Multiple Heads on a Solid Base

CyBio Well vario

Lab Automation



analytikjena

An Endress+Hauser Company

CyBio Well vario

More Pipetting Flexibility

The CyBio Well vario is an automated, simultaneous pipetting platform, which accepts a series of different interchangeable pipetting heads, thus combining high flexibility with upgradeability for future tasks at a reasonable price.

The CyBio Well vario handles your high-precision pipetting needs with the added advantage of interchangeable heads that can be changed easily from the front or back of the pipettor base unit. No configuration steps are necessary since the CyBio Well vario software automatically detects the head exchange and recognizes the identity of the new head.

The CyBio Well vario adapts into any screening environment and can be equipped with a variety of accessories.

CyBio Well vario features:

- 96-, 384 and 1536-channel simultaneous pipetting system
- Extensive volume range with huge range of different interchangable pipetting heads
- Advanced capillary technology for reliable nanolitre pipetting



CyBio Well vario

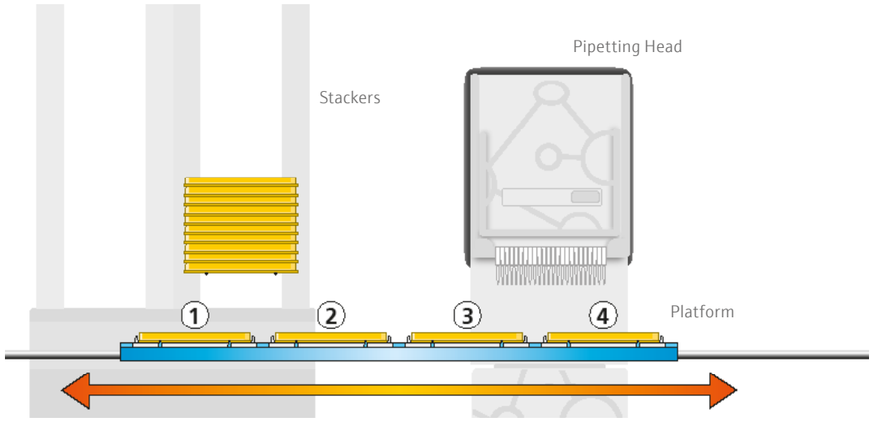
Multiple Heads on a Solid Base

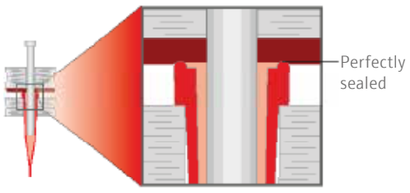
The Solid Base

The CyBio Well vario base unit provides fast, exact and secure movement of microplates via a linear conveyor. This consists of a three-, four- or five-position carriage that provides space for important accessory devices such as an active tip wash station or reagent reservoir.

The CyBio Well vario is also available in a disk platform configuration, with ten open-access stations in a circular arrangement for the pipetting head to access. This platform, with an expanded number of deck positions, enables the automation of most complex experimental protocols.

The base unit of the CyBio Well vario is plug-and-play compatible with a large number of ancillary devices for increased capacity, such as stackers for the storage of microplates or solutions for the automatic changing of tip cartridges.





Embedding the top of tip provides reliable sealing

Tip Sealing Technology

Our proven tip sealing technology works by applying a uniform pressure that partially embeds the top of each tip into a silicone mat to make an airtight seal. This tip sealing technology also ensures uniform tip length for enhanced pipetting performance, especially for low volume, and liquid transfers into dry or high density microplates.

Multiple Heads

The combination of different base unit sizes, a huge range of interchangeable pipetting heads and other accessories makes the CyBio Well vario a powerful platform for 96, 384 or 1536 automated pipetting for different plate formats, sample volumes and applications.

Pipetting heads with 96, 384 or 1536 tips or capillaries enable fast and precise pipetting to 96-, 384-, and 1536-well microplates. A working volume range of 4 orders of magnitude allows liquid transfers from 50 nl up to 250 µl on one platform.

1536/8 µl

- Working volume up to 8 µl
- Volume freely selectable in 0.01 µl increments
- For 1536-well microplates

96/25 µl

- Working volume up to 25 µl
- Volume freely selectable in 0.01 µl increments
- For 96-, 384-, and 1536-well microplates

96/60 µl

- Working volume up to 60 µl
- Volume freely selectable in 0.01 µl increments
- For 96-, 384-, and 1536-well microplates

96/250 µl

- Working volume up to 250 µl
- Volume freely selectable in 0.1 µl increments
- For 96- or 384-shallow or deep well microplates

Capillary Head

- Optimized for pipetting of DMSO-solutions into dry microplates
- Fix working volumes of 50, 100, 250 and 500 with ceramic capillaries
- 96- or 384-channel exchangeable magazines
- For 96-, 384-, and 1536-well microplates

384/25 µl

- Working volume up to 25 µl
- Volume freely selectable in 0.01 µl increments
- For 384- or 1536-well microplates

384/60 µl

- Working volume up to 60 µl
- Volume freely selectable in 0.01 µl increments
- For 384- or 1536-well microplates



384/25 µl Head

... for CyBio Well vario

Target Volume [µl]	MVS® Sample Solution	Precision [CV in %]
25	Range A Standard	0.78
10	Range A Standard	0.78
5	Range B Standard	0.67
2.5	Range B Standard	0.85
1	Range C Standard	1.37
0.5	Range C DMSO	2.09
0.25	Range D DMSO	4.98
0.5	Range C Standard	4.43
0.25	Range D Standard	8.26

The 384/25 µl head of the CyBio Well vario, one of the most frequently used pipetting heads.

Typical experimental results for wet-to-wet transfers with 25 µl-tips using the ARTEL Multichannel Verification System (MVS®)*

* Bradshaw, J. T.; Knaide, T.; Rogers, A.; Curtis, R. H.: Multichannel. Verification System (MVS): A Dual-Dye Ratiometric Photometry System for Performance Verification of Multichannel Liquid Delivery Devices. J. Assoc. Lab. Autom., 2005, 10, 35-42

ARTEL In cooperation with ARTEL

1536 Pipetting Head

... for CyBio Well vario

The 1536-channel pipetting head is the latest member of the CyBio Well vario pipetting head family.

The pipetting head uses our unique and well-proven tip sealing system. The 1536 air displacement pistons allow the simultaneous transfer and filling of all wells of a 1536-well plate in one single step.

The 1536 head offers:

- 1536 gasket-sealed tips
- 1536 x uniform tip height
- Working volume up to 8 µl
- Volume freely selectable in 0.01 µl increments
- Full compatibility with all CyBio Well vario systems



Introduction

Why a 1536 Pipetting Head?
For more than 10 years 384-well CyBio Wells and CyBio Well vario instruments have already proven to run 1536 well plates as a matter of routine. Based on this expertise, we offer a powerful solution for simultaneous 1536 applications. The 1536 Pipetting Head fits the ongoing trend to lower assay volumes and high density plates, founded on the endeavour to reduce reagent and compound volumes and therefore reduce the cost per well.

Technology

1536 Pipetting Head for CyBio Well vario systems is using the known and well-proven tip sealing system with 1536 parallel moving air displacement pistons. The tip sealing end is pressed against a gasket and creates an airtight seal with the piston system positioned above the gasket. Tips are located in tip tray to ensure uniform tip height for all 1536 tips.

Technical Data

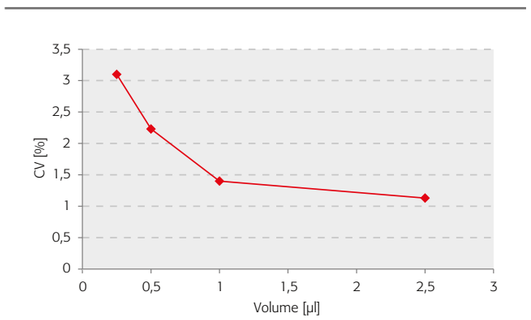
Full compatibility with all existing CyBio Well vario platforms	
Technology	air displacement
Usage	1536 parallel sample transfer
Working volume	up to 8 µl
Volume resolution	0.01 µl increments
Tips	Fixed glass, stainless steel and ceramic tips or disposable PP tips
Precision	1–5 µl ≤ 3 %; > 5 µl ≤ 2 %
Accessories	Soft Touch Adapter, Microplate Adapter 1536, tip wash station, reservoir

Typical workflow

Todays typical workflows in 1536-well microplates with 384-channel heads involve sequential aspirating and pipetting (including wash steps) quadrant by quadrant. Those methods are cross contamination free and accurate, when a suitable and dedicated washing station is being employed, but time consuming. The easiest way to overcome all these constraints is simultaneous pipetting of all 1536-wells in a single step using the 1536 Pipetting Head in conjunction with the CyBio Well vario system.

Performance

The graph shows typical data using p-nitrophenol (absorption readout) in aqueous solution. Aspiration with overstroke; residual liquid back to reservoir. For dry dispensing we recommend the use of a spring loaded "soft-touch adapter.



A System of Flexibility

The interchangeable heads of the CyBio Well vario, combined with a wide range of tip types, create a more flexible product that expands the number of applications which can be automated with this system.

In addition, the pipetting and tip-sealing technology enables further combinations of high-precision low volume pipetting. The CyBio Well vario also addresses deep well plates with the use of large volume tip.
A 96/250 µl pipetting head with 250 µl deep well tips is able to transfer 10 µl with CV ≤ 2 % (typical result measured by fluorescence). For example, the transfer of 200 nl DMSO into a dry plate is possible with CV ≤ 3.5 % as a typical result (measured by fluorescence) using a 25 µl pipetting head and 10 µl tips.

	Capillary magazin 384 50-500 nl	Capillary magazin 96 50-500 nl	1 µl ceramic tip	10 µl polypropylene tip	25 µl polypropylene tip	60 µl polypropylene tip	250 µl DW polypropylene tip	250 µl SW polypropylene tip
Capillary head	Nanoliter transfer of DMSO dry pipetting microplate formats 384, 1536	Nanoliter transfer of DMSO dry pipetting, microplate formats 96, 384, 1536						
1536/8 µl			Low volume MALDI TOF sample preparation, dry pipetting, microplate format 1536	DMSO and aqueous solution wet pipetting microplate format 1536				
96/25 µl				Low volume transfer DMSO and aqueous solution microplate formats: shallow well 96, 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well 96, 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well, deep well 96, 384		
384/25 µl				Low volume transfer DMSO and aqueous solution microplate formats: shallow well 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well, deep well 384		
96/60 µl				Low volume transfer DMSO and aqueous solution microplate formats: shallow well 96, 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well 96, 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well, deep well 96, 384		
384/60 µl				Low volume transfer DMSO and aqueous solution microplate formats: shallow well 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well 384, 1536	Transfer of DMSO and aqueous solution microplate formats: shallow well, deep well 384		
96/250 µl							Transfer of DMSO and aqueous solution microplate formats: shallow well, deep well 96, 384	Transfer of DMSO and aqueous solution microplate formats: shallow well 96, 384



The Core of Integration – Boundless Possibilities

RNAi-Systems

RNA interference (RNAi) has become, in a remarkably short period of time, a powerful and widely used tool in drug discovery and functional genomics. The general assay compatibility with high density microplates in 96- and 384-format, as well as the simple transfection protocols, enabled a fast adaptation of this technology to high throughput methods.

For high throughput demands, the large integration of the CyBio Well vario into an innovative RNAi-screening system (see illustration above) is able to perform 20.000 transient transfections in only 3 hours, including addition of lipid reagent and non-contact dispensing of cells.



Alternatively to tip changing, we offer for medium throughput applications the small integration of the CyBio Well vario with the high efficient tip wash station to avoid cross contamination.

The goal to combine our competence in HTS automation with the demands of RNAi science and to create a robust HTP siRNA system, was successfully attained.

Your Partner in Service

Our highly trained and motivated service staff ensures less downtime with preventive maintenance and calibration visit yearly. We offer operator training and application support onsite and at our facilities.

Service

We care about your success.

We set the standard in Product Innovation.

Our highly skilled service staff is committed to excellence.

Your benefits

- Software upgrades with installation and training
- Online and phone support
- Worldwide service network
- Factory trained field service engineers
- 24-48 hour on-site service response*

Contact our local service centers for more information

Service contact Germany, Austria, Switzerland:

- +49 3641 77 9449
- service.cybio@analytik-jena.de

Service contact in the USA:

- +1 781 376 9899
- service.usa@cybio-ag.com

Service contact in the UK:

- +44 162 266 2118
- cybio.ne@cybio-ag.com

Worldwide partners

CyBio's contact partners are available worldwide on-site.

*Based on service contracts

Technical Data

General	
Liquid handling tools	96- or 384-channel pipetting heads for disposable tips and 96- or 384-capillary magazines; 1536 multichannel pipetting head with disposable polypropylene (PP) tips, ceramic, glass and stainless steel tips
Disposable tips	250 DW*; 250 SW*; 60; 25 and 8 µl disposable PP tips in trays or bulk; in standard-, sterile-, sterile/ PCR-certified- or APR**-compatible-quality; filter tips
Non disposable tips	Capillaries: 50, 100, 250 and 500 nl ceramic capillaries in magazines Ceramic tips: non disposable 1 µl ceramic tips Glass tips: non disposable 8 µl glass tips Stainless steel tips: non disposable 1 µl stainless steel tips
Volume range/ Working range	Wet pipetting: 200 nl – 250 µl / Dry pipetting: 50 nl – 250 µl
Volume resolution	Head 96/250 0.1 µl Heads 96/25; 384/25; 96/60; 384/60 0.01 µl Head 1536/10 0.01 µl
Plate formats	Shallow well and deep well microplates: 96; 384; 1536
Plate positions	3; 4; 5 or 10
Dimensions (WxHxD) (mm)	284 x 795 x 370 without plate moving assembly
Weight	Approx. 31 kg base unit; 13.6 kg head
Operating conditions	15 to 35 °C; humidity ≤ 75 % at 35 °C

* DW= deep well; SW= shallow well; ** REMP Automated Plate Replication system

Specifications of the multichannel pipetting heads***

Pipetting heads	Precision	
96 / 250	10 - 25 µl ≤ 2 %	> 25 - 250 µl ≤ 1 %
96, 384/60	3 - 5 µl ≤ 2 %	> 5 - 60 µl ≤ 1 %
96, 384/25	2 - 5 µl ≤ 2 %	> 5 - 25 µl ≤ 1 %
1536/8	1 - 5 µl ≤ 3 %	> 5 µl ≤ 2 %

* Resolution of indexing mechanism ± 0.1 mm ** based on absorption measurement

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en · 12/2020 · 844-CMA006-2-B
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