



## **“Sturdy” Autoclave Sterilizer**

# **SA-252F Instruction Manual**

Please read manual carefully before using and keep it well.





# OPERATION

# MANUAL

## SA-252F

Falcon - series

### AUTOMATIC AUTOCLAVE STERILIZER

#### CONTENTS

Please read this manual carefully prior to using your new Falcon Autoclaves. Following the simple instructions contained in this manual will help ensure ease of use, trouble free operation, and a longer working life for your Falcon Autoclave.

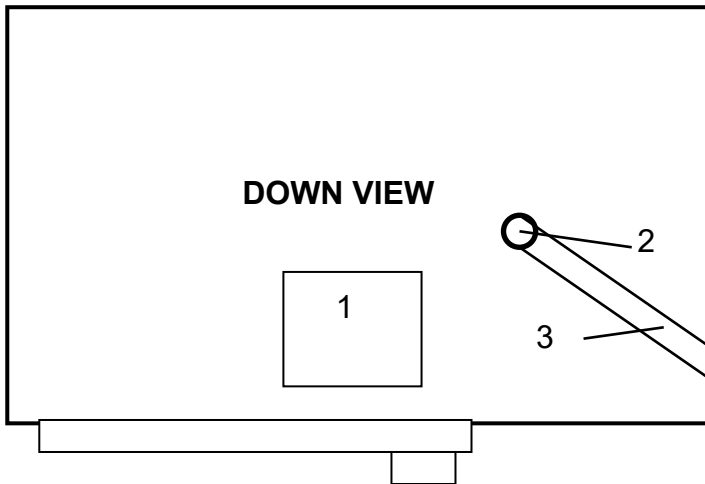
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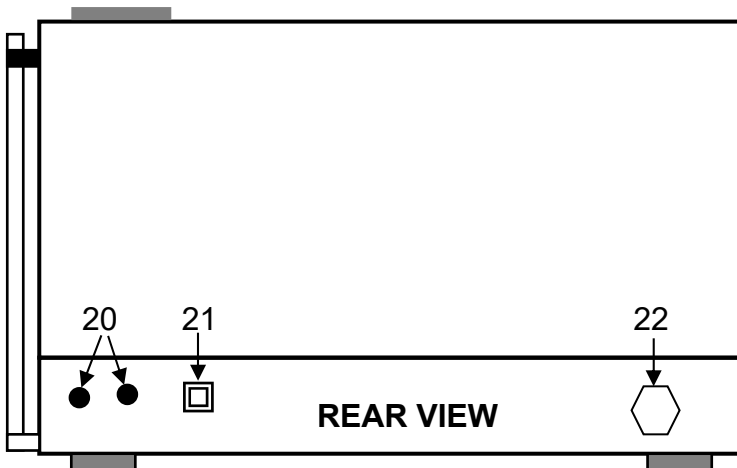
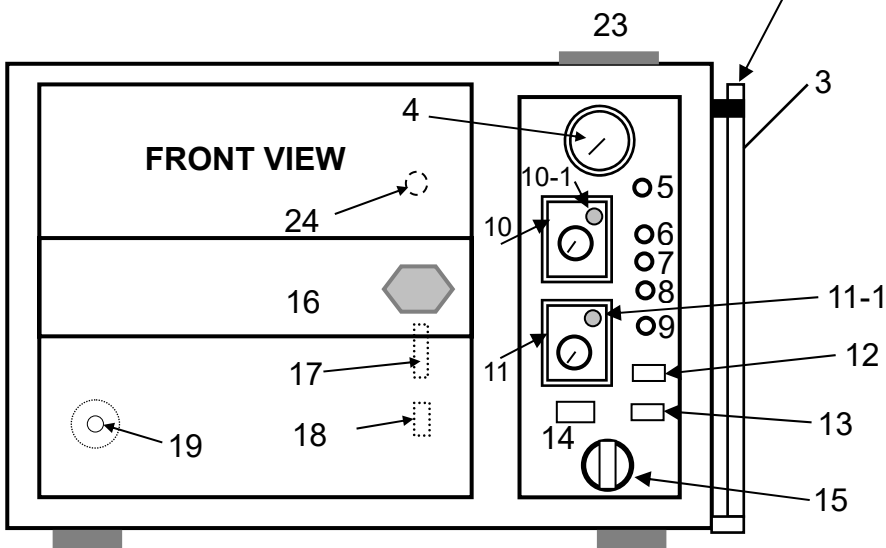
STURDY INDUSTRIAL CO., LTD.

ISO 13485 Certificated Firm

# CHAPTER 1 LOCATION



MOVE THE HOSE TO EXHAUST THE BALANCE WATER IN THE WATER TANK, THEN, CLEAN THE WATER TANK.



## CHAPTER 1 LOCATION

1. MAIN HEATER REPLACE COVER
2. HOSE FIXTURE
3. SILICON RUBBER HOSE & WATER LEVEL VIEWER FOR WATER TANK.
4. PRESSURE GAUGE
5. OVER HEATER LAMP: It is turn on when the temperature of heater is over heating in side chamber or the “ EMERGENCY“ switches turn on.
6. HEATING LAMP
7. STERILIZATION LAMP
8. DRY LAMP
9. COMPLETE LAMP
10. STERILIZATION TIMER
- 10-1. STERILIZATION TIMER INDICATION LAMP
11. DRY TIMER
- 11-1. DRY TIMER INDICATION LAMP
12. START SWITCH
13. EMERGENCY EXHAUST SWITCH
14. POWER ON / OFF SWITCH
15. FILLING / DRAINING WATER VALVE
16. DOOR HANDLE
17. SAFETY DOOR HOOK
18. PRESSURE DOOR LOCK
19. TEMPERATURE CONTROL SWITCH
20. NO FUSE BREAK 15A
21. POWER CORD
22. WATER FILTER CLEANING GATE
23. WATER TANK COVER
24. DOOR SENSOR

## CHAPTER 2 SPECIFICATION

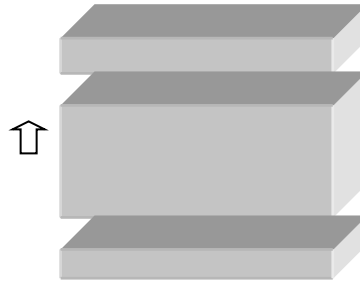
Chamber size	260mmØ X 450mm (DEPTH) MADE BY ST.ST. #304
Chamber capacity (L)	24
Overall size (mm )	630(D) x 540 (W) x 450 (H)
Chamber size (mm)	260(Dia.) X 450 (Dep.)
Power consumption	230VAC / 2063W/ 9A
Safety device	Pressure safety valve
	Pressure door lock
	Temperature protect switch (Over heater)
	Pressure control switch
	Safety door hook
	Emergency exhaust switch
Working Environment	Indoor use only;
	Altitude less than 1,000 m;
	Ambient temperature between 5°C and 40°C;
	Humidity : 80% RH@31°C non-condensing to 50% RH@40°C;
	Voltage fluctuations up to ±10 %;
	Transient overvoltage category II;
	Pollution degree 2
Transportation Conditions	-10°C to 70°C, 10%RH to 90%RH
Storage Conditions	-10°C to 50°C, 10%RH - 70%RH
Quality approval	QA system / <i>ISO 13485 approved by DNV.</i>
Dry function	Auto-dry function
Standard accessories	Sterilization Box - 1 pc. (st.st. #304)
Life time	7 years
Optional accessories	Tray set (Tray X 3, frame X 1 holder X1) Spring Holder (Pouch Rack) X 2 (St.St. #304)

## CHAPTER 3 PREPARATION

### CHECKLIST FOR UNPACKING INSTRUCTIONS:

#### TO UNPACK AUTOCLAVE FROM CARTON

1. Remove Straps.
2. Remove top of carton.
3. Remove center piece (walls) of the carton.
4. Remove foam-packing pieces.



#### CHECKLIST BEFORE USE THIS AUTOCLAVE

PS: PLEASE CHECK THE ACCESSORIES ENCLOSED, AT FIRST.

1. Put this autoclave on the table, and keep the distance more than 5cm between the wall and the machine. And keep this autoclave in level condition.
2. Check the elec. power source must be 220v ~ 240v.

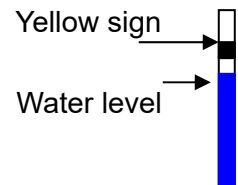


Figure 1

3. Pouring the water (DISTILLED WATER ONLY) into the water reservoir, until the water level nears the "FULL" level signs at outside cover. **Other way you can see water level below yellow sign of exhaust pipe at outside cover (See figure 1)**

**CAUTION:** PLEASE DON'T OVER THAN THIS FULL SIGN.

PS: After sterilization, the balance water and pressure in the chamber will be return to the water reservoir automatically.

4. You are now, ready to take the power cord out from autoclave, and plug the female end into the standard grounded AC outlet.

PS: POWER SOCKET 240VAC / 15A    220VAC / 15A

**CAUTION:** Before plug the power cord, please turn-off the power switch.

5. Check the power lamp, if it is light on, that means the power is already stand-by now.

## CHAPTER 4 OPERATION

PLEASE CHECK CHAPTER 3. AT FIRST.

1. Open the door and turn filling / draining water valve to open position , until the water level cover the heater completely than put the sterilized instruments on the trays, sterilization box or spring holder into the chamber.

PLEASE DON'T FORGET TO PUT THE STERILIZATION INDICATOR INTO CHAMBER.

2. Set-up the 121°C or 134°C by temperature control knob (under the door catcher).
3. Closed the door and turn the door handle to tight.

**PS:** PLEASE PUT BACK THE DOOR SAFETY CATCHER, BEFORE YOU PRESS "START " SWITCH.

4. Set up the programs as you want (Push power switch on at first).
  - a. Set-up the sterilization time.
  - b. Set-up the dry time. The program is starting working when press "START" switch

AS TO THE TIME SET, PLEASE REFER THE ENCLOSED APPENDIX.

WORKING INDICATOR

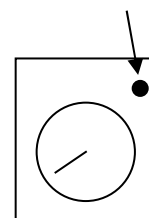


Figure 1

5. After the chamber pressure arrival you set-up. The LED of sterilization timer (See figure 1) turn to "flash" that means the sterilization timer starts work Then the LED light on. This means the sterilization timer finished working then starts the dry timer.
6. The LED of dry timer (See figure 1) turn to "flash" that means the dry timer starts work. Then the LED light on. This means the dry timer finished working then the buzzer start working
7. 40 seconds buzzer will report you, "MY DEAR MASTER! YOUR COMMAND HAVE BEEN COMPLETED."

CAUTION : BEFORE OPENING THE DOOR ENSURE THE PRESSURE GAUGE IS AT "ZERO" POSITION.

CAUTION : PLEASE DON'T FORGET THE CHECK THE STERILIZATION INDICATOR, AFTER STERILIZATION CYCLE

CAUTION : TO USE THE UNIT CONTINUOUSLY, BE ABSOLUTELY SURE TO OPEN THE DOOR AND ALLOW THE UNIT TO COOL OFF FOR AT LEAST 20 MINUTES.



## CHAPTER 4 OPERATION

The caution of sterilization box:

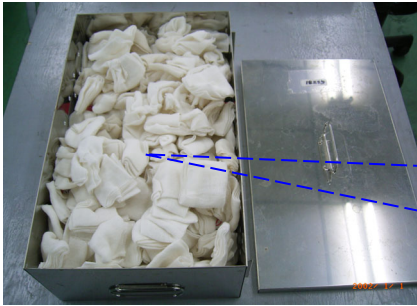


Figure 1

Items to be sterilized  
All Items need put into sterilization box.  
If the sterilization item put too much then the cover of sterilization box cannot put on.



Figure 2

By the way, don't forget open both side windows before put sterilization box into chamber.

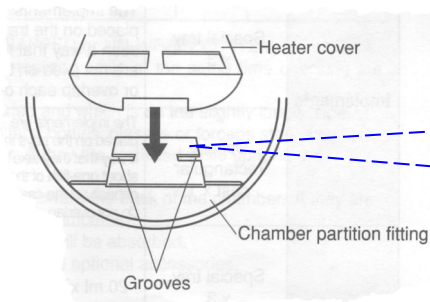


Figure 3

Fit the end of the heater cover into the grooves of the chamber partition fitting, and check that there is no play. Please see figure 3.

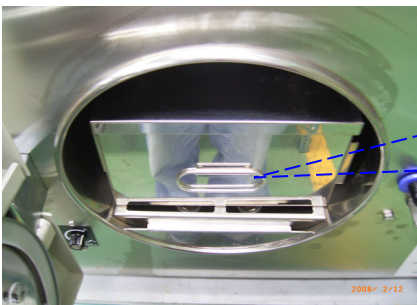


Figure 4

Please check heater cover and sterilization box are not oblique position when the sterilization box was put into chamber. Please see figure 4. So you can operate the autoclave.

## CHAPTER 4-1 BASIC STEP OF STERILIZATION

**TURN FILLING / DRAINING WATER VALVE TO OPEN POSITION UNTIL THE WATER LEVEL COVERS THE HEATER COMPLETELY.**



**PUT THE INSTRUMENTS NEEDING TO BE STERILIED INTO CHAMBER**



**SELECT THE STERILIZATION TEMPERATURE**



**CLOSE DOOR(TOUCH DOOR SENSOR)**



**SELECT STERILIZATION TIME**



**SELECT DRY TIME**



**PUSH START SWITCH (START WORKING)**



**MAIN HEATER ON**



**STERILIZATION TIMER START WORKING, WHEN TEMPERATURE ARRIVAL YOUR SET-UP**



**THE DRY TIMER START WORKING, WHEN STERILIZATION TIMER-OFF**












**THE COMPLETE INDICATOR LAMP WILL LIGHT-ON, IF NOT LIGHT-ON PLEASE POWER OFF/ON, THEN RECYCLE AGAIN.**

### CAUTION

1. CHECK THE PRESSURE GAUGE RETURN TO "ZERO"POSTION, BEFORE THE DOOR OPENED.
2. THE DOOR CAN'T OPEN, IF CHAMBER IN VACUUM CONDITION.PLEASE PUSHES THE "EMERGENCY SWITCH" TO RELEASE CHAMBER VACUUM. AFTER THE CHAMBER VACUUM WAS RELEASED, THEN THE DOOR CAN BE OPENED.

## CHAPTER 5 WARNING

1. Anytime check the pressure gauge, if the pressure over than 0 bar (kgf/cm<sup>2</sup>). Please don't open door.
2. "USE ONLY DISTILLED WATER" or not, we can't offer the quality guarantee service.
3. Please pour the water into the chamber before sterilization. Or not, the low-water protector will cut-off the elec. power. Please TURN-OFF the power switch, and pour water into chamber. Then, close the door and TURN-ON the power switch again.
4. Please attend the high temperature on the top of the case. When she is working.
5. Ensure the heater element inside the chamber is covered with water prior to commencement of the sterilization cycle.
6. Use only a dedicated power supply.
7. The silicon rubber gasket on the inner door and the front of the chamber should be kept clean °
8. The water filter cleaning gate at rear of the machine should be cleaned at least every season.
9. We recommend use of chemical indicator strips as a check for sterility. These strips may also be kept as a record of sterilization.
10. Do not over load or overfill the water into the water reservoir.
11.  Attention! Hot surface
12.  Protective earth (ground)
13. "  " Off, disconnection from the mains.

14.  On, connection to the mains
15.  Consult instruction manual for use
16.  Disposal of Electrical & Electronic Equipment (WEEE):  
This product should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product. (European community only)
17.  2008-01 Date of manufacture  
It is a 6-digit number. The first 4 digits represent the year and the last 2 digits represent the month.
18.  Authorised representative in the European
19.  Manufacturer

## CHAPTER 6 APPENDIX

### 6-1 PROGRAM DETAILS AS FOLLOWS:

#### ※ SETTING UP THE STERILIZATION TIME:

##### \* PRESSURE ON 2.1 bar (kgf/cm<sup>2</sup>) (APPROX. 134°C / 274°F)

WRAPPED	Set-up 15 minutes sterilization time.
UN-WRAPPED	Set-up 4 minutes sterilization time.

##### \* PRESSURE ON 1.2 bar (kgf/cm<sup>2</sup>) (APPROX. 121°C / 250°F)

WRAPPED	Set-up 30 minutes sterilization time.
UN-WRAPPED	Set-up 22 minutes sterilization time.
LIQUID	Set-up 40 minutes sterilization time.
Liquids sterilization need special optional device. Request by order.	

##### \* DRY TIME: 30 minutes

##### \* SPECIAL SELECTION RANGE:

TEMPERATURE SELECTION RANGE	118°C ~ 134°C
STERILIZATION TIME SELECTION RANGE	0 ~ 60 minutes
DRY TIME SELECTION RANGE	0 ~ 60 minutes

# FOR REFERENCE : 1 kgf/cm<sup>2</sup> = 0.98 bar = 14.2 psi.

# Sterilization instruments must be made by metal without plate, or autoclave plastic or rubber material.

# Liquid sterilization is available, but it must adjust the venting system by our engineer. So, as for liquid sterilization must be noticed by your purchase order.

## 6-2 PACKING INSTRUCTIONS:

※ RE-PACKING INSTRUCTIONS : TO PACK AUTOCLAVE INTO CARTON  
(PLEASE REFER CHAPTER 1. LOCATION.)

1. Drain all water from the autoclave.
2. Remove power cord and place all items into the chamber. Close door secure firmly.
3. Cover the autoclave with the plastic bag.
4. Place the bottom of the carton containing the packing piece No.1 onto the floor.
5. Place the autoclave into packing piece No.1 ensuring that the door of the autoclave is in the position marked “door”.
6. Place center piece (wall) of carton into the bottom of the carton.
7. Place packing piece No.2 in front of door.
8. Place packing piece Nos. 3, 4, and 5 (all the same size) along both sides and rear of autoclave.
9. Place packing piece No.6 on top of autoclave.
10. Place top of carton over center piece (wall) of carton.
11. The carton together with heavy twine or a similar strong material.

**IMPORTANT:** We strongly recommend that all packing material including the Carton is kept for re-use in the event that the unit needs to be transported at any time.

## CHAPTER 7 TROUBLESHOOTING

### \* POWER LAMP IS NOT LIGHT ON:

1.      Cause:      Power supply is not properly connected.  
         Solution:    Try to connect power supply until power indicator goes on.
2.      Cause:      No fuse broken jump out.  
         Solution:    Waiting 3 minutes, press the No fuse broken again.
3.      Cause:      Bulb broken.  
         Solution:    Replace bulb.

### \* STERILIZATION LAMP IS NOT LIGHT ON:

1.      Cause:      Lamp Broken.  
         Solution:    Replace the bulb.

### \* DRY LAMP IS NOT LIGHT ON:

1.      Cause:      Lamp broken.  
         Solution:    Replace bulb.

### \* OVER TEMPERATURE INDICATION AND ALARM:

1.      Cause:      Water is not enough.  
         Solution:    Pouring water into the chamber until water level touch water stop, & try again.
2.      Cause:      Forget pouring water in the chamber  
         Solution:    Pouring water into the chamber until water level touch water stop, & try again.
3.      Cause:      Steam solenoid is dirty (steam leak).  
         Solution:    Clean the solenoid valve or please call service.

PS: THE FILTER MUST BE CLEAN PER EACH SEASON.

\* WATER IN CHAMBER CAN'T RETURN TO WATER RESERVOIR AUTOMATICALLY:

1. Cause: Steam solenoid unclean.  
Solution: Clean the filter and the solenoid valve. Please call service.

\* PRESSURE CAN'T UP:

1. Cause: Steam solenoid leak.  
Solution: Clean the filter and the solenoid valve. Please call service.  
Solution: Replace main heater.

\* DRY FUNCTION NOT PERFECT:

Please open the door immediately, in 15 minutes, after alarm. If still have same problem, please call engineer.

*PS: ANY PROBLEMS PLEASE CHECK THE WIRE CONNECTION AT FIRST.*



## CHAPTER 8 MAINTENANCE REQUIREMENTS

### DAILY:

- Wipe the inside of the chamber, door and the gasket with a damp, lint-free cloth.
- Check the water level. Top up with distilled water only.

### WEEKLY:

- Drain off the remaining water of water reservoir and refill with distilled water. (\*Please use the water level viewing hose to drain off water of water reservoir.)
- Remove the cap of water reservoir and find the safety valve. Pull the ringlet of the safety valve to check its working status.

### MONTHLY:

- Clean the chamber and piping system with “**CHAM-MATE**”.
- Use clean water to scrub the water reservoir thoroughly. (It's to clean away the mineral residues of water.)
- The water filter cleaning gate at rear of the machine should be cleaned.

### ANNUALLY: (Please contact your distributor for maintenance.)

- Check the working status of silicone door gasket, steam trap, safety valve, and heater. (Recommendation: Replace the silicone door gasket every year.)
- Test the functions of indicator, solenoid valve.
- Check the temperature during sterilization.
- Use biological indicators to test the validity of sterilization.

## **WARRANTY**

You “**STURDY**” product are in guaranteed to be from the defects in materials and workmanship for one (1) year under normal use from the date of purpose.

This warranty does not apply to any product damaged by accident, misuse abuse,neglect,improper line voltage,drop,fire,flood or if the products were altered or repaired by anyone other than qualified service personnel.

The liability of Sturdy Industrial Co.,Ltd. is limited to repair of replacement and under no circumstances shall “**STURDY**” be liable for any collateral consequential damages or loss. This guarantee specifically excludes the expendables and consumable.

All warranty claims must be directed to the distributors or agents authorized by Sturdy Industrial Co.,Ltd. Responsible for the sales of this instrument. The customers are responsible for shipping expense.

.....  
User's Name:\_\_\_\_\_

Address:  
\_\_\_\_\_  
\_\_\_\_\_

Country:\_\_\_\_\_ Tel:\_\_\_\_\_ Fax:\_\_\_\_\_


Date of Purchase:\_\_\_\_\_ Model No.:\_\_\_\_\_

Series No.:\_\_\_\_\_

Distributor:  
\_\_\_\_\_  
\_\_\_\_\_

Manufacturer: STURDY INDUSTRIAL CO.,LTD. (ISO 13485 CERTIFICATE FIRM.)



<b>Name</b>	Sturdy Autoclave Sterilizer		
<b>Model</b>	SA-252F		
<b>Manufacturer</b> 	Sturdy Industrial Co. Ltd.		
<b>Address</b>	168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan		
<b>EC Representative</b> <table border="1" data-bbox="284 1644 379 1682"> <tr> <td>EC</td> <td>REP</td> </tr> </table>	EC	REP	APEX MEDICAL S.L. Elcano 9, 6 <sup>a</sup> planta 48008 Bilbao. Vizcaya SPAIN
EC	REP		

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