

S/SM-SERIES ENVIRONMENTAL TEST CHAMBERS



SM-16



SM-27



SM-32

THE TESTING STANDARD

Thermotron's S-Series delivers 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 sizes and configurations, Thermotron's S-Series is the ideal choice for every test lab.

Key Advantages

Variety of Sizes

Chamber workspaces range from 113 to 906 liters to accommodate many product sizes.

Multiple Power Options

By utilizing multiple compressors in multiple size configurations, S-Series Chambers can achieve the change rates you require. Thermotron offers single-stage (one compressor) and cascade (two compressors) chamber models.

Superior, Optimized Airflow

Direct airflow over the product under test improves product temperature change rates, helping achieve superior testing results.

Continuous Monitoring

Thermotron offers multiple features that assist in monitoring the product under test to maximize test results, including innovative data acquisition and Product Temperature Control (PTC).

Unparalleled Control System

The 8200+ Controller is standard on all S-Series Chamber models. The controller is intuitive, robust, and secure. The controller's hardware and software is designed in-house, specifically for environmental testing.

Unique Humidity System

The patented humidity system provides a wide range of humidity conditions. Its unique design allows for quick access and convenience on our SM-Series Chambers.

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For more than 60 years, Thermotron has provided quality environmental test equipment. We've worked to establish a trusted reputation among our peers, and when people hear the name *Thermotron*, they have confidence in the testing of their own product. We've been building our name since 1962; now it's your turn.

**QUALITY. TRUST.
CONFIDENCE.**

**BUILD YOURS WITH A
THERMOTRON.**

FEATURES & BENEFITS



Powerful, Reliable & Flexible

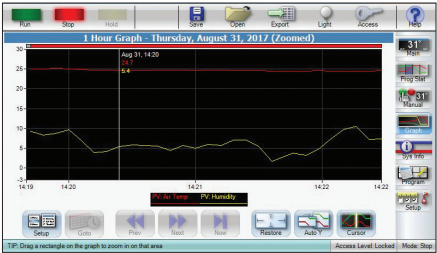
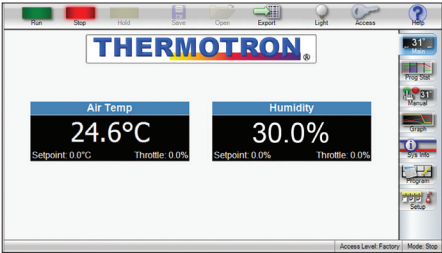
Your testing chamber should be able to handle quick change rates and dynamic temperature fluctuations, over and over again. The S-Series chambers are engineered to give you best performance through a wide range of temperatures without worry.

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
- LN₂ or CO₂ Boost
- Low Humidity Package
- Low GWP Refrigerants (single stage limited to -35°C, ramp rates reduced)
- Minimal Spark (not available with humidity systems)
- Single-Stage and Larger Compressor Systems
- ThermAlarm™
- ThermoTrak II™
- Water-Cooling

Make your chamber specific to your needs. Contact your regional sales rep or visit us online to learn more about these additional chamber options.

Take Control from Anywhere



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.

Visit thermotron.com/resources-main/controller-demos for an interactive demo

8200+ Controller

The enhanced 8200+ Controller features an intuitive touchscreen display, with quick and efficient performance. Users can securely and easily enter and monitor test data with a familiar Windows®-based interface.



Built-in Graphing Capabilities
users pinpoint the exact data they wish to see



Ethernet Connection
easy and secure data export and remote PC access



Password-Based Security
multi-level, system protects sensitive data



Quick Step Wizards
easy program entry, test setup, and product monitoring



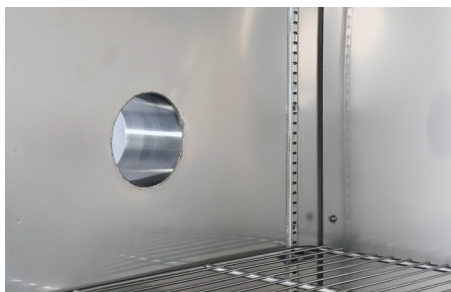
Transferable Spreadsheet Data
test data can be exported to commonly used spreadsheet formats and transferred via USB



Web Server
view the controller status from any computer connected to the network

FEATURES & BENEFITS

Customized Ports



Customized ports allow easy access to your product being tested without affecting the entire environment. Customize the size and location of your ports to fit your specific testing needs.

Refrigeration Gauges



Check your testing performance without needing a device. Visible gauges can help you monitor your chamber with a simple glance.

Emergency Shut-Off



Immediately stop a test for any reason and save your product and chamber with the Emergency Shut-Off Button

Liquid Nitrogen Boost



Adding a Liquid Nitrogen Boost can help you achieve lower temperatures quickly with your current system.

Gaseous Nitrogen Purge



A slow purge of nitrogen gas keeps humidity levels low and limits oxidation under extreme conditions.

Exterior Colors Options



Chamber Blue™



Lab Gray™



Your Choice of Color*

Chamber Interior



Inside the Workspace

Well-Insulated Walls and Door

Insulation ranges 4-6" thick depending on model. Exterior stays cool to the touch, protecting the user.

Advanced Air Baffle Design

Forces air directly over the product for better temperature change rates.

Electronic Humidity Sensor (humidity models)

Eliminates the need for thermocouple wicks, producing more repeatable, dependable humidity tests with less downtime.

Interior Lights

Illuminate the workspace during a test and while the door is open.

Product Temperature Control (PTC) Thermocouple

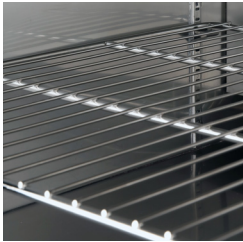
Attaches to the product under test to control and monitor its temperature.

ThermAlarm®

Prevents temperature from exceeding user-defined limits.



Interior light. See the inside of your chamber and how your product is functioning with the push of a button



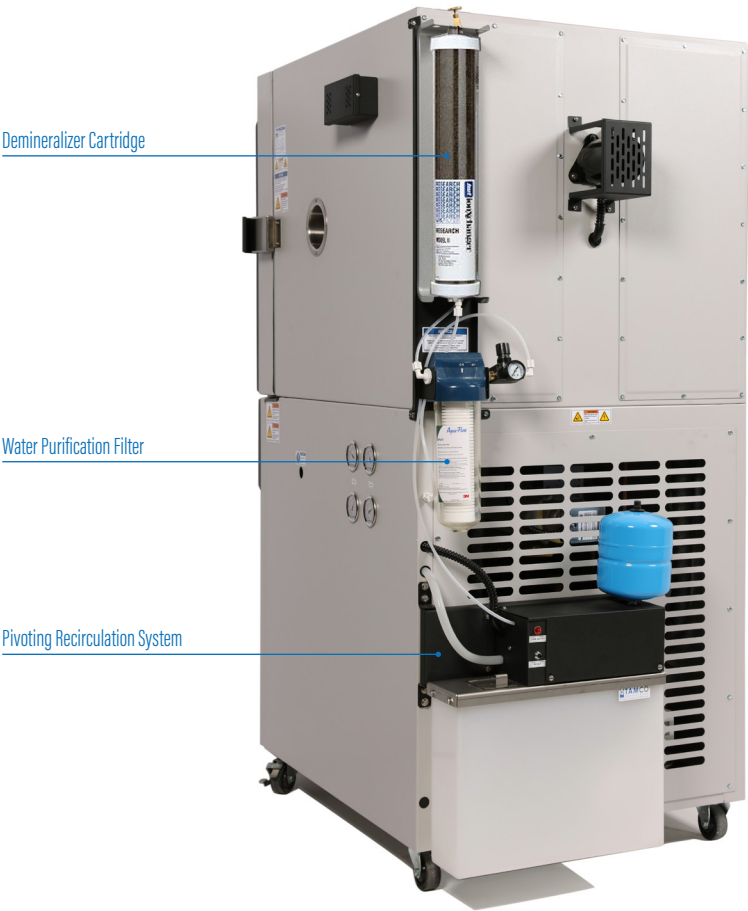
Adjustable shelves. Whether you're testing rows of semiconductors or multiple brake pads, adjustable shelves can improve your testing experience.



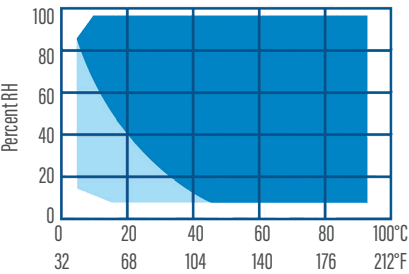
Patented drain system. On humidity models, the floor is scored slightly to allow condensated water to drain.

Water Purification and Recirculation System

Achieving the proper humidity can help you test your products to the fullest extent. Using Thermotron's Water Purification and Recirculation System, you can improve the quality of water used, while also recirculating excess liquid.



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

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.

Specifications subject to change without notice.

SINGLE STAGE SPECIFICATIONS

When speed and performance rates are not a factor, but maintaining consistent temperature and humidity levels are important, then a single-stage system may be all you need for your test lab.

Temperature Range^	Temperature Only (S Models)		Temperature and Humidity* (SM Models)	
	-40°C to 180°C (-40°F to 356°F)		-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 — 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 — 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.

[†]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.

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

[^]Cooling performance is based on standard refrigerants. Low-GWP refrigerants are available with reduced cooling rates. Single-stage systems are generally limited to -35°C (-31°F) with non-standard refrigerants

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.



S-SERIES

The S-Series is the perfect addition to any testing lab. With various sizes and options, you can construct your own S-Series chamber today.



Key Benefits

- 1

Moderate Change Rates. Get all the Thermotron quality and performance at an affordable price.
- 2

8200+ Controller. Record and utilize your data easier than ever. Our 8200 Windows-based controller makes controlling and data collection a walk in the park.
- 3

Centered Observation Window. Check on your product under test directly. The centered window gives you a full view of your products during test.
- 4

Standard Size. Fit your S/SM chamber easily in your lab. Designed with your needs in mind.

DIMENSIONS

Model	S-4	S-8	SM-8	S-16	SM-16	S-27	SM-27	S-32	SM-32
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	

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SPECIFICATIONS

The Testing Standard

As the testing lab essential, the S-Series chambers provide robust temperature change rates in a trusted design. No matter what you're testing, the S-Series is there for you.

Temperature Range	Temperature Only (S Models)					Temperature and Humidity* (SM Models)						
	-70°C to 180°C (-94°F to 356°F)					-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	
Temperature Control Tolerance	±0.3°C (±0.5°F)											
Temperature Uniformity**	±0.7°C (±1.3°F)											
Shipping Weight (Approx.) Pounds Kilograms	700 318	800 363	875 397	1,320 599	1,395 633	1,800 816	1,875 851	1,975 896		2,050 930		
Cooling Change Rates — Minutes 180°C to -65°C (356°F to -85°F) 71°C to -65°C (160°F to -85°F) 85°C to -40°C (185°F to -40°F)	50 30 14	66 44 26	72 54 32	68 50 28	80 54 31	85 58 39	98 64 42	93 65 45	68 48 21	106 71 48	74 51 23	
Heating Change Rates — Minutes -65°C to 180°C (-85°F to 356°F) -65°C to 71°C (-85°F to 160°F) -40°C to 85°C (-40°F to 185°F)	27 11 10	42 16 15	43 17 16	52 22 20	54 22 21	66 27 25	68 28 26	71 30 28	38 12 10	73 31 29	40 13 11	
Electrical Service — Full Load Amps 208/1/60 208/3/60 230/1/60 230/3/60 460/3/60 220/1/50 400/3/50	30 22 30 23 — 25 12	29 22 30 23 — 24 11	29 22 30 23 — 27 11	50 35 49 35 15 — 17	50 35 49 35 17 — 21	50 35 49 35 15 — 17	50 35 49 35 17 — 21	50 35 49 35 15 — 17	— 47 — 47 24 — 24	50 35 49 35 17 — 21	— 53 — 53 27 — 24	
Live Load Capacity — Watts -18°C (0°F) -40°C (-40°F) -54°C (-65°F)	600 400 300	550 350 200		1,000 700 400				1,500 1,050 600		1,000 700 400	1,500 1,050 600	
Noise Level† — dBA Heating Cooling	60 68			60 70								

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.

THERMOTRON



Worn with a badge of honor, Thermotron's High Performance Series of environmental test chambers are equipped to exceed the industry standard. Faster tests mean quicker results and improved reliability for your products.



Key Benefits

- 1 **Larger Compressors.** When normal change rates just won't do, the Performance Series will push your products to the limit with 5°C/min change rates
- 2 **Similar Styling, Superior Performance.** The Performance Series does not cut corners. Larger compressors in the standard design means no extra space needed for superior results.
- 3 **Quicker Results.** Larger compressors mean more testing can be done in less time. Increase your throughput with more tests in your day.
- 4 **Increased Performance & Reliability.** The Performance Series is ready to handle the toughest testing you can perform again, again, and again.

DIMENSIONS

Model	S-8	SM-8	S-16	SM-16	S-27	SM-27	S-32	SM-32
Workspace Dimensions - W x D x H								
Inches	24 x 24 x 24		30 x 30 x 30		36 x 36 x 36		38 x 38 x 38	
Centimeters	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	35 x 49 x 73		45 x 59 x 81		51 x 65 x 88		53 x 68 x 90	
Centimeters	89 x 124 x 185		114 x 150 x 206		130 x 165 x 224		135 x 173 x 229	
Volume								
Cubic Feet	8		16		27		32	
Liters	227		453		764		906	

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SPECIFICATIONS

Change Rates in Excess of 5°C/min down to -40°C

Push your products to be tougher and stronger. Thermotron's Performance Series is ready to bring your product testing to a whole new level.

Temperature Range	Temperature Only (S Models)				Temperature and Humidity* (SM Models)			
	-70°C to 180°C (-94°F to 356°F)				-68°C to 180°C (-90°F to 356°F)			
Model	S-8	SM-8	S-16	SM-16	S-27	SM-27	S-32	SM-32
Compressor Sizes	2-2		2-3					
Temperature Control Tolerance	±0.3°C (±0.5°F)							
Temperature Uniformity*	±0.7°C (±1.3°F)							
Shipping Weight (Approx.)								
Pounds	958	1000	1320	1395	1,800	1,875	1,975	2,050
Kilograms	431	550	599	633	816	851	896	930
Cooling Change Rates — Minutes								
180°C to -65°C (356°F to -85°F)	43	45	49	53	63	68	68	74
71°C to -65°C (160°F to -85°F)	25	26	34	36	43	46	48	51
85°C to -40°C (185°F to -40°F)	16	17	16	17	19	20	21	23
Heating Change Rates — Minutes								
-65°C to 180°C (-85°F to 356°F)	21	22	27	29	35	37	38	40
-65°C to 71°C (-85°F to 160°F)	8	9	9	10	11	12	12	13
-40°C to 85°C (-40°F to 185°F)	7	8	8	9	9	10	10	11
Electrical Service — Full Load Amps								
208/1/60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
208/3/60	N/A	N/A	47	53	47	53	47	53
230/1/60	34	34	N/A	N/A	N/A	N/A	N/A	N/A
230/3/60	24	24	47	53	47	53	47	53
460/3/60	N/A	N/A	24	27	24	27	24	27
220/1/50	34	34	N/A	N/A	N/A	N/A	N/A	N/A
400/3/50	N/A	N/A	24	24	24	24	24	24
Live Load Capacity — Watts								
-18°C (0°F)	1,000	1,000	1,000	1,000	1,000	1,000	1,500	1,500
-40°C (-40°F)	700	700	700	700	700	700	1,050	1,050
-54°C (-65°F)	400	400	400	400	400	400	600	600
Noise Level† — dBA								
Heating	60							
Cooling	70							

Humidity range in SM Series Humidity Chambers is limited by a +7°C (+45°F) minimum dew point temperature and a maximum dry bulb temperature of +88°C (+190°F). Relative humidity indication at or near the physical limits may be affected by sensor accuracy and control tolerance.

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.

Humidity Control Tolerance is measured at a dry bulb temperature above +20°C (+68 °F).

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

Specifications subject to change without notice.





Worldwide Service & 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. Call +1(800)272-2589.



Click or Call to Receive a Free Quote

Contact your regional sales rep, visit us online, or call us direct at the numbers listed below for fast, friendly service.

[Visit thermotron.com](https://thermotron.com)

For more than 60 years, Thermotron has provided quality environmental test equipment. We've worked to establish a trusted reputation among our peers, and when people hear the name *Thermotron*, they have confidence in the testing of their own product. We've been building our name since 1962; now it's your turn.

**QUALITY. TRUST.
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— BUILD YOURS WITH A —
THERMOTRON.