

## One Machine for All Your Gravity Measurements of Asphalt and Aggregates



The CoreLok is an extremely versatile system for measurement of bulk specific gravity and maximum specific gravity (Gmm) of asphalt. The CoreLok also measures the apparent specific gravity, absorption and bulk specific gravity of fine and coarse aggregates. GravitySuite™ PC software can be used to calculate and manage the results. **The CoreLok does not require an empirical calibration and the results do not depend on material type or composition.**

Meets **ASTM Standards D6752-02** and **D6857-03**.



Bulk Specific Gravity of Field and Lab Samples



Maximum Specific Gravity (Gmm) of Loose Asphalt Mixtures



Apparent Specific Gravity, Absorption and Bulk Specific Gravity of Fine and Coarse Aggregates

### Bulk Specific Gravity of Compacted Samples

Specific gravity (density) is the single most specified parameter in the construction industry. For open graded and absorptive mixtures of asphalt, the Saturated Surface Dry (SSD) method is inaccurate. Water infiltration in and out of the sample produces a lower than actual measurement for sample volume, higher calculated density and a lower estimate of air voids. The CoreLok system automatically seals these samples in specially designed polymer bags and allows for measurement of accurate water displacement tests. The present sealing methods, wax and films, are labor intensive and the results are extremely operator dependent. **ASTM D6752-02**

### Maximum Specific Gravity (Gmm)

This method may be used as an alternative to the conventional "Rice Test" for the determination of maximum specific gravity of loose asphalt mixtures. The CoreLok test can be completed in 7 minutes with minimal exposure to water, eliminating the need for a lengthy "Dry Back" method.

This procedure requires that a sample of dry asphalt mixture be placed inside the vacuum bag and sealed within the CoreLok vacuum chamber. The bag is then cut open under water and a submerged weight is determined. The weight in air and the submerged weight can be used to calculate the maximum specific gravity of the asphalt mixture. **ASTM D6857-03**

### Apparent Specific Gravity, Absorption and Bulk Specific Gravity of Aggregates

Oven dry aggregates are used in this test to determine the specific gravity and absorption of fine or coarse aggregates in less than 20 minutes. This test is highly accurate and repeatable. In this test, a density measurement is obtained by vacuum sealing a sample using the CoreLok. Another density is measured under an unsaturated condition using a volumeter. These two densities can be used with already known standard equations to calculate apparent specific gravity, absorption and bulk specific gravity. The AggSpec™ PC software allows for simple entry and calculation of these parameters.

#### Performance

- Precision
- Bulk Specific Gravity: Repeated testing of 6" and 4" samples,  $\pm 0.002$  g/cm<sup>3</sup>
- Maximum Specific Gravity: Ten samples of 25 mm asphalt mixture,  $\pm 0.007$  g/cm<sup>3</sup>
- Aggregate: Apparent Gravity  $\pm 0.005$  g/cm<sup>3</sup>; Bulk Gravity (Dry)  $\pm 0.008$  g/cm<sup>3</sup>; Absorption  $\pm 0.1\%$  (Ten samples of fine granite aggregate)
- ASTM D6752-02 and ASTM D6857-03

#### Mechanical/Electrical

- 1.25 hp rotary vacuum pump
- 120V, 60Hz, 13 amps (single phase) or optional 220V 50Hz, 6.5 amps
- Vacuum level 29.95 in. Hg, 1 TORR, 1.33 MBARS
- 16. in. (406 mm.) automatic wire sealing strip
- Weight 121 lb. (55 Kg.)
- Shipping weight 145 lb. (64 Kg.)
- Internal Chamber size: 16.75x7.25x19.6in. (425x184x497mm) (WxHxD) (Depth)
- Footprint width 19.25" by depth 25" (489x636mm) (3.25 Sq. Ft.)
- Conforms to national & international standards and requirements

#### Polymer Bags

- Impermeable to water
- Flexible to conform to core surface irregularities
- Puncture-resistant
- Multiple sizes to accommodate large and small samples

#### Software

- GravitySuite™ user-friendly PC software with built-in features for calculation of gravity and absorption of asphalt and aggregates.
- Computer Requirements: PC with a Pentium processor. Windows 98 or higher version
  - Export functions to Microsoft® Excel Spreadsheet



# CORELOK®

**Accurate Gravity for Asphalt & Aggregate**