

# Service manual

HP series



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## 1 Important instructions

-  **CAUTION:** Please install, operate and maintain the sterilizer in accordance with this Service Manual. Failure to do so could result in serious injury or damage to the unit.
-  **CAUTION:** Turn off the braker and drain off water from the reservoir if the sterilizer will not be used regularly.
-  **WARNING:** The outer casing and metal surfaces of the sterilizer are hot during operation, please do not touch it.
-  **WARNING:** Steam and hot water may be present when opening the door after a sterilizing cycle.
-  **WARNING:** DO NOT place alcohol or other flammable items in the sterilizer. An explosion could occur, causing personal injury.
-  **WARNING:** DO NOT place any objects on the top of the sterilizer.
-  **WARNING:** Always check the pressure gauge before opening the door. DO NOT attempt to open the door if the pressure is not at zero (0).
-  **WARNING:** Use only distilled water. Normal tap water contains minerals, especially chlorides, which have corrosive effects on stainless steel. Failure to use distilled water will invalidate the warranty.
-  **WARNING:** The door must be closed completely during operation of the unit. If the "Door open" displayed, it means that the door is not closed properly.
-  **WARNING:** Use Bioindicator/ chemical indicator for sterilizer to check that sterilization was successful.
-  **WARNING:** Contact your supplier for service support if the safety valve is active for releasing the over-pressure.
-  **WARNING:** In an emergency, or before carrying out any maintenance, always disconnect the power cord from the outlet.
-  **WARNING:** Always check the status of the electric wire. Contact your supplier for service support.

## 2 Symbols

	Caution, consult instruction manual for use
	Protective earth (ground)
	Alternating Current
	Attention! Hot surface
	Caution, risk of electric shock.
	<p>Disposal of Electrical &amp; Electronic Equipment (WEEE):</p> <p>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)</p>
	Authorised representative in the USA or European community.
	Manufacturer
	<p>Date of manufacture</p> <p>It is a 6-digit number. The first 4 digits represent the year and the last 2 digits represent the month.</p>
	Consult instruction manual for use
	On, connection to the mains
	Off, disconnection from the mains
POWER	Power switch
NOTE	Indicates information that user should pay special attention to.
CAUTION	Indicates correct operating or maintenance procedures in order to prevent damage or destruction of the equipment or other property.
WARNING	Indicates correct operating or maintenance procedures in order to prevent damage or destruction of the equipment or other property.

### 3 Control Panel

Refer to the Control Panel of the HP series Operation Manual to grasp the panel of the different sterilizers.

### 4 Specifications

#### 4.1 Single door cylindrical Model Specifications

Model No.	SAT-450HP	SAT-500HP	SAT-600HP
External Dimensions (mm) (W) x (H) x (D)	800 x 1700 x 1300	800 x 1700 x 1400	900 x 1800 x 1600
Chamber Size (mm) (Ø) x (D)	Ø 450 x 900	Ø 500 x 1000	Ø 610 x 1200
Chamber Capacity (L)	143 L	196 L	350 L
Supply Voltage	3~ 220V / 230V / 380V / 400V / 415V / 440V, 50/60Hz		
Heater	9 kW	9 kW	12 kW
Total Power	13kW	13 kW	16 kW
Materials	SUS 304		
Design Temperature	142 °C		
Design Pressure	2.8 bar		
Pressure Chamber Design Standard	ASME		
Sterilization Working Temperature	121 °C / 134 °C		
Sterilization Working Pressure	1.03 bar / 2.03 bar		
Max. Load Capacity	Wrapped	22 kg(11kg/per tray)	30 kg(15kg/per tray)
	Unwrapped	30 kg(15kg/per tray)	41 kg(20.5kg/per tray)
	Liquid Load	25 L	34 L
Max. Water Consumption (Liter / cycle)	5	7	13
Safety Valve	Chamber : 2.6 bar ( 260 kPa) Jacket : 2.8 bar (280 kPa)		
Pressure Display	Analog type and Panel Display		
Control	PLC		
Operation panel	HMI (Human Machine Interface)		
Display	7" color touch screen		
Water Supply	Automatically Water level detection (at steam generator)		
Sterilization Program	Universal 121 °C Universal 134 °C Liquid Dry 1-60 minutes		
Test Program	Leakage Test B&D Test Helix Test		
Others Function	Date and time Brightness Language (Chinese / English / Français / Español), Counter (Next Service cycles remind) Printer (On/Off) Unit Password Operator Registration Administrator Registration (Administrators Mode) Vacuum release		

Model No.	SAT-450HP	SAT-500HP	SAT-600HP
	Remove USB Calibration Mode (Administrators Mode)		
Login	Operators x 5 Administrators x 2		
Lifespan	7 years		
Storage medium	USB memory (up to 32GB)		
Printer	Digital Dot-Printer (Paper size : 30mm(Φ) x 57mm)		
Safety Protection	1.Emergency Stop 2.Safety Valve of Chamber 3.Safety Valve of Jacket 4.Over pressure switch of Chamber 5.Over pressure switch of Jacket 6.Overheat Protection (thermostat) 7.Low-Water detection 8.Door open detection 9.Door interlock		
Standard accessory	Tray Base x 1 Glass Tube x 2 Printer Paper x 5		
Optional accessory	Sterilization Basket Sterilization Tray Set Trolley Set Fill Water Pump Single Channel Recorder (Analogue) 6 Channels Recorder (Analogue) Sensor for Liquid Sterilization		
Working Environment	<ul style="list-style-type: none"> <li>● Indoor use;</li> <li>● Under 2,000 m (altitude);</li> <li>● Temperature 5 °C to 40 °C;</li> <li>● Relative Humidity 80 %RH@31 °C to Relative Humidity 50 %RH@40° C;</li> <li>● Voltage fluctuation ±10 %;</li> <li>● Transient overvoltages category II;</li> <li>● Pollution degree 2</li> </ul>		
Storage Conditions	-10 °C to 50 °C, 10 %RH to 70 %RH		
Transportation Conditions	-10 °C to 70 °C, 10 %RH to 90 %RH		

## 4.2 Double door cylindrical Model Specifications

Model No.	SAT-450HPD	SAT-500HPD	SAT-600HPD
External Dimensions (mm) (W) x (H) x (D)	800 x 1700 x 1330	800 x 1700 x 1440	900 x 1800 x 1640
Chamber Size (mm) (Ø) x (D)	Ø 450 x 900	Ø 500 x 1000	Ø 610 x 1200
Chamber Capacity (L)	143 L	196 L	350 L
Supply Voltage	3~, 220V / 230V / 380V / 400V / 415V / 440V, 50/60Hz		
Heater	9 kW	9 kW	12 kW
Total Power	13 kW	13 kW	16 kW
Materials	SUS 304		
Design Temperature	142 °C		
Design Pressure	2.8 bar		
Pressure Chamber Design Standard	ASME		
Sterilization Working Temperature	121 °C / 134 °C		
Sterilization Working Pressure	1.03 bar / 2.03 bar		
Max. Load Capacity	Wrapped	22 kg(11kg/per tray)	30 kg(15kg/per tray)
	Unwrapped	30 kg(15kg/per tray)	41 kg(20.5kg/per tray)
	Liquid Load	25 L	34 L
Max. Water Consumption (Liter / cycle)	5	7	13
Safety Valve	Chamber : 2.6 bar (260 kPa) Jacket : 2.8 bar (280 kPa)		
Pressure Display	Analog type and Panel Display		
Control	PLC		
Operation panel	HMI (Human Machine Interface)		
Display	7" color touch panel		
Water Supply	Automatically water level detection (at steam generator)		
Sterilization Program	Universal 121 °C Universal 134 °C Liquid Dry 1-60 minutes		
Test Program	Leakage Test B&D Test Helix Test		
Others Function	Date and time Brightness Language (Chinese / English / Français / Español), Counter (Next Service cycles remind) Printer (On/Off) Unit Password Operator Registration Administrator Registration (Administrators Mode) Vacuum release Remove USB Calibration Mode (Administrators Mode)		
Login	Operators x 5 Administrators x 2		
Lifespan	7 years		

Model No.	SAT-450HPD	SAT-500HPD	SAT-600HPD
Storage medium	USB memory (up to 32GB)		
Printer	Digital Dot-Printer (Paper size : 30mm(Φ) x 57mm)		
Safety Protection	1.Emergency Stop 2.Safety Valve of Chamber 3.Safety Valve of Jacket 4.Over pressure switch of Chamber 5.Over pressure switch of Jacket 6.OverHeat Protection (thermostat) 7.Low-Water detection 8.Door open detection 9.Door interlock		
Standard accessory	Tray Base x 1 Glass Tube x 2 Printer Paper x 5		
Optional accessory	Sterilization Basket Sterilization Tray Set Trolley Set Fill Water Pump Single Channel Recorder (Analogue) 6 Channels Recorder (Analogue) Sensor for Liquid Sterilization		
Working Environment	<ul style="list-style-type: none"> <li>● Indoor use;</li> <li>● Under 2,000 m (altitude);</li> <li>● Temperature 5 °C to 40 °C;</li> <li>● Relative Humidity 80 %RH@31 °C to Relative Humidity 50 %RH@40 °C;</li> <li>● Voltage fluctuation ±10 %;</li> <li>● Transient overvoltages category II;</li> <li>● Pollution degree 2</li> </ul>		
Storage Conditions	-10°C to 50°C, 10%RH to 70%RH		
Transportation Conditions	-10°C to 70°C, 10%RH to 90%RH		

#### 4.3 Single door square Model Specifications

Model No.	SAT-S0848HP	
External Dimensions (mm) (W) x (H) x (D)	1740 x 2070 x 2250	
Chamber Size (mm) (W) x (H) x (D)	610 x 915 x 1520	
Chamber Capacity (L)	848L	
Supply Voltage	3~, 220V / 230V / 380V / 400V / 415V / 440V, 50/60Hz	
Heater	48 kW (12 kw x 4)	
Total Power	52 kW	
Materials	SUS 304	
Design Temperature	142 °C	
Design Pressure	2.8 bar	
Pressure Chamber Design Standard	ASME	
Sterilization Working Temperature	121 °C / 134 °C	
Sterilization Working Pressure	1.03 bar / 2.03 bar	
Max. Load Capacity	Wrapped	112 kg (37.3 kg/per tray)
	Unwrapped	187 kg (62.3 kg/per tray)
	Liquid Load	145 L
Max. Water Consumption (Liter / cycle)	30	
Safety Valve	Chamber : 2.6 bar ( 260 kPa) Jacket : 2.8 bar (280 kPa)	
Pressure Display	Analog type and Panel Display	
Control	PLC	
Operation panel	HMI (Human Machine Interface)	
Display	7" color touch panel	
Water Supply	Automatically water level detection (at steam generator)	
Sterilization Program	Universal 121 °C Universal 134 °C Liquid Dry 1-60 minutes	
Test Program	Leakage Test B&D Test Helix Test	
Others Function	Date and time Brightness Language (Chinese / English / Français / Español), Counter (Next Service cycles remind) Printer (On/Off) Unit Password Operator Registration Administrator Registration (Administrators Mode) Vacuum release Remove USB Calibration Mode (Administrators Mode)	
Login	Operators x 5 Administrators x 2	
Lifespan	7 years	
Storage medium	USB memory (up to 32GB)	
Printer	Digital Dot-Printer (Paper size : 30mm(Φ) x 57mm)	

Model No.	SAT-S0848HP
Safety Protection	1.Emergency Stop 2.Safety Valve of Chamber 3.Safety Valve of Jacket 4.Over pressure switch of Chamber 5.Over pressure switch of Jacket 6.Overheat Protection (thermostat) 7.Low-Water detection 8.Door open detection 9.Door interlock
Standard accessory	Tray Base x 1 Glass Tube x 2 Printer Paper x 5
Optional accessory	Sterilization Basket Sterilization Tray Set Trolley Set Fill Water Pump Single Channel Recorder (Analogue) 6 Channels Recorder (Analogue) Sensor for Liquid Sterilization
Working Environment	<ul style="list-style-type: none"> <li>● Indoor use;</li> <li>● Under 2,000 m (altitude);</li> <li>● Temperature 5 °C to 40 °C;</li> <li>● Relative Humidity 80 %RH@31°C to Relative Humidity 50 %RH@40 °C;</li> <li>● Voltage fluctuation ±10 %;</li> <li>● Transient overvoltages category II;</li> <li>● Pollution degree 2</li> </ul>
Storage Conditions	-10 °C to 50 °C, 10 %RH to 70 %RH
Transportation Conditions	-10 °C to 70 °C, 10 %RH to 90 %RH

#### 4.4 Double door square Model Specifications

Model No.	SAT-S0848HPD	
External Dimensions (mm) (W) x (H) x (D)	1740 x 2070 x 2130	
Chamber Size (mm) (W) x (H) x (D)	610 x 915 x 1520	
Chamber Capacity (L)	848L	
Supply Voltage	3~, 220V / 230V / 380V / 400V / 415V / 440V, 50/60Hz	
Heater	48 kW (12 kw x 4)	
Total Power	52 kW	
Materials	SUS 304	
Design Temperature	142°C	
Design Pressure	2.8 bar	
Pressure Chamber Design Standard	ASME	
Working Temperature	121 °C / 134 °C	
Working Pressure	1.03 bar / 2.03 bar	
Max. Load Capacity	Wrapped	112 kg (37.3 kg/per tray)
	Unwrapped	187kg (62.3 kg/per tray)
	Liquid Load	145 L
Max. Water Consumption (Liter / cycle)	30	
Safety Valve	Chamber : 2.6 bar ( 260 kPa) Jacket : 2.8 bar (280 kPa)	
Pressure Display	Analog type and Panel Display	
Control	PLC	
Operation panel	HMI (Human Machine Interface)	
Display	7" color touch screen	
Water Supply	Automatically water level detection (at steam generator)	
Sterilization Program	Universal 121 °C Universal 134 °C Liquid Dry 1-60 minutes	
Test Program	Leakage Test B&D Test Helix Test	
Others Function	Date and time Brightness Language (Chinese / English / Français / Español), Counter (Next Service cycles remind) Printer (On/Off) Unit Password Operator Registration Administrator Registration (Administrators Mode) Vacuum release Remove USB Calibration Mode (Administrators Mode)	
Login	Operators x 5 Administrators x 2	
Lifespan	7 years	
Storage medium	USB memory (up to 32GB)	
Printer	Digital Dot-Printer (Paper size : 30mm(Φ) x 57mm)	

Model No.	SAT-S0848HPD
Safety Protection	1.Emergency Stop 2.Safety Valve of Chamber 3.Safety Valve of Jacket 4.Over pressure switch of Chamber 5.Over pressure switch of Jacket 6.OverHeat Protection (thermostat) 7.Low-Water detection 8.Door open detection 9.Door interlock
Standard accessory	Tray Base x 1 Glass Tube x 2 Printer Paper x 5
Optional accessory	Sterilization Basket Sterilization Tray Set Trolley Set Fill Water Pump Single Channel Recorder (Analogue) 6 Channels Recorder (Analogue) Sensor for Liquid Sterilization
Working Environment	<ul style="list-style-type: none"> <li>● Indoor use;</li> <li>● Under 2,000m (altitude);</li> <li>● Temperature 5 °C to 40 °C;</li> <li>● Relative Humidity 80 %RH@31 °C to Relative Humidity 50 %RH@40 °C;</li> <li>● Voltage fluctuation ±10 %;</li> <li>● Transient overvoltages category II;</li> <li>● Pollution degree 2</li> </ul>
Storage Conditions	-10 °C to 50 °C, 10 %RH to 70 %RH
Transportation Conditions	-10 °C to 70 °C, 10 %RH to 90 %RH

## 5 Installation

### 5.1 Installation Environment

Please follow local wiring rules for correct installation by a technician, and refer to the environment requirement as specified in "Specifications".

### 5.2 Set Up Autoclave

- A. Install the autoclave as instructed in the "installation plan" onto a horizontal floor that can support it, and keep a minimum distance of 80 cm from the walls for ventilation and maintenance.
- B. Locate the autoclave and adjust its horizontal level so that door side is slightly higher than the rear side about 1-2 degree as shown in Figure 1.

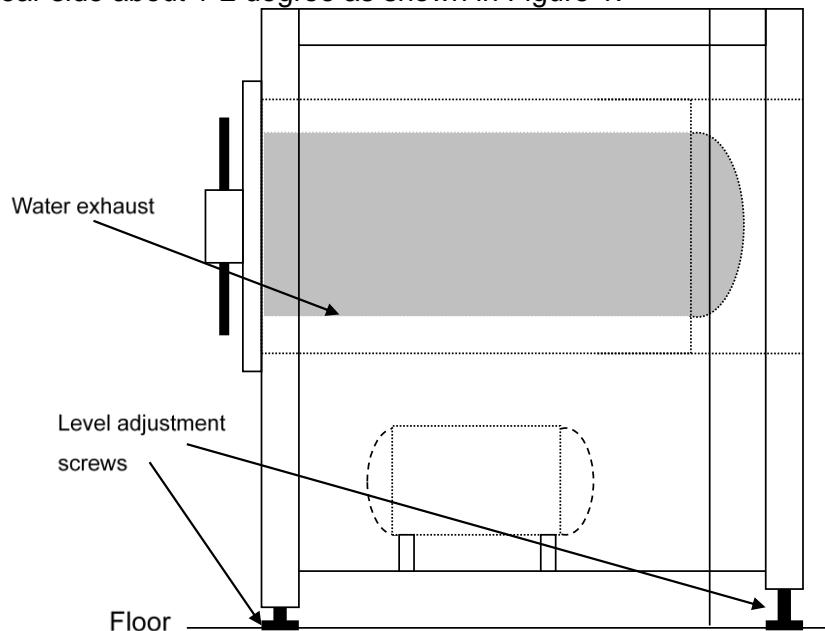


Figure 1

- C. Connect the pipes as following:

- (a) Water inlet for steam generator, diameter of  $\varnothing\frac{1}{2}$ "
- (b) Water inlet for vacuum pump, diameter of  $\varnothing\frac{1}{2}$ "
- (c) Exhaust outlet for chamber, diameter of  $\varnothing\frac{1}{2}$ "
- (d) Exhaust outlet for vacuum pump and steam generator, diameter of  $\varnothing1"$

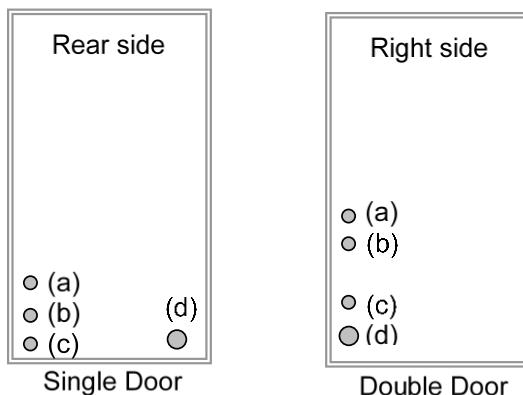


Figure 2

- D. Make sure that inlets and outlets as shown above are connected correctly, and then supply the distilled water to the water inlet as shown in position (a) of Figure 2. When power on the autoclave, water will be filled automatically until "FULL" level reached.

**NOTE:** Examine that pipelines connected from the "exhaust outlet for vacuum pump and steam

"generator" is not obstructed by the over-bending. If it were happened, it may cause malfunction of vacuum operation and the door would be locked.

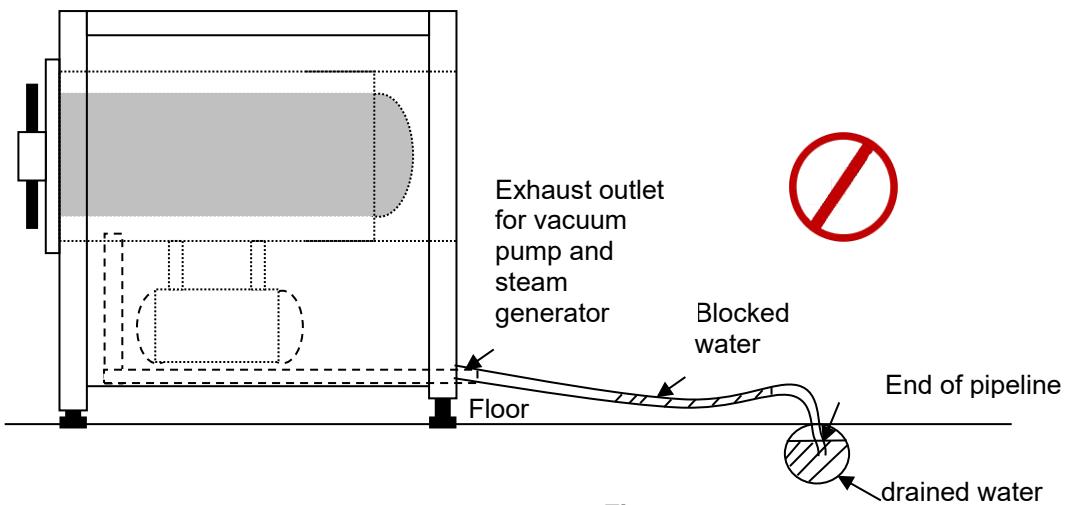


Figure 3

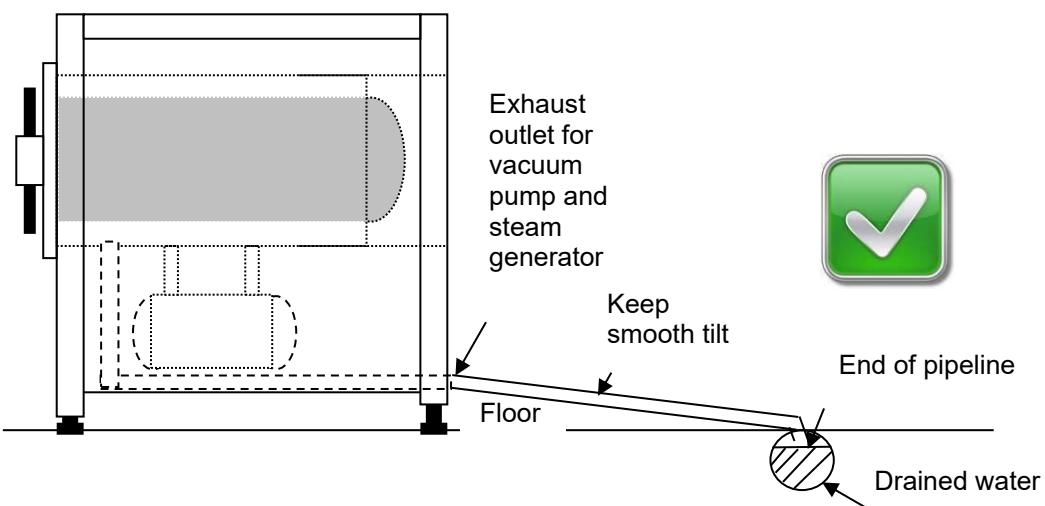


Figure 4

- E. Turn off the independent circuit-breaker and then connect the power line of the autoclave according to the national wiring regulation. Check that the wirings are reliably secured with suitable capacity for supplying the power, then turn on the circuit-breaker.

**⚠ CAUTION:** The circuit-breaker is also serves as a disconnected device for disconnecting the power, it should be so located that the circuit-breakers won't be blocked by any other devices.

**⚠ CAUTION:** The autoclave MUST BE earthed.

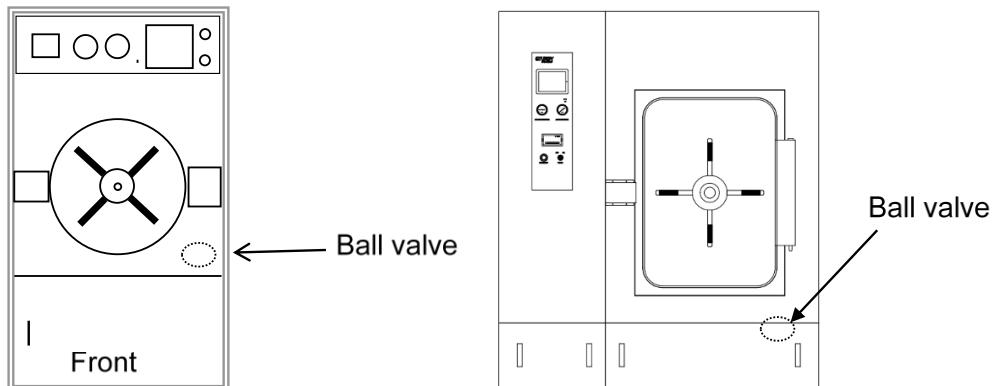
- F. Turn on the circuit-breaker 1 and circuit-breaker 2 in the control box of the autoclave, and then switch on the power by the key-lock switch on the panel. Visual inspect the LCD panel is displayed as shown n Figure 5. Turn Off the power and repeat steps A to D if the autoclave is not shown correctly, and consult with the local distributor or qualified electrician for help.



**Figure 5**

**NOTE:** If the rotation directions of the vacuum pump and water supply pump do not match their mark, change the phase as mentioned in E.

- G. The exhaust ball valve has been calibrated to its preset position, you may change it as following steps if required:
- Start liquid program.
  - Adjust the ball valve while in the exhaust stage. See Figure 6 and Figure 7.



**Figure 6**



**Figure 7**

### 5.3 Description of the Sterilizer

Refer to the Description of the Sterilizer section of the HP series Operation Manual to grasp the panel of the different sterilizers.

## 5.4 Three-phase motor

**⚠️ WARNING:** Check the direction of the vacuum pump and water-filling motor. After turning on the power, use a tool to press the electromagnetic switch of the machine (caution for electric shock), and confirm that they are running in the same direction as they marked; if the running direction is different from the marked direction, please change the connection to the three-wire position of the dedicated no-fuse switch.

The checking method is as below.

- Make sure the three-phase motor running direction and marked are in the same direction. (Figure 8)
- Use one end of the cable tie to insert and test the direction. (Figure 9)
- If the cable tie is clockwise (as marked), meaning that the power supply is connected correctly. If the cable tie is counterclockwise (different from the labels), meaning that the power supply is not connected correctly.
- If the power supply is not connected correctly, exchange the No. 2 and No. 3 wires or the No. 1 and No. 3 wires (Figure 10), and try again until the running direction is correct.



Figure 8



Figure 9

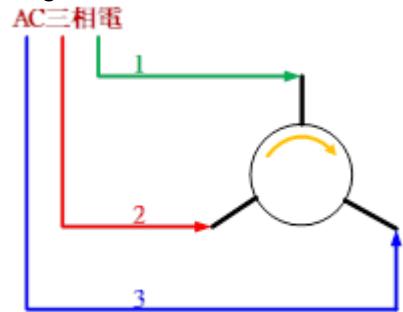


Figure 10

## 6 Operation

Refer to the Operation section of the HP series Operation Manual.

## 7 Trouble Shooting

### 7.1 Any actions in case of malfunction

Malfunction	Possible Causes	Actions
No power	1. No power	Check power and connect power.
	2. Power switch OFF	Turn power ON.
	3. Fuse break	Check if there is any short-circuit, replace a new same one.
	4. Fault of switch	Replace a new same one.
Low water level	1 Insufficient water	Check if the water supply being shut down.
	2. Sensor detector dirty	Cleaning sensor required, consult your service agent.
	3. Solenoid valve fault	Consult your service agent.
Steam leaks from the door	Dirty or wrong silicone door gasket	Clean the silicone door gasket. If the silicone door gasket was used over one (1) year, please replace it.
Door cannot be opened	Pressure persists inside the chamber	Press emergency button to open the door. Consult your service agent.
Over heat or over pressure	1. Low water in steam generator	Check if there is any leakage, consult your service agent.
	2. Over pressure in the chamber	Check the temperature of the chamber, consult your service agent.
Low pressure	1. Solenoid valve fault	Clean solenoid valve or consult your service agent.
	2. Heater fault	Consult your service agent.

<b>Malfunction</b>	<b>Possible Causes</b>	<b>Actions</b>
	3. Continue leakage	1. Steam trap fault, consult your service agent. 2. Pipe leakage, consult your service agent.
Can't release vacuum after completing sterilization cycle	Exhaust solenoid valve not clean.	Clean pipe or solenoid valve, or replace a new solenoid valve.
Steam trap can't exhaust	1. Abnormal function of steam trap. 2. Leakage of steam trap.	1. Clean the steam trap. 2. Replace a new one.

## 7.2 Error Message

<b>Error Message</b>	<b>Possible Causes</b>	<b>Actions</b>
Error 001	Emergency stop	1) The EMERGENCY button was pressed to interrupt the program. Please wait until the pressure been release to 0 reading and then open the door. 2) The sterility of the sterilized items should be verified again. 3) Consult your service agent for maintenance service as soon as possible.
Error 002	Service time over	1) The default 5,000 cycles or preset service cycles have been reached. 2) You can press any key to continue your operation, but this message will be displayed every time to remind service. 3) Consult your service agent for maintenance service as soon as possible.
Error 003	Limitation of continue operation	1) A minimum time interval of 20 minutes between the end of a sterilization work and the start of a new one, to prevent overheating of the autoclave. 2) Press any icon to continue, and your sterilization work will start automatically after the preset time reached.
Error 004	Over Temperature of Chamber (sensor)	Check temperature sensor or controller. Consult your service agent.
Error 005	Over pressure of the chamber (pressure switch)	Check pressure switch. Consult your service agent.
Error 006	Over pressure of the chamber (pressure sensor)	Check pressure sensor. Consult your service agent.
Error 007	Over heat of the heater	Check jacket temperature sensor or controller. Consult your service agent.
Error 008	Over heat of the steam generator	Check jacket temperature sensor or controller. Consult your service agent.
Error 009	Over pressure of the jacket chamber (steam generator) (Pressure switch)	Check pressure switch or water supply. Consult your service agent.
Error 010	Steam generator heating up fault	Check heater. Consult your service agent.
Error 011	Vacuum release fault (solenoid)	Clean solenoid or consult your service agent.
Error 012	Vacuum fault (vacuum pump)	Check valve, water source for vacuum pump. Consult your service agent.
Error 013	Heating up and Ster. Temp. fault	Clean solenoid or consult your service agent.
Error 014	Sterilization fault	Interrupt of a sterilization cycle, or consult your service agent.
Error 015	Sterilization temperature too high	Consult your service agent.
Error 016	Sterilization temperature too low	Consult your service agent.
Error 017	No water	No supply water; check and clean water level sensor; consult your service agent.
Error 018	Low water level	Check and clean water level sensor; consult your service agent.

Error Message	Possible Causes	Actions
Error 019	Exhaust fault of the jacket	Check and clean water level sensor; consult your service agent.
Error 020	Exhaust fault of the chamber	Exhausting time too long; clean solenoid or consult your service agent.
Error 021	Exhaust fault of the chamber (liquid)	Exhausting time too long; clean solenoid or consult your service agent.
Error 022	Door open (load side )	Close the door of load side to reset the error message.
Error 023	Door open (unload side)	Close the door of unload side to reset the error message.
Error 024	Mode select fault	Shut down the machine and restart it again.
Error 025	Insufficient water	Check and supply water to the steam generator, and then restart again.
Error 026	Stop of operation	Restart the sterilization cycle.
Error 027	Sensors Error	Check Sensors

**!** **WARNING:** Contact local distributor for service. DO NOT disassemble the sterilizer by yourself if the symptoms still exists, as explosion and scald may occur.

### 7.3 Parts cleaning, changing, and setting

Refer to the Maintenance Instructions section of the HP series Operation Manual.

### 7.4 Clean Steam Generator's water level sensor

Refer to the How to Clean Steam Generator's water level sensor section of the HP series Operation Manual.

### 7.5 Replace Gasket

Refer to the Replace Gasket section of the HP series Operation Manual.

### 7.6 Replace Printer Ribbon

Refer to the Replace Printer Ribbon section of the HP series Operation Manual.

### 7.7 Replace printer paper

Refer to the Change printer paper section of the HP series Operation Manual.

### 7.8 Adjusting the sound at the air valve of the vacuum pump

The larger the inlet ball valve of the vacuum pump is opened, the louder the sound but the vacuum is better; The smaller the inlet ball valve of the vacuum pump is opened, the vacuum is worst.

**!** **CAUTION:** Do not close the water inlet ball valve, it shall cause the vacuum pump to be burned.

- Check the vacuum pump inlet ball valve (Figure 11) and the air valve (Figure 12).
- Put your finger on the air inlet to feel the air being sucked. Adjust the sound valve and the sucked less, and the sound of the vacuum pump will be reduced. (Figure 13)
- Or can adjust the water inlet ball valve, so that the water flow at the inlet of the vacuum pump is smaller, and the sound will be reduced.



Figure 11

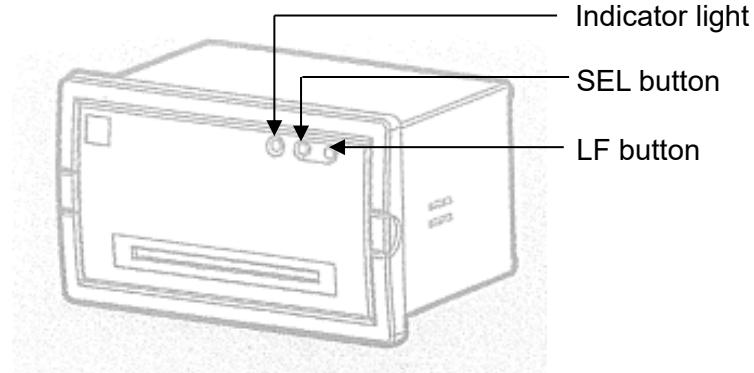


Figure 12



Figure 13

## 7.9 Setting for printer WH-A5



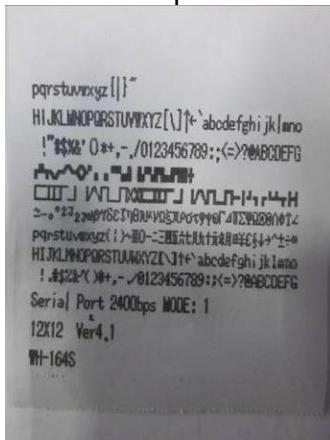
※The setting value of this printer is: Serial Port 9600bps MODE: 3

#### A. Query the setting value of the printer

- (a) First turn on the printer power, press the “LF” button and then press the “SEL” button to print the message, as shown Figure 14.
  - (b) Compare the printed information listed in the same machine with the set value required by the machine; if it is different from the set value required by the machine Please change the settings of the printer.

#### B. Change the settings of the printer

- (a) First turn on the printer. Press the “LF” button or “SEL” button to turn on the power of the printer. The printer will print the following message. (Figure 15)
  - (b) Press the “LF” button to change the transfer rate (bps); press the “SEL” button to change the communication mode (MODE). (Figure 16)
  - (c) After changing the settings according to the requirement by the printer, turn off the power.



**Figure 14**



Figure 15



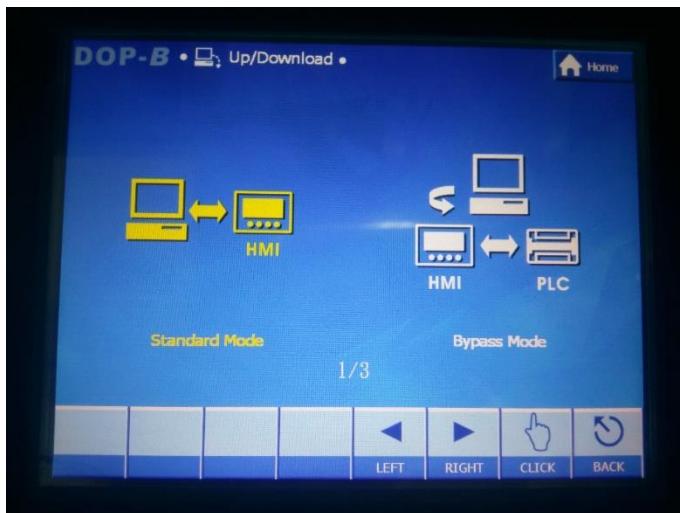
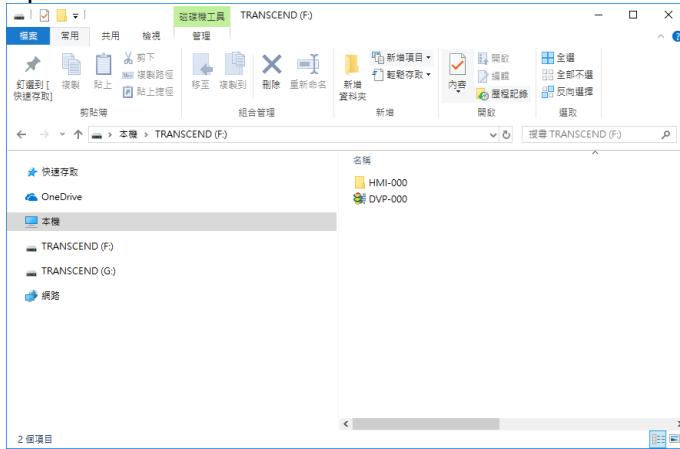
**Figure 16**

## 8 Software update

### 8.1 Preparation before update

- Put the software update file into the USB flash drive

**NOTE:** The disk format of the pen drive is "FAT32".



- Turn on the power supply and key switch for SAT-HP

- Wait for the HMI to the login screen

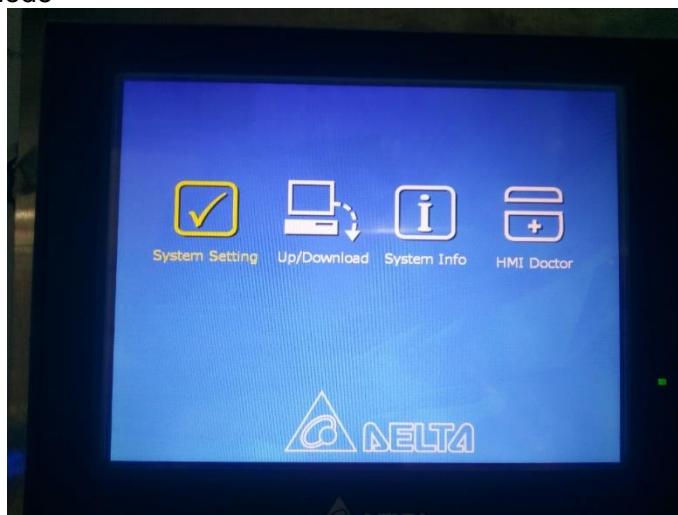


- D. Take a stick and press the SYSTEM button on the rear of the HMI. When you hear the "beep" sound, enter the engineering mode.



## 8.2 HMI software upload

- A. Enter to HMI mode



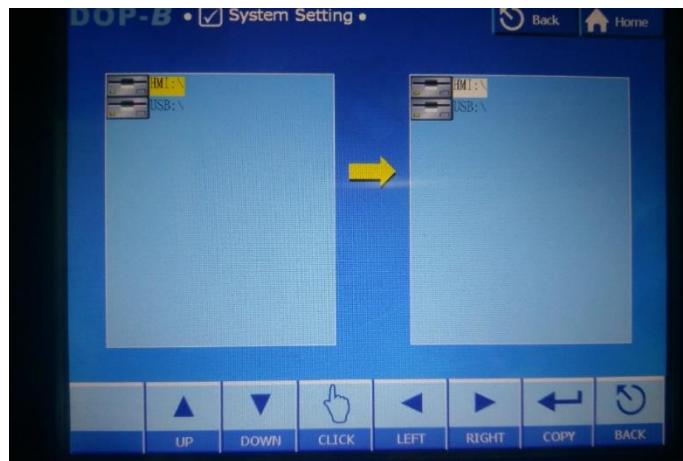
B. Select "System setting"



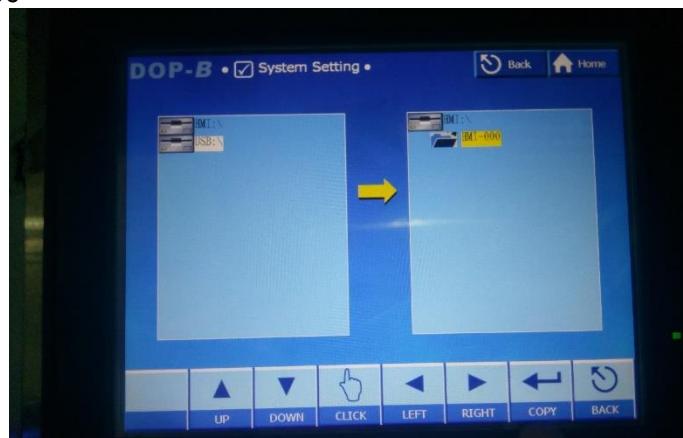
C. Push "File manager" then push anywhere inside the red frame to enter "File manager" mode



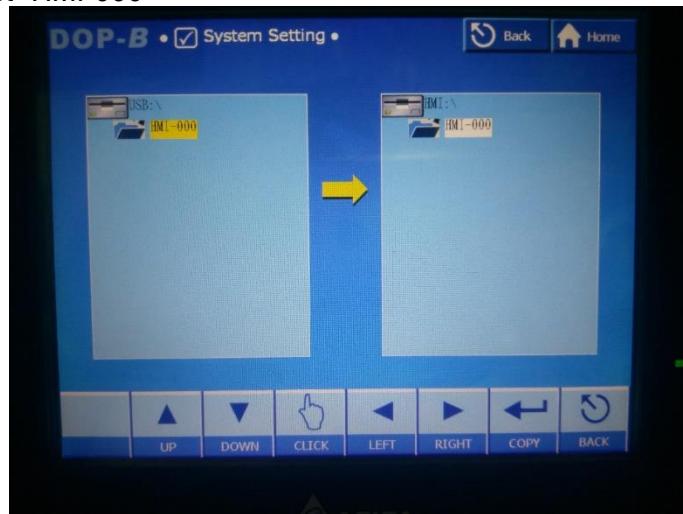
- D. Use the LEFT/RIGHT button to select "Copy File" and press the CLICK button to enter "Copy File".



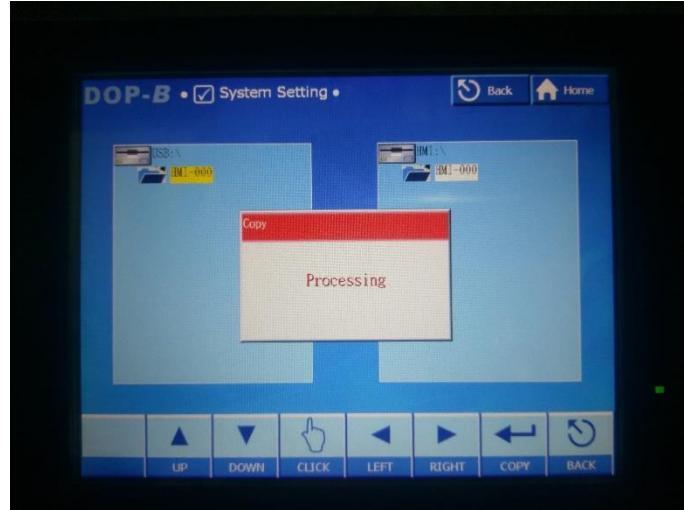
- E. Use the LEFT/RIGHT button to Select "HMI:\\" then click, and use UP/DOWN button to Select "HMI-000"



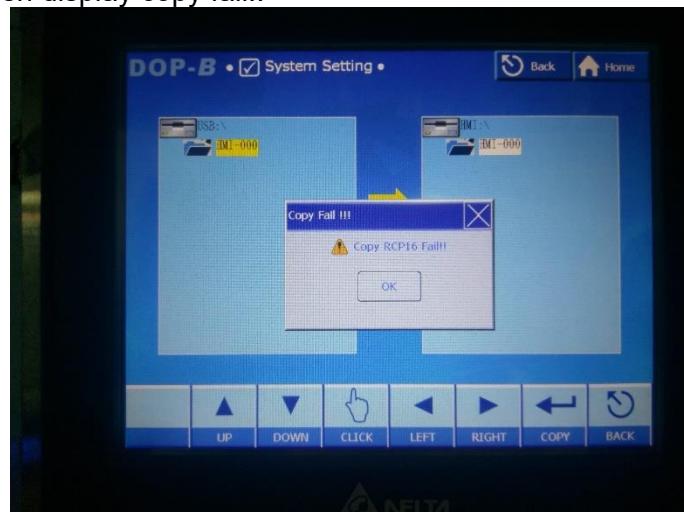
- F. Use LEFT/RIGHT/UP/DOWN button to Select " USB:\\" , then Click and use UP/DOWN button to Select "HMI-000"



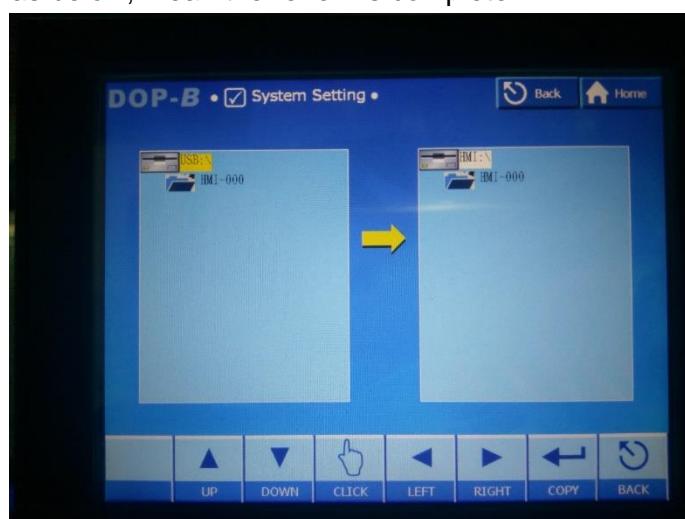
G. Push “Copy” to renew HMI file



H. Press “OK” when display copy fail!!



I. When shown as below, mean the renew is complete



J. Press "Home" return to HMI setting mode

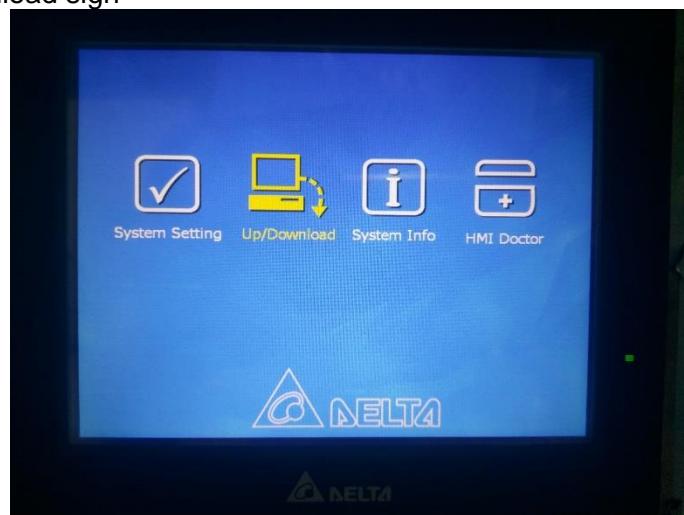


### 8.3 PLC upload steps

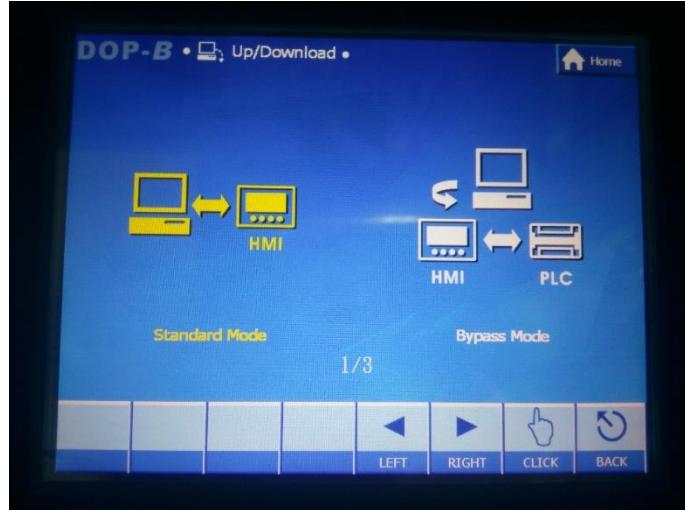
A. Enter HMI project mode



B. Click Up/Download sign



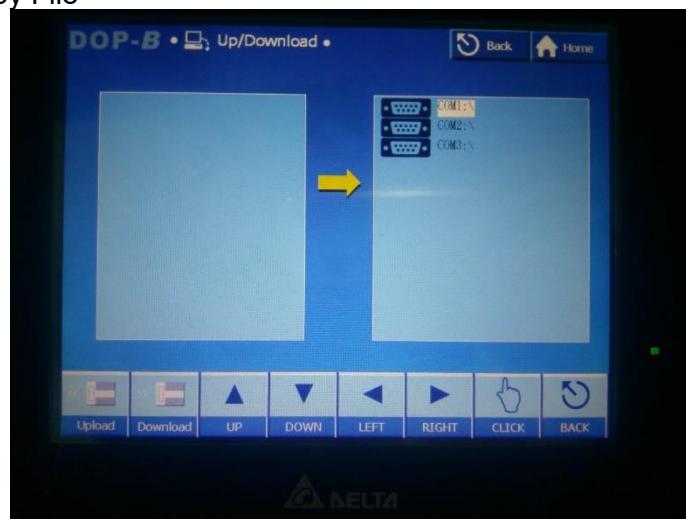
C. Enter Up/Download screen as below



D. Use LEFT/RIGHT to select “Transfer Mode” then CLICK



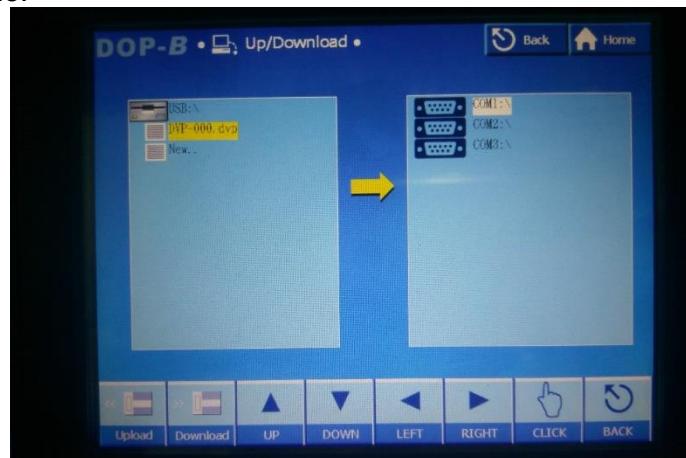
E. Enter to “Copy File”



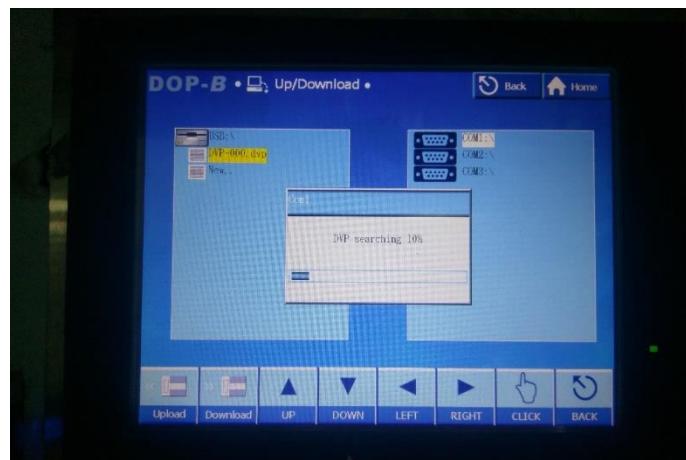
F. Insert USB flash driver



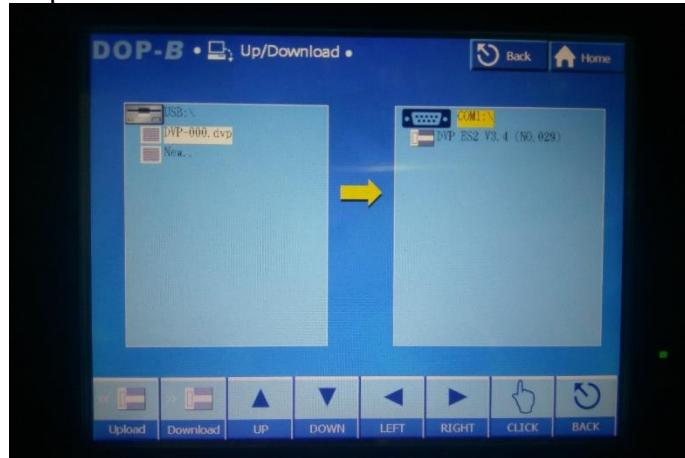
- G. Use the LEFT/RIGHT button to select the “USB:\ DVP-000.dvp” and press the CLICK button to read the file.



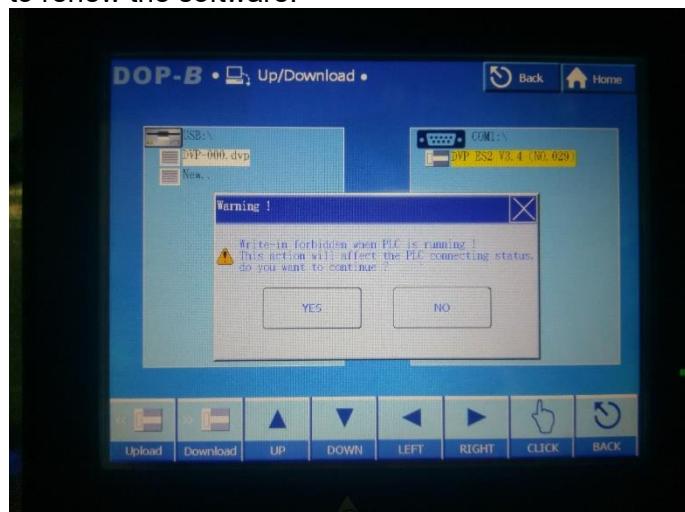
- H. Use the LEFT/RIGHT button to select the “COM1:\” and press the CLICK button to upload the file.



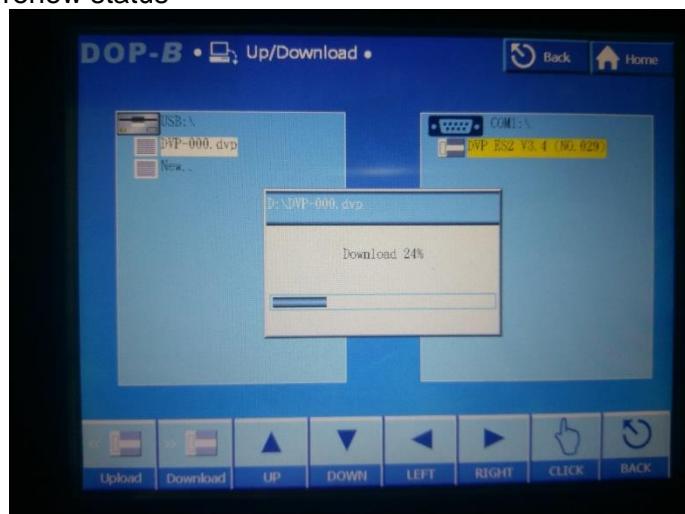
I. PLC upload complete



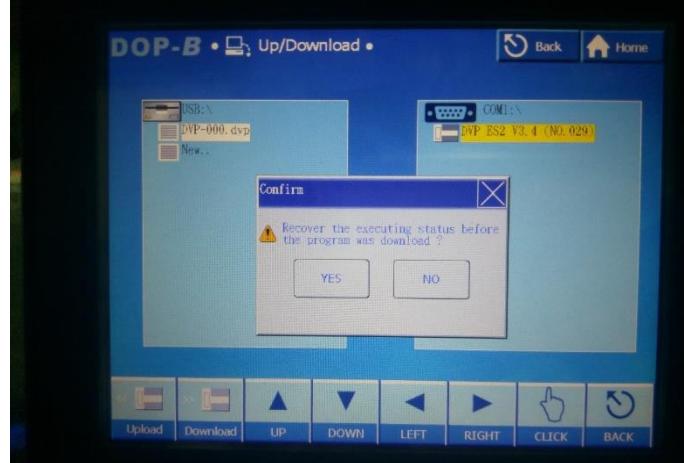
- J. Use the LEFT/RIGHT button to select the "DVP ES2 V3.4(NO.029)" and press "Download" button to renew the file.  
K. Select "Yes" to renew the software.



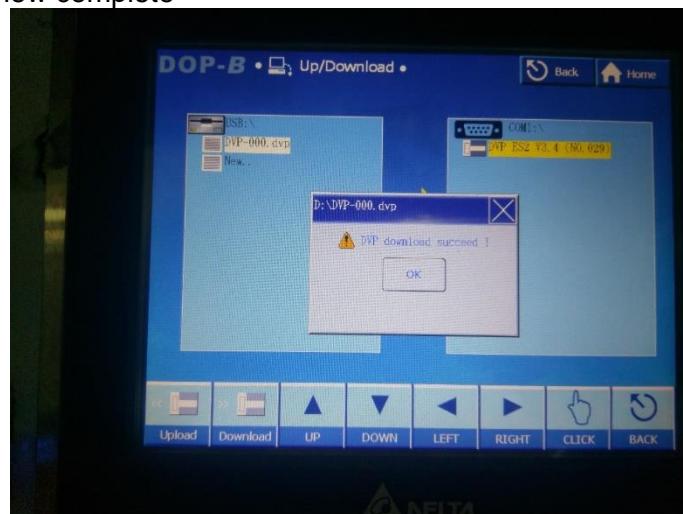
L. Showing the renew status



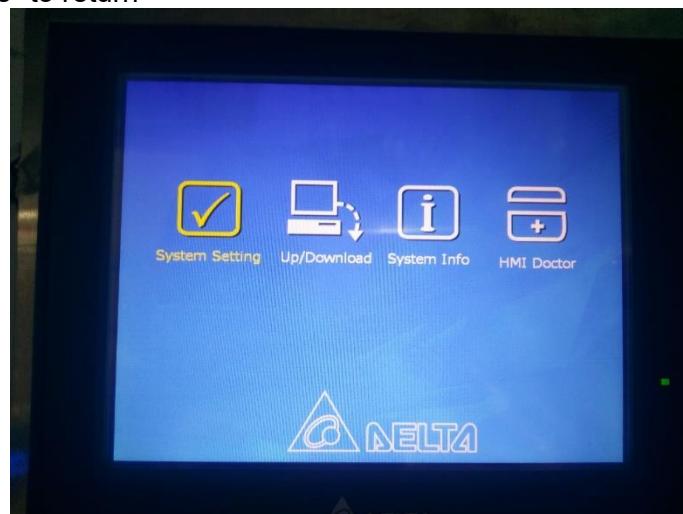
M. Select “Yes” to recover the executing status before the program was download



N. PLC DVP renew complete



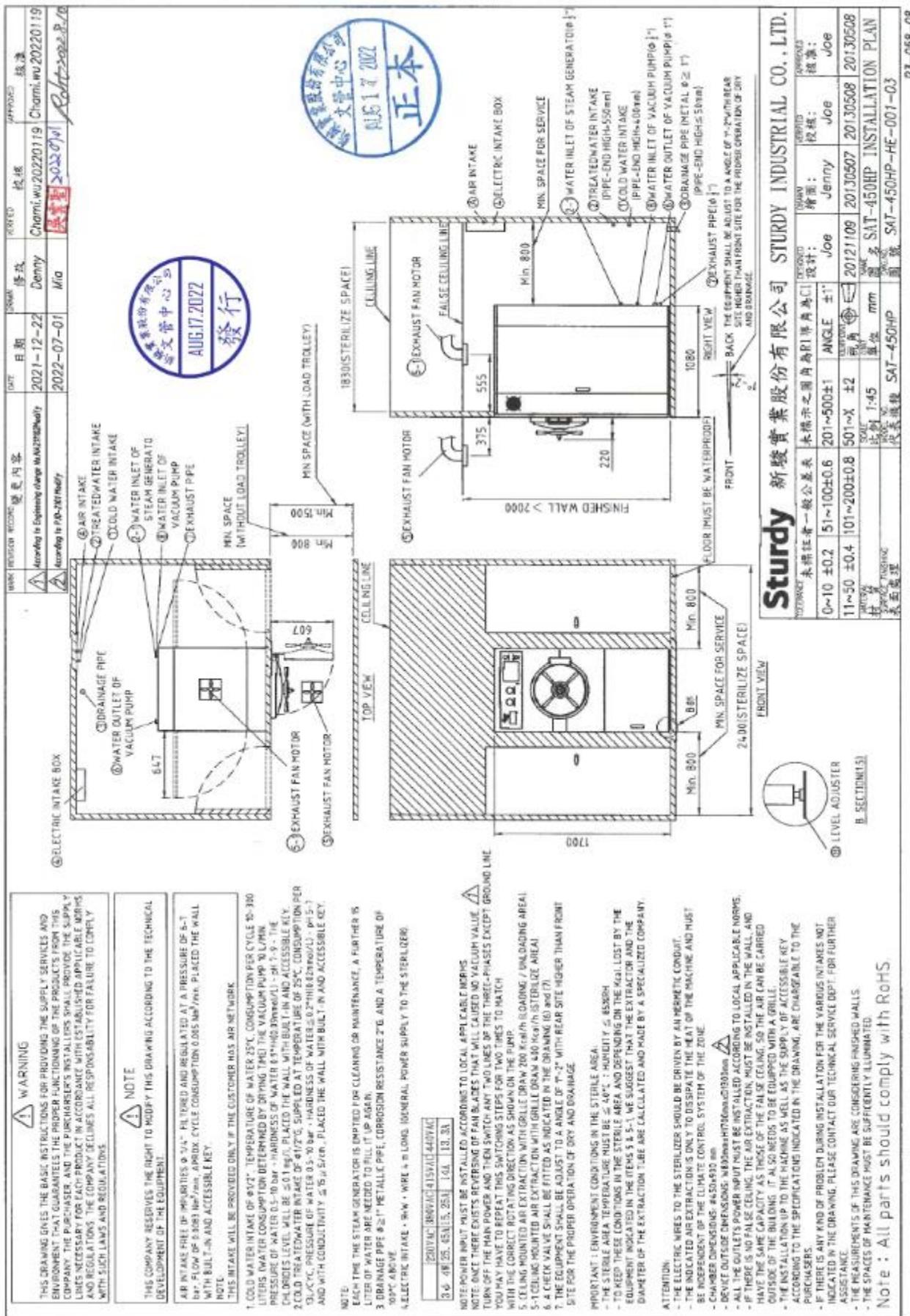
O. Select “Home” to return



## 9 Schematic and diagrams

### 9.1 Installation plan

#### 9.1.1 SAT-450HP Installation plan



### 9.1.2 SAT-500HP Installation plan

姓名	性别	出生日期	身份证号	现住址	APPID
王海英	女	1971-12-21	340102197112211024	巢湖市烔炀镇烔炀村	Chomi.Wu20220119
王海英	女	2022-07-01	340102197112211024	巢湖市烔炀镇烔炀村	Chomi.Wu20220701

**WARNING**

This drawing gives the basic instructions for providing the supply services and equipment. The purchaser and the producer functions of the products from this company. The purchaser and the producer's installers shall provide the supply lines necessary for each product in accordance with established applicable norms and regulations. The company declines all responsibility for failure to comply with such laws and regulations.

**⚠ NOTE**  
THIS COMPANY RESERVES THE RIGHT TO MODIFY THIS DRAWING ACCORDING TO THE TECHNICAL DEVELOPMENT OF THE EQUIPMENT.

A. AIR INTAKE FREE OF IMPURITIES @ 1 $\frac{1}{4}$ " FILTERED AND REGULATED AT A PRESSURE OF 6-7  
in. C. OF 0.003 Nm<sup>3</sup>/min. APPROX. CYCLE CONSUMPTION 1.495 Nm<sup>3</sup>/min. PLACED THE

**NOTE:** THIS INTAKE WILL BE PROVIDED ONLY IF THE CUSTOMER HAS AN AIR NETWORK.

1. COLD WATER INTAKE OF 40 $\frac{1}{2}$ " TEMPERATURE OF WATER 25°C. CONSUMPTION PER CYCLE 16-396 LTRS./WATER CONSUMPTION DETERMINED BY DRIVING TIME THE VACUUM PUMP TO LPMH. PRESSURE OF WATER 85-111 BAR. HARDNESS OF WATER 0.97MG/DM<sup>3</sup> / 1 - BH T-9 - THE CHARGE LEVEL WILL BE  $\leq$  50% PLACED THE MUL NH4N BUL/1 AND ACCESSORY KEY.

2. COLD TREATED WATER INTAKE OF 80±4°C. SUPPLIED AT TEMPERATURE OF 25°C CONSUMPTION PER CYCLE 17.5 LTR/CYC. PRESSURE OF WATER 15-30 BAR. HARDNESS OF WATER 0.27MG/DM<sup>3</sup> / 1 - BH T-7 AND WITH CONDUCTIVITY IS 15-30 μS/cm. PAINTED THE WALL WITH BUL/1 AND ACCESSORY KEY.

NOTE.—THE TIDE FLOW AND DRAUGHTS OF BOSTON BAY, AND THE TRADE WINDS AND STORMS.

LITER OF WATER ARE NEEDED TO FILL IT UP AGAIN.  
3. DRAINKAGE PIPE Ø 2-1/2" METALLIC PIPE, CORROSION RESISTANCE 77L AND A TEMPERATURE OF  
100°F ABOVE PIPE.  
4. ELECTRIC INTAKE "H" WIRE, 6 MM LONG, GENERAL POWER SUPPLY TO THE STERILIZER.

**NOTICE:** FAN BLADES MUST BE INSTALLED ACCORDING TO LOCAL APPLICABLE NORMS.  
**NOTE:** ONCE THERE EXISTS A REVERSING OF FAN BLADES THAT WILL CAUSED NO VACUUM VALUE.

**YOU MAY HAVE TO REPEAT THIS SWITCHING STEPS FOR TWO TIMES TO MATCH △**  
WITH THE CORRECT ROTATION DIRECTION AS SHOWN ON THE PUMP.  
5. CEILING MOUNTED AIR EXTRACTION UNIT GRILLE DRAW 280 ACROSS UNLOADING / UNLOADING AREA.

6. LEADERS, HOLES, COVERS AND EXTRUSIONS ARE INDICATED ON THE DRAWINGS AS A GUIDE FOR CLOTHING.

**REINDEER CAMP : ENVIRONMENTAL CONDITIONS IN THE STERILE AREA:**  
SITE FOR THE PROPER OPERATION OF DRY AND GRAVIMETRIC MEASUREMENTS

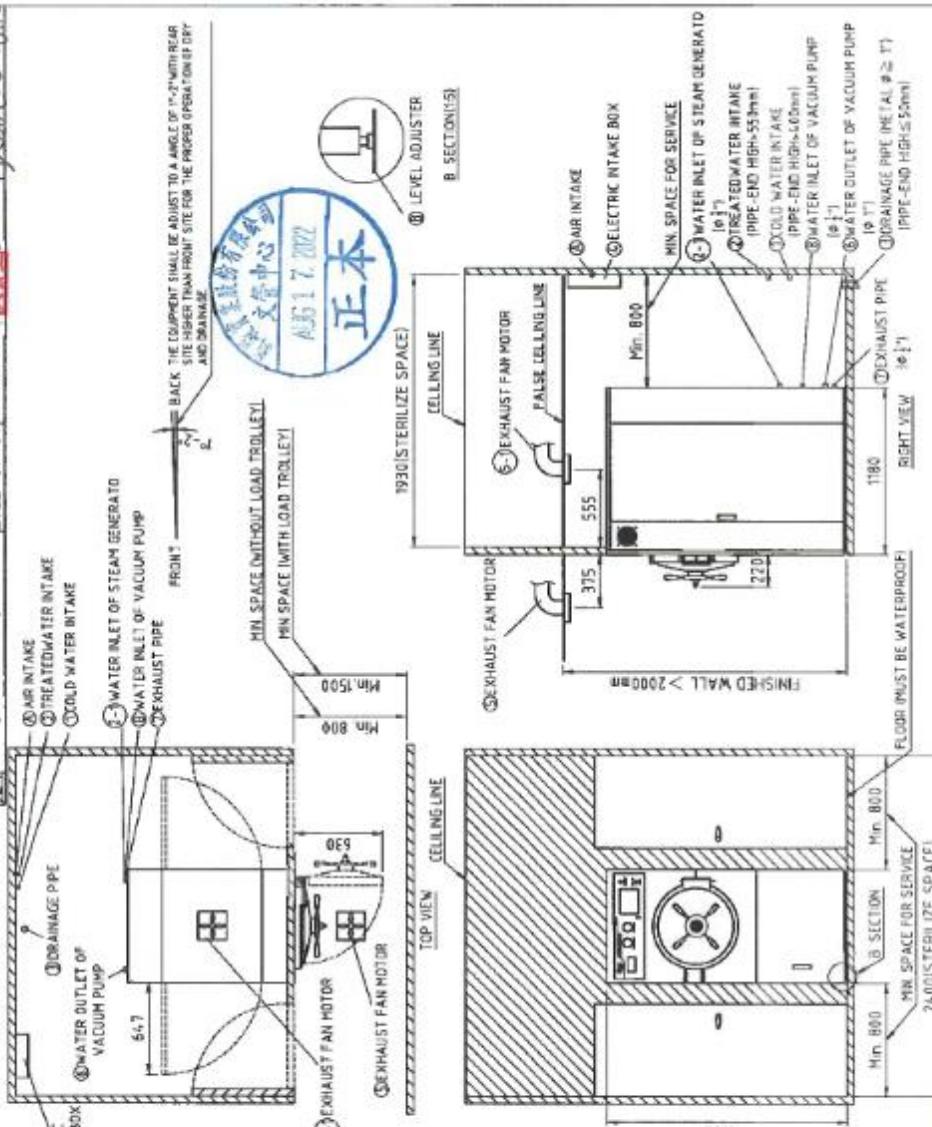
- TO HELP THESE CONDITIONS IN THE STIRLING AREA AND DEPENDING ON THE KNEE LOST BY THE EQUIPMENT LOCATED IN THE ITEMS 5-8-1, WE SUGGEST THAT THE EXTRACTOR AND THE DIAMETER OF THE EXTRACTION TUBE ARE CALCULATED AND MADE BY A SPECIALIZED COMPANY.

THE EFFECTIVE AIR EXTRACTION IS ONLY TO DISSEminate THE HEAT OF THE MACHINE AND MUST BE INDEPENDENT OF THE CLIMATE CONTROL SYSTEM OF THE ZONE.

- DEVICE OUTSIDE DIMENSIONS: W100MM X H100MM X D20MM
- ALL THE OUTSIDE POWER INPUT MUST BE INSTALLED ACCORDING TO LOCAL APPLICABLE NORMS.
- IF THERE IS NO FALSE CEILING, THE AIR EXACTION MUST BE INSTALLED IN THE WALL, AND

OUTSIDE OF THE BUILDING IT ALSO NEEDS TO BE EQUIPPED WITH A GRILLE.  
THE INSTALLATION UP TO THE MACHINE AS WELL AS THE SUPPLY OF ACCESSORY KEY  
ACCORDING TO THE SPECIFICATIONS INDICATED IN THE DRAWINGS, ARE CHARGEABLE TO THE  
PURCHASERS.

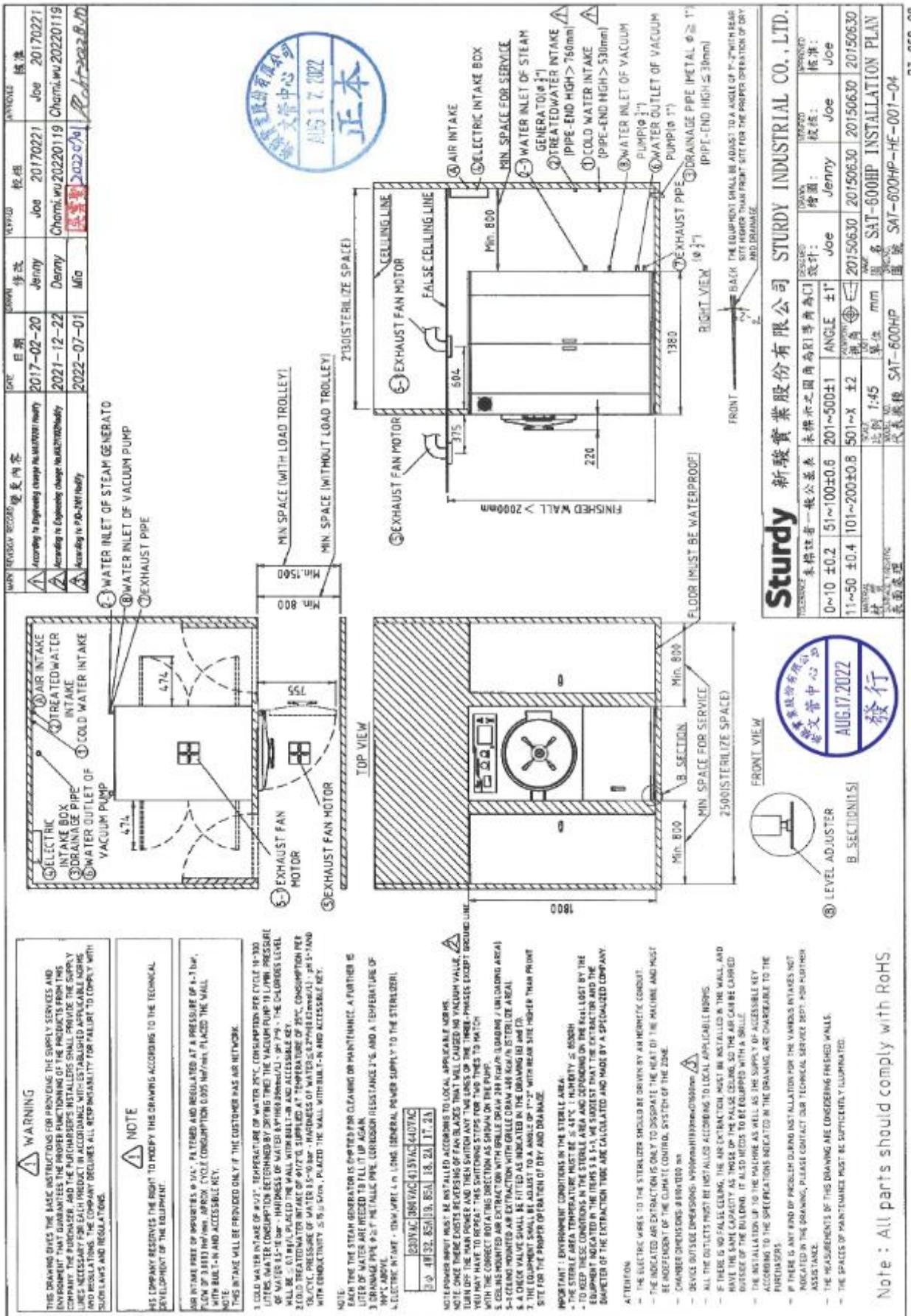
INDICATED IN THE DRAWING, PLEASE CONTACT OUR TECHNICAL SERVICE DEPT. FOR FURTHER ASSISTANCE.  
- THE MEASUREMENTS OF THIS DRAWING ARE CONCERNED FINISHED WALLS.



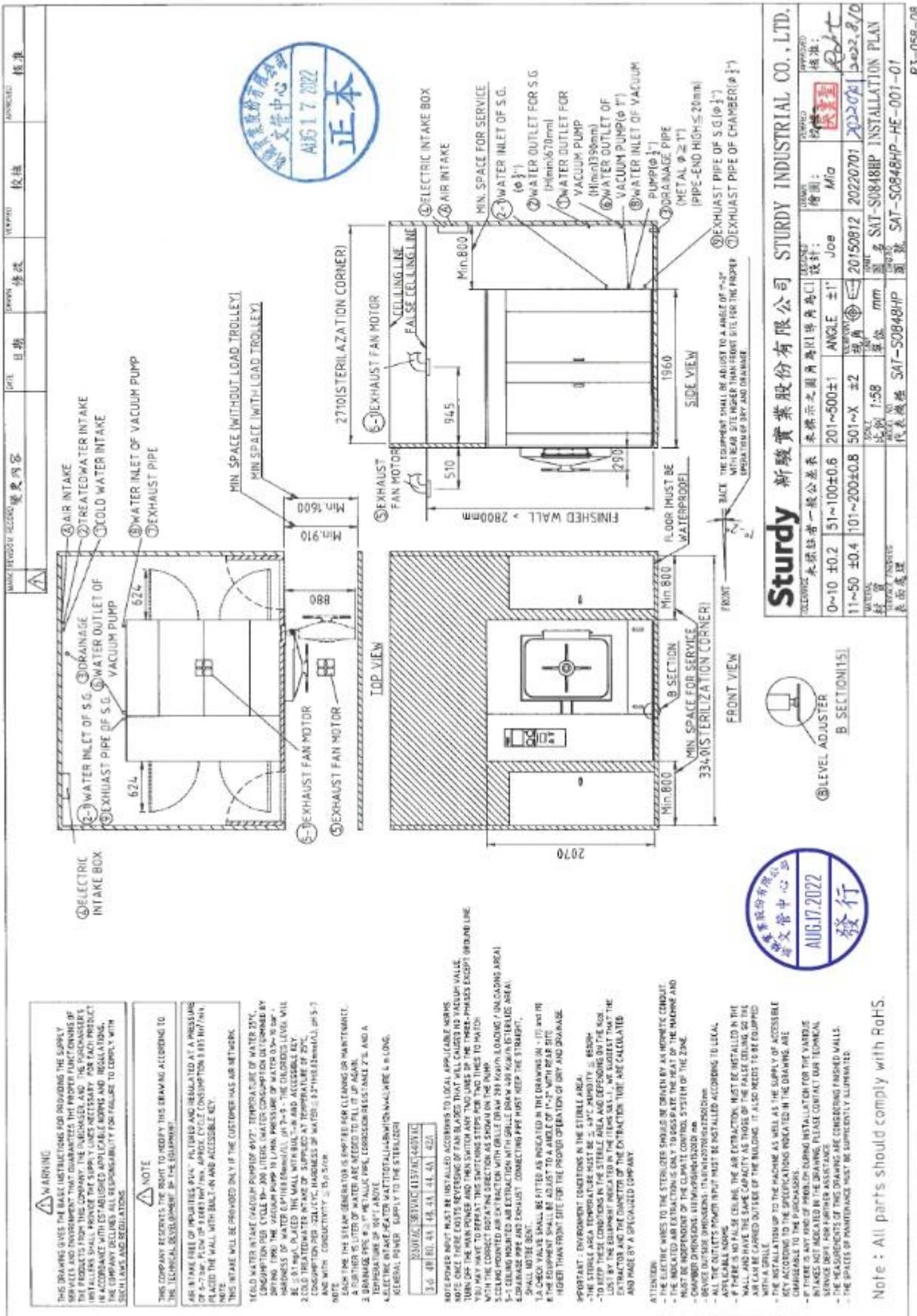
**Sturdy** 新穩實業股份有限公司 STURDY INDUSTRIAL CO., LTD.

07 060 00

### 9.1.3 SAT-600HP Installation plan

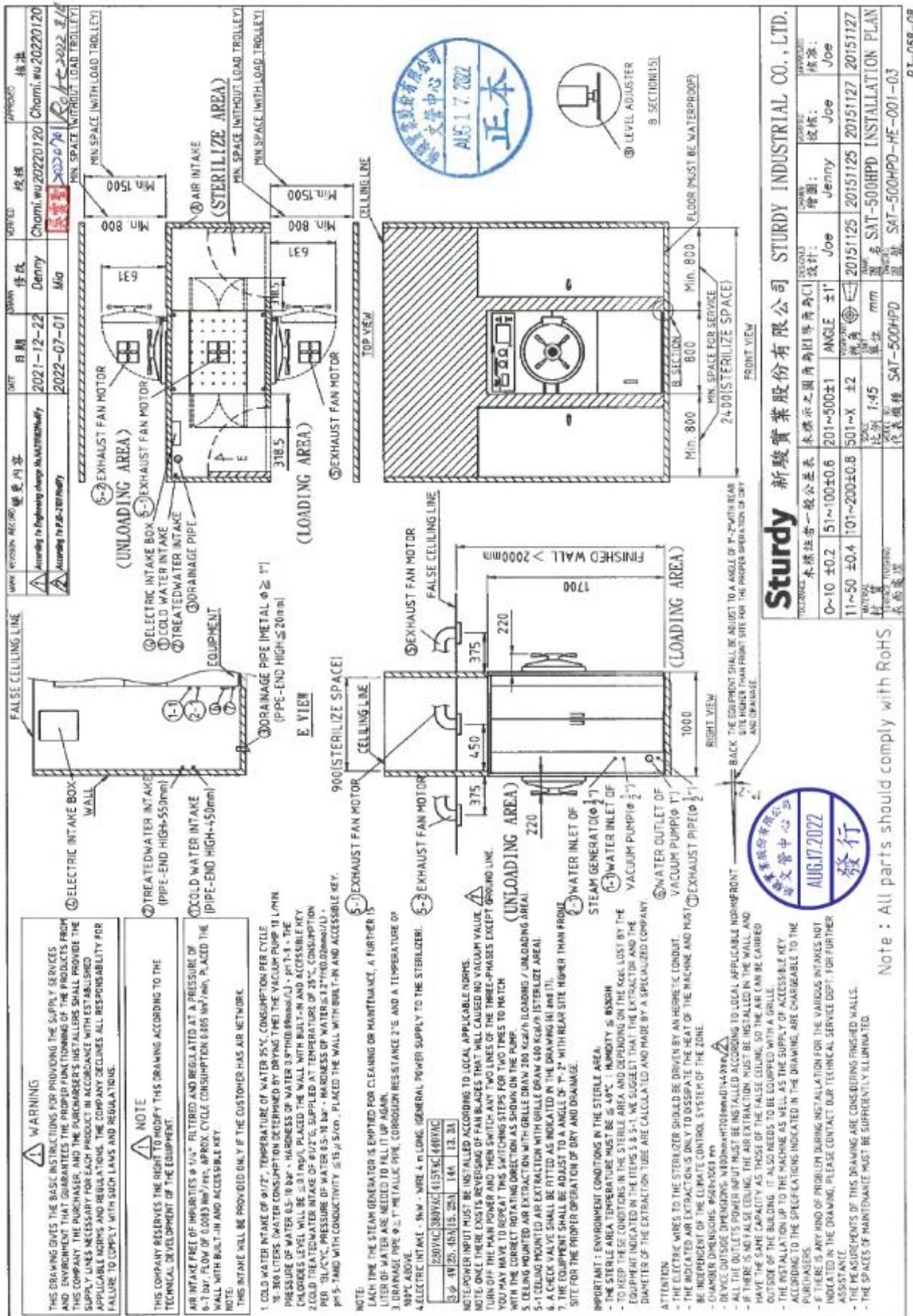


#### 9.1.4 SAT-S0848HP Installation plan



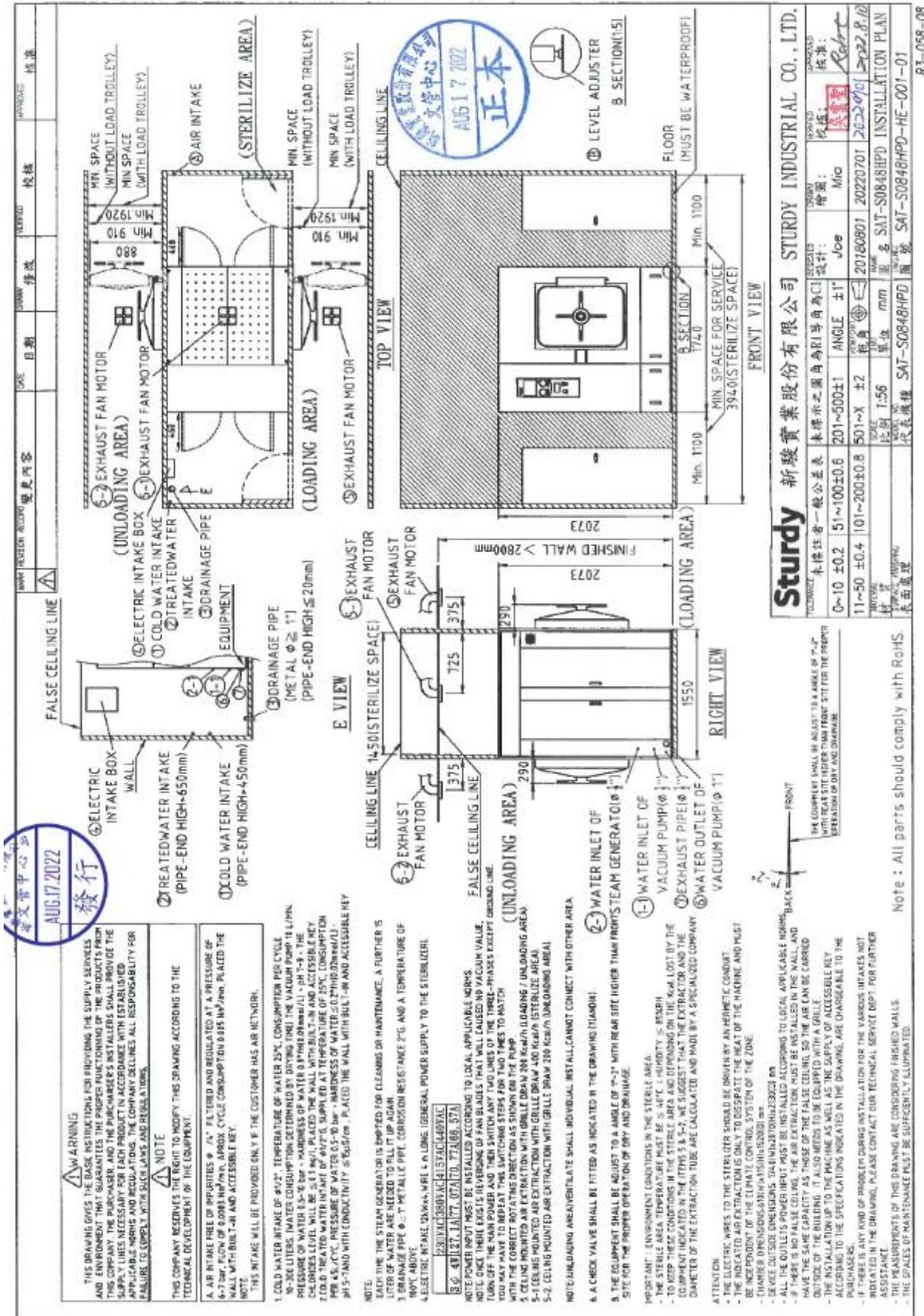
### 9.1.5 SAT-450HPD Installation plan

### 9.1.6 SAT-500HPD Installation plan



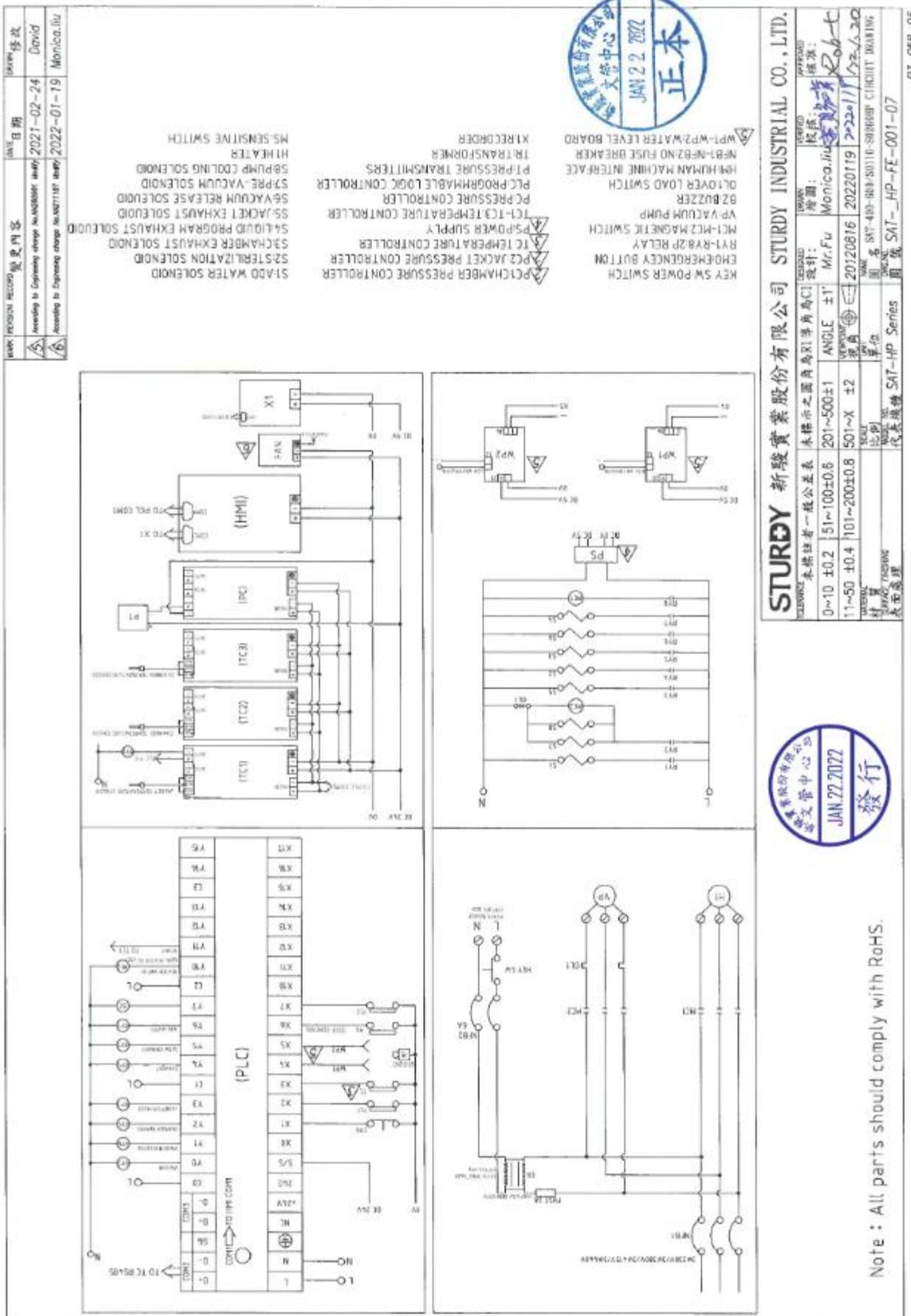
### 9.1.7 SAT-600HPD Installation plan

## 9.1.8 SAT-S0848HPD Installation plan

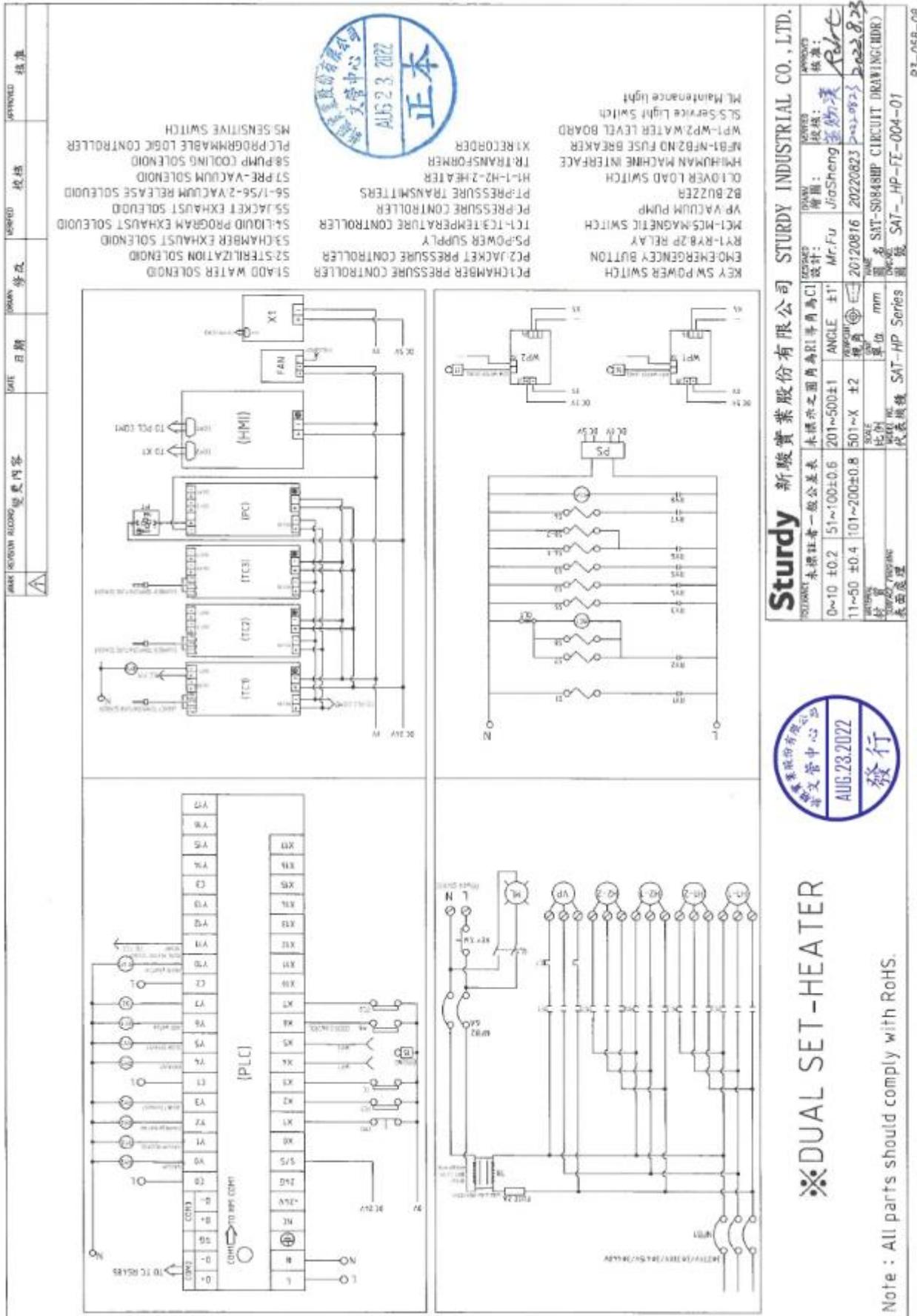


## 9.2 Circuit drawing

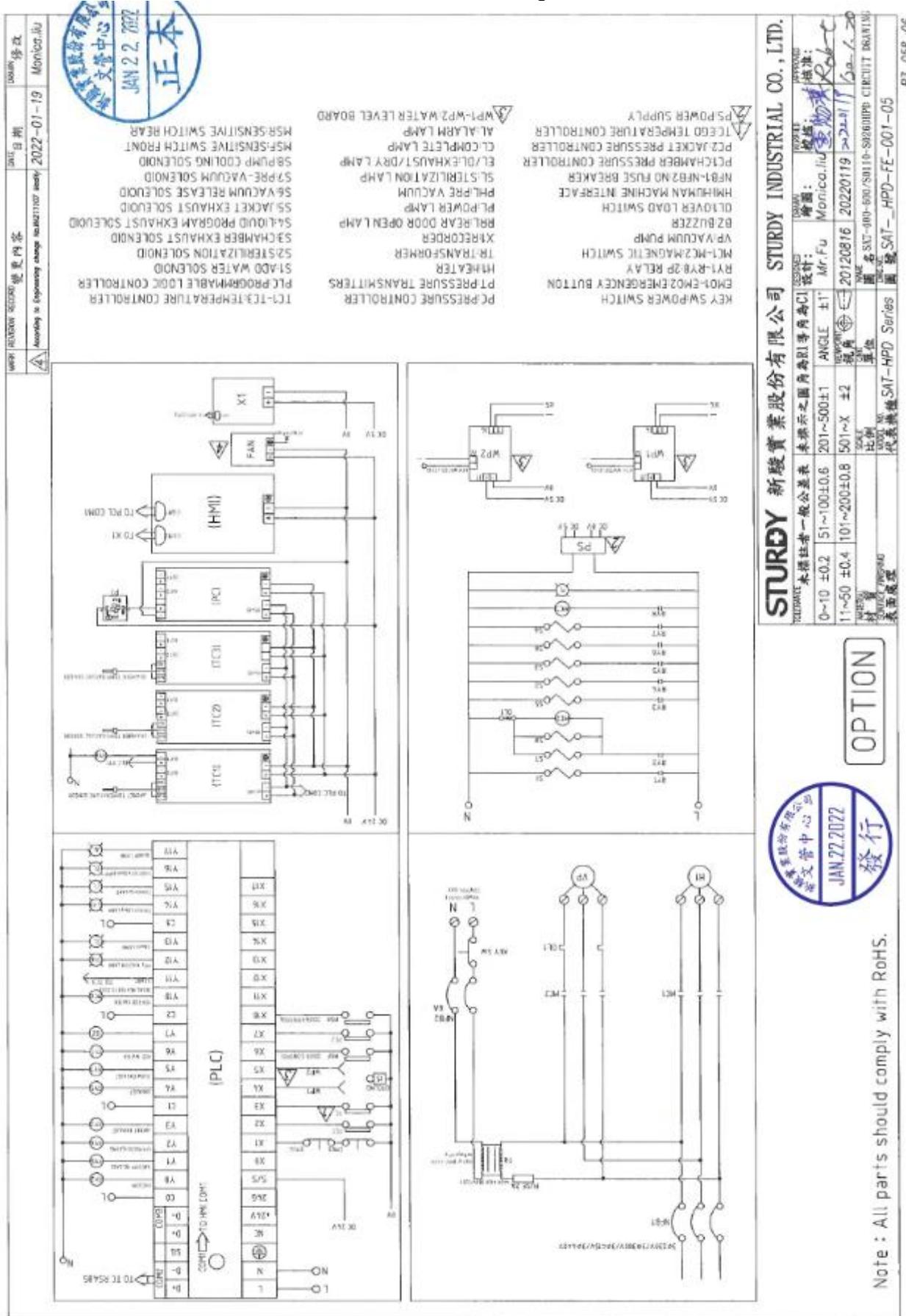
#### 9.2.1 SAT-400~600/S0110~S0260HP circuit drawing



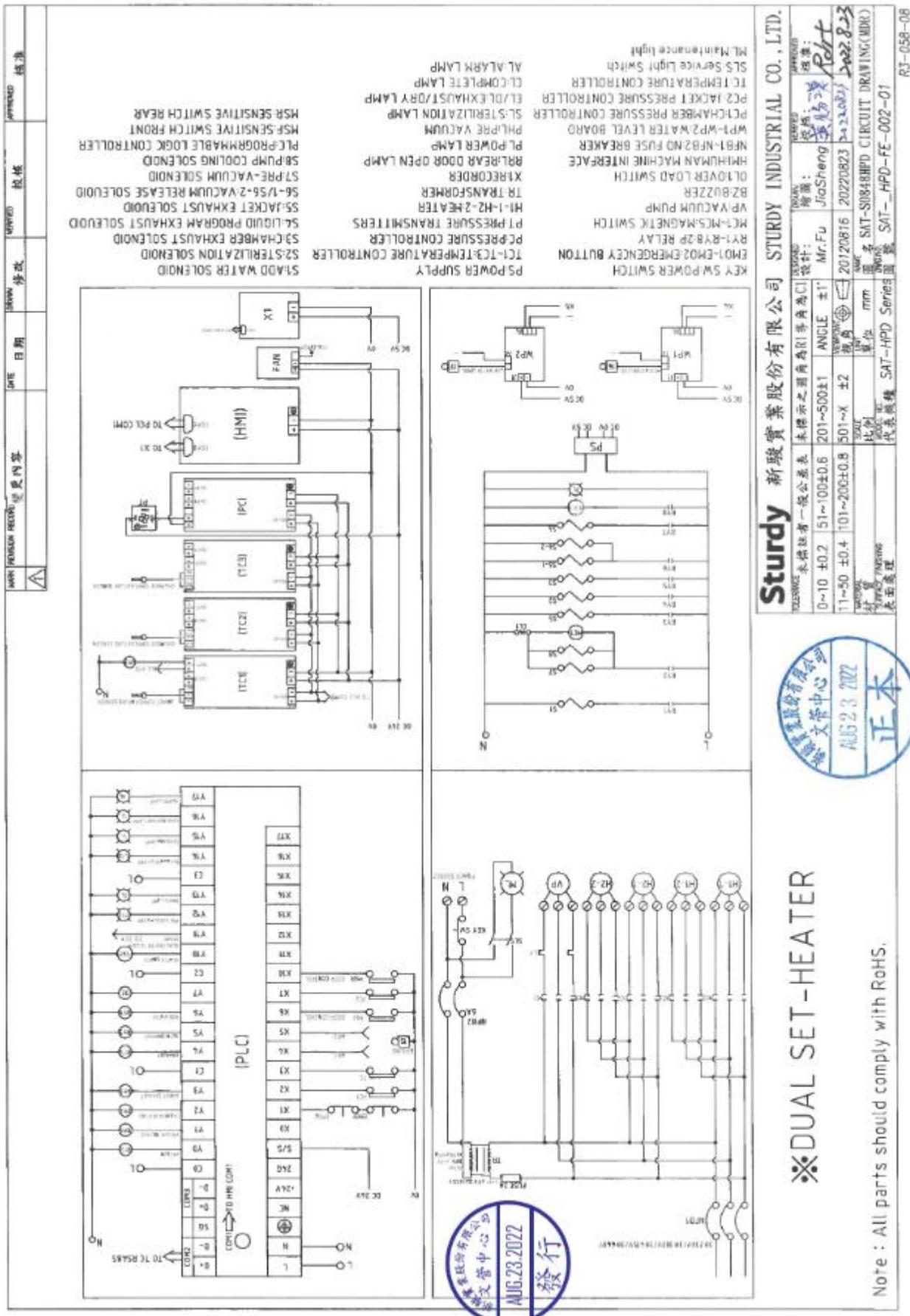
## 9.2.2 SAT-S0848HP circuit drawing



### 9.2.3 SAT-400~600/S0110~S0260HPD circuit drawing

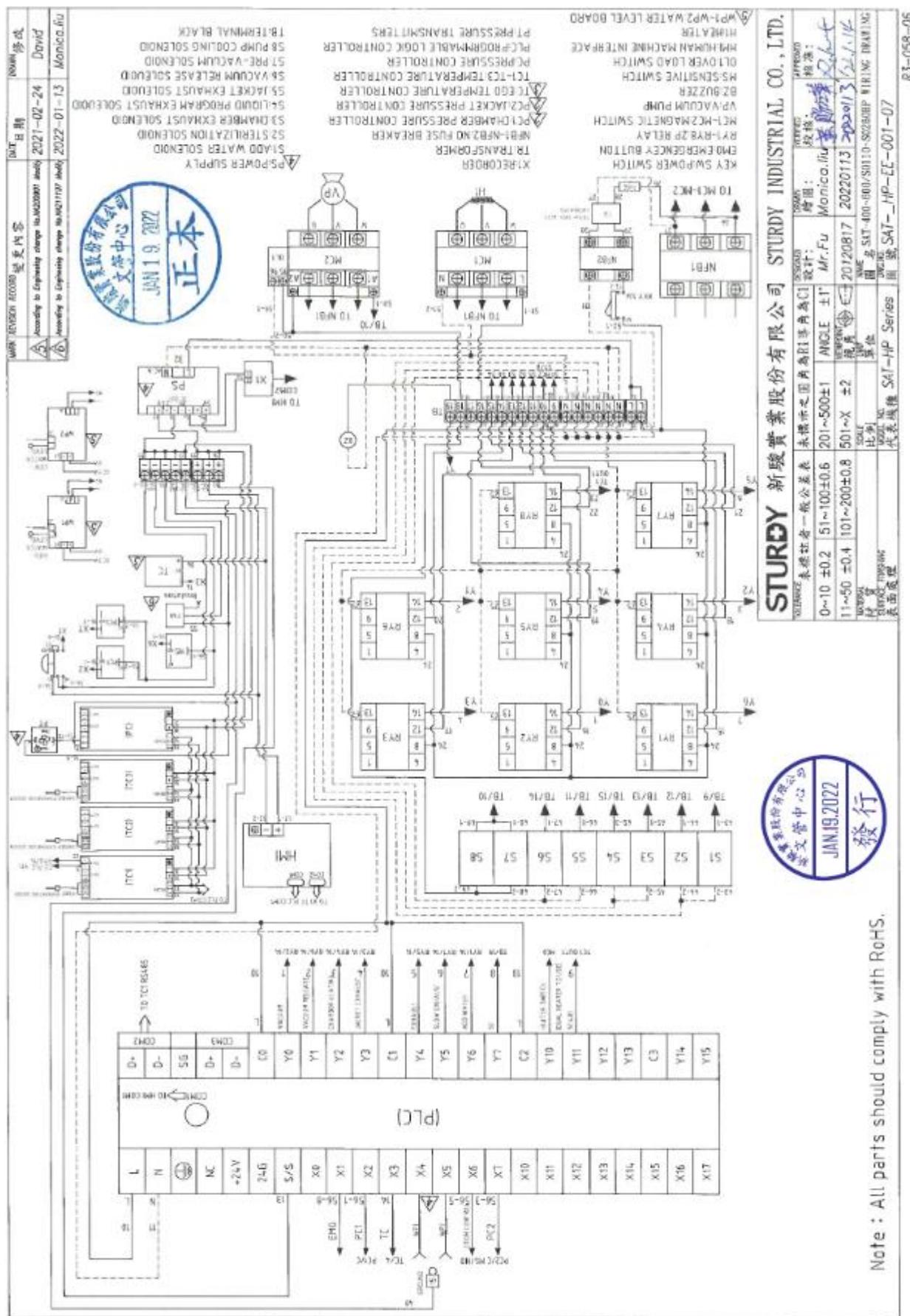


### 9.2.4 SAT-S0848HPD circuit drawing

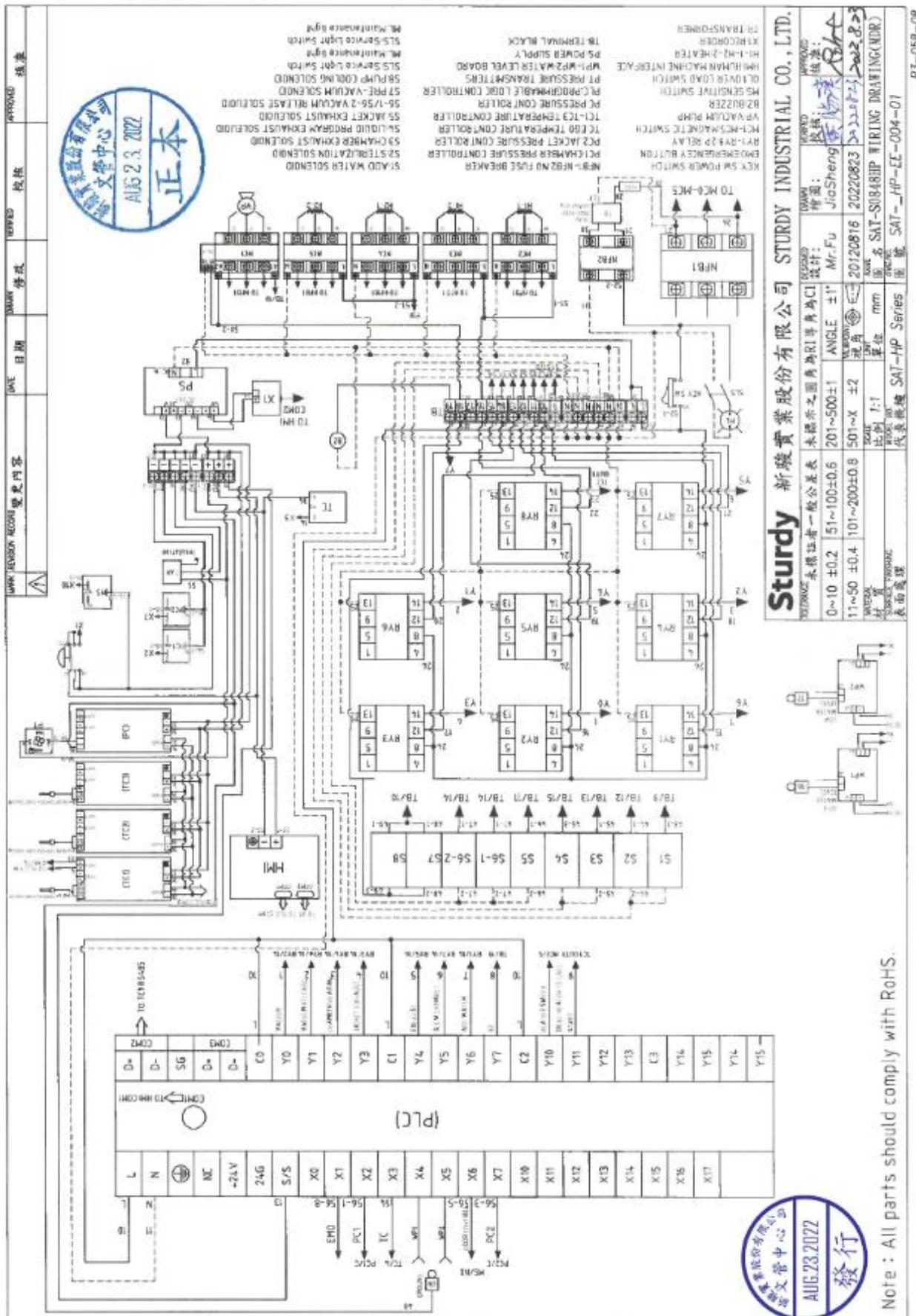


### 9.3 Wiring drawing

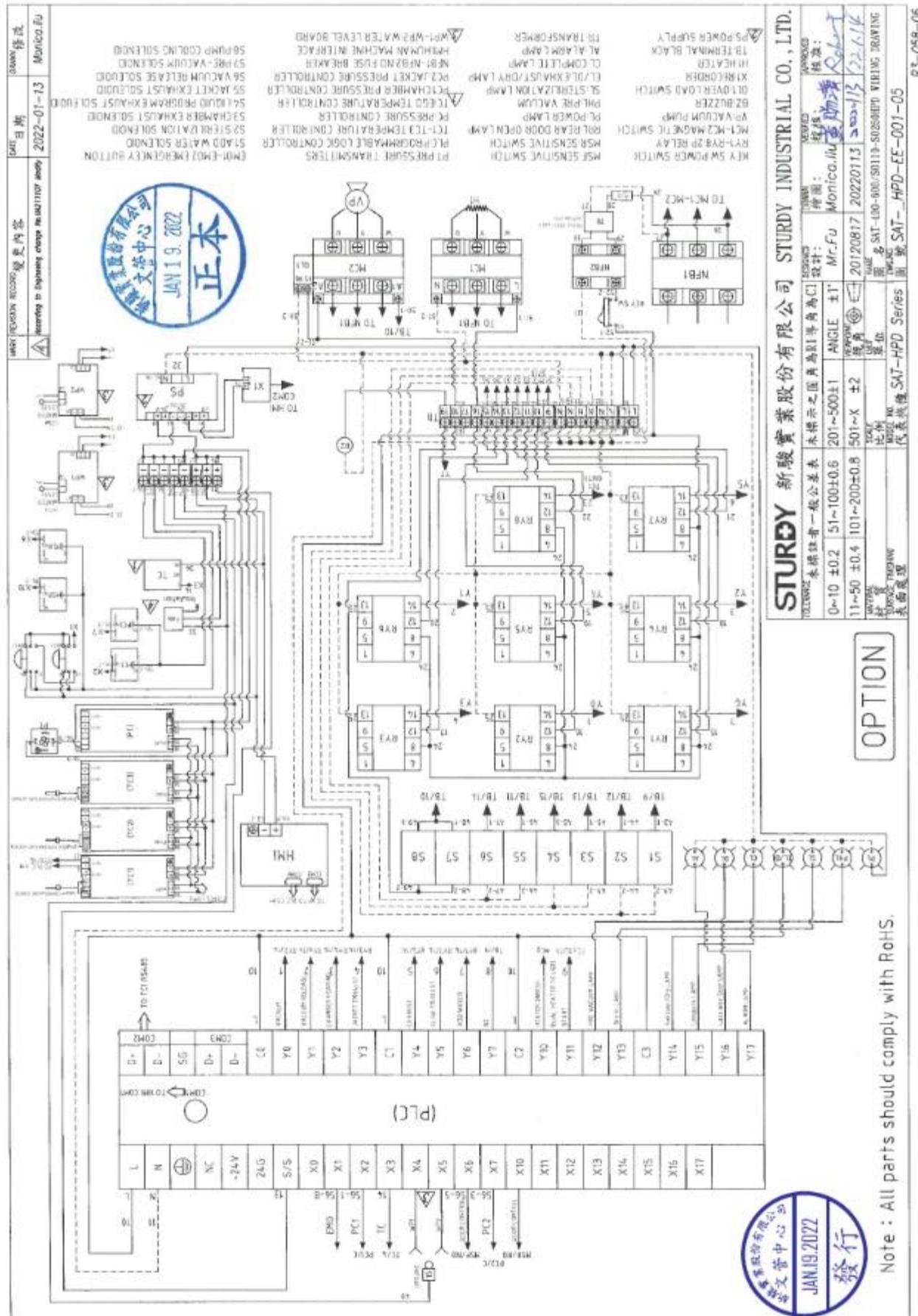
#### 9.3.1 SAT-400~600/S0110~S0260HP wiring drawing



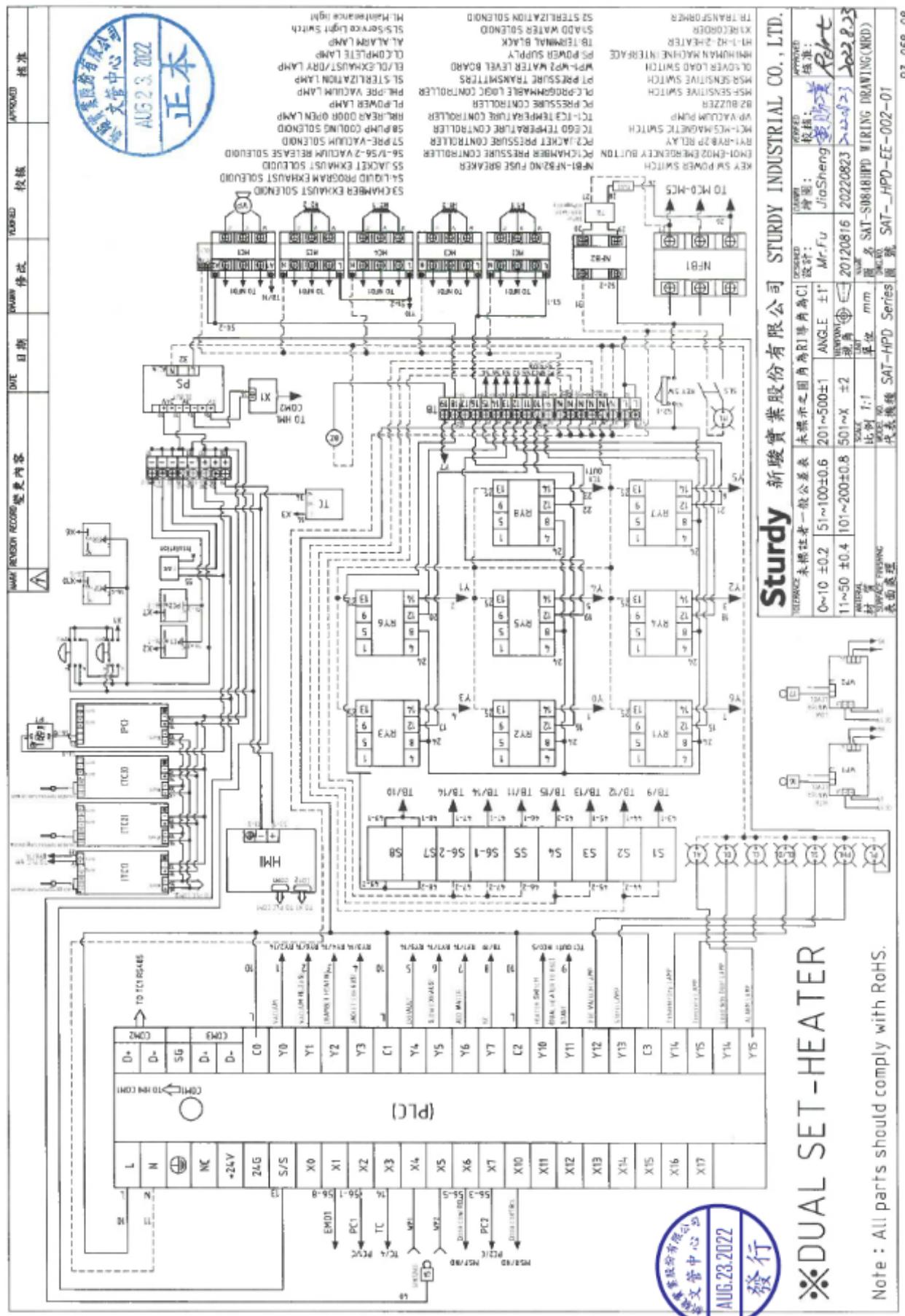
### 9.3.2 SAT-S0848HP wiring drawing



### 9.3.3 SAT-400~600/S0110~S0260HPD wiring drawing

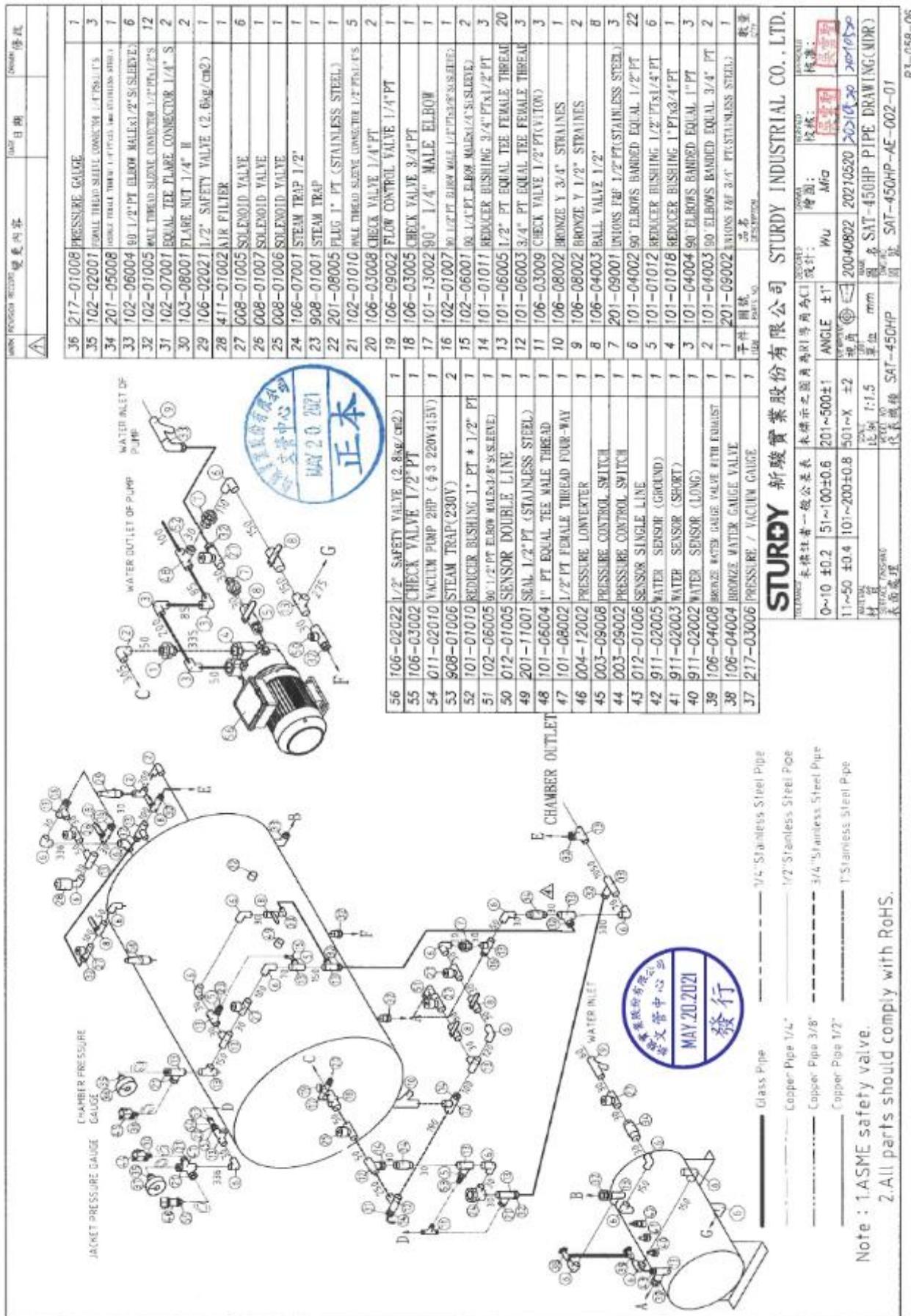


### 9.3.4 SAT-S0848HPD wiring drawing

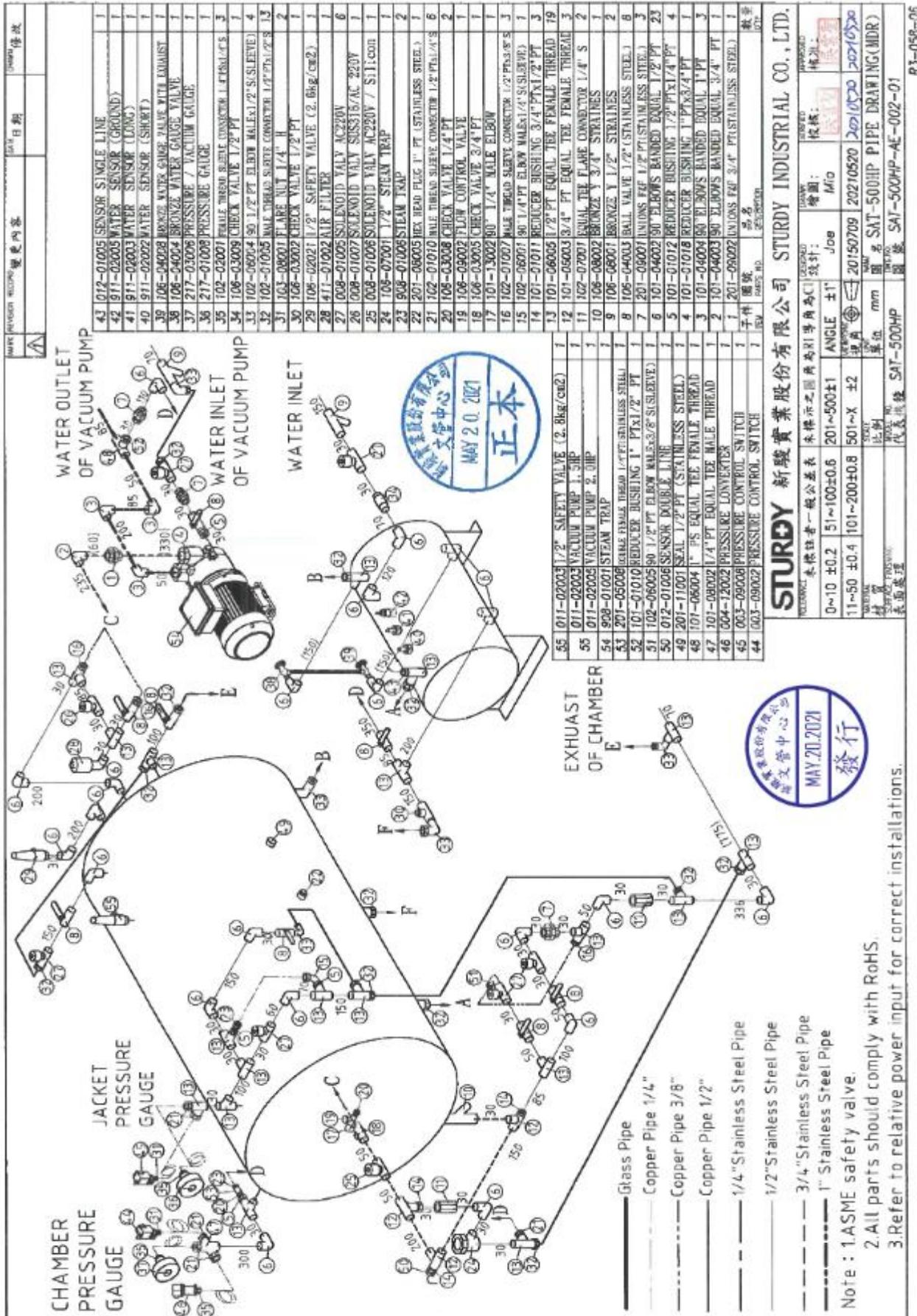


## 9.4 Pipe drawing

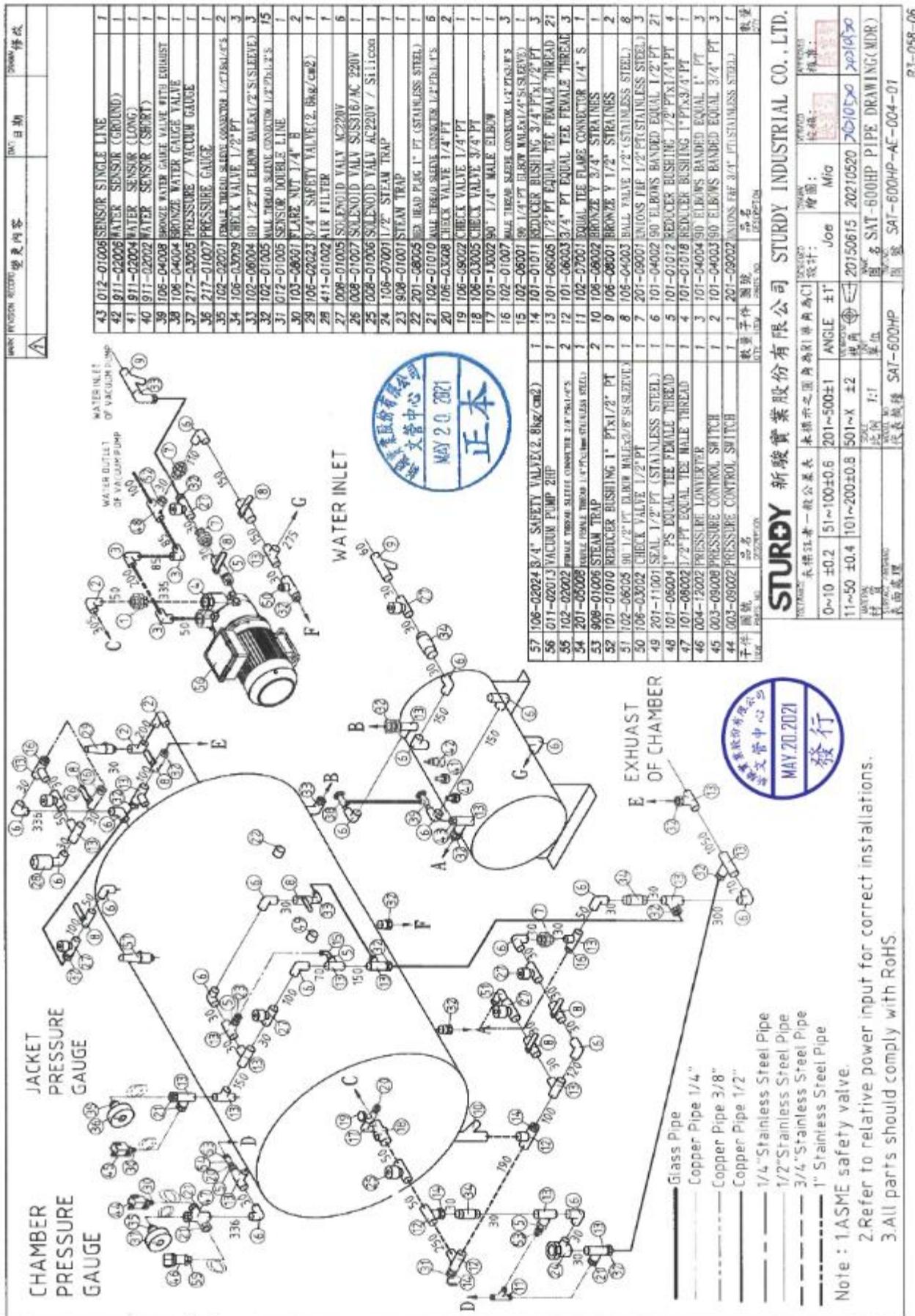
### 9.4.1 SAT-450HP pipe drawing



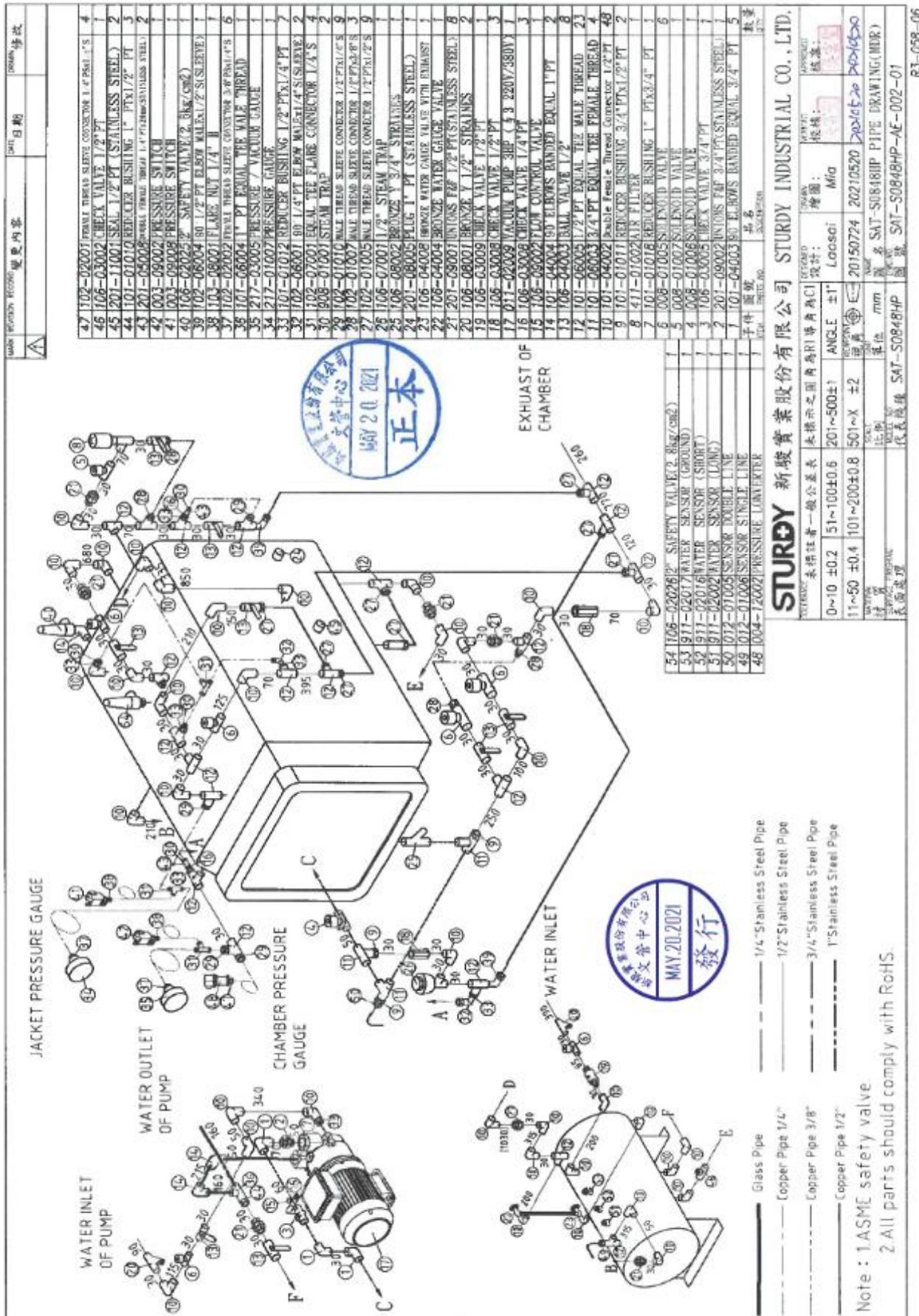
#### 9.4.2 SAT-500HP pipe drawing



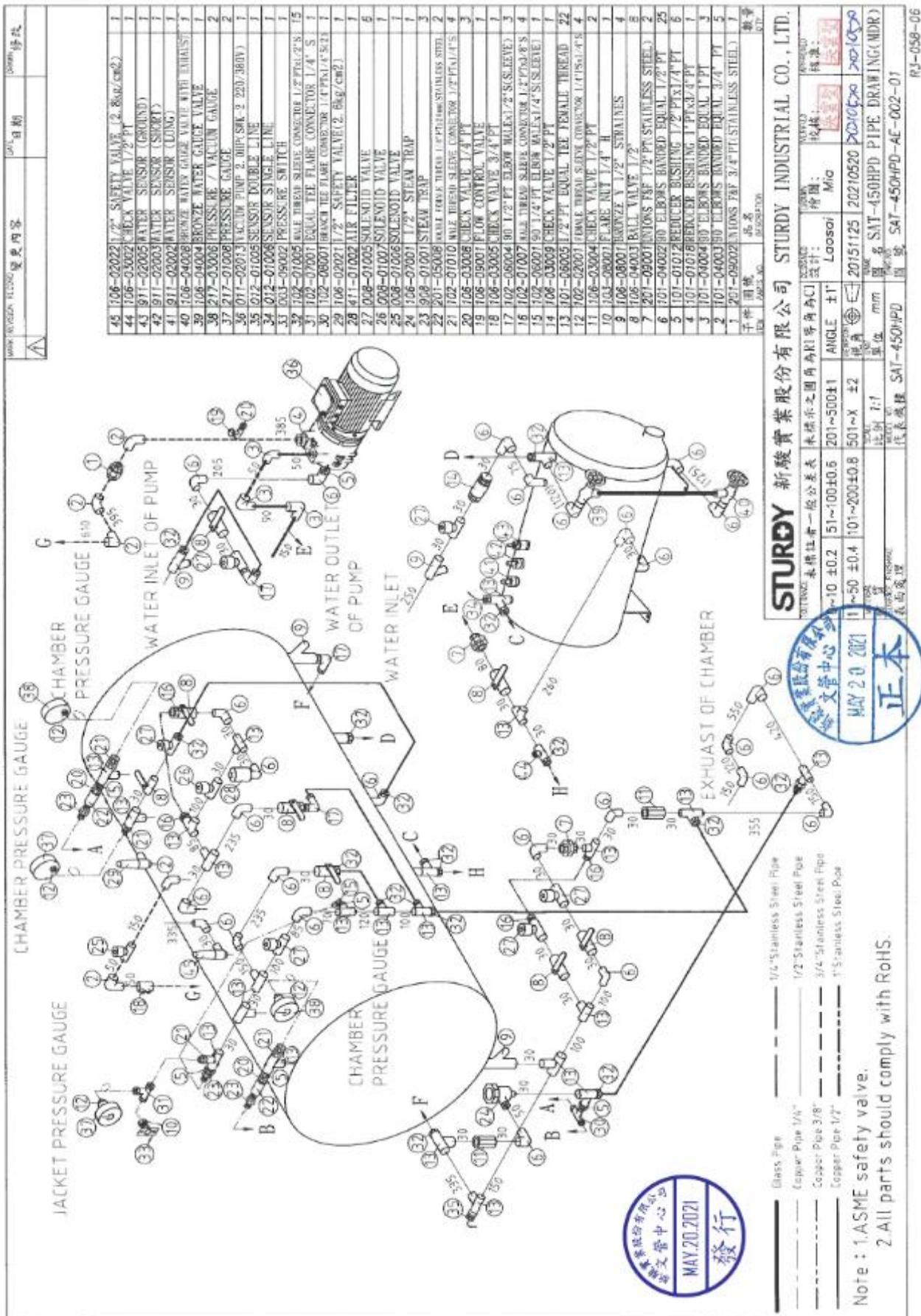
### 9.4.3 SAT-600HP pipe drawing



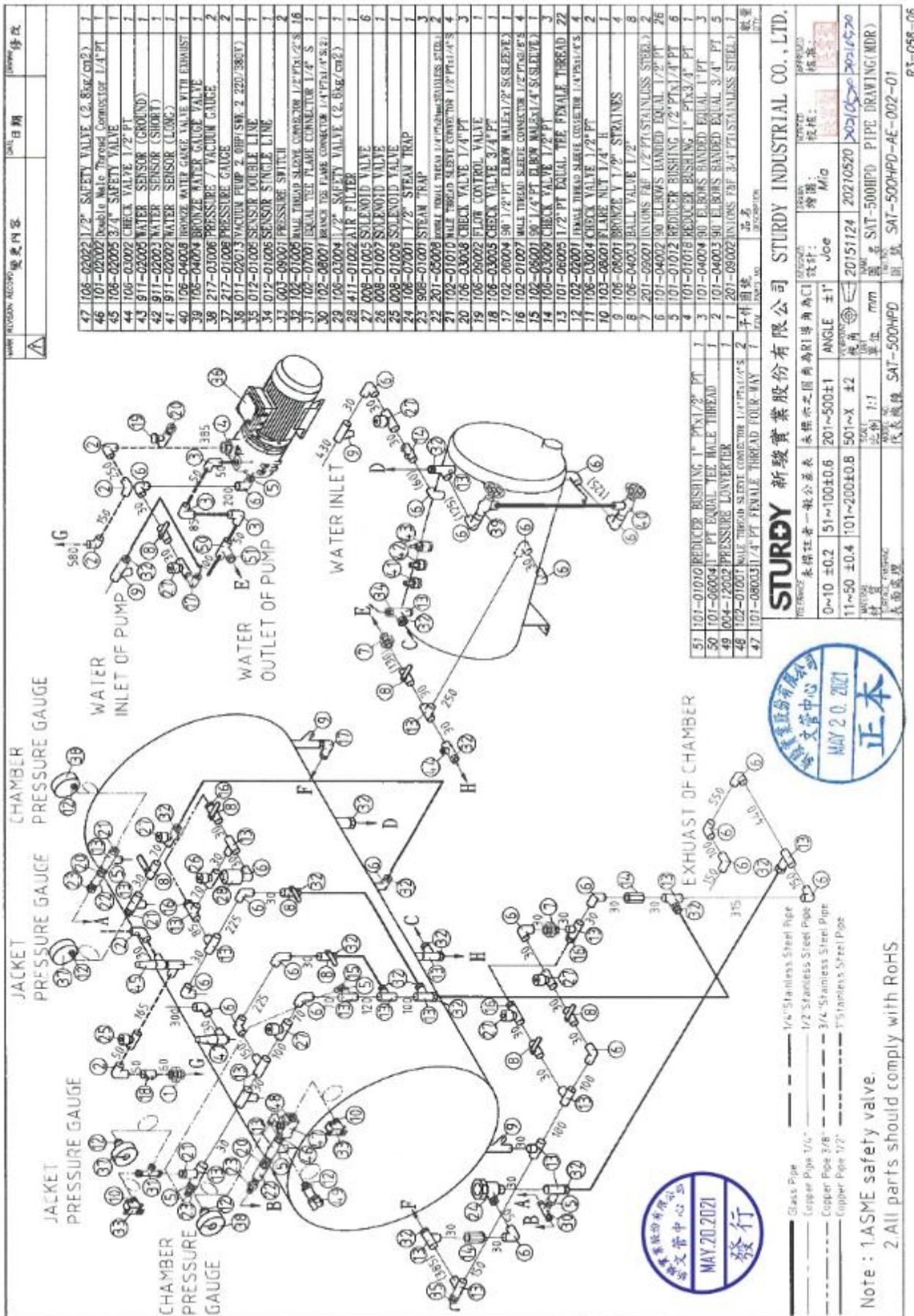
#### 9.4.4 SAT-S0848HP pipe drawing



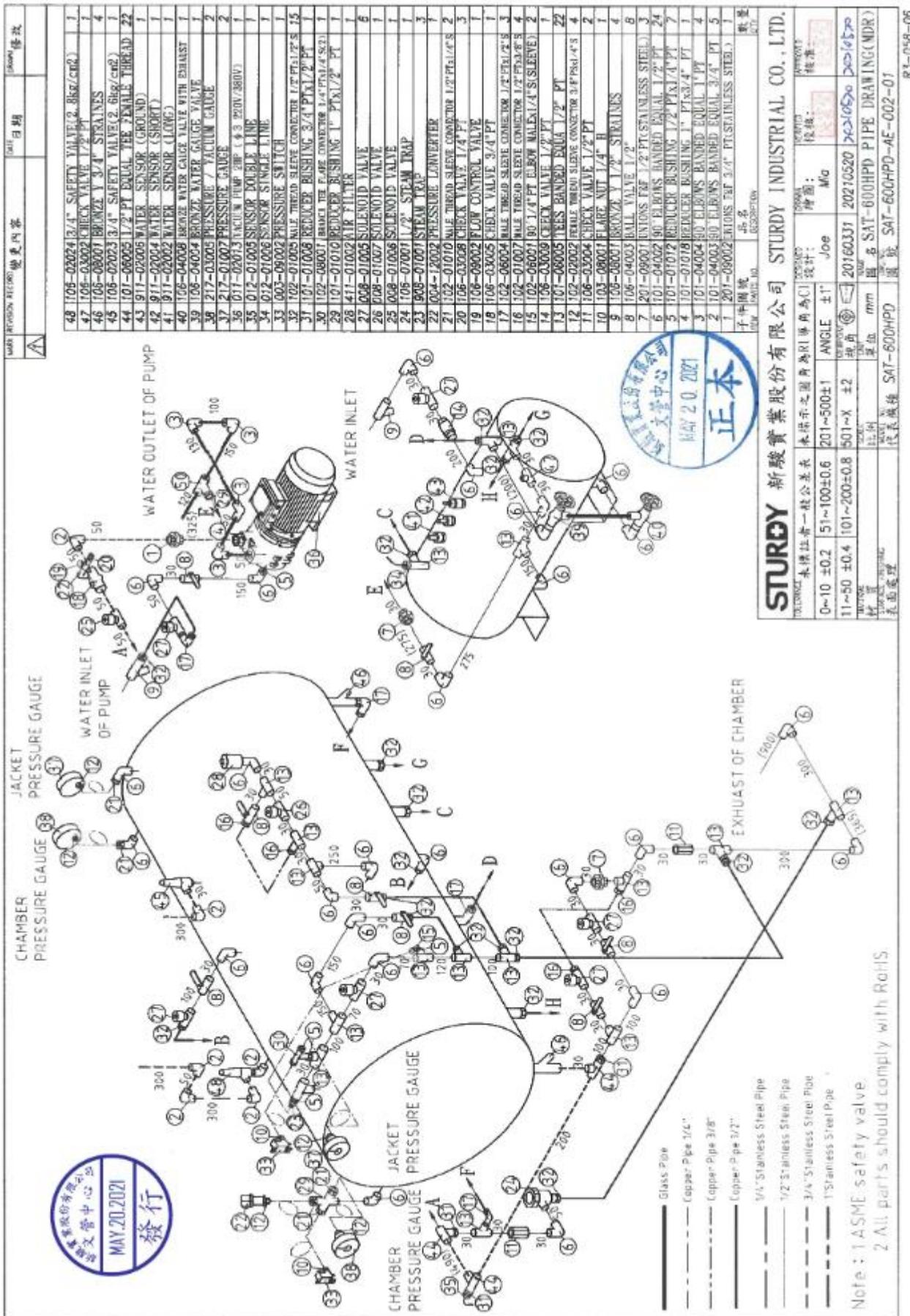
### 9.4.5 SAT-450HPD pipe drawing



#### 9.4.6 SAT-500HPD pipe drawing



### 9.4.7 SAT-600HPD pipe drawing



#### 9.4.8 SAT-S0848HPD pipe drawing

零件號碼	更換內容	備註	日期	修改
WATER INLET OF PUMP	JACKET PRESSURE GAUGE CHAMBER PRESSURE GAUGE	JACKET PRESSURE GAUGE CHAMBER PRESSURE GAUGE		
WATER OUTLET OF PUMP				
K				
C				
D				
F				
G				
H				
E				
L				
EXHAUST OF CHAMBER				
WATER INLET				
J				
STURDY 新駿實業股份有限公司 STURDY INDUSTRIAL CO., LTD.				
MAY 20 2021				
行				
51 911-0207 WATER SENSOR (SHORT)	1	7 101-01078 REDUCER BUSHING 1 PT * 3/4 PT	1	
50 911-02002 WATER SENSOR (LONG)	1	6 008-01005 SOLENOID VALVE	4	
49 012-01005 SENSOR DOUBLE LINE	1	5 008-01006 SOLENOID VALVE	1	
48 012-01006 SENSOR SINGLE LINE	1	4 008-01007 SOLENOID VALVE	1	
47 201-05071 DOUBLE TEE 1/2" PROBING/THREE LINE	1	3 106-03022 HECK VALVE 1/2" PT	1	
46 102-02001 THREE TEE 1/2" PROBING/THREE LINE	1	2 201-00002 INNONS FAF 3/4 PT STAINLESS STEEL	4	
45 004-12002 PRESSURE INVERTER	1	1 101-04003 90° ELBOWS BANDED EQUAL 3/4" PT	12	
44 103-08001 FLARE 3/4" H	1	6 411-01022 AIR FILTER	2	
Glass Pipe	—	1/4" Stainless Steel Pipe		
Copper Pipe 1/4"	—	1/2" Stainless Steel Pipe		
Copper Pipe 3/8"	—	3/4" Stainless Steel Pipe		
Copper Pipe 1/2"	—	1" Stainless Steel Pipe		
Note: 1 ASME safety valve				
2 All parts should comply with RoHS				

## 9.6 Assemble drawing

### 9.6.1 SAT-450HP assemble drawing

圖號	零件名稱	規格	數量	備註
45	1/68-01001 FL RING OF PRESSURE DOOR LOCK BEVEL		1	
44	2/22-10003 FL CIRCLE OF PRESSURE DOOR LOCK BEVEL		1	
43	9/10-01004 SUPPORT METAL, SECURE DOOR		1	
42	3/17-01001 TAB WASHER		1	
41	2/15-02032 DOOR VALVE HI WIRE		1	
40	2/15-02039 DOOR FEMALE HI WIRE		1	
39	3/08-01008 SCREW, SECURE DOOR		1	
38	2/09-01041 DOOR ASSY Y		1	
37	1/09-08033 LIGHT, TWO CASE		1	
36	4/09-02015 Door Gasket		1	
35	4/01-02005 RELOADING HANDLES (1/2")		4	
34	2/04-02043 WASHER		10	
33	2/13-01031 STAINLESS STEEL TUBE		20	
32	3/08-02012 SCREW 1/2" x120		4	
31	3/16-01003 SCREW LATCH HOLDER		1	
30	3/13-01008 BEARING, ASSY, LOCK SHAFT		1	
29	3/05-04005 DOOR LATCH MOUNTING		1	
28	3/05-04012 IRON PANEL (UP/THIN)		1	
27	3/05-04011 IRON PANEL (DOWN/THIN)		1	
26	3/15-03009 NUT, DOOR		1	
25	9/11-04001 HINGE PIN		1	
24	3/11-01024 DOOR LATCH		10	
23	1/07-01001TURE HANDLE 1/2" x35L		4	
22	2/04-02004 WASHER		10	
21	2/09-03007 MICRO SWITCH Lid		1	
20	2/11-02006 SERVICE DOOR MODULE		3	
19	2/12-04002 ELECTRIC BOX		1	
18	2/02-16030 escutcheon or handle part (No.11)		1	
17	2/02-16028 HOUSING-DOOR PART (No.9)		1	
16	2/02-16027 HOUSING-DOOR PART (No.8)		1	
15	2/02-16026 HOUSING-SIDE PART (No.7)		3	
14	2/02-16024 HOUSING-COVER PART (No.5)		1	
13	2/02-16023 HOUSING-COVER PART (No.4)		2	
12	2/02-16169 HOUSING-FRONT PART		1	
11	2/02-16028 HOUSING-FRONT PART (No.2)		1	
10	2/02-16153 HOUSING-FRONT PART (No.1)		1	
9	2/05-01007 ROSE CLAMP		1	
8	3/09-01010 CONTROL PLATE		2	
7	2/24-01007 Electromagnetic Lock Fixed Seat		1	
6	3/09-06001 BARCODE ASSY		1	
5	2/24-02003 HORIZON SEAT ADJUSTMENT		2	
4	3/01-04024 CHAMBER ASSY (PRED) (C450)		1	
3	3/03-04002 LIQUID TANK ASSY		1	
2	3/05-04002 FRAME ASSY OF CHAMBER		1	
1	2/05-04002 FRAME ASSY OF CHAMBER		1	
	子外 零件 外觀圖 圖號	規格	數量	備註
		mm	套	
		in	套	
		mm	套	
		in	套	
		mm	套	
		in	套	

STURDY 新駿實業股份有限公司 STURDY INDUSTRIAL CO., LTD.

參照圖	參照圖示之圖角與圖面C尺寸	規格	規格
		規圖：	規圖：
0~10 ±0.2	51~100±0.6	201~500±1 ANGLE ±1°	Wu Mic
11~50 ±0.4	101~200±0.8	501~x ±2	2010520 2010520 2010520
mm/in	mm/in	mm/in	mm/in
規圖	規圖	規圖	規圖
規圖	規圖	規圖	規圖

Note : 1.Lighting

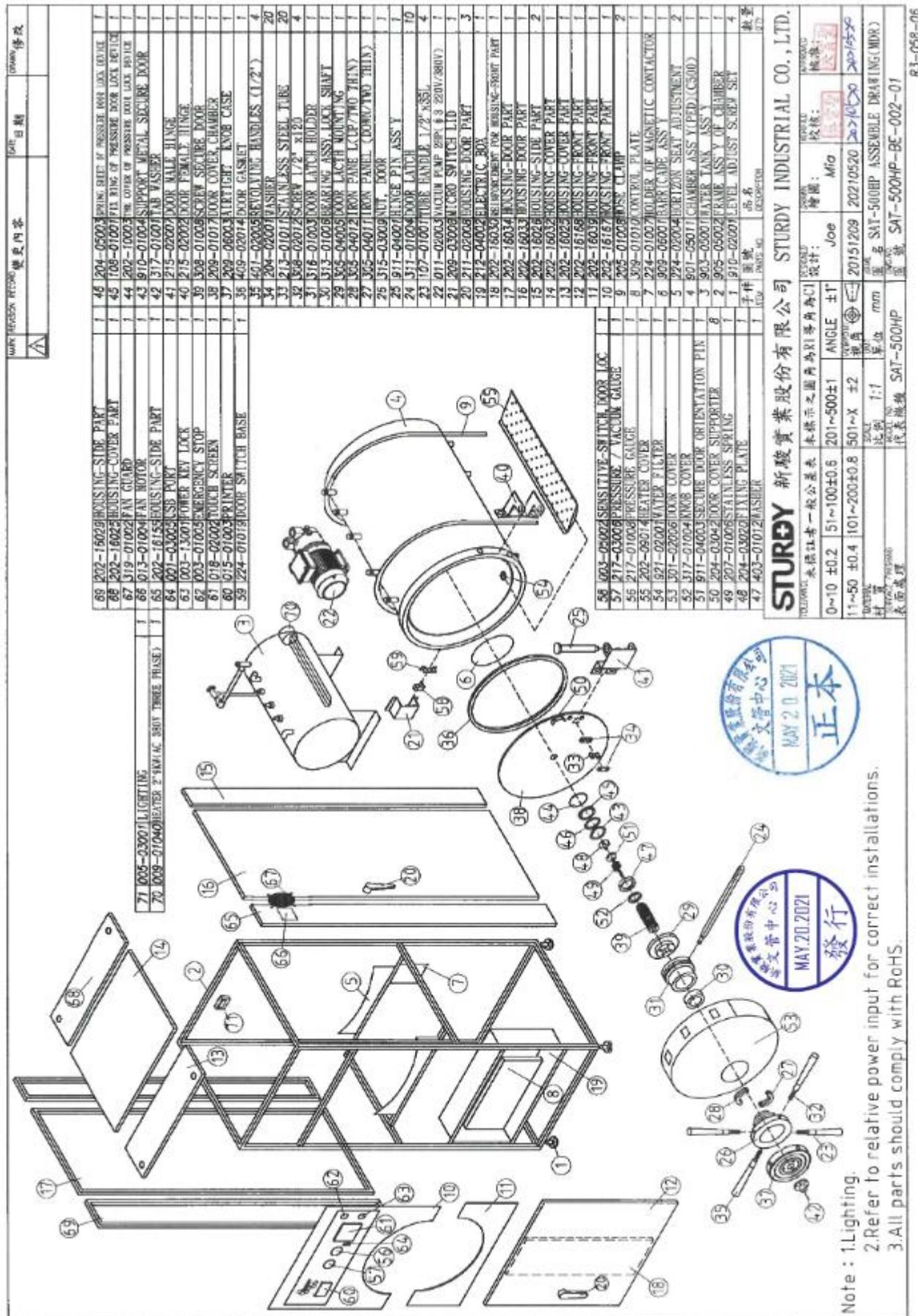
2.Refer to relative power input for correct installations.

3.All parts should comply with RoHS.

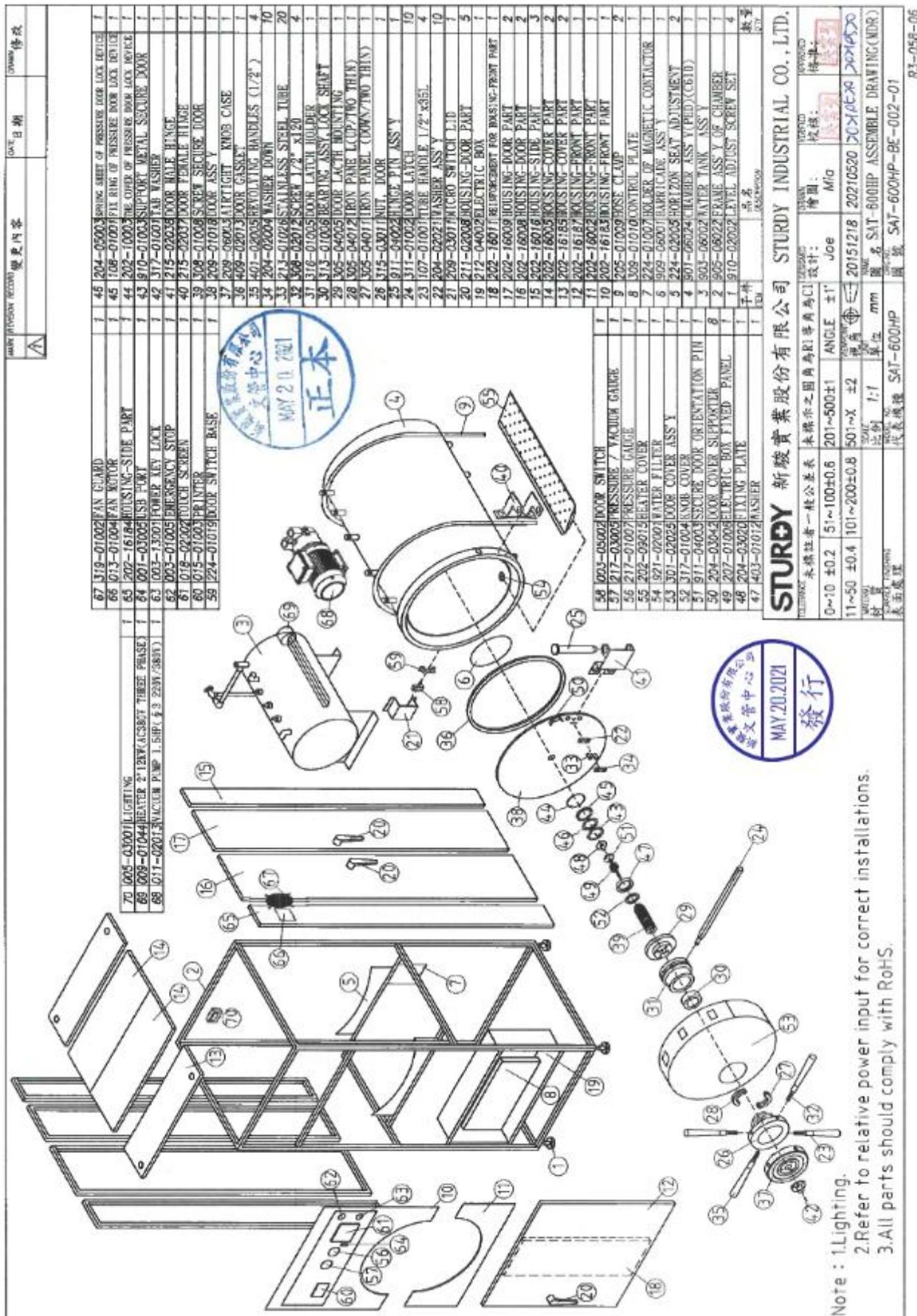
RJ-050-06



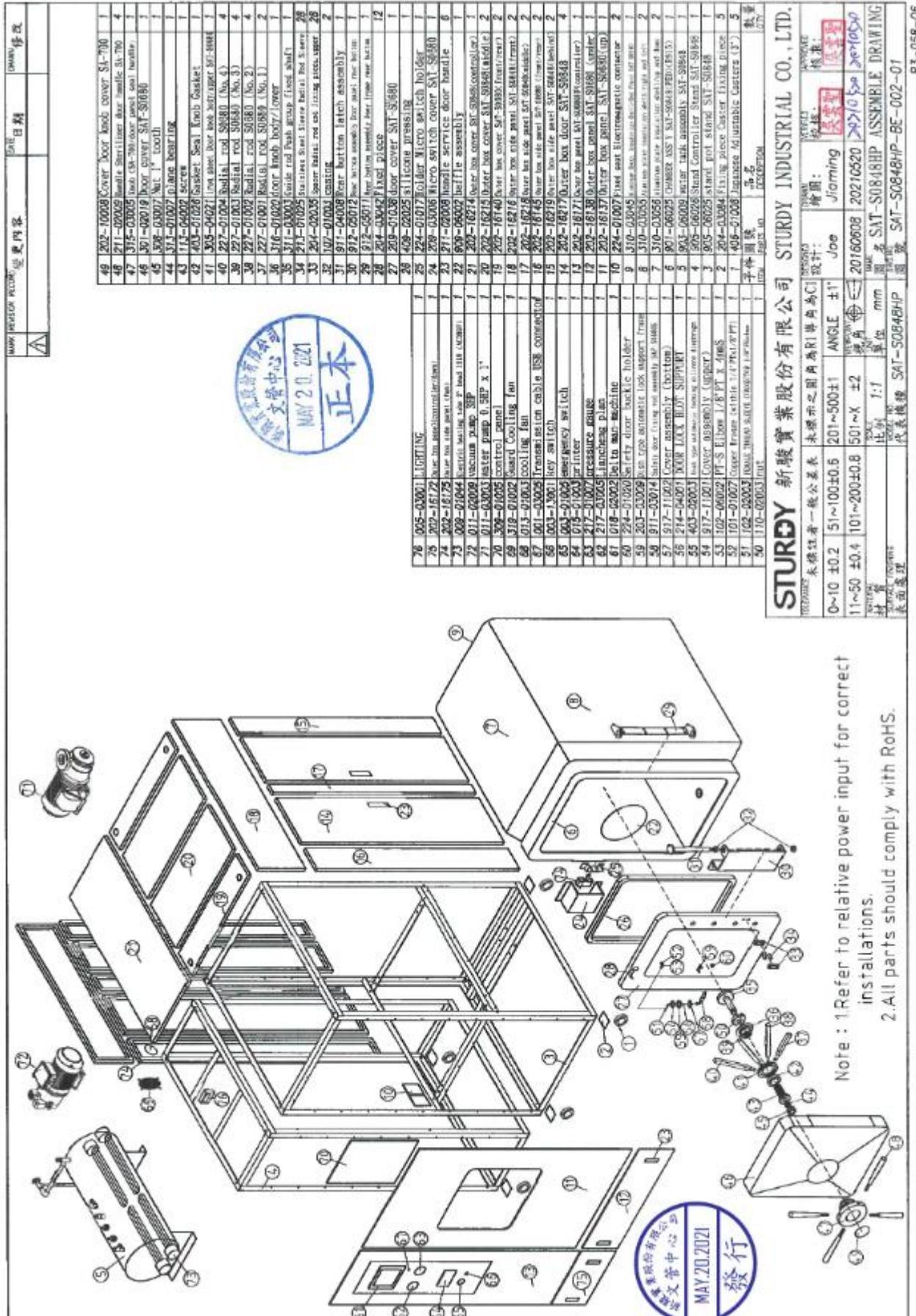
## 9.6.2 SAT-500HP assemble drawing



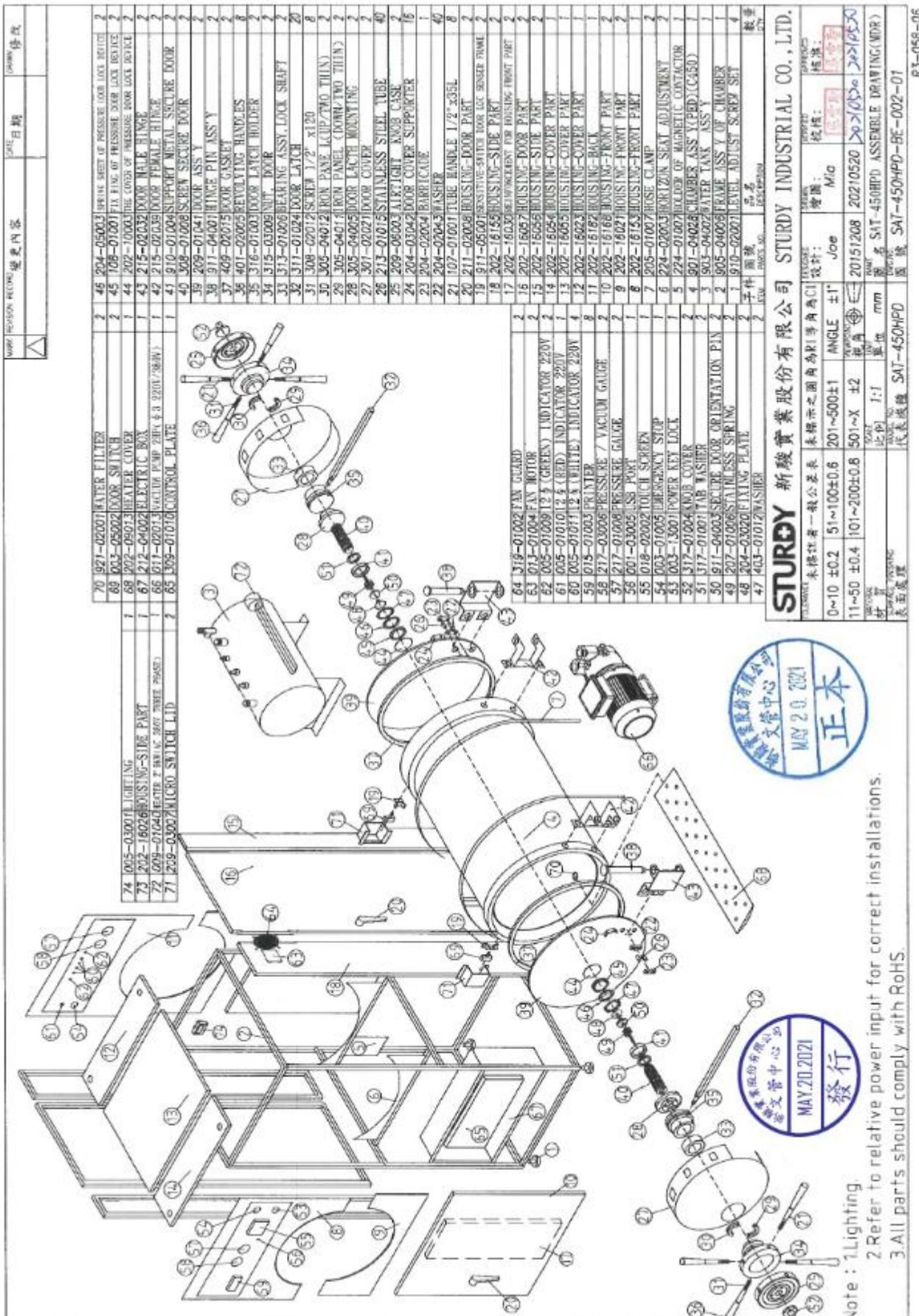
### 9.6.3 SAT-600HP assemble drawing



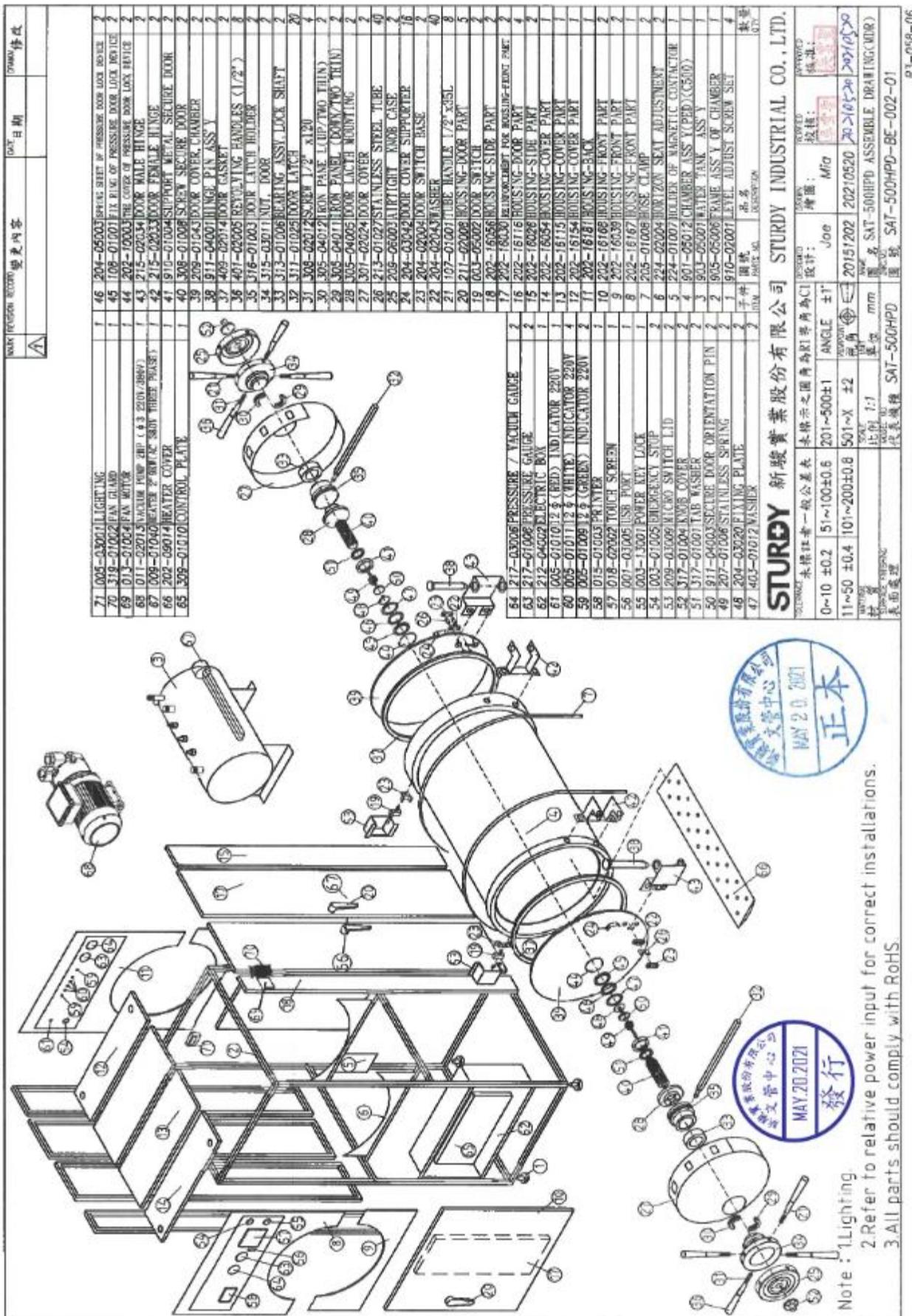
## 9.6.4 SAT-S0848HP assemble drawing



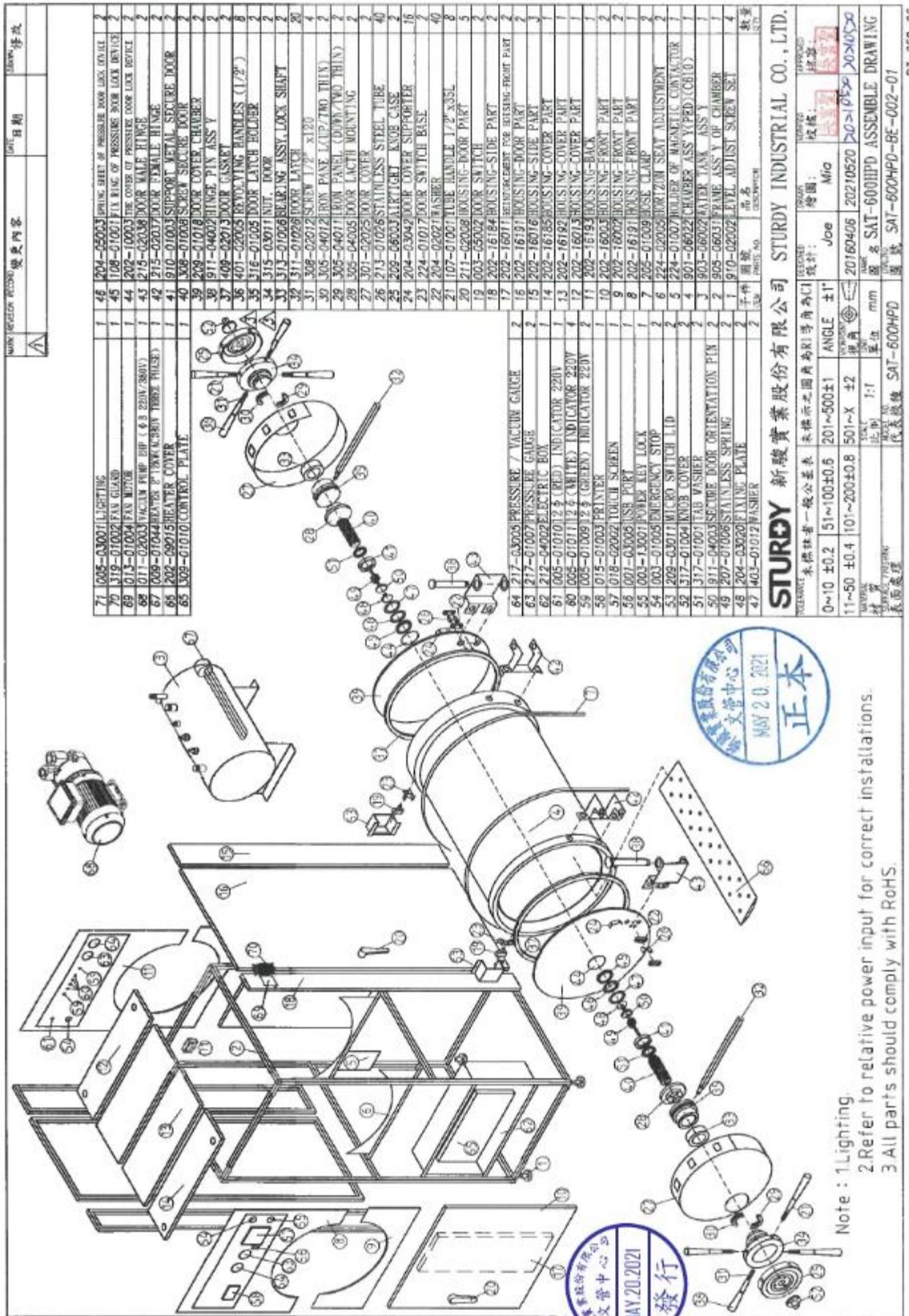
### 9.6.5 SAT-450HPD assemble drawing



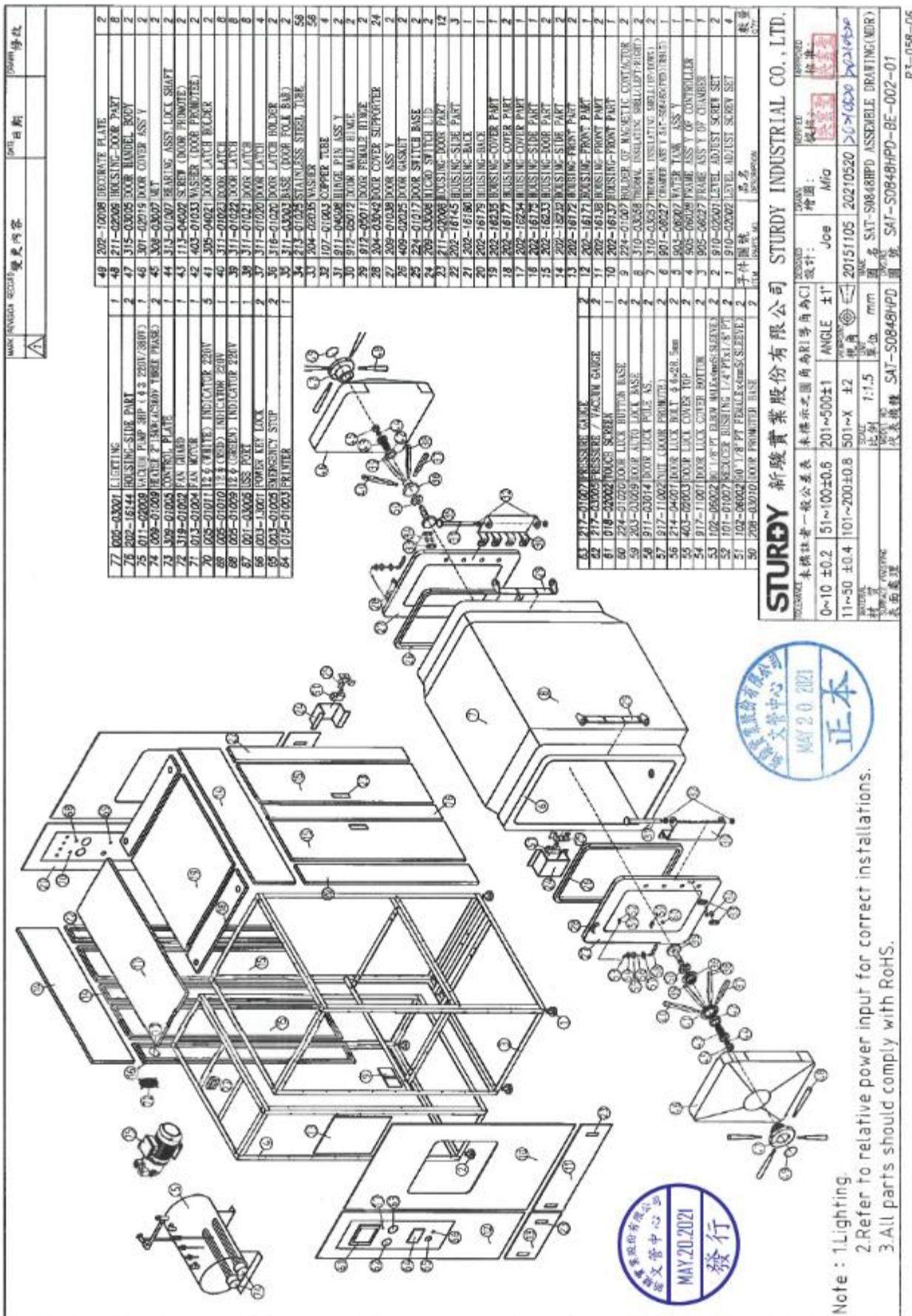
### 9.6.6 SAT-500HPD assemble drawing



### 9.6.7 SAT-600HPD assemble drawing



## 9.6.8 SAT-S0848HPD assemble drawing

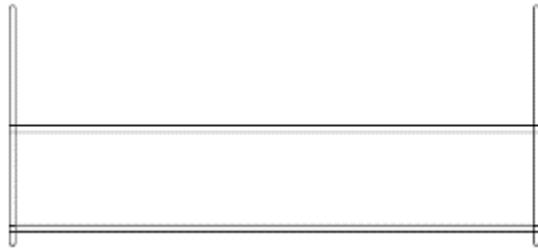
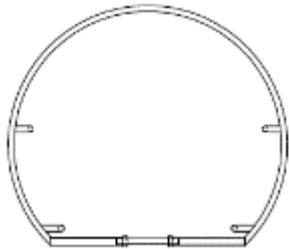


## 10 Accessories

### 10.1 Tray frame

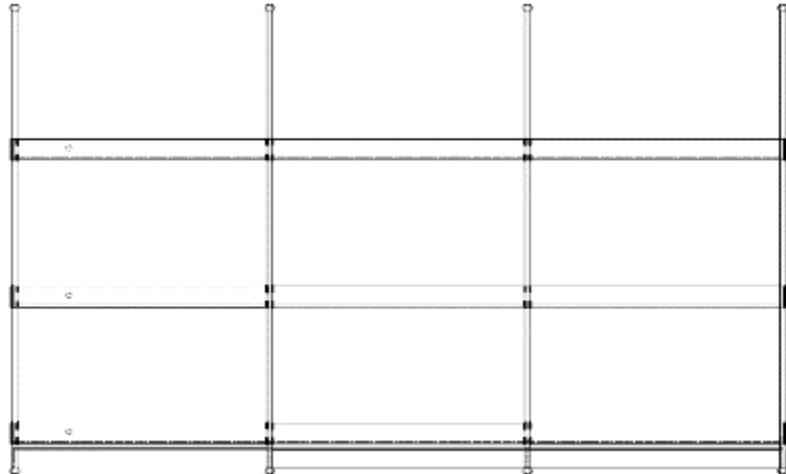
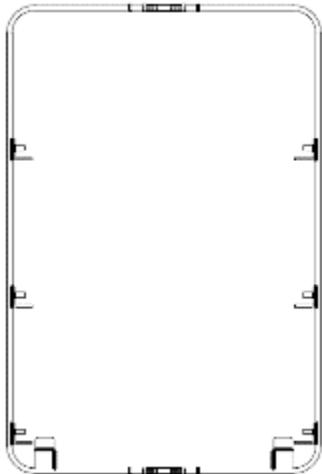
#### 10.1.1 Cylindrical Models

Model No.	Part No.
SAT-450HP	203-02017
SAT-500HP	203-02015
SAT-600HP	203-02014



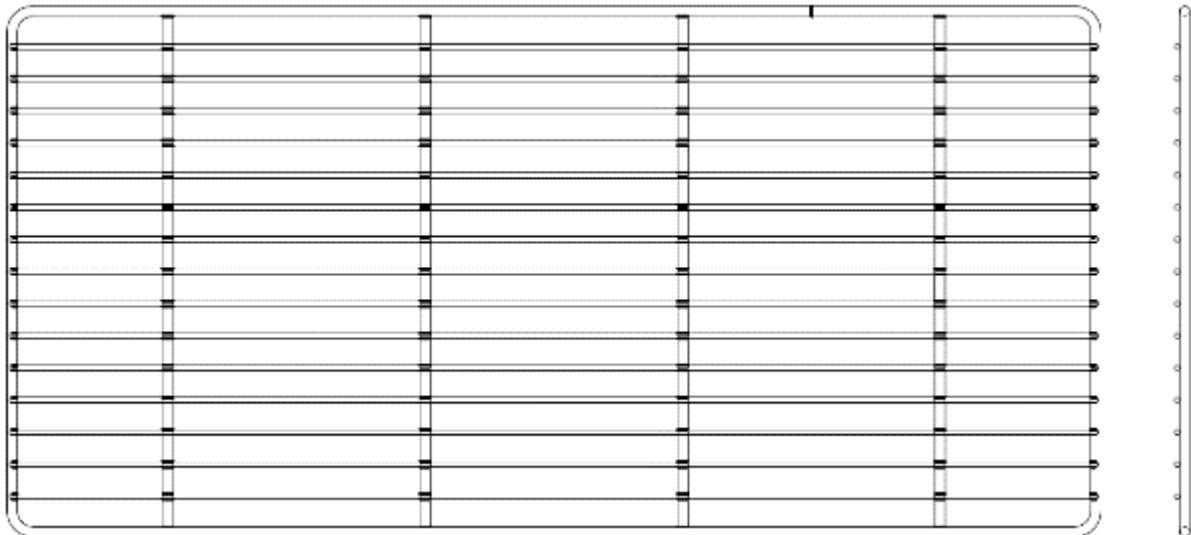
#### 10.1.2 Square Models

Model No.	Part No.
SAT-S0848HP	203-02025



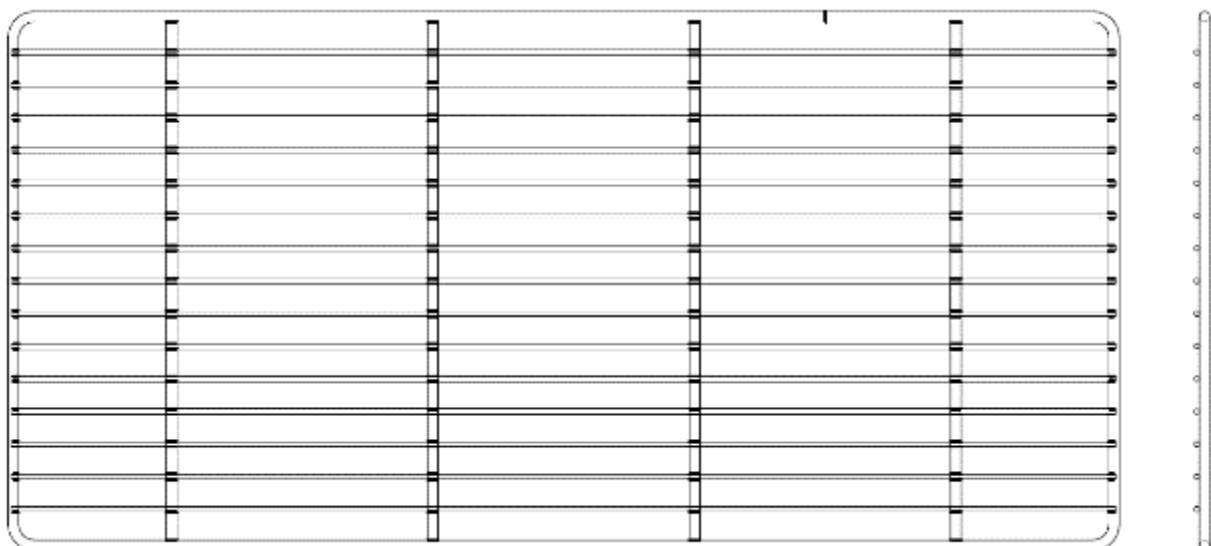
## 10.2 Tray(upper)

Model No.	Part No.
SAT-450HP	212-02026
SAT-500HP	212-02010
SAT-600HP	212-02017
SAT-S0848HP	212-02035



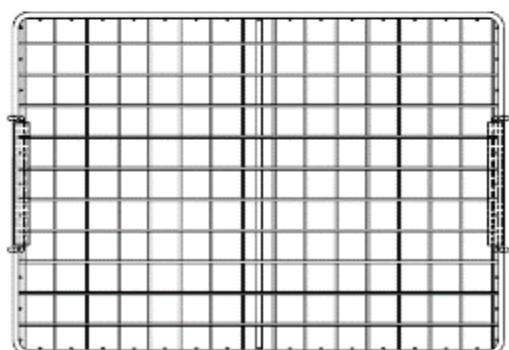
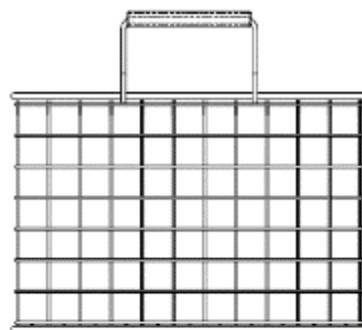
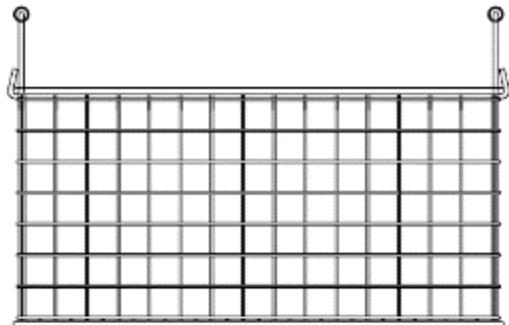
## 10.3 Tray(down)

Model No.	Part No.
SAT-450HP	212-02027
SAT-500HP	212-02019
SAT-600HP	212-02018
SAT-S0848HP	202-02035



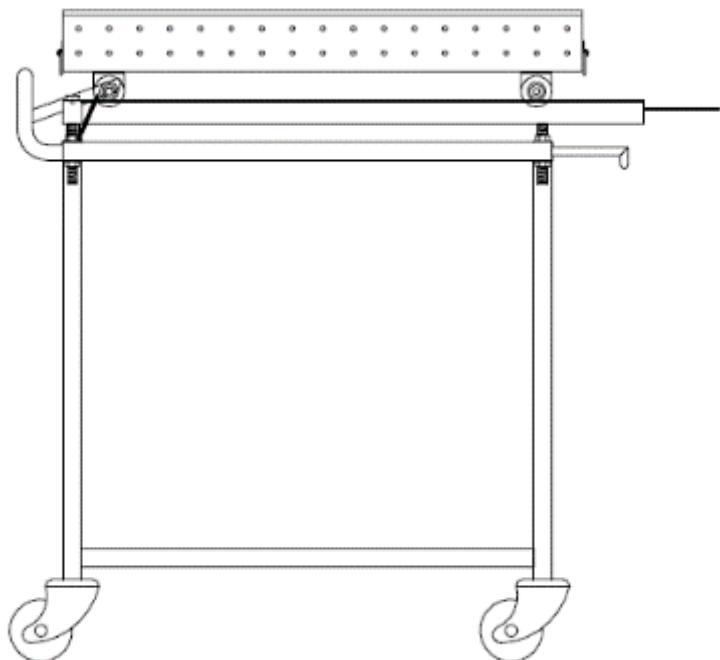
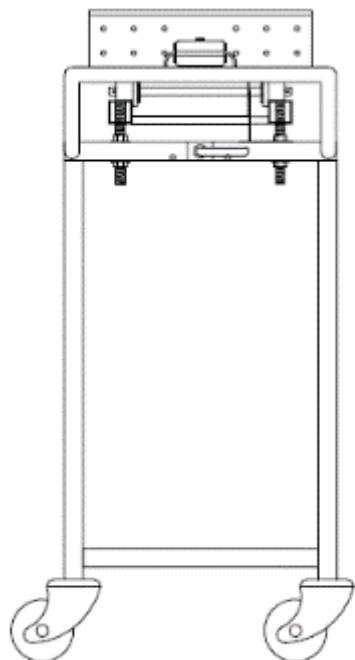
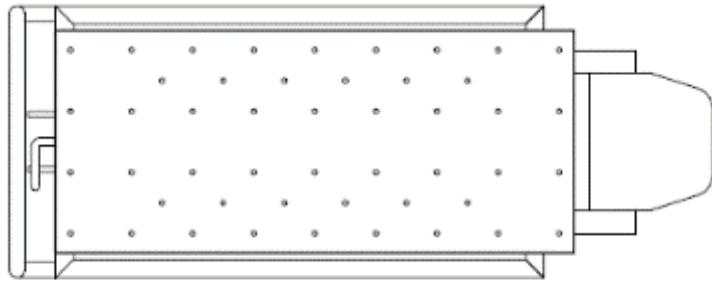
#### 10.4 Basket

<b>Model No.</b>	<b>Part No.</b>
SAT-450HP	212-03008
SAT-500HP	212-03010
SAT-600HP	212-03006
SAT-S0848HP	212-03025



## 10.5 Cart

Model No.	Part No.
SAT-450HP	216-01007
SAT-500HP	216-01005
SAT-600HP	216-01009
SAT-S0848HP	216-01019



## 11 Saturated vapor pressure and temperature reference table

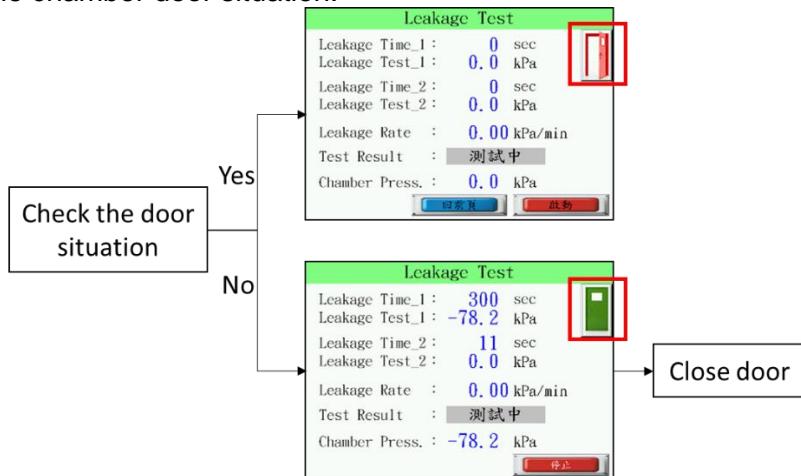
°C	Kg/cm <sup>2</sup>	PSI lb/in <sup>2</sup>	Bar	°F	NOTE
100	0.00	0.00	0.0000	212.0	1 Bar = 1000 Kpa
101	0.04	0.57	0.0393	213.8	1 Bar = 10 <sup>3</sup> mbar
102	0.08	1.14	0.0786	215.6	121°C = 1.05 kg/cm <sup>2</sup>
103	0.12	1.71	0.1179	217.4	134°C = 2.07 kg/cm <sup>2</sup>
104	0.16	2.28	0.1572	219.2	
105	0.20	2.84	0.1958	221.0	
106	0.24	3.41	0.2351	222.8	
107	0.28	3.98	0.2744	224.6	
108	0.33	4.69	0.3234	226.4	
109	0.38	5.40	0.3723	228.2	
110	0.43	6.12	0.4220	230.0	
111	0.48	6.83	0.4709	231.8	
112	0.53	7.54	0.5199	233.6	
113	0.58	8.25	0.5688	235.4	
114	0.63	8.96	0.6178	237.2	
115	0.69	9.81	0.6764	239.0	
116	0.75	10.67	0.7357	240.8	
117	0.81	11.52	0.7943	242.6	
118	0.87	12.37	0.8529	244.4	
119	0.93	13.23	0.9122	246.2	
120	0.99	14.08	0.9708	248.0	
121	1.05	14.93	1.0294	249.8	
122	1.12	15.93	1.0984	251.6	
123	1.19	16.93	1.1673	253.4	
124	1.26	17.92	1.2356	255.2	
125	1.33	18.92	1.3045	257.0	
126	1.40	19.91	1.3728	258.8	
127	1.48	21.05	1.4514	260.6	
128	1.56	22.19	1.5300	262.4	
129	1.64	23.32	1.6079	264.2	
130	1.72	24.46	1.6865	266.0	
131	1.80	25.60	1.7651	267.8	
132	1.89	26.88	1.8534	269.6	
133	1.98	28.16	1.9416	271.4	
134	2.07	29.44	2.0299	273.2	
135	2.16	30.72	2.1181	275.0	
136	2.25	32.00	2.2064	276.8	
137	2.35	33.42	2.3043	278.6	
138	2.45	34.85	2.4029	280.4	
139	2.55	36.27	2.5008	282.2	
140	2.65	37.69	2.5987	284.0	
141	2.76	39.25	2.7063	285.8	
142	2.87	40.82	2.8145	287.6	
143	2.98	42.38	2.9221	289.4	
144	3.09	43.95	3.0304	291.2	
145	3.20	45.51	3.1379	293.0	

## 12 FAQ

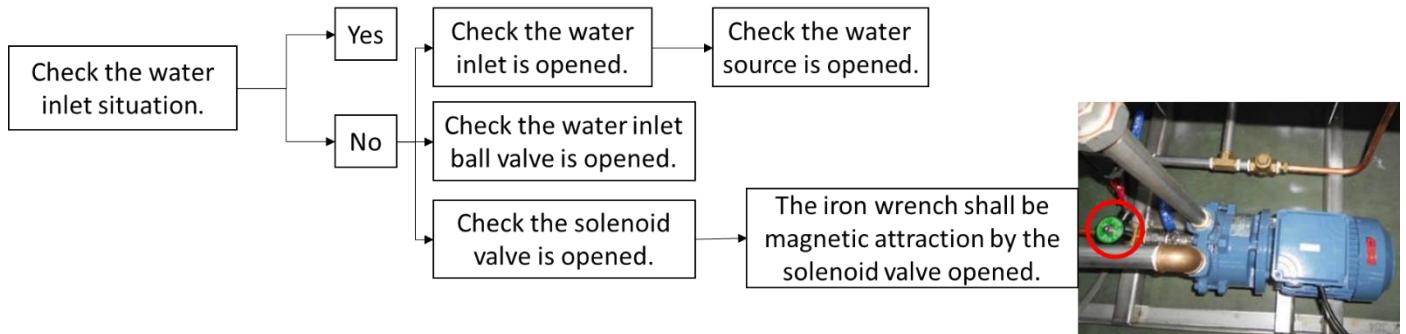
- A. When the print content can not be read?  
**Solution:** Refer to Setting for printer WH-A5.
- B. How the software is updated?  
**Solution:** Refer to Software update.
- C. When the device vacuum does not work or take a long time to low pressure?  
**Solution:** Refer to Three-phase motor, Annex I, and Annex III.
- D. When the sterilization cycle is running, the final heating stage cannot reach the heating target value ?  
**Solution:** Refer to Annex III.
- E. When the Leakage test is failure.  
**Solution:** Refer to Annex II.
- F. When the exhaust time, the heating time, or the vacuum time is too long.  
**Solution:** Refer to Annex V.

## Annex I. The vacuum checking point

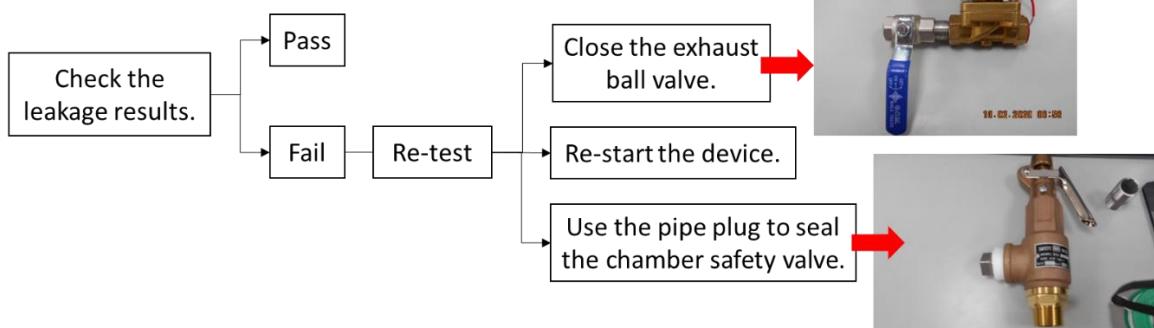
### A. Checking the chamber door situation.



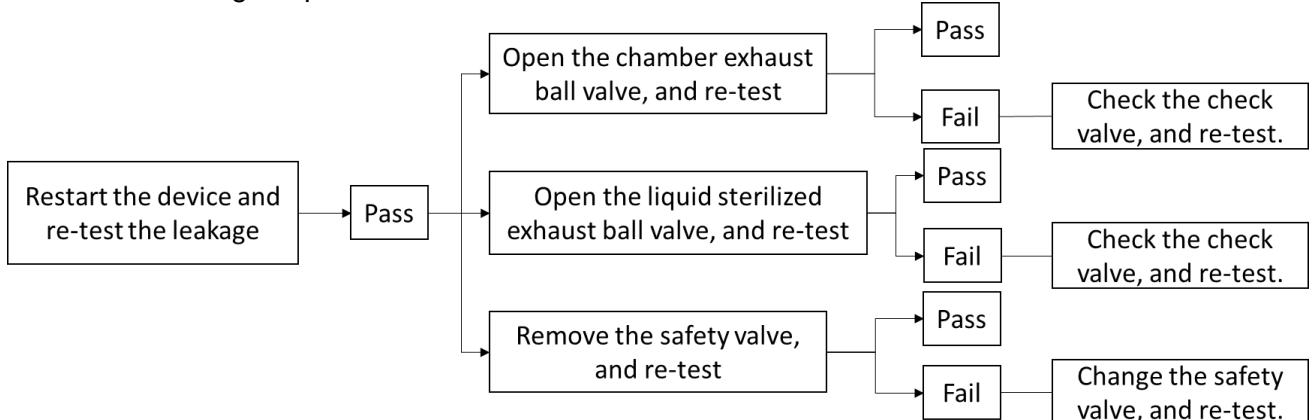
### B. Check the water inlet situation.



### C. Check the leakage test results.

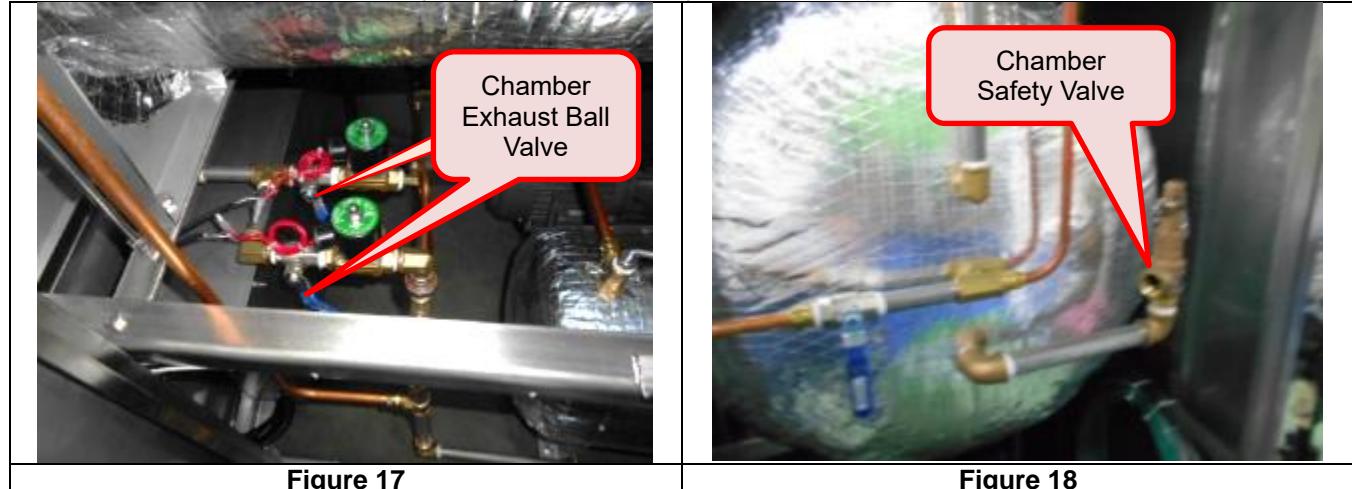


### D. Checking the parts.



## Annex II. Leakage Test

- A. Close the chamber exhaust ball valves in Figure 17.
- B. Seal the chamber safety valve in Figure 18 with a pipe plug.
- C. After the above actions are completed, turn on the machine for **LEAKAGE TESTING**.
- D. If the leakage test can complete, please do the following test.
  - (a) Select “**LEAKAGE TEST**” mode, after it reaches the specified negative pressure (-0.8) and stops the vacuuming, then open the Ball valve in Figure 17. And, check if the vacuum has any change. If the pressure decreased, then the exhaust piping system has problems.
  - (b) Follow the step A. again and remove the Pipe plug from Figure 18, instead of ball valve. If vacuum has any change, then safety valve has a problem.



### Annex III. Calibration

**!** **CAUTION:** This autoclave had been calibrated before shipment, and this Calibration function is password protected to prevent improper operation by the user. Only well-trained personnel can perform the calibration work. Failure to do calibration could result in serious injury or damage to the autoclave. However, the autoclave may need to be re-calibrated if necessary, such as the replacement of components. The following information is aimed for operating by authorized technicians, not by the operator.

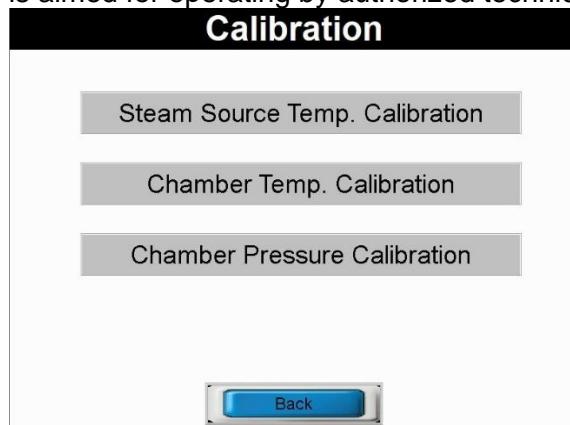
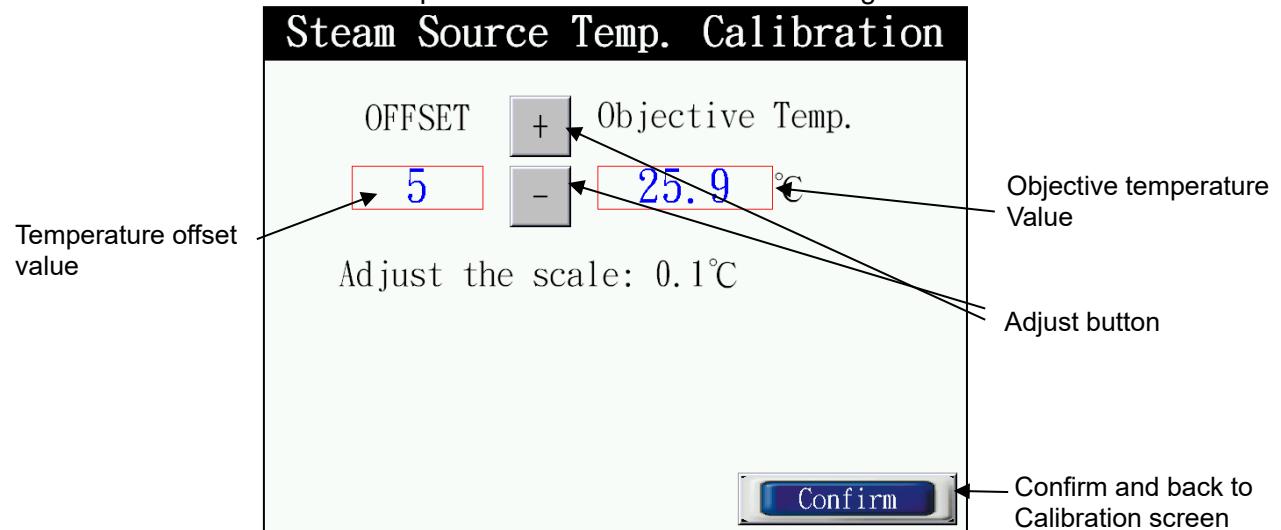
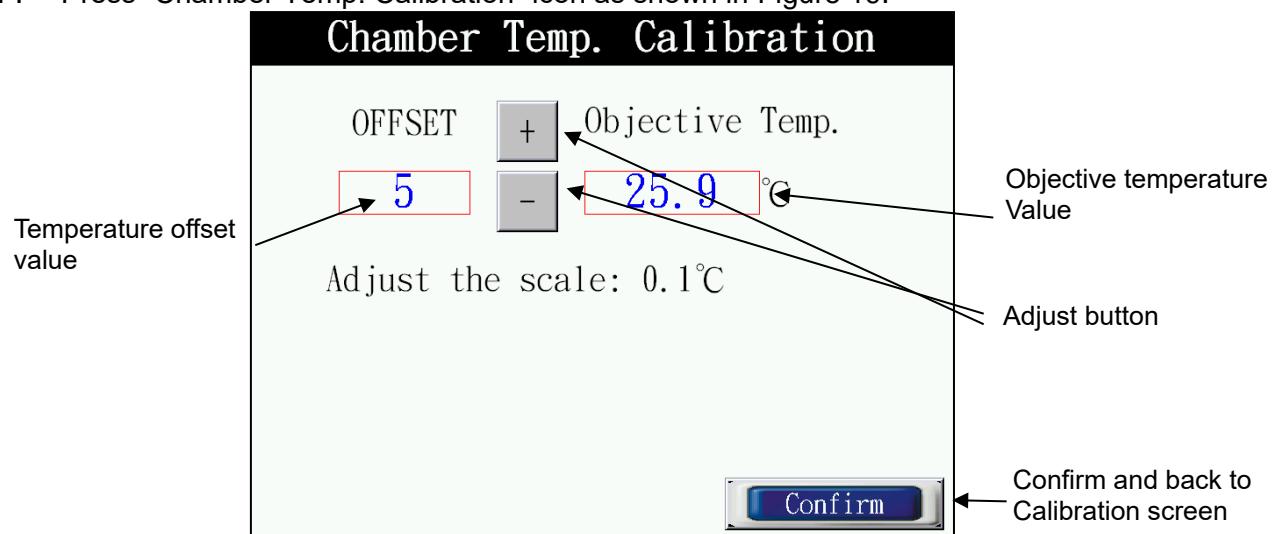


Figure 19

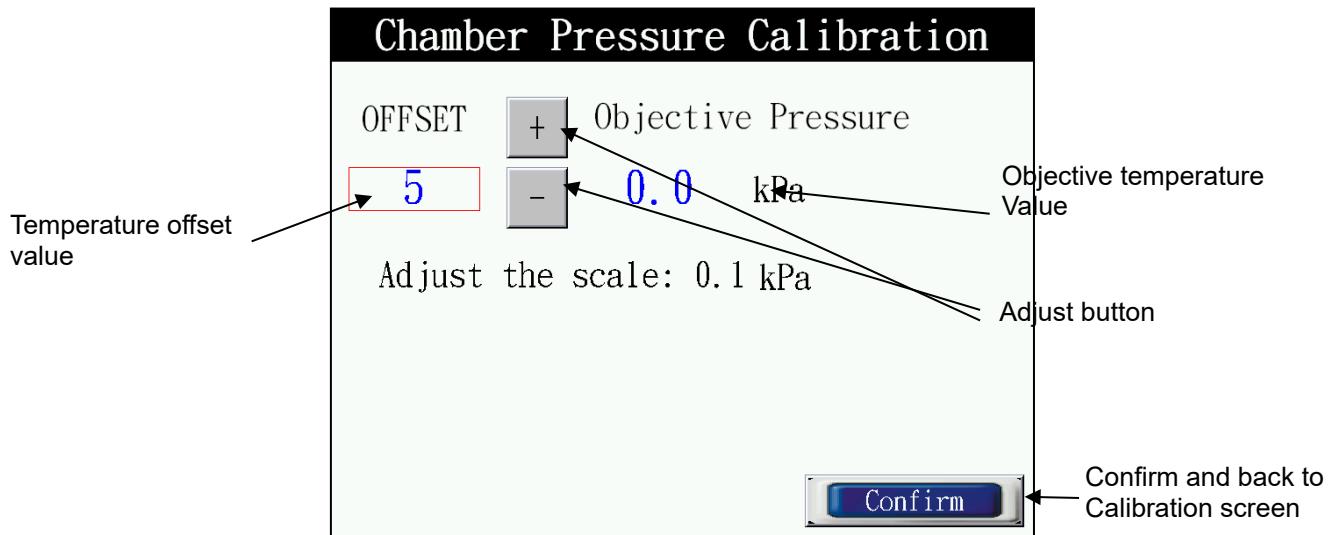
- E. Press "Steam Source Temp. Calibration" icon as shown in Figure 19.



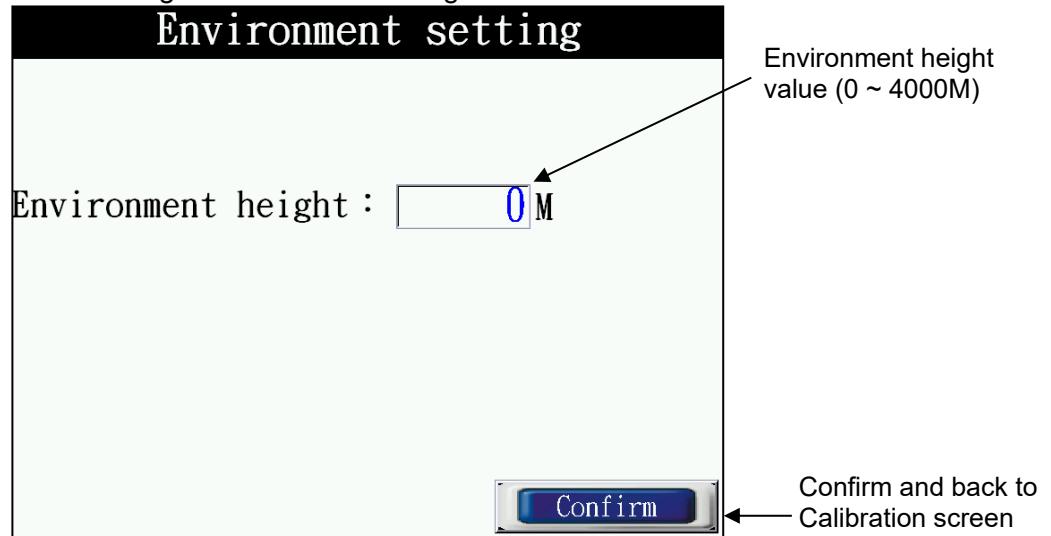
- F. Press "Chamber Temp. Calibration" icon as shown in Figure 19.



- G. Press "Chamber Pressure Calibration" icon as shown in Figure 19.

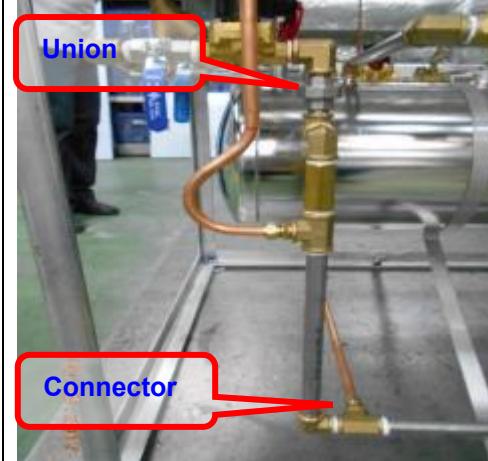
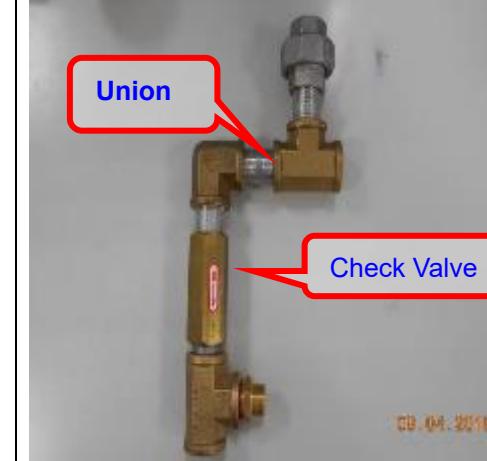


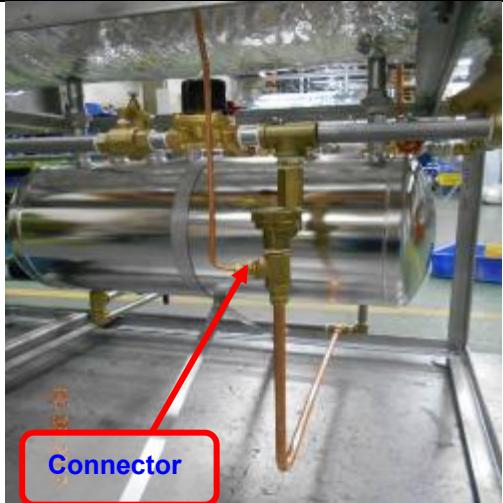
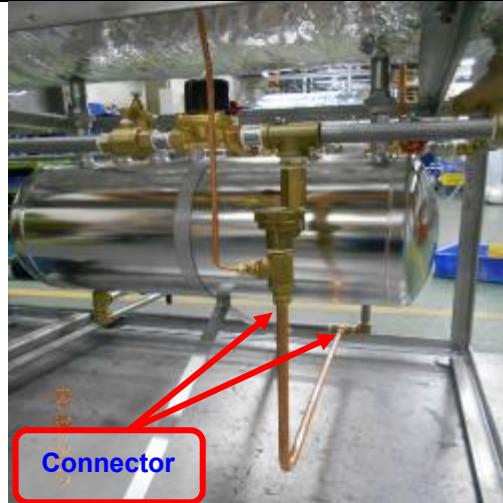
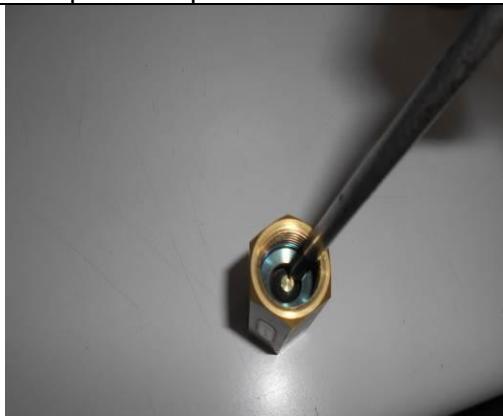
H. Press "Environment setting" icon as shown in Figure 19.



#### Annex IV. Test Check Valve(one way valve)

Turn off the power, and make sure the pressure gauge of the chamber and jacket is zero, without the high temperature.

(1) Loosen copper connector	(2) Disassemble copper pipe	(3) Loosen connector	(4) Take off piping as below
			
(5) Disassemble piping, then take off "Check Valve" and note the direction.	(6) Use screw driver to press down the check valve, it should be Rebound smoothly, if not or stuck, please replace a new one.	(7) Assemble it with direction. Cone side up, arrow sign down.	
			

(1) Loosen the connector	(2) Disassemble copper pipe	(3) Disassemble it	(4) Disassemble piping, then take off "Check Valve" and note the direction.
			
(5) Use screw driver to press down the check valve, it should be Rebound smoothly, if not or stuck, please replace a new one.	(6) Assemble it with direction. Cone side up, arrow sign down.		
			

## Annex V. Check the AD-15/AD-20 solenoid valve

A. Tools: Wrench (No.13 and No.10)

B. Parts name and Part No.

Parts name	Part No.
AD-15-S-C2 AC220V / Silicon	008-01005-01
AD-20-S-C2 AC220V / Silicon	008-01006-01

C. Disassemble the solenoid valve

(1) Remove the nut by using a wrench (No.13).	(2) Remove the coil and sheet from the solenoid valve.
	
(3) Remove the screw (four Corners) by using the wrench (No.10).	(4) Remove the membrane and check for breakage at the connection point.
	
(5) After checking the solenoid valve, the checking point is correct, to assemble the solenoid valve.	The exploded-view drawing of solenoid valve 

<b>Name</b>	Sturdy Autoclave Sterilizer
<b>Model</b>	HP series
<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> 	APEX MEDICAL S.L. Elcano 9, 6 ª planta 48008 Bilbao. Vizcaya SPAIN

W3-41256-01-01