ES

Provided with an Automatic Air Release Time Setting Function

HIGH PRESSURE STEAM STERILIZER

ES-315 / ES-215

Reliable & Speedy Sterilization

Automatic air release time setting function allows an optimal evacuation time for the remaining air in the chamber to be set automatically according to the type and quantity of article to be sterilized, and ensures more reliable and speedy sterilization. This function is equipped with ES-Series as a standard feature.

User-friendly Memory Function

Once turned on the system automatically sets and displays a pre-set value. Operation is done simply by pressing the start switch. ES-315/ES-215 enables the set temperature and time for each mode program to be stored in its memory.

ES-315   ES-215

Easy-to-see Control Panel

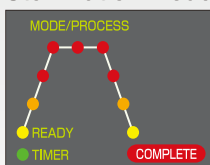※The control panel lighting image shown above may vary from actual display.

MODE/PROCESS display enables real time monitoring of operation status.
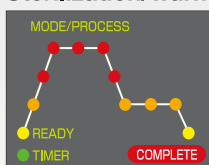
——— ES-315 / ES-215 offers three mode programs. ———
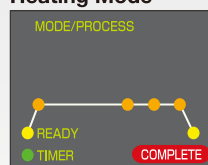
Sterilization Mode

It contains a delay start timer function that allows operation to start 1 to 99 hours later.

Sterilization/warming Mode

This mode is useful when not removing culture media from the autoclave immediately after sterilization. Sterilized media can be kept warm to prevent coagulation.

Heating Mode

This mode program automates the dissolution of culture media that can sometimes be a painful process when using a water bath to boil them.

User-friendly design allows for even more easy maintenance.

Chamber having a flat inner surface

All models are supplied with stainless steel wire mesh baskets. No protrusions on inner surface of the chamber enable smooth loading and unloading of the basket as well as block design of all pipe fittings ensures safe operation.

Front access for easy maintenance

The exhaust bottle to capture and store exhaust steam is placed on the front panel of the autoclave unit. Access to the chamber for replacing water inside, as well as for routine maintenance and inspection, is done on the front of the unit, which also permits operators to replace bellows, saving costs for services by the service personnel.

A microprocessor controlled monitoring system provides safe sterilization.

Incomplete sterilization protection
In case of abnormal chamber temperature rise, the autoclave stops its operation. In case of abnormal decrease in temperature, the sterilization timer is temporarily suspended and then reactivated when the set temperature is reached.

Chamber overpressure protection
If overpressure in the chamber is detected, the autoclave stops all the function and indicates an error message simultaneously.

Chamber interior overtemperature protection
If the temperature inside the chamber exceeds the set temperature by 5 °C or more, the autoclave stops all the function and indicates an error message simultaneously to avoid overheating.

### Chamber exterior overtemperature protection
The thermostat switch detects the temperature of chamber exterior wall, which allows the autoclave to stop all the function if the temperature exceeds 130°C.

◆ Specifications

Model		ES-215	ES-315
Operating temperature range (during sterilizing)		105 - 123°C	105 - 132°C
Operating pressure range		0 - 127kPa	0 - 186kPa
Maximum operating pressure		147kPa	216kPa
Temperature control		Digital, microprocessor controlled	
Temperature display / display range		Digital / -15 - 180°C	
Pressure display / display range		Analog / 0 - 250kPa	Analog / 0 - 400kPa
Heat source		1.5kW electric heater	2.0kW electric heater
Timer control		Digital, microprocessor controlled	
Timer display		Digital	
Timer display range	Sterilizing mode:	1 - 240min. or continuous	
	Sterilizing-warming mode:	1 - 240min. (sterilizing) / 1 - 8hours (warming)	
	Heating mode:	1 - 8hours	
Start-timer setting range		1 - 99hours in each operation mode	
Memory function		A set of temperature and time setting in each operation mode	
Safety devices		● Inside the chamber overheat prevention, ● Outer wall of the chamber overheat prevention, ● Overpressure prevention, ● Temperature sensor disconnection prevention, ● Empty heating prevention, ● Leakage breaker, ● Safety valve	
Malfunction prevention devices		● Low water level detection, ● Exhaust valve knob open/close detection, ● Insufficient sterilization detection, ● Chamber lid open/close detection	
Leakage breaker	Rated breaking current:	20A (120V) , 15A (220 / 230 / 240V)	30A (120V) , 15A (220 / 230 / 240V)
	Rated sensed current:	30mA (120V) , 10mA (220 / 230 / 240V)	
Protection type		Class 1 equipment	
Operating environment	Ambient temperature:	5 - 35°C	
	Relative humidity:	30 - 85%	
	Atmospheric pressure:	700 - 1060hPa	
	Gradient:	Within 2°	
Dimensions		φ248 × 543mm	φ325 × 740mm
Usable dimension		φ236 × 450mm	φ312 × 635mm
Capacity of chamber		22 ℓ	53 ℓ
Chamber material		SUS304	
Capacity / material of exhasut bottle		3 ℓ / polyethylene	
Type / material of lid gasket		Accommodating internal pressure / silicone rubber	
Dimensions of main unit (mm)		400W × 460D × 920H (Height from floor to control panel:705)	490W × 560D × 1090H (Height from floor to control panel:875)
Net weight		50kg	80kg
Rated Voltage		AC 120 / 220 / 230 / 240V	
Power input		15A (120V), 7A (220 / 230 / 240V)	20A (120V), 10A (220V), 9A (230 / 240V)
Power supply requirements		Single-phase 120V AC (50 / 60Hz) 15A or above	Single-phase 120V AC (50 / 60Hz) 20A or above
		Single-phase 220 / 230 / 240V AC (50 / 60Hz) 15A or above	
Power Comsumption (calorific value)		1.5kW (1290kcal/h)	2kW (1720kcal/h)
Accessories		● Stainless steel basket with slatted bottom plate 1, ● Water level sensor 1, ● Inspection sheet 1, ● Warranty card 1, ● Customer card 1, ● Operator's manual 1, ● Clear plastic accessory case 1, ● Attachment screw for clear plastic accessory case 1	
		Stainless basket 1 (φ224 × 376mm)	Stainless basket 2 (φ300 × 182mm)

◆For dimension details on the chamber and usable or inside dimension, please refer to each part dimensional drawing on the back page.
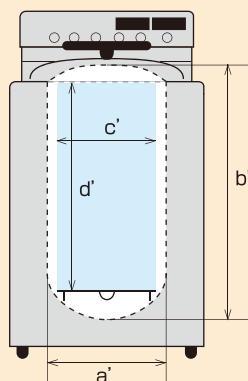
◆Part dimensional drawings
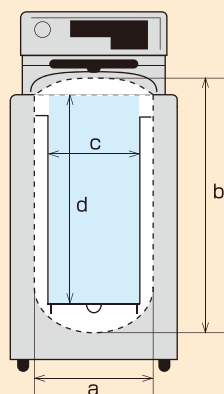
● **Chamber dimensions**
  (a：Bore diameter)×(b：Inside dimension)
● **Usable dimension**※
  (c：Inside diameter of a Stainless steel basket
  with slatted bottom plate)×(d：Effective depth)
▶ **Applicable models：ES-315／215**

● **Chamber dimensions**
  (a'：Bore diameter)×(b'：Inside dimension)
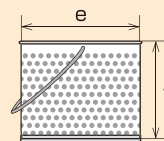● **Usable dimension**※
  (c'：Effective diameter)×(d'：Effective depth)
▶ **Applicable models：SDL-320／SR-240**

Stainless basket
Inside dimension（e：Bore diameter）×（f：Height）

〈Standard Accessory〉
ES-315 （2 pcs included）
SDL-320 （2 pcs included）
SR-240 （2 pcs included）
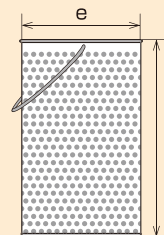
〈Standard Accessory〉
ES-215 （1 pc included）

※ The usable dimension shows recommended values considering safety during operation. The volume or position of the sterilization items may block the holes inside the chamber or interrupt the flow of steam or air, which will result in abnormal pressure increase or incomplete sterilization. To ensure safe operation of the autoclave, it is recommended that stainless steel wire mesh baskets supplied with the unit as standard accessories or optional stainless steel buckets be used.

◆The image shown for the product may not display its real color or shape.

◆Accessories

Stainless Basket
The entire basket is made of punched metal and is designed for easy penetration of steam.

Stainless Long Basket
Optimal for sterilizing the sterilizing bag. The structure of the lower section is without holes.

Stainless Bucket
Bucket without holes to prevent leakage of liquid from articles being sterilized.

Stand for Testing Durham's Tubes
Convenient for sterilizing test tubes containing culture media. Can be used as a stand independently.

Sterilizing Bag
Sterilizing bags fit to the vessel dimensions of each model are available.

Deodorant for autoclave
It allows for repeated use and removes offensive odors such as odors caused by culture media in the chamber.

Autoclavable waste container "ST-ZERO"
Waste inside the BSC can be collected in the container and autoclaved.

3K0822①N