

# Technical specification of Ammonia Corrosion test chamber

## 1. Product Application

The ammonia chamber applies ammonia gas to accelerate the corrosion of materials or products under certain temperature environment, so as to reproduce the damage degree of materials or products within a certain time range. The equipment can be used to assess the anti-corrosion ability of materials and their protective layers, and the quality comparison of similar protective layers, as well as the anti-corrosion ability of some products. The product is suitable for the corrosion gas test of parts, electronic components, protective layer of metal materials and industrial products



## 2. General Parameter

Standard: IEC 62716: Photovoltaic (PV) modules – Ammonia corrosion testing.

Internal Dimension: 2500\*1800\*2000mm(L\*W\*H).

Volume: 9m<sup>3</sup>.

External Dimension: 2300\*2800\*2500(L\*W\*H).

Temperature Range: RT+5 °C~+60 °C

Temperature Uniformity:  $\leq \pm 2^{\circ}\text{C}$

Temperature Fluctuation:  $\leq \pm 1^{\circ}\text{C}$

Humidity Range: 75~100%RH.

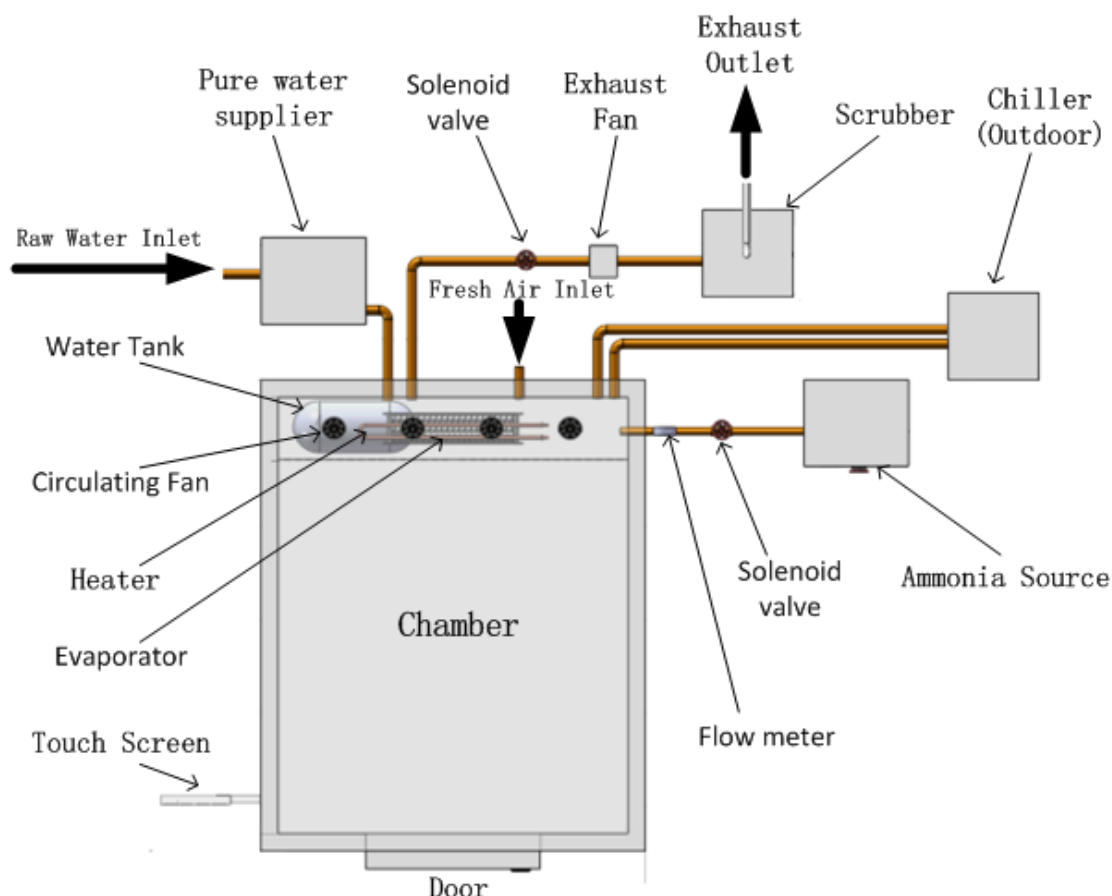
Humidity Fluctuation:  $\pm 5\%$  RH.

Ammonia Density in chamber: 0.1%-1%.

Ammonia Density Fluctuation:  $\pm 10\%$ .

Ammonia Density in Exhaust:  $\leq 10\text{ppm}$ .

### 3. Structure



Sr. No.	Equipment part	Function	Specification of key material.
1	Chamber	Enclose the sample	<p>External Material: 1.2mm thickness, 316L stainless steel.</p> <p>Internal Material: 1.2mm thickness, 316 stainless steel.</p> <p>Heart Insulation Material: 100mm thickness, Flame retardant polyurethane</p> <p>Sample support: For 2100mm*1250mm*50mm module, 316 stainless steel.</p> <p>Observation Window: Tempered glass, 400*500mm.</p> <p>Temperature sensor: PT100</p> <p>Temperature range: 0-200°C.</p> <p>Temperature resolution: 0.1 °C.</p> <p>Temperature accuracy: 1%.</p> <p>Humidity sensor: Wet bulb gauze</p> <p>Humidity range: 0-100%RH.</p> <p>Humidity resolution: 1%.</p> <p>Humidity accuracy: 5%.</p>

			<p>Ammonia density sensor: Ammonia density range: 0-10000ppm. Ammonia density accuracy:0.1ppm.</p>
2	Ammonia source system.	Inlet the ammonia into the chamber.	<p>Ammonia tank: 30L ammonia cylinder including pressure gauge and pressure reducing valve. Solenoid valve: <math>\Phi 10\text{mm}</math> diameter, 316L stainless steel. Tube: <math>\Phi 10\text{mm}</math> diameter, 316L stainless, Silicon or PP. Flow meter: 3-50L/min, Plexiglass.</p>
3	Cooling & Heating system	Control the temperature in the chamber.	<p>Cooling system: Cooling(Chiller) power, 3P. 316L stainless steel evaporator. Heating system: 9KW. 316L stainless steel heater. U shape Heater: Titanium alloy Circulating fan: 90W*4. 304 stainless steel coating</p>
4	Humidity system	Control the humidity in the chamber	<p>Pure water supplier: 20L/h, 0.2us/m conductivity. Humidifier: 316L stainless steel. Water tank: 304 stainless steel.</p>
5	Exhaust treatment system.	Absorb the ammonia after testing.	<p>Scrubber: 200L, PP material. Scrubbing liquid: 5% citric acid. Solenoid valve: Steel with anti-corrosive coating. Fan: 2000m<sup>3</sup>/h, PP material. Ammonia density sensor: Ammonia density range: 0-10000ppm. Ammonia density accuracy:0.1ppm.</p>



**Pure water supply**



**Chiller**



**Scrubber**

#### 4. Control

Controller: 7" touch screen controller, 800\*600 resolution.

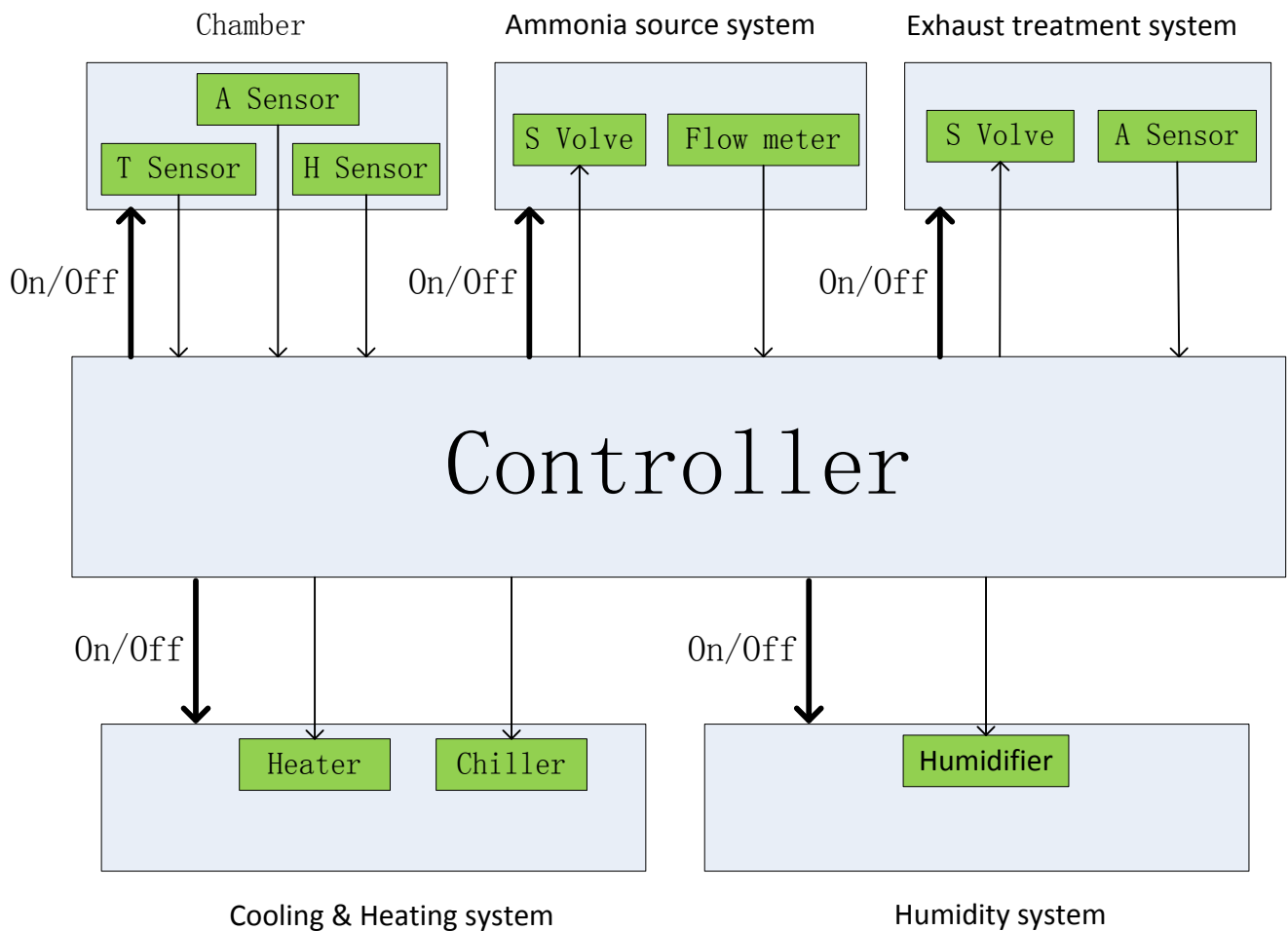
Temperature control: PID

Humidity control: PID

Ammonia control: On/Off

Operation: Pre-set program.

Program capacity: 999 pcs program. 999 step in one program.



## 5. Security protect

Reliable grounding protection;

Leakage break off protection;  
 Heater short circuit protection;  
 Fan over load protection  
 Over temperature protection with acoustooptic alarm  
 Over press protection of chiller.  
 Over load protection of chiller;  
 Low voltage, over voltage, Lack phase protection of power supply.  
 Ammonia over density protection.  
 Lack water protection.

## 6. Facility demand

Ammonia: 99.9% content.  
 Raw water flow: 20L/h.  
 Raw water pressure: 2kg/cm<sup>3</sup>  
 Exhaust:  $\geq 300\text{m}^3/\text{h}$   
 Drain pipe:  $\geq \Phi 80\text{mm}$   
 Power supply: AC 380V, 50HZ, 20KW.  
 Space: 8000\*4000\*3200(L\*W\*H)  
 Environment Temperature: 10°C~40°C.  
 Environment Humidity:  $\leq 85\%$ .

## 7. Spare parts & Consumables

Sr. No.	Name	Manufacture	Model	Replace Period
1	Wet bulb gauze	WICK	WG-104H	3 months
2	Sealing strip	Ao Weite	R18	2 years
3	Flow meter	Changzhou Chemical	TL-03	1 year
4	Heating tube	Yangshi	U-2000	1 year
5	Floating ball valve	Dongguan Enfu	FD80SL10	1 year
6	Humidifier	Yangshi	U-3000	1 year
7	Temperature Sensor	Suzhou Weile	PT100	1 year
8	Water filter	Dow Chemical	TS-D130-L/H	1 year
9	Solid state relay	Wuxi Gute	SSR-3P4040	1 year
10	Ammonia sensor	Shenzhen AnPaer	APEG-AQ-10000	1 year