

Versafill



- ACCURATE:**
- Repeat accuracy of better than $\pm 1\%$
 - No time dependent drift
 - No hanging drops
 - Volume ranges from 3 μ L and up
- FAST:**
- Microplates - 300 to over 2000 plates per hour depending on number of pump channels
 - Other containers - thousands of dispenses per hour per pump channel
- VERSATILE:**
- Process microplates, tubes, vials, test strips, membranes, glass slides, and many others
 - Dispense simple or complex filling patterns with single or multiple solutions
 - Operate in clean rooms or under hoods

Versafill Dispensing System

The **Versafill Dispensing System** has been successfully used since 1979 to manufacture biomedical products such as RIA and EIA diagnostic test kits. The gentle sinusoidal pumping motion is ideal for dispensing biological products such as protein solutions, latex solutions, or delicate cell suspensions.

The proven accuracy and dependability of positive displacement metering pumps are combined with solid-state controls and stepping motors for cost effectiveness and high reliability. The **Versafill Dispensing System** utilizes the most advanced technology. A microprocessor controls all functions - plate sensing, indexing and speed of the conveyor and pumps. Minimal operator skill is required to achieve high quality results.

The **Versafill Dispensing System** is a multiuse system. Conveyors can be configured for coating or filling microplates, small tubes, and vials or spotting membranes, test strips, cards, and slides. The control logic also provides for special filling patterns.

The **Versafill Dispensing System** is not subject to time dependent drift like roller tubing or pinch valve type dispensers. The valve-less positive displacement pumps utilize ceramic and fluorocarbon materials for virtually inert fluid paths. Completely nonmetal fluid paths can be provided. The pumps can be steam or chemically sterilized. The dispense volume of each pump is independently adjustable. The same or different solutions can be dispensed by each pump.

Controller

Highly reliable, programmable controller supports future upgrades. Operator friendly keypad has a 16-character display which allows users to simply scroll through menus to find and change settings. Settings are saved even with power off.

Typical Control Menu:

- Set up
 - Pump Strokes
 - Pump Speed
 - Conveyor Speed
 - Distance Between Fills
 - Fills per Tray
- Operating Modes
 - Auto Run
 - Forward Prime
 - Reverse Prime
 - Check Dose



Pump Tower

The microprocessor controls pump speed and the number of pump strokes per dose. Each pump can be independently calibrated to deliver the same or different volumes. The same or different solutions can also be delivered by each pump.

Dispense volumes from 3 μ L and up can be dispensed with accuracy better than $\pm 1\%$. The desired volume is easily set by means of a calibrated flow control ring or flow rate indicator. The valve-less pumping function is accomplished by the synchronous rotation and reciprocation of a ceramic piston in a precision mated ceramic liner. One complete piston revolution is required for each suction and discharge cycle (or pump stroke). The piston always bottoms for maximum fluid and bubble clearance.

The sapphire hard ceramic piston and cylinder are highly wear and corrosion resistant. This results in millions of cycles without loss of accuracy. Virtually inert fluid path parts are used. The pumps can be steam or chemically sterilized.



Dispense Heads

A variety of interchangeable dispense heads for microplates, tubes, vials, slides, strips, cards and membranes are available. The heads and dispensing tips are easily and precisely positioned by means of adjustable thumbscrews.

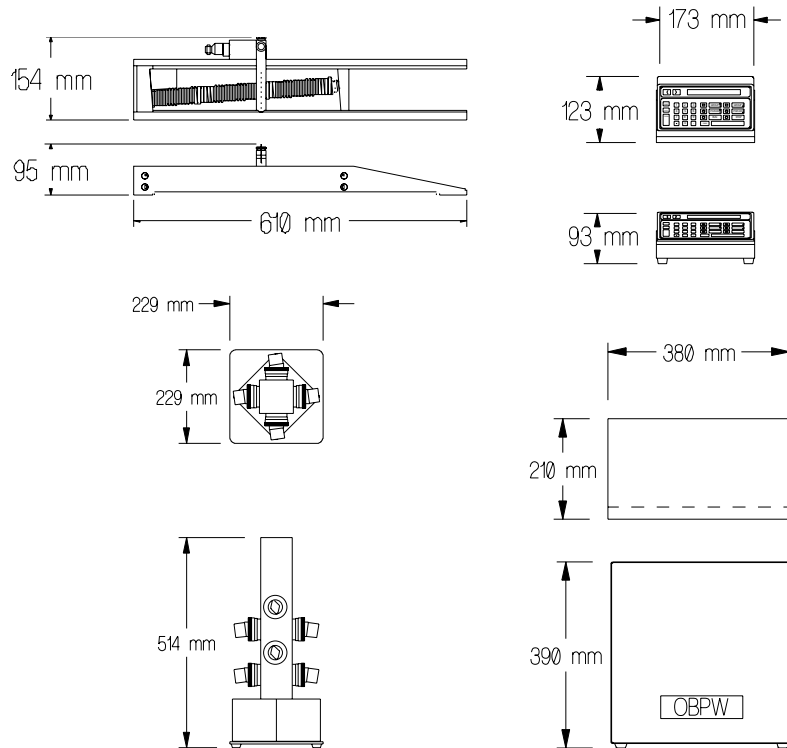
The heads are made of stable, chemically resistant materials with stainless steel or nonmetallic dispensing tips. Spray nozzles and various specialty tips are also available.

Heads with an up/down motion are also offered for bottom-up filling or touching off of small drops.



Conveyor

Illustrated here is the **Versafill Dispensing System** configured with the microplate conveyor. It's stepping motor drive results in very high product positioning accuracy. The microprocessor automatically senses plates and controls indexing and dispensing. The adjustable guide rail enables loading microplates in either the 8 or 12 way direction. The gently ramped acceleration maximizes throughput and operator comfort. Other conveyor designs are offered for filling a variety of different products. Automatic stack feeders and accumulators are also available.



User Test Data

Following is an example of a customer's test data showing pump accuracy. Twenty-five 0.5 ml doses of radioactive I-125 were dispensed into separate containers. A Beckman single-channel gamma counter was then used to measure activity in each container. This is an extremely accurate method of testing repeat accuracy of pumps.

DATA:		MEAN:	30872			
31219	30822	30881	30731	31001		
31201	30745	30772	30780	31227		
30943	30639	31063	30673	30917		
30270	31084	30726	30813	30874		
30668	30933	30257	30938	31218		
		STANDARD DEVIATION:	243			
		COEFFICIENT OF VARIATION:	0.79			

System Specifications				
		LENGTH	DEPTH	HEIGHT
		(mm)	(mm)	(mm)
Controller.....		380	210	390
Pump Tower.....		229	229	*/*
Conveyor with Ramp.....		610	154	95
Electrical:	Volts AC	115/220		* Depends
	Frequency (Hz)	50/60		on number
	Amperes	0.75/1.5		of pumps

The **Versafill Dispensing System** is but one of our broad line of liquid dispensing systems. We offer a wide range of products from single channel to 96 channel pump towers and also multifunction automated production lines.

Since 1979, we have been successfully supplying reliable and cost effective equipment to the diagnostic and pharmaceutical industries. We are confident this experience will enable us to meet your requirements. To order, or for more information, contact us with your application and requirement, and we will provide you with pricing and delivery.