ATLAS
MATERIAL TESTING SOLUTIONS
An AMETEK Company

XENOTEST®

ALPHA+

Light Exposure and Weathering Testing Instrument

Xenotest® Alpha+ simulates and accelerates the natural weathering process providing reliable results regarding the long-term behavior of materials. It is the universal weathering instrument for testing light- and weather-fastness of any material, offering a variety of options to meet international standards and test methods.

Common Applications

- **Textiles** – Light- and weatherfastness in accordance with ISO 105-B02, B04, B06 and AATCC TM 16 or manufacturer specific test methods (Marks & Spencer)
- **Plastics** – Light- and weatherfastness to meet ISO 4892-1, 4892-2 and numerous others
- **Interior Automotive Materials** – Testing of seat covers, carpeting, etc. in compliance with VDA 75202, ISO 105-B06 and test standards defined by the automotive industry
- **Paints and Coatings** – Light- and weatherfastness as specified in ISO 11341 and others

Standards

AATCC	TM 16H-1998	TM 16-2004	TM 169	
Adidas	Colour Lightfastness			
ASTM	G151	G155	D6695	
GB/T	8427-2008			
GME	60292			
GMW	3414			
ISO	105-B02	105-B04	105-B06	105-B10
	4892-1	4892-2	11341	12040
IKEA	IOS-PRG-0023		IOS-TM-0007	
JASO	M 346			
Marks & Spencer	C9	C9A		
MIL STD	810 F			
Nike	TM 2006			
SAE	J2019	J2212		
VDA	75202			
VW	PV 1303	PV 3929	PV 3930	

Test chamber with omega-shaped xenon lamp and optical components

Xenotest® Alpha+ Features

A large selection of optical filters to test various end-use conditions and weathering standards

Proven xenon lamp technology with long operating life to provide high irradiance levels with low thermal loads

Large color touch screen featuring multiple language capability for easier programming

Automatic control of irradiance and Black Standard Temperature (BST) at sample level

Automatic control and measurement of test chamber temperature and humidity

On screen display of diagnostics, program selection and parameter indication

Test assurance and reliability through microprocessor controlled parameter monitoring

Data output to a printer, RS232 or memory card

Optional control and calibration via XenoCal

Turning and non-turning mode

Specimen Spray System

XenoTouch Add-ons
Remote Control
Email Service
Online Monitoring

User-friendly Touch Screen Operation

- TFT full colour 5,7" touch screen control panel display of all test parameter.
- Most common test methods preprogrammed; space for 10 custom tests.
- PC interfaces RS232, Momory Card and Ethernet.
- Online Programming and Monitoring via optional Add-ons.

Reliable Sensor Technology

- Rotating XENOSENSIV sensor to measure irradiance between 300 and 400 nm and Black Standard Temperature at sample level according to ISO/DIN
- Stationary sensor to measure and control the test chamber temperature and relative humidity

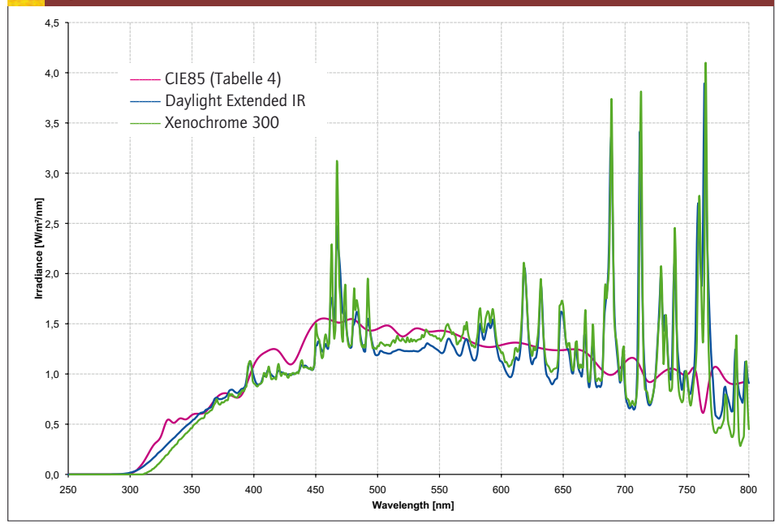
Versatile Instrument Functionality

- Supplemental electric heating device to achieve high temperature values even during dark cycles
- Simultaneous control of test chamber and Black Standard Temperature
- Ultrasonic humidification system to provide high humidity levels in the test chamber
- Specimen spray system for sample wetting in weatherfastness tests
- Integrated water tank to provide ultra-pure water automatically when connected to a supply line

Irradiance

in the Xenotest® Alpha+

Spectral Power Distribution from 250 to 800 nm



The omega-shaped xenon lamp guarantees constant irradiance for standards or high irradiance test methods – **up to three times** the maximum solar radiation.

Filter Combinations

Non Aging Filter System	Application
XENOCHROME 320 and UV special glass cylinder	Simulation of solar radiation behind window glass
XENOCHROME 300 and UV special glass cylinder	Simulation of outdoor solar radiation in accordance with CIE publication no. 85, table 4, low temperatures
Daylight extended IR and UV special glass cylinder	Simulation of outdoor solar radiation in accordance with CIE publication no. 85, table 4, normal temperatures, e.g. ISO 4892-2 or ISO 11341
Traditional Filter System	**Application**
10 window glass filters and UV special glass cylinder	Simulation of solar radiation behind window glass for exposures at high temperatures (e.g. for automotive interior trim materials)
Combination of absorption filters 7 IR and UV special glass cylinder	Simulation of solar radiation behind window glass
Combination of absorption filters 6 IR + 1 UV and UV special glass cylinder	Simulation of outdoor solar radiation – needed for older standard requirements
Combination of absorption filters 4 IR, 3 window glass filters and UV special glass cylinder	Simulation of solar radiation behind window glass at high temperatures
IR absorption filter system 16H and UV special glass cylinder	Simulation of solar radiation behind window glass, e.g. AATCC TM 16 Option H

Flexible filter system for absorption or non-aging XENOCHROME filter system.

Temperature Parameters
in the Xenotest® Alpha+

- User selectable temperature control based on either the test chamber temperature (up to 70° C) or using simultaneous control of test chamber temperature and Black Standard Temperature (up to 130° C).
- The Black Standard Temperature depends on test chamber humidity, irradiance and ambient air temperature in the laboratory.

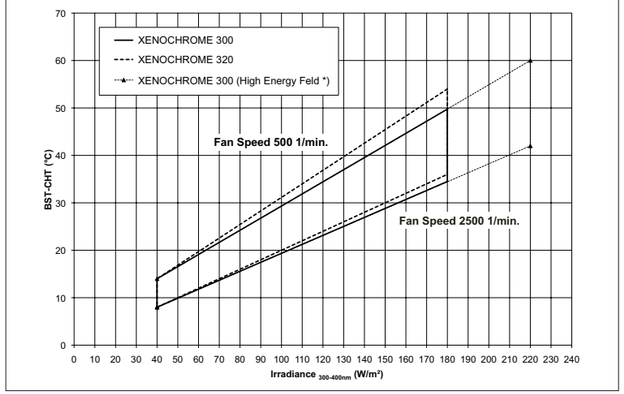
- The temperature ranges for outdoor solar radiation and solar radiation behind window glass for non-turning mode operation are displayed in the below temperature control performance graphics.

The red lines indicate the test chamber temperatures for each irradiance value between the minimum and maximum blower speed.

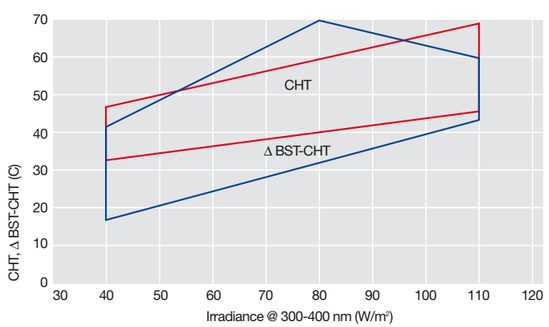
The blue lines show temperature differences between Black Standard and test chamber temperatures that fall between the minimum and maximum blower fan speed.

Adding the corresponding values of the temperature difference and test chamber temperature will result in the relevant Black Standard Temperature.

Temperature Control Performance for Outdoor Solar Radiation (XENOCHROME 300)



Temperature Control Performance for Solar Radiation behind Window Glass (10 Window Glass)



Options & Accessories
in the Xenotest® Alpha+

XenoCal Irradiance Sensor
to measure and calibrate irradiance:

- XenoCal BB 300–400 | 300 nm–400 nm (UV)

XenoCal Irradiance Sensor
to measure irradiance:

- XenoCal WB 300–800 | 300 nm–800 nm (UV + VIS)
- XenoCal NB 340 | 340 nm

XenoCal BST
to measure amd calibrate Black Standard Temperature

XenoCal combined irradiance + BST Sensor
to measure and calibrate both irradiance and BST simultaneously

- XenoCal BB300-400 BST

XenoCal WST
to measure, calibrate and adjust White Standard Temperature

Regular Specimen Holder
for samples up to a thickness of 3 mm

Special Specimen Holder
for samples up to a thickness of 15 mm such as automotive upholstery materials

Specimen Holders

Description	Application	Maximum Size	Exposure Size	Rack Capacity
Regular Specimen Holder for samples up to 3 mm thick	Textiles, plastics, coatings, papers	135 × 45 mm	121 × 35 mm	11
Special Specimen Holder for samples up to 15 mm thick	Carpets, plastics, foam-backed materials, thick panels	135 × 45 mm	121 × 35 mm	11
Specimen Holder for Blue Scale	Blue scale fabric during weathering tests	135 × 45 mm		1

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We reserve the right to make technical changes
to the instruments and systems.

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Xenotest® Alpha+ Features

Air-cooled xenon lamp 2200 W	●
XENOSENSIV sensor to measure and control irradiance from 300 to 400 nm and the Black Standard Temperature at sample level	●
Temperature control selectable either by test chamber temperature (up to 70° C) or both test chamber temperature and Black Standard Temperature simultaneously (up to 130° C)	●
Ultrasonic humidification system	●
Specimen spray system	●
Microprocessor control	●
Parameter check	●
User guided operation by color graphic display	●
TFT full color 5.7" Touch screen	●
Data output via memory card or RS232 / USB interface	●
Instrument-internal memory chip to store instrument data	●
XenoTouch Add-ons	○
Thermoprinter	○
XenoCal BST Black Standard Thermometer	○
XenoCal WST White Standard Thermometer	○
XenoCal BB 300–400 Irradiance Sensor	○
XenoCal WB 300–800 Irradiance Sensor	○
XenoCal NB 340 Irradiance Sensor	○

● Standard ○ Optional

Xenotest® Alpha+ Specifications

Irradiance range: 300–400 nm at sample level (in W/m²)

Filter system	Turning Mode	Non-turning Mode
XENOCHROME 300	21–93 W/m²	40–180 W/m²
XENOCHROME 320	21–93 W/m²	40–180 W/m²
10 window glass	21–57 W/m²	40–110 W/m²
Absorption filter lantern with:		
6 IR+1 UV	21–72 W/m²	40–140 W/m²
7 IRsegments	21–72 W/m²	40–140 W/m²
4 IR+3 window segments	21–72 W/m²	40–140 W/m²
Daylight extended IR	21–65 W/m²	40–125 W/m²
IR absorption filter system 16H	21–72 W/m²	40–140 W/m²

Temperature and Humidity Range

Test chamber temperature: 30° C to 70° C*

Black Standard Temperature: 40° C to 130° C*

Relative humidity: 10 to 95%*

*Depending on the selected filter combination and irradiance as well as the ambient laboratory conditions

Utility Requirements

Electrical	230 V ±10 %, 50/60 Hz (1P,N,PE) AC or (2P,PE) AC | CEE (32 A, 3-pin. 6h)
Amperage	16 A
Maximum power consumption	approx. 5 kVA
Cooling air requirement for xenon lamp	200 m³/h
Cooling air requirement for test chamber	100 m³/h
Water consumption for spray system	0.7 l/min
Water consumption for humidity	max. 0.033 l/min

Sample Capacity

Sample holders	11*
Sample dimensions L × W (max.)	135 × 46 mm
Exposure Area	1320 cm²

*without additional sensor (22 samples during turning mode)

Physical Specifications

Width × Depth × Height	900 × 780 × 1800 mm
Weight	approx. 280 kg