Freedom EVO® Clinical
Freedom EVOLyzer®

The gateway to IVD-D (98/79/EC) compliant automation
State-of-the-art instrumentation and services. Tecan is transforming its fully automated liquid handling solutions for clinical diagnostics through its next generation of automation platforms – the Freedom EVO™ Clinical. Building on Tecan’s considerable experience in laboratory automation, Tecan now offers a new, state-of-the-art platform and consolidates its product portfolio into the Freedom EVO Clinical. This streamlines training, setup, service and support whilst maintaining the popular benefits of the flexible architecture of Tecan’s robotic instruments.

Freedom to evolve. Freedom EVO Clinical is an open system for diagnostic applications. The new Freedom EVO Clinical is available in deck sizes of 100, 150 and 200 cm that allow easy selection of the optimal instrument for your laboratory space and throughput requirements.

With Freedom EVO Clinical, Tecan will focus on implementing new features and technologies to evolve performance, safety and reliability as required by diagnostic applications.

Regulatory compliance. Freedom EVO Clinical has been designed to comply with the new directive on in vitro diagnostic medical devices of the European Community (IVD-D 98/79/EC). The objective of our efforts is to provide instruments of the highest quality and safety to our customers.
Freedom EVO Clinical – Safety is not an option.
Supporting the Freedom EVO Clinical platform is a range of features that offer improved safety and efficiency. Larger safety panels, door locks and an integrated status lamp are now standard features of the Freedom EVO Clinical.

A continuous loading option permits the exchange of racks and carriers while the cover shields are closed and operation is in progress. Simultaneously the associated loading interface monitors user access to the instrument.

Freedom EVO Clinical offers state-of-the-art features:
- Customizable workspace that can be adapted to the needs of diagnostics and blood bank laboratories for different assay requirements
- 2-, 4- or 8-tip liquid handling arm with integrated liquid detection
- The liquid handling arm can be operated with a range of disposable tips sizes and fixed tips that guarantee optimal liquid handling performance
- For sensitive applications, an optional disposable tip ejector helps to prevent contamination
- Automated tracking of bar-coded specimens by sophisticated positive identification system (PosID2)
- Optional loading interface for continuous operation and monitoring of operator interaction
- Disposable tip waste with integrated wash station for higher flexibility
- Optional robotic manipulator arm for plate transport
- Complies with the directive on in vitro diagnostic medical devices 98/79/EC

Freedom EVO Clinical has undergone all safety testing as required by the IVD-D (98/79/EC).
Blood Pooling.
The Freedom EVO Clinical is ideally suited for blood pooling applications. The device is capable of preparing pools with different sample numbers and volumes. Freedom EVO Clinical is smoothly integrated into common blood screening procedures and offers interfaces for combination with pooling management software that controls pool generation, pool resolution and data management. Tecan is the leading supplier of pipetting platforms for pooling applications worldwide.

Comprehensive Molecular Diagnostics portfolio.
Tecan’s Freedom EVO Clinical supports the latest molecular diagnostic applications that are applied for blood screening and diagnostic purposes. The Freedom EVO Clinical’s powerful pipetting capabilities enable preparation of nucleic acids and distribution of amplification reagents.

EIA: Enzyme immuno assay, please refer to Freedom EVOlyzer

Precision liquid handling for the diagnostics laboratory
Tecan’s Freedom EVO Clinical supports the application needs of customers across a wide range of settings: Applications such as EIA preparation, Sample Distribution, Blood Typing, Blood Pooling and Molecular Diagnostics.

Advanced Sample Distribution.
Sample Distribution is a key step in overcoming some of the most labor-intensive operations in the diagnostic process. The Freedom EVO Clinical provides powerful features for the full range of sample preparation and processing tasks, e.g. parallel pipetting, aliquoting and diluting.

Blood Typing applications.
Whether its ABO-Typing or other antibody screening and identification methods, Tecan’s new Freedom EVO Clinical is ideally suited for Blood Typing applications. Tecan’s Freedom EVO Clinical thus supports the use of the popular gel cards and microplate-based tests.
Freedom EVOlyzer – Tecan’s next generation EIA analyzer

The flexible workcenter in your laboratory. The Freedom EVOlyzer is Tecan’s new Enzyme Immuno Assay (EIA) analyzer enabling fully automated microplate processing. Freedom EVOlyzer is a dedicated EVO platform, available in different sizes for all throughput and batch size requirements and includes high quality components dedicated to fast and reliable EIA automation.

The Freedom EVOlyzer comes with 2-, 4- or 8-tip liquid handling and an independently operating robotic manipulator arm. It offers a maximum of 12 independently heated incubation chambers, up to 32 plate storage positions and full automation of all washing and reading steps by a new Columbus™ Washer and proven Sunrise™ reader. The new loading interface enables continuous and flexible operation of the system. Naturally all Freedom EVO standard safety features are included.

To maximize the convenience for the routine operator and to allow for safe process control, Freedom EVOlyzer offers a guided graphical user interface in several languages, designed to support touch screen operation. Complementary user management, full process traceability and documentation fulfil the requirements of a routine diagnostic laboratory.

Integrated washer, reader and incubator.
Freedom EVOlyzer –
High speed performance and continuous operation

All EVOlyzer products are driven by the new EVOlyzer software to reduce effort and cost for application setup and operator training. Please consult EVOlyzer specifications for available product options. Additional features of Freedom EVOlyzer:

- Customizable workspace that can be adapted to various assay requirements
- Worklist and batch mode operation
- Dispensing and Predilution of samples from tubes, plates, deep-well plates
- Archiving option during the run
- Parallel sample pipetting for high speed performance
- Identification and tracking of sample, reagent and plate barcodes by PosID2
- Reload of reagents, samples, micro plates for continuous operation
- Support of strip based assays
- Full data processing and evaluation with integrated QC-data management (Levey-Jennings, Westgard)

- Integrated liquid level detection, reagent-specific liquid handling and photometric addition monitoring
- Liquid control monitoring for system liquids, waste, buffers and reagents
- Integrated ASTM (E1381-91 / E1394-91) interface
- Complies with the directive on in vitro diagnostic medical devices 98/79/EC

Freedom EVOlyzer uses parallel pipetting for transfer of samples to multiple plates, which speeds up operation by optimal utilization of system resources. The high speed performance of Freedom EVOlyzer is guaranteed through the combined use of independent plate transport, a 16 dual-channel washing unit and continuous operation by a new loading interface.

To secure safe operation, the EVOlyzer software controls all liquid levels, schedules all necessary interactions and guides the operator by LED signals on the loading interface to execute required reloading steps. Monitoring of user interactions combines high speed performance with the highest possible process and operator safety.
Freedom EVOlyzer –
Powerful setup, safe operation and high performance with new EVOlyzer software

Freedom EVOlyzer comes with sophisticated software editors, enabling the skilled user to exploit the full flexibility and liquid handling capabilities of Tecan’s proven technology. Implementation of the latest 3-D software technology allows for detailed description of material and enables exact, intelligent and safe performance during routine operation.

- The Process Definition Editor enables visualized definition of assay steps, e.g. pipetting, incubation, washing or reading steps are easily defined with a few mouse clicks including copying and pasting of sequences from different protocols.
- An exact electronic reproduction of the instrument is built in the 3-D Worktable Editor. This editor defines the worktable layout for the different applications.
- The Labware Editor defines all used racks, carriers, consumables (tubes, microplates, disposable tips) and modules of the worktable. Thus it is very easy to configure customized racks.
- The Configuration builder combines all the information of the editors with a digital signature. This ensures that all changes within a validated application are tracked.
- The Scheduler interleaves automatically the assays in the shortest possible time. Parallel sample pipetting as well as the reloading of samples and reagents are always scheduled in an ideal way.

To maximize the convenience for the routine operator and to allow for safe process control, Freedom EVOlyzer offers a guided graphical user interface in several languages, designed to support touch screen operation. Complementary user management, full process traceability and documentation fulfil the requirements of a routine diagnostic laboratory.
Technical Specifications Freedom EVO Clinical & Freedom EVolyzer

Common Specifications

Hardware features
Tip variety
Standard (Teflon®-coated stainless steel) and disposable tips with or without filter (200/1000 µl)

Syringe sizes
1000 µl

Liquid handling features
Pipeetting precision (CV)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Standard tips</th>
<th>Disposable tips</th>
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<tbody>
<tr>
<td>200 µl</td>
<td>&lt; 3.5%</td>
<td>&lt; 3.5%</td>
</tr>
<tr>
<td>1000 µl</td>
<td>&lt; 0.75%</td>
<td>&lt; 0.75%</td>
</tr>
</tbody>
</table>

* Typical results pipetting plasma in single pipetting mode (1000 µl syringe)

Liquid detection
Down to 50 µl of conductive liquid can be detected in round-bottom microplates on standard carriers

Power supply requirements
Power: 600 VA (EVO Clinical/EVOlyzer 100) and 1200 VA (EVO Clinical/EVOlyzer 150 & 200) voltage:
100 – 120 and 220 – 240 VAC, frequency 50/60 Hz

Operating conditions
Temperature: 15 – 32 ºC / 59 – 90 ºF, relative humidity: 30 – 80% (non condensing) at 30 ºC / 86 ºF

Compliance
CE-mark-compliant with the directive of in vitro diagnostic medical devices 98/79/EC

Freedom EVO Clinical

Hardware features
Robotic arms
Liquid handling arm

Tip configuration
4 and 8 tips, various combinations of different tip types

Dimensions
Freedom EVO Clinical 100
Height: 870 mm/34.3''
Width: 1075 mm/42.3''
Depth: 780 mm/30.7''
Weight: 150 kg

Freedom EVO Clinical 150
Height: 870 mm/34.3''
Width: 1450 mm/57''
Depth: 780 mm/30.7''
Weight: 200 kg

Freedom EVO Clinical 200
Height: 870 mm/34.3''
Width: 2050 mm/80.7''
Depth: 780 mm/30.7''
Weight: 230 kg

Availability
Not available for sale in the United States of America

Freedom EVolyzer

Hardware features
Robotic arms
Liquid handling arm and robotic manipulator arm

Tip configuration
EVolyzer 100: 2 or 4 tips; EVolyzer 150/4 or 8 tips; EVolyzer 200: 8 tips – various combinations of different tip types

Sample loading range
Variable (between 1 and 30 sample racks – depending on the worktable size)

Sample rack
16 sample or predilution tubes (diameter from 10 – 16 mm)

Parallel pipetting
Up to 6 plates in parallel for standard ELISA (depending on incubation times)

Incubator
RT-incubations
EVolyzer 100: 6 positions; EVolyzer 150 & 200: 6/12 positions

Heated incubations
EVolyzer 100: 6 positions; EVolyzer 150 & 200: 6/12 positions
With or without shaking

Temperature range
RT (± 5 ºC) – 46 ºC (calibrated at 37 ºC / 46 ºC)

Washer: Columbus
16 way manifold with fill verification

Wash channels
4 channels for wash buffer / strip or plate mode

Capacity
2 x 2 l and 2 x 4 l with level sensing

Programs
Up to 30 programs

Photometer: Sunrise
Measurement range
340 to 399 nm 0 – 3.0 OD; 400 – 750 nm: 0 – 4.0 OD

Wavelength selection
4 or 6 fixed interference filters (340 – 750 nm) or gradient filter (400 – 750 nm)

Measurement time
Single wavelength: 6 seconds; Dual wavelength: 8 seconds

Software
Supporting 21 CFR part 11, Operating system Windows® XP

Dimensions
Freedom EVolyzer 100
Height: 870 mm/34.3''
Width: 1500 mm/57.1''
Depth: 780 mm/30.7''
Weight: 210 kg

Freedom EVolyzer 150
Height: 870 mm/34.3''
Width: 1890 mm/74.4''
Depth: 780 mm/30.7''
Weight: 237 kg

Freedom EVolyzer 200
Height: 870 mm/34.3''
Width: 2490 mm/98''
Depth: 780 mm/30.7''
Weight: 270 kg

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