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Find the *Eppendorf / New Brunswick Scientific Innova 4900* at our website: ***Click HERE***

innova®

SPACE-SAVING ENVIRONMENTAL CHAMBER

Model 4900

This environmentally-controlled chamber is designed to culture dozens, and even hundreds, of samples on up to four independently-controlled shakers. Heavy-duty shakers are ordered separately, to accommodate your specific needs. The system includes programmable regulation of heat, refrigeration and humidification as standard; photosynthetic operation is optional.



Innova 4900 accessorized with four shakers with slide out platforms. The large glass door and illuminated chamber (with on-off switch) make it easy to view all cultures in this space-saving multi-tiered system.

Unique Advantages

- **Operates One to Four Shakers, Simultaneously. Agitation is Individually Controlled on Each Shaker;** and each can be individually programmed to start up or shut off at a pre-set time. Accessory shakers with choice of 1" or 2" (2.5 or 5.1 cm) orbit sold separately
- **Versatile System Converts from an Antibiotic Screening Facility to a Photosynthetic Chamber;** from a warm-room environment to a cold room
- **Temperature Range** 20°C below ambient to 60°C. Minimum setpoint is 4°C
- **Humidity Controller Minimizes Evaporation** of cultures by injecting vapor into the chamber atmosphere
- **Powerful Heater and Fan Provide Rapid Heat-Up Capability and Temperature Uniformity** throughout the chamber
- **Computer-Compatible For Automated Setpoint Changes** using optional software package*. Program agitation on-off cycling, humidity control, multiple-temperature changes and photosynthetic lighting sequences on the basis of time
- **Accommodates Up to Two Optional High-Intensity Photosynthetic Light Manifolds with Programmable Temperature and Light Controller**. Dual-channel, 24-event per channel timer, switches lamps on/off automatically and switches between two temperatures (without the aid of an external computer.) Multiple light programs may be established for each day of the week, each with a different cycle length (1 min. to 24 hrs.) and each operating at a choice of two temperatures
- **Thermally-Insulated, Electrically-Heated Glass Door†** with double-pane tempered glass minimizes heat loss and condensation; permits clear observation, minimizing the need to open the chamber
- **Choice of Lift-Out or Slide-Out Accessory Platforms** for easy access to all size flasks from 10 mL to 6 L. Sliding platforms (shown above) glide in place and lock down without tools. Lift-out platform recommended for high humidity applications

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* Requires computer and BioCommand® Plus or BioCommand® Lite software. For photosynthetic work, additionally requires light manifolds

† Standard door is hinged on left side; but is reversible to fit any room layout

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INNOVA MODEL 4900 MULTI-TIERED ENVIRONMENTAL SHAKER SPECIFICATIONS*

Accessory Shakers	Range, Control § & Motion	Chamber accepts up to four shakers - see capacity chart below. (Chamber, shakers & platforms ordered separately.) Speed: 25 to 400 rpm with 1" (2.5 cm) stroke or 25 to 300 rpm with 2" (5.1 cm) stroke, ±1 rpm over entire speed range by PI microprocessor control. Acceleration circuit prevents sudden starts/stops
	Indication	Digital LED module, one per shaker, displays shaking in 1 rpm increments. Character height: 3/8" (0.95 cm)
	Drive	Triple-eccentric counterbalanced shaker drive in cast-iron housing with 9 permanently lubricated ball bearings
	Drive Motor	Solid-state brushless D.C. motor. Maximum torque 63-oz-in (0.44 N-m)
	Timer	Programmable shaking periods from 0.1 hr. to 99.9 hrs. Triggers audible alarm and energizes status light at end of period. Can be deactivated for continuous operation
Temperature	Range	20°C below ambient to 60°C (minimum setpoint is 4°C)
	Control	PI microprocessor feedback regulation, controlled ± 0.1°C in 30°C to 40°C range, and ± 0.25°C for the remaining range. Capable of dual-temperature programming with photosynthetic lighting option. Capable of multi-temperature programming with optional BioCommand® computer-driven software and external computer
	Gradient	Nominally ±0.5°C
	Indication	Digital LED display in 0.1°C increments. Character height 3/8" (0.95 cm)
	Heaters	Low-watt resistance-type heaters with high-temperature safety thermostat cut off
	Circulation	Twin air blower with air displacement of 300 CFM (8.5m^3/min.)
	Refrigeration	1/2 hp compressor with hot-gas bypass system. Fully accessible from front of console. CFC-free
Humidity†	Range	To 90% relative humidity (RH) with temperatures between 37°C and 45°C. To 85% relative humidity (RH) with temperatures between 25°C and 36°C.
	Control	±5%
	Indication	Digital LED display in 0.1% increments. Character height 3/8" (0.95 cm)
	Humidifier	Electric heat flash vaporizer (130°C)
Illumination	Interior	Two 40-watt fluorescent lamps with on-off control switch located outside the chamber
	Photo-synthetic Light Option	Chamber accommodates up to two photosynthetic light banks, (see chart, below.) Each bank contains six 20-watt Gro-Lux® fluorescent lamps. Includes Programmable Temperature & Light Timer to automate turning lights on in the morning while incubating at a higher temperature, then turning lights off and lowering temperature in the evening, mimicking diurnal conditions. 7-day 24 hr clock timer programs up to 24 events. Only one timer needed for up to two light banks
Alarms ◊		Audible and visible signals indicate when speed deviates more than 5 rpm, temperature more than 1°C, or RH more than 5% from setpoint, and when timer operation has expired
Chamber		Maximum chamber capacity with one optional light bank is 3 shakers; with two light banks is 2 shakers. Chamber constructed of heavy-gauge stainless steel, mirror finished
Door		32" x 70" (81.3 x 177.8 cm) full view double-pane tempered glass, heated to inhibit condensation and enhance chamber visibility
Safety		Unique sensors limit speed of shaker when overloaded or unbalanced; stops shaker when excess vibration is detected or when door is opened ; and shuts off temperature when high-temperature limit is exceeded
Setpoint Retention		Setpoints and operating status retained by non-volatile memory. Automatic restart after power is restored (indicated by flashing display)
Power		208, 220, 240V 50/60 Hz models available. 2,350 VA maximum, typical 1,925 VA. Main circuit breaker plus each individual circuit fused or protected by circuit breaker
Chart Recorder		Optional factory-installed, front-mounted, 6 channel analog and digital recorder for tracking speed of 4 shakers, chamber temperature and RH
Computer Control		Optional BioCommand® software for PC control of up to 6 parameters via an RS-422 serial communications port using a 25-pin "D" subminiature connector
Dimensions	**Accessory Platforms**	**Slide-Out:** 18" x 24" (46 x 61 cm) has integral rollers and locking mechanism to extend platform beyond the front of the chamber, facilitating handling glassware.
		Lift-Out: 18" x 24" (46 x 61 cm) has handles for easy removal; Recommended for high-humidity applications.
	Chamber	30" Wide x 22" Deep x 66" High (76 x 56 x 168 cm)
	Overall	55" Wide x 30.5" Deep x 78.5" High (140 x 77.5 x 199 cm)
Weight		Platforms : 90 lbs. (41 kg) each Chamber: Gross: 1,400 lbs. (635 Kg) including 4 shakers. Net: 1,200 lbs. (544 Kg) including 4 shakers
Ambient Conditions		Temperature: 15°C - 35°C. Humidity: 90% non-condensing

* Specifications subject to change without notice. § Based on shaking a typical workload. Baffled flasks may significantly reduce maximum speed.
† Requires connection to a deionized water supply regulated to 20 psi to provide a flow rate of approximately 50 mL/hr.
◊ Audible alarm may be muted.

Shaker & Chamber Capacity

Flask Size	Flasks per Dedicated Slide-Out Platform	Flasks per Dedicated Lift-Out Platform	Flasks per Universal Platform**	Chamber Capacity		
				Shakers per Chamber	Shakers using 1 Light Bank	Shakers using 2 Light Banks
50 mL	80	80	63	4	3	2
125 mL	48	52	35	4	3	2
250 mL	35	35	24	4	3	2
500 mL	20	16	20	4	3	2
1 L +	12	12	12	4	3	2
2 L +	8	8	8	3	3	2
2.8 L+	5	5	5	3	3	2
4 L +	4	4	5	2	2	2
5 L	N/A	N/A	4	2	2	2
6 L +	4	4	3	2	2	2

Optional Accessories

Photosynthetic Lighting Six Gro-Lux® lights with 7-day programmable module automates on-off light cycles and/or two different temperature cycles. Usage reduces chamber capacity - See capacity chart at left.

Six-Channel Strip-Chart Recorder

BioCommand® Software automates data logging and control

Microplate Platform accommodates 90 standard or 18 deep well plates

** Flask clamps and test tube racks for the Universal Platform must be ordered separately. Dedicated Platforms include clamps. See pages 22 - 23. Microplate platforms also available - see options chart.

U.S. Patent No. 5,052,812

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