

Walk-In & Drive-In

Corrosion Test Chambers

Salt Spray (Salt Fog) · Cyclic Corrosion · Humidity

CUSTOM CONFIGURATION

Designed around the test load

Enclosure, access and environmental equipment defined by the specimen and test method.



FRP enclosure

Fiberglass-reinforced plastic

10-inch HMI

PLC and color touch screen

Custom profiles

Test modes defined by project

Equilam Walk-In and Drive-In chambers provide controlled corrosion exposure for large components, assemblies and vehicles. Chamber geometry, access, floor capacity and utilities are engineered around the test specimen and the required test method.

The platform can combine salt spray, condensation humidity, drying, temperature and relative humidity control, ultralow temperature and post-test specimen rinsing, according to the specified configuration.

PATENTED FIBERGLASS CHAMBER TECHNOLOGY

U.S. Patent No. 10,371,623

01 / APPLICATIONS

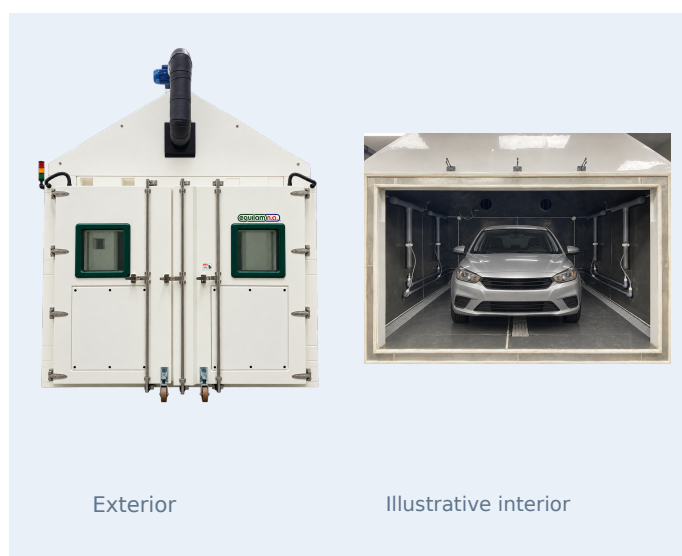
Chamber selection and test loads

Walk-In and Drive-In systems extend controlled corrosion testing to large specimens. The enclosure, entry route, specimen supports and environmental system are defined together, using the actual test load and exposure sequence.

Walk-In



Drive-In



Applications

Vehicles, batteries, appliances, aerospace equipment and other large components or assemblies.

Engineering input	Definition
Specimen	Dimensions, mass, support points and handling route.
Test method	Exposure modes, sequence, test solution and operating conditions.
Installation	Available space, utilities, exhaust, drainage and service access.

02 / CONSTRUCTION

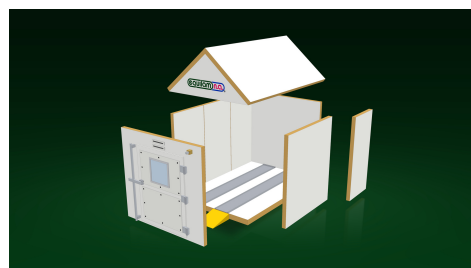
Panelized FRP enclosure

The test cabinet uses fiberglass-reinforced plastic (FRP), an inert non-metallic composite, to avoid interference with corrosion test results. Panel dimensions and on-site assembly are developed for the specimen, chamber size and installation requirements.



Modular construction

Panels are sized to the application and assembled at the installation site.



Modular assembly illustration. Construction details vary by project.

Construction feature	Technical purpose
Fiberglass (FRP) construction	Non-metallic fiberglass enclosure using Equilam chamber technology (U.S. Patent No. 10,371,623). The sloped roof prevents condensate from dripping onto specimens during ASTM B117 exposure.
Smooth internal surfaces	Facilitate cleaning after testing.
Door, ramp and floor	Sized for the specimen mass, entry route and test load.
Indirect atomization and fog management	Distributes fog without a direct jet onto specimens. Atomization, fog collection, exhaust and drains are sized for the chamber.

Reference: EQNA Walk-In ASTM B117 Specifications, Rev.04. Final construction is defined by the project specification.

03 / TEST CAPABILITIES

Exposure modes and cyclic sequences

The chamber configuration is selected from the required test sequence. Available modes, operating ranges and transitions are confirmed in the specification of each system.

Test configuration	Exposure and reference methods
Salt spray	Controlled neutral salt spray for comparative testing. Documented configurations reference ASTM B117, ISO 9227 and JIS Z 2371.
Salt spray + humidity	Alternating salt spray and condensation humidity. ISO 6270-2 and ASTM D2247 are referenced for the humidity mode.
Cyclic corrosion (CCT)	Project-specific sequences may combine salt spray, spray, condensation, drying, temperature and relative humidity control, ultralow temperature and post-test specimen rinsing.
Oscillating or fixed spray	Uniform oscillating spray for Ford CETP 00.00-L-467, or fixed spray for other specified requirements. The Ford method uses a 0.5% NaCl solution with drying and controlled temperature and humidity phases.

Test profile definition

Specify the reference method, solution chemistry, exposure durations, setpoints, transitions and specimen requirements before selecting the environmental equipment.

Method references identify documented configurations. A chamber must be specified for the complete exposure sequence and operating conditions required by the selected method.

04 / SIZE AND CONFIGURATION

Reference sizes and custom design

The reference sizes below follow the Equilam North America specification sheet. Internal dimensions exclude the V-shaped roof; approximate internal volumes include the roof space. Panelized construction allows custom dimensions.

Reference	Interior W × D × H (mm / in)	Door W × H (mm / in)	Approx. volume including roof (m ³ / cu.ft)
WSSe 14	2,000 × 2,000 × 2,500 78.7 × 78.7 × 98.4	1,500 × 2,100 59.0 × 82.6	14.0 494.4
WSSe 18	3,000 × 2,000 × 2,500 118.1 × 78.7 × 98.4	1,500 × 2,100 59.0 × 82.6	18.2 642.7
WSSe 40	3,500 × 3,500 × 2,500 137.8 × 137.8 × 98.4	3,000 × 2,130 118.1 × 83.8	40.0 1,412.0
WSSe 55	5,000 × 3,500 × 2,500 196.9 × 137.8 × 98.4	3,000 × 2,130 118.1 × 83.8	55.0 1,942.0
WSSe 77	7,000 × 3,500 × 2,500 275.6 × 137.8 × 98.4	3,000 × 2,130 118.1 × 83.8	77.0 2,719.0

Source: Equilam North America, Salt Spray SSe Specifications, Rev.9.0, Walk-In table. Reference sizes are not universal specifications for every test mode.

Custom configuration

Specimen and chamber dimensions, access, positive or negative temperature range, humidity control and test modes can be customized. The final solution depends on the requested test profile and technical feasibility.

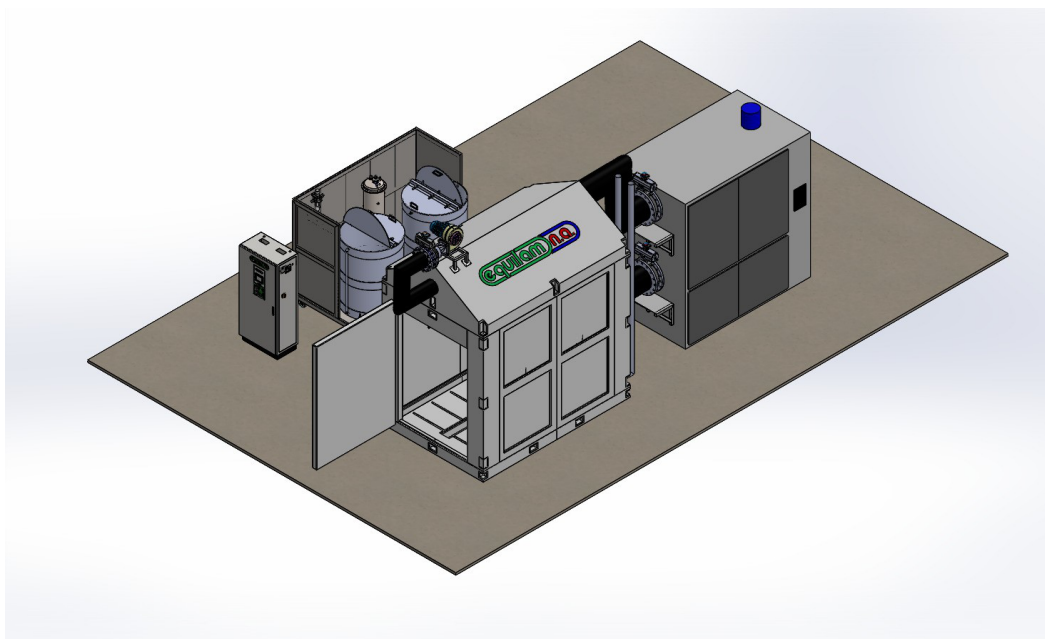
Drive-In engineering

Drive-In configuration starts with the actual vehicle or assembly. Entry path, wheel loads, floor design, clear door opening, service access and environmental equipment are engineered as one system.

05 / CONTROL AND INTEGRATION

Automation and process monitoring

A PLC and 10-inch color HMI manage test programs, setpoints, alarms and trend history. The operating interface supports the process equipment defined in the chamber configuration.



Illustrative system arrangement. Components and interfaces depend on the project scope.

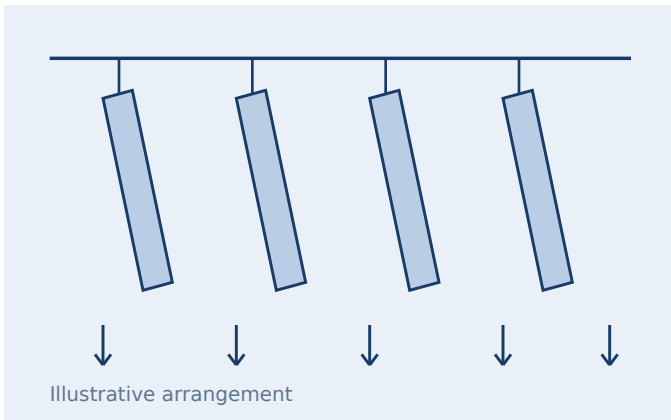
Function	Technical description
PLC and touch screen	Test programs, operating setpoints, alarm indications and trend history.
System overview	Simplified process flow diagram displayed on the interface.
Remote access	EasyAccess 2.0 access to the HMI, subject to a license and access account.
EQSmart app	Real-time parameters and functions; alarms, trend history, charts and test programs.
Process integration	Solution preparation, bubble tower, atomization, exhaust, purge and drains.

06 / SAFETY AND SPECIMENS

Access safety and specimen placement

Safety function	Project provision
Emergency stop and lockout	Emergency stop, maintenance lockout and fault indication are incorporated into the project safety design.
Door safety	Emergency door-release button inside the chamber. Audible and visual warning before the door opens or closes.
Purge before access	Purge before opening the door to help prevent contamination of the surrounding environment.
Control panel	Control panel built in accordance with UL 508A. NRTL certification optional.

Specimen placement for salt spray exposure



Uniform exposure

Keep test surfaces unobstructed so the fog settles freely.

No specimen contact

Specimens must not touch each other. Use non-metallic supports suited to the specimen and test method. Equilam can supply fiberglass specimen supports as an option.

No cross-dripping

Prevent solution from one specimen dripping onto another.

Preventing chemical cross-contamination

Equilam recommends separate chambers for CASS and NSS. Using the same chamber for both tests is not recommended because of chemical cross-contamination and the extreme difficulty of restoring suitable chamber conditions after CASS. Reference: ISO 9227.

07 / INSTALLATION

Site requirements and utilities

Installation planning begins with the chamber footprint, specimen handling route and access for assembly and maintenance. Utility capacities and connection details are determined for the selected chamber and test profile.

Site or utility item	Definition required for the project
Access and base	Delivery and entry route, assembly space, floor/base conditions and service access.
Electrical supply	Power supply and connections matched to the environmental and process equipment.
Compressed air	Dry, oil-free compressed air. Supply requirements are defined by the atomization system.
Water	Deionized water supply for the functions included in the selected configuration.
Exhaust and drainage	Exhaust, purge discharge and drains integrated with the installation layout.
Specimen movement	Handling equipment, support arrangement and access dimensions matched to the load.
Energized specimens	Where required by the application, provide a cable access port and define the energized test arrangement.

Confirm utilities before installation

The chamber specification establishes the required connection sizes, capacities and operating conditions. Site requirements must be coordinated with the selected test method and the final equipment layout.

08 / SPECIFICATION AND VALIDATION

Project definition and validation

01 Test specimen

Define dimensions, mass, supports, movement and any energized operation. Include cable access requirements where applicable.

02 Exposure profile

Define the applicable method, solutions, modes, durations and required transitions.

03 Site and utilities

Confirm access, base, maintenance space, power, compressed air, deionized water, exhaust and drains.

04 Validation

Define instrumentation, fog collection, records, commissioning and training.

Documented method references

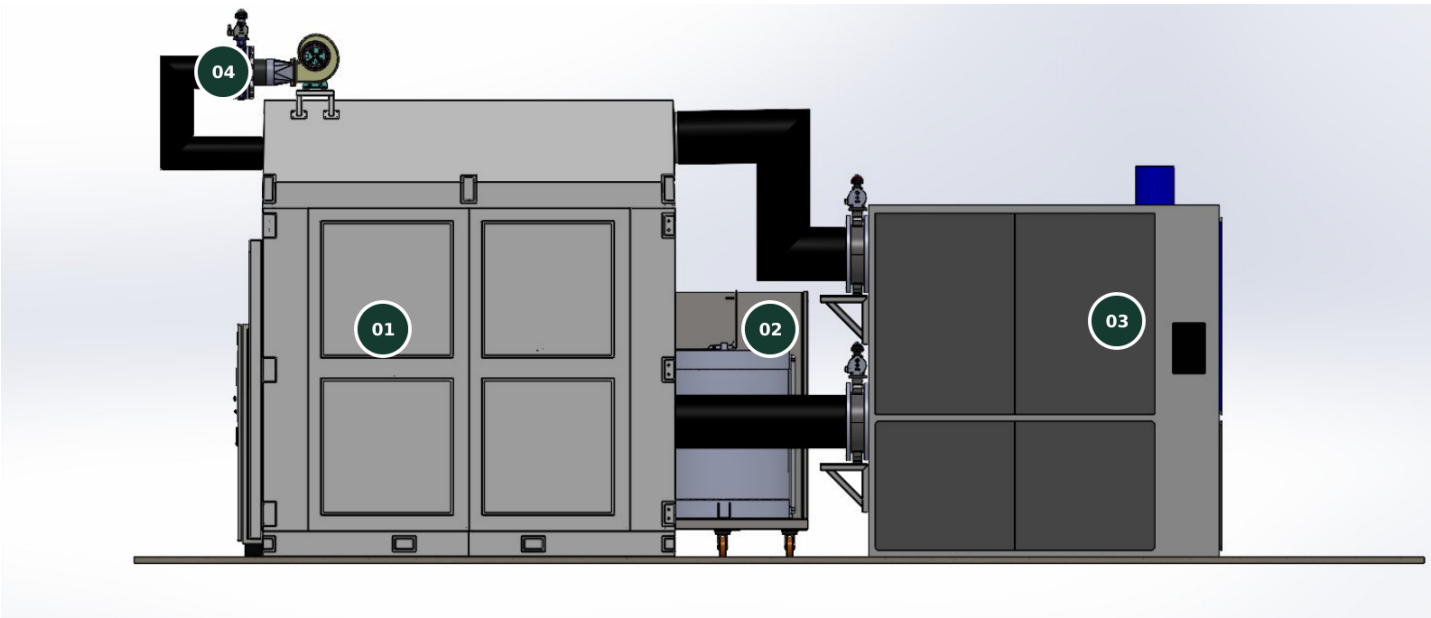
Exposure type	Reference
Salt spray	ASTM B117 · ISO 9227 · JIS Z 2371
Humidity / condensation	ISO 6270-2 · ASTM D2247
Oscillating salt spray	Ford CETP 00.00-L-467
Custom cyclic profiles	Defined by the requested method and project feasibility.

The final specification confirms the applicable method, operating ranges, exposure sequence and validation requirements.

09 / SYSTEM ARCHITECTURE

An integrated corrosion testing system

Chamber enclosure, solution handling, environmental conditioning and purge are integrated according to the selected exposure sequence. The arrangement below illustrates the principal system functions.



System function	Scope
01 Test cabinet	Chamber enclosure and access to the specimen.
02 Solution tank and utilities	Test solution tank, atomization, valve panels and utility connections.
03 Environmental conditioning	Temperature and humidity conditioning, including a low-temperature system where specified by the test profile.
04 Purge	Purge before door opening to help prevent contamination of the surrounding environment.

EQUILAM NORTH AMERICA

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