



- LCI to detect early peripheral airway damage in CF patients
- Greater sensitivity than spirometry
- SF₆ true insoluble gas resolves typical LCI pitfalls
- Outstanding gas analyser sensitivity, accuracy and stability
- Quick and child-friendly measurement at normal breathing
- The SF₆ gas mixture and low resistance design make the test extremely comfortable

Lung Clearance Index Measurements from Preschool Children to Adults

LCI is a marker of overall lung ventilation inhomogeneity; as pulmonary ventilation worsens, the number of tidal breaths and the expiratory volumes required to clear the lungs are increased, as documented by a greater value. The measurement involves a tracer gas which is recorded during a multiple breath washout (MBW) test.

LCI is a more sensitive marker of abnormalities than FEV₁, allowing early detection of disease in the smaller airways, down to small children and infants. LCI diagnostic tests are particularly important in the field of cystic fibrosis (CF).

Innocor® LCI stands out from traditional methods by using minimal amounts (0.2%) of SF₆ tracer gas. This patented technology represents an innovative solution to typical pitfalls: no influence of N₂ back-diffusion into the lungs from blood and tissues, no impact of

pure O₂ on breathing pattern or gas exchange, considerably shorter testing time and no sensitivity to inspiratory leaks.

Innocor® LCI uses a fast-responding photoacoustic infrared gas analyser with outstanding sensitivity, accuracy and stability.

The advanced wash-in wash-out technique makes test significantly shorter and eliminates the need for waiting time between manoeuvre or in case of manoeuvre failure (e.g. coughing or leaks).

The extremely low resistance of the specifically designed breathing circuit and avoiding the use of irritating O₂ concentrations guarantee the perfect patient experience for both adults and children.



COSMED

The Metabolic Company

Bibliography

- Horsley. Lung clearance index in the assessment of airways disease. *Respir Med.* 2009 Jun;103(6):793-9.
- Horsley et al. Closed circuit rebreathing to achieve inert gas wash-in for multiple breath wash-out. *ERJ Open Res.* 2016 Jan 22;2(1).
- Trinkmann et al. Multiple breath washout testing in adults with pulmonary disease and healthy controls - can fewer measurements eventually be more? *BMC Pulm Med.* 2017 Dec 11;17(1):185.
- ERS/ATS Consensus statement, Robinson et al. Consensus statement for inert gas washout measurement using multiple- and single-breath tests. *Eur Respir J.* 41; 507-522, 2013.
- More scientific studies on www.cosmed.com/bibliography



Patient interface for children and adults



Compact and portable



Several tests in miniature gas cylinder using dilution with air

Innocor LCI is manufactured by COSMED Nordic ApS



COSMED Srl

Via dei Piani di Monte Savello 37
Albano Laziale - Rome 00041, Italy

Phone: +39 (06) 931-5492
Fax: +39 (06) 931-4580

info@cosmed.com | cosmed.com

Technical Specifications

Product	Description	REF
Innocor LCI	Lung Clearance Index	A-661-221-006
Standard packaging	Innocor unit, compact respiratory valve w/ flowmeter and sampling line, 2L and 3L rebreathing bags, pulse oximeter, gas cylinder, mouthpieces (4 pcs), antibacterial filters (5 pcs adult & 5 pcs pediatric), nose clips (5 pcs), software, power cord and user manual.	
Standard tests		
Lung Clearance Index	LCI, FRC	
Optional tests		
Cardiac Output	CO, Pulmonary Blood Flow, Lung Volume	
CPET - Breath by Breath	Gas Exchange (VO ₂ , VCO ₂ , RER), Ventilatory (VE, VT, RR), Heart Rate, Spirometry (FVC, FEV ₁)	
Flowmeter		
Type	Differential pressure pneumotachometer	
Range (Standard size)	±100 L/min	
Sampling frequency	100 Hz	
Dead space	12 mL	
Rebreathing valve		
Type	Pneumatic, with silicone valve insert	
Dead space, Compact (non-rebreathing)	5 mL	
Multi-Gas analyzer		
Type	Photoacoustic spectroscopy	
Components and ranges	N ₂ O 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 ₂ O and SF ₆); > 400 @ half-scale (CO ₂)	
Sampling frequency	100 Hz	
Sample flow rate	120 mL/min	
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	
Gas supply		
Gas composition	5% N ₂ O, 1% SF ₆ , 94% O ₂	
Cylinder capacity	18 L (0.15 L @ 124 bar & 21 °C)	
Approx. number of test manoeuvres	~ 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), EN 60601-1 (safety) / EN 60601-1-2 (EMC)		



To know more:

