Revolutionary
Cell Counting

OS 4.0

ORFLO®

PhileKorea
Specialized in Medical & Bio Science since 2000

The Moxi Z™ mini automated cell counter with new OS 4.0 gives you accurate results you can count on.
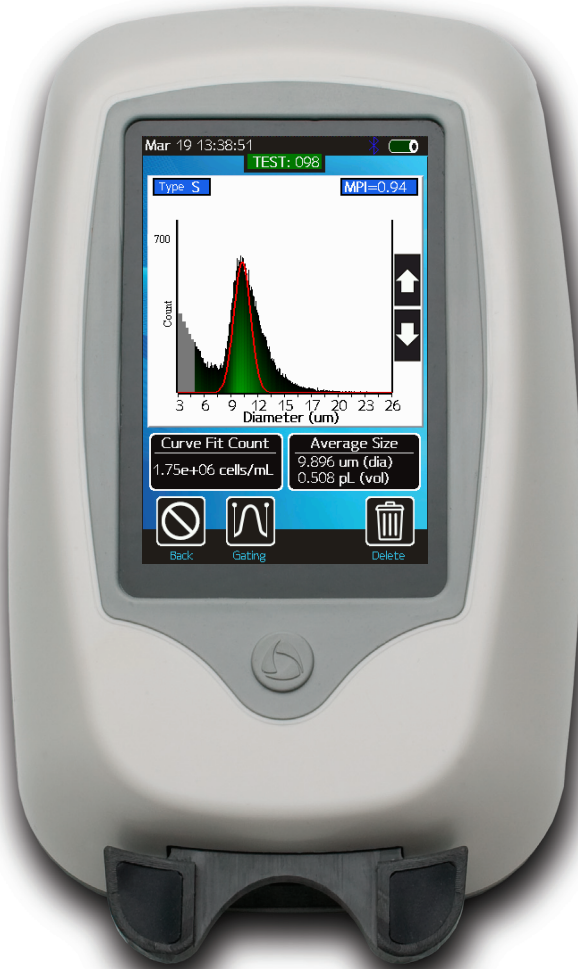
The Moxi Z *OS 4.0* is the only automated cell counter that combines the gold standard Coulter Principle typically used in high-end cell counters with a patented thin-film sensor technology to allow for highly accurate and repeatable particle sizing and counting with a broad dynamic range (2 - 34 microns).

The Moxi Z *OS 4.0* also provides a reagent-less assessment of cell health and condition for monodisperse mammalian cultures using a proprietary algorithm to report a Moxi Population Index (MPI).

This revolutionary ultra-small instrument offers characterization of particulates in a wide variety of common applications, including mammalian cells, RBC, WBC, yeast and more. It is the ONLY automated system that is also able to reliably measure particles with an average diameter as small as 3 microns.

Designed to overcome the tedium associated with hemocytometers, the lack of repeatability with image-based counting systems, and the high complexity and expense of Coulter counters and flow cytometers, the Moxi Z *OS 4.0* is truly an automated cell counter in a class of its own.
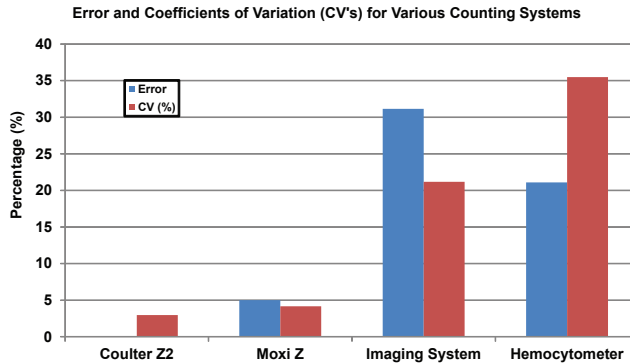
Moxi Z™

OS4.0

The new Moxi Z *OS 4.0* is the highest performing automated cell counter available.
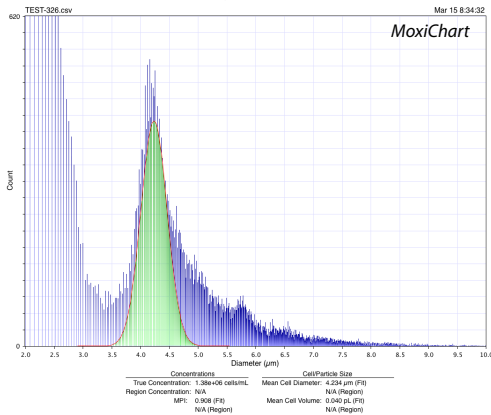
- Measure in just 8 seconds
- Obtain cell counts AND size with >95% accuracy
- Assess cell health without the use of reagents
- Utilize Bluetooth or USB On-The-Go connectivity
- Count cells down to 3μm in diameter
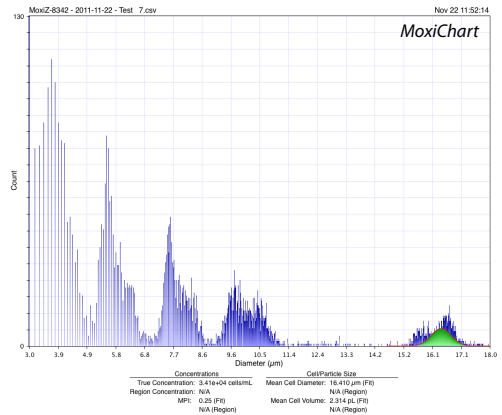
Accurate Counts and Size
(>95%)

Error and Coefficients of Variation (CV's) for Various Counting Systems

4um Beads, Type S Cassette - SPM

MoxiChart

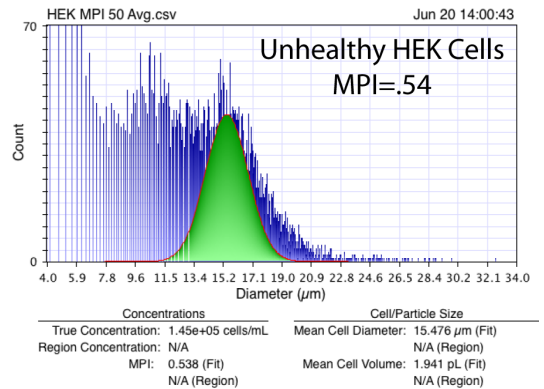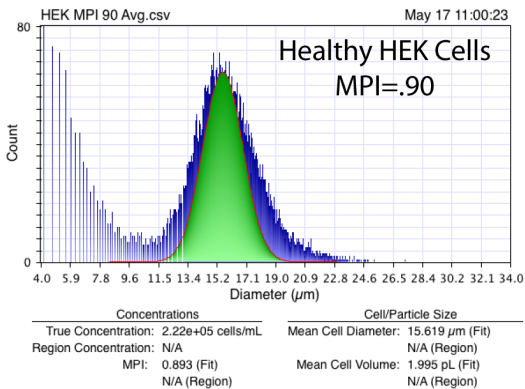4, 6, 8, 12, and 15um Beads, Type S Cassette

MoxiChart

Ensure the best downstream experimental results possible. By using the gold-standard Coulter method of volumetric cell counting, the Moxi Z *OS 4.0* will ensure that your cell counts are better than 95% accurate the first time. With precision rivaling significantly more expensive Coulter systems (Moxi Z CV: 4% and Z2 CV: 3%), the Moxi Z *OS 4.0* out-performs all other low cost systems and provides the accurate data you need, every time.

Not only is the Moxi Z *OS 4.0* counting accuracy superior to any other automated cell counter on the market today, it also is the only cell counter with the resolution required to accurately measure particles down to 3μm in diameter. Imaging systems are typically limited to 5-6μm particles. In fact, the Moxi Z *OS 4.0* can easily distinguish particles having diameters that differ by only 2μm, and the histogram signature can be a valuable tool for monitoring changes in cell population.

Reliable Counts, Size, and Cell Health
$(R^2 > .95)$

Moxi Z vs Z2 Counts - Type S Cassette

- Hela Cells, r^2=.9781
- HEK-293 Cells, r^2=.9955
- CHO-K1, r^2=.9941
- X5 Yeast Cells, r^2=.9998
- C. albicans, r^2=.9978
- Ideal

Moxi Z Conc ($\times 10^6$ Counts/ml) vs Z2 Conc ($\times 10^6$ Counts/ml)

Measured vs. Reported Bead Diameter

- Measured Values
- Ideal

r^2=.9989

Moxi Measured Diameter (μm) vs Reported Bead Diameter (μm)

HEK MPI 90 Avg.csv — May 17 11:00:23

Healthy HEK Cells MPI=.90

Concentrations		Cell/Particle Size	
True Concentration:	2.22e+05 cells/mL	Mean Cell Diameter:	15.619 μm (Fit)
Region Concentration:	N/A		N/A (Region)
MPI:	0.893 (Fit)	Mean Cell Volume:	1.995 pL (Fit)
	N/A (Region)		N/A (Region)

HEK MPI 50 Avg.csv — Jun 20 14:00:43

Unhealthy HEK Cells MPI=.54

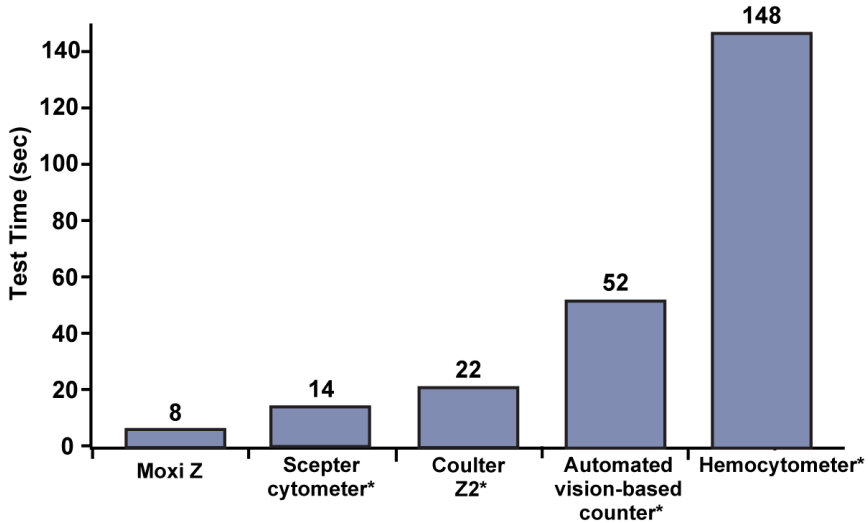| Concentrations		Cell/Particle Size	
True Concentration:	1.45e+05 cells/mL	Mean Cell Diameter:	15.476 μm (Fit)
Region Concentration:	N/A		N/A (Region)
MPI:	0.538 (Fit)	Mean Cell Volume:	1.941 pL (Fit)
	N/A (Region)		N/A (Region)

We have tested dozens of mammalian cells, yeast, protozoa, algae, and more to validate the precision and operating range of the Moxi Z mini automated cell counter. In addition, we have run adherent, differentiated, suspension, and progenitor cells to ensure reliable performance using both the Moxi Z Type M and Type S cassettes by optimizing each cassette's integrated anti-clogging "sieve".

In a comparison with Coulter counting methods, Moxi Z *OS 4.0* is shown to have equivalent results to the gold standard for both count accuracy and particle size accuracy. As the data demonstrates, Moxi Z achieves this performance over a broad range of concentrations and particle sizes.

The Moxi Z is also able to provide a rapid, reagent-free cell health assessment. This is uniquely possible with the Moxi Z *OS 4.0* because the system creates extremely high-resolution histograms and has superior small particle detection capabilities. The Moxi Population Index (MPI) produces a ratio of intact cells to dying/dead cells (and debris) which provide a snapshot of the general health of your cell culture.

Fast

(8 seconds)

Chart: Test Time (sec)
- Moxi Z: 8
- Scepter cytometer*: 14
- Coulter Z2*: 22
- Automated vision-based counter*: 52
- Hemocytometer*: 148

* Data from http://www.millipore.com/life_sciences/flx/scepter

Moxi Z *OS 4.0* counts your cells faster than other automated cell counters and provides results 15-50 times faster than via manual hemocytometry. In fact, Moxi Z *OS 4.0* is over 6 times faster than image based systems WITH higher accuracy and precision. With Moxi Z *OS 4.0*, you will transform your least favorite and least accurate laboratory task into an easy 8 second precision routine.

With an average measurement time of 8 seconds (Type M cassette), the Moxi Z *OS 4.0* yields the fastest cell counts of any available technique. Test times for the new, high-resolution Type S cassettes are just 15 seconds.
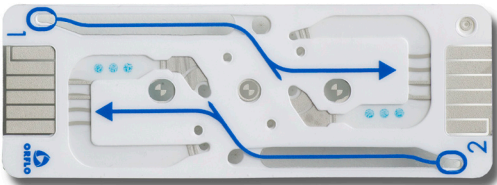
New! Type S Cassettes.

Measure smaller particles than any other automated cell counter.

You can count on the Moxi Z

The Moxi Z *OS 4.0* has been validated with the following cells and more...

Cell Line	Type M	Type S	Diameter (µm)	Origin	Source
Mammalian Cells					
HEK-293	•	•	14-16	Human kidney	ATCC cat# CRL-1573
HeLa	•	•	17-20	Human cervical cancer	ATCC cat# CCL-2
PC12	•	•	10-13	Rat adrenal gland	ATCC cat# 1721
CD3+ T	•	•	7.5	Human	ATCC cat# CCL-61
CHO-K1	•	•	15	Chinese hamster ovary	
Cos-7	•	•	15	Monkey kidney cells	
HepG2	•	•	15	Hepatocytes	
HUVEC	•	•	12-14	Human endothelial	
Hybridoma	•	•	13-14	Hybridoma (Irs1 ps522.17.5.2)	
Jurkat E6-1 Cells	•	•	10	T lymphocytes	TIB-152
K562 Cells	•	•	15	Human bone marrow	
MCF7	•	•	15-17	Human breast adenocarcinoma	
Mesenchymal SC	•	•	15-16	Human bone marrow mesenchymal stem cells	
Monocyte	•	•	10	Human	
Mouse ESC	•	•	13	Mouse embryonic stem cells	
NIH 3T3 Cells	•	•	15	Mouse fibroblasts	
PBMC (Cultured)	•	•	12.5	Human	
RNSC	•	•	11-13	Rat neural stem cells	
SF9 Cells	•	•	13	Insect ovary (baculovirus expression)	
U266	•	•	12	B lymphocytes	
WBC Counts (Lyse - nuclei count method)	•	•	5-6	"Human whole blood dilute and lyse"	
PBMC (isolated)	•	•	6-14	Human - gradient centrifugation	
Red Blood Cells	•	•	5-6	Human	
L5178y	•	•	13	Mouse lymphoma	CRL-1722
Yeast					
C. albicans		•	3-5		
S. cerevisiae (Vin 13)	•	•	5-6	Wine yeast	Scott Laboratories
S. cerevisiae (X5)	•	•	5-6	Wine yeast	Scott Laboratories
Wine Yeast (natural fermentation)		•	3-4	Wine yeast	
S. cerevisiae - Fleischmann's baker's	•	•	4-5	Baker's Yeast	
Safale - US-05	•	•	3.5-4.5	Brewer's yeast	

SPECIFICATIONS

Resolution:	1200 histogram bins
Weight:	1lb 7oz
Dimensions:	7.5" L x 4.25" W x 2.75" H
Battery:	Lithium Ion 4500 mAh
Data storage:	500 samples
AC Power:	100-240V, 50/60 Hz, 0.2 Amps
Connectivity:	USB On-The-Go and Bluetooth (Mac/PC)
MAC/PC data analysis:	MoxiChart (included) and/or Excel (etc.)
Data file format:	csv

	Type M Cassette	Type S Cassette
Dynamic range (μm):	2 - 34	2 - 26
Cell Volume/Size:	34 - 8180 fL (4 - 25 μm)	14 - 4200 fL (3 - 20 μm)
Cell Health Assessment for mammalian cultures:	MPI Health Ratio	MPI Health Ratio
Measurement time:	8 seconds	15 seconds
Concentration:	3,000 - 500,000 cells/ml	3,000 - 2,500,000 cells/ml
Resolution:	1200 histogram bins	1200 histogram bins
Cell Types: *Mamallian*	Yes	Yes
Yeast	Large only (i.e. S. cerevisiae)	Most
Algae	Large only	Some
Protazoa	Large only	Some

Cassettes

Moxi Z Type M Cassette
Moxi Z Type S Cassette

Accessories

Cassette Dispenser
USB Cable and Power Adapter
Calibration Check Bead Kit
Electronic Calibration Cassette
Diluent

ORFLO®

ORFLO Technologies
130 Airport Circle
Hailey, ID 83333
info@orflo.com
www.orflo.com

Tel: 855.TRY.MOXI
Fax: 866.804.3512