

Quantos Solutions



Weighing & Dispensing

Accurate

Reliable

Cost-Effective



Quantos

Much More Than a Balance

METTLER TOLEDO

Up to 60% of Laboratory Time Is Spent Preparing Samples

Since Erhard Mettler invented the first single-pan substitution balance in 1945, weighing technology has improved tremendously. However, while instrumentation and data processes have improved, preparing samples has remained a predominantly manual task with inherent challenges.

Challenges of manual weighing

- Weighing small target weights
- Weighing within tight tolerances
- Handling static powders
- Handling hazardous or toxic substances
- Weighing inside a closed environment
- Loss on transfer or having to back-weigh

Quantos addresses the weak link in the laboratory and takes care of the weighing and sample preparation step. It is ideal for:

- Expensive or precious substances
- Hazardous or toxic substances
- Substances that are repeatedly weighed
- Analytical preparation of any sample type



► www.mt.com/quantos

To learn more

Bye Bye, mL

Hello, Accurate Concentrations

Prepare powder, liquid, gel, and paste samples quickly, easily and error-free. Weigh your sample and Quantos will add the correct amount of solvent, by weight, to reach your target concentration – flawless accuracy in a fraction of the time.

With GraviPrep, the exact amount of substance dispensed, whether manually or automatically, is recorded and used to precisely calculate the amount of solvent needed to reach the target concentration. Automated, gravimetric liquid dispensing compensates for any under- or overshoot in the sample weighing and delivers the correct amount of diluent to the container, achieving the desired concentration.

Ideal for preparing:

- Analytical standards
- Stock solutions and final concentrations
- Multi-component standards



Eliminate Variability & Errors

Gravimetric liquid addition compensates for any under- or overshoot in the sample weight. Extremely accurate, confirmed concentrations are produced that improve overall data quality.

Boost Productivity

Automation prepares concentrations in fewer steps and minimizes human interaction. Data transcription, labeling and sample management is automated and fully traceable.

Prepare Only As Much As You Need

Gravimetric sample preparation eliminates the restriction of volumetric flask sizes. Smaller volumes of solution can be prepared, less solvent is consumed, and there is less waste to dispose of.



Prepare Concentrations With Confidence

	QA1-L	QA3-L
Typical minimum weight GxP (1%, 2sd)	12.0 mg	2.1 mg
Typical minimum weight USP (0.1%, 3sd)	120.0 mg	21.0 mg
Liquid dispense range	1 mg – 500 g	0.1 mg – 200 g
Average dispense rate	Flow rate 30 g/min (0.5 bar pressure)	Flow rate 30 g/min (0.5 bar pressure)
Liquid source vessel	25 mL (GL25 thread), 250 mL (GL45 thread), 500 mL (GL45 thread), 1000 mL (GL45 thread) pressure-tight bottle	
Number of different liquids	Up to 5 daisy-chained. Alternatively, rinse lines when changing source bottle.	
Suitable liquids	Low-viscosity solvents (typically <20 cP), e.g. water, acetonitrile, methanol, ethanol, DMSO. Volatile and flammable solvents.	

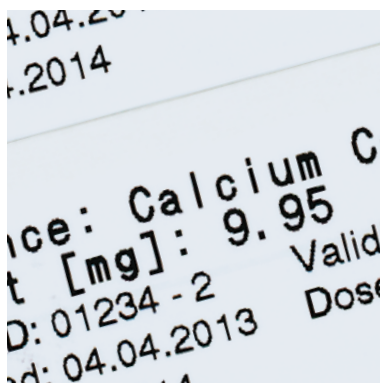
Bye Bye, Bottleneck

Hello, Efficiency

Weighing is a labor-intensive task influenced by many factors including the environment and skill. Quantos safely delivers free-flowing, toxic, and even hard-to-handle static powders accurately and directly into target vessels for increased efficiency in the laboratory.

Ideal for:

- Routine powder dispensing & bottling
- Capsule filling
- Formulations
- Materials research
- Stability testing
- Weighing hazardous compounds



Decrease the Minimum Sample Weight

Automated weighing reduces the minimum sample weight of your balance by up to 30%.



Keep Your Staff Safe

A closed container and hands-free weighing minimizes operator exposure to hazardous and toxic substances.



Boost Productivity

Automatically weigh out 1 mg up to several grams of powder in seconds.



Weigh Hands-Free with Reproducibility

	QB1-P	QB3-P	QB5-P	QB7-P
Typical minimum weight GxP (1%, 2sd)	9.0 mg	1.6 mg	0.9 mg	0.4 mg
Typical minimum weight USP (0.1%, 3sd)	90.0 mg	16.0 mg	9.0 mg	4.0 mg
Powder dispense range	1 mg – several grams			
Powder source vessel	See pages 10–11			
Suitable powders	See pages 8–9			

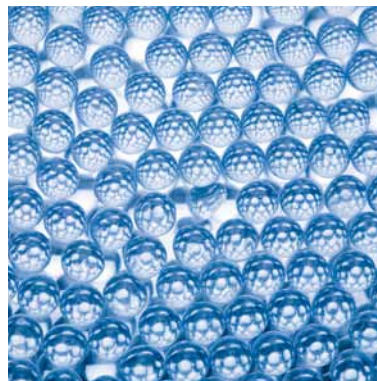
Intelligent Weighing At Your Finger Tips

Quantos is ideal for weighing fine, fluffy, static, compacted, granular, and heterogeneous substances. We've tested thousands of substances to become experts in automated powder weighing.



Eliminate Static and Spillage

The built-in anti-static kit automatically neutralizes static and ensures the sample falls directly into the vial, without spillage.



Dispense a Range of Particle Sizes

Nanoparticles, fine powders, granules, and heterogeneous mixes are all suitable for dispensing.



Intelligent Learning & Memory

A precise dispense mechanism coupled with an intelligent, learning algorithm optimizes for accuracy and speed.

Internal auger rotates to mix powder and enhance flow

Pin moves in and out and rotates

External tapper

Handle
Your Powders
with Ease

Substance	1 mg ± 40%		10 mg ± 5%		50 mg ± 1%		100 mg ± 1%	
	Weight (mg)	Time (s)	Weight (mg)	Time (s)	Weight (mg)	Time (s)	Weight (mg)	Time (s)
Aspirin	1.148	52	0.804	94	50.362	89	100.069	73
Calcium carbonate	0.848	18	9.896	25	49.850	34	99.414	42
Carboxymethyl cellulose	0.815	14	9.871	20	49.990	16	99.725	28
Glucose	0.798	20	9.678	29	49.686	51	99.218	54
Lactose	0.802	16	9.812	24	49.751	45	99.333	39
Polyethylene glycol	0.804	15	9.862	23	49.898	29	99.553	30
Potassium phosphate	0.827	19	9.961	22	49.997	31	99.398	27
Sodium citrate	0.829	14	9.923	20	49.924	32	99.113	33

Efficient Powder Management With Dedicated Heads

A source vial filled with substance is attached to the powder head. Sample information is entered on the RFID chip and the substance is ready for substance dispense or storage. A range of heads is available to support different powder characteristics and applications.



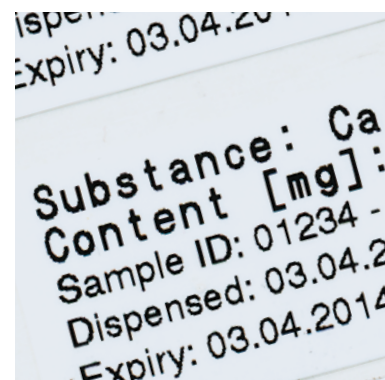
Contamination-Free Weighing

One powder head is dedicated to one substance or lot number for the duration of its lifetime. Heads are disposed of after final use.



Safe Storage

Heads are designed for storage. An impact-resistant, water-tight transport container helps to maintain sample integrity.



Secure Sample Tracking

The substance name, Lot ID, quantity, expiry date, etc. are stored on the RFID chip and traced for data output.



	Sample Head	Economy Head	Standard Head	Standard Head
Powder head size	2 mL	12 mL	8 mL	12 mL
Optional vial & thread size	n/a	n/a	16 mL glass vial with 18-400 thread	120 mL glass vial with 28-400 thread
Material	Polypropylene (PP)	POM and 3.16L/1.4404 stainless steel	TPX® Polymethylpentene (PMP) and 3.16L/1.4404 stainless steel (FDA compliant)	
Storage conditions	0 °C to 40 °C	-40 °C to 80 °C	-80 °C to 220 °C	-80 °C to 220 °C
Dead volume	<20 mg, depending on substance characteristics			

A World of Accessories To Perfectly Fit Your Application

A variety of containers and target vessels can be filled using Quantos. We have experience filling vials, bottles, tubes, capsules, stability pouches, ampules, syringes and more. The dispense height can be easily adjusted after changing the container type.



Suitable Containers

for Use With the Basic Unit

Opening diameter	> 4 mm
Maximum height	17.5 cm



Auto Sampler

for medium throughput dispensing of powder and liquid.
Process up to 30 vials per run.

Suitable Containers

for Use With the Auto Sampler

	15 positions	30 positions
Opening diameter	29 – 45 mm	4 – 28 mm
Maximum height	100 mm	100 mm

Generate Quality Data With Full Process Security

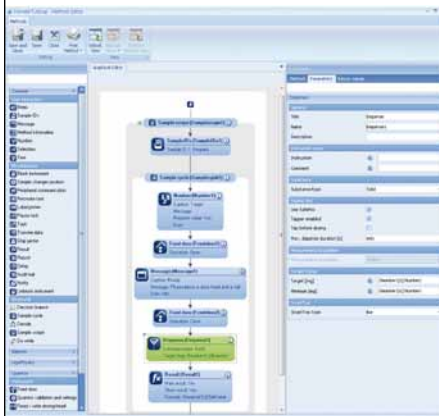
Optimize and simplify process security with sample identification, tracking, and data generation in the form of a sample label, printed protocol, and electronic output. For flexibility and total control, the WorkflowBox enables SOPs to be executed with one click.

Execute Your SOP with One Click



Workflow requirements such as advanced weighing, dilutions, different units, custom reports etc., can be fulfilled with the Quantos WorkflowBox. Pre-configured applications are run from the balance terminal with one click. A standardized way of working enhances process robustness and ensures reliable and reproducible results.

- User prompts guide you through the steps
- Standardized way of working
- Pre-configured applications





```

Balance ID    1129273495
4.Apr 2013   13:51
-----
Substance
  Calcium Carbonate
Content [mg]  9.95
Dispense date 04.04.2013
Exp. date    03.04.2014
Lot ID       0123456789
Validity     Valid
MinWeigh     Off
Dose duration 22
-----
User ID      Test User
  
```

Balance Protocol

Simple data tracking is achieved with a balance protocol. Sticky-backed paper enables protocols to be directly inserted into laboratory journals.

```

Substance: Lactose
Content [mg]: 9.775
Sample ID: 5           Dose duration: 30
Dispensed: 14.03.2012  User: JS
Validity: Valid
  
```



Sample Label

The substance name, Lot ID, quantity, expiry date etc. are tracked and printed onto configurable sample labels.

A Dedicated Solution For Fully-Automated GraviPrep

High-throughput analytical sample preparation can be achieved with the Quantos QX. Automated solid and solvent handling enables you to prepare up to 60 concentration series completely unattended.

Ideal for:

- High throughput sample preparation
- Multi-component standard preparation
- Walk-away powder dispensing
- Walk-away liquid dispensing



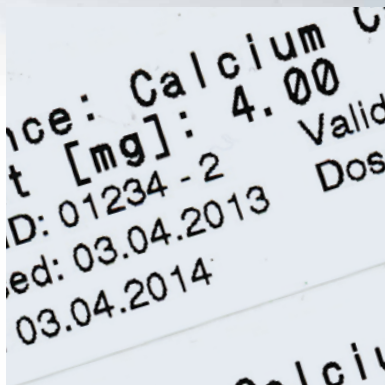
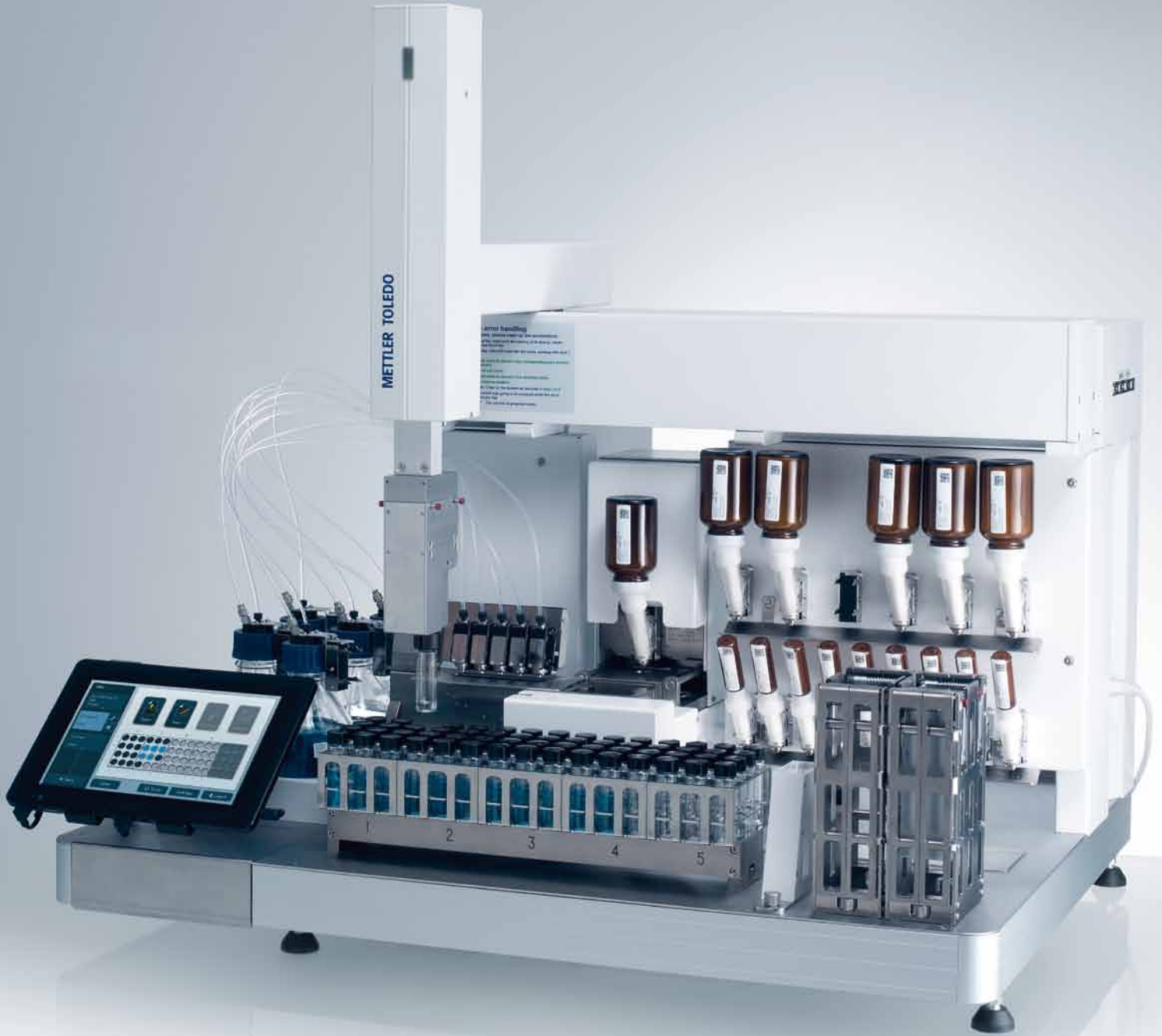
15 powders



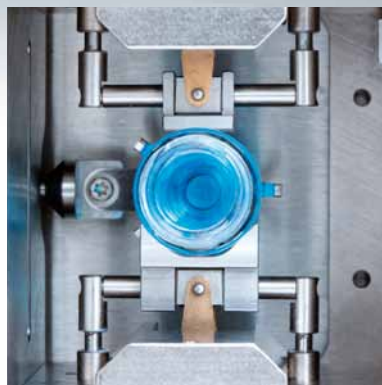
5 solvents



Barcode reading



Smallest minimum sample weight



Vial capping and uncapping



Configurable methods

	QX7
Typical minimum weight GxP (1%, 2sd)	0.2 mg
Typical minimum weight USP (0.1%, 3sd)	2.0 mg
Maximum number of powders	15
Maximum number of liquids	5
Maximum number of vials	Up to 60
Suitable vessels	Max. 16 mL vials

The Quantos Family Product Portfolio

Did You Know?

METTLER TOLEDO XP analytical balances with a readability of 0.01 mg and 0.1 mg can be upgraded with Quantos powder, liquid and sampler modules!



	QD Series	QA Series
Models	QD205DR (0.01 mg readability) QD204 (0.1 mg readability)	QA3-L (0.01 mg readability) QA1-L (0.1 mg readability)
Balance	•	•
Liquid		•
Powder		
Typical Applications	Simple weighing Built-in GraviPrep application for manual gravimetric sample preparation	Liquid filling Analytical sample preparation

Medium-throughput Dispensing



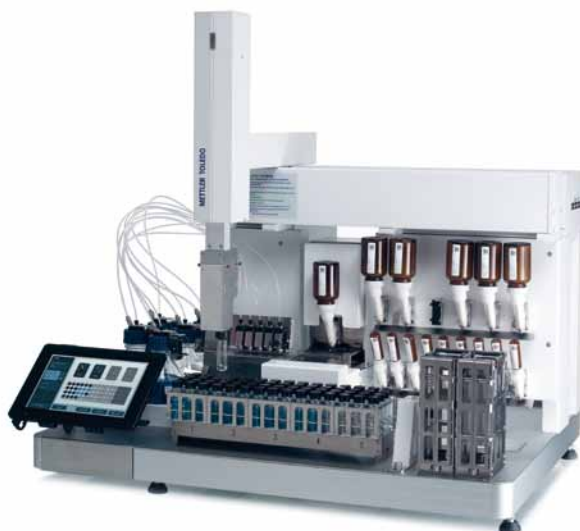
	QB Series	
Models	QB5-PS (0.005 mg readability) QB3-PS (0.01 mg readability) QB1-PS (0.1 mg readability)	QB5-PLS (0.005 mg readability) QB3-PLS (0.01 mg readability) QB1-PLS (0.1 mg readability)
Balance	•	•
Liquid		•
Powder	•	•
Sampler	•	•
Typical Applications	Powder dispensing/filling Formulation Capsule filling Excipient screening Sample/stability archive	Materials research Formulation (cosmetics) Filling (automotive/oil)

Single-throughput Dispensing



QB Series		
Models	QB7-P (0.001 mg readability) QB5-P (0.005 mg readability) QB3-P (0.01 mg readability) QB1-P (0.1 mg readability)	QB7-PL (0.001 mg readability) QB5-PL (0.005 mg readability) QB3-PL (0.01 mg readability) QB1-PL (0.1 mg readability)
Balance	•	•
Liquid		•
Powder	•	•
Typical Applications	Powder dispensing/filling Capsule filling Stability testing Weighing hazardous/toxic powders	Analytical sample preparation

Automated Sample Preparation



QX Series	
Models	QX7-PLS (0.001 mg readability) QX7-PS (0.001 mg readability) QX7-PL (0.001 mg readability)
Balance	•
Liquid	•
Powder	•
Sampler	•
Typical Applications	Analytical sample preparation Formulation

Pre-Installation Requirements

Location

Select a stable, vibration-free location. Avoid excessive temperature fluctuations, direct sunlight, and strong drafts from fans or air conditioning systems. Quantos can be placed inside an enclosure or isolator, and is suitable for operation in a Nitrogen or Argon atmosphere.

	QA-L	QB-P	QB-PL	QB-PS	QB-PLS	QX-PLS
Width	423 mm 17 inches	330 mm 13 inches	480 mm 19 inches	520 mm 21 inches	700 mm 28 inches	1006 mm 40 inches
Depth without terminal	332 mm 13 inches	400 mm 16 inches	400 mm 16 inches	480 mm 19 inches	480 mm 19 inches	n/a
Depth with terminal	487 mm 19 inches	550 mm 22 inches	550 mm 22 inches	550 mm 25 inches	630 mm 25 inches	730 mm 29 inches
Height	322 mm 13 Inches	495 mm 20 Inches	495 mm 20 Inches	495 mm 20 Inches	495 mm 20 Inches	923 mm 36 Inches
Height (door open)	n/a	690 mm 27 inches	690 mm 27 inches	690 mm 27 inches	690 mm 27 inches	n/a

METTLER TOLEDO Service



Installation

Professional installation, qualification, documentation and operator training.

Routine Testing

Quantos should be tested with external weights. Internal reference weights (proFACT) are used for fast, daily adjustment. MinWeigh can be tested automatically.

Preventive Maintenance

Bi-annual preventive maintenance predicts and prevents equipment downtime. Service technicians provide additional advice and support.

www.mt.com/quantos

For more information



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