

Model 1027C Temperature Chamber Specifications

Temperature Range

-73°C to +175°C

Control Tolerance

±0.5°C (±0.2°C Typical) (Short-term variations 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	9 min	15 min	21 min	28 min	35 min	40 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 = $125^{\circ}\text{C} / 28 \text{ min} = 4.5^{\circ}\text{C/min}$.

Cool Down Example (with 80 lb. load): From +85°C to -40°C = $125^{\circ}\text{C} / 48 \text{ min} = 2.6^{\circ}\text{C/min}$.

Heat Up Example (empty): From -40°C to +85°C = $125^{\circ}\text{C} / 17 \text{ min} = 7.35^{\circ}\text{C/min}$.

Heat Up Example (with 80 lb. load): From -40°C to +85°C = $125^{\circ}\text{C} / 29 \text{ min} = 4.3^{\circ}\text{C/min}$.

***Note:** Transition times are measured after a 2 hour soak at the respective start temperature with an empty chamber, as indicated on the temperature controller, 23°C ambient. Measured with setpoint beyond the start and end temperatures. Does not include the effect of proportional band when approaching setpoint. Performance is reduced by 17% with 50 Hz input power.

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	
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	
Air Flow	830 cfm	
Instrumentation		
Temperature Controller	Watlow F4T Touch Screen Controller with RS-232, Ethernet interface, 4.3" color graphic touch screen. OR... Watlow F4 Controller with RS-232 interface, LED readout of temperature, LCD display of other parameters.	
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.	

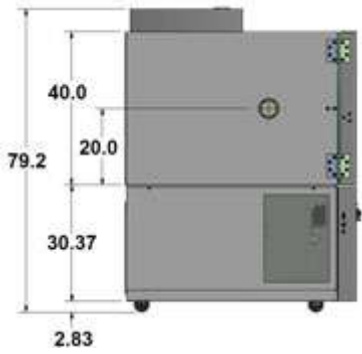
Input Power Requirements

230 V $\pm$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

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 50Hz operation. Performance is reduced by 17% with 50Hz input power.

Customer power source must be hard-wired to the chamber by a qualified electrician. Power cord and plug is not included.

Physical Characteristics and Safety

Inside Dimensions	40" W x 32" H x 36.5" D (27 cubic feet) 1016 mm W x 813 mm H x 927 mm D (765 liters)	
Outside Dimensions	49" W x 73.25" H x 63" D (nominal) 1244 mm W x 1860 mm H x 1600 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.	
Minimum Installed Clearance	18" from the left and right side 24" from the rear	
Window Viewing Area	16" W x 13" H	
Access Ports	4" Port on left and right side (two total) Supplied with foam plugs	
Weight	Chamber Weight: 1,560 pounds Shipping Weight: 1,744 pounds	

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.

Due to continuous product improvements, specifications subject to change without notice.