

# XS Balances



**XS Microbalance**

**XS Analytical Balances**

**XS Precision Balances**

Ergonomic operation

High productivity

Accurate in all environments

**Safeguarding Your Health at Work**  
Worry-free Weighing

**METTLER TOLEDO**

# Safeguarding Your Health at Work

## Worry-free Weighing

**Benefitting from METTLER TOLEDO's extensive expertise in manufacturing laboratory instruments, XS balances offer a winning combination of reliable performance with truly ergonomic operation.**

Whether you need to weigh several kilograms or just a few milligrams, patented weighing technologies deliver accurate results whilst ergonomic design features and accessories provide you with outstanding comfort to protect your health as you carry out your daily tasks.

### **Worry-free weighing with the XS balance portfolio**

XS balances incorporate a multitude of intelligent design features to bring you balances with the ease of use you want and the accuracy you require.

#### **Microbalance**



Max capacity: 0.8 g – 3 g  
Readability: 1 µg – 10 µg

#### **Analytical balances**

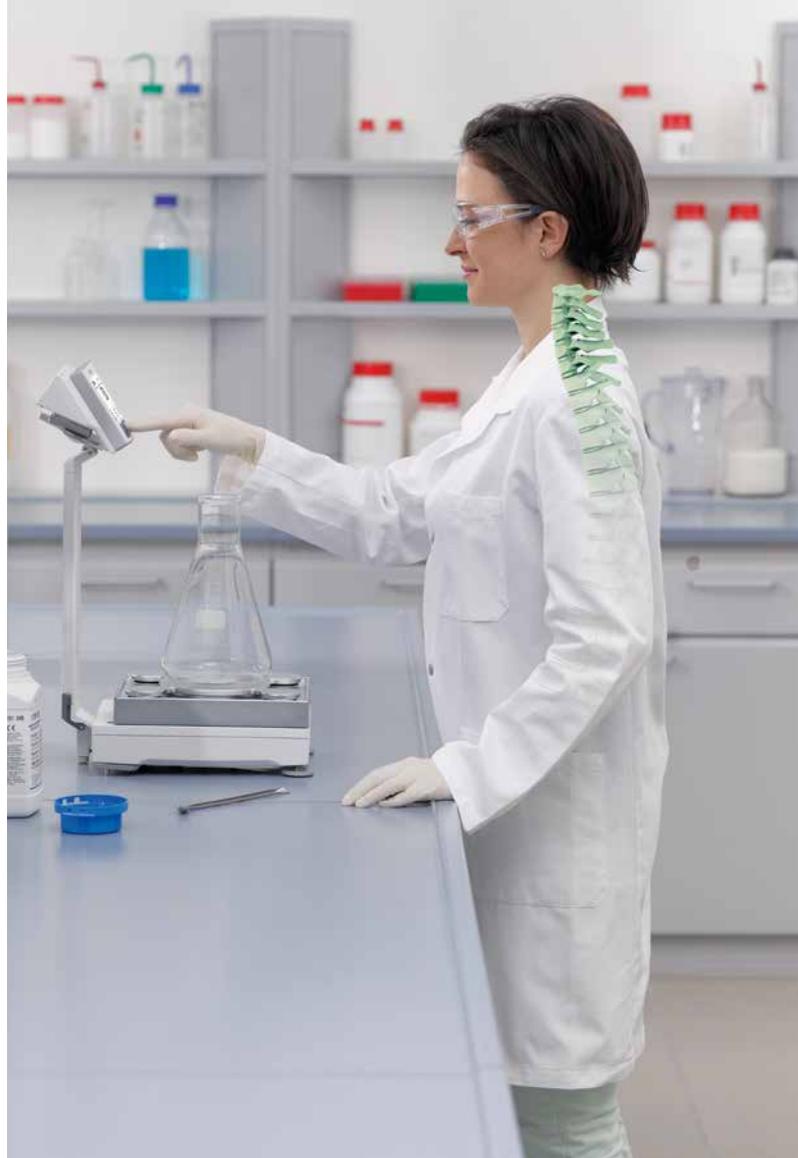


Max capacity: 60 g to 300 g  
Readability: 0.01 mg to 0.1 g

#### **Precision balances**



Max capacity: 300 g to 64 kg  
Readability: 1 mg to 1 g



### **Safeguarding health with XS balances**

The smallest design features have been considered to make daily tasks as comfortable as possible to safeguard users against common health problems, such as:

- Pains in the back, hands, arms and neck
- Tired and strained eyes
- Irritation or illness from exposure to chemicals



**B. Bienlein,**  
**Master of Advanced Studies in Work and Health**  
Specialist in rehabilitation medicine, and  
Managing Director, Medicalforce

"Correct posture and ergonomic working processes help to avoid health conditions as repetitive strain injuries which are common in laboratory workers."

# XS Analytical and Microbalances

## Fast Routine Weighing

**XS analytical balances help you meet the challenges that many laboratories face on a daily basis, such as handling large numbers of samples and avoiding out-of-specification results.**

In addition to configurable, built-in applications and the SmartTrac™ weighing-in guide, innovative design features offer even more benefits to support hectic work in the laboratory:

- Unique SmartGrid™ ensures fast and accurate results
- Protected weighing cell means a long balance lifetime
- ErgoClips enable direct dosing into tare containers

### Innovative weighing pan ensures fast results



SmartGrid minimizes the effects of air currents to substantially reduce stabilization times. Spilled substances fall through the grid and don't influence weighing results.

### Unique cell concept provides balance longevity



The weighing cell and electronics are mounted in the rear of the balance. Unaffected by thermal influences and spilled samples in the weighing chamber, you can be assured of consistently reliable performance.

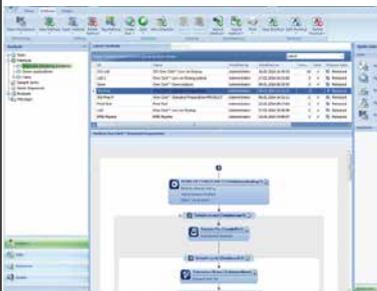
### Electrostatic protection avoids drifting results



The Faraday cage effect of the ErgoClip basket protects the weighing cell from electrostatically charged samples and containers. Supplied as standard with all analytical balances.



**Documentation options ensure traceable results**



Interface options, such as RS232, Ethernet and Bluetooth, enable easy connection to a printer, PC or laboratory network to print results and labels. Connect to LabX for full data management and customized reports.



**Microgram readability proves cost-effective**

The microgram fine range of the XS microbalance provides flexibility for weighing very small samples – highly cost-effective when working with valuable substances.

For full technical details  
[www.mt.com/micro](http://www.mt.com/micro)

# XS Analytical and Microbalances

## Productivity Through Ergonomics

**Unique features on XS analytical balances make balance operation as comfortable and as safe as possible. For example, the special draft shield eliminates strains from awkward dosing processes by enabling you to open the right-hand door with the left hand, or vice versa, so dosing is relaxed and straightforward.**

With balance users benefiting from truly ergonomic weighing processes, work can be carried out much faster increasing productivity in your laboratory.

### Intuitive interface simplifies operation



The graphical user interface is intuitive and stress-free to use. Shortcuts can be set-up on the main screen for direct access to everyday tasks.

### Touchscreen display prevents fatigue



The alphanumeric touchscreen is bright and clear to read. Figure size, contrast and brightness are configurable to individual comfort levels.

### Evaporation trap assures pipette volumes



For routine pipette testing, an evaporation trap significantly reduces moisture loss of the test liquid and can be mounted on your balance in seconds.



**Easy-clean design reduces contamination risk**



The full weighing chamber, including SmartGrid and the drip tray underneath, dismantle in seconds and all parts go in the dishwasher.



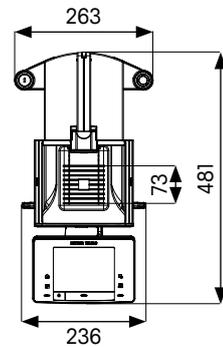
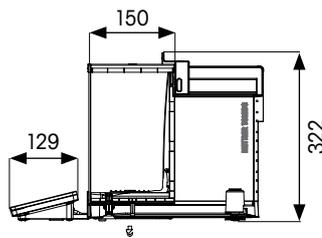
**270° access for micro samples makes dosing easy**

The draft shield on the XS3DU microbalance allows 270° access to the weighing chamber for more comfortable dosing of the smallest samples.

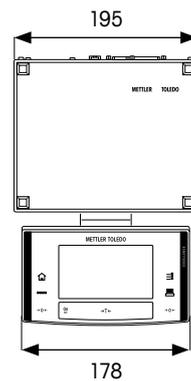
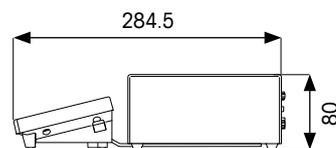
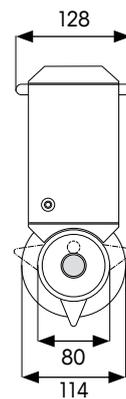
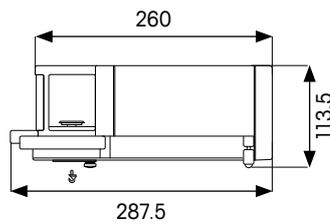
# Technical Specifications

## XS Analytical and Microbalances

### XS Analytical balances



### XS Microbalance



All dimensions are given in mm.

<b>XS Analytical</b>	<b>XS64</b>	<b>XS104</b>	<b>XS204</b>	<b>XS204DR</b>	<b>XS304</b>
Maximum capacity (fine range/full range)	62 g	120 g	220 g	81 / 220 g	320 g
Readability full range fine range	0.1 mg	0.1 mg	0.1 mg	1 mg 0.1 mg	0.1 mg
Repeatability* (5% load)	0.04 mg	0.04 mg	0.04 mg	0.04 mg	0.06 mg
Settling time* (fine range/full range)	1.5 s	1.5 s	1.5 s	1.5 / 1.5 s	1.5 s
Minimum weight* (1.0%, k=2, 5% load)	8.2 mg	8.2 mg	8.2 mg	8.2 mg	12 mg
USP minimum weight* (0.10%, k=2, 5% load)	82 mg	82 mg	82 mg	82 mg	120 mg

\* = typical value

<b>XS Analytical</b>	<b>XS105DU</b>	<b>XS205DU</b>	<b>XS225DU</b>	<b>XS105</b>
Maximum capacity (fine range/full range)	41 / 120 g	81 / 220 g	120 / 220 g	120 g
Readability full range fine range	0.1 mg 0.01 mg	0.1 mg 0.01 mg	0.1 mg 0.01 mg	0.01 mg
Repeatability* (5% load)	0.01 mg	0.01 mg	0.01 mg	0.008 mg
Settling time* (fine range/full range)	1.5 / 3.0 s	1.5 / 3.0 s	1.5 / 3.0 s	3.0 s
Minimum weight* (1.0%, k=2, 5% load)	2 mg	2 mg	2 mg	1.6 mg
USP minimum weight* (0.10%, k=2, 5% load)	20 mg	20 mg	20 mg	16 mg

\* = typical value

For full technical details  
[▶ www.mt.com/xs-analytical](http://www.mt.com/xs-analytical)

<b>XS Micro</b>	<b>XS3DU</b>
Maximum capacity (fine range/full range)	0.8 / 3.1 g
Readability full range fine range	0.01 mg 0.001 mg
Repeatability* (5% load)	0.0005 mg
Settling time*	< 6.0 s
Minimum weight* (1.0%, k=2, 5% load)	0.10 mg
USP minimum weight* (0.10%, k=2, 5% load)	1.0 mg

\* = typical value

[▶ www.mt.com/micro](http://www.mt.com/micro)

## Features – XS Analytical and Microbalances

<b>Accurate Results</b>	High resolution technology
	FACT internal adjustment with advanced test features
	Low minimum weight
<b>Efficient Operation</b>	SmartGrid hanging weighing pan*
	Big numbers on display (16 mm)
	Easy cleaning
<b>Quality Assurance</b>	TestManager
	MinWeigh function
	GWP history
	Password protection
<b>Seamless Process</b>	LabX ready
	Full connectivity

### Embedded applications:

Simple weighing, statistics, formulation, totalization, piece counting, percent weighing, density determination, underfloor weighing and routine testing.

\* Except XS microbalance

# XS Precision Balances

## Accuracy in all Conditions

**XS precision balances with the new SmartPan™ weighing pan help you get your work done quicker by delivering fast, accurate and stable results even when faced with difficult weighing conditions such as fume cupboards, hazardous samples and dusty or dirty environments.**

Building on the proven concept of the SmartGrid analytical balance hanging weighing pan, the innovative new SmartPan for precision balances brings you more exceptional benefits:

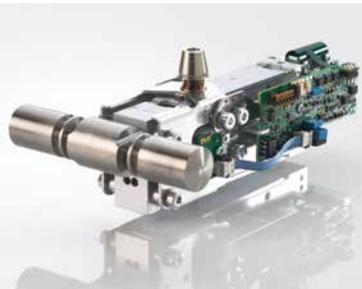
- Improved accuracy with up to two times faster results
- Even easier to clean

### Innovative weighing pan boosts performance



The SmartPan, which sits under the standard weighing pan, minimizes the effects of air currents on the weighing cell, delivering results up to two times faster and improving repeatability by up to two-fold.

### Unique weighing cell provides accurate results



The innovative MonoBloc<sup>HighSpeed</sup> weighing cell delivers fast, precise results. Overload protection safeguards the balance and ensures durability.

### Robust design details make cleaning easy

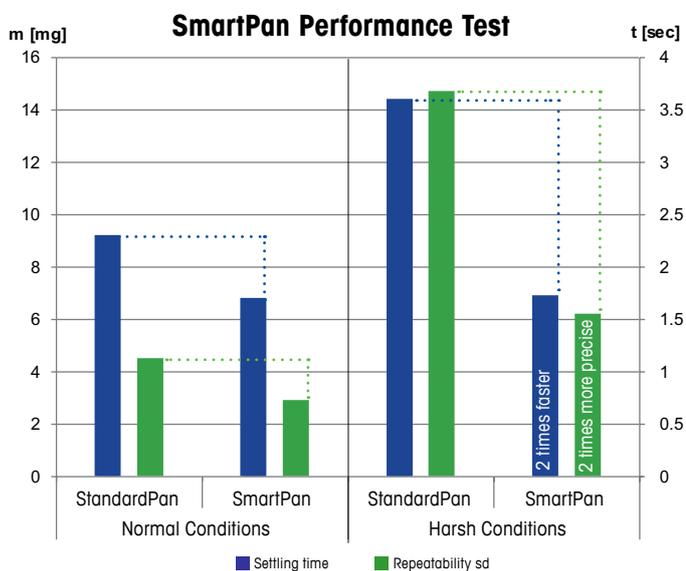


Rounded edges and flat surfaces make cleaning easy. All weighing pan parts and the precision draft shield go in the dishwasher.



### Weighing on air

The graph below indicates the substantial improvement in settling time and repeatability when using SmartPan under both normal and harsh weighing conditions. Tests made using an XS6002S (6100 g maximum capacity and 10 mg readability).



**Prof. Peter Ryser,**  
**Head of Microtechnology Institute,**  
**Ecole Polytechnique Fédérale de Lausanne (EPFL)**

The independent white paper from Prof. Ryser details the improvement in accuracy and stability in XS precision balances thanks to the unique design of the new weighing pan.

For full technical details  
[www.mt.com/xpe-precision](http://www.mt.com/xpe-precision)

# XS Precision Balances

## Ergonomically Designed for Health

**XS precision balances provide a high level of comfort as you carry out your daily tasks. Even the smallest balance features have been carefully designed to ensure your weighing processes are as ergonomic as possible.**

No longer having to suffer the stresses and strains from working for long periods in front of the balance, users are more efficient – and your laboratory benefits from increased throughput.

### Terminal stand supports good posture



Placing the terminal at eye-level on the new ErgoStand™ eliminates excessive bending of the neck and encourages a good working posture.

### Intuitive touchscreen interface prevents fatigue



At 16 mm high, the large figures on the display are bright and clear to read. Eyes don't get tired and concentration remains focused on the weighing task.

### Unique weighing pan ensures safe cleaning



The innovative SmartPan dismantles easily. Any spilled substances remain in the tray underneath for safe disposal and easy cleaning.



**Touch-less operation avoids contamination risks**



The ErgoSens enables selected balance operations to be performed with the wave of a hand e.g. zero, tare, print.

**Quick-lock stand makes dismantling easy**

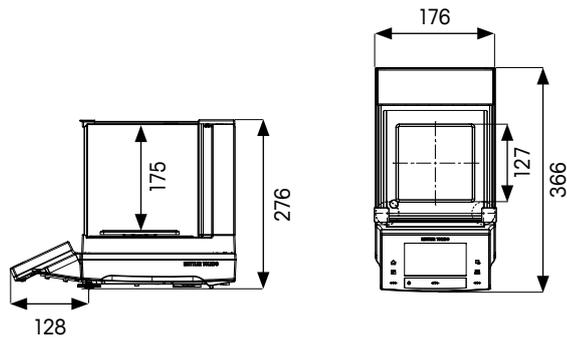


Specially designed locks enable the stand to be put on and taken off in seconds – really convenient when dismantling for cleaning.

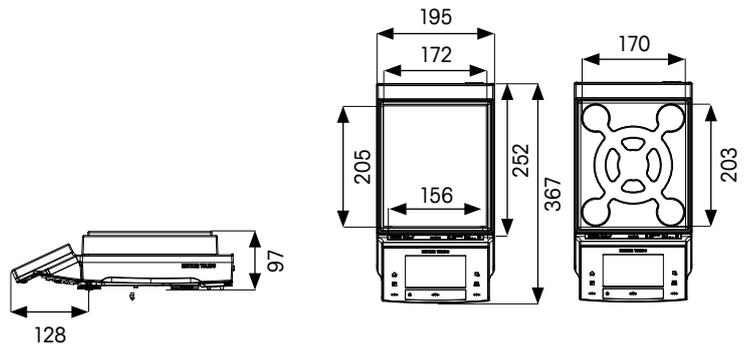
# Technical Specifications

## XS Precision Balances

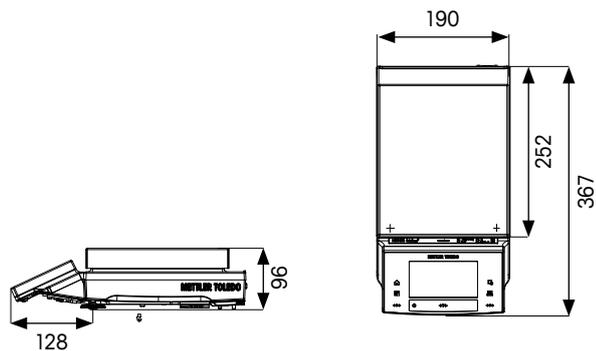
**XS Precision S-Platform**  
Readability 1 mg



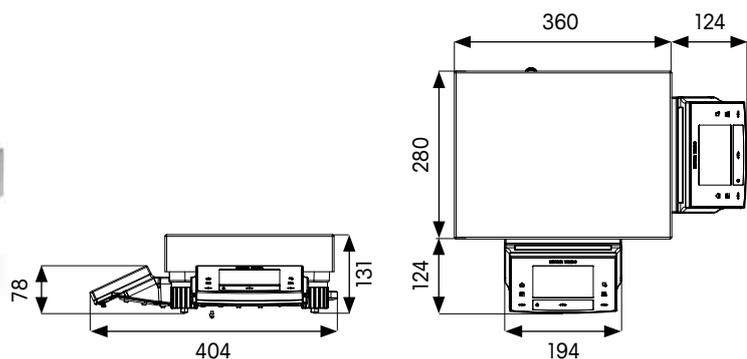
**XS Precision S-Platform**  
Readability 10 mg



**XS Precision S-Platform**  
Readability 0.1 g



**XS Precision L-Platform**  
Readability 0.1 g / 1 g



All dimensions are given in mm.

<b>XS Precision Small</b>	<b>XS303S</b>	<b>XS603S</b>	<b>XS1203S</b>	 <b>XS204SX</b>	<b>XS603SX</b>	<b>XS5003SXDR</b>
Maximum capacity (fine range/full range)	310 g	610 g	1210 g	210 g	610 g	1 / 5.1 kg
Readability full range fine range	1 mg	1 mg	1 mg	0.1 mg	1 mg	10 mg 1 mg
Repeatability*	0.5 mg	0.5 mg	0.4 mg	0.04 mg	0.5 mg	0.6 mg**
Settling time*	1.5 s	1.5 s	1.5 s	1.5 s	1.5 s	2 s
Minimum weight* (1.0%, k=2, 5% load)	100 mg	100 mg	82 mg	8.2 mg	100 mg	120 mg
USP minimum weight* (0.10%, k=2, 5% load)	1 g	1 g	820 mg	82 mg	1 g	1200 mg

<b>XS Precision Small</b>	<b>XS1202S</b>	<b>XS2002S</b>	<b>XS4002S</b>	 <b>XS6002SDR</b>	<b>XS6002S</b>	<b>XS10002S</b>	 <b>XS6002SX</b>
Maximum capacity (fine range/full range)	1210 g	2.1 kg	4.1 kg	1.2 / 6.1 kg	6.1 kg	10.1 kg	6.1 kg
Readability full range fine range	10 mg	10 mg	10 mg	100 mg 10 mg	10 mg	10 mg	10 mg
Repeatability*	4 mg	4 mg	4 mg	4 mg**	4 mg	4 mg	4 mg
Settling time*	1.2 s	1.2 s	1.2 s	1.2 s	1.2 s	1.5 s	1.2 s
Minimum weight* (1.0%, k=2, 5% load)	820 mg	820 mg	820 mg	820 mg	820 mg	820 mg	820 mg
USP minimum weight* (0.10%, k=2, 5% load)	8.2 g	8.2 g	8.2 g	8.2 g	8.2 g	8.2 g	8.2 g

<b>XS Precision Small / Large</b>	<b>XS4001S</b>	<b>XS6001S</b>	<b>XS8001S</b>	<b>XS10001S</b>	<b>XS10001L</b>	 <b>XS4001SX</b>
Maximum capacity	4.1 kg	6.1 kg	8.1 kg	10.1 kg	10.1 kg	4.1 kg
Readability	100 mg	100 mg	100 mg	100 mg	100 mg	100 mg
Repeatability*	40 mg	40 mg	40 mg	40 mg	40 mg	40 mg
Settling time*	0.8 s	0.8 s	1 s	1 s	1 s	0.8 s
Minimum weight* (1.0%, k=2, 5% load)	8.2 g	8.2 g	8.2 g	8.2 g	8.2 g	8.2 g
USP minimum weight* (0.10%, k=2, 5% load)	82 g	82 g	82 g	82 g	82 g	82 g

<b>XS Precision Large</b>	<b>XS16001L</b>	<b>XS32001LDR</b>	<b>XS32001L</b>	<b>XS16000L</b>	<b>XS32000L</b>	 <b>XS32001LX</b>	<b>XS64001LX</b>
Maximum capacity (fine range/full range)	16.1 kg	6.4 / 32.1 kg	32.1 kg	16.1 kg	32.1 kg	32.1 kg	64.1 kg
Readability full range fine range	100 mg	1 g 0.1 g	100 mg	1 g	1 g	100 mg	100 mg
Repeatability*	40 mg	40 mg**	40 mg	0.4 g	0.4 g	40 mg	40 mg
Settling time*	1.5 s	1.5 s	1.5 s	1.2 s	1.2 s	1.5 s	1.8 s
Minimum weight* (1.0%, k=2, 5% load)	8.2 g	8.2 g	8.2 g	82 g	82 g	8.2 g	8.2 g
USP minimum weight* (0.10%, k=2, 5% load)	82 g	82 g	82 g	820 g	820 g	82 g	82 g

Models with X = ATEX (EXplosive ATmospheres) for Ex Zone 2  II3G Ex ic IIc T5 / All models are available as verified versions

\* = typical value

\*\* = fine range

**For full technical details**  
 [www.mt.com/xs-precision](http://www.mt.com/xs-precision)

## Features – XS Precision S- and L-Platforms

<b>Accurate Results</b>	High resolution technology
	FACT internal adjustment with advanced test features
<b>Efficient Operation</b>	SmartPan <sup>1</sup>
	Big numbers on touchscreen display (16mm)
	IP54 in use
	Easy cleaning
	Internal temperature control
<b>Quality Assurance</b>	TestManager
	MinWeigh function
	GWP history
	Password protection
<b>Seamless Process</b>	LabX ready
	Calibry ready
	Full connectivity

### Embedded applications:

Simple weighing, statistics, formulation, totalization, piece counting, percent weighing, density determination, under-floor weighing and routine testing.

<sup>1</sup> available for 10 mg models only

# METTLER TOLEDO Services

## Ensure Consistently Reliable Results

From evaluating your needs to select the right balance, through to daily routine operation in your lab, the METTLER TOLEDO Sales & Service Team can accompany you every step of the way. Our expertise means you can enjoy excellent performance, maximum uptime and full compliance with the norms and standards relevant to your industry.



### Good Weighing Practice™

METTLER TOLEDO developed GWP® (Good Weighing Practice™) as a standardized scientific methodology for the secure selection, operation and calibration of weighing equipment. GWP® is applicable to all weighing equipment from any manufacturer.

### Evaluation and selection



Our GWP® Recommendation service helps you select the right balance according to your specific process and quality requirements. Documentary evidence is provided to show that the selected balance meets metrological, environmental and regulatory requirements.



Global Reach – Local Presence! A team of 5,000 specialists represent METTLER TOLEDO Sales and Service in more than 140 countries worldwide.

► [www.mt.com/service](http://www.mt.com/service)

### Installation



We document the installation and qualification of your balance in accordance with the relevant industry regulations. Operator training right after installation leads to improved productivity.

### Calibration



Balance calibration is at the core of accurate weighing results. Each calibration certificate declares the balance's minimum weight and measurement uncertainty – essential information for reliable weighing processes.

### Routine operation



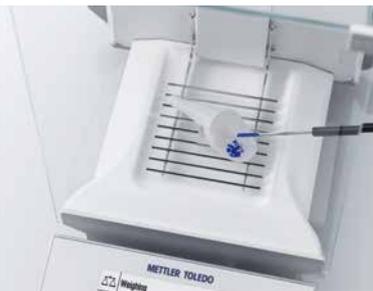
GWP® Verification provides clear guidance for performance verification of your balance to save you time and money. Included is an optimal routine testing and calibration schedule, specifications of the required test weights, and the ideal maintenance plan.

# Ensure Worry-free Weighing with Smart Accessories and Options

**METTLER TOLEDO balances can be customized with accessories and peripheral devices to meet the needs of virtually any application. Our carefully designed accessories make your work easier, reduce fatigue and increase accuracy and productivity.**

Small details. Big difference. View our range of over 200 accessories online.

## Reliable sample transfer



SmartPrep™ single-use, antistatic funnels enable safe and fast weighing-in of powders. Simply weigh, transfer and rinse. Fits nearly any standard 5 – 250 mL flask.

## Protect results from static



The freestanding U-Electrode removes electrostatic charges on samples and containers.

## Safely use magnetic stirrers



The Magnetic Protection Shield (MPS) weighing pan blocks interference from magnetic samples and stir bars to ensure accurate results.

## Comfortable operation



Place your terminal on a stand which is quickly mounted at the back of your balance. The display is easier to read and good posture is maintained.

## Easy documentation



The P-50 printers generate fast, high quality printouts on paper, self-adhesive labels and continuous self-adhesive paper (including barcodes).

## Hands-free weighing



ErgoSens enables you to perform selected balance operations with the wave of a hand e.g. zero, tare, print. Processes are simplified and cross contamination is avoided.

► [www.mt.com/lab-accessories](http://www.mt.com/lab-accessories)



## LabX Laboratory Software

### Power the Bench

LabX brings power to your laboratory bench by providing full user guidance on the instrument touchscreen, handling all data automatically, and ensuring process security on multiple instruments – all with one software and no manual transcriptions.

### Comfortable, worry-free weighing processes, thanks to:

- Full workflow flexibility
- Shortcuts on the instrument display to start processes
- Step-by-step SOP user guidance on the instrument
- Automatic calculations and documentation
- Customized reports and labels printed automatically
- All data stored centrally
- Know-one-know-all interface (also compatible with titrators, density meters, refractometers and melting point instruments)



LabX comes with 3 built-in One Click™ workflows to get you off to a quick start. Watch our video to see how easy standard preparation is with LabX.

► [www.mt.com/one-click-weighing](http://www.mt.com/one-click-weighing)

# Benefit From Our Weighing Expertise

With decades of experience in laboratory weighing, METTLER TOLEDO can offer you a wide range of online learning resources. Take advantage of our expertise to enhance your weighing know-how and ensure you benefit from all the power that your balances offers. Check out the documentation on our internet page for a range of relevant materials.



## Videos

In an easy learning format, our videos demonstrate the use of our balances and inform you about our weighing solutions. For example:

- Antistatic Solutions
- Easy Cleaning
- ErgoClips

► [www.youtube.com/mtlaboratory](http://www.youtube.com/mtlaboratory)



## White Papers

Our scientific white papers contain a wealth of information on a range of different topics such as:

- GWP – Science Based Weighing
- Balance Safety Features
- Antistatic Technology
- Data Integrity

► [www.mt.com/balances](http://www.mt.com/balances)



## On-demand Webinars/E-Learning

Learn directly from our weighing experts and guest speakers. It's easy to register.

For starters, we recommend:

- Minimizing Out-of-Specification Errors
- Good Weighing Practice

► [www.mt.com/webinars](http://www.mt.com/webinars)

► [www.mt.com/lab-elearning](http://www.mt.com/lab-elearning)

[www.mt.com/balances](http://www.mt.com/balances)

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