

# Salt Spray Cabinet; 270L ; 2 Collectors

## BGD 881-S

### Product Description

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BGD 881-S Salt spray cabinet with working room capacity of 270 liters.

Maximum sample capacity (15cm x 7cm) of 70 pcs.

The salt spray test is a standardized test method used to check corrosion resistance of coated samples. Coatings provide corrosion resistance to metallic parts such as steel, zamak or brass. Since coatings can provide a high corrosion resistance through the intended life of the part in use, it is necessary to check corrosion resistance by other means. Salt spray test is an accelerated corrosion test that produces a corrosive attack to the coated samples in order to predict its suitability in use as a protective finish. The appearance of corrosion products (oxides) is evaluated after a period of time. Test duration depends on the corrosion resistance of the coating; the more corrosion resistant the coating is, the longer the period in testing without showing signs of corrosion.



### Standards

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ISO 4611, ISO 7253, ISO 9227, ASTM B117, ASTM B368, ASTM B380, ASTM G85-11, ASTM D 1735, DIN 50021

### Technical Specification

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Salt spray testing is popular because it is cheap, quick, well standardized and reasonably repeatable. There is, however, only a weak correlation between the duration in salt spray test and the expected life of a coating (especially on hot dip galvanized steel where drying cycles are important for durability), since corrosion is a very complicated process and can be influenced by many external factors. Nevertheless, salt spray test is widely used in the industrial sector for the evaluation of corrosion resistance of finished surfaces or parts.

The apparatus for testing consists of a closed testing chamber, where a salted solution (mainly, a solution of 5% sodium chloride) is atomized by means of a nozzle. This produces a corrosive environment of dense saline fog in the chamber so that parts exposed in it are subjected to severely corrosive conditions.

Tests performed with a standardized 5% solution of NaCl are known as NSS (neutral salt spray). Results are represented generally as testing hours in NSS without appearance of corrosion products (e.g. 720 h in NSS according to ISO 9227). Other solutions are acetic acid (ASS test) and acetic acid with copper chloride (CASS test), each one chosen for the evaluation of decorative coatings, such as electroplated copper-nickel-chromium, electroplated copper-nickel or anodized

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aluminium.

Some sources do not recommend to use ASS or CASS test cabinets interchangeably for NSS tests, as it is claimed that a thorough cleaning of the cabinet after ASS or CASS test is very difficult. ASTM does not address this issue, but ISO 9227 does not recommend it and if it is to be done, advocates a thorough cleaning.

We offer various Salt Spray Cabinets from 108L capacity to customized cabinets according to different requirements. All of cabinets not only can run NSS test but also CASS or ASS test.

#### **Chamber Structure**

- Cabinets are made of imported 5mm PVC ploy plate (Nanya, Taiwan), max.durable temperature is 85 °C.
- Cabinet sealing cover is made of European 6mm acrylic sheets
- Salt solution reservoir equipped with water level is designed in the chamber: easy to clean-
- Humidifying tower is made of SUS 304#, high pressure endurable and good thermal insulation effect.
- Specimen supports designed specially to ensure a adjustable position angle for each specimen in order to get a uniform fog and a high specimen capacity.
- Uses water to seal working room, ensures leakage-free corrosion fog
- Electric system is separated from water system, which will avoid water to enter in the electric control box in order to limit damage to accessories
- There is a hole used to drain off fog at the back and bottom of chamber, its diameter is 48mm, just used other pipe to connect this hole to drain off the fog from the working room

Chamber Sealing Cover: V-shaped , and the top angle is 100 ° to prevent condensate water during the test from dropping onto specimen surfaces which could negatively affect testing results.

Atomizing Tower: In order to ensure the working room to get uniform fog while spraying, this chamber uses a special structure glass nozzle to atomize salt solution absolutely, then fog enter a subuliform tower installed in the working room, and spray uniformly in the working room. The installation height of atomizing tower can be adjusted to control spray fog amount precisely.

Fog Collector: Fog collectors are tapered funnels whose diameter are 100mm and installed in the working room. At the bottom of the funnel, there is a silicone pipe which connect with graduated cylinder installed outside. These graduated cylinders are used to monitor spray fog amount

Heating System: In the working room, a heating tube is installed which is made of titanium alloy. Water vapour will heat the working room under the control of a so-called "P.I.D' (proportional integral derivative controller)

Salt Solution Supply: The salt solution prepared will be stored in a salt solution reservoir, and flow into a supplying container under the water level difference. This supplying container is equipped with an automatic water leveling device which will automatically control the maximum water level to keep a certain distance with spray nozzels.

Humidifying Tower: Made of SUS304# stainless steel, and its temperature can be set from RT~63 °C and the heat up time is 60 minutes. It can add water automatically. The water level is monitored and it will initiate an alarm once the water level will exceed a pre-set level.

Heater: Armoured titanium alloy electric heating tube (located at the bottom of the working room). Armoured SUS316# electric heating tube (Humidifying tower). Heating controlling method: SSR

#### **Fog Spray System**

Spray Fog Principle: Uses Bernoulli's principle to absorb salt solution and will then atomize it. Consists of: Air Compressor

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/ Oil-water Separator(first) / Air Storage Tank / Relief Valve / Total Solenoid Valve / Oil-water Separator(second) / Saturator / Pressure Regulating Valve / Solenoid Valve for spraying / Spray Nozzle

Spray Nozzle: Made of special glass, can control fog amount and spraying angle

Spray Pressure: Spray pressure can be adjusted from 0.07MPa to 0.17 MPa in order to make sure the spray pressure generated from spray nozzle to be within the range of standard requirements, it is divided into two steps, adjust air pressure to 0.2MPa to 0.3 MPa as the first step, then adjust to 0.07MPa to 0.17 MPa under the second step

Drain away Fog: Can manually drain away fog or it can be set a program. Feeds fresh compressed air to the working room, and will quickly drain away the fog of the working room

### **Electronic Control System**

Controller: E5CC digital display temperature controller imported from Omron, Japan. control working room and humidifying tower temperature

Controller Working Method: Works at a fixed value, starting and stopping is by timer

Controller Setting Method: English menu, input data by key

Display Resolution: Temperature: 0.1 °C

Timer: Digital display , can set seconds, minutes, 10 minutes, hour, 10 hours max.is 9,999 hours, min.is 1 second

Programme Controller: Digital display , spray time and interval time can be set freely, and infinite cycle. Timing units: seconds, minutes, 10 minutes, hours, 10 hours(switch freely) max.is 9,999 hours, min.is 1 second.

### **Safety Protection Devices**

Cabinet: Over-temperature protection, water leakage protection

Humidifying Tower: Over-temperature protection, water leakage protection

Heating System: Anti-dry safety protection: all heaters of the cabinet are fitted with a temperature limit protection, which can effectively solve the problem of overheating , heating tube dried , abnormal water supply, short circuit and overload etc.

Water Supply: Waterlevel protector for working room, low-waterlevel-protector for humidifying tower

Power: Earth leakage protection, overload and short-circuit protection

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#### Main Technical Parameters

##### Temperatures

- Working Room Temperature Range: RT~50 °C
- Humidifying Tower Temperature Range: RT~63 °C
- Temperature Uniformity: =  $\pm 2$  °C (No-load)
- Temperature Stability: =  $\pm 0.5$  °C (No-load)
- Temperature Deviation of Working Room:  $\pm 1.0$  °C
- Temperature Increasing Rate: RT upto 55 °C: less than 60 minutes (working room); RT upto 63°C less than 60 minutes (saturated barrel)

| Model   | BGD 880/S          | <b>BGD 881/S</b>        | BGD 882/S          | BGD 883/S          |
|---|--------------------|-------------------------|--------------------|--------------------|
| Working Room Size (WxHxD) mm                    | 1150x1090x672      | <b>1450x2300x842</b>    | 2080x1285x1240     | 2480x1520x1450     |
| Working Room Capacity (excluding V shape cover) | 108L               | <b>270L</b>             | 480L               | 800L               |
| Overall Size (WxDxH) mm                         | 600x400x450        | <b>900x500x600</b>      | 1200x500x800       | 1600x500x1000      |
| Quantity of V shape sample holder/pole          | 4/6                | <b>6/12</b>             | 8/16               | 10/11              |
| Tank capacity for salt solution                 | 15                 | <b>25</b>               | 40                 | 45                 |
| Collectors                                      | 1                  | <b>2</b>                | 2                  | 2                  |
| Max. sample capacity (15cm x 7 cm)              | 28 pcs             | <b>70 pcs</b>           | 108 pcs            | 120 pcs            |
| Method of opening cover                         | Manual             | <b>Manual</b>           | Pneumatic          | Pneumatic          |
| Total Power                                     | 2.2 kW             | <b>2.2 kW</b>           | 3.8 kW             | 3.8 kW             |
| Salt solution consumption                       | 15 L/day           | <b>15 L/day</b>         | 25 L/day           | 25 L/day           |
| Water for heating consumption                   | 30 L/day           | <b>30 L/day</b>         | 40 L/day           | 40 L/day           |
| Compressed Air Consumption                      | 1m <sup>3</sup> /h | <b>1m<sup>3</sup>/h</b> | 2m <sup>3</sup> /h | 2m <sup>3</sup> /h |
| Power Supply                                    | 220V; 50/60Hz      |                         |                    |                    |

#### Accessoires

- BGD 1285 - ISO Scratching Tool
- BGD 2309 - CR-4 Steel Panels for Calibration

#### Disclaimer

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