# THERMOTRON®

## SE-1000 SERIES TEST CHAMBERS

**Engineered to provide the most reliable test results in the marketplace, the SE Series Chambers extend our reputation for exceptional reliability and long life.**

■ **High Performance Product Testing**

Thermotron's SE-1000 Series Environmental Test Chambers incorporate a wide range of application-specific compressor selections ranging from 3 to 15 Hp and are capable of providing very rapid product temperature change rates. Faster product temperature transitions reduce test cycle times and boost lab productivity. Providing conditioning in the center of the workspace where it is needed most, Thermotron's optimized airflow system improves gradient control providing tighter uniformity, greater accuracy, and better performance on products being tested.

■ **8800 Programmer Controller**

With a brilliant 12" color touch screen display, the powerful 8800 Programmer Controller is *Thermotrak II™* and *Direct Link* ready, making operations and data collection easier and

more reliable than ever before. Our controller has a Windows look and feel to support familiar and robust operations. The 8800 is ethernet-compatible and web-enabled with an Internet-ready front end for virtual anytime/anywhere access. Multi-level, password-based security protects sensitive data. The 8800 can be easily retrofitted on-site to existing chambers.

■ **Innovative Universal Port** *patent pending*

The versatile universal port in the sidewall of our popular

SE-Series Chambers interfaces with slide-up modules expanding your chamber's ability to perform thermal shock tests, HALT and HASS, product test system integration and remote conditioning applications. The universal port can be added to new or

existing SE-Series Chambers, increasing the flexibility and productivity of your investment.

## Standard Features for all Models

■ USB Port with Flash Drive Replaces Floppy Disk.

■ 40 Gigabyte Hard Drive.

■ Paperless Recorder Generates Tamper-Proof Data.

■ Pre-Programmed Test Profiles (IEC, MIL STD, etc.).

■ Electronic Refrigeration Gauges and Pressure Switches.

■ Product Temperature Control Software.

■ System Monitor Provides Continual Diagnostics.

■ Clean Top and Sides, Nothing Mounted Externally.

■ Top Exhaust for Cooling Air.

■ Lift-Off Panels For Easy Access.

■ Extensive Direct Factory-Trained Service Force.

■ Electronic Humidity Sensor Requires Minimal Maintenance and Increases Accuracy (Humidity Models Only).

■ Main Power Disconnect Switch.

■ Therm-Alarm™ Over/Under Temperature Protection Instrument.

■ Casters for Mobility Into and Throughout Lab.

■ Humidity Water Recirculation System (Humidity Models Only).

■ Humidity Water Purification System (Humidity Models Only).

## Optional Features

■ Modular Humidity System.

■ Low Humidity System.

■ Remote Conditioning Blower.

■ Universal Port.

■ Product Loading Carts.

■ Dry Air Purge System.

■ Liquid Nitrogen Boost and Extra Heat.

■ Air or Water-Cooled Condenser.

■ 2 Ports for Convenient Access to Test Items, One Each Side.

■ Adjustable Stainless Steel Shelf Increases Product Loading Capacity.

*All features subject to change without notice. CE compliant models available.*

## SE-1000 SERIES SPECIFICATIONS — SINGLE STAGE CHAMBERS

| | 3.5 | 5 | 10 | 15 |
|---|---|---|---|---|
| Interior Dimensions — W x D x H | | | | |
| Inches / Centimeters | All Models 40 x 39.25 x 38.25 / 102 x 100 x 97 | | | |
| Volume — Cubic Ft / Liters | All Models 34.8 / 986 | | | |
| Exterior Dimensions — W x D x H | | | | |
| Inches / Centimeters | All Models 49 x 83 x 87 / 125 x 211 x 221 | | | |
| Temperature Range | All Models 180°C to -40°C (356°F to -40°F) | | | |
| Temperature Control | All Models ±0.3°C (±0.5°F) | | | |
| Temperature Uniformity[1] | All Models ±0.5°C (±0.9°F) | | | |
| Airflow | All Models 1,000 cfm | | | |
| Window Size — W x H | | | | |
| Inches / Centimeters | All Models 15 x 19 / 38 x 48 | | | |
| Compressor Size — Hp | 3.5 | 5 | 10 | 15 |
| Noise Level[2] — dBA | | | | |
| Heating / Cooling | 60 / 74 | 60 / 76 | 60 / 76 | 60 / 76 |
| Approximate Shipping Weight — Lbs / Kg | 1,660 / 753 | 1,860 / 844 | 2,065 / 937 | 2,115 / 959 |
| Cooling Performance Capacity — Minutes | | | | |
| Air Temperature (Empty Chamber) | | | | |
| 180°C to -35°C (356°F to -31°F) | 74 | 52 | 37 | 34 |
| 71°C to -35°C (160°F to -31°F) | 46 | 33 | 22 | 21 |
| 85°C to -20°C (185°F to -4°F) | 32 | 22 | 12 | 10 |
| Cooling Product Temperature — Minutes | | | | |
| 50Lb / 23Kg Aluminum | | | | |
| 71°C to -35°C (160°F to -31°F) | 66 | 49 | 36 | 35 |
| 85°C to -20°C (185°F to -4°F) | 48 | 39 | 29 | 28 |
| Heating Performance Capacity — Minutes | | | | |
| Air Temperature (Empty Chamber) | | | | |
| -35°C to 180°C (-31°F to 356°F) | 36 | 36 | 20 | 10 |
| -35°C to 71°C (-31°F to 160°F) | 15 | 15 | 8 | 5 |
| -20°C to 85°C (-4°F to 185°F) | 15 | 15 | 8 | 5 |
| Heating Product Temperature — Minutes | | | | |
| 50Lb / 23Kg Aluminum | | | | |
| -35°C to 71°C (-31°F to 160°F) | 33 | 33 | 25 | 23 |
| -20°C to 85°C (-4°F to 185°F) | 33 | 33 | 25 | 23 |
| Live Load Capacity — Watts, Temp. Mode | | | | |
| 0°C (32°F) | 2500 | 3000 | 3000 | 3000 |
| -20°C (-4°F) | 1500 | 2000 | 2000 | 2000 |
| Electrical Service — No Humidity / Humidity | | | | |
| 208 / 3 / 60 (Full Load Amps) | 39 / 55 | 45 / 61 | 53 / 65 | 71 / 83 |
| 230 / 3 / 60 (Full Load Amps) | 37 / 55 | 42 / 60 | 48 / 61 | 67 / 80 |
| 460 / 3 / 60 (Full Load Amps) | 19 / 28 | 21 / 30 | 24 / 30 | 51 / 57 |
| 400 / 3 / 50 (Running Load Amps) | 19 / 28 | 24 / 32 | 27 / 33 | 49 / 56 |
| Inlet Water — Gal / Liters per Minute | | | | |
| 29°C / 85°F | Air-Cooled | Air-Cooled | 16 / 60 | 24 / 91 |
| 24°C / 75°F | Air-Cooled | Air-Cooled | 9 / 34 | 14 / 53 |
| 18°C / 65°F | Air-Cooled | Air-Cooled | 7.5 / 28 | 11 / 42 |
| 13°C / 55°F | Air-Cooled | Air-Cooled | 6 / 23 | 8 / 31 |
| Model | SE-1000-3 | SE-1000-5 | SE-1000-10 | SE-1000-15 |

## SE-1000 SERIES SPECIFICATIONS — CASCADE CHAMBERS

| | Two 3.5 | Two 6 | Two 10 | Two 15 |
|---|---|---|---|---|
| Interior Dimensions — W x D x H | | | | |
| Inches / Centimeters | All Models 40 x 39.25 x 38.25 / 102 x 100 x 97 | | | |
| Volume — Cubic Ft / Liters | All Models 34.8 / 986 | | | |
| Exterior Dimensions — W x D x H | | | | |
| Inches / Centimeters | All Models 49 x 83 x 87 / 125 x 211 x 221 | | | |
| Temperature Range | All Models 180°C to -70°C (356°F to -94°F) | | | |
| Temperature Control | All Models ±0.3°C (±0.5°F) | | | |
| Temperature Uniformity[1] | All Models ±0.5°C (±0.9°F) | | | |
| Airflow | All Models 1,000 cfm | | | |
| Window Size — W x H | | | | |
| Inches / Centimeters | All Models 15 x 19 / 38 x 48 | | | |
| Compressor Size — Hp | Two 3.5 | Two 6 | Two 10 | Two 15 |
| Noise Level[2] — dBA | | | | |
| Heating / Cooling | 60 / 74 | 60 / 76 | 60 / 76 | 60 / 76 |
| Approximate Shipping Weight — Lbs / Kg | 1,840 / 834 | 1,900 / 862 | 2,340 / 1,064 | 2,415 / 1,098 |
| Cooling Performance Capacity — Minutes | | | | |
| Air Temperature (Empty Chamber) | | | | |
| 180°C to -65°C (356°F to -85°F) | 78 | 56 | 34 | 27 |
| 71°C to -65°C (160°F to -85°F) | 50 | 36 | 21 | 16 |
| 85°C to -40°C (185°F to -40°F) | 35 | 26 | 13 | 11 |
| Cooling Product Temperature — Minutes | | | | |
| 50Lb / 23Kg Aluminum | | | | |
| 71°C to -65°C (160°F to -85°F) | 68 | 53 | 32 | 28 |
| 85°C to -40°C (185°F to -40°F) | 53 | 46 | 26 | 24 |
| Heating Performance Capacity — Minutes | | | | |
| Air Temperature (Empty Chamber) | | | | |
| -65°C to 180°C (-85°F to 356°F) | 43 | 43 | 21 | 12 |
| -65°C to 71°C (-85°F to 160°F) | 20 | 20 | 10 | 5 |
| -40°C to 85°C (-40°F to 185°F) | 19 | 19 | 9 | 7 |
| Heating Product Temperature — Minutes | | | | |
| 50Lb / 23Kg Aluminum | | | | |
| -65°C to 71°C (-85°F to 160°F) | 44 | 44 | 27 | 25 |
| -40°C to 85°C (-40°F to 185°F) | 41 | 41 | 26 | 24 |
| Live Load Capacity — Watts, Temp. Mode | | | | |
| 0°C (32°F) | 2500 | 3000 | 3000 | 3000 |
| -54°C (-65.2°F) | 1500 | 2000 | 2000 | 2000 |
| Electrical Service — No Humidity / Humidity | | | | |
| 208 / 3 / 60 (Full Load Amps) | 54 / 58 | 63 / 63 | 87 / 87 | 125 / — |
| 230 / 3 / 60 (Full Load Amps) | 51 / 57 | 58 / 60 | 75 / 75 | 119 / — |
| 460 / 3 / 60 (Full Load Amps) | 26 / 29 | 29 / 30 | 39 / 39 | 76 / — |
| 400 / 3 / 50 (Running Load Amps) | 24 / 27 | 35 / 35 | 48 / 48 | 61 / — |
| Inlet Water — Gal / Liters per Minute | | | | |
| 29°C / 85°F | Air-Cooled | Air-Cooled | 16 / 60 | 24 / 91 |
| 24°C / 75°F | Air-Cooled | Air-Cooled | 9 / 34 | 14 / 53 |
| 18°C / 65°F | Air-Cooled | Air-Cooled | 7.5 / 28 | 11 / 42 |
| 13°C / 55°F | Air-Cooled | Air-Cooled | 6 / 23 | 8 / 31 |
| Model | SE-1000-3-3 | SE-1000-6-6 | SE-1000-10-10 | SE-1000-15-15 |

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

*The addition of accessories may impact performance.*

*Specifications subject to change without notice.*

# THERMOTRON®

## FULL RANGE HUMIDITY SPECIFICATIONS*

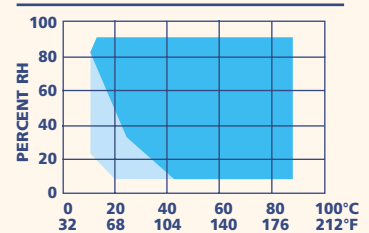| | |
|---|---|
| Humidity Range[3] | 10% to 98% RH |
| Dry Bulb Temperature Range | 7°C to 88°C (45°F to 190°F) |
| Dewpoint Temperature Range | 7°C to 87°C (45°F to 188°F) |
| Extended Dewpoint Condition | -10°C |
| Humidity Control[4] | ±2.5% RH |
| Humidity Uniformity[5] | ±1.0% RH |

*\* Except 15hp Cascade Chamber models*

*A full range, modular humidity system can be added to SE-Series Test Chambers either at the time of purchase or as a field retrofit. Performance specifications for the humidity module are characterized by a wide range, precise uniformity and tight control.*

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

2 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.

3 Limited by a +7°C (+45°F) minimum dew point temperature and a maximum dry bulb temperature of +88°C (+190°F).

4 At a dry bulb temperature above +20°C (+68°F).

5 Based upon temperature uniformity specifications.

*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 humidy system.*

## 1000 SERIES HUMIDITY RANGE



**STANDARD HUMIDITY RANGE**
**-10°C (14°F) DEWPOINT**