

# CO<sub>2</sub> Incubators

The Complete Line



We culture more than trust.

Sensor Warranty  
**7** year

See website for full details.

Constant thinking.

**SL**<sup>®</sup>  
SHEL LAB  
A Product of  
SHELDON MFG. INC.

### Constant Thinking

We are always thinking. Always trying to find new ways to give you top-of-the-line products. We have a history of firsts in the industry. But we don't focus on past accomplishments. We are focused on, and building for, the future. That's how we keep temperature and pressure constant. That's how our products endure heavy use. And that's how we plan to stay—forever supplying products of constant thinking.

### Breadth of Line

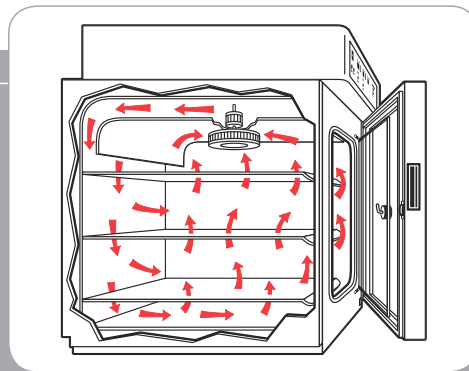
We realize the demanding world of a laboratory professional requires equipment that you can rely on and trust to satisfy specific applications. That's why we offer the broadest matrix of sizes, styles, and technology from which to choose. At Sheldon Manufacturing, we don't think laboratory procedure or workflow should change to accommodate the incubator, so we offer models that facilitate a high level of performance and provide optimum growing conditions. This selection, fueled by constant thinking, is what sets us apart.



Look for this icon to signify HEPA technology



coved corners  
 (on select models)



HEPA filtration



quick clean shelf system

### Contamination Control

Contamination control is a direct result of our cabinet design. Beginning with the first successful in-vitro fertilization in the USA in 1970, we have designed contamination control features into our incubators. The chamber atmosphere is purified with Sheldon Manufacturing's High Efficiency Particulate Air (HEPA) Filtration System. Our patented HEPA filter is housed in copper to prevent trapped particulates from reproducing. Even chamber cleanup is a breeze with our Quick Clean Shelf System, the removable gasket and the coved corner chamber.



Look for this icon indicating the superior technology of an IR Sensor

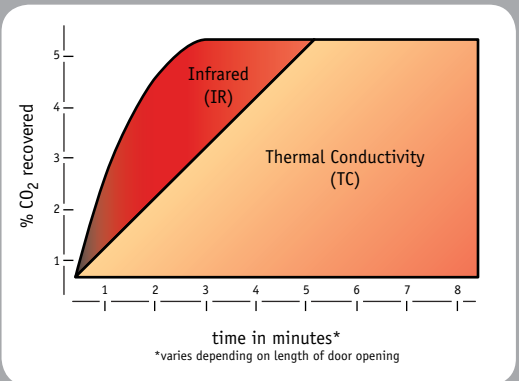


### The Benefit of IR Sensors

Sheldon Manufacturing standardizes on IR.

Our Infrared Sensor is ideal for applications with frequent door openings because recovery is unaffected by changes in temperature or humidity. Continuously sampling chamber atmosphere through a spectrophotometer flow cell, the IR sensor checks wavelength and rectifies an out-of-control condition. CO<sub>2</sub> recovery is rapid and changes in CO<sub>2</sub> concentration are made within seconds.

As part of our commitment to provide SHEL LAB customers with the highest quality and the best technology, Sheldon Manufacturing will now be fitting our CO<sub>2</sub> incubators with only IR (Infrared) sensors. We are proud to offer this performance enhancement at no additional charge. The IR sensor comes with an unprecedented 7 year limited warranty. The Infrared Sensor (IR) offers you superior CO<sub>2</sub> recovery and is ideal for applications with frequent door openings. Go to [www.shellab.com](http://www.shellab.com) for more information about the switch from TC to IR.



# Water Jacket CO<sub>2</sub> Incubators

Models: 3517 | 3524



convenient front-mounted connections



coved corners for easy cleaning



patented copper-housed HEPA filtration



anti-corrosion anode



pre-heated CO<sub>2</sub> inlet



**3517**



## Anti-corrosion Anode

The anti-corrosion anode permits the use of distilled or tap water (de-ionized water should not be used). The inclusion of this anode eliminates potential rusting within the water jacket chamber. The anti-contamination features make cleaning a breeze and the CO<sub>2</sub> sample port has been moved to the front control panel for quick and easy access.

## Validation/Documentation

Maintain precise time/date stamped records of all incubator functions from one minute to 99 hrs. and 59 min. The 3500 series data logger features programmable outputs that transmit display data via the RS-232 port, directly to a printer or to a remote alarm system.

## New 3500 Series... Large waterjacket CO<sub>2</sub> incubators

Share the same features as the 3503 plus

- Large 19 gallon water jacket
- Coved corners for easy cleaning
- Built-in CO<sub>2</sub> tank switch
- Infrared CO<sub>2</sub> sensors

Visit the SHEL LAB Video Learning Center at [www.shellab.com](http://www.shellab.com) and view our CO<sub>2</sub> instructional video!

Model	5 Year Limited Warranty	IR Sensor Guarantee	Water Jacket Guarantee	1 Year Limited Warranty
3503 3503-2	yes	yes	yes	
3517 3517-2	yes	yes	yes	
3524 3524-2	yes	yes	yes	
5215 5215-2	yes	yes		
2428 2428-2		yes		yes
2440 2440-2		yes		yes
2460 2460-2		yes		yes
2406 2406-2	yes	yes	yes	

## New 5 Year SHEL LAB CO<sub>2</sub> Incubator Limited Warranty

- 5 Year Parts (Labor Included in the US)
- 7 Year IR Sensor
- Lifetime Water Jacket Chamber

# New Personal Water Jacket CO<sub>2</sub> Incubator

Model: 3503 | 2406



**3503**

*New 3500 Series...  
New look, new features*



- New anti-corrosion anode for easy set-up & tap water use in the water jacket
- Factory pre-set door thermostat
- Patented HEPA filtration for superior contamination prevention
- Pre-heated CO<sub>2</sub> gas inlet for increased temperature uniformity

## 3503 Personal Water Jacket

The 3503 compact, 6-gallon water jacket features an intelligent microprocessor providing superb uniformity for even the most demanding in-vitro incubations. The 3503 also offers dependable Infrared (IR) CO<sub>2</sub> Sensor control, ideal for QA / QC applications.

Install and remove shelving without tools!  
This unique design is found in the Air Jacketed Series, Standard Series, and 3500 series SHEL LAB CO<sub>2</sub> Incubators.



**2406**

Our Basic Water Jacket Incubators are designed and manufactured to accommodate tight budgets without compromising fundamental needs in quality and precision. Combine this with the microprocessor controllers, heated outer door, and tempered-glass inner door and these units provide temperature uniformity, while minimizing cold spots that lead to condensation contamination. The humidity level inside the chamber is maintained at approximately 95%.

	3503 3503-2*	3517 3517-2*	3524 (stacked) 3524-2*	2406 2406-2*
Chamber Capacity	50 Liters/1.8 cu.ft	170 Liters/6.12 cu.ft.	170 Liters/6.12 cu.ft. each chamber*	190 Liters/6.7 cu.ft.
Temperature Range	Ambient +5°C to 60°C	Ambient +5°C to 60°C	Ambient +8°C to 60°C	Ambient +5°C to 60°C
Temperature Uniformity	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)	+/-0.25°C (at 37°C)
Temperature Display Resolution	+/-0.1°C	+/-0.1°C	+/-0.1°C	+/-0.1°C
CO <sub>2</sub> Sensor	Infrared (IR)	Infrared (IR)	Infrared (IR)	Infrared (IR)
CO <sub>2</sub> Range	0-20%	0-20%	0-20%	0-20%
CO <sub>2</sub> Recovery Rate to 5%	<5 minutes	<5 minutes	<5 minutes	<5 minutes
CO <sub>2</sub> Uniformity	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%
Alarm Conditions: Temperature CO <sub>2</sub>	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%
Humidity Level	95%	95%	95%	95%
Exterior Dimensions (WxDxH)	53 x 57 x 67 cm. 21 x 22.5 x 26.5 in.	66 x 65 x 102 cm. 26.125 x 25.5 x 40 in.	66 x 65 x 204 cm. 26.125 x 25.5 x 80 in.	67 x 67 x 101 cm. 26 x 26 x 40 in.
Interior Dimensions (WxDxH) (single chamber)	40 x 40 x 32 cm. 15.75 x 15.75 x 12.5 in.	52 x 50.8 x 65.5 cm. 20.5 x 20 x 25.8 in.	52 x 50.8 x 65.5 cm. 20.5 x 20 x 25.8 in.	52 x 51 x 72 cm. 20 x 20 x 28 in.
Shipping Weight	79.5 kg / 175 lbs	127 kg / 310 lbs	273 kg / 600 lbs	127 kg / 310 lbs
Shelves Supplied (Max)	3 (8)	3 (16)	6 (32)	3 (16)
Net Weight	63.5 kg / 140 lbs	111kg / 245 lbs	222kg / 490 lbs	111 kg / 245 lbs
Electrical Requirements Amps / Cycle Phase -120V Amps / Cycle Phase -220V	5 / 60 Hz 3 / 50/60 Hz	5 / 60 Hz 3 / 50/60 Hz	5 / 60 Hz 3 / 50/60 Hz	5 / 60 Hz 3.5 / 50/60 Hz
Fitting Sizes Diameter Access Port CO <sub>2</sub> Sample Port CO <sub>2</sub> Inlet Port Fill Port Siphon Port	2.54 cm. / 1 in. 0.95 cm. / 3/8 in. 0.95 cm. / 3/8 in. 2.54 cm. / 1 in. 1.27 cm. / 1/2 in.	2.54 cm. / 1 in. 0.95 cm. / 3/8 in. 0.95 cm. / 3/8 in. 2.54 cm. / 1 in. 1.27 cm. / 1/2 in.	2.54 cm. / 1 in. 0.95 cm. / 3/8 in. 0.95 cm. / 3/8 in. 2.54 cm. / 1 in. 1.27 cm. / 1/2 in.	2.54 cm. / 1 in. 0.95 cm. / 3/8 in. 0.95 cm. / 3/8 in. 2.54 cm. / 1 in. 1.27 cm. / 1/2 in.

\*-2 indicates 220V. Specifications are subject to change without notice.

# Large Capacity CO<sub>2</sub> Incubators

Models: 2428 | 2440 | 2460



**2440**

Specifications for 2440 on back page.

These models feature large incubation space without consuming excessive floor space. When production of cell lines or large scale tissue requires a high level of dependability, count on these units. Understanding the importance of verification for these applications, a 4-20 mAmp output continuously transmits CO<sub>2</sub> and temperature levels. Large units are intended for “dry” use only. Choose from three sizes.

Available in 60, 40 and 28 cu.ft. capacities.

## Uncompromising Control

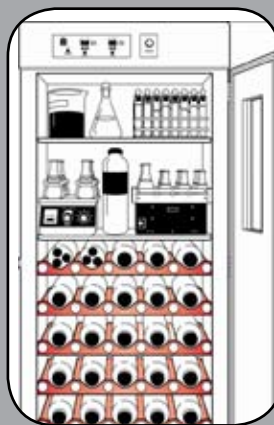
Automated performance is at your fingertips because the microprocessor controls continuously survey and adjust CO<sub>2</sub> and temperature levels with enhanced accuracy, while sensors with audible/visual alarms monitor set points. The IR CO<sub>2</sub> sensor's immediate reaction to changes in CO<sub>2</sub> levels allow for fast recovery even in chambers this size. A CO<sub>2</sub> shut-off occurs when the door opens to conserve gas consumption.

## Versatility and Outstanding Uniformity

Whether using tissue culture flasks, cell factories, or roller bottle rack systems, these units have voluminous space, four interior electrical outlets, and a reinforced floor with recessed channels to facilitate movement of equipment such as roller racks. Utilizing advanced engineering to create forced air circulation throughout the chamber, these units provide unparalleled temperature uniformity that helps all samples to incubate at the same rate. The air jacket facilitates quick and easy setup and an optional caster platform adds mobility to the long list of benefits these units provide.



40 cu.ft.  
(1133 L) capacity



roller bottle  
rack system  
(not sold by  
Sheldon Mfg. Inc.)

## CO<sub>2</sub> Incubator Accessories

CO <sub>2</sub> Regulator	101550	for regulating and adjusting CO <sub>2</sub> gas pressure
CO <sub>2</sub> Tank Switch	2002/ 2002-2	automatically switch from one tank to the other
HEPA Filter	2800517	collects airborne contaminants for a super clean environment
Stacking Adaptor	9490534	to connect and secure stacked unit (available in models 5215 & 5215-2)
Castor Platform for 5215	9000537	for easier cleaning and relocation
Castor Platform for 3517 and 2406	9000538	for easier cleaning and relocation
Cooling Coil Kit Assembly	9710557	for achieving below-ambient temperatures (accessory chiller required)
Cooling Coil Kit Assembly for 3503	9710568	for achieving below-ambient temperatures (accessory chiller required)
Tri-Section Door	9521004	minimize introduction of airborne contaminants

# Air-Jacket/Infrared (IR) CO<sub>2</sub> Incubators

## Models: 5215

### Fast and Easy Set-up

This slim, lightweight incubator can be easily repositioned to reduce downtime and is well-suited for multiple users.

### Effective Contamination Fighters

Three temperature control settings (main chamber, external door, and front liner) minimize condensation and facilitate superior temperature uniformity. This fine tuning capability allows you to accurately select temperature settings, providing stable and optimal culturing conditions. As well, the heated CO<sub>2</sub> inlet port reduces potential for condensation which could promote contamination within or around the inlet port. Our unique HEPA filtration system removes 99.97% of all airborne microbes and isolated particulates 0.3 microns or larger.



convenient  
keyhole design



fully adjustable  
shelf slides



coved corners  
for easy cleaning



unique design keeps  
shelf from tipping

	2460 2460-2*	2440 2440-2*	2428 2428-2*	5215 5215-2*
Chamber Capacity	1700 Liters/60 cu.ft.	1133 Liters/40 cu.ft	793 Liters/28 cu.ft.	160 Liters/5.7 cu.ft.
Temperature Range	Ambient +8°C to 60°C	Ambient +8°C to 60°C	Ambient +8°C to 60°C	Ambient +8°C to 60°C
Temperature Uniformity	+/-0.25°C (at 37°C)	+/-0.25°C (at 37°C)	+/-0.25°C (at 37°C)	+/-0.35°C (at 37°C)
Temperature Display Resolution	+/-0.1°C	+/-0.1°C	+/-0.1°C	+/-0.1°C
CO <sub>2</sub> Sensor	Infrared (IR)	Infrared (IR)	Infrared (IR)	Infrared (IR)
CO <sub>2</sub> Range	0-20%	0-20%	0-20%	0-20%
CO <sub>2</sub> Recovery Rate to 5%	<5 minutes	<5 minutes	<5 minutes	<5 minutes
CO <sub>2</sub> Uniformity	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%
Alarm Conditions: Temperature CO <sub>2</sub>	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%
Humidity Level	NA	NA	NA	95%
Exterior Dimensions (WxDxH)	124 x 104 x 201 cm. 49 x 41 x 79 in.	104 x 86 x 224 cm. 41 x 34 x 87 in.	94 x 91.5 x 188 cm. 37 x 36 x 74 in.	65 x 69 x 96 cm. 25 x 27 x 38 in.
Interior Dimensions (WxDxH) (single chamber)	109 x 89 x 173 cm. 43 x 35 x 68 in.	89 x 66 x 193 cm. 35 x 26 x 76.5 in.	84 x 68 x 158 cm. 33 x 27 x 62 in.	49 x 50 x 65 cm. 19 x 20 x 26 in.
Shipping Weight	432 kg / 950 lbs	386 kg / 850 lbs	300 kg / 660 lbs	134 kg / 295 lbs
Shelves Supplied (Max)	6 (30)	6 (30)	6 (30)	3 (16)
Net Weight	402 kg / 885 lbs	230 kg / 505 lbs	193 kg / 425 lbs	91 kg / 250 lbs
Electrical Requirements Amps / Cycle Phase -120V Amps / Cycle Phase -220V	15 / 60 Hz 10 / 50/60 Hz	15 / 60 Hz 10 / 50/60 Hz	15 / 60 Hz 10 / 50/60 Hz	5 / 60 Hz 3 / 50/60 Hz
Fitting Sizes Diameter Access Port CO <sub>2</sub> Sample Port CO <sub>2</sub> Inlet Port Fill Port Siphon Port	N/A 0.95 cm / 3/8 in. 0.95cm / 3/8 in. N/A N/A	N/A 0.95 cm / 3/8 in. 0.95cm / 3/8 in. N/A N/A	N/A 0.95 cm / 3/8 in. 0.95cm / 3/8 in. N/A N/A	2.54 cm / 1 in. 0.95 cm / 3/8 in. 0.95cm / 3/8 in. N/A N/A

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## SHELDON MFG., INC.

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Visit our web site at [www.shellab.com](http://www.shellab.com)

CO<sub>2</sub> Incubators • Vacuum Ovens • Water Baths • Incubators • Ovens  
Low Temperature Incubators • Humidity Test Chambers • Shaking Incubators  
Bactron Anaerobic Chambers • Hybridization Ovens • Shaking Water Baths

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