

CO₂ Incubators

The Complete Line



With chamber conditions this perfect, you'll make your own cells jealous.



See website for full details.

Constant thinking.



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

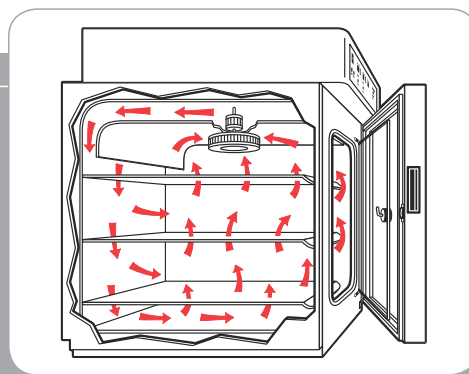
We realize the demanding world of the laboratory professional requires equipment that you can rely on and trust to satisfy specific applications. That's why we offer the broadest matrix of sizes, styles and technology from which to choose. At Sheldon Manufacturing, we don't think laboratory procedure 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 Filtration System (HEPA). 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 these icons, indicating the type of CO₂ sensor technology used for each model



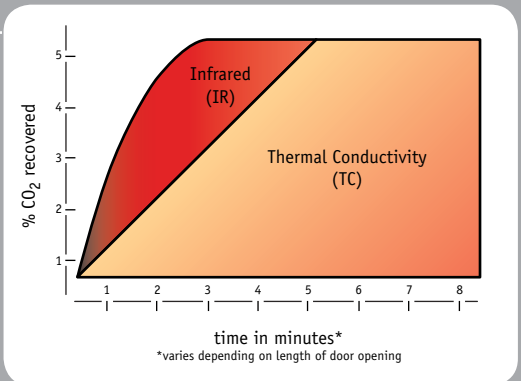
Choice of Sensors

Choose an Infrared (IR) Sensor CO₂ Incubator if your applications require rapid recovery of CO₂ following door opening.

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. CO₂ recovery is rapid and changes in CO₂ concentration are made within seconds.

CO₂ recovery is rapid and changes in CO₂ concentration are made within seconds.

Our Thermal Conductivity Sensor uses humidity and CO₂'s density to determine CO₂ concentration. Air with CO₂ is dense; therefore, it has greater cooling capacity. Chamber air is passed over a heated thermistor and how quickly it cools the thermistor tells the sensor how much CO₂ is in the air. Complete CO₂ recovery depends on humidity levels. We improve on our highly reliable TC sensor by coating the thermistor to protect it from the acidic environment present in most humid chambers with CO₂.



Automatic High Heat Decontamination CO₂ Incubator

Model: 3552

The Easiest and Safest Decontamination Cycle Yet

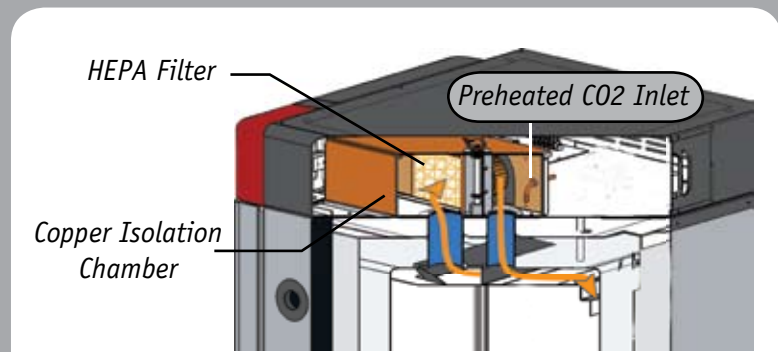
Decontamination is easier than ever. The Model 3552 is the latest addition to the SHEL LAB 3500 series of CO₂ Incubators. Featuring a dry, high heat decontamination cycle, the 3552 has the ability to maintain 180°C for 120 minutes without having to remove or handle the IR Sensor!

The automatic cycle is activated via a two step process to prevent it from being started accidentally. As a part of our total decontamination solution, a copper coated HEPA filter is used to capture airborne particulates, stopping microbes before they have an opportunity to reproduce.

- Dry Heat Decontamination at 180°C for 120 minutes.
- Patent-Pending Copper Isolation Chamber with HEPA Filter to keep sensitive components clean and secure during Incubation & High Heat Cycles.



- Pre-heated Copper CO₂ Gas Inlet for Increased Temperature Uniformity
- No Handling of the IR Sensor



A patent-pending, isolation chamber houses the CO₂ Sensor and HEPA filter outside of the incubation chamber. An automated cycle prevents the hot air from affecting the CO₂ Sensor and HEPA filter during decontamination. With the HEPA filter rated at 99.97% efficiency rating at 0.3 microns, and copper oxide deterring the growth of other microbes, bacteria concerns are eliminated.

3552 3552-2*	
Chamber Capacity	164 Liters / 5.8 cu.ft
Temperature Range	Ambient +8°C to 180°C
Temperature Range Incubating	Ambient +8°C to 60°C
Temperature Uniformity	+/-0.5°C (at 37°C)
Temperature Display Resolution	+/-0.1°C
CO ₂ Sensor	Infrared (IR)
CO ₂ Range	0-20%
CO ₂ Recovery Rate to 5%	<5 minutes
CO ₂ Uniformity	+/-0.1% @ 5%
Alarm Conditions:	
Temperature	+/-1°C
CO ₂	+/-1%
Humidity Level	95%
Exterior Dimensions (wxdxh)	71 x 69 x 99 cm/ 28 x 27.2 x 39 in.
Interior Dimensions (wxdxh)	52 x 50 x 61.5 cm/ 20.75 x 20 x 24 in.
Shelves Supplied (Max)	3 (16)
Shipping Weight	125 kg/275 lbs
Net Weight	107 kg / 235 lbs
Electrical Requirements	
Watts/Amps/Cycle Phase-120V	1600 / 15 / 60 Hz
Watts/Amps/Cycle Phase-220V	1600 / 10 / 50/60 Hz
Fitting Sizes Diameter	
Access Port	2.54 cm / 1.5 in.
CO ₂ Sample Port	0.95 cm / 3/8 in.
CO ₂ Inlet Port	0.95 cm / 3/8 in.

*-2 indicates 200V. Specifications and statements reflect prototype specifications. For the most accurate and latest information please visit www.shellab.com.

New Personal Water Jacket CO₂ Incubator

Model: 3502



New 3500 Series... New look, new features

Anti-Corrosion Anode

- 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 CO₂ gas inlet for increased temperature uniformity

3502 Personal Water Jacket

The 3502 compact, 6-gallon water jacket features an intelligent microprocessor providing superb uniformity for even the most demanding in-vitro incubations. The 3502 also offers dependable Thermal Conductivity (TC) CO₂ Sensor control, ideal for QA / QC applications.

	3502 3502-2*	3507 3507-2*	3514 (stacked) 3514-2*	3517 3517-2*	3524 (stacked) 3524-2*
Chamber Capacity	50 Liters/1.8 cu.ft	170 Liters/6.12 cu.ft	170 Liters/6.12 cu.ft each chamber*	170 Liters/6.12 cu.ft	170 Liters/6.12 cu.ft each chamber*
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	Ambient +8°C to 60°C
Temperature Uniformity	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)	+/-0.2°C (at 37°C)
Temperature Display Resolution	+/-0.1°C	+/-0.1°C	+/-0.1°C	+/-0.1°C	+/-0.1°C
CO ₂ Sensor	Thermal Conductivity (TC)	Thermal Conductivity (TC)	Thermal Conductivity (TC)	Infrared (IR)	Infrared (IR)
CO ₂ Range	0-20%	0-20%	0-20%	0-20%	0-20%
CO ₂ Recovery Rate to 5%	<5 minutes	<5 minutes	<5 minutes	<5 minutes	<5 minutes
CO ₂ Uniformity	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%
Alarm Conditions: Temperature CO ₂	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%
Humidity Level	95%	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 102 cm/ 26.125 x 25.5 x 80 in.	66 x 65 x 102 cm/ 26.125 x 25.5 x 40 in.	66 x 65 x 102 cm/ 26.125 x 25.5 x 80 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 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.
Shipping Weight	79.5 kg/175 lbs	127 kg/310 lbs	273 kg/600 lbs	127 kg/310 lbs	273 kg/600 lbs
Shelves Supplied (Max)	3 (8)	3 (16)	6 (32)	3 (16)	6 (32)
Net Weight	63.5 kg/140 lbs	111kg/245 lbs	222kg/490 lbs	111kg/245 lbs	222kg/490 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 / 50/60 Hz	5 / 60 Hz 3 / 50/60 Hz
Fitting Sizes Diameter Access Port CO ₂ Sample Port CO ₂ Inlet Port Fill Port Siphon Port	2.54 cm / 1 in. 0.95 cm / 3/8 in. 0.95cm / 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. 0.95cm / 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. 0.95cm / 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. 0.95cm / 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. 0.95cm / 3/8 in. 2.54 cm / 1 in. 1.27 cm / 1/2 in.

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Water Jacket CO₂ Incubators

Models: 3507 | 3514 | 3517 | 3524



convenient front-mounted connections



coved corners for easy cleaning



patented copper-housed HEPA filtration



anti-corrosion anode



pre-heated CO₂ inlet

3507



3517



3507/3517

Anti-corrosion Anode

Anti-corrosion anode allows use of distilled or tap water (de-ionized water should not be used). The inclusion of this anode eliminates potential rusting in the water jacket chamber. Anti-contamination features make cleaning a breeze and the CO₂ sample port has been moved to the front control panel for quick and easy access.

Validation/Documentation

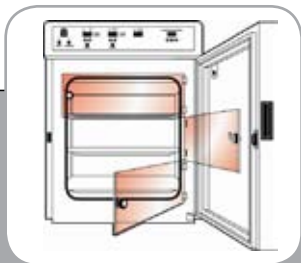
Maintain precise time/date stamped records of all incubator functions from one minute to 99 hours and 59 minutes. The 3500 series data logger features programmable outputs that transmit display data via the RS-232, direct to a printer, or to a remote alarm system.

New 3500 Series... Large jacket CO₂ incubators

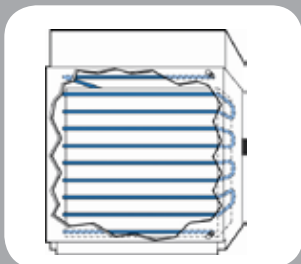
Shares the same features as the 3502 plus,

- Large 19 gallon water jacket
- Coved corners for easy cleaning
- Built-in CO₂ tank switch
- Choose from Thermal Conductivity or Infrared CO₂ sensors

Visit the SHEL LAB Video Learning Center at www.shellab.com and view our CO₂ instructional video!



tri-section door



cooling coils

Options for select SHEL LAB Water Jacket models...

Minimize contamination. A tri-section inner glass door. The three separate inner glass doors allow for selective chamber openings. By minimizing the size of the access portal, this feature helps to minimize the introduction of airborne contaminants to the chamber. *(available on models 3517, 3507, 2306 and 2406.)*

Give your incubator the ability to achieve below-ambient temperature settings. Now insect and/or fish studies are possible with the use of this accessory. It's also helpful where high-temperature ambient conditions jeopardize temperature uniformity. Acting like a refrigeration system, this coil requires a cold liquid source (i.e. an external refrigerated chiller) to lower the water jacket temperature. *(available on models 3517, 3507, 3502, 2306 and 2406.)*

Air Jacket CO₂ Incubator

Model: 5215



5215



convenient
keyhole design



fully adjustable
shelf slides



coved corners
for easy cleaning



unique design keeps
shelf from tipping

Install and remove shelving without tools!
This unique design is found in the Air Jacketed,
Standard and 3500 series SHEL LAB CO₂ Incubators.

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 CO₂ inlet port reduces potential for condensation that can 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.

Unparalleled Controls

A separate digital keypad with large, bright LEDs (for CO₂ and temperature) is highly visible on the front panel. These intelligent microprocessors constantly monitor and adjust program settings and allow calibration of CO₂ and temperature. From the digital keypad you can also mute audible alarms with the push of a button. The redundant safety system for temperature helps protect your sample from overheating. A door switch that automatically turns off the gas when the door is opened also helps conserve your CO₂. The sample port makes CO₂ calibration efficient and easy.

	5215 5215-2*
Chamber Capacity	160 Liters/5.7 cu.ft
Temperature Range	Ambient +8°C to 60°C
Temperature Uniformity	+/-0.35°C (at 37°C)
Temperature Display Resolution	+/-0.1°C
CO ₂ Sensor	Infrared (IR)
CO ₂ Range	0-20%
CO ₂ Recovery Rate to 5%	<5 minutes
CO ₂ Uniformity	+/-0.1% @ 5%
Alarm Conditions: Temperature CO ₂	+/-1°C +/-1%
Humidity Level	95%
Exterior Dimensions (wxdxh)	65 x 69 x 96 cm/ 25 x 27 x 38 in.
Interior Dimensions (wxdxh) (single chamber)	49 x 50 x 65 cm/ 19 x 20 x 26 in.
Shipping Weight	91 kg/250 lbs
Shelves Supplied (Max)	3 (16)
Net Weight	134 kg/295 lbs
Electrical Requirements Amps/Cycle Phase -120V Amps/Cycle Phase -220V	5 / 60 Hz 3 / 50/60 Hz
Fitting Sizes Diameter Access Port CO ₂ Sample Port CO ₂ Inlet Port Fill Port Siphon Port	2.54 cm / 1 in. 0.95 cm / 3/8 in. 0.95cm / 3/8 in. N/A N/A

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Large Capacity CO₂ Incubators

Models: 2428 | 2440 | 2460



2440

Specifications for 2440 on back page.

IR

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 mA output continuously transmits CO₂ and temperature levels. Choose from three sizes.

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

Uncompromising Control

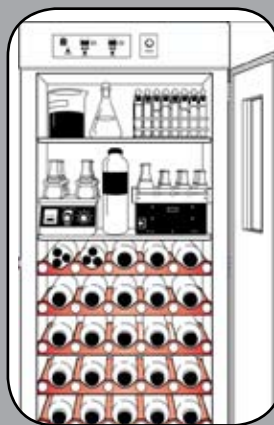
Automated performance is at your fingertips because the microprocessor controls continuously survey and adjust CO₂ and temperature levels with enhanced accuracy, and sensors with audible/visual alarms monitor set points. The IR CO₂ sensor's immediate reaction to changes in CO₂ levels allow for fast recovery even in chambers this size. A CO₂ 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.)

CO₂ Incubator Accessories

CO ₂ Regulator	101550	for regulating and adjusting CO ₂ gas pressure
CO ₂ 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 models	9000538	3507, 3517, 2306, 2406, 3552
Cooling Coil Kit Assembly	9710557	for achieving below-ambient temperatures (accessory chiller required)
Cooling Coil Kit Assembly for 3502	9710568	for achieving below-ambient temperatures (accessory chiller required)
Tri-Section Door	9521004	minimize introduction of airborne contaminants

Basic Water Jacket CO₂ Incubators

Models: 2406 | 2306

Incubate at a Lower Cost

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 and ultimately, contamination. The humidity level inside the chamber is maintained at approximately 95%.

The broad selection of SHEL LAB CO₂ Incubators continues with the models that combine reliability, accuracy and stable temperature control to achieve extraordinary value for demanding environments.

2306



2406



2406vv/2306

	2406 2406-2*	2306 2306-2*	2460 2460-2*	2440 2440-2*	2428 2428-2*
Chamber Capacity	190 Liters/6.7 cu.ft	190 Liters/6.7 cu.ft	1700 Liters/60 cu.ft	1133 Liters/40 cu.ft	793 Liters/28 cu.ft
Temperature Range	Ambient +5°C to 60°C	Ambient +5°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)	+/-0.25°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	+/-0.1°C
CO ₂ Sensor	Infrared (IR)	Thermal Conductivity (TC)	Infrared (IR)	Infrared (IR)	Infrared (IR)
CO ₂ Range	0-20%	0-20%	0-20%	0-20%	0-20%
CO ₂ Recovery Rate to 5%	<5 minutes	<5 minutes	<5 minutes	<5 minutes	<5 minutes
CO ₂ Uniformity	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%	+/-0.1% @ 5%
Alarm Conditions: Temperature CO ₂	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%	+/-1°C +/-1%
Humidity Level	95%	95%	NA	NA	NA
Exterior Dimensions (wxdxh)	67 x 67 x 101 cm/ 26 x 26 x 40 in.	67 x 67 x 101 cm/ 26 x 26 x 40 in.	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.
Interior Dimensions (wxdxh) (single chamber)	52 x 51 x 72 cm/ 20 x 20 x 28 in.	52 x 51 x 72 cm/ 20 x 20 x 28 in.	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.
Shipping Weight	127 kg / 310 lbs	127 kg / 310 lbs	432 kg / 950 lbs	386 kg / 850 lbs	300 kg/660 lbs
Shelves Supplied (Max)	6 (16)	6 (16)	6 (30)	6 (30)	6 (30)
Net Weight	111 kg / 245 lbs	111 kg / 245 lbs	402 kg / 885 lbs	230 kg / 505 lbs	193 kg / 425 lbs
Electrical Requirements Amps/Cycle Phase -120V Amps/Cycle Phase -220V	5 / 60 Hz 3.5 / 50/60 Hz	5 / 60 Hz 3.5 / 50/60 Hz	15 / 60 Hz 10 / 50/60 Hz	15 / 60 Hz 10 / 50/60 Hz	15 / 60 Hz 10 / 50/60 Hz
Fitting Sizes Diameter Access Port CO ₂ Sample Port CO ₂ Inlet Port Fill Port Siphon Port	2.54 cm / 1 in. 0.95 cm / 3/8 in. 0.95cm / 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. 0.95cm / 3/8 in. 2.54 cm / 1 in. 1.27 cm / 1/2 in.	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

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