Q-Box

Body Plethysmography

"When one breath does matter"



Accuracy and simplicity for the new benchmark in Body Plethysmography

COSMED
The Metabolic Company

“The new generation of body-box cabin for lung volume measurement and airway resistance with the Gold Standard method of Body Plethysmography”

- **All-in-one solution for Lung Volumes, DLCO, Spirometry, Airways Resistance, and Respiratory Mechanics**
- **DLCO module for single-breath, intra-breath and membrane lung diffusion capacity**
- **Forced Oscillation Technique module for respiratory system assessment at tidal breathing**
- **Large cabin provides comfort while keeping high measurements accuracy**
- **Perform tests (except TGV and sRaw) either inside or outside the cabin**
- **Powered by OMNIA, the easy-to-use software with superior networking capabilities**



The Q-Box is the standalone body-box from COSMED for Gold Standard measurement of Static Lung Volumes (TLC, RV, TGV) and Airway Resistance and Conductance (RAW, GAW) through the body plethysmography technique.

Spirometry is standard in the Q-Box, together with the Respiratory Mechanics module, and both can be performed either inside or outside the cabin. The optional DLCO module allows also to perform lung diffusing capacity tests by using fast-response CO-CH_4 gas sensors. The optional Forced Oscillation Technique offers a method for non-invasive assessment of respiratory mechanics in unco-operative patients.

Q-Box unique and high quality components, highly accurate pneumotach and super-fast analyzers guarantee accurate results and make the Q-Box stand out from the competition.

The large cabin volume and the two handles allow comfortable and easy access for both adults and special populations.

The glass and aluminum structure provides large transparent surfaces, reliable hermetic seal.

The modular design allows easy maintenance and parts replacement on the field without the need of specialized technicians.

Body Plethysmography (TGV/RAW)

Body plethysmography tests can be quickly and easily performed in a single manoeuvre and the test sequence (TGV, sRAW, SVC, IC) can be defined according to user preferences.

- Large constant-volume cabin.
- Quick calibration and fast stabilization times.
- Adaptable arm with quick-release mechanism for one-hand adjustment and auto-locking.
- Door opens 180° with safety knobs.
- Simulate TGV occlusion with open door to comfortably coach your patients on testing manoeuvres.
- Ultimate pressure sensor transducers ensure maximum sensitivity with severe patient’s response.
- Possibility to capture multiple sRaw with one single click.
- Real-time review on all performed TGV and sRaw captures.
- Control bar for real-time quality control assessment.
- Integrated, transparent Compensation Box for external pressure changes interference removal.

Spirometry

The Q-Box standard configuration includes all accessories for spirometry testing (FVC, SVC, MMV, Pre/Post and Broncho Challenge).

- Choice of different flowmeter configurations (pneumotach or turbine).
- Innovative pediatric incentivation with user-defined effort grade on both volume and flow.
- System and operator Quality Control assessment.
- GOLD COPD interpretation for FVC PostBD.
- Compliance with ATS/ERS standards.
- Automatic control of the Broncho- Challenge protocols with or without the integrated dosimeter.
- Latest Global Lung Initiative (GLI) predicteds (including Z-score).



Arm with quick release mechanism for one-hand adjustment.

Respiratory Mechanics

Available as standard testing feature, the respiratory mechanics module includes:

- Maximal Inspiratory Pressure (MIP) and Maximal Expiratory Pressure (MEP).
- Respiratory Drive assessment (P0.1), including measurement with enriched O_2 or CO_2 inspiratory mixture.
- Intuitive display of all maneuvers with editing features.
- Graphical representation of main parameters, including pictograms.
- System and operator Quality Control assessment.
- Automatic interpretation of test results.
- Compliance with ATS/ERS guidelines.

Lung Diffusing Capacity (DLCO)

The DLCO module allows the measurement of diffusing capacity of Carbon Monoxide (CO) in the lungs with different test options: single-breath, intrabreath and membrane diffusion.

- Continuous analysis of CO and CH_4 (tracer) with fast NDIR analyzer.
- CO analyzer designed specifically for DLCO and thus independent from exhaled CO_2.
- Pneumatic line with minimal inspiratory resistance for high patient comfort.
- Test simulation (no gas delivered) to coach subjects before testing.
- Mouth pressure signal during DLCO testing for real time quality control.
- Advanced DLCO edit feature (automatic and custom selection of washout and alveolar gas volume).
- Breath-hold time settings according to various standards (Jones, Ogilvie, ESP).
- "0 wet" correction to compensate CO backpressure and humidity interference.
- Estimated TLC during DLCO, corrected for obstructed patients.
- Membrane Diffusion automatically enabled when performing multiple $DLCO_{sb}$ or $DLCO_{ib}$ manoeuvres.
- System and operator Quality Control assessment.

Forced Oscillation Technique

The Forced Oscillation Technique module is a system for the measurement of the mechanical properties of the respiratory system under tidal breathing conditions.

- Total Respiratory Impedance measurement by Pseudo Random Noise Signal.
- Quick and easy assessment during normal breathing.
- Ideal for uncooperative patients such as children or elderly people.
- Recognized reference method for pre-school children assessment.

OMNIA Software

Q-Box is powered by OMNIA, the software platform developed by COSMED to help clinicians provide the highest standard of patient care.

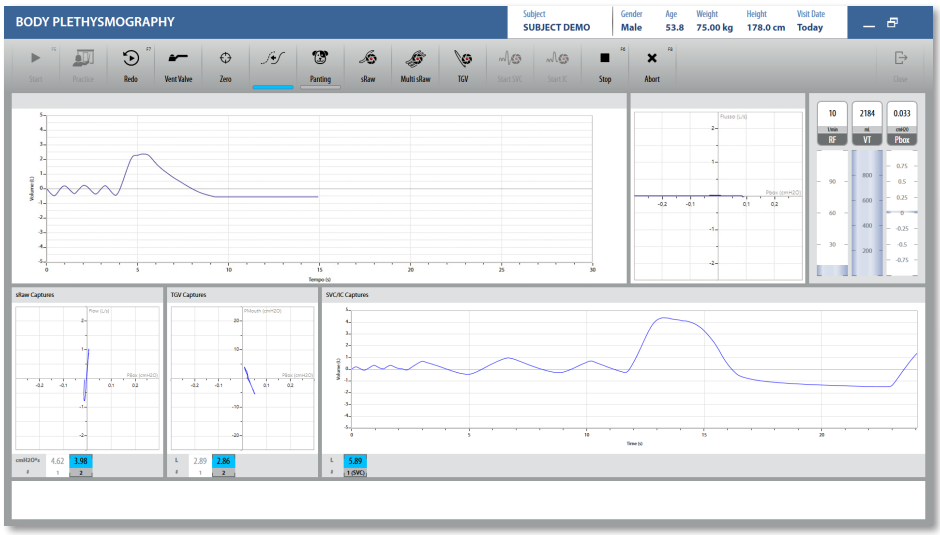
OMNIA features enhanced networking capabilities and is compatible with the entire COSMED product range, from spirometry to lung function equipment and from metabolic to body composition assessment.

- Seamless workflow minimizes time to testing and human errors.
- Innovative and easy-to-use user interface with native touch-screen design.
- Guidance tools and quality control feedback.

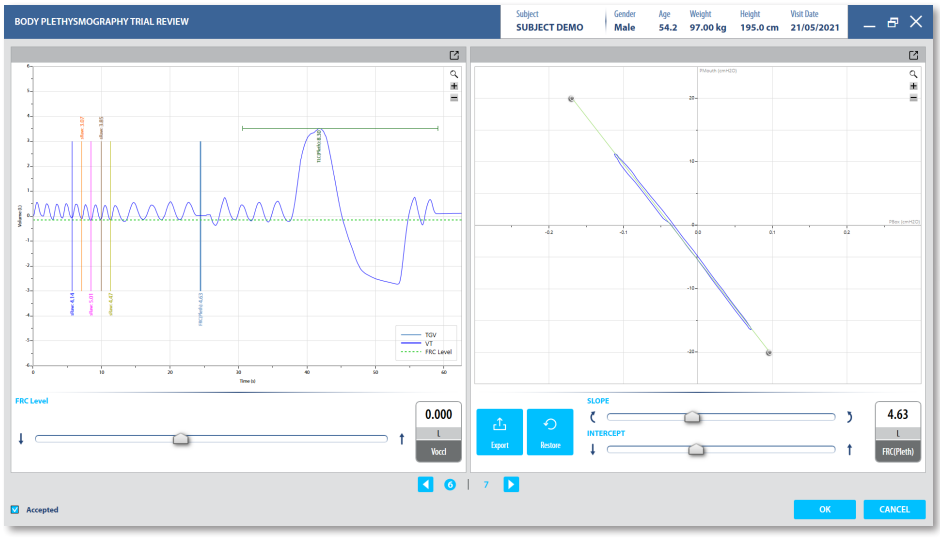


Wheelchair patients can be easily tested outside the cabin.

- SQL based database ensures data safety and protection.
- Share database and user settings over a local or geographically separated network with the possibility to define specific users' roles and rights.
- Integrate data and testing workflow with the Hospital Information System (HIS).



Real time Body Plethysmography testing.



TGV capture edit.

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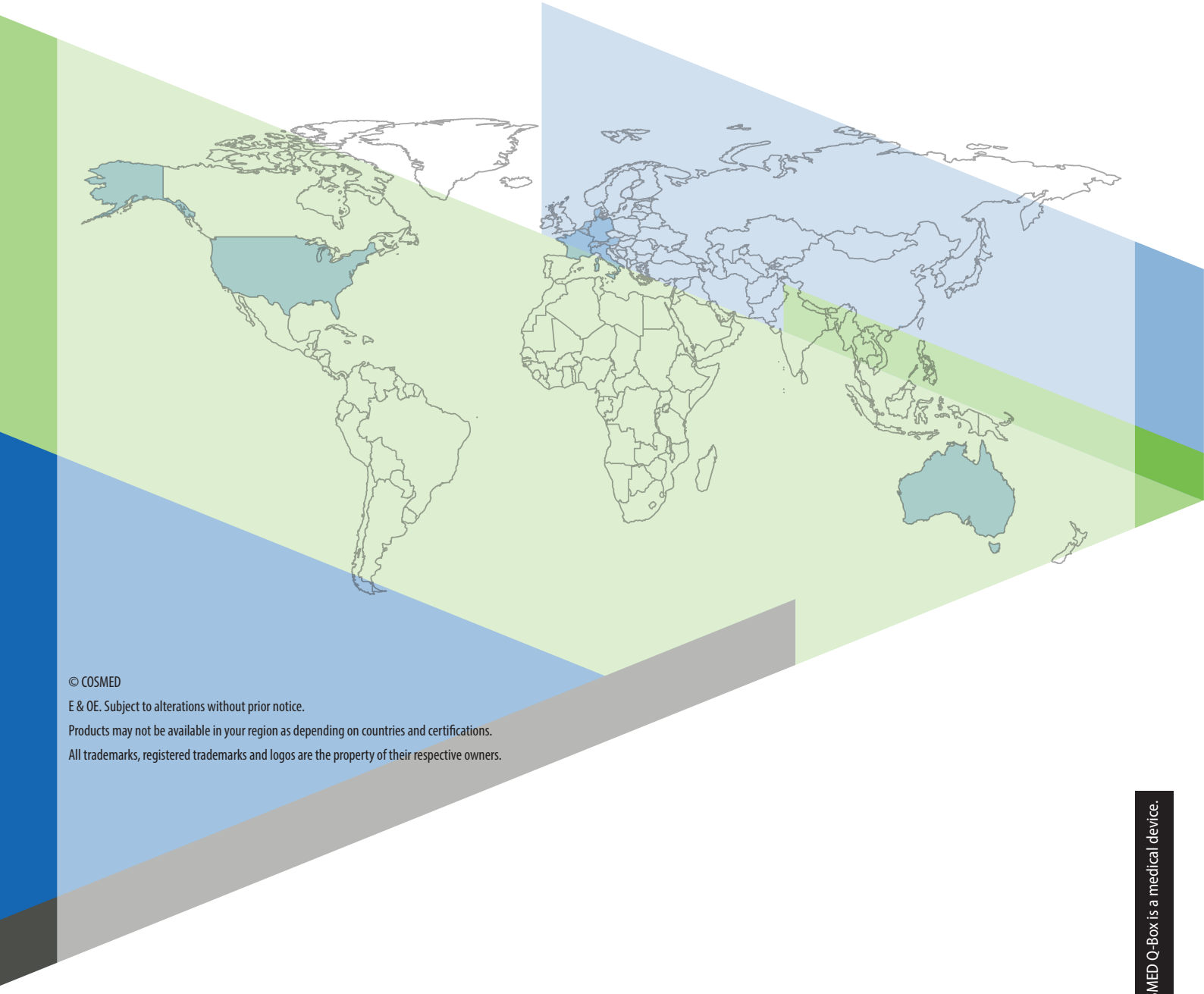
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COSMED Q-Box is a medical device.

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