

MoFlo XDP High-Speed Cell Sorter



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respective owners.*

Beckman Coulter Sorting History



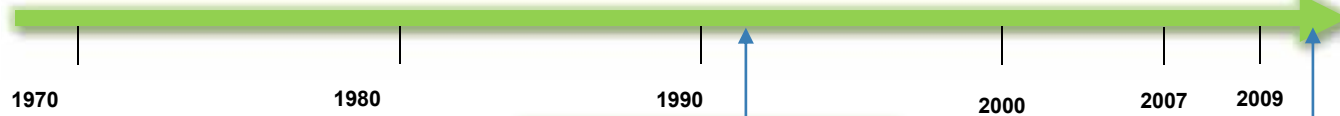
**Beckman
Coulter Elite**



MoFlo Legacy



MoFlo XDP



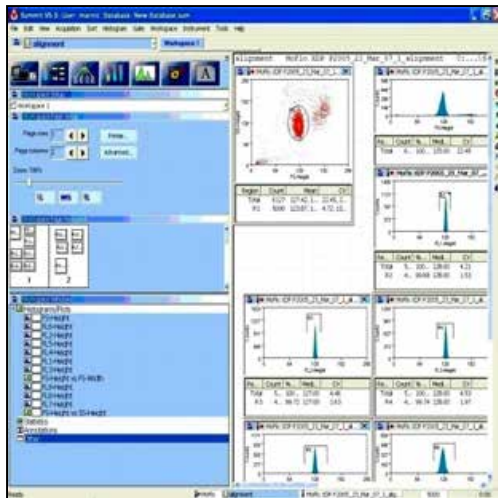
**Beckman Coulter
Epics ALTRA**



MoFlo Astrios

MoFlo XDP Future Plans

- Sorter has proven performance and is not being phased out
- Different features than MoFlo Astrios
- Comprehensive plan for future enhancements
 - Lasers, Software, Filters



Open Architecture

- All components are within easy reach
- System is easily configurable to meet your labs needs
- Instrument set-up simplified with Touch Screen Control Panel



SmartSampler – Sample Input



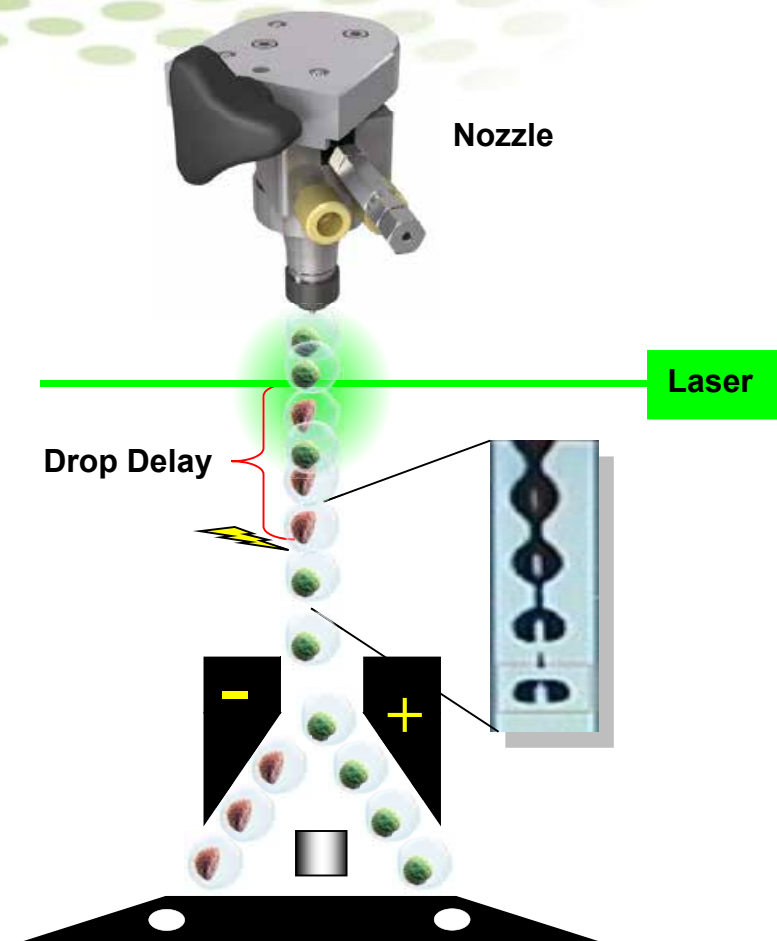
	0.5 ml	1.0 ml	1.5 ml	5 ml	7 ml	15 ml	50 ml
MoFlo Astrios	X	X	X	X	X	X	X
MoFlo XDP	X	X	X	X	X	X	X
Competitor A		X	X	X		X	
Competitor I				X			
Competitor R			X	X			

- Reduce the need for sample aliquoting prior to sorting
- Immediately process your customer's sample without added risk of contamination or spillage
- Greater laboratory efficiency
- Temperature control for all sizes



Jet-in-Air Nozzle

- Simply faster than cuvette
- When combined with fluidic stability, sort purity, yield and the complexity are not compromised
- 50, 70, 80, 90, 100, 120, 150 and 200 μ m tips available
- 70 μ m and 100 μ m tips compatible with IntelliSort II
- Autoclavable tips

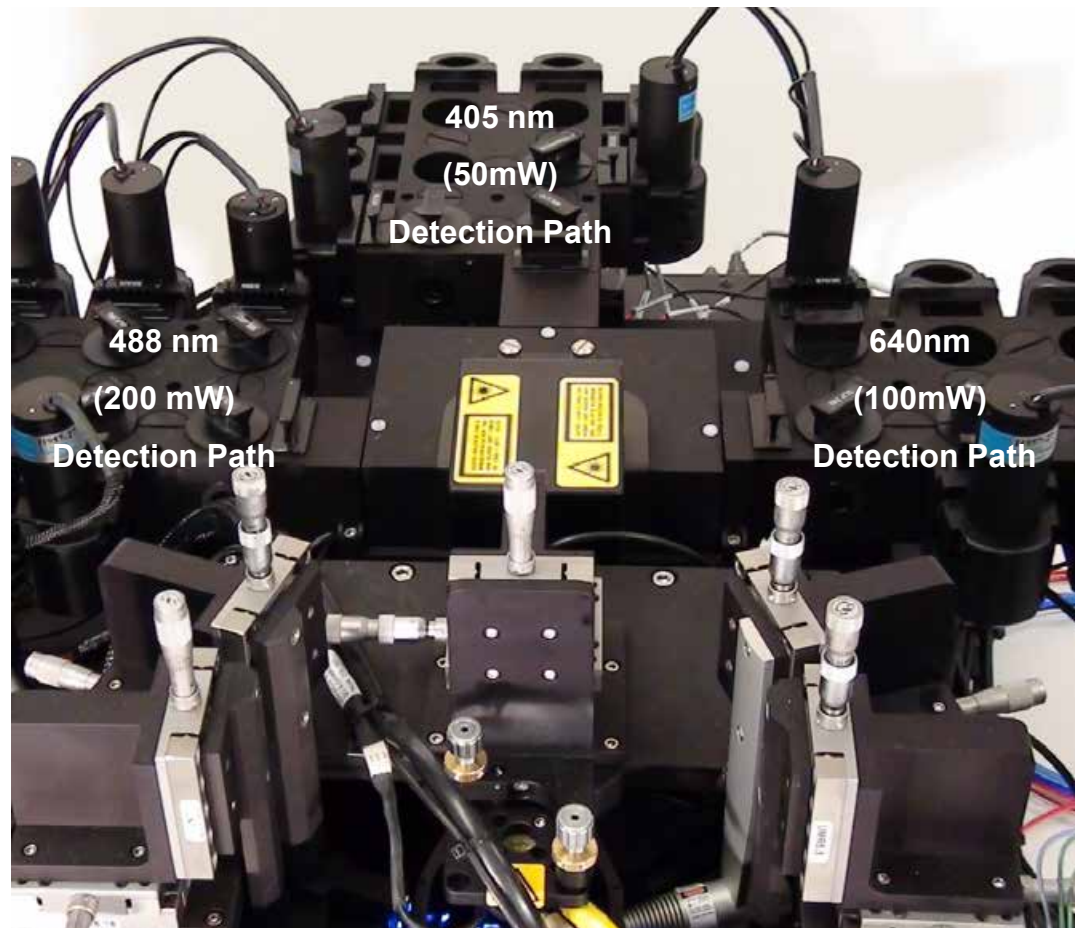


Standard MoFlo XDP Laser Options

- 355nm (100mW)
- 405nm (50mW)
- 488nm (200mW)
- 532nm (200mW)¹
- 561nm (200mW)¹
- 635nm (25mW)
- 640nm (100mW)
- 640nm (100mW)^{1, 2}
- Water cooled lasers

¹ In development

² Fiber coupled with BSO



Custom (Co-Lase) MoFlo XDP Laser Options

PROPELlabs

Co-Lase Laser Combining Tower
Expand your MoFlo™ XDP to 6 simultaneous excitation lines

Co-Lase Laser Combining Tower provides MoFlo XDP expandability to nearly any commercial system with three applications available. Instruments designed for the MoFlo, a custom Basic Imaging Optics provides independent or collinear beams to maximize cross application capabilities. Co-Lase towers are compatible with all optical paths of MoFlo XDP and the towers are integrated and controlled through the Touch Screen Control Panel. Co-Lase towers and accessories options are available for bulk use and existing MoFlo XDP high speed users.

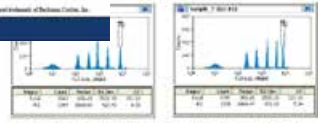

Standard Co-Lase Laser Combining Tower Configurations:

- 473nm (100mW) and 640nm (100mW)
- 517nm (100mW) and 581nm (100mW)
- 473nm (100mW) and 581nm (100mW)
- 532nm (200mW) and 640nm (100mW)
- 517nm (100mW) and 640nm (100mW)

Single Laser Co-Lase Towers for Future Expandability:

- 517nm (100mW)
- 581nm (100mW)
- 473nm (100mW)
- 640nm (100mW)
- 532nm (200mW)
- 640nm (100mW)

MoFlo is a registered trademark of Beckman Coulter, Inc.



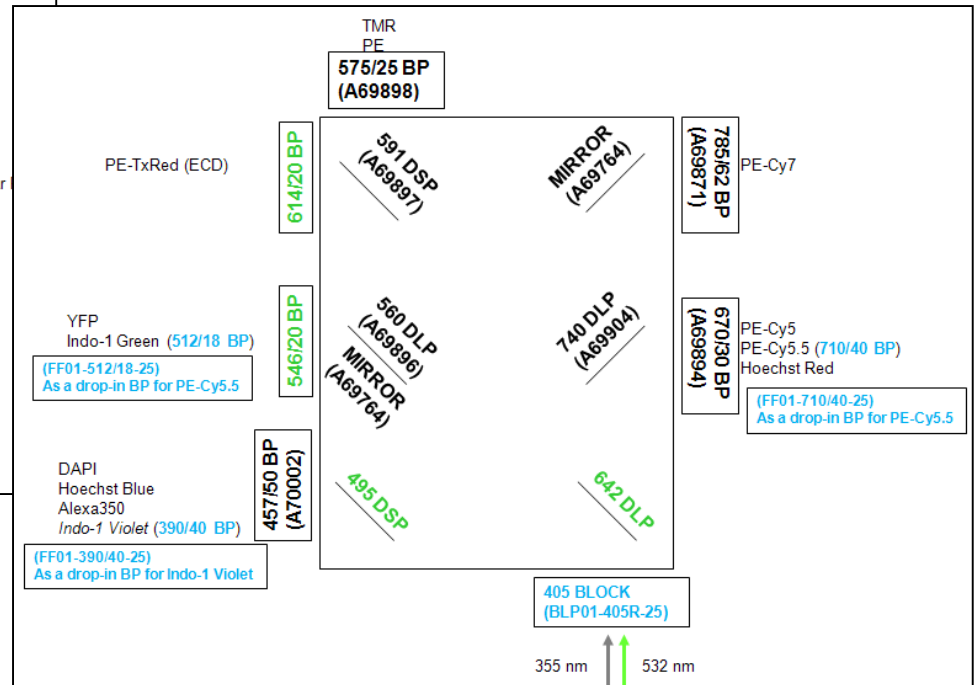
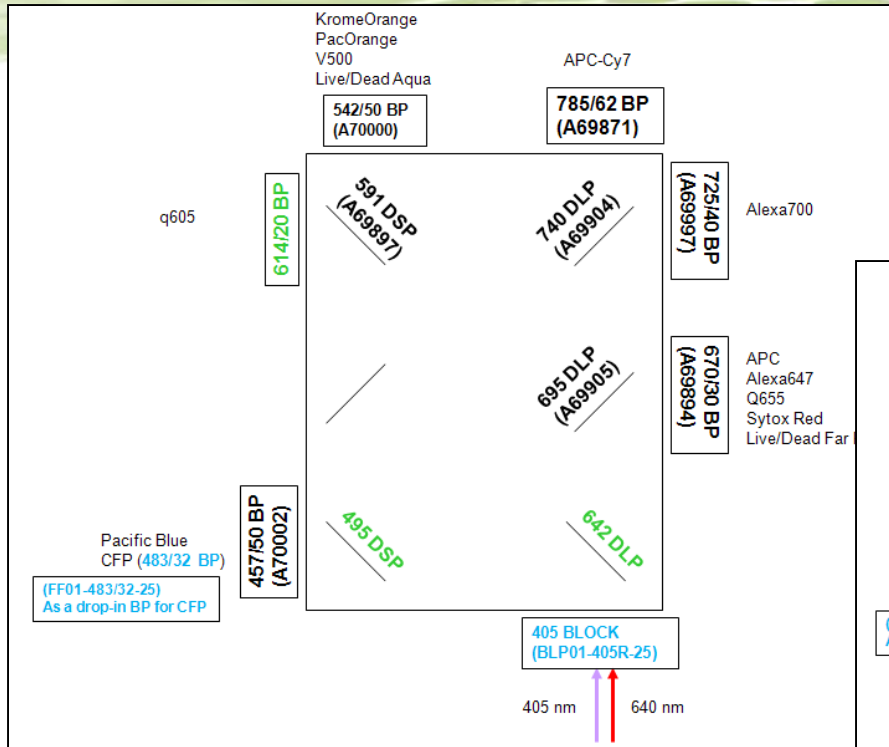
PROPEL LABS, 5240 1st Street, San Diego, CA 92121
Phone: 619-594-0000 Fax: 619-594-0001 www.beckman.com

- 355nm (100mW)
- 405nm (100mW)
- 460nm (500mW)
- 532nm (200mW)
- 561nm (100mW)
- 640nm (100mW)



3 Pinholes : 6 Lasers

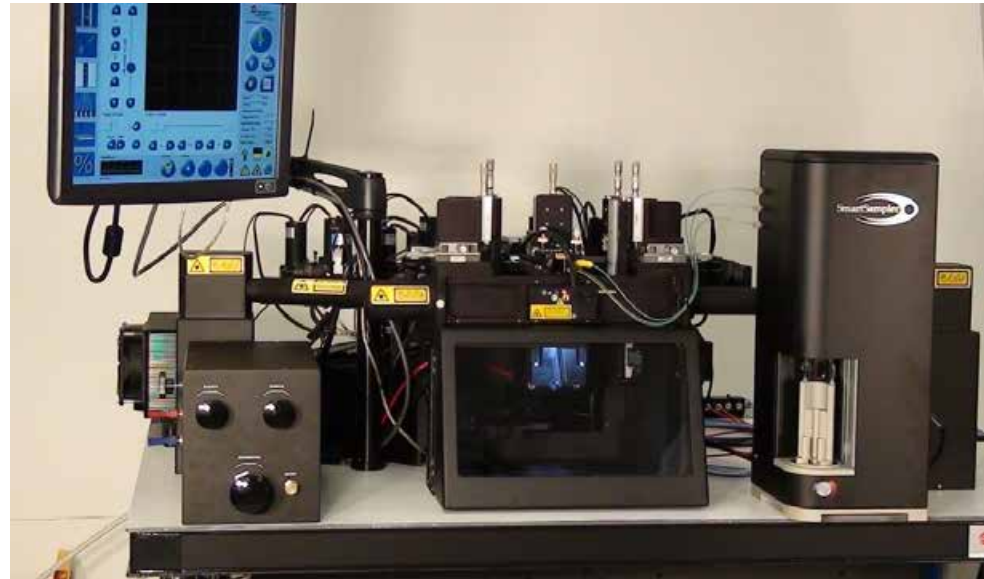
Collinear Filter Set Examples



POD Flexibility

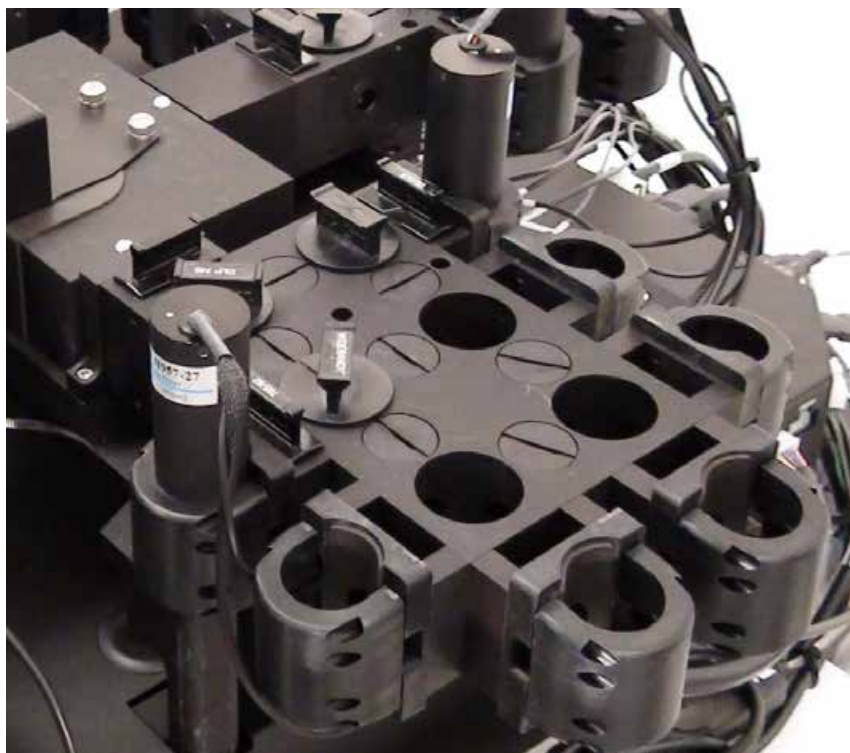
Open Platform Laser Benefits

- Free-space lasers
- Fiber coupled lasers
- Water cooled lasers:
 - Innova-90 Plus Series
 - Argon
 - Argon with UV
 - Krypton
- Tunable lasers:
 - 632 nm HeNe (25 mW)
- Existing lasers in your lab
- Future lasers to be developed



True Modularity from Lasers to Filters

Optics Detection: PODs



- Easily accessible
- Each POD houses 7 PMTs for each pinhole
- 20 simultaneous parameters collected
- Five-decade PMTs

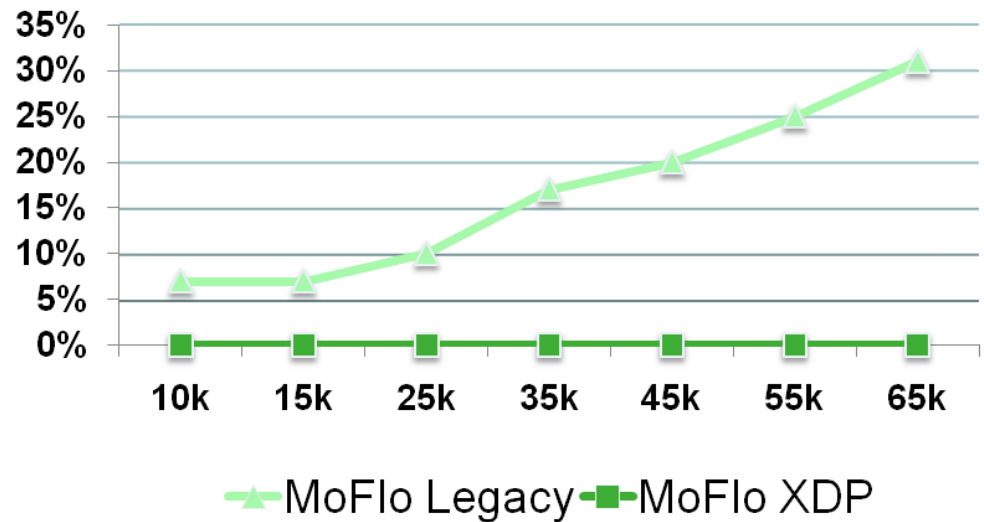
Configurable for Collinear Use

MoFlo XDP Electronics



- Hard Aborts vs. Soft Aborts
- Every cell identified

Hard Aborts vs. Sort Speed



Resolution and Dynamic Range

32 bits equate to more resolved data over a wide dynamic range



$2^{32} = 4,294,967,296$ channels



$2^{18} = 262,144$ channels

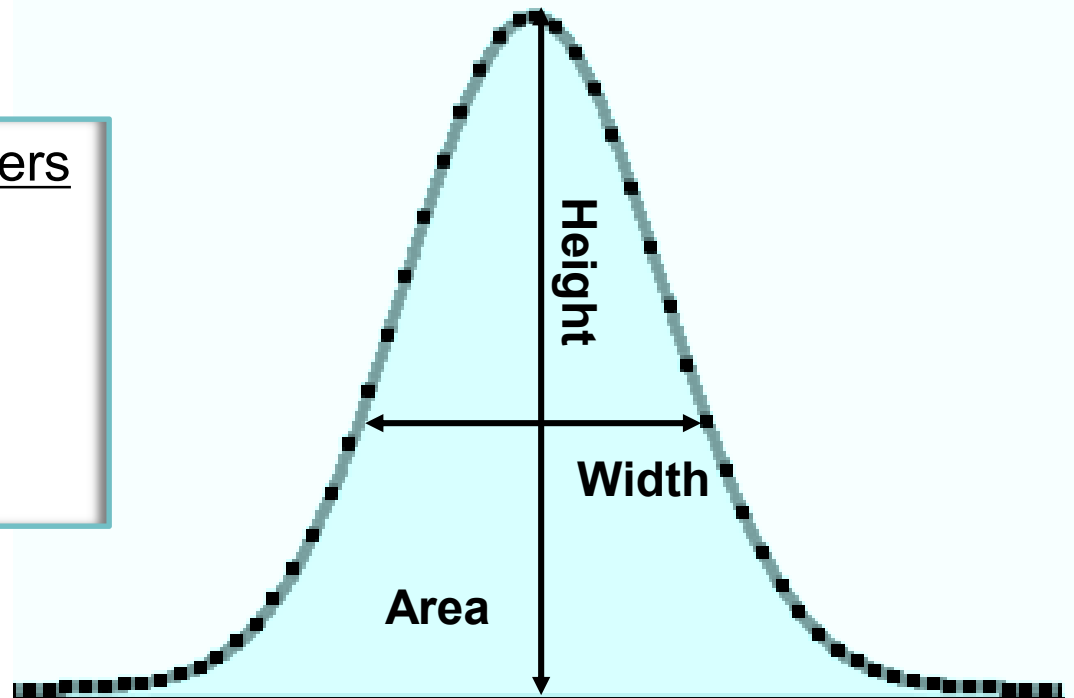
Greater Separation throughout (5-decade) Dynamic Range

Don't Be Limited with Your Data Collection

100 MHz sampling and 32 bit processing provide high resolution pulse definition

Collected for all 32 parameters

- Height
- Area
- Width
- Log
- Log Area



Data represented to the fullest using high resolution processing

Sensitivity

Speed and Sensitivity Required

- Laser technology: smaller, cheaper and more powerful
- Filter technology: hard coated and reproducible
- Beam Shaping Optics: greater power density at the core stream

No longer an objection for Jet-in-Air Sorters

Sort Speed

100,000 eps analysis

70,000 eps sorting

Zero dead time

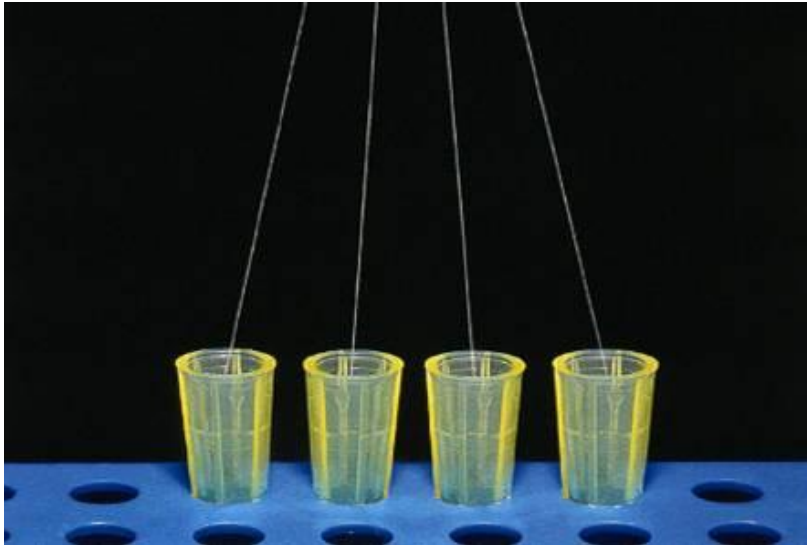
Validated specifications

Fluidic stability

Electronic capacity



4-Way Sorting



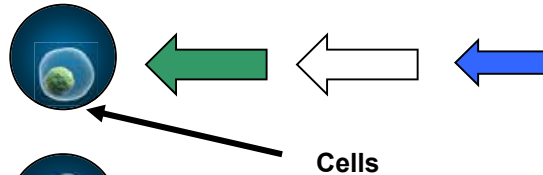
- Independent deflection of each stream
- Sorts up to four populations simultaneously
- Temperature controlled
- Mixed mode sorting
- 4-Way: 1.5 and 5ml tubes
- 2-Way: 1.5, 5, 15 and 50ml tubes

Population sorting with maintained speed increases productivity

Sort Mode Capabilities



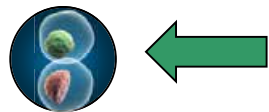
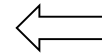
Enrich mode



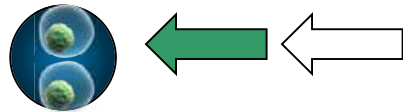
All positive cells are sorted.



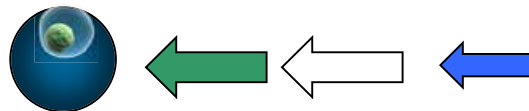
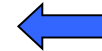
Purify mode



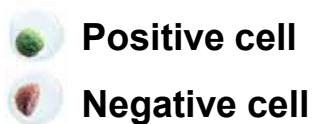
All negative cells are aborted and all positive cells are sorted.



Single mode



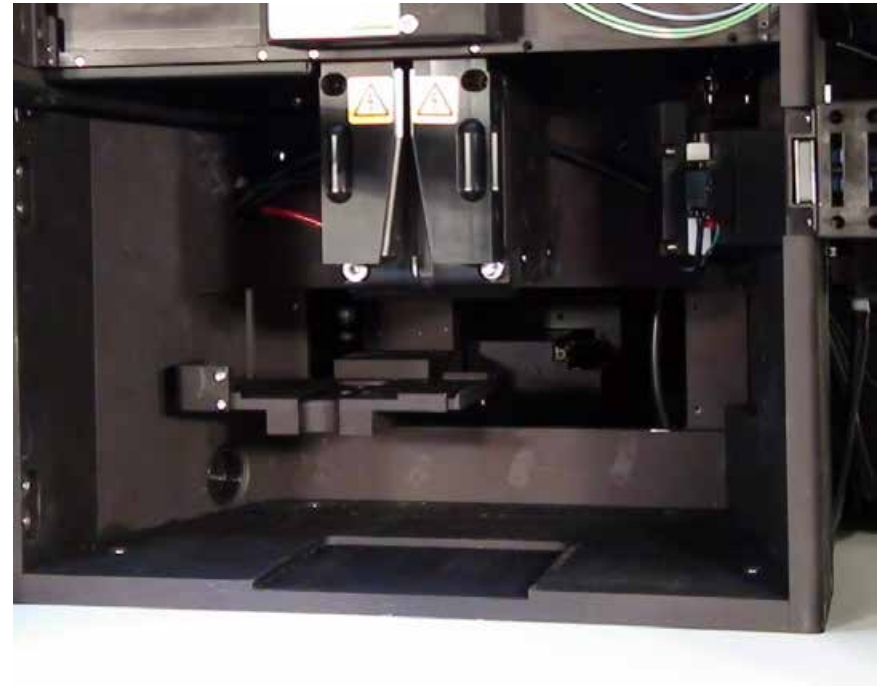
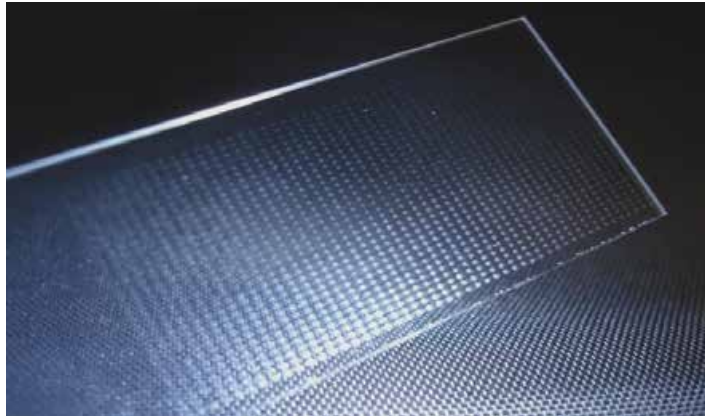
All negative cells are aborted and there must be only one positive cell in the drop. This very important mode is used when sorting into 96-well plates.



Research flexibility: any mode for any stream

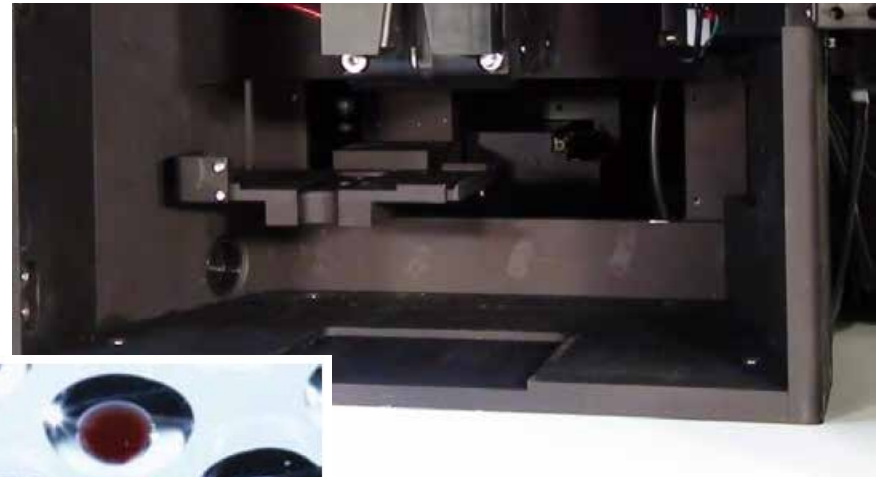
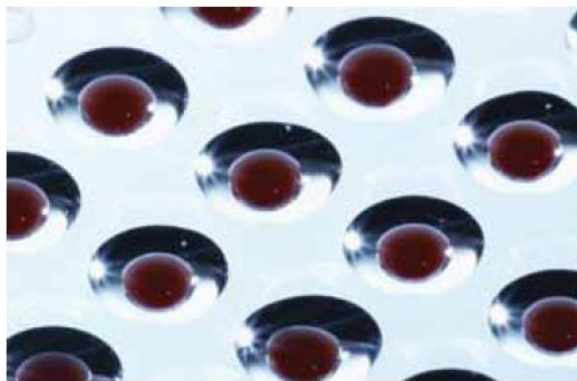
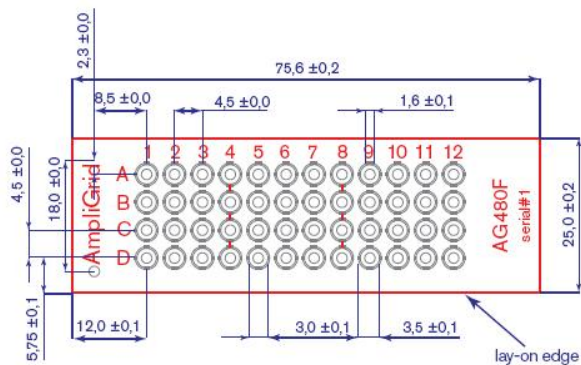
CyClone[®] Functionality

- X and Y movements
- Sorting precision unmatched
- Only instrument that can sort into 1536-well plates



Single Cell Analysis

- 48 positional spots
- Single cell PCR workflow

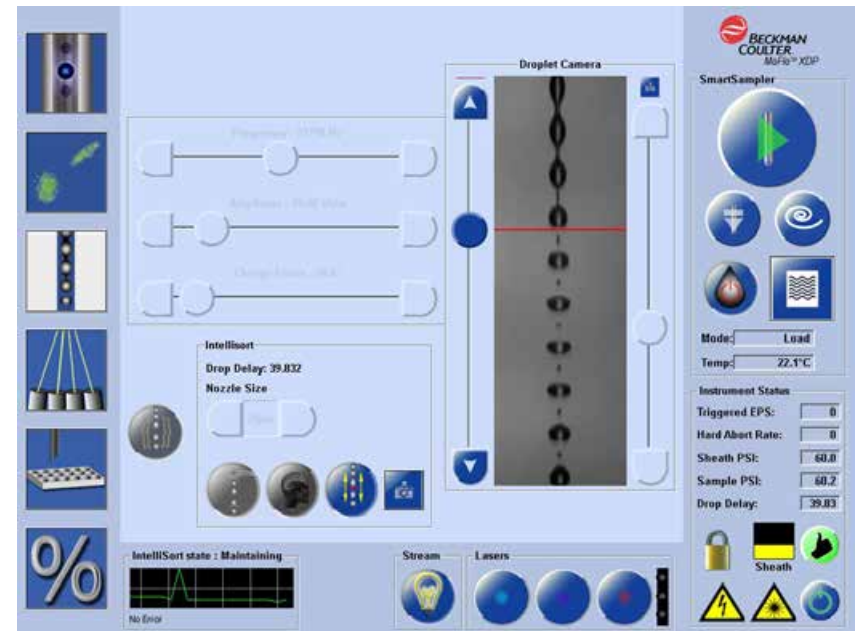


Sorting and Single Cell Analysis

IntelliSort™ II

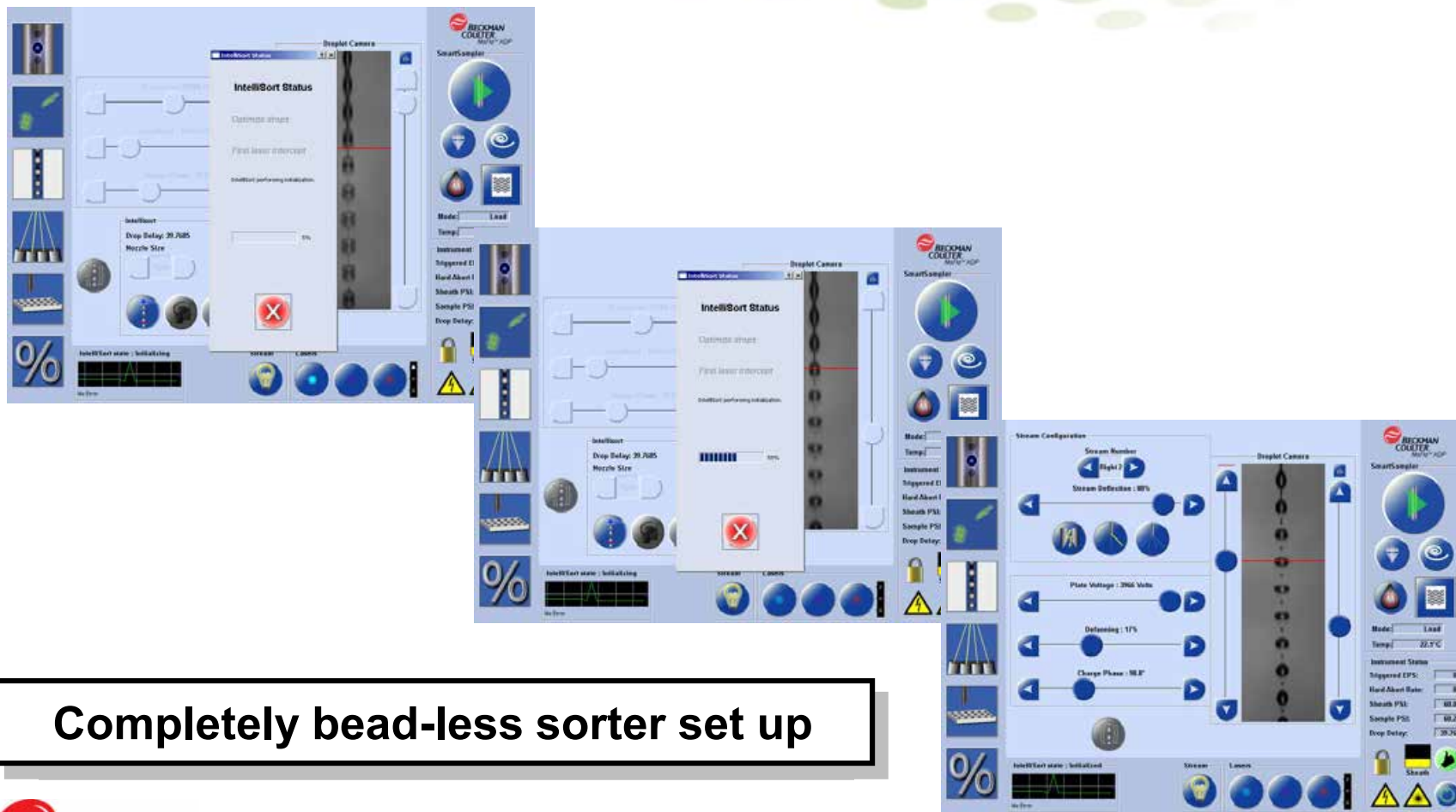
- True bead-less drop delay determination
- Compatible with 70µm and 100µm tips

- Touch Screen Control Panel set up



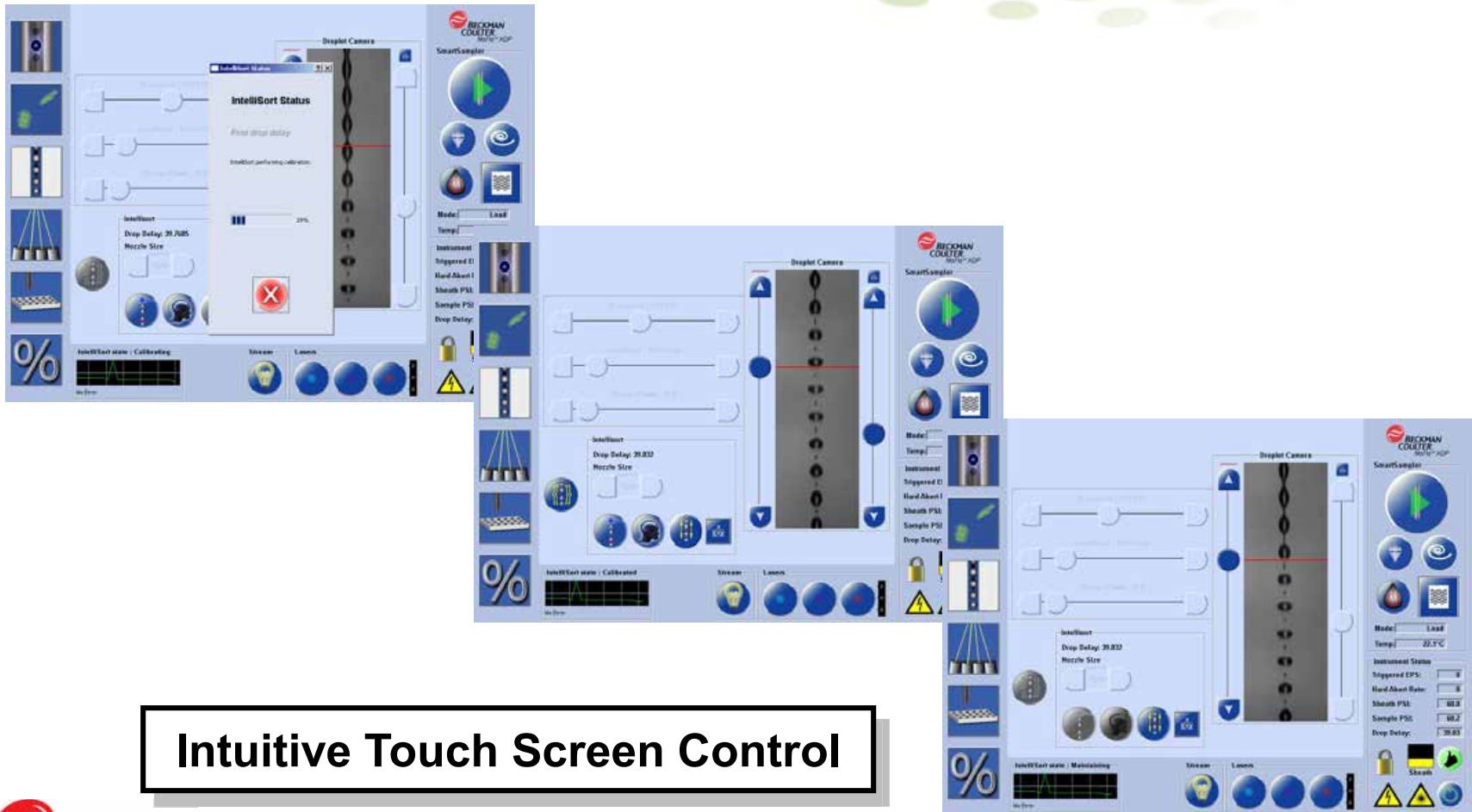
Fewer foreign particles in your sample line

IntelliSort II



Completely bead-less sorter set up

IntelliSort II

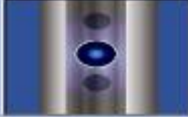







Intuitive Touch Screen Control

Touch Screen Control Panel

- Smart touch technology to intuitively set up your sorter



	Coarse Alignment	Pinhole illumination
	Fine Alignment	PMT settings Display height, area, width, log, log area for any parameter
	Droplet Control	IntelliSort II Image resolution
	Stream Configuration / Control	Individual stream deflection control Side stream control Stream illumination light
	CyClone Control	Simplified calibration controls Custom plates, slides and up to 1536 well plates Single cell deposition
	Sort Statistics	Efficiency statistic (# of cells sorted/# of possible cells sorted)

Touch Screen Control Panel

Coarse Alignment

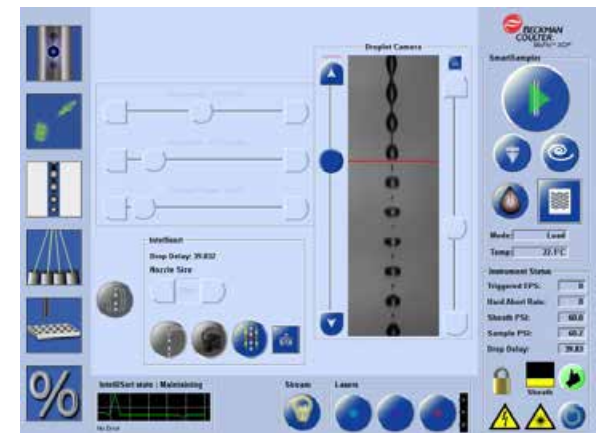
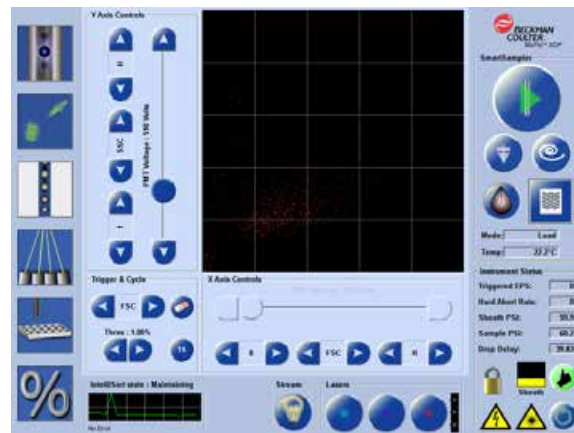
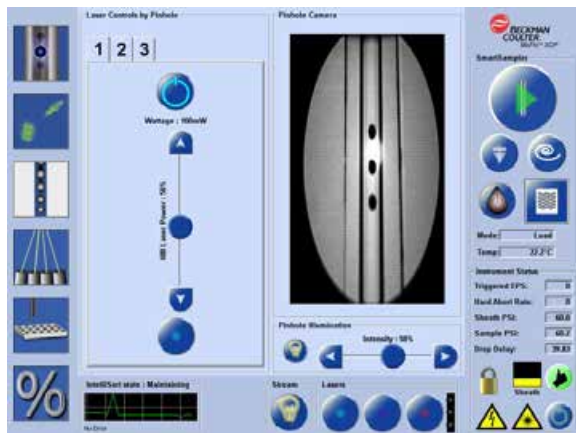
- Used for initial alignment of the instrument

Fine Alignment

- Used for fine adjustments to instrument alignment
- Setting parameters, data types, trigger, threshold and the data cycle rate

Droplet Control

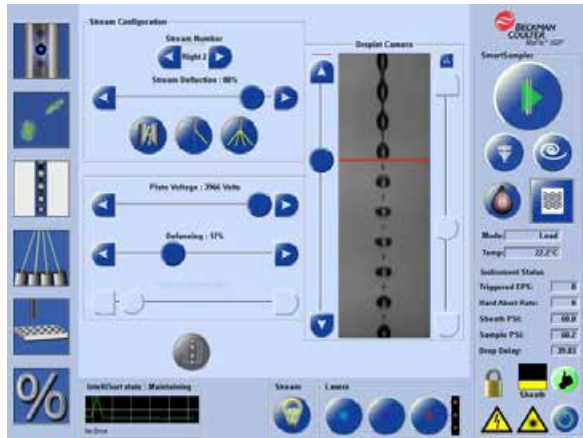
- Used for creating and viewing droplets



Touch Screen Control Panel

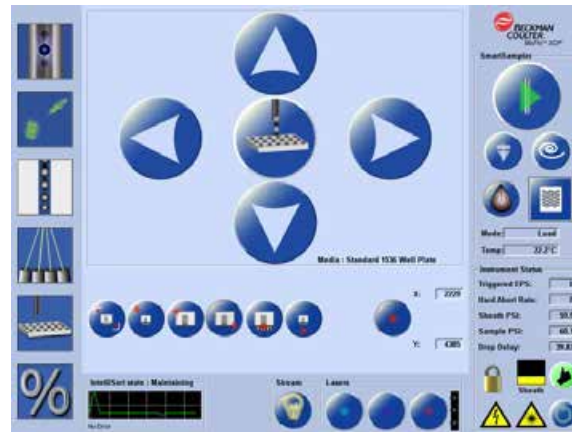
Stream Configuration

- Selects and adjusts sort streams prior to beginning a sort
- Controls Deflection Plate voltage, Charge Phase, Defanning, Stream Test Pattern and Drop Drive



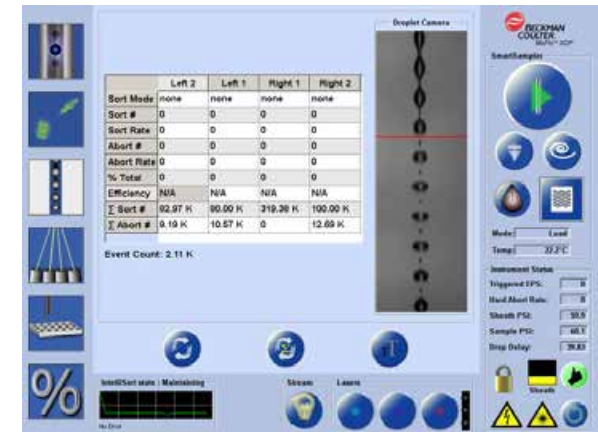
CyClone Configuration

- Used to specify the size and location of a plate, slide or tube



Sort Statistics

- View in large or small format for the sort statistics for each stream



Biosafety Cabinet



- BSL I and BSL II available
- Cabinet certified upon installation
- Certification performed with MoFlo XDP in the cabinet
- Externally mounted Touch Screen Control Panel for instrument set up
- Electronics and lasers housed externally to avoid excessive heat generation inside cabinet

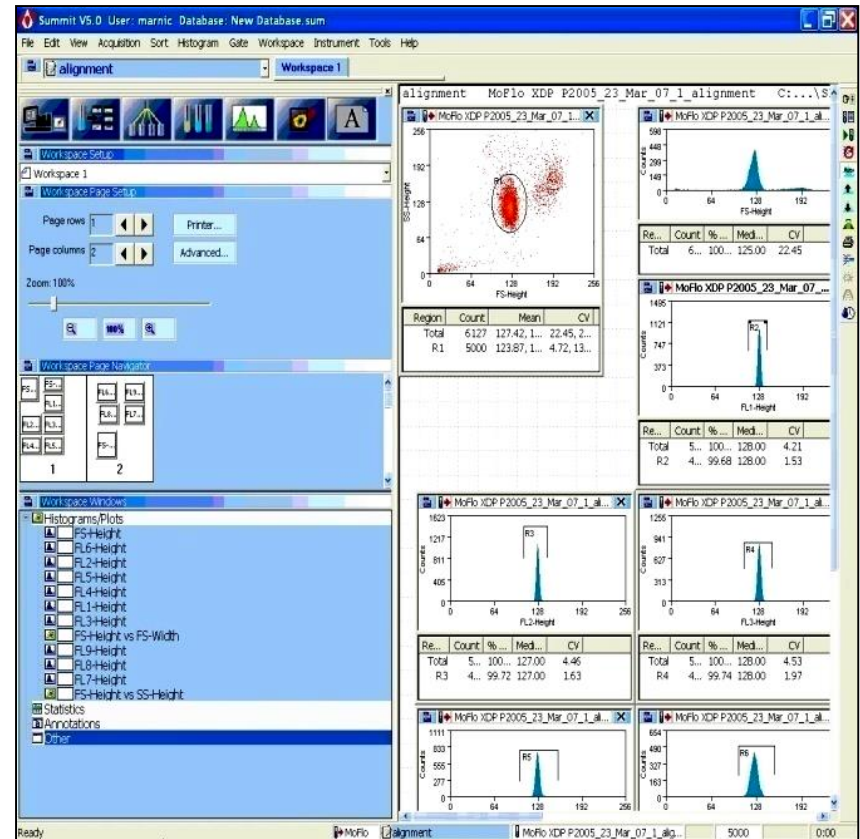
Biosafety

- Aerosol Evacuation System (AES)
 - Aerosols down to $0.12\mu\text{m}$
 - Removed from sort chamber
 - Filters pre-qualified by vendor
- Replaceable sample line and probe
- Autoclavable sheath and waste tanks



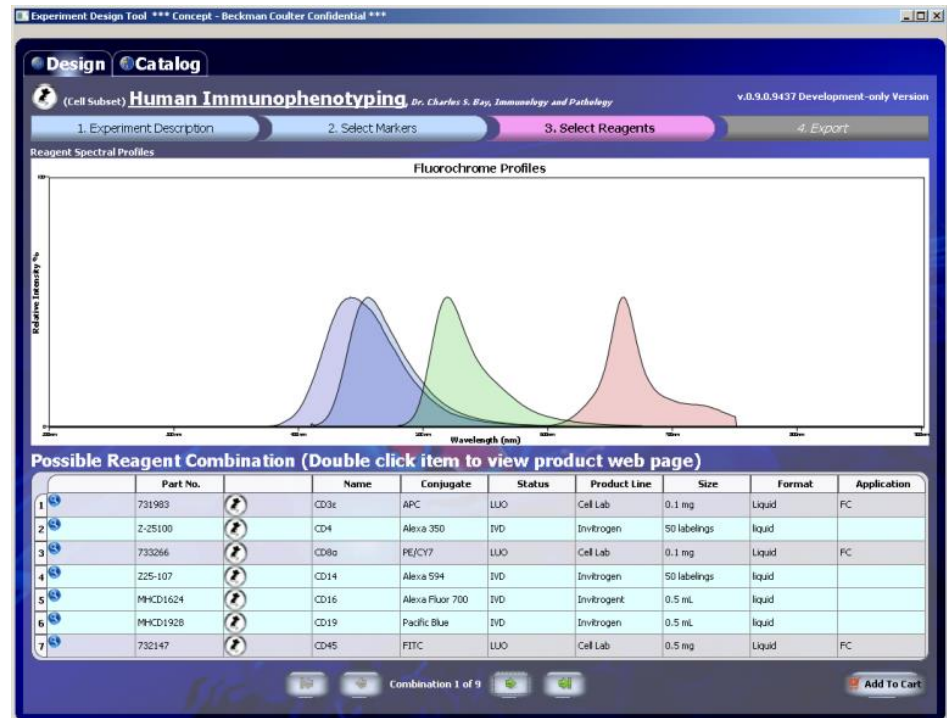
Summit Software™

- > 1 billion event listmode files
- VisiComp / Auto-compensation
- Compatible with MS Office
 - Export histograms and statistics
- Unlimited licenses available for off-line analysis



Experiment Designer™

- Simplify experiment creation
- Optimize high-color sorts
- Prevent data entry errors
- Document experiment design
- Provide a link to your reagents



Complex experiment planning for time savings

MoFlo XDP Features

- IntelliSort II: completely bead-less drop delay determination and monitoring
- Upgradeability through Co-Lase towers or BC-offered lasers
- Open architecture: open accessibility
- 3 pinholes – up to 6 lasers
- Viability known to Jet-in-Air sorters
- Speed unmatched – correlates to lab throughput
- BSL I and BSL II solutions certifiable upon installation
- Electronics that lead to every cell being properly identified
- Fluidic stability required for sorting

www.coulterflow.com