

Cyclic Corrosion Test – CORR Series

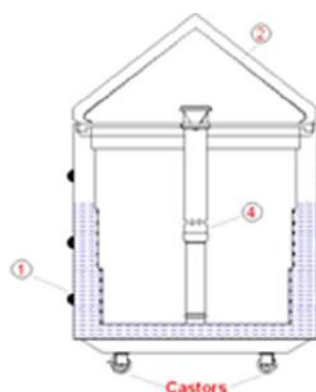


CCT 1300 CORR image merely illustrative

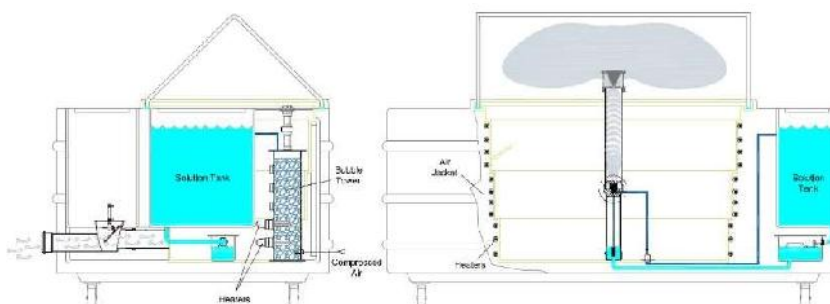
Specifications/Model	CCT 1300 CORR	CCT 3000 CORR	CCT 5000 CORR
Allows programming cycles with 8 different modes	- Mode: SALT SPRAY / SALT FOG - Mode: WATER CONDENSATION HUMIDITY – 100% R.H - Mode: NATURAL DRY - Mode: DRY OFF - Mode: DRY OFF CTH - Mode: SPRAY / STRESS* - Mode: CLIMATIZATION* - Mode: LOW TEMPERATURE* * Optional modes - Equipment with volume above 1300 liters (including) the modes: SALT SPRAY or SALINA FOG, CONDENSED HUMIDITY, NATURAL DRY, DRY OFF and DRY OFF CTH (total of 5 modes), being possible the optional modes described above. - Equipment with 600 liters internal test volume is manufactured only for SALT SPRAY or SALINA FOG, CONDENSED HUMIDITY, NATURAL DRY and DRY OFF modes, consult us for details.		

**MODE: Salt Spray /
Salt Fog**

- 1- Air Jacket**, providing indirect heating of chamber, to ensure the homogeneity of temperature according to ASTM B 117, ABNT NBR 8094, ISO 9227.
- 2 – Lid** designed with smooth surface, without seams to prevent contamination on the test pieces from solution drip, according to ASTM B 117. Decrease the thermal loss for the environment, guaranteeing better performance.
- 3 – Unibody construction**, in other words, the solution tank, bubble tower, and panel are built as one piece.
- 4 - Central Atomization Tower** built to ensuring fog uniformity and homogenous results, according to ASTM B 117 (Fig. 1 pg. 4 and Fig X1.1 pg. 7) - ISO 9227 - JIS Z 2371.

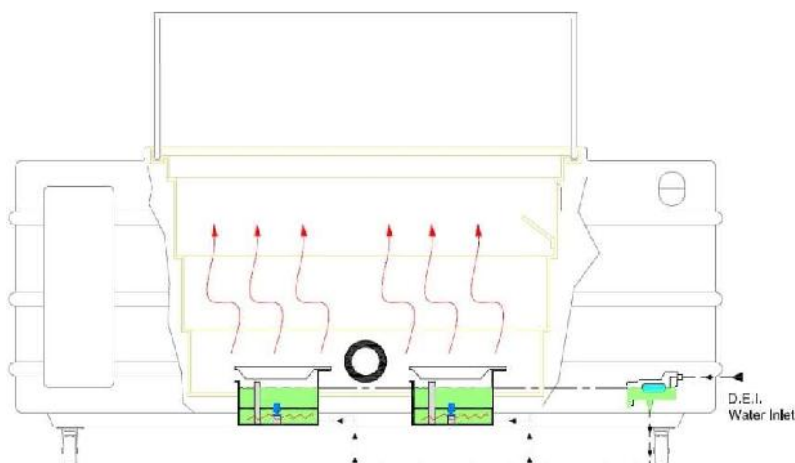
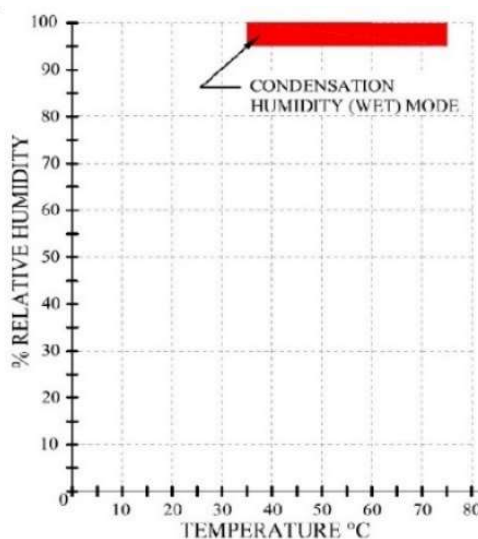


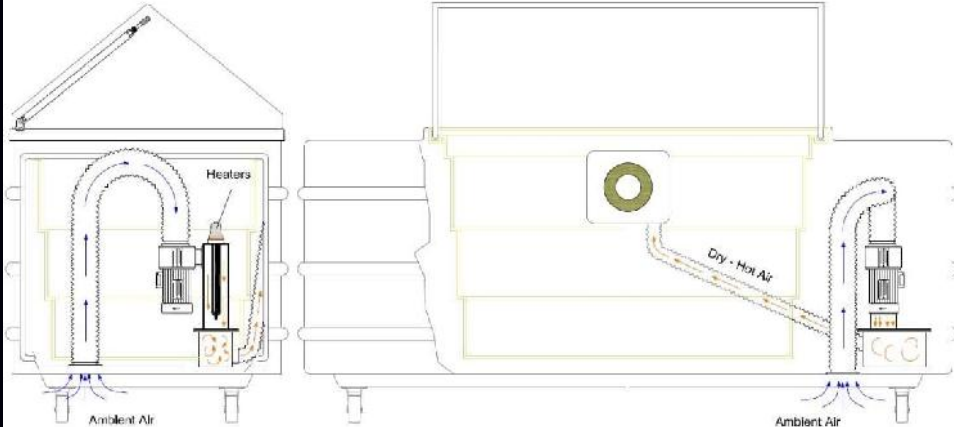
- Chamber Temperature Range: Ambient 9°F to 122°F (5°C to 50°C)
- Saturator Tower (Bubble Tower) Temperature Range: Ambient 9°F to 165°F (5°C to 74°C)
- Resolution of chamber and bubble tower temperature controller: 0.1°C
- PT100 temperature sensors – 3 wire
- Homogeneity of chamber and bubble tower temperature: $\pm 1.8^{\circ}\text{F}$ ($\pm 1.0^{\circ}\text{C}$)
- Bubble Tower Pressure Range: 29 kPa min. to 196 kPa max. (4.2psi min. to 28 psi max.)
- Fog Collection Range: ISO 9227: 1.0 to 2.0 ml/hour, continuous 16 hours of test (consult to VDA 233-102: 3.0 +/- 1.0 ml/hour).



**MODE: Water
Condensation Humidity –
95% +/- 3% R.H**

- Chamber Temperature Range: Ambient 9°F to 158°F (5°C to 75°C), in accordance with the red area of the graphic below.
- Relative Humidity: 95% $\pm$ 3%
- Resolution of chamber and bubble tower temperature controller: 0.1°C
- PT100 temperature sensors – 3 wire

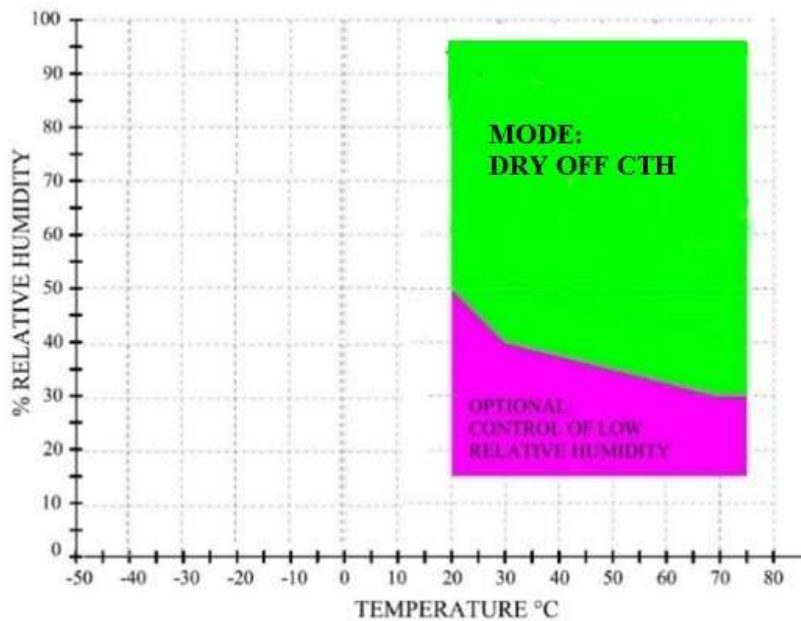


MODE: Natural Dry	- Ambient Temperature; Ambient Humidity - When selecting the mode, the equipment lid opens and the test pieces remain at room temperature. - If the previous mode is SALT FOG or SALT SPRAY, WATER CONDENSATION HUMIDITY before opening the lid automatically, there is the purges to prevent contamination of the environment (laboratory).
MODE: Dry Off	- Injection of hot and dry air into the chamber- the dry air temperature with homogeneity of $\pm 0.5^{\circ}\text{C}$. - Dry Off Temperature Range: Ambient 9°F to 158°F (5°C to 75°C), with control of soak and ramp. - Resolution of temperature controller 0.1°C. - Included Timer for Mode, Set Point and Elapsed Time: hh:mm - PT100 temperature sensors – 3 wire. - Isolation System, prevents contamination by SALT SPRAY during the air system injection. 

MODE: Dry Off CTH

It is not compatible with DRY OFF modes.

- **Internal circulating air** - The chamber's internal temperature maintains homogeneity of $\pm 0.5^{\circ}\text{C}$
- Heating Temperature Range: Ambient 9°F to 158°F (5°C to 75°C), with control of soak and ramp
- Cooling Temperature Range: 158°F (75°C) to Ambient Temperature, only thermal exchange with ambient temperature
- Relative Humidity: Green field of the graph $\pm 3\%$
- PT100 temperature sensors – 3 wire
- Resolution of temperature controller 0.1°C .



NOTE: *** External dimensions of the equipment and the wooden packaging: When the customer chooses this option.

CCT CORR 1300: W x D x H (mm): 2,420 x 1,550 x 1,700

CCT CORR 3000: W x D x H (mm): 3,400 x 2,300 x 1,800

CCT CORR 5000: W x D x H (mm): 4,400 x 2,900 x 2,300

Packing of wood:

CCT CORR 1300: W x D x H (mm): 2,600 x 1,700 x 1,850

CCT CORR 3000: W x D x H (mm): 3,602 x 2,450 x 2,196

CCT CORR 5000: W x D x H (mm): Pallets

MODE: Spray / Stress *

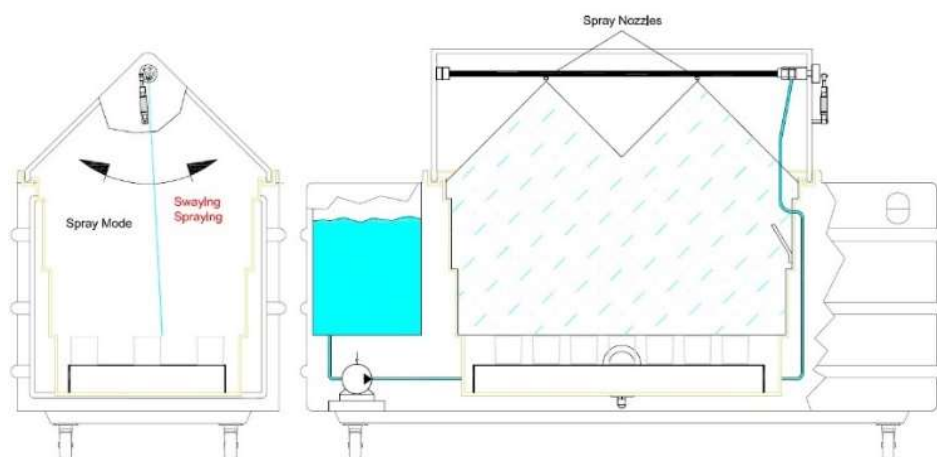
Not compatible with Salt Spray
ASTM B117 and ISO 9227, for
handling of the vertical air.

* Optional - EQOP 0128 - 1300

* Optional - EQOP 0129 - 3000

* Optional - EQOP 0130 - 5000

- Swaying tube with spraying nozzles.
- Spray device is capable of producing finely distributed and uniform spray of salt solution that falls on the specimen.
- The system does not re-use spray solution.
- Spray nozzles are made of plastics.
- After the spray mode, the chamber has a device to evacuate the salt solution.
- Solution Tank for spray has a capacity of 100 liters.



NOTE: With this option consult us about the external dimension of the equipment, there will be a change in the depth dimension.

MODE: CLIMATIZATION *
(Temp. X RH)

* Optional - EQOP 0122 - 1300

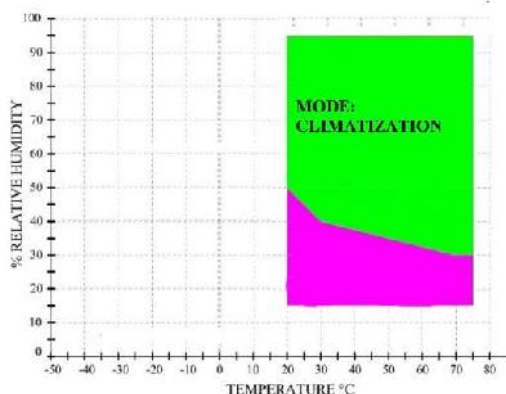
* Optional - EQOP 0123 - 3000

* Optional - EQOP 0124 - 5000

It is not compatible with
DRY OFF CTH and Salt Spray
Mode.

Air movement vertically.

- The user can set the temperature and relative humidity within the chamber in accordance with the green area of the graphic below.
- Heating Temperature range: 68°F to 167°F (20°C to 75°C), with ramp and soak control
- Cooling Temperature range: 167°F to 68°F (75°C to 20°C), with ramp and soak control
- Horizontal air movement inside the chamber. (Vertical Optional)
- Cooling System, compressor, evaporator, control valves and software.
- Relative Humidity: Green area of graph $\pm 3\%$. Purple area on request.



Illustrative photo: CCT 5000 CORR



Illustrative photo: Cooling System

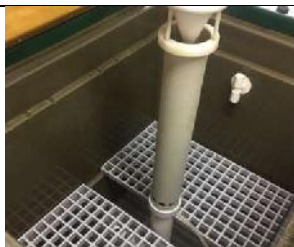
Low Temperature Mode *: Consult us.

User Interface Platform – Touch screen full color	Touch Screen Full Color 
Trend Plot of Test Parameters on touch screen	Included
Pneumatic lid with safety system.	Included
Construction meeting: UL508a, NR10 and NR12	Included
Alarm message, recommended maintenance displayed on touch screen	Included
Critical parameters shown on a single screen.	Included
Programs open for programming the corrosion cycles.	Included
Error messages display, indicates alarm triggered with description, and saves alarm time and date.	Included
Visual and sound safety system on screen.	Included
Pneumatic lid with security system NR 12.	

5 days continuous test tank (spray mode). Minimum/maximum level indication. Automatic and manual mixing settable in touch-screen PLC. System anti blocking filters for solution. Easy access for cleaning. System with DI water inlet.	 - Fully open for easy cleaning. - Indication of maximum and minimum level. - Solution filtering system		
Modelos	CCT 1300 CORR	CCT 3000 CORR	CCT 5000 CORR
External Dimensions: W x D x H mm - Lid Closed ***	2,480 x 1,400 x 1,645	3,400 x 1,980 x 1,800	3,800 x 2,100 x 2,100
Internal Dimensions W x D x H mm	1,300 x 780 x 900	2,080 x 1,080 x 1,000	2,000 x 1,500 x 950
Approx. Crated Dimensions W x D x H mm -***	2,600 x 1,600 x 1,850	3,602 x 2,100 x 2,196	Pallets
Approx. net weight (kg)	262	630	720
Approx. shipping Weight - Crated (kg)	500	1,100	Container
Internal Volume (Liters)	1,300	3,000	5,000
Equipment installation temperature recommendation	63 °F to 82°F (17°C to 28°C)		
Equipment Installation Relative Humidity recommendation	Maximum 85% (without condensation)		
Electrical Supply	208 - 230 V-Ø3-50/60Hz (optional 380-3-50/60 or 460-3-50/60)		
FLA (230V)	45	56	63
DI water	In accordance with ASTM D 1193 Type IV		
DI water Pressure	0.5 to 1.0 kgf/cm ²		
DI water connection	½ NPT"		

Compressed air	Free of oil and water - flow rate and constant pressure - 6 kgf / cm ² - 3 ~ 4 m ³ / hour		
Chamber Exhaustion Pipe without siphon	2"	4"	4"
Laboratory Exhaustion	Fume Hood and motor – if necessary		
Service Area	Minimum clearance of 23.6" (60 cm) for an easier cleaning, assembling and maintenance.		
Notice: We recommend that for each type of equipment its respective solution is used. That is, never use a Salt Spray chamber as a CASS - ASS - Kesternich (SO ₂) chamber or as a Wet Chamber because chemical contamination will distort the final test result. See Item: 4.6 ISO 9227 Standard.			
1 (One) Year Parts Warranty against manufacturing defects from date of delivery at customer's site. This assumes equipment is used under normal operating conditions in accordance with the instruction manual. This warranty does not apply to glassware (lamps). In case of non-warranty issues during warranty period, actual expenses shall apply.			
IMPORTANT: All our equipment is delivered with Installation, Maintenance and User Manuals. We believe these materials are enough for the correct use of the equipment. We are available for further questions and clarifications. If necessary, we provide the service of assembling and staff training at client's site (Cost for this service available upon request).			
Note: Appearance and equipment specifications are subject to change without prior notice.			

OPTIONAL ACCESSORIES

• Grid type test brackets supports 120 kg with distributed load. * Optional - EQOP 0119 - 1300 * Optional - EQOP 0120 - 3000/5000	
1 set rack - 15° or 20° inclination in accordance with ASTM B117 and ISO 9227.	
Water Deionizer to Meet ASTM D1193	
• Viewing window * Optional - EQOP 0007 – Not compatible with 5000	
• Fiberglass Fume Hood (hood only) * Optional - EQOP 0011	

- Fiberglass axial fan assembly capacity: 1940 cfm. Net weight: 88 lbs (40 kg) * Optional - EQOP 0012	
- Density meter to measure concentration of saline solution in accordance with ASTM B 117. * Optional - EQOP 0018	
- Cable port $\varnothing = 2''$ * Optional – EQOP 0034	
- Data Acquisition Software: PC - USB port * Optional - EQOP 0037	
- SO₂ Injection * Optional - EQOP 0045	ASTM G 85 Appendix. 4
- Prohesion * Optional - EQOP 0131	ASTM G 85 Appendix 5
- Saturated Moisture by Atomization * Optional - EQOP 0099 - Water Fog Collection Range: 1.0 to 2.0 ml/hour, continuous 16 hours of test. - Others consult us.	ASTM D 1735
- SWAAT TEST * Optional - EQOP 0044	ASTM G 85 Appendix 3 – VW PV 1208/2016-2
- Washing walls, Scania STD 4319 and Renault ECC1 * Optional - EQOP 0132	Hot DI water **
- Spray nozzles in accordance with RENAULT – ECC1. Incompatible with nozzles: ISO 9227 - ASTM B 117. * Optional - EQOP 0133	Atomization system with increased mist collection in accordance to ECC1 **
Please consult us for additional options.	

Summary of reference standards in accelerated tests					
Salt Fog	CASS/ASS	Kesternich (SO ₂)	C.C.T (Cyclic Corrosion Test)	Humidity per fog	Condensation humidity
ASTM B117	ISO 9227 ASS	ASTM G 87	ASTM G 85	GM 4465P	ASTM D 2247
ISO 9227	ASTM B 368	DIN 50018	PV 1210 – VW	ASTMD 1735	DIN 50017
JIS Z 2371	ISO 9227 CASS	ISO 6988-2	GM 9540 P		ISO 6270
BSI 7479	ASTM G 85 *		VDA 621-415		
ASTM D 5894	BS 7479 AASS		Prohesion		
ANFOR A05 101			CCT 1 – HONDA – NISSAN		
BMW AA 1029			CCT 4 – HONDA- NISSAN		
BMW AA -P184			CCT – HONDA		
BMW AA -0324			GMW 14 872		
GM 4298P			FORD CETP: 00.00-L-467		
IEC 60068-2-11			VOLVO STD 423,0014		
ASTM G 85 *			VOLVO STD 1027, 14		
MIL STD 202 G			ISO 11997-1		
MIL STD 810 G			SCANIA STD 4233		
MIL STD 1344, 1001.1			SCANIA STD 4314		
BS 7479			FORD BI 123-3		
			VDA 233-102		

RECOMMENDATION: CONFIGURATION OF EQUIPMENT x MODES

Testing standards	Modes						
	Salt Spray or Salt Fog	Condensation Humidity	Natural Dry	Dry Off	Dry off CTH	Spray or Stress	Climatization
FORD CETP:00.00-L-467 – Item 1.2 (Manual)	x	x	x		x		
FORD CETP:00.00-L-467 – automatic						x	x
VW PV1210 Lab temperature 23°C and 50% U.R.	x	x	x				
VW PV1210 Independent of Lab temperature	x	x					x
GMW 14872 Independent of temperature and U.R. Lab	x	x				x (*)	x
GMW 14872 Lab temperature max. 23° C and 45% U.R.	x	x	x	x			
SAE J 2334	x	x			x		
VOLVO STD 423-0014						x	x
VOLVO STD 1027, 14						x	x
MERCEDES BENZ VDA 621-415 Lab. temperature 23 ° C and 50% U.R.	x	x	x				
MERCEDES BENZ VDA 621-415 Independent of Labs temperature	x	x					x
SCANIA ** STD 4319						x	x
Renault ** ECC1	x**	x					x
VDA 233-102 A,B,C	x	x					x

* Not compatible with Salt Spray ASTM B117 and ISO 9227, for handling of the vertical air.

*** Appearance and specifications are subject to change without notice.

