



## Simulation of natural sunlight

Reproducible results

### System-Features

- Touch Screen
- electronic power supplies
- compact design

### Advantages

- long lamp life
- high intensity

## Simulation of natural sunlight

Solar simulation carried out with Hönle SOL units deliver **reproducible results**, which are an effective comparison to tests in natural sunlight.

### Spectral distribution of SOL units

Special metal halide bulbs produce the light spectrum. Metal halides hermetically sealed inside the bulb are vaporised by an electric arc and generate a spectrum, which is close to that of natural sunlight. SOL units **do not produce ozone**.



Climatic chamber with 9 SOL 2000 units

Tests with sunlight have to be carried out in accordance with international accepted standards, e.g. IEC 60904-9. SOL units are used in many branches of industry worldwide.

In the biotechnology sector "SOL 500" is specified in the simulation test standards (**Colipa specification**).

### Range of applications

- **light resistance tests** on textiles, wood, leather and painted or varnished surfaces
- **accelerated sunlight ageing** of plastics
- performance monitoring of thermal solar cells
- **integration into multi-purpose climatic chambers** for simultaneous light, humidity and temperature testing
- testing of **photovoltaic modules (PV)**

### SOL 500/1200/2000: Perfect for accelerated ageing

The **radiation efficiency** of SOL units in the ultraviolet and visible range (295 – 780 nm) is close to 44 %. Consequently, the intensity is much higher than that found in the natural environment. This allows material testing to be done much faster and under standard, reproducible conditions.

Industry Standards recommend intensity values of 800 up to 1.200 W/m<sup>2</sup>, which is between **6 and 9 times higher than natural sunlight** (German average sunlight is 135 W/m<sup>2</sup> as measured by the German Meteorological Service in Potsdam).

## Large size solar simulation

SOL unit's 500/1200/2000 are suitable for solar simulation equipment where large areas are irradiated.

The high efficiency and long lifetime of the Hönle metal halide bulbs makes solar simulation with SOL units economically attractive. They can be integrated into climate test cabinets and chambers as well. Thus, multi-parametric tests can be done. The units can be fixed outside the climate chamber and radiate through high-grade filter glass into the testing room. High quality filter glass protects the SOL units from humidity and temperatures from inside the chamber, and avoids undesirable interaction between the bulbs and external contaminants. By **simply adding another glass filter, outdoor irradiation can be changed to indoor irradiation** (or vice versa).



Sun simulation switch cabinet

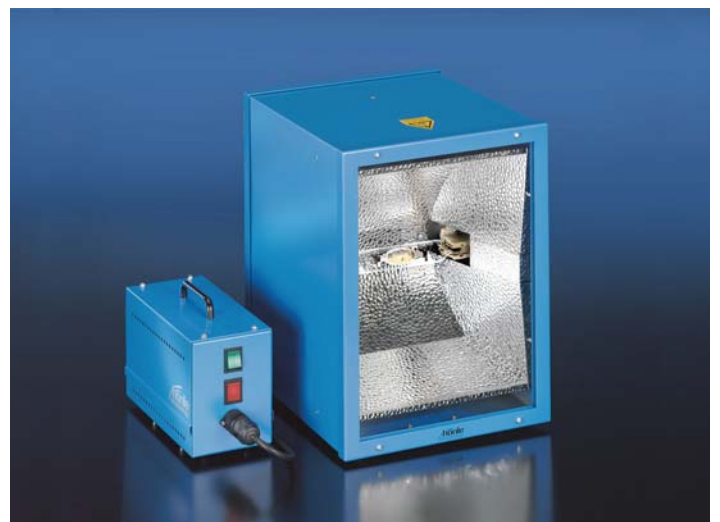


Climatic chamber with 24 SOL 1200

Beside conventional ballasts you can also use **electronic power supplies (EPS)** made by Hönle. These EPS supply the lamp with a rectangular current that improves the performance of the luminous flux. Thus, the power output increases by approx. 10%.

A **touch panel** in combination with a PLC offers the possibility to control all equipment functions centrally (e.g. error messages, lamp activation).

Please contact us if you require more detailed advice on complete systems for solar, temperature and humidity testing.



SOL unit

## Compact solar simulation

UVACUBE 400 is a **compact sunlight test chamber**. The SOL unit generates an intensity that is 7 times higher than outdoors and can evenly irradiate the **total test area of approx. 40 x 30 cm**. This makes UVACUBE 400 an ideal choice for material age testing.

Alternative filters are available which can vary the spectrum to suit users needs.



Sun simulation chamber  
UVACUBE 400

## Technical data

	UVACUBE 400	SOL 500	SOL 1200	SOL 2000
electricity <sup>1)</sup>	230 V/ 50 Hz	230 V/ 50 Hz	230 V/ 50 Hz	400 V/ 50 Hz
power of bulb	400 W	430 W	1000 W	2000 W
dimensions (H x B x T) in mm	864 x 466 x 402	340 x 300 x 400		
weight	45 kg	11 kg <sup>2)</sup>		
spectral distributions possible	UVA + VIS + IR (320 – 3.000 nm)			
	UVB + UVA + VIS + IR (295 – 3.000 nm)			
illuminance	150.000 Lux	application dependent		
intensity	1000 W/m <sup>2</sup>			

<sup>1)</sup>others on request    <sup>2)</sup>radiation unit only



Curing
Drying
Bonding
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Operating parameters depend on production characteristics and may differ from the foregoing information.  
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