

# Miniaturize Chest Compressor

## MCC-E5

### MCC-E5 TECHNICAL SPECIFICATIONS

COMPRESSIONS		AC POWER ADAPTER	
<b>COMPRESSION MODE</b> 1)Continuous mode 2)30:2 mode	<b>COMPRESSION DEPTH</b> Fixed depth is 52 ± 2mm Setting range is 30 to 55 mm ± 2mm	<b>SIZE(length×width×height)</b> 205mm×105mm×48mm	<b>OUTPUT</b> DC25.9V
<b>COMPRESSION DUTY CYCLE</b> 50±5%	<b>COMPRESSION FREQUENCY</b> Fixed-rate is 102 ± 1 compressions per minute Setting range is 100 to 120 ± 1 compressions per minute	<b>INPUT</b> 100V-240V~, 50Hz/60Hz	<b>POWER</b> 200VA-550VA MODEL NUMBER
PHYSICAL		PHYSICAL SPECIFICATIONS OF BATTERY	
<b>SIZE(length×width×height)</b> 192mm×163mm×175mm	<b>SERVICE LIFE</b> 8 years	<b>SIZE(length×width×height)</b> 120mm×55mm×150mm	<b>TYPE</b> Rechargeable Lithium battery
<b>WEIGHT(with battery pack)</b> 3.1Kg		<b>WEIGHT</b> Less than 600g	<b>MAXIMUM BATTERY CHARGING TIME</b> Not more than 4hours (25℃)
MAIN UNIT ENVIRONMENTAL		<b>BATTERY VOLTAGE(NOMINAL)</b> DC25.9V	<b>BATTERY TEST CYCLE TIME</b> Each test cycle shall not exceed 10 SPECIFIED REPLACEMENT INTERVAL 300 full charge/ discharge cycles
<b>OPERATING TEMPERATURE</b> -5℃~+45℃ -20℃ to +50℃ for 1 hour after storage at room	<b>HUMIDITY</b> 5%~93(3)%,non-condensing	<b>BATTERY CAPACITY</b> 3000mAh(typical)	<b>CAUTION: The battery may not work after 300 full charge/discharge cycles</b>
<b>STORAGE ENVIRONMENT</b> -40℃~+70℃ The maximum time required for the MCC-E device to adapt to operating temperature after storage is 2 hours.	<b>OPERATING ATMOSPHERIC PRESSURE</b> 62kPa ~ 106kPa	<b>INITIAL BATTERY OPERATION TIME (NOMINAL PATIENT)</b> Continuous working time not less than 60 minutes	
<b>BLUETOOTH WIRELESS RANGE</b> 2400MHz-2483.5MHz	<b>DEVICE CLASSIFICATION(IEC60529):</b> IP34	BATTERY ENVIRONMENTAL PARAMETERS	
<b>BLUETOOTH TRANSMIT POWER</b> ≤20dBm (EIRP)	<b>BLUETOOTH RECEIVER SENSITIVITY</b> Maximum-96dBm	<b>STORAGE ENVIRONMENT</b> 0℃ ~ 45℃, dry environment (recommended temperature is 20℃, humidity below 50%). (At -20℃ ~ 0℃ and 45℃ ~ 60℃, should not be stored for more than 1 month)	<b>CHARGING TEMPERATURE</b> 0℃ ~ 45℃
	<b>POWER REQUIREMENT</b> DC25.9V	<b>DISCHARGING TEMPERATURE</b> -20℃ ~ 60℃	
		ELECTRONIC CONTROL UNIT	
		<b>INPUT VOLTAGE</b> 5V	<b>WiFi FREQUENCY RANGE</b> 2400MHz-2483.5MHz
		<b>SCREEN RESOLUTION</b> 256×64	<b>WiFi TRANSMIT POWER</b> 13dBm
		<b>WiFi WIRELESS STANDARD</b> 802.11b/g/n	<b>WiFi RECEIVER SENSITIVITY</b> -82dBm



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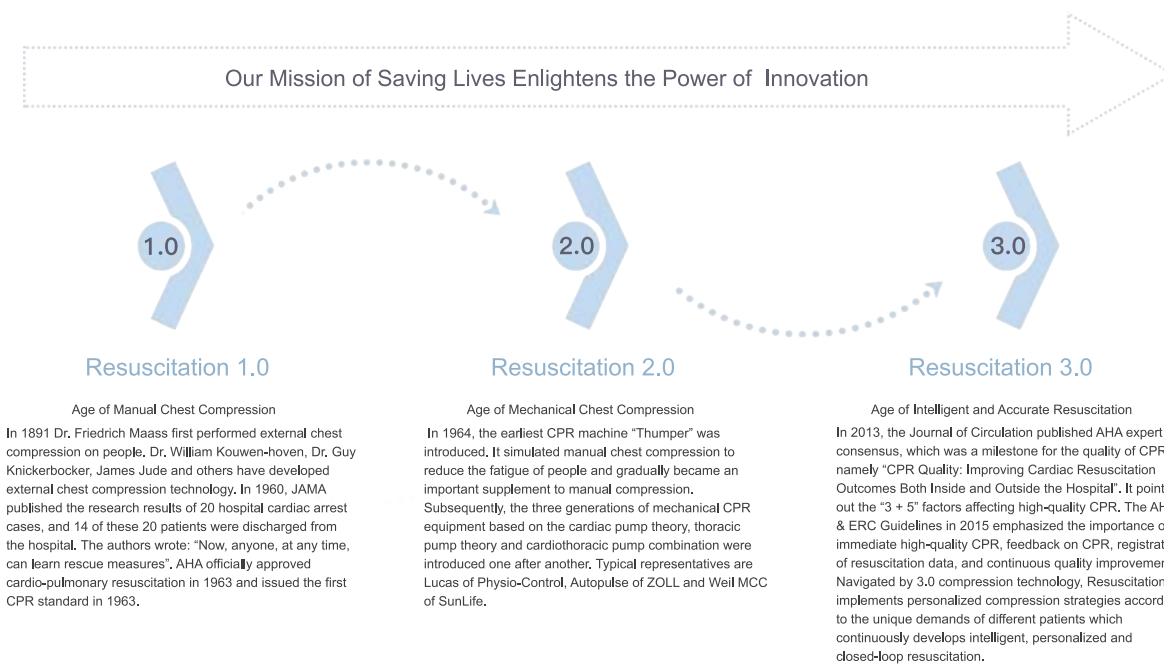
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Performing CPR without measuring the effects is like flying an airplane without an altimeter.

----Dr. Max Harry Weil , 4th WolfCreek, April 1996



# MCC-E

Electric-driven 3D Chest Compressor

Technology from Weil Institute

Resuscitation Warrior, Leading Resuscitation 3.0

**SunLife®**  
Save More Lives

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# MCC-E

## Electric-powered 3D Chest Compressor

Product Description: Miniaturize Chest Compressor  
Product Name: MCC-E1, MCC-E5

\*AHA & ERC Guidelines emphasize that rescuers should reduce the number and time of interruption of chest compressions as much as possible, and increase of chest compression fraction (CCF), with the target proportion of at least 60%. MCC-E is suitable for use in various complex environments such as first aid sites, stairway, and ambulances, reducing interruptions and achieving accurate CPR.

\* The AHA Guidelines recommend to use mechanical CPR device in 7 scenarios: limited number of rescuers, prolonged CPR, CPR during mild hypothermia, CPR in moving ambulance, CPR in angiography room, and CPR in the environment with high risk of cross-contamination. MCC-E fully complies with the AHA Guidelines and provides high-quality chest compression.



### Low Compression Risk

- Soft start, provide the adaptation period to compression, reduce the risk of fracture.
  - 3D compression combines the theory of cardiac pump and thoracic pump, reducing the impact of compression.
  - Low gravity center (<15cm), avoid toppling and hurting patients when moving at a high speed.
- Battery can work for 60 minutes and the device can work while charging, which make the compression uninterrupted.



### Improve Resuscitation Efficiency

- 3D compression, patented by Weil Critical Care Medicine, provides higher CPP.
- Keep continuous high-quality compression in mobile environment and stairway transportation to maximize CCF.
- Thoracic cavity is three-dimensional fixed, which makes the compression position consistent without displacement.



### Suitable for Complex Environment

- IP34 and EN1789 Certification.
- Support the work at 45° inclination for Head-Up CPR.
- Applicable to the preparation of ECPR, hypothermia treatment, and PCI treatment.
- Separating of compression & operation by using the smart control panel






### Smart Tool for Resuscitation

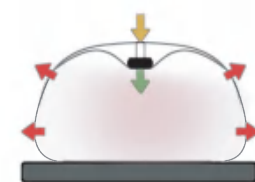
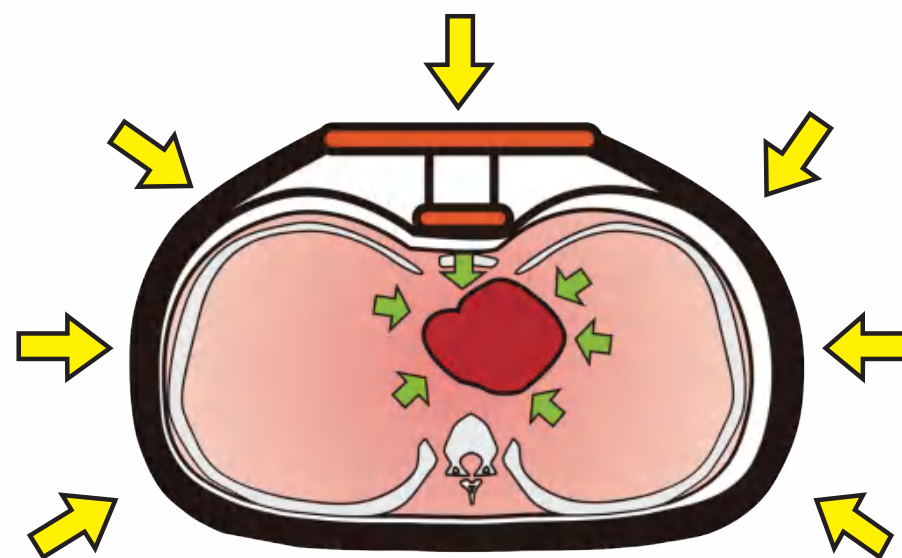
- Adjustable compression depth & rate, help users to develop the optimal compression strategy for different patients.
- CPR data can be displayed in real time and CCF value is available after each compression.
- Multiple data communication options, including USB, Bluetooth and WiFi.
- An ideal tool to help build a Continuous Quality Improving system for monitoring, analysis and improvement





## Weil 3D Compression Technology

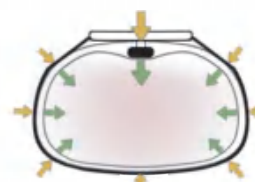
-  External Pressure
-  Internal Pressure
-  Lateral Released Pressure



1<sup>st</sup> Generation



2<sup>nd</sup> Generation



3<sup>rd</sup> Generation

## High Efficiency and Less Injuries

Experiment Items	1 <sup>st</sup> Generation	3 <sup>rd</sup> Generation	Explanation
Comparison of Coronary Perfusion Pressure (CPP) and required chest compression depth	12-20 mmHg 5.3 - 6.1 cm	14-50 mmHg 3.0 - 3.5 cm	50% compression depth delivered by Weil MCC has the same effect as 100% compression depth delivered by other brand
Intrathoracic Positive Pressure	10 mmHg	31 mmHg	Facilitates blood circulation
Intrathoracic Negative Pressure	- 3 mmHg	- 10 mmHg	Better for blood perfusion
Number of Broken Ribs	Average 2.75	Nil	Less to none complication and injury
48 hours after ROSC on Neurobehavioral Assessment Scale(NAS)	47.5	97.5	Better neuro recovery
Carotid Blood Flow (CBF)	23.5mL/min	42.3mL/min	Better cerebral blood

Data source: Wei Chen, MD ,PhD; Yinlun Weng, PhD; Xiaobo Wu, BME; Shijie Sun, MD, FCCM; Joe Bisera,MSEE; Max Harry Weil, MD, PhD, MCCM; Wanchun Tang, MD, MCCM. The effects of a newly developed miniaturized mechanical compressor on outcomes of cardiopulmonary resuscitation in a porcine model, Crit. Care Med 2012 Vol 40 No. 11:3007-3012

\* 3D compression technology combines the advantages of cardiac pump theory and thoracic pump theory, and is the third generation of CPR technology. Currently the technology has been used in over 2000 clinical institutions.

\* Coronary Perfusion Pressure (CPP) is a key index to measure the resuscitation quality. The research paper published in the American Journal of Critical Care Medicine shows that compared with general mechanical CPR device, the experimental group using Weil 3D compression technology can achieve a better perfusion effect with half of the compression depth. Weil 3D compression technique is the method closest to open chest compression in non-invasive state.

# Smart Control Panel

## Making Resuscitation Visible and Fully Controllable

\*AHA guidelines and AHA experts agree on the research direction of improving the quality of CPR in the future: further clarify the relationship between CPR characteristics, determine the best CPR characteristic indicators (CCF, rate, depth, etc.), and their relative importance to the patient outcome.

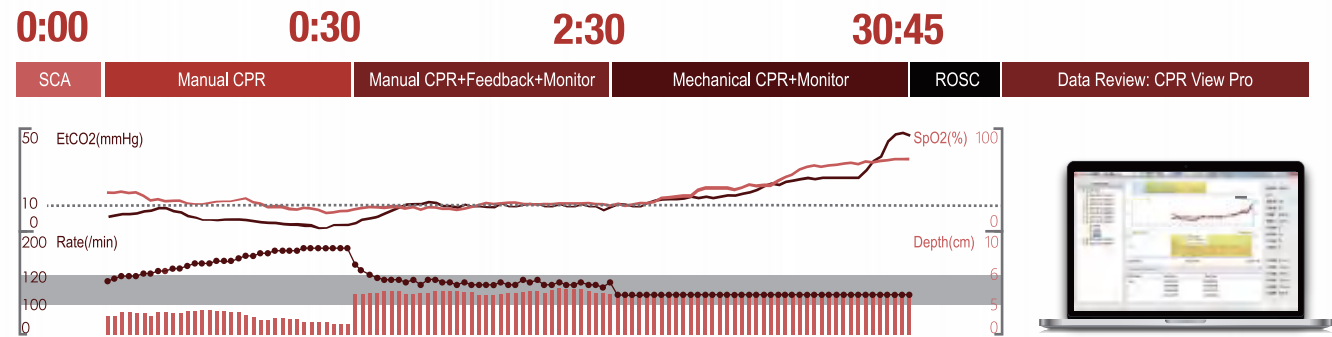
- Visible data, with 2.8 inches OLED screen feeding back the compression data in real-time.
- The depth and rate of compression can be adjusted for personalized treatment and scientific research.
- Statistics of CCF and other resuscitation data can be generated immediately after the rescue is completed.
- Large data capacity with the capacity of 180 hours of data.
- Supporting multi-channel transmission including USB, WiFi, and Bluetooth.
- CPR data cloud provides access to regional cardiac arrest events registration.



- Display Parameters:  
Compression rate, compression depth, compression mode, rescue time, event number, battery status and wireless connection.
- Adjustable Parameters:  
Compression rate, compression depth, compression mode, date and time, data transmission mode and language.
- Statistical Data:  
CCF, compression rate, compression depth, rescue time, compression time and interruption time.

# Continuously Accurate CPR

Continuously Accurate CPR (CA CPR) is a resuscitation system composed of continuous high-quality CPR, including immediate high-quality compression, resuscitation cycle monitoring, and full data review.



\*MCC- is equipped with a 2.8 inches OLED display screen to show CPR data in real-time. The entire resuscitation data is automatically stored. A report can be generated for retrospective analysis, which makes it a scientific assistant for clinical quality control, scientific research and regional CPR data registration.

- Resuscitation cycle: MCC-E can carry out wireless data linkage with a monitor system to establish and implement a resuscitation feedback mechanism. It means compression parameters and patient physiological parameters can be monitored on the same screen, which allows medical professionals to observe the patient's resuscitation progress in the whole process.
- Res Full review of resuscitation data: The resuscitation data on MCC-E is automatically stored. It can be exported to CPR View Pro software to review and analyze compression and patient physiological parameters. It is useful in clinical quality control, scientific research and regional CPR data registration.
- CPR View Pro and CPR data cloud platform provide the basic information that aims at the improvement of each element of the training and rescue process

