parameter for the assessment of hemodynamic and cardiovascular impairment.

Innocor® CO allows for non-invasive measurement of CO by employing the analytical principle of Inert Gas Rebreathing (IGR). The test consists in the subject breathing normally through the measuring device for about 5-6 breaths (or 15-30 s) while the device performs simultaneous measurement of N_2O (blood soluble gas) and SF_6 (tracer gas), delivered by the integrated gas cylinder in the first breathing stage.

The simplicity of the test manoeuvre together with the specifically designed patient and software interface makes the test suitable for both adults and children at rest and during exercise.

Cardiac output and metabolic measurements can be combined during cardiopulmonary exercise test thanks to the optional breath-by-breath gas exchange analysis module.

Innocor® CO utilizes a fast-responding photoacoustic infrared gas analyser with unmatched sensitivity, accuracy and stability which does not require daily calibration. Innocor® CO is validated in an impressive number of papers covering diverse conditions in health and disease, children and adults, rest and exercise.



COSMED
The Metabolic Company

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- *Fontana et al. Reliability of measurements with Innocor during exercise. Int J Sports Med. 2009 Oct;30(10):747-53.*
- *Saur J et al. The impact of pulmonary disease on noninvasive measurement of cardiac output by the inert gas rebreathing method. Lung. 2010;188:433–440.*
- *Agostoni et al. Reference values for peak exercise cardiac output in healthy individuals. Chest. 2017 Jun;151(6):1329-1337.*
- *Middlemiss et al.; ACCT Study Investigators. Evaluation of inert gas rebreathing for determination of cardiac output: influence of age, gender and body size. Hypertens Res. 2019 Jun;42(6):834-844.*
- *More scientific studies on www.cosmed.com/bibliography*

Compact and portable

Miniature gas cylinder using dilution with air

Patient interfaces for rest and exercise testing (children and adults)

Technical Specifications

Product	Description	REF
Innocor CO	Cardiac Output	INN00100-1
Standard Packaging	Innocor unit, respiratory valve, sampling line, 3L and 4L rebreathing bags, pulse oximeter, gas cylinder, mouthpieces (4 pcs), antibacterial filters (10 pcs), nose clips (5 pcs), software, power cord and user manual.	
Standard tests		
Cardiac Output	CO, Pulmonary Blood Flow, Lung Volume	
Optional tests		
CPET - Breath by Breath	Gas Exchange (VO_2, VCO_2, RER), Ventilatory (VE, VT, RR), Heart Rate, Spirometry (FVC, FEV_1)	
Lung Clearance Index	LCI, FRC	
Flowmeter		
Type	Differential pressure pneumotachometer	
Range (Standard size)	±15 L/s	
Flow accuracy	±2% rel. or ±20 mL/s	
Volume accuracy	±3% rel. or ±50 mL	
Sampling frequency	100 Hz	
Rebreathing valve		
Type	Pneumatic, with silicone valve insert	
Dead space, Standard/Compact (rebreathing)	50/11 mL	
Multi-Gas analyser		
Type	Photoacoustic spectroscopy	
Components and ranges	N_2O 0-2.5%, SF_6 0-0.5%, CO_2 0-10%	
Accuracy after calibration	± 1.5% rel.	
Signal-to-noise ratio	> 1000 @ half-scale (N_2O and SF_6) > 400 @ half-scale (CO_2)	
Sampling frequency	100 Hz	
Sample flow rate	120 mL/min	
Rise time (10-90%)	< 200 ms	
Oxygen sensor		
Type	Laser diode absorption spectroscopy	
Range	5-100%	
Accuracy after calibration	± 1.5% rel.	
Signal-to-noise ratio	> 500 @ 21% O_2	
Sampling frequency	100 Hz	
Sample flow rate (same flow as above)	120 mL/min	
Rise time (10-90%)	< 170 ms	
Gas supply		
Gas composition	5% N_2O, 1% SF_6, 94% O_2	
Cylinder capacity	18 L (0.15 L @ 124 bar & 21 °C)	
Approx. number of tests (at rest)	~75	
Hardware		
Dimension & Weight	35 x 29 x 26 cm / 8 kg	
Power supply	100-120 V / 200-240 V, 50/60 Hz	
Power consumption	30 W nom., 50 W max.	
Environmental		
Operating temperature	10 - 40 °C	
Operating pressure	525 - 800 mmHg	
Software		
Available languages	English (US/GB/IE), Danish, German, Italian, Spanish, Dutch, Portuguese, Swedish, French	
PC Configuration	Windows 10, RAM >1 GB, Hard Disk >16 GB, 1 USB port	
Safety & Quality Standards		
MDD (93/42 EEC), FDA 510(k), EN 60601-1 (safety) / EN 60601-1-2 (EMC)		

Innocor CO is manufactured by COSMED Nordic ApS

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To know more: