

## Technical specifications

### Volume-controlled intermittent mandatory ventilation (IMV)

Tidal volume - $V_{Ti}$	20 - 1600 ml (optional 3 - 1600 ml)
Ventilation frequency	4 - 80 1/min (optional 4 - 100 1/min)
I/E ratio	1:4 - 4:1 (0.1 increments)
PEEP	OFF, 1 - 20 mbar
Plateau	OFF, 10 - 50 % (10 % increments)
Pressure limit $P_{MAX}$	10 - 80 mbar

### Synchronized volume-controlled intermittent mandatory ventilation (S-IMV)

Tidal volume - $V_{Ti}$	20 - 1600 ml
Inspiration time $T_{INSP}$	0.2 - 10 s
Ventilation frequency	4 - 60 1/min
PEEP	OFF, 1 - 20 mbar
Plateau	OFF, 10 - 50 % (10 % increments)
Pressure limit $P_{MAX}$	10 - 80 mbar
Trigger threshold	0.1 - 10 l/min

### Pressure-controlled ventilation (PCV)

Ventilation frequency	4 - 80 1/min (optional 4 - 100 1/min)
I/E ratio	1:4 - 4:1 (0.1 increments)
Plateau	10 - 90 % (5 % increments)
Ventilation pressure $P_{INSP}$	5 - 60 mbar
Leakage	To DIN EN ISO 80601-2-13 < 150 ml/min at 30 "Pa x 100" ("mbar")
PEEP	OFF, 1 - 20 mbar

### Synchronized pressure-controlled ventilation (S-PCV)

Ventilation frequency	4 - 60 1/min
Inspiration time $T_{INSP}$	0.3 - 10 s (adults) 0.2 - 2.9 s (children)
Plateau	10 - 90 % (5 % increments)
Ventilation pressure $P_{INSP}$	5 - 60 mbar
PEEP	OFF, 1 - 20 mbar
Trigger threshold	0.1 - 10 l/min

### Pressure-supported spontaneous breathing (PSV Assist)

PEEP	OFF, 1 - 20 mbar
Trigger threshold	0.1 - 10 l/min
Backup	4, 6, 8, 10, 15, 30, 45 seconds

### Manual ventilation

Manual ventilation bag	Manual ventilation is performed using the manual ventilation bag which serves as a reservoir.
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### Safety devices

Minimum $O_2$ concentration	Electrical control of fresh gas supply so that an $O_2/N_2O$ gas mixture cannot contain an $O_2$ concentration of less than 25 %. Fresh $O_2$ gas (100 %) of at least 200 ml/min is guaranteed (except for HLM)
Safety valves	Valves with adjustable pressure relief Automatic safety valve which prevents hazards due to excessive pressure Automatic safety valve which prevents hazards due to excessive negative pressure

### Monitoring

Pressure	-10 to 100 mbar (peak, mean, 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	C20/C Static compliance Resistance Loops
$O_2$ monitor	Measured paramagnetically or using a fuel cell On inspiration/expiration
$CO_2$ monitor	$CO_2$ concentration on inspiration/end-tidal
$N_2O$ monitor	$N_2O$ concentration on inspiration/end-tidal
Anesthetic gas monitor	Measurement by infrared spectrometry on inspiration/end-tidal - halothane, enflurane, isoflurane, sevoflurane and desflurane
Automatic gas type detection (Auto ID)	Optionally with and without automatic gas type detection
MAC	Determination of minimum alveolar concentration
Interfaces	Serial: COM1, COM2 Optionally: Philips VueLink/IntelliBridge, HL-7
Update option	
Neo mode	Volume guarantee for PCV Tidal volume: 3 - 600 ml Frequency: 14 - 100 1/min

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# Leon plus

Tried and tested. Reliable. Intuitive.



CE 0197

Discover more about Leon plus



Löwenstein Medical  
Arzbacher Straße 80  
56130 Bad Ems, Germany  
T. +49 2603 9600-0  
F. +49 2603 9600-50  
info@loewensteinmedical.com



loewensteinmedical.com

With people in mind

With people in mind

# Leon plus

Your anesthesia assistant. Familiar. Safe.

Today's anesthesia workstations have to do more than just perform technically - they are also required to provide optimized, reliable platform concepts which fully integrate in existing processes and the working environment smoothly and can also be individually configured.

The Leon plus personal anesthesia assistant provides an ergonomically tried and tested, reliable design and hygiene concept for your daily routine. Leon plus takes a familiar, safe and intuitive approach to supporting your work perfectly - whether this is in induction, in the operating room, during diagnosis or used with other relevant hospital systems.



## Technical specifications

Basic data	Leon plus	Circuit system, breathing system	
	Basic weight 145 kg (with anesthetic vaporizer)		Fresh gas-decoupled and heated circuit system
Dimensions (H x W x D)	Cart: 140 x 92 x 67 cm Cart with 4 antistatic casters All casters can be locked Central brake for all 4 casters (optional) Minimum clearance width: 70 cm Extending writing surface: 45 x 31 cm (W x D) 3 drawers: 14 x 27 x 30 cm	Circuit system	Complete with absorber container (can be replaced during operation) Measurement of flow on inspiration and expiration, decoupled APL [adjustable pressure limiting]
Fitting to a wall	Optional	Breathing system	All components completely latex-free
Suspended ceiling mounting	Optional	Patient connections	22 mm external/15 mm internal tapered ISO connectors
<b>Ambient conditions (during operation)</b>		<b>CO<sub>2</sub> absorber</b>	
Ambient temperature	+15 °C to +35 °C	Absorber	Can be equipped with disposable or reusable absorber as an option Leonsorb plus and Leonsorb premium disposable absorber (can absorb over 150 liters CO <sub>2</sub> )
Relative humidity	20 % to 80 %, no condensation	<b>APL [adjustable pressure limiting] valve</b>	
Air pressure	700 - 1060 hPa	Setting range	Spontaneous breathing (SP) and adjustable ventilation pressures up to at least 80 Pa x 100 with perceptible ratchet action, rapid venting
<b>Electromagnetic compatibility</b>		<b>Anesthetic vaporizer connections</b>	
Meets standard	EN 60601-1-2	Connection type	Selectatec® or Dräger-compatible vaporizer connections for 2 Inter-Loc-compatible anesthetic vaporizers
<b>Power supply voltage/ power supply</b>		<b>Suction and gas outlet</b>	
Power supply voltage	100 - 240 V (AC), 50/60 Hz	Suction	Optionally: Air suction (injector principle) or vacuum suction
Auxiliary sockets	4 off, 2 x T 2 A fuse each	Gas outlet	Optionally: External fresh gas outlet or O <sub>2</sub> outlet
Battery running time	> 100 min. (with fully-charged batteries)	<b>Anesthetic ventilator</b>	
<b>Gas connections</b>		Ventilator	Pneumatically driven and electronically controlled, suspended bellows, pressure-limited, compliance-compensated
Number, type	Connections for gases from the central gas supply system for O <sub>2</sub> , N <sub>2</sub> O and AiR; optionally without N <sub>2</sub> O Reserve gas cylinder connections for O <sub>2</sub> and N <sub>2</sub> O Pressure of the reserve gas cylinders displayed Integrated vacuum source for bronchial suction with vacuum display Cylinder supply pressures monitored with an on-screen display (10 l cylinders)	Screen	15" TFT display, color, touchscreen
Supply pressure	2.8 - 6.0 kPa x 100 (bar)	Graphical visualizations	Selection for visualizations of 4 real-time graphs simultaneously, complete data management with trend display
Connection type	NIST	Graph visualization	Pressure, flow, volume O <sub>2</sub> , CO <sub>2</sub> , N <sub>2</sub> O Anesthetic (volatile anesthetics) optionally with or without ID
<b>Gas control, gas mixer, etc.</b>		Ventilator settings	2 volume-controlled modes (IMV, SIMV) 2 pressure-controlled modes (PCV, S-PCV) 1 pressure-controlled/flow-controlled mode (PSV) Optional: HLM mode 1 manual ventilation/spontaneous breathing (MAN/SPONT) 1 monitoring (MON)
Fresh gas generator	Electronic mixer for 3 gases O <sub>2</sub> setting range 21 - 100 vol. % for N <sub>2</sub> O as carrier gas 20 - 100 vol. % (ratio system) 100 % O <sub>2</sub> for fresh gas flow = 200 ml/min Screen display used to select gas mixture and flow setting Compatible with low and minimal flow	Flow on inspiration	Max. 180 l/min

