

# XENOTEST<sup>®</sup> ALPHA+

Light Exposure and  
Weathering Testing  
Instrument

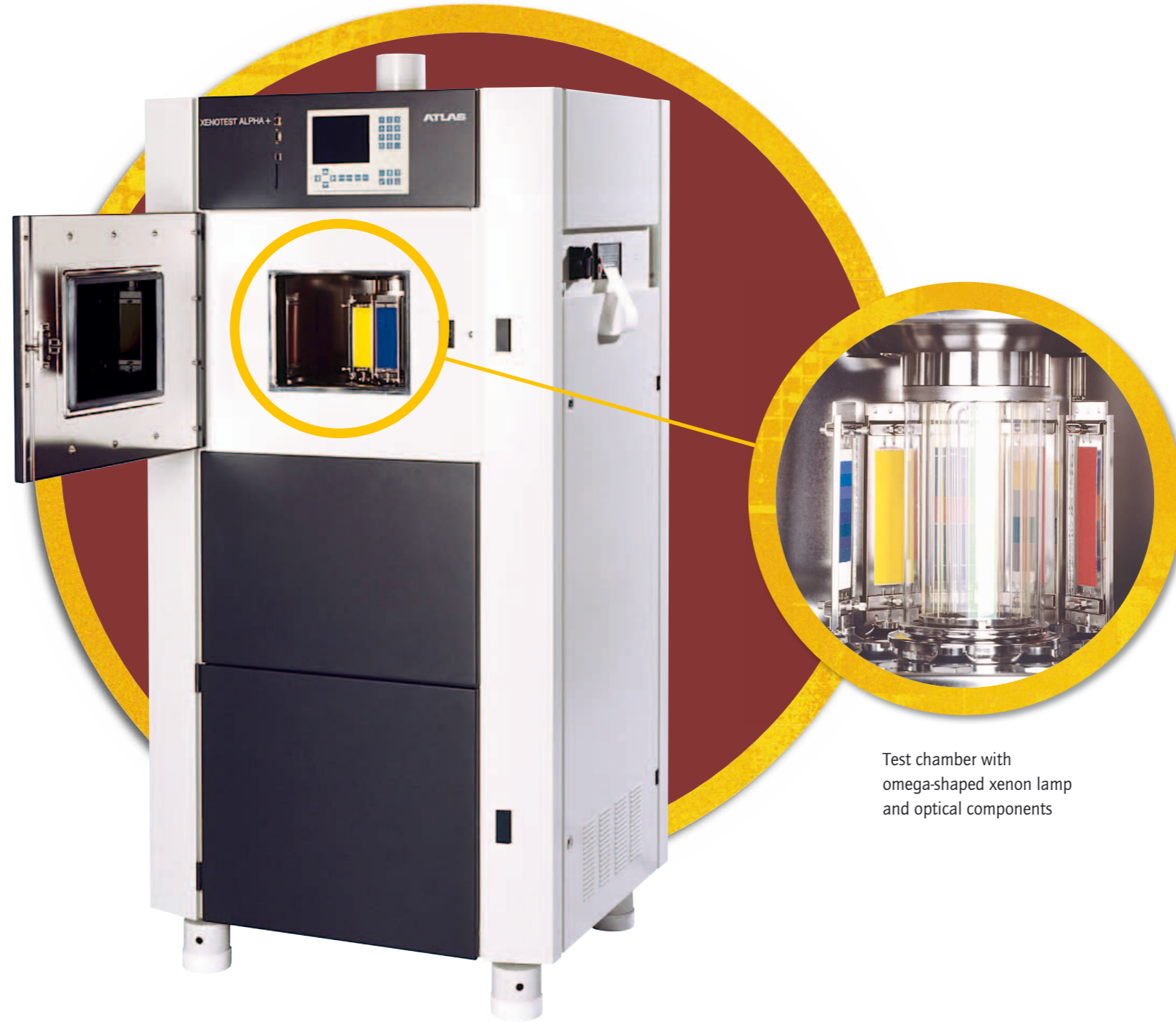


**Xenotest® Alpha+** simulates and accelerates the natural weathering process providing reliable results regarding the long-term behavior of materials. It is the universal weathering instrument for testing light- and weatherfastness of any material, offering a variety of options to meet international 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                  |                      |            |             |         |
|----------------------------|----------------------|------------|-------------|---------|
| <b>AATCC</b>               | TM 16H-1998          | TM 16-2004 | TM 169      |         |
| <b>Adidas</b>              | Colour Lightfastness |            |             |         |
| <b>ASTM</b>                | G151                 | G155       | D6695       |         |
| <b>GB/T</b>                | 8427-2008            |            |             |         |
| <b>GME</b>                 | 60292                |            |             |         |
| <b>GMW</b>                 | 3414                 |            |             |         |
| <b>ISO</b>                 | 105-B02              | 105-B04    | 105-B06     | 105-B10 |
|                            | 4892-1               | 4892-2     | 11341       | 12040   |
| <b>IKEA</b>                | IOS-PRG-0023         |            | IOS-TM-0007 |         |
| <b>JASO</b>                | M 346                |            |             |         |
| <b>Marks &amp; Spencer</b> | C9                   | C9A        |             |         |
| <b>MIL STD</b>             | 810 F                |            |             |         |
| <b>Nike</b>                | TM 2006              |            |             |         |
| <b>SAE</b>                 | J2019                | J2212      |             |         |
| <b>VDA</b>                 | 75202                |            |             |         |
| <b>VW</b>                  | 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, Memory 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

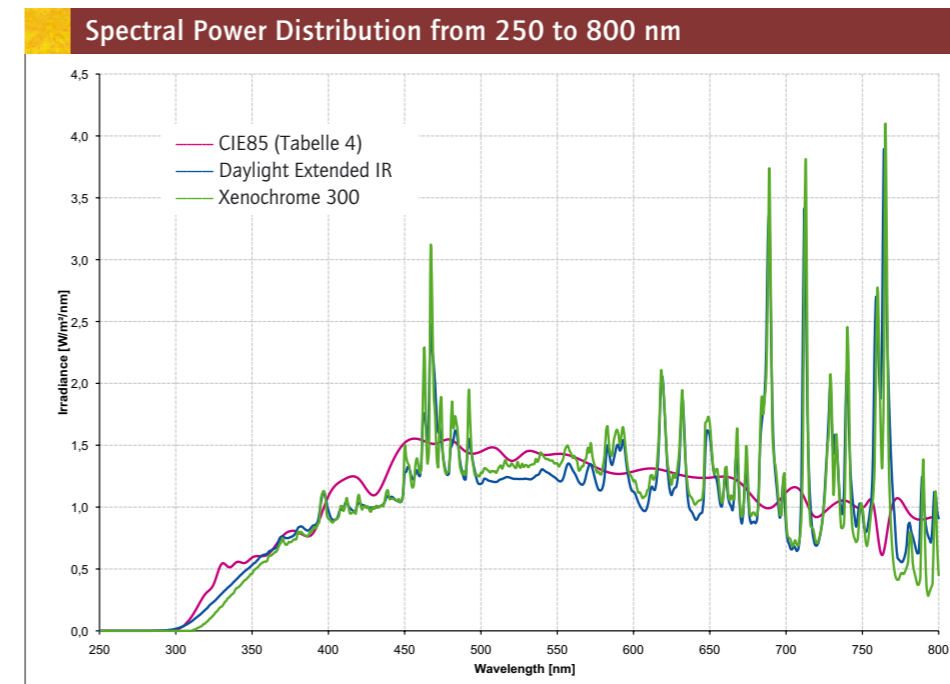


**Versatile Instrument Functionality**

- 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+



| 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  |

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

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.

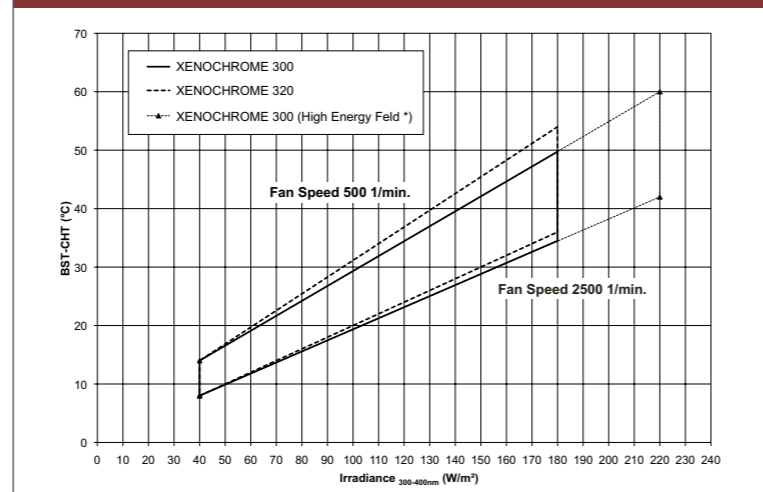
- The temperature ranges for outdoor solar radiation and solar radiation behind window glass for non-turning mode operation are displayed in the below temperature control performance graphics.

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

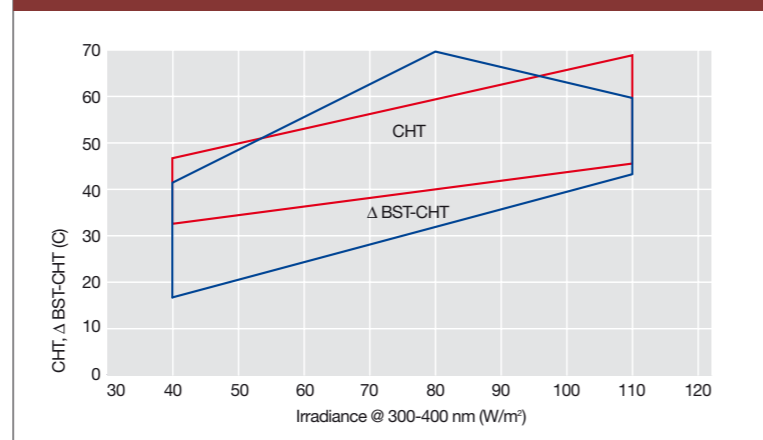
The blue lines show temperature differences between Black Standard and test chamber temperatures that fall between the minimum and maximum blower fan speed.

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 and 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             |



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

### Utility Requirements

|  |   |
|--|---|
| Electrical                               | 230 V ±10 %, 50/60 Hz<br>(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  |

### 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

### 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      |