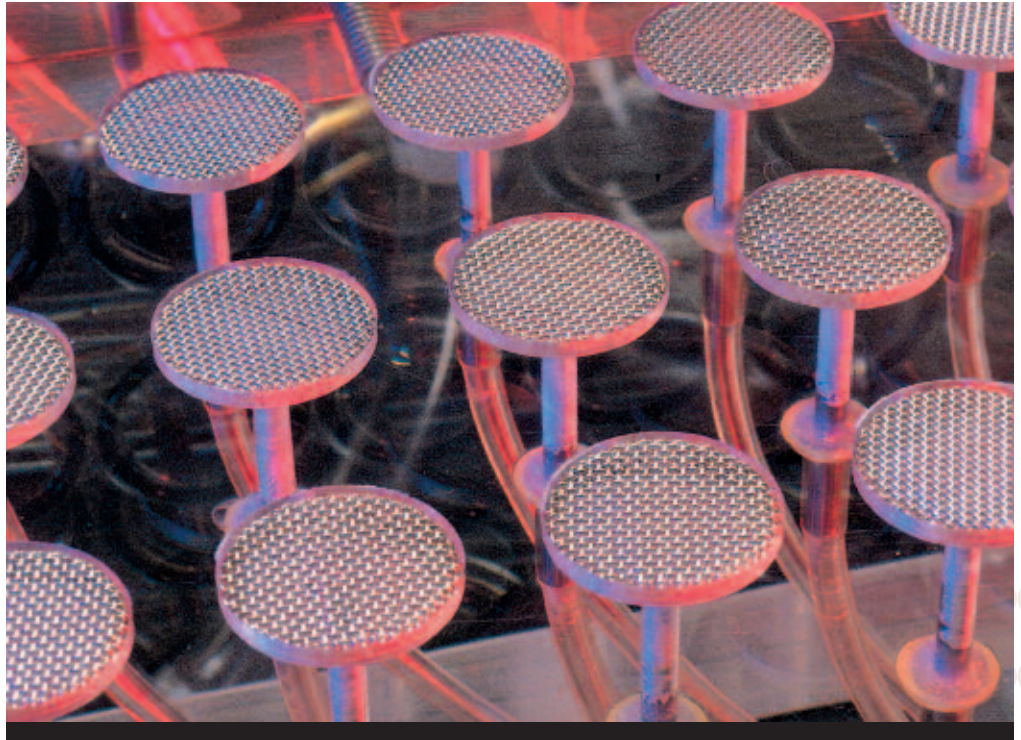


# HARVESTING SYSTEMS

FOR LIQUID SCINTILLATION COUNTERS

- Harvesters
- Auto Deposit/Dispensers
- Manual Deposit
- Generic Rack Formats
- Counter Rack Formats
- Accessories



**BRANDEL**

# CLEARLY SUPERIOR

## BRANDEL ADVANTAGE

After more than years of ongoing refinement, Brandel Harvesters are quite simply the best in the world. Their proven design, operating efficiency, and unmatched versatility offer production savings that quickly offset any differences in purchase price – and given their reputation for reliability, you'll enjoy those savings for years to come.

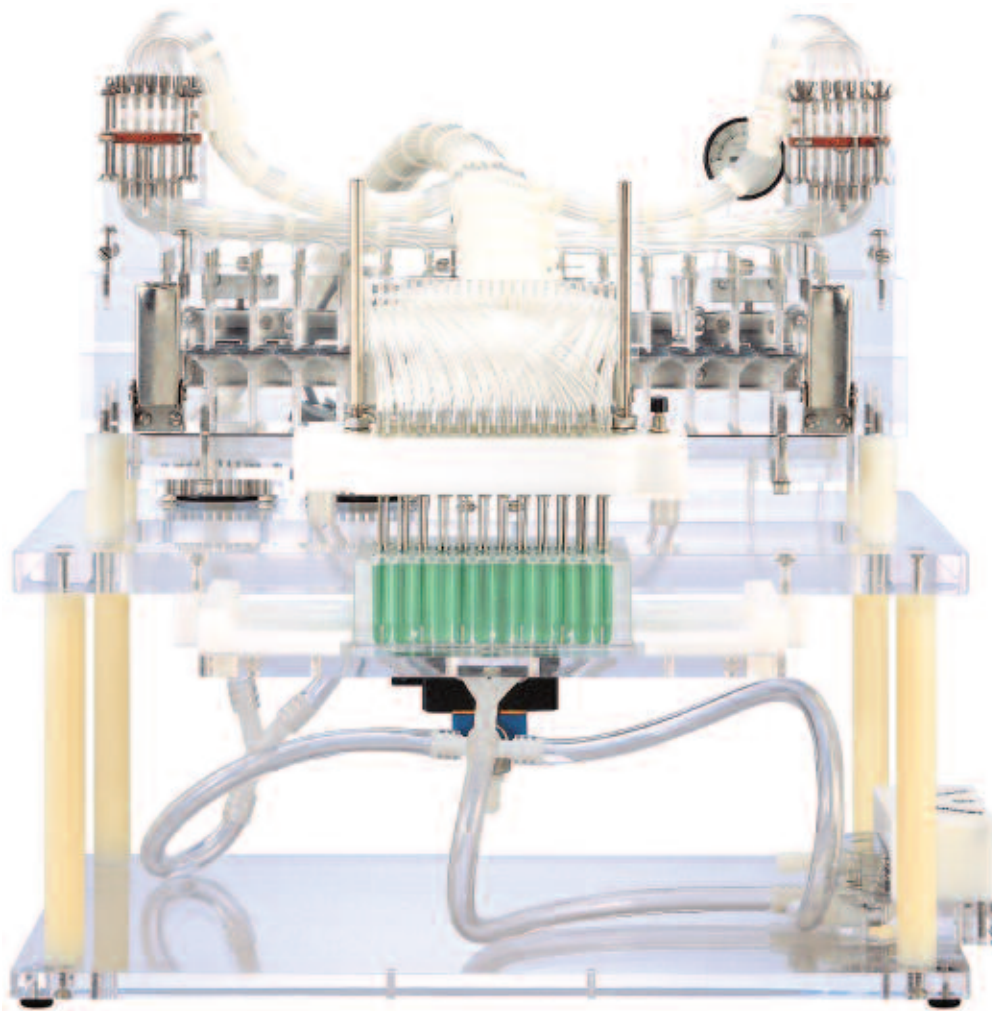
## WHAT MAKES A BRANDEL SUPERIOR?

Brandel offers the only **teflon-tubed** harvesters on the market, designed to minimize adhesion of "sticky" substances to the insides of your aspiration tubing. Standard on the 96 and optional on all others, teflon tubing provides the lowest Cv of any harvester and reduces internal build-up of any substance over time.

Unlike gravity-feed systems, Brandel harvesters employ a **wash media pump** to provide immediate and more uniform washing of wells, and the adjustable flow rate helps ensure you won't overflow your wells with buffer solution.

**Interchangeable Harvesting Probes** enable you to harvest from a variety of well plates and/or test tubes – permitting one harvester to do the work of several. A variety of **models, options and accessories** allow you to order a harvester to suit your particular workflow.

Even the distinctive look of a Brandel has been thought through. The **lucite construction** is non-corrosive and the **open design** allows you to monitor its operation. For further evidence of why a Brandel harvester is clearly superior, see the features and specifications.



# SEMI-AUTOMATED HARVESTING SYSTEMS FOR LIQUID SCINTILLATION COUNTERS

## DECIDING WHICH SYSTEM IS RIGHT FOR YOU

Harvesters for use with liquid scintillation and gamma counters are available in a variety of models, determined by the number of samples harvested at once, and the spacing of harvested samples on the filter sheet.

Before selecting a harvester, however, we recommend you consider our matching **Auto Deposit/Dispensing Systems** since your choice of these can influence your choice of harvesters. Deposit/Dispensing systems offer an efficient alternative to the time consuming tasks of removing scored filter discs, depositing the discs into vials, and dispensing cocktail into vials by hand.



By performing each step to all your samples and vials at once, the deposit/dispensers can complete these tasks in about 90 seconds.

For those who wish to deposit filter discs without dispensing cocktail, we offer the **Manual Deposit Systems**.

## TWO BASIC FORMATS

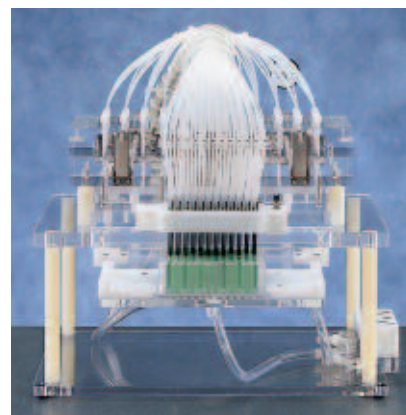
Harvesters and their corresponding Deposit/Dispensing Systems are of two basic types – Generic Format and Counter Format – each with its own advantages. Harvesters are shown below and formats are illustrated in the diagrams at right.

## MODELS & FORMATS

### GENERIC RACK SYSTEMS

Generic format harvesters feature a filter grid that matches the vial spacing of Brandel's generic vial racks. Filter paper from the harvester can be transferred to a matching Deposit/Dispenser, which deposits and/or dispenses into vials loaded in a generic vial rack.

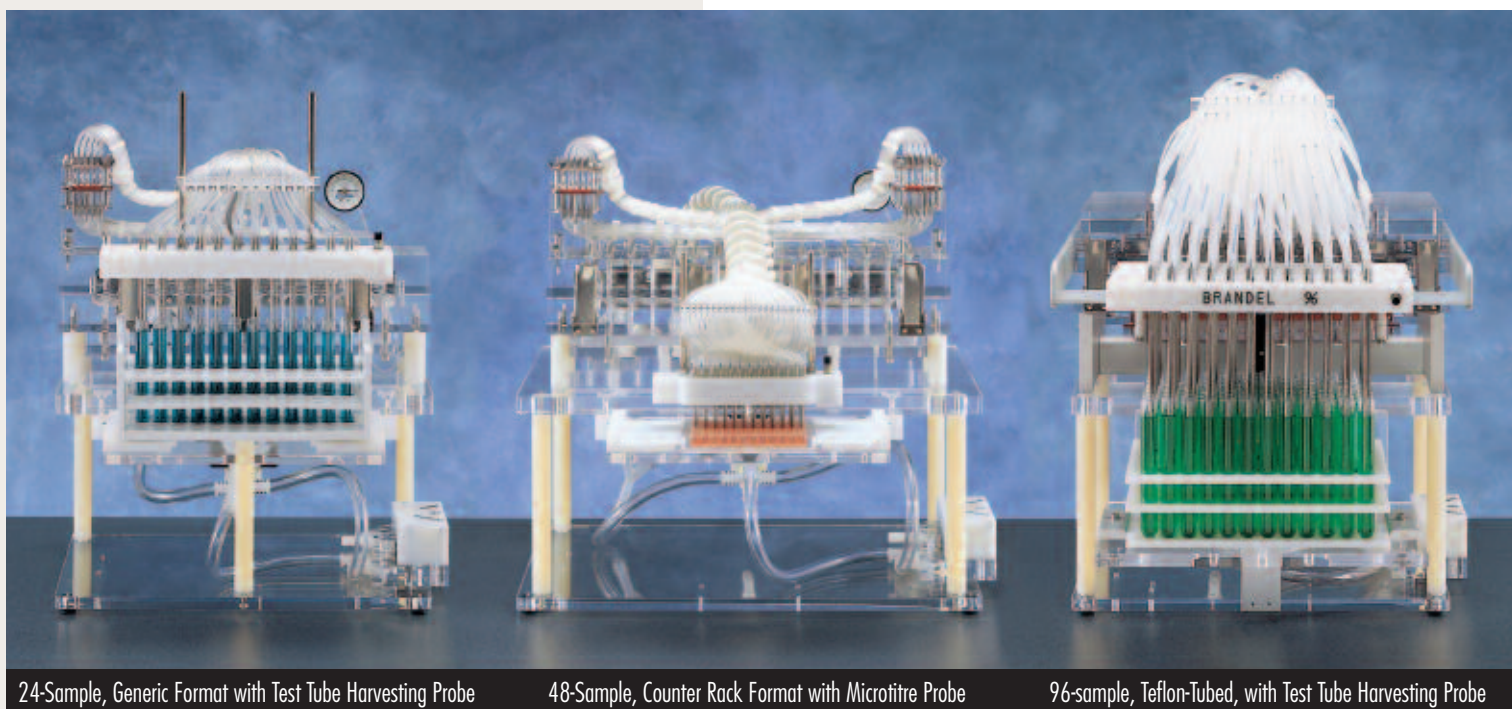
The advantage of the generic systems is that, like a microtitre plate or test tube rack, they work with rows of 12, maintaining one-to-one correspondence of your samples.



### COUNTER RACK SYSTEMS

With these models, the spacing of harvested samples on your filter paper matches the vial spacing in your particular scintillation racks. As a result, filter paper from the harvester can be transferred to a corresponding deposit/dispense system, which deposit discs and dispense cocktail directly into vials held in your counter racks.



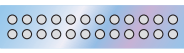

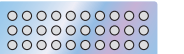



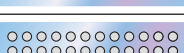





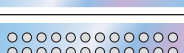
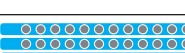
The primary advantage of these systems is that, after depositing and dispensing, there's no need to transfer vials from a generic rack into your counter's racks (see diagram). In order to maximize the number of vials in your counter rack, these systems are based on rows of 16.



24-Sample, Generic Format with Test Tube Harvesting Probe

48-Sample, Counter Rack Format with Microtitre Probe

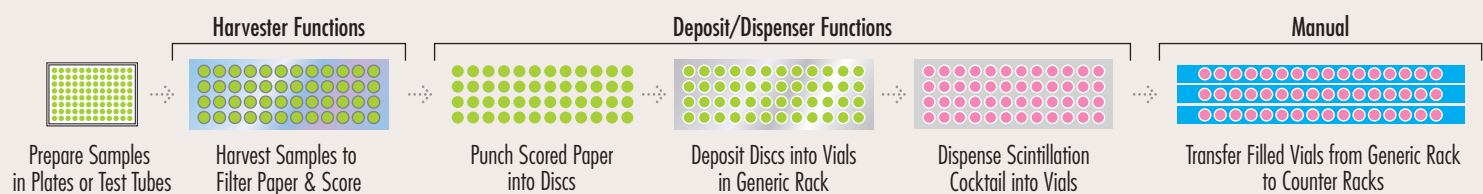
96-sample, Teflon-Tubed, with Test Tube Harvesting Probe

HARVESTING SYSTEMS	FILTER FROM...	FILTER TO...		HARVESTER MODELS	AUTO DEPOSIT/DISPENSER	MANUAL DEPOSIT	
<b>GENERIC RACK SYSTEMS</b>							
12-Sample Systems			5-7 ml vials	M-12, M-12T, M-12TI			
24-Sample Systems			5-7 ml vials	M-24, M-24T, M-24TI	SD-24	MD-24	
30-Sample Systems			20 ml vials	M-30, M-30T, M-30TI	SD-30	MD-30	
36-Sample Systems			5-7 ml vials	M-36, M-36T, M-36TI	SD-36	MD-36	
48-Sample Systems			5-7 ml vials	M-48, M-48T, M-48TI	SD-48	MD-48	
96-Sample Systems			5-7 ml vials	M-96T	SD-96	MD-96	
			Substitute the code corresponding to your counter for the asterisk in order numbers (see footnote)				
48-Sample Systems			5-7 ml vials	M*-48, M*-48T, M*-48TI	*K-48	*D-48	
96-Sample Systems			5-7 ml vials	M*-96T	*K-96	*D-96	
				Counter Codes	B Beckman	L Perkin-Elmer	P Packard

### Counter Rack Systems Workflow



### Generic Format Workflow



## ORDERING YOUR HARVESTING SYSTEM

### Choose between Generic or Counter Rack Formats

#### Harvesters

- Choose number of samples you wish to harvest at once
- Consider optional teflon-tubing (standard on 96)
- Specify a harvesting probe (one included):

microtitre/mini-tube or test tube (others on request)

- Specify an additional, interchangeable probe if desired
- If you do not have a suitable vacuum source, specify a Brandel vacuum pump to maximize your harvester's performance.
- Specify any accessories you wish to order.

### Deposit/Dispensing and Manual Deposit Systems

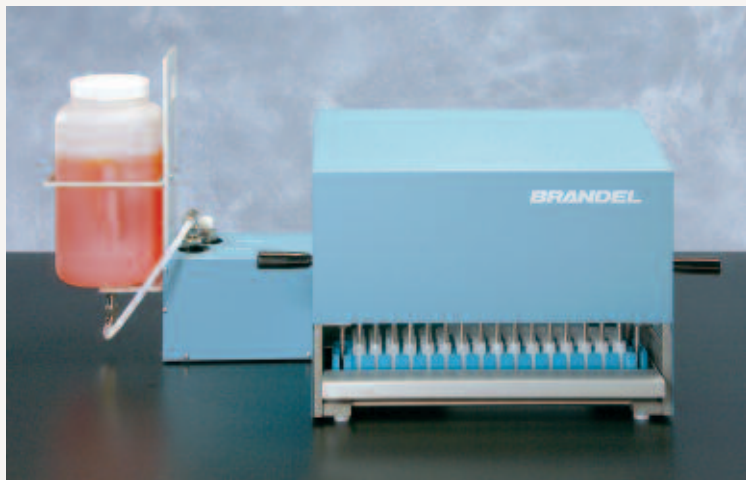
- For Generic Format systems, please specify the diameter and height of your vial or tube. One dispensing rack is included, but you may wish to order additional racks.
- For Counter Rack systems, please specify the manufacturer of your counter

# DEPOSIT/DISPENSING SYSTEMS

## AUTOMATIC DEPOSIT/DISPENSING SYSTEMS

Automatic Deposit & Dispensing Systems accept filter paper sheets from your Harvester, punch the paper into discs, deposit discs into scintillation vials, and dispense cocktail to all vials at once. Elapsed time? Less than two minutes.

Equal amounts of cocktail are delivered to each and every vial for reliable results when counting, and the amount can be adjusted according to your needs.



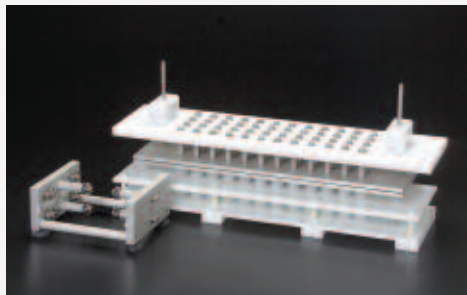
Automatic Dispensers and Deposit/Dispensers are available for most every Harvester we build, in two basic formats:

- Standard Format models work with Standard Format Harvesters, and dispense into vials loaded in generic racks
- Counter Rack models work with Counter Format Harvesters, and dispense into vials loaded in your specific counter's racks (LKB/Wallac/Perkin-Elmer, Beckman, Packard)

Standard features include a floor-mounted pump station and an Automatic Timer for regulating fluid flow. For a list of models and corresponding harvesters, please refer to the diagrams at left.

## MANUAL DEPOSIT SYSTEMS

Manual Deposit Systems offer an affordable method of depositing filter discs into scintillation vials or tubes without dispensing fluid. Models are available for use with all harvesters except the 12-sample model, in generic or counter rack formats.



# HARVESTER ACCESSORIES



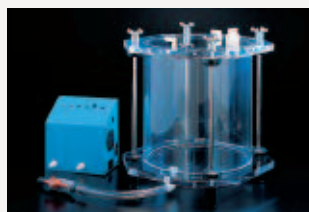
## PROGRAMMABLE CONTROLLER

Automates all aspiration and wash functions, including separation of hot/cold filtrates. Internal memory stores up to 10 programs of 256 lines each.



## VACUUM PUMPS

A variety of oil and oilless pumps selected to match your specific harvester and maximize its performance. For 110V and 220V harvesters.



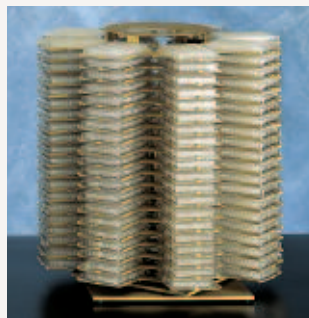
## LARGE RESERVOIR, AUTO-DRAIN

Models with auto-Drain include filtrate pump and level sensors for automatic waste disposal. Reservoirs w/o Auto-Drain use manual valve. Available for 12 and 18 litres.



## PLATE SEALERS

Cap Mat Sealer and Foil Sealer (shown) seal plates in seconds. Compatible with most chemicals including DMSO. RS-232 models available for robotic workstations.



## HI-CAPACITY PLATE CAROUSEL

With rotational indexing, programmable operation and a two-way communication interface, the Carousel is compatible with most robotic arms — and the perfect complement to your fully- or semi-automated Harvester. 160-plate capacity.



## WHATMAN FILTER PAPERS

Brandel carries pre-cut filter paper strips to match your harvester, keyed for positive alignment with deposit/dispensing systems.

Whatman glass fibre filter papers offer the ultimate in quality and reproducibility, and are recognized as the industry standard for receptor binding, lymphocyte studies, and other harvesting applications. Whatman papers are produced from 100% borosilicate glass without the use of any adhesive or binder.

## OTHER ACCESSORIES

- Automatic Wash Timer, for consistent wash timing with electronic precision
- Manual Hot/Cold Valve, provides manual control of hot/cold filtrate separation
- 220 Volt Conversion

## SEMI-AUTOMATED HARVESTERS

- Harvests 12 to 96 samples simultaneously, in about 30 seconds
- Harvests from most any well plate or test tube configuration
- Ability to interchange harvesting probes for harvesting from various types of vessels. Probes can be changed, without tools, in about 60 seconds
- All harvesters can be upgraded to microprocessor-controlled programmed operation at any time
- Low voltage control system (24V)
- Choice of 110 or 220V models
- Vacuum Gauge indicates when vacuum is sufficient
- Flow adjustment for each individual well
- Wash Media Pump with adjustable flow rate provides immediate and uniform washing of wells
- Non-corrosive, Teflon-lined solenoid ensures positive wash control at your fingertips
- Self-priming Wash Manifold removes air bubbles from the system and ensures a uniform volume of wash solution will be delivered to each and every well
- Harvesters use filter paper strips rather than significantly more costly individual filter discs
- Automatically scores filter paper/membrane strips into discs for easy removal. Degree of scoring is adjustable.
- Reservoir for common collection of filtrate
- On/Off Vacuum Valve puts control of vacuum at the harvester, and permits purging of wash lines
- Harvesting Tray holds test tube rack or well plate at eye level—folds out of the way when not in use
- Removable stainless steel filter screens
- Your choice of one Interchangeable Harvesting Probe — additional probes available
- Test tube rack for 10-13 or 14-16ml test tubes (Test Tube Probes only)
- Locator pins for easy alignment of filter paper and positive sample identification
- Non-corrosive, polished acrylic resists damage from harsh substances and allows full view of operations
- Full factory support for information, filter paper, membranes, parts, supplies & upgrades
- Compatible with Brandel Automatic Deposit and Dispensing Systems, and Manual Deposit Systems
- Harvesters are tested & calibrated before shipment
- Harvesters are shipped complete, with all necessary tubing, fittings and box of filter paper or membranes.
- Simply connect to your vacuum source or one of our optional vacuum pumps.
- One year parts & labor warranty

## AUTO DEPOSIT/DISPENSERS

- Deposits filter discs and dispenses cocktail to all vials, tubes or plates in less than 1 minute
- Adjustable volume of fluid delivered
- Counter-Compatible models available for use with your specific scintillation counter racks
- Filter paper “keyed” for sample identification
- Table-top Deposit & Dispenser
- Floor-mounted Dispensing Pump
- Automatic Timer
- Scintillation fluid reservoir
- Foot Switch
- Self-priming delivery manifold(s)
- Teflon delivery tubing
- Paper tray assembly for aligning paper with vials or tubes in rack
- Paper tray carriage assembly for positive cutting of discs
- Rack to hold scintillation vials, tubes, plates or scintillation counter racks, depending upon model
- Can be used with different sized vials or tubes (some limitations apply)
- Choice of 110 or 220V models
- One year parts & labor warranty

## MANUAL DEPOSIT SYSTEMS

- Deposits filter discs into all vials, tubes or plates in less than 1 minute
- Counter-Compatible models available for use with your specific scintillation counter racks
- Filter paper “keyed” for sample identification
- Table-top Deposit unit
- Paper tray assembly for aligning paper with vials or tubes in rack
- Paper tray carriage for cutting discs
- Rack for scintillation vials, tubes, plates or counter racks, depending upon model
- Can be used with different sized vials or tubes (some limitations apply)
- One year parts & labor warranty

## PROGRAMMABLE CONTROLLER

- Automates all aspiration and wash functions including separation of hot/cold filtrates
- Stores up to 10 programs of 256 lines each
- One sample program included
- RS-232 Interface for use with automated systems
- Full factory support for technical assistance

- Choice of 110 or 220V models
- One-year parts & labor warranty

## AUTOMATIC WASH TIMER

- Enables consistent wash times no matter what the number of samples
- Three modes of operation; Untimed, Timed & Elapsed
  - Untimed Mode delivers wash or buffer solutions while the switch on the harvest head is depressed.
  - Timed Mode causes solutions to flow continuously for 0 to 99 seconds as defined by the user.
  - In Elapsed Mode, 0 to 99 seconds of wash can be selected, but time-out occurs only when the wash switch is depressed.
- Easy to set up and use
- Choice of 110 or 220V models
- One-year parts & labor warranty

## MICRO DISPENSERS

- Models for dispensing either cocktail or buffers
- Adjustable, repeatable volumes
- Self-priming delivery manifold
- Teflon delivery tubing
- Remote Programmable Controller, featuring:
  - Keypad, with memory for 10 programs of up to 256 lines each
  - Digital speed control
  - RS-232 interface & software for host computer
  - Forward & reverse pump directions
- Choice of 110 or 220V models
- One-year parts & labor warranty

## PLATE SEALERS

- Two models available: Cap Mat Sealer or Foil Sealer
- Accommodates most plate configurations and heights
- Compatible with most chemicals (including DMSO)
- Fully electrical — more reliable than air-operated systems
- Models with RS-232 interface for robotic workstations
- Choice of 110 or 220V models
- One-year parts & labor warranty

# BRANDEL