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TECHNOLOGY GROUP

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Find the *Thermo / Forma Scientific 3029* at our website: ***Click HERE***

Cell Culture Incubators

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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 CO_2/O_2 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.

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STERI-CULT HEPA-FILTERED LAMINAR AIRFLOW INCUBATORS

For a HEPA-filtered laminar airflow environment, trust the quality engineered Steri-Cult 200 series CO_2 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 CO_2

Available in countertop or large capacity, these forced-draft incubators feature horizontal airflow to optimize temperature uniformity. CH/P® electronics for temperature, CO_2 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.

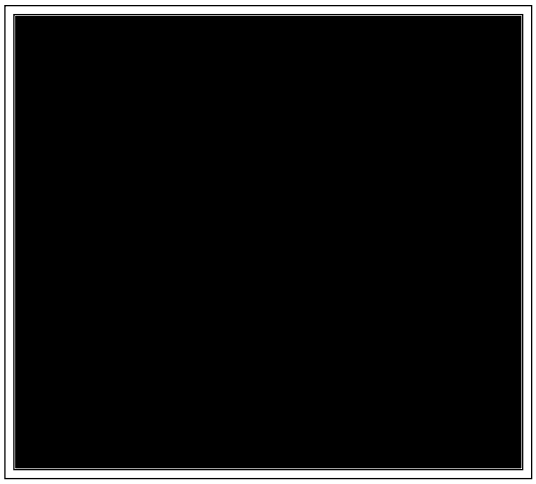
Pg. 18-22

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

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3860 (3862)

STERI-CULT 200 HEPA FILTERED INFRARED CO_2 INCUBATORS

Reliable, accurate and simple to operate, the Steri-Cult 200 CO_2 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, CO_2 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 CO_2 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, CO_2, 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 CO_2 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.

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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.
- CO_2 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.

CO_2 CONTROL

- Fully tested and time-proven infrared (IR) CO_2 technology provides precise control over the 0-20% range.
- Automatic CO_2 **auto zero** function ensures accuracy.
- CO_2 set level is maintained and complicated calibration procedures are eliminated.
- IR sensor maintains a consistent CO_2 level independent of temperature and humidity. No chopper motors or moving parts to fail.
- Audible/visual alarms indicate CO_2 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 CO_2.

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.

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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.

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

Temperature

Control	±0.1°C @ +37°C (98.6°F)
Range	+4°C above ambient to +45°C (113°F)
Sensor	Platinum
Controller	Microprocessor
Setpoint	Digital
Display	Digital LCD
Readability	0.1°C
Setability	0.1°C
Uniformity	±0.3°C

Temperature Alarm

Sensor	Platinum
Controller	Independent analog (high & low alarm)
Setpoint	Digital with screwdriver adjust
Display	Audible/visual
Readability	0.1°C
Setability	0.1°C

CO_2

CO_2 Gas Control	Better than ±0.1%
Range	0-20%
Calibration	Auto zero
Inlet Pressure	10 PSIG (.7 bars)
Filter	0.2 Micron, disposable
Sensor	Infrared
Controller	Microprocessor
Setpoint	Digital
Display	Digital LCD
Readability	0.1%
Setability	0.1%
Alarm Differential and Delay	±1.0% (nominal) for approx. 30 min.

Controlled RH

Range	Ambient to >95% RH @ +37°C (98.6°F)
Humidity Control	±2.0%
Sensor	Platinum
Controller	Microprocessor
Setpoint	Digital
Display	Digital, LCD
Readability	1.0%
Setability	1.0%
Humidity Reservoir	1.0 gal. (3.75 liters)

Fittings

Fill Port	1/4" FPT
Drain Port	1/4" barbed fitting with valve
Access Port	1.18" (2.99cm) with neoprene removable plug
CO_2 Inlet	1/4" barbed

Unit Heat Load

120V	720 BTUH (210 Watts)
230V	850 BTUH (250 Watts)

Shelves 3033 (3035)

Standard	6
Maximum	26
Dimensions	25.57"W x 19.69"F-B (64.95 cm x 50.01 cm)
Construction	Stainless steel, perforated
Surface Area	3.5 sq. ft. (0.32 sq. m) per shelf
Max. Per Chamber	91 sq. ft. (8.4 sq. m)

Shelves Continued...

Clearance	Adjustable on 1.0" (2.54cm) centers
Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)

Shelves 3860 (3862)

Standard	5
Maximum	26
Dimensions	17.75" X 17.75" (45.1 cm X 45.1 cm)
Construction	Stainless steel, perforated, electropolished
Surface Area	2.2 sq. ft. (0.2 sq. m) per shelf
Max. Per Chamber	57 sq. ft. (5.3 sq. m)
Clearance	Adjustable on 1.0" (2.54 cm) centers
Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)

Construction

Volume 3033 (3035)	10.5 cu. ft. (297 liters)
3860 (3862)	7.4 cu. ft. (207 liters)
Interior	304 2B stainless steel
Exterior	Cold rolled steel/stainless steel
Insulation	2" (5.1cm) Urethane
Inner Door	1/4" (0.62cm) Fully tempered safety glass with cam action latch
Inner Door Gasket	Non-porous feather edge silicone
Outer Door Gasket	Four sided molded magnetic vinyl
Finish	Powder coated. Salt spray test exceeds 1,000 hours per ASTM Standard B117-85.

Electrical

3033	90-130 VAC, 50/60HZ, 1PH, 7.0 FLA
(3035)	180-260 VAC, 50/60HZ, 1PH, 4.0 FLA
3860	90-130 VAC, 50/60HZ, 1PH, 6.5 FLA
(3862)	180-260 VAC, 50/60HZ, 1PH, 3.7 FLA
Circuit Breaker	10 Amps
Power Switch	2 Pole
Line Cord	8 ft. hospital grade plug
Data Output	10mv/unit temperature, humidity, CO_2
Accessory Outlet	120V (40 Watts max.)
Remote Alarm Contacts	Overtemperature

Certification

CSA	Standard C22.2 No. 151 (except 3035/3862)
UL	Standard No.1262 (except 3035/3862)
CE	Meets international requirements

Dimensions 3033 (3035)

Exterior	40.25"W x 39.50"H* x 26.75"F-B (102.24 cm x 100.33 cm x 67.95 cm)
Interior	27.20"W x 32.95"H x 20.25"F-B (69.09 cm x 83.69 cm x 51.44 cm)

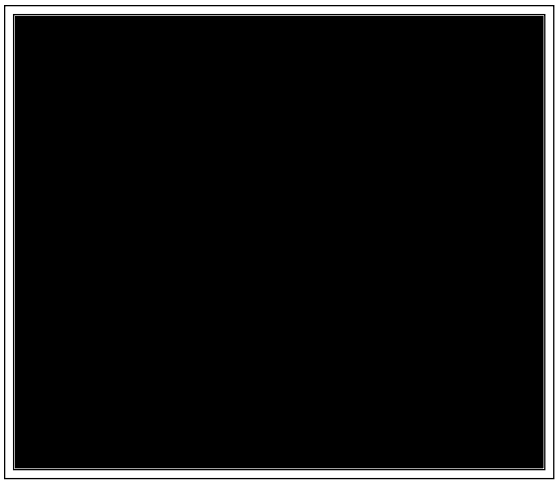
Dimensions 3860 (3862)

Exterior	32.50"W x 39.50"H* x 26.75"F-B (82.55 cm x 100.33 cm x 67.95 cm)
Interior	19.20"W x 32.95"H x 20.25"F-B (48.77 cm x 83.69 cm x 51.44 cm)

Weights	3033 (3035)	3860 (3862)
Net Operational	320 lbs. (145 Kg)	270 lbs. (122 Kg)
Shipping:		
Motor	400 lbs. (181 Kg)	345 lbs. (156 Kg)
Air	460 lbs. (209 Kg)	430 lbs. (195 Kg)
Ocean	500 lbs. (227 Kg)	475 lbs. (215 Kg)

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

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3029 (3039)

FORCED DRAFT COUNTERTOP CO_2 INCUBATOR

Forma Scientific's Model 3029 (3039) forced draft countertop automatic CO_2 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, CO_2 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 CO_2 from 0-20%.
- Audible/visual alarm indicates CO_2 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 CO_2 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 CO_2 control with LCD digital readout, function and power indicator lights, and setpoint adjustment. CO_2 module includes an alarm silence button.

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Specifications: Model 3029 (3039)

Temperature

Control	±0.1°C @ +37°C (98.6°F)
Range	+4°C above ambient to +60°C (140°F)
Sensor	Transistor
Controller	Electronic proportional
Setpoint	Tamper resistant screwdriver adjust
Display	Digital LCD
Readability	0.1°C
Setability	0.1°C
Uniformity	±0.2°C

Temperature Alarm

Sensor	Thermostat
Controller	Thermostat
Setpoint	Analog reference dial
Alarm	Audible/visual

CO_2

CO_2 Gas Control	±0.1%
Range	0-20%
Inlet Pressure	10 PSIG (.7 bars)
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

Humidity Control	±5.0%
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)
Sensor	Transistor
Controller	Electronic proportional
Setpoint	Tamper resistant screwdriver adjust
Display	Digital, LCD
Readability	1.0%
Setability	1.0%
Humidity Reservoir	1.0 gal. (3.75 liters)

Fittings

Overflow	1/4" MPT capped
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

120V	750 BTUH (220 Watts)
230V	880 BTUH (260 Watts)

Shelves

Standard	6
Maximum	20
Dimensions	26.50"W x 21.50"F-B (67.31 cm x 54.61 cm)
Construction	Solid stainless steel
Surface Area	3.72 sq. ft. (0.345 sq. m) per shelf
Max. Per Chamber	74.4 sq. ft. (6.9 sq. m)
Clearance	Adjustable on 1.0" (2.54cm) centers
Loading	35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)

Construction

Volume	10 cu. ft. (283 liters)
Interior	304 2B stainless steel
Exterior	Cold rolled steel
Insulation	2" (5.1cm) fiberglass in door 1" (2.54cm) urethane in chamber
Inner Door	1/4" (0.62cm) Fully tempered safety glass with cam action latch
Inner Door Gasket	Non-porous feather edge silicone
Outer Door Gasket	Four sided molded magnetic vinyl
Finish	Powder coated. Salt spray test exceeds 1,000 hours per ASTM Standard B117-85

Electrical

3029	95-130 VAC, 60HZ, 1PH, 6.0 FLA
(3039)	190-250 VAC, 50HZ, 1PH, 3.0 FLA
Power Switch	2 Pole
Line Cord	8 ft. hospital grade plug
Accessory Outlet	120V (20 Watts max.)

Certification

CSA	Standard C22.2 No. 151 (except 3039)

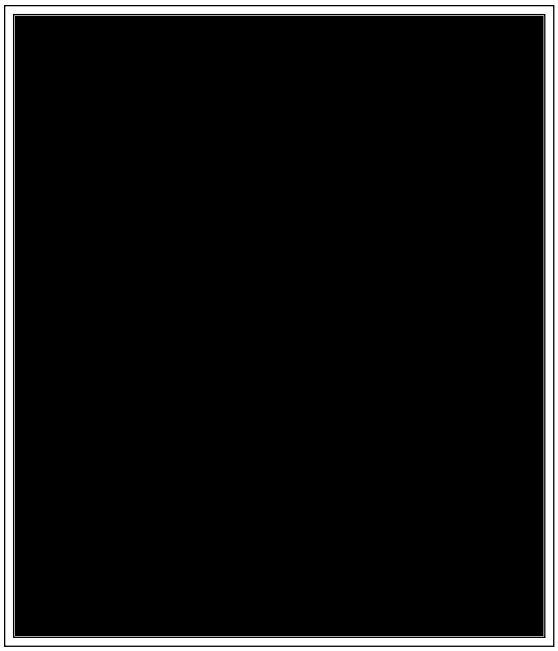
Dimensions

Exterior	40.00"W x 38.50"H x 26.00"F-B (101.60 cm x 97.79 cm x 66.29 cm)
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 CO_2 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 CO_2.
- Direct dial *kwik-purge* recovers CO_2 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 CO_2 control

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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)

Temperature Alarm

Sensor	Thermostat
Controller	Thermostat
Setpoint	Analog reference dial
Alarm	Audible/visual

CO_2 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

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)

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)

Unit Heat Load

230V	Approx. 6500 BTUH (1900 Watts)

Refrigeration

Compressor	1/4 Horsepower, air-cooled
Refrigerant	Non-CFC

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)

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

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

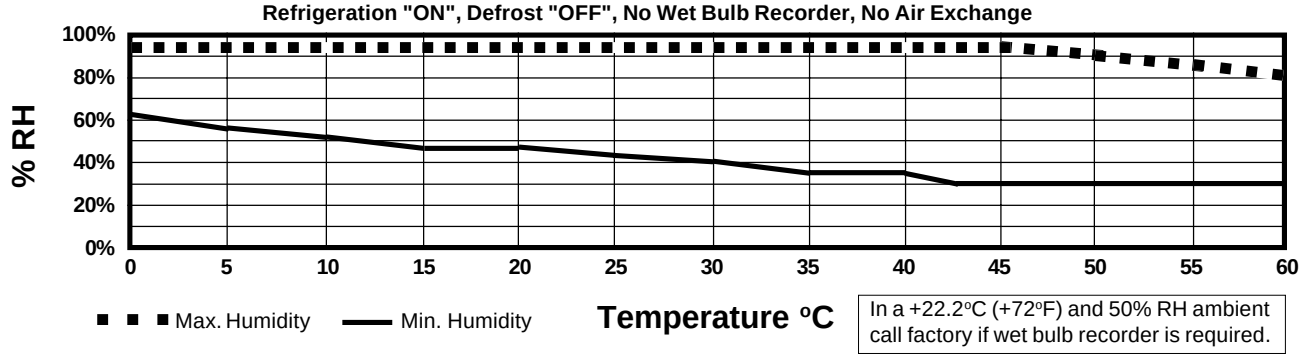
Dimensions

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

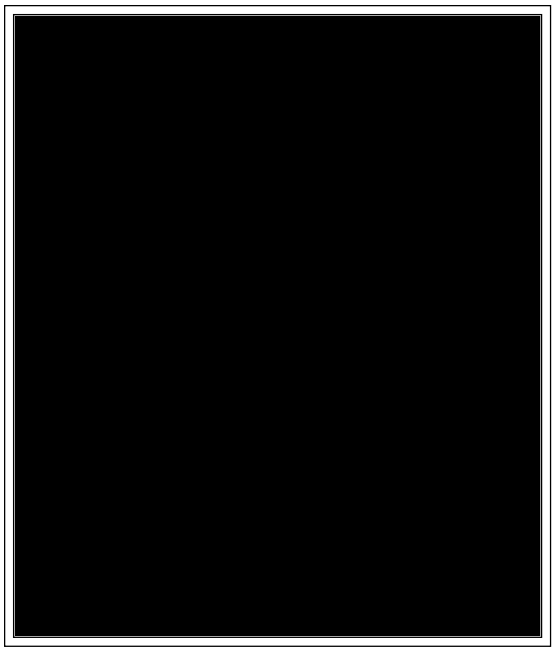
Net	800 lbs. (363 Kg)
Shipping	
Motor	850 lbs. (386 Kg)
Air	940 lbs. (476 Kg)
Ocean	985 lbs. (447 Kg)

Refrigeration "ON", Defrost "OFF", No Wet Bulb Recorder, No Air Exchange



In a +22.2°C (+72°F) and 50% RH ambient call factory if wet bulb recorder is required.

*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.*



3740 (3744)

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.
- 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.

Model 3740 (3744) control panel includes power switch, over and undertemperature safety limits, indicator lights, adjustable 24 hour timer, photo timer and temperature indicator.

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Specifications: Model 3740 (3744)

Temperature

Control	
Lights On:	±0.1°C @ +37°C (98.6°F)
Lights Off:	±0.1°C @ +37°C (98.6°F)
Range	
Lights On:	+8°C (46°F) to +55°C (131°F)
Lights Off:	-20°C (-4°F) to +55°C (131°F)
Sensor	Thermistor
Controller	Electronic proportional
Setpoint	Analog
Display	Dial thermometer readability to 1°C
Uniformity*	
Lights On:	@ +10°C (50°F)---±2.2°C @ +37°C (98.6°F)---±2.0°C @ +50°C (122°F)---±1.7°C
Lights Off:	@ +10°C (50°F)---±0.8°C @ +37°C (98.6°F)---±0.7°C @ +50°C (122°F)---±0.8°C

Temperature Alarm

Sensor	Thermostat
Controller	Thermostat (high & low alarm)
Setpoint	Analog reference dial
Alarm	Audible/visual

Fittings

Misc.	Adjustable exhaust and intake ports on the door to permit an exchange of air in the chamber.

Refrigeration

Compressor	1/4 Horsepower, air-cooled
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)

Construction

Volume	20.3 cu. ft. (574 liters) nominal 17.0 cu. ft. (481 liters) usable space
Interior	Baked enamel
Exterior	Textured steel
Insulation	Foamed polyurethane
Outer Door Gasket	Four sided molded magnetic vinyl
Finish	Baked enamel

Electrical

3740	120 VAC, 60HZ, 1PH, 13.0 FLA
(3744)	188-260 VAC, 50HZ, 1PH, 7.0 FLA
Power Switch	1 Pole
Line Cord	8 ft. with plug

Dimensions

Exterior	32.00"W x 77.00"H x 29.50"F-B (81.28 cm x 195.58 cm x 74.93 cm)
Interior	27.00"W x 57.00"H x 20.00"F-B (68.58 cm x 144.78 cm x 55.88 cm)

Weights

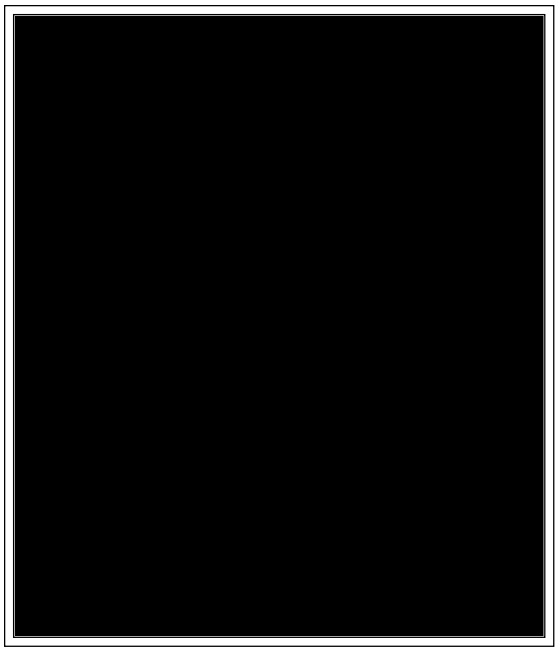
Net Operational	265 lbs. (120 Kg)
Shipping	
Motor	325 lbs. (147 Kg)
Air	475 lbs. (215 Kg)
Ocean	525 lbs. (238 Kg)

Lights

(8) 15 Watt fluorescent lamps. Approx. 330 Footcandles (3550 Lux) average on shelf.

** 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.*

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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.

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Specifications: Model 3710 and 3770

Temperature

Control	±0.1°C @ +37°C (98.6°F)
Range	-20°C (-4°F) to +60°C (140°F)
Sensor	Thermistor
Controller	Electronic proportional
Setpoint	Analog
Display	Dial thermometer readability to 1°C
Uniformity	±0.4°C @ +37°C (98.6°F)

Temperature Alarm

Sensor	Thermostat
Controller	Thermostat (high & low alarm)
Setpoint	Analog reference dial
Alarm	Audible/visual

Refrigeration

3710	1/4 Horsepower, air-cooled
3770	1/3 Horsepower, air-cooled
Refrigerant	Non-CFC

Unit Heat Load

120V	Approx. 3900 BTUH (1150W)
230V	Approx. 5450 BTUH (1600W)

Shelves

Standard		5-(3710) 5-(3770)
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)
	3770	5 @ 31.5"W x 19.25"F-B (80.01 cm x 48.89 cm)
Construction		Steel wire
Surface Area	3710	2 @ 2.84 sq. ft., 3 @ 3.16 sq. ft.
	3770	5 @ 4.2 sq. ft.
Max. Per	3710	15.16 sq. ft. (1.41 sq. m)
Chamber	3770	17.8 sq. ft. (1.65 sq. m)
Clearance		Adjustable on 1.0" (2.54cm) centers
Loading		35 lbs. (16 Kg) (slide in and out) 50 lbs. (23 Kg) (stationary)

Construction

Volume	3710	20.3 cu. ft. (574 liters) nominal 17.0 cu. ft. (481 liters) usable space
	3770	30 cu. ft. (849 liters) nominal 26.7 cu. ft. (756 liters) usable space
Interior		Baked enamel
Exterior		Textured steel
Insulation		Foamed polyurethane
Outer Door Gasket		Four sided molded magnetic vinyl
Finish		Baked enamel

Electrical

3710	120 VAC, 50/60HZ, 1PH, 2 wire 9.0 FLA
3770	120 VAC, 50/60HZ, 1PH, 2 wire 11.0 FLA
Circuit Breaker	15 Amp fuse
Power Switch	2 Pole
Line Cord	8 ft. with plug

(Convertible to 230 VAC with #280051 transformer kit)

Dimensions

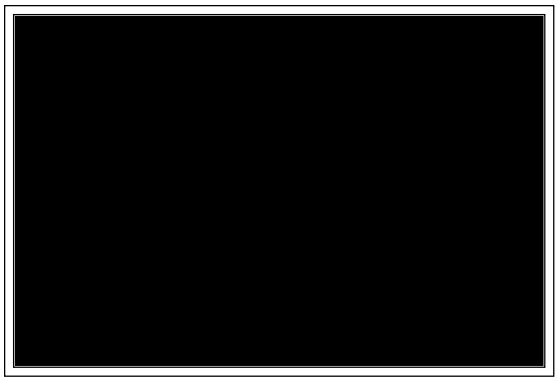
Exterior	3710	32.00"W x 77.00"H x 29.50"F-B (81.28 cm x 195.58 cm x 74.93 cm)
	3770	35.00"W x 79.50"H x 30.75"F-B (89.90 cm x 200.66 cm x 78.11 cm)
Interior	3710	27.00"W x 57.00"H x 20.00"F-B (68.58 cm x 144.78 cm x 55.88 cm)
	3770	32.00"W x 65.00"H x 23.75"F-B (81.28 cm x 165.10 cm x 60.33 cm)

Weights

	3710	3770
Net Operational	270 lbs. (123 Kg)	415 lbs. (188 Kg)
Shipping		
Motor	320 lbs. (146 Kg)	544 lbs. (247 Kg)
Air	400 lbs. (182 Kg)	544 lbs. (247 Kg)
Ocean	450 lbs. (205 Kg)	580 lbs. (263 Kg)

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

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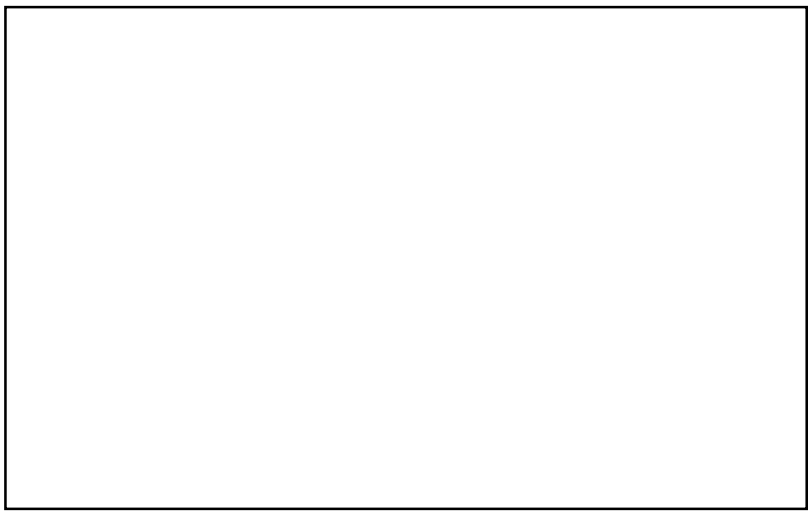
1025 (1029)

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 O_2).
- 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.



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.

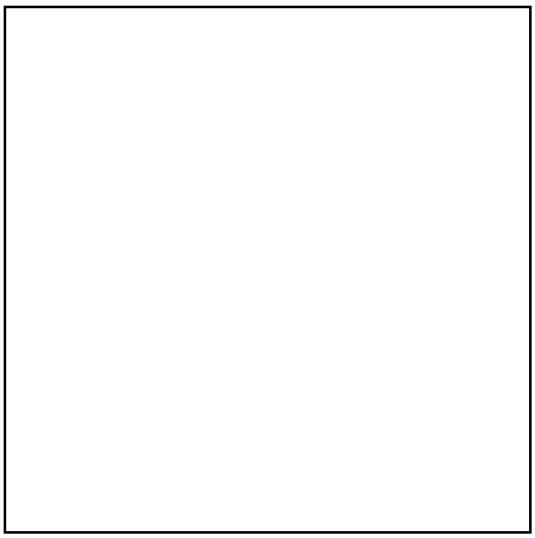
- All utility connections are located on the recessed panel at the rear of the cabinet.
- Requires only anaerobic grade gas mixture and nitrogen; can save up to 50% annually over the conventional jars in routine use.

ACHIEVING LESS THAN 1% O_2 CONDITIONS

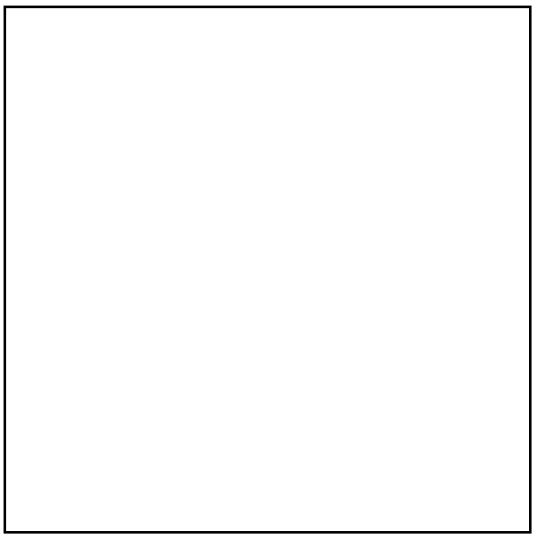
Stringent anaerobiosis is maintained inside the cabinet with a palladium catalyst wafer and a desiccant wafer. The palladium catalyst bonds trace oxygen to hydrogen in the anaerobic gas mixture, forming water vapor. The desiccant then absorbs the vapor. Palladium pellets and desiccant crystals, sealed 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.

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- Charcoal Filter Longevity - three months. Filter cannot be regenerated.
- Palladium Catalyst Wafer Longevity - two years (at 10% H_2). 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.

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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.

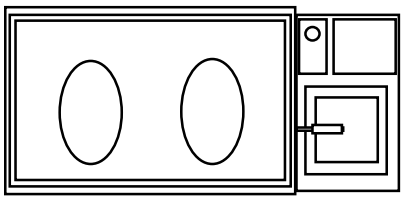
The inner door may be opened and materials moved into the work chamber when status light indicates an anaerobic atmosphere.

THE AUTO-SEQUENCE

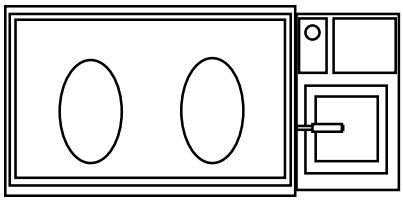
The auto-sequence cycle, a completely automatic oxygen reduction of the interchange atmosphere, is activated by a single, push-button control.

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.



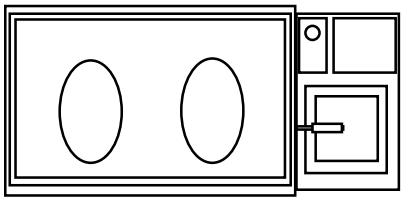
Step 1 - Interchange: Vacuum
Function Time: 18 seconds
Elapsed Time: 18 seconds
Inner and outer interchange doors are sealed. Vacuum pump pulls down to 20 in./Hg. Interchange is 95% oxygen free.



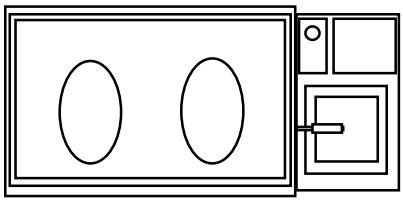
Step 2 - Interchange: N_2 Purge
Function Time: 1 minute, 4 seconds
Elapsed Time: 1 minute, 22 seconds
Interchange fills with pure nitrogen gas until atmospheric pressure is reached.

**Trademark of Becton, Dickinson and Co.*

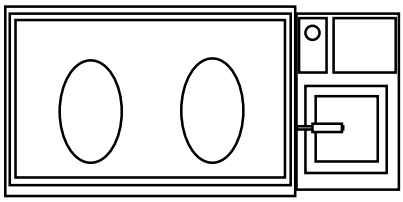
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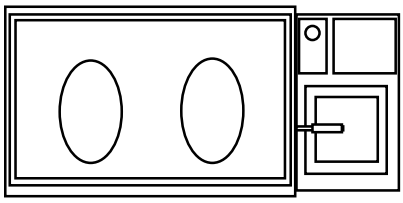
Step 3 - Interchange: Vacuum
Function Time: 18 seconds
Elapsed Time: 1 minute, 40 seconds
Second vacuum pulls down to 20 in./Hg to evacuate nitrogen and trace oxygen to 96% oxygen-free chamber.



Step 4 - Interchange: N_2 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.

Wafer Storage Container Stock #961024

Oxygen Indicator Stock #190000

Vacuum Pump Stock #901024

Auxiliary Desiccant/Palladium Circulator Stock #931024

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Specifications: Model 1025 (1029)

Incubator Operating Temperature

Range	+35°C (+95°F) fixed; variable +4°C above ambient to +70°C (+158°F)
Control	±0.3°C
Thermostat/Alarm	Complete with adjustable overtemperature safety thermostat and audible alarm.

Utility Connections

Mixed Gas	1/4" compression fitting
Nitrogen Gas	1/4" compression fitting
Vacuum Pump	1/2" MPT

Gas Supply

Anaerobic Gas	High Purity Grade, 85% N_2/ 10% H_2/5% CO_2 (or mixture containing 5-7% H_2)
Nitrogen Gas	High Purity Grade

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)

Shelves

Work Area	Two adjustable stainless steel shelves on 1" (2.54cm) centers. 18.8"W X 13"F-B (47.8cm X 33cm)
Incubator	Two adjustable stainless steel shelves on .5" (1.27 cm) centers. 7.5"W X 12"F-B (44.4cm X 30.5cm)

Electrical

Model 1025:	90-130 VAC, 1 PH, 60 HZ, 14.6 FLA @ 120V including vacuum pump
Model 1029:	180-235 VAC, 1 PH, 50 HZ, 7 FLA @ 220V including vacuum pump

Shipping Weight

Motor:	390 lbs (177 kg)
Air/Container:	525 lbs (238 kg)
Ocean:	575 lbs (261 kg)

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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® CO_2 control system, adds CO_2 control to any incubator with stable temperature and humidity.

3057 (3063)

The CH/P CO_2 sensor detects CO_2 drifts as slight as 0.06%. Improved accuracy is insured to control CO_2 to within 0.1%. CO_2 consumption is reduced, as the Portamatic delivers CO_2 only when needed, assuring rapid recovery following door openings. Deviation alarm warns of CO_2 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 CO_2 control, reducing CO_2 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
CO_2 Control Range	0-20%
PSI (Bars)	10.0 (.7)

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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, CO_2, 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.

Stock #190043

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.

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

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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 CO_2 and N_2 gas cylinders.

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ACCESSORIES: Steri-Cult 200 and Forced Draft Incubators

		Model Numbers					
Stock #	**Description**	**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 CO_2 or N_2, sounds an alarm, and auto-matically 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)

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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

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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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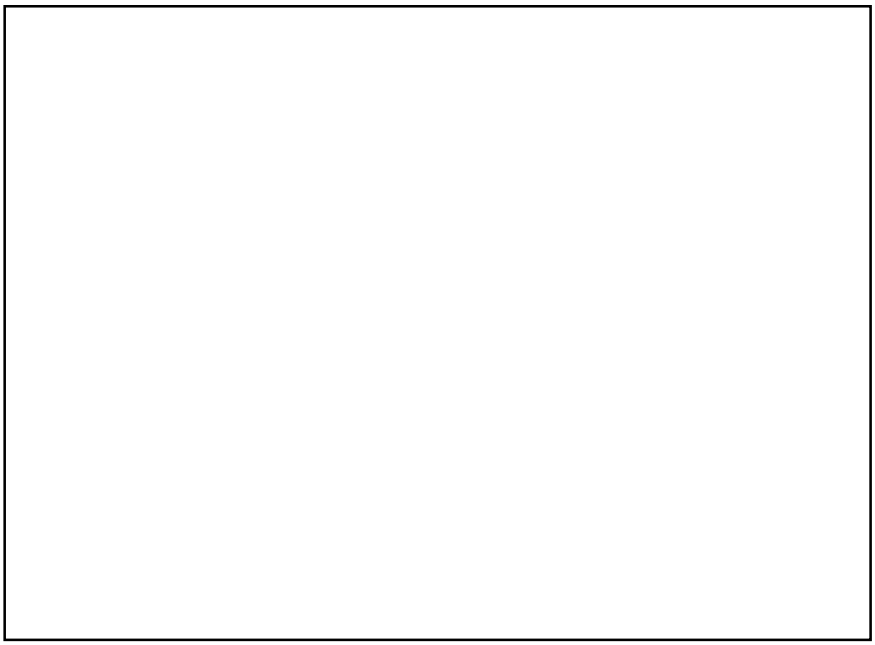


Photo: (Tumor Cells) C. Fox/Photo Researchers Inc.

- Cell Culture Incubators
- Ultra-Low Temperature Freezers
- Laminar Airflow and Biological Safety Cabinets
- Cryopreservation Equipment
- Blood Bank Equipment
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