S/SM-SERIES ENVIRONMENTAL TEST CHAMBERS

SM-8

SM-16

SM-32

Thermotron's S-Series Environmental Test Chambers deliver the quality and accuracy you expect from a premier worldwide environmental test equipment manufacturer. Featuring the 8200+ Controller, wide temperature and humidity ranges, and multiple chamber sizes and performance configurations, Thermotron's S-Series Environmental Test Chamber is the ideal choice for quality and customizable simulated environmental testing.

S-Series Environmental Test Chambers are designed in multiple sizes, ranging from 4–32 cubic feet, and performance configurations. Both temperature only (S models) and temperature humidity (SM models) chambers utilize hermetically sealed compressors that provide moderate temperature change rates while consuming less power than comparable test chambers. Advanced features, such as an Electronic Humidity Sensor and Product Temperature Control, add value, increase efficiency, and reduce test chamber maintenance.

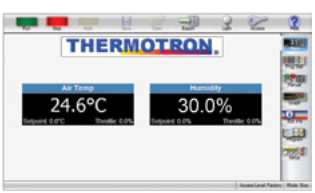
FEATURES

Additional Chamber Options*

- Additional Access Ports
- Additional Shelving
- Auxiliary Event Relay Board
- Cable Notch
- CE and CSA Compliant
- Chart Recorders
- Custom Shape, Size, and Placement of Access Ports
- Dry Air or Nitrogen Purge
- Extra Heat
- Glove Ports
- GPIB or RS-232/485 Computer Interface
- Humidity Water Purification and Recirculation System
- Inner Glass Doors
- LN_2 or CO_2 Boost
- Low Humidity Package
- Minimal Spark
- Refrigeration Gauges
- Single-Stage and Larger Compressor Systems
- ThermAlarm™
- ThermoTrak II™
- Water-Cooling

8200+ Controller

S-Series Environmental Test Chambers feature the robust and intuitive 8200+ Controller. The controller's software and hardware are designed by Thermotron engineers, specifically for programming and controlling environmental chambers. Operation and data collection are easy with a 7-inch color touchscreen display and familiar Windows® look and feel. Test data can be exported securely, quickly, and easily with a USB port. Built-in ethernet capabilities give the 8200+ Controller network-wide accessibility.



Worldwide Service and Support

Thermotron's comprehensive service department supports your equipment purchase for years after the sale. Our worldwide service professionals are available and ready to help over the phone or in person.

Technical advisors are available to answer questions and offer advice regarding start-up, service, operation, troubleshooting, and repair of your equipment.

Factory-trained Field Service Engineers are located across the United States and throughout the world to assist with equipment start-up, after-delivery service, preventive maintenance, and calibration contracts. From phone support to overnight parts delivery, Thermotron can support you for the life of your equipment.

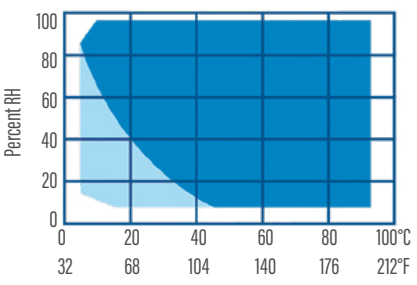
**Specifications subject to change. The addition of accessories may affect performance. Certain options may increase move-in dimensions.*

GENERAL SPECIFICATION
S/SM Cascade Systems

Temperature Range	Temperature Only (S Models)	-70°C to 180°C (-94°F to 356°F)
	Temperature and Humidity* (SM Models)	-68°C to 180°C (-90°F to 356°F)

Model	S-4	S-8	SM-8	S-16	SM-16	S-27	SM-27	S-32		SM-32	
Compressor Sizes	1-1			2-2				2-3	2-2	2-3	
Workspace Dimensions — W x D x H											
Inches	20 x 20 x 20	24 x 24 x 24		30 x 30 x 30		36 x 36 x 36		38 x 38 x 38			
Centimeters	51 x 51 x 51	61 x 61 x 61		76 x 76 x 76		91 x 91 x 91		97 x 97 x 97			
Exterior Dimensions — W x D x H											
Inches	31 x 42 x 68	35 x 49 x 73		45 x 59 x 81		51 x 65 x 88		53 x 68 x 90			
Centimeters	79 x 107 x 173	89 x 124 x 185		114 x 150 x 206		130 x 165 x 224		135 x 173 x 229			
Volume											
Cubic Feet	4	8		16		27		32			
Liters	113	227		453		764		906			
Temperature Control Tolerance	±0.3°C (±0.5°F)										
Temperature Uniformity**	±0.7°C (±1.3°F)										
Shipping Weight (Approx.)											
Pounds	700	800	875	1,320	1,395	1,800	1,875	1,975		2,050	
Kilograms	318	363	397	599	633	816	851	896		930	
Cooling Change Rates — Minutes											
180°C to -65°C (356°F to -85°F)	50	66	72	68	80	85	98	93	68	106	74
71°C to -65°C (160°F to -85°F)	30	44	54	50	54	58	64	65	48	71	51
85°C to -40°C (185°F to -40°F)	14	26	32	28	31	39	42	45	21	48	23
Heating Change Rates — Minutes											
-65°C to 180°C (-85°F to 356°F)	27	42	43	52	54	66	68	71	38	73	40
-65°C to 71°C (-85°F to 160°F)	11	16	17	22	22	27	28	30	12	31	13
-40°C to 85°C (-40°F to 185°F)	10	15	16	20	21	25	26	28	10	29	11
Electrical Service — Full Load Amps											
208/1/60	30	29	29	50	50	50	50	50	—	50	—
208/3/60	22	22	22	35	35	35	35	35	47	35	53
230/1/60	30	30	30	49	49	49	49	49	—	49	—
230/3/60	23	23	23	35	35	35	35	35	47	35	53
460/3/60	—	—	—	15	17	15	17	15	24	17	27
220/1/50	25	24	27	—	—	—	—	—	—	—	—
400/3/50	12	11	11	17	21	17	21	17	24	21	24
Live Load Capacity — Watts											
-18°C (0°F)	600	550		1,000					1,500	1,000	1,500
-40°C (-40°F)	400	350		700					1,050	700	1,050
-54°C (-65°F)	300	200		400					600	400	600
Noise Level† — dBA											
Heating	60			60							
Cooling	68			70							

Humidity Specifications*



Humidity Range[1]	10% to 98% RH
Dry Bulb Temperature Range	7°C to 88°C (45°F to 190°F)
Dewpoint Temperature Range	7°C to 87°C (45°F to 188°F)
Humidity Control Tolerance[2]	±2.5% RH

Standard Humidity Range Optional Low Humidity Package

[1] Limited by a 7°C (45°F) minimum dewpoint temperature and a maximum dry bulb temperature of 88°C (190°F).

[2] At a dry bulb temperature above 20°C (68°F).

**Relative humidity indication at or near the physical limits may be affected by sensor accuracy and control tolerance. An optional humidity package can be added for applications requiring humidity levels lower than those covered by the full-range humidity system.*

***Standard deviation from mean, measured at -25°C (-13°F) or at +100°C (212°F).*

†Noise Level: A-weighted sound pressure level measured at a distance of 1.0 meter (39.4 inches) from the surface of the equipment at a height of 1.6 meters (63 inches) from the floor in free-field conditions using a calibrated instrument.

Performance is based on 60Hz and 23.9°C (75°F) ambient air, and may vary slightly at other ambient temperatures. Chambers are designed for use under normal laboratory conditions. For other applications, please consult Thermotron.

Specifications subject to change without notice.

GENERAL SPECIFICATION
S/SM Single-Stage Systems

Temperature Range	Temperature Only (S Models)		-40°C to 180°C (-40°F to 356°F)	
	Temperature and Humidity* (SM Models)		-40°C to 180°C (-40°F to 356°F)	
Model	**S-4S**	**SM-4S**	**S-8S**	**SM-8S**
Compressor Sizes: Hp Single Stage	2-0			
Workspace Dimensions — W x D x H				
Inches	20 x 20 x 20		24 x 24 x 24	
Centimeters	51 x 51 x 51		61 x 61 x 61	
Exterior Dimensions — W x D x H				
Inches	31 x 42 x 68		35 x 49 x 73	
Centimeters	79 x 107 x 173		89 x 124 x 185	
Volume				
Cubic Feet	4		8	
Liters	113		227	
Temperature Control Tolerance	±0.3°C (±0.5°F)			
Temperature Uniformity**	±0.7°C (±1.3°F)			
Shipping Weight (Approx.)				
Pounds	700	775	800	875
Kilograms	318	350	363	397
Cooling Change Rates — °C / Minutes				
85°C to -20°C (185°F to -4°F)	14	14	20	20
180°C to -35°C (356°F to -31°F)	40	40	50	50
Heating Change Rates — °C / Minutes				
-20°C to 85°C (-4°F to 185°F)	8	8	13	13
-35°C to 180°C (-31°F to 356°F)	22	22	38	38
Electrical Service — Full Load Amps				
208/1/60	26	33	26	33
208/3/60	23	23	23	23
230/1/60	25	33	25	33
230/3/60	23	23	23	23
460/3/60	12	12	12	12
400/3/50	15	15	15	15
Noise Level† — dBA				
Heating	60			
Cooling	68			

**Relative humidity indication at or near the physical limits may be affected by sensor accuracy and control tolerance. An optional humidity package can be added for applications requiring humidity levels lower than those covered by the full-range humidity system.*

***Standard deviation from mean, measured at -25°C (-13°F) or at +100°C (212°F).*

†Noise Level: A-weighted sound pressure level measured at a distance of 1.0 meter (39.4 inches) from the surface of the equipment at a height of 1.6 meters (63 inches) from the floor in free-field conditions using a calibrated instrument.

Performance is based on 60Hz and 23.9°C (75°F) ambient air, and may vary slightly at other ambient temperatures. Chambers are designed for use under normal laboratory conditions. For other applications, please consult Thermotron.

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US: 291 Kollen Park Drive, Holland, Michigan 49423 | P: (616) 393-4580 | F: (616) 392-5643 | info@thermotron.com

UK: Winch Rd., Kent Science Park, Sittingbourne, Kent, ME9 8EF England | P: 01795 436333 | F: 01795 436777 | sales@thermotron.co.uk