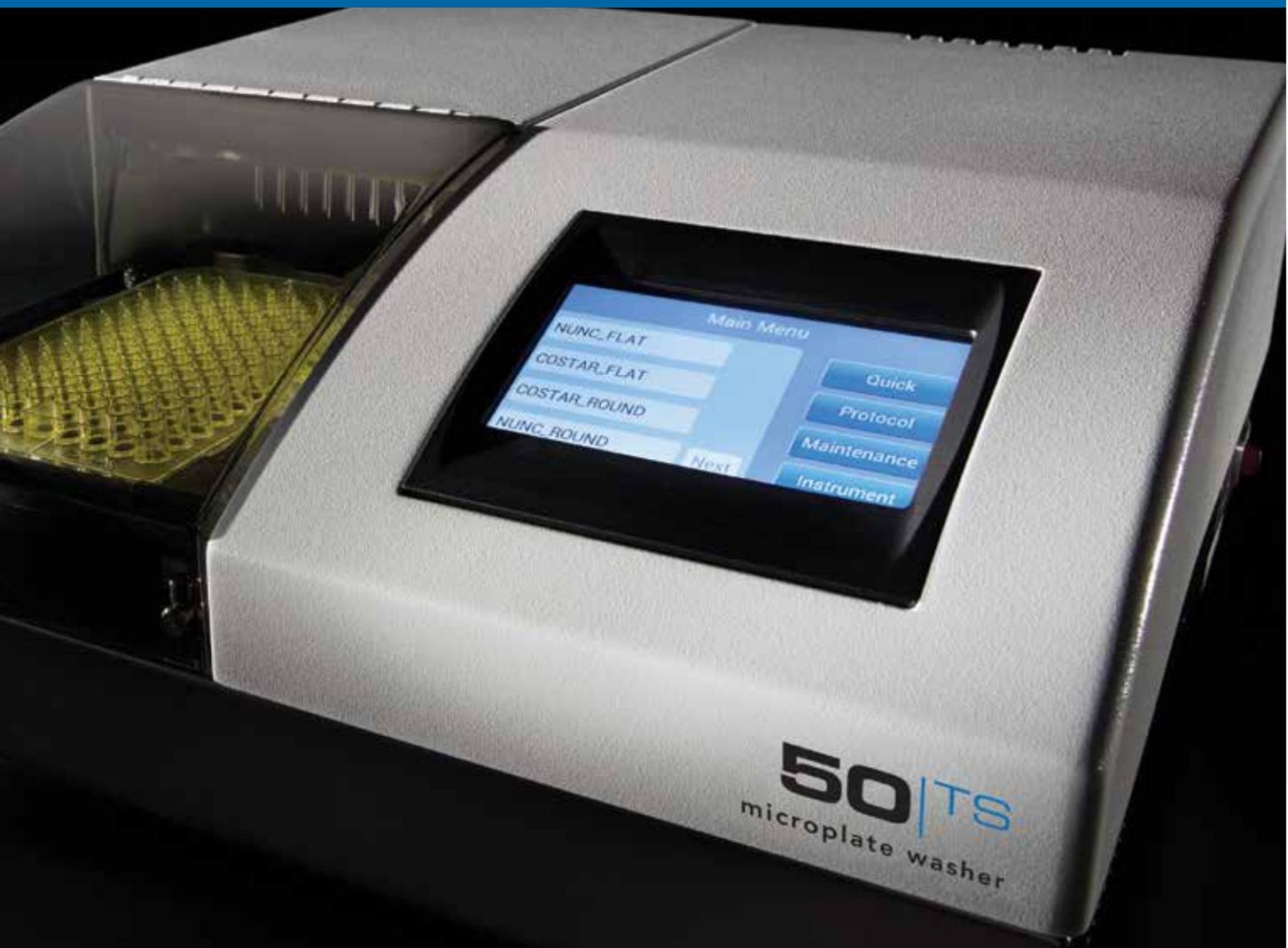


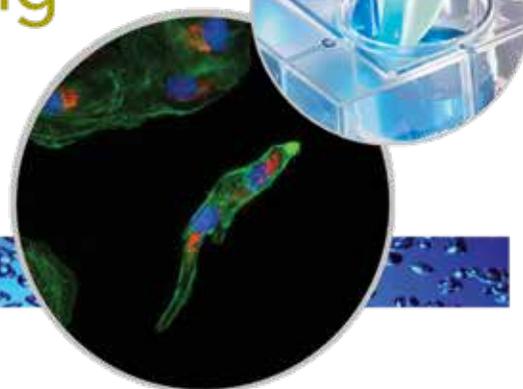
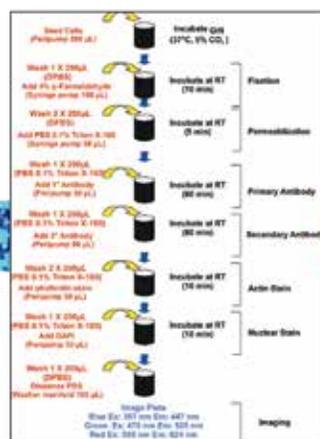
**BioTek Washers & Dispensers.  
Solutions for Better Workflows.**



Think Possible

# Cell fixing and staining

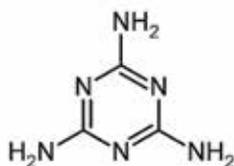
# ELISA



MULTIPLEX ASSAYS

Cell-based assays

Magnetic bead assays



Many life science laboratories benefit from automating their routine workflows, including microplate dispensing and washing processes. BioTek's microplate washers, dispensers and combination systems can help save time, space and money with affordable, compact and modular instruments designed to offer the best performance, low maintenance, ease of use and powerful functionality. For applications ranging from basic ELISA to pre-imaging cell fixing & staining processes, BioTek's extensive line of microplate liquid handling systems has just the right instrument solution.

## Typical Applications for BioTek Washers and Dispensers

- ELISA
- Cell-based assays
- ELISPOT assays
- Multiplex assays
- Magnetic bead assays
- Polystyrene bead assays
- Filtration-to-waste processes
- HCS immunocytochemistry
- Primary and secondary screening assays
- Cell fixing and staining
- Compound storage
- Genomics and proteomics research
- Dispense/wash protocol automation
- Drug transport assays
- Calcium flux assays
- MSD assay automation
- Serum/plasma sample prep

# Unique Washing & Dispensing Technologies

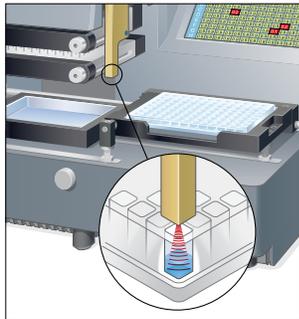


## Patented Ultrasonic Advantage™

The priming/cleaning reservoir in the 405 Microplate Washer and EL406 Washer Dispenser with Ultrasonic Advantage offers ultrasonic cleaning of both dispense and aspirate manifolds.

### Ultrasonic Advantage benefits:

- Incorporates the proven cleaning power of ultrasonic technology
- Maintenance and cleaning routines run automatically (day or night)
- Reduces assay failure
- Maintains assay integrity
- Built-in design requires no additional bench top space
- Cleans the toughest protein and salt crystal buildup
- Automatically maintains washer performance



## Patented Verify™ Technology

BioTek's Verify technology is a built-in module that tests the performance of washer dispense and aspiration cycles and alerts users to the specific location of any suspected manifold clog. This allows the blockage to be identified and resolved before the next assay is run.

### Verify benefits:

- Automates aspirate or dispense clog detection
- Provides clear visual pass/fail results
- Reduces failed assay incidents caused by blockages
- Built-in design requires no additional bench top space



*The available "8 to 1" tip allows bulk reagent dispensing to one or more wells of 6- to 24-well plates.*

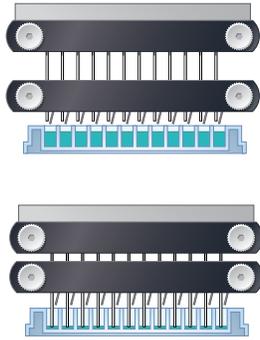
## RAD™ Technology

MultiFlo FX Multi-Mode Dispenser can be configured with a RAD module to provide rapid, random access dispensing to single wells of 6- to 384-well plates. A RAD module added to MultiFlo FX saves reagent costs by reducing dead and prime volume while increasing the reagent dispensing flexibility for ultimate experimental design.

### RAD benefits:

- Adds flexibility to the experiment design
- Dispenses individual volumes to discrete wells of 6- to 384-well plates
- Lowers reagent costs: reduced dead volume and prime volumes
- Fast bulk reagent dispensing into 6- to 24-well plates

# Unique Washing & Dispensing Technologies

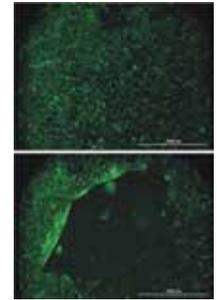


## Patented Dual-Action™ Manifold

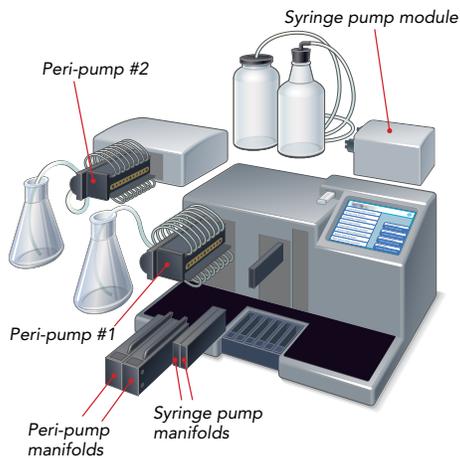
Unlike other washers, BioTek's Dual-Action manifold allows independent control of dispense and aspirate tubes for optimal x-, y- and z- positions. Dispense tubes are angled to 20° for gentle dispensing into well containing delicate cell layers.

### Dual-Action Manifold benefits:

- Wash 96- and 384-well microplates on one instrument without changing the manifold
- Optimal positioning of aspirate tubes for more or less residual after dispense
- Optimal positioning of dispense tubes for cell-based assays or for standard ELISA washing
- Angled dispense tubes won't disrupt cell layers
- Allows vigorous overflow washing



Top: cells washed with angled tips.  
Bottom: cells washed with straight tips.



## Parallel Dispense™ Technology

Microplate dispensers typically use either peristaltic pumps or syringe pumps to deliver reagents. Each pump type has advantages, depending on the assay requirements. BioTek combines the two pumps in its Parallel Dispense functionality available in MultiFlo FX. Peristaltic pumps offer a broad volume range and the ability to save reagent by backflushing and inherent low dead volume; syringe pumps are fast and don't require recalibration – and autoclavable versions are available.

### Parallel Dispense benefits:

- Up to 4 reagent dispensing without carryover
- Fast dispense speeds to 6- to 1536-well plates
- Angled tubes for gentle dispense to cell monolayers
- Volume range of 500 nL to 30 mL
- Space savings on benchtop and in automated systems



# Combination Systems

Many laboratories have both plate washing and multiple reagent dispensing requirements that typically utilize up to four instruments, stretching budget and space constraints. BioTek's unique "combination" instruments are designed to handle multiple processes on a single platform. The EL406 offers rapid plate washing and multiple reagent dispensing, and the MultiFlo FX offers multi-reagent dispensing, single channel random access dispensing and plate washing. Both reduce deck space and time when used in automated robotic systems.

## EL406 washer dispenser



The EL406™ is designed for high throughput plate washing and multiple reagent dispensing in 96- to 1536-well microplates. Automating these processes in one platform makes the EL406 ideal for applications like cell fixing and staining prior to imaging, ELISA, multiplex assays, and many other common routines. The patented Dual-Action™ manifold and Ultrasonic Advantage™ ensure excellent washing performance and easy maintenance.

### EL406 features include:

- ▶ Fast plate washing with up to 3 reagent dispensers
- ▶ 96-, 384- and 1536- well plate compatible
- ▶ Full automation of intra-assay liquid handling steps
- ▶ Magnetic and polystyrene bead based assays
- ▶ Built-in cleaning with Ultrasonic Advantage



## MULTIFLO|FX multi-mode dispenser



MultiFlo™ FX offers automated multiple reagent dispensing with modular strip plate washing and single well dispense options. Its unique Parallel Dispense™ technology allows carryover-free dispensing of up to four reagents from 2 peristaltic and 2 syringe pumps. Add either a wash module or RAD™ technology for random access dispensing and MultiFlo FX becomes even more versatile – handling multiple processes in a single compact instrument.

### MultiFlo FX features include:

- ▶ Up to four dispensers and a washer in a single instrument
- ▶ Parallel Dispense™ technology: dispensing with no carryover
- ▶ Reagent dispensing for 6- to 1536-well plates
- ▶ Wash module for 6- to 384-well plates
- ▶ Cell friendly angled dispense and wash tubes, adjustable flow rates



## 405|TS

microplate washer



BioTek's 405™ TS has extensive onboard software with a touchscreen interface for intuitive protocol creation, operation and maintenance. The patented Dual-Action manifold enables fast 96- and 384-well full plate washing, and the patented Ultrasonic Advantage and Verify technology help maintain peak performance. Applications range from gentle cell-based assay washing to rigorous ELISAs, biomagnetic separation and vacuum filtration processes. For computer control or use in an automated system, LHC pc software is available. SiLA compliant drivers are available for integration where compliance is required, and LHC Secure provides 21 CFR Part 11 compliant features.

### 405 TS features include:

- ▷ 96- and 384-well microplate washing in a single instrument
- ▷ Angled dispense tips for gentle cell-based assay washing
- ▷ Available Verify sensor checks for clogged tubes
- ▷ Built-in Ultrasonic Advantage automatically cleans clogged tubes
- ▷ Internal 4-buffer switching

*For deep well plate washing, the ELx405 Select Deep Well Washer is compatible with 96- and 384-well plates and deep wells up to 50 mm.*



## 50|TS

microplate washer



The 50™ TS Washer offers functionality that is unsurpassed in its class. The color touchscreen provides a visual interface that makes creating protocols fast and intuitive. Its performance for conventional plate washing is excellent. It is also ideal for cell-based assays and for processing biomagnetic or polystyrene bead and vacuum filtration protocols. 50 TS is Luminex® xMAP® approved.

### 50 TS features include:

- ▷ 24-, 96- and 384-well strip or full plate washing
- ▷ Affordable, high quality, high performance washing
- ▷ Applications from ELISA to cell- and bead-based assays
- ▷ Color touchscreen for quick, easy programming and operation
- ▷ Automated maintenance routines for continued reliable operation



## MULTIFLO|FX

multi-mode dispenser



BioTek's MultiFlo™ FX Multi-Mode Dispenser can be configured for dispensing up to 4 reagents in parallel, into 6- to 1536-well microplates. MultiFlo FX dispenses from 500 nL to 3 mL accurately and precisely in a compact design and angled dispense tubes ensure gentle reagent addition to loosely adherent cell monolayers. MultiFlo FX's prime volume is less than 1 mL, minimizing reagent usage, and a built-in priming trough allows reagent recovery. The RAD single channel dispenser or a wash module can be added to the system for increased functionality.

### MultiFlo FX features include:

- ▷ Wide dispense volume range of 500 nL to 3 mL
- ▷ Compatible with 6- to 1536-well microplates
- ▷ Compact footprint, ideal for integration into automated systems
- ▷ BioStack compatible for walkaway automation
- ▷ Choice of 1, 5 or 10  $\mu$ L cassettes for most efficient dispensing

## MICROFILL

microplate dispenser



MicroFill™ is an economical, compact, and reliable alternative for accurate and precise dispensing. It has a microprocessor controlled syringe pump for optimal dispensing – from 5  $\mu$ L to 6,000  $\mu$ L per well volume. Variable dispense flow rates allow low- to high-velocity dispensing for any application. The fluid path is autoclavable for those applications requiring sterility, and MicroFill's compact footprint makes it ideally suited to fit inside common laboratory enclosures.

### MicroFill features include:

- ▷ Accommodates 24-, 96- and 384-well standard and deep well microplates
- ▷ Microprocessor-controlled syringe pump guarantees optimal precision and accuracy
- ▷ No recalibration required; low maintenance design with built-in routines
- ▷ User-controlled dispense flow rates for low- to high-velocity dispensing
- ▷ Up to 75 programs stored in multiple languages at the touch of a button

# Instrument Comparison

	Combination Systems		Washers		Dispensers
	EL406	MultiFlo FX	405 TS/LS	50 TS	MicroFill
<b>Key Features: Washing</b>					
Plate types	96 to 1536	6 to 1536	96, 384	24, 96, 384	
Low profile and standard height	•	•	•	•	
Solid and filter bottom	•		•	•	
Deep well		•	•*		
Automatic buffer switching	•		•	•	
Volume range (per well)	3 µL - 3 mL	20 µL – 30 mL	25 µL - 3 mL	25 µL – 3mL	
Full plate washing	•	•	•	•	
Strip washing		•		•	
Washing speed (96 wells, 3 cycles, 300 µL/ well)	≤30 sec	≤130 sec	≤30 sec	≤80 sec ** ≤130 sec	
Magnetic and polystyrene bead assays	•	•	•	•	
Dual-Action manifold available	•		•		
Overflow protection	•	•	•	•	
<b>Key Features: Dispensing</b>					
Plate types	96 to 1536	6 to 1536			24, 96, 384
Volume range	500 nL to 3 mL	500 nL to 3 mL 500 nL to 30 mL (RAD)			5 µL to 6 mL
Peristaltic pump dispensing	•	•			
Syringe pump dispensing	•	•			•
<b>General</b>					
Variable flow rates	•	•	•	•	
Microplate shaking	•	•	•	•	
BioSpa™ 8 compatible	•	•	•		
BioStack™ compatible	•	•	•		
LHC Software compatible	•	•	•	•	
Ultrasonic Advantage available	•		•		
Verify technology available			•		

\*ELx405 Select Deep Well

\*\*With 2x8 well manifold



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