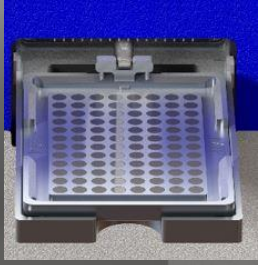




# Centrifugal Blue® Washer

Better cellular assay data. Faster, cheaper mag bead assays.

BLUE CAT BIO



## Magnetic Blue® Carriers for tip-less mag bead wash

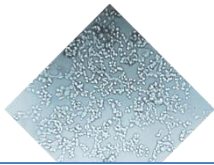
## Centrifugation instead of aspiration

## Cell-friendly Blue® Dispensers for 96, 384 & 1536w plates

Blue® Washer uses contamination-free **centrifugation** to remove liquids from 96, 384 and 1536w plates, eliminating background and variability in assay data without disposable tips

### Cellular Assays

Highly reproducible residual volumes <0.3µl/well raise z' by 0.1 to 0.3 for typical cellular assays. Higher z' means more reliable compound profiles - fewer false negatives and false positives.



#### Media change and cell wash for HTS, HCS, FLIPR®, genomic assays

##### Better Data

- Z' lift 0.1-0.3
- Better %CV
- Lower background due to residual volume: 0.1-0.3µl/well
- No contact, no "donuts"

##### Simpler Assay Design

- Fewer wash steps
- Simpler assay automation
- Simpler transition to 1536

##### More Reliable Screens

- No clogged needles
- No re-calibration
- Constant residual volume

##### Fast, Compact, Quiet

- < 20 sec to evacuate plate
- 40 cm x 70cm footprint
- No compressed air or vacuum

### Magnetic Bead Assays

With a suite of magnetic Blue® Carriers, Blue® Washer dramatically reduces run time and tip waste for magnetic bead assays. Magnetic carriers retain beads during centrifugal evacuation, eliminating costly and time consuming liquid removal by automated liquid handlers.



#### Contamination-free, tip-less mag bead wash NGS, PCR clean-up, Luminex®

##### High Throughput

- Evacuates any plate < 20sec
- Frees up automated liquid handler (ALH)
- Easy to automate and integrate

##### Saves Cost

- Doubles ALH throughput
- Tip-less evacuation – less waste

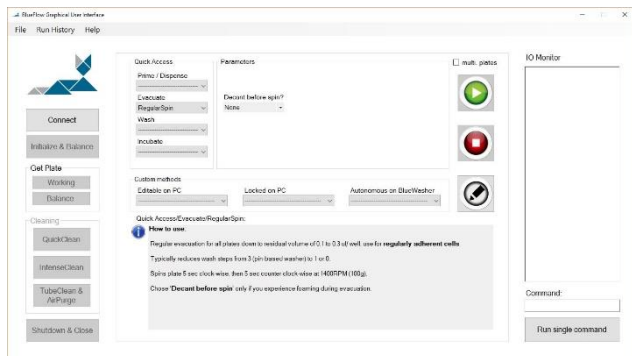
##### Better Data

- Lower background and variability due to consistent and complete buffer removal

# Blue® Washer: standalone - benchtop automated – HTS integrated

## Intuitive Blue® Flow Graphical User Interface

- Quick access to all Blue® Washer functions
- Single-click cleaning for effective contamination control
- Workflow editor for simple programming of complex workflows



## Blue® Bench

- Compact, user friendly and modular benchtop automation for Blue® Washer and other stand-alone instruments



## Easy to integrate & automate with third party high-throughput systems

- Open, well documented API
- Easy plate pick-up by simple gripper
- Blue® Washer autonomous mode minimizes remote control complexity
- Gravity waste drain – no pump, no filters
- Integrations: Agilent, Beckman Coulter, BioNex, BioSero, Hamilton, HighResBio, ThermoFisher

## Options and accessories



Magnetic Blue® Carriers for 96, 384, 1536w plates for magnetic bead applications



Dispense from up to 7 liquid inputs



Blue® Daily cleaning solution



Blue® Intense cleaning solution

Download literature and CAD files at: [www.bluecatbio.com](http://www.bluecatbio.com)



**12/2016 Journal of Biomolecular Screening paper by S. Knight (AstraZeneca) et. al.: Enabling 1536-Well High-Throughput Cell-Based Screening through the Application of Novel Centrifugal Plate Washing.**

“... In this study, we describe the **novel application of a centrifugal plate washer** to facilitate miniaturization of a range of 1536-well cell assays and techniques to reduce edge effects, all of which improved throughput and data quality. Cell assays currently limited in throughput because of cost and complex protocols may be enabled by the techniques presented in this study.”

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## Intuitive choice of evacuation options

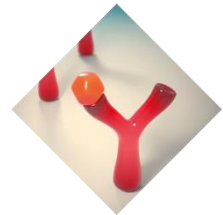
From emulating manual decanting to evacuating plates down to 1,000x less residual volume than aspiration-based washers, Blue® Washer offers evacuation options for a wide range of applications with single-click access from the “Evacuate” Menu on the graphical user interface.

Evacuate



### HardDecant

- Emulates manual decanting – reproducibly & automated
- For low affinity ELISA



### MagBeadSpin

- Emulates manual tapping – reproducibly & automated
- For magnetic bead applications

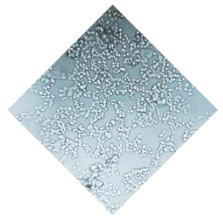


### GentleSpin

### LightSpin

### RegularSpin

- 2-4x dryer than manual tapping
- For contact-free media change in adherent cellular assays

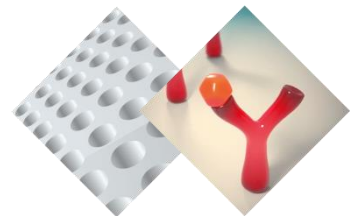


### StrongSpin

### ExtraSpin

### SuperSpin

- 10-1,000x dryer than manual tapping
- For automated & complete slide drying for array imaging, “no wait”
- For complete ELISA background removal



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# Blue® Washer specifications

<b>Applications</b>	<b>Contactless media change &amp; liquid evacuation with near zero, reproducible residual volume</b> <b>Magnetic bead washes</b> with magnetic carrier for 96, 384, 1536 well MTPs
<b>Compatibility</b>	Any SBS format plate up to 17.4mm height (including 1536 well) strip or slides, custom formats programmable; dispensing into 96 and 384 well plates; 1536 well MTP option
<b>Centrifuge system</b>	Liquid evacuation by centrifugation; plates positioned in symmetric rotor with well openings facing outwards to expel liquids. Rotor driven by computer controlled, high power servo motor
<b>Residual volume</b>	0.01µl to 5µl per well, depending on application-specific evacuation method selected
<b>Shaking &amp; incubation</b>	Programmable speeds, rocking angles and time, ideal to break up liquid layers
<b>Centrifuge specs</b>	<b>RPM:</b> 5 to 3,500 RPM (= 630 g), <b>Acceleration:</b> <1,500 RPM/s, <b>Deceleration:</b> < 1,000 RPM/s <b>Maximum weight difference</b> between active plate and balance plate in dry condition: 15 g @ 3,500 rpm, 20 g @ 2,000 rpm, 35 g @ 1,500 rpm, 70 g @ 1,000 rpm
<b>Dispense system</b>	Precision membrane pump and electromechanical valves controlled by on-board Linux CPU
<b>Liquid inputs</b>	Choice of 4 or 7 liquid inputs with Luer lock fittings
<b>Specifications</b> (all volumes per well)	<b>Manifold:</b> 8, 16, or 32 needles (for 96/384/1536 well MTP) <b>Dispense jet position:</b> Slanted dispenser mount to aim at well walls, plate off-set adjustable <b>Dispense pressure:</b> adjustable in 5 steps, from approx. 35% to full pressure <b>Dispense speeds:</b> 96w MTP: 7 sec @ 100µl; 384w MTP: 13 sec @ 50µl; 1536w MTP: 13 sec @ 8µl <b>Range &amp; accuracy:</b> 96 and 384 MTP: >5µl, < 3%CV @ 100µl; 1536 MTP: >3µl, < 5%CV @ 10µl
<b>Internal dead volume</b>	8 ml (input connector to dispenser pin tips)
<b>Tubes</b>	<b>Reagent tubes:</b> length: 1m, Ø outside: 5mm, Ø inside: 3mm; Luer locks on both ends connect Blue® Washer input to Luer lock on GL-45 cap for reagent bottle, color-coded
<b>Software and operation</b>	<b>PC-based GUI</b> with quick access to pre-set, application specific evacuation methods and <b>editor</b> to customize methods and program workflows. <b>Autonomous mode</b> to run methods from Blue® Washer's internal memory
<b>Automation</b>	Easy plate load/ pick-up by simple robotic gripper; standard API, USB and Ethernet Available automated plate loading via <b>Blue® Bench</b> ; choice of plate storage in up to 5 stacks or random access hotels with auto de-lidding/ re-lidding
<b>Safety</b>	Centrifugation shut off in case of excessive vibration; sensor controlled interlocking door
<b>Cleaning &amp; decontamination</b>	Single touch <b>QuickClean</b> and <b>IntenseClean</b> protocols with custom <b>Blue® Daily</b> and <b>Blue® Intense</b> cleaning solutions highly effective to clean and decontaminate Blue® Washer interior
<b>Dimensions (HxWxD)</b>	20.5 cm x 36.5 cm x 69.0 cm   8.1" x 14.4" x 27.2" (without plate nest: 54.5 cm   21.5"); electrical and liquid connections on left side wall of Blue® Washer housing
<b>Weight</b>	27 kg   60 lbs
<b>Power requirements</b>	100 – 240 V, 50/60 Hz, 350 W, auto sensing, I max = 10A
<b>Ambient temperature</b>	15°C – 55°C   60 F – 130F

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