

## Автоклавы (Паровые стерилизаторы) SJ-AC150/200/300



“SJ-AC150” SJClave™ SAC Steam Sterilizers Digital Fuzzy-controlled Autoclaves, 151Lit

*руководство по эксплуатации*

(Version 2.2.1)

**000 «Диаэм»**

Москва  
ул. Магаданская, д. 7, к. 3 ■ тел./факс: (495) 745-0508 ■ [sales@dia-m.ru](mailto:sales@dia-m.ru)

[www.dia-m.ru](http://www.dia-m.ru)

**С.-Петербург**  
+7 (812) 372-6040  
[spb@dia-m.ru](mailto:spb@dia-m.ru)

**Новосибирск**  
+7 (383) 328-0048  
[nsk@dia-m.ru](mailto:nsk@dia-m.ru)

**Воронеж**  
+7 (473) 232-4412  
[vrn@dia-m.ru](mailto:vrn@dia-m.ru)

**Йошкар-Ола**  
+7 (927) 880-3676  
[nba@dia-m.ru](mailto:nba@dia-m.ru)

**Красноярск**  
+7 (923) 303-0152  
[krsk@dia-m.ru](mailto:krsk@dia-m.ru)

**Казань**  
+7 (843) 210-2080  
[kazan@dia-m.ru](mailto:kazan@dia-m.ru)

**Ростов-на-Дону**  
+7 (863) 303-5500  
[rnd@dia-m.ru](mailto:rnd@dia-m.ru)

**Екатеринбург**  
+7 (912) 658-7606  
[ekb@dia-m.ru](mailto:ekb@dia-m.ru)

**Кемерово**  
+7 (923) 158-6753  
[kemerovo@dia-m.ru](mailto:kemerovo@dia-m.ru)

**Армения**  
+7 (094) 01-0173  
[armenia@dia-m.ru](mailto:armenia@dia-m.ru)



# Tables of Contents

	Page
1. Before Use.....	3
2. Use and Characteristics.....	4
3. Product Components.....	5
4. Product Installation.....	6
5. Cautions.....	7
6. Name of Each Part.....	10
7. Regulator.....	13
8. Instructions.....	15
9. Product Specifications.....	18
10. Maintenance and Storage.....	19
11. Types of Failures.....	19
12. Warranty.....	20

# 1






## Before Use

Thank you for purchasing **SJ-Clave Auto Steam Sterilizers, Digital PID controlled Autoclaves**.

This manual provides information pertaining to the performance, instructions, and cautions of this product.

Please read this manual carefully before using this product.

Below are various types of cautions, warnings, and alerts and the corresponding signs. Please review the safety information below before using this product.

	<p><b>Warning</b> This sign informs the user that injuries may occur if the user does not follow the precautions.</p>
	<p><b>Cautions</b> This sign informs the user that device failures may occur if the user does not follow the precautions.</p>
	<p><b>Alert</b> This sign informs the user that this is the central component of the function and therefore, the user should not change or disassemble this part.</p>
	<p><b>Caution for High Temperature</b> This sign informs the user about risks of burns from the use of the high temperature heater.</p>
	<p><b>Danger of Explosion</b> This sign informs the user about the risks of explosion when using volatile and explosive and chemical substances.</p>
	<p><b>Access Prohibited</b> This sign informs the user of area where access is prohibited when using this device.</p>

# 2

## Use and Characteristics

Thank you for purchasing SJ-Clave Auto Steam Sterilizers, Digital PID controlled Autoclaves. This product has a mounted sensor that detects the internal temperature to prevent overheating. Also, the control panel has many features including display of the current temperature, an earth leakage breaker that shuts down when leakage exceeds the set time, and PID Controller that automatically controls the power supplied to the heater.

It has been designed to provide operation functions with the simplest way. Manufacturing team made their utmost efforts to provide safety through applying the safe input control mechanism.

In addition, this product is made of stainless steel and processed with the press, in order to maintain the appearance of the chamber and high level of air tightness. High-end insulators are used to prevent the external side of the device from overheating.

When developing and manufacturing this product, highest considerations were given toward the convenience and safety of the users. Product characteristics are as follows.

- Top Loading allows easy handling of large volume.
- Microprocessor allows fully automated processes.
- Electrical and physical safety equipment that eliminates the risks associated to excessive increase of temperature and pressure.
- LCD Digital Display: set temperature and current temperature are displayed simultaneously and the “Timer” becomes initiated when the sterilizing temperature is reached. Then, the working temperature and sterilizing time is displayed simultaneously.
- Safety Device: safety device for preventing overheating and overcurrent is installed. When the sterilizing time is reached, a buzzer rings for 30 seconds and the pressure is released.
- “Locker” has an easy-to-handle “Four Arm” structure to realize the operation environment where it blocks from external environment.
- It has high temperature stability of  $\pm 0.5^{\circ}\text{C}$  at  $121^{\circ}\text{C}$ .
- It has 2 Perforated Baskets compatible to each model.

# 3

## Product Components

SJ, Steam Sterilizers, Digital PID controlled Autoclaves.....	[ 1 ]
Wire Basket Set.....	[ 2 ]
Operation Manual .....	[ 1 ]

### Models

- (a) SJ-AC150 : Steam Sterilizers, Digital PID controlled Autoclaves, 151Liter
- (b) SJ-AC200 : Steam Sterilizers, Digital PID controlled Autoclaves, 200Liter
- (c) SJ-AC300 : Steam Sterilizers, Digital PID controlled Autoclaves, 307Liter

# 4







## Product Installation



1. Remove the packaging after moving the product to the installation location.
2. Safely fix the product using the fixing device mounted on the wheel.
3. Check the entire exterior of the product for any damages that may have occurred during the delivery. If you any damages are detected please contact the vendor where you have made the purchase or the SJ Service Team.
4. Do not use the product immediately after the installation. Wait couple of minutes for the internal components to stabilize.
5. If you open the left door of the product, you can check the connection of parts including the electric component and copper tube for steaming. Before operation, visually inspect the connection conditions of the electric component connection wire and the copper tube. If you detect any abnormality, please contact the vendor where you have made the purchase or SJ Service Team.
6. Please check that the Manual purge valve and Water Drain Valve are closed before using the product.
7. Connect the power line to the power socket.
8. **(Caution)** If you have purchased the SJ-AC150/200/300, you cannot connect these devices to a general power socket because these devices require high electric power (Maximum specification of a general power socket in EU or countries in Asia is 3kW). Therefore, connect these devices to a power supply that can supply sufficient amount of power to each model (Please check the product specifications).
9. If there is not sufficient amount of power line at the installation location, you must check with the person in charge of electrical power before installing the device.

# 5

## Warnings before use









### ● Before Use

	Please review the instructions for use and the lab manual before using this device. Only authorized personnel should handle this device.
	Install in a firm and flat location. Otherwise, accidents may be caused from not properly following the precautions.
	Please use proper power supply for this device (AC 120V, 50/60Hz or AC 230V, 50/60Hz, Single phase). Only use loads that are equal to or below the tolerated standards.
	<p>This device should only be used for appropriate purposes such as the following.</p> <ul style="list-style-type: none"><li>● Destroying infectious or perishable substances and waste in the glass containers, rubber items, pipet tips, equipment, filters, consumer goods, and pipes</li><li>● Sterilizing opening of containers or liquid, culture medium, and buffer</li><li>● Sterilizing food waste</li><li>● Melting and liquefying agar</li></ul>
	<p>This device is not suitable for sterilizing the following substances.</p> <ul style="list-style-type: none"><li>● Lumbers</li><li>● Adhesive parts</li><li>● Plastic that is sensitive to heat</li><li>● Electric equipment</li><li>● Containers and equipment made of steel</li><li>● Measuring equipment (products that has labeled as unsuitable for steam pressure sterilization)</li></ul>
	Please check the sterile water in this device. If tap water or water that has other components is used, it may cause damage to the components inside the container, container surface, pipe, and valve.











	Do not sterilize containers that have solution or food with this device. Also, do not sterilize substances with low ignition point or toxic substances.
	Bags with samples to be sterilized must be closed. If not, it may burst during the sterilizing process.

● **Warning**

- Please follow the following procedures.

	Please operate indoors and maintain room temperature of 5°C ~ 35°C. Long term use in an environment that exceeds the tolerance range may cause failures.
	Do not use volatile or flammable chemical including laccase, paint, or flammable spray on the product or near the product. Fire may be ignited by the flare from the switch.
	Do not directly spray water on the product or wash the product with water. It may cause electric shock or shortage.
	Do not touch electric parts such as the power plug or electric components or operate the switch if your hands are wet. This may cause electric shock.
	Do not use this product in a place with continuous sunlight or expose this product near the rain. This may cause overheating or electrical defects. (Outdoor use is prohibited).
	Do not open the sterilizing device until all sterilizing cycles are complete and the pressure is released.
	When opening the sterilizing device, wear the safety items listed below to handle the sterilizing samples. - Apron - Safety Goggle - Heat-resisting gloves
	When opening the sterilizing device, stay one step away from the device and take caution of the stream released from the device.



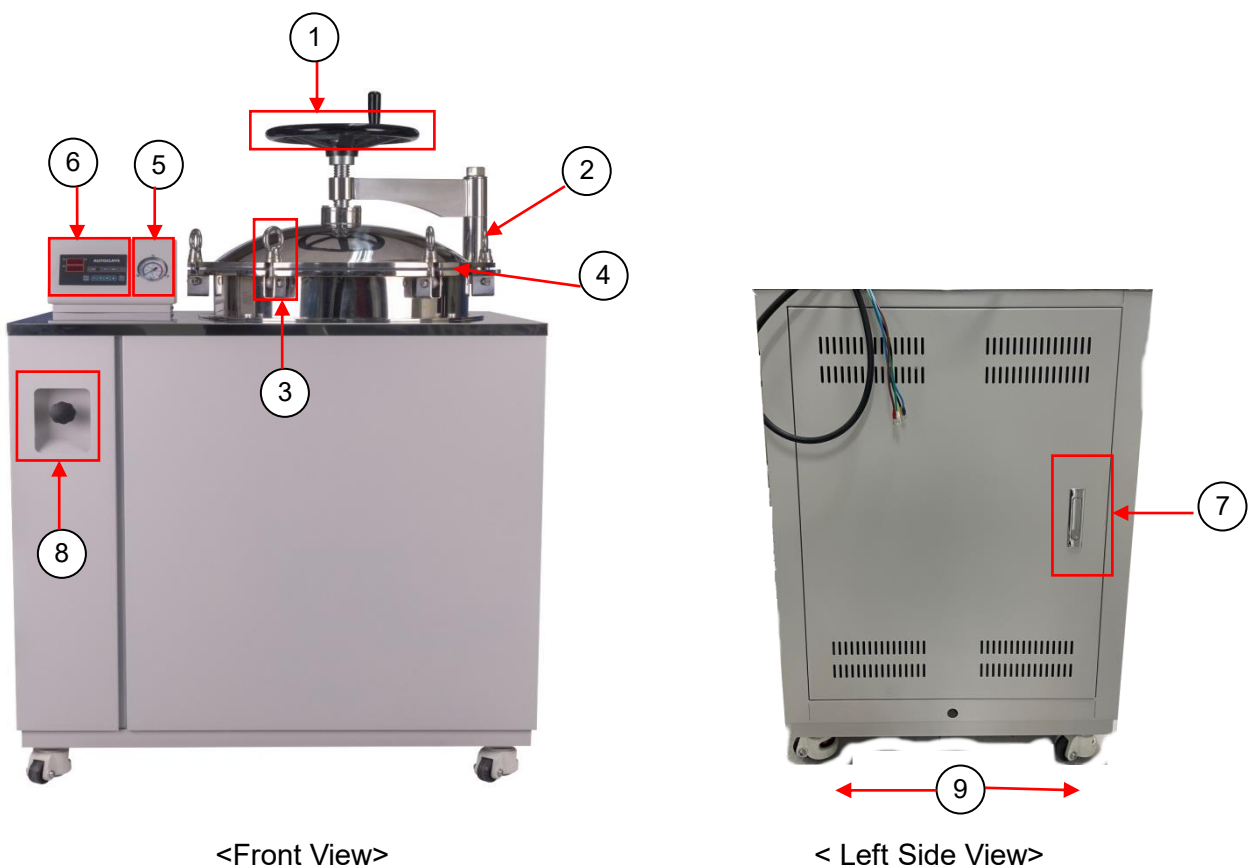
	<p>After sterilizing the solution, take caution for the below steps. Be careful of the boiling temperature from the solution. For 1 liter of solution, use the sterilizing device after waiting at least 2 hours and 30 minutes.</p>
	<p>For 2 liter of solution, use the sterilizing device after waiting at least 3 hours. Do not open the sterilizing device and remove the containers until the temperature of the sterilizing device has dropped to 70 degrees or lower.</p>
	<p>Do not damage, process, bend, pull, or tie the power cord. In addition, placing heavy materials on top of the power cord may cause fire or electrical shock.</p>
	<p>When unplugging the power plug, pull by grabbing the plug. If the power plug is unplugged by grabbing the cord, it may cause overheating or fire.</p>
	<p>Do not stop the operation by unplugging the power plug. It may cause electrical shock or shortage.</p>
	<p>Check periodically to see if dust is on the power plug. Connection of the power plug must be properly done. If dust is on the power plug or connection is not done properly, it may cause electrical shock or fire.</p>
	<p>If the device is not used for a long term, unplug the power plug from the electrical outlet for safety. If not, dust may cause overheating or fire.</p>
	<p>Unauthorized persons should not disassemble or modify this product. It may cause serious electrical problems and you may not be able to receive services under warranty.</p>
	<p>If you detect any abnormal noises or abnormalities during the operation, turn off the power of the device and unplug the power line. Then, contact the vendor where you have made the purchase or the SJ Service Team.</p>
	<p>When transferring this product, make sure the power line is unplugged from the electrical outlet and protect the power line to avoid damages. If not, it may cause electrical shock or fire from the damaged power line.</p>

※ All circuits and electrical/mechanical parts and components are technical property of SJ®. Do not request repairs to uncertified technicians who are not part of the SJ Service Team or have received training from SJ Service Team.

# 6

## Name of Each Part

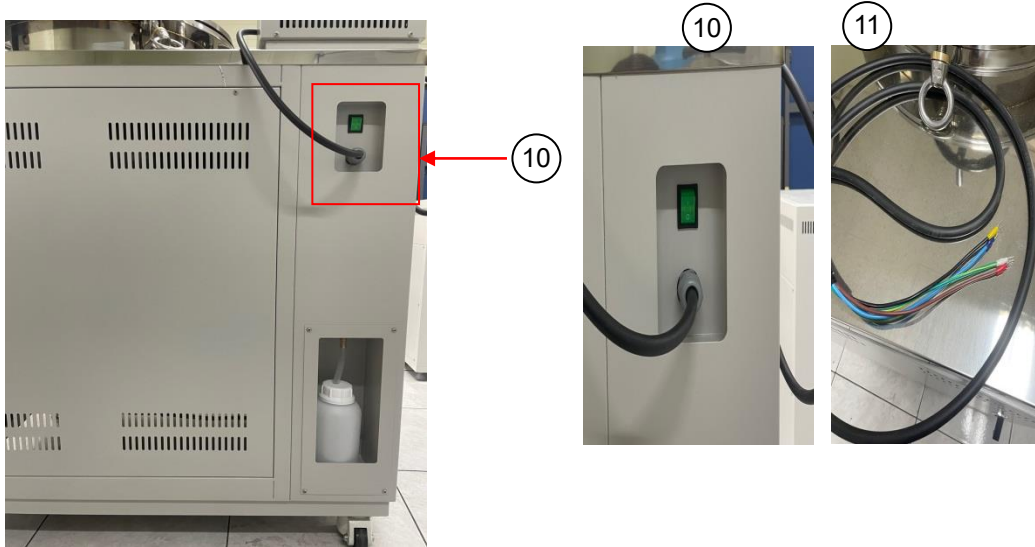
### 1. Exterior



- <Image 1-①> Lid Screw Handle
- <Image 1-②> Lid Stiffener
- <Image 1-③> Lid Clamp
- <Image 1-④> Lid with Silicon packing
- <Image 1-⑤> Pressure Gauge
- <Image 1-⑥> Control Panel
- <Image 1-⑦> Door Fastener

< Image 1-⑧> Manual Steam Valve Knob

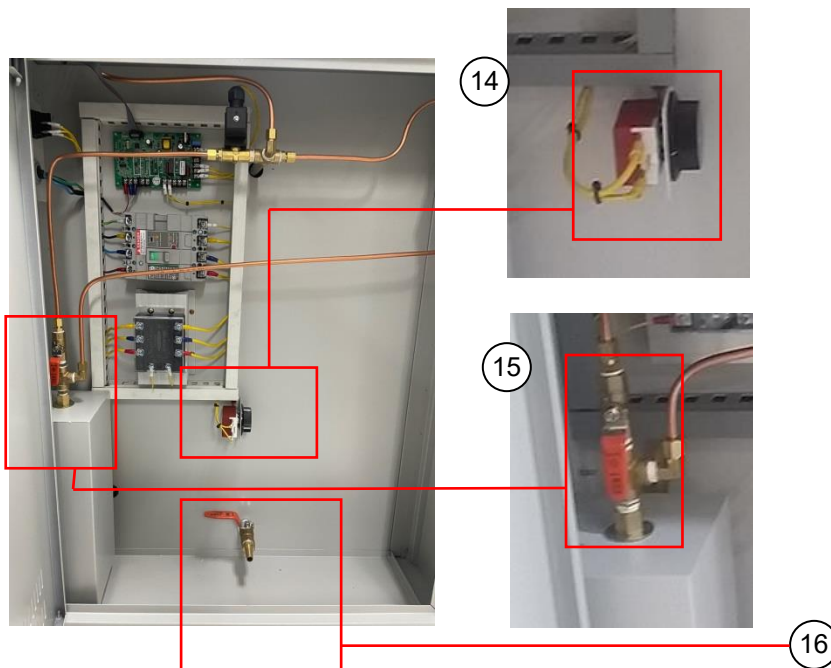
1-⑨> Moving Wheel



< Rear Side View >

< Image 1-⑩ > Power Switch and/or Leakage Breaker

< Image 1-⑪ > Power Cord



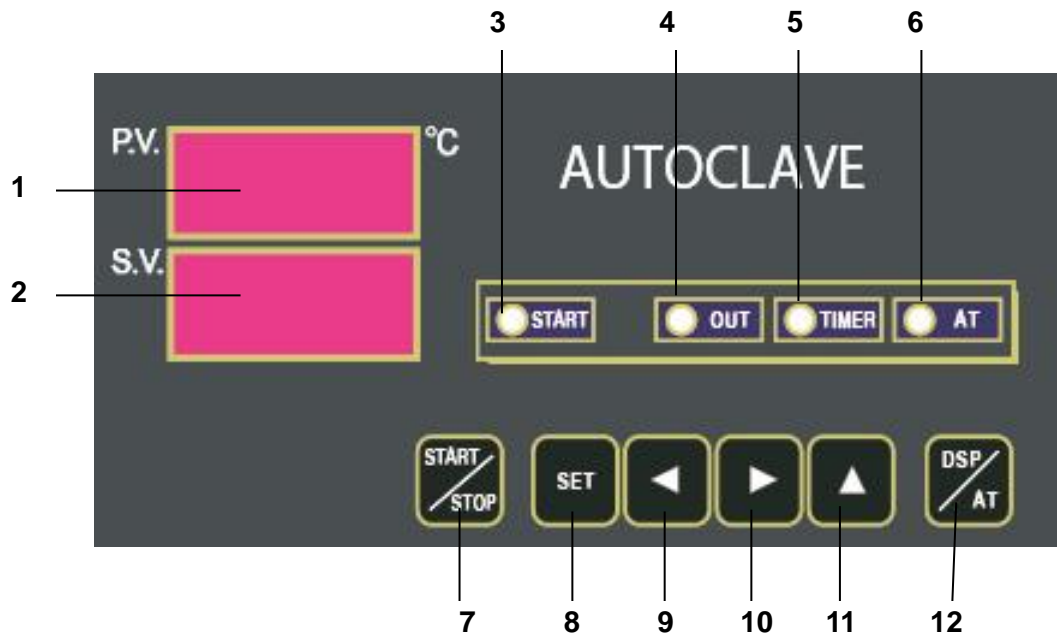
<그림 1-⑭ > Over Temp. Safety Knob

<그림 1-⑮ > Manual purge valve

<그림 1-⑯ > Water Drain Valve

# 7

## Modulator



1. P.V.: Current Temperature and Mode
2. S.V.: Set Temperature and Data at a Mode
3. Lamp indicating START
4. Lamp indicating HEATER output
5. Lamp indicating TIMER operation
6. Lamp indicating AUTO-TUNING operation
7. START/STOP button
8. SET button
9. Shift Left button: For changing the position of digit in Set Value (to the Left)
10. Shift Right button: For changing the position of digit in Set Value (to the Right)
11. INC button: For increasing Set Value
12. AT button: For displaying Auto-tuning, Time and Temperature.

## How to Use the Lamp

- **START lamp:** It turns on with the START switch and turns off with the STOP switch.
- **OUT lamp:** It turns on when the heater is initiated.
- **TIMER lamp:** When START switch is initiated, it will start to blink. Then, it turns on once it reaches the target temperature. It turns off once the set time is finished.
- **AT lamp:** It turns on during the AUTO TUNING process and turns off once the process is complete.

## How to Operate the Switch

- **START/STOP button:** Controlling START and STOP
- **SET button:** Switches over from set Temperature to Timer



If SET(MODE) button is pressed and held for more than a few seconds, it changes to the technician mode settings.

Do not change the value of any settings. Changing the settings may cause serious problems.

- **Shift Left button:** It changes the space for the number of the Set Value to the left.
- **Shift Right button:** It changes the space for the number of the Set Value to the right.
- **INC button:** It increases the temperature and timer of the Set Value.
- **AT button:**
  - 1) If pressed, it repeatedly displays the current temperature and timer.
  - 2) If pressed for 4 seconds or more, AUTO TUNING feature is initiated to correct the operation temperature of the device.
  - 3) Set to "0000" in each mode.

# 8

## Instructions

### I. Preparation before Operating

- This device is a type of high temperature steam sterilizer and therefore, pressure container must be filled with water before the operation. Using distilled water is recommended.
- Use clean distilled water and fill the pressure container until the sensor cover inside of the pressure container becomes submerged.
- Before operating, Manual Purge Valve <Image 1-16> must be locked.

### II. Setting the Modulator

#### 1. Initial Settings

- ① Check the input voltage (110V, 50Hz or 220V, 50/60Hz).
- ② Turn on the power switch located on the left side of the device.
- ③ Current temperature inside of the chamber will be displayed on the P.V. information window. The value of the set temperature will be displayed on the S.V. window.

P.V.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">27.0</div>
S.V.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">27.0</div>

#### 2. Temperature Settings

- ① Press the SET button.
- ② Then, "TEMP" will be displayed on the P.V. display window and the set temperature will be displayed on the S.V. display window.
- ③ Press the keys to move the space left and right to move the value to the desired space.
- ④ To set the target temperature, change the set value with INC button (17).

P.V.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">TEMP</div>
S.V.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">121.0</div>

### 3. Timer Settings

- ① Press the SET button.
- ② Then, "TIME" will be displayed on the P.V. window and the set time will be displayed on the S.V. window.
- ③ Press the keys to move the space left and right to move the value to the desired space.
- ④ To set the target temperature, change the set value with INC button (17).

P.V. 

S.V. 

### 4. Operating the Heating Function

- ① Press the SET button to store the set value.
- ② This will reset the device.
- ③ Press the START/STOP button to initiate the heating process.
- ④ Initiate the heating process until the target temperature is reached.

### 5. Operating the Timer

When the temperature inside of the pressure container reaches the target temperature, the temperature will be maintained and the timer will start automatically.

### 6. Changing the Displayed Value

If AT button is pressed during the operation, the information window will display the current value of the timer and the set temperature.

### 7. Sterilization Complete

When the sterilizing process is complete, the timer is automatically initiated for 30 seconds to notify the end of the sterilization process. The steam inside of the pressure container is released as the automatic valve opens.



### III. Maintenance After Sterilization

- When the sterilization process is complete, steam is released and remaining of the distilled water is left in the pressure container. Visually check the water level and supplement the water for next time use.
- When steam is released automatically, make sure that all pressure has been released through the <Image 1-5> Pressure Gauge located beside controller. After the temperature has been decreased sufficiently, release the small amount of steam by opening door of the <Image 1-15> Manual Purge Valve (It is for inspection when there is a problem with the pressure gauge. Therefore, please open it slowly).
- If you desire to remove the remaining distilled water in the pressure container, open the door located in the left side of the device and open the <Image 1-16> Water Drain Valve in the lower side. For cleaning the inside of the pressure container, rinse the pressure container and the pipe by continuously supplying clean distilled water while leaving the valve open.

### IV. Auto Tuning Function

AUTO TUNING feature is initiated when the AT button is pressed for 4 seconds.

AUTO TUNING is a feature that precisely adjusts the set temperature to 121 °C which is the same value as the factory shipping value.

# 9

## Product Specification

### Technical Information

#### SJ-AC(L) series Specifications



For product improvement, the specification below is subject to change without prior notice. Please, contact us for the specification consultant

Spec / Model	SJ-AC150	SJ-AC200	SJ-AC300
Type	Fully Automatic Type		
Chamber Type	Round Vertical Type		
Capacity	151ℓ	200ℓ	307ℓ
In Size (ØxH)m/m	500x770	600x710	700x800
Dimension (WxDxH)m/m	955x695x1,540 (About)	1,050x800x1,540 (About)	1,150x1,000x1,600 (About)
Heater Capacity	6kw	7.5kw	9kw
Temp.	Range	Ambient to 130°C	
	Controller	LED Microprocessor Programmable Control	
	Sensor	Pt-100Ω (Exclusively for Sterilizing, Auto Tuning)	
Time Range	99Hours 59min Digital Display		
Accuracy	±0.5°C		
Material	IN	Stainless Steel 304	
	OUT	SS41 Steel Plate and Powder Coating	
Door System	One Handel Single Screw and Volt Chain Method		
Basket	Stainless Steel (#304) Manufactured for Sterilizing / 2ea		
Pressure Range	0~3kg/cm <sup>2</sup>		
Using Pressure	0~1.2kg/cm <sup>2</sup>		
Wheel	Swivel Caster with Brake		
Electronic Power	AC 380V, 50-60Hz Single-Phase		
Safety Device	Over Temp. Protection / Over Pressure Protection / Manual Steam Valve / Steam Cooling Discharge Method / Circuit Breaker / Buzzer Alarm / Water Level Sensor (Option) / etc.		

# 10

## Maintenance and Storage

1. If the device will not be used for a long period of time, unplug the power plug, dry it, and package it for storing.
2. Only use genuine parts provided by our company if parts need to be replaced from failures during use.
3. Failures from abnormal use cannot be repaired under warranty.
4. When cleaning the product, unplug the power plug and wipe it with a soft cloth. For the parts that are difficult to remove, apply solution with a low freezing point to a cloth and only wipe the rubbish part that is difficult to remove.

# 11

## Types of Failures

Condition	Measures
Temperature does not increase above the room temperature	<p>Check the temperature that is currently set.</p> <p>Check to see if the power switch is set to ON.</p> <p>Check to see if the SAFETY Knob is set to 0.</p> <p>If the SAFETY Knob is at 0, it sets the temperature 20°C~30°C higher than the operation temperature.</p>
Power does not come on	<p>Check to see if the Power Cord is plugged in.</p> <p>Check to see if there is any abnormality in the power supply.</p> <p>Check to see if the earth leakage breaker is turned ON.</p> <p>Inspect the fuse circuit.</p>

※ If the problem persists after following the above inspection steps, contact the vendor where you purchased the device or the SJ Service Center at (+82) 2-2131-2992 to request Aftersales Service.

### Warranty (CERTIFICATION)

- ✓ Please confirm whether there are any items which are not specified in this warranty.
- ✓ User shall receive the warranty service in accordance to the terms and conditions specified in this warranty.
- ✓ This warranty is for Korean users only. Please refer to the detailed information below.
- ✓ If any failures occur during operation, please request a service by contacting your vendor.
- ✓ Since this warranty shall not be re-issued, please keep this carefully.

Product Name	SJ Clave Auto Steam Sterilizers Digital PID controlled Autoclaves		
Model Name	SJ-AC(150,200,300)		
Manufacture No.			
Warranty Period	12 months from the date of purchase		
Date of Purchase	Year	Month	Day
Purchased Vender			

#### **Warranty**

1. If the failure in the product is not from the user's negligence and is due to a manufacture defect, the product will be repaired at free of cost or replaced with a similar product.
2. Warranty period is 1 year (12 months) from the date of purchase.

#### **Service at Cost**

For the following cases, you will be asked to pay for the repair service.

1. If the warranty period of 1 year has passed
2. If the product has been inappropriately modified or repaired by an uncertified person or shop
3. If the failure is from the user's negligence.
4. If the failure is from a natural disaster (fire, sea water related damage, gas related damage, flood, and others)

## Контактная информация сервисных центров

### Сервисный центр Диаэм в Москве:

Адрес: 129345, г. Москва, ул. Магаданская, д.7, стр.3

Тел.: +7 (495) 745-05-08 (многоканальный)

E-mail: [service@dia-m.ru](mailto:service@dia-m.ru)

[www.dia-m.ru](http://www.dia-m.ru)

### Сервисный центр Диаэм в Новосибирске:

Адрес: 630090, Новосибирск, Академгородок, пр. Ак. Лаврентьева, 6/1, офис 100А

Тел.: +7 (495) 745-05-08 (многоканальный)

E-mail: [service@dia-m.ru](mailto:service@dia-m.ru)

[www.dia-m.ru](http://www.dia-m.ru)

### Сервисный центр Диаэм в Казани:

Адрес: 420111, Казань, ул. Профсоюзная, д.40-42, пом. № 8

Тел.: +7 (495) 745-05-08 (многоканальный)

E-mail: [service@dia-m.ru](mailto:service@dia-m.ru)

[www.dia-m.ru](http://www.dia-m.ru)

### Сервисный центр Диаэм в Санкт-Петербурге:

Адрес: 197022, Санкт-Петербург, ул. Профессора Попова, д. 23, лит. Д, офис 614 (БЦ «Гайот»)

Тел.: +7 (495) 745-05-08 (многоканальный)

E-mail: [service@dia-m.ru](mailto:service@dia-m.ru)

[www.dia-m.ru](http://www.dia-m.ru)

