

Model 3016C FastRate Temperature Chamber Specifications

Temperature Range

-73°C to +175°C

Control Tolerance

±0.5°C (Measured at the control sensor after stabilization)

Uniformity

±1.0°C (Variations throughout the chamber after stabilization)

Ramp Rates With an Empty Chamber

Cooling Rate, Compressors Only*						
Start Temp	End Temp					
	+23°C	0°C	-40°C	-55°C	-65°C	-73°C
+85°C	18°C/minute	17°C/minute	15°C/minute	14°C/minute	13°C/minute	Ultimate
+150°C	16°C/minute	15°C/minute	12°C/minute	11°C/minute	11°C/minute	Ultimate
Cooling Ramp Rate with LN2 Boost and Compressors* 24°C/minute from +85°C to -40°C						
Heating Ramp Rate* 33°C/minute from -40°C to +85°C						
* Note: Ramp rates are measured at the control sensor after a 2 hour soak at the respective start temperature with an empty chamber. Measured with setpoint set beyond the start and end temperatures. Does not include the effect of proportional band when approaching setpoint.						

Ramp Rates With a 50 Pound (23 Kg) Aluminum Load

Cooling Rate, Compressors Only*						
Start Temp	End Temp					
	+23°C	0°C	-40°C	-55°C	-65°C	-73°C

+85°C	17°C/minute	15°C/minute	12°C/minute	10°C/minute	9°C/minute	Ultimate
+150°C	13°C/minute	11°C/minute	8°C/minute	8°C/minute	7°C/minute	Ultimate
Cooling Ramp Rate with LN2 Boost and Compressors* 21°C/minute from +85°C to -40°C						
Heating Ramp Rate* 30°C/minute from -40°C to +85°C						
* Note: Ramp rates are measured at the control sensor after a 2 hour soak at the respective start temperature with an empty chamber. Measured with setpoint set beyond the start and end temperatures. Does not include the effect of proportional band when approaching setpoint.						

Live Load Capacity

+23°C	0°C	-20°C	-40°C	-55°C	-65°C
3,800 Watts	3,700 Watts	3,600 Watts	3,200 Watts	2,800 Watts	2,200 Watts

Refrigeration and Heating System

High Stage Refrigerant	R-404A (Dupont HP-62)
Low Stage Refrigerant	R-508B (Dupont SUVA-95)
Compressors	6 HP x 6 HP Copeland scroll compressors in a cascade configuration
Condenser	Air Cooled, Water Cooled is Optionally Available
Heat of Rejection	45,300 BTUH (maximum rated chamber load at maximum cooling rate from high temperature soak)
Heater Power	8,400 Watts @ 208 V input
Air Flow	830 CFM
Instrumentation	
Temperature Controller	Watlow F4T Touch Screen Controller with RS-232, Ethernet interface, and 4.3" color graphic touch screen. OR...

	Watlow F4 Controller with RS-232 interface, LED readout of temperature, and 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 58 A; Recommended Service 75 A
208 V -5/+10%, 60 Hz, 3 Phase	Max Current Draw 56 A; Recommended Service 75 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 50 Hz operation. Customer power source must be hard-wired to the chamber by a qualified electrician. Power cord and plug is not included.	
Physical Characteristics	
Inside Dimensions	30" W x 30" H x 30" D (15.6 cubic feet) 762 mm W x 762 mm H x 762 mm D (442 liters)
Outside Dimensions	38" W x 78.5" H x 62" D (nominal) 914 mm W x 1994 mm H x 1575 mm D Door latch adds 3" to width on right side.
Minimum Installed Clearance	18" from the left and right side 24" from the rear
Window Viewing Area	18" W x 12" H
Sound Level	71 dBA in cooling mode (A-weighted, measured 36" from the front surface, 63" from the floor, in a free-standing environment)

Access Ports	4" Port on left and right side (two total) Supplied with foam plugs
Weight	Chamber Weight: 1,400 pounds Shipping Weight: 1,600 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.