Low-temperature sterilization
Hydrogen Peroxide Gas Sterilizer

# ES-700
# ES-1400


Canon Lifecare Solutions Inc.

# Your alternatives for low-temperature sterilization

**CANON LIFECARE SOLUTION offers new choices in low-temperature sterilization with hydrogen peroxide, for heat-/moisture- sensitive instruments that will enhance efficiency and productivity.**

**Thanks to our trusted, original vaporized hydrogen peroxide sterilization technologies, we are ready to support effective infection control at medical facilities where professionals take care of reprocessable surgical equipment.**

**Hydrogen peroxide is an agent that can safely be decomposed into water and oxygen. This means that dedicated ventilation equipment or a long waiting time after the cycle are not required.**

## PRODUCTIVITY

- PLASMA-FREE sterilization is gentler on medical devices.
- PROPERTY CHECK performs a cycle simulation to prevent time being wasted
- Effective use of chamber capacity with PLASMA-FREE
- Emailing function to minimise downtime
- Pre-cycle conditioning is designed to warm up the load and remove moisture to prevent from cycle cancellation

## USABILITY

- Improved visibility with the updated user interface (LCD touch screen)
- Hands-free door operation via the foot sensor
- "VIEW PORT" enables visual checks of the loaded chamber
- Notification of cycle completion by email
- Cycle records can be saved in an SD card and printed by the built-in thermal printer
- PLASMA-FREE technology makes it easy to keep the inside of the chamber clean

## SAFETY

- Residue in the chamber minimised by ALTERNATING VENTILATION[ALV]
- Sterilization cartridge with RF-ID, perfectly sealed with dual-wall construction
- Automatic disposal of hydrogen peroxide into water and oxygen

## RUNNING COST

- Can use commonly available accessories for hydrogen peroxide sterilization such as TYVEK® pouch reels, CI, BI, sterilizing containers, and wire baskets
- ECO SWITCH to reduce power consumption
- Dry pump system requires less maintenance

ES-700/ES-1400 are designed to comply with the requirements of Medical Devices Directive 93/42/EEC (including amendments by 2007/47/EC).

# Process

## CYCLE process

Simulate and prepare for cycle

**Property Check**
**Pre-Conditioning**

**Start Sterilization Cycle**

↓

**Conditioning**

↓

**Vacuum Phase** — Hydrogen peroxide solution will be transferred from the cartridge to the vaporiser.

↓

**Injection Phase** — Gaseous hydrogen peroxide will be delivered to the vacuum chamber for

↓

**Diffusion Phase** — the Diffusion Phase, then

↓

**Exposure Phase** — loaded items will be exposed through the packing

↓

**Vent(ALV)** — The ES will ventilate the chamber after these phases have been repeated 2 or 4 times.

Repeating 4X(2X)

Easy to recognise

# Principle

## Vaporized Hydrogen Peroxide Sterilization

OH[Hydroxyl] radicals will be generated around micro-organisms when gaseous hydrogen peroxide comes into contact with the load items. The OH radicals will effectively inactivate those micro-organisms.
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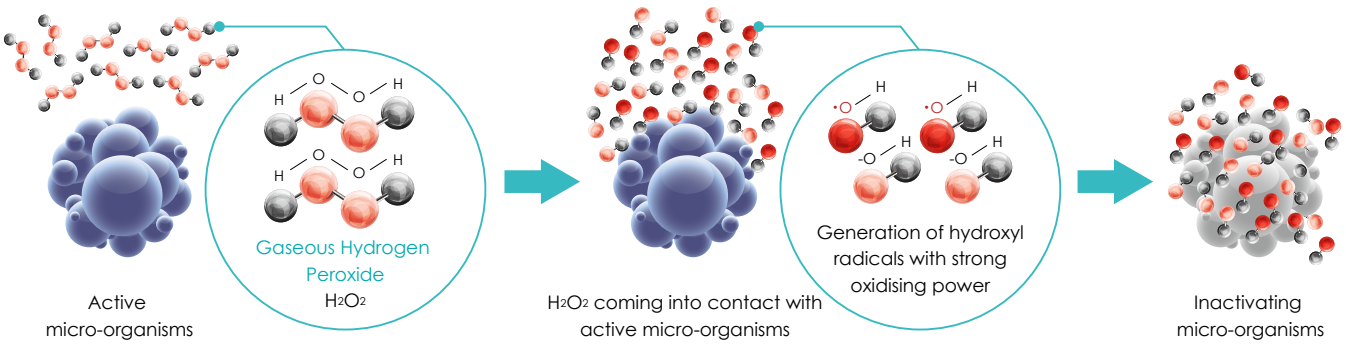



Active micro-organisms

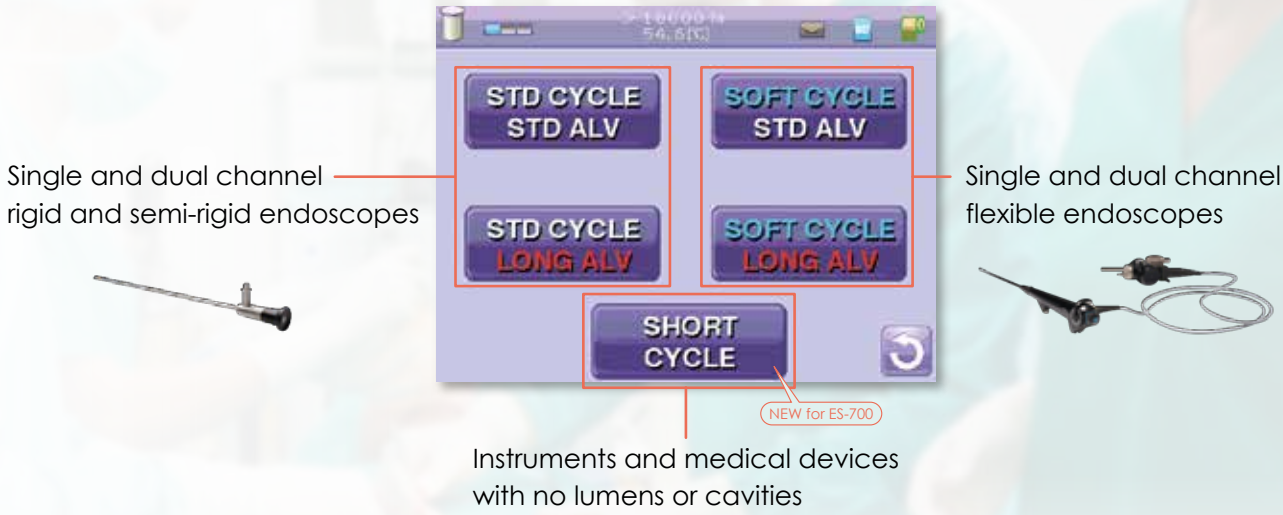
$H_2O_2$ coming into contact with active micro-organisms

Inactivating micro-organisms

# Cycle selection

## Selecting the right CYCLE

Operators can simply choose a cycle mode on the touch screen display, depending on the shape, material or nature of the load item. The standard and soft cycles both have 2 levels of  of ALV (Alternating Ventilation) as options to choose according to your preference. This process can be skipped by presetting a program.

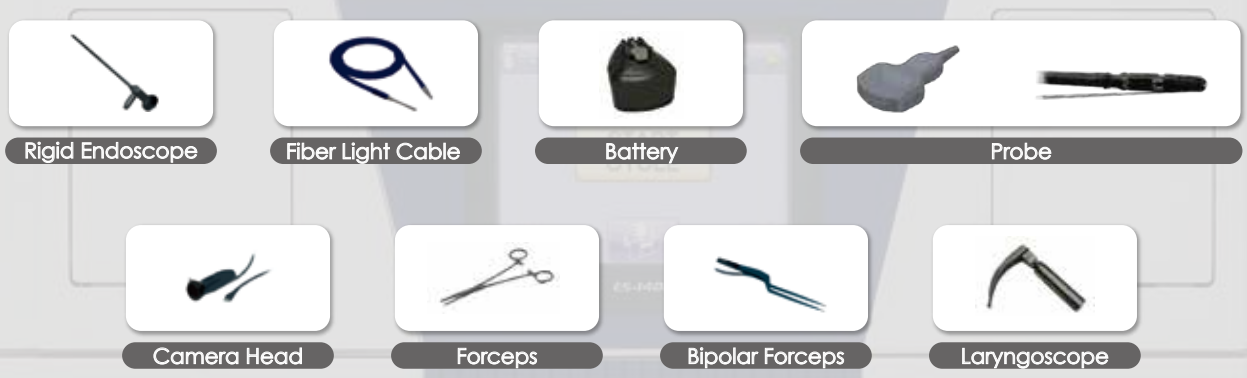



Ask official ES distributors about selecting the right cycle for each type of medical instruments.

## Short Cycle

The 28/34 min. short cycle is for devices without lumen structure, such as cables, batteries, probes and cameras. The ES-700 has been updated and equipped with a Short Cycle like the ES-1400, the upper model. The shorter duration time without drying will help to improve ROI by boosting turnaround times of reprocessable medical equipment and devices thanks to the shorter processing time, and by expanding usage beyond the  scope of a conventional low-temperature sterilizer.

### Typical medical devices suitable for the short cycle



## Hydrogen peroxide will be decomposed into water and oxygen

Gaseous hydrogen peroxide is effective for the safe and environmentally-friendly inactivation of micro-organisms. Unlike other low temperature sterilization technologies, loads do not have to be kept in for a long time to remove toxic agents.


### Safe, dual-wall construction with RF-ID

The all-in-one, easy to handle sterilization cartridge has a dual-wall construction that holds up well against shocks. It indicates the number of cycles remaining and notifies when it has reached its expiry date.

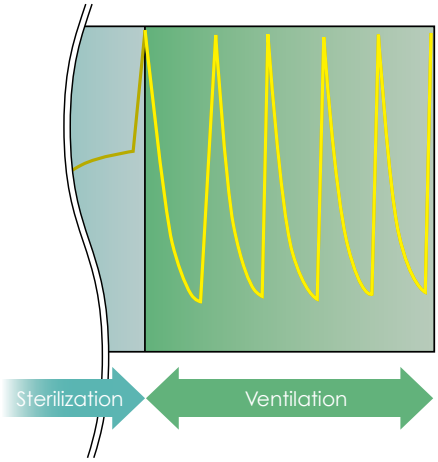

Completely sealed


Remaining no. of cycles


Easy to handle

## Alternating Ventilation System

As hydrogen peroxide will be vaporized to the molecular level, much smaller than particles, you do not have to worry about residue inside the chamber.
In addition, as the final process of the cycle, the ES performs ALTERNATING VENTILATION(ALV), where depressurisation and pressurisation are repeated.
This process minimises the amount of residual hydrogen peroxide remaining in the wrapped items and containers.




### ALV Mode (STD/LONG)

Ventilation(depressurisation and pressurisation) will be performed 5 times in Standard Mode to ensure safety. ALV Mode can be extended to twice the length of Standard Mode if the loads might have a significant level of absorbency.

# ES-700

Ver. Up

**76 Liters**

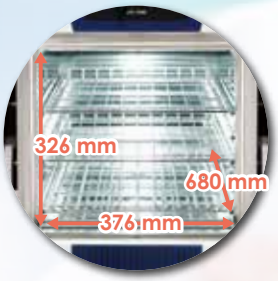
In addition to the STANDARD and SOFT cycles, the ES-700 is now equipped with a SHORT cycle like the ES-1400, the upper model. With these and other functions, the ES-700 is the basic option to improve low-temperature sterilization with a safe and efficient workflow in the Central Sterile Supply Department.

Enhanced functionality and an improved user interface allow you to achieve even more efficient sterilization of reprocessable equipment and medical devices.

The chamber depth has also been extended to enable longer devices to be loaded, such as newly-introduced integrated equipment.

Single-rack Configuration

Triple-rack Configuration




Loads are visible through the VIEW PORT

*Newly-added SHORT cycle boosts the flexibility of the ES-700 !*

| CYCLE | Mode | Concentrated | CYCLE TIME | Typical Instruments |
|---|---|---|---|---|
| NORMAL | STD | Yes | Approx. 55 min. | Flexible Endoscope |
| | SOFT | No | | Rigid Endoscope |
| SHORT | SOFT | No | Approx. 34 min. | Non-Lumen |

# ES-1400

Ver. Up

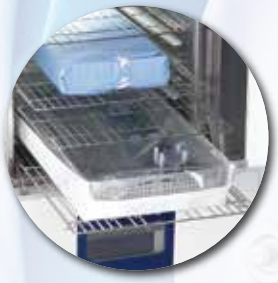
## *Single-door/ Double-door model*

142 Liters

The 142-litre square chamber maximizes the load capacity; it can hold a full-size container and large trays. It comes with four sliding racks which enable the operator to optimize the load volume per cycle.

The ES-1400 has two different configurations of chamber door. The double-door model enables the Central Sterile Supply Department to use a pass-through system. It also has an optional attachment for an in-wall recessed mounting system between contaminated/decontaminated areas.

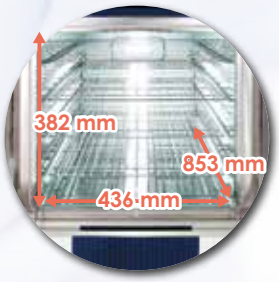
ES-1400 has also been updated with an improved user interface for better visibility.



Quadruple-rack Configuration

**Rear side view**


Double-door model for pass-through system




Loads are visible through the VIEW PORT

| CYCLE | Mode | Concentrated | CYCLE TIME | Typical Instruments |
|---|---|---|---|---|
| NORMAL | STD | Yes | Approx. 50 min. | Flexible Endoscope |
| | SOFT | No | | Rigid Endoscope |
| SHORT | SOFT | No | Approx. 28 min. | Non-Lumen |

## VIEW PORT and LED lighting make the interior visible

Thanks to PLASMA-FREE technology, the ES series features a VIEW PORT for observing loads inside the chamber while the chamber door is closed.
The interior of the sterilization chamber is lit with a white LED lamp, which allows operators to find out at a glance how the items are laid out and spot any items that may have been missed.

VIEW PORT to observe
the interior during the cycle

Lighting turns to red
to alert the operator of any errors

## Full Colour Touch Panel Screen

Simple touch panel operations are available at a touch of your finger.
The colour LCD screen uses large text for good visibility.
A red screen and alarm will alert operators if any error occurs.

updated


## Displays Remaining Processing Time

During the cycle, the LCD screen shows the remaining time in a large format, for better usability and efficiency.

* Sterilization may take longer depending on the type of material or the dryness of the load items to be sterilized.
* The remaining processing time on the screen is based on the cycle completion time, which is calculated through analysis of the initial depressurisation.


## ECO SWITCH to save power

Reduces power consumption
during stand-by

## Hands-free door opening/closing

Opens/closes the chamber door
without using the hands

# Reporting, Validating

## Process printer and SD card included

SD card to store and output the history of the cycles performed. Alternatively, these data can be also printed out for reporting or filing.

*Only a dedicated SD card for the ES series can be used.

Thermal Printer


Cycle Report/History

## Accessible with any device, from anywhere.

The email function minimises the downtime of the ES series by automatically sending an error message to in-house and external engineers. This notification feature increases productivity.

## Monitoring with validated services/indicators/accessories


**Validated chemical indicators show exposure to vaporized hydrogen peroxide**

Different types of chemical indicators are available to suit the particular requirements of the validation process.

**Monitoring by validated biological indicators and a rapid-readout auto-reader**

Biological indicators are test systems containing viable microorganisms providing a defined resistance to a specific sterilization process. The latest incubator for rapid-readout is also available from leading suppliers to significantly speed up the process*.

*Ask an official ES distributor about availability in your country.

**Service/Installation**

We are striving to provide optimum support for customers with our local partners, where experienced technicians are fully trained and certified for the ES series according to our standards.

# Validated accessories / Consumables

## Sterilization Cartridge

### e-SC102 e-SC3
### e-SC305 e-SC610

The cartridge has dual-wall construction along with absorbent material to assure safety. The built-in RF-ID controls the expiry date and remaining hydrogen peroxide solution.

| No. of cycles | e-SC102* | e-SC3* | e-SC305 | e-SC610 |
|---|---|---|---|---|
| ES-700 | 2 | 3 | 5 | 10 |
| ES-1400 | 1 | NA | 3 | 6 |

4 cartridges/ CTN
*AIR SHIPPABLE

## Thermal Printer Paper

### e-RP

Coreless type
58 mm×25 m
(4 pcs/ CTN)

## Tyvek® Pouch Reels

### e-TR series

The pouches are made of Dupont™ Tyvek®.
Due to the strength of the material, the pouch can hold even heavy instruments.

| Model | Size | Roll/CTN |
|---|---|---|
| e-TR 70 | 70 mm×150m | 4 |
| e-TR 100 | 100 mm×150m | 4 |
| e-TR 150 | 150 mm×150m | 4 |
| e-TR 200 | 200 mm×150m | 2 |
| e-TR 250 | 250 mm×100m | 2 |

| Model | Size | Roll/CTN |
|---|---|---|
| e-TR 300 | 300 mm×100m | 2 |
| e-TR 350 | 350 mm×100m | 2 |
| e-TR 400 | 400 mm×100m | 2 |
| e-TR 450 | 450 mm×100m | 2 |
| e-TR 500 | 500 mm×100m | 2 |

## Chemical Indicators

### e-CARD 250 sheets/box•10 boxes/CTN

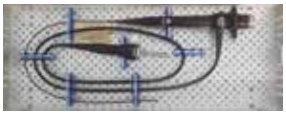

The discolouration of the e-CARD will respond incrementally depending on the concentration of hydrogen peroxide and the exposure time. The e-CARD is also a suitable tool to analyze details of exposure to gaseous hydrogen peroxide for the sophisticated management of infection control.

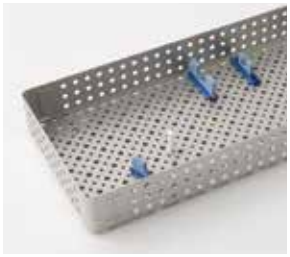
### e-CARD one 250 sheets/box•10 boxes/CTN

e-CARD one reacts sensitively to exposure to hydrogen peroxide. It will turn from red to yellow without any colour gradations. Environmentally-influenced discolouration is kept to a minimum.

## Sterilizing Trays

### e-ST2563S





| | |
|---|---|
| Outer dimensions | 250 mm (W) × 625 mm (D) × 70 mm (H) |
| Inner dimensions | 245 mm (W) × 621 mm (D) × 63 mm (H) |

*Aluminium alumite, without lid, Teflon parts
Positioning blocks are sold separately

## Sterilizing Containers

### e-SC2663N

| | |
|---|---|
| Outer dimensions | 255 mm (W) × 630 mm (D) × 105 mm (H) |
| Inner dimensions | 245 mm (W) × 621 mm (D) × 91 mm (H) |

*Aluminium alumite, with lid, Teflon parts for placing the cases on top of one another

## Sterilizing Baskets

### e-SB3020S / e-SB3030S
### e-SB3030N / e-SB3160NA

Basket with lid

Basket without lid

| Model | Description | Outer dimensions | Inner dimensions |
|---|---|---|---|
| e-SB3020S | Stainless steel basket with lid | 300 mm (W) x 200 mm (D) x 79 mm (H) | 282 mm (W) x 180 mm (D) x 65 mm (H) |
| e-SB3030S | Stainless steel basket with lid | 300 mm (W) x 300 mm (D) x 79 mm (H) | 282 mm (W) x 280 mm (D) x 65 mm (H) |
| e-SB3030N | Stainless steel basket with lid | 300 mm (W) x 300 mm (D) x 124 mm (H) | 282 mm (W) x 280 mm (D) x 110 mm (H) |
| e-SB3160NA | Stainless steel basket without lid | 314 mm (W) x 600 mm (D) x 109 mm (H) | 308 mm (W) x 579 mm (D) x 97.5 mm (H) |

*Ask available accessories to our official distributors in your country.

# Specifications

| | ES-700 | ES-1400 |
|---|---|---|
| **Product Name** | Hydrogen Peroxide Gas Sterilizer ES-700 | Hydrogen Peroxide Gas Sterilizer ES-1400 |
| **Chamber Capacity** | 76 L | 142 L |
| **Chamber Shape** | Rectangular | |
| **Door** | Automatic Swing-down Door | Automatic Swing-down Door<br>Double or Single Door |
| **Hydrogen Peroxide Supply** | Sterilization Cartridge | |
| **Sterilization Temperature** | 50 °C | 55 °C |
| **Process Time (cycle)** | Normal Cycle Approx. 55 min<br>Short Cycle Approx. 34 min | Normal Cycle Approx. 50 min<br>Short Cycle Approx. 28 min |
| **Printing / Recording Function** | Line Thermal Printer<br>SD card | |
| **Display** | Full Colour LCD Touch Screen | |
| **Identification** | RF-ID: ISO 15693(13.56 MHz) | |
| **Power Requirement** | 3-phase 208 V/380 V/400 V/415 V 50/60 Hz | |
| **Power Consumption (Max)** | 2 kW | 3 kW |
| **Required Space (mm)*** | Left: +50, Right: + 150, Back: +50, Top: +500 | |
| **Operational Environment Temperature/Humidity** | 10 °C to 40 °C / 50 °F to 104 °F<br>30-85% RH | |
| **External Dimensions (mm)** | 1630(H) x 750(D) x 640(W) | 1710(H) x 925(D) x 750(W) |
| **Weight** | Approx. 310 kg | Approx. 410 kg |
| **Medical Device Category**** | Controlled Medical Device (CLASSII) | |
| **Product Origin** | Japan | |

* Required space may vary depending on how the device is installed.
Please consult your local distributor for further details.
** Japan Pharmaceutical Affairs Act

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Distributor

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Manufacturer

**Elquest Corporation**
A CANON COMPANY

Certified Management Systems
•ISO 13485