• Standard models available in 4, 8, 16 and 32 ft.
• Standard temperature ranges from $-100^\circ$F to $+350^\circ$F ($-73^\circ$C to $+177^\circ$C)
• Immediate operation with suitable power connection
• Many standard features include:
  • Programmable temperature controller with digital displays.
  • Six-pane thermal window
  • Interior light
  • Cascade refrigeration system
  • Stainless steel access port with thermal plug
  • High-volume air circulation fan
  • Casters

Cabinet
• The entire chamber is built of high-quality steel. No wood, fiberboard, plastic, or similar materials are used in the construction.
• The interior is constructed of 304 Series, high nickel content, nonmagnetic stainless steel with 2B finish. The liner is heliarc welded for hermetic sealing to prevent moisture migration to insulation space.
• A floating liner allows minimum thermal contact between the interior and the exterior of the chamber.
• Breaker strips are all stainless steel.
• The exterior shell is constructed of die-formed, 16-gauge galvanneal, then finished in "Thermotron Blue" lacquer, Federal Standard #595-25184, sprayed over a cleaned and primed surface.
• Nonsettling insulation has a low "K" factor of .26. It is capable of being exposed to temperatures in excess of $+350^\circ$F ($+177^\circ$C).
• Gaskets are extruded, designed to be used with seamless corners. Two separate gaskets are installed to insure minimum heat loss from the chamber—a silicone inner gasket and a vinyl outer gasket.
• The circulator motor is located outside the chamber. It has a solid stainless steel shaft; no extensions are used. Ball bearings are lubricated for life and
located out of the conditioned area.
- A hinged instrument panel makes service and calibration easier.
- All hardware is adjustable.

**Instrumentation**
- Fully programmable single mode controller with proportional-integral algorithm for time proportioned output.
- Chamber operation via manual setpoint mode or previously entered program.
- Input and indication of temperature in °C or °F.
- 10 character alphanumeric display, 4 digit numeric display, and 10 chamber status indicators.
- Internal RAM storage for up to 10 programs with full program review, edit, expand, and delete capabilities.
- Program entry by response to English language prompts via 23 character keypad.
- Setpoint and display resolution of 1° C or 1° F, typical measuring accuracy of 0.25% of span.
- Other features include software calibration, alarm and event outputs, lithium battery back-up, keyboard lockout and timed soak.

**Electrical System**
- The chamber has a solid state, photo-isolated, zero-voltage-switching, heat-power relay.
- All wires are identified.
- The chamber has a fusible link for heater cut out which trips at 460°F (+238°C). Product safety devices are also available as options.
- All motor electrical components, switches, and fuses are located in a self-contained panel.
- Channel wiring is contained in “panel channel” and is accessible without completely unlacing or unthreading any wires.
- Master heat contactor is provided.
- A step-down transformer provides 115 volts for the control circuit.
- Identification tabs are provided on pilot lights and switches for all major circuits.
- Wiring meets the National Electrical Code.

**Refrigeration**
- Our cascade system has all silphosed or silver soldered joints—no soft solder is used.
- The system is air cooled and capable of starting under various ambient conditions.
- The cascade condensers are manufactured by us to insure that they will meet our exacting standards.
- Cooling coils are heavy-duty copper tubing with specially designed aluminum fins.
- The condenser and vapor tank are ASME certified.
- The system is sealed and balanced to achieve the ultimate in performance and reliability.
- Standard Refrigerants 13 and 502 are used. They are available at any refrigeration supply house.
- A liquid-injection circuit cools the compressor to insure long compressor life.

**Safety Features**
- Overload protection is inherent, preventing the compressors from exceeding specification limits.
- Over temperature runaway protection provided by way of a fusible link which trips at +460°F (+238°C).
- All machinery is enclosed for personnel safety.
- A fan guard prevents contact with the circulator fan.

Specifications subject to change.
### Thermotron S Series
#### Temperature Test Chamber

**Chamber Dimensions**

<table>
<thead>
<tr>
<th>THERMOTRON MODEL NUMBER</th>
<th>WORKSPACE DIMENSIONS</th>
<th>PORT*</th>
<th>QTY FANS</th>
<th>CASTERS SIZE</th>
<th>OVERALL CHAMBER MOVE-IN DIMENSIONS</th>
<th>WINDOW GLASS DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) WIDE (IN/CM)</td>
<td>(B) DEEP (IN/CM)</td>
<td>(C) HIGH (IN/CM)</td>
<td>D</td>
<td>(E) MOTORS</td>
<td>F</td>
</tr>
<tr>
<td>S-4</td>
<td>20</td>
<td>51</td>
<td>51</td>
<td>2&quot;</td>
<td>1</td>
<td>3&quot;</td>
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<tr>
<td></td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>1</td>
<td>3&quot;</td>
</tr>
<tr>
<td>S-8</td>
<td>24</td>
<td>61</td>
<td>61</td>
<td>61</td>
<td>2&quot;</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>61</td>
<td>61</td>
<td>2&quot;</td>
<td>1</td>
<td>3&quot;</td>
</tr>
<tr>
<td>S-16</td>
<td>30</td>
<td>78</td>
<td>78</td>
<td>78</td>
<td>2&quot;</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>78</td>
<td>78</td>
<td>78</td>
<td>4&quot;</td>
<td>2</td>
</tr>
<tr>
<td>S-32</td>
<td>36</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>6&quot;</td>
<td>2</td>
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<td></td>
<td>36</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>6&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

*All standard ports are located center workspace, right side.

**Add 3" to height for casters (S-16 & 32 only)**

**Circulator...**

**Digital Programmer/Controller...**

**F - (2) Swivel Casters on Front w/Brakes...**

**#550A Latch...**

**POWER IN 230V-1PH-60HZ OR 230V-3PH-60HZ...**

**1/4 CU WATER INLET...**

**1/4 CU WATER DRAIN...**

**Digital Programmer/Controller...**

**F - (2) Swivel Casters on Front w/Brakes...**

**#550A Latch...**

**POWER IN 230V-1PH-60HZ OR 230V-3PH-60HZ...**

**1/4 CU WATER INLET...**

**1/4 CU WATER DRAIN...**
Thermotron S Series
Temperature Test Chamber

Performance:
Performance is based on 60 Hz.
operation and +75°F (23.9°C) ambient air.
Performance may vary slightly;
its depends on your ambient conditions.

Thermotron S Series
Temperature Test Chamber
Specifications

<table>
<thead>
<tr>
<th>THERMOTRON MODEL NUMBER</th>
<th>S-4</th>
<th>S-8</th>
<th>S-16</th>
<th>S-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMP PULL DOWN FROM +75°F (+23°C) AMBIENT WITHOUT LOAD</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
</tr>
<tr>
<td>-40°F (-40°C)</td>
<td>25</td>
<td>25</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>-65°F (-53.9°C)</td>
<td>30</td>
<td>40</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>-90°F (-67.8°C)</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>90</td>
</tr>
<tr>
<td>-100°F (-73.3°C)</td>
<td>50</td>
<td>-</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>TEMP HEAT-UP FROM 75°F AMBIENT WITHOUT LOAD</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
</tr>
<tr>
<td>+240°F (+116°C)</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>+350°F (+177°C)</td>
<td>25</td>
<td>30</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>CAPACITY FOR HOLDING WATTS LIVE LOAD</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
<td>MINUTES</td>
</tr>
<tr>
<td>0°F (-17.8°C)</td>
<td>600</td>
<td>550</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>-40°F (-40°C)</td>
<td>400</td>
<td>350</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>-65°F (-53.9°C)</td>
<td>300</td>
<td>200</td>
<td>400</td>
<td>400</td>
</tr>
</tbody>
</table>

Temperature Control:
The chamber conditioning and circulating equipment will enable a temperature stability within ±2°F dry bulb temperatures from control point after stabilization at the control sensor.

Chamber Options
1. Access ports w/plugs (additional to standard)
2. Boost System (CO2)
3. Boost System (LN2)
4. Casters (Standard on S-4 & S-8)
5. Electrical Disconnect Switch
6. Glove Ports, 6" dia.
7. Refrigeration Gauges
8. Shelves, Stainless Steel
9. Transformers (for other than 230 volt power)

Controller Options
1. Real Time Clock
2. Printer Output
3. Analog output for chart recording
4. GPIB or RS-232 computer interface