Programmable Salt Spray Cabinet

BGD 880/S

Operational Instruction

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Preface

Thank you for purchasing our product. Our company provides you not only with the good quality product, but also reliable after-sale service.

In order to guarantee the safety of operator and the integrity of instrument, please carefully read the Operational Instruction before using and pay attention to the notices. This Operational Instruction involves to the design principle, standard, structure, operational criterion, calibration, maintenance, troubleshooting and electric diagrams, etc. “Test regulations” or “Standards” in the instruction above are only for reference. If any objection, please check relative standards or data.

Special statements:

- This instruction shall not be used as the basis for claiming to our company
- Our company shall reserve the right for the interpretation on this instruction

Content

Ⅰ. Specification

1. model: BGD 880/S
2. temperature range in test room: RT～50℃
3. temperature range in pressure barrel: RT～63℃
4. temperature deviation: ±1℃(need measure it 30mins later after temperature sensor sensing stable)
5. temperature distribution uniformity: ≤2℃;(measured at the distance is 1/6 of wall site from the test area, and need to do it after temperature stable for 30mins)
6. heating time: room temperature to 50℃,within 60 mins (under no load condition)
7. internal dimension: 600×400×450mm (W×H×D)
8. test liquid tank max capacity:15L

   Note: the capacity of specimen should not more than 2/3 of test area
9. power supply configuration: the power of the machine AC 220V 50HZ 2.2KW,max current 10A, power wire length is 2.5 meter 3*2.5mm2 cable (R,N with grounding wire)

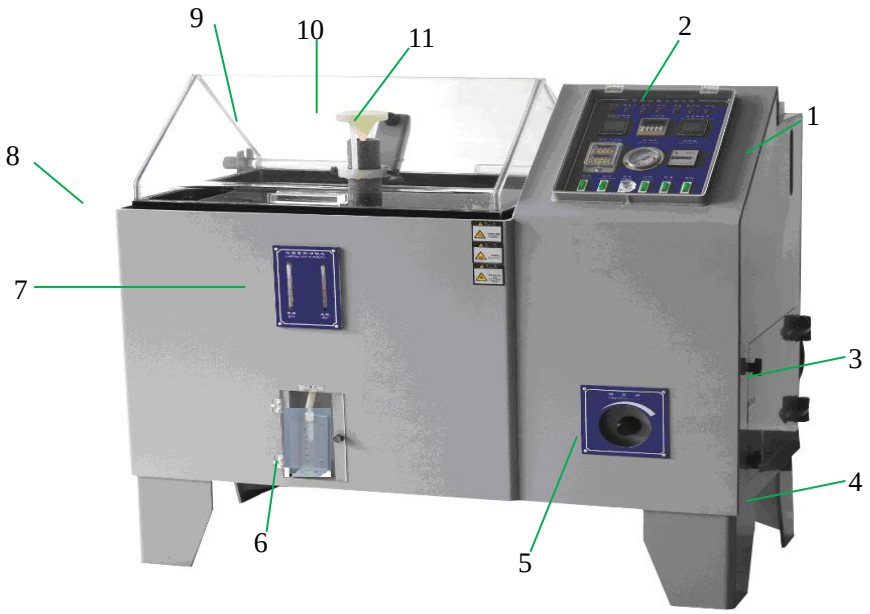
Ⅱ.Test standard and condition

1. GB/T2423.17-2008/IEC 60068-2-11-1981 salt spray test method
2. ASTM.B117-2009 salt spray test
3. JIS H8502 salt fog spray test method
4. GB/T10125-2012/ISO 9227-2006 salt fog spray test method
5. GB-T5170.8-2008 salt spray test equipment
6. GB-T5170.11-2008 corrosion air test equipment measurement method
7. GB-T10587-2006 salt spray chamber test condition
8. GBT 20121-2006 / ISO11474-1998 corrosion of metals and alloys artificial atmosphere corrosion test interval salt spray outdoor accelerated test-scab test

III. About instrument

1. Instrument structure (picture 1)

(1). Front structure of the machine



Picture 1

1.test liquid water level observation hole

2.control panel: see as picture 4 instruction

3.inlet of the control cabinet: if renewal part, pls open this door

4.supporting leg of the test chamber

5.adjusting valve: adjust the required pressure test 1.00±0.01kgf/cm^2

6.measuring barrel: collect the spraying volume in laboratory

7.contrast for temperature and humidity: left: dry bulb meter; right: wet bulb meter

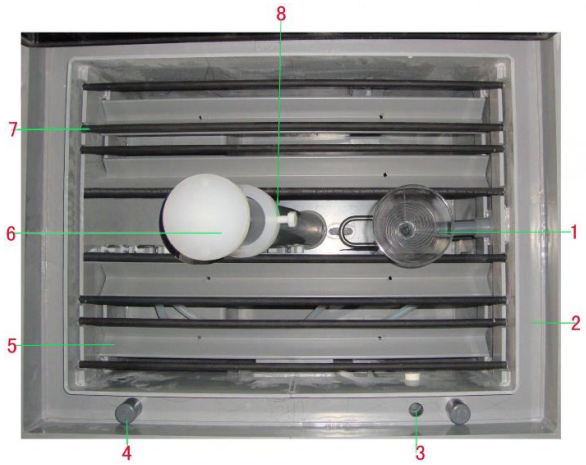
8.seal slot: avoid the leakage of salt per water seal principle.

9.seal cover of test chamber: roof-style perspective cover with bevel of 100℃, used for covering the above of laboratory and the combination

10.spray tower

11.seat back of the test box cover

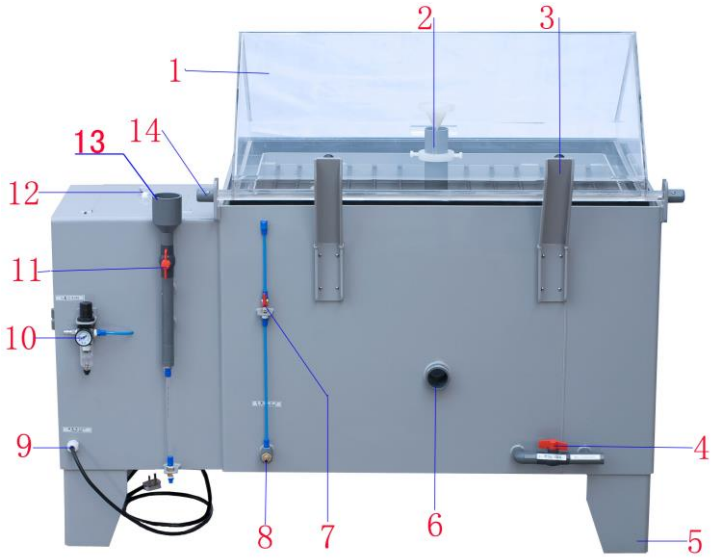
(2). Interior structure of laboratory: (Picture 2)



Picture 2

1. collector: the spraying of the volume pour into the funnel cup naturally, and then pour it through the measuring cylinder
2. the seal water channel of the lab, used to connect the test case cover and the test chamber
3. the seal sink drain is pluged by glue when it works well, if you want to pour the water off, just take the glue out
4. the supporting leg of the seal cover to supporting the cover of the chamber
5. the test v-trough of the sample, used to hold small test sample or adjusting the angle of the sample
6. spraying tower: the glass spraying nozzle lays in the internal of the tower, the spraying fog through the tower tube and then distribute from the tapered distributor
7. Sample placed bar, used for hang small parts or coordinate with V type channel to adjust the angle of sample
8. fog volume adjustment controller: adjust the volume of the spraying fog, the volume increased when adjust up, reduce when down

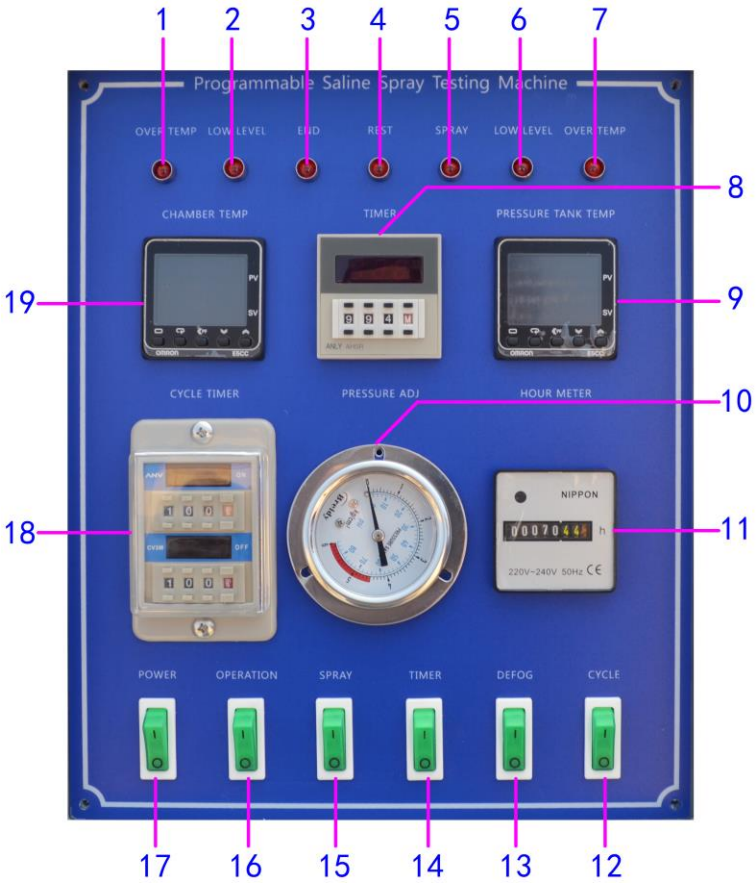
(3). Backside structure: (Picture 3)



Picture 3

1. test chamber cover
2. spray tower
3. backrest of test chamber cover
4. waterspout:exhaust waste water out of the chamber
5. support leg of test chamber
6. exhaust port:pull off the overfog in the chamber
7. valve switch:when the water level is not enough,open the switch;close it when enough;
8. automatical filler:automatically add the water when the water is not enough
9. power entrance
10. air inlet port:connect the air compressor pipe
11. pressure bucket:manual water adding valve,open this switch when adding water manually
12. test liquid water inlet
13. manual water adding port of pressure bucket,pull the water from this port when add water manually
14. seal cover spindle of test chamber

2. Controller panel：（see picture 4）



Picture 4

1. Over temperature indicator light in chamber:light on when over temperature
2. Water level indicator light:example:light on when the chamber water level is not enough
3. off-test indicator light:light on when test off
4. static indicator light:light on when static test in doing procedure
5. spray fog indicator light:light on when spraying fog
6. low water level indicator light of pressure barrel:light on when there is not enough water in pressure barrel
7. Over temperature indicator light of pressure barrel:light on when over temperature in pressure barrel
8. timer:control the total test time
9. temperature controller of pressure barrel:control the temperature of the pressure barrel
10. Pressure Gauge: The pressure shown on the pointer of this gauge is the pressure reached when the air is warmed by a saturated air barrel and delivered through the nozzle.
11. time caculator:add up test time
12. programmable timer switch:turn on it,the spraying method will run as the programmable timer set
13. defog switch:turn on it,the chamber fog will force discharge out
14. timing switch:turn on it,timer start record time
15. spray fog switch:turn on it,start spraying fog test
16. operation switch:turn on it,the instrument power on,display related parameter
17. power switch:turn on it,the machine power on and starts working
18. programmable timer:OFF is spray fog time;ON is static time
19. temperature controller of test chamber:control the temperature of the chamber

Ⅳ. Installation site

The installation site should take heat dissipation efficiency and easy examination & maintenance of the machine into consideration

1. keep the distance between the machine and wall or any other machines at least is 60cm
2. place it at the flat without vibration ground(pls use gradienter to check)
3. the around temperature should keep in 10℃~30℃, 70±10%RH,under this two conditions, the machine can get the best and most stable working
4. keep the machine away from the heat source and inflammable or explosive material
5. don't let the machine get the sunshine directly, and keep the ventilation of the room
6. don't place the machine at the dirty with much dust site
7. keep the electric line and drain line as short as possible
8. the exhaust pipe can't be bent or turned up convex-concave situation in case of hydrops effects normal fog
9. the machine should be put as much as possible together with the metal material of other corrosive material at the same site in case of corrode other products
10. the machine should be placed as near as possible to the wall for which will be convenient for processing drain water or defog.

Ⅴ.Equipment requirement

This part should be responsible for it and be ready for it before use the machine

1. pay attention to: make sure the performance of frequency variation range of fluctuation: voltage AC 220V±5%V
2. mix test liquid and water : must use pure water or distilled water(the first reserve level should more than 20L) or electric conductivity more than 10us/cm water quality
3. test room and pressure barrel heating water adding,(if automatically add water, need install a faucet near the machine and make sure the water pressure ≥2kgf/cm2 , if adding water manually, can fetch the water

Note: the heating water of lab should use neutral, don't use or equip acidity or alkalinity in case of effecting the test result

4. use gas of spraying test, connect the ≥2kgf/cm2 of compressed air source with the compressed inlet of the Machine install the drain water hole and row fog hole near the installation site of the machine at the distance is 5 cm from the ground on the wall, and the hole should be led to outside.

Ⅵ.Installation matters

1. unpack the packaging after the machine reached on the installation site, check with the machine and parts are good without damaged or leakage ,after confirmed everything is fine, then rotary the machine and fix its foot pad, positioning the machine into stability, (if the ground is not flat, pls use spirit level to adjust the foot pad to let it flat). Connecting with the power according to the requirement of the machine's , power distribution as following method and pay attention to the power capacity. Don't let many machines use one power source in case of decreasing pressure which will effect the performance of the machine, even cause disorderly close-down;
2. if you connect with the grounding wire on the water pipe, then water pipe must be grounding metal pipe;
3. don't connect with the grounding wire on the oil or gas pipe;
4. in convenience of the examination and maintenance, the earth leakage circuit-breaker should be installed on the wall near the machine. Power distribution wire ≥4mm2 , grounding resistance ≤4 ohm;
5. close drainage valve of the machine;
6. install the row fog pipe in the outlet of machine exhaust fog, the pipe must be connected to outside, and can't be bent or be made into convex-concave shape;
7. connect the automatical water inlet with water source;
8. pour some suitable water into the seal water channel(this water level need total cover the sealed cover, in case of air leakage)
9. open the test chamber, check the bottom of spray tower is cleaned and the stopper is sealed well;
10. pour the mixed test liquid into liquid inlet, and full about to 9/10 of liquid tank;
11. supplement of test liquid, when water level is too low, need to supply the test liquid in case of affect test result;

Ⅶ.Cautions before use

1. confirm power and grounding wire(the power line is based on the specification and well installed,also connected with grounding wire well)
2. confirm the chamber overtemperature protection switch is set at 70℃,it is the safeguard construction range of this machine
3. confirm the pressure barrel overtemperature switch is set at 80℃;
4. confirmation of water supply: if add water manually, pay attention to the water capacity in chamber and pressure barrel(add water based on the leakage water indicator light until the light turns off);if add water manually need confirm the supplied water pressure ≥2kgf/cm2 ,keep the water valve in

open situation, it will add water automatically after the power is turned on;

5. confirmation of test liquid capacity: make sure the test liquid tank is enough salt water;
6. confirmation of exhaust water pipe, make sure the pipe is well connected;
7. confirmation of row fog tube, make sure the tube is well connected and unobstructed without blocking phenomenon;

Ⅷ.Operation steps

1. after checked the power line is fine, turn on the main power switch
2. turn on the operation switch, controller starts working, set the needed temperature on the controller (details in operation see as the temperature controller instruction)

Note: The switch is turned on only under the condition of all water leakage indicator light turns off.

3. set the needed spraying fog time(details in operation see the timer operation instruction)
4. turn on spraying fog switch
5. turn on the timer switch(if spraying fog do not need record time, it is not need to be turned on)
6. if need to observe the condition of the specimen during test, turn on the defog switch, when the window fog diffuses, then can see the specimen condition through the window, don’t open the sealed cover of thechamber directly

   Note: When the defog switch is turned on, the spraying fog will stop automatically

Ⅸ.Temperature controller operation instruction

1. click △/▽ key increase/decrease temperature value to the needed temperature, the controller will confirm the set value automatically

   Note: If do NSS salt spray test, the test chamber temperature should be 35℃, pressure barrel temperature 47℃,if do acid test, test room temperature set as 50℃,pressure barrel temperature is 63℃

2. when display temperature fluctuation is not stable, up or down, cli◯ ,controller shows out AT OFF, at this time, click △,OFF turns to ON, controller will get in the condition of self-adjustment, don’t turn off the power. The machine runs about 10 mins, the temperature will be stable.
3. when the measured temperature is not consistent with displayed temp. , click ◯ , controller shows AT OFF ,at this time, cli◎ to switchover, controller displays CN5, and then click △/▽,adjust the measured deviation value, then will be fine.

Ⅹ.Timer operation instruction

1.adjust the last (red)up and down key, select the needed timing unit(H. hour M. minute S. second)

2.adjust number up& down key to set the record time(max 999 hours, min 1 second)

Note: set it before the timer connected with power

Ⅺ.Caution during use

1. don’t open the test chamber cover during the test(in case the temperature change so much in chamber and the output heat is too high which will lead to over temperature alarming or the fog spraying out of the chamber to room corrode the around equipment),if need to observe the product test condition turn on the defog switch, about 1 minute, the fog drops off the window, then can see the specimen test condition
2. after the test is finished, if it will not do the test for a long time or the ambient temperature is below 0℃, pls drain off the water in the test lab and pressure barrel, in case of affect metamorphism of the water and frozen in the chamber to effect next test;
3. the heating water in the test lab and pressure barrel must be kept in neutral, don’t content potential of hydrogen in case of affect the test result, the water which will be mixed up sodium chloride must be distilled water or ionized water, don’t use underground water or tap water
4. test compressed air should be dry air, if found that the air contents much water, should exhaust the water out of the air timely, in case of the water effects the test result
5. the row fog tube connected with the machine should be unblocked, can’t be bent or be made in convex-concave sharp, in case of the moisture in fog will condensed normal exhaust when doing defog test, thus leading to can’t do test result
6. the machine should keep clean at any time
7. it is must clear about the controller instruction and related instruction before operate this machine.

Ⅻ.Troubleshooting

Troubles	Reasons	Solutions
Lab temp. can not reach the set temp.	1. Temp. of temperature controller in lab is set too low. 2. Safety switch in lab is set too low. 3. Trouble with heating system, electromagnetic contact or controller.	1. Set temperature controller to required temp. 2. Set safety switch to required temperature. 3. Ask maintaining people to check or contact with our company.
Saturated barrel temp. can not reach the set temperature.	1. Temperature of saturated barrel is set too low. 2. Safety switch of saturated barrel is set too low. 3. Trouble with heating system, electromagnetic contact or controller.	1. Set temperature controller to required temp. 2. Set safety switch to required temperature. 3. Ask maintaining people to check or contact with our company.
Spray volume is not enough.	1. Spray adjuster is placed too low. 2. Block with glass filter inside preheating slot. 3. Pressure is set too low.	1. Adjust the spray adjuster higher. 2. Clean the glass filter. 3. Adjust the pressure valve to 1kg/cm^2 or adjust the decompressing valve to 2kg/cm^2.
Can not spray	1. Air compressor can not run. 2.Not enough pressure 3. Trouble with electromagnetic valve. 4. Trouble with pressure meter. 5. Trouble with electromagnetic contact. 6. Nozzle blocks.	1. Turn on Air compressor key. 2. Adjust the pressure control valve to 0.1mpa. 3. Notify our company. 4. Notify our company. 5. Notify our company. 6. Take out the nozzle and clean it.
Suddenly power off during the test.	1.Power supply often breaks 2.Reach the set time of timer	1. Check power supply. 2. Restart timing switch.
Alarm lamp is on when not low water level.	1. Low water level.	1. Check the water source in inlet.
Has normal spray but the air compressor can not run.	Self-protection with air compressor.	Use as normal.
Over temperature indicator is on	1. Alarm device for safety temperature controller. 2. Too low set temperature. 3. The over temperature indicator is on constantly.	1. Wrong setup. 2. Reset. 3. Notify our company.
Temperature controller displays. EEE	1. Trouble with temperature controller. 2. Trouble with sensor rod.	1. Notify our company. 2. Notify our company.
Can not run after power on	1. Cut off the operating power if too low water level in heating water slot.	1. Adjust the water level in heating water slot to normal status.
Too high spray volume.	1. Spray adjuster is placed too high. 2. Diameter of glass nozzle is too large after long-time using.	1.Adjust the spray adjuster lower. 2.Replace new glass nozzle.

XIII. Scheduled maintenance& clean matters

1. Change the water in heating water slot if testing time is over one month.
2. Do not use the testing salt solution idle for over one week, to avoid affecting the testing quality.
3. If the testing time is over 720 hours, discharge the seeper in air compressor.
4. If testing time is over 500 hours, please replace the oil inside air compressor.

   Do not open air compressor when replacing the oil.
5. If too long time for next test, please clear the inside of lab after the test and discharge the water in heating slot.

   Discharge water in heating slot—pull out the rubber stopper in the bottom

   Discharge water in isolation water slot—pull out the rubber stopper in the middle

   Discharge water in preheating water slot—pull out the rubber stopper inside
6. Keep machine clean; clear the machine with cotton before and after the test each time.