



# HAMILTON-MR1



Intelligent Ventilation from the ICU to the MRI suite

**GULMOHAR**  
HEALTH CARE PRIVATE LIMITED

**HAMILTON**  
**MEDICAL**  
Intelligent Ventilation since 1983



## 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.

A handwritten signature in blue ink that reads "Jens Hallek".

Jens Hallek  
CEO  
Hamilton Medical AG

A handwritten signature in blue ink that reads "Bob Hamilton".

Bob Hamilton  
CEO  
Hamilton Medical, Inc.

## Meet the HAMILTON-MR1

The HAMILTON-MR1 has been especially developed for the MRI suite. The ICU ventilator combines reliability, compact size, and high performance with patient-adaptive modes that support advanced lung-protective strategies. It is the ideal choice for transporting ventilated patients to the MRI department.

- ✓ MR-Conditional with the use of 1.5 Tesla and 3.0 Tesla static magnetic field scanners
- ✓ The ventilator can remain close to the patient even during MRI scans
- ✓ Integrated TeslaSpy magnetic field navigator
- ✓ Adult, pediatric, and neonatal ventilation
- ✓ Up to 9 hours of battery operating time
- ✓ Independence from compressed air
- ✓ Noninvasive ventilation and integrated high flow oxygen therapy (HFOT)\*
- ✓ Advanced ventilation modes including ASV® - Adaptive Support Ventilation®

\*Always use active humidification during HFOT. Humidifiers are not MR-Safe.



## Portable, flexible, convenient

### For intrahospital transport

The compact design of the HAMILTON-MR1 makes it easy to handle and ideal for clinical transport. Hooks on each side of the trolley enable convenient storage of the breathing circuit and oxygen hose.

The optional transport kit with quick-lock function and specially designed handle allows you to remove the device from its trolley at the press of a button and attach it directly to the bed.

**For neonatal patients** The HAMILTON-MR1 is also suitable for neonatal patients. With tidal volumes as low as 2 ml, demand- flow nCPAP modes, proximal flow sensors developed specifically for neonates, and leak compensation, the HAMILTON-MR1 can safely ventilate even the smallest patients during transport to and from the MRI suite, as well as while in the MRI scanner.





## Ease of use

In close cooperation with users and ventilation experts, our engineers have designed the user interface to be particularly intuitive. Switching between the HAMILTON-MR1 and all other Hamilton Medical ventilators is easy, because they are all operated according to the same principles.

The Ventilation Cockpit on the HAMILTON-MR1 consolidates the monitoring data and displays it as advanced graphics. These provide a quick overview of the patient's current ventilation status and provide a reliable basis for therapy decisions.

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You can take your patients from the ICU down to the MRI suite and not have to change a thing about the ventilation, even when they are on an advanced mode. That is a true advantage because you are not risking lung derecruitment and a patient setback, which would keep him in the hospital longer and make it more uncomfortable for him.

Thomas Berlin, Director of Respiratory Care  
Florida Hospital Orlando, Orlando (FL), USA



# The Ventilation Cockpit

## 1 Main monitoring parameters

All of the main monitoring parameters 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, patient triggering, and resistance 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.



## Adapted to the MRI environment

The HAMILTON-MR1 guarantees continuous, uncompromised ventilation care from the ICU to the MRI scanner and back.

### MR-Conditional

- ✓ MR-Conditional (up to 50 mT) with the use of 1.5 Tesla and 3.0 Tesla static magnetic field scanners
- ✓ Ventilator can remain close to the patient even during MRI scans
- ✓ The trolley's auto-lock brake locks the wheels as soon as you release the handle to prevent it from rolling accidentally towards the MRI scanner
- ✓ Hamilton Medical offers a variety of breathing circuits suitable for the MRI suite. The proximal flow sensor allows you to measure flow and pressure close to the patient's airway, even when using very long breathing circuits

### Integrated TeslaSpy with standalone alarms mirrored on the device for more safety

- ✓ Magnetic field navigator
- ✓ Continuously measures the background magnetic levels, even when the ventilator is switched off
- ✓ Alarms are mirrored on the ventilator GUI and alarm lamp

### Gas source switch

- ✓ Automatically switches between the gas cylinder and central gas supply
- ✓ Uninterrupted supply allows for continuous ventilation



### MR-Conditional technology

enables the HAMILTON-MR1 mechanical ventilator to accompany your patient from the ICU to the scanner, for the duration of the procedure, then back to the ICU again, increasing the safety of care. The HAMILTON-MR1 is specially designed and shielded to ventilate your patient in the vicinity of an MRI scanner, and is MR-Conditional with the use of 1.5 Tesla and 3.0 Tesla static magnetic field scanners.



### The integrated TeslaSpy gaussmeter with standalone alarms mirrored on the ventilator

continuously monitors the magnetic field and gives you an audible and visual signal if you are getting too close. Positioning a medical device too close to the MRI scanner can have fatal consequences. The TeslaSpy alarms are mirrored on the device's GUI and on the alarm lamp. For maximum safety, TeslaSpy continues monitoring even when the ventilator is switched off.



### The gas source switch

enables the ventilator to switch automatically between oxygen supplies. As soon as the central supply is connected, oxygen is drawn from this source instead of the cylinder. The immediate changeover ensures continuous ventilation. The gas source switch only changes from the central supply to the oxygen cylinder when the pressure at the central supply drops below a preset minimum pressure level.



### CPR ventilation

adapts ventilation settings to situations where CPR is being performed. It supports the CPR workflow with quick access to preconfigurable settings, adequate alarm and trigger adjustment, CPR-timer display, and display of the relevant main monitoring parameters and curves.

## Features and options



State-of-the-art ventilation modes



Adaptive Support Ventilation (ASV)



Integrated high flow oxygen therapy



High-performance turbine



Integrated pneumatic and optional AerogenS nebulizer



Compatible with conventional speaking valves



High-performance noninvasive ventilation (NIV)



Leak compensation for NIV and invasive ventilation



Adult, pediatric, and neonatal ventilation

## 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](http://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.

\*Humidifiers are not MR-Safe.





More information:  
[www.hamilton-mr1.com](http://www.hamilton-mr1.com)



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Intelligent Ventilation since 1983

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