

DryCal[®] ML-500



- **Fast**
- **Simple Push-button Operation**
- **Hands-Free Auto-Mode**
- **3 Interchangeable Flow Cells**
- **Rigorous Uncertainty Analysis**
- **Patented Graphite Piston Assembly**



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Fast, Reliable Gas Flow Calibration System

The DryCal ML-500 primary flow calibrator is the first in the Met Lab line of high-precision, cost-effective primary gas flow calibration standards. DryCal has been the world's preferred primary gas flow meter, and now its accuracy has been brought into the sub 0.4 percent range. Manufactured by Bios International, the world leader in dry piston technology, the DryCal Met Lab Series brings the advantages of high speed flow measurements and unsurpassed accuracy to your calibration laboratory in a primary instrument (calibration is by direct measurement of dimensions).

The ML-500 offers continuous readouts of flow rate, flow average, the averaged number of readings, and standardization parameters. The ML-500 is initially being offered with three interchangeable flow measuring cells, providing readings from 5.0 sccm to 50 slm.

DryCal flow cells use a patented near-frictionless piston and precision photo-optic sensors to obtain volumetric flow readings quickly and accurately. The readings are direct and primary; no assumptions about gas characteristics are needed and there is no mechanism for significant calibration drift. Quite simply, flow is measured directly as volume per unit time. Flow is displayed directly, and as standardized for pressure and temperature. The standardizing sensors are located in the measured gas stream, directly at the entrance to the measuring cylinder for highest accuracy.

Finally, high speed and precision can be combined with low cost and the assurance of accuracy that only a primary calibrator can give.

U.S. Patents 5,456,107 and 5,440,925.
 Other patents pending.

Introducing our new product!

**DryCal[®] ML-500
 Primary Flow Calibrator**

DryCal® ML-500

SPECIFICATIONS

FEATURES

Simple Operation

Provides the user with accurate flow readings with the push of a button.

Fast

Saves valuable time.

Alphanumeric Display (LCD)

Indicates the volumetric flow rate, average flow rate, battery charge level, and the number of samples in a running average. Also indicates the atmospheric pressure, flow rate corrected for standardized temperature, and the average corrected flow rate.

Three Interchangeable Flow Cells

Three flow cells cover a broad range: 5 sccm–50 slm.

Manufactured to ISO 17025 Standards

Rigorous uncertainty analysis according to the Guide to Uncertainty in Measurements (GUM).

Built-in Gas Conversion Capability

Easy conversion from surrogate calibration gases.

Patented Graphite Composite Piston Assembly

Eliminates the inherent inaccuracies and mess associated with bubble soap, no Mercury seals.

Automatic Sampling

User selects 1–100 readings as running average. User can set instantaneous repetition rate or select a rate from 1–255 minutes.

Built-In Leak Test

Quality assurance self-test allows user to periodically verify flow cell integrity.

Hands-free Auto-Mode

Flow readings can be taken continuously in the auto mode, providing hands-free calibration.

RS-232 and Parallel Ports

NIST-Traceable | CE-Approved

Bios continuously seeks to improve its products and their characterization. Specifications are subject to change. Please contact Bios for most recent specifications.

Size 5.25" W x 1075" D x 13.25" H • 13.3 cm W x 27.3 cm D x 34.3 cm H

Weight 7.7 lbs • 3.5 kg

Configuration Interchangeable modular flow cells, all calibrated elements except crystal time base are in cell

Flow Ranges

Model	Flow Range
ML-500-10	5.0 sccm–500 sccm
ML-500-24	100 sccm–5 slm*
ML-500-44	300 sccm–50 slm**

*25-100 sccm with reading time over 30 seconds

**100-300 sccm with reading time over 30 seconds

Absolute Accuracy, Single Readings*

Model	Volumetric (5°–40°C)	Standardized (15°–30°C)
ML-500-10	±0.25%	±0.40%
ML-500-24	±0.20%	±0.35%
ML-500-44**	±0.25%	±0.40%

*Averaged readings will increase accuracy

**30-50 slm at ±0.30% volumetric accuracy, ±0.45% standardized

Suitable Gases Non-corrosive, humidity less than 80%, non-condensing

Time per Reading Approximately 1 to 15 seconds, flow-dependent

Operating Modes Single cycle, continuous cycling or 1 to 255 minute intervals

Measuring Cell Graphite piston in borosilicate glass cylinder clearance-sealed

Temperature and Pressure Sensors Solid state, located at entrance to measuring cell

Valve Latching design (to prevent heating of gas stream), self-relieving

Battery System Internal continuously chargeable sealed lead-acid battery

AC Charger | Adapter Choice of 100 VAC, 50Hz or 100–125 VAC, 60 Hz or 200–240 VAC 50–60 Hz

Self-Tests Leakage & dynamic functional verification

Outputs Illuminated LCD display, parallel printer port, RS-232 serial port (printer or CSV format)

Warranty Product, 1 year; battery, 6 months

DryCal® ML-500
Primary Flow Calibrator