

Cell Culture Incubators

Forma Scientific Cell Culture Incubators Time-Tested, Proven Performance

In vitro cell growth, bacterial diagnostic culturing, large-scale environmental control and storage . . .
Forma Scientific's cell culture incubators maintain the quality and reliability needed for maximum results in any application.

Select the Steri-Cult 200 series incubators for unparalleled resistance to contamination, or the automatic CO₂/O₂ incubator for *in vitro* modeling of *in vivo* environments. Choose the versatile performance and convenient operation of forced draft incubators, or for increased volume, select a large capacity incubator. With over 35 incubator models, Forma provides the reliability you have come to expect from Forma Scientific.

Forma Scientific continues its tradition for high quality, reliable laboratory equipment with our newest line of Universal Water Jacketed Incubators. Our world class cellular manufacturing methods enable us to assemble each incubator to meet the exact specifications you have selected. You also have the confidence knowing all Forma Universal Water Jacketed Incubators are UL Listed, CSA Certified, bear the CE Mark and were designed, manufactured and tested to a quality system registered to ISO 9001-1994. For additional information on Forma's new line of water jacketed incubators, please call (800) 848-3080, or contact your local international distributor, to request our 10 page, full color *Universal Water Jacketed Incubators* brochure.

STERI-CULT HEPA-FILTERED LAMINAR AIRFLOW INCUBATORS

For a HEPA-filtered laminar airflow environment, trust the quality engineered Steri-Cult 200 series CO₂ incubators from Forma Scientific. Two sizes are available and both are stackable. High resistance to contamination, plus superior tissue culturing conditions, make this the unit of choice for today's laboratory.

Pg. 4-8

FORCED-DRAFT INCUBATORS WITH CONTROLLED CO₂

Available in countertop or large capacity, these forced-draft incubators feature horizontal airflow to optimize temperature uniformity. CH/P® electronics for temperature, CO₂ and humidity are featured.

Pg. 9-13

FORCED-DRAFT INCUBATORS; TEMPERATURE ONLY

These large capacity reach-in incubators are available in heated or heated and refrigerated models. These 32 cu.ft. units feature a choice of solid or glass doors. Ideal for use in stability studies and shelf life testing.

Pg. 14-15

FORCED-DRAFT INCUBATORS; TEMPERATURE/ RH CONTROLLED

These 29 cu.ft. microprocessor-based controlled incubators feature positive horizontal airflow ensuring temperature and humidity uniformity. Many customized options are available, including door light packages and refrigerated drying coils, to accommodate industrial/biotechnology research applications.

Pg. 16-17

DIURNAL GROWTH CHAMBER AND FREEZER/ INCUBATOR

Forma's diurnal growth chamber features a mechanically convected airflow system for maintaining temperature uniformity. This cabinet is ideal for botanical and agbiotech studies. The low temperature incubator provides ample storage space for a variety of specimens.

Pg. 18-22

ANAEROBIC SYSTEM

Forma's Anaerobic System provides a completely centralized oxygen-free work chamber. The complete anaerobic system improves growth and speeds diagnosis and subsequent treatment by as much as 24 hours.

Pg. 23-28



3860 (3862)

STERI-CULT 200 HEPA FILTERED INFRARED CO₂ INCUBATORS

Reliable, accurate and simple to operate, the Steri-Cult 200 CO₂ incubator utilizes proven HEPA filtered, vertical laminar airflow techniques which minimize contamination and desiccation of cultures. Customer satisfaction with incubator performance and extensive tests in Forma Scientific's laboratory have confirmed the design's success. The effects of various airflow patterns and velocities were measured to determine optimum levels that control unavoidable airborne contamination and provide ideal temperature, CO₂ and humidity conditions to enhance cell growth. Test culture plates, after severe inoculation with 20 million aspergillus niger spores, substantiated the system's superior contamination resistance.

The Steri-Cult 200 CO₂ incubators' outstanding design establishes a standard of excellence in the demanding area of tissue culture. (Patent #4,572,427 and 4,701,415).

VERSATILITY OF SIZE

- The Steri-Cult incubator series incorporates two models. The Model 3033 (3035) offers 10.5 cu. ft. (297.3 liters) of usable space, while the Model 3860 (3862) provides a more compact 7.4 cu. ft. (209.5 liters) of culturing space.

UNIQUE AIRFLOW CHARACTERISTICS

- Patented, balanced, warm air jacket ensures temperature uniformity throughout the chamber and minimizes condensation on the inner door.
- Sterile HEPA filter (99.97% retention at 0.3 microns) continually returns contaminant-free air to the chamber atmosphere, thus protecting chamber contents.
- Unproven methods of heat disinfection, which are time consuming and ineffective, are not required through this airflow process.

MICROPROCESSOR TECHNOLOGY

- Sensi-touch key pad facilitates setpoint selection.
- Control panel features **program** and **run** modes, accessible only with security key to prevent alteration of setpoints.
- Independent modules for temperature/alarm monitor, CO₂, humidity and temperature control feature LCD digital readout.
- Temperature/alarm monitor features battery back-up and alarm silence with ringback.
- Audible and visual alarms are activated if CO₂ deviates one percent or more above or below setpoint.
- Door ajar light protects cultures by warning the operator to secure door tightly.
- Relative humidity can be set at desired operating levels allowing for flexibility in culturing.
- Remote alarm contacts for temperature permit connection to in-house monitoring system.
- Optional analog recorder output jack connects to remote recorders.
- Nine volt rechargeable battery is provided for back-up of the temperature/alarm system in case of power loss.

CABINET CONSTRUCTION

- Superior design of the stainless steel interior provides a crevice-free chamber -- no folded seams to harbor contamination.
- Removable shelves and ductwork simplify normal cleaning procedures.
- Pull-out stainless steel shelves are fully adjustable on 1" centers to accommodate your choice of cultureware. Ideal size of shelves allows for easy removal and manipulation of cultures in a biosafety cabinet or clean air bench.
- Valuable lab space is efficiently utilized as no stacking adapter is required.
- Heated outer door minimizes condensation on the inner glass door.
- Two inches of urethane insulation provide an R value of 16 and surround the air jacket to reduce heat loss and insulate the chamber from ambient conditions.
- CO₂ sampling port is front-mounted for quick verification.
- Access port is provided through the chamber wall for electrical cords for shakers, additional probes or other equipment.
- Sensors, blower and water reservoir are all located outside the chamber to minimize incidence of hidden contamination.

CO₂ CONTROL

- Fully tested and time-proven infrared (IR) CO₂ technology provides precise control over the 0-20% range.
- Automatic CO₂ **auto zero** function ensures accuracy.
- CO₂ set level is maintained and complicated calibration procedures are eliminated.
- IR sensor maintains a consistent CO₂ level independent of temperature and humidity. No chopper motors or moving parts to fail.
- Audible/visual alarms indicate CO₂ deviations one percent above or below setpoint. Standard alarm delays avoid "nuisance alarms" during door openings. Audible alarms can be silenced with 30 minute ringback.
- Auto zero alarm function ensures proper calibration of CO₂.

HUMIDITY SUPPLY SYSTEM

- Innovative humidity supply system, located OUTSIDE the chamber, provides rapid RH recovery. The humidity system is not a vapor generator and has no immersible heater to burn out or to cause scaling.
- Water reservoir for the humidity system is easily filled via a port on the outside of the unit.
- Viewing window allows a visual check of the water level in the humidity system.
- Audible and visual add water alarms indicate when the reservoir needs to be filled. Audible alarm can be silenced with 10 minute ringback.
- Humidity reservoir drain system enables user to drain the water from the reservoir, fill bottle and water lines.

AIRFLOW DIAGRAM

In the Steri-Cult 200 HEPA filtered, IR incubator series, cross-contamination and desiccation are virtually eliminated. Your cultures are protected continually.

One hundred percent of the recirculated air passes through a HEPA filter ensuring constant decontamination. This airflow process eliminates the need for other methods of heat disinfection.

Specifications: Model 3033 (3035) and 3860 (3862)

Temperature		Shelves Continued... Clearance Loading Adjustable on 1.0" (2.54cm) centers 35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)	
Control	±0.1°C @ +37°C (98.6°F)	Shelves 3860 (3862)	
Range	+4°C above ambient to +45°C (113°F)	Standard	5
Sensor	Platinum	Maximum	26
Controller	Microprocessor	Dimensions	17.75" X 17.75" (45.1 cm X 45.1 cm)
Setpoint	Digital	Construction	Stainless steel, perforated, electropolished
Display	Digital LCD	Surface Area	2.2 sq. ft. (0.2 sq. m) per shelf
Readability	0.1°C	Max. Per Chamber	57 sq. ft. (5.3 sq. m)
Setability	0.1°C	Clearance	Adjustable on 1.0" (2.54 cm) centers
Uniformity	±0.3°C	Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)
Temperature Alarm		Construction	
Sensor	Platinum	Volume 3033 (3035)	10.5 cu. ft. (297 liters)
Controller	Independent analog (high & low alarm)	3860 (3862)	7.4 cu. ft. (207 liters)
Setpoint	Digital with screwdriver adjust	Interior	304 2B stainless steel
Display	Audible/visual	Exterior	Cold rolled steel/stainless steel
Readability	0.1°C	Insulation	2" (5.1cm) Urethane
Setability	0.1°C	Inner Door	1/4" (0.62cm) Fully tempered safety glass with cam action latch
CO₂		Inner Door Gasket	Non-porous feather edge silicone
CO ₂ Gas Control	Better than ±0.1%	Outer Door Gasket	Four sided molded magnetic vinyl
Range	0-20%	Finish	Powder coated. Salt spray test exceeds 1,000 hours per ASTM Standard B117-85.
Calibration	Auto zero	Electrical	
Inlet Pressure	10 PSIG (.7 bars)	3033 (3035)	90-130 VAC, 50/60HZ, 1PH, 7.0 FLA
Filter	0.2 Micron, disposable	3860 (3862)	180-260 VAC, 50/60HZ, 1PH, 4.0 FLA
Sensor	Infrared	Circuit Breaker	90-130 VAC, 50/60HZ, 1PH, 6.5 FLA
Controller	Microprocessor	Power Switch	180-260 VAC, 50/60HZ, 1PH, 3.7 FLA
Setpoint	Digital	Line Cord	10 Amps
Display	Digital LCD	Data Output	2 Pole
Readability	0.1%	Accessory Outlet	8 ft. hospital grade plug
Setability	0.1%	Remote Alarm Contacts	10mv/unit temperature, humidity, CO ₂
Alarm Differential and Delay	±1.0% (nominal) for approx. 30 min.	Certification	
Controlled RH		CSA	Standard C22.2 No. 151 (except 3035/3862)
Range	Ambient to >95% RH @ +37°C (98.6°F)	UL	Standard No.1262 (except 3035/3862)
Humidity Control	±2.0%	CE	Meets international requirements
Sensor	Platinum	Dimensions 3033 (3035)	
Controller	Microprocessor	Exterior	40.25"W x 39.50"H* x 26.75"F-B (102.24 cm x 100.33 cm x 67.95 cm)
Setpoint	Digital	Interior	27.20"W x 32.95"H x 20.25"F-B (69.09 cm x 83.69 cm x 51.44 cm)
Display	Digital, LCD	Dimensions 3860 (3862)	
Readability	1.0%	Exterior	32.50"W x 39.50"H* x 26.75"F-B (82.55 cm x 100.33 cm x 67.95 cm)
Setability	1.0%	Interior	19.20"W x 32.95"H x 20.25"F-B (48.77 cm x 83.69 cm x 51.44 cm)
Humidity Reservoir	1.0 gal. (3.75 liters)	Weights	
Fittings		3033 (3035)	3860 (3862)
Fill Port	1/4" FPT	Net Operational	320 lbs. (145 Kg) 270 lbs. (122 Kg)
Drain Port	1/4" barbed fitting with valve	Shipping:	
Access Port	1.18" (2.99cm) with neoprene removable plug	Motor	400 lbs. (181 Kg)
CO ₂ Inlet	1/4" barbed	Air	460 lbs. (209 Kg)
Unit Heat Load		Ocean	500 lbs. (227 Kg)
120V	720 BTUH (210 Watts)	Shipping:	
230V	850 BTUH (250 Watts)	Motor	400 lbs. (181 Kg)
Shelves 3033 (3035)		Air	460 lbs. (209 Kg)
Standard	6	Ocean	500 lbs. (227 Kg)
Maximum	26	Shipping:	
Dimensions	25.57"W x 19.69"F-B (64.95 cm x 50.01 cm)	Motor	400 lbs. (181 Kg)
Construction	Stainless steel, perforated	Air	460 lbs. (209 Kg)
Surface Area	3.5 sq. ft. (0.32 sq. m) per shelf	Ocean	500 lbs. (227 Kg)
Max. Per Chamber	91 sq. ft. (8.4 sq. m)	Shipping:	

Continuing research and improvements may result in specification changes at any time. Performance plus or minus the least significant digit unless otherwise specified.



3029 (3039)

FORCED DRAFT COUNTERTOP CO₂ INCUBATOR

Forma Scientific's Model 3029 (3039) forced draft countertop automatic CO₂ incubator incorporates self-diagnostic modules which simplify operation and maintenance, thus providing consistent, reliable performance. Horizontal airflow improves temperature uniformity even under full load conditions.

Units can be stacked with or without a stacking adapter for optimum storage capacity in the same amount of floor space.

DESIGN HIGHLIGHTS

- Removable stainless steel interior to facilitate cleaning.
- 1.3" access port is provided through the chamber wall.
- Automatic water level control keeps humidity reservoir filled with water (sterile distilled water recommended) from a one gallon holding bottle.
- Humidification system may also be connected to a laboratory water system for continuous supply.
- Heated outer door with independent control minimizes condensation on inner glass door.

CH/P® ELECTRONICS

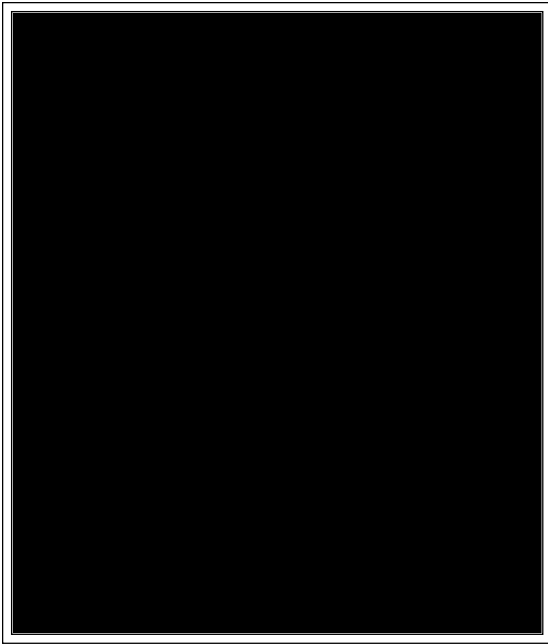
- Separate modules with solid-state CH/P electronics for temperature, CO₂ and humidity display chamber conditions at all times in easy-to-read LCD.
- Setpoints can be recalled at the touch of a button.
- Independent CH/P module controls CO₂ from 0-20%.
- Audible/visual alarm indicates CO₂ deviation of one percent or more above or below setpoint.
- Independent overtemperature safety/alarm activates audible and visual signals when chamber temperature exceeds limits.
- Humidity controller computes temperature and moisture values and determines amount of heat needed to maintain humidity setpoints.
- RH control from above ambient to 96% can be set and displayed. When less than 85% RH is desired in the top chamber, a stacking adapter is required.

CH/P control module maintains temperature, humidity, and CO₂ levels with solid state electronics. Main control includes add water, door ajar, overtemperature and power indicator lights, power switch and overtemperature safety limit. Individual modules include CH/P temperature, humidity and CO₂ control with LCD digital readout, function and power indicator lights, and setpoint adjustment. CO₂ module includes an alarm silence button.

Specifications: Model 3029 (3039)

Temperature		Shelves	
Control	±0.1°C @ +37°C (98.6°F)	Standard	6
Range	+4°C above ambient to +60°C (140°F)	Maximum	20
Sensor	Transistor	Dimensions	26.50"W x 21.50"F-B (67.31 cm x 54.61 cm)
Controller	Electronic proportional	Construction	Solid stainless steel
Setpoint	Tamper resistant screwdriver adjust	Surface Area	3.72 sq. ft. (0.345 sq. m) per shelf
Display	Digital LCD	Max. Per Chamber	74.4 sq. ft. (6.9 sq. m)
Readability	0.1°C	Clearance	Adjustable on 1.0" (2.54cm) centers
Setability	0.1°C	Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)
Uniformity	±0.2°C		
Temperature Alarm		Construction	
Sensor	Thermostat	Volume	10 cu. ft. (283 liters)
Controller	Thermostat	Interior	304 2B stainless steel
Setpoint	Analog reference dial	Exterior	Cold rolled steel
Alarm	Audible/visual	Insulation	2" (5.1cm) fiberglass in door 1" (2.54cm) urethane in chamber
CO₂		Inner Door	1/4" (0.62cm) Fully tempered safety glass with cam action latch
CO ₂ Gas Control	±0.1%	Inner Door Gasket	Non-porous feather edge silicone
Range	0-20%	Outer Door Gasket	Four sided molded magnetic vinyl
Inlet Pressure	10 PSIG (.7 bars)	Finish	Powder coated. Salt spray test exceeds 1,000 hours per ASTM Standard B117-85
Filter	0.2 Micron, disposable		
Sensor	Thermal conductivity		
Controller	Electronic, digital		
Setpoint	Tamper resistant screwdriver adjust		
Display	Digital LCD		
Readability	0.1%		
Setability	0.1%		
Alarm Differential and Delay	±1.0% (nominal) for approx. 4 min.		
Humidity		Electrical	
Humidity Control	±5.0%	3029	95-130 VAC, 60HZ, 1PH, 6.0 FLA
Range	To 96% in 1% increments (low limit is a function of ambient) Performance: 50% to 96% at +60°C (140°F), 70% to 96% at +37°C (98.6°F)	(3039)	190-250 VAC, 50HZ, 1PH, 3.0 FLA
Sensor	Transistor	Power Switch	2 Pole
Controller	Electronic proportional	Line Cord	8 ft. hospital grade plug
Setpoint	Tamper resistant screwdriver adjust	Accessory Outlet	120V (20 Watts max.)
Display	Digital, LCD		
Readability	1.0%		
Setability	1.0%		
Humidity Reservoir	1.0 gal. (3.75 liters)		
Fittings		Certification	
Overflow	1/4" MPT capped	CSA	Standard C22.2 No. 151 (except 3039)
Drain Port	1/4" FPT with valve		
Access Port	1.30" (3.30cm) with neoprene removable plug		
CO ₂ Inlet	1/4" compression fitting		
Unit Heat Load		Dimensions	
120V	750 BTUH (220 Watts)	Exterior	40.00"W x 38.50"H x 26.00"F-B (101.60 cm x 97.79 cm x 66.29 cm)
230V	880 BTUH (260 Watts)	Interior	26.90"W x 29.50"H x 21.81"F-B (68.33 cm x 74.93 cm x 55.40 cm)
		Weights	
		Net Operational	310 lbs. (141 Kg)
		Shipping:	
		Motor	390 lbs. (177 Kg)
		Air	432 lbs. (196 Kg)
		Ocean	468 lbs. (212 Kg)

Continuing research and improvements may result in specification changes at any time. Performance plus or minus the least significant digit unless otherwise specified.



3940 (3949)

Shown with optional door cover.

WIDE TEMPERATURE RANGE INCUBATORS WITH CONTROLLED HUMIDITY

These 29 cu.ft. programmable, microprocessor-based controlled incubators offer ample space and reliable performance to provide optimum growth conditions throughout the chamber. Positive horizontal airflow helps ensure temperature and humidity uniformity.

The Model 3940 is ideal for drug stability studies and shelf life testing for packaged products. Many customized options are available, including dehumidification and door light packages, to accommodate industrial/biotechnology research applications. To meet your particular application, contact our Customer Service Department.

CONTROL/PRODUCT HIGHLIGHTS

- Two independent, microprocessor-based controllers for temperature and humidity.
- Temperature is adjustable from 0°C to +60°C and can be digitally set in 0.1°C increments.
- Chamber temperature is constantly displayed on a digital LED. Audible and visual alarms indicate temperature and humidity deviation beyond setpoint limits.
- Overtemperature and undertemperature safety protects the chamber from further temperature variation.
- Relative humidity range from above ambient to 95%. RH levels can be digitally set in 1.0% increments. Direct readout of chamber humidity in percent RH is displayed on an easy-to-read LED.
- Phenolic coated evaporator protects against corrosive by-products in chamber atmosphere.
- Built-in self-diagnostics allow access for proper alignment of performance parameters. Lock-out feature eliminates setpoint alteration.
- Air-cooled refrigeration system provides low-range temperature efficiency, while adjustable intake and exhaust vents regulate fresh air exchange in the chamber.
- Switches on the control panel regulate defrost and refrigeration cycles.
- Heated glass door minimizes condensation.
- Remote alarm contacts (Common, NO, NC) and RS-232 interface for temperature and RH are standard.
- Programmable ramp and soak cycles (up to 24 steps*) for temperature and RH, based on cabinet capability.

GAS CONTROL

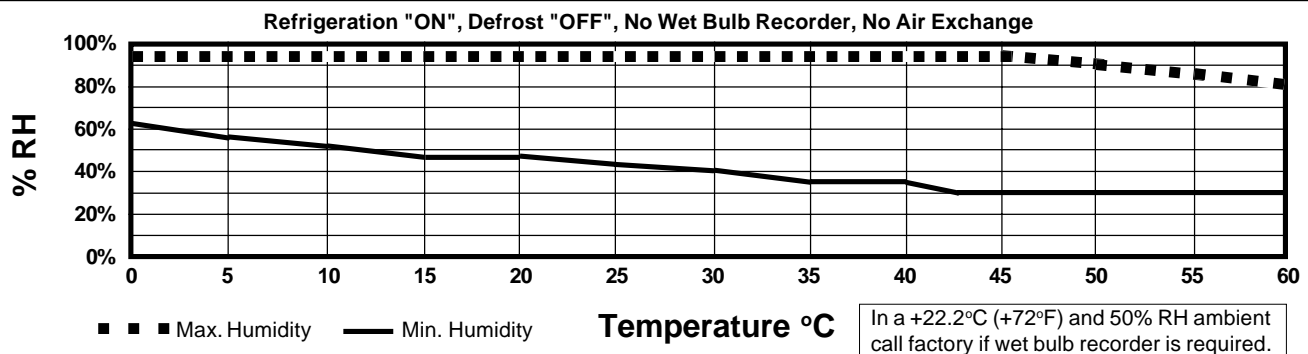
- Model 3980 (3986) controls CO₂ from 0-20% with Forma's continuous flow UN-I-TROL system.
- Built-in air supply provides a constant, even pressure to the chamber. Pressure gauge monitors air while the flowmeter regulates CO₂.
- Direct dial *kwik-purge* recovers CO₂ tension after door openings.

**Four files with six steps each can be linked for up to 24 steps.*

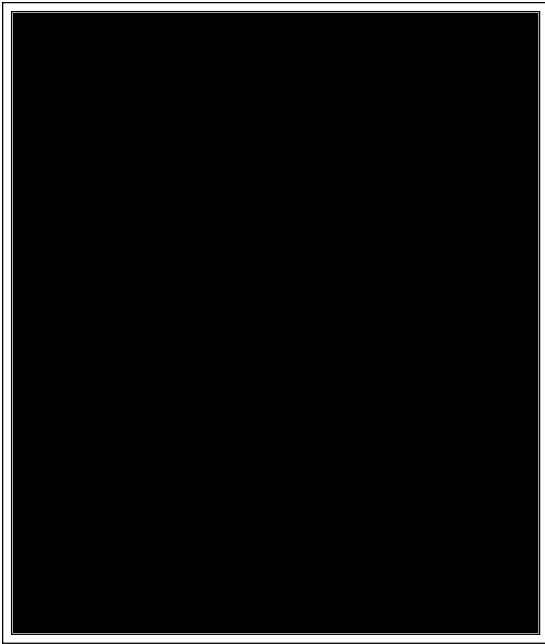
Model 3980 (3986) control panel with temperature, humidity and CO₂ control

Specifications: Model 3940 (3949) and 3980 (3986)

Temperature Control ±0.1°C @ +37°C (98.6°F) Range 0°C (32°F) to +60°C (140°F) Sensor RTD Controller Microprocessor, proportional Setpoint Digital Display Digital LED Readability 0.1°C Setability 0.1°C Uniformity ±0.3°C at 25°C to 37°C with six shelves installed* Programmable Ramp and soak (up to 24 steps)		Unit Heat Load 230V Approx. 6500 BTUH (1900 Watts)	
Temperature Alarm Sensor Thermostat Controller Thermostat Setpoint Analog reference dial Alarm Audible/visual		Refrigeration Compressor 1/4 Horsepower, air-cooled Refrigerant Non-CFC	
CO₂ 3980 (3986) CO ₂ Gas Control Flowmeter Range 0-20% Inlet Pressure 10 PSIG (.7 bars) Controller Flow ratio Setpoint Single flowmeter 0 to 1.05 LPM Air Supply Built-in air pump		Shelves Standard/Maximum 6/19 Dimensions 30.62"W x 25.81"F-B (77.78 cm x 65.56 cm) Construction Solid stainless steel, reinforced Surface Area 5.4 sq. ft. (.51 sq. m) per shelf Max. Per Chamber 104.3 sq. ft. (9.69 sq. m) Clearance Adjustable on 3" (7.62 cm) centers Loading 35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)	
Humidity Range Above ambient to 95%, ±5.0% RH Sensor Bulk polymer Controller Microprocessor, proportional Setpoint Digital (direct set in % RH) Display Digital LED (direct read in % RH) Readability 1.0% Setability 1.0% Steam Generator Initial fill approx. 1 quart (.95 liters) Alarm Setable Audible/Visual Programmable Ramp and soak (up to 24 steps)		Construction Volume 29 cu. ft. (823 liters) Interior 304 2B stainless steel Exterior Cold rolled steel Insulation 2" (5.1cm) foamed, non-CFC urethane Outer Door Gasket Four sided vinyl compression Finish Powder coated	
Fittings Fill Port 1/4" compression Drain Port 3/8" FPT and 3/8" O.D. trap CO ₂ Inlet 1/4" compression 3980 (3986)		Electrical 3940/3980 208-220 VAC, 60HZ, 1PH, 14.0 FLA (3949/3986) 220-240 VAC, 50/60HZ, 1PH, 14.0 FLA Power Switch 1 Pole Line Cord None (lockable disconnect provided) Dry Contacts Common, NO, NC RS-232 Temperature and RH	
		Dimensions Exterior 38.00"W x 87.50"H x 32.00"F-B (96.52 cm x 222.25 cm x 81.28 cm) Interior 31.00"W x 60.00"H x 27.00"F-B (78.74 cm x 152.40 cm x 68.58 cm)	
		Weights Net 800 lbs. (363 Kg) Shipping Motor 850 lbs. (386 Kg) Air 940 lbs. (476 Kg) Ocean 985 lbs. (447 Kg)	



Continuing research and improvements may result in specification changes at any time. Performance plus or minus the least significant digit unless otherwise specified. *Better than ± 0.5°C uniformity at all other temperature parameters.



DIURNAL GROWTH CHAMBER

Forma Scientific's diurnal growth chamber is ideal for botanical and agbiotech applications. Temperature uniformity is maintained by the mechanically convected airflow system.

PRODUCT HIGHLIGHTS

- Adjustable 24-hour timer allows day and night cycles to be easily set.
- Photo timer controls eight fluorescent lamps for diurnal simulation. Lights operate simultaneously. Similar temperature cycling timer adjusts temperature conditions according to cycle.
- Safety thermostats monitor heating and refrigeration systems to prevent over and undershoot. Audible and visual alarms indicate deviation beyond setpoint limits.

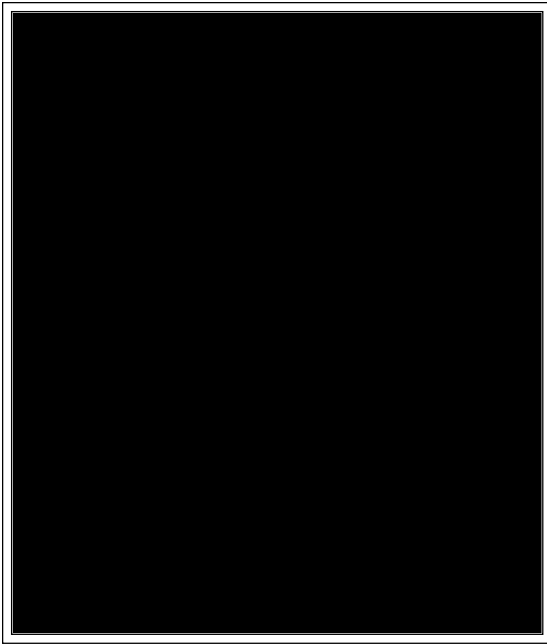
3740 (3744)

- Day temperature can be set from +8°C to +55°C. Night temperatures run from -20°C to +55°C.
- Lights produce up to 5600 lumens (17,750 lux) of available light.
- Includes five adjustable steel wire shelves.
- Remote bulb dial thermometer indicates chamber temperature.
- Adjustable intake and exhaust ports permit air exchange and exhaust.

Specifications: Model 3740 (3744)

Temperature		Construction	
Control		Volume	20.3 cu. ft. (574 liters) nominal 17.0 cu. ft. (481 liters) usable space
Lights On:	±0.1°C @ +37°C (98.6°F)	Interior	Baked enamel
Lights Off:	±0.1°C @ +37°C (98.6°F)	Exterior	Textured steel
Range		Insulation	Foamed polyurethane
Lights On:	+8°C (46°F) to +55°C (131°F)	Outer Door Gasket	Four sided molded magnetic vinyl
Lights Off:	-20°C (-4°F) to +55°C (131°F)	Finish	Baked enamel
Sensor	Thermistor	Electrical	
Controller	Electronic proportional	3740	120 VAC, 60HZ, 1PH, 13.0 FLA
Setpoint	Analog	(3744)	188-260 VAC, 50HZ, 1PH, 7.0 FLA
Display	Dial thermometer readability to 1°C	Power Switch	1 Pole
Uniformity*		Line Cord	8 ft. with plug
Lights On:	@ +10°C (50°F)---±2.2°C @ +37°C (98.6°F)---±2.0°C @ +50°C (122°F)---±1.7°C	Dimensions	
Lights Off:	@ +10°C (50°F)---±0.8°C @ +37°C (98.6°F)---±0.7°C @ +50°C (122°F)---±0.8°C	Exterior	32.00"W x 77.00"H x 29.50"F-B (81.28 cm x 195.58 cm x 74.93 cm)
Temperature Alarm		Interior	27.00"W x 57.00"H x 20.00"F-B (68.58 cm x 144.78 cm x 55.88 cm)
Sensor	Thermostat	Weights	
Controller	Thermostat (high & low alarm)	Net Operational	265 lbs. (120 Kg)
Setpoint	Analog reference dial	Shipping	
Alarm	Audible/visual	Motor	325 lbs. (147 Kg)
Fittings		Air	475 lbs. (215 Kg)
Misc.	Adjustable exhaust and intake ports on the door to permit an exchange of air in the chamber.	Ocean	525 lbs. (238 Kg)
Refrigeration		Lights	
Compressor	1/4 Horsepower, air-cooled	(8) 15 Watt fluorescent lamps. Approx. 330 Footcandles (3550 Lux) average on shelf.	
Refrigerant	Non-CFC		
Unit Heat Load			
120V	Approx. 3900 BTUH (1150W)		
230V	Approx. 4450 BTUH (1300W)		
Shelves			
Standard	5		
Dimensions	2 @ 26.38"W x 15.50"F-B (67.00 cm x 39.37 cm) 3 @ 26.38"W x 17.25" F-B (67.00 cm x 43.82 cm)		
Construction	Steel wire		
Surface Area	2 @ 2.84 sq. ft., 3 @ 3.16 sq. ft.		
Max. Per Chamber	15.16 sq. ft. (1.41 sq. m.)		
Clearance	Adjustable on 1.0" (2.54cm) centers		
Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)		

* Uniformity data published based upon measurement in middle of each shelf. Complete test data on file. Contact the factory for additional information. Continuing research and improvements may result in specification changes at any time. Performance plus or minus the least significant digit unless otherwise specified.



3710 and 3770

FREEZER/INCUBATORS

These low temperature incubators will accommodate research with poikilothermic organisms. Two sizes provide ample storage space for a variety of specimens, including BOD samples. Additional storage space is located inside the door. Unit can also be used for drug stability testing.

PRODUCT HIGHLIGHTS

- Wide temperature range -20°C to +60°C suitable for varied applications.
 - Separate adjustable thermostats monitor over and undertemperature safety limits. Deviation beyond limits activates audible and visual alarms.
 - Balanced airflow system controls uniformity, even under full shelf load conditions.
 - Automatic defrost cycle operates for 15 minutes every eight hours to maintain frost-free conditions even at low temperatures.
- Includes five adjustable steel wire shelves.
 - Hermetically sealed 1/4 HP compressor has built-in overload protection for longer life.
 - Control panel indicator lights monitor all operations. Remote bulb dial thermometer monitors chamber temperature.
 - Easily converted to 230V operation. Order transformer kit Stock #280051.

Model 3710 and 3770 control panels feature power switch, over and undertemperature safety limits, temperature control and indicator lights to monitor all operations.

Specifications: Model 3710 and 3770

Temperature		Construction	
Control	±0.1°C @ +37°C (98.6°F)	Volume	3710 20.3 cu. ft. (574 liters) nominal 17.0 cu. ft. (481 liters) usable space
Range	-20°C (-4°F) to +60°C (140°F)		3770 30 cu. ft. (849 liters) nominal 26.7 cu. ft. (756 liters) usable space
Sensor	Thermistor	Interior	Baked enamel
Controller	Electronic proportional	Exterior	Textured steel
Setpoint	Analog	Insulation	Foamed polyurethane
Display	Dial thermometer readability to 1°C	Outer Door Gasket	Four sided molded magnetic vinyl
Uniformity	±0.4°C @ +37°C (98.6°F)	Finish	Baked enamel
Temperature Alarm		Electrical	
Sensor	Thermostat	3710	120 VAC, 50/60HZ, 1PH, 2 wire 9.0 FLA
Controller	Thermostat (high & low alarm)	3770	120 VAC, 50/60HZ, 1PH, 2 wire 11.0 FLA
Setpoint	Analog reference dial	Circuit Breaker	15 Amp fuse
Alarm	Audible/visual	Power Switch	2 Pole
Refrigeration		Line Cord	8 ft. with plug
3710	1/4 Horsepower, air-cooled	<i>(Convertible to 230 VAC with #280051 transformer kit)</i>	
3770	1/3 Horsepower, air-cooled	Dimensions	
Refrigerant	Non-CFC	Exterior	3710 32.00"W x 77.00"H x 29.50"F-B (81.28 cm x 195.58 cm x 74.93 cm)
Unit Heat Load			3770 35.00"W x 79.50"H x 30.75"F-B (89.90 cm x 200.66 cm x 78.11 cm)
120V	Approx. 3900 BTUH (1150W)	Interior	3710 27.00"W x 57.00"H x 20.00"F-B (68.58 cm x 144.78 cm x 55.88 cm)
230V	Approx. 5450 BTUH (1600W)		3770 32.00"W x 65.00"H x 23.75"F-B (81.28 cm x 165.10 cm x 60.33 cm)
Shelves		Weights	
Standard	5-(3710) 5-(3770)	Net Operational	3710 270 lbs. (123 Kg) 3770 415 lbs. (188 Kg)
Dimensions	3710 2 @ 26.38"W x 15.5"F-B (67.00 cm x 39.37 cm) 3 @ 26.38"W x 17.25"F-B (67.00 cm x 43.82 cm)	Shipping	
	3770 5 @ 31.5"W x 19.25"F-B (80.01 cm x 48.89 cm)	Motor	320 lbs. (146 Kg) 544 lbs. (247 Kg)
Construction	Steel wire	Air	400 lbs. (182 Kg) 544 lbs. (247 Kg)
Surface Area	3710 2 @ 2.84 sq. ft., 3 @ 3.16 sq. ft.	Ocean	450 lbs. (205 Kg) 580 lbs. (263 Kg)
	3770 5 @ 4.2 sq. ft.		
Max. Per Chamber	3710 15.16 sq. ft. (1.41 sq. m)		
Clearance	3770 17.8 sq. ft. (1.65 sq. m)		
Loading	Adjustable on 1.0" (2.54cm) centers		
	35 lbs. (16 Kg) (slide in and out)		
	50 lbs. (23 Kg) (stationary)		



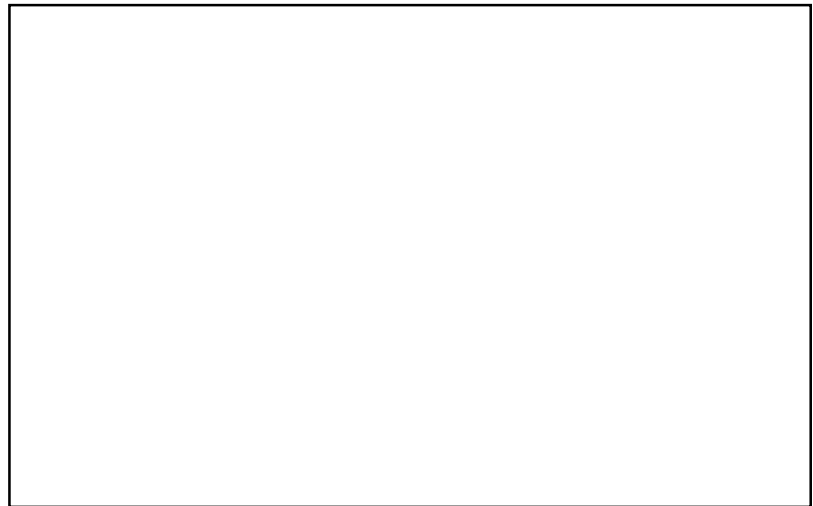
1025 (1029)

FORMA'S COMPLETE ANAEROBIC SYSTEM

For fast results and accurate diagnosis from a completely centralized oxygen-free work chamber, choose Forma Scientific's anaerobic system. Safely inoculate, incubate, examine and subculture even the most fastidious organisms.

PRODUCT FEATURES

- A 2.72 cu.ft. desiccation-free incubator built into the cabinet provides stable temperature to 70°C.
- Condensate-free stainless steel work chamber includes as standard two adjustable shelves, multiple electrical outlets and fluorescent lights, as well as the warm air jacketed incubator.
- Centrally-located oval glove ports allow free access to all areas of the chamber.
- Soft, clear vinyl front gently slopes for maximum visibility in work area.
- Optional Lexan hard front available.
- Easily accessible palladium catalyst wafer and desiccant wafer work together to maintain strict anaerobiosis (less than 10 ppm O₂).
- Charcoal wafer removes hydrogen sulfide and extends life of the palladium wafer.
- Auto-sequence cycle completely automates oxygen reduction of the interchange atmosphere.
- Optional single item entry system in the vinyl front allows rapid entry.
- Temperature can be fixed at +35°C or variably set from 4°C above ambient to +70°C.
- All utility connections are located on the recessed panel at the rear of the cabinet.
- Requires only anaerobic grade gas mixture and nitrogen; can save up to 50% annually over the conventional jars in routine use.

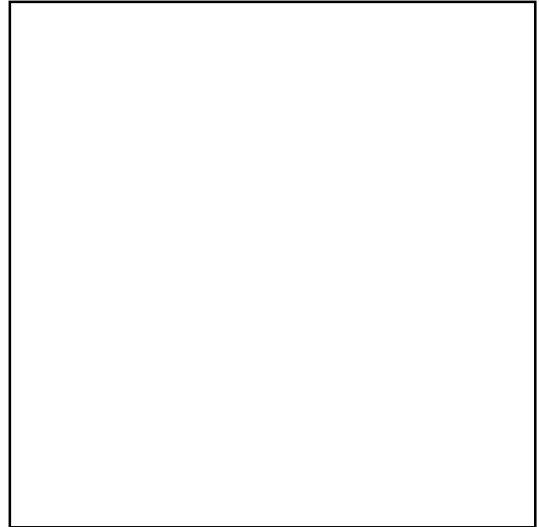
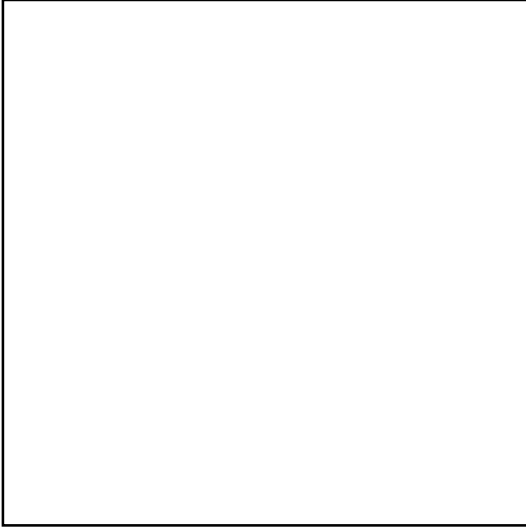


The Anaerobic System control panel puts all functions easily within reach, including automatic and manual control of the interchange auto-sequence. Indicator lights monitor function status. Fixed and variable temperature control regulates incubator temperature.

ACHIEVING LESS THAN 1% O₂ CONDITIONS

Stringent anaerobiosis is maintained inside the cabinet with a palladium catalyst wafer and a desiccant wafer. The palladium catalyst bonds trace oxygen to hydrogen in the anaerobic gas mixture, forming water vapor. The desiccant then absorbs the vapor. Palladium pellets and desiccant crystals, sealed in individual screen wraps, minimize sifting. All three wafers are inserted in the airflow system where the chamber atmosphere is constantly circulated by a fan. The reusable wafers can be periodically regenerated in a standard laboratory oven, thereby minimizing operating costs.

- Charcoal Filter Longevity - three months. Filter cannot be regenerated.
- Palladium Catalyst Wafer Longevity - two years (at 10% H₂). Regeneration once per week; bake two hours at 160°C.
- Desiccant Wafer Longevity - two years. Regeneration two times per week; bake two hours at 160°C.



- Charcoal Filter

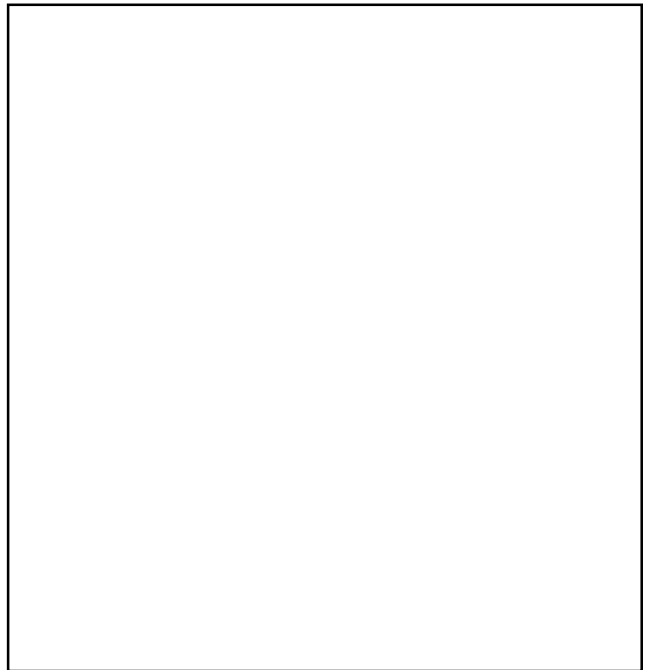
**- Palladium
Catalyst Wafer**

- Desiccant Wafer

For incubation capabilities inside the Anaerobic environment, the built-in incubator maintains temperatures from +4°C above work chamber ambient to +70°C.

AUTOMATIC INTERCHANGE

- Interchange holds stacked culture dishes, gas jars, test tube racks and other items used in the work chamber.
- Opens to the front so the Anaerobic System can be located against the wall.
- Permits transfer of specimens to the work chamber without exposing either to the lab air.
- Lights on the control panel indicate chamber functions, including all phases of the automatic interchange. Lights also denote interchange status by signaling when it is safe to transfer specimens without contaminating the anaerobic chamber.
- Interchange compartment features sliding floor which allows materials to be introduced into the working chamber.
- Accommodates the largest GasPak™ jar.



The inner door may be opened and materials moved into the work chamber when status light indicates an anaerobic atmosphere.

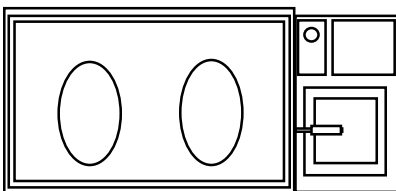
THE AUTO-SEQUENCE

The auto-sequence cycle, a completely automatic oxygen reduction of the interchange atmosphere, is activated by a single, push-button control.

Once all materials to be transferred are loaded in the interchange and the outer door is securely clamped, merely press the "cycle start" button.

The auto-sequence cycle is preset for three evacuations, two nitrogen purges and one pressure equalization of anaerobic gas from the glove cabinet. When the auto-sequence is completed, the atmosphere in the interchange is anaerobic, as indicated by the status light on the control panel. The operator may then open the inner door to move materials into the work chamber.

26

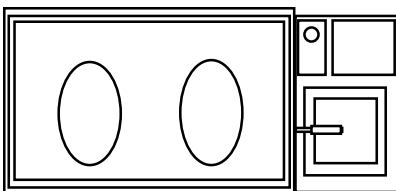


Step 1 - Interchange: Vacuum

Function Time: 18 seconds

Elapsed Time: 18 seconds

Inner and outer interchange doors are sealed. Vacuum pump pulls down to 20 in./Hg. Interchange is 95% oxygen free.

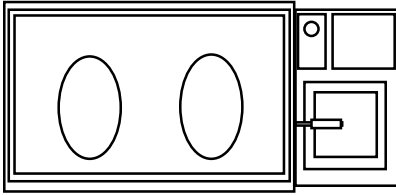


Step 2 - Interchange: N₂ Purge

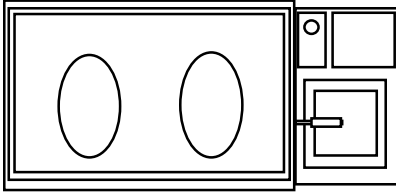
Function Time: 1 minute, 4 seconds

Elapsed Time: 1 minute, 22 seconds

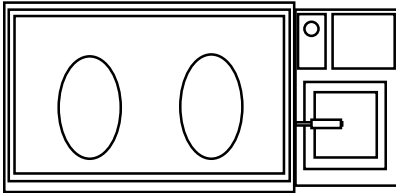
Interchange fills with pure nitrogen gas until atmospheric pressure is reached.



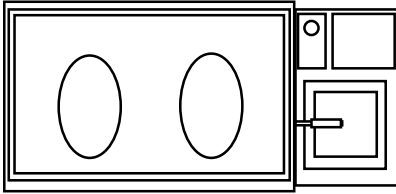
Step 3 - Interchange: Vacuum
Function Time: 18 seconds
Elapsed Time: 1 minute, 40 seconds
Second vacuum pulls down to 20 in./Hg to evacuate nitrogen and trace oxygen to 96% oxygen-free chamber.



Step 4 - Interchange: N₂ Purge
Function Time: 1 minute, 4 seconds
Elapsed Time: 2 minutes, 44 seconds
Interchange fills with pure nitrogen gas until atmospheric pressure is reached.



Step 5 - Interchange: Vacuum
Function Time: 17 seconds
Elapsed Time: 3 minutes, 1 second
Final vacuum pulls down to 20 in./Hg to evacuate nitrogen and trace oxygen to 98% oxygen-free chamber.



Step 6 - Interchange: Equalization
Function Time: 1 minute, 31 seconds
Elapsed Time: 4 minutes, 32 seconds
Interchange is purged with anaerobic gas from glove cabinet to equalize both pressure and atmosphere. Inner door may be opened when anaerobic status light goes ON. Catalyst removes trace oxygen.

Specifications: Model 1025 (1029)

Incubator Operating Temperature		Shelves	
Range	+35°C (+95°F) fixed; variable +4°C above ambient to +70°C (+158°F)	Work Area	Two adjustable stainless steel shelves on 1" (2.54cm) centers.
Control Thermostat/Alarm	±0.3°C Complete with adjustable overtemperature safety thermostat and audible alarm.	Incubator	18.8"W X 13"F-B (47.8cm X 33cm) Two adjustable stainless steel shelves on .5" (1.27 cm) centers. 7.5"W X 12"F-B (44.4cm X 30.5cm)
Utility Connections		Electrical	
Mixed Gas	1/4" compression fitting	Model 1025:	90-130 VAC, 1 PH, 60 HZ, 14.6 FLA @ 120V including vacuum pump
Nitrogen Gas	1/4" compression fitting	Model 1029:	180-235 VAC, 1 PH, 50 HZ, 7 FLA @ 220V including vacuum pump
Vacuum Pump	1/2" MPT		
Gas Supply		Shipping Weight	
Anaerobic Gas	High Purity Grade, 85% N ₂ /10% H ₂ /5% CO ₂ (or mixture containing 5-7% H ₂)	Motor:	390 lbs (177 kg)
Nitrogen Gas	High Purity Grade	Air/Container:	525 lbs (238 kg)
		Ocean:	575 lbs (261 kg)
Vacuum Pump			
Vacuum Pump	Stock # 901024 - 115 VAC, 60 HZ Stock # 901025 - 230 VAC, 50 HZ 7.2 cfm pulls down interchange to 18 in. Hg in 15 seconds. In-house vacuum systems must meet 4 cfm capacity to 24 in. Hg minimum requirements. (203.7 clm pulls down interchange to .6 bar in 15 seconds. In-house vacuum systems must meet 113.2 clm capacity to .8 bar minimum requirements).		
Optional Foot Switch	Plugs into electrical outlet included on the unit.		
Exterior Dimensions			
Anaerobic System Ext.	60.6"W X 30"H X 31"F-B (153.9cm X 76.2cm X 78.7cm)		
Incubator Interior	17.5"W X 22"H X 12"F-B (44.5cm X 55.9cm X 30.5cm)		
Interchange Opening	10.6"W X 11.4"H (26.9cm X 29cm)		
Incubator Capacity			
Plate Capacity	425 - 100 X 15mm plates		
Add-On Glove Cabinet (Optional)			
1018 (1016) Exterior Dimensions	43"W X 30"H X 31"F-B (109.2cm X 76.2cm X 78.7cm)		

CELL ROLL SYSTEM

The cell roll system offered by Forma Scientific allows extensive production of monolayer cell cultures in standard roller culture vessels. Continuous, gentle rotation plus uniform temperature control, increases culture yield. Oxygenation and exposure of cells to media growth area is also improved.

Forma large capacity incubators will accommodate a cell roller up to seven decks high, five positions per deck, for a total of 35 positions. The all position drive is standard. An optional reinforced floor with ramp assembly is available for use with the large capacity incubators.

4862 (4868)

PRODUCT FEATURES

- Top grade rubber rollers are mounted on aluminum shafts set in permanently lubricated, sealed ball bearings.
- An adjustable speed control provides accurate speeds of 0.125 to 6.9 RPM, based on 110mm bottles, with one percent accuracy.
- Hard rubber casters protect floors and allow ease of mobility.
- Locking devices on wheels ensure stability.
- Optional reinforced floor and ramp are available for use with incubator.

PORTAMATIC™

The Model 3057 (3063) Portamatic, using Forma Scientific's exclusive CH/P® CO₂ control system, adds CO₂ control to any incubator with stable temperature and humidity.

3057 (3063)

The CH/P CO₂ sensor detects CO₂ drifts as slight as 0.06%. Improved accuracy is insured to control CO₂ to within 0.1%.

CO₂ consumption is reduced, as the Portamatic delivers CO₂ only when needed, assuring rapid recovery following door openings. Deviation alarm warns of CO₂ drift of one percent or more from setpoint; audible and visual alarms signal deviation.

Model 3057 (3063) Portamatic quickly converts a continuous flow incubator to automatic CH/P system CO₂ control, reducing CO₂ consumption by as much as 90%, depending on setpoint and frequency of door openings.

Specifications

Construction	Solid-state circuitry in steel casing, powder coated for a durable, easily maintained surface
Exterior Dimensions	12.60"W X 8.00"H X 11.40"F-B (32.00cm X 20.32cm X 28.96cm)
Electrical	Model 3057: 90-130 VAC, 1 PH, 50/60 HZ, 0.4 FLA Model 3063: 180-260 VAC, 1 PH, 50/60 HZ, 0.3 FLA
Shipping Weight (Nominal)	Motor: 21 lbs. (9.5 kg) Air: 39 lbs. (18 kg) Ocean: 49 lbs. (22 kg)
Installation	Lightweight unit consists of a control module and a remote sensor unit. The sensor connection to the control module requires only a small 1/2" (1.27cm) access port.
Connection	1/4" barbed hose fitting
CO₂ Control Range	0-20%
PSI (Bars)	10.0 (.7)

MONITOR/ALARM SYSTEM*

Forma Scientific's Model 1535 Monitor/Alarm System interfaces with as many as 24 products (channels) to monitor equipment conditions up to 2000 feet away. This tabletop unit continuously updates and displays several monitored conditions including temperature, CO₂, relative humidity, power, contact closure, and displays this information on a two-line, 20 character LCD readout. An easy-to-use, six button key pad and menu prompting provide simple programming steps for the operator.

1535

Daisy chain wiring allows easy setup, and equipment can be added or removed as your laboratory needs change without interrupting communications. Modules used with the Model 1535 accept analog signals, RS-232 or have their own RTD temperature probe. Programmable audible/visual alarms (with

delay and ringback) alert the operator of deviations in monitored equipment status. A standard dot matrix printer records date, time, unit number, channel status and designator. Printing intervals are programmable from one minute to 24 hours in specified increments, and provide an automatic printout when monitored unit goes in or out of alarm. Non-volatile memory retains programming parameters in the event of a power outage. For added user convenience, the Optional Sensaphone Dialing System can interface with any touch-tone phone system to provide remote monitoring of equipment. In the event of an alarm, a signal is transmitted from the Telephone Dialing System and can dial up to four different pre-programmed numbers in sequence. UL/CSA Listed.

Specifications

Exterior Dimensions	14.0"W X 6.0"H X 13.8"F-B (35.6cm X 15.2cm X 34.9cm)
Electrical	Model 1535: 90-125 VAC, 50/60 HZ, 1 PH, 0.7 FLA or 180-250 VAC, 50/60 HZ, 1 PH, 0.35 FLA
Weight (Nominal)	20 lbs. (9.1 kg)
Print Interval	1 minute to 24 hours (in specified increments)

* See Forma's Model 1535 Monitor/Alarm System brochure for complete details.

MODULAR INCUBATOR CHAMBER

When research requires a variety of gas mixtures, Forma's Modular Incubator Chamber creates the appropriate environment in any incubator.

Purged with any gas mixture and sealed, the Modular Incubator Chamber becomes a "mini-incubator" which isolates individual experiments in one temperature controlled environment. The sealed design protects cultures from cross-contamination, and lab technicians from potential infectious viruses and bacteria.

Stock #190043

Specifications

Dimensions	12" (30.5cm) circular chamber, 4.7" (11.9cm) high
Construction	Durable, lightweight polycarbonate with stainless steel clamp
Components include:	Lid, base, tray, stainless steel Marman clamp, tubing clamp and tubing

ACCESSORIES: Reach-In Incubators/Diurnal Growth Chamber & Freezer/Incubators

Stock#	Description	Model Numbers															
		3919	3923	3927	3932	3933	3937	3952	3956	3940	3949	3980	3986	3740	3744	3710	3770
224137	Stainless Steel Shelf Kit with Channels	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
224139	Stainless Steel Shelf Kit with Channels	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
224155	Perforated Shelf Kit	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
189653	Caster Kit FACTORY INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
189654	Caster Kit CUSTOMER INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190239	Lexan Inner Door Assembly FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190320	Glass Inner Door Assembly FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190800	Reverse Door Swing Kit, FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190597	Reverse Door Swing Kit, FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190598	Reverse Door Swing Kit, FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190591	Door Cover, FACTORY INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190415	Millivolt Recorder Output, FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190164	Thru-Wall Access Port* 2.4" (6.10cm) I.D.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
505101	Thru-Wall Access Port* 1.62" (4.11cm) I.D.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190120	Duplex Outlet Kit, 120 V FACT. INSTALLED**	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190214	Duplex Outlet Kit, 230 V FACT. INSTALLED**	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
505099	Duplex Outlet Kit, 120 V FACT. INSTALLED***	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
505094	Duplex Outlet Kit, 230 V FACT. INSTALLED***	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190215	Duplex Outlet Kit, 120 V FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190216	Duplex Outlet Kit, 230 V FACT. INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
500182	Reinforced Floor with Ramp to Accommodate Cell Roller CUSTOMER INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
190108	Reinforced Floor with Ramp to Accommodate Cell Roller CUSTOMER INSTALLED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
227642	Large Wire Shelf	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
227641	Small Wire Shelf	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
502045	Wire Shelf	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
640201	Condensate Evaporator	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

* Specify location

** Located on side wall

*** Located on rear wall

Digital Temperature/Power Monitor Stk. #400048 120V, 60HZ (#400049 230V, 50HZ), features digital temperature readout, adjustable high/low alarms, temperature probe and indicator lights.

Two Stage Gas Regulators - for CO₂ and N₂ gas cylinders.

ACCESSORIES: Steri-Cult 200 and Forced Draft Incubators

Stock #	Description	Model Numbers					
		3033	3035	3029	3039	3860	3862
190087	Caster Dolly	•	•				
190236	Caster Dolly					•	•
224136	Stainless Steel Shelf Kit*	•	•				
224138	Stainless Steel Shelf Kit*			•	•		
224144	Copper Shelf					•	•
224145	Electropolished Stainless Steel Shelf Kit*					•	•
224159	Electropolished Stainless Steel Shelf Kit*	•	•				
190035	Duplex Outlet Kit, 120 V (FI** interior rear wall)	•				•	
190036	Duplex Outlet Kit, 230 V (FI** interior rear wall)		•				•
505099	Duplex Outlet Kit, 120 V (FI** interior rear wall)			•			
505094	Duplex Outlet Kit, 230 V (FI** interior rear wall)				•		
513028	Stacking Adapter (For Two Units)			•	•		
523028	Floor Stand (to Stack Units)	•	•	•	•	•	•
760045	Disposable HEPA Filter (99.97%) Assembly	•	•			•	•
770001	Disposable Microbiological Gas Filter, 99.97%	•	•	•	•	•	•

*Channels Included

**Factory Installed

GAS GUARD

Forma Scientific's Model 3050 Gas Guard takes the guesswork out of gas usage. It monitors any non-hazardous gas supply such as CO₂ or N₂, sounds an alarm, and automatically switches from one cylinder to the other when the supply is exhausted. The alarm reset switch will silence the alarm. Dual voltage provided with selector switch.

Complete with remote alarm contacts.

Forma offers an optional built-in Gas Guard system on water jacketed incubators.

3050

Exterior Dimensions	7.13"W X 5.13"H X 9.25"F-B (18.1cm x 13.1cm x 23.5cm)
Gas Connections	Inlet - two 1/4" barb fittings; Outlet - one 1/4" barb fitting
Inlet Pressure	15 PSIG (1.0 bar)
Construction	Heavy-gauge metal powder coated for a durable easily maintained surface.
Electrical	90-125V/180-250V, 1 PH, 50/60 HZ, 0.3/0.15 FLA
Shipping Weight	13 lbs. (5.9 Kg)

GENERAL ACCESSORIES

	Stock/Model#	Description
GAS ANALYZER KITS	155021	CO ₂ Fyrite Kit 0-20%
	155022	Duplex Fyrite Kit CO ₂ , 0-20%; O ₂ , 0-21%
	155023	O ₂ Fyrite Kit 0-60%
	155024	O ₂ Fyrite Kit 0-21%
FYRITE FLUID	220051	Replacement Fluid for CO ₂ Fyrite Kit, Catalog #'s 155021 and 155022; three bottles per carton
	155009	O ₂ Fyrite Fluid 21% and 60% for catalog #'s 155022, 155023 & 155024; three bottles per carton
HYGROMETER & THERMOMETERS	155010	Hygrometer 4" Dial, 0-100% RH
	285722	Glass Thermometer, 0°C to +100°C
	853227	LCD Pocket Digital Thermometer -90°C to +60°C
	292001	Accessory Probe for use with 853227
	940246	Glass Thermometer -40°C to +30°C
REGULATORS	961027	Two-Stage Regulator, N ₂
	965010	Two-Stage Regulator, CO ₂
DISINFECTANTS	170001	O-SYL, six (6) 1 gallon bottles
	170003	Roccal II, four (4) 1 gallon bottles
MONITORS & ALARMS	1535	Programmable Monitor/Alarm System, 90-125 VAC 50/60 HZ, 1PH, 0.7 FLA or 180-250 VAC, 50/60 HZ, 1PH, 0.35 FLA
	Modules	Maximum 26 VDC, fused in Model 1535
ACCESSORIES FOR 1535 MONITOR/ALARM SYSTEM	190456	Cryogenic Converter Module. RTD temperature probe to RS-485. Includes an RTD probe with 6 ft. lead and one (1) set of dry contacts (temperature range -200°C to -90°C).
	190457	Converter Module. RTD temperature probe to RS-485. Includes an RTD probe with 6 ft. lead and one (1) set of dry contacts (temperature range -90°C to +70°C).
	190458	Converter Module. RS-232 to RS-485. Monitors one (1) RS-232 port and one (1) set of dry contacts.
	190459	Converter Module. Analog to RS-485. Monitors four (4) analog signals (0-1V) and two (2) sets of dry contacts.
	400047	Sensaphone Telephone Dialing System, 110 VAC, 60HZ.
INCUBATOR CONTROLLERS	3050	Gas Guard, 90-125V/180-250V, 50/60 HZ
	3057	CH/P Portamatic™, Portable CO ₂ Controller, 120V, 60HZ
	3063	CH/P Portamatic™, Portable CO ₂ Controller, 230V, 50HZ
CELL ROLL SYSTEM	4862	15 Position Cell Roller 120V 60HZ
	4868	15 Position Cell Roller 230V 50HZ
	190049	5 Position Add-On Tier for Cell Roller
CELL ROLL PRODUCTION APPARATUS OTHER ACCESSORIES	475560	110mm X 285mm bottle (4 per case)
	475580	110mm X 480mm bottle (4 per case)
	190043	Modular Incubator Chamber
	190238	Extra Tray for Modular Incubator Chamber

ACCESSORIES: Anaerobic System

Description	Order Number	
	Model 1025	Model 1029
Add-On Glove Cabinet	1018	1016
Add-On Cabinet with Incubator	1031	1037
Optional Hard Front Plexiglass Panel	188032	188032
Replacement Vinyl Front Panel	188022	188022
Single Item Entry Port	188012	188012
Oxygen Indicator	190000	190005
Auxiliary Desiccant/Palladium Dryer	931024	190011
Activated Charcoal Filter	191022	191022
Palladium Catalyst Wafer	191024	191024
Desiccant Dryer Wafer	191025	191025
Foot Switch	255023	255023
Vacuum Pump	901024	901025
Disposable Waste Bags	921025	921025
Vinyl Front Ocular Pouch	188027	188027
Absorbent Work Mats	921036	921036
Rubber Gloves/Per Doz.		
Size 8	921031	921031
Size 9	921032	921032
Size 10	921033	921033
Size 11	921034	921034
Neoprene Sleeve/Glove for Hard Front, Size 8	188014	188014
Neoprene Sleeve/Glove for Hard Front, Size 9	188015	188015
Neoprene Sleeve/Glove for Hard Front, Size 10	188016	188016
Wafer Storage Container	961024	961024
2-Stage Gas Regulator for N ₂	961027	961027
2-Stage Gas Regulator for Anaerobic Gas	961028	961028
Anaerobic Bench	5599000	5599000
Add-On Anaerobic Bench	5599017	5599017
Caster with brake for Work Bench (4 required)	5699997	5699997

RECORDERS: Reach-In Incubators, Diurnal Growth Chambers, Freezer/Incubators, Steri-Cult 200 and Forced-Draft Incubators

Forma Scientific offers a complete line of single and dual pen circular chart recorders for all models of incubators. Please contact our Customer Service Department or your local international distributor for complete details.



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