864 Robotic Balance Sample Processor

- Fully automatic sample preparation and analysis station
- Weighing, dissolving, analyzing – all in one
- Reliable, robust and safe

Metrohm
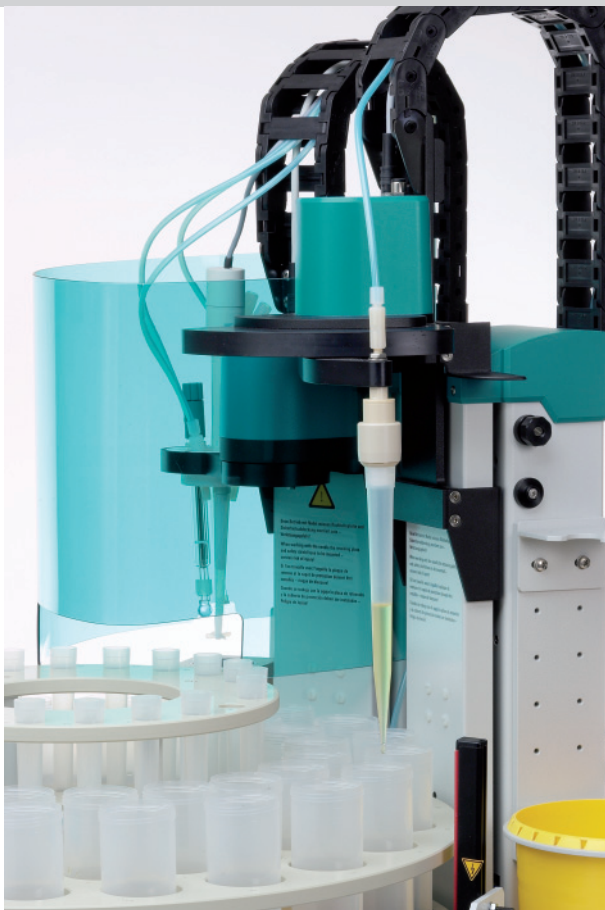
One system does it all

**864 Robotic Balance Sample Processor –
another milestone in the Metrohm range**

Analysis by titration requires accurate measurement of the sample. Samples may be solid, liquid or viscous. For a long time now, Dosinos and Dosimats have been used in Metrohm systems for easy and precise addition of liquid samples. For many samples, however, addition by way of volume is not accurate enough. They need to be weighed and their precise weight recorded. Depending on the number and nature of the samples, weighing can be time-consuming and, of course, critically depends on the operator. The 864 Robotic Balance Sample Processor answers both challenges. This new instrument allows you to prepare and analyze your samples fully automatically in one operation from weighing through to titration.

With the 864 Robotic Balance Sample Processor you get a complete package including titrator, pumps, balance and an extensive range of other accessories. You get exactly what you need – one system that does it all. Below, we present the version for determining TAN/TBN in oil products.

The system is controlled with the proven _**tiamo**_™ titration software, which allows you to benefit from the full flexibility of the system and guarantees full traceability of your results.

Sample transfer: There is no risk of carryover effects, as the pipet tip is automatically exchanged after each sample

The advantages of the 864 Robotic Balance Sample Processor

- **Fully automatic weighing and analysis station**
- **Sample preparation and analysis combined in one device**
- **Weighing, dissolving, titration – all in one**
- **Based on the proven technology of the Robotic Sample Processors**
- **Minimum footprint on account of the combined system**
- **Saves time through the automation of routine work**
- **Standardization of sample measurement ensures that results are more accurate and easier to reproduce**
- **Reliable, robust and safe**
- **Complete traceability of results**
- **Controlled by the proven *tiamo*™ titration software**

The TAN/TBN version of the 864 Robotic Balance Sample Processor

Analyzing oil products and crude substances is a complex matter. Many things need to be taken into account in order to obtain accurate and reproducible results. The TAN/TBN version of the 864 Robotic Balance Sample Processor is Metrohm's tailormade answer.

Preparing for titration

Following the determination of the titer and blank value, the sample is automatically weighed and treated with solvent. Because toxic organic compounds are involved here, contact with them must be avoided. The 800 Dosino included in the system ensures that reagents or solvents are added fully automatically, safely and with maximum precision. When the sample has been added and dissolved, titration can be started immediately.

Cleaning

After analysis, cleaning can be carried out directly in the titration beaker: The titrated solution is drawn off and the electrodes and other components are cleaned with solvent. If the equipment is very soiled, we recommend using also the external rinsing station, since further solvents can be added here. Using these procedures ensures optimum cleaning.

Conditioning

Conditioning of the electrode is very important in TAN/TBN analysis. Only if the glass membrane is conditioned for a defined period of time in water after each cleaning, is it possible to achieve accurate and reproducible results. With an automated system you can be sure that the electrode will always be conditioned in the same way.

If the equipment is very soiled, the external rinsing station (optional) ensures optimum cleaning

Professional weighing on a minimum footprint

The 864 Robotic Balance Sample Processor is the first autosampler allowing to weigh samples directly on the sample rack. With this patented technology it is possible to combine weighing and analyzing in one system. Mixing up samples as a result of transferring them manually from the weighing station to the analysis station is no longer an issue. Just place the sample on the rack, press START and the 864 Robotic Balance Sample Processor will do everything else for you. It could not be more convenient.

Automation gets you further

Preparing large numbers of samples is both tedious and time-consuming. Automating sample preparation and the subsequent titration not only speeds up these procedures but also guarantees that each analysis is carried out in the same way. Consequently, the risk of errors is reduced and you can achieve better results.

Automatic Sample transfer

A portion of the sample waiting on the rack is pipetted off and then transferred to the titration beaker. There it is weighed and subsequently analyzed. There is no risk of carryover effects, as the pipet tip is automatically exchanged after each sample.

Automatic taring and weighing

First, the titration beaker is tared automatically. Next, the sample is added and weighed on the analytical balance connected to the system. The initial weight of the sample is determined by the expected TAN or TBN value and may be anything between 0.5...150 g. Each step is controlled by the flexible *tiamo*™ software.

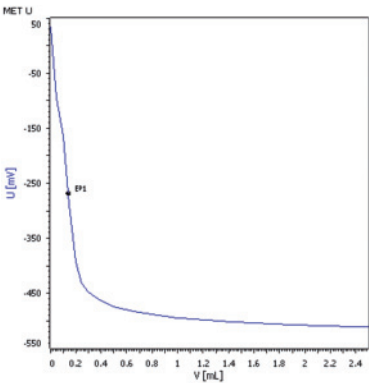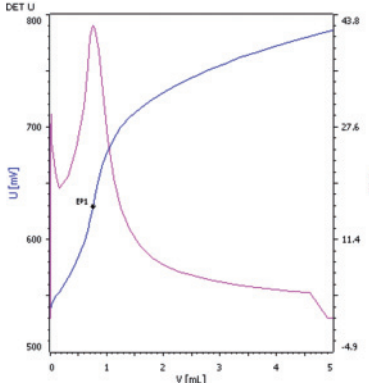The automatic weighing of the sample directly on the sample rack is protected by a Metrohm patent

Application example

TAN/TBN

Potentiometric determination of the TAN/TBN values in oil products according to ASTM standards 664, 2896 and 4739 has proven to be valuable. The 864 Robotic Balance Sample Processor meets the requirements of these standards and also provides the convenience of fully automatic sample preparation, including weighing. One example of application is presented below.

	TAN	TBN
Sample	A	B
Initial weight	approx. 19 g	approx. 7 g
	n = 5	n = 5
Mean value	0.041 mg KOH/g	0.551 mg KOH/g
ASD	0.001 mg KOH/g	0.009 mg KOH/g
RSD	1.53%	1.65%
	Titration curve: TAN	Titration curve: TBN

The 864 Robotic Balance Sample Processor is by no means limited to the weighing-out of oil products. Other fluid samples can also be weighed, treated with solvent and processed without any problem.

Ordering information

2.864.1130   Robotic Balance Sample Processor TAN/TBN including 809 Titrando, 3 x 800 Dosino, 843 Pump Station
              and an extensive range of accessories for fully automatic TAN/TBN determination

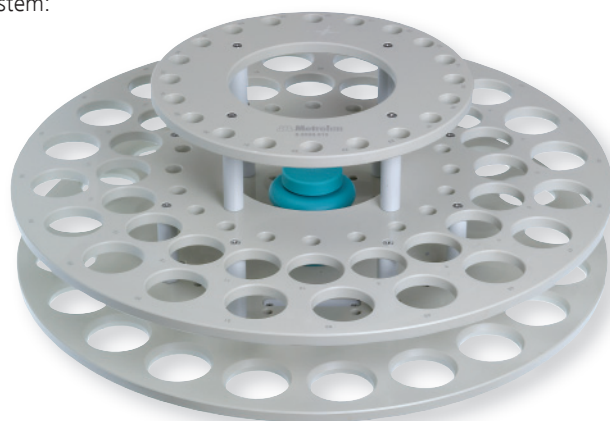The following components can also be ordered to complete the system:

2.135.0205   Precisa balance, 115 V or
2.135.0206   Precisa balance, 230 V
and:
2.136.0305   Ionizer for 864, 115 V, or
2.136.0306   Ionizer for 864, 230 V

Options

Upon request, the system can be retrofitted with an external rinsing station to ensure perfect cleaning of the
titration vessel and components between analyses even after difficult samples. For this external rinsing station the
following two articles have to be ordered:

2.843.0120   843 Pump Station (peristaltic) with
6.5622.000   Equipment for second 843 Pump Station to 864 Robotic Balance Sample Processor

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