



Class "100" Clean Room



Model 3496M

Product Description

- HEPA filter models available for maximum contamination protection.
- Rapid rise and recovery times, plus excellent uniformity and precise temperature control.
- Features our exclusive mechanical convection air flow system.
- 3" (7.6 cm) of silica-based insulation between oven chamber and exterior walls minimizes heat radiation to surrounding environment.
- Drawer-style control panel is protected from spills and easily pulls out for access.
- Corrosion-resistant stainless steel interior construction.
- Shelves, supports, and plenums are easily removed for cleaning.
- Four adjustable perforated stainless steel shelves included.
- Durable exterior construction of cold-rolled steel with a white powder coat finish.
- Adjustable door hinge, lever-actuated positive door latch and silicone gasket prevent heat loss through door seal.
- Adjustable 2" (5.1 cm) diameter exhaust port with damper control.

Safety

- Adjustable high limit hydraulic safety thermostat with indicator lamp maintains temperature a few degrees above set point in the event of primary control failure and prevents over temperature conditions.
- Fused electrical system provides overload safeguards.

Ultra Clean for Semiconductor and Electronics Applications!

- Meets or exceeds Class "100" air standards
- Rapid temperature rise and recovery times
- Excellent temperature control and uniformity
- Choose from models with or without HEPA filter

Stacking Racks

- Safely stack two ovens of the same size.
- Fan removes heat generated by bottom oven, preventing damage to top unit.
- Available only for 3490M, 3492M, 3494M-1, and 3495M-1 series clean room ovens (120V; 50/60 Hz).

Operation

- User-friendly PID microprocessor temperature control allows operator to repeatedly set operating temperature in the range or ambient +5°C to 250°C.
- Single program controller comes standard—two ramps and two dwells, ramp adjustable from as low as 0.01°C per minute, dwell from 0 to 9999 minutes.
- Four program controller offers eight ramps and eight dwells, ramp from as low as 1°C per minute, dwell from 0.0 to 999.9 minutes.
- Platinum RTD sensor accurately measures actual chamber temperature.
- 1/8" (3mm) N.P.T. fitting for introducing inert gas or house air into the oven chamber.
- Flowmeter and 0.3 micron filter for purging with nitrogen available on units with HEPA filters only.

Options

- Recorder output—type K thermocouple with sub-miniature connector on back of oven (TCK suffix for oven model number).

Lab-Line Ovens



OPERATING SPECIFICATIONS

Units Without Hepa Filters							
Chamber Volume cu. ft. (l)	Rise Time (Ambient to 200°C)	Load Temp. Rise Time @ 150°C	Maximum Temp °C	Temperature Control @100°C	Temperature Uniformity @100°C	Temperature Control @200°C	Temperature Uniformity @200°C
2.6 (73.6)	22 minutes	8 minutes	250°C	±0.1°C	±1.0°C	±0.2°C	±1.5°C
3.6 (101.9)	18 minutes	4 minutes	250°C	±0.1°C	±1.0°C	±0.2°C	±1.5°C
4.6 (130.2)	20 minutes	7 minutes	250°C	±0.1°C	±1.0°C	±0.2°C	±1.5°C

Units With Hepa Filters					
Chamber Volume cu. ft. (l)	Rise Time (Ambient to 90°C)	Recovery Time @ 90°C	Maximum Temp °C	Temperature Control @ 90°C	Temperature Uniformity @ 90°C
2.8 (79.2)	11 minutes	22 seconds	250°C	±0.2°C	±1.5°C

Performance specification were measured under controlled laboratory conditions. Actual performance may vary, depending on the application. Load temperature rise time was determined at 150°C. Oven was loaded with nine 4" wafer boats. A thermocouple placed in a centrally located boat was used to measure wafer temperature. Recovery time was measured after door was opened 90 degrees for 1 minute.

ORDERING INFORMATION

Multi Program Controller	Chamber Dimensions Inches (cm)			Overall Dimensions Inches (cm)			Volume cu. ft. (l)	Electrical (50/60 Hz)			Shipping Weight Lb. (kg)	US List Price
	W	H	D	W	H	D		Volts	Amps	Watts		
Units Without Hepa Filters												
3490M	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	120	15.8	1900	205 (93)	\$5,820.00
3490M-1	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	240	7.9	1900	205 (93)	\$5,820.00
3490M-3	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	208	10.1	2100	205 (93)	\$5,820.00
3495M-1	18 (68)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	3.6 (101.9)	240	12.9	3100	240 (109)	\$6,573.00
3495M-3	18 (68)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	3.6 (101.9)	208	14.9	3100	240 (109)	\$6,573.00
3499M-1	23 (58)	19.5 (50)	18 (46)	31.6 (80)	35 (89)	24.25 (62)	4.6 (130.2)	240	12.9	3100	264 (120)	\$7,377.00
3499M-3	23 (58)	19.5 (50)	18 (46)	31.6 (80)	35 (89)	24.25 (62)	4.6 (130.2)	208	14.9	3100	264 (120)	\$7,377.00

Four Program Controller	Chamber Dimensions Inches (cm)			Overall Dimensions Inches (cm)			Volume cu. ft. (l)	Electrical (50/60 Hz)			Shipping Weight Lb. (kg)	US List Price
	W	H	D	W	H	D		Volts	Amps	Watts		
Units With Hepa Filters												
3492M	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	120	15.8	1900	205 (93)	\$6,022.00
3492M-1	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	240	7.9	1900	205 (93)	\$6,022.00
3492M-3	13 (33)	19.5 (50)	18 (46)	21.6 (55)	35 (89)	24.25 (62)	2.6 (73.6)	208	10.1	2100	205 (93)	\$6,022.00
3494M-1	18 (68)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	3.6 (101.9)	240	12.9	3100	240 (109)	\$6,748.00
3494M-3	18 (68)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	3.6 (101.9)	208	14.9	3100	240 (109)	\$6,748.00
3496M-1	14 (36)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	2.8 (79.2)	240	12.9	3100	235 (107)	\$8,328.00
3496M-3	14 (36)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	2.8 (79.2)	208	14.9	3100	235 (107)	\$8,328.00
3497M-1	14 (36)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	2.8 (79.2)	240	12.9	3100	235 (107)	\$8,246.00
3497M-3	14 (36)	19.5 (50)	18 (46)	26.6 (68)	35 (89)	24.25 (62)	2.8 (79.2)	208	14.9	3100	235 (107)	\$8,246.00
3498M-1	23 (58)	19.5 (50)	18 (46)	31.6 (80)	35 (89)	24.25 (62)	4.6 (130.2)	240	12.9	3100	264 (120)	\$7,513.00
3498M-3	23 (58)	19.5 (50)	18 (46)	31.6 (80)	35 (89)	24.25 (62)	4.6 (130.2)	208	14.9	3100	264 (120)	\$7,513.00

ACCESSORIES



Model #	Description	US List Price
3497	Replacement HEPA filter for models 3496M-1, 3496M-3, 3497M-1 and 3497M-3	\$62.80
3490M-8	Shelves for models 3490M, 3490M-1, 3490M-3, 3492M, 3492M-1. 3492M-3 brackets included.	\$131.00
3495M-8	Shelves for models 3495M-1, 3495M-3, 3494M-1, 3494M-3 brackets included.	\$158.00
3499M-8	Shelves for models 3499M-1, 3499M-3, 3498M-1, 3498M-3 brackets included.	\$181.00
3497M-8	Shelves for models 3497M-1, 3497M-3, 3496M-1, 3496M-3 brackets included.	\$125.00
TCK*	Type K Thermocouple with subminiature connector on back of oven	\$300.00
3491	Exhaust chimney for ultra clean ovens 2" OD x 9" H x 3"D (5.1 x 23 x 7.6 cm)	\$113.00
3480-2	Stacking rack for oven models 3490M, 3490M-1, 3490M-3, 3492M, 3492M-1, 3492M-3	\$553.00
3485-2	Stacking rack for oven models 3495M-1, 3495M-3, 3494M-1, 3494M-3	\$579.00

*Add TCK suffix to oven model number for this option.