



ENVIRONMENTAL TESTING

Element Chamblly serves the aerospace, transportation, medical and commercial sectors with an extensive range of test services that range from dynamic and mechanical testing to salt-fog corrosion, altitude and ingress protection testing.

THERMAL SHOCK, HUMIDITY AND THERMAL CYCLING TESTING

Temperature and humidity are the two leading environmental stressors that affect manufactured products. Fluctuations in temperature cause items to contract or expand. Humidity also causes contraction and expansion, and it can also lead to corrosion and oxidation that can adversely impact parts and component. This is especially important for products that contain computerized or electrical components.

We design thermal shock, humidity and thermal cycling testing to meet our clients' specific needs; our experienced staff knows how to take any relevant standards into account, such as MIL-STD-883, MIL-STD 810 and RTCA DO-160, IEC 60068.

SALT-FOG CORROSION, ALTITUDE AND VACUUM TESTING

Our climatic testing services include salt fog testing, which measures the ability of electric components and protective coatings to tolerate corrosive environments. One of the salt-fog corrosion tests we frequently perform ensures compliance with ASTM B117-19 standards. We also perform altitude testing, including testing to meet RTCA DO-160 standards.

FLUID SUSCEPTIBILITY TESTING

We offer customizable fluid susceptibility testing as part of our environmental testing services to give our clients peace of mind that their products can withstand any fluids — such as fuels or lubricants — that could contaminate systems if not properly designed and manufactured.

MECHANICAL SHOCK TESTING AT ELEMENT CHAMBLY

Mechanical shock testing aims to measure the response of a component or product to extreme and sudden acceleration or deceleration within a controlled test environment. At NTS, we use wide-band, multi-channel data acquisition technology to document the item's response. Our engineers subsequently analyze this data to evaluate performance.

Our mechanical shock testing services include:

- Drop Testing: Items are dropped from heights of up to 2m in order to test their ability to withstand mishaps that could occur during handling or transportation.
- Drop Towers: Using our drop towers, we can produce mechanical shock with peak accelerations of more than 2,000g.
- Vibration up to 40gRMS
- Sinusoidal vibration up to 70g

DELIVERING INNOVATIVE PRODUCT TESTING AND CERTIFICATION SOLUTIONS

HALT/HASS TESTING AT ELEMENT CHAMBLY

Highly Accelerated Life Testing — or HALT — and Highly Accelerated Stress Screening — or HASS — are testing methods used to pinpoint any issues with or defects in your product in its early stages of development. Both methods are aimed at placing wear and tear on a product at a highly accelerated pace.

HALT is typically used to uncover a product's weak points by incrementally applying high stress levels for short periods of time until the product shows signs of degradation or failure. Based on this data, manufacturers can then take corrective action to improve the item while it is still in the design or development stage and before it goes into production.

A HALT PROGRAM CONSISTS OF FIVE TESTS:

- Low temperature step stress
- High temperature step stress
- Rapid thermal cycling
- Vibration step stress
- Combined environment

HASS testing focuses on defects during the manufacturing process. It builds on the results of HALT and leverages them to optimize the manufacture of a product. It can also be used to determine how the use of alternative processes, materials or components will impact the end product's functionality and durability.

PRIMARY TEST SPECIFICATIONS

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|-----------------|------------------|-------------------|-----------------------|
| • ANSI C136.31 | • IEC 6006-2-6 | • ISO 61373 | • SAE J1455 |
| • ASTM B117 | • IEC 60068-2-1 | • ISO 16750-3 | • Stellantis CS-00056 |
| • ASTM D4169 | • IEC 60068-2-11 | • ISO 16750-4 | • Stellantis CS-11982 |
| • EN 50155 | • IEC 60068-2-2 | • ISO 20653 | • Stellantis PF.11203 |
| • GMW14325 | • IEC 60068-2-30 | • ISO 4628-2 | • Stellantis PF.90189 |
| • GMW15310 | • IEC 60068-2-31 | • ISO 4628-8 | • Stellantis PF.90223 |
| • GMW15725 | • IEC 60068-2-38 | • ISO 4628-10 | • Stellantis PF.90230 |
| • GMW16288 | • IEC 60068-2-52 | • ISO 9227 | • Stellantis PF-12184 |
| • GMW16910 | • IEC 60068-2-61 | • ISTA Standards | • Stellantis PF-90135 |
| • GMW16922 | • IEC 60068-2-75 | • JEDEC Standards | • Telcordia GR-1221 |
| • GMW3172 | • IEC 60068-2-78 | • MIL-STD-202 | • and more... |
| • IEC 600255-21 | • IEC 60529 | • MIL-STD-810 | |
| • IEC 6006-2-14 | • IEC 60571 | • RTCA/DO-160 | |