

CONCRETE AIR METER STANDARDIZATION

Required Volume Determination

Bowl (Bottom Assembly)

- Determine weight of Bowl and Glass. (lbs)
- Fill the bowl with water and place the glass across the top eliminating all air.
- Suggested methods to remove air bubbles from below the glass.
 - a. Place a squirt bottle tip around the glass edges and add water.
 - b. Slide glass over top of bowl and maintain higher water level on the unconfined portion to prevent water bubbles.
- Record weight of bowl / water /glass (W_B).

5% Volume Long Cylinder

- Determine weight of 5% cylinder supplied with meter / glass top and record.
- Fill 5% cylinder with water and no air under glass and record weight.

Prepare Meter for Evaluation

- Screw short pipe into underside of petcock on cover. (Remember side with short Pipe)
- Fill bowl with water and attack the cover.
- Open both petcocks on the cover and close screw valve on top of pump. Use syringe to inject water into petcock hole with the short pipe attached.
- Fill until water comes out of the petcock on the opposite side.
- Agitate to eliminate air bubbles.

Determine Initial Pressure

- Pump air into the chamber while the petcocks are open.
- Verify air is not escaping through the petcocks.
- Pump to an Initial Pressure of "3".
- Tap gauge and adjust the pressure with the screw valve for accurate value of "3".
- Close the petcocks and release chamber air by pressing down lever tab in one motion.
 - If the needle settles on (0) then the Initial Pressure is (3). (1) indicates an initial pressure of (4) and so on.
 - Repeat procedure 2 to 3 times to verify reading.
- Verify reading stability by tapping pressure gauge and depressing chamber air release lever.

Standardizing Procedures

After confirming Initial Pressure, release air from the chamber with petcock opposite short tube. Then open petcock with short tube.

- Refill water in bowl. Agitate to verify all air is removed.
- Pump air back into the chamber until the needle is set on the determined initial reading. Stabilize reading by lightly tapping on the gauge.
- Screw the Goose Neck Pipe into the same petcock containing the short pipe.
- Close the petcock opposite the Goose Neck Pipe.
- Place the Long Vessel under the Goose Neck opening.
- Depress the tab lever to release air into the Bowl pushing water into the Long Vessel. Control flow using the screw valve and tab lever.
- Fill Long Vessel with water and record with glass cap. This represents approximately 5% of the water volume. Filling tube to no air condition is not required. Glass plate placed on top of vessel prevents water spillage.
- Open the petcock opposite the gooseneck pipe and pump chamber pressure back to the Initial Pressure value.

Close both petcocks and open the pressure chamber push tab. The gauge should read 5% on the gauge. Repeat process filling the Long Vessel and determine the air content at 10%.

STATE OF LOUISIANA
 DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

Calibration of
PRESSURE AIR METER

The Type B Pressure Air Meter is calibrated every 12 months in accordance with AASHTO T-152 and ASTM C-231.

Pressure Meter: Serial Number: _____ Property Control Number: _____

Calibration of Calibration Vessel:

Calibration of Measuring Bowl:

Weight of vessel & water: _____

Weight of bowl, glass, & water: _____

Weight of vessel: _____

Weight of bowl & glass: _____

Weight of water (W_V): _____

Weight of water (W_B): _____

% Volume of Calibration Vessel = $R = 100 \times (W_V) / (W_B) =$ _____ %

Initial Pressure Line:

Initial Pressure:				
Air Content Readings:				
Adjusted Pressure:				
Air Content Readings:				
<u>Gage Reading Using Vessel:</u>				
<u>Correct Initial Pressure Line:</u>				

Verification Equipment Used:

Scale _____

Glass Plate _____

Calibrated By: _____ Title _____ Date: _____

Next Calibration due on: _____

PRESSURE AIR METER CRITICAL DIMENSIONS & TOLERANCES

Measuring Bowl:

(D) Diameter = _____

(H) Height = _____

(D/H) = _____ {0.75 to 1.25 Required}

TABLE 3 Density of Water (AASHTO T-19, ASTM C-29)

Temperature		Density of Water	
°C	kg / m ³	lb / ft ³	°F
15.6	999.01	62.366	60
18.3	998.54	62.336	65
21.1	997.97	62.301	70
(23.0)	(997.54)	(62.274)	(73.4)
23.9	997.32	62.261	75
26.7	996.59	62.216	80
29.4	995.83	62.166	85

(T) Temperature of Water _____

(W_B) Mass (Weight) of Water _____

(D) Density of Water _____

(Interpolated from Table 3)

(V) Volume of Measuring Bowl _____

= WB / D. {0.20 ft³ or 0.006 m³ is the minimum allowed}