MS-TS Balances

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# Trusted Results at Your Fingertips

## Worry-free Weighing


### Built-in function simplifies balance leveling

The built-in LevelControl function issues a warning when the balance is not level and provides onscreen guidance to help you level the balance correctly within seconds.


### MinWeigh function ensures process tolerances

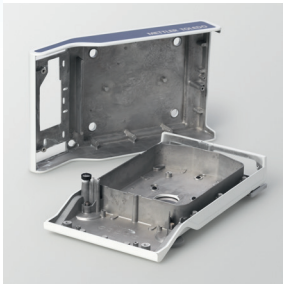
The weight value remains red until the net sample is above the pre-programmed minimum value. A user-defined minimum weight can also be programmed into the balance to provide an additional safety factor.


### Passcodes protect balance settings

Create a passcode to restrict modification of balance settings to authorized personnel only – functions that affect metrological performance are protected against accidental alteration.

### Easy-cleaning features save time and effort

Remove, clean and replace all of the QuickLock draft shield glass panels in just a few simple steps, without tools and without moving the balance. The housing has smooth surfaces and rounded edges for easy cleaning.



### Long balance lifetime

The full die-cast aluminum housing not only protects the weighing cell from environmental influences and impacts, it is also resistant to harsh chemicals, including acetone.


## MS-TS Analytical & Precision Balances

### Sophistication Made Simple

The built-in security features on MS-TS balances ensure results are always valid. Operators receive a warning if any problems are encountered or tolerances are not adhered to. Corrective actions can be taken immediately, avoiding costly reworking later.

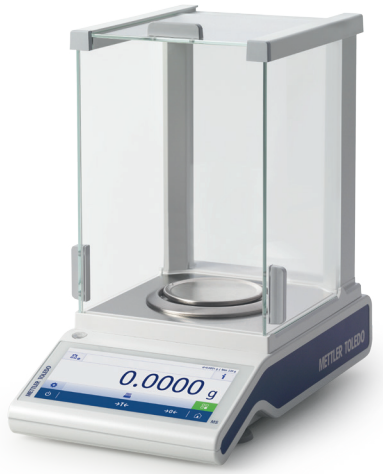
Our renowned MonoBloc weighing cell, with proFACT automatic internal adjustment, delivers consistently reliable results. Built-in overload protection ensures a long balance lifetime. Features like LevelControl, MinWeigh, and passcode protection maintain security and compliance.

The 7″ extra-large color TFT touchscreen display is operable through cotton, silicon and rubber gloves. An intuitive user interface and 18mm high digits bring comfort to your daily tasks.

METTLER TOLEDO

## MS-TS Analytical Balances

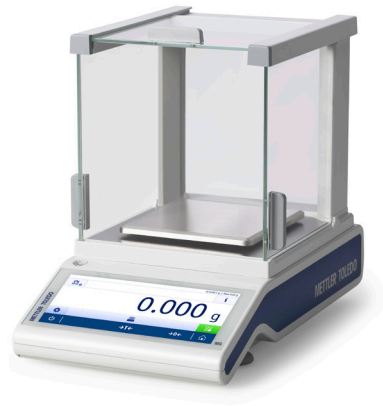
| | MS104TS | MS204TS | MS304TS |
|---|---|---|---|
| **Item Number** | 30133522 | 30133523 | 30133524 |
| **VWR Number** | **10753-566** | **10753-568** | **10753-570** |
| **Technical Specifications** | | | |
| Maximum capacity | 120 g | 220 g | 320 g |
| Readability | 0.1 mg | 0.1 mg | 0.1 mg |
| Tare range (from … to) | 0 … 120 g | 0 … 220 g | 0 … 320 g |
| Repeatability (nominal) (sd) | 0.1 mg (100 g) | 0.1 mg (100 g) | 0.1 mg (100 g) |
| Linearity deviation (test load) | 0.2 mg (20 g) | 0.2 mg (50 g) | 0.2 mg (50 g) |
| Eccentricity deviation (test load) [1] | 0.4 mg (50 g) | 0.4 mg (100 g) | 0.4 mg (100 g) |
| Sensitivity offset (test weight) | 0.8 mg (100 g) | 1 mg (200 g) | 1.5 mg (300 g) |
| Sensitivity temperature drift [2] | 1.5 ppm/°C | 1.5 ppm/°C | 1.5 ppm/°C |
| Sensitivity stability [3] | 2.5 ppm/a | 2.5 ppm/a | 2.5 ppm/a |
| **Typical values** | | | |
| Repeatability (at low load) | 0.08 mg | 0.08 mg | 0.08 mg |
| Linearity deviation | 0.06 mg | 0.06 mg | 0.06 mg |
| Eccentricity deviation (test load) [1] | 0.1 mg (50 g) | 0.12 mg (100 g) | 0.12 mg (100 g) |
| Sensitivity offset (test weight) | 0.2 mg (100 g) | 0.24 mg (200 g) | 0.6 mg (300 g) |
| USP minimum sample weight (5% load, k=2, U=0.10%) | 160 mg | 160 mg | 160 mg |
| Minimum sample weight (5% load, k=2, U=1%) | 16 mg | 16 mg | 16 mg |
| Settling time | 2 s | 2 s | 3 s |




[1] according to OIML R76;
[2] in the temperature range 10 to 30°C,
[3] Stability of sensitivity with proFACT self-adjustment switched on;
s: seconds; a: year (annum);
sd: standard deviation

## MS-TS Precision Balances, 1 mg

| | MS303TS | MS403TS | MS603TS | MS1003TS |
|---|---|---|---|---|
| **Item Number** | 30133525 | 30133526 | 30133527 | 30133528 |
| **VWR Number** | **10753-558** | **10753-560** | **10753-562** | **10753-564** |
| **Technical Specifications** | | | | |
| Maximum capacity | 320 g | 420 g | 620 g | 1020 g |
| Readability | 1 mg | 1 mg | 1 mg | 1 mg |
| Repeatability | 1 mg | 1 mg | 1 mg | 1 mg |
| Linearity deviation | 2 mg | 2 mg | 2 mg | 2 mg |
| **Typical values** | | | | |
| Repeatability | 0.7 mg | 0.7 mg | 0.7 mg | 0.7 mg |
| Linearity deviation | 0.6 mg | 0.6 mg | 0.6 mg | 0.6 mg |
| Sensitivity offset (test weight) | 3 mg (300 g) | 3.5 mg (400 g) | 3.5 mg (600 g) | 4 mg (1000 g) |
| USP minimum sample weight (5% load, k=2, U=0.10%) | 1.4 g | 1.4 g | 1.4 g | 1.4 g |
| Minimum sample weight (5% load, k=2, U=1%) | 0.14 g | 0.14 g | 0.14 g | 0.14 g |
| Settling time | 1.5 s | 1.5 s | 1.5 s | 1.5 s |
| **Dimensions** | | | | |
| Weighing pan size, W×D (mm) | 127 × 127 | 127 × 127 | 127 × 127 | 127 × 127 |




## Embedded applications (All Models)

Weighing, statistics for all applications, check weighing, totaling, piece counting, formulation, percent weighing, factor weighing, dynamic weighing, density, dosing and PC Direct (for easy data transfer).

## MS-TS Precision Balances, 0.01 – 0.1 g

| | MS1602TS | MS3002TS | MS4002TS | MS4002TSDR | MS6002TS | MS6002TSDR | MS12002TS | MS8001TS |
|---|---|---|---|---|---|---|---|---|
| **Item Number** | 30133529 | 30133530 | 30133531 | 30133532 | 30133533 | 30133534 | 30133535 | 30133536 |
| **VWR Number** | **10753-698** | **10753-700** | **10753-702** | **10753-704** | **10753-706** | **10753-708** | **10753-710** | **10753-712** |
| **Technical Specifications** | | | | | | | | |
| Maximum capacity | 1620 g | 3200 g | 4200 g | 4200 g | 6200 g | 6200 g | 12200 g | 8200 g |
| Maximum capacity, fine range | – | – | – | 820 g | – | 1220 g | – | – |
| Readability | 0.01 g | 0.01 g | 0.01 g | 0.1 g | 0.01 g | 0.1 g | 0.01 g | 0.1 g |
| Readability, fine range | – | – | – | 0.01 g | – | 0.01 g | – | – |
| Repeatability | 0.01 g | 0.01 g | 0.01 g | 0.06 g | 0.01 g | 0.06 g | 0.01 g | 0.1 g |
| Repeatability, fine range | – | – | – | 0.01 g | – | 0.01 g | – | – |
| Linearity deviation | 0.02 g | 0.02 g | 0.02 g | 0.08 g | 0.02 g | 0.08 g | 0.025 g | 0.2 g |
| **Typical values** | | | | | | | | |
| Repeatability | 0.007 g | 0.007 g | 0.007 g | 0.05 g | 0.007 g | 0.05 g | 0.007 g | 0.07 g |
| Repeatability, fine range | – | – | – | 0.007 g | – | 0.007 g | – | – |
| Linearity deviation | 0.006 g | 0.006 g | 0.006 g | 0.06 g | 0.006 g | 0.06 g | 0.008 g | 0.06 g |
| Sensitivity offset (test weight) | 0.018 g (1600 g) | 0.018 g (3000 g) | 0.024 g (4000 g) | 0.024 g (4000 g) | 0.036 g (6000 g) | 0.036 g (6000 g) | 0.048 g (12000 g) | 0.24 g (8000 g) |
| USP minimum sample weight (5% load, k=2, U=0.10%) | 14 g | 14 g | 14 g | 14 g | 14 g | 14 g | 14 g | 120 g |
| Minimum sample weight (5% load, k=2, U=1%) | 1.4 g | 1.4 g | 1.4 g | 1.4 g | 1.4 g | 1.4 g | 1.4 g | 12 g |
| Settling time | 1.5 s | 1.5 s | 1.5 s | 1.5 s | 1.5 s | 1.5 s | 1.5 s | 1 s |
| **Dimensions** | | | | | | | | |
| Weighing pan size, W×D (mm) | 170 × 200 | 170 × 200 | 170 × 200 | 170 × 200 | 170 × 200 | 170 × 200 | 170 × 200 | 190 × 226 |

## Features

| | |
|---|---|
| **Accurate Results** | MonoBloc weighing cell<br>Strong overload protection<br>proFACT internal adjustment<br>MinWeigh warning function<br>Full metal housing |
| **Efficient Operation** | 7" Extra-large color TFT touchscreen<br>18mm high digits<br>LevelControl function<br>Statistical data analysis<br>Easy cleaning<br>LevelLock |
| **Quality Assurance** | ISO-Log<br>Sample ID input<br>Passcode protection |
| **Seamless Process** | 3 interfaces: USB device, USB host, RS232<br>Bluetooth option<br>PC Direct application |

## Accessories

**P-5x thermal printers**

Fast, high quality printouts on paper, self-adhesive labels and continuous self-adhesive paper (including barcodes).

**Bluetooth adaptors**

Wirelessly send data between the balance and a PC, tablet or printer. No additional software needed.

**Density kit**

Dedicated kit for determining the density of solid and liquid substances with the built-in application.

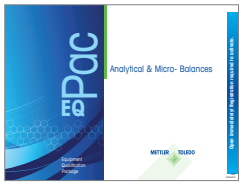
**U-electrode**

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

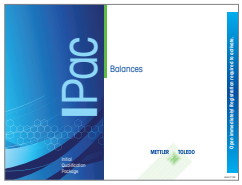
# Balance Service Qualification

Take away the guess work when you need to ensure quality and regulatory compliance. METTLER TOLEDO offers options for fast and professional balance qualification: EQ-Pac, IPac and GWP® Verification.

| Benefits | Features |
|---|---|
| Save Time | No time wasted – a quick initial qualification allows you to start working with the balance – immediately. |
| Increase Productivity | Users receive product familiarization to ensure productive and safe working processes. |
| Ensure Compliance | EQ-Pacs and IPacs limit the risk of noncompliance during FDA audits and other quality management system assessments. |




EQ-Pac covers the full range of Equipment Qualification (EQ) and is mainly used in the Pharmaceutical and Biotechnology industry. EQ-Pac is perfect for customers who prefer the entire qualification process is documented in a format designed and provided by the manufacturer. EQ-Pac includes Installation Qualification (IQ), Operational Qualification (OQ) and Performance Qualification (PQ).




IPac ensures qualified IQ/OQ processes in all industries and is ideally suited for integration into an existing quality management system. These Pacs are designed for customers who require a professional equipment installation by the manufacturer.

| Item | Catalog No. | Description |
|---|---|---|
| B39990001 | 10199-756 | Basic StarterPac Installation |
| B39990002 | 10199-758 | IPac Standard Qualification (IQ/OQ) – All Balance Models |
| B39990003 | 10199-760 | EQPac Comprehensive Qualification (IQ/OQ/PQ) – Regulated Balances (USP Certificate) |
| B39990004 | 10199-762 | EQPac Comprehensive Qualification (IQ/OQ/PQ) – Non Regulated Balances |

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For more information

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0615 Lit. No. 131325W