Freedom EVO®

Freedom to evolve in your laboratory
The Freedom EVO Series offers four different worktable capacities each with building-block modularity that brings precision liquid handling, easy-to-use robotics and advanced process control within reach of every laboratory scientist. The flexible Freedom EVO platform enables you to create your system according to your specific needs with the help of our automation specialists or to select a pre-configured automation solution for your application.

Each Freedom EVO Series workstation offers
- System reliability
- Precision robotics
- Advanced & proven liquid handling
- Standardized and intuitive user interface and communications
- Dedicated worldwide applications and technical support...
...ensuring that, even across multiple systems, scientists can quickly achieve assay consistency at different scales, reduce training and support costs and still guarantee extensibility.

Furthermore, the Freedom EVO Series workstations allow customization through
- Choice of application solution
- Scaleability & upgradeability
- Required throughput & capacity
- System configuration flexibility...
...ensuring that each Freedom EVO will not only meet immediate needs exactly, but keep pace as requirements in the lab change, or as new applications need to be pursued.

**Freedom EVO 75** – compact liquid handling power for small life science laboratories in academia, biotechnology research and analytics — The configurable Freedom EVO 75 supports applications such as DNA extraction, amplification set-up, sample dilution, normalization and assay development. An optional robotic manipulator arm enhances the system to provide a complete process automation platform in a small footprint.

Nucleic acid sample preparation on a Freedom EVO 75
Freedom EVO 100 – A small, liquid handling workstation offering state-of-the-art liquid handling capabilities and optional robotic functionality for general purpose pipetting in all small-to-medium throughput laboratories, e.g. in pharmaceutical, forensic and quality control laboratories.

Freedom EVO 150 – A core element in managing liquid handling and robotics tasks in busy, small laboratories or medium to high throughput research and diagnostic laboratories. The larger footprint significantly increases the interface area of devices enabling a broad range of complete process automation solutions for analytics, molecular biology, pharmaceutical discovery and validation, forensics, analytical chemistry and food quality assurance.

Freedom EVO 200 – A unique multi-functional robotic platform for all large scale and high throughput applications. The largest of the Freedom EVO Series workstations, provides an extensive work area and variable configurations through the choice of liquid handling and manipulative robotic arms. The Freedom EVO 200 offers the laboratory total automation of a diverse range of applications including primary and secondary screening, cell growth and maintenance, nucleic acid sample preparation, hit picking and library management and sample weighing.
The Tecan advantage

Performance without compromise

**Liquid handling flexibility.** The Freedom EVO workstations enable you to configure your instrument specifically for the needs of your application. 1, 2, 4, and 8 channel arms offer a volume range from 100 nl to over 10 ml and even higher. One or two liquid handling arms can be integrated, providing 16 channel capability. Multi-channel pipetting is possible in 96- and 384-channel options. A choice of washable or disposable tip combinations provides accurate handling of aqueous, organic or biological solutions and suspensions.

**Tip spacing.** The 4- and 8-channel liquid handling arm offers variable y-spacing of 9–38 mm enabling sample transfers from and to a variety of labware types*. The 2-channel liquid handling arm offers spacing up to 418 mm. Individual channel control on all systems enables applications such as hit picking or access to irregularly shaped reagent vessels. A variety of tip lengths can be selected to ensure reduction of dead volumes when using tall containers*.

**Laser precision.** The Tecan Positioning System (Te-PS™) offers unique refinement of absolute positioning of the pipetting tips over high density microplates or slides such as 1536-well plates and 864-well crystallization plates. In-process monitoring and real time correction of positional precision guarantee reliable unattended operation.

**Unique extensibility and upgrade path.** Combine liquid handling and robotic resources using up to 3 arms on one platform. The Freedom EVO allows you to evolve as your needs change. It is possible to start with liquid handling only, for sample dilution or plate replication, and upgrade later with robotic manipulation for full assay automation. All arms can be easily upgraded or exchanged at your site.

*Values may differ depending on instrument configuration.
Liquid handling expertise. Each liquid channel offers optimized pipetting parameters for a broad range of liquid types and volumes, fast liquid level detection, liquid availability check and preferential non-contact dispensing. Aerosol emissions are contained during disposable tip ejection and Tecan fast wash pumps ensure thoroughness and speed of tip washing for total system cleanliness.

Parallel processing. Tecan’s instrument design offers liquid handling and robotic elements that work together to best automate your process and optimize your workflow. Parallel processing increases process speed, enhances throughput, ensures assay reproducibility and provides efficient use of all process resources.

Intuitive software. Tecan’s Freedom EVOware® software guides users, at any skill level, in making protocols, via drag and drop, icon-driven implementation screens. Freedom EVOware comes with helpful information pads, application templates, creation wizards and 3-dimensional protocol simulation and is transferable between all Freedom EVO workstations.

Freely configurable work area. Tecan offers an extensive range of carriers for positioning standard labware on the worktable, e.g. tubes, plates, reagent bottles, slides. Carriers are positioned easily and may be removed routinely for reloading or for reconfiguration for other assays.

Barcode identification. Carriers and labware can be identified automatically prior to and during the process to ensure integrity of samples, reagents and assays vessels.

Ergonomic design. Tecan’s Freedom EVO Series offers small footprint solutions as well as unique vertical and efficient peripheral integration.

*Values may differ depending on instrument configuration.
Excellence in liquid handling

Precision, whichever way you configure it

**Precision liquid handling arm.** The Freedom EVO’s robotic liquid handling arm combines advanced pipetting precision with reliability and high throughput. It may be equipped with one, two, four or eight tips that access a variety of labware at any point on the worktable*. Each liquid-filled positive displacement channel transfers liquid volumes from source to destination, first detecting and tracking the liquid level to avoid over-submergence or disturbance of sample pellets or precipitates. It may perform mixing cycles in source or destination and can predilute in the same pipetting step enabling fast serial dilution sequences. The use of two liquid handling arms on one instrument enables unrivaled throughput and flexibility with 16 pipetting channels.

**Laser-guided precision positioning.** Tecan’s ultra-positioning system (Te-PS) together with the high precision liquid handling arm, efficiently and automatically calibrates all tips throughout the application process thus assuring repeatably accurate and reliable pipetting into high density plate formats such as 1536-well plates and protein crystallography plates. Even variably-molded disposable tips can be calibrated to achieve the highest positional precision.

**Liquid handling versatility.** The liquid handling arm can be equipped with disposable tips from 10 µl to 1000 µl. Fixed washable tips are available with various chemically resistant and biologically appropriate coatings and lengths as well as dedicated tips for high density format pipetting and low-volume down to 500 nl. Freedom EVO’s fast wash pumps wash tips efficiently, minimizing carry-over without affecting throughput. The range of 96 and 384 multichannel pipetting arms significantly raise the throughput of microplate-based assays.

*Values may differ depending on instrument configuration.
Revolutionary process control

Simple, intuitive, flexible

Adaptable, scalable solutions. Powering Tecan’s Freedom EVO Series is a superior, innovative software engine – providing software solutions that allow you to work more efficiently and adapt quickly to new requirements. User management, file protection and traceability features permit users to comply with the FDA’s 21 CFR Part 11 Regulations.

Flexible, easy-to-use software in a single package. Freedom EVOware offers users a completely new and easy-to-use interface that optimally combines pipetting, robotics and scheduled operation of multiple devices in a single package. Pipetting wizards enable fast creation of standard pipetting patterns but allow individual step changes when required. Application templates aid first time users to introduce instruments quickly into routine use. Freedom EVOware delivers scalability and adaptability allowing assays developed on one system or in simulation to be easily transferred to another.

Increased productivity. Freedom EVOware provides automated scheduling optimization ensuring the most efficient assay execution, optimized throughput for multiple assays and ensuring maximum productivity. Parallel processing ensures that devices are used independently of each other to ensure that throughput is maximized. Freedom EVOware offers users a selection from over 75 application device drivers and the possibility to create drivers for new and custom modules.

3-D simulation. Freedom EVOware enables protocols to be created and simulated in realtime, allowing off-line checking of resource allocation and efficiency.

*Values may differ depending on instrument configuration.

www.tecan.com/freedomevo
Plug-and-play modularity. Six types of robotic arm are available: liquid handling; Pick and Place; robotic manipulator (standard or with extended Z-axis), MultiChannel Arm™ 96 and MultiChannel Arm 384. One, two or three arms may be mounted in appropriate combinations. Additional robotic arms be added or exchanged to previously installed systems in the field. The customizable worktable with versatile grid system allows fast location of virtually any labware for fast work area reconfiguration assisting multiple researchers to share a Freedom EVO platform and linking location coordinates directly to the software for fast assay setup. The worktable may include carriers for tubes, microplates, reagent bottles and troughs as well as temperature control, shaking, or other process options, such as plate readers, washers, magnetic and vacuum separation devices.

Liquid handling arms are available with one, two, four or eight pipetting channels – each is freely configurable for volume range and use with disposable or washable tips. Up to two liquid handling arms may be mounted on the Freedom EVO.

MultiChannel 96 or 384 Arm provide high performance plate replication, dilution and whole plate processing.
Up to 16 XP Smart dilutors - precision syringe pumps ranging from 50 – 5000 µl enable optimal match with tip type and required volume range. Mixed channel configurations allow optimized application parameters and workflow.

Robotic manipulator arm transports microplates and other labware efficiently and quickly between worktable, peripheral devices and labware storage. Shelves and hotels utilize space along the length of the workstation and can also house incubation modules as well as labware.

Te-Stack™ is an efficient tool for automating the storage, retrieval and fast delivery of microplates and disposable tips.

The high-speed carousel is unmatched in speed for random access of microplates and assorted disposable tips. One unit can efficiently handle microplates, half-height plates or deep-well plates.

The extended range robotic manipulator arm allows access to space below the worktable for further integration of devices such as plate readers, washers, centrifuges, thermocyclers or further storage and incubation options.

Pick and Place robotic arm for fast and precise single tube manipulation for tube weighing and compound dissolution applications.

Te-Link™ Allows seamless connectivity between two Freedom EVO workstations increasing the degree of process automation, raising throughput and capacity and allowing enhanced task optimization and versatility.

The Tecan Pos ID automatically reads barcodes on labware and carriers at any position on the worktable.

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Flexible options to meet changing needs

On and off the worktable temperature control is crucial for many molecular biology and ADMET applications. **Tecan Incubators** (RT +5°C to 60°C) can be placed on the Freedom EVO to provide incubation for four or six microplates, with or without shaking, and are ideally suited for ELISA and cell-based assay applications. Other temperature control carriers are available for reagent and media reservoirs, tubes and plates.

**Te-VacS™** is an automated solution for vacuum solid-phase extraction. The system can be assembled by the robotic manipulator arm for fully automated operations and is ideally suited for DNA/RNA extraction, viral RNA isolation, or compound purification. Smoothly regulated pressure allows safe sample extractions with no contamination.

**Te-MagS™** is a powerful magnetic-bead-based separation tool for sample purification. Typical applications include DNA/RNA or protein purification as well as cell isolation.

**Te-Shake™** is a highly effective shaker that handles microplates, deep-well plates, Eppendorf and PCR tubes with the added option of sample heating if necessary.

Microplate detection systems are seamlessly integrated including the Tecan Sunrise™ absorbance reader as well as the Infinite® for multifunctional advanced luminescence and fluorescence detection.

Tecan offers fully automated **microplate washers** for Enzyme Linked Immunosorbent Assays (ELISA), and other key applications. These include the HydroFlex™ and the 96 PW™ and Power Washer 384™ plate washers.

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Heated incubator with integrated linear shaker

Te-VacS for solid phase extraction

Te-MagS performs magnetic bead separation

Te-Shake shakes microplates, deep-well plates, Eppendorf and PCR tubes

Power Washer for high-speed washing of 384-well and 96-well plates

The Infinite detection system integrated in the Freedom EVO

Integrated Sunrise microplate reader and Hydroflex microplate washer

Third party devices are easily integrated around or below the Freedom EVO
Discover the freedom to evolve your key applications

One source, endless solutions

**Genomics.** The Freedom EVO series of platforms fully supports nucleic acid extraction and purification via vacuum, magnetic-bead-based or centrifugal separation. Sequencing reaction set-up and PCR set-up, genotyping studies, SNP scoring and spot array printing are also possible as well as fully automated in situ hybridization or (F)ISH, and immunostaining of cells or tissue samples on microscope slide formats.

Tecan’s open collaboration with reagent companies, (e.g. Invitrogen®, Millipore®, and AB) provides users with a portfolio of off-the-shelf optimized solutions allowing laboratories to choose a range of kits best suited to their needs with automation at the appropriate capacity and throughput.

**Proteomics.** The Freedom EVO platform enables diverse applications in protein purification, identification and characterization. A wide range of optimized solutions are available for protein digestion and MALDI target spotting (Pro Team®) and the latest precision pipetting methods for protein crystal growth optimization. Each solution is fully scalable to adapt to different throughput needs.

**Drug Discovery.** Tecan’s Freedom EVO application portfolio supports each step in the drug discovery chain. Applications ranging from chemical and biological entity identification and validation through a full range of ADMET assays and clinical trial tests, including assay development and screening processes. The application portfolio offers biochemical and cell-based assay solutions (e.g. microsomal metabolic stability, cell permeability, cell migration assays) as well as cell maintenance and logistic support functions, such as hit picking and library management.

**Endless solutions.** Provided by proven collaborations with numerous third party device manufacturers, including dispensers, plate sealers, robotic incubators and analytical devices.

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User friendly automation with the highest possible safety standards

**Individual liquid level detection** is quickly performed in tubes, plates or reagent vessels. Presence or absence of liquid is determined. The system can also establish in advance of sampling if sufficient liquid is present for the requested pipetting step. Error reports can be handled automatically or issue a prompt for user intervention. Clots or particles in a liquid that obstruct the pipetting tip during aspiration can be detected and the operator notified – e.g. during nucleic acid isolation from whole blood samples.

**Tip detection.** Disposable tips are automatically picked up and ejected by the arm. Correct tip mounting is monitored by the system to ensure error-free and safe operation.

**Low disposable tip ejector** enables disposable tips to be ejected within a contained environment thus eliminating cross-contamination from aerosols generated in the tip ejection process.

**Automatic Identification** of horizontal (e.g. side of microplate) and vertical barcodes (e.g. side of tube or bottle) ensures sample and reagent integrity. Missing tubes may also be detected.

A fully integrated **status lamp** clearly shows the working status of Freedom EVO systems. Even from a remote location, the operator can observe if the system is working (green lamp) or requires input or assistance (green lamp changes to red).

Operator and process safety is ensured during operation by **interlocked shields** that protect the work area and prevent unintended interruption. The system can be placed on pause by the operator and the work area accessed at any time.
Successful solutions founded on years of experience

From customized solutions to dedicated support

Customized Solutions. By integrating Tecan products, purpose-built customized equipment and third party devices with individual customer requirements into one system, Tecan project managers, engineering and application specialists create tailor-made solutions designed for your applications.

Each system is handled as a project including
- Application and automation consulting
- Interactive project planning
- Feasibility and throughput studies
- Tailored engineering
- System installation and support through factory and site acceptance

Customer Support and Services. Tecan offers the expertise necessary to ensure professional use and maintain high-performance operation of Tecan equipment and solutions. The high level of our customer support services offers immediate advantages:
- Subsidiaries are maintained worldwide close to your location to provide timely field service and to build a close customer relationship.
- Our specialists deliver high quality maintenance and repairs to existing instrumentation and solutions.
- We provide a range of preventive maintenance contracts that will keep your equipment in the very best condition and minimize downtime.

Scientific research often requires the need for tailor-made systems to ensure optimum performance and efficiency. The Tecan Integration Group’s competency in understanding your application problems allows them to respond to your requirements and provide the best solution, from new pieces of hardware to fully integrated systems.

Helpdesks are staffed at Tecan subsidiaries worldwide with trained qualified specialists who are available to help you in your local language. Tecan offers a comprehensive range of courses in which in-depth theory is combined with hands-on coaching.

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Specifications

<table>
<thead>
<tr>
<th>Hardware features</th>
<th>Freedom EVO 75</th>
<th>Freedom EVO 100</th>
<th>Freedom EVO 150</th>
<th>Freedom EVO 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of robotic arms</td>
<td>1–2</td>
<td>1–2</td>
<td>1–3</td>
<td>1–3</td>
</tr>
<tr>
<td>Robotic arms available</td>
<td>Liquid Handling Arm – 1-tip, 2-tip, 8-tip, 8 Plus 1 access tip, Robotic Manipulator</td>
<td>Liquid Handling Arm – 2-tip, 4-tip, 8-tip, Robotic Manipulator</td>
<td>Liquid Handling Arm – 2-tip, 4-tip, 8-tip, Robotic Manipulator extended Z, Pick and Place</td>
<td>Liquid Handling Arm – 2-tip, 4-tip, 8-tip, Robotic Manipulator extended Z, Pick and Place</td>
</tr>
<tr>
<td>Multichannel head</td>
<td>n.a.</td>
<td>96 or 384</td>
<td>96 or 384</td>
<td>96 or 384</td>
</tr>
<tr>
<td>Max. pipetting channels</td>
<td>8</td>
<td>8+384</td>
<td>8+384</td>
<td>8+384</td>
</tr>
<tr>
<td>Tip configurations</td>
<td>1, 2, 4 or 8 tips on one arm; various combinations of different tip types possible</td>
<td>1, 2, 4 or 8 tips on one arm; various combinations of different tip types possible</td>
<td>1, 2, 4 or 8 tips on one arm; various combinations of different tip types possible</td>
<td>1, 2, 4 or 8 tips on one arm; various combinations of different tip types possible</td>
</tr>
<tr>
<td>Tip type variety</td>
<td>Washable tips: Standard (Teflon®-coated stainless steel), ceramic coating, hard Teflon coating with full DMSO compatibility, short/long low volume, Te-PS tips for access to 1536-well microplates. Disposable tips with or without filter (10/50/200/1000 µl)</td>
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</tr>
<tr>
<td>Tip movement</td>
<td>Independent Z, 2-tip arm – between tip space 18 mm.</td>
<td>Independent Z, 2-tip arm – between tip space 18 mm.</td>
<td>Independent Z, Y-tip spacing on 4- and 8-tip arm – automatically 9 to 38 mm between tips; 2-tip arm – between tip spacing variable 9 to 418 mm</td>
<td>Independent Z, Y-tip spacing on 4- and 8-tip arm – automatically 9 to 38 mm between tips; 2-tip arm – between tip spacing variable 9 to 418 mm</td>
</tr>
</tbody>
</table>

Liquid handling features

| Syringe sizes (µl)                     | 50, 250, 500, 1000, 2500, 5000 mounted on Cavro® XP Smart precision dilutor | 1000, 2500 mounted on Cavro XP dilutor |
| Liquid handling range                | 0.5 µl – 15 ml | 0.5 µl – 15 ml | 0.5 µl – 15 ml | 0.5 µl – 15 ml |
| Standard volume tips                | 3 – 5000 µl (standard tips), 3 – 1000 µl (disposable tips 200 µl or 1000 µl) | 3 – 5000 µl (standard tips), 3 – 1000 µl (disposable tips 200 µl or 1000 µl) | 3 – 5000 µl (standard tips), 3 – 1000 µl (disposable tips 200 µl or 1000 µl) | 3 – 5000 µl (standard tips), 3 – 1000 µl (disposable tips 200 µl or 1000 µl) |
| Low-volume tips                     | 0.5 – 250 µl – non-contact dispense with low volume option or Te-PS tips (disposable tip 10 µl) | 0.5 – 250 µl – non-contact dispense with low volume option or Te-PS tips (disposable tip 10 µl) | 0.5 – 250 µl – non-contact dispense with low volume option or Te-PS tips (disposable tip 10 µl) | 0.5 – 250 µl – non-contact dispense with low volume option or Te-PS tips (disposable tip 10 µl) |
| DynamicFill Technology              | n.a.          | 100 µl – 10 ml and higher | 100 µl – 10 ml and higher | 100 µl – 10 ml and higher |
| Fast wash pump option               | Ultra-fast delivery of wash solution by diaphragm pump | Ultra-fast delivery of wash solution by diaphragm pump | Ultra-fast delivery of wash solution by diaphragm pump | Ultra-fast delivery of wash solution by diaphragm pump |
| Liquid waste vigilance option       | Active monitoring of liquid levels in system and waste containers | Active monitoring of liquid levels in system and waste containers | Active monitoring of liquid levels in system and waste containers | Active monitoring of liquid levels in system and waste containers |

Pipetting precision (CV): Standard volume*

<table>
<thead>
<tr>
<th>Volume:</th>
<th>Standard washable tips:</th>
<th>Disposable tips:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 µl</td>
<td>&lt; 1.75%</td>
<td>&lt; 2.25%</td>
</tr>
<tr>
<td>100 µl</td>
<td>&lt; 0.4%</td>
<td>&lt; 0.4%</td>
</tr>
</tbody>
</table>

* typical results using deionized water in single pipetting mode under optimized conditions (1000 µl syringe).
(Manufacturer’s field guarantee for standard washable and disposable tips: 10 µl < 3.5%, 100 µl < 0.75%)

Pipetting precision (CV): Low volume**

<table>
<thead>
<tr>
<th>Volume:</th>
<th>Low-volume washable tips:</th>
<th>Low-volume disposable tips:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 µl</td>
<td>&lt; 6%</td>
<td>&lt; 6%</td>
</tr>
<tr>
<td>10 µl</td>
<td>&lt; 1.0%</td>
<td>&lt; 1.0%</td>
</tr>
</tbody>
</table>

** typical results using low volume option with deionized water in single pipetting mode under optimized conditions (500 µl syringe).
(Manufacturer’s field guarantee for low volume washable and disposable tips: 1 µl < 10%, 10 µl < 3.5%)

Non-contact dispense

Volumes down to 3 µl. With low volume option or Te-PS tips down to 0.5 µl.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Freedom EVO 75</th>
<th>Freedom EVO 100</th>
<th>Freedom EVO 150</th>
<th>Freedom EVO 200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process control features</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Liquid level detection</td>
<td>Down to 50 µl in a round bottom 96-well microplate on standard carriers. Choice of capacitive for conductive liquids or pressure based technology for non conductive liquids.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Tip occlusion detection</td>
<td>Part of integrated liquid detection (ILD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure Monitored Pipetting</td>
<td>Real-time quality control of the liquid transfer process. Detects pipetting faults like clots and air aspiration.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposable tip sensing</td>
<td>Confirmation of tip pick-up and tip ejection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive sample identification</td>
<td>Manual barcode scanner</td>
<td>Fully automated barcode scanner (PosID) for tubes, plates, reagents and carriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low disposable tip eject</td>
<td>Ejection of tips in contained environment to prevent aerosol distribution; Also used for tip re-racking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full safety screens</td>
<td>User activated, interlocked screens prevent non-intentional access to work area or non-intentional system halt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Password protection</td>
<td>Three password levels: operator, application specialist and administrator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory compliance</td>
<td>CE and CSA marked (73/23/EEC and 89/336/EEC)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Software features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating software</td>
<td>Freedom EVOware – for full access to application development environment</td>
<td>Freedom EVOware Plus – additionally provides advanced process scheduling capabilities¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows® XP Professional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Requirements</td>
<td>Intel® Pentium®4; 3 GHz, minimum 1 GB RAM, 5 GB of unused hardisk space; 1 USB port for software hardlock; 1 USB or RS232 for instrument control; 1 unused port for printer; SVGA monitor with 32768 colors or more and minimum resolution of 1024 x 768 pixels, CD-ROM</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Outer Dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>795 mm/29.8”</td>
<td>870 mm/34.3”</td>
<td>870 mm/34.3”</td>
<td>870 mm/34.3”</td>
</tr>
<tr>
<td>width</td>
<td>881 mm/37.7”</td>
<td>1075 mm/42.3”</td>
<td>1450 mm/57.0”</td>
<td>2050 mm/80.7”</td>
</tr>
<tr>
<td>depth</td>
<td>696 mm/27.4”</td>
<td>780 mm/30.7”</td>
<td>780 mm/30.7”</td>
<td>780 mm/30.7”</td>
</tr>
<tr>
<td>Weight (base unit only)</td>
<td>84 kg/165 lbs</td>
<td>110 kg/242 lbs</td>
<td>130 kg/286 lbs</td>
<td>182 kg/400 lbs</td>
</tr>
<tr>
<td><strong>Gripper ranges</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robotic manipulator</td>
<td>58–140 mm</td>
<td>58–140 mm</td>
<td>58–140 mm</td>
<td>58–140 mm</td>
</tr>
<tr>
<td>Pick and Place arm</td>
<td>n.a.</td>
<td>9–35 mm¹</td>
<td>9–35 mm¹</td>
<td>9–35 mm¹</td>
</tr>
<tr>
<td>Access below Worktable – RoMa Long Z</td>
<td>n.a.</td>
<td>350 mm</td>
<td>350 mm</td>
<td>350 mm</td>
</tr>
<tr>
<td><strong>Power requirements</strong></td>
<td>Freedom EVO 75:</td>
<td>Freedom EVO 100, Freedom EVO 150, Freedom EVO 200:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>570 VA</td>
<td>800 VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>100 – 240 VAC, frequency: 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating conditions</td>
<td>Temp. 15 – 32 °C/59 – 90 °F, relative humidity 30 – 80% (non-condensing) at 30 °C/86 °F or below</td>
<td></td>
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</tr>
</tbody>
</table>

Notes:

¹ – Manufacturer’s field guarantee to 27 mm
The Freedom EVO is an open automation platform product for general laboratory use. It is intended for routine laboratory tasks, such as general purpose pipetting and general purpose liquid handling and robotic processes.

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