



□ Mixed Noxious Gas Corrosion Chamber



Model: SOM-225

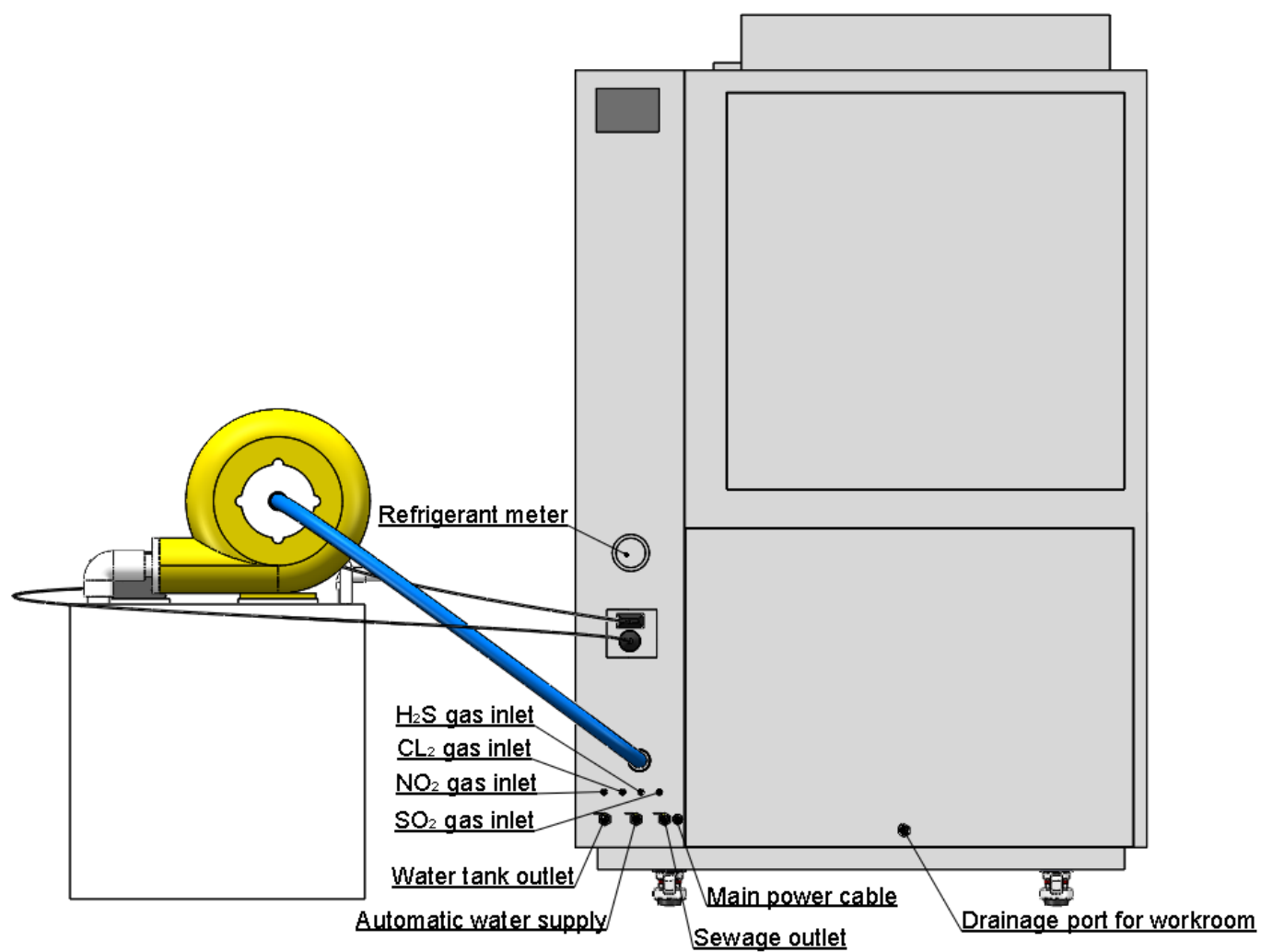
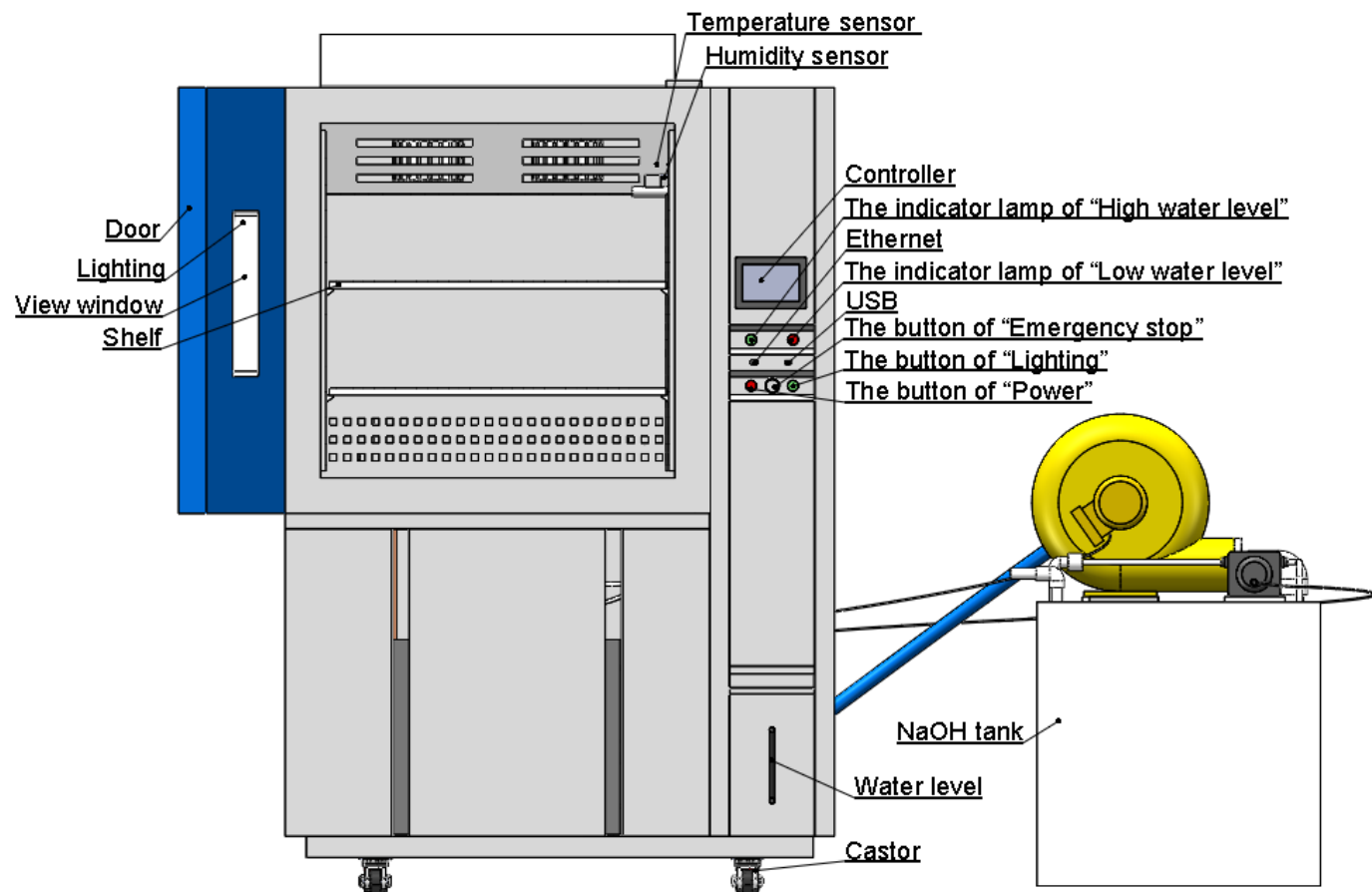
Standard

IEC60068-2-60

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1. Diagram



2. Test Standard

Standard: IEC 60068-2-60

Environmental testing

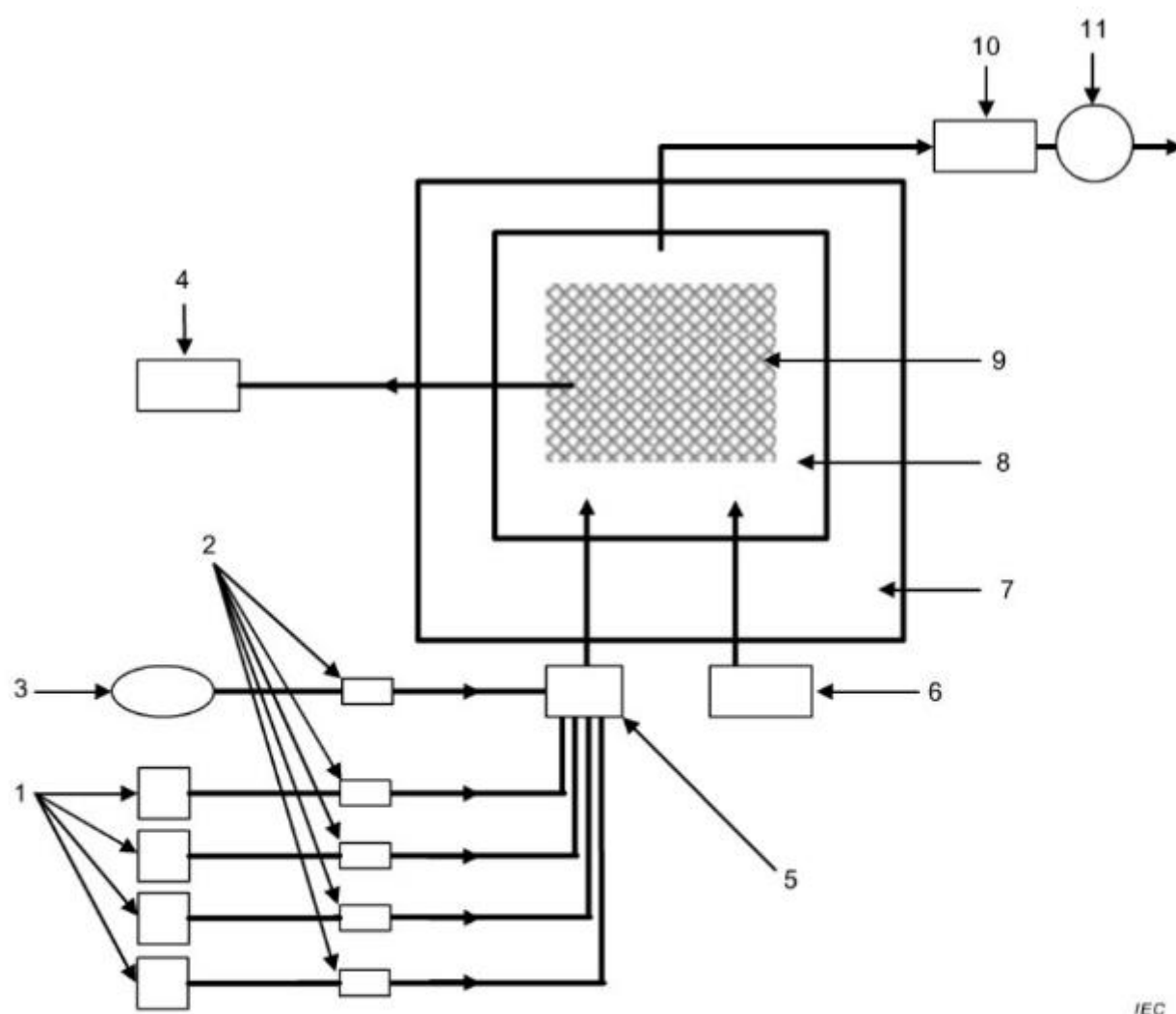
Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test

Table 1 – Test conditions

Parameters	Method 1	Method 2	Method 3	Method 4
H ₂ S (10 ⁻⁹ vol/vol)	100 ± 20	10 ± 5	100 ± 20	10 ± 5 100 ± 20
NO ₂ (10 ⁻⁹ vol/vol)		200 ± 50	200 ± 50	200 ± 20
Cl ₂ (10 ⁻⁹ vol/vol)		10 ± 5	20 ± 5	10 ± 5 100 ± 20
SO ₂ (10 ⁻⁹ vol/vol)	500 ± 100			200 ± 20
Temperature (°C) ^a	25 ± 1	30 ± 1	30 ± 1	25 ± 1
RH (%) ^a	75 ± 3	70 ± 3	75 ± 3	75 ± 3
Rate of ventilations per hour	3 to 10	3 to 10	3 to 10	3 to 10
Mass increase of copper coupons mg/(dm ² × day) according to Annex A	1,0 to 2,0	0,3 to 1,3	1,2 to 2,2	1,2 to 2,4

NOTE Since the nature of the corrosive attack is different for test Methods 1 to 4, neither their numbering nor the corresponding mass increase of copper coupons reflect their severity.

^a Different temperature and humidity values (e.g. 40 °C and 80 %RH) may be used based upon mutual agreement between the interested parties. The mass increase may be different from the given values.



- Key**
- 1 Gas source
 - 2 Flow controller
 - 3 Air supply
 - 4 Gas analysing system
 - 5 Gas mixing chamber
 - 6 Humidity source
 - 7 Conditioning chamber
 - 8 Test chamber
 - 9 Working volume
 - 10 Chemical filter
 - 11 Pump

Figure B.1 – Example of test apparatus

3. Technical Parameters

3.1 Technical Table

Model	SOM-100	SOM-225	SOM-500	SOM-800	SOM-1000
Internal Dimensions (mm)	400*500*500	500*600*750	700*800*900	800*1000*1000	1000*1000*1000
Overall Dimensions (mm)	860*1050*1620	960*1150*1860	1180*1350*2010	1280*1550*2110	1500*1550*2110
Interior Volume (L)	100	225	500	800	1000
Parameter	Temperature Range	15 °C ~ 100 °C			
	Temperature Fluctuation	± 0.5 °C			
	Temperature Deviation	± 2.0 °C			
	Humidity Range	30% ~ 98% RH			
	Humidity Deviation	±1% RH			
	H2S concentration	100 ~500 ppb ± 20 ppb (Adjustable)			
	No2 concentration	100 ~500 ppb ± 20 ppb (Adjustable)			
	Cl2 concentration	100 ~500 ppb ± 20 ppb (Adjustable)			
	SO2 concentration	100 ~500 ppb± 20 ppb (Adjustable)			
	Air Change Rate	3~10 times /h			
Structure	Cooling	Cooling system	Mechanical compression refrigeration system		
		Refrigerating unit	French TECUMSEH compressor		
		Refrigerant	R449A		
	Heating Element	Nichrome heater			
	Humidity	Humidifier	External isolation, stainless steel surface evaporation humidifier		
		Water Supply System	Water purification system		
			Automatic water supply		
	Dehumidification	Evaporator			
	Controller	Programmable color LCD touch screen controller			
		Ethernet connection, PC Link			
	Sensor	Temperature Sensor	PT100Ω / MV A-class		
		Humidity Sensor	Dry and wet bulb sensor		
		Gas Sensor	H2S/NO2/CL2/SO2 gas sensor		
	Build-in Water Tank(mm)	270*300*450			
	View Window Size (mm)	300*330			
	Air Circulation	Centrifugal wind fan			
Door Lock	Electromagnetic lock				
Gas Exhaust Device	Exhaust Unit				
Safety Device	Humidifier Dry-combustion Protection; Over-temperature Protection; Over-current Protection; Water Shortage Protection; Earth leakage Protection				
Interior material	SUS304 stainless steel +Glass fiber reinforced plastics				
Exterior material	Steel Plate with protective coating				
Power Supply	220V 60Hz 1 phase				
Maximum Noise	65 dBA				
Standard	IEC 60068-2-60				
Environmental Conditional	5°C~+35 °C ≤85% RH				

3.2 Construction

3.2.1 Workroom

- The inner material is a double-layer material made of SUS304 stainless steel to ensure the robustness, and the outer layer is affixed with Fiber Reinforce Plastic for corrosion protection.
- Standard configuration of two sample holders made of FRP.
- Install 1 pc Temp sensor, 1 pc Humid sensor, 1 pc H₂S sensor; 1 pc Cl₂ sensor; 1 pc NO₂ sensor and 1 pc SO₂ sensor.



3.2.2 Test Holder

- Installed two test holders to put the test samples.
- The holder is made of SUS304 stainless steel to ensure the robustness, and the outer layer is affixed with Fiber Reinforce Plastic for corrosion protection.



3.2.3 Door & Viewing Window

- One door is installed in the chamber with each size of 500*750mm.
- The door material is a double-layer material made of SUS304 stainless steel and the outer layer is affixed with fiber reinforce plastic for corrosion protection.
- There is a viewing windows which are adopt double layer insulating glass 8cm thick, made of tempered glass;
- The conductive film is located on the interior glass to prevent window frosting, built-in LED light for the work room lighting ;can clearly observe samples;
- The light control button is located below the controller;



3.2.4 Electromagnetic Lock

- Door lock is an electromagnetic lock, which will generate a strong suction force and tightly attract the iron plate to lock the door;
- Unlocking is operated on the controller for safety and prevent malfunction;



3.2.5 Controller

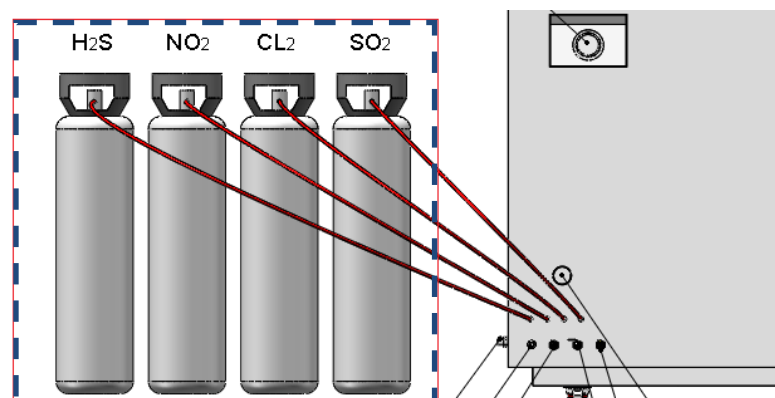
- PID programmable color touch screen controller;
- Ethernet for PC link, USB;
- Can edit 100 programs 20 segment;
- The set system language is English for standard;
- Control and display Temperature, Humidity, H₂S Gas concentration (ppb), NO₂ Gas concentration (ppb), Cl₂ Gas concentration (ppb), SO₂ Gas concentration (ppb).



3.2.6 Gas Inlet Port

- 4pc "Gas inlet port": So₂, H₂S, No₂, Cl₂
- Located at the back bottom of the chamber
- The diameters of the inlet port is 1/2 inch
- "Gas cylinder + Gas" is provided by the user
- The switch of the air inlet port is controlled by solenoid valve

The end-user prepare these 4 gas cylinder and gas.



3.2.7 Castor

- Install 4 castors for ease moving, and with brakes function;
- Caster height adjustable;



3.2.8 Insulation

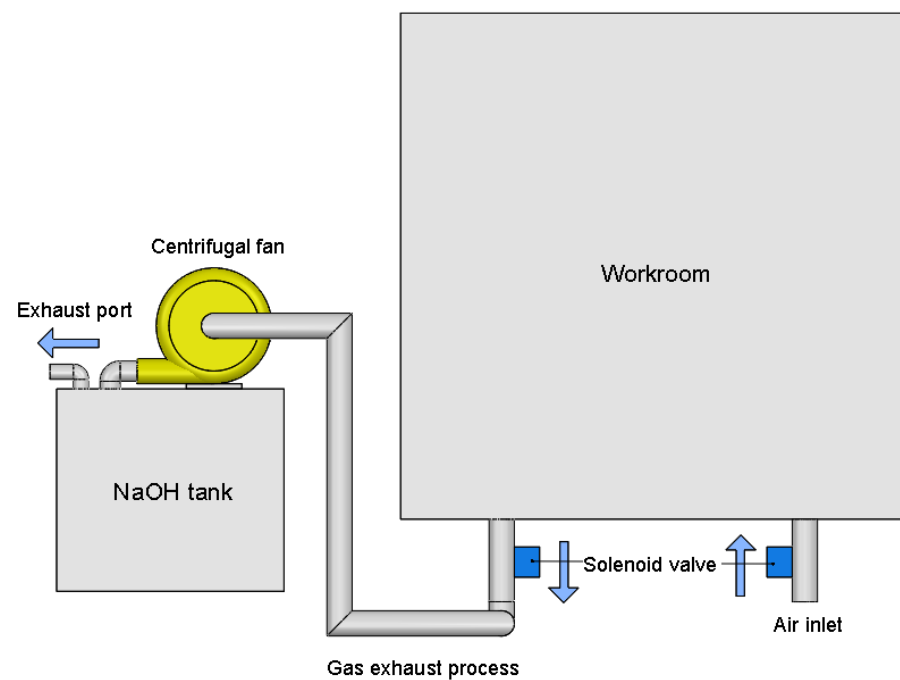
- 10cm thick polyurethane foam and insulation cotton;
- Better insulation performance, degradation resistance, environmental protection, noise reduction.

3.2.9 External Materials

- A3 steel plate with galvanized coating;
- Electrostatic treatment; High and low temperature corrosion resistance; High hardness, anti - impact;
- Very high safety factor;
- Color can be customized.

3.2.10 Exhaust Device

- The exhaust device is equipped with an NaOH solution tank to dilutes gas to make workplace clean and safe.
- Exhaust the gas after the test, automatic controlled on controller.



3.3 Core Function

3.3.1 Cooling System

After the liquid refrigerant absorbs the heat of the cooled object in the evaporator, it is vaporized into low-temperature and low-pressure steam, sucked by the compressor, compressed into high-pressure high-temperature steam, discharged into the condenser, and radiated to the cooling medium in the condenser, condensed into a high-pressure liquid, throttling through a throttle valve into a low-pressure low-temperature refrigerant, and again entering the evaporator to absorb heat and vaporize, to achieve the purpose of cycle refrigeration.

In this way, the refrigerant completes a refrigeration cycle through four basic processes of evaporation, compression, condensation, and throttling in the system.



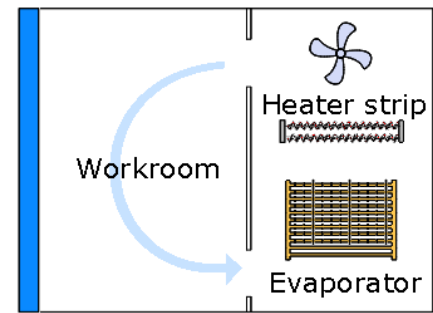
3.3.2 Humidity System

When the current humidity is less than the set point humidity, the equipment is automatically humidified. The humidification of is automatically heated by the humidification tank. When the water is heated, steam is generated, and then the steam is injected into the working room to increase the test humidity.



3.3.3 Air Circulation

The centrifugal fan is installed at the rear of the chamber body, and the air is uniformly distributed through the air outlet. Air circulation adopts air outlet at top and air return at bottom, and the wind speed and pressure are in compliance with the test standard, and the temperature is stabilized at the moment of switching. The high-quality centrifugal fan is used to strongly supply air circulation, making the temperature distribution in the test area uniform.



3.3.4 Temperature and Humidity Sensor

PT-100 Class A sensor, real-time accurate detection and display of temperature changes at 0.001 degrees.
A wet gauze and a real-time temperature, converted by temperature difference, showing real-time relative humidity.



3.3.5 Gas Sensor

Gas concentration detection transmitter
High accuracy, easy to exchange



3.3.6 Protection System

- Over Temperature Protection
- Water Shortage Protection
- Over Current Protection
- Earth Leakage Protection
- Phase Sequence Protection
- Humidifier Dry Combustion Protection
- Refrigerant High Pressure Protection

3. Accessory

The customer needs to prepare the following things by yourself in advance,

No	Item	Remark
1	H2S gas cylinder + So2 Gas	The customer can find a "H2S gas inlet port" at the back bottom of the chamber, please connect your H2S gas cylinder to this H2S gas inlet port by a hose.
2	NO2 gas cylinder + H2S Gas	The customer can find a "NO2 gas inlet port" at the back bottom of the chamber, please connect your NO2 gas cylinder to this NO2 gas inlet port by a hose.
3	CL2 gas cylinder + No2 Gas	The customer can find a "CL2 gas inlet port" at the back bottom of the chamber, please connect your CL2 gas cylinder to this CL2 gas inlet port by a hose.
4	SO2 gas cylinder + NH3 Gas	The customer can find a "SO2 gas inlet port" at the back bottom of the chamber, please connect your SO2 gas cylinder to this SO2 gas inlet port by a hose.
5	NaOH Solution	Please add NaOH solution into this chamber's NaoH tank before the testing.

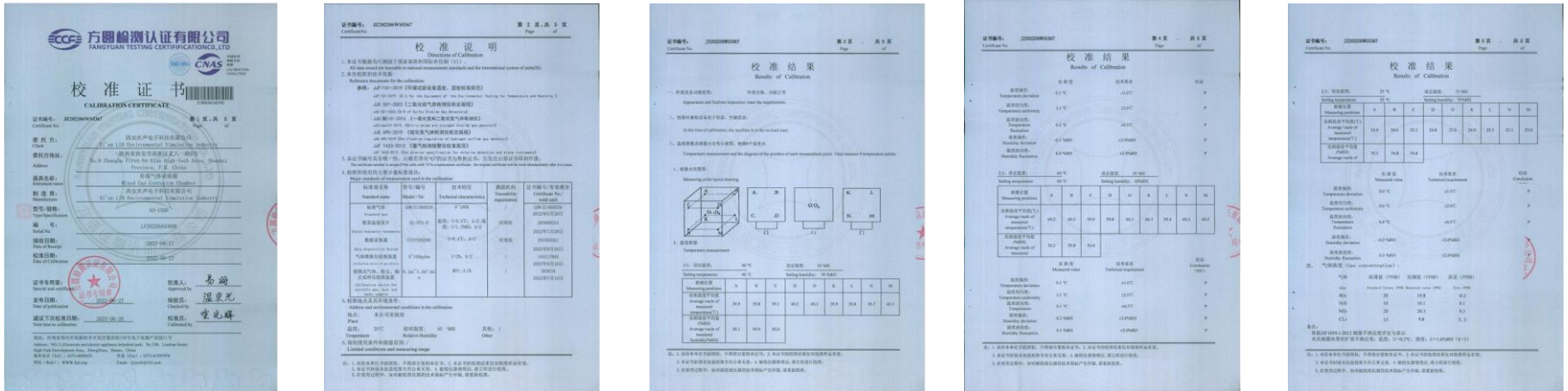
4. Calibration

Before delivery, LIB QC department will test and doing commissioning.

Also, we will invite the Third Party (ISO17025 Calibration lab) engineers to do calibration and issue "Calibration Report";

Calibration Items

- Workroom temperature
- Workroom humidity
- Workroom gas concentration(H₂S/NO₂/CL₂/SO₂ gas)



5. Packing

- First, Seal chamber with waterproof plastic film. Protect chamber from seawater corrosion.
- Second, buffer foam is placed in the four corners of the chamber. It is used for fixing equipment to prevent shaking and damaging chamber during transportation.
- Plywood: standard wood export packaging.
- The wooden box is fixed by sheet metal to prevent damage during transportation.



Appendix

Documentation attached with the packing:

- 1 set of machine;
- Warranty Card;
- Certificate of Qualification;
- Calibration Report, issued by LIB (manufacturer);
- Operation Manual;
- Circuit diagram

6. Shipping

❖ Material: Export standard wooden box

*Can be used for Sea, Air, Railway, Truck and Multi modal transport.



7. Installation

Before delivery, LIB team will finish all installation and commissioning works. When you receive, you can use it directly.

■ Environment Conditions

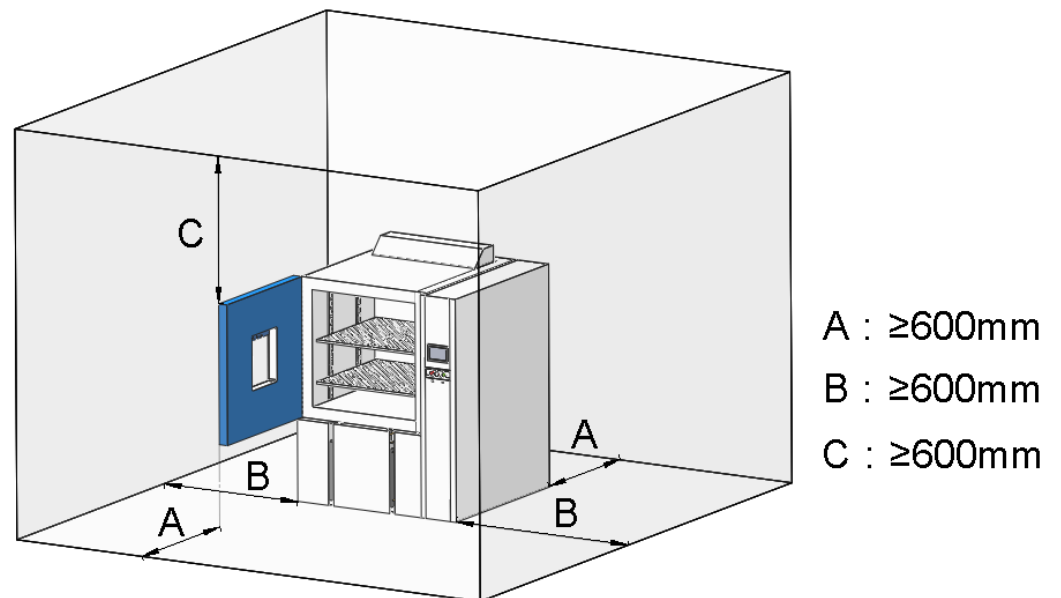
- Temperature: +5°C ~ +35°C
- Relative humidity: ≤85%;
- Pressure: 86 KPa—106 KPa

■ Safety Instruction

- Prohibited to test explosive, inflammable and high corrosive substance
- Chemical exposure to the equipment is prohibited
- Equipment must be safety on the ground to avoid electrostatic induction

■ Space Requirements

- Door: larger than width and height of the equipment, ensure the goods can into the room successfully
- Distance from the front: 600mm;
- Distance from the back: 600mm;
- Distance from the left: 600mm;
- Distance from the right: 600mm;
- Distance from the top: 600mm



8. Warranty & Service

3 Years Warranty, Lifelong Follow-up Services

■ Warranty Condition

Our company will repair the product, if the product, the material of the parts, the design and manufacturing of the products raised hardware problems caused by product itself rather than human error within three years warranty period since the date of dispatching by the customer.

Our company repairs the products, but will collect the basic costs of the spare parts after the warranty period, but labor costs is free always.

■ How to Service

1. At first, our test chambers are produced based on 20 years product lifetime. Normally once test chambers have problems, we judge the problems, and send spare parts to our customers, and teach them how to change new parts on by email or video, all spare parts and shipping cost (by DHL, TNT, and FedEx) paid by LIB.
2. If the customer needs our engineer on-site service, they only need pay the ticket accommodation to our Engineers, service is for free.
3. If products still can't use after our engineers repair, we will produce a new test chamber (same as the old one) to our customers with no charge.



PROVIDING TEST SOLUTION, PROVIDING TEST EQUIPMENT

Xi'an LIB Environmental Simulation Industry is a lead provider of environmental test chamber in China, with its own brand (LIB) design, production, sales and service since 2009. We continually update technology and develop new products for customer's needs.

Our main products included temperature and climate test chambers, corrosion chambers, weathering testers, IP dust and rain chambers, ozone test chamber, noxious gas SO2 H2S chamber, walk-in chambers. We provide test chamber, we provide test solution. Standard and customized products to meet different customer needs.

By 2018, global market has spread to 53 countries to USA, Canada, Mexico, Brazil, Peru, Russia, German, UK, France, Finland, Netherlands, Poland, Switzerland, Thailand, Philippines, Singapore, Malaysia, Australian, South Africa etc. and the market continues to expand.

At present 7 Tier-one agents around the world provide LIB products, installation and maintenance service for customers. Make things simple and convenient.

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LIB

LIB became a registered trademark of our company since 2017 year.

PARTNER



CE ROHS

