

bellavista™ 1000 neo  
intensive care ventilator

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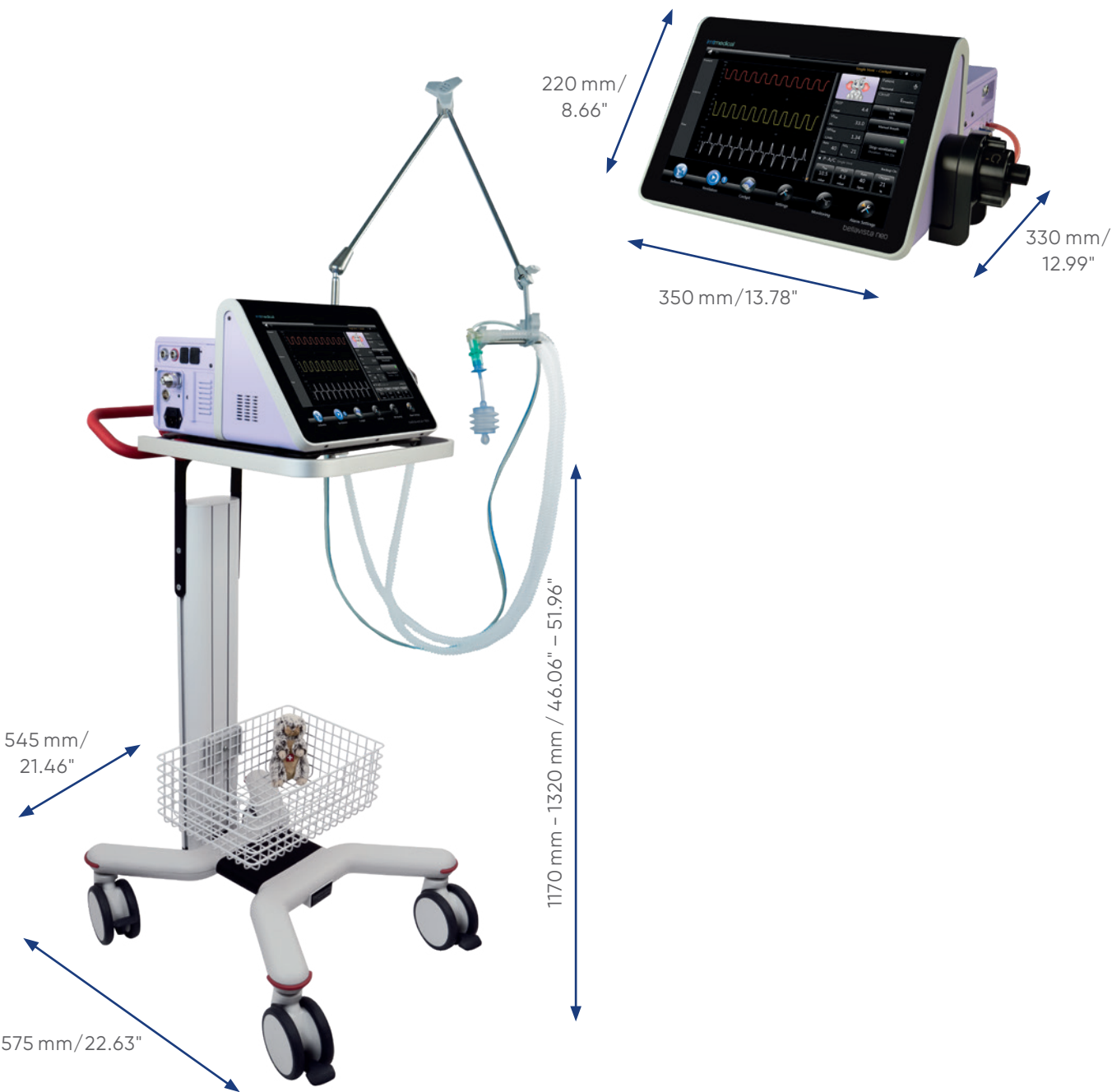
## Intensive care ventilator

Maximum precision in volume and pressure control. Naturally, reliability and safety are always key in ventilation. One of the biggest challenges, though, is the ventilation of neonates: that is where maximum precision is required in volume and pressure control. For our smallest patients the bellavista 1000 neo combines the latest technology with precise delivery of air flow. The clear software architecture of bellavista also allows trouble-free function extensions by means of simple software updates. bellavista 1000 neo is thus a safe, comprehensive and future-proof ventilator with incomparable user-friendliness.

## Area of application

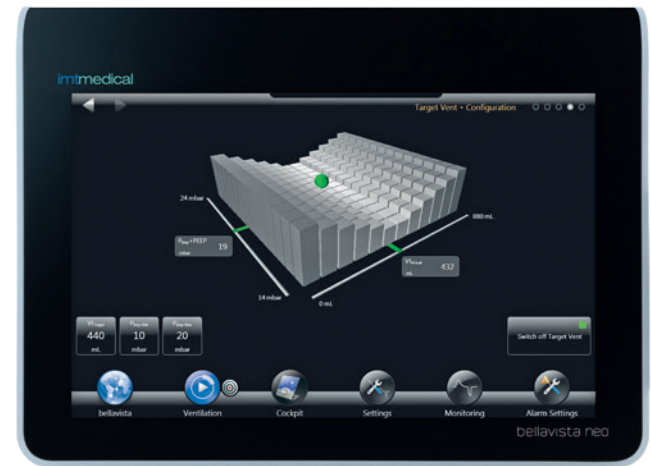
Intensive Care Unit (ICU)
Intermediate Care (IMC)
Emergency Room (ER)
Intra-hospital transfer

## Required space



## Ventilation features and options

TargetVent	Precise and lung protective ventilation for patients with extreme low birthweight with a target volume from 2 mL.
Neo NIV	Spontaneous modes for mask use with full leakage compensation and disconnection detection.
nCPAP/nIPPV	Experience highly advanced nCPAP with apnoea and respiratory rate detection. Choose between two nCPAP generators (Infant Flow LP®, Medijet®) and between pressure or flow based nCPAP.
HFOT	High Flow Oxygen Therapy for neonatal patients with up to 60L/ min and ramp function for a better flow adaptation.
Settings Assist	Graphical display of mode settings for better overview and forecast of dependencies of e.g. time, cycle and I:E ratio.
Profile settings	Up to 20 individually configured patient profiles can be stored in bellavista.
auto.rise	Automatic adaption of rise time with a breath by breath analysis.
auto.leak	Adaptive in- and expiratory leakage compensation.
Burst backup	nCPAP backup feature for more safety in neonatal nasal CPAP ventilation.
Night Mode	Configure your own night setting and dim alarm lights, screen brightness and alarm sound volume independently.
Circuits	Dual and single limb operation.
Parameter trending	bellavista enables you to store all trending parameters up to one year.
Real time trending	Real time data is recorded for 14 days.



Modes of Ventilation	Description	Invasive	Non-Invasive	Neonatal
Pressure Controlled				
P-A/C	Pressure Assist Control Ventilation	✓	✓	✓
PCV	Pressure Control Ventilation	✓	✓	✓
PC-SIMV	Pressure Controlled-Synchronized Intermittent Mandatory Ventilation	✓	✓	✓
CPAP	Continuous Positive Airway Pressure	✓	✓	✓
PSV	Pressure Support Ventilation	✓	✓	✓
S	Spontaneous	✓	✓	✓
S/T	Spontaneous/ Timed	✓	✓	✓
T	Timed	✓	✓	✓
Volume Target				
PSV <sub>Target</sub>	Pressure Support Ventilation with Target Volume	✓	✓	✓
P-A/C <sub>Target</sub>	Pressure Assist Control Ventilation with Target Volume	✓	✓	✓
PC-SIMV <sub>Target</sub>	Pressure Controlled-Synchronized Intermittent Mandatory Ventilation with Target Volume	✓	✓	✓
S <sub>Target</sub>	Spontaneous with Target Volume	✓	✓	✓
S/T <sub>Target</sub>	Spontaneous Timed with Target Volume	✓	✓	✓
T <sub>Target</sub>	Timed with Target Volume	✓	✓	✓
Non-invasive, nasal				
nCPAP	nasal Continuous Positive Airway Pressure (Flow)	-	✓	✓
nCPAP	nasal Continuous Positive Airway Pressure (Pressure)	-	✓	✓
nIPPV	Nasal Intermittent Positive Pressure Ventilation	-	✓	✓
Oxygen Therapy				
HFOT	High Flow Oxygen Therapy	-	✓	✓
beMode				
DualVent	Automatic switching between two Modes	✓	✓	✓

Features	Neonatal
Peak inspiratory flow	40 L/min
Apnea Ventilation Modes	P-A/C, PC-SIMV, nIPPV, PCV, S/T, T
Backup Modes	PSV, Burst backup (nCPAP)
Flow pattern	Decelerating
Inspiratory trigger	Pressure, Flow, Off
Expiratory trigger	Manual
Rise time	Manual, auto.rise
Leakage compensation, auto.leak	✓
Sidestream Capnography <sup>2</sup>	✓
SpO <sub>2</sub> Plethysmography <sup>1</sup>	✓
Screenshot function	✓
Touchscreen lock	✓
O <sub>2</sub> suction	✓
Expiration valve reusable	✓
Expiration valve single-patient	✓
Oxygen Flush, configurable	✓
Integrated manual	✓
Integrated instruction videos	✓
Timer function	✓
Stopwatch	✓
Chameleon Modes <sup>*</sup>	✓

Features	Neonatal
Tests	
Automatic system test during startup	✓
Circuit test	✓
CO <sub>2</sub> sensor calibration	✓
Oxygen sensor calibration	✓
Curves	
Pressure airway	✓
Flow	✓
Volume	✓
SpO <sub>2</sub>	✓
etCO <sub>2</sub>	✓
P <sub>GLX</sub>	○
P <sub>es</sub>	○
P <sub>TP</sub>	○
P <sub>TA</sub>	○
Loops	
Pressure/Volume	✓
Pressure/Flow	✓
Flow/Volume	✓
P <sub>es</sub> /Volume	○
P <sub>TP</sub> /Volume	○
P <sub>TA</sub> /Volume	○

Features	Neonatal
Trending	
Parameter trending	✓
Realtime trending	○
Maneuvers	
Manual breath	✓
Sigh	✓
Inspiratory Hold	✓
Expiratory Hold	✓
NIF (Negative Inspiratory Force)	✓
$V_{trapped}$	✓
$P_{0.1}$ (Occlusion pressure)	✓
AutoPEEP	✓
Transpulmonary pressure	○
$P_{TP}/P_{TA}$	○
Graphics	
TargetVent View	✓

Features	Neonatal
Alarms	
VT/ $VT_{Exp}$	✓
MV/ $MV_{Exp}$	✓
$P_{Peak}$	✓
Rate	✓
$FiO_2$	✓
Pulse	✓
$SpO_2$	✓
$inCO_2$	✓
$etCO_2$	✓
Apnea	✓
Autoset	✓
Autoset Leakage	✓
Patient Circuit Type	
Single Limb	✓
Dual Limb	✓
Mesh Nebulizer AERONEB*	
Phase	Continuous
Duration	30 min and 6 h

General Settings	Neonatal
$P_{\text{Insp}}$ , IPAP	2–60 mbar
$P_{\text{Support}}$	2–45 mbar
CPAP	4–30 mbar
PEEP, EPAP	0–30 mbar
Pressure trigger	0.1–15 mbar
Flow trigger	0.1–20 L/min
Expiration trigger	5–90 %
Oxygen	21–100 %
Rate	1–150 breaths/min
Rate <sub>Backup</sub>	10–100 breaths/min, Off
Rise time	0–400 ms, auto.rise
$T_{\text{Insp}}$ , I-time	0.1–2 s
$T_{\text{Insp Max}}$ , I-time <sub>Max</sub>	0.3–2 s
$V_{\text{tTarget}}$	2–250 mL

nCPAP/nIPPV	Neonatal
Flow nCPAP	2–18 L/min
Pressure nCPAP	0–20 mbar
Burst <sub>Backup</sub>	1–5 breaths/Off
PEEP	0–20 mbar
$P_{\text{Insp}}$	0–30 mbar
$T_{\text{Insp Man}}$	0.1–3 s
$T_{\text{Insp}}$	0.1–3 s
Rate	6–200 breaths/min
Rise Time	0–400 ms
Interfaces	Infant Flow LP <sup>®</sup> , Medijet <sup>®</sup>
$P_{\text{TP}} / P_{\text{TA}}^*$	Endotracheal tube 2.5–12 mm
Sigh	Sigh amplitude: 5–50 % Sigh interval: 10–200 breaths Sigh breaths: 1–5

HFOT	Neonatal
Flow HFOT	1–60 L/min
Ramp	1–20 min, Off

Monitoring Parameters	Description	Range Neonatal	Resolution	Accuracy
P <sub>Peak</sub>	Peak pressure during inspiration	0–100 mbar	1	±(2 mbar ±4 %)
P <sub>Mean</sub>	Mean pressure during the entire respiratory cycle	0–100 mbar	1	±(2 mbar ±4 %)
P <sub>Plateau</sub>	Plateau pressure (only available if plateau is >0)	0–100 mbar	1	±(2 mbar ±4 %)
P <sub>Insp</sub>	Applied inspiratory pressure (relative above PEEP).	0–100 mbar	1	±(2 mbar ±4 %)
PEEP/CPAP	Positive end-expiratory pressure	0–100 mbar	1	±(2 mbar ±4 %)
Rate	Respiratory rate	0–200 breaths/min	1	±1
T <sub>Insp</sub>	Inspiration time	0–100 s	0.1	10 %
T <sub>Exp</sub>	Duration of expiration	0–100 s	0.1	10 %
V <sub>t</sub>	Leak-compensated tidal volume	0–2500 mL	1	±1 mL; ±10 %
V <sub>t<sub>Insp</sub></sub>	Inspiratory tidal volume	0–2500 mL	1	±1 mL; ±10 %
V <sub>t<sub>Exp</sub></sub>	Expiratory tidal volume	0–2500 mL	1	±1 mL; ±10 %
MV	Leak-compensated minute volume	0–250 L/min	0.001	±0.12 L/min; ±10 %
MV <sub>Exp</sub>	Expiratory minute volume	0–250 L/min	0.001	±0.12 L/min; ±10 %
MV <sub>Insp</sub>	Inspiratory minute volume	0–250 L/min	0.001	±0.12 L/min; ±10 %
T <sub>Insp</sub> /T <sub>Tot</sub>	Ratio of inspiratory time to duration of respiratory cycle	0–100 %	1	10 %
%Spont	% Spontaneous breaths per minute	0–100 %	1	±1
Flow	Flow delivered in HFOT	0–100 L/min	1	±0.12 L/min; ±10 %
Flow <sub>Exp Peak</sub>	Expiratory peak flow	0–180 L/min	1	±0.12 L/min; ±10 %
Flow <sub>Insp Peak</sub>	Peak inspiratory flow	0–180 L/min	1	±0.12 L/min; ±10 %
Flow <sub>Mean</sub>	Mean flow/min (nCPAP and nIPPV)	0–100 L/min	1	±0.12 L/min; ±10 %
PTP	Pressure Time Product	0–100 mbar · s	0.01	–
I:E	Ratio of inspiration time to expiration time	1:99–100:1	0.1	10 %
Leak %	Leak in % of the volume delivered to the patient	0–100 %	1	–
Leak flow	Mean leak flow/min	0–200 L/min	1	±15 %
Pulse	Pulse rate (SpO <sub>2</sub> )	0–300 1/min	1	± 3 1/min
SpO <sub>2</sub>	Oxygen saturation measured with pulse oximeter	0–100 %	1	± 3 %
etCO <sub>2</sub>	End-expiratory CO <sub>2</sub>	0–15 %	0.1	±0.2 vol% +2% reading
inCO <sub>2</sub>	Maximum inspiratory CO <sub>2</sub> concentration	0–15 %	0.1	±0.2 vol% +2% reading



Expert Ventilation	Description	Range Neonatal	Resolution	Accuracy
Auto <sub>PEEP</sub>	Pressure above PEEP measured at the end of the Hold <sub>Exp</sub> maneuver.	0 – 100 mbar	1	±(2 mbar ±4 %)
NIF	Negative Inspiration Force. Minimal pressure below PEEP during a Hold <sub>Exp</sub> maneuver.	0 – -50 mbar	1	±(2 mbar ±4 %)
P <sub>0.1</sub>	Occlusion pressure 100 ms after trigger.	0 – 100 mbar	0.1	±(2 mbar ±4 %)
V <sub>Trapped</sub>	Volume trapped in the lungs by AutoPEEP.	0 – 2500 mL	1	±10 mL; ±10 %

Expert Monitoring	Description	Range Neonatal	Resolution	Accuracy
Rate <sub>Spont</sub>	Respiratory rate of spontaneous breaths	0 – 200 breaths/min	1	±1
T <sub>Insp Support</sub>	Duration of inspiration in the case of pressure-supported breaths	0 – 100 s	0.01	10 %
%Spont 1h	% Spontaneous breaths over the last hour	0 – 100 %	1	±1
%Spont 8h	% Spontaneous breaths over the last 8 hours	0 – 100 %	1	±1
MV <sub>Insp Spont</sub>	Inspiratory minute volume of spontaneous breaths	0 – 250 L/min	0.001	±0.12 L/min; ±10 %
MV <sub>Exp Spont</sub>	Expiratory minute volume of spontaneous press	0 – 250 L/min	0.001	±0.12 L/min; ±10 %
MV <sub>Spont</sub>	Leak-compensated minute volume of spontaneous breaths	0 – 250 L/min	0.001	±0.12 L/min; ±10 %
R <sub>Insp</sub>	Inspiratory resistance	0 – 300 mbar/L/s	1	
R <sub>Exp</sub>	Expiratory resistance	0 – 300 mbar/L/s	1	
C <sub>Stat</sub>	Static compliance	0 – 1000 mL/mbar	0.1	
WOB <sub>Imp</sub>	Work of Breathing imposed	0.00 – 9.99 J/L	0.001	

Lung Mechanics	Description	Range Neonatal	Resolution	Accuracy
C <sub>20</sub> /C <sub>Dyn</sub>	A measure for potential overdistension of the lung	0 – 900 %	1	
C <sub>Dyn</sub>	Dynamic compliance	0 – 1000 mL/mbar	1	

Esophageal Pressure Monitoring*	Description	Range Adult / Pediatric / Neonatal	Resolution	Accuracy
P <sub>Aux</sub>	Auxiliary pressure	-30 – +100 mbar	0.1	±(2 mbar +4%)
ΔP <sub>es</sub>	Delta esophageal pressure	0 – 100 mbar	0.1	±(2 mbar +4%)
ΔP <sub>TASat</sub>	Transalveolar tidal pressure (Driving pressure)	-50 – +100 mbar	0.1	
C <sub>TA</sub>	Transalveolar compliance (Lung compliance)	0 – 1000 mL/mbar	0.1	
C <sub>CW</sub>	Chest wall compliance	0 – 1000 mL/mbar	0.1	
P <sub>esInsp</sub>	Inspiratory esophageal pressure	-50 – +100 mbar	0.1	±(2 mbar +4%)
P <sub>esExp</sub>	Expiratory esophageal pressure	-50 – +100 mbar	0.1	±(2 mbar +4%)
PEEP <sub>TA</sub>	Transalveolar PEEP	-40 – +100 mbar	0.1	±(2 mbar +4%)
P <sub>PTPIInsp</sub>	Inspiratory transalveolar pressure (resistance compensated)	-50 – +100 mbar	0.1	±(2 mbar +4%)
P <sub>PTPEXP</sub>	Expiratory transalveolar pressure (resistance compensated)	-50 – +100 mbar	0.1	±(2 mbar +4%)
P <sub>TASat</sub>	Transalveolar plateau pressure	0 – 100 mbar	0.1	
P <sub>TAlInsp</sub>	Inspiratory transalveolar pressure	-50 – +100 mbar	0.1	
P <sub>TAEExp</sub>	Expiratory transalveolar pressure	-50 – +100 mbar	0.1	

Alarm Limits <sup>3</sup>	Neonatal	Autoset
FiO <sub>2</sub>	High: 24 – 100 % Low: 18 – 80 %	± 5 %
P <sub>Peak</sub>	High: 7 – 65 mbar Low: Off, 1 – 55 mbar	± 5 mbar
MV, MV <sub>Insp</sub> , MV <sub>Exp</sub>	High: 0.1 – 20 L/min, Off Low: Off, 0.01 – 19,9 L/min	± 35 %
Vt, Vt <sub>Insp</sub> , Vt <sub>Exp</sub>	High: 1 – 350 mL, Off Low: Off, 0.1 – 340 mL	± 35 %
Rate	High: 2 – 210 breaths/min Low: Off, 1 – 210 breaths/min	± 35 %
Apnea time	4 – 60 s	n. a.
SpO <sub>2</sub>	0 – 100 %	± 5 %
Pulse	High 20 – 300 bpm Low: 15 – 295 bpm	± 15 bpm
etCO <sub>2</sub>	High: 0.1 – 15 % Low: 0.1 – 15 %	± 1 %
inCO <sub>2</sub>	0 – 15 %	

## Interfaces

RS232	2
Ethernet	100Mbit
USB	2
Nurse Call	✓
etCO <sub>2</sub>	✓
SpO <sub>2</sub>	✓
CAN Bus (Service)	✓
Connection protocols	VueLink, Intellibridge, HL7
Dimensions (w × h × d)	350 × 220 × 330 mm / 13.78 × 8.66 × 12.99 inch
Screen	13.3" Color, Full HD touchscreen, TFT
Resolution	1920 × 1080 pixels
Touchscreen	Capacitive, glass touchscreen
Battery time	Minimum 240 min. (internal)
Oxygen supply	0–7 bar, 21.75–101.5 psi, 0–110 L/min
Oxygen connectors	DISS or NIST
Air inlet	Built-in turbine, 5 years unlimited warranty
Weight	12.8 kg
Protection class	IP21
Color	Purple / silver
Classification	Class IIb, EU-Guideline 93/42/EWG
Certificates	<p>CB certificate (by CSA) with fulfilment of following norms</p> <ul style="list-style-type: none"><li>• IEC 60601–1:2005 / AMD1:2012</li><li>• IEC 60601–1–6:2010 / AMD1:2013</li><li>• IEC 60601–1–8:2006 / AMD1:2012</li><li>• ISO 80601–2–12:2011</li><li>• ISO 80601–2–55:2011</li><li>• ISO 80601–2–61:2011</li><li>• Including national deviations for CA, KR and US</li></ul> <ul style="list-style-type: none"><li>• IEC 60601–1–2:2007</li><li>• IEC 60601–1–2:2014</li><li>• Including national deviations for EU, CA and US</li></ul>
Declaration	bellavista is certified according to a certified quality management system according to EN ISO 13485 and quality assurance system according to EU Directive 93 / 42 / EEC Annex II, excluding section (4)

## Interfaces

Acoustic power level	45.4 dBA (Single Limb), 50.8 dBA (Dual Limb)
Power input AC	100 – 240 VAC, 50 – 60 Hz (80 – 264 VAC max. tolerance)
Power input DC	24 VDC (20 – 29 VDC) / 3.5 – 6 A
Power consumption	80 – 200 VA

## Units

Pressure monitoring	mbar, cmH <sub>2</sub> O, hPa
Pressure input	bar, kPa, psi
CO <sub>2</sub>	%, mmHg, kPa, hPa
Height	cm, ft, inch

## Software Options

### Neonatal

Expert Ventilation	✓
Expert Monitoring	✓
Lung Mechanics	✓
Neonatal advanced	✓
TargetVent	✓
High Flow Oxygen Therapy	✓
DualVent	○
ChameleonClassic	○
ChameleonGreen	○
DataCommunication	○
Auxiliary Pressure	○
Esophageal Pressure Monitoring	○
Diagnostics Package Pulse Oximetry (SpO <sub>2</sub> )	○
Diagnostics Package Capnography (CO <sub>2</sub> )	○

## Legend

Standard	Optional	not applicable	not available
✓	○		–




## Notes

- Optional
- 1 SpO<sub>2</sub> plethysmography not included
- 2 Capnometer not included
- 3 Complete overview of alarms in the user manual

Not all options are available in every country.  
Please contact your local dealer or contact us on [www.vyaire.com](http://www.vyaire.com) for further information.

## GLOBAL HEADQUARTERS

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Medical devices class IIb according to Medical Devices Directive 93/42/EEC.

Please read the complete Instructions For Use that come with the devices or follow the instructions on the product labelling. VYR-INT-1900002