testlung

the unique simulation

IMT.Analytics

Easy. Safe. Versatile.

Test lungs from IMT Analytics are an easy and cost-effective way to reliably test the function and precision of ventilators and anaesthesia machines.

Thanks to their adaptability they are ideal for using as part of training to simulate different types of ventilation. For example, they can be used to simulate inadequate application of volume due to unexpected leakages, or to test the accuracy of a ventilator for premature infants.

The use of IMT Analytics test lungs prepares nursing personnel and ventilation specialists for every type of critical situation even during their training.

Any risks associated with the use of ventilators can also be prevented by carrying out the simple functional and accuracy tests before using the equipment on patients.

« *Test lungs from IMT Analytics simulate a range of realistic ventilation situations during training.* »

Simulating different patient conditions

All tests that go beyond a simple functional check require an adaptable and adjustable test lung. This is the only way to check under real-life conditions how the ventilator responds to a change in patient condition.

A good test lung has a number of different settings for the airway resistance ranging from Rp5 to Rp200. The compliance (the 'stiffness' of the lung) should be adjustable between 1 mL/mbar and 500 mL/mbar depending on how it is to be used. It should also have a infinitely variable leak setting to simulate leaking tubes, mask leaks and faulty connections. Based on these requirements, we developed the SmartLung.

The sophisticated design means that IMT Analytics test lungs are compact and easy to operate. This makes them great for routine use. The low investment costs for our test lungs make them a reasonable alternative to other adjustable test lungs. Combined with an IMT Analytics Gas Flow Analyser, our instruments achieve maximum accuracy and are therefore a substitute for expensive test lungs with inaccurate measurement displays.

« *Test lungs from IMT Analytics give me security – before I've even started the ventilation therapy.* »

SmartLung 2000

Using the new SmartLung 2000, you can test whether a ventilator meets the requirements of the following standards: IEC 60601-2-12, IEC 60601-2-13 and EN 794-3.

Key Benefits

- 2000-mL bag
- Applicable volume from 0 to 1000 mL
- Testing according to IEC standards (ventilators and anaesthesia machines)
- The only test lung on the market that covers all the necessary test points
- Outstanding features for patient simulations in ventilator training

Together with the SmartLung Adult, you can carry out a functional check for a ventilator across all standards.

The SmartLung 2000 is the same size as conventional test lungs but has an adjustable compliance and a resistance that can be adjusted between Rp5 and Rp200. The adjustable leakage enables the user to verify the leak compensation of a ventilator. The patient trigger functions can also be verified.

The SmartLung 2000 is the ideal tool for testing ventilators and anaesthesia machines and the ideal supplement to FlowAnalyser and CITREX flow and pressure measurement devices. The slider can be adjusted to various lung compliance values without an adapter, allowing testing of various standards.

Leak   Resistance RP mbar / L / s   **Max. Volume 2000 mL**

IMT.Analytics

SmartLung™ 2000

Compliance
@ PEEP = 0 mbar

According to:
IEC 60601-2-12
IEC 60601-2-13
EN 794-3

25 mL/mbar
@ VT = 1000 mL

200 mL/kPa
@ VT = 300 mL

60 mL/mbar
@ VT = 1000 mL

75 mL/mbar
@ VT = 1000 mL

500 mL/kPa
@ VT = 500 mL

SmartLung Adult

SmartLung Adult is designed to ideally simulate adult lungs and is impressive thanks to its compact design and versatility.

Key Benefits

- 1000-mL bag
- Applicable volume from 0 to 600 mL
- The lung parameters resistance, compliance and leakage can be set to different levels
- Extremely handy and user friendly
- Top price-performance ratio

SmartLung provides the same performance as larger and more expensive test lungs. It is compact, very easy to operate and can be connected directly to the ventilator tubing system. Considering its price-performance comparison, the SmartLung is unbeatable. Airway resistance, compliance (lung 'stiffness') and leakage can be set to different levels.

SmartLung saves you from the bulky benchtop equipment necessary for the large test lungs. Different bag sizes simulate all patient lungs from a baby to an adult. SmartLung does not require any additional adapters.

The leakage simulation is infinitely variable and enables the ventilator to be tested for premature infants or mask ventilation. Even sensitive patient flow triggering can be reliably tested using the IMT Analytics SmartLung.

Together with the FlowAnalyser or CITREX precision measuring devices from IMT Analytics, you can measure pressure, flow and volume with the SmartLung.

Leak   Resistance RP mbar / L / s   **Max. Volume 600 mL**

IMT.Analytics

SmartLung™ Adult

Compliance mL / mbar
@ Vt = 400mL, PEEP = 0mbar

10

20

30

SmartLung Infant

SmartLung Infant simulates the lungs of young children while offering the same performance as its sister product, the SmartLung Adult.

Key Benefits

- 500-mL bag
- Applicable volume from 0 to 200 mL
- The lung parameters resistance, compliance and leakage can be set to different levels
- Extremely handy and user friendly
- Top price-performance ratio

SmartLung, the smart and cost-effective way to reliably test the function and precision of ventilators and anaesthesia machines.

EasyLung

EasyLung – The simple test lung for short routine tests.

Key Benefits

- 1000-mL bag
- Volume cannot be adjusted
- Parts made from robust materials, autoclavable at 134 °C
- Practical double taper connection with OD 22 and OD 15
- Compact and cost-effective

The EasyLung is a cost-effective, universally applicable test lung with many benefits for using with ventilators and anaesthesia machines. It can be used for validation purposes, for annual inspections or for routine short checks. The EasyLung combines a unique design with exchangeable parts made from high quality materials. The lung can be autoclaved at 134 °C and thanks to its double taper connection provides the ideal option to connect to different patient tubing systems.

High quality material

- High performance silicone bag
- Exchangeable individual parts
- Trusted IMT Analytics design

EasyLung Neonatal

EasyLung Neonatal is the ideal test lung for checking neonatal ventilators.

Key Benefits

- 20 mL @ PEEP = 0 mbar; P_{Insp} = 30 mbar
- Compliance: 0.7 mL/mbar @V_t 20 mL
- 45 mm × 150 mm
- Autoclavable

Using the EasyLung Neonatal, you can simulate the exact and sensitive ventilation situation that occurs with very small premature infants, newborns or small children which requires maximum precision when dosing the tidal volume.

The benefits of IMT Analytics test lungs

- Exchangeable individual parts
- Autoclavable
- High quality
- Durable material
- Patented

Adjustable resistance
Different airway resistances can be simulated by simply turning the connector.

Leakage simulation
The leakage can be adjusted by turning the screw on the side.

Adjustable compliance
Using the slider, various lung compliance values can be set without using an adapter.

Handy and mobile
Thanks to the practical carry bag, the test lung is always ready to go.

Summary of the technical specifications

	SmartLung Adult 2000	SmartLung Adult	SmartLung Infant	EasyLung	EasyLung Neonatal
Resistance	5, 25, 50, 200 mbar/L/s	5, 20, 50, 200 mbar/L/s	5, 20, 50, 200 mbar/L/s	20 mbar/L/s	–
Compliance	25, 60, 75 mL/mbar	10, 15, 20, 30 mL/mbar	1, 2, 3, 5 mL/mbar	25 mL/mbar @ $V_t = 500$ ml, PEEP = 0 mbar	0.7 mL/mbar @ $V_t = 20$ mL
Volume	0–1000 mL (with 2-L bag)	0–600 mL (with 1-L bag)	0–200 mL (with 0.5-L bag)	0–1000 mL (with 1-L bag)	0–20 mL
Leakage	Adjustable	Adjustable	Adjustable	–	–
Weight	400 g	325 g	285 g	190 g	25 g
Dimensions, L×W×H	400 × 140 × 40 mm	300 × 115 × 40 mm	270 × 115 × 40 mm	300 × 115 × 42 mm	150 × 45 × 45 mm
Components	Exchangeable	Exchangeable	Exchangeable	Exchangeable	–
Autoclavability	Sterilisable	Sterilisable	Sterilisable	Yes, at 134 °C	Yes, at 134 °C
Additional features	–	–	–	Double taper connection (OD 22 taper, OD 15 taper)	–

IMT.Analytics