

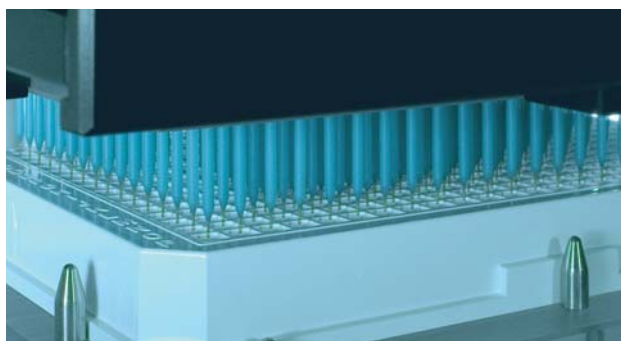
HUMMINGBIRD^{Plus}

Cost effective, automated solution for fast and accurate plate replication and reformatting.

The NEW Digilab HummingBird Plus adds plate-stacking automation to the well known Hummingbird instrument, making it the ideal solution for plate replication and reformatting by providing enhanced speed, throughput and walk-away capability. Its 96 or 384 capillary tip cassettes, available in the volume range of 25nL to 1000nL, allow accurate, precise, non-contact, and no sample waste dispensing of reagents or compounds, producing assay-ready plates in 96, 384 or 1536 format.

Efficient automated washing of the capillary tips prevents carry-over contamination, and eliminates the need for costly disposable tips.

With the optional short stacker, the entire instrument fits into a regular containment hood.



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The HummingBird Plus Features:

Parallel Transfer

- ✦Speed
- ✦Accuracy and precision
- ✦Automation

Nanoliter Volumes

- ✦Compounds directly from stock
- ✦Less precipitations
- ✦Less DMSO interference

Capillaries

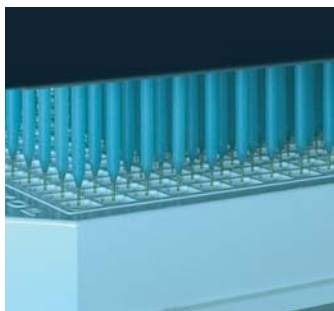
- ✦Reusable/no disposables
- ✦Inert (glass)
- ✦Robust (pressure flush)

Superior Design

- ✦Non-contact
- ✦Easy compound storage after transfer
- ✦Fast replications



Compound Transfer



The HummingBird Plus is a parallel dispensing system based on capillary action. 96 or 384 tip cassettes are filled and emptied simultaneously - the former achieved by capillary action and the latter by application of a "flushing" pressure pulse.

Aspiration is simple and fast: the HummingBird head is simply dipped into the source plate for a few seconds to allow capillary action to draw a fixed volume of liquid into the cassette.

Dispensing of sample is accomplished by placing the array of capillaries just above the destination plate and applying a brief pulse of compressed air, expelling the contents of all capillaries simultaneously into the appropriate wells.

Robotic Plate Transport System

The HummingBird-Plus uses the well-known and reliable platform from the automation and integration experts at CyBio-AG. Rapid, precise and robust microplate transport is achieved using a simple and elegant integrated linear rail system.



Stackers

Efficient microplate storage in stacking plate towers allows unattended processing of large batches of plates, increasing walk-away time. The HummingBird Plus stackers are fitted directly onto the rails of the instrument, reducing the overall footprint and allowing it to be easily accommodated on a standard lab bench. Each stacker has two chimneys, one typically holds the plates before they are processed, and one that stores them afterwards.



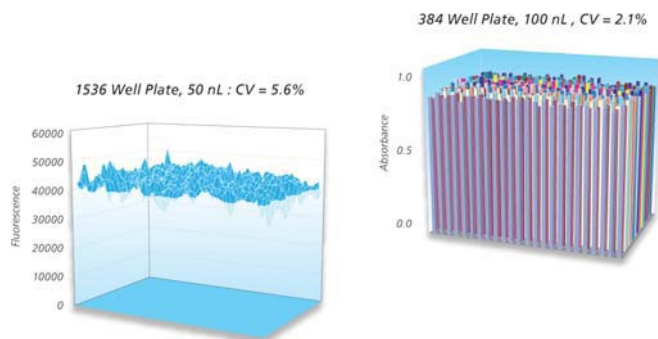
Barcode Reader

The HummingBird Plus provides a compact, high-resolution barcode reader for tracking microplates. The barcode reader is controlled by the instrument software and can perform up to 1000 scans per second. Barcodes can be scanned on the long or short side of the plate.

Experience the Precision!

The HummingBird Plus shows excellent precision over a wide range of volumes, with CVs of under 10% no matter which capillary volume is used.

Plate	Volume	CV	Reading Mode
384	250 nL	1.3%	Absorbance
384	100 nL	2.1%	Absorbance
384	50 nL	4.5%	Absorbance
384	25 nL	6.8%	Absorbance
1536	50 nL	5.6%	Fluorescence



Compound Transfer Directly from Stock!

Transfer of sample directly from stock solutions to assay plates minimizes compound precipitation and avoids assay interference caused by DMSO. To test this, the HummingBird Plus was used in a GPCR antagonist assay, both with and without a pre-dilution step. The data shows excellent reproducibility for different volumes in 1536 well plates and proves that with the HummingBird Plus it is possible to transfer sample directly from stock solutions into assay plates without an intermediate step-down dilution, while still achieving comparable results.

Volume	Instrument	Mode	IC50 of antagonist
25 nL	HummingBird Plus	Directly from stock	54.8 nM
50 nL	HummingBird Plus	Directly from stock	59.0 nM
2000 nL	CyBi-Well	From intermediate	73.1 nM

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HummingBird Plus Specifications

Technology:	Non-contact capillary liquid transfer	Plate format:	96, 384 or 1536
Usage:	Parallel sample transfer using capillary cassettes	Capillary:	Glass
Aspiration:	By capillary action	Disposables:	None
Dispensing:	By a pressure pulse	Transfer time:	Approximately 15,000 samples in 65 minutes, including wash cycle; Replicate 92 plates in 100 min (25nL transfer into 384-well plates)
Available Capillary volumes:	1000, 750, 500, 250, 100, 50 or 25nL	Washing efficiency:	The carry over is less than 0.1%
Precision:	CV † 10% for all volumes; Typical examples (based on absorbance measurements) are: 250nL CV † 1.5% 100nL CV † 2.5% 25nL CV † 8.0%	Control of the instrument:	Composer software** or keyboard
		Mechanical movement:	Carriage: left-right Microplate lifter: up-down
		Stackers:	Regular: 40 plates Short: 23 plates

** Composer software is OEM product from CyBio-AG[®]



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