Utility Requirements

Electrical: 230 V ±10 %, 50/60 Hz (1P,LN) or (2P,LA,LN) | CEE (4-pin, 6kVA)
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

Cooling air requirement for xenon lamp: 200 m³/h
Cooling air requirement for test chamber: 100 m³/h

Xenotest® Alpha+ Features

- Air-cooled xenon lamp 2,200 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
- Xenotest 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

Xenotest® Alpha+ Specifications

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

<table>
<thead>
<tr>
<th>Filter System</th>
<th>Turning Mode</th>
<th>Non-turning Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>XENOCHROME 300</td>
<td>21-93 W/m²</td>
<td>40-180 W/m²</td>
</tr>
<tr>
<td>XENOCHROME 320</td>
<td>21-93 W/m²</td>
<td>40-180 W/m²</td>
</tr>
<tr>
<td>10 window glass</td>
<td>21-57 W/m²</td>
<td>40-110 W/m²</td>
</tr>
<tr>
<td>Absorption filter lamier with:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 IR+1 UV</td>
<td>21-72 W/m²</td>
<td>40-140 W/m²</td>
</tr>
<tr>
<td>7 IR segments</td>
<td>21-72 W/m²</td>
<td>40-140 W/m²</td>
</tr>
<tr>
<td>4 IR+3 window segments</td>
<td>21-72 W/m²</td>
<td>40-140 W/m²</td>
</tr>
<tr>
<td>Daylight extended IR</td>
<td>21-65 W/m²</td>
<td>40-125 W/m²</td>
</tr>
<tr>
<td>IR absorption filter system 16H</td>
<td>21-72 W/m²</td>
<td>40-140 W/m²</td>
</tr>
</tbody>
</table>

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 (max.): 125 x 46 mm
Exposure area: 900 cm²

Physical Specifications

| Width x Depth x Height | 900 x 780 x 1800 mm |
| Weight | approx. 280 kg |
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**

<table>
<thead>
<tr>
<th>Standards</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adidas</td>
<td>Colour Lightfastness</td>
</tr>
<tr>
<td>ASTM</td>
<td>G151, G155, D6695</td>
</tr>
<tr>
<td>GB/T</td>
<td>8427-2008</td>
</tr>
<tr>
<td>GME</td>
<td>60292</td>
</tr>
<tr>
<td>GMW</td>
<td>3414</td>
</tr>
<tr>
<td>ISO</td>
<td>105-B02, 105-B04, 105-B06, 105-B10</td>
</tr>
<tr>
<td>GME</td>
<td>4892-1, 4892-2, 11341, 12400</td>
</tr>
<tr>
<td>JASO</td>
<td>M 346</td>
</tr>
<tr>
<td>Marks &amp; Spencer</td>
<td>C8, C9A</td>
</tr>
<tr>
<td>MIL STD</td>
<td>810 F</td>
</tr>
<tr>
<td>Nike</td>
<td>TM 2006</td>
</tr>
<tr>
<td>SAE</td>
<td>J2079, J2212</td>
</tr>
<tr>
<td>VDA</td>
<td>75202</td>
</tr>
<tr>
<td>VW</td>
<td>PV 1303, PV 3928, PV 3930</td>
</tr>
</tbody>
</table>

**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
Equipment technology

- **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

- **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

**Irradiance in the Xenotest® Alpha+**

**Filter Combinations**

<table>
<thead>
<tr>
<th>Non Aging Filter System</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>XENOCHROME 320 and UV special glass cylinder</td>
<td>Simulation of solar radiation behind window glass</td>
</tr>
<tr>
<td>XENOCHROME 300 and UV special glass cylinder</td>
<td>Simulation of outdoor solar radiation in accordance with CIE publication no. 85, table 4, low temperatures</td>
</tr>
<tr>
<td>Daylight extended IR and UV special glass cylinder</td>
<td>Simulation of outdoor solar radiation in accordance with CIE publication no. 85, table 4, normal temperatures, e.g. ISO 4892-2 or ISO 11341</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traditional Filter System</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 window glass filters and UV special glass cylinder</td>
<td>Simulation of solar radiation behind window glass for exposures at high temperatures (e.g. for automotive interior trim materials)</td>
</tr>
<tr>
<td>Combination of absorption filters 7 IR and UV special glass cylinder</td>
<td>Simulation of solar radiation behind window glass</td>
</tr>
<tr>
<td>Combination of absorption filters 6 IR + 1 UV and UV special glass cylinder</td>
<td>Simulation of outdoor solar radiation needed for older standard requirements</td>
</tr>
<tr>
<td>Combination of absorption filters 4 IR, 3 window glass filters and UV special glass cylinder</td>
<td>Simulation of solar radiation behind window glass at high temperatures</td>
</tr>
<tr>
<td>IR absorption filter system 16H and UV special glass cylinder</td>
<td>Simulation of solar radiation behind window glass, e.g. AATCC TM 16 Option H</td>
</tr>
</tbody>
</table>

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.

**Spectral Power Distribution from 250 to 800 nm**

- CIE85 (Table 4)
- Daylight Extended IR
- Xenochrome 300

Flexible filter system for absorption or non-aging XENOCHROME filter system.
Temperature Parameters in the Xenotest® Alpha+

- 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.

Options & Accessories in the Xenotest® Alpha+

XenoCal Irradiance Sensor to measure and calibrate irradiance:
- XenoCal BB 300–400 | 300 nm–400 nm (UV)
- 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

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