

# 9000 Series Temperature Chambers

## Environment and Burn-in Test Chambers

9023



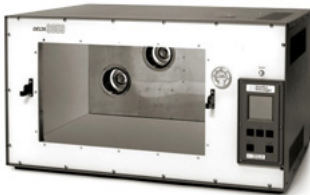
9028



9039



9059



9064



9076



Automotive



Mobility



IoT/IoV & Optoelectronics



Computing & Network



Industrial & Medical



Consumer

### Standard Specifications

- Temperature Accuracy – set-point to actual  $\pm 1.0^{\circ}\text{C}$
- Temperature Deviation – after stabilization  $\pm 0.1^{\circ}\text{C}$
- Repeatability  $\pm 0.25^{\circ}\text{C}$
- Line Voltage Stabilization  $\pm 0.25^{\circ}\text{C}$  for 105-125 VAC or 220-240 VAC line voltage change
- Fail-safe adjustable over-temperature

### Features

- Temperature expandable to  $-184^{\circ}\text{C}$ , utilizing optional LN<sub>2</sub> cooling
- Standard chamber coolant of 1050 psi LCO<sub>2</sub>
- 1-1/4" diameter access port on the left side (9059 and 9064)
- Three 7/8" diameter access ports in the rear (9076)
- Test volume 1/3 cubic foot to 5-3/4 cubic feet, delivering ranges from  $-73^{\circ}\text{C}$  to  $+315^{\circ}\text{C}$ , precisely controlled by advanced electronic circuitry
- Adjustable over-temperature protection device

- Rugged, dependable, precision instruments
- Choice of temperature ranges and capacities in addition to smart electronics

- Field proven for over four decades
- Service longevity and unique integrity

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### Specifications

	9023	9028
Test Volume	0.37 cubic feet (10.5 liters)	0.45 cubic feet (12.7 liters)
Internal Dimensions	8"H x 10"W x 8"D (20.32 x 44.45 x 52.70 cm)	7"H x 16"W x 7"D (17.78 x 40.64 x 17.78 cm)
Overall Dimensions	12 ¾"H x 17 ½"W x 20 ¾"D (32.38 x 44.45 x 52.70 cm)	12 ¼"H x 28 ¾"W x 20 ¾"D (31.11 x 73.02 x 53.02 cm)
Temperature Range	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>
Heat-up Rate	24°C / Minute	20°C / Minute
Cool-down Rate	32°C / Minute	25°C / Minute
LC02 Consumption	5.6 lbs/hr at -53°C (-65°F)	6.5 lbs/hr at -53°C (-65°F)
Air Circulation	Vertical air flow pattern	Horizontal air flow pattern
Power Requirements	120 VAC, 50 or 60 Hz., single phase, 1800 W 208 VAC, 50 or 60 Hz., three wire, single phase, 1800 W 208 VAC, 50 or 60 Hz., four wire, single phase, 1800 W 240 VAC, 50 or 60 Hz., single phase, 1800 W	120 VAC, 50 or 60 Hz., single phase, 1800 W 208 VAC, 50 or 60 Hz., three wire, single phase, 1800 W 208 VAC, 50 or 60 Hz., four wire, single phase, 1800 W 240 VAC, 50 or 60 Hz., single phase, 1800 W
Net Wt. (Approx.)	47 lbs (21.3 Kg)	55 lbs (24.9 Kg)
Shipping Wt. (Approx.)	60 lbs (27.2 Kg)	70 lbs (31.8 Kg)

	9039	9059
Test Volume	0.92 cubic feet (26.05 liters)	1.85 cubic feet (52.4 liters)
Internal Dimensions	10"H x 16"W x 10"D (25.40 x 40.64 x 25.40 cm)	11"H x 19 ½"W x 15"D (27.94 x 49.53 x 38.10 cm)
Overall Dimensions	17 7/8"H x 27 ½"W x 24"D (46.40 x 69.85 x 60.96 cm)	17 ¼"H x 32"W x 25"D (43.82 x 81.28 x 63.50 cm)
Temperature Range	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>
Heat-up Rate	14°C / Minute (Optional – 60°C / Minute)	10°C / Minute
Cool-down Rate	36°C / Minute	22°C / Minute
LC02 Consumption	7 lbs/hr at -53°C (-65°F)	9.62 lbs/hr at -53°C (-65°F)
Air Circulation	Vertical air flow pattern	Horizontal air flow pattern
Power Requirements	120 VAC, 50 or 60 Hz., single phase, 1800 W 208 VAC, 50 or 60 Hz., three wire, single phase, 1800W 208 VAC, 50 or 60 Hz., four wire, single phase, 1800 W 240 VAC, 50 or 60 Hz., single phase, 1800 W	120 VAC, 50 or 60 Hz., single phase, 1800 W 208 VAC, 50 or 60 Hz., three wire, single phase, 1800 W 208 VAC, 50 or 60 Hz., four wire, single phase, 1800W 240 VAC, 50 or 60 Hz., single phase, 1800 W
Net Wt. (Approx.)	85 lbs (38.6 Kg)	98 lbs (44.5 Kg)
Shipping Wt. (Approx.)	100 lbs (45.4 Kg)	105 lbs (47.6 Kg)

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### Specifications

	9064	9076
Test Volume	2.2 cubic feet (62.3 liters)	5.78 cubic feet (163.7 liters)
Internal Dimensions	12"H x 20"W x 16"D (30.48 x 50.80 x 40.64 cm)	20"H x 20"W x 25"D (50.80 x 97.16 x 95.3 cm)
Overall Dimensions	21 1/2"H x 32 7/8"W x 30"D (54.61 x 83.66 x 76.20 cm)	36 3/4"H x 38 3/4"W x 37 1/2"D (92.08 x 97.16 x 95.3 cm)
Temperature Range	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>	-73° to +315°C or -100°F to +600°F OPTION -184°C (-300°F) with optional LN <sub>2</sub>
Heat-up Rate	8°C / Minute	8°C / Minute
Cool-down Rate	20°C / Minute	12°C / Minute
LC02 Consumption	11.6 lbs/hr at -53°C (-65°F)	15 lbs/hr at -53°C (-65°F)
Air Circulation	Vertical air flow pattern	Horizontal air flow pattern
Power Requirements	120 VAC, 50 or 60 Hz., single phase, 1800 W 208 VAC, 50 or 60 Hz., three wire, single phase, 1800 W 208 VAC, 50 or 60 Hz., four wire, single phase, 1800 W 240 VAC, 50 or 60 Hz., single phase, 1800 W	208 VAC, 50 or 60 Hz., three wire, single phase, 4800 W 208 VAC, 50 or 60 Hz., four wire, single phase, 4800 W 240 VAC, 50 or 60 Hz., single phase, 4800 W
Net Wt. (Approx.)	115 lbs (52.2 Kg)	55 lbs (24.9 Kg)
Shipping Wt. (Approx.)	235 lbs (106.6 Kg)	70 lbs (31.8 Kg)

### Standard Temperature Chamber includes

- Model 9010 Controller with built-in 10-step programmer
- Thermometer
- CO<sub>2</sub> hose/filter
- 1050 psi CO<sub>2</sub> valve
- Instruction Manual

### OPTIONS

#### Doors

Cohu offers a wide variety of doors to fit all standard chamber models. When ordering a specific door type, please specify that number (1 through 7, assigned for that door model in the descriptions below) with your order. If you do not want a door, please specify "o."

Blank with Tray	Blank - No Tray	Ten 3/8" dia. Ports with Tray	Window and Five 3/8" dia. Ports with Tray	Ten 3/8" dia. Ports - No Tray	Window Door for Chamber
Available for Models 9023, 9028, 9039	Available for Models 9059, 9064, 9076*	Available for Models 9023, 9028, 9039	Available for Models 9023, 9028, 9039	Available for Models 9059, 9064	Available for Model 9076

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### 9015 Controller



The Model 9015 Programmer provides automatic sequencing for temperature testing and temperature dependent processing. Temperature program

parameters controlled are Rate of Temperature Change, Soak Time, Temperature Setpoint and Deviation Limits, and the Number of Passes. Additionally, three relays

are provided for turning external devices on and off. The state of the three relays is programmable for each segment. Program parameters are entered by front panel buttons with data displayed on an LCD.

The program is stored in a battery-backed memory in the event of power loss and retrieved when power is restored. The program may have up to 30 segments and may be repeated up to 9999 times before being automatically shut down. A program review function is provided to allow the operator to sequentially step through all program parameter

for the current segment may be displayed without disturbing the operation. Setpoint can range from  $-184^{\circ}\text{C}$  to  $+135^{\circ}\text{C}$  with a temperature resolution of  $0.1^{\circ}\text{C}$ ; soak time from 1 minute to 99 hours, 59 minutes; rate of  $99.9^{\circ}\text{C}/\text{minute}$  maximum and process deviation limits of  $2^{\circ}\text{C}$  to  $99.9^{\circ}\text{C}$  or no limits.

The programmer incorporates a settable process deviation limit alarm with a front panel indicator and alarm output at the rear panel. A "program lock" position is provided with removable key to safeguard the entered program.

### 9911 Temperature Monitor



Monitoring of temperature excursions between two preset limits is provided by the Temperature Monitor. If limits are exceeded, power to the monitor unit is removed, a warning lamp is illuminated, and an audible alarm is activated. When temperature is again within limits, the monitor may be reset for continued operation. A combination pyrometer scale provides reading at a glance with both Fahrenheit and Centigrade ranges.

### Carts



Carts are available for most chambers. The Model 9901 Cart is an open framework design and is used with a Model 9076 chamber. The Model 9904 Cart holds a test chamber and two 50 pound LCO<sub>2</sub> siphon bottles. It is used with a Model 9023, 9028, 9039, 9059, or 9064 test chamber. All carts have casters, two of which swivel and are lockable.

All specifications are subject to change without notification and are for reference only. For detailed performance specifications, please contact Cohu.