

# MoFlo Astrios EQ Series



## Cell Sorter Specifications

### Excitation Optics

#### Laser Palette

Wavelength	Stated Power	Beam Profile
355nm	100mW	Elliptical shape
405nm	55mW	Flat-Top shape
488nm	200mW	Flat-Top shape
532nm	150mW	Flat-Top shape
560nm	200mW	Flat-Top shape
592nm	200mW	Flat-Top shape
645nm	100mW	Flat-Top shape

**Number of laser interrogation points:** 7 discrete spots

**Number of pinholes:** 7

#### Standard Filter Sets optimized per laser wavelength:

355nm – PI, Hoechst (red and blue), DAPI  
405nm – Cascade Blue\*, Pacific Blue\*, Cascade Yellow\*  
488nm – FITC, PE, ECD (PE-Texas Red\*), PE-Cy5/PerCP, PE-Cy5.5, PE-Cy7  
532nm – PE, PE-Alexa\* 610, PE-Alexa 647, PE-Cy5.5, PE-Alexa 700  
561nm – mCherry, DSRred, mPlum, HCRred  
592nm – Texas Red, APC, APC-Cy7, Alexa 647, Alexa 700, Alexa 750  
642nm – APC, APC-Cy7, Alexa 647, Alexa 700, Alexa 750

### Emission Optics

**Resolution:** Resolves minimum 0.2µm diameter particles in forward scatter from background

**Fluorescence Sensitivity:** Fluorescence sensitivity of < 125 MESF for FITC and < 110 MESF for PE using Spherotech\*\* 8-peak beads using 488nm laser

**Optical Parameters:** Use of up to 7 spatially separated lasers across 44 parameters acquired simultaneously (out of 51 total available)

### Sort Performance

**Drop Drive Frequency:** Adjustable up to 200kHz

**Sort Purity:** > 99% at 70,000 EPS, 70µm nozzle at 60psi, using a Purify sort mode and a starting population of 1% positive events

**Sort Yield:** Greater than 90% of theoretically predicted yield

**Acquisition Rate:** Validated to 100,000 particles/sec

**Sort Rate:** Validated to 70,000 sort decisions/sec

#### CyClone (Sort Collection)

##### Plate Deposition:

- 6, 24, 96, 384 and 1,536-well plates
- Custom plate deposition
- Temperature controlled (heated or cooled) with water bath (optional)

##### Tube Deposition:

- MoFlo Astrios can perform up to 6-way sorting
- Up to 2-way sorting: 1.5, 5, 15 and 50 mL tube sizes (optional)
- Up to 4-way sorting: 3x5 mL plus 1x50 mL (optional)
- Up to 6-way sorting: 1.5 (optional) and 5 mL tube sizes
- Temperature controlled (heated or cooled) with water bath (optional)

##### Slide Deposition:

- Custom deposits in user defined pattern
- Index sorting is standard

#### IntelliSort II (Automated Drop Delay and Monitoring):

Using a proprietary algorithm, IntelliSort II is a fully bead-less process to calculate optimal droplet break-off. Upon optimization, IntelliSort II continues to monitor drop break-off.

## Electronic Processing

### Data Acquisition Parameters

**Scatter parameters:** Forward scatter (FSC), this includes 2 FSC parameters (EQ model) and Side scatter (SSC), which is only available for the 488 nm laser for all wavelengths  $\geq 405$  nm

**Parameter numbers:** Use of up to 7 spatially separated lasers across 44 parameters acquired simultaneously (out of 51 total available)

**Available Signal:** Log height and log area, linear height, area and width for each parameter

### Electronic (Hard) Abort Rate:

- Negligible dead time during analysis

**System Linearity:**  $2.0 \pm 0.05$  (singlets/doublets ratio for PI-stained CEN cells)

**Signal Processing:** 32 bits for pulse height parameters with 100MHz sampling

**Signal Dynamic Range:** 5 decades for log parameters. Scale can be expanded to display 4-9 decades.

### Compensation:

- 20X20 digital compensation matrix
- Auto Compensation with Summit Software
- VisiComp with Summit Software

### Acquired event capability

> 1 billion events .fcs files with no parameter limit

## Fluidics

**Jet-in-Air Nozzle:** 70 $\mu$ m, 100 $\mu$ m

**Sheath Pressure:** 10 – 85psi

**Sheath and Waste Containers:** Autoclavable 2.5 Gal. (9.45L) sheath and waste tanks

**Replaceable Sample Line:** Replaceable line from SmartSampler to nozzle

### SmartSampler (Sample Input):

- 0.5 mL, 1.0 mL, 1.5 mL, 5 mL, 7 mL, 15 mL, 50 mL tubes accepted. 5mL is the standard. All others are optional.
- Automatic agitation of sample
- Temperature control (-4 to 40°C) with water bath (optional)
- Automatic start-up, backflush and shutdown
- Any tube type (glass, polypropylene, polystyrene, etc.)
- Bubble detector on sample line to prevent air from entering nozzle
- Airtight chamber protects the operator from tube dislodgement or leakage from cracked or defective sample tubes

### Fluidics Pressure Control:

- Sample differential and boost are controlled through software for fine adjustments.
- Coarse adjustments for sample, sheath and boost are manually performed.

## Biosafety & Design

- Sort Rescue
- Aerosol Evacuation System (optional)
- Replaceable sample tubing and probe (SmartSampler to Nozzle)
- Autoclavable nozzle tip
- Autoclavable sheath and waste containers
- Removable sort chamber door
- Sort chamber with no sharp corners (designed to be easily cleaned)
- Easily cleanable deflection plates
- Quick Release nozzle
- Upper module and hood VHP tested

The Baker Company Class II Biological Safety Cabinet with the MoFlo Astrios installed and operational according to end user conditions was aerosol tested to the following International Biological Safety Cabinet Standards:

- NSF/ANSI International Standard 49- 2012
- European Standard (EN 12469:2000)
- British Standard (BS EN 12469:2000)
- South Africa National Standard (SANS 12469:2000)
- French Standard (NF-095:2006)
- China Standard (SFDA YY- 0569:2005)
- Japanese Industrial Standard (JIS K 3800:2009)
- Australian Standard (AS 1807.1:2009)

\*Certifications adhere to local Regulatory Standards.

## Regulatory Requirements

- Class I laser product per 21 CFR 1040
- Class 1 laser product per ANSI Z136.1:2007 and IEC 60825-1

*For research use only. Not for use in diagnostic procedures.*

*Class I laser product. All data claims performed using standard instrument laser and filter configurations.*

*\*\* Cascade Blue, Pacific Blue, Cascade Yellow, PE-Texas-Red and Alexa Fluor are registered trademarks of Molecular Probes, Inc.*

*\*\* Spherotech is a trademark of Spherotech, Inc.*

**For more information about the MoFlo Astrios EQ Cell Sorter Series, contact your local Beckman Coulter office or visit: [www.AstriosEQ.com](http://www.AstriosEQ.com)**

# See it. Sort it. Every well, every time.

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