STEPHAN®

SOPHIE

SPO2C inside

THE INNOVATIVE NEONATAL VENTILATION SYSTEM

SO PRECISE. SO PERFECT. SOPHIE.

Sophie was developed to meet the demand of neonatologists for a sensitive ventilator. SOPHIE offers state-of-the-art ventilation technology with the option of using customized ventilation strategies for premature and newborn babies. Its high-tech trigger technology provides you with flexible synchronization for both invasive and non-invasive ventilation.
The major challenge in non-invasive ventilation (NIV) of newborn and premature infants is the adjustment of ventilation and oxygen saturation to the current, frequently changing patient situation.

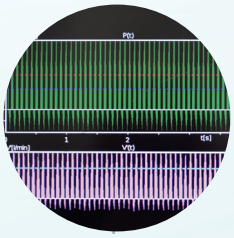
This is one of SOPHIE's strengths; thanks to innovative sensor technology, the device immediately recognizes changes and adjusts therapy parameters accordingly. In addition, you have the option of activating high-frequency oscillation at the touch of a single button if the situation so requires. Plus: SOPHIE allows effective monitoring at every stage during therapy to ensure optimal supervision.

REDUCING THE RISK OF BRAIN DAMAGE AND BLINDNESS.

SOPHIE uses SPO_2C, an integrated oxygen saturation controller, which automatically maintains optimum oxygen saturation. By adjusting saturation in real time, SOPHIE helps reducing the risk of brain damage and blindness.

Monitoring the course of therapy is also simplified considerably, as all relevant parameters are continuously recorded and can be accessed in trend view at any time.

THESE FEATURES MAKE SOPHIE UNIQUE.



Integrated high-frequency oscillation

External respiration sensor for synchronized non-invasive ventilation and apnea detection

Automatic integrated respiratory humidification

Clearly arranged, user friendly touch panel

Heated electronic flow sensor

SpO$_2$ controller SPO$_2$C for optimum oxygen saturation

SOPHIE

SPO2C inside

SO INNOVATIVE. SO INTELLIGENT. SOPHIE.

SOPHIE not only automatically adapts the therapy to the patient's needs but also documents the entire course of therapy. This relieves the strain from care staff and creates space for the important aspects of care which cannot be automated. The advantages in everyday hospital life are obvious:

- No manual recording of oxygen saturation
- Reduction of manual therapy adjustments
- Optimal ventilation of the little patients at all times

If required, simply activate high-frequency oscillation at the push of a button. Thanks to the integrated solution, there is no need for changing patient tubes.

Because little patients change their breathing pattern with every movement, SOPHIE is particularly flexible. The respiratory sensor converts abdominal movements into a trigger signal and ventilation is adapted automatically. The child's breathing and NIV ventilation are synchronized in real time. As a result, your benefit from significantly reduced re-intubation rates.

Another major advantage of SOPHIE is its electronic flow sensor. It allows accurate measurement of flow rates to record tidal volume (Vt) and flow with minimal dead space. The sensor is heated to prevent condensation. Respiratory gas is optimally humidified thanks to the integrated humidification system, which heats and humidifies respiratory gas for the little patients.

TECHNICAL DATA

General	
Patient range	Neonates and pediatric patients up to 25 kg
Classification	II b (according to 93/42 ECC)
Dimensions	470 x 342 x 332 mm (WxHxD)
Weight	26 / 42 kg (without/with trolley)
Function principle	time cycled, pressure controlled

Operational specifications	
Power supply	100-240 V AC, 50-60 Hz, 210 VA
Battery backup	min. 80 min. (with internal, rechargeable Li-Ion-Battery)
Gas supply	
AIR	2.7 - 6.5 bar
O_2	2.7 - 6.5 bar

Ventilation parameters	
Ventilation modes	
Invasive	CPAP, PC-IMV, PC-Ass./Cont., PC-SIMV, PC-HFO (opt.),
	PC-IMV-HFO (opt.), PC-Ass./Con.-ITT, PC-SIMV-ITT
Non-invasive	nCPAP, NIPPV, SNIPPV (opt.), PC-HFO, PC-sHFO
Modifications	Volume guarantee (VtLim/VtTar)
	Inspiratory Time Termination (ITT) PSV
Maneuver functions	Inspiration Hold / Manual, Pre-oxygenation,
	Medication nebulization

Flow sensor
Single use or reusable, electronical, heated

Ventilation settings	
Frequency	1 - 300/min
Inspiration time	0.1 - 2 s
Expiration time	0.1 - 60 s
Tidal volume	2 - 150 ml (VtTar/VtLim)
Pmax	5 - 60 mbar
PEEP	0 - 30 mbar
Inspiration pattern	Rectangle, sinusoidal, linear
Trigger sensitivity	
Flow	0.2 - 2,9 l/min
Pressure	0.2 - 2,9 mbar
Abdominal movement	0.2 - 2,9 Arbs
NIV MaxFlow	Off/20 - 6 l/min
Breathing gas temp.	30 - 40° C
FiO_2	21 - 100%
Inspiratory Time Termination (ITT) PSV	
Exp.-Trigger KV%	5 - 40% V' Peak
High frequency oscillation HFO	
Frequency	5 - 15 Hz
Inspiration	33 - 50%
MAP	0 - 30 mbar
Amplitude Posc	5 - 100%
Amplitude Vosc	max. 24 ml @ 10 Hz
Base FiO_2	21 - 100%
Backup FiO_2	Base, 21 - 100%
SpO_2 UL	84 - 100%
SpO_2 LL	80 - 96%
Inspiration	Hold / Manual
Max. hold time	Tinsp 1 - 7 s
Medication nebulization	
Aerosol time	30 - 420 s
Pre-Oxygenation	
FiO_2	0 - 100%
Preoxy time	0 - 420 s

Parameters	
Insp. pressure	-20 - 99 mbar (Pmax)
End Expiration pressure	-20 - 99 mbar (PEEP)
Mean airway pressure	-20 - 99 mbar (Pmean)
Osc. amplitude	0 - 120 mbar (Posc)
Volume measurement	
Insp. tidal volume	0 - 999 ml (VTins)
Exp. tidal volume	0 - 999 ml (VTexsp)
Leak volume	0 - 999 ml (VTleak)
Exp. minute volume	0 - 999 l/min (MV)
Osc. minute volume	0 - 999 l/min (MVo)
Ventilation time parameters	
Breathing frequency (F)	0 - 999 /min
Inspiration	0 - 100% (Insp%)
O_2 measurement	
FiO_2	0 - 100%
Breathing gas temperature	
Proximal measurement	12 - 60° C
Lung mechanics	
Resistance (R)	0 - 999 mbar/l/s
Compliance (C)	0 - 999 ml/mbar
SpO_2	0 - 100%
BaseFiO_2	0 - 100%
Curve display	Paw(t), V'(t), V(t), V(P), V'(V), V'(P), Arbs(t)
Trend display	Pmean(t), MV(t), VT(t), FiO_2(t),
	BaseFiO_2(t), SpO_2(t)
Trend duration	0,5; 1; 2; 4; 12; 24 (h)

Alarms / Monitoring	
Airway pressure	high/low (Pmax)
Exp. minute volume	high/low (MV)
Exp. tidal volume	high/low (VT)
Insp. O_2Conc. FiO_2	high/low
Breathing gas temp.	high/low
End Exp. pressure	high (PEEP)
Mean airway pressure	high/low (Pmean)
Osc. amplitude	high/low (Posc)
Osc. tidal volume	high/low (Vosc)
Osc. minute volume	high/low (MVosc)
Base FiO_2	high
FiO_2Limit	
Disconnection	
Water level humidifier bottle	
Apnea	

Features
Abdominal trigger (external)
SPO_2C (SpO_2-Controller)
Refill-System (automatically) for integrated humidification

Interfaces / Monitore	
RS232 (Vue Link, PDMS, IntelliBridge), USB, Ethernet	
GE Healthcare	Patient monitor DASH, SOLAR, CARESCAPE
	Unity Network Interface Device in connection
	with pulse oxymeter option
Masimo	Radical 7 Signal Extraction pulse CO oximeter
Philips	IntelliVue X2, MP series, MX series
Dräger	Infinity series

Operating unit	
Screen	12.1" Colour Touchscreen
Color scheme	Day view / night view
Input devices	Buttons + Turn-Push-Button, Touchscreen

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