

HAMILTON·C1

Intelligent Ventilation



Minimum Size – Maximum Performance

HAMILTON
MEDICAL

Supporting you in saving lives!

HAMILTON-C1 ventilators feature a compact, powerful design that increases the availability of appropriate modes of therapy for ventilated hospital patients. Small enough to fit into almost any ICU environment, and competitively priced, they cover the full range of clinical requirements: invasive ventilation, automated ventilation with Adaptive Support Ventilation (ASV), and Non-Invasive Ventilation (NIV).

Optimum care for every patient

HAMILTON-C1 ventilators deliver a cost effective ICU ventilation solution that's appropriate for all patients – from children to adults. In the ICU, in the recovery room, and in long term care, HAMILTON-C1's fast setup and easy management ensure the most appropriate treatment for every patient.

Reliability and performance

HAMILTON-C1 systems combine reliability and high performance with advanced lung protective strategies and patient-adaptive modes. They are the ideal choice for ICU special care areas, cardiac surgery recovery rooms, step-down or subacute care units, and long-term care centers.

In intensive and intermediate care you look for more than high-end technical performance. You demand ventilators that deliver reliable data and easy-to-follow user guidance for better clinical decisions and improved patient outcomes, together with low running costs throughout the working life of your investment.

In short, you need systems that ensure:

- Ease of use
- Improved patient outcome
- Efficiency through innovation



HAMILTON-C1



Ease of use



Improved patient outcome



Efficiency through innovation

Ease of use

Aren't a dozen ventilation modes more confusing than helpful? Aren't there already more monitoring parameters available than most users ever need? Ventilators clearly need to be simpler to use. Once again HAMILTON MEDICAL has led the way with the HAMILTON-C1: a pioneering mechanical ventilator designed from the ground up for ease of use.

See and understand all important information at a glance

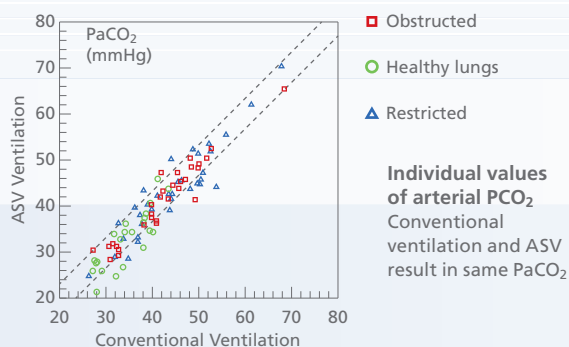
In mechanical ventilation monitoring means curves, numbers and more numbers. But what do they tell us about the patient's condition? The HAMILTON-C1 provides the innovative Ventilation Cockpit to visualize the patient's respiratory mechanics and ventilatory support in an intuitive way.

Provide patient-centered care with fewer resources

Unlike conventional modes, which require you to set many parameters, closed-loop ventilation with Adaptive Support Ventilation (ASV) requires attention to just one: minute ventilation.

Studies show that ASV

- ventilates virtually all intubated patients – whether active or passive and regardless of their lung disease¹
- requires less user interaction, adapts to patient's breathing activity more frequently, and causes fewer alarms²
- adapts to changes in the patient's lung mechanics over time³
- An international multicenter study further shows that ASV provides ventilation at least as safely and effectively as international ventilation experts using conventional modes⁴



¹ Arnal JM et al. Int Care Med 2004;30:84.
² Petter AH et al. Anesth Analg 2003;97:1743-50.
³ Arnal JM et al. Int Care Med 2006;32:120.
⁴ Iotti GA et al. Int Care Med 2010;36:1371-9.



Understand lung mechanics
 The Dynamic Lung expands and contracts in synchrony with actual breaths. It visualizes in real-time:
 – tidal volume
 – lung compliance
 – resistance
 – patient activity



Normal compliance and resistance

HAMILTON·C1



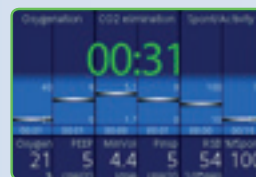
Low compliance (stiff lung) and high resistance

Know when to take the patient off the ventilator

The Vent Status panel gives you a visual representation of 6 parameters related to patient-ventilator dependency, grouped into:

- oxygenation
- CO₂ elimination
- patient activity

Since the panel is user-configurable, it helps you enforce your ICU's weaning protocol.



Low dependency – Consider taking the patient off the ventilator



Highly dependent patient

Improved patient outcome

Non-invasive and invasive ventilation

HAMILTON-C1 offers flexible non-invasive positive pressure ventilation (NPPV) and full-featured invasive ventilation. NPPV is used increasingly in a wide range of clinical situations and is associated with decreased intubation rates, shortened patient stays, improved patient comfort, and a reduced risk of nosocomial infection, all which may lead to reduced overall mortality.

High reliability and user-friendliness

Inadequate orientation/training and communication breakdown between staff members are by far the most important causes of deaths or injuries related to long-term ventilation.¹ The Ventilation Cockpit plays a crucial role in simplifying the operation of the ventilator and interpretation of monitored data.

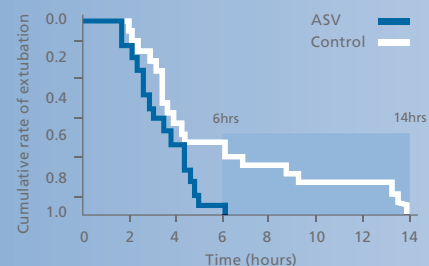
In addition, the specially designed alarm lamp at the top of the unit ensures that an alarming ventilator is immediately identified, without the need to look at the screen.

Putting the patient in the centre

HAMILTON MEDICAL's ventilators are designed to achieve best patient compliance with the applied ventilation therapy, e.g. dimmable sounds and lights let the patient rest during night times. Optimal synchronisation of breath delivery with the patient efforts support early and weak patient activities. Monitoring and alarming are adapted to the challenges of non-invasive ventilation. The use of speaking-valves is possible, allowing the patient to communicate with the environment.



Reduce time on the ventilator by over 50 %
ASV facilitates shorter times on the ventilator: 6 hours with ASV as compared to 14 hours with conventional ventilation.²



¹ Preventing ventilator-related deaths and injuries. Sentinel Event Alert. 2002 Feb 26:1-3.

² Sulzer CF et al. Anesthesiology. 2001 Dec; 95:1339-45

HAMILTON·C1



IntelliTrig

Changing breathing patterns or circuit leaks are a challenge in non-invasive ventilation. With the innovative IntelliTrig technology, the HAMILTON-C1 automatically responds to varying leaks and adapts sensitivity thresholds for optimal response to the patient's breath.



ASV

Adaptive Support Ventilation (ASV) is a closed loop mode based on a breath-by-breath "assess, optimize and achieve" concept:

1. Assess the patient's lung mechanics.
2. Optimize the tidal volume/respiratory frequency combination based on lung mechanics.
3. Achieve optimum tidal volume/respiratory frequency by automatically adjusting mandatory rate and inspiratory applying lung-protective strategy rules.

Efficiency through innovation

Intelligent Ventilation with ASV means fewer days on the ventilator and the use of less-invasive ventilation modes. Clinicians can spend more time with the patient and ensure shorter stays in the ICU.

Lung protective strategies

ASV employs lung protective strategies to minimize complications from AutoPEEP and thus volutrauma/barotrauma. ASV also prevents apnea, tachypnea, excessive dead space ventilation, and excessively large breaths.

Patient comfort

ASV promotes free breathing for patients in all ventilation modes and phases. It encourages spontaneous activity right from the start of ventilation and promotes weaning from first deployment.

Decision support

ASV technology and HAMILTON MEDICAL graphical interfaces, recognized as the best in the field¹, give clinicians “at a glance” confirmation of critical parameters and patient status as a valuable aid to clinical judgment.

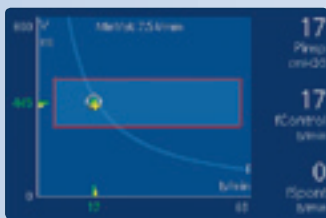


¹ Vignaux L et al Int Care Med 2009; 35:1687-1691

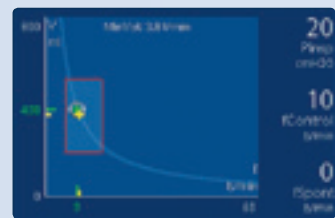
HAMILTON·C1



ARDS – the safety frame allows lower tidal volumes and higher rates to limit pressures applied.



COPD – the safety frame allows higher tidal volumes but with lower rates to avoid air trapping.



If you want to know more

Beside its unique features, the HAMILTON-C1 includes everything you expect from a high-performance ICU ventilator:

- a choice of ventilation modes for invasive and optionally noninvasive ventilation
- an extensive monitoring package
- the ability to ventilate adult and pediatric patients

This brochure is not designed to give you an exhaustive overview of all the features and functions of the HAMILTON-C1. You will find detailed information and a simulation on: www.hamilton-medical.com/C1

Find the same ICU ventilator performance and unique user interfacing at the other members of the HAMILTON MEDICAL compact ventilator family:

The **HAMILTON-MR1** is designed to ventilate the adult or paediatric ICU patient within the vicinity of an MRI.

The **HAMILTON-T1** is designed to ventilate the adult or paediatric high acuity patient at any place around the world – even in helicopters.

HAMILTON-MR1

HAMILTON-T1



Option: Enhanced ventilation packages. Adds DuoPAP/ APRV and/or NIV/NIV-ST capabilities to your ventilator



Option: Enhanced monitoring package. Adds trend and loop informations to your ventilator.



HAMILTON-C1

Touchscreen and single turn wheel operation

You can operate the HAMILTON-C1 with the touchscreen or with a single turn wheel. Hard keys give direct access to the most important functions.

Alarm lamp

When you are at a distance or even when several devices are operating in the same room, you can immediately identify an alarming ventilator by the alarm lamp at the top.

Interface for PDMS, patient monitor, and nurse call

The optional interfaces provide ports for connection to hospital monitors, Patient Data Management Systems (PDMS), and nurse call systems.

High-performance turbine

The turbine can deliver up to 210 l/min flow. This assures best performance in high-demand patients on NIV modes of ventilation.



Flexible device configurations

To guarantee maximum flexibility you can configure the HAMILTON-C1 with several parts and options: trolley, different breathing circuits, optional humidifier, O₂ cylinder, support arm and much more.



Protection against cross-contamination by a high efficient air inlet filter in front of the turbine (HEPA 13)



Increase the clinical assessment capabilities of the HAMILTON-C1 by adding the volumetric CO₂ monitoring option

For further information about the HAMILTON-C1,
please contact:

HAMILTON MEDICAL AG

Via Crusch 8
CH-7402 Bonaduz
Switzerland

☎ (+41) 81 660 60 10

☎ (+41) 81 660 60 20

www.hamilton-medical.com



689330/00 Specifications are subject to change without notice. ASV and DuoPAP are trademarks of HAMILTON MEDICAL.
©2010 HAMILTON MEDICAL AG. All rights reserved. Printed in Switzerland. Special thanks to the Spital Davos, Switzerland.

HAMILTON
MEDICAL