STEPHAN®

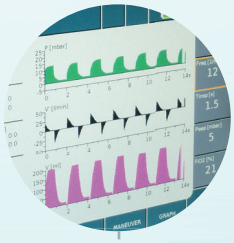
EVA

VERSATILE VENTILATION SOLUTION FOR YOUR ICU

THESE FEATURES MAKE EVA UNIQUE.

Turbine driven with internal and external battery backup

Heated electronic flow sensor



Large 12.1" color touch screen

Simple, intuitive operation

STATE-OF-THE ART VENTILATION AND SENSOR TECHNOLOGY

In a clinical environment, EVA's optimized functionality and multiple ventilation options allow best possible treatment. EVA is a versatile intensive care respirator for adults and children.

Ventilation can be performed in both pressure and volume controlled modes. Basic ventilation modes can be combined with additional options, such as PRVC, PSV and tube compensation ensuring optimal patient supply. A series of different maneuvers are also available.

EVA offers a high definition 12,1" display and may be operated via touch screen and rotating knob. Detailed monitoring guarantees both safe and efficient control. Up to three curves can be displayed simultaneously.

Precise and informative lung diagnostics are possible via expiratory CO_2 measurement and loops.
The user can select three different configurable curve displays. In addition, up to 15 different ventilation parameters can be shown.

TECHNICAL DATA

General	
Patient group	Adults, children, premature/newborn infants
Classification	II b, according to 93/42 EEC
Dimensions	410 x 283 x 383 mm (WxHxD)
Weight	10.0 kg (without exchangeable battery)
	10.6 kg (with exchangeable battery)

Power supply	
Mains	100-240 V AC, 50-60 Hz
Power input	max. 150 W
Power consumption	1.667 - 0.625 A
Battery	25.2 V DC, 3.12 Ah, approx. 3 h (5,5 h incl. exchangeable battery)
Charging time	approx. 4.5 h (internal), approx. 6 h (exchangeable battery)
Connection	100 - 240 V AC, ± 10%

Gas supply	
AIR	integrated turbine, Peak Flow > 230 l/min.
	Leckage Comp. > 60 l/min.
O_2/HPO	2.7 - 6 bar + 0.5 bar, HPO/LPO mode, oxygen 93 compatible
O_2/LPO	0 - 1.5 bar / 0.5 - 5 l/min
Protection class	IP 21
UMDNS code	17-429
GMDN code	42411

Operation modes
Invasive and non-invasive ventilation

Ventilation modes	
Volume controlled	VC-CMV, VC-S-IMV
Pressure controlled (invasive/non-invasive)	
	PC-CMV, nPC-CMV, PC-ACV, nPC-ACV, PC-ACV+,
	nPC-ACV+, PC-S-IMV, nPC-S-IMV, DUOPAP,
	nDUOPAP, CPAP, nCPAP, CPAP B/U,
	High Flow O_2 Therapy
Ventilation options	PSV, PRVC, ETT compensation
Maneuvers	Inspiration hold, SpHb, Aerosol, Preoxygenation, P0.1
Fast track control keys	Adults, Children, Premature/Newborn infants

Ventilation settings	
Pinsp	1 … 95 mbar (EVA), 1 … 55 mbar (EVA_{NEO})
Phigh (DUOPAP)	1 … 95 mbar (EVA), 1 … 55 mbar (EVA_{NEO})
PEEP	0 … 35 mbar
Δ Psupp	1 … 55 mbar
Inspiration time	0.15 … 30 sec. (NEO-Mode)
	0.2 … 30 sec. (Ped./Adult-Mode)
Expiration time	0.15 … 30 sec. (NEO-Mode)
	0.2 … 30 sec. (Ped./Adult-Mode)
Breathing rate	1 … 200 bpm. (NEO-Mode)
	1 … 150 bpm. (Ped./Adult-Mode)
I:E	1:200 ... 200:1 (Neo-Mode)
	1:150 ... 150:1 (Ped./Adult-Mode)
Trigger flow	0.2 … 15 l/m
Trigger external (EVA_{NEO})	
	0.2 … 15 Arb
Expiratory trigger	5 … 70%
Ramp up time	0.06 ... 30 sec.
FiO_2	21 … 100%
Apnea time	4 … 60 sec.
Tidal volume (VCV)	50 … 2,000 ml

TECHNICAL DATA

Ventilation settings	
Tidal volume (PRVC)	2 ... 2,000 ml
High Flow O_2	2 ... 60 l/min.
Preoxygenation	
FiO_2 Concentration	21 ... 100% absolute, 1 ... 79% relative
Preoxygen. time	10 ... 180 sec.
Nebulizer outlet	
Pressure outlet	1.5 bar
Nebulizer flow	approx. 5 l/min. (at 5 bar oxygen inlet pressure)
Nebulization	100% O_2 concentration
Nebulization time	5 ... 30 min.
Tube compensation	
Ø	2 ... 12 mm
Compensation	0 - 100%
Alarms (selection)	PAW high/low, occlusion, MV high/low, apnea,
	f high, PEEP high/low, leakage, VT high/low,
	VT not reached, technical alarms, Gas alarms
	Optional: CO_2 alarms, MASIMO alarms

Measured values display	
LOOPS	V(P), V'(V), V'(P)
Trend display	up to 28 trends selectable
Trend duration	1h, 6h, 12h, 24h, 72h
Curve display	P(t), V(t), V'(t), optional: CO_2(t), pletysmography
Parameter display	Pplat, Ppeak, Pmean, PEEP, VTe, VTespon, Vtleak,
	MVe, MVespon, ftotal, fspon, Tinsp, Texsp, V'max,
	V'min, I:E, resistance (R), compliance (C), RSB,
	FiO_2/O_2
	Optional: $EtCO_2$, SpO_2, pulse, PI, PVI, Spmet,
	SpHB, SpCO, SpOC
Pressure	
PPeak	-20 ... 99 mbar
PPlat	-20 ... 99 mbar
PMean	-20 ... 99 mbar
PEEP	-20 ... 99 mbar
Volume	
Exp. tidal volume	0 ... 3,000 ml
Insp. tidal volume	0 ... 3,000 ml
Exp. tidal volume	0 ... 3,000 ml (Vtspont.)
Leakage volume	0 ... 1,000 ml (Vtleak)
Minute volume	0 ... 999 l/min (Mve)
Minute volume	0 ... 999 l/min (Mvspon)
Flow	
Insp. Flow	-200 ... 200 l/min
Exp. Flow	-200 ... 200 l/min
Time	
Tinsp	0 ... 60 sec.
Texp	0 ... 60 sec.
Breathing rate (ftotal)	0 ... 300 l/min
Breathing rate (fspont)	0 ... 300 l/min
I:E ratio	1:200 ... 200:1 (Neo-Mode)
	1:150 ... 150:1 (Ped./Adult-Mode)
Apnea	0 ... 60 sec.

Measured value display	
Diagnostics	
Resistance (R)	0 ... 1,000 mbar l/sec.
Compliance (C)	0 ... 650 ml/mbar
Rapid shallow breathing index (RSB)	0 ... 9,999 l/min x l
Time constant	0 ... 20 sec.
Pressure time product (PTP)	0 ... 999 mbar x sec.
FiO_2	0 ... 100%
O_2	21 ... 100%
$EtCO_2$	
Vol%	0 ... 90
mmHg	0 ... 12
kPa	0 ... 999
MASIMO® parameters (optional)	
Pulse	0 ... 240 bpm
PVI	0 ... 100%
PI	0.02 ... 20%
SpMet	0 ... 99,9%
SpCO	0 ... 99%
SpOC	0 ... 35 ml/dl
SpHb	g/dl
Display	
12.1" TFT color touch screen, resolution 1024 x 786, antireflecting	
Interface	SD, Ethernet, RS232, nurse call
Sensors	
Flow/Volume	Flow sensor single-use for newborns, infants and adults Flow sensor reusable for newborns (PNT B) and adults (PNT D) Electronic flowsensor for newborns and adults (reusable/disposable)
FIO_2	El. chem. oxygen cell (EVA, EVA_{NEO})
Optional	CO_2 measurement (main or sidestream method), Masimo rainbow® SET (SpO_2, pulse, PI, PVI, SpHb, Spmet, SpCO, SPOC)
Standards (extract)	60601-1, 60601-1-2, DIN EN ISO: 14971, 80601-2-12, ISO 10651-3:1997

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