

# Titration Automation



## Titration Automation

Rondolino

Rondo 12

Rondo 15

Rondo 20

Rondo 30

Rondo 60

Rondo 60 plus



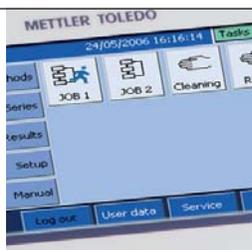
**Fully Automate your Titration Processes**  
for Maximum Efficiency and Security

**METTLER TOLEDO**

# Fully Automatic Titration Processes

## Maximum Efficiency and Security

Titration, compared with most other analytical methods, puts high demands on automation due to the enormous variety of samples. This is particularly the case when the entire process, from sample preparation to the titration itself through to the cleaning/conditioning of electrodes and accessories has to run fully automatically.



### Powerful simplicity

Rondolino and Rondo in combination with the Excellence and Entry Level titrators, make extremely flexible and powerful titration systems. This is a direct result of the modular construction, intuitive user guidance and Plug and Play hardware concept. This makes it easy for you to configure your daily analytical processes, to start them with the press of a button and let them run fully automatically in unattended operation.



### Maximize productivity

You can save up to 30% of your time for each sample compared with manual operation. This allows you to attend to other tasks and perform titrations overnight. Your titration system runs perfectly reliably and produces excellent results. Automated titrations increase your productivity greatly compared with titrations performed only with a titrator.

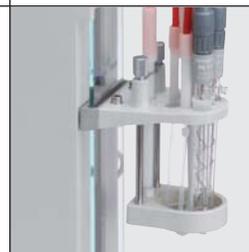
## Secure processes

At METTLER TOLEDO full automation also means maximum security in operation. In the Excellence titrators this is ensured through plausibility checks of method sequences, checking resources and peripheral instruments, logical decisions and much more.



## Complete reliability

METTLER TOLEDO automation solutions free you from routine tasks and allow you to perform analyses faster and more reliably. Operating errors are substantially and effectively reduced and contact with hazardous chemicals is reduced to a minimum.



# Rondolino

## Compact and Simple Automation

A clever, automatic titration stand for the T50 Excellence, Compact G20, DL22 F&B and DL15 Entry Level titrators.



### Optimized user guidance

Plug and Play installation and optimized user guidance via a single switch to configure conditioning and rinsing cycles.



### Compact, space-saving design

With a footprint of just 25 x 35 cm, Rondolino needs considerably less space than a typical sample changer.



**T50A Terminal:** A compact, highly flexible titration system with everything needed to fully automatically titrate small sample series in diverse applications with very different requirements – simply and securely.

### Entry Level Titrators and Rondolino

Simple endpoint titrations with the DL15, food-specific titrations with the DL22 Food and Beverage Analyzer, and endpoint and equivalence point titrations with the Compact G20 can be delegated in series to Rondolino. Easy-to-use, optimally matched titration systems that need next to no operator training, with intuitive operation, and that quickly provide you with reliable results.



### The right washing system for every requirement

The dip rinsing system ensures that carryover does not occur. Electrodes contaminated by sticky or viscous samples are best cleaned using the optional PowerShower™ and membrane pump combination.



### Time-saving and secure delegation of simple tasks

Besides series of up to 9 samples, single samples are also more quickly processed because the beakers only have to be placed in the rack. All samples are analyzed in exactly the same way, which significantly improves the reproducibility of the analyses. And when the titration is completed, the electrode is put back into the conditioning beaker.



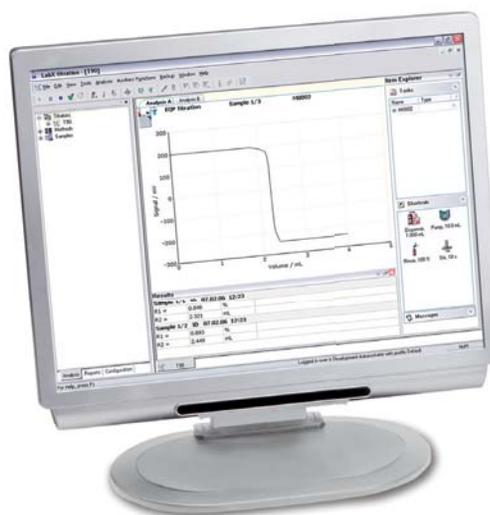
# Rondo 12, 15, 20, 30

## Highest Level of Automated Flexibility for Medium Sized Sample Series

The automated system that adapts itself to the specific requirements of the user. Together with the T50, T70 or T90 Excellence titrators, complex automation processes can be easily realized and started at the press of a button.

### Easy and secure system configuration and programming

Automatic entry of the Rondo configuration on connection to Excellence titrators – errors are impossible thanks to intelligent Plug & Play!

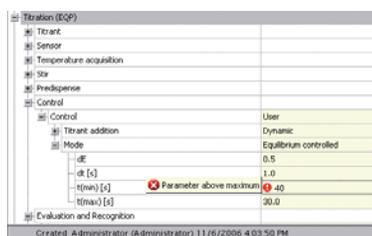


Straightforward simple programming of complex automation processes with easy-to-understand method functions using the intuitive and easy-to-use method editor of the Excellence titrators – both with the Touchscreen and with the LabX™ titration PC software.



The T70 Excellence titrator controls two or more different titrations in a sample that run sequentially and fully automatically in series of up to 30 samples on the Rondo 30. The results are stored securely in the database of the LabX™ titration software.

Maximum security in process programming through immediate plausibility checks of method sequences: only a correct method is saved.



**Modular system for maximum applications flexibility**

Expandable at any time with intelligent accessories for automatic sample preparation, with a second tower to separate different determinations such as conductivity from pH measurement, kits for COD or KF titrations, etc. – the system grows with your requirements.



**Pre-configured Rondo-Systems**

Rondo 12, 15, 20 or 30 for automation applications in different titration vessels for 12 to 30 samples.



**Quality assurance through intelligent automation**

Highly effective cleaning with the PowerShower™ rinsing unit and rinsing beakers – carryover is effectively eliminated.



CoverUp™ lid handling device protects samples on the rack from contamination and prevents unpleasant odors.



**Fully automated titrations for the development of innovative chemical pegs**

In the development of chemical bonding systems, peroxide, acid or amine titrations are performed on up to 200 different material mixtures per day. The highly flexible T70/T90 – Rondo systems allows these different titrations to be performed fully automatically. This saves valuable time that can be invested in the development of innovative adhesive systems for building materials.

# Rondo 60 / Rondo 60 plus

## Maximum Sample Throughput and Easy Operation

The Rondo 60 systems together with the T70 or T90 Excellence titrators for fully automatic sampling and high sample throughput, optimally adapted to laboratory environments with high demands on automation, ideal for quality control.



### Time-optimized processing

Rapid measurements of the pH of a large sample series with a mini-electrode directly in the test tubes, separated from the titration.



Rapid and precise aliquoting of sample volumes of 20 to 80 mL with overflow aliquoting beakers on the titration stand of the titrator.

High sample throughput for up to 120 samples distributed on two Rondo 60s, processed either sequentially in two batches of 60 with the T70 or parallel with the T90 Excellence titrator.



## Automation at the press of a button

### In the electroplating industry

In automotive metal finishing, it is often important that several parameters within different baths are analyzed reliably during shift operation. One example is the measurement of conductivity and the determination of pH, fluoride, alkalinity, acidity and zinc. The samples are collected in vessels and assigned Smartcodes™. The lab technician simply places the vessel onto the Rondo sample changer and the built-in barcode reader scans the Smartcode™, with no user input required. The bath-specific analyses are performed automatically – with guaranteed safety and a high degree of efficiency.



### Maximum flexibility

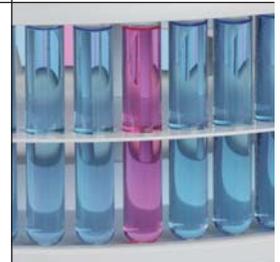
The robust Liquid Handler accurately dispenses or pipets samples automatically controlled by the titrator and therefore allows realizing the most versatile automation applications.



Let the whole titration process of up to 60 samples run fully automatically from aliquoting, to the titration, through to the evaluation of results: maximum efficiency with the **T90-Rondo 30-Liquid Handler system**.

### Reliable results

Quality assurance through flexible arrangement of standards within a sample series, easily programmed via sample series sequences or method loops.



# Clever Accessories for Automation Solutions

Optimize or expand the automation of your titration process with accessories tailored to your specific application.

		DL15 / DL22 F&B / G20	T50 / T70 / T90
	<b>Rondolino</b> The compact automatic titration stand for simple and secure automation of series of up to 9 samples in standard 100 mL polypropylene or 80 mL glass beakers.	•	•
	<b>Rondo 12</b> The sample changer for direct titration of large sample volumes in series of up to 12 samples in a variety of beakers such as: <ul style="list-style-type: none"> <li>• 250 mL polypropylene beakers</li> <li>• 400 mL standard low form glass beaker</li> <li>• 600 mL standard tall form glass beakers</li> </ul>		•
	<b>Rondo 15</b> The sample changer for direct titration of medium sample volumes in series of up to 15 samples in glass beakers such as: <ul style="list-style-type: none"> <li>• 150 mL standard low form glass beakers</li> <li>• 250 mL standard tall form glass beakers</li> </ul>		•
	<b>Rondo 20</b> The allrounder for the highest level of automated flexibility for medium sized sample series. Includes sample rack for direct titration in standard 100 mL polypropylene or 80 mL glass beakers.		•
	<b>Rondo 30</b> The flexible Rondo system for titration of large sample series in 80 mL polypropylene beakers.		•
	<b>Rondo 60</b> The Rondo system for fully automatic sampling of up to 60 samples in standard test tubes in combination with the SU24 sampling unit.		•
	<b>Rondo 60 plus</b> Everything what Rondo 60 can do PLUS direct pH measurement of up to 60 samples in standard test tubes, separated from the titration.		•

	<b>Designation</b>	<b>Rondolino</b>	<b>Rondo 12</b>	<b>Rondo 15</b>	<b>Rondo 20</b>	<b>Rondo 30</b>	<b>Rondo 60</b>	<b>Rondo 60 plus</b>
	PowerShower™ rinsing unit	•	•	•	•	•		
	Membrane pump	•	•	•	•	•	•	•
	TBox DR42		•	•	•	•	•	•
	SP250 Peristaltic pump		•	•	•	•	•	•
	DH100 Heating system	•	•	•	•			
	Liquid Handler	•	•	•	•	•	•	•
	20 mL or 80 mL overflow aliquoting beaker				•	•	•	•
	Rondo KF-kit				•			
	Rondo CSB-kit				•			
	Second tower for Rondo		•	•	•	•	•	•
	CoverUp™ lid handling device				•			
	Magnetic stirrer		•	•	•	•	•	•

# Stromboli – Oven Sample Changer

## Fully automated Karl-Fischer titration

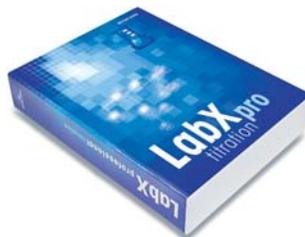
Simply connect it to a volumetric or coulometric KF titrator and immediately determine the water content of up to 14 samples. Its straightforward operation and easy sample handling make Stromboli an invaluable aid for many different industries such as pharmaceutical, polymer, petrochemical and specialty chemicals.



## LabX™ titration

### The software wizard for easy and secure titrations

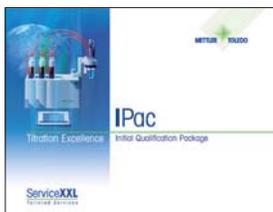
Secure database archiving of data, efficient data management with control charts and individual search filters, rapid and clear method development for new applications, and complete traceability of your data through user management, audit trail, method history and electronic signature.



## Service

Feel secure in the knowledge that your automation system is installed and qualified according to the quality standards that apply to your industry. Ask for one of the qualification products offered by your local METTLER TOLEDO representative in the form of service and accompanying documentation.

- Complete instrument qualification (DQ, IQ, OQ, PQ) including full documentation of the instrument's history
- Comprehensive calibration services



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

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