



METER

HYPROP2 UNSATURATED HYDRAULIC CONDUCTIVITY OF SOIL IN LAB



The expert on moisture release curves

The HYPROP generates the best data on the wet end of the soil water characteristic curve, with more details than any instrument on the market. Plus, you can combine the HYPROP with any LABROS instrument for a complete soil analysis; the PARIO for soil particle size analysis, the WP4C for a complete moisture release curve, or the KSAT for a hydraulic conductivity curve. All are powerful tools for understanding data and predicting a soil's behavior over time. Unparalleled accuracy. Automation. Far faster speeds. The HYPROP meets the highest lab instrumentation standards, giving you results you can trust with far less work and hassle.

Features

- More precise and robust
- Low time, cost, and effort
- Easy to handle and flexible
- Simultaneous measurement of water retention function and hydraulic conductivity
- High validity of the water retention function, especially in the area close to saturation
- The hydraulic functions are consistently verified by a large number of measuring values
- Reliable determination of unsaturated conductivity in the medium water potential range independent of model assumptions
- Tensiometers measure beyond typical cavitation point down to -400 kPa
- Tensiometers are positioned upside down in the soil sample (undisturbed evaporation and no impact on the tensiometer shafts)
- Reduced tensiometer water loss after reaching the cavitation phase
- Use the HYPROP/VARIOS Connector to calculate soil moisture release curves and thermal dryout curves simultaneously.



BİLMAR BİLİMSEL ARAŞTIRMA VE MÜHENDİSLİK ANONİM ŞİRKETİ

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Simply accurate. Simply fast. Simply automated.

As soil scientists who have made hundreds of moisture release curves, we wanted an instrument that delivered greater accuracy. And we demanded an instrument that was automated. The HYPROP takes only days vs. months to generate a soil water characteristic curve in the wet range, and it does this automatically.

Use the HYPROP together with the WP4C (which measures the dry range), and you can create full, high resolution moisture release curves across the entire range of soil moisture. Nothing else is capable of doing that - not at this level of detail. On top of all that, we designed the HYPROP to automatically determine unsaturated hydraulic conductivity on undisturbed soil samples placed inside a standard 250ml or 100ml, 2 in sampling ring. Used in tandem with the KSAT, it can generate a hydraulic conductivity curve for any soil type. The resulting instrument winds up saving you time, hassle and worry.



Unparalleled accuracy

When it comes to soil water potential, measurements don't get any more accurate or precise. That's because the HYPROP produces more data points (over 100 data points in the 0 to -100 kPa range), higher resolution data, more detail, and better information in its moisture release curves information that is missed when using the traditional pressure plates or hanging water column methods. The HYPROP uses two precision mini tensiometers to measure water potential at different levels within a saturated soil sample while the sample rests on a laboratory balance. Over time, the sample dries, and the instrument measures the changing water potential and the changing sample weight simultaneously. It calculates the moisture content from the weight measurements and plots changes in water potential correlated to changes in moisture content.

Automated everything

The HYPROP is a complex instrument, but it makes moisture release curves much simpler. While other methods require weeks of tedious drying and weighing, the HYPROP can be set up to run automatically. Its software calculates values for dry range and saturation according to a selected model, and it even allows you to input data from other water potential instruments such as the WP4C to automatically fit the soil moisture release curves.

The faster, the better

After setup, the HYPROP is capable of generating a moisture characteristic curve and determining the unsaturated hydraulic conductivity of soil samples in only days versus months. To save you even more time, it can operate while being left unattended.



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Measurement Specifications

Measuring Range	Pressure transducer: +0.3 kPa to -100 kPa (-400 kPa with boiling delay) Temperature sensor: -20 to 60°C
Accuracy	Pressure transducer: 0.1 kPa (+0.3 to -100 kPa using auto-zero calibration) Temperature sensor: 0.2 K (at -10 to 30°C)
Resolution	Pressure transducer: 0.001 kPa Temperature sensor: 0.01°C
Volume of Soil	250 cm ³ / 100 cm ³
Measurement Interval	10 min (default)
Number of Sensor Units	Multi-balance mode: Max 20 balances and sensor units / max. 10 per USB hub Single-balance mode: Max 20 per HYPROP USB adapter

Physical Specifications

Sensor Unit	Material: POM Dimensions: Height 63 mm, Width 95x95 mm
Tensiometer Shaft	Ceramic: Al ₂ O ₃ sinter; Ø 5 mm Shaft Material: Acrylic glass; Ø 5 mm Total length: Short shaft: 24 mm; Long shaft: 49 mm
Required External Measurement	Dry soil weight Air-entry valve of tensiometer shafts
LABROS Balance	Connection to computer: USB
Weighing Range	2200 g
Readout	0.01 g



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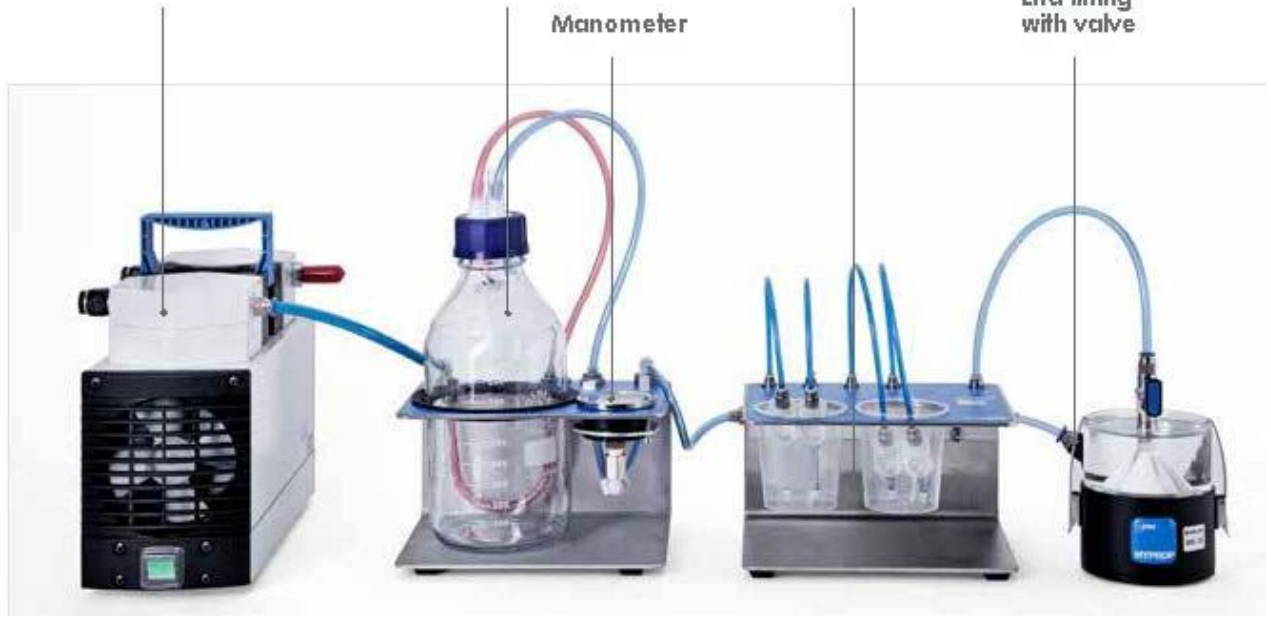
Configuration of Vacuum Refilling System (Optional)

High performance vacuum pump enables generating a vacuum value that is only 8 hPa (0.8 kPa)

Vacuum mount (including manometer and vacuum flask, to avoid water entry into the pump)

Beaker mount with 2 beakers. Up to 10 beaker mounts can be connected in series.

End fitting with valve



LABROS-SOILVIEW Software

The new LABROS-SOILVIEW data logging software simplifies sample-based measurements with one or several LABROS balances. Start or stop a new HYPROP measurement or refill a HYPROP sensor unit at any time even if another HYPROP measurement is running. Both functions are supported, regardless of whether you have only one LABROS balance with several HYPROP units or one LABROS balance for each HYPROP unit.

LABROS-SOILVIEW automatically recognizes LABROS balances. The offset is conveniently determined during the refilling process.

The new LABROS-SOILVIEW software also creates a LABROS-SOILVIEW-ANALYSIS data file. This eliminates the elaborate data conversion.

LABROS-SOILVIEW-ANALYSIS Software

The new LABROS-SOILVIEW-ANALYSIS is an excellent software program for evaluating evaporation experiments and fitting hydraulic functions to data. We've updated it to be faster, more accurate, more reliable, and more comprehensive. Use it also with the WP4C to create full soil moisture release curves.

For more information and resources about UNSATURATED HYDRAULIC CONDUCTIVITY OF SOIL & SOIL MOISTURE RELEASE CURVES , please look at the below link:

<https://www.metergroup.com/en/meter-environment/products/hyprop-2-soil-moisture-release-curves>



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