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# CORROSIONBOX H

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Horizontal test chambers  
with clear cover for salt  
spray, condensation tests  
and cyclic corrosion tests.

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Available in 4 models: 600 and  
1000 litres, basic and enhanced.

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Customers often ask not only for a corrosion test chamber, but for a chamber suitable to their requirements.

For this reason CO.FO.ME.GRA. is now introducing a new line of horizontal chambers which, together with vertical Corrosionbox models, represents a wide and complete range of solutions for customer needs.

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## Corrosionbox improves comparison with outdoor results

Worldwide, materials used by manufacturing industry are exposed to natural or industrial corrosion in shape of salt fog, humidity, smoke and vehicle exhaust. Laboratory corrosion tests are used extensively for selection of materials and their surface protection. Corrosionbox chambers are what you need to predict corrosion resistance of materials such as paints and coatings.



## National and international Standards

In order to generate reliable and comparable results, a large number of test methods and international standards have been developed and are relied upon as reference for test execution.

Most popular tests:

Salt spray tests	Condensation tests	Cyclic corrosion tests (some options required)
DIN 50021 (SS, ASS, CASS) DIN 53167 ASTM B 117 DEF 1053 M24 ECCA T8 ISO 9227 (AASS, ASS, CASS)	DIN 50017 DIN 55991 ASTM D 2247 ISO 3231	ASTM G85 98 annex 4 ASTM G85 98 annex 5 UNI 9399 UNI 9590

## Salt spray test

A corrosive solution is turned into a vapour mist through a nozzle located in the centre of the chamber. A fog diffusing tower distributes the fog over the entire test zone. The compressed air required for fog production is heated and saturated with moisture in a pressurized humidifier before it reaches the nozzle.

One or more heating elements, depending on chamber capacity, ensure uniform temperature in the test chamber. Exhaust solution collected in the bottom of test chamber is drained away through a drain to the floor.

Salt spray test can be executed with all chamber models.

## Condensation water test

Test chamber bottom is filled with demineralised water. Water is heated and evaporates condensing on the surface of samples. Chamber temperature is 40 °C.

Continuous condensation test can be executed with all chamber models.

## Cyclic corrosion test

A large number of cyclic corrosion tests are made possible by combining salt spray environment with condensation humidity and air drying . Cyclic corrosion testing has become increasingly necessary in recent years. Dry Corrosion is one of the most popular cyclic tests alternating salt spray and air drying.

Cyclic tests can be executed with all enhanced model chambers. Depending on cycle-type some options have to be installed during chamber manufacturing.



## Chamber Design



Chamber structure is overall 10mm thick Polypropylene. Option in PPS plastics to meet CSA flam test. Test chamber is insulated with a double wall. Access to the test chamber is made via the pivoting cover.

Control panel and all necessary control devices are on the right side in ergonomic position. The Salt solution storage tank is on the left side.

The electrical board is completely enclosed in a dedicated zone: next to it we find the electro-valves, humidifier and salt solution dosing pump zone. Each part is of easy access for simple and fast maintenance.



## Basic model



Absolutely easy to use. The first step for test execution is to load timer with total test time (up to 9999 hours), second is to set test chamber temperature on the controller, then press Salt spray or Condensation push-button. During the whole time of the test, the timer counts down and its display will indicate decreasing time running to test end. To inspect samples, suspend test execution pressing Salt spray or Condensation push-button, then press ventilation push-button to drain test chamber before opening it.

To resume test execution simply press Salt spray or Condensation push-button again. When timer reaches zero test execution is finished.

## Enhanced model



Free programming, up to 15 different test programs, inputs via keyboard with soft keys and easy to use structure of the Menu. Test status is continuously displayed on the large LCD display with 4 lines of 20 characters each. Control and monitoring of test chamber and humidifier temperature, monitoring of nozzle air pressure and dosing pump RPH. Self-diagnostic including warning messages, alarm messages and safety shut down. Complete test report: chamber and humidifier temperature, nozzle air pressure and dosing pump RPH are periodically measured and stored in the controller memory together with test interruptions or alarms. By simply pressing a key a complete report of the test is printed. RS232-C interface is provided for serial printer connection.

## Cyclic test options

Enhanced model control panel allows easy programming of cyclic test combining: Salt spray, Water condensation, Dry off and Ambient condition. To perform cycling the test chamber must be completed with the following optional parts:

**Option for Dry Corrosion, Scab Corrosion cycle.** An air heater is installed to heat purging air before introducing it in the test chamber and a Titanium panel on the bottom of test chamber turns a flooded bottom into a dry bottom. Only a dry chamber bottom allows fast drying of the samples.

**Option for ASTM G85-98 annex 5 Prohesion.** In addition to parts installed for dry corrosion a bypass is installed on the humidifier to meet standard requirements with respect to fog production.

**Option for ASTM G85-98 annex 4 salt/SO<sub>2</sub> spray testing.** An external SO<sub>2</sub> dosing system is supplied and a gas diffusing device is installed in the test chamber.

Features / Models	basic	enhanced
Strong structure overall 10mm thick polypropylene construction with built-in salt solution reservoir.	yes	yes
Clear cover for easy viewing of test chamber, cover is peaked to prevent dripping on samples.	yes	yes
Access to test chamber with pivoting cover with water seal.	yes	yes
Complete Spray nozzle made in plastic material, suitable for ISO 9227 AASS and CASS tests.	yes	yes
Fog diffuser in the centre of the test chamber allows fog uniformity.	yes	yes
Humidifying tower with automatic water level restoring system and temperature-controlled water heater.	yes	yes
Peristaltic pump for salt solution dosage.	yes	yes
Ergonomic control panel.	yes	yes
Pressure regulator for control of nozzle air pressure.	yes	yes
Pressure gauge for display of nozzle air pressure.	yes	no
Digital temperature controller of test chamber temperature.	yes	no
Timer to set test duration, programmable up to 9999 hours, with stopping of all functions at test end.	yes	no
Pilot lamp to signal lack of salt solution.	yes	no
Microprocessor control panel. Test status continuously displayed on a large LCD with 4 lines display for test parameters and program menu.	no	yes
Free programming, up to 15 different test programs, input via keyboard with soft keys and tactile feedback.	no	yes
Self-diagnostic, routine service reminders including warning messages and safety shut down.	no	yes
Complete test report: chamber test temperature, humidifier temperature, air nozzle pressure, dosing pump RPH are periodically measured and saved in the controller memory, and by simply pressing a key you can print a complete report of the test.	no	yes
Data transfer via RS232-C serial interface.	no	yes
Air and water filter to be installed on supply lines.	yes	yes
4 bars and 3 standard specimen holders supplied.	yes	yes

Technical data / Models	600l basic / enhanced	1000l basic / enhanced
<b>Physical dimensions</b>		
Overall dimensions (mm)	2010 x 760 x 1400 (W x D x H)	2400 x 1000 x 1365 (W x D x H)
Test chamber internal dimensions (without dome area) (mm)	1300 x 650 x 710 (W x D x H)	1690 x 890 x 700 (W x D x H)
Test chamber volume (without dome area) (litres)	600	1050
Weight (Kg)	300	400
Salt solution reservoir capacity (litres)	130	160
<b>Electrical supply</b>		
Type of connection	1/N/PE	
Voltage (V)	230 +- 10 % 50 Hz	
Current consumption (A)	9	12
<b>Water supply for humidifier</b>		
Type of water	demineralized	
Water pressure (bar)	2-4	
Water consumption (approximate) (litres/day)	3	
<b>Air supply</b>		
Type of air	Filtered, oil free	
Air pressure (bar)	4-6	
Air consumption (approximate) (Nm <sup>3</sup> /h)	5-8	
<b>Temperature range</b>		
Test chamber temperature range (°C)	Ambient to 50	
Humidifier temperature range (°C)	Ambient to 70	
<b>Supplied accessories</b>		
Rods	4	6
Test panel racks	3	4
Air filter and pipe (4 m)	yes	yes
Water filter and pipe (4 m)	yes	yes

## Other products



Corrosionbox 400 I



Corrosionbox 1000 I



Solarbox 3000 e



SolarboxRH 3000

We reserve the right to make changes to equipment and systems in response to advances in technology and modify parameter values accordingly.

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