



## A Choice of Environmental Chambers to Meet Your Specific Needs

From stability testing to cell culturing, CO<sub>2</sub>, RH, and refrigeration control to temperature-only, and 11.0 to 29.0 cu. ft., Thermo Scientific™ Forma™ environmental chambers are built to last and will meet your needs now and in the future.

If you require a high precision cabinet to meet ICH, FDA, TAPPI, ASTM or national testing standards our 3920/3940/3911 Series is the ideal choice.

- Uniformity and a wide temperature range for easy compliance with regulatory requirements
- Rugged construction and durable shelving designed for long life
- Broad range of options to create the perfect fit for your applications

Consider our **Thermo Scientific 3960 Reach-In Incubator/ Environmental Chamber** if you are focused on elevated temperature-only segments of drug stability and culture.

- Optimum uniformity and an elevated temperature range for easy compliance with regulatory requirements
- Rugged construction and durable shelving for long life
- Valuable features designed for flexibility and cost-effectiveness

### At-A-Glance Chamber Comparison

Type	Thermo Scientific Cat. No.	Temp Range	Uniformity	RH	Size (Cu. Ft.)	CO <sub>2</sub>	Lights
Stability	3940 (3949)	0°C TO 60°C	±0.3°C @ 25°C to 37°C	Above ambient to 95% @ 37°C	29.0	Optional	Optional*
	3920	0°C TO 60°C	±0.3°C @ 25°C to 37°C	N/A	29.0	Optional	Optional*
	3911 (3913)	0°C TO 60°C	±0.3°C @ 25°C to 37°C	Above ambient to 95% @ 37°C	11.0	Optional	N/A
	3960 (3961)	5°C above ambient to 60°C	±0.4°C @ 30°C ±0.3°C @ 37°C ±0.5°C @ 45°C	N/A	29.0	N/A	N/A

\*Lights (Cat. No. See page 11) do not meet ICH guidelines.

# Incubator/Environmental Chamber for Elevated Temperature Applications

The 29.0 cu. ft. (821.2 liters) 3960 (3961) offers precise temperature control in a range of 5°C above ambient to 60°C (140°F), making this unit ideal for clinical applications, elevated temperature stability

## 3960 (3961) Models

- Large size for high volumes and a broad range of products
- Heated glass door for minimal condensation and a clear view
- Interior and exterior convenience receptacles, and five adjustable shelves
- Thermo Scientific Enviro-Scan™ controls with easy-to-read display of actual temp studies, and shelf life testing.

## Cell Roll System

The optional cell roll system allows extensive production of monolayer cell cultures in standard roller culture vessels. Oxygenation and exposure of the cells to the media growth area are improved. Culture yields are increased by the uniform temperature control and cell roll system's continuous, gentle rotation.

The environmental chamber accommodates a cell roller up to 7 decks high with 5 positions per deck for a maximum total of 35 positions, or bottles.

Achieving maximum capacity requires a 4862 (4868) three tier cell roller base (15 positions), four add-on tiers (20 positions), and a reinforced floor/ramp.

All position drive is standard. Adjustable speed control provides precise speeds of 0.125 to 6.25 RPM with  $\pm 1.0\%$  accuracy, based on 110mm bottles.



Model 3961



Cell Roller System





# Uniformity and an Elevated Temperature Range for Easy Compliance with Regulatory Requirements

Our directed airflow system promotes an ideal growth environment. The proven design includes a positive pressure feed plenum and a negative pressure return plenum. This combination directs air across the surface of each solid shelf. Even when filled with samples or equipment, each shelf receives a consistent flow of conditioned air for optimum temperature uniformity and recovery. By design, the feed plenum cannot be blocked by the chamber's contents. (Refer to the diagram on page 3.)



## Intuitive, powerful Enviro-Scan— a key Forma advantage

- > ensures precise temperature control without complicated programming
- > provides audible/visual under-temperature and over-temperature alarms for peace-of-mind
- > includes an easy-to-read display for convenient, continuous monitoring.
- Enviro-Scan operating modes include Run, Setpoint, Calibration, and System Configuration.
- Standard remote alarm contacts and available data outputs allow connection to an in-house monitor/alarm system to track chamber conditions, helping you meet internal and regulatory documentation requirements. Chart recorders are available.

## Durable construction and shelving for long life

- Exterior cabinet is 18 gauge cold-rolled steel, powder coated for durability and a high quality appearance that resists scratches and chipping.
- Maximum product thermal protection and added cabinet strength for reliable daily use are provided by the 2.0" (5.1cm) thick fiberglass cabinet insulation.
- Solid, stainless steel interior is more durable and corrosion-resistant than plastic or painted metal, ensuring long life and minimizing equipment costs.
- Five heavy-duty, solid, stainless steel shelves, adjustable on 2.0" (5.1cm) centers, are easy-to-clean, saving time and effort; more corrosion-resistant than coated wire shelves for long life; and adjustable for convenience.
- Reinforced floor/shelf components are available so you can use shakers, cell rollers, or other heavy equipment or product loads inside the chamber to meet a variety of applications.

## Valuable features included for cost-effectiveness and flexibility

Casters, access ports, convenience receptacles, heated glass door, and remote alarm contacts – all are included up-front. Our 3960 Incubator/Environmental Chamber is prepared to meet your changing application needs without the added cost of expensive add-on options.

- Swivel, locking casters ensure easy mobility during installation and cleaning. Leveling feet provide stability and added safety in the lab.
- Thru-wall access ports, located on the right and left sides of the chamber, make it possible to add probes, sensors, etc. without altering the cabinet.
- Interior and exterior accessory receptacles provide a convenient power source.
  - Interior GFCI duplex receptacle on the 115V 3960 unit (Single European 230V CEE 7 on 3961) located in the upper right corner of the rear wall, permits the use of shakers, cell rollers, and other equipment inside the chamber, eliminating the inconvenience of an extra external power strip.
  - Exterior receptacle, located on the upper-right side of the control panel, is available for connecting an optional recorder or other Forma accessories.



## Chamber Specifications

Thermo Scientific Cat. No.	3960	3961
<b>Description</b>	<b>29 cu. ft. Incubated Environmental Chamber</b>	<b>29 cu. ft. Incubated Environmental Chamber</b>
<b>Voltage</b>	115V, 50/60 Hz	200-230V, 50/60 Hz
<b>Temperature</b>		
Control	±0.1°C	±0.1°C
Range	5°C above ambient to 60°C (140°F)	5°C above ambient to 60°C (140°F)
Uniformity	±0.4°C @ 30°C (86°F) ±0.3°C @ 37°C (98.6°F) ±0.5°C @ 45°C (113°F)	±0.4°C @ 30°C (86°F) ±0.3°C @ 37°C (98.6°F) ±0.5°C @ 45°C (113°F)
Low Alarm	User programmable and indicator	User programmable and indicator
<b>Over-temperature</b>		
Sensor	Precision thermistor	Precision thermistor
Setability	0.1°C	0.1°C
Function	User programmable, action (shuts off heat), and indicator	User programmable, action (shuts off heat), and indicator
<b>Temperature Safety (Cabinet)</b>		
Sensor	Independent thermostat	Independent thermostat
Type	Independent analog electronic	Independent analog electronic
<b>Fittings</b>		
Access Port With Stopper	2.4" (6.1cm) I.D., one on each side	2.4" (6.1cm) I.D., one on each side
<b>Unit Heat Load</b>		
115V/230V	510 BTUH (150 Watts) 129 kcal per hour	510 BTUH (150 Watts) 129 kcal per hour
<b>Shelves</b>		
Dimensions	30.6"W x 25.8"F-B (77.7cm x 65.5cm)	30.6"W x 25.8"F-B (77.7cm x 65.5cm)
Construction	2B finish, solid stainless steel	2B finish, solid stainless steel
Surface Area	5.4 sq. ft. (0.5 sq. m) per shelf	5.4 sq. ft. (0.5 sq. m) per shelf
Max. per Chamber	140.4 sq. ft. (13.0 sq. m)	140.4 sq. ft. (13.0 sq. m)
Standard/Maximum No. of Shelves	5, 26	5, 26
Loading	30 lbs. (13.6 kg) per shelf, fully inserted and stationary; not to exceed 300 lbs. (136.0 kg) total per cabinet	30 lbs. (13.6 kg) per shelf, fully inserted and stationary; not to exceed 300 lbs. (136.0 kg) total per cabinet
<b>Construction</b>		
Interior Volume	29.0 cu. ft. (821.2 liters)	29.0 cu. ft. (821.2 liters)
Interior Material	Type 304, 2B finish, stainless steel	Type 304, 2B finish, stainless steel
Exterior Material	Cold-rolled steel, powder coated	Cold-rolled steel, powder coated
Insulation	2.0" (5.1cm) fiberglass	2.0" (5.1cm) fiberglass
Exterior Door	Heated, triple pane, tempered glass	Heated, triple pane, tempered glass
Outer Door Gasket	Molded vinyl	Molded vinyl
<b>Electrical</b>		
	115V, 50/60 Hz, 9.0 Amps (Operating range 90-125V includes voltage fluctuations)	200/230V, 50/60 Hz, 5.0 Amps (Operating range 180-250V includes voltage fluctuations)
Circuit Breaker/Power Switch	15 Amps; 2 pole	8 Amps; 2 pole
Exterior Convenience Receptacle	75 Watts maximum (matches cabinet voltage)	75 Watts maximum (matches cabinet voltage)
Interior Convenience Receptacle	230 Watts maximum (matches cabinet voltage)	230 Watts maximum (matches cabinet voltage)
Plug	115V: NEMA 5-15P ⓘ	Plug 230V: CEE 7/7 Plug ⓘ
Alarm Contacts	Temperature deviation and power failure; Common, NO, and NC; customer connections through RJ11 jack on rear of unit	Temperature deviation and power failure; Common, NO, and NC; customer connections through RJ11 jack on rear of unit
Data Outputs (opt.)	RS-485, 0-1V, 0-5V, 4-20 milliamp	RS-485, 0-1V, 0-5V, 4-20 milliamp
<b>Dimensions</b>		
Exterior	38.0"W x 80.0"H x 33.0"F-B (96.5cm x 203.2cm x 83.8cm)	38.0"W x 80.0"H x 33.0"F-B (96.5cm x 203.2cm x 83.8cm)
Interior	31.0"W x 60.0"H x 27.0"F-B (78.7cm x 152.4cm x 68.6cm)	31.0"W x 60.0"H x 27.0"F-B (78.7cm x 152.4cm x 68.6cm)
<b>Weight</b>		
Net	500 lbs. (226.8 kg)	500 lbs. (226.8 kg)
Shipping (motor)	660 lbs. (299.4 kg)	660 lbs. (299.4 kg)
<b>Certification</b>	cULus	CE

Specifications are based on nominal voltages of 115V or 230V in ambients of 22°C to 25°C. Performance is plus or minus the least significant digit unless otherwise specified.



Accessories (All are customer installed unless indicated otherwise)

Thermo Scientific Cat. No	Description
<b>Shelving</b>	
<b>Stainless Steel Shelves for 3920, 3940 (3949), 3911 (3913), and 3960 (3961)</b>	
224139	Solid Stainless Steel Shelf and Channels for 3920, 3940 (3949), 3911 (3913), and 3960 (3961)
224155	Perforated Stainless Steel Shelf and Channels for 3920, 3940 (3949), 3911 (3913), and 3960 (3961)
224161	Reinforced Stainless Steel Shelf and Channels for 3920, 3940 (3949), 3911 (3913), and 3960 (3961); two per unit max., not for shakers; 150 lb. (68.0 kg) load maximum with shelf fully inserted and stationary
<b>Shaker Support System, factory installed</b>	
1900005*	Two shelf shaker support system without duplex outlet, each shelf will hold 200 lbs., for 3920, 3940, (3949) and 3960 (3961). Must be ordered with duplex outlet (505099 or 505094)
190761*	Three shelf shaker support system includes duplex outlet, each shelf will hold 200 lbs., for 3920, 3940, (3949) and 3960 (3961)
<b>Door Options, factory installed</b>	
190239	Lexan® Inner Door Kit (five doors) for 3920, 3940 (3949), and 3960 (3961); factory installed
190514	Door Lock Assembly for 3920, 3940 (3949), and 3960 (3961); factory installed
190597	Left-Hand Door Swing Kit for 3920 and 3940 (3949); factory installed
<b>Stainless Steel Door Glass Covers</b>	
190591	For 3920, 3940 (3949), and 3960 (3961); factory installed
190892	For 3920, 3940 (3949), and 3960 (3961)**
<b>Door Light Package, factory installed</b>	
190032 (220V, 60Hz)	Door light package with 8 fluoresecent light bulbs for plant growth, seed germination, algae, small animal and insect studies for 3920, 3940 and (3949); A 24-hour timer enables automated light on/off cycles. Intensity of light can be modified in 4 steps by enabling / disabling from 2 to 8 lights.
1900604 (120V, 60Hz)	
1900605 (220V, 50Hz)	
<b>Reinforced Floor Options</b>	
500182***	Reinforced Floor with Removable Ramp for 3920, 3940 (3949), and 3960 (3961); accommodates a cell roller
190777***	Same as No. 500182 but factory installed
<b>Access Ports, factory installed</b>	
505101	Port for 3920, 3940 (3949), and 3911 (3913); 1.5" (3.8 cm) I.D.; on center right wall
193004	2" nominal ID port with cover
190164	Port for 3960 (3961), 2.4" (6.1 cm) I.D., customer specified location
193005	4" nominal ID port with cover
193006	6" nominal ID port with cover
<b>Convenience Receptacles, factory installed</b>	
505099	120V Duplex (includes separate line cord) for 3920, 3940, and 3911; located on center rear wall
505094	230V (includes separate line cord) for 3949, and 3913; located on center rear wall
<b>Data Outputs (select one) for 3960 (3961), factory installed</b>	
190523	RS-485 interface (compatible with 1535 Monitor/Alarm only)
190512	4-20 milliamp
190543	0-5V
190544	0-1V
<b>Sensaphone Telephone Dialing Systems, interface with standard touch-tone phone</b>	
400047	For up to four input channels
400134	For up to eight input channels

Warranty

We confidently back our environmental chambers with a two-year parts and labor warranty.

\* Rubber isolators replace casters for maximum stability.

\*\* Must be installed by qualified personnel.

\*\*\* Ramp extends approximately 23.0" (58.4cm) in front of the chamber.

\*\*\*\*Specification sheets for protocol and field validations are available for review upon request by calling Pre-Sales at 866-984-3766 or emailing: LPG.presales@thermofisher.com.

Thermo Scientific Cat. No	Description
<b>Chart Recorders and Paper</b>	
12", 6 Hour to 31 Day Digital Recorders for 3920, 3940 (3949), and 3911 (3913); draw own chart as they record; single or dual pen; 120V, 50/60 Hz; factory installed	
198036	Left Side
198039	Right Side
198042	Top, adds 20.3" (51.6cm) to cabinet height
197054	Replacement Chart Paper, 100 per box
6", 7 Day Chart Recorders for 3920, 3940 (3949), and 3911 (3913); 0°C to 60°C (32°F to 140°F); 115V, 50/60 Hz	
201144	Single Pen, factory installed201145 Single Pen201146 Dual Pen, factory installed
201147	Dual Pen
6", 7 Day Chart Recorders for 3960 (3961), 0°C to 60°C (32°F to 140°F), single pen	
201155	115V, 50/60 Hz
201156	230V, 50/60 Hz
6" Chart Paper for Recorders, 50 per box	
180006	For Single Pen, 0°C to 60°C (32°F to 140°F)
197030	For Single Pen, -10°C to 70°C (14°F to 158°F)
197075	For Single or Dual Pen, 0°C to 100°C (32°F to 212°F)
<b>RH System Options</b>	
184062	Condensate Pump Kit for 3920, 3940 (3949), and 3911 (3913) Elevated Drains; includes separate line cord, 115V
1900031	Condensate Evaporator for 3920, 3940, and 3911; includes separate line cord; 115V
1900391	Condensate Evaporator for 3949 and 3913; includes separate line cord; 240V
1900139	Heatless Dryer Kit for 3940 (3949) and 3911 (3913), for sub-ambient chamber RH, factory installed; The heatless dryer requires an air supply of 90 psi capable of 10 cfm, at minimum. It is recommended that the air supply be greater than the minimum required by the dryer.
<b>Deionization Cartridge Assembly for chambers with humidity and no DI water source</b>	
019-168-00	DI cartridge assembly includes DI cartridge, wall bracket, pressure regulator and gauge and 1/4" flexible tubing
585-036-00	Replacement DI cartridge
<b>Calibration Certificate and Temperature Mapping with Report</b>	
260045	Temperature Mapping Report (factory installed)
260049	Calibration Certificate (specify test parameters)
<b>cGxP Protocols and on site Validation Services****</b>	
GLP Level Protocols (IQ OQ)	
IQQDOCE89003499	For 3920, 3960
IQQDOCE89003710	For 3940 (3949) 3911 (3913)
GMP Level Protocols (IQ OQ PQ)	
IOPQDOCE89003499	For 3920, 3960
IOPQDOCE89003710	For 3940 (3949) 3911 (3913)
GLP Level Field Validation (IQ OQ) Performed at the customer site (protocol included at no extra charge)	
IOQPCKE89003499	For 3920, 3960
IOQPCKE89003710	For 3940 (3949) 3911 (3913)
GMP Level Field Validation (IQ OQ PQ) Performed at the customer site (protocol included at no extra charge)	
IOPQPCKE89003499	For 3920, 3960
IOPQPCKE89003710	For 3940 (3949) 3911 (3913)
<b>Miscellaneous Accessories Infrared CO2 Control Packages, factory installed</b>	
1900226	For 3920
1900227	For 3940 (3949) and 3911 (3913)
<b>Cell Roll System</b>	
4862	Three Tier Cell Roller Base (15 positions), 120V, 50/60 Hz, 29.8"W x 27.8"H x 24.4"F-B (75.7cm x 70.6cm x 62.0cm)
4868	Same as 4862 but 230V, 50/60 Hz
190049	Add-On Tier (5 positions), 29.8"W x 7.1"H x 24.4"F-B (75.7cm x 18.0cm x 62.0cm), customer installed
190777	Reinforced Floor with Removable Ramp, ramp extends 23.0" (58.4cm), factory installed
500182	Same as No. 190777 but customer installed
228077	Rotation Alarm System, includes annunciator jack, factory installed
228078	Battery Back-Up, provides 24 hours of power if a power failure occurs, factory installed
475560	110mm x 285mm Glass Bottles (4 per case)