



# **Q-FOG** Cyclic Corrosion Tester

## Q-FOG Overview

Q-FOG® cyclic corrosion chambers from Q-Lab can run continuous salt spray, Prohesion, and nearly all cyclic automotive corrosion tests. Q-FOG chambers are available in two sizes to fulfill a wide range of testing requirements. Q-FOG cyclic corrosion testers are the simplest, most reliable, and easiest-to-use corrosion testers available.

## Features

Q-FOG corrosion test chambers deliver the precise volume and uniformity of fog called for in major corrosion test standards. Variable relative humidity control is also available as an option, as is shower capability. Q-FOG testers can be configured with optional features like the Rapid Ramp Heater, Top-Mounted Swaying Shower Bar, and Wall Wash to meet almost any testing need. Q-FOG internal chambers are constructed of reinforced fiberglass to avoid internal corrosion. Dual, full-color touchscreen displays allow for easy user programming and operation, available in 17 languages. The Q-FOG Gen 4 system includes complete self-diagnostics, including warning messages, routine service reminders, and safety shut down.

|   | SSP | CCT | CRH            |
|---|-----|-----|----------------|
| Two sizes available (600 and 1100 liter)                        | ●   | ●   | ●              |
| Dual Full-Color Touch-Screen Displays                           | ●   | ●   | ●              |
| Internal 120 liter salt solution reservoir                      | ●   | ●   | ●              |
| Monitoring window & internal viewing light                      | ●   | ●   | ●              |
| Internal chamber heaters for fast temperature cycling           | ●   | ●   | ●              |
| Salt Fog Function (atomizing mist)                              | ●   | ●   | ●              |
| Dry Function (< 30% relative humidity)                          | ●   | ●   | ●              |
| Humid Function (95-100% relative humidity)                      | —   | ●   | ●              |
| RH Function (relative humidity control via air pre-conditioner) | —   | —   | ●              |
| Wall Wash Kit (for compliance with Renault ECC1)                | —   | —   | ◐              |
| Stationary Shower Module (with self-cleaning spray nozzles)     | —   | —   | ◐ <sup>1</sup> |
| Top-Mounted Swaying Shower (with self-cleaning spray nozzles)   | —   | —   | ◐ <sup>2</sup> |
| Rapid Ramp Heaters (for fast temperature/RH transitions)        | —   | —   | ◐ <sup>3</sup> |
| Access Port (100 mm diameter for wiring access in chamber)      | ◐   | ◐   | ◐              |
| External Fog Collection Cylinders                               | ◐   | ◐   | ◐              |

● Standard Feature   ◐ Optional Feature   1: -S models only   2: -T models only   3: -R models only

## Model SSP for Prohesion or Conventional Salt Spray Tests

The Q-FOG SSP corrosion tester can perform numerous accelerated corrosion tests, including continuous salt spray (ASTM B117 and ISO 9227) and Prohesion (ASTM G85 Annex 5). The Prohesion test uses fast cycling, rapid temperature changes, a low humidity dry-off cycle, and a different corrosive solution to provide a realistic test.

## Model CCT for Corrosion Research and Cyclic Automotive Tests

The Q-FOG model CCT has all the advantages of the model SSP, but adds the flexibility of including a 95-100% Humid Function. The Q-FOG CCT model can meet many automotive corrosion test methods that require exposing specimens to a repetitive cycle of salt spray, high humidity, low humidity dry-off, and ambient conditions. Additionally, the CCT model is able to run Copper-Accelerated Acetic-Acid Salt Spray (CASS) tests such as ASTM B368 or ISO 9227 CASS.

## Model CRH for Cyclic Automotive Tests with Variable Relative Humidity (RH) Control

The Q-FOG model CRH meets most major modern automotive corrosion test standards, such as GMW 14872, Ford L-467, SAE J2334, Renault ECC1, and others from ISO, VW, Volvo, Chrysler, and others. It allows for full variable relative humidity control through the use of an innovative air preconditioner. In addition to salt fog, CRH models feature fully-programmable stationary or top-mounted swaying shower features that can quickly apply salt solution. The Rapid Ramp Heater option allows for fast transitions between different chamber conditions to comply with difficult-to-meet test methods like JASO M609, even with a fully-loaded chamber.

## Operating Specifications:

| Models <sup>1</sup>   | SSP600,<br>CCT600  | CRH600<br>(-HSC, -HTC)                          | CRH600<br>(-HSCR, -HTCR)                   | SSP1100,<br>CCT1100   | CRH1100<br>(-HSC, -HTC)                         | CRH1100<br>(-HSCR, -HTCR)                       |           |
|---|--|---|--|---|---|---|-----------|
| <b>Chamber Size<sup>2</sup></b><br>Volume (including lid)<br>Volume (excluding lid)<br>Built-in salt solution reservoir       | ~600 liters (21 ft <sup>3</sup> )<br>~500 liters (18 ft <sup>3</sup> )<br>~120 liters (32 gal) |   |  | ~1100 liters (39 ft <sup>3</sup> )<br>~900 liters (32 ft <sup>3</sup> )<br>~120 liters (32 gal) |   |   |           |
| <b>Chamber Temp Range<sup>3</sup></b><br>Fog or Dwell <sup>4</sup><br>Dry-Off <sup>4</sup><br>Humid/RH <sup>4</sup><br>Shower | 20-60°C<br>20-70°C<br>25-60°C<br>-   | 20-60°C<br>20-70°C<br>20-60°C<br>20-50°C        | 20-60°C<br>20-70°C<br>20-60°C<br>20-50°C   | 20-60°C<br>20-70°C<br>25-60°C<br>-  | 20-60°C<br>20-70°C<br>20-60°C<br>20-50°C        | 20-60°C<br>20-70°C<br>20-60°C<br>20-50°C        |           |
| <b>Specimen Panel Capacity<sup>5</sup></b><br>100x300 mm (4x12 in)<br>75x150 mm (3x6 in)                                      | 120 (96 for -T models) @ 8 racks<br>170 (160 for -T models) @ 10 racks                         |   |  | 190 (160 for -T models) @ 10 racks<br>252 (240 for -T models) @ 12 racks                        |   |   |           |
| <b>Specimen Load Capacity</b><br>Each panel rack<br>Each hanging rod<br>Total chamber (distributed)                           | 113 kg (250 lbs) max<br>45 kg (100 lbs) max<br>544 kg (1200 lbs) max                           |   |  | 113 kg (250 lbs) max<br>45 kg (100 lbs) max<br>544 kg (1200 lbs) max                            |   |   |           |
| <b>Inlet Water Purity<sup>6</sup></b>   | >200 kΩ-cm;<br><5 µS/cm<br><2.5 ppm TDS  | >5 MΩ-cm;<br><0.2 µS/cm<br><0.1 ppm TDS, Silica | >200 kΩ-cm;<br><5 µS/cm<br><2.5 ppm TDS    | >200 kΩ-cm;<br><5 µS/cm<br><2.5 ppm TDS   | >5 MΩ-cm;<br><0.2 µS/cm<br><0.1 ppm TDS, Silica | >5 MΩ-cm;<br><0.2 µS/cm<br><0.1 ppm TDS, Silica |           |
| <b>Inlet Water Pressure<sup>6,7</sup></b>   | 0.2-3.8 bar (3-56 psi)   | 0.6-3.8 bar (9-56 psi)                          | 0.2-3.8 bar (3-56 psi)                     | 0.2-3.8 bar (3-56 psi)  | 0.6-3.8 bar (9-56 psi)                          | 0.6-3.8 bar (9-56 psi)                          |           |
| <b>Water Consumption<sup>8</sup></b>  | 2 lph max  | 5 lph max                                       | 2 lph max                                  | 2 lph max   | 5 lph max                                       | 5 lph max                                       |           |
| <b>Drain<sup>9</sup></b>  | 32 mm (1-1/4 in) tubing with trap  |   |  |   |   |   |           |
| <b>Air Vent<sup>9</sup></b>   | 102 mm (4 in) inner diameter min   |   |  |   |   |   |           |
| <b>Compressed Air</b><br>Maximum volume<br>Pressure   | 1.7 lps (3.5 cfm)<br>3-10 bar (40-150 psi)   | 1.7 lps (3.5 cfm)<br>4-10 bar (60-150 psi)      | 1.7 lps (3.5 cfm)<br>3-10 bar (40-150 psi) | 1.7 lps (3.5 cfm)<br>3-10 bar (40-150 psi)  | 1.7 lps (3.5 cfm)<br>4-10 bar (60-150 psi)      | 1.7 lps (3.5 cfm)<br>4-10 bar (60-150 psi)      |           |
| <b>Chamber Internal Dims<sup>2</sup></b><br>w x d x h (max, excluding lid)<br>w x d x h (min, excluding lid)                  | 110x71x73 cm (43x28x29 in)<br>108x61x73 cm (43x24x29 in)                                       |   |  | 147x87x72 cm (58x34x28 in)<br>144x77x72 cm (57x30x28 in)  |   |   |           |
| <b>External Dimensions<sup>10</sup></b><br>w x d x h (lid closed)   | 189x113x122 cm<br>(74x44x48 in)  | 328x107x126 cm<br>(129x42x50 in)                | 225x129x127 cm<br>(88x51x50 in)            | 225x129x127 cm<br>(88x51x50 in)   | 365x125x131 cm<br>(144x50x52 in)                | 365x125x131 cm<br>(144x50x52 in)                |           |
| <b>Weight (dry)</b>   | 224 kg (494 lbs)   | 333 kg (734 lbs)                                | 269 kg (594 lbs)                           | 269 kg (594 lbs)  | 378 kg (834 lbs)                                | 378 kg (834 lbs)                                |           |
| <b>Electrical<sup>11</sup> Requirements</b>   | 208V   | 1-Φ @ 16A                                       | 1-Φ @ 32A                                  | 3-Φ @ 28A   | 1-Φ @ 20A                                       | 1-Φ @ 38A                                       | 3-Φ @ 44A |
|   | 230V   | 1-Φ @ 14A                                       | 1-Φ @ 32A                                  | 3-Φ @ 25A   | 1-Φ @ 18A                                       | 1-Φ @ 38A                                       | 3-Φ @ 39A |
|   | 400V   | —   | —  | 3-Φ @ 15A   | —   | —   | 3-Φ @ 24A |

1 Nomenclature designations for CRH chambers: relative humidity control (H), stationary shower (S), top-mounted swaying shower (T), air-preconditioner (C), rapid ramp heaters (R). Chamber dimensions are approximate, since the chamber is a complex shape that is tapered vertically.

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3 Temperatures based upon ambient lab conditions of 20°C. Other lab conditions may result in different limits.

4 In CRH models, relative humidity (RH) control feature replaces the Dwell, Humid, and Dry-Off functions. Model CCT features a 95-100% RH function; model SSP does not have high RH capability. See technical manual for more detailed information, including RH performance versus lab conditions.

5 Standard kits include 8 (600 L) or 10 (1100 L) panel holders. In order to maximize panel capacity, additional individual panel holders may be purchased.

6 Water purity requirements can be met by most reverse osmosis, deionization, or distillation systems. Ensure pH is 6-8. Model CRH requires higher-purity water because of the wet bulb wick. (for RH measurement/control) Lower-purity water may be used, but will require more frequent wick changes and the potential for erroneous RH readings.

7 CRH requires slightly higher minimum water pressure to accommodate self-cleaning spray nozzle feature.

8 Max consumption values are during Humid/RH function in CCT and CRH models; typical consumption will be much lower. Additionally, water system must be sized to accommodate maximum peak demand during short duration bubble tower refill step at 0.4 l/min.

9 See technical manual for important information regarding proper drain and vent setup requirements; failure to follow will impact tester performance.

10 Width calculated with CRH air pre-conditioner situated on right-hand side of CRH tester with a gap of at least 5 cm (2 in). The air pre-conditioner may alternatively be positioned behind the CRH tester or elsewhere with an optional kit. Air pre-conditioner dimensions (w x d x h) are 82x93x101 cm (32x37x39 in); weight is 91 kg (200 lb).

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