FDM
Environment Makers

Solar Simulation Test Chambers.

with Solarbox Module

FDM Environment Makers Products

Climatic and Thermostatic Chambers

Growth Chambers

Environmental Chambers

Ultrafreezers

Custom Products

F.lli Della Marca S.r.l.

Viale Arcangelo Ghisleri
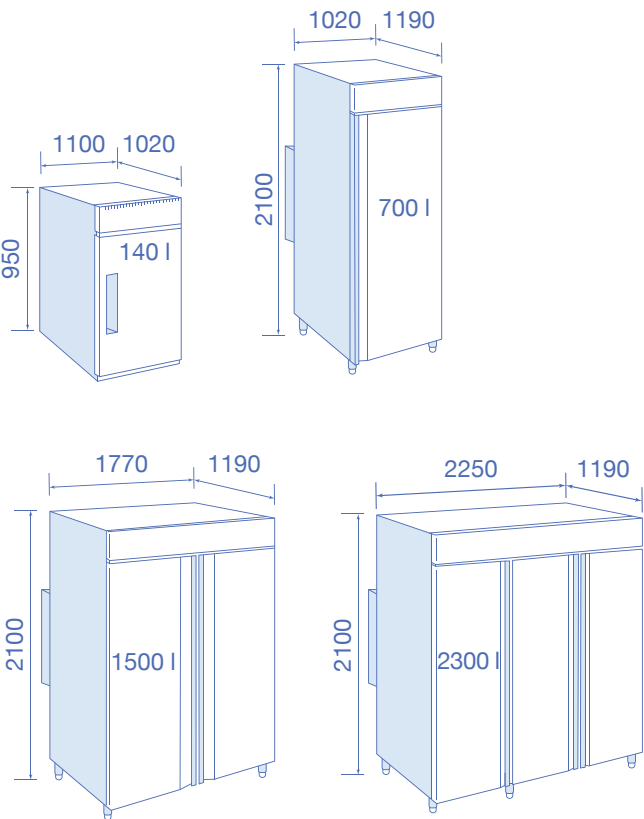
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Sizes

Description

The FDM Xenon Test Chamber precisely simulates natural sunlight using an advanced air-cooled xenon long arc lamp, ensuring uniform light, temperature, and humidity for a wide range of testing needs. Ideal for photostability, materials degradation, and durability studies, this chamber is invaluable in scientific and industrial research.

Key features include:

- **High-fidelity Sunlight Simulation:** Achieves consistent, natural sunlight exposure.
- **Integrated Environmental Control:** Maintains precise temperature and humidity.
- **User-Friendly Interface:** A touchscreen panel simplifies test setups and monitoring.
- **Efficient Data Management:** Supports RS232, USB, and Ethernet for easy data handling.

FDM's Xenon Test Chamber is the definitive solution for accurate sunlight simulation, essential for research and quality assurance in various fields.

Advantages

Air-Cooled Xenon Short Arc Lamp
Broad Irradiance Range
Automatic Climate and Humidity Control
Integrated Specimen Spray Systems
Full-Color Touchscreen Control Panel
Data Acquisition via Multiple Interfaces
Possibility of Water Spray on Samples surface
CE Compliance and Advanced Safety Features
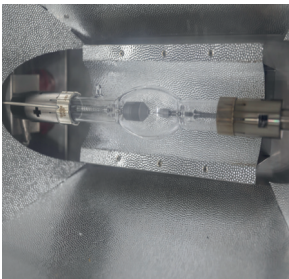
Air-Cooled Sample Table: A crucial specification for main- taining sample integrity under intense xenon light exposure, highlighting the chamber's ad- vanced cooling capabilities.

Full-Color Touchscreen Control Panel: This feature enhances user interaction, allowing for precise control and monitoring of test parameters directly from the chamber's front panel.

Configuration examples

Positive Range (S)		C/T140S	C/T700S	C/T1500S	C/T2300S
Negative Range (B)		C/T140B	C/T700B	C/T1500B	C/T2300B
Temperature performance					
Temperature range without humidity [°C]	Light off	0...+55 (S) -20...+70 (B)			
	Light on	+55...+80 (S) +55...+80 (B)			
Temperature uniformity depending on setpoint [± K]		0.5..2.5			
Temperature fluctuation depending on setpoint [± K]		0.1..0.5			
Average heating-up rate according to EN 60068-3-5 [K/min]	Light off	+2			
Average cooling down rate according to EN 60068-3-5 [K/min]	Light off	-1	-1	-1	
Performance Data Climate					
Temperature range [°C] with humidity on		10/55			
Humidity range in according to Chart*¹[% r.h.]	Light off	10/80			
	Light on	10/55			
Humidity fluctuation depending on setpoint [± %]		≤ 3			
Humidification system		Ultrasonic humidifcation system			
Water filter		Water softening filter and replaceable cartridge equipped*²			
Max Water hardness permitted		600 ppm CaCO₃			
Water inlet		Pressure 0.2÷5 BAR - Temperature 10÷40°C - Pipe connection 3/4"			
Outer dimensions					
Width net [mm]		1100	1020	1770	2520
Depth net [mm]		1020	1190	1190	1190
Height net [mm]		950	2100	2100	2100
Doors					
Unit doors		1	1	2	3
Internal Dimensions					
Width [mm]		450	600	1300	2090
Depth [mm]		540	670	670	670
Height [mm]		520.5	1340	1340	1340
Measures					
Interior net volume [L]		130	530	1180	1830
Net weight of the unit (empty) [kg]		128	217	265	417
Permitted load per rack [kg]		20	20	20	20
*³Fixtures					
Number of shelves (std./max.)		2/3	3/6	6/12	9/14
Shelf Width [mm]		400	530	530	530
Shelf Depth [mm]		500	650	650	650
revoFACE Programmer					
Set-up DIsplay		Programme status, set up temperature and humidity, date, time and language			
Programmer		10 programs and 50 segments each, adjustable from 1 min. to 999 hrs.			
Calibration		Possibility to calibrate all parameters			
Interface port		Optional: RS485 - Optional: Ethernet - Wifi - Dedicated mobile app			

*²The cartridge should be changed every 4–6 months at most.

*³The installation of fluorescent wall lighting reduces the usable width of the shelves: for volumes 140, 370, 440, and 900, the width is reduced by 160 mm; for volumes 700, 1200, and 1500, the width is reduced by 100 mm. The installation of LED lighting on side walls reduces the usable shelf width by 40 mm for volumes 370, 440, and 900.

For 1500- and 2300-liter chambers, different numbers of lamps and solutions are available based on the end user's requirements.

All technical data are specified for units with standard equipment, at an ambient temperature of +24°C, and with a voltage fluctuation of ±10%.

Positive Range (S)	C/T140S	C/T700S	C/T1500S	C/T2300S
Negative Range (B)	C/T140B	C/T700B	C/T1500B	C/T2300B
Environment-specific data				
Sound-pressure level [dB(A)]	60			
Structure and insulation				
Exterior material	White coated galvanized steel or full Stainless steel AISI 304			
Internal material	AISI 304 Stainless Steel			
Insulation	CFC and H CFC free			
Shelf grill	Removable and height adjustable stainless steel plastic coated			
Ventilation				
Fan	forced ventilation			
Safety				
Temperature	Class 2 independent adjustable temperature safety devices (DIN 12880)			
Alarm	Audio-Visual			
Electrical data				
Rated Voltage [V]	220/240			
Power frequency [Hz]	50			
*4Nominal power [kW] Light off (S)	1.4	1.8	2.6	2.7
Light off (B)	1.6	2.3	2.9	2.9
Unit fuse [A]	16			
Phase (nominal voltage)	1 ~			

Main Options

- Automatic Blower Speed Control: Adjusts fan speed automatically for optimal airflow conditions.
- Specimen Spray System: Simulates humidity or rain conditions by spraying samples.
- Back Spray System: Provides additional environmental simulation by spraying the back of samples.
- Integrated 16l Water Reservoir: Supports spray systems without external water connections.

- Automatic Test Countdown in KJ/m²: Precisely measures test exposure in kilojoules per square meter.
- Internal Memory Chip for Data Storage: Stores test data and chamber configurations for easy access.
- Water-Cooled Sample Table: Maintains sample thermal stability with contact cooling.
- Irradiance Sensor: Monitors and adjusts light intensity inside the chamber for accurate sample exposure.

- FD100
Cable hole installed on the side of the chamber that allows the passage of cables inside without loss of performance.

- UDB100
USB port for downloading test data with the possibility of viewing them on a PC in Excel format.

- GP100R
The reinforced stainless steel shelf differs from the standard one (pictured above) in that it has a higher supported load capacity.

- RT100
Swivel castors with chamber lock for easy movement.

- PV101*
The touch-screen interface allows you to program segments autonomously and view the test progress in real time.

- WTO16
System of supply demineralizzate water tank 16 liters.

*4 The nominal power with light ON varies, depending on the number and types of lamps installed.

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Click and go to Online Configurator

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XENONLAMP | SOLAR TEST SIMULATION

	Daylight Filter	Window Glass Filter
Range Positivo (S)	XEC/T140S	
Range Negativo (B)	XEC/T140B	
FDM Solar Test Chamber Features		
Air-Cooled Xenon Long Arc Lamp	1600 W (1)	
Exposure Area	600 m²	
Specimen Tray Size	30X20 cm	
Specimen Mounting	Vertical	
Irradiance Ranges:	Daylight Filter	Window Glass Filter
300-400 Nm	27-68 W/m²	24-64 W/m²
340nm	0.12-0.31 W/m2 nm	0.10-0.27 W/m2 nm
420nm	0.70-1.74 W/m2 nm	0.67-1.67 W/m2 nm
300-800 Nm	352-819 W/m2	328-769 W/m2
Lux	75K-134 Klx	56K-140 Klx
BPT Range with light on	+60, +98 °C BPT with 10 to 50% relative humidity	
Chamber Operating Range with Lamp Off	-20, +70 °C	
Automatic CHT Control*⁴	S	
Automatic Simultaneous BPT And CHT Control	S	
Automatic Blower Speed Control	O	
Ultrasonic Humidification System	S	
Automatic Humidity Control	S	
Specimen Spray System	O	
Back Spray System	O	
Integrated Water Reservoir 16l	O	
Full-Color Touchscreen Control Panel Display of All Test Parameters	S	
Multiple Languages Available	S	
Graphic Display of The Progression of Your Test Parameters	S	
Parameter Check for Set Tolerances	S	
Automatic Test Countdown In KJ/M^2	O	
Data Acquisition Via Interfaces RS232, Or USB Key	S	
Ethernet Interface For Software Add-Ons	S	
Software Updates Via Memory Card	S	
Internal Memory Chip for Storing Instrument Data	O	
CE Compliant	S	
Instrument Dimension (WXDXH) In mm (Approximate)	860X840X930	
Chamber Air Refrigeration	S	
Water-Cooled Sample Table for Contact Cooling	O	
Temperature and Humidity Sensors	S	
Irradiance Sensor	O	

O = Optional
S = Standard

*⁴All ranges may not be achieved depending on other instrument parameter set points.

All technical data are specified for units with standard equipment at an ambient temperature of +24 °C and a voltage fluctuation of ±10 %.