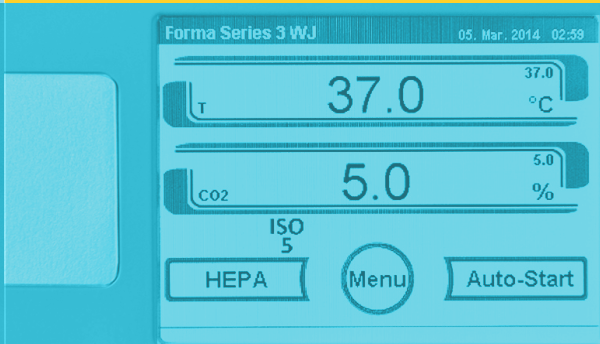


**Thermo Scientific Forma Series 3**  
Water Jacketed CO<sub>2</sub> Incubator



Reliable water jacket technology  
**with effortless touchscreen control**



reliability



purity



simplicity

## Bringing smart simplicity to proven reliability.



The first choice of researchers around the world, the Thermo Scientific™ Forma™ Series 3 Water Jacketed CO<sub>2</sub> Incubator is now even better — thanks to the easy-to-use Thermo Scientific™ iCAN™ touchscreen. Reliable temperature stability and HEPA clean room air purity are paired with the simplest way to control and monitor your incubator, ensuring protection for your important cell cultures. A combination that's truly hard to beat.

- ◀ Easily stackable, large 6.5 cu ft capacity, polished stainless steel chamber with choice of CO<sub>2</sub> gas sensors and oxygen control.

U.S. Patents 5,792,427 and 6,117,687

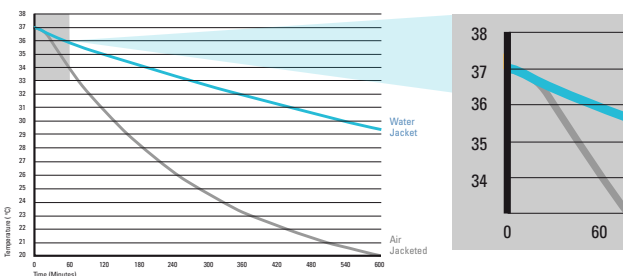


## Reliability with proven water jacket technology.

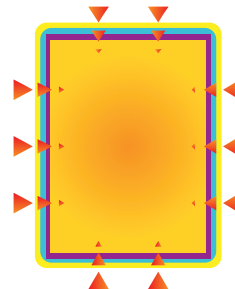
Durable triple-wall construction delivers optimal temperature uniformity. And it's guaranteed for life against leakage. Provides outstanding thermal stability for your valuable cell cultures to protect against ambient temperature swings and unexpected power outages that can ruin your cultures.

### Protect your cultures from the unexpected.

Temperature loss from a power outage or extreme ambient swings can ruin your cultures. Product testing during a power failure in an 18° C (64.4° F) ambient environment showed the water jacketed incubator's temperature gradually dropping just 1° C, from 37° C to 36° C (98.6° F to 96.8° F), in 1 hour and 7.6° C in 10 hours.



Water jacketed incubator temperature versus air jacketed incubator temperature during a power failure in an 18° C ambient environment.

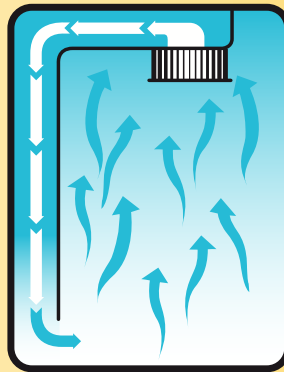
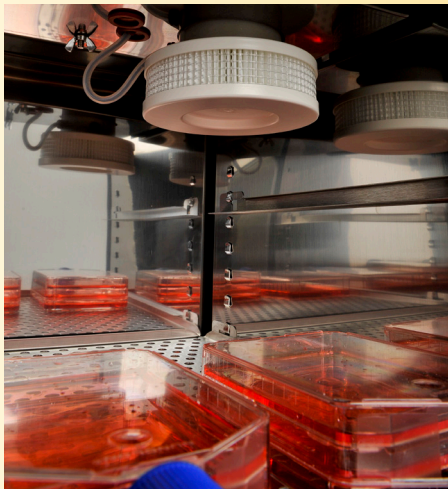


**Water Jacket**  
Unique triple-wall construction provides outstanding temperature stability supplied by dual layers of water and high-quality insulation.

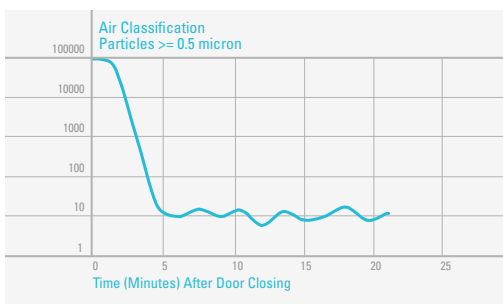


## Purity from in-chamber HEPA air filtration.

Minimize the risk of airborne contaminants entering the incubator from multiple door openings with proven HEPA air filtration system. Maintain your valuable cultures in ISO Class 5 clean room air purity in under five minutes from door opening. HEPA-VOC filters are also available to remove volatile organic vapors often found in lab solvents and cleaning agents that risk the safety of sensitive cultures.



◀ Our patented HEPA Filter Airflow System continuously filters the entire chamber volume every minute for an aseptic atmosphere. Fan-assisted airflow prevents stratification and facilitates fast recovery of all conditions after door opening.



### ◀ Air Quality Defined

Federal Standard 209E and International Standard ISO 14644-1 define air quality classifications (e.g., Class 1, 10, 100 and ISO Class 1, 2).

The federal class number is the maximum allowable number of particles >0.5 microns per cubic foot of air. ISO Class 5 correlates most closely to Federal Standard Class 100.



## Simplicity with the iCAN touchscreen interface.

Experience total data visibility and monitor all incubator interaction with the Forma Series 3 CO<sub>2</sub> Incubator. On-screen menu prompts, error and usage logs, data logging, performance trend graphing, and multiple language selection make it the smartest incubator interface available. Download your incubator performance, including error and data logs, with the installed USB port and provided software.



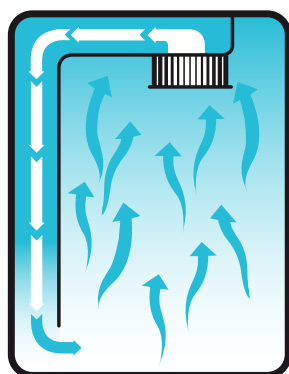
◀ Door-mounted touchscreen interface provides complete data visibility to monitor all incubator interaction.

◀ Automatically logs all incubator interactions to better monitor culturing conditions.

# Optimized cell growth technologies.

## Fan-assisted air circulation for rapid recovery.

For advanced uniformity and recovery, our airflow patterns are specifically designed for optimal distribution on critical environmental conditions such as temperature, gas exchange, and humidity. Efficient circulation minimizes variation between cultures, while preventing desiccation — no matter where your cultures are located in the incubator.



◀ Our patented HEPA Filter Airflow System continuously filters the entire chamber volume every minute for an aseptic atmosphere. Fan-assisted airflow prevents stratification and facilitates fast recovery of all conditions after door opening.



*Convenient removable humidity pan*

## Relative humidity

Humidity is achieved with a convenient removable water pan. For applications requiring flexibility and precise monitoring of humidity levels, an optional RH sensor is available for monitoring humidity levels inside the chamber. It displays current conditions on the iCAN with an alarm to alert of low water, and assists in automatically compensating for the effect of RH on CO<sub>2</sub> with thermal conductivity sensors.

## Choose your in-chamber CO<sub>2</sub> measuring technology.

All Forma Series 3 CO<sub>2</sub> incubators feature in-chamber CO<sub>2</sub> sensors positioned near your cultures — responding quickly to any deviations in desired conditions. Choose from two sensor technology options:

*Proven reliable thermal conductivity (TC) sensors for accurate monitoring and long service life for your valuable cultures.*

or

*Advanced infrared (IR) sensors for precise monitoring where temperature and humidity levels are less predictable due to frequent door openings.*

## Enhanced flexibility with complete O<sub>2</sub> control.

Many cell cultures thrive best in CO<sub>2</sub> incubators with controlled levels of oxygen. Select an O<sub>2</sub> option to simulate physiological or hypoxic environments in a range of 1–20%. A dedicated O<sub>2</sub> display set point and control allow for accurate monitoring.

Forma Series 3 Incubators ▶  
are easily stacked.



# Thermo Scientific Forma Series 3

## Water Jacketed CO<sub>2</sub> Incubator

# FEATURES

Ergonomically Designed  
Outer Door Handle

iCAN Touchscreen  
Controller

In-Chamber Probes  
and Sensors

Provide accurate and precise control of temperature gas concentration by being near your cultures

Chamber Access Port

Non-CFC Foam-Insulated  
Outer Door (Field Reversible)

Sturdy Stainless Steel  
Shelves

Polished Stainless Steel Interior  
with 100% Covered Corners

Heated Inner Door  
with Sealed Door Trim

Proprietary heated, inner glass door  
minimizes potential condensation that  
can cause contamination

Fan-Assisted  
Directed Airflow

In-Chamber HEPA

Achieves ISO class 5 clean room air  
quality in five minutes by filtering the  
chamber air every 60 seconds

Triple-Wall Construction  
Water Jacket

Enhances temperature stability and uniformity  
with layers of thermal conditioned water and  
non-CFC fiberglass insulation

Removable, Cleanable  
Gasket

Stainless Steel  
Humidity Pan

Adjustable Feet

Optional Roller Base for  
Elevation and Mobility



### Trust Thermo Scientific™ Smart-Vue™

wireless monitoring solution to monitor critical  
samples stored inside your CO<sub>2</sub> incubators.

Assists with conformance to a growing body of  
regulatory standards including 21 CFR part 11.

For more information, visit  
[thermoscientific.com/smart-vue](http://thermoscientific.com/smart-vue).

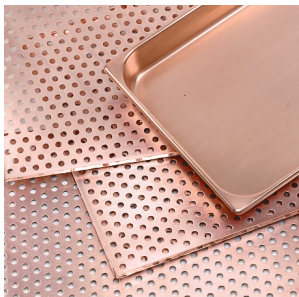


Description	Cat. No.
Accessories are customer installed unless otherwise indicated.	
<b>Humidity (RH) Sensor and Display</b>	
Readable in 1% increments, includes low RH programmable alarm (alerts you of need to add water to humidity pan and a TC sensor that monitors humidity compensation.)	1900587
<b>Shelving, Ductwork, and Humidity Pan</b>	
Stainless Steel Shelf and Channels	190884
<i>Solid Copper Components –</i>	
Solid Copper Interior Ductwork (in place of stainless steel components), includes copper interior ductwork, four shelves, and humidity pan; factory installed at time of order	190656
Copper Interior Ductwork	1900057
Copper Perforated Shelf with Channels	190879
Copper Humidity Pan ( <b>Figure 1</b> )	237020
<b>Filters* and Decontamination Kit</b>	
Replacement HEPA Filter ( <b>Figure 2</b> )	760175
HEPA Value Pack (4 filters)	760209
10 Disposable Polypropylene In-Line Filters	760210
HEPA Filter Replacement Kit, includes HEPA, inline, and access port filters	1900067
Replacement HEPA <sup>2</sup> VOC Filter	760200
HEPA <sup>2</sup> VOC Filter Replacement Kit, includes HEPA <sup>2</sup> , in-line, and access port filters	1900094
HEPA <sup>2</sup> VOC Filtration System (kit), converts HEPA Filter Airflow System to HEPA <sup>2</sup> Filtration System, includes HEPA <sup>2</sup> filter and two silicone plugs	760199
Decontamination Kit, includes sample port, HEPA filters, sensor gasket, wheel, and miscellaneous components	190651
<b>Door Kit, Lock, and Right Hand Door Swing</b>	
Independent Inner Glass Door Kit (eight glass doors with latches), mounts inside heated inner glass door, is removable and can be autoclaved ( <b>Figure 3</b> )	190650
Door Lock for Heated Inner Glass Door	190646
Right Hand Door Swing, factory installed at time of order	190666
<b>CO<sub>2</sub> and N<sub>2</sub> Accessories</b>	
<i>Built-In Gas Guards to monitor CO<sub>2</sub> or N<sub>2</sub>, automatically switch from one cylinder to the other when supply is exhausted, factory installed –</i>	
CO <sub>2</sub> Gas Guard	1900589
N <sub>2</sub> Gas Guard	1900590
<i>Regulators with barbed connection and shut off valve –</i>	
Two-Stage CO <sub>2</sub> Gas Regulator ( <b>Figure 4</b> )	965010
Two-Stage N <sub>2</sub> Gas Regulator	961027
Wall Clamp for a CO <sub>2</sub> Bottle, includes cylinder holder with web strap	950316
<b>Roller Base and Stand</b>	
Roller Base (heavy-duty steel) with dual-wheel, swivel locking casters and leveling feet; pre-drilled for easy attachment; raises unit 2.8" (7.1cm) off the floor ( <b>Figure 5</b> )	190647
Stand (heavy-duty steel) with leveling feet, raises unit 6.5" (16.5cm) off the floor	190648
<b>Data Outputs, factory installed</b>	
4-20 milliamp	192078

(continued)

\*HEPA and HEPA<sup>2</sup> filters are rated a minimum 99.97% efficient at 0.3 microns. Filters are easily replaced without tools.

Description	Cat. No.
<b>Miscellaneous Accessories</b>	
Sealed Modular Incubator Chamber, purge with any gas mixture to create a "mini-incubator" inside your incubator for unusual gas and temperature controlled experiments, dimensions: 12.0" (30.5cm) circular chamber, 4.7" (11.9cm) high ( <b>Figure 6</b> )	190043
Chamber Cooling Coil, use with refrigerated water bath/circulator to operate incubator at lower than ambient temperatures, factory installed	190645



**Figure 1**  
Copper Humidity Pan  
and Shelves



**Figure 3**  
Independent Inner  
Glass Door Kit



**Figure 5**  
Roller Base and Stand



**Figure 2**  
HEPA Air Filter (VOC)



**Figure 4**  
Two-Stage CO<sub>2</sub> Gas Regulator



**Figure 6**  
Sealed Modular Incubator Chamber

**Specifications**

**Temperature**

Control	±0.1°C
Range	5°C above ambient to 55°C (131°F)*
Uniformity	±0.2°C @ 37°C (98.6°F)**
Tracking Alarm	+/-1°C

**Temperature Safety**

Sensor	Precision thermistor
Controller	Independent analog electronic
Setability	0.1°C

**CO<sub>2</sub>/O<sub>2</sub>**

CO <sub>2</sub> /O <sub>2</sub> Control	Better than ±0.1%
CO <sub>2</sub> Range	0–20%
O <sub>2</sub> Range	1–20%
Inlet Pressure	15 PSIG (1.0 bar)
CO <sub>2</sub> Sensor	T/C or IR
O <sub>2</sub> Sensor	Fuel cell
Readability & Setability	0.1%
Tracking Alarm	+/-1%

**Humidity**

RH	Ambient to 95% @ 37°C (98.6°F)
Humidity Pan	3.2 qt. (3.0 liters) standard
Display (opt.)	In 1% increments

**Fittings**

Fill Port	3/8" hose (barbed)
Drain Port	1/4" hose (barbed)
Access Port	1.3" (3.3cm) with removable silicone plug with filter
CO <sub>2</sub> Inlet	1/4" hose (barbed)

**Unit Heat Load**

115V/230V	344 BTUH (100 Watt)
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**Shelves**

Dimensions	18.5" x 18.5" (47.0cm x 47.0cm)
Construction	Stainless steel, perforated
Surface Area	2.4 sq. ft. (0.2 sq. m)
Max. per Chamber	40.8 sq. ft. (3.8 sq. m)
Standard, Maximum	4, 17

**Construction**

Water Jacket Volume	11.7 gal. (43.5 liters)
Interior Volume	6.5 cu. ft. (184.1 liters)
Interior	Type 304, mirror finish, stainless steel
Exterior	18 gauge, cold-rolled steel, powder coated
Outer Door Gasket	Four-sided, molded, magnetic vinyl
Inner Door Gasket	Removable, cleanable, feather-edged, silicone

**Electrical**

4110/4120/4130/4140	115V, 50/60 Hz, 3.6 FLA (operating range 90–125V)
4111/4121/4131/4141	230V, 50/60 Hz, 2.0 FLA (operating range 180–250V)
Circuit Breaker/	6 Amps/2 Pole
Power Switch	
Convenience Receptacle	75 Watts max. (one per chamber)
Plug	115V: NEMA 5-15P Plug 230V: CEE 7/7 Plug

Alarm Contacts	Power interruption; deviation of temp, CO <sub>2</sub> , O <sub>2</sub> , RH; customer connections through jack on back of unit
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Data Outputs (opt.)	USB (standard), 4–20 milliamp (optional)
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**Dimensions**

Exterior	26.0"W x 39.5"H x 25.0" USB Port (standard), 4-20 ma (optional)"F-B (66.0cm x 100.3cm x 63.5cm)
Interior	21.3"W x 26.8"H x 20.0"F-B (54.1cm x 68.1cm x 50.8cm)

**Weight**

Net	265 lb (120.2 kg)
Net Operational	365 lb (165.6 kg)
Shipping (Motor)	324 lb (147.0 kg)

**Ordering Information**

Cat. No.	CO <sub>2</sub>	O <sub>2</sub>	Voltage
4110	T/C	No	115
4111	T/C	No	230
4120	IR	No	115
4121	IR	No	230
4130	T/C	Yes	115
4131	T/C	Yes	230
4140	IR	Yes	115
4141	IR	Yes	230

All units are UL Listed to United States and Canadian requirements and bear the CE Mark.

\*50°C (122°F) on Model 4120 (4121), 45°C (113°F) on Models 4130 (4131) and 4140 (4141).

\*\*Truncated

See how Thermo Scientific CO<sub>2</sub> incubators provide optimal cell growth.  
Learn more at [www.thermoscientific.com/co2incubators](http://www.thermoscientific.com/co2incubators)



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