



# 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 control	Speed	2-30rpm
	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 112

## 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 control	Speed	30-300 rpm
	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 112

# 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: 10 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	15 ~ 60
	Accuracy(°C )	± 0.1 (38)	± 0.1 (38)	± 0.1 (38)	± 0.1 (38)
	Stability(°C )	± 1.0 (38)	± 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	20, 30 (standard), 40
	Speed (rpm)	30 ~ 300	30 ~ 300	30 ~ 300	30 ~ 300
	Stability (rpm)	± 1 (at 150rpm)	± 1 (at 150rpm)	± 1 (at 150rpm)	± 1 (at 150rpm)
Dimensions	Platform (W × D in mm)	350 × 350	350 × 350	450 × 450	450 × 450
	Inside (W × D × H in mm)	410 × 410 × 320	410 × 410 × 320	510 × 510 × 320	510 × 510 × 320
	Outside (W × D × H in mm)	440 × 740 × 625	440 × 740 × 625	540 × 850 × 625	540 × 850 × 625
Net Weight (kg)	74	85	91	102	
Max. Load (kg)	10	10	15	15	
Order No.	23101	23112	23201	23211	

## 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.

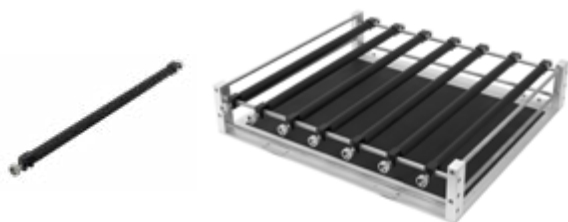
Suitable for	WS-300/300R	WS-600/600R
Order No.	31901	31902
Dimensions (W x D in mm)	350x350(mm)	450x450(mm)



### Multi-Purpose Tray

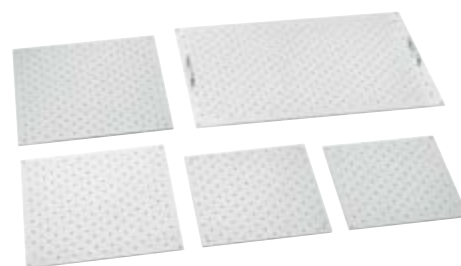
The multi-purpose tray is made of stainless steel and can be used for a diverse range of unusual specifications.

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
		820x920x1840mm
Weight	323Kg	393Kg
Power	220V, 50/60Hz	
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