

vyaire™  
MEDICAL



fabian HFO  
our 4-in-1 device



When it comes to Life,  
there is no Compromise

#### **DISTRIBUTING WORLDWIDE**

VYAIRE Medical manufactures and markets more than 27,000 unique products for the diagnosis, treatment and monitoring of respiratory conditions in every stage of life. We are a singular, focused company offering products in four areas: respiratory diagnostics, ventilation, airway management and operative care consumables. VYAIRE Medical develops, manufactures, and distributes high-tech ventilation and monitoring solutions for neonatal, pediatric and adult ICUs and intensive care transportation. When it comes to the most critical areas of respiratory care, we are the leading partner for hospitals in ICU, neonatology, pediatrics, jet ventilation, and difficult airway management.

#### **FORWARD THINKING**

Our aspiration is to develop innovative solutions that simplify the busy clinical routine for caregivers and increase patient safety. With over 30 years of experience and together with our global network of clinical experts, we are able to quickly translate new developments into real innovations – and keep challenging ourselves to improve and set new benchmarks.

#### **EXPLORING WHERE OTHERS STOP**

Our products have an excellent reputation for precision, quality, and service in the industry. We strive every day to provide the best solutions for the most challenging groups of patients. We continue to explore where others stop.



## fabian HFO our 4-in-1 device

From the delivery room to the NICU: the fabian HFO offers the best-in-class ventilation modalities in a single device.

### EASE OF USE

The fabian HFO is designed to optimize clinicians' and nurses' work flow within a single device, reducing the time needed to manage ventilator controls, configurations or different devices, resulting in more time and focused care for the baby.

### DEVELOPMENTAL CARE

Particularly silent, the fabian HFO, creates a low-stress and low-noise environment for the undisturbed handling, bonding and kangaroo care of the baby during its development.

### PATIENT SAFETY

The fabian HFO is designed to keep babies safe and protected whenever they are ventilated. This includes the reduced risk of volutrauma in HFO with VG, the reduced risk of contamination with the HFO pulse generated from the inspiratory side and reduced risks of user errors with a user-friendly interface.

### MODULARITY

Future-oriented: in addition to the pre-integrated conventional and triggered ventilation modes, software and hardware modules that may be required in the future are easily integrated and can be configured according to your needs.

### MOBILITY

Designed for mobility: thanks to its compact size, the fabian HFO allows for transport within the hospital from delivery room to NICU and easy access to the baby at all times at the bedside.

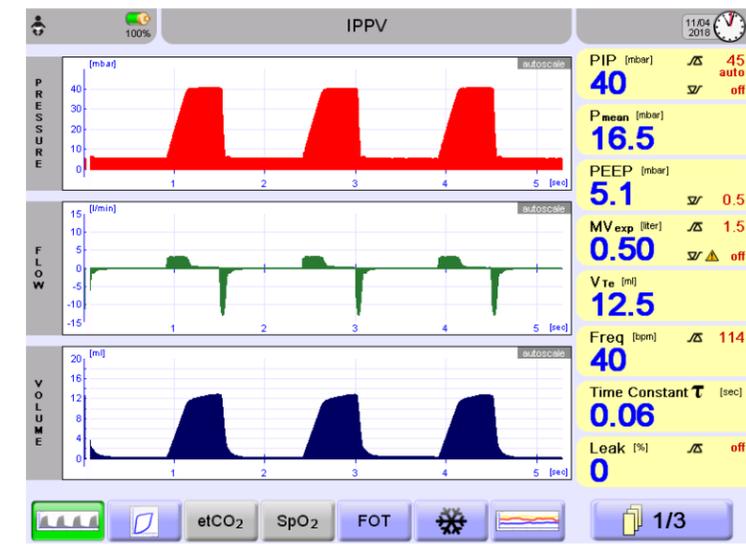
### COMPATIBILITY & INTERFACE

This flexible system is compatible with all conventional breathing circuits currently available on the market. In addition, the fabian HFO is equipped with several communication interfaces (*Acutronic AcuLink, Philips VueLink and CapsuleTech*) for compatibility to hospital data management systems.



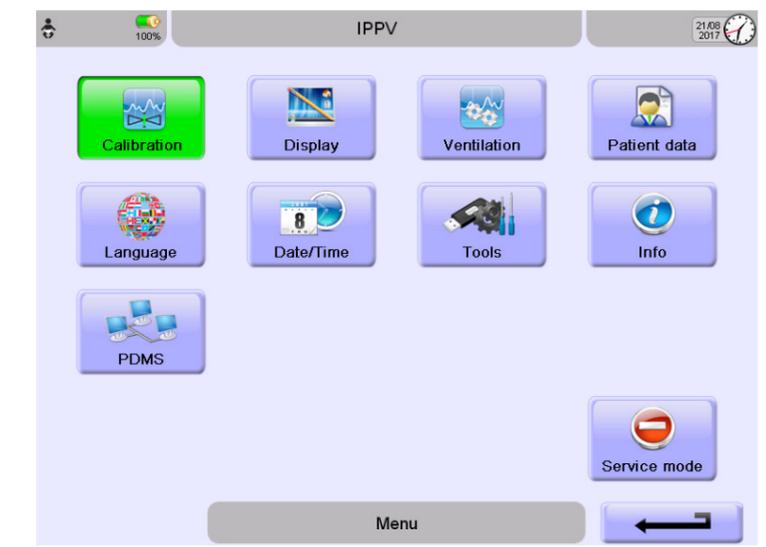
## Ease of use

A clear, bright touch-screen TFT with intuitive commands reduces human error and puts the focus back on the baby.



### GRAPHICS

See waveforms, numeric data, loops, ventilator status, and more. Clearly displayed and represented.

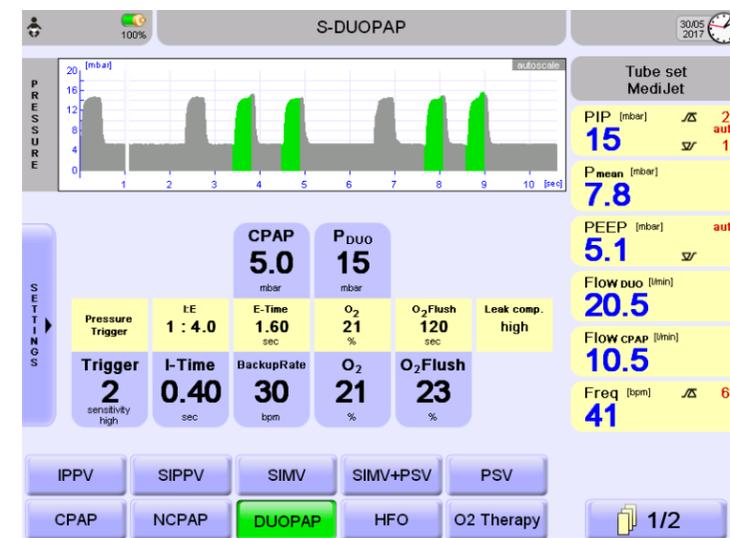
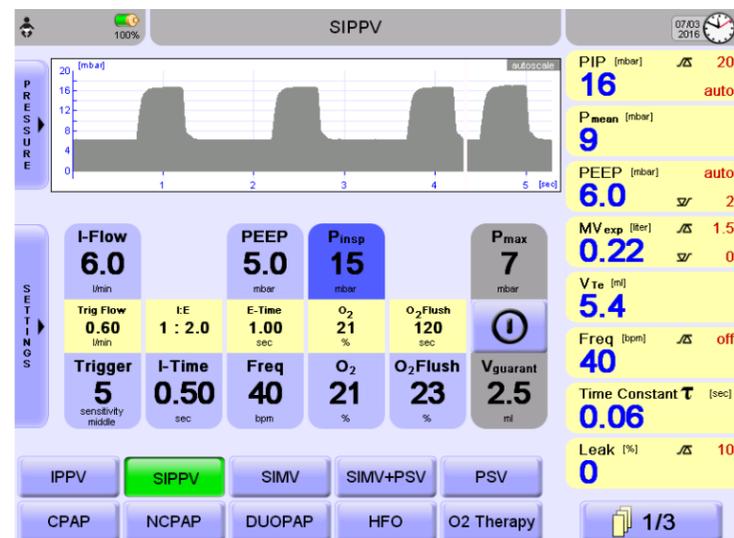
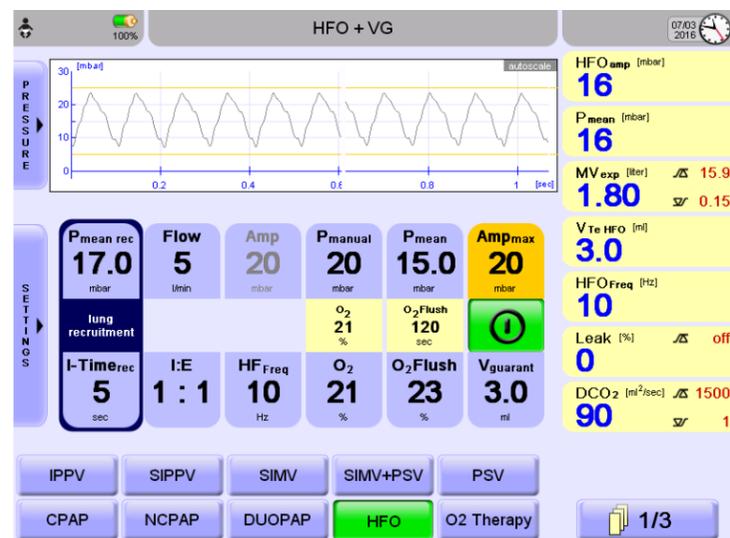


### ONE-TOUCH PRINCIPLE

All operation procedures are carried out using a direct, time-saving and easy-to-understand one-touch principle.

# Modularity

A true modular system with a variety of ventilation modes for the ventilator configuration you need – more can be added and enabled whenever desired.



## 4-IN-1

All these features and even more in just one device:

- All neonatal and pediatric conventional ventilation modes (*Volume Guarantee included*)
- Non-Invasive Ventilation modes (*NIV*)
- O<sub>2</sub> therapy with High Flow Nasal Cannula (*HFNC*) and unique High Frequency Oscillation (*HFO*) with Lung Recruitment Maneuver
- Volume Guarantee

## FUTURE-ORIENTED

Neonatal and pediatric ventilation modes (*IPPV, SIPPV, SIMV, PSV and SIMV+PSV*) with independent adjustment of inspiratory and expiratory flow reduces the work of breathing and inadvertent PEEP.

## VENTILATION BEYOND LIMITS

nCPAP and DuoPAP modes, for nasal and mask ventilation, with automatic leak compensation, featuring two-level CPAP mode to improve CO<sub>2</sub> removal.

## NEW FEATURES & COOPERATIONS

- Option for in-line etCO<sub>2</sub> mainstream for pediatric and sidestream Microstream® for neonatal patients.
- Option for real-time SpO<sub>2</sub> monitoring with adjustable Perfusion Index (*PI*) alarm.
- PRICO - PRedictive Intelligent Control of Oxygenation
- Option for F.O.T. (*Forced Oscillation Technique*) for the assessment of the true lung recruitment.

New lung function monitoring parameters and graphics for decision-maker. Loops both in conventional and HFO modes. Rapid Shallow Breathing Index (*RSBI*), C<sub>2</sub>O/C (*overdistension index*), resistance, compliance, time constant, minute volume and many others, available at a glance in the configurable numeric blocks.

## Developmental care

Premature babies are fragile. One of their special needs is quiet time for normal growth and development. The fabian HFO is equipped with an electromagnetic expiratory valve, highly precise electronic flow meters and a uniquely designed HFO module, making the fabian HFOs one of the most silent ventilators in the world today – without using silencers.

## Patient safety

On the receiving end of our ventilators are the tiniest and most fragile patients imaginable. Keeping them safe and protected whenever they are ventilated is our first priority of all our thoughts.

- **Integrated lock function** to prevent inadvertent settings.
- **Easy maintenance** with few parts for disinfection and sterilization without any risk of infection inside the ventilator – even during HFO ventilation.
- **No bacterial filters** and therefore no risk of increased resistance during humidified ventilatory therapies.
- **Optimal support** with reduced Work Of Breathing (*iWOB*).
- **Reduced error risk** thanks to the self-training ACUTRONIC concept inside.
- **Built-in backup battery** pack for up to 2.5 hours of self-powered operation.





## Designed for mobility

Medical technology should simplify the work flow of clinicians. Interfaces should be familiar and intuitive. They should be consistent across different workstations, thus reducing the potential for error. Data should be entered just once and be available across multiple platforms to support decision-making.

Ultimately, innovations in ventilator design and clinical information management can improve both patient safety and outcomes, while supporting maximum flexibility.

### COMPREHENSIVE DEVICE

Allowing easy access to the baby at all times. No disturbances at the bedside in NICU/PICU from device reshuffles.

### LIGHTWEIGHT UNIT

Designed for safe, practical transportation with integrated electronic gas blender and built-in battery.

## Compatibility & interface



### SERVICE MODE

Service mode with advanced diagnostics via USB port, standard Ethernet connection.



### FLEXIBLE & SCALABLE

The system is flexible and can be used with all conventional breathing circuits currently available on the market.



### COMMUNICATION INTERFACE

Digital interface with hospital information systems, download settings and monitoring data.

# The new fabian family

The new fabian generation consists of three Gold Club members. Each one represents the benchmark in its class, either in non-invasive, conventional or sophisticated high frequency ventilation. They are configured for your specific needs and can be upgraded with further options.



## fabian HFO our 4-in-1 device

The latest edition of fabian HFO comes with the HFO fully integrated into the inspiratory port. No additional tubing for HFO needed. Furthermore, the fresh gas port allows for easier use of NO systems. The fresh gas port also function as the nCPAP port, making it even easier to switch modalities.



## fabian +nCPAP evolution our 3-in-1 device

The fabian +nCPAP evolution is a therapy system encased in a small yet powerful device. Ideal for NICU, PICU and transport applications.



## fabian Therapy evolution our 2-in-1 device

The fabian Therapy evolution is the smallest but not the least powerful fabian family member. A true, complete and highly advanced non-invasive ventilator featuring all classic and new NIV modes.



# Finding your device

Non-invasive, conventional or sophisticated high frequency ventilation. No matter which product you choose, you're getting a device that features the latest technology and is ready to ventilate beyond limits.

	fabian Therapy evolution	fabian +nCPAP evolution	fabian HFO	fabian Therapy evolution	fabian +nCPAP evolution	fabian HFO
<b>Main Features</b>				<b>Ventilation Modes</b>		
O <sub>2</sub> Monitor (FiO <sub>2</sub> )	●	●	●	CPAP	-	●
Electronic Gas Blender	●	●	●	IPPV-IMV	-	●
Inspiratory and Expiratory Flow (Bias)	-	●	●	SIPPV (A/C)	-	●
Leak Compensation	●	●	●	SIMV	-	●
Integrated Battery	●	●	●	SIMV + PSV	-	●
Color TFT Display	●	●	●	NIV (nCPAP, duoPAP)	●	●
Touch-screen Display	●	●	●	NIV Trigger	○	○
Volume Trigger/Flow Trigger/Pressure Trigger	○	●	●	HFO	-	●
Curves: Pressure	●	-	-	Volume Limit	-	○
Curves: Pressure/Volume/Flow	○	●	●	Volume Guarantee	-	●
Loops: F/P, P/V	-	●	●	O <sub>2</sub> High Flow Therapy	●	●
<b>Advanced Monitoring</b>				O <sub>2</sub> Flush	●	●
CO <sub>2</sub> Module (Side or Main-stream)	-	-	○	Manual Breath	●	●
SpO <sub>2</sub> Module (Masimo)	○	○	○			
PRICO	○	○	○			
PDMS	○	○	○			
FOT	-	-	○			

● = standard ○ = optional

# Technical specifications

## Functionality

The fabian HFO is intended for premature infants, newborns as well as children weighting up to 30 kg.

## Intended Use

The fabian HFO is intended for "in-patient use" in hospitals, medically-used rooms and intra-hospital patient transport.

The fabian HFO is an electronically, microprocessor controlled ventilator.

The fabian HFO ventilates with excess pressure based on the continuous-flow principle. *(Time-cycled, pressure-/volume-limited)*

Oxygen is metered by the integrated air/O<sub>2</sub> blender.

The oxygen concentration is measured internally with a galvanic oxygen sensor.

## Ventilation modes

HFOV *(optional)* and nHFOV *(nasal HFOV)*  
High Frequency Oscillation *(piston + membrane principle)*

IPPV *(IMV)* and N-IPPV *(nasal IPPV)*  
Intermittent Positive Pressure - Intermittent Mandatory Ventilation

SIMV and N-SIMV *(nasal SIMV)*  
Synchronized Intermittent Mandatory Ventilation

SIPPV *(A/C)* and S-NIPPV  
Synchronized Intermittent Positive Pressure Ventilation

CPAP and nasal-CPAP *(dual limbed circuits)*  
Continuous Positive Airway Pressure

PSV - Pressure Support Ventilation

## Ventilation modes *(cont.)*

SIMV + PSV  
Synchronized Intermittent Mandatory Ventilation combined with PSV

Non-Invasive Ventilation *(NIV)* with single limb circuits  
nCPAP/duoPAP with variable flow generators *(i.e. Infant Flow LP®)*

NIV Trigger : S-duoPAP *(Synchronized duoPAP)* and Apnea Detection

HFNC *(HFOT)* - O<sub>2</sub> Therapy, option

**PRICO** *(PRedictive Intelligent Control of Oxygenation)*, option with Masimo® SpO<sub>2</sub> sensor technology

## Enhancements

Apnea ventilation

Backup ventilation

Combined SIMV + PSV ventilation

Flow trigger

Volume trigger

Pressure trigger

Adjustable PSV termination criteria

NIV with leak compensation

NIV Trigger *(Synchronized NIV)*

Volume Guarantee

Volume Limit

Demand flow in CPAP

## Special procedures

Manual inspiration/hold *(Sustained Lung Inflation)*

Lung recruitment *(sigh)* in HFO mode, optional

O<sub>2</sub> flush

**PRICO**, option

**F.O.T.** - Forced Oscillation Technique

## Dimension

*(W x H x D)* 30 cm x 37 cm x 40 cm

Weight approx. 20 kg with HFO module

Diagonal screen size 10.4"

TFT color touch-screen with LED backlight

Keypad with 10 buttons

## Input and output ports

1 USB port *(for SW updates/Log files)*

1 RS 232 *(9 pin)* port for PDMS/HIS

1 RJ 45 Ethernet port for PDMS/HIS

1 CO<sub>2</sub> sensor connection

1 SpO<sub>2</sub> sensor connection

1 Video out connector *(HDMI)*

1 nurse call connector

# Designed in Switzerland

The fabian HFO is the result of more than 30 years of experience in design, development and craftsmanship. Powerful components such as long-lasting battery packs, innovative modules like a one-piece expiratory valve and a cleverly reduced assembling concept with easily accessible parts make this device user-friendly.

Together with a customized service program, fabian helps to minimize the cost of ownership.





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