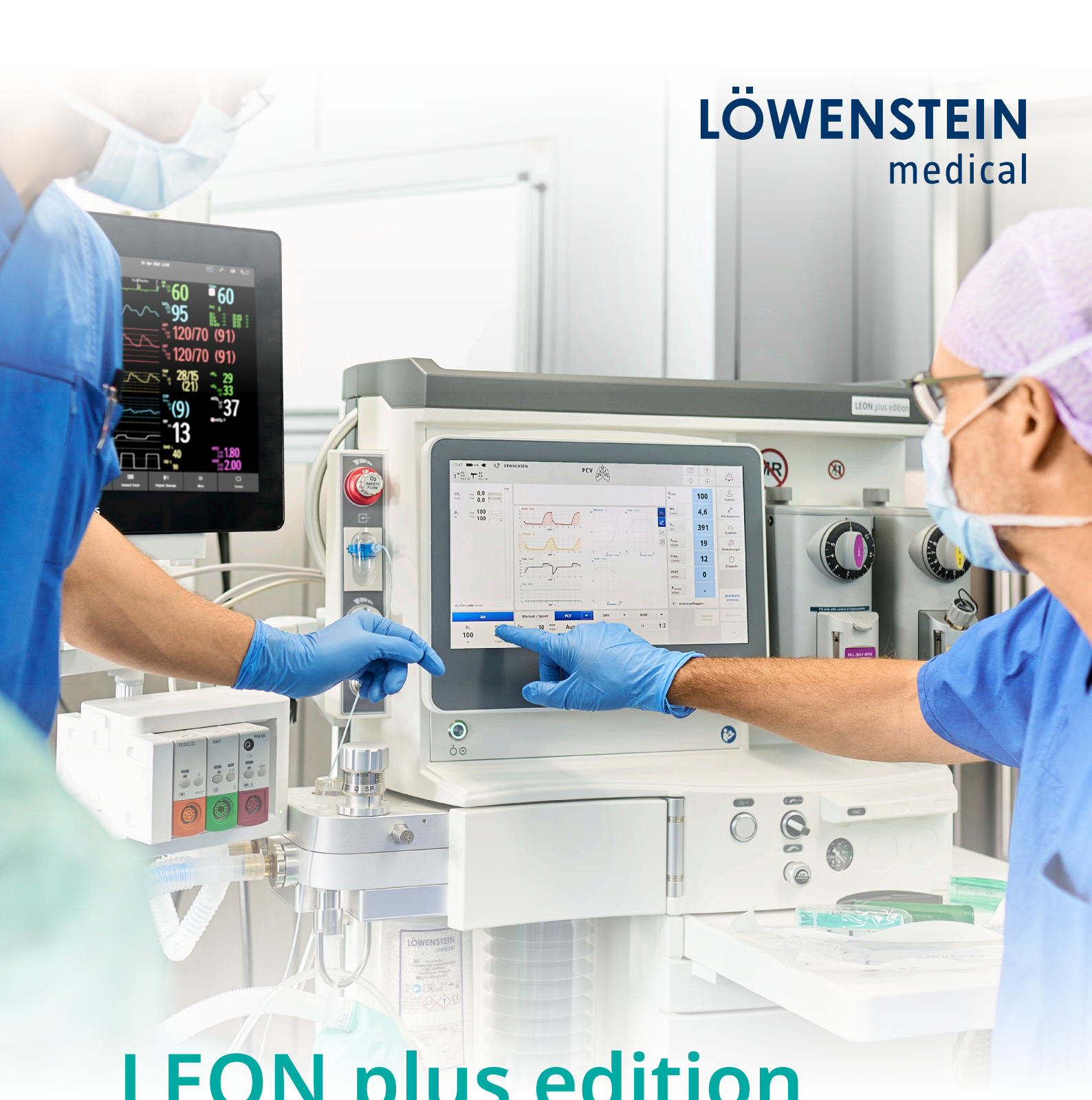
LÖWENSTEIN
medical



LEON plus edition

True to itself. Ready for the future.

With people in mind

LEON plus edition

Made for modern anesthesia.

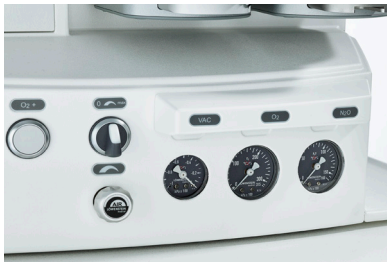
The LEON plus edition is consistently geared to the requirements of modern anesthesia and at the same time builds on proven technology. With proven technology and lung-protective ventilation modes, it ensures safety during anesthesia and, thanks to enhanced IT performance, is well prepared for future developments.

As a workstation, the LEON plus edition adapts to the requirements of modern clinical practice. It facilitates the anesthesiology work flow with ergonomic components such as the new tilt and swivel monitor and, thanks to its customizable configuration options, integrates seamlessly into various clinical work flows.

Technical data

Basic data LEON plus edition	
Weight	155 kg (may vary depending on equipment)
Trolley	Trolley: 140 x 92 x 67 cm (H x W x D) Minimum drive-through width: 70 cm Trolley with 4 antistatic castors, all individually lockable Pull-out writing table: 45 x 30 cm (W x D) 3 drawers: 14 x 27 x 30 cm (H x W x D) Optional: Central brake for all 4 castors
Wall mounting	Coming soon
Ceiling pendant mounting	Coming soon
Ambient conditions (in operation)	
Ambient temperature	+ 15 °C to + 35 °C
Relative humidity	20% - 80%, non-condensing
Air pressure	700 - 1060 hPa
Electromagnetic compatibility	
Corresponds to standard	EN 60601-1-2
Mains voltage/power supply	
Mains voltage	100 - 240 V (AC), 50/60 Hz
Auxiliary sockets	4 pieces, each fused with 2 x T 2 A
Battery life	> 100 min (with fully charged batteries)
Gas connections	
Quantity, type	Connections for gases from the central gas supply for O_2, N_2O and AIR Reserve gas cylinder connections for O_2 and N_2O. Display of the pressure of the reserve gas cylinders Integrated vacuum source for bronchial suction with vacuum indicator Monitoring of cylinder supply pressures with display on the screen (10 l cylinders)
Supply pressure	2.8 - 6.0 kPa x 100 (bar)
Connection type	NIST
Gas control, gas mixer, etc.	
Fresh gas generator	Fresh gas generator Electronic mixer for 3 gases O_2 adjustment range: 21-100 vol.% with N_2O as carrier gas: 25-100 vol.% (Ratio System) 100% O_2 at a fresh gas flow of 200 mL/min. Selection of gas mixture and flow setting via on-screen display Low and minimal flow suitable

Circular system, breathing system	
Circular system	Fresh gas decoupled and heated circuit system Complete with absorber tank Inspiratory and expiratory flow measurement, decoupled APL
Respiratory system	All components completely latex-free
Patient connections	22 mm outside/15 mm inside ISO cones
CO_2-absorber	
Absorber	Can be fitted with either disposable or reusable absorbers (both can be replaced during operation) Disposable absorbers Leonsorb plus and Leonsorb premium (can absorb more than 150 liters
APL-valve	
Settings area	Spontaneous breathing (SP) and adjustable ventilation pressures up to a maximum of 80 Pa × 100, with tactile detents and rapid pressure relief (quick venting).
Anesthetic vaporizer connections	
Connection type	Selectatec® or Dräger compatible vaporizer connections for 2 Inter-Loc compatible anesthetic vaporizers
Suction and gas outlet	
Suction	Optional: Air suction (Venturi injector principle) or vacuum suction
Gas outlet	Optional: External fresh gas outlet or O_2 outlet
Anesthetic ventilator	
Ventilator	Pneumatically driven and electronically controlled, suspended bellows, pressure-limited, compliance-compensated
Screen	15.6" TFT display, color, touchscreen, tilt and swivel function
Graphic representations	Option to display up to four real-time waveforms simultaneously, with complete data management and trend visualization
Waveform display	Pressure, flow, volume O_2, CO_2, N_2O Anesthetics (volatile anesthetics) with ID
Ventilator settings	2 volume-controlled modes (IMV, SIMV) 2 pressure-controlled modes (PCV, S-PCV) 1 pressure/flow-controlled mode (PSV) Optional: HLM mode 1 manual ventilation/spontaneous breathing (MAN/SPONT) 1 monitor (MON)
Inspiratory flow	Max. 160 l/min



Integrated bronchial suction

Integrated gas monitoring, safety flowmeter and oxygen flowmeter

Interfaces for forwarding data for anesthesia logging or PDMS

Heated compact circuit system to prevent condensation

Technical data

Volume-controlled ventilation (IMV)	
Tidal volume - V_{Ti}	3 - 1600 ml
Ventilation frequency	4 - 100 1/min
I:E ratio	1:4 - 4:1 (in increments of 0.1)
PEEP	Off, 1 - 30 mbar
Plateau	Off, 10 - 50% (in increments of 5%)
Pressure limitation P_{MAX}	10 - 80 mbar
Synchronized volume-controlled ventilation (S-IMV)	
Tidal volume - V_{Ti}	3 - 1600 ml
Inspiration time TI_{NSP}	0.2 - 10 s
Ventilation frequency	4 - 60 1/min
PEEP	Off, 1 - 30 mbar
Plateau	Off, 10 - 50% (in increments of 5%)
Pressure limitation P_{MAX}	10 - 80 mbar
Trigger threshold	0.1 - 10 l/min
Pressure-controlled ventilation (PCV)	
Ventilation frequency	4 - 100 1/min
I:E ratio	1:4 - 4:1 (in increments of 0.1)
Plateau	10 - 90% (in increments of 5%)
Ventilation pressure P_{INSP}	5 - 60 mbar
Leak	According to DIN EN ISO 80601-2-13 < 150 ml/min at 30 mbar
PEEP	Aus, 1 – 30 mbar
Synchronized pressure-controlled ventilation (S-PCV)	
Ventilation frequency	4 - 60 1/min
Inspiration time T_{INSP}	0.2 - 10 s
Plateau	10 - 90% (in increments of 5%)
Ventilation pressure P_{INSP}	5 - 60 mbar
PEEP	Off, 1 - 30 mbar
Trigger threshold	0.1 - 10 l/min
Pressure-supported spontaneous breathing (PSV Assist)	
PEEP	Off, 1 - 30 mbar
Trigger threshold	0.1 - 10 l/min
Backup	1, 2, 3, 4, 6, 8, 10, 15, 30, 45 seconds

Manual ventilation	
Manual resuscitation bag	Manual ventilation is performed using a manual resuscitation bag that serves as a reservoir.
Safety devices	
Minimum O_2 concentration	Electronic control of fresh gas activation ensures that, in an O_2/N_2O gas mixture, the oxygen concentration cannot fall below 25%. Fresh gas O2 (100%) of at least 200 ml/min is guaranteed (except HLM)
Safety valves	Valves with adjustable pressure relief Automatic safety valve that prevents hazards due to excessive pressure Automatic safety valve that prevents hazards due to excessive negative pressure
Monitoring	
Pressure	-10 to 100 mbar (Peak, Medium, Peep, Plateau, CPAP)
Tidal volume - V_{Ti}	0 - 5000 ml
Minute volume	0 - 50 l
Frequency	0 - 150 1/min
Flow	-200 to 200 l/min
Lung functions	$C_2$0/C Static compliance Resistance Loops
O_2-monitor	Inspiratory/expiratory (free of consumables)
CO_2-monitor	Inspiratory/end-tidal CO_2 concentration.
N_2O-monitor	Inspiratory/end-tidal N_2O concentration.
Anesthetic gas monitor	Inspiratory/end-tidal – halotane, enflurane, isoflurane, sevoflurane and desflurane
Automatic gas type detection (Auto ID)	With automatic gas type detection
MAC	Determination of the minimum alveolar concentration
Interfaces	Serial: COMI, COMI2 Optional: Philips VueLink/IntelliBridge, Coming soon: HL-7
Neo mode	Volume guarantee with PCV Tidal volume: 3 - 600 ml Frequency: 14 - 100 1/min

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