HAMILTON-S1

The first Ventilation Autopilot

HAMILTON MEDICAL

We live for ventilation technology

We live for ventilation technology. Technology that helps caregivers improve the lives of their critically ill patients. We believe that innovation is essential to meet the demands of critical care. To us, innovation is about realizing visionary new ideas and continuously improving existing products, always maintaining the focus on safe, individualized ventilation, as well as ease of use.

We learn from our customers and from multi-disciplinary experts. And we invest in long-term research and development. We develop Intelligent Ventilation solutions: devices and consumables for the ventilation of all critically ill patients – from neonates to adults.

Jens Hallek
CEO
Hamilton Medical AG

Bob Hamilton
CEO
Hamilton Medical, Inc.

Meet the HAMILTON-S1

The HAMILTON-S1 is one of the most advanced mechanical ventilators with a number of unique features. It was the first ventilator featuring the "bedside assistant" INTELLiVENT®-ASV®.

- ✓ Automated control of the patient's ventilation and oxygenation with INTELLiVENT-ASV
- ✓ Real-time patient synchronization with IntelliSync+
- ✓ P/V Tool® Pro for lung assessment and recruitment
- ✓ Transpulmonary pressure measurement
- ✓ High flow oxygen therapy
- ✓ Integrated IntelliCuff® pressure controller
- ✓ Remote access to humdifier controls and status
- ✓ Adult, pediatric, and neonatal ventilation

Flexible device configuration

Customized solution

You can configure the HAMILTON-S1 in several different ways to customize the device for your environment. If using a trolley, you can mount the monitor either on top or in front of the ventilation unit. If the unit is positioned on a shelf, you can mount the monitor on top or to the side using the side-mount option. You can also adjust the orientation and angle of the monitor by turning and tilting it as required.

Optimal visibility

The 360°-visible alarm lamp on top of the HAMILTON-S1 monitor allows you to identify alarms easily. The optional nurse-call capability provides additional support for optimal alarm detection. The 15-inch touch screen was designed for smooth and fast operation. It also gives you an overview of the patient's current ventilation status at a quick glance and provides a reliable basis for therapy decisions.


HAMILTON-S1
INTELLIVENT
ASV
HAMILTON MEDICAL

Ease of use

In close cooperation with users and ventilation experts, our engineers have designed a user interface that is particularly intuitive. Switching between the HAMILTON-S1 and all other Hamilton Medical ventilators is easy because they are all operated according to the same principles.

The Ventilation Cockpit on the HAMILTON-S1 consolidates the monitoring data and displays it as intuitive graphics. These provide a quick overview of the patient's current ventilation status and provide a reliable basis for therapy decisions.

“

We gain time by using INTELLiVENT-ASV, which we can use to accomplish other important tasks that take place in an ICU, such as taking care of the patients and providing essential medical care.

Laurent Buscemi, ICU Nurse
Intercommunal Hospital Toulon, France

The Ventilation Cockpit

1 Main monitoring parameters

All of the main monitoring parameters and alarm limits at a glance. The large characters allow you to see them even from a distance.

2 Dynamic Lung

One quick look shows you tidal volume, lung compliance, resistance, and patient efforts/ triggers in real time. The lungs expand and contract in synchrony with the actual breaths.

3 Vent Status

The Vent Status panel displays six parameters related to the patient's dependence on the ventilator. When all values are in the weaning zone, the panel is framed in green, indicating that spontaneous breathing trials or extubation can be considered.

4 Direct access to main controls

Access and adjust the most important controls for the current mode directly on the main display.

Individualized, lung-protective ventilation

Adaptive, lung-protective ventilation with ASV

- ✓ Supports the earliest possible spontaneous breathing by the patient[1, 2]
- ✓ Shortens the ventilation time in various patient groups[1, 2]

Your bedside assistant INTELLiVENT-ASV

- ✓ Requires fewer manual adjustments than conventional ventilation, consequently reducing the work-load for the healthcare team[3]
- ✓ Follows the latest recommendations for lung-protective ventilation in terms of tidal volumes, driving pressure, and mechanical power[4, 5, 6]

Lung assessment and recruitment with the P/V Tool Pro

- ✓ Hysteresis of the pressure/volume curve can be used for assessing the recruitability of the lung at the bedside[7]
- ✓ May reduce the need for assessing recruitability with a CT scan, when using the PV loop in early on-set ARDS[8]

Synchronization based on waveform analysis with IntelliSync+

- ✓ Waveform analysis is a reliable, accurate, and reproducible method for assessing patient-ventilator interaction[9]
- ✓ In terms of cycling, IntelliSync+ performs at least as well as ETS optimized by clinicians[10]

Automatic cuff pressure control with IntelliCuff

- ✓ Continuous cuff pressure control can decrease microaspiration and VAP[11, 12]

Transpulmonary pressure measurement

- ✓ PEEP set based on transpulmonary pressure can improve compliance and oxygenation in ARDS patients[13]
- ✓ Transpulmonary pressure measurement can avoid the use of ECMO in the most severe patients[14]

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[5] Arnal, J.-M., M. Saoli, and A. Garnero, Heart & Lung: The Journal of Cardiopulmonary and Acute Care. 2019 Nov
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Adaptive Support Ventilation (ASV)

adjusts respiratory rate, tidal volume, and inspiratory pressure continuously, depending on the patient's lung mechanics and effort. ASV adapts ventilation breath-by-breath, 24 hours a day, and from intubation to extubation.

INTELLiVENT-ASV, your bedside assistant

is an advanced ventilation mode based on ASV. The clinician defines the clinical goal for PetCO2 and SpO2. INTELLiVENT-ASV then adjusts CO2 elimination and oxygenation, and keeps the patient within the predefined ranges. Quick Wean supports the clinician in weaning patients from mechanical ventilation.

P/V Tool Pro for lung assessment and recruitment

helps you assess recruitability and set PEEP based on respiratory mechanics. It also provides a repeatable method for quickly performing recruitment maneuvers.

IntelliSync+ keeps an eye on patient-ventilator synchrony

by continuously analyzing waveform shapes hundreds of times per second. This allows IntelliSync+ to detect patient efforts and cycling immediately, and initiate inspiration and expiration in real time. IntelliSync+ applies to invasive and noninvasive ventilation, regardless of the ventilation mode.

IntelliCuff pressure controller

continuously measures and automatically maintains the user-set cuff pressure of an endotracheal or tracheostomy tube in real time.

Transpulmonary pressure measurement

allows optimization of PEEP, tidal volume, and inspiratory pressure. Use it in combination with the P/V Tool Pro to assess lung recruitability more precisely and perform recruitment maneuvers.

Features and options

State-of-the-art ventilation modes

Adult, pediatric, and neonatal ventilation

Integrated high flow oxygen therapy

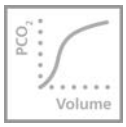
Remote access to HAMILTON-H900 controls and status

Integrated pneumatic and optional Aerogen nebulizer

Integrated control for IntelliCuff pressure controller

Pulse oximetry
(SpO2 and pulse measurement)

Heliox therapy



Mainstream (volumetric) and sidestream capnography

Continuous monitoring of driving pressure

Serial interface for connection to PDMS or patient monitors

Configurable loops and trends

High-performance noninvasive ventilation (NIV)

Hot-swappable battery backup

From the ventilation specialist

E-learning

Hamilton Medical College provides free and open e-learning on mechanical ventilation and ventilators.
Join at: www.hamilton-medical.com/elearning.

Universal ventilator consumables

Our accessories and consumables are specially developed for the highest possible patient safety and ease of use. Choose between reusable and disposable parts according to your institutional policies.

Peripheral devices

Our ventilation portfolio includes an active humidifier, the HAMILTON-H900, as well as the automatic cuff pressure controller, IntelliCuff. Both devices may be used with all kinds of mechanical ventilators.

More information and free simulation software:
www.hamilton-S1.com

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