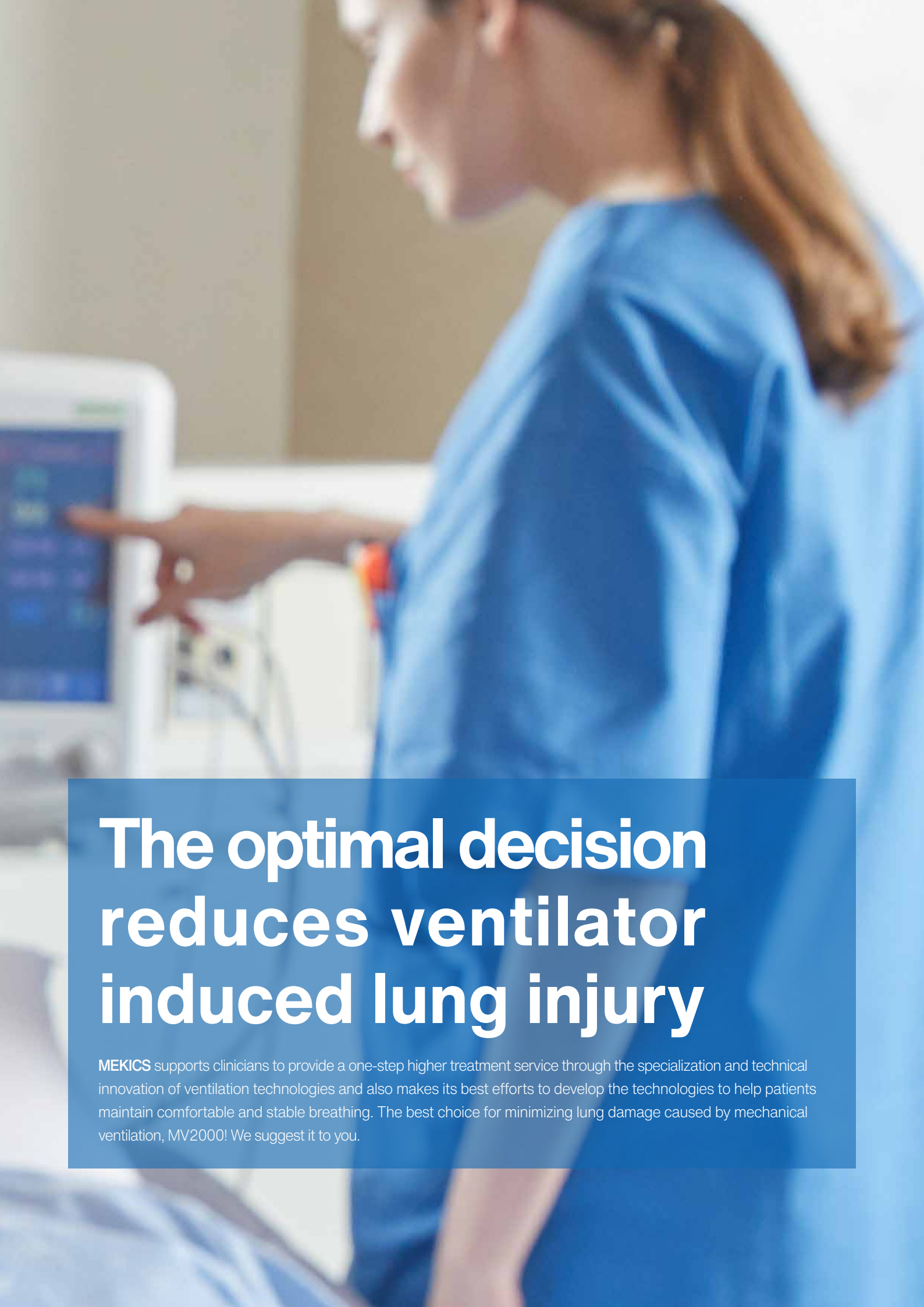
Respiratory Care

All in One Intensive Care Ventilator Solution

MV2000

MCN-WM-1801 Rev.1.06 20210810



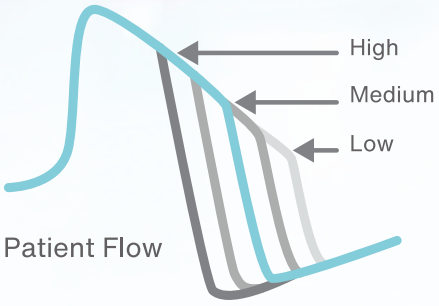
The optimal decision reduces ventilator induced lung injury

MEKICS supports clinicians to provide a one-step higher treatment service through the specialization and technical innovation of ventilation technologies and also makes its best efforts to develop the technologies to help patients maintain comfortable and stable breathing. The best choice for minimizing lung damage caused by mechanical ventilation, MV2000! We suggest it to you.

Asynchrony Management

The leakage occurred during the use of a ventilator is a main cause of asynchrony[1] between a patient and a ventilator and can have negative effect on comfort of the patient, use period of the ventilator, and intensive care unit (ICU) stay length, and death rate.[2] Leakage occurs mainly in tube cuff and circuit and can occur during the chest tube drainage. Continuance of asynchrony between a patient and a ventilator increases Work of Breathing (WOB) and can extend the use period.

Rise Time & Flow Cycle control



Rise time

By setting the time required to arrive at the intake air pressure through the setup of rise time, it can supply intake air flow that matches patients' demand flow. At this time, the shorter the setting time is, the more peak inspiratory flow rate increases. On the contrary, longer setting times reduce the peak inspiratory flow rate.

Flow Cycle (Exhalation sensitivity, Ex_Sens)

Flow cycle determines the point where an expiration is possible according to the patient's expiratory efforts, and ends inspiration and the inspiration converts into expiration once the flow is reduced to the set ratio (%) based on peak inspiratory flow (100%).

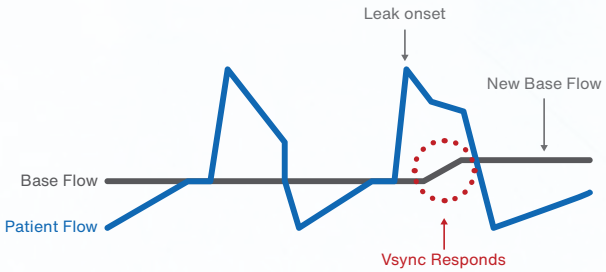
1 Jun Oto MD PhD, Christopher T Chenelle, Andrew D Marchese, and Robert M Kacmarek PhD RRT FAARC [Respir Care 2013;58(12):2027–2037. © 2013 Daedalus Enterprises]
2 Carles Subira´, Candelaria de Haro, Rudys Magrans, Rafael Ferna´ndez, and Lluis Blanch, Minimizing Asynchronies in Mechanical Ventilation: Current and Future Trends, Respiratory Care April 2018 Vol63 No.4

Leak compensation with trigger-synch

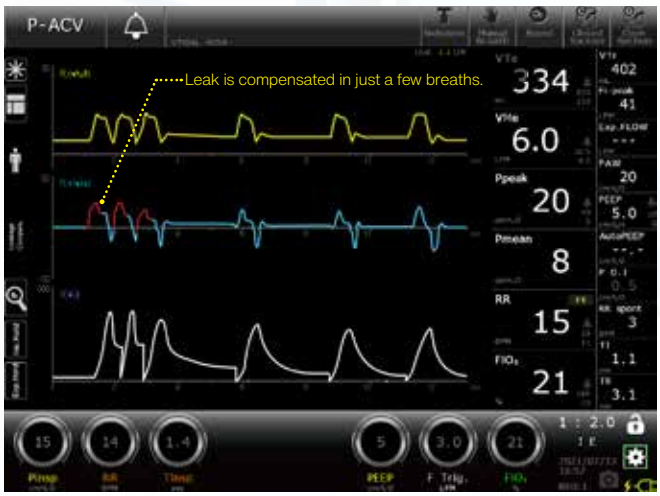
- ✓ It prevents the reduction of functional residual capacity(FRC) by preventing the reduction of PEEP.
- ✓ It minimizes asynchrony between a patient's breathing and a ventilator by detecting spontaneous breathing even during leakage.

MV2000's Leak Compensation is a function that compensates for a maximum leakage of 30LPM. The Leak Compensation function detects the problem and compensates for the leak when it is difficult to maintain PEEP due to auto-triggering caused by the leak. also, trigger sensitivity does not need to be adjusted as it is compensated automatically.

Once the Leak Compensation is activated, it detects the problem just with several breaths, and compensates for the leakage volume automatically. The leakage volume is indicated on the pressure curve of the main screen, enabling you to check the compensation details.



<Reset baseline leak flow rate>

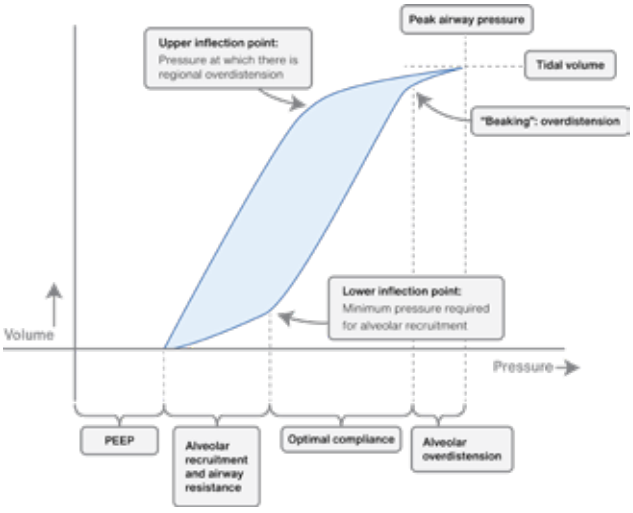


Lung protective ventilatory strategy

PV Tool

- Using the Low Flow, Pressure-Volume Loop graph that can identify static lung mechanics is recorded.
- As PEEP when PV Tool starts and PEEP when PV Tool ends can be set differently, it not only can be used for recruitment maneuvers but also help the setting of optimal PEEP.
- PV Tool assists the confirmation of a lower/upper inflection point, and also lower tidal volume strategies based on measurement by automatically calculating and showing one-time ventilation that can be supplied between the two points.
- The measurement values can be stored according to users' selection, and it helps an easy comparison between lung mechanics and patients' current state.

MV2000 can help in the prevention of complications caused by the use of a ventilator by assisting in the lung protective ventilation strategy.[3]



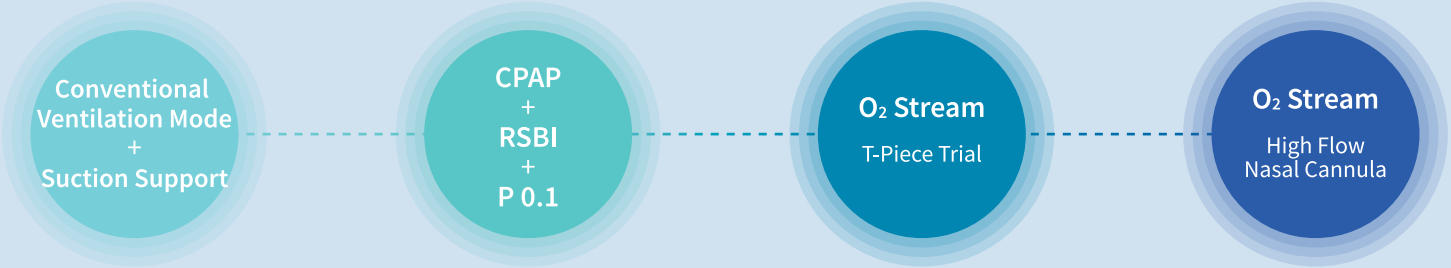
[3] Gillette MA, Hess DR, Ventilator-induced lung injury and the evolution of lung-protective strategies in acute respiratory distress syndrome, Respiratory Care, 01 Feb 2001, 46(2):130-148

Reduce VAP on MV2000

VAP = Ventilator Associated Pneumonia

Ventilator-associated pneumonia (VAP) is a hospital acquired bacterial pneumonia that may occur during the use of a ventilator. It occurs frequently in ICUs and its main cause is tracheal intubation. The incidence rate of VAP from tracheal intubation was 7~21 times higher than other existing patients and the incidence of complications was also higher by 28%.[4] In order to reduce the occurrence of VAP, microbial colonization and microbial aspiration[5] must be prevented.

Non-disconnection solution for successful weaning



Closed suction support

Prevention of asynchrony and PEEP caused the negative pressure due to suction

Closed suction is useful for maintaining patients' oxygen saturation compared to open suction, and results in an 8-fold decrease in the occurrence of VAP. Thus, it is evaluated to be a very effective method for critical patients who receive treatment with ventilation where hypoxia and VAP occur frequently.[6] MV2000's Closed Suction Support is a function that supports such suction method and once it functions, the existing ventilation mode stops and CPAP mode of the existing set PEEP+3cmH2O is operated. The reason why it is operated as such is to prevent the reduction of asynchrony (which starts by mistaking machine respiration for patients' inspiratory response) and PEEP caused by the negative pressure that occurs during the operation of suction. Also, O2 Booster works at this time. This is similar to the 100% O2 function of other equipment, but the function is deactivated and the mode returns to the previous one if additional oxygen is supplied for two minutes to the set oxygen concentration and the button is pressed again.

4 Respir Care 2010;55(4):467- 474.
5 Craven DE. Epidemiology of Ventilator-Associated Pneumonia. Chest 2000; 117:186S-187
6 이은숙, 김성효, 김정숙(2004). 폐쇄형 흡인술이 인공호흡기의 환자의 산소포화도, 인공호흡기 관련 폐렴 및 흡인간호 효율성에 미치는 영향, 대한간호학회지, 23(7),1315~1325

O2 Stream

NIV+HFNC

Heated Humidified High Flow Nasal Cannula (HFNC) has an advantage of reducing inspiratory WOB by supplying heated humidified oxygen exceeding the patients' inspiratory demand through the nose, increasing functional residual volume by causing PEEP, optimizing nasal or upper respiratory mucosal condition, and ultimately reducing WOB of patients and improving lung oxygenation by reducing expiratory residual gas from anatomical dead space.

MV2000 can safely manage patients without additional equipment even when patients need breathing assistance again after being weaned from the ventilator as it has ventilation modes of HFNC (O2 Stream) and NIV (Spont + PSV & Leak compensation).

Easy,
Safe & Comfort care

Hemodynamics monitoring

Completion of a very simple and necessary breathing management system without requiring additional patient monitoring

SpO2 & EtCO2 Measurements

It is an option that provides information on CO2 and SpO2, products of metabolism through a ventilation. It lowers the dependency on Arterial Blood Gas Analysis (ABGA) and provides useful information for medical staff to treat patients without requiring a separate patient monitoring system.

Two types of nebulization system

MV2000 EVO5 provide 2 types of nebulization system, micropump nebulizer and pneumatic nebulizer.

Single use
Micro-pump
Nebulizer

Reusable
Micro-pump
Nebulizer

Basic type

Pneumatic nebulizer (medicine is delivered through air)

Optional type

Micropump nebulizer (Vibration produces finer particles that are more effectively absorbed by the patient)

All in one central monitoring system

Dual LCD screen : 32 bedsides patient monitoring system

Single LCD screen: 32 bedsides monitoring display

10 days graphic trend for each patient monitor

Displays 12 waveforms of patient monitoring for each patient monitor

Displays 3 waveforms of a ventilator display

Available wireless LAN or Cable wired network

Specifications

- MV2000 EVO5 is ICU ventilator with useful and variety mode to care intensive lung disease patient. This system have basic to advanced ventilation mode and high frequency ventilation mode.
- MV2000 EVO5 is good solution for variety clinical requirement in Intensive lung care.

Patient type		Adult, Pediatric, Neonate (Predicted body weight : Up to 150kg)
Display		15"Color TFT1024*768, Touch Screen & Knob, HDMI (External Monitor)
Peripheral Port		USB(Screen Capture), Micro SD(SW Upgrade)
Built-in Nebulizer		Pneumatic Type
Tidal Volume		2ml to 2500ml
Inspiratory Pressure		0 to 99 cmH2O
Pressure Support		0 to 99 cmH2O
Respiratory Rate		0 to 150 bpm
Inspiratory Time		0.1 to 9.9 Sec
PEEP/CPAP		0 to 50 cmH2O
En-Sense		10 to 80%
Ex-Trig		5 to 80%
Trigger sensitivity	**Pressure**	0.1 to 20 cmH2O
	Flow	0.1 to 20 l/min
FiO2		21 to 100%
Flow Limit		10 to 60 lpm
Inspiratory Flow Rate		5 to 120 lpm
Setting Neb. Time		10 to 180min
Ventilation Mode		PACV, PSIMV, VACV, VSIMV, Spont, Apnea Back-up Ventilation,O2 Stream, PRVC tBivel, AwPRV, AutoVent, TCPL-AC, TCPL-SIMV, PRVC-SIMV, CPR
Apnea Type		PRVC, V-ACV, PACV, TCPL-AC & SIMV
Measurement Display	**Wave**	Pressure-Time, Flow-Time, Volume-Time
	Trend	VE/min, Pmean, Ppeak, PEEP, Vte, RR, RA, SpO2, PR, iCO2, EtCO2
	Loops	Pressure-Volume, Flow-Volume, Pressure-Flow
Air Compressor	**Efficiency**	40l/min; 3.5bar
Recharge Battery	**Back-up time**	3 hours
Power Supply	**Voltage range**	100-230 VAC, 1A, 50/60 Hz
Operating Condition	**Temperature**	10 to 40℃ (50 to 104 ℉)
	Relative humidity	10 to 90%

CE 2460

As MEKICS's products are ceaselessly improved, the actual product may differ from the descriptions, specifications, and the pictures in this publications.

MEKICS. CO., Ltd

Headquarters / Factory
21, Sangjiseok-gil, Paju-si, Gyeonggi-do, South Korea 10911

Branch Office
12, Moraenae-ro 7-gil, Mapo-gu, Seoul, South Korea 03949

www.mek-ics.com