Laboratory Catalog

2020/21





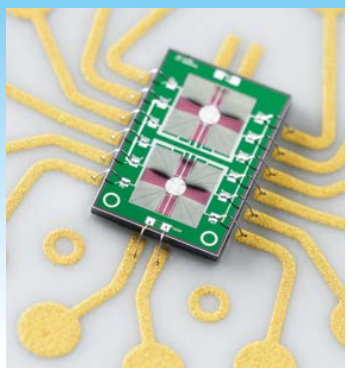
Balances
Pipetting Solutions
UV/VIS Spectroscopy
Titrators
Density Meters
Refractometers
pH Meters & Sensors
Automated Synthesis
Real-Time Analytics
Thermal Analysis











Analytical Excellence

Get Reliable Results Efficiently

METTLER TOLEDO

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Innovative Products
For All Your Laboratory Applications

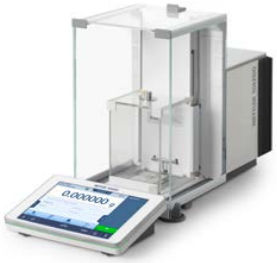
METTLER TOLEDO's precision instruments are the foundation of research and quality-control labs all over the world. Our comprehensive product range provides you with flexibility and precision in every application. See the product range overview below.

Weighing
We are constantly improving the world of balances. Our complete portfolio of lab balances offers maximum user protection, unparalleled measurement performance, full data security and seamless traceability.

Titration
Our new generation of titration solutions focuses on ease of use and flexibility. Its unique One Click™ user interface keeps training time to a minimum and speeds up workflows. A modular design ensures perfect adaptation to any titration application.

pH Measurement
From basic handhelds to flexible triple-channel meters, we offer a full spectrum of premium pH, conductivity, dissolved oxygen and ion instruments. You can find the right sensor for any application in any industry.

Materials Characterization
We are the technology leader in thermal-analysis instrumentation. Our innovative product range includes DSC, TGA, TMA and DMA, as well as an unmatched, powerful common software platform, STAR^e.








Physical Values
This range of digital instruments determines parameters such as refractive index and density, as well as dropping, melting, slip-melting, boiling and cloud point. Using optical and calorimetric methods, these instruments measure materials' physical properties.

Pipetting
Our pipettes enhance lab performance and help reduce time-to-market by guaranteeing optimum accuracy and repeatability. Innovative ergonomic designs, including the well-known LiteTouch System™ (LTS™), minimize fatigue and injuries.

UV/VIS Spectroscopy
FastTrack™ technology and One Click™ operation form the basis for the simple operation, fast analysis, sustainable accuracy and trustworthy performance of the UV/VIS Excellence Line. LabX™ and various automation options add power to these useful UV/VIS solutions.

Automated Chemistry
We provide the enabling technology, software and expertise to help you build a seamless workflow when transforming bench-scale chemistry into a commercial process. We have set many milestones in the last 25 years that have helped our clients significantly enhance their performance and profitability.







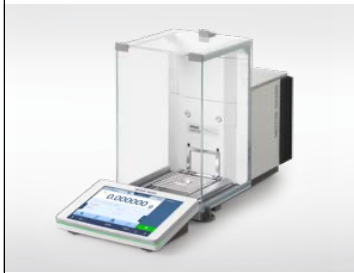


New Product Solutions
For Research and Development

Pushing the boundaries of what is possible is essential for great new discoveries in research and development. METTLER TOLEDO offers you measurement tools of the highest precision as well as many innovative techniques that help make sure your research is fast and effective.

We offer equipment to enable everything from ultra-fast materials analysis to high-precision weighing. So whether you wish to perform fully automated organic synthesis, handle liquids ergonomically or meet a processing goal in your lab, we provide you with the essential tools you need.

Go Beyond Weighing



Enjoy right-first-time results and be sure of compliance with regulations. XPR analytical balances offer efficient and error-free weighing processes to save you time, money and materials.

More information on pages 52–55.
www.mt.com/xpr-analytical

Automate Large Numbers of UV/VIS Samples



Simplify repetitive tasks and gain more productive lab time. Combine an InMotion sample changer and UV/VIS spectrophotometer for automated measurements of up to 308 samples in a row.

More information on page 159.
www.mt.com/uvvis-accessories

Keep Chemical Reactions Safe



The Reaction Calorimeter RC1mx is based on a proven high-performance thermostat design. RC1mx sensors and final control elements create plug-and-play functionality that is controlled by either a state-of-the-art touch interface or iControl PC software.

More information on page 246.
www.mt.com/RC1



Benefit from Accurate Semi-Automated Pipetting



BenchSmart™ 96 is a semi-automated 96/384-well pipettor covering a range of 0.5 to 1,000 µL. High reproducibility and efficiency are achieved thanks to automatic aspiration, dispensing, tip loading and tip ejection.

More information on page 136.

www.mt.com/benchsmart96

New Product Solutions
For Effective Quality Control

Getting reliable results efficiently is key for most quality control laboratories. METTLER TOLEDO's new product solutions provide precise results while making operation easier and supporting compliance with SOPs and regulations.

Save Effort with Automated Titration



Our compact InMotion™ Karl Fischer Oven Autosampler allows up to 26 samples to be placed on a rack of only 25 centimeters. Its temperature-scan functionality speeds up the analysis of unknown samples by determining the optimum temperature for heating the sample.

▸ **www.mt.com/InMotionKF-oven**

Reduce Out-Of-Service Pipette Costs



SmartStand is an unique solution to help labs adhere to their standard operating procedures and maintain GLP/GMP compliance. With SmartStand, you will know the current status of your pipette every time you use it.

More information on page 149.
▸ **www.mt.com/SmartStand**

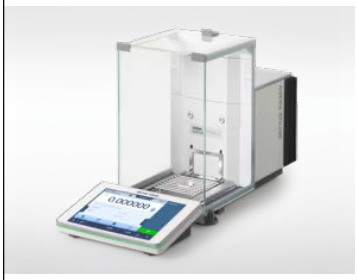
Make Faster Decisions About Moisture Content



The HX204's QuickPredict™ function predicts the final moisture content in a fraction of the usual measurement time. This allows you to make faster decisions on further analysis and processing. Optionally available on HS153.

More information on pages 116–127.
▸ **www.mt.com/moisture**

No Compromise with Your Precious Samples!



XPR Analytical Balances are the right choice for challenging weighing applications, such as weighing the smallest sample sizes, with exceptional accuracy and a readability of 5 µg. Save time, money and materials, and invest in a balance that consistently delivers results you can trust.

More information on pages 52–53.

www.mt.com/xpr-analytical

Broaden Your Knowledge
At the Expertise Library

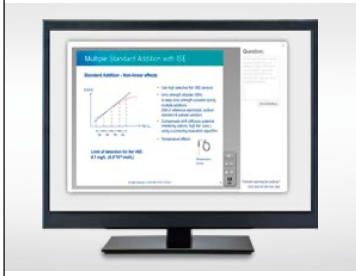
The Expertise Library offers plenty of free information and advice on a range of critical laboratory issues. Topics are carefully selected to support the daily activities of lab analysts and managers. In-depth knowledge and expert advice are easily accessible via links to articles, white papers, webinars and videos on specific topics. New topics are added regularly!

Literature



Benefit from our database of applications covering all industry segments. Basic introductory or advanced information is available to you in the form of white papers, guides and brochures.

Live and On-Demand Webinars



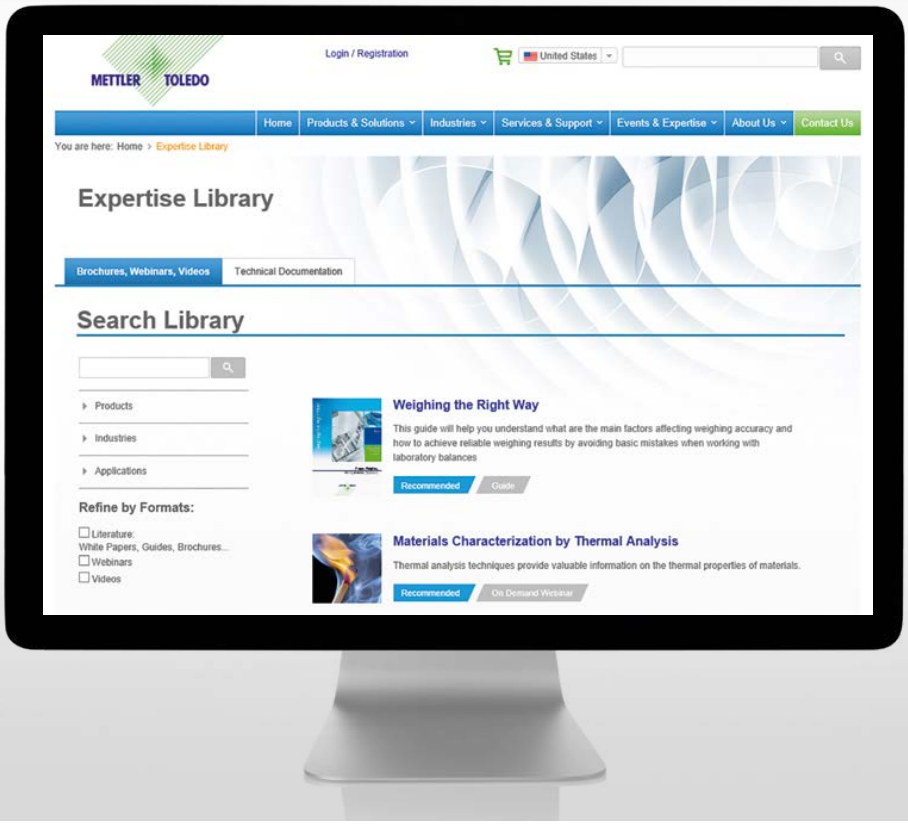
Live and on-demand webinars give you the opportunity to receive specific and relevant information concerning industry trends, applications, product knowledge and laboratory best practices.

Journals and Newsletters

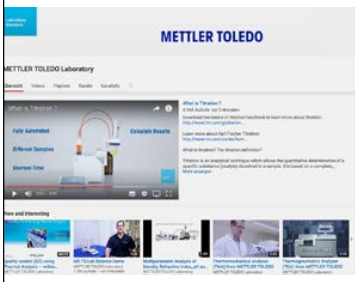


Our newsletters provide you with insights into applications, new products and industry trends. UserCom journals feature examples and applications to help you gain practical knowledge and efficiency.

Get more information
www.mt.com/library



YouTube Laboratory Channel



Experience our range of laboratory products with selected videos on our laboratory YouTube channel. Our informative videos offer you a comprehensive overview of product innovations and application solutions.

www.youtube.com/mtlaboratory

Simplify Your Daily Routines
With One Click

One Click™ is more than just a shortcut. It's an intuitive user-management concept stretching across key METTLER TOLEDO laboratory instruments to help make your daily work in the lab as easy as possible. By defining shortcuts and adding them to the user-specific home screen, you obtain results that are not only accurate but fast at the touch of a button.

Access

The home screen of the instrument shows all key tasks defined by a certain user.

Routine Tasks

Shortcuts allow each user access to all daily operations on their own customizable home screen.

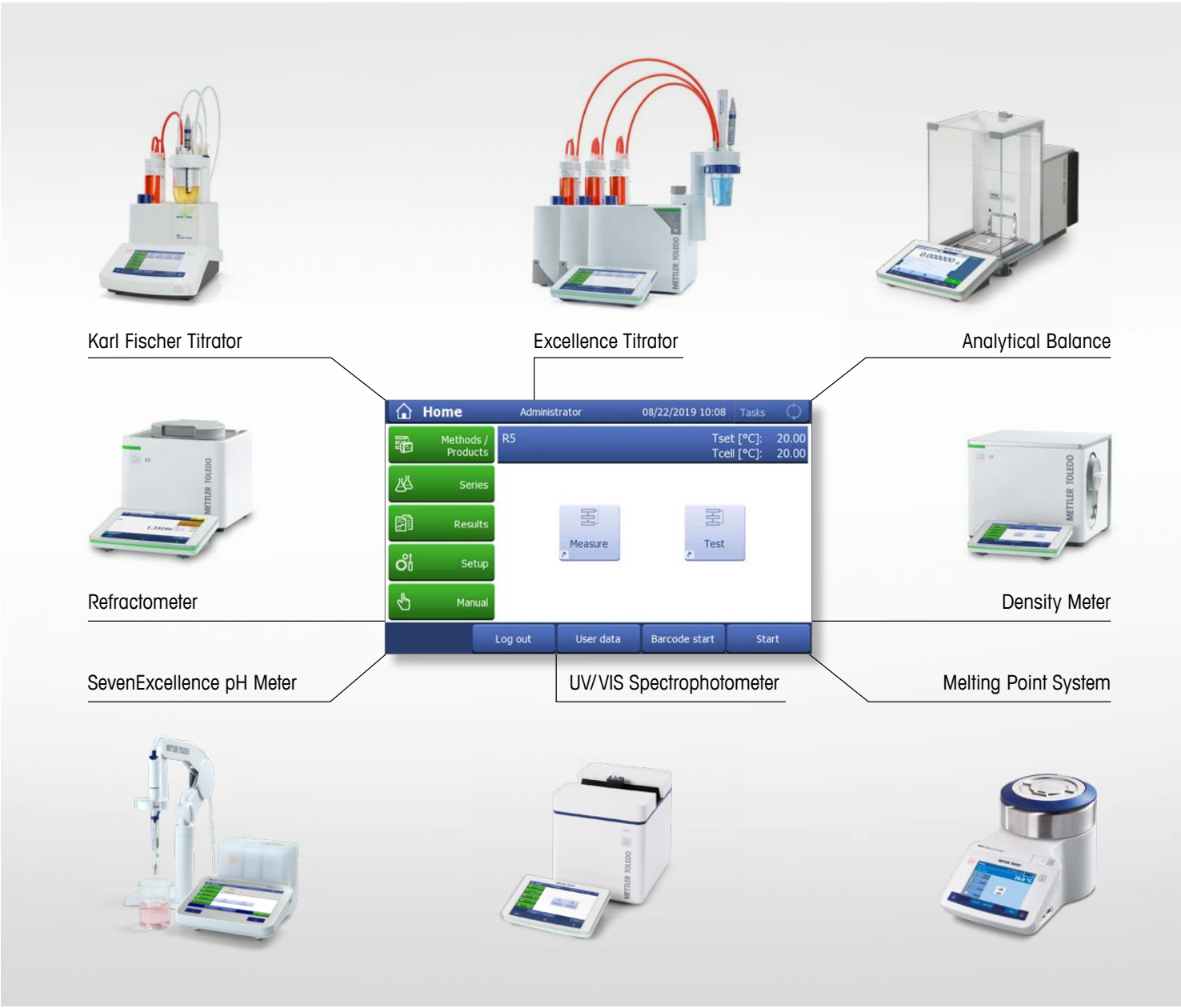
Method Start

If a method key is pressed, the complete routine is started. No further confirmations or configurations are needed.

Back Home

The "home" button on the instrument brings the user to the home screen.





One Common Interface Across All Key Lab Instruments

Most METTLER TOLEDO instruments share the same One Click™ user interface. This means users of one instrument are already familiar with the operation of other instruments.

Key One Click Benefits:

- Easier and faster task execution
- Users see only the functions/actions they need
- Routine users are not distracted by unneeded functionality
- Operation mistakes are avoided
- SOPs are automatically executed
- Less training is required

See One Click in action in this short video
www.mt.com/one-click-titration

One Software Solution
For Multiple Lab Instruments

LabX™ software brings power to your laboratory bench with automatic data handling, high process security, full SOP user guidance and centralized management of multiple instruments, users and data. With remote networked operation, PCs in the laboratory are eliminated, creating a leaner lab experience. Administrative work is automated and your paperless lab becomes a reality.

Single Software for Many



Reduce complexity with one software for all your balances, titrators, pH meters, UV/VIS spectrophotometers, density meters, refractometers and melting point instruments. Simplify maintenance and validation efforts and integrate your instruments into your overall systems such as LIMS or ERP with just one interface.

Central Control



With LabX, you control data and process information centrally. You can manage SOP methods, users, instruments and results. View and electronically sign data as it is generated in real time from any connected computer.

Software Services

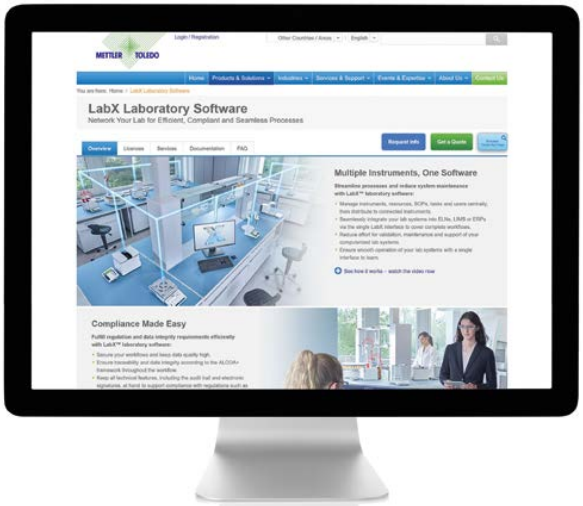


LabX Software Care contracts provide access to new LabX releases and support so you profit from the latest innovations and ensure consistent performance. Choose additional software services such as installation, training, validation and workflow development to complete your system.



LabX™ Competence and Knowledge Center





Download our white papers and watch LabX in action

www.mt.com/LabX

Power the Bench
Data and Workflow Management

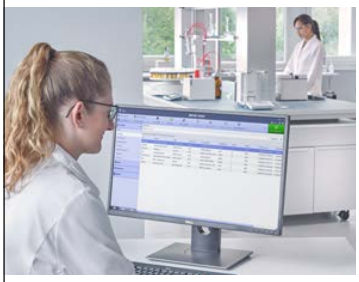
LabX™ Laboratory Software connects to multiple METTLER TOLEDO lab instruments. Benefit from increased workflow efficiency, optimal security support and centralized management of one or multiple instruments, users and data.

Workflow Guidance



Ensure process security with complete step-by-step user guidance on the instrument touchscreen – even without a computer on the lab bench.

Complete Data



Complete data from all instruments is collected centrally for full traceability. Automatic data handling means manual transcription errors are eliminated and administrative work is reduced to a minimum.

Multi-Parameter Analyses



Combine multiple instruments to an automated multi-parameter workflow. Increase sample throughput and collect measurement data from all analyses of your sample in one place.

Tailor LabX™ to Your Needs

Step 1
Select a Starter Pack according to your first instrument and the number of instruments you want to connect.

Starter Pack LabX Express
Connect up to 3 instruments

- **LabX Express**
- Instrument License*

Starter Pack LabX Server
Connect up to 30 instruments

- **LabX Server**
- Instrument License*
- User Management
- Auto Import/Export

Step 2
Extend your systems with optional packages according to your needs.

Option Licenses

- User Management
- Auto Import/Export
- Regulation
- Product Database
- Statistical Evaluation
- Report Designer
- System Integration
- STAReX Integration

Step 3
Add additional instrument licenses for all of your instruments.

Instrument Licenses

- Balance
- Titration
- UV/VIS
- SevenExcellence
- Density Refractometry
- Thermal Values
- Quantos

Step 4
Complete your system by choosing your software services.

Software Services

Software Care Standard	Always get the latest software release and remote support.
Software Care Comprehensive	Always get the latest software release and profit from remote support and on-site support.
On-Demand Services	Choose additional services you need to complete your system.

* Starter Pack Titration includes one instrument license for a titrator and one for a balance.

Get more information
www.mt.com/LabX

Gain Full Data Integrity
With LabX™ Traceability

For laboratories that must comply with GLP, GMP and GAMP regulations, it is important to have documented evidence of activities that can be checked by a second person and is available for inspection. Compliance with these regulations can help avoid risks such as import bans, product recalls, and even the closing of production plants.

Maximum Security



Full traceability, electronic signatures, enforced SOP methods, and extensive audit trails support laboratories around the globe with regulatory compliance. LabX fully supports FDA ALCOA+ requirements for data integrity as well as 21 CFR Part 11, EU Annex 11 and ISO 17025.

Be Prepared for Audits



An impending audit is a source of worry for many lab teams. Knowing that you will – at any time – be able to recreate the sequence of events and circumstances which led to a certain result or record can be very reassuring.

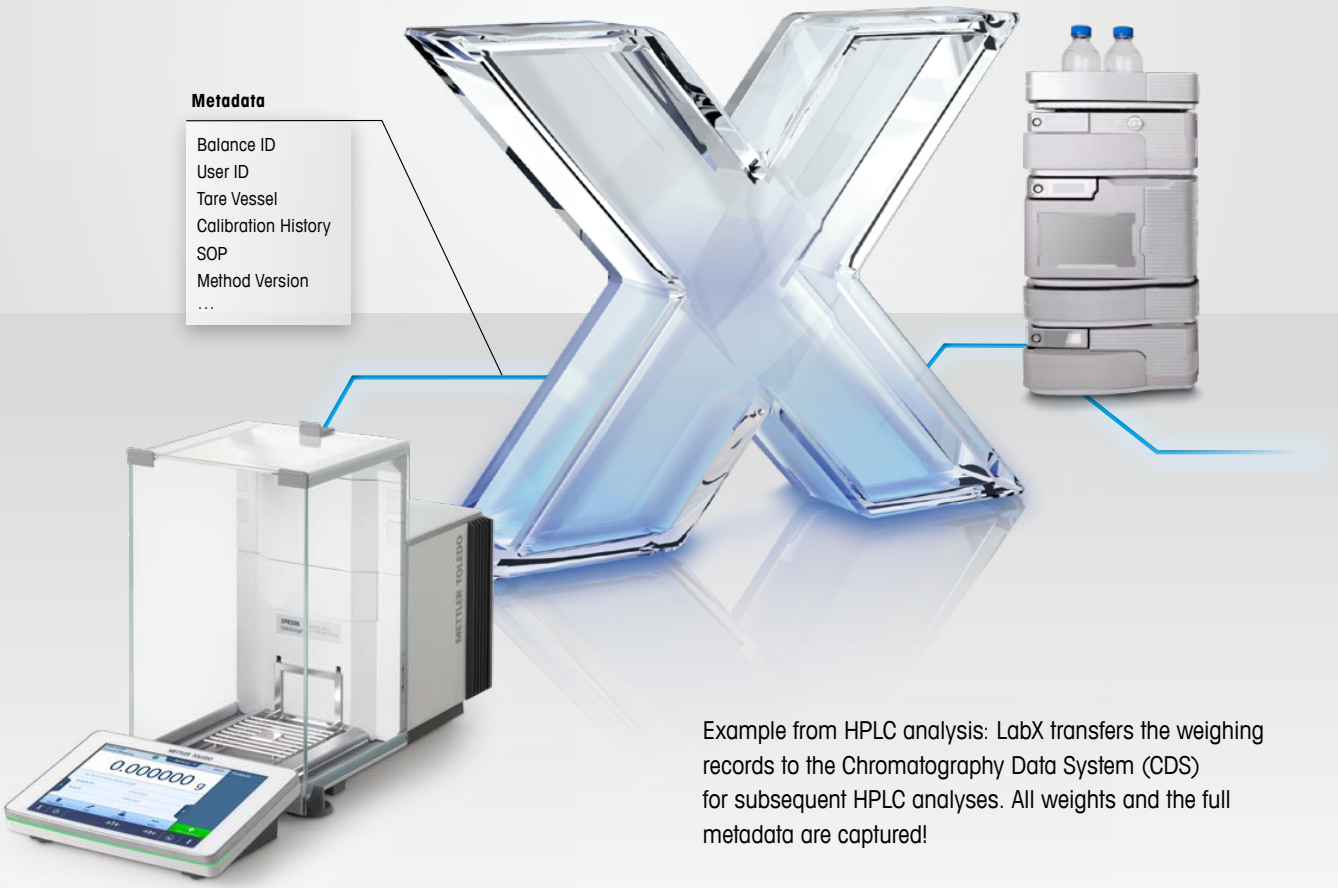
Avoid FDA Warning Letters



In 2018, 60 percent of FDA warning letters were issued due to a lack of data integrity. The main reason for issuance was incomplete data. LabX prevents such situations from occurring as all metadata is securely stored along with the actual results.



Storing the result is not enough. Each result set has to be complete and contain all relevant metadata. LabX™ helps achieve data integrity in the laboratory following the ALCOA+ principle.



Example from HPLC analysis: LabX transfers the weighing records to the Chromatography Data System (CDS) for subsequent HPLC analyses. All weights and the full metadata are captured!

Find out more in our knowledge collection
www.mt.com/lab-data-integrity

Accurate Measurement Results
From the First Day of Operation

METTLER TOLEDO offers precise and reliable measurement equipment along with the services that help to ensure continuous excellent performance and high measurement accuracy over the lifetime of the products.

We understand the challenges and continue to support the requirements of our customers. Right from the start, we bring you a high level of service to ensure that even your most complex lab applications are up and running error-free.

Installation and Qualification



Our **3 tiers of installation offerings** allow you to choose the level of regulatory compliance that you require. Discover our installation and qualification offerings and select the one that best suits your needs.

Calibration and Certification



Calibration is essential for getting accurate and reliable results. Traceable calibration tools ensure that the device functions according to its operational specifications. A calibration certificate provides the required evidence for quality audits.

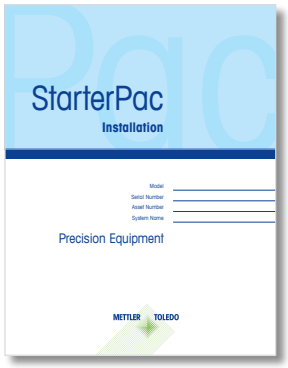
Extended Care

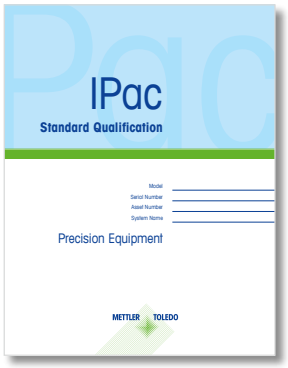


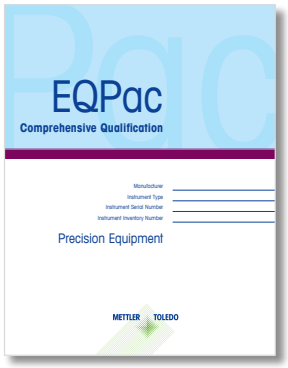
Extended Care offering provides an added level of assurance for the first 24 months after installation. With Extended Care, you also receive two preventive maintenance visits. Control your budget by avoiding unplanned expenditures throughout your equipment's life.

Installation and Qualification Services
For Different Levels of Compliance

A professionally executed installation and qualification is essential to achieving the desired results from your instrument. You will have peace-of-mind that your equipment performs according to your needs right from the beginning. METTLER TOLEDO offers a comprehensive range of instrument installation, qualification and certification options for your product to ensure that you can comply with applicable regulatory requirements.





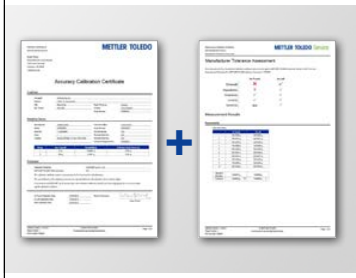


Quick and simple installation and basic operator familiarization.	Professional installation and in-depth user familiarization allows for immediate equipment deployment.	
Operational checks to ensure optimal equipment functionality.	Comprehensive functional and metrological tests ensure equipment reliability and accuracy.	
Documentation of installation, setup, configuration and training steps provides traceability.	Documented installation work steps in the framework of IQ/OQ support regulatory compliance, ensure traceability, and provide optimal performance of your equipment.	Complete documentation of all work steps in the framework of IQ/OQ and PQ fulfill all regulatory compliance needs, ensure traceability, and provide excellent performance of your equipment.
–	Proposed routine tests and maintenance recommendations for the operators ensure consistent performance over the entire lifecycle of the device.	
–	–	Every qualification step is assessed against user requirements or manufacturer specifications.

Calibration Offerings
To Achieve Accurate Measurements

Calibration is essential for accurate measurement results using your high-precision weighing or analytical equipment. METTLER TOLEDO has a variety of certificates to meet your needs supported by our skilled service technicians around the world.

Calibration Offerings



Our fully-traceable calibration certificate portfolio paired with an optional annex offers a modular solution tailored to your regulatory or quality management needs. All certificates are available in PDF format for electronic storage. Backup copies are available upon request.

Accredited Processes



ISO/IEC 17025 is rapidly achieving prominence where a technically focused standard is necessary. METTLER TOLEDO has adapted its service operations to the rigor of ISO/IEC 17025 accreditation so you can benefit from our professional and globally consistent approach to calibration.

Harmonized Calibration Tools



To achieve the highest quality and consistency, METTLER TOLEDO service technicians and authorized service providers are equipped with harmonized tools such as MiraCal, our global calibration software.

Gain the Most
From Your Investment

As is the case for all measurement equipment, intensive daily usage causes wear and tear. Additionally, unanticipated environmental factors or use by untrained operators can take a toll. Extended Care keeps your measurement equipment in top shape.

ExtendedCare

Our Extended Care offering includes two preventive maintenance visits. It also covers labor, parts and travel related to equipment failures due to defects in material and workmanship for the first 24 months.

Regular and professionally performed maintenance prevents unexpected breakdown and ensures optimal performance.

Repairs are performed on-site whenever possible without any additional travel charge (does not cover repairs required due to misuse or abuse).



Coverage	**Regular Warranty**	**Extended Care**
Duration	**12 months**	**24 months**
Preventative Maintenance		
Annual inspection and cleaning	–	•
Annual functional testing to manufacturer standards	–	•
Adjustments, if necessary	–	•
Wear parts, if applicable	–	•
Documentation of device condition and working steps	–	•
Coverage in Case of Technical Problem		
First year of warranty	•	•
Repair coverage including spare parts	•	•
Intervention on site, or depot	•	•
Priority for intervention	–	•
Travel cost included	–	•
Technical assistance hotline	–	•

Good Measuring Practices
Improve Your Quality and Lower Your Cost

Reliable and accurate measurements lead to reproducible experiments, robust processes and sustainable quality assurance.

Good Measuring Practices, developed by the world-renowned measuring experts at METTLER TOLEDO, help you find the right instrument for your needs. They also provide advice and training on how to operate, calibrate and maintain your instruments in a simple way.





Good Measuring Practices ensure reliable data in your laboratory or production environment, day in, day out.

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Good Titration Practice™	page 183
Good Density and Refractometry Practice™	page 209
Good Electrochemistry Practice™	page 239
Good Melting and Dropping Point Practice™	page 263
Good Thermal Analysis Practice™	page 275







The Four Principles of Good Measuring Practices

Fit for purpose – meeting your specific needs
Risk-based – do only what is necessary
Metrologically proven – developed by the measuring experts
Universal – applicable to every instrument brand





Balances and Dosing Solutions

Go Beyond Weighing



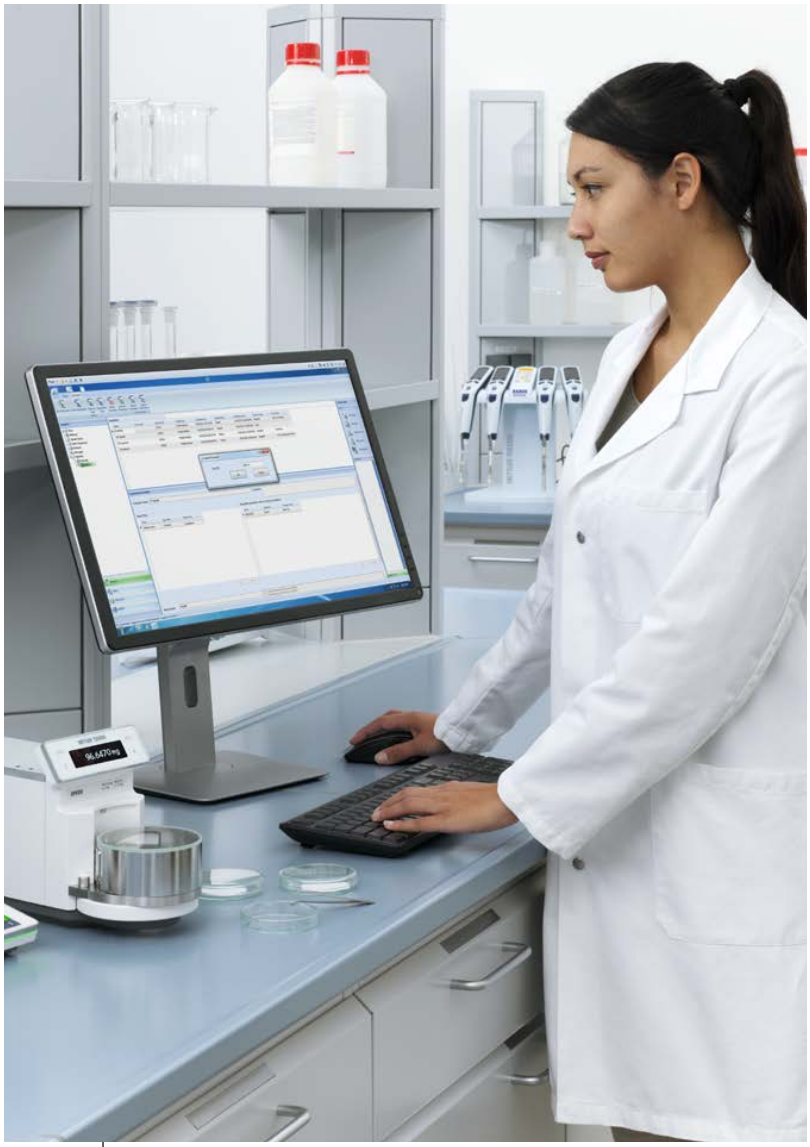
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Scan this code for more information.

www.mt.com/balances

Laboratory Weighing
Your Solution Is Here

METTLER TOLEDO's weighing and dosing expertise and manufacturing competence goes into every balance we make to bring you outstanding performance. By adding the right laboratory software and dedicated accessories, you can create a customized weighing or dosing solution for fast, simple and worry-free workflows.



Trust in METTLER TOLEDO's weighing expertise and manufacturing competence.

Accuracy for Your Smallest Samples

To accurately weigh the smallest of samples, choose from our range of micro and ultra-micro-balances which offer up to 61 million resolution points.



Micro Weighing

Trusted Analyses

Trust in your results with our high performing analytical balances. They offer the capacity, readability, security features and built-in applications you need for all your analytical requirements.



Analytical Weighing and Automated Dosing

Robust Precision

With readabilities from 0.1 milligram and capacities up to 64 kilograms, plus selected high performance models, we can meet all your precision-weighing needs. Robust and easy to clean, our balances will give you years of reliable, accurate service.



Precision Weighing

How to Ensure Accurate Weighing
In 3 Simple Steps

Are you sure your balance is weighing accurately? Can you verify that it is it fit for purpose? Do you know the simple way to achieve consistent quality, save costs and ensure compliance?

To help you answer 'Yes' to all the questions above and support you in managing your entire weighing program, METTLER TOLEDO developed the globally recognized standard Good Weighing Practice™ (GWP™). Here is how it works in 3 simple steps:

Step 1: Selection



Our GWP™ Recommendation service is free, easy to apply and:

- Provides you with security before making a purchasing decision
- Documents that your new device meets your process requirements

More information on page 31.

Step 2: Installation



Professional qualification of your device installation:

- Ensures optimal weighing performance
- Improves productivity with correct device set-up
- Provides users with training to operate the device correctly
- Includes audit-proof documentation

More information on page 78.

Step 3: Calibration and Testing



To ensure accuracy over time:

- The ACC Calibration Certificate assesses the performance of the device by documenting the measurement uncertainty in use
- The GWP™ Certificate proves that the device is fit for purpose
- GWP™ Verification specifies a risk-based routine testing and calibration plan

More information on page 80.

www.mt.com/gwp





Selection

How to Choose the Right Device

METTLER TOLEDO offers a huge range of high-quality balances. However, which one is right for your specific process and accuracy requirements? GWP™ Recommendation helps you to select the right balance by considering the following key factors:

Maximum weight
The maximum load you weigh (including the tare container).

Smallest net weight
The smallest load you weigh (excluding the tare container).

Weighing tolerance
The weighing error that is acceptable, specified as ± percentage.

Safety factor
Considers environmental influences such as vibrations, drafts etc.



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.

www.mt.com/gwp
www.mt.com/gwp-recommendation

LabX™ Application Solutions
Efficient and Secure Workflows

Connect your balance to LabX™ software and benefit from full onscreen user guidance, automatic results calculations, and personalized reporting and documentation. LabX supports XPR/XPE/XP and XSR/XSE/XS balances, as well as automated dosing systems.

Users simply perform the weighing task and LabX takes care of the rest. Additionally, our LabX services offer a comprehensive range of software support including LabX installation and method development.

Bring the Power of LabX to Your Weighing Applications

Flawless SOP Adherence



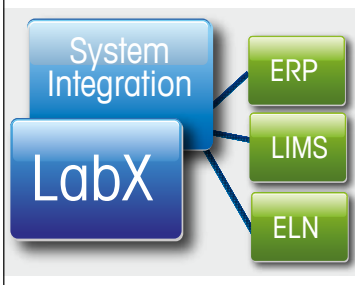
By adding your workflows into LabX, you can be sure that all users follow the correct procedures.

Guidance at the Terminal



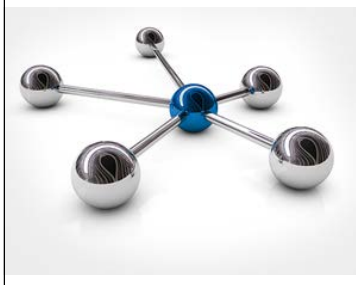
Users start each task directly from the balance terminal and follow step-by-step instructions to eliminate errors and rework.

Seamless Integration



Connect your balance to LabX for seamless integration with your existing information systems (e.g. ELNs and LIMS).

Central Instrument Control



All connected instruments can be monitored and controlled from the PC. Lab-wide data on weighing tasks, routine tests and instrument status are available at your fingertips.

Data Integrity



LabX saves all process data securely and performs all calculations, completely eliminating transcription errors and assisting in compliance with FDA 21 CFR Part 11.

Multiple Instruments



Connect up to 30 instruments in any combination: XPR/XPE/XP/ XSR/XSE/XS balances, Quantos, titrators, UV/VIS spectrophotometers, pH meters, melting point instruments, density meters and refractometers.

Example Applications

Whether you customize an application from our library or create a new one from scratch, the examples below show the type of benefits LabX™ can bring to any of your weighing applications. Our LabX specialists can develop your methods for you as part of our service offering.



Standard Preparation
- One-step dosing
- Fully labeled samples
- Automatic calculations

Typical Product Bundle
XPR205 Analytical balance
LabX Balance Starter Pac
ErgoClip flask
Label printer
Ethernet option



Loss-on-Drying (LoD)
- Simplified sample handling
- Intelligent task management
- Color Pass/Fail identification

Typical Product Bundle
XPR204 Analytical balance
LabX Balance Starter Pac
ErgoClip round-bottom flask
Label printer
Barcode reader
Ethernet option



Sieve Analysis
- Auto sieve-weighing
- No manual transcription
- Graphical reports

Typical Product Bundle
XPR10001L Precision balance
LabX Balance Starter Pac
Ethernet option
ErgoClip sieve

LabX Starter Packs

Starter Pac Express		Starter Pac Server	
Up to 3 instruments connected to a local computer.		Up to 30 connected instruments with the capability to distribute the system over multiple computers.	
LabX Balance Express	11153120	LabX Balance Server	11153121
LabX Quantos Express	30062403	LabX Quantos Server	30062404

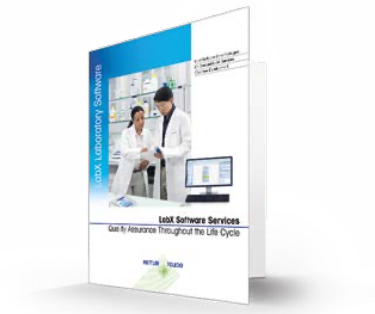
LabX Software Care Packages

Software Care Standard	Software Care Comprehensive
Always get the latest software release and remote support.	Always get the latest software release and profit from remote support and on-site support.

On-Demand LabX Services

Choose the additional services you need to complete your system and enjoy total confidence:

- Installation
- Training
- Validation
- Integration
- Consultation
- Method Development



Please order the brochure for a full overview of LabX services.

Please see LabX on pages 15–17 for further details and licensing options.

www.mt.com/labx

High Performance Balances
With Helpful Versatility

With METTLER TOLEDO's high performance balances you can now weigh your smallest sample quantities at higher capacities. This is particularly useful for applications in which there is a substantial weight difference between the initial and final weight values, or when the tare load is high compared to the weight of the applied material.

One-Balance Formulation



Utilizing high performance balances for formulation enables you to use just one balance in many cases. With their high repeatability, these higher performance balances support the accurate weighing of small sample quantities.

Heavy Tare, Light Product



Benefit from an increased weighing range and lower minimum detectable sample load in applications where tare and sample weights differ substantially. Common applications are:

- Gas filling
- Non-volatile residue determination
- Weight loss

Conserving Precious Materials



XPR-C and XPE-C balances offer the lowest minimum weight values in their class enabling you to use the smallest quantities possible of your most valuable materials.

Accurate Results	High-resolution technology SmartPan™ weighing pan
Efficient Operation	Large color capacitive touchscreen terminal, glove compatible Storage of weighing methods (including sample series and tolerances) Integrated results notepad
Quality Assurance	GWP Approved built-in quality assurance monitoring MinWeigh warning function Balance ready StatusLight™ LevelControl: level warning with graphical leveling guide Temperature and time programmable automated internal adjustment (proFACT) User management
Seamless Process	Easy connectivity and data export: 4 × USB, 1 LAN Easy connection of peripheral devices: printers, PC, barcode readers, footswitches and sensors Integrated label editor, alphanumeric and barcode Export of process and results data to XML or Excel Web service



Lowest Minimum Weight
Across each capacity range, our high performance balances offer the lowest minimum weight values.



Minimal Eccentricity Error
Minimize corner load and eccentricity errors with the hanging weighing pan and LevelMatic™ weighing pan technology – faster results and improved performance.



Exceptional Resolution
Thanks to the high quality Swiss weighing cell and state-of-the-art electronics, it is possible to weigh your samples with an astonishing resolution of 61 million points.



XPR26003LC higher performance balance with 20 kg barrel

Watch the video now
www.mt.com/xpr-precision

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity[2)]	USP Min. Weight[1)]	Material No.
XPR6U	6.1 g	0.0001 mg	0.0004 mg	0.004 mg	0.3 mg	30279276
XPR26C	22 g	0.001 mg	0.002 mg	0.010 mg	1.2 mg	30355543
XPR56C	52 g	0.001 mg	0.006 mg	0.02 mg	1.4 mg	30355547
XPR206CDR	81 g – 220 g	0.01/0.1 mg	0.03 mg	0.1 mg	8 mg	30355551
XPE505C	520 g	0.01 mg	0.06 mg	0.2 mg	40 mg	30137978
XPR2003SC	2,300 g	1 mg	1 mg	2 mg	1.2 g	30137627
XPR2004SC	2,300 g	0.1 mg	0.6 mg	1 mg	600 mg	30317628
XPR5003SC	5,100 g	1 mg	2 mg	3 mg	2 g	30317629
XPR10003SC	10,100 g	1 mg	3.5 mg	7 mg	4 g	30317641
L-Platform						
XPR26003LC	26,100 g	1 mg	6 mg	20 mg	8 g	30317642
XPR32003LD5C	32,100 g	5 mg	15 mg	20 mg	13 g	30317643
XPR64003LD5C	64,100 g	5 mg	15 mg	50 mg	20 g	30317644
XPR64002LC	64,100 g	10 mg	35 mg	50 mg	36 g	30317645
XPR64002LC-T	64,100 g	10 mg	35 mg	50 mg	36 g	30317646
K-Type						
XPE155KSC	150 kg	0.05 g	0.15 g	2 g	160 g	30210661
XPE604KMC	600 kg	0.1 g	0.3 g	10 g	280 g	30210662
XPE1003KMC	1,100 kg	0.5 g	2 g	20 g	2 kg	30210664
XPE2003KLC	2,500 kg	1 g	10 g	100 g	8.4 kg	30210665
XPE6002KLC	5,400 kg	10 g	100 g	300 g	84 kg	30210666

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

[2)] Guaranteed value

XPR Microbalances
Taking Weighing to New Limits

With up to 61 million resolution points, XPR micro and ultra-microblances are ideal for accurately measuring the smallest samples.

Patented Cooling Delivers Top Performance



Heat from the internal electronics is removed via the patented Active Temperature Control (ATC™) system. Better temperature stability enables the XPR to deliver an outstanding level of weighing performance.

Space Saving



The XPR has the smallest footprint of any microbalance on the market and has the added convenience of being able to place the main terminal wherever it is most easily accessible – even outside your safety cabinet.

Easy Cleaning



The newly designed draft shield provides easy access to the weighing pan. There are no edges and corners where sample material could become trapped. All parts can be removed, cleaned and re-assembled in a few simple steps.

Accurate Results	Active Temperature Control High resolution electromagnetic force compensation (EMFC) weighing sensor MinWeigh warning function
Efficient Operation	Storage of methods and sample series Capacitive colored touchscreen with gesture control, glove compatible
Quality Assurance	GWP™ Approved built-in quality assurance monitoring ToleranceProfile function, programmable for up to 10 standards User management and password protection Change history files StatusLight™ LevelControl, graphical leveling and level warning Temperature- and time-programmable automated internal adjustment proFACT
Seamless Process	Efficient operation via SmartView terminal Storage of SOPs in method library (including sample series and tolerances) Easy data export via connectivity ports: 4×USB, 1×LAN Web service
Sustainable Value	Compact design with small footprint Optimized draft shield for easy cleaning Overload protection



XPR6UD5 microbalance



Efficient Operation
The SmartView terminal is right where you need it as you carry out your weighing tasks. The terminal is intuitive and includes all the basic functions you need to weigh.



Simplified Documentation
As you carry out your tasks, all parameters are automatically recorded on the built-in results notepad. You can choose a simple or expanded list and even add your own comments. Simply transfer results to a PC or print them out to complete your documentation.



Direct Data Transfer
You no longer need to record results by hand or spend time typing in data. Simply transfer task parameters and results to a PC or software application via file transfer, drop to cursor or USB stick. Transcription errors are completely eliminated and the integrity of your data is preserved.

Watch the video now
www.mt.com/xpr-microbalances

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	Settling Time (typical)	USP Min. Weight[1)]	Weighing Pan ∅ (mm)	Material No.
XPR2	2.1 g	1 µg	0.8 µg	4 µg	7 s	1 mg	27	30279267
XPR6UD5	6.1 g	0.5 µg	0.5 µg	4 µg	9 s	0.6 mg	27	30279285
XPR10	10.1 g	1 µg	0.6 µg	4 µg	7 s	0.82 mg	27	30279296
XPR2U	2.1 g	0.1 µg	0.2 µg	1.5 µg	10 s	0.3 mg	16	30279196
XPR6U	6.1 g	0.1 µg	0.25 µg	4 µg	15 s	0.3 mg	16	30279276

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value, at 5% load
All models also available in verified version.

XPR Micro-Analytical Balances
Direct Dosing of Very Small Samples

XPR micro-analytical balances are perfect for accurately weighing the smallest amounts of your valuable samples. The extremely high accuracy and low minimum weight make it possible to weigh very small quantities, leading to considerable material and cost savings.

Economical Sample Use



XPR micro-analytical balances are capable of weighing down to 1.4 milligrams at 52-gram capacity (according to USP). You only need to use the tiniest amounts of expensive, rare and potent substances.

Fast and Stable Results



The SmartGrid weighing pan significantly reduces the effects of air turbulence on the weighing cell. Stabilization time is reduced and results are faster – particularly beneficial when working in a fume cupboard.

Avoid Sample Transfer



By dosing directly into your tare container, you avoid the tedious back-weighing and recalculation processes associated with sample transfer via e.g. weighing paper – and you don't lose any of your precious samples.

Accurate Results	Active Temperature Control (ATC™) StaticDetect™ proFACT Advanced internal adjustment Compact ionizer (with stand) ready
Efficient Operation	7-inch color touchscreen (glove compatible) ErgoClip for direct dosing SmartSens for touchless door operation SmartTrac dosing guide SmartGrid weighing pan Results protocol Storage of methods Automatic draft shield doors
Quality Assurance	GWP Approved MinWeigh warning function Balance ready StatusLight LevelControl: Level warning with graphical leveling guide Tolerance profiles User management Adjustment and routine test history Change history function

Seamless Process	LabX ready Calibry ready Storage of SOPs in method library (including sample series and tolerances) Web service Multiple ports for easy connectivity and data export: 4 × USB, 1 × LAN
Automation Options	LabX ready



XPR56 micro-analytical balance



SmartGrid Micro
The unique SmartGrid minimizes the effects of air turbulence. Stabilization times are greatly reduced when compared to a standard pan weighing pan.



Secure Dosing
Direct dosing is accurate, fast, and fits any working situation thanks to the intelligently designed ErgoClips. For the fastest possible stabilization times, the MinWeigh micro door is essential.



Easy Cleaning
Minimize the risk of contamination: Each panel of both the inner and outer draft shield can be removed easily and cleaned in a flash!

Micro-Analytical

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
XPR26	22 g	1 µg	1.5 µg	10 µg	1.4 mg	40×40	30105893
XPR26C	22 g	1 µg	0.7 µg	10 µg	1.2 mg	∅ 36	30355543
XPR26 DeltaRange	5.1 g – 22 g	1 µg/10 µg	2 µg/5 µg	10 µg	2.0 mg	40×40	30105897
XPR56	52 g	1 µg	1.5 µg	20 µg	1.4 mg	40×40	30105904
XPR56C	52 g	1 µg	1.5 µg	20 µg	1.4 mg	∅ 36	30355547
XPR56 DeltaRange	11 g – 52 g	1 µg/10 µg	2 µg/6 µg	30 µg	2.0 mg	40×40	30105932

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value, 5% load

All models also available in verified version.

www.mt.com/micro

Analytical Balances
Overview

Excellence Weighing and Dosing Solutions

Weigh the smallest samples with utmost accuracy. Comprehensive quality assurance functions ensure right-first-time, audit-proof results. Combine with LabX™ for full data integrity.

XPE Automated Dosing



Capacity up to 520 g
Readability 0.005 mg/0.1 mg
Automated minimum weight 0.7 mg
Automated USP minimum weight 7 mg

Increased Productivity: Up to 30 Samples in One Run
Automated dosing is much faster than dosing manually, making huge time savings for your lab; up to 30 samples can be dispensed in one completely unattended run.

Unmatched Accuracy: Limitation of OOS
Dose 1 milligram to 5 grams of free-flowing powder directly into the target container for highly accurate dosing that eliminates variability and out-of-specification results.

Powder Dosing: Highest Accuracy and Safety
Dose free-flowing powders automatically into your target container.

Liquid Dosing: Defined Concentration
The correct amount of solvent is automatically added to your dosed substance to achieve highly accurate concentrations.

Assured User Safety: Minimum Contact with Toxic Substances
Potent or toxic compounds remain sealed so operators work safely without exposure to substances during weighing.

Savings: Less Solvent and Waste
Prepare only as much as you need.

XPR



Capacity up to 320 g
Readability 0.005 mg/0.1 mg
Minimum weight 1 mg
USP minimum weight 10 mg

Best in Class: Use Minimum Sample Quantities
Save costs and prevent waste by using the smallest amounts of your valuable samples.

StaticDetect™: Enjoy Fast and Error-Free Weighing
The built-in StaticDetect™ sensor warns of an electrostatic charge and removes it using the optional integrated ionizer.

SmartGrid Weighing Pan: Faster Settling Times
The hanging SmartGrid weighing pan ensures shorter settling times compared to top-loader weighing pans.

GWP, StatusLight™ and LabX: Audit-Ready Anytime
GWP Approved and StatusLight ensure your weighing results meet all your quality and compliance requirements. LabX software fully supports your SOP. Data and metadata are stored to ensure full data integrity.

Ergonomic Care: Boost Your Productivity
Automatic draft shields, ErgoClips for accurate sample handling and built-in sensors keep processes running smoothly.

A Wide Choice of Accessories: Make Your Workflows Leaner
XPR balances offer the widest range of accessories available on the market.

XSR



Capacity up to 320 g
Readability 0.01 mg/0.1 mg
Minimum weight 1.6 mg
USP minimum weight from 16 mg

Automated Doors: Work without Interruption
Open the draft shield doors with just one touch. Weighing processes are faster and more ergonomic, helping you to get your work done faster.

LabX: Benefit from Automatic Data Handling
LabX saves all your results and process information automatically in a secure database. Instruments, tasks and users can be managed centrally.

Dismountable Draft Shield: Clean-Up in Seconds
The draft shield, the hanging SmartGrid weighing pan and the drip tray mounted underneath can be easily dismantled in seconds. This makes cleaning a breeze.

Ergonomic Solutions: Boost Your Productivity
Enjoy ergonomic processes with ErgoClips for accurate sample handling and remote sensors for hands-free operation.

SmartGrid Weighing Pan: Faster Settling Times
The hanging SmartGrid weighing pan ensure excellent weighing performance and shorter settling times compared to top-loader standard weighing pans.

Advanced Level Balances

Meet your productivity targets thanks to great weighing performance, ergonomic design features and an intuitive user interface. Enjoy fast and convenient weighing processes.

MS



Capacity up to 320 g
Readability 0.01 mg/0.1 mg
Minimum weight 3 mg
USP minimum weight 30 mg

Robust with High Precision
A high-precision MonoBloc™ weighing cell and full metal housing provides both accuracy and chemical resistance.

Intuitive Touchscreen Operation
The large color touchscreen and 11 intuitive applications with user guidance make routine weighing tasks simple and efficient.

Fast and Flexible Connectivity
LAN, USB, RS232 and optional WLAN/ Bluetooth enable easy connection to a PC, IT system and peripheral devices.

Advanced Data Management
Save, print and export results and associated weighing data as PDF, XML, CSV or TXT file.

Easy to Clean
Dismantle the QuickLock draft shield and glass panels of the MS-TS quickly with no need for tools. All surfaces are easy to clean.

ML



Capacity up to 320 g
Readability 0.1 mg
Minimum weight 16 mg
USP minimum weight 160 mg

Robust and Compact
A high-precision MonoBloc weighing cell and compact design provide both convenience and accuracy.

Intuitive Applications
10 intuitive applications and a clear graphical user interface simplify routine weighing tasks.

Fast and Flexible Connectivity
LAN, USB, RS232 and optional WLAN/ Bluetooth enable easy connection to a PC, IT system and peripheral devices.

Advanced Data Management
Save, print and export results and associated weighing data as XML, CSV or TXT file.

Standard Level Balances

High-quality construction and solid performance ensure consistent and precise weighing results. Your basic weighing tasks will be completed quickly and easily.

ME



Capacity up to 220 g
Readability 0.1 mg
Minimum weight 16 mg
USP minimum weight 160 mg

Robust and Durable
Robust weighing cell with overload protection.

Easy to Use
Easy-to-use applications simplify routine weighing tasks.

Easy Data Transfer
USB, RS232, and optional Bluetooth enable easy connection to peripheral devices.

Easy to Clean
All surfaces are smooth and easy to clean.

www.mt.com/analytical-balances

Excellence

XPE Weighing and Dosing Solutions
Your Future-Proof Investment

An investment in an XPE balance ensures the accurate weighing results you need now. These flexible balances also enable you to adapt your balance over time through the addition of accessories, extra peripheral devices, LabX™ and Quantos dosing modules. Be ready for today and prepared years to come.

- Automated powder and liquid dosing – Quantos
- Data management and process security – LabX
- Efficient applications – accessories and peripheral devices



Weighing and liquid dosing

Weighing



Weighing, powder and liquid dosing



Automated powder dosing



LabX™ Laboratory Software
Get SOP user guidance on the instrument, automatic data handling, and bidirectional integration with ERP systems.

For more details, please see pages 15–17.

Accessories
Optimize your processes by adding peripheral devices and accessories.

For more details, please see pages 94–95.

XPE Powder Dosing
For the Highest Accuracy and Safety

Quantos modules use an automated process to dose free-flowing powders with a level of accuracy that is impossible to match in a manual process, even by the most skillful hands. Simply enter a target weight and Quantos doses the exact amount. Automated dosing eliminates out-of-specification errors. Hands-free dosing of the powder directly into the target container significantly lowers exposure risk.

Unmatched Accuracy



Quantos can dose from 1 milligram to 5 grams of free-flowing powder directly into your target container. The highly accurate dosing process eliminates variability and out-of-specification results. Automated dosing can reduce the minimum net sample weight of your balance by up to 30 percent.

Assured User Safety



Potent or toxic compounds remain sealed within the dosing head and hence aerosol formation is kept to a minimum. With an automated dosing process, users work safely without exposure to substances during weighing.

Simplified Powder Dosing



Nanoparticles, fine powders, granules and heterogeneous mixes are all suitable for dispensing. Even hard to handle or electrostatically charged powders are accurately dosed to target.



XPE analytical balance with powder module



Easy Balance Upgrade
The powder-dosing module is compatible with all XPE analytical balances. The dosing module is easy to attach to your balance. You are immediately ready to start powder dosing.



Traceable Data
All information (substance ID, substance expiry date etc.) is saved on the integrated RFID chip. Data can be easily called up and printed to ensure full traceability.



LabX™ Laboratory Software
Store complex applications, such as dilution series, in LabX and then run them directly from the balance with step-by-step user guidance plus automatic data handling.

Technical Specifications

Powder Dispensing Range	1 mg to several g
Average Dispensing Time	15–20 seconds, depending on the target weight and powder flow
Compatible Balance Models	XPE56Q, XPE206DR, XPE205, XPE205DR, XPE105, XPE105DR, XPE204, XPE304, XPE504, XPE504DR
Suitable Powders	Free-flowing, granular, electrostatically charged, lyophilized material, compacting, low density
Material No.	
Q2 Powder Dosing Module	30005906



Download the XPE Powder Dosing brochure.

www.mt.com/powder-dosing

XPE Liquid Dosing
For Precise Concentrations

The Quantos liquid-dosing module dispenses liquids in a fine jet with individual drops weighing less than 1 milligram. To achieve the desired concentration, the liquid-dosing module dispenses the correct amount of solvent according to the actual amount of dosed substance. Quantos calculates the amount of liquid automatically.

Highly Accurate Concentrations



Prepare concentrations down to 0.1 milligram/gram in one step in accordance with USP. Automated liquid dosing delivers precise concentrations every time because solvent is added automatically based on the actual weight of weighed-in solids.

Manual Variability Eliminated



This gravimetric sample preparation uses precise balance results to produce accurate concentrations, in contrast to error-prone visual readings when using volumetric flasks. Automatic results recording also eliminates transcription errors.

Compliant Process



Due to the improvements in accuracy, USP approves of gravimetric procedures as an alternative method for preparing solutions.



XPE analytical balance with liquid module



Easy Balance Upgrade
With the addition of a liquid-dosing module, you can use your XPE analytical balance to not only weigh your substances but also prepare solutions with an unmatched level of accuracy.



Micro-Dosing Valve
A micro-dosing valve is used to dispense solvents automatically with levels of precision down to less than one milligram.



LabX™ Laboratory Software
Store complex applications, such as dilution series, in LabX and then run them directly from the balance with step-by-step user guidance plus automatic data handling.

Technical Specifications

Liquid Dispensing Range	2 mg to 100 g
Liquid Source Bottle	25 mL, 250 mL, 500 mL, 1,000 mL pressure-tight bottle with GL45 thread size
Average Dispensing Time	Maximum flow rate 30 g/min (0.5 bar pressure)
Suitable Liquids	Low viscosity solvents (<20cP) e.g. water, acetonitrile, methanol, ethanol
Compatible Balance Models	XPE206DR, XPE205, XPE205DR, XPE105, XPE105DR, XPE204, XPE304, XPE504, XPE504DR
Material No.	
QLX45 Liquid Dosing Module	30008618
QL2 Pump Module	30008317
QLL1000 Liquid Bottle and Head	30008318
QLL25 Liquid Bottle and Head	30237340

www.mt.com/liquid-dosing

XPE Automated Powder Dosing
For Precise Batch Preparation

The Quantos autosampler system is the perfect solution for preparing batches of up to 30 powdered samples in one fully automated run. You benefit from highly accurate dosing while laboratory personnel are released to work on other tasks. Highly flexible, the autosampler system has the unique ability to dose different amounts per vial and record the fill weight in one step.

Increased Productivity



Automated powder dosing is much faster than dosing manually, capturing huge time savings for your lab. Up to 30 samples can be dispensed in one completely unattended run. While the autosampler is at work, your staff can focus on other tasks.

Safe, Accurate Dosing



Automated dosing with Quantos is highly accurate and reproducible, even when using small capsules or electrostatically charged substances. Materials are contained, minimizing exposure to toxic substances.

Fast Container Filling



Preparing samples with the Quantos autosampler module is not only considerably faster than preparing samples manually, but it also reduces errors and variability. Different sized containers as well as capsules and vials of any kind are filled quickly and automatically.



XPE analytical balance with autosampler



Easy Balance Upgrade
The autosampler works in conjunction with your XPE balance. Powders are dispensed automatically into the containers on the carousel.



Container Flexibility
By simply adjusting the height of the dosing head, Quantos can be used for filling vials, bottles, tubes, capsules, stability pouches, ampules, syringes and more.



LabX™ Laboratory Software
Store complex applications, such as dilution series, in LabX and then run them directly from the balance with step-by-step user guidance plus automatic data handling.

Technical Specifications

Powder Dispensing Range	1 mg to several g
Average Dispensing Time	20–35 min for one run with 30 samples, depending on the target weight and powder flow
Compatible Balance Models	XPE206DR, XPE205, XPE205DR, XPE105, XPE105DR, XPE204
Suitable Powders	Free-flowing, granular, electrostatically charged, lyophilized material, compacting, low density
Target Vessel	30 containers with a diameter up to 28 mm, or 15 containers with a maximum diameter of 45 mm. Maximum height 110 mm (140 mm). Adapters available for capsules, bottles, vials, tubes, crucibles
Material No.	
Q2 Powder Dosing Unit	30005906
QS30 Autosampler	11141300



Download the Capsule Filling brochure.

www.mt.com/quantos-autosampler

Excellence

Fully Automated Preparation
Of Multi-Component Formulations

CHRONECT Quantos enables fully automated preparation of up to 288 samples, comprised of 0.1 milligram to several grams of up to 32 different powders. This unique solution combines a state-of-the-art 6-axis robotic arm with METTLER TOLEDO's weighing and dosing expertise.

The solution offers unprecedented accuracy, repeatability, efficiency and flexibility in substance handling on a small footprint. CHRONECT Quantos is ideal for weighing fine, flaky, static-charged, compacted, granular or heterogeneous substances. The compact platform can be set up on lab benches, in cabinets and in glove boxes for any type of process.

Fully Automated Dosing



Thanks to the 6-axis robot arm, high-quality multi-component formulations can be prepared in an unattended, fully automated process. Dosing of toxic substances is also considerably safer.

Safe and Efficient Sample Use



Prepare highly accurate samples with repeatability down to 0.1 milligram and benefit from minimum spillage and maximum yield of your valuable and toxic samples. Samples are contained in closed dosing heads to minimize human contact.

Versatile Container Sizes



CHRONECT Quantos can hold up to 3 different plates at the same time, with between 36 (3×12) and 288 (3×96) vials or containers, of 1–8 milliliter volumes, with the ability to handle all different vial types within one task.



Collaboration Partner: Axel Semrau GmbH & Co. KG

METTLER TOLEDO's collaboration partner, Axel Semrau, is a provider of complete end-to-end automated lab solutions, with more than 35 years' experience in development and distribution. Axel Semrau is the professional partner that offers, manufactures, distributes and services the CHRONECT Quantos solution.

For more information: **www.axel-semrau.de**

Technical Specifications

Sample and Dosing	Powder Dispensing Range	0.1 mg – several g
	Component Dosing Head(s)	Up to 32 Quantos dosing heads
	Target Vessel	288 containers with 6 mm diameter to 36 containers of 28 mm diameter
	Suitable Powders	Free-flowing, fluffy, granular, electrostatic charged
	Dispensing Time – 1 Component	10–60 seconds, depending on compound
	Compatible Balance Models	XPE56Q, XPE206DR, XPE205, XPE204
	Readability Range	0.001–0.1 mg
	USP Minimum Weight	5–10 mg, depending on compound and balance accuracy
Robot Arm	Model Type	Chronect Bionic Collaborative type
	Number of Axis/Maximum Range	6-axis/500 mm
	Maximum Payload/Robot Weight	3 kg/15 kg
	Maximum Speed/Cycle Time	1 m/s / 180°/s
	Position Repeatability	±0.1 mm
	Handling Tools	One tool fix-mounted for both handling dosing heads and target vials
Operating System	Operating and Connection	Windows PC, with Win10
	Task and Formulation Settings	CHRONOS Software
	Data and Report Management	CHRONOS Software
Options	Anti-Static Device Further Options or Modifications	HAUG Anti-Static twin-bar solution (mandatory) On request
Platform	Maximum Dimensions (ca. W×D×H mm)	950×700×750 mm (robot) 450×420×180 mm (controller box)

Excellence

XPR Analytical Balances
Valid Results Every Time

There can be no compromise when you need accurate results. Thanks to smart quality assurance features, XPR analytical balances deliver valid results first time, every time. Seamlessly integrating into your existing information system, XPR analytical balances support the highest requirements for security, efficiency and compliance.

Electrostatic Elimination System



StaticDetect™ provides a warning if electrostatic charges exceed the pre-defined limit. The optional ionizing module can be set to automatically to remove the charge in just a few seconds, giving you the reassurance of static-free weighing.

Right-First-Time Results



Intelligent functions, such as StatusLight, LevelControl and GWP Approved, help ensure right-first-time results by actively monitoring that all relevant conditions for correct weighing are met.

Effortless Data Integrity



Connect all your Excellence laboratory balances to LabX software for full support with regulatory compliance. LabX helps you meet FDA ALCOA+ requirements for data integrity.

Accurate Results	Active Temperature Control (ATC™) StaticDetect™ proFACT Advanced internal adjustment Ionizer module ready
Efficient Operation	7-inch color touchscreen (glove compatible) ErgoClip for direct dosing SmartSens for touchless door operation SmartTrac dosing guide SmartGrid weighing pan Results protocol Storage of methods Automatic draft shield doors
Quality Assurance	GWP Approved MinWeigh warning function Balance ready StatusLight LevelControl: Level warning with graphical leveling guide Tolerance profiles User management Adjustment and routine test history Change history function

Seamless Process	LabX ready Calibry ready Multiple ports for easy connectivity and data export: 4 × USB, 1 × LAN Upgradable to automatic powder and/or liquid dosing Web service
Automation Options	Quantos upgrade ready LabX ready RFID communication ready



XPR206DR analytical balance



SmartGrid and ErgoClips
The unique SmartGrid minimizes the effects of air movements so that stabilization times are reduced. Direct dosing is accurate, fast, and fits any working situation thanks to the intelligently designed and flexible ErgoClips that can be installed in seconds.



Easy Cleaning
Minimize the risk of contamination: Each panel of the draft shield can be removed easily and cleaned in a flash.



AntiStatic Kits
The compact ionizer fixes to your balance to gently and effectively remove charges from the sample and tare container. External units are also available.

Watch the video now
www.mt.com/xpr-analytical

Model	Maximum Capacity	Readability	Repeatability[1]	Linearity	USP Min. Weight[2]	Weighing Pan (mm)	Material No.
XPR206 DeltaRange	81 g – 220 g	0.005/0.01 mg	0.015 mg	0.10 mg	10 mg	78×73	30355385
XPR206CDR	81 g – 220 g	0.01/0.1 mg	0.01 mg	0.10 mg	8 mg	78×73	30355551
XPR105	120 g	0.01 mg	0.015 mg	0.10 mg	14 mg	78×73	30355389
XPR105 DeltaRange	41 g – 120 g	0.01/0.1 mg	0.015 mg	0.15 mg	14 mg	78×73	30355342
XPR205	220 g	0.01 mg	0.015 mg	0.10 mg	14 mg	78×73	30355411
XPR205 DeltaRange	81 g – 220 g	0.01/0.1 mg	0.015 mg	0.15 mg	14 mg	78×73	30355415
XPR205DU	81 g – 220 g	0.1/0.01 mg	0.015 mg	0.2 mg	20 mg	78×73	30469076
XPR205D5	220 g	0.05 mg	0.04 mg	0.2 mg	41 mg	78×73	30469150
XPE204	220 g	0.1 mg	0.05 mg	0.2 mg	82 mg	78×73	30355419
XPR305D5	320 g	0.05 mg	0.06 mg	0.3 mg	41 mg	78×73	30469154
XPE505C	520 g	0.01 mg	0.03 mg	0.2 mg	40 mg	78×73	30137978

[1] Guaranteed value, 5% load [2] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

All models also available in verified version.

XSR Analytical Balances
Simplified Weighing Processes

Excellence

XSR analytical balances offer high weighing accuracy and convenient operation with clever features, such as SmartGrid, automated doors and the results protocol. Start your own saved weighing methods directly on the balance while StatusLight™ checks that all the conditions for correct weighing have been met.

Automatic Doors



The motorized draft shield doors simplify weighing processes and help increase efficiency. The doors can be set to different degrees of automation, such as closing automatically when you tare the balance.

Intuitive Operation



Integrated methods, guided workflows and the results protocol simplify your tasks. With clear icons and accessible menus, the color touchscreen is easy to operate, even while wearing protective gloves.

Ergonomic Design



Clever features enable more comfortable weighing processes and the small footprint saves valuable bench space. The low-positioned weighing pan allows you to rest your hand on the table for effortless manual dosing.

Accurate Results	proFACT Advanced internal adjustment Compact ionizer (with stand) ready
Efficient Operation	Color touchscreen (glove compatible) ErgoClip for direct dosing ErgoSens ready SmartTrac dosing guide SmartGrid weighing pan Results protocol Storage of methods Automatic draft shield side doors
Quality Assurance	GWP Approved MinWeigh warning function Balance ready StatusLight LevelControl: Level warning with graphical leveling guide Tolerance profiles Password protection Adjustment and routine test history
Seamless Process	LabX ready Calibry ready Multiple ports for easy connectivity and data export: 4×USB, 1×LAN Web service



XSR105 analytical balance



Ergonomic Dosing
Thanks to unique ErgoClip accessories, you can dose directly into your tare container in one easy step. This not only speeds up weighing processes but saves valuable substances too.

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
XSR105 DualRange	41 g – 120 g	0.01/0.1 mg	0.02 mg	0.2 mg	20 mg	78×73	30355435
XSR105	120 g	0.01 mg	0.02 mg	0.2 mg	16 mg	78×73	30355059
XSR205 DualRange	81 g – 220 g	0.01/0.1 mg	0.02 mg	0.2 mg	20 mg	78×73	30355396
XSR225 DualRange	121 g – 220 g	0.01/0.1 mg	0.02 mg	0.2 mg	20 mg	78×73	30355364
XSR64	61 g	0.1 mg	0.07 mg	0.2 mg	82 mg	78×73	30355481
XSR104	120 g	0.1 mg	0.07 mg	0.2 mg	82 mg	78×73	30355485
XSR204	220 g	0.1 mg	0.07 mg	0.2 mg	82 mg	78×73	30355500
XSR204 DeltaRange	81 g – 220 g	0.1/1 mg	0.1 mg	0.5 mg	82 mg	78×73	30355491
XSR304	320 g	0.1 mg	0.08 mg	0.3 mg	82 mg	78×73	30355496

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value

All models available in verified version.

www.mt.com/xsr-analytical

MS Semi-Microbalances
For Higher Accuracy Needs

Advanced

With 10-µg readability, MS semi-microbalances are perfect for weighing your smallest samples. The high resolution technology (HRT) weighing cell is made in Switzerland and ensures your results are accurate and reliable.

Accurate Results



Temperature controlled automatic internal adjustment (FACT) uses the two built-in weights to test for sensitivity and non-linearity to ensure consistently accurate results.

Ergonomic Doors



The doors do not project beyond the balance so you save valuable bench space. To enable ergonomic dosing processes, the right hand door can be opened with the left lever – and vice versa.

Pipette Check Application



Quickly convert your semi-microbalance into a pipette checking station by installing an evaporation trap. The built-in application guides you through the pipette check process.

Accurate Results	High resolution weighing cell (HRT) Two built-in adjustment weights FACT – fully automatic time and temperature-controlled internal adjustment Low minimum weight Full metal housing
Efficient Operation	HCD high contrast display (18 mm high digits) Easy cleaning with QuickLock glass panels ErgoDoor left/right operation Telescopic draft shield doors for reduced footprint
Quality Assurance	Menulock (settings protection) PipetteCheck with evaporation trap (optional)
Seamless Process	2 interfaces – USB and RS232 Bluetooth option PC Direct option and EasyDirect Balance application software for easy data transfer



MS105 semi-microbalance



Reliable and Versatile
You can depend on these balances for weighing all your small samples for process/quality control, density determination or formulation.



Durable and Robust
A metal housing protects the weighing sensor from environmental influences and impacts. Consistency and accuracy is guaranteed year after year – even with intensive use in harsh environments.



Hands-Free Operation
Perform selected balance operations with a remote sensor
ErgoSens™ as shown: 11132601
Footswitch: 11106741

www.mt.com/semimicro-analytical

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
MS105	120 g	0.01 mg	0.02 mg	0.1 mg	30 mg	∅ 80	11142056
MS105 DualRange	42 g / 120 g	0.01 mg/0.1 mg	0.02 mg/0.08 mg	0.15 mg	30 mg	∅ 80	11142062
MS205 DualRange	82 g / 220 g	0.01 mg/0.1 mg	0.02 mg/0.08 mg	0.2 mg	30 mg	∅ 80	11142068
MS204[3)]	220 g	0.1 mg	0.07 mg	0.2 mg	100 mg	∅ 80	11142074

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value
[3)] MS semi-micro design with 0.1 mg readability

MS-TS Analytical Balances
Trusted Results at Your Fingertips

Advanced

Robust MS-TS analytical balances deliver fast, accurate and reliable results with both lab and quality-control application support. Intuitive to operate and easy to clean, MS-TS balances bring a new level of comfort to your daily weighing tasks.

Easy and Comfortable Use



The 7-inch extra-large color TFT touchscreen display can be operated through cotton, silicone and rubber gloves. An intuitive user interface and 18 millimeter high digits bring comfort to your daily tasks.

Advanced Data Management



LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth interfaces enable simple and comprehensive data handling. Transfer data to a PC, FTP server, USB memory stick or a printer, including comprehensive PDF reports or XML files.

Effortless Cleaning



The QuickLock draft shield dismantles in seconds without any tools and all parts are dishwasher-safe. Surfaces are smooth and rounded to make cleaning easy.

Accurate Results	MonoBloc™ weighing cell and overload protection FACT – fully automatic temperature-controlled internal adjustment Wind ring for faster settling times Full metal housing
Efficient Operation	7-inch extra-large color TFT touchscreen (18 mm high digits) Easy cleaning with QuickLock for glass panels and draft shield Graphical display of statistics for improved management and evaluation of weighing data 11 easy-to-use applications for simplified workflows and increased efficiency
Quality Assurance	ISO-Log records important changes, e.g. adjustments, leveling status Barcode reader support and ID handling to reduce errors and increase productivity User management to customize access rights and improve productivity and traceability Built-in level control function and leveling user guidance
Seamless Process	LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth Transfer data to PC, FTP Server, USB memory stick or printer as a comprehensive PDF report or XML file PC Direct application for easy data transfer (no software needed) EasyDirect Balance software for comprehensive and customized data transfer Web access service for remote control and 2nd screen



MS204TS analytical balance



Guided Balance Leveling
Built-in LevelControl issues a warning when the balance is not level and provides onscreen guidance to help you level the balance in seconds.



Convenient Applications
11 built-in applications, including differential weighing, density determination and formulation, guide you step-by-step through your weighing procedures, support you with data management and help improve process security. Evaluate your results easily with the statistics function and onscreen charts.



User Management
Customization of user access rights simplifies balance operation. Users have access only to the functions and applications they need to carry out their tasks, preventing errors and improving productivity.

Watch the video now
www.mt.com/ms-analytical

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
MS104TS	120 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30133522
MS204TS	220 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30133523
MS304TS	320 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30133524

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value

Advanced

ML-T Analytical Balances
Big Features Go Compact

ML-T compact balances offer good weighing performance and robustness combined with easy-to-use applications. With a battery-power option, these clever balances are fully portable. Ergonomically designed and with multiple built-in applications, you get a lot of balance in a footprint of just 290 × 184 millimeters.

Intuitive Operation



The 4.5-inch color TFT touchscreen with clear icons and intuitive guidance enables efficient balance operation even while wearing cloth or rubber gloves. Multilingual text and graphics walk you through every step of your weighing procedures.

Advanced Data Management



LAN, USB Host, USB Device, RS232 and optional WLAN / Bluetooth interfaces enable simple and comprehensive data handling. Transfer data to PC, FTP Server, USB memory stick or printer as comprehensive CSV and XML files.

Simplified 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 in seconds.

Accurate Results	MonoBloc™ weighing cell with overload protection FACT – fully automatic temperature controlled internal adjustment Wind ring for faster settling times Metal base
Efficient Operation	4.5-inch color TFT touchscreen 10 easy-to-use applications for simplified workflows and increased efficiency Statistics option for improved evaluation of weighing data Easy cleaning with QuickLock glass panels Extra small footprint Battery operation
Quality Assurance	ISO-Log records important changes e.g. adjustments, leveling status Barcode reader support to reduce errors and increase productivity User management to customize access rights and improve productivity and traceability Built-in level control function and leveling user guidance
Seamless Process	LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth Transfer data to PC, FTP Server, USB memory stick or printer as a comprehensive CSV or XML file Built-in PC Direct application for easy data transfer (no software needed) EasyDirect Balance software for comprehensive and customized data transfer



ML204T analytical balance



Robust Weighing Cell
Our renowned and robust MonoBloc™ weighing cell, with FACT automatic internal adjustment, delivers consistently reliable results in the lab or field.



Quick and Easy Cleaning
Remove, clean and reinsert all of the QuickLock glass panels in just a few simple steps without tools and without moving the balance. The balance housing has smooth, rounded edges to make cleaning even easier.



Battery Operation
With up to 4 hours of battery operation, you are ready in case your power supply is not reliable.

Watch the video now
www.mt.com/mlt-analytical

ML-T Models	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
ML54T	52 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30243391
ML104T	120 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30243394
ML204T	220 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30243397
ML304T	320 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30243400

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value

ME-T Analytical Balances
For Your Essential Needs

Standard

ME-T balances are ideal for all your routine weighing procedures. With well known METTLER TOLEDO quality and performance, our balances are easy to use via an intuitive touchscreen interface.

Intuitive Touchscreen Operation



The large 4.5-inch color TFT touchscreen with clear icons and intuitive guidance enables users to operate the balance efficiently even while wearing cloth or rubber gloves. Multilingual text and graphics walk you through every step of your weighing procedures.

Accuracy Assured



An Electromagnetic Force Compensation (EMFC) weighing cell with automatic internal adjustment (FACT) delivers consistently reliable results and automatically adjusts the balance. Built-in overload protection helps to ensure a long balance life.

Easy to Use



Nine embedded applications including density determination, totaling and formulation allow users to start working right away. Create a passcode to restrict modification of balance settings and keep it simple and easy for the user.

Accurate Results	Electromagnetic Force Compensation weighing cell with overload protection FACT – fully automatic internal adjustment* Fast settling times Metal bottom housing and stainless steel platform/pan
Efficient Operation	4.5-inch color TFT touchscreen 9 embedded applications, including density, statistics and formulation Statistics – analysis of weighing data Rounded edges and smooth surfaces for easy cleaning Small footprint Upfront level indicator Hook for weighing below the balance
Quality Assurance	Sample ID avoids confusion among samples and provides traceability Passcode protection – only authorized users can make adjustments
Seamless Process	3 interfaces: USB device, USB host and RS232, Bluetooth optional PC Direct application for easy data transfer (no software needed)

* Not available on models with external adjustment (ME-TE)



ME204T analytical balance



Easy Data Handling
Connectivity via USB, RS232 or optional Bluetooth makes data transfer easy and error-free. It is simple to connect a barcode reader and a printer, or even a PC, to the balance.



Robust and Durable
Robust construction protects against chemicals and rough handling.

Watch the video now
www.mt.com/met-analytical

ME-T Models	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
ME54T	52 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216540
ME54TE	52 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216620
ME104T	120 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216541
ME104TE	120 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216623
ME204T	220 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216542
ME204TE	220 g	0.1 mg	0.1 mg	0.2 mg	160 mg	∅ 90	30216625

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value
E models offer adjustment with an external weight.

Precision Balances
Overview

Excellence Level Balances
Weigh the smallest samples with utmost accuracy. Comprehensive quality assurance functions ensure right-first-time, audit-proof results. Combine with LabX for full data integrity.

Advanced Level Balances
Meet your productivity targets thanks to great weighing performance, ergonomic design

XPR



Capacity up to 64 kg
Readability 0.1 mg – 1 g
Minimum weight 12 mg
USP minimum weight 120 mg

Integrated SmartPan: Exceptionally Stable Weighing
The built-in SmartPan™ weighing pan available with balances with readabilities of 0.1, 1, 5, and 10 milligrams minimizes the effects of air currents to deliver faster and more accurate results.

High Performance Balances: For Your Highest Weighing Demands
Our high performance balances support high weight capacities, low readability and outstanding repeatability. This means that minimal sample weights can be weighed in heavy tare loads with the highest accuracy.

GWP, StatusLight™ and LabX: Audit-Ready Anytime
GWP Approved and StatusLight ensure your weighing results meet all your quality and compliance requirements. LabX software fully supports your SOP. Data and metadata are stored to ensure full data integrity.

Ergonomic Care: Boost Your Productivity
Enjoy ergonomic processes with the SmartPan weighing pan, glove-compatible 7-inch color touchscreen, terminal stand and remote sensors.

Designed to Be Durable: Protect Your Investment
XPR Precision balances adopt full metal housing and overload devices. Integrated protective covers for the housing and the terminal help to protect the balance from dust and liquids.

XSR



Capacity up to 32 kg
Readability 1 mg – 1 g
Minimum weight 82 mg
USP minimum weight 820 mg

SmartPan: Get Results Faster Than Ever
The innovative SmartPan weighing pan provides exceptional stability to deliver even faster results. Weigh at 1-milligram readability without a draft shield.

ErgoStand: Relax with Ergonomic Weighing Processes
Place your terminal at eye-level on the ErgoStand to make it easier to read and avoid excessive bending of the neck during extended balance use.

LabX: Benefit from Automatic Data Handling
LabX saves all your results and process information automatically in a secure database. Instruments, tasks and users can be managed centrally.

Easy Assembly Concept: Clean-Up in Seconds
The SmartPan weighing pan, the drip tray underneath, and the weighing terminal can be dismantled within seconds for proper and individual cleaning.

Multiple In-Built Interface Options: Print & Export Results Simultaneously
The integrated USB and Ethernet interfaces allow the balance to be connected to a network and to up to 3 peripheral devices contemporaneously. Weighing results can be simultaneously printed on a printer and transferred to an Excel document.

MS



Capacity up to 32 kg
Readability 1 mg – 1 g
Minimum weight 140 mg
USP minimum weight 1.4 g

Robust with High Precision
The balance offers a high-precision MonoBloc™ weighing cell and full metal housing resistant to chemicals.

Intuitive Touchscreen Operation
The large color touchscreen and 11 intuitive applications with user guidance in the MS-TS make routine weighing tasks simple and efficient.

Fast and Flexible Connectivity
LAN, USB, RS232 and optional WLAN/ Bluetooth enable easy connection to a PC, IT system and peripheral devices.

Advanced Data Management
Save, print and export results and associated weighing data as PDF, XML, PDF, CSV or TXT file.

Easy to Clean
Smooth, easy-clean surfaces help prevent cross-contamination.

features and an intuitive user interface. Enjoy fast and convenient weighing processes.

Standard Level Balances

High-quality construction and solid performance ensure consistent and precise weighing results. Your basic weighing tasks will be completed quickly and easily.

ML



Capacity up to 6 kg
Readability 1 mg – 0.1 g
Minimum weight 140 mg
USP minimum weight 1.4 g

Robust and Compact
A high-precision MonoBloc weighing cell in a compact design ensures accuracy.

Intuitive Applications
10 intuitive applications and a clear graphical user interface simplify routine weighing tasks.

Fast and Flexible Connectivity
LAN, USB, RS232 and optional WLAN/ Bluetooth enable easy connection to a PC, IT system and peripheral devices.

Advanced Data Management
Save, print and export results and associated weighing data as XML, CSV or TXT file.

ME



Capacity up to 5 kg
Readability 1 mg – 0.1 g
Minimum weight 140 mg
USP minimum weight 1.4 g

Robust and Durable
The balance provides a robust weighing cell with overload protection.

Easy to Use
Easy-to-use applications simplify routine weighing tasks.

Easy Data Transfer
USB, RS232, and optional Bluetooth enable easy connection to peripheral devices.

Easy to Clean
Smooth, easy-clean surfaces help to prevent cross-contamination.

PL-E



Capacity up to 6 kg
Readability 0.01 g – 0.1 g
Minimum weight 1.4 g

Compact
The balance offers a space-saving footprint that fits on the smallest benches.

Portable
It is solidly built and yet light enough to carry wherever you want to weigh.

Designed to Last
Robust housing with durable components and overload protection ensure a long balance lifetime.

www.mt.com/precision-balances

Excellence

XPR Precision Balances
Go Beyond Weighing

When security is a top priority, XPR balances deliver the accurate results you need as the foundation for your analyses. XPR precision balances deliver outstanding weighing performance and support the highest requirements for data integrity and compliance. Our options and accessories enable you to create a solution tailored to your process requirements.

Outstanding Performance



The SmartPan™ weighing pan minimizes the effects of air currents on the weighing cell to deliver faster and more accurate results. In many situations, a draft shield is no longer required. Without the need to open and close the doors, process steps are significantly reduced.

Efficient Processes



Customizable, integrated weighing methods guide you through each weighing process, saving time and providing higher process security. The built-in notepad automatically records all task parameters and results, eliminating manual transcription.

Effortless Compliance



QA functions automatically monitor the balance level, routine tests and the minimum weight limit. The integrated StatusLight™ makes it easy to see at a glance if it is okay to start your weighing task.

Accurate Results	High-resolution technology SmartPan weighing pan (no draft shield)*
Efficient Operation	7-inch color touchscreen, glove compatible Storage of weighing methods (including sample series and tolerances) Integrated results notepad
Quality Assurance	GWP™-Approved built-in quality assurance monitoring Customizable tolerance profiles MinWeigh warning function Adjustment and routine test history Balance ready StatusLight LevelControl: level warning with graphical leveling guide Temperature and time programmable internal adjustment (proFACT) User management Change history log Alibi Memory (only available on Legal for Trade models)

Seamless Process	Easy connectivity and data export: 4×USB, 1 LAN Easy connection of peripheral devices: printers, PC, barcode readers, footswitches and sensors Integrated label editor, alphanumeric and barcode Export of process and results data to XML or Excel Web service
Automation Options	LabX™ laboratory software

* Models with 1 mg, 5 mg and 10 mg readability



Error-Free Data Handling
Data transfer to a PC or software program is easy and error-free via USB or Ethernet. Integrated LabX™ functionalities assist you in ensuring data integrity.



Easy to Clean
The standard pan, SmartPan™ and draft shield dismantle in seconds without tools. All parts are dishwasher-safe.



XPR603SN precision balance

Watch the video now
www.mt.com/xpr-precision

Model	Maximum Capacity	Readability	Repeatability[2]	Linearity	USB Min. Weight[1]	Weighing Pan (mm)	Material No.
XPR204S	210 g	0.1 mg	0.2 mg	0.2 mg	240 mg	68	30315631
XPR404S	410 g	0.1 mg	0.1 mg	0.2 mg	120 mg	68	30315628
XPR504S DeltaRange	101 g – 510 g	0.1/1 mg	0.1/0.5 mg	0.4 mg	160 mg	68	30315239
XPR504S	510 g	0.1 mg	0.1 mg	0.3 mg	140 mg	68	30315652
XPR303SN	310 g	1 mg	0.9 mg	2 mg	1.0 g	127 × 127	30316446
XPR303S	310 g	1 mg	0.9 mg	2 mg	1.0 g	127 × 127	30315753
XPR603S	610 g	1 mg	0.9 mg	2 mg	1.0 g	127 × 127	30316504
XPR603SN	610 g	1 mg	0.9 mg	2 mg	1.0 g	127 × 127	30316540
XPR603S DeltaRange	120 g – 610 g	1/10 mg	0.8/4 mg	6 mg	1.6 g	127 × 127	30316525
XPR603SN DeltaRange	120 g – 610 g	1/10 mg	0.8/4 mg	6 mg	1.6 g	127 × 127	30316529
XPR1203S	1,210 g	1 mg	0.8 mg	2 mg	820 mg	127 × 127	30316563
XPR3003S	3.1 kg	1 mg	1 mg	6 mg	1.2 g	127 × 127	30316701
XPR5003S	5.1 kg	1 mg	1.5 mg	6 mg	2.0 g	127 × 127	30316990
XPR3003SD5	3.1 kg	5 mg	6 mg	6 mg	6 g	172 × 205	30316705
XPR6003SD5	6.1 kg	5 mg	6 mg	7 mg	6 g	172 × 205	30316548
XPR2003SC	2.3 kg	1 mg	1 mg	2 mg	1.2 g	127 × 127	30137627
XPR2004SC	2.3 kg	0.1 mg	0.6 mg	1 mg	600 mg	∅ 130	30317628
XPR5003SC	5.1 kg	1 mg	2 mg	3 mg	2 g	∅ 130	30317629
XPR10003SC	10.1 kg	1 mg	3.5 mg	7 mg	4 g	∅ 130	30317641
XPR26003LC	26.1 kg	1 mg	6 mg	20 mg	8 g	∅ 220	30317642
XPR32003LD5C	32.1 kg	5 mg	15 mg	20 mg	13 g	280 × 360	30317643
XPR64003LD5C	64.1 kg	5 mg	15 mg	50 mg	20 g	∅ 220	30317644
XPR64002LC	64.1 kg	10 mg	35 mg	50 mg	36 g	280 × 360	30317645
XPR1202S	1,210 g	10 mg	8 mg	20 mg	8.2 g	172 × 205	30317123
XPR2002S	2.1 kg	10 mg	8 mg	20 mg	8.2 g	172 × 205	30316996
XPR4002S	4.1 kg	10 mg	8 mg	20 mg	8.2 g	172 × 205	30317269
XPR6002S	6.1 kg	10 mg	8 mg	20 mg	8.2 g	172 × 205	30317428
XPR6002S DeltaRange	1.2 kg – 6.1 kg	10/100 mg	8/60 mg	60 mg	10 g	172 × 205	30317458
XPR8002S	8.1 kg	10 mg	8 mg	20 mg	8.2 g	172 × 205	30317466
XPR10002S	10.1 kg	10 mg	8 mg	20 mg	8.2 g	172 × 205	30317433
XPR15002L	15.1 kg	10 mg	15 mg	20 mg	20 g	172 × 205	30317522
XPR20002L DeltaRange	4.2 kg – 20.1 kg	10/100 mg	30/80 mg	60 mg	36 g	172 × 205	30317526
XPR4001S	4.1 kg	0.1 g	80 mg	60 mg	82 g	190 × 223	30317447
XPR6001S	6.1 kg	0.1 g	80 mg	60 mg	82 g	190 × 223	30317491
XPR8001S	8.1 kg	0.1 g	80 mg	100 mg	82 g	190 × 223	30317511
XPR10001S	10.1 kg	0.1 g	80 mg	100 mg	82 g	280 × 360	30317483
XPR10001L	10.1 kg	0.1 g	80 mg	200 mg	82 g	280 × 360	30317530
XPR16001L	16.1 kg	0.1 g	80 mg	200 mg	82 g	280 × 360	30317542
XPR32001L	32.1 kg	0.1 g	80 mg	300 mg	82 g	280 × 360	30316292
XPR64001L	64.1 kg	0.1 g	100 mg	500 mg	82 g	280 × 360	30316477
XPR32000L	32.1 kg	1 g	600 mg	600 mg	820 g	280 × 360	30316485
XPR64000L	64.1 kg	1 g	600 mg	600 mg	820 g	280 × 360	30316493

[1] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

[2] Guaranteed value

Excellence

XSR Precision Balances
Go Beyond Weighing

Even under harsh weighing conditions, you can rely on these robust balances to help you meet your productivity targets. XSR precision balances are ideal when you have high sample throughput and tight deadlines. You can rely on XSR to get the job done quickly, and without errors.

Fast Performance



The SmartPan™ weighing pan minimizes the effects of air currents on the weighing cell to deliver faster and more accurate results. In many situations, a draft shield is no longer required. Without the need to open and close the doors, process steps are significantly reduced.

Ergonomic Operation



Placing the display at eye level on the adjustable ErgoStand™ saves space and eliminates excessive neck bending. The touchscreen display simplifies operation and has large, bright, easy-to-read figures.

Error-Free Data Transfer



You no longer need to record results by hand or spend time typing in data. Simply transfer task parameters and results to a PC or software application via USB. Large volumes of data can be transferred quickly and without error.

Accurate Results	High-resolution weighing cell technology SmartPan weighing pan*
Efficient Operation	4.3-inch color touchscreen, glove compatible Storage of weighing methods Integrated results notepad
Quality Assurance	Customizable tolerance profiles MinWeigh warning function Balance ready StatusLight™ LevelControl: level warning with graphical leveling guide Temperature and time programmable adjustment (proFACT) Password protected configuration
Seamless Process	Multiple interfaces for easy connectivity and data export: 4 × USB, 1 LAN Easy connection of peripheral devices: printers, PC, barcode readers, footswitches and sensors Export of process and results data to XML or Excel Web service
Automation Options	LabX™ laboratory software

* Models with 1 mg and 10 mg readability



XSR603S precision balance



Extremely Durable
The new MonoBloc™ weighing cell delivers fast and precise results. Integrated overload protection and the full metal housing safeguard the weighing cell.



Easy to Clean
XSR precision balances withstand harsh chemicals, dust and dirt. Smooth surfaces and rounded edges make the whole balance easy to clean.

Watch the video now
www.mt.com/xsr-precision

Model	Maximum Capacity	Read-ability	Repeata-bility[2]	Lin-earity	USP Min. Weight[1]	Weighing Pan (mm)	Material No.
XSR303SN	310 g	1 mg	0.9 mg	2 mg	1.0 g	127×127	30316500
XSR303S	310 g	1 mg	0.9 mg	2 mg	1.0 g	127×127	30315757
XSR603SN	610 g	1 mg	0.9 mg	2 mg	1.0 g	127×127	30316544
XSR603S	610 g	1 mg	0.9 mg	2 mg	1.0 g	127×127	30316497
XSR1203S	1,210 g	1 mg	0.8 mg	2 mg	820 mg	127×127	30316567
XSR1202S	1,210 g	10 mg	8 mg	20 mg	8.2 g	172×205	30317127
XSR2002S	2.1 kg	10 mg	8 mg	20 mg	8.2 g	172×205	30317407
XSR4002S	4.1 kg	10 mg	8 mg	20 mg	8.2 g	172×205	30317443
XSR6002S	6.1 kg	10 mg	8 mg	20 mg	8.2 g	172×205	30317453
XSR6002S DeltaRange	1.2 kg – 6.1 kg	10/100 mg	8/60 mg	60 mg	10 g	172×205	30317462
XSR10002S	10.1 kg	10 mg	8 mg	20 mg	8.2 g	172×205	30317437
XSR4001S	4.1 kg	0.1 g	80 mg	60 mg	82 g	190×223	30317501
XSR6001S	6.1 kg	0.1 g	80 mg	60 mg	82 g	190×223	30317496
XSR8001S	8.1 kg	0.1 g	80 mg	100 mg	82 g	190×223	30317515
XSR10001S	10.1 kg	0.1 g	80 mg	100 mg	82 g	280×360	30317487
XSR10001L	10.1 kg	0.1 g	80 mg	200 mg	82 g	280×360	30317536
XSR16001L	16.1 kg	0.1 g	80 mg	200 mg	82 g	280×360	30317549
XSR32001L DeltaRange	6.4 kg – 32.1 kg	0.1/1 g	80/600 mg	300 mg	82 g	280×360	30316472
XSR32001L	32.1 kg	0.1 g	80 mg	300 mg	82 g	280×360	30316297
XSR16000L	16.1 kg	1 g	600 mg	600 mg	820 g	280×360	30316481
XSR32000L	32.1 kg	1 g	600 mg	600 mg	820 g	280×360	30316489

[1] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

[2] Guaranteed value

Advanced

Large MS Precision Balances
Tough Performers Built to Last

Accommodating loads of up to 32 kilograms, MS large-platform precision balances are built to take on your toughest jobs. The MonoBloc™ weighing cell, very robust design and extreme overload protection ensure you get reliable results in even the most challenging industrial environments.

Robust Construction



The tough metal housing and extreme overload protection of more than 100 kilograms safeguard your balance when working with heavy sample containers. The large weighing pan provides extra convenience.

Chemical Resistance



The weighing pan and balance housing are resistant to the harshest of chemicals, including acetone. This helps to ensure a long balance lifetime.

Easy Cleaning



The balance housing is cleverly designed with smooth surfaces and round edges, making it easy to clean. User safety is improved and the risk of cross-contamination is reduced.

Accurate Results	MonoBloc weighing cell and overload protection
	FACT – fully automatic temperature-controlled internal adjustment
	Full metal housing
Efficient Operation	HCD high contrast display (18 mm high digits)
	Easy cleaning thanks to smooth wipe-clean surfaces
	SmartKeys: programmable keys for shortcuts
	Large platform for convenient weighing of bulky items
Quality Assurance	Menulock – balance settings can be password protected
Seamless Process	2 interfaces – USB and RS232
	Bluetooth option
	PC Direct option and EasyDirect Balance application software for easy data transfer



MS32001L precision balance



Clever Design Details
For example, the groove in the top of the weighing pan allows cylindrical samples to be placed directly on the balance without the need for an extra container.



Easy Stocktaking
The large weighing pan and built-in piece-counting application make these large platform balances perfect for logging your inventory.



Weigh Below the Balance
For special applications, this special hook enables you to weigh heavy items by hanging them from underneath the balance (Material No. 11132565).

www.mt.com/msl-precision

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
MS12001L	12,200 g	0.1 g	0.1 g	0.2 g	140 g	351×245	11124573
MS16001L	16,200 g	0.1 g	0.1 g	0.2 g	140 g	351×245	11124576
MS32001L	32,200 g	0.1 g	0.1 g	0.3 g	140 g	351×245	11124588
MS32000L	32,200 g	1 g	1 g	1 g	820 g	351×245	11124701

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

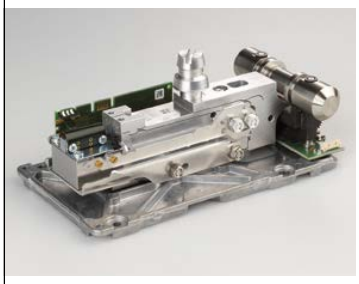
[2)] Guaranteed value

Advanced

Small MS Precision Balances
Engineered for Reliable Performance

With a full metal housing, the robust construction of the MS small-platform precision balances makes them perfect for heavier tasks in the laboratory or out on the factory floor. The unique MonoBloc™ weighing cell delivers the accuracy you need and is fully protected against accidental overload.

Proven Weighing Cell



Our renowned MonoBloc weighing cell with FACT automatic internal adjustment delivers consistently reliable results. Built-in overload protection ensures a long balance lifetime.

Robust Metal Housing



The full balance housing is die-cast aluminum which not only protects the weighing cell from environmental influences and impacts but also resists harsh chemicals, including acetone.

Fast Results



With 3 fixed feet and 2 LevelLock stands, MS balances are easy to level and sit solidly on your workbench. With the balance less susceptible to vibration, you get faster results.

Accurate Results	MonoBloc weighing cell and overload protection FACT – fully automatic temperature-controlled internal adjustment Full metal housing
Efficient Operation	7-inch extra-large color TFT touchscreen (18 mm high digits) Graphical display of statistics for improved management and evaluation of weighing data 11 easy-to-use applications for simplified workflows and increased efficiency Easy cleaning thanks to smooth wipe-clean surfaces LevelLock – greater balance stability
Quality Assurance	ISO-Log records important changes, e.g. adjustments, leveling status Barcode reader support and ID handling to reduce errors and increase productivity User management to customize access rights and improve productivity and traceability Built-in level control function and leveling user guidance
Seamless Process	LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth Transfer data to PC, FTP Server, USB memory stick or printer, including as a comprehensive PDF report or XML file PC Direct application for easy data transfer (no software needed) EasyDirect Balance software for comprehensive and customized data transfer Web access service for remote control and 2nd screen



MS3002TS 0.01 g precision balance without draft shield



MS603TS 1 mg precision balance with draft shield



Large Color Touchscreen
The 7-inch extra-large color TFT touchscreen display is operable through cotton, silicone and rubber gloves. An intuitive user interface and 18 millimeter high digits bring comfort to your daily tasks.



Advanced Data Management
LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth interfaces enable simple and comprehensive data handling. Transfer data to PC, FTP Server, USB memory stick or printer, including as comprehensive PDF reports and XML files.



Convenient Integrated Applications
11 built-in applications, including formulation, checkweighing and counting, guide you step-by-step through your weighing procedures, support you with data management and help improve process security. Evaluate your results easily with the statistics function and onscreen charts.

MS-TS Precision Balances 1 mg

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
MS303TS	320 g	0.001 g	0.001 g	0.002 g	1.4 g	127×127	30133525
MS403TS	420 g	0.001 g	0.001 g	0.002 g	1.4 g	127×127	30133526
MS603TS	620 g	0.001 g	0.001 g	0.002 g	1.4 g	127×127	30133527
MS1003TS	1,020 g	0.001 g	0.001 g	0.002 g	1.4 g	127×127	30133528

MS-TS Precision Balances 0.01 g

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
MS1602TS	1,620 g	0.01 g	0.01 g	0.02 g	14 g	170×200	30133529
MS3002TS	3,200 g	0.01 g	0.01 g	0.02 g	14 g	170×200	30133530
MS4002TS	4,200 g	0.01 g	0.01 g	0.02 g	14 g	170×200	30133531
MS6002TS	6,200 g	0.01 g	0.01 g	0.02 g	14 g	170×200	30133533
MS4002TS DeltaRange	820 g → 4,200 g	0.1/0.01 g	0.1/0.01 g	0.08 g	14 g	170×200	30133532
MS6002TS DeltaRange	1,220 g → 6,200 g	0.1/0.01 g	0.1/0.01 g	0.08 g	14 g	170×200	30133534
MS12002TS	12,200 g	0.01 g	0.01 g	0.025 g	14 g	170×200	30133535
MS8001TS	8,200 g	0.1 g	0.1 g	0.2 g	140 g	190×226	30133536

[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load

[2)] Guaranteed value

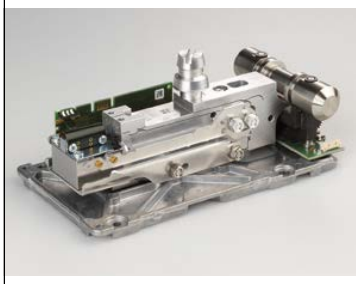
www.mt.com/ms-precision

Advanced

ML-T Precision Balances
Big Features Go Compact

Whether you work in a busy laboratory or out on the factory floor, space is always at a premium. With the smallest-in-class footprint and larger than average weighing pan, ML-T balances give you the room you need to carry out your daily tasks efficiently.

Proven Weighing Cell



Our renowned MonoBloc™ weighing cell with FACT automatic internal adjustment delivers consistently reliable results. Built-in overload protection ensures a long balance lifetime.

Compact and Convenient



The compact design makes the most of your workspace, giving you the extra space you need to have all your equipment and samples nearby.

Intuitive Operation



The 4.5-inch color TFT touchscreen with clear icons and intuitive guidance enables users to operate the balance quickly even while wearing cloth or rubber gloves. Multilingual text and graphics are included.

Accurate Results	MonoBloc weighing cell with overload protection FACT – fully automatic temperature-controlled internal adjustment Metal base
Efficient Operation	4.5-inch color TFT touchscreen 10 easy-to-use applications for simplified workflows and increased efficiency Statistics option for improved evaluation of weighing data Easy cleaning thanks to smooth wipe-clean surfaces Extra-small footprint Battery operation
Quality Assurance	ISO-Log records important changes, e.g. adjustments, leveling status Barcode reader support and ID handling to reduce errors and increase productivity User management to customize access rights and improve productivity and traceability Built-in level control function and leveling user guidance
Seamless Process	LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth Transfer data to PC, FTP Server, USB memory stick or printer, including as a comprehensive CSV or XML file PC Direct application for easy data transfer (no software needed) EasyDirect Balance software for comprehensive and customized data transfer



ML4002 0.01 g precision balance
without draft shield



ML503T 1 mg precision balance
with draft shield



Efficient Weighing-In
The weighing-in guide helps the operator dose to target. The green screen indicates at a glance that the weighing result lies within the process tolerances.



Advanced Data Management
LAN, USB Host, USB Device, RS232 and optional WLAN/Bluetooth interfaces enable simple and comprehensive data handling. Transfer data to PC, FTP Server, USB memory stick or printer, including as comprehensive CSV and XML files.



Battery Operation
With up to 8 hours of battery operation, you can take your balance anywhere and be ready in case your power supply is not reliable.

Watch the video now
www.mt.com/mlt-precision

Model	Maximum Capacity	Readability	Repeatability[2)]	Linearity	USP Min. Weight[1)]	Weighing Pan (mm)	Material No.
ML203T	220 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30243403
ML303T	320 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30243406
ML503T	520 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30243409
ML802T	820 g	0.01 g	0.01 g	0.02 g	14 g	170×190	30243412
ML1602T	1,620 g	0.01 g	0.01 g	0.02 g	14 g	170×190	30243415
ML3002T	3,200 g	0.01 g	0.01 g	0.02 g	14 g	170×190	30243418
ML4002T	4,200 g	0.01 g	0.01 g	0.02 g	14 g	170×190	30243421
ML6002T	6,200 g	0.01 g	0.01 g	0.02 g	14 g	170×190	30243424
ML3001T	3,200 g	0.1 g	0.1 g	0.2 g	140 g	170×190	30243427
ML6001T	6,200 g	0.1 g	0.1 g	0.2 g	140 g	170×190	30243430

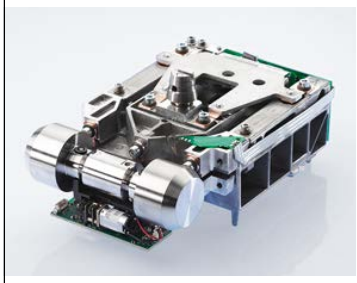
[1)] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2)] Guaranteed value

Standard

ME-T Precision Balances
For Your Essential Needs

ME-T balances are ideal for all your routine weighing procedures. The intuitive touchscreen user interface simplifies and speeds up your daily tasks. With METTLER TOLEDO's renowned quality and performance, you can rely on ME-T balances, even in tough environments.

Accuracy Assured



The proven Electromagnetic Force Compensation (EMFC) weighing cell with FACT technology delivers consistently reliable results and automatically adjusts the balance. Built-in overload protection helps ensure a long balance life.

Easy to Use



Nine embedded applications including check-weighing, totaling and formulation simplify daily tasks. The statistics option lets you easily evaluate your weighing results.

Easy Data Handling



Connectivity via USB, RS232 or optional Bluetooth makes it easy to transfer data and ensure traceability. It's simple to connect a barcode reader and/or printer, or even to a PC.

ME-T Precision Technical Specs

Model	Maximum Capacity	Readability	Repeatability[2]	Linearity	USP Min. Weight[1]	Weighing Pan (mm)	Material No.
ME103T	120 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216545
ME103TE	120 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216546
ME203T	220 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216547
ME203TE	220 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216549
ME303T	320 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216550
ME303TE	320 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216552
ME403T	420 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216554
ME403TE	420 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30216557
ME503T	520 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30243388
ME503TE	520 g	1 mg	1 mg	2 mg	1.4 g	∅ 120	30243386
ME1002T	1,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216558
ME1002TE	1,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216559
ME2002T	2,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216560
ME2002TE	2,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216561
ME3002T	3,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216562
ME3002TE	3,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216563
ME4002T	4,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216564
ME4002TE	4,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30216566
ME5002T	5,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30243383
ME5002TE	5,200 g	0.01 g	0.01 g	0.02 g	14 g	180×180	30243381
ME4001T	4,200 g	0.1 g	0.1 g	0.2 g	140 g	180×180	30216567
ME4001TE	4,200 g	0.1 g	0.1 g	0.2 g	140 g	180×180	30216568

[1] Typical minimum sample weight according to USP Chapter 41; measurement at ≤5% load
[2] Guaranteed value

An external weight must be used to adjust E-model balances.

www.mt.com/met-precision

PL-E Precision Balances
Compact and Portable

PL-E balances are lightweight and portable balances ideal for small spaces. JL balances can be run from batteries giving you total flexibility to weigh anywhere. A vibration-resistant design delivers high performance on temporary work surfaces and in the field.

Space Saving Design
The ultra-compact design is perfect for small spaces. PL-E balances are solidly built, yet light enough to carry conveniently to wherever you want to weigh.



PL1502E portable precision balance

Compact and Portable



With a space-saving footprint, the PL-E fits on the smallest benches. Every model can be plugged in or battery operated, making the balance ideal for work whenever a power supply is hard to find.

Backlit LCD Display



The bright display features large digits for easy reading in all light conditions. The user interface provides access to 9 built-in applications offering additional weighing flexibility.

Protective Cover



Protect your PL-E balance against dust and dirt with a protective cover.

PL-E Technical Specs

Model	Maximum Capacity	Readability	Repeatability[1)]	Linearity	Dimensions (W×D×H)	Material No.
PL602E	620 g	0.01 g	0.01 g	0.02 g	194×225×67	30113826
PL1502E	1,520 g	0.01 g	0.01 g	0.02 g	194×225×67	30113823
PL6001E	6,200 g	0.1 g	0.1 g	0.2 g	194×225×67	30113829

[1)] Guaranteed value

www.mt.com/ple-precision

Installation and Qualification
Ensure Productivity and Compliance

You may be tempted to simply connect your weighing instrument to the power supply, switch it on and start weighing. However, your balance or moisture analyzer is a sophisticated piece of weighing equipment which must be correctly installed and configured to ensure it performs as intended so that you avoid weighing errors, rework, and waste as well as the associated financial losses.

METTLER TOLEDO's professional installation and qualification services help you to ensure your instrument is sited in the optimum location, delivers accurate weight results and complies with your internal and external regulations right from the start.

You benefit from:
- Immediate deployment
- Correct set-up
- Professional qualification
- Initial user training
- Audit-proof documentation

Optimum Location



Is your instrument sited in the optimum location?

External influences such as drafts, direct sunlight, or an unstable table can lead to drift and random errors. The consequences are inaccurate and inconsistent weighing results.

Audit-Proof Documentation



Has your instrument been professionally installed and qualified?

In addition to in-depth operational testing and initial calibration, we provide audit-proof documentation that complies with regulations such as GMP, GLP, and ISO.

Error-Free Operation



Have your staff been trained on the new instrument?

Initial user training is included so that operators are familiar with how to use the new instrument correctly. You get up and running faster and operational errors are minimized.



Choose the Installation Pac that fulfills your quality and regulatory requirements

Three Installation Pacs are available to cover the different needs of **Balances**, **Automated Powder and Liquid Dosing Systems** and **Moisture Analyzers**. Each is tailored to your specific environment and application requirements.

	StarterPac	IPac	EQPac
DQ (Design Qualification)			
Support of design and vendor qualification			•
IQ (Installation Qualification)			
Perform and document equipment installation	•	•	•
Conforms with FDA standards			•
OQ (Operational Qualification)			
Initial calibration according to manufacturer specifications	•	•	•
Equipment familiarization of users	•	•	•
Calibration documented in certificate		•	•
PQ (Performance Qualification)			
Support user in setting up SOP		•	•
Log authorized users		•	•
Consultation regarding requalification			•
Consultation regarding periodic maintenance			•
Consultation regarding purchase of weights			•

• Included

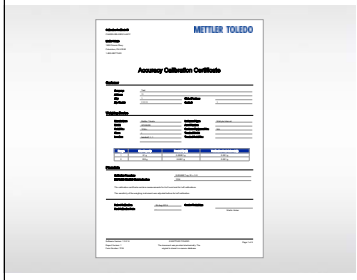
Installation Pacs are available in English, German, French, Spanish, Italian and Japanese.

Calibration and Routine Testing
Maintaining Accuracy over Time

Having carefully selected your balance to ensure it meets your process requirements, how can you be sure that your results will continue to be accurate over time? Do you know which routine tests and calibrations are necessary to mitigate risks and pass any audit?

The Accuracy Calibration Certificate (ACC) assesses the performance of the device by documenting the measurement uncertainty in use. Several annexes are available related to industry-specific standards. The GWP™ Certificate annex sets a new benchmark in weighing accuracy by linking the performance of your balance to your specific process requirements and declaring that it is fit for purpose. To ensure ongoing accuracy and compliance, GWP™ Verification provides you with a risk-based, audit-proof routine testing and calibration plan.

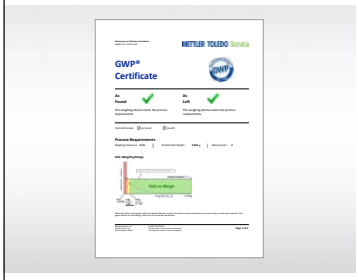
Accuracy Calibration Certificate



How does your balance perform on site?

With the Accuracy Calibration Certificate (ACC) we measure the performance (measurement uncertainty) over the entire weighing range.

GWP™ Certificate



Is the instrument fit for purpose?

With the GWP™ Certificate we can help you determine whether the balance meets your own requirements. This documents that the balance is fit for purpose and used within the safe weighing range.

GWP™ Verification



How can you maintain accuracy over time?

Based on a risk assessment, GWP™ Verification helps you establish a testing plan to maintain consistent quality and reduce costs. It also provides you with regulatory compliance documentation to pass audits.

www.mt.com/gwp



Your Benefits

- Proof of accuracy for all measurements to support consistent product quality
- Documentation of the safe weighing range including graphical representation
- Clear pass/fail statement on fit for purpose based on your own specific tolerances
- Reduced costs thanks to the optimized routine testing and calibration plan
- Assured compliance with global and local regulations and standards

Extend Your Equipment's Lifetime **ExtendedCare**

An **Extended Care** agreement provides you with full protection against instrument breakdown during the first 24 months after installation. Two preventive maintenance visits by our factory-trained Service Engineers are also included, providing you with full budgetary control by avoiding unplanned expenses. You will also receive access to our technical assistance hotline and benefit from priority on-site intervention.
More information on page 23.

Applications and Accessories

Small Details. Big Difference.





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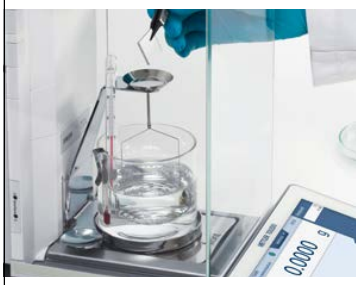
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www.mt.com/accessories

Accurate Density Determination
Using Gravimetric Methods

Quickly convert your analytical or precision balance for accurate density determination of solid, liquid and viscous substances. Whether you use the buoyancy technique, the displacement principle or the pycnometer method, density determination is easy and efficient.

Quick and Easy Installation



By simply removing the balance weighing pan, the density kit can be installed on your balance in a few simple steps.

Fast and Secure Processes



The built-in density application on our balances provides user guidance, collects results, calculates density values and allows statistical evaluation of a measurement series. Five methods are included.



Density Kit

Density Kits

Balance	Description	Material No.
XPR/XSR precision, S-Platform (1 mg and 0.1 mg models)	Density Kit XPR/XSR precision	30300933
XPR/XSR analytical	Density Kit XPR/XSR analytical	30460852
Advanced & Standard balances	Density Kit Advanced & Standard	30535760

Density Kit Accessories (compatible with all kits)

Description	Material No.
Sinker 10 mL	210260
Sinker 10 mL with calibration certificate	210672
Thermometer	238767
Thermometer with calibration certificate	11132685
Recalibration sinker 10 mL	210674



Sinker



Thermometer

www.mt.com/lab-density

AntiStatic Solutions
Eliminate Electrostatic Effects

When your weight values are unstable or different for the same sample, the explanation is often simple: Electrostatic charges on the sample or container influence the weighing cell and lead to inaccurate results. AntiStatic Kits immediately neutralize electrostatic charges to ensure stable and accurate results.

Integrated Flexibility



The optional ionizing module for XPR analytical balances can be set to work automatically if electrostatic charges are detected in the weighing chamber. Charges are removed in just a few seconds, ensuring stable and accurate results.

Trusted Results



By neutralizing electrostatic charges on samples and containers when the balance is loaded, dosing is faster and productivity is increased.

Workplace Safety



AntiStatic Kits completely remove electrostatic charges. The scattering of powdery substances is eliminated, making dosing safer and preventing cross-contamination.

AntiStatic Kits

Balance	Description	Material No.
XPR/XSR balances	AntiStatic Kit USB with stand and one compact electrode	30499859
XPR analytical balance*	Compact ionizer USB with adapter	30499860
XPR analytical balance	Internal ionizer module	30460823
XPR analytical with automated dosing module	AntiStatic Kit for powder dosing	11141829
All balances	Universal AntiStatic Kit U-electrode	11107767

* Compatible also with XPR26/56

Single AntiStatic Components

Description	Material No.
Optional U-electrode large	11107764
Optional U-electrode small	11140161
Power supply for universal AntiStatic Kit	11107766
Power supply for AntiStatic Kit for powder dosing	11107763
Additional electrode for AntiStatic Kit USB (30499859)	30496446



XPR205 with internal ionizer module

www.mt.com/lab-AntiStatic

Manual Filter Weighing
Accurate Emissions Testing

METTLER TOLEDO's range of AntiStatic solutions and filter-weighing kits for XPR and XSR balances enable you to accurately determine particulate matter amounts on filters as small as 0.1 µg. Our innovative solutions help you ensure compliance with all US and EU norms.

Easy Assembly



Within seconds you can upgrade your XPR or XSR analytical balance into the perfect filter-weighing solution.

High Accuracy Filter Weighing



The weighing pan's innovative design enables easy placement of the filter in the ideal position. Two pan sizes are supplied (for ∅ 47-millimeter and ∅ 70-millimeter filters).

Model	Filter ∅	Balance System	Resolution	Typical Repeatability	Material No.
Large Filter Weighing Kit	<110 mm	XPR/XSR analytical balances	0.005 mg/0.01 mg	0.03 mg	30460857
ErgoClip Filter holder	110–150 mm	XPR/XSR analytical balances	0.005 mg/0.01 mg	0.03 mg	30460844
Filter Kit for XPR microbalances	30–70 mm	XPR micro and ultra-microbalances	0.1 µg/1 µg	0.2 µg/0.6 µg	30300922



Environmental Monitoring

Filter kits fit onto all METTLER TOLEDO XPR and XSR analytical balances and are ideal for efficient routine work with filters up to 110 millimeters in diameter.

Emissions Determination

With its cutting-edge performance, the XPR ultra-microbalance equipped with a Filter Kit determines particulate matter on filters weighing as little as 0.1 µg.

www.mt.com/filter

Automated Filter Weighing
High-Throughput Emissions Testing

The innovative PFS-ONE filter robot guarantees the fast and precise determination of particulate matter on filters at an accuracy of up to 0.1 µg. The PFS-ONE ensures that you can meet the increasingly tight specifications of international emissions standards.

Highest Accuracy Assured



At the heart of the PFS-ONE filter robot is the XPR2U ultra-micro-balance. With a readability of 0.1 µg you can be assured of unmatched precision and reliability.

Automatic Data Processing



The integrated data-matrix-code scanner automatically identifies the filter ID and ensures fast and easy operation. Sample security before and after processing is maintained.

Environmental Climate Control



The PFS-ONE is easily installed in existing laboratories as well as many environmental cabinets. Fully integrated systems, including environmental climate control and software, ensure compliance with international standards.

Model	Capacity	Filter ∅	Balance System	Resolution	Material No.
PFS-ONE	153 filters	47 mm	XPR2U	0.1 µg	30459990



PFS-ONE filter robot

▶ www.mt.com/filter

Pipette Check
Valid Pipette Results Every Time

You need to know that your pipettes are accurate every time you use them. With smart accessories, you can turn any XPR or XSR analytical balance into a pipette check station.



Three main factors ensure that your pipette delivers reliable results every day:

- Pipette performance checks
- Pipette asset management
- Service and calibration

Reduced Evaporation



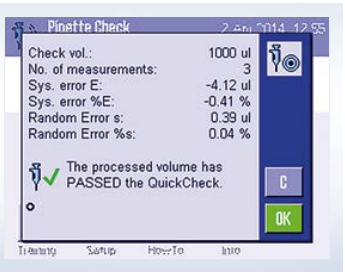
Evaporation traps are the key to achieving reproducible results. Our traps are ready to use within seconds and can hold up to 100 milliliters so you can handle large pipette volumes.

Secure Tracking



With an RFID-tagged pipette, the check is automatically initiated. The tag contains the pipette data, check interval and method. When a check is passed, the next date is stored on the pipette.

Correct Calculations



The XPE balance comes standard with easy-to-use, step-by-step guidance. Based on ISO 8655, it calculates all results automatically and shows pass/fail decisions.

Pipette Check Solutions	Description	Material No.
SmartCheck trap 50 mL	Evaporation trap for any analytical balance, snap-on fit for XPR/XSR	30215436
Evaporation trap 10 mL	For XPR26/56 micro-analytical balances	30460839
Evaporation trap 20 mL	For XPR/XSR analytical balances	30460843
Evaporation trap 100 mL	For XPR/XSR analytical balances	30460847
EasyScan USB	RFID reader/writer box for XPR/XSR balances	30296931
Smart Tag RFID labels	50 pcs	30101517
Smart Tag RFID labels	200 pcs	30101518
Calibry Express software	PC software to manage all pipette check data	11138423

▶ www.mt.com/pipcheck

Pipette Calibration
For Trusted Analytical Results

Pipettes require regular maintenance and calibration to perform at their best. The XPE26PC balance coupled with our Calibry pipette calibration software helps to ensure compliant pipette calibration processes.



XPE26PC pipette check

Calibrate Down to 1 µL



With repeatability <1.5 µg, the XPE26PC enables you to calibrate volumes as small as 1 µL in accordance with ISO 8655. Evaporation traps which can take up to 100 milliliters also make it suitable for calibrating large volume pipettes.

High Throughput



The light barrier enables the evaporation trap lid to open automatically, reducing handling steps and providing fast, stable results. In combination with the 100-milliliter tank, many calibrations can be carried out in a continuous process.

Efficient and Compliant



The Calibry software touchscreen ensures efficient pipette calibration workflows in accordance with ISO 8655. User management, audit trail and a secure database help ensure compliance with FDA 21 CFR Part 11.

Pipette Calibration	Description	Material No.
XPE26PC	Dedicated balance for calibration of micro pipettes	30105901
Evaporation trap 20 mL	Specific evaporation trap for XS/XPE analytical balance	11140043
Evaporation trap 100 mL	Specific evaporation trap for XS/XPE analytical balance	11138440
Calibry single workstation	Calibration software for up to 5 balances	11138419
Calibry network	Calibration software for up to 20 balances connected to a network	11138420
Calibry DEMO version	45-day free-trial software DVD	30007307
Validation handbook	Detailed software validation handbook with many templates	11780959
Weighing table	Increase stability and speed with a dedicated XPE26PC table	11138041
CarePac™ weight set	Box with 1 g and 20 g test weights for XPE26PC	30550617

www.mt.com/pipcal

Professional Weighing Tables
Ergonomic and Efficient

A range of METTLER TOLEDO weighing tables are available to provide an ergonomic working area for every type of balance and pipette calibration equipment. Adjustable height and supporting elbow cushions relieve the stress caused by repetitive movements, improving operating convenience and efficiency. The balance sits on a separate inner table for faster stabilization times and more reliable results.

Working Ergonomically



The height of the outer table can be adjusted to suit the user allowing the neck and back muscles to relax. The elbow cushions protect the user's arms during repetitive activities.

Low-Vibration Table



Each weighing table consists of two decoupled tables. The outer working table absorbs impacts, while the balance on the inner table remains undisturbed. These versatile weighing tables are adaptable to every type of balance.



Technical Data

Type	Width (mm)	Depth (mm)	Height (mm)	Material No.
Weighing table XPE26PC	760	803	784	11138041
Weighing table analytical/micro	760	803	784	11138042
Weighing table micro/ultra-micro	760	803	784	11138044

RFID Solutions
For Secure Data Transfer

Our RFID accessories ensure error-free bidirectional data transfer between your balance and sample containers, pipettes and automation systems. Electronic transfer of sample IDs and weight values saves time and eliminates transcription errors.

Error-Free Data Transfer



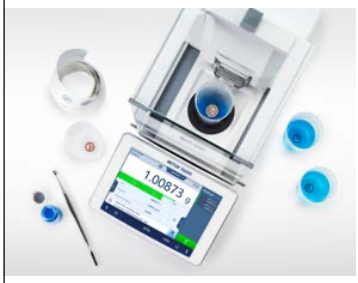
An RFID Smart Tag label can be added to titration beakers, pipettes and almost any sample container to ensure error-free data transfer. Quantos dosing heads have a built-in chip for the same purpose.

Fast Pipette Checks



All test data is stored safely on a built-in RFID chip on RAININ pipettes, or a Smart Tag can be added for other pipette brands. The balance application guides you through the testing process. Use an evaporation trap for the most accurate results.

Simplified Titration



Save time entering information at the balance and titrator with SmartSample. After performing all sample preparation at the balance, simply enter the number of samples to be analyzed and start your titrations for efficient operation.

Item	System Compatibility	Material No.
SmartScan for titration	Works with titrator systems with InMotion™ autosamplers (page 170)	30459915
EasyScan USB	External RFID option for reading and writing all sample information, including to dosing heads	30416173
Smart Tag RFID labels	For use with all sample containers and pipettes, pack 200	30101518



SmartScan Kit for XPR analytical balances



EasyScan USB RFID reader/writer

Laboratory Printers
For Quality Documentation

Printers

P-50 printers are universal printers suitable for documenting results and for printing labels. They are fully compatible with balances, titrators, moisture analyzers, and more.

P-56 and P-58 inkless thermal direct printers generate high-quality printouts extremely quickly without any noise or vibration. The P-56 is suitable for simple printouts and for all instruments with embedded applications. The P-58 offers several integrated applications such as time and date, statistics, totaling, formulation and labeling.


P-58RUE

When your SOPs or regulatory requirements demand dot matrix technology, the P-52 printer is the perfect choice for straightforward, high-quality printing on paper and continuous labels.

Model	**P-58RUE**	**P-56RUE**	**P-52RUE**
Alphanumeric sample ID entry	•	–	–
Barcode generation	•	–	–
Applications: statistics, totaling, formulation	•	–	–
Individual label printing	•	–	–
Built-in real-time clock	•	•	–
Print technology	Direct thermal	Direct thermal	Dot matrix
Print speed	Up to 100 mm/s	Up to 100 mm/s	Up to 10 mm/s
Operating language	English, German, French, Italian, Spanish, Russian, Chinese (simplified), Japanese, Korean	English, German, French, Italian, Spanish, Russian, Chinese (simplified), Japanese, Korean	English
Print language			English, German, French, Italian, Spanish, Russian, Chinese (simplified), Japanese
Chemical resistance	•	•	•
Interfaces	RS232, USB, Ethernet	RS232, USB, Ethernet	RS232, USB, Ethernet
Optional Bluetooth adapter, connects via RS232	•	•	•
Material No.	30094674	30094673	30237290

Consumables/ Additional Items		**Material No.**
P-58	DirectLabel: free PC software for customized labels included with printer	–
	Thermal labels: 6 rolls of 550 labels (56 mm×18 mm), up to 10 years durability	30094725
P-56/58	Thermal paper: 10 rolls, 58 mm×27 m, up to 25 years durability	30094723
	Thermal continuous label: 10 rolls, 58 mm×13 m, up to 10 years durability	30094724
P-52	Paper roll, set of 5 rolls	00072456
	Paper roll, set of 3 rolls, self-adhesive	11600388
	Ribbon cartridge black, set of 2 ink ribbons	00065975

Wireless		**Material No.**
P-52/56/58	Bluetooth adapter RS232 single for balances or printers	30086494
	Bluetooth adapter RS232 paired for balances or printers	30086495
	Bluetooth adapter USB for XPR and XSR balances	30416089
	Bluetooth and wireless adapter USB for ML-T and MS-T balances	30412536

P-20 Printers

P-20 standard printers use dot-matrix technology to produce results printouts that help you meet GMP/GLP/ISO documentation regulations. These printers are suitable for use with all instruments that have an RS232 port: selected titrators, Karl Fischer titrators, density meters, refractometers, and thermal analysis instruments.

Whether on normal or self-adhesive paper, archived printouts provide full traceability of your weighing and testing data.



RS-P28

Model	RS-P28	RS-P26	RS-P25	USB-P25
Print application	•	•	•	•
Auto settings detection	•	•	•	•
Built-in real-time clock	•	•	–	–
Zero/tare key	•	•	–	–
Statistic application	•	–	–	–
Totaling application	•	–	–	–
Size W × D × H (mm)	120 × 203 × 73			
Printing speed	2.3 lines/second			
Material No.	11124314 for AP 11124324 for US 11124304 for EU	11124313 for AP 11124323 for US 11124303 for EU	11124310 for AP 11124320 for US 11124300 for EU	11124311 for AP 11124321 for US 11124301 for EU

Consumables/Additional Items	Material No.
Paper roll, set of 5 rolls	00072456
Paper roll, set of 3 rolls, self-adhesive	11600388
Ribbon cartridge black, set of 2 ink ribbons	00065975

For more information about these and other cables, see "Cables" page 101.

Powder Dosing Heads

Dosing and Storage in One

The Quantos dosing head has been developed to dose free-flowing powdery substances such as APIs or reference standards in conjunction with an XPE dosing system. Our dosing heads are suitable for dosing fine, fluffy, static, compacted, granular, or heterogeneous substances. The use of a closed system avoids cross-contamination and protects the user, the substance and the environment.

Precise Powder Dosing



A highly precise mechanism guarantees homogeneous powder flow. The dosing head learns powder behavior and optimizes dosing accuracy and speed. While no configuration is needed, any target weight can be hit.

Keep Substances Contained

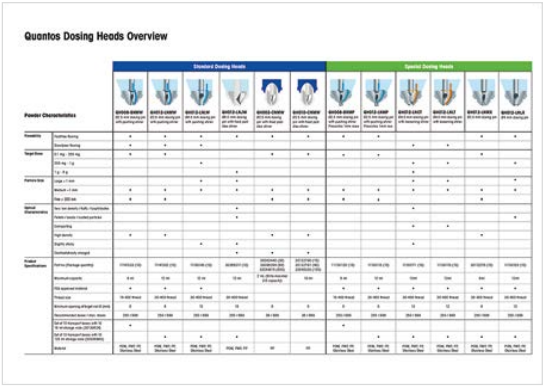


Powders are sealed within the dosing head. Individual dosing heads for each powder eliminate the risk of cross-contamination. Once the dosing head is filled, work proceeds with no powder contact.

Safe Storage Solutions



A transport/storage box protects your dosing heads when not in use and ensures that valuable and toxic substances remain safe. The transport container is impact-resistant and water-tight for safe storage.



To help select the correct dosing head for your powder type, download our free guide.

www.mt.com/dosing-heads

Order Information



Dosing Heads	Description	Material No.
QH008-BNMW (10 pcs)*	Standard dose head	11141533
QH012-LNMW (10 pcs)*	Standard dose head	11141532
QH012-LNLW (10 pcs)*	For large target amounts	11150145
QH012-LNJW (10 pcs)	For large target amounts or fluffy substances	30366317
QH008-BNMP (10 pcs)*	For small target containers	11150120
QH012-LNMP (10 pcs)*	For small target containers	11150118
QH012-LNCT (10 pcs)*	For difficult-to-dose powders	11150171
QH012-LNLT (10 pcs)*	For compacting powders	11150170
QH012-LNMX (10 pcs)*	For high-density or fast-flowing powder	30112276
QH012-LNLX (10 pcs)*	For beads, pellets or coated particles	11150155



QH002-CNMW (30 pcs)	For few dispenses and low starting quantities	30083440
QH002-CNMW (90 pcs)	For few dispenses and low starting quantities	30098264
QH002-CNMW (500 pcs)	For few dispenses and low starting quantities	30244518
QH010-CNMW (10 pcs)	Standard dose head with fixed container	30132790
QH010-CNMW (40 pcs)	Standard dose head with fixed container	30132791
QH010-CNMW (150 pcs)	Standard dose head with fixed container	30046355
Dosing head starter kit (8 pcs)	Set of 8: 1×QH008-BNMW, 1×QH008-BNMP, 1×QH012-LNMW, 1×QH012-LNCT, 1×QH012-LNLT, 2×QH002-CNMW, 1×QH010-CNMW	30132792
Storage container and vials 16 mL (10 pcs)	For QH008 powder dosing heads	30139824
Storage container and vials 125 mL (10 pcs)	For QH012 powder dosing heads	30036965

* Sterilization: heads are available sterilized.



Accessories for Quantos Modules	Description	Material No.
NetCom kit	To connect multiple peripherals	11141533
Ionizing kit	AntiStatic Kit for powder dosing	11141829
Cable box	To store power supplies and cables	11141845
Citizen label printer kit	Citizen CLS631 for label printing with barcodes	11141820
Labels kit	Set with 2 label rolls and 1 ribbon roll	30004309
LabX Direct QuantosConnect	Bidirectional data transfer, sequence programming	30008323
Powder test head (QA075-P)	For system testing of dosing mechanism	11141506
MinWeigh test head (QA000-W)	For routine testing of the instrument	11141507



ErgoDisc	Description	Material No.
ErgoDisc plate capsule size 00 (12 pos)	Manual sample changer for 12 capsules	11141754
ErgoDisc plate capsule size 0 (12 pos)	Manual sample changer for 12 capsules	11141751
ErgoDisc plate capsule size 1 (12 pos)	Manual sample changer for 12 capsules	11141755
ErgoDisc plate capsule size 2 (12 pos)	Manual sample changer for 12 capsules	11141758
ErgoDisc plate capsule size 3 (12 pos)	Manual sample changer for 12 capsules	11141752
ErgoDisc plate capsule size 4 (12 pos)	Manual sample changer for 12 capsules	30336822
ErgoDisc support plate	Bottom plate to fix the ErgoDisc	11141750



Vial and Capsule Adapter	Description	Material No.
ErgoClip vial	With 4 different adapters (1 pc. each)	30260822
ErgoClip Quantos	Adapter holder, with 4 different adapters (1 pc. each)	11141570
Adapter vial 10.5×25 mm	–	30428905
Adapter vial 12×20 mm	–	30428908
Adapter vial 15.5×25 mm	–	30428912
Adapter vial 21.5×25 mm	–	30428918



Capsule adapter for size 0 capsules	Set of 5 pcs	30006418
Capsule adapter for size 00 capsules	Set of 5 pcs	30006417
Capsule adapter for size 000 capsules	Set of 5 pcs	30006416
Capsule adapter for size 1 capsules	Set of 5 pcs	30006419
Capsule adapter for size 2 capsules	Set of 5 pcs	30006430
Capsule adapter for size 3 capsules	Set of 5 pcs	30006431
Capsule adapter for size 4 capsules	Set of 5 pcs	30006432

Accessories

XPR, XSR Balances











Description	Material No.	XPR Ultra-Micro and Microbalances	XPR26/XPR56 Microbalances	XPR Analytical Balances	XSR Analytical Balances	XPR Precision Balances S/L-Platform	XSR Precision Balances S/L-Platform
LabX™ Laboratory Software							
LabX Balance Express Starter Pack	11153120	•	•	•	•	•	•
LabX Balance Server Starter Pack	11153121	•	•	•	•	•	•
LabX License for 1 Balance	11153220	•	•	•	•	•	•
LabX Express to Server Sidegrade	11153117	•	•	•	•	•	•
LabX Option Statistical Evaluation	30262374	•	•	•	•	•	•
LabX Option User Management	11153102	•	•	•	•	•	•
LabX Option Product Database	11153103	•	•	•	•	•	•
LabX Option Regulation	11153104	•	•	•	•	•	•
LabX Option Auto Import/Export	11153105	•	•	•	•	•	•
LabX Option Report Designer	11153106	•	•	•	•	•	•
LabX Option System Integration	11153107	•	•	•	•	•	•
LabX Validation Manual 1	30003640	•	•	•	•	•	•
LabX Validation Manual 2 Balance Extension	30416322	•	•	•	•	•	•
Density Determination							
Density Kit for XPR/XSR Analytical Balances	30460852	–	–	•	•	–	–
Density Kit for XPR/XPE/XSR/XS Precision Balances, 0.1 mg and 1 mg models	30300933	–	–	–	–	• (S)	• (S)
Calibrated Thermometer (with certificate)	11132685	–	–	•	•	•	•
Sinker 10 mL for density determination of liquids	00210260	–	–	•	•	•	•
Sinker 10 mL for density determination of liquids (with certificate)	00210672	–	–	•	•	•	•
Draft Shields							
Pro Draft Shield, for 0.1 mg and 1 mg models, H: 248 mm	30300926	–	–	–	–	• (S)	• (S)
Pro Draft Shield glass free (food industry) for 0.1 mg and 1 mg models, H: 248 mm	30409092	–	–	–	–	• (S)	• (S)
MagicCube Draft Shield, 1 mg models, H: 175 mm	30300928	–	–	–	–	• (S)	• (S)
Simple Draft Shield, for 0.1 g models (weighing pan 11132660 needed), H: 175 mm	11131653	–	–	–	–	• (S)	• (S)
Simple Draft Shield for 5 mg and 10 mg models, H: 175 mm	30113496	–	–	–	–	• (S)	• (S)
W5 Draft Shield, for entire Microbalances, W×D×H (inside): 200×447×200 mm	11116043	•	–	–	–	–	–
W12 Draft Shield, for entire Precision balances, W×D×H (inside): 300×450×450 mm	11134430	–	–	–	–	• (S)	• (S)
W64 Draft Shield, for entire balances, W×D×H (internal): 550×470×580 mm	11134470	–	•	•	•	•	•
Stands and Wall Mountings							
Terminal stand for placement of the terminal 30 cm above weighing pan, balances with S-Platform (XSR balances require adapter, 30300956)	30125077	–	–	–	–	• (S)	• (S)
Terminal stand for placement of the terminal 30 cm above weighing pan, balances with L-Platform (XSR balances require adapter, 30300956)	30125333	–	–	–	–	• (L)	• (L)
Terminal wall mounting for XPR/XSR terminal, including terminal extension cable (Requires XSR terminal adapter 30300956)	30138798	–	–	–	–	•	•
Optical Sensor							
ErgoSens: Infrared sensor for touch-free remote operation Connection via USB	30300915	•	•	•	•	•	•

Accessories

XPR, XSR Balances











Description	Material No.	XPR Ultra-Micro and Microbalances	XPR26/XPR56 Microbalances	XPR Analytical Balances	XSR Analytical Balances	XPR Precision Balances S/L-Platform	XSR Precision Balances S/L-Platform
Footswitches							
Footswitch: Switch for remote operation, connection via USB	30312558	•	•	•	•	•	•
Transport Cases							
Transport case for Analytical and MIcro-Analytical (XPR26, XPR56)	30404593	–	•	•	•	–	–
Transport case for S-Platform Precision Balances, 5 mg, 10 mg and 0.1 g models, with space for printer and stand arm	30113497	–	–	–	–	• (S)	• (S)
Dust Cover							
Dust Cover Analytical Balances	30460849	–	•	•	•	–	–
Protective Covers							
Protective cover for XPR terminal	30125377	•	•	•	–	•	–
Protective cover for XSR terminal	30300968	–	–	–	•	–	•
Protective cover for XPR/XSR S-Platform 10 mg and 0.1 g models	30300966	–	–	–	–	•	•
Protective cover for XPR/XSR S-Platform 1 mg and 0.1 mg models	30300967	–	–	–	–	•	•
Protective cover for standard weighing pan 5 mg, 10 mg (172 × 205 mm)	30106207	–	–	–	–	• (S)	• (S)
Protective cover for standard weighing pan 0.1 g (190 × 223 mm)	30106204	–	–	–	–	• (S)	• (S)
IP54 cover for AC adapter, protects against dust and splashing (IP54)	11132550	•	•	•	•	•	•
ErgoClips							
ErgoClip Tube micro	30078848	–	•	–	–	–	–
ErgoClip Flask micro	11107879	–	•	–	–	–	–
ErgoClip Basket micro	11107889	–	•	–	–	–	–
ErgoClip Vial micro 12 mm	30296641	–	•	–	–	–	–
ErgoClip SmartPrep Weighing Funnel micro	30138674	–	•	–	–	–	–
ErgoClip Filter Holder 110–150 mm	30460844	–	–	•	•	–	–
Stand for ErgoClips micro	11140175	–	•	–	–	–	–
ErgoClip Weighing Boat	11106748	–	–	•	•	–	–
ErgoClip Titration Basket	11106883	–	–	•	•	–	–
ErgoClip Basket small	11106747	–	–	•	•	–	–
ErgoClip Round-Bottom Flask	11106746	–	–	•	•	–	–
ErgoClip Flask	30460842	–	–	•	•	–	–
ErgoClip Flask small	30460854	–	–	•	•	–	–
ErgoClip Tube	30460853	–	–	•	•	–	–
ErgoClip Syringe	30460859	–	–	•	•	–	–
ErgoClip Vial XPR/XSR	30521808	–	–	•	•	–	–
Stand for ErgoClips	11140170	–	–	•	•	–	–

Accessories

XPR, XSR Balances













Description	Material No.	XPR Ultra-Micro and Microbalances	XPR26/XPR56 Microbalances	XPR Analytical Balances	XSR Analytical Balances	XPR Precision Balances S/L-Platform	XSR Precision Balances S/L-Platform
Barcode Readers							
USB barcode reader	30417466	•	•	•	•	•	•
RFID Solutions							
SmartScan: Secure RFID transfer of sample data to titrator or InMotion sample changer	30459915	–	–	•	–	–	–
EasyScan USB: External RFID reader/writer for dosing heads, SmartTag RFID labels and RFID-tagged pipettes	30416173	•	•	•	–	•	–
SmartTag RFID labels (pack of 50)	30101517	–	–	–	–	–	–
SmartTag RFID labels (pack of 200)	30101518	–	–	–	–	–	–
AntiStatic Solutions							
Internal ionizer module XPR analytical	30460823	–	–	•	–	–	–
Compact external ionizer with adapter	30499860	•	•	•	–	–	–
Compact antistatic kit with stand that holds up to 3×Compact ionizer USB (one Compact ionizer USB included)	30499859	•	•	•	•	•	•
Optional compact ionizer USB for AntiStatic kit with stand 30499859	30496446	–	–	–	–	–	–
Universal antistatic kit 15×25 cm (large U-electrode with power supply)	11107767	•	•	•	•	•	•
U-Electrode small 12×12 cm (requires power supply 11107766)	11140161	•	•	•	•	•	•
Spatula							
Spatula set analytical	30064493	•	•	•	•	–	–
Spatula set micro	30064490	•	•	•	•	–	–
Weighing Pans							
Single-use aluminum weighing pans (10 units)	11106711	–	–	•	•	–	–
SmartGrid cover	11106709	–	–	•	•	–	–
SmartGrid cover micro	11106262	–	•	–	–	–	–
Weighing pan for 5 mg, 10 mg S-Platform models, 172×205 mm	30215056	–	–	–	–	• (S)	• (S)
Weighing pan, incl. pan support, for 0.1 g S-Platform models, 190×223 mm	11132655	–	–	–	–	• (S)	• (S)
Grey drip tray for analytical balances	30460856	–	–	•	•	–	–
Magnetic Protection Shield (MPS) weighing pan for 0.1 g readability models (190×223 mm)	11132625	–	–	–	–	• (S)	• (S)
Bullion weighing kit to load or unload heavy items, only for models with L weighing platform	30300944	–	–	–	–	• (L)	–
Special weighing pan: Suitable for small, tubular samples; includes holder, pan and wind-ring	30113498	•	–	–	–	–	–
Special weighing pan set: Set of 10 special weighing pans	30215425	•	–	–	–	–	–
Optional Interfaces							
EasyHub USB with 4 powered USB ports, stackable	30468768	•	•	•	•	•	•
USB bluetooth adapter for XPR/XSR balances to connect RS-Px printers (requires Bluetooth RS232 serial adapter 30086494)	30416089	•	•	•	•	•	•
Bluetooth adapter RS232 single for use with USB Bluetooth adapter 30416089	30086494	•	•	•	•	•	•
USB-RS232 cable with converter, length 1.7 m	64088427	•	•	•	•	•	•
USB-RS232 cable with converter null modem, length 1.7 m	30364315	•	•	•	•	•	•
USB-USB(A) cable, length 1 m	30241476	•	•	•	•	•	•

Accessories

XPR, XSR Balances







Description	Material No.	XPR Ultra-Micro and Microbalances	XPR26/XPR56 Microbalances	XPR Analytical Balances	XSR Analytical Balances	XPR Precision Balances S/L-Platform	XSR Precision Balances S/L-Platform
Terminal Cable							
Terminal extension cable for XPR and XSR balances, length 4.5 m	30300920	•	•	•	•	•	•
Filling Process Control							
XPR analytical right-hand draft shield door with slot for LV12 feeder	30460840	–	–	•	–	–	–
LV12 small items transporter for automatic balance feeding	30374389	–	–	•	–	• (S)	–
XPR analytical left-hand draft shield door with slot for LV12 feeder	30460841	–	–	•	–	–	–
LV12 pro draft shield door for 0.1 mg and 1 mg models	11132711	–	–	–	–	•	–
Consumables							
SmartPrep weighing funnel, 50 pcs	30061260	–	–	•	•	–	–
Anti-Theft Device							
Steel cord with T-bar mechanism and lock	11600361	–	•	•	•	•	•
Hook for Weighing below the Balance							
Below-the-balance weighing device for precision balances with L-platform (integrated in balance models with S-platforms)	11132565	–	–	–	–	• (L)	• (L)
Filter Kits							
Filter weighing kit suitable for 30–70 mm filters, includes tweezers	30300922	•	–	–	–	–	–
Filter pan: Suitable for 50 mm filters, for XPR micro and ultra-microbalances	00211214	•	–	–	–	–	–
Filter weighing kit for XPR/XSR analytical balances, max filter size 110 mm	30460857	–	–	•	•	–	–
ErgoClip filter holder < ∅ 110–150 mm	30460844	–	–	•	•	–	–



SmartPrep single-use, AntiStatic funnels provide a safe and fast method for weighing-in powders. Simply weigh, transfer and rinse. Fits nearly any standard 10–250 mL flask.

Accessories

MS, MS-TS, ML-T, ME-T, PL-E Balances

Description	Material No.	MS Semi-Micro	MS-L	MS-TS	ML-T	ME-T	PL-E
Density Kit							
Density Kit Advanced & Standard	30535760	•	•	•	•	•	–
EasyDirect Balance Software							
EasyDirect Balance PC software for comprehensive data collection from up to 3 balances	30539323	•	•	•	•	•	•
EasyDirect Balance PC software for comprehensive data collection from up to 10 balances	30540473	•	•	•	•	•	•
Draft Shields							
Draft shield with sliding doors "mg" (usable height 168 mm)	12122405	–	–	•	–	–	–
Draft shield with sliding doors "0.1 mg" (usable height 236 mm)	12122404	–	–	•	–	–	–
Draft shield MS-DS-21 for models with readability of 0.1 g up to 0.01 g	12121014	–	–	•	–	–	–
Draft shield for precision balances ML-DS-21, height 227 mm (ML with pan size 170×190 mm)	12121015	–	–	–	•	–	–
Draft shield without sliding doors "0.1 mg" (235 mm) (Set DS High ME)	30037731	–	–	–	–	•	–
Draft shield without sliding doors "1 mg" (175 mm) (Set DS Low ME)	30042884	–	–	–	–	•	–
Transport Case							
Transport case for PL-E	12102982	–	–	–	–	–	•
Dust Covers							
Dust cover for models with draft shield 235 mm	30029049	–	–	–	–	•	–
Dust cover for models with draft shield 170 mm	30029050	–	–	–	–	•	–
Dust cover for models without draft shield	30029051	–	–	–	–	•	–
Protective Covers							
Protective cover for MS semi-micro	30006615	•	–	–	–	–	–
Protective cover for MS-TS balances (all models)	30216667	–	–	•	–	–	–
Protective cover for MS-L balances	12121852	–	•	–	–	–	–
Protective cover for ML-T balances with draft shield	30241514	–	–	–	•	–	–
Protective cover for ML-T balances with square pan	30241513	–	–	–	•	–	–
Protective cover for ME-T balances with draft shield	30241549	–	–	–	–	•	–
Protective cover for ME-T balances without draft shield	30241560	–	–	–	–	•	–
Protective cover for compact models	12102980	–	–	–	–	–	•
Special Weighing Pans							
Dynamic weighing pan MS-DWP-21 (MS-TS with pan size 170×200 mm, 190×226 mm)	30006471	–	–	•	–	–	–
Anti-Theft Devices							
Steel cord with lock	11600361	•	•	•	•	•	–
Auxiliary Displays							
Auxiliary display AD-RS-M7, RS232 large LCD display with backlight	12122381	•	•	•	•	•	–
Auxiliary display RS-AD-L7, RS232 LCD display with backlight	72213564	•	•	•	•	•	•
Bluetooth Adapters							
Bluetooth adapter RS232 single for balances or printers	30086494	•	•	•	•	•	•
Bluetooth adapter RS232 paired for balances or printers	30086495	•	•	•	•	•	•
Bluetooth and Wi-Fi adapter USB for ML-T and MS-TS balances	30412536	–	–	•	•	–	–







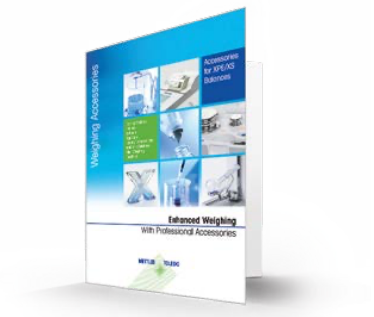


Accessories
Cables





	Description	Material No.
All, with RS232 interface	RS9 (m) – RS9 (f), cable for connecting a balance (RS232, 9-pin) to a printer, PC or titrator (RS232, 9-pin), 1 m	11101051
	RS9 F/F cable, 1 m	51190362
	RS232F cable for connecting to the NetCom kit, 1.8 m	11600724
	USB-RS232 converter cable, FTDI, 2 m	64088427
	USB-RS232 converter: Connects peripheral devices to the balance via RS232 incl. zero modem f/f converter	30364315
All, with Ethernet interface	Ethernet extension cable, RJ45 patch cable U/UTP, CAT5, 3 m	11600395
	Ethernet extension cable, RJ45 patch cable U/UTP, CAT5, 5 m	11600396
With USB interface	USB (A – B) cable for connection to PC, 1 m	30241476
	USB (A – B) cable for connection to PC, 1.8 m	51191926



For more details please request our accessories brochure (30006734).

www.mt.com/lab-weighing-accessories

Our Expertise
Your Cornerstone for Reliable Results

Only the finest quality austenitic steel offers the highest resistance to corrosion over the course of a weight's lifetime. Our unique manufacturing process involves melting the steel under vacuum, traditional mechanical polishing, final stage electrolytic polishing, fully automated cleaning and final calibration using state-of-the-art mass comparators. The process has been perfected over years of experience to bring you accurate weights of the highest quality with a stability that remains unmatched in the market.

Custom Materials



Our specially produced super austenitic stainless steel is cast under vacuum to reduce undesired trace elements, remove dissolved gases and improve oxide cleanliness. This optimizes the physical properties of the steel; e.g. density is highly reproducible.

Electrolytic Polishing



A proprietary process which is far more even compared to mechanical polishing eliminates microscopic protrusions in the weight's surface. Thanks to the enhanced properties of the passive oxide film, long-term stability of the weight is improved.

Robot Calibration



Substantial investment in cutting-edge robot technology, combined with decades of experience, guarantees the highest standard of weight calibration. Computer-controlled processes eliminate human error, ensuring consistent and reproducible results with low uncertainty values.

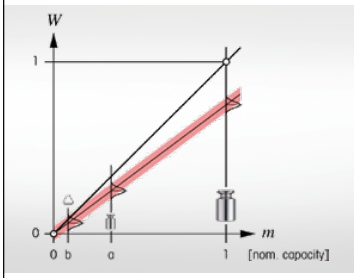
www.mt.com/weights

Ensure Valid Weighing Results
With Just 2 Weights

Routine testing between scheduled calibrations helps you to maintain accuracy by ensuring early detection of non-conformance with your weighing process requirements. But did you know that you can test your balance with just 2 weights rather than a full set and still ensure consistently accurate results?

The science-based global weighing standard GWP™ states that testing at approximately 5 percent and 100 percent of balance capacity is sufficient. This approach saves time and money and applies to all balances in all industries. Specific to pharmaceutical companies, the same methodology is documented in USP General Chapter 41.

Two Weights Are All You Need



According to GWP™ 2 test weights are sufficient:
(a) ≤5% capacity (for repeatability)
(1) ≤100% capacity (normally; for sensitivity and eccentricity)

Recommended Test Frequency



Industry regulations demand testing regimes which are related to the process risk – the higher the risk, the greater the testing frequency. Use an efficient risk-based testing approach based on the GWP™ Weighing Standard.

Up to 0.03 Percent Process Tolerance



Routine balance-testing maintains balance accuracy to limit the risk of working outside your specified process tolerances. CarePac™ weights are specified to validate process tolerances up to 0.03 percent.

Test Weights
For All Your Routine Testing Needs

Whether you have a microbalance or a high capacity precision balance, we have the test weights to fulfill all your routine testing needs. Our range of high-quality test weights covers from 0.05 milligrams up to 50 kilograms in OIML weight classes E1 to M1.



Contact your local sales representative to discuss how you can save costs, test less and still ensure accurate weight results.

For more information on our full range of weights, please visit our website.

www.mt.com/weights





Accessories

Tweezers

Description	Material No.
Straight tips, for weights 1 mg – 50 g, length 130 mm	00015900
Straight tips, for weights 1 g – 1 kg, length 220 mm	11116544
Straight tips, for weights 1 mg – 50 g, length 140 mm	11116543
Bent tips, for weights 1 g – 1 kg, length 210 mm	00015901
Bent tips, for weights 1 g – 200 g, length 130 mm	11116540
Straight tips, for weights 1 mg – 500 mg, length 130 mm	30040321





Weight Forks

Description	Material No.
Aluminum/polyamide, for weights 500 g – 1 kg, length 300 mm	00222175
Aluminum/polyamide, for 2 kg weights, length 320 mm	00015902
Aluminum/polyamide, for 5 kg weights, length 470 mm	00015903
ABS, for 500 g weights, length 150 mm	11123094
ABS, for 1 kg weights, length 150 mm	11123095





Weight Handles

Description	Material No.
Steel, with rubber coating, for 2 kg weights	11123096
Steel, with rubber coating, for 5 kg weights	11123097
Aluminum, for 10 kg and 20 kg weights	00015904
Aluminum, for 10 kg and 20 kg weights, with ear for crane	11116517
Aluminum, for 50 kg weights, with ear for crane	11116515





Miscellaneous Accessories

Description	Material No.
Leather gloves, pair, not suitable for reguated environments	00072001
Nylon gloves, pair, suitable for all environments	11123098
Microfiber cloth, suitable for all environments	00158798
Brush, suitable for all environments	00158799
Weight marking, up to 5 digits, alphanumeric, on 1 g – 50 kg weights	11116500
Air bellow, for weight cleaning	11116548

Mass Comparators

Highly Accurate Mass Determination



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Manual Mass Comparators	110–111
Automated Mass Comparators	112–113
MC Link Calibration Software	114–115



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www.mt.com/comparator

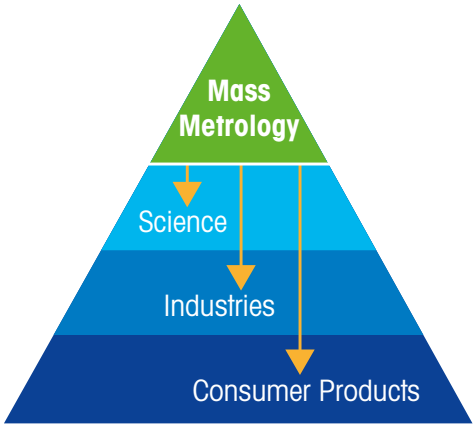
Comparator Balances
For Utmost Accuracy

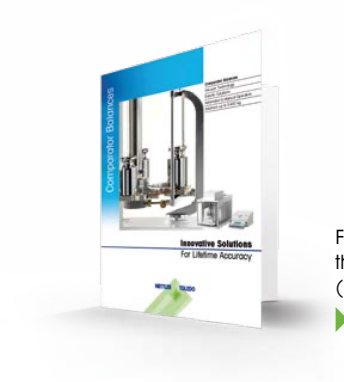
METTLER TOLEDO offers a comprehensive portfolio of mass comparators for seamless traceability in mass calibration and highly accurate weighing applications.

Thanks to unrivaled repeatability and resolution, mass comparators are the most accurate balances in existence today. They determine the exact mass of unknown weights by comparison with a known reference weight.

Weights calibrated in an ISO 17025-accredited calibration laboratory are fully traceable to the international definition of the kilogram. Hence mass comparators play a key role in the realization of measurement standards.

METTLER TOLEDO mass metrology solutions guarantee the highest quality measurements and full compliance with country-specific norms in all areas of science, industry and consumer products.





For more details please request the Comparator Balances brochure (11795840).

www.mt.com/comparator

Ensured Traceability

Choose from more than 20 models to cover your individual weighing range and accuracy level. Thanks to an ergonomic design, our comparator balances are easy to use. Complementary MC Link software ensures maximized productivity.



Manual Comparators

Differentiate by Competence

Enhance your service offering by adding the capability to perform density calibration of customer weights.



Volume Comparators

Reduce Your Uncertainties

Calibrate weights up to 60 kilograms and achieve the smallest uncertainties by running measurements at night without human influence. Maintain constant pressure or vacuum to eliminate air-density dependencies.



Automated Comparators

Where Productivity Matters

Enjoy worry-free weight calibration by fully automating all calibrations on your robotic mass comparator. Benefit from the highest productivity and improved measurement performance.



Robotic Comparators

Manual Solutions
Accurate and Versatile

METTLER TOLEDO manual mass comparators offer a winning combination of the highest accuracy plus unmatched performance and are perfect for use in mass calibration laboratories or industrial applications.

Our manual mass comparator range covers weight calibration from 0.05 milligrams to 5,000 kilograms. State-of-the-art weighing cells and innovative weighing pans (hanging, hook and LevelMatic) assure the best repeatability possible. MC Link mass-calibration software is supplied as standard and helps fulfill data-integrity and compliance requirements while cutting calibration time in half.

AX Comparators



Achieve the smallest uncertainties possible on manual comparators with AX window-range models. Hanging weighing pans, double draft shields and sophisticated weighing cells secure the best results for higher weight classes.

XPR Comparators



Enjoy peak performance plus ergonomic and convenient operation. The LevelMatic weighing pan eliminates the influence of eccentricity guaranteeing improved performance. LevelControl provides a warning if the comparator is off-level to assure reliable results.

XPR Ultra-Micro Comparators



XPR ultra-micro comparators offer convenient full weighing ranges with the highest precision up to 6 grams. Draft shield doors are controlled automatically to simplify workflows and reduce operator fatigue.



Smooth Calibration Process
Reduce manual process steps with automatic data recording. Accelerate your calibration process and prevent data inconsistencies. Gain faster turnaround on weight calibration.



Minimized Uncertainty
Utmost reliability and accuracy thanks to the LevelMatic weighing pan, an innovative mechanism that reduces corner-load effects to the very minimum.

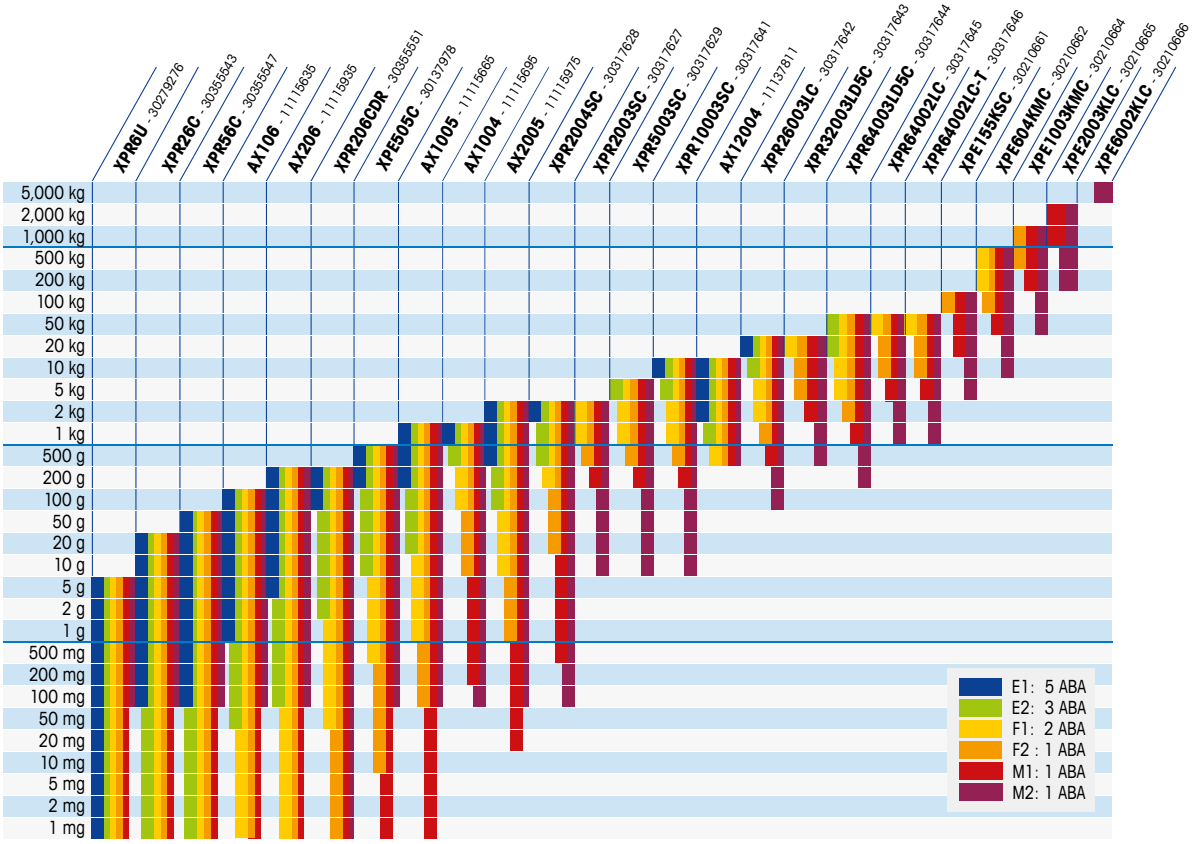


Comprehensive Weight Calibration
MC Link mass calibration software is intuitive and easy to use. Workflows are more efficient and all results are saved securely to help you ensure traceability and regulatory compliance at all times.

www.mt.com/mc-link



XPR26003LC mass comparator with MC Link connection



The illustration shows the application ranges according to the OIML R111 recommendation at zero-meter altitude. Please contact us for a personal consultation to discuss your individual needs.

Automated Solutions
Highest Efficiency, Lowest Uncertainty

Whereas research laboratories and national metrology institutes strive for the smallest uncertainties, private calibration laboratories are often driven by cost and throughput.

Our automated mass comparators address these demands with application-oriented solutions and different levels of automation. Backed by more than 20 years of experience in automated mass comparison, these state-of-the-art vacuum, robotic and automated mass comparators are the instruments of choice around the world.

Volume Comparators



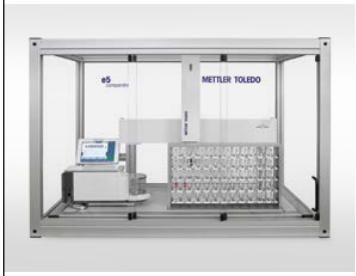
Volume comparators address the demand to determine the density of weights up to 20 kilograms. Only with a known density of a higher class weight can the compliance of calibration be guaranteed.

Automated Comparators



The absolute highest accuracy can be achieved by utilizing automated mass comparators. As air density is one of the primary contributors to uncertainty, the portfolio covers vacuum, constant-pressure and ambient-pressure models.

Robotic Comparators



Our e_Line and a_Line mass comparators carry out weight calibration in a fully automated process, significantly reducing calibration times and measurement uncertainty.



Accuracy Through Dissemination
To establish full traceability to your primary standard and therefore the International System of Units (SI), automated solutions establish disseminations up to 60 kilograms.



Maximize Throughput
With a magazine capacity for up to 100 weights, robotic mass comparators are designed to run 24 hours a day, maximizing your laboratory's throughput.

www.mt.com/lab-robotic-MC

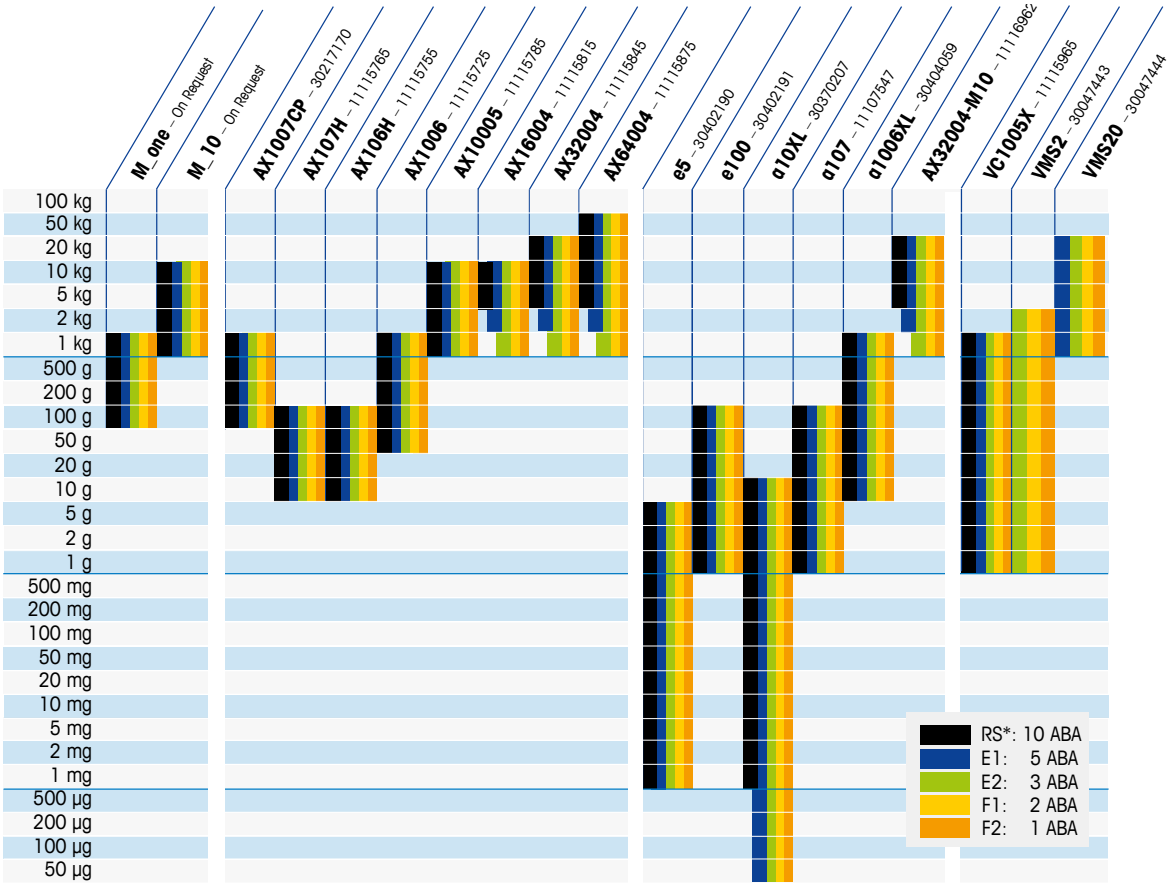


Redefining the Kilogram
With years of expertise in mass metrology, METTLER TOLEDO's M_one vacuum mass comparator played an important role in the redefinition of the kilogram and continues to play an important role in its actual realization and dissemination.

www.mt.com/lab-KG-Redefinition



M_one vacuum mass comparator



The illustration shows the application ranges according to the OIML R111 recommendation at zero-meter altitude. In cases where the application range is limited by the physical size of the weight, additional support plates may be required to accommodate smaller weights. Please contact us for a personal consultation to discuss your individual needs.

* Reference standards, i.e. weights that are used to calibrate weights of classes E1 and higher.

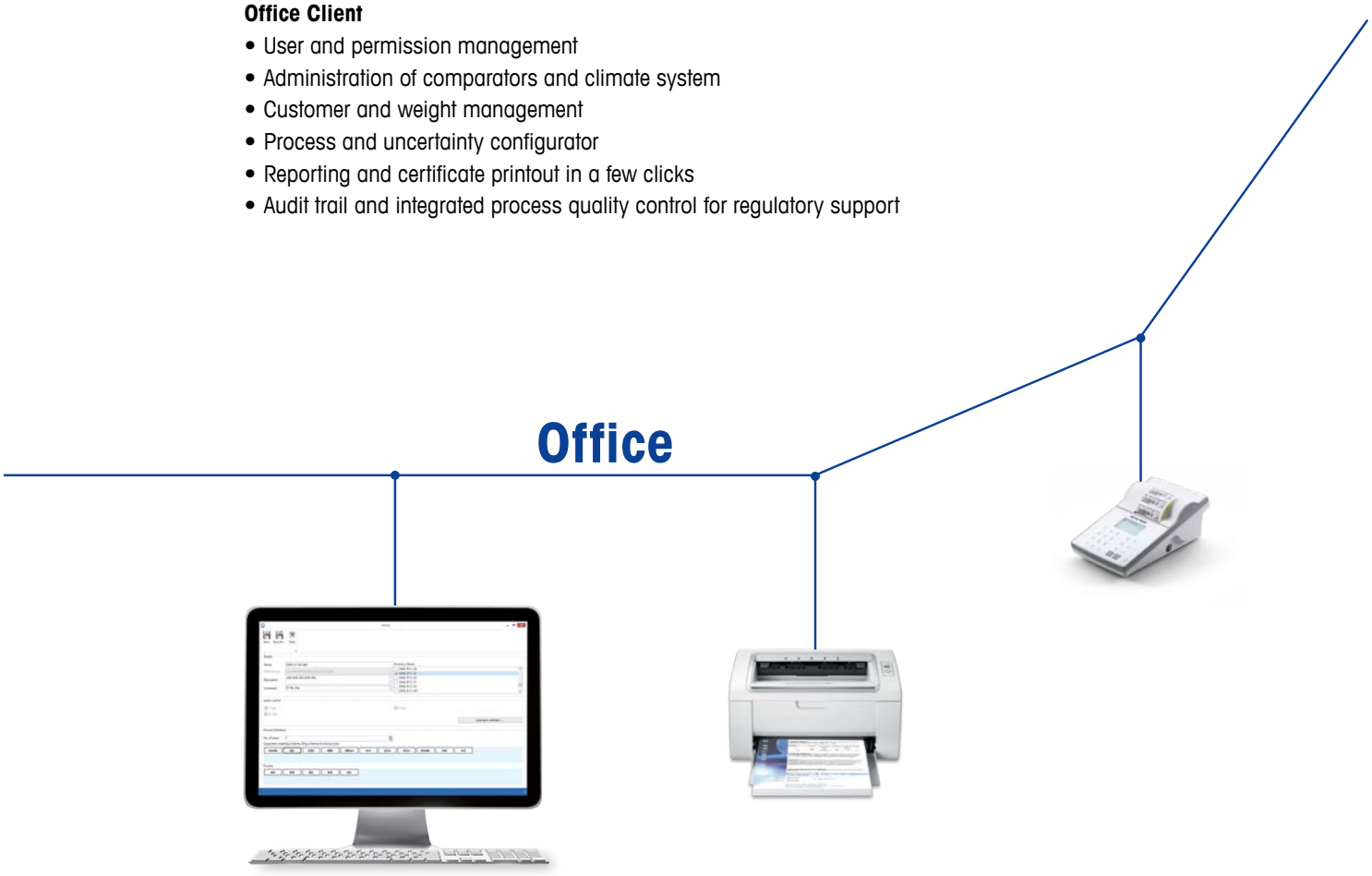
Increase Calibration Efficiency
Smart Data Processing and Control

Today's mass-calibration challenges demand a combination of high data security and process efficiency. Regulations must be followed and complex calculations carried out for accurate results and compliance.

MC Link software fulfills every mass calibration laboratory's requirements. It helps you overcome the challenges inherent in tedious mass-calibration processes. Operable in multiple languages, the Office Client is designed to perform administrative and preliminary work, while the Laboratory Client provides all functionality for mass calibration and equipment testing.

MC Link reduces calibration workflows to a minimum by increasing efficiency, data security and conformity.

Office Client
- User and permission management
- Administration of comparators and climate system
- Customer and weight management
- Process and uncertainty configurator
- Reporting and certificate printout in a few clicks
- Audit trail and integrated process quality control for regulatory support



	Material No.
MC Link software – standalone version	30208278
MC Link software – multi-place version	30208280
MC Link upgrade – multi-place license	30208289
MC Link license – 1 MT instrument	30208285
MC Link license – 1 non-MT instrument	30208288

	Material No.
MC Link option – audit trail license	30208283
MC Link option – barcode package	30212767
MC Link validation handbook	30212634
ClimaLog30 climate station	30078423
DataLog30 – 2 external temperature sensors	30078424

Laboratory Client

- Weight calibration
- Mass-comparator testing
- Real-time statistical process control







Smooth Calibration



- Fast and secure calibration
- Reduced manual handling
- Improved accuracy
- Reduced lead times

Efficient Workflow



- Quality control and mass calibration in one process
- Automatic calculations and tolerance testing
- Direct certificate printing
- Increased productivity and throughput

Reliable Results



- Integrated process control
- Paperless, secure and traceable
- User management with comprehensive data-reporting for validation

Moisture Analyzers

Because Moisture Content Matters





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Standard Moisture Analyzers	124
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www.mt.com/moisture

Accurate Moisture Determination
Fast, Precise, Reliable

Our moisture analyzers provide fast, precise and reliable moisture analysis for quality and in-process control applications. Robust and easy to use, these analyzers offer you long, reliable operation whether you work in a highly regulated pharmaceutical lab, need the highest resolution to measure moisture content in plastics, or take moisture measurements for food-product quality control.



High-Performance Moisture Analysis

With highly accurate and repeatable results for any sample type, these analyzers are ideal for applications with low moisture content such as plastics. Clever features support data handling, process security, and compliance. The results prediction functionality enables reduced time-to-result to speed up decision making.



Excellence Analyzers

Solid, Versatile Performance

Suitable for a variety of industries, this unit offers user-guided touchscreen operation with method shortcuts for ease-of-use. It's compact and robust design works for both quality and in-process control applications.



Advanced Analyzers

Basic Moisture Analysis

This is a reliable, easy and affordable instrument with basic functions for standard moisture analysis. It offers simple, 3-step operation with method buttons.



Standard Analyzers

Routine Testing and Accessories

Verify your moisture analyzer's performance with SmartCal™, our unique routine testing substance. Benefit from a range of accessories such as sample pans, glass-fiber filters and PC software to ensure the best results and most efficient processes.



SmartCal and Accessories

High-Performance Moisture Analysis

Designed for Accurate Results and Data Integrity

Our Excellence analyzers are equipped with high-performance weighing cells for best moisture results even when measuring very low moisture content. Drying method flexibility in combination with the Method Wizard function ensures reliable moisture results for any sample type in research, quality control and in-process control. The embedded results prediction functionality enables reduced time-to-result to speed up decision making. Integrated routine testing and quality management features help to ensure optimal instrument performance on an ongoing basis to meet the demands of highly regulated industries.

Accurate Results for All Sample Types



Get highly reliable and repeatable moisture results thanks to fast and accurate halogen heating and superior weighing performance with up to 0.001 percent moisture content readability. Highly flexible moisture methods including a preheat function and multiple drying programs enable accurate moisture content determination of samples with moisture contents ranging from <0.1 percent up to 100 percent.

Data Integrity and Process Control



Define multiple users with individual access rights. Assign methods to each user to ensure adherence to SOPs/regulations and reduce the risk of errors. The zero results and auto lock-out option assists with data integrity. Customizable control and warning limits enable instant pass/fail decisions.

Versatile Data Transfer and Instrument Control



Connect the instrument to a network through Wi-Fi, Ethernet, RS232 or USB. This enables the printing of results on any strip or network printer and the pushing of A4/letter PDF reports and CSV files to file servers. You can also import or export user and method settings as XML files via a USB drive. Integrate your moisture analyzer into any management system by using our comprehensible set of MT-SICS commands.



Reduced Measurement Time with Results Prediction
The HX204's QuickPredict™ function predicts the final moisture content in a fraction of the usual measurement time. This allows you to make faster decisions on further analysis and processing. Optionally available on HS153.

www.mt.com/moisture-quickpredict



Innovative Design for Easy Cleaning
The hanging weighing pan and flat stainless-steel surface underneath allow fast and easy cleaning without the risk of dirt falling into the weighing cell.



Built-In Tests Assure Optimal Performance
Integrated routine testing features ensure the instrument is always performing optimally. These include FACT, SmartCal™ and tests for the heating and weighing units.



Integrated Training and Support
The setup wizard gets you up and running right away. The instrument tutorial shows you how to conduct a measurement and create a method. The method wizard helps you develop reliable methods for your samples with minimum time and effort.



HX204 moisture analyzer

Measurement Range and Material No.

(Detailed specifications on page 125)

	HX204	HS153
Repeatability (sd) with 2 g Sample	0.05%	0.05%
Recommended Moisture Range	0.01–100 %MC	0.5–100 %MC
Material No.	30019875	30019876



Download our free method collections for pharma excipients and plastics to obtain tailor-made moisture methods for frequently used samples.

www.mt.com/moisture

All-Rounder for Routine Tasks
In the Lab or on the Production Floor

Touchscreen operation and user guidance make the HC103 perfect for your routine moisture tasks. Use the integrated method wizard for quick and easy development of robust moisture methods. Define method shortcuts and start methods directly on the home screen. View your results in real-time with a drying curve. A compact design saves space while robust components guarantee a long instrument lifetime, whether you work in a busy laboratory or harsh production environment. The HC103 offers you ease and convenience for both quality and in-process control applications.

User-Friendly Operation



The large 7-inch color touchscreen offers an easy-to-navigate user interface to simplify your routine tasks. Press the method shortcut on the home screen and follow the step-by-step graphical user guidance to start and run your measurement. Measurement progress is visualized on a real-time drying curve. To avoid accidental changes, settings can be protected.

Robust and Compact Design



A tough metal housing combined with reliable halogen technology guarantees a long instrument lifetime and reliable results. Flat stainless steel surfaces are easy to clean. A compact design makes the HC103 perfectly suited for the laboratory or production floor.

Quick Access to Methods and Results



Define up to 20 methods using standard or rapid drying with various switch-off criteria and display units. Store up to 100 results in the instrument and review them easily in the results overview. Either print your results or transfer them to a USB flash drive or PC.



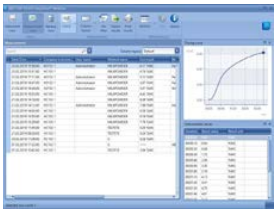
Easy Reporting
Production and quality control requires regular moisture testing for each batch. ID management (e.g. batch or sample ID) together with a barcode reader make documentation straightforward and easy.



Multiple Languages
The One Click™ user interface offers 13 languages. Instrument operation and results reporting can now be done in your preferred language.



Integrated Training and Support
The setup wizard gets you up and running right away. The instrument tutorial shows you how to conduct a measurement and create a method. The method wizard helps you develop reliable methods for your samples with minimum time and effort.



EasyDirect Moisture
Improve your data and instrument management with EasyDirect Moisture PC software. Connect up to 5 moisture analyzers and collect results from measurements and routine testing. Keep an overview of instrument status and receive reminders for routine testing. Download free trial version:

www.mt.com/moisture-software



HC103 moisture analyzer



Read more about the fundamentals and applications of moisture analysis in our moisture guide.

www.mt.com/moisture

Measurement Range and Material No.

(Detailed specifications on page 125)

	HC103*
Repeatability (sd) with 2 g Sample	0.10%
Recommended Moisture Range	1.0–100 %MC
Material No. 230 V	30216101
Material No. 115 V	30216103

* Looking for a replacement for your HB43-S or HB43 moisture analyzer?
The HC103 is its successor and offers the same reliable performance and quality.



HB43-S/HB43 moisture analyzer



HC103 moisture analyzer

Great for Simple Moisture Analysis
Reliable, Easy and Affordable

Our Standard moisture analyzers are robust instruments that are straightforward to use. With simple method parameter choices and basic documentation functionalities, they fulfill the needs of users who do not have special requirements. With easy 3-step operation and reliable measurement performance, you have everything you need to make accurate moisture measurements today and for years to come.

Simple 3-Step Operation



Get fast moisture results in an easy 3-step process:
1. Tare the empty weighing pan
2. Add the sample
3. Press start and see your results in just a few minutes

Brilliant Display



Thanks to large numbers and a brilliant LCD display, information and results are easy to read in all light conditions.

Rugged Construction



The instrument is designed to last for many years. The robust metal housing, stainless-steel surface and reliable halogen technology will serve you well in all your daily moisture measurements.

Measurement Range and Material No.

	HE73	HE53
Repeatability (sd) with 2 g Sample	0.10%	0.10%
Recommended Moisture Range	1.0–100 %MC	1.0–100 %MC
Material No. 230 V	30237200	30100246
Material No. 115 V	30237205	30100251



HE53 moisture analyzer

Moisture Analyzer Comparison Table

		HX204	HS153	HC103	HE73	HE53
Repeatability (sd)	With 2 g sample	0.05%	0.05%	0.10%	0.15%	0.15%
	With 10 g sample	0.01%	0.01%	0.015%	0.05%	0.05%
Drying Programs	Standard, rapid	•	•	•	•	•
	Gentle	•	•	–	–	–
	Step	•	–	–	–	–
Readability		0.1 mg	1 mg	1 mg	1 mg	1 mg
Storage	Methods	300	100	20	2	1
	Results	3,000	3,000	100	1	1
Recommended %MC		>0.01%	>0.5%	>1.0%	>1.0%	>1.0%
Result Handling	Control charts	•	•	-	–	–
	Result overview	•	•	•	–	–
	ID management	•	•	•	–	–
	Real-time drying curve	•	•	•	–	–
	A4 network printing	•	•	–	–	–
	Export to FTP server	•	•	–	–	–
User Management		Multiple users with password protection		Protection of settings	–	–
Switch-Off Criteria	Weight loss/time (mg/s)	5 automatic, free	5 automatic, free	5 automatic, free	Auto, free	Auto
	Time (min)	1–480	1–480	1–480	1–120	1–120
Method Development Support		Method wizard, test measurement, temperature assistant		Method wizard	–	–
QuickPredict		•	Optional	–	–	–
Test and Adjust	Temperature [°C]	Freely definable	Fixed at 100/160	Fixed at 100/160	Fixed at 100/160	Fixed at 100/160
	3rd test temperature	Freely definable	–	–	–	–
	FACT	•	–	–	–	–
	Weight [g]	0.1–200	0.1–150	100	50	50
Drying Temperature	Range [°C]	40–230	40–230	40–230	50–200	50–160
Display Modes		%MC, %DC, %AM, %AD, g				
Interfaces	Wi-Fi, Ethernet	•	•	–	–	–
	USB device/host	1/2	1/2	1/2	–	–
	SD card	•	•	–	–	–
	RS232	•	•	•	•	•
Capacity		201 g	151 g	101 g	71 g	54 g

SmartCal™ Test Substance
For Trusted Moisture Results

Whether producing food, chemical or pharmaceutical products, no one can risk inaccurate results. With strict regulations and ongoing audits, efficient qualification, calibration and performance verification and documentation are vital in today's industry. SmartCal™ is an innovative test substance that offers a fast and efficient way to verify moisture analyzer performance. Testing your moisture analyzer regularly with SmartCal ensures that your measurements are reliable and fulfill the demands of your industry's regulations.

Certified SmartCal



The SmartCal test substance is certified by the independent German Federal Institute for Materials Research and Testing. The Certificate of Analysis satisfies strict regulatory requirements.

Quick and Easy Testing



Simply select the integrated SmartCal method on the instrument, distribute the contents of the test sachet evenly over the sample pan and start the measurement. After 10 minutes, you know if your instrument's performance is satisfactory or not.

Documented Performance



SmartCal measurement reports make it easy to monitor and interpret your instrument's performance over time. Results can be stored directly in the instrument or manually entered into our free, validated Excel report sheet.

SmartCal™ Test Substance

Product	Material No.
SmartCal StarterPac	30005917
cSmartCal StarterPac	30005918
SmartCal12	30005792
cSmartCal12	30005793
SmartCal24	30005790
cSmartCal24	30005791
Thermohygrometer (RHT sensor) – HX/HS/HC	30020850

▶ **www.mt.com/smartcal**



SmartCal: Certified moisture analyzer test substance

Service Solutions to Ensure Moisture Analyzer Accuracy

Professionally executed installation, qualification and perodic calibration services are essential to ensure trusted moisture results and compliance. METTLER TOLEDO offers a broad range of instrument qualification and verification solutions so your moisture analyzer performs perfectly from the start.

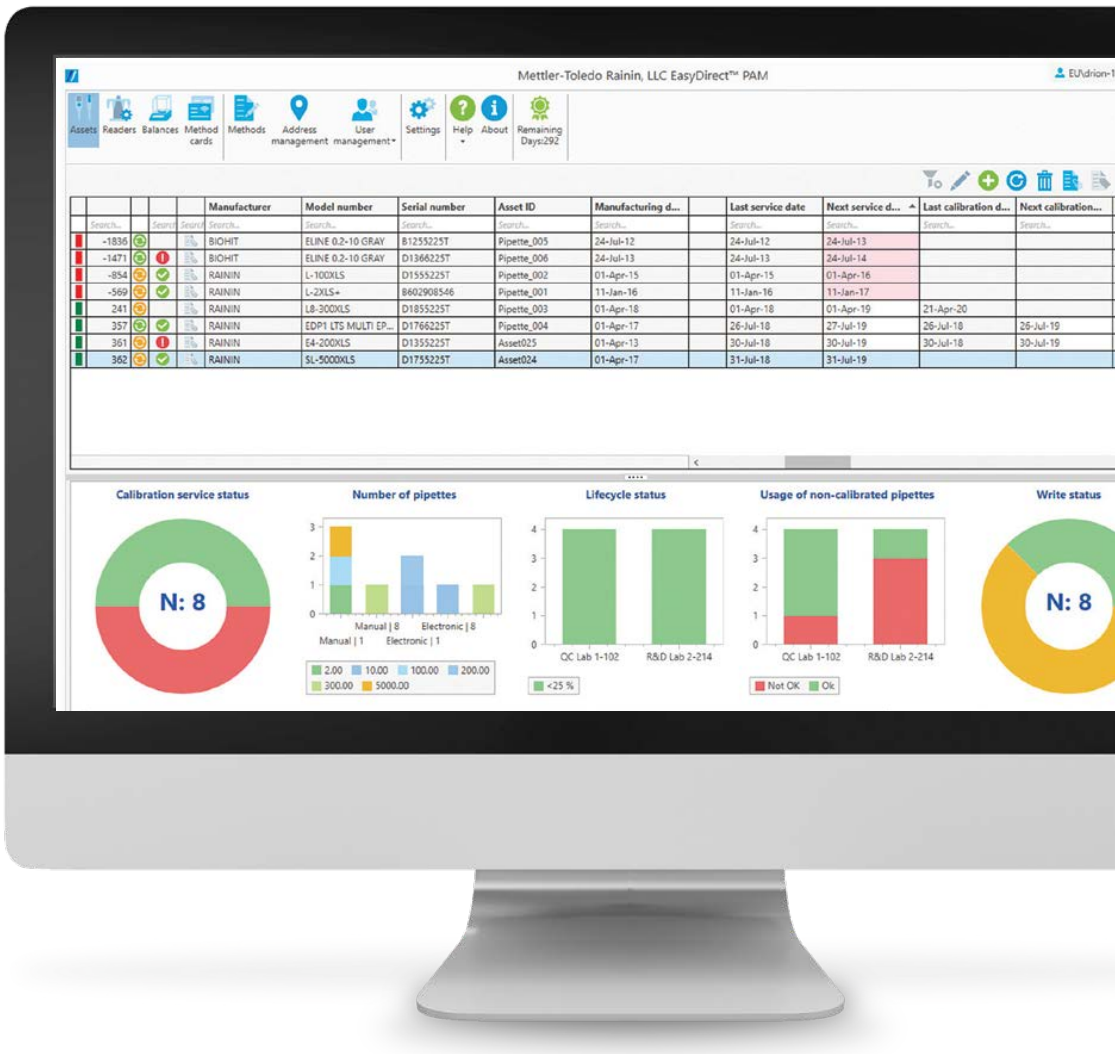
Accessories for Moisture Analyzers

	Description	Quantity	Material No.
Sample Handling	Aluminum sample pan	80	00013865
	Glass fiber filters	100	00214464
	Extra-strong aluminum sample pans	80	11113863
	Reusable steel sample pan, height 6 mm	3	00214462
	Downholder	1	00214758
	Textile cage for bulky samples (HA-cage)	1	00214695
Quality Management	Certified temperature kit – HX/HS/HC	1	30020851
	Certified temperature kit – HE	1	30134141
	Certified adjustment weight 100 g – HX/HS/HC	1	30406400
	Certified adjustment weight 50 g – HE	1	30402574
	Thermohygrometer (RHT sensor) – HX/HS/HC	1	30020850
Printers	P-56RUE thermal printer	1	30094673
	RS-P25 compact printer with RS232 interface	1	11124300
	Printer paper (for P25 printer)	5	00072456
	Printer paper (for P25), self-adhesive	3	11600388
	Printer ribbon, black	2	00065975
	P-58RUE thermal printer	1	30094674
	P-52RUE dot-matrix printer	1	30237290
Software and Accessories	EasyDirect Moisture (for HX/HS/HC)	1	30522676
	QuickPredict license (for HX/HS)	1	30518268
	Support stand – HX/HS	1	30018474
	Printer holder – HX/HS	1	30066692
	Dust filters – HX/HS	50	30020838
	Protective cover – HX/HS	1	30003957
	Anti-theft device – HX/HS/HC/HE	1	11600361
	HX/HS transportation case	1	30020836
	Protective cover – HC	1	30216115
	Dust filters – HC/HE/HB	50	11113883
	Protective cover – HE	1	30209145
	Barcode reader (USB) – HX/HS/HC	1	30417466
	USB Wi-Fi adapter*	1	30380525
	Installation Pacs		see page 78

* Country specific availability (www.mt.com/moisture)

Pipetting Solutions

Products for the Life Sciences



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Save Time and Simplify Pipette Management with EasyDirect

- **Track** location, users and usage of pipettes in a single window
- **Manage** and schedule pipette calibration and maintenance
- **Simplify** your process with the Bluetooth wireless technology enabled SmartStands

Scan this code for more information.

www.mt.com/rainin

Why Rainin?
Quality, Performance and Purity!

Professional labs around the world rely on Rainin for their liquid-handling protocols.

Whether your goal is to be first to market or first to publish, the accuracy, precision and ergonomics of your equipment can hugely help – or hinder – your success. Choose Rainin!



Quality
From rugged construction and innovative features to exceptional comfort and ergonomic design, Rainin quality is recognized worldwide.

Performance
Rainin pipettes are renowned for precision and accuracy. Rainin multichannels offer industry-leading channel-to-channel consistency.

Purity
BioClean Ultra is the industry's most comprehensive standard for tip purity. We test every lot and guarantee every tip for purity and performance.

There's a reason Rainin multichannel pipettes outperform all other multichannels worldwide – exceptional comfort and handling along with industry leading channel-to-channel consistency.

Unparalleled Comfort

Ergonomic pipettes in manual, electronic, single-channel and multichannel formats for all pipetting applications. Built-in RFID tags, when used with SmartStand, streamline pipette management.



Ergonomic Pipettes

High Throughput

New BenchSmart 96 and Liquidator 96 high-throughput pipetting systems are powerful, intuitive and easy to use. Speed up workflows using 96- and 384-well plates in volumes from 0.5 to 1,000 µL.



96/384-Well Pipetting

Exceptional Purity

Rainin BioClean Ultra tips are among the cleanest and most tested tips on the market. A wide range of inert BioClean Ultra tips are available for all pipetting applications.



BioClean Ultra Tips

World-Class Support

Whether on-site or in our ISO 17025-accredited labs, METTLER TOLEDO delivers a service experience that is unparalleled for quality and value.



Service

Pipet-Lite XLS+
Manual Performance You Can Trust

With the Rainin Pipet-Lite™ XLS+™ family of pipettes, METTLER TOLEDO blends cutting-edge engineering with innovation to deliver highly reproducible results with exceptional comfort.

XLS+ Single-Channel
Lighter and smoother operation, new design



Pipet-Lite XLS+ further reduces plunger force and tip-ejection forces. Eleven models cover volume ranges from 0.1 µL to 20 milliliters; custom fixed volumes are also available in LTS and traditional models. The RFID tag in every XLS+ model makes calibration and pipette inventory management easy when used with SmartStand.

XLS+ Multichannel
Ideal for 96-well plate work



Pipet-Lite XLS+ multichannels with lightweight liquid ends deliver perfect sealing, consistent sample pick-up on all channels and reproducible results. With volumes from 1 to 1,200 µL in 8- or 12-channel formats, these multichannel pipettes exceed laboratory requirements.

XLS Adjustable Spacer
Fast format changes between plates and tubes



Pipet-Lite XLS Adjustable Spacer pipettes let you set nozzle spacing for use with 24-, 48- or 96-well plates with just a twist: 9–19 millimeters on 6-channel and 9–14 millimeters on 8-channel models. The liquid end rotates 360° for quick alignment with the plate.

www.mt.com/pipettelitexls



SmartStand

Pipet-Lite™ XLS+™ Pipettes

Single-Channel	Material No.
0.1–2 µL	17014393
0.5–10 µL	17014388
2–20 µL	17014392
10–100 µL	17014384
20–200 µL	17014391
20–300 µL	17014405
100–1,000 µL	17014382
200–2,000 µL	17014390
500–5,000 µL	17011790
1–10 mL	17011783
2–20 mL	17011788
Starter Kit*	17014406

* Starter Kit: L-20XLS+, L-200XLS+, L-1000XLS+ and accessories

Multichannel: 8-Channel	Material No.
0.5–10 µL	17013802
2–20 µL	17013803
5–50 µL	17013804
20–200 µL	17013805
20–300 µL	17013806
100–1,200 µL	17014496

Multichannel: 12-Channel	
0.5–10 µL	17013807
2–20 µL	17013808
5–50 µL	17013809
20–200 µL	17013810
100–1,200 µL	17014497

Adjustable Spacer: 6-Channel	Material No.
20–300 µL	17011841
100–1,200 µL	17011840

Adjustable Spacer 8-Channel	
5–50 µL	17011844
20–300 µL	17011843
100–1,200 µL	17011842

Accessories	Material No.
SmartStand – smart charging stand	30312897
Magnetic hang-ups with magnet, set of 3	17003024
Shelf hang-ups without magnet, 3 on a bracket	17014388
Carousel stand for 7 pipettes with fingerhook	17014392
Adapter for hang-ups and carousel stand for use with electronic and multichannel pipettes	17014384

E4 XLS+ Electronic Pipette
Simple, Versatile and Secure

Configure the E4™ XLS+™ to be as simple or elaborate as your work requires. Keep the functions you want, hide the ones you don't and password protect all, some or none of the E4's modes and features.

XLS+ Single-Channel
Simplicity without compromise



The E4 XLS+ is loaded with features and functionality, redefining simplicity and control in pipetting. The contoured body, even balance and legendary precision and accuracy combine for an extraordinary pipetting experience. When used with SmartStand, built-in RFID tags simplify pipette inventory and calibration management.

XLS+ Multichannel
Precision across all channels



The E4 XLS+ multichannel pipette is a perfect tool for high-throughput work. It is fast-loading, lightweight and easy to handle. E4 delivers precision and consistency across all channels. Pipette settings, protocols and service alarms can be password protected for GLP/GMP™ compliance.

XLS Adjustable Spacer
Quickly move samples between different formats



E4 XLS spacers let you set nozzle spacing for 24-, 48- or 96-well plates with just a twist: 9–19 millimeters on 6-channel and 9–14 millimeters on 8-channel models. The liquid end rotates 360° for quick alignment with the plate. E4 XLS spacers are ideal for genomic, proteomic and cell-culture applications.

www.mt.com/E4-XLSplus

The E4's carousel-like menu makes switching between features and functions fast and easy.

www.mt.com/RaininE4



E4 XLS+

E4™ XLS+™ Pipettes

Single-Channel	Material No.
0.5–10 µL	17014484
2–20 µL	17014487
10–100 µL	17014483
20–200 µL	17014486
20–300 µL	17014488
100–1,000 µL	17014482
200–2,000 µL	17014485
500–5,000 µL	17012312
1–10 mL	17012313
2–20 mL	17012314

Multichannel: 8-Channel	
0.5–10 µL	17013792
2–20 µL	17013793
5–50 µL	17013794
20–200 µL	17013795
20–300 µL	17013796
100–1,200 µL	17014498

Multichannel: 12-Channel	
0.5–10 µL	17013797
2–20 µL	17013798
5–50 µL	17013799
20–200 µL	17013800
20–300 µL	17013801
100–1,200 µL	17014499

Adjustable Spacer: 6-Channel	Material No.
20–300 µL	17012327
100–1,200 µL	17012328

Adjustable Spacer 8-Channel	
5–50 µL	17012329
20–300 µL	17012330
100–1,200 µL	17012331

Accessories	
SmartStand – smart charging stand	30312897
Magnetic hang-ups with magnet, set of 3	17003024
Shelf hang-ups without magnet, 3 on a bracket	17014388
Carousel stand for 7 pipettes with fingerhook	17014392
Adapter for hang-ups and carousel stand for use with electronic and multichannel pipettes	17014384

BenchSmart 96
Smart High-Throughput Pipetting

For researchers who want the precision and reproducibility of automated liquid handling yet need the speed and flexibility of a manual system: meet the Rainin BenchSmart™ 96. It's easy to set up, save and retrieve any protocol – from simple one-step procedures to complex, multi-step experiments.

The semi-automated BenchSmart improves reproducibility by eliminating user variability when aspirating and dispensing.

BenchSmart also gives users complete and precise control over the position of the pipetting head. With 4 tray positions, you will save time and reduce your risk of error by minimizing the need to swap out trays and reservoirs.

Smart High-Throughput



With its large touchpad and intuitive interface, BenchSmart makes it easy to set up, save and retrieve any protocol from simple one-step procedures to complex, multi-step experiments. It is so intuitive that anyone in the lab can use it.

3 Pipetting Heads



Quickly replaceable liquid heads provide great flexibility. Get the precision you demand with the 0.5–20 µL head, the daily workhorse you need with the 5–200 µL head and the multi-dispensing capability of the 100–1,000 µL head.

Save Time and Costs



BenchSmart 96 simplifies and speeds up workflows by significantly reducing if not eliminating the need to swap out tip racks and reservoirs.

www.mt.com/benchsmart96



BenchSmart 96

Description	Max. Capacity	Material No.
BenchSmart™ 96	0.5–20 µL	30296705
BenchSmart 96	5–200 µL	30296706
BenchSmart 96	100–1,000 µL	30296707
High-Throughput LTS Tips in Racks		
960 tips in 10 racks	20 µL	17011185
960 tips in 10 racks, sterilized	20 µL	17011186
960 tips in 10 racks, sterilized, filter	20 µL	17011117
960 tips in 10 racks	200 µL	17010645
960 tips in 10 racks, sterilized	200 µL	17010647
960 tips in 10 racks, sterilized, filter	200 µL	17010646
960 tips in 10 racks	1,000 µL	30281704
960 tips in 10 racks, sterilized	1,000 µL	30296781
960 tips in 10 racks, sterilized, filter	1,000 µL	30296782
High-Throughput LTS Low-Retention Tips in Racks		
960 low-ret. tips in 10 racks, sterilized	20 µL	17014399
960 low-ret. tips in 10 racks, sterilized, filter	20 µL	17014400
960 low-ret. tips in 10 racks, sterilized	200 µL	17014401
960 low-ret. tips in 10 racks, sterilized, filter	200 µL	17014402
960 low-ret. tips in 10 racks, sterilized	1,000 µL	30296783
960 low-ret. tips in 10 racks, sterilized, filter	1,000 µL	30296784
High-Throughput LTS Tips in Stacks		
960 low-ret. tips in 10 stacks	20 µL	17011187
960 low-ret. tips in 10 stacks, sterilized	20 µL	17011287
960 low-ret. tips in 10 stacks	200 µL	17010648
960 low-ret. tips in 10 stacks, sterilized	200 µL	17010649
High-Throughput LTS Low-Retention Tips in stacks		
960 low-ret. tips in 10 stacks, sterilized	20 µL	17014403
960 low-ret. tips in 10 racks, sterilized	200 µL	17014404
Accessories for BenchSmart 96 and Liquidator 96		
24-post magnetic bead separator for 96 wells		17011288
96-post magnetic bead separator for 384 wells		17011289

Liquidator 96
Fully Manual Operation



- Fast 96- and 384-well pipetting
- Two models: 0.5–20 µL and 5–200 µL

www.mt.com/liq96

The LTS LiteTouch System
Because Pipetting Shouldn't Hurt

Minimize fatigue and risk of developing repetitive strain injury (RSI) with the Rainin LTS™ LiteTouch tip ejection system.

The Rainin LTS™ LiteTouch system is available on all Rainin XLS+ single and multichannel pipettes.

The LTS difference

LTS



The Rainin LiteTouch System dramatically reduces the amount of force required to load and eject tips. LTS pipettes work in concert with LTS tips to deliver a perfect seal every time.

- LTS tips slide easily over the shaft to create a firm, air-tight fit with minimal force.
- A thin sealing ring near the top of an LTS tip virtually eliminates friction between the tip and shaft.

Universal pipetting

UNV



Universal pipettes have cone-shaped shafts that rely on friction to hold tips firmly.

- Universal tips stretch to fit around the shaft.
- Users typically apply force to the shaft to achieve a reliable friction seal.
- Due to the excessive force used to insert the tip, a high force is required to eject the tip.

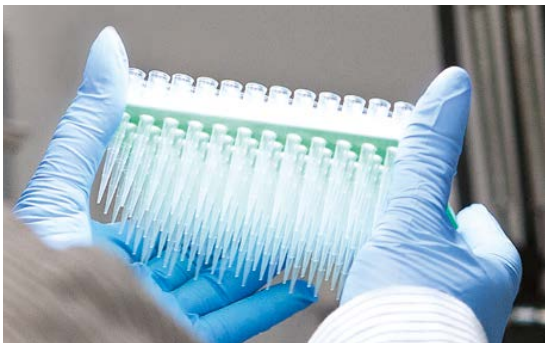
Learn more about ergonomic pipetting
www.mt.com/LTS

BioClean Ultra

The Gold Standard for Tip Purity and Performance

Rainin carefully tests and certifies each batch of BioClean Ultra™ pipette tips, so researchers can have absolute confidence in the integrity of their experiments and the fidelity of their data.

BioClean Ultra™



Guaranteed Purity

- The industry's most comprehensive testing protocol.
- The only tips certified to be both protein- and protease-free.
- Virgin polypropylene – completely inert, with no bioactive components.



Clean Manufacturing and Packaging

- Manufactured under Class 100,000 clean room conditions.
- Fully automated material handling – zero human contact.
- Strict conformance to ISO 9001 eliminates all external sources of contamination.

Learn more about BioClean Ultra
www.mt.com/BioCleanUltra

TerraRack
The Most Eco-Friendly Rack Around

TerraRack™ is a revolutionary new concept in tip racks. These completely recyclable stands are as sturdy as conventional racks, yet they are made with less than half the plastic. In fact, the hinged TerraRack shell is made from PETE, which is easily recycled.

For convenience and complete cleanliness, TerraRacks with BioClean Ultra tips come sterilized, eliminating the need to autoclave.



TerraRack Family

Less Waste



With 50 percent less plastic than conventional racks, TerraRacks are also extremely compressible so used racks occupy significantly less space in a waste or storage container.

100-Percent Recyclable



In addition to being completely recyclable, much of each TerraRack is composed of PETE, which is easily recycled and aggressively recovered from the plastic waste stream.

Sterile



TerraRacks are sterilized. Unlike refill systems where there is a potential for placing clean tips into a contaminated rack, you can be certain that you're working with a fresh, clean rack every time.

www.mt.com/terrarack



TerraRack

TerraRack™ LTS Tips for Rainin LTS™ Pipettes

TerraRack LTS Tips in PETE TerraRack with Hinged Lid	Max. Capacity	Material No.
960 LTS tips in 10 racks, sterilized	20 µL	17014960
960 LTS tips in 10 racks, sterilized, filter	20 µL	17014961
960 LTS tips in 10 racks, sterilized	200 µL	17014962
960 LTS tips in 10 racks, sterilized, filter	200 µL	17014963
768 LTS tips in 8 rack, sterilized	300 µL	17014964
768 LTS tips in 8 rack, sterilized, filter	300 µL	17014965
768 LTS tips in 8 rack, sterilized	1,000 µL	17014966
768 LTS tips in 8 rack, sterilized, filter	1,000 µL	17014967
768 LTS tips in 8 rack, sterilized	1,200 µL	17014968
768 LTS tips in 8 rack, sterilized, filter	1,200 µL	17014969



TerraRack – LTS

TerraRack Universal Tips for Rainin, Pipetman™ and Other Pipette Brands

TerraRack Universal-Fit Tips in PETE TerraRack with Hinged Lid	Max. Capacity	Material No.
960 tips in 10 racks, sterilized	10 µL	17014970
960 tips in 10 racks, sterilized, filter	10 µL	17014971
960 tips in 10 racks, sterilized, ShaftGard	10 µL	17014972
960 tips in 10 racks, sterilized, ShaftGard, filter	10 µL	17014973
960 tips in 10 racks, sterilized, filter	20 µL	17014974
960 tips in 10 racks, sterilized, filter	100 µL	17014975
960 tips in 10 racks, sterilized, filter	200 µL	17014976
960 tips in 10 racks, sterilized	250 µL	17014977
768 tips in 8 rack, sterilized	300 µL	17014978
768 tips in 8 rack, sterilized, filter	300 µL	17014979
768 tips in 8 rack, sterilized	1,000 µL	17014980
768 tips in 8 rack, sterilized, filter	1,000 µL	17014981



TerraRack – universal

BioClean Ultra Tips in Green Packaging
Reduce Waste at the Source

Many labs today are concerned with reducing the environmental impact of plastic waste. Rainin has long been a pioneer in addressing these concerns through innovative package designs for tip-rack refilling to reduce plastic waste at the source.



Green-Pak™ SpaceSaver™
Stacked refills – 80 percent less waste



SpaceSaver uses only about 11 percent of the bench space used by 10 racks. Protective outer shell components are made of recycled PETE. The SpaceSaver design allows individual refills to be discharged without exposing remaining refills. Available standard or sterilized.

Green-Pak
Individual refills – 70 percent less waste



Green-Pak refills are completely sealed, eliminating contamination. The filter and sterilized tips are irradiated and certified free of DNase, RNase, DNA, endotoxin, ATP, PCR inhibitors, protein and protease. These refills also offer fast, trouble-free loading. Available standard, sterilized or sterilized with aerosol-resistant filter tips.

▶ www.mt.com/rainin-tips

LTS™ Tips for Rainin LTS™ Pipettes

Green-Pak™ SpaceSaver: Stacked Tip-Rack Refills	Max. Capacity	Material No.
960 LTS tips in 10 refills	20 µL	30389291
960 LTS tips in 10 refills, sterilized	20 µL	30389297
960 LTS tips in 10 refills	200 µL	30389299
960 LTS tips in 10 refills, sterilized	200 µL	30389301
768 LTS tips in 8 refills	300 µL	30389303
768 LTS tips in 8 refills, sterilized	300 µL	30389304
768 LTS tips in 8 refills	1,000 µL	30389292
768 LTS tips in 8 refills, sterilized	1,000 µL	30389294



SpaceSaver tip refills – stacked

Green-Pak: Individual Tip-Rack Refills		
960 LTS tips in 10 refills	20 µL	30389270
960 LTS tips in 10 refills, sterilized	20 µL	30389275
960 LTS tips in 10 refills, sterilized, filter	20 µL	30389274
960 LTS tips in 10 refills	200 µL	30389277
960 LTS tips in 10 refills, sterilized	200 µL	30389278
960 LTS tips in 10 refills, sterilized, filter	200 µL	30389276
768 LTS tips in 8 refills	1,000 µL	30389271
768 LTS tips in 8 refills, sterilized	1,000 µL	30389273
768 LTS tips in 8 refills, sterilized, filter	1,000 µL	30389272
Empty racks for 10 µL tips, red, pkg of 10		30389354
Empty racks for 250 µL tips, green, pkg of 10		30389353
Empty racks for 1,000 µL tips, blue, pkg of 8		30389351



Green-Pak tip refills – individual

Hinged-Cover Tip Racks		
960 LTS tips in 10 racks	20 µL	30389200
960 LTS tips in 10 racks, sterilized	20 µL	30389228
960 LTS tips in 10 racks, sterilized, filter	20 µL	30389225
960 LTS tips in 10 racks, sterilized, filter	200 µL	30389239
960 LTS tips in 10 racks	200 µL	30389243
960 LTS tips in 10 racks, sterilized	200 µL	30389245
960 LTS wide-orifice tips in 10 racks	200 µL	30389247
960 LTS wide-orifice tips in 10 racks, sterilized	200 µL	30389249
768 LTS tips in 8 racks	300 µL	30389253
768 LTS tips in 8 racks, sterilized	300 µL	30389255
768 LTS tips in 8 racks, sterilized, filter	300 µL	30389254
768 LTS tips in 8 racks	1,000 µL	30389211
768 LTS tips in 8 racks, sterilized	1,000 µL	30389215
768 LTS tips in 8 racks, sterilized, filter	1,000 µL	30389212
768 LTS wide-orifice tips in 8 racks	1,000 µL	30389217
768 LTS wide-orifice tips in 8 racks, sterilized	1,000 µL	30389220
768 LTS tips in 8 racks	1,200 µL	30389230
768 LTS tips in 8 racks, sterilized	1,200 µL	30389234
768 LTS tips in 8 racks, sterilized, filter	1,200 µL	30389231
480 LTS tips in 8 racks	2,000 µL	30389236
480 LTS tips in 8 racks, sterilized	2,000 µL	30389238
480 LTS tips in 8 racks, sterilized, filter	2,000 µL	30389237
192 LTS tips in 8 racks	5,000 µL	30389256
192 LTS tips in 8 racks, sterilized	5,000 µL	30389257



Hinged-cover tip racks

Low-Retention Tips in Hinged-Cover Racks		
960 low-ret. LTS tips in 10 racks	20 µL	30389227
960 low-ret. LTS tips in 10 racks, sterilized	20 µL	30389229
960 low-ret. LTS tips in 10 racks, sterilized, filter	20 µL	30389226
960 low-ret. LTS tips in 10 racks, sterilized, filter	200 µL	30389240
960 low-ret. LTS tips in 10 racks	200 µL	30389244
960 low-ret. LTS tips in 10 racks, sterilized	200 µL	30389246
768 low-ret. LTS tips in 8 racks	1,000 µL	30389214
768 low-ret. LTS tips in 8 racks, sterilized	1,000 µL	30389216
768 low-ret. LTS tips in 8 racks, sterilized, filter	1,000 µL	30389213
768 low-ret. LTS tips in 8 racks	1,200 µL	30389233
768 low-ret. LTS tips in 8 racks, sterilized	1,200 µL	30389235
768 low-ret. LTS tips in 8 racks, sterilized, filter	1,200 µL	30389232

Low-Retention Tips in Green-Pak SpaceSaver Stacked Refills	Max. Capacity	Material No.
960 low-ret. LTS tips in 10 refills	20 µL	30389296
960 low-ret. LTS tips in 10 refills, sterilized	20 µL	30389298
960 low-ret. LTS tips in 10 refills	200 µL	30389300
960 low-ret. LTS tips in 10 refills, sterilized	200 µL	30389302
768 low-ret. LTS tips in 8 refills	1,000 µL	30389293
768 low-ret. LTS tips in 8 refills, sterilized	1,000 µL	30389295

Complete ordering information for Rainin LTS and universal conical tips is available online at www.mt.com/rainin.

Rainin QuickFlow
Convenient, Trouble-Free Aspiration

NEW

The Rainin QuickFlow benchtop aspirator combines exceptional ergonomics with a broad range of features and conveniences. Labs with central vacuum systems can purchase the handle and adapter kit separately.



Easy Assembly
With self-sealing quick connectors, QuickFlow is designed for easy and intuitive disassembly and reassembly.

Liquid Level Sensor
The QuickFlow's non-contact level sensor offers exceptional performance and reliability.

Speed Control

Continuous Flow
QuickFlow's continuous mode isn't just more efficient – it's a hand saver. QuickFlow allows users to select continuous flow and the amount of suction.

QuickFlow	Material No.
QuickFlow Aspirator – 4L	30519826
QuickFlow Handle Kit – standard	30519824
QuickFlow Handle Kit – w/Splitter	30519825

Rainin Pos-D
Positive-Displacement Pipetting

The right solution for liquids with high densities, viscosities or vapor pressures.



Rainin Pos-D™ positive displacement pipettes are ideal when pipetting liquids with high densities, viscosities or vapor pressures.

Relax!
The ergonomically designed Pos-D rests in your hand while you work.

Easy to load
Pre-assembled, pre-sterilized disposable syringe tips are packed in convenient racks.

No cross contamination
Positive displacement prevents aerosol formation and protects samples from contamination.

Pos-D Pipettes	Material No.
0.5–10 µL	17008575
3–25 µL	17008576
20–50 µL	17008577
10–100 µL	17008578
50–250 µL	17008579
100–1,000 µL	17008580

Capillaries and Pistons	Max. Capacity	Material No.
180 tips in 3 racks, presterilized	10 µL	17008604
180 tips in 3 racks, presterilized	25 µL	17008605
180 tips in 3 racks, presterilized	50 µL	17008606
180 tips in 3 racks, presterilized	100 µL	17008607
180 tips in 3 racks, presterilized	250 µL	17008608
180 tips in 3 racks, presterilized	1,000 µL	17008609
180 tips in 3 racks	10 µL	17012264
180 tips in 3 racks	25 µL	17012265
180 tips in 3 racks	50 µL	17012266
180 tips in 3 racks	100 µL	17012267
180 tips in 3 racks	250 µL	17012268
180 tips in 3 racks	1,000 µL	17012135

Trust the Service Experts

Minimize Risk and Maximize Reproducibility

The METTLER TOLEDO difference: controlled laboratory environments, manufacturer authorized spare parts, certified pipette technicians and specialized calibration software.



Americas

Uptime



Our global network of factory-trained technicians and ISO/IEC 17025 certified service labs enables us to respond quickly to all repair and calibration needs.

Performance



Environmentally controlled labs and original manufacturer spare parts ensure that instruments are always returned to the highest accuracy and precision.

Compliance



With specialized calibration software and ISO/IEC 17025 accredited labs, METTLER TOLEDO is a partner you can trust to help maintain ISO 8655 and FDA 21 CFR part 11 standards.

Request Rainin service today
www.mt.com/RaininService



Europe



Asia

METTLER TOLEDO Sales and Service

Expertise



Our certified pipette service technicians perform more than 10 million readings each year, giving us extraordinary data analytics for understanding how all brands of pipettes perform over time.

METTLER TOLEDO operates the world's most extensive network of ISO/IEC 17025 accredited pipette calibration laboratories.

Global network

With a global network of ISO/IEC 17025 accredited laboratories and one of the largest factory-trained support and service forces, we can provide you with application support and technical assistance anytime, anywhere.

Comprehensive offering

- Calibration
- Preventive maintenance
- Service repair
- Calibration certificates

Good Pipetting Practice
Better Results through Better Understanding

The performance of any instrument is improved in the hands of a skilled operator. Through GPP™, labs can reduce errors and improve the reliability and repeatability of their results. The key: better understanding the factors that affect experiments and learning application-specific techniques.

You can improve data quality with Good Pipetting Practice™ – METTLER TOLEDO's comprehensive, systematic approach to maximizing pipetting accuracy.



See how much GPP has to offer
www.mt.com/gpp

SmartStand
The Intelligent Pipette Stand

The Rainin SmartStand™ is an intelligent, easy-to-use pipette asset management system for busy labs and lab managers who want to:

- **Reduce out-of-service/specification-related costs**
- **Proactively manage compliance**
- **Save time on recordkeeping and reporting**

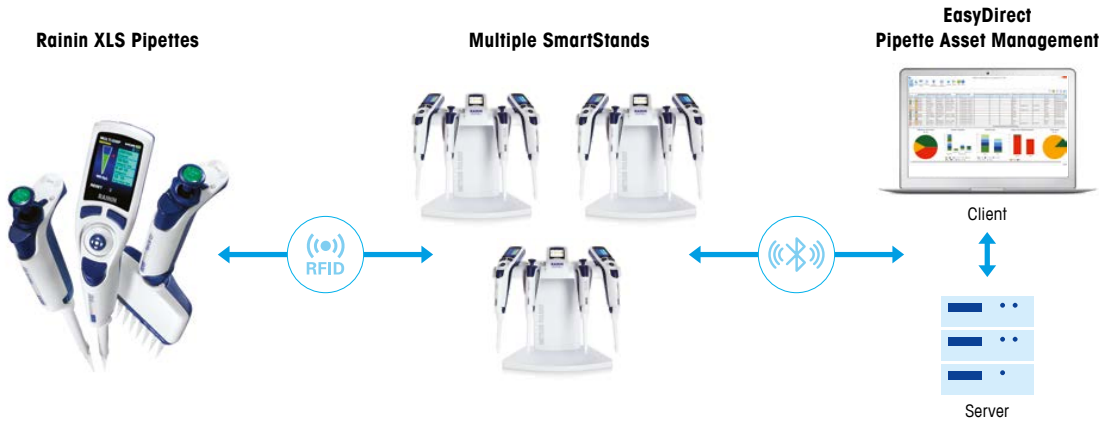


SmartStand	Material No.
SmartStand with EasyDirect basic software	30312897
Fastening kit – magnetic	30312899
Fastening kit – shelf	30311300
Fastening kit – bracket	30313247
Electronic pipette power supply	17012879
SmartStand USB Bluetooth/Adapter	30449204

With EasyDirect, You're in Control
Save Time and Simplify Pipette Management

With EasyDirect Pipette Asset Management and SmartStand, you have a powerful pipette tracking and calibration management system. Using the RFID chip embedded in every Rainin XLS-brand pipette, EasyDirect tracks every pipette's usage, location and service data automatically.

- Manage an unlimited number of pipettes
- Track all pipettes automatically
- Simplify calibration management and repairs



A simple, unified system for tracking and managing pipettes (all manufacturers)

Place any Rainin XLS-brand pipette on a SmartStand to instantly see the pipette's calibration status and service details right at the bench. EasyDirect connects to SmartStand via Bluetooth or USB drive to automatically transfer serial numbers, service and other data to the EasyDirect database.

EasyDirect maintains a complete history of your entire pipette inventory including calibration certificates and verification reports. This makes it easy to track the status, location, calibration and service schedule for any pipette.

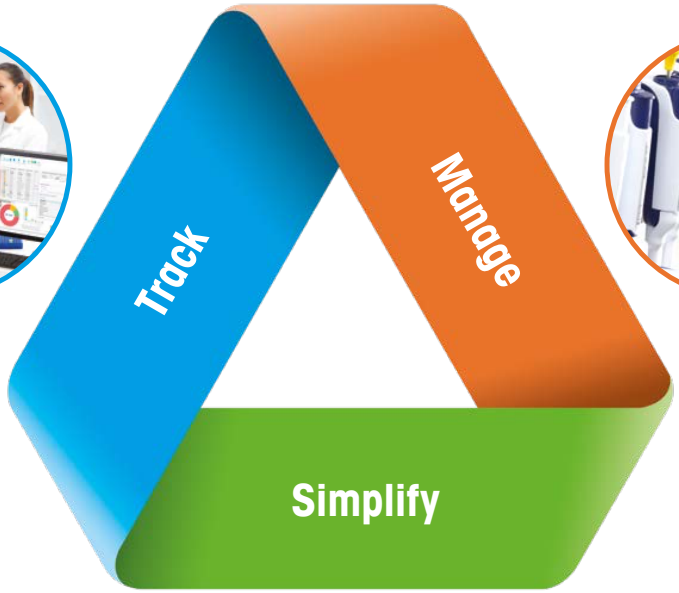
That's pipette management … simplified!

Flexible, Integrated and Easy to Implement

- Assign locations, users and groups.
- Search and filter custom reports and schedules.
- Know everything about your pipettes.

- See all calibration data.
- Schedule calibrations.
- All critical pipette data is now located in one single database.









- The Bluetooth wireless technology-enabled SmartStand electronically transmits pipette serial numbers, calibration and other relevant data to EasyDirect.
- Rainin calibration certificates are electronically transmitted and linked to your pipette.
- Eliminate time-consuming reading of serial numbers, barcodes or stickers.

EasyDirect Software	Material No.
EasyDirect – site	30475913
EasyDirect – unlimited	30475915
EasyDirect – site, renewal	30478260
EasyDirect – unlimited, renewal	30478262


QS
10.00mm
UV7
METTLER TOLEDO
METTLER TOLEDO
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Task



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UV/VIS Spectroscopy

Time and Space Matter

Scan this code for more information.
www.mt.com/uvvis

FastTrack UV/VIS Spectroscopy
Speed Up Your Measurements

The UV/VIS Excellence line provides fast and reliable measurements within a very compact footprint thanks to FastTrack™ technology. Intuitive One Click™ operation and pre-defined application methods speed up the spectroscopic workflow.

UV5
The Entry to Excellence



The UV5 provides you with spectrum scans within one second, instant instrument readiness, predefined direct measurement types and intuitive One Click touchscreen operation. It helps you optimize UV/VIS measurement workflows in quality control.

UV7
The Excellence Performer



The UV7 offers superior optical performance that is compliant with strict Pharmacopeia regulations. Advanced automation routines and pre-verified METTLER TOLEDO methods are ideal foundations for reliable measurements in regulated industries.



Order our UV/VIS Excellence brochure.

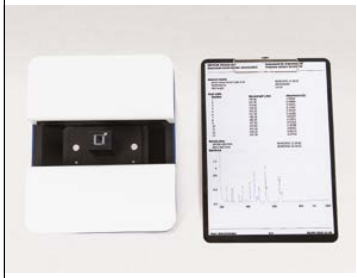
www.mt.com/UV-VIS

Fast Measurements



FastTrack™ UV/VIS technology comprises modern fiber optics in combination with array detection and a Xenon flash lamp for analyses within seconds. The instrument is always ready for use, as no time is required for warm up.

A Cleaner Lab Bench



UV/VIS Excellence spectrophotomers fit into a notepad-sized footprint. The instruments can be operated as standalone and do not require PC connection, saving bench-top space.

Sustainable Performance



The absence of moving parts, a long-lasting Xenon flash lamp, and state-of-the art optical fibers provide ruggedness and reliability. Maintenance costs are reduced and performance remains sustainable.

		UV5	UV7
Optical Performance	Wavelength range [nm]	190–1,100	190–1,100
	Wavelength resolution (toluene in hexane abs.)	>1.5	>1.9
	Wavelength accuracy (holmium oxide) [nm]	±1.0	±0.8
	Photometric accuracy (potassium dichromate) [A]	±0.01	±0.01
	Stray light at 198 nm (potassium chloride) [A]	>2	>2
One Click™ UV/VIS Spectroscopy	Shortcuts per user	24	24
Automation	Peristaltic pump FillPalMini	•	•
	Peristaltic pump SPR200	•	•
	CuvetteChanger	•	•
	Automatic performance verification CertiRef™	•	•
	InMotion™ sample changer	•	•
Applications & Methods	Direct measurement types	3	4
	METTLER TOLEDO methods	–	•
	Method editor	•	•
	Kinetics	–	•
	Temperature control	•	•
	Colors: Tristimulus, CIE Lab, CIE Luv, Lab according to Hunter, Chromaticity, Yellowness Index, APHA, Pt-CO, Hazen, Gardner, Saybolt, Hess-Ives, EBC, ASBC	•	•
	Dissolution testing	–	•
	Water testing	•	•
PC Software	LabX™ UV/VIS software	•	•
Languages	English, German, French, Spanish, Italian, Chinese, Russian, Portuguese, Japanese		
Connectivity	USB memory stick storage (reports (pdf), data (csv), methods)	•	•
	USB devices (barcode reader, compact printer, fingerprint reader)	•	•
	Ethernet (PC, network printer (HP PCL 3, Epson protocol), reports (pdf), data (csv))	•	•
Material No.		30254725	30254726

UV5 A: 30254727 (UV5 unit with CuvetteChanger)

UV/VIS Spectroscopy
Designed for the Life Sciences

UV5Bio and UV5Nano Excellence instruments optimize spectroscopic workflows in life sciences. FastTrack™ technology enables speedy and reliable measurements and LockPath™ technology ensures accurate micro-volume measurements.

UV5Bio – the Life Science Expert



The UV5Bio is the ideal instrument for life science, cuvette-based UV/VIS applications. Pre-programmed DNA, RNA, and protein applications are available as direct measurement routines or ready-to-use METTLER TOLEDO methods for an instant start. The One Click™ touchscreen interface provides intuitive and efficient shortcut operation.

UV5Nano – the Micro Master



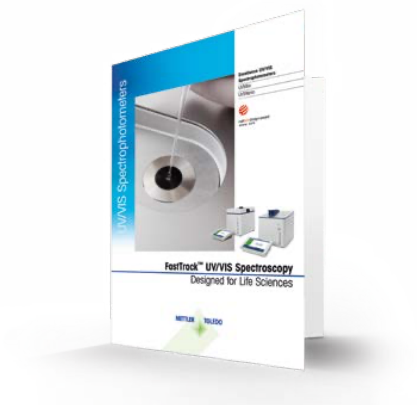
Measure µL volumes of precious DNA, RNA or protein samples in wide concentration ranges on the micro-volume platform. The additional cuvette measurement option doubles the application power. LockPath technology ensures exact and repeatable pathlength adjustment. No need for sample dilution – just pipette and measure.

CuveT Thermostat for Exacting UV/VIS Analyses



Life science UV/VIS applications such as DNA analyses, kinetics or protein dynamics require reproducible and accurate temperature conditions.

CuveT controls the temperature of samples in a 10 millimeter cuvette within a temperature range of 4 °C to 95 °C in 10 millimeter cuvettes.



Order our UV/VIS Excellence brochure.

www.mt.com/UV-VIS



		UV5Bio	UV5Nano
FastTrack™ Technology	Pulsed Xenon flash lamp, CCD array detector	•	•
LockPath™ Technology	Automatic pathlength adjustment	–	•
Optical Performance	Wavelength range [nm]	190–1,100	190–1,100
	Wavelength resolution (toluene in hexane abs.)	>1.5	>1.7
	Wavelength accuracy (holmium oxide) [nm]	±1.0	±1.0
	Photometric accuracy (potassium dichromate) [A]	±0.01	±0.01
	Stray light at 198 nm (potassium chloride) [A]	>2	>1.7
One Click™ UV/VIS Spectroscopy	Shortcuts per user	24	24
Automation	Peristaltic pump FillPalMini	•	•
	Peristaltic pump SPR200	•	•
	CuvetteChanger	•	–
	InMotion™ sample changer	•	•
Applications & Methods	Direct measurement types	5	5
	METTLER TOLEDO methods	•	•
	Method editor	•	•
	Bio-direct measurement applications	•	•
	Kinetics	•	•
	Micro-volume direct measurement applications	–	•
	Temperature control	•	–
	Colors: Tristimulus, CIE Lab, CIE Luv, Lab according to Hunter, Chromaticity, Yellowness Index, APHA, Pt-CO, Hazen, Gardner, Saybolt, Hess-Ives, EBC, ASBC	•	•
PC Software	LabX™ UV/VIS software	•	•
Languages	English, German, French, Spanish, Italian, Chinese, Russian, Portuguese, Japanese		
Connectivity	USB memory stick storage (reports (pdf), data (csv), methods)	•	•
	USB devices (barcode reader, compact printer, fingerprint reader)	•	•
	Ethernet (PC, network printer (HP PCL 3, Epson protocol), reports (pdf), data (csv))	•	•
Material No.		30254728	30254729

Avoid Errors with LockPath



LockPath makes sure that the available pathlengths at 0.1 millimeter and 1 millimeter are accurately defined. Thanks to the rugged design, pathlength drift is excluded to eliminate expensive recalibration.

Compact Kinetics



In the UV7, UV5 and UV5Bio accessories such as the CuvetteChanger, CuveT thermostating unit can be used to facilitate kinetics applications within the instrument's compact footprint.

Micro-Volume Performance

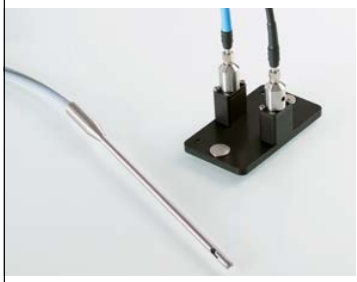


Measure a wide range of sample concentrations down to 1 µL volume using the micro-volume platform. Tips and tricks are provided to enhance measurement quality and reduce risks and costs.

Accessories
For the UV/VIS Excellence Line

Optimize the efficiency and security of your spectroscopic system with easily installable plug-and-play accessories that expand workflow capability within the instrument's compact footprint.

Fiber Probe Adapter



The fiber probe adapter connects to a wide range of commercially available fiber probes. Optimize your workflow by eliminating sample transfer, cuvette cleaning, and the cost of such consumables while increasing user safety.

Automated Performance Verification



The fully automatic CertiRef™ performs all tests required to comply with both Ph. Eur. and USP regulations including linearity test. Certified reference materials traceable to NIST are used and a report documents all results.

Water Testing



Integrate efficient water testing into your lab with test tube holders designed especially for water test kits, ensuring high measurement reproducibility. The holder fits into the UV5 spectrophotometer for accurate analyses.

Product	Specifications	Material No.
Fiber Probe Adapter	Connects spectrophotometer to optical fiber probes with SMA 905 connection	30526548
CuveT	Thermostating unit	30361677
CertiRef Ph. Eur.	Performance verification unit containing certified reference materials sealed in mini cuvettes to automatically calibrate the instrument according to current Ph. Eur. regulations (for UV5, UV7, UV5Bio)	30254732
CertiRef USP	Performance verification unit containing certified reference materials sealed in mini cuvettes to automatically calibrate the instrument according to current USP regulations (for UV5, UV7, UV5Bio)	30254733
LinSet PDC	Set of certified reference materials (potassium dichromate and neutral density filters) and respective blanks sealed in mini cuvettes to automatically calibrate the instrument according to current Ph. Eur. and USP regulations	30564229
LinSet Niacin	Set of certified reference materials (nicotinic acid and neutral density filters) and respective blanks sealed in mini cuvettes to automatically calibrate the instrument according to current Ph. Eur. and USP regulations	30564230
Test Tube Holder	Fits round tube water test kits between diameters of 13 and 16 mm	30559260
Macro-Cuvette, 10 mm Pathlength	Optical glass, 320–2,500 nm, PTFE lid	30258736
Macro-Cuvette, 50 mm Pathlength	Optical glass, 320–2,500 nm, PTFE lid	30258737
Macro-Cuvette, 10 mm Pathlength	SUPRASIL quartz glass, 200–2,500 nm, PTFE lid	30258738
Macro-Cuvette, 50 mm Pathlength	SUPRASIL quartz glass, 200–2,500 nm, PTFE lid	30258739
Micro-Cuvette, 10 mm Pathlength, 700 µL vol	SUPRASIL quartz glass, 200–2,500 nm, PTFE lid	30258740
1 cm Precision Cuvette Holder	Enables mounting of 1 cm standard cuvettes, included in standard delivery of UV5, UV5Bio, UV7	30236314
Base Holder Plate	Plate required to mount long pathlength cell holder and solid sample holder	30236315
Long Pathlength Cell Holder	Enables mounting of cuvettes with path lengths ranging from 10–50 mm	30254738
Solid Sample Holder	Enables measuring of solid sample films	30258692

Automation
Adapt to Your Throughput Demand

Expand your spectroscopic system with modular automation units. Reduce operator time and improve user safety while enhancing productivity and results reliability with an automated workflow.

InMotion™ Autosampler



InMotion™ Autosampler with Flow-Through Cell

With Flow-Through Cell

Up to 303 samples can be automatically analyzed with the InMotion autosampler. Connected via a flow-through cell within the spectrophotometer, the sample is transferred, analyzed, and disposed of. Then, the cell is cleaned and ready for the next measurement, all without manual intervention.

With Fiber Probe Adapter

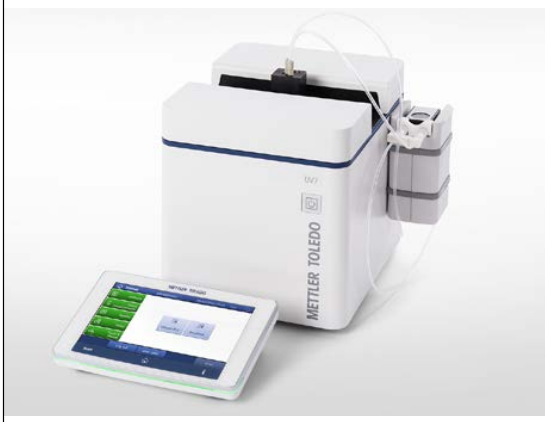
For the ultimate productivity gain, connect a fiber probe to the InMotion autosampler. Samples are measured within the beakers in the InMotion, decreasing time-to-result to a minimum. With this setup, operator time is reduced by 70 percent compared to manual methods when a workflow involving the analysis of 10 samples is considered.

CuvetteChanger



This autochanger offers efficient automatic measurement of series of up to 8 cuvettes for both standard measurements with blank subtraction or complex kinetic applications thermostable from 10 °C to 80 °C.

FillPalMini



Sample loading is easily automated with the FillPalMini, which pumps the sample safely and quickly into the flow cuvette. It can also be used for sample recovery and cuvette cleaning.

Product	Specification	Material No.
CuvetteChanger	8×10 mm cuvette positions, thermostatable	30236313
Tube Set UV/VIS – InMotion™	Set to connect the flow-through cuvette to the InMotion sample changer	30399071
Flow Cell, 10 mm Pathlength, 440 µL vol	Quartz glass, 170–2,700 nm, M6 connectors	30258741
Peristaltic Pump FillPalMini	Four rolls peristaltic pump, SANTOPRENE peristaltic pump tube, 2.06 mm inner diameter (set of 2), includes tube set to connect to flow cell, can be operated in two pump directions at varying pump speeds	30254735
Fiber Probe Adapter	Connects spectrophotometer to optical fiber probes with SMA 905 connection	30526548

LabX PC Software

Manage Samples and Data Effectively

Simplify the way you work with LabX PC software. Schedule workflows, avoid transcription errors and ensure data integrity.

Increase Productivity



Boost lab productivity with features such as task scheduling to execute work plans, sample series handling with automation accessories, and barcode reader for sample identification. LabX gives you the opportunity to run complex multi-parameter setups, hassle free.

Regulatory Compliance



SOP guidance on the instrument terminal and PC support regulation compliance. Built-in security features such as electronic signatures and user management options ensure 21 CFR Part 11/ EU Annex 11 compliance so your lab can be audit-ready at any time. A secure database, full result traceability and data integrity is guaranteed.

Reliable Results Management



The LabX results database provides immediate access to all data at any time. Automatic plausibility checks, report generation and statistical evaluations of your results provide an unparalleled overview of all your processes. Method development and correcting input errors become easy tasks with the help of the reanalysis tool.

Tailor your UV/VIS LabX system modularity to meet your needs

LabX UV/VIS offers a modular licensing approach to meet your needs today and in the future.

Starter Pack LabX Express
Connect up to 3 instruments

- LabX Express
- Instrument License*

Starter Pack LabX Server
Connect up to 30 instruments

- LabX Server
- Instrument License*
- User Management
- Auto Import/Export

Option Licenses

- User Management
- Auto Import/Export
- Regulation
- Product Database
- Statistical Evaluation
- Report Designer
- System Integration
- STARe X Integration

LabX UV/VIS Express
Includes one UV/VIS instrument license to connect one UV7, UV5, UV5Bio or UV5Nano instrument. Can be expanded with any optional packages (e.g. regulation) and 2 additional instrument licenses (UV/VIS, titration, density meter, refractometer, melting point instrument, pH meter, analytical balance or Quantos).

LabX UV/VIS Server
Includes one UV/VIS instrument license to connect one UV7, UV5, UV5Bio or UV5Nano instrument. Can be expanded with any optional packages (e.g. regulation) and 29 additional instrument licenses (UV/VIS, titration, density meter, refractometer, melting point instrument, pH meter, analytical balance or Quantos).

Compliance and Support
Right from the Start

Our professional services ensure your UV/VIS spectrophotometer and accessories are installed and operating correctly, and that your investment continues to provide accurate and reliable measurements. Detailed yet easy-to-read documentation provides the required evidence for your regulatory audits.

GUVP – Good UV/VIS Practice improves measurement quality by minimizing risks through a 5-step lifecycle program including specific services. It provides professional evaluation & selection tools, comprehensive installation & qualification services and tailored training & maintenance programs to ensure correct operation.



▶ www.mt.com/GUVP

Installation and Qualification



The **EQPac** supports the highest level of regulatory compliance, providing IQ/OQ with PQ and maintenance recommendations. It also includes initial calibration and basic training. The comprehensive, fully-compliant documentation supports all your regulatory needs.

The **StarterPac** provides professional installation and includes a performance check and basic training. Summary documentation provides an installation record that is perfect for internal quality records – and your peace of mind.

Calibration and Certification



Regular calibration by a manufacturer-trained service specialist ensures that your UV/VIS Excellence performs accurately and within manufacturer specifications. A professional calibration certificate provides all the evidence you need for a trouble-free audit.

Extended Care

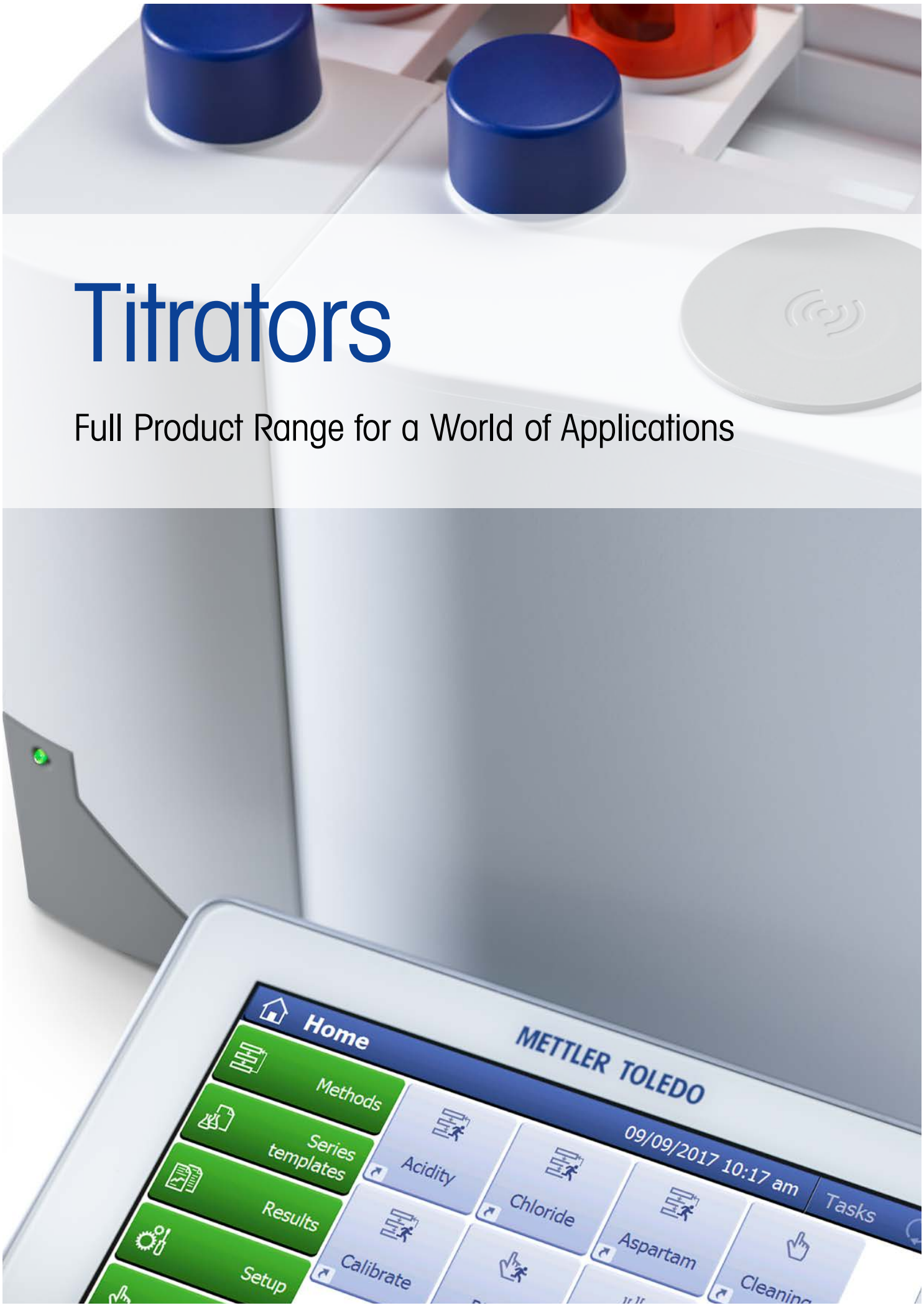


Extended Care offering provides assurance for the first 24 months after installation. With Extended Care you also receive two preventive maintenance visits. Regular and professionally performed maintenance prevents unexpected breakdown and ensures operational performance and reliability. Detailed checklists itemize the work carried out and support you during quality audits.

For more information about our service offerings, see pages 20–23.

Titrators

Full Product Range for a World of Applications





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www.mt.com/titration

Titration Systems Overview
Select the Right One

Determine chemical concentrations with the highest accuracy and throughput.

Titration is a widely-used analytical laboratory technique with an extensive range of applications. METTLER TOLEDO offers a corresponding variety of titrators and accessories to meet your needs. We also assist with a deep knowledge of hundreds of titration applications to ensure accurate and repeatable results with high levels of productivity.



Excellence Titrator T9 with KF Coulometric Kit

Titration Excellence

The modular Titration Excellence line provides efficient and secure titration analyses in a large variety of industry segments.



Titration Excellence Line

Automation Solutions

Our wide range of sample changers and accessories allow for complete automation of sample preparation, titration, cleaning and more.



Automation

Compact Titrators

The easy operation of the One Click™ Compact Line, including potentiometric and volumetric titrators, as well as coulometric Karl Fischer titrators, ensures accurate results in a small, space-saving footprint.



Compact Titrator Line

LabX Software

LabX™ Titration software integrates all METTLER TOLEDO instruments in your lab, allowing you to keep complete control of your analytical systems and results.



LabX™ Titration Software

Entry-Level Titrators

Upgrading from basic manual titration to EasyPlus automated titration brings immediate gains in accuracy, speed and reproducibility.



EasyPlus™ Titrators

Titration Excellence
Powerful Applications in One Click

The Titration Excellence T5, T7 and T9 instrument models combine powerful analysis with intuitive and easy operation. The unique One Click™ user interface allows storage of predefined test methods, which can later be started with a single touch. Titration Excellence instruments run over 500 general titration applications including volumetric and coulometric Karl Fischer analyses.

Efficient



Intuitive user guidance and a color touchscreen make operation simple. Operators can watch titration curves and follow analyses in real time. Results are calculated automatically and can be downloaded or transferred straight away.

Secure



Both the titrant and the sensor are automatically detected upon connection and all relevant data is saved on the burette or sensor chip. This data is directly transferred to the titrator where it can be saved and monitored. Safe and secure titration does not get any simpler.

Modular



The expandable platform of the Titration Excellence line guarantees that you are optimally prepared for future challenges. Your investment is protected by the possibility for a tailored hardware or software upgrade at any time.

www.mt.com/titration



One Click shortcuts on the home screen

The unique One Click user interface allows up to 24 user-defined shortcuts on the instrument's home screen. Operators can start any analysis or other automated task with a single touch. Sophisticated plug-and-play functionality instantly recognizes sensors, burettes, sample changers, balances and other accessories upon connection.



InMotion autosampler with Excellence Titrator T5

In high-throughput laboratories, automation becomes a near necessity. Excellence Titrators connect with one or more InMotion autosamplers to accommodate the widest range of application workflows while guaranteeing accurate, fast throughput. Automated systems also handle complex cleaning tasks and other time-consuming manual operations.

Get more information
www.mt.com/Titration-Excellence

Titration Excellence
Convenient, Intelligent, Versatile

Convenience and Power



The T5 titrator is a ready-to-go-system capable of general potentiometric titration, as well as volumetric and coulometric Karl Fischer titration, for users who need a simple, rugged and easily understandable titrator for fast routine analyses. The T5 offers top-of-the line features such as SmartSample™, which offers error-free transfer of your sample information from the balance to the titrator.

Expanding as Your Needs Change



The T7 is a titrator for any application, capable of multitasking, flexible method-editing, upgradeability (additional pH-sensor or conductivity board for T9 functionality) and method loops for the integration of various methods into one or more sample series sequences. It is a flexible and expandable system that adapts easily to current and future needs.

Smart Versatility



The high-end T9 titrator runs two titrations in parallel with conditional method functions using "if … then" logic and sample series sequences that integrate various methods into one. It provides the highest flexibility in method development to solve complex analyses and automation tasks.

www.mt.com/titration

Feature Comparison Table-Titration Excellence Line

		T5	T7	T9
One Click™ Titration	User specific home screen with shortcuts	•	•	•
	Shortcuts per user	24	24	24
	KF solvent control	•	•	•
Hot Plug-and-Play	Plug-and-play sensor recognition	•	•	•
	Burette recognition with titrant and titer	•	•	•
	Burette drive	•	•	•
	Solvent manager	•	•	•
	USB printer	•	•	•
	Memory stick	•	•	•
	USB barcode reader	•	•	•
Security	LevelSens	•	•	•
	LogStraight fingerprint reader	•	•	•
Automation	InMotion™ autosamplers	•	•	•
	Liquid handler	–	1	2
	Rondolino automated titration stand	•	•	•
	InMotion KF Oven Autosamplers	–	•	•
Burette Drives	Max. number to dose and titrate	1 internal +1 external	1 internal +3 external	1 internal +7 external
	Max. number to dose only	+2 external	–	–
Methods and Series	Learn titration	•	•	•
	Karl Fischer methods volumetric	V20S equivalent methods	•	•
	Karl Fischer methods coulometric	C20S equivalent methods	•	•
	Bromine index determination	•	•	•
	Accompanying stating	–	•	•
	Standard addition	•	•	•
	Thermometric titration	•	•	•
	Manual RFID	•	•	•
	Number of functions per method	15	60	150
	Number of loops per method	1	3	6
	Continuous run	–	•	•
	If … then conditions	–	–	•
	Result buffer	–	–	•
	Series sequences	–	10	10
	Number of samples per series	303	303	303
	Predefinied METTLER TOLEDO methods	>60	>70 (incl. KF methods)	>70 (incl. KF methods)
	Max. number of methods[1)]	150	150	150
Task List	Number of tasks	10	10	30
	Number of tasks running in parallel	–	7	8
LabX™ Smartcodes™		•	•	•
SmartChemicals Functionality		•	•	•
Online Help		•	•	•
Parallel Titration including KF		–	–	•
Expandable		–	to T9	–
StatusLight and Event Sounds		•	•	•
Data Export/Printing		•	•	•
Sensor Boards		1	2/1[2)]	3/1[2)]
Sensor Inputs	Potentiometric	2	4/2[2)]	6/2[2)]
	Polarized	1	2/1[2)]	3/1[2)]
	Reference	1	2/1[2)]	3/1[2)]
	PT1000	1	2/1[2)]	3/1[2)]
	Conductivity	1/0[2)]	2/0[2)]	3/0[2)]
PC Software	LabX™ Titration connectivity: Express/Server	•	•	•
Homogenizer		–	RS/TTL	RS/TTL
Languages	English, German, French, Spanish, Italian, Chinese, Russian, Polish, Korean, Portuguese			
Material No.		30252672*	30252675*	30252676*

[1)] Unlimited with T5, T7 and T9 titrators when connected with LabX™ Titration software

[2)] 4/2 means for example: maximum number of inputs is 4, 2 are already available in standard delivery

* – T5 including terminal, 10 mL PnP burette and manual titration stand kit
– T7 including terminal
– T9 including terminal

Automation Solutions
For Efficient Titration

Automating repetitive manual tasks instantly improves laboratory workflows, accelerates sample thoughput and reduces variances and errors between operators. From the entry-level Rondolino sample changer to advanced multifunctional InMotion™ autosamplers and accessories, automated tasks expand to include preconditioning, cleaning, waste management and many more. From the simple-to-use Rondolino to our high-throughput InMotion™ autosamplers, we have a solution for you. More than just exchanging samples, our wide range of accessories can fully automate sampling, identification, temperature control and more.

Automation Solutions

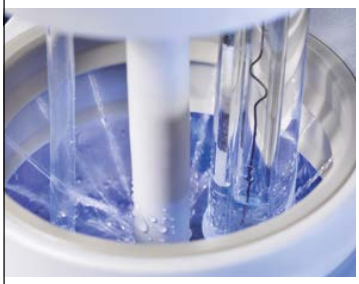
Need	Solution
Temperature control	Water bath racks and DH100
Liquid sampling/pipetting	InMotion aliquot kit, liquid handler and TV6 valve
Reading sample IDs	Barcode reader and SmartSample™ weighing
Reagent and waste control	Solvent manager, peristaltic and diaphragm pumps
Protection	CoverUp™ lid handling and LevelSens
Cleaning	PowerShower™ cleaning system and line rinse
Connectivity	LED status indicators
Water extraction	InMotion KF
Transfer titrant and standards data	SmartChemicals

High Throughput



From the simple-to-use 9 sample Rondolino up to managing more than 300 samples with the InMotion Max 25-milliliter system, maximize your productivity with minimal bench space.

More Than Sample Changing



Advanced programming allows for complex series of cleaning, rinsing and conditioning steps. Automatically pipette and transfer samples with the liquid handler and TV6 sampling valve.

Protect Your Samples



Protect your samples and operators with the CoverUp lid-handling system and control the temperature of the entire rack of samples with water-bath racks. Integrate a barcode reader or SmartSample RFID technology for automatic sample identification.



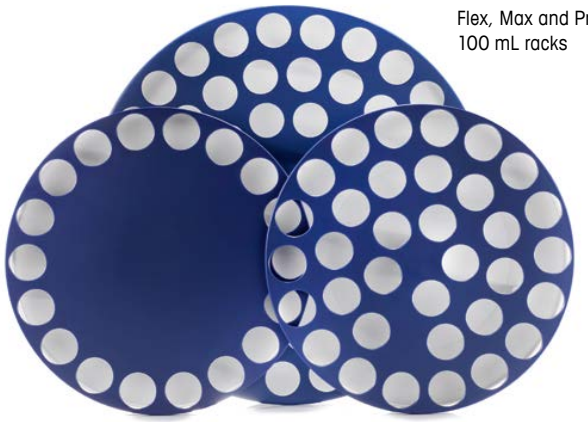
InMotion Max with the Excellence T9 titrator, InMotion Pro with the RM40 refractometer and InMotion Flex with the SevenExcellence pH meter

Put Your Lab InMotion™

Flexible and Efficient Autosamplers

InMotion Bases		Corresponding InMotion Rack Kits		
Base Type	**Material No.**	**Number of Samples**	**Beaker Size (mL)**	**Material No.**
Flex	30094121	50	25	30094124
		27	80	30094125
		18	100	30094126
		15	180	30094127
		11	250	30094128
Pro	30094122	182	25	30094129
		69	80	30094130
		34	100	30094131
		23	180	30094132
Max	30094123	303	25	30094134
		113	80	30094135
		55	100	30094136
		43	180	30094137
		24	250	30094138

InMotion Complete Autosampler	Material No.
InMotion Flex base and 100 mL rack kit	30094120
InMotion Flex base and 80 mL rack kit	30276336
Temperature-Control Water-Bath Rack Kits	
Flex 18 samples, 100 mL	30094139
Pro 61 samples, 80 mL	30094140
Pro 29 samples, 100 mL	30094141
Rondolino	
Automatic titration stand for 9 samples	51108500
Excellence Titrator T5 Rondolino	
T5 with Rondolino	30252674
Compact Titrator G20S Rondolino	
G20S with Rondolino	30252671
Liquid Handler	
Automatic dosing and pipetting device	51371500
InMotion KF Oven Autosampler	
InMotion KF Flex 24 samples, 10 mL	30407500
InMotion KF Pro 26 samples, 5 mL	30407503
InMotion KF Pro 24 samples, 10 mL	30407502
InMotion KF Pro 20 samples, 20 mL	30407501



Flex, Max and Pro 100 mL racks

Get more information

www.mt.com/titration

Compact Titrators
For Routine Applications

The Compact line of G10S and G20S titrators combines solid simple operation with space-saving design for dedicated routine titration applications. Ideal for standard industrial laboratory potentiometric titrations and daily quality control tasks.



G10S compact titrator

Just a Push of a Button



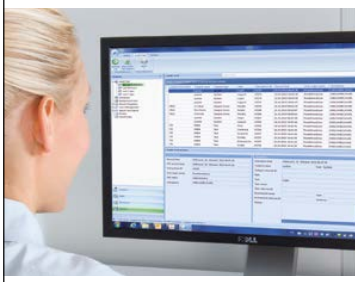
The large, color touchscreen with unique One Click™ user interface is intuitive for new and experienced operators alike. Users can set individual home screens with customized shortcuts which enable routine procedures to be executed with a single button push.

Compact Automation



The automatic Rondolino titration stand is simple to install and uses minimal bench space. Series of up to 9 samples are processed quickly and safely. Dip-rinsing after each analysis ensures minimal carry-over, and, after the series, the sensor is moved to a fixed conditioning beaker.

Single Software Solution



LabX™ Titration PC software offers full titrator control, safe database archiving, efficient management of results with graphic monitoring and tailored result-search filters. The convenient Windows®-based user interface and integrated online help system enable safe and reliable G20S operation.



G20S compact titrator

		G10S	G20S
One Click Titration	Shortcuts per user on user-specific home screen	4	12
Plug-and-Play	Solvent manager (optional)	•	•
	Burette recognition with titrant and titer	•	•
Automation Option	Rondolino (up to 9 samples)	•	•
User Management	"Expert-Routine" user groups	•	•
Method and Series	Max. number of user methods	5	150
	Backtitration	–	•
Burette Drives	Number of burette drives for dosing and titrating	1	1
	Number of burette drives for dosing only	–	1
Data Export and Printing	USB, network, PDF	•	•
PC Software	LabX™ Titration Express	–	•
Material No. Ready-to-Start Package	Manual titration stand	30267117	30252669
	Automatic titration stand (Rondolino bundle)	–	30252671

Get more information

www.mt.com/Compact-Titration

One Click Water Determination
Simple and Secure

Karl Fischer titration is the specific standard method for water content determination, and it gives accurate and precise results within minutes. With our volumetric and coulometric Karl Fischer titrators, you only need to press one button to run a water determination. The precise and efficient InMotion KF autosampler can work unattended and will analyze up to 26 samples at once saving time and user effort.

V10S/V20S/V30S
Volumetric KF Titrators



The Compact Volumetric Karl Fischer titrator determines water from 100 ppm to 100 percent in a wide range of liquid, solid and gaseous samples.

C10S/C20S/C30S
Coulometric KF Titrators



The Compact Coulometric Karl Fischer titrator offers particularly fast and precise titration of samples with low water content (from 1 ppm to 5 percent).

www.mt.com/karl-fischer

Solvent Manager
Safe Handling



The Solvent Manager takes care of filling, draining and exchange of reagents. It is controlled by the titrator and full security is guaranteed by the overflow protector in the waste bottle. User safety is increased by limiting exposure to dangerous chemicals.

Coulometric Generator
No Diaphragm Needed



For most analyses a generator electrode without diaphragm provides best usability. Chemical consumption is also lower as no catholyte reagent is needed.

DO308
Drying Oven



The manual Karl Fischer DO308 drying oven allows safe oven applications with single samples using manual sample addition. It can be operated with both coulometric and volumetric Karl Fischer titrators.

InMotion KF
Oven Autosampler



The efficient InMotion KF autosampler allows for up to 26 samples to be analyzed using the gas extraction technique. The innovative one-piece cap enables simple and fast sample preparation. The temperature scan functionality speeds analysis of unknown samples.

		Volumetric			Coulometric		
		V10S	V20S	V30S	C10SD/ C10SX*	C20SD/ C20SX*	C30SD/ C30SX*
One Click Titration	Shortcuts per user on user-specific homescreen	4	12	12	4	12	12
	Solvent or reagent control	–	–	•	–	–	•
Hot Plug-and-Play	Solvent Manager	•	•	•	Optional	•	•
	Burette recognition with titrant and titer	•	•	•	–	–	–
	USB printer	•	•	•	•	•	•
Automation	InMotion KF Flex/Pro autosamplers	–	–	•	–	–	•
	Homogenizer	–	–	TTL	–	–	–
User Management	"Expert-Routine" user groups	•	•	•	•	•	•
Methods and Series	External extraction/dissolution	–	–	•	–	–	•
	Number of samples per series	120	120	120	120	120	120
	Preprogrammed METTLER TOLEDO methods	–	–	11	–	–	11
	Bromine index determinations	–	–	–	–	–	•
	Max. number of user methods	5	5	150	5	5	150
Languages	Selectable languages (specific per user)	Chinese, English, French, German, Italian, Korean, Polish, Portuguese, Russian, Spanish					
Data Export and Printing	USB, Network, PDF	•	•	•	•	•	•
PC Software	LabX™ Titration Express	–	•	•	–	•	•
	LabX™ Titration Server	–	•	•	–	•	•
Material No. for Ready-To-Start Package	Volumetric	30267116	30252666	30252667	–	–	–
	Coulometric with diaphragm (SD)*	–	–	–	30267115	30252661	30252663
	Coulometric without diaphragm (SX)*	–	–	–	30267114	30252660	30252662

* X = Generator without diaphragm
D = Generator with diaphragm

InMotion KF Autosamplers
Accelerate Your Water Analyses

The InMotion Karl Fischer Autosampler provides precise and efficient Karl Fischer measurement performance. With a variety of innovative features and accessories, you can improve workflow efficiency and user safety. With improved productivity and an ergonomic space-saving design, it is the perfect instrument to improve your Karl Fischer titrations.



Straightforward Sample Prep



The innovative one-piece cap enables simple and fast sample preparation with less chance of chemical exposure. Just weigh your sample directly and fasten the screw cap to protect your sample from moisture and air contamination.

Secure Gas Flow Control



The electronic gas flow meter allows you to control the gas flow entering the titration cell. Once the flow rate is set, it cannot be changed and can be checked at a glance. This modular system adapts to the operator's workflows: the gas flow can either be generated with the air pump or controlled through the lab's own gas line.

Save Precious Time



The Temperature Scan feature speeds up analyses by determining the optimum heating temperature for your sample. Record the substance's heating curve and determine the optimal temperature in just a single run. When the ideal heating temperature of a substance is uncertain, Temperature Scan provides the answer.







Features and Accessories		InMotion KF Flex	InMotion KF Pro
Compatible Titrators	Excellence titrators	T7, T9	T7, T9
	Compact titrators	C30SX, C30SD, V30S	C30SX, C30SD, V30S
Automation & PC Software	Integrated digital gas flowmeter	•	•
	Unattended solvent replacement within series	–	•[1]
	LED StatusLight	•	•
	LabX Titration Express/Server	•	•
Method and Series	Temperature range	40–280 °C	40–280 °C
	Maximum number of samples per series[4]	120	120
	Flexible method with multiple loops	–	•
	Temperature scan and ramp functionality	–	•
Carrier Gas Option	Air pump AP200	•	•
	Gas stop valve SV2	•	•
	Heated transfer tube	•[2]	•[3]
Solvent Handling Option	Solvent manager	•	•
	SP280 peristaltic pump	–	•
Vial & Cap	Vial volume	10 mL	5, 10 and 20 mL
	Cap type	One-Piece FEP Screw Cap	One-Piece FEP Screw Cap
Rack Kit Option No. of Positions × Vial Volume	26×5 mL rack	–	•
	24×10 mL rack	•	•
	20×20 mL rack	–	•
	Customized rack	–	•
Optional Long Needle for Oil Analysis	Long needle for 26×5 mL rack	–	•
	Long needle for 24×10 mL rack	•	•
	Long needle for 20×20 mL rack	–	•
	Long needle for customized rack	–	•

[1] Only with Peristaltic Pump SP280
[2] Optional
[3] Included in the standard delivery
[4] Reloading the rack

Get more information
www.mt.com/InMotionKF-Oven

LabX Titration Software
Single Software for the Entire Lab

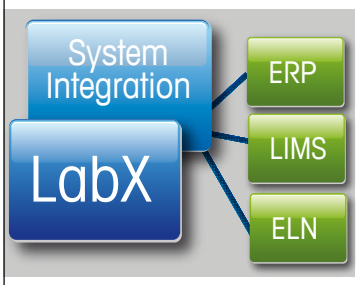
LabX™ software from METTLER TOLEDO offers a powerful range of possibilities to connect your titrators, balances, automation systems, density meters, refractometers, melting point instruments and UV/VIS spectrophotometers all with one single software. One uniform software and interface across the lab means less training and increased efficiencies for all instruments as well as possibilities faster sample preparation, analysis and reporting.

Workflow Optimization



LabX offers many tools to help you optimize your workflow in the laboratory and increase efficiency. Connect your METTLER TOLEDO instruments to LabX and benefit from simplified operation, efficient method editing with the graphical layout, fast sample series modifications and tailored reports.

System Integration



Integrating data systems presents an ever-present challenge. With LabX integration options, third party software such as ERPs, LIMS and ELNs can be connected seamlessly. LabX also offers an API interface with your main system to import sample lists, begin tasks and route results.

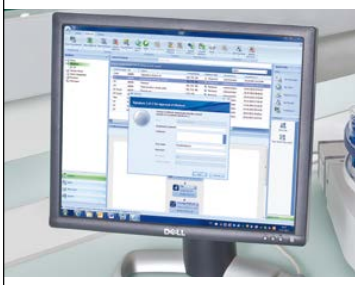
Regulatory Compliance



LabX Server provides all the necessary tools to meet the FDA regulation (21 CFR Part 11) for data management and storage. All relevant actions taken at the instrument or PC are recorded in the audit trail of LabX for full traceability and flexibility, no matter where you work.



Electronic Signature



Define electronic signature policies according to your standards. Ensure that new methods follow your own review and approval process before release into daily lab applications. Objects such as methods, results and reports are protected from any alteration.

Automation



Use LabX to simplify sample changer operation with the transparent and easy-to-manage sample series tables. Track the status of your series from any LabX-connected PC in your laboratory. Alter your sample series by adding or inserting urgent samples while operating.

SmartSample™



Eliminate transcription and sample order errors while also improving efficiency with SmartSample RFID technology workflow. Identify and weigh your titration samples on an Excellence analytical balance with the SmartSample kit. Enter the sample identification at the balance to make sure an ID and weight are properly assigned to the each sample.

Get more information
www.mt.com/LabXTitration

EasyPlus Titrators
Upgrade from Manual

The EasyPlus™ titrator line is designed for routine applications and simple operation. Operators performing manual titrations instantly improve speed and accuracy by moving to EasyPlus semi- or fully-automated systems. An intuitive user interface guides both initial setup and everyday analyses.

Simple Operation



Perform analyses using the touchscreen or a responsive wheel controller to synchronize with the 4.3 inch touchscreen, offering exact control and comfortable operation.

Precise Measurements



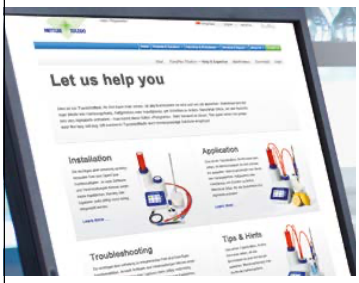
Improve accuracy with the automated burette and by keeping focus on the color change of samples. An immersed dispensing tip further increases the precision, avoiding drop to drop variations.

Avoid Transcription Errors



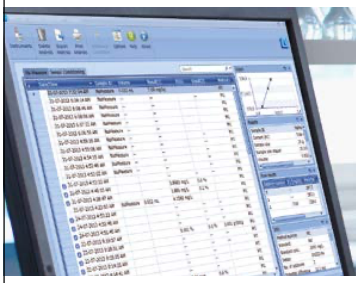
Connect METTLER TOLEDO MS, ML, or ME balances directly to the instrument and transfer sample weights automatically. Export your results to a USB flash drive or print them using a USB printer.

Service and Support



Take advantage of our internet-based service and support. Videos, FAQs and a multitude of applications are just a click away.

Simple Results Management



Connect your EasyPlus titrator to EasyDirect™ titration software and improve data management. All results are stored, organized and easily accessible.





Easy KFV titrator



Easy Ox titrator



Easy Pro titrator

Features Comparison Table	Easy pH	Easy Cl	Easy Ox	Easy Pro	Easy KFV
Application	Acid/base	Precipitation	Redox	Acid/base, precipitation, redox	Karl Fischer volumetric
Number of Titration Methods	1	1	1	3	1
Material No.	30060041	30060043	30060042	30060044	30060045
LongClick™	Yes	Yes	Yes	Yes	Yes
Easy Start Tutorial	Yes	Yes	Yes	Yes	Yes
Online Help	Yes	Yes	Yes	Yes	Yes
Predefined Calculation	Yes	Yes	Yes	Yes	Yes
Language	English, German, French, Italian, Spanish, Portuguese, Russian, Chinese, Korean, Polish, Thai, Vietnamese, Turkish, Japanese, Arabic				
EasyDirect™ PC Connectivity	Yes	Yes	Yes	Yes	Yes

Get more information

www.mt.com/EasyPlusTitration

Protect Your Investment
From Day One

Our professional services ensure your titrator and automation units are installed and operating correctly, and that your investment continues to provide accurate and reliable measurements. Detailed yet easy-to-read documentation provides the required evidence for your regulatory audits.

Installation and Qualification



The **EQPac** supports the highest level of regulatory compliance, providing IQ/OQ with PQ and maintenance recommendations. It also includes system suitability testing, initial calibration and basic training.

The **IPac** provides professional installation including IQ/OQ with PQ and maintenance recommendations. It includes system suitability testing and basic training with a standard level of documentation for your audit.

Calibration



Regular calibration by a manufacturer-trained service specialist ensures that your titration system performs accurately and within manufacturer specifications. Our professional calibration certificate provides all the evidence you need for a trouble-free audit.

Extended Care



Extended Care offering provides assurance for the first 24 months after installation. With Extended Care you also receive two preventive maintenance visits. Regular and professionally performed maintenance prevents unexpected breakdown and ensures operational performance and reliability. Detailed checklists itemize the work carried out and support you during quality audits.

For more information about our service offerings, see pages 20–23.



Training



Our customized training, live and on-demand webinars, in-person seminars and consulting services help you to build titration knowledge and grow expertise. They are suitable for both your existing teams and your new recruits.

Continuously dependable results are only possible if measurement risks are identified and eliminated. METTLER TOLEDO's Good Titration Practice™ (GTP™) supports you in analyzing your specific process risk with our unique risk-check tool. In addition, GTPSecure™ provides all services necessary to achieve accurate and reliable titration.



▶ **www.mt.com/GTP**

	IPac	EQPac	Calibrate SCC	Extended Care
	B39920002	B39920003	S39905038	B39950001
Titration Excellence T5/T7/T9	•	•	•	•
Volumetric KF Titrators V20S/V30S	•	•	•	•
Coulometric KF Titrators C20S/C30S	•	•	•	•
Compact Titrators V10S/C10S/G10S/G20S	•	–	•	•
* Add-on devices				
InMotion AutoSampler	•	•	–	•
InMotion KF Oven AutoSampler	•	•	•	•
Additional burettes	•	•	•	•
Additional Titration Excellence dosing units	•	•	•	•

* Add-on devices can also be qualified and/or calibrated at the initial installation

Get detailed information about the titration service offering ▶ **www.mt.com/titration-service**

Accessories



Compact G20S with manual titration kit and DGi115-SC sensor in a glass titration beaker

Excellence and Compact Potentiometric Titrators

Description	Material No.
Dosing unit for dispensing and titration purposes	51109030
Y-cable for simultaneous pump and stirrer connection	51109889
Electrode holder set containing: – electrode holder, attachment screw, electrode sleeve	51109195
Manual titration stand containing: – titration stand, attachment screw, spacing, clamping, threaded ring, titration vessel (2 pcs.), stopper set, ground joint adapter, electrode sleeve	51109190
Manual titration kit containing: – manual titration stand, compact stirrer	51109220
Auto titration kit containing: – electrode holder set, compact stirrer	51109221
Manual titration stand without accessories	51109118
Diaphragm pump SD660 with suction tube	30094165
Suction tube with filter for SD660	30094166
Peristaltic pump SP280	30094237
Novoprene tubes for SP280/SPR200 (1×1 m; 10×120 mm)	51190969
Silicone tubes for SP280/SPR200 (5×120 mm)	51108149
ChemSure tube for SP280/SPR200	30094297
Solvent manager kit	51105652

Compact Titrators

Description	Material No.
Protective touchscreen cover	51105567
External power supply 100–240 VAC	51105795
USB cable 1.8 m A-B for PC connection	51191926

Excellence Titrators (T5, T7, T9)

Description	Material No.
Terminal (with connection cable and protective cover)	51109017
Protective cover for terminal	30125377
Conductivity sensor board	51109840
pH/mV sensor board	51109818
T7→T9 upgrade set	51109960
External power supply unit	30253597
6-pol CAN cable, 20 cm	51109874
6-pol CAN cable, 60 cm	51109886
USB cable A-A, 180 cm for PC connection	51191689
OE06 auxiliary output expander OE06	51108065
DH100 heating system 110 V	51108779
DH100 heating system 230 V	51108780
Volumetric KF kit (solvent manager included)	51105605
DV704 External KF volumetric kit	30378857
Coulometric KF kit (generator with diaphragm)	30267112
Coulometric KF kit (generator without diaphragm)	30267113
Liquid handler	51371500
Handheld USB barcode reader	21901297
Dosing tube adapter 4 to 1	51108356



SmartSample reader on Titration Excellence

Karl Fischer Titration

Description	Material No.
Solvent manager set	51105600
DM143-SC double pin Pt sensor	51107699
72 cm sensor cable for DM143-SC	51109183
Silicone tube 133 mm	51107480
Silicone tube 850 mm, solvent manager to solvent exchange bottle	51105581
Clear glass bottle, 1 L	30079610
Flat gasket seal for bottles	00023981
Molecular sieve 3Å (250 g)	00071478
O-ring for screw caps, black (4/pk)	51107496
Screw cap for solvent bottle	00023937
Magnetic stir bar	51191159
Drying tube with cover	00023961
Silicone grease	00071300

Compact KF Volumetric Titrators (V10S, V20S, V30S)

Description	Material No.
Adapter for automatic draining of cell	51105594
O-ring for titration head	51190366
ST24 3-hole adapter incl. ST10, ST7.5 and pinhole stoppers	00023982
Stopper for 3-hole adapter (1 set: 1 ST10, 1 ST7.5, 6 pin hole stopper)	00025883
Septum stopper ST24 (10/pk)	00023950
Septum stopper ST10 (10/pk)	00023949
Solvent delivery/drain tube with screw fitting	51107481
Thermostatable titration vessel, 150 mL	51107497
Titration vessel, 250 mL	51107463
Homogenizer adapter set for IKA, 18 mm hole	51107409
Homogenizer adapter set for IKA, 19 mm hole	30030846
Homogenizer adapter set for Kinematica/Polytron, 12 mm hole	51107534

Compact KF Volumetric Titrators (C10S, C20S, C30S)

Description	Material No.
Coulometric solvent-exchange set	51105606
Solvent delivery/drain tube	00023936
Titration vessel	51108732
Thermostatable titration vessel	51109416
Generator electrode with diaphragm	51108751
Generator electrode without diaphragm	51108753
Cable for generator electrode	51107830
PTFE stopper with septum disk	51108741
Septum disk (12/pk)	51108740

General Titration

Accessories	Material No.
Barcode reader (requires USB cable)	21901297
USB cable to barcode reader	21901309
LogStraight™ fingerprint reader	51192107
Micropropeller stirrer rod	00655073
Propeller stirring rod	00101229
Sensor holder (when not in use)	00025654
Bottle rack for 2×1 liter bottles	51107065
TTL-I/O TBox DR42	51107420
TTL interface cable	51190589
RS232 connection cable (DB9 F/F)	51190362
LevelSens™ Description	
LevelSens with holder, non-aqueous	51109853
LevelSens with holder, aqueous	51109854
LevelSens box (connects up to 4 LevelSens) – includes 20 cm CAN cable	51109210

Sample Handling

Accessories	Material No.
Visco-Spoon™	51107668
Syringes, 1 mL (100 pcs)	00071492
Syringes, 10 mL (100 pcs)	00071482
Needles, 80×0.8 mm (100 pcs)	00071484
Needles, 80×1.2 mm (12 pcs)	00071483
Glass weigh boat for powders, 20×60 mm (5 pcs)	00023951
Glass weigh boat for powders, 30×80 mm (5 pcs)	00023952



Visco-Spoon™ for grease and wax samples



LevelSens used with solvent manager and exchange set

Accessories

InMotion™ Autosamplers

Description	Material No.
SmartSample RFID kit	30094251
SmartSample 100 mL sleeve w/tag, 20 pcs	30094269
SmartSample tag 100 pcs	30094271
InMotion aliquot kit for Pro 25 mL	30094248
InMotion COD kit for Flex 100 mL	30094249
InMotion Karl Fischer Direct kit for 100 mL	30094250
CoverUp lid handling for InMotion Flex	30094252
CoverUp lid handling for InMotion Pro 80 mL	30094253
CoverUp lid handling for InMotion Pro 100 mL	30094254
CoverUp lid handling for InMotion Pro 180 mL	30094255
InMotion CoverUp lids, 80 mL, 10 pcs	30094274
InMotion CoverUp lids, 100 mL, 10 pcs	30094275
InMotion CoverUp lids, 180 mL, 10 pcs	30094276
Option board barcode/SmartSample	30094233
Option board CoverUp/Stirrer/Pump	30094234
Tower InMotion Flex (cover not included)	30094160
Cover InMotion Flex/Pro 2nd Tower	30094267
Tower InMotion Pro left type w/cover	30094236
Tower InMotion Max left type w/cover	30094232
Under-rack magnetic stirrer	30094263
InMotion barcode reader with mount	30094235
Reversible peristaltic pump SPR200	30094285
Titration sync cable, 5 pin	30094246
Stirrer/Pump Y cable, 6 pin	30094247
InMotion dispensing tube w/tip, 135 cm	51108070
InMotion dispensing tube w/tip, 3 m	30094162
Diaphragm pump dispensing tube w/o tip	51108147

Rondolino Sample Changer

Description	Material No.
PowerShower™ for Rondolino	51108219
Rinse tube for Rondolino PowerShower	51108116
Diaphragm pump for Rondolino	51108012



InMotion Pro 100 mL with CoverUp™ lid handling



InMotion KF 10 mL vials with an innovative one-piece cap

InMotion KF Oven Autosampler

Description	Material No.
Rack kit InMotion KF Pro 5 mL	30407438
Rack kit InMotion KF Pro 10 mL	30407439
Rack kit InMotion KF Pro 20 mL	30407440
Air pump AP200	30407441
Gas stop valve SV2	30407442
Drying unit for InMotion KF (w/o tubes)	30407430
Tube set for InMotion KF drying unit	30407431
Transfer tube for InMotion KF	30407432
Heated transfer tube for InMotion KF	30407443
Sample vials 5 mL (set of 228)	30407444
Sample vials 10 mL (set of 192)	30407445
Sample vials 20 mL (set of 144)	30407482
Screw cap for 5 and 10 mL vials (228 pcs)	30407436
Screw cap for 20 mL vials (144 pcs)	30407437
Long needle for oil analysis (20 mL vial)	30407447
Long needle for oil analysis (10 mL vial)	30407448
Long needle for oil analysis (5 mL vial)	30407449
Tube set for automatic solvent exchange (pro only)	30407450
SP280 – peristaltic pump	30094237
Gas inlet adapter for coulometric cell	51108668
USB cable (1.8 m A-B)	51191926

DO308 Drying Oven

Description	Material No.
Sample boat (glass)	51108657
Gas drying unit and flow meter (needs tubes)	51108660
Guide rod for sample boat	51371101
Screw cap GL37 for sample tube	51191129
Stop cock	51191130
Aluminium inserts for sample boat (50/pk)	51108649
Furnace sample tube	51371206
Tube set	51108676
Gas outlet tubing	51108837
Silicone stopper ST14.5 (10/pk)	00023276
3-hole adapter with plug stoppers, for volumetric titrations	00023982
Gas inlet stopper for operation with DO308	51108761
Air-pump box	51108670
Drying tube with 3-way tap	00105071

Titration Sensors

Plug-and-Play Combined pH Glass Electrodes with Sensor Chip	Material No.
DGi101-SC pH micro-electrode (3 mm shaft diameter) for small titration vessels and aqueous solutions	51109507
DGi102-mini pH micro-electrode (6 mm shaft diameter) for small titration vessels and aqueous solutions	51109508
DGi111-SC pH glass electrode	51109500
DGi112-Pro pH glass electrode with movable sleeve diaphragm – for critical samples	51109501
DGi113-SC pH glass electrode with movable sleeve diaphragm – non-aqueous titrations	51109502
DGi114-SC pH glass electrode with movable sleeve diaphragm for aqueous solutions	51109503
DGi115-SC pH glass electrode with sleeve diaphragm	51109504
DGi116-solvent pH glass electrode with movable sleeve junction for non-aqueous media	51109505
DGi117-water pH glass electrode with integrated temperature sensor	51109506
Classical Combined pH Glass Electrodes	
DG111-SC pH glass electrode	00089596
DG113-SC pH glass electrode with movable sleeve diaphragm for non-aqueous titrations	00089632
DG115-SC pH glass electrode with sleeve diaphragm	00089806
Classical Half-Cell Electrode	
DG300-SC half-cell pH electrode in conjuction with reference electrode DX200	51109286
Sb850 half-cell pH/mV electrode in conjunction with a reference electrode (e.g. DX202)	59904405
Classical Reference Electrodes for pH/ISE/Tenside Half-Cell Electrode Sensors	
DX200 glass reference electrode	51089935
DX202-SC plastic reference electrode	51109295
Sensors for Thermometric Titration	
Thermotrode with integrated cable (1.2 m)	30322060
Thermotrode with integrated cable (2.0 m, for InMotion autosampler)	30322061



DP5 Phototrode™ sensor set at different wavelengths



Titration sensors

Plug-and-Play Combined Metal Electrodes with Sensor Chip	Material No.
DMi101-mini semi-micro platinum-ring electrode (6 mm shaft diameter) with ceramic frit for argentometric titrations – for small sample volumes	51109523
DMi102-SC semi-micro silver-ring electrode (6 mm shaft diameter) with ceramic frit for argentometric titrations – for small sample volumes	51109533
DMi140-SC platinum-ring electrode for redox titrations	51109520
DMi141-SC silver-ring electrode for argentometric titrations	51109530
DMi144-SC platinum-ring electrode for redox titrations on the InMotion 20 COD rack	51109521
DMi145-SC silver-ring electrode with a movable easy-to-clean sleeve junction for argentometric titrations – dirty or viscous samples	51109531
DMi147-SC platinum-ring electrode for redox titrations without changing pH value – pH glass as reference element without ceramic junction	51109522
DMi148-SC silver-ring electrode for argentometric titrations without changing pH-value – pH glass as reference element without ceramic junction	51109532
Classical Metal Electrodes	
DM140-SC combined platinum-ring electrode for redox titrations	00089598
DM141-SC combined silver-ring electrode for argentometric titrations	00089599
DM143-SC double-pin platinum electrode	51107699
DM405-SC combined Ag2S-sulfidized silver-billet electrode with annular ceramic junction for argentometric titrations	51109291
Photometric Sensors	
Phototrode DP5 with 5 selectable wave lengths: 520 nm, 555 nm, 590 nm, 620 nm, 660 nm – includes LEMO connection cable	51109300
Temperature Probes	
DT1000 - Pt1000 temperature sensor	51109828
DT1000 adapter for Rondolino and InMotion	51108032
Surfactant Electrodes	
DS500 for aqueous surfactant titrations	51107670
DS800-TwoPhase for two-phase surfactant titrations	51109540
Titration Conductivity Sensors	
InLab717 glass 4 pole cell, 10 µS/cm – 500 mS/cm, for conductivity titrations	51302401
InLab718 glass 2 pole cell, 0.1 µS/cm – 200 µS/cm, for low-conductivity titrations	51340266

Accessories

Sensor Cables and Parts

Description	Material No.
SC-LEMO 72 cm cable for plug-and-play and classical sensors	00089601
SC-LEMO 100 cm cable for plug-and-play and classical sensors	00089602
SC-LEMO 160 cm cable for plug-and-play and classical sensors	51108034
SC-LEMO 250 cm cable for plug-and-play and classical sensors	30094211
SC-LEMO 70 cm cable for amperometric/ voltametric titrations and for DM143-SC	51109183
SC-LEMO 100 cm cable for amperometric/ voltametric titrations and for DM143-SC	51109184
SC-LEMO 160 cm cable for amperometric/ voltametric titrations and for DM143-SC	51109185
Cable MultiPin™ – Lemo/Pt1000 100 cm for DGi117-water	30281914
Y-cable (connection of the DP5 to the power supply and the titrator)	51109905
Sensor extension cable for electrode, 120 cm, female/male Lemo (for InMotion Max)	30259608
Spare Sensor Parts	
Adapter, DIN to LEMO	00089600
DS500 membrane kit	51107669
DS800-two phase emulsifier	51109543
Sensor-sleeve adapter	52001220

Printers

Description	Material No.
USB-P25 alphanumeric printer for Excellence and Compact titrators	11124301
Cable USB-P25 to Excellence and Compact titrators	51191926
Paper roll for USB-P25/RS-P26 (Set of 2)	12120799
Paper roll, adhesive backed	11600388
OKi B412dn USB-commercial printer (cables not included) EU version	51192203

Bottle-Top Adapters

Description	Material No.
Diameter 40.5 mm; slope 3.5 mm (Germany/Merck)	00023774
Diameter 37.5 mm; slope 5 mm (USA)	00023787
Diameter 28.5 mm (China)	30060026
Diameter 34 mm (India)	30060024



DV1020
20 mL burette

Burettes

Description	Material No.
1 mL burette DV1001 with RFID chip for plug-and-play installation	51107503
5 mL burette DV1005 with RFID chip for plug-and-play installation	51107500
10 mL burette DV1010 with RFID chip for plug-and-play installation	51107501
20 mL burette DV1020 with RFID chip for plug-and-play installation	51107502
Burette housing with RFID chip	51109117

Description	Material No.
Centering ring 5 mL	51107519
Centering ring 10 mL	51107520
Centering ring 20 mL	51107521
Glass cylinder 1 mL	51107533
Glass cylinder 5 mL	51107100
Glass cylinder 10 mL	51107101
Glass cylinder 20 mL	51107102
Piston 1 mL	51107535
Piston 5 mL	51107115
Piston 10 mL	51107116
Piston 20 mL	51107117
Locking screw	51107518
Stopcock/ceramic valve disk for reagents with tendency for crystallization	51107525
Stopcock/PTFE valve (standard)	51107537
Amber glass bottle, 1 L	00071296
Burette holder	00023645
Connection tubing	51107129
Dispensing tube with siphon tip (70 cm)	00025687
Dispensing tube with siphon tip (100 cm)	00025961
Suction tube (83 cm)	00025688
Suction tube (3 m)	30094262
Drying tube with cover	00023961
Drying tube holder	00023915
Anti-diffusion tips (5/pk)	00023240



EasyPlus™ Titrators and Sodium Analyzer

Description	Material No.
EasyPlus burette 10 mL	30043900
EasyPlus burette 20 mL	30043901
EasyPlus burette 50 mL	30043902
EasyPlus tubing set instrument	30065464
EasyStir GT stirrer	30065467
EasyStir KF stirrer	30065468
EasyPlus titration head GT	30041102
Insert set titration head GT	30057635
EasyPlus titration head KF	30041103
Insert set titration head KF	30057636
KF vessel set	30065471
EasyPlus drying tube	30044701
Weighing boat and stopper set	30065466
Desktop power supply	51105795
Burette cover set	30057633
Valve	30042860
Bottle head	30060023
EasyPump	30064218
EasyPlus tubing set EasyPump	30065465
EasyDirect software, 3 titrators per PC installation	30065449

Sensors for EasyPlus Titrator

Description	Material No.
EG11-BNC: pH aqueous	30043103
EG13-BNC: pH non-aqueous	30043104
EM40-BNC: Redox mV	30043106
EM43-BNC: KF/Redox Ipol	30043105
EM45-BNC: Silver/Precipitation	30043107

Sodium Analyzer

Description	Material No.
DX222-Na for Sodium Analyzer	30079616
DX205-SC (ISE reference)	30066675
Sodium Analyzer head Na	30079612
Insert set sodium analyzer head Na	30079618
Electrolyte 0.5 M DIPA-HCL-ISA, 25 mL	30064081
Electrolyte 0.5 M DIPA-HCL-ISA, 250 mL	30066674

Titration Beakers

Description	Material No.
Polypropylene beakers, 100 mL, 120/pk	51109388
Polypropylene beakers, 100 mL, 480/pk	51109389
Polypropylene beakers, 100 mL, 1,400/pk	00101974
Polypropylene beakers, 250 mL, 500/pk	00023829
Polypropylene beakers, red, 100 mL, 1,400/pk	00025777
Two-phase beaker for surfactant titrations	51107655
Covers for 100 mL beakers, 16/pk	00101448
Glass beakers, 100 mL, 20/pk	00101446
Polypropylene beakers 80 mL, 30/pk	51108030
Polypropylene beakers 80 mL, 1,352/pk	51109328
Polypropylene, 180 mL, 500/pk	30094245
Glass beakers, 250 mL, 10/pk (not for autosamplers)	00023515
Glass beaker, for sample vol. 10–20 mL	00023516
Glass aliquot beaker, 20 mL	51108314
Glass aliquot beaker, 100 mL	51108161
Thermostatable glass, 100 mL	00023517

Multiparameter Accessories

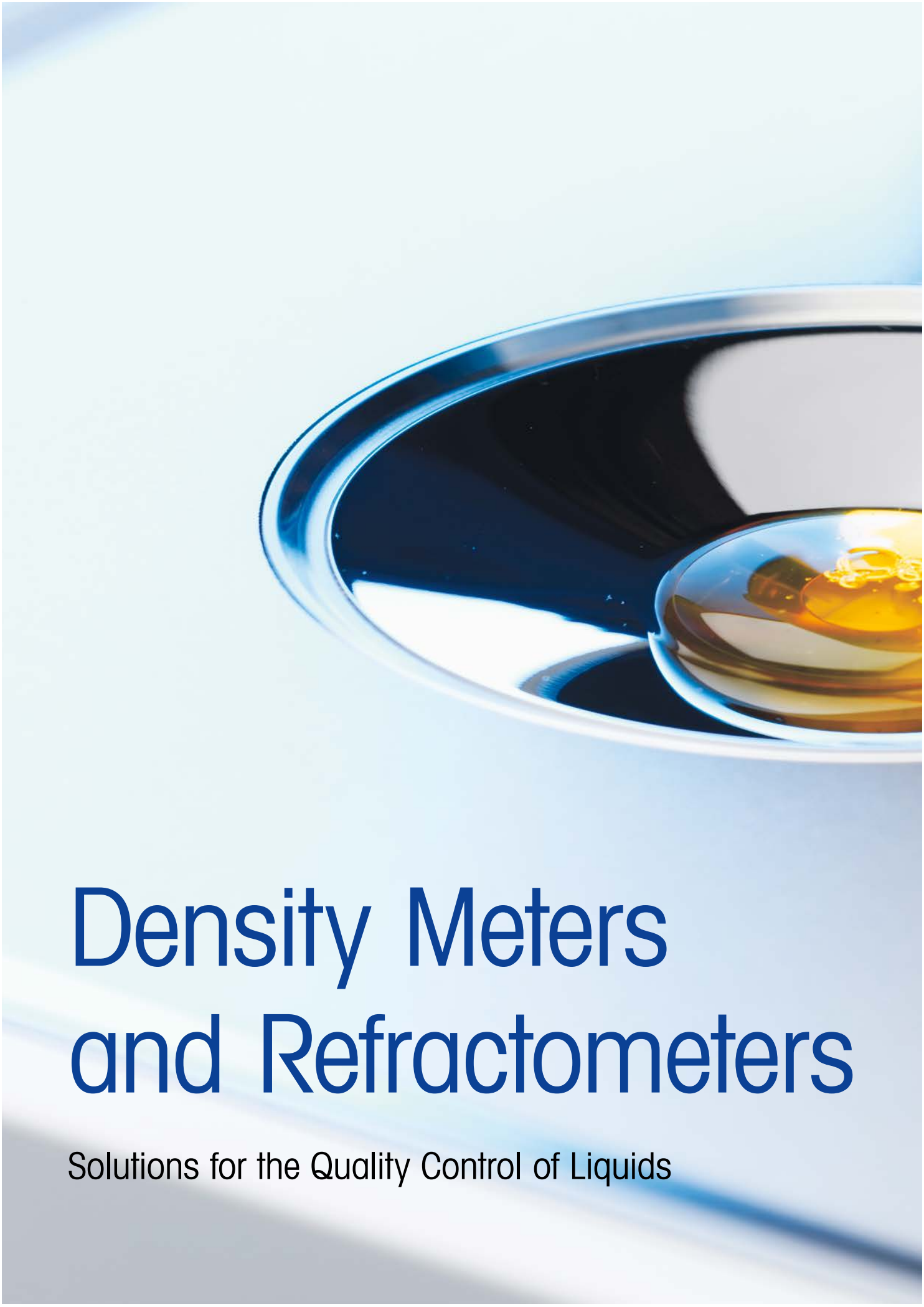
Description	Material No.
TV6 multi-port valve (6-port, 2 way)	30026544
Adapter M8×1.5 M/M8×1 F (SP×pump)	30094295
Titration to density/refractive index tube	51337240
Connection cable, density/refractive to titrator	51105856



Titration beakers

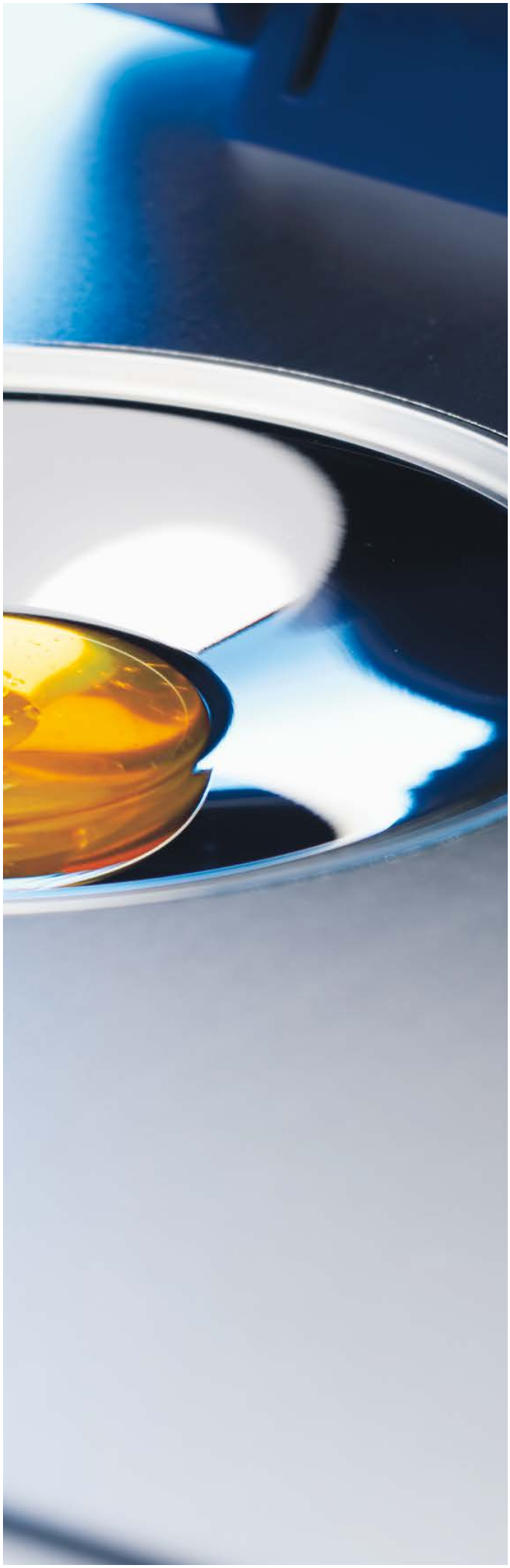
Get more information on our multiparameter solutions

www.mt.com/titration-multiparameter



Density Meters and Refractometers

Solutions for the Quality Control of Liquids



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www.mt.com/density www.mt.com/refractometry

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Digital Instruments
Digital density meters and refractometers have mostly replaced manual methods like hydrometers, pycnometers or Abbe refractometers, which are often prone to operator handling errors. Get repeatable results at a push of a button, measuring density, specific gravity, refractive index, Brix and many more units. For increased efficiency and data integrity, the data can be transferred to a PC software.

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EasyPlus Line

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Made for use in the lab and on the go, portable density meters and refractometers are lightweight, ergonomic and easy to use.

Portable Line

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A wide range of accessories and consumables is available to adapt your instrument to your application and workflow.

Accessories

Instrument Verification and More

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Service

Excellence Line
Performance Meets Simplicity

Developed for a wide range of applications, our intuitive Excellence Density Meters and Refractometers measure almost any sample with very high accuracy. The modular design of the instruments allows today's investment to be ready for the demands of tomorrow, adapting to your expanding workflow.

Keep It Simple



Start the measurement with a touch on your shortcut. One Click™ gives easy access to the tasks you need, simplifying your daily work and making you feel right at home.

Density Meters



Highly accurate measurements of up to 6 decimal places, intuitive operation, and a modular workflow. Excellence density meters: The perfect solution today, a valuable foundation tomorrow.

Refractometers



Developed for a broad range of industries, Excellence Refractometers can measure almost any sample with very high accuracy and can be connected to other instruments and automation units.



Excellence Density Meters		**D4**	**D5**	**D6**
Density (g/cm³)	Measuring range	0.000–3.000	0.000–3.000	0.000–3.000
	Accuracy	±0.0001	±0.00005	±0.000005
	Repeatability	±0.00005	±0.000005	±0.000001
	Resolution	0.0001	0.00001	0.000001
Temperature (°C)	Temperature range	0–95 (32–203 °F)	0–95 (32–203 °F)	0–95 (32–203 °F)
	Accuracy	±0.03	±0.02	±0.01
Languages		English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Polish		
Display/user interface		7-inch display with color touchscreen		
PC software		LabX™ PC Software	LabX™ PC Software	LabX™ PC Software
Dimensions (W×H×D) mm		267×226×256	267×226×256	267×226×256
Weight		17.5 kg	17.5 kg	17.5 kg
Material No.		30474900	30474901	30474902



www.mt.com/excellence-density

Excellence Refractometers		**R4/RX4 Measuring Cell**	**R5/RX5 Measuring Cell**
Refractive Index (nD)	Measuring range	1.32–1.70	1.32–1.58
	Accuracy	±0.0001	±0.00002 around adjustment point ±0.00004 entire range
	Repeatability	±0.00005	±0.00001
	Resolution	0.0001	0.00001
Brix (% w/w)	Measuring range	0–100	0–100
	Accuracy	±0.05	±0.014
	Repeatability	±0.05	±0.01
	Resolution	0.01	0.01
Temperature (°C)	Temperature range	5–100 (41–212 °F)	5–75 (41–167 °F)
	Accuracy	±0.1 (5–100 °C)	±0.03 (15–50 °C) ±0.05 (5–75 °C)
Languages		English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Polish	
Display/user interface		7-inch display with color touchscreen	7-inch display with color touchscreen
PC software		LabX™ PC Software	LabX™ PC Software
Dimensions (W×H×D) mm		208×193×226	208×193×226
Weight		4.8 kg	4.8 kg
Material No.		R4: 30474903, RX4: 30474905	R5: 30474904, RX5: 30474906



www.mt.com/excellence-refractometry

Automation
Increase Throughput, Automate Your Workflow

Save time, reduce costs and improve operational safety by minimizing the need for operator interaction with the instrument. Increase the quality of your measurement data by automating your workflow by ensuring that all steps are performed the same way each time. Increase results repeatability and reliability with fully automatic determination.

Free up time for operators to perform other tasks by replacing your manual workflow using syringes with automated sampling, measuring, draining, rinsing and drying. Increase your throughput with autosamplers.

Automate Your Sampling



Incease repeatability by avoiding operator-dependent sampling. Fill and rinse the measuring cell with the SPR200 sampling pump, with sample specific speed and duration. Utilize the powerful DryPro drying pump for quick and efficient drying of your density meter.

Optimize Sampling and Cleaning



Powerful SC1 and SC30 autosamplers automate your workflow with up to 30 samples and – thanks to overpressure sampling – allow for the analyses of all types of samples, including highly viscous ones. Save time and rinsing solution with highly efficient cleaning.

Measure Demanding Samples



Nothing is impossible. Measure extremely viscous samples as well as samples that are solid at room temperature with the SC1H and SC30H. Heated up to 80 °C, samples like bitumen or lipstick become fluid enough to be analyzed.



Run Multiple Samples

Load up to 303 samples on our autosamplers and press start. The system does all the work for you, whether for a single analysis or a multiparameter measurement.

www.mt.com/excellence-automation

	DryPro Drying Pump	SV3 3-Way Valve[1)]	SPR200 Sampling Pump[1)]	SC1 Single Sample Automation	SC30 Multiple Samples Automation	SC1H Heated Version of SC1	SC30H Heated Version of SC30	InMotion Autosampler
Sampling	No	No	Auto	Auto	Auto	Auto	Auto	Auto
Draining	No	No	Semi-auto	Auto	Auto	Auto	Auto	Auto
Rinsing	No	No	Semi-auto	Auto	Auto	Auto	Auto	Auto
Drying	Yes	No	With DryPro	Auto	Auto	Auto	Auto	Auto
Heating	No	No	No	No	No	Yes	Yes	Yes
No. of samples	–	–	1	1	30	1	30	Up to 303
Material No.	30474899	30474898	30094285	51326000	51327000	51326400	51327500	30094290

[1)] Available as SV3/SPR200 bundle (30474907)
SV3 can also be used for waste separation

Multiparameter – System
Customer-Tailored Performance

Save time and increase data quality. Multiparameter analyses combining density, refractive index, color, pH, titration, and more prevent the alteration of samples between individual analyses. Results can be displayed directly on the instrument screen, ensuring that all your data is at your fingertips.

The modular approach of our Excellence Density Meters and Refractometers allows you to add one or more instruments in a multiparameter system according to your workflow and needs.

Density and Refractive Index



Our space-saving system enables you to combine a density meter with a refractive index cell to measure both parameters in one go.

Refractive Index and pH or Conductivity



Combine a pH or conductivity meter with a refractometer or a density meter for multiparameter analysis, e.g. to measure acidity and Brix in fruit juice.

Acid-Corrected Brix and More



Connect a refractometer to a titrator and determine the acid-corrected Brix value. Further instruments are supported with the auxiliary instrument function.



Color and More

With the SC30 autosampler, precious samples of only 15 milliliters like flavors and fragrances may be retained in the vial to be stored as a retention sample, or used for further analyses.

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Connecting Kits	Material No.
Connecting kit – Refractive Index Cell	51337024
Connecting kit – pH SevenCompact	51337023
Connecting kit – Conductivity SevenCompact	51337022
Connecting kit – Color Konica Minolta CM5/CR5	30025477
Connecting kit – Color Lovibond PFX-8××/PFX-9××	51337021
Connecting kit – Color Lovibond PFXi-195	30395922
Auxillary instrument adapter[1)]	51105856

[1)] USB-RS232 adapter to control external instruments via RS232



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Organize and edit methods, view results the way you want to see them. Store all data, videos and metadata in real-time. Create customized reports to display the information you need.

Manage Your Instruments



Power your bench by integrating a variety of METTLER TOLEDO Excellence line instruments on one multiparameter platform. Manage different instruments with one PC software that includes step-by-step user guidance and communication with LIMS and other lab systems.

Manage Your Users



Customize user roles and define user permissions and rights to protect your methods and data. Enable electronic signatures to sign off on measurements. Ensure secure user authentication with the use of password protection or fingerprint identification.



Ensure Compliance

Be ready for audits with our software validation service, which ensures compliance of your LabX system with regulations such as 21 CFR Part 11, EU GMP, and ISO 17025.

www.mt.com/excellence-software

Product	Description	Material No.
LabX Express Starter Pack DERE	LabX software for one computer with up to 3 instruments	11153130
LabX Server Starter Pack DERE	LabX software for a distributed (client/server) installation with up to 30 instruments	11153131
Instrument license DERE	License needed to connect one DERE instrument	11153250
Instrument license Melting Point	License needed to connect one Melting Point instrument	30005811
Instrument license Titrator	License needed to connect one Titrator	30097756
Instrument license UV/VIS	License needed to connect one UV/VIS instrument	30247986
Instrument license balance	License needed to connect one balance	11153220
Instrument license pH	License needed to connect one pH meter	30247989
Instrument license Quantos	License needed to connect one Quantos instrument	30062405

EasyPlus Density Meters and Refractometers
Simple and Affordable for Daily Routines

Designed to bring simplicity to your operation, the compact and rugged EasyPlus density meters and refractometers are suitable for a variety of industries whether in your lab or near your production line. With an accuracy of up to 4 decimal places and fast and automatic temperature control, the instruments deliver high results repeatability and stability for your analyses.

Accurate and Intuitive by Design



Prevent operator errors and save time on training thanks to the intuitive app-based user interface. Ensure proper sampling by observing your measurement with a real-time video view of the density measuring cell.

Precise Results Just a Few Steps Away



Measure within seconds with FastStart™. Start your analyses the second the sample hits the cell – without pressing a button. EasyPlus Refractometers are engineered with high quality components to withstand rough environments.

Say Goodbye to Your Pen



Manage your data efficiently with EasyDirect™ Density and Refractometry PC Software. Easily create and tailor reports and transfer your results to Excel or PDF. For more thorough analysis, create graphs and monitor your samples over time.



EasyPlus Density Meters		Easy D30	Easy D40
Density (g/cm³)	Measuring range	0.000–3.000	0.000–3.000
	Accuracy	±0.001	±0.0005
	Resolution	0.001	0.0001
Temperature (°C)	Temperature range	15–25 (59–77 °F)	15–50 (59–122 °F)
	Accuracy	±0.2	±0.1
Languages		English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Bahasa Indonesia, Korean, Polish, Thai, Turkish	
Number of methods		1	6
Automatic viscosity correction		Yes	Yes
Automatic bubble detection (BubbleCheck™)		No	Yes
Color-coded results identification		Yes	Yes
Integrated drying pump		Yes	Yes
Material No.		30468670	30468671

www.mt.com/EasyPlus-density

EasyPlus Refractometers		Easy Brix	Easy R40	Easy Bev
Refractive Index (nD)	Measuring range	1.32–1.58	1.30–1.72	1.32–1.58
	Accuracy	±0.0001	±0.0001	±0.0001
	Resolution	0.0001	0.0001	0.0001
Brix (% w/w)	Measuring range	0–100	0–100	0–100
	Accuracy	0.05	0.05	0.05
	Resolution	0.01	0.01	0.01
Temperature (°C)	Temperature range	15–25 (59–77 °F)	10–65 (50–149 °F)	15–25 (59–77 °F)
Languages		English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Bahasa Indonesia, Korean, Polish, Thai, Turkish		
Number of methods		1	6	6
Automatic sample detection (FastStart™)		Yes	Yes	No
Color-coded results identification		Yes	Yes	Yes
Material No.		30468673	30468672	30468674

www.mt.com/EasyPlus-refractometry

Portable Instruments
Light, Intuitive and Rugged

Designed to fit comfortably in the hand, our lightweight and robust Portable density meters and refractometers allow for accurate and precise measurement in the lab or on-the-go. Results are temperature-compensated and can be delivered in the measurement unit needed – Specific Gravity, Brix, and many more.

Simply Intuitive



With an intuitive user interface, menus and selections are self-explanatory. The portable density meter's bright display guarantees excellent visibility both indoors and outdoors. Color-coded results enable instant identification of acceptable samples.

Precise Results Just a Few Steps Away



Save precious time with quick, simple density and refractive index measurements: Dip the portable refractometer directly into the sample and fill the measuring cell of the portable density meter using the automated pump, receive the result instantaneously, and move on to the next sample.

Reliable Results



Get accurate results no matter the temperature. For up to 30 products in Densito and 10 products in Refracto, sample specific temperature compensation factors can be entered to correct the measurement value to the desired temperature (e.g. 20 °C).



Portable Density Meters		**Densito**	**DensitoPro**
Density (g/cm³)	Measuring range	0.000–3.000	0.000–3.000
	Accuracy	±0.001	±0.001
	Repeatability	±0.0005	±0.0005
	Resolution	0.0001	0.0001
Temperature (°C)	Temperature range	0–50 (32–122 °F)	0–50 (32–122 °F)
	Accuracy	±0.2	±0.2
Languages		English, Chinese, German, Spanish, French, Italian, Portuguese, Korean, Indonesian, Russian, Polish, Thai, Turkish	
Display/user interface		2.4" color screen with buttons and joystick	
PC software		EasyDirect PC Software	EasyDirect PC Software
Dimensions (W×H×D) mm		267×226×256	267×226×256
Weight		355 g	355 g
Material No.		30330857	30330858

www.mt.com/densito

Protable Refractometers		**Refracto 30PX**	**Refracto 30GS**
Refractive Index (nD)	Measuring range	1.32–1.50	1.32–1.65
	Accuracy	±0.0005	±0.0005
	Resolution	0.0001	0.0001
Brix (% w/w)	Measuring range	0–85	0–100
	Accuracy	±0.2	±0.2
	Resolution	0.1	0.1
Temperature (°C)	Temperature range	10–40 (50–104 °F)	10–40 (50–104 °F)
	Accuracy	±0.2	±0.2
Languages		English	English
Display/user interface		Backlit LCD with keyboard	Backlit LCD with keyboard
PC software		EasyDirect PC Software	EasyDirect PC Software
Dimensions (W×H×D) mm		186×55×60	186×55×60
Weight		250 g	250 g
Material No.		51324650	51324660

www.mt.com/refracto

Accessories and Consumables
Tailored Performance



Excellence Line

Description	Material No.
LabX PC Software – Express	11153130
LabX PC Software – Server	11153131
Infrared Motion Sensor – ErgoSens™	11132601
Level Sensor – LevelSens™	51109853
Finger Print Reader – LogStraight™	51192107
Handheld Barcode Scanner	21901297
USB-P25 Printer	11124301
USB-P-56RUE Printer	30094673
USB-P-58RUE Printer	30094674
Refractometer Press for Pasty Products	51337155
Refractometer Foil Stamp Set	30384986
Syringe Adapter, Density Meter DM	51337154
Syringe Holder, Density Meter DM	30474897
In-Use Cover	30474889









EasyPlus Line

Description	Material No.
EasyDirect Density and Refractometry PC Software	30451628
Printer USB-P25	11124301
Printer USB-P25 (US and Canada Only)	11124321
Barcode Reader	21901297
USB Keyboard	51192111
Drying Tower (Desiccator, Screwdriver, Screws, Drying Tube with Adaptor, Silica Gel, for Easy D30 and Easy D40)	30468675
Wall Mount Kit (for Easy Bev)	30465247



Portable Line

Description	Material No.
EasyDirect Density and Refractometry PC Software	30451628
Bluetooth Printer Godex MX20 with Dongle, Densito	30330864
Printer USB-P25	11124301
Protective Cover, Densito	30330860
Connector Syringe/Filling Tube, Densito	30330853
Tags SmartSample, Densito	30449268
Tags SmartSample Film for Tanks, Densito, 10 pcs	30449269
Sampling Tube, 190 mm, Densito	30330847
Sampling Tube, 600 mm, Densito	30330848
Carrying Case, Densito	30330861
Battery Li-ion 2400 mAh, Densito	30330855

Lifecycle Protection
Of Your Measuring System

Use our professional services from day one to ensure your density and refractometry systems are installed and operating correctly, and that they continue to provide accurate and reliable measurements throughout their whole lifecycle. Detailed yet easy-to-read documentation provides the required evidence for your audits.

Installation and Qualification



The **EQPac** supports the highest level of regulatory compliance for your Excellence meter, providing IQ/OQ with PQ and maintenance recommendations. It also includes initial calibration and basic training. The comprehensive, fully-compliant documentation supports all your regulatory needs.

The **IPac** provides professional installation of your Excellence meter, including IQ/OQ with PQ and maintenance recommendations. It includes performance testing and basic training with a standard level of documentation for your audit.

Calibration



Regular calibration by a manufacturer-trained service specialist ensures that your device performs accurately and within manufacturer specifications.
A professional calibration certificate provides all the evidence you need for a trouble-free audit.

Extended Care



Extended Care provides you with added assurance for the first 24 months after installation. With Extended Care you also receive two preventive maintenance visits. Regular and professionally performed maintenance prevents unexpected breakdown and ensures operational performance and reliability. Detailed checklists itemize the work carried out and support you during quality audits.

For more information about our service offerings, see pages 20–23.



Training



Our customized training, live and on-demand webinars, in-person seminars and consulting services help you to build density and refractometry knowledge and grow expertise. They are suitable for both your existing teams and your new recruits.

GDRP™ – 5 Steps to Excellence

Good Density and Refractometry Practice is a 5-step program to improve your lab processes. It covers the entire lifecycle of your investment and helps to improve quality while reducing risk and cost.

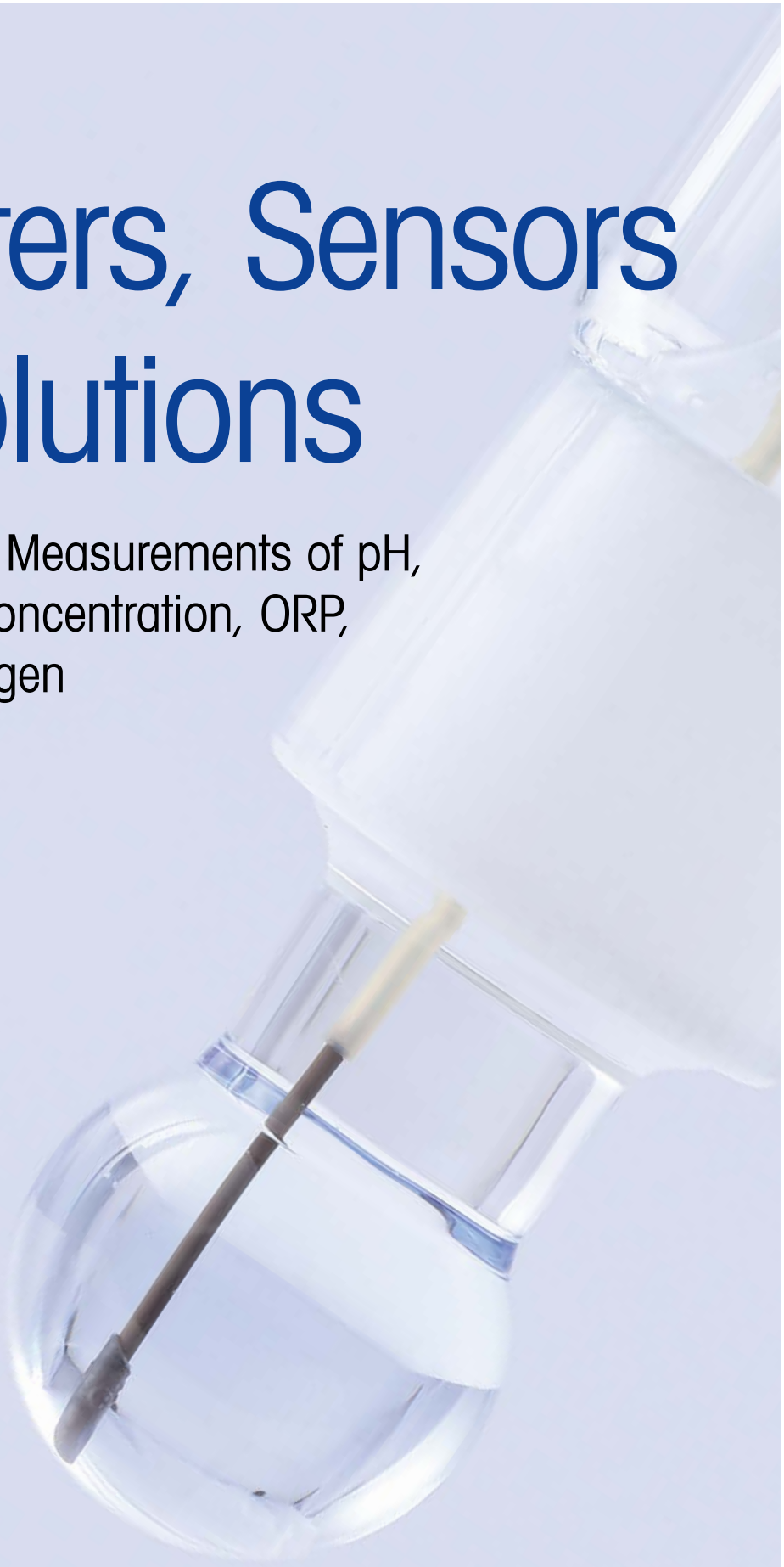
www.mt.com/GDRP



	StarterPac	IPac	EQPac	Calibrate SCC	Basic Test Report (1 Point)	Extended Care
	B39920001	B39920002	B39920003	S39905038	S39905022	B39950001
Density and Refractometry Excellence	–	•	•	•	–	•
EasyPlus Density and Refractometry	•	–	–	•	–	•
Hand Held Meters	–	–	–	•	•	•
Automation (SC1/SC30/DryPro)	–	–	–	–	–	•

pH Meters, Sensors and Solutions

Quick and Reliable Measurements of pH, Conductivity, Ion Concentration, ORP, and Dissolved Oxygen





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	SevenGo Duo™	224–225
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Scan this code for more information.

www.mt.com/pH

Quick, Reliable Results
At Your Fingertips

More than 70 years of sensor innovation combined with cleverly designed instruments has resulted in a product range of unparalleled quality and flexibility. Whatever you need to measure, be it pH, ORP, ion concentration, conductivity or dissolved oxygen (DO), METTLER TOLEDO provides you with the electrochemical equipment you need.

Select the right equipment for pH, ORP, ion, conductivity or dissolved oxygen measurement.



SevenCompact™ S210

Benchtop Accuracy

Benchtop meters from simple to sophisticated lab applications. User-friendly and intuitive single and multi-channel instruments for highest precision and solid compliance.



SevenExcellence™
SevenCompact™
FiveEasy™ and FiveEasy Plus™

Portable Convenience

These hand-held meters provide optimum convenience and high performance during mobile work on the factory floor or out in the field.



Seven2Go™
SevenGo Duo™
FiveGo™

Fast Analysis

Our sensors combine innovative technologies and glass-blowing tradition for fast pH, ORP, ion-selective, conductivity and DO analysis.



InLab™ and LE Sensors

Comprehensive Systems

We take pride in a long tradition of producing complete measurement systems, including a comprehensive range of top quality solutions.



Solutions for Calibration and Care

Reliable Results

Our world-class network of technicians helps to ensure your instruments are working at their highest potential, while Good Electrochemistry Practice™ helps to ensure day-to-day accuracy.



Service and Good Electrochemistry Practice™

SevenExcellence
Powerful, Secure Instruments

SevenExcellence™ stands for convenient, easy-to-understand operation combined with high measurement accuracy and outstanding flexibility. A capacitive touchscreen and large 7-inch display make the instrument truly intuitive, with ease-of-use reinforced by the availability of menus in 10 languages. The instrument can effectively cope with complex applications and stringent requirements in regulated markets, but it also provides added value for routine laboratory measurements.

Seamless Processes



SevenExcellence has been designed to optimize your workflows and make lab work more efficient. Just one click is needed to start a sample or a measurement/analysis series with an optional autosampler. Once set up, data archiving is a standard procedure that will take place automatically following each analysis.

Solid Compliance



SevenExcellence comes with security functions that support your workflow during all phases of calibration, measurement and archiving. It is suitable for routine tasks as well as professional measurements under stringent GLP conditions. Connected to LabX™, SevenExcellence offers perfect compliance support.

Sustainable Value



SevenExcellence offers flexibility on all levels, ranging from the number of measurement parameters to the choice of a vast collection of peripheral devices. The instrument's interfaces allow you to connect peripherals simultaneously, supporting your workflow in the best way possible.

www.mt.com/SevenExcellence



Unmatched Performance for Various Parameters

- pH
- Conductivity
- Ion concentration
- Dissolved oxygen / BOD
- Oxidation-reduction potential



SevenExcellence™ S479

Convenient Versatility
For Excellent Measurement Flexibility

SevenExcellence™ offers flexibility on all levels, ranging from the number of measurement parameters to the choice of a vast collection of peripheral devices. The instrument's interfaces allow you to connect peripherals simultaneously, supporting a streamlined workflow.



SevenExcellence™ S475

7 good reasons for SevenExcellence:

- **Touchscreen convenience** – easy to learn, quick to operate
- **Menu guidance in 10 languages** – user-friendly operation
- **Large, well-arranged color display** – information identifiable at a glance
- **Modular design** – ready to expand when your needs change
- **Many peripheral options** – to ensure efficient measurement workflows
- **Intelligent sensors** – peace of mind, mistake elimination
- **Comprehensive service offering, incl. EQPac** – high uptime and compliance

Automated Efficiency



With flexible InMotion™ autosamplers, automated sensor calibration and measurements of up to 303 samples are possible. Professional automation ensures security, comfort and maximum efficiency.

Professional User Management



SevenExcellence includes ingenious user management with 4 levels from user to administrator, each with progressively more rights. This allows the experience-based assignment of rights. The risks of unintentional or unauthorized setting changes or results deletion are eliminated.

LabX™ Laboratory Software



Connected to LabX software (see pages 14–19), SevenExcellence profits from many additional functionalities such as report creation, compliance support (e.g. 21 CFR Part 11) and connection to ERP/LIMS systems. LabX also enables smart connection to other METTLER TOLEDO lab instruments.

SevenExcellence™ Meters and Kits

Model	Channel	Parameter	Measuring Range	Resolution & Accuracy	InLab™ Sensor	Material No.
S400-basic	1	pH mV Temperature	–2.000–20.000 pH; –2,000.0–2,000.0 mV –30.0–130.0 °C	0.001/0.01/0.1; ±0.002 0.1/1; ±0.1 0.1; ±0.1	None	30046240
S400-kit					Expert Pro-ISM	30046241
S400-bio					Routine Pro-ISM	30046242
S400-micro					Ultra-Micro-ISM	30092982
S400-uMix					Expert Pro-ISM and uMix stirrer	30092983
S700-basic		Conductivity Temperature	0.001 µS/cm – 2,000 mS/cm –30.0–130.0 °C	0.001–1; ±0.5% 0.1; ±0.1	None	30046244
S700-kit					731-ISM	30046245
S700-trace					Trace including flow cell	30046246
S500-basic		pH mV Ion concentration Temperature	–2.000–20.000 pH; –2,000.0–2,000.0 mV 0–999,999 mg/L, ppm –30.0–130.0 °C	0.001/0.01/0.1; ±0.002 0.1/1; ±0.1 0.001–1; ±0.5% 0.1; ±0.1	None	30046248
S500-kit					Expert Pro-ISM	30046249
S500-bio					Routine Pro-ISM	30046250
S500-f					perfectION™ Fluoride	30046251
S900-basic		Dissolved oxygen	0.000–50 mg/L, ppm	0.001 ±0.1 mg/L from 0–8 ±0.2 mg/L from 8–20 ±10% from 20–50	None	30092984
S900-kit					OptiOx	30092986
S900-BOD		Dissolved oxygen Temperature	0.000–50 mg/L, ppm –30.0–130.0 °C*	0.001 ±0.1 mg/L from 0–8 ±0.2 mg/L from 8–20 ±10% from 20–50 0.1; ±0.1	OptiOx	30092987
S600-kit		Dissolved oxygen Temperature	0.000–99 mg/L, ppm –30.0–130.0 °C**	0.001; ±0.5% 0.1; ±0.1	605-ISM	30092985
S470-basic	2	pH mV Conductivity Temperature	See S400 and S700	See S400 and S700	None	30046252
S470-kit					Expert Pro-ISM, 731-ISM	30046253
S470-USP/EP					Pure Pro-ISM, 741-ISM	30046254
S475-basic	3	See S470 and S500	See S400, S700 and S500	See S400, S700 and S500	None	30046255
S479-kit		See S470 and S900	See S470 and S900	See S470 and S900	Expert Pro-ISM 731-ISM, OptiOx	30092988
S975-uMix		See S900, S700 and S500	See S900, S700 and S500	See S900, S700 and S500	Expert Pro-ISM 731-ISM, OptiOx and uMix stirrer	30092989

* 0.0–50.0 °C for InLab OptiOx
** 0.0–60.0 °C for InLab 605-ISM

Basic versions include:
Meter, the specified expansion units, uPlac™ electrode holder, semi-transparent cover, operating instructions, installation and quick guide, EasyDirect™ pH PC software, declaration of conformity and test certificate. Electrode is NOT included.

Kit versions include:
As above plus appropriate electrode, buffer sachets and theory guides.

Accessories for SevenExcellence

Expansion Units	Material No.
pH/mV expansion unit	30034472
Conductivity expansion unit	30034473
DO/BOD expansion unit	30034474
pH/Ion expansion unit	30034471
General Accessories	
uPlace: Electrode holder (included in standard delivery)	30019823
uMix™ magnetic stirrer	30040000
USB-P25 printer (with USB cable)	11124301
LogStraight™ fingerprint reader	51192107
Barcode reader body	21901297
USB cable for barcode reader (not included with barcode reader body)	21901309
EasyDirect PC software (included in standard delivery)	30323214
USB A-B cable for EasyDirect PC software (not included with EasyDirect PC software)	51191926
Automation	
InMotion™ sample changer Flex Base and 100 mL rack bundle (for other configurations see www.mt.com/InMotion)	30094120
Compact stirrer for InMotion including 2 propeller stirrers	51109150
LabX™ Laboratory Software	
Starter pack LabX Express edition (for standalone systems, includes 1 SevenExcellence instrument license)	30247987
Starter pack LabX Server edition (for client server installations, includes 1 SevenExcellence instrument license)	30247988
1 SevenExcellence instrument license	30247989

www.mt.com/SevenExcellence

Advanced

SevenCompact
Universal, Reliable Instruments

The SevenCompact™ series combines precise electrochemical measurement technologies with flexibility, innovative design and ease of use. It can be universally employed and continues in the tradition of our Seven series.

Intuitive Operation



Whether you are starting a measurement or calibration or are toggling between modes, you only need to press one key. For setting adjustments, the SevenCompact offers menus with full sentences in 13 languages. No more cryptic abbreviations to memorize.

Long-Lasting Investment



SevenCompact offers a robust IP54-rated design that uses high-quality materials for durability. Comprehensive service and after-sales support guarantee smooth oprations years after your initial, certified installation.

Great Flexibility



Connect various accessories such as a barcode reader, keyboard, USB stick, USB printer or PC with EasyDirect™ pH software to boost SevenCompact's flexibility. Workflow efficiency is increased with the uPlace™ sensor stand and uMix™ stirrer.

www.mt.com/SevenCompact

7 Good Reasons for SevenCompact

- **Top sensors**
  Fast and accurate measurements
- **Menu guidance in 13 languages**
  User-friendly operation
- **Clear, well-arranged color display**
  Quick to learn
- **Printing and data-storage options**
  GLP compliant
- **Professional peripheral options**
  High efficiency
- **Intelligent sensors**
  Peace of mind
- **Full-fledged service offering**
  High uptime and compliance



SevenCompact™ S230-kit

SevenCompact Meters and Kits

Model	Parameters	Measuring Range	Resolution & Accuracy	InLab™ Sensor	Material No.
S220-basic (meter)	pH/mV*/redox/ion concentration**/°C***	–2.000–20.000 pH –2,000.0–2,000.0 mV 1.00E^{-9}–9.99E^{+9} –30.0–130.0 °C	pH: 0.001/0.01/0.1; ±0.002 mV: 0.1/1; ±0.2 Ions: last signifi.digit; ±0.5% 0.1 °C; ±0.1 °C	None	30019028
S220-standard kit				Expert Pro-ISM	30019029
S220-uMix kit				Expert Pro-ISM and uMix	30096986
S220-bio kit				Routine Pro-ISM	30019031
S220-micro kit				Ultra-Micro-ISM	30096985
S220-uni-kit				Versatile Pro	30019032
S230-basic (meter)	Cond./TDS/salinity/ Resistivity/°C	0.001 µS/cm – 1,000 mS/cm –30.0–130.0 °C	0.001–1; ±0.5% 0.1 °C; ±0.1 °C	None	30019033
S230-standard kit				731-ISM	30019034
S213-basic (meter)	pH/mV*/redox/°C***/ cond./TDS/salinity/ resistivity	–2.000–20.000 pH –2,000.0–2,000.0 mV 0.001 µS/cm – 1,000 mS/cm –30.0–130.0 °C	pH: 0.001/0.01/0.1; ±0.002 mV: 0.1/1; ±0.1 0.001–1; ±0.5% 0.1 °C; ±0.1 °C	None	30339958
S213-standard kit				Expert Pro-ISM and 731-ISM	30339959
S213-water kit				Pure Pro-ISM and 741-ISM	30339980

* Instrument can also measure rel. mV
** Ion concentration supports units mmol/L, mol/L, ppm, mg/L, % and pX
*** Temperature display choice between °C and °F. ATC temperature range is –5.0–130.0 °C

General SevenCompact Accessories

Description	Material No.
uPlace™: Electrode holder (included in standard delivery)	30019823
uMix™ magnetic stirrer	30040000
Protective cover (included in standard delivery)	30019824
USB-P25 printer (with USB cable)	11124301
Barcode reader body	21901297
USB cable for barcode reader (not included with barcode reader body)	21901309
EasyDirect pH PC software	30323214
USB A-B cable 1.8 m for EasyDirect pH PC software (not included with EasyDirect pH PC software)	51191926

Non-kit versions include:
Meter, electrode arm, in-use cover, calibration certificate, declaration of conformity (electrode is NOT included)

Kit versions include:
As above plus appropriate electrode, buffer sachets and measurement guides

Standard

FiveEasy and FiveEasy Plus

Quality in the Lab for the Budget-Minded

New FiveEasy and FiveEasy Plus benchtop instruments provide quality pH/mV or conductivity measurements with the simple click of a button. Compact in design and featuring various data export opportunities, FiveEasy series instruments are the perfect companion to get reliable measurement data at a reasonable price.



Easy Operation



Featuring a large, well-structured display for easy viewing, the instrument's intuitive button arrangement and simple menu ensure measurements can be performed in just a few clicks.

Compact Design – Save Space



Thanks to its compact design, little bench space is needed for the FiveEasy series meters. The sensor holder is integrated into the housing so that the sensor can be easily removed and stored on the side of the meter after use.

Simple Data Transfer



FiveEasy™ Plus series meters allow data to be exported either directly to a printer or PC for further processing using its RS232 or USB ports.

www.mt.com/FiveEasy

Technical Specifications

Specifications		FiveEasy Plus™ pH FP20	FiveEasy™ pH F20	FiveEasy Plus™ Conductivity FP30	FiveEasy™ Conductivity F30
General Measurement	Measuring range	–2.00–16.00 pH	0.00–14.00 pH	0.00 µS/cm – 500.0 mS/cm (conductivity)	0.00 µS/cm – 200.0 mS/cm (conductivity)
		–2,000–2,000 mV		0.00 mg/L – 300.0 g/L (TDS)	0.00 mg/L – 200.0 g/L (TDS)
				0.00–42.00 psu (salinity)	–
		–5.0–105.0 °C (23.0–221.0 °F)	0.0–100.0 °C (32.0–212.0 °F)	–5.0–105.0 °C (23.0–221.0 °F)	0.0–100 °C (32.0–212.0 °F)
	Resolution	0.01/0.1 pH	0.01 pH	Automatic range	
		1 mV		0.01 psu (salinity)	
		0.1 °C		0.1 °C	
	Accuracy (instrument)	±0.01 pH		±0.5% of the measured value	
		±1 mV			
		±0.3 °C	±0.5 °C	±0.3 °C	±0.5 °C
	Temperature compensation	Automatic or manual		Linear correction factor: 0.00–10.00%/°C Reference temperature: 20 or 25 °C	
	Calibration	Max. 5 points	Max. 3 points	1 point	1 point
		Linear/segmented	Linear	–	–
		4 predefined buffer groups		3 predefined standards, manual cell constant input	3 predefined standards

Kits Overview and Order Information

	Meter	Kits	Kits Description	Ideally Suited For	Material No.
pH/mV, ORP	FiveEasy Plus FP20 pH/mV	FP20-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266627
		FP20-Standard	Standard kit with LE438 sensor	Wide range of general aqueous samples	30266628
		FP20-Bio	Kit with LE410 sensor	Fast results in aqueous samples such as acids, bases etc.	30266629
		FP20-Micro	Kit with LE422 sensor	Small samples in vials and test tubes	30266940
		FP20-TRIS	Kit with LE420 sensor	Demanding, "dirty" samples such as emulsions, oily samples, waste water, TRIS etc.	30266941
	FiveEasy F20 pH/mV	F20-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266658
		F20-Standard	Standard kit with LE438 sensor	Wide range of general aqueous samples	30266626
Conductivity	FiveEasy Plus FP30 Conductivity	FP30-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266944
		FP30-Standard	Standard kit with LE703 sensor	Aqueous samples with mid to high conductivity	30266945
	FiveEasy F30 Conductivity	F30-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266942
		F30-Standard	Standard kit with LE703 sensor	Aqueous samples with mid to high conductivity	30266943

Accessories for FiveEasy Plus™/FiveEasy™

Description	Material No.
FiveEasy Plus™/FiveEasy™ electrode arm (includes sensor holder and pole)	30239139
FiveEasy Plus™/FiveEasy™ electrode arm extension for larger sample beakers	30239140
FiveEasy Plus™/FiveEasy™ rubber cap (2 pieces for electrode arm opening on instrument)	51302952
FiveEasy Plus™/FiveEasy™ side cover	30239146

Non-kit versions include:
Meter, operating manual, power adapter (electrode is NOT included), electrode arm

Kit versions include:
As above, plus appropriate electrode, buffer sachets and guides

Advanced

Seven2Go
Quality Measurement Made Mobile



Seven2Go™ Pro and Seven2Go™

Laboratory: Fast Quality Data



Seven2Go's new intuitive menu guarantees out-of-the-box operation for anyone. Thanks to ISM, the sensor is automatically recognized to save time and reduce errors when changing the sensor.

At-Line: One-Handed Operation



Faster, more intuitive navigation shortens the time to actual measurement.

Outdoors: Durable Investment



Thanks to its IP67 protection and drop-test resistance, new Seven2Go portables are able to withstand harsh and demanding environments.

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Seven2Go™

	Seven2Go S2 pH	Seven2Go S3 Cond.	Seven2Go S4 DO
Material No.	30207949 (meter only)	30207954 (meter only)	30207958 (meter only)
Measuring Range	pH: –2.00–20.00 ±0.01	Cond.: 0.010 µS/cm – 500.0 mS/cm ±0.5%	DO: 0.00–99.99 mg/L ±0.2 mg/L (0–15); ±10% (15–60)
	Rel. mV: –1,999–1,999 mV ±1	TDS: 0.01 mg/L – 300.00 g/L ±0.5%	Pressure: 500–1,100 mbar ±2%
	Temp.: –5.0–105.0 °C ±0.5	Spec. res.: 0.010–1,000 MΩcm ±0.5%	Temp.: 0.0–60.0 °C ±0.2
		Sal.: 0.01–42.00 psu ±0.5%	
		Cond. ash: 0.01–2,022.00% ±0.5%	
		Temp.: –5.0–105.0 °C ±0.2 °C	
Sensor Connector	BNC/RCA (cinch) (both IP67)	LTW 7-pin (IP67)	BNC/RCA (cinch) (both IP67)
All Seven2Go	Memory: 200; operating hours: 250–400 h; display: segmented LDC; rubber holster		

Seven2Go Pro

	Seven2Go S8 pH/Ion	Seven2Go S7 Cond.	Seven2Go S9 DO
Material No.	30207874 (meter only)	30207961 (meter only)	30207970 (meter only)
Measuring Range	pH: –2.000–20.000 ±0.002	Cond.: 0.010 µS/cm – 1,000 mS/cm ±0.5%	DO: 0.00–50.00 mg/L ±0.1 mg/L (0–8); ±0.2 mg/L (8–20); ±10% (20–50)
	Rel. mV: –2,000.0–2,000.0 mV ±0.1	TDS: 0.01 mg/L – 600.00 g/L ±0.5%	Pressure: 500–1,100 mbar ±2%
	Ion: $1.00e^{-9}$–9.99^{+09} ±0.5%	Spec. res.: 0.01–100.00 MΩcm ±0.5%	Temp.: 0.0–5.0 °C ±0.1
	Temp. ATC: –5.0–130.0 °C ±0.2	Sal.: 0.01–42.00 psu ±0.5%	
	Temp. MTC: –30–130 ±0.2	Cond. ash: 0.01–2,022.00% ±0.5%	
		Temp.: –5.0–105.0 °C ±0.1 °C	
Sensor Connector	BNC/RCA (cinch) (both IP67)	LTW 7-pin (IP67)	Mini LTW (IP67)
All Seven2Go Pro	Memory: 2,000 (GLP conform); operating hours: 200–250 h; display: graphic LCD; micro USB connection, 12 languages, EasyDirect™ pH; rubber holster		

Seven2Go Meter Kits

	Description	Ideally Suited For	Material No.
pH/mV, ORP, Ion	S2-standard kit with InLab™ Expert Go-ISM sensor	Wide range of samples including emulsions and suspensions	30207950
	S2-field kit with InLab Expert Go-ISM sensor & uGo™ carrying case	As above, but especially for measurements on the go	30207951
	S2-food kit with InLab Solids Go-ISM sensor & uGo carrying case	Solid and semi-solid samples like cheese and meat	30207952
	S2-light kit with InLab Versatile Pro sensor	Academic and educational purposes	30207953
	S8-standard kit with InLab Expert Go-ISM sensor	Wide range of samples, also suited for emulsions and suspensions	30207975
	S8-field kit with InLab Expert Go-ISM sensor & uGo carrying case	As above, but especially for measurements on the go	30207875
	S8-biotechnology kit with Routine Go-ISM sensor	Fast results in a wide range of samples including harsh chemicals	30207878
	S8-fluoride kit with perfectION™ fluoride sensor	Aqueous samples, toothpaste and mouthwash	30207879
Conductivity	S3-standard kit with InLab 738-ISM sensor	Aqueous samples with mid to high conductivity	30207955
	S3-field kit with InLab 738-ISM sensor and uGo carrying case	As above, but especially for measurements on the go	30207956
	S3-bioethanol kit with InLab 725 sensor and uGo carrying case	Bioethanol and biofuels	30207957
	S7-standard kit with InLab 738-ISM sensor	Aqueous samples with mid to high conductivity	30207962
	S7-field kit with InLab 738-ISM sensor and uGo carrying case	As above, but especially for measurements on the go	30207963
	S7-USP/EP kit with InLab 742-ISM sensor and uGo carrying case	Ultra-pure water and low conductivity samples	30207873
Dissolved Oxygen	S4-standard kit with InLab 605-ISM sensor	Aqueous samples, alcoholic and non-alcoholic beverages	30207959
	S4-field kit with InLab 605-ISM sensor & uGo carrying case	As above, but especially for measurements on the go	30207960
	S9-standard kit with InLab OptiOx sensor	Fast results in aqueous samples	30207971
	S9-field kit with InLab OptiOx sensor & uGo carrying case	As above, but especially for measurements on the go	30207972
	S9-BOD kit with InLab OptiOx sensor, BODadapter and uGo carrying case	BOD measurements in all types of water samples	30207939
Accessories	Robust carry case uGo (IP67)	For measurements on the go or to securely store the instrument	30122300
	EasyDirect pH PC software	Transfer data from Seven2Go pro to PC (included in Seven2Go pro delivery)	30323214

Advanced

SevenGo Duo
Mobile Dual-Channel Measurements

The SevenGo™ Duo combines ease-of-use, quality and reliable measurement functions. The instrument is designed so that a single keystroke triggers calibration, a measurement or access to stored results and system settings.



SevenGo™ Duo SG78

Measurements with One Hand



The rotatable electrode clip can be attached on the left, right or both sides of all instruments. It allows measurements to be taken with just one hand and is a convenient, space-saving way of storing electrodes.

An Ergonomic Masterpiece



SevenGo Duo fits neatly into your hand, regardless of whether you are right- or left-handed. The size of the buttons reflects their importance. SevenGo Duo is so easy to use that you can really save time and increase your productivity.

Status At-A-Glance



The large SevenGo Duo display shows all relevant setting and highlights the most important items. You can read the measurement value and check the state of the electrode at a glance. The results of parallel measurements appear in an alternating fashion on the display.

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SevenGo Duo™ SG23 pH/Cond.

Material No. (Meter Only): **51302600**

	Measuring Range Channel 1	Measuring Range Channel 2	
pH	0.00–14.00 ±0.01	0.01 µS/cm – 500.00 mS/cm ±0.5%	Conductivity
mV	–1,999–1,999 ±1	0.01 mg/L – 300.00 g/L ±0.5%	TDS
		0.00–100.00 MΩcm ±0.5%	Resistance
		0.00–80.00 ppt ±0.5%	Salinity
Temperature	–5.0–105.0 ±0.5 °C	–5.0–105.0 ±0.2 °C	Temperature
Sensor Connector	BNC, RCA/(cinch) (both IP67)	LTW 7-pin (IP67)	Sensor connector

SevenGo Duo Meter Kits	Remarks	Material No.
SG23-electrode kit with InLab™ Expert Go-ISM and InLab 738-ISM	–	51302601
SG23-field kit with InLab Expert Go-ISM and InLab 738-ISM	Includes uGo™ carry case, calibration solution sachets and cal. bottles	51302602
SG23 field kit 5 m with InLab Expert Go-ISM and InLab 738-ISM	Includes uGo carry case, calibration solution sachets and cal. bottles	51302603

SevenGo Duo pro SG68 pH/Ion/DO

Material No. (Meter Only): **51302610**

	Measuring Range Channel 1	Measuring Range Channel 2	
pH	–2.000–20.000 ±0.002	0.0–600.0% ±0.5%	Oxygen saturation
mV	–1,999.9–1,999.9 ±0.1	0.00–99.00 mg/L ±0.5%	Oxygen
Ions (mg/L; mol/L; ppm)	$1.00e^{-9}$–$9.99e^{+9}$ ±0.5%	500–1,100 ±1 mbar	Pressure
Temperature	–5.0 (–30.0)–130.0 ±0.2 °C ATC (MTC)	0.0–60.0 ±0.1 °C	Temperature
Sensor Connector	BNC, RCA/(cinch) (both IP67)	BNC, RCA/(cinch) (both IP67)	Sensor connector

SevenGo Duo Meter Kits	Remarks	Material No.
SG68 electrode kit with InLab Expert Go-ISM and InLab 605 ISM	–	51302611
SG68 field kit with InLab Expert Go-ISM and InLab 605-ISM	Includes uGo carry case, pH buffer sachets and cal. bottles	51302612
SG68 field kit 5 m with InLab Expert Go-ISM and InLab 605 ISM	Includes uGo carry case, pH buffer sachets, 5 m cables and cal. bottles	51302613

SevenGo Duo pro SG78 pH/Ion/Cond.

Material No. (Meter Only): **51302620**

	Measuring Range Channel 1	Measuring Range Channel 2	
pH	–2.000–20.000 ±0.002	0.01 µS/cm – 1,000.00 mS/cm ±0.5%	Conductivity
mV	–1,999.9–1,999.9 ±0.1	0.01 mg/L – 600.00 g/L ±0.5%	TDS
Ions (mg/L; mol/L; ppm)	$1.00e^{-9}$–$9.99e^{+9}$ ±0.5%	0.00–100.00 MΩcm ±0.5%	Spec. res.
		0.00–80.00 ppt ±0.5%	Salinity
Temperature	–5.0 (–30.0)–130.0 ±0.2 °C ATC (MTC)	–5.0 (–30.0)–130.0 ±0.2 °C ATC (MTC)	Temperature
Sensor Connector	BNC, RCA/(cinch) (both IP67)	LTW 7-pin (IP67)	Sensor connector

SevenGo Duo Meter Kits	Remarks	Material No.
SG78 electrode kit with InLab Expert Go-ISM and InLab 738-ISM	–	51302621
SG78 field kit with InLab Expert Go-ISM and InLab 738-ISM	Includes uGo carry case, calibration solution sachets and cal. bottles	51302622
SG78 field kit 5 m with InLab Expert Go-ISM and InLab 738-ISM	Includes uGo carry case, calibration solution sachets, 5 m cables and cal. bottles	51302623
SG78 field kit USP/EP with InLab Expert Go-ISM and InLab 742-ISM	Includes uGo carry case, calibration solution sachets and cal. bottles	51302625

SevenGo Duo pro SG98 pH/Ion/optical DO

Material No. (Meter Only): **51302661**

	Measuring Range Channel 1	Measuring Range Channel 2	
pH	–2.000–20.000 ±0.002	0.0–500.0% ±10%	Oxygen saturation
mV	–1,999.9–1,999.9 ±0.1	0.00 mg/L – 50.00 mg/L ±0.1 (0–8); ±0.2 (8–20); ±10% (20–50)	Oxygen
Ions (mg/L; mol/L; ppm)	$1.00e^{-9}$–$9.99e^{+9}$ ±0.5%	500–1,100 ±1 mbar	Pressure
Temperature	–5.0 (–30.0)–130.0 ±0.2 °C ATC (MTC)	0.0–50.0 ±0.1 °C	Temperature
Sensor Connector	BNC, RCA/(cinch) (both IP67)	Mini LTW 7-pin (IP67)	Sensor connector

SevenGo Duo Meter Kits	Remarks	Material No.
SG98 electrode kit with InLab Expert Go-ISM and InLab OptiOx	–	51302662
SG98 field kit with InLab Expert Go-ISM and InLab OptiOx	Includes uGo carry case, pH buffer sachets and cal. bottles	51302663
SG98 field kit 5 m with InLab Expert Go-ISM and InLab OptiOx	Includes uGo carry case, pH buffer sachets, 5 m cables and cal. bottles	51302664

Standard

FiveGo

Quality on the Go for the Budget-Minded

New FiveGo portable instruments provide quality pH/mV, conductivity or dissolved oxygen measurements with the simple click of a button whether you are working in the lab, at-line or outdoors. A robust and waterproof design makes FiveGo instruments the perfect companion for reliable measurement data in wet conditions.



Robust Design



A robust and waterproof design makes FiveGo™ instruments a perfect companion to get reliable measurement data at a reasonable price, even in harsh conditions.

Ergonomic Design – Comfortable Handling



Thanks to its ergonomic design, working with FiveGo™ portables is a comfortable experience for both big and small hands. The foldable foot stand provides optimal viewing while situated on a lab bench.

Intuitive Operation – Measurement Made Easy



Featuring a large, well-structured display for easy viewing, the instrument's intuitive button arrangement and simple menu ensure measurements can be performed in just a few clicks.

▶ www.mt.com/FiveGo

Technical Specifications

Specifications		FiveGo™ pH F2	FiveGo™ Conductivity F3	FiveGo™ DO F4
General Measurement	Measuring range	0.00–14.00 pH	0.00 µS/cm – 200.0 mS/cm (conductivity)	0.0–400.0%
		–1,999–1,999 mV	0.00 mg/L – 200.0 g/L (TDS)	0.00–45.00 mg/L
				0.00–45.00 ppm
		0.0–100.0 °C (32.0–212.0 °F)	0.0–100.0 °C (32.0–212.0 °F)	0.0–50.0 °C (32.0–122.0 °F)
	Resolution	0.01 pH	Automatic range	0.1%
				0.01 mg/L
		1 mV		0.01 ppm
		0.1 °C	0.1 °C	0.1 °C
	Accuracy (instrument)	±0.01 pH	±0.5% of the measured value	±1% of the measured value
		±1 mV		
		±0.5 °C	±0.5 °C	±0.3 °C
	Temperature compensation	Automatic or manual	Automatic or manual Linear correction factor: 0.00–10.00%/°C Reference temperatures: 20 or 25 °C	Automatic or manual
	Calibration	Max. to 3 points	1 point	Max. to 2 points
		4 predefined buffer groups	3 predefined standards	100% and 0%

Kits Overview and Order Information

	Meter	Kits	Kits Description	Ideally Suited For	Material No.
pH/mV, ORP	FiveGo™ F2 pH/mV	F2-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266946
		F2-Standard	Standard kit with LE438 IP67 sensor	Wide range of general aqueous samples	30266889
		F2-Food	Kit with LE427 IP67 sensor and carrying case	Solid samples such as meat, fruit, cheese, and more	30266881
		F2-Field	Kit with LE438 IP67 sensor and carrying case	Same as F2-Standard, but especially for measurements on the go	30266882
Conductivity	FiveGo™ F3 Conductivity	F3-Meter	Meter only	Applications that require a specific sensor not included in a kit	30266883
		F3-Standard	Standard kit with LE703 IP67 sensor	Aqueous samples with mid to high conductivity	30266888
		F3-Field	Standard kit with LE703 IP67 sensor and carrying case	Same as F3-Standard, but especially for measurements on the go	30266887
DO	FiveGo™ F4 DO	F4-Meter	Meter only	Sensor not included	30266884
		F4-Standard	Kit with LE621 IP67 sensor	All aqueous samples	30266885
		F4-Field	Kit with LE621 IP67 sensor and carrying case	Same as F4-Standard, but especially for measurements on the go	30266886

Accessories for FiveGo™

Description	Material No.
FiveGo™ carrying case (4 sample bottles included)	30239142
FiveGo™ sample bottles (set of 4 pieces)	30239143
FiveGo™ electrode clip (1 piece) and electrode clip covers (2 pieces)	30239144
FiveGo™ wrist strap	30122304

Non-kit versions include:
Meter, operating manual, batteries, electrode clip, wrist strap (electrode is NOT included)

Kit versions include:
As above, plus appropriate electrode, carrying case incl. 4 sample bottles (field kits only), buffer sachets and guides

InLab Sensors
The Right Choice for Your Application

METTLER TOLEDO electrodes have been synonymous with quality for more than 65 years. Our product offering covers the vast majority of applications both for laboratory and field measurement. Use our sensor guide to find the right sensor for your application.

Simplify your sensor selection
www.mt.com/Electrode-Guide

pH General-Purpose Electrodes



Name	Features/Description	Connector	Material No.
Routine Electrodes	**Combined pH Glass Electrode with a Ceramic Diaphragm for Fast Results; TRIS Compatible**		
InLab™ Routine	Shaft length: 120 mm	S7	51343050
InLab Routine Pro	With temperature probe (NTC 30 kΩ)	MultiPin™	51343054
InLab Routine Pt1000	With temperature probe (Pt1000)	MultiPin	51343056
InLab Routine Pro-**ISM**	With temperature probe (NTC 30 kΩ) and ISM	MultiPin	51343055
Expert Electrodes	**Combined pH Electrode with a PEEK Shaft; Clog-Free Open Junction; Maintenance-Free**		
InLab Expert	Shaft length: 120 mm	S7	51343100
InLab Expert Pro	With temperature probe (NTC 30 kΩ) and 1.2 m fixed cable	BNC/RCA	51343101
InLab Expert Pro-**ISM**	With temperature probe (NTC 30 kΩ), fixed cable 1.2 m and ISM	BNC/RCA	30014096
InLab Expert Pro-2m-**ISM**	With temperature probe (NTC 30 kΩ) and 2 m fixed cable	BNC/RCA	51343102
InLab Expert DIN	With temperature probe (Pt1000) and fixed cable 1.2 m	DIN/4 mm banana	51343103
InLab Expert NTC30	With temperature probe (NTC 30 kΩ)	MultiPin	51343104
InLab Expert Pt1000	With temperature probe (Pt1000)	MultiPin	51343105
Combined Electrodes for General Purpose			
InLab Science	Movable glass sleeve; glass shaft	S7	51343070
InLab Science Pro-**ISM**	Movable glass sleeve; temperature probe (NTC 30 kΩ) and ISM	MultiPin	51343072
InLab Max Pro-**ISM**	Immovable glass sleeve; with temperature probe (NTC 30 kΩ) and ISM	MultiPin	30248830
InLab Power	Pressurized reference system Steady Force™; glass shaft	S7	51343110
InLab Power Pro-**ISM**	With temp. probe (NTC 30 kΩ) Steady Force and ISM; shaft length 170 mm	MultiPin	51344211
InLab Easy	Gel-filled; polysulfone shaft	S7	51343010
InLab Easy BNC	Gel-filled; polysulfone shaft; 1.2 m fixed cable	BNC	51343011
InLab Versatile Pro	Liquid-filled; polysulfone shaft; with temperature probe (NTC 30 kΩ) 1.2 m fixed cable	BNC/RCA	51343031

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pH Specialist: Micro and Long Electrodes



Name	Features/Description	Connector	Material No.
Combined Micro Electrodes for Small Volumes			
InLab Nano	1.7 mm shaft diameter, with bevel needle and 1 m fixed cable	BNC	30092990
InLab Ultra Micro **ISM**	3 mm shaft diameter, min. sample volume 15 µl	MultiPin™	30244732
InLab Micro	3 mm shaft diameter, min. sample volume 45 µl	S7	51343160
InLab Micro Pro-**ISM**	5 mm shaft diameter; with temperature probe (NTC 30 kΩ) and ISM	MultiPin	51344163
InLab Semi-Micro	6 mm shaft diameter; maintenance-free	S7	51343165
InLab Semi-Micro-L	6 mm shaft diameter; shaft length: 230 mm	S7	51343161
InLab Flex-Micro	Flexible shaft; shaft length: 180 mm; 1 m fixed cable	BNC	51343164
InLab NMR	3 mm shaft diameter; shaft length 200 mm	S7	59904572
Long Combined Glass Electrodes for Deep Vessels; Ceramic Diaphragm			
InLab Reach 225	Shaft length: 225 mm	S7	30244733
InLab Reach Pro-225	Shaft length: 225 mm; with temperature probe (NTC 30 kΩ)	MultiPin	30248826
InLab Reach Pt1000-225	Shaft length: 225 mm; with temperature probe (Pt1000)	MultiPin	30248828
InLab Reach 425	Shaft length: 425 mm	S7	30248120
InLab Reach Pro-425	Shaft length: 425 mm; with temperature probe (NTC 30 kΩ)	MultiPin	51343061
InLab Reach Pt1000-425	Shaft length: 425 mm; with temperature probe (Pt1000)	MultiPin	51343062

pH Specialist: Specific Applications



Name	Features/Description	Connector	Material No.
Electrodes for Specific Applications			
InLab Solids	Puncture electrode with spear tip; maintenance-free	S7	51343153
InLab Solids Pro-**ISM**	Puncture electrode with temp. probe (NTC 30 kΩ) and ISM; maintenance-free	MultiPin	51343155
InLab Viscous	Pressurized reference system Steady Force™; special thin tip	S7	51343150
InLab Viscous Pro-**ISM**	With temperature probe (NTC 30 kΩ) and Steady Force; special thin tip	MultiPin	51343151
InLab Dairy	Triple ceramic junction	S7	59904591
InLab Surface	Flat-ended membrane; for surfaces like paper, agar plates, skin	S7	51343157
InLab Surface Pro-**ISM**	Flat-ended membrane; shaft with temp. probe (NTC 30 kΩ) and ISM	MultiPin	30249570
InLab Cool	Temperature range: –30–80 °C	S7	51343174
InLab Cool Pro-**ISM**	Temperature range: –30–80 °C with temp. probe (NTC 30 kΩ) and ISM	MultiPin	30247850
InLab Pure	For pure water	S7	51343170
InLab Pure Pro-**ISM**	With bridge electrolyte for ultra-pure water; with temp. probe (NTC 30 kΩ) and ISM	MultiPin	51343172
InLab Hydrofluoric	Special HF resistance membrane	S7	51343176

pH Half-Cells and Reference Electrodes

Name	Features/Description	BNC Cable	Cable for Titrator	Connector	Material No.
InLab™ Mono	pH half-cell	30281915	089601	S7	51343195
InLab Mono Plus	pH half-cell	30281915	089601	S7	51343196
InLab Reference	Reference electrode	30281923	30281922	S7	51343190
InLab Reference Plus	Reference electrode with PTFE sleeve	30281923	30281922	S7	51343191
InLab Reference Flow	Reference electrode with triple ceramic diaphragm	30281923	30281922	S7	51343192

ORP/Redox Electrodes

Name	Features/Description	Connector	Material No.
ORP/Redox Electrodes			
InLab Redox	Combined glass electrode with a platinum ring	S7	51343200
InLab Redox-L	Combined glass electrode with a platinum ring; shaft length: 170 mm	S7	51343202
InLab Redox Flow	Combined glass electrode with a platinum ring and a movable sleeve-junction	S7	51343201
InLab Redox Micro	Combined glass electrode with a platinum ring; shaft diameter: 6 mm	S7	51343203
InLab Redox Au	Combined glass electrode with a gold ring	S7	51343204
InLab Redox Ag	Combined glass electrode with a silver ring; KNO_3 electrolyte	S7	51343205

Temperature Sensors

Name	Features/Description	Connector	Material No.
InLab NTC 30 kΩ	Temperature sensor in glass shaft	S7	51343310
InLab Pt1000	Temperature sensor in glass shaft	S7	51343312
NTC 30 kΩ	Temperature sensor in stainless steel	RCA	51300164

Conductivity Probes

Name	Types	Measuring Range	Cell Constant	Connector	Material No.
InLab 731	4 graphite poles; epoxy shaft	10 µS/cm – 1,000 mS/cm	0.57 cm^{-1}	Mini DIN	51344020
InLab 731-**ISM**	4 graphite poles; epoxy shaft; with ISM	10 µS/cm – 1,000 mS/cm	0.57 cm^{-1}	Mini DIN	30014092
InLab 741	2 steel poles; stainless-steel shaft	0.001 µS/cm – 500 µS/cm	0.105 cm^{-1}	Mini DIN	51344024
InLab 741-**ISM**	2 steel poles; stainless-steel shaft; ISM	0.001 µS/cm – 500 µS/cm	0.105 cm^{-1}	Mini DIN	30014094
InLab Trace-**ISM**	2 titanium poles; epoxy shaft	0.0001 µS/cm – 1,000 µS/cm	0.01 cm^{-1}	Mini LTW	30014097
InLab 710	4 platinum poles; glass shaft	10 µS/cm – 500 mS/cm	0.80 cm^{-1}	Mini DIN	51302256
InLab 720	2 platinum poles; glass shaft	0.1 µS/cm – 500 µS/cm	0.06 cm^{-1}	Mini DIN	51302255
InLab 725	2 platinum poles; glass shaft	0.1 µS/cm – 500 µS/cm	0.10 cm^{-1}	Mini DIN	30014160
InLab 751-4	2 platinum poles; shaft diameter: 4 mm	0.01 mS/cm – 100 mS/cm	1.0 cm^{-1}	Mini DIN	51344030
InLab 752-6	2 platinum poles; shaft diameter: 6 mm	0.01 mS/cm – 100 mS/cm	1.0 cm^{-1}	Mini DIN	51344031

Cables

Connection	Plug	Length	Material No.
MultiPin™	BNC/RCA (cinch)	1.2 m	30281896
MultiPin	BNC/RCA (cinch)	3.0 m	30281897
MultiPin	BNC/RCA (cinch)	5.0 m	30281898
MultiPin	BNC/RCA (cinch) IP67	1.8 m	30281913
MultiPin	BNC/1×4 mm	1.2 m	30281899
MultiPin	DIN 19262/RCA	1.2 m	30281910
MultiPin	DIN 19262/1×4 mm	1.2 m	30281911
MultiPin	Lemo 00/2×4 mm	1.2 m	30281912
S7	BNC	1.2 m	30281915
S7	BNC	3.0 m	30281916
S7	BNC	5.0 m	30281917
S7	BNC IP67	1.2 m	30281918
S7	DIN 19262	1.2 m	30281919
S7	DIN 19262	3.0 m	30281920
S7	DIN 19262	5.0 m	30281921
S7	Lemo 00	1.2 m	30281925
S7	4 mm banana	1.2 m	30281922
S7	2 mm banana	1.2 m	30281923
S7	RCA (cinch)	1.2 m	30281924



MultiPin connection



S7 connection



ISM – Intelligent Sensor Management

- **Secure and efficient**
  Calibration data and sensor ID are automatically transferred to the meter
- **Always up-to-date**
  New calibration data is stored in the sensor
- **Backup certificate guaranteed**
  Initial factory calibration is stored in the sensor
- **Conclusive calibration history**
  The last 5 calibrations are stored in the sensor
- **Easy lifetime monitoring**
  The maximum temperature that the sensor has been exposed to is monitored automatically

Sensors for Portable Meters

Name	Feature/Description	Cable Length	Connector	Material No.
InLab™ Sensors for pH Portables				
InLab Expert Go-**ISM**	Combined pH electrode with a PEEK shaft; clog-free open junction; maintenance-free; with a temperature probe (NTC 30 kΩ), fixed cable and ISM	1.8 m	BNC/RCA	51344102
InLab Expert Go-**ISM**-5 m		5 m	BNC/RCA	51344103
InLab Expert Go-**ISM**-10 m		10 m	BNC/RCA	51344104
InLab Expert Go	As Expert Go-ISM but without ISM	1.8 m	BNC/RCA	51340288
InLab Routine Go-**ISM**	Combined glass electrode with temperature probe (NTC 30 kΩ) and ISM	1.8 m	BNC/RCA	30248832
InLab Solids Go-**ISM**	Puncture electrode with temp. probe (NTC 30 kΩ); maintenance-free	1.8 m	BNC/RCA	51343156
InLab Water Go	For weak surface water, polysulfone shaft with temperature probe (NTC 30 kΩ)		BNC/RCA	30253098
Conductivity				
InLab 738-**ISM**	Type: 4 graphite poles; epoxy shaft; with fixed cable and ISM Measuring range: 10 µS/cm – 1,000 mS/cm Cell constant: 0.57 cm^{-1}	1.8 m	LTW	51344110
InLab 738-**ISM**-5 m		5 m	LTW	51344112
InLab 738-**ISM**-10 m		10 m	LTW	51344114
InLab 738	As InLab 738-ISM but without ISM	1.8 m	LTW	51344120
InLab 742-**ISM**	Type: 2 steel poles; stainless-steel shaft; with fixed cable and ISM Measuring range: 0.001 µS/cm – 500 µS/cm; cell const.: 105 cm^{-1}	1.8 m	LTW	51344116
InLab 742-**ISM**-5 m		5 m	LTW	51344118
InLab 742	As InLab 742-ISM but without ISM	1.8 m	LTW	51344126
Dissolved Oxygen*				
InLab 605-**ISM**	Polarographic DO sensor with temperature probe (NTC 22 kΩ), fixed cable and ISM; shaft material: PPS	1.8 m	BNC/RCA	51344611
InLab 605-**ISM**-5 m		5 m	BNC/RCA	51344612
InLab 605-**ISM**-10 m		10 m	BNC/RCA	51344613
InLab 605	As InLab 605-ISM but without ISM	1.8 m	BNC/RCA	51340291
InLab OptiOx	Optical DO sensor with temperature probe, fixed cable and ISM; shaft material: PC/ABS	1.8 m	Mini LTW	51344621
InLab OptiOx 5 m		5 m	Mini LTW	51344622
InLab OptiOx 10 m		10 m	Mini LTW	51344623

* The DO sensors can also be used with SevenExcellence™



Combined ISE: perfectION™ Series

Ion	Name	Reference Electrolyte	Membrane Module	ISA Solution	Connector	Material No.
Calcium	Combined Ca^{2+}	Ion Electrolyte A 51344750	51344850	51344761	1.2 m; BNC	51344703
					1.2 m; Lemo	51344803
Chloride	Combined Cl^-	Ion Electrolyte B 51344751	N/A	51344760	1.2 m; BNC	51344706
					1.2 m; Lemo	51344806
Copper	Combined Cu^{2+}	Ion Electrolyte D 51344753	N/A	51344760	1.2 m; BNC	51344712
					1.2 m; Lemo	51344812
Cyanide	Combined CN^-	Ion Electrolyte B 51344751	N/A	10 mol/L NaOH	1.2 m; BNC	51344709
					1.2 m; Lemo	51344809
Fluoride	Combined F^-	Ion Electrolyte A 51344750	N/A	51344765	1.2 m; BNC	51344715
					1.2 m; Lemo	51344815
Iodide	Combined I^-	Ion Electrolyte D 51344753	N/A	51344760	1.2 m; BNC	51344718
					1.2 m; Lemo	51344818
Lead	Combined Pb^{2+}	Ion Electrolyte B 51344751	N/A	5 mol/L $NaClO_4$	1.2 m; BNC	51344730
					1.2 m; Lemo	51344830
Nitrate	Combined NO_3^-	Ion Electrolyte F 51344755	51344852	51344763	1.2 m; BNC	51344727
					1.2 m; Lemo	51344827
Potassium	Combined K^+	Ion Electrolyte E 51344754	51344851	51344762	1.2 m; BNC	51344721
					1.2 m; Lemo	51344821
Silver/Sulphide	Combined Ag^+/S^{2-}	Ion Electrolyte B 51344751	N/A	Ag^+: 51344760 S^{-2}: see manual	1.2 m; BNC	51344700
					1.2 m; Lemo	51344800
Sodium	Combined Na^+	3 mol/KCl 51350072	N/A	NH_4Cl/NH_4OH	S7	51344724



DX sensors

ISE Half-Cells: DX Series

Ion	Name	Membrane Kit	Filling Solution	ISA Solution	Material No.
Ammonium	DX218-NH_4^+	51340012	51340035	0.5 mol/L $MgSO_4$	51340900
Barium	DX337-Ba^+	51107688	51107892	1 mol/L $Tris_2$ HCl	51107674
Bromide	DX280-Br^-	51340006	51340029	1 mol/L KNO_3	51340300
Cadmium	DX312-Cd^{2+}	51107686	51107891	1 mol/L KNO_3	51107672
Calcium	DX240-Ca^{2+}	51340009	51340032	4 mol/L KCl	51340600
Chloride	DX235-Cl^-	51340007	51340030	1 mol/L KNO_3	51340400
Copper	DX264-Cu^{2+}	51107692	51107889	1 mol/L KNO_3	51107678
Cyanide	DX226-CN^-	51107695	51107893	10 mol/L NaOH	51107681
Fluoride	DX219-F^-	51340008	51340031	TISAB III	51340500
Iodide	DX327-I^-	51107694	51107898	1 mol/L KNO_3	51107680
Lead	DX407-Pb^{2+}	51107874	51107875	1 mol/L KNO_3	51107873
Lithium	DX207-Li^+	51107687	51107881	0.5 mol/L $MgSO_4$	51107673
Nitrate	DX262-NO_3^-	51340011	51340034	0.5 mol/L $MgSO_4$	51340800
Potassium	DX239-K^+	51340010	51340033	0.5 mol/L $MgSO_4$	51340700
Sodium	DX223-Na^+	N/A	N/A	NH_4Cl/NH_4OH	51340263
Sulphide (Silver)	DX232-S^{2-}	51107689	51107894	10 mol/L NaOH	51107675
Thiocyanate	DX258-SCN^-	51107871	51107872	1 mol/L KNO_3	51107870
NH_3 GSE	Ammonia	51340013	51340036	N/A	51341000

Cables are sold separately and are not included
Cable for pH/Ion meter: 30281915
Cable for titrator: 089601

LightEdition Sensors

LightEdition (LE) sensors are tailor-made for high performance-to-price ratio. The offering includes sensors for all common applications. These sensors are the perfect match for Five- and Education-line meters.

LE438 sensor



LE409 sensor



LE407 sensor



LE420 sensor



LE427 sensor



Name	Type	Features/Description	Connector	Material No.
LE438	pH	Gel-filled plastic electrode with integrated temperature sensor for laboratory use, samples with fluctuating temperatures; low-maintenance	BNC/cinch	51340242
LE438 IP67	pH		BNC/cinch IP67	30247153
LE407	pH	Gel-filled plastic pH electrode with gel electrolyte, suitable for simple applications and easy samples such as water; low-maintenance	BNC	51340330
LE409	pH	Glass pH electrode with liquid electrolyte for simple and rapid measurements in the laboratory, aqueous samples such as acids and bases; refillable electrolyte	BNC	51340331
LE410	pH	As LE409 but with integrated temperature probe	BNC/cinch	51340348
LE420	pH	Glass electrode with movable PTFE-sleeve junction for demanding, "dirty" samples such as waste water, emulsions (e.g. milk), oily samples	BNC	51340332
LE422	pH	Micro pH electrode with gel electrolyte, shaft diameter: 4.3 mm	BNC	30089747
LE427	pH	The spear tip design makes it ideal for solid samples such as meat, fruit, cheese, soil and many more; low-maintenance	BNC	51340333
LE427 IP67	pH		BNC IP67	30259840
LE501	ORP	Glass ORP electrode for lab use	BNC	51340338
LE510	ORP	Robust plastic ORP electrode for field use (e.g. swimming pools)	BNC	51340339
LE703	Conductivity	Robust conductivity probe for medium-to-high conductivities (10 µS/cm – 200 mS/cm)	Mini-DIN	51340335
LE740	Conductivity	Robust conductivity probe from low-to-medium conductivities (0.01 µS/cm – 500 µS/cm)	Mini-DIN	51340336
LE621	DO	Galvanic dissolved oxygen sensor, with integrated temp. sensor, with 1 m cable	BNC/cinch	51340403
LE621 IP67	DO	Galvanic dissolved oxygen sensor, with integrated temp. sensor, with 2 m cable	BNC/cinch IP67	30266975
NTC 30 kOhm	Temperature	Separate temperature sensor	Cinch	51300164

Calibration and Maintenance Solutions
Ensure Accuracy and Electrode Health

The determination of pH, conductivity, ion concentration, redox potential and dissolved oxygen are common analyses in most laboratories. Measurement accuracy highly depends on the quality and operation of the solutions used for sensor calibration and maintenance.

Find helpful calibration tips in our calibration video
www.mt.com/pHLab_Calibration

Find your test certificate and safety data sheet (SDS)
www.mt.com/Buffer

pH Buffer Solutions



pH measurements are only as accurate as the buffer solutions used for calibration purposes. We offer a selection of quality pH buffers to match your specific requirements. Our sachets guarantee fresh solution for every calibration as well as maximum ease of use.

Maintenance Solutions



Being the main actor of the measurement, the electrode requires special care and attention. We offer electrolytes, storage and cleaning solutions that will ensure that your electrode remains ready for whatever task is due.

Conductivity Standards



Depending on the type of sensor, conductivity standards are used for calibration or verification. Low-conductivity standards have a limited lifespan and require special handling. They are intended for verification purposes. Our sachets guarantee fresh solution for every calibration as well as maximum ease-of-use.

www.mt.com/BuffersAndMore

pH Buffers

	pH Value at 25 °C	Material No. 250 mL	Material No. 6×250 mL	Material No. 30 sachets 20 mL
Technical pH Buffer Solutions	2.00	51350002	51350016	30111134
	4.01	51350004	51350018	51302069
	5.00	30464188	–	–
	7.00	51350006	51350020	51302047
	8.00	30464189	–	–
	9.21	51350008	51350022	51302070
	10.00	51350010	51350024	–
	10.01	–	–	51302079
	11.00	51350012	51350026	30111135
	Rainbow bottles I (3×2 bottles 250 mL 4.01/7.00/9.21)	–	30095312	–
	Rainbow bottles II (3×2 bottles 250 mL 4.01/7.00/10.00)	–	30095313	–
	Rainbow sachets I (3×10 sachets 20 mL 4.01/7.00/9.21)	–	–	51302068
	Rainbow sachets II (3×10 sachets 20 mL 4.01/7.00/10.01)	–	–	51302080
NIST/DIN pH Buffer Solutions	1.679	30458274	–	–
	4.006	51350052	–	30111136
	6.865	51350054	–	30111137
	9.180	51350056	–	30111138
	10.012	51350058	–	30111139
	12.454	30464127	–	–
Certified pH Buffer Solutions	4.01	51350032	51350042	–
	7.00	51350034	51350044	–
	9.21	51350036	51350046	–
	10.00	51350038	51350048	–

Electrolytes for Reference Electrodes

	Material No. 25 mL	Material No. 250 mL	Material No. 6×250 mL	Material No. 6×30 mL
KCl solution 3 mol/L for ARGENTHAL™ reference systems	51343180	51350072	51350080	–
KCl solution 3 mol/L, AgCl saturated, for Ag/AgCl reference systems	51343184	51350074	51350082	–
KCl solution 1 mol/L Bridge electrolyte	51343181	–	–	–
KNO_3 solution 1 mol/L Bridge electrolyte	51343182	51350078	51350086	–
FRISCOLYT-B™, for measurement at low temperature and for media with organic compounds (oil, proteins etc.)	51343185	51350076	51350084	–
LiCl Solution 1 mol/L in ethanol, for measurement in non-aqueous media	–	–	–	51350088

Maintenance Solutions

	Material No. 250 mL	Material No. 6×250 mL	Material No. 25 mL
Pepsin-HCl for cleaning junctions with protein contamination; treatment time about 1 h	51350100	30045061	–
Thiourea solution for cleaning junctions with silver sulfide contamination; treatment until discoloration	51350102	30045062	–
Reactivation solution for regeneration of glass electrodes; treatment time about 1 min	–	–	51350104
InLab™ storage solution for pH and ORP electrodes	30111142	–	–
pH All-in-One Kit I (pH buffer 4.01/7.00/9.21, 3 mol/L KCl, pepsin solution, storage solution)	–	30095314	–
pH All-in-One Kit II (pH buffer 4.01/7.00/10.00, 3 mol/L KCl, pepsin solution, storage solution)	–	30095315	–

Conductivity Standards

	Material No. 250 mL	Material No. 6×250 mL	Material No. 10 sachets 20 mL	Material No. 30 sachets 20 mL
1.3 µS/cm (single-use check solution)*	30090847	–	–	–
5 µS/cm**	30094617	–	–	–
10 µS/cm	51300169	–	30111141	–
84 µS/cm	51302153	–	30111140	–
500 µS/cm	51300170	–	–	–
1,413 µS/cm	51350092	51350096	–	51302049
12.88 mS/cm	51350094	51350098	–	51302050

* Maximum storage: 1 month
** Maximum storage: 3 months



Ion Solutions



Measuring with ion-selective electrodes (ISE) is the easiest and most affordable way to determine ion concentration. However, ISEs require careful handling and the use of the correct solutions. METTLER TOLEDO offers a broad portfolio to ensure successful ion measurements.

Redox Buffer Solutions



Redox buffer solutions are used for verification of all common redox sensors. They are not used for calibration purposes. Similar to other solutions they are temperature dependent. A table on every bottle label indicates redox values at different temperatures.

Zero Oxygen Tablets



Zero oxygen tablets make the preparation of a solution with zero oxygen content very easy. This solution can be used for calibration, verification or conditioning purposes if measurements are performed at low dissolved oxygen levels.



Solutions for perfectION™ Combined ISE

Reference Electrolyte Solutions	Material No. 5×60 mL
Ion Electrolyte A (calcium, fluoride, sulfide)	51344750
Ion Electrolyte B (chloride, cyanide, lead, silver/sulfide)	51344751
Ion Electrolyte C (silver)	51344752
Ion Electrolyte D (copper, iodide)	51344753
Ion Electrolyte E (potassium)	51344754
Ion Electrolyte F (nitrate)	51344755

ISA Solutions	Material No. 475 mL	Material No. 3,790 mL
ISA solid state ISE (chloride, copper, iodide, silver)	51344760	–
Calcium ISA	51344761	–
Potassium ISA	51344762	–
Nitrate ISA	51344763	–
Nitrate ISS (for suppressing interference)	51344764	–
Fluoride TISAB II with CDTA	–	51344765
Fluoride TISAB III with CDTA (concentrate)	51344766	–

Redox Buffer Solutions

E (Ag/AgCl) 25 °C	Material No. 250 mL	Material No. 6×250 mL	Material No. 6×30 mL
220 mV, pH 7 (U_H = 427 mV)	51350060	51350062	–
468 mV, pH 0.1 (U_H = 675 mV)	–	–	51350064

DO Accessories	Material No.
Zero oxygen tablets (20 pcs.)	51300140

Solutions for DX Series ISE Half-Cells

Bridge Electrolyte	Material No. 25 mL	Material No. 250 mL	Material No. 6×250 mL
1 mol/L KNO_3	51343182	51350078	51350086
3 mol/L KCl	51343180	51350072	51350080
1 mol/L KCl	51343181	–	–
ISA Solutions			
TISAB 3, for fluoride determinations	–	51350106	–
0.9 mol/L $Al_2(SO_4)_3$	–	51350108	–

Ion Calibration Standards

	Material No. 500 mL 1,000 mg/L	Material No. 500 mL 100 mg/L	Material No. 500 mL 10 mg/L
Silver ISE standard solution	51344770	–	–
Calcium ISE standard solution	51344771	30090855	30090856
Chloride ISE standard solution	51344772	30090853	30090854
Cyanide ISE standard solution	51344773	–	–
Copper ISE standard solution	51344774	–	–
Fluoride ISE standard solution	51344775	30090851	30090852
Iodide ISE standard solution	51344776	–	–
Potassium ISE standard solution	51344777	–	–
Sodium ISE standard solution	51344778	30090857	30090858
Ammonium ISE standard solution	30090859	30090860	–
Nitrate ISE standard solution	51344779	–	–
Lead ISE standard solution	51344780	–	–
Sulfide ISE standard solution	51344781	–	–

Compliance and Accuracy
From Day One

Comprehensive service offerings from METTLER TOLEDO help you maximize performance and maintain the uptime of your pH measuring systems.

- Be free of compliance concerns during quality audits with our professional installation and qualification services.
- Calibration and Extended Care ensure excellent performance of the device and measurement accuracy from day one.
- To ensure accuracy over time, consider calibrating your sensors with our certified standards and replacing them in recommended intervals.

Meter Installation and Qualification



The **EQPac** supports the highest level of regulatory compliance and provides detailed documentation of IQ/OQ and recommendations for performance qualification and routine maintenance measures.

The **IPac** documentation includes the steps of professional installation and operational qualification and provides recommendations for performance testing.

The **StarterPac** provides basic, fast and reliable installation and setup of equipment. It is perfect for internal quality records.

For more information see page 21.

Meter Calibration and Extended Care



Regular meter calibration ensures that the device functions according to its operational specifications. The calibration certificate provides the required proof for quality audits.

Extended Care provides peace of mind during the first 24 months following equipment installation, covering all travel expenses, labor and spare parts.

During this period you also receive two preventive maintenance visits that include firmware updates and adjustments whenever needed.

For more information see pages 22–23.

Sensor Calibration with Certified Standards



METTLER TOLEDO offers **certified buffers, standards and electrolytes** for the calibration of your pH sensors.

To minimize the effect of drift and to maintain accurate measurements over time, calibrate your pH sensor before every set of measurements.

For pH, the use of at least 2 buffers is recommended to establish a calibration curve and ensure that further measurements are accurate. Calibrating your pH sensor with our certified solutions extends the sensor's lifetime and saves on future replacement costs.

Find more information on pages 234–237.

www.mt.com/Service



Good Electrochemistry Practice™

Know Your pH Measurement Risks



pH is a common analysis, but many things can go wrong. The same goes for conductivity, ion concentration, dissolved oxygen and redox determination.

GEP™ is about guiding you through the product lifecycle to detect and address possible risks. With the right tools, you can be assured of consistently reliable results.

GEP Risk Check



The first step to improve your electrochemical processes is to learn about possible risks. Take 5 minutes and check your processes step-by-step. GEP Risk Check will point out where you could do better and suggest possible ways to get there.

Sensor Product Guide



Find the right sensor for your application using our Sensor Product Guide. This interactive guide makes sensor selection easier. Additionally, you will find best-practice sensor-handling movies, a trouble-shooter and more.

Web Know-How Portal



Take advantage of our self-study eLearnings, on-demand webinars, and other GEP training materials to keep you and your business up to date and well informed.

www.mt.com/GEP



Automated Reactors and In Situ Analysis

Chemical Synthesis, Process Development and Particle Characterization

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Scan this code for more information.

www.mt.com/autochem

Supporting Innovation
From Molecule to Manufacturing

METTLER TOLEDO instruments are considered the industry standard. They provide information so that researchers can make better decisions to develop processes with higher quality in less time and at lower costs.

Early-Phase Development
Synthesis workstations, real-time analytical technology, and in situ sampling allow chemists to quickly develop new synthetic routes, then safely deliver grams to kilograms of materials. These tools provide initial understanding of process scale-up issues, enabling scientists to eliminate non-viable candidates early in development. A common software platform for all instruments makes it simple to visualize, interpret and report results.

Process Development
The combination of reaction calorimeters, Fourier-Transform Infrared (FTIR)-based in situ reaction analysis systems, and inline particle size and shape analysis tools supports process understanding from a chemistry, thermodynamics, and particle-characterization perspective. Integrated software provides a deeper understanding with less effort. Whether a batch or continuous process, enhanced quality and quantity of knowledge enables engineers to quickly scale up, eliminate failures and avoid safety incidents.

Scale-Up and Manufacturing
Process Analytical Technology (PAT) tools ensure processes are within boundary conditions, eliminating the risk of batch failures while delivering higher yields at lower cost. PAT systems allow users to realize the benefits of Quality by Design (QbD) through the transfer of more robust, lower-cost commercial processes to manufacturing.

Real-Time Analysis

Safe and automated sampling of chemical reactions 24/7. Representative samples are guaranteed by quenching and diluting the sample in real time at the point of capture.



Automated Sampling

Increased Productivity

Automated synthesis workstations increase productivity by controlling and recording all chemical reaction parameters 24 hours a day.



Synthesis Reactors

Eliminate Grab Sampling

Spectroscopy systems provide real-time composition analysis to monitor key reaction species in situ, eliminating the need for grab sampling.



Reaction Analysis

Optimized Development

Probe-based instruments optimize crystallization and particulate process development by understanding and controlling particle size and shape in-process.



Particle Characterization

Instrument Support

We support and service your measurement equipment through its entire lifecycle, from installation to preventive maintenance, and from calibration to equipment repair.



Service

Unattended Sampling
For a Wide Range of Reactions

Sampling chemical reactions for offline analysis to determine reaction progression or impurity profiles is standard practice. However, the manual process is challenging when sampling air-sensitive reactions, reactions at elevated pressure, or heterogeneous mixtures. Poor sampling reproducibility and delays in quenching can lead to variable results and analytical inaccuracies. EasySampler™ was designed to eliminate these challenges by providing an automated and robust inline method of taking representative samples from reactions.

Difficult Reactions to Sample



It is labor intensive or impossible to sample reactions that are air- or moisture-sensitive, at elevated pressure or sub-ambient temperature, or highly toxic. EasySampler's unique probe enables sample capture and immediate quench so samples are representative of the reaction at the time of sampling.

Representative and Reproducible



Sampling reactions with precision is challenging, especially for heterogeneous or multiphase reactions. EasySampler samples from the same position in the reactor into a fixed-volume pocket. Solids begin dissolving immediately in the quench step for accurate and reproducible analytical data.

Automated and Unattended



Sampling long reactions or a series of DOE experiments can be impractical. The lack of samples leads to blind spots in data, thus requiring repeat experiments. EasySampler can be programmed with a sequence for continued sampling operations 24 hours a day, to increase productivity and decrease project timelines and cost.

www.mt.com/EasySampler



HPLC-Ready Samples



After quenching, the liquid handling system dilutes the sample to a user specified concentration and transfers it to a vial, ready for offline analysis. Quench and dilution steps can function as sample derivatization steps, thus decreasing sample preparation time and eliminating human error.



EasySampler™ 1210

Case Study: Pfizer Evaluates Automated Sampling for Improved Impurity Profiling

Learn how scientists at Pfizer applied unattended sampling to gather low-level impurity and kinetics profiling data from thick slurries, tri-phasic mixtures and oxygen-sensitive reactions. Four reaction case studies highlight how automated reaction-sampling impacts chemical and process development.

www.mt.com/Pfizer-Sampling

Order Information

Description	Material No.
EasySampler 1210 System complete	30083901
EasySampler Probe 450 set (for reactors up to 6 L)	30306037
EasySampler Probe 330 set (for reactors up to 1 L)	30306933
EasySampler Probe 210 set (for reactors from 10 mL to 400 mL)	30246344
Sleeve Complete, PTFE, alloy C-22 (1 piece per pack)	30100528
10 mL Vial, including screw cap (100 pieces per pack)	30244745
10 mL vial including screw cap (1,000 pieces per pack)	30111624

Synthesis Automation
Leads to Better Science

Synthesis reactors reduce chemical and process development times by replacing traditional round-bottom flasks and jacketed lab reactors. They help researchers complete more experiments and deliver more information per experiment, increasing overall productivity. HFCal (Heat Flow Calorimetry) is an add-on for synthesis workstations that provides reaction-calorimetry capabilities.

EasyMax
Small-Scale Synthesis



EasyMax makes chemical synthesis easier by eliminating the dependence on ice baths, oil baths, and chillers. Quickly explore reaction conditions, even under low temperatures, while recording data that would otherwise be missed.

OptiMax™
Large Volume Synthesis



OptiMax ensures robust and scalable processes by applying synthesis reactors on the liter scale. Unattended control increases productivity while ensuring that all data is collected and experiments are safe. An HFCal option ensures scale-up issues are identified earlier.

RC1mx™
Reaction Calorimetry



RC1mx enables chemical and safety engineers to optimize processes under safe conditions, while determining all critical process parameters and reducing the risk of failure on a large scale.

www.mt.com/synthesisworkstations



RX-10™
Control Jacketed Lab Reactors



Connect and control your jacketed laboratory reactor with programmable temperature, liquid dosing and sampling for data-rich experiments, day or night. Automation and data capture allows researchers to scale up more successful experiments.



White Paper: Modern Synthesis Lab: A New Workplace for Chemists
This featured white paper discusses a new toolbox specifically designed for chemists that expands experimental options, automates tedious tasks and captures high-quality data at the touch of a button.

www.mt.com/ac-ModernizeSynthesis

Model	Environment	Application Area
EasyMax	Lab	Synthetic chemistry, process development
EasyMax HFCal	Lab	Process optimization, scale-up, process safety screening
OptiMax™	Lab	Synthetic chemistry, process development
OptiMax HFCal	Lab	Process optimization, scale-up, process safety
RC1mx	Lab/pilot lab/small scale production	Process development, process optimization, scale-up, process safety
RX-10	Lab	Process development, scale-up, process chemistry
RTCal	Lab	Polymerizations, process optimization, process chemistry

Real-Time Reaction Monitoring
Improves Chemistry Understanding

Suitable for a wide range of chemistries, ReactIR™ and ReactRaman™ in situ spectroscopy provide real-time monitoring of key reaction species and how they change during the reaction course. Designed to follow reaction progression, ReactIR and ReactRaman provide specific information about reaction initiation, conversion, intermediates, endpoint, and form change to answer fundamental questions about the chemical reaction, including "When does it start and stop?" and "What are the mechanisms and kinetics?"

ReactIR 701L/702L
Reaction Analysis (FTIR)



A real-time, in situ mid-infrared-based system designed to study reaction progression – providing specific information about reaction initiation, conversion, intermediates, and endpoint. The comprehensive nature of the data makes it ideal for kinetic analysis and facilitates the elucidation of reaction mechanism and pathway.

ReactRaman 785
Reaction Analysis (Raman)



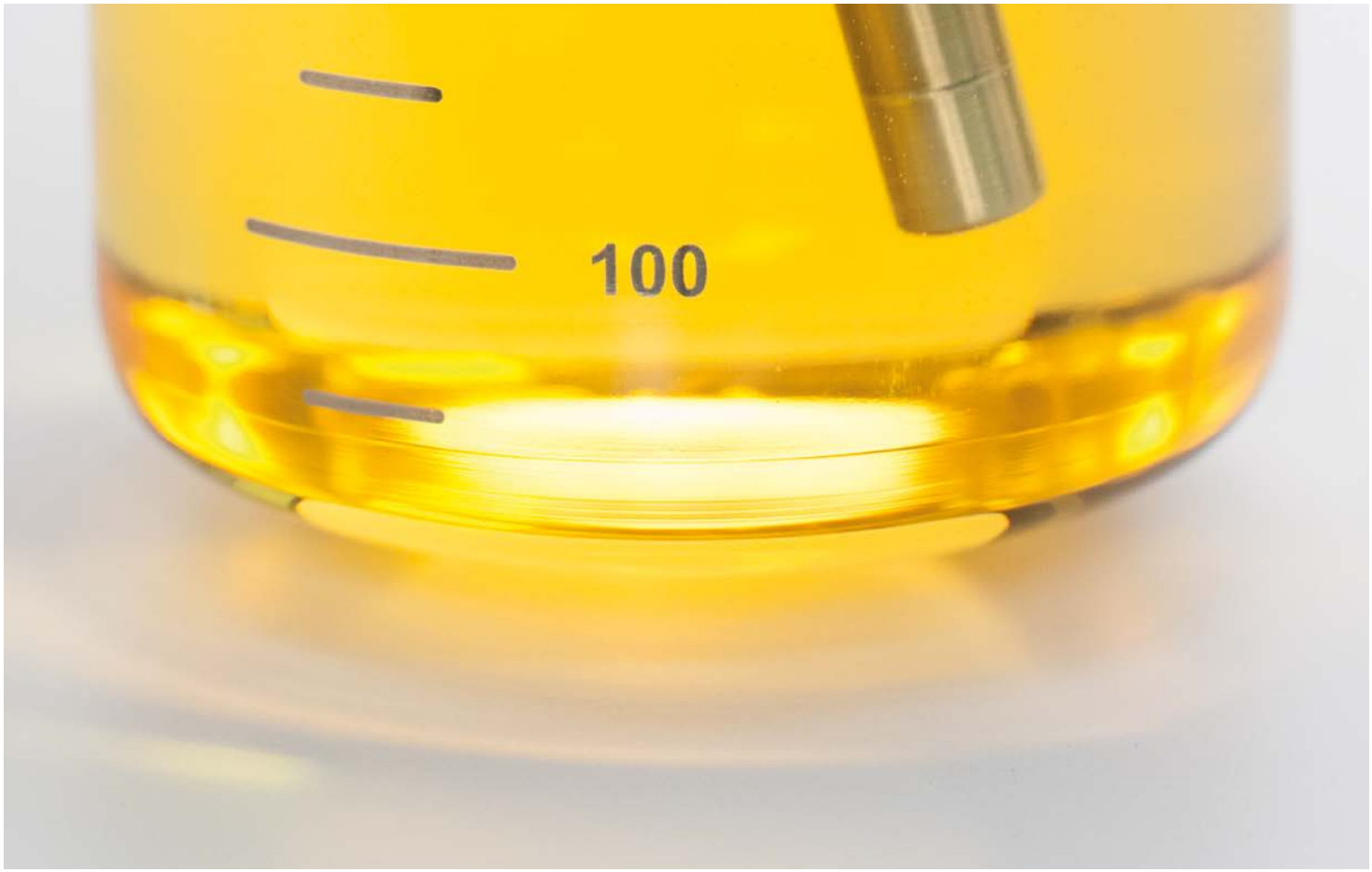
ReactRaman is a probe-based, Raman spectroscopy instrument that can monitor crystallization processes, and reveal reaction mechanisms and kinetics in single or multiphase systems.

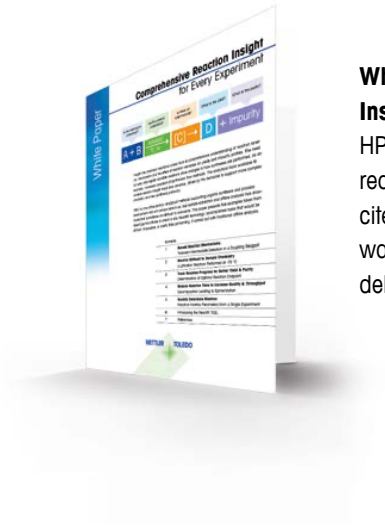
ReactIR 45P
In-Process Reaction Analysis



By providing in-depth reaction understanding, in situ mid-infrared enables chemical processes to be successfully moved from the lab to the pilot plant and production. By tracking critical parameters in real-time, process design and quality are improved while variation and batch failures are eliminated.

▶ www.mt.com/reactir





White Paper: Process Comprehensive Reaction Insight for Every Experiment

HPLC is a valuable workhorse in your lab, but what really happens in between samples? This paper cites 5 recent publications where offline analysis was combined with inline reaction monitoring to deliver valuable reaction insight.

www.mt.com/BetweenSamples

Configuration

Model	Environment	Application Area
ReactIR™ 702L	Lab	Synthetic chemistry
ReactIR 701L	Lab	Synthetic chemistry, chemical development, kinetics, quantitative analysis
ReactIR 45P	Lab/production	Scale-up, campaigns, process transfer
ReactRaman 785	Lab	Mutiphasic reactions, crystallization, polymorphism detection

Particle Size and Shape Analysis
For the Lab, Pilot Plant & Production

ParticleTrack™ and EasyViewer™ provide precise inline measurement of particle size, shape, and count without sampling. Probe-based instruments measure particles and droplets in gas or liquid suspension at process concentration providing real-time information to speed development, maximize process performance and optimize quality.

ParticleTrack G400
Measure Particle Changes



Track the rate and degree of change to particles and particle structures as they naturally exist in-process. The portable G400 is ideal for applications in less than one liter vessels or small pipelines. Experimental parameters are quickly screened to assess the impact of process conditions on the particle system.

ParticleTrack G600
Characterize Particles from Lab to Plant



Tracking particles in real-time allows conditions to be adjusted to reduce cycle time and ensure batch-to-batch consistency. G600 is ideal for one to 50,000 liter vessels providing information to design and scale-up processes with the desired particle size distribution, yield and purity.

EasyViewer
View and Measure Particles



EasyViewer is a probe-based imaging tool that captures high-resolution images of crystals, particles, and droplets as they exist in process. With its slim design, smart focus controls and plug-and-play connection, EasyViewer makes unattended image capture at small scales effortless.

www.mt.com/Particle





White Paper: Particle Size Analysis for Process Optimization

This white paper introduces the limitations of offline analysis and provides practical techniques to:

- Improve fundamental process understanding
- Attack design problems with comprehensive data
- Improve safety and productivity with unattended operation

www.mt.com/ac-ControlParticles

Configuration

Model	Vessel Size	Key Characteristic
Laboratory Solutions		
ParticleTrack G400	30 – 500 mL	Portable, interchangeable probes
ParticleTrack G600L	500 mL – 5 L	Results scalable to plant
EasyViewer	20 mL – 5 L	In-process video microscopy
Production Solutions		
G600R	1 L +	Dip-pipe mountable
G600S/T	1 L +	Pipeline installations
G600P	20 L +	1 m probe length
G600X	1 L +	Customizable

Extend Instrument Performance
With Custom Maintenance Programs

Researchers and engineers across industry and academia rely on METTLER TOLEDO instruments to provide critical information during investigations. To be successful, scientists need to be confident that the equipment works correctly when it is needed, and that results can be trusted.

We provide a range of service options to prevent instrument downtime, guarantee result quality and ensure regulatory compliance. Our customized coverage minimizes unexpected costs, improves data collection reliability, and reduces the total cost of ownership.

Uptime



Instruments are often subjected to high utilization in critical processes. System reliability is maximized through our field service team, help desk, return to factory refurbishment and repair services, as well as our optional value-added products.

Performance

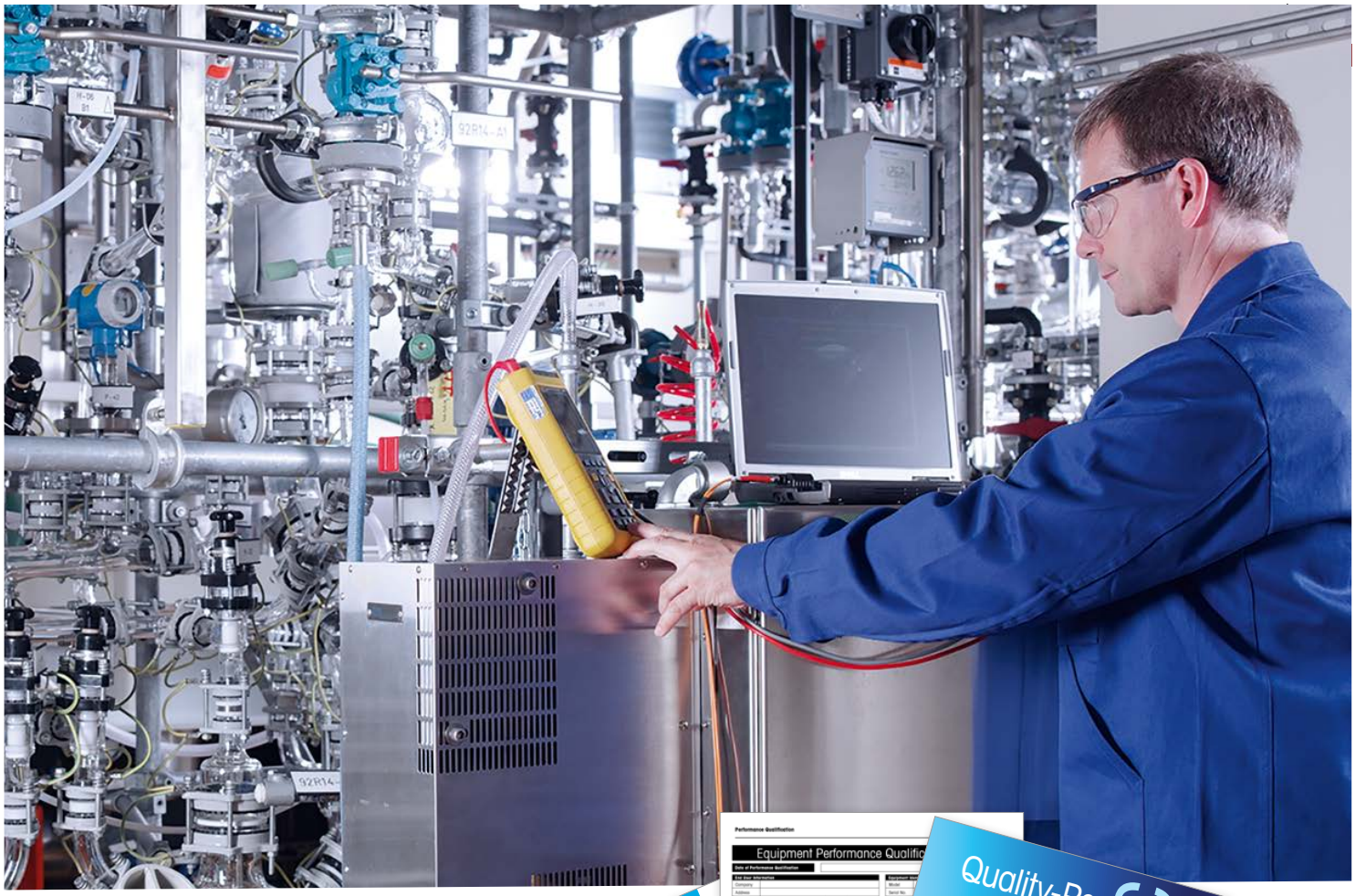


Optimize hardware and software performance with comprehensive installation, preventive maintenance and full-service contract programs. Our trained technicians ensure the system is performing within factory specifications.

Compliance



Meet internal and external compliance standards with optional value-added services. IPac and EQPac qualification services ensure internal compliance standards are met and provide objective evidence for regulated environments.



Expertise



Maximize equipment and process performance with professional training for your personnel. Service specialists identify, plan and coordinate complex product solutions for on-time and on-budget completion.



Installation and Performance-Verification Packages

Professional documentation ensures compliance and process consistency.

Melting Point and Dropping Point Instruments

Simple, Efficient and Trustworthy





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Melting, Boiling, Cloud, Slip Melting Point	258–259
Dropping and Softening Point	260–261
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Scan this code for more information.
www.mt.com/MPDP

Melting and Dropping Point Excellence
Ready at the Touch of a Button

How do you test the purity of your products or quality of your materials? Multiple methods such as melting, boiling, cloud, slip melting, dropping and softening points can be used to characterize a substance and analyze its properties.

Our Excellence melting and dropping point systems offer the possibility of measuring these thermal values accurately and automatically with just One Click™.



Melting Point Excellence MP90

Trust Your Results

Investigate color changes and decomposition temperatures with video observation. Statistical evaluation with standard deviation and mean value allow you to have full confidence in your data.



Melting, Boiling, Cloud, Slip Melting Point

Measurements Made Easy

With simple operating routines and an intuitive color touchscreen, you can perform dropping and softening point measurements with a press of a button.



Dropping and Softening Point

Simplify Sample Preparation

Ensure high performance and proper sample preparation with our dedicated accessories and software.



Accessories

Secure Your Investment

Our worldwide service network is always on hand to help you keep your instruments performing at their peak.



Service

Determine Melting Point
With Just One Click

Melting, boiling, cloud and slip melting point determination have never been so easy! With simple operating routines and an intuitive color touchscreen, you can perform measurements quickly. Press one button, and the instrument does the rest for you. Attend to other important tasks while the measurement is being performed.

Measure up to 6 Samples at Once



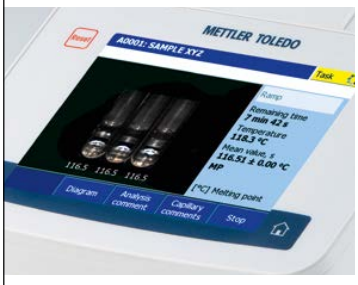
In today's fast-paced lab and production environments, high-throughput processing is essential. With the Melting Point Excellence system, you can run up to 6 samples simultaneously, saving you valuable time and effort.

Comply with Standards



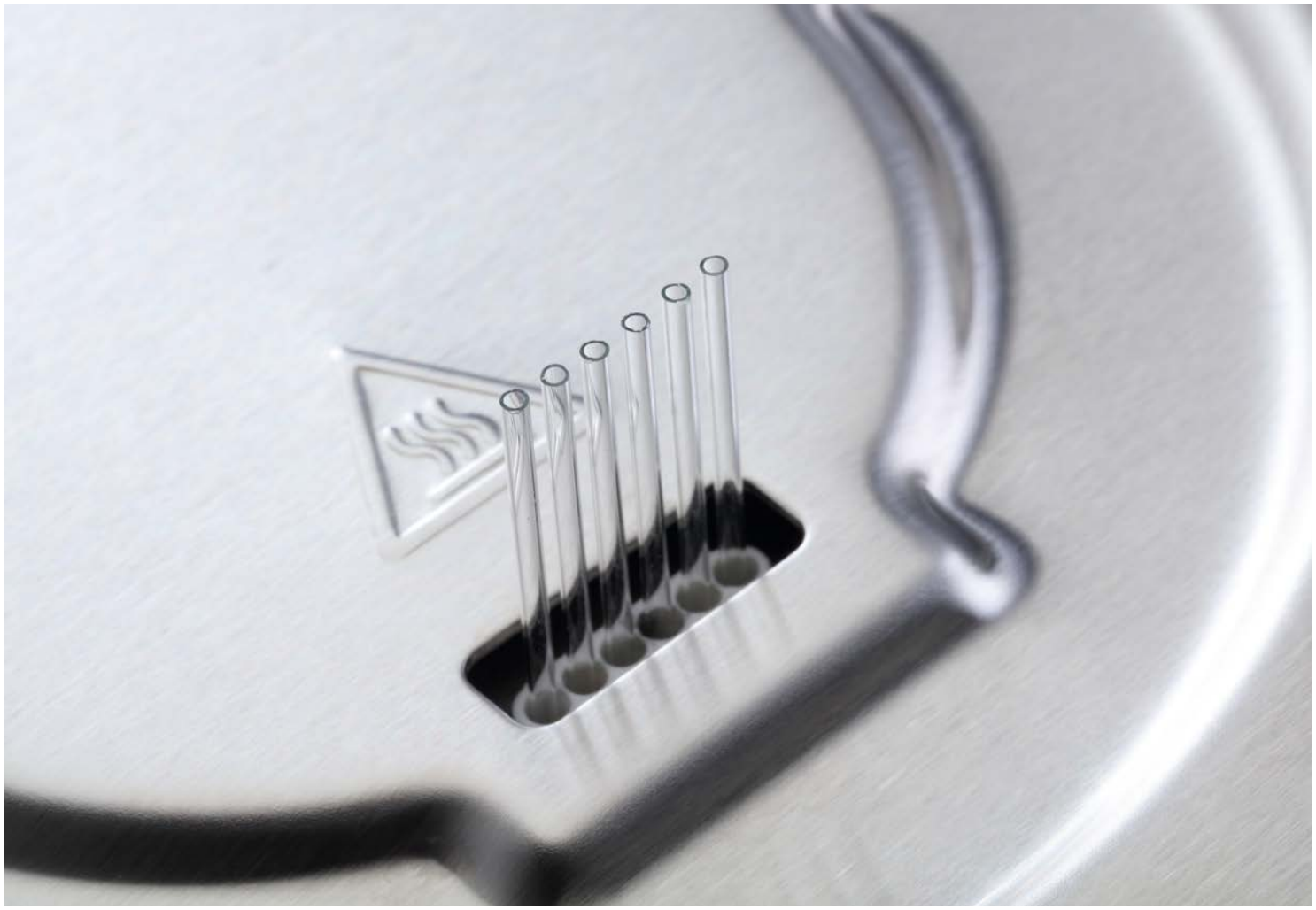
Working in accordance with regulations and standards is a must. With Excellence melting point systems, full compliance with relevant international and national standards and norms, such as Ph.Eur. 2.2.60, USP<741>, Ch.P. 0612, and Japanese JIS, is ensured.

Minimize Training and Operator Influence



Measurement results can be influenced by the user. Save time and money while reducing operator training and influence with the fully automatic determination of melting, boiling, slip melting and cloud points.

www.mt.com/MPDP



Performing a melting point experiment with the Melting Point Excellence MP90

Applications	MP55	MP70	MP80	MP90
Melting Point & Range	•	•	•	•
Boiling Point	–	–	•	–
Cloud Point (Heating)	–	–	•	–
Slip Melting Point	•	–	•	–
Specifications				
Number of Capillaries	3 melting point 2 slip melting point	4 melting point	3 melting point 2 boiling/cloud/ slip melting point	6 melting point
Temperature Range	RT to 300 °C	RT to 350 °C	RT to 350 °C	RT to 400 °C
Video Storage and Replay	Instrument only	Instrument; export to SD card or to a PC	Instrument; export to SD card or to a PC	Instrument; export to SD card or to a PC
Result Storage	10	50	50	100
Material No.	30321330	51142502	30321331	51142503

RT = Room Temperature



Download our detailed product brochure
www.mt.com/ThermalValuesGuide

www.mt.com/MPDP

Comply with Standards
Reliable Dropping Point Determination

Determine the dropping and softening points of pitch, asphalt, polymers, resins, waxes and many more materials automatically with the innovative METTLER TOLEDO Dropping Point System. Standard, compliant cups and measurement methods ensure comparable results, and all instruments conform to ASTM international standards and other norms.

Start with One Click™



One Click determination is as simple as it sounds: all you need to do is press a button to start your measurement. Clicking the "home" button on any menu takes you directly back to the initial screen.

Trust Your Results



Observe your measurements in real time via video or replay the video to verify your results. Digital image analysis and automatic detection of dropping and softening points guarantee that results are reliable.

Manage Your Data



Perform different measurements quickly and efficiently by working with up to 60 methods. Results are displayed immediately after the experiment, and up to 100 results are stored automatically for access at any time directly on the instrument.

www.mt.com/MPDP







	DP70	DP90
Instrument Type	Standalone instrument	Control unit with external measuring cell
Temperature Range	RT to 400 °C	–20 °C to 400 °C
Heating Rate	0.1 to 20 °C per minute	0.1 to 20 °C per minute
Cups Number	Up to 2	Up to 2
Cups Dimensions (orifice)	2.8/6.35 mm	2.8/6.35 mm
Languages	English, German, Chinese, Japanese, Spanish, French, Russian, Portuguese	
Video	Color AVI Magnification 2.5×	Color AVI Magnification 2.5×
Video Export	On SD card or to PC	On SD card or to PC
Length Diagram for Softening	Yes	Yes
User Management	Yes	Yes
Shortcuts (One Click™)	12 per user	12 per user
Material No.	51143000	51143002

RT = Room Temperature

Added Value
With the Right Accessories

Benefit from all that METTLER TOLEDO's Excellence Melting and Dropping Point systems have to offer you. Ensure high performance and proper sample preparation.

Accessory Boxes



Robust and smart sample preparation tools speed up preparation, increase operational security and avoid unnecessary measurement repetition. Available with standard or USP-compliant reference substances.

PC Software



LabX™, our laboratory management software for analytical instruments and balances, powers your Melting Point Excellence system with automatic data handling, high process security, and full SOP user guidance.

Accessories	Description	Material No.
Melting Point Accessory Box	Contains everything for secure sample preparation and traceable temperature-accuracy check	51142599
USP Melting Point Accessory Box	Contains everything for secure sample preparation and traceable temperature-accuracy check according to USP	30312725
Dropping Point Accessory Box	Contains everything for secure sample preparation and traceable temperature-accuracy check	51143740
MP VPac™	Verify the performance of your melting point instrument with pre-filled and ready-to-use capillaries	30097033
LabX for Melting Point		
LabX Thermal Values Starter Pack: Express Edition	Full version of LabX Thermal Values for installation on a single computer	30005779
LabX Thermal Values Starter Pack: Server Edition	Full version of LabX Thermal Values for installation on multiple computers and availability in a distributed network	30005810
LabX Thermal Values Instrument License	For each additional instrument to be connected to the LabX installation, an instrument license is needed	30005811

Secure Your Investment
Throughout the Product Lifecycle

METTLER TOLEDO will support and service your melting and dropping point systems throughout their entire lifecycle. From installation and qualification to regular preventive maintenance and calibration, we offer a broad range of solutions to help protect your investment every step of the way.



GMDP™ – Good Melting and Dropping Point Practice™ is a 5-step guideline to improve your lab process. It offers comprehensive support, so that you invest in suitable equipment and services. Minimizing your risk will improve your performance.

www.mt.com/GMDP

Installation and Qualification



The **EQPac** Comprehensive Qualification service is specifically designed to address compliance concerns in today's demanding regulatory environment. It provides onsite, fully-documented, professional installation and qualification to ensure regulatory compliance and dependable operation.

For a quick and simple solution to document correct delivery and installation, ask about the Melting and Dropping Point **StarterPac**. Aimed at self-regulated environments, the StarterPac is the ideal choice for your internal quality management system.

Calibration and Certification



Regular calibration by a manufacturer-trained service specialist ensures that your melting point and dropping point instruments are measuring accurately and perform within manufacturer specifications. A professional calibration certificate provides all the evidence you need for a trouble-free audit. To ensure accuracy over time, test your instrument regularly with our certified standards.

Extended Care



Extended Care offering provides you insurance over the first 24 months after installation. With Extended Care you also receive two preventive maintenance visits. Regular and professionally performed maintenance prevents unexpected breakdown and ensures operational performance and reliability. Detailed checklists itemize the work carried out and support you during quality audits.

For more information about our service offerings, see pages 20–23.

www.mt.com/MPDP-service

DSC, TGA, TMA and DMA Instruments

Robust Characterization Has Never Been Easier





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Thermal Analysis Systems	269–270
Thermal Analysis Accessories	271
Hot-Stage Microscopy Systems	272
Service	273–275

Scan this code for more information.
www.mt.com/autochem

Materials Characterization
Tailored to Your Exact Needs

The METTLER TOLEDO thermal analysis Excellence and Advanced lines offer tailor-made solutions for academic and industrial applications. Their unrivaled performance and innovative technology will propel you to the forefront of your field and guarantee you the highest level of Swiss quality, accuracy and efficiency.



Differential Scanning Calorimetry

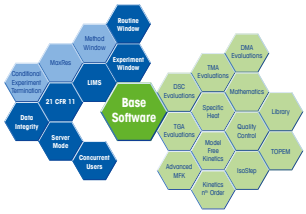
DSC determines the enthalpies of thermal events and the temperatures at which these processes occur.



DSC and Flash DSC

The Software Standard in Thermal Analysis

STARe software is the most comprehensive thermal analysis software on the market, providing unrivalled flexibility and endless evaluation possibilities.



STARe Software

Thermogravimetric Analysis (TGA)

TGA measures the sample weight as a function of temperature. It is used to perform compositional analysis or investigate the reaction kinetics of your sample.



TGA/DSC and TGA

Dynamic Mechanical Analysis (DMA) and Thermomechanical Analysis (TMA)

DMA and TMA are used to measure the mechanical and viscoelastic properties of materials as a function of temperature, time and frequency.



DMA and TMA

Results You Can Trust

Our service portfolio is designed to ensure the continuous performance and reliability of your thermal analysis systems.



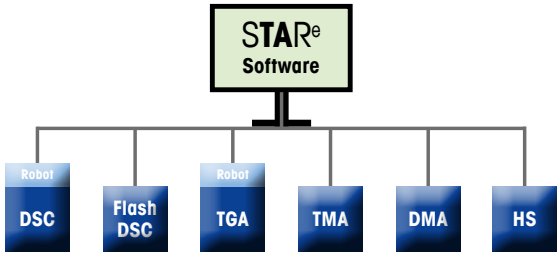
Services

STAR^e System Software
Select the Right Thermal Analysis Module

STAR^e is a sound investment. You can begin with the instrument configuration that meets your current needs. Later on, you can upgrade the system with options or accessories to satisfy new requirements.

Modular Design

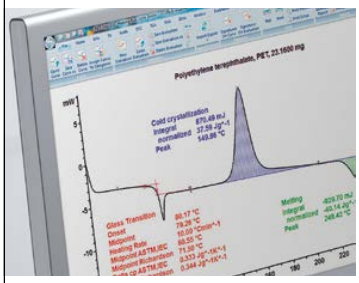
STAR^e software is designed around a powerful basic software that consists of evaluation and module-control windows and a simplified installation window. The software can easily be expanded to support new applications or instruments.



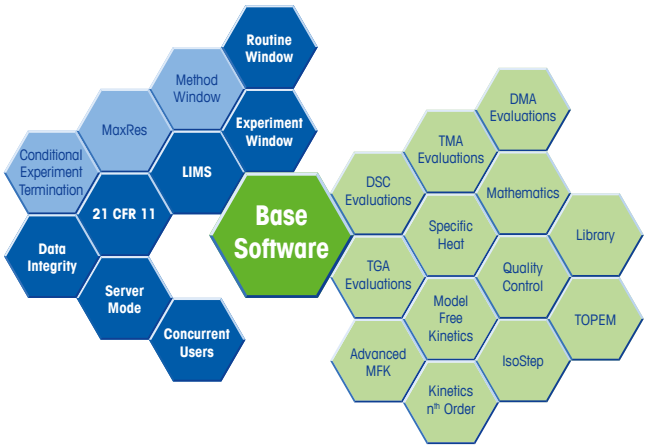
Features and benefits of STAR^e Excellence Software:

- **Unlimited evaluation possibilities** – enormous flexibility
- **Reliable automation** – high throughput and automatic assessments dramatically improve efficiency
- **Integrated database** – ensures the highest level of data security
- **Modular concept** – tailor-made solutions for your current and future needs
- **Solid compliance** – 21 CFR Part 11 user-level management and electronic signature
- **Time-saving FlexCal™ calibration** – for more accurate measurement results
- **STAR^e free evaluation** – an opportunity to use free evaluation software

Powerful and Versatile



STAR^e software provides unrivalled flexibility and unlimited evaluation possibilities.



www.mt.com/stare-software



DSC

Differential scanning calorimetry (DSC) utilizes an innovative sensor with a patented star-shaped arrangement of 120 thermocouples that guarantee unmatched sensitivity and resolution.



Features and Benefits

- Amazing sensitivity to measure weak effects
- Outstanding resolution to allow measurement of rapid changes and close-lying events
- Efficient automation enabled by a reliable sample robot for high throughput

www.mt.com/dsc

HP DSC

For material testing, process development or quality control there is often no alternative to DSC measurements under pressure. High-presssure (HP) DSC allows these measurements to be performed, expanding the possibilities of thermal analysis.



Features and Benefits

- Shorter analysis time for higher-pressure and temperature-accelerated reactions
- Measurement under process conditions for a simulation of practical reaction environments
- Better interpretation of effects, which can be separated by suppressing vaporization

www.mt.com/ta-hpdsc

Flash DSC

Flash DSC revolutionizes rapid-scanning DSC. Flash DSC allows the user to analyze reorganization processes that were previously impossible to measure. Flash DSC is the ideal complement to conventional DSC.



Features and Benefits

- Ultra-high heating rates to reduce measurement times and suppress reorganization processes
- Ultra-high cooling rates that allow materials with defined structural properties to be prepared
- Wide temperature range allow measurements from –95 to 1,000 °C
- Oxygen-free conditions protect your sample against oxidation

www.mt.com/ta-fdsc



TGA/DSC and TGA

The TGA/DSC and TGA instruments are equipped with a top-of-the-line METTLER TOLEDO ultra-microbalance with unique built-in calibration ring weights for unparalleled accuracy.



Features and Benefits

- Efficient automation – reliable sample robot for high sample throughput TGA/DSC and TGA
- METTLER TOLEDO ultra-microbalance – rely on the balance technology leader
- DSC heat flow measurement – for simultaneous detection of thermal events

▸ www.mt.com/tga-dsc
▸ www.mt.com/tga

TMA

The Thermomechanical Analyzer incorporates Swiss precision mechanics and features nanometer resolution to measure the very smallest dimensional changes.



Features and Benefits

- Nanometer resolution – allows very small changes to be measured
- Dynamic load TMA (DLTMA mode) – measures weak transitions and elasticity
- SDTA – simultaneous measurement of thermal effects

▸ www.mt.com/tma

DMA

The revolutionary technology of the Dynamic Mechanical Analyzer (DMA) offers previously unattained performance and time saving external sample loading.



Features and Benefits

- Wide force range from 1 mN to 40 N – allows very soft and very hard samples to be measured
- Frequency range from 1 mHz to 1 kHz – means that measurements can be performed under real conditions or more rapidly at higher frequencies
- Innovative sample holders – permit samples to be prepared and loaded externally

▸ www.mt.com/dma

Analysis over an Extremely Wide Application Range

Materials Characterization by	DSC	Flash DSC	TGA	TMA	DMA
Physical Properties					
Melting, crystallization	•	•	–	•	•
Enthalpy of crystallization	•	•	–	–	–
Solid fat index	•	–	–	–	–
Purity determination	•	–	–	–	–
Vaporization, drying	•	–	•	–	–
Sorption, desorption	–	–	•	–	–
Glass transition	•	•	–	•	•
Specific heat capacity	•	•	–	–	–
Expansion coefficient, shrinkage behavior	–	–	–	•	–
Polymorphism, crystalline transitions	•	•	–	•	–
Liquid-crystalline transitions	•	•	–	–	–
Viscoelastic behavior, elastic modulus	–	–	–	•	•
Chemical Changes					
Decomposition, pyrolysis	•	–	•	•	–
Oxidation, stability	•	–	•	•	–
Curing, vulcanization, gelation	•	•	–	–	•
Dehydration	•	•	•	–	–
Denaturation	•	•	–	–	–
Swelling and foaming	•	–	–	•	–
Reaction process, reaction enthalpy and kinetics	•	•	•	–	–

Thermal analysis is firmly established as a method for the characterization of physical and chemical properties of materials in many different fields.

Crucibles and Sensors for Thermal Analysis

Crucibles serve as containers for samples during thermoanalytical measurements. The type of crucible used can have a large effect on results quality and influence important DSC measuring-cell characteristics. In Flash DSC, the sample is placed directly onto the MultiSTAR™ chip sensor. The patented dynamic power compensation control circuit allows measurements to be performed with a minimum noise level at high heating and cooling rates.

Crucible Type	Quantity	Volume	Max. Press.	Max. Temp.	For DSC	For TGA	Material No.
Aluminum crucible light	100	20 µL	0.2 MPa	640 °C	•	•	51119810
Aluminum crucible standard	100	40 µL	0.2 MPa	640 °C	•	–	00026763
Copper crucible	100	40 µL	–	750 °C	•	•	51140407
Platinum crucible small	4	30 µL	–	1,600 °C	•	•	51140842
Platinum crucible medium	4	70 µL	–	1,600 °C	•	•	51119654
Gold crucible	6	40 µL	0.25 MPa	750 °C	•	•	00027220
Medium-pressure crucible	25	120 µL	2 MPa	250 °C	•	–	00029990
Reusable, gold-plated high-pressure crucible	3	30 µL	15 MPa	350 °C	•	–	51140405
High-pressure crucible	25	40 µL	15 MPa	750 °C	•	–	00026731
Sapphire crucible medium	4	70 µL	–	2,000 °C	–	•	51140845
Alumina crucible small	20	30 µL	–	2,000 °C	–	•	51140843
Alumina crucible medium	20	70 µL	–	2,000 °C	–	•	00024123
Alumina crucible large	20	150 µL	–	2,000 °C	–	*	00024124
Alumina crucible large	4	900 µL	–	2,000 °C	–	*	51119960

* Only with large furnace



Flash DSC: MultiSTAR UFS 1 standard sensor or UFH 1 sensor for high temperature



Selection of crucibles for thermal analysis

For more crucibles ask for our crucible brochure or see
www.mt.com/ta-crucibles

Hot-Stage Microscopy
Seeing is Believing



Hot-stage microscopy is a powerful tool that is widely used for the visual characterization of all kinds of thermal transitions. The possibility of directly observing morphological changes in a sample as it is heated or cooled is of enormous value. Changes in the shape, structure and color of crystals are seen as well as their size and number. The technique allows phase transitions to be characterized and provides information on expansion and shrinkage behavior.

Features and Benefits

- **Imaging possibilities** – allows polymorphic transitions to be studied visually
- **Closed-furnace design** – guarantees excellent temperature control
- **High sensitivity** – optical sensitivity is not influenced by heating or cooling rates
- **STAR^e free evaluation** – an opportunity to use free evaluation software



Microscope equipped with Hot-Stage 84

Thermal Events and Operations

That can be defined with HS82/HS84

Industry	Thermal Events	HS82	HS84
Pharmaceuticals, petrol, food, cosmetics, academia	Melting characteristics	•	•
Pharmaceuticals, food, cosmetics	Polymorphism	•	•
Chemicals, cosmetics	Liquid crystal transitions	•	•
Polymers, pharmaceuticals	Crystallization and nucleation	•	•
Chemicals, petroleum	Cloud point	•	–
Chemicals, academia, test laboratories	Purity	–	•
Pharmaceuticals, chemicals, polymers	Decomposition temperature	•	•
Polymers	Curing	–	•
Pharmaceuticals, polymers, chemicals, academia, test laboratories	Reaction and transformation enthalpy	–	•
Forensic science	Oil immersion/temperature-variation method	•	–

The HS82 hot-stage microscopy system is an easy-to-use and precise thermal measuring cell for visual sample observation. The HS84 hot-stage microscopy system also allows DSC heat-flow measurements. Two different software packages allow evaluation of heat flow or video-image capture.

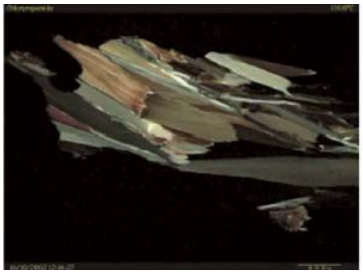


Image at 100 °C

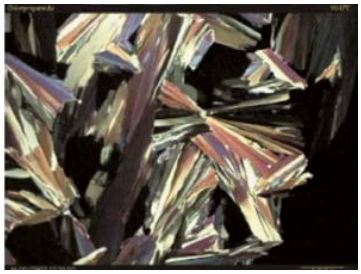


Image at 90 °C

Comprehensive Support
Get More out of Your Instrument

The initial focus is very often on instrument specifications – but support services are just as important. We provide a complete and comprehensive portfolio of services. Choose whatever fits your needs best.
The services we offer are continually growing. Please visit our website to make sure you have the latest information.

Helpful Application Materials



Webinars
- **www.mt.com/ta-webinars**
- **www.mt.com/ta-ondemand**

Applications
- **www.mt.com/ta-applications**

Handbooks
- **www.mt.com/ta-handbooks**

Videos
- **www.mt.com/ta-videos**

Comprehensive Training



For self-training purposes, you can purchase the tutorial kit with 23 well-chosen application examples and corresponding test substances.
- **www.mt.com/ta-tutorial**

Classroom training is still an effective way to learn.
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Register for an eTraining course.
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Biannual Application Magazine



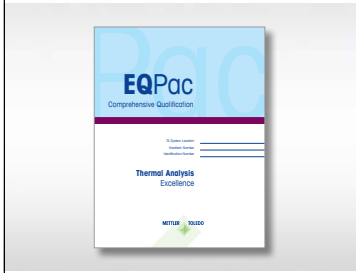
A large number of scientific results and discoveries are made every year based on thermal analysis. Interesting examples from different application fields and industries are published in our UserCom magazine.
- **www.mt.com/ta-usercoms**

World-Class Service and Support
Provide Results You Can Trust

METTLER TOLEDO's service portfolio is designed to ensure the continuous performance and reliability of your thermal analysis systems. Our services ensure the measurement accuracy and long-term quality of your equipment and safeguards your investment for years to come.

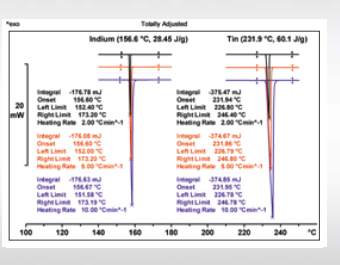
Our manufacturer-trained teams bring the professional expertise and know-how needed to provide you with the highest level of after-sales support, as well as the experience necessary to optimize services for your own particular needs.

Installation and Qualification



The **EQPac** supports the highest level of regulatory compliance, providing Installation Qualification (IQ) and Operational Qualification (OQ). Comprehensive, fully-compliant documentation supports the audit requirements of your industry.

Calibration



METTLER TOLEDO's thermal analysis instruments offer the possibility of selecting calibration at one or more heating rates. Our calibration offerings include:

- **Standard Calibration** (one heating rate)
- **Expert Calibration** (3 heating rates)

Extended Care



Extended Care offering provides you with assurance for the first 24 months after installation. With Extended Care, you also receive two preventive maintenance visits. Control your budget by avoiding unplanned expenditures throughout your equipment's life.

For more information about our service offerings, see pages 20–23.



Steps 1 and 2:
Evaluation and Selection



Selecting the right analytical system not only involves knowing your current needs, but must also take into account future requirements. Secure the first few steps on this path by using our professional consulting services for documentation of your requirements.

Step 3:
Installation and Qualification



After installation, the system has to be qualified for operation, which is crucial to guarantee the best working conditions as well as longevity of the selected system. These activities need to be documented in a way that is easily traceable.

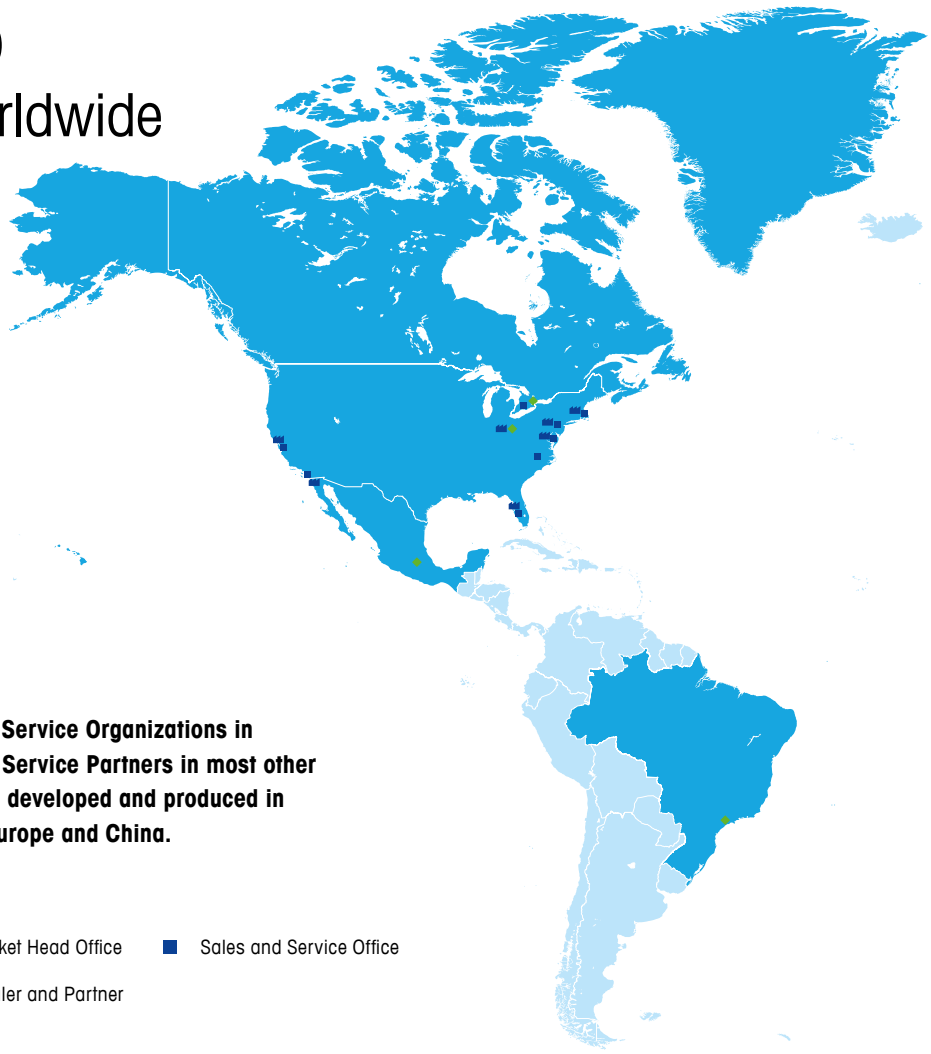
Steps 4 and 5:
Training and Routine Operation



User training is very important to achieve the best possible results. We offer different training possibilities: On-site and classroom training; Web-based seminars and e-training and self-studying tutorial kits.
The right crucible is very important for optimum system performance. We offer a wide range of different crucibles, crucible volumes and materials.

Perform your own Thermal Analysis assessment risk with our web-based tool:
www.mt.com/ta-riskcheck **www.mt.com/gtap**

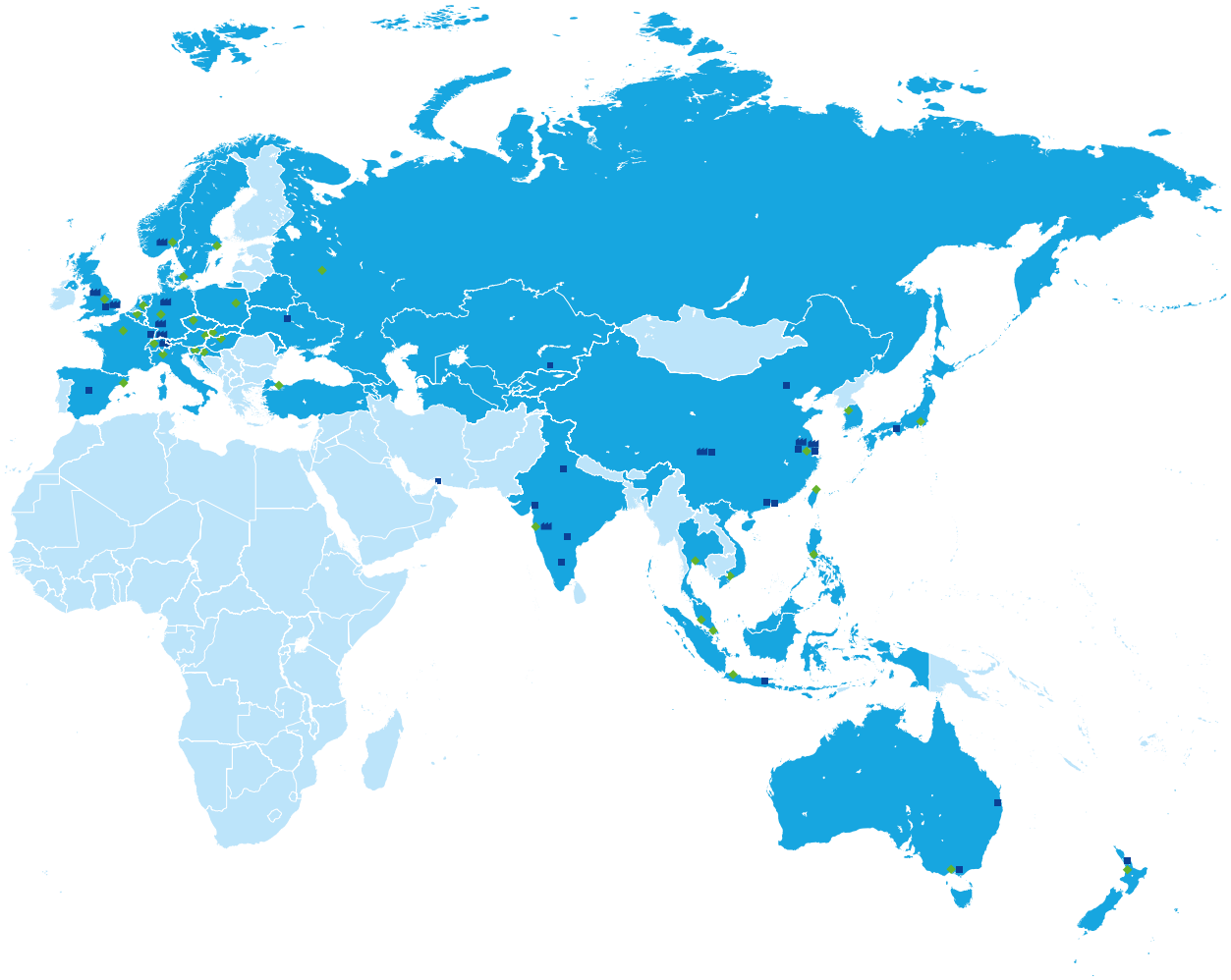
METTLER TOLEDO
Organizations Worldwide



METTLER TOLEDO has its own Sales and Service Organizations in 40 countries as well as Distribution and Service Partners in most other countries across the globe. Products are developed and produced in various locations in the United States, Europe and China.

R&D Manufacturing Center
Market Head Office
Sales and Service Office
METTLER TOLEDO
Dealer and Partner

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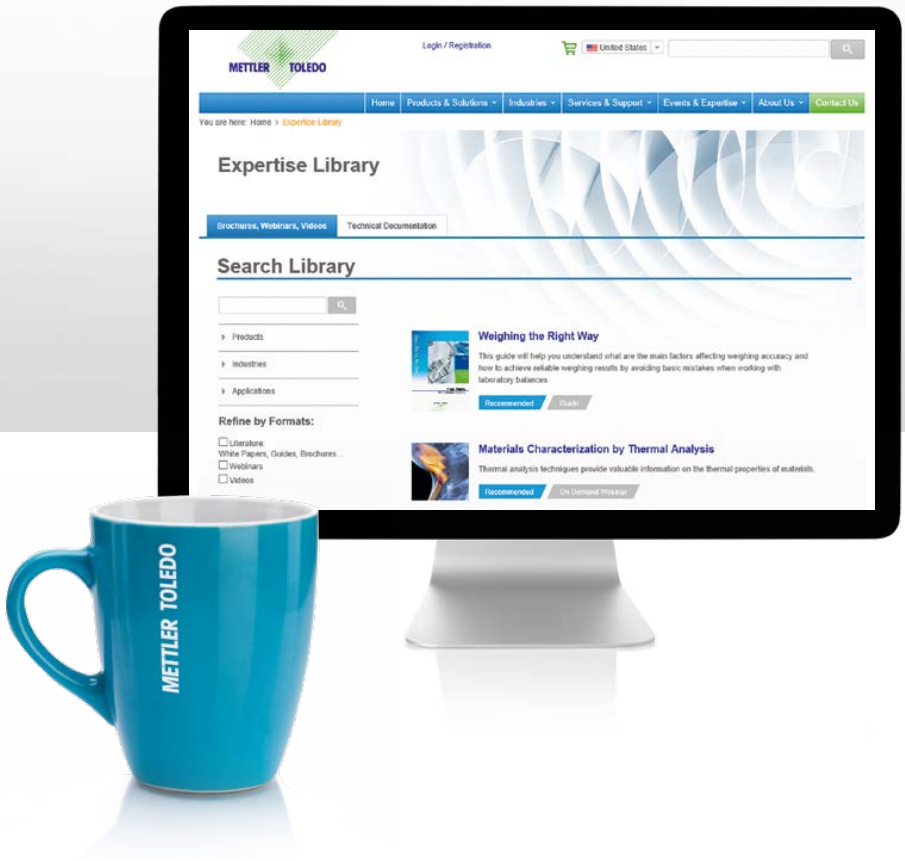
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