



# 7 Incubators / Ovens

# Portable Mini CO<sub>2</sub> Incubator

Compact & Economical Mini CO<sub>2</sub> Incubator

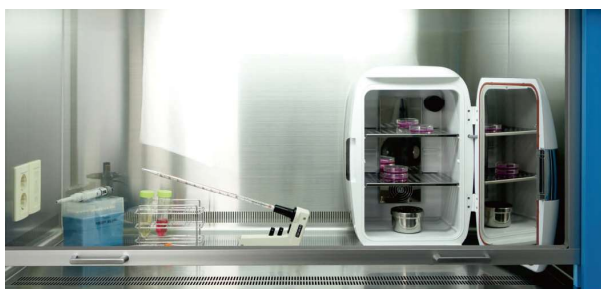
## Features

- > 15.2 Liter Chamber
- > 6.8 kg Light Weight to carry
- > Portable Use with carrying handle (Car Plug available)
- > Economical Price & Compact Design for Personal Use
- > Available size to use in work station or Clean bench
- > Digital Set-Up for Temperature & CO<sub>2</sub>
- > Forced Air Circulation by Fan
- > Excellent Temperature Uniformity
- > Quick recovery & Precise CO<sub>2</sub> control by IR Sensor
- > Cooling with very low noise
- > Two Stainless Steel Shelves (Standard)
- > Natural Humidification by Water Pan
- > Cooling & Heating by peltier
- > Stainless steel Water Tray
- > Power Plug & Car Jack



## Specifications

Product Name		WCI-15R
Chamber Volume		15.2 liter
Temperature	Range	15°C ~ 45°C ( at Ambient 25°C )
	Accuracy	± 0.25°C
	Control	Micom
CO <sub>2</sub>	Range	0 ~ 20%
	Sensor	Dual Beam IR Sensor
	Accuracy	± 0.1% ( 5% )
	Gas Pressure	0.7Bar (Max. 1Bar)
Humidity		Up to 80%
Display		LED Display
Cooling & Heating		By Peltier (thermoelectric elements)
Shelf		2, Stainless steel (standard) / Max (3ea)
In & Outside Material		ABS
Inside ( W x Dx H mm )		224x 200 x 340
Outside ( W x Dx H mm )		292x 333x 433
Weight		6.8Kg
Power / Frequency		220V , 50/60Hz
Power Consumption	DC-COLD: 46W, HOT: 48W	
	AC-COLD: 63W, HOT: 63W	
Order No.		189221



> Car Jack

## Accessories & Options

Order No.	Name	Model
189231	Shelf ( Stainless steel )	203M-SHELFSUS ( 220x162mm-WxD)
189232	Measuring opening	203M-Hole

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

The incubator is ideal for the experiments of the cultivation of animal cells, sperm/ovum, anaerobic cells, all sorts of microbe cells, hatching/germinating and special tissues.



### Features

Fast Heat-Up, Fast-Recovery, Stable Control

#### 6 Sides Direct Heating System

Electric Heating wire is covered on all sides of chamber which makes stable uniformity and provides fast heat-up & temperature recovery.

3 parts of heating section are controlled and calibrated individually by 3 temperature sensors.

#### Dry Wall and Air Jacket

Warm Air from heating wire is preserved in space between chamber and insulation. It helps temperature recovered faster and minimize heat loss.

Dry wall with insulation is not required to regular maintenance.

#### DUAL BEAM IR CO<sub>2</sub> Sensor

Fast & Precise Detection for CO<sub>2</sub> gas regardless of temperature and humidity.

#### Natural Humidification using Water Tray

The heater on bottom side warm the water in tray and it makes humidification. Circulation fan deliver the moisture formed from the water in entire chamber.

#### No Condensation

Heating by front door heater & frame heater prevent condensation in chamber and on glass door.

#### Microprocessor PID Control

Intelligence Control for CO<sub>2</sub> density, Temperature, Alarm, Automatic Decontamination (Optional).

#### HEPA filtration of chamber

### Options

Customize your incubator with these options



#### Access port

25mm Access Port is available at left side. (Upon ordering and additional charge)



#### UV sterilization

4W UV is placed up of chamber ceiling and beside of circulation fan. The UV light is not reached to sample and sterilization is operated during culturing.



#### Hot Air Decon

Maximum 125°C Dry Hot Air in WCI-40, WCI-180  
No need to remove IR CO<sub>2</sub> sensor



#### Monitoring System

Analog connection port has been designed to observe the status of equipments in real time even in the far distance.

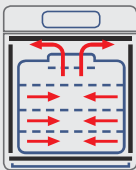


#### Split Inner Door

Lower Gas Consumption. lower Heat loss.  
Faster Recovery Easy Classification for Various samples.  
5 Split Door for WCI-40  
6 Split Door for WCI-180


### Natural Air and Moisture Convection

Natural Air and Moisture Convection Air and Moisture in chamber are distributed naturally by 6 side heating, air circulation fan.




### Alarm System

Buzzer to alarm low or high deviation of CO<sub>2</sub>, Temperature.




### Over Heating Limit

Heating is automatically cut by safety device when temperature control failed or there is excessive heating over set point.




### Easy to clean

Rounded Conner allows easy cleaning. Entire chamber is made of stainless steel(SUS316)



### Perforated Shelves

Perforated Shelves are good for natural air flows and are made of stainless steel which are resistant against rust and contamination.



## Specifications



Model	WCI-40	WCI-180	WCI-260	WCI-650	WCI-850	WCI-1200	
Chamber volume	40L	180L	260L	650L	850L	1200L	
Temp. °C	Range	Ambient+5~60	Ambient+5~60	Ambient+5~60	Ambient+5~60	Ambient+7~60	
	Accuracy	± 0.1°C ( 37°C )	± 0.1°C ( 37°C )	± 0.1°C ( 37°C )	± 0.1°C ( 37°C )	± 0.1°C ( 37°C )	± 0.5°C ( 37°C )
	Resolution	0.1°C	0.1°C	0.1°C	0.1°C	0.1°C	0.1°C
	Control	Digital PID					
	Uniformity	± 0.3°C (37°C / RT.20°C)	± 0.3°C (37°C / RT.20°C)	± 0.4°C (37°C / RT.20°C)	± 0.5°C (37°C / RT.20°C)	± 0.5°C (37°C / RT.20°C)	± 0.5°C (37°C / RT.20°C)
	Heating Capacity	320W	320W	610W	1100W	1400W	1600W
CO <sub>2</sub>	Range	0% ~ 20%					
	Accuracy	± 0.1% (5% / 37°C)					
	Resolution	0.1%					
	Sensor	IR CO <sub>2</sub> Sensor					
	Control	Microprocessor					
Inlet pressure range	0.3~0.5bar	0.3~0.5bar	0.6~0.7bar	0.7~1.0bar	0.7~1.0bar	0.7~1.0bar	
Display	LED Display						
Operating panel	Individual 2 Channel Touch Button						
Jacket type	Dry Wall Type (6 sides heat)						
Chamber material	Stainless Steel (304)						
Number of shelves	2/4	3/8	3/8	3/15	3/15	0/15*	
Chamber dimension ( WxDxH )	320x350x375mm	473x528x710mm	530x590x900mm	700x650x1430mm	700x800x1530mm	868x720x1927mm	
Overall dimension ( WxDxH )	420x460x570mm	560x620x945mm	630x680x1125mm	820x780x1740mm	820x930x1840mm	990x855x2123mm	
Weight ( kg )	38	80	115	230	260	260	
	Standard	W6011040	W6011180	W6011260	W6011650	W6011850	W6011120*
Order No.							
	Sterilization	W6012040	W6012180	W6012260	W6012650	W6012850	-

\* The door with glass observation window, without internal glass door

\* The shelves of WCI-1200 need to be ordered separately



# Copper Chamber CO<sub>2</sub> Incubator

Copper oxide / copper-plated inner chamber, sterilization effect is better!

Model	WNB-180Cu	
Capacity	180L	
Temperature °C	Range	Rt+5~60°C
	Display accuracy	± 0.1°C ( 37°C )
	Resolution	0.1°C
	Control	Digital PID
	Temperature uniformity	± 0.3°C (37°C / Rt20°C )
CO <sub>2</sub>	Heating power	320W
	Range	0% ~ 20%
	Accuracy	± 0.1% (5% / 37°C )
	Resolution	0.1%
	Sensor	Dual infrared CO <sub>2</sub> sensor
	Control	Microprocessor
Display	Inlet pressure	0.3~0.5bar
	LED	LED
Panel	Individual dual channel panel	
Jacket style	Air ( six sides heating )	
Interior material	Copper oxide/ copper plating	
Shelves ( standard/ max )	3/8	
Order No.	Copper oxide interior	Standard
	Standard	W6028180
	Sterilization	W6028181



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## Accessories about the CO<sub>2</sub> Incubators

Order No.	Name	Description	Suitable for
W6010401	Stainless steel shelf	④ Perforated to improve uniformity	WCI-40
W6011801	Stainless steel shelf	④ Perforated to improve uniformity	WCI-180, WNB-180R/S/Cu
W6012601	Stainless steel shelf	④ Perforated to improve uniformity	WCI-260
W6016501	Stainless steel shelf	④ Perforated to improve uniformity	WCI-650
W6018501	Stainless steel shelf	④ Perforated to improve uniformity	WCI-850
W6010402	Roller base	⑤ Height 20cm from Bottom	WCI-40
W6011802	Roller base	⑤ Height 20cm from Bottom	WCI-180, WNB-180R/S/Cu
W6011803	Stacking kit	Stacking Kit	WCI-180
W6011804	HEPA filtration	HEPA filtration of gas circulation, Standard	WCI-40/180/260/650, WNB-180R/S/Cu
W6018504	HEPA filtration	HEPA filtration of gas circulation, Standard	WCI-850
W6012604	HEPA filtration	HEPA filtration of gas circulation, dry Heat sterilization	WCI-260/650
W6010405	Water pan	Heated by 6 sides direct heating for humidity, dimension: φ 160mmx H 35mm	WCI-40
W6011805	Water pan	Heated by 6 sides direct heating for humidity, dimension: 230x160x50mm	WCI-180, WNB-180R/S/Cu
W6012605	Water pan	Heated by 6 sides direct heating for humidity, dimension: 325x265x65mm	WCI-260
W6016505	Water pan	Heated by 6 sides direct heating for humidity, dimension: 530x325x65mm	WCI-650/850
W6011806	UV lamp	UV lamp. Install the side of the top fan	All CO <sub>2</sub> incubator
W6011807	Peltier cooling	5°C Below from Ambient, Lowest Temperature: 20°C , used for Standard Version	Standard, WCI-40/180
W6011808	Peltier cooling	5°C Below from Ambient, Lowest Temperature: 20°C , used for dry Heat sterilization version	Sterilization, WCI-40/180
W6011809	Monitoring system	Analog connection port has been designed to observe the status of equipments in real time even in the far distance.	All CO <sub>2</sub> incubator
W6011810	GAS regulator	GAS regulator	WCI-40, WCI-180, WNB-180R/S/Cu
W6011811	CO <sub>2</sub> Analyzer	CO <sub>2</sub> Analyzer	All CO <sub>2</sub> incubator
W6011812	Divided door	5 Divided Door	WCI-40
W6011813	Divided door	3 Divided Door, used for WCI-180	WCI-180, WNB-180Cu
W6011814	Divided door	6 Divided Door, used for WCI-180	WCI-180, WNB-180Cu
W6011815	Printer	Printer	All CO <sub>2</sub> incubator
W6011816	Holes for auxiliary monitoring	Diameter of 30mm (40mm is available), on the left side of the incubator	All CO <sub>2</sub> incubator

## Constant Temperature Incubators

Versatile air-jacketed natural convection incubators.

Specially designed for uniform temperature distribution and minimal sample contamination caused by external air intrusion.



### Features

- > Applicable in life-science, pharmacy, medical science, chemistry, biology, and related fields for storage of samples which need constant temperature and incubation
- > Digital temperature display and control
- > PID controller for temperature stability and safety protection
- > Very good heating characteristics
- > Ecologically friendly
- > Easy to clean
- > Timer function
- > Can be opened anytime when necessary
- > Temperature measure unit is °C
- > When the temperature exceeds set levels and reaches the set safety value, an alarm activates, and the incubation process stops
- > The material of the observation window is tempered glass, which has good safety and sealing characteristics
- > The magnetic door and high-quality gasket can absorb external shocks and comprise excellent sealing characteristics
- > Easy to clean stainless steel shelves with good air permeability and adjustable height
- > In case of temperature deviations, the BIAS function sets in, which makes operation convenient
- > For the case of an unexpected power breakdown the incubator offers two working options: Automatic re-operation and automatic stop
- > Upon opening the incubator, and the fan and heating device stop operation
- > Alarm sound for sample protection sets in when the door is open for more than 60 seconds

### Specifications



Product Name	WH-05	WH-10	WH-15	WH-25	WH-650	WH-850
Volume ( L )	50 L	100 L	150 L	260 L	650 L	850 L
Temperature Range ( °C )	Ambient Temperature + 5~65					
Accuracy ( °C )	<math>\pm 0.2 (37^{\circ}\text{C})</math>					
Temperature Stability ( °C )	<math>\pm 0.1 (37^{\circ}\text{C})</math>					
Temperature Controller	Button Control; Digital Display with PID automatic regulation					
Materials	Interior: Stainless steel ; Shelves: Polished stainless steel ; Inner glass door: 5 mm high temperature resistant safety glass Casing: Steel plate, Spray coating ;					
Timer	1 min ~ 99 hr 59 min					
Heating Capacity	340W	340W	340W	610W	1100W	1400W
Mains Requirements	AC 220~240 V, 50/60 Hz					
Shelves (included / max.)	2/3	2/4	2/8	3/8	3/15	3/15
Inner Dimensions (WxDxH in mm)	345 x 368 x 375	480 x 480 x 495	500 x 480 x 620	530 x 590 x 900	700 x 650 x 1430	700 x 800 x 1530
Outer Dimensions (WxDxH in mm)	440 x 480 x 610	560 x 560 x 760	560 x 580 x 880	630 x 680 x 1125	820 x 780 x 1740	820 x 930 x 1840
Weight ( kg )	35	50	65	115	230	260
Order No.	W6031050	W6031100	W6031150	W6031250	W6031650	W6031850

# Large Capacity Incubator

Versatile air-jacketed natural convection incubators.

Specially designed for uniform temperature distribution and minimal sample contamination caused by external air intrusion.

## Specifications



Product Name	WH-1200
Volume ( L )	1200
Temperature Range .	Ambient +7°C ~ +60°C at 25°C RT
Temp. Uniformity	Temp ± 0.5°C ~ ± 0.7°C at 37°C and 25°C RT
Temp. Increment	± 0.1°C
Temp. Recovery*	12 minute at 37°C after door open for 5minutes
Heating	Independent Over Temperature Thermostat
Temperature Safety	5 Side Direct Heating with Forced Air Flow by 4 Circulation Fans
Interior Outlet	Same voltage of instrument/ 7 outlets(standard)
Display	digital display, 5 Digit LED for Temp
Number of Shelve	Optional, Max 35ea
Door	Front door (left open)with Viewing Glass Window
Electric Safety	Fuse 15A for Incubator / Fuse 10A for Interior outlet
Interior Dimension	868(W) x 720(D) x 1927(H)mm
Exterior Dimension	990(W) x 855(D) x 2123(H)mm
Chamber Capacity	42.5 cu ft /1204L
Chamber Material	Stainless steel 304
Power Supply	220V / 50 or 60Hz (670W)
Alarm	Temperature, Door Open
Analogue Output	Temp, Alarm Contact, Roller Alarm Contact
Weight ( kg )	260
Order No.	W6031850



## Accessories about the Incubators

Order No.	Name	Description	Suitable for
W6030501	Stainless steel shelve	Perforated to improve uniformity	WH-05
W6031001	Stainless steel shelve	Perforated to improve uniformity	WH-10
W6031501	Stainless steel shelve	Perforated to improve uniformity	WH-15
W6032501	Stainless steel shelve	Perforated to improve uniformity	WH-25
W6036501	Stainless steel shelve	Perforated to improve uniformity	WH-650
W6038501	Stainless steel shelve	Perforated to improve uniformity	WH-850
W6031221	Stainless steel shelve	Perforated to improve uniformity	WH-1200
W6010402	Roller base	Height 20cm from Bottom	WH-05
W6031002	Roller base	Height 20cm from Bottom	WH-10
W6031502	Roller base	Height 20cm from Bottom	WH-15
W6031003	Stacking kit	Stacking Kit	WH-10
W6031503	Stacking kit	Stacking Kit	WH-15
W6011816	Holes for auxiliary monitoring	Diameter of 30mm, on the left side of the incubator	All incubators
W6011806	UV lamp	UV lamp. Install the side of the top fan, used for all incubator	All incubators
W6011809	Monitoring system	Analog connection port has been designed to observe the status of equipments in real time even in the far distance.	All incubators
W6051502	Socket inside the chamber	Socket inside the chamber	All incubators

## Low Temperature Incubators

Superb low temperature incubation performance using a noiseless HBP compressor cooling system which reduces water evaporation within the chambers.

### Features

- > Applicable in life-science, pharmacy, medical science, chemistry, biology, and related fields for storage of samples which need a constant temperature and for incubation.
- > Digital temperature display and control
- > PID controller for temperature stability and safety protection
- > Stainless steel shelves
- > Very good heating characteristics
- > Ecologically friendly
- > Easy to clean
- > Timer function
- > Heating function start and duration can be pre-set
- > Temperature control programs: Temperature programs can be divided into 9 sections and for every section temperature and duration can be set individually
- > 3 pre-set often used temperatures
- > Can be opened anytime when necessary
- > Temperature measure unit can be set as either °C or °F
- > When the temperature exceeds set levels and reaches the set safety value, an alarm activates, power is cut off, and the incubation process stops
- > An observation window made of tempered glass is installed, which makes the examination of samples easy and convenient, and which does not lead to unnecessary disruptions of the incubation process
- > The high-quality gasket can absorb external shocks and comprise excellent sealing characteristics
- > The stainless steel shelves have a good air permeability, are easy to clean and can be adjusted in height
- > When temperature deviation occurs, the BIAS function sets in, which makes operation convenient
- > For the case of an unexpected power breakdown the incubator offers two working options: Automatic re-operation and automatic stop
- > When opening the incubator, and the fan and heating device stop operation. After one minute without closing the door an alarm sets in
- > The WH-11C and the WH-21C incubators use heat transfer method for circulation. In a separated room outside the work space it uses heat exchange, in the working space it uses natural convection and forced circulation
- > The circulation method will not induce air pollution and can guarantee exact temperature distribution

### Specifications



Product Name	WH-11C	WH-21C
Temperature Control Method	Forced circulation method (fans integrated in the work environment)	
Volume(L)	150	250
Temperature Range(°C )	+4 ~ 60	+4 ~ 60
Accuracy(°C )	< ±0.1°C	< ±0.1°C
Temperature Uniformity(°C )	±1.5 (37°C )	±1.5 (37°C )
Temperature Controller	Touch Control; Digital Display with PID automatic regulation	
Materials	Interior: Stainless steel ; Shelves: Polished stainless steel ; Observation window: glass	
Timer	1 min ~ 99 hr 59 min	
Heating Capacity(W)	450	450
Max. Cooling Capacity(W)	350	350
Mains Requirements	AC 220 ~ 240V, 50/60 Hz	AC 220 ~ 240V, 50/60 Hz
Shelves (included / max.)	2/5	3/7
Inner Dimensions (W×D×H in mm)	550 x 500 x 610	550 x 500 x 1000
Outer Dimensions (W×D×H in mm)	660 x 605 x 1020	660 x 605 x 1415
Weight ( kg )	95	120
Order No.	W6055150	W6055250



### Accessories

Order No.	Name	Description	Suitable for
W6052501	Stainless steel shelve	Perforated to improve uniformity	WH-11C/21C
W6011816	Holes for auxiliary monitoring	Diameter of 30mm, on the left side of the incubator	WH-11C/21C
W6011809	Monitoring system	Analog connection port has been designed to observe the status of equipments in real time even in the far distance.	WH-11C/21C
W6051502	Socket inside the chamber	socket inside the chamber	WH-11C/21C
W6051503	LED light	at the top of chamber	WH-11C/21C



# Forced Convection Ovens

## General Models

Ideal for high temperature storage with user-friendly design. WF-G Models is used for all sterilization and drying tasks that do not require high drying rates or special time requirements, ideal for drying applications requiring a gentle airflow.

### Operating Features

- > From +10°C above room temperature to 260°C .
- > Microprocess PID control / Calibration.
- > Digital timer: 1 min ~ 99 hr 59 min, delayed ON / OFF.
- > Over temperature limit protection / Door opening alarm.
- > Conveniently preset 3 most commonly used temperature settings.
- > Digital LED display (0.1°C resolution) with touch keypads

### Constructional Features

- > Gravity-flow convection with vertical airflow for uniform sample heating.
- > Threefold tempered glass viewing window allows for easy monitoring of samples.
- > Featuring a pull down door handle.
- > Rounded inner chamber corners for easy cleaning and better air-flowing.
- > Stainless steel interior.
- > Two circular adjustable top slide vents helps to control inner air vapor circulation. (38mm / 1.5" in dia.)



### Specifications

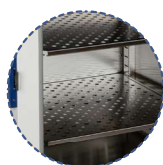


Model	WF-02G	WF-12G	WF-22G	
Chamber Volume ( L )	50	100	150	
Temperature	Range ( °C )	Amb.+10~ 260	Amb.+10~ 260	Amb.+10~ 260
	Fluctuation at 100°C ( °C )	0.5	0.6	0.8
Dimension (W × D × H)	Interior ( mm )	400 × 420 × 420	480 × 460 × 500	500 × 480 × 625
	Exterior ( mm )	540 × 620 × 780	600 × 690 × 810	660 × 750 × 920
Number of shelves	2ea (Max shelves 8ea)	2ea (Max shelves 12ea)	2ea (Max shelves 14ea)	
Weight ( kg )	55	62	72.5	
Heating power ( W )	1000	1200	1200	
Order No.	W6061050	W6061100	W6061150	

## Accessories & Options

### Perforated Shelves

Stainless steel shelf system is removed easily without using tools for easy cleaning.



Order No.	Description W x L ( mm )	Model
W6060501	360 × 310	WF-02G
W6061001	450 × 380	WF-12G
W6061501	465 × 400	WF-22G

### Tempered Viewing Windows

Optimized sample monitoring with threefold, temper



Order No.	Thickness / xW x L ( mm )	Suitable for
W6060502	5 / 150 × 280	WF-02G
W6061002	5 / 150 × 380	WF-12G, WF-22G



# 8 Shaking Incubators

## CO<sub>2</sub> Incubator with built-in Roller

WIGGENS CO<sub>2</sub> incubator with a roller apparatus or shaker at the bottom of the chamber, adherent or suspension cells culture in one incubator. All operations and controls are on the external control panel. In addition to all the functions of the WCI-180, the CO<sub>2</sub> incubator with roller apparatus has the following features:

- > 180-litre CO<sub>2</sub> incubator built-in roller apparatus
- > Low noise by using a low vibration DC brushless motor
- > CO<sub>2</sub>, humidity, temperature have good uniformity in the chamber
- > The roller apparatus can be removed out for static cell culture
- > The external controller can control the internal rollers individually
- > The speed, temperature are displayed and controlled on the LED screen



Model	WNB-180R	
Display	LED	
Capacity	180L	
Temperature	Range	Rt+5-60°C
	Display Precision	± 0.1°C ( 37°C )
	Resolution	0.1°C
	Speed	2-30rpm
Speed control	Accuracy	± 1rpm
	Division	0.1rpm
	Control	PID microprocessor
Humidity		≥70% ( at 37°C )
	accuracy	± 0.1% ( 5% / 37°C )
CO <sub>2</sub>	Resolution	0.1%
	Sensor	Dual infrared CO <sub>2</sub> sensor
	Control	Microprocessor
Timer	Continuous or max 99h59min	
Jacket style	Air ( six sides heating )	
Interior material	304 stainless steel	
Shelf	One for roller apparatus	
Order No.	W6026180	



Can contain four Dia.100-120mm roller bottles.

### Outside control

Controller can adjust speed without opening the door.



For remote roller, please reference Page 116

## CO<sub>2</sub> Incubator with Shaker

In addition to all the functions of the WCI-180, the CO<sub>2</sub> shaking incubator has the following features:

- > 180-litre CO<sub>2</sub> incubator built-in shaker
- > Low noise by using a low vibration DC brushless motor
- > CO<sub>2</sub>, humidity, temperature have good uniformity in the chamber
- > The shaker can be removed for static cell culture
- > The standard universal plate, optional sticky plate
- > A variety of plate types (erlenmeyer flask: 100mL, 250mL, 500mL, 1000mL, test tube clamps, 96-well plate plates)
- > The external controller can control the internal rollers individually
- > The speed, temperature are displayed and controlled on the LED screen



Model	WNB-180S	
Display	LED	
Capacity	180L	
Temperature	Range	Rt+5-60°C
	Display Precision	± 0.1°C ( 37°C )
	Resolution	0.1°C
	Speed	30-300 rpm
Speed control	Accuracy	± 1rpm
	Division	1rpm
	Control	PID microprocessor
Humidity		≥70% ( at 37°C )
	Accuracy	± 0.1% ( 5% / 37°C )
CO <sub>2</sub>	Resolution	0.1%
	Sensor	Dual infrared CO <sub>2</sub> sensor
	Control	Microprocessor
Timer	Continuous or max 47h59min	
Jacket style	Air ( six sides heating )	
Interior material	304 stainless steel	
Shelf	One for shaker	
Order No.	W6027180	



It is suitable for suspension cell culture of mammals and can place flask of 100-1000ml. Brushless DC motor makes it low vibration, dust-free, low noise, very suitable for cell culture

### Outside control

Controller from outside without opening the door



For shaker, please reference Page 115

# Shaking Incubators

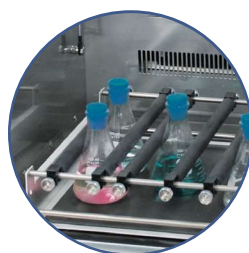
Combining a benchtop incubator/refrigerator with a dual-action (orbital and reciprocating) shaker, WS series shakers offer versatility for a variety of biological and biotech applications.

## Shaking Features

- > Dual shaking modes: orbital or reciprocating action.
- > Speed range: 30 to 300 rpm.
- > Programmable shaking motion.
  - Timer range: 10 sec to 999 hr 59 min 59 sec.
  - Forward & Backward, Pause: 10 sec to 59 min 59 sec.
- > Selectable orbit diameter or stroke length: 20, 30, 40mm.

## Operating Features

- > Temperature control:
  - +5°C above ambient to 60°C . (for WS-300 and WS-600)
  - +15°C to 60°C . (for WS-300R and WS-600R)
- > Microprocessor PID control.
- > Simple calibration and auto-tuning functions.
- > Digital timer with Delayed ON/OFF function: 1 min to 99 hr 59 min.
- > High temperature limit setting and open door alarm.
- > Convenient preset function for 3 most commonly used temperature settings.
- > Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- > Adjustable 3-step fan speed with defrosting time and period control.
- > Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- > RS-232 interface.



## Optional Accessories

- > Universal / Dedicated Platforms, Rubber Mats, Universal Attachments
- > Flask Clamps, Funnel Clamps
- > Test Tube Racks, Spring Wire Racks
- > Microplate Holders (three styles)
- > Lab Sticker

## Constructional Features

- > Maintenance-free and durable BLDC motor.
- > High-velocity fan ensuring uniform temperature distribution and rapid thermal recovery.
- > Convenient sample monitoring thanks to the transparent acrylic lid and the fluorescent lamp.
- > Gas spring lid supports providing soft closing, smooth motion, and stopping.
- > Environment-friendly CFC-free refrigerant.

## Specifications

Product Name	WS-300	WS-300R	WS-600	WS-600R
Volume(L)	53	53	83	83
Temperature	Range(°C )	Ambient +5 ~ 60	15-60	Ambient +5 ~ 60
	Accuracy(°C )	± 0.1 (38)	± 0.1 (38)	± 0.1 (38)
	Stability(°C )	± 1.0 (38)	± 1.0 (38)	± 1.0 (38)
	Controller	Touch Control; Digital Display with PID automatic regulation		
	Heater	Heating Plate, 600W		
Timer	Start / Stop / Duration setting; 10sec ~999hr 59min 59sec			
Shaker	Controller	PID automatic regulation		
	Power Unit	Brushless motor		
	Methods	Clockwise, Counter-clockwise, forth-back, interrupted,		
	Shaking Throw (mm)	20, 30 (standard), 40	20, 30 (standard), 40	20, 30 (standard), 40
	Speed (rpm)	30 ~ 300	30 ~ 300	30 ~ 300
	Stability (rpm)	± 1 (at 150rpm)	± 1 (at 150rpm)	± 1 (at 150rpm)
Dimensions	Platform (W × D in mm)	350 × 350	350 × 350	450 × 450
	Inside (W × D × H in mm)	410 × 410 × 320	410 × 410 × 320	510 × 510 × 320
	Outside (W × D × H in mm)	440 × 740 × 625	440 × 740 × 625	540 × 850 × 625
Net Weight (kg)	74	85	91	102
Max. Load (kg)	10	10	15	15
Order No.	W6091050	W6095050	W6091080	W6095080



## Accessories for Shaker incubators



### Sticky Plate

The Wiggins Sticky Plate can be loaded with any kind of vessel with a smooth base. Even at a speed of up to 350 rpm the vessel sticks to the plate. Other vessels, like e.g. microtitre plates can be shaken on the Wiggins Sticky Plate as well. However, only up to a speed of 220 rpm.

Suitable for	WS-300/300R	WS-600/600R
Order No.	31901	31902
Dimensions (W x D in mm)	350x350(mm)	450x450(mm)



### Multi-Purpose Tray

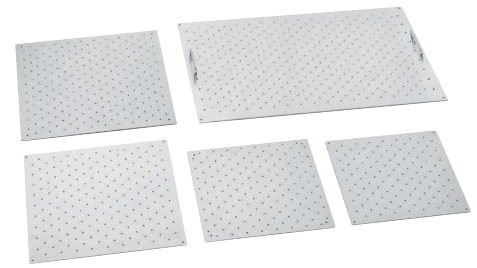
The multi-purpose tray is made of stainless steel and can be used for a diverse range of unusual specifications.

Suitable for	WS-300/300R	WS-600/600R
Order No.	31521	31522
Dimensions (W x D in mm)	350x350	450x450
Max. Load of Beakers		
50ml	16	25
100ml	9	16
250ml	4	9
300ml	4	9
500ml	4	5
1L	2	4
2L	1	2
2.8L	1	2



### Adjustable Bar Tray

Suitable for	WS-300/300R	WS-600/600R
Order No.	31514	31515
Dimensions (W x D in mm)	300x300(mm)	400x400(mm)
Number of bar	3	3
Order No. of bar	31514-05	31515-05



### Universal Trays

The Universal Trays employ a drilled grid for individual loadings of test tube holders, microtitre plates, and deep well plates.

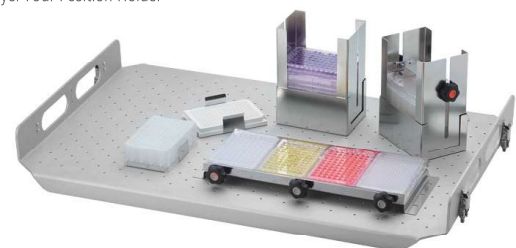
Suitable for	WS-300/300R	WS-600/600R
Order No.	31501	31502
Dimensions (W x D in mm)	350x350(mm)	450x450(mm)
Max. Load of Beaker Holders (kg)		
50ml	28	45
100ml	24	36
250ml	13	18
300ml	13	18
500ml	10	13
1L	5	7
2L	4	5
2.8L	1	2
4L	-	-
Max. Load of Separatory Funnel Holders (kg)		
250ml	4	6
500ml	2	3
1L	-	2
2L	-	-

### Multi-Pore Holders

The Wiggins multi-pore holders can be installed on the Wiggins sticky plates or the Wiggins universal trays. All

holders can be installed on small pores and deeper holes. In total, four different multi-pore holders are available:

1. Multi-Layer Holder
2. Single-Layer Single-Position Holder
3. Single-Layer Three-Position Holder
4. Single-Layer Four-Position Holder



Max. No. of Mountable Holders	Multi-Layer	Four-Position	Three-Position	Single-Position
Order No.	23651	23652	23653	23654
Max. mountable holders				
WS-300/300R	6	--	2	8
WS-600/600R	10	2	3	15



## Rubber Mats

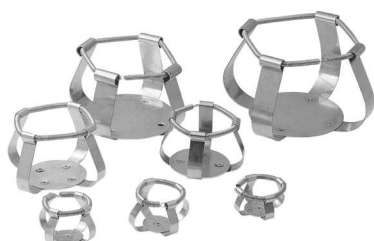
Designed for low-speed applications, non-skid rubber mats allow quick addition or removal of flasks, plates or tubes.

Suitable for	WS-300/300R	WS-600/600R
Order No.	31531	31532



## Separatory Funnel Holders

Funnel Volumes	250mL	500mL	1L	2L
Order No.	23562	23563	23564	23565



## Erlenmeyer flask clamps

Size of flask	Reference No.	Order No.
25mL	31274	-
50mL	31279	23550
100mL	31271	23551
250mL	31275	23552
300mL	-	23556
500mL	31280	23553
1000mL	31272	23554
2000mL	31273	23555
2800mL Fernbach	-	23557
3000mL	31277	-
4000mL	31278	23558
5000mL	31281	-
6000mL	-	23559

## Plastic clamps for Erlenmeyer flask

Order No.	Description	Order No.	Description
31285	100ml	31287	500ml
31286	250ml		

## Stainless steel clamps for Fernbach flask

Order No.	Description	Order No.	Description
31283	1.8L	31284	2.8L



## Test tube rack for long type

Order No.	Description	Order No.	Description
31342	144 x Ø8mm	31356	39 x Ø18mm
31343	100 x Ø10mm	31358	36 x Ø20mm
31347	72 x Ø12mm	31359	33 x Ø22mm
31352	64 x Ø14mm	31360	20 x Ø25mm
31354	36 x Ø16mm	31361	16 x Ø30mm

## Test tube rack for short type

Order No.	Description
31348	72 x Ø12mm
31353	64 x Ø14mm
31357	39 x Ø18mm ( Suitable for Freiner Bio-one tube )

## Rack for plastic test tube

Order No.	Description
31355	36x Ø16mm ( 15ml)
31362	16x Ø30mm ( 50ml)

## 187mm test tube rack for short type

Order No.	Description	Order No.	Description
31344	44 x Ø12mm	31349	21 x Ø20mm
31346	24 x Ø18mm		

# Biotron™ CO<sub>2</sub> Shaking Incubator

The WIGGENS shaking CO<sub>2</sub> incubator is ideal for use in the fields of bio similar production, proteomics, crystallography, genomics, cell biology and new drug development. A large capacity CO<sub>2</sub> incubator with separable long life shakers provide the optimum solution for cell culture in suspension

The Biotron internal chamber is subdivided into 3 compartments each holding a separable orbital shaker which can hold Erlenmeyer, cylindrical flasks or deepwell blocks. Dual beam Infra Red sensor provides precise CO<sub>2</sub> control while the six side heating system ensures excellent temperature control and recovery and humidity. An outstanding Air Circulation System ensures temperature uniformity within all compartments.

The unique patented orbital shakers are constructed with stainless steel to minimize contamination and aid cleaning. Brushless magnetic plate induction design allows these shakers to be used in highly humid environments and operate vibration free without generating particulates. Noise free these powerful shakers can be used for many years with reliability guaranteed.



## Features

### Growing cell suspension

The Biotron is designed to culture eukaryotic cells such as CHO, HEK, HeLa etc. in suspension but can also be used as a static incubator if required.

### Infra red sensor

Industry Standard Dual Beam Infra Red Sensor is used to maintain control of CO<sub>2</sub> density

### Pullout shaker platform

Platform of each shakers can be pulled out for loading flasks on each shakers efficiently

### Sticky mat & various holders

The orbital shakers can be used with sticky mats or dedicated flask holder trays or universal flask/tube holder plate.

### Individual shaker control

Each orbital shaker can be individually controlled by an external control panel.

### Excellent temperature control

All 6 sides are directly heated and combined with PID control to ensure that temperatures are reached quickly and uniformity is maintained. Further the system combines forced air and natural convection to maintain the best temperature uniformity at all times.

### High natural humidification

A deep and wide humidity tray allows a high and natural humidity to be generated.

### Split inner glass doors

The internal chamber is separated into three compartments each with its own shelf, shaker and glass door. This design prevents excessive loss of heat and CO<sub>2</sub> when removing flasks etc.

### Humidity display

LED display of actual humidity in the chambers informs the user of time to supplement the water in the humidity tray

### Auto restart function

Each shaker has an autostart function such that if the glass inner door to each compartment is opened the shaker in that compartment stops and starts again when the door is closed. Auto start is also enabled if there is a power cut.

### UV lamp

A UV lamp sited next to the circulation fan works to sterilize the air in the incubator even during cell culturing. The UV lamp can be turned on or off by a switch on the front panel.

### Stain resistant interior

The inner chamber and all orbital shakers are constructed with stainless steel SUS304 which is designed for use in GMP facility and is resistant to rust formation in high humidity conditions

### Anti-bacterial filter

A HEPA filter, located in post circulation fan, traps microbes and helps to maintain a sterile environment.

### Removable shelves

Larger growth vessels like 5 or 10 liter flasks can be accommodated by completely removing the shelves

## Specifications

Model	WCI-650CH	WCI-850CH
Display	LED	LED
Chamber volume	650L	850L
Temp.	Range	Ambient +5-60°C
	Accuracy	± 1°C ( at 37°C )
Shaker	Shaking motion	Orbital
	Speed range	30-200 rpm
	Speed accuracy	± 1rpm
	Speed increment	1rpm
	Orbit diameter	25mm
Humidity	Range	≥70% ( at 37°C )
	Accuracy	± 0.3% ( at 5% at 37°C )
CO <sub>2</sub>	Sensor	IR CO <sub>2</sub> sensor
	Inlet pressure	0.7-1 bar
	Time range	Continuous or up to 47h 59mins
Time	Time accuracy	± 1%
	Time increment	1min
Jacket type	Air jacket type (6 sides heating)	Air jacket type (6 sides heating)
Filter	Anti-Bacterial Hepa filter	Anti-Bacterial Hepa filter
Sterilization	U.V 4Wx1ea	U.V 4Wx1ea
Shelves	Chamber dimensions	700x650x1430mm
	Platform size	520x520mm
Dimension ( WxDxH )	Each compartment dimension	700x650x430 mm
	Compartment 2, 3 (Middle,Top):	700x650x380mm
	Overall dimensions	820x780x1740mm
	Weight	323Kg
Power	220V, 50/60Hz	393Kg
Order No.	189821	189822



## Maximum allowance for flask capacity

WCI-650CH	WCI-850CH
125mL x 156	125mL x 156
250mL x 90	250mL x 90
500mL x 60	500mL x 60
1000mL x 48	1000mL x 48
2000mL x 9	2000mL x 27

\*Optimum performance for maximum allowance can be obtained at 150rpm.

## Universal Trays

The Universal Trays employ a drilled grid for individual loadings of test tube holders, microtitre plates, and deep well plates.



Suitable for	WCI-650CH	WCI-850CH
Order No.	189433-01	189433-02
Dimensions (W x D in mm)	520x520mm	520x520mm

## Sticky Plate

The Wiggins Sticky Plate can be loaded with any kind of vessel with a smooth base. Even at a speed of up to 350 rpm the vessel sticks to the plate. Other vessels, like e.g. microtitre plates can be shaken on the Wiggins Sticky Plate as well. However, only up to a speed of 220 rpm.



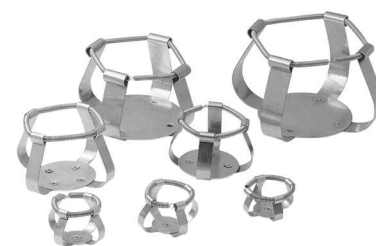
Suitable for	WCI-650CH	WCI-850CH
Order No.	189431-01	189431-02
Dimensions (W x D in mm)	520x520mm	520x520mm

## Multi-Purpose Tray

The multi-purpose tray is made of stainless steel and can be used for a diverse range of unusual specifications.



Suitable for	WCI-650CH	WCI-850CH
Order No.	189432-01	189432-02
Dimensions (W x D in mm)	520x520mm	520x520mm



## Erlenmeyer flask clamps

Size of flask	Reference No.	Order No.
25mL	31274	-
50mL	31279	23550
100mL	31271	23551
250mL	31275	23552
300mL	-	23556
500mL	31280	23553
1000mL	31272	23554
2000mL	31273	23555
2800mL Fernbach	-	23557
3000mL	31277	-
4000mL	31278	23558
5000mL	31281	-
6000mL	-	23559