

Технические характеристики

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EL406

microplate washer dispenser

The EL406 Washer Dispenser offers fast microplate washing and BioTek's unique Parallel Dispense to optimize liquid handling processes.

Unattended Automation of ELISAs and Cell-Based Assays

The EL406 integrates 96-, 384- and 1536-well microplate washing with three dispensers in one compact instrument. Now you can simply press a button and walk away, or automate an entire batch by adding a BioStack Microplate Stacker. For entire workflow automation, the EL406 can be integrated to the Agilent BenchCel Microplate Handler, or BioSpa 8 Automated Incubator along with a BioTek imager or reader.

Patented Dual-Action Manifold and Ultrasonic Advantage

The EL406 incorporates BioTek's Dual-Action manifold for thorough yet gentle washing of loosely adherent cell layers, and Ultrasonic Advantage for automated wash manifold maintenance.

Parallel Dispense Technologies

The EL406 eliminates the need to choose a dispensing technology by offering both peristaltic and syringe pumps on a single platform.

Fast and Efficient Biomagnetic Separation and Vacuum Filtration

The EL406 automates full microplate washing of magnetic microspheres used in an increasing number of multiplex assays. Developed in conjunction with Luminex® xMAP® technology leaders, BioTek's separation modules incorporate high energy neodymium iron boron magnets for speed and efficiency. An available vacuum filtration module makes the EL406 well suited for polystyrene beads and filtration-to-waste processes.

TYPICAL RESEARCH APPLICATIONS

- ▶ ELISA automation
- ▶ MSD assay automation
- ▶ HCS immunocytochemistry
- ▶ Cell-based assays
- ▶ FLIPR® Ca²⁺ flux
- ▶ Magnetic bead assay automation
- ▶ Polystyrene bead assay automation
- ▶ Drug transport assays
- ▶ Automated cell washing, fixing and staining for cellular imaging
- ▶ SiLA compliant integration (with LHC software)





General	
Microplate types	96-, 384-, 1536-well Low profile and standard height Solid and filter bottom (option)
Onboard software	Create, edit or run multiple protocols
Software	LHC Software (option) LHC Secure for 21 CFR Part 11 compliance (option) SiLA Compliant driver (option)
Separation	Biomagnetic separation, vacuum filtration (option)
Shaking	Programmable up to 60 minutes Slow, medium, fast or variable
Soaking	Programmable up to 60 minutes
Ultrasonic Advantage	Yes (standard on most configurations)
Automation	BioStack and 3rd party automation compatible BioSpa 8 Automated Incubator compatible
Washing	
Manifold types	96-well washing: 96-tube manifold 96- and 384-well washing: 96-tube Dual-Action manifold 384-well washing (fast): 192-tube Dual-Action manifold 1536-well washing: Two 32-tube dispense manifolds, 316 SS tubes or sapphire jeweled 316 SS tubes
Volume range	3 - 3000 µL/well, in 1 µL increments
Wash cycles	1 - 250
Buffer/reagent selection	Auto switching module for up to 4 buffers (option)
Supply bottle	4 L or 10 L (optional)
Dispense accuracy	±3%
Dispense precision	<3% CV (model dependent)
Residual volume	<2 µL/well
Wash speed	96 wells, 300 µL/well, 96-tube manifold: 13 seconds 384 wells, 100 µL/well, 192-tube manifold: 17 seconds 1536 wells, 10 µL/wells, two 32-tube manifolds: 36 seconds
Flow rates	High flow to low flow Optimized rates for cell assays
Sterilization	Chemical
Vacuum range for filtration	0 to -380 mm Hg
Dispensing - Peristaltic Pump (Multi-Channel)	
Manifold types	8-tip (1 x 8) cassette with plastic, 316 stainless steel or sapphire jeweled 316 stainless steel tips
Dispense speed	96 wells, 10 µL/well: 8 seconds 384 wells, 5 µL/well: 12 seconds 1536 wells, 1 µL/well: 27 seconds
Volume range	500 nL - 3000 µL/well, selectable in 1 µL increments
Flow rates	User programmable rates from high to low Optimized rates for cell assays

Dispense performance	1 µL: Recommended volume range: 1 - 50 µL Dispense accuracy: ±5% at 1 µL Dispense precision: ≤5% CV at 1 µL ≤10% CV at 500 nL Minimum prime volume: 1.20 mL 5 µL cassette: Recommended volume range: 5 - 2500 µL Dispense accuracy: ±2.0% at 5 µL Dispense precision: ≤2.5% CV at 5 µL Minimum prime volume: 4.23 mL 10 µL cassette: Recommended volume range: 10 - 3000 µL Dispense accuracy: ±2.0% at 5 µL Dispense precision: 2.0 CV at 10 µL Minimum prime volume: 7.36 mL
Recommended cassette replacement interval	1 µL Cassette: 1000 384-well microplates at 5 µL/well 5 µL Cassette: 1000 96-well microplates at 50 µL/well 10 µL Cassette: 1000 96-well microplates at 100 µL/well
Sterilization	Autoclave, chemical
Dispensing - Syringe Pump (Multi-Channel)	
Manifold types	96-well dispensing: One 16-tube (2 x 8) manifold - 316 stainless steel tubes 96-/384-well dispensing: Two 16-tube (1 x 16) manifolds - 316 stainless steel tubes 1536-well dispensing: Two 32-tube (1 x 32) manifolds - sapphire jeweled 316 stainless steel or 316 stainless steel tubes
Dispensing speed	20 µL/well, 96 wells, 1 x 16 tubes: 5 seconds 20 µL/well, 384 wells, 1 x 16 tubes: 14 seconds 3 µL/well, 1536 wells, 2 x 32 tubes: 7 seconds
Volume range	3 - 3000 µL/well, selectable in 1 µL increments Minimum prime volume: 12 mL
Flow rates	User programmable rates from high to low
Dispense accuracy	±1 µL at 5 µL ±1 µL at 20 µL ±1% at 100 µL
Dispense precision	≤5% CV at 5 µL ≤2.5% CV at 20 µL ≤1% CV at 100 µL
Supply bottle	1 L or 2 L
Sterilization	Chemical, autoclavable option
Physical Characteristics	
Power consumption	900 W max 1250 W max with vacuum pump
Dimensions	16.5" W x 18" D x 12.5" H (41.9 x 45.7 x 31.8 cm)
Weight	32 lb (14.5 kg)
Regulatory	
Regulatory	CE and TUV marked. RoHS compliant. Models for In Vitro Diagnostic use may be available.

405|TS

microplate washer

BioTek's 405 TS Microplate Washer takes plate washing to the next level with an enhanced user interface, increased convenience, assay applications and automated maintenance features.

The 405 TS Microplate Washer incorporates all the features and functionality of the prior ELx405 models, and improves accessibility through its touchscreen and extensive onboard software. 96- and 384-well microplate-based wash procedures are only 'two touches' away with the easy-to-use interface. Additionally, two USB ports provide convenient file transfer, storage and operation. A context sensitive Help System and several instructional videos are also included.

The Standard for Automation

The 405 TS Microplate Washer makes quick work of any washing assay, and is especially well suited for integration into automated systems, where the wash process is controlled remotely. The 405 TS can be integrated with the BioSpa 8 Automated Incubator for unattended automation of many common processes.

Cell and Bead Assays

The 405 TS is available in various models for optimized performance with the most sensitive and rigorous assay requirements. When the protocol calls for washing loosely adherent cells, the Select model is fine-tuned with angled dispense tubes, extra low flow rates and unique X, Y and Z positioning. Magnetic and polystyrene bead washing are effectively accomplished with the 405 TS.

Verify Technology and Automated Ultrasonic Cleaning

BioTek's patented Verify technology runs an automated QC check for manifold tube blockage, and visually reports any failures. Patented Ultrasonic Advantage can then be used to automatically clean the manifolds. Together, these features make the 405 TS a self-checking, self-maintaining microplate washer!

Applications in Deep Well Washing

The ELx405 Select Deep Well washes 96- and 384-well plates up to 50 mm tall, and is also compatible with standard height plates without any hardware or software changes. This versatile system is optimal for labs working in deep well blocks and standard plates.

TYPICAL RESEARCH APPLICATIONS

- ▶ ELISA automation
- ▶ MSD assay automation
- ▶ HCS immunocytochemistry
- ▶ FLIPR® Ca²⁺ flux
- ▶ Cell-based assays
- ▶ Magnetic and polystyrene bead assays
- ▶ Gene expression assays
- ▶ Cytokine assays
- ▶ ELISPOT assays
- ▶ Plasmid DNA purification
- ▶ Serum/plasma sample preparation
- ▶ Cell signaling – phospho flow setup for flow cytometry
- ▶ SiLA compliant integration (with LHC software)





General	
Microplate types	96- and 384-well Low profile and standard height Solid and filter bottom (option) Filter pore sizes from 0.45 µm to 1.2 µm
Onboard software	Create, edit or run multiple protocols
Software	LHC Software LHC Secure for 21 CFR Part 11 compliance (option) SiLA Compliant driver (option)
Separation	Biomagnetic separation, vacuum filtration (optional)
Shaking	Programmable up to 60 minutes Slow, medium, fast or variable
Soaking	Programmable up to 60 minutes
Automation	BioStack and 3rd party automation compatible BioSpa 8 Automated Incubator compatible
Washing	
Manifold types	96-tube manifold for 96-well washing 96-tube Dual-Action manifold for 96- & 384-well washing 192-tube Dual-Action manifold for fast 384-well washing
Volume range	25 - 3000 µL/well, in 1 µL increments
Wash cycles	1 - 250
Buffer/reagent selection	Auto switching (internal) for up to 4 buffers (option)
Supply bottle	4 L or 10 L (optional)
Dispense precision	<3% CV: 300 µL/well (96-well washing) <4% CV: 80 µL/well (384-well washing)
Residual volume	< 2 µL/well (96- & 384-well plates) 96-tube manifold for 96 wells; 192-tube for 384 wells
Wash speed	96-wells, 300 µL/well, 3 cycles: ≤30 seconds 384-wells, 100 µL/well, 3 cycles: ≤80 seconds 384-wells, 400 µL/well, 1 cycle: ≤20 seconds
Flow rates	High flow to low flow Optimized rates for cell assays
Sterilization	Chemical
Vacuum range for filtration	-38 to -506 mm Hg
Ultrasonic Advantage	Ultrasonic manifold cleaning (option)
Verify clog detection	Automated clog detection and reporting (option)
Physical Characteristics	
Power consumption	800 W max 1250 W max with vacuum pump
Dimensions	14" W x 17" D x 10" H (35.6 x 43.2 x 25.4 cm)
Weight	With internal buffer switching: 36 lb (16.5 kg)
Regulatory	
Regulatory	CE and TUV marked. RoHS compliant. Models for In Vitro Diagnostic use may be available.

50|TS

microplate washer

The 50 TS Microplate Washer brings high quality and excellent automated washing to your laboratory at an affordable price. The robust design, easy to use software and excellent performance are typical of BioTek Microplate Washers.

Broad Applications Range

Applications for the 50 TS extend beyond simple dispense and aspirate routines typical of many ELISA processes. Fluid delivery can be optimized for gentle cell-based assay washing and available modules automate biomagnetic and vacuum filtration protocols. To automate many lower throughput workflows, the 50 TS partners well with the 800 TS Microplate Reader.

Simple, Powerful Programming and Operation

The 50 TS software includes pre-defined protocols for quick selection of commonly used wash parameters. Creating custom protocols onboard the 50 TS is easy – the touchscreen interface makes multi-step program creation intuitive and simple. Protocols are saved for quick recall. From just a single strip to a full microplate, the 50 TS washes quickly, efficiently and reliably.

Automated Buffer Switching

To facilitate maintenance or to accommodate complex wash routines, the 50 TS offers automated switching between supply bottles. Automated buffer switching is an affordable option for the 50 TS.

Reliable, Safe and Low Maintenance

Liquid level sensors will alert you to low supply or full waste levels, allowing wash programs to run safely and reliably. Pre-defined, automated maintenance routines keep the fluid path clean and prevent build-up of salt, protein or other material that can block manifold tubes, causing inadequate washing. As an FDA registered and ISO certified manufacturer, BioTek understands the importance of performance and data verification - BioTek's Product Qualification Package provides simple, straightforward instructions for verification of the 50 TS performance over time.

TYPICAL RESEARCH APPLICATIONS

- ▶ ELISA
- ▶ Cell-based assays
- ▶ Biomagnetic separation protocols
- ▶ ELISpot assays
- ▶ Vacuum filtration protocols
- ▶ Multiplex assays





General			
Microplate types	96 wells 96 and 384 wells ("16" configurations) Low profile and standard height 24 wells (with 4-well manifold) Solid and filter bottom ("V" models) Filter pore sizes 0.45 µm to 1.2 µm		
Onboard software	Up to 75 user-programmable protocols Quick menu Create or edit custom protocols Run protocols created onboard or downloaded from LHC Software		
Software	Liquid Handling Control (LHC), for external computer control and operation (optional)		
Separation	Biomagnetic separation ("M" configurations) Vacuum filtration ("F" configurations)		
Shaking	Programmable in mm:ss up to 30 minutes		
Soaking	Programmable in mm:ss up to 30 minutes		
User interface	4.3" color LCD touchscreen display		
Washing			
Manifolds	Manifold type		Plate type
	4-well manifold		24-well
	8-well manifold		96-well
	8s-well manifold (short dispense tube)		96-well
	2 x 8-well manifold		96-well
	12-well manifold		96-well
	16-well manifold		96- and 384-well
Volume range	25 - 3000 µL/well		
Wash cycles	1 - 10		
Buffer/reagent selection	Auto switching module for up to 3 buffers ("V" configurations)		
Dispense precision	Plate type	Manifold	Performance
	96-well	8- and 8s-well	≤3.0% CV when measured over six 300 µL/well dispenses of deionized water with 0.1% Tween 20
	96-well	12-well	≤3.0% CV when measured over four 300 µL/well dispenses of deionized water with 0.1% Tween 20
	384-well	8-,16-well	≤4.0% CV when measured over six 100 µL/well dispenses of deionized water with 0.1% Tween 20
	96-well	2 x 8-well	≤4.0% CV when measured over six 300 µL/well dispenses (whole plate) of deionized water with 0.1% Tween 20
	24-well	4-well	≤4.0% CV when measured over six 1120 µL/well dispenses of deionized water with 0.1% Tween 20
Residual volume	Plates	Manifold	Performance (avg residual/well)
	96-well	8-well, 12-well	≤2.0 µL/well after 3-cycle wash, 300 µL/well dispensed
	96-well	2 x 8-well	≤4.0 µL/well after 3-cycle wash, 300 µL/well dispensed
	384-well	8-,16-well	≤4.0 µL/well after 1-cycle wash, 100 µL/well dispensed
	24-well	4-well	≤5.0 µL
	96-well filter bottom	8-, 2 x 8-, 12-well	<1.2 g increase after blotting
Wash speed	96 wells, 8-tube manifold, >300 µL/well: <130 seconds		
Fluid delivery	One positive displacement syringe drive		
Physical Characteristics			
Power consumption	40 W max		
Dimensions	15' W x 15" D x 8" H (38.1 x 38.1 x 20.3 cm)		
Weight	22 lb (9.9 kg)		
Regulatory			
Regulatory	CE and TUV marked. RoHS compliant. Models for In Vitro Diagnostic use may be available.		

MULTIFLO|FX

multi-mode dispenser

MultiFlo FX is an automated multi-mode reagent dispenser for 6- to 1536-well plates, dispensing volumes as low as 500 nL. Optional AMX Automated Media Exchange, RAD Random Access Dispense and plate washer modules expand its versatility and applications reach. A fully configured MultiFlo FX can replace up to five liquid handlers.

Parallel Dispense Technologies

Offering BioTek's unique combination of peristaltic and microprocessor controlled syringe pump dispensing, the MultiFlo FX enables users to choose which is best for a specific reagent. While peristaltic pumps offer low prime volumes and back flush capabilities, BioTek's syringe drives are program-and-forget solutions that never require recalibration.

RAD Random Access Dispensing

When the liquid handling workflow calls for individual well dispensing along with rapid bulk dispensing, MultiFlo FX manages the task with the unique RAD module. RAD provides single channel dispensing to discrete wells of 6- to 384-well plates. A custom plate map can be imported for use in concentration normalization protocols.

Wash Module

The MultiFlo FX wash module automates 6- to 384-well plate washing, using a precise syringe-driven dispense pump. Adding the wash module to MultiFlo FX configured with multiple dispensers provides astounding liquid handling versatility in one instrument.

AMX Automated Media Exchange

With its patent-pending AMX module, MultiFlo FX can meet

the needs of increasingly important research that uses 3D cell structures such as spheroids and tumoroids, plus suspension cell-based applications. The AMX module provides automated, gentle media exchange for these critical workflows.

Modular and Upgradable

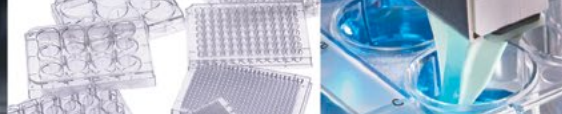
The MultiFlo FX is configurable and upgradable from dispense or wash only, to a combined dispense and wash combination, plus automated media exchange or single channel with the AMX and RAD modules. With its compact dimensions, the MultiFlo FX fits on any lab bench, and is easily integrated with the Agilent BenchCel Microplate Handler, BioTek BioSpa Automated Incubator or BioStack, along with third party automation systems.

TYPICAL RESEARCH APPLICATIONS

- ▶ Live cell workflows
- ▶ Automated media exchange
- ▶ 2D and 3D cell culture
- ▶ Cell fix and staining for imaging
- ▶ Concentration normalization
- ▶ Suspension cell culture
- ▶ Cell seeding
- ▶ ELISA



TECHNICAL DETAILS



General	
Onboard software	Create, edit or run multiple protocols
Software (computer control)	LHC2 Software LHC2 Secure for 21 CFR Part 11 compliance (option) SiLA Compliant driver (option)
Shaking	Programmable up to 60 minutes Slow, medium, fast or variable
Soaking	Programmable up to 60 minutes
User Interface	Color touchscreen
Automation	BioStack and 3rd party automation compatible BioSpa 8 Automated Incubator compatible
Dispensing - Peristaltic Pump (Multi-Channel)	
Microplate types	96-well standard, half-height and deep (ANSI/SLAS) 384-well standard, deep and PRC (ANSI/SLAS) 6-, 12-, 24- and 48-well plates (with user-disconnected dispense tips)
Manifold types	1 x 8 tube, sapphire jeweled 316 SS, 316 SS, or polypropylene tips
Fluid delivery	1 or 2 peristaltic pumps
Dispense speed	96 wells, 5 µL cass, 10 µL/well: 3 seconds 384 wells, 5 µL cass, 5 µL/well: 6.5 seconds 384 wells, 1 µL cass, 1 µL/well: 6 seconds 1536 wells, 1 µL cass, 1 µL/well: 21 seconds
Dispense volume range	500 nL - 3000 µL/well, selectable in 1 µL increments
Flow rates	User programmable rates from high to low
Dispense performance	1 µL cassette: recommended range: 1 - 50 µL Accuracy: +5% at 1 µL Precision: <5% CV at 1 µL <10% CV at 500 nL Minimum prime volume: 1.20 mL 5 µL cassette: recommended range: 5 - 2500 µL Accuracy: +2.0% at 5 µL Precision: <2.5% CV at 5 µL Minimum prime volume: 4.23 mL 10 µL cassette: recommended range: 10 - 3000 µL Dispense accuracy: +2.0% at 10 µL Dispense precision: <2.0% CV at 10 µL Minimum prime volume: 7.36 mL
Recommended cassette replacement	1 µL Cassette: 1000 384-well microplates at 5 µL/well 5 µL Cassette: 1000 96-well microplates at 50 µL/well 10 µL Cassette: 1000 96-well microplates at 100 µL/well
Dispensing - Syringe Pump (Multi-Channel)	
Microplate types	96-well standard, half-height and deep (ANSI/SLAS) 384-well standard, deep and PCR (ANSI/SLAS) 6-, 12-, 24- and 48-well plates (Corning) with custom manifolds
Manifold types	96- and 384-well dispensing: One 16-tube (2 x 8) manifolds - 316 SS tubes Two 16-tube (1 x 16) manifolds - 316 SS tubes 1536-well dispensing: Two 32-tube (1 x 32) manifolds - sapphire jeweled 316 SS or 316 SS tubes 6- to 48-well dispensing: custom autoclavable manifolds available
Fluid delivery	Two positive displacement syringe drives
Dispense speed	20 µL/well, 96 wells, 1 x 16 tubes: 5 seconds 20 µL/well, 384 wells, 1 x 16 tubes: 14 seconds 3 µL/well, 1536 wells, 2 x 32 tubes: 7 seconds
Volume range	3 - 3000 µL/well selectable in 1 µL increments Minimum prime volume: 12 mL
Flow rates	User programmable rates from high to low
Dispense accuracy	± 1 µL at 5 µL ± 1 µL at 20 µL ± 1 % at 100 µL
Dispense precision	<5% CV at 5 µL <2.5% CV at 20 µL <1% CV at 100 µL
Supply bottle	1 L or 2 L
Sterilization method	Chemical, autoclavable option

Washing	
Microplate types	96-, 384-well standard plates; 6-, 12-, 24-, and 48-well plates (with compatible manifold configuration)
Manifold types	96- and 384-well washing: 8-tube manifold 6-, 12-, 24-, 48-well washing: Custom manifolds available
Wash volume range	20-30,000 µL/well
Wash cycles	1-10
Wash speed	96 wells, 8-tube manifold, 3 cycles, 300 µL/well: <130 seconds
Dispense accuracy	±3%
Dispense precision	96-/384-well plates, 300 µL/well: <3% CV 6-well plates, 5560 µL/well: <5% CV
Residual volume	96-well plate, 300 µL/well: <2 µL/well
Flow rates	140 - 422 µL/well
Supply bottle capacity	2 L
Waste bottle capacity	2 L
Waste level detection	Yes
Sterilization method	Chemical
Media Exchange: AMX (Automated Media Exchange) Module	
Microplate types	96- and 384-well standard (ANSI/SLAS)
Manifold types	Two 8-channel autoclavable manifolds
Cassettes	Autoclavable cassettes with with 5 µL tubing
Dispense precision	≤5% CV
Dispense accuracy	≤ ±5%
Aspiration uniformity	≤ ±5%
Sterilization method	Cassettes and manifolds: chemical and autoclavable
Dispensing - RAD (Random Access Module)	
Microplate types	Single tip: 6-, 12-, 24-, 48-, 96-, 384-well plates; low profile standard height and deep well formats 8-to-1 tip: 6-, 12-, and 24-well plates
Other labware supported	96-well cluster tubes (minitubes) up to 50 mm height (requires custom carrier PN 7212042)
Manifold types	RAD single, with plastic or steel tip with 1, 5 or 10 µL tubing, 7° angle RAD 8-to-1 plastic tip, with 5 µL tubing, angled bulk dispense chute
Volume range	500 nL - 30,000 µL
Minimum prime volume	1 µL cass, 18": 90 µL ; 1 µL cass, 30": 150 µL 5 µL cass, 18": 320 µL; 1 µL cass, 30": 530 µL 10 µL cass, 18": 555 µL; 10 µL cass, 30": 920 µL
Dispense speed (high flow rate)	1 µL cass, 1 µL/well: 19s (96 wells), 55s (384 wells) 5 µL cass, 5 µL/well: 19s (96 wells), 58s (384 wells) 10 µL cass, 10 µL/well: 21s (96 wells), 66s (384 wells)
Dispense performance	1 µL cass (med), 0.5 µL/well: Precision 10% CV 1 µL cass (med), >2 µL/well: Accuracy +5%, Precision 5% CV 5 µL cass (high), >10 µL/well: Accuracy +2%, Precision 2.5% CV 10 µL cass (high), >20 µL/well: Accuracy +2%, Precision 2% CV 8-to 1 cass (high), >10 µL/well: Precision 2.5% CV 8- to 1 cass(high), >80 µL/well: Accuracy +2%
Physical Characteristics	
Power consumption	90 W max
Dimensions	Base instrument: 17.2" W x 11.8" D x 8" H (43.7 x 29.9 x 20.3 cm)
Weight	Base instrument: 19.5 lb (8.8 kg)
Connectivity	Two USB ports: Protocol storage/transfer and for optional external mouse or keyboard
Regulatory	
Regulatory	CE and TUV marked. RoHS compliant. IVD configurations may be available.

MICROFILL

microplate dispenser

With its microprocessor-controlled syringe drive technology, the MicroFill Microplate Dispenser provides outstanding accuracy and precision while dispensing into 24-, 96- and 384-well plates.

Low Maintenance Design

The MicroFill is an economical, compact and reliable alternative to conventional microplate dispensers. Its microprocessor-controlled syringe pump provides optimal dispense performance without time-consuming recalibration, cassette replacement and maintenance. Syringes are ideal for higher volume filling, with noteworthy speed improvements compared to other dispense technologies.

Guaranteed Sterility

The entire fluid path is autoclavable for applications requiring sterility. The MicroFill's pump, tubing, dispense manifold and supply bottle are quickly changed with no reagent carryover. User-controlled dispense flow rates allow low- to high-velocity dispensing for both biochemical and cell-based assays. Low profile, standard and deep well microplates are all accommodated with a broad volume range from 5 μ L to 6 mL.

Unattended Operation

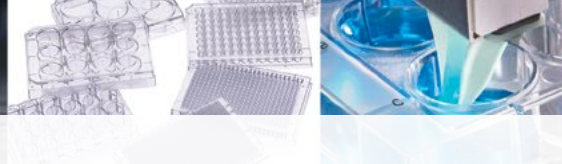
For increased throughput, the MicroFill can be integrated with BioTek's BioStack Microplate Stacker or interfaced to third-party automated systems with its available interface software. MicroFill drivers are available from most of today's leading system providers.

TYPICAL RESEARCH APPLICATIONS

- ▶ Primary and secondary screening assays
- ▶ Compound storage
- ▶ Genomics and proteomics research
- ▶ Cell-based assays
- ▶ ELISAs



TECHNICAL DETAILS



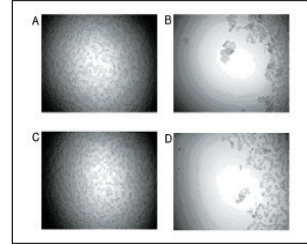
General	
Microplate types	24-, 96- and 384-well Low profile, standard and deep well formats
Other labware	PCR tubes, microtubes
Onboard software	Create, edit or run multiple protocols
Software (PC control)	Interface software (optional) for robotic system integration
Shaking	Programmable up to 60 minutes Slow, medium, fast or variable
Soaking	Programmable up to 60 minutes
Automation	BioStack and 3rd party automation compatible
Dispensing - Syringe Pump (Multi-Channel)	
Manifold types	24-well dispensing: One 8-tube (1 x 8) manifold - 316 stainless steel tubes 96-well dispensing: One 8-tube (1 x 8) manifold - 316 stainless steel tubes 96-/384-well dispensing: One 16-tube (1 x 16) manifold - 316 stainless steel tubes
Dispense speed	96 wells, 10 µL/well, 1 x 16: 4 sec 384 wells, 5 µL/well, 1 x 16: 7 sec
Volume range	5 - 6000 µL/well (manifold dependent) Minimum prime volume: 10 µL
Flow rates	User programmable rates from high to low
Dispense accuracy	±1 µL at 5 µL and 20 µL ±1% at 100 µL
Dispense precision	≤5% CV at 5 µL ≤2.5% CV at 20 µL ≤1% CV at 100 µL
Supply bottle	1 L
Sterilization	Autoclave, chemical
Physical Characteristics	
Power consumption	40 W max
Dimensions	15" W x 18" D x 7" H (38.1 x 45.7 x 17.8 cm)
Weight	20 lb (9.1 kg)
Regulatory	
Regulatory	CE and TUV marked. ROHS compliant. Models for In Vitro Diagnostic use may be available.

405™ LS Washer

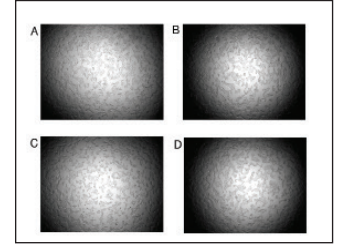
The 405™ LS Microplate Washer is the fifth generation BioTek washer, known for superior performance and reliability for washing protocols ranging from gentle cell washing to vigorous ELISAs. It features the patented Verify™ technology, which runs an automated QC check for manifold tube blockage, and visually reports any failed wells. The patented Ultrasonic Advantage™ can then be used to automatically and thoroughly clean the aspirate and dispense manifold. All 405 LS models provide excellent performance for ELISA and cell-based assays and can be configured with biomagnetic separation and vacuum filtration modules for full plate washing of magnetic and polystyrene bead-based assays such as Luminex® xMAP®.

Programming the 405 LS is easy through its simple interface, but for those who prefer the advantages of running instruments via computer control, the 405 LS can be controlled with BioTek's optional Liquid Handling Control™ Software. The optional BioStack™ is available for walk-away automation of up to 50 microplates.

Enhanced Cell Washing:



Before (A/C) and after (B/D) washing two wells containing HEK cells using a standard dispense rate.



Before (A/C) and after (B/D) washing two wells containing HEK cells using a 405 Select LS low flow dispense rate.



Features:

- Automated internal 4-buffer switching
- Quick change manifold designs
- 96- and 384-well microplates
- Quick menu for priming, washing and maintenance
- Predefined sample methods for easy operation
- Magnetic and polystyrene bead assays, along with conventional ELISAs
- Super low rates provide gentle dispense for non-disruptive cell washing
- Patented Ultrasonic Advantage™ and Verify™ clog detection automate system maintenance and verification
- Multiple diagnostic sensors provide complete protection during unattended operation
- BioStack™ Microplate Stacker for up to 50 plates
- BioSpa™ 8 Automated Incubator compatible for assay automation

Typical Applications:

- ELISAs
- MSD assays
- HCS immune cytochemistry
- FLIPR® Ca²⁺ flux
- Cell-based assays
- Magnetic and polystyrene bead processing (gene expression assays, cytokine assays)
- ELISPOT assays

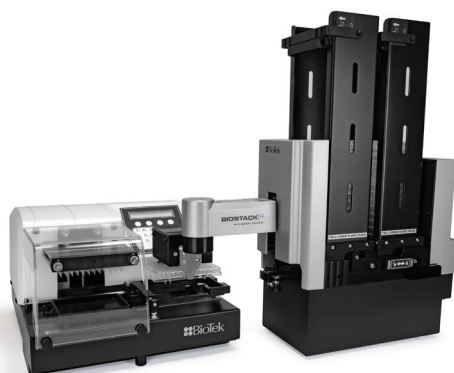
Configurations:

Several configurations are available for 96- or 96- and 384-well washing. Other options including automated buffer switching, Ultrasonic Advantage and Verify are available for configuration.

See Web Site for complete list of configurations and descriptions.

Optional Accessories:

- Dispense/Waste Systems – choice of 4L or 10L bottles and standard, high flow or direct drain vacuum pumps
- Magnets – choice of 96- or 384-well formats and flat or ring immobilization patterns
- Vacuum Filtration Module
- Product Qualification Package
- Liquid Handling Control™ PC Software
- BioStack™ Microplate Stacker
- BioSpa™ 8 Automated Incubator



405 LS interfaces with BioStack for automated multiple plate processing.

Technical Details:

General

Microplate types:	96- and 384-well Low profile and standard height Solid and filter bottom (filter pore sizes 0.45 µm to 1.2 µm)
Separation:	Biomagnetic separation, vacuum filtration (optional)
Onboard software:	Create, edit or run multiple protocols
Software:	LHC2 pc software LHC2 Secure for 21 CFR Part 11 compliance (option) SiLA Compliant driver (option)
Automation:	BioStack and 3 rd party automation compatible BioSpa™ 8 Automated Incubator compatible

Washing

Manifold types:	96-well washing: 96-tube (8x12) manifold 96-/384-well washing: Dual-Action™ 96-tube (8x12) 384-well washing: Dual-Action™ 192-tube (16x12)
Washing speed:	96-wells, 300 µL/well, 3 cycles; <30 seconds 384-wells, 100 µL/well, 3 cycles; <80 seconds 384-wells, 400 µL/well, 1 cycle; <20 seconds
Volume range:	25 – 3,000 µL/well, in 1 µL increments
Buffer selection:	Automated internal switching of up to 4 wash buffers (option)
Flow rates:	High flow to low flow Optimized rates for cell assays
Wash cycles:	1 – 250
Dispense precision:	<3% CV: 300 µL/well (96-well washing) <4% CV: 80 µL/well (384-well washing)
Residual volume:	<2 µL/well (96- & 384-well plates) 96-tube manifold for 96 wells 192-tube manifold for 384 wells
Shaking:	Programmable up to 60 minutes Slow, medium, fast or variable
Soak time:	Programmable, up to 60 min.

Physical Characteristics

Power:	100 – 240 Volts AC 50/60 Hz
Dimensions:	17"D x 14"W x 10"H (43.2 x 35.6 x 25.4 cm)
Weight:	With internal buffer switching – 36 lbs (16.5 kg) Without internal buffer switching – 30 lbs (13.5 kg)

Regulatory

Configurations for *In Vitro* Diagnostic use are available. CE and TUV marked, RoHS compliant.

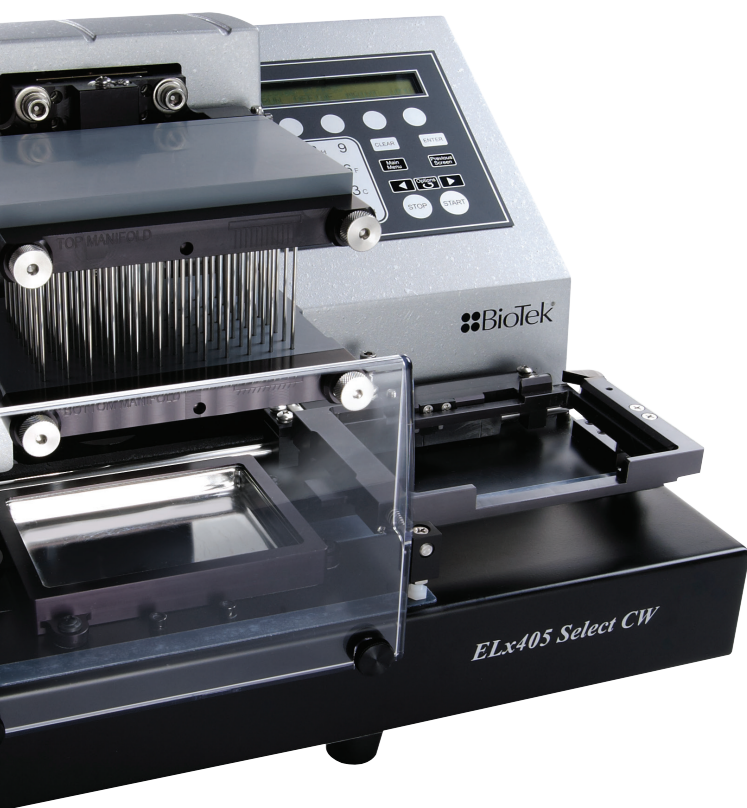
Technical details are subject to change.

ELx405™ Select Deep Well Washer

BioTek's deep well microplate washer aspirates and dispenses into 96- and 384-well plates ≤50 mm in height. ANSI/SBS standard microplates are also accommodated, resulting in a total solution for all of a laboratory's solid bottom microplate washing needs.

The ELx405™ Select Deep Well Microplate Washer is a robot compatible, full plate washer incorporating BioTek's patented Dual-Action™ manifold with independent filling and evacuation control for precise overflow washing and overflow protection.

Available low-flow rates and angled dispensing make the ELx405 particularly useful in cell-based assays. With optional patented Ultrasonic Advantage™, BioTek washers are the only products available today with built in ultrasonic cleaners able to automatically prime with cleaning solution, sonicate tubes to remove any protein or salt crystal build up and re-prime with rinse or wash buffer leaving the instrument clean and ready for its next wash.



Features:

- Washes microplates ≤50 mm in height
- 96- and 384-well formats
- Optional cell washing with gentle, low-flow rates and 20° angled dispense tubes
- Dual-Action™ manifold for independent dispense and aspiration control
- Available automatic 1-to-4 wash buffer switching
- Optional patented Ultrasonic Advantage™ – built in ultrasonic cleaner for manifold self-maintenance
- Biomagnetic separation ready
- Software control from onboard keypad or Liquid Handling Control™ PC Software
- 21 CFR Part 11 compliance with LHC™ Secure Software
- BioStack™ Microplate Stacker compatibility for standard height plates

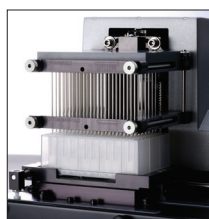
Typical Applications:

Deep Well Plates

- Plasmid DNA purification
- Serum/plasma sample preparation
- Cell signaling – phospho flow setup for flow cytometry
- Hematopoietic progenitor cell enumeration
- Cell culture – bacterial, yeast and mammalian cells grown in suspension

Standard Height Plates

- ELISAs
- MSD assays
- HCS immune cytochemistry
- Cell-based assays
- Magnetic bead assays – such as gene expression and cytokine panels
- ELISPOT assays



The ELx405™ Select Deep Well Washer aspirates and dispenses into full size 96- and 384-well blocks with unattended operation.

Configurations:

Configurations	Part #	96- /384-well	Deep well	Cell wash	Wash buffer switch	Ultrasonic Advantage	Biomag sep
ELx405™ Select	ELX405UD	●	●				●
	ELX405USD	●	●			●	●
	ELX405UVD	●	●		●		●
	ELX405UVSD	●	●		●	●	●
	ELX405UCWD	●	●	●			●
	ELX405UCWSD	●	●	●		●	●
	ELX405UCWWD	●	●	●	●		●
	ELX405UCWWS	●	●	●	●	●	●

Optional Accessories:

- Dispense/Waste Systems – choice of 4L or 10L bottles and standard or high flow* vacuum pumps
- Direct Drain Waste System
- Product Qualification Package
- BioStack™ Microplate Stacker
- Liquid Handling Control™ PC Software
- Magnets – choice of 96- or 384-well formats

Technical Details:

Assays:	ELISA Cell-based assays (<i>configuration dependent</i>) Magnetic bead <ul style="list-style-type: none"> • Multiplex assays • Bead-based ELISA
Microplate types:	96- and 384-well Low profile and standard height Deep well up to 50 mm
Magnet:	Choice of high strength, flat or ring designs 96- and 384-well formats
Onboard software:	2x24 character backlit LCD display
Software:	Optional LHC™ PC Software for wash protocol programming and execution
Manifold type:	96-/384-well washing - Dual-Action™ 96-tube (8x12)
Washing speed:	96-well (96-tube manifold) - <30 sec: 3 asp./disp. cycles, 300 µL/well
Fluid delivery:	Internal positive displacement pump
Volume range:	50 – 3,000 µL/well
Buffer selection:	Optional switching of up to 4 wash buffers
Wash cycles:	1 – 10
Dispense precision:	≤3% CV
Residual volume:	≤2 µL/well
Shaking:	User-programmable speeds and timing
Soak time:	1 – 600 seconds
Power:	100 – 240 Volts AC. 50/60 Hz
Dimensions:	Depth: 17" (43.2 cm) Width: 14" (35.6 cm) Height: 11" (27.9 cm)
Weight:	30 lbs (13.5 kg)

Regulatory

In Vitro Diagnostic use configurations available. CE and TUV marked, RoHS compliant.

*High flow vacuum pump recommended for 384-well washing with buffers not containing surfactant.

Technical details are subject to change.

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