Cubis® II Laboratory Balances

In Biopharma and Life Science Research and Development

Simplifying Progress

SARTORIUS

Achieving Greater Consistency and Reliability in Biopharmaceutical Research

In the development of novel biomedicines like cell and gene therapies, antibody drug conjugates (ADCs), and vaccines, even one step in the entire workflow can significantly impact the overall quality and integrity of the final outcome. Lab weighing applications play a crucial role in ensuring the integrity and quality of the experimental results at several stages of the development process. Bioassays, toxicology studies, and formulation development demand extreme precision, as even the smallest discrepancies can disrupt entire experiments.

Cubis® II Laboratory Balances with advanced applications and tools not only accelerate the R&D process but also enhance the reproducibility of results, leading to more effective and safer biopharmaceutical products. These applications, as highlighted below, are essential for measuring and analyzing small quantities of — often — toxic substances with high precision, enabling both the safe handling of potentially hazardous chemical and sensitive biologic samples and achieving accurate weighing results.

Ensure the Integrity and Reproducibility of Your Experimental Results

Accuracy

Overcome Environmental Challenges with Cubis® II: Reliable Performance Despite Temperature, Humidity, or Static Charges

Electrostatic Charge
Static charges on sample containers and samples can lead to fluctuations in weighing results, affecting accuracy. To counter this, the analytical, semi-micro, and micro balances in the Cubis® II range are equipped with a built-in ionizer, which effectively neutralizes or minimizes static interference. Additionally, all Cubis® II draft shields feature a conductive coating, providing extra protection by shielding the inner weighing chamber from external electrostatic influences. This dual approach ensures reliable and stable weighing results, even in environments prone to electrostatic charge.

Temperature Fluctuations
Temperature fluctuations can negatively impact weighing accuracy. To address this, Cubis® II balances automatically perform an internal calibration whenever they detect significant temperature changes. This proactive calibration ensures precise and reliable weighing results, even in environments where temperatures vary. By maintaining optimal calibration in real-time, Cubis® II balances guarantee consistent accuracy throughout your workflow.

Contamination and Cleaning
Contaminants, such as powders or liquid spills, can compromise the precision of balances and lead to cross contamination. The Cubis II is designed for easy cleaning with removable, chemical-resistant parts (e.g. titanium for the weighing floor and weighing pan) and a software-guided cleaning process, ensuring consistent accuracy.

The Cubis® II Ultra-High Resolution Semi-Micro and High-Capacity Micro Balances are designed for fast stabilization time under everyday lab through the compensation of temperature fluctuation, electrostatic effect, contamination, and more environmental effects.

This innovative design not only enhances precision but also accelerates weighing workflows, raising the bar for semi-micro and high-capacity micro balances that seamlessly combine speed and accuracy in your laboratory operations.

Cleaning

Clean Balances, Reliable Results: Simplify Accuracy with Picture-Guided Cleaning

Ensure precision with step-by-step cleaning instructions via the Cleaning QApp.
Reduce downtime with easy, tool-free disassembly for hard-to-reach areas.
Maintain compliance with digital documentation and guided workflows.

A recent industry survey found that 76% of laboratory scientists prioritize cleaning their balances, with 80% of respondents indicating that a guided workflow for balance cleaning would be helpful. However, 49% of participants cited sample materials and 47% highlighted spills as the main reasons for needing to clean balances, identifying the under-weighing pan area as the hardest part to clean.

Cubis® II MCA Balances have been optimized for simplified and efficient cleanings with a QApp software application that guides workflows. The Cleaning QApp offeres step-by-step guidance for both routine and in-depth cleaning, ensuring that each step is followed accurately. Additionally, it can prompt users to perform cleaning based on contamination levels or before logging out, while conducting functionality tests to verify the balance's accuracy afterward. The new Cubis® II Ultra-High Resolution balances not only have guided software but also are designed with tool free assembly helping to clean hard to reach areas.

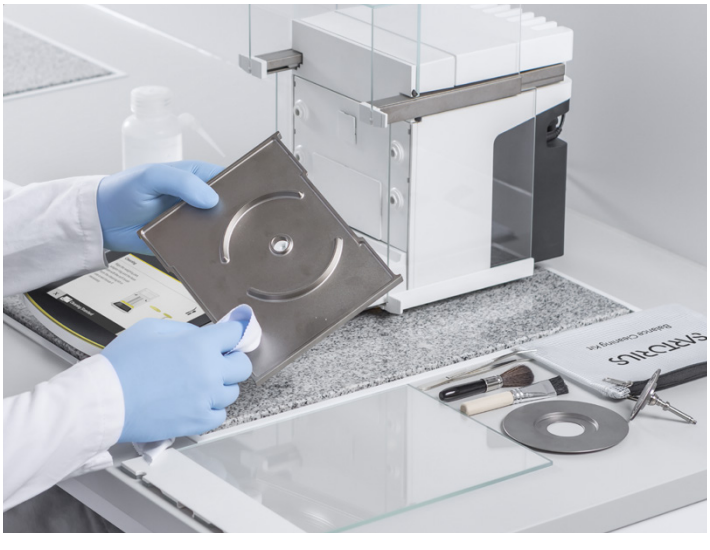
The step-by-step guidance helps with two types of cleaning:

- **Daily Cleaning:** Users are directed to place the balance in standby mode, gather the appropriate tools from the cleaning kit, and prepare paper tissues and cleaning reagents, such as water or 70% ethanol. The cleaning procedure involves removing the weighing pan and cleaning it with a brush, followed by wiping down the base plate with a soft brush or wet tissue to ensure that no residues remain.
- **Advanced Cleaning:** Recommended on a quarterly basis or following significant spillage, requires disassembling several components, such as the display, draft shields, and the weighing pan. Ensuring that larger amounts of liquid or powder are carefully collected and prevented from entering any balance openings. Once cleaned, it's crucial to allow all components to dry completely before reassembly to prevent moisture from affecting the balance's performance.

For compliance with industry standards, the Cleaning QApp's digital documentation of cleaning events, when paired with the QApp Pharma Package, supports electronic signatures, making the cleaning process part of the laboratory's overall compliance SOPs.

Cubis® II balances are designed with chemical compatibility in mind, allowing for easy cleaning with water, ethanol (70%), and isopropanol (70%), among other agents. Detailed compatibility tables are provided to guide users in selecting the appropriate cleaning agents for different parts of the balance.

In cases of significant spillage or damage during cleaning, Sartorius provides support through their Instrument Service, which can be contacted for repairs or advice. This ensures that the balance remains in optimal working condition for accurate, reliable results.



Sample Holders

Eliminate Sample Loss and Enhance Accuracy: Reliable Holders for Every Weighing Need

Prevent sample loss with direct weighing into safe-lock tubes using Cubis® II holders. Secure samples in any environment with specially designed holders for vials, syringes, and flasks. Achieve consistent, reproducible results with holders that minimize external influences and ensure stability.

Find out more

Safe-Lock Tube Holders

No More Sample Loss, Even on a Micro Balance

Unless a specific solution is provided, for highly sensitive weighing workflows, typically paper or weighing boats are used in the first step, and then samples are transferred into safe-lock tubes. This may result in sample loss, which could negatively affect the outcome. Cubis® II Safe-Lock Tube holders are specially designed weighing pans, which enable direct sample weighing into test tubes. Using these holders, the risk of sample loss can be completely eliminated, which ensures high measurement accuracy. Design variants for tubes between 1.5 mL and 5 mL are available, and can be used in micro balances, high-capacity micro balances, semi-micro, and analytical balances, accommodating your specific needs.

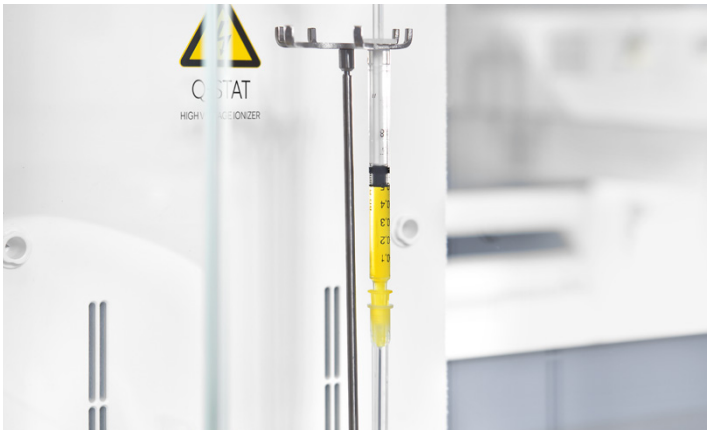
Grid Pan

Reliable Performance in Drafty Environments

In enclosures such as fume hoods, safety weighing cabinets, or microbiological workbenches, airflows have an immense influence on the weighing performance of the balance. This negatively impacts the results. While high-resolution balances better protect against air drafts due to their draft shields, precision balances with readability of 10 mg or 100 mg are massively exposed to these effects. For our precision balances, a specially designed grid pan was made, which reduces exposed surface area by almost 70%, compared to a standard weighing pan. Consisting of an extra screening cover, the protection of the weighing system is significantly improved, which leads to high quality results, including undisturbed internal calibration and zero point return values.

Read the Application Highlight

In biopharmaceutical research, sample holders are essential for ensuring consistent and reliable measurements. Properly designed holders stabilize containers, preventing shifts that could cause errors, especially with sensitive samples like APIs. Cubis® II balances offer a variety of adaptable holders to keep samples secure, reducing external influences like vibrations and ensuring accurate, reproducible results across workflows. By minimizing variability in sample positioning, these holders enhance the precision necessary for biopharma research and help maintain compliance with regulatory standards.



Syringe Holders

Safe Handling

During in vivo pharmacology studies, syringes are weighed on a daily basis. Ergonomic holding of syringes is crucial, not only for better handling but also for safety reasons. Syringe Holders from Sartorius were designed to hold standard-sized, analytical glass syringes (up to 2.5 mL), as well as syringes used for in vivo applications (e.g., insulin syringes) and are available for Cubis® II High Capacity Micro Balances and Cubis® II Semi-Micro and Analytical Balances. Made of titanium, not only high quality is guaranteed, but better repeatability due to its non-magnetic properties.

Vial and Flask Holders

No More Headaches

Conically-shaped tubes and round-bottomed flasks are widely used in analytical, chemical, and QC laboratories. Because of their special form, it is difficult to place these types of flasks directly on a flat weighing pan. Sartorius designed special weighing pans to hold these flasks which do not compromise the accuracy of weighing results. Diverse types for high-capacity micro balances, semi-micro and analytical balances are available to provide ease of use.

Read the Application Highlight

Minimum Sample Weight in Real Lab Tests

Achieve More With Less Sample: Cubis® II Saves Costs and Ensures Precision and Consistency in Biopharma Research

Find out more

In biopharmaceutical and life science research, achieving greater consistency and reliability is essential for the development of innovative therapies. One critical factor that can greatly influence the accuracy and reproducibility of experimental outcomes is the minimum sample weight.

When working with highly sensitive, valuable, or limited-quantity substances, such as active pharmaceutical ingredients (APIs) or biological materials, ensuring precision in every measurement becomes a priority.

The Cubis® II balance series is designed to meet these high standards by allowing researchers to weigh even the smallest samples with exceptional accuracy, all while maintaining regulatory compliance and data integrity.

By respecting the balance's minimum sample weight, researchers can:

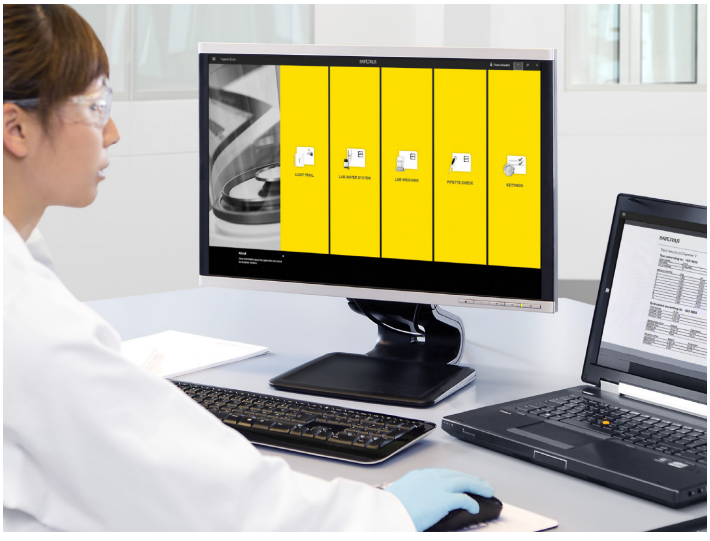
- Ensure precise formulations for consistent drug development
- Minimize material waste while working with rare and costly compounds
- Enhance the reproducibility of experiments, leading to more reliable and consistent results
- Save costs through lower minimum sample weights

With Cubis® II, biopharma professionals can confidently control the smallest variables, ensuring that every measurement supports the highest levels of quality and consistency in research and development. Find out more in our Real Lab Test, where the performance of the minimum sample weight was checked under normal real lab conditions.

Connectivity

Ingenix® Suite Lab Data & Device Management Software Helps to Simplify Your Lab Workflows Elevating Accuracy, Efficiency and Compliance for Lab Balances and Pipette Calibration Seamlessly.

Find out more



With comprehensive data and device management, Ingenix Suite Software ensures data integrity and compliance with 21 CFR Part 11, EU Annex 11, ISO 8655:2022, and ISO/IEC 17025 standards. Compatible with LIMS, ELNs, and various devices, the software offers flexibility in data handling and supports seamless lab operations.

The Ingenix® Suite offers several modules that help to streamline weighing processes, external balance calibration, and pipette checks and calibrations.

Lab Balance Device Manager Module
Automate weighing data transfer, enables remote updates, and ensures data integrity. Start immediately with an included license, and scale with unlimited connections for seamless lab management.

External Balance Calibration Module
Optimize balance calibration by digitizing the management of external weight sets. Integrated with the Lab Balance Device Manager Module, this module automates calibration workflows, reduces manual input, and enhances precision. Features include automated task management, digital assignment of calibration tasks, and notifications to ensure efficient, timely completion.

Pipette Check Module
Ensures universal pipette accuracy checks as the need arises, perfect for labs focused on maintaining precision. Integrated with the Lab Balance Device Manager and External Balance Calibration Modules, helping to enhance equipment reliability. Compatible with Sartorius and third-party pipettes, providing instant accuracy verification via balance-assisted checks. This module streamlines pipette workflows, boosting productivity while reducing manual input.

Advanced Pipette Calibration Module
Comprehensive management of digital pipette calibrations, ensuring compliance with ISO/IEC 17025 and ISO 8655:2022 standards. Supporting Sartorius and third-party pipettes, helping to automate uncertainty in calculations, and allows easy CMC table uploads. With audit trails and data transfer capabilities, this module streamlines lab operations and ensures compliance.

GxP Compliance Module
Meeting regulatory standards like 21 CFR Part 11 and EU Annex 11, offering full audit trails, advanced reporting for efficient data analysis, and review | approval features with electronic signatures and the four-eyes principle to enhance compliance and data integrity.

Application QApps

Individual Customer Solutions

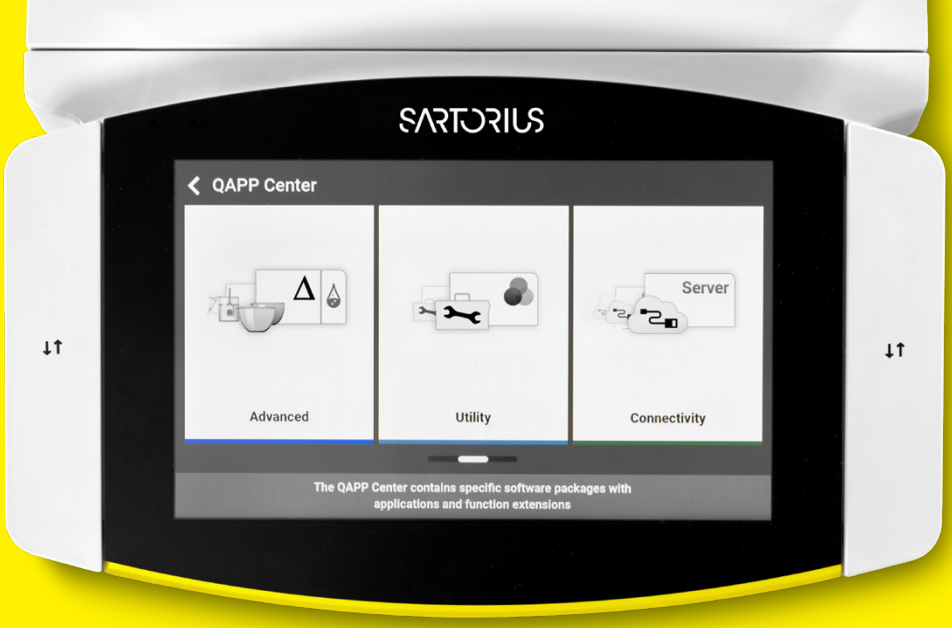
Find out more

Pre-installed standard applications on Cubis® II balances and QApps cover a wide variety of laboratory applications. In addition, Sartorius is able to cover special applications using customer-specific software modules. Based on your SOP, we create workflows that depict your process and can also help to make these processes more efficient. To use QApps in a regulated environment, they must be validated.

For the validation of computer-assisted systems, the GAMP® Guideline of the International Society for Pharmaceutical Engineering (ISPE) has established itself as the generally recognized standard regulation in the pharmaceutical industry in recent years. The GAMP® guide was first published in 1994 and has been available since 2008 in the 5th version. Based on the GAMP® 5 guideline, Sartorius developed the Product Development Life Cylce (PDLC).

It forms the basis for all development activities and thus also for the conception, creation and validation of QApps. In order to meet the highest quality requirements, the PDLC is implemented via workflows in a software-supported application lifecycle management system (ALM). This guarantees the adherence to the process and thus the quality-assured procedure.

The Sartorius PDLC therefore guarantees the customer aGAMP®-compliant development of GxP-relevant QApps and a complete life cycle documentation .



Essential Package	Pharma Package QP1
Included in every Cubis® II balance – no license needed. Every Cubis® II balance includes a number of native apps for scientists in R&D and analytical laboratories needing the most reliable lab weighing results.	The Pharma software application package contains applications concerning the topic compliance with pharmaceutical-relevant guidelines, such as 21 CFR Part 11 and USP 39, Chapter 41. The Pharma package includes applications such as user management, digital signatures, audit trail, USP minimum weight.
Advanced Package QP2	**Utilities package QP3**
The Advanced software application package includes various complex weighing applications incl. evaluation. This includes applications used for density determination, percentage weighing, counting, backweighing, residual dirt analysis, residue on ignition, loss on drying, filter weighing, checkweighing, formulation, averaging, etc.	The Utility software application package contains weighing applications and function extensions such as bootscreen, color scheme, free formula, fiber coarseness, diameter determination, air buyoancy correction, paper weight, statistics and printing of QR | bar codes.
Connectivity Package QP4	**Special Q-Apps Package QP0**
The Connectivity software application package includes applications for data exchange, for example to Windows® file server, FTPS, STARLIMS™, OMNIS™ etc.	The Special software applications package includes application like Pharma Filling (filling of liquid products using persialtic pumps) or Mycap CCX Cell Passaging (This application is for the aseptic transfer of media or inoculum between Mycap® CCX flasks using peristaltic pumps) and more.

All-Inclusive Package QP99

The software application package All-Inclusive includes 4 different sub-packages for compliance (Pharma (QP1)), complex weighing applications (Advanced (QP2)), weighing applications and helpful tools (Utilities (QP3)) and connectors for data exchange (Connectivity (QP4)). The All-inclusive package QP99 is available by factory licensing, means for new balances, only. QP99 is not available for after sales licensing.

Cell Passaging With Mycap® CCX and Cubis® II

Cell Culture Expansion Using Mycap® Flasks

Find out more

This application is for the aseptic transfer of media or inoculum between Mycap® CCX flasks using peristaltic pumps. By means of the pump, media or inoculum is transferred from a donor flask into a recipient flask and the amount transferred is checked gravimetrically.

The application can control and regulate the pump models 323Du, 530Du and 630Du from Watson-Marlow via a serial communication. To define an experiment, there is an administrator and a user menu in which various parameters are recorded. The most important parameters are information on the cell density in the donor flask and the desired cell density in the target flask, as well as information on the available and desired volume of the medium in the target flask. In addition, the pump speed for different process steps can be defined in rpm. All settings are stored in an experiment database.

From the concentration and volume data, the application automatically calculates the target weight of the inoculum or medium to be transferred and controls the peristaltic pump accordingly. The pumping procedure includes an optional priming step of the tube, the rapid transfer of medium or inoculum to a defined percentage of the target weight and finally the running of the pump at slow speed until reaching the target weight. The process is repeated according to the number of flasks to be filled until all samples have been processed.

Services for Laboratory Balances

Unlock Unmatched Precision and Compliance With Sartorius Services for the Pharmaceutical Industry

In the highly regulated pharmaceutical industry, precision, reliability, and compliance are non-negotiable.

Weighing is one of the most frequent, critical, and time-consuming tasks in many laboratories. The accuracy and reproducibility of weighing results are crucial. Trustworthy measurement values determine whether laboratory results are accepted, intermediate products need to be rejected, and final products can be released. Reliable weighing results lead to correct decisions and allow processes to be carried out reproducibly.

Sartorius is your trusted partner, offering unparalleled service solutions that ensure your laboratory equipment operates at peak performance, meets stringent regulatory standards, and delivers reproducible results every time. With our global network of over 500 service professionals and 60 service locations, we provide comprehensive support that minimizes downtime, extends equipment lifespan, and guarantees audit security.

Installation and Commissioning – Reliable Results Right From the Start

Your Advantage:

- Outstanding weighing performance, steadfast results from the start
- Seamless integration of equipment into your laboratory environment
- Optimum system performance and results
- Expertly trained operating personnel

Equipment Qualification (IQ | OQ) – Compliance With GMP Requirements

Your Advantage:

- Full compliance with regulatory requirements (GMP | GLP)
- Audit security
- All critical equipment aspects regimented due to our risk-based approach
- Service performed with all required regulatory and technical knowledge

Read our Metrological White Papers

Preventative Maintenance and Service Contracts — Long-Term Process Safety and Reliable Results

Your Advantage:

- Optimal operation of your system
- Extended instrument lifetime
- Compliance with regulatory requirements
- Full cost control, with service contracts tailored to your specific needs

Calibration Services — Traceability of Weighing Results, Regulatory Compliance

Your Advantage:

- Accredited calibration certificates with ISO/IEC 17025 in most countries
- Guaranteed traceability to national standards
- Minimum weight certificates according to United States, European and Japanese Pharmacopoeia (USP <41>, Ph. Eur. 2.1.7, JP 9.62)
- Certificates for type approved balances according to OIML R76

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