

Ci5000

Weather-Ometer®



Setting the Standard
for Xenon Weathering

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The Atlas Vision

Shaping the future of the materials testing world in partnership with our customers.

The Atlas Mission

Our mission is to help our customers worldwide provide the most reliable and durable product solutions through our combined experience and expertise in weathering instruments and testing, custom capabilities, consulting and global support.

Focused On Your Goals

Atlas pioneers innovative ways for companies to test the weatherability of their products. From our industry-leading accelerated weathering equipment to the consulting services of our expert laboratory staff, our approach to the market is clear: Provide our customers with superior, easy-to-use technology and advanced testing solutions to determine how long their products will last. **Every step of the way, Atlas is there - Accelerating Your Expertise.**

Quality at Every Step

Producing the very best instruments is not something we take lightly. Every instrument must pass customer specified test parameters and we visually inspect all xenon lamps and optical filter glass per strict quality specifications. We test every instrument for material compliance before being shipped. The Ci5000 meets relevant CE, UL, CSA, ISO and EN safety and electrical standards for both machinery and laboratory test equipment.

Learn from the Experts*

Your instrument purchase includes attendance to a free Weather-Ometer® Workshop. This hands-on course guides new users through the operation, calibration and maintenance of your Weather-Ometer. We make sure you know all of the instrument features to maximize the efficiency and effectiveness of your testing.

* Offer may differ by country

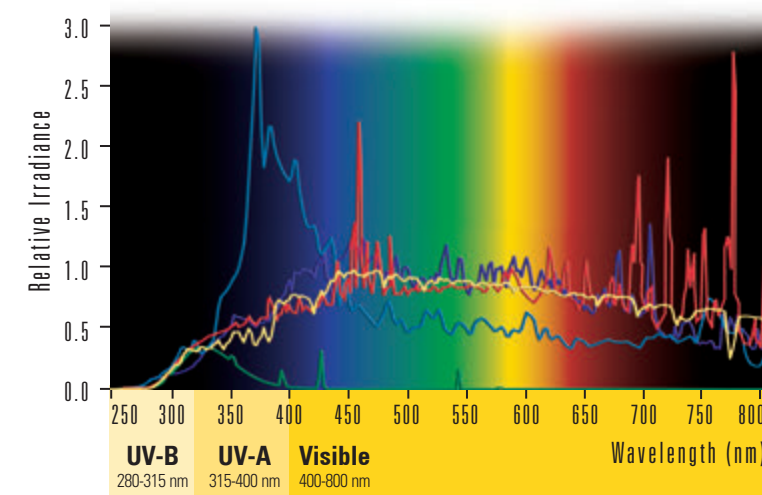
Which Light is Right?

Choosing the “right light” is one of the first steps in creating an accurate and reliable weathering test program. The Ci5000 simulates solar radiation using xenon lamps and advanced filter systems specifically designed for weathering. Atlas xenon lamps are developed exclusively for weathering to meet high performance criteria for their spectral power distribution, lifetime irradiance stability and lot-to-lot uniformity.

The Ci5000 uses interchangeable glass filters that tailor the xenon light spectrum to match light conditions in your products’ end use environment.

Sunlight vs. Artificial Light Sources

A Comparison of Relative Spectral Power Distribution



- **Global Solar Radiation**
Average Miami Sunlight 26° South Direct
- **Xenon Arc Lamp**
As used in an Atlas Weather-Ometer® with Right Light® filters
- **UVA-340 Fluorescent Lamp**
Commonly used in the Atlas UVTest
- **Metal Halide**
As used in the Solar Environmental Chambers (SEC)
- **Sunshine Carbon Arc**
As used in an Atlas Weather-Ometer® with Corex D filters



Making the Most Advanced Instruments Even Better

The Ci5000 includes a simplified operating system and an incredibly fast, fully-digital architecture to produce the most reliable and efficient instrument we’ve ever made. It all adds up to be the most advanced xenon weathering test instrument on the market.

Simplified Control Navigation

The larger user interface makes operating the Weather-Ometer® easier than ever. The Ci5000 delivers exceptionally precise and reliable control of all test parameters for repeatable, reproducible and reliable results.

Revolutionary Innovations

Atlas remains on the cutting edge of state-of-the-art technology, delivering features such as our Specific Specimen Surface Temperature (S³T) System and Full Spectrum Monitoring (FSM).



Common Applications

The Ci5000 is perfectly suited for testing:

- Automotive Materials
- Plastics
- Inks
- Paints and Coatings
- Packaging
- Photovoltaics
- Textiles including Industrial and Geotextiles
- Pigments, Dyestuffs, Stabilizers and Additives



FEATURES

A Higher Order of Weathering Testing Performance Through Superior Science

The Ci5000 Weather-Ometer®, with its advanced digital control system, represents monumental achievement in applying digital and optical technologies in an easy-to-use laboratory weathering instrument. The Ci5000 is approved by many OEMs in the automotive, paints & coatings and plastics industries as the exclusive platform to deliver accurate, reproducible and repeatable results for predicting service life. The Ci5000 has been certified CE, UL, CSA, ISO and EN compliant.



Rotating Sample Rack

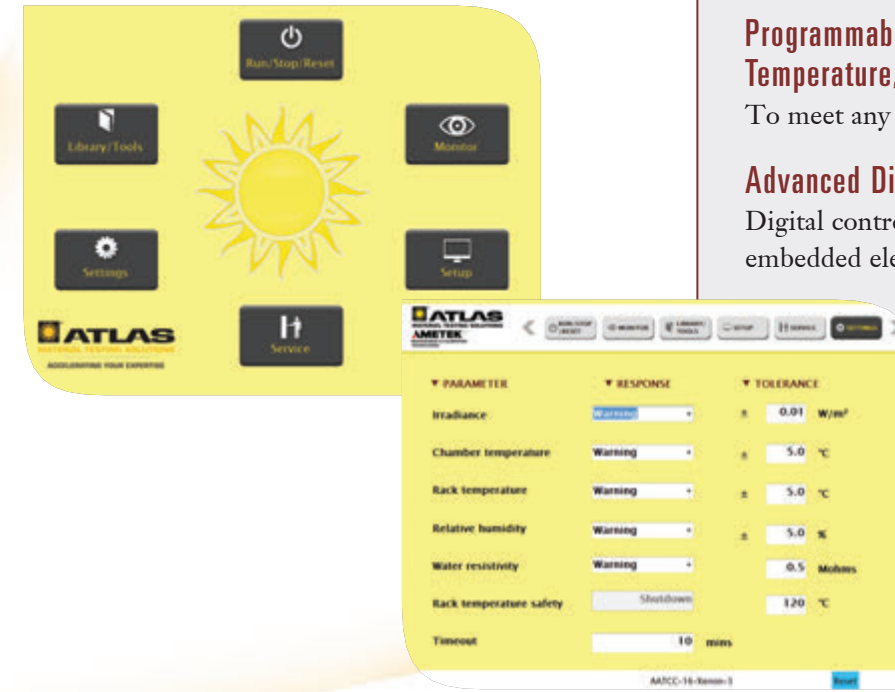
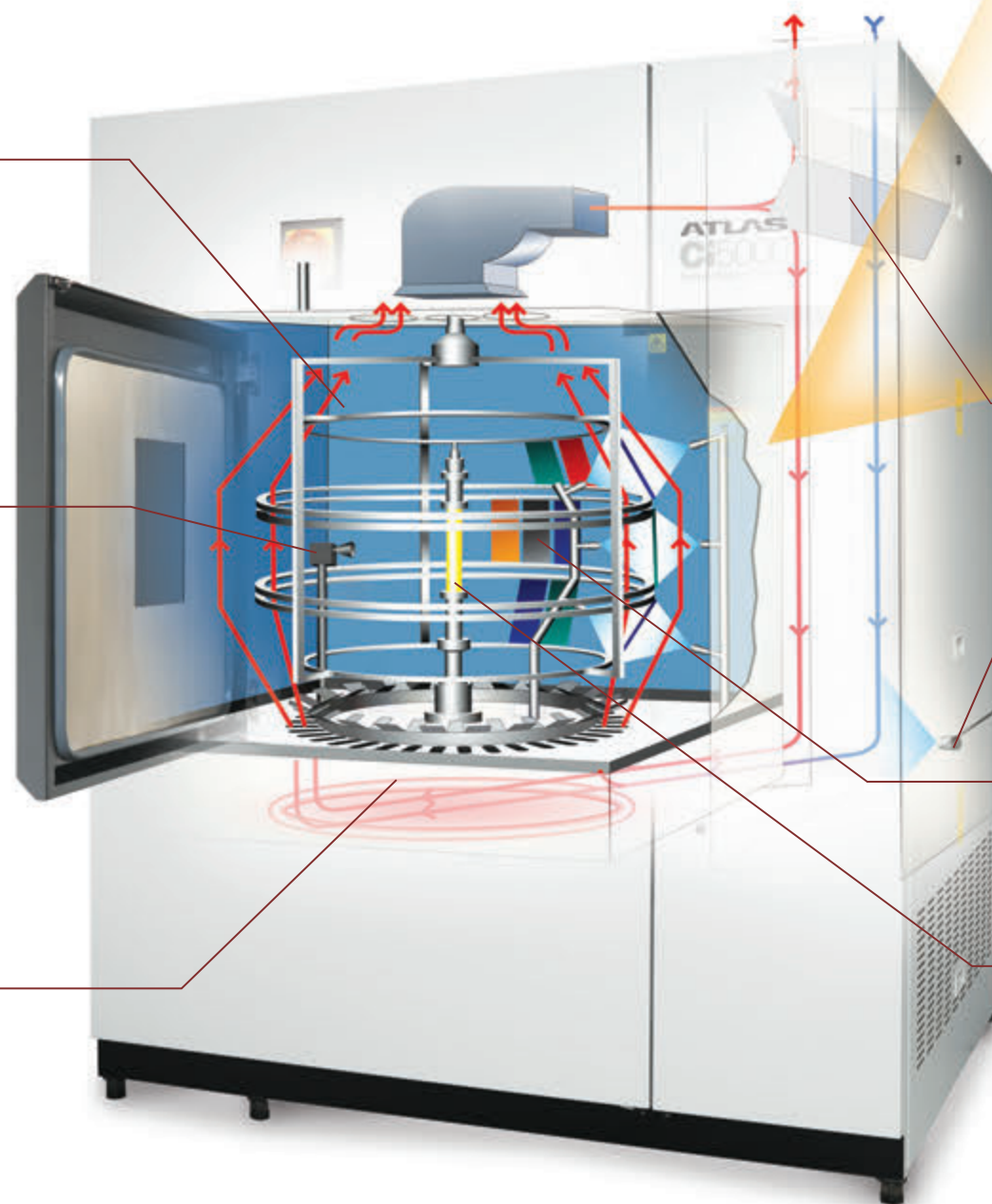
Maximizes exposure uniformity over all specimens. Total exposure area of 11000 cm², the best exposure area per cost ratio of any xenon weathering instrument.

Controlled Irradiance

Up to 2-sun irradiance levels or higher based on your test requirements. Narrow band (340 nm or 420 nm), broad band (300-400 nm) or illuminance control/Lux (400-750 nm) with an optional channel that switches between monitoring and control.

Test Chamber Temperature

Closely simulates your material's end use environment.



Intuitive User Touch Screen Interface

Increases functionality that makes the Ci5000 easy to program, monitor and calibrate.

Programmable Stepped Changes in Irradiance, Temperature, Humidity and Other Test Conditions

To meet any user defined test program or cycle.

Advanced Digital Control

Digital control with rugged, state-of-the-art embedded electronics.

SmartDamper

Reduces test variability in chamber temperature and humidity and compensates for changes in ambient laboratory conditions.

VibraSonic Dual Nozzle Humidity Control

Accurately replicates humidity levels to meet stringent global test requirements; a second nozzle is standard on the Ci5000 to expand humidity range.

Black Panel Thermometer (BPT) or Black Standard Thermometer (BST)

Controls and monitors temperature at specimen level to ensure test repeatability.

Xenon Lamp Cooling System

The Ci5000 is equipped with a new, ground-breaking xenon lamp cooling system that dramatically reduces the amount of cooling water used.

Additional Features



Data Acquisition

Streaming data output in a format that can be read in real-time or stored onto a portable media. Connection sources include USB or Ethernet.

SmartLight Monitor

Verifies that the correct light capsule is installed.

Water Purity Notification

Signals when incoming water quality falls below the factory set point.



CONTROL

Enhanced Control System Enables Complex, Custom Test Programs or Simple, Preprogrammed Test Operation

Easy to Understand Icons Simplify Navigation

New icons make getting to the information you need fast and easy

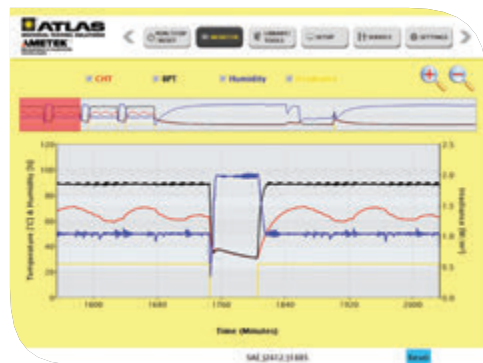
- Large, Touch Sensitive Buttons
- Clear, Easy-to-See Icons

Two Simple-to-read Pages and On-screen Trend Plot Monitor All Critical Status Information

- Rack Temperature: Black Panel Temperature (BPT), Black Standard Temperature (BST) or Both
- Chamber Temperature
- Relative Humidity
- Irradiance

Monitor all critical set points and compare with real time readings for:

- Incoming Deionized Water Quality
- Lamp Cooling Water Temperature
- Countdown in Time or Radiant Exposure
- Phase Type and Duration
- Optional Temperature Panel
- Second Irradiance Channel



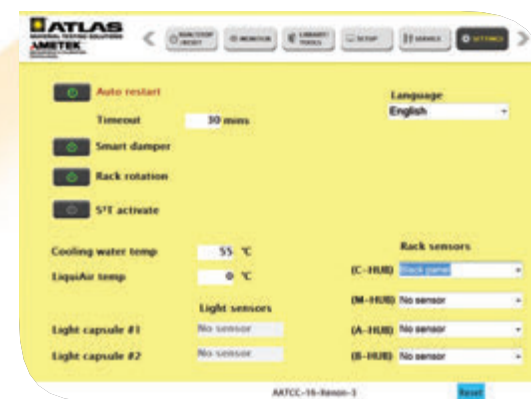
14 Preprogrammed Tests for Standard Voltage and 12 Preprogrammed Tests for Low Voltage

The test list includes:

- | | | |
|------|------|-------|
| ISO | GM | JASO |
| ASTM | Ford | AATCC |
| SAE | | |

Space for Several Custom Test Programs

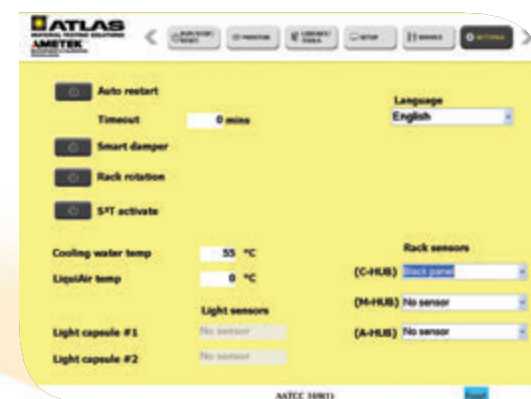
Existing test methods can be copied and edited for custom applications



Simplified Setup of Elective Control Features

Set variance level notification for critical variables on one screen:

- Irradiance
- Chamber Temperature
- Rack Temperature (BPT, BST or both)
- Relative Humidity
- Auto Restart After Power Interruption



Multi-lingual Capability

Select the desired language:

- | | |
|------------|-----------|
| ■ English | ■ German |
| ■ Chinese | ■ French |
| ■ Japanese | ■ Spanish |
| ■ Korean | ■ Turkish |



New User Functionality

Sample Management:

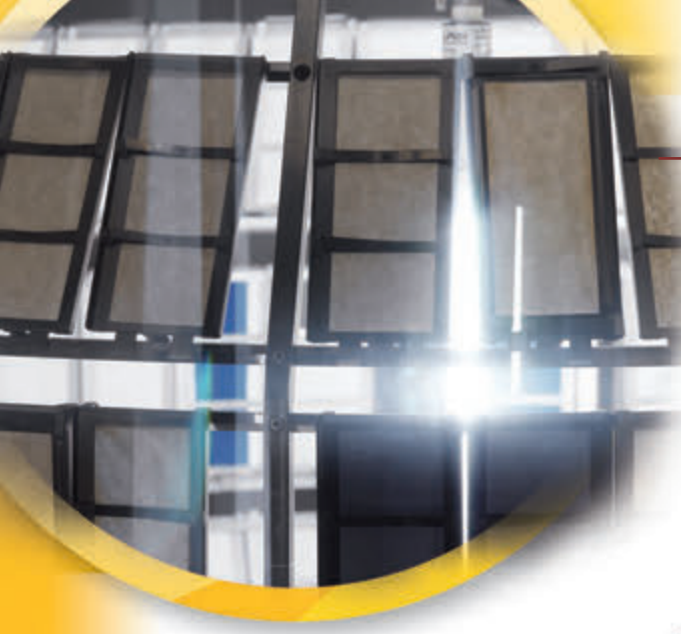
- Operators can keep track of multiple tests within the same Weather-Ometer® right on the user interface. Up to 10 individual sample sets can be tracked at once, either by time or by radiant dosage.

E-mail Notification:

- Your Weather-Ometer can alert you by e-mail when user define test conditions have been met.

LIGHT

Long Arc Xenon is the Closest Simulation of UV, Visible and IR Solar Radiation



Rotating Sample Rack

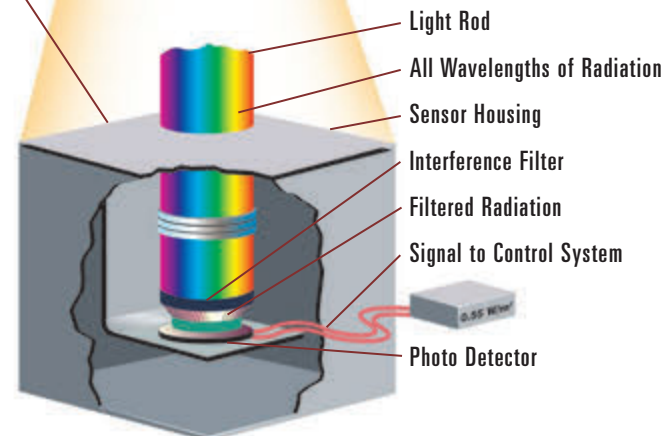
The inclined rotating rack delivers the best exposure uniformity

- Samples are rotated continuously during test. No need to manually rotate test samples
- Uniform specimen and chamber temperature, RH, irradiance and spray
- Allows for even and consistent airflow over sample surfaces
- Can accommodate three dimensional samples
 - Small Components
 - Finished Products
 - Bottles
 - Automatic Selection for Irradiance Values

Intelligent Controlled Irradiance (Ci) System

A closed loop system automatically adjusts lamp output in real-time delivering the most stable radiant exposure

- Narrow band (340 nm or 420 nm), broad band (300-400 nm) or illuminance control/Lux (400-750 nm)
- Irradiance defined by user during test programming or by factory programmed test methods
- Intelligent control will only allow the user to select an irradiance that matches the defined test method
- Wattage regulating system



FILTERS & STANDARDS

Filter Combinations		Test Conditions	Irradiance Ranges W/m ²			
Inner	Outer		Wattage	300-400 nm	340 nm	420 nm
Right Light™	Quartz	Weathering tests requiring the most precise match to sunlight available	Min. 5000 W Max. 14000 W	42 169	0.40 1.68	0.81 3.13
Right Light™	CIRA Coated Quartz	Weathering tests requiring the most precise match to sunlight available and lower test specimen temperatures	Min. 5000 W Max. 14000 W	42 170	0.40 1.66	0.81 3.20
Type S Boro	Type S Boro	Most common combination for weathering tests (Daylight filter system)	Min. 5000 W Max. 14000 W	33 139	0.28 1.24	0.71 2.87
Type S Boro	Soda Lime	Most common combination for lightfastness tests behind window glass	Min. 5000 W Max. 14000 W	31 128	0.26 1.09	0.73 2.87
Type S Boro	Soda Lime + Float Glass in Auxiliary Lantern	Common combination for testing European automotive interior trim materials (Requires lantern assembly)	Min. 5000 W Max. 14000 W	26 108	0.20 0.81	0.67 2.63
Quartz	Type S Boro	Weathering tests with somewhat more and shorter UV than sunlight	Min. 5000 W Max. 14000 W	39 158	0.35 1.48	0.74 2.90
Quartz	CIRA on Type S Boro	Weathering tests requiring full spectrum match and/or lower test temperatures	Min. 5000 W Max. 14000 W	40 166	0.37 1.55	0.78 3.04
Quartz	CIRA on Soda Lime + Float Glass in Auxiliary Lantern	Lightfastness test for automotive interior materials to meet GMW 3414TM		91	0.75	2.20
Quartz	Type S Boro + 335 nm Long Pass Filter In Auxiliary Lantern	Lightfastness test for automotive interior materials to meet Ford FLTM B0 116-01		45	0.37	1.06

Sunlight Measurements		Irradiance Ranges W/m ²				
		300-400 nm	340 nm	420 nm	300-800 nm	300-2450 nm
Average Optimum Natural Daylight	Measured 45° South cloudless Miami, FL	28	0.30	0.67	287	
Peak Natural Daylight	Measured solar noon on Vernal Equinox at normal incidence Miami, FL	66	0.70	1.53	617	
Peak Natural Daylight Standard	Defined for horizontal plane (0°) in CIE Publication No. 85 Table 4	69	0.68	1.50	669	1088

International Standards

The Ci5000 Weather-Ometer® meets or exceeds the following industry standards:

Standard	TM 16.3-2012	TM 16E-1998	TM 169					
AATCC	TM 16.3-2012	TM 16E-1998	TM 169					
	ASTM	C1442 C1501 D4459 D4798 D6662	D904 D5010 D7869	D3424 D5071 G151	D3451 D5794 G155	D4101 D6083	D4303 D6551	D4355 D6577
	Ford	FLTM B0 116-01						
GM	GMW 14162	GMW 3414TM	GME 60292					
ISO	105-B02 12040	105-B04 16474-1	105-B06 16474-2	105-B10	11341	3917	4892-1	4892-2
	Jaso	M346						
MIL STD	810 G							
SAE	J1885	J1960	J2412	J2413	J2527			
VDA	621-429	621-430	75202					
VW	PV 1303	PV 3929	PV 3930					

This is a sample of global standards that can be met by the Ci5000. For more information on additional or specific standards, contact your local Atlas representative. Standards are subject to change without notice. This might lead to the inclusion or exclusion of certain standards.

CLIMATE CONTROL

The Ci5000 Offers Thorough Climate Control to Best Replicate Your Materials' End Use Environment

Precise Humidity Control

The electronic sensor provides direct and accurate measurements of relative humidity and enables automatic control at the specimen level

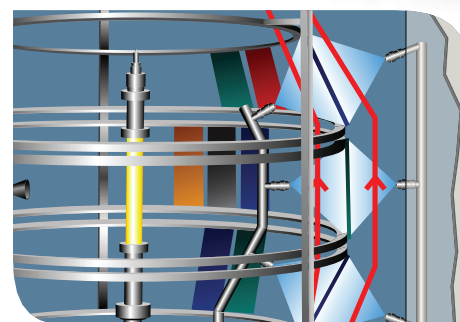
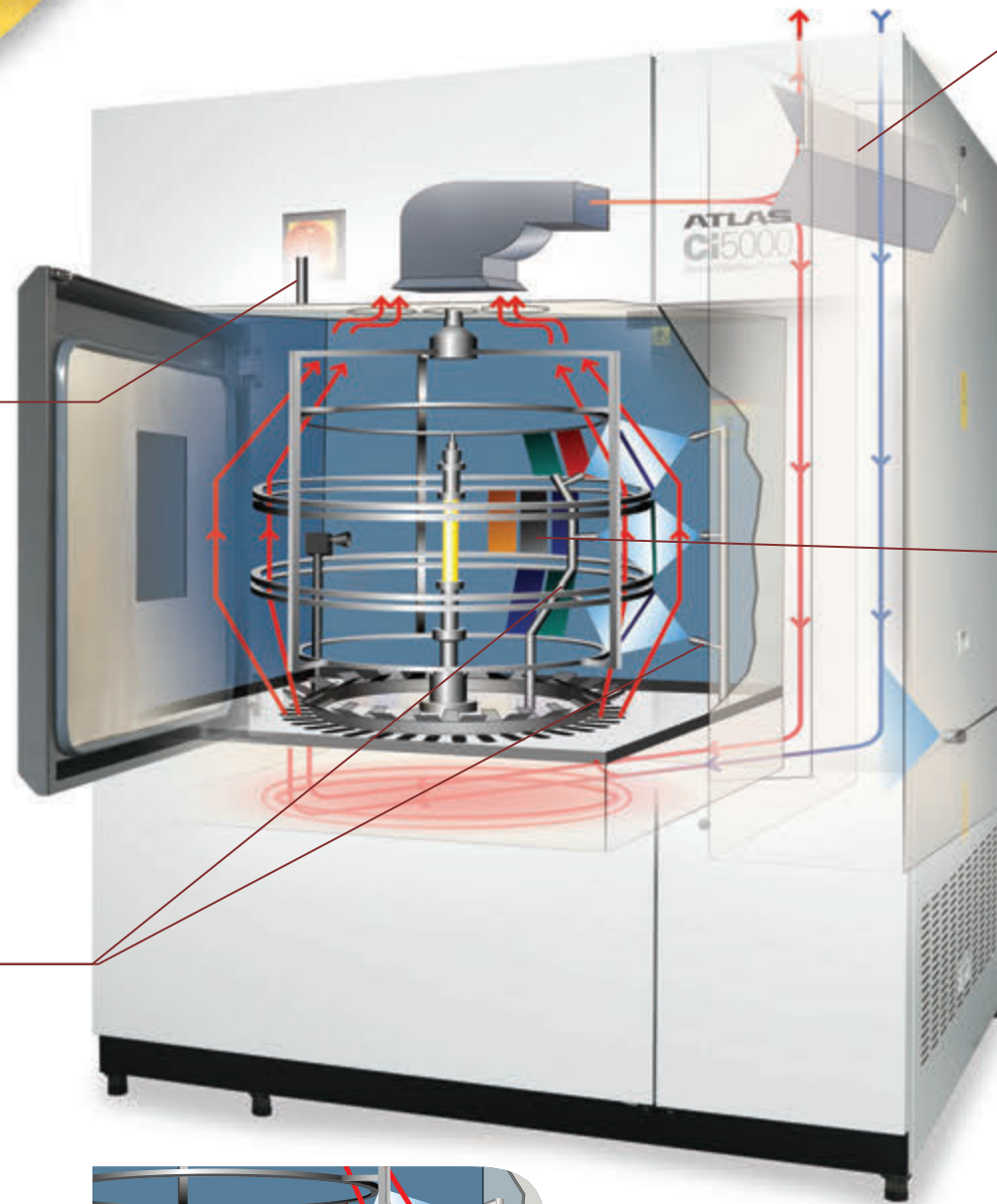
- 10% RH to 95% RH in light cycles*
- Up to 100% in dark cycles*

* Dependent on other parameters such as lamp power, chamber temperature, ambient lab conditions, etc.

Specimen and Rack Spray

Custom designed precision nozzles provide uniform spraying of samples with deionized water

- The specimen spray applies water to the exposed surface of the sample which simulates rain to induce temperature shock and erosion effects
- The rack spray applies water to the back of the sample to cool the specimen temperature below the dew point during dark cycles causing condensation on the exposed surface



TEMPERATURE CONTROL

Consistent, Controlled Temperature Delivers Repeatable and Reproducible Results

SmartDamper

- Balances test chamber temperature, BPT or BST and humidity levels and compensates for changes in ambient laboratory conditions
- Recirculates chamber air, introduces ambient air or a combination of the two

Black Panel Thermometer (BPT) or Black Standard Thermometer (BST)

- Controls and monitors temperature at specimen level to ensure test repeatability
- Control of one sensor type while simultaneously monitoring the other

BPT/BST Temperature vs. Chamber Temperature (CHT)

- BPT and BST sensors simulate an estimate of the maximum temperature on a sample's surface
- CHT measures the temperature of the air circulating within the chamber
- Controlling both sample and air temperature delivers superior repeatability and can closely match the samples end use environment



Simultaneous Control of BPT/BST and CHT

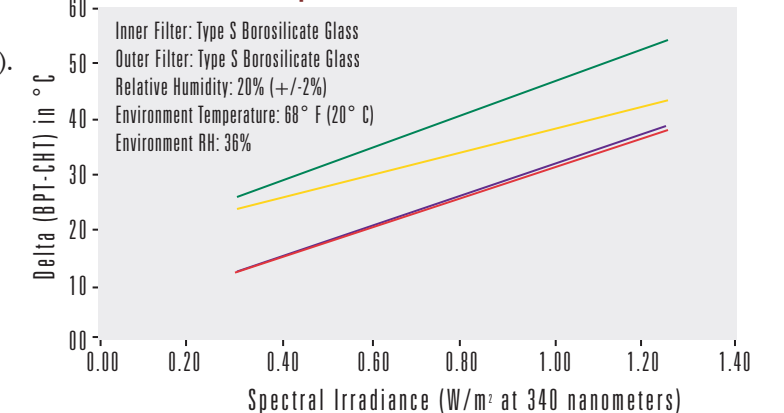
- Advanced PID algorithms allow for discrete manipulation of test parameters
- SmartDamper, variable speed blower and chamber heater are independently controlled
- Instrument performance envelope is optimized allowing maximum flexibility in custom test applications

Temperature and Humidity Control

Operable ranges of temperature control at various irradiance levels (under normal laboratory conditions).

- Minimum Delta BPT/CHT @ 45° C
- Minimum Delta BPT/CHT @ 60° C
- Maximum Delta BPT/CHT @ 45° C
- Maximum Delta BPT/CHT @ 60° C

Black Panel Temperature Control Performance



OPTIONS

Optional Features and Accessories to Extend the Capabilities of Your Next Weather-Ometer®

Hybrid Cooling System

Improved xenon lamp cooling system dramatically reduces water consumption

- Expanded LiquiAir options include onboard mounting
- Reduces water consumption up to 100%*

* Dependent on options, ambient lab conditions, and test methods



WXView ("Weather" View)

Our new WXView data acquisition program allows users to archive test data or monitor conditions remotely in real time.

- All standard test parameters such as rack temperature, chamber temperature, % RH and irradiance
- Control parameters such as lamp power, fan speed, heater output, and damper position
- Convenient options allow user to save, print, or extract a snapshot of test data
- Automatic scaling of Y-axes
- Magnify and demagnify functions



Additional Options

Auxiliary Filter Lantern

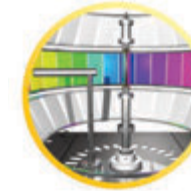
For meeting special test requirements.



S³T Monitoring System

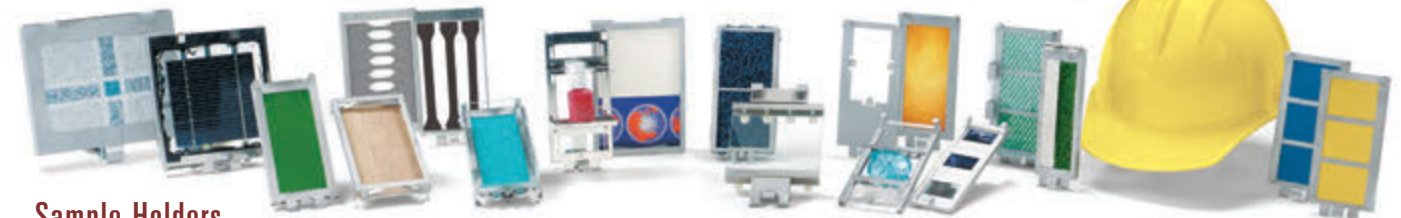
Atlas' patented Specific Specimen Surface Temperature (S³T) monitoring system provides users more information about their test specimens.

- Critical for service life prediction
- Utilizes non-contact IR pyrometer
- Emissivity settings
- Traceable calibrations



XenoCal® Irradiance Calibration Device

- For independent irradiance calibration and measurement at the sample plane
- Evaluation and graphical display of measured values on a PC by means of the XenoSoft analytical software
- Available with different wavelength sensitivities:
 - XenoCal BB 300-400 nm
 - XenoCal NB 340 nm
 - XenoCal WB 300-800 nm
 - XenoCal NB 420 nm



Sample Holders

This chart is a representative sample of specimen holders available for the Ci5000 Weather-Ometer®. For specific information about specimen holders that best meet your needs, please contact your local Atlas representative.

Holder Type (Part Number)	Application	Max. Size mm WxHxD	Exposure Size mm WxH	Capacity
RD-3T (20017900) Single or three exposure window w/"bulldog" clip	Coatings on various substrates, plastics, textiles, glass	77 x 152 x 10	57 x 134	111
SL-3T (19163900) Single exposure window w/spring clip back	Textiles, paper, plastic film, automotive interior	67 x 145 x 3	50 x 121	111
SL-3T with Glass (07303900) Single exposure window w/glass and adjustable back	Textiles, paper, plastic film, carpet, automotive interior	67 x 145 x 15	50 x 121	111
CD-3T (20215700) Three exposure windows w/spring clip back	Textiles, paper, plastic film, automotive interior	67 x 145 x 3	3 windows: 38 x 50	111
CD-3T with Glass (07303800) Three exposure windows w/glass, spring clip back	Textiles, paper, plastic film, wood, automotive interior	67 x 145 x 15	3 windows: 38 x 50	111
TEX-3T with Mask (19186700) Single exposure window w/mask, adjustable	Textiles, foam, foam-backed materials	45 x 134 x 12	19 x 119	170
Polystyrene Reference Chip (19183400)	Polystyrene reference chips	50 x 88 x 2	43 x 82	93
4 x 6 Panel (19210200)	Coatings, rigid plastic, wood	104 x 155 x 12	101 x 146	71
3 x 6 Panel (19188501)	Coatings, rigid plastic, wood	76 x 152 x 9	76 x 146	87
Solar Panel (19190400)	Rigid plastic, roofing material, solar panels, wood	127 x 138 x 9	119 x 119	51
Adjustable Bottle (19178100)	Bottles, labels, printing inks, adhesives, liquids, pills	69 x 101 x 43	50 x 121	111

FEATURES & SPECIFICATIONS

Standard Features

Full Color 12" Touch Screen Control Panel Display of All Test Parameters

- Direct Setting and Control of Irradiance
- Direct Setting and Control of BPT/BST
- Direct Setting and Control of Relative Humidity
- Direct Setting and Control of Specimen and Chamber Air Temperature
- Display of Diagnostic Messages
- 14 Factory Pre-Programmed Test Methods
- Space for Several Custom Programs
- Multi-Language Capability (English, French, German, Spanish, Japanese, Chinese, Korean, Turkish)

SmartDamper

SmartLight Monitor

Streaming Data Output USB or Ethernet

Air Heater

Xenon Lamp Cooling System

Air Intake Dust Filter

Three-tier Specimen Rack

Water Purity Indicator

Calibrated Xenon Reference Lamp

Chamber Viewing Door

316 Grade Stainless Steel Test Chamber

Universal Electrical Configurations to Meet Local Frequency, Voltage, and Electrical Requirements

Meets CE, UL, CSA, ISO and EN Compliance

Sample Management

E-mail Functionality



Optional Features

Auxiliary Lantern

LS-200 Full Spectrum Monitoring Device

Dual BPT and BST Measurement/Control Including BPT and BST Sensors

Monitoring of Second Wavelength

LiquiAir Self Contained Xenon Lamp Cooling System

Specific Specimen Surface Temperature (S'T) Monitoring System

Ambient Air Conditioning Unit (ACU)

XenoCal® Irradiance Calibration Device

Physical Dimensions

Height	198 cm (78 in)
Width	160 cm (63 in)
Depth	127 cm (50 in)
Floor Space	212 cm (83 in) x 293 cm (115 in) Including Access Area
Total Exposure Area	11000 cm ²

Electrical Specifications

Wiring Connections	3 Phase, 3 Wire w/ Ground (3/PE)
Operating Voltage Range	440-480 VAC Phase to Phase
Maximum Current	60 Amps
Frequency	50/60 Hz
Maximum Power	24 kW
Wiring Connections	3 Phase, 4 Wire w/ Ground (3/N/PE)
Operating Voltage Range	340-415 VAC Phase to Phase
Maximum Current	63 Amps
Frequency	50/60 Hz
Maximum Power	24 kW

Water Consumption

Pressure	138-344 kPa (20-30 psi)	
Flow Rate (max)	Deionized Water	Tap Water @18.5° C
Humidification	0.2 L/min	
Specimen Spray	0.2 L/min	
Rack Spray	0.2 L/min	
Xenon Lamp Cooling @ 6000W	1.9 L/min	

Weight

Weight of Fully Skidded and Wrapped Ci5000	943 kg (2080 lbs)
Weight of Ci5000 without Skid	807 kg (1780 lbs)

* Typical water usage will be less. Tap water requirements for lamp cooling with the LiquiAir system will be near zero.