

MOVES® vs. MOVES® SLC™

	MOVES®	MOVES® SLC™
<p>Device Description</p>	<p>MOVES® is an emergency transport ventilator that is portable, computer-controlled and electrically powered. It is intended to provide continuous or intermittent ventilatory support for the care of adults who require mechanical ventilation.</p> <p>MOVES® is intended to deliver high inspired oxygen concentrations via the MOVES® O₂ mask to spontaneously breathing patients who require elevated inspired oxygen.</p> <p>MOVES® provides the following supplemental functions for patients that it is ventilating, or to whom it is delivering elevated inspired oxygen:</p> <p>Suction - The MOVES® suction pump is intended for aspiration and removal of fluids, tissue (including bone), gases, bodily fluids or infectious materials from wounds or from a patient's airway or respiratory support system.</p> <p>Supplementary Oxygen - The MOVES® is intended to provide supplemental oxygen enriched air to patients who require supplemental oxygen.</p> <p>Patient Monitoring - The MOVES® is intended to monitor physiological parameters of patients and provide these parameters to a healthcare provider for interpretation in the form of physiological data and system alarms. Physiological data and system alarms will be available to the care provider from the monitor.</p>	<p>The MOVES® SLC™ is a portable computer controlled, electrically powered ventilator intended to provide continuous or intermittent ventilatory support for the care of individuals who require mechanical ventilation.</p> <p>Suction - The MOVES® SLC™ suction pump is intended for aspiration and removal of fluids, tissue (including bone), gases, bodily fluids or infectious materials from wounds or from a patient's airway or respiratory support system.</p> <p>Supplementary Oxygen - The MOVES® SLC™ is intended to provide supplemental oxygen enriched air to patients that require supplemental oxygen.</p> <p>Patient Monitoring - The MOVES® SLC™ is intended to monitor physiological parameters of patients and provide these parameters to a health care provider for interpretation in the form of physiological data and system alarms. Physiological data and system alarms will be available to the care provider from the monitor.</p>

Intended Use	The MOVES® is intended to be operated in a transport and emergency setting.	The MOVES® SLC™ is intended to be operated in a transport and emergency setting.
Population	Adults (40-120 kg)	Adults & Pediatrics (10-120 kg)
Overall Design	<p>From the perspective of overall device design, the SLC™ differs from MOVES® in the following ways:</p> <ul style="list-style-type: none"> The user interface (UI) screen and controls have changed. The screen is now larger with full colour, and the layout of information on the screen has changed. The overall organizations of menus within the UI remains consistent with the MOVES® device. Some of the dedicated on non-dedicated UI buttons found on the MOVES® device has been replaced with a jog wheel on the SLC™. The way the ventilator cartridge is installed into the device has changed. With regards to MOVES®, the ventilator cartridge had CO2 absorbent material contained in a housing that was installed externally to the device. With the SLC™, the ventilator cartridge contains the CO2 absorbent (same material, size and quantity as MOVES®) without a housing, and the cartridge is installed internally on the SLC™ (basically, the disposable housing has been removed from the cartridge and the SLC™ now contains a housing for the active CO2 absorbent material found in the cartridge). SLC™ batteries are installed into the device and are completely enclosed and protected within the device. This allows the battery housings to be made with plastics. In regards to MOVES®, the batteries were not fully enclosed (one face was always exposed externally) and as such the battery housings were made from metals. 	
Ventilator	<ul style="list-style-type: none"> Meets BS EN 794-3 standard for transport ventilators Ventilator modes include IMV, SIMV, A/C and PSV Pressure and volume control ventilation available where applicable; tidal volume settings from 100-750mL 	<ul style="list-style-type: none"> Meets BS EN 794-3 standard for transport ventilator and ISO 80601-2-12 standard for critical care ventilators Ventilator modes include IMV, SIMV, A/C, PSV and APRV <p>OVERALL:</p> <ul style="list-style-type: none"> With the exception of the implementation of the APRV ventilator mode, and tidal volume-controlled setting expansion to 50-750mL to support pediatric patients, the ventilator module's software (including settable ventilator parameters such as frequency, I:E ratio etc.) remain the same as that in the MOVES® device. In comparison to MOVES®, the theory of operation of the circle-system ventilator with respect to design is essentially the same. All safety measures remain the same, and in most cases critical components are identical to those found in MOVES® (such as the ventilator blower, ventilator bag, flow meters etc.).
Patient Monitoring	Patient monitors include:	<p>Patient monitors include:</p> <ul style="list-style-type: none"> 3 IBP channels – all channels fully settable to either ABP, ICP or CVP

	<ul style="list-style-type: none"> • 2 IBP channels – 1 channel dedicated to ABP, the other to CVP/ICP • NIBP (Suntech) • 1 patient temperature sensor • SpO2 (Nonin) • 3-lead ECG • Respiratory gas monitoring (Oxigraf) 	<ul style="list-style-type: none"> • NIBP (Suntech) • 2 patient temperature sensors • SpO2 (Masimo) • 3, 4, 5 or 12-lead ECG • Respiratory gas monitoring (Oxigraf) <p>OVERALL:</p> <ul style="list-style-type: none"> • Patient monitoring infrastructure (mechanical, electrical and software) remains mostly consistent between devices with regards to IBP, NIBP, patient temperature and respiratory gas monitoring functions. • 12-lead ECG has been implemented only for display purposes; this function does not provide any automated diagnostic indicators and as such operates in the same fashion as the 3-lead ECG found on the MOVES® device. • Masimo pulse oximetry technology has been implemented and verified in the device by Masimo. This addition allows SLC™ to offer optional additional Masimo Rainbow-SET parameters (SpCO, SpMet, SpHb etc.) if the customer desires.
Oxygen Concentrator	<ul style="list-style-type: none"> • Uses the SeQual/Caire ATF module as the basis for oxygen concentration • Provides product gas to the ventilator module for consumption in Ventilator modes as well as for spontaneously breathing patients when operating in O2 Mask mode (concentrator operates the same regardless of mode) 	<ul style="list-style-type: none"> • Uses the SeQual/Caire ATF module as the basis for oxygen concentration • Provides product gas to the ventilator module for consumption in Ventilator modes as well as for spontaneously breathing patients through an external port when operating in O2 Supplement mode (concentrator operates the same regardless of mode) <p>OVERALL:</p> <ul style="list-style-type: none"> • The theory of operation of the oxygen concentrator module is consistent between devices (pressure swing adsorption), and in general terms the physical setup of the modules is also consistent. • The concentrator module control software operates the module in a manner consistent with the MOVES® device. • In most cases, components contained in the SLC™ concentrator module are exactly the same (flow meter, VSO, pump etc.) or have very slight modifications from the comparable parts in the MOVES® device (ATF

		<p>module is exactly the same with the exception of having differently angled inlet/outlet ports).</p>
Suction	<ul style="list-style-type: none"> Suction is provided via a pump, with pressure settings ranging from 100-325 mmHg 	<ul style="list-style-type: none"> Suction is provided via a pump, with pressure settings ranging from 100-325 mmHg <p>OVERALL:</p> <ul style="list-style-type: none"> The suction function on MOVES® and SLC® is identical.
Power	<ul style="list-style-type: none"> Requires external power supply/charger for powering device from wall power or charging batteries Batteries are 7-cell lithium polymer rechargeable 	<ul style="list-style-type: none"> Requires external power supply/charger for powering device from wall power or charging batteries Batteries are 7-cell lithium polymer rechargeable <p>OVERALL:</p> <ul style="list-style-type: none"> The external power supply/charger is identical between the SLC™ and MOVES™. The batteries are functionally the exact same between devices. Physically, the batteries are almost exactly the same between devices with the exception of their external housings. Since the MOVES® batteries were partially exposed externally, they required more rugged metal housings. In the SLC™, the batteries are enclosed and protected within the device, and as such only require plastic housings.
Accessories	<p>Device accessories include:</p> <ul style="list-style-type: none"> Adult patient monitoring connectors Suction bucket, hoses and yankauer Device clamps for attachment to stretcher Ventilator cartridge (with CO2 absorber) and ventilator breathing circuit O2 Mask cartridge and breathing circuit (for spontaneously breathing patients requiring supplemental oxygen) 	<p>Device accessories include:</p> <ul style="list-style-type: none"> Adult and pediatric patient monitoring connectors Suction bucket, hoses and yankauer Device clamps for attachment to stretcher Ventilator cartridge (with CO2 absorber) and ventilator breathing circuit Optional tethered remote screen interface for monitoring or changing device function up to 3 metres from the device <p>OVERALL:</p> <ul style="list-style-type: none"> Patient monitoring accessories now include pediatric class connectors in addition to those intended for adults (patient temperature probes, NIBP cuffs etc.). O2 Mask mode-related accessories were eliminated as concentrator output for spontaneously breathing patients is now

		<p>supplied through an outlet port as opposed to through the ventilator module as done previously with MOVES®.</p> <ul style="list-style-type: none"> • A remoted screen interface (custom software programmed onto a dedicated Panasonic ToughPad) was developed that allows the user to observe or change the function of the device (permissions are controlled through a password protected menu and allow for institutional preferences to be implemented). The remote screen requires a physical, wired connection to the SLC™ in order to establish connection. The wired connection allows the remote screen to move no more than 3 metres from the device.
Bench Testing	<ul style="list-style-type: none"> • In general terms, testing efforts between the MOVES® and SLC™ devices is mostly consistent. • MOVES® internal verification and validation test procedures were used as the basis for the development of all SLC™ verification and validation test procedures. • External standards testing of SLC™ was conducted in a consistent manner with that completed previously with MOVES®. • Additional testing to ISO 80601-2-12 (accuracy and safety of critical care ventilators) was completed on SLC™. • Both devices have been evaluated by the United States Army Aeromedical Research Laboratory (USAARL). This effort included MIL-STD-810-based testing such as vibration for military aircraft and ground vehicles, extreme climatic testing, EMC testing, blowing sand, dust and rain testing, etc. 	