



LÖWENSTEIN
medical

Neonatology

Everything for the safety of our smallest patients.

 With people in mind

Superlative product quality Made in Germany. We are Löwenstein.

Our portfolio

Löwenstein offers a comprehensive and complete product portfolio – from ventilation and anesthesia to neonatology. We develop the best concept for your hospital. Everything from a single source – always with people in mind.

Excellent service

In our comprehensive service concept, Löwenstein offers not only training and instruction for medical professionals, but also regular, on-schedule maintenance and expert repairs in accordance with manufacturer specifications. We are there when you need us.

Made in Germany

Löwenstein develops and manufactures medical technology in Germany. This allows us to guarantee that our products are synonymous with safety, reliability, and durability. Quality 'Made in Germany'.

Innovation and future

With many years of expertise and experience and close collaboration with users, Löwenstein is a driving force for innovation. Investments in research and development ensure forward-looking technologies.





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LEONI 4

Groundbreaking technology in neonatology. For a safe start in life.

LEONI 4 is the premium class in neonatal ventilation. Developed with over 30 years of expertise and experience in the ventilation of the most sensitive lungs and the tiniest people, LEONI 4 assures the technological safety that always has to be state-of-the-art in neonatology. And it goes one step further towards the future: with an agile system that keeps operation intuitive, configuration need-based and training requirements to a minimum. Together with Instant View Technology, enabling speedy detection of measurement deviations, LEONI 4 defines new standards in the safe ventilation of preterm babies.

The LEONI 4 ventilator is a device for invasive and non-invasive ventilation in intensive care. The device can be used for the ventilation of preterm babies, newborns, term infants and children with a body weight of up to 30 kg.

Future-oriented platform

LEONI 4 is ready for the future. The latest state-of-the-art hardware and software serve as a platform for future innovative developments.

Sustainability

All components are interchangeable. The modular design guarantees a long service life. Transportation routes are kept short, and components are manufactured in Germany. The HFO double diaphragm significantly reduces fresh gas consumption. The LEONI 4 is made in Germany.

Ergonomics

The ergonomical device design sets itself apart in that all of the essential connections are easily accessible from the front of the unit.

In addition, the LEONI 4 features a swivel- and tilt-adjustable display that can be detached for customized bed space configurations and locked for cleaning purposes. Programmable short cuts facilitate quick access to the most important functions.

The LEONI 4 meets the requirements of a modern and ergonomical workspace through its design and functionality.

Instant View Technology - resolution & display size.

The Full HD resolution of the 15.6" display shows all parameters, curves and loops in great detail. Intuitive detection of patient situations and changes from almost any position in the room.

The touch display, along with the alternative rotary push encoder, ensures safe and efficient operation. The baby and the device remain in focus at the same time.





Key product benefits at a glance:

- Future-oriented platform concept thanks to state-of-the-art hardware and software
- Safety through intuitive configuration and immediate capture of all essential parameters
- Ergonomic device design with easily accessible connections on the front
- Intelligent system architecture significantly reduces noise and light emissions
- High-frequency oscillatory ventilation using the double-membrane principle with active inspiration and expiration*
- All ventilation modes use the same tubing system, eliminating the need for risky system changes.
- End-tidal CO₂ mainstream measurement*
- Applicable tidal volumes from 0.1 ml for ventilating the smallest preterm infants
- The battery concept allows for up to 6 hours* of independent operation without a power supply.
- The 15.6" Full HD display is detachable for customized bed space configurations*.
- Secure and flexible interface communication with external information systems
- Screensaver for peaceful parent-child time.
- Alarm management through prioritization, delay options, and output to external media.
- CLAC® – Closed-Loop-Automatic Oxygen Control*
- NIV trigger with abdominal sensor*
- Nasal high-flow therapy without separate tubing system*
- Paramagnetic oxygen sensor optional*
- Sustainable and service-friendly system architecture

* optional at extra charge

Leoni plus

Top level neonatal intensive care ventilation.



Our expertise. For our youngest patients.

Leoni Plus, the long-established ventilator from Löwenstein Medical, is designed for long-term ventilation of very small preterm babies, newborns, and children up to 30 kg in body weight. The wide range of 38 invasive and non-invasive ventilation modes allows the user to provide optimal and individualized care for all patients. Triggered invasive and non-invasive modes, high-frequency oscillation, and high-flow therapy, along with the option for volume limitation and volume guarantee, complete the range of customization options. This way, Leoni Plus reliably supports preterm and newborn infants during their challenging start in life.

Highly precise trigger adaptation

The precise, patient-near heat wire flow sensor enables automatic adjustment of the trigger sensitivity relative to the patient's tidal volume (VT trigger adaptation).

High-frequency oscillatory ventilation based on the membrane principle.

The highly efficient high-frequency module Leoni Plus HFO operates based on the double-membrane principle and can be integrated as an option. The bidirectional flow, adjustable frequencies between 5 and 20 Hz, and amplitudes up to 100 mbar enable lung-protective alveolar oxygenation and highly efficient CO₂ elimination. HFO is available for both invasive and non-invasive ventilation. Spontaneous breathing is always possible and is supported by adjustable recruitment maneuvers and volume guarantee. Amplitude control is regulated and compensates for leaks and changes in compliance.

Safety through configuration and intuitive ventilation

Simple and intuitive operation via a 12" LCD color touch display or alternatively via a control knob.

The display can be detached and mounted according to your individual preferences and environment for optimal ergonomic adaptation to the spatial conditions on the ward. All key settings, measurement values, alarm limits, and graphical information such as curves and loops are available at a glance. The display can be configured by the user to suit individual needs. The number of curves and loops, as well as the displayed measurement values, can be freely selected.

Abdominal sensor

In the first few months of life, diaphragmatic or abdominal breathing is very pronounced in our smallest patients. What could be more natural than monitoring children's breathing activity at the diaphragm and using the signals gathered to trigger inhalation and exhalation?

With the Löwenstein abdominal sensor, it is possible to generate reliable trigger signals for non-invasive ventilation without direct intervention in the breathing mechanics, without additional weight on the patient interface and without increasing the dead volume.

Our Leoni plus neonatal ventilator synchronizes the non-invasive ventilation modes s-nIPPV and s-nCPAP with the optional abdominal sensor and simultaneously functions as apnea monitoring in both ventilation modes.

Key product benefits at a glance:

- High-frequency oscillatory ventilation (HFO) based on the diaphragm principle
- Volume-controlled ventilation
- Pressure Support Ventilation (PSV)
- NIV (nCPAP, s-nCPAP, nIPPV, s-nIPPV, HiFlow, nHFO (with NeoJet))*
- VT trigger adaptation
- 12" LCD color touch display, removable
- Easy operation – no submenus
- Curves and loops
- Battery supply for up to 200 minutes



Leoni plus Transport

Patient transport during HFO – no problem with Leoni plus Transport.

Leoni plus Transport expands the range of applications, especially in patient transport. The integrated high-performance battery allows for up to 200 minutes of independent operation in conventional ventilation modes and up to 60 minutes in HFO. By enabling free selection of the number of curves and loops, as well as the displayed measurement values, the display is specifically tailored to the user's requirements.

Leoni Plus Transport offers comprehensive forms of ventilation, including CPAP, IPPV/IMV, S-IPPV/SIMV, and two PSV modes, as well as NIV (nCPAP, nIPPV, HiFlow, nHFO [with NeoJet])^{*} and HFO. Leoni Plus Transport is distinguished by its transport approval for ground-based transport, helicopters, and airplanes.

Key product benefits at a glance:

- Simple and intuitive operation
- Uncompromising ventilation performance
- Transport approval
- The only transport ventilator with HFO flight approval.



Flight approval according to RTCA DO-160.



Approval for road transport (EN 1789).



Intended for in-hospital transport.



Flight approval according to RTCA DO-160.



CLAC 2.0

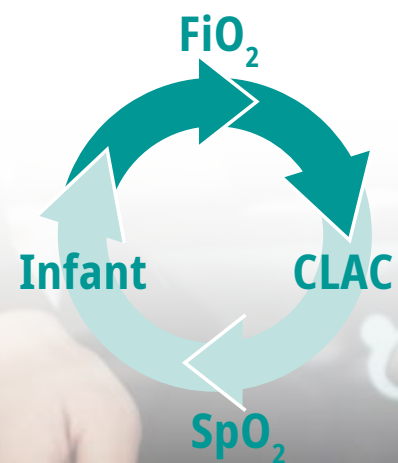
Familiar safety with an optimized control algorithm.

Löwenstein has developed a unique algorithm for automated oxygen control in premature and newborn babies (CLAC: Closed-Loop Automatic Oxygen Control) and integrated it into the LEONI family.

The entire operation, including the visualization of measurement data and alarm settings, is managed through the ventilator's user interface. The user can quickly assess the patient's current status through the graphically displayed overview.

CLAC relieves users of the routine adjustment of inspiratory oxygen in the breathing gas (FiO_2) by continuously monitoring the patient's demand and condition and adjusting the device settings accordingly.

Manual intervention is always possible whenever needed.



Neojet system

The nCPAP system for preterm babies and neonates.

Neojet supports the spontaneous breathing of preterm or term neonates. The system consists of Neojet, adaptation tubing set, prongs, masks, measuring tape, and fixation caps.

Neojet is securely attached to the newborn's head using the user-friendly fixation caps. Neojet is applied to the small patient's nose through short binaural prongs or soft, gentle nasal masks.

- **Neojet active/variable flow nCPAP generator:**
The function of this generator is to support spontaneous breathing in newborns by applying an adjustable jet with a constant positive pressure. Suitable for preterm and term infants up to a tidal volume of 20 ml.
- **Neojet adaptation tubing set:** For the LEONI family. Individually packaged for single use.
- **Nasal masks:** Individually packaged for single use, featuring soft silicone and an anatomical shape.
- **Nasal prongs:** Individually packaged for single use, in combination with the active Neojet. Available in various sizes.

Key product benefits at a glance:

- Low noise level
- Pressure trigger and spontaneous breath detection without the need for an additional sensor.
- Flexible adapter for positioning of prong and mask
- Patented Flextubes for easy application
- Based on the Benveniste valve with a volume reservoir.

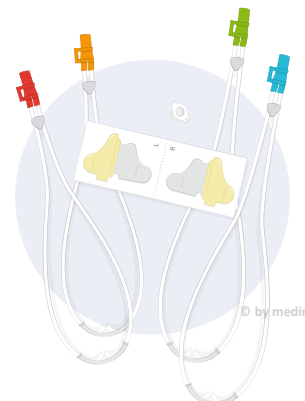


Nuflow®

Nuflow® high-flow cannulas made of soft, skin-compatible silicone strike the perfect balance between effective therapy and maximum wearing comfort. Even the smallest cannula size allows flow rates of up to 8 LPM, meeting the current standard for the use of HFNC in neonatology.

Key product benefits at a glance:

- High patient comfort
- Low noise level and system backpressure
- Individual, skin-friendly fixation.
- Anatomically shaped prongs.



WILAflow Elite

The new generation of nCPAP ventilation for preterm and newborn infants.

WILAflow Elite is a microprocessor-controlled, non-invasive ventilator. It has been specifically developed for the ventilation of preterm and newborn infants, who are particularly vulnerable to lung diseases.

WILAflow Elite allows proximal pressure monitoring without compromising mechanical dead volume and compliance. The device ensures a consistently accurate measurement of airway pressure in the patient.

Key product benefits at a glance:

- Fully automatic pressure adjustment
- Direct adjustment of oxygen concentration
- Precise oxygen concentration
- Innovative control of gas and pressure supply with iFlow
- Safe weaning off ventilation with SNIPPV/NIPPV, NCPAP and HFNC modes
- Safe and reliable proximal pressure monitoring
- Active respiratory air humidification





Respiratory air humidifier

AIRcon Gen2

The AIRcon Gen2 respiratory air humidifier combines advanced technology and innovative design into a cohesive unit. In doing so, it meets both the medical needs and the economic expectations of the market. The result is optimally conditioned patient gas that protects the mucous membranes of mechanically ventilated patients from drying out and prevents impairment of mucociliary clearance.

Key product benefits at a glance:

- Self-explanatory through icons and pictograms.
- Standby function for necessary therapeutic interventions.
- 3 functional modes (IV, NIV, FREE)
- Overboost function for the expiratory heating wire
- Compatible with all ventilators.
- Heater wire splitter cable.
- Intelligent alarm management
- Automatic water level monitoring.
- Event and alarm protocol.



LM 2000

The LM 2000 is a new generation of active humidification systems designed for use with newborns, children, and adults. The large touchscreen provides comfortable and quick access to all necessary information and functions.

Key product benefits at a glance:

- Individual intuitive temperature setting
- Adjustable modes: Invasive/non-invasive/weaning
- Screen saver for night mode
- Automatic water chamber detection
- Electronic water level detection
- Adjustable temperature and humidity settings



Isotherm

Heat emitter

The Isotherm heat emitter from Löwenstein has been specifically designed for warming changing tables and maintaining the body temperature of infants. The Isotherm is equipped with a ceramic heating element and an integrated halogen examination light. The integrated ceramic emitter has excellent radiation properties and generates invisible infrared radiation, which is easily absorbed by the infant's skin.

Key product benefits at a glance:

- Ceramic, soot-free heating element with integrated LED examination light (glare-free)
- The reduced surface temperature has little effect on the room temperature.
- Controlled power dosing of the radiation intensity
- Even heat distribution
- Does not emit visible infrared light (the skin color remains neutral)
- Optional mounting on a mobile stand or wall mounting solutions



Isotherm - Wall unit



Isotherm - Floor-standing unit

Lifetherm

Tried and tested and flexible.

Lifetherm 2000 warming bed

Thanks to uniform contact heat via the gel mattress, the Lifetherm 2000 warming bed offers reliable and precise body temperature regulation. The electric tilt and height adjustment facilitates virtually silent and vibration-free movement of the bed.

This creates an environment for the newborn that ideally promotes their development.

The Lifetherm 2000 can be customized and equipped with a wide range of optional accessories.

A core principle of gentle care is to reduce stress for young patients, their relatives and, of course, the nursing staff. Combined with Löwenstein Medical's experience in the field of heat therapy, this understanding has given rise to a user-friendly and development-oriented family of devices. An extensive range of accessories facilitates adaptation to the specific requirements at hand.



Key product benefits at a glance:

- effective heat transfer through surface heating
- precise electronic setting of the target temperature
- display of the actual temperature
- infinitely variable electronic height adjustment with foot switches on both sides
- gentle electric tilting of the lying surface at the touch of a button
- wide collapsible side panels
- double-sided hinged and one-piece cover hood available*
- extensive range of accessories*

* Optional accessories

Our product illustrations include special accessories that can be ordered in addition to the standard product. Ask us for details.



Lifetherm 2002/2003 resuscitation units

Lifetherm resuscitation units are a family of warming therapy systems for the initial care of premature and newborn babies. The Lifetherm 2002/2003 creates an excellent warming environment for the small patient and, with its wide range of options, assures optimal adaptation to the needs of the infant and the user.

Key product benefits at a glance:

- swivel-mounted, fast-reacting radiant heater with integrated LED examination light
- conductive warming through heated gel mattress¹
- quiet and vibration-free electric height adjustment with foot switch operation on both sides
- gentle electric tilting of the lying surface at the touch of a button
- collapsible side panels available in different heights
- skin temperature control and display (accuracy $\pm 0.1^{\circ}\text{C}$)**
- double-sided hinged and one-piece cover hood available for the lying surface*
- fixed bars for attaching accessories such as trays and ventilators
- standard rails for attaching accessories such as catheter holders, storage trays or suction*



In combination with a ventilator, the Lifetherm 2003 resuscitation unit is suitable for use in the initial care of infants with a ventilation and warming therapy unit.

* Optional accessories

** Basic equipment Lifetherm 2002

¹ Gel mattress only in combination with the heated bed surface

Our product illustrations include special accessories that can be ordered in addition to the standard product. Ask us for details.

bilibluelight

Effective therapy for lowering the serum bilirubin concentration in the blood of premature infants and newborns.

The new bilibluelight bilirubin lamp by Löwenstein Medical is an effective, modern phototherapy system for reducing serum bilirubin levels.

The user-friendly bilibluelight offers intuitive operation, high-quality design and low weight. It features powerful high-quality LEDs with a capacity of over 40,000 operating hours. The wavelength ensures maximum bilirubin reduction.

The compact, lightweight bilibluelight is perfectly suited for use in neonatal and pediatric wards. The light is available as a single-arm rod lamp on a rolling stand.

Key product benefits at a glance:

- High radiation intensity and ideal ultraviolet wavelength
- High-quality workmanship, made of sturdy aluminum and fiberglass-reinforced plastic
- Rolling stand optionally available



bilibluelight with optional rolling stand



bilibluelight as a surface-mounted light





eyemax²

eyemax² offers neonatal eye protection for UV phototherapy. eyemax² is available in three different sizes:



Micro
OFC 20 to 26 cm

Preemie
OFC 26 to 32 cm

Regular
OFC 32 to 38 cm



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