



ELECTRIC PRESSURE COOKERS TRAINING MANUAL-FINAL DRAFT



DEVELOPED BY :
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Training Objectives



By the end of training session, participants should be able to:

- ❑ Know the basic definition of an electric pressure cooker (EPC).
- ❑ Learn about the key features of an EPC and how they synergically work to deliver efficient and smart cooking outcomes.
- ❑ Understand EPC safety measures to be considered when using an EPC.
- ❑ Demonstrate knowledge acquired and retained by taking part in participatory cook demos.

Definition

What is an Electric Pressure Cooker (EPC)?

- ❑ An electric pressure cooker is a modern time clean cooking device which is composed of software and hardware features that facilitate the generation and retention of heat energy from the start and to the end of cooking process.
- ❑ An EPC uses electricity as its fuel to operate. To kick-start the cooking process, the electricity which is supplied to an EPC is converted into thermal (Heat) energy.
- ❑ In context, an EPC is a hybrid cooking device as it derived concepts/principles from familiar cooking appliances such as fireless cooker (insulator), electric hot plate and non-electric pressure cooker.

Brief background of Electric Pressure Cookers

- ❑ The first ever electric pressure cooker to exist was patented in 1991.
- ❑ So much has evolved to the first EPC overtime. Product developers (Engineers and researchers) have carried out design reconfiguration to produce an efficient driven pressure cooker to better meet modern business and end user expectations.
- ❑ The continued research and development has for far generated three 3 EPC generations.

1st Generation



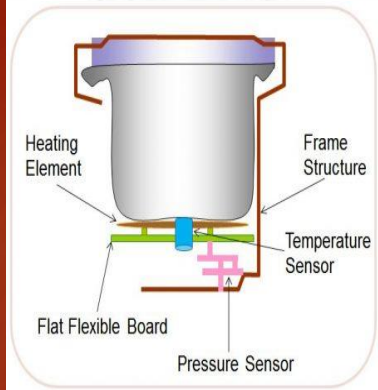
- The 1st generation EPC comes with a mechanical timer fitted to provide control of estimated cooking duration.
- It is a rotary timer that operates by dialing the appropriate desired cooking duration. Cooking kicks off starts immediately you let go of the dial.
- It also has the essential pressure and temperature sensors to give signal, monitor and moderate pressure and temperature during cooking . For instance, during cooking sensors will signal the heating element to cut power transmission once the threshold of pressure or temperature is reached.
- The mechanical cooking timer is the only user-accessible control.

2nd Generation



- The 2nd generation EPC is an improved version of the 1st generation.
- With an additional performance enhancing feature known as a digital controller, the cooker is able to receive external command, process internally and transmit feedback to specific sensors involved in its operation. For example, pressure sensors detect the onset of power flow to the cooker, receives and respond to commands linked to cooking processes, send back signals to screen display so that count-down timer can show lapse time of cooking event.
- The 2nd Generation EPC also boasts of an improved safety mechanism. The sensors are able to detect and signal a partially locked lid to prevent possible loss of pressure while cooking thereby avoiding potential risk (accidents e.g. burns).

Focus on 3rd Generation EPC



- 3rd Generation Electric Pressure Cooker is the latest improved version on the market.
- It is equipped with smart programming and enhanced safety features with advanced sensors capable of monitoring pressure and temperature with accuracy.
- The 3rd EPC employs complex system controls supported by digital technology to improve cooking experience (fast and efficient) by maintaining consistency power supply, pressure levels and as well as enhancing safety of a cook.

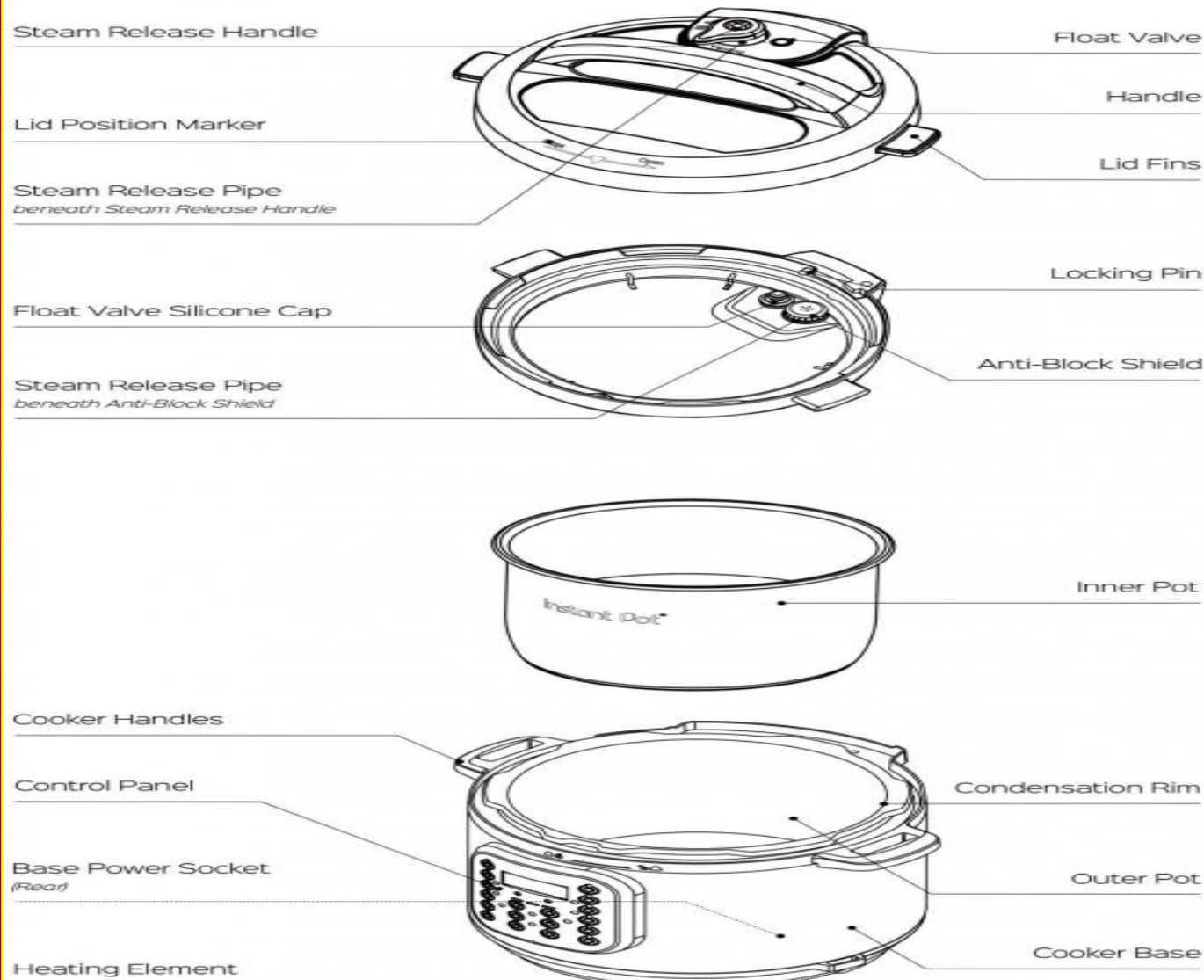


Rationale around EPC mode of operation

- ❑ An EPC includes a network of sensors running across key components. The mechanism around EPC mode of operation is that electric power is initially converted to heat energy by an inbuilt hotplate and subsequently transmitted to inner pot to heat up fluid (e.g. water or edible oils) and submerged food.
- ❑ As the temperature continue to increase (when the lid is closed), steam pressure in the pot increases to its maximum threshold while keeping it tightly confined with no chance to escape before cooking finishes. Controllers and sensors frequently interact to automatically moderate changes power input throughout the cooking duration.

Components:

Cooker Parts



- An EPC constitutes a number of different parts which carry out unique functions.
- The most notable main components are:
 - ❖ The Inner pot
 - ❖ The cooker Base
 - ❖ The Lid
- These main components consist of subcomponents as highlighted in the image on the left side of slide.

The EPC Lid

- ❑ The EPC lid is predominantly made out of strong food grade stainless steel coupled with steel braces and an auto mechanical locking mechanism to prevent abrupt opening of the lid while the cooker is pressurized.
- ❑ In an event that a lid is partially closed, the microprocessor detects the anomaly and immediately signal an alarm.

A lid has subcomponents that work in tandem to seal in and regulate pressure:

1. **Steam Release valve:** This feature has two positions namely **Venting** which allows steam to escape and **Sealed** which traps steam in the inner pot in order to build pressure. NB: For your safety, please keep your hands clear of the steam as it escapes.
2. If pressure fully builds up, the steam inside will physically push up the float valve to seal off.
3. **Sealing Ring:** This durable silicone rubber made ring is fitted underside a lid to lock tight the pot such that no amount of steam is allowed to escape the pot during cooking process. As you close the lid, an airtight environment is created implying that the built pressure (hot air) inside the inner pot circulates within the pot during the cooking process unless one decides to open the steam release valve to allow the pressurized hot air out of the inner pot.



Float Valve (Sealing Gate)

Function

- To automatically seal off a floating valve once pressure inside the cook pot builds up.

Anti-Block shield cover

The stainless steel cover blocks any attempt by cooking food particles and foam to clog the steam release valve thereby facilitating the smooth escape of steam when venting.



Float Valve

- Seals the steam outlet during cooking process.
- As pressure inside cooker builds up, the float valve cap is pushed up to seal the cooker. Once the valve close up, the lid automatically locks and cannot open even when force is applied unless a cook decides to release pressure.
- The automatic locking guarantees safety of the cook as accidents related to steam pressure exposure during cooking are less likely to occur.

:Steam Release handle

Used to open and close the pressure release valve

Upper cover handle:

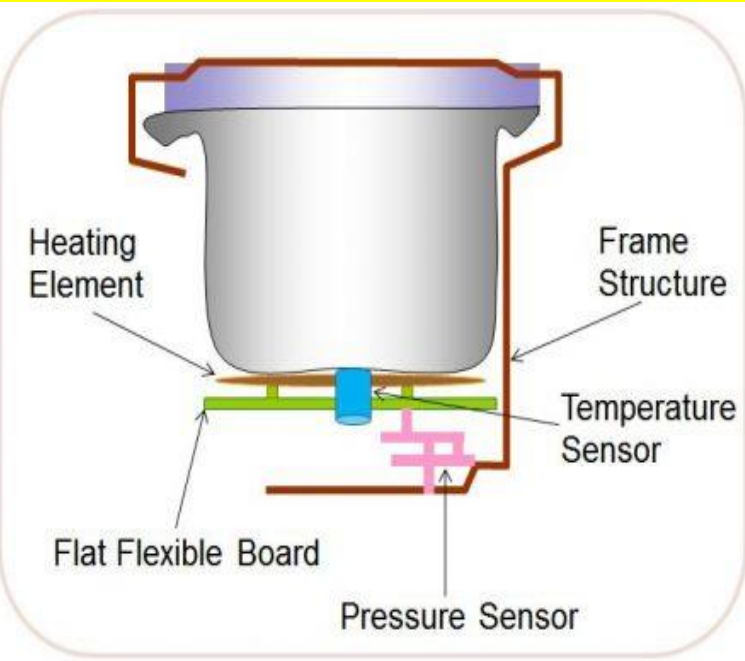
Used for closing the inner pot by turning a lid clockwise and opening by turning it anticlockwise.

The Inner Pot



- This is a removable pot for cooking specifically designed to allow a bottom-up transmission of heat from inbuilt stove at the base to the liquid inside pot in order to boil it to steam. Without an escape route, the build-up of steam creates pressure.
- It also hold the food in position and necessitate the heat-water-food interaction during a typical cooking process.
- The inner pot is made of stainless steel with a non-stick coating. The non-stick coating makes cleaning the pot easy and faster after meal preparations.

Cooker Base



- ❑ The cooker base houses the central intelligence system of an EPC. Its constituents are the microprocessor, pressure and temperature sensors, a heating element, and the control panel.
- ❑ It also houses all the power supply circuit board.
- ❑ The microprocessor is programmed to perform complex cooking tasks such as detecting changes in temperature and pressure.



EPC Control Panel



Standby Button:

- ❑ For switching on and off the EPC and putting it on standby.
- ❑ It can also be used to keep food warm for sometime after cooking.

Menu Button

- ❑ The Menu button gives you wider access to pre-programmed typical cooking options for specific dishes. It also specifies cooking duration for a particular dish. For instance, if you decide to boil meat, option 01 is what to choose.

Display Window

- ❑ Display Screen shows time as it elapse right up to the end when food is finally cooked.

EPC Control Panel



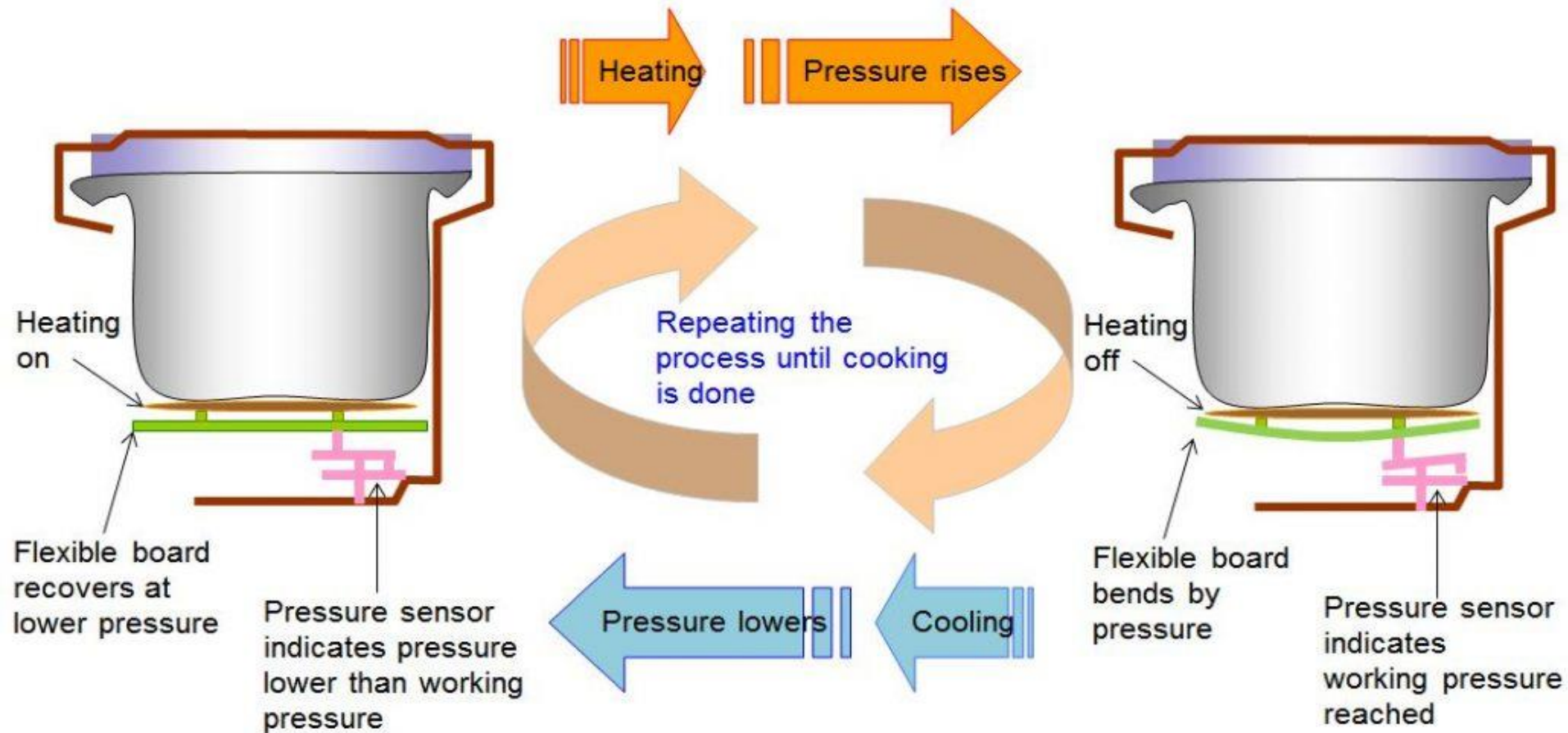
Manual Setting

- ❑ The Manual setting is linked to Cooking timer, Pressure level, Delay Timer and \pm buttons. It is used to manually enter cooking duration, select desired pressure level and choose delay time. For example, you can manually enter time you want to cook beans by pressing manual button first and \pm button later. The same applies for delay cook time.

Cooking Timer:

- ❑ Monitors cooking duration. Elapsed time during cooking is shown on the display screen. Manual setting button must be activated first for cooking timer to become functional.

Summary of typical heating cycle in an EPC



Connecting an EPC to Power Source

- The EPC comes with its own customized power connection cable. This means that no other connection cable should be used.
- Upon identifying power source, mount the cable to both ends; one end to the power source (socket) and the other end to an EPC.
- Then switch on the power source by pressing the ON button of the socket.
- Once power is transmitted to an EPC, a prompt alarm is sounded to signal the device readiness for usage. The EPC display equally become activated with dotted red lines popping up as an indication to display chosen cooking instructions/ options.
- At this point, all sensors linked to the operations of an EPC are in contact with central processing unit to transmit prompt commands back and forth. Typically, opening and closing the lid will produce a prompt sound to alarm the user that the device is being monitored.

The Menu and Manual Setting functions in action

The Menu function:

- The menu setting has an important function as it gives access to 15 pre-set cooking options. This implies that without activating the menu function, none of the 15 pre-set cooking options can function.
- The menu is activated by pressing a menu button. Once you press the button, the LCD display will immediately show PO1 which is the first pre-set cooking option for boiling meat products (e.g. Beef).
- However, if your desired dish to be cooked is anything else than meat, then press the plus sign on the far right until you reach your preferred option. As you continue to press the plus sign, a red light will pop up adjacent to the cooking option to guide you until you reach your choice option. Similarly, a negative sign can be used to get to options backwards.
- For instance, when your plan is frying a chicken, press a plus button until the red light stops at Saute (P05). Similar steps can be done to boil rice at P07 option, Beans at option P09 etc.

The Menu and Manual Setting functions in action

- NB: Except for saute option, make sure your lid is ever closed to achive ultimate cooking experience.
- Immediately the cooking process is completed, a prompt sound is sounded to signal the end and the Display reads OH. Your next step to realizing the pressure.
- To keep the food warm, leave the pressure cooking at OH mode.

The manual Setting Function of an EPC

- The manual setting has two main functionalities.
 1. To allow users to manually manipulate cooking time to speak their preference
 2. Adjustment of pressure level.
- To activate manual setting function, press the manual button first and then the Cooking Timer button later.
- At this point, the plus and negative sign are fully activated to allow manual additional and subtraction of cooking time . Worth mentioning is that when manual is in activation mode, the EPC Display reads 30 minutes.
- This implies that if your cooking process more time, use a plus button to add time.
- If the process takes less time, use the negative button to reduce until you reach your preferred timing. Once you set your preferred time, the system picks it up and the alarm signals the start of cooking process.

The manual Setting Function of an EPC

The manual setting button is ideal for preparing **Nshima**.

Brief procedure for Nshima Preparation.

- Activate the manual setting as explained earlier. Manually set approximately 3 minutes to boil water and another phase of 5 minutes to boil the porridge. When time elapses, safely open the steam release handle to release pressure.
- Go back to manual button to activate the manual setting and set 5 minutes for adding Millie meal to harden the porridge while stirring.
- This last phase of added 5 minutes is also used to simmer your Nshima. Switch off your EPC if you are serving your Nshima immediately or leave it at keep warm (OH) if you are serving later.

Safety measures to consider when using an EPC

- The EPC works with sensors which monitor the changes in temperature and pressure, and trigger an auto lock function to lock the lid once pressure rises to hazardous levels . Although the auto lock provision assures safety during cooking, the following measures must be observed to avoid injuries:
 1. Please ensure that the exhaust/steam valve is at the sealing position before power is on to avoid getting burned.
 2. Always position your hand away from steam release valve as you hold the steam release valve to release the pressure. Preferably use your left hand with your arm and face away from the flowing steam.
 3. Do not handle the inner pot with bare hands after the cooking as the pot is hot enough to burn your hands. Instead use two dry wool cloths.

Safety measures to consider when using an EPC

4. Do not touch the surface of the lid because it gets hot.
5. During cooking, do not cover the steam/exhaust valve with rag
7. Pull out the steam/exhaust valve from the lid. Clean with a brush and paper towel on inside of the valve , the venting hole on the lid and the float valve . Be sure to clean it after every use. Equally, clean the sealing ring each time you finish cooking. The lid and the removable pot of an EPC are washable even by submersion in water.

NB: PLEASE DO NOT submerge the base cooker into water as doing so will render the misprocessing unit nonoperational. The inner part can be cleaning with a wet cloth.