Our Cell Culture range from Wheaton Science Products provides a full range of products for primary cell preparation through to large scale cell production.

We supply many different tissue grinders for primary cell preparation, a selection of which follows, if you require any other homogeniser please ask for further details.

For mono-layer anchorage dependent cell lines, there are roller systems available from bench top to full scale modular systems and software to control up over 2,000 units!

For suspension culture of cells, Celstirs® are culture flasks with a suspended stirrer. The Magnaflex® is a specially designed culture flask for micro-carrier cell lines.

Cell Culture

Tissue Grinders

Roller Apparatus

Culture Flasks

Tissue Grinders

Dounce Tissue Grinders

Designed to retain a high percentage of cell nuclei and mitochondria in soft tissues, very useful in enzyme studies. In operation, the pestle ball is encircled in liquid which avoids heat build up, which reduces friction and glass accumulation.

Procedure utilizes the loose fitting pestle first followed by the tight pestle. The mortar has large reservoir and pouring lip and is supplied with a “loose” pestle and a “tight” pestle. Wheaton 33 low extractable borosilicate glass (meets ASTM Type I Class A and USP Type I standards).

Tight Pestle “A” Specification: 0.0010" - 0.0030"

Loose Pestle “B” Specification: 0.0035" - 0.0055"

Catalogue No.	Volume	O.D. x Length	Overall Length	Qty/Case
357538	1ml	11 x 48	125mm	2
357542	7ml	13 x 82	175mm	2
357544	15ml	22 x 94	210mm	2
357546	40ml	32 x 140	285mm	2

Tenbroeck Tissue Grinders

All-glass Tenbroeck tissue grinders come with precision made interchangeable pestles and tubes. Clearance between pestle and tube is .0035-.0065" (0.09-0.16 mm). Designed for hand operation, but can be slow-speed motor driven by inserting a rubber stopper and metal rod into pestle. Hollow handle permits packing with ice. Expanded reservoir and pouring lip. For tissues such as liver, intestines, and heart. Wheaton 33® low extractable borosilicate glass (meets ASTM Type I Class A and USP Type I standards).

Catalogue No.	Volume	O.D. x Length	Overall Length	Qty/Case
357421	1ml	11 x 48	140mm	2
357422	2ml	11 x 50	140mm	2
357424	7ml	16 x 82	190mm	2
357426	15ml	22 x 94	250mm	2
357428	40ml	32 x 140	320mm	2

Potter-Elvehjem Safe-Grind®
Plastic Coated Tissue Grinders

Plastic Coated With Teflon® Pestles – Also available without plastic coating or with Radial Serrations

Wheaton Safe-Grind plastic coated tissue grinders afford an added measure of safety over uncoated glass tissue grinders. The heavy plastisol coating tends to protect the mortar from becoming scratched or checked, and provides the user with a sure grip. More importantly, the plastic coating creates a greater safety factor in the event the mortar cracks or breaks during power homogenization. The transparent coating allows an unobstructed view of the homogenate during grinding. Wheaton Safe-Grind tissue grinders are fully autoclavable. Grinding chamber clearance is .004" to .006" (0.1 to 0.15 mm). Diameter of stainless steel shaft is 0.25" (6.3 mm).

Catalogue No.	Volume	O.D. x Length	Overall Length	Qty/Case
358003	2ml	11 x 45	203mm	2
358005	5ml	13 x 66	219mm	2
358007	10ml	16 x 74	219mm	2
358009	15ml	19 x 84	219mm	2
358011	30ml	24 x 118	266mm	2
358013	55ml	30 x 130	266mm	2

Micro Tissue Grinders & Kit

Wheaton supply a range of Micro Tissue Grinders which are also available in a kit. The selection of Micro Tissue Grinders are conveniently packed in a lightweight protective carrying case. Kit provides a choice of tissue grinders when various types of tissues are to be ground. The 0.5 ml micro tissue grinder with screw cap can be used for tissue grinding as well as for additional procedures. This tissue grinder chamber can be safely joined with another threaded glass component, if needed, using the Wheaton Connection®.

Catalogue No.	Description	Quantity in Kit	Qty/Case
358204	Complete Kit	1	1
357421	1ml Tenbroeck Tissue Grinder	1	2
357535	0.5ml Tissue Grinder, 13-425 cap	1	2
357538	1ml Dounce Tissue Grinder	1	2
357844	0.1ml Tissue Grinder	1	2
357848	0.2ml Tissue Grinder	1	2
358029	2ml Potter-Elvehjem Tissue Grinder	1	2
358133	1ml Tapered Tissue Grinder	1	1

Roller Culture Apparatus

Wheaton Science Products' Roller Apparatus allows the user to easily scale up anchorage dependent cell lines from standard plastic flasks. Benefits of the Roller Bottles are the increased surface area, gentle to medium agitation, and improved gas exchange when cells are rotated out of the medium.

** For different power requirements - other models are available*

Bench Top Roller Culture Apparatus

Conventional type roller culture equipment designed to roll vessels 108 to 121mm in diameter and up to 290mm long. Two outside rollers can be moved inward to accommodate bottles as small as 75mm in diameter. Vessels ride on specially formulated black rubber rollers, 2 vessels per deck. Supplied without vessels. Each unit can take up to two deck kits.

Technical Data

Electrical Requirements: 220-240 VAC, 50/60 Hz, 10 VA*

Bottle Speed: 0.1 to 3.8 rpm (based on 110mm bottle)

Catalogue No.	Description/Dimension	Weight
348926-D	Single deck unit for 2 Bottles 320 x 325 x 180 mm	8 kg

For smaller scales a Mini Roller Unit is available - please ask for further details.

Deck Kit

Attaches quickly and easily to Wheaton 348926-D Bench Top Roller Culture Apparatus. The 348926-D will accept two additional decks. Kit consists of assembled roller deck for 2 bottles, 4 support posts, drive belt, necessary hardware and assembly instructions.
Pack size: 1 deck

Catalogue No. **348930**

R_2P^{TM} Roller Culture Apparatus
For all your needs from Research to Production

The versatile design allows for growth and requirement changes without having to re-validate new equipment

- All-position drive as standard
- Modular, add capacity and options as your requirements change
- From 5 to 55 positions per unit (holds 10 to 110 of the 850 cm^2 vessels)
- Displays accurate RPM by entering vessel diameter
- Wide speed range brush-less DC motor, 0.25 to 8.75 RPM
- Built in Rotation Alarm (Visual & audible, with external jack)
- Programmable rotation direction, fixed or reversing
- Programmable soft start and stop
- 10 program storage registers
- Conforms to UL, CSA, and CE Laboratory Standards
- Optional temperature monitoring, 1 to 4 sensors per unit (Cat no.W348890)
- Optional battery backup, complete functionality for up to 18 hours (Cat no.W348898)
- $CART_2$ ready! Optional computer software for monitoring, controlling and recording up to 2,047 units (Cat no. 348902-D)

Specifications:

Glass or plastic bottles:
110 to 121mm in diameter
and up to 550mm long.

Bottle speed*: 0.25 to 8.75 RPM
(based on 110mm Diameter Bottles)

Accuracy: ± 0.01 RPM

Built in Drive Monitoring System Alarms

Visual: Flashing display with fault displayed

Audible: Buzzer (with On/Off control)

External output: NO or NC (programmable) dry contact (0.5@ 24 VDC) through RJ45 jack on the control housing front panel

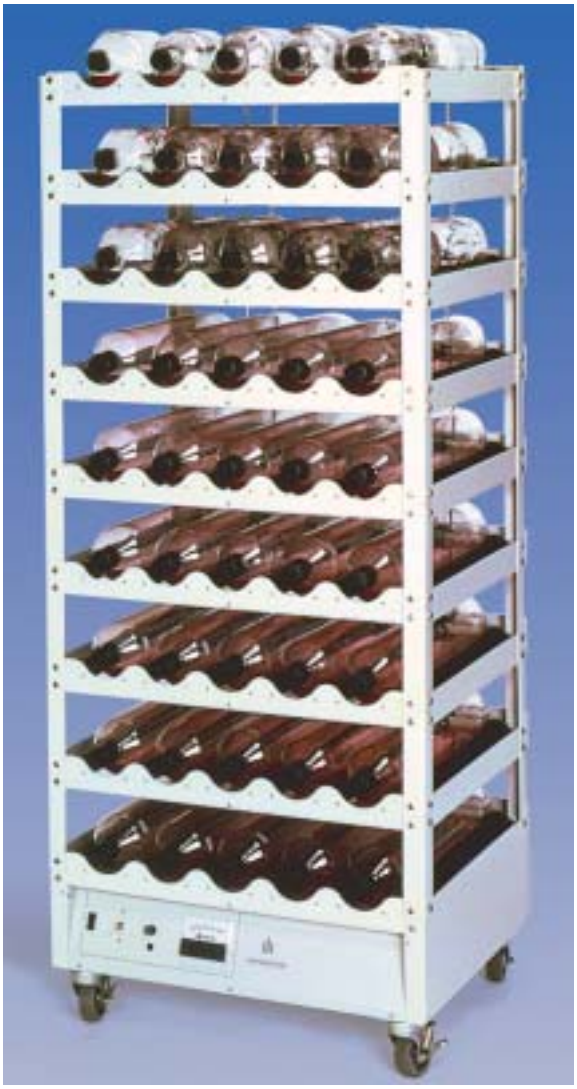
Electrical requirements:
220-240VAC 50/60Hz, 35 watts

Weight: drive unit with one deck is 53 lbs; each additional deck is 16 ½ lbs

Dimensions: drive unit with one deck:
31"Wx24 ½"Dx13 ½"H
(78.7 x 62.2 x 34.3cm)
Each additional deck add 6" (15.24cm)

*Other speed ranges available, contact us for details.

Catalogue No.	Description
W348880-D	Drive Unit With 1 Deck
W348881-D	Drive Unit With 3 Decks
W348882-D	Drive Unit With 11 Decks
W348888	R2P 5 position deck factory installed
W348889	R2P 5 position deck for field installation



Modular Cell Production Roller Apparatus

With All-Position Drive

The Wheaton Modular Cell Production Roller Culture Apparatus provides the ultimate in system flexibility for scale-up and production of mono-layer cell cultures in standard roller bottles. The system consists of a base drive unit and 5-position roller deck to which additional roller decks can be added.

A powerful DC motor with soft-start speed control drives the bottles through a series of durable nonslip belts.

Accepts bottles from 108mm to 121mm in diameter and up to 550mm in length.

Standard bottle speed ranges are 0.25 to 5.3 rpm.

- From one to nine deck configurations provide up to 75,000cm^2 total surface area for cell growth.
- Grease-less integrated bearing holders prevent leaching and eliminate bearing seizures.
- Optional alarm and battery backup systems available.
- Safety features include a speed control lock to prevent accidental change in rotation rates, optional rotation alarm with flashing LED & buzzer and an optional battery backup system.

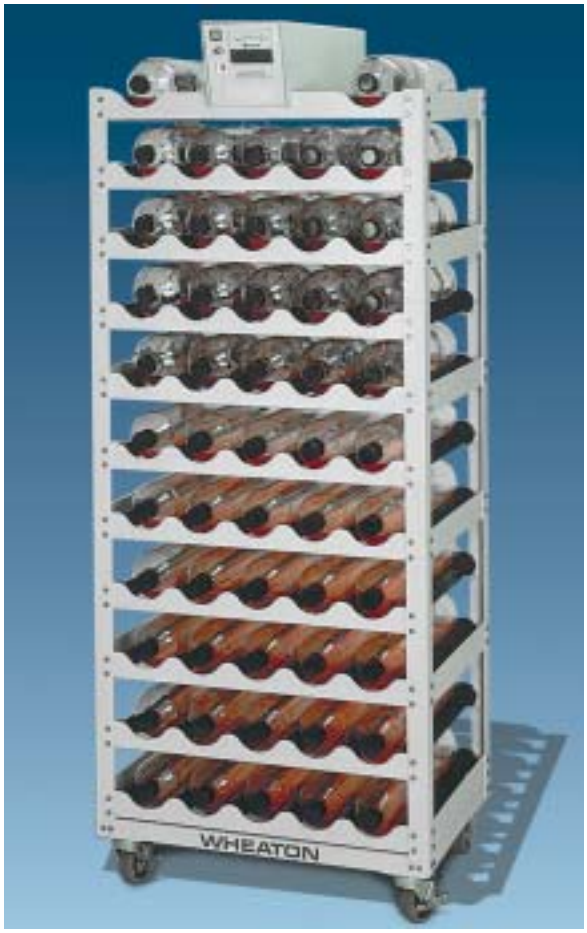
Catalogue No.	Description	Bottle Positions	W x D x H in mm	Weight in kg
348970-D	Base unit with 1 deck	5	760 x 630 x 345	35
348971-D	Base unit with 2 decks	10	760 x 630 x 526	45
348972-D	Base unit with 3 decks	15	760 x 630 x 707	55
348973-D	Base unit with 4 decks	20	760 x 630 x 888	65
348974-D	Base unit with 5 decks	25	760 x 630 x 1069	75
348975-D	Base unit with 6 decks	30	760 x 630 x 1250	85
348976-D	Base unit with 7 decks	35	760 x 630 x 1431	95
348977-D	Base unit with 8 decks	40	760 x 630 x 1612	105
348978-D	Base unit with 9 decks	45	760 x 630 x 1793	115

All units are wired for 240 VAC - other power requirements available.

Accessories

Catalogue No.	Description	Qty
348969	5 position deck, 760mm x 630mm x 181mm (wxdxh), 10kg weight	1
349011	Factory Installed Rotation Alarm System (order with system)	1
349014	Field Retro-fit Rotation Alarm System (for you to install on site)	1
349017	Factory Installed Battery Back Up System (order with system)	1
349018	Field Retro-fit Battery Back Up System (for you to install on site)	1

Cost Buster
High Volume Production Roller Apparatus



This apparatus provides the maximum amount of potential cell culture growth available in the smallest amount of space. The controls and drive units are located on top of the unit, providing easy access for maintenance. The open frame design allows better air flow which minimizes top-to-bottom temperature gradients.

Wheaton Cost Busters accommodate roller bottles from 112 to 121mm in diameter and up to 550mm in length. Each roller is driven by nonslip belts and pulleys for positive traction - important for use with lightweight plastic bottles.

- Maximum production capacity in a minimum amount of space
- Optional CART® System available to computer-monitor and control up to 255 units
- Soft start minimizes cell disruption
- Custom designed bearings to eliminate bearing seizures
- Drive units mounted on top to provide easy access for maintenance and better air flow

Technical Data

Electrical Requirements: 220-240 VAC, 50/60 Hz, 50 VA

Bottle Speed: 0.25 to 5.3 rpm

Catalogue No.	Description	Width x Depth x Height in mm	Bottle Capacity *	Weight in kg
349005	52 Position	790 x 620 x 1900	104	113
348995	86 Position	1190 x 620 x 1900	172	159

***** Based on standard plastic roller bottle with surface area of 850 cm^2

CART® Computer Aided Roller Technology

The Wheaton CART System is designed to precisely control the rotational speed of up to 255 cell production roller units, while monitoring each individual unit for rotation, speed deviation and communication. Records all roller apparatus activity e.g. speed setting changes, units in and out of process. Includes automatic report generation for product validation. GMP & FDA validation.

Please ask for further details and necessary requirements.

Roll-In Incubator

The Wheaton Roll-In incubator is a convenient, space-saving and economical alternative to a warm room for small production runs. Designed to hold full size units, it can be used in combination with the optional shelves to provide space for spinner flasks, rocker tables, etc. The double walled construction provides for temperature stability and easy cleaning. With viewing window and four internal electrical outlets for accessories. Fits R2P with up to 11 decks, the Modular with up to 9 decks and the 52 position Cost Buster.

Specifications:

Heat:		Forced air circulation with digital temperature control
Temperature Range:		Ambient +5 to 70°C
Temperature Uniformity:		to 0.5°C
Electrical Requirements:		100-120 VAC, 60 Hz, 1500 watts
Dimensions:	(Interior)	88.9 x 66 x 193cm
	(Exterior)	104.1 x 85.1 x 221 cm
Weight:		730 lbs (330kg).

CO_2 Incubator also available – please ask for details

Catalogue No.	Description	Qty
753684-D	Roll-In Incubator	1

Glass Roller Culture Vessels

With caps

Vessels are made to exacting tolerances to provide higher cell yields. Glass is specially selected for optical clarity, interior surface smoothness and absence of glass imperfections. Neck area is tapered to facilitate cleaning. Glass wall thickness is 2.6 mm.

Vessels and deep-skirted 38-415 screw caps can be autoclaved. Caps have white styrene-butadiene rubber liner. Nominal neck ID is 29 mm.

Wheaton 33 low extractable borosilicate glass (meets ASTM Type I Class A and USP Type I standards).

Catalogue No.	Dia x Overall Length mm	Usable Surface Area	Surface Area cm^2	Approx Capacity	Pk
348252	110 x 240	550cm^2	680	1380ml	4
348253	110 x 285	700cm^2	840	1760ml	4
348254	110 x 370	940cm^2	1070	2500ml	4
348256	110 x 480	1320cm^2	1500	3450ml	4
348258	110 x 550	1555cm^2	1680	4230ml	4

Suspension Cultures

Double Sidearm Celstir®

With Teflon® Lined Caps

The Wheaton Celstir® features an adjustable blade impeller for greater turbulence that does not protrude through the top cap, thereby maximizing incubator space. The addition of the bottom dimple prevents the crushing of cells beneath the magnetic impeller and improves circulation. Units greater than 500ml have 45mm sidearms for use as an air vent, media inlet/outlet, inoculation port, pH probe, etc.

The unit consists of glass flask, Teflon® and glass impeller assembly, and silicone rubber lined top cap. Designed for use with low speed magnetic stirrers. Entire unit may be autoclaved.

Catalogue No.	Working Volume	Dia x Hgt mm	Screw Cap Size, Top	Sidearm Size	Qty
356873	25ml	38 x 122	38-430	15-415	1
356875	50ml	38 x 141	38-430	15-415	1
356876	125ml	65 x 155	51-400	33-430	1
356879	250ml	85 x 175	51-400	33-430	1
356882	500ml	110 x 190	100-400	45mm	1
356884	1000ml	130 x 250	100-400	45mm	1
356887	3000ml	178 x 341	100-400	45mm	1
356889	6000ml	258 x 445	100-400	45mm	1
356890	8000ml	293 x 445	100-400	45mm	1

Jacketed Double Sidearm Celstir®

With Teflon® Lined Caps

Double Sidearm Celstir® complete with water jacket allows precise temperature control of Celstir contents when operated with a recirculating water bath.

Catalogue No.	Working Volume	Dia x Hgt mm	Screw Cap Size, Top	Sidearm Size	Qty
356943	25ml	54 x 134	38-430	15-415	1
356945	50ml	54 x 147	38-430	15-415	1
356946	125ml	78 x 162	51-400	33-430	1
356949	250ml	100 x 182	51-400	33-430	1
356952	500ml	130 x 195	100-400	45mm	1
356954	1000ml	150 x 260	100-400	45mm	1

Magna-Flex®
Micro-carrier Spinner Flasks

The Wheaton Magna-Flex® Spinner Flasks feature a flex type, bulb-shaped glass impeller which rotates from a fixed position above liquid level around an indentation in the base of the flask. Primarily designed for use with micro-carrier cultures, this unique stirring system increases stirring efficiency and provides a gentle, even circulation throughout the flask while keeping the beads in suspension.

Wheaton Magna Flex flasks are available in sizes ranging from 125 to 8000 ml and are fully autoclavable. The flasks are borosilicate glass and have two large sidearms with screw cap closures for easy sampling. Units 500 ml and larger have 45 mm sidearms which can be used as an air vent, media inlet or outlet, inoculation port, pH probe inlet, etc. All flasks have been proportioned to provide a headspace ratio of 1:1 or greater. A removable stainless steel pin immobilizes the impeller during handling or decanting to prevent damage to cells or micro-carriers. Sizes 125 to 1000 ml are graduated in 50 ml increments; sizes 3000 to 8000 ml are graduated in 500 ml increments.

Catalogue No.	Working Volume	Dia x Hgt mm	Screw Cap Size, Top	Sidearm Size	Qty
356830	125ml	65 x 155	51-400	33-430	1
356831	250ml	85 x 175	51-400	33-430	1
356832	500ml	110 x 190	100-400	45mm	1
356834	1000ml	130 x 250	100-400	45mm	1
356837	3000ml	178 x 341	100-400	45mm	1
356839	6000ml	258 x 404	100-400	45mm	1
356840	8000ml	293 x 445	100-400	45mm	1

Micro-Stir® Slow Speed Magnetic Stirrer

The Wheaton Micro-Stir® Slow Speed Magnetic Stirrer is especially designed for micro-carrier applications requiring exceptionally slow speeds (5 to 100 rpm), gentle mixing, and low heat transfer. Once stirring speed has been selected, the unit will gradually increase speed to set point. Speed is increased and decreased in a controlled manner.

The gradual stop rotation facilitates bead and cell attachment by allowing cells to settle then attach and to draw off spent media and replenish. A brush-less stepper motor provides low maintenance operation and precise speed control.

May be used in a CO_2 incubator, however, low to no humidity is recommended.

Catalogue No.	Description
902405-D	230 VAC Micro-Stir®