

# SERVO-i ventilator

GETINGE GROUP

One system, multiple options



*This document is intended to provide information to an international audience outside of the US.*



## One system, **multiple options**

At Maquet, part of Getinge Group, we've been developing market-leading ventilators for more than 40 years. Today the SERVO family installed base exceeds 140,000 units worldwide. We understand your need for ICU-quality ventilation that is easy to use – to help limit errors, save time, and contribute to better outcomes.

SERVO-i® delivers a high level of clinical performance for a variety of situations and for all patients. This helps clinicians provide cost-effective care throughout the hospital. SERVO-i is also easily upgradeable as your needs change and ensures lasting value for you and your patients.

Used worldwide

>140k

The SERVO family exceeds  
140,000 units worldwide

Innovation leader

>40 years

The SERVO ventilator has been continuously  
refined since it was introduced in 1971



IFSA  
**DESIGN** of the  
**DECADE**  
Gold Award

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# A single ventilator to customize treatment for **every patient, everywhere**

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## A flexible solution

The SERVO-i ventilation platform can satisfy the ventilatory needs of every patient, from neonatal to adult. It can handle the most acute phases of respiratory distress through recovery to the weaning phase. It continuously delivers outstanding ventilator treatment as gently as possible, thanks to its ventilator performance, monitoring capabilities, treatment options and tools.

## Available everywhere

SERVO-i makes excellent ventilation quality available in practically all environments: from ICUs to NICUs, via intrahospital transport to MR examinations and hyperbaric chambers. Allowing you to choose treatment options based on patient needs without having to worry about less or worse ventilatory capabilities, or having staff trained on different ventilators for each special application.



## Controlled with ease

SERVO-i is easy to learn and use. The system provides the information you need when you need it, allowing a fast and appropriate response from the user. An intuitive interface and simple, logical menus give easy access to all settings. You can reach the most important parameters through direct access knobs. You are always informed, in control and able to react.

## Connected to the environment

Connectivity is essential to drive efficiency and outcomes in healthcare. SERVO-i connects to a variety of hospital information systems and patient monitors.



# A complete spectrum of **treatment opportunities**

All-in-one platform: SERVO-i features all the modes you would expect from an advanced ventilation system in one adaptable platform. It also presents a wide range of tools to help you stabilize your patient and wean them off the ventilator.

**STRESS INDEX:** In patients with ALI and ARDS, it is difficult to identify harmful ventilatory patterns, most importantly Barotrauma, i.e. overdistension of the airways and lungs. **STRESS INDEX** helps the clinician detect and prevent such potentially high-risk scenarios in adults, by analyzing changes in the compliance of the respiratory system during the constant flow of controlled breaths.<sup>1,2</sup>

**OPEN LUNG TOOL® (OLT)** is an option that assists during lung recruitment and PEEP titration. Measured and calculated values on-screen, including dynamic compliance, make it easier to assess recruitment efficacy. The OLT also provides a breath-by-breath trend of vital ventilation parameters.

**Heliox**, the low density gas mixture of helium and oxygen, is a widely-recognized therapy that minimizes turbulence and improves CO<sub>2</sub> elimination. Easing the work of breathing for patients from neonate to adult.<sup>3</sup> The Heliox option can be used in all invasive and non-invasive modes and ensures automatic adjustment of monitoring and flow delivery when switching from air to Heliox and back.

**AUTOMODE®:** Starting in controlled ventilation and automatically switching to supported ventilation when the patient is triggering. Automode supports a smoother safer patient transition between start and steady states, which may reduce workload for clinicians.

*Lung recruitment with  
the help of OLT.*



# NAVA

## Personalized ventilation



*SERVO-i visualizes diaphragm activity on screen for you to monitor and trend.*



*See diaphragm activity (Edi), reduce sedation and deliver breaths synchronized in time and assist (NAVA).*



*Seeing diaphragm activity helps you keep the diaphragm active and reduces the risk of ventilator induced diaphragm dysfunction.*



*NAVA mode automatically protects the lungs from asynchrony and over-assist while simplifying weaning.*

## The vital sign of respiration

The diaphragm is the “heart” of the respiratory system designed to be continuously active.<sup>4</sup> The Edi\* is a bedside diagnostic tool that allows you to monitor and safeguard the patients’ diaphragm activity.<sup>5,6</sup> The Edi guides weaning<sup>7</sup> and helps you to prevent muscular exhaustion during weaning trials, even after extubation.<sup>8</sup>

## Deliver what the patient wants

NAVA<sup>9,\*\*</sup> follows the Edi, and allows the patient to select tidal volume and respiratory pattern. NAVA<sup>®</sup> promotes lung protective spontaneous breathing<sup>10,11,12</sup> with higher diaphragmatic efficiency,<sup>13,14</sup> and fewer periods of over and under-assist.<sup>15,16</sup> The patient’s ICU experience is improved by reducing sedation, higher comfort scores<sup>17,18,19</sup> and improved sleep quality.<sup>20,21</sup>

## For all patient groups

Edi and NAVA assures that breathing efforts from all patient categories are effectively assessed and responded to. NIV NAVA is also independent of leakage in patient interfaces, which may prevent respiratory failure and intubation.<sup>22,23,24</sup>

*\*Edi = Electrical Activity of the Diaphragm*

*\*\*NAVA = Neurally Adjusted Ventilatory Assist*




# Designed to meet your needs

**Cost-effective care:** SERVO-i is a single system offering a broad range of treatment options, which means it is always ready to adapt to your changing clinical needs. Uptime is maximized thanks to the following features:

- Same system for invasive and non-invasive ventilation of adult, pediatric and neonatal patients, at the bedside and during intra-hospital transport, MR examinations and in the hyperbaric chamber.
- Interchangeable modules can be used on all SERVO-i systems (CO<sub>2</sub> Analyzer, Y Sensor and Edi plug-in modules, batteries and expiratory cassettes)
- Plug-in modules and extra batteries can be inserted/ removed during ventilation
- Semi-automatic pre-use check of entire system including breathing circuit
- MAQUET MCare Remote Services
- Original consumables and parts

The system can be used more frequently and in more situations, saving time, ensuring continuous care and simplifying training and maintenance.

## SERVO-i ventilatory configurations

	 Infant	 Adult	 Universal
Hyperbaric oxygen therapy (HBO)	X	X	*
MR environment use	■	■	■
Alarm output connection	■	■	■
Nebulizer	■	■	■
Y Sensor monitoring	■	■	■
CO <sub>2</sub> Analyzer	■	■	■
Heliox	■	■	■
STRESS INDEX	X	■	■
OPEN LUNG TOOL	■	■	■
Automode	■	■	■
NIV NAVA	■	■	■
NAVA	■	■	■
NIV	■	■	■
Nasal CPAP	■	X	■
Bi-Vent/APRV	■	■	●
VS	■	■	●
PRVC incl. SIMV (PRVC) + PS	●	●	●
VC incl. SIMV (VC) + PS	●	●	●
PC incl. SIMV (PC) + PS	●	●	●
PS/CPAP	●	●	●

● = Standard Configuration, ■ = Options, X = Not Applicable

\* Please find SERVO-i HBO information in separate sales flyer.



**Designed for convenience:** SERVO-i comes with a number of value-adding features that enhance its convenience. Plug-in modules such as the CO<sub>2</sub> Analyzer, Edi Module and batteries, are interchangeable between systems: the same module can be used with other SERVO ventilators. SERVO-i has a one-piece cleanable and interchangeable expiratory cassette, so the system can be ready for the next patient almost instantly.

Maquet also offers a wide range of accessories and consumables tested with the SERVO-i to guarantee optimal ventilation performance and patient comfort. The range includes active and passive humidifiers, patient breathing systems, NIV masks and the unique SERVO Duo Guard filter.

Intermittent and continuous Aerogen nebulization is integrated and available for use with reusable or disposable units. All alternatives offer high performance in aerosol delivery without affecting the ventilatory settings, making it possible to provide treatment to everyone, including the smallest patients.

The SERVO-i mobile cart carries all accessories and makes it easy to position the system to the right or left of the patient. The Compressor Mini provides added flexibility in hospitals with no regular piped air supply.



*SERVO Duo Guard filter*



*Aerogen Solo Nebulizer*



*Compressor Mini – quiet and compact, ideal for bedside use*



*Dockable gas trolley enhances mobility within the hospital*



*SERVO-i interchangeable expiratory cassette*



## INVASIVE VENTILATION

### Inspiratory tidal volume

Adult	100–4000 ml
Infant	2–350 ml

### Inspiratory flow

≤200 l/min

### PEEP

0–50 cmH<sub>2</sub>O

### Pressure above PEEP

Adult	0–(120-PEEP) cmH <sub>2</sub> O
Infant	0–(80-PEEP) cmH <sub>2</sub> O

## NON-INVASIVE VENTILATION

### PEEP

2–20 cmH<sub>2</sub>O

### Pressure above PEEP

0–(62-PEEP) cmH<sub>2</sub>O\*

### Leakage compensation

Adult	Inspiratory, up to 200 l/min Expiratory, up to 65 l/min
Infant	Inspiratory, up to 33 l/min Expiratory, up to 25 l/min Nasal CPAP, up to 20 l/min

## GENERAL SPECIFICATIONS

Screen	12.1" TFT color
Dimensions user interface	W 355 x D 53 X H 295 mm
Dimensions patient unit	W 300 x D 205 x H 415 mm
Weight	~20kg (Patient Unit 15 kg, User Interface 5 kg) 41 kg with Mobile Cart
Batteries, hot swappable	6 (2 included)
Battery backup time	at least 3 h (with 6 batteries)
Integrated nebulization	Aerogen module
Integrated CO <sub>2</sub> analyzer	Capnostat plug-in module
Integrated respiratory vital sign	Edi plug-in module

## CONNECTIVITY

External device interfaces	2xRS232, remote alarm, MCare remote service
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IHE technical framework	MSync HL7 converter
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\* Software version 8.0. For earlier software versions: 0–(32-PEEP) cmH<sub>2</sub>O

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## SERVO-i with MCare

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MCare scalable services add value from day one and ensure that your system operates at peak performance throughout its lifecycle, so that your staff can take advantage of all its features in the best possible way. Extended information and support from MCare Remote Services and MCare Portal help

you monitor and access information on your fleet in an easy way. It also assures you ongoing access to the Maquet line of original consumables and parts, designed to keep your SERVO-i performing at its best.



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This document is intended to provide information to an international audience outside of the US. Products may be pending regulatory approvals to be marketed in your country. Contact your local Getinge Group representative for more information.

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**MAQUET**  
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Getinge Group is a leading global provider of innovative solutions for operating rooms, intensive-care units, hospital wards, sterilization departments, elderly care and for life science companies and institutions. With a genuine passion for life we build quality and safety into every system. Our unique value proposition mirrors the continuum of care, enhancing efficiency throughout the clinical pathway. Based on our first-hand experience and close partnerships, we are able to exceed expectations from customers – improving the every-day life for people, today and tomorrow.