

SOLARmaster Ref: SM1500 / SM3000



INTRODUCTION

The New SOLARmaster range of UV Weathering Test Cabinets incorporate the latest in filtered Xenon light technology to ensure consistency and repeatability in the simulation of realistic natural outdoor weathering conditions.

The cabinets, comprising of four different models, allow complete configurational flexibility in order to ensure that the environmental conditions specified in ASTM, ISO, SAE, CEN, DIN, BS, UNI and all other international test standards are precisely met.

The larger models of the SOLARmaster cabinets, the 3000 series, have been specifically designed for the testing of 3 dimensional objects and finished manufactured products. This facility, which is of increasing demand, is generally available only in very expensive Xenon test systems.

FEATURES

- *Light source – air cooled Xenon lamp*
- *Irradiance control – displayed and adjusted automatically compensating for lamp and filter ageing*
- *Radiant heat continuously monitored by integrated Black Standard Thermometer ("E" models also control)*
- *Programmable timer for test times to 999 hours*
- *Flooding system available for simulation of moisture and rain in conjunction with UV*



Irradiance Control – brighter testing automatically!



Radiant energy in the SOLARmaster is provided by a single air-cooled Xenon lamp. Irradiance is the rate at which light energy falls onto the samples. A weathering tester must control irradiance if it is to achieve accurate and reproducible results.

SOLARmaster offers continuous measurement and control of the irradiance during every test, compensating for both lamp and filter ageing via a closed loop irradiance sensor control system.

Irradiation uniformity is guaranteed by a parabolic reflector chamber with the Xenon lamp in the focus instead of utilising a rotating specimen holder.

Temperature Control

Temperature is another component in the end use environment which plays a key role in material degradation.

Heat in the natural environment comes from the infrared portion of natural sunlight.

An object exposed to direct sunlight is always warmer than the air surrounding it.

With this in mind the samples are exposed in the same manner in the SOLARmaster, the radiant heat received from the Xenon lamp being continuously monitored and controlled by a B.S.T. (Black Standard Thermometer) incorporated in the cabinet in the same test plane as the samples.

The SOLARmaster 1500E and 3000E versions also allow for the control and display of the black standard temperature between 35°C and 100°C.

The importance of temperature in the weathering degradation process is that the kinetic reaction rate doubles for every 10°C temperature increase.



Xenon lamp and filter combination optimize sunlight simulation

Accelerating the process requires the accurate reproduction of the sun's rays.

The air cooled Xenon lamp in the SOLARmaster simulates the total spectrum of the sun and not just the short wave length UV. Easily interchangeable filters are available to allow the specific spectral distributions found in the samples end use environment.

The coated filters are :

- 280nm equivalent to the most critical sunlight exposure including high altitude
- 300nm equivalent to normal direct sunlight
- 310nm equivalent to solar rays filtered through window glass
- I.R. (Infrared) filter to reduce the temperature level of the sample

Flooding system – for simulating the effect of rain and moisture



A flooding system for conducting weathering tests with freely selectable flooding intervals is an optional accessory for both the 1500E and 3000E models
The system comprises of:

- water level indicator
- water temperature controller
- flooding interval controller selectable between 1 and 999 minutes throughout the test program, continuous flooding possible.

During flooding the Xenon lamp can be programmed on or off.

The standard system operates with demineralised water from a closed recycling circuit or optional pump, providing water flow to the specimen tray.

The use of PVC and corrosion resistant materials ensures long life to the system.

Four SOLARmaster models – Features

SOLARmaster 1500 / 3000 standard versions include the following:-

- timer and time elapsed meter for the accurate control of the test sequence
- air cooled Xenon lamp – life time 1500 hours
- rotary knob to adjust irradiance level
- control system for constant irradiance
- basic 280nm filter for maximum UV radiation effect

SOLARmaster 1500E / 3000E enhanced models include microprocessor control of irradiance, heating and flooding cycles, monitoring / control of the test process as well as:-

- microprocessor controls for programming the test parameters
- LCD with 4 lines to display the test parameters and program menu
- control and monitoring of irradiance and black standard thermometer temperature
- optional measurement and display of temperature and relative humidity in the test chamber
- data transfer via RS232 interface
- basic 280nm filter for maximum UV radiation effect
- link-up with programmable flooding system accessories

TECHNICAL SPECIFICATION

SOLARmaster model	1500	1500E	3000	3000E
Electrical connection				
Mains Voltage Mains connection Current consumption	230Volts A.C. \pm 10%, 50/60 HZ L/N/E 16 Amps (Max.)			
Dimensions and weight				
Dimensions WxDxH Exposure area (Horizontal Specimen Holder) WxD Floor Weight Number of specimen panels (25 x 30 mm) approx	750x390x400 mm 280x200 mm 29 Kg more than 120		890x390x400 mm 420x200 mm 31 Kg more than 180	
Features				
Light source: air-cooled Xenon lamp	X	X	X	X
Adjustment and control of irradiance level	X	X	X	X
Display of current irradiance level		X		X
Irradiance range:250 – 1000W/m ² between 290-800nm	X	X	X	X
BST: control of temperature range up to 100°C		X		X
BST:display of current temperature value		X		X
Timer for test time setting up to 999 hours	X	X	X	X
Microprocessor control		X		X
4 lines LCD display		X		X
Bi-directional RS 232 interface for data output		X		X
Special sensors calibration program		X		X
Specifications	Paints	Plastics	Automotive	Textiles
	ISO 11341, DIN 53231	ISO 4892, DIN 53387, ASTM D5071	DIN 75202	ISO 105- B02, BS 1006-B02 DIN 54004
Options and accessories				
UV filter 280nm	X	X	X	X
UV filter 300nm	X	X	X	X
UV filter 310nm	X	X	X	X
IR Infrared filter	X	X	X	X
Flooding system for specimen		X		X
Test chamber humidity / temperature display		X		X

ORDERING INFORMATION

Ref. SM1500	SOLARmaster 1500 Accelerated UV Weathering Cabinet
Ref. SM1500E	SOLARmaster 1500E Accelerated UV Weathering Cabinet
Ref. SM3000	SOLARmaster 3000 Accelerated UV Weathering Cabinet
Ref. SM3000E	SOLARmaster 3000E Accelerated UV Weathering Cabinet

Owing to continuous development. we reserve the right to introduce improvements and modify specifications without prior notice.

Sheen INSTRUMENTS

Unit 4, St. Georges Ind. Est., Richmond Road, Kingston, KT2 5BQ England.
Tel: +44 (0) 20 8541 4333 Fax: +44 (0)20 8549 3374
Internet : www.sheeninstruments.com Email: info@sheeninstruments.com