Product Environmental Profile

Servo-u® Ventilator System

GETINGE

Overview

Getinge sustainability ambitions

At Getinge, we take steps to empower our customers to reach their sustainability goals. One way to do this is by focusing on how our products and solutions can be made as resource-efficient as possible. We are committed to reducing our carbon footprint and have set ambitious targets to become net-zero by 2050, in line with the Science Based Targets Initiative (SBTi).

All Getinge manufacturing sites work with environmental management systems in compliance with ISO 14001.

Read more about Getinge sustainability ambitions on our website here.

Ecodesign efforts

Ecodesign is standard practice at Getinge. It focuses on using safer and fewer materials, incorporating circular solutions, and reducing media, energy, and water consumption.

Our ventilator parts are designed for reprocessing and long-lasting operation. Servo-u shares parts with other models, featuring hot-swappable batteries and a reusable expiratory cassette with a one-of-a-kind ultrasonic flow sensor for reliable measurements. All original parts and accessories are designed for durable, high-performance operation.

Product climate impact

Product description

The Servo-u is a universal ventilator system intended for respiratory support, monitoring and treatment of neonatal, pediatric and adult patients.

Featuring unique decision support tools – such as Transpulmonary Pressure measurement, Open Lung Tool®, Servo Compass®, Stress Index, and Edi (the electrical activity of the diaphragm). It is an advanced ventilator with many options for personalized lung protection and weaning. In other words, it can be considered an all-in-one solution, with little need to switch ventilators or devices.

For this Life Cycle Assessment (LCA), Servo-u ventilator system was modeled as seven essential modules:

1) Base unit including back-up batteries
2) Mobile cart
3) Handle
4) Oxygen sensor/ cells
5) Hoses
6) Filters
7) Power cable

While Servo-u is highly customizable, these components represent the core configuration.

The Servo-u is a customizable product with several accessories that can help make the clinical workflow smoother. Only the most essential accessories were included in the scope of the study.

Main assumptions of the LCA study

Getinge conducted a cradle-to-grave Life Cycle Assessment (LCA) of the Servo-u ventilator to understand its environmental impact over its full life cycle. The study focuses on climate change, expressed in kilograms of CO_2 equivalents.

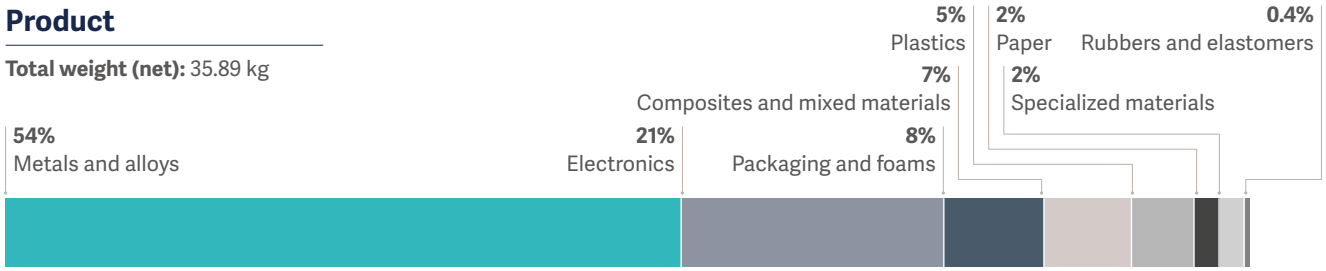
The functional unit for the study was the use of the ventilator calculated across its entire life cycle. The use phase was estimated at 5,000 operational hours per year and 2,000 hours in ready-for-use state. The gas flow was 8 liters per minute, and the gas had an oxygen content of 45%

The assessment covers the product's 10-year service life and uses 2023 as the temporal boundary. A regional average approach was applied for electricity, transport, and oxygen production, based on the sales distribution for that year.

To provide a holistic view, the scope includes the main unit, cart and handle, high-pressure hoses, and power cable. Key consumables included filters and oxygen sensor/cells. The ventilator uses two NiMH backup batteries that are exchanged every two years. In the study, this was approximated as the exchange of one battery per year. Medical air and oxygen were also included in the use-phase modeling. Some accessories, such as the patient interface and breathing circuit, are currently out of scope but will be added in future updates.

Product

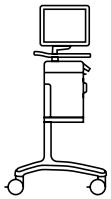
Total weight (net): 35.89 kg



Packaging

Total weight (gross): 4.51 kg

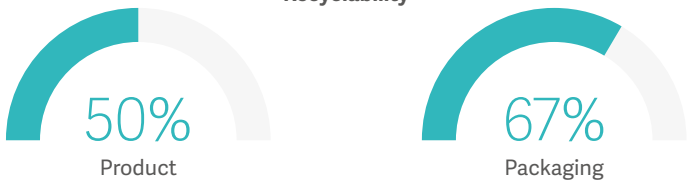
Material indicator



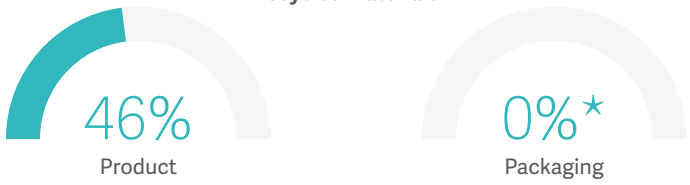
35.89 kg
Total mass of the product (net)

4.51 kg
Total mass of the packaging

Recyclability



Recycled materials



The following materials are considered recyclable: steel, aluminum, bronze, brass, copper (except cables), cardboard, paper, and thermoplastics (PMMA, PVC, ABS, PC, PS, PET, PE, PA, PP and POM). Thermosetting plastics, elastomers and other materials not listed are considered non-recyclable.
*Recycled content is reported as 0% pending supplier verification. This value will be updated once documentation is received.

Product environmental impacts, with a focus on climate impact

After setting the scope of the study, collecting related data and building the model, we could see that the largest share of these emissions, 55%, occurs during the use phase, making this the most impactful life stage of the ventilator. The result is strongly influenced by the significant impact of industrial oxygen production, transport, and handling. Electricity use also contributes notably.

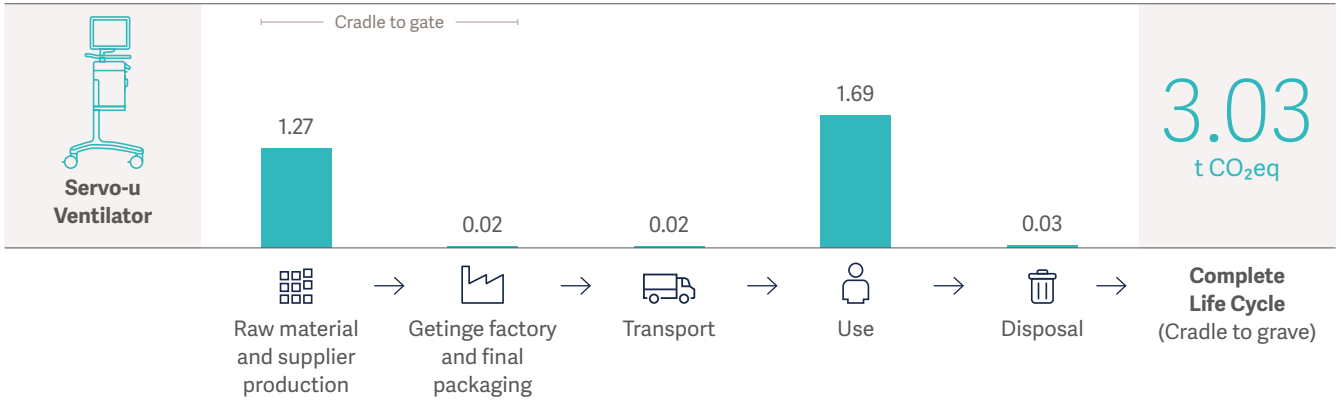
The raw material and component manufacturing phase follows, contributing 1.27 t CO_2eq, or 42% of the total impact. Within this phase, electronics and metals are the material groups that drive impact.

Overall, production, transportation and end-of-life, appear neglible in a cradle-to-grave scenario. This is not to detract from the impact of each in their own right, where improvement is always possible.

To quantify the climate impact, we developed a representative global scenario. It incorporates relevant geographic energy mixes for the production and use phases, representative transport distances from suppliers to key markets, and a standardized end-of-life scenario based on typical waste management practices.

Global Warming Potential (GWP100a)

t CO_2eq



Recommendations for reducing the climate impact

The most effective strategy for reducing the environmental footprint of the Servo-u ventilator during its use phase is to prioritize renewable energy sources for powering the device.

Life Cycle Assessment results also indicate that oxygen production for mechanical ventilation is a major contributor to use-phase impacts. While our customers have limited influence over commercial oxygen generation, awareness of the climate implications of clinical decisions is an important element of a local sustainability strategy.

The LCA and Ecodesign methods

The Product Environmental Profile (PEP) communicates the results of a Life Cycle Assessment (LCA). This methodology assesses the environmental impacts associated with all stages of the life cycle of a product, process, or service. For a product, environmental impacts are assessed from raw material extraction (cradle), through value-chain processing and manufacturing (gate), distribution and use, to recycling or final disposal of the materials from which it is composed.

The LCA study follows requirements of ISO 14040 and ISO 14044 and has been third-party verified by The Research Institutes of Sweden (RISE). The study uses SimaPro software version 9.6.0.1 and the EcoInvent 3.10 database, allocation cut-off by classification. Environmental impacts were calculated using the "EN 15804:2012 + A2:2019" impact assessment method as implemented in SimaPro, with minor adjustments.

All LCA studies include a holistic analysis of relevant environmental impacts and are used as input for ecodesign. Further details are available upon request; please contact the responsible PLM/R&D team.

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