

Model 1020C Temperature Chamber Specifications

Temperature Range	-73°C to +175°C
Control Tolerance	±0.2°C (Measured at the control sensor after stabilization)
Uniformity	±1.0°C (Variations throughout the chamber after stabilization)

Cool Down Transition Time (empty)*

Start Temp	End Temp					
	+23°C	0°C	-20°C	-40°C	-55°C	-65°C
+23°C	-----	1.5 min	7.5 min	11 min	14 min	18 min
+85°C	6 min	10 min	15 min	21 min	28 min	33 min
+150°C	23 min	30 min	37 min	45 min	53 min	60 min

Cool Down Transition Time (with 80 lb. aluminum load)*

Start Temp	End Temp					
	+23°C	0°C	-20°C	-40°C	-55°C	-65°C
+85°C	15 min	26 min	35 min	48 min	59 min	68 min
+150°C	32 min	41 min	50 min	61 min	69 min	76 min

Heat Up Transition Time (empty)*

Start Temp	End Temp					
	+23°C	+50°C	+85°C	+125°C	+150°C	+175°C
+23°C	-----	1.5 min	7 min	14 min	20 min	25 min
0°C	1.5 min	3.5 min	13 min	20 min	23 min	31 min
-40°C	6 min	11 min	17 min	24 min	30 min	35 min
-55°C	8 min	13 min	19 min	26 min	32 min	37 min
-65°C	10 min	14 min	21 min	28 min	34 min	39 min

Heat Up Transition Time (with 80 lb. aluminum load)*

Start Temp	End Temp					
	+23°C	+50°C	+85°C	+125°C	+150°C	+175°C
0°C	5 min	13 min	23 min	36 min	45 min	55 min
-40°C	11 min	19 min	29 min	42 min	51 min	61 min
-65°C	22 min	32 min	44 min	61 min	71 min	81 min

Rate Of Change

To calculate rate of change for a particular condition, take the difference between the Start Temp and End Temp and divide by the Transition Time.

Cool Down Example (empty): From +85°C to -40°C = 125°C / 21 min = 5.95°C/min.

Cool Down Example (with 80 lb. load): From +85°C to -40°C = 125°C / 48 min = 2.6°C/min.

Heat Up Example (empty): From -40°C to +85°C = 125°C / 17 min = 7.35°C/min.

Heat Up Example (with 80 lb. load): From -40°C to +85°C = 125°C / 29 min = 4.3°C/min.

***Note:** Transition times are measured after a 2 hour soak at the respective start temperature at 208 V input.



Live Load Capacity

+23°C	0°C	-20°C	-40°C	-55°C	-65°C
2,900 Watts	2,600 Watts	2,300 Watts	1,750 Watts	1,450 Watts	1,050 Watts

Refrigeration and Heating System


High Stage Refrigerant	R-404A (Dupont HP-62)
Low Stage Refrigerant	R-508B (Dupont SUVA-95)
Compressors	3.5 HP x 3.5 HP Copeland scroll compressors in a cascade configuration More about Scroll Compressors >>
Condenser	Air Cooled
Heat of Rejection	27,500 BTUH (maximum rated chamber load at maximum cooling rate from high temperature soak)
Heater Power	4,000 Watts @ 208 V input

Instrumentation

Temperature Controller	256 step, 40 profile, ramp and soak programmable memory. RS-232/485 interface. More details >>	
Limit Controller	Independent high and low temperature limits. Triggers an audible alarm and shuts down the chamber. Relay contacts provide a safety power interlock for test sample.	
Chart Recorder	(Optional) Honeywell DR4300 Series. One pen, 10" circular chart. Mounts in lower front door.	

Input Power Requirements

230 V ±10%, 60 Hz, 3 Phase	Max Current Draw 39 A; Recommended Service 50 A
208 V -5/+10%, 60 Hz, 3 Phase	Max Current Draw 35 A; Recommended Service 45 A

	<p>Input may be configured for 230 V or 208 V in the field by changing jumpers. Three phase load is balanced. Call for other voltages or 50 Hz operation.</p> <p>Customer power source must be hard-wired to the chamber by a qualified electrician. Power cord and plug is not included.</p>
Physical Characteristics and Safety	
Inside Dimensions	<p>40" W x 34" H x 26" D (20 cubic feet) 1016 mm W x 863 mm H x 660 mm D (566 liters)</p>
Outside Dimensions	<p>49" W x 80" H x 52.5" D (nominal) 1244 mm W x 2032 mm H x 1334 mm D Door latch adds 3" to width on right side. Circulator motor and housing adds 6" to height - may be removed for move-in.</p> <div style="text-align: right;">  </div>
Minimum Installed Clearance	<p>18" from the left and right side 24" from the rear</p>
Window Viewing Area	<p>16" W x 13" H</p>
Access Ports	<p>4" Port on left and right side (two total) Supplied with foam plugs</p>
Weight	<p>Chamber Weight: 1,600 pounds Shipping Weight: 2,000 pounds</p>

NOTE: Performance is typical and based on operation at 23°C (73°F) ambient and nominal input voltage. Designed for use in a normal conditioned laboratory. Operation at higher ambient temperatures may result in decreased cooling performance. Additional ports and shelves will also affect performance. Operation above 30°C (85°F) or below 16°C (60°F) ambient is not recommended.