Because OUTCOMES matter BEYOND the NICU.

fabian™ HFO

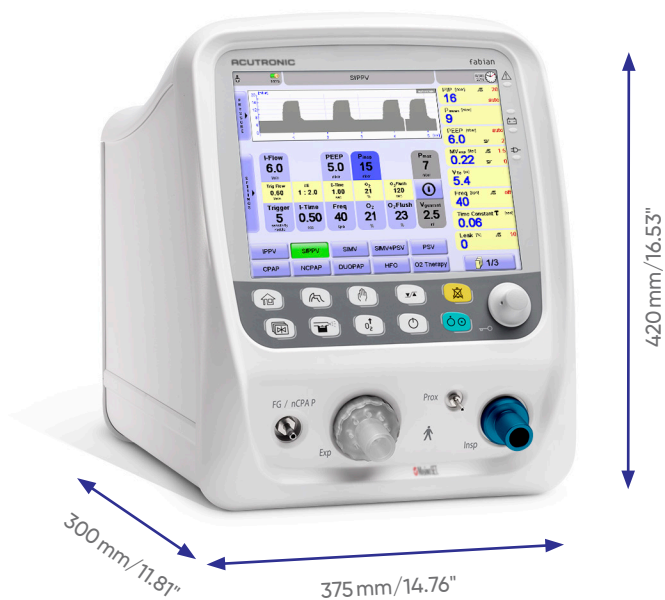## neonatal ventilator

vyaire
MEDICAL

fabian™ HFO

The fabian™ HFO is intended for premature infants, newborns and children weighing from 0.3 to 30 kg. This model with a 10.4" touch screen is our most comprehensive ventilator. The fabian HFO includes a true single membrane high frequency oscillation with active inspiration and expiration.

Area of care

Hospitals

Medically-used rooms

Intra-hospital patient transport

Required space

300 mm / 11.81"

375 mm / 14.76"

420 mm / 16.53"

547 mm / 21.5"

547 mm / 21.5"

999.6 mm / 39.4"

Ventilation features and options

CV	Conventional modes include PSV, SIMV+PS, SIMV, SIPPV, IPPV
NIV	In nCPAP/DUOPAP mode the patient spontaneously breathes from a mask or nasal prongs. A NIV Trigger option can be optionally added to provide apnea monitoring and alarms. Breaths can be triggered and are synchronized for the transition from low to high CPAP levels in DUOPAP. In CPAP Ventilation the patient breathes spontaneously, the ventilator does NOT provide breath support. This mode will merely produce a positive pressure during inspiration and expiration, noticeably reducing the patient's breathing effort. The leak compensation is up to 100% of the Inspiratory Flow.
VG	Volume Guarantee is a pressure controlling function that adjusts the inspiratory pressure to achieve the operator's set targeted tidal volume.
HFO	Ventilation with High-frequency Pressure Oscillations allows a gas exchange inside the lung despite the very small tidal volumes (often on the scale of the dead space volume). HFO can be applied also in Non-Invasive mode (Nasal-HFO) with nasal prongs, mask or cannula; in this case you must turn Off and remove the flow sensor from the Y-piece of the dual limbed breathing circuit.
O$_2$ Therapy	O$_2$ Therapy is an option which allows use of a continuous flow of blended gas, between 0 to 15 L/min in NEO and 0 to 30 L/min in PED mode. Nasal cannulas of various makes like F&P, Atom or similar can be used. There are no alarm functions active in this mode, exceptfor the set FiO$_2$.
PRICO	Predictive Intelligent Control of Oxygenation (PRICO) is the next generation of Intelligent Closed-Loop FiO$_2$/SpO$_2$ control, maintaining the patient's SpO$_2$ within the desired range. Together with the Masimo Set® SpO$_2$ sensor, its unique algorithm FiO$_2$ adjustments are performed automatically, quickly, and reliably. PRICO not only supports caregivers in their daily goal for best possible patient comfort and safety, but also helps clinicians save time, reduce cost, and improve their workflow.
FOT	Our patented Forced Oscillation Technique (FOT) is a non-invasive, lung protective and easy method that allows the clinician to optimize the functional residual capacity (FRS) of the lung. During a assessment maneuver FOT determines the optimal reactance (Xrs) by sending a small and well defined pressure oscillation during ventilation, and subsequently measures the flow response of the respiratory system. Xrs is a very precise measure of how the lung reacts to the pressure pulse. By setting the optimal CPAP, PEEP or MAP level for the individual patient, FOT greatly reduces mechanical stress to the lungs.
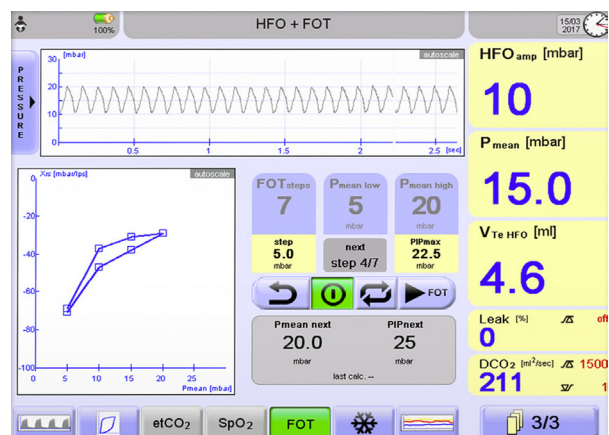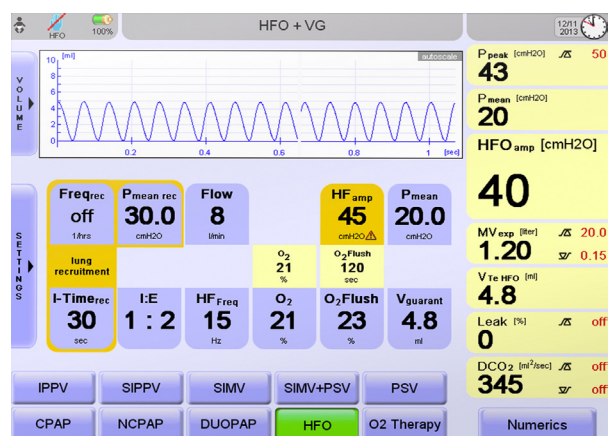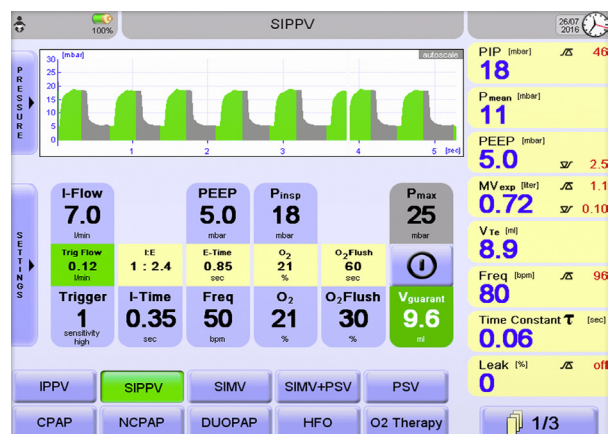
Ventilation Modes		Neonatal	Pediatric
Overview of ventilation modes			
IPPV	Intermittent Positive Pressure Ventilation	●	●
SIPPV	Synchronized Intermittent Positive Pressure Ventilation	●	●
SIMV	Synchronized Intermittent Mandatory Ventilation	●	●
SIMV + PSV	Synchronized Intermittent Mandatory Ventilation + Pressure Support Ventilation	●	●
PSV	Pressure Support Ventilation	●	●
CPAP	Continuous Positive Airway Pressure	●	●
Volume Guarantee (VG)			
IPPV + VG	Intermittent Positive Pressure Ventilation + Volume Guarantee	●	●
SIPPV + VG	Synchronized Intermittent Positive Pressure Ventilation + Volume Guarantee	●	●
SIMV + VG	Synchronized Intermittent Mandatory Ventilation + Volume Guarantee	●	●
SIMV + PSV + VG	Synchronized Intermittent Mandatory Ventilation + Volume Guarantee + Pressure Support Ventilation	●	●
PSV + VG (VS)	Pressure Support Ventilation + Volume Guarantee	●	●
HFO (High Frequency Oscillation)			
HFO	High Frequency Oscillation Ventilation	●	●
HFO + VG	High Frequency Oscillation Ventilation + Volume Guarantee	●	●
Non-invasive Neonatal:			
Dual limb (passive nasal interfaces)			
nCPAP	nasal Continuous Positive Airway Pressure	●	–
nIPPV	nasal Intermittent Positive Pressure Ventilation	●	–
nasal HFO	nasal High Frequency Oscillation Ventilation	●	–
Single limb (active nasal interfaces)			
nCPAP	nasal Continuous Positive Airway Pressure	●	–
DuoPAP	Dual Positive Airway Pressure	●	–
sDuoPAP	synchronized Dual Positive Airway Pressure	○	–
Selectable NIV generators	Infant Flow™, Infant Flow™ LP, Inspire, Medijet	●	●
O₂ Therapy			
O₂ Therapy		●	●

● Standard feature

○ Optional

Features and Options

Volume Guarantee	●		**Loops**		
Volume Limit (mL)	●		Pressure-Volume Loop	●	
Adjustable PSV termination criteria	●		Flow-Volume Loop	●	
Backup Rate	●		P-V loop during HFOV	●	
Manual Breath	●		Reference Loop	●	
Weight Settings	●		**Trending data**		
Apnea Backup	●		% MVmand	●	
Alarm delay	●		Compliance	●	
Alarm Autoset	●		DCO_2	●	
Demand Flow (CPAP)	●		Vte	●	
Automatic Flow adjustment	●		FiO2	●	
Automatic Leak compensation (%)	●		Freq	●	
Adjustable Leak compensation (%)	●		HF Amplitude	●	
Leakage compensation (On, Off)	●		Leak	●	
Nitric Oxide compatibility	●		MV	●	
I-Flow, manual, adjustable	●		Pinsp	●	
E-Flow, manual, adjustable	●		Pmean	●	
External Bias Flow	●		Resistance	●	
Standby mode	●		RSBI	●	
Patient data input	●		SpO_2	○	
Flow trigger	●		SpO_2 PI	○	
Volume trigger	●		SpO_2 PR	○	
Pressure trigger	●		$etCO_2$	○	
Various screen layouts	●		**Additional Graphics**		
Safety Parameter Lock	●		PRICO	○	
Forced Oscillation Technique (FOT)	○		FOT	○	
Lung Recruitment HFO	○		**Test & Calibrations**		
PRICO Closed Loop FiO_2-SpO_2	○		System test during start up	●	
HFOV Lung Recruitment	○		Flow sensor calibration	●	
Sigh	○		CO_2 sensor calibration	○	
$etCO_2$ Sidestream	○		Oxygen sensor calibration	●	
SpO_2 module	○		Automatic O_2 calibration	●	
PDMS	○		SpO_2 sensor	○	
Maneuvers			**Diagnostics**		
Inspiratory Hold	●		CO_2 Sidestream	○	
Nebulization			SpO_2 integrated	○	
USB Mesh Nebulizer (Aeroneb)	○		SpO_2 Technology	Masimo SET	
Waveforms			Perfusion Index	○	
Flow	●		Quality Index SpO_2	○	
Pressure	●		Pulse rate	○	
Volume	●				
CO_2	○		● Standard feature		
SpO_2	○		○ Optional		
Reactance (Xrs)	○				

Settings

Modes of Ventilation	Neonatal	Pediatric
IPPV		
Pinsp [mbar]	4 – 80	4 – 80
Pmax [mbar]	4 – 80	4 – 80
PEEP [mbar]	1 – 30	1 – 30
V guarant [mL]	0.8 – 60	10 – 300
Vlimit [mL]	1 – 150	10 – 500
I–Time [s]	0.1 – 2	0.3 – 2
E-Time [s]	0.2 – 30	0.2 – 30
I–Flow [L/min]	1 – 32	1 – 32
E-Flow (L/min)	1 – 32	1 – 32
I:E ratio	1:300 – 10:1	1:100 – 10:1
Frequency (Rate) [1 / min]	2 – 200	2 – 100
Rise Time [s]	0.1 – 2	0.3 – 2
Manual Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120
SIPPV		
Pinsp [mbar]	4 – 80	4 – 80
Pmax [mbar]	4 – 80	4 – 80
PEEP [mbar]	1 – 30	1 – 30
V guarant [mL]	0.8 – 60	10 – 300
Vlimit [mL]	1 – 150	10 – 500
I–Time [s]	0.1 – 2	0.3 – 2
E-Time [s]	0.2 – 30	0.2 – 30
I–Flow [L/min]	1 – 32	1 – 32
E-Flow [L/min]	1 – 32	1 – 32
Frequency (Rate) [1 / min]	2-200	2-100
Rise Time [s]	0.1 – 2	0.3 – 2
Trigger* [Volume]	1 – 10	1 – 10
Manual Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120

* Flow trigger: 0.120 – 1.2 L/min

Modes of Ventilation	Neonatal	Pediatric
SIMV		
Pinsp [mbar]	4 – 80	4 – 80
Pmax [mbar]	4 – 80	4 – 80
PEEP [mbar]	1 – 30	1 – 30
V guarant [mL]	0.8 – 60	10 – 300
Vlimit [mL]	1 – 150	10 – 500
I–Time [s]	0.1 – 2	0.3 – 2
E-Time [s]	0.5 – 30	0.5 – 30
I–Flow [L/min]	1 – 32	1 – 32
E-Flow [L/min]	1 – 32	1 – 32
Frequency (Rate) [1 / min]	2 – 200	2 – 100
Rise Time [s]	0.1 – 2	0.3 – 2
Trigger* [Volume]	1 – 10	1 – 10
Man. Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
Flush Time [s]	Off, 30/60/120	Off, 30/60/120
SIMV+PSV		
Pinsp [mbar]	4 – 80	4 – 80
Pmax [mbar]	4 – 80	4 – 80
Ppsv [mbar]	2 – 80	2 – 80
PEEP [mbar]	1 – 30	1 – 30
V guarant [mL]	0.8 – 60	10 – 300
Vlimit [mL]	1 – 150	10 – 500
I–Time [s]	0.1 – 2	0.3 – 2
E-Time [s]	0.5 – 30	0.5 – 30
I–Flow [L/min]	1 – 32	1 – 32
E-Flow [L/min]	1 – 32	1 – 32
Frequency (Rate) [1 / min]	2 – 200	2 – 100
Rise Time [s]	0.1 – 2	0.3 – 2
PSV Termination criterium [%]	1 – 85	1 – 85
Trigger* [Volume]	1 – 10	1 – 10
Manual Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120

* Flow trigger: 0.120 – 1.2 L/min

Modes of Ventilation	Neonatal	Pediatric
PSV		
Pinsp [backup]	4 – 80	4 – 80
Ppsv [mbar]	2 – 80	2 – 80
PEEP [mbar]	1 – 30	1 – 30
V guarant [mL]	0.8 – 60	10 – 300
Vlimit [mL]	1 – 150	10 – 500
I–Time [s]	0.1 – 2	0.3 – 2
E-Time [s]	0.2 – 30	0.2 – 30
I–Flow [L/min]	1 – 32	1 – 32
E-Flow [L/min]	1 – 32	1 – 32
Frequency (Rate) [1 / min]	2 – 200	2 – 100
Rise Time [s]	0.1 – 2	0.3 – 2
PSV Termination criterium [%]	1 – 85	1 – 85
Trigger* [Volume]	1 – 10	1 – 10
Manual Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120
CPAP		
CPAP [mbar]	1 – 30	1 – 30
Pmanual [mbar]	4 – 80	4 – 80
Demand Flow	4 – 16	4 – 16
Backup Rate	Off, 1-5	Off, 1-5
Manual Breath Time [s]	2 – 30	2 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120

* Flow trigger: 0.120 – 1.2 L/min

Modes of Ventilation	Neonatal	Pediatric
HFO		
HFreq [Hz]	5 – 20	5 – 20
Pmean [mbar]	5 – 50	5 – 50
Hfamp [mbar]	5 – 100	5 – 100
Pmanual [mbar]	4 – 80	4 – 80
I:E [Ratio]	1:1/1:2/1:3	1:1/1:2/1:3
V guarant [mL]	0.3 – 30	10 – 100
AMPmax [mbar]	5 – 100	5 – 100
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120
Lung Recruitment HFO*		
Freqrec [1 / hr.]	1 – 240	1 – 240
I-Time rec [s]	2 – 60	2 – 60
Pmean rec [mbar]	7 – 50	7 – 50
nCPAP		
CPAP [mbar]	2 – 13	-
Pmanual [mbar]	5 – 15	-
Manual Breath Time [s]	2 – 30	-
O_2 [%]	21 – 100	-
O_2 Flush [%]	23 – 100	-
O_2 Flush Time [s]	Off, 30/60/120	Off, 30/60/120

* optional

Modes of Ventilation	Neonatal	Pediatric
DuoPAP/DuoPAP Trigger		
CPAP [mbar]	2 – 13	-
PDUO [mbar]	5 – 15	-
I-time [s]	0.15 – 15	-
E-time [s]	0.2 – 30	-
Frequency [1/min]	2 – 60	-
Trigger [Volume]	1 – 10	-
O_2 [%]	21 – 100	-
O_2 Flush [%]	23 – 100	-
O_2 Flush Time [s]	Off, 30,60,120	-
O_2 Therapy		
Flow min [L/min]	Off, 1 – 15	Off, 1 – 30
O_2 [%]	21 – 100	21 – 100
O_2 Flush [%]	23 – 100	23 – 100
O_2 Flush Time [s]	Off, 30,60,120	Off, 30,60,120

Special Features	Ranges
FOT	
FOTsteps	1 – 21
Pmean low [mbar]	5 – 49
Pmean high [mbar]	6 – 50
PEEPlow [mbar]	3 – 29
PEEPhigh [mbar]	4 – 30
PRICO	
Minimum allowed FiO_2	21 – 99%
Maximum allowed FiO_2	22 – 100%.
SpO_2 low target	0 – 99%
SpO_2 high target	1 – 100%

Measuring	Ranges	Resolution
Airway Pressure Measurement PIP, PEEP, Pmean, Phigh, Plow, Hfamp	-60 – 130 mbar	0.1 – 1 mbar
Volume Measurement MV, MVmand, MVspon, VTi, VTimand, VTe, VTemand, VTispon, Vte BW	0 – 9.99 L	0.1 – 100 mL
Respiratory rate Measurement RR, RRmand, RRspon	0-250 bpm	1 bpm
Tube leak	0 – 50%	1%
Dynamic compliance	0 – 500 mL/mbar	0.1 – 1 mL/mbar
Resistance	0 – 5000 mbar/L/s	0.1 mbar/L/s
Time constant	0-2.5 s	0.01 s
Rapid shallow breathing index	RSBI	1
Overdistension index C20 / C	0 – 5	0.1
Inspiratory O_2 concentration Range	18 – 100 Vol.%	1
etCO$_2$	0 – 150 mmHg	0.1 mmHg
SpO$_2$	1 – 100%	1
SpO$_2$ Pulse	25–240 bpm	1

Alarm limits[1]	Upper limit	Lower limit
PIP [mbar]	1 – 90	Off, 0 – 89
PIP [mbar] (in DUOPAP mode)	-4 – 30	–
Pmean [mbar] (in HFO mode)	1 – 55	0 – 54
PEEP [mbar]	–	-10 – 89
PEEP [mbar] (in DUOPAP mode)	–	-5 – 19
CPAP [mbar]	-9 – 40	-10 – 39
CPAP [mbar] (in nCPAP mode)	-4 – 30	-5 – 19
Minute Volume [L/min]	0.01 – 10	Off, 0.01 – 6.9
Minute Volume [L/min] (in HFO mode)	0.02 – 7.0	Off, 0.01 – 6.9
Frequency [bpm]	10 – 75, Off	–
Apnea [s] (in CPAP, nCPAP, DUOPAP, SIMV, SIMV+PSV, PSV modes)	2 – 20, Off	–
Leak [%]	Off, 10 – 50	–
Pulse Rate (bpm)	35 – 235, Off	Off, 30 – 230
Perfusion Index	–	Off, 0.03 – 19%
SIQ	Off, 5 – 100%	Off, 5 – 100%
DCO$_2$ [mL2/s] (in HFO mode)	2 – 10000, Off	Off, 1 – 9900
SpO$_2$	2 – 99%, Off	Off, 1 – 98%

Interface

Noise level

Sound pressure level	46 dB(A)

Connectors	Capability
RS232 Data port	1 x
Video out port	HDMI
USB Power port for nebuliser	●
USB Data port	●
Nurse call	●
SpO$_2$	●
CO$_2$ sidestream	●
Ethernet/LAN	●

Data storage	Capacity
Alarms	1.000 messages
Event logs	10 Log Files
Trends	5 days
Storage interval	every 30 seconds

Log is stored during power failure.
When log capacity is reached, index is shifted, and oldest log file deleted.

Ambient conditions	Storage	Operation	Transportation*
Temperature	0 – 40° C (+32 – 104° F)	10 – 40° C (-50 – 104° F)	−20 – 60° C (−4 – 140° F)
Relative humidity	20 – 80%, non-condensing	10 – 90%, non-condensing	10 – 95%, non-condensing
Atmospheric pressure (hpa)	70 – 106 kPa	70 – 106 kPa	50 – 106 kPa (7.2 – 15.0 PSIA)

* The ventilator within its shipping package will maintain basic safety and essential performance characteristics following shipping and transport for up to 72 hours

● Standard feature

Technical Data

Display/User Interface

Integrated Colour display (inch)	LED TFT, 10,4"
Resolution	XGA, 1024x768
Touchscreen	●
Touchscreen operation	●
Keypad/Rotary knob operation	●
Display freeze	●
Touch lock	●
External display port	HDMI

Battery

Internal Battery status display	●
Empty Battery alarm	●
Internal Battery, conventional (min)	150
Internal Battery HFO (min)	60

Oxygen Sensor

Galvanic	●

Pneumatic Connectors

Inlet gas pressure Air/O_2	2.0 – 6.0 bar / 29 – 87 PSI
Exhalation port	●
Proximal airway	●
Fresh gas port	●

Power AC

Power supply	100 – 240 VAC, 0.5 – 0.9 A, 50/60 Hz
Min. power consumption	35 W
Max. power consumption	100 W

Dimensions

Device (w x h x d, mm)	300 x 370 x 400
Weight ventilator	20 kg/44.1 lbs
Safety class	Type BF
Classification according to EC directive 93/42/EEC	Class II b
IP Protection	IP22

Units

Pressure monitoring	mbar, cmH_2O
Pressure input	bar
CO_2	%, mmHg, kPa
Weight	Ca.20 kg

●   Standard feature

NOTES

1   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 for further information

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