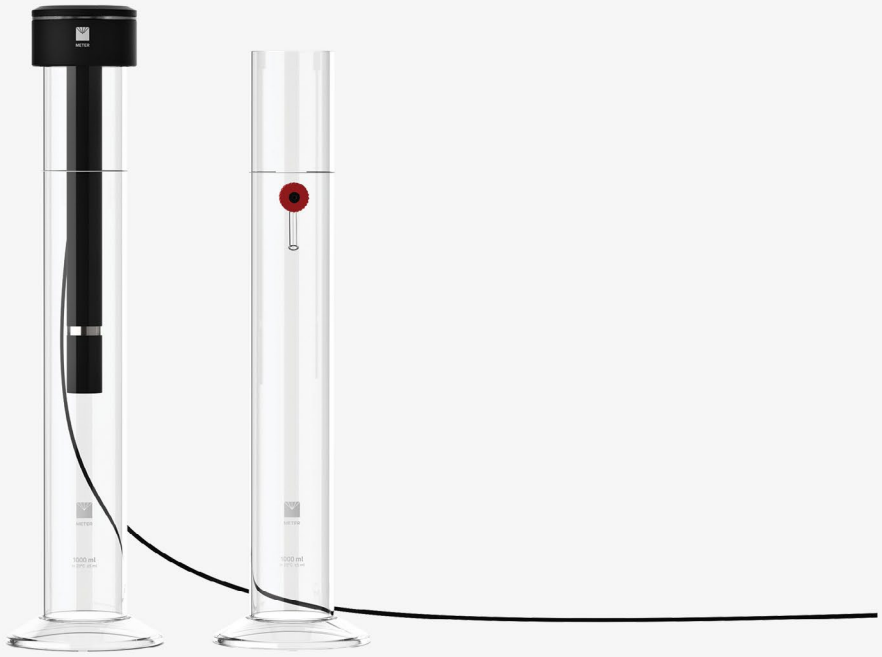
METER



PARIO

Automated Soil Particle Size Analysis

NEW TECHNOLOGY—NEW POSSIBILITIES

Soil particle size analysis traditionally had only two options—you either sacrifice time and accuracy using pipette or hydrometer methods, or you pay for a very expensive laser method. The hydrometer (or pipette) method is a time consuming manual process that is susceptible to error due to manual readings. The ultra-expensive laser method has accuracy issues because flat soil particles like clay can confound the measurement. Both methods can lead to inaccurate readings and wasted time to repeat readings. Now there's a new way. Introducing PARIO.

COMPLETE CURVES MADE EASY

PARIO uses automation to shrink the time and effort needed for soil particle size analysis. It calculates the particle size distribution using Stokes' law, with a range spanning from 63 µm to 2 µm, finally making it easy to obtain a complete particle size distribution curve, instead of just a few measurements at discrete time points.

It allows for unattended, automated operation (with the exception of opening the valve after completion). Just set it up and come back later to perform the post-processing step.

FEATURES

- Get complete particle size distribution curves
- Calculation of particle size distribution using Stokes' law
- Autonomous operation after measurement start (with the exception of opening the valve at measurement end) and wet sieving for sand fraction calculation
- Lower measurement duration of 2.5h
- Estimated error: ± 0.5%
- Quasi-continuous resolution of particle size distribution
- No physical disturbance of suspension during measurement
- Avoidance of manual reading errors
- Avoidance of manual calculation errors
- Temperature dependence automatically integrated in the calculation of particle size distribution
- Direct measurement of clay and silt content
- PARIO Plus improvements mean external data errors are less problematic

SPECS

Typical Duration of Measurement	3 h
Particle Size	**Range:** 2.0000 – 63.0000 µm
Approximate Error in Mass Fraction Detection	±1 %
Estimation of Clay Content	Derived from integrated particle mass in effluent
Estimation of Sand Fraction	Sand fraction estimated by sieve data
Pressure Measurement	**Accuracy:** ±1.0000 Pa **Resolution:** ±0.1000 Pa
Measurement Interval	10 s
Typical Particle Mass	25–50 g per 1-L suspension
Power Requirements	USB 5 V/100 mA
Computer Compatibility	Microsoft Windows 10
Cable Type	USB 2.0; 500 mA for receiving port
Glass Cylinder	**Height:** 450.0 mm (17.7 in) **Diameter:** Inner: 59.0 mm (2.3 in) **Outer:** 67.5 mm (2.7 in) **Volume:** 1,000 cm^3 (61.0 in^3) **Material:** Borosilicate glass 3.3
PARIO Device	**Height:** 293.0 mm (9.1 in) **Diameter:** 80.0 mm (3.2 in) **Material:** Polyoxymethylene plastic (POM) and stainless steel
Volume of Suspension	1000 mL
Maximum Tolerable Temperature Change During Measurement	±1.50 °C
Required External Measurement	Mass of dry matter in discharged subsample Sand fractions (from wet sieving) Mass of dispersion salt in total suspension volume
Operating Temperature Range	**Minimum:** 15.00 °C **Typical:** 20.00 °C **Maximum:** 35.00 °C
Other Compatible Software	PARIO result files are compatible with the interface of LASTRADA laboratory software (Sieving and Sedimentation module)
Product Awards	Winner of the Red Dot Design Award
Compliance	EM ISO/IEC 17050:2010 (CE Mark)
GSA	View GSA details

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