



HAMILTON-C1 neo

The breath of life



Intelligent Ventilation for neonates



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For more than 30 years we've been developing intelligent ventilation solutions to provide safer care for all ICU patients, even the tiniest of them. Now we have channeled that wealth of expertise into our most compact device to make it easier for you to help your most fragile patients.

Having their newborn baby start life in the NICU is not something any parent-to-be could ever imagine. The chances of survival often rest with the provision of adequate ventilatory support, however this in itself can place significant strain not only on the tiny patient, but also on you as the caregiver. Our aim is to support you as much as we can in offering those newborns the best possible care, so they have the chance to grow towards a brighter future.

Working closely together with users and respiratory specialists, our engineers have taken the most compact device in our range and equipped it with our proven neonatal ventilation capabilities to create the HAMILTON-C1 neo. With nCPAP modes and high flow oxygen therapy available as additional options, the HAMILTON-C1 neo is an extremely versatile ventilator that offers you space and cost efficiency without sacrificing on performance.

Jens Hallek
President
Hamilton Medical

Advanced technology at their side

Comprehensive care for newborns in just one device

The HAMILTON-C1 neo ventilator combines invasive and noninvasive modes* with the options of nCPAP and high flow oxygen therapy in a single, compact device. Both the small footprint and the integrated high-performance turbine, which enables the HAMILTON-C1 neo to be operated independently of a compressed air supply, ensure maximum mobility. This makes it an ideal companion for your smallest patients in the intensive care unit, emergency ward, recovery or delivery room, as well as during intrahospital transport.

- ✓ State-of-the-art invasive ventilation modes
- ✓ Synchronized noninvasive ventilation*
- ✓ Demand-flow nCPAP modes*
- ✓ High flow oxygen therapy*
- ✓ Independent of compressed air supply
- ✓ SpO2 and CO2** measurement
- ✓ Leak compensation in every mode
- ✓ More than 4 hours of battery operating time and less than 5 kg in weight



* Optional - not available in all markets
** Volumetric or sidestream



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The HAMILTON-C1 neo combines the performance of a NICU ventilator with a small footprint and a very reasonable price. It's the ideal device to complete our high-end fleet for neonatal ventilation.

Dr. Süha Demirakça, Senior Physician PICU & Pulmonology
Clinic for Pediatric Medicine, Mannheim, Germany

Sensitivity and synchrony for your tiniest patients

Lung protective ventilation

The HAMILTON-C1 neo provides tidal volumes as low as 2 ml for effective, safe, and lung-protective ventilation even for the smallest patients.¹ Both the proximal flow sensor, designed to minimize dead space, and the neonatal expiratory valve were developed specifically for neonates. The precise measurement of pressure, volume, and flow directly at the airway opening ensures the required sensitivity and a quick response time. Your most fragile patients should benefit from better synchronization and less work of breathing as a result.

Adaptive synchronization, even with uncuffed tubes

Leaks are one of the issues encountered in the ventilation of neonates as a result of using uncuffed tubes. Using the IntelliTrig leakage compensation function, the ventilator identifies the leak by measuring the flow at the airway opening and uses this data to automatically adjust the gas delivery, while still remaining responsive to the set inspiratory and expiratory trigger sensitivity (ETS). This ensures adaptive synchronization with the neonate's breathing pattern in both invasive and noninvasive modes.



Effective, safe, and lung-protective ventilation for the most fragile patients



Modes to meet the needs of newborns

Automatic adjustment, efficient leak compensation

The nCPAP modes of the HAMILTON-C1 neo are engineered in such a way that you only need set the desired CPAP/PEEP. The flow is subsequently adjusted automatically based on the patient condition and variation in leakage, which prevents unintended peak pressures and guarantees highly efficient leak compensation. The proximal pressure measurement is designed to minimize delay between a change in condition and the corresponding flow adjustment. Further benefits of this nCPAP technology may be quieter operation and thus less disturbance for neonatal patients, as well as a lower oxygen consumption.

Free breathing in each ventilation phase

In addition to the standard nCPAP mode, the HAMILTON-C1 neo also features the biphasic nCPAP-PC (pressure controlled) mode. This mode allows you to set two pressure levels as well as the rate and inspiratory time. The flow is also adjusted as needed in this mode. The pneumatic concept of the HAMILTON-C1 neo enables the neonate to breathe freely at any time on both pressure levels.



Neonate with nCPAP mask and nCPAP generator



Therapy options to help them get ahead

Improved ventilation and oxygenation

The HAMILTON-C1 neo offers the option of an integrated high flow oxygen therapy mode. With this enhancement, the device gives you a variety of therapy options. In just a few steps, you can swap the interface and use the same device and breathing circuit to accommodate the changing needs of your neonatal patients.

High flow oxygen therapy has similar rates of efficacy to other forms of non-invasive respiratory support (nCPAP, NIPPV) for preventing treatment failure, reintubation, chronic lung disease, and death. When compared to nCPAP, high flow oxygen therapy after extubation has been shown to reduce nasal trauma and lower the incidence of pneumothorax.²

Improved respiratory mechanics and lower metabolic cost

The active heated humidification during high flow oxygen therapy may benefit pulmonary compliance and conductance³, as well as lowering the metabolic cost of gas conditioning⁴. Heated humidification also improves mucociliary function, facilitates secretion clearance, and reduces atelectasis formation, with a better ventilation-perfusion ratio and improved oxygenation as a result.^{5,6}

Together with the HAMILTON-H900 humidifier, the HAMILTON-C1 neo provides heated and humidified oxygen/air mixtures with flow rates from 2 – 12 l/min. This combination is designed to deliver completely saturated gas at precisely controlled temperatures for neonatal patients.



Active humidification during invasive ventilation



HAMILTON-H900 with breathing circuit set for neonates

Accessories and consumables



Active humidification

Hamilton Medical has developed a breathing circuit set specially designed for even your smallest patients. The pre-mounted set can be used up to 28 days per patient and includes wall-heated circuits, temperature probe, water refill tube, Y-piece, and water chamber. The detachable, nonheated extension allows the use in incubators.



nCPAP

The nCPAP generator is designed to offer maximum comfort for neonates receiving nCPAP or noninvasive ventilation therapy. The system features a flexible connection and adapter with an adjustable angle for an optimal fit. Soft materials and low noise levels promote the gentlest possible care for neonatal patients.



Prongs and masks are available in different sizes to provide an optimal fit.

For further information, contact your local Hamilton Medical sales representative.

Your contact:

Hamilton Medical AG
Via Crusch 8, 7402 Bonaduz, Switzerland
☎ +41 58 610 10 20
info@hamilton-medical.com
www.hamilton-medical.com