CyBio FeliX
Your Automated Application Starts Here

analytikjena
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# CyBio FeliX – Liquid Handling Automation Engineered to Last

Take your manual assay to the next level and automate.

Automating your manual assay can be a daunting task but it doesn't have to be. At Analytik Jena we understand how frustrating this process can be and value the impact that high quality and simple to use devices can have on improving research and productivity. Utilizing the most innovative automated liquid handler available today, researchers can feel empowered and able to transform their research to maintain a competitive edge. We believe there is a better way, actually a better CHOICE with the CyBio FeliX. The CyBio FeliX is a unique liquid handling platform designed to focus on your needs today and engineered for your changing requirements tomorrow.

The CyBio FeliX is a flexible, modular system consisting of a basic unit and easy-to-change multi-channel pipetting head. The highly-precise pippeting heads transfers in 96, 384 and1536 well format and is complemented by pipetting in single wells, as well as pipetting into columns and rows. The pipetting head can automatically switch between different pipetting adapters, gripper and load tips automatically. The CyBio FeliX offers maximum flexibility with minimal space requirements due to a unique deck design with twelve positions on two levels. With its compact design, CyBio FeliX provides ample space for microplates, reservoirs, tubes, shaker, tip wash station, magnet adapter and gripper.

The modular concept of CyBio FeliX truly empowers you to customize for a variety of applications while flexible enough to reconfigure at anytime to meet your changing requirements.
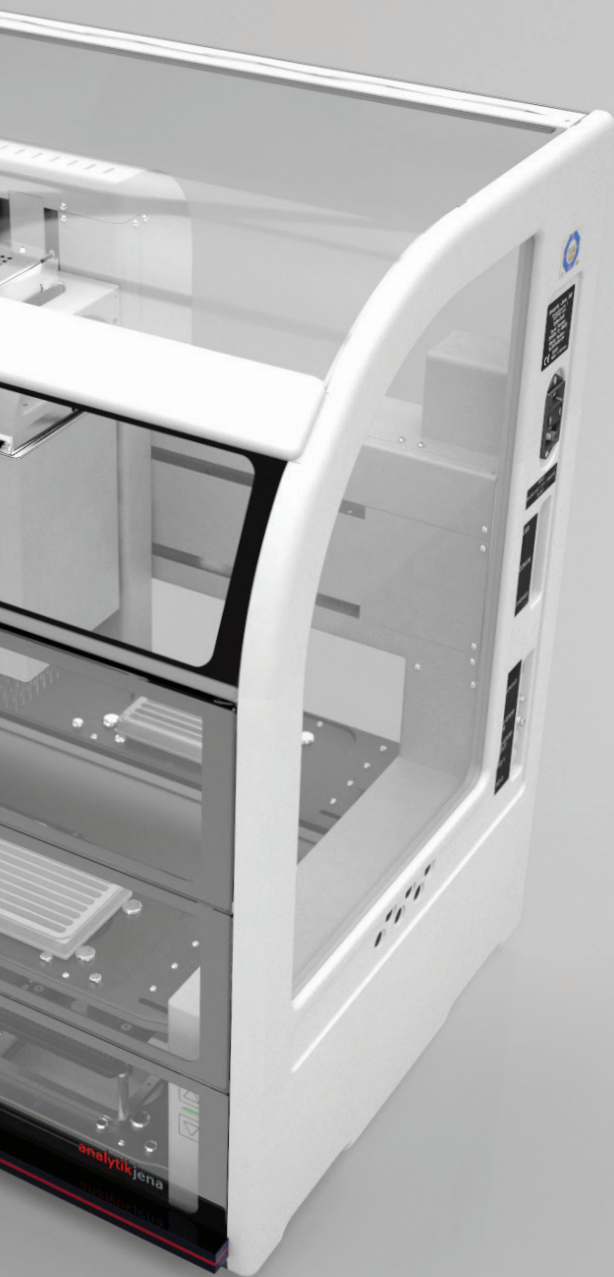
Save yourself from repetitive manual pipetting
With fully automated pipetting in different formats and integrated tool and tip exchange

Save valuable lab space
Maximum performance with minimal dimensions

Save money with reliability, robustness and precision
Proven pipetting technology and high throughput screening experience for highest precision and accuracy

Save valuable time
Reproducible pipetting performance without contamination

Save on upfront investments- automate today, scale up tomorrow
Start with an entry level configuration and upgrade to meet future needs with ease

CyBio FeliX with enclosure

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#HowToFeliX
Our Customer Focused Solutions For You

The CyBio FeliX can be equipped according to various application needs – with endless possibilities for future upgrades and additions.

- High performance software tools
- 2D/3D Visualization
- Calculation of the required transfer volumes

"The CyBio FeliX is an indispensable part of our assay workflow. The complexity of our manual steps was incorporated into multiple CyBio FeliX processes for dispensing liquids with high precision and accuracy. The processes applied made our semiautomated workflows efficient and easy to perform."

Elisabet L. Nalvarte, PhD | The Great Plains Laboratory, Inc. | Kansas, United States

Simplified workflow

- SmartExtraction
- Magnetic Bead Based Extraction

Nucleic acid extraction

„The CyBio FeliX enables us to process partial steps and complex biological assays through its individuality. Its high throughput and precision enable us to quickly characterize new innovative antibacterial and antiviral drugs."

Dr. A. Birkmann | Head of Research AiCuris Anti-infective Cures GmbH

- Transformation
- Gene assembly
- Normalization

„The CyBio FeliX is the hidden champion of our CompuGene-platform for developing Synthetic Biology applications. We use it for controlling our cell-factories with inducers and preparing samples for cytometry. The flexibility in programming and precision of movement even allows us to use it as a colony picker."

Prof. Dr. Johannes Kabisch | Computer-aided Synthetic Biology, TU Darmstadt

Gene Editing & Synthetic Biology
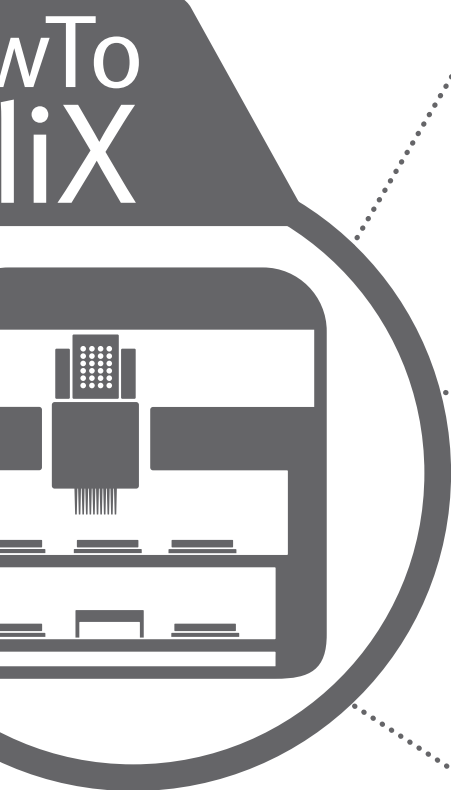
- ADME/TOX
- Cell-based screening
- Cell seeding

Cellular application

"The CyBio FeliX proved to be indispensable for establishing and optimizing the workflow. Particularly important for us was the fine-grained control of liquid dispensing for gentle compound additions to minimize cell disturbance."

Dr. Ralf Schwandner | CEO & Founder Assay.Works GmbH

- MALDI
- ELISA
- Lab on a CHIP

Sample preparation

"We at Ionovation use the CyBio FeliX for two unusual applications: as a media supply for an organ-on-chip system and for a lipid bilayer electrophysiology workstation. The flexibility and the programming options of the CyBio FeliX make both of these challenging liquid handling tasks easy to achieve."

Dr. Roland Hemmler | Product Manager Ionovation GmbH

- Compact footprint for automated qPCR/PCR
- Best-in-class detection technology

Automated PCR and qPCR

"The CyBio FeliX makes up the backbone of our NGS workflow automation at LabGenius, taking us all the way from sample to qPCR quantified sequencing library with the click of a button. The CyBio FeliX enables this through its reliability, precision control and ease of integration."

Staffan Piledahl | Software Engineer LabGenius Ltd.

Open Platform – Individual Solutions

CyBio FeliX helps to save lives as scalable & high-performance automation solution.

Working with DKMS LIFE SCIENCE LAB

The DKMS LIFE SCIENCE LAB developed a new method for identifying the CMV (cytomegalie virus) status of a donor based on tissue samples taken with swabs inside the cheeks – a new benchmark in CMV identification, as this was previously only possible with blood samples. This resulted in a sharp increase in the number of CMV analyses being performed. Thus the DKMS LIFE SCIENCE LAB required an automated solution to identify the cytomegalovirus (CMV) status in high throughput conditions.

Additionally, it was necessary to adapt the existing automation systems in order to scale up from the previous 15,000 samples per month to 100,000 per month and at the same time ensure the highest quality level of the analyses – an enormous challenge.

"High-quality products and superb service make Analytik Jena an excellent partner for us."

Michael Brehm | Laboratory Technology and Automation DKMS LIFE SCIENCE LAB, Dresden

High Throughput CMV detection

The applied application is a special ELISA assay for the determination of human CMV. The core component is a CyBio FeliX, a flexible, modular pipetting platform that was installed in a 96-well variant in the CMV workflow.

Integrated third-party devices for washing, dispensing, storage, incubation, plate transport and photometric read-out of the samples complete the workflow and allow the analysis of 6000 samples a day.

Excellent workflow reliability

This automation system has to fulfill an important and crucial task and has to guarantee smooth and optimal processing of the samples. Failures and malfunctions must be quickly and easily compensated for.

Analytik Jena's service and support ensures short reaction times which plays an enormous role for the success of the system. Analytik Jena guarantees an optimal workflow, which is also characterized by a high-class technical performance, an optimized layout of the systems, easy access for the users and service technicians and ease of use.

Automation of the new method for CMV status

- Ergonomic and efficient workflow
- Customized automation system
- Flexible, precise, and scalable
- Tailored service and support
- Solution-oriented service and support
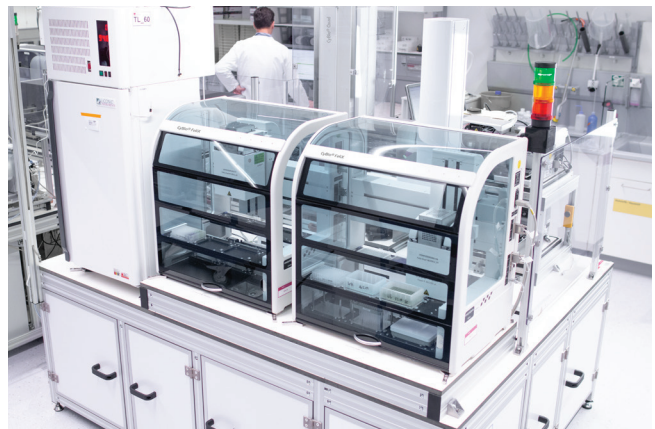
HowTo eXtract
One Platform – Two Extraction Technologies

Benefit from an automated extraction workflow on CyBio FeliX with high yields, maximum purity and minimum hands-on time for 96 samples in parallel.

Automated SmartExtraction – we change the way to prep

SmartExtraction is Analytik Jena's innovative technology for extracting high molecular weight DNA. This technology significantly simplifies the automated DNA extraction due to a unique SmartExtraction pipette tip with included Smart Modified Surfaces as granulates and Analytik Jena's patented extraction chemistry (DC-Technology).

This extraction technology works perfectly in concert with CyBio FeliX and makes the automated isolation of nucleic acids a fast and efficient procedure. Automated extraction of DNA for downstream processes leads to simple, parallel preparation of samples with minimum effort and maximum consistency.

In addition, the CyBio FeliX can also be used for other downstream routine liquid handling tasks.

Lower efforts for automated NA extraction setup
- Special equipment and materials are superfluous
- „Smart Modified Surface" for simple extraction procedure in the pipette tip

Ease your daily routine
- Ready-to-use hardware and software package for CyBio FeliX
- Optimized ready-to-use reagent kits

Achieve excellent results
- Exceptional yield, quality and quantity
- Extraction of high molecular weight DNA

Automated magnetic particle based extraction

Analytik Jena offers a variety of different nucleic acid extraction kits for the CyBio FeliX liquid handling system. The principle of the extraction is based on nucleic acid binding to magnetic particles.

Work with state-of-the-art automation for NA extraction
- Optimized chemistry, liquid transfers and labware arrangement
- High yield with high purity of the product liquid transfers, mixing, labware rearrangements, magnetic particle collection and resuspension

In order to demonstrate the excellent results of SmartExtraction-based DNA purification by the usage of CyBio FeliX, DNA from different EDTA-stabilized blood samples was extracted using the smart Blood DNA Midi Direct prep (a96) – FX kit. Quality and yield of eluted genomic DNA obtained from 1,000 µL, 600 µL, 500 µL and 200 µL of a sample are shown in Figures 1 and 2, respectively. They confirm excellent performance even for large sample volumes resulting in high molecular weights and elevated quantities.
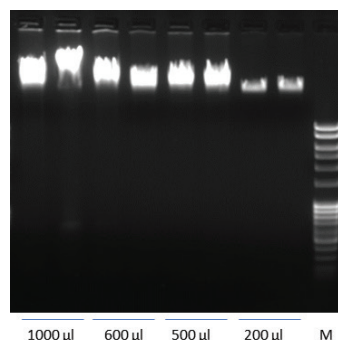

Figure 1: Agarose gel electrophoresis to visualize DNA extracted from whole blood samples of diverse volumes using the smart Blood DNA Midi Direct prep (a96) – FX kit with the CyBio FeliX
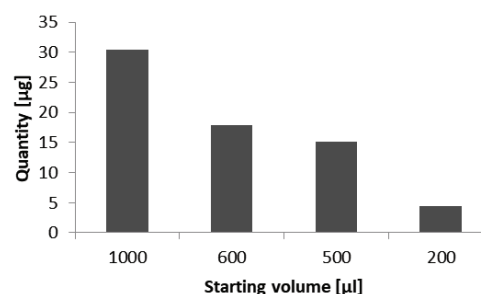

Figure 2: Quantity [µg] of DNA extracted from different volumes of whole blood samples using the smart Blood DNA Midi Direct prep (a96) – FX kit with the CyBio FeliX

CyBio Software – The Right Choice

Software is the key element for smart and efficient operation of automated liquid handling systems. Our software is designed and optimized to ensure perfect integration of CyBio FeliX into your laboratory. We deliver complete solutions including various software options for automation beginners and advanced users.

CyBio Composer – the powerful tool

As the backbone of our liquid handling and automation software, CyBio Composer ensures the reliable operation of CyBio FeliX as well as accessories and devices from 3rd party suppliers facilitating detailed instrument control on a scripting level. While mostly working in the background, CyBio Composer monitors user permissions and records user interactions, errors and other execution information.

- Powerful scripting environment
- Direct access to every device function and liquid handling parameter
- Connectivity to databases and LIMS possible
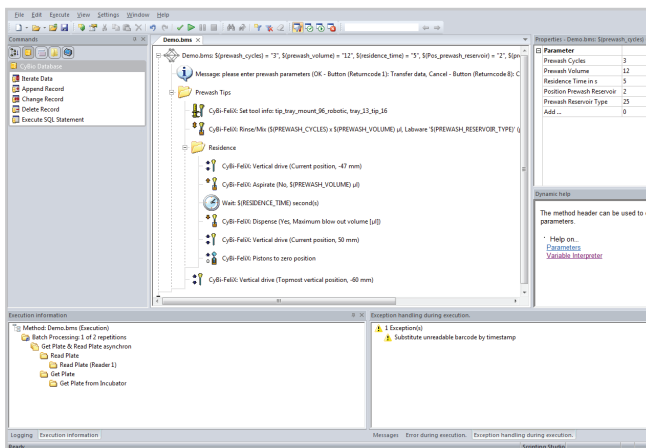
CyBio Application Studio – Ready-to-use graphical user interface

The CyBio Application Studio was designed as a software solution for users without significant automation experience, allowing new users to achieve reliable execution and parametrization of workflows created with CyBio Composer. The front end is an intuitive touch screen design, which is equally useable via mouse and cursor. When starting an application, key information such as reaction volume or sample number can be entered, avoiding the need for any programming by the user.

- Ready-to-use graphical user interface
- Configurable design
- Well suited for touch screen applications, as well as desktop PCs
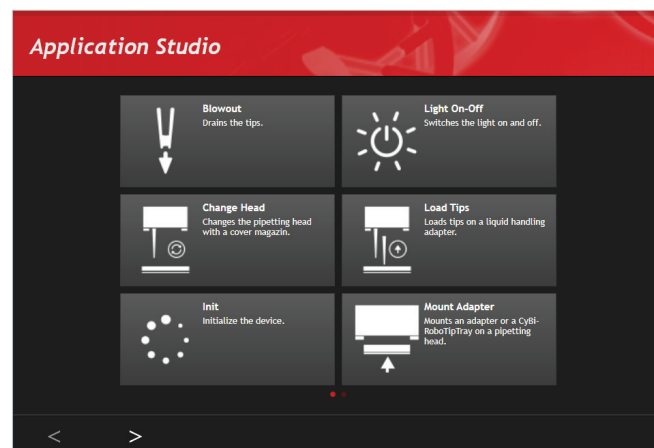
CyBio Overture – Simplify your liquid handling process with a software tool that works for you

The entry into automated liquid handling using the CyBio FeliX has never been easier. Set up your daily basic liquid transfer routines such as prefilling, reformatting, plate replication, pooling, serial dilution, PCR and qPCR setup. In addition to defining liquid handling workflows with easy drag & drop functions, the CyBio Overture software manages device settings, tip exchanges, calculation of dead volumes and well contents which are crucial to a successful processing. The intuitive graphical user interface reduces hands-on time and lets you achieve results faster with less training.

- 2D & 3D visualization of your deck layout
- Simply configure your deck layout by using the drag & drop function of the graphical user interface
- Smart color identification – easy selection and identification of labware and working steps
- Simply set up a new workflow by using the drag & drop function
- Calculation of the required transfer volumes
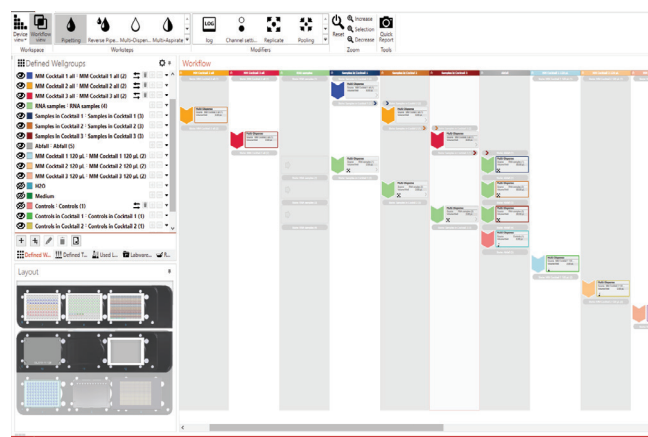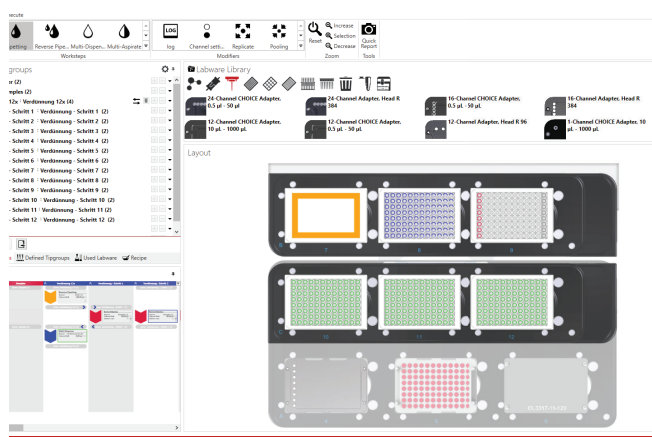
Different Appearances – To Cover Your Applications

Optimized hardware settings for different working environments, based on our high-performing base unit.

CyBio FeliX equipped with UV cover or cover panel for suctioning volatile substances
Equipped with UV cover, the workspace can be sterilized through UV-C radiation, enabling the preparation of the system for molecular- and cell-based applications. The system can be connected to a local exhaust ventilation by using a modified cover panel.
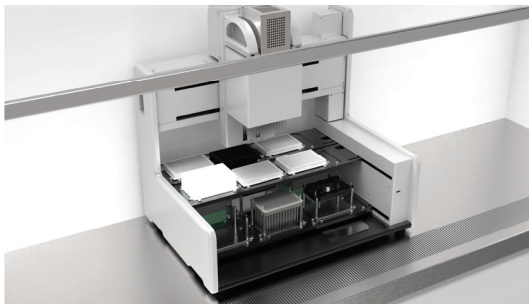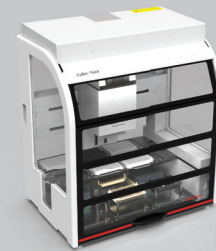
CyBio FeliX in your own clean bench
The clean bench unit with its ultra-compact design can be placed inside your own laminar flow hood, allowing the automated execution of applications like media exchange and transfection. User safety comes standard with the safety accessories provided with the CyBio FeliX clean bench unit.

CyBio FeliX with UV or HEPA UV Enclosure
Together with Analytik Jena's UVP UV or HEPA UV Enclosure, the CyBio FeliX clean bench unit is perfectly prepared for applications which require ambient sterility while maintaining sample integrity. The controlled UV radiation combined with the HEPA filtration ensures maximum protection against sample contamination.

CyBio FeliX equipped with opaque enclosure
Light exposure can lead to difficulties with substances and reagents due to the potential for reactions that affect their stability. Equipped with an opaque enclosure, the system was designed to execute assays like ELISA, while protecting light sensitive substances and reagents.

CyBio FeliX as liquid handling component within AJ solutions or as integration device for 3rd party supplier
Whether you need a small-scale benchtop solution or a multiassay system for high throughput, the CyBio FeliX liquid handling device is well prepared for the integration in any automation environment.
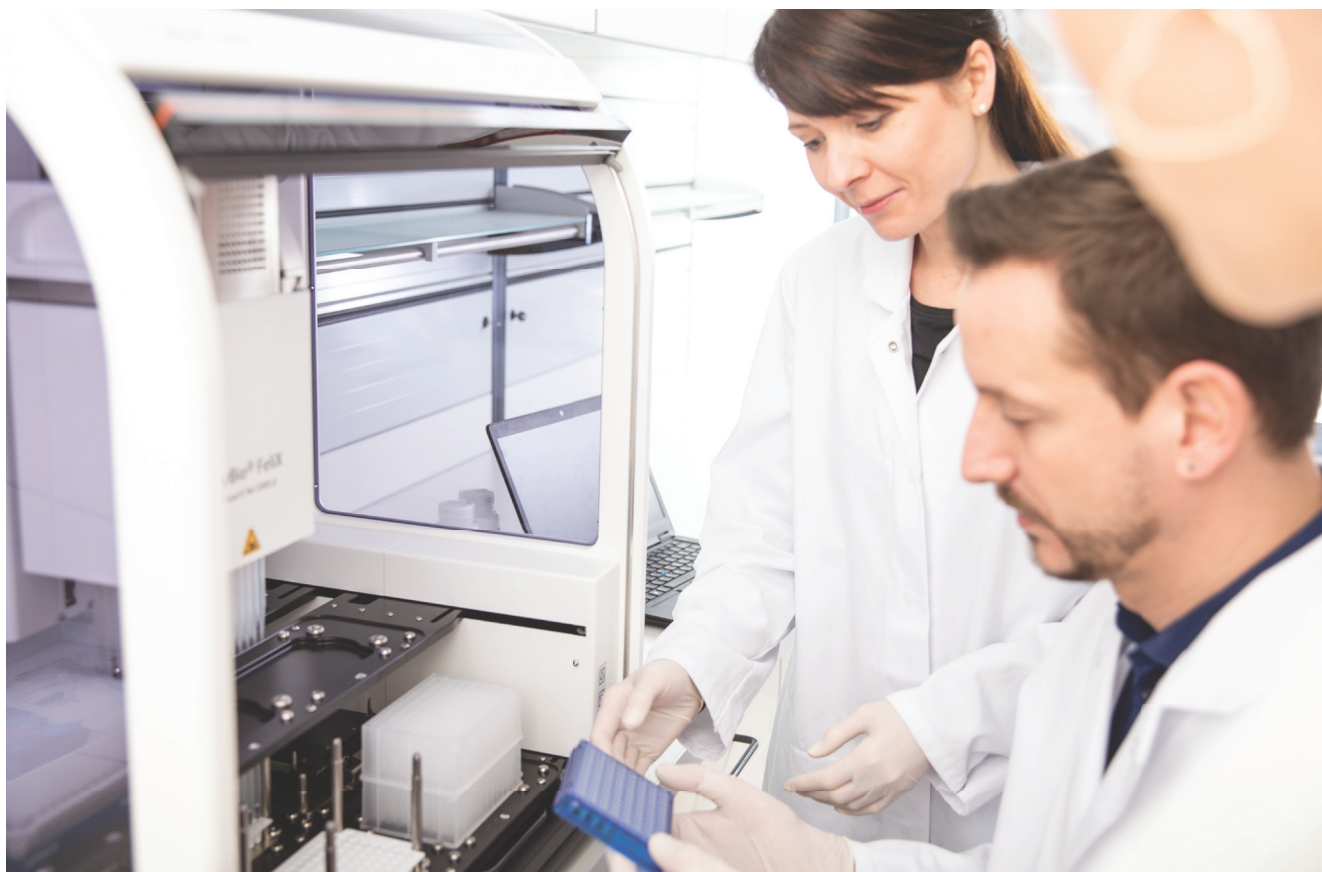
Technical Data

Volume range	1 µL − 1000 µL *
Working positions	12
Pipetting channels	1 − 384
Plate formats	24, 96, 384, 1536
Tubes	0.2 mL − 5.0 mL
Pipetting Tips	Disposable tips
Dimensions (W × D × H)	650 × 450 × 700 mm **
Weight basic unit:	approx. 50 kg
Weight pipetting head:	approx. 7 kg

*Depending on selected pipetting head
** Depending on selected system configuration

Pipetting Heads and Formats

The interchangeable pipetting heads are the core of the CyBio FeliX liquid handling system. Especially when it comes to performance in the volume range of 1–1000 µL.

Cybio Felix - System, Replaceable Heads, and Tips

Order number	Description
76469-566	Cybio Felix Basic Unit With Enclosure
76469-568	Cybio Felix Basic Unit Clean Bench
76469-570	Cybio Felix Clean Bench W Light Curtain
76469-618	Cybio Felix Head R 384 60 µL
76469-620	Cybio Felix Head R 96 60 µL
76469-622	Cybio Felix Head R 96 250 µL
76469-624	Cybio Felix Head R 96 1000 µL
76469-766	Cybio Robotiptray 96 60 µL Pcr-Cert
76469-770	Cybio Robotiptray 96 250 µL Dw-Pcr-Cert
76469-780	Cybio Robotiptray 384 60 µL
76469-742	Cybio Tipbox 96 50 µL-Pcr-Cert Pre-Ster
76469-744	Cybio Tipbox 96 250 µL-Pcr-Cert Pre-Ster
76469-754	Cybio Tiprack 96 1000 µLPcr-Certified
76469-750	Cybio Tipbox 192 60 µL Columns
76469-752	Cybio Tipbox 192 60 µL Rows
76469-650	Tiprack 96 1000 µL

For a full list of tips and consumables visit vwr.com

CyBio FeliX Robotic Heads - parallel transfer

The CyBio FeliX heads R offers you the flexibility to transfer 96 or 384 samples in parallel by the automated loading of CyBio RoboTipTrays.

Head type	Head R 96/60 µL	Head R 96/250 µL	Head R 96/1000 µL	Head R 384/60 µL
Tip type	RoboTipTray 96/60 µL	RoboTipTray 96/250 µL	Tips from TipRack 96/1000 µL	RoboTipTray 384/60 µL
Specified volume range Precision[1]	3 µL – 60 µL 3 µL – 5 µL CV ≤ 2% > 5 µL – 60 µL CV ≤ 1%	10 µL – 250 µL 10 µL – 25 µL CV ≤ 2% > 25 µL – 250 µL CV ≤ 1%	25 µL – 1000 µL 25 µL – 100 µL CV ≤ 2% > 100 µL – 1000 µL CV ≤ 1%	3 µL – 60 µL 3 µL – 5 µL CV ≤ 2% > 5 µL – 60 µL CV ≤ 1%
Unspecified volume range Precision[2]	1 µL – < 3 µL CV ≤ 10%	5 µL – < 10 µL CV ≤ 10%	10 µL – < 25 µL CV ≤ 10%	1 µL – < 3 µL CV ≤ 10%
Pipetting channels				

CyBio FeliX Robotic Heads - flexible transfer

You are able to use the same head for single, column and row wise pipetting by loading appropriate LHA and CyBio tips without manual intervention.

LHA type	for 1-, 8- and 12 channel			for 1-, 16- and 24 channel
Tip type	TipBox 96/50 µL	TipBox 96/250 µL	Tips from TipRack 96/1000 µL	TipBox 192/60 µL column TipBox 192/60 µL row
Specified volume range Precision[1]	3 µL – 50 µL 3 µL – 5 µL CV ≤ 3% > 5 µL – 50 µL CV ≤ 2%	10 µL – 250 µL 10 µL – 25 µL CV ≤ 3% > 25 µL – 250 µL CV ≤ 2%	25 µL – 1000 µL 25 µL – 100 µL CV ≤ 3% > 100 µL – 1000 µL CV ≤ 2%	3 µL – 50 µL 3 µL – 5 µL CV ≤ 3% > 5 µL – 50 µL CV ≤ 2%
Unspecified volume range Precision[2]	1 µL – < 3 µL CV ≤ 10%	5 µL – < 10 µL CV ≤ 10%	10 µL – < 25 µL CV ≤ 10%	1 µL – < 3 µL CV ≤ 10%
Microplate format	24, 96, 384 well plates and tubes	24, 96, 384 well plates and tubes	24, 96, 384 well plates and tubes	384 well plates and tubes
Pipetting channels				

[1] All precision specifications are based on the standard absorbance measurement procedure as described in the pipetting head manual and depend on the selected pipetting head, liquid handling adapter and tip type. For further details see also the respective application note on our homepage (https://www.analytik-jena.com) or www.iwa15.org.

[2] Possible working range with CV ≤ 10%, without guarantee

CyBio FeliX Pipetting Tips and Accessories Designed For Perfect Interaction With the Instrument

Our optimized pipetting tips and accessories always ensure the highest precision and reliability.

Pipetting tips

One of the crucial components for achieving the highest performance are our high quality pipetting tips. They are designed, validated and approved for CyBio FeliX. We offer a wide range of disposable tips tailored to your application needs such as nucleic acid extraction, cell-based applications, drug discovery and sample preparation for MALDI-TOF-MS.

- Designed for perfect interaction with the instrument
- Tip Sealing Technology – uniform pressure embeds the top of the tip on an elastomer mat and provides reliable sealing for enhanced pipetting performance
- High straightness and constancy of tip lengths allow for pipetting even the smallest volumes into pre-filled and dry microplates

Types	Description	
CyBio RoboTipTrays	For highly parallel pipetting in 96 and 384 well format with automatic tip exchange	
TipRacks	For single well, 8 channel column and 12 channel row pipetting 1000 µL tips from CyBio TipRack 96/1000 µL (blister) transferred in TipRack 96/1000 µL (holder)	
CyBio TipBoxes	For single well, 8-/ 16- channel column and 12-/ 24 channel row pipetting	
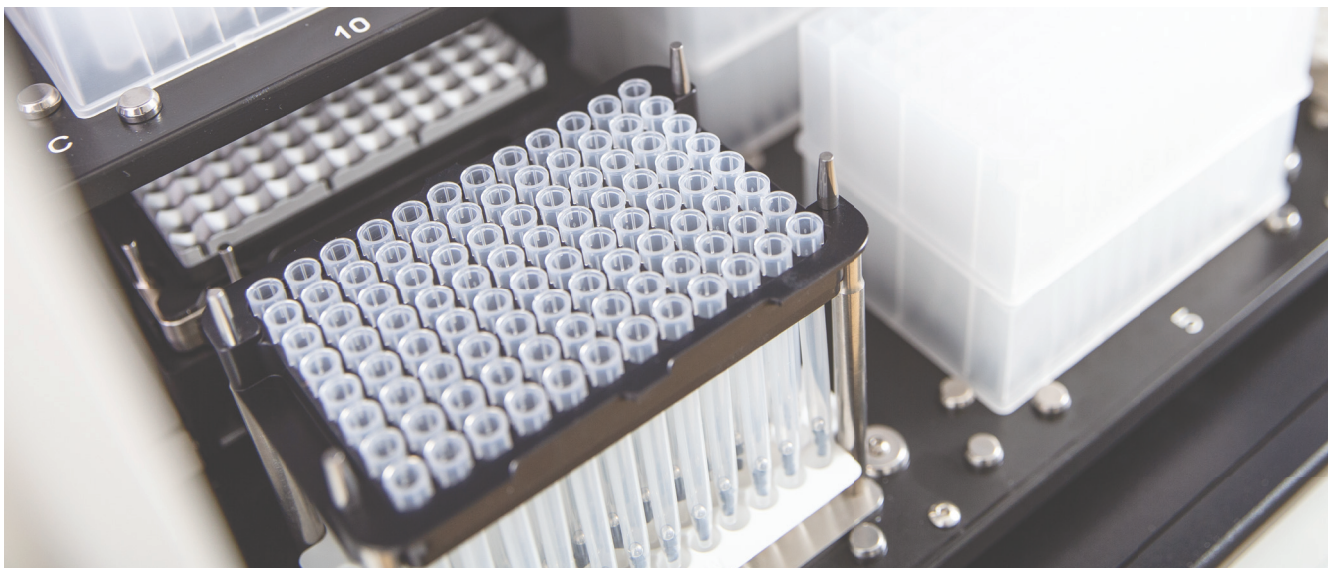
Accessories and tools

Following a modular concept, the CyBio FeliX offers great flexiblity and upgradeability through a broad range of tools and accessories.

General accessories

CyBio FeliX Gripper **VWR Cat No.** 76469-730	
Microplate Adapter 1536 for CyBio FeliX 1536 Upgrade Kit (must be prepared in the factory) **VWR Cat No.** 76469-582	
Tip Wash Trough for CyBio FeliX Tip Wash Station **VWR Cat No.** 76469-676	
Reservoir for CyBio FeliX Automated Reservoir Filling **VWR Cat No.** 76469-692	

CyBio FeliX labware adapter

ALPAQUA® MAGNUM FLX™ (Universal Magnet Adapter) **VWR Cat No.** 76469-732	
Height Adapter 40 mm **VWR Cat No.** 76469-666	
Microplate Adapter Soft Touch **VWR Cat No.** 76469-656	
CyBio FeliX Reagent Tub Support **VWR Cat No.** 76469-670	

CyBio FeliX accessories for Pipetting Tips

Tip Transfer Tool 96/250–1000 µL **VWR Cat No.** 76469-652	
TipRack 96/1000 µL **VWR Cat No.** 76469-650	
Supports (37 mm, 49 mm, 70 mm, 97 mm) **VWR Cat No.** 76469-648, 76469-640, 76469-644, 76469-642	
Waste Box **VWR Cat No.** 76469-638	
96-Channel Magazine; Head R 96/1000 µL **VWR Cat No.** 76469-654	

CyBio FeliX mixing and temperature control

Shaker BioShake 3000 elm **VWR Cat No.** 76469-724	
Thermoshaker BioShake 3000-T elm **VWR Cat No.** 76469-728	
Heater QInstruments HeatPlate **VWR Cat No.** 76469-726	

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Pictures: Analytik Jena GmbH,
Subjects to changes in design and scope of delivery as well as further technical development.

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